



**Meewasin Valley Authority**



**MEEWASIN PARK**

# **MEEWASIN PARK MASTER PLAN**

prepared for  
**Meewasin Valley Authority**

**Hilderman Feir Witty & Associates  
Landscape Architects and Planners**

**November 1980**

# Acknowledgements

The Meewasin Park Master Plan has evolved as a result of the continuing involvement on the part of many individuals. The Design Team acknowledges the co-operation and advice of the Study Steering Committee members throughout the course of the study. Without their ideas and suggestions, the Master Plan could not have reflected the needs and desires of the various groups involved in Park planning and development.

In addition, the Design Team wishes to express its gratitude to Professor Donald Kerr and Dr. Urve Linnae for the insight they provided into the historic and pre-historic resources in the study area.

Finally, our thanks to the residents of Saskatoon, who took the time to respond to questionnaires, and to review preliminary plans at public 'open houses'.

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# SUMMARY AND RECOMMENDATIONS

Meewasin Park has been designated as the first major riveredge park to be developed since the formation of the Meewasin Valley Authority. As such, it represents a unique opportunity for a new approach to park planning in Saskatoon; an approach which views parks as more than merely green areas or open space, more than simply places to relax or play, and more than only an alternative use for lands unsuited for other types of urban development. In Meewasin Park, the opportunity exists to develop a 'City-wide Park' in a manner which not only begins to realize the intent, the principle, the theme and the key of the Meewasin Valley Project, but also provides a multiplicity of roles for an area rich in natural and cultural resources. It is these resources which could provide opportunities for learning, for research, for fun and relaxation, and for preservation.

In May 1980, Hilderman Feir Witty & Associates were contracted to prepare a Master Plan for Meewasin Park. The planning process took the Design Team through a series of study steps which included the following:

1. Regular consultation with the Study Steering Committee.
2. Analysis of conditions in and around the study area.
3. Identification of Park development issues, as perceived by the general public and by the Steering Committee.
4. Preparation of preliminary conceptual plans for Park development.
5. Establishment of planning Concerns and Goals.
6. Identification of specific Design Principles.
7. Preparation of a Master Plan for Meewasin Park.

The Meewasin Park Master Plan, as illustrated

on Map 1, begins to provide design form to the various Park elements and is based upon the preceding steps in the planning process. Specific, detailed forms clearly cannot be finalized at the Master Planning stage; these must be the product of detailed design studies.

The image of Meewasin Park, as envisioned in the Master Plan, is one of transition; a transition from the visually hard, botanically simple, man-made environment of suburban Saskatoon, to the softer, diverse, natural environment of the riverbank. The role foreseen for the Park is two-fold: first, to provide links (both spatial and temporal); and second, to provide a variety of year-round recreational and educational opportunities.

The Plan acknowledges six relatively distinct areas, or Sectors, within Meewasin Park. Each Sector consists, in turn, of a number of major Components. The six Sectors and their Components are as follows:

## SECTOR 1: SPADINA CRESCENT

- Components
- pedestrian and cyclist connections to the 42nd Street Bridge
  - multi-purpose formal pathway
  - erosion protection and landscaping along the landfill
  - steep bluff north of Spadina Crescent
  - P.C.R. Banting Park
  - Spadina Crescent roadway

## SECTOR 2: UPLAND PARK

- Components
- formal pathway connections
  - informal recreation space
  - landscape development

## SECTOR 3: RIVERBANK PARK

- Components
- canoe launch/dock facility
  - off-street parking
  - Park service building
  - small children's playground
  - outdoor pleasure skating area
  - picnic facilities
  - hierarchical pathway/trail network
  - pedestrian linkages to the east bank
  - landscape development

#### SECTOR 4: POLLUTION CONTROL PLANT

- Components
- landscape development
  - short-term utilization of lands set aside for future expansion
  - relocation of sewage grit disposal pit

#### SECTOR 5: CONSERVATION AREA

- Components
- supplementary planting programme
  - preservation of existing vegetation

#### SECTOR 6: NORTHERN PARK

- Components
- Silverwood borrow pit
  - historical/archaeological interpretive area
  - off-street parking
  - possible future access road to pollution control plant
  - viewpoint
  - multi-purpose and single-purpose pathway system
  - landscape development
  - picnic facilities
  - informal recreation space

Development of Meewasin Park in accordance with the framework set out in the Master Plan will thus provide a variety of opportunities:

##### 1. For Learning

- about the river
- about the natural environment along the river
- about the glacial history of the region
- about the prehistoric inhabitants of the area
- about the early history of Saskatoon

##### 2. For Research

- into the archaeological resources in the Park
- into the historical resources and artifacts in the Park
- into horticultural practices

##### 3. For Fun and Relaxation

- on the river
- along the river
- on a family picnic (summer or winter)
- on a hike
- going skiing
- skating
- cycling
- sun-bathing
- tobogganing
- jogging
- tossing a frisbee

##### 4. For Preservation

- of natural features and vegetation
- of archaeological resources
- of historical resources

Implementation of this Plan will require that specific issues be addressed, and that management and operational decisions be made. It is therefore recommended:

- That the Meewasin Park Master Plan be accepted as a general framework for detailed planning and design.
- That responsibility for co-ordinating all aspects of Plan implementation be taken by the Meewasin Valley Authority.
- That detailed, up-dated survey plans be prepared for the entire study area, including the following:
  - : existing grades (spot elevations and contours)
  - : location and extent of existing vegetation
  - : municipal servicing (including roads and utilities)
- That the site of archaeological investigations near the Silverwood Farmstead be protected from disturbance until University of Saskatchewan archaeologists have an opportunity to complete their research.
- That the Saskatoon Heritage Society be approached for assistance in the preparation of an historical interpretive facility at the Silverwood Farmstead.
- That all dumping of sewage grit in the Silverwood borrow pit be discontinued at the earliest possible date.
- That the City of Saskatoon Engineering Department be contacted to finalize the area required for pollution control plant expansion.
- That in the detailed design phase of Park development, a theme be established for the design of park elements such as signs, lighting, furnishings (benches, picnic tables) and buildings.
- That the Saskatoon Nordic Ski Club be approached for input into the design of cross-country ski trails.



# 1. INTRODUCTION

## 1.1. Background

In April 1980, the Meewasin Valley Authority solicited proposals for the preparation of a long term development plan for Meewasin Park, situated along the west bank of the South Saskatchewan River in the northern suburbs of Saskatoon. The Park, encompassing an area of approximately 68 ha (168 acres), has been designated by the City of Saskatoon Parks and Recreation Department as a 'City-wide-park'. As such, the Park is intended to include features and facilities that will attract visitors from all areas of Saskatoon.

In late May 1980, Hilderman Feir Witty and Associates were selected to prepare a Master Plan for Meewasin Park, and to subsequently provide detailed designs for selected Park elements. The emphasis of the planning study was to be the creation of a park setting which would integrate natural features of the area with a plan for safe and enjoyable recreation activities.

## 1.2. Study Area

Meewasin Park presently extends along the west bank of the South Saskatchewan River from Ravine Drive in the southwest to Saguenay Drive in the northeast. However, the Park boundaries are to be extended, to include all Public Reserves along the west bank of the river, from Ravine Drive in the south to Adilman Drive in the north; an area of approximately 68 ha.

In addition to the lands lying within the proposed Park boundaries, four neighbouring parcels, totalling approximately 46 ha (113 acres) were included within the study area. These are: P.C.R. Banting Park, on the southwest corner of Spadina Crescent and Ravine Drive (3.4 ha); that portion of

Public Reserve lying east of Spadina Crescent between Ravine Drive and the site of the 42nd Street Bridge (3.6 ha); the fenced area presently occupied by the H. McIvor Weir Water Pollution Control Plant (7 ha); and a second fenced area set aside initially as a spatial buffer zone, and ultimately for future expansion of the Pollution Control Plant (32.1 ha).

Finally, the portions of Spadina Crescent and Ravine Drive lying completely within the study area boundaries (3.8 ha) were included. The total study area thus encompassed approximately 118 ha (290 acres).

## 1.3. Purpose of Study

The purpose of the Meewasin Park planning study is of a dual nature: first, to examine and evaluate existing conditions in and around the study area, including public perceptions and desires for Park development; and second, to prepare a Master Plan, outlining future development for the study area, including general phasing and costing of such development.

Specific study requirements, as set out in the Terms of Reference, included the following:

1. The study will relate to and integrate with the City of Saskatoon's plans for areas adjacent to the study area.
2. The study will take into account the views of interested individuals, civic departments and other public and private groups such as recreation and neighbourhood associations. In addition, the study will indicate compliance with any applicable federal, provincial and municipal act, regulation or bylaw.
3. The study will comment on the existing uses of the site and how these uses will be integrated with proposed plans including details of any costs involved in such integration. In particular, the study will address the question of conserving existing vegetation and natural features in relation to any proposed developments.
4. The study will address itself to the range of activities to be accommodated on a year-round basis and provide detailed designs and cost estimates for any proposed developments such as landscape construction, lighting,

trails, and public amenities.

5. The study will address 1) pedestrian and vehicular access, 2) parking requirements for the site including the costs of any additional parking required, 3) pedestrian and cycle movement within the site.
6. The study will address the issues relating to land filling and soil structure and how the proposed developments relate to this.
7. The study will examine the desirability and feasibility of incorporating lighted skiing, jogging and cycle trails in the study area.

## 1.4. Park Development Process

An important feature of the development process (refer to Figure 1) is the need for an overall planning framework (a Master Plan) to be approved and 'in place' before the initiation of detailed design and construction of individual Park elements. The existence of such a general framework ensures that subsequent detailed design and development of specific Park elements can be co-ordinated and integrated with other areas, features and facilities within

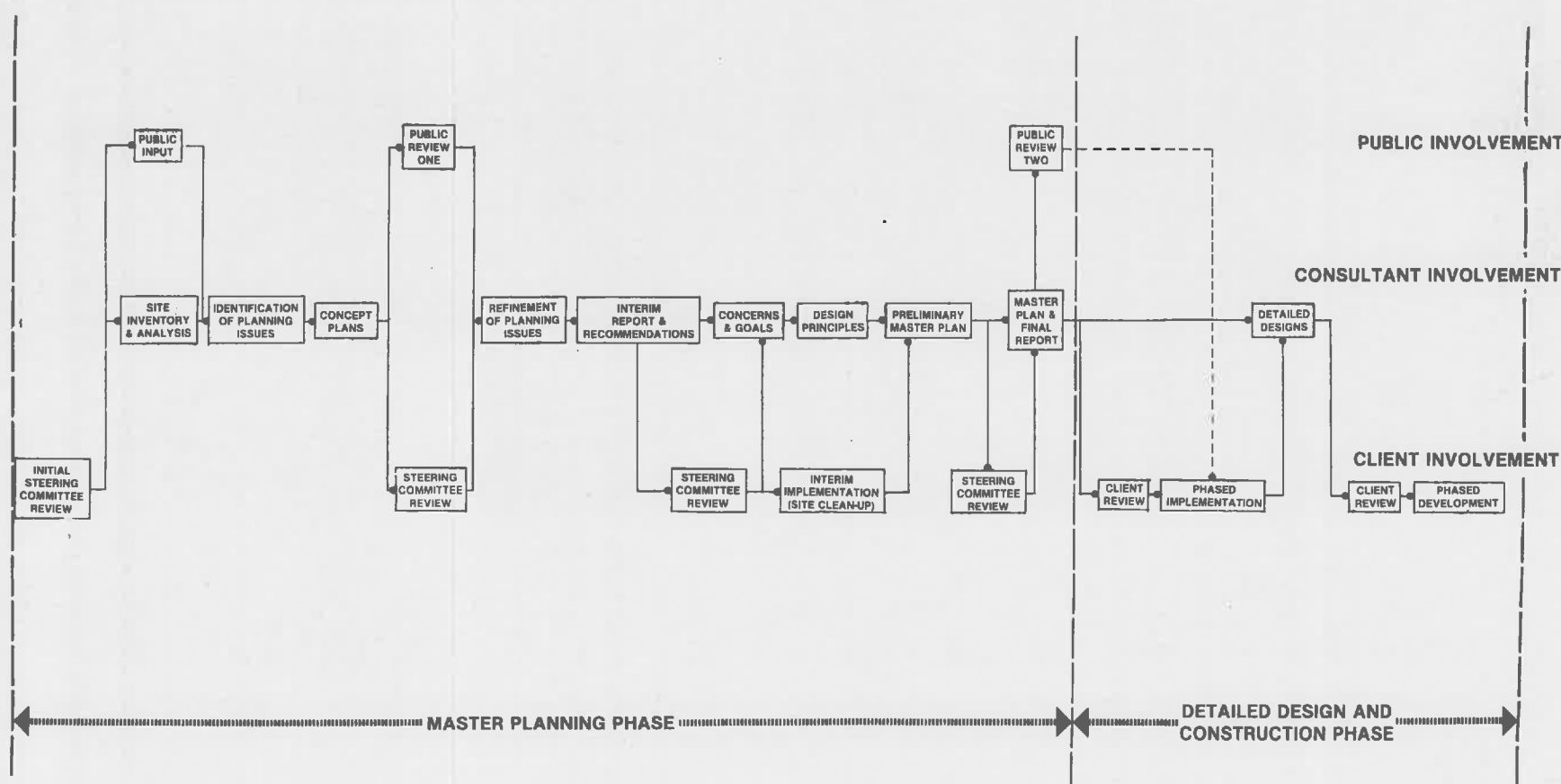
and around the Park.

Clearly, implementation of a Master Plan can be phased in a manner which is responsive to growing needs and pressures over time. However, without an overall set of design objectives (as contained in a Master Plan), it would be difficult to ensure that ultimate Park development and the resulting interrelationships (both within the Park, and between Meewasin Park and adjacent areas) conform to the goals of the M.V.A. or to the intent of the 100-year Conceptual Plan for the Meewasin Valley.

### 1.4.1. Study Steering Committee

In the preparation of a Master Plan for Meewasin Park, two factors were considered to be critical: efficient communication between the Client and consultant; and significant public involvement. Experience in this study suggests that the Client-consultant liaison proceeded effectively, through regular meetings of the Study Steering Committee. These meetings provided opportunities, not only for keeping the Client informed of

FIGURE 1: DEVELOPMENT PROCESS - MEEWASIN PARK





study progress, but also for providing the consultant with feedback on planning proposals and future direction for the study. Thus, an efficient, two-way avenue of communication was successfully established. The importance of regular Client involvement in the development process is illustrated in Figure 1.

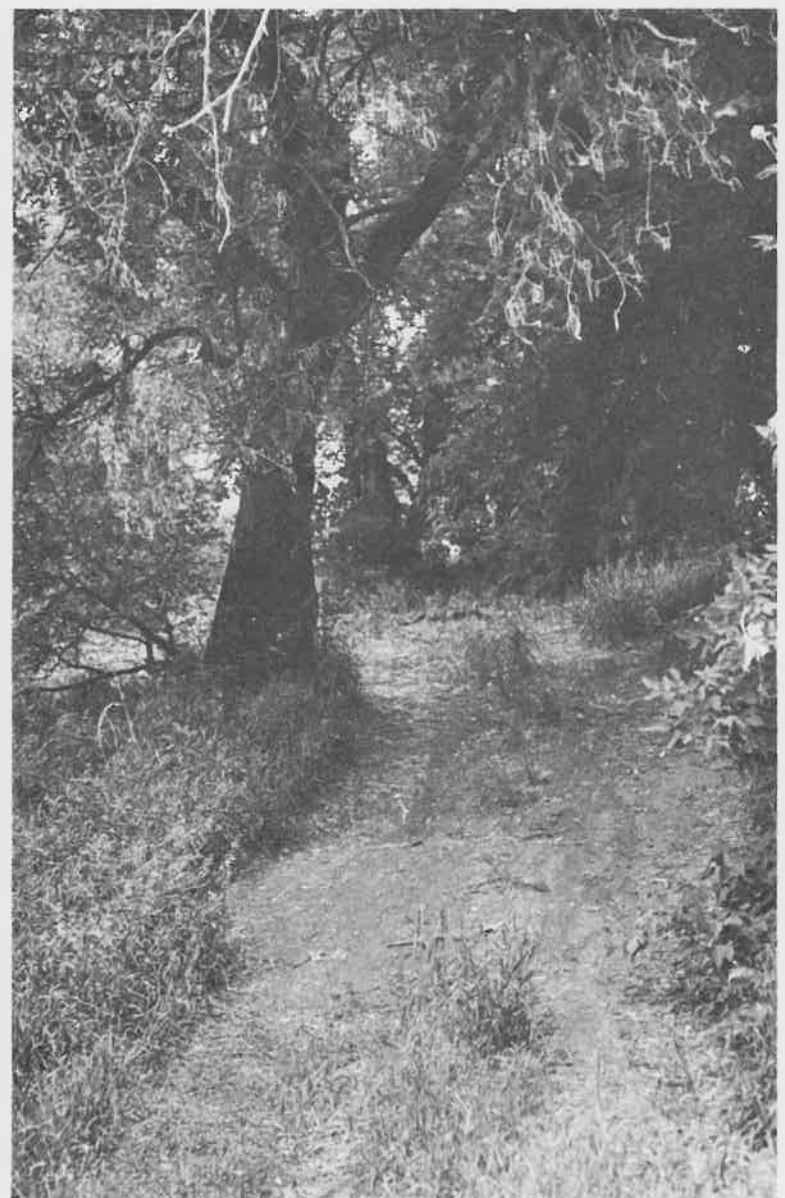
#### 1.4.2. Public Input

Prior to involvement of the Design Team, the Meewasin Valley Authority held an informal meeting with interested residents of Lawson Heights and River Heights. The Meeting allowed the M.V.A. to gain some awareness of the concerns of residents living in the area, and to be advised on how to involve other residents in the planning of Meewasin Park.

Figure 1 indicates three additional points within the development process where public involvement is required. The first opportunity for public input was provided through a newspaper advertisement requesting that interested people submit their ideas for Park development to the M.V.A. Response to this solicitation was significant. The second opportunity for public involvement came about after preparation of three conceptual plans for Meewasin Park. People were invited to review the three concepts and to communicate their reactions to the M.V.A. Response to this invitation was, understandably, greatest from residents most directly affected by development in Meewasin Park, but many suggestions and constructive criticisms were also offered by residents from throughout the city. Within the development process, it is suggested that a second public review occur, following completion of the Master Planning Phase. This review could provide additional input prior to the preparation of detailed designs.

#### 1.4.3. Additional Expertise

In order to ensure that any planning and design decisions would be compatible with geotechnical constraints and opportunities presented within the study area, and because of the absence of site-specific geotechnical information in this area, Clifton Associates Ltd., Consulting Geotechnical Engineers, were retained to provide professional input under the direction of Hilderman Feir Witty & Associates. Specifically, they were requested to undertake a terrain analysis and field drilling programme, and to identify any significant geotechnical constraints and opportunities for Park development.



## 2. EXISTING CONDITIONS

### 2.1. General Context

#### 2.1.1. Adjacent Neighbourhoods

Meewasin Park is bounded by three neighbourhoods: River Heights; Lawson Heights; and Silverwood Heights. River Heights, the oldest of the three neighbourhoods (developed in the late 1960's and early 1970's) extends from Pembina Avenue in the south to Sandy Court in the north. Lawson Heights development began in 1977 and is still on-going, and this neighbourhood extends from Sandy Court north to Lenore Drive. Silverwood Heights, the newest of the three residential areas (construction underway in 1978 and on-going), extends from Lenore Drive to Adilman Drive.

Zoning districts along the study area boundary are all, as of 29 January 1980, residential. Dwelling densities are, for the most part, low, as indicated by the dominant zoning districts (R1 and R1A: single family, fully-detached housing). There are, however, two areas where dwelling densities are, or could be, somewhat higher. Along Whiteswan Drive, immediately south of Pinehouse Drive, a small P.U.D. (Planned Unit Development) and R4 area is being developed as a combination of townhouses and medium-rise (7 storey) apartments. North of Whiteswan Drive, the portion of Silverwood Heights along Ball and Perreault Crescents is zoned R2 (semi-detached housing permitted).

Further from the study area, all three neighbourhoods are characterized by a mixture of zoning districts, typical of newer neighbourhoods in Saskatoon. Residential zones predominate, with smaller areas of commercial (B4), multiple-use (M1, M3A) and P.U.D. zoning scattered among the residential districts.

To the north of Adilman Drive, all lands adjacent to the study area are zoned A.G. (agricultural). To date no indication has been given by the City of Saskatoon as to the nature of future development in this area. It is clear, however, that a 100 metre wide zone, along the river, is to be reserved as public open space.

On the east bank of the South Saskatchewan River, the City of Saskatoon's jurisdiction extends only as far north as Section 11, Township 37, Range 5 W3M. All such lands directly across from the study area are also presently zoned A.G. Plans for future development, although not finalized, indicate a predominance of residential uses. Again, a 100 metre-wide Public Reserve, is to be established along the river.

North of the city limits, land use is controlled by the Rural Municipality of Corman Park (No. 344). The Corman Park Zoning Bylaw (Bylaw No. 5/70) indicates that Sections 12 and 23, T. 37, R. 5, W3M (the areas immediately across the river from the study area) are zoned A-3 (large acreage agricultural; minimum site area, 80 acres for agricultural uses and 10 acres for other permitted uses).

All lands in Sections 12 and 23 are privately held, and the dominant existing use is agricultural (livestock rangeland, market gardening). An all-weather, gravel surface road (the northward extension of Central Avenue) crosses the east end of Petursson's Ravine before terminating at the river, northeast of the Saskatoon Chemicals plant.

#### 2.1.2. Forty-Second Street Bridge

As of August 1980, site preparation was underway for construction of the 42nd Street Bridge. This operation will include the following:

1. Significant re-grading of the slope immediately south of Pembina Avenue.

2. Removal of all riverbank vegetation in the immediate vicinity of the bridge crossing.
3. Extension of landfill into the river in the vicinity of the bridge and re-routing of Spadina Crescent 30 metres east across the new landfill.

It is anticipated that the bulk of the land-filling operation will be complete before the 1980 freeze-up, in order to allow for settling before construction of bridge footings and piers in 1981.

#### 2.1.3. Meewasin Park and the Meewasin Valley Concept Plan (Map 3)

In the report of The Meewasin Valley Project (Moriyama, 1978), the theme of the 100-year Concept Plan was one of 'linkage'. One of the primary recommendations in the report was that:

"...the City of Saskatoon develop, through the built-up area, a continuous linkage of parks, boulevards, laneways and public spaces with connections to riveredge parks." (Moriyama, 1978; p. 80).

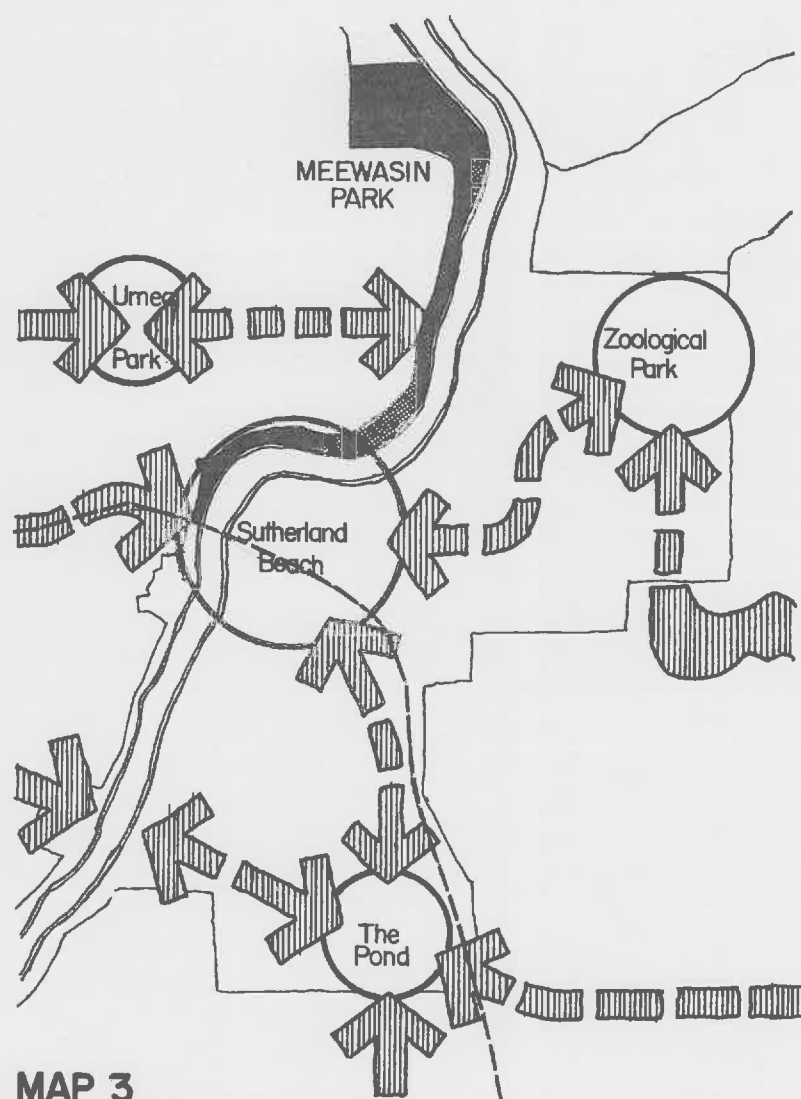
Meewasin Park is the first such riveredge park designated for development. As such, it provides a linkage between the land and the river. Second, with the completion of the 42nd Street Bridge, the Park will also function as part of a major east-west linkage within the city. Third, because of the Park's location on the present urban fringe of Saskatoon, there is the potential to preserve and maintain existing green space connections between the city and adjacent rural areas. Finally, the presence of historic and pre-historic artifacts, within and immediately adjacent to the study area, suggests that the Park can provide a 'time link' between the past and present.

In a more regional sense, the Park can serve as an element within the "scenic and functional access network for the whole

(Meewasin Valley) Project area", as envisioned by Moriyama (p. 49).

Thus, although not specifically mentioned in The Meewasin Valley Project report, Meewasin Park is clearly an integral component of the 100-year Concept Plan. The Park's situation immediately across the river from the 'Sutherland Beach-University Node' makes it an area of high visibility from, and functional integration with, what is intended in the Concept Plan to be "the core, the physical and spiritual heart, of the Meewasin Valley Project" (Moriyama, 1978; p. 65).

Uses which complement activities on the east bank (in the proposed Nature Study Area, Petursson's Ravine Conservation Area) are therefore clearly appropriate for Meewasin Park. Such uses might include family picnicking, pedestrian and cycle trails connected to similar trails across the river and other urban recreation activities.



**MAP 3  
MEEWASIN VALLEY CONTEXT**

## 2.2. Site Analysis

An inventory of site conditions within the study area was carried out by means of aerial photographic and cartographic interpretation, extensive field checking and field drilling, and discussions with resource people familiar with the study area. Information was collected with respect to the following parameters: topography and slopes; geotechnical considerations; natural vegetation; municipal servicing; aesthetics and archaeological and historical resources.

### 2.2.1. Topography and Slopes (Map 4)

Because of the dynamic nature of the landscape in this rapidly developing suburban area, topographic conditions in some areas have changed significantly from those indicated on Map 4. However, it is clear that slopes in the study area range from very gentle (less than 2%) to more than 30%. Very steep slopes are restricted to three main areas:

1. The walls of the old borrow pit located west of the pollution control plant.
2. A steeply eroded slope near the river-bank immediately east of Lenore Drive.
3. A steeply eroded slope immediately north of the Spadina Crescent extension.

Moderately steep slopes ( $\pm 20\%$ ) are common along the river edge and in the extreme northern portion of the study area.

### 2.2.2. Geotechnical Conditions

Glacial History - Over the last one million years, the Saskatoon area has seen at least four major advances of the massive continental ice sheets which had immense powers in the shaping of a landscape. With each advance, a layer of glacial till, sometimes hundreds of feet thick, was deposited. These tills (consisting of a variety of materials, ranging in size from clay

particles to large boulders) were eroded from Precambrian Shield areas to the north, transported southward within the glacial ice, and ultimately deposited on the plains.

The first two of these glaciations left behind tills known locally as the Sutherland Group. The third glacial advance and retreat deposited till of the Floral Formation. The most recent glaciation (the Wisconsin) left behind till of the Battleford Formation.

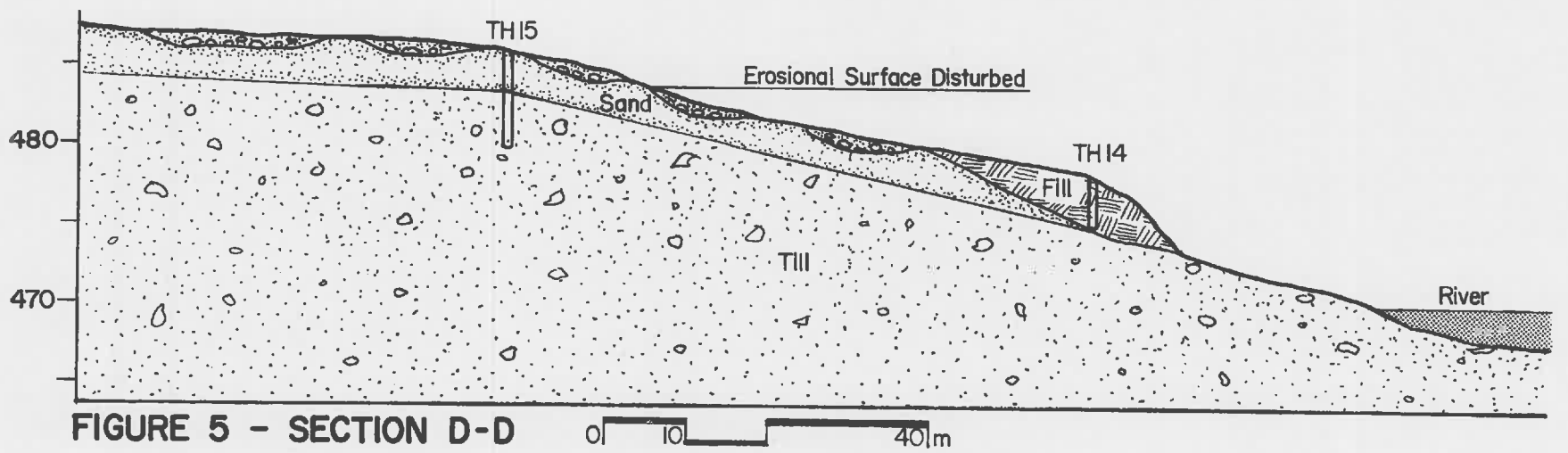
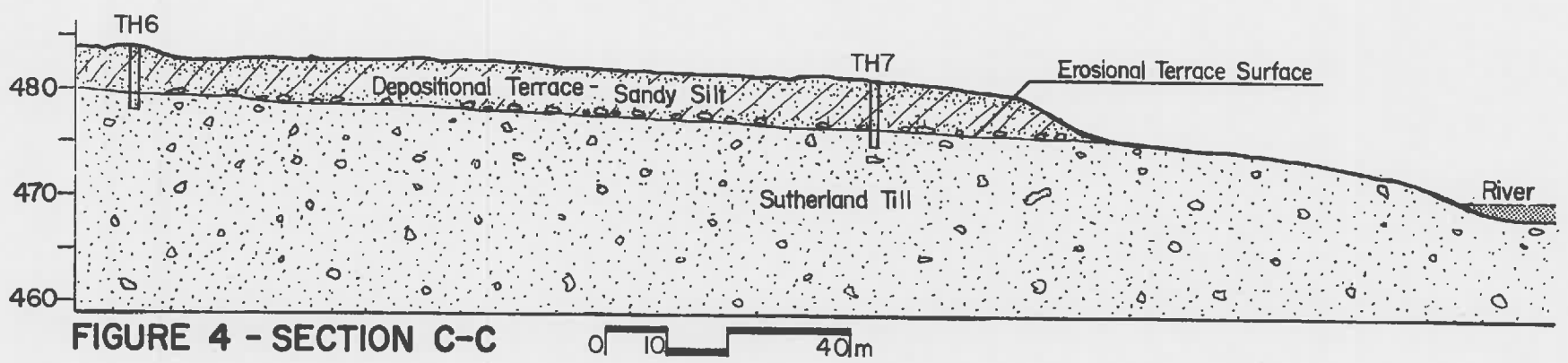
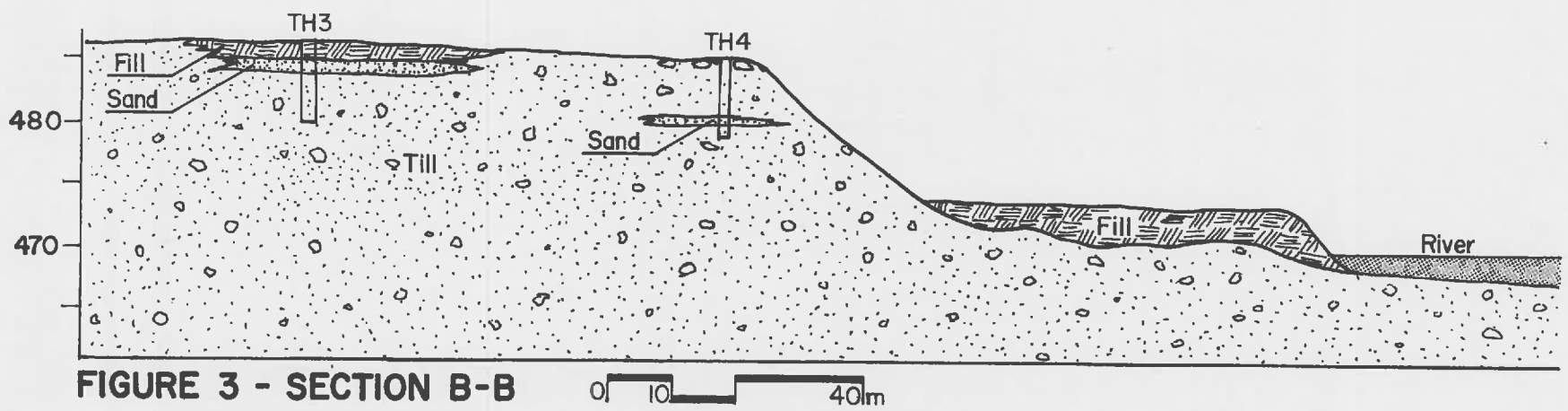
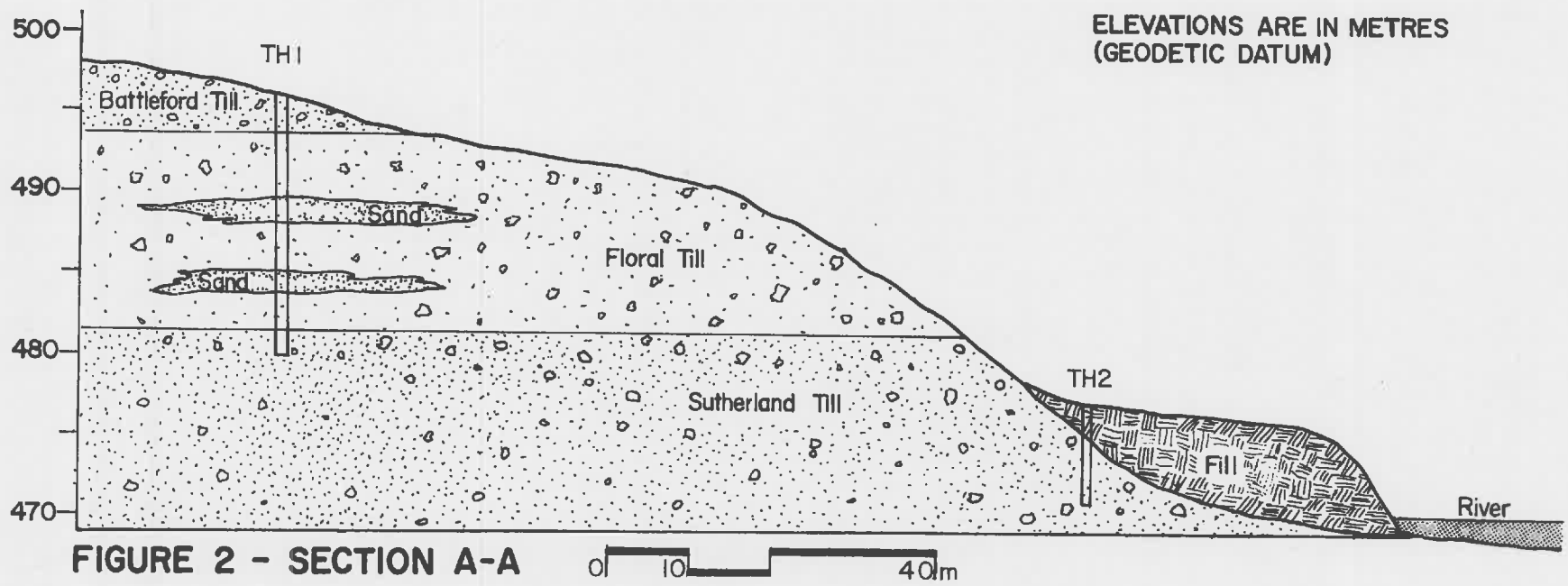
Retreat of the ice front following each of the four advances was followed by a period of weathering and erosion. It is probable that today we are in the midst of a fourth such inter-glacial period. It was during these intervals that 'intertill stratified (waterlaid) sediments', such as the Forestry Farm Aquifer, were deposited.

The front of the Wisconsin ice sheet retreated approximately 12,000 years ago.<sup>1</sup> This ice sheet was the source of meltwater that shaped much of the existing landscape in the Saskatoon area. During de-glaciation (retreat of the ice front) meltwater drainage was blocked by the ice sheet which resulted in the creation of an ice-dammed lake. This lake covered much of the area around the present-day city. Radiocarbon dates<sup>2</sup> indicate that the lake persisted for about 3000 years, and during this period, stratified (layered) clay and silt were deposited on top of the Battleford Till in many areas.

When the ice front had retreated sufficiently to expose an outlet (about 9000 years ago),

<sup>1</sup>Christiansen, E.A. (1968): "Pleistocene Stratigraphy of the Saskatoon Area, Saskatchewan, Canada". Canadian Journal of Earth Sciences, Vol. 5, pp. 1167-1173.

<sup>2</sup>Koster, E.H. (1978): "The Gowen Site (Fa. NK-25): An Early Middle Prehistoric Period Bison Processing Site on Northwest Plains, Appendix 1: The Geological Perspective". Saskatchewan Museum of Natural History Bulletin.





terrace and underlying stratified sediments are sandy but the former is a very fine sandy silt while the latter is a coarser sand. The contact between the two is invariably marked by the erosional surface consisting of boulders and gravel.

The stratigraphy of the east bank in relation to the Park is illustrated by the schematic sketches in Figures 10, 11, and 12. These sketches are based on published literature and on information from the files of Clifton Associates Ltd., and they show the stratigraphy only in a very general way within the area, and not in detail. Of most significance is the Forestry Farm Aquifer which outcrops along the east bank north of where Spadina Crescent swings up on to the depositional terrace from the landfill. Discharge from the aquifer causes piping of the intertill stratified silt and sand. The most prominent piping location is Petturson's Ravine. Piping gullies are U-shaped in plan and section as opposed to V-shaped valleys created by surface erosion.

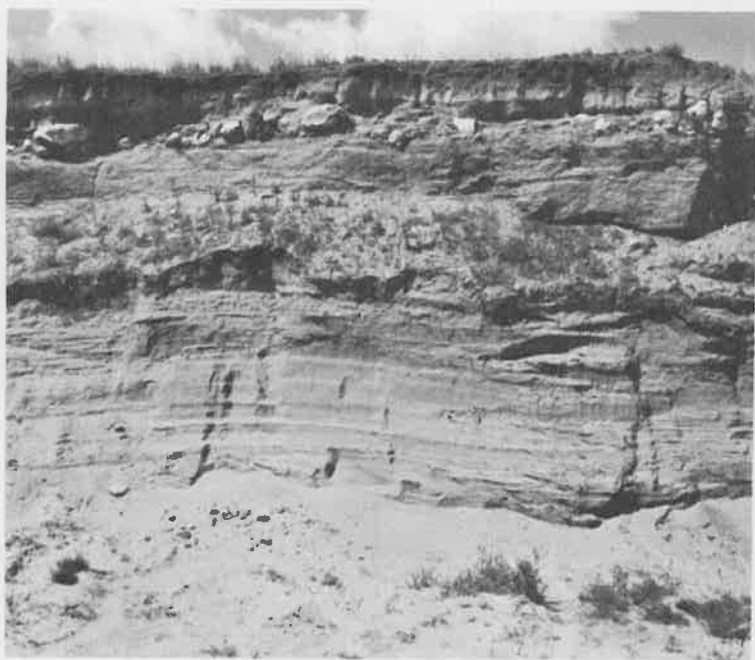


Figure 6

*The west side of the borrow pit. The erosional surface is marked by the boulders near the top and is covered by a thin layer of topsoil and fluvial-lacustrine silt and clay. Below the boulder lag is the Floral Formation stratified drift consisting here primarily of sand.*

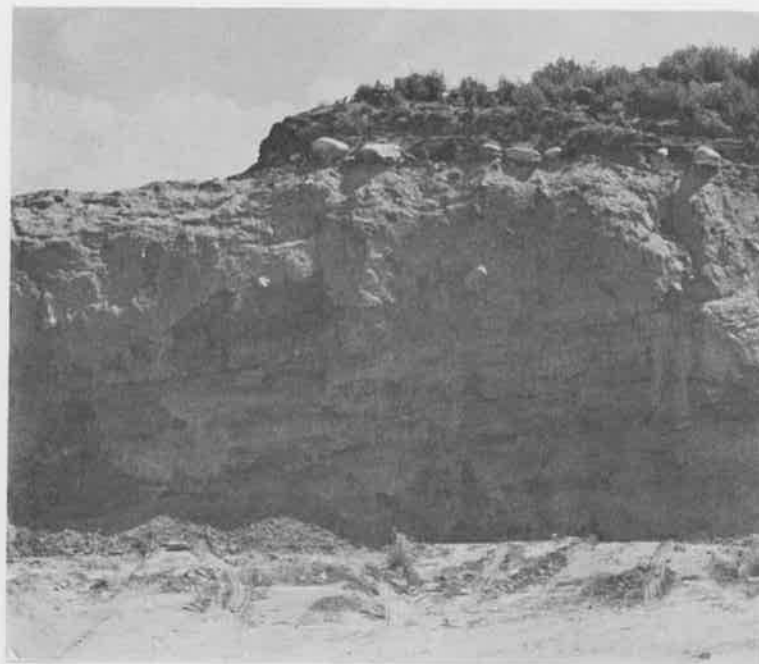


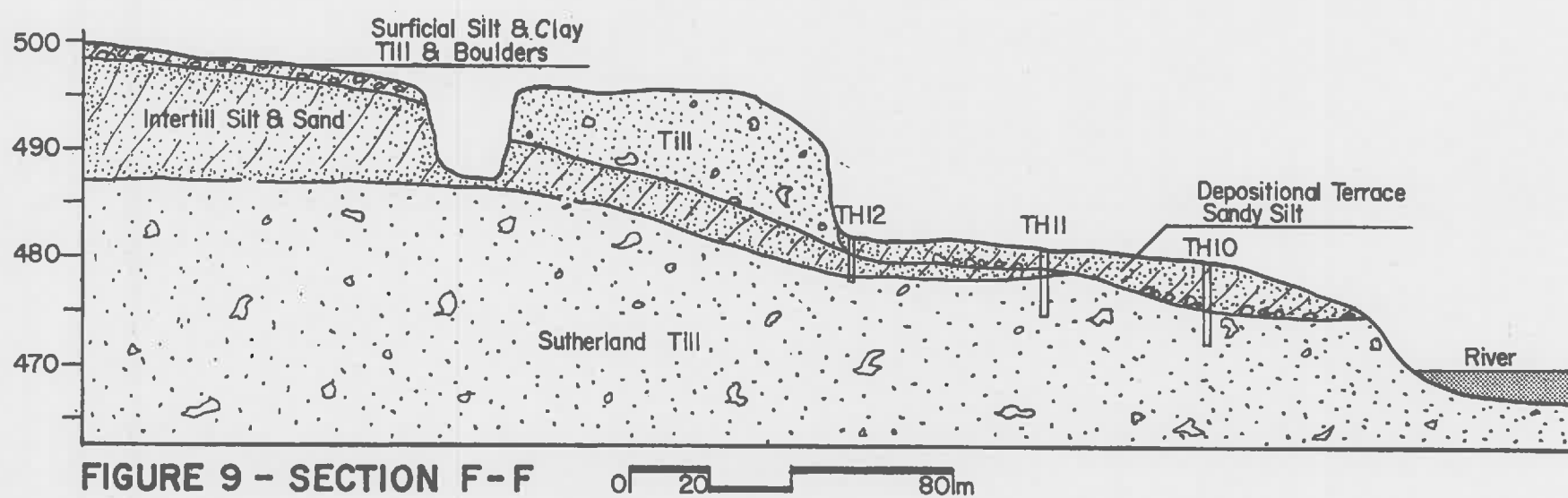
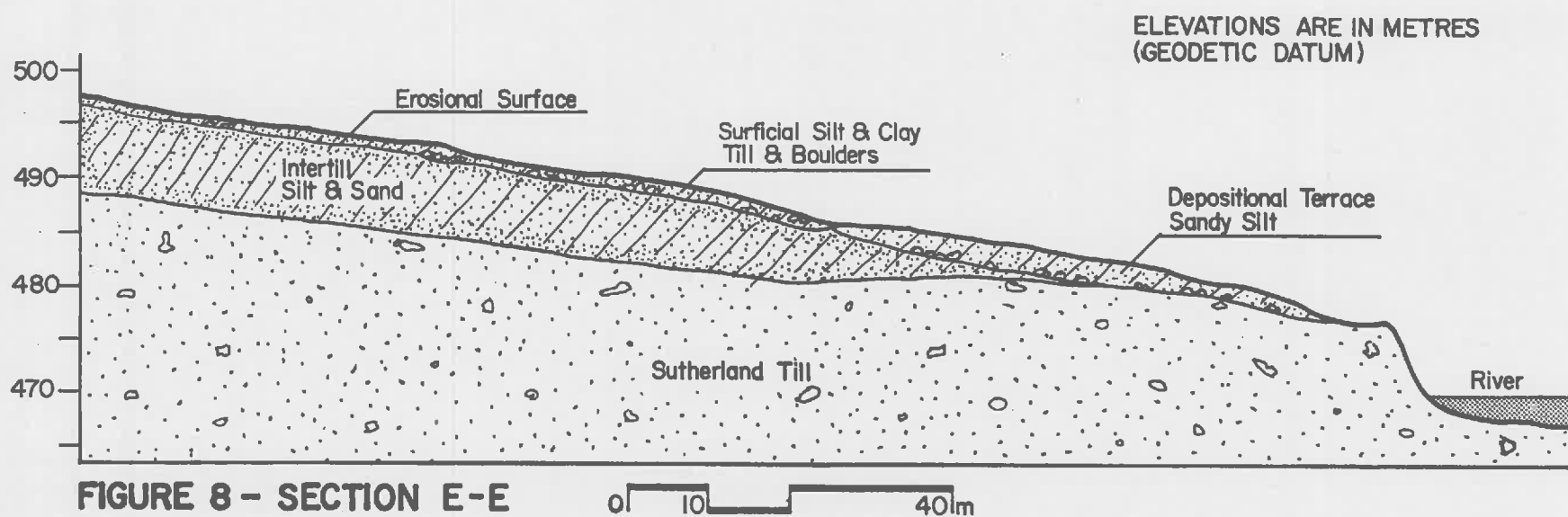
Figure 7

*The east side of the borrow pit. The erosional surface is at or very near the surface but has been covered by excavated material. Beneath the boulder lag is the Floral Till and beneath it is the stratified sand. Note the sharp dip in the till - sand contact.*

Groundwater - Seepage is not evident along the banks within the study area, but the vegetative growth along a south facing bank is evidence that seepage is occurring. This seepage arises from a surficial aquifer which exists because of surface infiltration of precipitation. This is especially true in the areas of the depositional terraces where the precipitation can more easily infiltrate the sandy silt. This is perhaps the reason for some of the larger trees along the depositional terraces. In spite of the circumstantial evidence of a surficial aquifer, free standing water was not encountered in any of the bore-holes while drilling.

In the northwestern part of the study area, the water table is at the base of the Silverwood borrow pit, as indicated by the free standing water in the pit. The trees and vegetative growth around the pond indicate that this is ground water and not surficial run off, (Figure 13) especially considering that the spring and summer of 1980 were very dry. Flow from this aquifer is likely in the sand





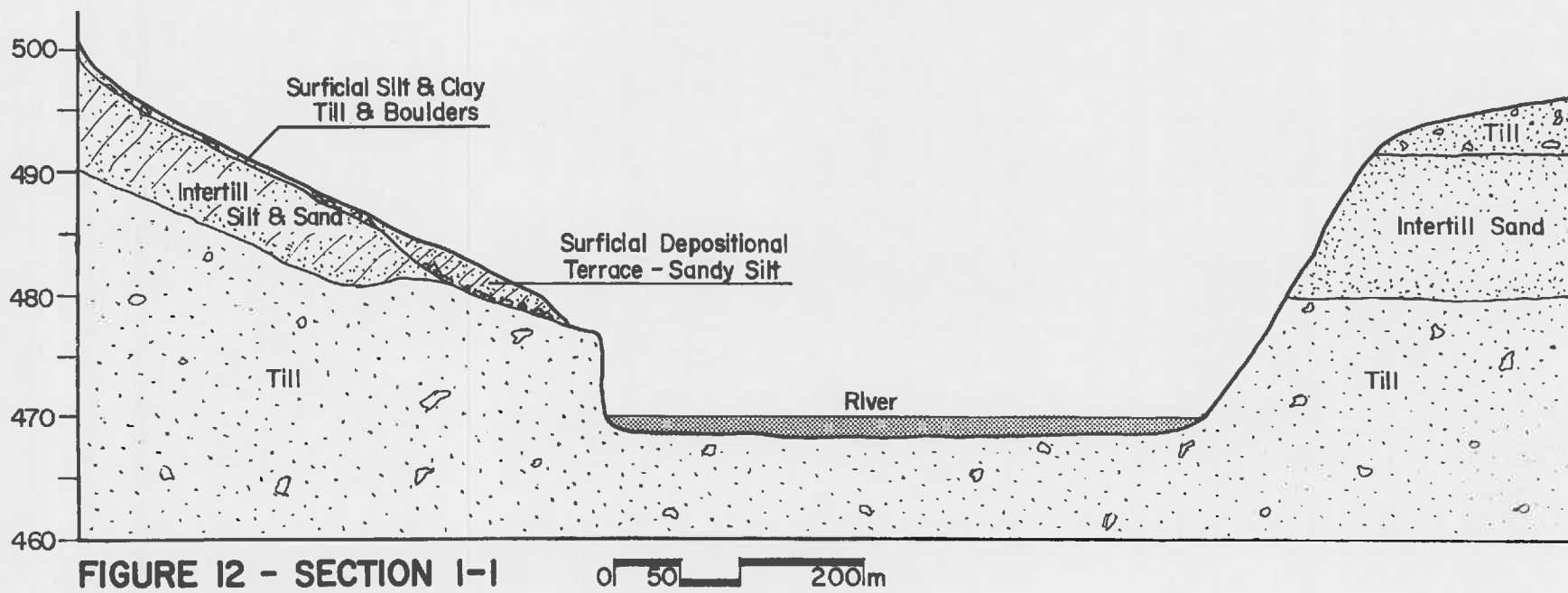
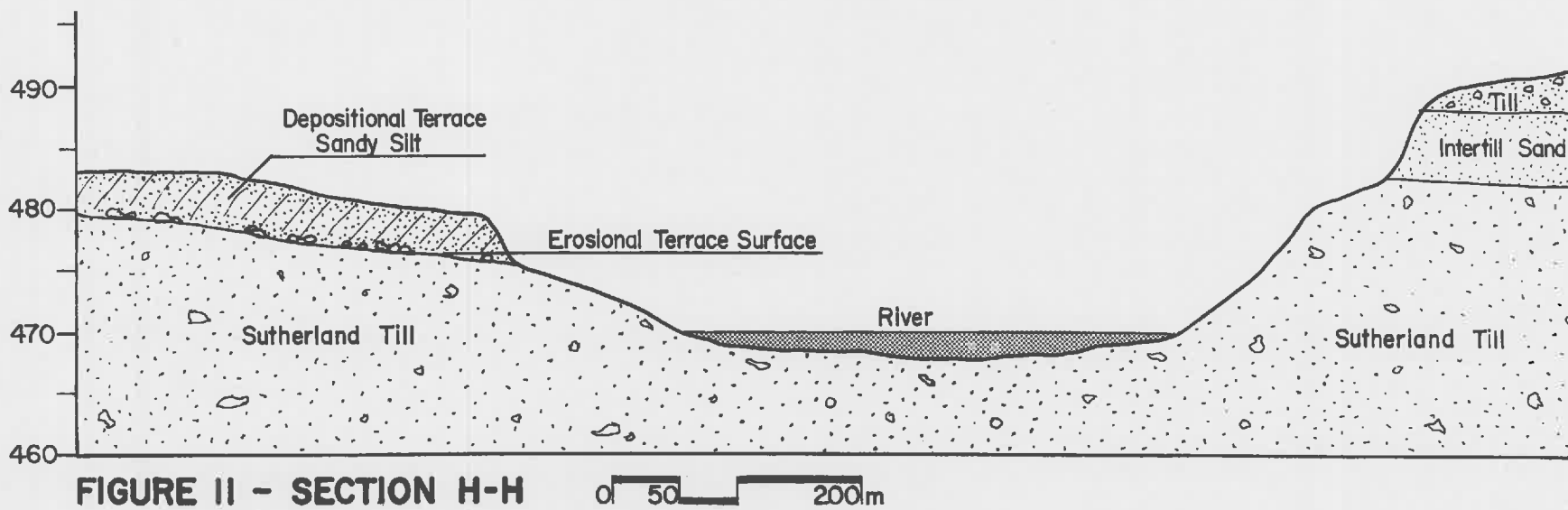
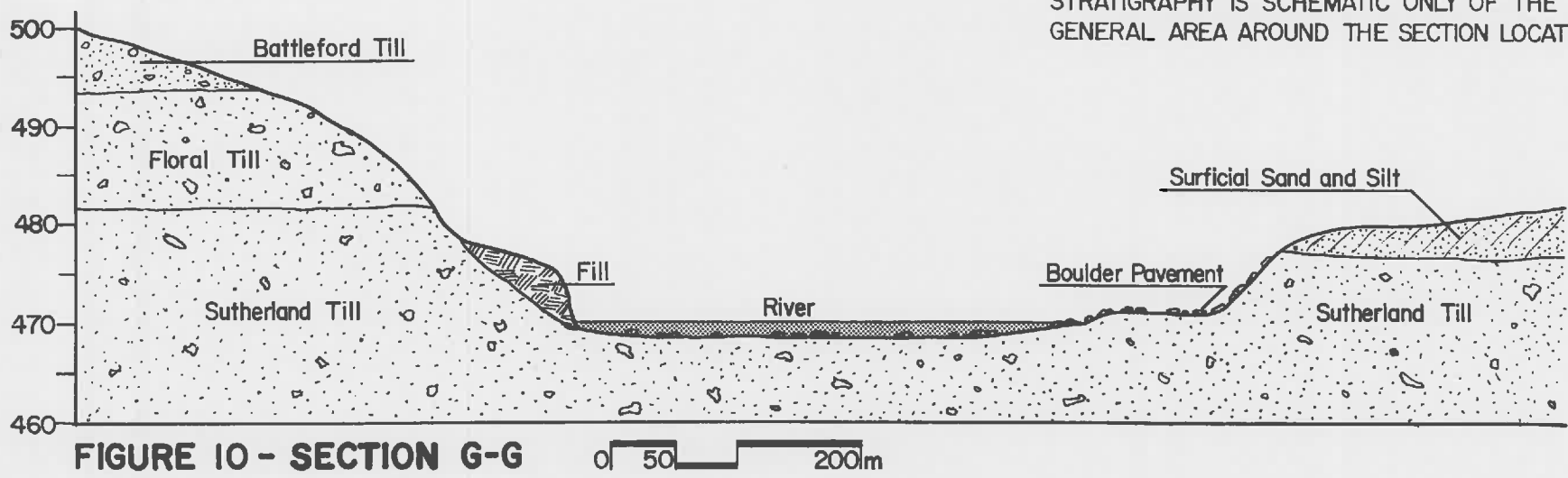
just above the sand-till contact towards the river and seeps out along the river bank at the sand-till contact.

An item of concern from a park development point of view is the dumping of sewage treatment grit into the Silverwood pit. This is potentially a source of ground water contamination considering the ground water level is near the pit bottom. Potential seepage from the treatment plant sludge pits is also a concern. There is a natural drainage depression from the sludge pits to the river, and the sandy silt in the area could potentially be fairly easily infiltrated by contaminated seepage water. No free standing water was observed in the test

holes during drilling in the area below the sludge pits which would seem to indicate that the seepage, if any, is low.

There is evidence from water table measurements on the east side of the river that urbanization tends to increase the levels of the water table due to extensive irrigation of lawns and gardens and sometimes leakage from water mains. Because of residential development adjacent to the study area, seepage from the surficial aquifer along the banks can be expected to be maintained or even increase, especially if the Park areas will also be irrigated.

ELEVATIONS ARE IN METRES  
(GEODETIC DATUM)  
STRATIGRAPHY IS SCHEMATIC ONLY OF THE  
GENERAL AREA AROUND THE SECTION LOCATION





*Figure 13*

*The pond in the borrow pit marking the water table.*

Surface Runoff - There are many gullies along the river bank which have been created by precipitation runoff, overflow from sloughs and depressions and perhaps ground water seepage. The sloughs and depressions have now been filled in and covered by urban development, and this, together with the installation of a storm sewer drainage system, has altered the flow in these gullies substantially. They can, however, still be expected to carry substantial runoff during heavy rain storms, and for this reason they should not be blocked.

The sandy silts of the depositional terrace are a highly erodible material. Even small amounts of runoff can erode these sediments such as has taken place west of Whiteswan Drive where it runs down the incline to meet Spadina Crescent. (Figure 14).

Slope Stability - There is no visible evidence of major slope failures in the study area. The steep slopes which do exist, are cut in pre-dominately till which is generally a very competent material and can withstand steep slopes. The major problem with these slopes is surface sloughing caused by over steepening as a result of toe erosion. In the southern portion of the study area, toe erosion has been eliminated by the landfill and in the northern part the steep slopes are also not under very active toe erosion since the river flow direction is approximately parallel to the valley walls. Therefore, the sloughing on these slopes can be expected to be minimal under the present situation.

The major difficulty with slopes along the Ravine Drive road cut is the surface erosion arising from runoff. Other than that, they appear to be stable. Substantial amounts of sloughing, however can be expected if the slopes were to be heavily irrigated or following extended periods of precipitation.



*Figure 14*

*Water erosion of the depositional terrace silt. The photo is taken from Whiteswan Drive looking towards Saguenay Drive.*

Landfill - The western riverbank in the southern part of the study area was designated for some time as a landfill site. Only earth and inorganic construction rubble were to be dumped here, but as invariably happens in these areas, all forms of refuse were dumped in the area. Dumping of materials was discontinued in the summer of 1979 and in the fall of 1979 the surface was leveled and prepared for the extension of Spadina Crescent from Ravine Drive to the end of the landfill. Paving of the section from Ravine Drive north was done in 1980.

Due to the nature of the fill and the manner in which it was placed, significant differential settlement can be expected to take place. This will become evident with dips and swales in the road.

River erosion of the fill can be expected to be a problem. The fill is located on the outside of a fairly sharp bend in the river; the area along a river shoreline subject to the greatest erosional attack. Also, the fill has considerably narrowed the river channel. On top of it all, loosely dumped materials, such as the fill, are highly erodible.

The extent and rate of the erosion is difficult to predict. It will depend on the abutment design to the 42nd Street Bridge and on the occurrence of a major flood flow. Under the usually low flow condition the erosion will likely be very slow but a major flood flow would severely erode the fill, and thereby contribute to polluting the river with the soil being transported downstream and the rubble being exposed. It is estimated that a one in a hundred year flood would inundate most of the landfill. This flood frequency was used in the design of the 42nd Street Bridge abutments.

At a first glance it would seem that the most economical means of protecting the fill would be to place rip-rap over a granular filter. However, in order to provide detail

design recommendations for protecting the fill, it will be necessary to examine in detail the river hydraulics and flow regime, and examine the abutment designs for the 42nd Street Bridge.

Illustrative Geological Site - The borrow pit in the northern part of the study area is potentially a site where the local geology can be exhibited. The erosional surface created during deglaciation, the intertill stratified drift, the glacial till and the water table are clearly illustrated.

Although the dumping of rubble has been discontinued in the northern end of the borrow pit, sewage grit disposal, from the pollution control plant, is continuing.

The East Bank - There are direct visual linkages between the study area and the east bank of the South Saskatchewan River. Any future physical linkages from east to west would be affected, in part, by geotechnical conditions on the east bank. Principal among these conditions is the seepage and piping from the Forestry Farm Aquifer. On the basis of air photo interpretation, it appears that this process is concentrated in gullies along the east bank (e.g. Petursson's Ravine). Preliminary investigations indicate that, with the exception of these gullies, there are no major geotechnical constraints on the east bank to the provision of east-west physical linkages.

Summary of Geotechnical Opportunities and Constraints - Along Ravine Drive, geotechnical conditions suggest the following action:

- (1) - leaving the shapes of the cut slopes essentially the way they are except for the clean up of refuse and preparing the slopes for grass seeding.
- (2) - planting grass on the slopes to minimize the surface erosion.
- (3) - landscaping which does not require extensive irrigation.

Along the landfill area, designs should recognize that the fill:

- (1) - will settle
- (2) - is susceptible to river erosion
- (3) - is susceptible to flooding
- (4) - is not a suitable foundation material for the construction of buildings and rigid retaining structures such as concrete retaining walls.

Spending a great deal of effort and capital on contouring and landscaping the fill banks would seem to be unwise unless the bank is properly protected from erosion. If thought is being given to slightly widening the fill in some areas to accommodate features such as ski and bike travel, the addition of the fill will not significantly alter the present situation but it is recommended that clean fill, and not rubble, be used.

Designs for the depositional terraces should consider that the sandy silts:

- (1) - are highly susceptible to water erosion
- (2) - can be easily excavated
- (3) - are suitable for foundation of light structures
- (4) - are ideal as a subsoil for irrigation
- (5) - are not suitable for surface water containment

In the eroded till plain and eroded terrace areas development plans should give consideration to the fact that:

- (1) - excavation can be difficult because of the boulder lag that exists in many areas
- (2) - the sediments are generally suitable for heavily loaded foundations
- (3) - the till is not highly susceptible to water erosion and in this sense it is a suitable subsoil for irrigated areas
- (4) - the surface boulder lags can make it difficult to cultivate the area in preparation for landscaping.

### 2.2.3. Natural Vegetation (Map 6)

Considerable research has been undertaken into vegetative communities along significant portions of the Meewasin Valley. Unfortunately, there exists no documentation of the natural vegetation within the Meewasin Park study area.

For the purposes of this study, it was not considered appropriate to carry out quantitative phytosociological analyses of vegetation communities. Rather, the Design Team mapped the location and extent of all remaining natural vegetation and documented, in general terms, the visual character and dominant species within these areas.

Thirteen relatively distinct vegetation types were identified. These communities are briefly described below, and their locations are indicated on Map 6.

- 1. - willow shrubs dominant on slope
  - scattered cottonwood saplings interspersed with willow
  - scattered small groves of cottonwood between slope and Spadina Crescent
- 2. - overstorey dominated by Manitoba maple and green ash
  - understorey dominated by white birch, chokecherry and alder
- 3. - mostly shrubs (alder, wild rose, Saskatoon)
- 4. - edge of bluff
  - size of vegetation generally decreases with height on slope
  - most trees located at or near base of slope (green ash dominant)
  - most common shrubs are red osier, alder, Saskatoon, wild rose.



*Vegetation Type 4*

- 5. - size distribution similar to #4
  - cottonwood intermixed with green ash
  - scattered trembling aspen saplings.
- 6. - mature cottonwood overstorey
  - cottonwood and willow dominant in understorey.



*Vegetation Type 6*



*Vegetation Type 7*

- 7. - cottonwood dominant in overstorey
  - understorey of cottonwood (especially along river), willow, red osier and wild rose (especially further from river)
- 8. - as in #7, but with greater preponderance of willow and red osier, and with balsam poplar and trembling aspen.
- 9. - species as in #8, but generally less mature with somewhat thicker undergrowth and fewer large trees.
- 10.- river flats
  - grasses and sedges on boulder pavement.
- 11.- very thick undergrowth, species as in #8.
- 12.- isolated grove of cottonwoods, ranging in size from seedlings to 15-20' trees.
- 13.- distinct vegetative zones, running parallel to river
  - mature cottonwood with willow and scattered white birch in first zone (closest to river)
  - this zone is backed by a zone where red osier, willow, Saskatoon and wild rose are dominant
  - third zone characterized by a dominance of Manitoba maple and some trembling aspen.





*Vegetation Type 13*

#### 2.2.4. Servicing (Maps 7A & B)

Utility service lines extend into the study area (both above and below ground). As the Park is situated along the river, several storm sewer lines extend from the adjacent neighbourhoods to outfalls along the riverbank. A major sanitary trunk sewer runs through the Park from approximately 350 metres north of Pinehouse Drive to the Pollution Control Plant. Paralleling this

line is a water main which was installed prior to the development of Lawson Heights.

Sanitary sewer feeder lines connect to this trunk at several locations. However, only four of these lines extend into the study area: one where Whiteswan Drive begins to swing west into Silverwood Heights; one extending east from Lenore Drive; and two from the east side of the river which tie into the trunk sewer at the end of Saguenay Drive.

In addition, the major trunk sewer passes through the study area in three places: first, between Skeena Crescent and Sturgeon Drive; second, between Sturgeon and Capilano Drives; and finally, under Ravine Drive and through P.C.R. Banting Park.

High pressure gas lines pass through the study area in only two locations: between Skeena Crescent and Sturgeon Drive in River Heights; and from Whiteswan Drive to the Pollution Control Plant.

The utility corridor with the greatest visibility in the study area is an overhead power line which extends from approximately 200 metres south of Pinehouse Drive, through the Park and Pollution Plant grounds to Adilman Drive. A second overhead line extends west from this line along Lenore Drive. All remaining electrical services in the study area are buried cables.

#### 2.2.5. Aesthetics (Map 8)

Three principal factors were incorporated into this aspect of the site analysis: significant lines of view; odours created by activities on-going within or near the study area; and concentrations of wildlife activity.

Map 8 indicates the points within the study area where, because of street and pedestrian pathway layout and because of terrain conditions, the vistas are considered to be significant.



*Looking east from the Silverwood Farmstead.*



*Looking south along Whiteswan Drive to the river.*



*The above-ground power line.*

These points are generally located where pedestrian or vehicle access to the study area will be highest and where the views include the river, portions of the east bank and/or major vegetative features.

There are two major sources of obnoxious odours within or near the study area. The more significant source is the H. McIvor Weir Water Pollution Control Plant. The City of Saskatoon has established a 1000 metre 'odour zone' around the plant (refer to Map 8). Within this zone, odours can commonly be expected. However, it is clear that given the appropriate combination of atmospheric conditions (wind direction, atmospheric inversions) and certain operations at the Plant, obnoxious odours are quite noticeable well outside the odour zone.

The second, and less significant source of odour is the University of Saskatchewan feedlot, situated immediately across the river from the study area, south of River Heights. The extent or frequency of odour problems emanating from the feedlot could not be determined. However, in conversations with River Heights residents, the issue was raised on several occasions.

Although wildlife activity would, in many cases, be considered a biological component of a site analysis, the suburban context of Meewasin Park suggests that this factor could appropriately be incorporated into an aesthetic analysis. Indeed, the recreation experience of a Park visitor can be significantly enhanced by opportunities to view wildlife.

Field investigations have confirmed four areas where beaver (Castor canadensis) activity is concentrated. The first is along the river, immediately north of where Spadina Crescent swings away from the river to connect with Whiteswan Drive. Although beaver activity is clearly evident (toppled trees, footprints) at this location, there are no lodges along the bank. Further investigations led to the

discovery of a lodge directly across the river, along the east bank.

The remaining areas of concentrated beaver activity are scattered along the riverbank (Map 8). At these points, the beaver have constructed lodges up against the natural banks of the river.

Other common wildlife species known to inhabit or frequent the study area include skunk, racoon, sharp-tailed grouse and white-tailed deer. In addition, great blue herons, crows and several species of small birds have been observed. Generally, the greatest concentrations of birds are to be found along the edges of the existing groves of trees, where both shelter and food (Saskatoonberries, raspberries, rose-hips, etc.) are available.



*Evidence of recent beaver activity.*



*A beaver lodge along the riverbank.*

### 2.2.6. Historical Resources

A portion of the study area, and much of the adjacent neighbourhood areas, are situated on a site very significant in local history. Credit for research into this aspect of the site analysis must go to Professor Donald Kerr. Professor Kerr provided the Design Team not only with a report on the history of the area, but also with copies of maps, newspaper advertisements and articles. The remainder of this discussion is drawn from Kerr's report, as well as two articles from the Saskatoon Star Phoenix (September 9, 1949 and September 6, 1977).

The arrival of Mr. W.A. (Billy) Silverwood in the area (in approximately 1907) from southern Ontario via the Delisle area is the beginning of the story. Silverwood purchased land north of Saskatoon. At that time, the city was in the midst of a land boom of immense magnitude, speculation was almost at a point of frenzy, and growth forecasts for Saskatoon were extreme to the point of absurdity. People thought the city would soon extend to the Silverwood farm and that Billy stood to make a fortune.

At that time, Saskatoon did not have a water purification plant, and history records many deaths attributable to the contaminated water supply of the early 1900's. On his recently acquired farm, Silverwood had a spring which, he immodestly claimed, had the purest water in Canada. With a nephew, Dr. Clarence Routley, Silverwood began bottling his water and selling it in Saskatoon. "People were dying like flies from bad water", Billy said, and his pure water supply rapidly became popular in hotels, restaurants and offices throughout the city. Word of the water spread, and soon many communities in the district also joined his list of customers.

During his short career as a water seller, Silverwood sold as many as 120,000 gallons a year in bottles, some of which carried labels proclaiming:

"This water has been analysed by prominent bacteriologists and pronounced to be a pure spring water remarkable for its beautiful sparkling appearance and has all the essentials of a desirable table water. Bottled only at the springs under expert supervision."

Two things brought about the downfall of a booming business. Saskatoon began to get its own purified water supply and, more important, Billy built a barn for stock on the hill above his spring - with the inevitable result - runoff polluted "the purest water in Canada."

Silverwood's property was also rich in sand; a high-quality product that was used by the city for hospital, hotel and other construction. The original runways at the Saskatoon airport were built with Silverwood's sand, Billy proudly pointed out in 1949.

South of Silverwood's spring, in the next field, now stands the H. McIvor Weir Water Pollution Control Plant. Until recently, other artifacts from local history stood on the hill above the plant. These were among the last remaining evidence of an area known as Factoria.

Of all the dreams dreamt by Saskatonians in the boom time Factoria was the wildest; an independent industrial city to be developed five miles north of Saskatoon (Map 9). It is a clear symbol both of the real estate speculation that in great part created the boom, and of the city's attempt to industrialize. By 1910 Saskatoon was established as the trading centre for central Saskatchewan, but if it were to continue its phenomenal growth it must also become an industrial centre. Industrialization was the topic that most engaged Saskatoon businessmen in 1912 and 1913.

Factoria was originally the idea of R.E. Glass, a Chicago entrepreneur (or con man). Saskatoon Board of Trade Commissioner Sclanders travelled to Chicago to enquire about Mr. Glass and was unable to gain any information on him. Glass



said he'd come west in October of 1912 looking for the best water for a new brewery, which he found at Silverwood Springs. He wanted to buy 80 acres for a brewery site but Billy Silverwood would only sell him a larger plot of land, 473 acres. At that point Glass decided to create a larger industrial community, and added to his prospectus the following: a brick and tile plant, as there was a shortage of building materials in the west and good clay on the land; a glass plant because of the quality of the sand; and a sandlime brick plant because of the limestone. Glass had experts who pronounced on the quality of the resources, though he never named them.

Glass likely took out an option on the land for six months, from December 1, 1912 to June 1, 1913, and during that period embarked on an advertising campaign the likes of which the City had never and has never seen - full page ads for six months in both dailies every day and half page ads by the selling agents, McEown and Hartie (Figures 15 and 16). They were advertising industry, but really only selling lots, at \$500.00 each (200 were sold the first week). Only one of the industries that Glass said he had ready to go ever appeared - a brick plant; though the brewery was constantly in the news (a Chicago architect was in town to design it; the charter for it was bought by Saskatoon and eastern interests under Underhill, manager of the King George Hotel).

Billy Silverwood regained possession of his land on June 1, and he replaced Glass as the entrepreneur. One of the stimulants to buying lots at Factoria and other subdivisions north of Saskatoon (Mackenzie, Henley Park, Pleasant Park, Swastika Park) was the news(?) that the Canadian Northern Railway was going to build two million dollars worth of shops north of the City, right next to Factoria. Eventually the CNR denied the rumour (for one thing it had no money until it was bailed out by the Dominion Government in 1914 - at which time the rumours started again).

Railroads were always the great stimulators of dreams in the west. The model for Factoria was Sutherland (to the east of Saskatoon) which was created by the CPR. Large local interests were promoting an industrial twin city for Saskatoon west of the City, where the three great railroad lines ran within a mile of each other and where a transfer railway was to join the three. That speculative venture was called Saskatoon Junction and Cordage Park, and received a seal of approval when the Industrial League offered free land in that area to industries. South of Saskatoon the Grand Trunk Pacific tried to set up an industrial park with local capitalists, at Pacific Addition. In the imaginations of entrepreneurs, Saskatoon was ringed with satellite cities, each of which had two characteristics: railroads and industries.

Though Mr. Glass failed to produce industries, a number did locate at Factoria (Map 9) A flour mill (Northland from Larimore, North Dakota) and a farm machinery plant (Saska, from Crookston, Minnesota) were both originally brought to town by the Industrial League, a city-wide organization dedicated to bringing industry to the city. A local concern, the Gohn Trussed Wall Plant, constructed a plant. Mr. Gohn had a patent on a cement block that had an insulation cavity in the centre. By December of 1913 these three plants plus a brick plant, a saw mill, a bottling plant, a hotel and five or six houses were all built. As well the very elaborate farm of Mr. Silverwood stood adjacent to the site. The achievement was remarkable given the very tight money market in 1913, but when it worsened in 1914 and when war broke out without electricity having been supplied to the site by the city, Factoria became a ghost town, a bad dream instead of a good one. It's hard to tell what might have happened had 1914 been a different kind of year, and crops been good. It's possible Factoria would have succeeded.

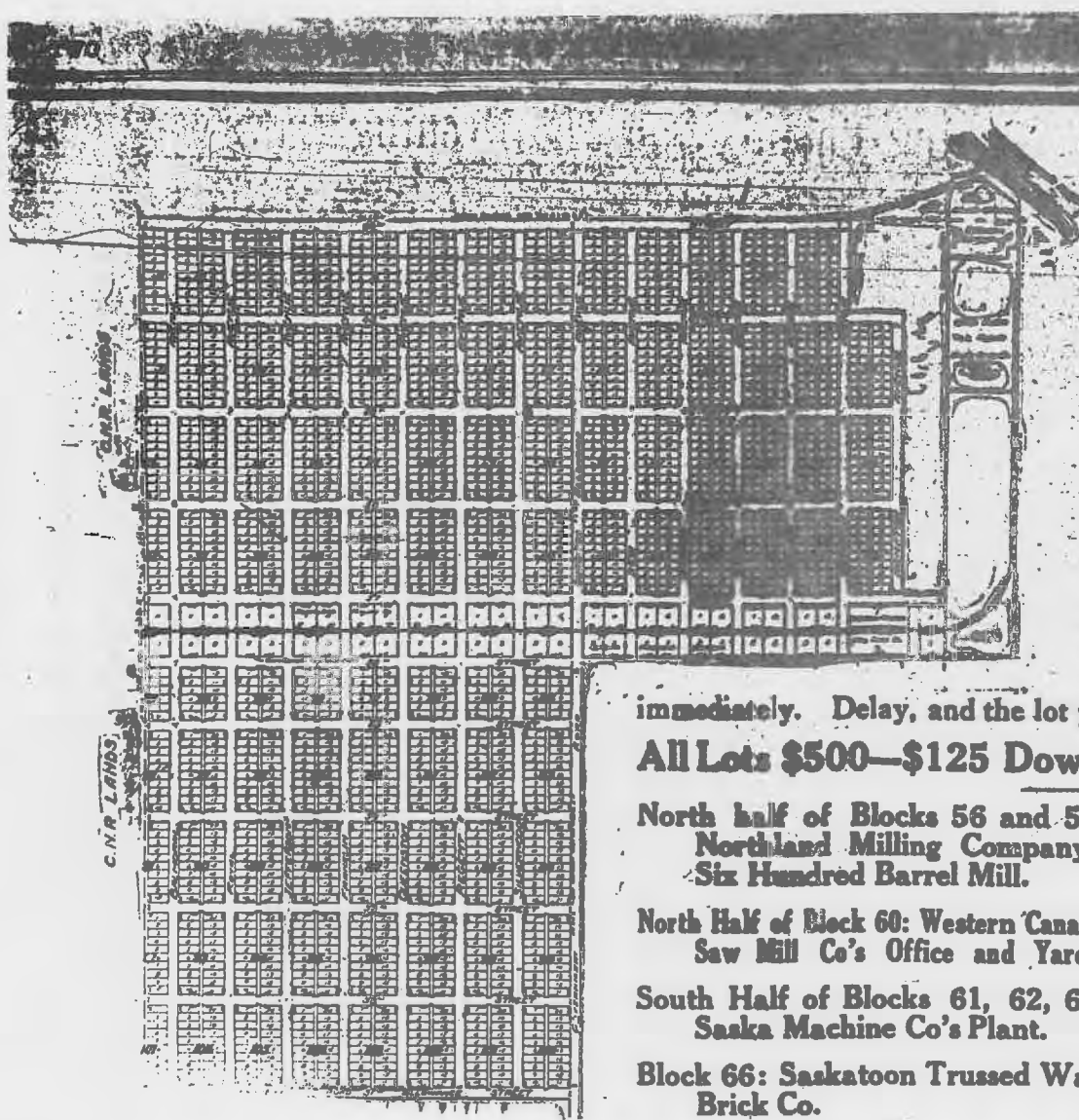
**WEIGH** facts fairly---Don't influence the scales with affection and hate. --You wont go far and you wont achieve greatly until you learn to eliminate prejudice and emotion from decision.

# "FACTORIA"

**You Will Like Factoria -- Watch Factoria Grow -- Factoria Will Make Saskatoon Famous.**

Newcomers and Strangers should not always be confounded with those who sometimes are not possessed with that qualification called

## "HONESTY OF PURPOSE"



**Pick Out That Lot**  
IN  
**FACTORIA**  
**TODAY**

From this accompanying plan you can see where the factories already secured for the "Magic City" are situated and can determine for yourself which lots are the most desirable for either business or residential sites. Make your choice and then see us immediately. Delay, and the lot you desire may be sold.

**All Lots \$500--\$125 Down; Balance 6, 12 and 18 Months.**

**North half of Blocks 56 and 57:**  
Northland Milling Company's Six Hundred Barrel Mill.

**North Half of Block 60:** Western Canada Saw Mill Co's Office and Yards.

**South Half of Blocks 61, 62, 63:**  
Saska Machine Co's Plant.

**Block 66:** Saskatoon Trussed Wall Brick Co.

**North Part of Spur:** Northern Brick and Supply Co.  
*Manufactures Sand Cement Brick, Non-Breakable and Fireproof Hollow Tile, Stone Crushers.*

**North End of Spur:** Brewery.

**North End of Spur:** Bottling Plant Where Silver Springs Water is Bottled.

**Lots 8, 9 and 10, Block 17---**66 room hotel.

**FRANK B. McEOWN**

**SELLING AGENT**  
Suite 4 & 5 Phone 1767

FIGURE 15



57-241  
13  
Please

# Who's Who

Who put the back in **Washington**?  
Who put the back in **Timbuktoo**?  
Who put the man in **Birmingham**?  
Who put the zoo in **Kalamazoo**?

---*Brooklyn Eagle.*

Who put the can in **Kanakee**?  
Who put the keke in **Kakomo**?  
Who put---won't some one please tell me?---  
The sin in **Cincinnati, O.**?

---*Birmingham Age-Herald.*

Who put the hole in **Holyoke, Mass.**?  
Who put the ham in **Birmingham**?  
Who put the link in **Lincoln, Neb.**?  
Who put the dam in **Amsterdam**?

---*Cincinnati Enquirer.*

Who hung the wash in **Washington**?  
Who filled the can for **Canton, O.**?  
Who put the bloom in **Bloomington**?  
Who put the man in **Mankato**?

---*Youngstown Telegram.*

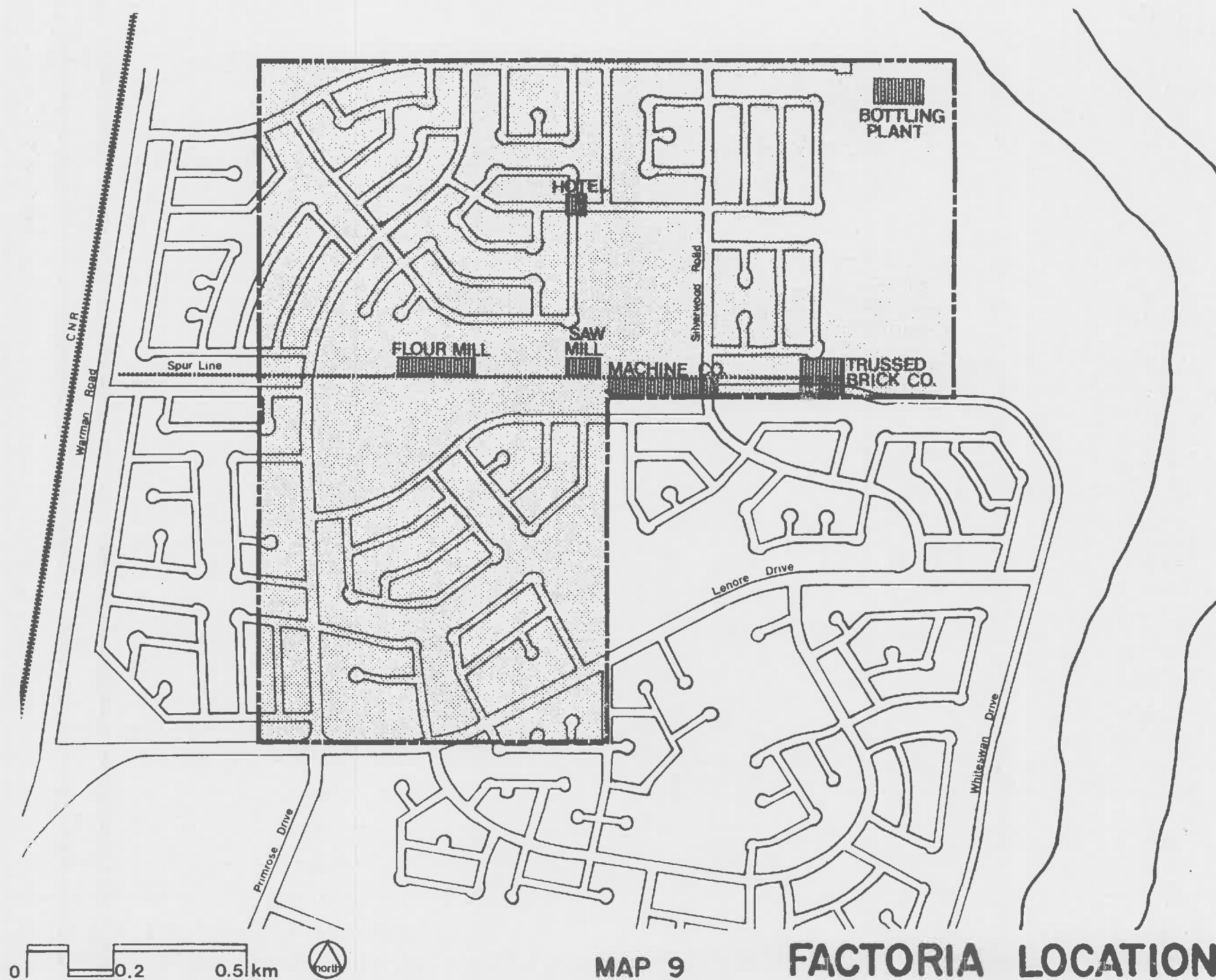
Who put the hoe in **Idaho**?  
Who put the spoke in **old Spokane**?  
Who put the sea in **Seattle**?  
Who put the bell in **Bellingham**?

---*Spokesman Review.*

Who wrote the tune in **Saskatoon**?  
Who put the victor in **Victoria**?  
Who put the hat on **Medicine Hat**?  
Who's putting the **FACTORIES** at

## FACTORIA ?

# Ask The Man Who Knows



The height of Factivia optimism must have been the spring and summer of 1913. When Silverwood auctioned off his farm animals and machinery on April 16 (for \$25,000) 400 or 500 people were present, and bought lots as well as horses and cows. One June 9 there were 100 people at a meeting held to form a Board of Trade, to apply for village status, build a school and get a post office.

Little is known about the later history of Factivia. An electrical line was finally run out to the location in 1917 so the flour mill, under new ownership, could produce badly needed flour during the war. The bottling plant and Trussed brick plant must have been in operation,

since their products can be found on the site. Saska advertised products in the newspapers. It is also believed that the flour mill, then owned by Robin Hood, was brought back into production in World War II.

Billy Silverwood still owned his farm when he died early in 1956, and it remained in his estate until 1968, when the City of Saskatoon bought it for \$663 per acre. Today, natural stone embedded in cement still marks the location of Silverwood's house and of the stock barn. Down the hill, a concrete pad with a few pipes sticking out is all that remains of the cistern Billy built to hold the spring water. The site of the Gohn Trussed Wall Plant is now

covered by a new berm, being developed to screen the pollution control plant from adjacent residential areas. The site of the Factoria Hotel is now characterized by new sidewalks, fire hydrants and utility boxes in Silverwood Heights. In fact, preliminary site investigations indicate that the only remaining artifacts of industrial development at Factoria lie in a large pile of concrete, steel and timber rubble, at the site of the Northland Milling Company's flourmill.



*Ruins of the Northland Milling Company's flourmill.*

#### 2.2.7. Archaeological Resources

In June 1980, during an archaeological survey of new subdivision areas in the northern portion of Saskatoon, a prehistoric site was found in the vicinity of the Silverwood farmstead. Documentation of this find, and of subsequent preliminary testing of the site was provided to the Design Team by Dr. Urve Linnae, of the Department of Anthropology and Archaeology, University of Saskatchewan. This discussion is based on reports prepared by Dr. Linnae.

Initial finds at the site were concentrated on the first major terrace up from the river, and were distributed in an area extending approximately 100 metres north of the pollution control plant boundary fence. On the basis of projectile points found, the site is estimated to be approximately 5,000 years old.

In July and August, 1980, additional preliminary testing was undertaken. Seven test pits were dug, of which two produced the most promising results. The stratigraphy in these two pits showed a thin, dark brown horizon that could possibly be an intact prehistoric occupation layer. An east-west grid was set out by the archaeologists, and four one-metre squares were excavated in the vicinity of the two test pits.

The four squares excavated, all consistently produced the following results:

1. Between 20 and 30 cm below the surface, a thin layer of dark brown soil.
2. This layer appeared to be undisturbed, and produced no modern or historic artifacts.
3. This layer did produce stone flakes, bifaces, core fragments and animal bone fragments.
4. The surface layer above this was a light gray sandy loam, that contained both modern artifacts and prehistoric material.

It is apparent that the surface layer of the site has been disturbed by either cultivation or other surface activity. Since it contains prehistoric material, it is probable that this activity has either destroyed a prehistoric layer that was close to the surface, or it has disturbed the top part of the lower prehistoric occupation layer and mixed this material with the top layer.

It is also apparent that all or part of the prehistoric occupation layer is still intact at the site. No diagnostic artifacts have yet been found to place this material either temporally or culturally.

Based upon these preliminary investigations, Dr. Linnae has offered the following recommendations:

1. The site should be protected from further damage by vehicles and garbage dumping.
2. An extensive, contiguous area in the vicinity of the preliminary tests, should be preserved for future archaeological excavation. This should be done before any development is undertaken in the area.
3. Based on these investigations and historical archival research, a submission must be made to the Provincial Government to declare this a protected site.

A second archaeological investigation, along the eastern edge of the Silverwood borrow pit, was also undertaken by the Department of Anthropology and Archaeology during the summer of 1980. Based upon the depth at which prehistoric material was found, preliminary estimates are that this site could be as old as 20,000 years.

No information is available with respect to archaeological resources in the remainder of the study area. This is not to suggest that there are no prehistoric sites. Rather, there have been no investigations in the area which

could document additional sites of archaeological significance. It is clear that much of the study area has been disturbed by urban development in the past few years. However, considerable portions of the Park in proximity to the river, have remained relatively untouched, and could yet reveal major archaeological information and artifacts.



*The Silverwood Barn.*

### 3. ISSUES, CONCERNS AND GOALS

In order to prepare a Master Plan for the Meewasin Park study area, it was first necessary to identify the important issues of Park development, as perceived by neighbourhood residents, residents of other areas in Saskatoon and the Study Steering Committee. These issues were analyzed by the Design Team and Steering Committee, and translated into a set of planning Concerns and Goals.

The Concerns and Goals are based upon input from the groups noted above, and upon issues identified by the consultant during the analysis of existing conditions in and around the study area (Section 2). They provided an overall planning framework for the preparation of the Master Plan.

#### 3.1. Public Input

A total of 115 responses were received by the M.V.A. to a brief questionnaire distributed in the Saskatoon Star-Phoenix. Of the 115 responses, 20 were received from River/Lawson Heights residents, 37 from other neighbourhoods, and 58 from members of the Saskatoon Nordic Ski Club (almost all of whom live in neighbourhoods other than River and Lawson Heights).

Respondents were asked to rate the importance of seven items. A summary of these responses is provided in Table 1. Generally, respondents placed a relatively high priority on the preservation of the natural environment. Residents of neighbourhoods other than River/Lawson Heights tended to favour the development of facilities such as cycle paths, picnic sites and small-scale playgrounds to a greater degree than did residents of River/Lawson Heights.

TABLE 1: SUMMARY OF RESPONSES TO NEWSPAPER QUESTIONNAIRE (in %)

| ITEM  | RIVER/LAWSON HEIGHTS |    |    | OTHER NEIGHBOURHOODS |    |    | SKI CLUB |    |    | TOTAL CITY |    |    |
|---|----------------------|----|----|----------------------|----|----|----------|----|----|------------|----|----|
|   | Priority             |    |    | Priority             |    |    | Priority |    |    | Priority   |    |    |
|   | H                    | M  | L  | H                    | M  | L  | H        | M  | L  | H          | M  | L  |
| Preservation of Natural Features and Vegetation | 79                   | 21 | 0  | 84                   | 13 | 3  | 77       | 18 | 5  | 79         | 17 | 4  |
| Cycle Paths                                     | 47                   | 16 | 37 | 57                   | 30 | 13 | 50       | 45 | 5  | 52         | 35 | 13 |
| Lighted Ski Trails                              | 40                   | 16 | 44 | 30                   | 38 | 32 | 86       | 10 | 4  | 60         | 20 | 20 |
| Family Picnic Sites                             | 42                   | 21 | 37 | 46                   | 32 | 22 | 25       | 38 | 37 | 33         | 34 | 33 |
| Canoe Dock                                      | 37                   | 16 | 47 | 32                   | 49 | 19 | 33       | 44 | 23 | 37         | 38 | 25 |
| Observation Decks                               | 21                   | 21 | 58 | 21                   | 41 | 38 | 13       | 25 | 62 | 21         | 32 | 47 |
| Small-scale Playground                          | 16                   | 21 | 63 | 35                   | 43 | 22 | 13       | 36 | 51 | 23         | 37 | 40 |

SOURCE: MEEWASIN VALLEY AUTHORITY (1980):  
Meewasin Park-Analysis of Public Response;  
compiled by E. Gould, M.V.A. Public  
Involvement Officer.

As the Nordic Ski Club membership response made up more than 50 percent of the total sample, their very strong preference for lighted ski trails tended to bias the overall importance of such facilities in the total sample, as indicated on Table 2. Table 2 also illustrates the differences in priorities held by River/Lawson Heights respondents as compared to the total city sample.

In addition to the specific questions asked of respondents, there was a request for other comments. Among the most common were the following:

1. Motorized vehicles (snowmobiles, motorcycles and motor boats) should be prohibited access to the Park.
2. The Park should be cleaned up as soon as possible.
3. There should be provisions for vehicle parking (mainly from residents of neighbourhoods other than River and Lawson Heights).
4. There should be no provisions for vehicle parking (mainly from residents of River and Lawson Heights).

## 3.2. Concept Plans

In addition to the solicitation of responses through the newspaper questionnaire, three conceptual plans for the study area were prepared for public review. Although the three concepts contained certain common features, each represented a different philosophy of, and approach to, Park development.

The first Concept incorporated the philosophy of 'concentrating activities and development' around one major Park focal point. The second approach to Park development was one of 'dispersing activities and facilities' throughout the Park. Concept 3 was a significant departure from either of the first two, inasmuch as facility and pathway development in the Park was proposed to be minimal. The emphasis in this Concept was one of restoring much of Meewasin Park to a nearly-natural state.

The three Concept Plans, a detailed description of each and a comparison of the three alternatives may be found in Appendix B of this report.



Table 2: RANKING OF ITEMS ACCORDING TO IMPORTANCE  
(HIGH RATING USED)

A. TOTAL CITY

| RANK | ITEM                              | % OF RESPONDENTS INDICATING HIGH PRIORITY |
|------|-----------------------------------|---|
| 1.   | Preservation of natural features  | 79  |
| 2.   | Development of lighted ski trails | 60  |
| 3.   | Provision of cycle paths          | 52  |
| 4.   | Canoe dock                        | 37  |
| 5.   | Family picnic sites               | 34  |
| 6.   | Small-scale playground            | 23  |
| 7.   | Observation decks                 | 21  |

B. RIVER HEIGHTS/LAWSON HEIGHTS

| RANK | ITEM                              | % OF RESPONDENTS INDICATING HIGH PRIORITY |
|------|-----------------------------------|---|
| 1.   | Preservation of natural features  | 79  |
| 2.   | Provision of cycle paths          | 47  |
| 3.   | Family picnic sites               | 42  |
| 4.   | Development of lighted ski trails | 40  |
| 5.   | Canoe dock                        | 37  |
| 6.   | Observation decks                 | 21  |
| 7.   | Small-scale playground            | 16  |

SOURCE: MEEWASIN VALLEY AUTHORITY (1980):  
MEEWASIN PARK-ANALYSIS OF PUBLIC RESPONSE;  
compiled by E. Gould, M.V.A. Public  
Involvement Officer.

### 3.3. Public Review

Two 'open houses' were held, at which the general public was invited to examine the three conceptual alternatives to Park development, and to provide comments and criticisms.

The majority of visitors to the open houses were understandably residents of River and Lawson Heights. Again, preservation of natural features and vegetation was a high priority, although the idea of a more 'urban' Park appearance was also clearly popular. It became apparent that there were elements of all three Concepts which were considered desirable in the public review. The majority of people wanted to see some facility development (pathway system, family picnic sites, service building), and when local residents saw that an off-street parking facility might tend to decrease street parking in their neighbourhood, they began to accept this notion as well.

### 3.4. Concerns and Goals

Based upon analysis of existing conditions in and around the study area, and upon the public input described above, the Design Team prepared a set of preliminary Park Planning Concerns and Goals for Steering Committee discussion, revision and approval. The following represent the Concerns and Goals approved by the Steering Committee:

- CONCERN: The situation of Meewasin Park, with respect to the South Saskatchewan River, is such that the potential exists for a variety of levels and types or river-oriented activities.
- GOAL: Although power boating and swimming are not considered appropriate river activities to be incorporated into plans for Meewasin Park development, use of the river by canoes, kayaks, etc. is considered desirable. The Master Plan will therefore provide for the launching, docking and beaching of such watercraft.
- CONCERN: With future Park development, increased use of the Park by residents from throughout Saskatoon will result in significant pressures for vehicle parking areas.
- GOAL: Provisions are to be made for off-street parking and for further expansion of such a facility(ies) as needs and Park use dictate. Although street parking is to be permitted on nearby neighbourhood streets, the goal is to make off-street parking more desirable to Park visitors.

CONCERNS: Information received to date indicates that there is potential for development of an historical interpretation facility at the Silverwood Farmstead site.

: Preliminary investigations indicate that this site also contains significant archaeological artifacts, and may be a major archaeological site.

GOAL: In the short term, the Plan will allow for protection of the historic and prehistoric resources in the area. In the longer term, the Plan will provide for the development of an historic/prehistoric interpretive area.

CONCERNS: Preliminary investigations indicate that the Silverwood landfill site (old borrow pit immediately west of the Pollution Control Plant) may be a significant archaeological site.

: This site has also been identified as having excellent potential for geological interpretation.

: The size and form of the borrow pit is such that the potential for its incorporation into the overall Park design, as a major landscape feature, is high.

: The borrow pit is presently being used as a landfill and sewage and grit disposal site, and is rapidly being filled in.

GOAL: In the short term, the Plan will indicate a means for protecting at least a significant portion of the borrow pit. The long term goal is to develop the pit as an integral

component of the landscape and to provide for the development of an interpretive area. This is, of course, contingent upon compatible plans for expansion of the pollution control plant.

CONCERN: Future development of the east bank of the River, across from Meewasin Park (Peturrson's Ravine, Nature Study Centre, other recreation development) could provide opportunities for, and a demand for, pedestrian links across the River.

GOAL: Two pedestrian crossings of the South Saskatchewan River are to be developed.

CONCERN: Opportunities presently exist to develop a variety of alternative pathway and trail systems in Meewasin Park.

GOAL: Formal pathway development should allow for a variety of visual and recreation experiences. Although initial pathway development may be restricted to a multi-purpose path system, the ultimate goal is to provide, to the fullest extent practical, segregated pedestrian and cycle circulation networks.

CONCERN: As a city-wide park, Meewasin Park could provide a wide range of services and facilities.

GOAL: Facility development in Meewasin Park should be co-ordinated with development in nearby Neighbourhood and District Parks, and with other City-wide Parks in Saskatoon. In general terms, the goal is to provide an activity focal point in the Park including a small playground, a year-round service building/warm-up shelter and family picnic facilities.

CONCERN: An area considered to be biologically significant (in a local sense) is situated along the river edge, north of the Pollution Control Plant. This area is floristically rich, aesthetically pleasing and in a nearly-natural state.

GOAL: No formal access is to be provided into this area. The area is to be retained in its natural state.

CONCERN: Given that picnicking facilities are to be provided in Meewasin Park, questions remain as to the concentration or dispersal of such facilities, their location and level of development.

GOAL: Development of picnicking facilities should occur in several locations in the Park where the activity could be concentrated. Development should provide a variety of picnicking environments (woodland, grassed open space, on riverbank, away from river, etc). Sites and facilities should be suitable for and attractive to, families and groups and as such should provide a certain degree of privacy for groups of visitors.

CONCERN: As a physically distinct area within Meewasin Park, the upland park area (adjacent to River Heights) has traditionally fulfilled the role of a neighbourhood park.

GOAL: This role is to be essentially maintained.

CONCERN: The small bluff between the Upland Park Area and Spadina Crescent is, at present, relatively stable. However, this stability could be jeopardized by any clearing of vegetation, heavy use or any structural development.

GOAL: The bluff area is to be retained in its present state and not subjected to development of pathways or to heavy use of any type.

CONCERN: The existing vegetation within the riverside park area presently provides a relatively continuous buffer between the river bank and areas closer to Whiteswan Drive. In addition, these areas are good examples of natural prairie riveredge ecosystems in a suburban setting.

GOAL: All existing natural vegetation in the riverside park area is to be preserved.

CONCERN: Beaver (Castor Canadensis) activity and lodges have been noted at several points along the riverbank, some of which are in close proximity to areas with the potential to support relatively intensive recreation facilities and activities.

GOAL: Although retention of the beaver population within the Park is desirable, the locations of major activity focal points should be related to ease of access, logical circulation patterns and the quality of the total recreation experience available to Park visitors. Beaver are therefore of secondary importance.

CONCERN: Several options exist for landscape development in Meewasin Park.

Although the level of such development should be compatible with proposed activities and facilities, the theme(s) of landscape development (horticultural species only, native species only, combinations of the two) will have significant implications in terms of both short-term (establishment of plant material) and long-term (maintenance) costs.

GOAL: A combination of themes is to be used in landscape development in Meewasin Park. Themes for specific areas should reflect site conditions, relationships with surrounding areas and intended activities.

CONCERN: There has been no indication, from the City of Saskatoon, of plans for future development and area requirements of the H. McIvor Weir Water Pollution Control Plant. This information is vital to the Meewasin Park planning process, in order that future Park development may be co-ordinated with development of the sewage treatment facility.

GOAL: An assumption is to be made that future pollution control plant expansion will require additional lands (probably to the north of the existing plant), but that a significant portion of the lands presently being used as a spatial buffer could be utilized for outdoor recreation purposes.

The above Concerns and Goals thus provide the general framework for planning future development within the study area.



## 4. DESIGN PRINCIPLES

Within the framework of general planning Concerns and Goals, the Design Team identified specific design principles which would suggest locations and forms of various Park elements, and linkages and interrelationships between them. Map 10 illustrates these design principles, which are outlined below.

### 4.1. Role of the Park

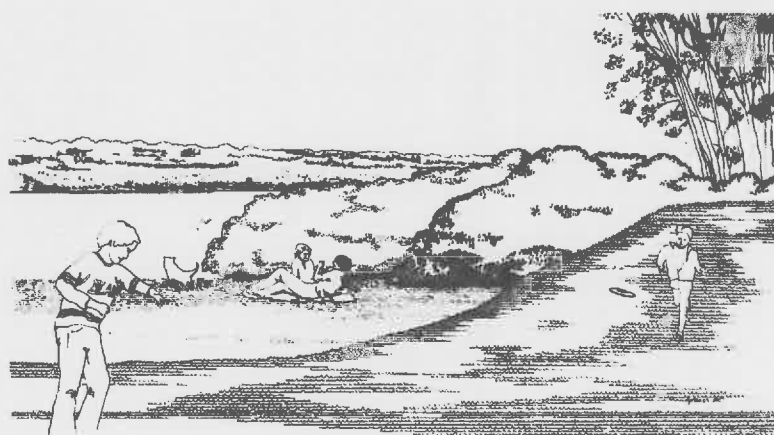
The intent is to develop Meewasin Park in a manner which will enhance its role as a linkage.

- : In order to enhance an east-west linkage, pedestrian circulation routes will be integrated with the 42nd Street Bridge. In addition two pedestrian river crossings will be provided at widely spaced points along the river.
- : The linkages between the river and the land will be reinforced through pathway and trail development from key Park entry points to the river edge.
- : A north-south linkage within the Park shall be developed by means of a hierarchy of pathways and trails which will provide a variety of recreation experiences for visitors.
- : A time linkage can be provided with the development of historic and prehistoric interpretive facilities and areas.
- : The existing link between the city and countryside can be protected with the preservation of natural vegetation and features, and with facility development that is sensitive to the importance of such a linkage.

### 4.2. Image of the Park

The image of Meewasin Park is one of transition; from the 'hard' suburban character of the adjacent residential neighbourhoods to the natural, diverse, 'unstructured' environment along much of the riverbank.

- : Landscaping themes will reflect this transition. Horticultural themes will predominate in areas of intensive development and along adjacent streets. Mixtures of horticultural species and native species shall provide a zone of transition toward the riverbank. Existing natural areas will be complemented by additional native planting.
- : Landform designs will complement the planting themes, and levels and types of facility development.
- : Vehicle access (with the exception of service vehicles) is to be restricted to portions of the 'suburban edge' and transition zone of the Park.
- : Recreation facilities (pathways, trails, picnic areas) will be located in all three Park zones (suburban edge, transition zone and natural areas) to provide a variety of recreation opportunities.

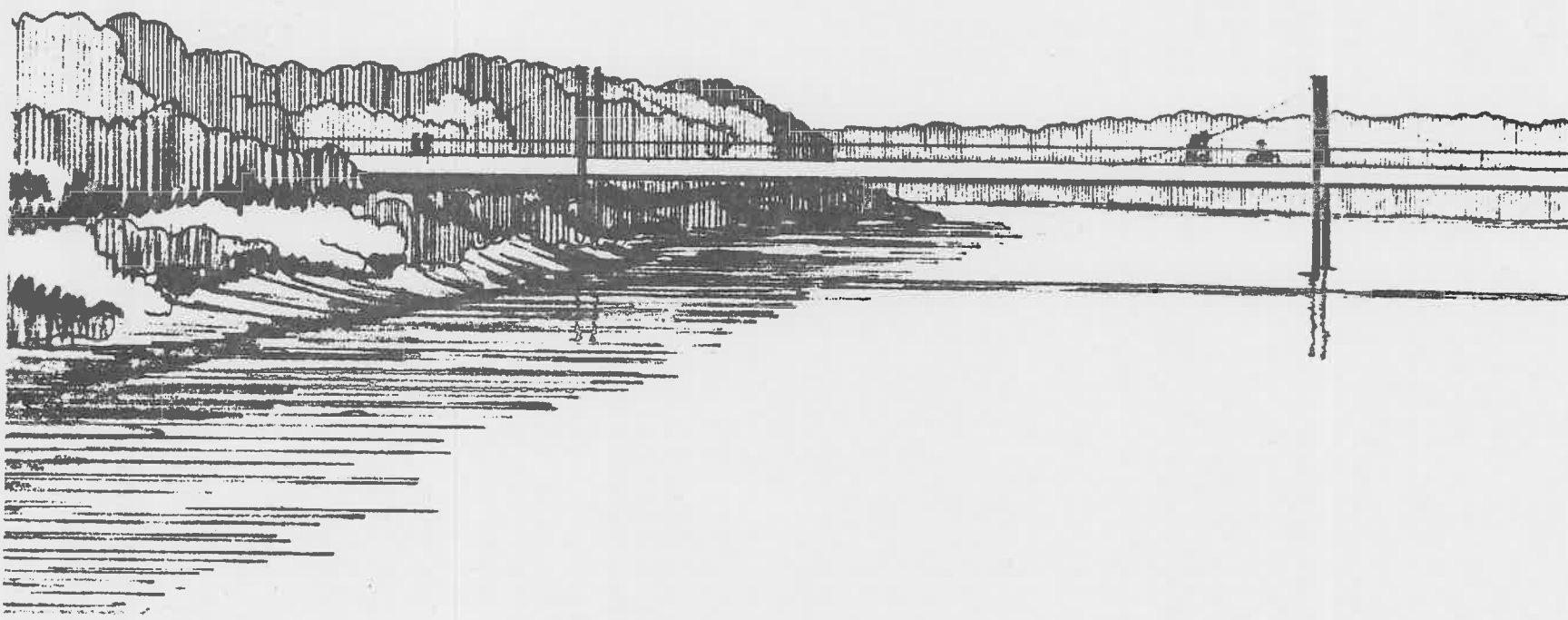


### 4.3. Facility Development

Facility development in Meewasin Park should be co-ordinated with such development in nearby Neighbourhood and District parks and in other City-wide parks.

- : Facilities such as sports and play-fields and wading pools are located in nearby Neighbourhood parks and as such, are not required components of Meewasin Park.
- : Tennis courts, baseball diamonds and arenas are generally provided in nearby District parks and should therefore not be considered for inclusion in Meewasin Park.

- : Facilities such as amusement rides and recreation/cultural complexes presently exist in other City-wide parks and duplication of these types of facilities do not appear appropriate for Meewasin Park.
- : As the major attraction of Meewasin Park is considered to be the river and associated natural amenities, facility development in Meewasin Park should complement the outdoor recreation activities appropriate in such an environment. Therefore, facilities such as a small year-round service building, picnic areas and facilities, canoe launching and docking areas, a small-scale children's playground, parking lots, pedestrian paths, cycle paths and hiking and skiing trails are to be provided.



## 5. THE MASTER PLAN

The Meewasin Park Master Plan represents a synthesis and integration of the various concerns, goals and design principles set out in previous sections of this report. The intent of the Plan is to indicate how the Park can be developed into a major, year-round recreation area (for both active and passive recreation). Development proposed for the Park is intended to complement the major attraction of the area: the river and associated natural features.

Meewasin Park is proposed, in the Master Plan, to serve two principal roles. First, it is to serve as a major year-round recreation and educational area. Second, its role as a link (both spatial and temporal) is emphasized.

The intent of the Plan is to offer, in a park setting, opportunities for learning, for research, recreation and for preservation.

The overall image of the Park is one of 'transition'; a gradual change from the 'hard', simple, man-made environment of adjacent neighbourhoods, to the 'softer', diverse, natural environment along much of the river.

The Master Plan recognizes six, relatively distinct areas, or Sectors, within the study area (Map 11). They are as follows:

1. Spadina Crescent
2. Upland Park
3. Riverbank Park
4. Pollution Control Plant
5. Conservation Area
6. Northern Park

Each Park Sector consists, in turn, of a number of Components. The balance of this Section is devoted to detailed descriptions of the six Park Sectors and the Components contained therein.

### 5.1. Spadina Crescent

The Spadina Crescent Sector consists of six Components: pedestrian and cyclist connections to the 42nd Street Bridge; a multi-purpose formal pathway; erosion protection and landscaping on the landfill; the steep bluff north of Spadina Crescent; P.C.R. Banting Park; and the Spadina Crescent roadway.

Pedestrian and cyclist connections are provided from sidewalks on both sides of the 42nd Street Bridge to city walks on the west side of Spadina Crescent. In order to link with the multi-purpose riverside pathway, an on-grade pedestrian crossing of Spadina Crescent will be required. The riverside pathway essentially parallels the Spadina Crescent right-of-way, but is physically separated from the road itself. The pathway drops down near the riverbank only where it passes under the 42nd Street Bridge. In the remainder of this Sector, pathway grades correspond, relatively closely, to existing grades along Spadina Crescent. This minimizes the need for extensive regrading and shaping of the landfill; an expensive proposition, in light of the variety of materials (large boulders, concrete rubble etc.) used in the landfilling programme.

As indicated on Map 5, a 100-year flood would inundate most of the landfill in this Sector, including a significant length of the Spadina Crescent extension.

Perhaps more important than the issue of inundation during such a flood, however, is the issue of river erosion damage caused during periods of peak flow. As the landfill is situated in a position where river erosion would be greatest (on the outside of a sharp river bend), the Master Plan suggests that measures be taken to reduce undercutting of the landfill. Specific techniques to reduce erosion potential are numerous and beyond the scope of a Master Plan. However, such measures

could include the following: boulder rip-rap; gabion baskets; and reinforced earth.

Because of the need for erosion protection along the landfill, the notion of transition from the man-made environment of suburban neighbourhoods to the natural environment along the river, is not totally applicable within the Spadina Crescent Sector. Rather, the natural environment exists along the original riverbank (the bluff immediately north of the Spadina Crescent extension). Thus, the approach to landscaping and planting within this Sector is such that the existing natural character of the bluff is reinforced. This should occur in a number of ways:

1. No formal pathway development north of Spadina Crescent.
2. In-filling of openings along the bluff with native species of trees and shrubs compatible with existing species nearby.
3. Extension of the vegetated area to the Spadina Crescent-Ravine Drive intersection and along the steep slope north of Ravine Drive.
4. Establishment of native grasses between Spadina Crescent and the base of the bluff.

Although the edge of the landfill should be protected from river erosion, provisions should be made to 'soften' the visual impact of such measures. The Plan therefore calls for a relatively continuous edge of riverbank vegetation; similar to that existing immediately south of P.C.R. Banting Park. Not only will this vegetation serve to soften the appearance of the rip-rapped slope, but it will also, in time, provide a natural measure of erosion protection.

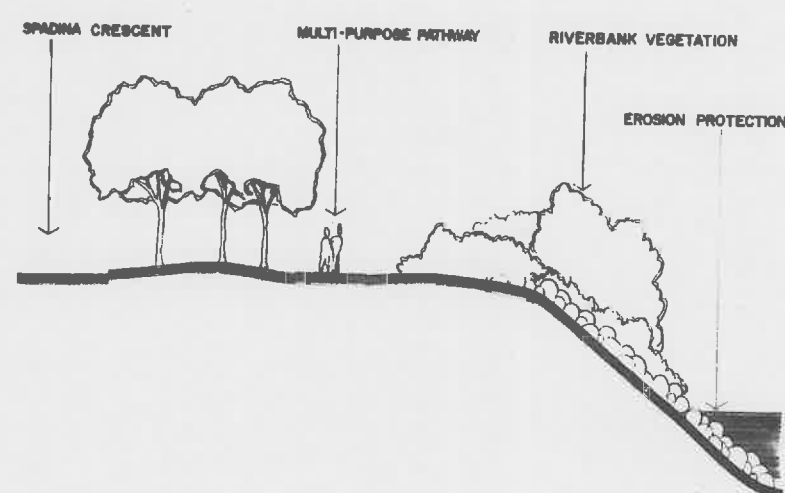
In the vicinity of the Spadina Crescent-Ravine Drive intersection, the landfill broadens out, and Spadina Crescent is as much as 85 metres from the river. Although riverbank vegetation should continue along this portion of the bank, the broad plain is to be treated as an open,

meadow-like area, with minimal tree and shrub planting. Such an approach permits a direct visual link from the pathway and Spadina Crescent to the river.

P.C.R. Banting Park presently serves the role of open space along a scenic riverside drive; that is, it is not commonly used for active recreation pursuits. The Master Plan suggests that this role be maintained and enhanced, through limited planting of native trees and shrubs compatible with those already in place.

Inasmuch as the Master Plan calls for the realignment of the bicycle path away from the Spadina Crescent roadway, it is suggested that the two lanes presently allocated for cyclists could be used for on-street parking by Park visitors. As Spadina Crescent has been designated by the City of Saskatoon as an arterial road, no other design changes are suggested in the Plan. However, it is suggested that the notion of 'Spadina Crescent as a scenic drive' be reinforced. This can be accomplished in two ways:

1. Informal tree and shrub planting at key points along the river side of the road. The locations and massing of this planting would be used to provide variety along Spadina, to frame views of the river and to provide a buffer between Spadina Crescent and the riverside pathway.
2. The use of native tree, shrub and grass species on the south side of Spadina, to complement the species distribution on the north side.

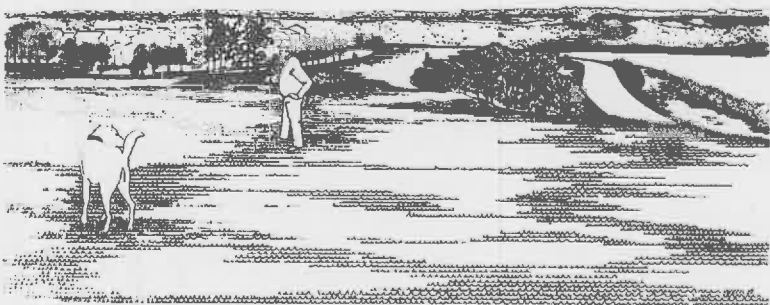


## 5.2. Upland Park

Within the Upland Park Sector, there are basically only three Components: formal pathway connections between neighbourhood streets; informal recreation space; and landscape development.

The existing role of this Sector, as a neighbourhood park area, is to be essentially maintained. In order to reinforce this role, formal, multi-purpose pathways would provide connections between Capilano Drive, Sturgeon Drive, Skeena Crescent, Saguenay Drive and Whiteswan Drive. Thus, not only are neighbourhood connections strengthened, but direct pedestrian access to the major Park focal point (east of Whiteswan Drive) is also provided to River Heights residents.

There would be no formal recreation facility development in this Sector, as use of this area is intended to be of an informal, unstructured nature. Thus, landscape development should occur in a manner which not only complements this type of activity, but also provides a transition from the suburban edge to the natural environment of the bluff.



## 5.3. Riverbank Park

The Riverbank Park Sector consists of the following Components:

- : canoe launch/dock facility
- : off-street parking
- : Park service building
- : small scale children's playground
- : outdoor pleasure skating area
- : picnic facilities
- : hierarchical pathway/trail network
- : pedestrian linkages to the east bank
- : landscape development
- : Whiteswan Drive

The above list clearly indicates that the level of facility development in the Riverbank Park Sector is high, relative to other areas in Meewasin Park. It is, in fact, within this portion of the Park that the greatest potential exists for a wide variety of recreation opportunities.

A major activity centre is proposed at the south end of the Riverbank Park Sector. Included in this recreation node are a number of facilities. A vehicle access road enters the Park opposite Sandy Court, and extends into a linear double-loaded parking lot. This parking facility would have an initial capacity of 30 cars, with room for expansion to an ultimate capacity of 80 cars. It is set back from Whiteswan Drive approximately 50 metres, and would be visually buffered from nearby residential areas with a combination of berming and planting.

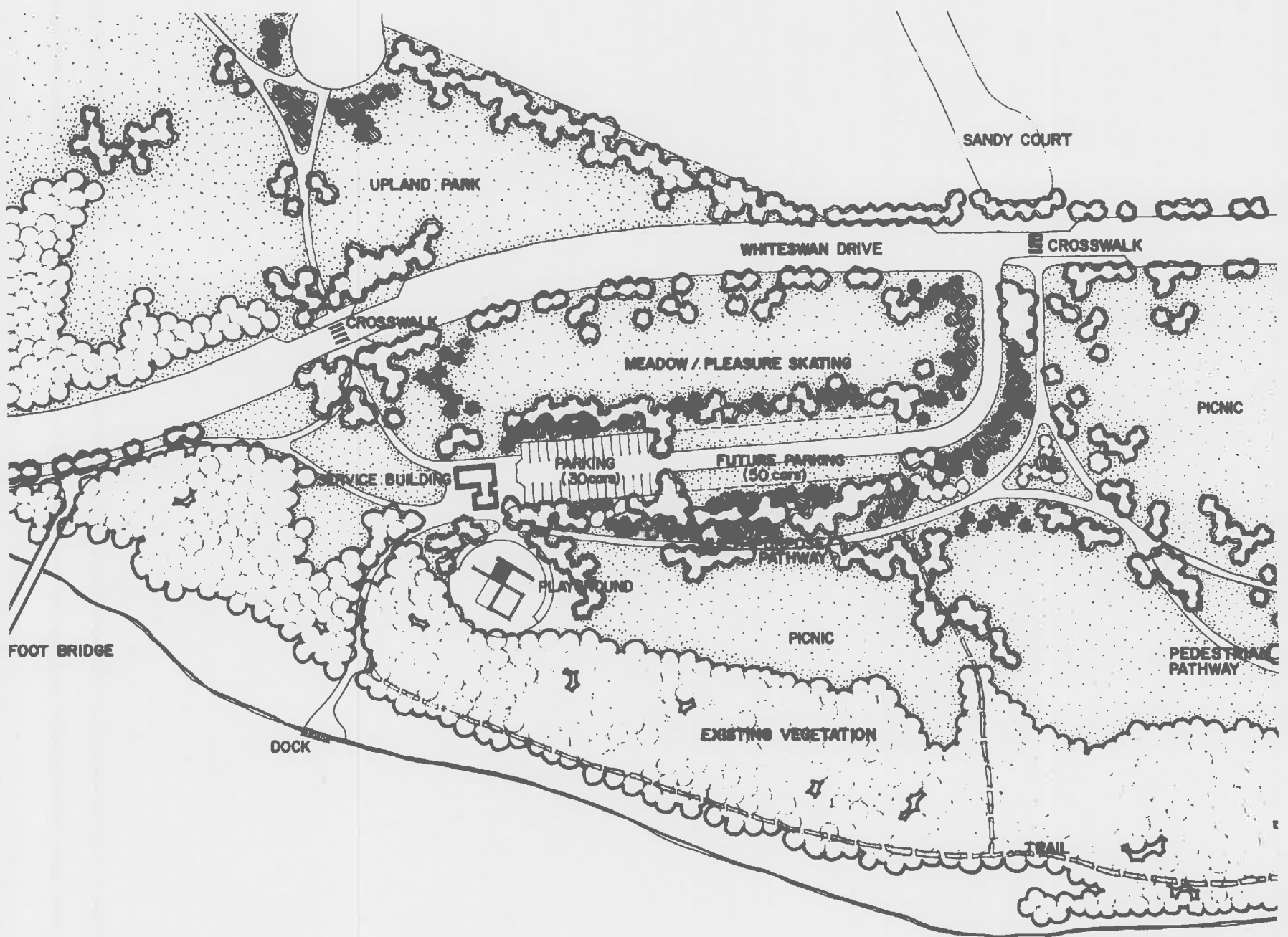
South of the parking lot is a small Park service building. This building would consist of washrooms and a warm-up shelter for winter visitors, but its design would allow for additional facilities, as needs and demands increase over time. Some of the winter visitors could use the service building as a place to put on their skates before using the outdoor pleasure skating area located nearby.



Further into the Park, toward the river, is a family picnicking area and a small children's playground. Picnic tables and barbeque pits are scattered about this landscaped area, where landforming and tree planting provide a feeling of privacy for the families or groups using the facilities. The nearby playground offers an attraction to children whose families view the Park as a place for a quiet Sunday afternoon picnic and walk along the river.

Additional picnicking areas are provided away from the activity centre. The level of facility development in these areas ranges from nothing more than a suitable place to lay down a blanket, to picnic tables with barbeque pits and cook shelters. The picnic

areas are widely scattered within the Riverbank Park Sector in a variety of situations. Thus, visitors will be able to choose between picnic sites in open grassed areas, in groves of trees, along the riverbank, or up on the hill overlooking the river. A second small off-street parking area is located in the northern portion of the Riverbank Park Sector, in the vicinity of Lenore Drive. This parking lot (initial capacity of 20 cars, with provision for expansion to 30 cars) provides convenient vehicle access for visitors not wishing to park near the activity centre. In addition, it should serve to reduce the number of vehicles parking on Whiteswan Drive.



In keeping with the Park image of 'transition', the approach to landscape development in the Riverbank Park Sector gradually changes from west to east. Along Whiteswan Drive, the intent is to offer the appearance of an orderly, botanically simple but visually appealing, suburban park. Re-shaping of the ground in places will provide some variety in the landscape, but is not intended to duplicate the often irregular and complex landforms which might have existed prior to development of the adjacent neighbourhoods.

The planting programme in this zone emphasizes the use of horticultural species (Kentucky bluegrass, ornamental shrubs and trees, some evergreen species). The intent is the appearance of a 'cultured', maintained landscape.

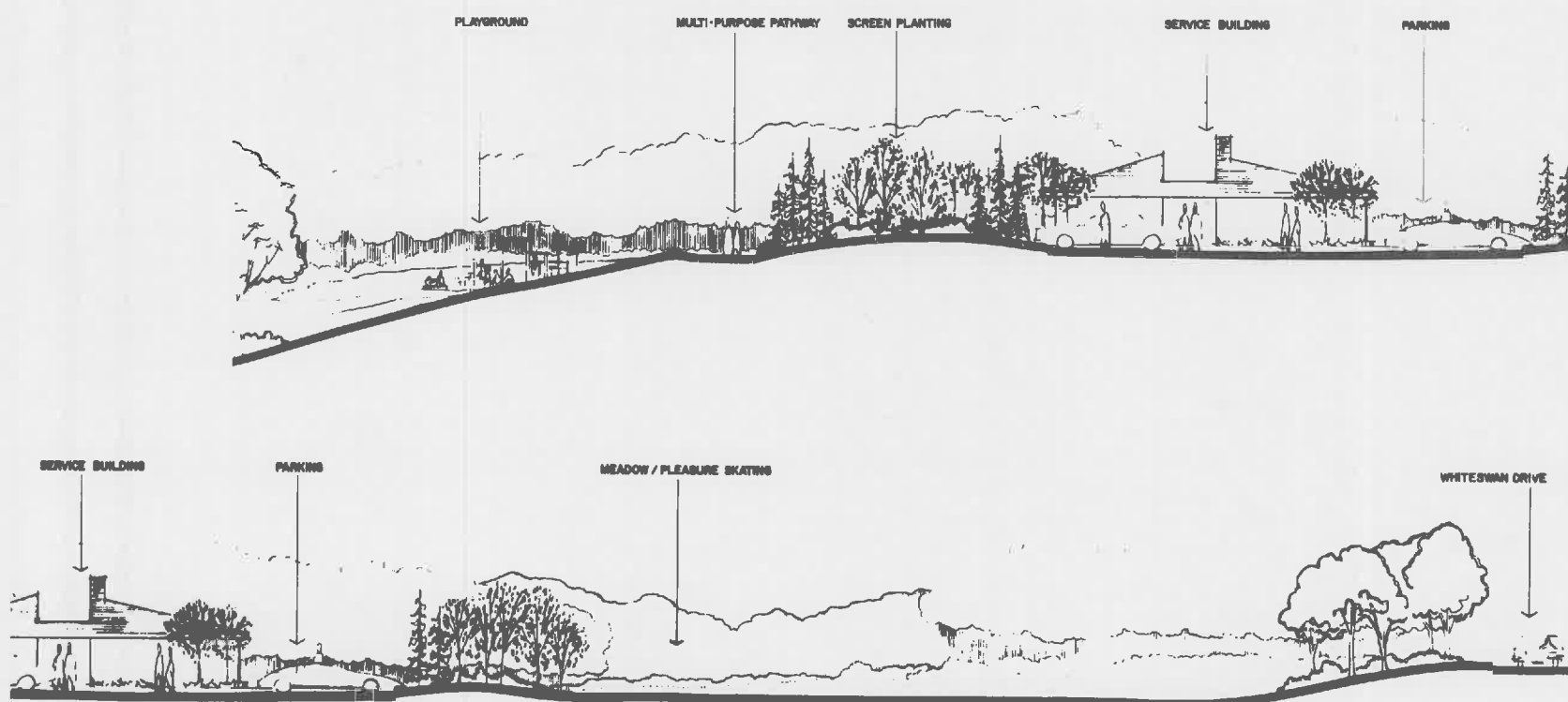
Along the river, much of the landscape development has already been carried out through natural processes. Further landscape development should be restricted to supplementary planting of native grasses, shrubs, trees and wildflowers, and to a limited clean-up of hazardous materials (dead or rotten trees, but not deadfall).

The zone lying between the horticultural and the natural areas within this Sector is not of a consistent width. The degree to which the two peripheral zones extend into the centre of the Park relates to a number of factors, including the following:

1. The intensity and types of use proposed for different parts of the Park.
2. The lay of the land.
3. The degree to which natural communities already extend into the Park from the riverbank.

The intermediate zone of transition therefore appears as an irregular zone of inconsistent width.

Within this zone, the ground takes on the informal, somewhat irregular form of a natural landscape. Tree and shrub planting is characterized by the use of native species. However, the zone is maintained in a relatively cultured state (that is, open, grassed areas are mowed, deadfall is cleaned up, etc.).



Unlike the single, multi-purpose path in the Spadina Crescent Sector, pedestrian and cyclist circulation within the Riverbank Park Sector is accommodated by an hierarchical network of formal pathways (both single and multiple use) and informal trails. This curvilinear network not only provides for north-south circulation within this Sector, but it also connects with the riverbank pathway in the Spadina Crescent Sector, the multi-purpose path in the Upland Park Sector, and the multi-purpose path in the Northern Park Sector. In addition, connections are provided to main Park entry points along Whiteswan Drive.

The Master Plan suggests three main types of formal pathways. The first is a hard-surface (asphalt or similar material), multiple-use path. This type of pathway extends through the length of the Riverbank Park Sector, and connects with main Park entry points and pathways in adjacent Park Sectors.

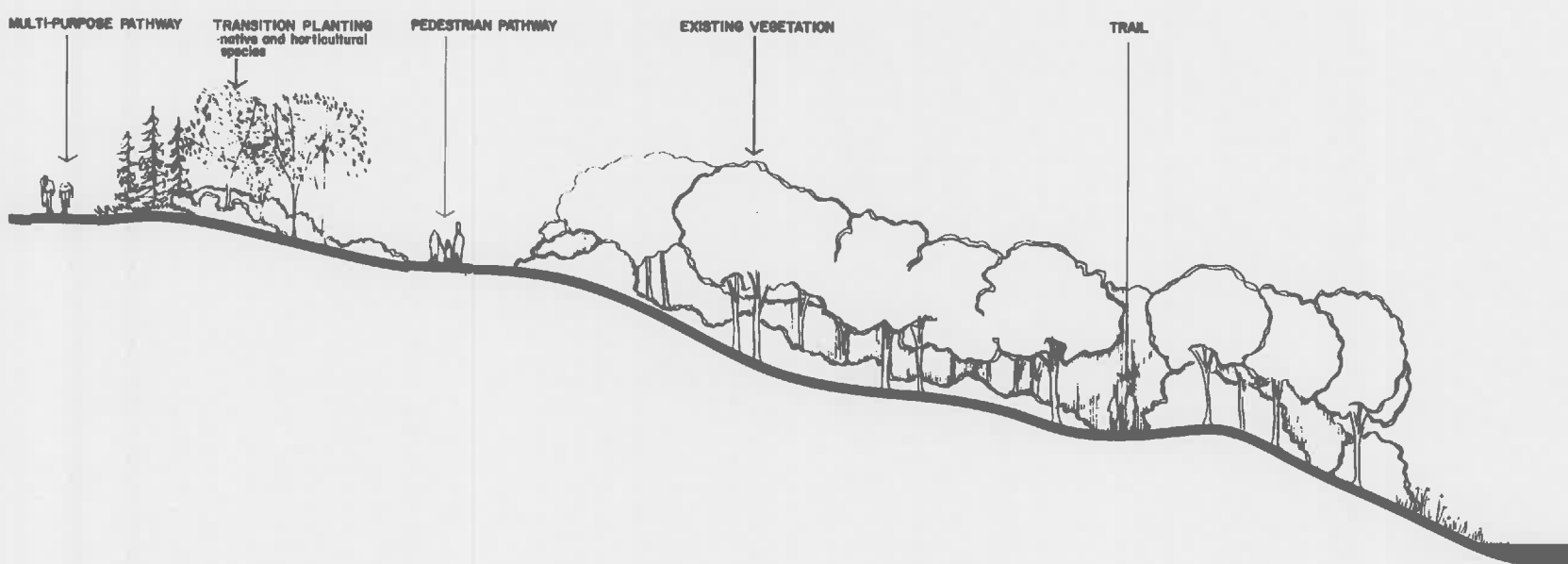
The second type of formal pathway is envisioned as a 'pedestrian-only' route. Its surface would be of a material that would discourage use by cyclists without discouraging pedestrians (crushed stone or similar material).

The third formal pathway type is characterized by its 'softer' visual impact. This type of path is used to provide access into natural areas and to the riverbank. Materials such as wood chips, bark mulch, etc. not only

reduce construction and visual impacts within the natural areas, but also provide a suitable walking surface and decrease the impact of pedestrian traffic (compaction, erosion) within the natural areas.

Alignments of the formal pathways are such that pedestrians and cyclists are provided with a wide variety of experiences as they travel along them. Changes in grade, terrain conditions and vegetation communities are encountered as the pathways meander through the transition and horticultural landscape zones. With the exception of the third type of formal pathway (the 'softer', wood chip covered paths), these routes do not encroach upon the natural landscape zone of the Park. There are three main reasons for this:

1. Construction of formal asphalt or crushed stone paths in the areas of natural vegetation would have considerable local impact on the natural communities (re-grading of some slopes, removal of vegetation, damage caused by equipment during construction).
2. A formal pathway would take away from the recreation experiences available in this relatively pristine environment.
3. There presently exists a system of informal trails within this natural zone which, with limited up-grading (trail widening in places, removal of some deadfall), could provide access through much of the natural landscape zone with minimal environmental disturbance.



It is the opinion of the Design Team that retention of this informal trail system (with minor improvements) would provide Park visitors with a greater variety of recreation and visual experiences.

The Park's role as a link between the land and the river is reinforced through the provision of a canoe launching and docking facility in the south end of the Riverbank Park Sector. Access to this facility is provided by a pathway from the parking lot in the activity centre. As canoes are essentially the only watercraft which can be used on the river, and as they are easy to transport short distances on foot, the major impacts and costs of providing vehicle access to the canoe launch cannot, in the opinion of the Design Team, be justified.

Two pedestrian crossings of the South Saskatchewan River are suggested in the Master Plan. The first is at the extreme south end of the Riverbank Park Sector and the second is directly east of the Whiteswan Drive - Lenore Drive intersection. The selection of these two locations is based primarily upon the distribution of activities and pedestrian circulation routes proposed for Meewasin Park. Final decisions regarding the construction and specific locations must, however, be delayed until the following action is taken:

1. Preparation of plans for development of the east bank of the river across from Meewasin Park.
2. Detailed, site-specific geotechnical evaluations of both sides of the river and the river bottom, in terms of pedestrian bridge construction feasibility.
3. Detailed analyses of the relative costs and benefits resulting from the construction of such bridges.

The final Component of the Riverbank Park Sector is Whiteswan Drive. Although this road has been designated as an arterial route, the Master Plan suggests certain minor design changes. Unlike the Spadina Crescent extension, this portion of Whiteswan Drive is characterized by several points of access to the Park, for both vehicles and pedestrians.

At the two major pedestrian access points, it is recommended that the curbs on both sides of Whiteswan should be 'pushed' into the two curb lanes presently designated as cycle paths. This would not affect cyclists' safety, as the cycle path is to be re-routed through the Park. It would, however, indicate to drivers and pedestrians alike, that these are designated points for pedestrian crossings into the Park.

In the vicinity of the two major vehicle access points (Pinehouse Drive, Lenore Drive), it is recommended that the eastern curb of Whiteswan Drive be moved east. This would provide drop-off zones without interfering with normal traffic flows.

The remaining portions of the two former bicycle lanes could then be used for on-street parking by both Park visitors and local residents. It is anticipated that the location of the major activity centre at the south end of the Sector will encourage visitors to use the off-street parking lot provided. However, on-street parking should be available at times of heavy Park use or when visitors wish to enjoy portions of the Park away from the activity centre.

## 5.4. Pollution Control Plant

Plans for future expansion of, or additions to, the H. McIvor Weir Water Pollution Control Plant are unknown at the present time. However, provisions are made in the Meewasin Park Master Plan for possible expansion of the existing primary treatment facility and for augmentation of primary treatment with secondary and perhaps tertiary treatment facilities.

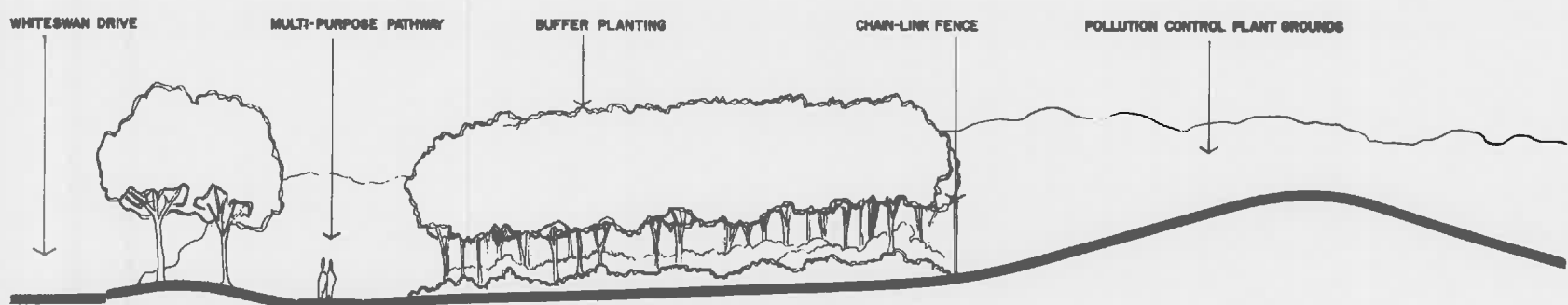
Whereas the City of Saskatoon has traditionally used distance as the major tool for buffering the pollution control plant from other activities (hence the large expanse of unused land within the perimeter fence), recent urban development in nearby areas requires a modification to this approach. Thus the Master Plan suggests some significant alterations to the perimeter fence alignment. The philosophy behind this approach is that efficient buffering between incompatible uses (i.e. residential development and sewage treatment) can be provided through the use of appropriate landscape development rather than simply through a large physical separation.

It is therefore recommended that the perimeter fence be relocated in order that much of the northern and western portions of the present pollution control plant grounds (including the Silverwood borrow pit) would lie outside the fence. The precise alignment of the fence would, of course, be dependent upon the requirements of the City for plant expansion. Coordination with the City Engineering Department is therefore critical.

There are, then, three major Components identified in the Pollution Control Plant Sector of the Master Plan: landscape development on the periphery of the Sector; short-term utilization of lands set aside for plant expansion; and relocation of the sewage grit disposal pit.

Appropriate landscape development on the periphery of the pollution control plant grounds is the key to efficiently buffering the operation from surrounding areas. Such development must be co-ordinated with similar programmes within adjacent Park Sectors. Along the northern and western portions of the relocated perimeter fence, a combination of landform shaping (e.g. berms) and intensive planting (both native and horticultural trees and shrubs) will serve not only to screen the pollution control plant itself, but also to reduce the visual impact of the required chain link perimeter fence.

A major berm is presently being built up on the southern boundary of this Sector along Whiteswan Drive. Intensive planting on, and south of, this berm will provide an efficient visual buffer from Whiteswan and nearby residences.





There are two additional areas requiring similar treatment, although the emphasis in these areas is to be on the use of vegetation, rather than berming, to provide a visual buffer. The first area is immediately south of the pollution control plant itself, where intensive planting (primarily native species) will provide a buffer from the Riverbank Park Sector. The second area is along the eastern boundary, north of the plant, where intensive planting, of native species only, will screen the perimeter fence from the Conservation Area Sector.

At present, grit from the sewage treatment plant is periodically being dumped in the north end of the Silverwood borrow pit. As the Master Plan calls for retention of this portion of the pit as a major landscape feature and for geological interpretation purposes, it is essential that a new grit disposal area be developed within the Pollution Control Plant Sector as soon as possible.

Until such time as the pollution control plant expands, a significant portion of this Sector will lie unused. It is therefore suggested that the City of Saskatoon utilize this land for short-term horticultural experimentation and testing (e.g. evaluation of varieties of grass species under a variety of conditions: irrigated and non-irrigated, slope stabilization; fertilization tests; etc.).

## 5.5. Conservation Area

Immediately east of the Pollution Control Plant Sector, along the riverbank, is an area of some local biological significance. It is significant in that a wide variety of vegetative communities is represented in a relatively small area, and in that much of the area is relatively undisturbed by human activity. The Master Plan calls for the preservation of this area, and formal access is therefore not recommended. The intent is not to discourage use of this Sector; rather it is to restrict formal access (pathways) from the Riverbank Park or Northern Park Sectors. This approach would still allow visitors to walk through the area; however, the lack of formal access should help to ensure that over-use and corresponding environmental damage does not occur. There is to be no facility development in this Sector.



*Existing access to the Conservation Zone.*

## 5.6. Northern Park

Within the Northern Park Sector, there are nine

major Components:

- : Silverwood borrow pit
- : historical/archaeological interpretive area
- : off-street parking
- : possible future access road to the pollution control plant
- : viewpoint
- : multi-purpose pathway system
- : landscape development
- : picnic facilities
- : informal recreation space

Development of this Sector will clearly depend upon a final alignment of the pollution control plant perimeter fence, as almost all of the Sector lies within the present boundaries of the plant grounds.

It is within this area that Meewasin Park's role as a link between the past and present can be reinforced. Development is centred on the creation of an integrated historical/archaeological/geological interpretive area. The only remaining physical evidence of Silverwood Spring and Factoria are to be found here. In addition, preliminary investigations indicate that a major archaeological site is situated within this area. Finally, exposed geological sections in the walls of the Silverwood borrow pit are such that the glacial history of the Saskatoon area is clearly illustrated.

The integrated interpretive area could consist of some or all of the following:

1. A small, working flourmill, which could illustrate, in part, the historical role of this area in the early 1900's.
2. An interpretive pathway through the Silverwood borrow pit, where the geological history of the Saskatoon area may be depicted.
3. A display of archaeological and historical artifacts in the area.

Provisions are made for both vehicle and pedestrian access to this integrated interpretive area. Vehicle access is provided

from the eastern terminus of Adilman Drive into a small parking lot (initial capacity of 30 cars with room for expansion to accommodate 60 cars). A multi-purpose, hard-surfaced pathway system extends south and east from the parking lot into and around the borrow pit. This system ultimately connects with pedestrian Park entry points from Silverwood Heights, and with the multi-purpose pathway in the Riverbank Park Sector.

A pedestrian pathway extends north and east from the parking lot to the Silverwood Farmstead and down the hill to the archaeological interpretive site and the Silverwood Spring cistern, where an outdoor historical interpretive facility is located.

A number of facilities are proposed to complement the development of the interpretive area. A viewpoint is suggested east of the borrow pit, where visitors can look out over the Meewasin Valley. Picnicking facilities are located in the southwest corner of this Sector, and nearby, space is set aside for informal recreation activities (frisbee throwing, touch football, etc.). A second small picnic area is provided just south of, but screened from, the parking lot.

It is possible that, because of the hazardous nature of some chemicals presently being transported through residential areas into the pollution control plant, an alternative access road to the plant may be required through the Northern Park Sector. A possible alignment for such a road is suggested in the Plan.

Landscape development in this area is to serve several functions. First, landforming and intensive planting programmes should complement similar programmes in the Pollution Control Plant Sector, to efficiently buffer the Plant and perimeter fence from the Park. Second, additional planting of native trees and shrubs east and south of the Silverwood Spring

cistern will assist in buffering the Conservation Area from this area of relatively intense use.

A shelter belt has recently been established along the rear lines of lots located on Ball and Perreault Crescents. The third function of the landscape development programme is therefore to reinforce this edge and to extend it, into the Park, at key points. This shall assist in the informal identification of functions designated for various areas, and in providing a variety of environments for the picnic sites and other recreation activities.

The notion of 'transition in the landscape' is applicable to the landscape development of the Northern Park Sector. The area situated on the top of the hill is treated as a cultured, maintained landscape. The transition zone extends down the side of the hill, until the natural communities of the Conservation Area become dominant.



*An existing trail in the Riverbank Park Sector.*

The use of this Master Plan as a general framework for detailed design and construction will result in the development of a Park which provides numerous types of links (spatial and temporal), and which provides a variety of recreation and educational opportunities throughout the year.

However, inherent in this Plan are certain implications for long term management policies and maintenance programmes. The following list cannot be considered complete, but three of the major implications are addressed.

1. A periodic monitoring programme will be required to evaluate the impact of visitor use and pedestrian traffic along the trails in the natural landscape areas. Policies must be established regarding the criteria, timing, and methods for temporary trail closures and rehabilitation.
2. As much of the Park is not physically or visually accessible to police vehicle patrols, special arrangements may be required to ensure adequate policing of the Park.
3. Two general approaches to landscape maintenance in Meewasin Park will be required. The first approach (applicable in the horticultural and transition landscape zones) is comparable to that used in other City-wide parks in Saskatoon. Inherent in such an approach are practices such as irrigation, regular mowing of lawns, clean-up of deadfall and plant debris, etc. The second approach to landscape maintenance pertains to the natural landscape zones. In these areas, the essence of the approach is minimal maintenance (removal of hazardous materials, periodic widening of trails, etc.).

## 6. IMPLEMENTATION

Park development is a relatively complex, long term process. Successful implementation of the Meewasin Park Master Plan (i.e. detailed design studies and construction) will require that priorities be established and that development of certain facilities and areas be co-ordinated with other facilities and areas in the Park.

The intent of this discussion is therefore to suggest which Park Sectors, and Components within these Sectors, should be given top development priority, to provide a general implementation framework for the development proposed in the Meewasin Park Master Plan, and to outline approximate development costs.

### 6.1. Implementation Framework

#### 6.1.1. Spadina Crescent

Development in the Spadina Crescent Sector of Meewasin Park clearly cannot be completed until the 42nd Street Bridge has been completed. In the interim, however, it is possible (and in places, desirable) to initiate the detailed design and construction phase of the park development process.

Top priority should be given to the detailed design and installation of bank erosion protection along the landfill. This process must be co-ordinated with the design and construction of the riverside pathway, of the riverbank vegetation, and of the 42nd Street Bridge.

Of secondary importance is the initiation of landscape development along the landfill, on both sides of Spadina Crescent, along the bluff area and in P.C.R. Banting Park.

#### 6.1.2. Upland Park

Landscape development and pathway construction within the Upland Park Sector should be considered as a high priority, for three reasons:

1. The adjacent residential areas have been fully developed and settled for a number of years.
2. Required site clean-up and preparation prior to development need only be minimal.
3. Early development of this Park Sector would provide a highly visible indication to the general public that Park development is indeed underway.

#### 6.1.3. Riverbank Park

The first stage of the detailed design and construction phase in the Park development process (site clean-up) has been completed in much of the Riverbank Park Sector. Thus, with acquisition of detailed site survey information, detailed designs for the Sector may be initiated at any time.

The following list sets out, in chronological order, the major steps to be taken in the development of this area:

1. Establishment of a detailed Park programme, including site development requirements (short and long term parking lot capacity, facilities to be included in service building, level and extent of picnic facility development, etc.).
2. Preparation of detailed designs (landscaping, architectural and engineering plans, including site layout, site grading, planting, service building designs) for all Park Components.
3. Estimation of detailed development costs.
4. On the basis of detailed cost estimates and priorities for facility development, selection of specific Components for construction.
5. Preparation of tender documents, including construction drawings and specifications.
6. Construction (installation of services, landforming and rough grading, hard landscaping, soft landscaping).

#### 6.1.4. Pollution Control Plant

Until plans for expansion of the H. McIvor Weir Water Pollution Control Plant have been finalized, implementation of this portion of the Meewasin Park Master Plan cannot begin. However, in the interim, certain action should be taken by the Meewasin Valley Authority, including the following:

1. The City of Saskatoon should be encouraged to relocate the sewage grit disposal area away from the Silverwood borrow pit at the earliest possible date.
2. In order to ensure that plans for future expansion of the Pollution Control Plant can be co-ordinated with the intent of the Meewasin Park Master Plan, the City of Saskatoon should be made aware of the recommendations contained in this report.
3. Provisions should be made for the short term utilization of lands set aside for future Plant expansion (short term horticultural testing, etc.).

When plans for future development of the Pollution Control Plant have been identified, it is important that detailed landscape development designs (landforming, site grading, buffer planting) and vehicle access designs be co-ordinated with detailed designs for adjacent Park Sectors.

#### 6.1.5. Conservation Area

As the Master Plan calls for retention of this area in its present state, implementation should be restricted to a site clean-up programme (removal of car bodies, garbage). A limited planting programme (native species only) will be required after plans for Pollution Control Plant expansion have been finalized. In addition, existing major points of access into the Conservation Zone will require some planting to discourage excessive use of this area.

#### 6.1.6. Northern Park

Development of the Northern Park Sector is dependent directly upon final plans for Pollution Control Plant expansion. Until such time as these plans are known, certain action is required, including the following:

1. Protection of the Silverwood Farmstead and archaeological site from further dumping and damage caused by dirt bikes, etc.
2. Continued archaeological research in the Silverwood borrow pit and at the farmstead.
3. Input from the University of Saskatchewan Department of Anthropology and Archaeology regarding the establishment of a prehistoric interpretive area.
4. Consultation with the Saskatoon Heritage Society in order to fully document the history of Silverwood Spring and Factoria and to prepare a strategy for developing an historical interpretive area.
5. Co-ordination with the City of Saskatoon Engineering and Parks and Recreation Department regarding the ultimate alignment of the Pollution Control Plant perimeter fence.

Once final plans for Pollution Control Plant expansion are known, development of the Northern Park Sector should follow a process similar to that outlined in Section 6.1.3.



6.2. Estimated Development Costs

The estimation of development costs at the Master Planning stage can be based on very general information only. Accurate cost estimates must await detailed design of the various Park Sectors and Components.

The following estimates outline the general costs, based on 1980 dollars, of facility and landscape development in Meewasin Park.

6.2.1. Spadina Crescent

|  |               |
|--|---------------|
| - pathway development.....\$   | 62,000.00     |
| - 2000 lin. m @\$31.00   |               |
| - erosion protection.....\$  |               |
| - cost dependent upon technique  | UNKNOWN       |
| - soft landscaping.....\$  | 216,000.00    |
| - 9 ha @\$24,000.00  |               |
|  | <hr/>         |
|  | \$ 278,000.00 |
| - plus 10% contingency.....\$  | 27,800.00     |
|  | <hr/>         |
|  | \$ 305,800.00 |
| - plus 7% professional fees.....\$   | 21,400.00     |
|  | <hr/>         |
| - Sector 1 total (excluding design and construction of erosion protection) | <hr/>         |
|  | \$ 327,200.00 |

6.2.2. Upland Park

|                                    |               |
|------------------------------------|---------------|
| - pathway development.....\$       | 21,080.00     |
| - 680 lin. m @\$31.00              |               |
| - soft landscaping.....\$          | 108,000.00    |
| - 9 ha @\$12,000.00                |               |
|                                    | <hr/>         |
|                                    | \$ 129,080.00 |
| - plus 10% contingency.....\$      | 12,900.00     |
|                                    | <hr/>         |
|                                    | \$ 141,980.00 |
| - plus 6% professional fees.....\$ | 8,500.00      |
| - Sector 2 total.....\$            | <hr/>         |
|                                    | 150,480.00    |

6.2.3. Riverbank Park

|                                    |                |
|------------------------------------|----------------|
| - canoe launch/dock.....\$         | 1,000.00       |
| - parking lots .....\$             | 88,000.00      |
| -110 stalls @\$800.00              |                |
| - Park service building.....\$     | 58,500.00      |
| - 90 sq. m @\$650.00               |                |
| - children's playground.....\$     | 10,000.00      |
| - pedestrian bridges.....\$        | 3,000,000.00   |
| - 2 @ \$1,500,000                  |                |
| - pathways development.....\$      | 122,900.00     |
| - 3300 lin. m @\$31.00 (Type 1)    |                |
| - 1300 lin. m @\$14.00 (Type 2)    |                |
| - 400 lin. m @\$6.00 (Type 3)      |                |
| - hiking trail development.....\$  | 4,200.00       |
| - 2100 lin. m @\$2.00              |                |
| - soft landscaping.....\$          | 1,102,000.00   |
| - 38 ha @\$29,000.00               |                |
|                                    | <hr/>          |
|                                    | \$4,386,600.00 |
| - plus 10% contingency.....\$      | 439,000.00     |
|                                    | <hr/>          |
|                                    | \$4,825,600.00 |
| - plus 6% professional fees.....\$ | 289,000.00     |
|                                    | <hr/>          |
| - Sector 3 total                   | <hr/>          |
|                                    | \$5,114,600.00 |

6.2.4. Pollution Control Plant

Cost estimates for this Sector are based on the area allocated for expansion as indicated on the Master Plan (25 ha) and do not include costs for Plant expansion.

|   |              |
|---|--------------|
| - new perimeter fence.....\$  | 27,200.00    |
| - 680 lin. m @\$40.00   |              |
| - perimeter landscape development..included in Northern Park Sector |              |
| - plus 10% contingency.....\$                                       | 2,700.00     |
| - Sector 4 total  | <hr/>        |
|   | \$ 29,900.00 |

6.2.5. Conservation Area

|                                  |                     |
|----------------------------------|---------------------|
| - soft landscaping.....          | \$ 40,000.00        |
| - 8 ha @ \$5,000                 |                     |
| - plus 10% contingency.....      | \$ 4,000.00         |
|                                  | \$ 44,000.00        |
| - plus 8% professional fees..... | \$ 3,500.00         |
| - Sector 5 total.....            | <u>\$ 47,500.00</u> |

6.2.6. Northern Park

|                                  |                       |
|----------------------------------|-----------------------|
| - parking lot.....               | \$ 48,000.00          |
| - 60 stalls @ \$800.00           |                       |
| - pathway development.....       | \$ 86,000.00          |
| - 2000 lin. m @ \$31.00 (Type 1) |                       |
| - 1200 lin. m @ \$20.00          |                       |
| (interpretive path)              |                       |
| - soft landscaping.....          | \$1,100,000.00        |
| - 22 ha @ \$50,000.00            |                       |
| - small working flourmill.....   | \$ 250,000.00         |
|                                  | \$1,484,000.00        |
| - plus 10% contingency.....      | \$ 150,000.00         |
|                                  | \$1,634,000.00        |
| - plus 6% professional fees..... | \$ 98,000.00          |
| - Sector 6 total.....            | <u>\$1,732,000.00</u> |

6.2.7. Summary of Estimated Development Costs

|   |                       |
|---|-----------------------|
| SPADINA CRESCENT.....   | \$ 327,200.00         |
| UPLAND PARK.....  | \$ 150,480.00         |
| RIVERBANK PARK.....   | \$5,114,600.00        |
| POLLUTION CONTROL PLANT.....                                      | \$ 29,900.00          |
| CONSERVATION AREA.....  | \$ 47,500.00          |
| NORTHERN PARK.....  | <u>\$1,732,000.00</u> |
| GRAND TOTAL (excluding erosion<br>protection along landfill.....) | <u>\$7,401,680.00</u> |

## Appendix A

## MEEWASIN PARK STRATIGRAPHIC TEST HOLE LOGS

Locations of the sixteen test holes are indicated on Map 5.

| TEST HOLE LOG |          |            |  |   |  |  |        |                          |  |
|---------------|----------|------------|--|---|--|--|--------|--------------------------|--|
|               |          |            |  | SHEAR STRENGTH - kPa  |  |  |        |                          |  |
|               |          |            |  | <input type="checkbox"/> UNCONF. <input type="checkbox"/> POCKET PEN <input checked="" type="checkbox"/> LAB VANE<br>50   100   150   200 |  |  |        |                          |  |
|               |          |            |  | ▲ DRY DENSITY - gms/cm <sup>3</sup><br>1.3   1.5   1.7   1.9   2.1  |  |  |        |                          |  |
|               |          |            |  | PLASTIC LIMIT   WATER CONTENT   LIQUID LIMIT<br>○   →   |  |  |        |                          |  |
|               |          |            |  | 10   20   30   40   50 %  |  |  |        |                          |  |
| DEPTH (m)     | NO. TYPE | UNIF. P.I. |  |   |  |  | SYMBOL | DESCRIPTION OF MATERIALS |  |
|               |          |            |  |   |  |  |        |                          | 0.1 m  |
|               |          |            |  |   |  |  |        | 0.3 m                    | SAND   |
|               |          |            |  |   |  |  |        |                          | - fine   |
|               |          |            |  |   |  |  |        |                          | - damp   |
| 2             | P300     |            |  |   |  |  |        |                          |  |
|               | Bag      |            |  |   |  |  |        |                          |  |
|               |          |            |  |   |  |  |        |                          |  |
| 4             | P301     |            |  |   |  |  |        |                          |  |
|               | Bag      |            |  |   |  |  |        |                          |  |
|               |          |            |  |   |  |  |        |                          |  |
| 6             |          |            |  |   |  |  |        |                          |  |
|               |          |            |  |   |  |  |        |                          |  |
|               | P302     |            |  |   |  |  |        | 6.7 m                    | SAND   |
|               | Bag      |            |  |   |  |  |        |                          | - fine to medium, clean  |
| 8             | P303     |            |  |   |  |  |        | 7.9 m                    | - damp, oxidized   |
|               | Bag      |            |  |   |  |  |        |                          |  |
|               |          |            |  |   |  |  |        |                          |  |
| 10            |          |            |  |   |  |  |        |                          | TILL   |
|               |          |            |  |   |  |  |        |                          | - sand matrix  |
|               |          |            |  |   |  |  |        |                          | - oxidized   |
|               |          |            |  |   |  |  |        |                          | - hard, brittle  |
|               | P304     |            |  |   |  |  |        | 10.8 m                   | SAND   |
|               | Bag      |            |  |   |  |  |        |                          | - medium to coarse with few angular pebbles  |
| 12            |          |            |  |   |  |  |        |                          | - damp, oxidized   |
|               |          |            |  |   |  |  |        |                          | - becoming rocky near 12.2 m   |
|               | P305     |            |  |   |  |  |        | 12.8 m                   | TILL   |
|               | Bag      |            |  |   |  |  |        |                          | - sand matrix  |
| 14            |          |            |  |   |  |  |        |                          | - damp, oxidized   |
|               | P306     |            |  |   |  |  |        |                          | - becoming sandy clay matrix, un-oxidized, extremely hard and brittle below 13.4 m |
|               | Bag      |            |  |   |  |  |        |                          | - refused on boulders at 16.5 m  |
| 16            |          |            |  |   |  |  |        | 16.5 m                   | END OF HOLE  |
|               |          |            |  |   |  |  |        |                          |  |
| 18            |          |            |  |   |  |  |        |                          |  |
|               |          |            |  |   |  |  |        |                          |  |

CLIFTON ASSOCIATES LTD

CONSULTING   GEOTECHNICAL   ENGINEERS

REGINA SASKATOON

PROJECT Meewasin Park


LOCATION SASKATOON, Saskatchewan

PROJECT NO. S59

PLATE NO.

Notes

1) mobile B60 drilling rig used with 150mm diameter auger.

| TEST HOLE LOG |   |            |  |   |  |  |   |  |       |  |  |  |
|---------------|---|------------|--|---|--|--|---|--|-------|--|--|--|
|               |   |            |  | SHEAR STRENGTH - kPa<br>■ UNCONF 50 □ POCKET PEN 100 150 200 LAB VANE |  | SYMBOL   | DATE <u>80/07/16</u> HOLE NO <u>2</u>                                       |  |       |  |  |  |
|               |   |            |  | ▲ DRY DENSITY - gma/cm³<br>1.3 1.5 1.7 1.9 2.1                        |  |  | GROUND ELEV. _____  |  |       |  |  |  |
|               |   |            |  | PLASTIC LIMIT WATER CONTENT LIQUID LIMIT<br>10 30 50 70 90 %          |  |  | LOCATION _____  |  |       |  |  |  |
| DEPTH         | NO. TYPE                                  | UNIF. P.I. |  |   |  |  | DESCRIPTION OF MATERIALS  |  |       |  |  |  |
| 2             | P307<br>Bag<br>P308<br>Bag<br>P309<br>Bag |            |  |   |  |  | FILL - Wood chips, plastic, etc.<br>in clay matrix<br>- loose               |  |       |  |  |  |
|               |   |            |  |   |  |  |   |  | 2.6 m | TILL<br>- Sandy Clay matrix<br>- Soft to firm, wet |  |  |
| 4             |   |            |  |   |  |  |   |  |       | 4.9 m  | CLAY - sandy<br>- partly oxidized<br>- organics<br>- wood chips<br>- wet, soft |  |
| 6             |   |            |  |   |  |  |   |  |       | 6.1 m  |  |  |
| 8             |   |            |  |   |  |  |   |  |       |  | E.O.H.   |  |
| 10            |   |            |  |   |  |  |   |  |       |  |  |  |
| 12            |   |            |  |   |  |  |   |  |       |  |  |  |
| 14            |   |            |  |   |  |  |   |  |       |  |  |  |
| 16            |   |            |  |   |  |  |   |  |       |  |  |  |
| 18            |   |            |  |   |  |  |   |  |       |  |  |  |
|               |   |            |  |   |  |  | <u>Notes</u><br>1) Mobile B60 drilling rig used with 150 mm diameter Auger. |  |       |  |  |  |

|   |  |  |                     |  |
|---|--|--|---------------------|--|
| CLIFTON ASSOCIATES LTD<br>CONSULTING GEOTECHNICAL ENGINEERS |  |  | REGINA<br>SASKATOON | PROJECT <u>MEEWASIN PARK</u><br>LOCATION <u>SASKATOON, SASKATCHEWAN</u><br>PROJECT NO. <u>S 59</u> PLATE NO. _____ |
|---|--|--|---------------------|--|

| TEST HOLE LOG   |             |            |  |   |  |   |        |   |   |
|---|-------------|------------|--|---|--|---|--------|---|---|
|   |             |            |  | SHEAR STRENGTH - kPa<br><input type="checkbox"/> UNCONF. <input type="checkbox"/> POCKET PEN <input checked="" type="checkbox"/> LAB VANE |  |   | SYMBOL | DATE <u>80/07/16</u> HOLE NO. <u>3</u>          |   |
|   |             |            |  | ▲ DRY DENSITY - gmo/cm <sup>3</sup><br>1.3 1.5 1.7 1.9 2.1  |  |   |        | GROUND ELEV. _____                              |   |
|   |             |            |  | PLASTIC LIMIT WATER CONTENT LIQUID LIMIT<br>10 20 30 40 50 %  |  |   |        | LOCATION _____                                  |   |
| DEPTH   | NO. TYPE    | UNIF. P.I. |  |   |  |   |        | DESCRIPTION OF MATERIALS                        |   |
| 2   | P310<br>Bag |            |  |   |  |   |        | FILL - organics                                 |   |
|   |             |            |  |   |  |   |        |   | 1.2 m - SAND - fine<br>1.7 m - oxidized<br>2.1 m - dry to damp  |
| 4   |             |            |  |   |  |   |        | GRAVEL<br>- dry<br>- with cobble sizes at 2.1 m |   |
| 6   | P311<br>Bag |            |  |   |  |   |        |   | TILL<br>- sandy clay matrix, hard<br>- oxidized<br>- jointed with fe stains along joints<br>- fe pockets<br>- becoming partly unoxidized with sand pockets and trace organics below 5.0 m |
| 8   |             |            |  |   |  |   |        | 6.1 m - E.O.H.                                  |   |
| 10  |             |            |  |   |  |   |        |   |   |
| 12  |             |            |  |   |  |   |        |   |   |
| 14  |             |            |  |   |  |   |        |   |   |
| 16  |             |            |  |   |  |   |        |   |   |
| 18  |             |            |  |   |  |   |        |   |   |
| CLIFTON ASSOCIATES LTD<br>CONSULTING GEOTECHNICAL ENGINEERS |             |            |  | REGINA SASKATOON  |  | PROJECT <u>MEEWASIN PARK</u><br>LOCATION <u>SASKATOON, SASKATCHEWAN</u><br>PROJECT NO. <u>S59</u> PLATE NO. _____ |        |   |   |

Notes  
1) mobile B60 drilling rig used with 150 mm diameter auger.

| TEST HOLE LOG |          |            |  |  |  |        |                             |  |  |      |                   |  |  |  |  |  |  |  |  |       |   |
|---------------|----------|------------|--|--|--|--------|-----------------------------|--|--|------|-------------------|--|--|--|--|--|--|--|--|-------|---|
|               |          |            | SHEAR STRENGTH - kPa<br>■ UNCONF.    □ POCKET PEN    ▣ LAB VANE<br>50    100    150    200 |  |  | SYMBOL | DATE 80/07/16    HOLE NO. 4 |  |  |      |                   |  |  |  |  |  |  |  |  |       |   |
|               |          |            | ▲ DRY DENSITY - gms/cm³<br>1.3    1.5    1.7    1.9    2.1                                 |  |  |        | GROUND ELEV. _____          |  |  |      |                   |  |  |  |  |  |  |  |  |       |   |
|               |          |            | PLASTIC LIMIT    WATER CONTENT    LIQUID LIMIT   |  |  |        | LOCATION _____              |  |  |      |                   |  |  |  |  |  |  |  |  |       |   |
|               |          |            | 10    20    30    40    50 %   |  |  |        | DESCRIPTION OF MATERIALS    |  |  |      |                   |  |  |  |  |  |  |  |  |       |   |
| DEPTH         | NO. TYPE | UNIF. P.I. |  |  |  |        |                             |  |  | 0.2m | TOPSOIL           |  |  |  |  |  |  |  |  |       |   |
|               |          |            |  |  |  |        |                             |  |  | 2    | P312 Bag          |  |  |  |  |  |  |  |  | 1.2 m | TILL<br>- very sandy<br>- fine, dry<br>- fe and salt staining |
|               |          |            |  |  |  |        |                             |  |  |      | P313 Bag          |  |  |  |  |  |  |  |  |       |   |
|               |          |            |  |  |  |        |                             |  |  | 4    | P314 Bag          |  |  |  |  |  |  |  |  |       | TILL<br>- oxidized<br>- fe stains                             |
|               |          |            |  |  |  |        |                             |  |  |      | P315 Bag          |  |  |  |  |  |  |  |  |       |   |
|               |          |            |  |  |  |        |                             |  |  | 6    | P316 Bag          |  |  |  |  |  |  |  |  | 4.9 m | - heavy salt staining   |
|               |          |            |  |  |  |        |                             |  |  |      | P318 Bag          |  |  |  |  |  |  |  |  |       |   |
|               |          |            |  |  |  |        |                             |  |  | 8    |                   |  |  |  |  |  |  |  |  | 5.2 m | - 0.15 m sand lense at 4.3 m                                  |
|               |          |            |  |  |  |        |                             |  |  |      |                   |  |  |  |  |  |  |  |  |       |   |
|               |          |            |  |  |  |        |                             |  |  | 10   |                   |  |  |  |  |  |  |  |  | 6.1 m | SILT AND FINE SAND  |
|               |          |            |  |  |  |        |                             |  |  |      |                   |  |  |  |  |  |  |  |  |       |   |
| 12            |          |            |  |  |  |        |                             |  |  |      | TILL - UNOXIDIZED |  |  |  |  |  |  |  |  |       |   |
|               |          |            |  |  |  |        |                             |  |  |      |                   |  |  |  |  |  |  |  |  |       |   |
| 14            |          |            |  |  |  |        |                             |  |  |      | E.O.H.            |  |  |  |  |  |  |  |  |       |   |
|               |          |            |  |  |  |        |                             |  |  |      |                   |  |  |  |  |  |  |  |  |       |   |
| 16            |          |            |  |  |  |        |                             |  |  |      |                   |  |  |  |  |  |  |  |  |       |   |
|               |          |            |  |  |  |        |                             |  |  |      |                   |  |  |  |  |  |  |  |  |       |   |
| 18            |          |            |  |  |  |        |                             |  |  |      |                   |  |  |  |  |  |  |  |  |       |   |
|               |          |            |  |  |  |        |                             |  |  |      |                   |  |  |  |  |  |  |  |  |       |   |

CLIFTON ASSOCIATES LTD  
CONSULTING    GEOTECHNICAL    ENGINEERS

REGINA  
SASKATOON

PROJECT MEEWASIN PARK  
LOCATION SASKATOON, SASKATCHEWAN  
PROJECT NO. S59    PLATE NO. \_\_\_\_\_

Notes  
1) mobile B60 drilling rig used with 150mm diameter auger.



| TEST HOLE LOG |          |            |  |   |  |  |  |        |   |  |
|---------------|----------|------------|--|---|--|--|--|--------|---|--|
|               |          |            |  | SHEAR STRENGTH - kPa<br>■ UNCONF. □ POCKET PEN □ LAB VANE<br>50 100 150 200 |  |  |  | SYMBOL | DATE 80/07/16 HOLE NO 5   |  |
|               |          |            |  | ▲ DRY DENSITY - gmo/cm <sup>3</sup><br>1.3 1.5 1.7 1.9 2.1                  |  |  |  |        | GROUND ELEV. _____  |  |
|               |          |            |  | PLASTIC LIMIT WATER CONTENT LIQUID LIMIT<br>10 20 30 40 50 60 70 80 90 %    |  |  |  |        | LOCATION _____  |  |
| DEPTH         | NO. TYPE | UNIF. P.I. |  |   |  |  |  |        | DESCRIPTION OF MATERIALS  |  |
| 2             | P319 Bag |            |  |   |  |  |  | +      | SILT - Sandy, clean, dry<br>- becoming more sandy below 1.2 m<br>- becoming fine silty sand below 1.5 m |  |
| 4             |          |            |  |   |  |  |  | .      | 3.0 m SAND - Coarse   |  |
| 6             | P320 Bag |            |  |   |  |  |  | X      | 4.6 m TILL - Sand matrix<br>- few rocks encountered at 4.6 m  |  |
| 8             |          |            |  |   |  |  |  |        | 6.1 m E.O.H.  |  |
| 10            |          |            |  |   |  |  |  |        |   |  |
| 12            |          |            |  |   |  |  |  |        | Note<br>1) mobile B60 drilling rig used with 150 mm diameter auger.                                     |  |
| 14            |          |            |  |   |  |  |  |        |   |  |
| 16            |          |            |  |   |  |  |  |        |   |  |
| 18            |          |            |  |   |  |  |  |        |   |  |

CLIFTON ASSOCIATES LTD  
CONSULTING GEOTECHNICAL ENGINEERS

REGINA SASKATOON

PROJECT MEEWASIN PARK  
LOCATION SASKATOON, SASKATCHEWAN  
PROJECT NO. S59 PLATE NO.

| TEST HOLE LOG |          |            |   |    |    |        |                                       |                          |    |    |      |  |
|---------------|----------|------------|---|----|----|--------|---------------------------------------|--------------------------|----|----|------|--|
|               |          |            | SHEAR STRENGTH - kPa  |    |    | SYMBOL | DATE <u>80/06/16</u> HOLE NO <u>6</u> |                          |    |    |      |  |
|               |          |            | UNCONF. <input type="checkbox"/> POCKET PEN <input type="checkbox"/> LAB VANE <input checked="" type="checkbox"/> |    |    |        | GROUND ELEV. _____                    |                          |    |    |      |  |
|               |          |            | DRY DENSITY - gms/cm <sup>3</sup>   |    |    |        | LOCATION _____                        |                          |    |    |      |  |
|               |          |            | 1.3 1.5 1.7 1.9 2.1   |    |    |        |                                       |                          |    |    |      |  |
| DEPTH         | NO. TYPE | UNIF. P.I. | PLASTIC LIMIT WATER CONTENT LIQUID LIMIT  |    |    |        |                                       | DESCRIPTION OF MATERIALS |    |    |      |  |
|               |          |            | 10  | 20 | 30 | 40     | 50                                    | 60                       | 70 | 80 | 90 % |  |
| 2             | P321     |            |   |    |    |        |                                       |                          |    |    |      | 0.3 m TOPSOIL<br>- organics in fine silty sand matrix  |
| 4             | Bag      |            |   |    |    |        |                                       |                          |    |    |      |  |
| 6             | P322     |            |   |    |    |        |                                       |                          |    |    |      | 4.3 m<br>4.9 m CLAY<br>- medium plastic<br>- with sand seams throughout<br>- partly unoxidized<br>- rocks encountered at 4.9 m |
| 8             | Bag      |            |   |    |    |        |                                       |                          |    |    |      |  |
| 10            |          |            |   |    |    |        |                                       |                          |    |    |      | E.O.H.   |
| 12            |          |            |   |    |    |        |                                       |                          |    |    |      |  |
| 14            |          |            |   |    |    |        |                                       |                          |    |    |      |  |
| 16            |          |            |   |    |    |        |                                       |                          |    |    |      |  |
| 18            |          |            |   |    |    |        |                                       |                          |    |    |      |  |

CLIFTON ASSOCIATES LTD  
CONSULTING GEOTECHNICAL ENGINEERS

REGINA SASKATOON

PROJECT MEEWASIN PARK  
LOCATION SASKATOON, SASKATCHEWAN  
PROJECT NO. S59 PLATE NO. \_\_\_\_\_

| TEST HOLE LOG   |          |            |  |  |  |        |                         |                          |  |  |
|---|----------|------------|--|--|--|--------|-------------------------|--------------------------|--|--|
|   |          |            |  | SHEAR STRENGTH - kPa                       |  | SYMBOL | DATE 80/07/16 HOLE NO 7 |                          |  |  |
|   |          |            |  | UNCONF. 50 POCKET PEN 100 150 LAB VANE 200 |  |        | GROUND ELEV.            |                          |  |  |
|   |          |            |  | ▲ DRY DENSITY - gmo/cm <sup>3</sup>        |  |        | LOCATION                |                          |  |  |
|   |          |            |  | 1.3 1.5 1.7 1.9 2.1                        |  |        |                         |                          |  |  |
| DEPTH   | NO. TYPE | UNIF. P.I. | PLASTIC LIMIT WATER CONTENT LIQUID LIMIT |  |  |        |                         | DESCRIPTION OF MATERIALS |  |  |
|   |          |            | 10 20 30 40 50 60 70 80 %                |  |  |        |                         |                          |  |  |
| 2   |          |            |  |  |  |        |                         |                          |  | 0.3 m TOPSOIL<br>SILT<br>- fine, sandy, dry<br>- becoming med. sand, clean from 1.8 to 2.1 m<br>- clayey sand layers from 5.2 m to 5.5 m<br>- rocks encountered at 6.7 m |
| 4   |          |            |  |  |  |        |                         |                          |  |  |
| 6   |          |            |  |  |  |        |                         |                          |  |  |
| 8   | P323 Bag |            |  |  |  |        |                         |                          |  |  |
| 10  |          |            |  |  |  |        |                         |                          |  |  |
| 12  |          |            |  |  |  |        |                         |                          |  | 6.7 m<br>7.6 m TILL<br>- sandy clay matrix<br>- damp<br>- 0.15 m gravel layer at 7.0 m<br><br>E.O.H.   |
| 14  |          |            |  |  |  |        |                         |                          |  |  |
| 16  |          |            |  |  |  |        |                         |                          |  |  |
| 18  |          |            |  |  |  |        |                         |                          |  |  |
|   |          |            |  |  |  |        |                         |                          |  |  |
| CLIFTON ASSOCIATES LTD<br>CONSULTING GEOTECHNICAL ENGINEERS |          |            | REGINA<br>SASKATOON                      |  | PROJECT MEEWASIN PARK<br>LOCATION SASKATOON, SASKATCHEWAN<br>PROJECT NO. 559 PLATE NO. |        |                         |                          |  |  |

| TEST HOLE LOG |                     |            |  |  |  |  |  |        |   |  |
|---------------|---------------------|------------|--|--|--|--|--|--------|---|--|
|               |                     |            |  | SHEAR STRENGTH - kPa<br>UNCONF. POCKET PEN LAB VANE<br>50 100 150 200    |  |  |  | SYMBOL | DATE 80/07/17 HOLE NO 8   |  |
|               |                     |            |  | ▲ DRY DENSITY - gms/cm <sup>3</sup><br>1.3 1.5 1.7 1.9 2.1               |  |  |  |        | GROUND ELEV.  |  |
|               |                     |            |  | PLASTIC LIMIT WATER CONTENT LIQUID LIMIT<br>10 20 30 40 50 60 70 80 90 % |  |  |  |        | LOCATION  |  |
| DEPTH         | NO. TYPE            | UNIF. P.I. |  |  |  |  |  |        | DESCRIPTION OF MATERIALS  |  |
| 2             |                     |            |  |  |  |  |  | 1.2 m  | FILL - Organics in fine, silty sand   |  |
| 4             |                     |            |  |  |  |  |  |        | SILT - fine, sandy<br>- oxidized<br>- salt staining                                   |  |
|               | P3234               |            |  |  |  |  |  | 5.5 m  | SAND - Medium to coarse<br>- Clean<br>- becoming damp with clay stringers below 2.4 m |  |
| 6             | P324<br>P325<br>Bag |            |  |  |  |  |  |        | 6.1 m   |  |
| 8             |                     |            |  |  |  |  |  |        | TILL - unoxidized<br>- hard<br>- shale pebbles throughout                             |  |
| 10            |                     |            |  |  |  |  |  |        | END OF HOLE   |  |
| 12            |                     |            |  |  |  |  |  |        |   |  |
| 14            |                     |            |  |  |  |  |  |        |   |  |
| 16            |                     |            |  |  |  |  |  |        |   |  |
| 18            |                     |            |  |  |  |  |  |        |   |  |

CLIFTON ASSOCIATES LTD  
CONSULTING GEOTECHNICAL ENGINEERS

REGINA  
SASKATOON

PROJECT MEEWASIN PARK  
LOCATION SASKATOON, SASKATCHEWAN  
PROJECT NO. S59 PLATE NO.

Note  
1) mobile B60 drilling rig used with 150 mm drilling auger.

| TEST HOLE LOG |             |            |  |  |    |    |        |  |   |   |
|---------------|-------------|------------|--|--|----|----|--------|--|---|---|
|               |             |            |  | SHEAR STRENGTH - kPa   |    |    | SYMBOL | DATE <u>80/07/17</u> HOLE NO <u>9</u>  |   |   |
|               |             |            |  | UNCONF. <input type="checkbox"/> POCKET PEN <input type="checkbox"/> LAB VANE <input type="checkbox"/> |    |    |        | GROUND ELEV. _____   |   |   |
|               |             |            |  | DRY DENSITY - gms/cm <sup>3</sup>  |    |    |        | LOCATION _____   |   |   |
|               |             |            |  | 1.3 1.5 1.7 1.9 2.1  |    |    |        |  |   |   |
| DEPTH         | NO. TYPE    | UNIF. P.I. | PLASTIC LIMIT WATER CONTENT LIQUID LIMIT |  |    |    |        |  |   |   |
|               |             |            | 10                                       | 30   | 50 | 70 | 90 %   |  |   |   |
| 2             | P326<br>Bag |            |  |  |    |    |        | + + + + +<br>+ + + + +<br>+ + + + +<br>+ + + + +<br>+ + + + +<br>+ + + + +<br>+ + + + +<br>+ + + + +<br>+ + + + +<br>+ + + + + | 0.15 m TOPSOIL - disturbed  |   |
|               |             |            |  |  |    |    |        |  |   | SILT - fine, sandy, dry<br>- clay stringers below 2.4 m<br>- rocks encountered at 4.0 m       |
| 4             |             |            |  |  |    |    |        |  |   |   |
|               |             |            |  |  |    |    |        |  |   | 4.0 m TILL - partly oxidized<br>- extremely hard<br>- fe stains and iron stone<br>concretions |
| 6             |             |            |  |  |    |    |        |  |   | 4.6 m - salt pockets<br>- non calcareous<br>- Sutherland                                      |
|               |             |            |  |  |    |    |        |  |   |   |
| 8             |             |            |  |  |    |    |        |  |   |   |
|               |             |            |  |  |    |    |        |  |   |   |
| 10            |             |            |  |  |    |    |        |  |   |   |
|               |             |            |  |  |    |    |        |  |   |   |
| 12            |             |            |  |  |    |    |        |  |   |   |
|               |             |            |  |  |    |    |        |  |   |   |
| 14            |             |            |  |  |    |    |        |  | Notes<br>1) mobile B60 drilling rig used with<br>150 mm drilling auger. |   |
|               |             |            |  |  |    |    |        |  |   |   |
| 16            |             |            |  |  |    |    |        |  |   |   |
|               |             |            |  |  |    |    |        |  |   |   |
| 18            |             |            |  |  |    |    |        |  |   |   |
|               |             |            |  |  |    |    |        |  |   |   |

CLIFTON ASSOCIATES LTD  
CONSULTING GEOTECHNICAL ENGINEERS

REGINA  
SASKATOON

PROJECT MEEWASIN PARK  
LOCATION SASKATOON, SASKATCHEWAN  
PROJECT NO. S59 PLATE NO. \_\_\_\_\_

| TEST HOLE LOG |                            |            |  |   |  |  |  |  |   |  |   |
|---------------|----------------------------|------------|--|---|--|--|--|--|---|--|---|
|               |                            |            |  | SHEAR STRENGTH - kPa<br>■ UNCONF. □ POCKET PEN □ LAB VANE<br>50 100 150 200 |  |  |  | SYMBOL   | DATE <u>80/07/17</u> HOLE NO. <u>10</u> |  |   |
|               |                            |            |  | ▲ DRY DENSITY - gms/cm³<br>1.3 1.5 1.7 1.9 2.1                              |  |  |  |  | GROUND ELEV. _____                      |  |   |
|               |                            |            |  | PLASTIC LIMIT WATER CONTENT LIQUID LIMIT<br>10 20 30 40 50 %                |  |  |  |  | LOCATION _____                          |  |   |
| DEPTH         | NO. TYPE                   | UNIF. P.I. |  |   |  |  |  |  | DESCRIPTION OF MATERIALS                |  |   |
| 2             | P327<br>Bag<br>P328<br>Bag |            |  |   |  |  |  | + + + + +<br>+ + + + +<br>+ + + + +<br>+ + + + +<br>+ + + + +<br>+ + + + +<br>+ + + + +<br>+ + + + +<br>+ + + + +<br>+ + + + + | 0.3 m TOPSOIL                           |  |   |
| 4             |                            |            |  |   |  |  |  |  |   |  | SILT - Fine, sandy<br>- oxidized, dry<br>- becoming clean, fine, dry sand below 2.4 m<br>- damp below 3.0 m<br>- cobbles encountered at 4.9 m |
| 6             |                            |            |  |   |  |  |  |  |   |  | 4.9 m   |
| 8             |                            |            |  |   |  |  |  |  |   |  | TILL - Oxidized, Damp<br>- hard, jointed<br>- fe stains<br>- non calcareous<br>- numerous rocks to 7.6 m<br>- unoxidized below 5.8 m          |
| 10            |                            |            |  |   |  |  |  |  |   |  | 7.6 m   |
| 12            |                            |            |  |   |  |  |  |  |   |  | END OF HOLE   |
| 14            |                            |            |  |   |  |  |  |  |   |  |   |
| 16            |                            |            |  |   |  |  |  |  |   |  |   |
| 18            |                            |            |  |   |  |  |  |  |   |  |   |
|               |                            |            |  |   |  |  |  |  |   |  |   |

CLIFTON ASSOCIATES LTD  
CONSULTING GEOTECHNICAL ENGINEERS

REGINA  
SASKATOON

PROJECT MEEWASIN PARK  
LOCATION SASKATOON, SASKATCHEWAN  
PROJECT NO. S59 PLATE NO. \_\_\_\_\_

Note  
1) Mobile B60 drilling rig used with 150 mm diameter auger.



| TEST HOLE LOG |          |            |  |   |               |              |  |        |   |  |
|---------------|----------|------------|--|---|---------------|--------------|--|--------|---|--|
|               |          |            |  | SHEAR STRENGTH - kPa                      |               |              |  | SYMBOL | DATE <u>80/07/17</u> HOLE NO <u>11</u>  |  |
|               |          |            |  | UNCONF 50 POCKET PEN 100 150 200 LAB VANE |               |              |  |        | GROUND ELEV. _____  |  |
|               |          |            |  | DRY DENSITY - gms/cm <sup>3</sup>         |               |              |  |        | LOCATION _____  |  |
|               |          |            |  | 1.3 1.5 1.7 1.9 2.1                       |               |              |  |        |   |  |
| DEPTH         | NO. TYPE | UNIF. P.I. |  | PLASTIC LIMIT                             | WATER CONTENT | LIQUID LIMIT |  |        | DESCRIPTION OF MATERIALS  |  |
|               |          |            |  |   |               |              |  |        | 0.3 m TOPSOIL   |  |
| 2             |          |            |  |   |               |              |  |        | SILT - Fine, sandy<br>- dry becoming damp below 1.4 m   |  |
|               | P329 Bag |            |  |   |               |              |  |        |   |  |
| 4             |          |            |  |   |               |              |  |        | 2.1 m GRAVEL - Fine, clean, damp<br>2.4 m - cobbles to small boulders encountered at 2.1 m  |  |
|               | P330 Bag |            |  |   |               |              |  |        |   |  |
| 6             |          |            |  |   |               |              |  |        |   |  |
|               |          |            |  |   |               |              |  |        | TILL - Oxidized<br>- hard, jointed<br>- gravel pockets throughout<br>- becoming unoxidized below 4.3 m<br>- heavy Fe and Mn staining at 5.5 m |  |
| 8             |          |            |  |   |               |              |  |        |   |  |
|               |          |            |  |   |               |              |  |        | 6.1 m   |  |
| 10            |          |            |  |   |               |              |  |        | END OF HOLE   |  |
|               |          |            |  |   |               |              |  |        |   |  |
| 12            |          |            |  |   |               |              |  |        |   |  |
|               |          |            |  |   |               |              |  |        |   |  |
| 14            |          |            |  |   |               |              |  |        | Note<br>1) Mobile B60 drilling rig used with 150 mm diameter auger.   |  |
|               |          |            |  |   |               |              |  |        |   |  |
| 16            |          |            |  |   |               |              |  |        |   |  |
|               |          |            |  |   |               |              |  |        |   |  |
| 18            |          |            |  |   |               |              |  |        |   |  |
|               |          |            |  |   |               |              |  |        |   |  |

|                        |              |           |           |   |
|------------------------|--------------|-----------|-----------|---|
| CLIFTON ASSOCIATES LTD |              |           | REGINA    | PROJECT <u>MEEWASIN PARK</u>            |
|                        |              |           | SASKATOON | LOCATION <u>SASKATOON, SASKATCHEWAN</u> |
| CONSULTING             | GEOTECHNICAL | ENGINEERS |           | PROJECT NO. <u>S59</u> PLATE NO. _____  |

| TEST HOLE LOG |          |            |  |  |  |  |  |        |  |   |
|---------------|----------|------------|--|--|--|--|--|--------|--|---|
|               |          |            |  | SHEAR STRENGTH - kPa                     |  |  |  | SYMBOL | DATE <u>80/07/17</u> HOLE NO <u>12</u> |   |
|               |          |            |  | UNCONF. POCKET PEN LAB VANE              |  |  |  |        | GROUND ELEV. _____                     |   |
|               |          |            |  | 100 150 200                              |  |  |  |        | LOCATION _____                         |   |
|               |          |            |  | 1.3 1.5 1.7 1.9 2.1                      |  |  |  |        |  |   |
|               |          |            |  | ▲ DRY DENSITY - gms/cm <sup>3</sup>      |  |  |  |        |  |   |
|               |          |            |  | PLASTIC LIMIT WATER CONTENT LIQUID LIMIT |  |  |  |        |  |   |
|               |          |            |  | 10 20 30 40 50 60 %                      |  |  |  |        |  |   |
| DEPTH         | NO. TYPE | UNIF. P.I. |  |  |  |  |  |        | DESCRIPTION OF MATERIALS               |   |
|               |          |            |  |  |  |  |  |        | 0.3 m                                  | TOPSOIL   |
| 2             |          |            |  |  |  |  |  |        |  | SILT - Fine, sandy<br>- becoming clayey and wet below 1.2 m         |
| 4             |          |            |  |  |  |  |  |        | 2.3 m                                  |   |
|               |          |            |  |  |  |  |  |        |  | GRAVEL - fine<br>- damp to wet<br>- rock encountered                |
| 6             |          |            |  |  |  |  |  |        | 4.0 m                                  |   |
|               |          |            |  |  |  |  |  |        | 4.6 m                                  |   |
| 8             |          |            |  |  |  |  |  |        |  | TILL - oxidized<br>- wet  |
| 10            |          |            |  |  |  |  |  |        |  |   |
| 12            |          |            |  |  |  |  |  |        |  | END OF HOLE   |
| 14            |          |            |  |  |  |  |  |        |  | Note<br>1) Mobile B60 drilling rig used with 150 mm diameter auger. |
| 16            |          |            |  |  |  |  |  |        |  |   |
| 18            |          |            |  |  |  |  |  |        |  |   |

CLIFTON ASSOCIATES LTD

CONSULTING GEOTECHNICAL ENGINEERS


REGINA SASKATOON

PROJECT LOCATION

MEEWASIN PARK SASKATOON, SASKATCHEWAN

PROJECT NO. PLATE NO.

S59

| TEST HOLE LOG |             |            |  |  |  |  |  |   |   |  |
|---------------|-------------|------------|--|--|--|--|--|---|---|--|
|               |             |            |  | SHEAR STRENGTH - kPa<br>UNCONF.    POCKET PEN    LAB VANE<br>50    100    150    200 |  |  | SYMBOL   | DATE <u>80/07/18</u> HOLE NO. <u>13</u> |   |  |
|               |             |            |  | ▲ DRY DENSITY - gmo/cm <sup>3</sup><br>1.3    1.5    1.7    1.9    2.1               |  |  |  | GROUND ELEV. _____                      |   |  |
|               |             |            |  | PLASTIC LIMIT    WATER CONTENT    LIQUID LIMIT<br>10    30    50    70    90 %       |  |  |  | LOCATION _____                          |   |  |
| DEPTH         | NO. TYPE    | UNIF. P.I. |  |  |  |  |  | DESCRIPTION OF MATERIALS                |   |  |
| 2             | P335<br>Bag |            |  |  |  |  |  | 0.3                                     | FILL - till and gravel disturbed.                                   |  |
|               |             |            |  |  |  |  |  |   |   | TILL - Sandy clay matrix<br>- damp, oxidized<br>- firm to hard<br>- extremely hard, jointed with gypsum crystals below 1.5 m<br>- becoming unoxidized with Fe stains along joints below 4.6 m<br>- shale pebbles |
| 4             | P336<br>Bag |            |  |  |  |  |  |   |   |  |
| 6             |             |            |  |  |  |  |  |   |   |  |
|               |             |            |  |  |  |  |  | 6.1 m                                   |   |  |
| 8             |             |            |  |  |  |  |  |   |   |  |
|               |             |            |  |  |  |  |  |   |   |  |
| 10            |             |            |  |  |  |  |  |   |   |  |
|               |             |            |  |  |  |  |  |   |   |  |
| 12            |             |            |  |  |  |  |  |   |   |  |
|               |             |            |  |  |  |  |  |   |   |  |
| 14            |             |            |  |  |  |  |  |   | Note<br>1) Mobile B60 drilling rig used with 150 mm diameter auger. |  |
|               |             |            |  |  |  |  |  |   |   |  |
| 16            |             |            |  |  |  |  |  |   |   |  |
|               |             |            |  |  |  |  |  |   |   |  |
| 18            |             |            |  |  |  |  |  |   |   |  |
|               |             |            |  |  |  |  |  |   |   |  |

|   |           |   |
|---|-----------|---|
| CLIFTON ASSOCIATES LTD<br>CONSULTING    GEOTECHNICAL    ENGINEERS | REGINA    | PROJECT <u>MEEWASIN PARK</u>            |
|   | SASKATOON | LOCATION <u>SASKATOON, SASKATCHEWAN</u> |
|   |           | PROJECT NO. <u>S59</u> PLATE NO. _____  |

| TEST HOLE LOG |             |            |  |  |  |  |  |        |   |  |
|---------------|-------------|------------|--|--|--|--|--|--------|---|--|
|               |             |            |  | SHEAR STRENGTH - kPa   |  |  |  | SYMBOL | DATE <u>80/07/18</u> HOLE NO <u>14</u>  |  |
|               |             |            |  | <input type="checkbox"/> UNCONF <input type="checkbox"/> POCKET PEN <input checked="" type="checkbox"/> LAB VANE |  |  |  |        | GROUND ELEV. _____  |  |
|               |             |            |  | 50 100 150 200   |  |  |  |        | LOCATION _____  |  |
|               |             |            |  | ▲ DRY DENSITY - gmo/cm <sup>3</sup>  |  |  |  |        |   |  |
|               |             |            |  | 1.3 1.5 1.7 1.9 2.1  |  |  |  |        |   |  |
|               |             |            |  | PLASTIC LIMIT WATER CONTENT LIQUID LIMIT   |  |  |  |        |   |  |
|               |             |            |  | 10 20 30 40 50 60 70 80 %  |  |  |  |        |   |  |
| DEPTH         | NO. TYPE    | UNIF. P.I. |  |  |  |  |  |        | DESCRIPTION OF MATERIALS  |  |
| 2             | P337<br>Bag |            |  |  |  |  |  |        | FILL - Sand, fine, clean, dry<br>- with angular pebbles and cobbles.  |  |
| 4             |             |            |  |  |  |  |  |        |   |  |
| 6             |             |            |  |  |  |  |  |        | 3.4 m — END OF HOLE —<br><br><u>Notes</u><br>1) Mobile B60 drilling rig used with 150 mm diameter auger.<br>2) Refused on boulders at 3.4 m<br>3) Difficulties drilling due to cobbles, boulders and garbage. |  |
| 8             |             |            |  |  |  |  |  |        |   |  |
| 10            |             |            |  |  |  |  |  |        |   |  |
| 12            |             |            |  |  |  |  |  |        |   |  |
| 14            |             |            |  |  |  |  |  |        |   |  |
| 16            |             |            |  |  |  |  |  |        |   |  |
| 18            |             |            |  |  |  |  |  |        |   |  |
|               |             |            |  |  |  |  |  |        |   |  |
|               |             |            |  |  |  |  |  |        |   |  |
|               |             |            |  |  |  |  |  |        |   |  |

|   |           |   |
|---|-----------|---|
| CLIFTON ASSOCIATES LTD<br>CONSULTING GEOTECHNICAL ENGINEERS | REGINA    | PROJECT <u>MEEWASIN PARK</u>            |
|   | SASKATOON | LOCATION <u>SASKATOON, SASKATCHEWAN</u> |
|   |           | PROJECT NO. <u>S59</u> PLATE NO. _____  |

| TEST HOLE LOG |             |            |  |  |  |  |  |        |   |  |
|---------------|-------------|------------|--|--|--|--|--|--------|---|--|
|               |             |            |  | SHEAR STRENGTH - kPa<br>■ UNCONF. 50    □ POCKET PEN 100    ▣ LAB VANE 200 |  |  |  | SYMBOL | DATE <u>80/07/18</u> HOLE NO <u>15</u>  |  |
|               |             |            |  | ▲ DRY DENSITY - gms/cm <sup>3</sup><br>1.3    1.5    1.7    1.9    2.1     |  |  |  |        | GROUND ELEV. _____  |  |
|               |             |            |  | PLASTIC LIMIT    WATER CONTENT    LIQUID LIMIT                             |  |  |  |        | LOCATION _____  |  |
|               |             |            |  | 10    20    30    40    50    60 %   |  |  |  |        |   |  |
| DEPTH         | NO. TYPE    | UNIF. P.I. |  |  |  |  |  |        | DESCRIPTION OF MATERIALS  |  |
| 2             | P338<br>Bag |            |  |  |  |  |  |        | 0.3 m TOPSOIL - cobbles & boulders<br>- surface disturbed   |  |
|               | P339<br>Bag |            |  |  |  |  |  |        | SAND - Medium, clean, damp<br>- Fe stains<br>- boulders and cobbles to 0.6 m  |  |
| 4             |             |            |  |  |  |  |  |        | 2.6 m TILL - sandy clay matrix<br>- damp, oxidized<br>- hard<br>- becoming unoxidized<br>jointed with heavy fe stains<br>below 3.7 m  |  |
| 6             | P340<br>Bag |            |  |  |  |  |  |        | 6.1 m END OF HOLE   |  |
| 8             |             |            |  |  |  |  |  |        |   |  |
| 10            |             |            |  |  |  |  |  |        |   |  |
| 12            |             |            |  |  |  |  |  |        |   |  |
| 14            |             |            |  |  |  |  |  |        | Notes<br>1) Mobile B60 drilling rig used with 150 mm diameter auger.<br>2) Major difficulties drilling past boulder layer at surface. |  |
| 16            |             |            |  |  |  |  |  |        |   |  |
| 18            |             |            |  |  |  |  |  |        |   |  |

|   |                     |   |
|---|---------------------|---|
| CLIFTON ASSOCIATES LTD<br>CONSULTING    GEOTECHNICAL    ENGINEERS | REGINA<br>SASKATOON | PROJECT <u>MEEWASIN PARK</u>            |
|   |                     | LOCATION <u>SASKATOON, SASKATCHEWAN</u> |
|   |                     | PROJECT NO. <u>S59</u> PLATE NO. _____  |

| TEST HOLE LOG |          |            |  |  |  |        |  |   |  |
|---------------|----------|------------|--|--|--|--------|--|---|--|
|               |          |            | SHEAR STRENGTH - kPa<br>UNCONF.    POCKET PEN    LAB VANE<br>50    100    150    200 |  |  | SYMBOL | DATE <u>80/07/18</u> HOLE NO <u>16</u> |   |  |
|               |          |            | ▲ DRY DENSITY - gms/cm <sup>3</sup><br>1.3    1.5    1.7    1.9    2.1               |  |  |        | GROUND ELEV. _____                     |   |  |
|               |          |            | PLASTIC LIMIT    WATER CONTENT    LIQUID LIMIT<br>10    20    50    70    90 %       |  |  |        | LOCATION _____                         |   |  |
| DEPTH         | NO. TYPE | UNIF. P.I. |  |  |  |        | DESCRIPTION OF MATERIALS               |   |  |
|               |          |            |  |  |  | +      | 0.3 m                                  | TOPSOIL   |  |
|               |          |            |  |  |  | +      | 0.9 m                                  | SILT - Fine, sandy, dry                                     |  |
| 2             | P341     |            |  |  |  | +      | 1.5 m                                  | GRAVEL - fine, dry  |  |
|               | P342     |            |  |  |  | +      | 2.1 m                                  | oxidized till stringers at 1.4 m                            |  |
|               | Bag      |            |  |  |  | +      | 2.7 m                                  | SAND - medium, unoxidized                                   |  |
| 4             | P343     |            |  |  |  | +      |  | - fe stains   |  |
|               | Bag      |            |  |  |  | +      |  | - gravel pockets  |  |
|               | P344     |            |  |  |  | +      | 4.6 m                                  | TILL - sand matrix  |  |
| 6             | Bag      |            |  |  |  | +      |  | - clean sand pockets  |  |
|               |          |            |  |  |  | +      |  | - gravel pockets  |  |
|               |          |            |  |  |  | +      | 6.1 m                                  | - stringers of sandy clay matrix till                       |  |
| 8             |          |            |  |  |  |        |  | TILL - sandy clay matrix                                    |  |
|               |          |            |  |  |  |        |  | - damp, oxidized  |  |
|               |          |            |  |  |  |        |  | - hard  |  |
|               |          |            |  |  |  |        |  | - jointed with fe stains (Floral)                           |  |
| 10            |          |            |  |  |  |        |  | TILL - sandy clay matrix                                    |  |
|               |          |            |  |  |  |        |  | - unoxidized  |  |
|               |          |            |  |  |  |        |  | - extremely hard, brittle                                   |  |
|               |          |            |  |  |  |        |  | - heavy fe stains and gypsum crystals at 4.6 m (Sutherland) |  |
| 12            |          |            |  |  |  |        |  |   |  |
|               |          |            |  |  |  |        |  |   |  |
| 14            |          |            |  |  |  |        |  | END OF HOLE   |  |
|               |          |            |  |  |  |        |  |   |  |
| 16            |          |            |  |  |  |        |  |   |  |
|               |          |            |  |  |  |        |  |   |  |
| 18            |          |            |  |  |  |        |  |   |  |
|               |          |            |  |  |  |        |  |   |  |

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REGINA  
SASKATOON

PROJECT MEEWASIN PARK  
LOCATION SASKATOON, SASKATCHEWAN  
PROJECT NO. S59    PLATE NO. \_\_\_\_\_

Notes  
1) Mobile B60 drilling rig used with 150 mm diameter auger.



Appendix B

MEEWASIN PARK CONCEPT PLANS

In order to stimulate additional public response to proposed development in Meewasin Park, three conceptual plans were prepared and presented at two 'open house' displays. Each of the concepts indicated a distinct approach to the level and distribution of proposed development, although all three held several features in common.

B.1. COMMON FEATURES AMONG CONCEPTS

A number of elements remained constant within all three of the conceptual alternatives, including the following:

- 1. Development of an historical interpretation unit at the site of the Silverwood farm.
- 2. Relocation of bicycle path away from the Spadina Crescent-Whiteswan Drive right-of-way.
- 3. Preservation of all existing natural vegetation.
- 4. Avoidance of any development along the potentially unstable bluff adjacent to the Upland Park Area.
- 5. Use of the borrow pit west of the Pollution Control Plant as a major landscape feature which should be reclaimed and developed, not filled in.
- 6. Intensive landscape development of the Casual Use Open Space Area surrounding the borrow pit.

B.2. THE CONCEPTS

Table 3 summarizes the attributes of each of the three concept plans. The following discussions are intended to indicate the major differences in the approaches to Park development within the three concepts.

B.2.1. Concept 1

Concept 1 was the first of two Concepts which proposed a significant level of structure and facility development. The essence of this Concept was 'concentration of activity and development'. In this sense, one major Activity Centre was proposed for the area between Spadina Crescent and the River, immediately south of Pinehouse Drive. Included in this Activity Centre would be such facilities as the following: playground; major parking lot; service building (washrooms, warm-up shelter, Park information booth); picnicking facilities (tables, barbeques, cook shelter) and a canoe launching dock. In keeping with the notion of concentration, trail linkages were proposed to serve a multiple function (for both pedestrians and cyclists). Formal trails were not extended into the Upland Park Area nor into the sensitive area immediately north of the Pollution Control Plant. The Upland Park area was seen as retaining its present role as a neighbourhood park area. The sensitive area to the north was proposed as a 'Conservation Zone' into which formal access is not developed.

B.2.2. Concept 2

Although the overall level of development proposed in Concept 2 is comparable to that in Concept 1, Concept 2 indicated a dispersal of activities and facilities throughout a greater portion of the Park. Three Activity Centres were proposed: one at the foot of Ravine Drive; one in the general location proposed in Concept 1; and one immediately

south of the Pollution Control Plant. These Activity Centres were intended to provide a lower level of services (smaller parking areas; only minor playground development, smaller picnic areas, washrooms) than that intended for the major Centre in Concept 1.

Reinforcing the notion of dispersal, two distinct trail systems were proposed (one for pedestrians, one for cyclists) and at certain points along these trails, additional picnicking facilities were proposed. In addition, the trail systems were extended into the Upland Park Area and the area immediately north of the Pollution Control Plant.

#### B.2.3. Concept 3

Concept 3 is viewed as a radical departure from either of Concepts 1 and 2, inasmuch as facility and trail development was minimal. The emphasis in this Concept was one of restoring much of Meewasin Park to a nearly-natural state. Formal trail development was restricted to one multi-purpose trail from Whiteswan Drive to the Silverwood Historic Site. In the remainder of the Park, it was proposed that pedestrian circulation follow routes created by Park visitors.