

BYLAW 60-99

A BYLAW OF STRATHCONA COUNTY IN THE PROVINCE OF ALBERTA, FOR THE PURPOSE OF ADOPTING THE WINSTON PLACE AREA STRUCTURE PLAN.

WHEREAS it is deemed advisable to adopt the Winston Place Area Structure Plan.

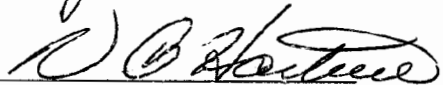
NOW THEREFORE, the Council of Strathcona County, pursuant to the authority conferred upon it by the Municipal Government Act, S.A. 1994 c-M26.1 and amendments thereto, enacts as follows:

1. That this Bylaw is to be cited as the "Winston Place Area Structure Plan".
2. That Schedule "A" attached hereto is hereby adopted as part of this Bylaw.

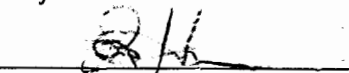
Read a first time this 15<sup>th</sup> day of June, 1999.

Read a second time this 29<sup>th</sup> day of June, 1999.

Read a third time and finally passed this 29<sup>th</sup> day of June, 1999.



Mayor



Corporate Secretary

Date Signed: July 1/99

***Winston Place***

***Area Structure Plan***

***NW 12-52-23-W4***

***Revised***

Prepared for:  
Strathcona County

Prepared by:  
JHO Holdings Ltd. And  
JHO Holdings & Management Ltd.

Introduction and Ownership	1
Statutory Plan Compliance	1
Property Description	1
Man-Made Constraints	2
Surrounding Land Uses	2
Proposed Land Use	2
Environmental Reserve/Conservation Easement	3
Environmental Site Assessment	4
Alberta Environment	5
School Population	6
Traffic Projections	7
Municipal Infrastructure	7
Development Control	8
Franchise Utilities	8
Engineering Plans	9
Table of Land Use Allocation	9
Key Plan	Appendix 1
Concept Plan	Appendix 2
Developable Areas	Appendix 3
Conservation Easement Area	Appendix 4
Water Table Levels and Drainage Report	Appendix 5
Surface Water Drainage Report	Appendix 6
Alberta Environment Letter	Appendix 7
Bel MK Engineering	Appendix 8
Public Information Program	Appendix 9

## **Reports Submitted to the Strathcona County re: Winston Place Development**

- **Winston Place ASP**  
Prepared by: JHO Holdings Ltd.  
Prepared for: County of Strathcona
  - **Drainage Study**  
Prepared by: Samide Engineering Ltd.  
Prepared for: JHO Holdings Ltd.  
April 1999
  - **Landfill Gas Sampling**  
Prepared by: AGRA Earth & Environmental  
Prepared for: JHO Holdings  
December 1998
  - **Phase I Environmental Site Assessment**  
Prepared by: Bel MK Engineering Ltd.  
On behalf of: Samide Engineering Ltd.  
Prepared for: JHO Holdings Ltd.  
May 1999
  - **Winston Place ASP Revised**  
Prepared by: JHO Holdings Ltd.  
Prepared for: County of Strathcona  
May 1999
-

## **Introduction**

This planning report has been prepared for the Strathcona County Council and Technical Advisory Committee on behalf of its owner 330178 Alberta Ltd. and its developers JHO Holdings Ltd. and JHO Holdings & Management Ltd. These three companies are in turn owned and operated by James Odishaw and his family who have been residents of Sherwood Park for the past twenty-six years. The subject property (NW 12-52-23-W4th meridian) contains 62.35 hectares and is located approximately three kilometers south of the Hamlet of Sherwood Park at the intersection of Township Road 522 and Range Road 233.

## **Statutory Plan Compliance**

This Area Structure Plan conforms to the Strathcona County Municipal Development Plan, which designates this area as a Country Residential Policy Area.

## **Property Description**

The property is primarily rolling land area characterized by hummocky moraine. The entire subject property is well treed with the predominant overstory being deciduous with occurrences of spruce, aspen, balsam, poplar and willow. Depressional areas located within the area in question provide natural drainage, evaporation areas, and recharge on the site. A variety of understory exists in association with topographic soils, aspect and moisture occurrence. Elevation varies from a low point of 735 meters at the northwest corner of the site to a high of 750.5 meters near the northeast corner. Soils characteristically are till with some sandy silt on higher ground at the east side of the

property. Previous reports have referred to the Class 4 & 5 Canada Land Inventory soils for this area. It should be noted that the road right-of-way is cleared in the described Phase I as per the proposed plan.

### **Man-Made Constraints**

The only man-made constraint on the subject property is the pipeline easement that lies on the eastern boundary running north to south.

### **Surrounding Land Uses**

The surrounding land uses, with the exception of the land that lies immediately west and east, are Rural Residential/Farm. The quarter section to the west is Roseburn Heights, a country residential subdivision, and to the east lies the former County Landfill, which is currently owned by the County. Although this quarter section is not presently utilized, it is zoned as conservation and open space by the Land Use Bylaw.

### **Proposed Land Use**

The proposed land use for the subject property (NW 12-52-23-W.4M.) is a Country Residential Subdivision comprised of 56 Country Residential lots. The concept provides for a collector roadway through the subdivision accessing Range Road 231 at two separate locations south of Township Road 522. The collector roadway affords one cul-de-sac in the center of the subject property.

The Plan addresses lot size, Conservation Area, road development and stage development. There will be 56 residential lots, each a minimum of 0.81 hectares (2.0 acres) with a minimum developable area of 0.40 hectares (1 acre). Development is to take place in two phases. Stage I of the Winston Place Development proposes to develop 37 Lots, including 4 public utility lots, with Stage II developing 19 Lots, including 1 public utility lot as shown on Appendix 2.

The major transportation route in the area is the east/west Township Road 522 that connects directly with the Whitemud Freeway and is located on the north border of the subject property. Wye Road (Secondary Highway 630) is situated 3.2km (2 miles) south. In addition, to the east and west of the property lie Range Roads at one-mile intervals allowing for easy access to either Highway 14 or Wye Road. These routes are readily apparent on the Key Plan (Appendix 1).

#### **Environmental Reserve / Conservation Easement Area**

With respect to Municipal or Environmental Reserve dedication, a combination of municipal reserve, money in lieu of reserve land and Environmental Conservation Area will be addressed at the subdivision stage. Under the proposed Concept Plan, the Environmental Conservation Area is proposed as follows (Appendix 4):

- Lots 1 – 11, Block 1: 50 metre rear yard.
  - Lots 11 – 23, Block 1: 75 metre rear yard.
  - Lots 23 – 31, Block 1: 25 metre rear yard.
  - Lots 1 – 24, Block 2: 25 metre rear yard.
-

- Lots 1 – 3, Block 3: 25 metre rear yard.

The total area covered by the Conservation Area is 17.0 ha (42.0 ac).

The Developer has provided for future extensions of the County's Master Trail Plan as a result of discussions with County Representatives. The Concept Plan allows for this extension along the eastern boundary of the subject property on the adjacent property, owned by the County with the access route in the northeast corner of the subject property.

#### **Environmental Site Assessment**

A Phase I Environmental Site Assessment performed by Bel MK Engineering Ltd. Determined there are no environmentally sensitive areas within the subject property, and that as a result of the proposed Conservation Area and site development restrictions, a Phase II Environmental Site Assessment is not necessary (Appendix 8).

There have been no previous developments on the land as its natural state of 100% bush has been preserved. Accordingly, it is submitted that given the above environmentally protected area, the proposed development will have minimal adverse environmental impacts on the land or adjacent lands. In addition, development restrictions will prohibit any industrial or commercial enterprises from operating on the said property.



### **Alberta Environment**

It should be noted that Alberta Environment / Strathcona County has in the past conducted studies of soil conditions along the eastern boundary of the subject property. Such studies were conducted to disclose possible adverse effects to the proposed subdivision, given the presence of the landfill on the quarter section to the east. However, at the request of Alberta Environment, a more recent study was conducted by the developer to determine the impact, if any, of this landfill. Although historical reports indicate that no leaching of contaminants into water test holes had taken place, AGRA Earth & Environmental was commissioned to perform these recent studies.

In the Landfill Gas Sampling report prepared by AGRA (previously provided to the County) it was stated in part that,

“the sampling results do not indicate that landfill gases are migrating through the soils near the proposed development. In fact, the sampling results are very close to the typical concentrations of dry atmospheric air.”

Given these results Alberta Environmental Protection, by letter dated February 19, 1999 to Strathcona County (Appendix 7), granted a variance from the required set back distance from the former landfill subject to certain conditions. To accommodate these requirements, the developer has agreed to the registration of a caveat against all lands as part of the Environmental Conservation Area. There will be no habitable buildings within 75m of the east property line and any drilling of water wells for potable water will be prohibited. A caveat will be registered against all the proposed lots with respect to

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these restrictions. It is the desire of the developer to have a municipal water supply system.

### **School Population**

The Winston Place Country Residential Subdivision proposes the development of 56 lots, each a minimum of 0.81 hectares (2.0 acres) in size. Upon review of original ASP by Elk Island Public Schools, the revised projection of student population for Winston Place is as follows:

Elementary.....	0.52 per household
Junior High.....	0.22 per household
Senior High.....	0.20 per household

The school population is projected to be:

Elementary.....	29.6 students
Junior High.....	12.5 students
Senior High.....	11.4 students
<b>Total.....</b>	<b>53.5 students</b>

The result is considerably fewer students than previously projected, and as expressed by Elk Island Public Schools, this number can be easily accommodated within the existing schools throughout the area.

**Traffic Projections**

The proposed subdivision, when fully developed, will consist of 56 households. Using a figure of 12 vehicle trips per day, per household, the traffic generation rate upon full development will be 672.

Al-Terra Engineering Ltd., is currently undertaking a noise impact assessment. using the Strathcona County's noise model. It is respectfully submitted that the property will have traffic signs of 50 km/hr speed limit posted, along with 2 stop signs; the property will remain 100% bushed other than what is required for building and roads. No farming, commercial or industrial enterprises will be permitted and accordingly the sound level will remain within the county standards for residents.

**Municipal Infrastructure**

- a) **Roadways** – The roadways are proposed to have a semi-rural cross section with swale ditching within a 30-meter right-of-way.
- b) **Water Supply** – It is the desire of the developer to get approval for a municipal water supply by the time construction commences. However, in the absence of this service, individual homeowners will be responsible for water servicing via cisterns built on the property. No water wells will be allowed within this subdivision.

- c) **Sanitary Sewers** – Individual homeowners will be responsible for sewage disposal through septic tanks and fields. It is the developer's intention to require that each resident install the most current researched system recommended by the County.
- d) **Storm Water Management** – Storm water management will be via surface swale ditches. As per the study conducted by Samide Engineering, additional swale ditches will be provided to handle flows in depressed areas or to the ditch of range road 231. Culverts will be provided where required to facilitate proper drainage.
- e) **Trail Systems** – Currently, the tentative Master Trail Plans are to have a trail running north/south along the east property line. This would nicely connect the Municipal reserve in the northwest corner of Silver Birch to provide a staging area to continue the trail south. (Appendix 12)

#### **Development Control**

The development of the Lots within the subdivision will be subject to Architectural Guidelines. The key elements of the guidelines will address minimum residential building size, site location, screening of storage area, and basic architectural standards.

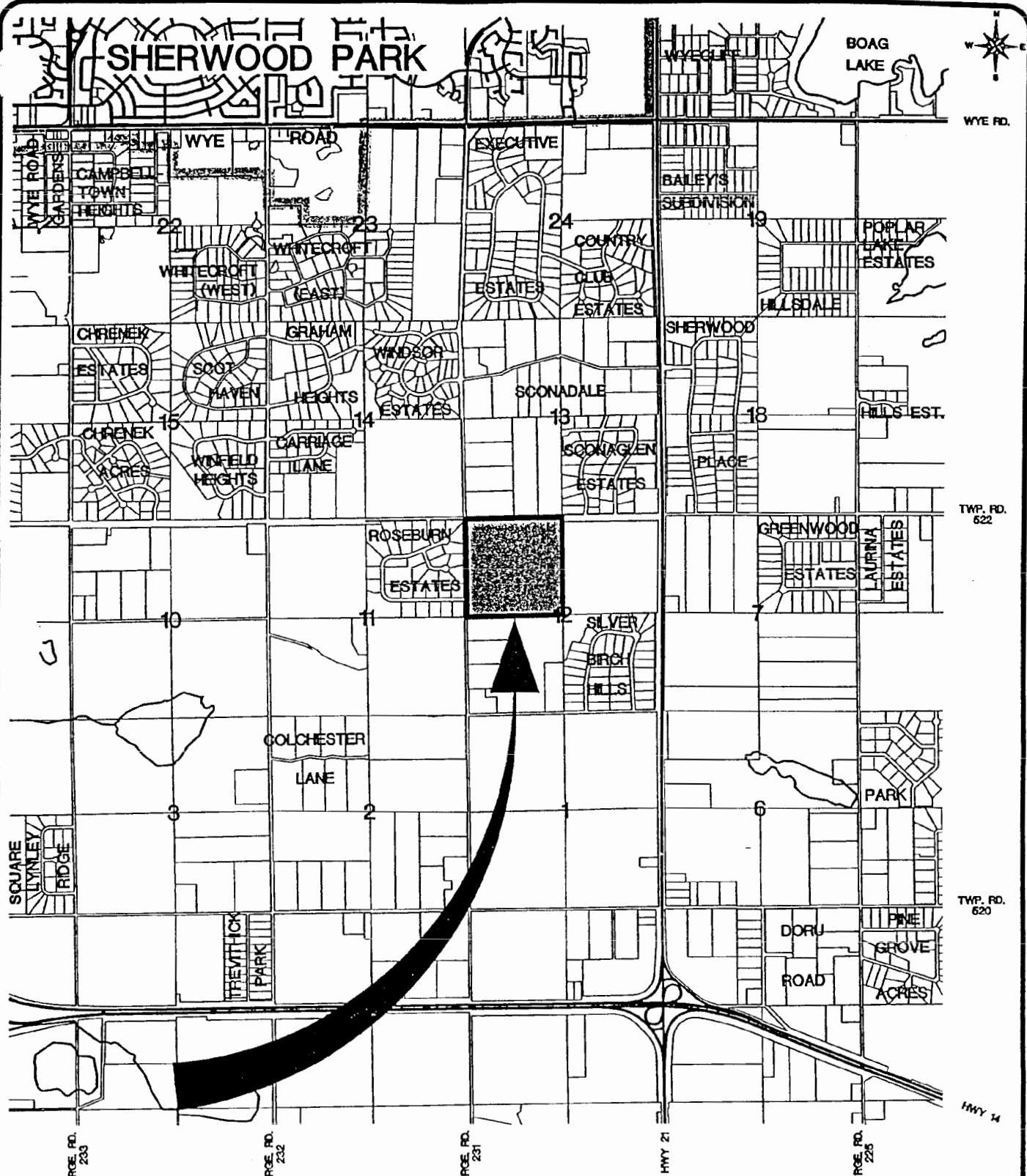
#### **Franchise Utilities**

It is proposed that the subdivision will be serviced entirely underground. This includes power as well as natural gas, telephone and cable television. As previously stated, the developer will install municipal water lines if the County is prepared to provide that service.

Engineering Plans, with respect to roads and services locations, will be provided upon determination as to whether or not the County will provide water services.

#### TABLE OF LAND USE ALLOCATION

	Hectares	Acres	Percent
Gross Area (NW 12-52-23 W4M)	62.35	154.19	100.00
Land Uses:			
Country Residential Lots	54.61	135.0	87.60
Roadways	5.18	12.86	8.30
PUL Areas	2.56	6.33	4.10
			<u>100.0%</u>
Environmental Conservation Area Coverage	17.0	42.0	<u>31.1%</u>



**KEY PLAN**

**NW 12-52-23-W4**

Drawn by: Peter Tsoukalas C.E.T.

File No: 4400-733-88P07

Revised Date: dd/mm/yy

Revision No. x

Date Drawn: 23/06/98

Scale: NTS

DWG No.: P23F0000

**PLANNING SERVICES BRANCH**  
 PLANNING & DEVELOPMENT REVIEW SERVICES **Strathcona**  
 County





# WINSTON PLACE

PLAN SHOWING DEVELOPABLE AREAS  
WITHIN PROPOSED SUBDIVISION

OF PART OF

N.W. 1/4 SEC. 12, TWP. 52, RGE. 23, W. 4th M.  
STRATHCONA COUNTY, ALBERTA

SCALE 1:2000

1998

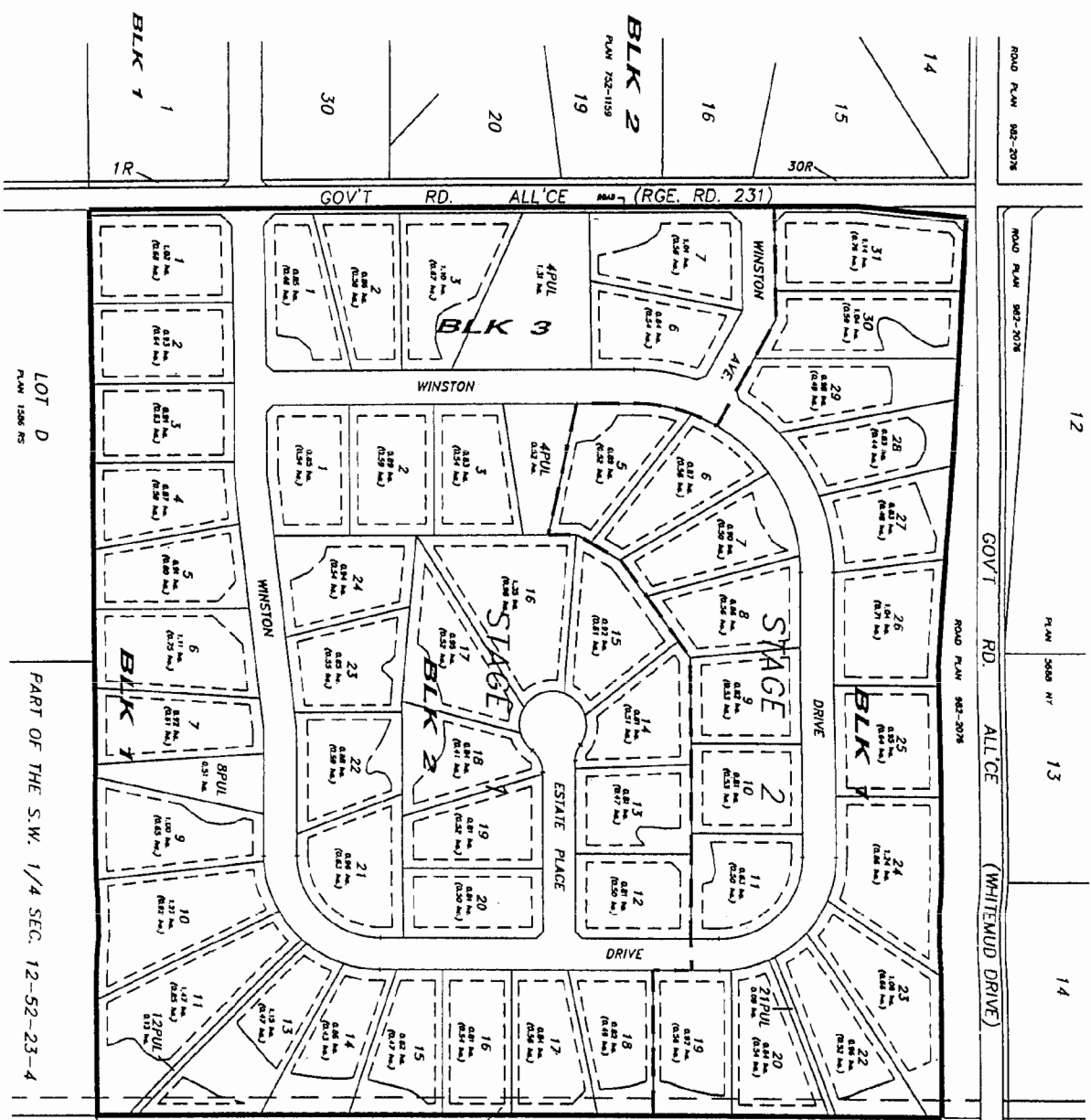
J.M. HARLAND, A.L.S.



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N.E. 1/4 SEC. 12-52-23-4

RIGHT OF WAY PLAN 5517 NY



LOT D  
PLAN 1506 RS

PART OF THE S.W. 1/4 SEC. 12-52-23-4

LOT R  
PLAN 5048 TR





# WINSTON PLACE

PLAN SHOWING PROPOSED CONSERVATION E  
AREAS WITHIN PROPOSED SUBDIVISIO

N.W. 1/4 SEC. 12, TWP. 52, RGE. 23, W. 4  
STRATHCONA COUNTY, ALB

SCALE 1:2000

J.K. HARLAND, A.L.S.



1. AREA SET ASIDE TO MAINTAIN THE PLANT COMMUNITY
2. AREAS SET ASIDE TO MAINTAIN THE PLANT COMMUNITY
3. AREAS SET ASIDE TO MAINTAIN THE PLANT COMMUNITY

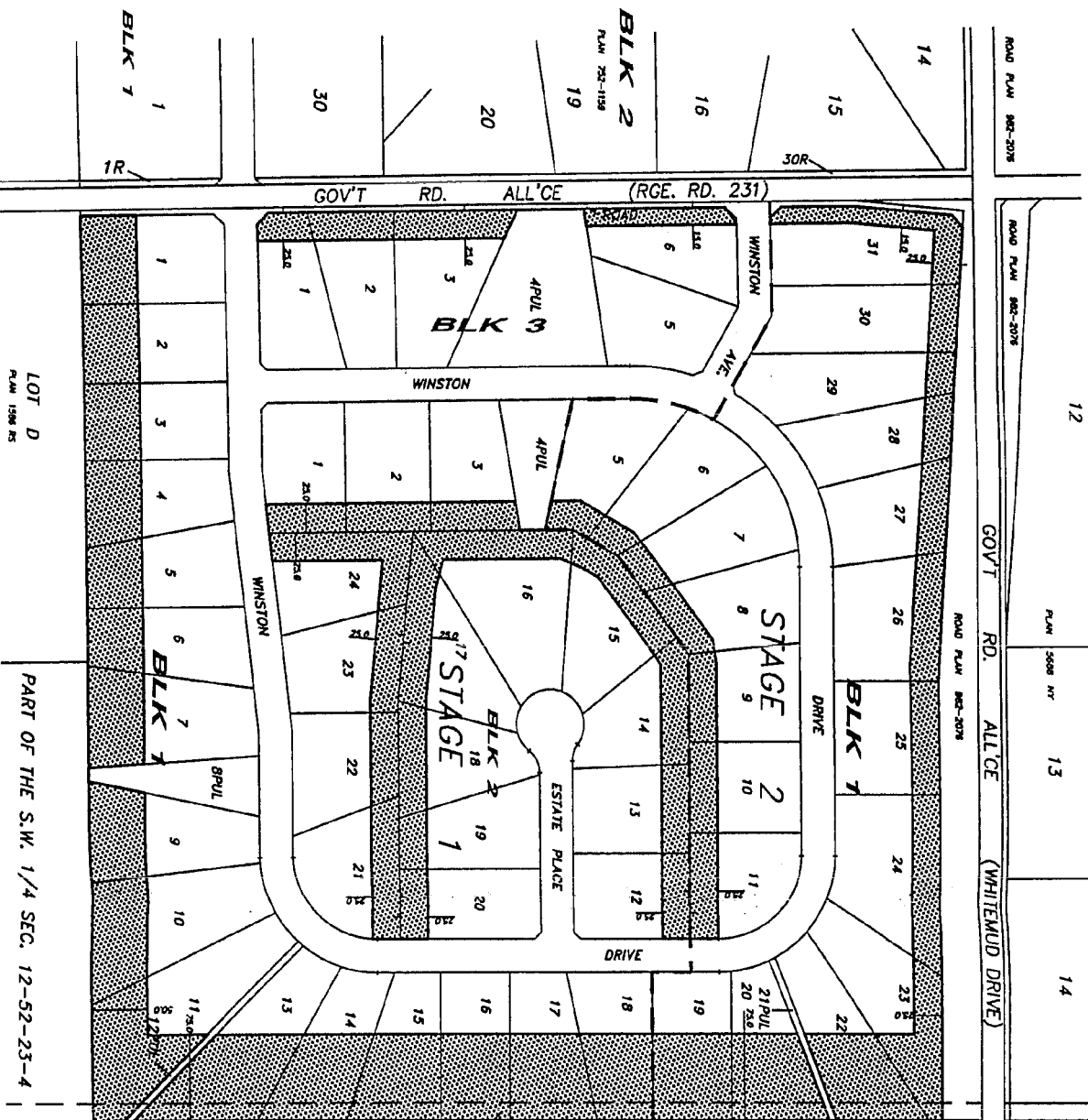
ENVIRONMENTAL CONSERVATION AREA  
AREA = 17.0 ha (42.0 ac)



ENVIRONMENTAL CONSERVATION AREA  
AREA = 17.0 ha (42.0 ac)

N.E. 1/4 SEC. 12-52-23-4

RIGHT OF WAY PLAN 5517 HY



HARLAND AND HIGGINS LAND

1600-16th STREET, CALGARY, ALBERTA  
T4E 1A6, CANADA



AGRA Earth &  
Environmental Limited  
4810 - 93 Street  
Edmonton, Alberta  
Canada T6E 5M4  
Tel: (403) 436-2152  
Fax: (403) 435-8425

June 2, 1998  
EG18043

JHO Holdings & Management Ltd.  
C/o Odishaw and Odishaw  
2200 Sun Life Place, 10123 - 99 Street  
Edmonton, AB T5J 3H1

Attention: James H. Odishaw

Dear Sir:

Re: Water Table Tests and Aquifer Tests, NW12-52-23W4

You have submitted to us the results of water table testing on the above property performed in 1980, and the results of pumping tests performed in 1980 and 1982. Percolation tests apparently were also performed in 1980, but to date, this data has not been located. As requested, this letter provides comments on the validity and significance of the above tests.

Water table tests were performed on the above property by GeoScience Consulting Ltd. in January, 1980. Eight water table tests were performed, which meet the standards set out in Alberta Environmental Protection (AEP) interim guidelines of June, 1994, and in AEP's Environmental Reference Manual of November, 1996. Seven of the 8 tests indicated low water table conditions which would meet the guidelines for Suitable Development Area (SDA) as defined by AEP. One test indicated a high water table level. In addition to the tests, a terrain analysis was performed, taking into account drainage, vegetative patterns and topography. Based on this analysis and on the results of the water table tests, areas of probable high water table level were delineated and directions of drainage runoff were determined. The map by GeoScience Consulting Ltd. in 1980 was prepared according to current AEP guidelines, and is still valid today.

The current subdivision proposal for this property calls for subdivision into 61 residential parcels. By the AEP guidelines some high water table areas can be allowed on any proposed lot, but only if there is also a minimum of 1 Acre (0.4 ha) of SDA. If the GeoScience 1980 map is accepted as adequately delineating high water table areas and drainage runoff courses, the proposed subdivision plan can be revised to take these areas into account, and to ensure that there is a minimum of 1 Acre (0.4 ha) of SDA on each lot, and that drainage runoff is adequately controlled.

Several water wells have been drilled on the property and at least 3 pumping tests performed. A test by GeoScience Consulting Ltd. in 1980 indicated a potential long term "20-year" ( $Q_{20}$ ) well yield of about 1.5 igpm, which by AEP guidelines, would be sufficient to service 9 residential lots. Two tests by Hydrogeological Consultants Ltd. in 1982 indicated depletion-type aquifers for which a reliable long-term yield could not be calculated. The implication however is that the aquifers are not extensive and cannot be relied on to support a multi-lot subdivision.

An alternate source of water supply would be required to support the proposed subdivision. A hauled water supply to be stored in cisterns is proposed, which is commonly done in many of the subdivisions in this area.

Our understanding is that sewage disposal for the subdivision is proposed to be means of septic fields. Percolation tests are required to determine the adequacy of the soil for sewage disposal fields, and to design and size the fields. Other sewage disposal alternatives, such as above-ground evaporation mounds, are also available. Their suitability and design would be dependent on the results of the percolation tests.

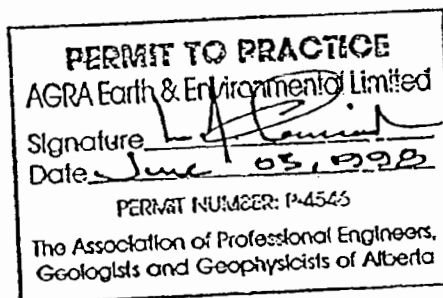
We trust this is the information you require. If you have any questions, please do not hesitate to contact the undersigned.

Respectfully submitted,

AGRA Earth & Environmental Limited

Orest Tokarsky, M.Sc. P.Geol.  
Senior Hydrogeologist

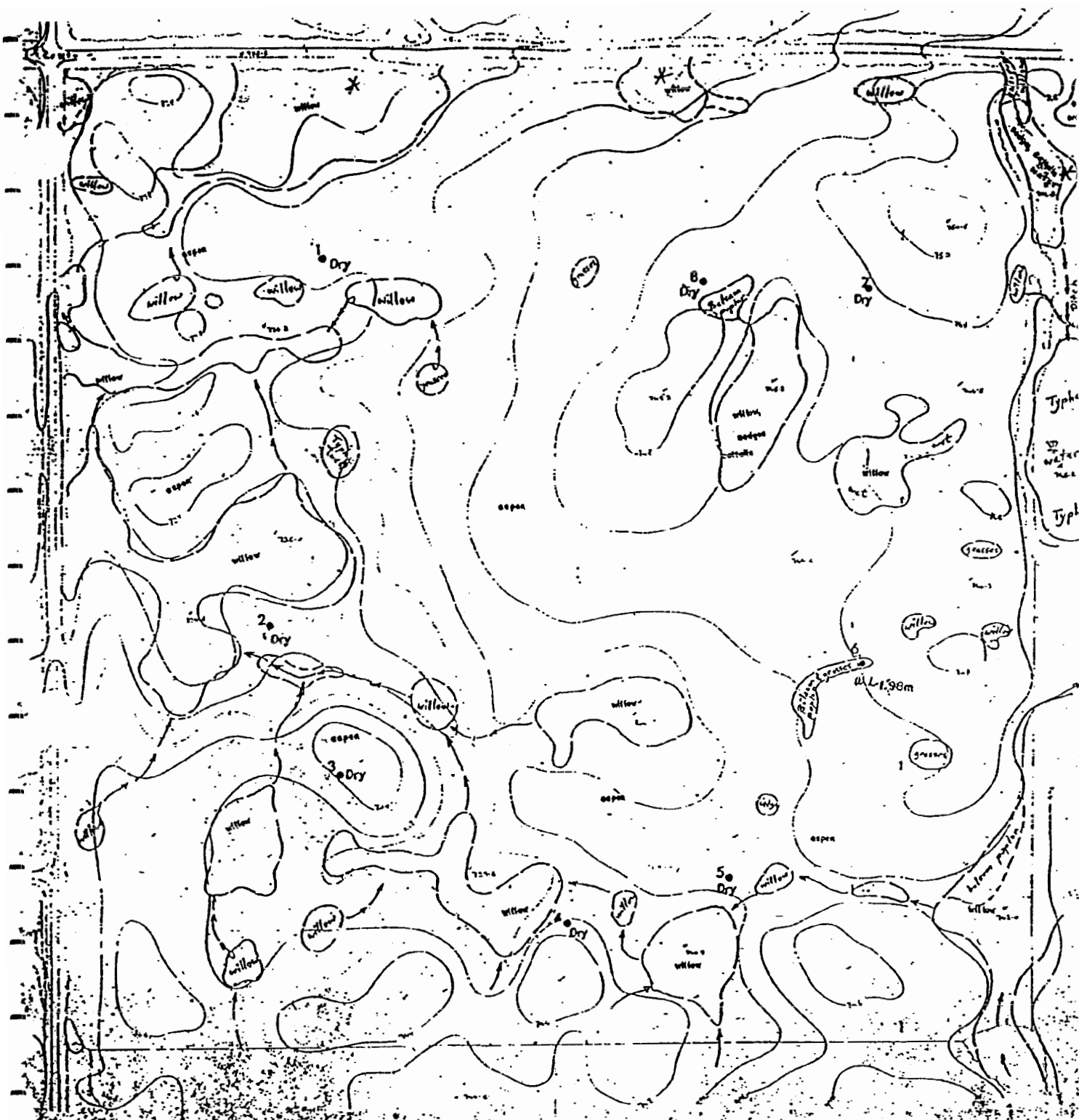
Review by:  
Fred Apon, M.Sc., P.Geol.  
Manager, Environmental Services  
Senior Hydrogeologist



P:\GUTEG18043.WPD



AGRA Earth & Environmental  
ENGINEERING GLOBAL SOLUTIONS



GEOSCIENCE CONSULTING LTD.

Water table testholes, July 1980  
drainage directions, and  
depressional areas  
(areas of high water table level).

Depressional area  
(area of high water table)  
Drainage direction  
(runoff drain-dry at  
time of inspection -  
March 21/24, 1981).



NW12-52-23-4

SCALE 1:2000

CONT. INT. 2m

\* AS A RESULT OF THE WIDENING OF TRIP 533  
BY 35 METERS THESE AREAS HAVE BEEN  
DRAINED BY THE COUNTRY.

COMPILED BY TERRACON CONSULTING



AGRA Earth &  
Environmental Limited  
4810 - 93 Street  
Edmonton, Alberta  
Canada T6E 5M4  
Tel: (403) 436-2152  
Fax: (403) 435-8425

January 18, 1999  
EG18046

Odishaw and Odishaw Associates  
2200 Sun Life Place, 10123 - 99 Street  
Edmonton, AB T5J 3H1

Attention: James H. Odishaw

Dear Sir,

RE: Percolation Tests, NW12-52-23W4

By way of letter dated October 1, 1998, the services of AGRA Earth & Environmental Limited were retained to perform percolation tests on the above property.

A total of six 20 cm. diameter percolation testholes were augered on the property on October 28, 1998 to a depth of 90 cm. Approximate hole locations are shown on Figure 1. Testhole lithologies are given in Table 1. The holes were then soaked overnight and the percolation tests were started the next day, following the procedures set out by the Alberta Environmental Protection (AEP) Interim Guidelines of April 26, 1994.

The AEP guidelines state that "percolation rates between 2.0 to 23.6 minutes/cm (5 to 60 minutes/inch) are indicative of moderately permeable soils and are suitable for sewage treatment providing that low water table conditions are present and the Sodium Adsorption Ratio of the disposal field effluent water does not exceed 8... Percolation rates that are either faster (< 2.0 minutes/cm) or slower (> 23.6 minutes/cm) reveal soil permeability conditions which are not suitable for sewage treatment".

Percolation test results are given in Table 2. Testhole #3 was completed in sand and had a percolation rate of 10.6 minutes per cm of water level drop, which by the AEP guidelines indicates a soil suitable for sewage treatment. Percolation rates at the other 5 testholes completed in silty clay and clay till, were between 33 and 77 minutes per cm of water level drop, which by AEP standards, are indicative of soil conditions unsuitable for sewage treatment, but which are fairly typical of percolation rates to be expected over most of the acreage areas close to Sherwood Park.

Odishaw and Odishaw Associates  
Percolation Tests, NW12-52-23W4

EG18046  
January 18, 1999  
Page 2

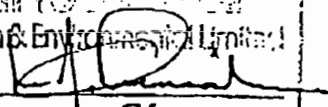
Sewage treatment in areas of slow percolation rate may be accomplished by means of above-ground evaporation mounds. The extent of the sandy area in which testhole #3 was completed has not been delineated, and would require lot-by-lot drilling to prove its extent. It is noted however that testhole #3 was the most easterly testhole on the property, and was the closest testhole to north-south trending low-lying land marked by a line of small ponds, sloughs and runoff draws along the eastern boundary of the property. It is possible that sand soils suitable for sewage disposal by septic fields may be present at other locations near the low-lying land at the eastern edge of the property.

Respectfully submitted,

AGRA Earth & Environmental Limited

Orest Tokarsky, M.Sc. P. Geol.  
Senior Hydrogeologist

Reviewed by:  
F. Apon, M.Sc., P.Geol.  
Head, Environmental Branch

PERMIT TO PRACTISE
AGRA Earth & Environmental Limited
Signature 
Date <u>January 26, 1999</u>
PERMIT NUMBER: P-4546
The Association of Professional Engineers, Geologists and Geophysicists of Alberta



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ENGINEERING GLOBAL SOLUTIONS

Odishaw and Odishaw Associates  
Percolation Tests, NW12-52-23W4

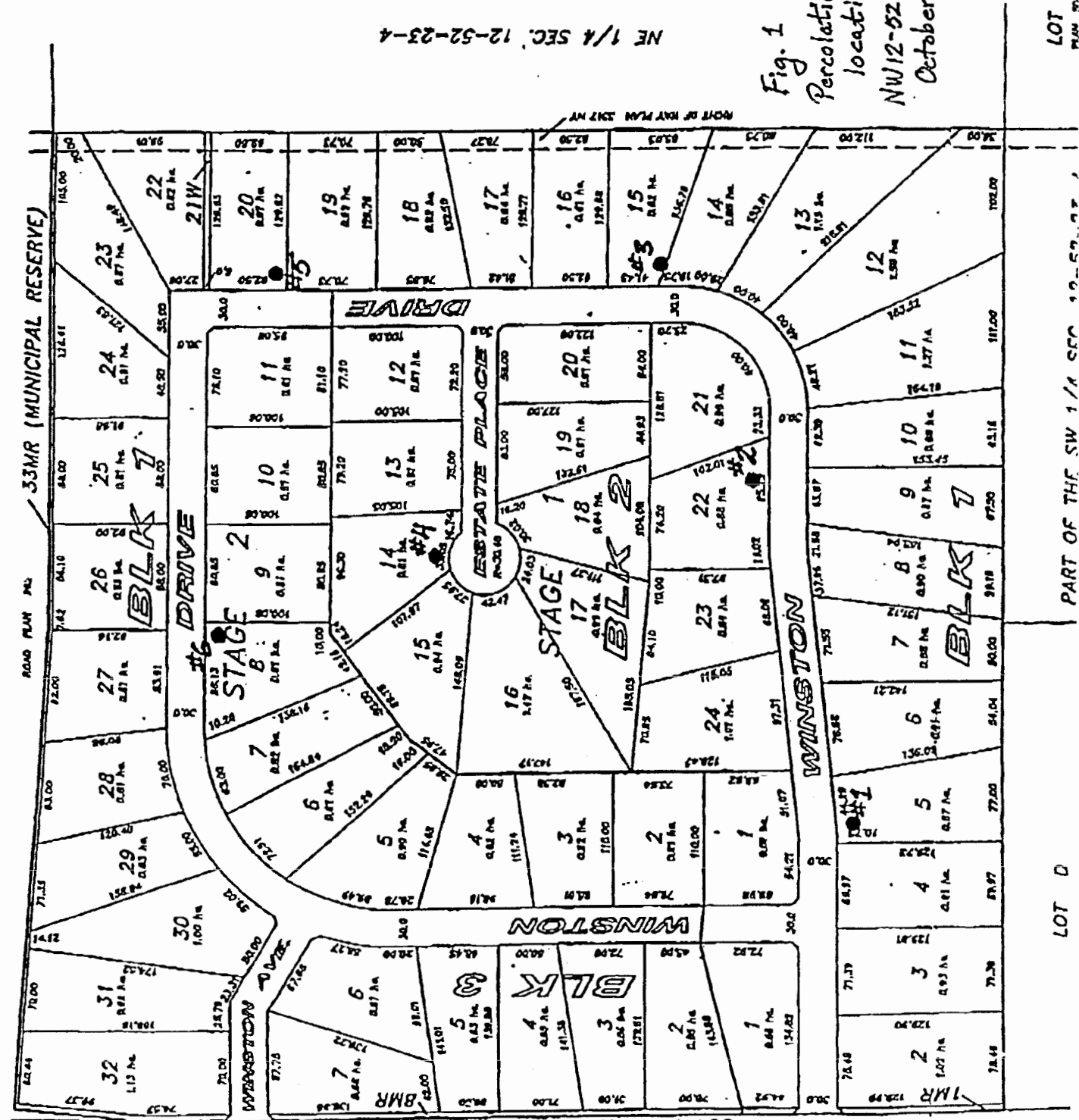
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Page 3

Table 1		
Lithology of Percolation Testholes - NW2-52-23W4		
#1	0-16 cm 16-30 cm 30-90 cm	Topsoil, loose, dark brownish grey, peaty Silt, pale yellowish, brown Ae horizon Clay till, dark brown, loose, very silty, medium plastic, stoney
#2	0-15 cm 15-90 cm	Topsoil, organic, peaty Silty clay, no stones, brown, firm, medium plastic
#3	0-13 cm 13-90 cm	Topsoil, organic, loose Sand, fine grained, pebbly, clean, loose, yellowish brown
#4	0-10 cm 10-36 cm 36-75 cm 75-90 cm	Topsoil Silt, yellowish brown Silty clay, brown, dense, medium to high plastic Silty clay, as above but more silty and low to medium plastic
#5	0-12 cm 12-30 cm 30-90 cm	Topsoil Clayey silt Silty clay till, stony, dark brown, high to medium plastic
#6	0-10 cm 10-25 cm 25-60 cm 60-90 cm	Topsoil Clayey silt, brown Clay, brown, high plastic Silty clay, brown, medium plastic

Table 2				
Percolation Tests - NW12-52-23W4 - October 29, 1998				
Hole No.	Trial No.	Time (mins)	Increment of drop (cm)	Percolation Rate (min/cm) (aver. of last 3 readings)
d#1	1	50	0.65	77.0
	2	50	0.65	
	3	50	0.60	
#2	1	50	1.50	37.0
	2	50	1.30	
	3	50	1.25	
#3	1	25	2.8	10.6
	2	25	2.55	
	3	25	2.3	
	4	25	2.2	
#4	1	50	1.6	33.0
	2	50	1.5	
	3	50	1.45	
#5	1	45	1.0	48.2
	2	45	0.9	
	3	45	0.9	
#6	1	45	0.9	54.0
	2	45	0.8	
	3	45	0.8	



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NE 1/4 SEC. 12-52-23-4

Fig. 1  
Percolation test  
locations,  
NW12-52-23W4  
October/98

LOT R

LOT D

PART OF THE SW 1/4 SEC. 12-52-23-4

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## EXECUTIVE SUMMARY

This report describes and makes recommendations concerning the stormwater management and drainage requirements for the proposed country residential development on the land area located in NW12-52-23-W4. The proposed drainage plan will preserve the natural (existing) drainage pattern as much as possible and will accommodate the natural drainage from the adjacent land area located along the south boundary of the study area. The existing wetland located near the west boundary will be utilized as the stormwater management pond. A 300 mm culvert with a 250 mm orifice will control the outflow from the wetland. An emergency bypass will also be constructed with an invert elevation of 736.5 m. The 100 year flood level will be at Elevation 736.5 m. The proposed drainage and wetland control system will reduce the peak outflow discharges during the post project conditions from what presently exist (reduction in flooding) and will result in an insignificant increase in volumes and duration of flooding in the flood prone area.

## TABLE OF CONTENTS

EXECUTIVE SUMMARY .....	i
LIST OF TABLES .....	iii
LIST OF FIGURES .....	iv
1. INTRODUCTION .....	1
1.1 Introduction .....	1
1.2 Objectives of the Drainage Study .....	1
1.3 Collect Background Data and Relevant Information .....	1
1.4 Existing Drainage Pattern .....	1
1.5 Discharge Capacity of Roseburn Ditch .....	2
1.6 Proposed Drainage Pattern .....	2
2. HYDROLOGY .....	3
2.1 Hydrology .....	3
2.2 Hydrologic Effects of Proposed Land Development .....	4
2.3 SWMHYMO Modelling and Stormwater Management Requirements .....	8
2.4 Proposed Stormwater Management Pond (Wetland Control System) .....	12
3. PROPOSED MINIMUM FLOOD ELEVATIONS FOR BUILDINGS DESIGN .....	12
4. CONCLUSIONS AND RECOMMENDATIONS .....	12
CORPORATE AUTHORIZATION .....	13
APPENDIX A – PROPOSED FLOOD ELEVATIONS FOR BUILDINGS DESIGN	
APPENDIX B – DRAWINGS	

### LIST OF TABLES

Table 1: Annual Maximum Rainfall Generated Runoff Depth (mm) .....	3
Table 2: Estimated Rainfall Depth (mm) .....	4
Table 3: Cleared and Paved Areas .....	4
Table 4: Annual Maximum Rainfall Generated Runoff Depth (mm) .....	5
Table 5: Annual Maximum Peak Discharges for Rainfall Generated Runoff .....	5

### LIST OF FIGURES

Figure 1: Runoff Hydrographs for 100-yr, 50-yr, and 25-yr Flood .....	6
Figure 2: Runoff Hydrographs for 10-yr and 5-yr Flood .....	7
Figure 3: Stage-Storage Relationship for the Proposed Wetland Control System .....	9
Figure 4: Stage-Outflow Relationship for the Proposed Wetland Control System .....	9
Figure 5: Runoff Hydrographs for Pre development conditions along with outflow hydrographs from the wetland control system for 100-yr, 50-yr, and 25-yr Flood .....	10
Figure 6: Runoff Hydrographs for Pre development conditions along with outflow hydrographs from the wetland control system for 10-yr and 5-yr Flood .....	11

## **1. INTRODUCTION**

### **1.1 Introduction**

JHO Holdings Ltd. and JHO Holdings and Management Ltd. are proposing a country residential development on the land area located in NW12-52-23-W4. The proposed development area is located approximately three kilometres south of Sherwood Park at the south east corner of the intersection of Township Road 522 and Range Road 231. Samide Engineering Ltd. has been retained to conduct an overall drainage study to determine storm water management and drainage requirements necessary to allow the proposed residential development to proceed. The location of the proposed development is shown on Drawing No.1, Appendix B.

### **1.2 Objectives of the Drainage Study**

The objectives of this study are as follows:

- To describe the overall drainage plan for the development area;
- To provide a storm water management design;
- To provide hydrology and hydraulic calculations that justify the system design; and
- To ensure that the design is in accordance with Alberta Environmental Protection and Strathcona County requirements.

### **1.3 Collect Background Data and Relevant Information**

During the course of this study, background data and relevant information were obtained. This activity involved having discussions with County personnel, reviewing files and reports, obtaining existing survey and hydrological data, collecting air photographs, and identifying downstream flood prone areas.

### **1.4 Existing Drainage Pattern**

Existing topographic mapping provided by Geoscience Consultants Ltd (1981), N.T.S. map, and aerial photographs of the study area were collected and examined. The existing drainage pattern is shown on Drawings No. 2. There are numerous depression storage wetlands located on the

property. Some have poorly defined outlets while others have well defined outlets. The natural runoff for almost all of this area is in a north-westerly direction towards the 450 mm culvert located at the northwest corner of the development (Drawing No. 2, Appendix B). The only areas that do not drain into the 450 mm culvert are a strip of land along the east side of the development (drains in an easterly direction) and a very small area in the southwest corner of the development (drains to the west). Ditches along Township Road 522 on the north and Range Road 231 on the west also drain to the northwest corner, where the 450 mm culvert runs westward under the range road. The water which flows through the 450 mm culvert flows west in the south ditch of Township Road 522 and eventually drains into Roseburn Ditch in NW11-52-23-W4. The drainage basin of Roseburn ditch is shown on Drawing No. 3, Appendix B. Approximately 17 hectares of lands located south of the project area drain into Roseburn ditch through the proposed development (Drawing No. 2 and Drawing No. 3, Appendix B).

### 1.5 Discharge Capacity of Roseburn Ditch

The Roseburn Ditch has a drainage area of approximately 5 km<sup>2</sup> (Drawing No. 3, Appendix B). The proposed development plus the area upstream of the proposed development, contributes approximately 0.63 km<sup>2</sup> of drainage area to the Roseburn Ditch. The Roseburn Ditch has a flood prone area which only has a bank full capacity of 0.017 m<sup>3</sup>/s (flood prone area located in a reach where only hayland/pasture will be flooded). The remainder of the ditch has adequate capacity to handle most flood flows. The proposed drainage with the wetland control system in place has been designed so that the proposed development (land use changes) will not result in increased flooding or significantly increased duration of flooding along the flood prone reach.

### 1.6 Proposed Drainage Pattern

The overall drainage development plan for the project area is shown on Drawing No. 4, Appendix B. The drainage plan has been set up to divert most of the proposed development through a wetland control system. Drawing No. 5, Appendix B shows the basin area that would be diverted through the wetland control system. The proposed drainage system would also accommodate drainage from the adjacent area located to the south of the proposed development property. No other areas drain into the proposed development area.

The county has requested that a conservation easement be placed around the perimeter of the development. The easement requested is to be 75 m along the east side and 50 m around the remainder of the development. No development is allowed within the easement. Thus the runoff from within the easement should not be altered by the development. The easement along with the boundary of the proposed wetland control system is shown on Drawing No. 5, Appendix B. It is obvious from Drawing No. 5 that almost all of the basin inside of the easement along with the area draining from the south will be controlled by the proposed wetland control system. The drainage area controlled by the proposed wetland control system has been estimated to be 63 ha.

## 2. HYDROLOGY

### 2.1 Hydrology

Experience elsewhere indicates that land use changes result in increased peak flows and increased volumes of runoff unless a storm water management plan is adopted. A hydrologic investigation is required to determine the extent of impact of the proposed development on the hydrologic regime of the area. The hydrologic investigation in the present study has considered the effect of rainfall generated runoff only. The effect of snowmelt generated runoff was not studied due to two reasons: 1) experience shows that the snowmelt peak flows decrease for post development conditions and 2) spring flooding of haylands/pasture usually has a beneficial agricultural effect (increased vegetative growth). The average volumes of rainfall generated runoff for rural areas similar to this basin are estimated and presented in the following table.

Table 1: Annual Maximum Rainfall Generated Runoff Depth (mm)\*\*

Return Period (year)	100	50	25	10	5	2
Runoff Depth (mm)	54	44	35	23	14	5

\*\* This data was determined by averaging the rainfall floods that were recorded at the Hydrometric Stations: Whitemud Creek (05DF006) and Strawberry Creek (05DF004).

The time to peak during an average rainfall type of storm was estimated to be 1 day for this size of basin. The volumes of rainfall for this locality and for rainfall duration of 1 day are as follows:

Table 2: Estimated Rainfall Depth (mm)

Return Period (year)	100	50	25	10	5	2
Rainfall Depth (mm)	150	133	108	85	78	55

The Stormwater Management Guidelines (Alberta Environmental Protection) recommend a runoff factor of 0.9 for floods below the 10 year return period and 0.95 for floods above and including the 10 year return period for impervious areas. These rainfall and run off volumes as well as runoff factors were used to investigate the hydrologic effects of the proposed land development.

## 2.2 Hydrologic Effects of Proposed Land Development

The proposed residential development is intended to preserve the natural topography and vegetation as much as practicable. Likely areas of clearing and paving appear to be approximately as follows:

Table 3: Cleared and Paved Areas

Type	Cleared only (m <sup>2</sup> )	Cleared and Paved (m <sup>2</sup> )
Roads	50,000	25,000
Houses and Yards	25,000	10,000
Sewage Fields etc.	80,000	
<b>Total</b>	<b>155,000</b>	<b>35,000</b>
<b>% of Total Area</b>	<b>25%</b>	<b>5.6%</b>

Based on the paved area of 35,000 m<sup>2</sup> and rainfall depths for various return periods as shown on Table 2, the runoff depths resulting from rainfall events of various return periods for the post development conditions are calculated and presented in Table 4.



Table 4: Annual Maximum Rainfall Generated Runoff Depth (mm)

Return Period (year)	100	50	25	10	5	2
Runoff Depth (mm)	59.0	48.6	38.8	26.2	17.2	7.5

Example:

$$100 \text{ year runoff depth} = [54 \cdot (63 - 3.5) \cdot 10 + 150 \cdot 0.95 \cdot 3.5 \cdot 10] / (63 \cdot 10) = 59.0 \text{ mm}$$

where

- 54 mm is the runoff depth from Table 1 for unpaved areas.
- 63 ha is the area that will be controlled within the development plus the area draining from the south (Area shown on Drawing No. 3 and Drawing No. 5).
- 3.5 ha is the paved area for post development conditions.
- 0.95 is the runoff factor.

Using a dimensionless runoff hydrograph for this area, the rainfall generated runoff hydrographs for pre and post development conditions for the 100, 50, 25, 10, and 5 year return periods were derived and are presented in Figure 1 and Figure 2. The peak discharges for pre and post development conditions without any stormwater management plan are shown in the following table.

Table 5: Annual Maximum Peak Discharges for Rainfall Generated Runoff

Return Period (year)	100	50	25	10	5
Peak Flows for Pre Project Condition (m <sup>3</sup> /s)	0.260	0.212	0.168	0.111	0.067
Peak Flows for Post Project Condition without stormwater management plan (m <sup>3</sup> /s)	0.284	0.234	0.187	0.126	0.083
% Increase	9%	11%	11%	14%	23%

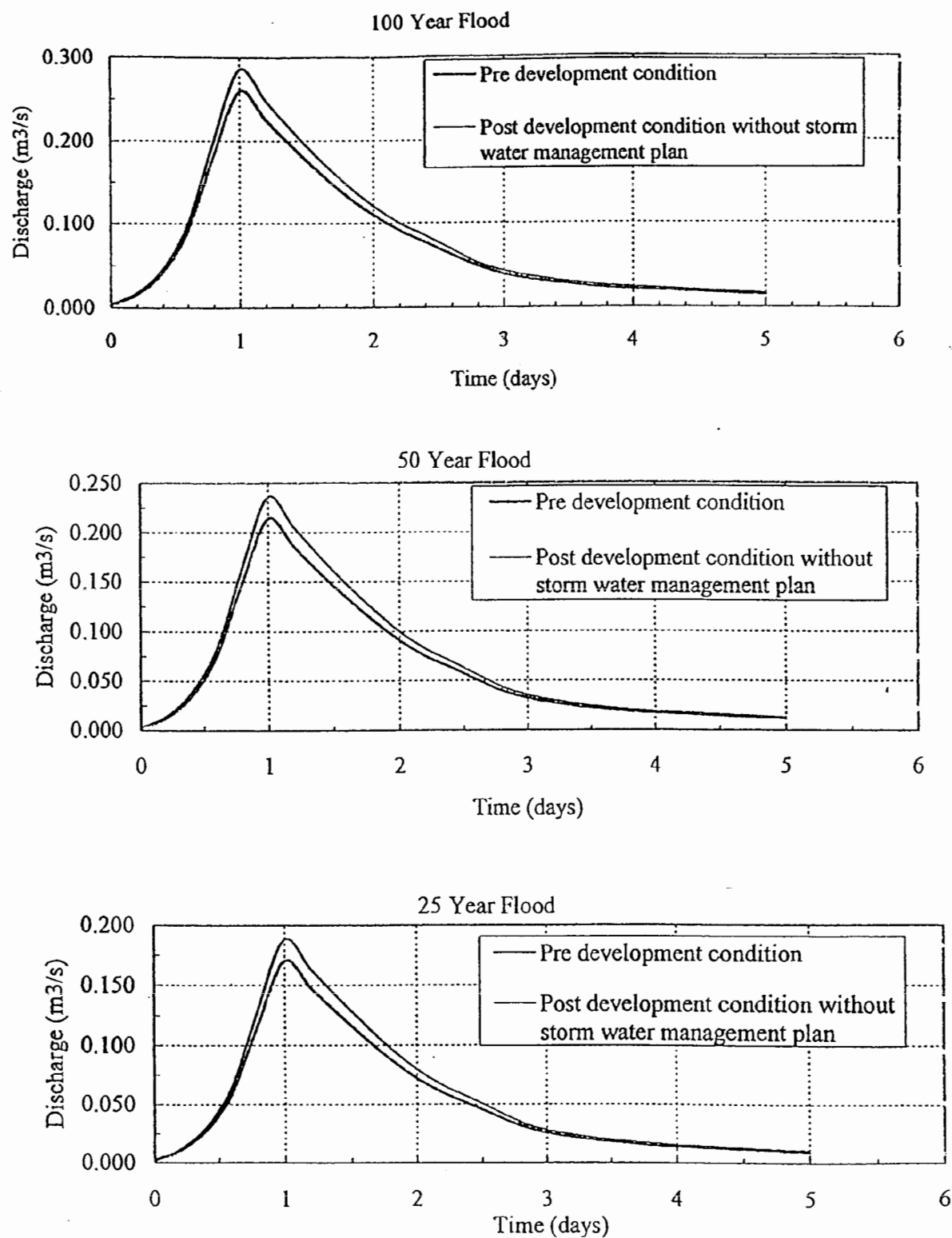


Figure 1: Runoff Hydrographs for 100-yr, 50-yr, and 25-yr Flood

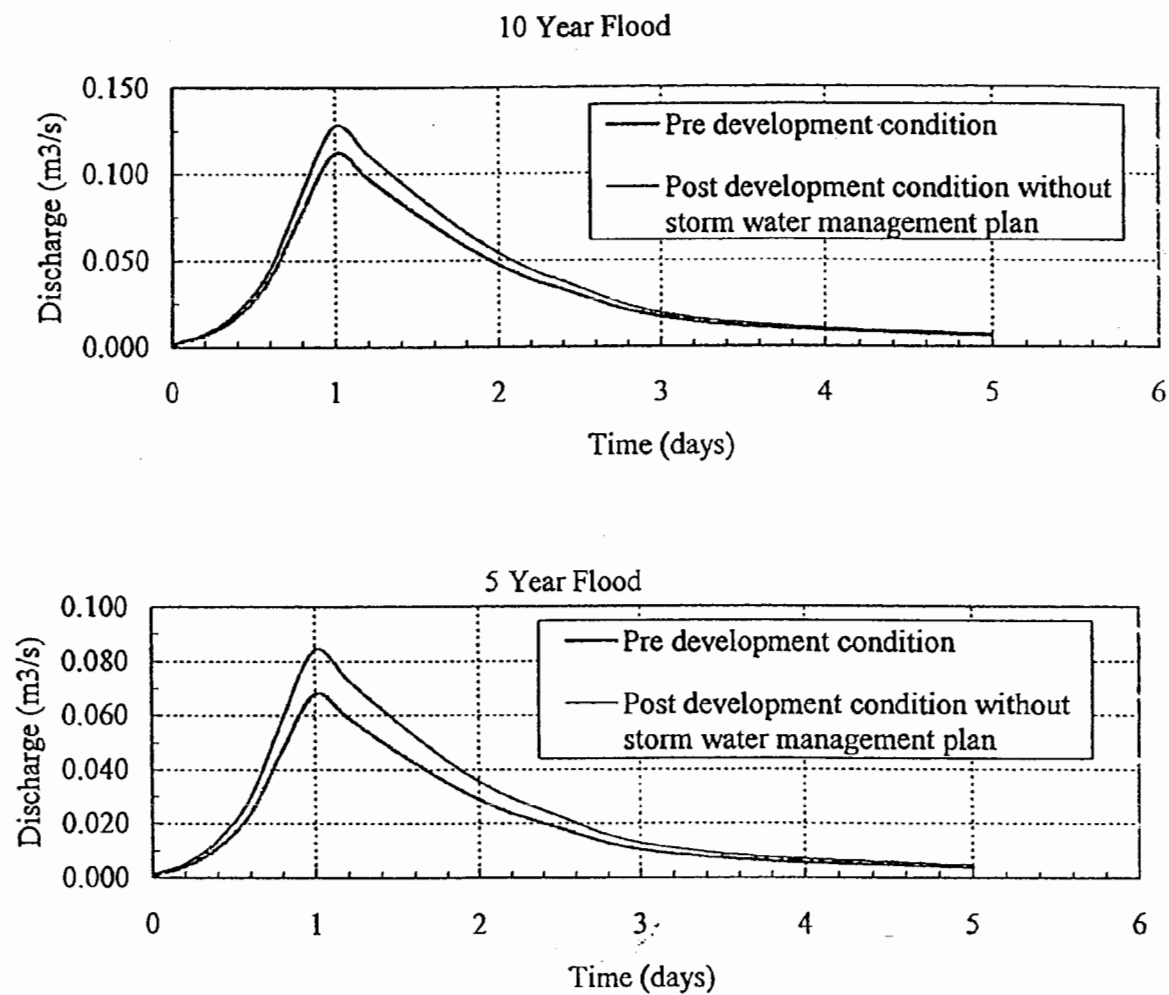


Figure 2: Runoff Hydrographs for 10-yr and 5-yr Flood

As seen from Table 5, the effect of land development is greater for small rainfall events than it is for large rainfall events. In order to reduce/or eliminate the adverse impact of these increased peak discharges and volumes of runoff on the downstream flood prone areas, computer modelling using SWMHYMO model was carried out to design the wetland control system to minimize the adverse impact of the proposed development. This controlled wetland will store the additional volumes of runoff generated due to the land use changes and release outflows at a controlled rate so that there is no increased flooding downstream. The modelling results are described below.

### 2.3 SWMHYMO Modelling and Stormwater Management Requirements

Based on the topographic mapping of the area provided by Geoscience Consulting Ltd (1981), the wetland located near the west boundary (Drawing No. 5, Appendix B) has been selected as the proposed storm water management pond. A dam with a culvert would be placed across the wetland outlet. The stage-storage relationship for this wetland was derived based on a topographic map. Several stage-outflow relationships were then derived by considering culverts with different sizes. The runoff hydrographs for the post project development conditions and the storage –outflow relationships (derived from the stage-storage and stage-outflow relationships) were utilized in SWMHYMO model to determine the most cost-effective design of stormwater management system (wetland control system). After analyzing the modelling results, it was concluded that, the wetland controlled by a 300 mm culvert with a 250 mm orifice would provide the best solution for controlling downstream flooding.

The stage-storage relationship and the stage-outflow relationship for the 300 mm culvert with a 250 mm orifice are shown on Figure No. 3 and Figure No. 4 respectively. The outflow hydrographs along with the runoff hydrographs for the pre project conditions are presented in Figure No. 5 and Figure No. 6. As can be seen from these figures, the proposed subdivision development with a wetland control system will result in:

- ⇒ the peak outflow discharges being less during the post project conditions than what presently exist (reduction in flooding); and
- ⇒ an insignificant increase in volumes and duration of flooding in the flood prone area.

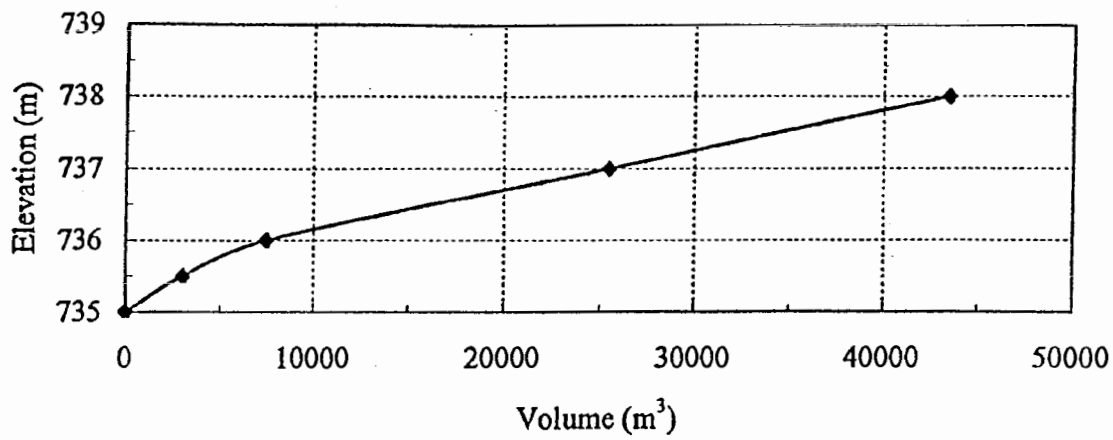


Figure 3: Stage-Storage Relationship for the Proposed Wetland Control System

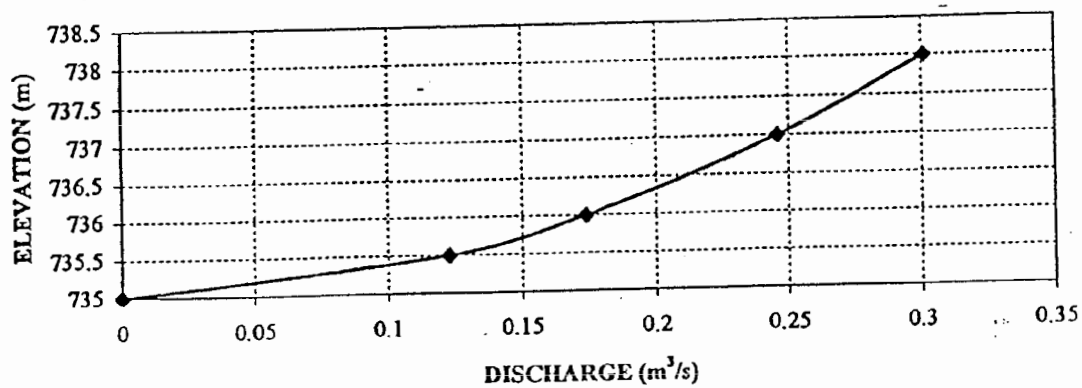


Figure 4: Stage-Outflow Relationship for the Proposed Wetland Control System

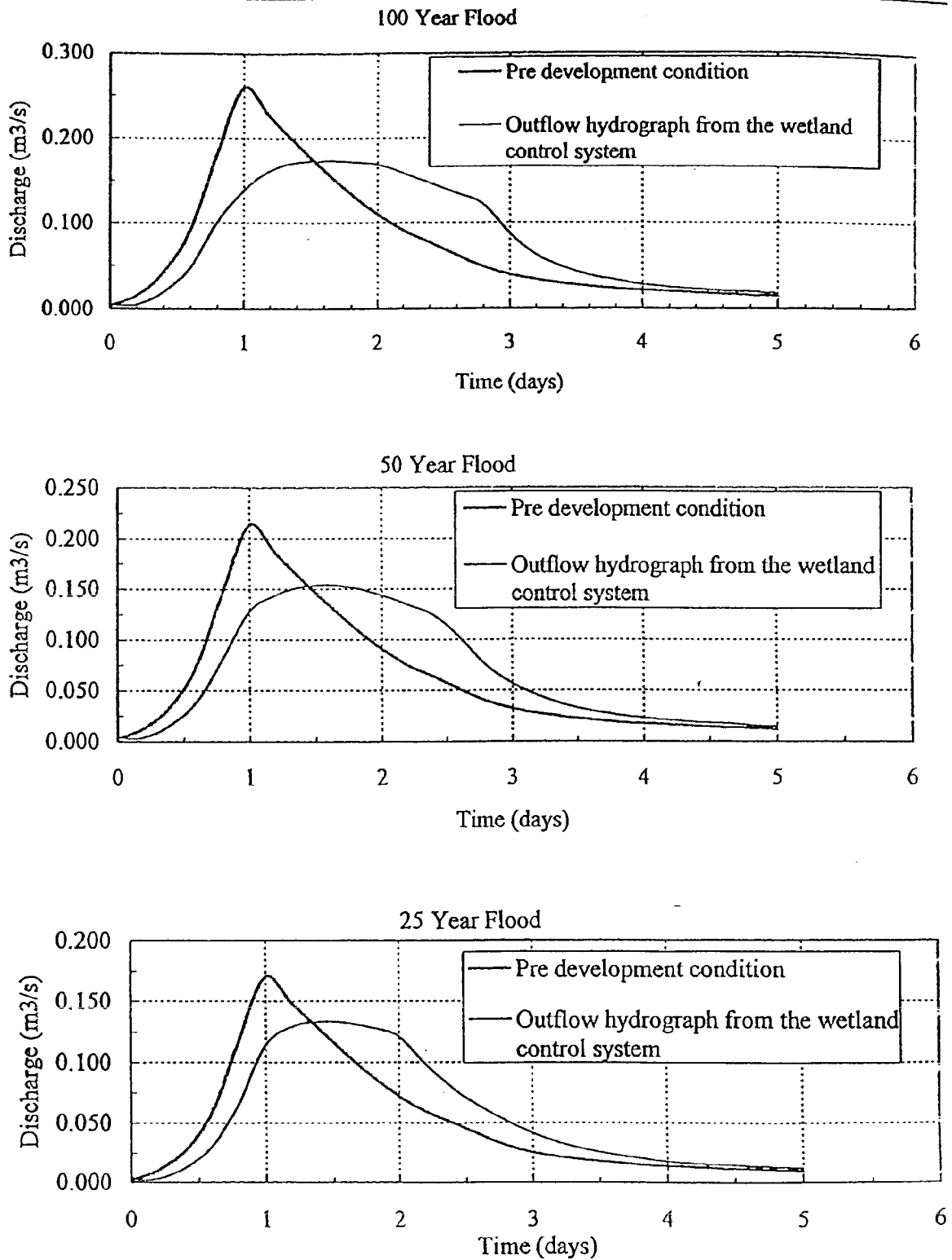


Figure 5: Runoff Hydrographs for Pre development conditions along with outflow hydrographs from the wetland control system for 100-yr, 50-yr, and 25-yr Flood

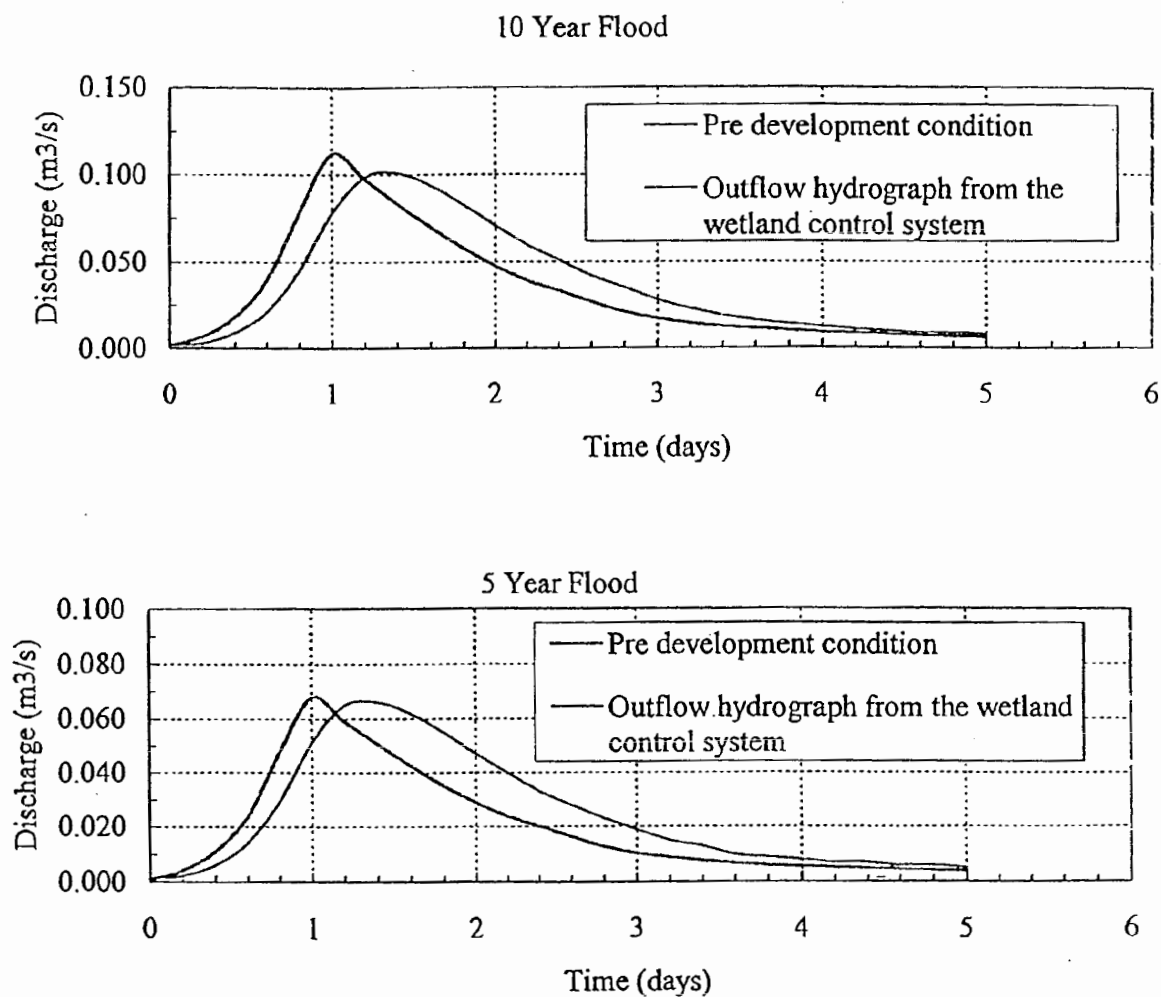


Figure 6: Runoff Hydrographs for Pre development conditions along with outflow hydrographs from the wetland control system for 10-yr and 5-yr Flood

#### **2.4 Proposed Stormwater Management Pond (Wetland Control System)**

Based on computer modelling results as discussed above, the existing wetland as shown on Drawing No. 5, Appendix B is proposed to be utilized as a storm water management pond. A dam with a 300 mm culvert (250 mm orifice) will be built across the wetland at a location as shown on the drawing. An emergency bypass will also be constructed with an invert elevation of 736.5 m. The 100 year flood level will be at Elevation 736.5 m. The proposed design is based on 2 m contour interval. Thus the proposed design is basically conceptual. The design will have to be finalized with more accurate field data prior to construction.

### **3. PROPOSED MINIMUM FLOOD ELEVATIONS FOR BUILDINGS DESIGN**

One of the requirements of Strathcona County is to provide elevations for homes and buildings. As such, the approximate minimum flood elevations for flood prone lots are provided in Appendix A. These elevations are based on 2 m contour provided by Geoscience Consultant Ltd. (1981). Thus, these elevations have to be finalized with more accurate field survey data.

### **4. CONCLUSIONS AND RECOMMENDATIONS**

It is concluded that

- the proposed drainage plan will preserve the natural (existing) drainage pattern as much as possible;
- there will be a reduction in peak flows downstream as a result of the stormwater management system proposed;
- the proposed drainage system will accommodate the natural drainage from the adjacent land area located along the south boundary of the study area.

It is recommended that this report constitute the basis for the developer's submission for the approval of the proposed Winston Place Sub-division development.



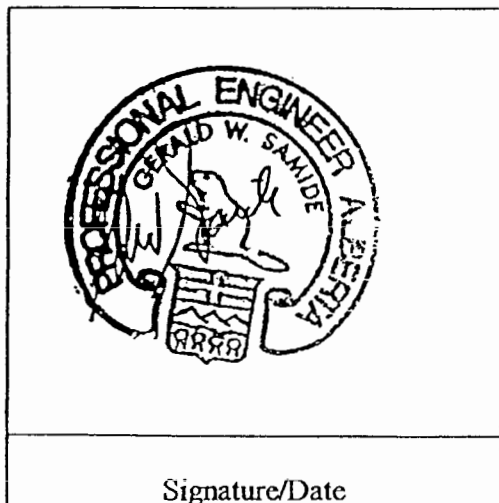


**SAMIDE ENGINEERING LTD.**  
#203, 10637 - 124 STREET, EDMONTON, ALBERTA, T5N 1S5

TELEPHONE: (403) 482-2557  
FAX: (403) 482-2538

### CORPORATE AUTHORIZATION

This document entitled: **DRAINAGE STUDY FOR WINSTON PLACE DEVELOPMENT**  
was prepared by Samide Engineering Ltd.



Signature/Date

PROFESSIONAL SEAL

<b>PERMIT TO PRACTICE</b> SAMIDE ENGINEERING LTD.
Signature <u><i>G. W. Samide</i></u>
Date <u>April 1999</u>
<b>PERMIT NUMBER: P 2063</b>
The Association of Professional Engineers, Geologists and Geophysicists of Alberta

Signature/Date

COMPANY PERMIT

**LANDFILL GAS SAMPLING  
ODISHAW AND ODISHAW ASSOCIATES  
PROPOSED SUBDIVISION NW¼-12-52-23-W4M  
1998**

Submitted To:

**Odishaw and Odishaw Associates**  
2200 Sun Life Place  
10123-99 Street  
Edmonton, AB  
T5J 3H1

Submitted By:

**AGRA Earth & Environmental Limited**  
4810 - 93 Street  
Edmonton, AB  
T6E 5M4

Date of Testing: December 9 & 10, 1998

File #EG18046



**AGRA Earth & Environmental**  
ENGINEERING GLOBAL SOLUTIONS

### OVERVIEW

AGRA Earth & Environmental Limited (AEE) conducted landfill gas sampling for Odishaw and Odishaw Associates on December 9 & 10, 1998 near a proposed subdivision (NW¼-12-52-23-W4M). The five monitoring wells were drilled on the Westside of NE¼-12-52-23-W4M, immediately east of the proposed subdivision and were surveyed for methane, carbon dioxide, trace hydrocarbons and trace sulphur compounds.

The objective of the survey was to determine if there is any landfill gas migration from an old landfill on NE¼-12-52-23-W4M next to the proposed subdivision.

The summarized results of the survey are presented in the following table:

Proposed Subdivision NW¼-12-52-23-W4M  
Survey Summary Results

Parameter	Concentration	
	Mole %	
	Low	High
Methane	<0.01	<0.01
Carbon Dioxide	0.12	0.79
Oxygen	21.36	21.81
Nitrogen	77.71	78.15
Trace Hydrocarbons	<0.01	<0.01
Total Sulphur Compounds	0.0	0.0

The sampling results do not indicate that landfill gases are migrating through the soils near the proposed development. In fact, the sampling result compositions are very close to the typical concentrations of dry atmospheric air (78.1% for N<sub>2</sub>, 20.9% for O<sub>2</sub> and 0.03% for CO<sub>2</sub>).

## TABLE OF CONTENTS

	PAGE
Overview .....	i
1.0 BACKGROUND .....	1
2.0 SAMPLING AND ANALYTICAL METHODS .....	1
2.1 Field Methods .....	1
2.2 Analytical Methods .....	1
3.0 RESULTS .....	2
4.0 DISCUSSION .....	5
5.0 CLOSURE .....	6

## LIST OF TABLES

	PAGE
Table 1: Proposed Subdivision NW¼-12-52-23-W4M Test # 1 Sample Concentrations ..	3
Table 2: Proposed Subdivision NW¼-12-52-23-W4M Test # 2 Sample Concentrations ..	4

## LIST OF APPENDICES

Appendix A	Well Completion Details
Appendix B	Analytical Data

## 1.0 BACKGROUND

Odishaw and Odishaw Associates retained AGRA Earth & Environmental Limited (AEE) to conduct landfill gas sampling on five monitoring well sites that were drilled near the *proposed subdivision (NW¼-12-52-23-W4M)*. Sampling was conducted on December 9 & 10, 1998 for methane, carbon dioxide, trace hydrocarbons (C<sub>1</sub> - C<sub>6</sub> hydrocarbons) and trace sulphur compounds (including hydrogen sulfide, dimethyl sulfide, methyl mercaptan and ethyl mercaptan). The sampling was conducted in order to determine and satisfy due diligence concerns if there is any landfill gas migration from the old landfill next to the proposed subdivision.

## 2.0 SAMPLING AND ANALYTICAL METHODS

### 2.1 FIELD METHODS

Five monitoring wells were completed at various depths ranging from 1.5 - 4.5 metres next to the east side of the proposed subdivision, on the western property side of the old Strathcona Modified Sanitary Landfill (NE¼-12-52-23-W4M). Testhole lithologies and details of well completions are given in Appendix A. The five wells were drilled at approximate locations shown on Figure 1 in Appendix A as follows:

- 1) Monitoring Well A-1: 2m deep bore hole at the northeast portion of the proposed development;
- 2) Monitoring Well B-1: 4.5m deep bore hole at the central east portion of the proposed development;
- 3) Monitoring Well B-2: 3.1m deep bore hole at the central east portion of the proposed development;
- 4) Monitoring Well B-3: 1.5m deep bore hole at the central east portion of the proposed development; and
- 5) Monitoring Well C-1: 1.5m deep bore hole at the southeast portion of the proposed development.

Landfill gas samples were obtained using an evacuated "lung" type sampling procedure. The sample was drawn through a teflon™ line sample line into a tedlar™ bag over an approximate five minute period. The bore hole piping was sealed off to the atmosphere to prevent dilution of the samples. All collected samples were contained in black garbage bags to prevent sample degradation from sunlight.

### 2.2 ANALYTICAL METHODS

The collected samples were transported directly to the laboratory for analysis.

Analysis of samples for methane, carbon dioxide, and trace hydrocarbons was conducted by gas chromatography with thermal conductivity detection and flame ionization detection (GC/TCD/FID).



Analysis of samples for sulphur compounds was conducted by gas chromatography with sulphur chemiluminescent detection (GC/SCD).

### 3.0 SAMPLING RESULTS

Sample results for the Proposed Subdivision NW¼-12-52-23-W4M are presented in the following tables:

Table 1: Proposed Subdivision NW¼-12-52-23-W4M December 9, 1998 Sample Concentrations

Table 2: Proposed Subdivision NW¼-12-52-23-W4M December 10, 1998 Sample Concentrations

The complete analytical results from the two sampling periods are provided in Appendix B.

Table 1  
Proposed Subdivision NW¼-12-52-23-W4M  
December 9, 1998 Sample Concentrations

Date	December 9, 1998				
Sample Identification	Hole A1-T1	Hole B1-T1	Hole B2-T1	Hole B3-T1	Hole C1-T1
Barometric Pressure	26.67 Hg				
Oxygen (O <sub>2</sub> )					
Mole %	21.36	21.50	21.63	21.75	21.39
Carbon Dioxide (CO <sub>2</sub> )					
Mole %	0.65	0.79	0.52	0.18	0.55
Nitrogen (N <sub>2</sub> )					
Mole %	77.99	77.71	77.85	78.07	78.06
Methane (CH <sub>4</sub> )					
Mole %	<0.01	<0.01	<0.01	<0.01	<0.01
Trace Hydrocarbons					
Mole %	<0.01	<0.01	<0.01	<0.01	<0.01
Total Sulphur Compounds					
Mole %	0.0	0.0	0.0	0.0	0.0

Note: Reference conditions are dry at 15°C and 101.325 kPa.

Table 2  
Proposed Subdivision NW ¼-12-52-23-W4M  
December 10, 1998 Sample Concentrations

Date	December 10, 1998				
Sample Identification	Hole A1-T2	Hole B1-T2	Hole B2-T2	Hole B3-T2	Hole C1-T2
Barometric Pressure	27.01 Hg				
Oxygen (O <sub>2</sub> )					
Mole %	21.38	21.74	21.77	21.81	21.54
Carbon Dioxide (CO <sub>2</sub> )					
Mole %	0.56	0.24	0.19	0.12	0.31
Nitrogen (N <sub>2</sub> )					
Mole %	78.06	78.02	78.04	78.07	78.15
Methane (CH <sub>4</sub> )					
Mole %	<0.01	<0.01	<0.01	<0.01	<0.01
Trace Hydrocarbons					
Mole %	<0.01	<0.01	<0.01	<0.01	<0.01
Total Sulphur Compounds					
Mole %	0.0	0.0	0.0	0.0	0.0

Note: Reference conditions are dry at 15°C and 101.325 kPa.



#### 4.0 DISCUSSION

Landfill gas is produced by the anaerobic decomposition of organic wastes in a landfill and the gas is composed mainly of methane and carbon dioxide. The decomposition process begins after waste has been in a landfill for 10 to 50 days and the majority of landfill gases are generated within 20 years of landfilling. Typical landfill gas compositions from landfills have been measured to be:

- 47.4% for methane ( $\text{CH}_4$ );
- 47.0% for carbon dioxide ( $\text{CO}_2$ );
- 3.7% for nitrogen ( $\text{N}_2$ );
- 0.8% for oxygen ( $\text{O}_2$ ); and
- 0.01% for hydrogen sulfide ( $\text{H}_2\text{S}$ ).

The main environmental hazard attached to landfill gas relates to its flammability and explosion concerns. The explosive limit for methane is at approximately 5% and if concentrations in the soils are greater than 5% methane, there can be dangerous consequences if the gas enters a building.

The sampling results from the December testing are shown in Tables 1 and 2 and the following average concentrations were measured at the five monitoring well locations:

- <0.01% for methane ( $\text{CH}_4$ );
- 0.4% for carbon dioxide ( $\text{CO}_2$ );
- 78.0% for nitrogen ( $\text{N}_2$ );
- 21.6% for oxygen ( $\text{O}_2$ ); and
- 0.00% for hydrogen sulfide ( $\text{H}_2\text{S}$ ).

It should also be noted that the methane concentration values that are provided in the tables are all shown as <0.01 mole%, which is the limit of quantitation for the analysis method.

The sampling results do not indicate that landfill gases are migrating through the soils near the proposed development. In fact, the sampling result compositions are very close to the typical concentrations of dry atmospheric air (78.1% for  $\text{N}_2$ , 20.9% for  $\text{O}_2$  and 0.03% for  $\text{CO}_2$ ).

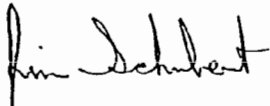
The old modified sanitary landfill was not sampled for landfill gas, however it is anticipated that there may still be small quantities of landfill gas that are being generated in the old landfill.

## 5.0 CLOSURE

This Report has been prepared for the exclusive use of Odishaw and Odishaw Associates, and authorized users for the proposed development. The study was conducted in accordance with the proposed work scope, and verbal and written requests from Odishaw and Odishaw Associates personnel.

Respectfully submitted,

**AGRA Earth & Environmental Limited**



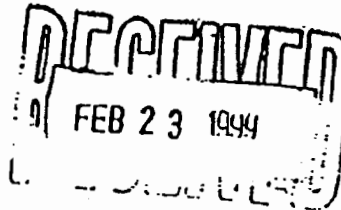
Jim Schubert, P.Eng.  
Senior Environmental Engineer

Reviewed by;



Orest Tokarsky, P. Eng.  
Senior Hydrogeologist





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00C073

February 19, 1999

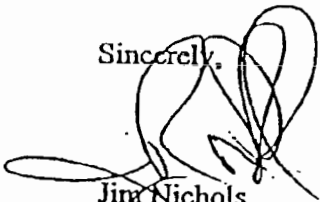
Mr. Jodie Wacko  
Planning  
Planning Services Branch  
Strathcona County  
2001 Sherwood Drive  
Sherwood Park, Alberta  
T8A 3W7

Dear Mr. Wacko:

With reference to the original request of July 2, 1998, from Mr. Don Phillips for comments on the application for an area structure plan for NW 12-52-23-W4 and your submission of January 27, 1999, on landfill gas testing, I give my consent, pursuant to Section 13(5) of the *Municipal Government Act*, Subdivision and Development Regulation AR212/95, for a variance of the required setback distance from the former landfill on NE 12-52-23-W4 subject to the following conditions:

1. no building intended for habitation shall be constructed closer than 75 metres to the nearest edge of the landfill disposal area;
2. no wells shall be constructed for the purpose of potable water supply within 500 metres of the nearest edge of the landfill disposal area without first obtaining a waiver under the *Public Health Act* from the Capital Region Health Authority as well as the necessary approval under the *Water Resources Act*; and
3. a caveat shall be placed on the land titles of all affected land to reflect the above conditions.

Sincerely,

  
Jim Nichols  
Deputy Minister

**Samide Engineering Ltd.**

**Phase I Environmental Site Assessment  
NW1/4 12-52-23-W4M (Winston Place),  
Strathcona County, Alberta**

**Prepared by**

**Bel•MK Engineering Ltd.**

**May, 1999**

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## EXECUTIVE SUMMARY

On March 19, 1999, Bel•MK Engineering Ltd. (BEL) was retained by Samide Engineering Ltd. to complete a Phase I Environmental Site Assessment (ESA) of a quarter section of land south of Sherwood Park NW ¼ 12-52-23-W4M (Winston Place) at the junction of Township Road 522 and Range Road 233 in Strathcona County, Alberta.

The Phase I ESA was completed in general accordance with CSA Standard Z768 - 94, *Phase I Environmental Site Assessment* and Canada Mortgage and Housing Corporation (CMHC) standards and guidelines. A Phase I ESA is used to identify potential and actual site contamination on the basis of record reviews, visual site inspections, interviews, and evaluation and reporting.

The objectives of the Phase I ESA were:

1. Determine whether there are actual or potential sources of contamination in the area of the subject property; and
2. Indicate whether the rationale exists for further environmental assessment.

On the basis of the information obtained and site observations as described in the foregoing Phase I Site Assessment of a land parcel NW 1/4 12-52-23 W4M (Winston Place) in Strathcona County, Alberta, the following evaluations can be made:

1. The site has always been forested with no previous development, however road right-of-ways were cleared in the mid-1980's in anticipation of rural subdivision development, but they were never completed.
2. A landfill site operated on the adjacent quarter-section to the east (NE 12-52-23-W4M from 1959 or 1960 to 1978. Studies carried out by other consultants did not detect any landfill gas being generated at the edge of the adjacent quarter-section.
3. Previous studies carried out by Alberta Environment indicated that leachate had been detected in the adjacent landfill, but no significant contamination has been detected outside the landfilled area. No monitoring for leachate has been carried out on the subject property.
4. Studies carried out to date indicate that there is very low potential for the bedrock aquifer on the subject site being impacted by the adjacent landfill site. There is some potential for encountering soil contamination or shallow groundwater contamination from dumped refuse (illegal or otherwise) on the former landfill site to the east. The risk of impact is considered low, assuming structures and utilities are off-set some distance from the east property boundary.

On the basis of the findings from the foregoing Phase I Site Assessment; the following conclusion can be made:

1. A Phase II Environmental Site Assessment consisting of shallow boreholes (<5 m deep) and groundwater monitoring wells would be justified for the portion of the subject site adjoining the east boundary if it is desired to determine the presence/absence of contamination.



## Bel-MK Engineering Ltd.

June 1, 1999

File: 99-3032.1

Mr. James H. Odishaw  
330178 Alberta Ltd.  
2200 Sun Life Place  
10123 - 99 Street  
Edmonton, Alberta  
T5J 3H1

RECEIVED  
JUN 3 1999  
EDMONTON, ALBERTA

Dear Mr. Odishaw:

RE: Phase I Environmental Site Assessment  
Development Land Parcel (Winston Place),  
NW1/4 12-52-23-W4M, Strathcona County, Alberta

Further to your facsimile of May 26, 1999, Bel-MK Engineering Ltd. (BEL) has reviewed the information provided and reviewed our conclusion in the above-noted report.

We have noted the following new information provided regarding development on the site stating that:

- 1) no water wells will be drilled;
- 2) no dwellings will be constructed within 75 m of the east boundary;
- 3) an environmental reserve will provide that no disturbance of the natural foliage and landscape will take place within 50 m of the east and south boundaries (25 m of the north and west);
- 4) the maximum area of each lot that can be disturbed is 2,000 to 2,500 sq. metres.

In the Phase I report, we had indicated that there is very low potential for the bedrock aquifer being impacted by the adjacent landfill site. If no groundwater use is anticipated in any case, then groundwater use or impact are not issues.

We had also indicated that the risk of impact of soil or shallow groundwater contamination is considered low assuming structures and utilities are off-set some distance from the east property boundary. Alberta Environment calculations, based on testholes completed in 1988, indicated hydraulic conductivity values in the  $1 \times 10^{-5}$  cm/s range in lacustrine clay between the landfilled area and the subject site. Assuming an effective porosity of 5%, a permeability of  $1 \times 10^{-5}$  cm/s, and a hydraulic gradient of 0.01 m/m, the horizontal component of groundwater flow toward the subject site would be approximately 0.6 m/yr. At a 75 m setback, a period on the order of 125 years would elapse from the time of waste deposition to impact at a dwelling on the subject site. Based on the information provided, this estimate may be considered as a worst case as it does not take into account retardation, whereby reactive solutes in groundwater may be removed or move much more slowly than the groundwater which is transporting them. In addition, the effects of the

10532-110 Street, Edmonton, Alberta, Canada T5H 3C5  
Telephone (403) 423-4123 Fax (403) 426-0659

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June 1, 1999

99-3032.1

Page 2

interceding gas pipeline trench or the separation of landfilled materials from the subject property line have not been considered. These factors provide a relatively high degree of confidence that the potential for impacts on the subdivision is low.

On the basis of new information provided, a Phase II Environmental Site Assessment on the subject site is not justified given reasonable assumptions of projected environmental impacts due to the former landfill site.

We trust this information meets your present requirements. If you have any questions or concerns, please contact the undersigned at your convenience.

Yours truly,

Bel•MK Engineering Ltd.



Jim Thomson, B.Sc., CESA  
Senior Environmental Consultant



Stephen B. Mailath, M.Sc., P.Geol., F.G.S.  
Senior Hydrogeologist

/jb

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## Winston Place – Communication Plan

The purpose of this brief is to provide a cursory overview of the Winston Place Area Structure Plan(ASP) – communication program. The following elements are being put forward for consideration by Strathcona County. It is our intention to follow steps in order to provide for an accessible and thorough public communication exercise that will benefit both the residents and stakeholders of Sherwood Park, Strathcona County Administration and JHO Holdings & Management and JHO Holdings Ltd. (Developers of Winston Place).

It is our aim to develop the Winston Place ASP as a synthesis of information gathered through a variety of efforts including this public consultation effort.

### Proposed Communication Program

1. Information mail-out to the adjacent landowners and identified stakeholders

With the assistance of Strathcona County, the developers will undertake to notify stakeholders of the ASP process and opportunities for input.

2. Newspaper Advertisements

An advertisement will be placed in the Sherwood Park News for two weeks in succession thereby providing notification of the open house.

3. Public Meeting/Open House

A public meeting will be held in the Whitecroft Community Hall, in East Whitecroft, During the month of July. The meeting format will be that of an open house with a formal presentation and response session occurring 30 minutes after commencement of the meeting. James Odishaw, with the assistance of Larry Willes, will provide an overview and history of planning for Winston Place along with an outline of all aspects of the ASP.

4. Information Hand-Out/Comment Sheet

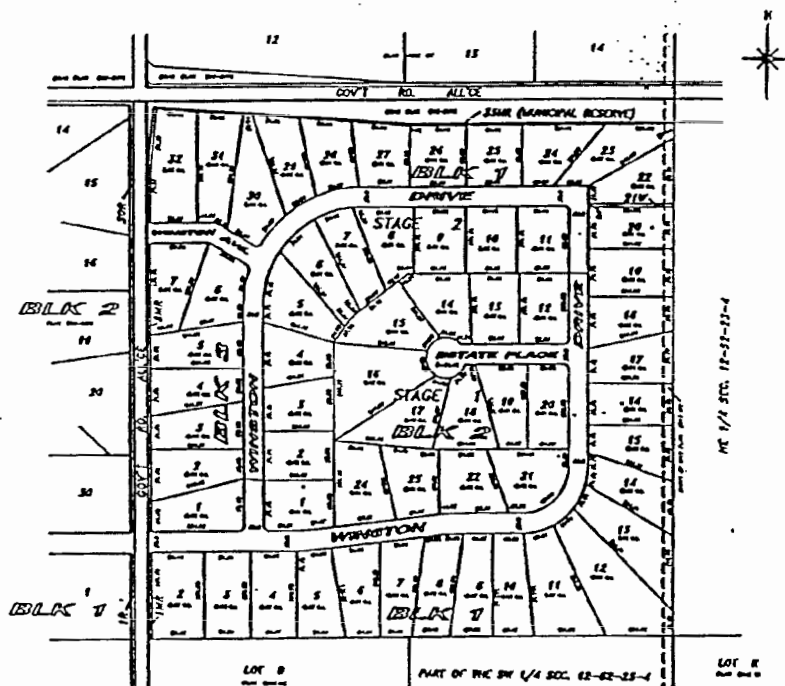
An information hand-out will be made available to all attendants of the public open house. The hand-out outlines the meeting format and presents a general overview of the ASP for Winston Place. Attendants of the public open house will have an opportunity to submit their comments and questions in writing to the project team. A comments sheet will be attached to each information hand-out and attendants will be encouraged to fill-out and submit the form once the meeting has concluded. This will provide residents and stakeholders the opportunity to express their opinions on the proposed ASP.



## PUBLIC INFORMATION NOTICE

### WINSTON PLACE AREA STRUCTURE PLAN

JHO Holdings & Management Ltd. and JHO Holdings Ltd., on behalf of 330178 Alberta Ltd. has prepared an Area Structure Plan for a country residential development south of Township Road 522 and east of Range Road 231. The plan comprises approximately 62.35 hectares (155.88 acres) of land and consists of 62 lots no less than 2 acres in size.

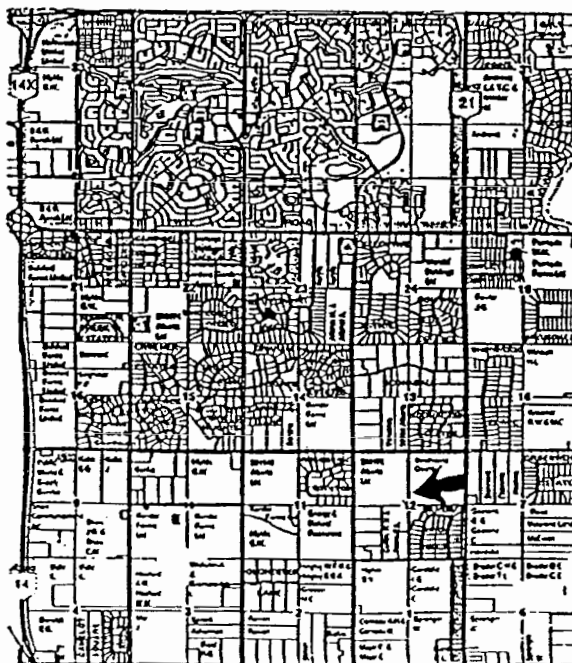


A public meeting to present and discuss  
The plan will be held:

**DATE:** July XX, 1998  
**PLACE:** Whitecroft Community  
Hall, East Whitecroft  
Sherwood Park, AB.  
**TIME:** 7:00 pm – 9:00 pm

Residents within and adjacent to the proposed  
Plan area are invited to attend and discuss the  
Proposal with the applicants.

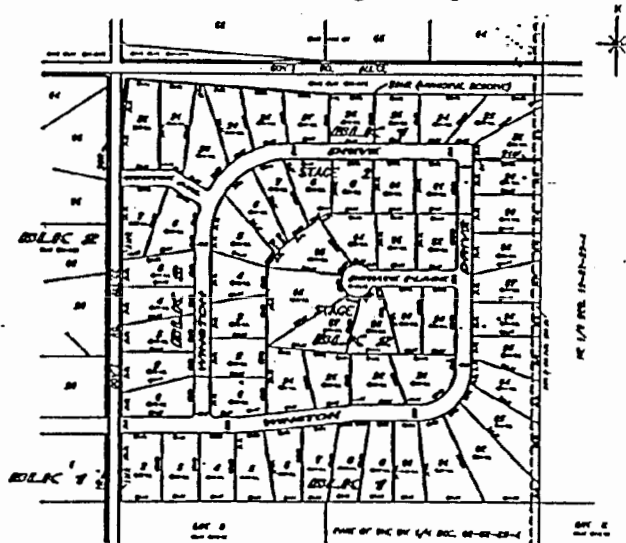
For further information contact:  
James Odishaw 464-5287  
Michelle Odishaw 464-5287  
Larry Willes 464-1093



## PUBLIC OPEN HOUSE

### Winston Place Area Structure Plan

- Meeting Format** The public meeting you are attending today will be in the open house format, with a presentation at approximately 7:30 by James Odishaw with the assistance of Larry Willes. The public meeting will end at approximately 9:00 pm.
- Area Structure Plan** The ASP for Winston Place affects approximately 62.35 hectares (155.88 acres) of land south of Township Road 522 and east of Range Road 231. This ASP has been prepared in order to obtain the County's permission to develop a country residential subdivision comprised of 62 lots no less than 2 acres in size.
- Meeting Purpose** As part of the process for approving Area Structure Plans within Strathcona County, applicants are required to hold a public meeting prior to the ASP being forwarded to Council. The purpose of this meeting is to provide a forum for the public to review and discuss the proposed plan. This also provides the applicant with an opportunity to obtain comments relating to the plan.

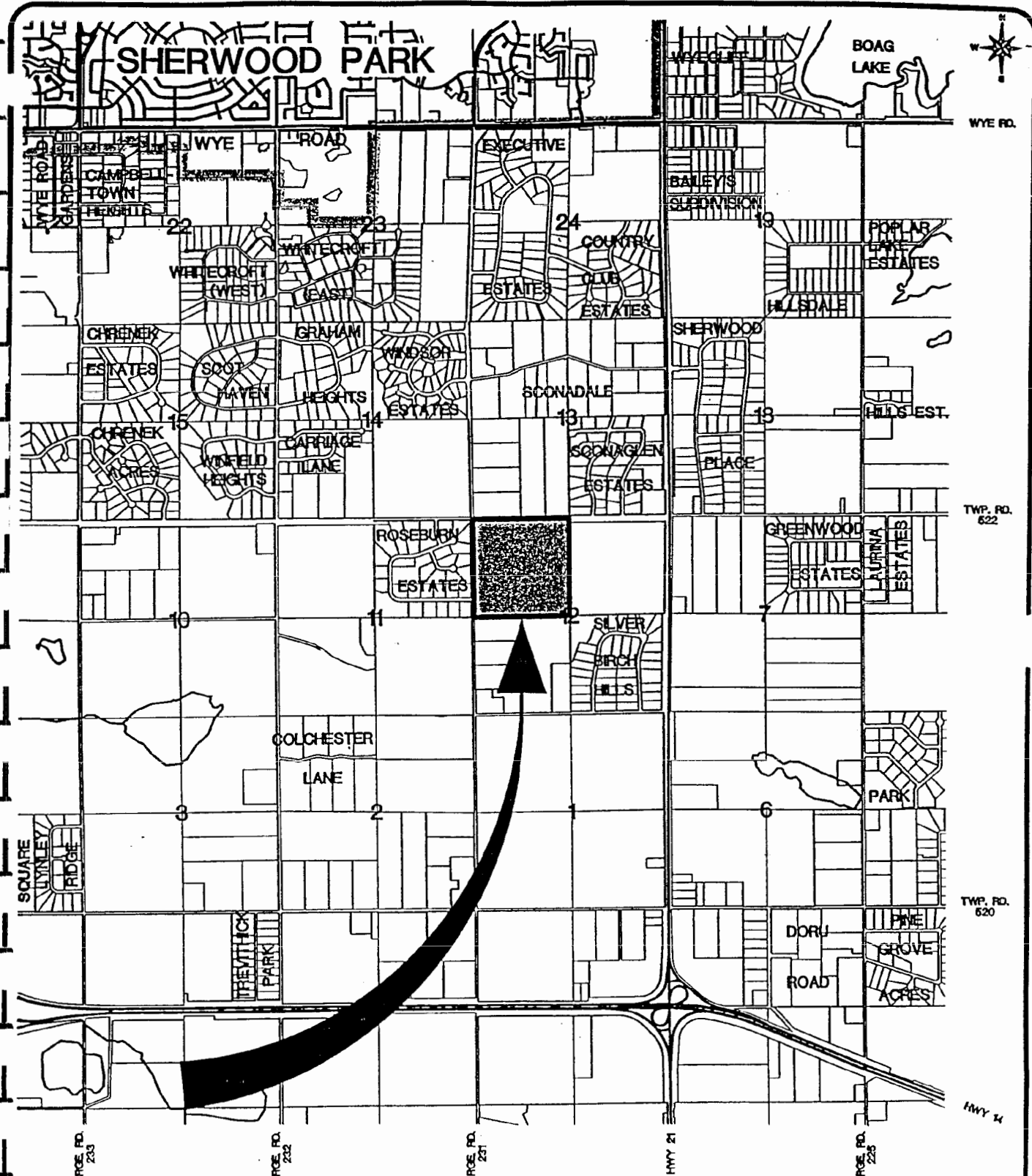


If you have further questions or comments please use the attached sheet or call:

James Odishaw: 464-5287

Michelle Odishaw: 464-5287

Larry Willes: 464-1093

**KEY PLAN****NW 12-52-23-W4**

Drawn by: Peter Tsoukalas C.E.T.

File No: 4400-733-98P07

Revised Date: dd/mm/yy

Revision No. x

Date Drawn: 23/06/98

Scale: NTS

DWG No: P23F0000

**PLANNING SERVICES BRANCH**

PLANNING &amp; DEVELOPMENT REVIEW SERVICES

**Strathcona**  
County

The Plan addresses lot size, Conservation Area, road development and stage development. There will be 56 residential lots, each a minimum of 0.81 hectares (2.0 acres) with a minimum developable area of 0.40 hectares (1 acre). Development is to take place in two phases. Stage I of the Winston Place Development proposes to develop 37 Lots, including 4 public utility lots, with Stage II developing 19 Lots, including 1 public utility lot as shown on Appendix 2.

The major transportation route in the area is the east/west Township Road 522 that connects directly with the Whitemud Freeway and is located on the north border of the subject property. Wye Road (Secondary Highway 630) is situated 3.2km (2 miles) south. In addition, to the east and west of the property lie Range Roads at one-mile intervals allowing for easy access to either Highway 14 or Wye Road. These routes are readily apparent on the Key Plan (Appendix 1).

#### **Environmental Reserve / Conservation Easement Area**

**REVISED** With respect to Municipal or Environmental Reserve dedication, a combination of municipal reserve, money in lieu of reserve land and Environmental Conservation Area will be addressed at the subdivision stage. Under the proposed Concept Plan, the Environmental Conservation Area is proposed as follows (Appendix 4):

- Lots 1 – 11, Block 1: 50 metre rear yard.
- Lots 11 – 23, Block 1: 75 metre rear yard.
- Lots 23 – 31, Block 1: 25 metre rear yard.
- Lots 1 – 24, Block 2: 25 metre rear yard.

- REVISED
- Lots 1 – 3, Block 3: 25 metre rear yard.

The total area covered by the Conservation Area is 17.0 ha (42.0 ac).

The Developer has provided for future extensions of the County's Master Trail Plan as a result of discussions with County Representatives. The Concept Plan allows for this extension along the eastern boundary of the subject property on the adjacent property, owned by the County with the access route in the northeast corner of the subject property.

#### Environmental Site Assessment

A Phase I Environmental Site Assessment performed by Bel MK Engineering Ltd. Determined there are no environmentally sensitive areas within the subject property, and that as a result of the proposed Conservation Area and site development restrictions, a Phase II Environmental Site Assessment is not necessary (Appendix 8).

There have been no previous developments on the land as its natural state of 100% bush has been preserved. Accordingly, it is submitted that given the above environmentally protected area, the proposed development will have minimal adverse environmental impacts on the land or adjacent lands. In addition, development restrictions will prohibit any industrial or commercial enterprises from operating on the said property.

Engineering Plans, with respect to roads and services locations, will be provided upon determination as to whether or not the County will provide water services.

**TABLE OF LAND USE ALLOCATION**

	Hectares	Acres	Percent
Gross Area (NW 12-52-23 W4M)	62.35	154.19	100.00
Land Uses:			
Country Residential Lots	54.61	135.0	87.60
Roadways	5.18	12.86	8.30
PUL Areas	2.56	6.33	4.10
			<u>100.0%</u>
Environmental Conservation Area Coverage	17.0	42.0	<u>31.1%</u>

REVISED





# Winston Place Area Structure Plan Bylaw 60-99

Residential



Road Plan



Environmental  
Conservation Area



ASP Boundary



PUL

