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## 1.0 INTRODUCTION

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### 1.1 PLAN PURPOSE

This Area Structure Plan (ASP) has been prepared pursuant to the provisions of Section 633 of the Municipal Government Act and amendments thereto. The purpose of this Area Structure Plan is to protect the subject lands, and the facilities located upon them, from increasing development pressures along the Highway 2/2A corridor within the M.D. of Foothills No. 31. It is the intent that once this document is adopted by Bylaw that the Plan Area will be restricted from further Country Residential Development not outlined within this document.

The most important goal of this Plan is to ensure that The Calgary Polo Club, Strathcona-Tweedsmuir School, and related facilities are protected in perpetuity as Calgary grows nearer to Okotoks. It is the intent of this Plan to protect the facilities from the development pressures of Calgary, and provide a buffer of agricultural and minimal country residential development between the intermittent drainage areas and the facilities located within the Plan Area, and the surrounding lands. This Area Structure Plan details what development may occur within the Plan Area and which lands shall remain agricultural in nature. With the adoption of this Area Structure Plan subdivision not outlined in this Area Structure Plan shall not be permitted.

### 1.2 BACKGROUND TO THE AREA STRUCTURE PLAN

Two main facilities operate within the Plan Area, The Calgary Polo Club and the Strathcona-Tweedsmuir School. As development pressure has increased in the area, Chinook Valley Inc. began acquiring the lands surrounding these facilities to protect and create a buffer from these development pressures. The adoption of this Plan by Bylaw will ensure that the vision of Chinook Valley Inc. remains as the development pressures from the City of Calgary increase. The following outlines the history of the two major facilities located within the Plan Area.

### 1.2.1 The Calgary Polo Club

The original location of The Calgary Polo Club was founded in 1890 on the banks of the Bow River at the site of the old Calgary General Hospital. Calgary hosted teams from the surrounding countryside at this location until 1914 when the club relocated to Chinook Park. The Calgary Polo Club was again subject to relocation based on development pressures, and in the 1960's moved to its existing location just north of the Town of Okotoks.

The popularity of polo in the 1970's and 1980's, fuelled by a vibrant local economy, resulted in the original facility (40 acres and two fields) at this location being outgrown. The mere size of a polo field (175m x 300m) requires a substantial amount of land, therefore an expansion plan was executed in the early 1990's to add fields, barns, exercise tracks, a clubhouse, and further equestrian venues (combined driving event).

### 1.2.2 Strathcona-Tweedsmuir School

In September of 1971, Strathcona-Tweedsmuir School opened the doors to boys and girls from Southern Alberta. This school was the result of the amalgamation of two of Calgary's oldest independent schools, Strathcona School for Boys, founded in 1929, and Tweedsmuir: An Academic School for Girls, founded in 1959 (preceded by St. Hilda's School for Girls which opened in 1905). Current enrollment for Strathcona-Tweedsmuir School is approximately 660 students. This school site is also the home of The Wilson Coulee Observatory, which is operated by the Royal Astronomical Society. The site and surroundings of Strathcona-Tweedsmuir School provide a variety outdoor activities and education programs in addition to challenging academic studies.

### 1.3 APPROVAL PROCESS

After formally submitting this Area Structure Plan to the M.D. of Foothills No. 31 a public hearing will be scheduled. This will allow the Chinook Valley Area Structure Plan to be formally presented to Council for approval.

Concurrently, an application to redesignate a portion of the Plan Area will be submitted to allow for the future subdivision of the NE 14 – 21 – 01 W5M and SW 14 – 21 – 01 W5M. Upon receiving approval for the redesignation, these lands may then be subdivided, subject to Council's approval.

### 1.4 PLAN IMPLEMENTATION

This Area Structure Plan is in keeping with Country Residential subdivision standards within the M.D. of Foothills No. 31. When Council adopts this Area Structure Plan, in accordance with the provisions of the Municipal Government Act it becomes a Statutory Plan of the M.D. of Foothills No. 31

### 1.5 PUBLIC PARTICIPATION

Several meetings were held with many of the adjacent landowners and stakeholders prior to drafting this Area Structure Plan to ensure that all issues were addressed.

To further address this public participation component, an Open House, was held at The Calgary Polo Club on September 4, 2002. The purpose of this Open House was to introduce this Plan to any interested adjacent landowners. The Open House was advertised in the Western Wheel for two consecutive weeks prior to the meeting. Additionally, invitations were sent out to all adjacent landowners within one half mile of the Plan Area inviting them to the Open House. Comments and suggestions that were made by the adjacent landowners were incorporated into this Plan where possible. Generally, adjacent landowners seemed in support of this Plan.

## 1.6 LEGISLATIVE FRAMEWORK

### 1.6.1 The Municipal Government Act

An Area Structure Plan is identified in the Municipal Government Act as a Statutory Plan. Section 633 of the act reads as follows:

Area structure plan      633(1) For the purpose of providing a framework for subsequent subdivision and development of an area of land, a council may by bylaw, adopt an area structure plan.

(2) An area structure plan

(a) must describe:

- (i) the sequence of development proposed for the area,
- (ii) the land uses proposed for the area, either generally or with respect to specific parts of the area,
- (iii) the density of the population proposed for the area either generally or with respect to specific parts of the area, and
- (iv) the general location of major transportation routes and public utilities, and

(b) may contain any other matters the Council consider necessary.

In the process of preparing and adopting this Plan the Council must comply with the provisions of Section 636, 637, and 638 of the Municipal Government Act, which are quoted as follows for easy reference.

Statutory plan  
Preparation

636 while preparing a statutory plan a  
municipality must

- (a) provide a means for any person who may be affected by it to make suggestions and representations,
- (b) notify the public of the plan preparation process and of the means to make suggestions and representations referred to in clause (a),
- (c) notify the school authorities with jurisdiction in the area to which the plan preparation applies and provide opportunities to those authorities to make suggestions and representations,
- (d) in the case of a municipal development plan, notify adjacent municipalities of the plan preparation and provide opportunities to those municipalities to make suggestions and representations.
- (e) in the case of an area structure plan, where the land that is the subject of the plan is adjacent to another municipality, notify that municipality of the plan preparation and provide opportunities to that municipality to make suggestions and representations.

Effect of plans

637 The adoption by a council of a statutory plan does not require the municipality to undertake any of the project referred to in it.

Plans Consistent

638 All statutory plans adopted by a municipality must be consistent with each other.

## 1.6.2 Subdivision and Development Regulation

Development within 0.8 kilometres of a highway where the posted speed is 80 kilometres or more must be referred to Alberta Transportation for comment and an Area Structure Plan must be prepared for the development. Section 14 (e) of the Subdivision and Development Regulation outlines the requirements for development, and reads as follows:

**Section 14** *Subject to Section 16, a subdivision authority must not in a municipality other than a city approve an application for subdivision if the land that is the subject of the application is within 0.8 kilometres of a highway where the posed speed is 80 kilometres or more unless the land is*

*(e) contained and permitted within an area structure plan satisfactory to the Minister of Transportation.*

## 1.6.3 The Municipal District of Foothills No. 31 Municipal Development Plan

An Area Structure Plan is defined in the Municipal Development Plan as a statutory plan, adopted by bylaw, which provides a land use strategy for subsequent redesignation, subdivision and development of a specific area of land in the Municipality. Municipal support for an Area Structure Plan is found in Section 5.3.5 of the Municipal Development Plan which reads as follows:

5.3.5 An Area Structure Plan drafted in accordance with the guidelines adopted by the Municipality shall be required as part of a Country Residential proposal that would create 8 new lots or more and for proposals of less than 8 new lots an Area Structure Plan may be required if in the opinion of Council one is necessary, due to:

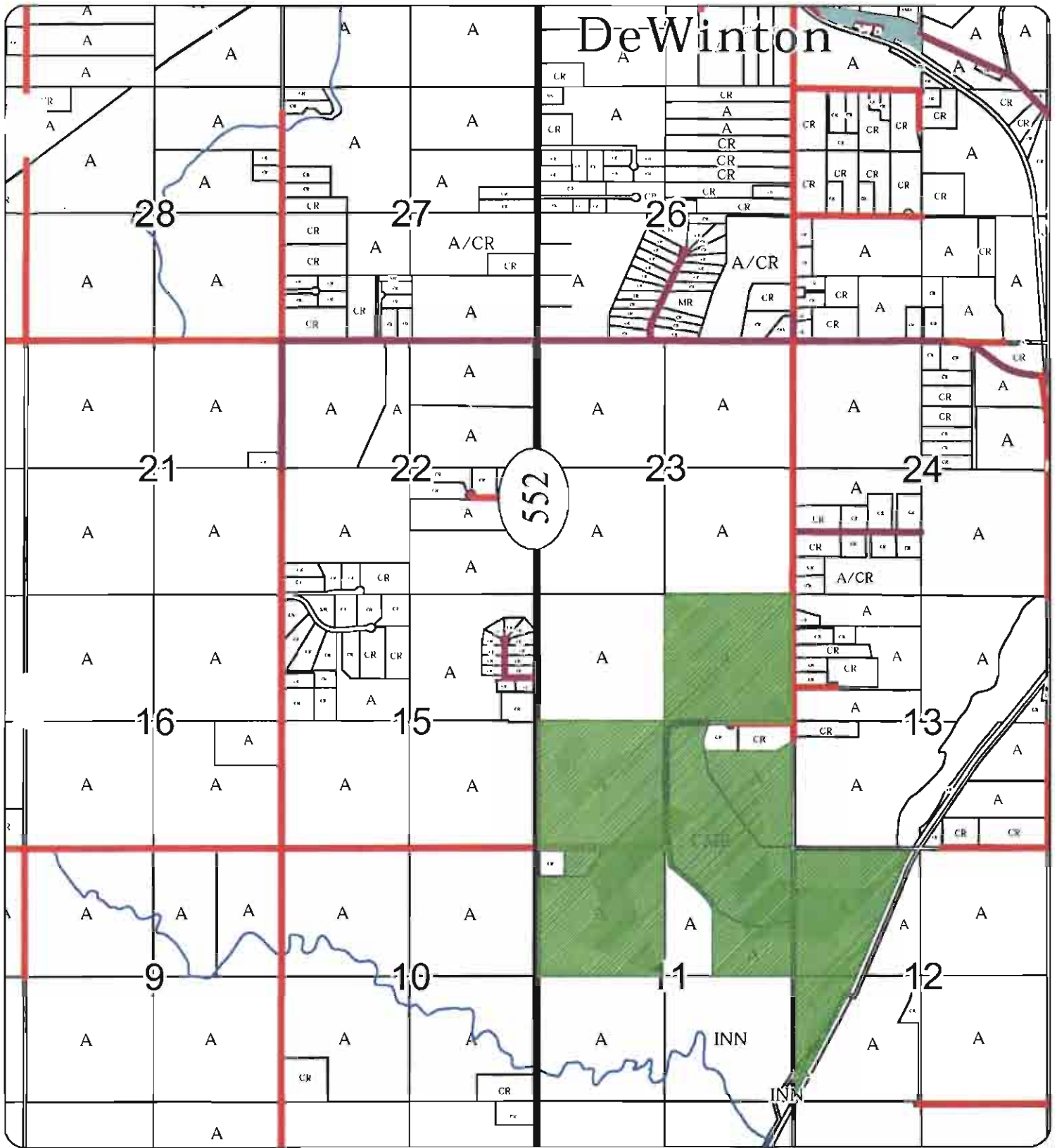
- a) the impact the proposal may have on adjoining lands;
- b) the need to review, in greater detail, the infrastructure requirements of this proposal;
- c) the proposal being a continuation of an existing subdivision and leads to a density greater than 8 lots per quarter section;
- d) the proposal, in the opinion of Council being phase 1 of a development that will create 8 new lots or more.



## 1.7 INTERPRETATION

In this Area Structure Plan:

- (a) "Act" means the Municipal Government Act – Revised Statutes of Alberta 2000, and amendments thereto.
- (b) "Council" means the Council of the Municipal District of Foothills No. 31.
- (c) "Developer" means those landowners identified in the titles of Appendix A.
- (d) "Land Use Bylaw" means a Bylaw of the M.D. of Foothills No. 31 passed by Council pursuant to the provisions of the Municipal Government Act and intended to prohibit, regulate and control the use and development of land and buildings within the M.D. of Foothills No. 31.
- (e) "Municipal Development Plan" means the M.D. of Foothills No. 31's Municipal Development Plan.
- (f) "Municipality" means the area bounded and incorporated by the M.D. of Foothills No. 31.
- (g) "Plan Area" refers specifically to the lands identified in *Figure 1.0: Plan Area*.
- (h) "Subdivision Approving Authority" means the Council of the M.D. of Foothills No. 31.
- (i) All other words and expressions have the meanings respectively assigned to them in the Municipal Development Plan.









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**Legend.**

-  Subject Lands
-  CR Country Residential
-  A Agriculture
-  Gravel Road
-  Oiled Road
-  Paved Road

Source: MD of Foothills No. 31 Land Use Maps

File Name:  
**13648Base.dwg**

**Client/Project:**  
Chinook Valley  
MD of Foothills

**Figure No.:**  
1.0

**Title:**  
Plan Area (Location Map)

**Sub-Title:**  
Chinook Valley Area Structure Plan

**Legal Description:** N½ sec. 11, Ptn. W½ sec. 12, NE¼ & S½ 14-21-01 W5M

**Scale:**  
NTS

**Date (mm.dd.yyyy):**  
03.18.2003

**File No.:**  
13648

## 2.0 PLAN AREA

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### 2.1 LOCATION

The Plan Area is located approximately 1.5 miles north of Okotoks and 6.5 miles south of Calgary off Secondary Highway 552. The Sandstone Coulee runs directly to the east of the Plan Area. Just over two miles to the east of the Plan Area is the Hebson Arena, and a recently approved equine center lies less than two miles east of the Plan Area. Additionally, Spruce Meadows is approximately 7 miles north of the Plan Area adjacent to Highway 22X. The Plan Area and surrounding lands are becoming an area that should be protected, not just for the unique landscape but also because of the equine oriented facilities that are important to the M.D. of Foothills No. 31.

## 2.2 OWNERSHIP

Ownership of the Plan Area is held by three (3) landowners. The table below summarizes the landownership of the Plan Area. The Certificates of Title are attached as Appendix A.

**TABLE 1: OWNERSHIP TABLE**

<b>Certificate of Title Number:</b>	<b>Legal Description:</b>	<b>Size:</b>	<b>Registered Owner:</b>
981103130+1	SE 14 – 21 – 01 W5M	61.52+/- acres	Chinook Valley Inc.
021045814	SW 14 – 21 – 01 W5M	157.97+/- acres	Chinook Valley Inc.
011201650	NE 14 – 21 – 01 W5M	160+/- acres	Chinook Valley Inc.
021455511	NW & SW 12 – 21 – 01W5M those lands lying to the west of Railway Plan RY 8 and not covered by the lake on Township Plan of April 14, 1892.	142.269+/- acres	View West Foundation
021455510	NW 11 – 21 – 01 W5M	143.11+/- acres	View West Foundation
021438714	Parcel A 1870 JK	45.79+/- acres	View West Foundation
031277098	Block 1 Plan 7883JK	0.37+/- acres	Strathcona- Tweedsmuir School Foundation
021407114	Block 1 Plan 7883 JK	140.14+/-	Strathcona- Tweedsmuir School Foundation
021203101	Block 2, Plan 971 2573	8.06+/- acres	Chinook Valley Inc.

## 2.3 DEFINITION OF THE PLAN AREA

### 2.3.1 Boundaries of the Plan Area

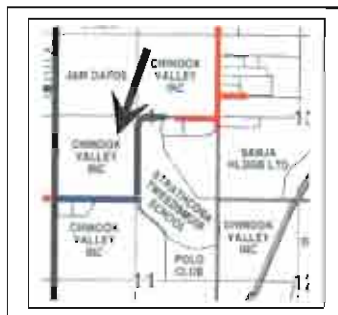
The lands are bound by Secondary Highway 552 to the west. Country residential subdivision and a railway bounds the lands on the east side. Agricultural lands bound the Plan Area to the north and south.

The Plan Area includes those lands bound within *Figure 2.0: Proposed and Existing Development and Land Uses*.

### 2.3.2 Physical Description

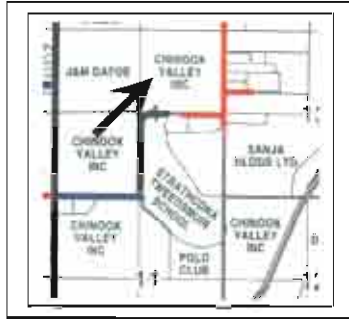
The Chinook Valley Area Structure Plan incorporates six quarter sections. Descriptions of the quarter sections are provided below:

- i. SW 14 – 21 – 01 W5M



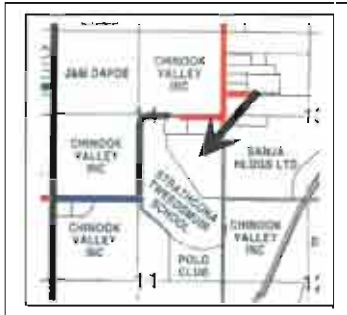
Only a portion of SW 14 – 21 – 01 W5M has been cultivated. The land contains willows and natural grasslands in the southern portion of the quarter and is utilized for grazing cattle. A low lying intermittent drainage area runs through the center of the quarter section to the east, where it drains into the reservoir on the NE 11 – 21 – 01 W5M. The area that this intermittent drainage area follows will be dedicated as Environmental Protection District to ensure that these lands could be further enhanced with the recommendations and assistance of an environmental organization. This organization shall work in conjunction with the View West Foundation, whom shall receive this lot via dedication, upon an approval. The northeast corner of the SW 14 – 21 – 01 W5M is separated from the remainder of the quarter section by this drainage course. The quarter section gently slopes down from west to east to this drainage course.

ii. NE 14 – 21 – 01 W5M



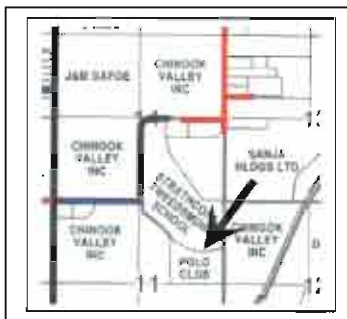
The majority of the lands within this quarter section have been cultivated with the exception of those lands which are proposed to be redesignated as Environmental Protection District. The lands that are to be designated Environmental Protection District contain an intermittent drainage area, which runs into the SE 14 – 21 – 01 W5M. This quarter is relatively flat, sloping only slightly from west to east.

iii. SE 14 – 21 – 01 W5M



The northern half of this quarter section is relatively flat, with the intermittent drainage area from the NE 14 – 21 – 01 W5M continuing through this quarter to the reservoir on the NE 11 – 21 – 01 W5M. The southern half of the quarter section slopes down to the center of the lands from the east and the west as this drainage course continues. The drainage course from the SW 14 – 21 – 01 W5M continues through to the NE 11 - 21 – 01 W5M at the southwest corner of this quarter section. As per Council's request, the lands exceeding 15% slope and some of the lands surrounding the sloping areas within this quarter section will be redesignated to Environmental Protection District.

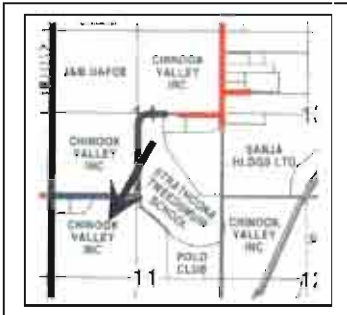
iv. NE 11 – 21 – 01 W5M



The SE and SW of 14 – 21 – 01 W5M drain into the reservoir located on this quarter section. The two drainage courses on this quarter section create a landscape with two valleys, both entering the quarter from the north. As per Council's request, the lands exceeding 15% slope and some of the lands surrounding the sloping areas within this quarter section will be redesignated to Environmental Protection District. The reservoir is used by Strathcona-Tweedsmuir School for educational programs and also holds water for irrigating the polo fields and watering trees. The remainder of the quarter section is relatively flat, gently sloping towards the two intermittent drainage areas. The reservoir and drainage areas that empty into the reservoir are important features, utilized and responsibly maintained by The Calgary Polo Club, Strathcona-Tweedsmuir School, and Chinook Valley

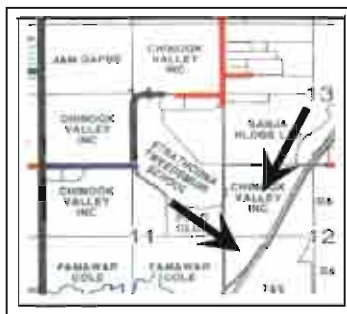
Inc. This quarter is the site The Calgary Polo Club relocated, after leaving the Chinook Park site. The NE 11 – 21 - 01 W5M has two of the seven polo fields, along with stabling facilities for The Calgary Polo Club.

v. NW 11 – 21 – 01 W5M

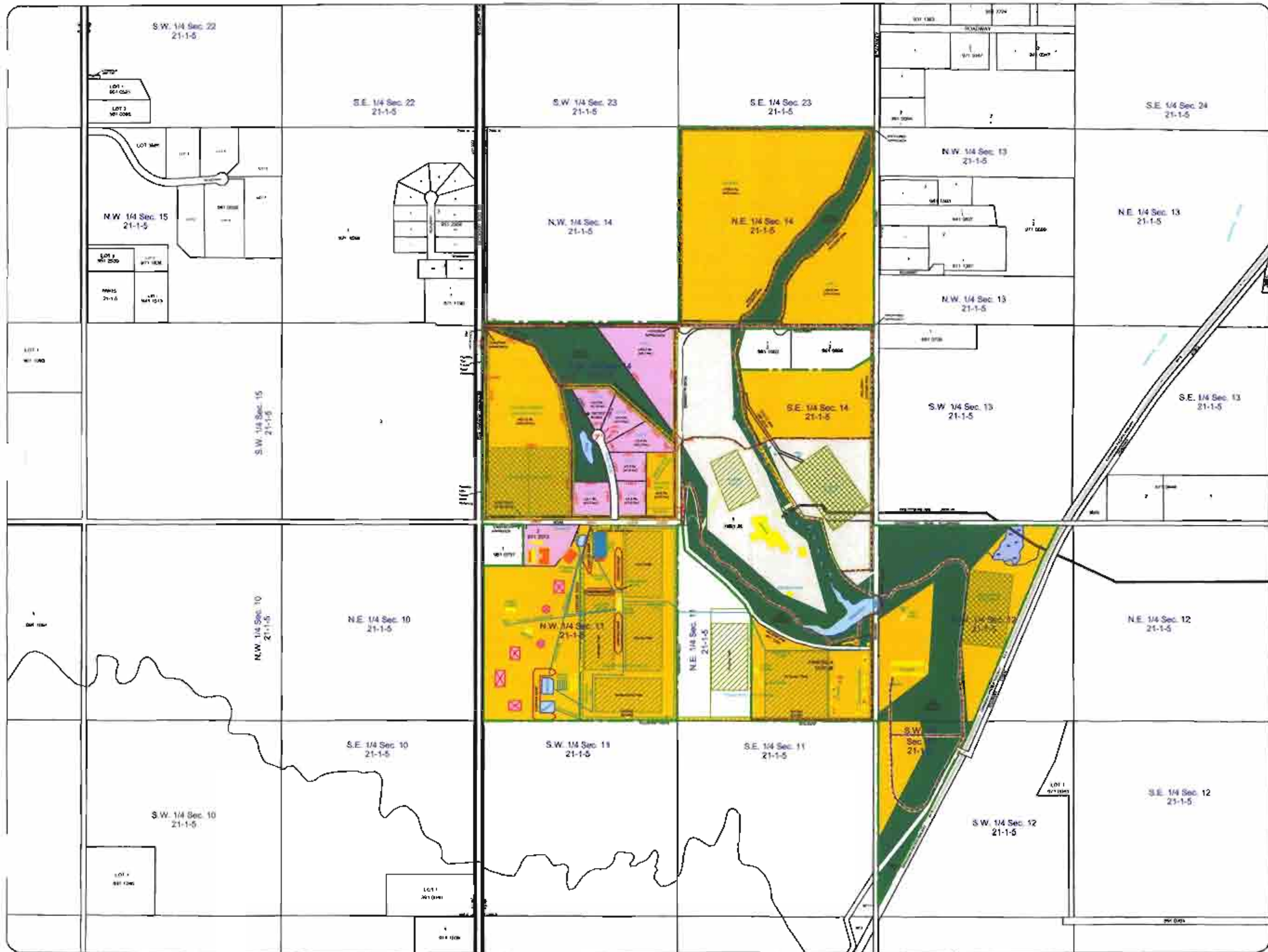


These lands are home to The Calgary Polo Club. The lands are relatively flat and contain four polo fields, the clubhouse, hitting cage and training facilities.

vi. Portion of the NW and SW 12 – 21 – 01 W5M



The lands contained within this title do not include the lake shown on the township plan approved in Ottawa on April 14, 1892 and lands to the east of railway Plan RY 8. A slope leads from the reservoir and runs towards the Sandstone Coulee. The lands contain some trees in the sloped area of the quarter section. The remainder of the NW 12 – 21 – 01 W5M is relatively flat, containing the new stables for polo events. The lands slope down as you move south onto SW 12 – 21- 01 W5M and are also treed. As per Council's request, the lands exceeding 15% slope and some of the lands surrounding the sloping areas within this quarter section will be redesignated to Environmental Protection District.



**Legend**

- ENVIRONMENTAL PROTECTION DISTRICT WALKWAY
- LOTS
- AGRICULTURAL
- COMMERCIAL RURAL
- RAILWAY
- SUBJECT AREA BOUND THUS
- MARSH
- CARRIAGE HAZARDS (APPROX)
- EXISTING BUILDINGS (APPROX)
- MISC STRUCTURES (APPROX)
- EXISTING CORRALS (APPROX)
- TRACK TRAIL
- CARRIAGE TRAIL
- EXERCISE TRACK
- MISC LINES (APPROX)
- WELLS x
- EXISTING POLO/PLAYING FIELDS
- PROPOSED POLO FIELDS

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Client/Project <b>Chinook Valley MD of Foothills</b>	Figure No. <b>2.0</b>
Title: <b>Proposed &amp; Existing Development and Land Uses</b>	
Sub-Title: <b>Chinook Valley Area Structure Plan</b>	
Legal Description: <b>N½ sec. 11, Ptn. W½ sec 12, NE¼ ¼ S½ 14-21-01 WSM</b>	
Scale: <b>1:15 000</b>	Date (month day year): <b>03.18.2003</b>
Drawn By: <b>KP/RAR/BC/BD</b>	File Name: <b>13648Base.dwg</b>



### 3.0 PLAN GOALS AND OBJECTIVES

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#### 3.1 GOALS AND OBJECTIVES

- a) To protect a unique world class equine facility within the M.D. of Foothills No. 31 while enhancing the existing facilities with the addition of walkways and fields.
- b) To protect the low lying intermittent drainage areas from expanding development pressures with the Environmental Protection District designation and limited Country Residential development.
- c) To create an area where many different land uses may operate and co-exist, including Agricultural, Country Residential, Environmental Protection District, Strathcona-Tweedsmuir School and The Calgary Polo Club.
- d) To create a buffer between The Calgary Polo Club and the lands not included in the Plan Area so that this facility will not be forced to relocate should development increase in this area.
- e) To enhance the existing combined driving event facilities to allow for world-class competitions while also providing additional pathways, including an interpretive trail to be utilized by the Strathcona-Tweedsmuir School for outdoor education.
- f) To create a development that allows for wildlife movement throughout the plan area by way of large Environmental Protection District parcels and open space.
- g) To protect the natural and manmade water bodies.

#### 3.2 PRINCIPLES OF DEVELOPMENT

##### 3.2.1 Restrictive Covenant

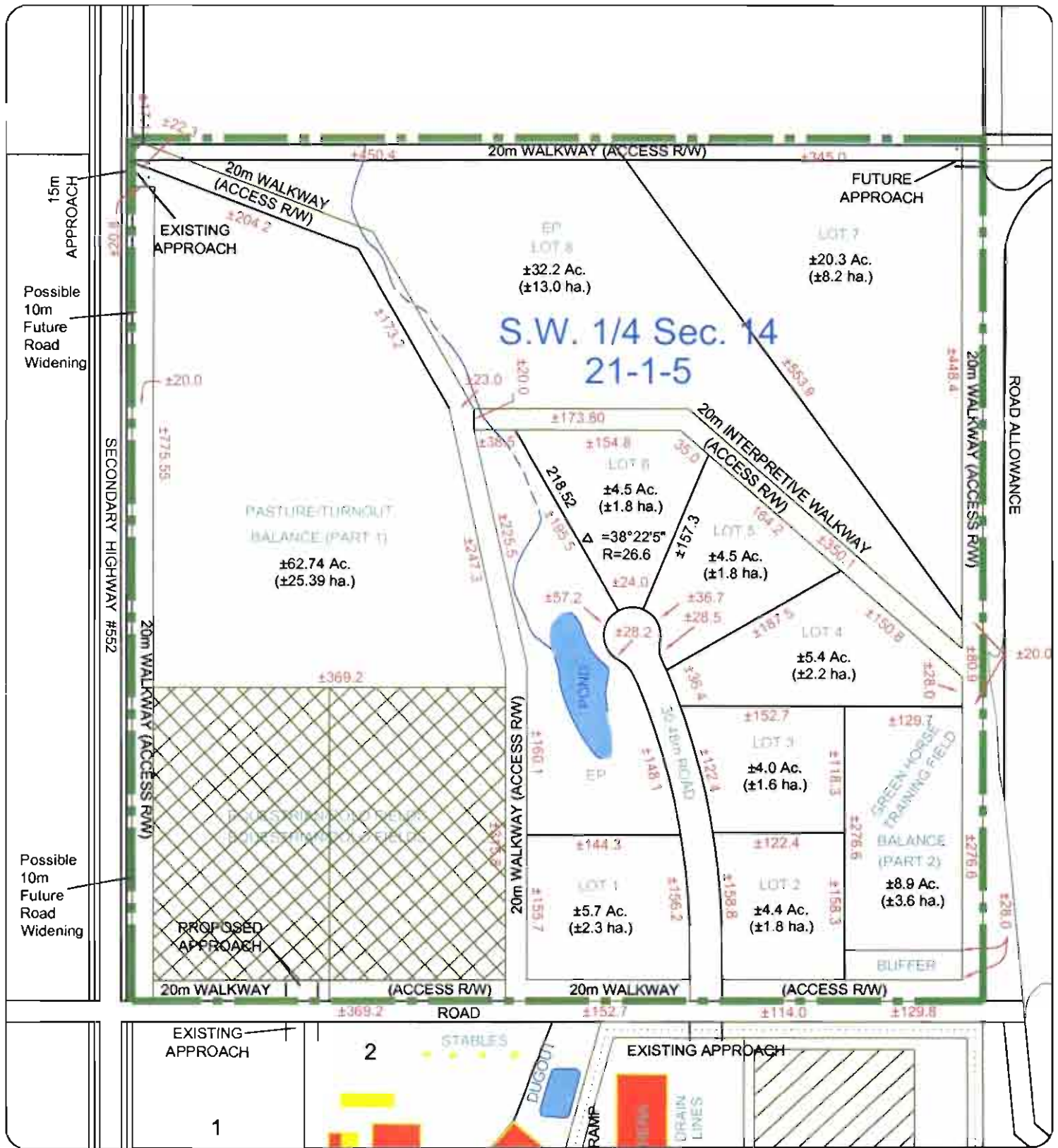
A restrictive covenant will be registered on the Certificate of Title of each newly created Country Residential lot within the Plan Area. This restrictive covenant will outline building sites to ensure that the lands are protected and remain in as natural state as is possible. The restrictive covenant will contain architectural controls outlining the types and styles of building that will be built on the new lots and the maintenance requirements for the walkways discussed in Section 3.2 (b). Furthermore, this restrictive covenant will restrict landowners from further subdivision. The restrictive covenant shall meet all requirements of the M.D. of Foothills No. 31 Land Use Bylaw.

### 3.2.2 Access Right of Way/Walkways

The walkways shown on the subdivision plan will not be dedicated as road. Alternatively, an access right-of-way will be registered on the lots adjacent to a proposed walkway. These walkways are to be utilized by The Calgary Polo Club and High Country Driving Club for the combined driving event, and the club fears that should these walkways be public there could be safety issues that arise. *Figure 3.0: Subdivision Plan Showing SW 14 – 21 - 01 W5M* identifies which lots will be affected by the right-of-way agreement.

The walkways which border the Country Residential lots on the SW 14 – 21 – 01 W5M will be rail fenced and maintained by the individual landowner. The restrictive covenant to be placed on each new Country Residential lot within the SW 14 – 21 – 01 W5M will outline the maintenance responsibilities of the landowner.

The walkways within the remainder of the Plan Area shall remain unfenced, unless for liability reasons the walkways must be fenced. Should fencing be required it will be rail fencing maintained by the landowner.



<p>0, 6940 Fisher Road SE          edmonton, Alberta, Canada T2H 0W3          Tel. 403.253.8101 Fax. 403.253.1985          www.challengergeomatics.com</p>	<p>Legend</p> <p> Subject Lands Containing ±63.88 (±157.84 ac.)</p>		<p>Client/Project          Chinook Valley          MD of Foothills</p>	<p>Figure No.          3.0</p>
			<p>Title          Subdivision Plan Showing          SW¼ 14 - 21 - 01 W5M</p>	
<p>Drawn By          KP/RAR/BC/BD</p>	<p>File Name          13648Base.dwg</p>	<p>Scale          1:5000</p>	<p>Date (mm dd/yyyy)          03.18.2003</p>	<p>File No.          13648</p>

## 4.0 DEVELOPMENT PROPOSAL

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### 4.1 THE PLAN CONCEPT

The Chinook Valley Area Structure Plan is proposing a way of protecting a part of the heritage of the M.D. of Foothills No. 31. Additionally, the intent of this Plan is to create an equine facility that will be one of a kind, hosting events with international recognition. The design will create Environmentally Protected areas by way of land use designation connected by miles of interlinking walkways and polo fields.

The design of this Plan will create a buffer for the Strathcona-Tweedsmuir School and The Calgary Polo Club from increasing development pressure by preventing the further subdivision (not outlined within this Plan) from occurring on the larger parcels within the Plan Area. Additionally, by setting aside lands with a zoning of Environmental Protection District these lots will be managed by stewards of the land who want to see the Plan Area protected in perpetuity.

### 4.2 LAND USE COMPONENT

#### 4.2.1 Land Uses

The following land use components are proposed in the Chinook Valley Area Structure Plan. *Figure 2.0: Proposed and Existing Development and Land Uses* identifies the existing land uses within the Plan Area as well as the surrounding land uses. A restrictive covenant will be placed on each new title created restricting the landowners from further subdivision.

i) Country Residential District

Portions of the SW 14 – 21 – 01 W5M will first need to be redesignated to Country Residential District (CR) to allow for the proposed Country Residential subdivision. These proposed lots shall be compatible and consistent with the provisions of Section 13.0.0 Country Residential District, of the Land Use Bylaw and Municipal Development Plan.

The seven Country Residential lots are being proposed to allow for additional residences within the Plan Area on the lands least suitable for agricultural pursuits. Additional development on lands with this zoning shall be permitted provided the development complies with Section 13.0.0 of the Land Use Bylaw.

ii) Agricultural District

The proposed and existing Agricultural lands shall be compatible and consistent with the provisions of Section 12.0.0 Agricultural District of the Land Use Bylaw, and the Municipal Development Plan. Intensive agricultural uses shall not be permitted.

Additional development on lands with this designation could be permitted provided the development complies with Section 12.0.0 of the Land Use Bylaw, at the discretion of Council and/or the Development Authority. Examples of such uses may be, but are not limited to, a commercial arena, the expansion of existing facilities, and other equine related facilities. The necessary land use amendments and permits will be applied for at such time that these facilities are proposed. Council and/or the Development Authority are not required to approve an application for future development within the Plan Area. An amendment to this Plan will not be required for such an application. The further subdivision of the lands zoned Agricultural District shall not be permitted upon an approval of this Area Structure Plan.

iii) Environmental Protection District

The owners of the Plan Area have identified areas of low lying intermittent drainage areas and coulee and ravine areas that exceed 15% slope. The identified lands are to be designated Environmental Protection District. This unique designation will allow for the protection of the lands upon the adoption of this Area Structure Plan, as they will be redesignated as Environmental Protection District and can then be managed by a trust company. The trust that will manage the lands zoned Environmental Protection District is the View West Foundation, in conjunction with the Strathcona-Tweedsmuir School. The Environmental Protection District zoning requires that an Environmental Management Plan be prepared by the applicant for the lands with this designation and be approved by Council.

iv) Commercial Rural

Strathcona-Tweedsmuir School is located on a portion of two different quarter sections, SE 14 – 21 – 01 W5M and NE 11 – 21 – 01 W5M. Currently the school is zoned Commercial Rural. This zoning shall remain upon the adoption of this Area Structure Plan.

4.2.2 Development Components

i) Proposed Development within SW 14 – 21 - 01 W5M.

This Area Structure Plan proposes seven new Country Residential lots within the SW 14 – 21 – 01 W5M identified in *Figure 3.0: Subdivision Plan Showing SW 14 – 21 – 01 W5M*. Should Council approve the redesignation, the country residential lots shall comply with Section 13.0.0 of the Municipal Development Plan. Lots 1-6 shall gain access off the proposed internal road system. Lot 7 shall gain access off of the road at 298<sup>th</sup> Avenue from the east, which is to be extended to provide access to Lot 7. This road extension shall be built to a standard acceptable to Council and the Public Works Department of the M.D. of Foothills No. 31. A Development Agreement shall be entered into for the construction of this road extension. A road dedication of 20 metres has already been dedicated. The additional ten metres required to construct this roadway to MD standards shall be surveyed out of the NE 14 – 21 – 01 W5M at the time of subdivision.

An Environmental Protection District lot is proposed to protect and enhance the low lying drainage area and immediately adjacent surrounding lands. This lot shall comply with the provisions of Section 11.0.0 of the Municipal Development Plan. Lot 8 shall gain access off of the proposed internal road system.

The Balance shall be surveyed in two parts, with the second part being utilized for a Green Horse Training Field. The balance shall carry an Agricultural zoning and will be used in association with The Calgary Polo Club. The larger balance piece shall gain access along the south side of the lands, at the location shown in *Figure 3.0: Subdivision Plan Showing SW 14 – 21 – 01 W5M*. The second part of the balance is to be utilized as a training field, therefore in most cases access will be gained by horseback using the proposed walkways. Should vehicular access ever be required in the event of an emergency the lands could be accessed by an existing approach on the south side of the lands

in the south east corner of the lands. This existing approach may need to be upgraded to meet Municipal standards; this upgrade would be completed as a condition of approval. The Developer proposes to register a restrictive covenant that prohibits the development of a house on the second part of the balance, as it is to be utilized as green horse training field only.

The proposed walkways are to be set aside using an access Right-of-Way Agreement registered on the titles of each affected lot. These walkways are to be utilized by The Calgary Polo Club and High Country Driving Club for the combined driving event. *Figure 3.0: Subdivision Plan Showing SW 14 – 21 – 01 W5M* identifies which lots will have the Right-of-Way Agreement registered on title.

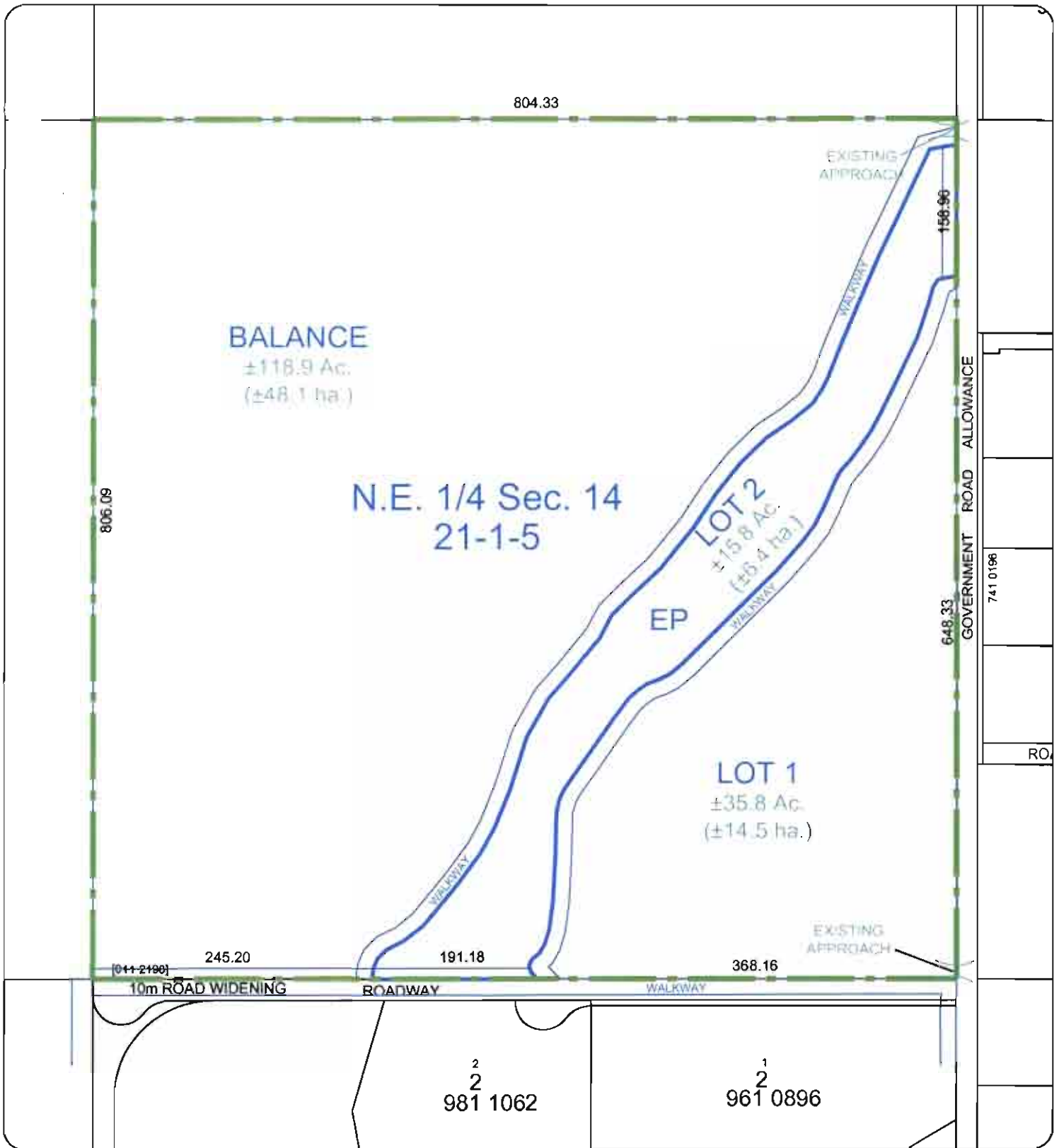
ii) Proposed Development within NE 14-21-01 W5M

The low lying intermittent drainage area creates a natural subdivision. The walkways shown in *Figure 4.0: Subdivision Plan Showing NE 14 – 21 – 01 W5M* shall be dedicated by way of an access Right-of-Way on each of the Agricultural District lots.

An Environmental Protection lot is proposed to allow for the protection of the low lying drainage area that intermittently flows through this quarter. Access to this lot shall be off the proposed road extension at 298<sup>th</sup> Ave.

*Figure 4.0: Subdivision Plan Showing NE 14 – 21 – 01 W5M* identifies the proposed subdivision within the NE 14 – 21 - 01 W5M. The proposed Lot 1 shall carry an Agricultural District designation, and shall gain access at the SE corner of the lot. This lot shall be farmed upon an approval.

The balance, due to its size, will remain designated Agricultural District. The proposed approach location for the balance is shown in *Figure 4.0: Subdivision Plan Showing NE 14 – 21 – 01 W5M* and will utilize the existing approach. The balance shall continue to be farmed.



0, 6940 Fisher Road SE  
 ary, Alberta, Canada T2H 0W3  
 el. 403.253.8101 Fax. 403.253.1985  
 www.challengegeomatrics.com

Legend.  
 - - - Subject Lands Containing  
 ±63.88 (±157.84 ac.)



Client/Project. <b>Chinook Valley MD of Foothills</b>		Figure No. <b>4.0</b>
Time. <b>Subdivision Plan Showing NE¼ 14 - 21- 01 W5M</b>		
Sub-Title. <b>Chinook Valley Area Structure Plan</b>		
Legal Description. <b>NE¼ 14 - 21- 01 W5M</b>		
Scale. <b>1:5000</b>	Date (mm.dd.yyyy). <b>03.18.2003</b>	File No. <b>13648</b>

Drawn By.  
**KP/RAR/BC/BD**

File Name.  
**13648Base.dwg**



iii) Phasing

The majority of the lands are currently operating as proposed in this Area Structure Plan (i.e. Strathcona-Tweedsmuir School and The Calgary Polo Club). The land use changes that are being proposed within this document would each occur in one phase, upon an approval from Council.

*Figure 2.0: Proposed and Existing Development and Land Uses* identifies the proposed subdivision and development. This Area Structure Plan strictly outlines that further subdivision will not be permitted. However, additional development of fields, accessory buildings, etc. will be at the discretion of the development officer and shall meet all requirements of the Municipal District of Foothills No. 31 Land Use Bylaw and Municipal Development Plan.

iv) Density

The main goal of this Area Structure Plan is not to develop and build out the Plan Area, but alternatively to protect the lands from increasing development pressures. The densities proposed in this Area Structure Plan are minimal and have only been incorporated into this plan to provide individuals with the opportunity to live within this unique development.

Country Residential development has already occurred within the Plan Area, with one lot being subdivided from the NE 11 – 21 – 01 W5M in 1996 and a further subdivision from the same quarter in 1997. Furthermore, in 1996 one lot was subdivided from the SE 14 – 21 – 01 W5M, with a second lot subdivided from this quarter in 1998.

Including only the titles within the Plan Area, the total Plan Area is 859.229 +/- acres. Upon an approval the number of lots (including Environmental Protection District lots) within the Plan Area would total twenty (20) titles. Therefore, the density ratio would be 1:42.96 or one lot per 42.96 +/- acres.

**TABLE 2: DENSITY TABLE**

Total Number of Lots	20 Titles
Total Plan Area	859.229 +/- Acres
Total Density	1 Lot per 42.96 +/- Acres

v) Impact on Adjacent Lands

The majority of the development outlined within this Area Structure Plan exists and, therefore, the adoption of this document should not impact the adjacent lands. The lands to the west are separated by Secondary Highway 552. As mentioned in section 2.3(b) the lands generally slope to the east towards the Sandstone Coulee therefore the lands to the west will be minimally impacted by the development proposed in this Area Structure Plan. The lands to the north will be buffered by the Environmental Protection District lots and the walkways. The lands to the south will not be affected by the proposed Country Residential development, as those lands will be half a mile away from the residential development. The lands to the east are accessed by way of a different road system than the country residential lots, and are separated by the railway line and Sandstone Coulee. It is not anticipated that the adjacent landowners will be affected with the adoption of this Area Structure Plan.

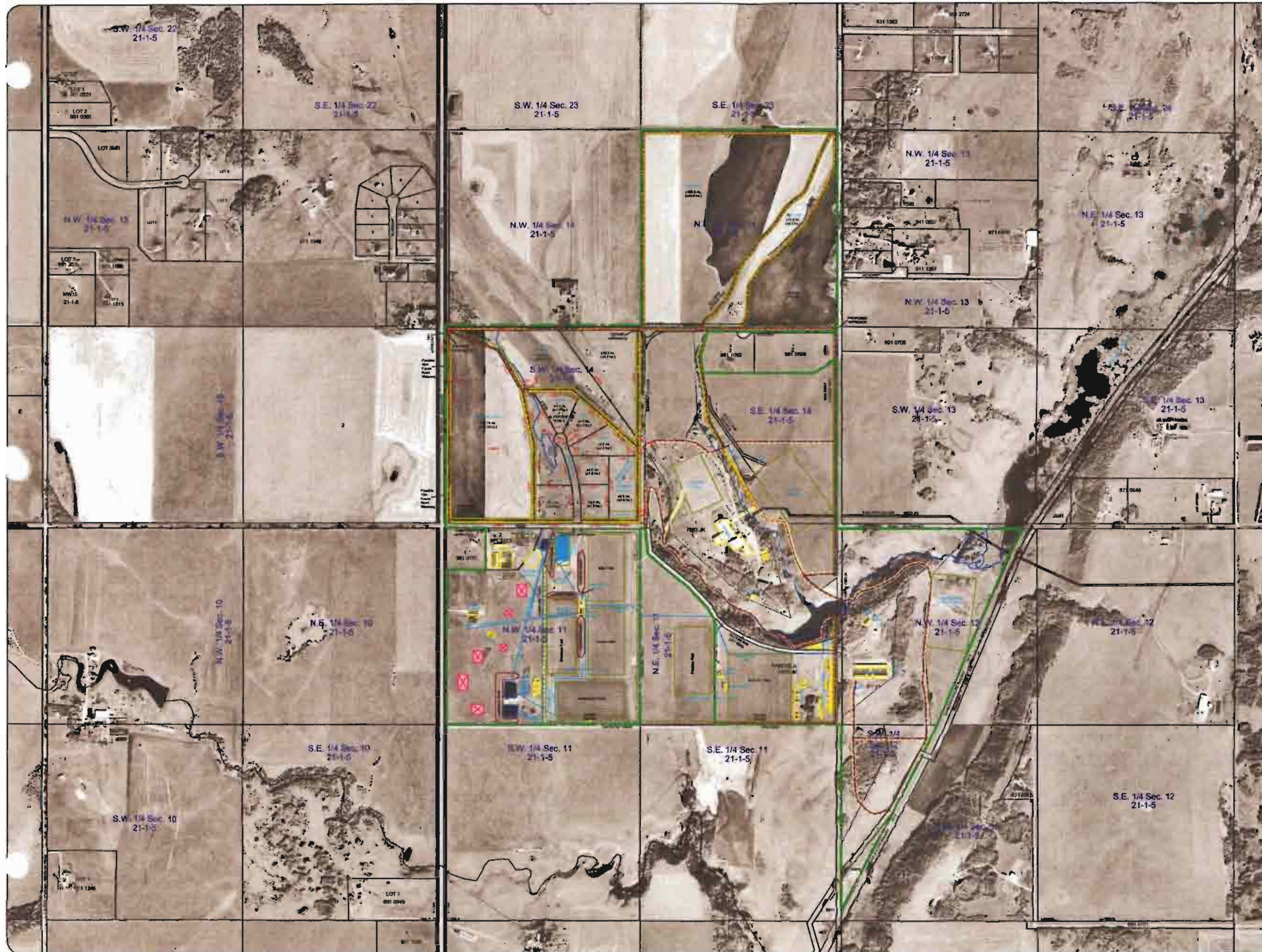
This Plan proposes seven new Country Residential lots. This Area Structure Plan will prevent further subdivision and assure the adjacent landowners that these lands will be protected as development pressures increase.

### 4.3 ENVIRONMENTAL CONSIDERATIONS

The main goal of the development of the Chinook Valley Area Structure Plan is to ensure that not only the Strathcona-Tweedsmuir School and The Calgary Polo Club were protected, but also to protect the intermittent drainage areas, and coulee and ravine areas exceeding 15% slope as per Council's request. These lands were to be protected using the Environmental Protection District. The Environmental Protection designation allows for a trust company to own the lands, which could then be protected with the assistance of an environmental organization.

To ensure the proposed seven-lot Country Residential subdivision does not impact those lands which are to be protected using the Environmental Protection zoning, a Percolation Study and a Groundwater Feasibility Study have been prepared. Results of these studies are outlined further in section 4.6. *Figure 5.0: Plan Area with Airphoto* incorporates the proposal with an airphoto so the features of the Plan Area may be viewed.

*Figure 6.0: Topographical Information* has been prepared at the request of municipal staff to indicate those lands that exceed 15% slope. As a condition of approval of the Area Structure Plan Council required that the lands in the coulee and ravine areas exceeding 15% slope identified within *Figure 6.0: Topographical Information* be redesignated Environmental Protection District. *Figure 2.0: Proposed & Existing Development and Land Uses* identifies the lands to be designated Environmental Protection District.



- Legend.
- CARRIAGE HAZARDS (APPROX)
  - RAILWAY
  - SUBJECT AREA BOUND THUS
  - TRACK TRAIL
  - CARRIAGE TRAIL
  - EXERCISE TRACK
  - WELLS



#300, 6940 Fisher Road SE  
 Calgary, Alberta, Canada T2H 0W3  
 Tel. 403.253.8101 Fax. 403.253.1985  
 www.challengergeomatics.com

Client/Project <b>Chinook Valley MD of Foothills</b>	Figure No. <b>5.0</b>
Title <b>Plan Area with Airphoto</b>	
Sub-Title <b>Chinook Valley Area Structure Plan</b>	
Legal Description <b>N 1/4 sec. 11, Pt. W 1/4 sec 12, NE 1/4 &amp; S 1/4 14-21-01 W5M</b>	
Scale <b>1:15 000</b>	Date (mm dd yyyy). <b>03.18.2003</b>
Drawn By. <b>KP/RAR/BC/BD</b>	File No. <b>13648</b>
	File Name. <b>13648Base.dwg</b>



- Legend
- CARRIAGE HAZARDS (APPROX)
  - RAILWAY
  - SUBJECT AREA BOUND THUS
  - TRACK TRAIL
  - CARRIAGE TRAIL
  - EXERCISE TRACK
  - WELLS
  - ALL LANDS EXCEEDING 15% SLOPE SHOWN SHADED IN RED



3000, 6040 Fisher Road SE  
 Calgary, Alberta, Canada T2H 0W3  
 Tel. 403.253.8101 Fax. 403.253.1985  
 www.challengergeomatics.com

Client/Project <b>Chinook Valley MD of Foothills</b>	Scale <b>6.0</b>
Title <b>Topographical Information</b>	
Sub Title <b>Chinook Valley Area Structure Plan</b>	
Legal Description <b>N 1/4 sec. 11, P. 1/4 sec. 12, NE 1/4 sec. 12, S 1/4 sec. 12, SW 1/4 sec. 12, SE 1/4 sec. 12, S.W. 1/4 sec. 13, S.E. 1/4 sec. 13, N.W. 1/4 sec. 13, S.E. 1/4 sec. 14, N.E. 1/4 sec. 14, S.W. 1/4 sec. 14, S.E. 1/4 sec. 14, N.W. 1/4 sec. 15, S.E. 1/4 sec. 15, N.E. 1/4 sec. 15, S.W. 1/4 sec. 15, S.E. 1/4 sec. 15, N.W. 1/4 sec. 16, S.E. 1/4 sec. 16, N.E. 1/4 sec. 16, S.W. 1/4 sec. 16, S.E. 1/4 sec. 16, N.W. 1/4 sec. 17, S.E. 1/4 sec. 17, N.E. 1/4 sec. 17, S.W. 1/4 sec. 17, S.E. 1/4 sec. 17, N.W. 1/4 sec. 18, S.E. 1/4 sec. 18, N.E. 1/4 sec. 18, S.W. 1/4 sec. 18, S.E. 1/4 sec. 18, N.W. 1/4 sec. 19, S.E. 1/4 sec. 19, N.E. 1/4 sec. 19, S.W. 1/4 sec. 19, S.E. 1/4 sec. 19, N.W. 1/4 sec. 20, S.E. 1/4 sec. 20, N.E. 1/4 sec. 20, S.W. 1/4 sec. 20, S.E. 1/4 sec. 20, N.W. 1/4 sec. 21, S.E. 1/4 sec. 21, N.E. 1/4 sec. 21, S.W. 1/4 sec. 21, S.E. 1/4 sec. 21, N.W. 1/4 sec. 22, S.E. 1/4 sec. 22, N.E. 1/4 sec. 22, S.W. 1/4 sec. 22, S.E. 1/4 sec. 22, N.W. 1/4 sec. 23, S.E. 1/4 sec. 23, N.E. 1/4 sec. 23, S.W. 1/4 sec. 23, S.E. 1/4 sec. 23, N.W. 1/4 sec. 24, S.E. 1/4 sec. 24, N.E. 1/4 sec. 24, S.W. 1/4 sec. 24, S.E. 1/4 sec. 24</b>	
Scale <b>1:15 000</b>	Date (mm.dd.yyyy) <b>03.18.2003</b>
Drawn by <b>KP/RAR/BC/BD</b>	File No. <b>13648</b>
	File Name <b>13648Base.dwg</b>

## 4.4 RESERVE LANDS

Under Section 666(1) of the Municipal Government Act, Council may require the owner of a parcel of land that is subject to a subdivision proposal to provide land for a Municipal Reserve, provide cash-in-lieu of land, or defer the Municipal Reserve. As a condition of Area Structure Plan approval Council requested that the proposed subdivision for the SW 14 -21 – 01 W5M be redesigned and the proposed Municipal Reserve removed from the Plan Area. The required Municipal Reserve, in the amount of 10% of the proposed subdivision shall be deferred to the balance of the SW 14 – 21 – 01 W5M.

## 4.5 TRANSPORTATION

### 4.5.1 Internal Road System

Internal roads will be constructed to M.D. of Foothills No. 31 Road Construction Standards. The speed limit on the internal road will be set at 50 km per hour. Should Council require, as a condition of approval, the Developer shall enter into a Development Agreement for the development of this internal road system.

The remaining lands shall be accessed using existing road systems throughout the Plan Area. Access to the proposed lot in the NE 14 – 21 – 01 W5M will be by way of the existing road on the south side of the quarter section, which shall be extended upon an approval. This road extension will service the Environmental Protection lot proposed on this quarter. Additionally, this road will service the proposed Country Residential lot in the northeast corner of the SW 14 – 21 - 01 W5M. Should Council require, as a condition of approval, the Developer shall enter into a Development Agreement for the extension of this road system.

## 4.5.2 External Road System

Due to the close proximity of the proposed subdivision to Highway 552, the Developer is required under the Municipal Government Act to meet all requirements of Alberta Transportation as a condition of subdivision approval.

The main access for the Plan Area, The Calgary Polo Club and Strathcona-Tweedsmuir School is off Highway 552 at 306<sup>th</sup> Avenue. Access to the proposed lots on the NE 14 – 21 – 01 W5M shall be off of Highway 552 at 274<sup>th</sup> Avenue. One mile east of this intersection at 16<sup>th</sup> Street West a municipal road heads south for one and a half miles, where the existing and proposed approaches are located for NE 14 – 21 - 01 W5M and the lot in the north east corner of SW 14 – 21 - 01 W5M.

Should Council require, the Developer will enter into a Development Agreement for the upgrading and/or maintenance that Council may deem necessary. Alternatively, the Developer will contribute an infrastructure levy for upgrades to the external road system. The funds collected from this levy by the Municipality shall be used to upgrade municipal roads that directly access the Plan Area.

At the request of Alberta Transportation, a Traffic Impact Assessment shall be prepared to ascertain the adequacy of the existing at-grade intersection at this location (SW 14 – 21 – 01 W5M). Written verification that the Traffic Impact Assessment is acceptable to Alberta Transportation will be required prior to the endorsement of the final linen for the subdivision of SW 14 – 21 – 01 W5M by the subdivision authority.

## 4.6 SERVICING

### 4.6.1 Water Supply/ Groundwater Feasibility Assessment

The proposed lots within the SW 14 – 21 – 01 W5M will be serviced with water using individual water wells. Groundwater Exploration & Research Ltd. completed a groundwater feasibility assessment, in June 2002. This report addresses the feasibility of finding sufficient volumes of groundwater to sustain the seven lot country residential subdivision proposed within the SW 14 – 21 – 01 W5M.

The water information provided by Groundwater Exploration and Research Ltd. shows that, theoretically, there exists sufficient groundwater reserves, to serve the existing and proposed parcels of land in the SW 14 – 21 – 01 W5M. This report is attached as Appendix B. Wells will be developed in accordance with the recommendations contained in the Groundwater Exploration and Research Ltd. Additionally, the individual wells on the SW 14 – 21 – 01 W5M shall meet all requirements of Alberta Environmental Protection.

The agricultural lots proposed on the NE 14 – 21 – 01 W5M shall be serviced with water via a well. The remaining lands within the Plan Area will utilize the existing water systems.

#### 4.6.2 Sewage Disposal/ Percolation Study

In June of 2002, Almor Testing Services Ltd. was hired to complete a percolation study on the SW 14 – 21 – 01 W5M. Two to six test holes were drilled on each of the six lots. The conclusion was that the near surface ground water level within specific locations on each lot are within the allowable depth recommended by Alberta Environmental Protection on all proposed lots. Therefore, the proposed lots comply with the requirements and are suitable for installation of normal subsurface sewage disposal fields. The results and full site investigation report can be found in Appendix C.

The agricultural lots proposed on the NE 14 – 21 – 01 W5M would also use a standard septic system should the lands ever have a dwelling built upon them. The remaining lands within the Plan Area will utilize the existing waste treatment systems.

#### 4.6.3 Stormwater Management

The design of the proposed subdivision on the SW 14 – 21 - 01 W5M will prevent the Plan Area from negatively affecting the adjacent lands. Additionally, proper ditching and road construction along the proposed internal road system will further ensure that this quarter section drains correctly. *Figure 6.0: Topographical Information* identifies the contours of the Plan Area. Post development run off shall not exceed pre development run off. The Developer will complete a storm water management study for the SW 14 – 21 – 01 W5M, should Council require, as a condition of approval. The goal of this study would be to determine if any additional measures will be required to ensure that the land drains correctly and that it drains in such a way as to not negatively impact the adjacent landowners. If required, this study would



be prepared to the satisfaction of the Municipality, and as per Alberta Environmental Protection guidelines, prior to subdivision approval.

## 4.7 UTILITIES

The proposed lots on the SW 14 – 21 – 01 W5M shall be serviced using the appropriate service companies for the area. These lots will be serviced with electricity, gas and telephone, as required by Council.

## 4.8 PROTECTIVE SERVICES

### 4.8.1 Fire Protection

Fire services will be dispatched from Okotoks, using tanker trucks to provide water to the Plan Area in the event of a fire. Additionally, water from the reservoir located on the NE 11 – 21 – 01 W5M (within the Plan Area) could be utilized should it ever be required.

### 4.8.2 Police Protection

Police services will be dispatched from the Okotoks detachment of the RCMP. The close proximity of the Plan Area to Okotoks allows for minimum response times to the Plan Area.

## 5.0 IMPLEMENTATION

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### 5.1 IMPLEMENTATION

When Council adopts this Area Structure Plan, in accordance with the provisions of the Municipal Government Act, it becomes a Statutory Plan of the M.D. of Foothills No 31. The Developer shall begin construction of the development upon a redesignation approval from the M.D. of Foothills No. 31 Council.

**APPENDIX A**  
**Certificates of Title**

USER ID : EN0091  
REQUEST ID: R0710773  
CUST. REF.: 13648

LAND TITLE SEARCH

DATE: 2003-09-05  
PAGE: 1

TITLE NUMBER  
981 103 130 +1

NC SHORT LEGAL  
/27 433 614 5;1;21;14;SE

LEGAL DESCRIPTION

MERIDIAN 5 RANGE 1 TOWNSHIP 21  
SECTION 14  
QUARTER SOUTH EAST  
CONTAINING 160 ACRES MORE OR LESS  
EXCEPTING THEREOUT:  
PLAN NUMBER HECTARES (ACRES) MORE OR LESS  
SUBDIVISION 7883JK 30.72 75.92  
SUBDIVISION 9610896 5.52 13.64  
SUBDIVISION 9811062 3.61 8.92  
EXCEPTING THEREOUT ALL MINES AND MINERALS

ESTATE: FEE SIMPLE

MUNICIPALITY: MUNICIPAL DISTRICT OF FOOTHILLS NO. 31

REFERENCE NUMBER: 961 136 459

REGISTRATION	DATE (Y-M-D)	DOCUMENT TYPE	REGISTERED OWNER (S)	VALUE	CONSIDERATION
981 103 130	1998-04-14	SUBDIVISION PLAN			

OWNERS

CHINOOK VALLEY INC..  
OF SUITE 2800, 700-9TH AVENUE SW  
CALGARY  
ALBERTA T2P3V4

(DATA UPDATED BY: CHANGE OF NAME 001292346)

REGISTRATION NUMBER	DATE (Y-M-D)	PARTICULARS
7411E	1971-09-24	UTILITY RIGHT OF WAY GRANTEE - CANADIAN WESTERN NATURAL GAS COMPANY LIMITED. AS TO PORTION OR PLAN: 8223JK "20 FT. STRIP "
971 339 350	1997-11-14	CAVEAT RE : EASEMENT
981 009 798	1998-01-09	EASEMENT AFFECTED PLAN: 9810074 OVER SE 14-21-1-W5M FOR BENEFIT OF PORTIONS OF BLOCK 1 ON PLAN 7883JK
981 110 897	1998-04-21	RESTRICTIVE COVENANT

continued...

USER ID : EN0091  
REQUEST ID: R0710773  
CUST. REF.: 13648

LAND TITLE SEARCH

DATE: 2003-09-05  
PAGE: 2

\*\*\* END OF TITLE - 981 103 130 +1 TOTAL INSTRUMENTS: 4 \*\*\*

USER ID : EN0091  
REQUEST ID: R0710773  
CUST. REF.: 13648

LAND TITLE SEARCH

DATE: 2003-09-05  
PAGE: 3

TITLE NUMBER  
021 045 814

INC SHORT LEGAL  
J20 935 673 5;1;21;14;SW

LEGAL DESCRIPTION

MERIDIAN 5 RANGE 1 TOWNSHIP 21  
SECTION 14  
QUARTER SOUTH WEST  
CONTAINING 64.7 HECTARES (160 ACRES) MORE OR LESS  
EXCEPTING THEREOUT THE ROAD WIDENING ON PLAN 7059JK  
CONTAINING .405 HECTARES (1.00 ACRES) MORE OR LESS  
ALSO EXCEPTING THEREOUT:  
PLAN NUMBER HECTARES ACRES  
ROAD 9110035 0.417 1.03  
EXCEPTING THEREOUT ALL MINES AND MINERALS

ESTATE: FEE SIMPLE

MUNICIPALITY: MUNICIPAL DISTRICT OF FOOTHILLS NO. 31

REFERENCE NUMBER: 021 045 758 +1

REGISTRATION	DATE(Y-M-D)	DOCUMENT TYPE	REGISTERED OWNER(S)	VALUE	CONSIDERATION
021 045 814	2002-02-06	TRANSFER OF LAND		\$1,000,000	\$1,000,000

OWNERS

CHINOOK VALLEY INC..  
OF 2800, 700-9 AVE SW  
CALGARY  
ALBERTA T2P3V4

ENCUMBRANCES, LIENS & INTERESTS

REGISTRATION NUMBER	DATE (Y-M-D)	PARTICULARS
901 168 035	1990-06-27	CAVEAT RE ; ACQUISITION OF LAND CAVEATOR - THE MUNICIPAL DISTRICT OF FOOTHILLS NO. 31. P. O. BOX 160, HIGH RIVER ALBERTA AGENT - HARRY RIVA CAMBRIN
971 123 541	1997-05-05	UTILITY RIGHT OF WAY GRANTEE - CANADIAN WESTERN NATURAL GAS COMPANY LIMITED.

\*\*\* END OF TITLE - 021 045 814 TOTAL INSTRUMENTS: 2 \*\*\*

USER ID : EN0091  
REQUEST ID: R0710773  
CUST. REF.: 13648

LAND TITLE SEARCH

DATE: 2003-09-05  
PAGE: 4

TITLE NUMBER  
011 201 650

LINC SHORT LEGAL  
0020 935 665 5;1;21;14;NE

LEGAL DESCRIPTION

MERIDIAN 5 RANGE 1 TOWNSHIP 21  
SECTION 14  
QUARTER NORTH EAST  
EXCEPTING THEREOUT ALL MINES AND MINERALS  
AREA: 64.7 HECTARES (160 ACRES) MORE OR LESS

ESTATE: FEE SIMPLE

MUNICIPALITY: MUNICIPAL DISTRICT OF FOOTHILLS NO. 31

REFERENCE NUMBER: 011 201 390 +1

REGISTRATION	DATE(Y-M-D)	DOCUMENT TYPE	REGISTERED OWNER(S)	VALUE	CONSIDERATION
011 201 650	2001-07-19	TRANSFER OF LAND		\$865,000	\$865,000

OWNERS

CHINOOK VALLEY INC..  
OF 2800, 700-9 AVE SW  
CALGARY  
ALBERTA T2P3V4

ENCUMBRANCES, LIENS & INTERESTS

REGISTRATION NUMBER	DATE (Y-M-D)	PARTICULARS
901 168 035	1990-06-27	CAVEAT RE : ACQUISITION OF LAND CAVEATOR - THE MUNICIPAL DISTRICT OF FOOTHILLS NO. 31. P. O. BOX 160, HIGH RIVER ALBERTA AGENT - HARRY RIVA CAMBRIN
'1 123 541	1997-05-05	UTILITY RIGHT OF WAY GRANTEE - CANADIAN WESTERN NATURAL GAS COMPANY LIMITED.

\*\*\* END OF TITLE - 011 201 650 TOTAL INSTRUMENTS: 2 \*\*\*

USER ID : EN0091  
REQUEST ID: R0710773  
CUST. REF.: 13648

LAND TITLE SEARCH

DATE: 2003-09-05  
PAGE: 5

TITLE NUMBER  
021 455 511

LINC SHORT LEGAL  
0018 200 634 5;1;21;12;NW  
0018 200 642 5;1;21;12;SW

LEGAL DESCRIPTION

FIRST MERIDIAN 5 RANGE 1 TOWNSHIP 21  
SECTION 12  
QUARTER NORTH WEST  
THAT PORTION WHICH IS NOT COVERED BY THE WATERS OF THE LAKE  
AS SHOWN ON THE TOWNSHIP PLAN APPROVED AT OTTAWA 14 APRIL 1892  
AND WHICH LIE TO THE WEST OF THE RAILWAY ON PLAN RY 8 CONTAINING  
43.9 HECTARES (108.36 ACRES) MORE OR LESS  
EXCEPTING THEREOUT:  
PLAN NUMBER HECTARES ACRES MORE OR LESS  
SUBDIVISION 7883JK 0.150 0.37  
EXCEPTING THEREOUT ALL MINES AND MINERALS

SECOND MERIDIAN 5 RANGE 1 TOWNSHIP 21  
SECTION 12  
QUARTER SOUTH WEST  
THAT PORTION WHICH IS NOT COVERED BY THE WATERS OF THE LAKE  
AS SHOWN ON THE TOWNSHIP PLAN APPROVED AT OTTAWA 14 APRIL 1892  
AND WHICH LIE TO THE WEST OF THE RAILWAY ON PLAN RY 8 CONTAINING  
15.1 HECTARES (37.3 ACRES) MORE OR LESS  
EXCEPTING THEREOUT:  
PLAN NUMBER HECTARES ACRES MORE OR LESS  
ROADWAY 8738Q 1.22 3.021  
EXCEPTING THEREOUT ALL MINES AND MINERALS

ESTATE: FEE SIMPLE

MUNICIPALITY: MUNICIPAL DISTRICT OF FOOTHILLS NO. 31

REFERENCE NUMBER: 981 033 945

-----  
REGISTRATION DATE(Y-M-D) DOCUMENT TYPE REGISTERED OWNER(S) VALUE CONSIDERATION  
-----  
021 455 511 2002-12-31 TRANSFER OF LAND \$3,041,000 SEE INSTRUMENT

OWNERS

EW WEST FOUNDATION.  
2800, 700 - 9 AVENUE SW  
CALGARY  
ALBERTA T2P3V4

continued...



USER ID : EN0091  
REQUEST ID: R0710773  
CUST. REF.: 13648

LAND TITLE SEARCH

DATE: 2003-09-05  
PAGE: 6

-----  
ENCUMBRANCES, LIENS & INTERESTS  
-----

REGISTRATION NUMBER	DATE (Y-M-D)	PARTICULARS
17411E	1971-09-24	UTILITY RIGHT OF WAY GRANTEE - CANADIAN WESTERN NATURAL GAS COMPANY LIMITED. AS TO PORTION OR PLAN: 8223JK
911 139 177	1991-06-28	EASEMENT OVER PARCEL 'A' ON PLAN 1870 JK FOR BENEFIT OF PORTIONS OF W 1/2 12 - 21 - 1 - 5 (PLAN 9111224)
911 201 710	1991-09-09	UTILITY RIGHT OF WAY GRANTEE - CANADIAN WESTERN NATURAL GAS COMPANY LIMITED.

\*\*\* END OF TITLE - 021 455 511 TOTAL INSTRUMENTS: 3 \*\*\*

USER ID : EN0091  
REQUEST ID: R0710773  
CUST. REF.: 13648

LAND TITLE SEARCH

DATE: 2003-09-05  
PAGE: 7

TITLE NUMBER  
021 455 510

LINC SHORT LEGAL  
0027 309 368 5;1;21;11;NW

LEGAL DESCRIPTION

THE NORTH WEST QUARTER OF SECTION 11  
TOWNSHIP 21  
RANGE 1  
WEST OF THE FIFTH MERIDIAN  
CONTAINING 64.7 HECTARES (160 ACRES) MORE OR LESS  
EXCEPTING THEREOUT:  
PLAN NUMBER HECTARES (ACRES) MORE OR LESS  
ROAD 5046JK 0.405 1.00  
ROAD 9110037 0.417 1.03  
DESCRIPTIVE 9610757 2.75 6.80  
SUBDIVISION 9712573 3.26 8.06  
EXCEPTING THEREOUT ALL MINES AND MINERALS

ESTATE: FEE SIMPLE

MUNICIPALITY: MUNICIPAL DISTRICT OF FOOTHILLS NO. 31

REFERENCE NUMBER: 971 375 111 +1

REGISTRATION	DATE (Y-M-D)	DOCUMENT TYPE	REGISTERED OWNER(S)	VALUE	CONSIDERATION
021 455 510	2002-12-31	TRANSFER OF LAND		\$3,630,000	\$3,630,000

OWNERS

VIEW WEST FOUNDATION.  
OF 2800, 700 - 9 AVENUE SW  
CALGARY  
ALBERTA T2P3V4

REGISTRATION NUMBER	DATE (Y-M-D)	PARTICULARS
01 168 037	1990-06-27	CAVEAT RE : ACQUISITION OF LAND CAVEATOR - THE MUNICIPAL DISTRICT OF FOOTHILLS NO. 31. P. O. BOX 160, HIGH RIVER ALBERTA AGENT - HARRY RIVA CAMBRIN
961 080 770	1996-04-18	CAVEAT RE : ROADWAY CAVEATOR - THE MUNICIPAL DISTRICT OF FOOTHILLS NO. 31. BOX 5605 HIGH RIVER ALBERTA T1V1M7

continued...

USER ID : EN0091  
REQUEST ID: R0710773  
CUST. REF.: 13648

LAND TITLE SEARCH

DATE: 2003-09-05  
PAGE: 8

971 375 112 1997-12-16 RESTRICTIVE COVENANT

\*\*\* END OF TITLE - 021 455 510 TOTAL INSTRUMENTS: 3 \*\*\*

USER ID : EN0091  
REQUEST ID: R0710773  
CUST. REF.: 13648

LAND TITLE SEARCH

DATE: 2003-09-05  
PAGE: 9

TITLE NUMBER  
021 438 714

LINC SHORT LEGAL  
0017 072 273 1870JK;A

LEGAL DESCRIPTION

PLAN 1870JK  
PARCEL A  
CONTAINING 18.520 HECTARES (45.79 ACRES ) MORE OR LESS  
EXCEPTING THEREOUT ALL MINES AND MINERALS

A.T.S. REFERENCE: 5;1;21;11;NE

ESTATE: FEE SIMPLE

MUNICIPALITY: MUNICIPAL DISTRICT OF FOOTHILLS NO. 31

REFERENCE NUMBER: 821 011 322

REGISTRATION	DATE(Y-M-D)	DOCUMENT TYPE	REGISTERED OWNER(S)	VALUE	CONSIDERATION
021 438 714	2002-12-12	TRANSFER OF LAND		\$539,000	CASH

OWNERS

VIEW WEST FOUNDATION.  
OF 2800, 700 - 9 AVENUE SW  
CALGARY  
ALBERTA T2P3V4

ENCUMBRANCES, LIENS & INTERESTS

REGISTRATION NUMBER	DATE (Y-M-D)	PARTICULARS
911 139 177	1991-06-28	EASEMENT OVER PARCEL 'A' ON PLAN 1870 JK FOR BENEFIT OF PORTIONS OF W 1/2 12 - 21 - 1 - 5 (PLAN 9111224)

\*\*\* END OF TITLE - 021 438 714 TOTAL INSTRUMENTS: 1 \*\*\*

USER ID : EN0091  
REQUEST ID: R0710773  
CUST. REF.: 13648

LAND TITLE SEARCH

DATE: 2003-09-05  
PAGE: 10

TITLE NUMBER  
031 277 098

LINE SHORT LEGAL  
0029 631 520 7883JK;1

LEGAL DESCRIPTION

PLAN 7883JK  
BLOCK 1 (EAST OF N.S. ROAD ALLOWANCE)  
CONTAINING .15 HECTARES (.37 ACRES) MORE OR LESS  
EXCEPTING THEREOUT ALL MINES AND MINERALS

A.T.S. REFERENCE: 5;1;21;12;NW

ESTATE: FEE SIMPLE

MUNICIPALITY: MUNICIPAL DISTRICT OF FOOTHILLS NO. 31

REFERENCE NUMBER: 021 407 134

REGISTRATION	DATE (Y-M-D)	DOCUMENT TYPE	REGISTERED OWNER (S)	VALUE	CONSIDERATION
031 277 098	2003-08-19	TRANSFER OF LAND		\$20,000	NOMINAL

OWNERS

STRATHCONA-TWEEDSMUIR SCHOOL FOUNDATION.  
OF 4500, 855 2 ST SW  
CALGARY  
ALBERTA T2P4K7

ENCUMBRANCES, LIENS & INTERESTS

REGISTRATION NUMBER	DATE (Y-M-D)	PARTICULARS
1741LE	1971-09-24	UTILITY RIGHT OF WAY GRANTEE - CANADIAN WESTERN NATURAL GAS COMPANY LIMITED. AS TO PORTION OR PLAN: 8223JK "20 FT. STRIP "

\*\*\* END OF TITLE - 031 277 098 TOTAL INSTRUMENTS: 1 \*\*\*

USER ID : EN0091  
REQUEST ID: R0710773  
CUST. REF.: 13648

LAND TITLE SEARCH

DATE: 2003-09-05  
PAGE: 11

TITLE NUMBER  
021 407 114

LINC SHORT LEGAL  
0017 298 035 7883JK;1

LEGAL DESCRIPTION

PLAN 7883JK  
THOSE PORTIONS OF BLOCK ONE (1)  
WHICH LIE INSIDE THE NORTH EAST QUARTER OF SECTION ELEVEN (11), THE  
SOUTH EAST QUARTER OF SECTION FOURTEEN (14) AND THE INTERVENING  
ROAD ALLOWANCE IN TOWNSHIP TWENTY-ONE (21), RANGE ONE (1), WEST OF  
THE FIFTH MERIDIAN, CONTAINING:  
QUARTER SECTION ACRES MORE OR LESS  
N.E. OF 11 69.18  
S.E. OF 14 67.15  
ROAD ALLOWANCE 3.81  
EXCEPTING THEREOUT ALL MINES AND MINERALS

A.T.S. REFERENCE: 5;1;21;11;NE  
A.T.S. REFERENCE: 5;1;21;14;SE

ESTATE: FEE SIMPLE

MUNICIPALITY: MUNICIPAL DISTRICT OF FOOTHILLS NO. 31

REFERENCE NUMBER: 170F121

REGISTRATION	DATE(Y-M-D)	DOCUMENT TYPE	REGISTERED OWNER(S)	VALUE	CONSIDERATION
021 407 114	2002-11-19	TRANSFER OF LAND		\$25,500,000	NOMINAL

OWNERS

STRATHCONA-TWEEDSMUIR SCHOOL FOUNDATION.  
OF 4500, 855 2 ST SW  
CALGARY  
ALBERTA T2P4K7

ENCUMBRANCES, LIENS & INTERESTS

REGISTRATION NUMBER	DATE (Y-M-D)	PARTICULARS
411E	1971-09-24	UTILITY RIGHT OF WAY GRANTEE - CANADIAN WESTERN NATURAL GAS COMPANY LIMITED. AS TO PORTION OR PLAN: 8223JK "20 FOOT STRIP "
891 144 843	1989-07-27	UTILITY RIGHT OF WAY GRANTEE - CANADIAN WESTERN NATURAL GAS COMPANY LIMITED.
981 009 798	1998-01-09	EASEMENT AFFECTED PLAN: 9810074 OVER SE 14-21-1-W5M FOR BENEFIT OF PORTIONS OF BLOCK 1 ON PLAN 7883JK

continued...

USER ID : EN0091  
REQUEST ID: R0710773  
CUST. REF.: 13648

LAND TITLE SEARCH

DATE: 2003-09-05  
PAGE: 12

81 028 986 1998-01-27 CAVEAT  
RE : EASEMENT  
001 044 159 2000-02-16 UTILITY RIGHT OF WAY  
GRANTEE - SHAW CABLESYSTEMS COMPANY.

\*\*\* END OF TITLE - 021 407 114 TOTAL INSTRUMENTS: 5 \*\*\*

USER ID : EN0091  
REQUEST ID: R0710773  
CUST. REF.: 13648

LAND TITLE SEARCH

DATE: 2003-09-05  
PAGE: 13

TITLE NUMBER  
021 203 101

LINC SHORT LEGAL  
0027 309 376 9712573;2

LEGAL DESCRIPTION

PLAN 9712573  
BLOCK 2  
EXCEPTING THEREOUT ALL MINES AND MINERALS  
AREA: 3.26 HECTARES (8.06 ACRES) MORE OR LESS  
A.T.S. REFERENCE: 5;1;21;11;NW

ESTATE: FEE SIMPLE

MUNICIPALITY: MUNICIPAL DISTRICT OF FOOTHILLS NO. 31

REFERENCE NUMBER: 011 142 644

REGISTRATION	DATE(Y-M-D)	DOCUMENT TYPE	REGISTERED OWNER(S)	VALUE	CONSIDERATION
021 203 101	2002-06-12	TRANSFER OF LAND		\$260,000	\$260,000

OWNERS

CHINOOK VALLEY INC.,  
OF 2800, 700-9 AVE SW  
CALGARY  
ALBERTA T2P3V4

ENCUMBRANCES, LIENS & INTERESTS

REGISTRATION NUMBER	DATE (Y-M-D)	PARTICULARS
901 168 037	1990-06-27	CAVEAT RE : ACQUISITION OF LAND CAVEATOR - THE MUNICIPAL DISTRICT OF FOOTHILLS NO. 31. P. O. BOX 160, HIGH RIVER ALBERTA AGENT - HARRY RIVA CAMBRIN
1 080 770	1996-04-18	CAVEAT RE : ROADWAY CAVEATOR - THE MUNICIPAL DISTRICT OF FOOTHILLS NO. 31. BOX 5605 HIGH RIVER ALBERTA T1V1M7
971 375 112	1997-12-16	RESTRICTIVE COVENANT

\*\*\* END OF TITLE - 021 203 101 TOTAL INSTRUMENTS: 3 \*\*\*

\*\*\* END OF REPORT \*\*\*



**APPENDIX B**  
**Groundwater Feasibility Study**

#02-29

**Groundwater Feasibility Assessment  
Chinook Valley Inc  
SW-14-21-01-W5M**

Submitted to:

**Challenger Planning Group**

Prepared by:

**Groundwater Exploration & Research Ltd**  
June 2002



# Groundwater Exploration & Research<sup>LTD</sup>

Box 15

Balzac, AB. CANADA T0M 0E0

Phone (403) 226-0330: Fax (403) 226-6593: Email: nowakb@cadvision.com

---

June 27, 2002

File No: 02-58

Challenger Planning Group  
#300, 6940 Fisher Road SE  
Calgary, AB.  
T2H 0W0

Attention: Brandy Clements

**RE: Chinook Valley project: SW-14-21-01-W5M  
Groundwater Feasibility Assessment**

Enclosed find our report which addresses a groundwater feasibility assessment in the immediate area of the Chinook Valley Inc property at SW-14-21-01-W5M in the Municipal District of Foothills.

## **Background Information**

A 7 lot subdivision; including polo fields and a horse training area; plus an environmental and municipal reserve is being proposed for the 64.7 hectare [160 acre] parcel in the SW-14 quarter section. At present there is no subdivision in the SW-14 quarter section. The proposed subdivision would bring the total number of parcels in the quarter section to 7 lots.

Challenger Planning Group  
Attention: Brandy Clements  
June 27, 2002  
Page 3

This report addresses the feasibility of finding sufficient volumes of groundwater to sustain the 7 lot country residential subdivision in SW-14-21-01-W5M.

In accordance with the Water Act, a household is allowed to withdraw up to 1250 m<sup>3</sup>/year without requiring a license to divert water. Based on the maximum allocation of 1250 m<sup>3</sup>/year or 3.42 m<sup>3</sup>/day, the total water requirement for the proposed 7-lot subdivision is 23.9 m<sup>3</sup>/day [3.66 Cgpm] using a scheme of individual wells per lot. For a licenced communal well, the water requirement is 1.82 m<sup>3</sup>/day per lot [400 gpd/lot] or a total of 12.74 m<sup>3</sup>/day [ 1.95 Cgpm].

This report addresses an assessment of the groundwater feasibility of finding sufficient volumes of groundwater to sustain the proposed 7-lot subdivision. The assessment, outlined in the Alberta Environment June 27, 1994 guideline document, should evaluate the following five criteria:

- [1] the potential of one or more aquifers to provide a sufficient supply of groundwater to meet the needs of any existing development and proposed unserviced residential subdivision within a quarter section during peak demand periods and over the long term;
- [2] the extent to which each aquifer is continuous beneath the proposed development area;

Challenger Planning Group  
Attention: Brandy Clements  
June 27, 2002

- [3] the potability of each aquifer's water in its current state considering its natural quality and possible existing anthropogenic contamination;
- [4] the feasibility of treating groundwater if needed;
- [5] the susceptibility of each aquifer to potential contamination (particularly from private sewage disposal systems).

Criteria [3] and [4] are more adequately addressed once a well has been drilled and a flow test completed.

### **Geomorphic/Geologic Setting**

The land in the area of the SW-14 quarter section occupies an east sloping terrain on the west arm of Wilson Coulee. The elevation change across the SW-14 quarter section is up to 20 meters [Priddis 82 J/16 1:50,000 topographic map sheet] based on contour interval spacing; and 60 meters within a block of nine quarter sections.

Challenger Planning Group  
Attention: Brandy Clements  
June 27, 2002  
Page 5

The bedrock in the area [Hamilton, Price & Langenberg, 1999: Geologic Map of Alberta; 1:1,000,000] is mapped as the Porcupine Hills Formation. The Porcupine Hills Formation consists of pale grey, thick bedded, cherty, calcareous sandstone; and pale grey calcareous mudstone of non-marine origin.

Borneuf [1980: Hydrogeology of the Kananaskis Lake area, Alberta; Alberta Research Council, Report 79-4] maps the area as having a groundwater potential of 655 to 3273 m<sup>3</sup>/day [100-500 Cgpm]. The regional groundwater flow is toward the northeast. The total annual precipitation in the area is 51 to 63 cm.

### Pertinent Regulations

Country residential subdivision and groundwater supply is regulated by Section 23(3) of the Water Act and stated as follows:

"If, after this Act comes into force, a subdivision of land of a type or class of subdivision specified in the regulations is approved under the Municipal Government Act, a person residing within that subdivision on a parcel of land that adjoins or is above a source of water described in section 21 has the right to commence and continue the diversion of water under section 21 only if

- (a) a report certified by a professional engineer, professional geologist or professional geophysicist, as defined in the Engineering, Geological and Geophysical Professions Act, was submitted to the subdivision authority as part of the application for the subdivision under the Municipal Government Act, and the report states that the diversion of 1250 cubic meters of water per year for household purposes under section 21 for each of the households within the subdivision will not interfere with any household users, licensees or traditional agriculture users who exist when the subdivision is approved, and
- (b) the diversion of water for each of the households within the subdivision under section 21 is not inconsistent with an applicable approved water management plan.

Water Regulation [AR 205/98]

- 9(1) Subject to subsection (2), a type of subdivision of land for the purposes of section 23(3) of the Act is a subdivision that results in 6 or more parcels in a quarter section or in a river lot.

In essence, Section 23(3) of the Water Act asks two basic questions:

- [a] Is there sufficient water to satisfy the maximum requirement of 1250 m<sup>3</sup>/year for each lot in the proposed subdivision?
- [b] Will the allocated volume of water per lot result in a significant adverse effect on neighbouring wells and licensed users existing at the time of subdivision application?

### Groundwater Well Data

A survey of groundwater well data in SW-14 and the surrounding 8 quarter sections of land was undertaken utilizing available information from Alberta Environmental Protection's groundwater database file. A total of 25 well records were available for review, including 1 well record from the SW-14 quarter section. A summary of available water well information is summarized in Table 1, appended to this report.

- [1] Well depths vary significantly from 15.9 to 140.2 meters over the nine quarter sections. Within the SW-14 quarter, the single well depth was 44.8 meters. The variability in well depth exceeds the topographic relief across the site, indicating that the water-bearing zones are not continuous across the immediate area.
  
- [2] Preliminary flow estimates vary from 1.6 to 163.4 m<sup>3</sup>/day over the regional nine-block section; and 98.2 m<sup>3</sup>/day for the single well in the SW-14 quarter section.



- [3] The variability in well depth implies that water-bearing zones are multi-story through-out the geologic section. The "layer-cake" hydro-stratigraphic geology can be summarized based on 15 meter depth increments using either the bottom of the perforated zone or the total depth of the well. The relationship between depth of completion and flow estimates are tabulated as follows:

Depth Increment (m)	Number of Wells	Flow Estimate (m <sup>3</sup> /day)
15-30	7	40.7
30-45	5	79.5
45-60	0	
60-75	4	34.8
75-90	5	23.4
90-105	1	3.3

- [4] The above data indicates that the majority of water wells are completed over a depth range of 15 to 45 meters; although a second cluster exists in the 60 to 90 meter depth range. Based on layer-cake hydro-stratigraphic geology, the block of nine-quarter sections has a cumulative production potential of 120.2 m<sup>3</sup>/day per quarter section, over the 15 to 45 meter depth interval.

- [5] It was indicated that there was no existing subdivision in the SW-14 quarter section with the intent to create 7 lots. The Water Act, under section 21(2) allocates a maximum of 3.42 m<sup>3</sup>/day [753 Cgpd/lot] to each existing and proposed parcel of land for household use. The total groundwater requirement is therefore 23.9 m<sup>3</sup>/day [7 parcels x 3.42 m<sup>3</sup>/day] which is less than the total cumulative production potential of 120.2 m<sup>3</sup>/day per quarter section within the 15 to 45 meter depth zone. Theoretically, there are sufficient water reserves to service the 7-lot subdivision.

It is recognized that the short term tests given on the water well records may not be indicative of longer term pump tests and sustainable flow rates. However, site-specific wells and flow testing will be required in order to substantiate adequate groundwater reserves.

[6] The water well data was also reviewed to determine if a drop in regional groundwater table was evident with increased country residential subdivision. The geometric mean non-pumping water level data, for the block of nine quarter sections, are tabulated as follows:

Decade	Number of Wells	Non-Pumping Water Level (m)	gm Well Depth (m)
1960's	2	25.9	47.1
1970's	1		55.5
1980's	4	17.2	46.3
1990's	19	23.7	56.0

There is no evidence for any substantive decline in regional water level since at least the 1960's. The bulk of country residential subdivision occurred in the 1990's and the non-pumping water level is similar to that observed in the 1960's.

- [3] The variability in well depth implies that water-bearing zones are multi-story through-out the geologic section. The "layer-cake" hydro-stratigraphic geology can be summarized based on 15 meter depth increments using either the bottom of the perforated zone or the total depth of the well. The relationship between depth of completion and flow estimates are tabulated as follows:

Depth Increment (m)	Number of Wells	Flow Estimate (m <sup>3</sup> /day)
15-30	7	40.7
30-45	5	79.5
45-60	0	
60-75	4	34.8
75-90	5	23.4
90-105	1	3.3

- [4] The above data indicates that the majority of water wells are completed over a depth range of 15 to 45 meters; although a second cluster exists in the 60 to 90 meter depth range. Based on layer-cake hydro-stratigraphic geology, the block of nine-quarter sections has a cumulative production potential of 120.2 m<sup>3</sup>/day per quarter section, over the 15 to 45 meter depth interval.

- [5] It was indicated that there was no existing subdivision in the SW-14 quarter section with the intent to create 7 lots. The Water Act, under section 21(2) allocates a maximum of 3.42 m<sup>3</sup>/day [753 Cgpd/lot] to each existing and proposed parcel of land for household use. The total groundwater requirement is therefore 23.9 m<sup>3</sup>/day [7 parcels x 3.42 m<sup>3</sup>/day] which is less than the total cumulative production potential of 120.2 m<sup>3</sup>/day per quarter section within the 15 to 45 meter depth zone. Theoretically, there are sufficient water reserves to service the 7-lot subdivision.

It is recognized that the short term tests given on the water well records may not be indicative of longer term pump tests and sustainable flow rates. However, site-specific wells and flow testing will be required in order to substantiate adequate groundwater reserves.

[6] The water well data was also reviewed to determine if a drop in regional groundwater table was evident with increased country residential subdivision. The geometric mean non-pumping water level data, for the block of nine quarter sections, are tabulated as follows:

Decade	Number of Wells	Non-Pumping Water Level (m)	gm Well Depth (m)
1960's	2	25.9	47.1
1970's	1		55.5
1980's	4	17.2	46.3
1990's	19	23.7	56.0

There is no evidence for any substantive decline in regional water level since at least the 1960's. The bulk of country residential subdivision occurred in the 1990's and the non-pumping water level is similar to that observed in the 1960's.

Based on the evaluation criteria [AEP; June 27, 1994], there exists more than one water-bearing zone; and the zones are not continuous beneath the quarter section. This conclusion is based on the variability in well depth, completion interval and preliminary flow rate estimates.

The single water well record in the SW-14 quarter section indicates an overburden thickness of 12.2 meters. When the overburden thickness exceeds 3 meters, this depth of overburden is generally sufficient to accommodate septic field disposal systems. In accordance with subdivision regulations, site-specific percolation tests should be undertaken to confirm the suitability of the overburden material for septic field disposal.

## Summary of Findings

Based on a feasibility assessment of existing water well information and geologic information, the following conclusions have been drawn:

- [1] There is currently no subdivision in the SW-14 quarter section. The proposed 7-lot subdivision would bring the total number of parcels to 7 and a total water requirement to 23.9 m<sup>3</sup>/day [7 lots x 3.42 m<sup>3</sup>/day per lot] for individual wells; or 12.7 m<sup>3</sup>/day [7 lots x 1.82 m<sup>3</sup>/day] for a communal well system.
- [2] Based on existing water well flow test information within a block of nine quarter sections, there is a cumulative groundwater potential of 120.2 m<sup>3</sup>/day per quarter section within the 15 to 45 meter depth interval. The additional water requirement for the proposed 7-lot subdivision, is less than the cumulative groundwater potential per quarter section. Theoretically, there exists sufficient groundwater reserves to serve the existing and proposed parcels of land in the SW-14 quarter section based on existing information.
- [3] The groundwater supply for the proposed 7-lot country residential subdivision can be obtained from wells completed within varying depth intervals from 15 to 45 meters; and probably up to 90 meters.



Challenger Planning Group  
Attention: Brandy Clements  
June 27, 2002  
Page 13

## Closure

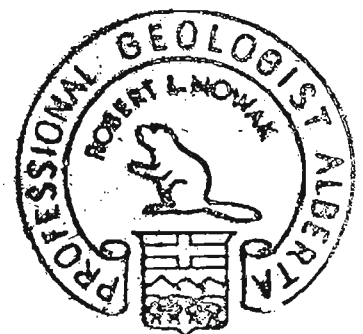
If you have any questions or comments regarding the assumptions and conclusions drawn in this groundwater feasibility assessment, contact the undersigned at your convenience. It should be noted that the assessment of potential groundwater availability is not a guarantee but rather an indication of the probability of securing a sustainable groundwater supply. Site-specific well testing is required to confirm an adequate groundwater supply. It is necessary to drill and flow test a well on the proposed new lot(s) to prove the availability of water in accordance with the Water Act.

Thanking you for the opportunity to have been of service, we remain,

Respectfully yours,  
**Groundwater Exploration & Research Ltd**

*Bob Nowak*

Bob Nowak; Ph.D., P.Geol.  
Groundwater Geologist



<b>PERMIT TO PRACTICE</b> Groundwater Exploration & Research Ltd. Signature <u>B. Nowak</u> Date <u>Jul 3/02</u> <b>PERMIT NUMBER: P 3471</b> The Association of Professional Engineers, Geologists and Geophysicists of Alberta
--

# Appendix

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**Table 1**  
**Summary of Groundwater Well Data**

Location	Landowner	Date Drilled	Td/Npwl (ft)	Flow Estimate	Completion Interval (ft)
TP21, R01					
SW-14	Hector	Oct 69	147/120	15 Cgpm/1 hr	107 - 147
SW-14	Hector	Oct 69	147/na	na	107 - 147
NW-14	Watson	Jun 99	138/63.7	25 Cgpm/2 hrs	90 - 130
SE-14	Strathcona Tweedsmuir School	Feb 70	182/na	na	open hole 90 - 182
SE-14	Strathcona Tweedsmuir School	Apr 83	250/120	20 Cgpm/30 hrs	na
SE-14	Strathcona Tweedsmuir School	Jan 83	270/70	10 Cgpm/38 hrs	70 - 270
SE-14	Tumbull	Jul 95	150/115	4 Cgpm/4 hrs	110 - 150
SE-14	Tumbull (abandoned)	Jun 95	340/200	<0.5 Cgpm/60 hrs	na
SE-14	Tumbull (abandoned)	Jun 95	460/200	<0.5 Cgpm/30 hrs	na
SE-14	Tumbull (abandoned)	Jun 95	300/200	<0.5 Cgpm/45 hrs	na
SE-14	Schrader (abandoned)	Jan 96	420/298	<0.25 Cgpm/0.4 hrs	na
SE-14	Triangle Bar Farms	Oct 96	250/102.8	4 Cgpm/4 hrs	150 - 250
SE-14	Triangle Bar Farms (abandoned)	Sep 96	375/150	<1.0 Cgpm/0.4 hrs	na
SE-14	Triangle Bar Farms (abandoned)	Sep 96	280/140	<1 Cgpm/0.3 hrs	na
SE-14	Triangle Bar Farms (abandoned)	Oct 96	240/170	<1 Cgpm/0.3 hrs	na
SE-14	Triangle Bar Farms	Mar 97	76/21.5	4 Cgpm/4 hrs	40 - 70
SE-14	Triangle Bar Farms	Mar 98	260/147.4	7.7 Cgpm/2 hrs	110 - 250
SE-14	Strathcona Tweedsmuir School	Feb 90	220/85	10 Cgpm/4 hrs	160 - 220
SE-14	Hodge	Aug 69	140/60	16 Cgpm/3 hrs	na
00-10	Calgary Polo Club	Feb 92	255/135	15 Cgpm/3 hrs	195 - 255
NW-11	Tumbull	Jun 95	52/4.8	4 Cgpm/4 hrs	32 - 52
NW-11	Triangle Bar Farms	Oct 97	141/64.6	11 Cgpm/2 hrs	100 - 135
NE-15	Podeski (abandoned)	Oct 89	120/na	na	na
NE-15	Podesky	Dec 92	93/24	10 Cgpm/1.3 hrs	73 - 93
NE-15	Podesky	Dec 92	90/23	10 Cgpm/1 hr	70 - 90
NE-15	Podesky	Dec 92	60/21	16 Cgpm/1.3 hrs	40 - 60


**Table 1 (continued)**  
**Summary of Groundwater Well Data**

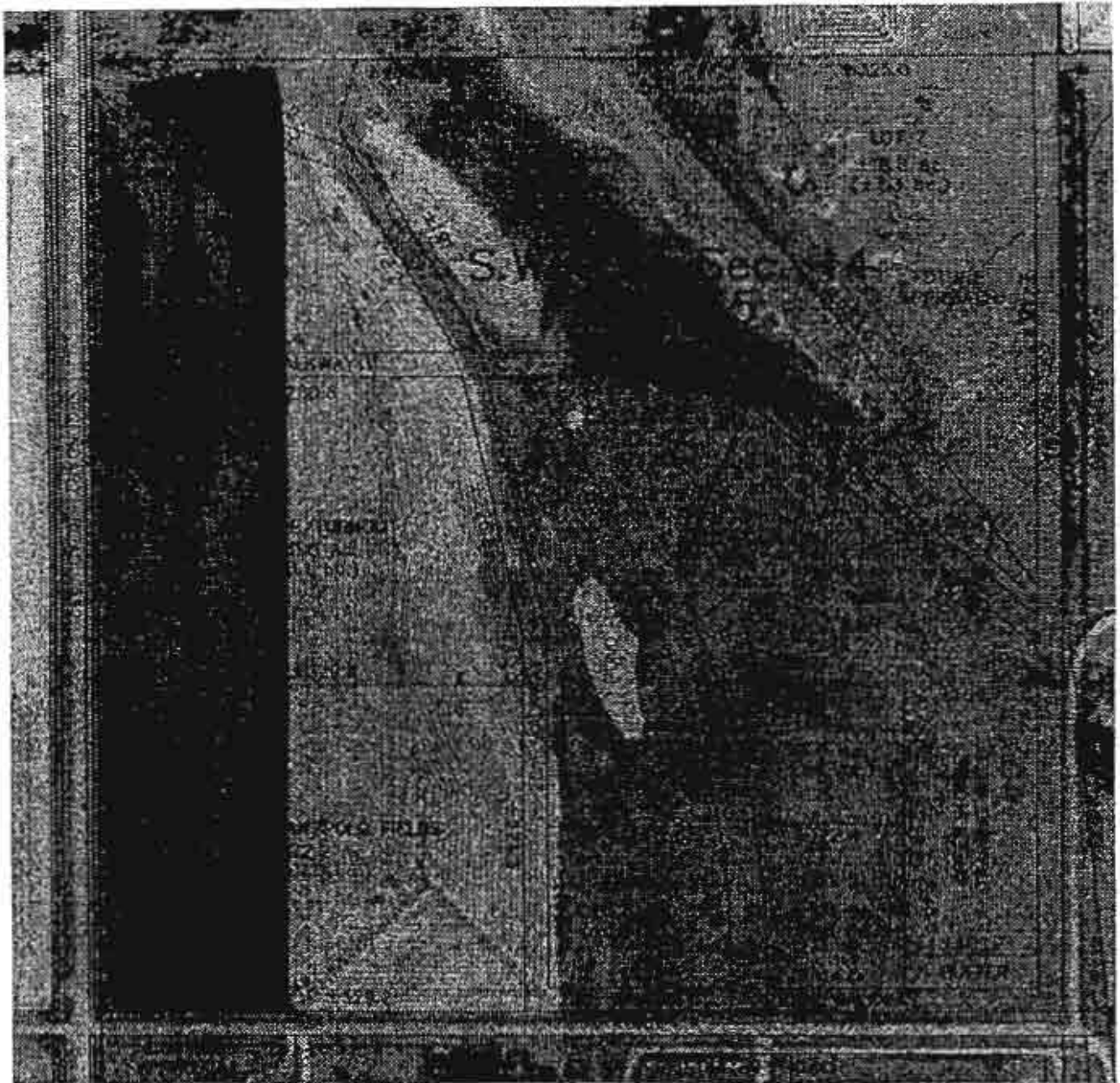
Location	Landowner	Date Drilled	Td/Npwl (ft)	Flow Estimate	Completion Interval (ft)
NE-15	Podeski (abandoned)	Oct 89	100/40	2 Cgpm/2 hrs	na
SE-15	Podeski	Aug 88	100/30	7 Cgpm/3 hrs	60 - 100
SE-15	Strathcona Tweedsmuir School	Dec 69	152/na	na	na
SE-15	Strathcona Tweedsmuir School	Dec 69	192/na	na	na
na = not available					

**WATER WELL DRILLING REPORT**

THIS DATA MAY NOT BE FULLY CHECKED; THE PROVINCE DISCLAIMS ALL RESPONSIBILITY FOR ITS ACCURACY:

WELL I.D. 378383  
Page 1 of 1

<b>CONTRACTOR:</b> NAME: WEBSTER DR LG ADDRESS: LICENCE NO.:                  JOURNEYMAN NO.:		<b>WELL OWNER:</b> NAME: HECTOR, SAM ADDRESS: CALGARY POSTAL CODE:		<b>WELL LOCATION:</b> ICA: 04 <table border="1"> <tr> <td>~ OR LSI</td> <td>SEC</td> <td>TWP</td> <td>RGE</td> <td>W. MER</td> </tr> <tr> <td>SW</td> <td>14</td> <td>021</td> <td>01</td> <td>W5</td> </tr> </table> LOCATION VERIFICATION METHOD: NOT VERIFIED LOCATION IN QUARTER:  LOT:                  BLOCK:                  PLAN: WELL ELEV:                  Feet          How obtain: NOT OBTAIN					~ OR LSI	SEC	TWP	RGE	W. MER	SW	14	021	01	W5
~ OR LSI	SEC	TWP	RGE	W. MER														
SW	14	021	01	W5														
<b>LITHO:</b> Depth (Feet):                  Lithology:		<b>DRILLING METHOD:</b> CABLE TOOL		<b>PRODUCTION TEST:</b> TEST DATE: October 1, 1969                  START TIME: 11:00 Elapsed Time in                  Depth to Water                  Depth to Water Min:Sec                  Level During Pumping                  Level During Recovery														
Ground to: 		<b>TYPE OF WORK:</b> NEW WELL																
2          Loam		<b>FLOWING WELL:</b> No <b>RATE:</b>																
10        Clay		GAS PRESENT: No                  OIL PRESENT: No																
20        Clay & Boulders		<b>DATE OF ABANDONMENT:</b>																
35        Sandy Clay & Gravel		<b>MATERIAL USED:</b>																
40        Clay & Gravel		<b>PROPOSED USE:</b> UNKNOWN																
84        Sandy Shale		<b>WELL COMPLETION DATA:</b>																
90        Brown Shale		WELL FINISH: SLOTTED & OPEN HOLE																
103      Blue Soft Shale		TOTAL HOLE DEPTH: 147          Feet																
123      Hard Sandstone		CASING TYPE: STEEL																
139      Blue Shale		SIZE OD: 8.63          Inch          WALL THICKNESS:                  Inch																
145      Sandstone		BOTTOM AT: 82          Feet																
147      Shale		<b>PERFORATED CASING/LINER:</b>																
		TYPE: STEEL																
		SIZE OD: 5.56          Inch																
		WALL THICKNESS:                  Inch																
		TOP AT: 0          Feet          BOTTOM AT: 147          Feet																
		PERFORATED FROM: 107          Feet TO: 147          Feet																
		Feet TO:                  Feet																
		Feet TO:                  Feet																
		SIZE OF PERFORATIONS:                  Inch X                  Inch																
		HOW PERFORATED:																
		SEAL TYPE: DRIVEN																
		INTERVAL TOP: 0          Feet TO:                  Feet																
		GEOPHYSICAL LOG TAKEN:																
		RETAINED ON FILE:																
		SCREEN:																
		MATERIAL:																
		SIZE ID (CLEAR):                  Inch          SLOT SIZE:                  Inch																
		INTERVAL TOP:                  Feet TO:                  Feet																
		Feet TO:                  Feet																
		INSTALLATION METHOD:																
		TOP FITTINGS:																
		BOTTOM FITTINGS:																
		PACK TYPE:																
		GRAIN SIZE:                  AMOUNT:																
		FITLESS ADAPTER TYPE:																
		DROP PIPE TYPE:                  LENGTH:                  Feet																
		DIAMETER:                  Inch																
		ADDITIONAL PUMP INFORMATION:																
<b>STARTED:</b>		<b>COMMENTS:</b>																
<b>COMPLETED:</b> October 1, 1969		(Maximum of 9 lines printed)																
<b>RECEIVED:</b> December 11, 1969																		
ADDITIONAL TEST AND/OR PUMP DATA:																		
CHEMISTRIES TAKEN          HELD:		DOCUMENTS HELD: 1																
WELL OWNER'S ANTICIPATED WATER REQUIREMENTS PER DAY:																		



**AREA CONCEPT PLAN**

SHOWING

**SUBDIVISION OF 7 LOTS, MUNICIPAL  
RESERVE & ENVIRONMENTAL RESERVES  
FROM**

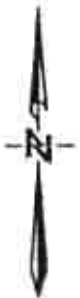
**S.W. 1/4 Sec. 14, Twp. 21, Rge. 1, W 5 M  
MUNICIPAL DISTRICT OF FOOTHILLS No. 31**

NOTES:

1. DIMENSIONS SHOWN ARE IN METRES AND DECIMALS THEREOF.
2. SUBJECT AREA BOUNDED THUS \_\_\_\_\_  
AND CONTAINS ± \_\_\_\_ ha. (± \_\_\_\_ Ac.)

**CLIENT(S):  
CHINOOK VALLEY INC.**

**SCALE: 1:5000**



FILE: 02-13648-SKT  
DWG. BY: BAR  
DATE: FEBRUARY 4, 2002  
CHK. BY: MB/BC

**CHALLENGER**  
ENGINEERS LTD.  
CALGARY - ALBERTA  
(403) 253-8101 FAX 253-1885

**APPENDIX C**  
**Percolation Study**





2002 07 18

22-088-02-5

Challenger Geomatics Ltd.  
#300, 6940 Fisher Road SE  
Calgary, Alberta  
T2H 0W3

Attention: Ms. Brandy Clements

Re:   Shallow Subsurface Conditions  
      Chinook Valley  
      SW ¼, Sec 14, Twp 21, Rge 1, W5M

Almor Testing Services Ltd. was retained to complete a Site Investigation, in accordance with MD of Foothills and Alberta Environmental Protection "Interim Guidelines for the Evaluation of Water Table Conditions and Soil Percolation Rates for Unserviced Residential Subdivision", at the above referenced project. No consideration has been given to specific foundation subsoil conditions, within building envelopes. The proposed six (6) residential lots to be subdivided are identified on the attached Site Plan.

The field investigation for the water table and percolation rate testing was performed on June 5, 6 and June 12, 13, 2002. The percolation test holes and groundwater monitoring test holes, located by our personnel, were advanced by a mobile auger drill rig and/or a rubber tired backhoe. Overland drainage of the site is predominately directed to low elevation areas around the perimeter of Lots 1 and 2 and into the ER. Surface wet moisture conditions were present in these areas outside of the higher development sites.

## 1.0 SOIL CONDITIONS

The soil conditions at the septic tile field locations (excluding the surficial topsoil and lesser "browns" horizon), consist predominately of a light olive silt, with some gravel and sand to gravelly and sandy, with a trace to some clay. The soils were in a damp to moist condition and were of a stiff consistency. Natural moisture contents ranged from 3.3% to 15.7% at the 0.9m depth.

## 2.0 SEPTIC FIELD - PERCOLATION RATE TESTS

A minimum of two (2) and a maximum of six (6) percolation test holes were advanced at alternate septic field locations in each of the six (6) lots, to a depth of approximately 0.9m below the depth of native topsoil and the "browns" horizon. Loose materials from the bottom and sides of the test holes were cleaned, prior to filling with water for a minimum depth of 0.45m (18 inches). The water was allowed to soak for a minimum 15 to 30 hour period. The holes were recharged with water and the percolation rates were observed and recorded on June 6 and 13, 2002. The results are presented in the attached Table 1.

.../2

### 3.0 GROUNDWATER CONDITIONS

Free water or saturated soil conditions were observed in five (5) of the six (6) lots during test hole or pit advancement. Hand-slotted, 30mm PVC standpipe were installed in each test hole, for review of the near surface water table. The standpipe were installed to depths ranging from 2.9m to 3.3m below the existing ground surface. Wetted bentonite granules were placed from the ground surface to a depth of 0.3m, to limit surface water infiltration. The standpipe were monitored one week subsequent to installation and the results are presented in Table 2.

TABLE 2  
GROUNDWATER CONDITIONS

----- Depth Below Existing Ground Surface (m) -----

Test Hole No.	Depth of Standpipe	At Completion June 5/02	June 13/02	June 20/02
1	2.90	2.6	1.26	1.13
1a	3.10	--	2.60	1.97
TP 2	2.90	--	2.60	1.72
TP 3	2.90	--	2.80	1.96
4	3.20	dry	1.99	2.44
5	3.10	dry	dry	dry
6	3.20	dry	2.99	2.17

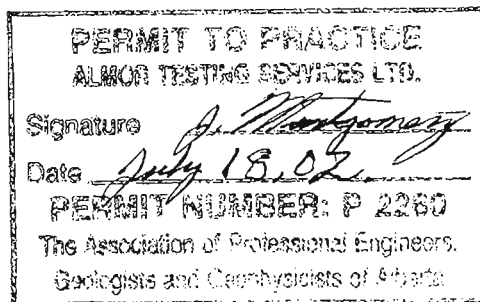
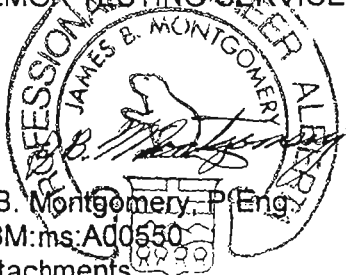
Typically, highest groundwater conditions are experienced during the months of June to August, as they are periods of groundwater table recharge and therefore seasonal fluctuation is then taken into consideration. It is apparent that the near surface water table will be below a vertical distance of 0.9m from the weeping lateral trench bottom, as specified by Alberta Environmental Protection guidelines for location of disposal fields, in this time period.

### 4.0 CLOSING

In review, the percolation rates were recorded to be between 2 min/cm and 23.6 min/cm and the shallow groundwater table is below a minimum 0.9m distance from the weeping lateral trench bottom (1.8m below grade). Therefore, we recommend that percolation test hole locations in each of the six (6) lots are suitable for septic tile field disposal systems. The suitable locations are 1A, 1C, 2C, 2D, 2E, 2F, 3A, 3B, 4A, 4B, 5A, 5B and 6A.

We trust this meets with your present requirements.

Respectfully submitted,  
ALMOR TESTING SERVICES LTD.



**TABLE 1  
PERCOLATION TEST RESULTS**

**Percolation Hole #1A**

**Location:** Refer to Site Plan

**Soil Type:** SILT and GRAVEL, some sand, trace clay

Time of Reading	min/cm
20 min.	9.1
40 min.	8.7
Hour 1	10.0
80 min.	10.0
100 min.	10.0
Hour 2	9.5
	-----
Average	9.8

**Percolation Hole #1B**

**Location:** Refer to Site Plan

**Soil Type:** SILT and GRAVEL, some sand to sandy

Time of Reading	min/cm
20 min.	25.0
40 min.	66.7
Hour 1	33.3
80 min.	40.0
100 min.	40.0
Hour 2	40.0
	-----
Average	40.0

**Percolation Hole #1C**

**Location:** Refer to Site Plan

**Soil Type:** SILT (till), some gravel to gravelly, trace to some sand

Time of Reading	min/cm
20 min.	11.8
40 min.	13.3
Hour 1	11.8
80 min.	11.8
100 min.	11.1
Hour 2	12.5
	-----
Average	12.5

**TABLE 1  
PERCOLATION TEST RESULTS**

**Percolation Hole #2A**

**Location:** Refer to Site Plan

**Soil Type:** SILT and GRAVEL, some sand, trace clay

Time of Reading	min/cm
20 min.	20.0
40 min.	25.0
Hour 1	28.6
80 min.	33.3
100 min.	25.0
Hour 2	28.6
	-----
Average	28.6

**Percolation Hole #2B**

**Location:** Refer to Site Plan

**Soil Type:** SILT and GRAVEL, some sand, trace clay

Time of Reading	min/cm
20 min.	18.1
40 min.	25.0
Hour 1	28.6
80 min.	25.0
100 min.	33.0
Hour 2	40.0
	-----
Average	40.0

**Percolation Hole #2C**

**Location:** Refer to Site Plan

**Soil Type:** Gravelly SILT (till), some sand, trace clay

Time of Reading	min/cm
20 min.	15.4
40 min.	11.8
Hour 1	16.7
80 min.	14.3
100 min.	16.7
Hour 2	15.4
	-----
Average	15.6

## GROUNDWATER CONDITIONS

Water or saturated soil conditions were observed in five (5) of the six (6) lots during test hole advancement. Hand-slotted, 30mm PVC standpipe were installed in each test hole, for the purpose of monitoring the near surface water table. The standpipe were installed to depths ranging from 2.9m to 3.2m below the existing ground surface. Wetted bentonite granules were placed from the ground surface to a depth of 0.3m, to limit surface water infiltration. The standpipe were monitored one week subsequent to installation and the results are presented in Table 2.

**TABLE 2**  
**GROUNDWATER CONDITIONS**

----- Depth Below Existing Ground Surface (m) -----

Test Hole No.	Depth of Standpipe	At Completion June 5/02	June 13/02	June 20/02
1	2.90	2.6	1.26	1.13
1a	3.10	--	2.60	1.97
TP 2	2.90	--	2.60	1.72
TP 3	2.90	--	2.80	1.96
4	3.20	dry	1.99	2.44
5	3.10	dry	dry	dry
6	3.20	dry	2.99	2.17

Typically, highest groundwater conditions are experienced during the months of June to August, which are periods of groundwater table recharge and therefore seasonal fluctuation is then taken into consideration. It is apparent that the near surface water table will be below a vertical distance of 0.9m from the weeping lateral trench bottom, as specified by Alberta Environmental Protection Guidelines for location of disposal fields, in this time period.

## CLOSING

In review, the percolation rates were recorded to be between 2 min/cm and 23.6 min/cm and the low groundwater table is below a minimum 0.9m distance from the weeping lateral trench bottom (1.8m below grade). Therefore, we recommend that percolation test hole locations in each of the six (6) lots are suitable for septic tile field disposal systems. The suitable locations are 1A, 2A, 3A, 4A, 5A, 6A, 1B, 2B, 3B, 4B, 5B, 6B, 1C, 2C, 3C, 4C, 5C, 6C, 1D, 2D, 3D, 4D, 5D, 6D, 1E, 2E, 3E, 4E, 5E, 6E, 1F, 2F, 3F, 4F, 5F, 6F, 1G, 2G, 3G, 4G, 5G, 6G, 1H, 2H, 3H, 4H, 5H, 6H, 1I, 2I, 3I, 4I, 5I, 6I, 1J, 2J, 3J, 4J, 5J, 6J, 1K, 2K, 3K, 4K, 5K, 6K, 1L, 2L, 3L, 4L, 5L, 6L, 1M, 2M, 3M, 4M, 5M, 6M, 1N, 2N, 3N, 4N, 5N, 6N, 1O, 2O, 3O, 4O, 5O, 6O, 1P, 2P, 3P, 4P, 5P, 6P, 1Q, 2Q, 3Q, 4Q, 5Q, 6Q, 1R, 2R, 3R, 4R, 5R, 6R, 1S, 2S, 3S, 4S, 5S, 6S, 1T, 2T, 3T, 4T, 5T, 6T, 1U, 2U, 3U, 4U, 5U, 6U, 1V, 2V, 3V, 4V, 5V, 6V, 1W, 2W, 3W, 4W, 5W, 6W, 1X, 2X, 3X, 4X, 5X, 6X, 1Y, 2Y, 3Y, 4Y, 5Y, 6Y, 1Z, 2Z, 3Z, 4Z, 5Z, 6Z.

**TABLE 1  
PERCOLATION TEST RESULTS**

**Percolation Hole #3A**

**Location:** Refer to Site Plan

**Soil Type:** SILT and GRAVEL, some sand, trace to some clay

Time of Reading	min/cm
20 min.	4.7
40 min.	8.0
Hour 1	6.1
80 min.	7.1
100 min.	6.5
Hour 2	6.9
	-----
Average	6.7

**Percolation Hole #3B**

**Location:** Refer to Site Plan

**Soil Type:** SILT and GRAVEL, some clay, trace to some sand

Time of Reading	min/cm
20 min.	3.8
40 min.	5.3
Hour 1	5.4
80 min.	4.8
100 min.	4.8
Hour 2	5.4
	-----
Average	5.1

**Percolation Hole #4A**

**Location:** Refer to Site Plan

**Soil Type:** Sandy SILT and GRAVEL, trace clay

Time of Reading	min/cm
20 min.	18.2
40 min.	18.2
Hour 1	22.2
80 min.	20.0
100 min.	20.0
Hour 2	22.2
	-----
Average	21.2

**TABLE 1  
PERCOLATION TEST RESULTS**

**Percolation Hole #4B**

**Location:** Refer to Site Plan

**Soil Type:** SILT and GRAVEL, some sand, some clay

Time of Reading	min/cm
20 min.	2.5
40 min.	2.7
Hour 1	2.7
80 min.	3.0
100 min.	2.9
Hour 2	3.0
	-----
Average	2.8

**Percolation Hole #5A**

**Location:** Refer to Site Plan

**Soil Type:** SILT, some fine sand, trace to some clay, some gravel

Time of Reading	min/cm
20 min.	2.6
40 min.	2.7
Hour 1	2.8
80 min.	3.0
100 min.	2.9
Hour 2	3.0
	-----
Average	2.8

**Percolation Hole #5B**

**Location:** Refer to Site Plan

**Soil Type:** SILT (till), some clay, trace sand, trace to some gravel

Time of Reading	min/cm
20 min.	3.2
40 min.	3.5
Hour 1	3.6
80 min.	3.6
100 min.	3.4
Hour 2	3.6
	-----
Average	3.5

TABLE 1  
PERCOLATION TEST RESULTS

**Percolation Hole #6A**

**Location:** Refer to Site Plan

**Soil Type:** SILT (till), some clay to clayey, trace sand

Time of Reading	min/cm
20 min.	2.3
40 min.	2.5
Hour 1	2.5
80 min.	2.7
100 min.	2.7
Hour 2	2.8
	-----
Average	2.6

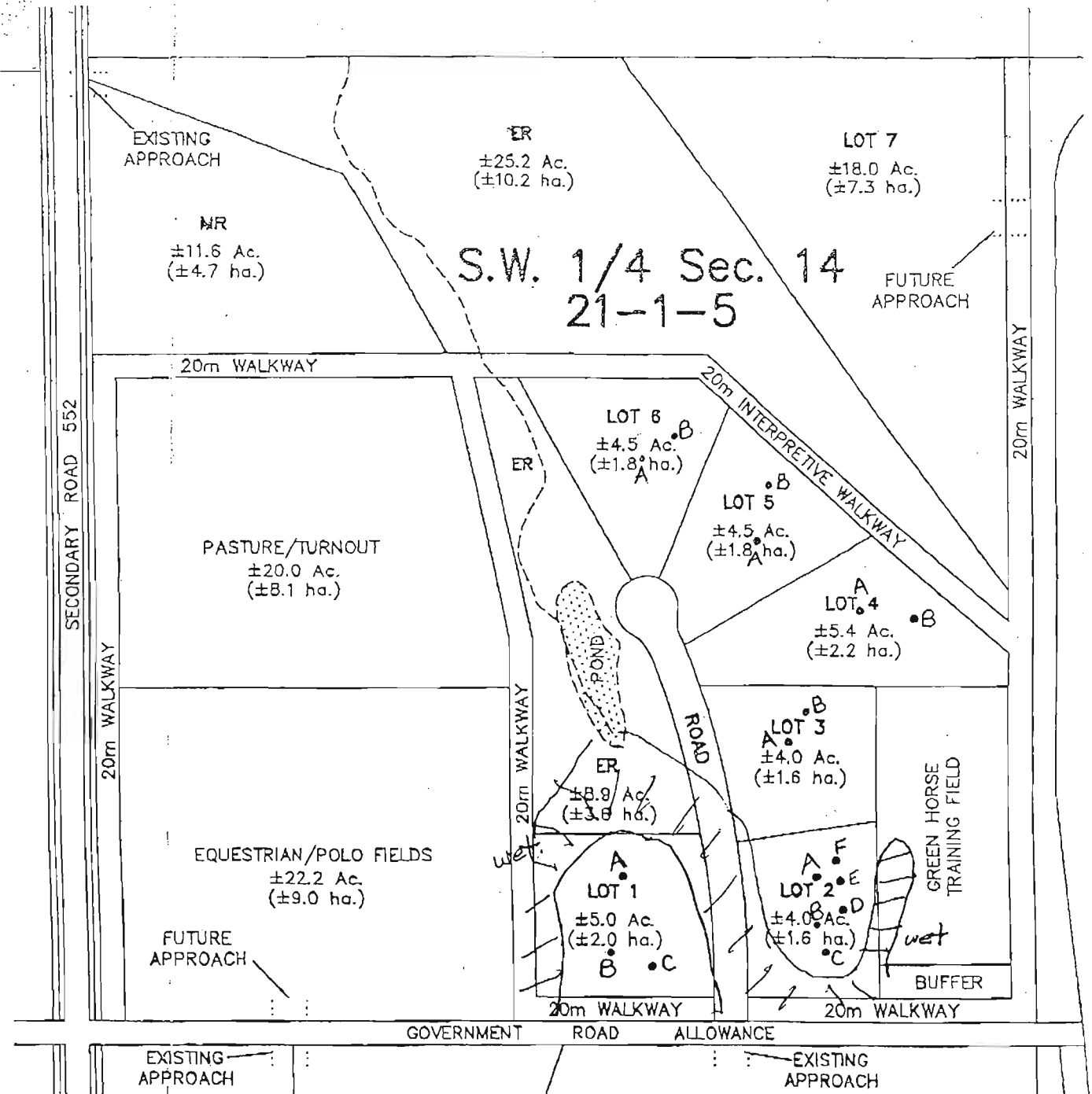
**Percolation Hole #6B**

**Location:** Refer to Site Plan

**Soil Type:** SILT (till), some clay to clayey, trace sand, trace to some gravel

Time of Reading	min/cm
20 min.	40.0
40 min.	40.0
Hour 1	33.3
80 min.	40.0
100 min.	33.3
Hour 2	33.3
	-----
Average	35.3





**AREA CONCEPT PLAN  
SHOWING  
SUBDIVISION OF 7 LOTS, MUNICIPAL  
RESERVE & ENVIRONMENTAL RESERVES  
FROM**

**S.W. 1/4 Sec. 14, Twp. 21, Rge. 1, W 5 M  
MUNICIPAL DISTRICT OF FOOTHILLS No. 31**

**NOTES:**

1. DIMENSIONS SHOWN ARE IN METRES AND DECIMALS THEREOF.
2. SUBJECT AREA BOUNDED THUS \_\_\_\_\_  
AND CONTAINS ± \_\_\_\_\_ ho. (± \_\_\_\_\_ Ac.)

**CLIENT(S):  
CHINOOK VALLEY INC.**

**SCALE: 1:5000**



**CHALLENGER**  
GEOMATICS LTD.  
CALGARY - ALBERTA  
(403) 253-8101 FAX 253-1985

FILE: 02-13848-SKT  
DWN. BY: RAR  
DATE: FEBRUARY 4, 2002  
CHK. BY: MB/BC

March 19, 2004

Challenger Geomatics  
c/o James Mazak  
300, 441 - 5 Ave. SW  
Calgary, AB T2P 2V1  
CANADA

Dear Mr. Mazak:

Re: Subdivision PTN: NE 14-21-01-W5

Please be advised that at its March 11, 2004 meeting, Council passed the following resolution:

MOVED that Council approve the Management Plan as prepared in accordance with the requirements as set forth in the Chinook Valley Inc. Area Structure Plan.

Should you require any further assistance please contact Heather Hemingway of our Planning Department.

Sincerely,  
MUNICIPAL DISTRICT OF FOOTHILLS NO.31

Judy Gordon  
Planning Coordinator

JG/tf

Mr. Chase moved that Council approve the Management Plan as prepared in accordance with the requirements as set forth in the Chinook Valley Inc. area Structure Plan.

CARRIED



**CHINOOK VALLEY INC.**  
*A member of the Chinook Valley Group*

February 19, 2004

M.D. of Foothills No. 31  
P.O. Box 5605  
High River, Alberta

Attention: Heather Hemingway

Dear Ms. Hemingway:

**Re: Area Structure Plan  
Chinook Valley Plan**

Please be advised that we have reviewed the Environmental Management Plan submitted to the M.D. of Foothills No. 31 on February 11, 2004 and are in agreement with the document. We understand the document will go to council shortly for final adoption.

Yours truly,

**CHINOOK VALLEY INC.**

Graham R. Bennett  
General Counsel

GRB/jcd



VIEWEST FOUNDATION

February 19, 2004

M.D. of Foothills No. 31  
P.O. Box 5605  
High River, Alberta

Attention: Heather Hemingway

Dear Ms. Hemingway:

**Re: Area Structure Plan  
Chinook Valley Plan**

Please be advised that we have reviewed the Environmental Management Plan submitted to the M.D. of Foothills No. 31 on February 11, 2004 and are in agreement with the document. We understand the document will go to council shortly for final adoption.

Yours truly,

**VIEWEST FOUNDATION**

A handwritten signature in black ink, appearing to read 'Graham R. Bennett'.

Graham R. Bennett  
General Counsel

GRB/jcd

Feb 23 04 08:21a



February 20, 2004

**Attention: Heather Hemingway**

M.D. of Foothills No. 31  
P.O. Box 5605  
High River, Alberta

Dear Heather:

**RE: AREA STRUCTURE PLAN**  
**Chinook Valley Inc.**

Please be advised that we have reviewed the Environmental Management Plan and are in agreement with the document. We understand the document will go to council shortly for final adoption.

Yours truly,  
CALGARY POLO CLUB

Rick Dalton  
Managing Director

RKD/nf



J. G. Smeltzer  
Direct Line: 403.298.3168  
e-mail: smeltzerj@bennettjones.ca  
Our File No: 24136

February 23, 2004

Municipal District of Foothills No. 31  
309 Macleod Tr S  
Box 5605  
High River, AB T1V 1M7

Attention: Heather Hemmingway

Dear Sirs:

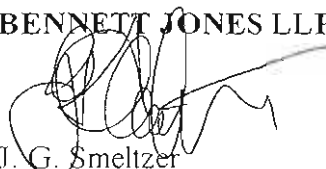
**Re: Chinook Valley Inc. Area Structure Plan - Management Plan for Environmental Protection District**

---

We act as counsel to Strathcona-Tweedsmuir School Foundation and assisted in the review of the Management Plan for Environmental Protection District. On behalf of Strathcona-Tweedsmuir School Foundation, we confirm to you that the proposed Management Plan which is attached to this letter has been reviewed by the Foundation and the Foundation is in agreement with the Plan.

Yours truly,

**BENNETT JONES LLP**

  
J. G. Smeltzer

JGS/prh  
Enclosure

cc: Graham Bennett (via fax)  
A. Smith (via fax)



Bennett Jones LLP  
 4500 Bankers Hall East  
 855 2nd Street SW  
 Calgary Alberta  
 Canada T2P 4G7  
 Tel 403 298 3100  
 Fax 403 265 7215

Tim D. Kerrigan  
 Direct Line 403.298.3314  
 e-mail: tkerrigan@bennettjones.ca

September 10, 2003

Delivered Via Facsimile

Municipal District of Foothills No 31  
 309 Macleod Tr S  
 Box 5605  
 High River, AB T1V 1M7

Attention: Coreena Carr, Planning Officer

Dear Ms. Carr:

Re: **Chinook Valley Inc. Area Structure Plan and Environmental Protection Area Land Use Redesignation re: Strathcona-Tweedsmuir School Foundation Lands**

Please be advised that we are the solicitors for Strathcona-Tweedsmuir School Foundation, the owner of those lands legally described as Plan 7883JK, Block 1 (the "School Lands"). We understand that a motion is to be put before Council redesignating a portion of the School Lands as environmental protection area. We wish to advise that we support the application on the understanding that it will be conditional upon all the affected land owners and the Municipal District of Foothills No. 31 agreeing upon a Land Management Plan.

With respect to the foregoing, please find enclosed herewith an authorization of the Strathcona-Tweedsmuir School Foundation authorizing Challenger Geomatics Ltd. to make an application for the approval of the proposed Area Structure Plan and for the redesignation of certain lands within the Area Structure Plan as environmental protection area.

The authorizations are given on the basis that the redesignation of certain lands as environmental protection area will not be given third reading without the approval of a Land Management Plan by all the affected land owners, including, without limitation, the Strathcona-Tweedsmuir School Foundation.





September 10, 2003  
Page Two

Finally, we would request, that in the future, both Jim Smeltzer and Alan Smith be notified with respect to all matters relating to the within described applications.

The contact information for Mr. Jim Smeltzer is :

Mr. James (Jim) G. Smeltzer  
Bennett Jones LLP  
4500 Bankers Hall East  
855 - 2<sup>nd</sup> Street SW  
Calgary, AB T2P 4K7

Phone: 298-3168  
Fax: 265-7219  
e-mail: smeltzerj@bennettjones.ca

The contact information for Mr. Al Smith is :

Mr. C. Alan Smith  
Aeonian Capital Corporation  
Bow Valley III  
Suite 2450, 255 - Avenue SW  
Calgary, AB

Phone: 237-7766  
Fax: 569-4075  
e-mail: asmith@aeonian.com

If you are unable to send information to both Mr. Jim Smeltzer and Mr. Al Smith, then we would request that you send the requested information to Mr. Jim Smeltzer.

Thank you very much for your assistance.

Yours truly,

**BENNETT JONES LLP**

  
Tim D. Kerrigan

TDK:ph  
Enclosure



**Revision of Chinook Valley Inc. Area Structure Plan  
Management Plan for Environmental Protection District**

**Dated: December 3, 2003**

*Thomas A. Sadler*  

---

### **Purpose of Environmental Management Plan:**

The Chinook Valley Area Structure Plan (ASP) has been prepared pursuant to the provisions of Section 633 of the Municipal Government Act and amendments thereto to protect the subject lands as designated in *Figure 1*, and the facilities located upon them, the Strathcona-Tweedsmuir School and the Calgary Polo Club, from increasing development pressures. It is the intent that the Plan Area will be restricted from further Country Residential Development not outlined by the ASP. The ASP details what development may occur within the Plan Area, and what lands shall remain agricultural. Goals and objectives of the ASP are included in the appendices to this document.

The purpose of this document is to identify what lands will be redesignated as Environmental Protection District in order to preserve and protect the natural values and drainages within the ASP lands and to establish the manner in which those lands will be administered and protected in order to preserve their natural values and to protect the intermittent drainage areas located within those lands.

### **Site Description and Use:**

The Chinook Valley Inc. ASP encompasses that portion of the W1/2 of Section 12 located to the north and west of the Canadian Pacific Railway right-of-way, the N1/2 of Section 11, and the S1/2 and NE1/4 of Section 14, all located in Township 21 - Range 1 - West of the 5<sup>th</sup> Meridian (*Figure 1*). Current land ownership is summarized in *Table 1* (see appendices). All lands remain the property of the landowners involved and this Management Plan does not confer upon or provide to any other party any rights or privileges in respect of the lands owned by a landowner not otherwise permitted or agreed to by the landowner. Topographical surface contours and directions of natural drainages are indicated on *Figure 2*.

This site is located within the Okotoks Upland Subregion of the Parkland Ecoregion. Ecologically the foothills parklands consist of aspen parkland with mixed woodland containing aspen and balsam poplars and white spruce interspersed with open rough fescue grassland areas. Wooded areas at this site are confined to the runoff draws and the ravine leading down to Sandstone Coulee. This ravine shelters a mixed riparian woodland of aspen and white spruce with a shrub under story along northern exposures and with dry open grassland areas along the south-facing slopes. This native zone is largely undisturbed and provides cover for a variety of bird and mammal species. No rare or endangered wildlife species were identified during this investigation. What is unique is the combination of elements from differing ecological zones. Thus we have biological elements of the lower montane, boreal, aspen parkland and prairie zones all located within close proximity along the deeper watercourses of the site (see Appendices for species lists).

These lands are drained by two draws from the north and northwest that combine in a steep ravine leading down into Sandstone Coulee and a portion of the Sandstone Coulee itself, tributary to the Sheep River. Under the Chinook Valley Inc. Area Structure Plan, all of the intermittent drainage area will be designated as Environmental Protection District as indicated in *Figure 1*.

A small, unlicensed, reservoir is located on Strathcona-Tweedsmuir School Foundation land and within the designated Environmental Protection District. This reservoir is utilized by the School in its Science Interpretive and Outdoor Recreation programs (including canoe and kayak instruction). From time to time and with the agreement of Strathcona-Tweedsmuir School, water from this reservoir has been used to provide livestock water and polo field irrigation for the Calgary Polo Club. The upstream tributary area of 2.88 sq.mi. would provide runoff well in excess of the approximately 89 ac.ft. of maximum available water storage in this reservoir each year.

The Environmental Protection District is protected from wastewater from the adjacent facilities so that groundwater and water in the reservoir will not be at risk of contamination. In addition, the natural vegetation preserved within the Environmental Protection District will filter run-off and eroded materials from adjacent lands. The proposed country residential lots adjacent to the Environmental Protection District comply with standard requirements and are suitable for installation of normal subsurface sewage disposal fields as indicated in the ASP. The agricultural lots proposed on the NE 14-21-01 W5M would also use a standard septic system should the lands ever have a dwelling built upon them. The remaining lands within the Plan Area will utilize the existing waste treatment systems. Waste straw and manure from the Calgary Polo Club is collected in bins and disposed of off-site from the area.

A system of multi-purpose trails through the Environmental Protection District (only portions of which are already in existence) several kilometers long (*Figure 1*) is planned. The trails already in existence are located on Strathcona-Tweedsmuir School Foundation lands and are used by students from the Strathcona-Tweedsmuir School for cross-country running and skiing. The trails to be constructed on the Chinook Valley Inc. and View West Foundation lands, in addition to the permitted and discretionary uses of the Environmental Protection District as allowed by the M.D. of Foothills No. 31 land use by-law, may be used (in addition to service and maintenance vehicles) by horses and riders, horse-drawn vehicles and pedestrians. The Strathcona-Tweedsmuir School trails might be made available for similar uses on the basis of agreements to be entered into between the landowners. These low impact land uses comply with the "Resource Protection" component for "Riparian Sensitive Zones" as suggested by Gilson and Hodge (2002).

Should it be deemed beneficial by the landowners, these trails could present an opportunity for interpretive signage where appropriate on the historical and ecological values of the area. The adjacent Sandstone Coulee and "Sandstone" was one of the source sites for Paskapoo sandstone, utilized in the early building era which made Calgary "The Sandstone City of the West", Mussieux and Nelson (1998). Ecological themes could center upon the distinctive traits of the foothills parkland and of the unique microclimates and the resultant ecological assemblages presented by riparian coulees in the parkland.

The trails are located on privately owned lands and access to the trails on the lands of a landowner will be restricted to the landowner and its invitees, unless otherwise agreed to by the landowner.

Where feasible, trails on the Chinook Valley Inc. and View West Foundation lands have been located immediately adjacent to but outside the Environmental Protection District and have or will be fenced from adjacent grazed or hayed lands with livestock and wildlife friendly rail fencing. No barbed wire fencing is allowed. Fencing will be maintained by the Chinook Valley Inc. and View West Foundation. This fencing will also exclude motorized vehicles and livestock from the Environmental Protection District.

Where the space available has been naturally restricted due to steeper slopes or rough terrain, primarily along the lower drainage downstream of the Strathcona-Tweedsmuir School access roadway, portions of the trails are located within the environmental protection designation (see Figure 1). However, the restrictions placed upon the permitted usage of the trails will ensure minimal ecological disturbance to any of this area.

### **Policy and Regulation:**

Within the designated Environmental Protection District the following policies and regulations will apply:

1. No development that contravenes Section 11.0.0 Environmental Protection District of the Municipal District of Foothills No. 31 Land Use Bylaw is permitted.
2. Cutting of trees or disturbance of native vegetation is permitted in order to remove dead or dying trees for public safety.
3. Aside from necessary service and maintenance, no access by motorized vehicles is permitted.
4. No haying or grazing of vegetation by domestic livestock is permitted.

1. No unnecessary surface disturbance of lands or drainage of wetlands is permitted.
2. No domestic livestock or dogs shall be permitted to run at large.
3. Due to the close proximity to concentrated human activities, no hunting or trapping of wildlife will be allowed.
4. No open fires or camping shall be permitted within the Environmental Protection District.
5. No littering or dumping of waste of any kind shall be permitted.
6. No spraying of toxic biocides shall be permitted within the Environmental Protection District.

Any addition to, exception from or revision of these policies and regulations with respect to any lands, will be subject to the approval of Strathcona-Tweedsmuir School Foundation, Chinook Valley Inc. or View West Foundation, subject to approval by the Municipal District of Foothills No. 31. Maintenance, regulation, compliance with and monitoring of these policies and regulations will be the responsibility of the landowners. The M.D. of Foothills No. 31 is to be notified of any failure to comply with these regulations.

**References:**

Challenger Geomatics Ltd. 2003. Chinook Valley Inc. Area Structure Plan.

Gilson, N. and K. Hodge. 2002. Conservation Based Management Zones in the M.D. of Foothills No. 31. Agriculture and Agri-Food Canada, Prairie Farm Rehabilitation Administration, Calgary, AB. 40pp.

Mussieux, R. and M. Nelson. 1998. A Traveller's Guide to Geological Wonders in Alberta. The Provincial Museum of Alberta, Edmonton, AB. 254 pp.

## APPENDICES



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## GOALS AND OBJECTIVES OF THE CHINOOK VALLEY AREA STRUCTURE PLAN

- a) To protect a unique world class equine facility within the M.D. of Foothills No. 31 while enhancing the existing facilities with the addition of walkways and fields.
- b) To protect the low lying intermittent drainage areas from expanding development pressures with the Environmental Protection District designation and limited Country Residential development.
- c) To create an area where many different land uses may operate and co-exist, including Agricultural, Country Residential, Environmental Protection District, Strathcona-Tweedsmuir School and The Calgary Polo Club.
- d) To create a buffer between The Calgary Polo Club and the lands not included in the Plan Area so that this facility will not be forced to relocate should development increase in this area.
- e) To enhance the existing combined driving event facilities to allow for world-class competitions while also providing additional pathways, including an interpretive trail to be utilized by the Strathcona-Tweedsmuir School for outdoor education.
- f) To create a development that allows for wildlife movement throughout the plan area by way of large Environmental Protection Districts and open space.
- g) To protect and enhance both the natural and manmade water bodies.

**TABLE 1: LAND OWNERSHIP TABLE**

<b>Certificate of Title Number:</b>	<b>Legal Description:</b>	<b>Size:</b>	<b>Registered Owner:</b>
981103130+1	SE 14 – 21 – 01 W5M	61.52+/- acres	Chinook Valley Inc.
021045814	SW 14 – 21 – 01 W5M	157.97+/- acres	Chinook Valley Inc.
011201650	NE 14 – 21 – 01 W5M	160+/- acres	Chinook Valley Inc.
021455511	NW & SW 12 – 21 – 01W5M those lands lying to the west of Railway Plan RY 8 and not covered by the lake on Township Plan of April 14, 1892.	142.269+/- acres	View West Foundation
021455510	NW 11 – 21 – 01 W5M	143.11+/- acres	View West Foundation
021438714	Parcel A 1870 JK	45.79+/- acres	View West Foundation
021407134	Block 1 Plan 7883JK	0.37+/- acres	Strathcona- Tweedsmuir School Foundation
021407114	Block 1 Plan 7883 JK	140.14+/-	Strathcona- Tweedsmuir School Foundation
021203101	Block 2, Plan 971 2573	8.06+/- acres	Chinook Valley Inc.

PLANT SPECIES OBSERVED

Scouring Rush	<i>Equisetum hyemale</i>
White Spruce	<i>Picea glauca</i>
Clasping-leaf Pondweed	<i>Potamogeton richardsonii</i>
Arrow-Grass	<i>Triglochin maritima</i>
Quack Grass	<i>Agropyron repens</i>
Red Top	<i>Agrostis stolonifera</i>
Smooth Brome	<i>Bromus inermis</i>
Rough Fescue	<i>Festuca scabrella</i>
Fowl Manna Grass	<i>Glyceria striata</i>
Reed Canary Grass	<i>Phalaris arundinacea</i>
Sedge	<i>Carex</i> spp.
Wire Rush	<i>Juncus balticus</i>
Star-flowered Solomon's Seal	<i>Smilacina stellata</i>
Smooth Camas	<i>Zigadenus elegans</i>
Aspen	<i>Populus tremuloides</i>
Willow	<i>Salix</i> spp.
Common Nettle	<i>Urtica dioica</i>
Red Baneberry	<i>Actaea rubra</i>
Canada Anemone	<i>Anemone canadensis</i>
Tall Buttercup	<i>Ranunculus acris</i>
White Water Crowfoot	<i>Ranunculus circinatus</i>
Veiny Meadow Rue	<i>Thalictrum venulosum</i>
Wild Gooseberry	<i>Ribes oxycanthoides</i>
Saskatoon	<i>Amelanchier alnifolia</i>
Three-flowered Avens	<i>Geum triflorum</i>
Silverweed	<i>Potentilla anserina</i>
Shrubby Cinquefoil	<i>Potentilla fruticosa</i>
Choke Cherry	<i>Prunus virginiana</i>
Prickly Rose	<i>Rosa acicularis</i>
Wild Red Raspberry	<i>Rubus idaeus</i>
Wild Licorice	<i>Glycyrrhiza lepidota</i>
Cream-coloured Vetchling	<i>Lathyrus ochroleucus</i>
Wild Pea-Vine	<i>Lathyrus venosus</i>
Perennial Lupine	<i>Lupinus sericeus</i>
Alfalfa	<i>Medicago sativa</i>
Early Yellow Locoweed	<i>Oxytropis sericea</i>
Wild Vetch	<i>Vicia americana</i>
Sticky Purple Geranium	<i>Geranium viscosissimum</i>
Wild Blue Flax	<i>Linum lewisii</i>
Western Canada Violet	<i>Viola canadensis</i>
Wolf Willow	<i>Elaeagnus commutata</i>
Canada Buffalo-Berry	<i>Shepherdia canadensis</i>

Fireweed  
Cow Parsnip  
Meadow Parsnip  
Shooting Star  
Red Osier  
Smooth Blue Beard-Tongue  
Northern Bedstraw  
Twining Honeysuckle  
Buckbrush  
Low-Bush Cranberry  
Yarrow  
Dandelion  
Showy Fleabane  
Gaillardia  
Tall Smooth Goldenrod

*Epilobium angustifolium*  
*Heracleum lanatum*  
*Zizia aptera*  
*Dodecatheon pulchellum*  
*Cornus stolonifera*  
*Penstemon nitidus*  
*Galium boreale*  
*Lonicera dioica*  
*Symphoricarpos occidentalis*  
*Viburnum edule*  
*Achillea millefolium*  
*Taraxacum officinale*  
*Erigeron speciosus*  
*Gaillardia aristata*  
*Solidago gigantea*

#### **MAMMAL SPECIES OBSERVED**

Richardson's Ground Squirrel  
Northern Pocket Gopher  
Beaver  
Coyote  
Mule Deer  
White-tailed Deer

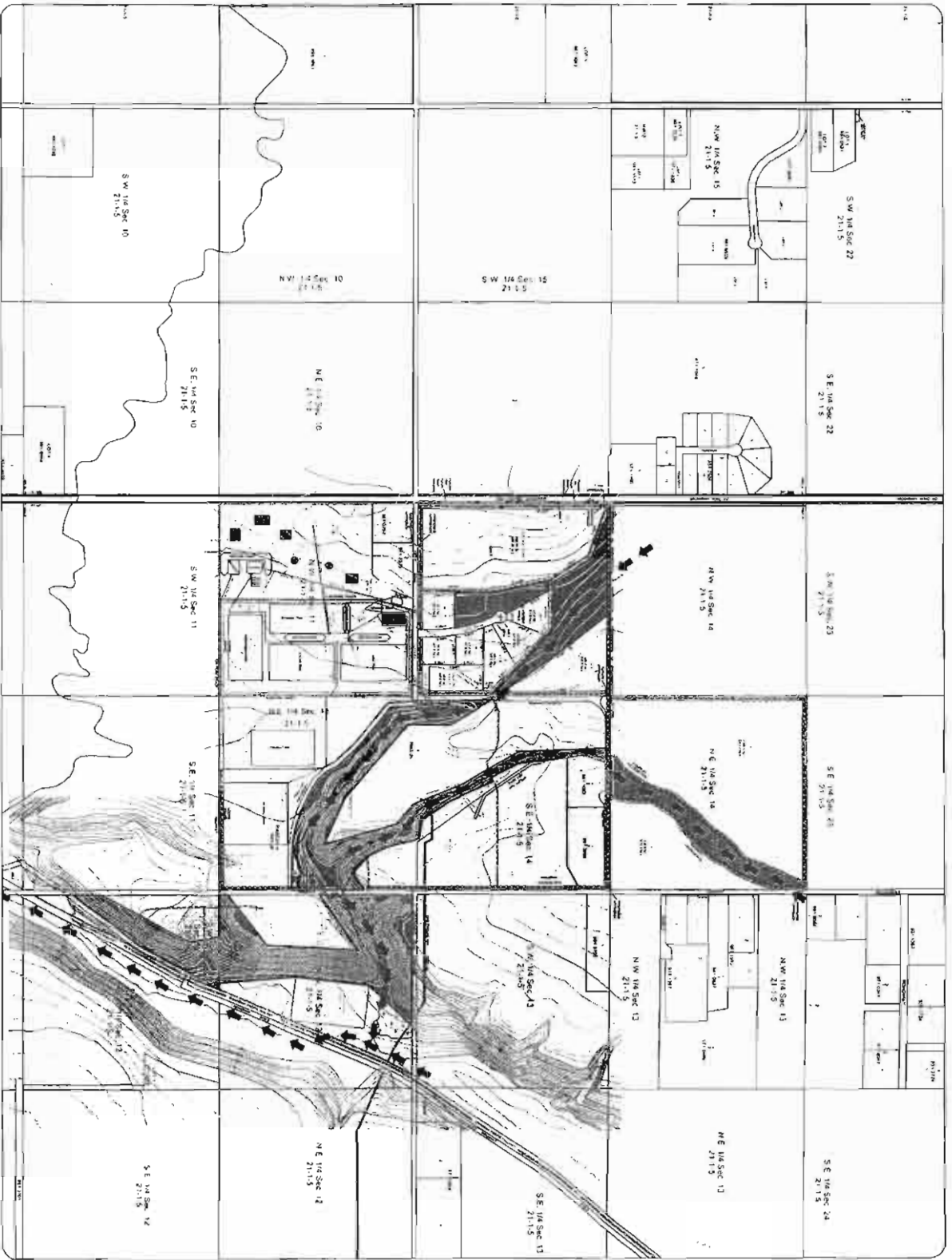
*Spermophilus richardsonii*  
*Thomomys talpoides*  
*Castor canadensis*  
*Canis latrans*  
*Odocoileus hemionus*  
*Odocoileus virginianus*

#### **BIRD SPECIES OBSERVED**

Great Blue Heron  
Canada Goose  
Green-winged Teal  
Mallard  
Gadwall  
American Wigeon  
Ring-necked Duck  
Lesser Scaup  
Barrow's Goldeneye  
Swainson's Hawk  
Gray Partridge  
Ring-necked Pheasant  
Sora  
Spotted Sandpiper  
Common Snipe

*Ardea herodias*  
*Branta canadensis*  
*Anas crecca*  
*Anas platyrhynchos*  
*Anas strepera*  
*Anas americana*  
*Aythya collaris*  
*Aythya affinis*  
*Bucephala islandica*  
*Buteo swainsoni*  
*Perdix perdix*  
*Phasianus colchicus*  
*Porzana carolina*  
*Actitis macularia*  
*Gallinago gallinago*

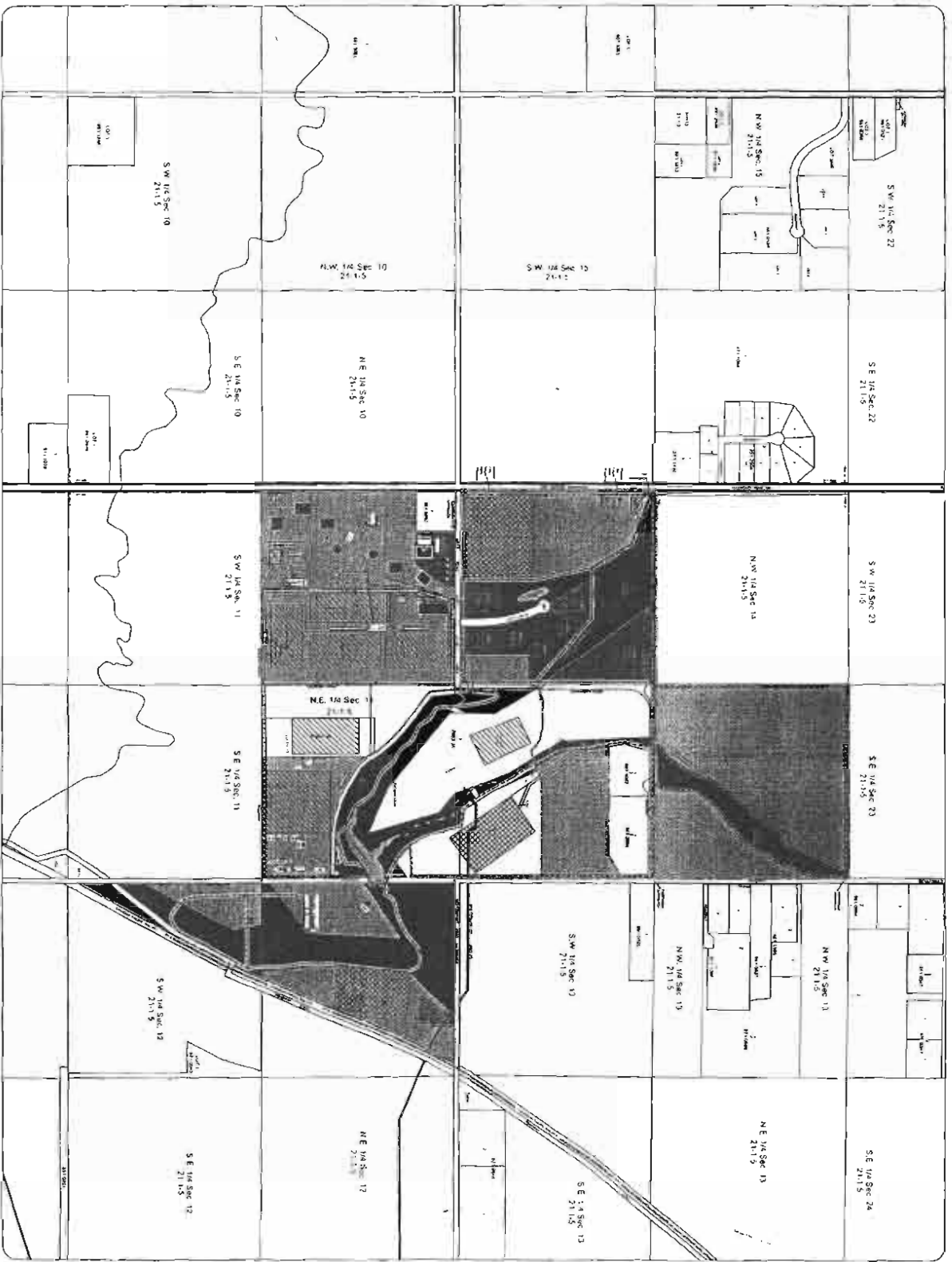
Mourning Dove	<i>Zenaida macroura</i>
Great Horned Owl	<i>Bubo virginianus</i>
Common Flicker	<i>Colaptes auratus</i>
Least Flycatcher	<i>Empidonax minimus</i>
Eastern Phoebe	<i>Sayornis phoebe</i>
Eastern Kingbird	<i>Tyrannus tyrannus</i>
Tree Swallow	<i>Tachycineta bicolor</i>
Cliff Swallow	<i>Hirundo pyrrhonota</i>
American Crow	<i>Corvus brachyrhynchos</i>
Common Raven	<i>Corvus corax</i>
Black-capped Chickadee	<i>Parus atricapillus</i>
House Wren	<i>Troglodytes aedon</i>
Ruby-crowned Kinglet	<i>Regulus calendula</i>
Mountain Bluebird	<i>Sialia currucoides</i>
American Robin	<i>Turdus migratorius</i>
Gray Catbird	<i>Dumetella carolinensis</i>
Cedar Waxwing	<i>Bombycilla cedrorum</i>
Yellow Warbler	<i>Dendroica petechia</i>
Yellow-rumped Warbler	<i>Dendroica coronata</i>
Clay-colored Sparrow	<i>Spizella pallida</i>
Savannah Sparrow	<i>Passerculus sandwichensis</i>
Song Sparrow	<i>Melospiza melodia</i>
Red-winged Blackbird	<i>Agelaius phoeniceus</i>
Northern (Baltimore) Oriole	<i>Icterus galbula</i>



<p><b>CHALLENGER</b> GEOMATICS LTD</p> <p>#300, 5540 Fisher Road SE Calgary, Alberta Canada T2M 0W3 Tel: 403 253 8101 Fax: 403 253 1905 www.challengergeomatics.com</p>	<p>Project No: 13648</p> <p>Client: KPR/SAR/CBD</p> <p>Date: 03/18/2003</p> <p>Scale: 1:5000</p> <p>Sheet: 1 of 1</p>	<p>Project Name: 20</p> <p>Client: MD of Foodstuffs</p> <p>Location: Chinook Valley</p> <p>Map Title: The Contour Plan Indicating Direction of Natural Drainage in the Chinook Valley Environmental Management Plan</p>	<p>Scale: 1:5000</p> <p>Sheet: 1 of 1</p> <p>Date: 03/18/2003</p> <p>Client: KPR/SAR/CBD</p>
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<p>Carriage Hazard (Appro)</p> <p>Railway</p> <p>Subject Area</p> <p>Track Trail</p> <p>Carriage Trail</p> <p>Firewise Track</p> <p>Wells</p> <p>Natural Drainage (As Identified by Mr. Thomas S. Suter, B.Sc., P.Eng.)</p> <p>Environmental Protection District</p>	<p>Legend</p> <p>█ Carriage Hazard (Appro)</p> <p>█ Railway</p> <p>█ Subject Area</p> <p>█ Track Trail</p> <p>█ Carriage Trail</p> <p>█ Firewise Track</p> <p>█ Wells</p> <p>█ Natural Drainage (As Identified by Mr. Thomas S. Suter, B.Sc., P.Eng.)</p> <p>█ Environmental Protection District</p>
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<p><b>CHALLENGER COMMERCIAL LTD</b></p> <p>4100, 6640 Ripper Road SE Cottage, Atlanta, Canada T2H 0W4 Tel: 403.251.8101 Fax: 403.253.1945 www.challengecommercial.com</p>	<p>Scale: 1:0</p> <p>North Arrow</p>

Environmental Protection District  
 Walkway  
 Lots  
 Agricultural  
 Commercial Rural  
 Railway  
 Subject Area  
 Marsh  
 Carriage Hazards (Approx)  
 Existing Buildings (Approx)  
 Misc. Structures (Approx)  
 Existing Corners (Approx)  
 Track Trail  
 Carriage Trail  
 Exercise Track  
 Misc. Lines (Approx)  
 Walls  
 Existing Hoop/Playing Fields  
 Proposed Pole Fields