| THE WOODLANDS |
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| CONCEPTUAL SCHEME |
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| Bylaw C-4926-98 Adopted by Council on July 28, 1998 |
| Prepared in support of applications for redesignation and subdivision located in the SW ¼ 1-26-3-W5M |
| and inserted into Section 10.0 of the Bearspaw Area Structure Plan |
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| MUNICIPAL DISTRICT OF ROCKY VIEW NO. 44 Department of Planning and Development |
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MUNICIPAL DISTRICT OF ROCKY VIEW NO. 44

BYI AW C-4926-98

A Bylaw of the Municipal District of Rocky View No. 44 to amend Bylaw C-4129-93, the Bearspaw Area Structure Plan.

- the Council deems it desirable to amend the said Bylaw; and WHEREAS
- the Council of the Municipal District of Rocky View No. 44 has received an application to WHEREAS amend Section 10.0 of the Bearspaw Area Structure Plan (Bylaw C-4129-93) in order to adopt the Concept Plan as attached in Schedule "A" of this bylaw, located in a portion of the SW-1-26-3-W5M, and incorporate the Concept Plan into Section 10.0 of the Bearspaw Area Structure Plan (Bylaw C-4129-93); and
- WHEREAS a notice was published on July 14, 1998 and July 21, 1998 in the Calgary Rural Times, a newspaper circulating in the Municipal District of Rocky View No. 44 advising of the Public Hearing for July 28, 1998; and
- **WHEREAS** Council held a Public Hearing and has given consideration to the representations made to it in accordance Section 692 of the Municipal Government Amendment Act, being Chapter 24 of the Revised Statutes of Alberta 1995, and all amendments thereto.

NOW THEREFORE the Council enacts the following:

1. That Section 10.0 of the Bearspaw Area Structure Plan (Bylaw C-4129-93) be amended by adopting the Concept Plan as attached in Schedule "A" of this bylaw, located in a portion of the SW-1-26-3-W5M, and incorporate the Concept Plan into Section 10.0 of the Bearspaw Area Structure Plan (Bylaw C-4129-93); and

2. The Bylaw comes into effect upon the date of its third reading.

File: 6701004

First reading passed in open Council, assembled in the City of Calgary, in the Province of Alberta, on July 7, 1998, on a motion by Councillor MacFarlane.

Second reading passed in open Council, assembled in the City of Calgary, in the Province of Alberta, on, July 28, 1998, on a motion by Councillor MacFarlane.

Third reading passed in open Council, assembled in the City of Calgary, in the Province of Alberta, on, July 28, 1998, on a motion by Councillor Vincent.

REEVE OR DEPUTY REEVE

MUNICIPAL SECRETARY

SW-01-26-03-W5M

SCHEDULE 'A'

OF BYLAW C-4926-98

THE WOODLANDS

Concept Plan

Prepared in support of a proposal to amendment the Land Use Bylaw (Bylaw C-1725-84) to Redesignate a Portion of the SW 1/4 01-26-03-W5M from Agricultural Conservation (2) District (AG-2) to Small Holdings District (SH)

Prepared for:

641589 Alberta Ltd.

Second Draft June, 1998

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1.0 Introduction

1.1 Background

The subject land comprises 150.95 acres (61.09 ha.) and is located west of the City of Calgary in the Bearspaw area of the Municipal District of Rocky View No.44.

The Municipal District of Rocky View No. 44 (M.D. of Rocky View) requested this Concept Plan be prepared in support of an application to amend the Land Use Bylaw (C-1725-84) and the *Bearspaw Area Structure Plan (BASP) Bylaw C-4129-93*. The registered owner is proposing the development of a comprehensively planned residential community consisting of 31, ± 4 acre parcels and as such, is seeking to redesignate the subject lands from Agricultural (2) District (AG-2) to Small Holdings District (SH).

In 1994, Council adopted the *Bearspaw Area Structure Plan* which establishes land use planning policy for the Bearspaw Area. Section 8.1.9 and 8.1.10 of the *Bearspaw Area Structure Plan* state that the preparation of a Concept Plan may be required at the discretion of Council prior to the redesignation of land for country residential land use. At its meeting of March 3, 1998, Council requested that a Concept Plan be prepared to support an application for redesignation of the subject land, and that residents in the community be informed of the application prior to a Public Hearing. This Plan is intended to fulfill Council's requirements.

1.2 Policy Format

This Plan will provide Council with supporting planning rationale for redesignation of the subject lands from AG-2 to Small Holdings in order to accommodate the redesignation and subdivision proposal. The Plan will further provide Council (the subdivision authority) with a statutory mechanism to guide and control subdivision through the establishment of policies that provide specific direction for all subdivision and development issues identified in the Plan.

Preparation of this document has been guided by Section 8.1.14 of the Bearspaw Area Structure Plan, the M.D. of Rocky View's Policy 644 - Preparation and Processing of Concept Plans and the M.D. of Rocky View's Procedures for the Processing of Concept Plans No. 039.

The Plan begins by identifying objectives in Section 2.0 and then proceeds to describe the surrounding land use context of the subject lands in Section 3.0. Section 4.0 provides a description and analysis of existing natural site features. Section 5.0 and 6.0 present the development and servicing proposals and Section 7.0 provides a Traffic Impact Analysis. Section 8.0 gives an overview of input received from residents within the surrounding community.

Specific policies contained in this Plan are identified by a Concept Plan policy number and are distinguished by being written in italics.

2.0 Plan Objectives

- 2.1 To identify development issues within the Plan Area and establish appropriate and comprehensive policies for addressing these issues.
- 2.2 To establish the appropriateness of the subject lands for the land uses proposed by the Development Proposal.
- 2.3 To establish Servicing Scenarios appropriate to the Development Proposal and a policy framework for implementation.
- 2.4 To facilitate subdivision design that maximizes lot yields, servicing efficiencies and development opportunities.
- 2.5 To facilitate the phasing of subdivision and development in the Plan Area.
- 2.6 To address compatibility with adjacent land uses and the surrounding community.
- 2.7 To gather input from residents within the surrounding community and incorporate these ideas into the planning process.
- 2.8 To implement the policies which have been adopted by the M.D. of Rocky View, and to reflect the requirements of the Bearspaw Area Structure Plan, Municipal Development Plan and Land Use Bylaw.

3.0 Plan Context

The Plan Location is identified in Figure 1 and is comprised of 150.95 acres (61.09 ha.) as shown in Figure 2. A 10 acre (4.04 ha.) farmstead isolation has previously been subdivided from the original 1/4 section and is located in the northwest portion of the quarter.

3.1 Existing Area Land Use

The plan area is located in an area of the Bearspaw community that has experienced extensive subdivision of ± 2 and ± 4 acre country residential parcels over the previous 10 years as shown on Figures 2 and 3.

Policy 3.1.1: Land Use designations shall be compatible with the surrounding land uses.

3.2 Future Area Land Use

The *Bearspaw Area Structure Plan (BASP)* establishes a future land use scenario for the Bearspaw community. Section 7.1.3 of the Bearspaw Area Structure Plan requires that proposals for redesignation conform with this future land use scenario.

The subject land is identified as being appropriate for country residential land uses pursuant to Figure 7 of the *BASP*. Figure 3 of the *BASP* states that the preparation of a Concept Plan is recommended prior to redesignation for country residential purposes.

Figure 8 in the BASP also provides a guideline for development phasing and identifies the subject lands as being within Development Priority Area 1. Section 7.2.1 of the BASP states that phasing of development should be in accordance with Figure 8 in the BASP. Therefore, the land is identified as being amongst those lands which should be developed prior to all other lands in the BASP. Appendix B of BASP states that Priority Area 1 contains lands which are surrounded by subdivided and developed areas and generally contain few constraints to development.

Development of the subject land should therefore proceed as infill subdivision to continue the existing adjacent residential land uses, and should maintain a cohesive and efficient development pattern by harmonizing with previous subdivision and development.

Policy 3.2.1: Proposed land uses, subdivision and development shall conform to the provisions of the <u>Bearspaw Area Structure Plan</u> (Bylaw C-4129-93) of which the Concept Plan will form a part (Section 10.0 of the BASP) and the Land Use Bylaw (C-1725-84).







 Figure: 3
 Legend

 Surrounding Land Use
 Subject Land

 Proposed Redesignation and Subdivision
 SW 1/4 01-26-03-W5M

NOT TO SCALE

3.3 Access

Direct access to the subject land is available from Highway 1A, located 1 mile to the south via Woodland Road as shown in Figure 4. Alternate access to Highway 1A is available eastward on 144 Avenue NW (Burma Road) to Bearspaw Road and then south to the intersection with Highway 1A.

The Bearspaw Transportation Study, adopted in principle by Council on in 1997, states that all-turns access to HWY #1A is to be maintained at Retreat Road, Glendale Road, Lochend Road, **Woodland Road**, **Bearspaw Road** and Twelve Mile Coulee Road (see Figure 5). The report concluded that HWY #1A should be protected as a commuter-type arterial, initially in an unsignalized form with traffic signals being installed as warranted. This indicates that the aforementioned access to and from the site via HWY #1A will be maintained in the long term.

On-site access to individual lots within the proposed subdivision will be via public internal subdivision roads constructed to municipal standards using a 25m (82 ft.) right-of-way width. All road surfaces will be paved in accordance with municipal standards.

Policy 3.3.1: All internal roads will be constructed in accordance with the Servicing Standards for Residential Subdivisions and Road Construction as adopted by the M.D. Council on October 21, 1997, as amended.

Figure 6 in page 16 of this Plan shows the overall subdivision concept for the subject land. Council Policy 647 requires that, except where Council deems otherwise, subdivisions of greater than 10 lots should have a properly dedicated (if free hold) and constructed roadway as a second means of access to the roadway of an adjacent development.

At its meeting of July 21, 1992 Council approved the subdivision of the 83.41 acre parcel to the east (Biggar Heights/Westedge Properties) to create 31, ± 2 acre parcels. The Council had previously tabled the subdivision application on June 2, 1992 to allow the applicant to reconfigure the subdivision to provide a loop road and dedicate a second access/egress point (to which the current road connection is proposed).

Policy 3.3.2: A secondary road linkage shall be provided in accordance with Council Policy 647, and road connections shall be in accordance with those shown on Figure 7 of this Plan.





4.0 Site Features

4.1 Existing Land Use

The easterly two thirds of the subject lands are heavily treed with native stands of aspen, poplar, coniferous species and brush. This area has never been subjected to cultivation but is used for grazing cattle on an intermittent basis. The westerly portion of the lands has been cleared of vegetation and is currently used for the production of a small hay crop.

4.2 Topography

Figure 5 provides an overview of natural features found on the subject lands. The land has a general slope aspect from north to south punctuated with small rises and depressions in the terrain. There are no slopes in excess of 15% and the greatest relative elevation change is no more than 5m.

The gentle rolling topography presents no constraints to development and combined with stands of trees and open glades, provides a series of superior building sites that create potential development opportunities for various housing forms.

4.3 Soils

The majority of the subject lands contain moderate capability agricultural soils and are identified as SPY 1D and DVSF 1D under the ARC Calgary Urban Perimeter Soil Study. As such, and in combination with the existing vegetation, they are limited for crop production and the proximity of existing residential development on adjacent lands would prevent their use for intensive livestock operations.

Soils over the subject lands consist of a well sorted glacial till. Percolation and near surface water table test results (as shown in Appendix 1) indicate that soil permeability is well suited for conventional septic tank and tile field installation.

4.4 Vegetation

The eastern two thirds of the subject land are covered by brush and aspen and poplar tree cover. The remainder of the lands has been subject to agricultural practices and grazing which has resulted in the removal of the original natural vegetation.

4.5 Drainage and Stormwater Management

Overall, the subject lands are well drained and soils exhibit good infiltration rates. There are no defined drainage courses on the subject lands. Three small ponds are located in the southeastern portion of the site which capture surface water runoff and hold water on a year round basis. There is no obvious or defined drainage pattern in evidence on the subject lands.



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There is also evidence of ponding in small depressions through the central and northern areas within the trees and these appear to be seasonal in nature as they are dry throughout the summer months and fall.

Any areas of potential or existing ponding of water will be preserved and incorporated into the subdivision design. All proposed lots will be designed to allow for fully developable building sites that containing at least one acre of land.

Policy 4.5.1: The subject lands' natural drainage patterns should be preserved where possible and there should be no net increase of stormwater flow onto adjacent properties.

Policy 4.5.2: A Storm water Management Plan shall be completed on the quarter section in accordance with Best Management Practices (post-development flows equal pre-development flows) prior to any development or subdivision occurring on the lands.

5.0 Subdivision and Development Concept

5.1 Proposed Land Uses

An analysis of site features indicates that there are few natural features that would present a constraint or hazard for development and virtually the entire site is suitable for development.

Consequently, a Small Holdings Land Use Designation is requested for the subject lands to facilitate development for residential purposes as shown on Figure 7.

5.2 Subdivision Concept

Figure 7 depicts a conceptual subdivision design for the Plan Area. A total of 31 lots for residential uses with a Municipal Reserve parcel is proposed. The overall density of lots proposed for the subject lands is 0.21 parcels per acre contained in title. This is below the maximum density of 0.3 parcels per acre currently permitted under the M.D. of Rocky View's Land Use Bylaw.

| Land Use | Acres | Ha. | % |
|------------------------|--------|-------|--------|
| | | | |
| Residential | 130.08 | 52.64 | 86.20 |
| Municipal Reserve Lot: | 8.00 | 3.24 | 5.30 |
| Roads: | 12.87 | 5.21 | 8.50 |
| Total Plan Area: | 150.95 | 61.09 | 100.00 |

Land Use Statistics

The size, location and orientation of each parcel within the subdivision has been carefully planned to maximize the existing natural features of the land to provide a building site that is both unique and capable of sustaining the development. All proposed parcels are four acres in size or greater which is consistent with the requirements outlined in Section 8.1.20 of the *BASP*.

The subdivision is designed to provide ingress and egress at two points to adjacent public roads as required by Municipal Policy 647. Main internal access is provided by a public internal subdivision road that loops from 144 avenue adjacent to the south boundary of the subject lands, north along the existing tree line then east to join the internal subdivision road located within the adjacent subdivision to the east know as Biggar Heights/Westedge Properties. This access configuration allows for the linking of developments as encouraged by Council's Access and Linkages Policy 647.

ROAD PLAN 1582 L.K. ROAD PLAN 761 1227 BLOCK , 1 N.E.1/4 SEC.1-26-3-5 BLOCK 2 BLOCK 3 BLOCK 1 3 4 PLAN 931 008 PLAN 1582 L.K. PLAN 741 0130 PLAN 1382 L.K. 1 PLAN/931 2066 26-3-5 115.79 90.50 90.50 90.50 90.50 Existing Parcel 12 11 12 13 14 15 11 604 200.00 4.30 Ac. (1.74 ho.) 171.6 48.20 ĝ Ş 2352 8 R-90.04 7 4.34 Ac. (1.76 ha.) 4.47 Ac. 4.47Ac. (1.81 ho.) (1.81 ho.) 4.47 Ac. (1.81 ho.) ACCESS RAW 4.01 Ac. (1.62 ho.) 4.31 Ac. (1.74 ha.) UTILITY R/W PLAN 961 01605 90 BLOCK 8 2 15.28 29 R=65.1 29.79 79.8235 8=65.00 **1**0 ₽0.50 ROAD 90.50 90.50 42.6 127.0 58 41.29 R=90.00 83 78 138.00 20 00 ROAD RO 5 PLAN R=20.00 6 - 31.42 R= 20.00 16 R-20.00-17 10.00 ŝ 4.37 Ac. (1.77 ha.) 19 18 0675 R/W PLAN 841 9 4.67 Ac. (1.89 ha.) 99.49 35.00 AN 4.05 Ac. (1.64 ho.) 4.00 Ac. (1.62 ha.) 4.10 Ac. (1.66 ha.) 157.64 4.00 Ac. (1.62 ha.) 0674 08 951 oobL 5 138 41 120.00 146.18 138.00 72.60 PLAN 220.52 4.41 Ac. (1.78 ha.) 118.26 1930 10 20 4.05 Ac. (1.64 ha.) 42.5 4.00 Ac. 00 4 (1.62 ho.) 5 107.24 21 56 7 22 R/W 5.00 Ac. (2.02 ha.) 4.00 AC. 22.61 15.28 R=20.00 83.78 31.42 - 20.00 118.00 (1.62 ho.) 194 25 9 PLAN עזורודץ 83.7 4 R=25.00 ROAD 4.31 Ac. (1.74 ho.) 27. R-20.00 29 19.12 15.28 R=20.00 23 9.9. 9.9. R 11310 28 102.50 4.00 Ac. (1.62 ha.) 5 /3 2 1757 2 02.50 4.00 Ac. (1.62 ha.) 4.01 Ac. (1.62 ha.) 4.00 Ac. (1.62 ho.) BLOCK R 130.66 3 R= PLAN 561 L.K. 159.00 941 1928/ =10.00 8.73 172.90 ROAL 166.12 4.30 Ac. 25.00 4 24 4.00 Ac. (1.62 ha.) 5 1 30 02.10 7 27 4.30 Ac. (1.74 ha.) 8 4.01 Ac. (1.62 ha.) 14.10 4.00 Ac. (1.62ha.) 19. G ₿CK 210.00 159.00 32 MR *** 26 31 25 PLAN 931 0938 B 4.12 Ac. (1.67 ha.) 4.00 Ac. (1.62 ha.) 2 4.00 Ac. (1.62 ha.) 8.00 Ac. (3.24 ha.) 42 0.00 UTILITY R/W PLAN 931 0939 275.00 PLAN 901 1953 163.2 39.0 NW CROAD PLAN 931 0938 RD. 1144 BURN ROAD PLAN 901 1953 N.E.1/4 SEC.35 25-3-5 1 ROAD 5 6 PLAN 901 2215 BLOCK 3 BLOCK R 6 BLOCK BLO CK 1 BLOCK 2 PLAN 741 0796 PLAN 731435 PLAN 931 0121 PLAN 731435



The proposed parcels exhibit a variety of features that might include ponds, open fields, hill tops, ridges, open glades and dense forest. The four acre minimum parcel size will capture these natural features while still offering sizable building sites and avoiding the negative impact that higher residential densities often have on the landscape. Where possible, lots have been oriented to capture variations in terrain in order to create opportunities for a variety of building forms.

The resulting subdivision design is one that provides the most sensitive approach to development of the subject lands by allowing the flow of the natural landscape to determine parcel size and subdivision layout.

5.3 Municipal Reserves and Pathways

Pursuant to the Municipal Government Act, Council as Subdivision Approving Authority, has the opportunity to acquire up to 10% of the gross area of the subject lands as Municipal or School Reserve or require the payment of cash in lieu of the land that would have been dedicated as Reserve.

If Council desires a Municipal Reserve parcel, 8.00 acres are proposed as shown on the tentative subdivision concept which represents 53% of the maximum dedication with the balance owing to be provided by a cash-in-lieu payment. The proposed 8 acre Municipal Reserve parcel consists of an open (free of trees/bush), well drained area of the subject lands. This location was chosen due to its efficient public access and the suitable site conditions (i.e. open, flat and well drained) to develop a range of municipal or recreational uses (i.e park, playing field etc.).

Policy 5.3.1: Municipal Reserves may be satisfied by the payment of cash-in-lieu, by the dedication of land or as a combination of land and cash-in-lieu, in accordance with Section 666 of the Municipal Government Act.

Policy 5.3.2: Maintenance of any pathway system shall be in accordance with the Municipal Trail Policy No. 103, as amended.

It is suggested that a pathway could be located within the municipal road right-of-way adjacent to Woodland Road and Burma Road to provide the first link in a regional pathway system for the Bearspaw District. There is enough width in the existing 30m right-of-way on both Woodland and Burma Road to accommodate a pathway between the ditch and the property line associated with the subject lands. The pathway will be constructed by the developer in accordance with the trail standard detailed in the Servicing Standards for Residential Subdivisions and Road Construction.

6.0 Servicing Proposal

6.1 Wastewater Treatment

Sewage treatment and disposal will be managed on site with individual septic tank and tile field installations. Alberta Environmental Protection prefers a minimum of 1 acre (.4 ha.) of developable land on each lot proposed through subdivision to facilitate the proper siting of tile fields and the proposed subdivision has been designed to accomplish this.

Percolation and Near Surface Water Table Testing was conducted throughout the entire subject 1/4 section by EBA Engineering Consultants Ltd. The results are included in Appendix 2 which indicate that the subject lands are suitable for septic fields.

Policy 6.1.1: Sewage treatment shall be by individual septic tank and tile field for each lot proposed for residential development to the satisfaction of Alberta Labor.

6.2 Water Supply and Distribution

Water will be supplied to each of the proposed parcels via a piped water distribution system. In this regard, the Rocky View Water Co-op pipeline is located adjacent to the subject lands along the west and south boundaries of the 1/4 section. The Rocky View Water Co-op has provided written confirmation that sufficient capacity is available within their water system to supply the proposed development.

Policy 6.2.1: The water supply and distribution system required to service subdivision in the plan area shall be via a piped water co-op system constructed, licensed and permitted by Alberta Environmental Protection and in accordance with Servicing Standards for Residential Subdivisions and Road Construction.

6.3 Utility Services

Power, cable and natural gas are all available in the area with sufficient capacities to service the proposed development.

6.4 Internal Subdivision Roads

All internal subdivision roads will be constructed to full municipal standards. Roads have been located to minimize the need for extensive earthworks and all grades are well below the maximum 7% required by the Municipality.

Policy 6.4.1: Internal subdivision roads shall be constructed in accordance with Servicing Standards for Residential Subdivisions and Road Construction.

7.0 Traffic Impact Analysis

7.1 Existing Traffic Volumes

Burma Road (144 Avenue NW) was extended to Woodland Road in 1990 and was reconstructed with base and chip by the M.D. of Rocky View in 1993. Paving of Burma Road is scheduled on the work program for 1999. Sufficient road widening adjacent to the subject lands was obtained by Rocky View to allow for a 30m road right-of-way width and the construction of an 8.4m traveling surface.

Burma Road has a daily capacity of 5000 vehicle trips per day under its current construction. It is identified as a Major Collector Road on Figure 5 in the *BASP*. The table below notes that recent traffic counts show Burma Road as operating well below its design capacity.

Woodland Road is identified as a Major Collector Road on Figure 5 in the *BASP* and thus has been upgraded to a full Major Collector status with a paved surface width of 8.4m and a right-of-way width of 30m. It's traffic volume capacity is identified by the M.D. of Rocky View as 5000 vehicle trips per day.

Existing traffic volumes were determined for both Woodland Road and 144 Avenue NW from traffic counts conducted by the M.D. of Rocky View. The data below details separate weekday traffic counts (1994, 1995, 1996 and 1998) for a 24 hour period and include total vehicle trips traveling in both directions as follows:

Burma Road

| Location | Date | Traffic Count |
|----------------------|-----------|---------------|
| | | |
| East of WoodlandRoad | 1996/1998 | 635/628 |
| West of BearspawRoad | 1996/1998 | 779/803 |

Woodland Road

| Location | Date | Traffic Count |
|---------------------|-----------|---------------|
| | | |
| South of Burma Road | 1998 | 974 |
| North of Burma Road | 1994 | 528 |
| North of Highway 1A | 1995/1998 | 970/1099 |

The traffic count results indicate that vehicle trip distribution in this area of Bearspaw is oriented to a Highway 1A destination with Woodland Road carrying the majority of traffic in a north/south pattern. Woodland Road is currently providing direct access to Highway 1A for approximately 150 existing residences between Highway 1A and it's termination.

Traffic counts on Burma Road between Bearspaw Road and Woodland Road are less than the north/south routes (Woodland and Bearspaw Roads) which reflects both the small number of residences currently being accessed directly from Burma Road in this area and the dominant pattern of north/south traffic movements on Woodland Road and Bearspaw Road.

7.2 Future Traffic Volumes

Additional traffic generated by the proposed subdivision can be estimated by observing the rate of trip generation from existing country residential developments and applying this rate to the proposed subdivision on a per dwelling unit basis. Recent studies by Alberta Transportation and Utilities indicate that typical country residential developments generate approximately 10 vehicles trips per day per dwelling unit.

This would result in a potential traffic increase from the proposed subdivision approximately 310 vehicle trips per day. By adding these additional traffic volumes to the existing volumes currently occurring on Woodland Road and Burma Road, the probable impact of this additional traffic can be assessed by comparing the total expected volumes to the design capacity of the roads as follows:

Burma Road: Traffic Impact Analysis

| Location | Existing Traffic | Additional Traffic | Total Volume | % of Maximum Design Capacity (5000 vehicles) |
|----------------|--------------------|-----------------------|--------------|--|
| E. of Woodland | 628 (1998 figures) | 310 | 938 | 19 % |
| W of Bearsnaw | 803 (1998 figures) | 310 | | 22 % |

Woodland Road: Traffic Impact Analysis

| Location | Existing Traffic | Additional Traffic | Total Volume | % of Maximum Design Capacity (5000 vehicles) |
|----------------|---------------------|-----------------------|--------------|--|
| South of Burma | 974 (1998 figures) | 310 | 1284 | 26% |
| North of 1A | 1099 (1998 figures) | 310 | 1409 | 28% |

It should be noted that for the purpose of the evaluation the additional traffic was to both Woodland Road and Burma Road. In reality it would be expected that the 310 additional trips would be split between Woodland Road and Burma Road.

The preceding analysis demonstrates that the impact of additional traffic resulting from the proposed subdivision on the adjacent municipal road network will be minimal. With the estimated additional traffic added to existing volumes, both Burma Road and Woodland Road would be operating at less than 30% of their design capacity.

8.0 Public Input

In it's motion requiring the preparation of a Concept Plan, Council also determined that residents in the surrounding community should be informed of the proposed development prior to consideration of the redesignation request during the Public Hearing.

In order to provide more detailed information to the community regarding the proposal, and to acquire input from surrounding residents, an Open House was held in Bearspaw on April 1, 1998. The open house was advertised by the direct delivery of 150 notices to residents within surrounding adjacent 1/4 sections.

8.1 Public Open House

Approximately 30 people attended the Open House and viewed plans depicting the proposed development. Residents were asked to provide either verbal or written comments regarding any aspect of the project.

The majority of residents who attended the Open House were in favor of the proposal. Most were supportive of the 4 acre minimum parcel size.

In addition, adjacent residents to the east currently owning property in West Edge Properties were asked to comment upon the possibility of linking internal subdivision roads with their community. All were opposed due to the possibility of traffic "shortcutting" through their quiet residential neighborhood from the proposed subdivision.

The proposed development has been planned with the concerns of residents in mind to minimize the impact on the surrounding community by providing for larger parcel sizes with building setbacks well back from the subject land's boundaries.

The other major concern expressed by surrounding residents was the increase in traffic resulting from the subdivision and the impact this would have on adjacent municipal roads which many residents felt were dangerous and too busy.

The indication by some of the surrounding residents that traffic is heavy on municipal roads may be related to volume delays experienced during peak hour traffic times such as the morning rush hour. However, the Traffic Impact analysis presented in Section 3 clearly demonstrates that both existing volumes and future volumes resulting from the subdivision are well within the design parameters of the adjacent road system.

9.0 Concept Plan Conformity

9.1 Municipal Statutory Plans and Policy

In addition to the planning principles established by this Plan, implementation of the development will be guided by the planning policies adopted by the M.D. of Rocky View in its statutory Plans.

Policy 9.1.1: All subdivision and development within the Plan Area shall conform to:

- Bylaw C-484297 being the Municipal District of Rocky View No. 44 Municipal Development Plan;
- Bylaw C-1725-84 being the Municipal District of Rocky View No. 44 Land Use Bylaw; and
- Bylaw C-4129-93 being the Bearspaw Area Structure Plan.
- Municipal District of Rocky View No.44 Policy Handbook
- Servicing Standards for Residential Subdivision and Road Construction.

10 Implementation

The development of the subject lands is regulated by the provisions of the Small Holdings District (SH) Land Use Designation guidelines pursuant to the Land Use Bylaw (Bylaw C-1725-84).

Subdivision of the lands is guided by the policies contained herein and implemented by Development Agreements imposed through conditions of subdivision approval by the Municipal District of Rocky View No. 44.

11 Appendices

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Appendix 1: Percolation Test Results



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1996 06 14

E66-099-19-5

McKinley Masters Custom Homes c/o: Grady White Planning Ltd. 323 - 11 Avenue NE Calgary, Alberta T2E 0Z2

Attention: Mr. Martin Grady

Gentlemen:

Re: Shallow Subsurface Conditions SW 1/4 - Sec. 1, Twp. 26, Rge. 3, W5M

Almor Engineering Associates Ltd. was retained to investigate and observe shallow groundwater conditions, at the above referenced site, and evaluate the percolation rate of the subsurface site soils at selected locations. Initial percolation rate testing was performed throughout the site by EBA Engineering Consultants Ltd. (EBA), October 1995.

The field investigation commenced on June 11, 1996, utilizing a bobcat auger drill, supplied by King Excavating and Bobcat Services Ltd., of Calgary, Alberta. A total of thirteen (13) test holes were advanced throughout the site area and standpipes installed in each, to a minimum depth of 3.0m (10 feet), as typically recommended by the Land Use Branch of Alberta Environmental Protection, for shallow water table evaluation. Four percolation test holes were also sited at selected locations.

Drawing 1 is a Site Plan indicating the approximate location of the groundwater monitoring and percolation test holes. The test holes have not been located by survey and referenced with elevations.

1.0 Soil Conditions

The predominant subsoil conditions at the site (excluding the surficial topsoil and lesser "browns" horizon) consist of glacial clayey silt till. In isolated locations a surficial clayey silt is present. Silt and clay lacustrine sediments were observed within the east site area, where seasonally active ponds or sloughs are present. Some of the lacustrine sediments are discrete, however, silt and clay is also intermixed with the till.

The glacial clayey silt till is generally light olive to olive in colour, contains variable contents of sand to gravel sizes and becomes gravelly below a 1.5m depth. Drilling equipment could not easily penetrate some cobbles present at depths of 3.0m to 4.0m and auger refusal occurred at these depths. The soils are generally damp to moist and of a very stiff to hard consistency. The higher moisture contents can be attributed to clay intermixed within the till.

Bedrock was not encountered during this investigation. Water well information obtained for the site and surrounding land parcels from the Groundwater Information Center of Alberta Environment Protection suggests shale and sandstone bedrock is present at depths ranging from 30 - 100 feet.

Table 1 is a summary of the topsoil thickness as well as the subsoil depths below the ground surface, as observed within the shallow groundwater monitoring test holes.

| | Depth Be | low Existing Ground Sur | face (m) |
|-----------------------|---------------------------|------------------------------------|--------------|
| Test Hole Location | Topsoil Thickness (mm) | Silt and Clay or Clayey Silt | Till |
| TH 1 | 150 | | 0.15 - 4.27 |
| TH 2 | 100 | | 0.10 - 3.51* |
| тн з | 150 | | 0.15 - 4.27 |
| TH 4 | 250 | | 0.25 - 4.45 |
| TH 5 | 250 | | 0.25 - 3.05* |
| TH 6 | 150 | | 0.15 - 3.13* |
| TH 7 | 200 | | 0.20 - 3.35* |
| TH 8 | 250 | 0.25 - 3.51 | 3.51 - 4.42 |
| тн 9 | 180 | | 0.18 - 3.96* |
| TH 10 | 100 | 0.10 - 3.81 | 3.81 - 4.42 |
| TH 11 | 300 | 0.30 - 2.44 | 2.44 - 3.51* |
| TH 12 | 150 | | 0.15 - 4.42 |
| TH 13 | 200 | | 0.20 - 4.57 |

TABLE 1 Subsoil Conditions

Note: *Auger Refusal on cobbles

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It should be noted that transitions between the classified soil units are gradual, rather than the distinct unit boundaries presented.

2.0 **Percolation Rate Tests**

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The four percolation test holes were augered at selected accessible areas throughout the site, outside of the EBA-1995 test locations, to a depth of approximately 0.9m below the native topsoil. Loose materials from the bottom and sides of the test hole were scraped and cleaned, prior to filling with water for a minimum depth of 0.76m (30 inches). The water was allowed to soak for a minimum 15 hour period. The percolation rates at each location were subsequently observed and recorded on June 12, 1996 after again filling with water. The results are presented in Table 2.

The test results indicated that percolation rates range from 22 to 55 min/inch, that are desirable for standard septic system tile fields. As we understand similar test results were recorded at the EBA-1995 test locations.

| | Percolation Test Results | |
|------------|--|-------------------------------------|
| Test No: | РТ9 | |
| Location: | (refer to site plan) | |
| Soil Type: | Clayey SILT (Till) | |
| | Time of Reading | min/inch |
| | Hour 1 Hour 2 Hour 3 Hour 4 Hour 5 | 9.8 17.7 25.0 31.9 37.5 |
| | Average | 24.4 |

TABLE 2

| Test No: PT1 | 0 |
|--------------|---|
|--------------|---|

| Location: | (refer | to | site | plan) | |
|-----------|--------|----|------|-------|--|
|-----------|--------|----|------|-------|--|

SILT and CLAY Soil Type:

Time of Reading

| Hour 1 | 19.7 |
|--------|--------|
| Hour 2 | 28.3 |
| Hour 3 | 31.7 |
| Hour 4 | 35.5 |
| Hour 5 | 37.3 |
| | ****** |
| | 30.5 |

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min/inch

TABLE 2 Percolation Test Results

Test No: PT11

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Location: (refer to site plan)

Soil Type: Clayey SILT

Time of Reading

min/inch

| Hour 1 | 7.4 |
|---------|--------|
| Hour 2 | 13.9 |
| Hour 3 | 20.8 |
| Hour 4 | 29.9 |
| Hour 5 | 37.5 |
| | ****** |
| Average | 21.9 |

Test No: PT12

| Location: | (refer to | site plan) |
|-----------|-----------|------------|
|-----------|-----------|------------|

Soil Type: Clayey SILT (Till)

| Time of Reading | min/inch | |
|-----------------|----------|--|
| Hour 1 | 40.0 | |
| Hour 2 | 52.6 | |
| Hour 3 | 63.8 | |
| Hour 4 | 57.6 | |
| Hour 5 | 60.0 | |
| Average | 54.8 | |

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3.0 Groundwater Conditions

Free water or saturated soil conditions were not observed, during or at completion of test hole drilling. Hand-slotted, 30mm diameter p.v.c. standpipes were installed within each of the thirteen (13) test holes, for shallow water table evaluation throughout the site. The standpipes were installed at a depth ranging from 3.05m to 4.52m, below the existing ground surface. A silica filter sand (10-20) was placed around each standpipe, to backfill the test hole and permit responsive groundwater monitoring. A bentonite clay seal was placed from the ground surface to a depth of 0.45m, to prevent surface water infiltration.

The standpipes were observed in a dry condition, when monitored at completion of installation and up to three days subsequent, on June 14, 1996, as presented in Table 3.

TABLE 3 Groundwater Conditions 1996

| Fest Hole Location | Depth of Standpipe | At Completion June 11 | June 12 | June 14 |
|-----------------------|-----------------------|-----------------------------|---------|---------|
| TH1 | 4.19 | dry | dry | dry |
| TH2 | 3.07 | dry | dry | dry |
| тнз | 4.22 | dry | dry | dry |
| TH4 | 4.45 | dry | dry | dry |
| TH5 | 3.05 | dry | dry | dry |
| TH6 | 3.13 | dry | dry | dry |
| TH7 | 3.15 | dry | dry | dry |
| ТНВ | 4.34 | dry | dry | dry |
| TH9 | 3.66 | dry | dry | dry |
| TH10 | 4.22 | dry | dry | dry |
| TH11 | 3.35 | dry | dry | dry |
| TH12 | 4.29 | dry | dry | dry |
| TH13 | 4.52 | dry | dry | dry |

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

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Typically, the highest groundwater levels are observed during the months of June to August, as they are periods of groundwater table recharge. During this observation period, no adjustments for seasonal groundwater variation apply. Experience and investigations undertaken for other sites in the immediate area, have indicated that the seasonally active ponds or sloughs have not influenced the near surface water table, which is at significant depth below grade.

Groundwater information obtained from the Groundwater Information Center of Alberta Environment Protection, for water wells drilled or deepened during 1972 to 1990, within this southwest quarter section of land, indicate the static groundwater level ranges from 112 to 280 feet. Static groundwater levels of 70 feet were recorded within the northwest quarter section, for a well drilled in 1973. Land parcels surrounding the site indicate wells have static levels of 125 to 280 feet or greater.

4.0 Closure

In consideration of the conditions observed and test information obtained for the site, groundwater conditions are not anticipated to affect site development. As well, the percolation test results indicate the site subsoil conditions are suitable for standard septic tile field construction.

Additional guidelines for installation and general material requirements, are to apply to the Alberta Labour, Alberta Private Sewage Treatment and Disposal Regulation.

We trust this meets with your present requirements.

Respectfully submitted, ALMOR ENGINEERING ASSOCIATES LTD.



J.D. McFarlane, P.Eng.



J.B. Montgomery, P.Eng.

JDM:cw:EJ50



October 27, 1995

Appendix 2: Percolation Test Results

McKinley Masters P.O. Box 68005 7750 Ranchview Drive NW Calgary, Alberta T3G 3N8 EBA File: 0304-30079

Attention: Mr. Mark Kwasnicki

Dear Sir:

Subject: Percolation Testing SW ¼-1-26-3-W5M

Please find enclosed the results of percolation testing conducted for the above noted project site by EBA Engineering Consultants Ltd. (EBA) on October 25, 1995.

A review of the percolation test results indicate that the soils within the site have a percolation rate from 12.3 min/cm to 22.6 min/cm. The results of the percolation testing indicate that the soil is considered favourable for sewage treatment as described in the Alberta Environment publication "Soil Testing or Groundwater Supply Evaluation Guidelines for Residential Subdivision, September 1990."

Also enclosed for your reference is a site map (Figure 1) with the approximate percolation test locations indicated.

We trust this information meets your present requirements. Should you have any questions, please contact our office.

Respectfully submitted,

EBA Engineering Consultants Ltd.

Randy H. Gifford, E.I.T. Materials Division

RHG:NSL:mvd

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Nazim S. Lalani, P.Eng. Senior Project Engineer



TABLE 1PERCOLATION TEST RESULTS

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| Test Number | Depth (mm) | Soil Description | Percolation Rate (min/cm) |
|-------------|----------------------|--|---------------------------|
| l | 0 - 150 150 - 900 | Topsoil, silty silt, sandy | 16.3 |
| 2 | 0 - 200 200 - 900 | Topsoil, silty silt, sandy trace gravel | 15.8 |
| 3 | 0 - 150 150 - 900 | Topsoil, silty silt, trace clay, trace gravel | 22.6 |
| 4 | 0 - 250 250 - 900 | Topsoil, silty sand, silty trace gravel | 15.4 |
| 5 | 0 - 200 200 - 900 | Topsoil, silty silt, sandy some gravel | 12.3 |
| 6 | 0 - 150 150 - 900 | Topsoil, silty sand, silty trace gravel | 19.7 |
| 7 | 0 - 250 250 - 900 | Topsoil, silty sand, silty some gravel | 12.8 |
| 8 | 0 - 300 300 - 900 | Topsoil, silty silt, sand trace gravel | 14.7 |

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