

BYLAW NO. 5438

**BEING A BYLAW OF THE CITY OF LETHBRIDGE
TO ADOPT AN AREA STRUCTURE PLAN FOR LANDS
IN THE CITY OF LETHBRIDGE**

WHEREAS Section 633(1) of The Municipal Government Act, Chapter M-26, R.S.A. 2000, provides as follows:

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.

AND WHEREAS the Council of the City of Lethbridge wishes to adopt an Area Structure Plan for that area of land in the City of Lethbridge generally described as:

- 1. Block 1, Plan 9311625**
- 2. Meridian 4, Range 21, Township 8, Section 16, the West 327.1 feet of the North 334 feet of the South 400 feet of the Northeast Quarter, containing 1.015 hectares (2.51 acres) more or less**
- 3. Meridian 4, Range 21, Township 8, Section 16, that portion of Legal Subdivision Eleven (11) which lies to the East of the No. 5 Highway on Plans 5510 H.X. and 6331 J.K. and to the North of the Road on Plan 7541 J.K., containing 8.27 hectares (20.44 acres) more or less. Excepting thereout Subdivision Plan 9311625 containing 1.012 hectares (2.50 acres) more or less.**
- 4. Lot 5, Block 1, Plan 9610597**
- 5. Meridian 4, Range 21, Township 8, Section 15, Legal Subdivisions 4 and 5 in Southwest Quarter containing 45.71 hectares (112.9 acres). Excepting thereout out of Legal Subdivision 4 that portion thereof which lies to the South of a line drawn parallel with 40 feet perpendicularly distant Northerly from the Southern boundary of Legal Subdivision 4 which lies outside the limits of the Roadway on Plan 1025 E.Z. containing 0.466 of a hectare (1.15 acres) more or less.**

Including any Road Allowances contained within those Sections and Registered Plans.

NOW THEREFORE, THE COUNCIL OF THE CITY OF LETHBRIDGE, IN THE PROVINCE OF ALBERTA, DULY ASSEMBLED, HEREBY ENACTS AS FOLLOWS:

1. The Plan which is attached hereto as Appendix "A" is hereby adopted as the Area Structure Plan for that area of land in the City of Lethbridge generally described as:
 1. Block 1, Plan 9311625
 2. Meridian 4, Range 21, Township 8, Section 16, the West 327.1 feet of the North 334 feet of the South 400 feet of the Northeast Quarter, containing 1.015 hectares (2.51 acres) more or less
 3. Meridian 4, Range 21, Township 8, Section 16, that portion of Legal Subdivision Eleven (11) which lies to the East of the No. 5 Highway on Plans 5510 H.X. and 6331 J.K. and to the North of the Road on Plan 7541 J.K., containing 8.27 hectares (20.44 acres) more or less. Excepting thereout Subdivision Plan 9311625 containing 1.012 hectares (2.50 acres) more or less.
 4. Lot 5, Block 1, Plan 9610597
 5. Meridian 4, Range 21, Township 8, Section 15, Legal Subdivisions 4 and 5 in Southwest Quarter containing 45.71 hectares (112.9 acres). Excepting thereout out of Legal Subdivision 4 that portion thereof which lies to the South of a line drawn parallel with 40 feet perpendicularly distant Northerly from the Southern boundary of Legal Subdivision 4 which lies outside the limits of the Roadway on Plan 1025 E.Z. containing 0.466 of a hectare (1.15 acres) more or less.

Including any Road Allowances contained within those Sections and Registered Plans.

(all as shown on the attached Appendix "B")

and shall be known as the "Arbour Ridge Area Structure Plan".

2. This Bylaw shall come into force on the date of final passing thereof.

READ A FIRST TIME this 19 day of March, A.D. 2007

Robert D. Tubel
MAYOR

D. J. [Signature]
CITY CLERK

READ A SECOND TIME this 16 day of April, A.D. 2007

Robert D. Julek
MAYOR

Deemed
CITY CLERK

READ A THIRD TIME this 16 day of April, A.D. 2007

Robert D. Julek
MAYOR

Deemed
CITY CLERK

ARBOUR RIDGE ESTATES

AREA STRUCTURE PLAN



Environmental
Agricultural
Structural
Civil
Municipal

PREPARED FOR:
Triangle Three Developments
c/o 238 - 22 Street N
Lethbridge, AB T1H 3R7

PREPARED BY:
Hasegawa Engineering
A Division of 993997 Alberta Ltd.
1220 – 31st Street North
Lethbridge, AB T1H 5J8



Environmental
Agricultural
Structural
Civil
Municipal

HASEGAWA ENGINEERING

Consulting Professional Engineers

A Division of 993997 Alberta Ltd.

1220 31st Street North, Lethbridge, AB T1H 5J8
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March 2, 2007

Our File #: 06-020

City of Lethbridge
910 – 4th Ave. S.
Lethbridge, AB T1J 0P6

BY FAX TO: 327-6571

Attention: Gary Weikum

Re: Arbour Ridge Area Structure Plan

Dear Gary:

Attached please find the Area Structure Plan submitted for the Arbour Ridge Subdivision located in South Lethbridge.

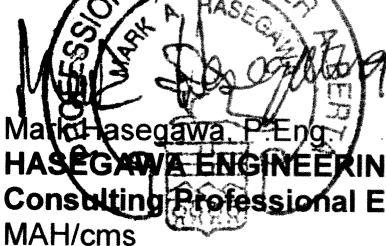
Also included are reports from sub-consultants for the following:

1. Archeology study
2. Slope stability study
3. Traffic impact study
4. Drainage study

The Area Structure Plan document was prepared under my direction. Sub-consultants were contracted to complete items 1-4 listed above.

We trust that the enclosed information meets your requirements. Please do not hesitate to contact me if you have any questions.

Yours truly,


Mark Hasegawa, P.Eng.
HASEGAWA ENGINEERING
Consulting Professional Engineers
MAH/cms

Attachments

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1.0 Introduction

1.1 Purpose

The purpose of the Arbour Ridge Area Structure Plan (ASP) is to provide a conceptual land use plan and infrastructure servicing design to support the management of urban development of approximately 47 hectares (130 acres) of land located south of Six Mile Coulee and east of Mayor Magrath Drive (refer to Figure 1).

The ASP provides a policy framework to guide the development of Arbour Ridge and specifically addresses:

- Land use by type, size and location
- Transportation network
- Conceptual underground services plan
- General location of amenities
- Sequence of development
- Development setbacks from Six Mile Coulee
- Other development issues specific to the area

This ASP establishes the planning context for future planning and development decisions for the outline plan, subdivision plan, construction of urban services and development permits for future individual properties. This ASP has been prepared in conformity with Section 633 of the Municipal Government Act.

1.2 Location and Area

The lands subject to this ASP are situated in southeast Lethbridge. The ASP is linear in shape, bounded on the north and east by Six Mile Coulee; to the west is Mayor Magrath Drive and the south boundary is defined by the City municipal boundary as shown in Figure 1.

The majority of the lands are in native pasture. Three residences are located within the ASP boundaries.

Six Mile Coulee is a steep-sided glacial melt water channel that physically defines the northern and eastern limits of the development area. The coulee has a depth of 29 metres at the western end of the area and becomes shallow at the south eastern edge of the area, rising to within 10 metres of prairie level. Six Mile Coulee is used as a drain by the St. Mary's River Irrigation District and during irrigation season a stream flows through the coulee. The coulee also receives overland storm water flows from the surrounding agricultural lands that are within the drainage basin for the coulee.

The ASP area comprises approximately 47 developable hectares of land. Developable hectares is defined as the lands located above top-of-bank setback which can be used for urban purposes, including residential lots, parks, storm ponds, roadways, etc.

1.3 Land Ownership

Current land ownership for the ASP area is summarized in Figure 2 and in tabular form in Table 1. There are two major landowners in the plan area. Triangle Three Developments owns approximately 23.3 hectares of developable hectares of land while 22 developable hectares are owned by V. M. Jubber Professional Corp. Two smaller parcels of land under separate ownership are also located in the plan area. Their total approximate developable area equals 1.7 hectares.

Table 1: Land Ownership

Current Owner	Title Area (HA)	Above Top-of Bank Setback
Triangle Three	41	23.3
Jubber	43	22
Adams	1	1
Mattu	0.7	0.7
Total	85.7	47

* setback line estimated using topographic map

1.4 Background

The lands subject to this ASP were annexed into the City of Lethbridge in the early 1980's as part of a comprehensive annexation proposal. One of the objectives of the annexation proposal was to place Six Mile Coulee within the City limits. The annexation boundary followed land ownership boundaries rather than the topographic boundary of the coulee. Therefore, a narrow sliver of prairie level lands on the south side of Six Mile Coulee were also annexed into the City along with the coulee.

Initial planning policy of the City suggested that the prairie level lands on the south side of the coulee would not be urbanized because of their small size and remote location. Further, it was thought that urban utility services would be uneconomical. However, in the mid to late 1990's, it was shown that there was a niche market for estate sized lots on the edge of the City. The narrow linear lands on the south side coulee were adaptable for this low density land use. It was also shown that urban utility services could be provided economically as a result of recent growth and servicing on the north side of the coulee. Consequently, low density residential development began on the south side of the coulee, west of Mayor Magrath Drive.

In June 2003, City Council adopted the Southeast Lethbridge Urbanization Plan (SELUP). This plan provides a conceptual framework for the preparation of area structure plans and eventual urbanization of the southeast region of the City. In the SELUP document, it is suggested that the area subject to this ASP be used for country estate purposes. Country estates are defined in SELUP as large lot single family homes on sites between 0.2 and 0.4 HA in size. In July 2005, City Council reviewed the size requirements associated with country estate development and reduced the minimum requirements to 0.13 hectares (0.321 acres) for individual lots (see Appendix 2).

2.0 Situation Analysis

2.1 Site Overview

As shown in Figure 2 (Site Map), the site is linear in shape along the south and west sides of Six Mile Coulee. The ASP area is relatively level with a gentle slope towards the coulee. The highest point of land is 911.0 m, located on the south boundary of the site, mid-point between the eastern and western limits of the site. In general the deviation in elevation does not exceed 1.5 meters.

Views of the coulee are attained nearest the coulee lip and the Rocky Mountains can be observed to the southwest.

Land along the north side of Six Mile Coulee is currently used for country residential purposes; however, plans are in place to allow urban development as part of the Southgate neighbourhood. To the west, is Mayor Magrath Drive, beyond which is a country estate subdivision similar to the proposal contained in this ASP. The City limit forms the southern boundary, beyond which is agricultural land located within the County of Lethbridge.

2.2 Physical Environment

The ASP area topography, geology, soils and drainage is suitable for urban development. The bedrock underlying the ASP area is part of the Belly River formation and is between 100m and 120m thick, and consists mainly of deposits of light coloured shale and sandstone. No outcropping of the bedrock occurs adjacent to the ASP in Six Mile Coulee as the bedrock is overlain by approximately 100m of glacial till from 3 previous ice sheets. The till is overlain by localized lacustrine deposits.

2.3 Slope Stability

Typically, coulee slopes in the Lethbridge area are susceptible to slope instability, especially as a result of the introduction of urban water. The limit of development adjacent to the coulee is established through a site specific geotechnical study (see attachment) and establishment of a development setback line in accordance with the River Valley Area Redevelopment Plan Bylaw. Consequently, a portion of prairie level land immediately adjacent to the coulee between the top-of-bank and top-of-bank setback line is deemed to be unsuitable for urban development. All lands below the top-of-bank setback line will be designated Environmental Reserve at the time of subdivision.

2.4 Existing Land Use

As shown on Figure 2 (Site Map), several houses are located within the plan area. In general, most of the land is used as dryland pasture. A small dam has been created across a finger of the coulee in the southwest portion of the site and during wet weather some ponding of water occurs. During subdivision design, the dam may be removed or may be retained to provide the base for a walking path. If retained, it is expected that a permanent drainage system will be required to ensure that slope stability or erosion issues do not develop.

2.5 Historical Resources

A historical resources overview of the site was conducted by Arrow Archaeology Ltd. (see attachment). The overview was submitted to Alberta Community Development for review and it was concluded that a historical resources impact assessment is not required.

3.0 Municipal Objectives and Policy

3.1 Municipal Development Plan

The Municipal Development Plan is a statutory plan which outlines the long term development vision for the City of Lethbridge. The Municipal Development Plan does not contain any policy that is specific to the ASP area. There are a number of general policies regarding housing, environment, river valley trail system, parks and open space that have been reflected in the ASP.

Housing Ensure that the community's wide range of housing needs are met

Environment Adhere to the top-of-bank setback line policies outlined in the River Valley Area Redevelopment Plan

River Valley Trail System Continuous trails along the top of the river valley should be a major feature of new residential developments overlooking the valley

Parks and Open Space Locate parks and open spaces in new residential areas to maximize use, accessibility and aesthetic appeal while reducing overall land requirements

3.2 Southeast Lethbridge Urbanization Plan

The Urbanization Plan is not a statutory plan, but was adopted by City Council through resolution. The purpose of SELUP is to provide a policy framework and implementation strategy to facilitate and coordinate the orderly development of southeast Lethbridge. SELUP provides direction for the preparation of ASP's in this area. Specific planning goals in SELUP which apply to this ASP include:

Land Use

- Harmonize new development with existing land uses
- Provide compatibility between various land uses
- Accommodate an orderly transition from rural to urban uses
- Protect private property from natural hazards

Transportation Maintain current high service levels for automobile mobility

Storm Water Management

- Improve quality of storm water before it is released into the river
- Regard and promote storm water as a sustainable resource
- Develop innovative ways to use storm water for recreation
- Provide public safety and property protection from storm water flooding

Natural Areas

- Recognize the biophysical uniqueness of Six Mile Coulee and ensure that the health and future of the natural systems of the coulee are maintained and enhanced
- Integrate wildlife into the urban environment

Neighbourhood Character

Design complete neighbourhoods with themes that complement community values
Create neighbourhoods that the residents can relate to
Encourage a safe and pleasant walking environment in residential areas
Design neighbourhoods that encourage social interaction
Ensure appropriate inclusion of and connections to natural areas

Figure 3 contains the Development Concept map from SELUP and demonstrates the land use context in which the ASP has been prepared.

3.3 Outline Plan

Upon adoption of the Arbour Ridge ASP, a subsequent outline plan will be prepared for the area to provide additional detail to the land use and utility infrastructure design in accordance with City standards.

3.4 Land Use Bylaw

A portion of the ASP area is classified as U-R (Urban Reserve). The purpose of this district is to control subdivision and development until the required municipal services are available, area structure plans are approved, and more appropriate alternative land use districts are applied.

Two Direct Control districts also apply to portions of the ASP area. Direct Control Bylaw 4583 applies to the western portion of the site. The purpose of this bylaw was to allow the creation of an additional lot to accommodate a single detached dwelling.

Direct Control Bylaw 4727 applies to the central portion of the ASP area. The purpose of Bylaw 4727 was to allow for the subdivision of the original quarter-section and the creation of a number of residential acreages on the north side of Six Mile Coulee. This bylaw does not allow for further subdivision on the south side of the coulee.

Upon adoption of the ASP and subsequent outline plan, an application will be made to amend the Land Use Bylaw in a manner that will facilitate the intended urban development described in the ASP. Under this process the U-R designation and two Direct Control Bylaws will be repealed.

4.0 Land Use Concept

4.1 Development Objectives

The overall goal of the Arbour Ridge Area Structure Plan is to establish a framework for creating an attractive and liveable residential area. The key objectives of this ASP are:

- Provide for a unique large lot residential area
- Ensure that development is setback sufficiently from the edge of Six Mile Coulee to protect development
- Provide for a transportation concept with sufficient flexibility to accommodate the future alignment of 43rd Street South
- Respect the long term agricultural intentions of adjacent landowners in the County of Lethbridge

4.2 Land Use Concept Overview

The general land use concept is depicted on Figure 4 (Concept Plan). The purpose of the land use concept is to show the general relationship of proposed land uses. It is intended to guide future growth and development within the boundaries of the ASP area. Therefore the location and size of the land uses shown on Figure 4 are conceptual and general. The exact size and location of a particular land use will be defined at the outline plan stage.

The Arbour Ridge area, when complete, will be comprised primarily of single family homes on large lots. The isolated location of the development and relatively small size does not warrant the provision of land uses normally found in other residential areas in Lethbridge. It has been concluded that local commercial, religious assembly and school sites, for example are not warranted in this area. Ancillary residential land uses will be limited to small park development which serves the local area. Where possible, storm water storage facilities may be located adjacent to park areas and designed for passive amenity purposes.

Vehicular circulation will be achieved through a limited hierarchy of roads. Major access to the site will occur from Mayor Magrath Drive. A single collector roadway has been designed to intersect with Mayor Magrath Drive and traverse through the ASP area. Local residential streets will provide connection to the surrounding residential lots.

Pedestrian access points will be provided in strategic locations to permit easy access to the undeveloped prairie level lands adjacent Six Mile Coulee. Pedestrian access will also be provided to Mayor Magrath Drive on the assumption that the City will construct a pathway parallel to Mayor Magrath Drive at a future date, which will provide access to the developed areas on the north side of Six Mile Coulee.

The developer will plant and maintain a row of trees, to act as a buffer, along the rear of all lots that back directly onto the adjacent agricultural lands. These trees will be planted when the subdivision is serviced and will be maintained until the lots are sold to a homebuyer.

The overall gross developable area is 47 hectares. The net area available for residential lots will be 34.4 hectares. Based upon the minimum lot size of 0.13 hectares, the maximum number of dwelling units is expected to be 257.

Table 2: Land Use Predictions

	Hectares	Percent
Gross Area	85.7	
Environmental Reserve	38.7	45.2
Gross Developable Area	47.0	54.8
Total	85.7	100.0
Gross Developable Area		
Roads & Walkways	9.4	20.0
Municipal Reserve	1.0	2.1
Utilities/Storm Ponds	2.2	3
Net Developable Area	34.4	73.2
Total	47.0	100.0
Net Developable Area		
Low Density Residential	34.4	100.0
Total	34.4	100.00

Table 3: Population Projections

	Dwelling Units	Units per Hectare	Persons per Unit	Total Population	Persons per Hectare
Gross Developable Area 47.0 ha	257	5.46	3.0	771	16.4
Net Developable Area 34.4 ha	257	7.47	3.0	771	22.4

5.0 Transportation

5.1 Road Network

A single collector roadway will traverse the area from the northwest to the southeast. The collector roadway will intersect with Mayor Magrath Drive (Highway 5) in the northwest. At this time, it is unknown whether the collector roadway will have a single access or a second access point in the southeast. Further study of the future alignment of 43rd Street is required before a decision can be made. Until it is decided if access to 43rd Street will be available, designs will ensure adequate access from Highway 5 and assume a single access point (refer to Figure 5 for a conceptual layout).

5.2 43rd Street Options

Due to uncertainty associated with the future development of 43rd Street, the access to the subdivision will be solely from Highway 5. As information about 43rd Street becomes available, it will be discussed with the Transportation Department.

5.3 Highway 5 Interface

The intersection of Mayor Magrath Drive and the Arbour Ridge collector roadway occurs immediately at the southern City limits. Consequently, Mayor Magrath Drive transitions into Highway 5 at this intersection. Highway 5 is a Provincial highway within the County of Lethbridge. The design of the intersection of Mayor Magrath Drive and the collector roadway will require input from both the Province and County.

5.4 Traffic Impact Assessment

A traffic impact study was performed for the subdivision by Bunt & Associates (refer to attachment). The purpose of this analysis was to evaluate the effect of utilizing one access point to Highway 5. The results of that analysis are included in the attached report.

6.0 Municipal Infrastructure

6.1 Sanitary Sewer Collection System

A new lift station will be required to service this area. It will be sized to also include the developed lands on the west side of Mayor Magrath Drive. The sanitary sewer will discharge in the Mayor Magrath trunk as per the Southeast Lethbridge Urbanization Plan. A connection from Southgate will also be considered depending upon the timing of construction.

An estimation of peak and average sewage flow was developed to ensure adequate capacity in that line. A preliminary layout of the sewer and lift station is shown in Figure 5. The sewage main will be designed to adequately service the needs of the future Jubber expansion (Phase 3, 4 and 5). The estimated sewage production volumes are shown in Table 4.

Table 4: Predicted Sewage Production

Area	Pop	PF	DWF l/d	WWF l/d	II l/d	Total m ³ /d	Total l/s
Triangle Three	426	4.01	683,136	213,000	63,900	960	11
Jubber	345	4.05	559,157	172,500	51,750	783	9
Total	771	3.87	1,245,293	385,500	115,650	1,743	20

6.2 Water Supply and Distribution

Site water will be provided by an existing 10" main that is located on the west side of Highway 5. A preliminary layout of the water main is shown in Figure 6. The water main will be designed to adequately service the needs of the future Jubber expansion (Phase 3, 4, and 5).

Predicted water usage for this subdivision is estimated based on predicted population and average daily demand. Using an average daily demand of 700 l/d/cap (City of Lethbridge Design Standards Section 4.02), the average demand is estimated to be 540,000 l/d. In addition to this, the expected fire flow will be 75 l/sec. Based on the City of Lethbridge Design Standard, the peak hour demand is expected to be 1.9 ml/d.

Twinning of the existing 250 mm water main along Highway 5 will be required to meet City of Lethbridge servicing standards for the proposed development. Future connection of the proposed development through County lands, or internal looping may also be necessary to meet servicing standards.

6.3 Major and Minor Storm Drainage System

A Master Drainage Plan was completed for Arbour Ridge Estates by Westhoff Engineering and Resource Inc. (Westhoff, 2006). Information from this report was used to develop a preliminary drainage plan (refer to attachment).

The site is relatively flat with a slight ridge running east to west through the property. A very small proportion of offsite drainage will flow towards the subdivision (see Figure 7). Runoff from offsite overland flow impacting the developed area will be diverted to the drainage ditch on Highway 5 or piped through the subdivision to the coulee.

Onsite storm water will be captured in two ponds: Pond 1 and Pond 2. Pond 1 is proposed to be a wet pond and capture runoff from Phase 1-2 (refer to Figure 7). Pond 2 is proposed to be a wet pond, and will capture runoff from Phase 3. Each pond will discharge to Six Mile Coulee at a rate not exceeding 1.0 l/s/ha. The preliminary storm drain layout is shown in Figure 7. An impervious area assumption of 35% was utilized to estimate runoff and size drainage structures. In addition, aerial photos of the Southridge Subdivision were utilized to estimate impervious areas in similar developments. This analysis indicated the 35% is appropriate for this type of development (refer to Figure 8)

The wet pond will be designed to retain water drained into it. A liner will be designed and installed. Makeup water will be provided by St. Mary's Irrigation District (refer to attached letter).

6.4 Shallow Utilities

Shallow utilities, including electrical services, telephone and cable television required to service the ASP area can be achieved by extensions to the existing infrastructure.

7.0 Sequence of Urban Growth

7.1 Phasing

The development phasing for the ASP area should proceed in an orderly pattern based upon servicing availability. The general direction of development is shown on Figure 4 (Concept Plan). It is expected that development will begin in the northwest area of the site and conclude in the southeast area.

Appendix A

Figures



APPROXIMATE SCALE = 1:75,000



Notes:

This is a computer drawn and shall not be reproduced in any form without written permission of the author. All dimensions are in meters unless otherwise stated. Any dimensions in parentheses refer to construction. Any dimensions not shown are to be used for construction and are indicated by the word 'Omitting'.

NO.	REVISION	DATE	BY

HE Hassegrava Engineering

LETHBRIDGE OFFICE
 1220 - 31 Street North
 Lethbridge, Alberta T1H 5J8
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 Fax: 350-7729
 email: haseg@hassegrava.com

CALGARY OFFICE
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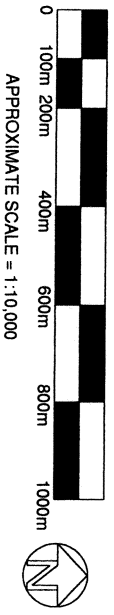
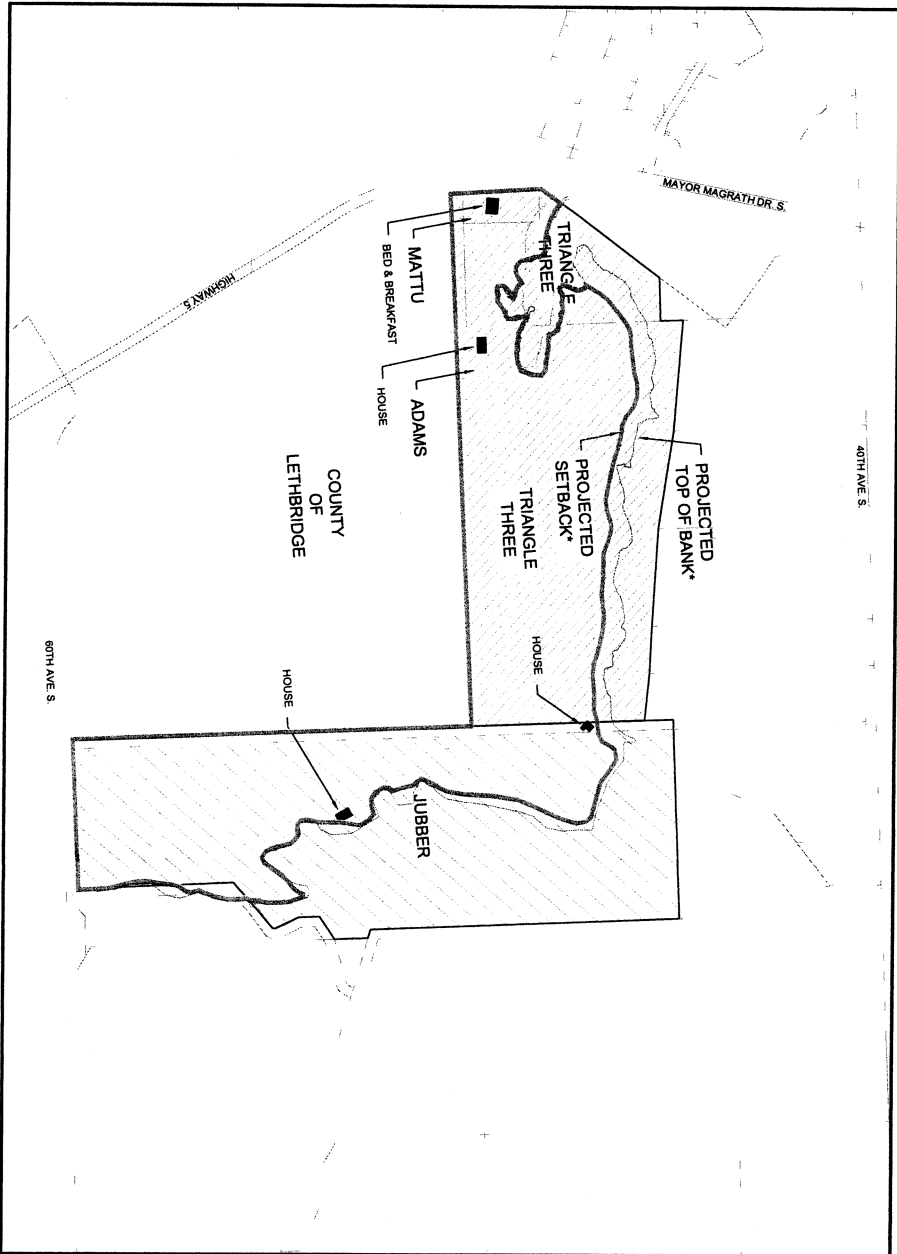
CLIENT
 TRIANGLE THREE
 DEVELOPMENTS

PROJECT TITLE
 ARBOUR RIDGE
 ESTATES

PROJECT NO.
 LOCATION PLAN

DESIGN
 DRAWN: HE
 CHECKED: MDO
 DATE: AS SHOWN
 PROJECT NO: HE

PROJECT NO.
 06020
DATE
 JUNE 21, 2005
FIGURE
 Figure 1



* PROJECTED TOP OF BANK & SETBACK ARE BASED ON CRITERIA SET FORTH IN THE CITY OF LETHBRIDGE RIVER VALLEY AREA DEVELOPMENT PLAN (BYLAW 5277) & SITE SPECIFIC GEOTECHNICAL ENGINEERING BY WAA ENVIRONMENTAL

ASP BOUNDARY

Notes:

This is a schematic drawing and shall not be reproduced in any form without written permission of the author. All dimensions are in millimeters unless otherwise specified. All dimensions are to be used for construction until so approved. Do not scale Drawing. All construction shall be in accordance with the latest municipal, etc. codes.

No.	Revision	Date	By
1	REVISED JUBBER SETBACK	12/06/06	MDO

LETHBRIDGE OFFICE
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 Ph: 328-2286
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 Ph: 250-5261

CLIENT
 TRIANGLE THREE DEVELOPMENTS

PROJECT TITLE
 ARBOUR RIDGE ESTATES

DRAWING TITLE
 SITE MAP

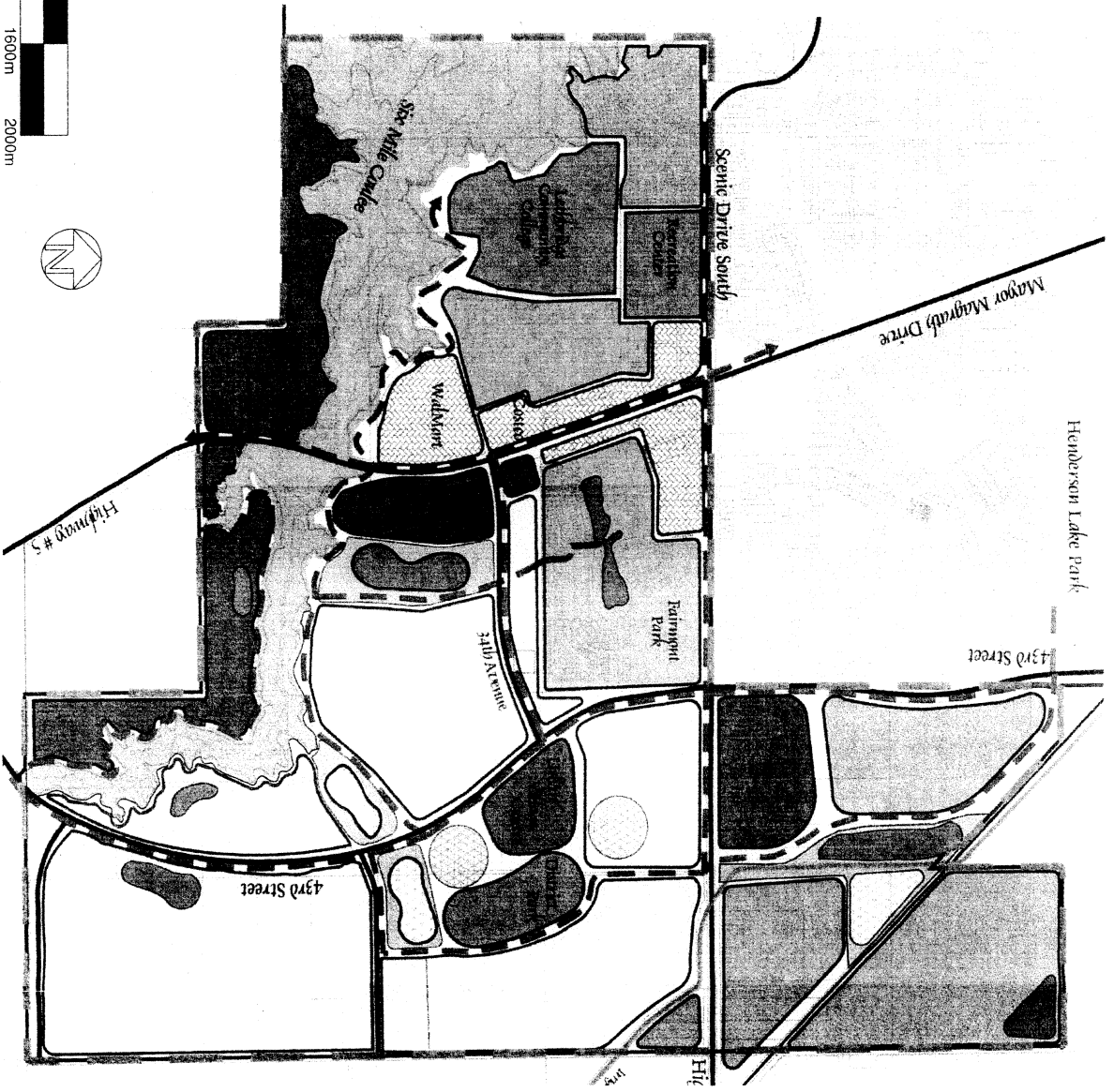
PROJECT NO.	DATE
06020	AS SHOWN
HE	HE
MDO	HE
HE	HE
HE	HE

Figure 2
 JUNE 21, 2005

- Neighbourhood
- Proposed County Estates
- Commercial
- Urban Village Centre
- Employment Center
- Existing Institutional
- Possible Future County Employment Centre
- Storm Water Management Facilities
- Water Link
- District Park
- Open space
- Major School Sites
- Six Mile Coulees
- Pedestrian and Bicycle Linkages
- City Boundary
- Possible Future Interchange



APPROXIMATE SCALE = 1:20,000



Notes:

This is a design drawing and not a final construction drawing. It is not to be used for construction without the approval of the Engineer. Contractor to check and verify all dimensions and conditions on site. Engineer immediately notified of any errors and omissions reported to the Engineer. Do not scale Drawing. All construction shall be in accordance with the applicable code, bylaws, etc. code, methods, etc. code.

No.	Revision	Date	By

HE Hargreaves Engineering

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CLIENT
 TRIANGLE THREE DEVELOPMENTS

PROJECT TITLE
 ARBOUR RIDGE ESTATES

DRAWING FILE
 SETUP DEVELOPMENT CONCEPT

DATE
 06020

AS SHOWN
 Figure 3

JUNE 21, 2005

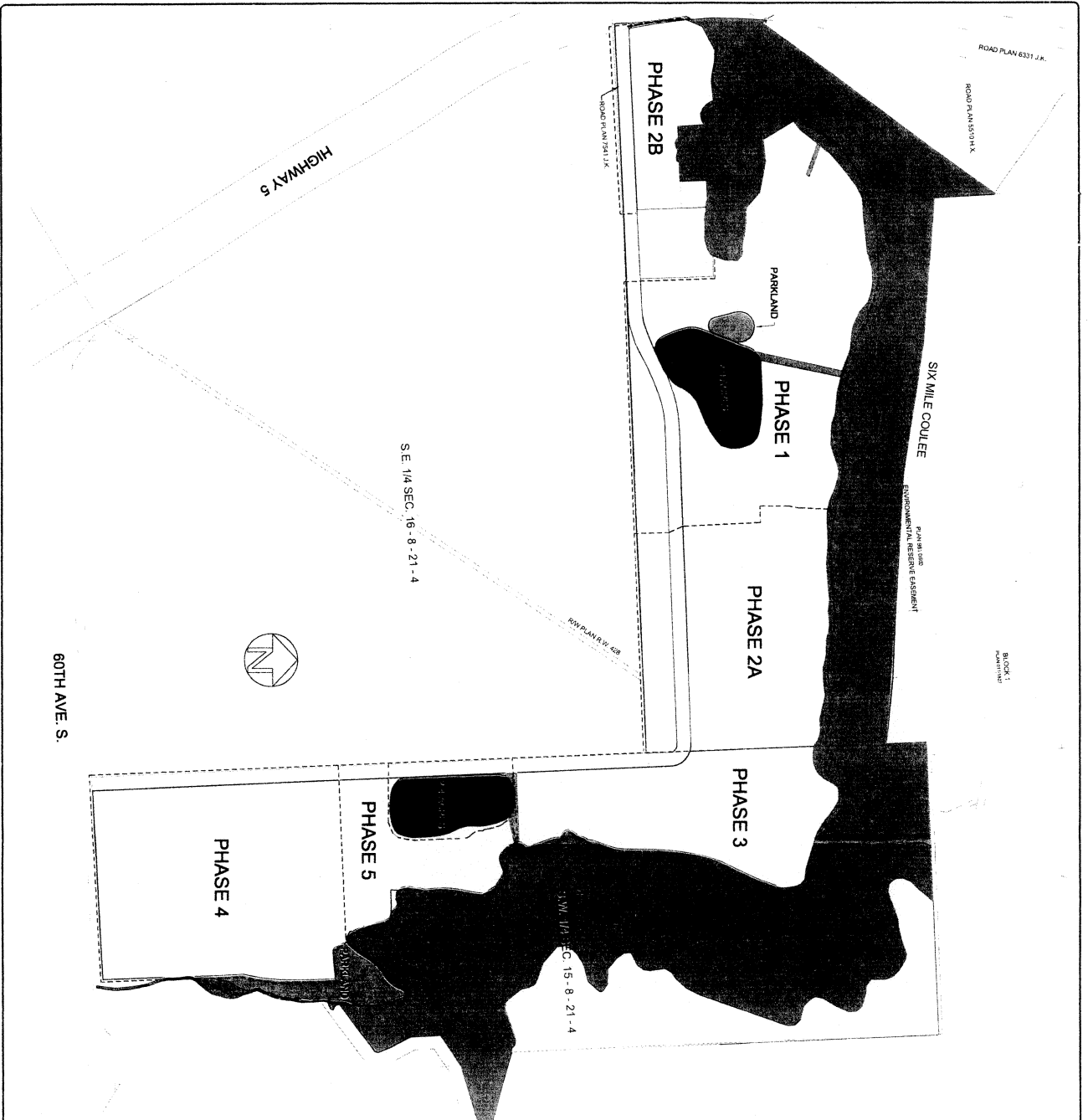


TABLE 2. LAND USE PREDICTIONS

	HECTARES	PERCENT
GROSS AREA	85.7	
ENVIRONMENTAL RESERVE	39.7	46.2
GROSS DEVELOPABLE AREA	47.0	54.8
TOTAL	85.7	100
GROSS DEVELOPABLE AREA		
ROADS & WALKWAYS	9.4	20
MUNICIPAL RESERVE	1.0	2.1
UTILITIES/STORM PONDS	2.2	4.7
NET DEVELOPABLE AREA	34.4	73.2
TOTAL	47.0	100
NET DEVELOPABLE AREA		
LOW DENSITY RESIDENTIAL	34.4	100
TOTAL	34.4	100

- LEGEND**
- RESIDENTIAL AREA (33 ACRE LOTS AVERAGE SIZE)
 - ▨ ENVIRONMENTAL RESERVE/PARKS
 - ▩ MUNICIPAL RESERVE
 - ▧ ROAD RWY (20.0m & 16.5m WIDTH)
 - ▦ MANMADE WATER FEATURE (PONDS)
 - EASEMENT
 - EXISTING RESIDENCES
 - - - BOUNDARY
 - - - WALKING PATH

Notes:

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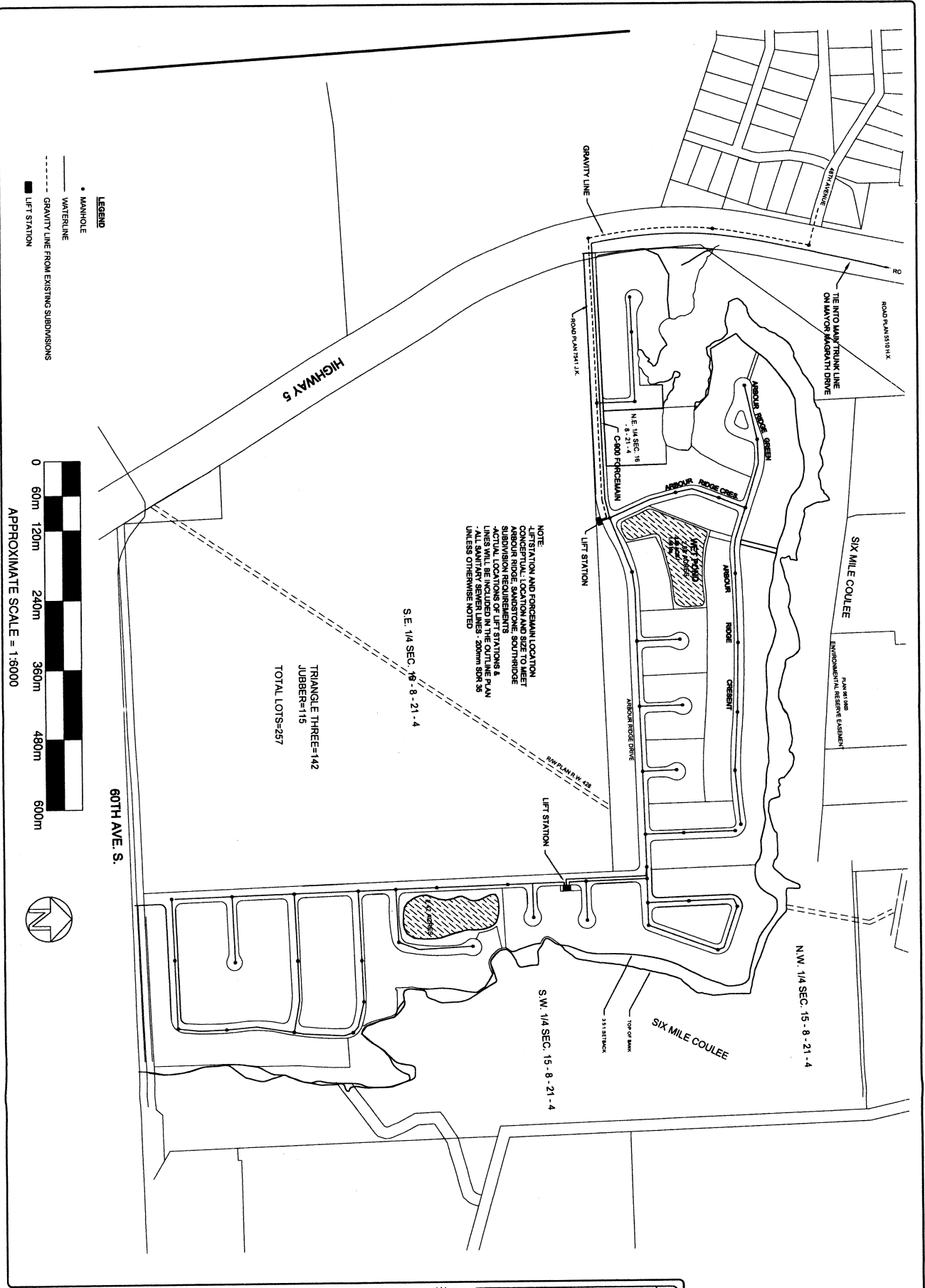
HE Hestera Engineering
 1220 - 31 Street North
 Lethbridge Alberta T1H 5J8
 Ph: 328-2686
 Fax: 328-2728
 email: hestera@hevel.com

CLIENT
 TRIANGLE THREE DEVELOPMENTS

PROJECT TITLE
 ARBOUR RIDGE ESTATES

DRAWING TITLE
 PROPOSED LAND USE CONCEPT

DATE	BY	SCALE
HE	MDO	06020
HE	HE	AS SHOWN
HE	HE	AS SHOWN
DATE	BY	SCALE
JUNE 21, 2005	HE	Figure 4



LEGEND

- MANHOLE
- WATERLINE
- GRAVITY LINE FROM EXISTING SUBDIVISIONS
- LIFT STATION

0 60m 120m 240m 360m 480m 600m

APPROXIMATE SCALE = 1:6000

NOTE
 CONCEPTUAL AND FORCEMAIN LOCATION, CONCEPTUAL LOCATION AND SIZE TO MEET ARBOUR RIDGE, SANDSTONE, SOLTHERIDGE SUBDIVISION REQUIREMENTS. ACTUAL LOCATION AND SIZE TO BE DETERMINED IN THE OUTLINE PLAN. ALL SANITARY SEWER LINES - 200mm SDR 35 UNLESS OTHERWISE NOTED.

TRIANGLE THREE-142
 JUBBER-115
 TOTAL LOTS=257

S.E. 1/4 SEC. 16-8-21-4

S.W. 1/4 SEC. 15-8-21-4

N.W. 1/4 SEC. 15-8-21-4

SIX MILE COULEE

60TH AVE. S.



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NO.	REVISED	DATE	BY
1	DESIGNED	1206	HRO
2	CHECKED		

HE Hasegawa Engineering

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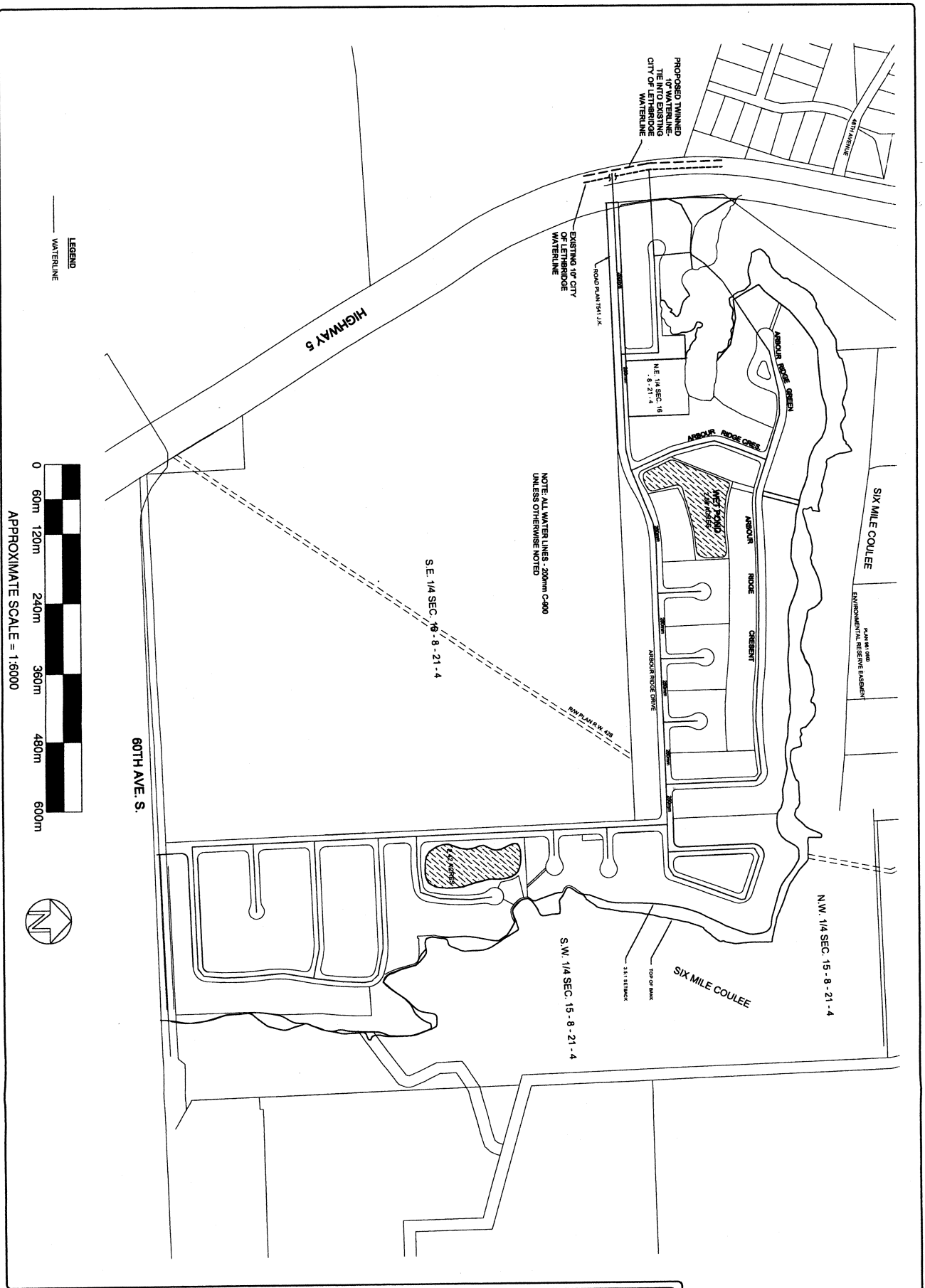
CALGARY OFFICE
 201 2816 6-21 Street NE
 Calgary AB T2E 6Z2
 Ph: 250-5261

PROJECT TITLE
 TRIANGLE THREE DEVELOPMENTS

ARBOUR RIDGE ESTATES

CONCEPTUAL SANITARY SEWER LAYOUT

DESIGNER	HE	PROJECT NO.	06020
CHECKED	MDO	TITLE	AS SHOWN
APPROVED	HE	DATE	JUNE 21, 2005
Figure 5			



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Do not scale Drawing

All construction shall be in accordance with the code, may it be construction, reference etc. code.

1 REVISED WATERLINE - 12800 HOOD LAYOUT

No.	Revision	Date	By
1	REVISED WATERLINE - 12800 HOOD LAYOUT		

PROJECT TITLE
ARBOUR RIDGE ESTATES

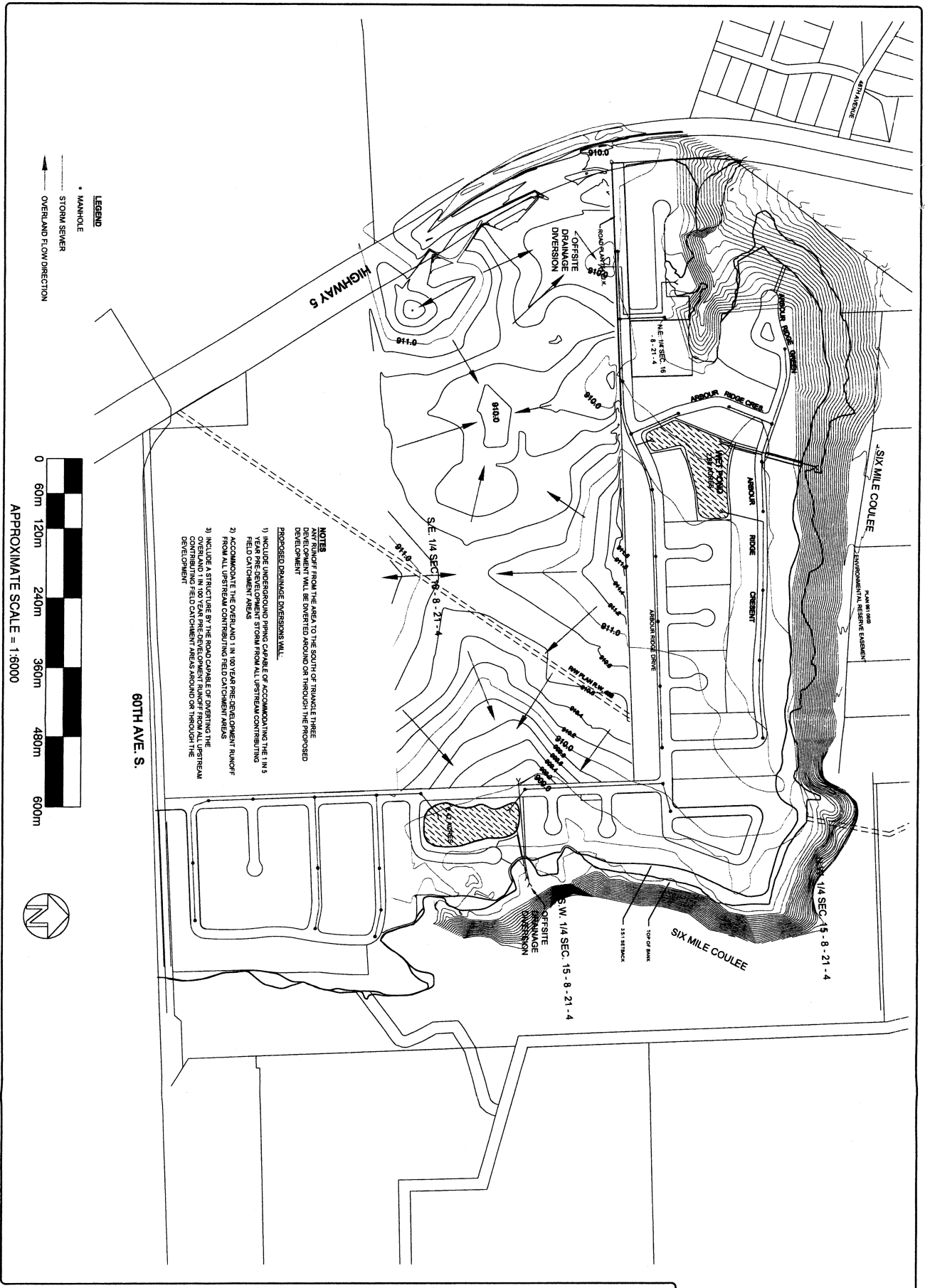
PROJECT TITLE
TRIANGLE THREE DEVELOPMENTS

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DESIGNED BY:
CONCEPTUAL WATERLINE LAYOUT

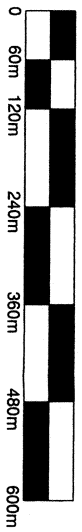
DESIGNED BY	HE	DATE	06/20
CHECKED BY	MDO	DATE	AS SHOWN
APPROVED BY	HE	DATE	AS SHOWN
DATE	HE	DATE	AS SHOWN

Figure 6



LEGEND

- MANHOLE
- STORM SEWER
- OVERLAND FLOW DIRECTION



APPROXIMATE SCALE = 1:6000



NOTES

1) DEVELOPMENT FROM THE AREA TO THE SOUTH OF TRIANGLE THREE DEVELOPMENT WILL BE DIVERTED AROUND OR THROUGH THE PROPOSED PROPOSED DRAINAGE EXPRESSIONS SHALL.

2) INCLUDE UNDERGROUND PIPING CAPABLE OF ACCOMMODATING THE 1 IN 5 FIELD CATCHMENT AREAS

3) ACCOMPANY THE OVERLAND 1 IN 100 YEAR PRE DEVELOPMENT RUNOFF FROM ALL STRIPES CONTRIBUTING FIELD CATCHMENT AREAS

4) INCLUDE A STRUCTURE BY THE ROAD CAPABLE OF DIVERTING THE CONTRIBUTING FIELD CATCHMENT AREAS AROUND OR THROUGH THE DEVELOPMENT

Notes:

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1	REVISED OFFSITE DRAINAGE	12808	11008
DATE	BY	DATE	BY

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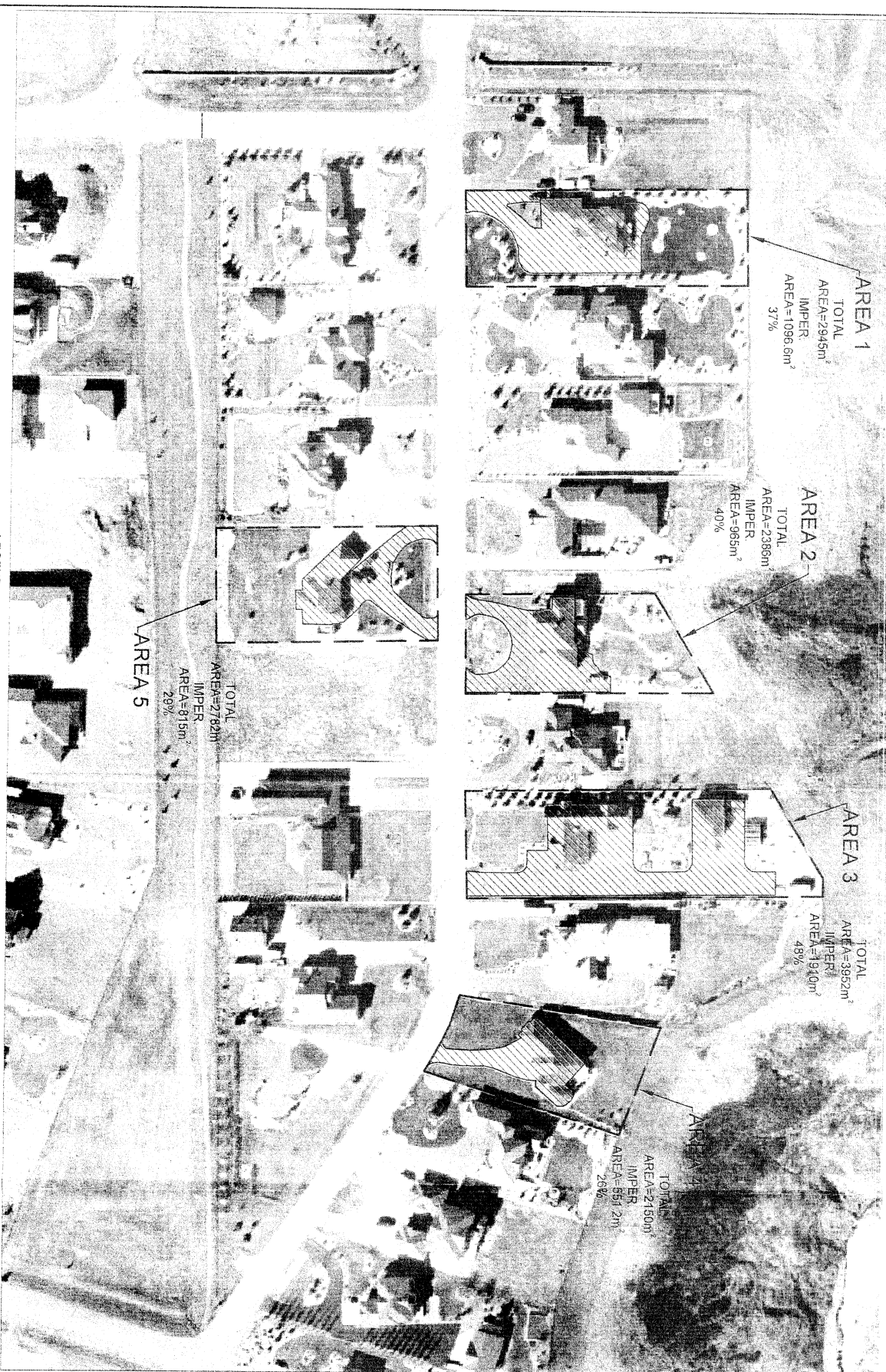
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CLIENT
TRIANGLE THREE DEVELOPMENTS

PROJECT TITLE
ARBOUR RIDGE ESTATES

DRAWING TITLE
CONCEPTUAL STORM SEWER LAYOUT

DESIGNER	HE	CHECKED BY	HE
DATE	MDO	DATE	06020
PROJECT	HE	STATUS	AS SHOWN
DATE	HE	FIGURE	Figure 7
DATE	JUNE 21, 2005		



AREA 1
 TOTAL AREA=2945m²
 IMPERV AREA=1096.6m²
 37%

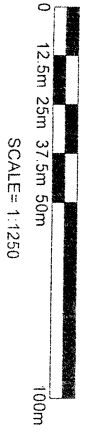
AREA 2
 TOTAL AREA=2386m²
 IMPERV AREA=965m²
 40%

AREA 3
 TOTAL AREA=3952m²
 IMPERV AREA=1940m²
 48%

AREA 4
 TOTAL AREA=2150m²
 IMPERV AREA=561.2m²
 26%

AREA 5
 TOTAL AREA=2782m²
 IMPERV AREA=815m²
 29%

LEGEND
 --- LOT BOUNDARY
 [Hatched Box] IMPERVIOUS AREA



AVERAGE IMPERVIOUS AREA PER LOT = 36%

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 All construction shall be in accordance with the contract, may be the construction, methodical, etc. cost.

No.	Description	Date	By

Hasagawa Engineering

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PROJECT TITLE
 SOUTHRIDGE IMPERVIOUS AREAS DEVELOPMENTS

DRAWING TITLE
 ANALYSIS PLAN

DATE	BY	PROJECT NO.
HE	MDO	06020
HE	HE	AS SHOWN
HE	HE	Figure 8

NOV 23, 2006

Appendix "B"

BYLAW 5438
PROPOSED ARBOUR RIDGE
AREA STRUCTUE PLAN

