

VULCAN COUNTY

Vulcan - Alberta

BY-LAW NO. 2007-020

Being a by-law in Vulcan County in the province of Alberta, to adopt the Crystal Blue Harbour Area Structure Plan, being a plan to guide the development of land in W 1/2 26 18 22 W4M in Vulcan County.

Pursuant to Sections 230, 606 and 692 of the Municipal Government Act, being Chapter M-26 of the Revised Statutes of Alberta, 2000, and any amendments thereto, the Council of Vulcan County, duly assembled, hereby enacts as follows:

1. THAT the Council of Vulcan County does hereby adopt the Crystal Blue Harbour Area Structure Plan as shown on "Schedule A", and
2. That the Crystal Blue Harbour Area Structure Plan comes into force on the final date of passing thereof.

READ A FIRST TIME this 18th day of September, 2007.

READ A SECOND TIME this 15th day of July, 2009.

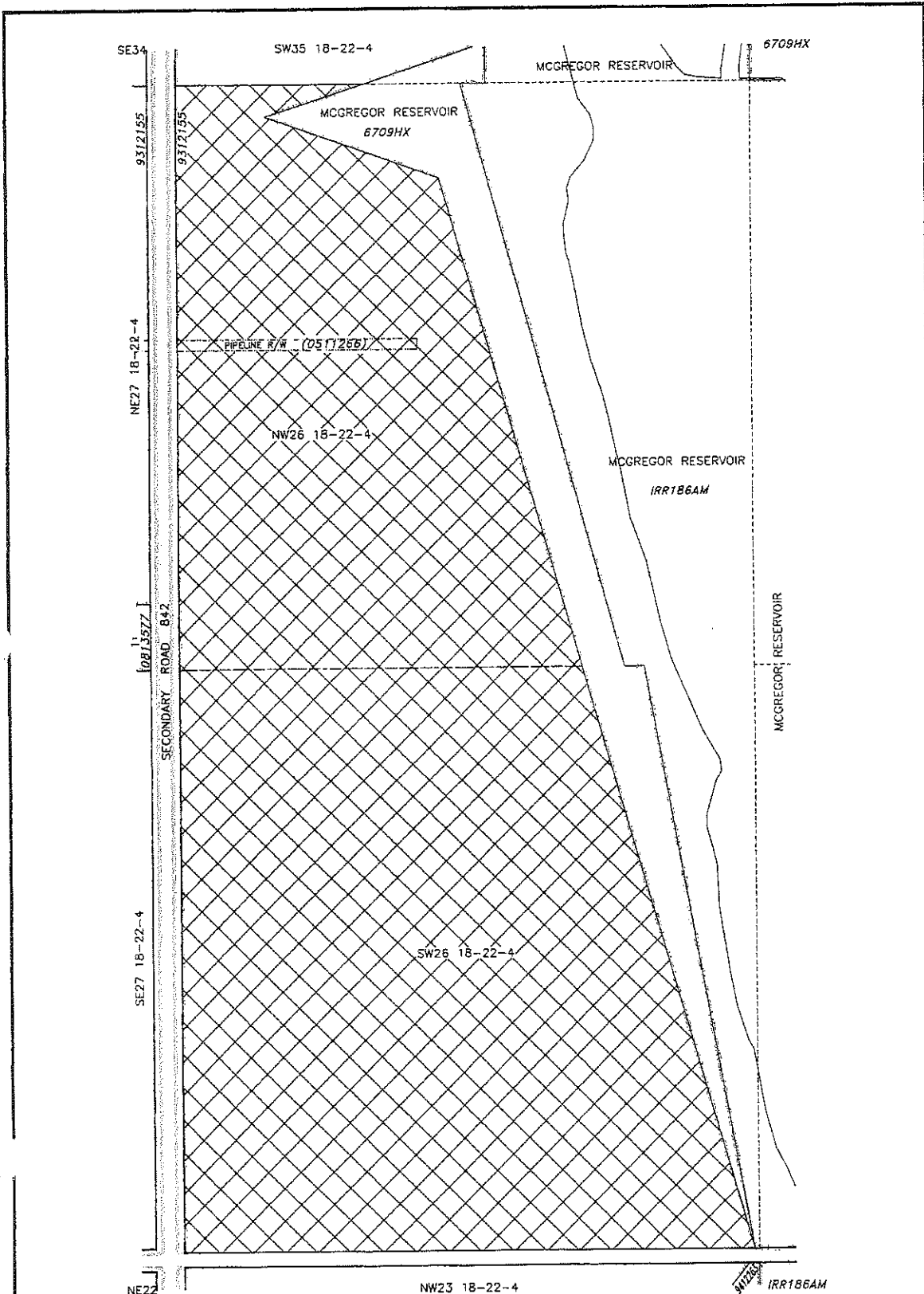
READ A THIRD TIME this 15th day of July, 2009.



Reeve



County Administrator



**LAND USE DISTRICT REDESIGNATION
SCHEDULE 'A'**



FROM: RESERVOIR VICINITY - RV
 TO: GROUPED COUNTRY RESIDENTIAL - GCR
 PORTION OF W 1/2 SEC 26, TWP 18, RGE 22, W 4 M
 MUNICIPALITY; VULCAN COUNTY
 DATE; MAY 28, 2009

Bylaw #: _____
 Date; _____

MAP PREPARED BY:
 OLDMAN RIVER REGIONAL SERVICES COMMISSION
 3105 18th AVENUE NORTH, LETHBRIDGE, ALBERTA
 TEL. 329-1344 T1H 568
 "NOT RESPONSIBLE FOR ERRORS OR OMISSIONS"



AREA STRUCTURE PLAN FOR SUBDIVISION
CRYSTAL BLUE HARBOUR
PORTION OF NW ¼ 26-18-22-4 and SW ¼ 26-18-22-4

Vulcan County



Environmental
Agricultural
Structural
Civil
Municipal

PREPARED FOR:
Crystal Blue Developments
c/o Rick Wiens
4111 MacLeod Trail South
Calgary, AB T2G 2R7

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
Bus: 328-2686 Fax: 328-2728 E-mail: office@hasegawa.ca

June 9, 2009

Our File #: 06-175

Crystal Blue Developments
c/o Rick Wiens
4111 MacLeod Trail South
Calgary, AB T2G 2R7

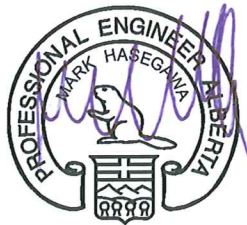
Re: Crystal Blue Harbour Area Structure Plan

Dear Sir:

Attached please find the Area Structure Plan submitted for the proposed Crystal Blue Harbour subdivision located in Vulcan County.

Please review this document and contact our office with any questions or comments.

Yours truly,



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

Attachment

cc: Vulcan County
ORRSC

PERMIT TO PRACTICE HASEGAWA ENGINEERING
Signature <u><i>Mark Hasegawa</i></u>
Date <u>6/9/09</u>
PERMIT NUMBER: P 8170
The Association of Professional Engineers, Geologists and Geophysicists of Alberta

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1.0 INTRODUCTION

1.1 Purpose

The purpose of the Crystal Blue Harbour 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 220 acres of land located on the northwest corner of McGregor Lake (refer to Figure 1).

The ASP provides a policy framework to guide the development of Crystal Blue Harbour and specifically addresses the following:

- Land use by type, size and location
- Transportation network
- Conceptual underground services plan
- General location of amenities
- 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.

1.2 Location and Area

The lands subject to this ASP are situated near McGregor Lake, Alberta (NW ¼ 26-18-22-4 and SW ¼ 26-18-22-4). The proposed development is rectangular in shape and is located adjacent to the lake on the east with farmland on all other sides. The property is within the jurisdiction of Vulcan County and is currently used as pasture or farmland. The developers also own the land located directly south of the property, where the sewage treatment facility is proposed to be located.

The subject land is utilized for crop growth and there are no current structures located within the ASP boundaries. There are no known environmentally sensitive areas within the proposed area for development. However, there is an environmentally protected area located between the development and proposed sewage treatment facility. The site topography is shown on Figure 2. As can be seen by this information the site drains to the Lake.

The 220 acre parcel under consideration is currently native grassland and is zoned for agricultural use. A rezoning to low density country residential land use (1/4 acre minimum) is requested as part of this application. The proposed use of this land will fall within the criteria set forth for general residential use within the County. Developable hectares are defined as the lands 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 1. Crystal Blue Developments Ltd. owns all developable hectares of land within the ASP (refer to attached land title). Land ownership of adjacent properties is also identified in Figure 1.

2.0 LAND USE CONCEPT

2.1 Development Objectives

The overall goal of the Crystal Blue Harbour 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 sized lot residential area
- Promote an environmentally friendly development
- Meet or exceed County development criteria to provide for sustainable development
- Ensure the development adds value to the overall community for improved standard of living
- Respect the long-term agricultural intentions of adjacent landowners in Vulcan County
- Comply with Travers- McGregor Area Structure Plan

2.2 Land Use Concept Overview

The general land use concept is depicted on Figures 3 (Concept Plan). Figure 3 illustrates the proposed land use within the ASP boundary. Purpose of the land use concept in Figure 3 is to show the general relationship of proposed land uses. This map 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 Figures 3 have been designed to meet Vulcan County planning criteria. In Figure 4 a potential lot layout schematic has been presented, but this layout is tentative and could be modified during the development process.

The Crystal Blue Harbour area, when complete, will be comprised primarily of single family homes on large lots. It has been concluded that local commercial, religious assembly and school sites, for example, are not warranted in this area, and will be accessed through the Village of Milo. Ancillary residential land uses will be limited to a large park development which serves the local area and provides for public access to the lake. Where possible, storm water storage facilities may be located adjacent to park areas

and designed for passive amenity purposes. A Home Owners Association will be established to own and maintain common land and facilities.

Vehicular circulation will be achieved through a limited hierarchy of roads. Major access to the site will occur from Highway 842 (refer to Figure 3). A buffer will be provided along the highway right-of-way through the use of a boulevard. All roads within the development will be paved.

Pedestrian access points will be provided in strategic locations to permit easy access to Crystal Blue Harbour and subdivision features.

The estimated distribution of land use within the proposed ASP is shown in Table 1 below. A statistical summary of housing and population projections for the ASP area is provided in Table 2. Crystal Blue Harbour will be a low density residential area with a minimum single family lot size of 11,000 square feet. The overall gross density for Crystal Blue Harbour is projected to be 2 units per gross developable acre. The total gross developable area is approximately 220.9 acres. The projected number of dwelling units is therefore expected to be approximately 432 initially and reach 450 units once the gas well onsite is removed. Total population will likely be in the order of 1296 – 1350 people. Many of these residents are anticipated to be seasonal.

Table 1: Land Use Predictions

	Acres	Percentage
Roads & Walkways	47.3	21%
Urban reserve	33.6	15%
Storm Ponds	11.7	5%
Single Family Residential Lots	128.3	58%
Gross Developable Area	220.9	

Table 2: Population Projections

	Dwelling Units	Persons per Unit	Total Population
Net Developable Area +/- 128.3 Acres	432	3	1296

2.3 *Historical Land Uses*

The land has been traditionally used for agricultural purposes. In addition, there is a gas well located on the property. The Energy and Utilities Board (EUB) has been contacted and the well owner has been contacted. The existence of this well restricts the development of permanent residential structures within 100 m of the well.

Currently land surrounding the gas well is classified as urban reserve. Once the well is removed, the developers intend to rezone some of this land to residential usage. A potential layout of these lots is shown in Figure 5.

3.0 SERVICING

3.1 Sanitary Sewer System

Due to the nature of this development, and the size of lots, a centralized sewage treatment facility will be essential. An estimation of peak and average sewage flow was developed to ensure adequate capacity. Based on a 3.0 per capita average it is estimated that average dry flow from the proposed development will be 540,000 l/d and the peak flow will be 2.05 million l/d (dry flow; refer to Table 3). A preliminary layout of the sewer and lift station is shown in Figure 5.

As shown in the attached figures a sewage treatment lagoon has been proposed as the wastewater treatment facility for the development. Preliminary design for the lagoon has been prepared based on the sewage generation rates described below. A preliminary layout of the lagoon is attached (refer to Figure 6). The lagoon will be sized and located to meet AENV standards. Water from the lagoon will be recycled for irrigation or land application purposes. All sewage facilities will be designed to protect the water quality of the lake.

Based on current site information, it appears that a lift station will be required to service the low lying areas of the development. As depicted in this layout, sewage will be sent to the treatment lagoon via a force main. The sewage main, pump station and lagoon will be designed to adequately service the needs of the future expansion of the land directly north of the development.

Table 3: Predicted Sewage Production

	Unit dry flow	Number of Lots	Total	Total Average Dry Flow		Wet Flow	Peak Factor	Peak Flow	Total Peak Flow
	l/d/cap		capita	l/d	l/min	l/d		l/d	l/d
Crystal Blue Harbour	400	450	1350	540,000	375.0	675000	3.8	2052000.0	2727000.0

3.2 Water System

A potable water source is an essential requirement for any development. Potable water will be obtained from the Village of Milo (refer to attachment). The village has an additional capacity to handle approximately 90 acre feet of water now and water rights are being acquired to expand that capacity. A water line will be designed to convey water from the village facility to the development. If needed, resources will be applied to the village treatment system to ensure adequate supply. To allow for future water needs an

agreement to purchase 650 acre feet of water rights from the River Bend Hutterian Brethren (License numbers 08125 and 19427; refer to attachment) has been executed. The transfer process with Alberta Environment has been initiated. The additional potable water usage (90-130 Acre feet) will be transferred to the Village of Milo.

The typical urban design standard of 700 l/d/cap gross usage has been used to predict water consumption. Based on this number and a 3.0 capita per home assumption, the total estimated gross water usage will be 220 acre feet per year. This calculation does not include water for irrigating common areas.

Fire flow will also be provided through the potable water system. The potable water line from Milo will be designed to meet fire flow requirements or a storage tank will be provided. Projected fire flow storage will be 270,000 liters with a projected peak flow requirement of 35 l/sec. Fire hydrants will be designed and provided as per the Milo Fire Association requirements.

A preliminary layout of the water production, treatment and distribution system is shown in Figure 8. The water line has been looped to allow for adequate fire supply and to reduce the potential for stagnant water.

Water conservation is also an important aspect of this development. As a result the following conservation methods will be required as part of the development.

1. Landscaping of common grounds, not including playgrounds or sports fields will be vegetated with native trees, shrubs and grasses, and will not be irrigated.
2. Landscaping of yards will require the minimization of turf and maximization of native vegetation not requiring irrigation.
3. High efficiency toilets and low flow shower heads will also be required.
4. Treated waste water will be utilized to irrigate common areas
5. Storm water collection reservoirs on each lot which will be used to collect storm water and used for individual lot irrigation

3.3 Gas

The Sunshine Gas Co-op will supply natural gas to the development. The existing line is nearby and has sufficient pressure for the subdivision. The developer will bring natural gas to each property line. Where possible, geothermal will be used to augment energy requirements at the development.

3.4 Electrical Power

Fortis will provide services to the proposed subdivision and underground services to each property line. The closest three-phase service is located just east of Milo or 1.6 miles from the development.

3.5 Telephone

Telus will provide services to the lots but each individual owner must apply for the service when building.

3.6 Solid Waste

Solid waste services will be provided by the home owners association.

4.0 TRANSPORTATION

Main access to the subdivision will be through Highway 842. Two access points to the highway are proposed. All other roads will have a 20 m right of way width and will be paved.

The roads in the proposed subdivision will meet Vulcan County design criteria. The roadway will be adequate in width to accommodate local traffic parking, subsurface drainage and pedestrian traffic.

4.1 Road Network

A primary collector and secondary collector will be used to access Highway 842 (refer to Figure 4). Based on the size of this development two access points will be able to accommodate traffic flow and emergency entrance / egress. Additional access points have been provided on the north and south end of the property to allow for future development (refer to Figure 5 for a conceptual layout).

4.2 Highway 842 Interface

The main access will be a divided road with median and boulevard while the secondary access will be a standard 20 m access road. In typical urban settings one trip per household during peak hours is used to design road access. However, due to the nature of the development typical standards may not apply.

The developer intends to work with County and Provincial authorities to potentially pave Highway 842 over the length of the development. The design of the highway intersections and highway improvements will require input from both the Province and County.

5.0 SITE DRAINAGE

The site contour information is shown in Figure B1 and B2. According to area topography information, the drainage on the site generally flows toward the west of the property to the lake. The site is also isolated from offsite drainage basins by highway

842 on the west and natural topography on the north and south. The limits of the drainage basin are illustrated in Figure B1. In addition, on lot drainage retention methods will be used in this development with either soak away pits or catch basins.

Additional design analysis was performed to determine the amount of runoff from the site, size drainage structures and retention ponds (refer to Appendix B). Based on this analysis the pond system was design to accomplish the following purposes:

1. Provide two wet ponds that are filled using lake water through the water license
2. Provide drainage ponds to retain a 100-year 24-hour storm event with a 1 l/sec/he discharge maximum
3. Provide adequate freeboard

Using these preliminary design criteria the pond design is as shown in Table 4.

Table 4: Retention Pond Design

	Pond A		Pond B	
	Wet Pond	Storm retention	Pond B Wet Pond	Storm retention
Total depth (m)	3.0	2.5	3.0	2.5
Average Area (Acres)	3.5	6.75	1.5	2.6
Volume (Acre-Ft)		34.9		18

The conceptual design of the storm water drainage system is shown in Figure 8 and Appendix B.

6.0 ARCHITECTURAL CONTROLS

Crystal Blue Harbour will be designed to ensure an aesthetically pleasing environment. The intent is to create the subdivision such that it enhances the natural beauty of its surroundings. To that end, architectural guidelines will be established and enforced for the development of the site. The architectural guidelines will address setbacks, size of dwelling, garages, roofs, exterior finishes, landscaping, fencing, etc.

7.0 LAKE ACCESS AND DOCK FACILLITIES

A public beach and dock will be provided as part of this development. In addition, a private beach and marina will be provided for residents only. Approval of these facilities will be requested from Bow River Irrigation District and Alberta Environment.

8.0 GEOTECHNICAL ANALYSIS

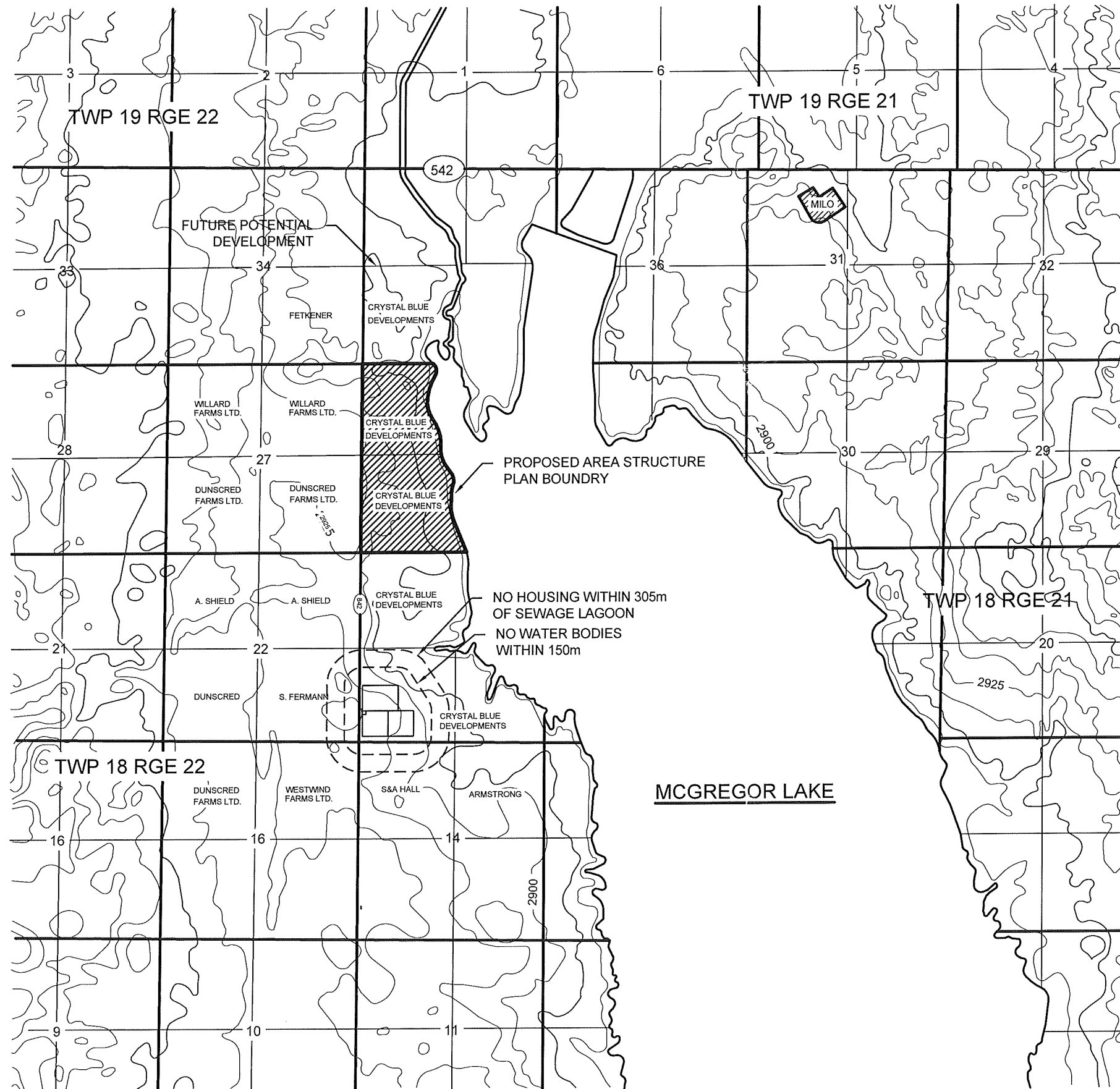
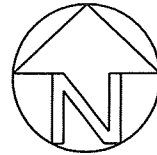
A full geotechnical analysis has not been completed at this stage. Preliminary evaluation of the site and soil survey information indicates that site soils (Lacustrian) should be suitable for a development of this type. A full geotechnical analysis will be completed and submitted as part of the subdivision application.

9.0 ENVIRONMENTAL AND ECOLOGICAL STUDIES

Environmental and ecological studies will be performed and submitted as required by the County.

APPENDIX A

FIGURES



MCGREGOR HARBOUR SUBDIVISION
PORTIONS OF

- NW 1/4 26-18-22-4,
- SW 1/4 26-18-22-4

CONTOUR INTERVAL = 25ft

Notes:

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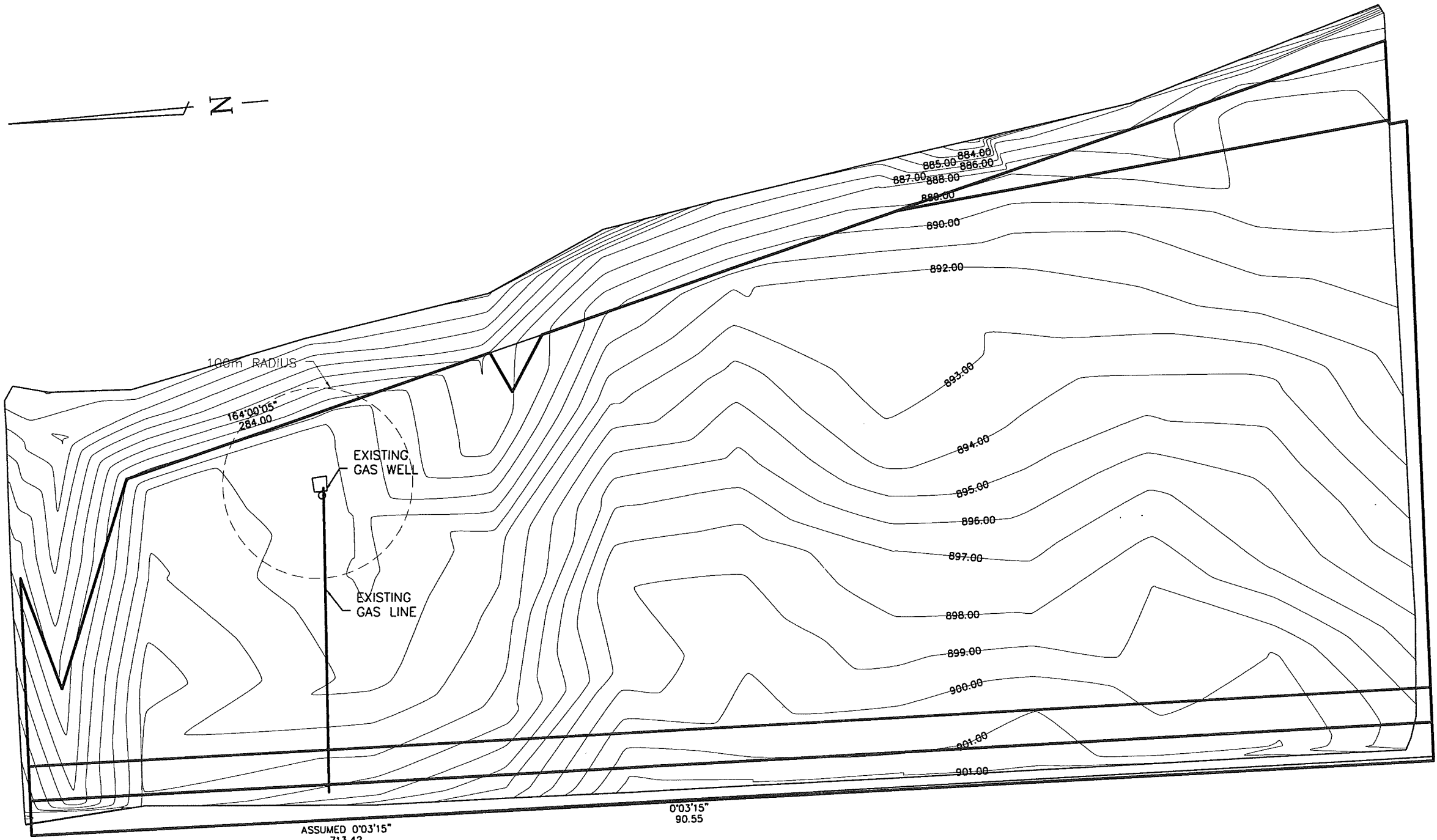
CALGARY OFFICE
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Calgary Alberta T2E 6Z2
Ph: 250-5261

CLIENT
MCGREGOR HARBOUR DEVELOPMENT

PROJECT TITLE
AREA STRUCTURE PLAN

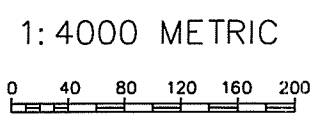
DRAWING TITLE
LOCATION PLAN

DESIGN H.E.	PROJECT NO. 06175
DRAWN DPB	SCALE NTS
CHECKED H.E.	SHEET NO. FIGURE 1
APPROVED H.E.	
DATE DRAWN JUNE 9, 09	



ASSUMED 0'03'15"
713.42

0'03'15"
90.55



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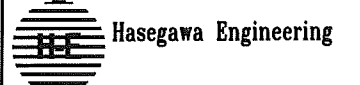
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CLIENT
MCGREGOR HARBOUR DEVELOPMENT

PROJECT TITLE
AREA STRUCTURE PLAN

DRAWING TITLE
SITE CONTOUR PLAN

DESIGN
H.E.

DRAWN
DPB

CHECKED
H.E.

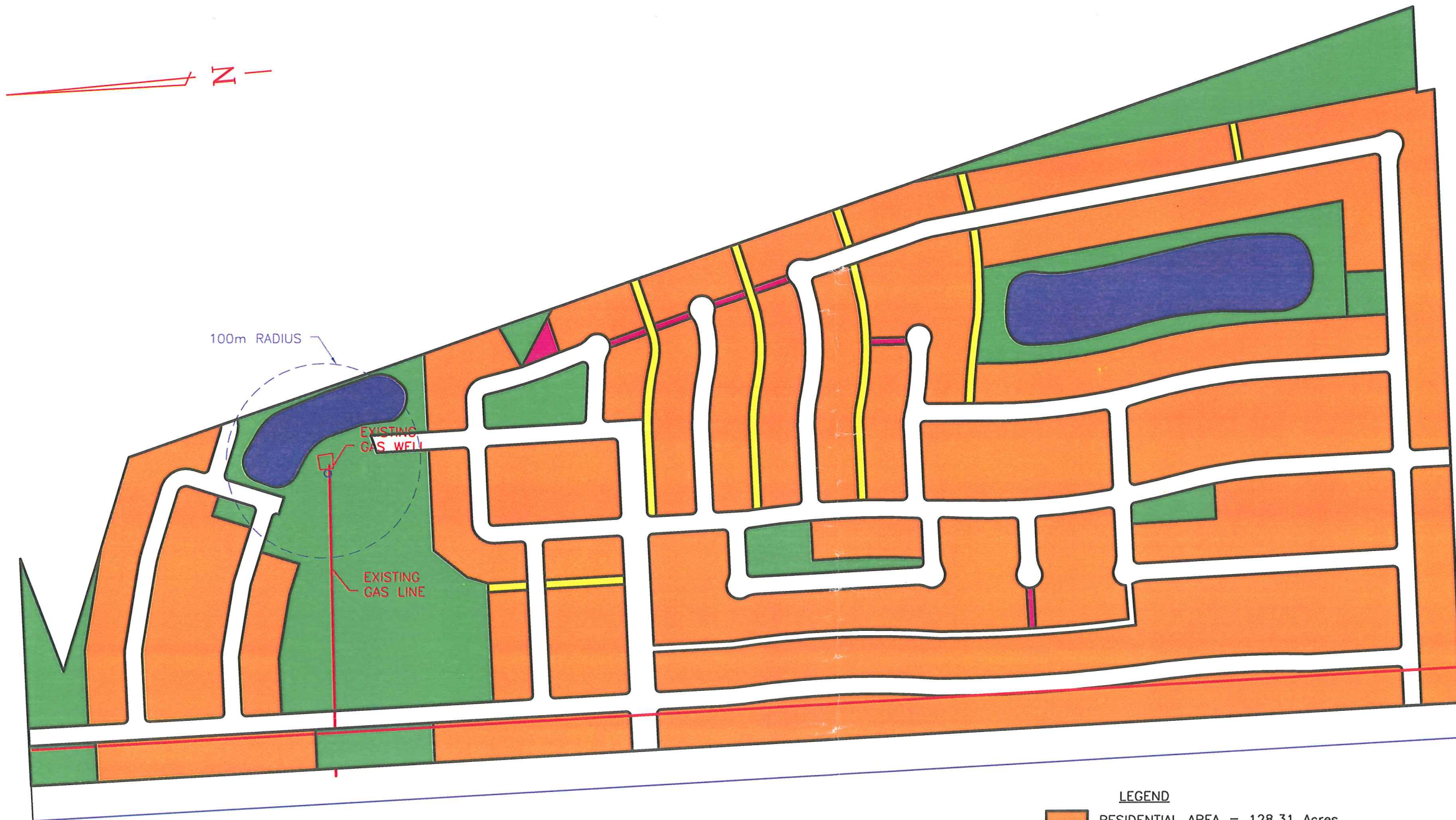
APPROVED
H.E.

DATE DRAWN
JUNE 9, 09

PROJECT NO.
06175

SCALE
1: 4000

SHEET NO.
FIGURE 2

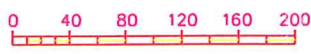


100m RADIUS







EXISTING GAS WELL

EXISTING GAS LINE

1:4000 METRIC



LEGEND

	RESIDENTIAL AREA = 128.31 Acres
	MANMADE WATER FEATURE (POND) = 11.74 Acres
	UTILITY EASEMENTS = 0.44 Acres
	OPEN SPACE/RECREATION AREAS = 33.60 Acres
	WALKWAYS = 4.09 Acres
	ROAD R/W = 43.19 Acres

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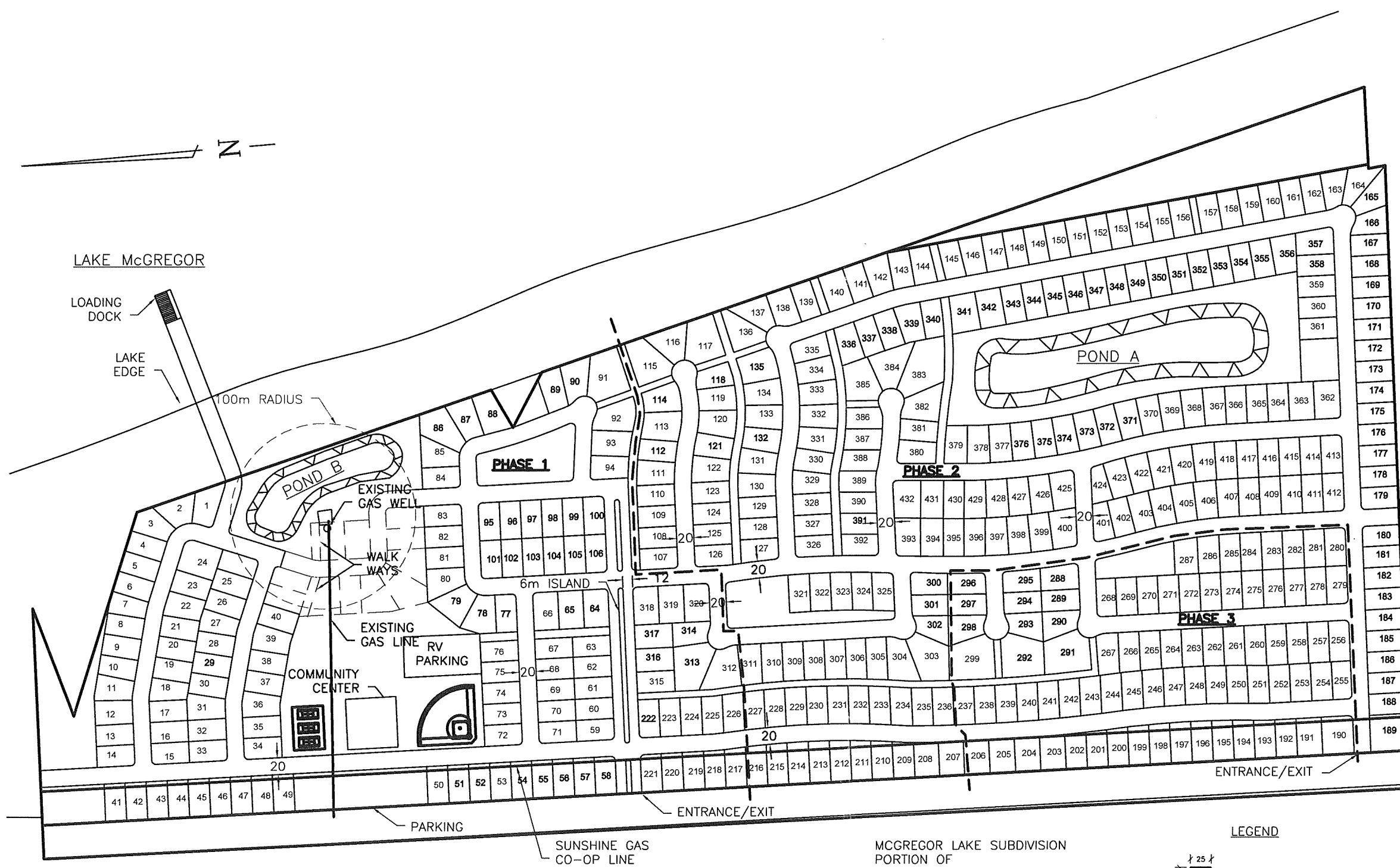
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CLIENT
MCGREGOR HARBOUR DEVELOPMENT

PROJECT TITLE
AREA STRUCTURE PLAN

DRAWING TITLE
PROPOSED LANDUSE PLAN

DESIGN H.E.	PROJECT NO. 06173
DRAWN DPB	SCALE 1:4000
CHECKED H.E.	SHEET NO. FIGURE 3
APPROVED H.E.	
DATE DRAWN JUNE 9, 09	



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PROJECT TITLE
 AREA STRUCTURE PLAN

DRAWING TITLE
 CONCEPTUAL SITE PLAN

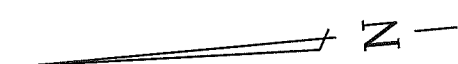
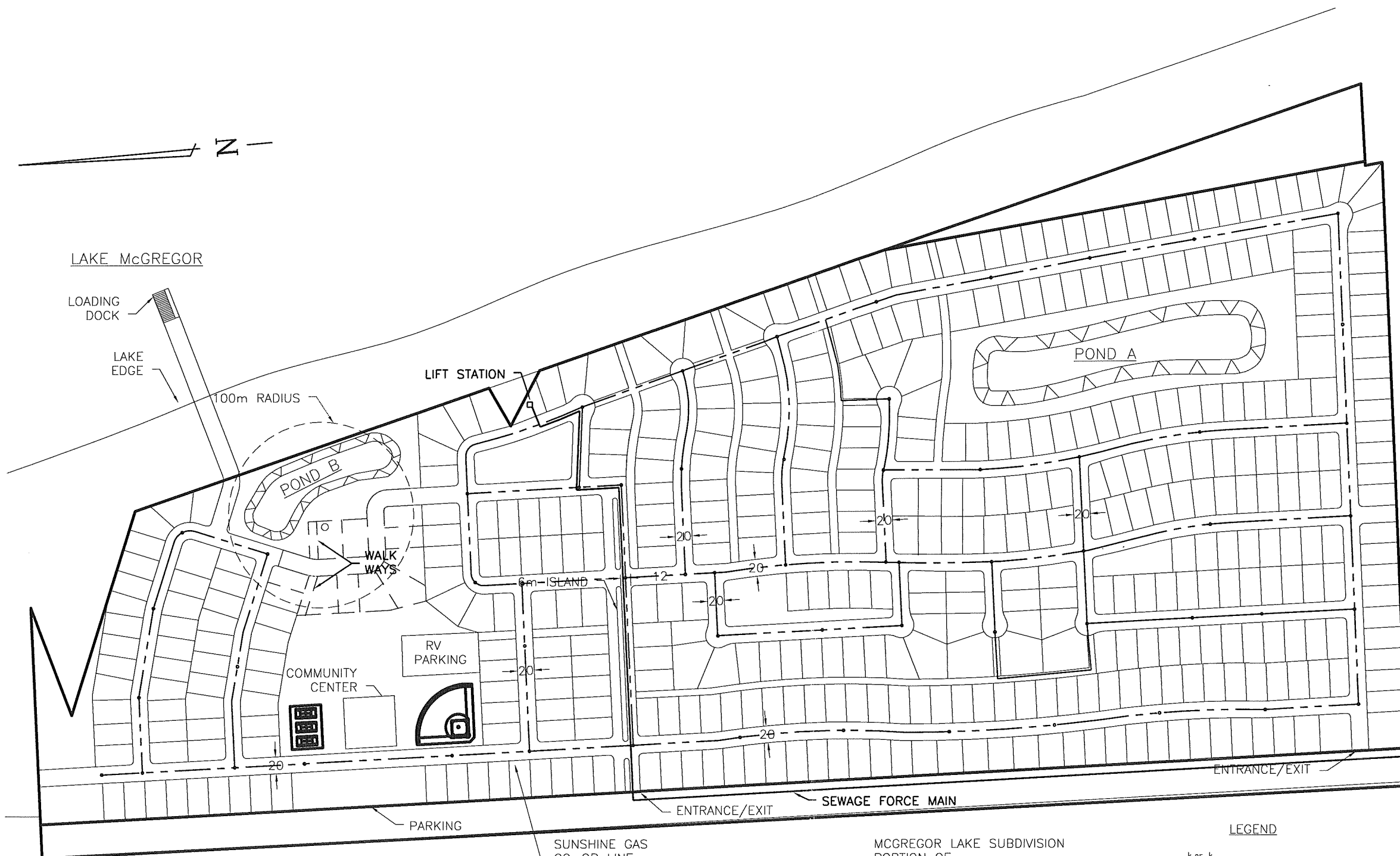
DESIGN H.E.	PROJECT NO. 06175
DRAWN DPB	SCALE 1:4000
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APPROVED H.E.	
DATE DRAWN JUNE 9, 09	

1:4000 METRIC

MCGREGOR LAKE SUBDIVISION
 PORTION OF
 NW 1/4 26-18-22-4,
 SW 1/4 26-18-22-4
 432 LOTS

LEGEND

- TYPICAL LOT AREA = 1125m² - 0.28 ACRES
- IRREGULAR SHAPED LOTS LOT DIMENSIONS VARY BUT MAINTAIN AREA REQUIREMENTS = 0.28 ACRES OR HIGHER



LAKE MCGREGOR

LOADING DOCK
LAKE EDGE

100m RADIUS

LIFT STATION

POND B

WALK WAYS

6m-ISLAND

COMMUNITY CENTER

RV PARKING

PARKING

SUNSHINE GAS CO-OP LINE

ENTRANCE/EXIT

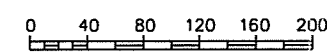
SEWAGE FORCE MAIN

ENTRANCE/EXIT

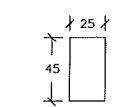
POND A

MCGREGOR LAKE SUBDIVISION
PORTION OF
NW 1/4 26-18-22-4,
SW 1/4 26-18-22-4
432 LOTS

1:4000 METRIC



LEGEND



TYPICAL LOT AREA
= 1125m²-0.28 ACRES



IRREGULAR SHAPED LOTS
LOT DIMENSIONS VARY BUT
MAINTAIN AREA REQUIREMENTS
= 0.28 ACRES OR HIGHER

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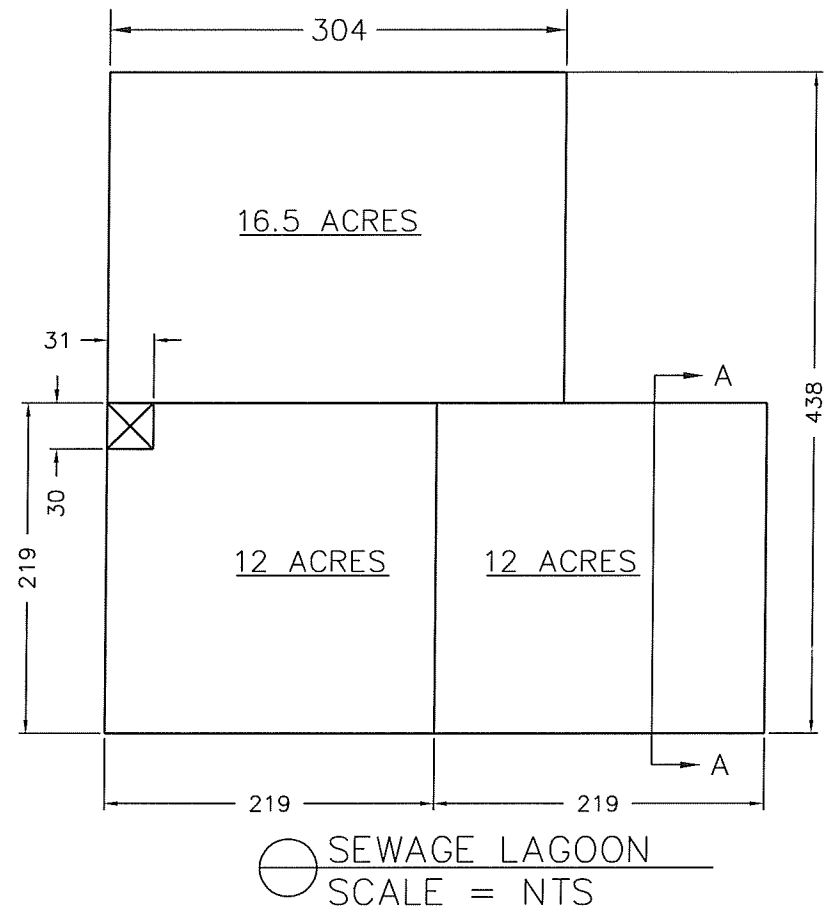
CALGARY OFFICE
201,2816-21 Street NE
Calgary Alberta T2E 6Z2
Ph: 250-5261

CLIENT
MCGREGOR HARBOUR DEVELOPMENT

PROJECT TITLE
AREA STRUCTURE PLAN

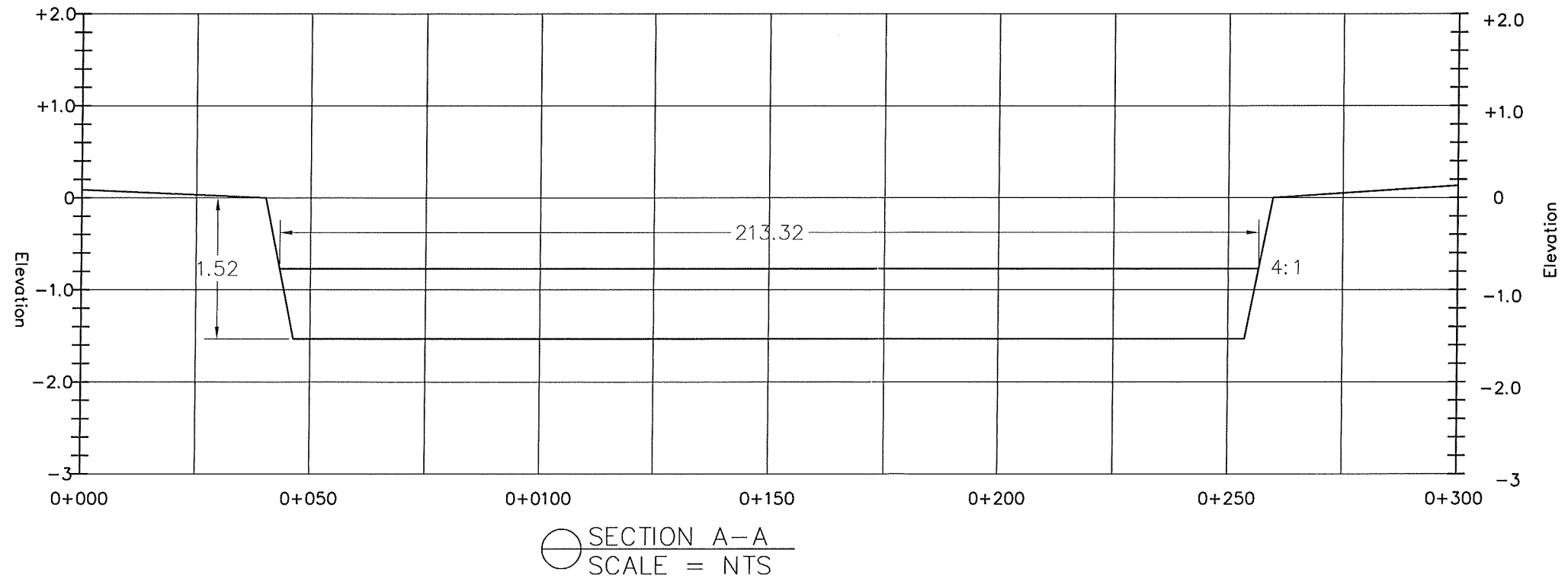
DRAWING TITLE
CONCEPTUAL SANITARY SEWAGE PLAN

DESIGN H.E.	PROJECT NO. 06175
DRAWN DPB	SCALE 1:4000
CHECKED H.E.	SHEET NO. FIGURE 5
APPROVED H.E.	
DATE DRAWN JUNE 9, 09	



NOTE:
UNITS IN METERS UNLESS
OTHERWISE NOTED

SEWAGE LAGOON CROSS SECTION



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No	Revision	Date	By

Hasegawa Engineering

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Lethbridge Alberta T1H 5J8
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Fax: 328-2728
email: hasgm@telusplanet.net

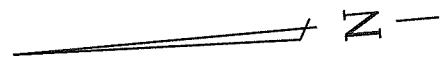
CALGARY OFFICE
201,2816-21 Street NE
Calgary Alberta T2E 6Z2
Ph: 250-5261

CLIENT
MCGREGOR HARBOUR DEVELOPMENT

PROJECT TITLE
AREA STRUCTURE PLAN

DRAWING TITLE
CONCEPTUAL SEWAGE LAGOON LAYOUT

DESIGN H.E.	PROJECT NO. 06175
DRAWN DPB	SCALE NTS
CHECKED H.E.	SHEET NO.
APPROVED H.E.	FIGURE 6
DATE DRAWN JUNE 9, 09	



LAKE MCGREGOR

LOADING DOCK

LAKE EDGE

100m RADIUS

POND B

POND A

WALK WAYS

8" 6m ISLAND

COMMUNITY CENTER

RV PARKING

10"

PARKING

SUNSHINE GAS CO-OP LINE

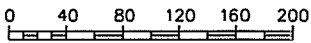
ENTRANCE/EXIT

ENTRANCE/EXIT

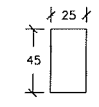
10" WATER LINE FROM VILLAGE OF MILO

MCGREGOR LAKE SUBDIVISION
 PORTION OF
 NW 1/4 26-18-22-4,
 SW 1/4 26-18-22-4
 432 LOTS

1:4000 METRIC



LEGEND



TYPICAL LOT AREA
 = 1125m²-0.28 ACRES



IRREGULAR SHAPED LOTS
 LOT DIMENSIONS VARY BUT
 MAINTAIN AREA REQUIREMENTS
 = 0.28 ACRES OR HIGHER

Notes:

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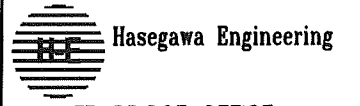
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 Fax: 328-2728
 email: hasgm@telusplanet.net

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

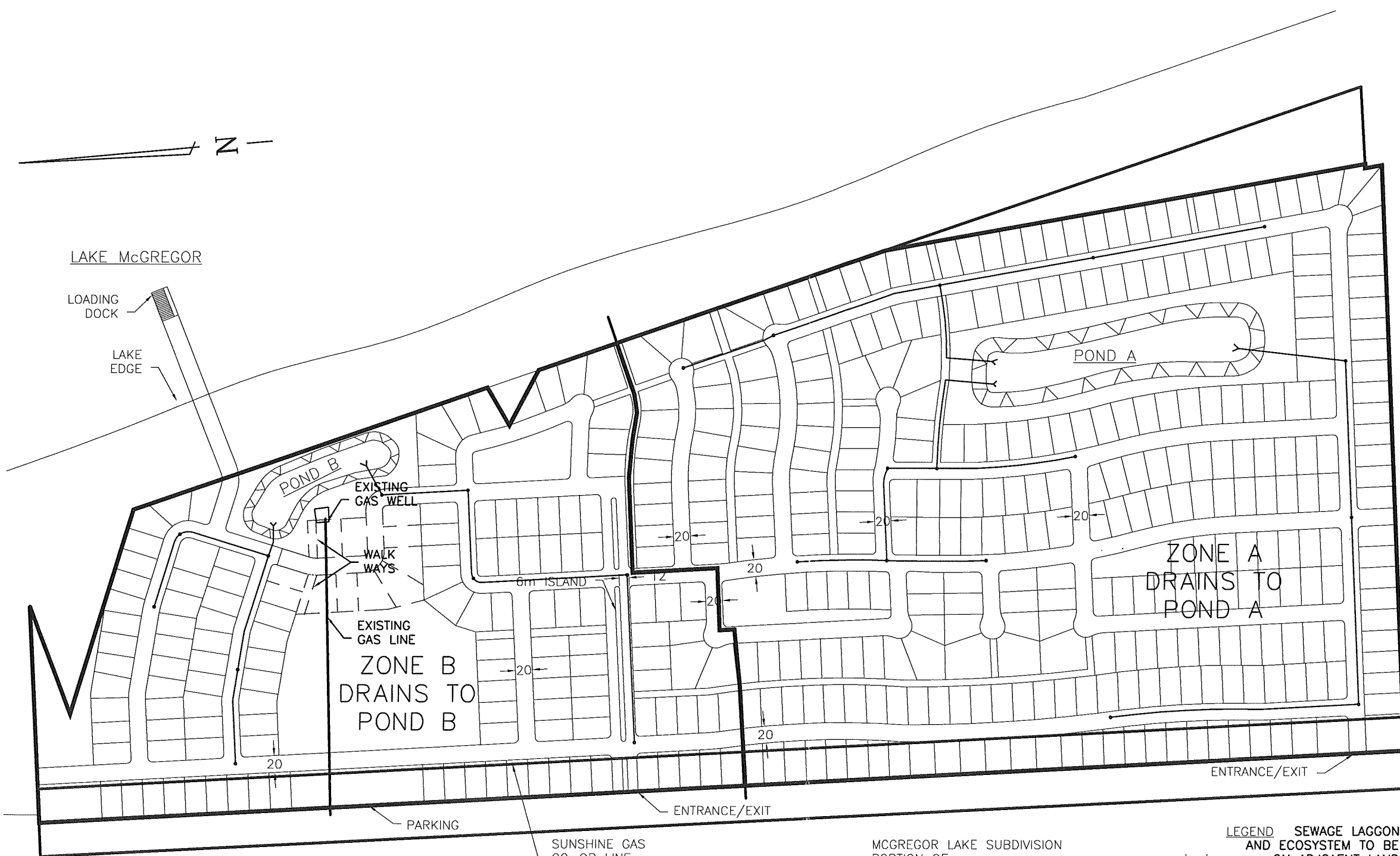
CLIENT
MCGREGOR HARBOUR DEVELOPMENT

PROJECT TITLE
AREA STRUCTURE PLAN

DRAWING TITLE
CONCEPTUAL WATER PLAN

DESIGN
 H.E.
 DRAWN
 DPB
 CHECKED
 H.E.
 APPROVED
 H.E.
 DATE DRAWN
 JUNE 9, 09

PROJECT NO.
06175
 SCALE
 1:4000
 SHEET NO.
FIGURE 7



LAKE MCGREGOR

LOADING DOCK
LAKE EDGE

POND B

EXISTING GAS WELL

WALK WAYS

EXISTING GAS LINE

ZONE B
DRAINS TO
POND B

6m ISLAND

POND A

ZONE A
DRAINS TO
POND A

20

20

20

20

20

20

20

20

PARKING

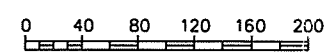
SUNSHINE GAS
CO-OP LINE

ENTRANCE/EXIT

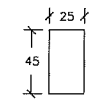
ENTRANCE/EXIT

MCGREGOR LAKE SUBDIVISION
PORTION OF
NW 1/4 26-18-22-4,
SW 1/4 26-18-22-4
432 LOTS

1:4000 METRIC



LEGEND SEWAGE LAGGON
AND ECOSYSTEM TO BE
ON ADJACENT LAND



TYPICAL LOT AREA
= 1125m² - 0.28 ACRES

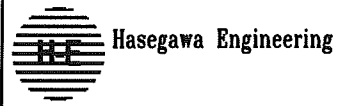


IRREGULAR SHAPED LOTS
LOT DIMENSIONS VARY BUT
MAINTAIN AREA REQUIREMENTS
= 0.28 ACRES OR HIGHER

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Calgary Alberta T2E 6Z2
Ph: 250-5261

CUSTOMER
**MCGREGOR HARBOUR
DEVELOPMENT**

PROJECT TITLE
**AREA STRUCTURE
PLAN**

DRAWING TITLE
**CONCEPTUAL STORM
DRAINAGE PLAN**

DESIGN
H.E.
DRAWN
DPB
CHECKED
H.E.
APPROVED
H.E.
DATE DRAWN
JUNE 9, 09

PROJECT NO.
06175
SCALE
1:4000
SHEET NO.
FIGURE 8

APPENDIX B

SURFACE RUNOFF AND HYDROLOGICAL ANALYSIS FOR CRYSTAL BLUE HARBOUR

HYDROLOGICAL ANALYSIS AND RESULTS

1. INTRODUCTION

On behalf of Crystal Blue Developments, Hasegawa Engineering (HE) has completed this preliminary hydrological analysis at the subject site. The hydrological analysis includes the following major aspects:

1. Overall site layout and conditions
2. Site topography and runoff
3. Precipitation and evaporation analysis
4. Retention pond storage size calculations
5. Offsite drainage bypass analysis

The site is located as shown in Figure B1. For additional information with respect to the project please refer to the Area Structure Plan.

2. SITE CONDITIONS

The site is located within Vulcan County on the West Side of McGregor Lake (refer to Figure B1). The site is used for agricultural purposes and drains to the east into McGregor Lake at a grade ranging from 1% to 5%. The site is bordered by Highway 842 on the west, McGregor Lake on the east agricultural land on the north and south. The only offsite drainage that enters the site appears to come from west of Highway 842 and follows a natural drainage swale shown in Figure B1.

According to the Alberta Geological Survey surface soils on the property consist of Lacustrine - Coarse. This soil type has a relatively high permeability factor when considering infiltration from runoff.

3. SURFACE RUNOFF DESIGN CRITERIA

The total area of the onsite basin is 220 acres. Runoff from the developable land will be captured in two retention ponds located onsite (refer to Figure B2). Total discharge from the site will not exceed 1 l/sec/ha. Retention size has been based on a 24 hour 100 year storm event utilizing a maximum discharge rate as mentioned previously.

In order to determine the volume of runoff from each basin, surface runoff analysis was performed. Rainfall intensity data was obtained for Vulcan County from the Atmospheric Environment Service, which is part of Environment Canada. The input data for each basin was determined using the site information. Runoff estimations were developed using the "TR-55 Urban Hydrology for Small Watersheds" runoff model. Each basin was divided into sheet flow, shallow concentrated flow and stream flow

regions. The model utilizes the information from each sub-basin area to develop a time of concentration. The model then calculates the peak flow and total runoff based on this input. The predevelopment curve number used for each basin was 61, which represents a class B soil utilized for grazing. The post development curve number used for each basin was 81, which represents a class C soil (less permeable) and an urban development with 30% impervious surfaces. Key input data used for this analysis are included in Table B1. The basin size and extent are shown in Figure B2.

Table B1: Runoff Analysis Input Data

Analysis	Drainage Basin (acres)	2 year 24 hour storm (inches)	100 year 24 hour storm (inches)	Average Slope (ft/ft)	Curve number (CN)	Percent impervious area
Pre-development	200	2	5	0.02	61	0%
Post-development	200	2	5	0.025	81	30%

4. SURFACE RUNOFF RESULTS

The results for the post development runoff and pond sizing are included in this section. For results pertaining to pre-development conditions refer to the attached calculations. As mentioned earlier, the storm retention pond has been sized to allow for total retention of a 100-year 24-hour storm with a maximum discharge of 1 l/sec/ha.. As expected, the time of concentration is relatively short, ranging from 0.1 hours to 0.27 hours. The peak flow from the largest basin is estimated to be 101 cfs and total runoff from the design storm is 34.4 acre-feet. The pond location and size are shown in Figures B2-B4.

Table B2: Post development 100 year runoff analysis results

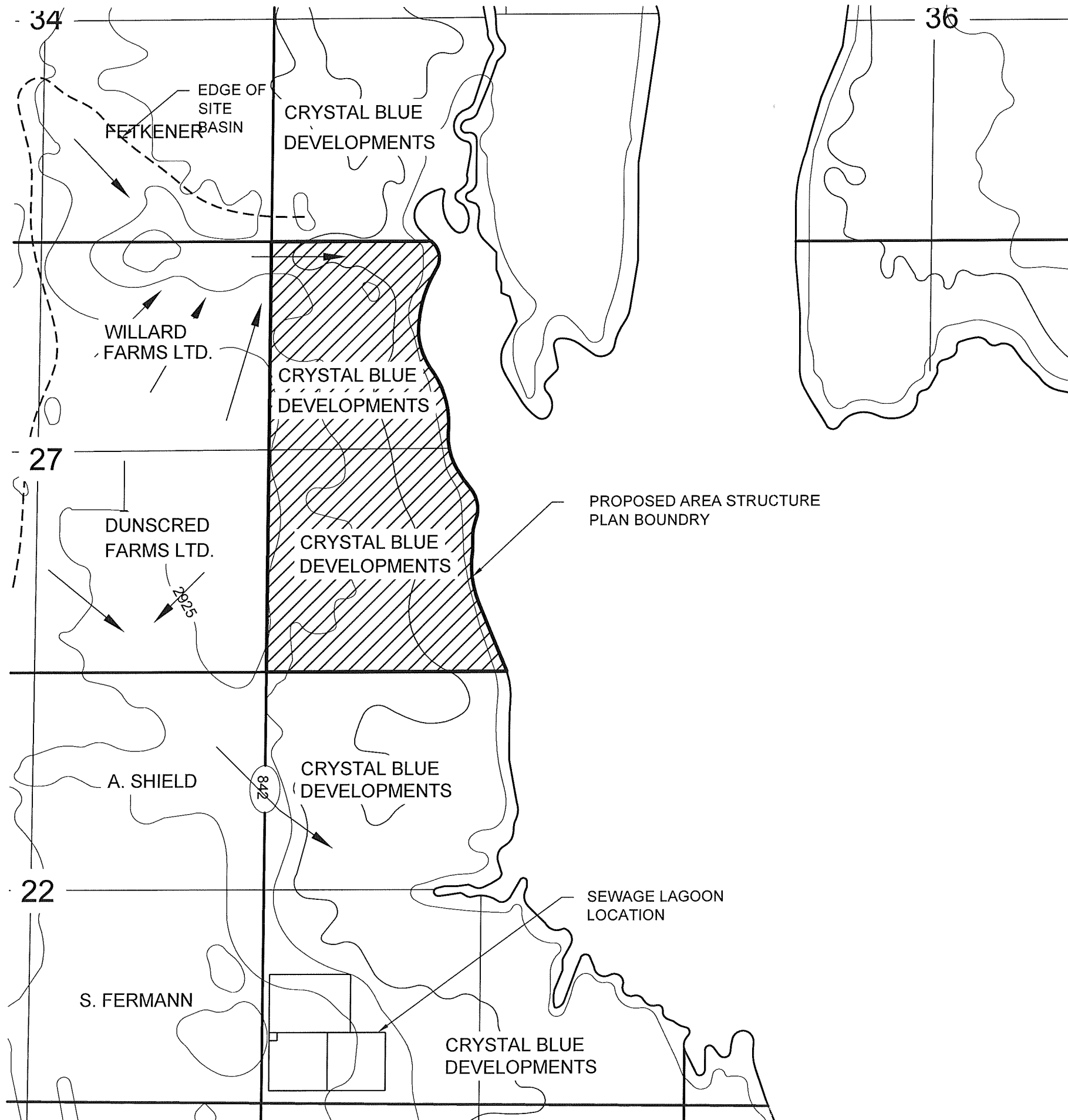
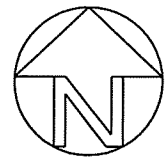
Basin	Time of Concentration (Hours)	Peak Flow 100 year (CFS)	Runoff Volume (In / acre)	Runoff Volume (Acre - ft)	Minimum volume of retention provided (Acre - ft)
A	0.1 - 0.16	101	3	34.4	34.9
B	0.27	36	3	17	18

6. PRELIMINARY RETENTION POND DESIGN

Based on the design information above, a retention pond system has been designed for this project. Locations of the retention pond systems are shown on Figures B2-B4. A plan view and cross-section of the proposed drainage retention area is shown in Figures B3 and B4. A fountain and appropriate aeration equipment will be provided for each pond. The proposed volume of the pond is shown in Table B3 below:

Table B3: Retention Pond Design

	Pond A		Pond B	
	Wet Pond	Storm retention	Pond B Wet Pond	Storm retention
Total depth (m)	3.0	2.5	3.0	2.5
Average Area (Acres)	3.5	6.75	1.5	2.6
Volume (Acre-Ft)		34.9		18



MCGREGOR LAKE SUBDIVISION
PORTIONS OF

- NW 1/4 26-18-22-4,
- SW 1/4 26-18-22-4

CONTOUR INTERVAL = 25ft

LEGEND

NATURAL DRAINAGE ←

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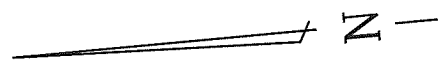
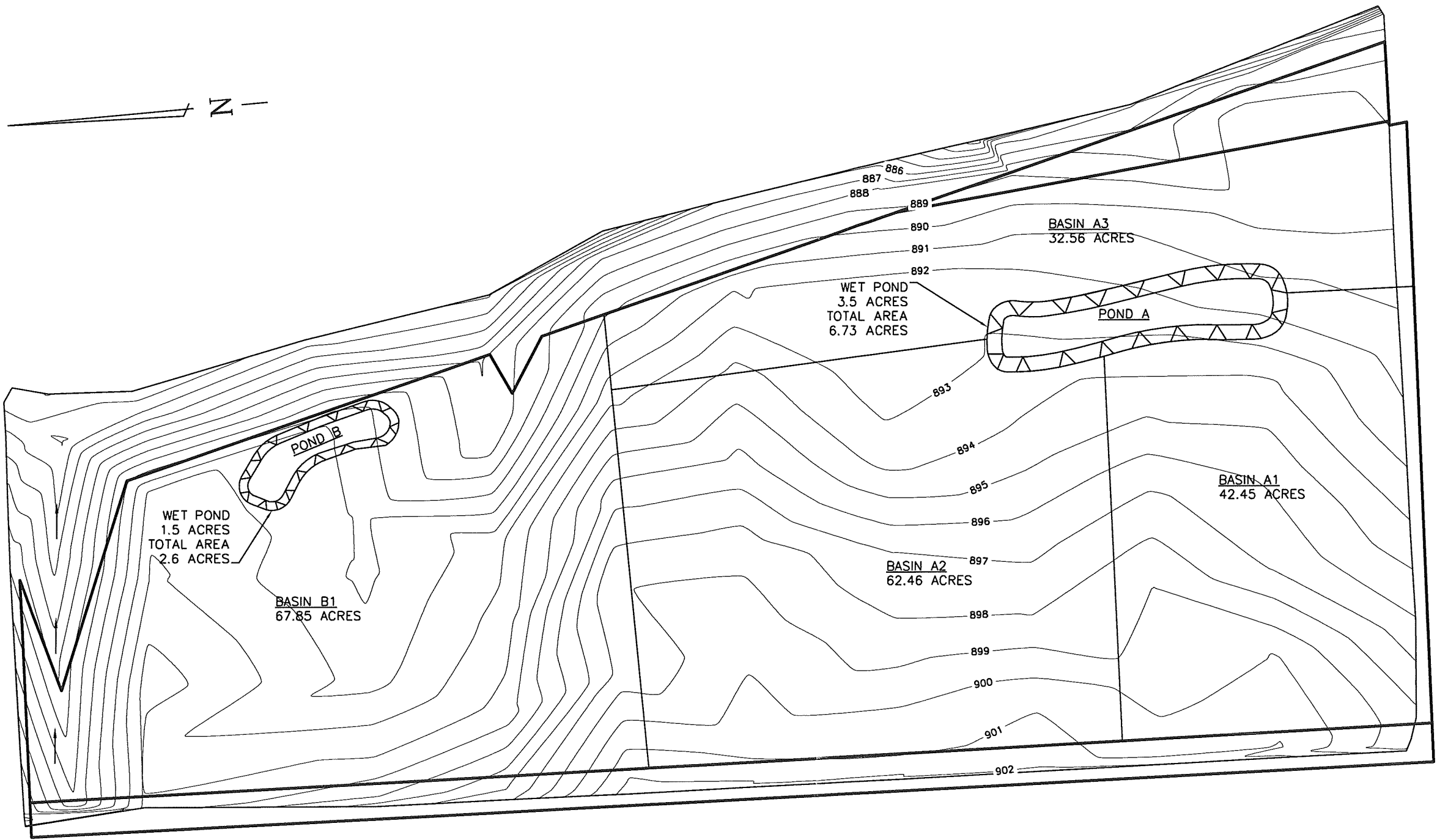
201,2816-21 Street NE
Calgary Alberta T2E 6Z2
Ph: 250-5261

CLIENT
MCGREGOR HARBOUR DEVELOPMENT

PROJECT TITLE
AREA STRUCTURE PLAN

DRAWING TITLE
LOCATION PLAN

DESIGN H.E.	PROJECT NO. 06175
DRAWN DPB	SCALE NTS
CHECKED H.E.	SHEET NO. FIGURE B1
APPROVED H.E.	
DATE DRAWN JUNE 9, 09	



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 Calgary Alberta T2E 6Z2
 Ph: 250-5261

CLIENT
MCGREGOR HARBOUR DEVELOPMENT

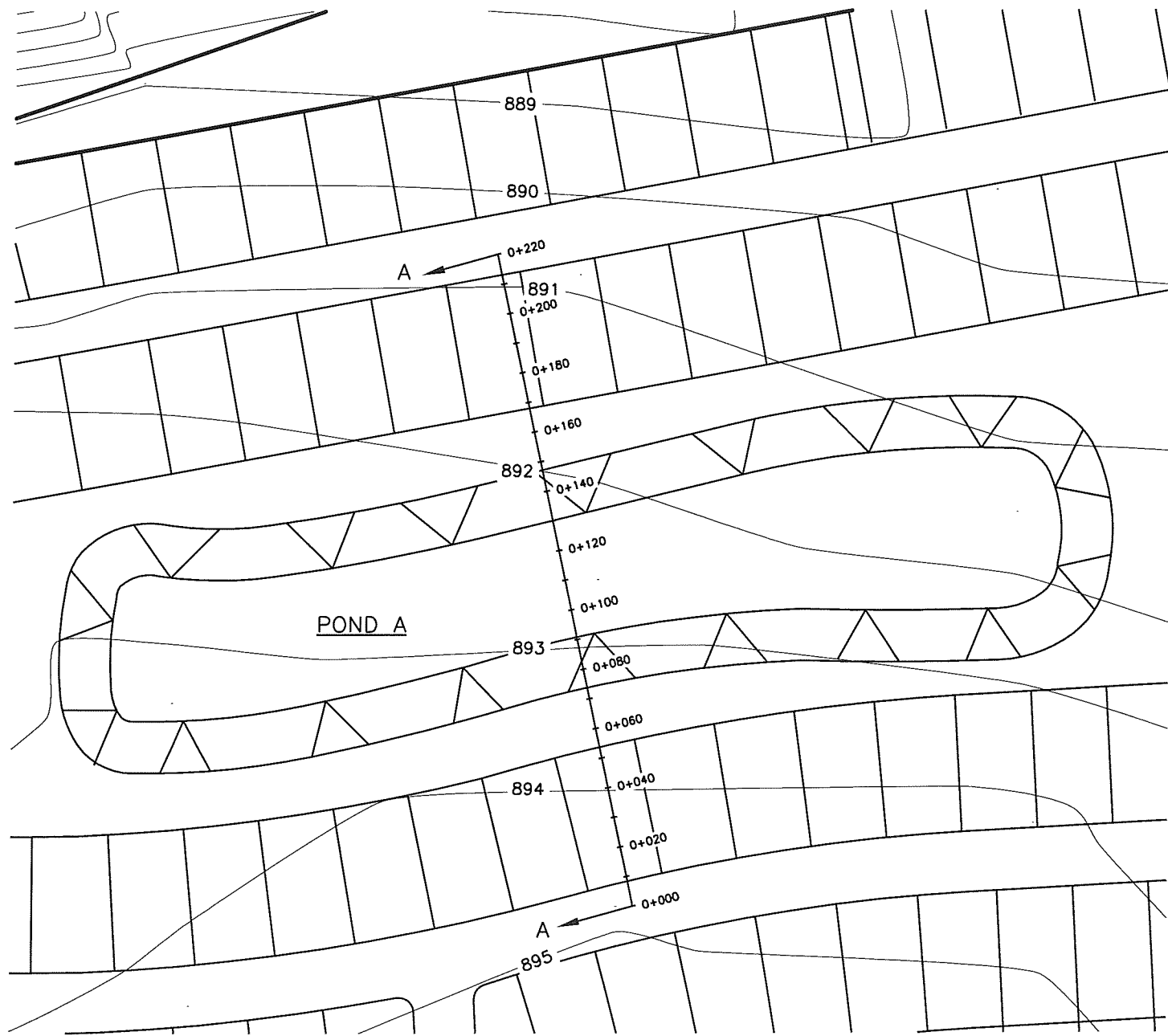
PROJECT TITLE
AREA STRUCTURE PLAN

DRAWING TITLE
DRAINAGE BASIN PLAN

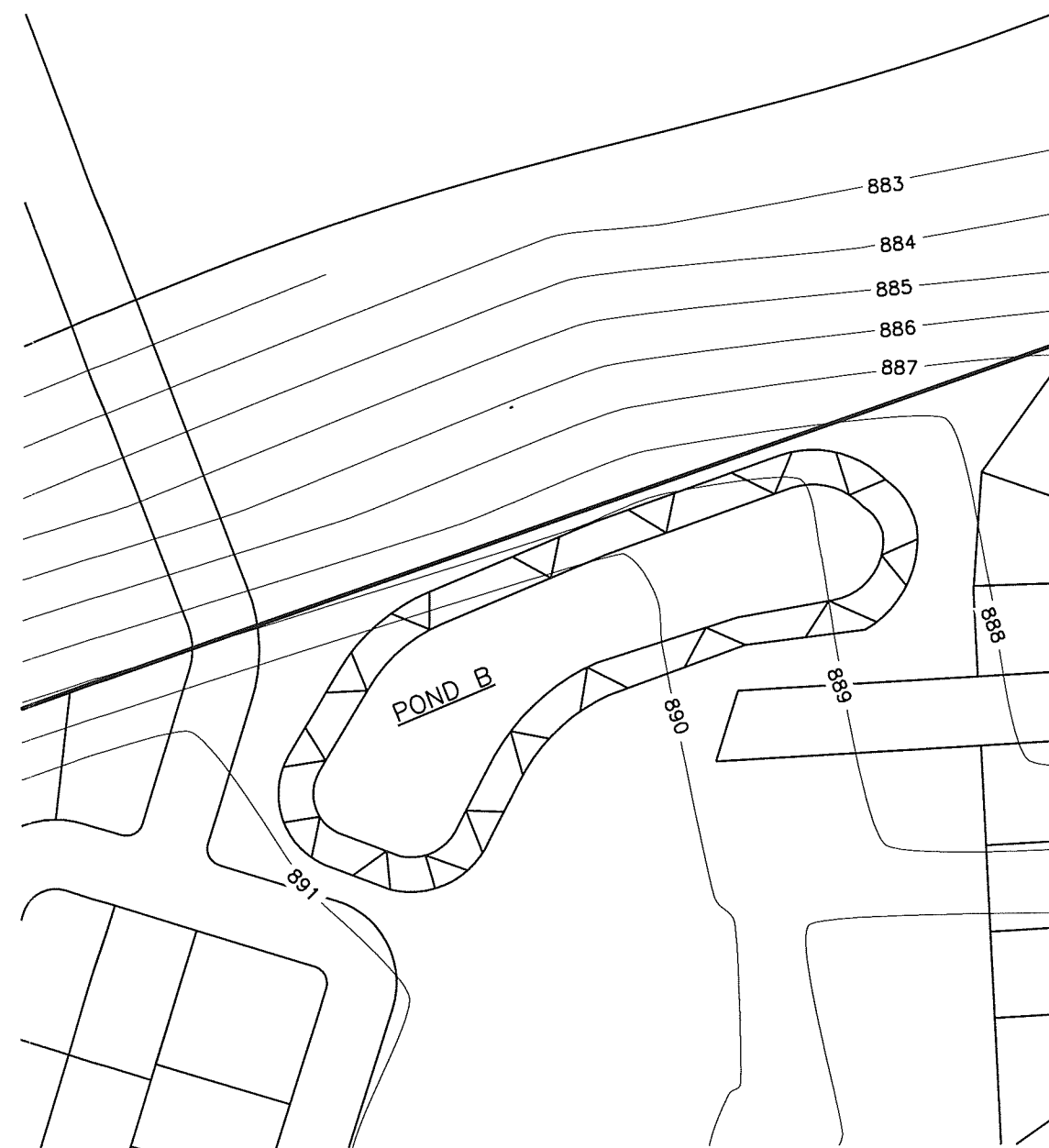
DESIGN H.E.	PROJECT NO. 06175
DRAWN DPB	SCALE 1:4000
CHECKED H.E.	SHEET NO. FIGURE B2
APPROVED H.E.	
DATE DRAWN JUNE 9, 09	

○ DRAINAGE BASIN PLAN
 SCALE: NTS

NOTE:
 OFFSITE DRAINAGE INTERCEPTED BY HIGHWAY 842 EXCEPT WHERE DRAINAGE ARROW IS SHOWN
 OFFSITE DRAINAGE PATH ←



○ DRAINAGE POND A
SCALE: NTS



○ DRAINAGE POND B
SCALE: NTS

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Calgary Alberta T2E 6Z2
Ph: 250-5261

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MCGREGOR HARBOUR DEVELOPMENT

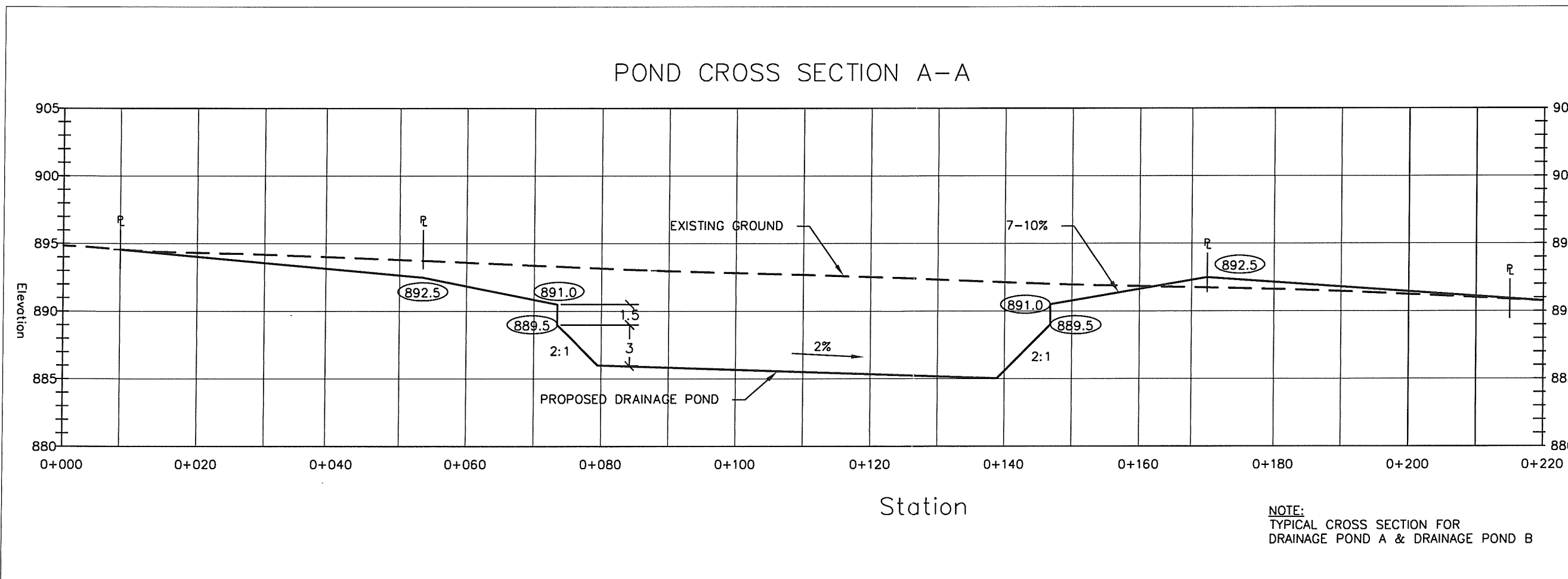
PROJECT TITLE
AREA STRUCTURE PLAN

DRAWING TITLE
CONCEPTUAL DRAINAGE POND LAYOUT

DESIGN
H.E.
DRAWN
DPB
CHECKED
H.E.
APPROVED
H.E.
DATE DRAWN
JUNE 9, 09

PROJECT NO.
06175
SCALE
1:4000
SHEET NO.
FIGURE B3

POND CROSS SECTION A-A



NOTE:
TYPICAL CROSS SECTION FOR
DRAINAGE POND A & DRAINAGE POND B

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PROJECT TITLE
AREA STRUCTURE PLAN

DRAWING TITLE
DRAINAGE POND CROSS SECTION

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CHECKED H.E.	SHEET NO. FIGURE B4
APPROVED H.E.	
DATE DRAWN JUNE 9, 09	

APPENDIX C

COPY OF LAND TITLE



CERTIFIED COPY OF
Certificate of Title

S

LINC
0025 699 216
0025 699 224

SHORT LEGAL
4;22;18;26;NW
4;22;18;26;SW

TITLE NUMBER: 071 149 872
TRANSFER OF LAND
DATE: 28/03/2007

AT THE TIME OF THIS CERTIFICATION

CRYSTAL BLUE DEVELOPMENTS LTD..
OF 390 800 6TH AVE S.W.
CALGARY
ALBERTA T2P 3G3

IS THE OWNER OF AN ESTATE IN FEE SIMPLE
OF AND IN

FIRST

MERIDIAN 4 RANGE 22 TOWNSHIP 18
SECTION 26

THAT PORTION OF THE NORTH WEST QUARTER
WHICH LIES TO THE WEST OF THE ADDITION OF THE MCGREGOR RESERVOIR
ON PLAN 6709HX
CONTAINING 34.647 HECTARES (85.61 ACRES) MORE OR LESS
EXCEPTING THEREOUT

PLAN	NUMBER	HECTARES	ACRES
ROAD	9312155	0.799	1.97

EXCEPTING THEREOUT ALL MINES AND MINERALS

SECOND

MERIDIAN 4 RANGE 22 TOWNSHIP 18
SECTION 26

THAT PORTION OF THE SOUTH WEST QUARTER
WHICH LIES TO THE WEST OF THE ADDITION OF THE MCGREGOR RESERVOIR
ON PLAN 6709HX
CONTAINING 54.778 HECTARES (135.44 ACRES) MORE OR LESS
EXCEPTING THEREOUT

PLAN	NUMBER	HECTARES	ACRES
ROAD	9312155	0.799	1.97

EXCEPTING THEREOUT ALL MINES AND MINERALS

SUBJECT TO THE ENCUMBRANCES, LIENS AND INTERESTS NOTIFIED BY MEMORANDUM UNDER-
WRITTEN OR ENDORSED HEREON, OR WHICH MAY HEREAFTER BE MADE IN THE REGISTER.

REGISTRATION

ENCUMBRANCES, LIENS & INTERESTS

CALGARY
ALBERTA T2P 3G3

IS THE OWNER OF AN ESTATE IN FEE SIMPLE
OF AND IN

FIRST

MERIDIAN 4 RANGE 22 TOWNSHIP 18
SECTION 26
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WHICH LIES TO THE WEST OF THE ADDITION OF THE MCGREGOR RESERVOIR
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PLAN	NUMBER	HECTARES	ACRES
ROAD	9312155	0.799	1.97

EXCEPTING THEREOUT ALL MINES AND MINERALS

SECOND

MERIDIAN 4 RANGE 22 TOWNSHIP 18
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EXCEPTING THEREOUT

PLAN	NUMBER	HECTARES	ACRES
ROAD	9312155	0.799	1.97

EXCEPTING THEREOUT ALL MINES AND MINERALS

SUBJECT TO THE ENCUMBRANCES, LIENS AND INTERESTS NOTIFIED BY MEMORANDUM UNDER-
WRITTEN OR ENDORSED HEREON, OR WHICH MAY HEREAFTER BE MADE IN THE REGISTER.

REGISTRATION NUMBER	DATE (D/M/Y)	PARTICULARS
------------------------	--------------	-------------

01 063 302	24/06/1975	UTILITY RIGHT OF WAY GRANTEE - SUNSHINE GAS CO-OP LTD.
078 863	28/02/2004	CAVEAT RE : SURFACE LEASE UNDER 20 ACRES

CERTIFIED COPY OF
Certificate of Title

PAGE

SHORT LEGAL 4;22;18;26;NW, SW
NAME CRYSTAL BLUE DEVELOPMENTS LTD.
NUMBER 071 149 872

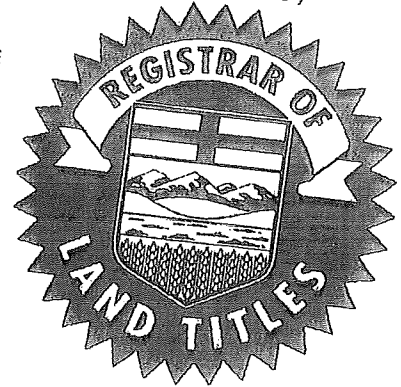
REGISTRATION ENCUMBRANCES, LIENS & INTERESTS
NUMBER DATE (D/M/Y) PARTICULARS

CAVEATOR - AVENIR OPERATING CORP..
200 116 8TH AVE S.W.
CALGARY
ALBERTA T2P1B3
AGENT - ROBB CRAIGE

AFFECTED LAND:

(DATA UPDATED BY: CHANGE OF NAME 051468798)
4;22;18;26;NW

THE REGISTRAR OF TITLES CERTIFIES THIS TO BE AN ACCURATE REPRODUCTION OF THE CERTIFICATE OF TITLE
REPRESENTED HEREIN THIS 01 DAY OF MAY ,2007



SUPPLEMENTARY INFORMATION
VALUE: \$1,489,500
CONSIDERATION: \$1,489,500
MUNICIPALITY: VULCAN COUNTY
REFERENCE NUMBER:
071 054 834 +7
TOTAL INSTRUMENTS: 002

APPENDIX D

WATER ACCESS AND LICENCE



Jun. 8. 2007 10:50AM
06/07/2007 23:23

4034032311

LACOURCIERE ASSOCIATES
4034052911

MAGNISON REALTY LTD

MAGNISON REALTY LTD

NO. 9674

PAGE 02

P. 2/9
PAGE 02

OFFER AND AGREEMENT OF PURCHASE AND SALE

This Agreement is dated the 7 day of June, 2007.

BETWEEN:

Att: Mark

From: Rick Wiers

RIVER BEND SOUTHERN BREITBERRY
Off.P.O. Box 97, Mossleigh AB, T0L 1P0
(the "Vendor")

- and -

CRYSTAL BLUE LAND CORP.
of Calgary Ab.
(the "Purchaser")

The Purchaser hereby offers and agrees to purchase from the Vendor and the Vendor hereby agrees to sell and transfer to the Purchaser:

- a. 650 Acre Feet of renewable annual water allocation (the "Allocation"), subject to conservation holdback (if applicable), issued by Alberta Environment under Water License No. 08125 and 19627, at a rate of \$2,000 per Acre Foot as amended (the "Assets").

for the total Purchase Price (including G.S.T., if applicable) of SIX HUNDRED FIFTY THOUSAND (\$650,000.00) DOLLARS, plus G.S.T. of \$29,040.00 (if applicable) in Canadian funds (the "Purchase Price"). The Vendor also agrees to transfer to the Purchaser the rights to 650 Permanent Irrigation Acres in the Bow River Irrigation District (the "BIRID"), before the closing date, subject to the following terms and conditions:

1. DEFINITIONS

In this Agreement:

- a. "Closing Date" means that day that occurs seven (7) days after the Date of Transfer, or such other date as may be agreed upon in writing by the parties;
- b. "Date of Transfer" will occur after both of the following events have occurred:

Jun. 8, 2007 10:50AM
06/07/2007 23:23

LACOURCIERE ASSOCIATES
0834862911

MAGNUSON REALTY LTD
MAGNUSON REALTY LTD

NO. 0003 P. 2 83

No. 9674 P. 3/9
PAGE 04

(i) the date on which the transfer of the Allocation and/or the Water License from the Vendor to Purchaser and any amendment of use as may be required by the Purchaser is approved and agreed to in writing by Alberta Environment as contemplated in this Agreement; and

(ii) the date on which the transfer of the Irrigation Acres from the Purchaser to the Vendor and any amendment of use as may be required by the Vendor is approved and agreed to in writing by the BRID as contemplated in this Agreement.

c. "Termination Day" means the 30 day of August, 2008;

d. "Water License" means that water license which is referred to by Alberta Environment as File No. 15701, Water License No. 08125 and 19427, and all amendments thereto.

e. "Irrigation Acres" means the present irrigation acres owned by the BRID, that the Purchaser will provide to the Vendor before the closing of this Agreement, and all amendments thereto.

2. PAYMENT

Subject to adjustment as provided in this Agreement, the Purchase Price shall be payable as follows:

a. A deposit of \$100,000.00 (the "Deposit") payable by cheque or bank draft to the Vendor's Solicitors, in trust, within five (5) business days of this Agreement being signed by both parties, to be held by the Vendor's Solicitors in trust in accordance with the provisions of Section 3; and

b. as to the balance of the Purchase Price, by certified cheque or bank draft payable to the Vendor or as it may direct on the Closing Date.

3. DEPOSIT

The Deposit shall be held by the Vendor's Solicitors in an interest bearing trust account with such interest to follow the Deposit. If this Agreement is not completed solely by reason of a failure of the Vendor to perform its obligations under this Agreement the Deposit shall be returned to the Purchaser forthwith, without deduction without derogating from any claim or cause of action the Purchaser may have against the Vendor arising from the Vendor's default. If this Agreement is not completed solely by reason of the failure of the Purchaser to perform its obligations under this Agreement the Vendor shall be entitled to retain the Deposit, without derogating from any claim or cause of action the Purchaser may have against the Vendor arising from the Vendor's default.

In the event that this Agreement is not completed as a result of ~~the failure of either the Vendor or the Purchaser to perform its obligations under this Agreement or the failure of either the Vendor or the Purchaser to obtain approval of transfer of~~ the liability of the Parties to obtain approval of transfer of

Jun. 8, 2007 10:50AM

allocation and change of use as contemplated herein, then on the Termination Date the Deposit shall be returned to the Purchaser without deduction, and this Agreement will become null and void and of no further force and effect.

4. ADJUSTMENTS

The Purchaser acknowledges that Alberta Environment, or a director appointed by the Minister under the Water Act of Alberta, RSA 2000, c. W-3 may withhold up to ten (10%) percent of the Assets that are being transferred. The Purchaser further acknowledges and accepts that the Purchase Price as agreed upon will be paid on the Closing Date regardless of whether up to ten (10%) percent of the allocation of water under either License No. 09125 or License No. 19427, has been withheld.

5. REPRESENTATIONS OF THE VENDOR

The Vendor represents and warrants to and in favour of the Purchaser that, as of the date of acceptance of this Agreement or such other date as may be specified:

- a. the Vendor is, and will be as of the Date of Transfer, the sole licensee named in Water License No. 09125 and 19427, and is the holder of the rights granted therein;
- b. the Assets shall be free at the Closing Date of any assignments, encumbrances, liens or interests of use, contractual sales or exchanges unless otherwise lawfully agreed to in writing by Vendor and Purchaser;
- c. the Vendor has no indebtedness to any person that constitutes or by operation of law or otherwise might constitute a lien, charge or encumbrance on all or any part of the Assets;
- d. The Vendor is not a non-resident of Canada within the meaning of Section 116 of the Income Tax Act (Canada);
- e. the Vendor is a G.S.T. registrant; and
- f. the Vendor, or its representatives, are authorized to and have the right to enter into this Agreement and to carry out its obligations hereunder.

6. REPRESENTATIONS AND WARRANTIES OF THE PURCHASER

The Purchaser represents and warrants to and in favour of the Vendor that, as of the date of acceptance of this Agreement or such other date as may be specified:

- a. the Purchaser is, or will undertake to possess on the Date of Transfer, 650 Paramount Inspection Acres issued by the BRID, and be the holder of the rights granted therein;
- b. the Inspection Acres shall be free at the Closing Date of any assignments, encumbrances, liens or interests of use, contractual sales or exchanges unless otherwise lawfully agreed to in writing by Vendor and Purchaser;

- e. the Purchaser has no indebtedness to any person that constitutes or by operation of law or otherwise might constitute a lien, charge or encumbrance on all or any part of the Subject Assets;
- d. The Purchaser is not a non-resident of Canada within the meaning of Section 116 of the Income Tax Act (Canada);
- c. the Purchaser is a G.S.T. registrant; and
- f. the Purchaser, or its representative, are authorized to and have the right to enter into this Agreement and to carry out its obligations hereunder.

Notwithstanding the above, the closing of the transaction contemplated by this Agreement by the Purchaser shall be deemed to be a waiver of any conditions in this section not satisfied on or before the Closing Date but shall not release the Vendor from its liability with respect to agreements, representations and warranties on the part contained in this Agreement.

7. **SURVIVAL OF REPRESENTATIONS**

The representations and warranties contained in Section 5 and 6 shall survive the completion of the transaction of purchase and sale contemplated by this Agreement and shall continue in full force and effect for the benefit of the Purchaser and the Vendor for a period of 6 months after the Closing Date, or the written notification of any breach of any representation or warranty may be provided to the other party on or before the expiry of such six (6) month period.

8. **VENDOR'S RESPONSIBILITIES BEFORE AND AFTER TRANSFER**

During the period from the date of acceptance of this Agreement until the Date of Transfer:

- a. the Vendor shall not enter into any assignments or agreements nor shall it amend the Water License or any existing assignments or agreements relating to the Assets without the prior written consent of the Purchaser;
- b. the Vendor shall remain responsible for all aspects of the Assets including without limitation, fulfillment of any reporting requirements and payment of any liabilities relating to the Assets;
- c. the Vendor agrees that the Purchaser may make all reasonable enquiries as to the status of the Assets and any titles, rights, interests, agreements and licenses relating thereto, and the Vendor further agrees that:
 - i. the Purchaser shall not be held responsible for any modification, cancellation or amendment of the Water License that may be effected by Alberta Environment prior to the Date of Transfer; and

ii. the Purchaser shall not be held responsible for the effects of any reasonable inquiries, including without limitation, the execution of any process to enforce existing agreements or rights against the Vendor.

From and after the Date of Transfer the Purchaser shall assume all responsibilities and liabilities relating to the Acres.

9. **PURCHASER'S RESPONSIBILITIES BEFORE AND AFTER TRANSFER**

During the period from the date of commencement of this Agreement until the Date of Transfer:

a. the Purchaser shall not enter into any assignments or agreements nor shall it amend any existing assignments or agreements relating to the Irrigation Acres without the prior written consent of the Vendor;

b. the Purchaser shall remain responsible for all aspects of the Irrigation Acres including, without limitation, fulfillment of any reporting requirements and payment of any liabilities relating to the Irrigation Acres;

c. the Purchaser agrees that the Vendor may make all reasonable enquiries as to the status of the Irrigation Acres and any taxes, rates, interest, agreements and licences relating thereto, and the Purchaser hereby agrees that:

i. the Vendor shall not be held responsible for any modification, cancellation or amendment of the Irrigation Acres that may be effected by the BRID prior to the Date of Transfer; and

ii. the Vendor shall not be held responsible for the effects of any reasonable inquiries, including without limitation, the execution of any process to enforce existing agreements or rights against the Purchaser.

From and after the Date of Transfer the Vendor shall assume all responsibilities and liabilities relating to the Permanent Irrigation Acres.

10. **AGREEMENT TO FACILITATE TRANSFER**

The Vendor hereby agrees to:

a. Obtain, or have in its possession on the closing date, an instrument of not less than 650 Permanent Irrigation Acres that it will then transfer to the Vendor in consideration for Licence #08125 and 19427;

b. forthwith execute and deliver to Alberta Environment an application to transfer the Acres to the Purchaser and to extend the Water Licence as required by the Purchaser, and to exercise best efforts in facilitating such transfer;

- c. execute and deliver all such further documents and instruments and do such further acts and things as may be reasonably required to give full effect to this Agreement;
- d. in the event the Vendor receives any notices, correspondence, or payments relating to the Assets from and after the Date of Transfer, the Vendor shall immediately forward such notices, correspondence, or payments to the Purchaser; and
- e. during the period between the Vendor's acceptance of this Agreement and the Date of Transfer the Vendor or its representatives shall provide Purchaser with access to all contracts, agreements, books, records and files relating to the Assets which are in its possession or to which it is entitled or has access, in order for Purchaser and its agents, advisors and representatives to review and carry out due diligence examination on all matters which they may consider relevant in relation to the transfer of the Assets.

The Purchaser hereby agrees to: **UPON ACQUIRING THE IRRIGATION**

ACCESS
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- a. forthwith execute and deliver to the BRID an application to transfer the Irrigation Access to the Vendor and to amend any Notice hereunder, as required by the Purchaser, and to execute and deliver all such further documents and instruments and do such further acts and things as may be reasonably required to give full effect to this Agreement;
- b. execute and deliver all such further documents and instruments and do such further acts and things as may be reasonably required to give full effect to this Agreement;
- c. in the event the Purchaser receives any notices, correspondence, or payments relating to the Irrigation Access from and after the Date of Transfer, the Purchaser shall immediately forward such notices, correspondence, or payments to the Vendor; and
- d. during the period between the Purchaser's acceptance of this Agreement and the Date of Transfer the Purchaser or its representatives shall provide Vendor with access to all contracts, agreements, books, records and files relating to the Irrigation Access which are in its possession or to which it is entitled or has access, in order for Vendor and its agents, advisors and representatives to review and carry out due diligence examination on all matters which they may consider relevant in relation to the transfer of the Irrigation Access.

11. **CLOSING ARRANGEMENTS**

This Agreement shall be completed at 12:00 PM on the Closing Date at such place as the parties may mutually agree.

- a. Deliveries of the Vendor

On or before the Closing Date the Vendor shall deliver to the Purchaser the following documents, fully executed by the Vendor or such other parties as may be specified:

- i. Transfer. Confirmation from Alberta Government of transfer of the Assets and assignment of the Water License as contemplated herein accepted by the appropriate government agent; and
 - ii. Other. Such other documentation relating to the completion of this Agreement as the Purchaser may reasonably require.
- b. Deliveries of the Purchaser

The Purchaser shall deliver to the Vendor the following on the Closing Date:

- i. Balance of the Purchase Price due on Closing Date. A certified cheque or bank draft payable to the Vendor or as the Vendor may in writing direct to the account of the person of the Purchase Price payable in accordance with Section 2;
 - ii. Transfer. Confirmation from the RRMD of transfer of the Irrigation Areas as contemplated herein, accepted by the appropriate representative; and
 - iii. Other. Such other documentation relating to the completion of this Agreement as the Vendor may reasonably require.
- a. All documents and money described in this Section 11 shall be delivered in person at the place of closing on or before the Closing Date. It is a condition of closing that all means of payment, execution and delivery of documents by each party to the other, the registration of the appropriate documents in the appropriate offices of public record as hereinafter provided, and the fulfillment of all other conditions of closing provided for herein, shall be deemed to be completed requirements; and it is specifically agreed that nothing will be complete at the closing until everything required as a condition precedent at the closing has been paid, executed, delivered and satisfied.

12. AUTHORIZATION TO MAKE INQUIRIES

Both Parties hereby authorize all federal, provincial, municipal, regulatory and provincial departments and agencies thereof, as required by the other side, to inspect their records with respect to the Assets and Irrigation Areas, and to release the results of such inspection and any pertinent information from their files to the other party or their solicitors.

13. GOVERNING LAW

This Agreement shall be governed by and construed in accordance with the laws of the Province of Alberta.

Jun. 8. 2007 10:52AM

LACOURCIERE ASSOCIATES

MAGNUSON REALTY LTD

NO. 9003 P. 0 09

MAGNUSON REALTY LTD

No. 9674 P. 9/9
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14. ENFORCEMENT

This Agreement shall come to the benefit of and be binding upon the parties hereto and their respective successors and assigns.

15. ACCEPTANCE

This Agreement shall be open for acceptance by the Vendor prior to 12:00 PM on the 8 day of June, 2007.

CRYSTAL BLUE LAND CORP.

Per: [Signature]

The undersigned hereby accepts the terms of the above Agreement and agrees to carry out the transaction contemplated herein, this 8 day of June, 2007.

RIVER BEND BOUTHERIAN BRETTEDRY

Per: Sam E. Gross

Per: Peter J. Hecker



VULCAN COUNTY

Vulcan - Alberta

BYLAW 2014-015

Being a Bylaw of Vulcan County in the Province of Alberta to amend Bylaw 2007-020 being the Crystal Blue Harbour Area Structure Plan (adopted by Vulcan County Council on July 15, 2009).

WHEREAS the Council for Vulcan County deems it desirable to amend the Crystal Blue Harbour Area Structure Plan;

AND WHEREAS the purpose of an Area Structure Plan is to provide a framework for the subsequent orderly subdivision and development of lands within a defined area;

AND WHEREAS the Council for Vulcan County wishes to regulate and control development of these said lands in line with an approved Area Structure Plan;

AND WHEREAS the Council for Vulcan County wishes to amend the Area Structure Plan by changing the water supply section in order to reflect a new plan (dedicated water intake and on-site water treatment facility) to supply raw and potable water to the development and by adding Figure 7.1;

AND WHEREAS the attached Schedule 'A' including the proposed amendment report and Figure 7.1 shall be inserted within the existing Area Structure Plan along with a notation indicating the extent and date of the amendment;

AND WHEREAS the municipality must prepare a corresponding bylaw and provide for its consideration at a public hearing.

NOW THEREFORE, under the authority and subject to the provisions of the Municipal Government Act, Revised Statutes of Alberta 2000, Chapter M-26, as amended, the Council for Vulcan County in the Province of Alberta duly assembled does hereby enact the following:

1. The Area Structure Plan shall be amended by changing the water supply section in order to reflect a new plan (dedicated water intake and on-site water treatment facility) to supply raw and potable water to

the development as shown in the attached amending report and Figure 7.1, attached as Schedule 'A' to this bylaw.

2. Bylaw No. 2007-020, being the Crystal Blue Harbour Area Structure Plan, is hereby amended.
3. This bylaw shall come into effect upon third and final reading hereof.

Received first reading this 6 day of Aug, 2014



Derrick Annable, Reeve



Leo Ludwig, CAO

Received second reading this 3 day of Sept., 2014



Derrick Annable, Reeve



Leo Ludwig, CAO

Received third reading and finally passed this 3 day of Sept., 2014



Derrick Annable, Reeve



Leo Ludwig, CAO

AREA STRUCTURE PLAN AMENDMENT
CRYSTAL BLUE HARBOUR
PORTION OF NW ¼ 26-18-22-4 and SW ¼ 26-18-22-4

Vulcan County



PREPARED FOR:
Crystal Blue Developments
c/o Rick Wiens
9-7130 Fisher Road SE
Calgary, AB T2H 0W3

PREPARED BY:
Hasegawa Engineering
A Division of 993997 Alberta Ltd.
330, 3120 32nd Street South
Lethbridge, AB T1H 7B4

1.0 INTRODUCTION

1.1 Purpose

The Crystal Blue Harbor Area Structure Plan (ASP) provides a conceptual land use plan and infrastructure servicing design to support a 220 acre development.

This amendment changes the water supply plan described in Section 3.2 Water System of the approved Area Structure Plan. It also comments on the Sanitary Sewer System section.

2.0 SERVICING

2.1 Water System

Crystal Blue Developments obtained a water allocation from Alberta Environment and Sustainable Resource Development through the water transfer process under the Water Act for potable water for the development (see Appendix A). Currently the water licence specifies water may be diverted from Lake McGregor Reservoir through the Village of Milo intake. The original intention was to have the village of Milo treat the water and then pipe the water to the development.

Potable water for the development will now be provided by a water treatment facility on Crystal Blue lands. A new water intake, located within the Lake McGregor Reservoir and dedicated to the Crystal Blue Harbor development, will be constructed.

Approvals will be obtained from AESRD for several components of the water supply system:

- The water licence will be amended to allow for diversion from McGregor Lake Reservoir at the new intake.
- A Use of Works agreement will be obtained for the delivery of water from the AESRD diversion works on the Bow River and for the construction of the intake.
- A Department Licence of Occupation will be obtained for the intake and connecting pipeline because they will occupy public land.
- An Environmental Protection and Enhancement Act approval will be obtained for the operation of the new water treatment plant and the distribution of the potable water.

The quantity of water required remains the same. However, by having an intake and raw water line dedicated solely to the development, there is now an opportunity to deliver raw water to the stormwater wetponds to provide the water required for park irrigation and for making up evaporative losses. Previously, these volumes would have been treated water.

The proposed intake system and location of the proposed water treatment plant is displayed on Figure 1. This figure amends and updates Figure 7 of the approved Area Structure Plan.

2.2 Sanitary Sewer System

This portion of the Area Structure Plan is not being amended. It was proposed that the sanitary sewer could be connected to the Village of Milo's sewage lagoon but the ASP was not amended to reflect this. Therefore the plan for the treatment of sewage from the development remains as described in the approved ASP.

Appendix A – Water Licence



**LICENCE TO DIVERT WATER
PROVINCE OF ALBERTA
WATER ACT, R.S.A. 2000, c.W-3, as amended**

This licence is issued to give effect to the transfer of a part of the water allocation from Licence No. Dated 1993 02 09 (Project 1) issued to the Hutterian Brethren of River Bend to Licence No. 00288466-00-00

LICENCE NO.: 00288466-00-00

FILE NO.: 00288466

PRIORITY NO.: 1973-08-13-004

EFFECTIVE DATE: OCT 31 2012

EXPIRY DATE: October 30, 2037

SOURCE OF WATER: Bow River through the works of Alberta Environment

POINT OF DIVERSION: SW 32-021-25-W4 rediverted at NW 36-018-22-W4 on McGregor Reservoir through the works of the Village of Milo and rediverted at NW 31-018-21-W4 for delivery to Crystal Blue Developments Ltd at Crystal Blue Harbour

POINT OF USE: Crystal Blue Developments Ltd Subdivision (Crystal Blue Harbour)

LICENSEE: Crystal Blue Developments Ltd.

Pursuant to Division 2, of Part 4, of the Water Act, R.S.A. 2000, c. W-3, as amended and the Bow, Oldman and South Saskatchewan River Basin Water Allocation Order OC 356/2007, a licence is issued to the Licensee to:

operate works and to divert up to 322,000 cubic metres of water annually at a maximum rate of diversion of 0.008 cubic metres per second from the source of water for municipal (subdivision) purposes:

subject to the attached terms and conditions.

Designated Director under the Act: Kathleen Murphy
Kathleen Murphy, P. Eng.

Date Signed: OCT 31 2012

DEFINITIONS

- 1.0 All definitions from the Act and the Regulations apply except where expressly defined in this licence.
- 1.1 In all parts of this licence:
- (a) "Act" means the Water Act, RSA 2000, c. W-3, as amended;
 - (b) "Application" means the written submissions to the Director in respect of application number 00288466-00-00 and any subsequent applications for amendments of Licence No. 00288466-00-00;
 - (c) "Director" means an employee of the Government of Alberta designated as a Director under the Act;
 - (d) "Point(s) of diversion" means the location(s) where water is diverted from the source of water;
 - (e) "Point of use" means the location(s) in which the diverted water is used by the Licensee for the licensed purpose;
 - (f) "Regulations" means the regulations, as amended, enacted under the authority of the Act.
 - (g) "Instream Objective" means the water flow in the source of water that remains in the source of water immediately downstream of the point of diversion, during the diversion of water by the licensee
 - (h) "Water Conservation Objective" means the amount and quality of water necessary for the protection of a natural water body or its aquatic environment including water necessary for the rate of flow or water level requirements.
 - (i) "Water Use Reporting System" means the secure internet website provided by Alberta Environment at <http://www.environment.alberta.ca/1286.html> for submitting measuring and monitoring results electronically to the Director.

GENERAL

- 2.0 The Licensee shall immediately report to the Director by telephone any contravention of the terms and conditions of this licence at 1-780-422-4505.
- 2.1 The terms and conditions of this licence are severable. If any term or condition of this licence is held invalid, the application of such term or condition to other circumstances and the remainder of this licence shall not be affected thereby.
- 2.2 The Licensee shall submit an application to the Director for the removal of the works within six months after ceasing operation of the works or the diversion of water.
- 2.3 The licensee shall maintain an agreement between the Village of Milo and Crystal Blue Developments Ltd. pertaining to the delivery of potable water within the Crystal Blue Development Ltd Subdivision.

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- 2.4 The licensee will implement the Village of Milo and Crystal Blue Harbour Water Shortage Response Plan (WSRP) dated November 2011, as amended, when water supply shortages occur.
- 2.5 The licensee will review the WSRP after each implementation of the Plan and provide revisions to the Director for review and approval.
- 2.6 The licensee will implement any revisions to the WSRP approved by the Director.
- 2.7 The licensee shall submit "as built" plans of the tie-in to the Village of Milo works and the pipeline to Crystal Blue Harbour within 6 months of the completion of the pipeline.
- 2.8 The licensee shall comply with the terms and conditions of the "Water Use Reporting System User Consent".

DIVERSION OF WATER

- 3.0 This licence is appurtenant to the following undertakings:
 - (a) The diversion works at the actual point of removal from the Bow River on the SW 22-021-25-W4 referenced on the Alberta Environment Carseland Bow River Headworks Licence on File 16633;
 - (b) The redirection works located on McGregor Reservoir at NW 36-018-22-W4 referenced on the Village of Milo Licence on File 09955;
 - (c) The redirection works located at the tie-in location to the Village of Milo on NW 31-018-21-W4 and referenced on Plan No.00288466-P001, approved on October 31, 2012;
 - (d) The water supply pipeline referenced on Plan No. 00288466-P002, approved on October 31, 2012 for the delivery of water to Crystal Blue Harbour;
 - (e) The water delivery works at Crystal Blue Harbour located on the NW 26-018-22-W4 as referenced on Plan No.00288466-P003, approved on October 31, 2012 ;
and
 - (f) The water distribution network in association with the Crystal Blue Development Ltd. municipal water supply within the subdivision boundary of Crystal Blue Harbour.
- 3.1 The Licensee shall divert water only for the purpose(s) specified in this licence.
- 3.2 The Licensee shall divert water only from the source of water specified in this licence.
- 3.3 The Licensee shall divert water only from the following point of diversion; SW 32-021-25-W4.
- 3.4 The Licensee shall divert the water only to the point of use described as Crystal Blue Harbour on Plan 00288466-P003.
- 3.5 The works used to divert the water authorized by this licence shall include, at a minimum, all of the following:

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- (a) the intake structure referred to in the Carseland Bow River Headworks licence (File 16633);
 - (b) the intake structure on McGregor Reservoir referred to in the Village of Milo licence (File 09955); and
 - (c) the tie-in structure at NW 31-018-21-W4 referred to in plan number 00288466-P001 approved October 31, 2012 ;and
 - (d) the pipeline referred to on Plan No. 00288466-P002 dated October 31, 2012 submitted with the Application.
- 3.6 The Licensee shall not divert more than 322, 000 cubic metres of water per year.
- 3.7 The Licensee shall not divert water at a rate of diversion greater than 0.008 cubic metres per second.
- 3.8 Prior to diverting any water from the source of water, the Licensee shall equip the tie-in location at the Village of Milo as referenced on Plan No. 00288466-P001 at the NW 31-018-21-W4 with water measuring devices, which measures:
- (a) cumulatively, the quantity of all water diverted; and
 - (b) the instantaneous rate of diversion.
- 3.9 Prior to diverting any water from the source of water, the Licensee shall equip the delivery point at Crystal Blue Harbour as referenced on Plan No. 00288466-P003 at the NW 26-018-22-W4 with water measuring devices, which measures:
- (a) cumulatively, the quantity of all water diverted; and
 - (b) the instantaneous rate of diversion.
- 3.10 The Licensee shall maintain each measuring device referred to in 3.8 and 3.9 at all times.
- 3.11 The Licensee shall calibrate each measuring device referred to in 3.8 and 3.9 in accordance with manufacturer's specifications.
- 3.12 The Director may amend this licence to add Instream Objectives, change the Instream Objectives, convert an Instream Objective to a Water Conservation Objective or change such Water Conservation Objective, upon a minimum of 12 months written notice to the licensee.

MONITORING AND REPORTING

- 4.0 Unless otherwise authorized in writing by the Director, the Licensee shall:
- (a) measure the total volume of water diverted each month using the measuring device specified in 3.8(a) and 3.9(a); and
 - (b) measure the rate of diversion on a continuous basis using the measuring device specified in 3.8(b) and 3.9(b).

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- 4.1 The Licensee shall record and retain all of the following information for a minimum of 5 years after being collected:
- (a) the place, date and time of all monitoring, measuring and sampling;
 - (b) the results obtained pursuant to 4.0; and
 - (c) the name of the individual who conducted the monitoring, measuring and sampling stipulated in (a) and (b).
- 4.2 The Licensee shall report to the Director the results of the measuring and monitoring required in 4.0 (a) and 4.0 (b) using the "Water Use Reporting System" and any other information required in writing by the Director.
- 4.3 The Licensee shall submit the report required in 4.2 on or before the end of the month following the month in which the information is based upon was collected.

COMPLAINT INVESTIGATION

- 5.0 The Licensee shall:
- (a) provide to all water users, within a distance specified in writing by the Director from the point of diversion, the contact name(s) and telephone numbers of the licensee or representatives(s);
 - (b) investigate all written complaints accepted by the Director relating to allegations of surface water and groundwater interference as a result of the diversion of the water or operation of the works; and
 - (c) provide a written report to the Director, within a time specified in writing by the Director, detailing the results of the investigation relating to the complaint accepted by the Director in 5.0(b).
- 5.1 The Licensee shall satisfy the Director that the report submitted pursuant to 5.0(c) has identified remedial and/or mitigative measures relating to the alleged interference.

DATE SIGNED: OCT 31 2012


DESIGNATED DIRECTOR UNDER THE ACT
Kathleen Murphy P. Eng.