

# **NEIGHBOURHOOD AREA STRUCTURE PLAN**

## **SE 1/4 SECTION 11, TOWNSHIP 38, RANGE 27, WEST OF 4**

**Originally adopted by Council, as an Outline Plan : December 1997**

**Approved By Council, as a Neighbourhood Area Structure Plan : Bylaw 3217/98, December 1998**

**Neighbourhood Area Structure Plan Amended by Council : Bylaw 3217/C-2000, June 2000**

**Neighbourhood Area Structure Plan Amended by Council : Bylaw 3217/A-2003, February 2003**

**Neighbourhood Area Structure Plan Amended by Council : Bylaw 3217/D-2004, August 2004**

**Neighbourhood Area Structure Plan Amended by Council : Bylaw 3217/C-2006, April 2006**

**Neighbourhood Area Structure Plan Amended by Council : Bylaw 3217/C-2009, April 2009**

**Prepared For:**

**Laebon Lands Ltd.**

**Prepared By:**

**Interplan Strategies Inc., and  
Al-Terra Engineering Ltd.**

**December, 1997**

**Revised: June, 1998**

**Revised: February, 2000**

**Revised: May, 2000**

**Revised: November, 2002**

**Revised: May, 2004**

**Revised: July, 2004**

**Revised: November 28, 2005**

**Revised: February 13, 2009**

## TABLE OF CONTENTS

	<u>Page</u>
1.0 Introduction and Purpose	1
2.0 Policy Framework	1
3.0 Site Characteristics	2
3.1 Legal Description and Ownership	2
3.2 Site Area	2
3.3 Existing Land Use	2
3.4 Land Form	2
3.5 Access	3
3.6 Servicing	3
3.7 Environmental Considerations	3
3.8 Road Widening	3
4.0 Development Proposal	4
4.1 Development Concept	4
4.1.1 Neighborhood Structure	4
4.1.2 Land Use Distribution	5
4.1.3 Residential	6
4.1.4 Density	7
4.1.5 Open Space	7
4.1.6 Environmental Issues	8
5.0 Transportation	10
5.1 Traffic Circulation Pattern	10
5.2 Pedestrian Circulation Patterns	10
6.0 Municipal Servicing	11
6.1 Storm Sewer System	11
6.1.1 Minor Drainage System	11
6.1.2 Major Overland Drainage System	12
6.2 Sanitary Sewer System	12
6.3 Water Distribution System	12
6.4 Shallow Utilities	13
7.0 Phasing of Development	13
Appendices	

### List of Tables

Table 1	Neighbourhood Area Structure Plan Statistics	6
---------	--	---

### List of Figures

Figure 1	Location
Figure 2	Site Features
Figure 3	Development Concept (Color and Black & White versions)
Figure 4	“Main Street”
Figure 5	Abandoned Oil Well
Figure 6	Collector Roadway Detail (1997 City of Red Deer Design Guidelines)
Figure 6A	Collector Roadway Detail (2003 City of Red Deer Design Guidelines)
Figure 7	Storm Sewers
Figure 8	Overland Drainage
Figure 9	Sanitary Sewers
Figure 10	Water Distribution
Figure 11	Phasing Plan

## **1.0 INTRODUCTION AND PURPOSE**

The subject site is located in the southeast quadrant of the City of Red Deer at the intersection of 32<sup>nd</sup> Street and 20<sup>th</sup> Avenue. (See Figure 1). Immediately to the north is the future 32<sup>nd</sup> Street Arterial road right of way. To the west is the Lancaster Meadows area. To the east are the future 20<sup>th</sup> Avenue arterial road right of way and the present city limit. To the south is agricultural land, which is intended for future residential.

The site is situated within the study area boundary of the East Hill Area Structure Plan adopted by Council on September 14, 1992 by Bylaw 3075/92, with subsequent revisions by Bylaw 3075/A-93, 3075/B-93, 3075/A-97, 3207/98 and 3217/D-04. Since the subject quarter section is within the study area but not within the actual Area Structure Plan boundary, a boundary amendment to the Area Structure Plan is required.

The site, containing 159.91 acres (64.7 hectares) more or less, is legally described as the Southeast 3 Section 11, Township 38, Range 27 west of the 4<sup>th</sup> meridian.

INTERPLAN STRATEGIES INC. previously submitted, on behalf of Laebon Developments Ltd., now Laebon Lands Ltd., an application for a Neighbourhood Area Structure Plan approval for primarily residential and associated land uses. AL-Terra Engineering Ltd. is currently submitting this amendment to the Neighbourhood Area Structure Plan on behalf of Laebon Lands Ltd. The plan submitted acknowledges the presently known edge conditions on all four sides of the site.

The following sections of this report discuss: policy framework, site characteristics, proposed land uses, development densities, municipal reserve and open space requirements, transportation considerations, proposed site servicing and phasing.

## **2.0 POLICY FRAMEWORK**

On September 14, 1992 City of Red Deer Council adopted the East Hill Area Structure Plan (Bylaw 3075/92). Subsequent revisions were made to the Plan by Bylaw 3075/A-93 on April 26, 1993, by Bylaw 3075/B-93 on November 22, 1993, Bylaw 3075-97 on January 26, 1998, Bylaw 3207/98 on April 20, 1998, Bylaw. (The Area Structure Plan is presently under review). The Area Structure Plan allows for the primary use of land for residential purposes based upon an anticipated population of around 32 persons per gross hectare (or approximately 4 units per acre).

Other land uses specified in the Area Structure Plan include a Public Middle School in conjunction with a neighborhood park and a centrally located north south linear park and trail feature. The road network shows an internal collector loop through the area which is an extension from the Lancaster Meadows area. A collector link to 32<sup>nd</sup> Street is also shown, as well as possible future connections to the south of the Neighbourhood Area Structure Plan Area.

The East Hill Area Structure Plan is implemented by means of Neighbourhood Area Structure Plans for each quarter section.

Other City of Red Deer documents such as the Planning and Subdivision Guidelines, the Community Services Master Plan, Ecological Profiles and Land Use Bylaw govern the more detailed elements of the planning process.

### **3.0 SITE CHARACTERISTICS**

#### **3.1 Legal Description and Ownership**

The subject site is legally described as the SE 3 Section 11, Township 38, Range 27, west of the 4<sup>th</sup> meridian. As of November 2005, the registered owner is:

- Pemberton Holdings Ltd.

The appropriate title us included in Appendix ‘A’.

#### **3.2 Site Area**

The gross site area is 159.91 acres (64.715 hectares), of which approximately 9.89 acres (4.00 hectares) are required for the widening of 32<sup>nd</sup> Street and 20<sup>th</sup> Avenue. This results in a developable area of 150.03 acres (60.71 hectares).

#### **3.3 Existing Land Use**

The entire quarter section has been under cultivation. It is presently designated A-1 Future Urban Development by the City of Red Deer Land Use bylaw No. 3156/96. The general purpose of this District is

“to ensure that development on lands required for future urban development is restricted to ensure that future development may proceed in an orderly and well planned fashion, in keeping with the intent of the General Municipal Plan.”

A re-designation to appropriate urban land use districts is therefore required before any urban development can occur.

#### **3.4 Land Form**

The entire quarter section is relatively flat, with the elevation ranging from a high point of 905 metres in the northeast corner of the quarter to a low point of 901 metres in the extreme southeast corner. (see Figure 2).

The recently completed Ecological Profile for the quarter section identified two elements.

- A. A stand of aspens in the existing road allowance adjacent to the northeast corner of the quarter section. Recommendation R1 of the Profile encourages the preservation of the trees within the road right of way, by shifting the roadway to the east and providing an MR strip that would include the trees.

- B. A semi-permanent wetland in the north central portion of the quarter which depends on drainage from the surrounding crop land. Recommendation R6 suggests that an “attempt should be made to incorporate it into some form of drainage system and/or open space design”.

### **3.5 Access**

Present access to the quarter is from 32<sup>nd</sup> Street, by means of Lawford Avenue.

### **3.6 Servicing**

The site can be full-serviced with sewer, water and storm water utilities (assuming storm water management techniques are implemented) and shallow utilities from infrastructure imminently available in the Lancaster Meadows area to the west.

### **3.7 Environmental Considerations**

A Phase 1 Environmental Site Assessment has been completed by AGRA Earth and Environmental and has been submitted previously with the initial Neighbourhood Area Structure Plan submission. According to Alberta Energy and Utilities Board records, there is an abandoned Petro Canada crude oil well located in Legal Subdivision 2 of Section 11, Township 38, Range 27 west of the Fourth, (see Figure 2). This site was abandoned on July 10, 1985 and reclaimed on May 1, 2001. A copy of the reclamation certificate is contained in Appendix ‘B’. Also a Canadian 88 Energy Corp. lease is located in Legal Subdivision 2 adjoining the south property line. The subject site has therefore been assigned a rating of “moderate” in terms of environmental risk. This means that petroleum hydrocarbon contaminated soils could be encountered. If so the soil, in the southernmost portion of the quarter section, should be assessed and the affected area remediated as necessary.

### **3.8 Road Widening**

A road widening of 30 metres is required along the northern boundary for the future 32<sup>nd</sup> Street arterial roadway, and along the eastern boundary for the future 20<sup>th</sup> Avenue arterial roadway.

## **4.0 DEVELOPMENT PROPOSAL**

Based on the developer's vision, city policies and site characteristics, a Neighbourhood Area Structure Plan has been prepared for the subject site. The components of the Neighbourhood Area Structure Plan are development concept, land use, density and population, open space, transportation, servicing and phasing.

### **4.1 Development concept**

The intent of the design concept for the area is to provide a comprehensively planned residential community with an emphasis on integrating land uses and addressing the market factors presently prevalent in the City. The overall concept is generally conventional in nature, in that it:

- Establishes a hierarchy of road patterns (arterial, collector and residential);
- Has a curvilinear road pattern consisting of crescents, P-loops and cul-de-sacs), and
- Has densities that are similar to other newer areas in the City.

However, two key aspects of the Plan are not conventional. These include:

- The creation of a mixed use community node, and
- The focus on a pedestrian/open space network,

both of which are addressed in this report.

The proposed Neighbourhood Area Structure Plan incorporates the policies contained in the East Hill Area Structure Plan and other City of Red Deer guidelines and policy documents.

The Plan, based to a large extent on the cluster concept, is intended to provide the opportunity for flexibility and variety of residential product type. This is especially important when considering the dynamics and sensitivity of the present day market.

The proposed Neighbourhood Area Structure Plan is illustrated by means of a black & white and a color drawing, 11"x17" format, referred to as Figure 3.

#### **4.1.1 Neighborhood Structure**

The proposed Plan places an emphasis on the development of a mixed use neighborhood node which is readily accessible to the neighborhood by pedestrians as well as by automobile. This neighborhood node is comprised of a neighborhood park (including a school), and other public uses such as multi-family residential. The proposed day care site has since been eliminated by the Land Use Bylaw Amendment #3217/C-2000. The node is intended to create a

community focus and activity place where people within the neighborhood gather and interact. The node is therefore strategically located in terms of both vehicular and pedestrian systems. A key element of the node is the creation of an “urban main street” through its centre (See Figure 4). A sense of main street will be achieved by placing mixed uses along the street, including higher density residential, and a school. A landscaped central median will result in a boulevard streetscape which culminates in a T-intersection with a public open space as a terminus.

A special treatment is also proposed for the collector loop through the area. In order to create a streetscape that is more pedestrian friendly, a 2.50 metre sidewalk is proposed for the entire length of the collector loop. The existing north portion of this loop features a separate sidewalk on both sides, with landscaped boulevards. Also, it is the intent of the Plan to encourage the use of lane access and rear drive garages as much as possible along the wider collector loop street. The housing product type anticipated along this street is a mix of standard and narrow lot single family detached units. In order to accommodate this theme, it is proposed to reduce the front yard setbacks for the R1N lots from 6 metres to 3 metres when fronting on a 24 metre wide road right of way.

In addition to the multi family proposed along “main street”, an allowance is made in the Plan for a higher density site to the east, as well as a site in the southern portion of the plan area. It is also intended that an area in the central portion of the Plan adjacent to the linear park be provided for the mature adult market.

Single family detached and possibly some semi-detached housing, will be distributed throughout the remainder of the community. The majority of these residential units will be provided with rear lanes. However, a small percentage that back onto some of the Open Space and storm detention facilities will be laneless, and may have walkout basements.

The lot sizes will be determined at the subdivision stage and are intended to vary in width to encourage a variety of residential building product.

#### **4.1.2 Land Use Distribution**

The Neighbourhood Area Structure Plan provides for a comprehensively planned residential community comprised of residential and ancillary uses including a neighborhood node. Table 1 outlines the land use distribution for the Neighbourhood Area Structure Plan Area.

**Table 1. Neighbourhood Area Structure Plan Statistics**

<b>Land Use</b>	<b>Hectares (+/-)</b>	<b>Acres (+/-)</b>	<b>Percentage</b>
Residential - Single Family Detached Dwellings (R1)	21.147	52.26	34.83
Residential - Single Family Narrow Dwellings (R1-N)	11.289	27.90	18.59
Residential B Duplex Dwellings (R1-A) (3)	0.000	0.00	0.0
Residential-Multi-Family (R-3)	2.882	7.12	4.75
Future Residential (A1) (4)	0.019	0.05	0.03
Commercial (3)	0.000	0.00	0.0
Day Care Site (1)	0.000	0.00	0.0
Church Site	0.730	1.80	1.20
Middle School/Park Site (2)	5.566	13.75	9.17
Local Parks and Walkways	1.878	4.64	3.09
Detention Pond	2.057	5.08	3.39
Remaining P.U.L. Lots	0.153	0.38	0.25
Streets and Lanes	14.991	37.04	24.70
<b>TOTAL DEVELOPABLE AREA</b>	<b>60.712</b>	<b>150.02</b>	<b>100.0</b>
32 <sup>nd</sup> Street and 20 <sup>th</sup> Avenue Widening	4.003	9.89	
Total Area of Original ¼ Section	64.715	159.91	

1. Day Care Site was previously advertised and was eliminated in Land Use Bylaw #3217/C-2000.
2. 0.556 (1.38 acres) of Municipal Reserve to be purchased by the City of Red Deer for storm water detention pond needs in the northwest corner of the plan area.
3. Elimination of all R1-A and the Commercial site, as of December 2005.
4. A1 zoned areas to be developed with adjacent ¼ section.

Table 1 illustrates that 58.2 per cent of the site (net of streets and lanes) is for residential uses, 12.51 per cent for parks and open space, (with an additional 3.39 per cent for the southeast detention pond), 24.70 per cent for streets and lanes and the balance for other neighborhood uses including a church.

#### **4.1.3 Residential**

The Plan is a carefully integrated neighborhood, providing for a variety of housing types, ranging from single detached to townhouses. It is comprised of a series of residential cells relating to the collector street loop and focusing to a large extent upon small parks and the linear open space network.

The low density residential areas will consist mainly of R1 single detached dwellings, and R1N single detached narrow dwellings. In order to provide lotting consistency, the grouping of these different types of dwellings will be separated by either a roadway, a lane way or a P.U.L.

The residential medium density areas are proposed in two locations,

- Two small sites, likely comprised of townhouses, in the neighborhood core area, and
- Two sites in the southern portion; one site backing onto the southeast detention pond, and the other site bordering the southern boundary of the ¼ section, a portion of which may be used for a possible church site.

Areas proposed for walk-out basements are shown in Figure 3.

#### **4.1.4 Density**

The residential density identified in the East Hill Area Structure Plan is in the range of 32 to 50 persons per hectare (13 to 20 persons per acre).

The Neighbourhood Area Structure Plan, depending upon the actual lot size and ultimate multi-family product, is anticipated to accommodate 850 to 900 dwelling units.

Based upon the estimated product distribution this equates to a density of approximately 39 persons per hectare.

#### **4.1.5 Open Space**

The key components of the Open Space system proposed in the Neighbourhood Area Structure Plan are discussed below, followed by a statement of municipal reserve calculations.

##### Components

The components of the proposed open space system, which are cited below, include a neighborhood school and park centre, three small local parks, storm detention facilities and a centrally located linear park.

- a) **Neighborhood School and Park Facility**  
A 13.75 acre (5.57 hectare) neighborhood school and park site is provided in the location indicated in the East Hills Area Structure Plan adjacent to the existing storm detention facility. The site plan has been modified by shifting the school envelope to the south.

The Plan also includes a children's playground at the north end of the linear park immediately to the south of the collector street.

- b) **Linear Park**  
A 3.53 acre (1.429 hectare) north south linear park provides a central open space feature and pedestrian connection.
- c) **Local Parks**  
Three small local parks are indicated on the Plan. These parks are strategically located to provide centralized open space and entry features.
- d) **Storm Detention**  
Two storm detention facilities are provided in the Plan. One is situated in the northwest corner of the site and is incorporated into the neighborhood park and will be an extension of an existing pond to the west. The developer will be compensated for 1.37 acres (0.556 hectares) of the land contributed towards this pond. The second facility comprising 5.083 acres (2.057 hectares), all of which will be a Public Utility Lot, is proposed in the southeast corner of the Plan area.

#### Municipal Reserve

In order to realize the open space network envisioned by the Plan, there is a total of 18.39 acres (7.44 hectares) of municipal reserve. Of this, 1.37 acres (0.556 hectares) are to be purchased by the City of Red Deer for storm water detention ponds. This results in an over-dedication of 2.02 acres (0.81 hectares).

#### **4.1.6 Environmental Issues**

As indicated in Section 3.4 of this report, and illustrated in Figure 5, the Ecological Profile Report for southeast Red Deer prepared by the City of Red Deer Parks and Culture Department, dated September 24, 1997, identifies a priority "B" Wetland in the north central portion of the subject quarter section. The report appropriately describes it as semi-permanent. Based upon the vegetation it contains it appears to be wet for only part of the year. The cultivated area around its perimeter defines the size as approximately 196 feet (60m) by 394 feet (120m). Tire tracks from a tractor were evident across the slough illustrating the current dry nature of the slough. The feature, in the opinion of the consultants, is not particularly significant and its sustainability is in question once urban development has occurred around it. Therefore, the feature has not been incorporated into the Plan.

The Ecological Profile also identified an existing tree stands within the 20<sup>th</sup> Avenue right of way as a priority "A" feature. The report suggests that the road right of way be shifted eastward and that, in lieu of a typical berm, the trees be

retained and a municipal strip be provided.

A site review of the trees in question indicated that only a narrow band exists on the west side of the existing dirt road and that more of the treed area exists on the east side of the existing dirt road. This currently allows for an 11.50m berm on the west side, as the stand of trees does not reach the area allowed for the berm, and therefore, none of the existing trees will be affected. Assuming that the existing dirt road is approximately in the middle of the existing 66 foot (20m) right of way, which appears to be the case from an examination of air photography, the roadway for 20<sup>th</sup> Avenue would have to be shifted to the east of the existing 66 foot (20m) road right of way. In other words, most of the 197 foot (60m) right of way for the ultimate 20<sup>th</sup> Avenue would have to be purchased from the quarter section to the east, namely the SW 3 Section 12, Township 38, Range 27 west of the 4<sup>th</sup> meridian.

The quality of the trees proposed to be preserved must also be considered. The band on the west side of the dirt road is very narrow. It consists of old dying poplars, some younger poplars and willows. At the very least, the westerly most 33 feet (10m) of the old 66 foot (20m) road right of way is probably not worth preserving. The band along the east side of the dirt road is wider but contains a similar quality of trees.

Construction adjacent to the trees, and particularly a change in adjacent grades, will result in a number of the existing trees dying.

Accordingly, a realistic re-assessment is required to determine, if in fact the trees are worth saving.

Insofar as the abandoned oil wells are concerned, the site has been assigned a rating of “moderate” in terms of environmental risk. This, according to AGRA’s report submitted under separate cover, means that petroleum hydrocarbon contaminated soils could be encountered. If so, the soil should be assessed and the affected area remediated as necessary. Development within 50m of the abandoned well site has been addressed, and the affected area has been remediated (see Appendix B).

## **5.0 TRANSPORTATION**

### **5.1 Traffic Circulation Pattern**

The traffic circulation pattern proposed in the Neighbourhood Area Structure Plan conforms to the East Hill Area Structure Plan. At some point in the future there will be two arterial roadways adjacent to the quarter section:

- 32<sup>nd</sup> Street along the northern boundary of the quarter, and
- 20<sup>th</sup> Avenue along the eastern boundary of quarter section.

The internal transportation system currently ties into 32<sup>nd</sup> Street. An internal collector loop street will tie into the collector road system in Lancaster Meadows to the west. A collector stub will connect the internal collector to 32<sup>nd</sup> Street and will function as “main street”. The northern part of this street will have no median and will permit an additional lane for turning movements at the intersection with 32<sup>nd</sup> Street. This entry road will be a divided collector. The cross-section for this street is illustrated in Figure 6. This cross-section conforms to the 1997 City of Red Deer Design Guidelines drawing B5, except that a 1.50 metre wide separate walk is proposed on the east side of the roadway, adjacent to the multi family site. A 2.50 metre separate sidewalk will be located along the west side, adjacent to the neighborhood park and multi-family area.

Construction of this entrance road has since been completed, and an updated cross-section of the entry collector is provided in Figure 6A.

It should be noted that the developer intends to explore options for the creation and implementation of a Home Owners Association, which, amongst other things, would assume the ongoing maintenance of public landscaped areas, i.e. traffic islands which may not typically be assumed by the City.

Figure 6A also illustrates the proposed cross-sections for the internal collector loop road. These cross-sections conform to the 2003 City of Red Deer Design Guidelines.

A collector stub will be provided at the south which will tie the internal collector loop with future development to the south.

Residential entrance roads, many of which may have medians, will provide access to each of the cells.

### **5.2 Pedestrian Circulation Patterns**

Figure 3 illustrates a continuous integrated pedestrian system throughout the quarter section. As shown on the Plan:

- The pedestrian linkage is continued from the City’s Lancaster Meadows quarter section via the 1.5 metre wide separate sidewalk located along the north side of Lancaster Drive.
- Pedestrian linkage is provided to 32<sup>nd</sup> Street.
- A pedestrian linkage has been provided for through the central linear and neighborhood park system.
- Internal linkages exist to the centrally located linear park system, and
- An arterial trail exists along the north side of 32<sup>nd</sup> Street. It is assumed that The City will construct a similar trail along the west side of 20<sup>th</sup> Avenue when this arterial road is constructed.

The pedestrian linkage system illustrated on the Neighbourhood Area Structure Plan connects key neighborhood elements and will enable residents to walk, run or ride bicycles through the community on a system of paths in open spaces or on boulevard walks that are separate from the roadways.

The pedestrian movement patterns are designed for both internal and external flows.

## **6.0 MUNICIPAL SERVICING**

Most of the municipal services required to service this quarter section are existing, and are a direct extension of services located along the west boundary of the quarter section.

### **6.1 Storm Sewer System**

Due to the topography of the site, two storm detention ponds will be required to service the quarter section. An existing storm detention pond, located immediately to the west of the northwest corner of the quarter, will be extended easterly to accommodate a portion of the storm runoff from the north westerly portions of the subject lands. The combined area from the City’s Lancaster Meadows quarter and the Laebon quarter which drains to this pond is approximately 173 acres (70 hectares).

A second storm detention pond is required to service the southeast portions of the quarter due to its existing low-lying topography. The approximate area of the contributing lands which will drain to this pond is 124.05 acres (50.2 Ha). The storage volume required to accommodate a one in 100 year storm event is approximately 18,550 cubic metres.

#### **6.1.1 Minor Drainage System**

Runoff from storms up to a one in five year event will be handled via a gravity

pipled system. Consideration will also be given to providing a weeping tile drainage system for all lots. The design will be completed in accordance with the City of Red Deer Design Guidelines.

Figure 7 illustrates the conceptual layout for the storm servicing.

### **6.1.2 Major Overland Drainage System**

The major overland drainage will exist regardless of whether or not it is designed for. When there is too much storm runoff for the pipled system to handle, the runoff will flow overland along the easiest path available. This will occur when the storm is greater than a one in five year event.

To accommodate this situation, roads and lanes will be designed to route the overland flow runoff to either the northwest or southeast storm detention ponds. Some ponding will occur within the roads, lanes and municipal reserve areas. The detailed design process will ensure that the major overland drainage system is designed in accordance with the City of Red Deer Design Guidelines.

The major overland drainage system is illustrated schematically on Figure 8.

## **6.2 Sanitary Sewer System**

The sanitary sewer system required to service the subject quarter section is a direct extension of the sanitary sewer system located within the Lancaster Meadows quarter section to the west.

A 300 millimeter diameter sanitary main will be extended with the south leg of Lancaster Drive to service the south part of the subject quarter section. A 375 millimeter diameter sanitary main will be extended along the north leg of Lancaster Drive to service the northern part of the subject quarter section, and other property to the north. Figure 9 illustrates the conceptual layout.

The southeast corner is the lowest portion of the quarter section. In order to accommodate gravity forced sewer systems, significant quantities of fill will be required in this area. If the standard rear lot servicing is used, the resultant fill will necessitate back sloping into the quarter section to the south. Accordingly, a more reasonable approach to servicing this area is via the street servicing alternative.

All facilities required for the sanitary sewer system will be designed in accordance with the City of Red Deer Design guidelines.

## **6.3 Water Distribution System**

The water distribution system required to service the subject quarter section is a direct extension of the water distribution system for the Lancaster Meadows quarter section to

the west. The largest water supply mains include:

- A 300 millimeter diameter water main to be extended in the lane north of the south leg of Lancaster Drive;
- A 250 millimeter diameter water main to be extended along the north side of the north leg of Lancaster Drive.
- A 300 millimeter diameter water main to run in a north/south direction along 20<sup>th</sup> Avenue (the eastern boundary of the property), as per the requirements of the CH2M Hill's 1992 Water System study.

Computer water modeling will be utilized to evaluate actual water main sizes within the subject quarter section.

Figure 10 illustrates the conceptual layout for water servicing.

#### **6.4 Shallow Utilities**

The City of Red Deer Electric Light and Power Department, Telus Corporation, Shaw Cable and ATCO Gas (formally reviewed by Northwestern Utilities) have been contacted regarding the subject quarter section. All of the franchise utilities have advised that there is adequate capacity to provide servicing in the general area. The utility companies will review and address the servicing alternatives in more detail during the circulation and review of the Neighbourhood Area Structure Plan.

#### **7.0 PHASING OF DEVELOPMENT**

Figure 11 illustrates the proposed phasing for development. The present location of utilities dictates the initial few phases of development. Market conditions will influence the actual phasing of later development.

## **APPENDICES**

## APPENDIX 'A'

**APPENDIX 'B'**



