



# **Sandhill Estates** **OUTLINE PLAN**



Lacombe County | March 2017





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# Overview

As outlined in **Appendix A**, the Sandhill Estates Outline Plan was presented to the general public during a Public Information Session on February 7, 2017. At this meeting there were several items that were brought up by attendees as potential concerns. The following is a listing of these concerns and explanation as to how they have been addressed in the Plan.

## Zoning

Residential lots in Sandhill Estates have been zoned using the R-CRE Country Residential Estates district which allows for lots between 1.25 - 2.50 acres in size. Although larger residential lots exist surrounding the Plan Area, the smaller lot sizes associated with the R-CRE district and proposed for inclusion in Sandhill Estates increases the efficiency of municipal infrastructure for services like roadway maintenance and clearing and are generally well received by home buyers in Central Alberta.

## Recreation Amenities and Open Space

As described in **Section 4.2 Open Spaces**, Sandhill Estates has been designed with a total of 25.6% open space. These areas will be designed in collaboration with Lacombe County to enhance the County's overall public open space network and provide recreation amenities for the use of all residents.

During the public consultation process, existing residents of the Burbank area expressed disapproval for the inclusion of public recreation spaces in Sandhill Estates. Although trails have been shown conceptually in the development at the request of Lacombe County, their construction is at the discretion of the County and may be subject to change.

## Traffic

Traffic volumes generated by the Sandhill Estates development were identified as a potential concern for surrounding residents. As described in **Section 2.3 Supportive Plans**, the Sandhill Estates Transportation Memo confirmed that the proposed transportation network would adequately handle the traffic volumes anticipated with no concerns.

## Safety

Several surrounding residents expressed concern regarding a correlation between the Sandhill Estates development and an increased crime levels at their properties. Emergency response services are described in **Section 4.3 Emergency Services**.

Railway safety was also identified as a potential concern; development in proximity to the railway is described in **Section 1.5 Surrounding Development**.

## Servicing

Due to the potential inclusion of additional wells in the area, and sandy soil types; water and sanitary servicing of Sandhill Estates was identified as a concern for surrounding residents. Although a 72-hour groundwater pump test confirmed that the proposed development would have no impact on the existing system, water storage tanks may also be utilized by future residents. In addition, septic mounds or tanks will be used as a response to the sandy soil conditions of the Plan Area which make the use of septic fields more difficult.

Servicing information has been included in **Section 5 Servicing**, detailed servicing information will be provided in the Sandhill Estates Servicing Study.





Character image -Mountain View County

# 1 Introduction

## 1.1 PURPOSE

The purpose of the Sandhill Estates Outline Plan is to describe the development objectives and proposed land use for a parcel of land in the existing community of Burbank, located in Lacombe County.

### 1.1.1 Plan Interpretation

The Sandhill Estates Outline Plan is intended to guide future development within the Plan Area; all images shown in this Outline Plan have been included for visioning purposes only and should not be used to identify definitive locations or be considered an indication of exactly what will be constructed.

## 1.2 LOCATION

The Plan Area can be generally described as the undeveloped portion of SW 24-39-27-W4M located in the Burbank development, north of a CN railway line. As shown on **Figure 1 - Location Plan**, this area is south of Twp Rd 393A and north of the Blindman River.

## 1.3 OWNERSHIP

The Sandhill Estates Plan Area, land title 152 352 832, is owned by 1842107 Alberta Ltd and consists of 10.47 ha (25.87 ac).

## 1.4 HISTORY

Historic land use of the Plan Area is agricultural in nature, dating back to the late 1800s. Historic residents of the quarter section included Mr and Mrs James MacNicol, their four sons, and two daughters who lived on the land from 1917 to 1949. As remembered in *Wagon Trails to Hard Top: Historic of Lacombe and Area*, Mr. MacNicol taught at the Asplund, Blindman, and Blackfalds Schools as well as having sold insurance and being the local fire inspector.

Following Mr. MacNicol's death, the land was passed down through the Stewart, Flatter, and Carlson families prior to its ownership by George and June Dyck who used it for agricultural purposes from 1973 to 2015.

### 1.4.1 Historical Resources

Alberta Culture and Tourism's *Listing of Historic Resources* (September 2015) identified LSD 1-3 of the quarter section as potentially containing paleontological resources that may require avoidance. To follow up on this identification, a Historical Resources Impact Assessment (HRIA) was completed in Spring 2016 with an addition shovel test in the fall.

As described in **Section 2.3 Supportive Plans**, two newly recorded archaeological sites were identified during the course of the HRIA completion. The location of these findings are shown on **Figure 3 Existing Conditions**. The Sandhill Estates concept plan has been designed based on the recommendations of the Historical Resource Impact Assessment as described in **Section 2.3 Supportive Plans**.

## 1.5 SURROUNDING DEVELOPMENT

### Residential Development

The Plan Area is surrounded by country residential lots ranging from 3 to 5 acres.

### Railway

A CN railway runs along the southeast boundary of the Plan Area and connects to the CN Burbank storage yard, located east of the Plan Area across Township Road 393A. The line that runs in this location has been identified by CN as a branch line.

At the time of Outline Plan circulation to CN, a 60m development setback was requested from the property line to dwelling units. This setback will be further reviewed at the time of subdivision to ensure compliance in all areas, specifically regarding lots 12 and 13.

CN also provided the following additional recommendations, which will be included in the development's architectural controls document.

- Provide for air-conditioning, allowing occupants to close windows during the warmer months.
- Utilize exterior cladding and windows with appropriate acoustic properties.
- Locate noise-sensitive rooms away from the railway side.
- Utilize 4" rigid insulation applied to foundation walls facing the railway

In accordance with the *Guidelines for New Development in Proximity to Railway Operations* (2013), a 1.83m high chain link fence is required along the entire mutual property line. This fence is intended to prevent trespassing on railway property thereby increasing rail safety. A fairly new fence is located on the property line; as such, a new or additional fence is not anticipated.

A second railway alignment is adjacent to the southwest boundary of the Plan Area; however, it had been abandoned and purchased by a private land owner in 1997. This former railway alignment is now being utilized as a residential access for a home located south of Sandhill Estates.

### Nearby Amenities Recreation

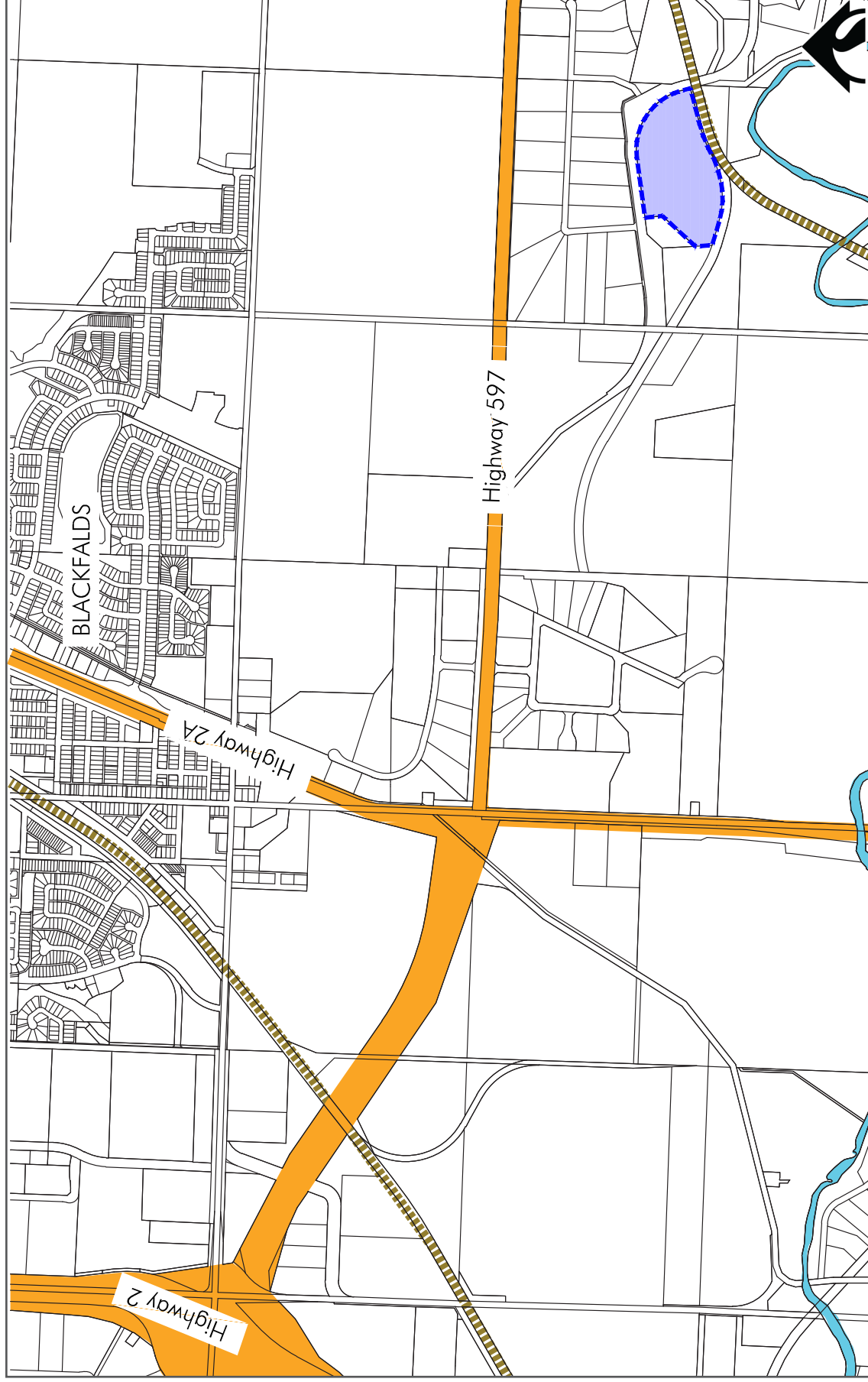
Blindman River is located south of the Plan Area. The public access area at Burbank Park is approximately 1.0 km southeast along Burbank Rd. This distance represents about a 15 minute walk.

Burbank Park is publicly accessible and has a playground, public campgrounds, covered shelters, washroom facilities, and showers. In addition to the recreation amenities, the Park offers a log cabin style community hall available for public rental.

### Education

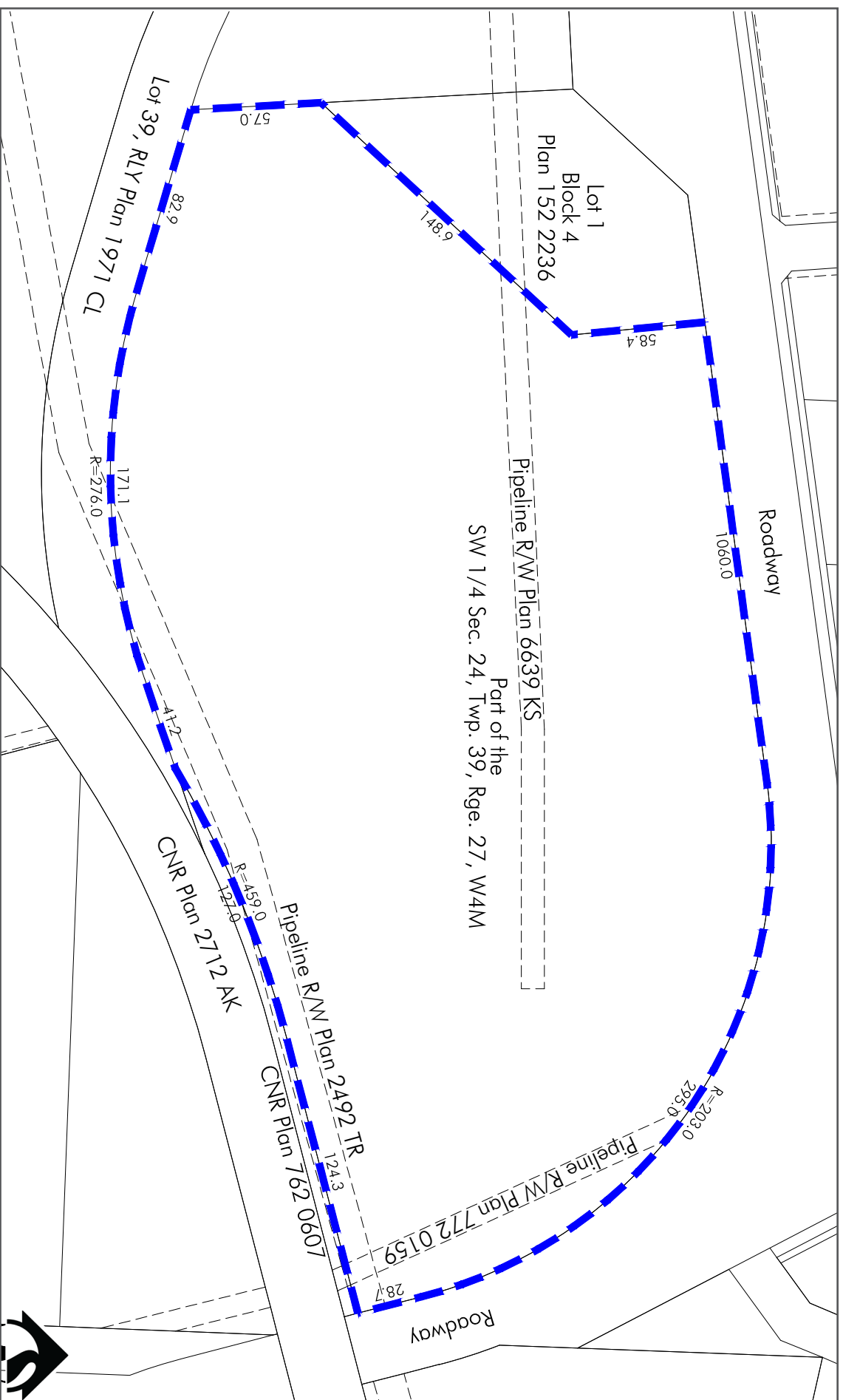
The Sandhill Estates Plan Area is located in Ward 5 of the Wolf Creek School Division which includes schools in Lacombe and Blackfalds. Based on its location, it is anticipated that children living in Sandhill Estates will attend schools located in the Town of Blackfalds.





- LEGEND**
- Highway
  - Railway
  - Blindman River
  - Outline Plan Boundary

**FIGURE 1 - Location Plan**  
Sandhill Estates Outline Plan



## LEGEND

- Abandoned Well Site
- Utility Right-of-Way
- Boundary Dimensions
- Outline Plan Boundary

**FIGURE 2 - Legal Conditions**  
Sandhill Estates Outline Plan



Site photo.

## 2 Planning Context

The following relevant documents have been reviewed, referenced, and prepared in preparation of the Sandhill Estates Outline Plan.

Although this Plan has been prepared following the regulations as per the Municipal Government Act (MGA) for preparation of an Area Structure Plan, the Sandhill Estates Outline Plan is intended to operate in coordination with Lacombe County's *Municipal Development Plan* (MDP), the *Lacombe County/Blackfalds Rural Fringe Area Structure Plan* (ASP), and the *Burbank Area Local Plan* (ALP).

### 2.1 STATUTORY PLANS

#### **Town of Blackfalds/Lacombe County Intermunicipal Development Plan**

The *Town of Blackfalds/Lacombe County Intermunicipal Development Plan* (IDP) was approved in September 2013 to provide a cooperative framework for the development of Lacombe County lands surrounding the Town of Blackfalds.

The Sandhill Estates Plan Area is consistent with the IDP for the development of Country Residential development.

#### **Lacombe County Municipal Development Plan**

The *Lacombe County Municipal Development Plan* (MDP) was approved in August 2007, and most recently updated in 2014.

As discussed in the MDP, there is an increased demand for housing in the County and opportunities should be explored to expand the existing large lot residential supply to increase density and provide housing for a broader mix of the population. Traditional large lot country residential development is noted in the MDP as land consumptive and costly to service; as such, the County identified a desire to adopt more sustainable approaches to land development by introducing smaller lots.

The Sandhill Estates concept plan has been designed to reflect the sentiments illustrated in the MDP and minimize land fragmentation by providing small lot acreages in an existing residential area. The design of Sandhill Estates merges the desire to provide country residential acreages and more sustainable design by utilizing existing infrastructure and reducing potentially negative impacts to agricultural areas.



The MDP also identifies guiding principles for the development of new areas, these principles and objectives are further described in **Section 4 Development Concept** for their implementation in the Sandhill Estates Plan Area.

#### **Guiding Principles:**

- *Principle 4  
Increase range of housing choices*
- *Principle 6  
Protect rural landscape and environmentally sensitive areas*
- *Principle 9  
Maintain and enhance community appeal and the quality of life*

#### **Residential Objectives:**

- *Encourage compact and higher density forms or housing in appropriate locations*
- *Promote environmentally sound development*

### **Lacombe County/Blackfalds Rural Fringe Area Structure Plan**

The *Lacombe County/Blackfalds Rural Fringe Area Structure Plan* (ASP) describes development objectives, generalized land uses, and servicing alignments for lands surrounding the Town of Blackfalds extending from the south boundary of the City of Lacombe to the Blindman River. The Sandhill Estates Plan Area is identified in the ASP as part of the existing Burbank residential development.

The following is a specific objective identified in the ASP that has shaped the design of Sandhill Estates:

*“...future residential subdivision design needs to consider preserving mature tree stands and using rolling topography to site residential lots in a manner that minimizes visual impacts and potential nuisance conflicts with nearby industrial uses.”*

The preservation of mature trees in Sandhill Estates is further described in **Section 4.2 Open Spaces**.

### **Burbank Area Local Plan**

The *Burbank Area Local Plan* (ALP) was approved by Lacombe County in 1989 as a response to residential development demands experienced and projected at the time of its creation. The overall objectives of the ALP were to provide lots for future acreage development while preserving the character, natural resources, and environmental features of the area.

As described in the Plan, large lots were proposed at a minimum of 3 acres, per the County’s Land Use Bylaw at the time, to maintain the character of the existing community. In addition, it was noted that woodland areas should be conserved to preserve the general landscape and trails be extended along the river valley to provide a continuous network of open spaces.

To respond to the existing development pressures and preferences in Lacombe County, Sandhill Estates has been designed using smaller country residential lots than those proposed in the ALP. The residential design of the community is further described in **Section 4.1 Residential**.

### **Lacombe County Land Use Bylaw**

The *Lacombe County Land Use Bylaw* (LUB) describes the allowable land use districts throughout the County. The existing land use designation for the Sandhill Estates Plan Area is R-CR Country Residential which is intended to accommodate multi-lot residential development. This designation reflects the past planning of the Burbank ALP; however, it is intended that the land use currently identified for the Plan Area will be replaced with those described in this Outline Plan as land use redesignation occurs.

The Sandhill Estates Outline Plan describes smaller country lots than those originally intended for this area.

## 2.2 NON-STATUTORY PLANS

### Lacombe County Multi-Lot Residential Development Proposals: A Guide to the Approval Process

The Multi-Lot Development Guide was created in 2015 to describe the County's planning and approval process, required for all multi-lot residential developments. The Sandhill Estates Outline Plan has been prepared in accordance to these regulations and recommended approval process.

### Lacombe County Standards Manual

The *Lacombe County Standards Manual* (2014) describes the County's standards regarding subdivision design, servicing, and the construction approval processes. All development within the Plan Area will be designed in accordance with the County's standards.

## 2.3 SUPPORTIVE PLANS

### Historical Resource Impact Assessment

Stantec Consulting Ltd. completed a Historical Resources Impact Assessment (HRIA) in July 2016 to support the proposed Sandhill Estates development. During the course of the assessment, two newly recorded archaeological sites, FcPk-42 and FcPk-43, were identified, both small campsites. Site FcPk-42 was observed during the shovel testing portion of the project whereas FcPk-43 was identified during backhoe testing; each site is further detailed below.

All findings were recorded and mapped with resources collected and catalogued. All findings were submitted to Alberta Culture with appropriate recommendation for mitigation or historical clearance.

#### Site FcPk-42

- Considered to have moderate to high heritage potential.
- Artifacts were recovered between 10 and 45cm below the surface.
- Cultural material recovered included:
  - » 9 lithics artifacts
  - » 4 pieces of fauna
  - » 1 fire-broken rock
  - » 1 historic artifact - not associated with the lithic or fire-broken rock material
- Has been located within an Environmental Reserve, within the Municipal Reserve along the southern boundary of the project area.
  - » As the Environmental Reserve will not be developed, impacts to site FcPk-42 are not anticipated.

#### Site FcPk-43

- Considered to have moderate heritage potential.
- 3 artifacts were recovered: 1 chopper, 1 flake tool, 1 fire-broken rock.
- A second shovel test was completed for FcPk-43 in September 2016. 16 shovel tests were completed between 50-80cm below surface. All the test were found to be negative of historical resources; as such, no further work or development setbacks were recommended.

### Summary and Recommendations

Based on the results of the HRIA and a commitment from the developer and the County of Lacombe to protect the FcPk-42 site, Historical Resources Act clearance was recommended through the HRIA.

To avoid inadvertent impacts to the historical resources located at FcPk-42, a 30.0m radius Environmental Reserve has been dedicated surrounding the site.

## Environmental Site Assessment

A Phase One Environmental Site Assessment (ESA) was completed for the Sandhill Estates Plan Area in December 2015 by Parkland GEO. The Phase One ESA was based on a visual site inspection, a review of public records, and personal interviews with the landowner.

The ESA discussed the following items and gave the Plan Area a potential environmental risk rating of low; no further investigations was recommended.

### Debris

The ESA identified debris associated with a former building located in the northwest corner of the Plan Area. Although this building was demolished, the remaining debris was identified as a potential low environmental risk.

### Oil Facilities

The southwest portion of the Plan Area was historically used for oil and gas facilities. Historic contamination and elevated SAR were noted as the cause for a moderate environmental risk rating; however, the elevated SAR is not considered a risk to future development of the property. This facility is described further in **Section 3.2.2 Well**.

## Geotechnical Investigation

A Geotechnical Investigation was completed for the Plan Area in February 2016 by Parkland GEO. The Geotechnical Investigation provided a description of the Plan Area's existing topography, soil profile, and groundwater table; these topics are discussed in **Section 3.1 Environmental Considerations**.

### Recommendations

The Geotechnical Investigation identified a variety of recommendations for construction in the Plan Area. These recommendations address residential development, service trench installation, roads, and private sewage disposal. The main geotechnical concerns were generally regarding the high water table and soil drainage; as such, several recommendations were made to address home construction within the Plan Area.

In addition, most of the Plan Area was not considered suitable for conventional treatment field systems due to relatively permeable sandy soil conditions. The use of treatment mounds was recommended as a suitable alternative. Private sewage disposal considerations are further discussed in **Section 5.2 Sewage Treatment and Disposal**.

All recommendations are available in the Geotechnical Investigation, submitted to Lacombe County under separate cover.

## Biophysical Impact Assessment

A Biophysical Impact Assessment (BIA) was completed by Stantec Consulting Ltd. in July 2016 to identify environmentally sensitive areas within the Plan Area. Natural features observed within the Plan Area are described in **Section 3.1 Environmental Considerations**.

### Conservation Tools

Based on the information collected during the BIA, all portions of the woodlots and the disturbed/regenerating area were identified as areas for potential conservation through the identification of Municipal Reserve. The ephemeral wetland and pastures were described as not warranting conservation due to their low ecological value ranking.

### Recommendations

The following recommendations were identified in the BIA and shall be implemented in the Sandhill Estates development.

- If natural features ranked as having ecological value cannot be retained in their entirety, it is recommended to retain portions that maintain a wildlife movement corridor through the Plan Area.
- Post-development drainage flows to retained natural features should be maintained so as to provide approximately the same amount of moisture to the trees.
- Any tree clearing activities undertaken during the breeding bird season will require a nest search survey.



- Trees along the perimeter of the retained portions of the wooded areas should be protected by designating a root protection buffer.
- Erosion and sediment control measures to protect soil from water and wind erosion should be considered.

## Hydrogeologic Summary and Aquifer Potential Evaluation

A desktop-base hydrogeological assessment was completed by Stantec Consulting Ltd. to determine the potential groundwater availability at the Plan Area. The desktop study included a review of publicly available geological and hydrogeological data, the objective of which was to determine if the subject property had sufficient aquifer potential to support the forecasted water demand. The forecasted water supply demand (48m<sup>3</sup>/day) was based on the maximum allowable (without obtaining a diversion license) withdrawal of 1,250m<sup>3</sup>/day for each of the 14 planned lots.

The conclusion of the review states,

*“The analysis of the groundwater potential for the site indicates that there may be sufficient aquifer potential in the vicinity of the development to sustainably produce the required volume of 48m<sup>3</sup>/day spread across 14 individual domestic wells, each at a rate of 3.4m<sup>3</sup>/day. Potential well interference is expected to be minimal among each new well at the subdivision and with previously existing groundwater wells in the area due to the low pumping rate (3.4m<sup>3</sup>/day) at each domestic well.*

*The well records located in the vicinity of the project site indicated flow rates in excess of 100 m<sup>3</sup>/day as calculated from short term pumping test data, suggesting the bedrock aquifers present are capable of producing the required groundwater volumes. It was also noted that the Paskapoo Formation in*

*the area is highly heterogeneous, and as a result the potential transmissivity of the aquifers is expected to be variable and site specific.”*

## Groundwater Supply Evaluation

Based on the findings of the desktop study, a 3-day pump test was completed in August 2016 to confirm the groundwater capacity to service the Sandhill Estates development.

The Sandhill Estates *Groundwater Supply Evaluation* was completed in October 2016 by Stantec Consulting Ltd. to summarize a 72 hour drilling and aquifer pumping test program undertaken to support the Sandhill Estates development. Submitted under separate cover, the results of the test indicated:

- The potential long-term yield for the aquifer should be able to sustain production for the 14 lots pumping at a rate of 48 m<sup>3</sup>/day while leaving potential for additional production volume if needed.
- The groundwater quality was considered to be good with low total dissolved solids and exceedances of the respective guideline values for health-based and aesthetic parameters for fluoride, pH, and sodium. Total coliforms were detected and disinfection was recommended to domestic water use.
- Groundwater sampling and analysis should continue to be conducted on a regular basis.

## Stormwater Management Report

The Sandhill Estates *Stormwater Management Report* was completed by Stantec Consulting Ltd. in July 2016 to demonstrate that the proposed stormwater management facility for Sandhill Estates will meet Alberta Environment and Parks’ criteria for permissible release rate and water quality improvement.

The proposed stormwater servicing for the development is described in **Section 5.3 Stormwater Drainage**.

## Transportation Memo

Stantec Consulting Ltd. prepared a transportation memo for the Sandhill Estates development in August of 2016. The memo analyzed the potential traffic impacts of the proposed development on the surrounding roadway network. According to the memo, it was determined that the existing intersections would function with a significant amount of remaining capacity. In addition, the proposed cross-sections were confirmed to adequately support the proposed development.

## 2.4 APPROVAL PROCESS

The *Lacombe County Multi-Lot Development Proposals Guide* outlines the approval process required by the County for development of new subdivisions. As per this outlined process, the Sandhill Estates Outline Plan has been processed through the following steps.

### Pre-Application Meeting

The Developer attended a Pre-Application Meeting the Lacombe County in November 2015 to discuss to proposed development as well as the County's process, policies, and requirements for Outline Plan approval.

During this meeting, it was confirmed that the general vision for Sandhill Estates was acceptable and consistent with the visioning for the area as described in Lacombe County's existing approved plans.

### Outline Plan Preparation

During the preparation of the Sandhill Estates Outline Plan concept, the Developer worked with the County to determine the suitability of the site for residential development. To support the development, a variety of additional studies were completed including a groundwater supply evaluation and biophysical assessment. Supportive studies are further described in **Section 2.3 Supportive Plans**.

## Council Presentation

Following concept plan preparation, the Developer was asked to make a presentation to Lacombe County Council to inform the County Councillors of the proposed development.

## Public Consultation

A public information session was held on Tuesday February 7, 2017 from 5:00pm to 8:00pm in the Burbank Community Hall. The session was held to present the concept and associated land use redesignations for a proposed residential development known as Sandhill Estates. The purpose of this session was to provide details of the proposed development and gather input from County residents regarding how they feel about the proposed Sandhill Estates Outline Plan.

A summary of this event, as well as redacted copies of all comments received, has been included in **Appendix A Public Consultation**.

## Council Approval

Subsequent to the public consultation process, the Sandhill Estates Outline Plan and Land Use Redesignation Application was presented to Lacombe County Council for 1st Reading; at this time, a date was set for the Public Hearing. At the public hearing, anyone wishing to speak to the proposed zoning change was given the opportunity to do so. Advertising for the Public Hearing was posted for two weeks prior.

Following the hearing, Council gave second reading to the bylaw to rezone the Plan Area in accordance to this Outline Plan. Prior to third and final reading, the Developer worked with Lacombe County administration to detail a Development Agreement.

The *Sandhill Estates Outline Plan* bylaw was approved by Lacombe County Council on (date).



Site photo.

## 3 Existing Conditions

As described throughout this section, the Plan Area is undeveloped agricultural land accessible by Twp Rd 393A. As shown on **Figure 3 Existing Conditions**, there are no built structures within the Plan Area.

### 3.1 ENVIRONMENTAL CONSIDERATIONS

Respective of the *Sandhill Estates Biophysical Impact Assessment* and **Section 2.3 Supportive Plans**, the Sandhill Estates Plan Area is divided into several distinct natural areas; these areas are described below and shown on **Figure 4 Natural Features and Ecological Value**.

#### 3.1.1 Natural Features

##### Woodlot 1

Woodlot 1 contains a mixedwood canopy and sub-canopy dominated by Aspen and Saskatoon, and the herbaceous layer is dominated by small bedstraw and fairybells.

##### Woodlot 2

Woodlot 2 contains a coniferous canopy and sub-canopy dominated by White Spruce. The shrub layer is dominated by Western Mountain-Ash and Prickly Rose, and the herbaceous layer is dominated by Wild Sarsaparilla.

##### Woodlot 3

Woodlot 3 contains a deciduous canopy and sub-canopy dominated by Aspen. Saskatoon, Aspen, Prickly Rose, and Pin Cherry dominate the shrub layer, and Wild Sarsaparilla and Bluejoint dominate the herbaceous layer.

##### Pastures

The pastured areas of the Plan Area are dominated by the graminoid species Smooth Brome, Fowl Bluegrass, Kentucky Bluegrass, and Common Dandelion. Creeping Thistle, a noxious weed, was also observed in low densities.

##### Disturbed/Regenerated Area

The disturbed/regenerated area appears to have been cleared of vegetation at least 10 years ago, and contains exposed sandy soils and shrubby



vegetation. This area is dominated by White Spruce and Balsam Poplar in the canopy; Balsam Poplar, Saskatoon, Aspen, and Prickly Rose in the shrub layer; and Kentucky Bluegrass in the herbaceous layer.

### 3.1.1.1 Ecological Value

As described in the BIA, the Plan Area's disturbed/regenerated area, ephemeral wetland, and pastures all appear to be impacted by anthropological disturbances; however, the wooded areas appeared undisturbed. Intra-connectivity was identified as high or moderate providing corridors for wildlife.

As shown on **Figure 4 Natural Features and Ecological Value**, the BIA identified ecological ranking of the different portions of the Plan Area as follows:

- the wooded areas were ranked as having high ecological value
- the disturbed/regenerating area was ranked as having moderate ecological value
- the ephemeral wetland and pastures were ranked as having low ecological value

The conservation of high ecological value areas is further described in **Section 4.2 Open Spaces**.

### 3.1.2 Rare Plants

Historical records of rare plant databases returned records for historical observations of sensitive species near the Plan Area including crowfoot violet; however, this species was not observed during the field assessment.

### 3.1.3 Wetland

An ephemeral wetland was identified in the Plan Area; this wetland was ranked as having low ecological value based on its observed low native species richness, historical disturbance, and marginal habitat. Based on the low ecological value of this wetland, the Sandhill Estates development has not preserved this area. It has been determined that

maintaining the existing water levels and quality of such a low level wetland is not possible. The process of paying compensating for any ecological value lost is regulated by Alberta Environment and Parks and will be completed prior to its removal.

### 3.1.4 Wildlife

The Alberta wildlife database returned records for historical observations of sauger (fish), great blue heron (bird), and purple martin (bird) near the Plan Area. All three of these species are currently listed as sensitive in Alberta.

The majority of incidental wildlife observations made during the BIA field assessment were within in the woodlots. Observations include: Rabbit, Deer, American Crow, Alder Flycatcher, Black-Capped Chickadee, White-Breasted Nuthatch, Tree Swallow, and American Swallow.

### 3.1.5 Topography

As described in the *Sandhill Estates Geotechnical Investigation*, the Plan Area has rolling topography with elevations ranging from 859m to 868m for an overall relief of about 9m.

High areas in the Plan Area are shown on **Figure 3 - Existing Conditions**, and listed below:

- a ridge line running north-south through the centre of the Plan Area at an elevation of 868.0m
- a high area in the southwest corner of the Plan Area at an elevation of 868.0m
- the northeast corner of the Plan Area is at an elevation of 866.0m

Between the high areas of the site there are two notable low areas:

- the west low area is at an elevation of 856.0m located approximately at the end of the proposed each cul-de-sac
- the east low area is at an elevation of 856.0m located along the south boundary of lot 12

### 3.1.6 Soil Profile

The Plan Area's general soil profile consists of topsoil, sand, sand and gravel, clay, and clay till. These layers are further described in the Geotechnical Investigation, submitted to Lacombe County under separate cover.

### Land Capability for Agriculture

Based on the Canadian Land Inventory's Land Capability for Agriculture map, the Plan Area can be categorized primarily as Dominant Class 5 at 90% (forage crops with feasible improvement practices) with a topography limitation and a Secondary Class of Organic Soils at 10%.

The east corner of the Plan Area is categorized as Dominant Class 3 representing moderately severe limitations to agriculture due to moisture. This classification is reflective of the general low area along the east boundary of the Plan Area.

### 3.1.7 Groundwater Level

During the creation of the Sandhill Estates Geotechnical Investigation, groundwater seepage was observed in borehole samples. The investigation noted that a shallow groundwater condition is considered to be typical for this area and levels are expected to be dependent on infiltration for recharge. Groundwater excavations are expected to fluctuate on a seasonal basis and will be highest after periods of heavy or prolonged precipitation and snowmelt.

As described in **Section 2.3 Supportive Plans**, several recommendations were included in the Sandhill Estates Geotechnical Investigation to address the Plan Area's high groundwater level.

## 3.2 NATURAL RESOURCES

As shown on **Figure 3 - Existing Conditions**, there are three utility rights-of-way running through the Sandhill Estates Plan Area. These pipelines are further explained below.

### 3.2.1 Pipelines and Rights-of-Way

#### R/W 6639KS - Ember Resources Inc.

This right-of-way runs through the center of the Plan Area from west to east that it accommodates one pipeline formerly used for crude oil. This pipeline has been abandoned and removed; however, it will be the responsibility of the Developer to confirm that the pipeline has been removed at the time of construction.

No additional planning is required surrounding this right-of-way.

#### Oil Pipeline R/W 2492TR

This right-of-way runs along the southeast boundary of the Plan Area and accommodates one pipeline:

#### 12368-3 - Plains Midstream Canada ULC

Crude Oil, License No 13268-3, Operating

A utility easement will be registered on the title of Lot 14 and Lot 15 to provide future access for the utility operator. Although no permanent structures will be permitted on top of this right-of-way, further planning is not required surrounding this line.

#### R/W 772 0159 - Town of Blackfalds

This right-of-way runs along the east boundary of the Plan Area; it is understood that it accommodates one pipeline used for the wastewater treatment plant outfall.

A utility easement will be registered on the title of the Municipal Reserve lot to provide future access for the utility operator. No permanent structures will be permitted on top of this right-of-way.

### 3.2.2 Well

#### COGI Joffre 3-24-39-27 - Reclaimed

There is one crude oil well located in the east portion of the Plan Area registered to Canadian Oil & Gas International Inc, License No 0016447.

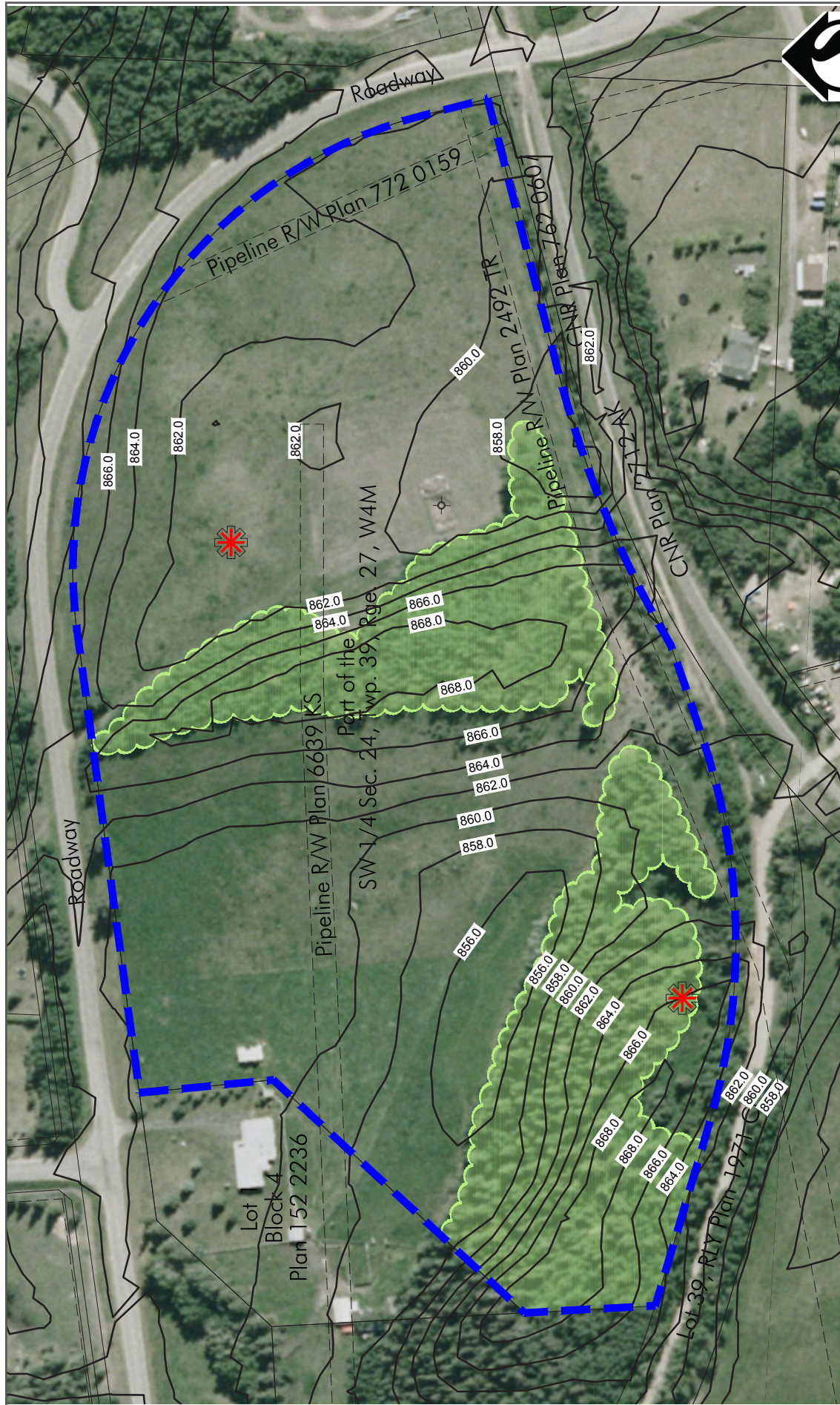
This well was drilled in 1958 and abandoned in October 1997. Aerial photos indicate the lease site was removed prior to 1975 and a reclamation certificate was issued for the well in October 2015.

As identified in the Sandhill Estates Phase One ESA,

*“The well had hydrocarbon fraction F3 and salinity exceedences. Remedial activities were carried out on site in June 2015 and reported the F3 impacts were excavated and removed. The sodium absorption ratio (SAR) was elevated in the former flare pit area with a rating of “Fair”. Two groundwater monitoring wells are currently present around the abandoned well. The abandoned well site is associate with moderate environmental risk due to known elevated SAR.”*

Although the groundwater monitoring wells were identified as no longer necessary, they were retained at the request of the landowner for potential future use. To provide potential future access to the well, a public utility lot has been designated surrounding the site.





#### LEGEND

- Utility Right-of-Way
- 790.3 Topographic Contours
- Treed Area
- Abandoned Well
- Historical Resource Site
- Outline Plan Boundary

**FIGURE 3 - Existing Conditions**  
Sandhill Estates Outline Plan





# LEGEND

- Aspen Woodland Alliance
- White Spruce Woodland Alliance
- Tame Pasture
- High Ecological Value
- Medium Ecological Value
- Low Ecological Value
- Ephemeral Wetland
- Outline Plan Boundary
- Disturbed/Regenerating

**FIGURE 4 - Natural Features and Ecological Value**  
Sandhill Estates Outline Plan



Character image - Rocky View County

## 4 Development Concept

The Sandhill Estates development has been planned as a fourteen lot development integrated into the Plan Area's natural topography and existing vegetation. The overall vision of Sandhill Estates is to provide moderately-sized country residential lots that provide residents an opportunity for rural lifestyle with the convenience of amenities and services available in Lacombe County at Burbank and the Town of Blackfalds.

### **Acreage Living**

Increased availability to work from home and high-speed internet allowing seamless connectivity even in remote areas have led to the increased popularity of acreage living. As country living becomes more appealing than ever, homeowners are now considering acreages when looking for ways to obtain larger lots, more privacy, and separation from urban areas.

### **Convenience**

Although the popularity of acreage living has increased, the high levels of maintenance required for their proper upkeep is more than many residents can commit to. Poor maintenance of acreages can create negative impacts to surrounding agricultural areas and nuisance for neighbours.

Sandhill Estates has been designed to reflect the market demand for country residential options while reducing the maintenance demands associated with larger parcels of land. The Sandhill Estates acreages provide residents with privacy and close proximity to natural areas while minimizing the demands for yard maintenance.

As described throughout the remainder of this section, the Sandhill Estates concept has considered the existing development in Burbank to provide a development that is consistent with those surrounding and will complement the area as a whole.

A breakdown of Sandhill Estate's land uses are shown in **Table 1 Land Use Area Calculations**.



## 4.1 RESIDENTIAL

### Preserve Rural Character

The Burbank area of Lacombe County is characterized by its quiet and relaxing landscape, large areas of mature vegetation, and the general high level of privacy enjoyed by its residents. To preserve the rural character of the Burbank area, low density residential development is proposed, designed around the existing vegetation and natural topography of the Plan Area. As shown on **Figure 5 - Concept Plan**, all lots within Sandhill Estates have been zoned using the R-CRE Country Residential Estate district, as further described below.



Example of a bungalow residential estate home.



Example of two-storey residential estate home.



Example of front-sloping lot home built into existing topography.

### R-CRE Country Residential Estate

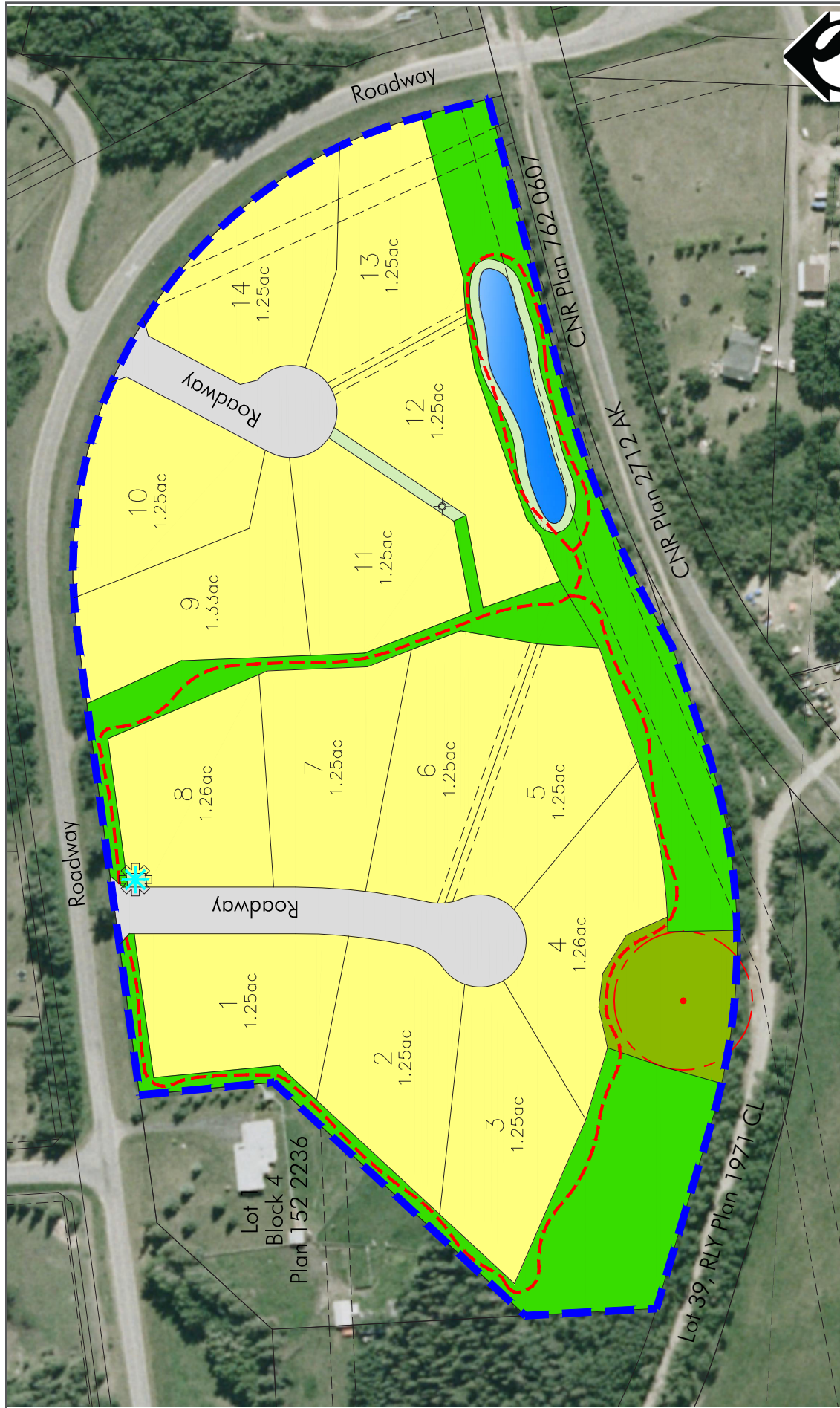
The R-CRE District has been used to provide country residential options on medium sized lots. Sized between 1.25 - 1.50 acres, R-CRE lots are reflective of acreage developments currently being developed throughout the province. These smaller acreages provide rural style living with reduced maintenance demands which is appealing to many residents and offer more affordable lot prices. Smaller lots also provide more efficient use of roadway infrastructure and minimize any potentially negative impacts to adjacent agricultural areas.

Housing types anticipated for Sandhill Estates include bungalow housing, bi-levels, modified bi-levels, or two storey homes; with or without attached garages; with or without walkout basements. This range of housing types will provide flexibility for potential residents to find a home that suits their unique needs and preferences.

### SLOPED LOT HOUSING

As shown on **Figure 6 - Concept Plan with Aerial**, the existing topography in the centre of the Plan Area produces a ridgeline that runs from north to south along the rear of lots 5, 6, 7, and 8. In these areas, there is opportunity for homes to be constructed into the slopes thereby providing a unique housing style. An example of such a house is shown to the left and described as a front-sloping lot.

As shown in **Table 1 Land Use Area Calculations**, the anticipated housing density of Sandhill Estates is 1.38 du/ha, with a total housing stock of 14 units.



# LEGEND

- R-CRE Country Residential Estate
- ER Environmental Reserve
- MR Municipal Reserve
- PUL Public Utility Lot
- Stormwater Management Facility
- Historical Resource Setback
- Nature Trail
- Abandoned Well Site
- Public Parking Area
- Drainage Swale
- Outline Plan Boundary

**FIGURE 5 - Concept Plan**  
Sandhill Estates Outline Plan



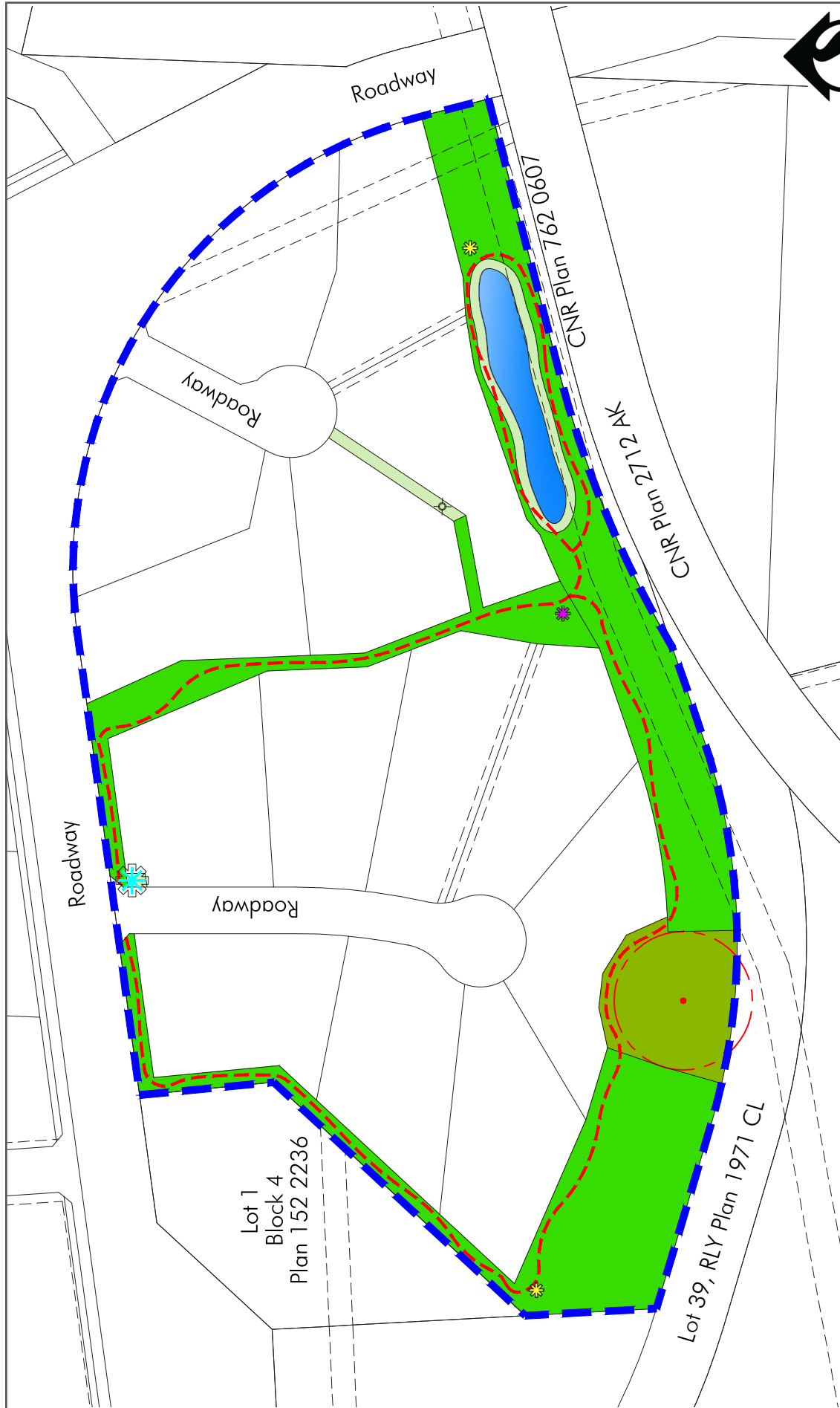


# LEGEND

- R-CRE County Residential Estate
- MR Municipal Reserve
- PUL Public Utility Lot
- ER Environmental Reserve
- Stormwater Management Facility
- Historical Resource Setback
- Nature Trail
- Abandoned Well Site
- Public Parking Area
- Drainage Swale
- Outline Plan Boundary

**FIGURE 6 - Concept Plan with Aerial**  
Sandhill Estates Outline Plan





# LEGEND

- ER Environmental Reserve
- MR Municipal Reserve
- PUL Public Utility Lot
- Stormwater Management Facility
- Historical Resource Setback
- Nature Trail
- Abandoned Well Site
- Public Parking Area
- Drainage Swale
- Seating Node: Bench & Refuse Bins
- Gathering Space
- Outline Plan Boundary

**FIGURE 7 - Open Space Network**  
Sandhill Estates Outline Plan

Table 1 - Land Use Area Calculations

Land Use Category	Area (ha)	Area (ac)	% of Developable Plan Area	# of Lots
<b>Gross Plan Area</b>	<b>10.47</b>	<b>25.87</b>		
ER - Environmental Reserve	0.30	0.74		
<b>Developable Plan Area</b>	<b>10.17</b>	<b>25.13</b>	<b>100.00%</b>	<b>14</b>
R-RCE Residential Country Estate	7.13	17.62	70.3%	<b>14</b>
Open Space Network	2.35	5.80	23.2%	
<i>MR - Municipal Reserve</i>	<i>2.05</i>	<i>5.07</i>	<i>20.2%</i>	
<i>PUL - Public Utility Lot</i>	<i>0.30</i>	<i>0.73</i>	<i>2.9%</i>	
Roadways	0.66	1.64	6.5%	
<b>Density: 1.38 du/ha (14 dwelling units /10.17 ha Developable Area)</b>				

As per the regulations identified in the MGA, Municipal Reserve is calculated as a percentage of the Developable Plan Area:  
 $MR \% = MR / (Gross\ Plan\ Area - Environmental\ Reserve)$

## 4.2 OPEN SPACES

### Conserve Existing Vegetation

The *Burbank Area Local Plan* identified that there were several areas of woodland outside of the Blindman River Valley that were significant contributors to the landscape of the area. As a result, Sandhill Estates has been designed around the Plan Area's natural topography and to conserve existing vegetation.

In addition to using Environmental and Municipal Reserve dedication, the allowable building footprint will be pre-identified for all residential lots to preserve vegetation by minimizing excessive clearing and grading. This building footprint will be identified using a caveat on title. Consideration for the size and location of building envelopes will also consider FireSmart principles as further described in **Section 4.3 Emergency Services**.

### Environmental Reserve

As described in **Section 1.4.1 Historical Resources**, one area in the southwest portion of the Plan Area has been identified as Environmental Reserve to mitigate impact to and preserve archeological resources. Land surrounding the positive test location are intended to be left in their natural state.

### Municipal Reserve

Lacombe County's Use and Management of County Reserve Lands policy identifies that Municipal Reserve dedication in new residential subdivisions may be taken for the purpose of protecting natural features such as treed areas or providing ecological connections for vegetation continuity. In accordance to these guidelines, and shown on **Figure 7 Open Space Network**, Municipal Reserve has been identified throughout the Plan Area to conserve vegetated areas of high ecological value.

By dedicating Municipal Reserve to encompass vegetated areas, potential habitat areas are intended to be protected and privacy for residents will be enhanced through a natural barrier between homes.

Recreation amenities such as gazebos, seating areas, and small play equipment have not been identified in the Plan Area; they will be accommodated along the trail network, as determined at the time of Detailed Design.

As identified in **Table 1 Land Use Area Calculations**, Sandhill Estates has identified 20.2% of its Net Developable Area as Municipal Reserve.

Table 2 - Total Open Space Dedication

	Area (ha)	Area (ac)	% of Gross Plan Area
<b>Gross Plan Area</b>	<b>10.47</b>	<b>25.87</b>	<b>100.0%</b>
Environmental Reserve	0.33	0.81	3.1%
Municipal Reserve	2.05	5.07	19.6%
Public Utility Lots	0.30	0.73	2.8%
<b>Total Open Space</b>	<b>2.68</b>	<b>6.61</b>	<b>25.6%</b>



Example of a field-fitted trail.



Example of children's play equipment.



Example of picnic table style seating node.

## Trail Network

One continuous nature trail has been identified running through the development's open space network. As shown on **Figure 7 Open Space Network**, a small parking area has been identified along the north boundary of the Plan Area to accommodate other County residents using this trail. The design of the parking area will be completed at the time of detailed design in consultation with Lacombe County and may accommodate 3-5 cars.

The conceptual alignment of the trail shown on **Figure 7 Open Space Network** has been chosen in consultation with Lacombe County; however, this trail will be field-fitted to determine the most appropriate location and be constructed using either shale or gravel. Seating areas and refuse bins will be installed along the trail. There are no existing trails surrounding the Sandhill Estates Plan Area; however, connectivity to future trails has been considered during the design of the community.

The *Lacombe/Blackfalds Rural Fringe ASP* describes the County's desire to create a greenway along the Red Deer River with setback from the top of the river bank in the form of Environmental or Municipal Reserve dedication. This trail is shown as extending from the riverbank to Highway 597 via Range Road 271 and a private access located southeast of Sandhill Estates.

The trail location chosen for Sandhill Estates does not extend southwest due to the following constraints:

- Connectivity

The trail alignment shown in the *Lacombe/Blackfalds Rural Fringe ASP* includes connectivity through private lands; however, this portion of the trail is not currently constructed. Providing connections



from Sandhill Estates to the proposed future trail alignment would be a dead-end and may encourage trespassing onto private property.

- **Topography**

In areas with over 8% gradient, it is recommended that trails are rerouted or stairs provided. Based on the information provided in the *Sandhill Estates Geotechnical Study*, it is understood that gradients in the southwest portion of the Plan Area's Municipal Reserve areas include gradients up to 10%; therefore, this location is not considered a preferred location for a trail.

### **Public Utility Lot**

One public utility lot has been identified in the east portion of the Plan Area. This lot has been included to accommodate the abandoned well site and provide future access to the well if necessary.

### **Drainage Easements**

As identified on **Figure 5 Concept Plan**, two drainage swales will be required to service the Sandhill Estates development. These swales will be located within easements along the property line of the lots identified. Easements will be registered on the legal title of each lot to prevent development and construction in these areas. As easements, landowners will be responsible for the maintenance of these areas and for any damage which they may cause to them.

## **4.3 EMERGENCY SERVICES**

### **Enhance Community Appeal and Quality of Life**

As described in the Lacombe County MDP, outdoor recreation, nature appreciation, and community services such as fire protection are considered vital parts of the quality of life in Lacombe County.

The availability of nearby emergency services is considered to be a desirable feature of Sandhill Estates that will contribute to residents' overall quality of life; these services are further described

below.

### **Police Services**

Police services for Lacombe County is provided by Lacombe County Peace Officers and the RCMP. The closest police service location to Sandhill Estates is the Blackfalds RCMP detachment which is approximately 4km northwest of the Plan Area.

### **Fire Protection & Emergency Services**

Lacombe County is serviced by the Lacombe Regional Fire Service which is comprised of several municipalities including the City of Lacombe and Town of Blackfalds.

The location of the Sandhill Estates development is within 4.0km of the Town of Blackfalds Fire Department located at 4308 South Street. Direct access to the Plan Area from the Fire Department is via Vista Trail and Highway 597.

As described in the *Sandhill Estates Fire Protection Plan*, a variety of fire protection measures have been proposed for use during construction of the development. These regulations will be implemented to reduce fire risks.

### **FireSmart**

To prepare and protect from possible forest fires, residents are encouraged to follow the Alberta FireSmart guidelines which provide a variety of recommendations such as utilizing fire-resistant or non-combustible materials and clearing or minimizing fuel sources surrounding their homes. Other regulations recommended for implementation in the Sandhill Estates neighbourhood are outlined in the *Sandhill Estates Fire Protection*, submitted to Lacombe County under separate cover.

In accordance with Alberta FireSmart regulations, all building parcels will be required to have at least 10m of cleared area between homes and natural vegetation. This 10m buffer represents Priority Zone 1 where vegetation should be well-irrigated and maintained, carefully placed, and fire resistant to minimize the risk of fire spreading to homes.

## 4.4 TRANSPORTATION NETWORK

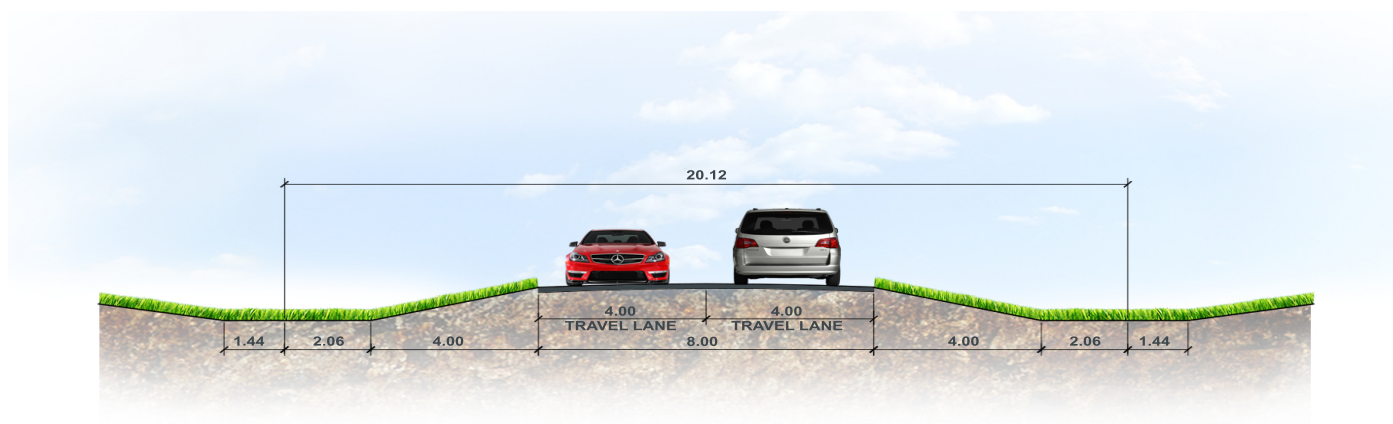
### External Roadways

Township Road 393A runs along the north and east boundaries of the Plan Area. This right-of-way is currently sized at 30.48m wide which can accommodate a roadway designed to the County's Main Access Road standard. No additional right-of-way is required for this roadway.

### Internal Roadways

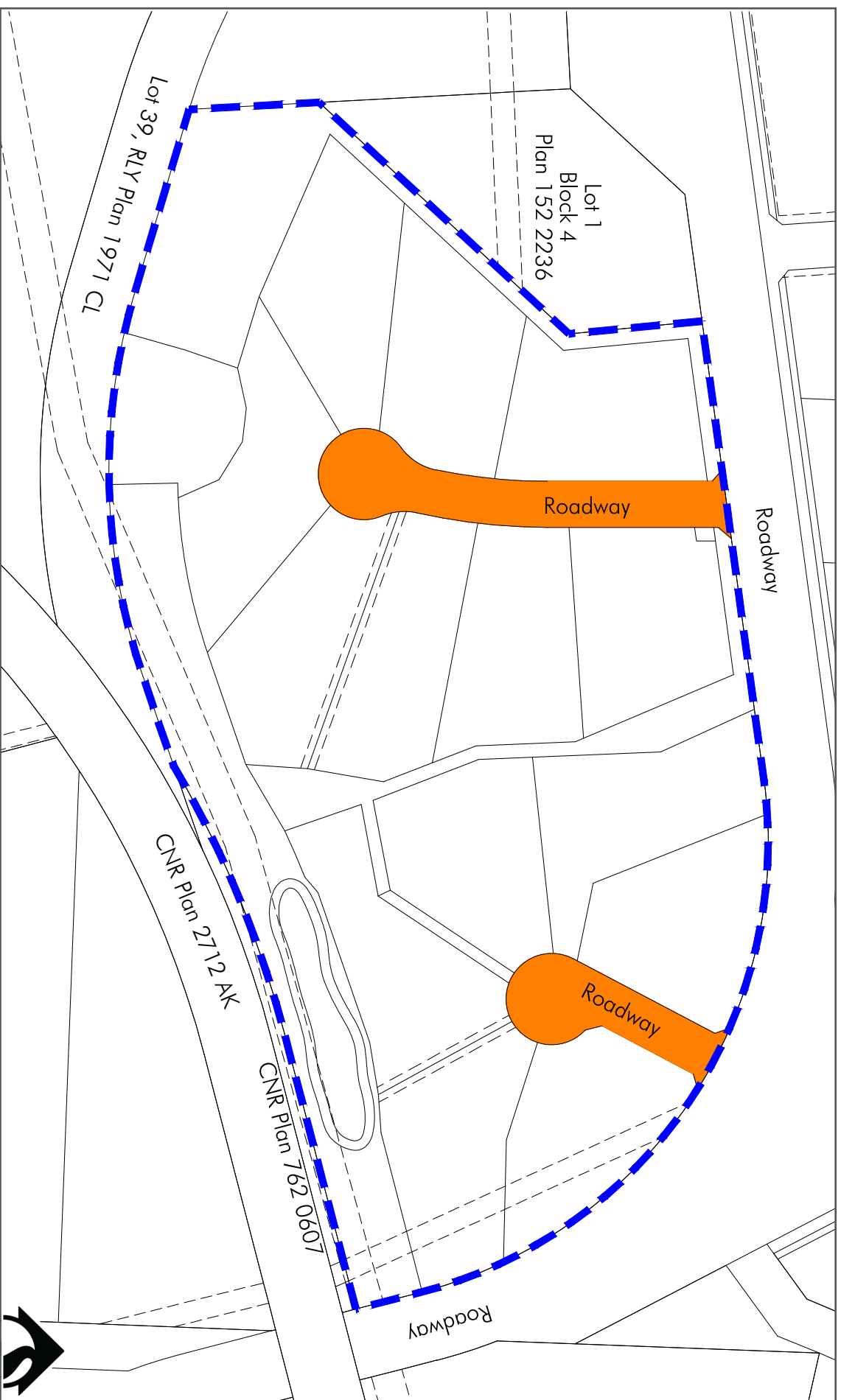
The Sandhill Estates' transportation network has been designed to respect existing topography in the Plan Area by providing two cul-de-sacs, one on either side of the centre ridgeline. Due to the significant grading associated with the center ridgeline, no through connection is proposed.

#### 20.12m Country Residential Subdivision Cross Section



As shown on **Figure 8 - Transportation Concept**, both roadways in Sandhill Estates will be constructed to the County's existing Country Residential Subdivision Road standard as described in the *Lacombe County Operations Standards Manual*.

As described in **Section 2.3 Supportive Plans**, a transportation tech memo prepared in 2016 evaluated the existing intersections and proposed transportation network for Sandhill Estates and confirmed both were adequate to support the development.



# LEGEND

- 20.12m Country Residential Subdivision Roadway
- Outline Plan Boundary

**FIGURE 8 - Transportation Concept**  
Sandhill Estates Outline Plan





Character Image - Springbank Links, Rocky View County

# 5 Servicing

## 5.1 WATER SUPPLY

Lots in Sandhill Estates will be serviced through individual water wells or water storage tanks.

As described in **Section 2.3 Supportive Plans**, a 72-hour groundwater pumping test concluded that the Plan Area has sufficient groundwater supply to support the Sandhill Estates development as proposed without impact.

As described in the aforementioned section, the results of the groundwater test recommends treatment prior to domestic water use. It is the responsibility of the home owner to install a multi-stage water filter to provide such treatment. As part of the ongoing operation of the well, each home owner should have a yearly water test completed along with reoccurring well maintenance every 5-7 years. This Best Practice maintenance insures the operation of the pump, water testing, and longevity of the well.

## 5.2 SEWAGE TREATMENT AND DISPOSAL

Based on the Sandhill Estates Geotechnical Investigation, as further described in **Section 2.3 Supportive Plans**, the silty clay soil deposits found in the Plan Area may render some areas of the lots unsuitable for traditional treatment fields. Due to the limitations presented by the Plan Area's soil profile, alternative treatment measures may be used in these areas such as treatment mounds or septic tanks. Each lot will be evaluated at the time of construction to determine the most suitable sewage treatment method and location.

## 5.3 STORMWATER DRAINAGE

Stormwater in Sandhill Estates will be managed through a variety different measures including the following.

- **Linear On-Site Storage Ditches**

Ditches along interior roadway will convey

stormwater towards drainage pipes.

- **Pipes**

Two drainage pipes will be used (along lots 5/6 and Lots 12/13) to convey the overland flows to a storage facility. A drainage easement will be registered on lots 5, 6, 12, and 13 to accommodate these pipes.

- **Storage Facility**

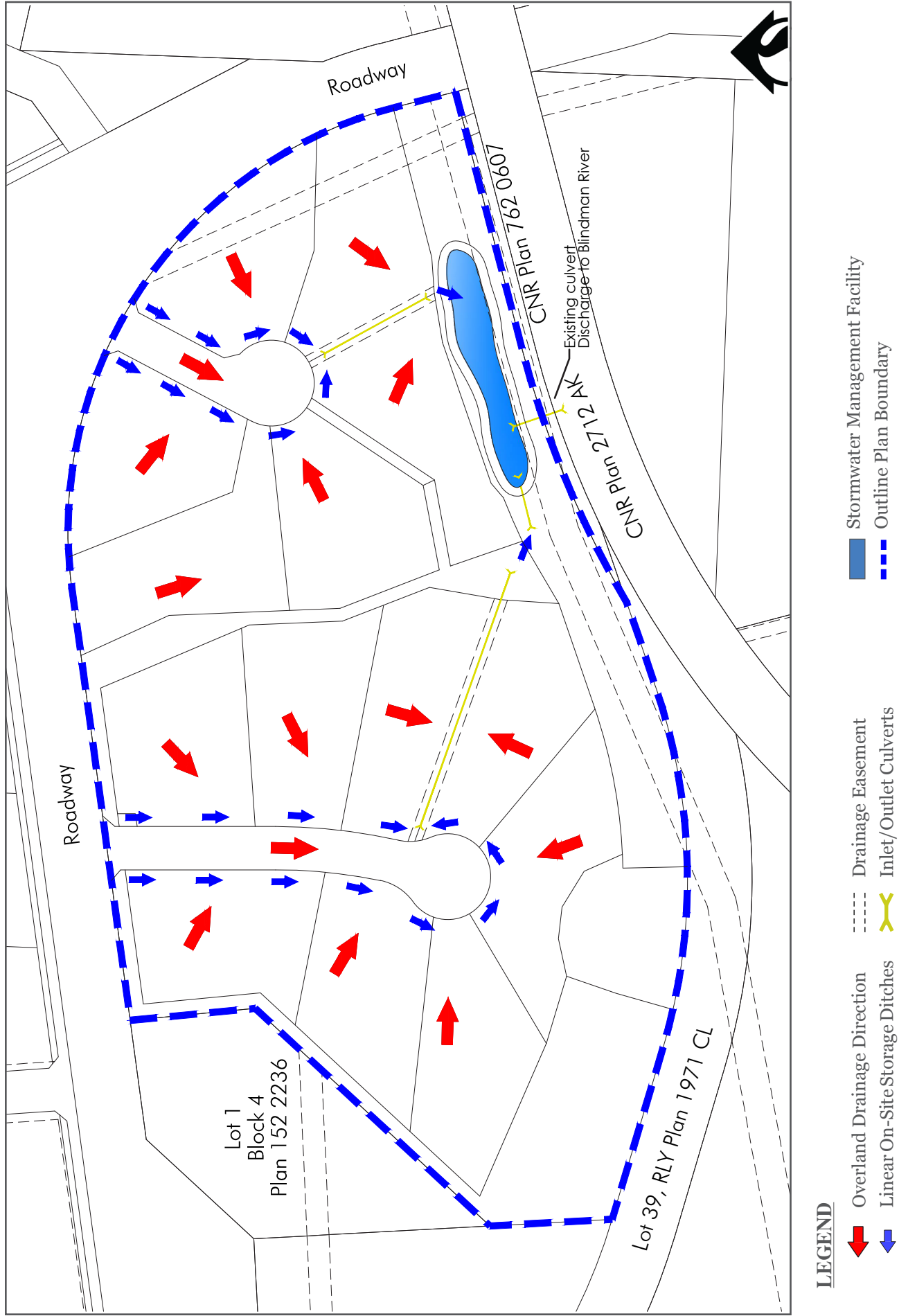
One detention storage facility is proposed for Sandhill Estates as shown on **Figure 9 Stormwater Servicing**. This facility will be constructed as a dry pond to provide storage for a 1:100 year storm event, in accordance to the County of Lacombe and Alberta Environment guidelines.

The pond discharge will be controlled at or below the pre-development release rate (2.0 L/s/ha) and will discharge to the southeast towards Red Deer River via overland drainage and the Blindman River.

Stormwater calculations for Sandhill Estates are provided in the *Sandhill Estates Stormwater Management Plan*, available under separate cover.

## 5.4 SHALLOW UTILITIES

Shallow utilities will be extended into the Plan Area from those existing north of the development.



**FIGURE 9 - Stormwater Servicing**  
Sandhill Estates Outline Plan





Character Image - Pinnacle Ridge, Rocky View County

# 6 Implementation

## 6.1 PHASING

Development of Sandhill Estates is proposed to be undertaken in one phase.

## 6.2 EXISTING PLAN AMENDMENT

### Lacombe County Land Use Bylaw

The *Lacombe County Land Use Bylaw* will require an amendment to reflect the land use districts shown in the Sandhill Estates Outline Plan. An application for rezoning of the lands proposed for development in the Sandhill Estates Outline Plan must be completed prior to subdivision.

## 6.3 SUBDIVISION

Following approval of the Land Use Bylaw rezoning application, a subdivision application will be submitted to Lacombe County.

# Appendix A

## Public Consultation