Lincoln Ranch
Outline Plan

DECEMBER 2017

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Prepared by:
Stantec Consulting Ltd.
Executive Place
#1100, 4900 Ross St
Red Deer, AB

Stantec

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1.0 Introduction

1.1 PURPOSE

The purpose of the Lincoln Ranch Outline Plan is to describe the land use framework and development objectives for NW ¼ Sec. 14-41-28-W4M, located along the eastern portion of Gull Lake in Lacombe County. The Lincoln Ranch Outline Plan Area, hereafter referred to as "Plan Area", encompasses approximately 159.29 acres (64.47 hectares).

This Outline Plan, which delineates land uses, parks and open space, servicing, and construction phasing for the proposed development, has been prepared by Stantec Consulting Ltd on behalf of Lincoln Developments.

1.2 PLAN AREA

Lincoln Ranch is located along the eastern edge of Gull Lake in Lacombe County as shown in **Figure 1 - Location Plan**. The Plan Area is defined by the following boundaries:

- North Boundary — Undeveloped agricultural land
- West Boundary — Range Road 282, DeGraff's RV Resort
- South Boundary — Wilson's Beach Estates, undeveloped agricultural land
- East Boundary — Undeveloped agricultural land

As shown on **Figure 2 - Legal Plan**, the Plan Area is legally described as the NW ¼ Section 14, Township 41, Range 28, West of the 4th Meridian, excepting thereout Plan 952 4452 Subdivision.

1.3 POLICIES AND RELEVANT PLANNING DOCUMENTS

The Lincoln Ranch Outline Plan has been prepared using the guidelines and policies set forth by Lacombe County for the development of new areas.

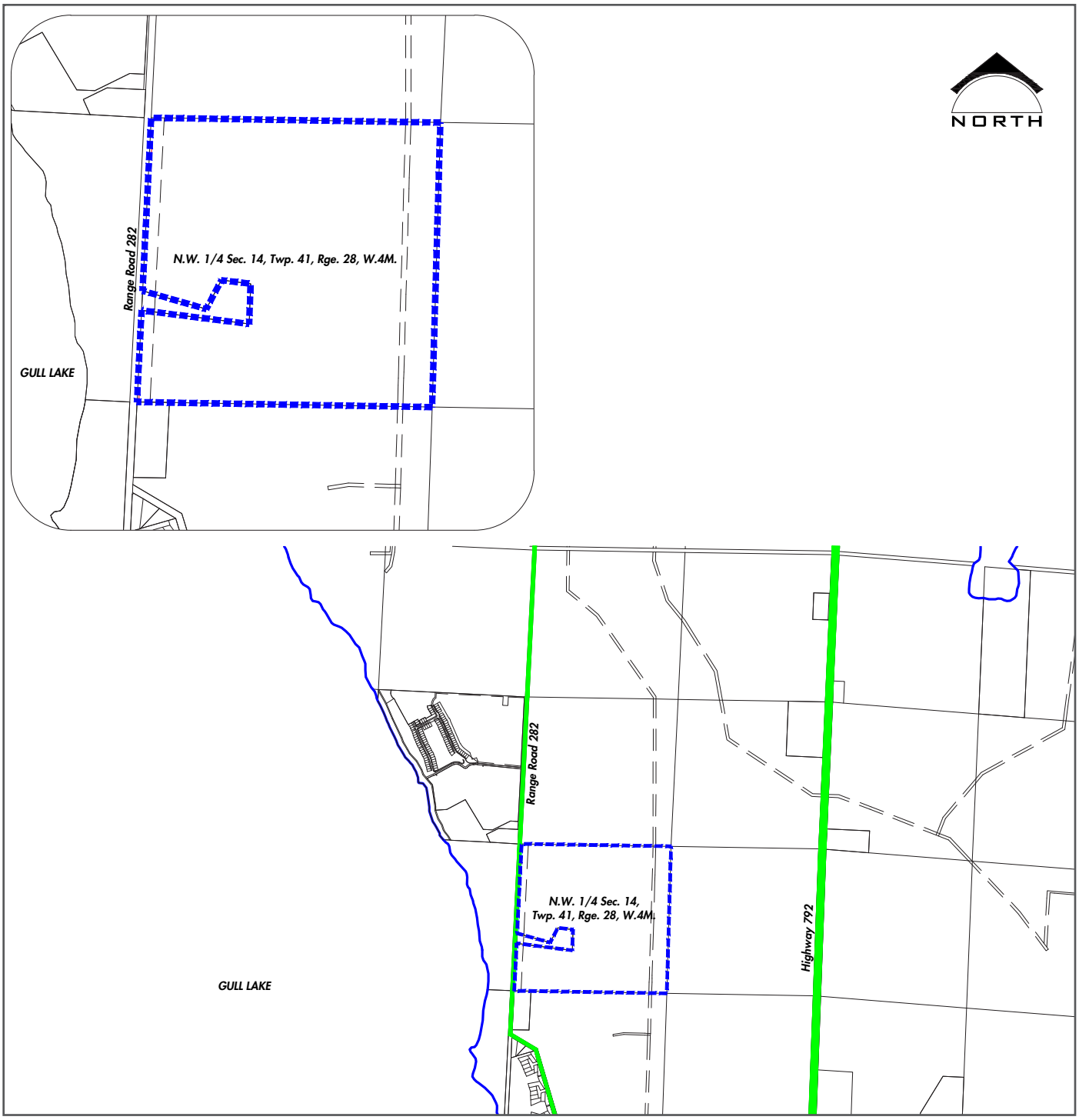
The following relevant documents have been reviewed and referenced in preparation of this Outline Plan:

- *Lacombe County Land Use Bylaw, Bylaw No 1237/17: Your Plan Your Development*. 2017.
- *Lacombe County Municipal Development Plan, Bylaw No 1238/17: Your Vision Your Pla*n. 2017.
- *Multi-Lot Development Proposals: Lacombe County's Guides to the Approval Process.* 2017.
- *Gull Lake Intermunicipal Development Plan*. 2010.
- *Lacombe County Standards Manual: Edition 3.* 2017.
- *Government of A*lberta *Municipal Government Act. 2017.*

All information outlined in these documents, as it relates to the Plan Area, is described in the remainder of this section.

1.3.1 MUNICIPAL GOVERNMENT ACT (MGA)

The Lincoln Ranch Outline Plan has been prepared in accordance with provincial legislation outlined in Part 17, Planning and Development, of the *Municipal Government Act (Current as of January 1 2017)*.



LEGEND

Major Roadway

Outline Plan Boundary

Figure 1 - Location Plan

Lincoln Ranch

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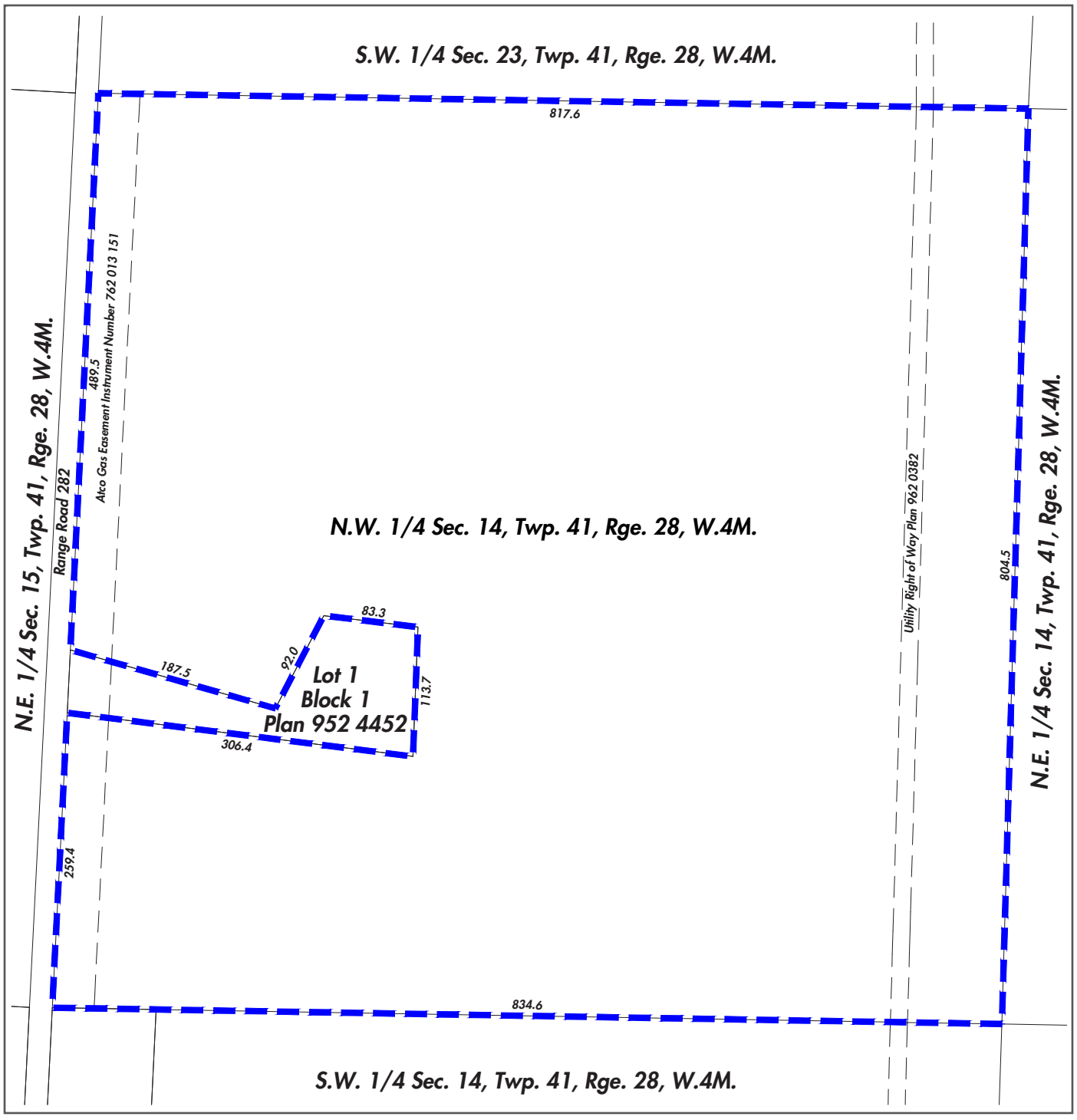

LEGEND

Right-of-Way

Outline Plan Boundary

Figure 2 - Legal Plan

Lincoln Ranch

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1.3.2 GULL LAKE INTERMUNICIPAL DEVELOPMENT PLAN

The 2010 *Gull Lake Intermunicipal Development Plan* (IDP) includes approximately 206km^2 within four municipalities: Lacombe County, Ponoka County, the Summer Village of Gull Lake, and the Summer Village of Parkland Beach.

In this IDP, Lincoln Ranch is identified as being located within one half mile of the lake's shore and thus is considered suitable for future development.

The IDP sets out development guidelines for areas surrounding Gull Lake including the following which directly impact Lincoln Ranch:

Groundwater

Testing Required

If a proposed development is to use wells, the municipalities will require developers to prove that there is sufficient groundwater to serve new users on a sustainable basis without depleting the supply available to agriculture and to existing users. Under section 23(3) of the Water Act, such proof is required before any new well can be used.

Lincoln Ranch will utilize an existing well licence and water plant that is operated by Lincoln Utilities; lots will not be serviced via individual wells. This existing license has enough capacity for the entire Lincoln Ranch development.

Protect Groundwater Recharge

Area Structure Plans and Outline Plans should identify groundwater recharge areas, and either designate them as Environmental Reserve, or offer to protect them through conservation easements.

No groundwater recharge areas were identified in the Plan Area; however, constructed wetlands used for storm water will contribute to the overall ground water quality.

Protect Groundwater Inflow to the Lake

Piped water systems must normally use deep aquifers in order to leave the shallower groundwater for individual wells and to supply the springs which feed the lake.

Lincoln Ranch's proposed aquifer has no hydraulic connection with Gull Lake; this is further discussed in the Lincoln Ranch Groundwater Impact Report, available under separate cover.

Wastewater

Treat Domestic Sewage

The municipalities will require that all new multi-lot residential and recreational stalls within half a mile of the original lake shore, and approved after the adoption of this IDP, must be connected to piped sewer service at the time of development.

A wastewater treatment plant will be located on-site to treat all domestic sewage; this is discussed in more detail in **Section 6.2 Sanitary Sewer Servicing**.

Disposal of Effluent

Treated effluent may still contain nutrients, and if it finds its way into the lake, it could cause algal blooms and other problems. For that reason it should normally be disposed of by being piped out of the watershed. However, subject to the approval of Alberta Environment, it may be used for irrigation of farm land within the watershed, provided that there is no risk of nutrients reaching the lake.

The Lincoln Ranch development has received approval from Alberta Environment and Parks to pump treated effluent into an outdoor pond used to irrigate the golf course. Disposal of effluent is described further in **Section 6.2 Sanitary Sewer Servicing**.

Runoff

Minimize the Effect of Golf Courses

Golf courses are a valuable addition to a recreational area, but the use of fertilizers may add large quantities of nutrients to the lake. As part of their development application, developers will be asked to provide a nutrient budget, prepared by a professional agrologist, and storm water management plan which ensures that runoff water will not damage the lake.

As described in **Section 2.5 Hydrogeological Baseline Conditions Assessment**, the Lincoln Ranch Hydrogeological Baseline Conditions Assessment was prepared to determine the pre-development nutrient concentrations of soil in the Plan Area. As recommended in the Assessment, on-going monitoring by the Developer will be required to mitigate potential impacts to soil, shallow groundwater, and water quality of Gull Lake.

The golf course owner/operator may be required to provide additional information regarding the operation and maintenance of the golf course, specifically its use of chemicals, at the time of Development Permit application to satisfy the requirements of Lacombe County.

The proposed golf course maintenance program, intended to mitigate potential impacts of the golf course on Gull Lake's water quality, is generally described in ***Section* 6.4 Golf Course Maintenance**.

Reduce Direct Runoff

Storm water runoff often contains substances that can damage the lake, so as far as possible, new developments must direct runoff water into soakaways instead of ditches which end up in creeks and lake.

Four stormwater management ponds will be used

throughout Lincoln Ranch to collect and store natural run-off and release it at a controlled rate. Stormwater in these ponds will be treated through the process of sedimentation before its release. This process is discussed in ***Section 6.1 Storm Water Management System***.

Reduce Phosphorus and Coliform Inflows

Policies elsewhere in this IDP require a developer to replace environmental assets which will be lost or damaged by his project. However, reducing the inflow of phosphorus and fecal coliforms is so important that achieving no net loss is not enough. We must have a positive improvement. The municipalities will therefore require developers to show how their proposal will result in a significant reduction on the inflow of phosphorus and fecal coliforms.

Stormwater soakways, ponds, and wetlands will add to the existing environmental assets and treat phosphorus and coliform inflows; this information is further described in ***Section 2.5 Hydrogeological Baseline Conditions Assessment.***

Stormwater Management

Environmental reserve may be used to accommodate ponds in which surface runoff is purified. The environmental benefits (a cleaner lake) justify this use even thought it is not listed in section 671 of the MGA.

Through discussions with Lacombe County, it was determined that the stormwater management facilities proposed for Lincoln Ranch are not suitable for dedication as Environmental Reserve. As described in **Section 6.1 Storm Water Management System**, all stormwater management facilities will be located within Public Utility Lots.

Municipal and Environmental Reserves

Alternative Locations for Reserves

If land being subdivided does not contain any natural features requiring protection, the municipality may allow a developer to dedicate the required amount of Municipal Reserves off-site. They may do this by purchasing creek valleys or wetlands elsewhere, and dedicating them as reserve, or registering an easement protecting the natural conditions, in place of dedicating reserve on the land being subdivided.

All dedication of Municipal Reserve will be met on-site, totalling 12.23 ha (30.22 ac).

No Net Loss of Trees in New Developments

Area structure plans must show minimal loss of tree cover. Where loss is inevitable, developers should plan to plant trees, or allow degraded woodland to regenerate, so there is no net loss of tree cover. The offset trees may be on other quarter sections, but must be within the Gull Lake watershed boundary.

No existing tree stands will be removed from the Plan Area; however, a large number of trees will be added within the golf course and private lots.

Additional Studies

Scientific Study Required

Land development plans must identify all watercourses and wetlands on the property proposed for development, and must include a study of the effect of development on the watercourse or wetland.

The Lincoln Ranch Stormwater Management Report, available under separate cover, models the proposed stormwater management system and its impact on the watercourse. Requirements associated with the removal of wetlands are described in ***Section 2.3.2 2017 Biophysical Assessment***

Plan Approval

Continuing Public Input

Developers are advised to involve neighbouring landowners in their planning as soon as possible, preferably one-on-one. This lets the developer explain the proposal and answer questions before they lead to baseless rumors.

A Communication Plan, included in **Appendix B**, outlines the public consultation process for Lincoln Ranch.

Intermunicipal Referral

Land development plans submitted to one municipality will be referred to the other three municipalities before any decision is made.

The Lincoln Ranch Outline Plan will be circulated by Lacombe County to the adjacent municipalities for their review and comment as part of the approval process.

1.3.3 MUNICIPAL DEVELOPMENT PLAN

The Lacombe County Municipal Development Plan: Your Vision Your Plan (MDP) is intended to guide future growth and development in the County toward its vision of being an attractive, balanced, prosperous, and progressive community.

Figure 1 - Future Land Use Concept Map within the MDP identifies the Plan Area as being suitable for future residential development. In addition, the MDP identifies the following design principles for new developments to help achieve the overall vision.

- **Development Design**

  All multi-lot residential development shall be designed to foster a healthy living environment.

The recommendations and findings arising from the required biophysical and geotechnical studies shall be addressed and incorporated into the design of a multi-lot development.

Environmental studies completed to support the Lincoln Ranch development, and their findings, are described in **Section 2.2 Geotechnical Investigation** and **Section 2.3 Biophysical Reviews**.

- **Place Making**

  Development shall be encouraged to capitalize on the culture, natural capital and/or geographic properties of the site/area to foster a unique identity and sense of place for the development. The architectural design should be in keeping with the landscape.

  As described in **Section 4.1.1 Design Guidelines**, a set of Design Guidelines have been created to describe the visual aesthetic of the community and provide consistency throughout the development.

- **Residential Conservation (Cluster) Subdivision Design**

  Lacombe County shall promote conservation (cluster) subdivision design to protect the County's rural character and to preserve environmentally sensitive areas and natural features.

  The conservation cluster design has been used to preserve open space in the Plan Area which has been proposed as a golf course. The conservation cluster design is described in **Section 5.1.1 R-RCC Residential Conservation Cluster District**.

- **Higher Density Residential Subdivision Design**

  The County may consider higher density housing development provided publicly accessible open space is provided as a trade off for increased density.

  Higher density residential uses have been included in the development through the use of Lacombe County's density bonusing system as described in **Section 5.1.2 R-HDR Higher Density Residential**.

- **Connectivity**

  Development design shall promote connectivity, taking into account and outlining how pedestrian, vehicular and natural areas function within the development and within the context of the larger development area.

  Lincoln Ranch has been designed with a multi-use trail network to encourage pedestrian connectivity throughout the development. This connectivity is described in **Section 5.2.2 Parks and Trails**.

- **Fire Smart**

  Where appropriate, applicants for subdivision or development may be required to submit a fire hazard assessment and plan to address wildfire mitigation guidelines as contained in the Fire Smart: Protecting Your Community from Wildfire.

  The Lincoln Ranch Plan Area is not considered a high risk area for wildfire; as such, a fire hazard assessment has not been completed to support the development.

- **Crime Prevention Through Environmental Design (CPTED)**

  The County shall support and encourage the design of development to incorporate CPTED standards to help mitigate developments from crime.

  The integration of residential and recreational areas in Lincoln Ranch reflect the principles of CPTED by enhancing passive surveillance and assigning purpose to public spaces.

1.3.4 LACOMBE COUNTY LAND USE BYLAW

The Lacombe County Land Use Bylaw: Your Plan Your Development (No. 1237/17) (LUB) describes all available land use districts to be utilized throughout the County. The Plan Area is currently zoned as A- Agricultural District in the Land Use Bylaw (LUB).

The proposed concept described in this Outline Plan will require rezoning to P-R Recreation District to accommodate the proposed golf course, R-RCC Residential Conservation Cluster District to accommodate the proposed low density housing, and R-HDR Higher Density Residential to accommodate the proposed townhomes.

1.3.5 MULTI-LOT DEVELOPMENT PROPOSALS

The 2017 *Multi-Lot Development Proposals: Lacombe County's Guide to the Approval Process* was created to outline the planning, approval, redesignation and subdivision process within the County. The Lincoln Ranch Outline Plan has been prepared in accordance to these guidelines.

1.3.6 LACOMBE COUNTY STANDARDS MANUAL

The Lacombe County Standards Manual: Edition 2 lays out the County's standards regarding subdivision design, servicing, and construction approval processes. All development within the Plan Area will be designed in accordance with the Lacombe County standards.

2.0 Supportive Studies

The following studies were completed to support the proposed Lincoln Ranch development; they have been submitted to Lacombe County under separate cover.

2.1 ENVIRONMENTAL SITE ASSESSMENTS

2.1.1 PHASE I ENVIRONMENTAL SITE ASSESSMENT

ParklandGEO completed a Phase One Environmental Site Assessment (ESA) for the Plan Area dated April 9 2014. The assessment considered the level of potential environmental risk associated with the Lincoln Ranch Plan Area to be moderate. This rating was based on the presence of abandoned wells and operational natural gas pipelines on the Property.

A limited Phase 2 ESA was recommended to assess subsoil and groundwater quality on the northwest portion of the Plan Area near the well lease site.

2.1.2 PHASE 2 ENVIRONMENTAL SITE ASSESSMENT

A limited Phase 2 ESA was conducted by SNL Environmental Consulting in June 2010. Boreholes were advanced to investigate potential impacts at well site and to confirm the presence of a 1m cap over the cement pit. The assessors determined that no cement pit could be identified on-site; as such, a detailed site assessment was conducted to follow up. The well site and access road passed all applicable criteria for reclamation of well sites.

As a result of the Phase 2 ESA, a reclamation certificate was received for the well located in the northwest portion of the Plan Area, dated August 5 2014.

2.2 GEOTECHNICAL INVESTIGATION

The Lincoln Ranch Geotechnical Investigation (2014) summarizes the results of the field and laboratory testing programs and presents geotechnical recommendations for general site development.

Recommendations identified in the Investigation include those regarding geotechnical evaluation, site preparation, basement foundations, service trench installation, concrete for underground structures, roadway subgrade construction, flexible pavement design, general frost considerations, constructed wet ponds, and inspection.

Notable recommendations of the Investigation include the use of high sulphate-resistant hydraulic cement for use in all subsurface concrete that will be in contact with native soil due to the high levels of sulphate found in the soil.

Building grades and slab heights will be set at time of detail design based on the geotechnical requirements of each site. These slab heights will be checked at the time of building permit.

2.3 BIOPHYSICAL REVIEWS

2.3.1 RECONNAISSANCE BIOPHYSICAL SURVEY

MSES completed a Reconnaissance Biophysical Survey dated September 2014 to gather general information on the biophysical resources in the Plan Area and to provide guidance with respect to any additional biophysical studies that may be required to support future development plans.

The Survey recommended the completion of the following additional reports to provide more information regarding the Plan Area; all of these topics were addressed in the 2017 Biophysical Assessment described in **Section 2.3.2 2017 Biophysical Assessment**.

- Biophysical Impact Assessment
- Vegetation Mapping
  Used to categorize landcover types based on species composition, wetland structure, and disturbance.
- Rare Plant Survey
  Used to capture presence or absence of early and late blooming rare plant species.
- Wetland Assessment
  Used to delineate and classify wetlands as well as survey wetlands for rare plants, wildlife, and amphibians.
- Breeding Bird Survey
  Used to confirm the presence of the public martin and other possibly sensitive birds in the Plan Area.
- Pellet Group Survey
  Used to gather information regarding the Plan Area's use by ungulates.
- Amphibian Survey
  Conducted at night to hear amphibian calls.

2.3.2 2017 BIOPHYSICAL ASSESSMENT

The Lincoln Ranch Biophysical Assessment was completed in April 2017 to identify and evaluate natural features in the Plan Area. Per the recommendations from the Reconnaissance Survey, the following items were addressed:

Vegetation Mapping

The Plan Area is dominated by tame pasture and cropland. Trees within the Plan Area are primarily aspen and balsam poplar trees.

Rare Plant Survey

No rare plants or species of management concern were identified in the desktop assessment or from ACIMS. As part of the Upland Vegetation Community Assessment and Wetland Assessments, no rare plants or species of management concern were identified. The Plan Area is comprised of tame pasture and cultivated crop; both of these vegetation communities are non-native in nature, have low biodiversity resulting in negligible potential for rare plants. As no rare plants were identified in desktop or field assessments and the potential for rare plants is negligible, additional field assessments are not warranted.

Breeding Bird Survey

In accordance to *Lacombe County's Multi-Lot Development Guidelines*, a reconnaissance level wildlife field assessment was conducted. The assessment included an evaluation of areas with potential wildlife diversity and direct and indirect observations.

Wildlife Habitat Suitability assessments indicated that all habitats in the Plan Area are of Low Suitability for wildlife; suitable habitat is available for short-eared owl and tree-nesting raptors only. Standard mitigations for limiting impacts to these species as well as other potential bird species of management concern are included in the Biophysical Assessment; including clearing vegetation outside of the breeding bird period.

As these mitigations are considered standard and known to be effective, additional Breeding Bird Surveys are not warranted.

Pellet Group Survey

The Assessment described that pellet surveys primarily target ungulates; however, no ungulate species of management concern overlap with the Plan Area. To reduce impacts to ungulate species, standard mitigations are provided in the Biophysical Assessment including

securing open excavations. As these mitigations are considered standard and known to be effective, a Pellet Group Survey is not warranted.

Amphibian Survey

The Assessment concluded that habitat suitability for amphibian species, including species of management concern such as Canadian/western toad and northern leopard frog, is low. As no semi-permanent or permanent open water is present in the Plan Area, these species were identified as not likely to breed in the Plan Area. In the absence of suitable habitat for amphibians, additional surveys for these species are not warranted.

Wetland Assessment

One seasonal wetland (WT01), three temporary wetlands (WT04, WT06, and WT10), five ephemeral wetlands (WT02, WT05, WT09, WT14, and WT16), and one ephemeral drainage feature (DR01) were identified during the wetland assessment. Each of these features are described below.

DR01 - Class D Watercourse

DR01 was a small section of an intermittent drainage feature located in the southeast corner of the Plan Area, dominated by smooth brome, manna grass, and hymp-nettle. DR01 had a defined channel with a vertical bank, which appeared to anthropogenic in origin. The bank had exposed soils.

Based on the Code of Practice for Watercourse Crossing, DR01 is classified as a Class D watercourse. Class D watercourses are described as having a low sensitivity with no fish species present.

This drainage course was identified in the Biophysical Assessment as having a Moderate Ecological Value due to its potential use by large wildlife travelling through the area. DR01 was also identified as suitable for conservation using ER dedication as it serves as a hydrologic connection between upstream sources and Gull Lake and may provide a linkage for wildlife movement.

Due to its location along the periphery of the Plan Area and connectivity to adjacent areas, DR01 has been preserved using Environmental Reserve dedication.

WT01 - Seasonal Graminoid Marsh - Moderately Low (C) Value

WT01 was the largest wet feature noted, located in the northwest corner of the Plan Area. This feature had the highest species diversity and was dominated by graminoid species such as fowl bluegrass, reed canary grass, and sedge species small bottle sedge. It also contained a large cover of weedy species such as stinkweed and common dandelion. WT01 had undergone extensive grazing and pugging from recent livestock use.

Based on the Alberta Wetland Classification System (AWCS), WT01 is classified as a seasonal graminoid marsh.

Alberta Environment and Parks (AEP)'s Alberta Wetland Rapid Evaluation Tool- Actual (AWRET-A) returned a value of C for this wetland: "Moderately Low". This wetland was identified in the Biophysical Assessment as having a Moderate Ecological Value due to its potential use as a stepping stone for wildlife to Gull Lake.

Based on the information obtained during the desktop review, field assessment, and the ecological integrity analysis, WT01 was identified as suitable for conservation as Environmental Reserve (ER); however, it was noted that retention should only be considered if the feature could be restored and linkages to features such as Gull Lake could be enhanced. As this level of restoration is not proposed, WT01 has not been preserved.

WT10 - Temporary Graminoid Marsh - Moderately Low (C) Value

WT10 was located in the west side of the Plan Area and was dominated by graminoid species, including Kentucky bluegrass, smooth brome, fowl bluegrass, and herbaceous species such as alsike clover. WT10 had evidence of recent grazing by livestock.

Based on the AWCS, WT10 is classified as a temporary graminoid marsh. AEP returned an ABWRET-A value of C for this wetland: "Moderately Low".

This wetland was identified in the Biophysical Assessment as having a Low Ecological Value and has not been preserved.

WT04 WT06 - Temporary Graminoid Marsh - Low (D) Value

WT04 and WT06 were located in the northeast corner of the Plan Area. WT04 was dominated by opportunistic common cattail, alsike clover; and graminoid species, including foxtail barley and tufted hair grass. The cattail noted was visible only as a residue from the previous growing season, no evidence of seed heads was noted. At the time of the field assessment, WT06 had standing water. Both WT04 and WT06 were recently cultivated and contained large areas of exposed soil.

Based on the AWCS, WT04 and WT06 are classified as temporary graminoid marsh. AEP returned an ABWRET-A value of D for both of these wetlands: "Low" Value. These

wetlands were identified in the Biophysical Assessment as having a Low Ecological Value and has not been preserved.

Ephemeral Waterbodies, Not Considered Wetlands

As described in the Biophysical Assessment, WT02, WT05, WT09, WT14, and WT16 are classified as ephemeral waterbodies based on the AWCS; as such, they are not considered wetlands under the Alberta Wetland Policy. These wetlands were identified in the Biophysical Assessment as having a Low Ecological Value. and has not been preserved.

Recommendations

The following recommendations were made in the 2017 Biophysical Assessment to minimize the biophysical impacts of the proposed development.

Vegetation

- Maintain pre-development drainage flows to retained natural features where possible to provide the same amount of moisture to the vegetation post-development.
- To preserve native vegetation in the Plan Area, retain WT01 if possible or stockpile and replace its topsoil and seed bank into the stormwater management facilities.
- Topsoil from existing wetlands should be used in the construction of stormwater management facilities where possible.
- Plant native vegetation along reclaimed area where practical, such as along trails.
- As required in the Weed Control Act, creeping thistle should be controlled or removed as it is a noxious weed species.
- If herbicide application is chosen as a method of weed control, all herbicides should be applied by a "Certified Applicator" as defined by Pesticide (Ministerial) Regulation (A. R. 43/1997)

Wildlife

- Naturalize stormwater management facilities to the degree practical to provide wildlife habitat for waterfowl, other aquatic wildlife, as well and native vegetation diversity.

Wetlands

- Contact applicable regulatory authorities for the identified wetlands prior to beginning development of the Plan Area. In addition, the appropriate level of documentation shall be submitted for approval prior to any disturbance or removal of these features.
  - » Disturbance of wetlands WT01, WT04, WT06, WT10 will result in a requirement of compensation by AEP.

Stormwater Management

- All collected storm water post-development should be treated before release to Gull Lake.

Development Construction

- Avoid clearing of vegetation during the breeding bird season to limit effects to breeding birds.
  - » If any vegetation clearing activities occur within the breeding bird season a nest search survey is recommended to reduce the potential of disturbances to nests protected under the Wildlife Act.
- Waste should be properly stored in wildlife proof containers on site and disposed of at appropriate waste disposal sites to reduce potential for human-wildlife conflicts.
- Open excavations should be fenced, where practical, and monitored for trapped wildlife.
- Erosion and sediment control (ESC) measures to protect soil from water and wind erosion should be considered.
  - » An ESC plan should be developed with protection of Gull Lake in mind, given that development plans propose draining stormwater to this water body.
- Water from any dewatering activities should be discharged in a manner so that it will not directly enter drainage courses, water bodies, or wetlands.

2.4 STORMWATER MANAGEMENT REPORT

The *Lincoln Ranch Stormwater Management Report* was prepared by Stantec Consulting in September 2016 to demonstrate that the proposed Lincoln Ranch stormwater management facilities will meet Alberta Environment's criteria for permissible release rate and water quality improvement.

The report's modelling demonstrated that the proposed wet ponds would have adequate live storage to attenuate the peak flows resulting from a 24 hour duration, 1:100 year design storm event, and would provide a detention time of greater than 24 hours.

The proposed stormwater management system is described in **Section 6.1 Storm Water Management System.**

2.5 HYDROGEOLOGICAL BASELINE CONDITIONS ASSESSMENT

The Lincoln Ranch Hydrogeological Baseline Conditions Assessment was completed by Stantec Consulting in May 2015 to assess the baseline hydrogeological conditions of the site, specifically the nutrient concentrations of the soil and groundwater, prior to development. The assessment showed that the groundwater flow system in the Plan Area had a low potential to impact the water quality of Gull Lake.

2.5.1 RECOMMENDATIONS

The following recommendations were made to monitor and mitigate potential quality impacts to surface water resources. The groundwater monitoring network and three-dimensional conceptual site model (CSM) created for the assessment will also provide a framework to monitor groundwater conditions and chemistry effectively going forward.

- Monitor groundwater levels and chemistry including: general chemistry parameters, nutrients, and metals in the spring, summer, and fall priors for a minimum of two years to determine seasonal variation.
    - » Seasonal sampling may also indicate the current agricultural land use has contributed to the nutrient levels observed. As the Plan Area transitions from agricultural to its proposed land use (golf course) a trend indicating a reduction in groundwater nutrient concentration may be observed prior to initiation of wastewater application.
- After seasonal variation is assessed (two year period), select one monitoring event with the highest potential to observe nutrient mobilization and monitor for general chemistry, nutrients and metals annually thereafter. BTEX (benzene, toluene, ethylbenzene, and xylenes)and hydrocarbon analysis are no longer required to assess any impact from previous land use.
- Once seasonal variation in groundwater chemistry is understood, utilize trend analysis and establish trigger concentration to initiate some additional mitigation measures if necessary.
- Once wastewater application begins after the site is developed, monitor the volumes of added waste material applied to the land surface and follow the elements of the Guidelines for Municipal Wastewater Irrigation (Alberta Environment, 2000).
- Update the 3D CSM with new water table contours, topography, and landscape alteration when the final development and site grading is completed. Groundwater flow should be reevaluated as well. As the date from the soil monitoring program is collected, tie the data in with the 3D CSM to facilitate integrated analysis.
- Produce and issue an annual report documenting the groundwater conditions in support of the wastewater license requirements, including analysis of nutrient concentrations over time in the shallow groundwater as determined from monitoring network established to present the baseline conditions.

2.6 TRAFFIC IMPACT ASSESSMENT

The Lincoln Ranch Traffic Impact Assessment was completed in August of 2016 to establish the existing and future traffic conditions surrounding the Plan Area, complete analysis at the full build-out and 20-year horizon, and recommend appropriate improvements to the roadway system.

2.6.1 RECOMMENDATIONS

Based on the analysis of the TIA, the following conclusions were made:

- It is expected that the intersections of Highway 792/ Township Road 414 and Highway 792/ Township Road 412 will continue to function acceptably as a Type I-b, two-way stop controlled intersection up to the 2018 full build out scenario.
- The 2038 (20 year) total traffic scenario will continue to operate acceptably with a Type II-b intersection at the junction of Highway 792 and Township Road 414.
- The 2038 (20 year) total traffic scenario will continue to operate acceptably with a Type II-c intersection at the junction of Highway 792 and Township Road 412.
- The 2018 full build out horizon warrants upgrading to a Type II-b (tapered) intersection at Township Road 414 and a Type II-c (tapered) intersection at Township Road 412.

  As described below, Township Road 414 was upgraded by Lacombe County during the 2017 construction season due to development surrounding the Lincoln Ranch Plan Area.

  Upgrades to Township Road 412 will be completed on a phased basis by the Developer, as recommended.
- Illumination is not warranted for the intersections of Highway 792 / Township Road 414 or Highway 792 / Township Road 412 at all analyzed horizons.

  Although not identified as warranted based on the results of the TIA, illumination at the intersection of Highway 792/Township Road 412 will be provided at the request of Lacombe County. The timing of installation will be at the County's discretion, based on traffic volume and intersection performance.

  The cost of this illumination will be built into the lot levy for road improvements in the Development Agreement. This levy will be calculated based on the needed improvements and shared amongst all the developed area expected to utilize the roads and intersections.

Due to other developments in the area, it is understood that the following improvements are planned by Lacombe County for the 2017 construction seasons; as such, they override any recommendations made for these roadways in the Lincoln Ranch TIA:

- Upgrade the Highway 792 / Township Road 414 intersection to a Type IV-c design.
- Upgrade Township Road 414 to a main access road standard from Highway 792 west to Range Road 282.
- Upgrade Range Road 282 from Township Road 414 south to Township Road 412.
- Upgrade the Range Road 282/Township Road 414 intersection to a Type II design.

3.0 Plan Area

3.1 EXISTING CONDITIONS

As shown on **Figure 3 - Existing Conditions**, the Plan Area is currently being utilized for agricultural purposes.

3.1.1 TOPOGRAPHY

As described in the Lincoln Ranch Geotechnical Investigation, the Plan Area has a rolling topography with an overall downward slope toward the southwest draining into Gull Lake. Site elevations range from approximately 917m in the northeast to approximately 906m in the southwest.

A low lying natural drainage channel is located in the southeast corner of the Plan Area.

The Plan Area is not identified in the Alberta Flood Hazard Mapping.

3.1.2 SOILS

The Lacombe County/Gull Lake IDP identified the soil on site as Class 2; this soil classification represents soils that have moderate limitations that restrict the range of crops or require moderate conservation practices.

As identified in **Section 2.2 Geotechnical Investigation**, the Lincoln Ranch Geotechnical Investigation noted that the Plan Area's general soil profile was topsoil, variable thickness or lacustrine sand, silt and clay overlying glacial till. The reported sulphate level indicates a "severe potential for sulphate attack on buried concrete in direct contact with soil"; as such, sulphate-resistant hydraulic cement will be utilized for subsurface concrete in direct contact with the soil.

3.1.3 VEGETATION

As identified in **Section 2.3.2 2017 Biophysical Assessment**, the Plan Area is primarily tame pasture and cultivated crop; both of these features are anthropogenic that create a matrix between the noted natural features. All features within the Plan Area, including the wetlands and drainage areas appear to have been impacted by anthropogenic disturbances.

Connectivity within the Plan Area was identified as low with high connectivity identified along Gull Lake to the west and along the Class D ephemeral drainage (DR01), located to the south and east of the Plan Area.

3.1.3.1 Rare Plant Species

No rare plants were identified in the 2017 Biophysical Assessment.

3.1.3.2 Wetlands

As described in **Section 2.3.2 2017 Biophysical Assessment**, one seasonal wetland (WT01), three temporary wetlands (WT04, WT06, and WT10), five ephemeral wetlands (WT02, WT05, WT09, WT14, and WT16), and one ephemeral drainage (DR01) were identified during the field assessment completed for the 2017 Biophysical Assessment.

Due to the ecological values associated with each feature, and availability to maintain their integrity in the future, all wetlands have been proposed for removal with the exception of the ephemeral drainage course located in the southeast corner of the Plan Area. A Water Act application and compensation will be required for wetland removal through Alberta Environment and Parks.

To encourage the growth of native wetland vegetation surrounding the proposed stormwater management facilities post-development, existing vegetation from the wetlands may be stockpiled during grading and utilized during the construction of the constructed wetlands.

LEGEND

- Marsh (Seasonal)
- Marsh (Temporary)
- Permanent Structure
- Well Site
- Topographic Contours
- Treeline
- Drainage Feature
- Utility Right-of-Way
- Outline Plan Boundary

Figure 3 - Existing Conditions

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Lincoln Ranch

3.1.4 WILDLIFE

As described in **Section 2.3.2 2017 Biophysical Assessment**, incidental wildlife observations that were made during the field assessment are included the following, all species are identified as 'secure' in Alberta and none are listed as species of management concern:

- sharp-shinned hawk
- red-winged blackbird
- mallard
- coyote
- deer
- American crow
- common tern
- tree swallow
- Richardson's ground squirrel

No wildlife species of management concern were observed in the Plan Area during the two reconnaissance surveys completed.

3.2 HISTORIC AND CURRENT LAND USE

Based on the historic title of the property, it is clear the land was purchased at some point under the Veterans Land Act prior to Vernon and Thelma Kamlah's purchase in 1982 whose family owns it at present time.

A review of historical aerial photographs completed during the completion of the 2017 Biophysical Assessment revealed regular agricultural activity on the majority of the Plan Area since 1949, and appeared to change constantly over time. In 1949, which is the earliest photograph available, a driveway and residence are present immediately adjacent to the Plan Area within the NW ¼ 14-041-28 W4M, and remains until present day.

Historically, the Plan Area contained wet depressions that have been intermittently visible on the landscape; however, the Plan Area appears to be fairly dry in all of the photographs that were reviewed.

An ephemeral drainage channel (DR01) is present in the southeast corner of the Plan Area and appears to have been part of a riparian complex located outside of the Plan Area that was altered (i.e. ditched) between 1975 and 1987.

The Alberta Listing of Historic Resources (April 2017) does not identify the Plan Area for historical resources.

3.3 ADJACENT AND SURROUNDING DEVELOPMENT

Currently the Plan Area is primarily surrounded by agricultural lands, and associated residential uses. Northwest of the Plan Area is DeGraff's RV Resort, a gated recreational community. South of the Plan Area is Wilson's Beach Estates a residential development with lot sizes approximately 0.75ac in size.

3.3.1 OUT PARCELS

An existing homestead is located in the central portion of the Plan Area. Through discussions with the land owner and County of Lacombe, this homestead has not been incorporated into the Concept Plan at this time and will remain in its existing state, zoned as an A - Agricultural district parcel. A future Outline Plan amendment may be required by the land owner to determine land use, connectivity, and servicing once the Out Parcel is ready for development.

3.4 EXISTING UTILITIES

As shown on **Figure 3 - Existing Conditions**, there are two pipeline rights-of-way running north/south parallel to the western and eastern boundary of the Plan Area.

R/W Plan 962 0382

This 15.0 metre right-of-way runs parallel to the eastern boundary of the Plan Area and includes two operational natural gas pipelines that are registered to Keyere Energy Ltd.

Utility Easement Instrument No. 762 013 151

This utility easement is described on title as the most westery 120' (36.58m) running parallel to the western boundary of the Plan Area. It is registered to Atco Gas and Pipelines Ltd.

Well No 0337338

An abandoned well is located on the northwest portion of the Plan Area at LSD 13-14. The well was licenced to Vesta Energy Ltd. and was drilled and abandoned in October 2005. A limited investigation in 2009 found no exceedances from two samples analyzed for hydrocarbon, metals and detailed salinity parameters. No hydrocarbon odors were encountered in the six boreholes drilled to 1.5 or 3.0m, and field hydrocarbon vapors were less than 100ppm. The potential environmental risk regarding the well is considered moderate based on limited historical analytical data.

As a result of the Phase Two ESA, a reclamation certificate has been obtained for this well.

Abandoned Well No 0157107

A lease site, including an abandoned well, extends onto the southern portion of the Property from LSD 6-14. The well was drilled and abandoned in March 1993 and was licenced to Husky Oil Operations Limited. A Phase 2 ESA was conducted in 2008 and no soil samples were found to exceed the applicable Guidelines for metals and hydrocarbon parameters. Electrical conductivity (EC) and sodium adsorption ratio (SAR) values ranged from "Fair" to "Good" for both lease site samples and background samples.

A reclamation certificate (No. 0157107) was issued for the well and lease site on November 1, 2010. The potential environmental risk regarding this abandoned lease is considered low based on historical analytical data.

Residential setbacks from the wellhead must be set consistent with ERCB Guidelines and municipal requirements, as shown in the Concept Plan.

4.0 Development Considerations

Lincoln Ranch has been developed to provide additional residential and recreational opportunities within the area of Gull Lake. This development is consistent with the principles of the Lacombe County/Gull Lake IDP as described in **Section 1.3.2 Gull Lake Intermunicipal Development Plan**.

In addition to those identified in the IDP, the Lincoln Ranch development has been specifically designed to create a sense of place and protect the quality of Gull Lake; as further described below.

4.1 CREATE A SENSE OF PLACE

Lincoln Ranch is envisioned as a unique residential area focused around a variety of home styles and the Lincoln Ranch Golf Course. As shown on **Figure 4 - Concept Plan** and **Figure 5 - Concept with Aerial**, the neighbourhood will be complemented with a abundance of open space and trails connecting to neighbouring communities.

4.1.1 DESIGN GUIDELINES

A set of design guidelines has been created to guide the development of Lincoln Ranch to a high quality level and maintain a visual consistency throughout the community. Specific guidelines have been identified for the following topics:

- Overall theme
- Architectural style and elements
- Massing
- Building materials
- Colour palette

These guidelines have been prepared under separate cover for use by home builders. To enforce their use, the Design Guidelines will be registered to each lot using a Registered Covenant. In addition to utilizing the Design Guidelines for home construction, each builder will be required to submit house plans to the Developer prior to submitting an application for a Building Permit. This additional level of approval will promote consistency and quality throughout the area.

4.2 PROTECT THE QUALITY OF GULL LAKE

Lincoln Ranch has been designed to provide an additional recreational amenity to Gull Lake residents and visitors, through the inclusion of the proposed golf course; while protecting the quality of the Lake from potential negative impacts such as phosphorus deposits.

4.2.1 STORMWATER DRAINAGE

A Stormwater Management Plan was completed for the development by Stantec Consulting to summarize the preliminary stormwater management design and to support the Concept Plan. The report provides design objectives, conclusions and recommendations for the final design, and address how stormwater can be minimized and treated prior to entering Gull Lake.

4.2.2 INCREASED TREE COVER

Although the existing conditions of the Plan Area does not include any significant tree cover, the amount of trees is anticipated to increase significantly post-development due to the landscaping of the golf course and of private lots.

4.2.3 MINIMIZE GOLF COURSE IMPACT

The maintenance of the proposed golf course shall consider Gull Lake and utilize various practices to minimize its impact, such as the use of treated effluent for irrigation. Proposed maintenance of the golf course is described in **Section 6.4 Golf Course Maintenance.**

5.0 Concept Plan

5.1 RESIDENTIAL USES

As shown on **Figure 4 - Concept Plan** and **Figure 5 - Concept with Aerial**, two residential land uses are proposed for use in the Lincoln Ranch development. The residential land uses and associated lots proposed are intended to provide a range of housing options that offer various choices to future residents of different income levels, age groups, family types, or individual preferences.

5.1.1 R-RCC RESIDENTIAL CONSERVATION (CLUSTER) DISTRICT

The purpose of the R-RCC Residential Conservation (Cluster) District is to provide an area for residential development while preserving large open spaces. To take advantage of potential views and opportunities for homes to back onto the proposed golf course, a number of communally-serviced 0.10 ha single family lots have been identified throughout the Lincoln Ranch development.

Housing types anticipated within the R-RCC District may include bungalows, bi-levels, modified bi-levels, or two-storeys; as well as homes with walk-outs basement.

Lacombe County's density transfer / bonus system has been used to permit additional density for the Lincoln Ranch development by providing open space in excess of the required 10% Municipal Reserve. In accordance to the Land Use Bylaw, 4 additional R-RCC dwelling units will be permitted for every 1.0 ha of additional Municipal Reserve dedicated.

A breakdown and summary of the density transfer / bonus system is shown in **Table 2.0 - Density Transfer/Bonus System Calculations**. In total, 60 R-RCC lots have been identified throughout Lincoln Ranch.

5.1.2 R-HDR HIGHER DENSITY RESIDENTIAL

The purpose of the Higher Density Residential District is to provide areas of multi-family housing. The housing type within the area is envisioned to be row homes allowing for smaller more affordable units as well as vacation properties.

The Higher Density Residential land use has been identified along the entrances of the roadways to allow for connectivity to the lake and proximity to larger open spaces.

As previously noted, Lacombe County's density transfer / bonus system has been used to permit additional density for the Lincoln Ranch development. In accordance to the Land Use Bylaw, 20 additional R-HDR dwelling units will be permitted for every 1.0 ha of additional Municipal Reserve dedicated.

A breakdown and summary of the density transfer / bonus system is shown in **Table 2.0 - Density Transfer/Bonus System Calculations**; in total, 40 R-HDR lots have been identified throughout Lincoln Ranch.

Table 1.0 - Land Use Allocation and Units.

Land Use Category	Hectares	Acres	% of NPA	Units	Estimated Population[1]
Gross Plan Area	**64.47**	**159.29**			
ER Environmental Reserve	*(0.51)*	*(1.27)*			
PUL Public Utility Lots	*(5.82)*	*(14.39)*			
Roadways	*(4.24)*	*(10.49)*			
Net Plan Area (NPA)	**53.89**	**133.15**	**100.0%**		
Residential	6.89	17.02	12.8%	100	270
R-RCC Residential Conservation Cluster	4.14	10.23	7.7%	40	108
R-HDR Higher Density Residential	2.75	6.80	5.1%	60	162
Recreational/Open Space	47.00	116.13	87.2%		
MR Municipal Reserve	12.23	30.22	22.7%		
P-R Recreational District	34.77	85.91	64.5%		

Note: All land use calculations are determined using measurements taken in m^2 which are then converted into hectares and acres; as such, the additions shown in this table may not appear correctly due to rounding.

It should be noted that final land use calculations will be determined during the time of legal survey and subdivision.

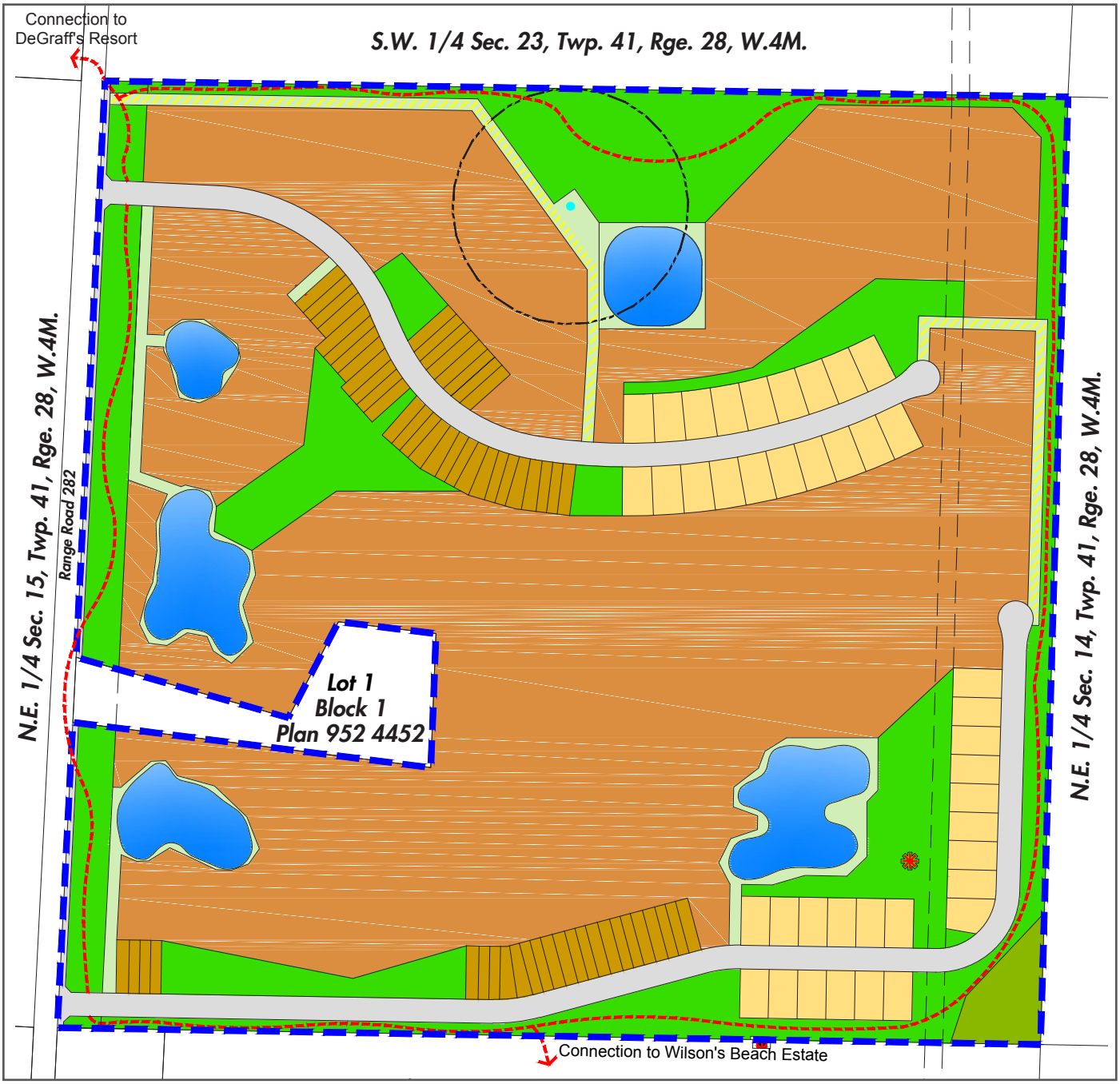
Table 2.0 - Density Transfer/Bonus System Calculations.

	R-RCC Residential Conservation Cluster	R-HDR Higher Density Residential	Total
Area (ha)	4.14 ha	2.75 ha	**6.89 ha**
Permitted Density (du/ha) [2]	2.5 du/ha	2.5 du/ha	--
Allowable Units (du) *= Area x Permitted Density*	10 du	6 du	**16 du**
Proposed Units (du) [3]	40 du	60 du	**100 du**
Density Transfer/Bonus System	1 ha of MR = 4 du	1 ha of MR = 20 du	**--**
Proposed Unit Overage (du) *= Proposed Units - Allowable Units*	30 du	54 du	**84 du**
Additional MR Required (ha) *Amount in addition to the 10% MR Dedication*	7.50 ha	2.70 ha	**10.2 ha**

Total Residential Density (Total Units/Residential Area): 14.5 du/ha

[1] *Population based on Lacombe County's average household size of 2.7 persons per dwelling; as identified in the 2011 Federal Census.*

[2] *The permitted density for each residential land use district is identified in the Lacombe County Land Use Bylaw.*



LEGEND

- R-RCC Residential Conservation Cluster
- R-HDR Higher Density Residential
- P-R Recreation District
- Municipal Reserve
- Environmental Reserve
- Stormwater Management Facility
- Wastewater Treatment Plant (WWTP) and 100m Setback
- Public Utility Lot
- Emergency Access
- Multi-Purpose Trail
- Well Site
- Outline Plan Boundary

Figure 4 - Concept Plan

Lincoln Ranch

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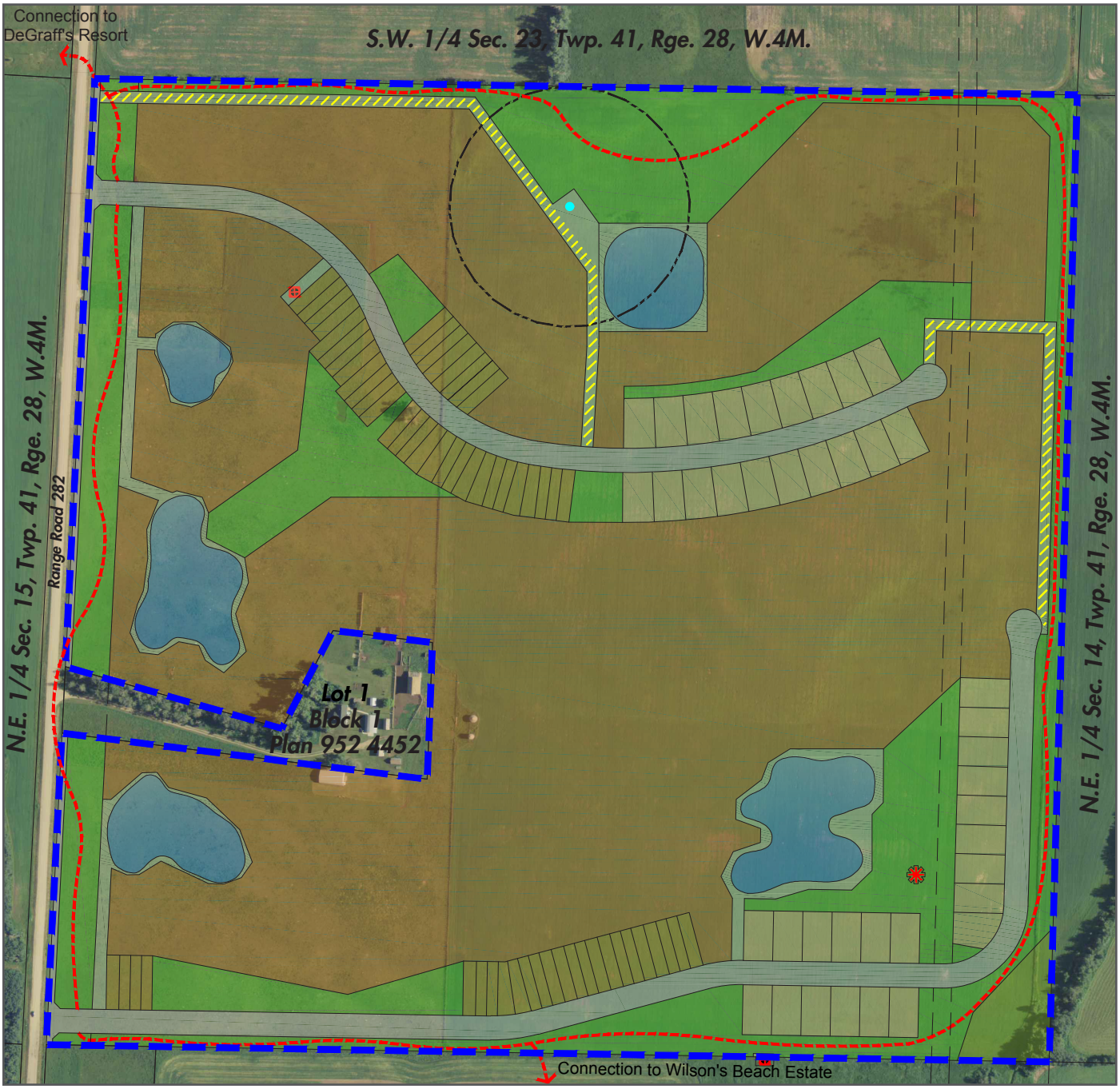


LEGEND

- R-RCC Residential Conservation Cluster
- R-HDR Higher Density Residential
- P-R Recreation District
- Municipal Reserve
- Environmental Reserve
- Stormwater Management Facility
- Wastewater Treatment Plant (WWTP) and 100m Setback
- Public Utility Lot
- Emergency Access
- Multi-Purpose Trail
- Well Site
- Outline Plan Boundary

Figure 5 - Concept with Aerial

Stantec

Lincoln Ranch

5.2 OPEN SPACES

5.2.1 P-R RECREATION DISTRICT

The P-R Public Recreation District is intended to accommodate the construction of a 9-hole golf course as shown on **Figure 6 - Open Space Network**. This course will be designed as a recreational space for Lincoln Ranch residents, tourists of the Gull Lake area, and Lacombe County residents. Special care has been given to the layout of the land surrounding the golf course and residential space to form an open space that can be enjoyed by both visitors, residents, and golfers.

The golf course will be designed with public safety in mind to include well-located tee box and greens. In addition, planting and grading features will be strategically located to maximize safety from errant shots. The future golf course clubhouse will be located along the northern roadway's entrance into Lincoln Ranch to minimize traffic through the residential areas.

5.2.2 PARKS AND TRAILS

As shown on **Figure 6 - Open Space Network**, three park sites have been identified within the Plan Area: one along the north boundary, one in the northwest, and one in the southeast. In addition to these passive park spaces, an open space network has been provided surrounding the development to accommodate a continuous multi-use trail. An active play structure will be constructed in the southeast parkspace. This will allow residents to gather while children actively engage.

Passive park spaces in Lincoln Ranch are intended to provide areas where residents can have picnics, fly kites, play tag or touch football, play catch with their pets, or just visit. Formal programming may be provided in these areas, as determined on a phased basis in consultation with Lacombe County at the time of detailed design.

All open space in the development will be dedicated as Municipal Reserve and will be publicly accessible.

The proposed open space network will also connect pedestrians to Gull Lake in the west and Wilson Estates in the south. In accordance to Lacombe County's standards, crosswalks and knock down bollards will be required at all intersections and crossings of the trail and roadways.

Nearby Amenities

Located southwest of the Plan Area is Wilson's Beach Campground which has a public beach. Similarly, northwest of the Plan Area is Degraff's RV Resort which also has a public beach. Multi-use pathways will connect to these areas as shown on **Figure 6 - Open Space Network.**

The Developer will be required to pay an off-site levy which will be used at the County's discretion to construct amenities.

5.2.3 MUNICIPAL RESERVE

In accordance to the requirements of the MGA, Lincoln Ranch must dedicate 10% of its net developable area to Lacombe County as Municipal Reserve (MR); this equates to 6.40ha of MR.

Density Transfer/Bonus System

In addition to the MR dedication as required by the MGA, an additional dedication of MR will be required to support the Concept Plan and satisfy the density transfer/bonus system outlined in the Lacombe County LUB. This system is further described in **Section 5.1 Residential Uses**.

As illustrated in **Table 2.0 - Density Transfer/Bonus**

Table 3.0 - Municipal Reserve Calculation.

Land Use Category	Hectares	Acres	% NDA
Gross Plan Area	**64.47**	**159.29**	
Environmental Reserve	*(0.51)*	*(1.27)*	
Net Developable Area (NDA)	**63.95**	**158.02**	**100.0%**
10% Required Municipal Reserve	6.40	15.80	10.0%
Density Transfer/Bonus System: Additional MR Requirement	10.20	25.20	15.9%
P-R Recreation District - 50% MR Density Bonus Credit	*(5.10)*	*(12.60)*	*(8.0%)*
Total Required Municipal Reserve Dedication	**11.50**	**28.40**	**18.0%**
Total Municipal Reserve Dedication	**12.23**	**30.22**	**19.1%**
Municipal Reserve Overage	0.73	1.82	1.1%

System Calculations, the Lincoln Ranch concept will require an additional 10.20ha of MR for a total of 16.60 ha.

Alternative Credit

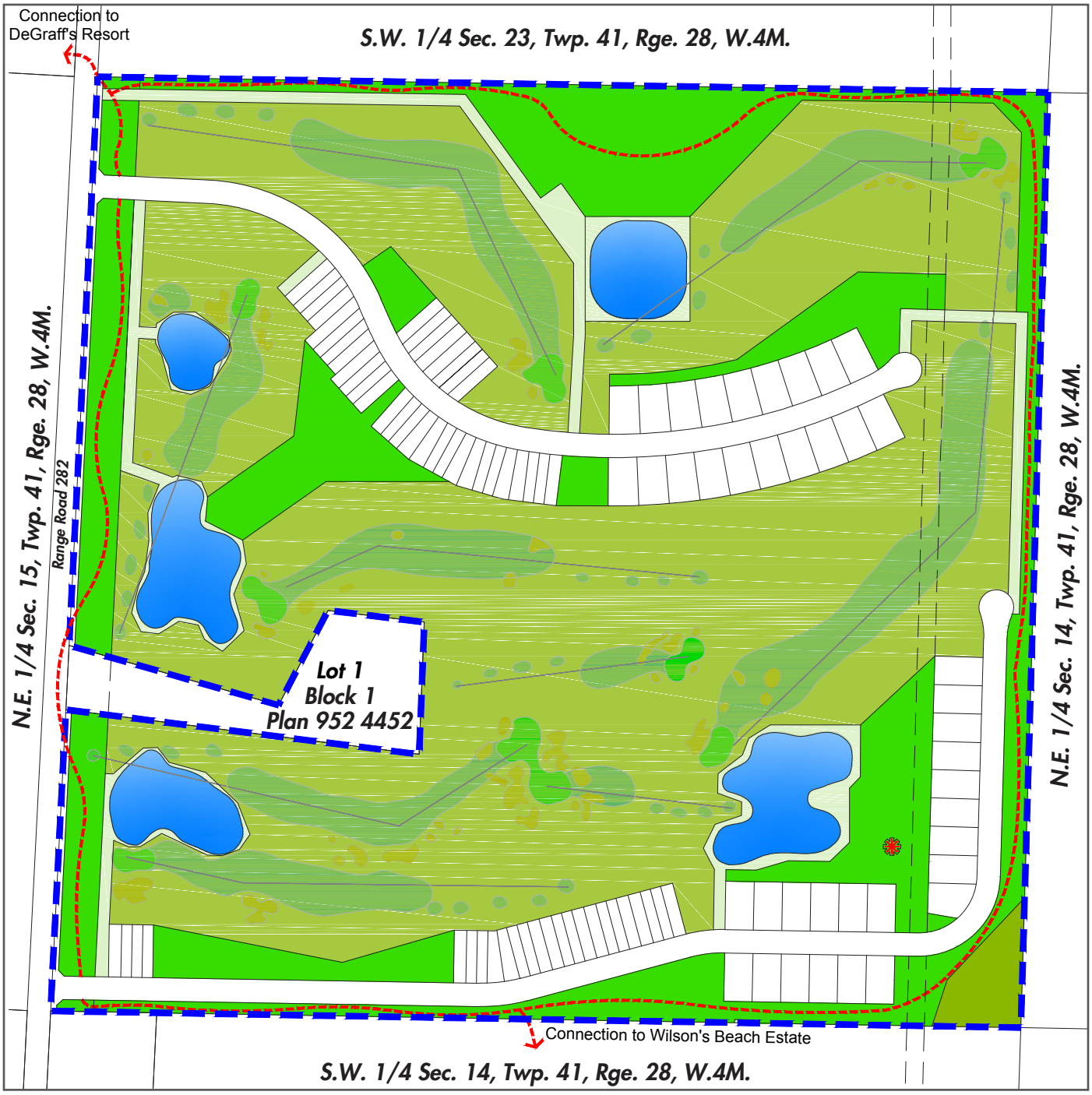
Based on similar developments approved in the area in the past, the Developer has proposed that 50% of the P-R Public Recreation District (5.10ha) be recognized as MR. This alternative credit method has been discussed with Lacombe County administration and provides recognition of the PR District's creation of public amenities such as paved trails, seating nodes and enhanced landscaping within the golf course.

The full breakdown of MR dedication is shown calculated in **Table 3.0 - Municipal Reserve Calculation**.

5.2.4 STORMWATER MANAGEMENT FACILITIES

As described in **Section 6.1 Storm Water Management System,** four stormwater management facilities will be constructed and located throughout the Plan Area. These ponds will be used for stormwater management purposes, as visual amenities for the community, and will supplement the golf course's irrigation system. All stormwater management facilities will be constructed as wet ponds and accommodated entirely within Public Utility Lots. The ponds will be developed as constructed wetlands to minimize their maintenance, reintroduce native wetland vegetation, and enhance the natural feel of the development.

Accesses to these facilities have also been provided using Public Utility Lot dedication.



Note: Golf Course layout shown is for illustration purposed only; final design may differ from that shown.

LEGEND

- Golf Course
- Environmental Reserve
- Municipal Reserve
- Public Utility Lot
- Stormwater Management Facility
- Multi-Purpose Trail
- Outline Plan Boundary

Figure 6 - Open Space Network

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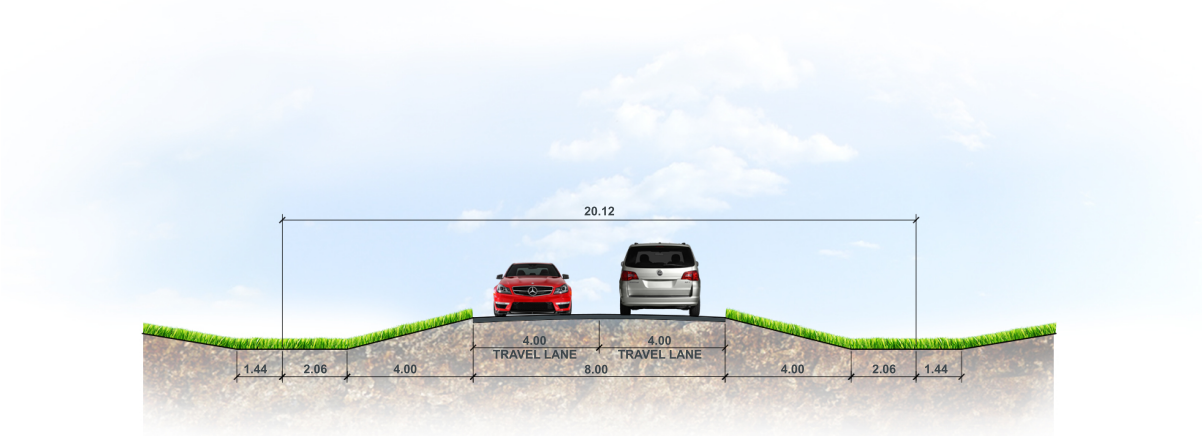
Lincoln Ranch

5.3 ROADWAYS

As shown on **Figure 8 - Transportation Network**, two roadways have been used to provide access to the residential portions of Lincoln Ranch; these roadways will be designed in accordance to Lacombe County's Standards Manual as Residential Subdivision Roads. A cross-section of these roadways is shown on **Figure 7 - Roadway Cross-Section.** Due to the density of this development, and provision of trails throughout the community, no sidewalks will be constructed as part of these roadways.

Figure 7- Roadway Cross-Section.



Cross-section designed as per Lacombe County's Standards Manual.

5.3.1 EMERGENCY ACCESS

The sizing of the internal roadways will accommodate emergency vehicle access should it be necessary. Due to the length of each roadway proposed, there will also be an emergency access roadway connecting the north and south bulbs as shown on **Figure 8 - Transportation Network**.

A second emergency access is proposed in the north portion of the Plan Area and will also provide access to the wastewater treatment plant.

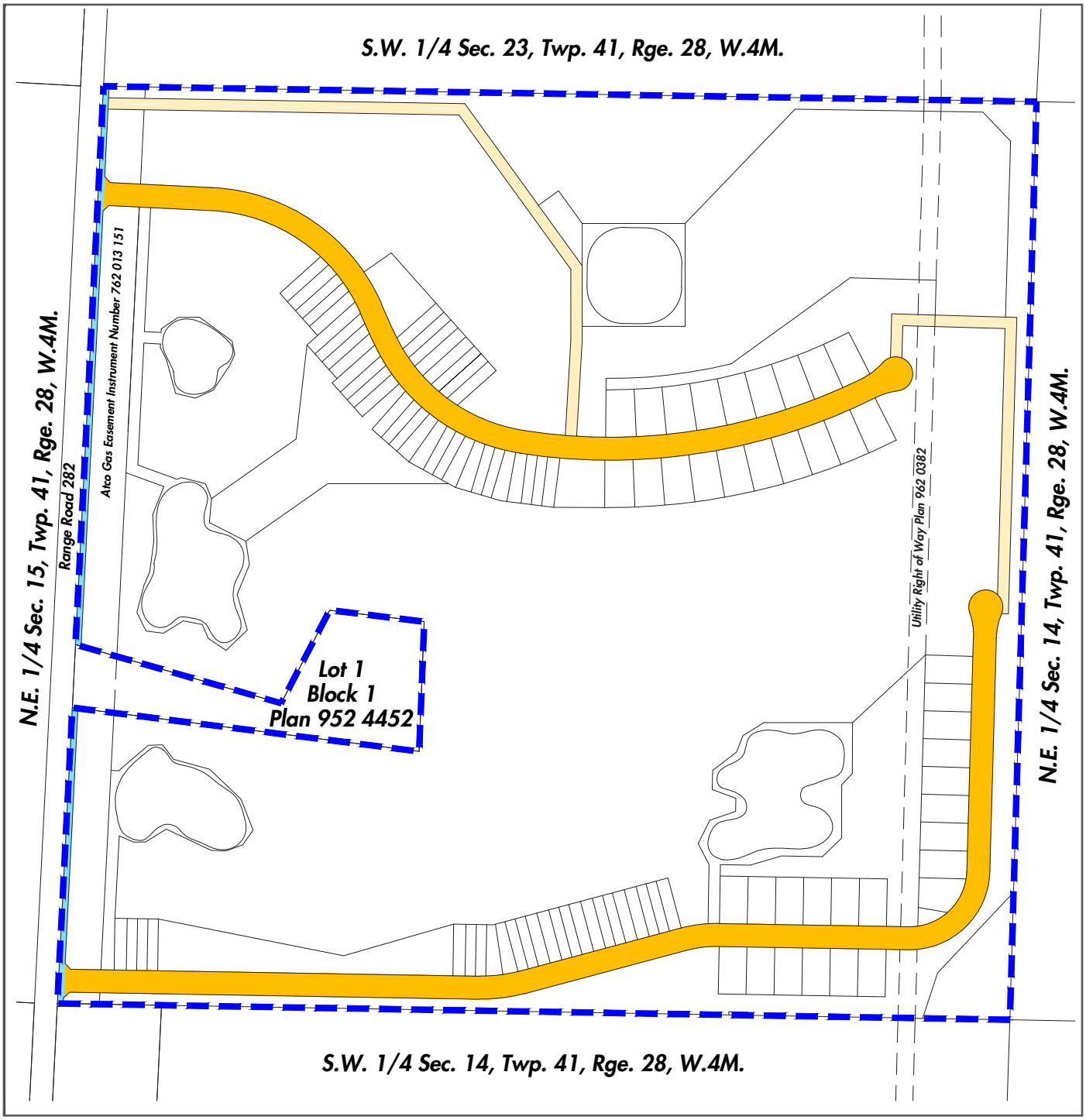
5.3.2 RANGE ROAD 282

Access to Lincoln Ranch will be via Range Road 282 along the west boundary of the Plan Area.

As described in **Section 2.6 Traffic Impact Assessment,** it is understood that Range Road 282 will be widened to accommodate a higher level of service, with an intersection upgrade at Township Road 414. The Lincoln Ranch design has incorporated the right-of-way into its design to ensure all land required will be available.

Trail Connection

As shown on **Figure 6 Open Space Network**, a multi-use trail connection has been identified along Range Road 28-2 in front of the Out Parcel as a continuous connection is not possible across the private property. Details of this portion of trail will be determined in consultation with Lacombe County during Detailed Design.



LEGEND

- Emergency Access
- Range Road 282 - 5.18m Widening
- 20.12m Residential Subdivision Road
- Outline Plan Boundary

Figure 8 - Transportation Network

Stantec

Lincoln Ranch

5.4 PROTECTIVE SERVICES

5.4.1 POLICE SERVICES

Police service for Lacombe County is provided by Lacombe County Peace Officers and the RCMP. Lacombe County Officers are stationed out of the Lacombe County Office and the closest RCMP detachment is approximately 27km south and east in Blackfalds, AB. Due to the location of the Lincoln Ranch development in relation to the Lacombe County Office, there are no police services proposed in Lincoln Ranch.

5.4.2 FIRE PROTECTION & EMERGENCY RESPONSE

Lacombe County is serviced by the Lacombe County Fire Services which is comprised of seven local volunteer fire departments. These include Lacombe, Eckville, Bentley, Clive, Alix, Mirror and Blackfalds. The closest volunteer fire department to Lincoln Ranch is located approximately 20km (16min) south and west in Bentley, AB. There are also two more in relative close proximity being The City of Lacombe Fire Department 22km east (18 min) the Town of Blackfalds volunteer fire department being approximately 27km (20 min) south and east. Due to the size of Lincoln Ranch, and its location in regards to surrounding developments, there are no emergency, medical, or fire protection service locations proposed for development. To comply with the Lacombe County "Rural Fire Protection Policy for Multi-Lot Subdivisions' and to NFPA 1142, Lincoln Ranch has proposed the following fire prevention methods:

Fire Flow

Full fire flow for the Lincoln Ranch development will be provided through the use of the existing and proposed Degraff's reservoirs to meet the required volumes. Full fire flow will be provided to hydrants throughout the development.

Residential Sprinklers

All buildings in the development will have sprinkler systems installed that are compliant with NFPA 13, 13D, or 13R. The water distribution system will be modeled to confirm adequate capacity of flow will be available throughout the development to meet the demand of these sprinkler systems.

6.0 Servicing & Implementation

6.1 STORM WATER MANAGEMENT SYSTEM

As shown on **Figure 9 - Stormwater Servicing**, all stormwater runoff from the Lincoln Ranch development will be routed overland via culverts, swales, and ditches to the stormwater management facilities. Overland drainage shall conform to the County of Lacombe Design Guidelines, and the water velocity and depth relations as outlined in the Alberta Environment (AEP) Stormwater Management Guidelines.

Four constructed wet storm ponds, and one constructed treated wastewater pond, will be used to control stormwater for Lincoln Ranch. Stormwater will then be released from the ponds at a controlled rate into two existing culverts which cross Range Road 282 and discharge into Gull Lake. Stormwater ponds will be controlled by an orifice at the normal water level and a spillway at the high water level to accommodate water levels in the ponds greater than the 1:100-year storm event. These ponds will improve water quality prior to its discharge into Gull Lake. Sediment simulation has demonstrated that nearly all sediment suspended in stormwater runoff will be removed by the ditches and the stormwater management facilities.

The Single Event Continuous Computer Modeling demonstrates that the Lincoln Ranch stormwater ponds have adequate live storage to attenuate the peak flows resulting from a 24-hour duration, 1:100-year design storm event, and 44 years worth of precipitation data, along with a frequency analysis. This model also shows the active storage and discharge rate will provide a detention time of greater than 24 hours.

All stormwater servicing will be designed in accordance with The Lacombe County Standards Manual.

6.1.1 IRRIGATION

Stormwater will be used to supplement the golf course irrigation system, as described in **Section 6.4.1 Irrigation.**

6.1.2 IMPACT ON GULL LAKE

In accordance to the *Gull Lake Interim Water Rights Administrative Guideline* dated March 1, 1994; there is to be no net loss of surface water entering Gull Lake as a result of development. As such, discharges to Gull Lake must meet or exceed the pre-development flows.

As the post-development annual volume of 17,686m³ is greater than the pre-development annual volume of 16,334m³, a net annual gain of 1,352m³ will be experienced draining to Gull Lake as a result of the Lincoln Ranch development.

During detailed design, the existing culvert will be reviewed to ensure it is sized sufficiently to handle post-development flows and there will be no negative impacts to down-stream owners.

6.2 SANITARY SEWER SERVICING

Lincoln Ranch will be serviced using an on-site Mechanical Treatment Facility. This facility will be owned and operated by a separate Utility Corp. and will be sized to receive waste from this development, DeGraff's RV Resort Community, and will be able to be expand and receive flows from adjacent areas as they develop in the future.

As illustrated in **Figure 10 - Sanitary Servicing**, there is a proposed lift station located in the south west corner of the Plan Area which pumps sewage via a forcemain to the mechanical treatment facility located in the north end of the Plan Area.

Low pressure treatment facilities are comprised of a network of low pressure sewers which collect wastewater from the service areas for treatment at a central wastewater treatment facility. As proposed in Lincoln Ranch, waste will be collected in private underground septic tanks at individual dwellings and then pumped to the main pressure sewer system which will convey the wastewater to the wastewater treatment facility. The waste will then be treated in the facility and used for golf course irrigation; this process is described in **Section 6.4 Golf Course Maintenance.**

All sanitary sewer facilities will be designed in accordance with Lacombe County Standards. Restricted roadway access will be provided to the wastewater treatment facility via a Public Utility Lot dedication that runs from Range Road 282, along the golf course, connecting to the internal roadway network.

Operations and maintenance of the sanitary system will be the responsibility of the Developer until the development reaches 80% capacity. At this time, the system and its maintenance will be turned over to the County.

6.3 WATER DISTRIBUTION SYSTEM

Water will be supplied from the existing operational Alberta Environment and Parks approved water plant, located adjacent to the Lincoln Ranch development.

The proposed alignment of the water lines within Lincoln Ranch is illustrated on **Figure 11 - Water Servicing**.

Operations and maintenance of the water distribution system will be the responsibility of the Developer until the development reaches 80% capacity. At this time, the system and its maintenance will be turned over to the County.

6.4 GOLF COURSE MAINTENANCE

6.4.1 IRRIGATION

As described in **Section 4.2.3 Minimize Golf Course Impact**, the irrigation system used for the proposed golf course will use treated effluent and stormwater; groundwater is not intended for irrigation use.

As identified in the *Lincoln Ranch Stormwater Management Report*, the irrigation demand for the proposed golf course is 40,500m³ of water. At full build out of the Degraffs's RV resort and Lincoln Ranch, there will be 26,500m³ of available effluent water for irrigation re-use; as such, the remaining 14,000m³ will need to be fulfilled using stormwater.

The wastewater treatment plant will utilize a biological nutrient removal treatment process, followed by an Ozonation treatment process to achieve a final effluent goal of less than 10 mg/l, total Nitrogen of 10 mg/l and total phosphorus less than 5 mg/l. The biological nutrient removal treatment train will consist of an equalization tank, anoxic zone, aerobic zone, secondary clarification, and a sludge dewatering process. The Ozonation process will follow a biological treatment process to further improve the quality of the pond and irrigation water for the golf course. The Ozone applied to the irrigation water will reduce or completely remove pathogens and unwanted organic matter. The Ozonated water will also kill algae or fungus, while having little or no impact on the golf course's grass.

A pump house will be constructed on the bank of the main receiving storage pond to supply the irrigation system with treated water. If a situation arises where the golf course lands cannot handle the treated effluent water, the effluent will be hauled to an approved wastewater facility.

Use of treated wastewater effluent to irrigate the golf course is regulated by Alberta Environment's *Guidelines for Municipal Wastewater Irrigation.* The development has obtained Environmental Protection and Enhancement Act approval for the construction, operation, and reclamation of its proposed wastewater system. Per the terms and conditions of said approval, treated wastewater from the effluent storage may be discharged for the purposed of irrigation of the golf course; however, the treated wastewater discharge must comply with the carbonaceous (CBOD) and total suspended solids (TSS) limitations as identified in the approval, submitted under separate cover.

A restrictive covenant will be placed on title of the P-R Recreation District identifying it as a suitable area for irrigation regardless of construction.

Monitoring

To provide on-going monitoring, moisture meters will be used throughout the golf course. These meters will monitor soil moisture so that irrigation can be used to keep soil water levels as close to wilting point as possible, based on weather forecasts. Using such a device will assist in determining the field capacity of the soils and the wilting point of the turf thereby facilitating the use of efficient irrigation.

It should be noted that not only hot weather can accelerate evapotranspiration and water loss from the soil, windy weather and even at cool temperatures can also lead to rapid drying of the soil and desiccation of the turf.

6.4.2 NUTRIENT USE

The Lincoln Ranch golf course will follow the Environmental Guidelines created by the Canadian Golf Course Superintendents' Association which identify suggestions for nutrient, pesticide, and water usage on golf courses. In addition to following these guidelines, it is anticipated that the Lincoln Ranch golf course will incorporate chemical-free meadow roughs to decrease environmental impacts.

It should be noted that the Lincoln Ranch Outline Plan proposes rezoning of the Plan Area for the proposed inclusion of a golf course, it does not have the authority to provide regulations for the operation or maintenance of any use; these types of regulations would be determined during the Development Permit application process or through the Land Use Bylaw, Gull Lake Area Structure Plan, or other municipal bylaw.

6.5 PHASING

As shown on **Figure 12 - Phasing Plan**, the development of Lincoln Ranch has been divided into 2 phases. The first phase of development includes: the northern residential area, the wastewater management facility, the storm ponds and the golf course.

The second phase of development include the southern residential area and remaining Municipal Reserve.

The phasing boundaries shown are conceptual in nature and may vary from those shown when redesignation and subdivision applications are made. As well, portions of separate phases may be developed concurrently if there is sufficient demand and/or if servicing is made more efficient as a result.

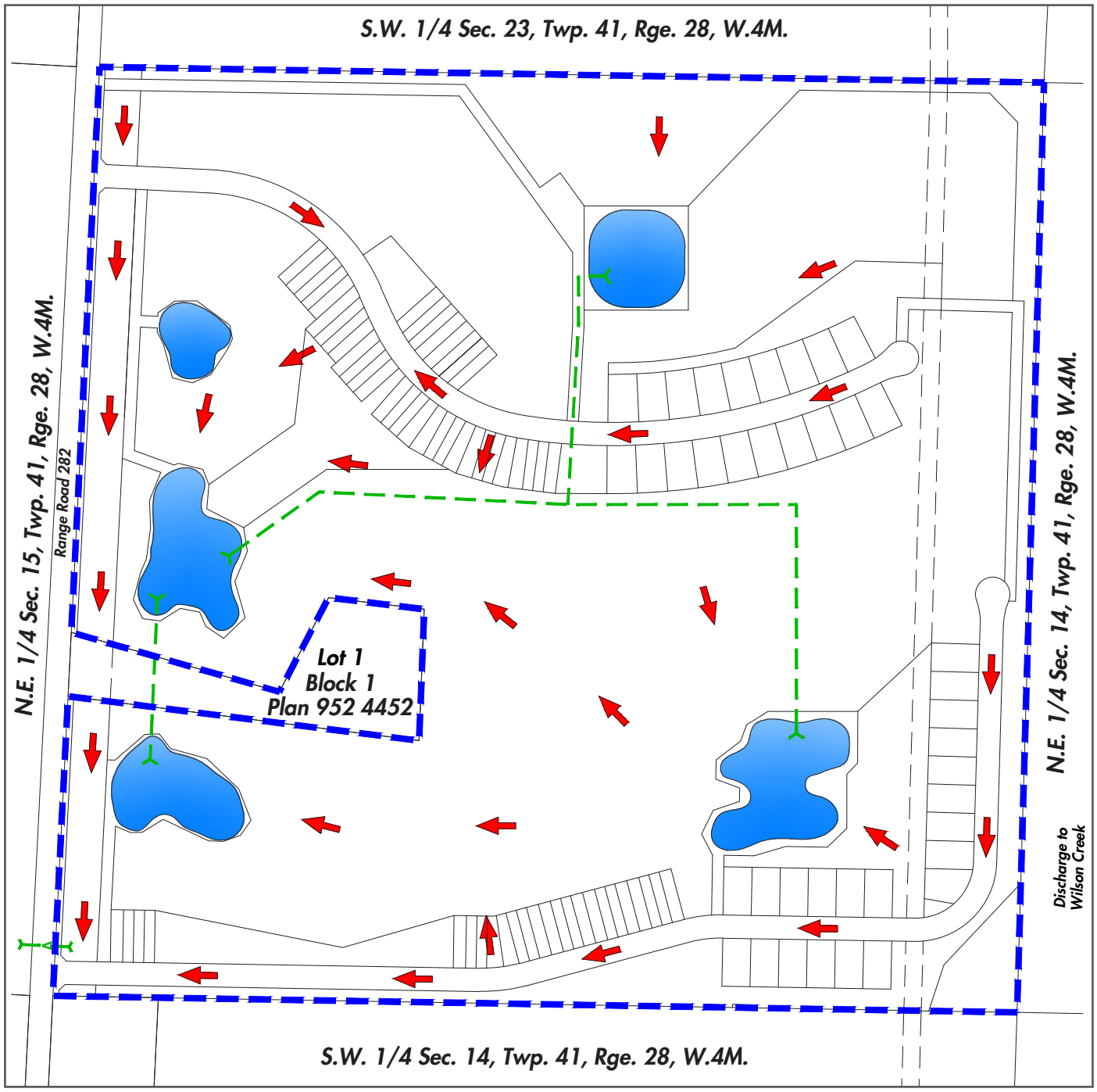
Land use redesignation will not be phased; all redesignation will occur at one time.

6.6 REDESIGNATION AND SUBDIVISION

Redistricting and subdivision applications, to conform to the land use designations described in this Outline Plan, will be undertaken as necessary. Guided by The Lacombe County Municipal Development Plan, and the Gull Lake Intermunicipal Development Plan; redesignation and subdivisions must conform to The Lacombe County Land Use Bylaw and all applicable statutory plans in addition to the informational requirements necessary for each application.

6.7 PLAN APPROVAL

Due to the Plan Area's location in the Gull Lake IDP area, prior to Plan Approval, the Lincoln Ranch Outline Plan will be circulated to the other three municipalities (Ponoka County, Summer Village of Gull Lake, and Summer Village of Parkland Beach) for comment.



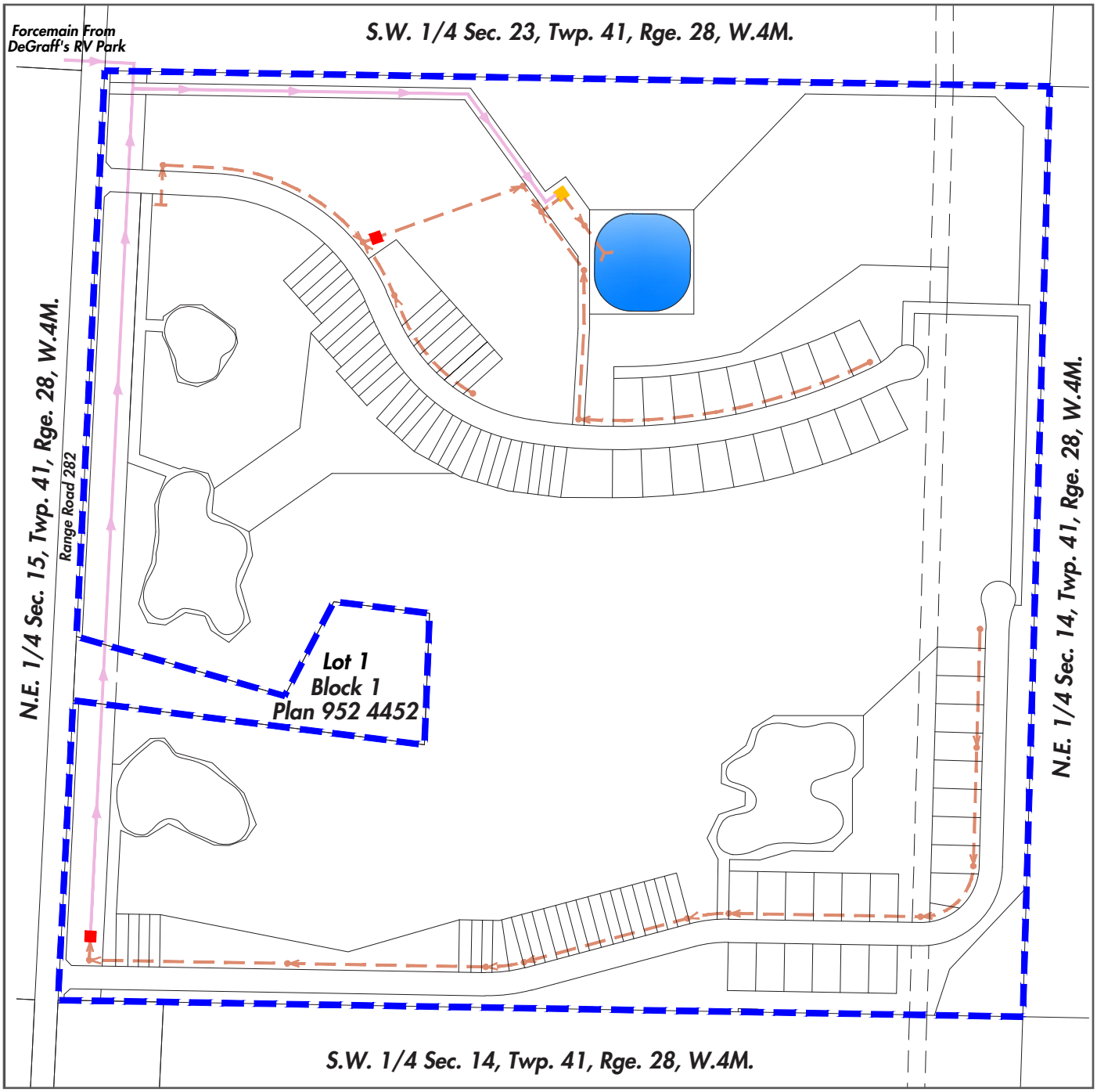
LEGEND

- Overland Drainage Flow
- Stormwater Management Facility
- Stormwater Servicing
- Outline Plan Boundary

Figure 9 - Stormwater Servicing

Stantec

Lincoln Ranch



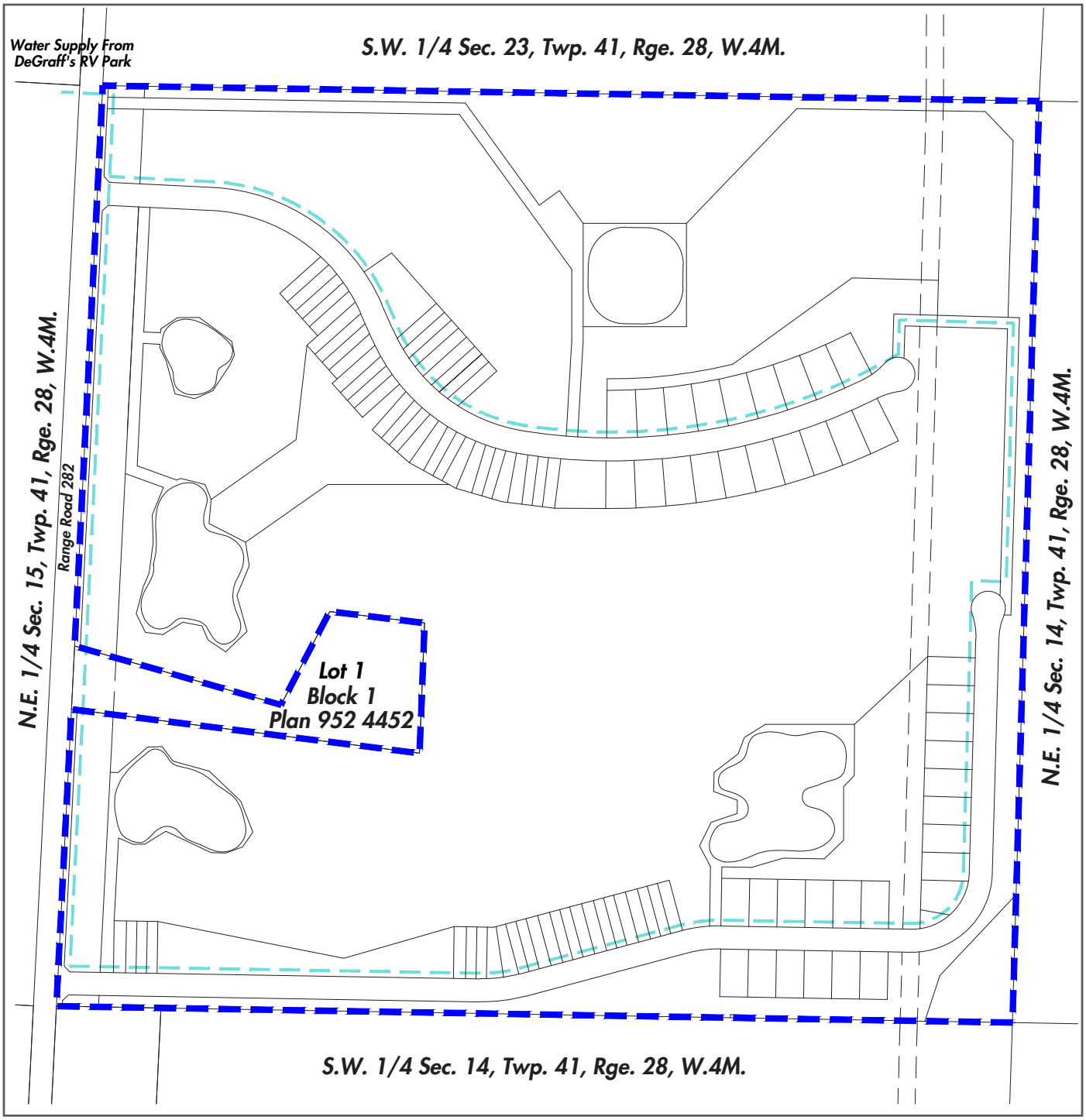
LEGEND

- Sanitary Sewer Servicing
- Sanitary Forcemain
- Lift Station
- Mechanical Treatment Facility
- Effluent Pond
- Outline Plan Boundary

Figure 10 - Sanitary Servicing

Stantec

Lincoln Ranch



LEGEND

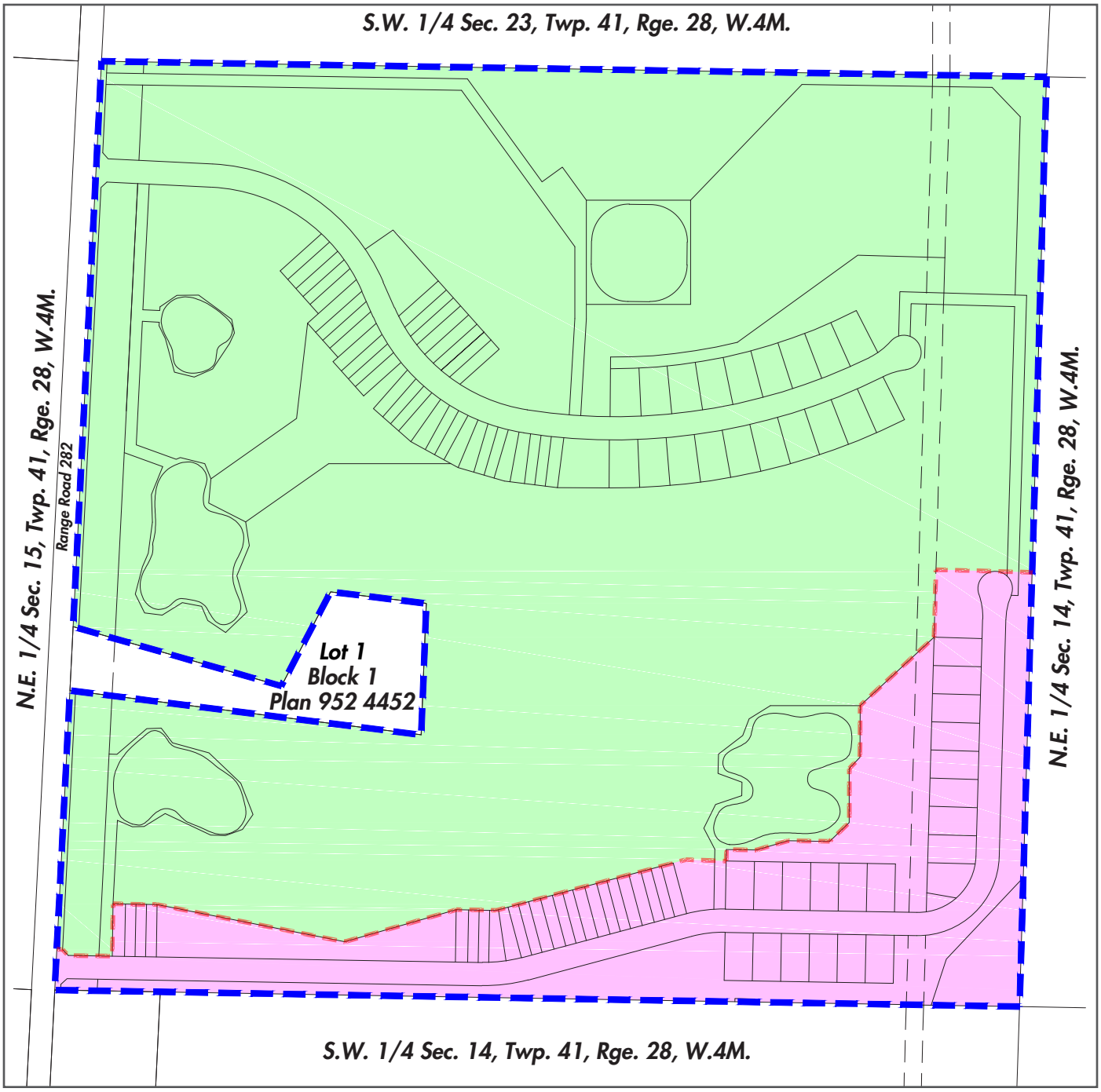
Water Servicing

Outline Plan Boundary

Figure 11 - Water Servicing

Stantec

Lincoln Ranch



LEGEND

- Phase One
- Phase Two
- Phase Boundary
- Outline Plan Boundary

Figure 12 - Phasing Plan

Stantec

Lincoln Ranch

Appendix A

Communication Plan

A.1 IDENTIFYING THE ISSUE

The purpose of this Communication Plan is to determine primary and secondary stakeholders that may be impacted by the Lincoln Ranch development. It will then determine the most appropriate way to engage these stakeholders.

A.1.1 DEFINITION OF DESIRED STATE

Primary and secondary stakeholders are able to share their opinions regarding the Lincoln Ranch development with the Project Team in a timely, organized, and meaningful manner.

A.2 HISTORY

The Lincoln Ranch development will include a public golf course and 100 residential lots. This are is currently utilized for agricultural farming purposes; however, it has previously been identified in the Gull Lake IDP for residential development. There are also residential developments to the northwest and south of the Plan Area.

A.1.1 GULL LAKE INTERMUNICIPAL DEVELOPMENT PLAN'S VISION

The public consultation process undertaken for the Gull Lake IDP revealed strong agreement on a vision for Gull Lake. Participants wanted to see a lake where:

- Groundwater remains plentiful
- The quality of water in the lake is maintained, and if possible, improved
- Sewage from residences and recreational activities is managed in environmentally sensitive ways
- The lake level is stabilized at a level which maximizes recreational benefits
- There is a healthy, plentiful population of fish and wildlife
- Tree cover is preserved throughout the watershed
- Good farm land is reserved for agriculture, and farming continues to be an important part of the economy and the landscape
- New residential development has minimal environmental impact
- There is good public access to the lake
- Neighbours have opportunities for input into new developments

The IDP also contains a policy regarding continuing public input which states:

Developers are advised to involve neighbouring landowners in their planning as soon as possible, preferably one-on-one. This lets the developer explain the proposal and answer questions before they lead to baseless rumors.

A.3 STAKEHOLDERS

Stakeholders can be identified and categorized as follows:

A.1.1 PRIMARY

- Internal Stakeholders- Lacombe County
  - » Planning & Development Department
  - » Operations Department
  - » Environmental & Protective Services
  - » Lacombe County Council
- Other Approving Municipalities
  - » Ponoka County
  - » Summer Village of Gull Lake
  - » Summer Village of Parkland Beach

A.1.2 SECONDARY

- Adjacent Land Owners
- Government Agencies
- Alberta Environment and Sustainable Resource Development
- Alberta Transportation

A.1.3 TERTIARY

- Non-Governmental Organizations
  - » Cows and Fish- Alberta Riparian Habitat Management Society
  - » Gull Lake Water Quality Management Society
  - » Friends of Gull Lake Society
  - » Red Deer River Watershed Alliance
  - » Residents at Large

A.4 COMMUNICATION IMPLEMENTATION

A.1.1 GOALS

- Provide opportunities for all stakeholders to review the concept plan and provide input

A.1.2 OBJECTIVES

- Primary and secondary stakeholders receive formal invitation to engage in the review process.
- Tertiary stakeholder input is gathered subsequent to design, prior to Council review and approval.

A.1.3 TOOLS & TECHNIQUES

A variety of consultation tools and techniques will be utilized to gather input from stakeholders. These include, but are not limited to, the following:

- Project meetings with members of the Project Team and representatives from Lacombe County
- E-mail communications to provide updates and gather feedback on a day-to-day basis
- Formal circulation of the Outline Plan both to approving authorities and Governmental Agencies
- Mailed invitations to Public Information Session with concept plan and survey gathering input
- Public Information Session with one-on-one discussions regarding the overall concept plan

A.1.1 MATRIX

Stakeholder Group	Tool	Timeline
Primary	Project Meetings E-mail Communication Internal Circulation of Outline Plan Council Presentation	Ongoing
Secondary	External Circulation of Outline Plan Mailed Invitation to Public Information Session Public Open House Public Hearing at Council Meeting	Subsequent to Internal Review Prior to Council Approval
Tertiary	Public Advertisement for Public Information Session Public Open House Public Hearing at Council Meeting	Prior to Council Approval

A.5 PUBLIC INFORMATION SESSION SUMMARY

A complete summary of the Public Information Session was prepared and submitted to Lacombe County for their reference and review. The full summary included copies of advertisements, display materials, and copies of all feedback received. For the purpose of this summary, all supplemental items have been left out.

A.1.1 EVENT DESCRIPTION

The Lincoln Ranch Public Information Session was held at the Lincoln Hall, east of Gull Lake, on October 12 from 6-8pm. The format of the session included a formal PowerPoint presentation as well as display boards showcasing the proposed concept with representatives from the Development team and Lacombe County available to answer questions.

Attendance at the event was recorded at 36 not including persons directly involved in the project. Attendants at this session were primarily nearby landowners. The meeting adjourned at 8pm.

In addition to verbal questions gathered during the evening, feedback forms were distributed to those in attendance to gather formal comments. The Developer and Lacombe County's administration accepted these additional comments for 14 days following the open house.

A.1.2 ADVERTISING

Advertising for this event was placed on Lacombe County's website's Lacombe County News; in addition, information packages were sent by the County to landowners within a 1.0km radius of the Plan Area.

All information regarding the Lincoln Ranch development was placed on the Lacombe County website for public access and review.

A.1.3 COMMENTS AND CONCERNS

The following is considered to be a true and accurate description of the comments and concerns heard throughout the evening.

General

Attendees were generally happy with the proposed development.

Recreation

Some attendees expressed concern regarding the introduction of new residents into the area and thus an increase in the amount of off-highway recreation users (snowmobiles through ditches, dirt bikes, etc).

*The use of recreational vehicles is regulated through **Lacombe County Bylaw No 1137/11 Off-highway Vehicle Bylaw** and is enforced by County Peace Officers.*

Many attendees discussed wanting to see more public amenities on the east side of Gull Lake; specifically, a boat launch. Stories were shared about how Lacombe County potentially had planned a boat launch for this area in the past.

This request was discussed with Lacombe County and it was agreed that off-site levies paid by the Developer would be used to support the construction of such amenities.

Traffic

Concerns expressed regarding increased traffic west of the Plan Area.

Increased traffic surrounding the Plan Area was addressed through the Lincoln Ranch TIA.

Golf Course

One attendee expressed concern regarding the potential success of a golf course.

Policing

One attendee expressed concern regarding the introduction of so many residents without additional policing in the area.

Policing in this area is handled by Lacombe County Peace Officers and the RCMP.