OCT
2022

WHEATLAND COUNTY

DE HAVILLAND FIELD AREA CONCEPT PLAN

Submitted on
OCTOBER 2022

Submitted to
WHEATLAND COUNTY

Prepared by
B&A

De Havilland Field is a once in a lifetime opportunity to build a new aerospace industry in Southern Alberta. It will be strategically located within the heart of Wheatland County along Highway 1. The main anchor of De Havilland Field will be De Havilland Aircraft company of Canada. De Havilland will create a comprehensive array of aerospace facilities including manufacturing, aircraft assembly, maintenance and repair, logistics and customer support. The facilities will be supported by a dynamic office campus and an aerodrome that will accommodate the delivery of completed aircraft. The aviation business park and aerodrome will be purposefully designed to attract and cluster a broad range of aviation supply chain partners, other aviation aerospace companies, and related spin offs. De Havilland field will support technological innovation, employment, and economic diversification in Alberta's aviation industry.

WHEATLAND COUNTY

DE HAVILLAND FIELD AREA CONCEPT PLAN

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1.0

+ VISION & PRINCIPLES

1.1 INTRODUCTION

The De Havilland Field Area Concept Plan (ACP) comprises 598.4 hectares (1,478.7 acres) of land located in the western portion of Wheatland County, along Highway 1 and between the Town of Strathmore and the City of Chestermere. It is intended that Plan Area accommodate an aircraft manufacturing facility and an associated business park made up of industrial and commercial uses. The ACP was prepared to guide the development of the Plan Area by providing direction on the land uses, transportation network and servicing facilities. This ACP is subsidiary to Wheatland County's Municipal Development Plan and the West Highway 1 Area Structure Plan (ASP).

1.2 VISION

De Havilland Field is a once in a lifetime opportunity to build a new aerospace industry in Southern Alberta. It will be strategically located within the heart of Wheatland County along Highway 1. The main anchor of De Havilland Field will be De Havilland Aircraft company of Canada. De Havilland will create a comprehensive array of aerospace facilities including manufacturing, aircraft assembly, maintenance and repair, logistics and customer support. The facilities will be supported by a dynamic office campus and an aerodrome that will accommodate the delivery of completed aircraft. The aviation business park and aerodrome will be purposefully designed to attract and cluster a broad range of aviation supply chain partners, other aviation aerospace companies, and related spin offs. De Havilland field will support technological innovation, employment, and economic diversification in Alberta's aviation industry.

1.3 PRINCIPLES

The following principles provided a foundation for the preparation of the De Havilland Field Area Concept Plan:

+ **Synergies:** The business park design will generate synergies and networking opportunities between the various aviation, industrial and commercial uses and De Havilland's various business industries.

+ **Sensitive Design:** The business park will be built in a manner that is respectful of its surrounding context by incorporating design features that mitigates impacts on neighbours while establishing a prominent presence along adjacent roads.

+ **Efficiency:** The road network will offer multiple routes to move vehicles efficiently through the business park while establishing safe connections with the surrounding road system.

+ **Servicing:** De Havilland Field will be a fully serviced business park that incorporates reliable water, sanitary and stormwater systems that ensures the continuous operation of commerce.

FIGURE 1: CONCEPT PLAN

2.0

+ CONTEXT

2.1 LOCATION

The Plan Area is in the western portion of Wheatland County. The Town of Strathmore is approximately 11 kilometres to the east, the City of Chestermere is approximately 13 kilometres to the west and the Hamlet of Cheadle is 8 kilometres to the southeast. Other nearby jurisdictions include Rocky View County to the west and the Siksika First Nation which is 37 km to the southeast. In terms of transportation routes, Highway 1 bisects the subject site east-west while Highway 797 is to the west and Highway 24 is to the east.

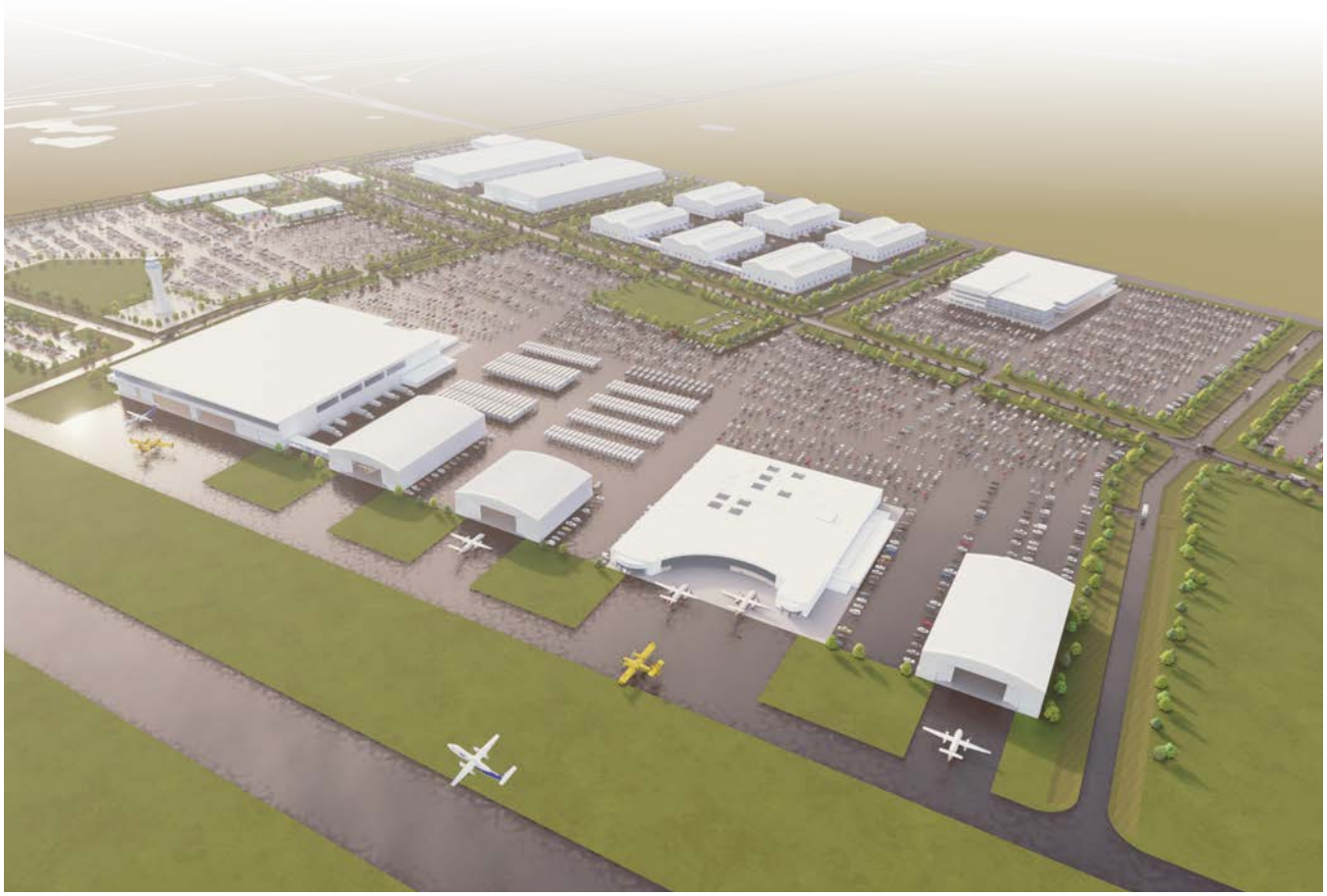
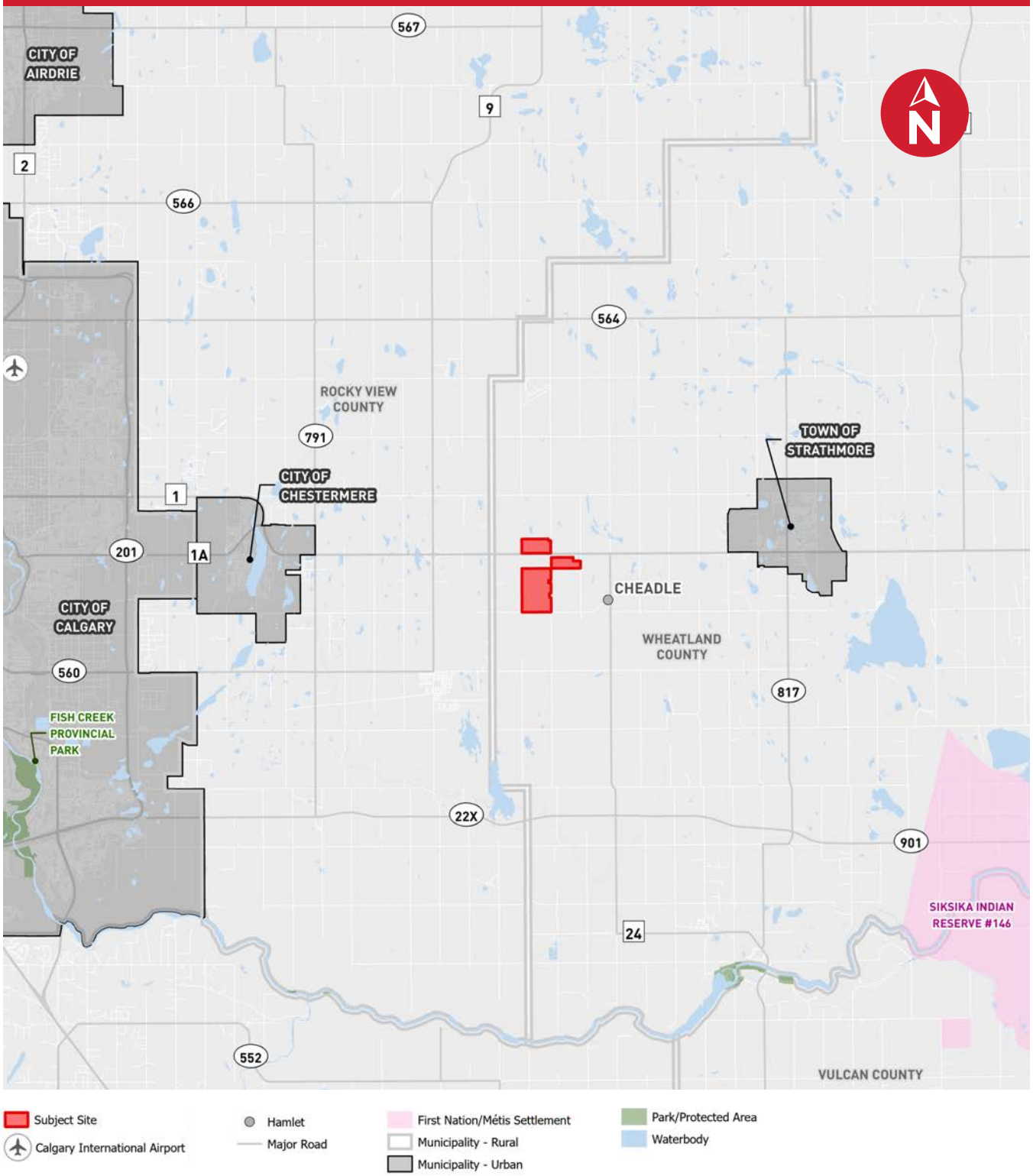


FIGURE 2: LOCATION



2.2 SITE DESCRIPTION

The Plan Area contains approximately 598.4 hectares (1,478.7 acres) and consists of three development cells located on the north and south sides of Highway 1. The following provides the legal description and size of each of the parcels within each cell:

TABLE 1: LEGAL DESCRIPTION

Property Description	Area	
	ha	ac
Cell 1	384.6	950.3
SW 8-24-26 W4M	64.8	160.0
SE 8-24-26 W4M	62.7	154.9
NW 5-24-26 W4M	64.8	160.0
NE 5-24-26 W4M	62.7	154.9
SW 5-24-26 W4M	64.8	160.2
SE 5-24-26 W4M	64.8	160.2
Cell 2	89.3	220.8
NW 9-24-26 W4M	48.7	120.4
NE 9-24-26 W4M	40.6	100.3
Cell 3	124.5	307.6
SW 17-24-26 W4M	63.0	155.8
SE 17-24-26 W4M	61.5	151.9

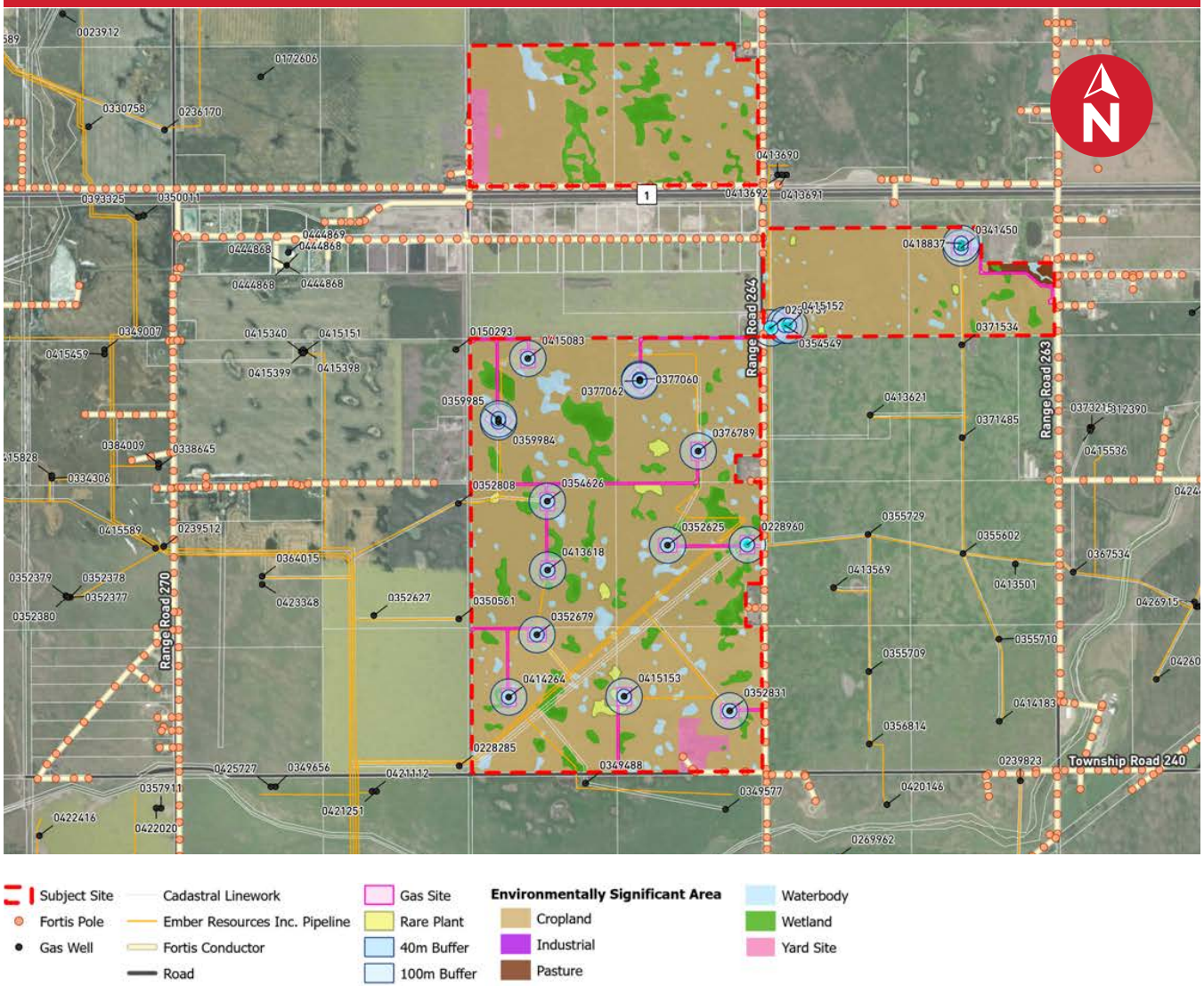
Note: Areas are as per the land title and subject to change upon confirmation at subdivision.

FIGURE 3: PARCEL BOUNDARIES

2.3 EXISTING CONDITIONS/FEATURES

The Plan Area consists of cultivated agricultural land with intermittent watercourses, ephemeral waterbodies and marshes distributed throughout. A gently rolling topography characterizes the Plan Area with the land sloping down predominantly west to east. Within the Plan boundaries, there are nineteen active gas wells. In addition to the gas wells, there are sixteen high pressure natural gas pipelines situated within the Plan Area. A yard site is located within Cell 1 and another within Cell 3.

FIGURE 4: EXISTING FEATURES



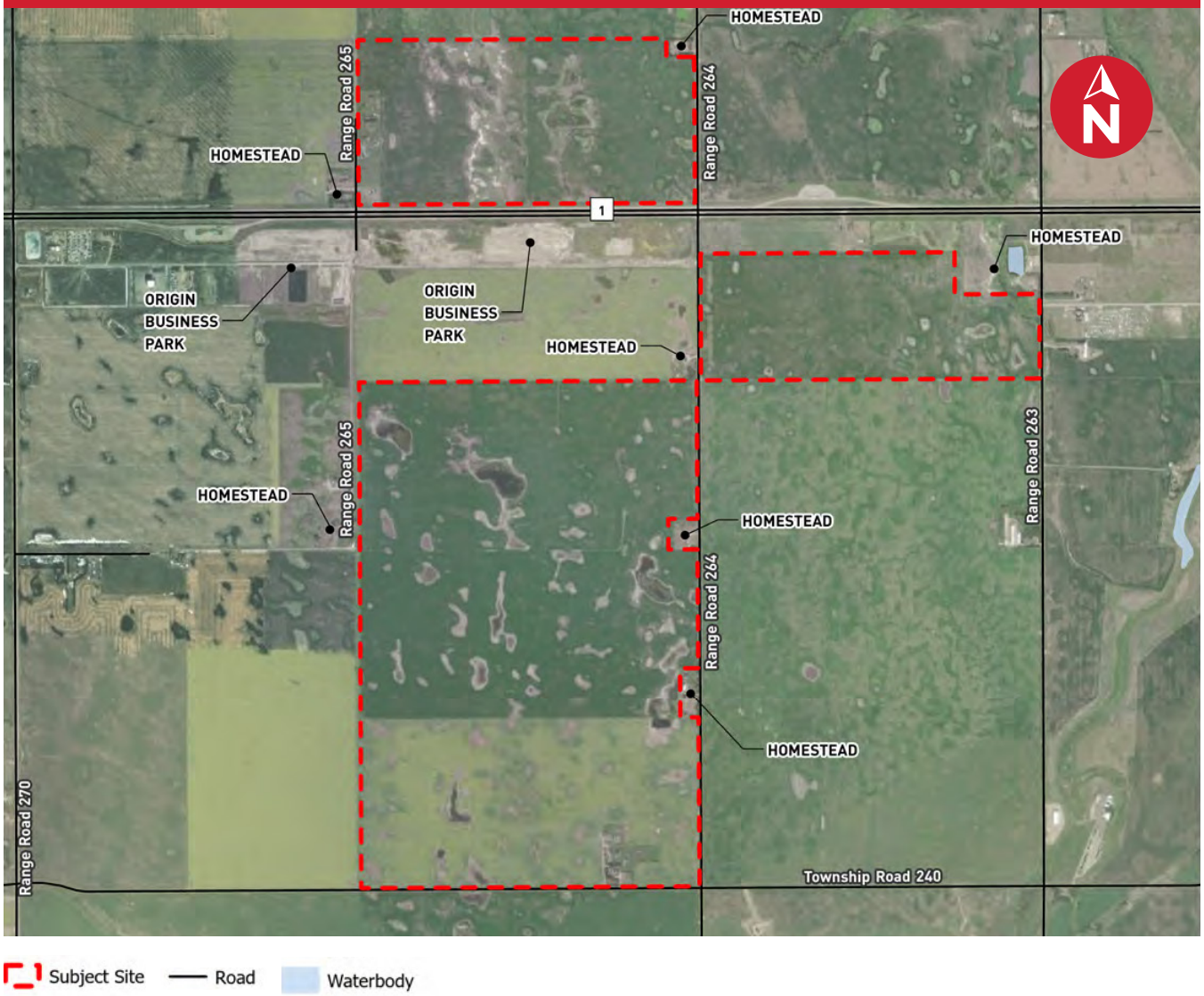
2.4 SURROUNDING CONTEXT

A variety of external uses surrounding the subject site. Cell 1 is bound by Range Road 264 to the east, Township Road 240 to the south and Range Road 265 to the west. Two homesteads are located to the west and one homesteads is located to the east. The surrounding area is mainly comprised of agricultural lands with an existing business park located to the north.

Cell 2 is bound by Range Road 263 to the east and by Range Road 264 to the west. A homestead is located to the northeast while the existing Origin Business Park is located northwest of the cell. To the north and south is land being used for agricultural purposes.

Cell 3 is bounded by Range Road 264 to the east, Highway 1 to the south and Range Road 265 to the west. A homestead is located northeast of the cell and another is located to the southwest. The lands to the north, west and east are mainly used for agricultural purposes. South and across Highway 1 is the existing Origin Business Park.

FIGURE 5: SURROUNDING CONTEXT



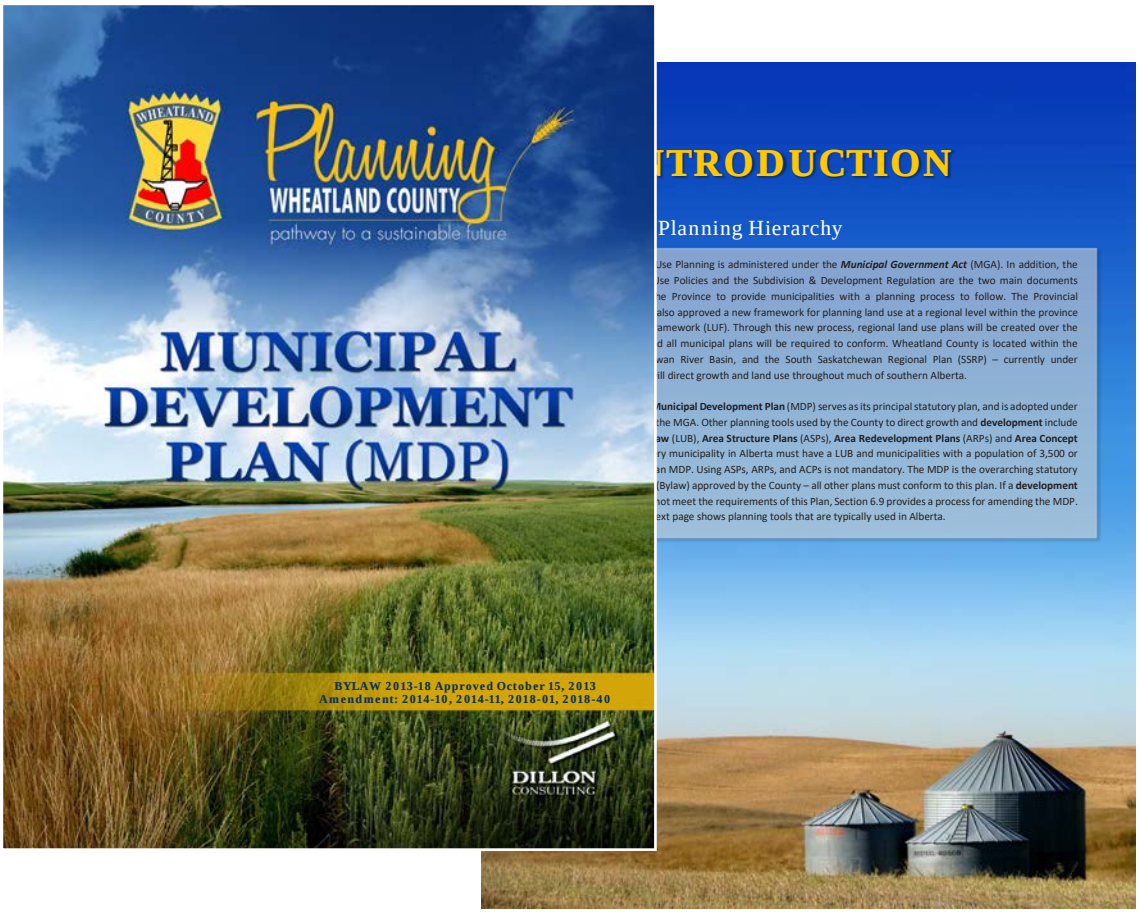
2.5 POLICY CONTEXT

The Wheatland County Municipal Development Plan and the West Highway 1 Area Structure Plan establishes a policy framework for the Plan Area. Outside of policy, the Wheatland County Land Use Bylaw regulates development of the Plan Area. The following identifies the policy direction and requirements of each document with respect to the development of the Plan Area.

Wheatland Municipal Development Plan

The Wheatland County Municipal Development Plan (MDP) is a policy document adopted by Council that provides general direction for growth over the next 30 years. The MDP recognizes the benefits of commercial and industrial development and have identified designated areas for such development. The West Highway 1 Area Structure Plan (ASP) is a designated area for commercial and industrial development due to its site-specific suitability.

FIGURE 6: WHEATLAND MUNICIPAL DEVELOPMENT PLAN



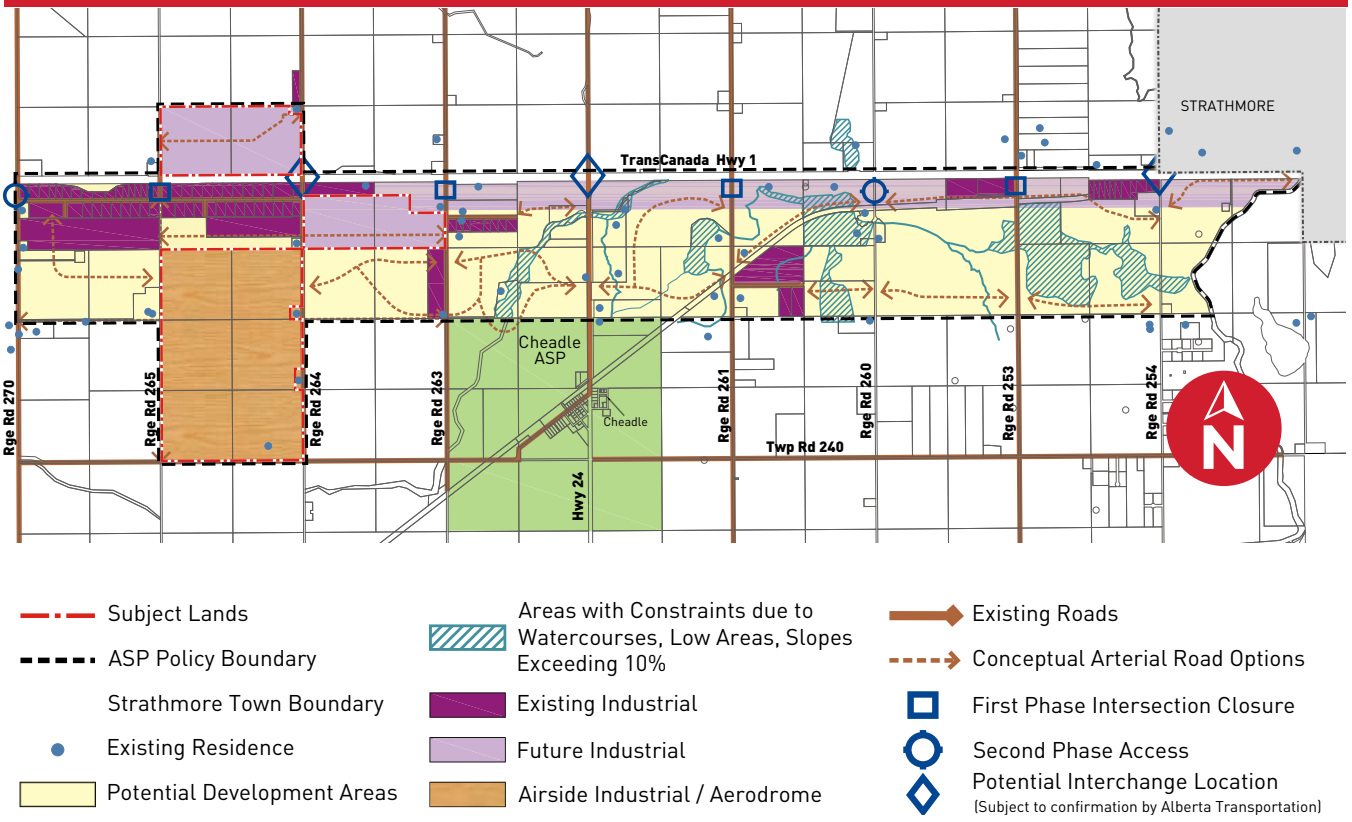
West Highway 1 Area Structure Plan

The West Highway 1 Area Structure Plan (ASP) provides a framework for the future subdivision and development of lands in Wheatland County along Highway 1 between Rocky View County and the Town of Strathmore. The Plan Area is bounded to the north by Highway 1, to the west by the Municipal District of Rocky View, to the east by the Western Irrigation District canal. The Plan Area extends south of Highway 1 by approximately 1.6 kilometres. Portions of the Area Concept Plan are identified as:

- Potential Development Area;
- Potential Development Areas with Access Constraints; and
- Conceptual Arterial Road Options

The remainder of Area Concept Plan is outside of the ASP boundary. The ASP needs to be amended to incorporate the entirety of the Area Concept Plan.

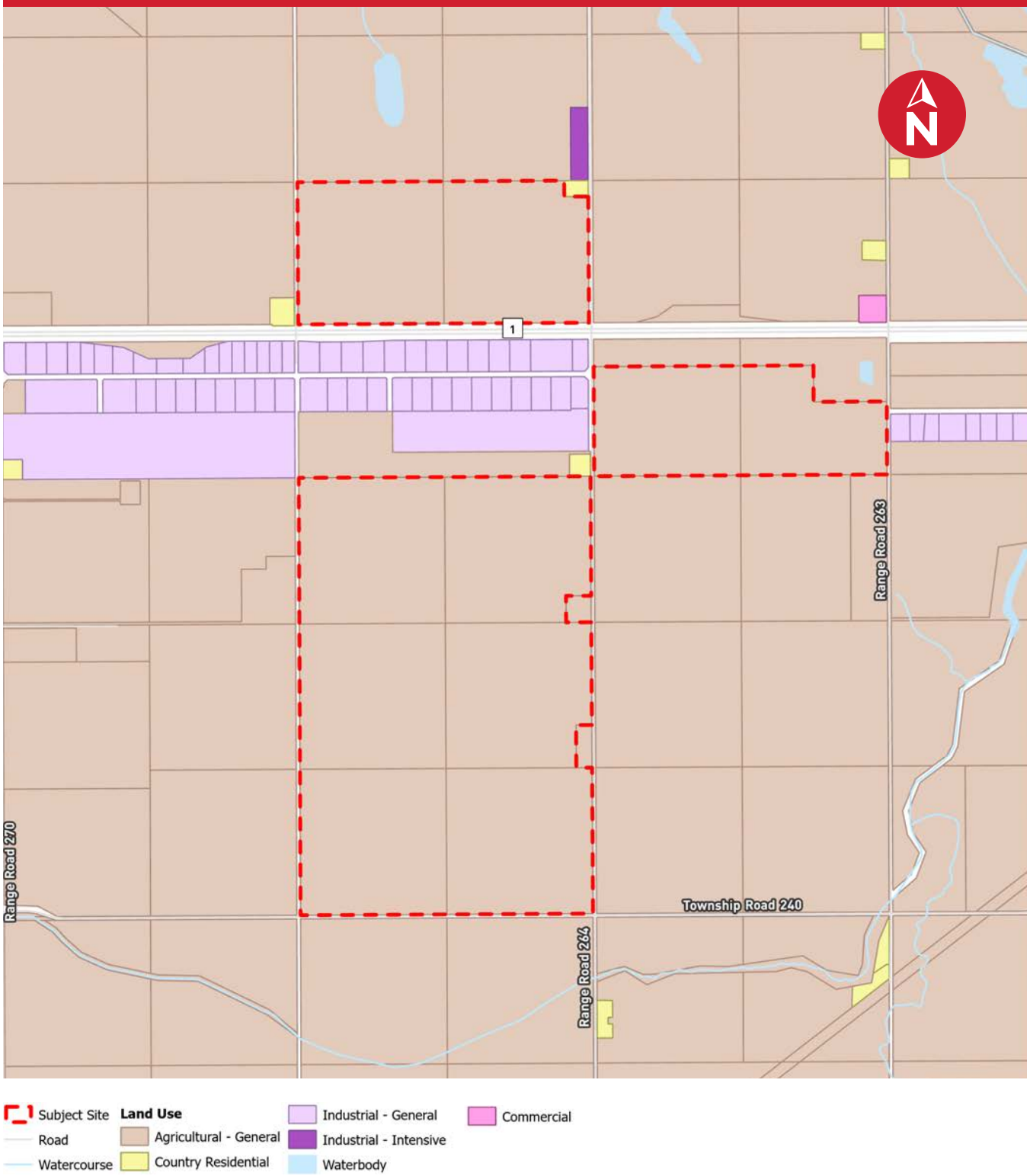
FIGURE 7: PROPOSED WEST HIGHWAY 1 AREA STRUCTURE PLAN AMENDMENT



2.6 LAND USE CONTEXT

The Plan Area is designated Agricultural General District (AG) under the Wheatland County Land Use Bylaw. The purpose of the district is to promote and accommodate agricultural land and preserve the agrarian character of the County. The district allows for a variety of agricultural activities as well as supportive uses. Industrial development is not allowed under this district.

FIGURE 8: EXISTING LAND USE DISTRICTS



3.0

+ ENGAGEMENT

A public engagement strategy will be launched to garner feedback on the project from adjacent landowners and relevant stakeholders. It is anticipated that two rounds of public engagement will occur during the review process. Each round of engagement will culminate with an engagement summary report. The following timeline identifies how engagement will be integrated into the overall approval process.

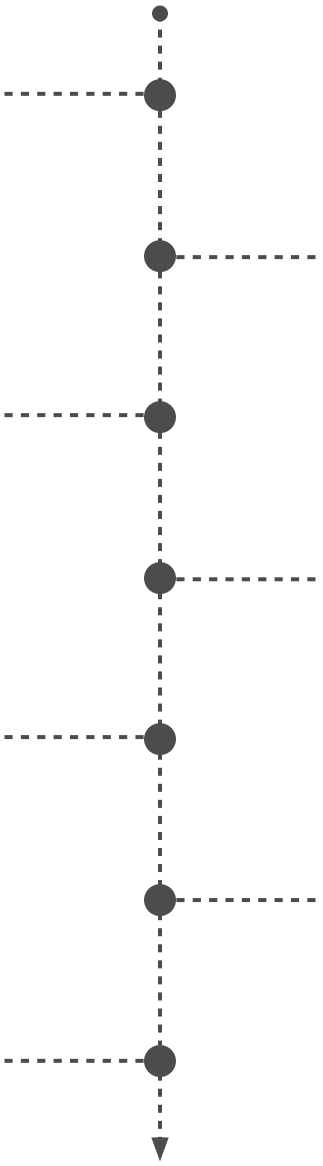
3.1 WHEATLAND COUNTY APPROVAL PROCESS

ANNOUNCEMENT
De Havilland Field announcement
September 21, 2022

INITIAL PUBLIC ENGAGEMENT
Official Wheatland County circulation of De Havilland Field Area Concept Plan and Land Use Amendment applications as well as first round of public engagement
Fall 2022

FINAL PUBLIC ENGAGEMENT
Final round of public engagement for De Havilland Field Area Concept Plan and Land Use Amendment applications prior to Wheatland County Council decision
Winter 2023

PUBLIC HEARING
Wheatland County Council's final readings and public hearing for the De Havilland Field Area Concept Plan and Land Use Amendment applications
Spring 2023



SUBMISSION OF APPLICATIONS
De Havilland Field Area Concept Plan and Land Use Amendment applications submission to Wheatland County
September 2022

UPDATES TO SUBMISSION
Updates to De Havilland Field Area Concept Plan and Land Use Amendment applications based on public feedback and circulation comments
Fall 2022 / Winter 2023

FIRST READING
Wheatland County Council's first reading of the De Havilland Field Area Concept Plan and Land Use Amendment applications
Spring 2023

+ DEVELOPMENT FRAMEWORK

The Plan Area has been divided into three development cells that group compatible and complementary land uses together.

4.1 CELL 1

The main anchor of Cell 1 will be De Havilland Aircraft company of Canada. De Havilland will create a comprehensive array of aerospace facilities including manufacturing, aircraft assembly, maintenance and repair, logistics and customer support. The facilities will be supported by a dynamic office campus and an aerodrome that will accommodate the delivery of completed aircraft. The aviation business park and aerodrome will be purposefully designed to attract and cluster a broad range of aviation supply chain partners, other aviation aerospace companies, and related spin offs.

The layout of Cell 1 is mainly governed by the length and orientation required for the safe landing and takeoff of critical aircraft. Variables that determine the length of the runway are the type of aircraft where larger aircraft typically require a longer runway. The orientation is determined by average wind speed, wind direction and type of aircraft where smaller aircraft are less tolerant to crosswinds. An aviation consultant determined that, after considering these variables, a runway length of 2,041 metres (6,698 feet) and an NNW-SSE orientation was optimal for the aircraft that De Havilland intends to land and takeoff from the site. The result is that the airfield divides Cell 1 into two halves. **De Havilland Aircraft of Canada Limited** is anticipated to be consolidated in the northeast portion of the cell. **Other aviation aerospace companies** will be situated in the southeast and west portions of Cell 1 where they can take advantage of access to the runway. The lots within Cell 1 are anticipated to be larger in size with their own private internal road networks with access to Range Road 264 and 265 and Township Road 240.

4.2 CELL 2

Cell 2 will accommodate uses that need less exposure to Highway 1 but closer proximity to the aviation components found in Cell 1. Similar to Cell 3, uses within Cell 2 are anticipated to included offices, warehouses, manufactures and distributors. Commercial uses such as gas stations, convenience stores, hotels and restaurants should also be anticipated closer to Highway 1. It is expected that the cell will be divided mainly into smaller industrial lots ranging in size from 0.8 ha to 1.6 ha (2 ac to 4 ac) with the odd larger lot to accommodate larger uses. In addition, a ready-mix concreate plant is expected to be built within Cell 2. The cell is to be divided into a semi-grid system of streets with access to Range Road 263 and 264.

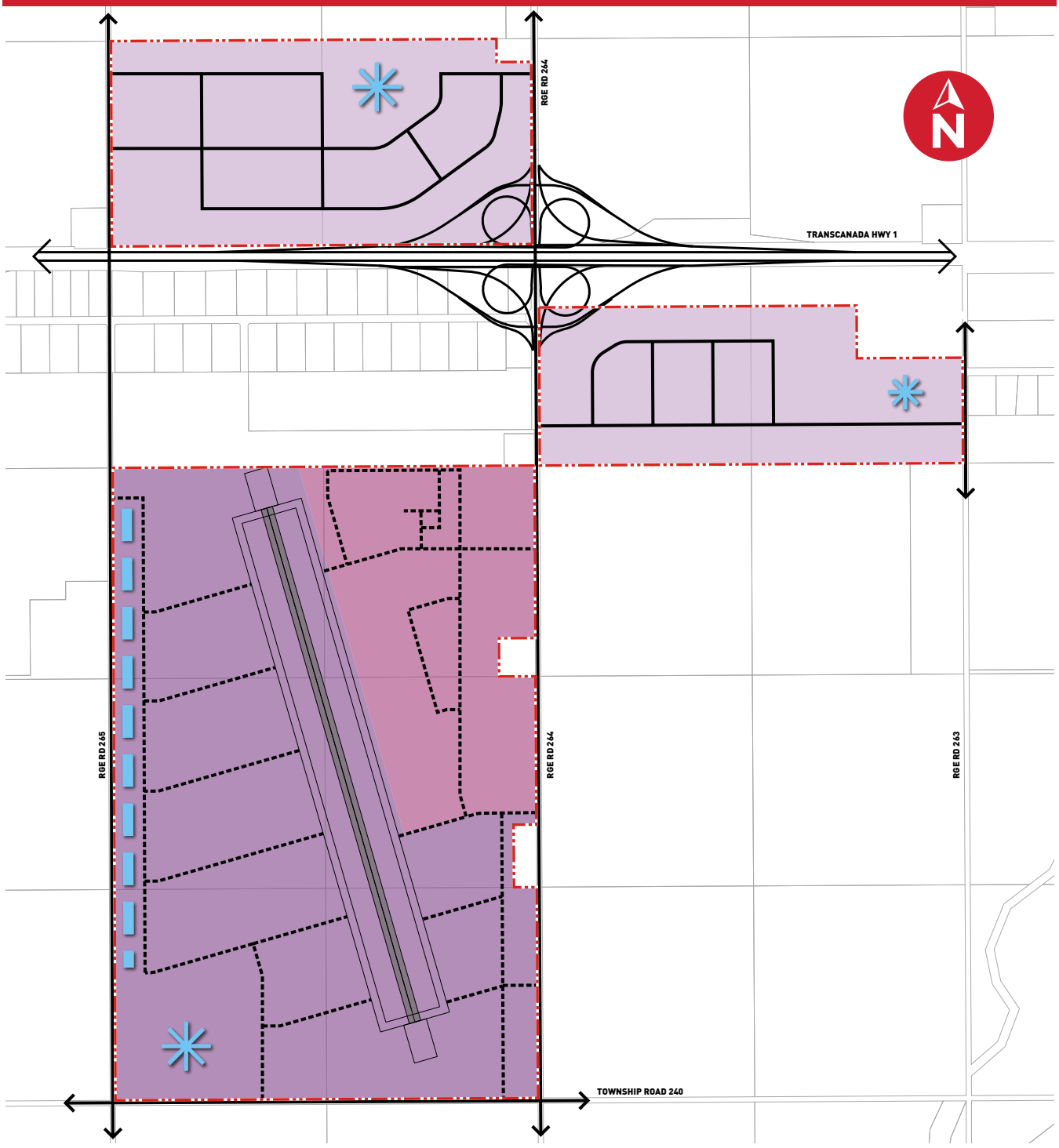
4.3 CELL 3

Cell 3 is well situated to accommodate businesses requiring exposure to the Highway 1 as well as a quick connection to aviation uses to the south via a future overpass. Uses within Cell 3 are anticipated to mainly included offices, warehouses, manufactures and distributors. Commercial uses such as gas stations, convenience stores, hotels and restaurants should also be anticipated and especially adjacent to Highway 1. It is expected that the cell will be divided mainly into smaller industrial lots ranging in size 0.8 ha to 1.6 ha (2 ac to 4 ac) with the odd lot being larger in size. The cell is to be divided into a semi-grid system of streets with access to Range Road 264 and 265.

Policy 4.3.1: Subdivision and development should generally comply with the Development Framework - Figure 9 recognizing that this Plan is intended to show the general nature of the subdivision and development and is subject to change at the subdivision and development permit stages.

Policy 4.3.2: Municipal Reserve dedication and/or cash-in-lieu of Municipal Reserve dedication is to be provided to the municipality in accordance with Section 666 of the Municipal Government Act.

FIGURE 9: DEVELOPMENT FRAMEWORK



5.0

+ LAND USES

To achieve the vision for this De Havilland Field, the Plan Area is proposed to be redesignated to provide for aviation, business, industrial, and commercial uses. The current Wheatland County Land Use Bylaw does not currently include a land use district that accommodates all the envisioned uses for the Plan Area. In this regard, a Direct Control district will need to be prepared for the Plan Area to accommodate these unique uses. It is intended that the Industrial General District (IG) and the Commercial Highway District (CH) serve as a basis for the preparation of the Direct Control district. The Direct Control district is to incorporate the Airport Operational Facility (Aerodrome) definition from the Land Use Bylaw. The following provides background on these portions of the Land Use Bylaw:

+ **Industrial General District (IG):** The purpose of this district to provide for light or medium industrial development that has minimal to no impact on adjacent landowners in terms of a nuisance effect. Applicable uses that this district accommodates include, but are not limited to, Industrial – Light, Industrial - Medium, Office, Outdoor Storage and Stockpile.

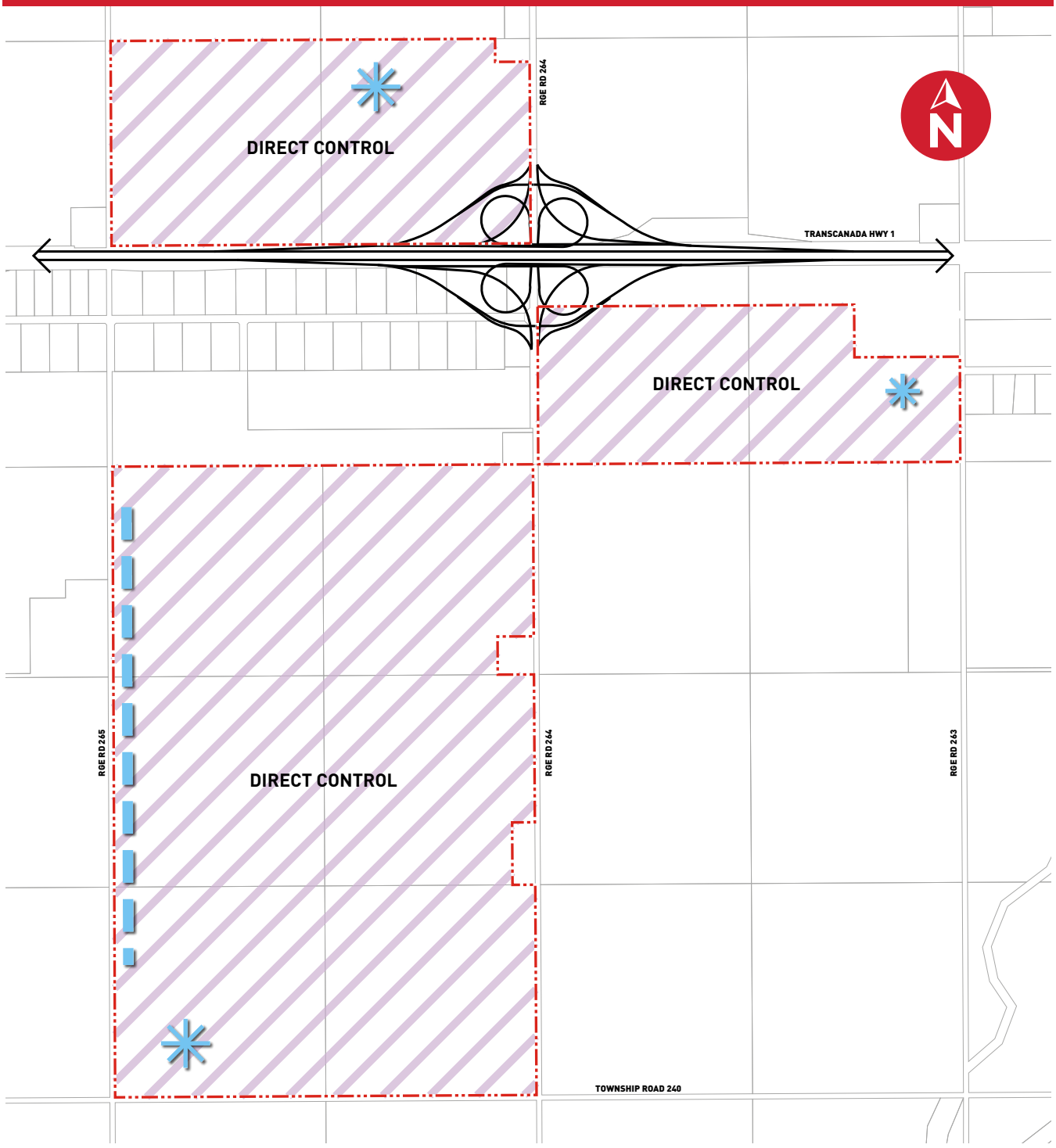
+ **Commercial Highway District (CH):** The purpose and intent of this district is to promote and accommodate commercial development adjacent to major transportation corridors in the County that provide services to residents and those travelling through the County. Applicable uses accommodated by this district include, but are not limited to, Commercial Storage, Restaurant, Truck Stop, Hotel and Retail Establishment.

+ **Airport Operational Facility (Aerodrome):** This use means the development on a site for the operation of an aircraft facility including facilities for landing / takeoff, facility maintenance, firefighting and safety equipment, offices related to the operation of the facility, utilities, parking areas and passenger facilities. Both public and private airstrips and operational facilities fall under this definition.

Policy 5.1: Amendments to the Land Use Bylaw shall generally comply with the Land Use Concept - Figure 10, recognizing that this Plan is intended to show the general nature of the land uses and is subject to refinement at the land use amendment stage.

Policy 5.2: A Direct Control land use district shall be prepared for the Plan Area to accommodate the aerodrome, aviation related facilities and industrial uses. Supporting commercial uses may also be incorporated into the Direct Control district.

FIGURE 10: LAND USE CONCEPT



6.0

+ INTERFACE

The following section provides approaches for future development to mitigate impacts on surrounding uses as well as establishing a prominent presence within Wheatland County.

6.1 AERODROME

Transport Canada document ***TP312: Aerodrome Standards and Recommended Practices – Land Aerodromes*** layout standards for aerodrome design. The standards form part of the overall safety specifications to satisfy the requirements of aerodrome certification. The Canadian government requires registration be gained before a new aerodrome can be constructed.

While aviation is a Federal jurisdiction, it is important to note that TP312 does incorporate height and setback limitations for structures in proximity of an aerodrome. Specifically, the Obstacle Limitation Surfaces (OLS) establish the limits that objects may project into the airspace associated with an aerodrome so that aircraft operations may be conducted safely. The OLS consists of the takeoff and approach surfaces, a transitional surface, and an outer surface. These surfaces extend both horizontally and vertically around the aerodrome, and they define the airspace that needs to be maintained free of obstacles. Much of the area under the OLS is typically located beyond the aerodrome property line. The dimensions of the OLS are based on the instrument or non-instrument runway system capable of accommodating, in this case, an Aircraft Group Number (AGN) IV aircraft. The resulting OLS is presented in Figure 11 and the associated height restrictions for structures in proximity of the runway.

The following identifies the horizontal setbacks requirements for structures from the runway and the associated height restriction:

- **Taxiway:**
  - Horizontal setback: 122 m from runway centreline to taxiway centreline
  - Corresponding maximum height: 0 m
- **Building with no apron:**
  - Horizontal setback: 159 m (122 m + 37 m) from runway centreline
  - Corresponding maximum height: 9.25 m above runway elevation
- **Building with single aircraft parked on apron**
  - Horizontal setback: 213 m (122 m + 37 m + 54m) from runway centreline
  - Corresponding maximum height: 22.5 m above runway elevation
- **Building with two aircraft parked on apron**
  - Horizontal setback: 245 m (122 m + 37 m + 86 m) from runway centreline
  - Corresponding maximum height: 27.0 m above runway elevation

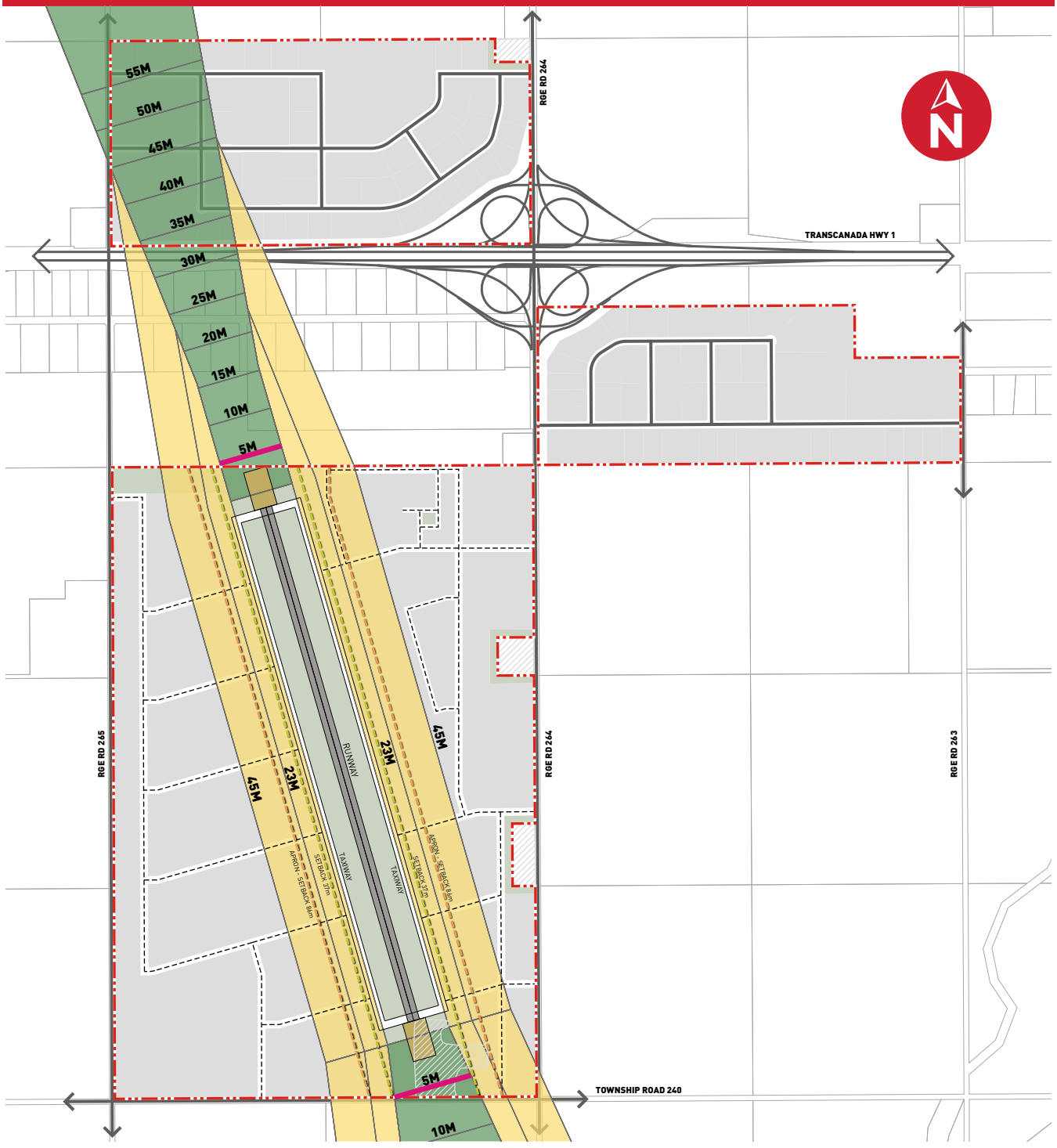
The Plan Area has been laid out in a manner that respects the OLS.

Policy 6.1.1: The developer shall obtain aerodrome registration from Transport Canada before construction of the aerodrome.

Policy 6.1.2: Within the Plan Area, the developer shall establish setback and height restrictions in proximity of the aerodrome that are in compliance with Transport Canada requirements and guidelines. These restrictions may be established through caveats on title or through other mechanisms acceptable to and applied by the Municipality.

Policy 6.1.3: Outside the Plan Area, the Municipality shall prepare a bylaw restricting the heights of buildings on properties in proximity to the aerodrome in accordance with the requirements and guidelines of Transport Canada.

FIGURE 11: OBSTACLE LIMITATIONS SURFACES



6.2 GAS WELLS & PIPELINES

There are nineteen active gas wells within the Plan Area. The landowner has been in contact with the operator to determine what options are available to accommodate the development. Should the wells be abandoned, a minimum setback of a five metre radius around the well must be maintained. The developer is strongly encouraged to also consider providing an access route to the well wide enough to allow vehicle entry to the site.

Should the wells remain active, the Alberta Government has issued Directive 56 which identifies setbacks between wells and surface improvements. Surface improvements such as industrial plants, aircraft runways and taxiways and institutional buildings must be setback a minimum of 100 metres from the well centre. Surface improvements such as surveyed roads and road allowances must be setback a minimum of 40 metres from the centre of the well head. In addition, the well lease boundaries, which is the total surveyed area planned for disturbance by the operator, will need to be respected.

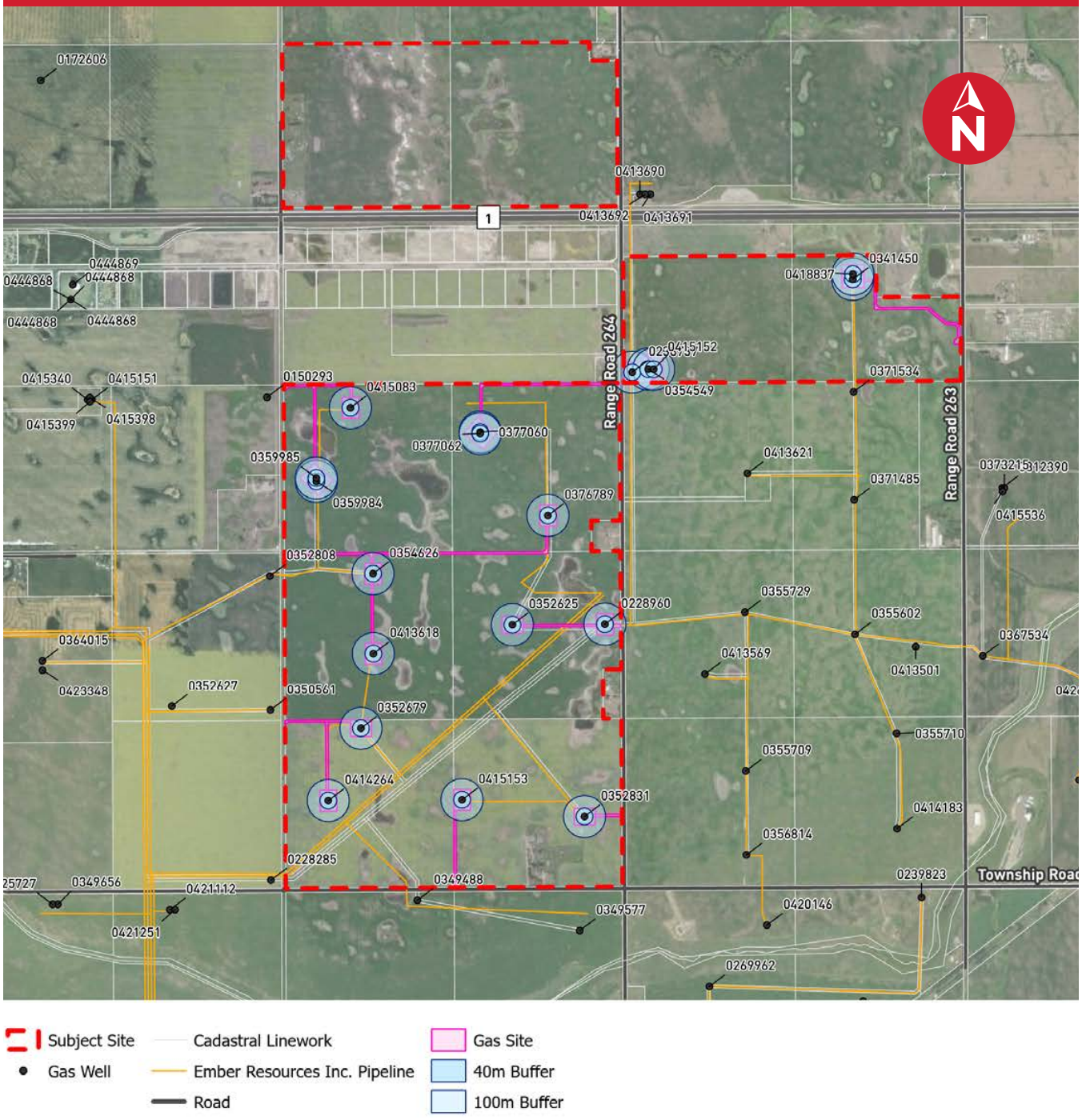
There are sixteen high pressure natural gas pipelines situated within the Plan Area. According to Alberta Environment, the pipelines contain no H2S. As per the Alberta Government's Directive 56, buildings only need to be situated outside of the pipeline right-of-way. Roads are typically allowed to cross the pipeline right-of-way when found acceptable by the operator.

It is noted that the layout of the development has taken into account well setbacks and pipelines. In this regard, the runway, development and streets have been located as to avoid conflict with gas wells and pipelines. Further assessment of the incorporation of the gas wells and pipelines will be undertaken at the detailed design stage.

Policy 6.2.1: Development shall be setback from active/abandoned gas wells and pipelines in accordance with applicable Provincial requirements.

Policy 6.2.2: Wells and pipelines shall be integrated into the subdivision design in order to allow for the continued operation and/or maintenance of the active/abandoned gas wells and pipelines.

FIGURE 12: GAS WELLS & PIPELINES



6.3 EXTERNAL ROADS

The Plan Area will be exposed to major regional roads including Highway 1 and important local roads including Township Road 240 and Range Road 263, 264 and 265. To ensure a respectable presence along these roads, development is to follow the ***Wheatland County Landscape & Screening Guidelines***. These guidelines identify the level of landscaping expected adjacent to a roadway depending on the type of development. Full screening is expected for garbage and waste areas and mechanical and electrical equipment. Partial screening is expected for outdoor storage areas, vehicle parking and storage, material stockpile areas and loading areas. Buffer screening is expected for parking lots and sales lots.

> **Policy 6.3.1:** Development shall comply with the Wheatland County Landscape & Screening Guidelines.

6.4 HOMESTEADS

There are three homesteads directly adjacent to and outside of the Plan Area. To limit the impact of the subject development on these residing on the homesteads, a setback of approximately 30-meter is proposed. The setback area will include landscaping that mitigates the impact of the development on the homesteads.

> **Policy 6.4.1:** Development should be setback a minimum of 30 metres from a homestead property line. Landscaping within the setback area should achieve at least partial screening as defined by the Wheatland County Landscape & Screening Guidelines.

6.5 DARK SKY

Part of the enjoyment of living in the County is the ability view the night sky and gaze at the stars. Furthermore, dark skies allow wildlife to continue their natural nocturnal functions. In this regard, the County's Land Use Bylaw includes requirements for reducing light pollution and the nuisance effect of bright lights for adjacent landowners, while protecting wildlife and wildlife habitat.

> **Policy 6.5.1:** Outdoor lighting for all development, including landscaping designs for public spaces, shall comply to dark sky lighting requirements of the Wheatland County Land Use Bylaw.

7.0

+ TRANSPORTATION

A robust and integrated transportation network will be key to ensuring the success of De Havilland Field. The various businesses will expect to move their goods and services quickly to various destination. Employees will want to reach their place of work in a timely manner. The safe and efficient movement of vehicles around and through the business park will be paramount in supporting networking opportunities and partnerships. To achieve such a transportation network, the following is envisioned:

- Building of a new interchange at Highway 1 and Range Road 264;
- Constructing, upgrading and/or widenings of Range Road 263, 264 and 265 and Township Road 240;
- Laying out a new internal road network for each development cell; and
- Realigning roads within and extending new roads to the Origin Business Park.

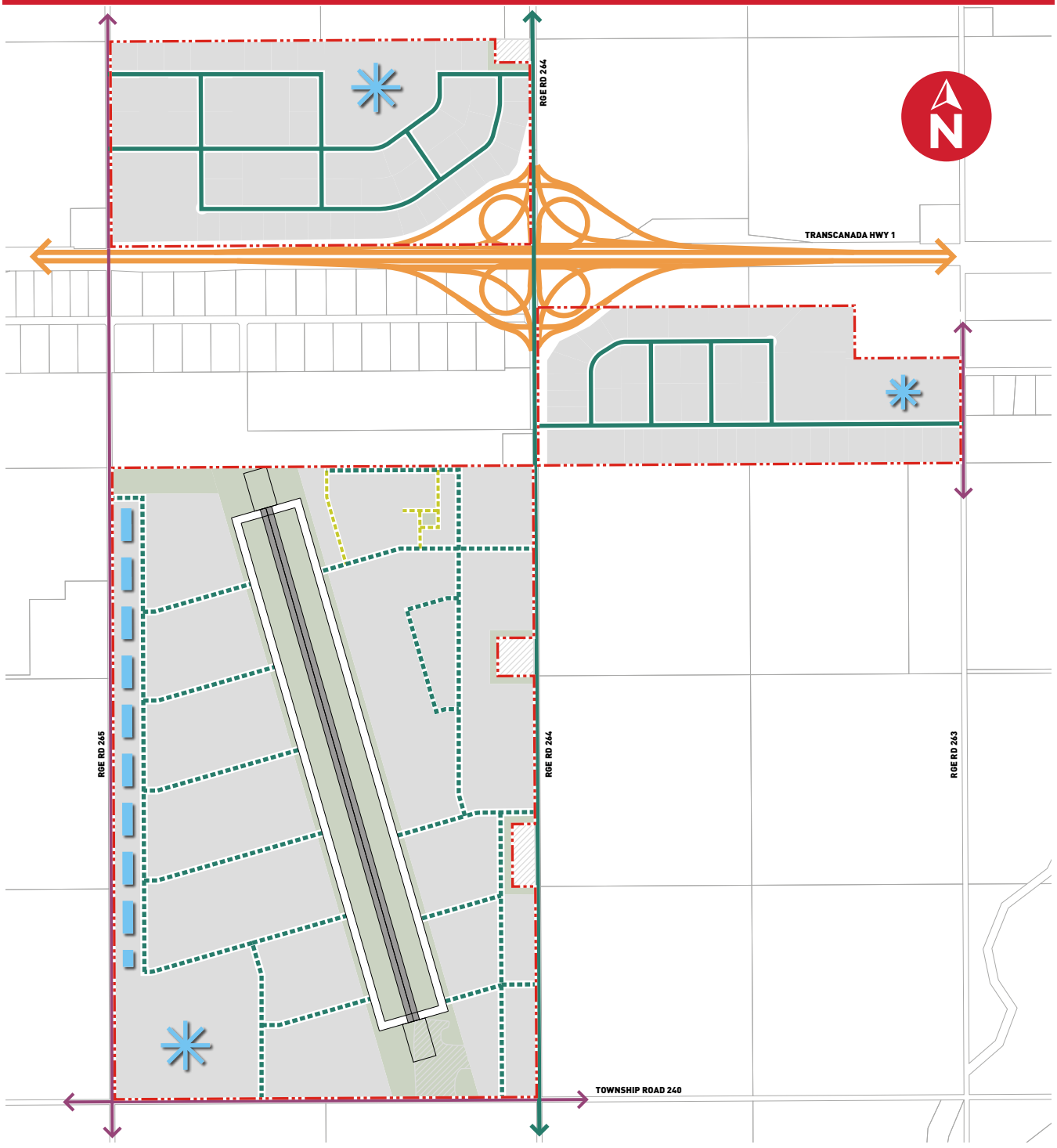
It is noted that a Transportation Impact Assessment (TIA) was completed for the Plan Area and a summary can be found in Section 10.4. The developer intends to work with the adjacent property owners, the County and the Alberta Government to realize the transportation network improvements and expansion as it relates to the subject development.

Policy 7.1.1: The road network shall be constructed to accommodate the anticipated traffic volumes as generally shown in Figure 13. The final road network, road cross-sections and right-of-ways required to accommodate the anticipated traffic volumes shall be determined at the subdivision stage.

Policy 7.1.2: Efforts should be made to retain existing right-of-ways in the upgrade of the road network to accommodate redevelopment. Where existing road right-of-ways need to be widened to accommodate the anticipated Plan Area traffic volumes, the Municipality may acquire the additional road right-of-way through the subdivision process, voluntary dedication by landowners and/or through other mechanisms available to the Municipality through the Municipal Government Act.

Policy 7.1.3: In considering future development applications in the Plan Area, where a proposed development may have a significant impact on the transportation network, a Traffic Impact Assessment or update may be required.

FIGURE 13: TRANSPORTATION NETWORK



8.0

+ SERVICING

8.1 WATER

The purpose of these policies is to provide for a suitable water distribution system designed to serve the urban development needs throughout the Plan Area. Three methods of water distribution have been considered for De Havilland Field:

- Recycling and reuse of stormwater for non-potable water supply purposes
- Construct a feeder-main, pump station and reservoir within the Plan Area to receive flows from the East Calgary Regional Waterline
- Construct a feeder-main, pump station and reservoir within the Plan Area to receive flows from the Langdon Water Works
- Alternatives including water wells, cisterns and diversion from the Bow River.

The final method of water servicing will be determined at the subdivision stage.

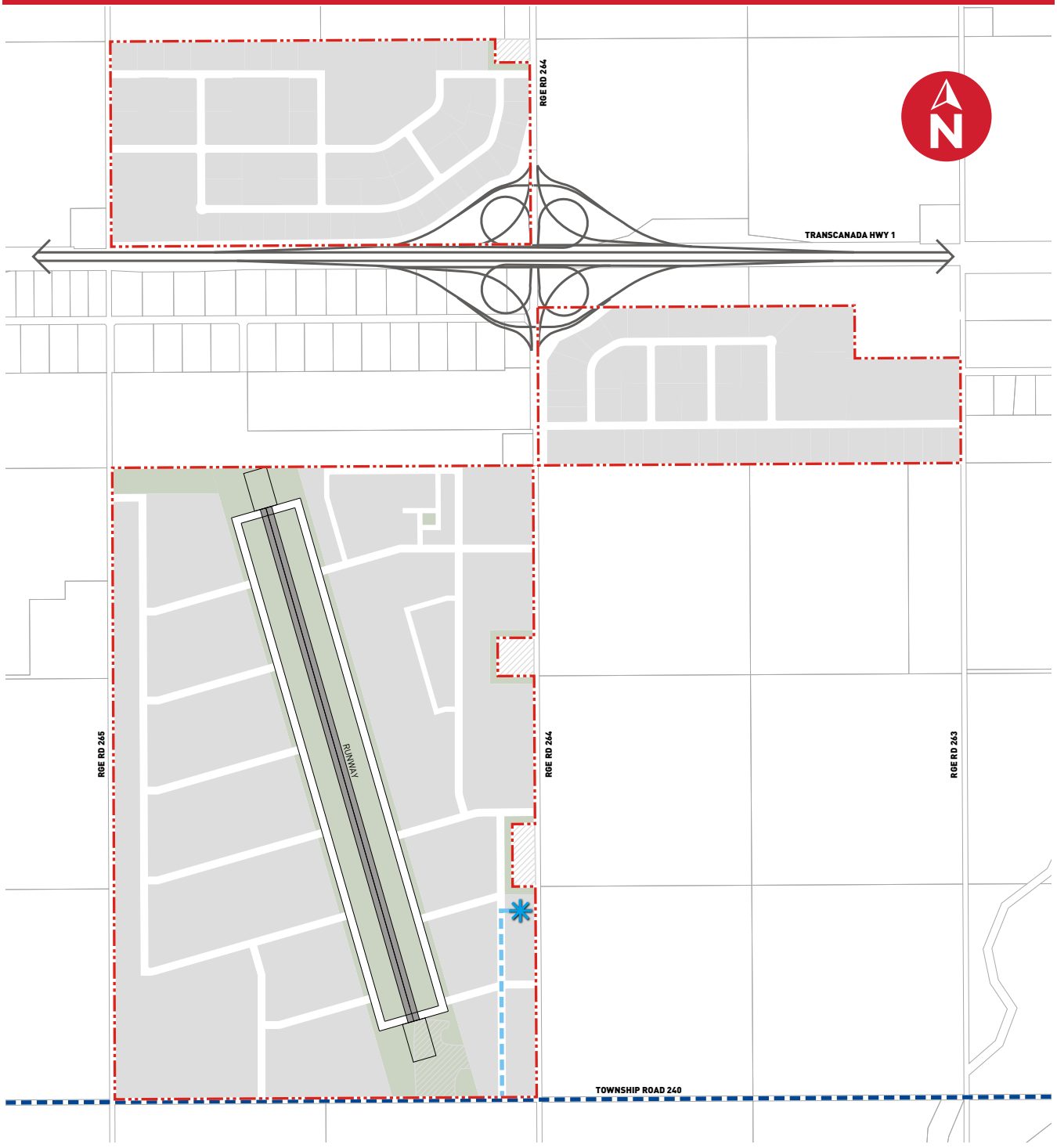
Policy 8.1.1: The preferred water servicing system for the Plan Area is identified on Figure 14 to adequately and efficiently serve the ultimate development of the Plan Area. The water servicing system may be modified at the subdivision stage to the satisfaction of the municipality.

Policy 8.1.2: Water conservation methods are encouraged to be incorporated into development including drought tolerant landscaping, water efficient plumbing fixtures and the capture and reuse of rainwater.

Policy 8.1.3: Interim servicing solutions should be adopted during the servicing of the initial phases at the discretion of the Approving Authority.

Policy 8.1.4: The Municipality may assist the Developer to obtain necessary utility rights-of-way to facilitate connections to municipal services.

FIGURE 14: PREFERRED WATER NETWORK



8.2 SANITARY

The purpose of these policies is to provide for a suitably designed sanitary sewer to service the urban development needs throughout the Plan Area. Six methods of sanitary distribution have been considered for De Havilland Field:

- Constructing a new wastewater treatment facility within the Plan Area and irrigating crops with the treated effluent.
- Constructing a force main to connect with the existing Langdon wastewater treatment facility.
- Constructing a force main to connect with the existing Strathmore wastewater treatment facility.
- Constructing a force main to connect with the existing Calgary wastewater treatment facility via the Chestermere lift station.
- Constructing a new wastewater treatment facility within the Plan Area and discharging into the Bow River via a new force main.
- Constructing a new wastewater treatment facility within the Plan Area and discharging into Weed Lake.

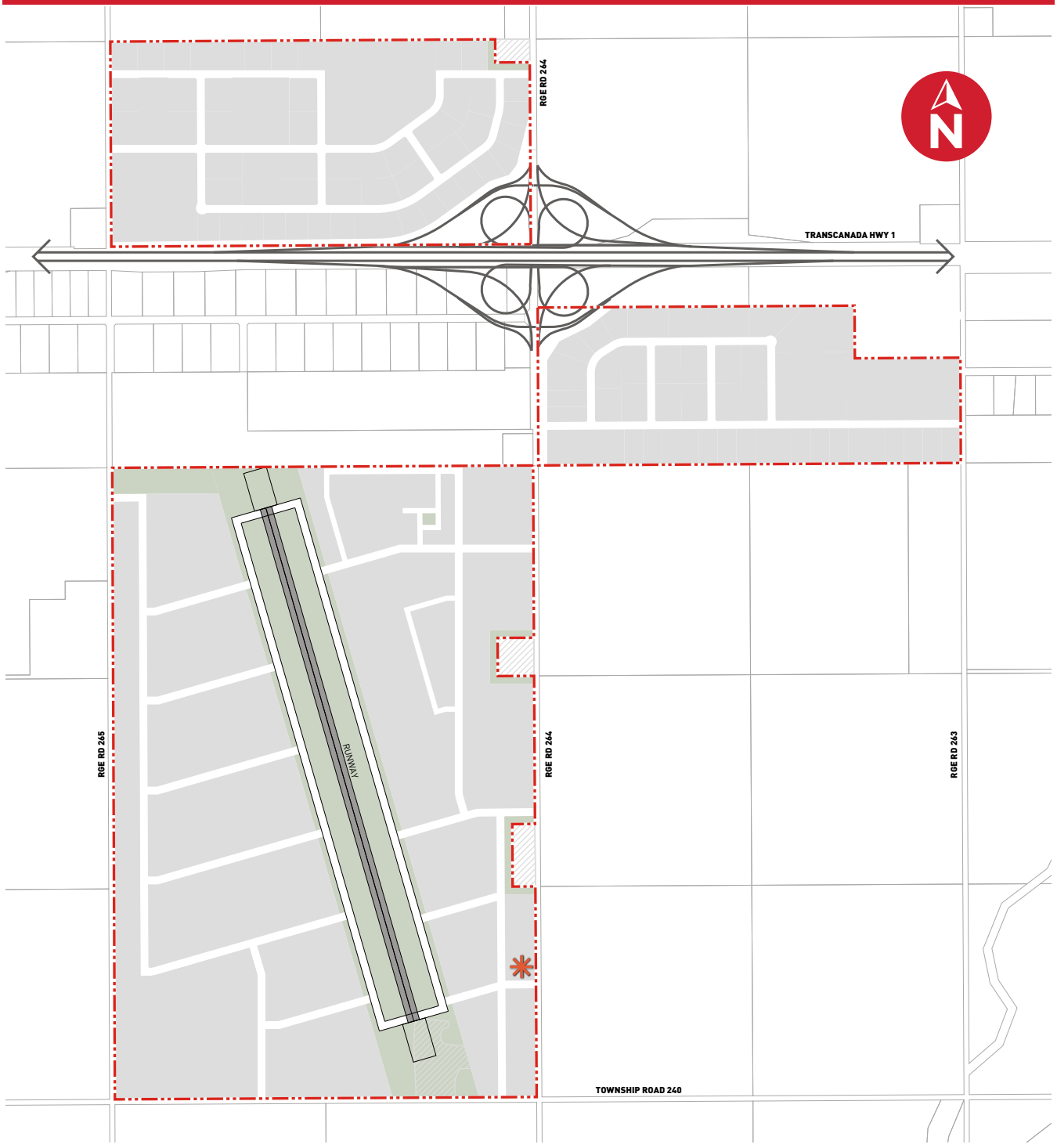
The final method of sanitary servicing will be determined at the subdivision stage.

Policy 8.2.1: The preferred sanitary servicing system for the Plan Area is identified on Figure 15 to adequately and efficiently serve the ultimate development of the Plan Area. The water servicing system may be modified at the subdivision stage to the satisfaction of the municipality.

Policy 8.2.2: Interim servicing solutions should be adopted during the servicing of the initial phases at the discretion of the Approving Authority.

Policy 8.2.3: The Municipality may assist the Developer to obtain necessary utility rights-of-way to facilitate connections to municipal services.

FIGURE 15: PREFERRED SANITARY NETWORK



Subject Lands

Wastewater Treatment Facility

Note: Treated effluent to be applied to crops

8.3 STORMWATER

The purpose of these policies is to provide for a suitably designed stormwater management system that will serve the ACP area. Five methods of stormwater management have been considered for De Havilland Field:

- Evaporation
- Onsite irrigation
- Mechanical evaporation
- Constructing a force-main to the Co-operative Stormwater Management Initiative regional stormwater management system
- Constructing a force-main to the Weed Lake Ditch

The final method of stormwater management will be determined at the subdivision stage.

Policy 8.3.1: The preferred stormwater management system for the Plan Area is identified on Figure 16 to serve the ultimate development of the Plan Area adequately and efficiently. The stormwater management servicing system may be modified at the subdivision stage to the satisfaction of the Municipality.

Policy 8.3.2: Figure 16 identifies the ultimate stormwater management facility locations. The shape, size and configurations of each facility shall be determined at the applicable subdivision stage to meet required stormwater management requirements at the discretion of the Approving Authority.

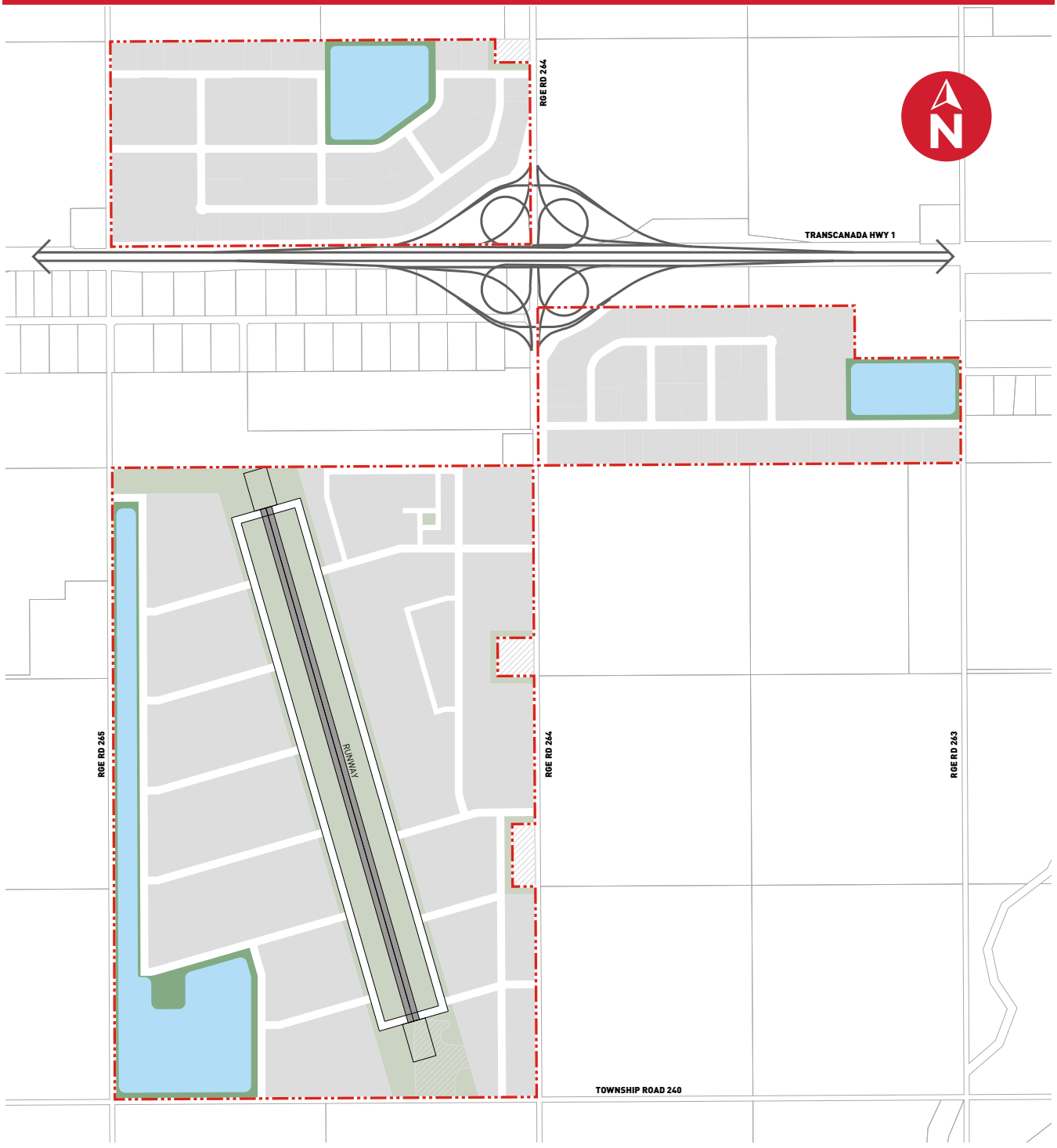
Policy 8.3.3: Interim stormwater management facilities may be proposed at the subdivision stage where the ultimate facility is not available to accept stormwater. Where applicable, a strategy for transitioning stormwater management from the Interim facility to the ultimate shall be identified at the appropriate subdivision stage.

Policy 8.3.4: The stormwater system will be constructed in accordance with the requirements of Wheatland County, the Alberta government and approved stormwater management plans.

Policy 8.3.5: Low-Impact Development measures, such as rain gardens, permeable pavement, bio-retention facilities, rain barrels, vegetated rooftops and increased topsoil cover, are encouraged throughout the Plan Area to reduce runoff volumes. Water re-use for purple pipe and irrigation purposes is also encouraged if supported by the Approving Authority.

Policy 8.3.6: The Municipality may assist the Developer to obtain necessary utility rights-of-way to facilitate connections to municipal services.

FIGURE 16: STORMWATER NETWORK



Subject Lands
Stormwater Management Facility
Storm Pond

Note: Stormwater managed through offsite irrigation and mechanical evaporation

9.0

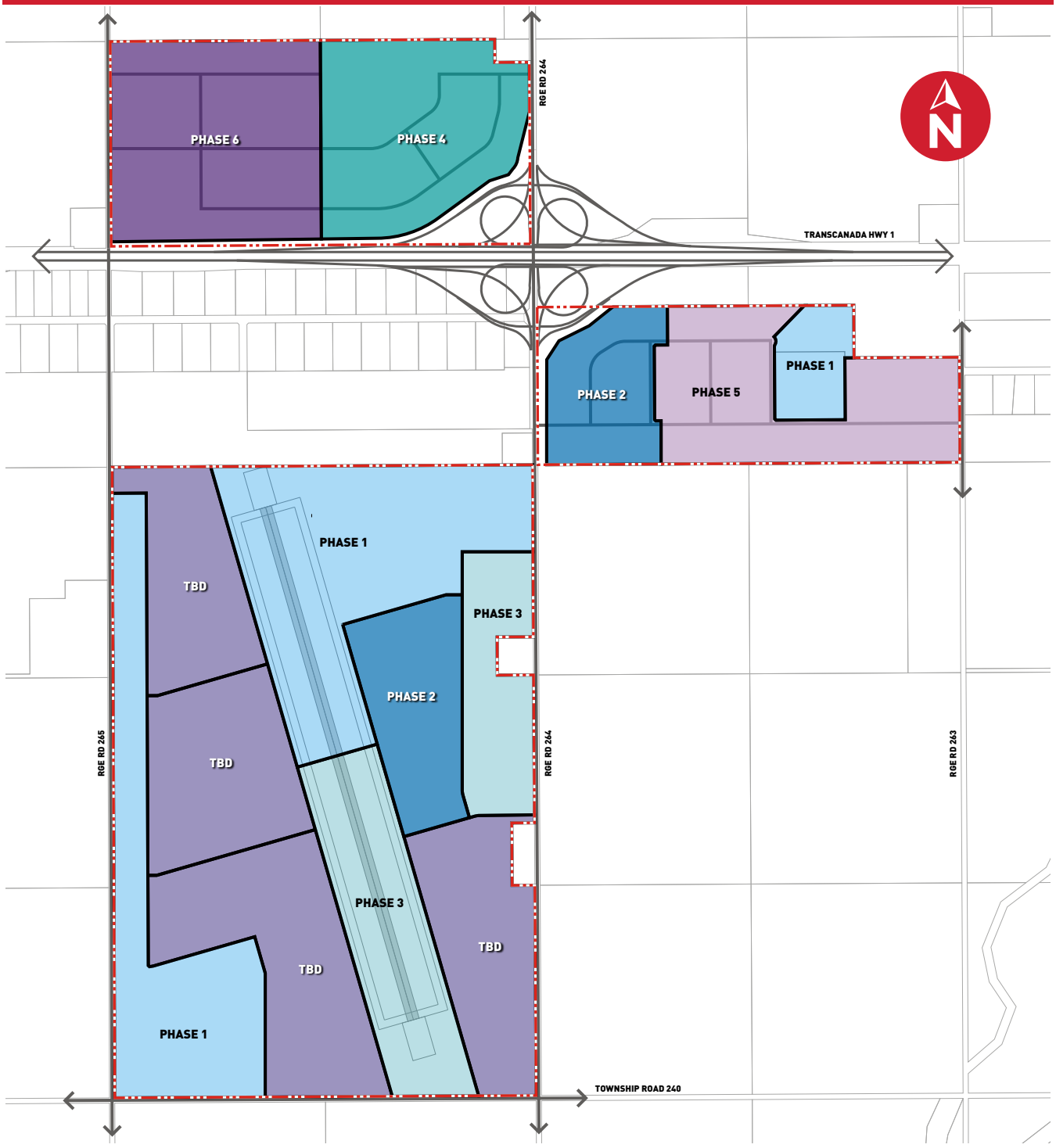
+ PHASING

The purpose of the following policy is to provide for the phasing of development in a logical manner in order to minimize infrastructure costs and to ensure appropriate connectivity. Figure 17 identifies the parcels that are anticipated to redevelop first based on market need and proximity to access and services. Phase 1 is expected to include the first stage of the De Havilland manufacturing facility, half the runway, a stormwater management pond and a possible ready-mix concrete plant. Phase 2 and 3 is expected to witness the completion of the De Havilland manufacturing facility, the final half of the runway and the commencement of the business park. The timing of development after Phase 3 is to be determined.

Policy 9.1: The phasing of development should comply with Phasing - Figure 17, recognizing that this figure is intended to show the generally anticipated sequence of development.

Policy 9.2: Notwithstanding policy 9.2, the Municipality may allow for any portion of the Plan Area to commence development without an amendment to this Plan where they are satisfied that the necessary access and servicing can be provided.

FIGURE 17: PHASING



Subject Lands

10.0

+ SUPPORTING STUDIES

10.1 BIOPHYSICAL ASSESSMENT

Trace Associates Inc. prepared a Biophysical Assessment (BA) of the Plan Area. The object of conducting the study was to assess the biophysical features of the Plan Area, make recommendations to ensure adequate projection of environmentally significant features and to meet municipal regulatory requirements. The study evaluated key elements of the biophysical environment including terrain and soils, water resources, plant communities and wildlife to identify Environmental Significant Areas within the Plan Area. The main findings of the study were:

- Water resources within the Plan Area include one intermittent watercourse, 172 ephemeral waterbodies, 35 temporary graminoid marshes, 34 seasonal graminoid marshes and 11 semi-permanent graminoid marshes.
- One rare vegetation species, blunt-leaved watercress, and three provincially uncommon species were identified.
- No rare ecological plan communities were observed on the site
- Plant communities within waterbodies and wetlands have been impacted by agricultural practices including cultivation and/or the addition of soil amendments and herbicides.
- Two weed species were identified that are provincially designated as noxious: creeping thistle and perennial sow-thistle.
- Eight rare bird species were identified: barn swallow, black tern, black-crowned night heron, black-necked stilt, common yellowthroat, easter kingbird, great blue heron and sora. These species were identified in the study to not be at risk.
- No rare amphibian or mammal species were identified during the field assessment.
- Wetlands and waterbodies within the Plan Area are not capable of supporting fish.
- Environmental Significant Areas are distributed throughout the site and are directly correlated with locations of wetlands.

The BA identified legislation that should be heeded when considering development of the site. Water Act approval is required if proposed developments will impact any wetlands or waterbodies. In addition, the preparation/submission of a Wetland Assessment and Impact Report, which has been completed, is required if wetlands class temporary or higher will be impacted. Determination of Crown ownership is required if proposed development will impact wetlands classified as seasonal or higher; approval under the Public Lands Act may also be required if wetlands are claimed by the Crown. Wildlife species in Alberta are covered under the Alberta Wildlife Act and migratory birds are additionally protected under the Migratory Birds Convention Act. Under the Municipal Government Act, municipalities have the authority to designate parcels of land subject to a proposed subdivision as Municipal Reserve, Environmental Reserve or Conservation Reserve.

10.2 PHASE 1 ENVIRONMENTAL SITE ASSESSMENT

Trace Associates Inc. conducted a Phase I Environmental Site Assessment (ESA). The objective of the ESA was to identify actual and potential sources of soil and/or groundwater contamination that may be present within the Plan Area. Based on the information collected during this study, Trace identified the following potential sources of contamination from on-site sources:

- Nineteen active gas wellsites are located within the Plan Area. The wells produce gas and water. The operator, Ember Resources Inc. has the legal obligation to address any environmental concerns during the operation, abandonment and post-abandonment of the wellsite and associated facilities.

- There were no obvious indications of pits or buried debris identified as part of the aerial photograph review and site visits of the homesteads and agricultural properties. The risk of adversely impacted soil and groundwater is generally low to moderate, and no further immediate environmental investigation pertaining to these areas is warranted at this time.

Trace recommended:

- Following initiation of abandonment activities by the oil and gas operator, contract a qualified environmental professional to conduct a review of the wellsite Reclamation Certificate documentation prior to landowner signoff and subsequent submission to the regulator.
- Due to the buildings' dates of construction (prior to 1950 through to 1988), consider the presence of hazardous building materials to prior to any major renovations or demolition of any building on the site.
- Decommission the water wells, septic tanks and septic fields in accordance with applicable acts, regulations and guidelines when longer in use.
- If buried debris, stained soils, or soils of unknown quality are encountered during redevelopment, contract qualified environmental professional to assess the potential environmental risk.
- If fueling tanks are encountered, contract a qualified environmental professional to assess the potential environmental risk.

10.3 GEOTECHNICAL REPORT

E2K Engineering Ltd. (E2K) conducted a preliminary geotechnical investigation in support of a proposed industrial development to be located within the West Highway 1 Area Structure Plan. The preliminary geotechnical investigation performed on the property consisted of drilling twenty (20) boreholes, installing PVC standpipes, and conduct soil sampling and laboratory testing. The objective of the preliminary geotechnical investigation was to obtain subsurface soil and groundwater information to provide recommendations about the geotechnical aspects of the proposed development.

This report provides recommendations regarding site preparation, shallow and deep foundation options, frost protection, groundwater considerations, temporary excavation stability, concrete type, and other factors that may be relevant.

The overall conclusion of the study was that the soils are relatively competent and will provide an adequate bearing for industrial and other infrastructure. A shallow foundation system consisting of spread and strip footings founded on native undisturbed silty clay or silt may be considered suitable for the proposed development. Deep foundation systems bearing on bedrock may be considered suitable if a higher bearing capacity is required, given the presence of shallow bedrock in the project site. Floor slabs-on-grade are considered feasible provided that certain precautions are undertaken.

10.4 TRANSPORTATION IMPACT ASSESSMENT

Bunt & Associates completed a Transportation Impact Assessment that examined the full buildout of the ACP and the ASP. They also considered the scenario where the full buildout of the ASP is duplicated on the north side of the Highway 1. They assumed that development of De Havilland Field and the related office and manufacturing uses will also include the full buildout of the surrounding road network.

Based on the intersection analysis and multiple warrants completed, Bunt found there will be substantial improvements made to the road network as further development increases. All study intersections operate acceptably with the recommended mitigation measures for the 20-Year full buildout of the site by 2042. It is assumed the interchange of Range Road 264 & Highway 1 will be constructed as a split-diamond interchange at Opening Day (2025). In 2042, the interchange will need to be improved to a partial cloverleaf interchange, adding northbound and southbound left turn loops. The interchange will meet all minimum spacing guidelines.

With the full buildout of the site and the full buildout of the ASP, most intersections will operate acceptably following the recommended improvements. At this horizon, the intersection of Range Road 264 & South Public Industrial Road will be a serious candidate for an interchange, or to at least have some grade separated components such as an eastbound left flyover ramp. As it is not feasible to have grade separated elements at that intersection location, a more comprehensive road network will be required to shift regional traffic volumes and permit vehicles to have more than one access point.

10.5 DEVELOPMENT SERVICING & INTERNAL ACCESS MANAGEMENT STRATEGY

Sedulous Engineering Inc. (SE) prepared a Development Servicing & Internal Access Management Strategy for the proposed De Havilland Field in Wheatland County. It contained order of magnitude infrastructure and servicing estimations. The report was intended to provide a summary of the conceptual servicing and internal road access concepts and options that are currently being considered for this development.

The report consisted of Technical Memos summarizing existing infrastructure and provided a high level internal road access and servicing options for the proposed development including:

- Transportation Internal Access
- Wastewater Servicing
- Water Servicing

Transportation Internal Access

Based on the scale of this project, Sedulous identified that widening may be required along both the Range Roads and Township Roads. They assumed this will be determined by the municipality at the subdivision stage. The cross section of new internal industrial/commercial roads was not confirmed as the roadways may either be rural cross section, urban cross section, or a mix. At this early stage of the project, given the relatively flat topography and the large airport run-way, it is likely an underground piped stormwater system is going to be required to carry drainage away from lots, roads and paved areas to stormwater ponds. Given the likely need for underground storm sewers, and given the reduced road right-of-way requirements for urban cross sections it is likely urban cross sections will be used. The disadvantage to urban cross sections versus rural is the costs associated with the underground storm sewers and the concrete curb, gutter, and sidewalk. The advantage to urban cross sections versus rural is the reduced road right of way requirements leaving more land available for development. Sedulous recommended at this preliminary stage of the project that it be planned that the majority of the roads required to support this development will be urban cross section. Nevertheless, this will be determined at the subdivision stage. As a next step, following development of a final stormwater management strategy, grading design will need to begin in order to verify the best method of draining roadways.

Wastewater Servicing

Sedulous evaluated several scenarios to help estimate this development's sanitary flows:

- Constructing a new wastewater treatment facility within the Plan Area and irrigating crops with the treated effluent.
- Constructing a force main to connect with the existing Langdon wastewater treatment facility.
- Constructing a force main to connect with the existing Strathmore wastewater treatment facility.
- Constructing a force main to connect with the existing Calgary wastewater treatment facility via the Chestermere lift station.
- Constructing a new wastewater treatment facility within the Plan Area and discharging into the Bow River via a new force main.
- Constructing a new wastewater treatment facility within the Plan Area and discharging into Weed Lake.

As the project proceeds to the detailed design stage, Sedulous intends to work with Wheatland County to further evaluate these options, and potentially other options Wheatland may be investigating as part of a master servicing strategies that the County is working on to determine the best way to service this area.

Water Servicing

For servicing of ultimate build out water demands, Sedulous looked at existing piped water systems in the region to evaluate their existing general capacities and their proximity to the De Havilland Field lands. Options identified by Sedulous included:

- Recycling and reuse of stormwater for non-potable water supply purposes
- Constructing a feeder-main, pump station and reservoir within the Plan Area to receive flows from the East Calgary Regional Waterline (ECRW)
- Constructing a feeder-main, pump station and reservoir within the Plan Area to receive flows from the Langdon Water Works
- Alternatives including water wells, cisterns and diversion from the Bow River.

At this preliminary stage, Sedulous believes the above servicing options demonstrate that there are several viable options to service this development. At this point in time, they prefer engaging in conversations with Wheatland County and pursuing utilizing the ECRW system. This is the preferred option given it requires a lower amount of new infrastructure and the option has efficiency because it utilizes an existing regional water system. As the project proceeds to the detailed design stage, Sedulous intends to work with Wheatland County to further evaluate these options, and potentially other options Wheatland may be investigating as part of the master servicing strategies the County is working on to determine the best way to service this area.

10.6 CONCEPTUAL LEVEL STORMWATER MANAGEMENT REPORT

A Conceptual Level Stormwater Management Report (SWMR) for the De Havilland Field development in Wheatland County was completed by Sedulous Engineering Inc. (SEI) at the request of Westerkirk related parties. The assessment provided a conceptual level stormwater analysis intended to prepare options to manage stormwater generated by the development, in accordance with the Wheatland County Design and Construction Standards Manual (2016), Alberta Environment Stormwater Management Guidelines, and the City of Calgary Stormwater Management and Design Manual (2011), where applicable. The purpose of this CL-SWMR was to conceptualize a drainage system and provide options for stormwater management storage and evaporative systems to meet interim and the ultimate condition requirements for the lands. The study area was based upon the subject lands and immediately adjacent lands tied to the subject lands by local topography and existing drainage patterns, as determined by LiDAR DEM 15 data. This report reviewed an interim condition (partially developed) and an ultimate condition (fully developed) scenario.

It was noted that this project is at its early stages, and the report was the first stormwater management report prepared in support of this development. Its intention was to conceptualize options for how storage and evaporative based systems could be established. There are many options for how this could unfold, and the examples provided were not exhaustive. It was expected that the ideas and concepts presented would evolve and change as the project delves into more detailed stages of design.

However, in that regard, this report's stormwater management options will assist in proving out feasibility of the ideas presented, provide an initial understanding of system sizing requirements, and demonstrate overall project viability.

It was concluded that the conceptual development area can be serviced by a comprehensive integrated stormwater management system that uses evaporation, irrigation, and mechanical evaporation. Alternatively, the area could be serviced by the Cooperative Stormwater Management Initiative (CSMI) system (subject to Wheatland County participation in the CSMI partnership or some other similar arrangement being made). The following was subsequently recommended:

- At the detailed design stage, finalized layout plans, along with topographic survey information, should be used to establish detailed design of the stormwater management system, the conveyance systems, and the irrigation/mechanical evaporations systems.
- The pond area illustrated and modelled in this report are conceptual. The pond size will likely change (perhaps significantly) due to changes in the subdivision plan, changes in the County Standards and grading constraints identified in the detailed grading design.
- Details of ponds including lining requirements and escape routes and associated operational plans be submitted as part of the detailed designs and pond reports.
- Meet with Wheatland County to pursue options for CSMI solutions.
- Meet with Wheatland County to confirm off-site developments existing in the area are based on zero-discharge and have not been permitted to contribute post-development flow onto the subject lands.
- Review options presented in this report and based upon the review determine which options to pursue for next steps.

+ IMPLEMENTATION

The purpose of the following policy is to provide direction on the implementation of the policies contained within the ACP.

> **Policy 11.1:** Land use redesignations, subdivision and development permit applications shall comply with the policies of this Plan and any other relevant policies, requirements or legislation.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