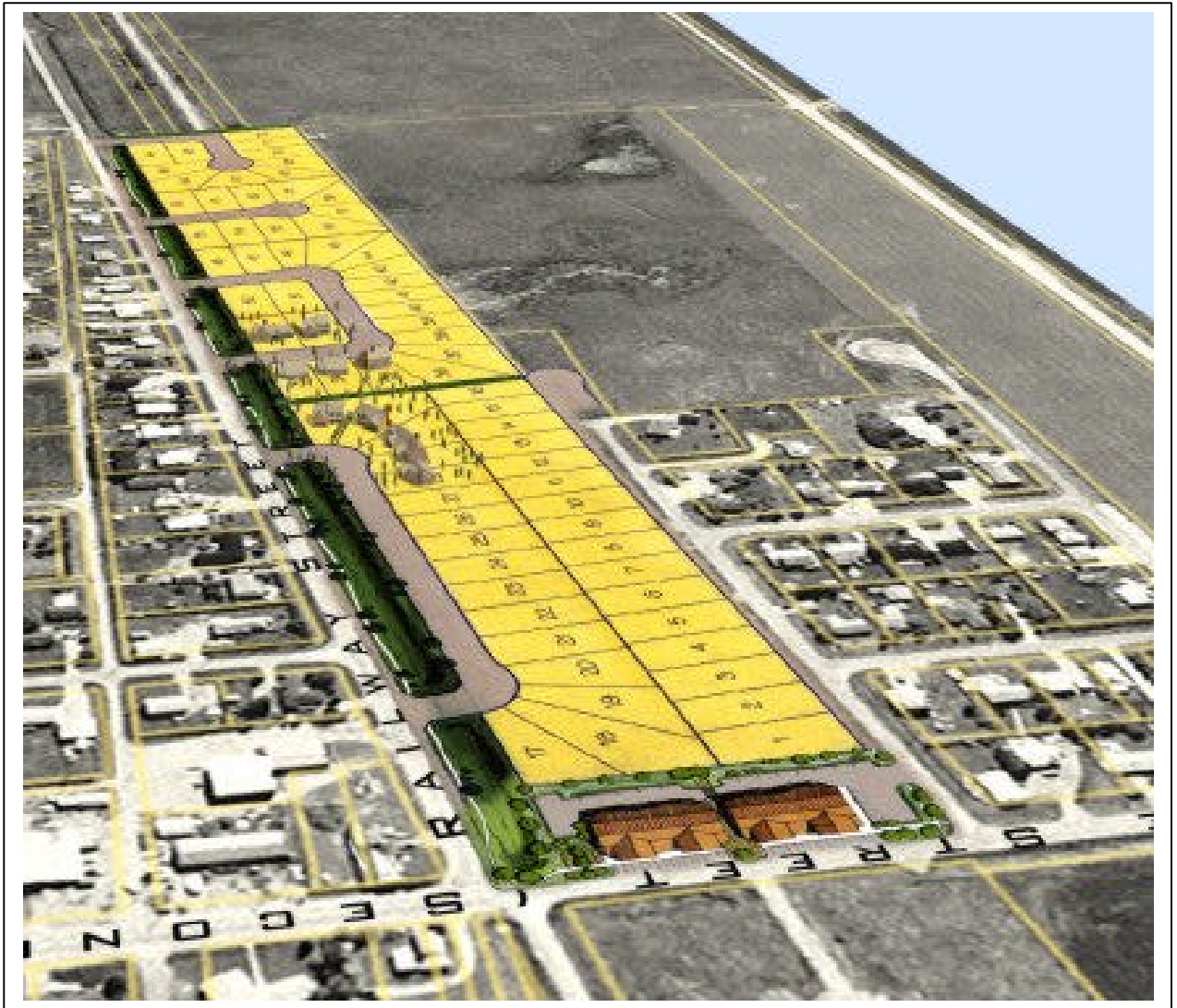




LANGDON STATION CONCEPTUAL SCHEME



Bylaw C-5522-2002, Adopted April 9, 2002

MUNICIPAL DISTRICT OF ROCKY VIEW NO. 44
Department of Planning and Development

MUNICIPAL DISTRICT OF ROCKY VIEW NO. 44
BYLAW C-5522-2002

A Bylaw of the Municipal District of Rocky View No. 44 to amend Bylaw C-4841-97.

WHEREAS the Council deems it desirable to amend the said Bylaw, and

WHEREAS the Council of the Municipal District of Rocky View No. 44 has received an application to adopt a Conceptual Scheme to provide a comprehensive policy framework to guide and evaluate redesignation, subdivision and development proposals within the SW-23-23-27-W4M

WHEREAS a notice was published on Tuesday, March 26, 2002 and Tuesday, April 02, 2002 in the Rocky View Five Village Weekly, a newspaper circulating in the Municipal District of Rocky View No. 44, advising of the Public Hearing for Tuesday, April 09, 2002, and

WHEREAS Council held a Public Hearing and have given consideration to the representations made to it in accordance with Section 692 of the Municipal Government Act, being Chapter 24 of the Revised Statutes of Alberta, 1995, and all amendments thereto.

NOW THEREFORE the Council enacts the following:

1. That the Conceptual Scheme be adopted to provide a framework for subsequent redesignation, subdivision and development in the SW-23-23-27-W4M; as hereto attached as Schedule 'A';
2. The Bylaw comes into effect upon the date of its third reading.

File: 3223199-2001100

First reading passed in open Council, assembled in the City of Calgary, in the Province of Alberta, on March 19, 2002, on a motion by Councillor Schule.

Second reading passed in open Council, assembled in the City of Calgary, in the Province of Alberta, on April 9, 2002, on a motion by Councillor Schule.

Third reading passed in open Council, assembled in the City of Calgary, in the Province of Alberta, on April 9, 2002, on a motion by Councillor Kent.

REEVE OR DEPUTY REEVE

MUNICIPAL SECRETARY

0.00 Contents

1.00 Introduction	4
1.01 Purpose	
1.02 Vision	
2.00 Conceptual Scheme Objectives	7
3.00 Conceptual Scheme Plan and Land Use Context	8
3.01 Planning Area Location	
3.02 Current Land Use	
3.03 Land Use Context	
4.0 Physical Site Features	10
4.01 Topography	
4.02 Hydrology	
4.03 Subsurface Conditions	
4.04 Existing Structures	
4.05 Vegetation	
4.06 Environmental Considerations	
4.07 Historical Context	
4.08 Urban Structure	
5.00 Land Use	16
5.01 Discussion	
5.02 Hamlet Residential Single Family District	
5.03 Direct Control District	
6.00 Urban Design and Development Concept	18
6.01 Subdivision Design	
6.02 Residential Building Massing and Typology	
6.03 DC Parcel	
6.04 Open Space and Pathways	
6.05 Phasing	
6.06 Traffic Impact Study	
6.07 Roadway Network	
6.08 Crime Prevention Through Environmental Design	
6.09 Confined Feeding Operations	
6.10 Public Participation	
7.00 Servicing Scenario	38
7.01 Sanitary Sewer	
7.02 Water Supply	
7.03 Fire Protection	
7.04 Surface Improvements	
7.05 Franchised Utilities	
7.06 Storm Water Management	
8.00 Implementation	44
8.01 Discussion	

0.01 Figures

3.01 - <i>Regional Location Plan</i>	5
3.02 - <i>Conceptual Scheme Planning Area</i>	6
3.03 - <i>Current Land Use</i>	8
3.04 - <i>Future Land Use Scenario</i>	9
4.01 - <i>Site Topography</i>	11
5.01 - <i>Land Use Redesignation</i>	16
6.01 - <i>Subdivision Design</i>	19
6.02 - <i>Concept Rendering</i>	20
6.03 - <i>Aerial Photo Context</i>	21
6.04 - <i>Concept Rendering Overlay</i>	22
6.05 - <i>Typical Residential Cross Section</i>	23
6.06 - <i>Open Space Detail</i>	29
6.07 - <i>Photograph from a Future Intersection</i>	37
7.01 - <i>Typical Internal Road Cross Section</i>	39
7.02 - <i>Typical Pathway Cross Section</i>	39
7.03 - <i>Storm Water Management</i>	42
7.04 - <i>Servicing Scenario</i>	43

0.02 List of Appendices

A. - *Open House Attendance Sheet.*

0.03 List of Supporting Reports

- Geotechnical Investigation, 12 Centre Street South & Railway Avenue South, Langdon, Alberta, J.A. Smith & Associates Ltd., May 2000.
- Phase I Environmental Site Assessment Langdon Railway and Station Grounds, 12 Centre Street South, Langdon, Alberta, J.A. Smith & Associates Ltd., April 2000.
- Phase II Environmental Site Assessment Langdon Railway Station and Grounds, 12 Centre Street South, Langdon, Alberta, J.A. Smith & Associates Ltd., February 2001.
- Storm Water Analysis of Langdon Station for Perera Developments Ltd., Doran Engineering Services Ltd., January 2001 with revisions.
- Langdon Station Traffic Impact Study, Impax Consulting Group Inc., January 2001.

1.00 Introduction

1.01 Purpose

This Conceptual Scheme is intended to establish a context and subsequent guide for the subdivision and redesignation of lands in a portion of S23-23-27-4 within the Hamlet of Langdon, Alberta. The preparation of the Conceptual Scheme is guided by the policies set forth in the Hamlet of Langdon Area Structure Plan, Bylaw C-5049-99, adopted on April 27, 1999. The Hamlet of Langdon Area Structure Plan (herein referred to as the Hamlet of Langdon ASP) provides a comprehensive policy framework in which to evaluate future development within its plan boundaries and identifies specific performance requirements for the requisite Conceptual Scheme.

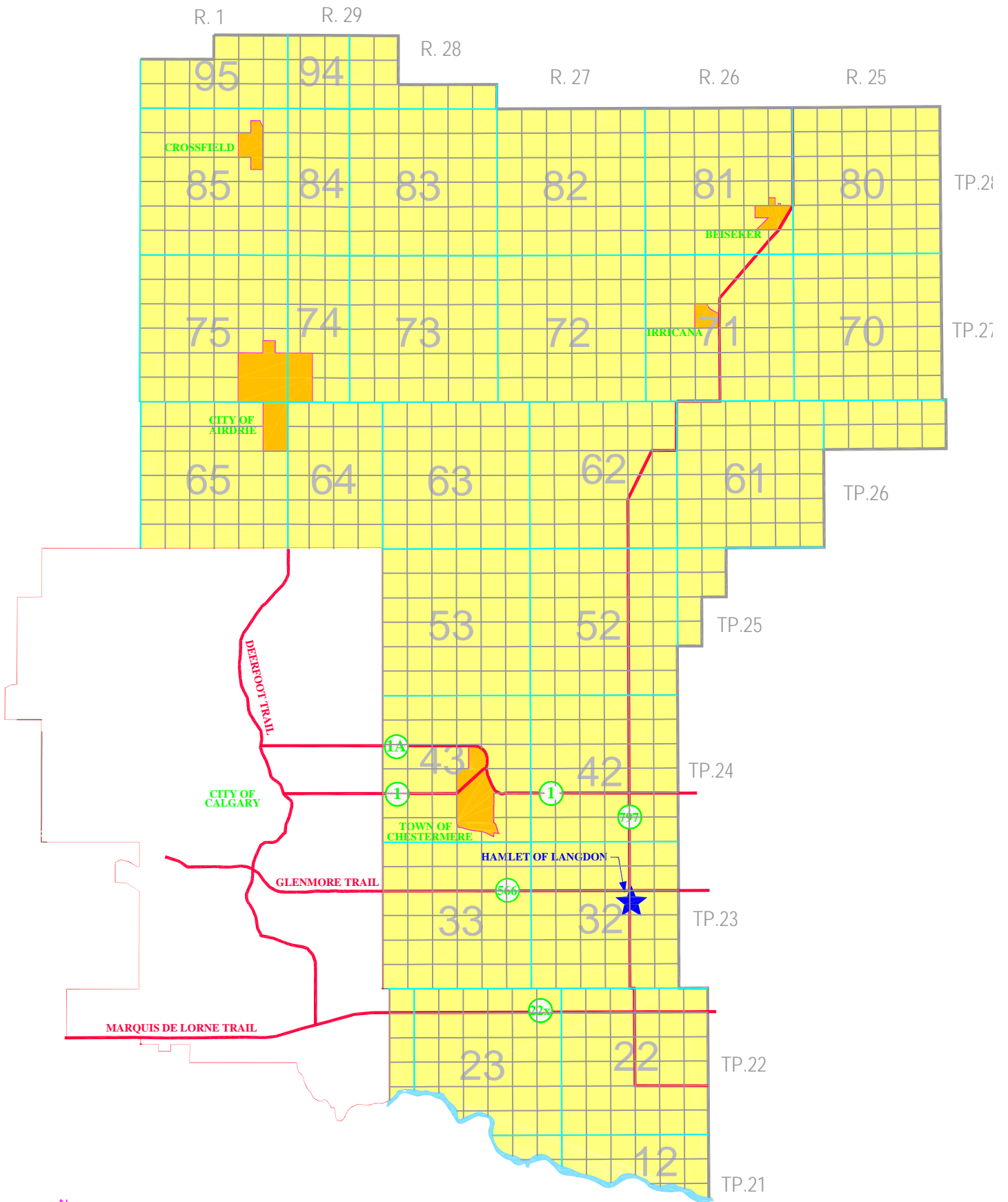
1.02 Vision

The subdivision and redesignation of approximately 23.15 acres of land within the established framework of the Hamlet of Langdon seeks to provide a single family residential and commercial/mixed-use infill development that meets the objectives of the Langdon ASP and provides a high quality development consistent with the existing and future needs of the community. Achieved through a comprehensive planning process and careful consideration of the Hamlet ASP, the development, “Langdon Station”, is envisioned to include 72 ¼ acre residential lots on 20.83 acres, and a 1.09 acre commercial parcel along Centre Street (SH 797). The project will provide public amenities that include an extensive linear open space and pathway along the existing drainage ditch, and pedestrian pathways that link the south and north boundaries of the site.



Langdon Station circa 1940s

As a result of this vision and the requirements set forth within the Hamlet of Langdon ASP, the developer has initiated the development of this Conceptual Scheme for approval by the Municipal District of Rocky View for the purpose of redesignation and subdivision.



SW. 26-23-27-4

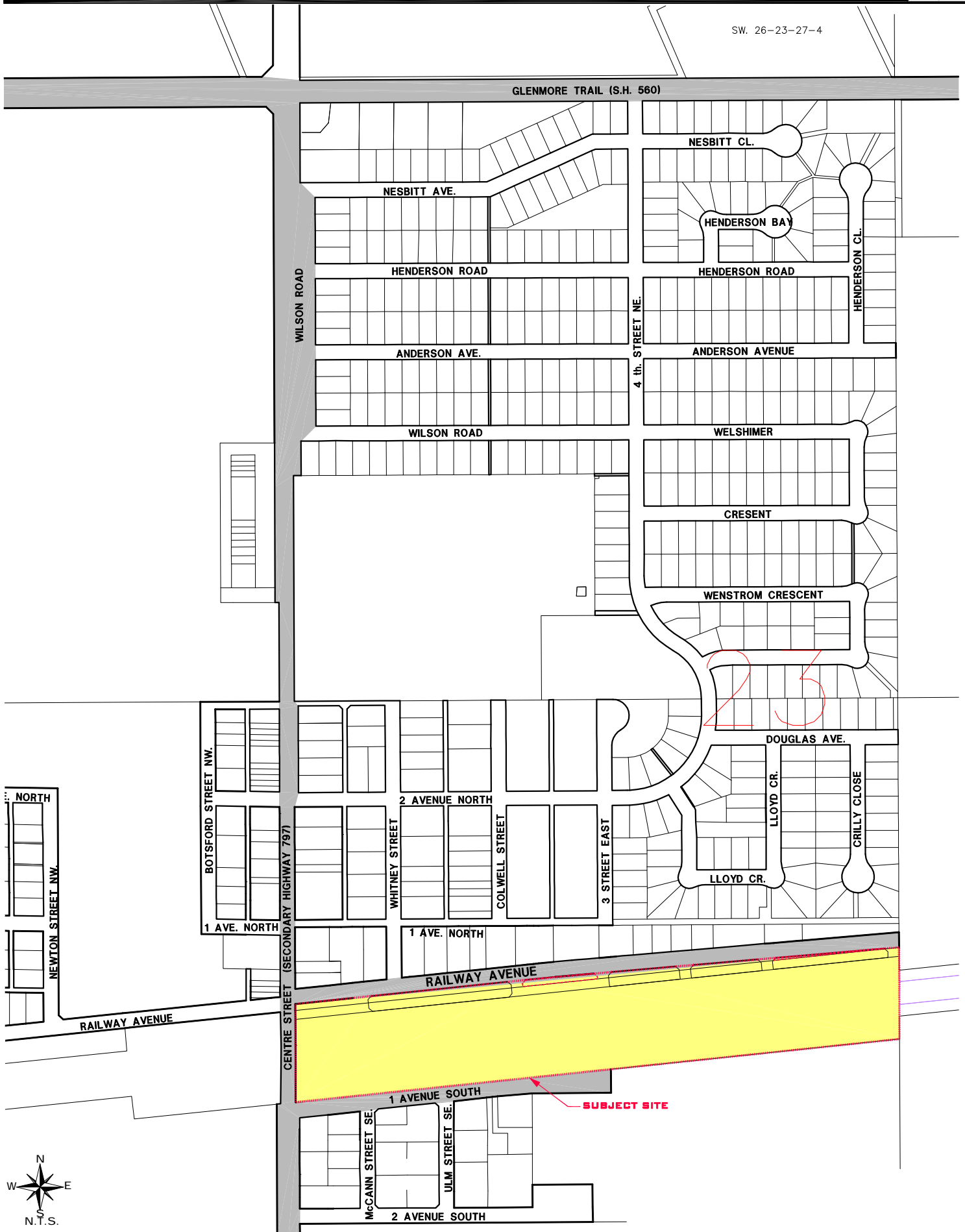


FIGURE 3.02

2.00 Conceptual Scheme Objectives

- 2.01** To establish a comprehensive Conceptual Scheme expressing a suitable use, design, and methodology for an infill site located within a portion of SW-23-23-27-W4M.
- 2.02** To provide a policy framework that will guide the development of the subject site in order to ensure a use and design consistent with the ASP and the needs of the local community.
- 2.03** To facilitate an appropriate infill development on an under-utilized parcel that will maximize the use of the existing roads, utilities, parks, and other community services.
- 2.04** To identify and illustrate the physical characteristics of all the lands contained within the conceptual scheme area to facilitate clear communication of the intent and physical impact of the development.
- 2.05** To identify and address all constraints affecting the subject site in order to minimize their impact on the development and minimize the impact that the development will have on them.

3.00 Conceptual Scheme Plan and Land Use Context

3.01 Planning Area Location

The Hamlet of Langdon is located approximately 20 km east of the City of Calgary within the M.D. of Rocky View. The site is comprised of approximately 22 acres located in the SW-23-23-27-W4M and is bounded by Railway Avenue to the north, Centre Street (Secondary Highway 797), and 1st Avenue to the south. Glenmore Trail (Secondary Highway 560) lies approximately 2.5 km to the north.

3.01.1 Policy: Policies contained within the Langdon Station Conceptual Scheme shall apply to all lands within the Conceptual Scheme Planning Area as identified in figure 3.02 – *Conceptual Scheme Planning Area*.

3.02 Current Land Use

The subject lands are currently designated as Hamlet Industrial under the M.D. of Rocky View *Land Use Bylaw* as illustrated in figure 3.03 – *Current Land Use*. This use is consistent with the historical industrial use of the land as a train station and grain elevator complex for the Canadian Pacific Railroad. However, the railway line and associated buildings have since been removed, and the industrial land use is now inappropriate within the context of the existing residential community.

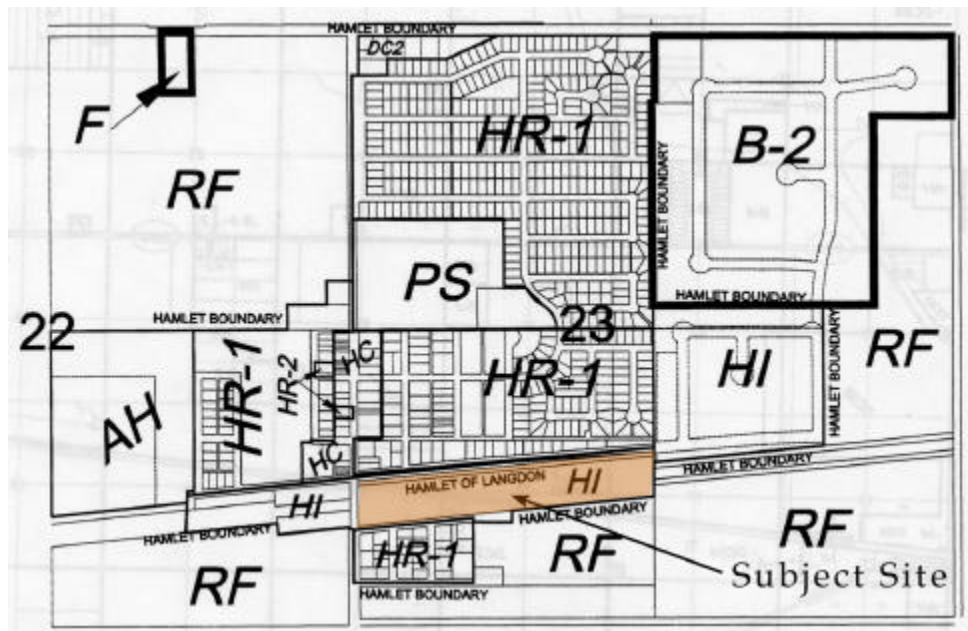


Figure 3.03 – Current Land Use from the M.D. of Rocky View Land Use Bylaw C-4841-97

3.03 Land Use Context

As identified in the M.D. of Rocky View *Land Use Bylaw* and illustrated in figure 3.03 – *Current Land Use*, the subject lands are bounded by a Hamlet Residential Single Family District (HR-1) to the north, a Hamlet Industrial District (HI) to the northeast (identified as a residential use within the Hamlet of Langdon ASP), a Ranch Farm District (RF) to the south, southeast, and southwest (these areas are not with the Hamlet of Langdon ASP planning area), a Hamlet Industrial District to the west (identified as residential and central business district uses within the Hamlet of Langdon ASP), and a Hamlet Commercial District (HC) to the northwest.

The future land use scenario described within the Hamlet of Langdon ASP, as shown in figure 3.04 – *Future Land Use Scenario*, identifies the land as residential with the exception of a small Central Business District (Commercial/Residential) area along the western boundary of the site.

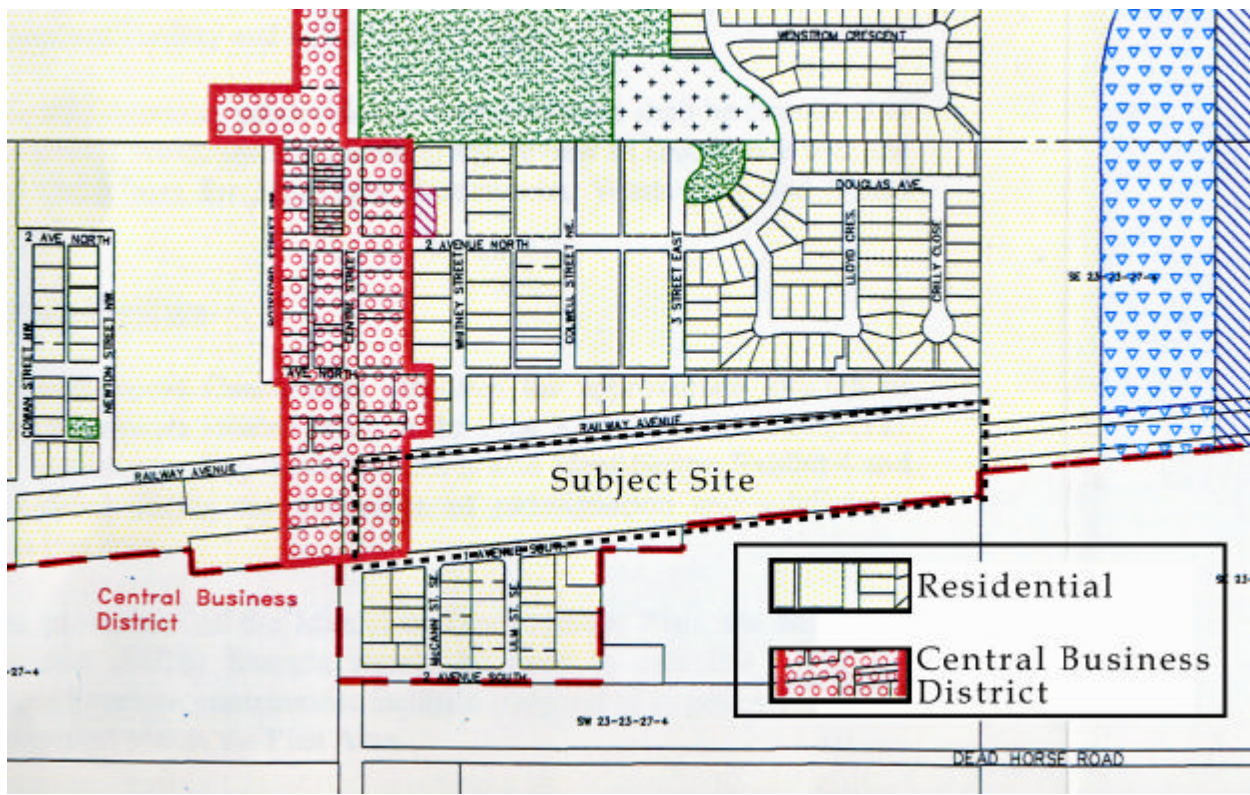


Figure 3.04 – Future Land Use Scenario from the Hamlet of Langdon ASP

4.00 Physical Site Features

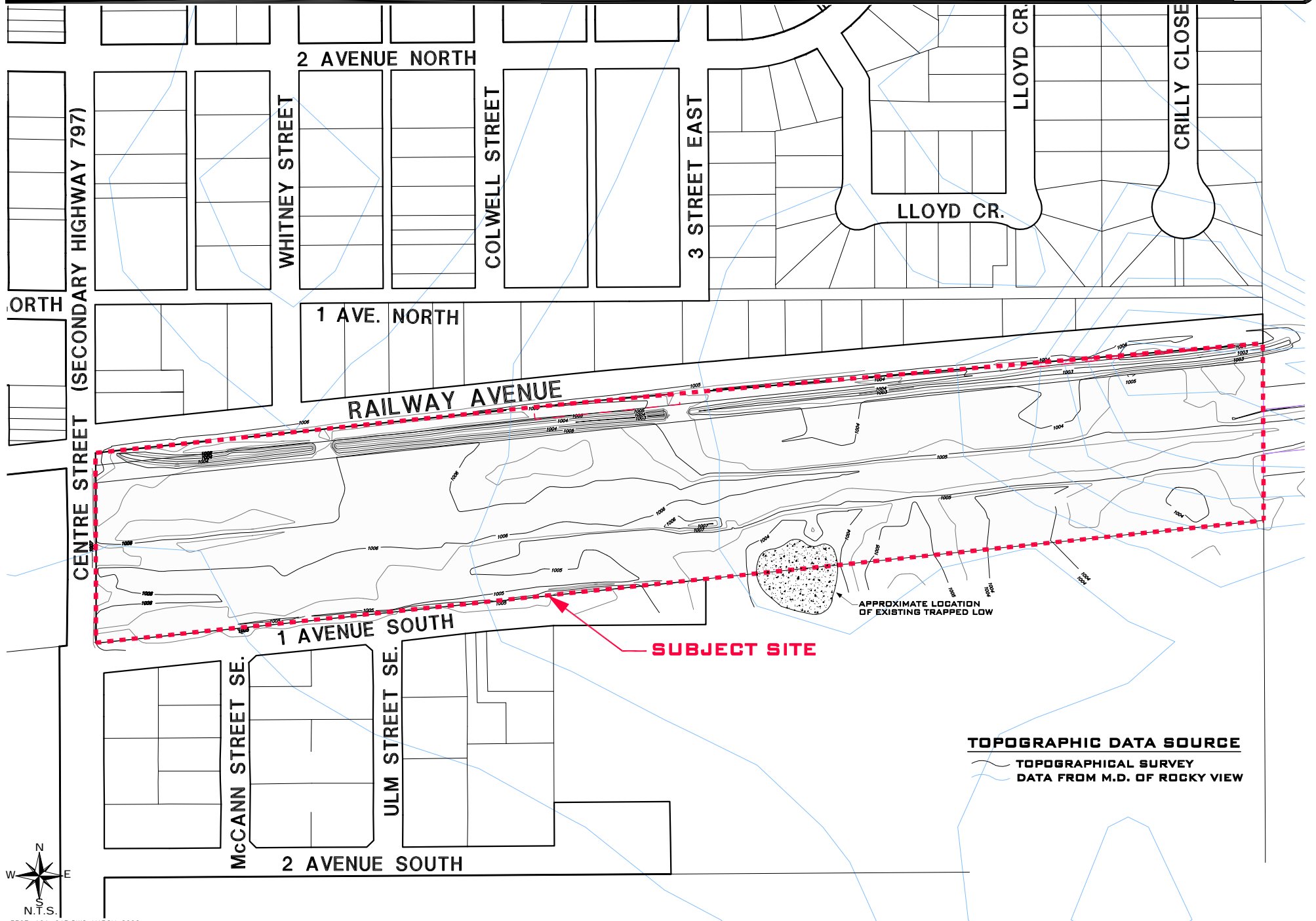
4.01 Topography

The topography of the subject lands is typical of the low-lying flat prairie in and around the Hamlet of Langdon. A significant regional drainage ditch runs along the northern boundary of the site. Although the rails and ties have been removed, a gravel railway bed remains and marks the high point of the site. Figure 4.01 - *Site Topography* illustrates existing site topography.



Looking west from the railway bed

- 4.01.1 Policy:** Site grading will commence following subdivision approval and shall be in accordance with an Overall Site Grading Plan and Stormwater Management Plan throughout the stripping and grading development permit process, as approved by the Municipal District of Rocky View.
- 4.01.2 Policy:** Site grading shall be in accordance with the approved overall site grading plan upon completion of the stripping and grading process.
- 4.01.3 Policy:** In accordance with the Hamlet of Langdon ASP, policy 7.2.18, site grading will remain consistent with neighbouring parcels and discourage the potential for over shadowing and over viewing of adjacent residential areas.



TOPOGRAPHIC DATA SOURCE

- TOPOGRAPHICAL SURVEY
- DATA FROM M.D. OF ROCKY VIEW

3363-101-01B.DWG MARCH 2002

FIGURE 4.01

4.02 Hydrology



Regional Drainage Ditch east from Centre Street

The regional drainage ditch along the northern boundary of the site is several meters deep in some places and provides an important component of the storm drainage system within the Hamlet of Langdon. This ditch has been and will continue to be the receiving course for storm water from the site.

With the exception of the drainage ditch, the most significant low point on the site is located on the south central portion of the site. The rail bed was built through this low area creating an area of surface water ponding on the south side of the track bed and on the adjacent property to the south, as shown in figure 4.01 - *Site Topography*. There are two subtle low points on the subject lands located in the north central and northeastern portions of the site, but they are not of significance. Generally the site is open, and with the exception of the rail bed, has a considerable amount of topsoil throughout.

4.02.1 Policy: As part of an overall site grading plan and Stormwater Management Plan, the regional drainage ditch located on the subject lands may be modified to maximize it's efficiency and to improve its aesthetics for adjoining existing and future residents.

4.02.2 Policy: Modifications to the drainage ditch shall commence only after proper approval from both the M.D. of Rocky View and Alberta Environment.

4.03 Subsurface Conditions

J.A. Smith & Associates Ltd. Consulting Engineers have conducted a geotechnical investigation on the subject lands as required by the M.D. of Rocky View *Land Use By-Law*. This investigation is contained within the supporting report - *Geotechnical Investigation*. Significant conclusions from this report are as follows:

- Footings may be used to support the structural loads of the buildings and are to be placed on the undisturbed, native sandy or silty clay at a depth of 1.8 metres below the existing ground surface.
- Three water-soluble sulphate tests indicated very severe sulphate concentrations within the soil strata. Based thereon, Type 50 Sulphate Resistant Portland cement with a minimum compressive strength of 35 Mpa at twenty-eight days should be used for concrete placed in direct contact with site soils.
- Some reworking of the upper zones of the subgrade will be required preparatory to placement of base gravels or asphaltic pavement.
- The depth of the groundwater level at the site was logged at six boreholes and varied from 0.9 to 2.9 metres below the existing ground surface. The depth to water at other boreholes may be extrapolated. Groundwater levels will vary due to seasonal and climatic fluctuations.

4.03.1 Policy: Subdivision and development shall proceed under the standards set forth within the M.D. of Rocky View's current *Servicing Standards for Subdivisions and Road Construction*, and the recommendations of a geotechnical report prepared by a qualified engineer and approved by the Municipal District of Rocky View.

4.04 Existing Structures

Currently, the only existing structures on the subject lands are a number of small sheds. All are to be removed prior to site grading.

4.05 Vegetation

Vegetation on the site consists mainly of native prairie grasses. There are a few groupings of shrubs and small trees. However, there are no significant plant communities within or in proximity to the subject lands that require special consideration.

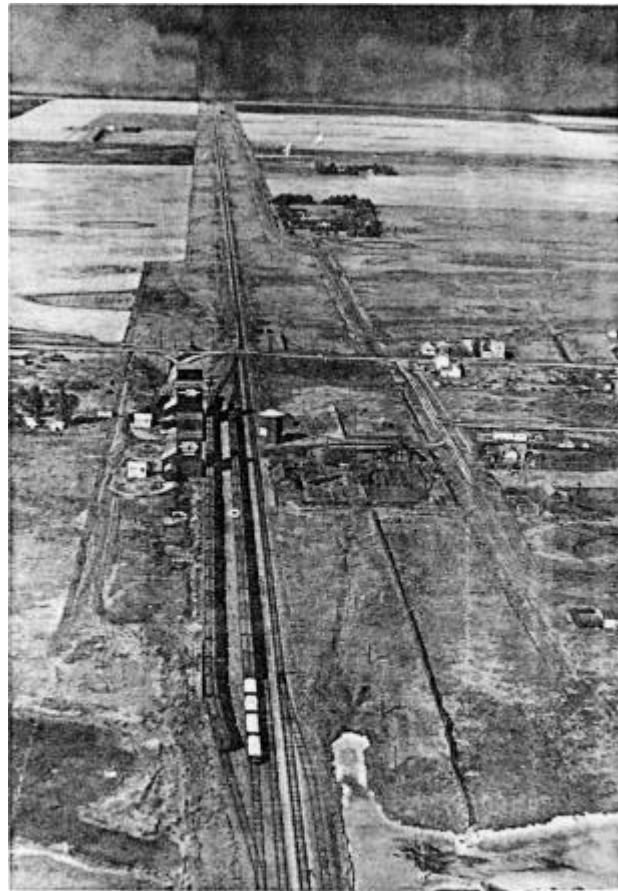
4.06 Environmental Considerations

A Phase I and Phase II Environmental Site Assessment has been conducted to determine the potential for soil and groundwater contamination on the subject lands. As concluded within the Phase I Environmental Assessment report, “Nothing was revealed during this investigation to limit the use of the premises for its intended purpose.” Because of the industrial history of the site, the M.D. of Rocky View further requested a Phase II Environmental Assessment. As concluded within the Phase II report, “No evidence indicated that the site has been contaminated from past site activities.” The Phase I and II reports are contained within the supporting reports - *Phase I Environmental Site Assessment* and *Phase II Environmental Site Assessment*.

4.07 Historical Context

The Hamlet of Langdon has had a turbulent existence since it's founding by railroad entrepreneur Jim Langdon in 1883. By the early 1920's Langdon, newly incorporated as a village, had approximately 2000 people centred on a prosperous agricultural support economy. The basis for the village was the Langdon Station and grain elevators associated with the Canadian Pacific Railway. However, because of a high water table and poor drainage, the area experienced frequent flooding and sewage disposal problems.

Other factors such as a growing urban migration and the mechanization of farming saw the Village of Langdon in decline. These problems were compounded when in the early part of the 1900s, Dalmead Station was constructed 6.5 km to the southeast and Langdon's crucial railway operations were ceased. By the 1950s the Village had less than 100 residents, and in 1975 Langdon lost village status and was designated as a Hamlet under the administration of the M.D. of Rocky View. By the time the M.D. of Rocky View had



1952 Aerial View
Looking west up C.P.R. track.

Historical Aerial Photograph

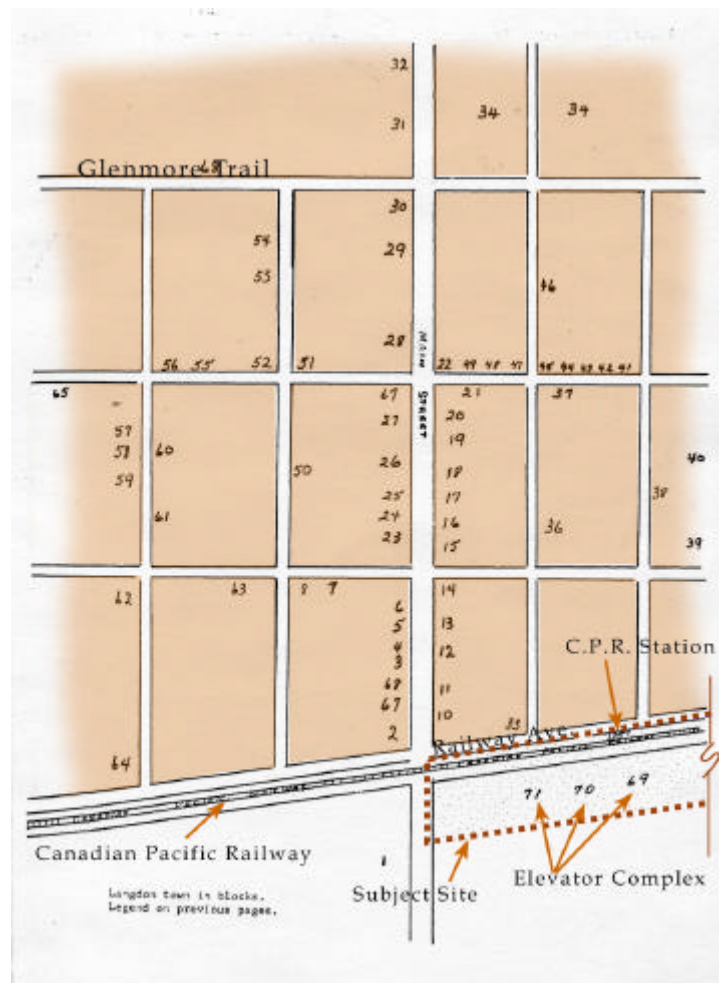
adopted the Langdon Hamlet plan by resolution during October 1989, Langdon Station and its grain elevators had long since been removed from the site

The lands contained within the Conceptual Scheme planning area mark the original site of the Langdon Station and associated grain elevator operations.

4.08 Urban Structure

The Village of Langdon was based on the efficient grid pattern typical during the early part of the 1900s. The railway line comprised the southern boundary of the Village running diagonally from the southwest to the northeast. Superimposing a diagonal element within the otherwise rigid grid served to call attention to this vital element of the Langdon community.

Often, the nature of infill development involves development that was not originally intended for the subject site. As Langdon grew into a vibrant residential community, unique anomalies such as the diagonal parcel left by Langdon Station serve to enhance the urban structure. Now, surrounded by a very different neighbourhood context than in the 1920s, these lands can once again play an important role in defining Langdon's urban form. This will be achieved by providing a development that preserves the urban context and enhances neighbourhood stability.



"Langdon Town in Blocks" – Langdon Urban Pattern 1920

5.00 Land Use

5.01 Discussion

In accordance with the *Future Land Use Scenario* contained within the Hamlet of Langdon ASP, the subject lands are recommended for redesignation from an industrial use to *residential* and *central business district* uses as shown in figure 3.04 - *Future Land Use Scenario*.

From page 15 of the Hamlet of Langdon ASP, Section 6.2, *Future Land Use Scenario*:

“The future land scenario is the preferred physical organization of land uses within the Plan Area and the overall land use structure of the community. It identifies generalized land uses and approximate boundaries of the various land uses.”

Under the M.D. of Rocky View *Land Use Bylaw*, the lands are currently designated as Hamlet Industrial (HI) as shown in exhibit 3.03 - *Current Land Use*. Pursuant to the Hamlet of Langdon ASP, the app. 1.09 acres on the western boundary are recommended for redesignation to a Direct Control (DC) district and the remaining app. 20.83 acres are recommended for redesignation to a Hamlet Residential-1 District (HR-1) as shown in figure 5.01 - *Land Use Redesignation*.

5.01.1 Policy: Future development of the Hamlet Commercial District within the subject lands shall provide a commercial development appropriate to the residential context of the neighbourhood and the character of Centre Street as a *Central Business District* (as defined by the Hamlet of Langdon ASP).

5.01.2 Policy: Land uses within the Conceptual Scheme area shall conform to the districts contained herein and are generally identified in figure 5.01 *Land Use Redesignation*.

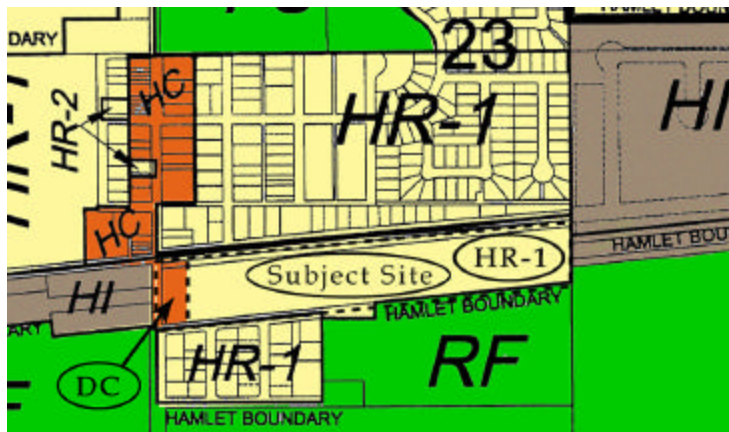


Figure 5.01- Land Use Redesignation

5.02 Hamlet Residential-1 District (HR-1)

5.02.1 Policy: Lands redesignated under the Hamlet Residential Single Family District within the Conceptual Scheme Area shall conform both to the requirements of the *Hamlet Residential Single Family District* guidelines and the *General Regulations* as set forth within the current Municipal District of Rocky View *Land Use Bylaw*.

5.03 Direct Control District

5.03.1 Policy: Lands redesignated under the Direct Control district within the Conceptual Scheme Area shall conform to the *General Regulations* as set forth within the current Municipal District of Rocky View *Land Use Bylaw* and the corresponding Direct Control Bylaw which will be prepared and approved by the M.D. of Rocky View subsequent to the adoption of this Conceptual Scheme.

6.00 Urban Design and Development Concept

6.01 Subdivision Design

The creation of a suitable adaptive use for the subject app. 23.15 acre infill site has been guided by several constraints such as the regional drainage ditch on the north boundary of the parcel, accommodations for the existing uses surrounding the site, and the fixed dimensions of the parcel as defined by its previous use. The subdivision, as illustrated in figure 6.01 – *Subdivision Design*, includes 72 single-family residential lots of approximately $\frac{1}{4}$ of an acre in size on 20.83 acres of the site. The lots are positioned to maximize the use of existing roadways and public services. Similarly, in order to preserve the integrity of the streetscape, lots are aligned to face or flank the existing development along Railway Avenue.

Policy 7.7.5.5 of The Hamlet of Langdon ASP states that the Municipality may require street lighting within infill residential development area. Appropriate street lighting will be provided on both the Hamlet Residential District and the DC parcel. Street lighting will serve not only to uphold a consistent pattern of street lighting throughout the local community, but will also increase neighbourhood security and offer an ambient light that will reduce the impact of automobile headlights.

As described in the Hamlet of Langdon ASP, residential density is not to exceed 4.0 dwelling units per acre (4.0 du/ac.) The density of the HR-1 district of the subject lands will be approximately 3.46 du/ac.

A 1.09 acre commercial/mixed-use parcel (referred to herein as the DC parcel) comprises the western boundary of the site and is identified as part of the Central Business District (CBD) by the Hamlet of Langdon ASP *Future Land Use Scenario*. This district is further discussed in the next section.

6.01.1 Policy: Subdivision shall be generally in accordance with figure 6.01 *Subdivision Design*.

6.01.2 Policy: A Roadside Development Permit shall be obtained from Alberta Transportation prior to any development of the lands.

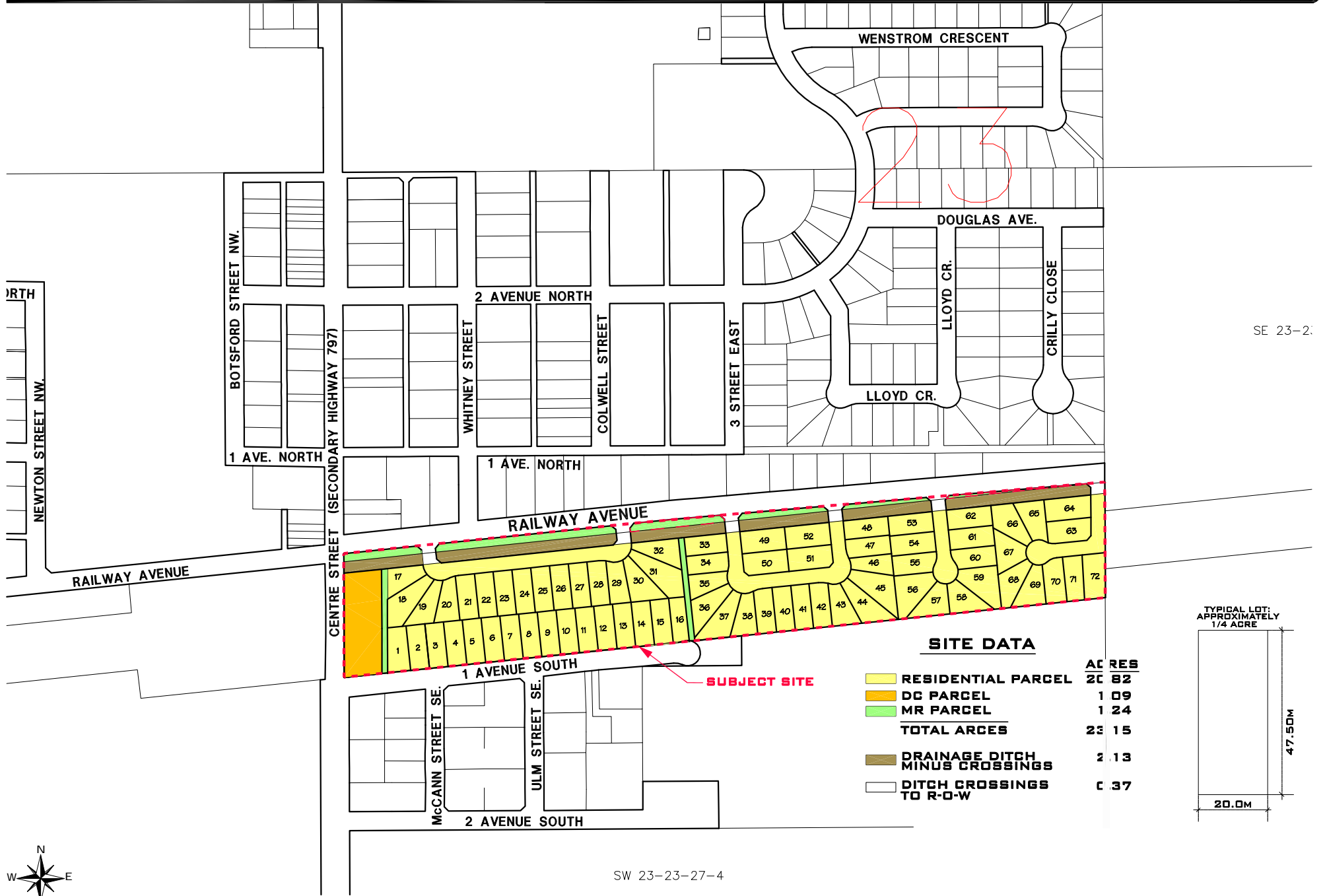
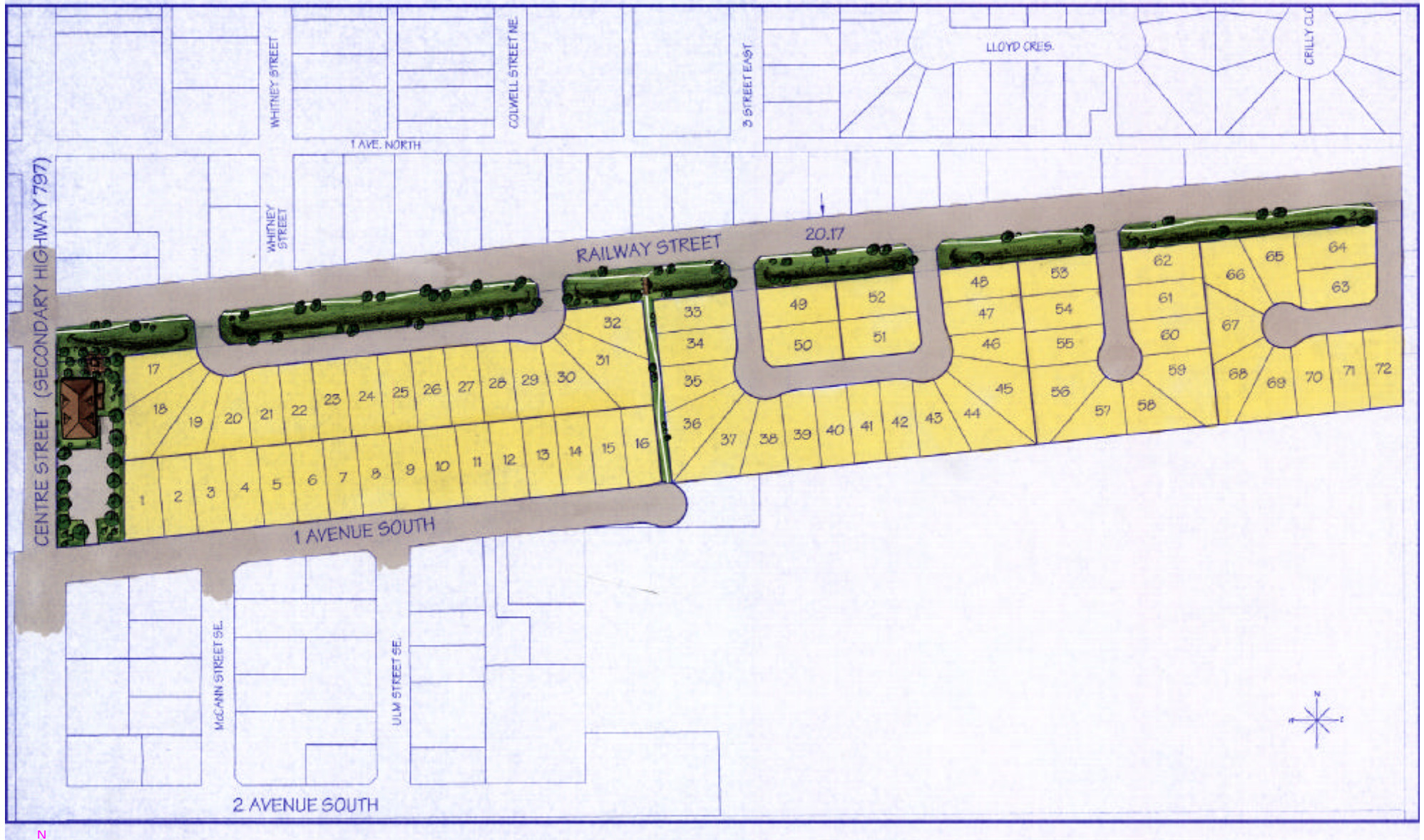


FIGURE 6.01



3363-101-01B.DWG OCTOBER 2002

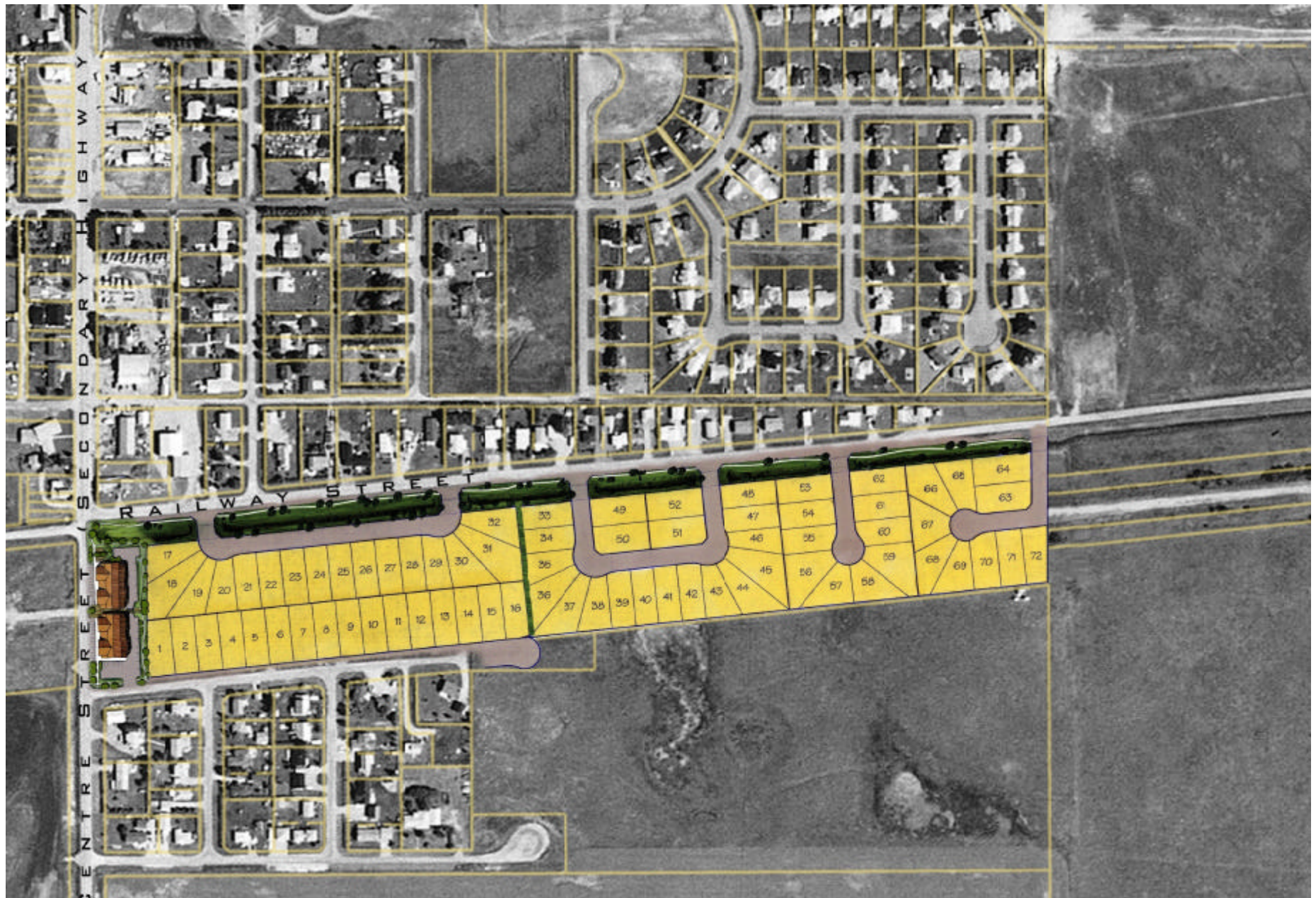
FIGURE 6.02

CONCEPT RENDER



3363-101-02B.DWG MARCH 2002

FIGURE 6.03



N.T.S.
3363-101-01B.DWG OCTOBER 2002

FIGURE 6.04

6.02 Residential Building Massing and Typology

To guide an appropriate infill development for the subject lands, existing building massing and architectural integrity has been considered. Figure 6.05 illustrates the typical massing of the site.



Figure 6.05 Typical Residential Cross Section

- 6.02.1 Policy:** The residential buildings shall provide a massing transition appropriate to the existing residences. This will be accomplished by restricting buildings to one story where they are immediately adjacent to the one-story character of Railway Avenue. Lots considered immediately adjacent to Railway Avenue are those not separated from Railway Avenue by either an internal roadway or another home lot within the Conceptual Scheme Planning Area.
- 6.02.2 Policy:** New homes within the Conceptual Scheme Planning area shall be of a scale appropriate to the surrounding buildings and to the Hamlet of Langdon as a whole.
- 6.02.3 Policy:** Minimal setbacks and front patios are encouraged to promote a sense of community and enhance front yard aesthetics.
- 6.02.4 Policy:** Garage doors should be recessed from the front façade of new homes to discourage an automobile scaled garage door streetscape.
- 6.02.5 Policy:** Architectural style shall be complimentary to the built heritage of Langdon and should embody a high quality of architecture and construction that appropriately addresses local vernacular, to the satisfaction of the Development Officer.

6.03 DC Parcel

The Commercial Business District and Policy Context

The western app. 1.09 acres of the subject lands have been identified as part of the future Commercial Business District (CBD) within the Hamlet of Langdon ASP. Page 27, section 7.3 *Business Land Use* of the Hamlet of Langdon ASP describes the CBD as follows:

“The Central Business District (CBD) of Langdon is expected to accommodate a range of business activities providing a range of goods and services to the local community and surrounding trade area. It is intended that the CBD be accessible to the greater community by vehicle and pedestrian linkages and its cohesiveness and identity be enhanced by high standards of development. The CBD, through progressive redevelopment and revitalization is intended to function as a primary area of social interaction within the community and a focus of civic and community identity. Residential land uses will continue to be accommodated within the CBD in order to introduce activity and vitality within the core.”

The Community Vision is described within in the Hamlet of Langdon ASP, section 4.1 *Community Vision* and states that the community is committed to respecting, preserving and enhancing it's connection to its past; a human scale in the patterns and architecture of its built environment; the natural environment; the existing social fabric of the neighbourhood; and long term economic health of the community.

This vision is further enhanced by several plan objectives expressed within the Hamlet of Langdon ASP, section 4.2 *Plan Objectives*. Some significant objectives include:

Plan Objective 4:

To establish land use planning guidelines and policies that will require proposals for subdivision and development of a range of land uses within the Plan Area to consider and respect the existing built environment and to develop in a manner that promotes a human scale in the physical definition of the community.

Plan Objective 5:

To establish land use planning guidelines and policies that will require proposals for subdivision and development of a range of land uses within the

Plan Area to respect historical pattern in the physical definition of neighbourhoods and to reflect Langdon's cultural and civic heritage.

These visions and objectives cannot be met by adopting the automobile scaled development patterns of the past 50 years. In order to address the vision and objectives of the community as articulated within the Hamlet of Langdon ASP, both the traditional context of Langdon and current trends in sustainable human-scaled town planning should be considered. This will ensure the development of a small town character that equally accommodates both the pedestrian and the automobile, and that preserves a connection to the past and resilience for the future.

Urban Design

The historical urban pattern of Langdon was defined mainly from the late 1800s and peaked during the early 1920s. This period of time is considered by many as the golden age of urban planning in North America where the public realm of streets and parks were designed principally at the scale of humans, but also to facilitate the movement of horses, buggies, farm implements and the growing use of automobiles.

The physical and historic pattern of the CBD is comprised of two story 'Main Street' buildings sited up to the right of way line of the street, accommodating parking either on street or by means other than a front loaded parking lot. The traditional 'Main Street' building character of the era was achieved by a mixture of uses that included living units and offices above commercial storefronts, generous sidewalks (or in many cases wooden boardwalks), and awnings and street trees for shade and character (although Langdon does not exhibit the historical use of street trees). Many of the historic buildings that line Langdon's once vibrant Centre Street have been destroyed through neglect, fire, or flood and have been replaced with buildings best accessed at the scale of the automobile. However, the traditional pattern along Centre Street can still be seen in the remains of the former Langdon Hotel and attached barbershop on the northeast corner of Railway Avenue and Centre Street.

While flexible in design options, the DC parcel should address the community's objectives to preserve the historical development patterns of the past and to create a human scale in the physical definition of the community. The subject DC parcel can best achieve these objectives by providing a mixed use building that promotes a pedestrian oriented 'Main Street' storefront character along Centre Street. The building should embody an architecture that both embraces the local vernacular and contributes significantly to Langdon's sense of place.

Although this Conceptual Scheme has left the DC parcel internally unsubdivided, future subdivision may be desirable to respond to future market conditions and to enhance flexibility for development. Condominium or bare land condominium subdivision is recommended to preserve continuity throughout the parcel.

Pedestrian Circulation

Pedestrian circulation is more than just providing a sidewalk or passageway. The pedestrian realm should provide a sense of safety from moving vehicles, a clear destination or purpose, and should provide a dignified atmosphere with things to look at and people to interact with. The sidewalk between the street and a front loaded parking lot (a parking lot in front of a building) serves only the function of allowing a pedestrian to move through an automobile scaled environment.

Through creative parking solutions that combine traditional development patterns and the modern realities of the automobile, a public realm that equally serves both the person in the car and the person on foot can be realized. The subject DC parcel can address the needs of the pedestrian and create a human scaled environment along Centre Street by providing a traditional storefront character that can be easily accessed without a car. A sound pedestrian system will reduce the amount of parking and traffic congestion throughout the CBD by providing the opportunity for a person to park once and easily access the entirety of Centre Street by foot.

The pedestrian realm of the subject DC parcel and the CBD as a whole will be further enhanced by the recommended creation of a small formal park north of the DC parcel building, as illustrated in figure 6.02 - *Concept Rendering*. This area creates an accessible destination for members of the community to gather and socialize. An additional pedestrian connection offering an alternate north-south route is provided between the DC parcel and the residential district to the east. This pathway serves as a linkage to the linear open space on the north of the site and provides a buffer between the DC parcel and low-density residential district. All utilities and servicing will be provided in the rear alley of the parcel. Deliveries and trash collection should be subject to restrictions and requirements established during the development permit approval process.

Vehicle Circulation

The intent of the DC parcel is not to create an environment that will inhibit efficient automobile movement, but rather to create a human scaled environment that is equitable in use to both the automobile and the pedestrian. To achieve this, Centre Street should reestablish a character that promotes safe pedestrian movement. Although identified as an 'Arterial Road' within the Hamlet of Langdon ASP, the historical character of Centre Street is that of a small town 'main street' passing through the heart of Langdon with a speed limit much lower than that of a typical Rocky View arterial. Centre Street serves primarily as a community centre and thoroughfare, and secondly as an arterial connection between highway 560 and Highway #22X. The desired vehicle speed should be reflected in the street design by a narrow driving width, on street parking, crosswalks, and street trees. This would serve not only to create a safe and dignified environment for pedestrian circulation, but also move traffic safely and efficiently. Vehicular traffic movement at all costs does not create a safe environment for residents on foot.

Given traffic movement that respects the town centre characteristics of Centre Street, on street parking would be appropriate to facilitate efficient parking access, efficient land use, a human scaled 'main street' character'. It will also provide a real or perceived buffer between pedestrians on the sidewalk and moving vehicles on the street. It should also be noted that because of the staggered time demands of parking in mixed-use developments and the functionality of a highly walkable pedestrian system, parking and traffic demand will be less than conventional automobile oriented development. Parallel, angled, and straight in parking are all appropriate and can be designed to suitably accommodate through traffic. However, Alberta Transportation has indicated that on-street parking will not be permitted along Centre Street given its classification as a Secondary Highway. Consequently, until a Hamlet scale solution to this issue is determined, adequate off-street parking will be provided in support of the commercial development. Suitable parking design should be established during the development permit approval process but should not be located between the commercial building and Centre Street.

Direct Control Bylaw

To create an innovative *Commercial Business District* and to achieve the objectives of Langdon residents as articulated within the Hamlet of Langdon ASP for human-scaled development that respects the historical development pattern, it is necessary to create a DC bylaw that can effectively set out the criteria for appropriate future development on the subject 1.09 acre parcel. Given the

adjacency of the commercial site to Secondary Highway 797, Alberta Transportation will have input into the provisions of the Direct Control Bylaw.

6.03.1 Policy: On street parking along Secondary Highway 797 (Centre Street) will not be permitted without the approval of Alberta Transportation and the M.D. of Rocky View.

6.03.2 Policy: Sufficient parking to serve the commercial development shall be provided on site to the satisfaction of the M.D. of Rocky View through a development permit.

6.03.3 Policy: Road widening along Secondary Highway 797 (Centre Street) shall be provided at the time of subdivision to the satisfaction of Alberta Transportation.

6.03.4 Policy: A park area north of the commercial building south of the regional drainage ditch should be incorporated into the site design for the commercial site.

6.03.5 Policy: A pedestrian pathway connection should be provided along the east boundary of the proposed commercial site.

6.03.6 Policy: Utility services and commercial building service facilities such as garbage collection and loading should be located to the rear of the commercial building and incorporated into a lane access.

6.03.7 Policy: Alberta Transportation shall have input the provisions of any Direct Control Bylaw contemplated for the commercial site.

6.03.8 Policy: Subdivision of the commercial site is permitted.

6.03.9 Policy: Fencing adjacent to the east boundary of the commercial should be provided to visually screen commercial development from the adjacent residential development to the east.

6.04 Open Space and Pathways

Design

While the regional drainage ditch presents many constraints to development, it also offers an opportunity to create a significant linear pedestrian pathway along Railway Avenue. The creation of this linear open space and pathway will require the construction of a

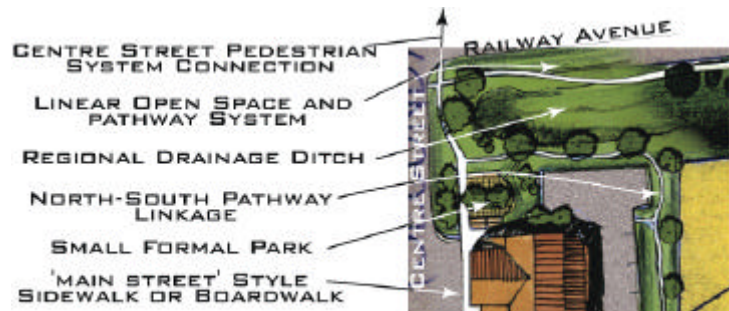


Figure 6.06 - Open Space Detail

pathway, the planting of trees and shrubs, and modifications to the drainage ditch. A sustainable and low maintenance landscaping is encouraged and would consist of natural prairie grasses and drought resistant foliage suitable for the local climate. A pedestrian bridge crossing the drainage ditch may also be provided to enhance pedestrian mobility. The linear open spaces and pathways are intended for public use.

It should be noted that by providing houses that front or flank to this open space, the area is self-policing and will demand higher resident maintenance such as periodic trash collection. Conversely, backing lots would create a potential 'dead zone' and the resulting open space would command little community stewardship.

A small open space and park on the northern boundary of the DC parcel will serve to transition the 'natural' character of the linear pathway to the more urban Centre Street pedestrian system as illustrated in figure 6.02 – *Concept Rendering* and detailed in figure 6.06 – *Open Space Detail*.

A pedestrian pathway linkage from 1st Avenue South to Railway Avenue will be located in a 6 metre open space between the residential use and the DC parcel, further serving as a buffer between the two uses. This pathway will inherit the natural prairie character of the larger linear pathway system that it connects into.

Municipal Reserves

The total area of the subject lands is approximately 23.15 acres. As required by the Municipal Government Act 10% of this land, or approximately 2.32 acres, should be dedicated as municipal reserve. The current plan indicates 1.24 acres dedicated as urban reserve, which would leave a balance of 1.08 acres owing. The remaining 1.08 acres shall be paid 'cash in lieu'.

- 6.04.1 Policy:** Municipal reserves shall be dedicated in accordance with figure 6.01 – *Proposed Subdivision*.
- 6.04.2 Policy:** The linear open space along Railway Avenue is comprised of both the regional drainage ditch and the dedicated municipal reserves as serves the dual function of a community pathway and the conveyance of storm water.
- 6.04.3 Policy:** Landscaping of open spaces shall be in accordance with an approved Landscaping Plan to be submitted at the time of subdivision approval and prepared in consultation with adjacent residents and the M.D. of Rock View.
- 6.04.4 Policy:** The maintenance of the linear open space along the regional drainage ditch within the Conceptual Scheme Planning Area shall be the responsibility of a Home Owner's Association formed from amongst the owners of the residential lots within the subject lands.
- 6.04.5 Policy:** All alterations, aesthetic or otherwise, to the regional drainage ditch shall require approval from the M. D. of Rocky View and may require the approval of Alberta Environmental Protection.
- 6.04.6 Policy:** Two north south pedestrian linkages should be provided, one adjacent to the east boundary of the commercial site and one from the termination of the cul-de-sac on 1st Avenue north to Railway Avenue. A pedestrian bridge over the municipal drainage ditch will provide access to the linear pathway along Railway Avenue identified in Policy 6.04.3.

6.05 Phasing

6.05.1 Policy: The Hamlet Residential Single Family District will be developed in two phases: Phase One is identified as the western 32 lots of the subdivision, including all those along 1st Avenue South and those along the first internal roadway on the western portion of the subject site as shown on Figure 6.01. Phase Two is defined as the remaining 40 lots to the east including all those along the remaining three internal roadways on the eastern portion of the subject site.

6.05.2 Policy: The Hamlet Residential Single Family District and the DC Commercial/Mixed Use District may be developed independently.

6.05.3 Policy: The DC parcel within the Conceptual Scheme Planning Area may be developed as one building in a single phase, or as two or more buildings in multiple phases.

6.06 Traffic Impact Study

Access to the site is currently provided by three existing developed roadways. The Hamlet of Langdon ASP identifies the following roadways directly adjacent to the subject lands:

Centre Street (SH 797), Arterial: Traffic movements and land access are of equal importance. The arterial is to accommodate less than 5000 vehicles per day at speeds of 60 to 80 km/hr. Intersections are spaced at a minimum of 400 to 800 metres apart.

Railway Avenue, Collector: Traffic movements and land access are of equal importance. The collector is to accommodate less than 2500 vehicles per day at speeds of 50 to 60 km/hr. Intersections are spaced at a minimum of 150 to 400 metres between local roads.

1st Avenue South, Whitney Street, Local: The local roadways are to accommodate less than 1000 vehicles per day at speeds of 50 to 60 km/hr. They direct movement of traffic to collector roads and facilitates pedestrian movement. Intersections are spaced at a minimum of 150 metres between local roads.

The preceding roadway guidelines are provided as context only and are not a substitute for municipal standards.

As required by the M.D. of Rocky View and the provisions within the Hamlet of Langdon ASP, a traffic impact study was conducted and is included in the supporting report - *Langdon Station Traffic Impact Study*. Some conclusions and recommendations of significance are as follows:

- Three intersections were evaluated that currently impact the subject lands: Centre Street and Railway Avenue; Whitney Street and Railway Avenue; and Centre Street and 1st Avenue. All were found to have an 'A' Level of Service signifying good operational conditions with movement delays of less than 15 seconds.
- Future projections to the year 2010 indicate that the intersection of Centre Street and Railway Avenue will decrease to a 'B' level of service in the morning peak hours which still signify good operational conditions, and a decrease to 'C' Level of Service in afternoon peak hours. With a delay just over 15 seconds, this Level of Service is approaching 'C'.
- 2010 Projections indicate that the remaining intersections will remain at an 'A' Level of Service.

- The commercial site is assumed to contain a maximum of 16,335 sq. ft. of commercial floor space at an FAR (Floor Area Ratio) of 0.25. This will indicate a 2010 projection of an 'A' Level of Service in the morning peak hours and a 'B' Level of Service during afternoon peak hours at the intersection of the commercial site and Centre Street. This indicates good operational condition during both morning and afternoon peak hours.

According to the attached Langdon Station Traffic Impact Study, the traffic generated by the subject lands will not significantly impact traffic movement and all adjacent roadways will operate well within their capacity.

6.07 Roadway Network

Pursuant to the Hamlet of Langdon ASP, infill development is encouraged in order to maximize the use of existing roads and utilities. All internal roadways are shown within the subject site boundary of figure 6.01 – *Subdivision Design*.

The only existing roadway that can be utilized for direct access to individual residential lots is 1st Avenue South. The right of way of 1st Avenue extends approximately 420 metres to the east of Centre Street.

6.07.1 Policy: 1st Avenue shall be upgraded to a standard that is in accordance with the M.D. of Rocky View's current *Servicing Standards for Subdivisions and Road Construction*.

6.07.2 Policy: 1st Avenue shall be extended approximately 50 metres to the east, terminating in a cul-de-sac to be constructed in accordance with the M.D. of Rocky View's current *Servicing Standards for Subdivisions and Road Construction*.

6.07.3 Policy: An updated Traffic Impact Study will be required as a condition of subdivision approval.

The regional drainage ditch located on the northern boundary of the site inhibits the use of Railway Avenue to serve individual lots. However, in order to preserve the integrity of the streetscape, lots were aligned to face or flank the existing development along Railway Avenue. To accomplish this, internal roads are required to cross the drainage ditch and provide access to Railway Avenue. The internal roadways are intended to disburse traffic concentration onto six access points, thereby reducing the potential for congestion points along Railway Avenue. This allows for efficient vehicular access onto the individual lots while creating fewer potential headlight nuisances at each intersection than might occur at intersections with higher concentrations of traffic.

6.07.3 Policy: All road crossings over the regional drainage ditch shall be constructed to the satisfaction of the M.D. of Rocky View.

6.07.4 Policy: All internal roadways shall be constructed in conformance with the M.D. of Rocky View's current *Servicing Standards for Subdivisions and Road Construction*.

6.07.5 Policy: Street lighting shall be provided to the satisfaction of the M.D. of Rocky View.

The internal road network will be of a curb and gutter design as shown in figure 7.01 *Typical Internal Road Cross Section* pending approval from the M.D. of Rocky View.

All new and upgraded residential roadways will be equipped with appropriate street lighting. Street lighting will create an ambient light during the non-daylight hours that will serve to reduce the overall impact of vehicle headlights. This will serve to further mitigate potential headlight nuisances while improving resident security.

6.08 Crime Prevention Through Environmental Design

As noted in section 6.04 - *Open Space and Pathways*, the front and flanking alignment of the homes along Railway Avenue provides an excellent self-policing situation on the linear open space. This open space is along a residential collector street that allows for clear sightlines and visibility. Additionally, the required street lighting will promote evening and night time security along the pathways and internal roadways.

Because of the location of the north-south connection pathway between the DC parcel and the residential district, adequate lighting should be provided for maximum security. The area between the pathway and rear wall of the building should remain clear of structures such as trash bins and garages to promote clear site lines and visibility by others.

Proper orientation and location of the commercial/mixed use development can enhance safety. By locating the building along Centre Street with a well lit pedestrian oriented 'Main Street' setting, the area will have maximum visibility throughout the day and evening hours. This will also provide an alternative north and south pedestrian link. This 'Main Street' building orientation will allow for the maximum rear yard providing added visibility and security.

A mixture of uses can provide a diversity of activities during the day and night. Commercial, office, and residential uses have different time demands that will attract residents, customers, and shoppers at different times of the day and night. This variety

of activity generating uses creates the appearance of uninterrupted surveillance that enhances security and stewardship.

6.08.1 Policy: A plan demonstrating adequate lighting that contributes to resident and pedestrian safety on the DC parcel shall be required during the development approval permit process to the satisfaction of the municipality.

6.08.2 Policy: Buildings within the DC parcel shall be oriented to contribute to the safety of pedestrians to promote site security .

6.08.3 Policy: No accessory building or structure shall be placed between the pathway and the rear wall of the buildings within the DC parcel.

6.09 Confined Feeding Operations

As identified within the Hamlet of Langdon ASP, Section 7.0 *Plan Policies*; policy 7.1.4, the subject lands are located within the Minimum Distance Separation (MDS) of intensive livestock facilities south of the subject lands. While policy 7.1.6 of the Hamlet of Langdon ASP recommends that residential uses shall not be located within the Confined Feeding Operations (CFO) MDS, policy 7.1.7 states the following:

Notwithstanding Policy 7.1.6, redesignation and subdivision of land for residential land uses may, in the opinion of the Municipality, be considered appropriate within the MDS area following consideration of the following criteria:

- a) The location and design of the existing intensive livestock facility and its impact on adjacent properties;
- b) The existing intensive livestock facility's manure management plan;
- c) The possible environmental impact of the existing intensive livestock facility on:
 - a. Air quality;
 - b. Surface and groundwater hydrology;
- d) The impact the existing intensive livestock facility may have on the street pattern;
- e) The proximity of existing residential development within the MDS area; and,
- f) Any comments received from referral agencies.

Inconsideration of extensive intervening residential uses between the subject site and the intensive livestock operation, residential development within the Conceptual Scheme planning area is appropriate within the Minimum Distance Separation of the

nearby intensive livestock facility. Also the Hamlet of Langdon Area Structure Plan identifies the Plan Area as appropriate for infill residential development.

In addition, a proposal to develop the lands which contain the Confined Feeding Operation for a golf course residential community through expansion of the Hamlet is currently on file with the M.D. of Rocky View. As such it is expected that the use of these lands for the confined feeding of livestock will cease.

6.10 Public Participation

As part of a comprehensive planning process, Langdon residents were consulted for their review and input of the subdivision and redesignation proposal through an informal open house hosted on January 4, 2000. An invitation that included the proposed subdivision design was mailed to all residents within the Hamlet of Langdon. Prior to this mailing, conceptual subdivision design plans were hand delivered to all residents immediately adjacent to the subject lands.

The open house was attended by 28 local residents, most of whom were from properties adjoining the subject lands. This list is included in appendix A. – *Open House Attendance Sheet*. Residents were invited to view several presentation boards detailing the proposed subdivision and redesignation and were able to engage in informal discussions with the planning consultants and fellow residents. Input from the open house was reviewed and considered during preparation of the Conceptual Scheme.

Two significant issues arose during the open house: concerns about headlight nuisances from automobiles exiting the internal roadways of the subject site onto Railway Avenue, and the issue of lots backing onto Railway Avenue vs. flanking and fronting lots. Figure 6.04 – *Concept Rendering Overlay* was provided on a 24” by 36” board at the open house in order to elicit clear communication of potential nuisances created by the proposed subdivision. Additionally, photographs were provided illustrating the location of proposed roadways and the location in which they would terminate in relation to homes along Railway Avenue as illustrated in figure 6.07 on the following page. Similarly, photographs were provided to contrast fronting lots and backing lots.

Out of the six proposed intersections, five of these have the potential to create a headlight nuisance. Of these five, however, only one internal roadway does not terminate at the property line between homes along Railway Avenue as is demonstrated in figure 6.07 – *Photograph from future Intersection*. This intersection is the third intersection from the eastern boundary of the subject lands and it will terminate in alignment with the left front corner of a house along Railway Avenue as shown in figure 6.06. This intersection shares the access to twenty lots (lots 33-52 according to figure 6.04 – *Concept Rendering Overlay*) with a second intersection to the west. Because most traffic will likely be traveling to the east along Railway Avenue, the intersection in

question may only typically service the traffic of 7-8 homes within the subject lands. There are three important factors to note regarding this issue. The first is that this intersection will serve a relative small amount of homes as previously discussed. The second is that although headlight alignment can vary and with the exception of headlights in “high beam” mode, typical headlight alignment terminates on the ground several metres in front of the vehicle, not directly forward. The final note in this regard is that the home in question is elevated approximately one meter above the elevation of Railway Avenue.

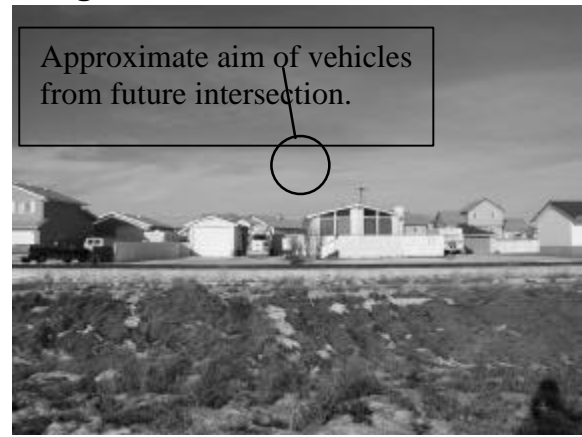


Figure 6.07- Photograph from a Future Intersection

All subdivision concepts present varying potential for headlight nuisance. The nuisance for this subdivision design is kept at a minimum by dispersing access, designing intersections to terminate at the space between existing houses along Railway Avenue (except for the aforementioned intersection,) and ambient lighting. Subtle ambient light will be created by the street light system thus reducing the overall contrast of headlight beams with nighttime lighting conditions. In the event that an unforeseen nuisance is created, the developer may further mitigate the problem by providing landscaping materials such as rocks and trees on affected lots.

The second significant issue raised at the open house is the design option of backyards along Railway Avenue vs. fronting and flanking lots along Railway Avenue that take advantage of the existing urban structure. While there were some concerns over traffic and headlights, there was general agreement by residents that fronting lots would create a more preferable streetscape for both existing and future residents. Photographs were provided at the open house contrasting backyards and front yards. Those with a preference for an internalized subdivision and backyards along Railway Avenue had their concerns rooted mainly in perceived headlight nuisance.

The major advantages of the current design vs. an internalized subdivision concept are: the creation of an infill development that contributes to the surrounding community fabric and takes advantage of existing infrastructure (as outlined in the Langdon ASP; traffic that is dispersed thus reducing congestion at intersections and dispersing headlight beams; potentially unsightly backyards that are placed away from public thoroughfares, the best face (Front of House) is put forward; the linear open space will attract community stewardship and invite users rather than create a line of fenced backyards and an area of questionable ownership; ‘eyes on the street’ will provide added security throughout the community and open spaces.

7.00 Servicing Scenario

7.01 Sanitary Sewer

Sanitary sewage will be disposed through a gravity collection system that drains into the municipal sanitary sewer servicing the Hamlet of Langdon. The location for sanitary sewer servicing is identified in figures 7.01 - *Typical Internal Road Cross Section*.

7.01.1 Policy: The location of a connection from the Plan Area to the municipal sanitary sewer system will be determined by the municipality in accordance with Sections 7.7.1.3 and 7.7.1.4 of the Hamlet of Langdon Area Structure Plan.

7.01.2 Policy: All sanitary sewer lines and services shall be constructed in conformance with the M.D. of Rocky View's current *Servicing Standards for Subdivisions and Road Construction*.

7.02 Water Supply

Water is to be supplied to the subject lands from a piped water system licensed by Alberta Environment. Langdon Waterworks will be the supplier of water to the site and it has confirmed that a sufficient water supply is available to service the proposed development. The location for water servicing is identified in figures 7.01 - *Typical Internal Road Cross Section* and 7.04 - *Servicing Scenario*.

7.02.1 Policy: All water lines and services shall be constructed in conformance with the M.D. of Rocky View's current *Servicing Standards for Subdivisions and Road Construction*, as approved by the M.D. of Rocky View.

7.02.2 Policy: Langdon Water Works will be the supplier of potable water.

7.03 Fire Protection

Hydrants will be installed on the distribution system and sized to enable the conveyance of adequate water for firefighting purposes as specified by the Municipal District of Rocky View. Langdon currently has a volunteer fire department to respond to fire emergencies within the Hamlet and surrounding region.

7.03.1 Policy: All fire protection services shall be constructed in conformance with the M.D. of Rocky View's current standards and as approved by the M.D. of Rocky View Fire Chief.

7.04 Surface Improvements

Internal roads will include an asphaltic concrete pavement with rolled curb and gutter constructed to the standards specified by the Municipal District of Rocky View. Figure 7.01 depicts the internal road cross section.

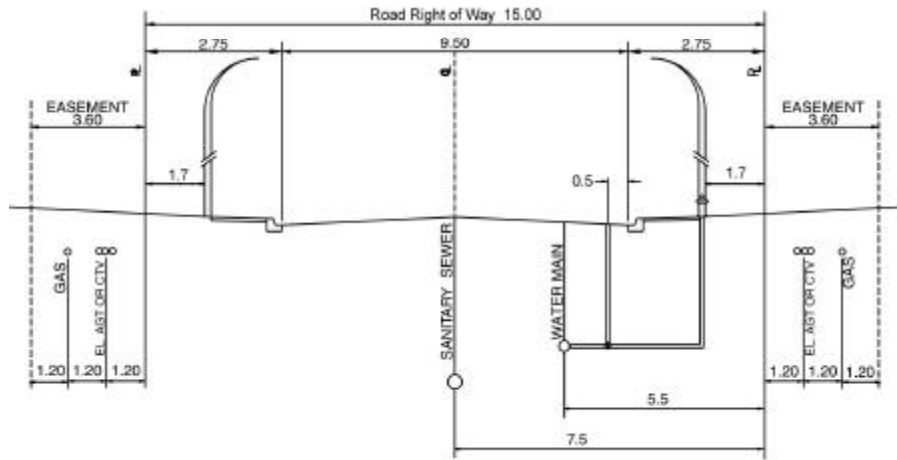


Figure 7.01- Typical Internal Road Cross Section

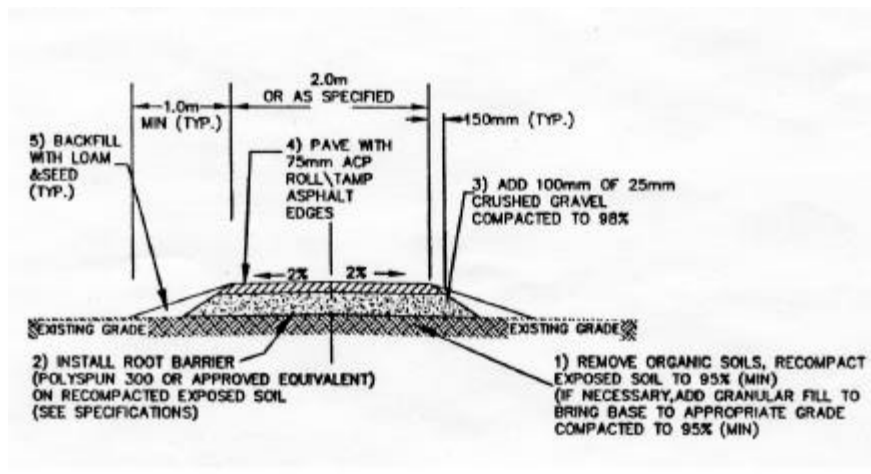


Figure 7.02- Typical Pathway Cross Section

There are sidewalks along the internal street network. All pathways, indicated in figure 6.02- *Concept Rendering*, will be constructed of asphaltic concrete as to the standards specified in the Municipal District of Rocky View's current *Servicing Standards for Subdivisions and Road Construction*. The required pathway cross section is illustrated in figure 7.02- *Typical Pathway Cross Section*.

7.04.1 Policy: All surface improvements and thoroughfares shall be constructed in conformance with the M.D. of Rocky View's current *Servicing Standards for Subdivisions and Road Construction*, as approved by the M.D. of Rocky View.

7.05 Franchised Utilities

Gas, power, telephone and cable TV service will be provided by the respective utility companies in a typical fashion. The alignment of these utilities is included in figure 7.01- *Internal Road Cross Section*. Serviceability of the proposed subdivision by the franchised utilities will be confirmed during the subdivision approval process. Discussions with utility providers indicate that no upgrades to existing facilities are required.

7.05.1 Policy: Franchised utilities shall be provided within the appropriate easement adjacent to the right-of-way of internal roadways.

7.06 Stormwater Management

The current Alberta Environment's *Standards and Guidelines for Stormwater Management for the Province of Alberta* and the M.D. of Rocky View's current *Servicing Standards for Subdivisions and Road Construction*, section 700.0, requires that new developments be responsible for managing any increase in storm water runoff and deterioration in water quality, as a result of development. With the development of the old railway station grounds in Langdon into a residential subdivision there will be an increase in the quantity of storm water runoff from site to the adjacent municipal drainage ditch.

The municipal drainage ditch on the north boundary of the site handles storm water runoff from a relatively large area to the northwest of Langdon. This ditch drains from the east to the northeast and conveys runoff through the Hamlet and eventually to Weed Lake. The ditch has been and will continue to be the receiving course for storm water from this site. As required by the Hamlet of Langdon ASP, Section 7.2.7 (g), a storm water management plan has been produced and is included in the supporting report – *Storm Water Analysis of Langdon Station for Perera Developments Ltd.* Some significant conclusions from this study are as follows:

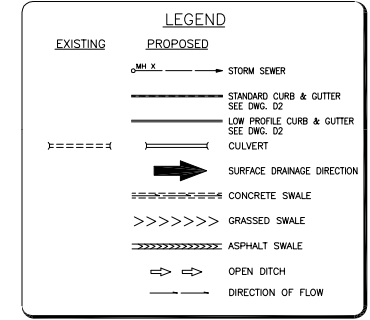
- Lots in phase one will drain back to front with the lots facing Railway Avenue draining north to the Railway Avenue ditch and the south facing lots draining to 1st Avenue. Curb and gutters will convey the water east along 1st Avenue to a concrete drainage swale running north between phases 1 and 2 to the municipal drainage ditch.
- The front of all lots in Phase 2 will drain to internal roads. These internal roads will be paved complete with concrete curbs and gutters. Runoff water will be conveyed via the gutter north to Railway Avenue where they will discharge to the existing ditch.

- As illustrated in figure 7.03 *Stormwater Management*, lot drainage from the rear of lots bordering the south property line in phase 2 will be picked up in a concrete swale to be constructed along this south property line and conveyed to the lowest point. From there concrete drainage gutters will take runoff north to the municipal drainage ditch.
- In conjunction with the development of Langdon Station, Perera Developments will widen the Railway Avenue ditch in three places as shown in the supporting report – *Storm Water Analysis of Langdon Station for Perera Developments Ltd.* The expanded capacity of the ditch created by the widening will provide the extra storage required for this development. There will be no increase in water levels and therefore no increase in discharge rates downstream of the development.
- The ditch widening will additionally serve to slow the velocity of the water and allow sediments to settle out thereby improving the quality of water discharged from the site. These widenings will be contoured and landscaped to provide a more natural character of the ditch and attached linear pathway system.
- “Stormcepters” will be used to pre-treat all street generated runoff prior to discharge into the regional drainage ditch. This will ensure that the stormwater runoff entering the ditch is of acceptable quality.

7.06.1 Policy: All stormwater management shall be in accordance with the Best Management Practices outlined within the Alberta Environment *Standards and Guidelines for Stormwater Management for the Province of Alberta*.

7.06.2 Policy: All stormwater management shall be in accordance with the stormwater management plan to be prepared in support of this Conceptual Scheme as approved by the M.D. of Rocky View and Alberta Environment.

7.06.3 Policy: The quality of stormwater released into the regional drainage ditch shall be in accordance with the mitigation measures contained within the approved stormwater management plan through the use of Stormcepters and to the satisfaction of the M.D. of Rocky View and Alberta Environment.



STORM DRAINAGE CONSIDERATIONS

PERERA DEVELOPMENTS PROPOSE TO SHAPE AND WIDEN THE RAILWAY AVENUE DITCH PROVIDING STORAGE FOR WATER IN EXCESS OF THE POST DEVELOPMENT INCREASE IN RUNOFF FROM THE LANGDON STATION DEVELOPMENT.

STORAGE REQUIRED (INCREASED RUNOFF) 802m³
 PRE DEVELOPMENT CAPACITY OF THE DITCH 3,385m³
 POST DEVELOPMENT CAPACITY OF THE DITCH 4,535m³
 STORAGE PROVIDED (1.43 X REQ'D) 1,150m³

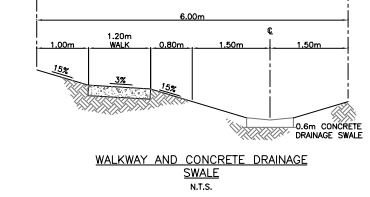
GRASSED SWALES AND THE LOW GRADIENT OF THE RAILWAY AVENUE DITCH WILL ENCOURAGE SILTATION THEREBY IMPROVING THE QUALITY OF STORM WATER TO BE DISCHARGED FROM THE SITE.

THE REDEVELOPMENT OF WEED LAKE AS A WETLAND WILL PROVIDE STORM WATER RETENTION AND TREATMENT FOR THE ENTIRE DRAINAGE BASIN DUPLICATING WHAT IS BEING DONE ON SITE.

A CONSIDERABLE AREA WEST AND NORTHWEST OF LANGDON DRAINS TO THE RAILWAY AVENUE DITCH. IN A MAJOR STORM EVENT THE PEAK FLOW TO BE HANDLED BY THE RAILWAY AVENUE DITCH WILL NOT OCCUR UNTIL RUNOFF FROM THE BALANCE OF THE DRAINAGE BASIN REACHES THE DITCH.

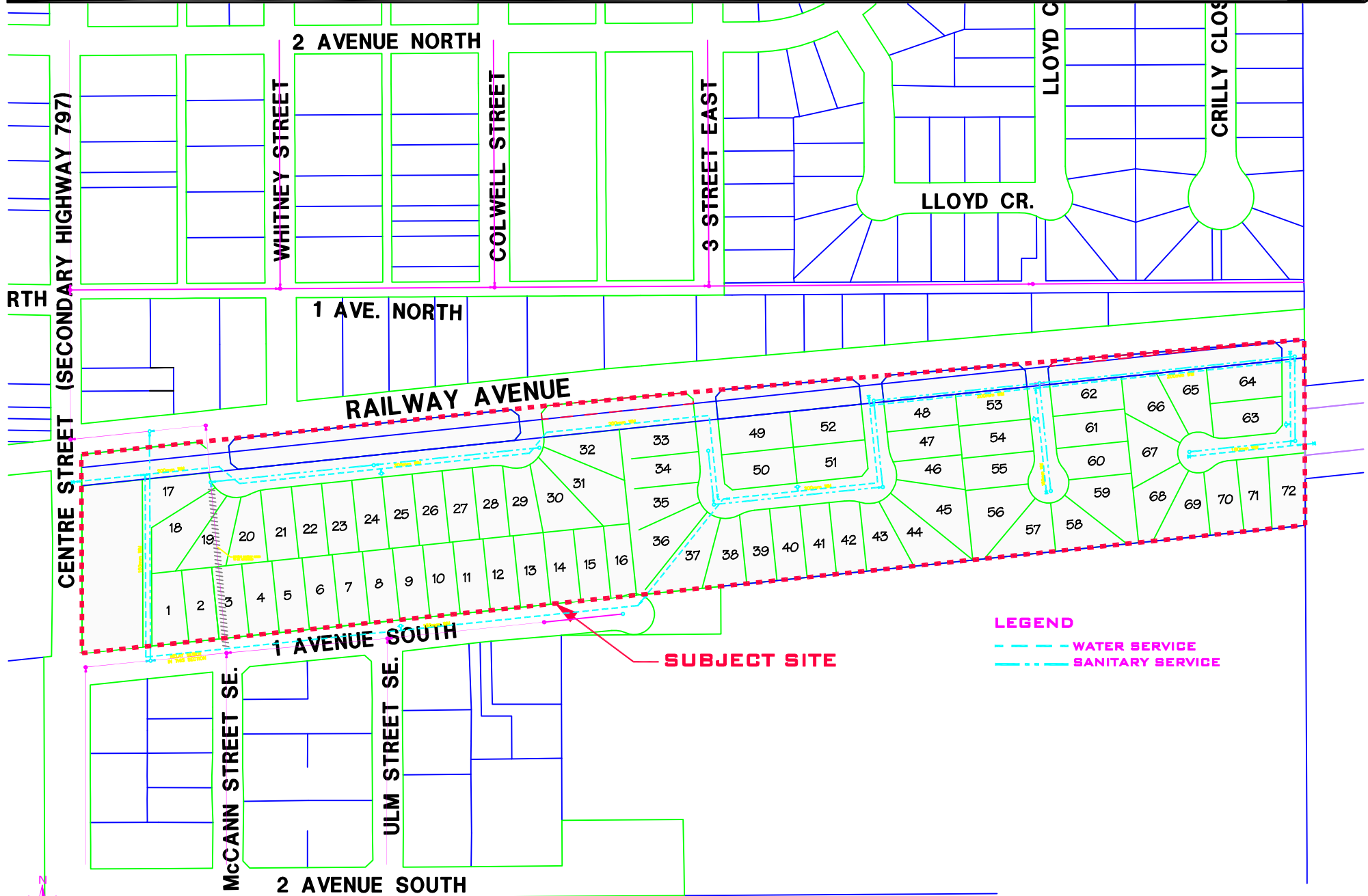
THE POTENTIAL FOR FLOODING IN THE HAMLET OF LANGDON IS REDUCED IF LANGDON STATION PROVIDES STORAGE EQUIVALENT TO OR GREATER THAN ITS NEEDS BUT ALLOWS PEAK FLOWS FROM LANGDON STATION TO PASS THROUGH THE SYSTEM TO WEED LAKE BEFORE PEAK FLOWS FROM THE BALANCE OF THE DRAINAGE BASIN REACH THE RAILWAY AVENUE DITCH.

- NOTES:**
1. PIPE SIZES ARE IN MILLIMETRES AND DIMENSIONS ARE IN METRES.
 2. FOR TYPICAL ROAD X-SECTION, DETAILS AND CONSTRUCTION STANDARDS, SEE DWG. D2.
 3. FOR EASEMENT WIDTHS, SEE DWGS S1, S3 AND P1-P10.
 4. FOR CONCRETE SWALE LOCATIONS, SEE PLAN-PROFILE DWGS.
 5. FOR LIP OF GUTTER (LG) CURVE DATA, SEE PLAN-PROFILE DWGS.
 6. ALL ROADWAY WIDTHS ARE 9.5m FROM LIP OF GUTTER TO LIP OF GUTTER.
 7. LIP OF GUTTER IS 2.75m FROM PROPERTY LINE EXCEPT FOR PROPOSED CURB RETURNS MEETING THE EXISTING SOUTHERN EDGE OF ROADWAY ON RAILWAY AVENUE. SEE PLAN-PROFILE DWGS.



S2.DWG MARCH 2002

FIGURE 7.03



3363-101-01B.DWG MARCH 2002

FIGURE 7.04

8.00 Implementation

8.01 Discussion

Through the policies set forth within this “Langdon Station Conceptual Scheme” and the overriding Hamlet of Langdon ASP, this subdivision and redesignation proposal will provide an infill development that meets and exceeds the provisions set forth by the Municipal District of Rocky View and the demands of the collective Langdon community. The objectives of this report have been achieved through a comprehensive planning process that has included close adherence to the Hamlet of Langdon ASP and collaborative public input.

Subdivision and redesignation of the Conceptual Scheme planning area shall be guided by the policies and discussions herein and implemented through conditions of redesignation and subdivision approval by the Municipal District of Rocky View.

8.01.1 Policy: The Municipal District of Rocky View shall implement this Conceptual Scheme through the approval process for redesignation and subdivision.