

# Palisades Outline Plan

NE ¼ 25-36-28-W4  
Town of Penhold

August 2012

Approved August 13, 2012

*established 1976*  
**LAEBON HOMES**  
THE SPIRIT OF COMMUNITY

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## Introduction

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### Overview

The Palisades Outline Plan details the development plan, guidelines, and servicing concepts for a parcel of land located within the Town of Penhold as shown on **Figure 1.0 – Location Plan**. This 65.47 hectare site; furthermore referred to as the Plan Area; is bound by Range Road 280 (Waskasoo Avenue) to the east, agricultural land to the west and south, and existing residential development to the north.

The following documents were reviewed to assess the serviceability of the site and the compatibility of future development with previous planning documents created by the Town of Penhold and Alberta Environment and Water:

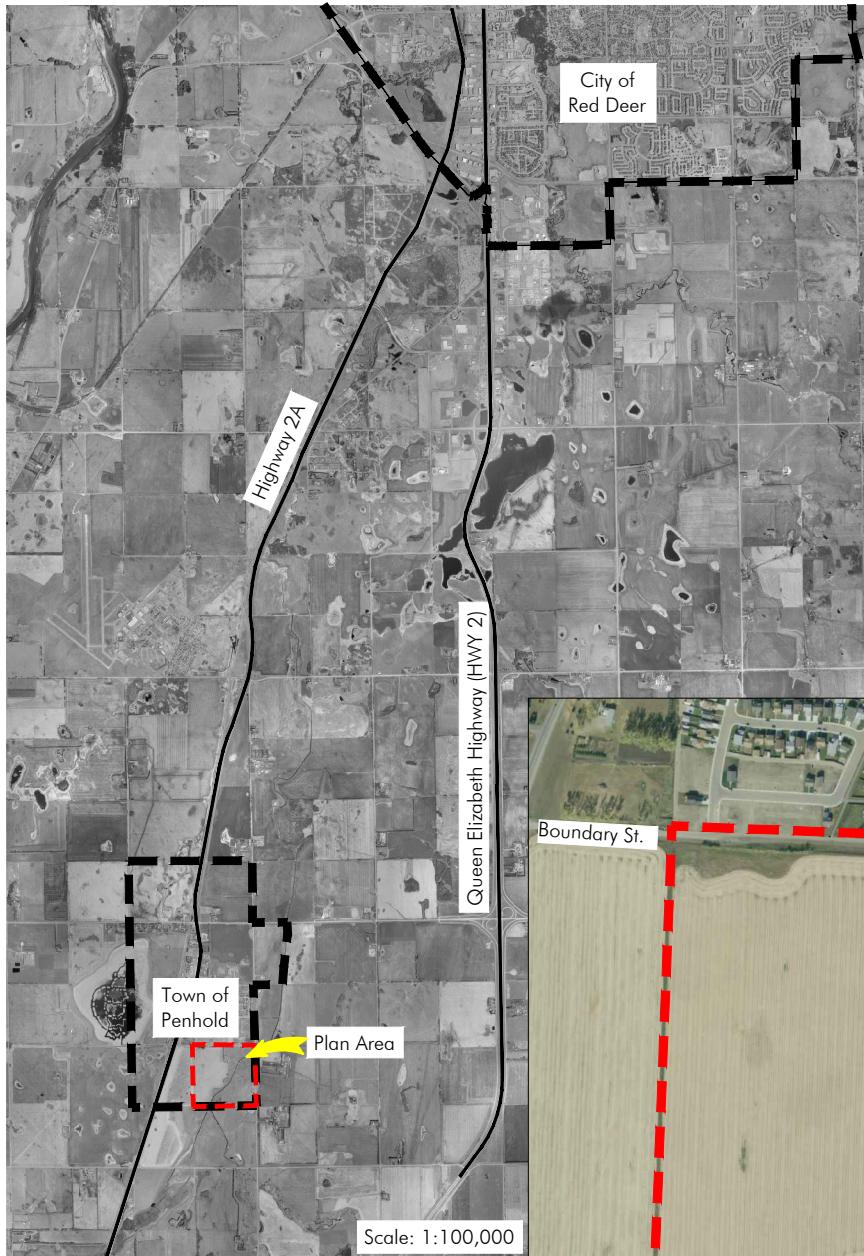
- *Town of Penhold Municipal Development Plan*, adopted with amendments as of February 2010, prepared by Parkland Community Planning Services.
- *Town of Penhold Land Use Bylaw*, adopted by council in May 2011, prepared by Parkland Community Planning Services.
- *Stormwater Management Guidelines for the Province of Alberta*, dated January 1999, prepared by Alberta Environment and Water.
- *Waskasoo Creek at Penhold Flood Hazard Mapping Study 2008*, Prepared by Alberta Environment
- *Town of Penhold Streetscape Design Guidelines*, prepared by Parkland Community Planning Services.
- *Phase One Environmental Site Assessment*, Prepared by Stantec Consulting 2012

All additional technical studies to support the proposed development will be provided at the detail design stage.

### Purpose

The purpose of this Outline Plan is to facilitate the orderly development by identifying proposed land uses, density of development, and location of the transportation network by describing the land use pattern and development objectives for the Plan Area by identifying the following:

- the size and location of various land uses,
- the alignment of roadways and lanes,
- the open space system,
- the proposed development density,
- servicing concepts for deep utility servicing,
- and, the development staging sequence.



### Legend

- Municipal Boundary
- Outline Plan Boundary

Figure 1.0  
Location Plan  
Palisades

Prepared for:  
Laebon Homes  
Red Deer, Alberta

Stantec  
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SCALE: AS SHOWN  
PROJECT #: 112849190

August, 2012

## Development Area

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### Ownership

This Outline Plan Area comprises 65.47 hectares (161.77 acres) of land and is legally referred to as N.E. ¼ Sec.25-36-28-W4. The Town of Penhold currently owns the legal description of 33 feet along the north boundary containing 0.81 hectares for the potential development of a roadway and a Road ROW within SE 36-36-28-W4. These roadway ROW is further described in the Transportation section of this Outline Plan.

Table 1.0 – Ownership Reference.

Title Number	Short Legal	Parcel Size	Owner
082 289 648	4;28;36;25;NE	64.67 ha	Laebon Developments Ltd.
90S75	4;28;36;25,NE	0.81 ha	The Town of Penhold
Road ROW 2056Q	4;28;36;36,SE	0.81 ha	The Town of Penhold

### Topography

The Plan Area gently sloping towards the eastern portion of the site where an outfall to the Waskasoo Creek is present. The elevation associated within the topography varies from 897.5 meters in the west portion to 895.00 meters in the east.

### Existing & Surrounding Land Use

As indicated on **Figure 2.0 – Existing Conditions**, the site is currently being used for agricultural purposes.

An existing residential subdivision is located to the north of the site while lands to the east, south, and west of the site are also being used for agricultural purposes. Highway 2A and the CPR rail line are located to the west of the site.

### Access

The site is currently accessible by Boundary Street, which runs from west to east along the northern boundary of the Plan Area. The Plan Area can also be accessed from Waskasoo Avenue to the east.

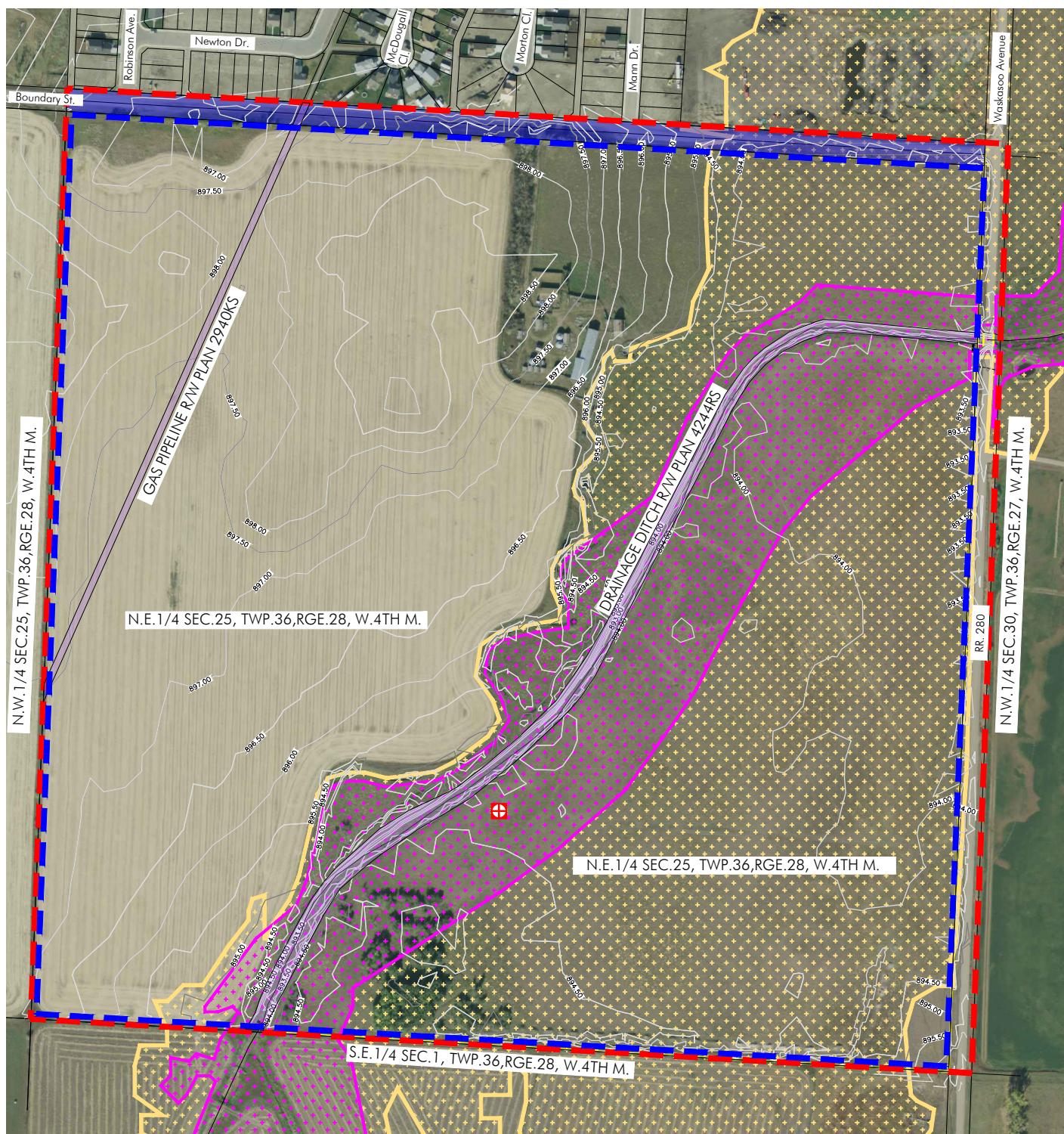
Prior to build out, access to the Palisades neighbourhood will be provided at Boundary Street via extensions of Robinson Avenue and Mann Drive, both located in the residential subdivision north of the Plan Area.

A more detailed discussion regarding the site's future access is addressed within the Transportation section of this Outline Plan.

### Site Servicing

During preliminary site investigations, it was concluded that the site could be fully serviced with urban infrastructure including storm and sanitary sewer, water, and shallow utilities. Details regarding the site's servicing are addressed in the Servicing component of this Outline Plan.





### Legend

- Existing Trees
- Existing Buildings
- Contours
- Abandoned Well Site
- 100 Year Floodway (Under encroachment conditions)
- 100 Year Flood Fringe (Under encroachment conditions)
- Right-of-Way
- Land Owned by The Town of Penhold
- Land Owned by Laebon Developments Ltd.
- Outline Plan Boundary



Figure 2.0

## Existing Conditions

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## Geotechnical Considerations

A geotechnical investigation and report for the Palisades site was completed and submitted by Parkland Geotechnical Consulting Ltd. in January of 2008. The investigation was conducted to determine the nature and engineering properties of the soil with respect to design and installation of underground services, road sub-grades, and to provide general comments with respect to foundation systems. Since the study was completed in 2008, written confirmation from Parkland Geotechnical Consulting Ltd. will be provided to the Town of Penhold confirming that the findings and recommendations are still valid.

The investigation concluded that the site soil and groundwater conditions of the site are similar to other areas in the Town of Penhold, and other sites in Central Alberta, and are considered to be suitable for residential development. The investigation provides recommendations regarding:

- Soil Conditions
- Groundwater
- Service Trench Installation
- Basement Foundations
- Slope Issues
- Roadway Subgrade Construction
- Pavement Design

## Development Concept

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The Palisades Outline Plan has been prepared based upon Town policies, market considerations, and site characteristics; it is designed to develop a neighbourhood that is reflective of the existing Town of Penhold. The Palisades concept has been developed to take advantage of the natural space while utilizing the existing topography. Palisades is a logical extension of growth within the Town of Penhold as it meets and recognizes all parameters provided in the previously noted statutory plans.

Palisades is characterized by a vision of a comprehensively planned residential neighbourhood that will consist of low density residential development interlaced with parks and open spaces. The presence of Waskasoo Creek provides residents with a variety of opportunities to enjoy the open space amenities it creates. In addition to the Creek's presence, Palisades emphasizes linear park connections, and neighbourhood access to open space amenities. An array of open spaces and linear park spaces integrated throughout the neighbourhood.

A general concept of the Palisades neighbourhood is shown on **Figure 3.0 – Concept Plan**. The overall density of Palisades will be an average of approximately 14.34 dwelling units per gross developable hectare. Preliminary development statistics can be found in **Table 2.0 – Land Use Calculations** and **Table 3.0 – Population Density**.

### Land Use

Lots in the area are envisioned to be zoned primarily as low density residential. Low Density Small Lot Residential (R1A) zoning has been used to allow for a variety of low-density single detached dwelling options. The Low Density Narrow Lot (R1-B) district has been utilized within the northwest corner of the Plan Area to provide smaller housing types within the neighbourhood. A small portion of General Residential (R2) zoning has been located along the western portion of the Plan Area to accommodate duplex dwellings.

In order to accommodate the continued need and demand for multi-family housing options, a 3.24 ha (8.00 ac) site has been identified for R3 development. This area, located within the southwest will provide land for medium to high density residential opportunities. The R3 district is envisioned to provide a mixture of housing types including row houses or townhomes based on need, affordability, and current market conditions at the time of development. A shadow plan has been developed for the R3 site, and shown on **Figure 3.0 – Concept Plan**, should it be developed as single family residential in the future based upon market demand.

### Waskasoo Creek Realignment

The Palisades Concept Plan has been developed based upon information from Alberta Environment and Sustainable Resources as well as the Alberta Environment *Waskasoo Creek at Penhold Flood Hazard Mapping Study 2008*. The overall Concept Plan is based on the ability to realign Waskasoo Creek within the Plan Area. Formal application has been made to Alberta Environment for all necessary approvals by the Developer and will be submitted to the Town

once approved. Once approved, Laebon will realign Waskasoo Creek and enhance the area with landscaping and trails.

Should Waskasoo Creek not be realigned, a Concept Plan has been developed based on the existing conditions as shown on **Figure 3.2 – Potential Alternate Concept Plan**. The northwest portion of the neighbourhood concept, as outlined in blue (Creek Realignment Plan Boundary), remains unchanged regardless of Waskasoo Creek's final alignment and therefore will allow development to proceed prior to the realignment of the Creek.

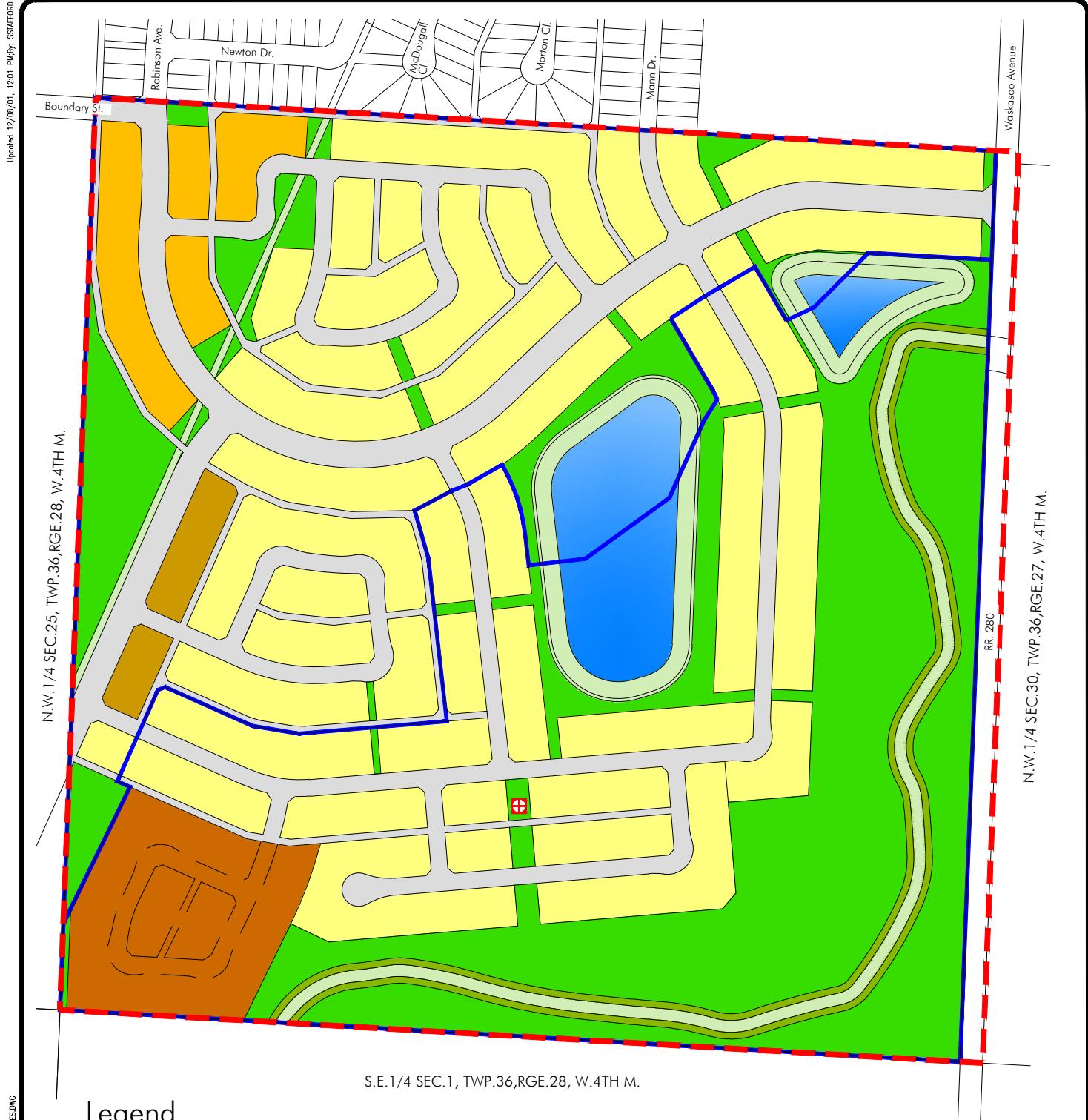
Waskasoo Creek will provide residents of the neighbourhood and Town with recreation opportunities as this natural space is developed with a continuous trail system and passive open space. Land adjacent to the Creek will be dedicated with a minimum of 6m Environmental Reserve, the final width of the environmental reserve will be determined in consultation with Alberta Environment and Sustainable Resource Development.

**Table 2.0 – Land Use Calculation.**

	Hectares	Acres	% of NDA
<b>Gross Area</b>	<b>65.47</b>	<b>161.77</b>	
SWMF	2.75	6.79	
Environmental Reserve (ER)	1.49	3.67	
<b>Net Developable Area</b>	<b>61.23</b>	<b>151.31</b>	<b>100%</b>
Low Density Small Lot (R1A)	23.64	58.42	38.61%
Low Density Narrow Lot (R1B)	2.24	5.53	3.66%
General Residential (R2)	0.77	1.91	1.26%
Multi-Unit Residential (R3)	3.24	8.00	5.28%
Municipal Reserve (MR)	17.19	42.48	26.87%*
Public Utility Lot (PUL)	3.69	9.11	6.02%
Roadways and Lanes	10.46	25.86	17.09%
<b>Total</b>	<b>61.23</b>	<b>151.31</b>	
*MR is calculated from Gross Developable Area - ER			

**Table 3.0 – Population Density.**

Residential Land Use	Hectares	Units	Pop/Unit	Population
Low Density Small Lot (R1A)	23.64	513	2.80	1436
Low Density Narrow Lot (R1B)	2.24	64	2.80	179
General Residential (R2)	0.77	23	2.80	65
Multi-Unit Residential (R3)	3.24	339	2.00	678
<b>Total</b>	<b>29.89</b>	<b>939</b>		<b>2358</b>
Overall density: 14.34 units/gross hectare				



### Legend

Low Density Small Lot Residential District - R1A	Public Utility Lot (PUL)
Low Density Narrow Lot Residential District - R1B	Roadways/Lanes
General Residential District - R2	Abandoned Well Site
Multiple Unit Residential District - R3	Outline Plan Boundary
Municipal Reserve (MR)	Creek Realignment Boundary
Environmental Reserve (ER)	Shadow Plan



Figure 3.0

## Concept Plan

Palisades

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Stantec

August, 2012

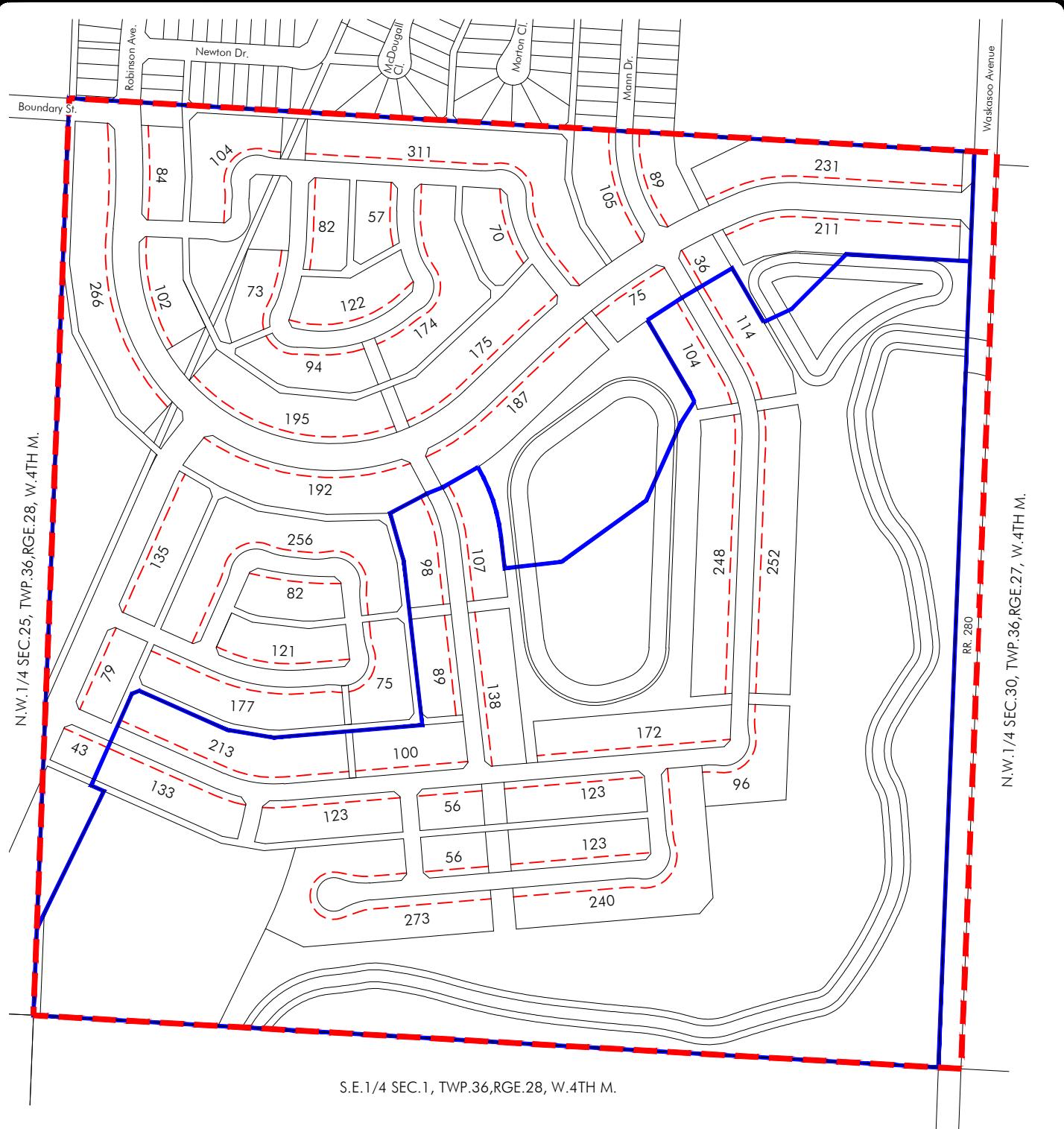


Figure 3.1

# Concept Plan - Frontages

Palisades

Prepared for:  
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### Legend

- Low Density Small Lot Residential District - R1A
- Low Density Narrow Lot Residential District - R1B
- General Residential District - R2
- Multiple Unit Residential District - R3

- Environmental Reserve (ER)
- Public Utility Lot (PUL)
- Municipal Reserve (MR)
- Roadways/Lanes
- 100 Year Floodway (Under encroachment conditions)



Figure 3.2

## Potential Alternate Concept Plan

Palisades

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## Open Spaces

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As shown on **Figure 4.0 –Open Space & Trails**, the open space system in the Plan Area has been designed to provide excellent linear connections for pedestrians, as well as provide residents access to water features and centrally located park spaces. Park areas and tot-lot park spaces are intended to foster a sense of community for residents by providing areas for neighbourhood gatherings and locations where residents can meet and visit.

### Municipal Reserve

Municipal Reserve has been located through the Plan Area to provide open space which can be enjoyed by the residents and those in surrounding neighbourhoods. 17.19ha of Municipal Reserve has been provided for the Plan Area, which represents 26.87 % of the gross developable area. Amenities within these Municipal Reserve areas may include: passive neighbourhood parks, tot lots, and trails. Over dedication of MR has been identified based upon the constraints and design of the community. The Town of Penhold will not be responsible for compensating the developer for any over-dedication of MR lands.

As shown on **Figure 4.0 –Open Space & Trails**, a playground is envisioned for location within the central open space area and a tot-lot will be incorporated into the northern park.

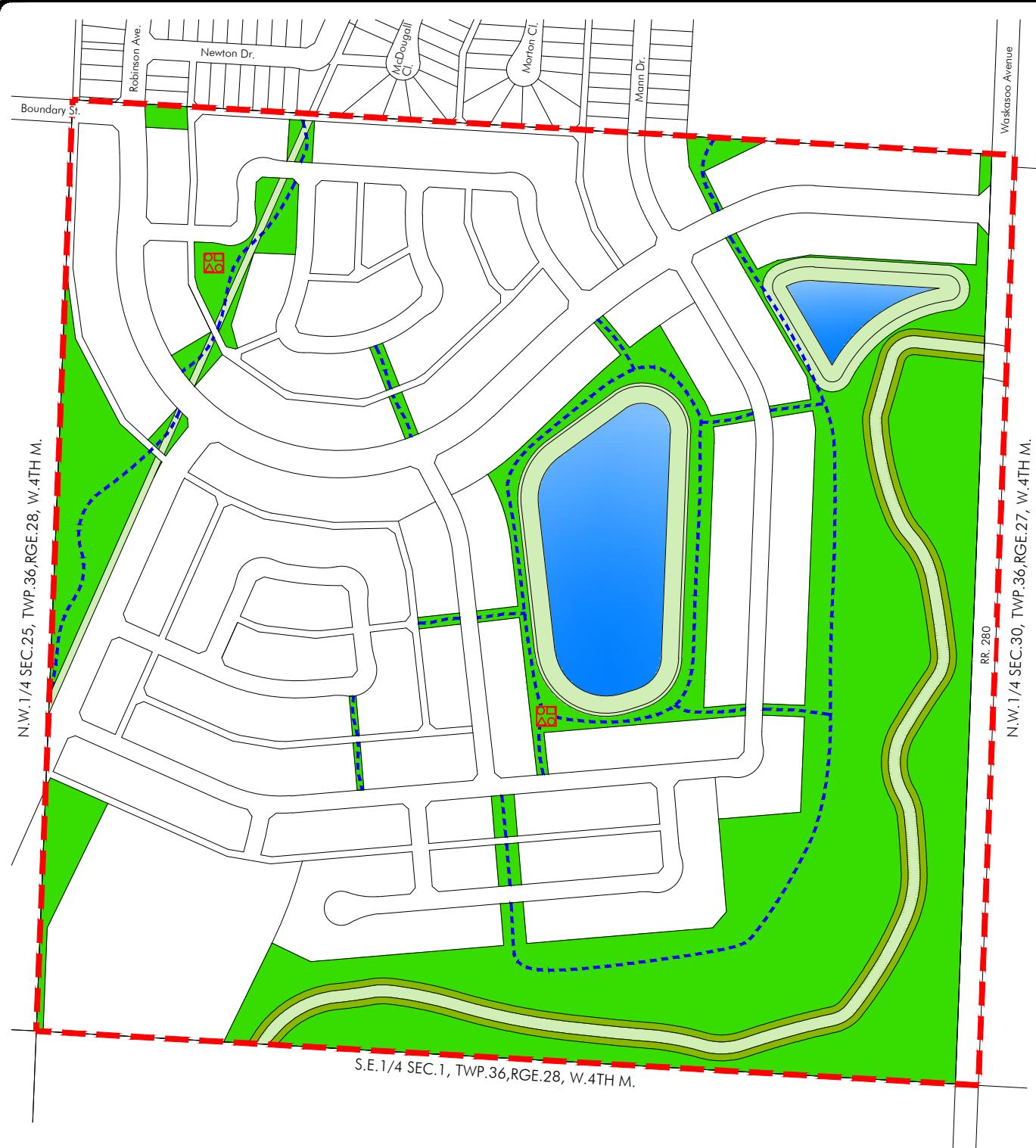
### Stormwater Management Facilities

Two stormwater management facilities will be located within the Plan Area. These facilities are envisioned to be constructed wetlands which will retain water during stormwater events, preserve natural vegetation, and provide passive recreation opportunities to residents.

### Trail Linkages

A well-integrated linear park system has been designed for the Palisades neighbourhood that will connect all quadrants of the Plan Area together and lead residents to the central open space.

Trails within the Palisades neighbourhood will be developed with a combination of paved and natural trails to standards acceptable by the Town of Penhold.



### Legend

- Municipal Reserve/ School (MR)
- Environmental Reserve (ER)
- Public Utility Lot (PUL)
- Community Amenity

- Outline Plan Boundary
- 2.5m Asphalt Trail



Figure 4.0

## Open Space And Trails

Palisades

## Transportation

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The road network within Palisades has been designed to provide efficient and safe movement of traffic within the neighbourhood for both vehicles and pedestrians. A logical and efficient transportation system is imperative for the functionality and connectivity of any neighbourhood. A functional roadway hierarchy is shown on **Figure 5.0 – Transportation Network**.

### Access

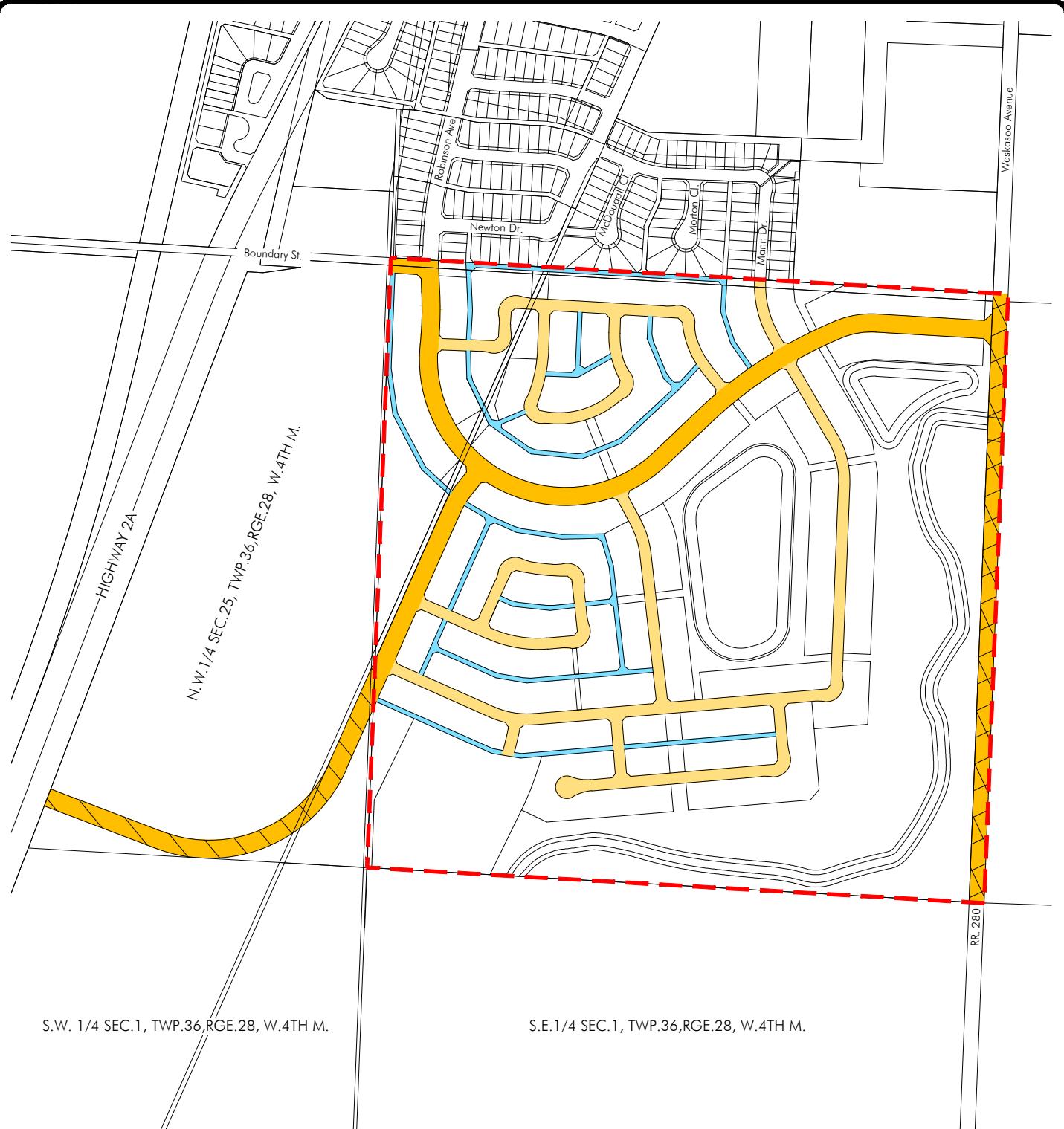
As discussed previously, the site is presently accessible from: Mann Drive, the intersection of Boundary Street and Robinson, and Waskasoo Avenue.

The initial stages of development are expected to occur in the northeast corner of the Plan Area and use access from Mann Drive and Waskasoo Avenue. Subsequent development will require full access from Boundary Street. Prior to the full build out of the collector roadway, A TIA will be required to recommend the upgrades required for Boundary Street and Waskasoo Trail.

### Roadway Network

An internal system of collector roadways has been planned for Palisades as illustrated on **Figure 5.0 – Transportation Network**. The collector roadway system will function as a complement to the internal system of local roadways which will consist of residential streets in the form of curvilinear streets, p-loops and cul-de-sacs. Road cross-sections have been provided on **Figure 6.0 – Road Cross-Sections**.

As mentioned, the most northerly 33 feet of the Plan Area containing 0.809 ha is owned by the Town of Penhold for the intended use of a roadway ROW. The development of Palisades does not require the development of this roadway as the collector roadway has been located further to the south. As per previous discussions with the Town, the existing parcel will be consolidated and dedicated to Laebon Developments. There is currently roadway ROW on the south boundary of SE 36-36-28-W4 which will require a road closure and dedication to Laebon Developments, consolidation of this ROW will occur at the time of subdivision of the residential lots. Laebon will be responsible for all costs associated with a road closure bylaw and the land acquisition will be completed through an agreement with the Town.



### Legend

<span style="background-color: yellow; display: inline-block; width: 15px; height: 10px;"></span>	Collector Roadway
<span style="background-color: lightyellow; display: inline-block; width: 15px; height: 10px;"></span>	Local Roadway
<span style="background-color: yellow; border: 2px solid black; display: inline-block; width: 15px; height: 10px;"></span>	Possible Future Collector Roadway Alignment
<span style="background-color: yellow; border: 2px dashed black; display: inline-block; width: 15px; height: 10px;"></span>	Waskasoo Avenue
<span style="background-color: lightblue; display: inline-block; width: 15px; height: 10px;"></span>	Lane
<span style="border: 2px dashed red; display: inline-block; width: 15px; height: 10px;"></span>	Outline Plan Boundary



Figure 5.0

## Transportation Network

Palisades

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August, 2012

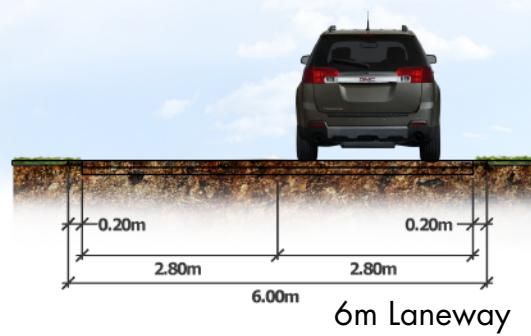
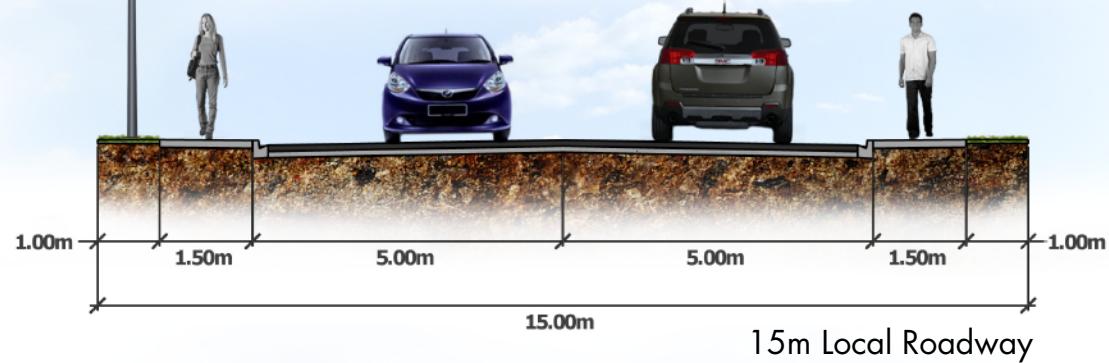
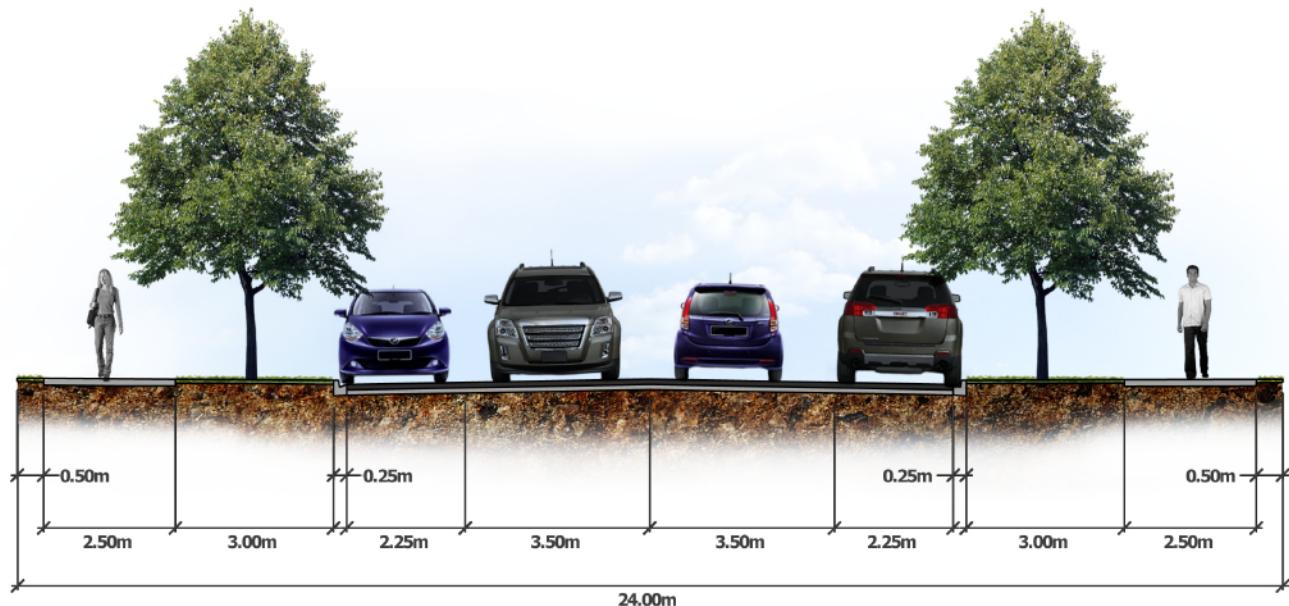


Figure 6.0

# Road Cross Sections

Palisades

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Laebon Homes  
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## Servicing

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Servicing for the Palisades will be provided in accordance with municipal standards and requirements.

### Sanitary Sewer Servicing

The Palisades will be serviced on site by using a gravity sewer collection system. The sanitary sewers will connect via a lift station and force main to the existing Town of Penhold sanitary system located in Waskasoo Avenue to the satisfaction of the Town of Penhold. Phase 1 will be temporarily routed to the existing system in Mann Drive. The Town of Penhold's existing lift station has capacity for 7,500 residents and thus will not require upgrades to accommodate the additional Palisades residents.

The proposed routing of the sanitary sewers for Palisades is shown in **Figure 7.0 – Sanitary Network**.

### Stormwater Servicing

The layout of the Palisades neighbourhood lends itself to a drainage system controlled by stormwater facilities prior to being released into Waskasoo Creek. Two stormwater management facilities (SWMF) have been proposed for the Plan Area. These facilities will manage stormwater from both the minor storm system as well as stormwater from the major storm system for the entire development. These SWMFs have been proposed to be developed as constructed wetlands, which will be sized to accommodate stormwater detention for a 1:100 year storm event.

This stormwater management facility will be designed to restrict runoff to pre-development rates. A Stormwater Management Plan has been prepared and will be approved by Alberta Environment and Sustainable Resource Development.

To aid the Palisades's stormwater system, the roadway will be designed to contain major flows within the road right-of-way to convey stormwater to the ponds. Required maximum flow depths and other design criteria will be recognized. The minor storm system has been designed to pick up the predevelopment stormwater for the adjacent lands to the west. Existing flows from adjacent parcels will be accommodated in the detailed design stage of the storm system.

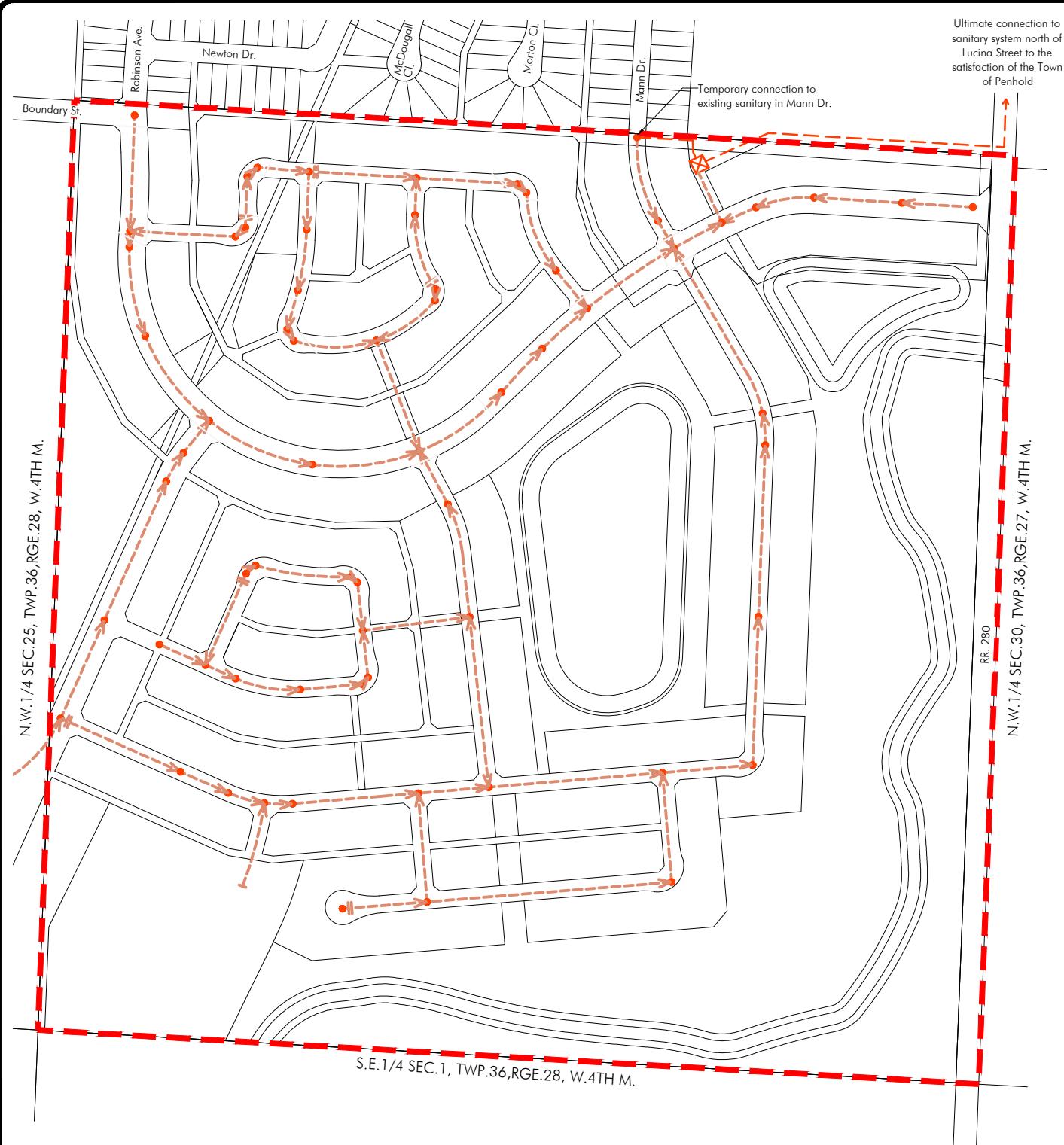
All home sites will have a storm sewer connection.

The proposed routing of the storm water servicing for Palisades is shown in **Figure 8.0 – Stormwater Network**.

## Water Servicing

The Plan Area will gain access to water servicing by connecting to the Town of Penhold's existing water distribution system. Water service will come from the existing 150mm diameter line main in Mann Drive and a new 300mm diameter water line that will be installed with Phase 1 extending to the Town of Penhold's reservoir along Robinson Avenue and the collector roadway to service future phases of development.

The proposed routing of the water servicing for Palisades is shown in **Figure 9.0 – Water Network**.



### Legend

●	Sanitary Manhole		Sanitary High Point	- - -	Sanitary Force Main
➢	Sanitary Flow Direction	☒	Lift Station	- - -	Sanitary Servicing
- - -	Sanitary Stub	- - -		- - -	Outline Plan Boundary



Figure 7.0  
Sanitary Network  
Palisades



### Legend

● Storm Manhole	■ Storm High Point	→ Major Overland Drainage
▼ Storm Flow Direction	— Storm Servicing	— Outline Plan Boundary
— Storm Outlet/Inlet	— SMWF Interconnecting Pipe	
— Storm Stub	■ SMWF	



Figure 8.0

## Stormwater Network

Palisades

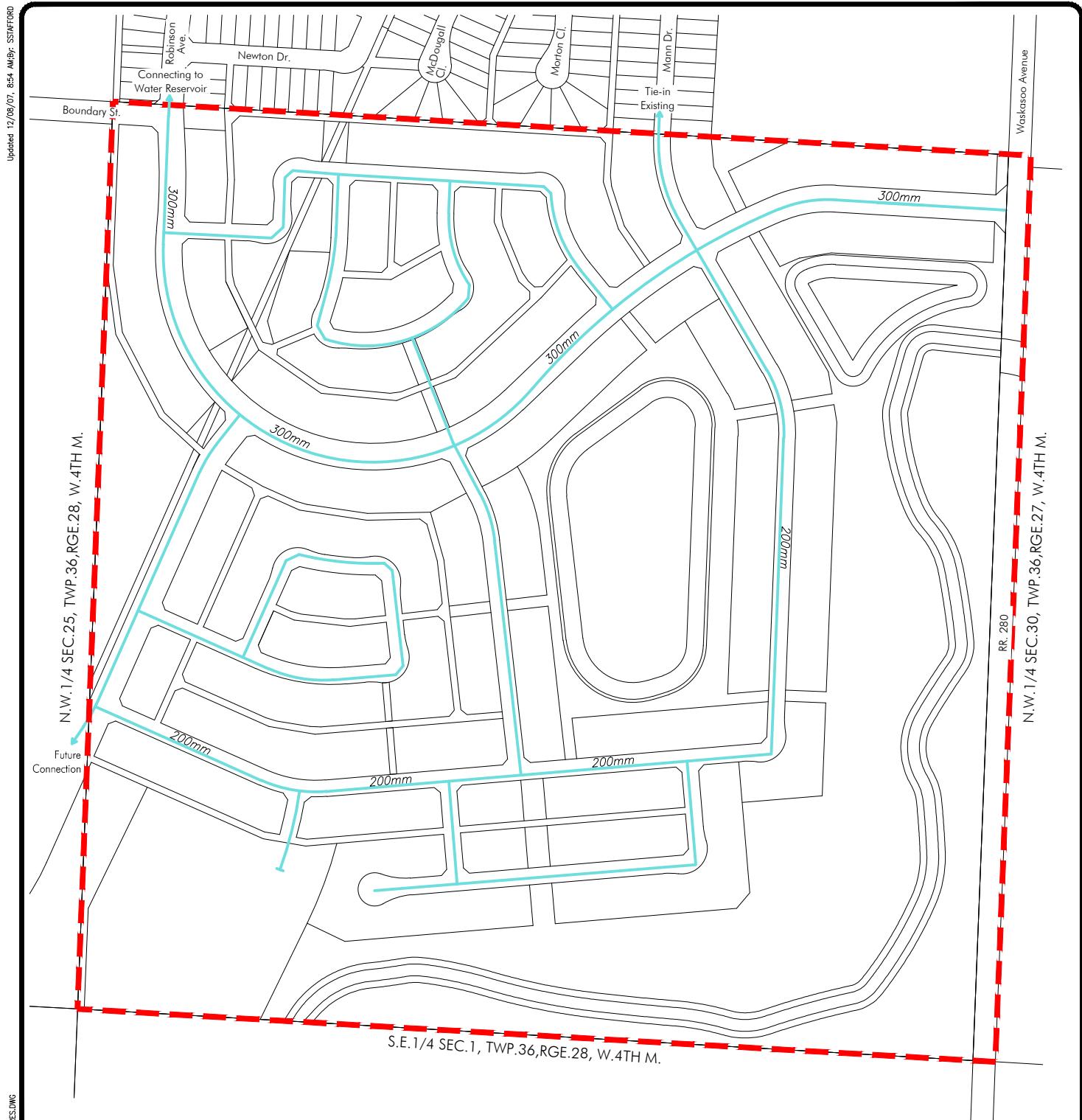
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August, 2012



### Legend

- 200mm Pipe Diameter
- Water Stub
- Water Main 150mm unless labeled otherwise
- - - Outline Plan Boundary



Figure 9.0

# Water Network

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August, 2012

## Shallow Utilities

Shallow utilities will be extended into Palisades from existing lines situated within the existing subdivision located north of the Plan Area.

## Overhead Power Line

The overhead power line currently running along Boundary Street will no longer be in use subsequent to development and thus will be removed during the servicing of the Palisades area. The entire line will not be eliminated at once, but will be removed as phasing permits.



## Implementation

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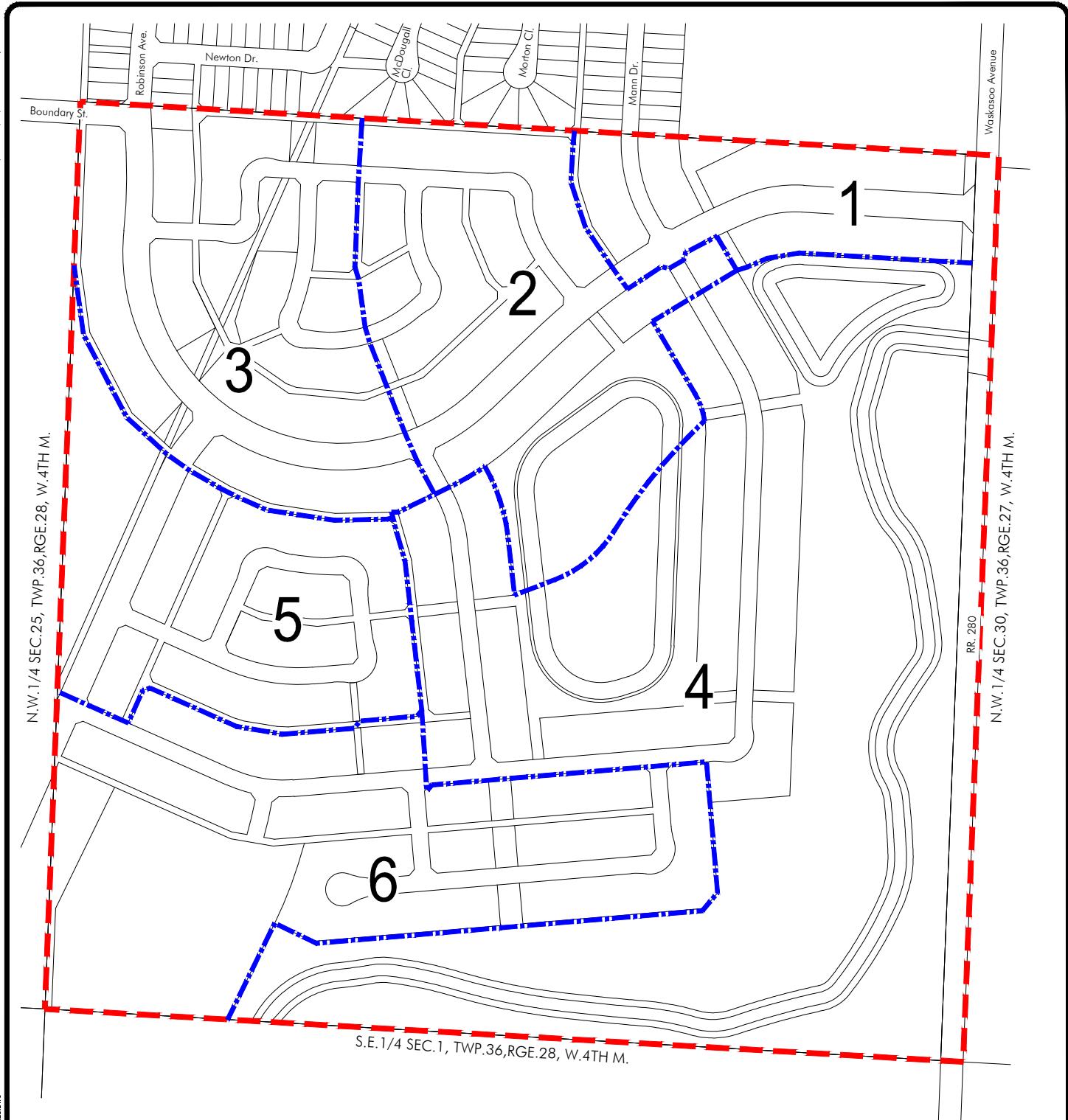
### Phasing

The proposed development phasing for Palisades is illustrated in **Figure 10.0 – Phasing Plan**.

Phasing will begin in the northeast corner of the Plan Area at the southern extension of Mann Drive. Phasing will continue along the northern edge of the Plan Area at the southern extension of Robinson Avenue.

The timing of the phasing is ultimately dependent upon the future market conditions. It should be noted that the phasing boundaries illustrated in **Figure 10.0 - Phasing Plan** are conceptual only; therefore, some flexibility must be maintained in the interpretation of boundaries for individual phases provided the timing of key infrastructure, emergency access, and second permanent roadway access are addressed.





### Legend

— Phasing Boundary   — Outline Plan Boundary

**4** Phase Number



Figure 10.0  
**Phasing Plan**  
Palisades

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