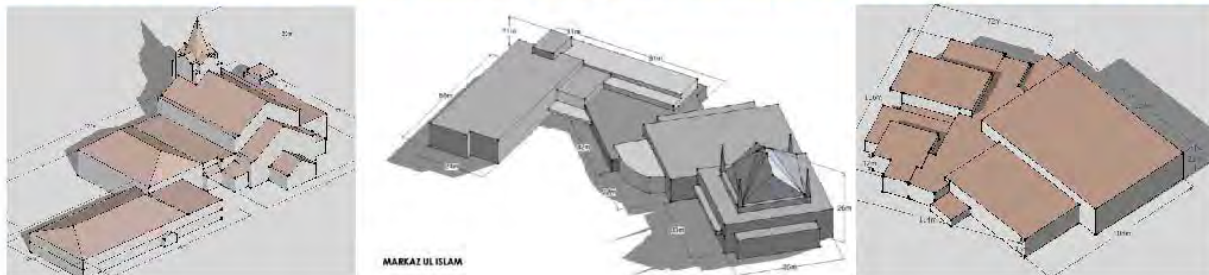


ABRAMS LAND DEVELOPMENT CORPORATION



OUTLINE PLAN

For Portions of NE and NW $\frac{1}{4}$ Sec. 23-89-10 W4M, Fort McMurray, Alberta

Submitted to



REGIONAL MUNICIPALITY
OF **WOOD BUFFALO**

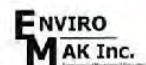
On behalf of

**Abrams Land Development
Corporation**

Prepared by

ARMIN A. PREIKSAITIS
& ASSOCIATES LTD.

In association with



May 26, 2011

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Appendix D	Biophysical Site Assessment – EnviroMak Inc, August 2009
Appendix E	Letter from Fisheries and Oceans Canada, February 2010
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Appendix G	Environmental Compensation Strategy – EnviroMak Inc, October 2009
Appendix H	Historical Resources Act Clearance – Government of Alberta, Culture and Community Spirit
Appendix I	Servicing Brief - CSM Engineering; and Functional Servicing Report - Associated Engineering, February 2010
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Appendix K	Operational Plan – ACI Architecture
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1.0 INTRODUCTION

1.1 Purpose

The purpose of this Abrams Land Development Corporation (ALDC) Outline Plan is to establish a framework for the future subdivision and establishment of lands located west of Thickwood Boulevard and south of Conn Creek, east of Dickensfield Neighbourhood. The plan area falls within the boundary of the Real Martin West Area Structure Plan, 2005 (ASP) and amended thereto. Based on the planning principles and objectives within the ASP, this Outline Plan provides detailed information on the proposed future land uses, servicing, open space and pedestrian connections, operational and massing plans, landscaping brief, environmental overview and transportation impact assessment within the Outline Plan area.

1.2 Location and Area

As shown on Map 1: Project Area Location, the Outline Plan area is located west of Thickwood Boulevard and south of Conn Creek, east of Dickensfield Neighbourhood (Refer to *Map 2 – Context Map*). The plan area includes 40.22 hectares (99.40 ac) of the lands which are legally described as portion of NE and NW 23-89-10 W4TH, as specifically identified as the shaded area in Map 1: Project Area Location. Refer to Appendix L for the Certificate of Title for the Outline Plan area.

1.3 Planning Context

The ALDC Outline Plan has been prepared in the context of statutory plans and other policy documents of the Regional Municipality of Wood Buffalo (RMWB). The following is a brief summary of relevant planning documents.

1.3.1 Municipal Development Plan

Portions of the plan area within the Fort McMurray Urban Service Area, those within the NE ¼ Sec. 23-89-10 W4M, are located within the Major Recreational Policy Area of the RMWB Municipal Development Plan (MDP) Bylaw No. 00/005. In this circumstance, the MDP clearly outlines the following in regards to lands within the Major Recreational Policy Area:

“...this policy area identifies throughout the Municipality appropriate for large recreational and institutional uses such as multi-use recreational facilities and athletic parks and may also contain passive recreational trail networks, environmentally sensitive areas and open spaces.”

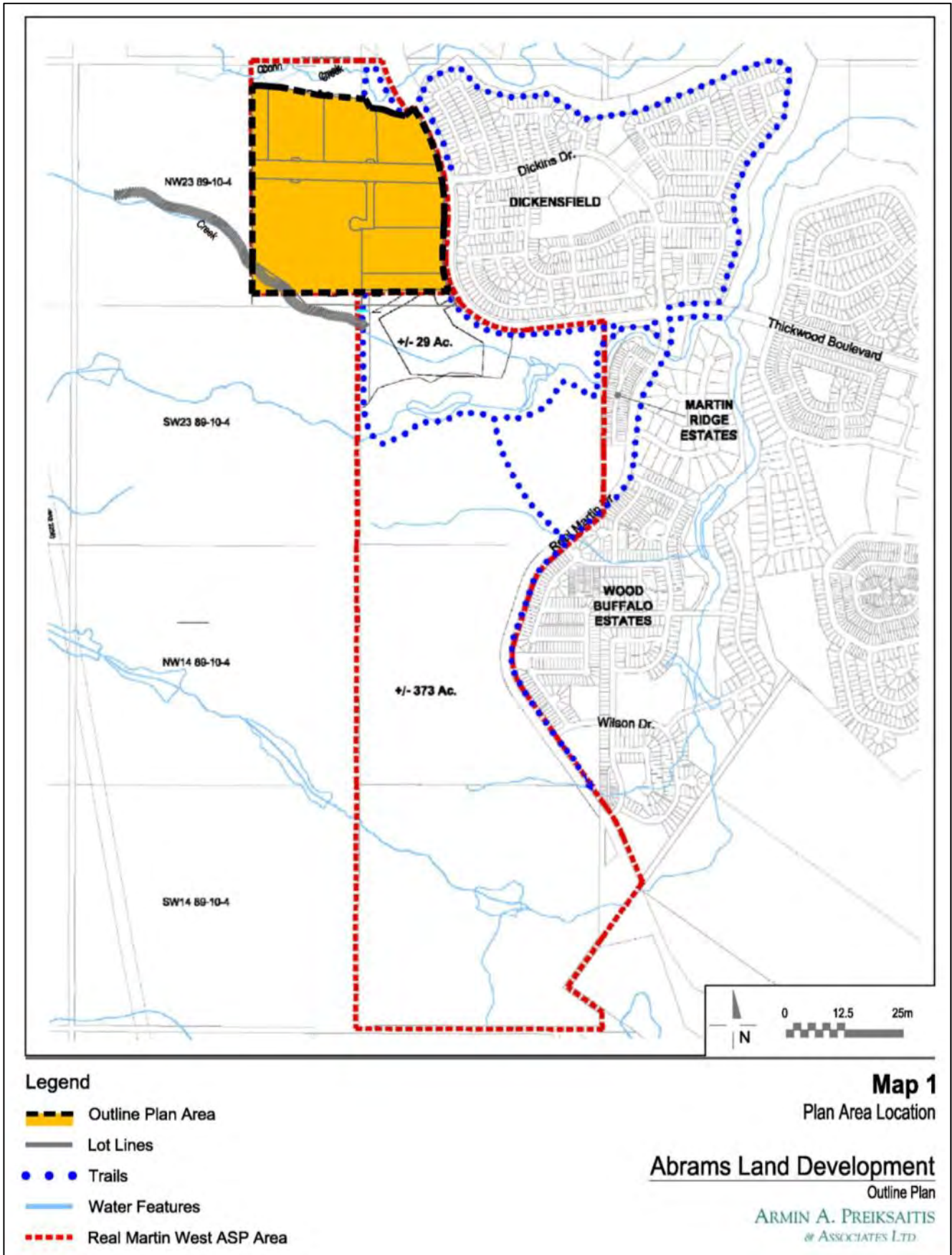
The west portions of the Outline Plan area, those falling within the NW ¼ Sec. 23-89-10 W4M are outside the Urban Service Area and fall within the Rural Policy Area of the MDP. An amendment to the MDP will be required to remove the plan area from the Rural Service Area and include it within the Urban Service Area boundary.

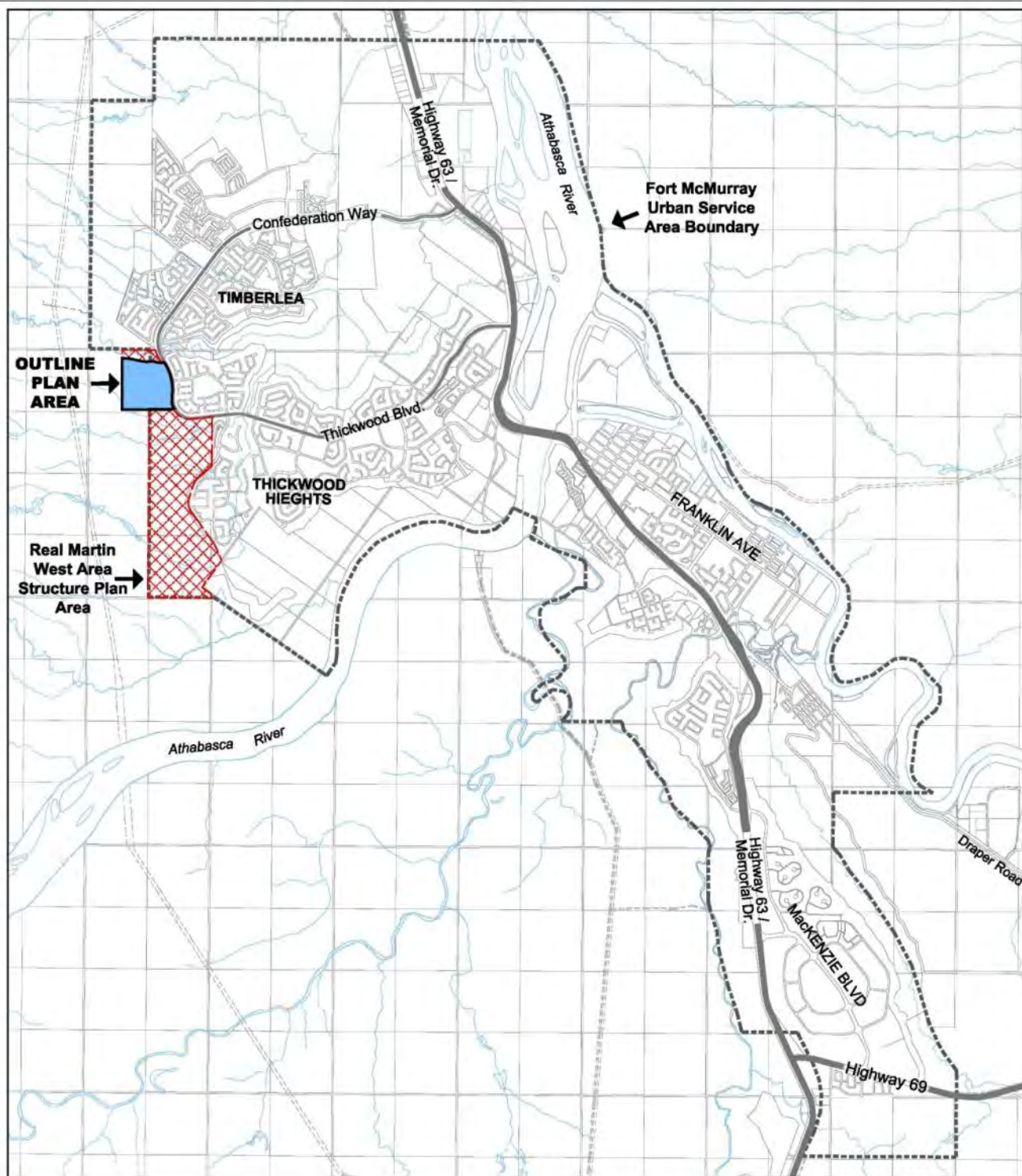
1.3.2 Real Martin West Area Structure Plan

The Outline Plan area falls within the boundary of the Real Martin West Area Structure Plan (ASP). The Real Martin West ASP was amended in 2010 (See Appendix B - Bylaw 10/014), to include the portion of plan area falling within ¼ Sec NW23 89-10-4.

The approved Real Martin West ASP delineates the Outline Plan area for *‘Institutional’* uses. In accordance with the ASP appropriate institutional land uses would include “churches, community services, schools, recreational facilities and other public and quasi-public facilities”. The faith centres, continuing care facilities, and the municipal recreation facility planned for the Outline Plan area are supported by this approved land use designation.

The portion of the Outline Plan area located adjacent to Conn Creek within the approved Real Martin West ASP is designated as “Public Open Space / Natural Area”. Future development within the plan area will include a 30.0 metre setback for natural areas to be maintained along the Conn Creek drainage course. In accordance with the approved Real Martin West ASP, no subdivision or development will be permitted within this setback area *“with the exception of utilities, trails and facilities intended to enhance the passive recreational enjoyments of the area by the public”*





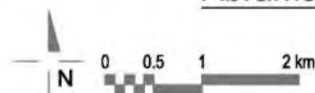
Legend

- Outline Plan Area
- Real Martin ASP Area
- Urban Service Area
- Water Feature

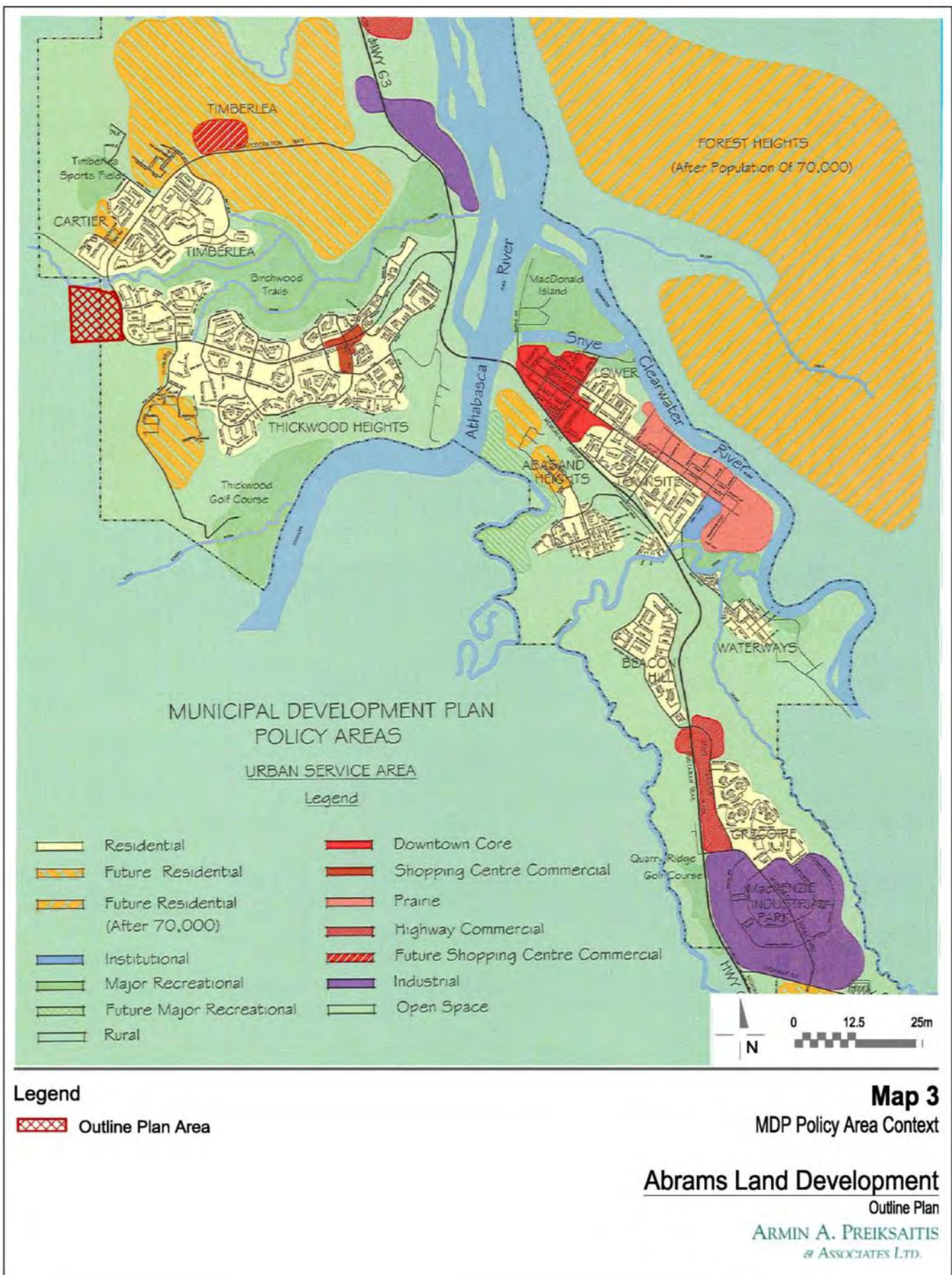
Map 2 Context Map

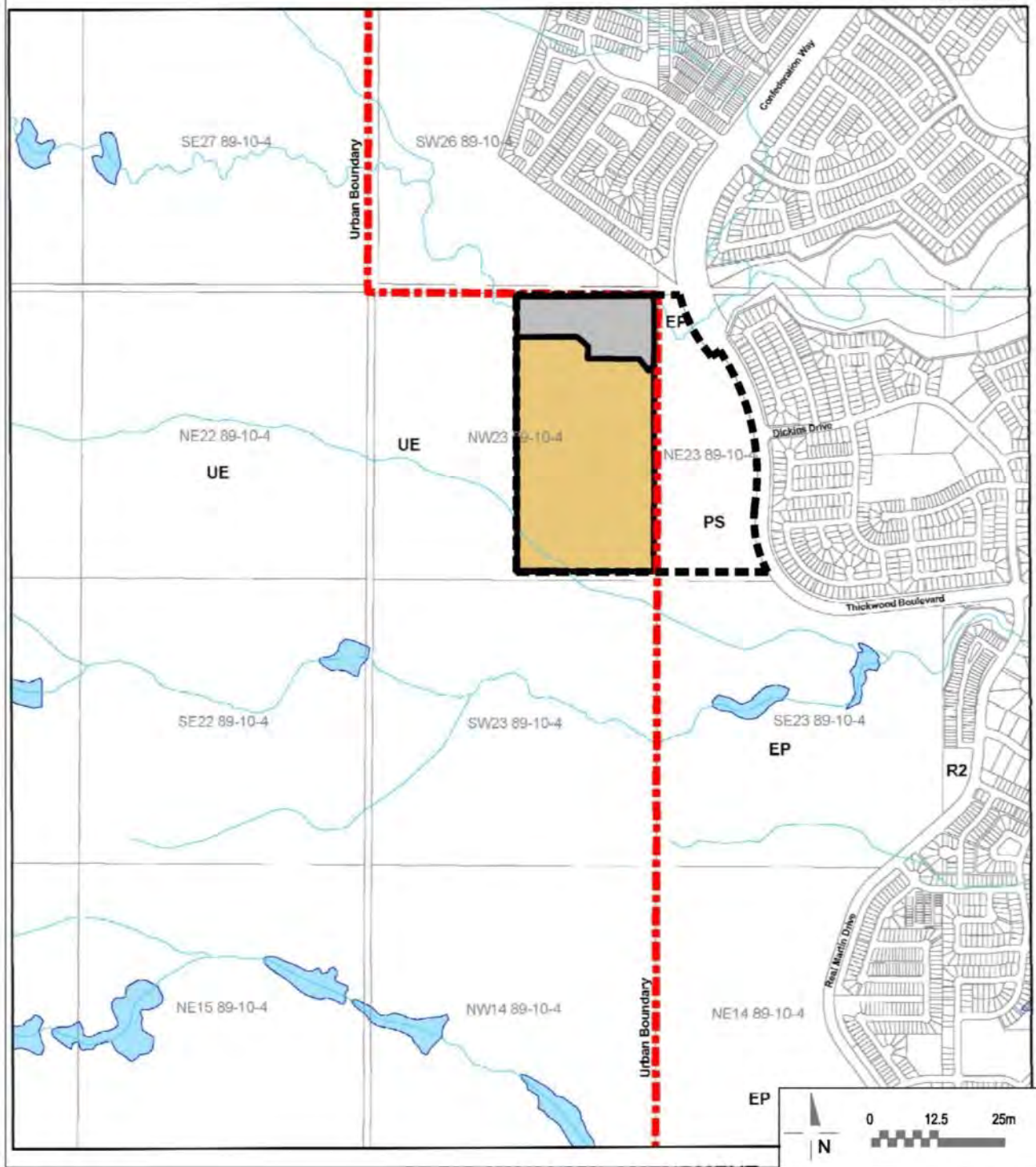
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Legend

--- Project Area

LAND USE BYLAW (99/059) AMENDMENT



From UE (Urban Expansion) To PS (Public Service)



From UE (Urban Expansion) To EP (Environmental Preservation)

Map 4

Current Zoning

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1.3.3 Land Use Bylaw

Refer to Map 4 – Current Zoning. Based on the recent Bylaw No. 10/015, (See Appendix B- Bylaw 10/015) which was an amendment to the Land Use Bylaw 99/059, the majority of the lands within the Outline Plan area whereupon development will take place currently lies within the PS - Public Service District. The purpose of this land use district is to facilitate the development of buildings and land uses intended for the delivery of educational, health, government and institutional services. The faith centres, continuing care facilities and municipal recreation facility uses envisioned for the plan area are permitted under this land use district.

Lands within the Outline Plan area adjacent to Conn Creek are located within the EP - Environmental Preservation District. The purpose of this district is to ensure the preservation of natural open space and the protection of environmentally sensitive lands from incompatible development.

1.4 Plan Organization

The Outline Plan is comprised of seven sections as summarized below. Each section is supported by a number of technical studies and reports which have been included as appendices towards the end of the document.

1. **Introduction** – Provides an overview of the Outline Plan by describing the purpose, location, background, policy context of applicable statutory documents, and information on the recent amendment to the Real Martin Area Structure Plan and the Land Use Bylaw in support of the plan area.
2. **Existing Conditions** – This section profiles existing site conditions including topography and hydrology, vegetation, stormwater drainage patterns, site suitability, environmental overview and the *Historical Resources Act Clearance* provided by Alberta Culture and Community Spirit.
3. **Development Concept** – This section provides information on the land use statistics for the plan area, site planning principles and considerations, site servicing brief, stormwater management, riparian setback evaluation and site grading plan.
4. **Transportation and Circulation** – This section summarizes the results of the Traffic Impact Assessment for the plan area, information on the complete build out of the intersection and road accessing the plan area, and internal circulation patterns.
5. **Impact on Adjacent Properties**- In accordance with the requirements of the Real Martin Area Structure Plan, this section provides an overview of the scope of site development, associated impacts during the

construction on adjacent properties, and the overall impact on the major roads adjacent to the plan area, as well as signaling requirements for the intersection providing access to the plan area.

6. **Operational Plan** – the Operational Plan provides detailed information on program areas within each facility; estimated number of staff, visitors, and other occupants; frequency of use of the facilities; and site location and areas within the Plan are. The section also provides the estimated average daily and weekly vehicle volumes for each facility based on anticipated traffic periods. Finally, illustrations depicting the conceptual building massing showing the heights and building articulation are also included in this section.
7. **Landscape Development Design Brief** – The Landscape Design Brief provides an overview of the intended landscape design approach for public areas, trails, stormwater management facility and the passive recreation site within the plan area. The brief provides information on the proposed development standards for various landscape components such as top soil/grading, sod and seeding, trail planning and design, berm design and site furniture.

2.0 EXISTING CONDITIONS

2.1 Site Characteristics

2.1.1 Topography and Hydrology

The majority of the site, especially the western half of the plan area, is generally flat. The eastern half of the plan area has gradual undulating surfaces which range in elevation from 361.0 m to 370.0 m (Refer to Map 5 Site Conditions - Topography). The extreme north boundary of the Outline Plan area encroaches upon the Conn Creek drainage system.

Soils within the plan area have been identified as organic, testing conducted by Terracon Geotechnique Ltd. in March, 2007 (Refer to Appendix C – Preliminary Site Assessment). While these soils satisfy the development criteria from a contamination aspect, they are prone to settlement and cannot be relied upon to provide adequate support for foundations. Where necessary, organic clay soils (subject to methane gas generation) shall be removed from under building and road footprints, and the outline plan area will be graded and filled to accommodate the envisioned development within the Outline Plan area.

The developer shall employ professional engineers to monitor the grading and filling of the site to ensure all engineering requirements are met, and a geotechnical report shall be provided to the municipality's engineering department. This reporting may be addressed as a condition of the development agreement during the subdivision stage.

2.1.2 Existing Land Use

The western portion of the Outline Plan area consists of natural open space. A large cleared area is located west of Thickwood Boulevard, which was previously surveyed in 1984, for the Dickensfield Landfill site. This area has been used intermittently as a dry disposal area for construction waste such as concrete, sand and general construction material. A low-lying wet area connects the existing municipal snow storage site, south of the Outline Plan Area, to the Conn Creek drainage channel. This low-lying wet area will be incorporated into the stormwater management for the Outline Plan area (Refer to Map 5 – Site Conditions).

2.1.3 Vegetation

The majority of the Outline Plan area contained within the Fort McMurray Urban Service Area has been substantially cleared. Lands within the Outline Plan area situated west of the Fort McMurray Urban Service area contain mixed coniferous and deciduous forest.

The riparian wetland area associated with the Conn Creek drainage channel within the plan area is considered to be environmentally sensitive (refer to Map 5a Site Conditions – Wetland Connectivity). This channel is identified in the Real Martin West ASP as being wet throughout the year as a result of beaver ponding and annual spring melts. Intermittent storm flows support riparian vegetation adjacent to these channels. Treed riparian areas adjacent to the drainage channels are among the most ecologically productive vegetation and habitat areas in the region. These riparian areas will be protected within a minimum 30.0 m development setback from Conn Creek.

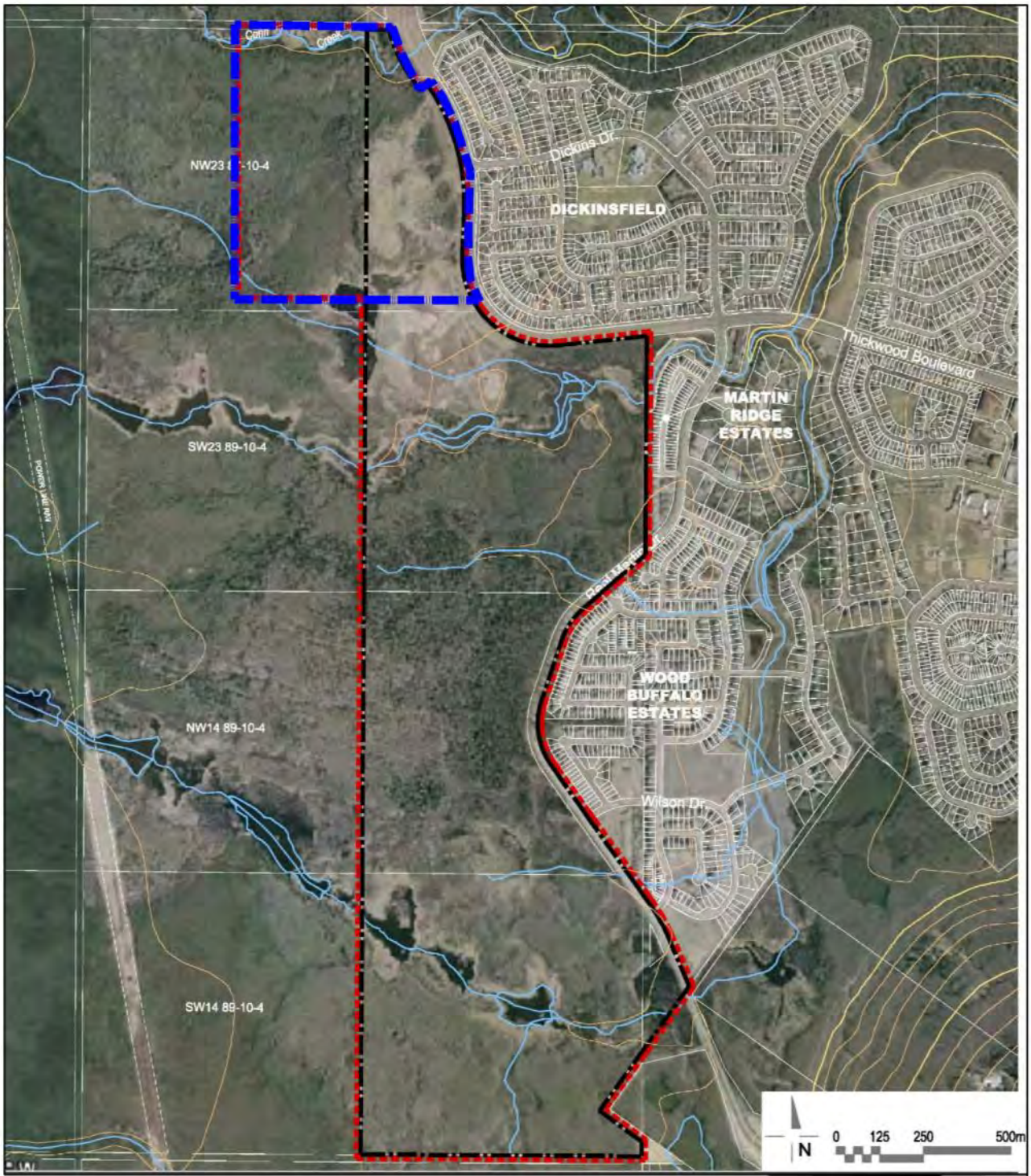
2.1.4 Stormwater Management

Stormwater currently drains from the majority of the Outline Plan area, via the north / south oriented low-lying area, directly to the Conn Creek drainage course. This natural drainage course will be enhanced through development within the plan area which will include a stormwater catchment pond in the northern portion of the plan area. This stormwater management facility will drain to Conn Creek via a drainage ditch located in the general location of the existing north / south low-lying area or to the main storm system.

2.1.5 Suitability for Development

Refer to Map 6 – Site Suitability. The approved Real Martin West ASP identifies the “Public Service” designated lands adjacent to Thickwood Boulevard within the Outline Plan area as “particularly suitable for urban development” since they have been previously cleared and have direct access to a major arterial roadway Thickwood Boulevard.

Lands adjacent to Conn Creek are considered environmentally sensitive. A riparian setback review was conducted by EnviroMak to establish an appropriate setback for protection of environmentally sensitive lands (See Appendix F- Riparian Setback Review Report). Based on the recommendations of the report, a minimum 30.0 m setback from Conn Creek has been established for the protection of environmentally sensitive areas. A 10.0 m wide tract of land designated for Municipal Reserve has been dedicated along the northern boundary of the plan area. The Municipal Reserve will be used for the development of trail connections to the plan area.



Legend

- Outline Plan Area
- - - Real Martin West Plan Area

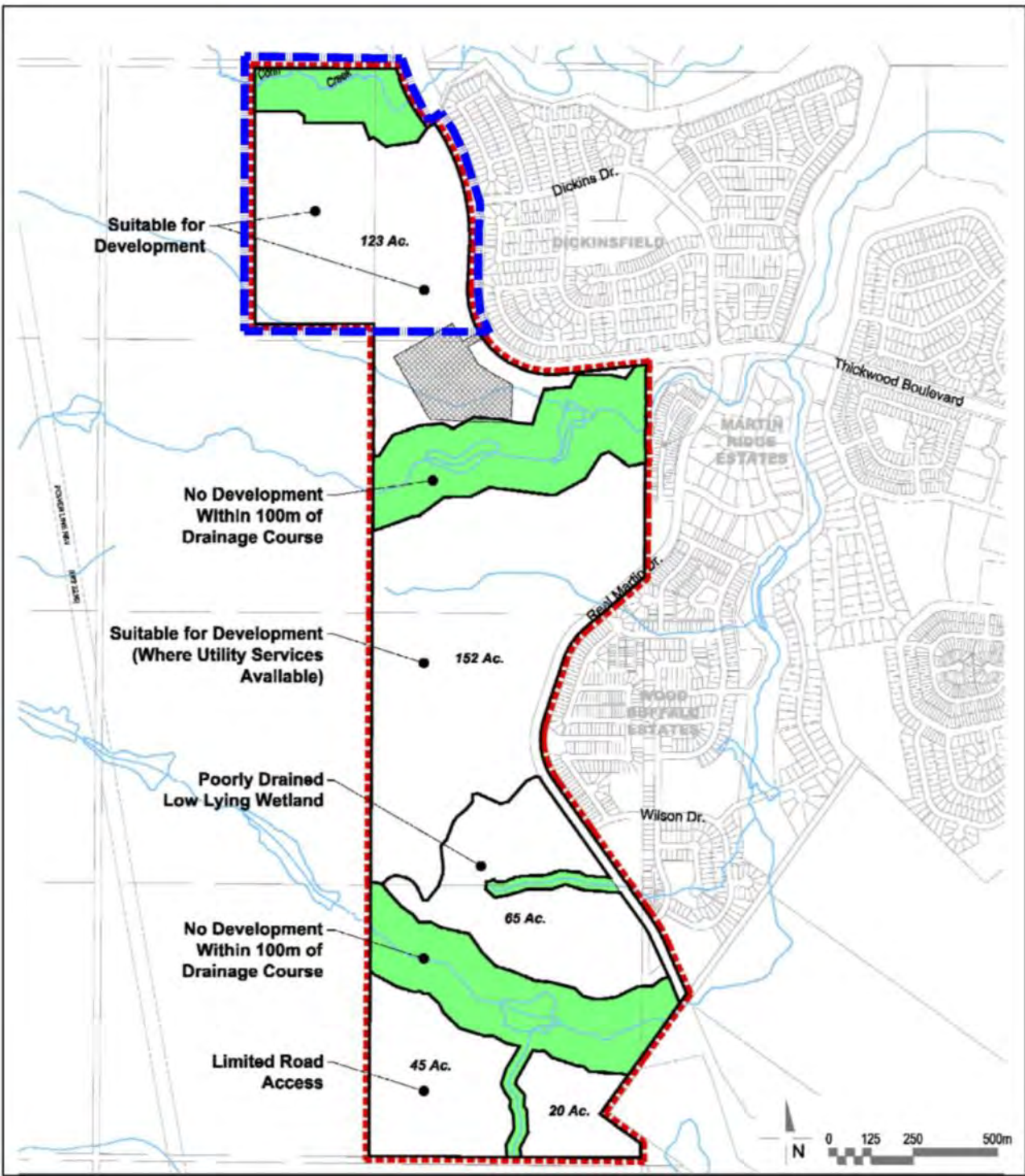
Map 5a

Site Conditions - Wetland Connectivity

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Legend

- Outline Plan Area
- Real Martin West Plan Area

Map 6 Site Suitability

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2.2 Environmental Overview

2.2.1 Biophysical Site Assessment

A Biophysical Site Assessment was completed for the Outline Plan area by EnviroMak Inc. in August 2009, and is attached as Appendix D – Biophysical Site Assessment. The purpose of the Biophysical Site Assessment is to determine if there are any specific environmental features that would influence the subdivision and development proposed for the lands within the Outline Plan area. The Biophysical Site Assessment also contains an Environmental Protection Plan which recommends potential mitigation measures and compensation for the alteration of wetlands and natural vegetation areas.

Topography and Wetlands

As shown on Map 7 – Natural Features, the topography is dominated by wetlands to the south, and includes a muskeg area in the centre and a watercourse to the north. The land is generally undulating, and, in one area, it appears that some fill material was deposited on the lands in the past. Seven (7) wetlands are present on the property, consisting of a total area of approximately 25.5 ha (63.2 ac). The Alberta Government has conducted a Public Lands Assessment for all wetlands identified, and indicated that Conn Creek, in the northern portion of the site has been claimed for ownership by the Government of Alberta. In addition, Conn Creek and one of the wetlands in the southern portion of the property have been identified as fish bearing and contain fish habitat. Mitigation measures to reduce potential impacts to fish and fish habitat have been recommended in a letter from Fisheries and Oceans Canada, attached as Appendix E as well as in the Environmental Protection Plan appended to the Biophysical Site Assessment (Appendix D).

Vegetation and Wildlife

Although the historical and current use of this land has had a significant impact on the southern one-third of the Outline Plan area, the remainder of the Outline Plan area remains in a relatively natural state. While there were no environmentally sensitive areas or rare species of plants and wildlife being recorded as present on these lands, considerable wildlife was observed.

The Outline Plan area includes a large central muskeg area with an island of mixed-wood forest to the west. A mixed-wood forest was also identified adjacent to the riparian area that follows Conn Creek. Smaller areas of open grassland, light aspen and shrubs have been identified along the eastern edge of the plan area. The landscape in these areas seems to have been altered in previous years, as there is evidence that muskeg may have previously existed in this area. Noxious weeds, particularly an abundance of Canadian Thistle, were also present in these areas.

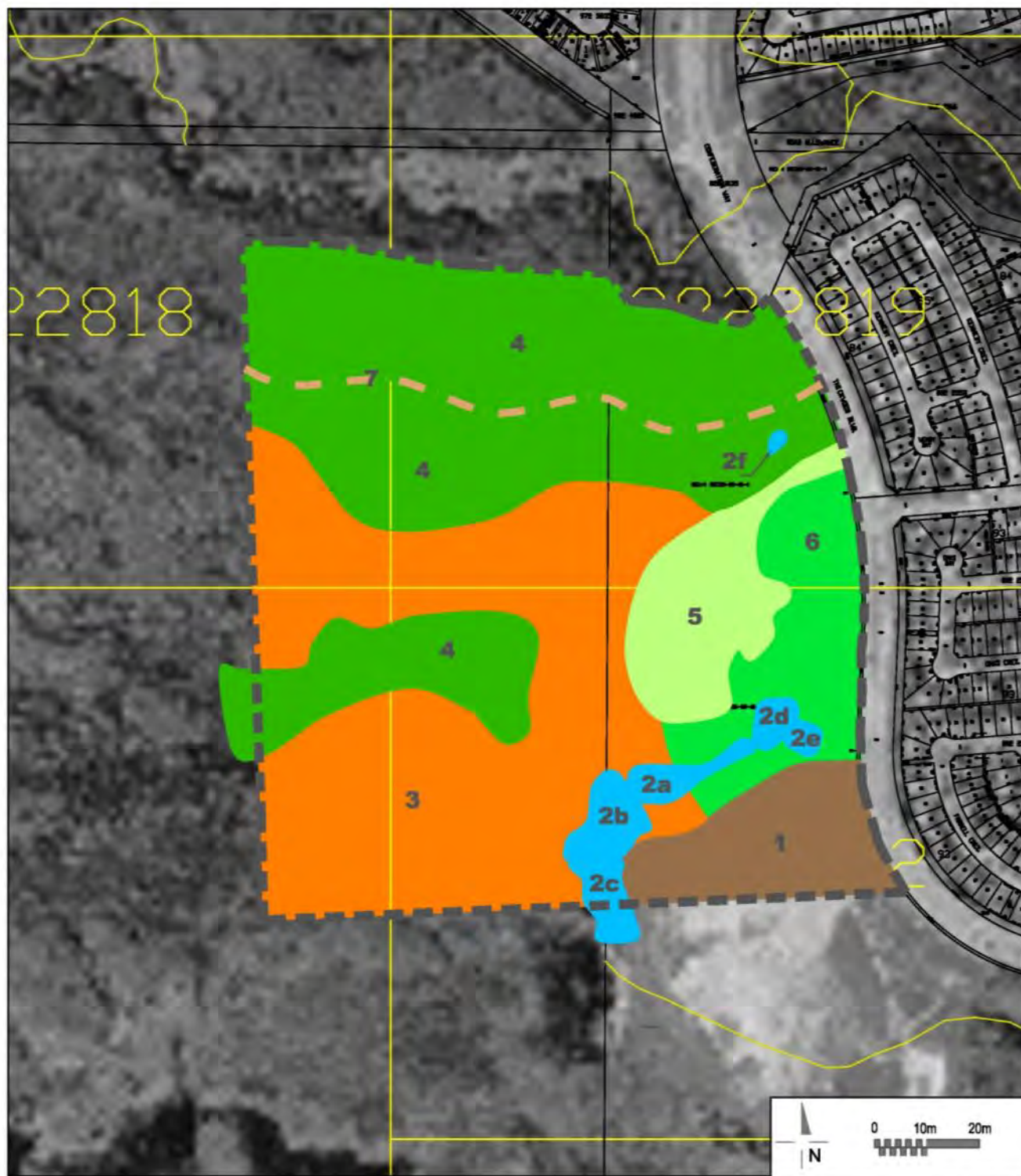
It must also be noted that a snow dump area consisting of approximately 2.8 ha (7.116 ac) of land exists in the southeastern portion of the property. This area contains little vegetation and appeared to be a landfill area as some wastes were observed, above ground and buried, within the area.

Riparian Setback Environmental Report

In May 2010, EnviroMak Inc. prepared a Riparian Setback Review Report, attached as Appendix F, as a follow up to the Biophysical Site Assessment. The purpose of this Riparian Setback Assessment was to determine the riparian perimeter and, subsequently, define the buffer required to ensure that environmental conditions of riparian areas adjacent to Conn Creek and the Class V Wetland in the southern portion of the site are adequately protected.

The examination of the riparian areas associated with Conn Creek concludes that the creek should contain a buffer of at least 15.0 m from the top of the valley slope which is adjacent to the riparian edge. It was also noted that one specific area, located along the riparian edge approximately 650.0 m and 850.0 m from the eastern plan boundary, contained seepage flows and should have a buffer of at least 30.0 m from the top of the valley slope. Based on this recommendation, a minimum 30.0 m environmental reserve has been dedicated along Conn Creek and the northern boundary of the plan area.

Although the Class V Wetland in the southern portion of the Outline Plan area is a man-made pond, it is recommended that a buffer of 30.0 m be preserved from the identified riparian edge. However, a defined riparian edge was not established to the areas west and north of the wetland, as much of this area contained a considerable presence of water. As discussed in the Environmental Compensation Strategy (Appendix G), it should be noted that because this wetland was man-made, the Crown will not claim the bed and shore and the Department of Fisheries and Oceans (DFO) and Alberta Environment will not require any compensation for the redevelopment of this area. Based on the Environmental Compensation Strategy, the man made pond will be drained and as per the recommendations of the DFO, the fish from the man made pond will be salvaged prior to filling up of the wetland.



Legend

- | | |
|--------------------------------|------------------------------|
| --- Project Area | (5) Open Grassland |
| (1) Landfill (cleared of veg.) | (6) Light Aspen and Shrub |
| (2) Wetlands | (7) Conn Creek Riparian Edge |
| (3) Treed and Open Muskeg | |
| (4) Mixedwood Forest | |

Map 7
Natural Features Map

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Outline Plan

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2.3 Historical Resources

In May 2009, Altamira Consulting Ltd. completed a Historical Resources Impact Assessment (HRIA) for the Outline Plan area (See Appendix H – Historical Resources Clearance Act). The assessment did not record any new archaeological or historic sites. The study concluded that the area is of low cultural resource significance and recommended no further action.

Alberta Culture and Community Spirit was provided the final report from Altamira Consulting Ltd. Based on the results of the HRIA, Alberta Culture and Community Spirit expressed no concerns with the development proceeding.

A Historical Resources Act Clearance was provided by Alberta Culture and Community Spirit in a letter dated June 16, 2009 as included in Appendix H.

3.0 DEVELOPMENT CONCEPT

3.1 Land Use Concept

The proposed land use concept for the plan area is illustrated in Map 9 – Proposed Land Use. The land use concept includes the following major land uses as shown in Table 1- Land Use Statistics:

Table 1: Land Use Statistics (Refer to Map 8)

Development Site	Land Use	Area (acres/hectares)	% of GDA
McMurray Gospel Assembly (MGA)	Institutional	3.23 ha (8.00 ac)	8.05%
Markaz UI Islam	Institutional	3.85 ha (9.52 ac)	9.58%
St John's Catholic Church	Institutional	3.44 ha (8.50 ac)	8.55%
RMWB (1) - Recreation Centre and Administration Building	Institutional	12.77 ha (31.55 ac)	31.74%
RMWB (2) - Use to be determined	Institutional	4.05 ha (10.00 ac)	10.06%
RMWB (3) - Use to be determined	Institutional	0.68 ha (1.67 ac)	1.68%
Storm Water Management Facility	Public Open Space	3.23 ha (7.98 ac)	8.03%
Berm / Winter Park & Passive Open Space	Public Open Space	2.84 ha (7.03 ac)	7.07%
Road Allowance + Road Widening	Road	5.59 ha (13.81 ac)	13.89%
Municipal Reserve	Open Space / Trails	0.54 ha (1.34 ac)	1.35%
Total		40.22 ha (99.4 acres)	100%

- The vision for the Outline Plan area is to subdivide the land to accommodate a number of 'Institutional' uses which include three faith centres, a regional recreation centre and public use buildings.
- Refer to Map 9 - Proposed Land Use. Three sites within the plan area, specifically, the St John's Catholic Church, McMurray Gospel Assembly and the Markaz UI Islam, are all institutional uses. The RMWB (1) Site is designated for developing a Recreation Centre and an Administration Building. Proposed uses for the two remaining sites owned by RMWB is yet to be determined.
- Based on the current servicing capacity, an additional 6.87 ha (17.0 ac) of land is anticipated to develop along the western boundary of the plan area. This expansion currently does not form a part of this outline plan. The Outline Plan may have to be amended in the future to accommodate this expansion.
- Areas adjacent to Conn Creek are identified as *"Public Open Space / Natural Area"* land use. No subdivision or development is envisioned within this setback area with the exception of utilities, trails and facilities intended to enhance the passive recreational enjoyments of the area by the public.
- A north / south oriented stormwater management facility is proposed in the northeast portion of the Outline Plan area (Refer to Map 9). This 3.22 ha (7.98 ac) facility will drain to Conn Creek at pre-development flows through an outlet structure. Surrounding this facility, common open space is proposed to accommodate trail development to serve the passive recreation needs of development within the plan area.
- North of the existing municipal snow storage site, 2.87 ha (7.1 ac) of land will be designated for the construction of a winter park and passive open space. The winter park will include a berm which is designed to prevent run-off from the snow dump from entering the Outline Plan area and to mitigate potential noise and other nuisance effects related to the operation of this facility.
- A 60 metre wide arterial road right-of-way is proposed to be aligned east to west through the centre of the site, occupying 4.19 ha (10.36 ac) of land. This road right-of-way will provide access to the plan area from Thickwood Boulevard at the existing intersection with Dickins Drive. Ultimately this right-of-way is envisioned to connect with the proposed north / south road connection to Highway 63 north and south of the Fort McMurray Urban Service area, as identified in the Fringe Area Development Assessment – Urban Service Area.

3.1.1 Site Planning Design Principles and Servicing Considerations

The following design principles shall be considered when evaluating the site plans at the development permit stage:

- **Facade Orientation** – Building frontage should be designed to face the street. In the case of corner lots, the buildings should attempt to face the street and the corner as much as possible.
- **Placement of Buildings** – Placement of buildings should comply with all setback requirements of the district. In the case of institutional uses, the front setback of the building should give consideration for the provision of :
 - congregation space in front of the buildings;
 - passenger drop off areas for buses and vehicular traffic in front of the buildings;
 - sufficient amount of visitor parking and parking for disabled;
 - setback should be relative to the massing of the building to provide appropriate view of the front façade; and
 - other functional requirements associated with the use of the building.
- **Building and Massing:** The massing of the buildings shall be articulated in an appealing and attractive manner.
- **Pedestrian connections** – Parking areas shall provide for safe and comfortable pedestrian access. Pedestrian connections shall be clearly marked and separated from traffic movement for safe thoroughfare. Pedestrian connections shall provide access from the front sidewalk to the building and provide connections to pedestrian trail connections when abutting a property.
- **Landscaping** – On site landscaping shall be designed in an appealing manner to enhance the attractiveness of the overall development. The landscaping shall comply with the design standards under the RMWB Engineering Servicing Standards 2009 and the Land Use Bylaw, especially Section 72.
- Landscaping should be used to reduce the amount of hard paving, creating vegetated islands in large parking lots integrated with pedestrian connections and providing a buffer or screening for undesired uses such as storage or servicing areas associated with the use.
- **Parking** – On site parking shall be designed to meet the district requirements under the land use bylaw. Shared parking arrangement with adjacent uses shall be explored where possible. Parking spaces and loading zones for disabled persons shall be provided in accordance with Section 136 of the RMWB Land Use Bylaw.
- **Storage and Servicing** – Storage and servicing of buildings shall be located to the rear of the building as much as possible.

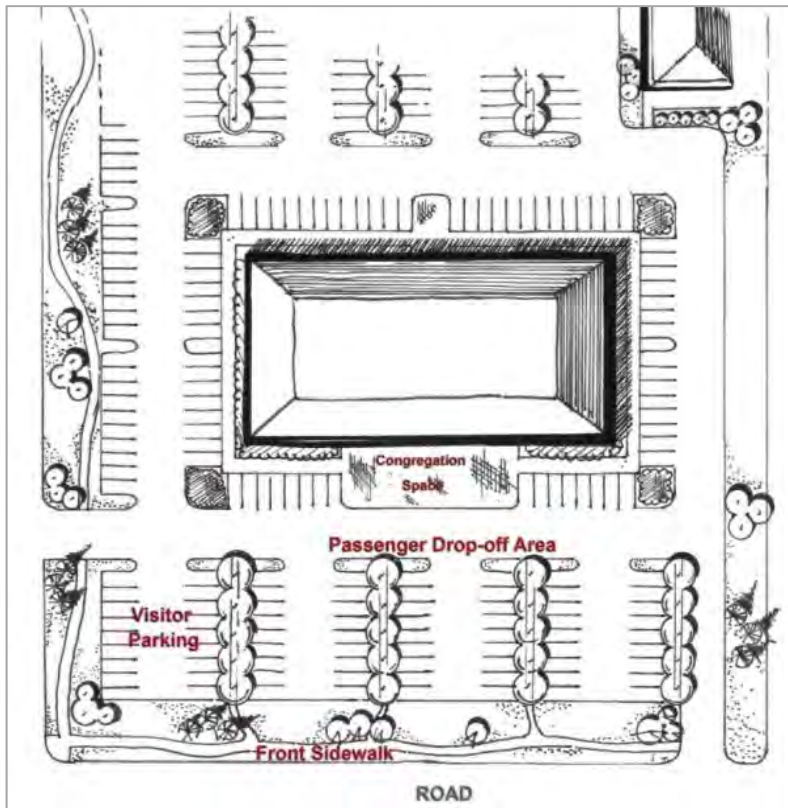


Figure 1: Considerations for Placement of Building (conceptual)

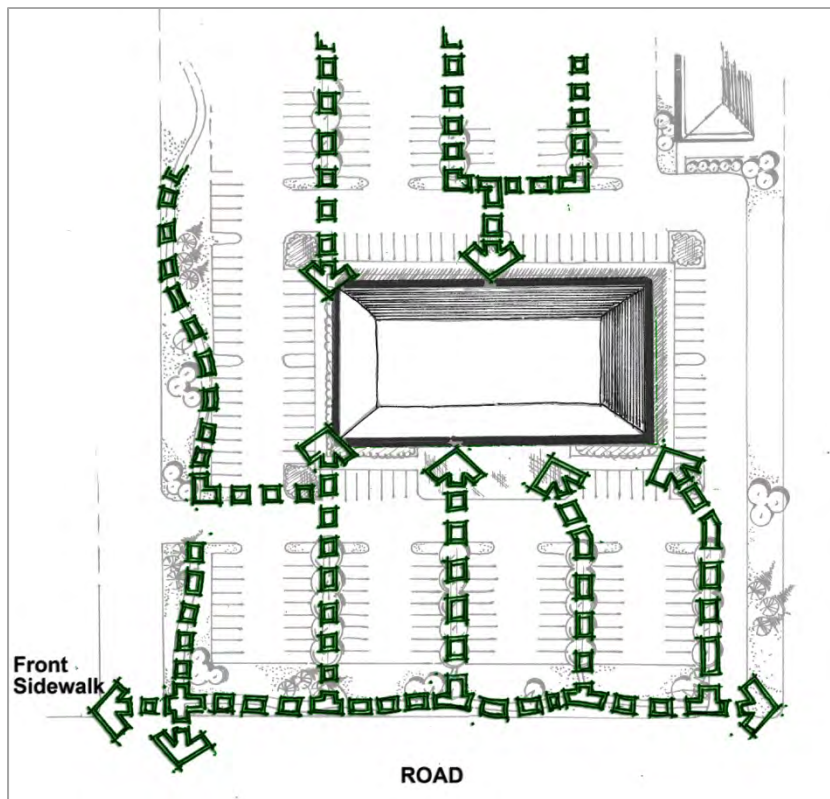
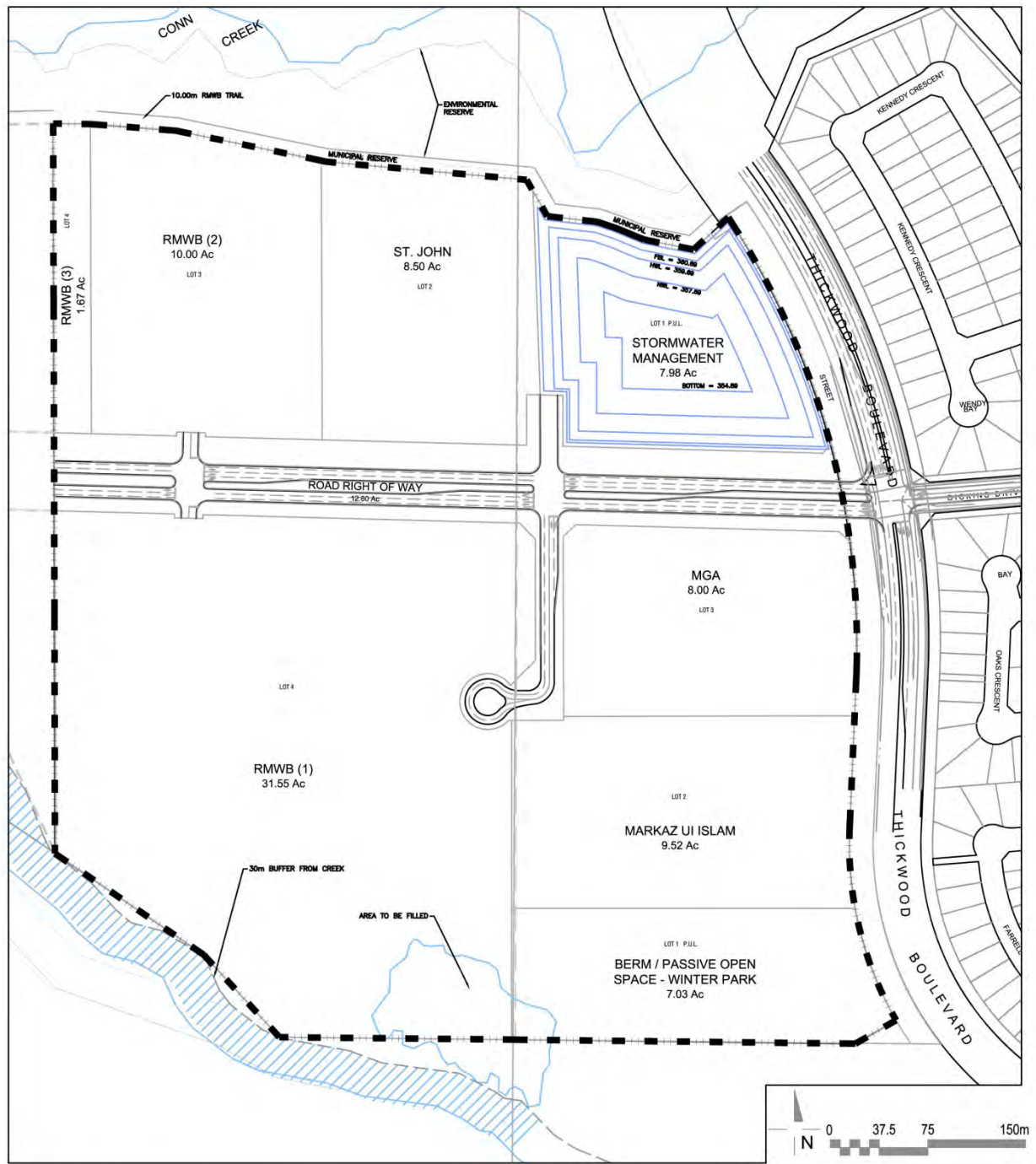


Figure 2: Potential pedestrian linkages through parking areas connecting the building to the front sidewalk.(conceptual)



■ ■ ■ Outline Plan Boundary

Map 8
Tentative Site Plan with Areas

Abrams Land Development
Outline Plan

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& ASSOCIATES LTD.



Legend

- ■ ■ ■ ■ Outline Plan Boundary
- Institutional Land Use
- Open Space
- Road

Map 9 Proposed Land Use

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Outline Plan

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3.2 Servicing Brief

A pre-design servicing brief was prepared by CSM engineering and is included as Appendix I.

3.2.1 Water System

The proposed water system shall follow RMWB's Water Master Plan. Associated Engineering performed a hydraulic analysis of the integration of the Abram's Development into the existing City water supply system. Water service will be provided to the Abram's plan area via two 300 mm diameter water mains.

One main will connect to the Timberlea pressure system at the Dickins Drive intersection. Under peak day operations, the Abram's Development only requires water supplied from Timberlea pressure zone (as shown in Figure 3)

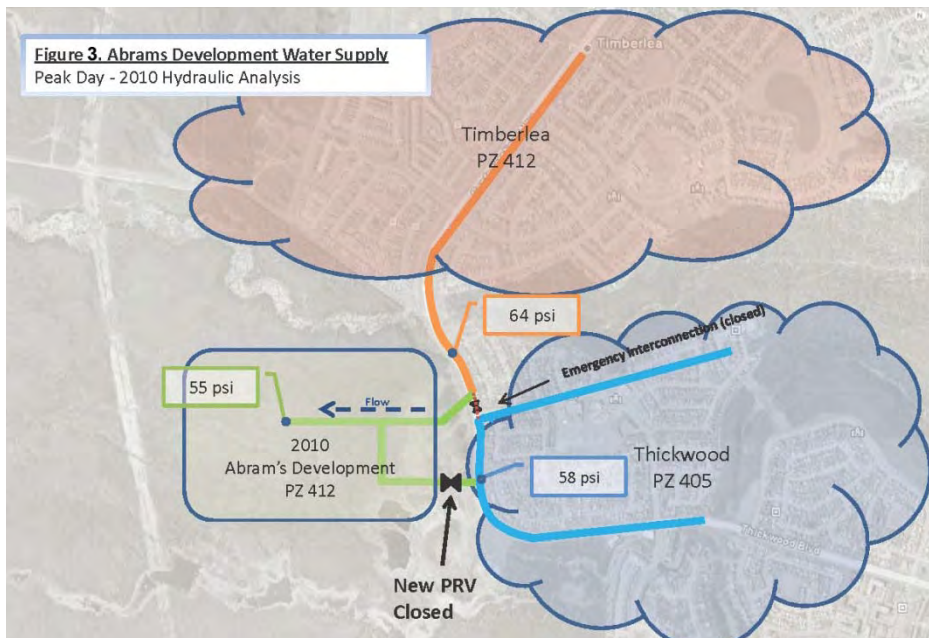


Figure 3: Abram's Development Water Supply, Peak day - 2010 Hydraulic Analysis

To meet minimum pressure requirements during a peak day and fire flow condition, additional supply is required from the Thickwood pressure zone. A second main will connect to the Thickwood pressure system south of Dickins Drive, governed with a pressure reducing valve (PRV). Looping the two mains provides flows for both peak day use and fire protection to the Abram's area. The PRV would only open when minimum pressure cannot be sustained from the Timberlea supply during a major fire event. Under this arrangement, residual pressure at the of the Abrams system is 215 kPa (31 psi) for peak day and a commercial fire of 233 lps (as shown in Figure4). The minimum pressure requirement is 140 kPa (20 psi). The Thickwood connection will require a 6.0 metre easement between the MGA and Markaz UI- Islam properties.

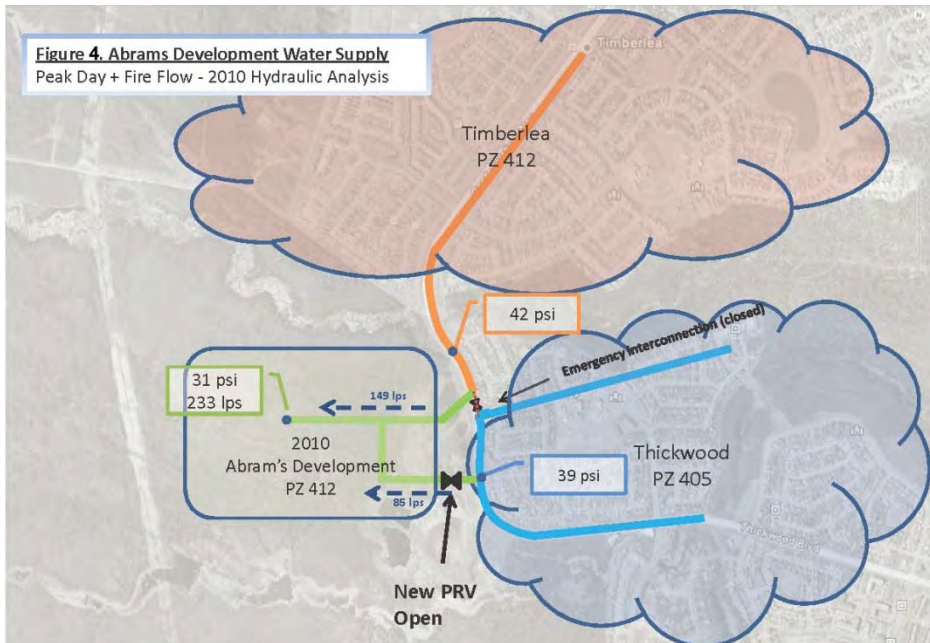


Figure 4: Abram's Development Water Supply, Peak day + Fire Flow - 2010 Hydraulic Analysis

Ultimately, the Abrams development will be included in the West Growth Area water supply, which will operate as a separate pressure zone (426m). An additional PRV will be required at the Timberlea connection to isolate the Abrams system once the West Growth Area zone is operational (as shown in Figure 5)

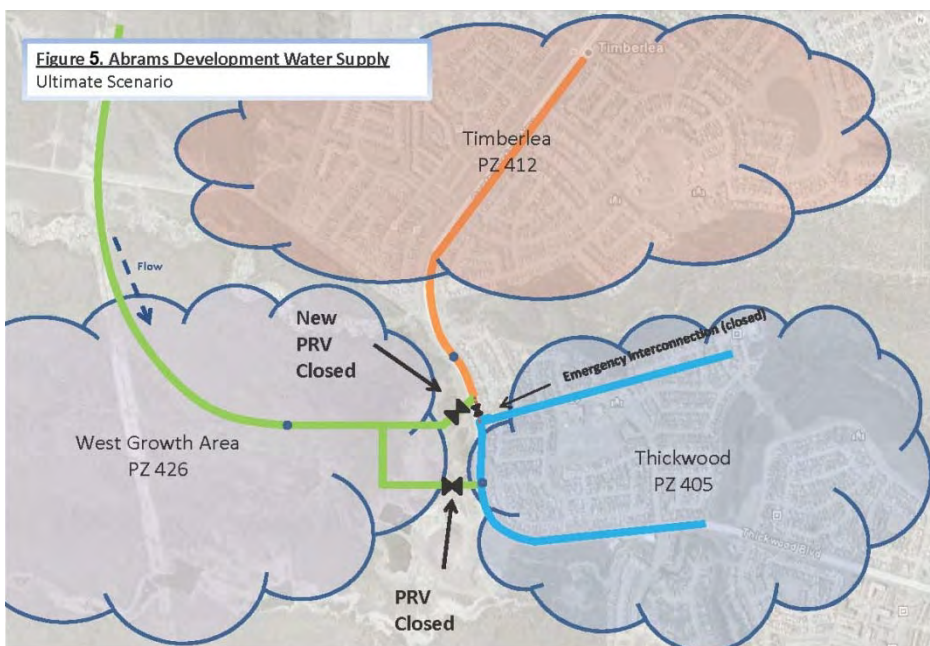


Figure 5: Abram's Development Water Supply, Ultimate Scenario

3.2.3 Sanitary Sewage System

Stantec has prepared a Wastewater Master Plan for RMWB. From this study they have identified that there is downstream capacity in the Dickensfield system for 25 liters/second under dry weather flows and zero capacity for wet weather flows. Stantec is recommending that dry weather flows be limited to something less than 25 l/s and that wet weather flows be stored for the duration of the rainfall event and until such time that there is nominal surcharging in the Thickwood Tank and upstream system. Stantec's analysis indicated a storage tank of 4,300 m³ would be required to service a land area of 206 acres. Final decision relative to additional over sizing of the tank will be part of the detailed design stage.

Associated Engineering reviewed the analysis and made recommendations in their letter report of February 23, 2010 (See Appendix I).

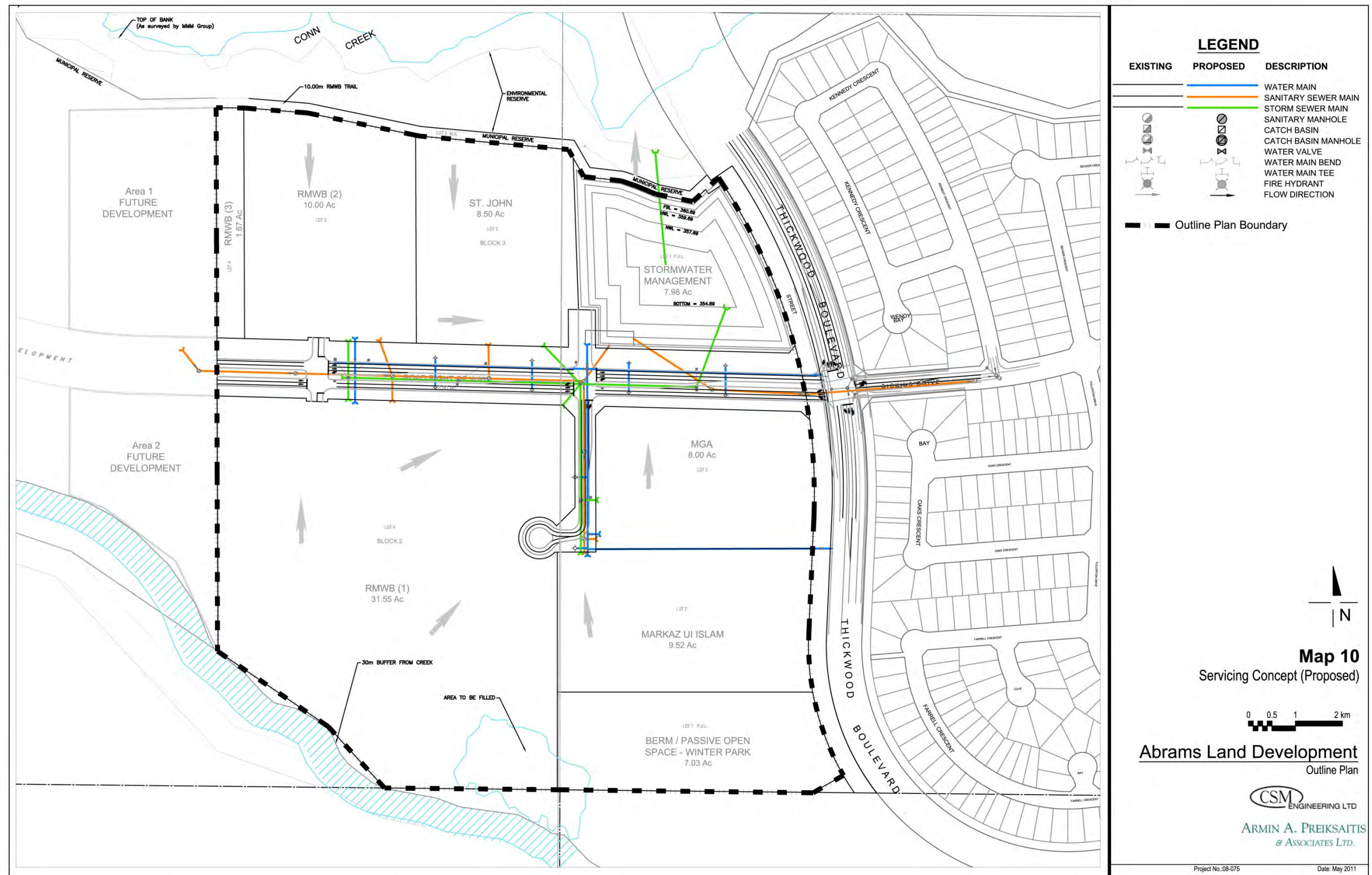
CSM Engineering has used this base information to determine the size of storage facility for the 89.4 acre development and to determine what additional lands could be serviced. The amount of storage required for the 89.4 acres is 1850 m³. Using release rates of 20 l/sec and 25 l/sec, the draw downtimes will be 26 hours and 20 hours respectively.

The maximum size of property that can be serviced through the Dickensfield system, based on a maximum peak dry weather flow of 25 l/sec is 108.38 acres, or an additional 17.0 acres outside the property boundary proposed in this Outline Plan. Sewer outfall connection location into Dickensfield by gravity is to be confirmed during detailed design stage.

Table 2: Summary of Sanitary Flows and Rationale Used for Abrams Development

Establishment	Gross Area (Acres) (Ha.)		Flow Generation (L/s/ha)	Average Flow (L/s)	PF	PDWF (L/s)	Infiltration Flow (L/s/ha)	Infiltration Flow (L/s)	PWWF (L/s)
NLHR	10.000	4.047	0.2	0.809	3.50	2.833	0.280	1.133	3.966
ST. JOHNS	8.500	3.440	0.2	0.688	3.50	2.408	0.280	0.963	3.371
RMWB	31.567	12.775	0.2	2.555	3.50	8.942	0.280	3.577	12.519
MARKAZ	9.521	3.853	0.2	0.771	3.50	2.697	0.280	1.079	3.776
MGA	8.000	3.237	0.2	0.647	3.50	2.266	0.280	0.906	3.173
ROAD ROW	10.366	4.195	0	0.000	3.50	0.000	0.280	1.175	1.175
SWM FACILITY	7.982	3.230	0	0.000	3.50	0.000	0.280	0.904	0.904
BERM	3.497	1.415	0	0.000	3.50	0.000	0.280	0.396	0.396
REMAINING AREA	1.949	0.789	0.2	0.158	3.50	0.552	0.280	0.221	0.773
TOTAL 1	91.382	36.981		5.628		19.698		10.355	30.053
POTENTIAL NEW AREA	17.000	6.880	0.2	1.376	3.50	4.816	0.280	1.926	6.742
TOTAL 2	108.382	43.861		7.004		24.514		12.281	36.795

The storage tank can be located on the land designated for the storm retention pond and will work with gravity discharge.



3.2.4 Storm Sewer

A modified rational method was utilized for the preliminary analysis of the storm water management facility. The analysis was based on servicing the Abrams land plus the additional land identified in the sanitary sewer calculations. The total contributing area is 45.881 hectares (113.4 acres) and requires a storm pond area of 3.23 hectares (7.98 acres).

The following criteria were used in the model to determine the pond size:

- Coefficient of runoff of 0.95 (assuming that a large portion of the site would be paved)
- A return period of 1:100 years.
- A predevelopment flow rate into Conn Creek of 3.5 L/sec/hectare.
- A post development release rate into Conn Creek of 3.5 L/sec/hectare (0.161 cms)
- An effective storage depth of 2.0 meters.
- A freeboard depth of 0.5 meters.

The results of the modified rational method revealed a storage requirement of 37,500 m³. The footprint of the pond is 3.23 hectares (7.98 acres). This compares to a storage requirement of 30,500 m³ and a footprint area of 2.67 hectares (6.59 acres) for the Abrams land.

3.2.5 Riparian Setback

The original setback from Conn Creek was set at 100 meters from the edge of the water. The setback requirements were reviewed by EnviroMak Inc., and the recommendations from their study were that a setback of 30.0 meters from the top of bank would be sufficient. The setback that was proposed was a minimum 30.0 metre setback from top of bank, plus a 10 metre setback for Municipal Reserve (MR). The MR will be used for trail development and linkages to the sites.

The adjustments to the top of bank setback resulted in an increase in developable acreage from 89.43 acres to 91.38 acres (an increase of 1.95 acres). The additional land will be taken by RMWB for future development.

3.2.6 Grading and Site Preparation

Approximately 40 acres of the plan area was used by Alberta Housing Corporation for stockpiling unsuitable materials when the Timberlea and Dickensfield Neighborhoods were developed in the 1970s and early 1980s. The stockpiled material generally consists of muskeg, peat, and other unsuitable materials.

The site will be cleared and grubbed. Salvageable timber will be salvaged and the balance will be mulched and removed with the stripping. The stockpiled material will be removed from the site and disposed of by the contractor (a contractor has been selected and is available to start the removal process in early October of 2010). The balance of the site will be stripped and muskeg areas will be excavated. The site will be graded using a balanced earthwork approach. Material from the storm water retention pond will be incorporated into the grading design.

The developer shall employ professional engineers to monitor the grading and filling of the site to ensure all engineering requirements are met and a geotechnical report is provided to the municipality's engineering department. This condition may be addressed in the developer's agreement during the subdivision stage.

4.0 TRANSPORTATION

4.1 Circulation

See Map 11. A 60.0 metre wide proposed arterial road right-of-way is proposed to be aligned east to west through the centre of the site, occupying 4.19 ha (10.366 ac) of land. This road right-of-way will provide access to the plan area from Thickwood Boulevard at the existing intersection with Dickins Drive. In addition a north south 24.0 metre road connector shall provide access to the RMWB Multiplex Site, the MGA Site and the Markaz UI Islam site (See Map 11).

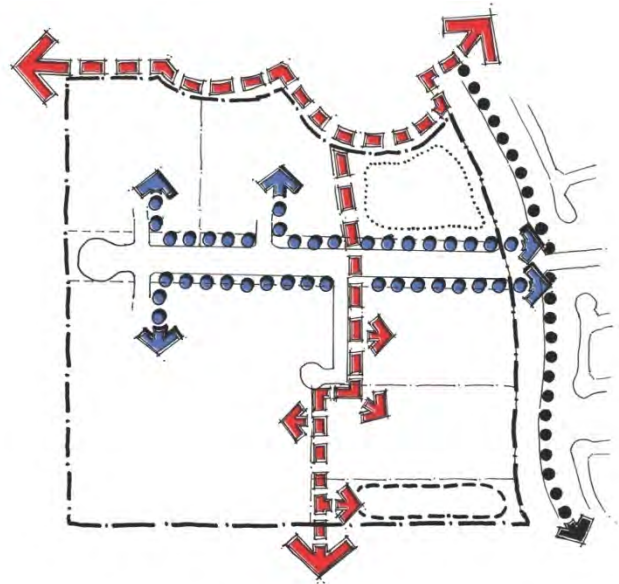


Figure 6: Conceptual Trail Connections

Figure 6 provides a schematic of the proposed trail connections within the plan area. Details pertaining to the trail have been described in the Landscape Development Design Brief (See Appendix A).

4.2 Traffic Impact Assessment

A Traffic Impact Assessment (TIA) was completed by ISL Engineering and Land Services Ltd (ISL) for the Abrams Land Development. The purpose of this TIA was to update the land uses and include an additional future 2025 analysis horizon to the previous version of the TIA by Earth Tech (Canada) Inc. dated April 2008. This TIA prepared by ISL study makes recommendations for road upgrade requirements pertaining to the 40.22 ha (99.4 ac) development as well as future development of the West Growth area (See Appendix J).

In accordance with the TIA, developments within the Outline Plan area shall be serviced by an east west 60.0 metre road right of way (See Map 11).

The TIA makes recommendation on the road right of way improvements and improvements to the intersection of Thickwood Boulevard and Dickins Drive. The TIA makes considerations for two possible future scenarios: one being the current requirements for the Abram's Development as proposed in this plan, and the second scenario considers westward growth in the future. Based on the recommendations set forward by the TIA, roadway improvements required for the two scenarios depicted above are as follows:

4.2.1 Requirements for Abrams Development as Proposed

Dickens Drive West

- Two lane divided roadway
- 1 left turn, 1 right turn, and 1 through lane at Thickwood Boulevard
- 1 left turn to MGA/Markaz-UI Islam
- Signalized intersection at MGA/Markaz UI-Islam
- Turn around at the west property line
- 60 metre right of way

Dickens Drive East

- Left turn lane
- Signalization

Thickwood Boulevard

- Southbound – add right turn bay
- Full signalization of intersection
- Increase right of way from 36.5metres to 55 metres

Development cost estimates have included the costs associated with the Abrams Development (Current Requirements) scenario.

4.2.2 Requirements for Future Growth Including Abrams and West Growth

The following are the requirements for the roadway improvements for the year 2025 horizon level, which contemplates westward growth, which is beyond the current requirements of the plan area.

Dickens Drive West

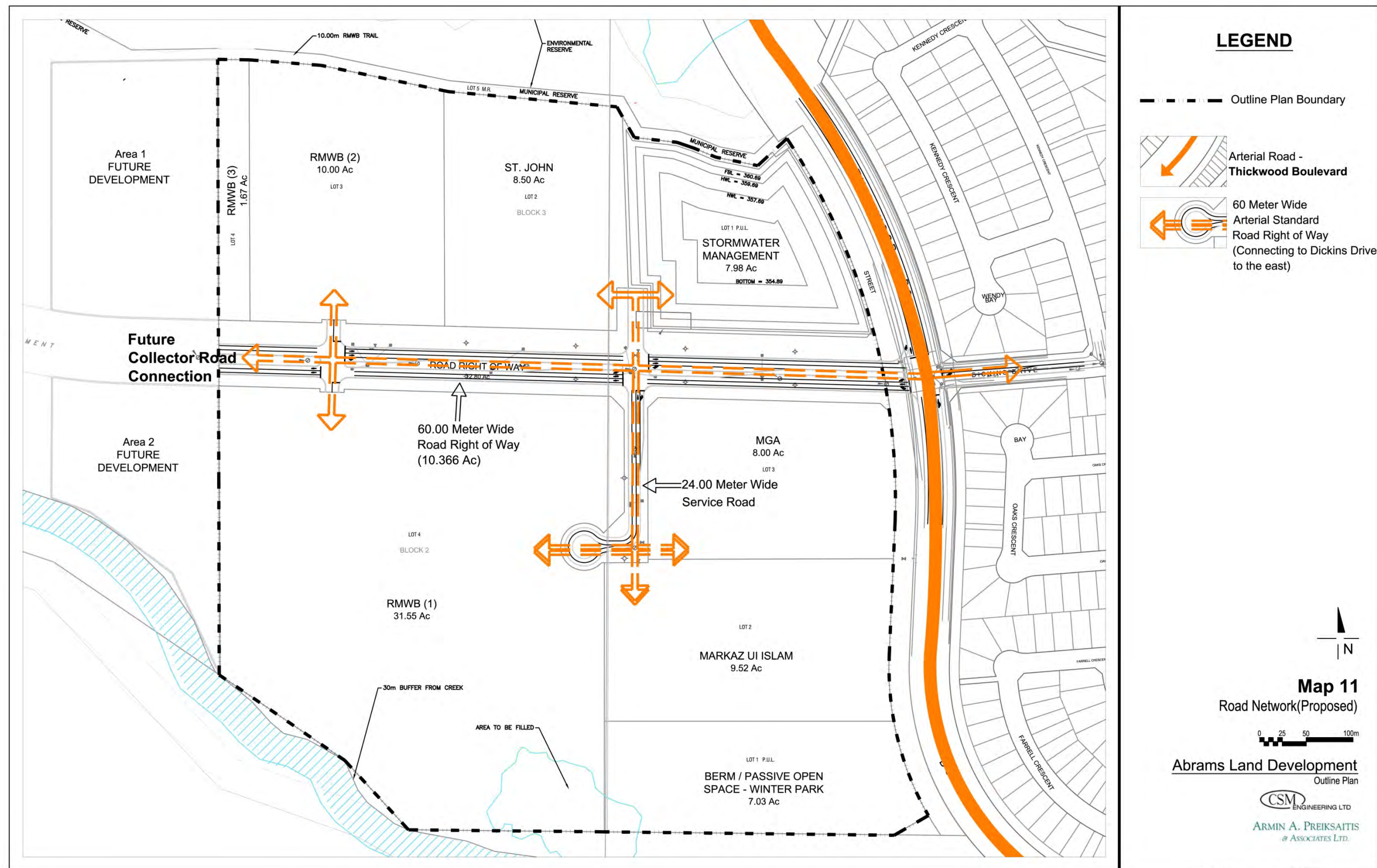
- 4 lanes divided arterial roadway section
- Signalized intersections for the entrances to RMWB and to MGA/Markaz UI-Islam
- 60 metre right of way

Dickens Drive East

- Left turning lane, 1 through lane, and 1 right turning lane. This may required the deletion of the right turn lane due to right of way restrictions.
- Full signalization

Thickwood Boulevard

- Northbound – addition of two left turn lanes
- Southbound – addition of one left turn lane and one right turn lane
- Full signalization of the intersection
- Increase the right of way width from 36.5 metres to 55 metres



5.0 IMPACT ASSESSMENT

5.1 Impact of Construction Activities on Adjacent Properties

5.1.1 Scope of site development work

Construction activities for the base site preparation will involve the following stages:

1. Clearing and grubbing of trees and undergrowth;
2. Removal of existing soil deposits;
3. Site re-grading, including excavation of storm water catchment pond;
4. Import of top soil;
5. Installation of main utility lines and branches to internal property lines;
6. Installation of roadways, curbs and gutters;
7. Installation of deceleration and acceleration lanes on to Thickwood Blvd;
8. Street and area lighting;
9. Landscaping.

Each subdivision within the property will be developed independently by the property owner according to the development schedule which most likely will be at a later stage. Construction impact of the individual buildings will be contained more within the Abrams Site and will have a reduced effect on Thickwood Blvd and beyond.

1. Site grading adjustment and excavation for foundations.
2. Installation of services within the site to suit the building location.
3. Construction of the building, paving and curbs.
4. Import of topsoil and landscape material.
5. Miscellaneous site work such as lighting, signage etc.

5.1.2 Impact on adjacent areas

There will be three main sources contributing to the potential impact on surrounding areas: construction traffic volume, construction noise, and vehicle borne materials (soil, mud, dust etc.) outside the site. The environmental impact of the development is not addressed here, but it is anticipated that disruption to any animal habitats will be minimal. Studies on this subject prepared independently for this site indicate that no significant natural habitats exist.

5.1.3 Construction Traffic Volume

In the initial stages, construction traffic on the site will be comprised of heavy site preparation equipment involved in clearing existing trees and shrubbery, removing soil from the soil dump sites, excavating, filling and leveling. Access to the site will be from Thickwood Blvd. Machinery delivery vehicles, haulage trucks and contractor vehicles will add to traffic volumes on Thickwood Blvd. during this stage of site development, which will last for a limited period of time.

Construction noise from machinery, especially in the early stages of development will contribute to an increase in traffic noise in the area. It is not anticipated that this increase in noise will pose a significant issue to the proximate natural environment or greater community due to the self-contained, (relatively) isolated nature of the site, and the absence of residential areas directly abutting the property lines of the site. Most residential lots are separated from the site by Thickwood Blvd. which acts as a buffer to construction activities.

The adjacent municipal snow dump site already utilizes heavy equipment and vehicles to deliver and manipulate snow during the winter months which, to our knowledge, has not been a serious source of contention in the neighbourhood.

The self-contained nature of the site will also mitigate the potential for airborne dust to be carried into the residential properties. Again these issues will only occur during the limited period of construction. Mud and dirt tracked on to main roads via the wheels of vehicles coming from the site can be controlled as part of the construction process. Gravel mats and other strategies can be used to substantially reduce these types of problems.

Development and construction on each of the subdivided properties in the overall development will be smaller scale and most likely be developed at different times to suit the schedule of each of the owners. Off-site impact will be minimal, again due to the isolation of Abrams Land from the residences across Thickwood Blvd.

5.2 Impact of the Development on Adjacent Properties

According to the long term plan, the Thickwood Blvd. – Abrams Land intersection will be the connection to a major future ring road. The Abrams Land itself will generate a larger traffic flow for on-site activities requiring a signaled intersection at Thickwood Blvd, however traffic volume will generally increase due to downstream development from Abrams Land, as the ring road stages are constructed and new developable land is made accessible.

6.0 OPERATIONAL PLAN

6.1 Operational Plan

An Operational Plan was prepared for the Abram's Land Development Corporation by ACI Architecture Inc. in October 2009 (Refer to Appendix K). The Operational Plan contains detailed information on program areas within each facility; estimated number of staff, visitors, and other occupants; frequency of use of the facilities; and site location and areas within the plan area. The Operational Plan also provides the estimated average daily and weekly vehicle volumes for each facility based on anticipated traffic periods.

Based on the Operational Plan in Appendix K, Table 3 – Operational Plan Statistics, as depicted below, highlights the total area of each facility, along with its occupancy and the amount of parking provided. Since the preliminary parking requirement calculations were based on the total facility area, the result was a large vehicle stall count on each site. As a result, in accordance with discussions with the RMWB Planning Department and a Co-op meeting held on October 6th 2009, the parking requirements for these facilities were adjusted to reflect site use efficiencies and parking reductions due to shared parking strategies from the parking requirement calculation. The final parking requirement shall be determined at the detailed design stage.

Table 3: Operation Plan Statistics

Location	Facility Area (m ²)	Occupancy	Parking Provided
RMWB Multiplex Recreation Centre	34,200	7,580	2,139 Stalls
RMWB Administration Building	4,500	300	103 Stalls
Northern Lights Continuing Care Site (RMWB 2) -(For Capacity Testing Only – The use for this site is to be determined)	6,940	226	197 Stalls
St. John's Catholic Church	8,790	2,757	573 Stalls
McMurray Gospel Assembly	7,916	4,240	565 Stalls
Markaz UI Islam	10,000	4,200	501 Stalls

Note: In 2011, RMWB has completed a feasibility study for the design and development of the RMWB Multiplex Recreation Centre and Administration Building. As of May 2011, the feasibility study is in preliminary stages and calculations pertaining to trip generation are currently not available and sufficient data is not available to revise the entire Operational Plan. The following table provides the updated facility area and projected occupancy level which should be considered as information only as there is no official report completed for this study.

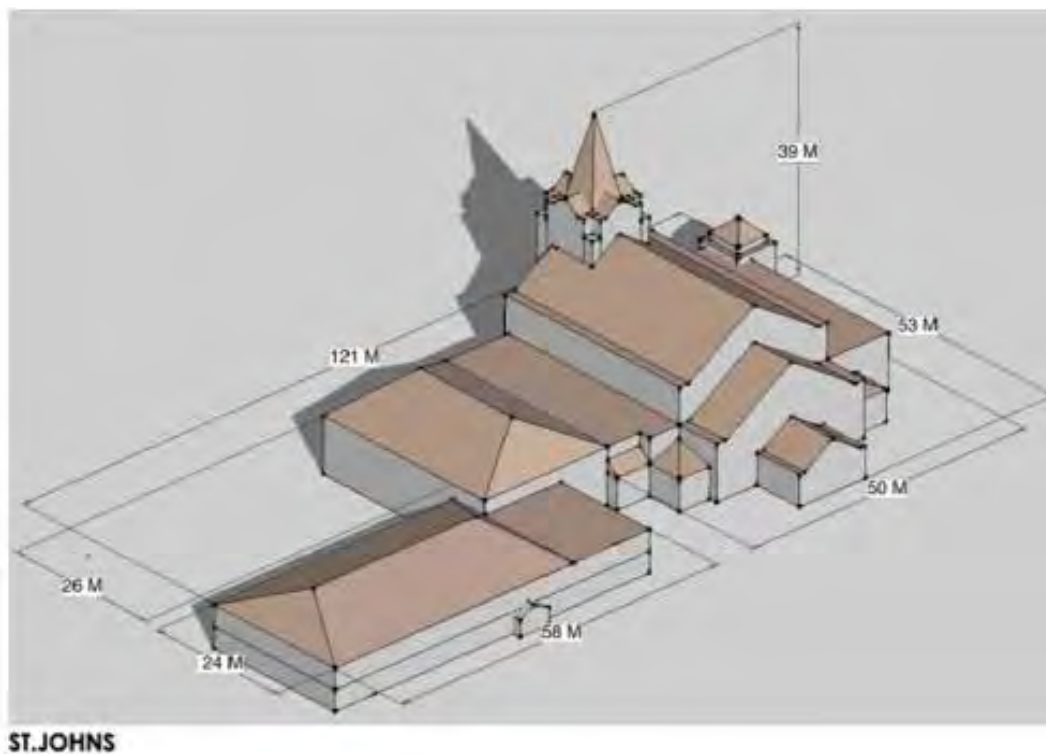
Table 3a: Operation Plan Statistics update for RMWB Multiplex Recreation Centre and Administration

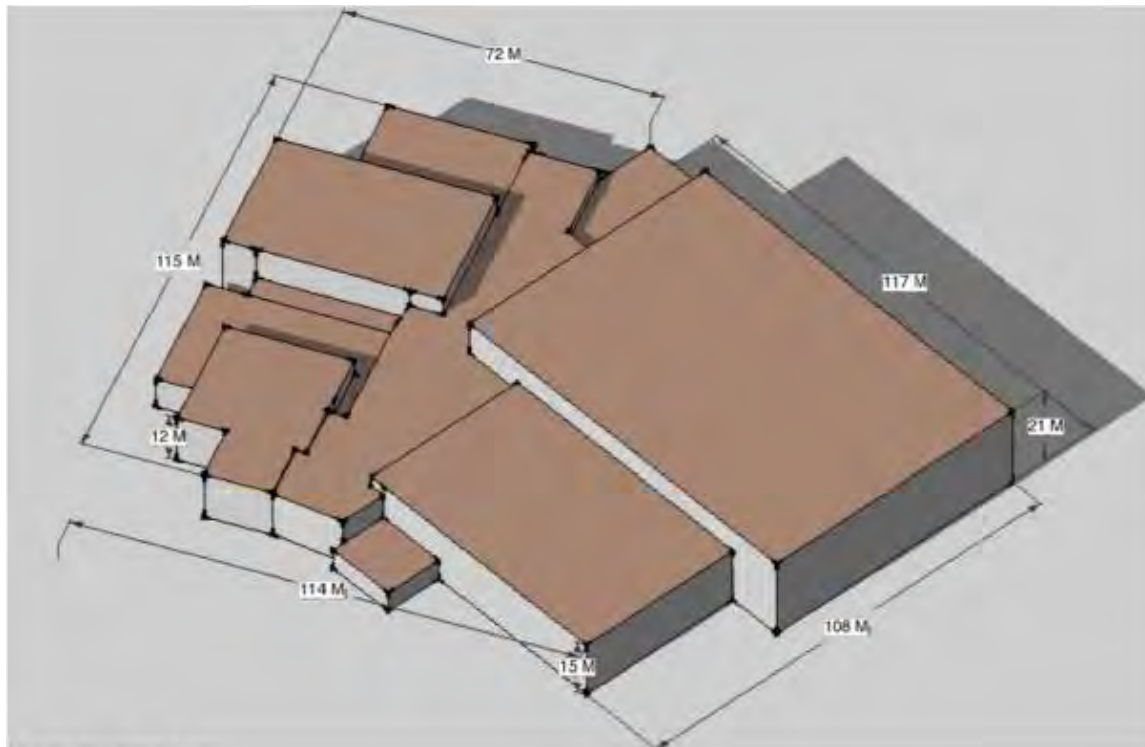
Location	Facility Area (m ²)	Occupancy	Parking Requirement
RMWB Multiplex Recreation Centre	37,530	3,250	1,223 Stalls
RMWB Administration Building	1,975	120	55 Stalls

Source: Architecture ATB, April 2011

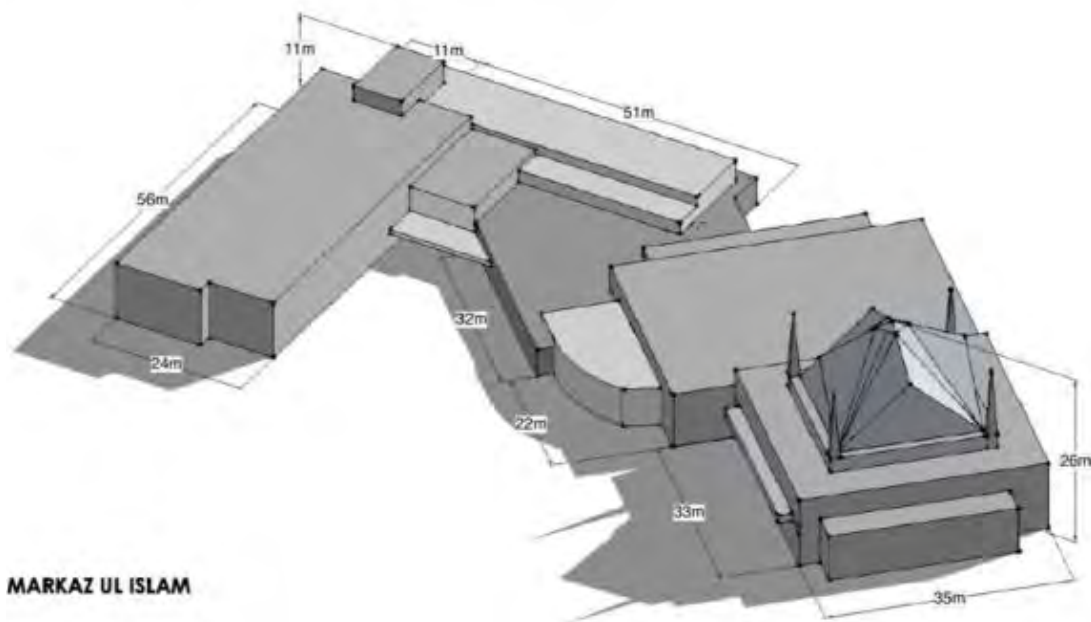
Based on the updated information for the RMWB Multiplex Recreation Centre and Administration building, the projected occupancy and parking requirement is significantly lesser than the model used to test capacity in the Operational Plan and should not pose any significant problems.

A preliminary massing study was also prepared to show the conceptualized form or shape of each building based on the information available at the time. These visualizations, shown in Appendix K, illustrate the main dimensional proportions and volume of the buildings without developing detailed design or material selection. It should be noted that, based on the proposed elevation of St. John's Catholic Church, the height exceeds the maximum allowable building height under the PS – Public Service District within the RMWB Land Use Bylaw. This variance in height will be subject to a Site Specific Text Amendment application, which will be addressed at the detailed design stage. For complete details on the Operation Plan, see Appendix K.

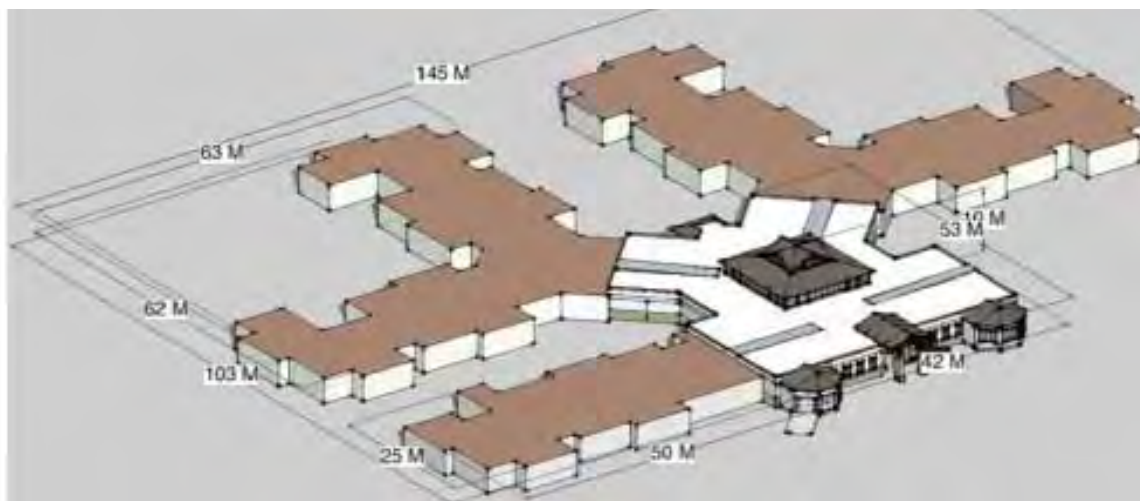




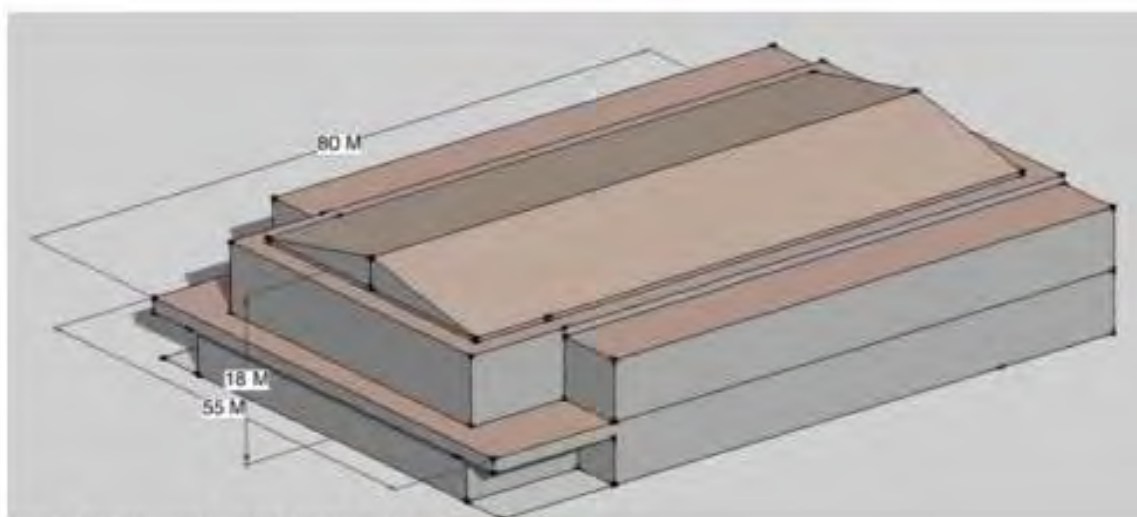
RMWB MULTIPLEX



MARKAZ UL ISLAM



RMWB (2) SITE (Previously site for Northern Lights Continuing Care Facility)



FORT MCMURRAY GOSPEL ASSEMBLY

7.0 LANDSCAPE DESIGN DEVELOPMENT BRIEF

A landscape design development brief was prepared by Eidos Consultants Inc. in January of 2011 (Refer to Appendix A). The broad vision for the development of the plan area is to introduce both formal and naturalized landscape treatments to create attractive settings for institutional development, and to provide for a range of passive recreational opportunities with a high degree of active transportation connectivity. The planning and design of the parks and opens spaces within the Abrams site is guided by Part 10 - Landscape and Park Development Standards of the Regional Municipality of Wood Buffalo Engineering Servicing Standards and Development Procedures (2009).

The Landscape Design Development Brief has been prepared in consultation with the RMWB Parks Department and is drafted to meet the requirements of the Outline Plan. For complete details on the landscape design development brief please see Appendix A.