



SECTION 2: GENERAL CONSIDERATIONS

2.0 INTRODUCTION

This section covers general issues including infrastructure planning requirements, utility line assignments, developer fence locations, entry features, top of bank setbacks, and other design issues not specifically noted in other chapters.

2.0.1 IN GENERAL

The overall design principles described in the introduction to these standards is the basis on which all construction is undertaken in the City of Lethbridge. These guiding principles are expanded below to provide more specific guidance related to the general issues described above.

2.0.2 LEVEL OF SERVICE OBJECTIVES

2.0.2.1 Utilities

The community at large expects building lots to have access to all utilities including shallow utilities consisting of electricity, communications, and natural gas. This standard documents how location assignments are made in the road right of way and easements for each utility. This is done so that services can be provided in a consistent manner without the creation of unnecessary conflicts and facilitating the maintenance and repair of the services.

2.0.2.2 Safe Development Setback Line

The Safe Development Setback Line is established with the safety of the public and environmental considerations in mind. These setbacks ensure that buildings are not built so near the top of bank that they would be endangered by slope stability issues, and protect environmentally sensitive areas and ecosystems. In determining where property lines are located in relation to the safe setback line, the principle that no additional restrictions should be placed on the adjacent lots to account for slope stability issues should be applied. For example, irrigation restrictions should not be required on the lots adjacent to the safe setback line.

The Safe Development Setback Line in Lethbridge has been determined as a result of extensive detailed geotechnical investigations. Details of the current top of bank setbacks are provided in the River Valley Area Redevelopment Plan. Contact the Subdivision Planning Officer for the Development Setback Line that applies to your area.



2.1 PLANNING REQUIREMENTS

These infrastructure planning requirements should be viewed as a supplement to the requirements and process administered by the Planning Department. Contact the Planning Department for detailed planning requirements for Area Structure Plans, Outline Plans, and Subdivisions.

2.1.1 AREA STRUCTURE PLAN – INFRASTRUCTURE REQUIREMENTS

2.1.1.1 STORM WATER – AREA STRUCTURE PLAN REQUIREMENTS

An area structure plan shall include the following information regarding storm water management:
Definition of general catchment areas

- i. Predevelopment peak flows, volumes and hydrographs, inflow and outflow points.
- ii. Post development peak flows, volumes, and hydrographs.
- iii. Generalized storm pond locations and storage volumes.
- iv. Proposed location of connections to the downstream Major and Minor Systems and proposed release characteristics at each location compared to pre-development characteristics.
- v. Description of the impacts of the proposed development on the downstream Major and Minor systems and a description of measures proposed to offset negative flooding, erosion, and water quality impacts caused as a result of the development.
- vi. A map or description of the Major system flow routes from the boundary of the development to the outlet. Outlets will usually be considered as the first water body or natural channel reached by storm water runoff from the development.
- vii. System performance for low intensity long duration storms will need to be reviewed, particularly the performance of storm water ponds. Examples of these events are the 1995, 2003, and 2005 June storms.
- viii. Identification of offsite water system extensions required to provide service to the development area complete with order of magnitude cost estimates and projected year of construction.

2.1.1.2 SANITARY SEWER – AREA STRUCTURE PLAN REQUIREMENTS

An area structure plan shall include the following information regarding the sanitary sewer system:

- i. Generalized trunk layouts, particularly where they are not expected to follow roadway alignments.
- ii. Land use and sewage generation rates.
- iii. Expected peak flows and design flows.
- iv. Impacts on the existing system and capacity of the existing system at connection locations.
- v. Estimated sewer catchment boundaries at each connection point.
- vi. Conceptual location and size of Lift-stations and force-mains.



- vii. Identification of offsite sanitary sewer system extensions required to provide service to the development area complete with order of magnitude cost estimates and projected year of construction.

This analysis may require a computer network analysis.

2.1.1.3 WATER DISTRIBUTION – AREA STRUCTURE PLAN REQUIREMENTS

An area structure plan shall include the following information regarding the water distribution system:

- i. Land uses, expected peak demands, fire flow requirements.
- ii. General pipe layouts.
- iii. Impacts on the existing system and capacity of the system at connection points.
- iv. Identification of offsite water system extensions required to provide service to the development area complete with order of magnitude cost estimates and projected year of construction.

This analysis may require a computer network analysis.

2.1.1.4 TRANSPORTATION – AREA STRUCTURE PLAN REQUIREMENTS

An area structure plan shall include the following information regarding the transportation system:

- i. Definition of general land use areas.
- ii. Estimated trip generation data for the various land use areas.
- iii. General locations of arterial and major collector roads and intersections.
- iv. General location of pedestrian and bicycle corridors and circulation routes.
- v. Impacts on the existing system and proposed measures to mitigate negative impacts on adjacent arterial roads.
- vi. Impacts on the development from noise off arterial roads and proposed measures to mitigate noise.
- vii. Schematic representation of proposed transit routes.
- viii. Schematic representation of the active transportation network.
- ix. Identification of offsite arterial road extensions required to provide access to the development area complete with order of magnitude cost estimates and projected year of construction.

Additional analysis may be required for high traffic generation land uses and areas with limited capacity for increased traffic volumes.

2.1.1.5 PARKS AND OPEN SPACE – AREA STRUCTURE PLAN REQUIREMENTS

An area structure plan shall include the following information regarding parks and open space:

- i. General locations of parks and open space.
- ii. Estimated percentage of reserve dedication by type (MR, ER, SR).
- iii. Classification of municipal reserves (i.e. Tot Lot, Neighborhood Park, etc.).



2.1.2 OUTLINE PLAN – INFRASTRUCTURE REQUIREMENTS

The Subdivision Officer is the focal point for the outline plan process. All required outline plan information should be submitted to him for distribution.

For each outline plan, contact Infrastructure Services so a focal point for the master servicing plan can be appointed to facilitate engineering reviews and comments.

2.1.2.1 STORM WATER – OUTLINE PLAN REQUIREMENTS

The following information regarding storm water management shall be included with the supporting documentation submitted with the outline plan:

- i. A description of any differences between the Area Structure Plan and the proposed outline plan with regard to the storm water management system.
- ii. A conceptual overland drainage plan showing major system overland flow routes and trapped lows within the entire development, and demonstrating continuity of flow from upstream developments through the proposed outline plan area.
- iii. A conceptual servicing plan showing the routing of trunk lines and pond outlets.
- iv. Description of how development phasing has been considered so that at no time are the identified peak release rates exceeded during the period from the start of development to the complete build out of the area. The description should include those trigger points, showing by area, when various storm water management facilities become necessary.
- v. Refined storm pond locations and volumes and a description of phasing strategies if required.
- vi. Description of proposed sources of make-up water for wet pond facilities.

2.1.2.2 SANITARY SEWER – OUTLINE PLAN REQUIREMENTS

The following information regarding the sanitary sewer system shall be included with the supporting documentation submitted with the outline plan:

- i. A comparison between the Area Structure Plan and the outline plan noting the changes and their impacts.
- ii. A conceptual servicing plan will be included with the information showing the location of sanitary sewers, lift stations, and any other sanitary facilities.
- iii. A description of development phasing, noting trigger points where sanitary sewer facilities or upgrades are required. The phasing should identify, by area, when each lift-station is required.

2.1.2.3 WATER DISTRIBUTION – OUTLINE PLAN REQUIREMENTS

The following information regarding the water distribution system shall be included with the supporting documentation submitted with the outline plan:



- i. A comparison between the Area Structure Plan and the outline plan noting the changes and their impacts.
- ii. A conceptual servicing plan will be included with the information showing the location of water mains and any other water distribution facilities.
- iii. A description of development phasing, noting trigger points where water distribution facilities or upgrades are required in order to ensure defined levels of service are maintained.

2.1.2.4 TRANSPORTATION – OUTLINE PLAN REQUIREMENTS

The following information regarding the transportation system shall be included with the supporting documentation submitted with the outline plan:

- i. Any differences between the Area Structure Plan and the proposed outline plan.
- ii. Location of all roads and laneways within the development.
- iii. Identification of roads as Arterial, Collector or Local.
- iv. Identification of the active transportation networks.
- v. Intersections, which will require signals and the development trigger points where they become necessary.
- vi. Identification of roadways along which direct property access may be restricted.
- vii. Identification of roadways along which on street parking may be restricted.
- viii. Location of traffic calming features (roundabouts, curb extensions, raised crosswalks, etc.).
- ix. Location and conceptual plan of entryway features.
- x. Description of the impacts of the proposed development on the adjacent existing transportation system. Contact the Transportation Manager for additional details regarding this requirement.
- xi. Preliminary projected phasing and timing of the build out of the area, noting trigger points at which transportation facilities or upgrades are required.

2.1.2.5 PARKS AND OPEN SPACE – OUTLINE PLAN REQUIREMENTS

The following information regarding Parks and Open Space shall be included with the supporting documentation submitted with the outline plan:

- i. Location and boundaries of land dedicated as Municipal reserve.
- ii. The amount of land and percentage dedicated in the completed subdivision.

Detailed open space planning begins based on the approved outline plan. A detailed landscape plan will be developed using a public input process that includes the developer and the City of Lethbridge. The detailed landscape plan shall be submitted to Community Services for final approval.

Contact the Parks and Open Space Manager for additional information regarding the detailed landscape planning process.



2.1.2.6 ELECTRIC DISTRIBUTION – OUTLINE PLAN REQUIREMENTS

A copy of the outline plan showing the general layout of the development is required by the Electric Utility to plan general cable layouts, land uses, anticipated peak demands, and proposed switching cubicle locations. The Electric Utility will model its facilities based on the submission and make recommendations to developers.

2.1.2.7 CONSTRUCTION APPROVAL – INFRASTRUCTURE REQUIREMENTS

Prior to requesting a service agreement and submitting engineering drawings for construction approval, new phases of development must follow the appropriate process for subdivision as administered by the Subdivision Officer.

Developers must also contact the Open Space Manager regarding detailed landscape planning process for Municipal Reserve and to indicate if they wish to enter into an Open Space Agreement.

Developers must also contact the Electric Utility Manager regarding the design and construction of the electrical distribution infrastructure required for the development.

2.1.2.8 CONSTRUCTION APPROVAL SUBMISSION

Submissions for construction approval shall include the following:

- i. A letter stating that these design standards have been followed and detailing any deviations from the standards along with a justification for the deviation.
- ii. Engineering drawings of the subdivision stamped by a Professional Engineer registered to practice in the province of Alberta.
- iii. The Engineering drawings shall follow the requirements under the field services guidelines and be sufficient to construct the infrastructure required for the development.
- iv. The drawings shall also include any additional information requested by the Urban Construction Coordinator acting reasonably.
- v. Drawings and supporting documentation describing the storm water system shall include the following information:
 - a. A description of how the area fits in with the rest of the development in terms of drainage, showing that peak release characteristics from the entire development are still below previously defined limits.
 - b. Any interim storm water management measures required to maintain storm water releases within requirements.
 - c. Any interim erosion control measures required to protect flow routes until build out is complete.
 - d. Estimated flow depths and velocities for critical locations such as storm pond inlets, outlets and overflows.
 - e. Extent, depth, volume, and duration of ponding in both trapped lows and ponds.



- f. A description of how the storage provided in ponds and trapped lows complies with the requirements of the outline plan.
- vi. Drawings and supporting documentation describing the sanitary and water systems shall include the following information:
 - a. A description of how the area fits in with the rest of the development
 - b. All pipe and appurtenances required for the utilities
- vii. Drawings and supporting documentation describing the transportation system shall include the following information:
 - a. Location of all lot lines and identification of the ultimate number of dwelling units served at intersections and links or estimated trip generation data.
 - b. Identification of driveway locations.
 - c. Any interim measures required to provide access to the area for regular traffic and/or emergency services until build out is complete.
- viii. Detailed irrigation and landscaping plans for entryways, boulevards, medians, and any other area that will ultimately be maintained by City forces.
- ix. The drawings shall include a grading plan showing any pre-existing conditions that may affect building construction such as fill in excess of 1.2m deep, previously buried pipe or dugouts.
- x. The drawings shall include the proposed types and locations of all developer constructed facilities within or adjacent to roads, public rights of way, and easements. This particularly applies to fences, entryway features, trees, bushes, boulevard landscaping, and irrigation systems.
- xi. Detailed landscape plans of all Open Space in the current phase as approved by the Open Space Manager or an indication that the minimal landscaping requirements under the service agreement will be followed.
- xii. Drawings describing the Electrical System shall include proposed locations for the Electric Utility surface facilities, including Transformers, pedestals, and street lights.

2.2 ENVIRONMENTAL CONSIDERATIONS

As stewards of the environment, charged with creating a healthy city and protecting the natural endowments within our jurisdiction, the City of Lethbridge promotes any design measures which reduce or mitigate the impacts of development.

Environmental principles of design are discussed in Section 1 Design Principles. For the environmental principles to be effectively translated into action, they must be considered at all stages of the planning and design process. Specific environmental design and planning guidelines for the City of Lethbridge can be found in each section.

Designers are referred to STANDARDS AND GUIDELINES FOR MUNICIPAL WATERWORKS, WASTEWATER AND STORM DRAINAGE SYSTEMS published by Alberta Environmental Protection for general environmental requirements.



2.3 TECHNICAL STANDARDS

2.3.1 GENERAL CONDITIONS

2.3.1.1 Utilities Located in Lanes

Generally, utilities are not to be located in lanes. In those cases where a utility located in a lane is considered advantageous, the City Engineer will consider it on a case by case basis. In those cases where a utility in a lane is being extended from a previous phase of development, the utility shall only continue along the lane to the first available location where it can be brought to the front of lots.

2.3.1.2 Standard Line Assignments

The standard line assignment and depth zone for the various deep and shallow utilities can be found in the current edition of the City of Lethbridge Construction Specification.

2.3.1.3 Fences, Entryways and Other Features

- i. Permanent structures built by the developer and located in or adjacent to the road right of way should be located so they do not conflict with the standard line assignments.
- ii. Detailed plans describing the makeup of landscaping, fences, and entry features to be handed over to the City of Lethbridge must be submitted for approval when requesting a service agreement. Features and landscaping which require minimal maintenance or are easily maintained by existing City equipment are preferred.
- iii. The developer shall provide access to the flanking boulevards from adjacent properties to minimize the amount of boulevard to be handed over to the City for maintenance. Standard practice within Lethbridge is that the adjacent property owner is responsible for maintenance of the adjacent boulevards and associated landscaping.