

## **Section B: GUIDELINES FOR GENERAL COMPLIANCE**

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### **1. DEVELOPER'S RESPONSIBILITY**

**B.1.1** The Developer shall at his own cost and expense shall engage and retain the services of a qualified Professional Engineer to be known as the "Developer's Engineer", and will provide the following:

- B.1.1.1** All required municipal improvements shall be designed in accordance with accepted engineering practices and shall meet or exceed Lamont County MDS requirements and construction of the required municipal improvements including necessary off-site upgrades and utility over sizing associated with the Development.
- B.1.1.2** It shall be the responsibility of the Developer's Engineer to establish the location and alignment of all existing and proposed municipal improvements including coordination with the shallow utilities. Unless approved otherwise by the Director, the location of all underground utilities shall generally conform to the Typical Utilities Layout all illustrated in Standard Detail Drawings.
- B.1.1.3** The Developers Engineer shall be responsible for carrying out all surveys and investigations necessary to prepare the design. It shall further be the responsibility of the Developer's Engineer to identify the need for any easements of additional right-of-way required. The plans and related documents shall be prepared by a qualified licensed Alberta Land Surveyor at the Developer's expense.
- B.1.1.4** Quality control and materials testing by an independent qualified professional engineer, during utility installation and roadway construction. Certification by the Professional Engineer that the construction has been completed in accordance with the approved drawings and specifications will be required.
- B.1.1.5** Legal and all other costs incurred by the County for the preparation and execution of the Development Agreement.
- B.1.1.6** The engineering and inspection costs incurred by the



Municipal Engineer, for the review and approval of the design and construction of the required municipal improvements.

- B.1.1.7** Acquisition of additional land for road widening and municipal services as required.
  - B.1.1.8** Registration with Alberta Land Titles all easements including plans and documents for the construction of municipal improvements outside of the municipal right-of-way.
  - B.1.1.9** A Plan of the Subdivision in accordance with the Plan approved by the County's Subdivision Approving Authority shall be registered at the Land Titles Office.
  - B.1.1.10** The Developer will supply both digital and hard copy of the Plan of Subdivision drawings and As-built drawings for the development or subdivision infrastructure to the County.
- B.1.2** The Developer shall be responsible for satisfying all statutory requirements governing such works and obtaining approvals for compliance with those requirements from the authorities having jurisdiction. Where conflicts or inconsistencies with the MDS and referenced documents arise due to compliance with or amendment of statutory requirements, the Developer shall be responsible for satisfying the more stringent requirement.
- B.1.3** It is the Developer's responsibility to satisfy the requirements established in the MDS unless stated otherwise, all design criteria, materials, installation and testing shall be in accordance with the most recent editions of the referenced documents:

*Public Lands Act,*  
*Municipal Government Act,*  
*Water Act,*  
*Environmental Protection & Enhancement Act,*  
*Canadian Environmental Assessment Act,*  
*Fisheries Act,*  
*Species at Risk Act,*  
*Navigable Water Protection Act,*  
*Safety Codes Act,*  
*Rural Utilities Act,*  
*Provincial Offences Procedures Act,*  
*Plumbing Code,*  
*Alberta Private Sewage Standards of Practice*



*Alberta Building Code,  
Provincial Wetlands Policy,  
Alberta Environment, Standards and Guidelines for Municipal  
Waterworks, Wastewater and Storm Drainage Systems (Parts 1-5)  
Lamont County Municipal Development Standards  
Alberta Highway Design Guide  
Transportation Association of Canada (TAC) Geometric Design  
Guidelines  
TAC Uniform Traffic Control Devices for Canadian Roads  
TAC Highway Lighting Design Guide  
Municipal Bylaws, other  
Provincial/Federal Government Authorities*

- B.1.4** It is the Developer's or their consultant's responsibility to obtain, at their own cost copies of the referenced documents from the applicable authority.
- B.1.5** The compiled list of referenced documents is not meant to be all inclusive, addition standards and documents may be listed in specific Sections of the MDS for reference. The Developer and Developer's Engineer remain responsible for the design and construction of their development according to accepted engineering practices.

## **2. Engineering Design Brief**

**B.2.1** An Engineering Design Brief will be required for all developments and subdivisions that will require improvements to existing or will see new municipal improvements be constructed to support the project. Guidelines for reports, studies and documents are included in subsequent sections of the MDS.

- B.2.1.1** Title page
- B.2.1.2** Table of contents
- B.2.1.3** Project Description, Background & Purpose
- B.2.1.4** Location
- B.2.1.5** Development Parameters and Constraints

- B.2.1.5.1** Existing land Uses
- B.2.1.5.2** Surrounding Land Uses

**B.2.1.6** Development Concept

- B.2.1.6.1** Residential



**B.2.1.6.2** Non-Residential

**B.2.1.6.3** Municipal (Parks, PULs, ROWs)

**B.2.1.7** Municipal Utilities

**B.2.1.7.1** Water Network Modeling, Analysis and Calculations

**B.2.1.7.2** Sanitary Network Modeling, Analysis and Calculations

**B.2.1.7.3** Stormwater Network Modeling, Analysis and Calculations

**B.2.1.8** Transportation

**B.2.1.8.1** Regional Network Accessibility



**B.2.1.8.2** Internal Roadway System

**B.2.1.8.3** Road design and structure calculations.

**B.2.1.9** Franchise Utilities

**B.2.1.9.1** Design and plans associated with shallow utilities

**B.2.1.10** Additional technical details that may be required by Lamont for approval.

**B.2.1.11** Cost estimates for all underground and above ground improvements.

**B.2.1.12** Copies of all applicable permits, licenses, and/or approvals from municipal, provincial, federal or private entities.

**B.2.1.13** Recommendations

**B.2.2** The design brief is to reference the recommendations and findings within the various Engineering reports as outlined in subsequent sections of the MDS to verify design assumptions.

### **3. Development Permit Submission Requirements:**

Pursuant to Land Use Bylaw 7-08 Section 3.3, "Application Requirements" as may from time to time be amended, the following technical information is required to be submitted in support of a Development Permit application:

**B.3.1** A completed application form, payment of the application fee, copy of the Land Title (no more than 30 days old), a written description of the development activities and related site plan, engineering and/or architectural drawings.

**B.3.1.1** For Commercial and Industrial developments and for multi-lot subdivision designs engineered drawing submission requirements will be in accordance with Section B.4 General Requirements for Engineered Drawings.

**B.3.2** Provide a general site plan illustrating existing contours at 0.5 m intervals preferred not to exceed 1.0 m maximum. Elevations will be relative to geodetic datum. Reference benchmarks are to be detailed on the plan.

**B.3.3** Provide a conceptual site plan illustrating proposed site stripping, cut and fill requirements and proposed contour elevations. The developer is responsible for the completion of rough grading for the entire development or subdivision area including road rights-of-way, laneways, drainage/utility easements, municipal



reserve and all lots. Indicate on the plans the benchmark used in the control of construction for the project. Other information to be shown includes stock piling and windrow placements.

- B.3.4** The results of a Geotechnical/Hydrogeological Investigation completed by a qualified geotechnical engineering firm to a level that will allow the engineer to generally assess the site geotechnical/hydrogeological conditions and their effect on the development or subdivision. The report should outline any findings of contamination that may exist and any general recommendations.
- B.3.5** For subdivision lots or development sites that require 1.0 m or more fill a geotechnical evaluation and engineering requirements for each lot/site is to be submitted to support the development of each lot/site. Identify each lot on the conceptual subdivision plan. The developer is responsible for the supply, placement and compaction of necessary fill for rough grading. The rough grades should ensure that the overall drainage plan is satisfied. No standing water or areas where water may pool or pond will be permitted.
- B.3.6** Development permit applications shall be required to include information regarding the proximity of oil and gas wells, sour gas facilities, sewage treatment plants or waste management facilities.
- B.3.7** A Phase I Environmental Site Assessment (ESA) of the subdivision or development area completed in accordance with Canada Standards Association (CSA) standard CSA Z768-01. A Phase II ESA conforming to CSA Z769-00 shall be required if recommended in the Phase I report.
- B.3.8** A Biophysical Site Assessment of the development lands will be required to be submitted.
- B.3.8.1** Applications under the *Water Act and the Environmental Protection and Enhancement Act* are required for the diversion of water or construction of storm water management facilities or for constructed wetlands.
- B.3.8.2** The Alberta Wetland Policy will be a requirement to follow for all situations where the avoidance of a wetland(s) is not possible.
- B.3.9** If a creek, river or other major watercourse crosses the site, a plan of the floodplain and a letter outlining the recommended measures to ensure that the development would not be exposed to flooding is required.
- B.3.10** Overall conceptual plans and description for the proposed subdivision or
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development area are required for review and approval; road layouts, water and sanitary sewer servicing and storm water management plan. The stormwater management plan is to address the capacity of existing systems and the requirements to accommodate the new flows is required to be completed with supporting calculations submitted for review.

- B.3.11** Any subdivision or development involving pipeline and or power line transmissions and or public utility right-of-way shall be sited to comply with all relevant Federal and Provincial legislation. Setbacks from pipelines and other utility corridors shall be in accordance with appropriate Provincial regulations of Acts and any regulation or directive established by the Energy and Utilities Board. Letters of crossing agreements are to be provided with the application.
- B.3.12** The standard drawing size of 841 mm by 594 mm (or other standard sheet size) shall be used for all plan submissions with a scale of 1:1000 (index plan may be a reduction of the standard scale to allow the plan to fit the standard size sheet).
- B.3.13** The County may require other non-technical submissions as part of the application.
- B.3.14** The County shall/may require the Developer to submit a Historical Resource Report to identify any significant historical resources within the boundaries of the proposed development including a review for archaeological and paleontological resources, in consultation with Alberta Community Development.
- B.3.15** Pursuant Section 3 of the Soil Conservation Act S-15 RSA 2000 as amended appropriate measure shall be implemented to prevent soil loss or deterioration from taking place or to stop soil loss and deterioration from continuing. Refer Section

#### **4. Subdivision Application Requirements**

- 4.1** Subdivision should conform to the prescribed minimum and maximum lot sizes for each Land Use District within the Land Use Bylaw.
- 4.2 Rezoning Application:**
  - 4.2.1** A rezoning application is made by a landowner in order to rezone their land to support the development or subdivision application.
  - 4.2.2** The rezoning application is supported by the submission of an Area Structure Plan. Once received, the application and Area Structure Plan is



referred to various government agencies, adjacent municipalities and internally for review.

- 4.2.3 Once all referrals have been received, a Public Hearing for Council is scheduled, advertised in the local paper and all adjacent landowners are notified of the Hearing and background information.

#### 4.3 Area Structure Plans must describe:

- 4.3.1 The land uses proposed for the area, either generally or with respect to specific parts of the area,
- 4.3.2 The sequence of development for the area,
- 4.3.3 Dwelling unit density for proposed residential areas, (residences/ha.)
- 4.3.4 School student generation projections,
- 4.3.5 The general location of major transportation routes and public utilities,
- 4.3.6 Capacity of offsite water mains and pumping stations, sanitary sewers, storm drainage facilities and natural gas facilities to accommodate the proposed development.
- 4.3.7 Location, dimension and boundaries of the existing parcel(s),
- 4.3.8 Area and proposed dimensions of all parcels including location of public spaces and community services, public utility lots, roads and points of access to all the proposed parcels,
- 4.3.9 Contour information with an interval of 2 meters superimposed over the plan,
- 4.3.10 Location of all existing buildings on or immediately adjacent to the lands,
- 4.3.11 location and sitting of all natural and man-made physical features,
- 4.3.12 Describe on-site storm drainage facilities and overland drainage routes for major storm events and proposed methods of handling surface drainage,
- 4.3.13 A density pattern of development that reflects the characteristics of the site and surrounding lands,
- 4.3.14 A density and pattern of development that is consistent with the capabilities of the site and surrounding resources,
- 4.3.15 Access to all parcels from an internal subdivision road, wherever possible and practical,
- 4.3.16 The internal subdivision road to link or be located so it can link with internal subdivision road in an adjacent quarter section,
- 4.3.17 Consideration for the provision of open space in the form of municipal and/or environmental reserve. The design should allocate lands for open space that create a contiguous linkage of open spaces and foster use as open space.
- 4.3.18 Environmental reserve dedication to preserve and protect environmentally significant/sensitive areas.
- 4.3.19 Proposed methods of on-site servicing for potable water and sewage,



- 4.3.20 Location and dimensions of all proposed municipal and environmental reserve parcels and public utility lots.
- 4.3.21 Environmental impact statement for environmentally sensitive areas, discuss how proposal conforms to Environmental policies of the Municipal Development Plan.
- 4.3.22 Visual impact assessment and mitigation measures for features which may either add or detract from the primary development proposed on the site.
- 4.3.23 Location of buffer zones adjacent to arterial roadway or highways.
- 4.3.24 Land uses (initial and future) in zone of influence of active oil and gas wells.
- 4.3.25 Location, status (reclaimed or not) and setback for abandoned oil and gas wells, flow lines and pipelines.
- 4.3.26 Location, level and impact zones of sour gas pipelines, flow lines, production facilities.
- 4.3.27 Delineation of top-of-bank adjacent to ravines, creeks, escarpments, to be confirmed by site survey
- 4.3.28 Provide geotechnical information (soil type, water table) to enable a determination of the suitability for development of the type being proposed.
- 4.3.29 Geotechnical slope stability analysis of banks, slopes and/or escarpments.
- 4.3.30 Delineation of setbacks to back-of-lots and setbacks to building.
- 4.3.31 Development setbacks from top-of-bank.
- 4.3.32 Classification of all roadways as arterial, collector or local roadways.
- 4.3.33 General location of all pedestrian linkages, walkways and trails to existing or proposed major walkways.
- 4.3.34 Capacity of existing/proposed water treatment plant, water pumping stations, water reservoirs, wastewater treatment plant and sewage pumping stations to accommodate the proposed development and adjacent properties.
- 4.3.35 Capacity of power, telephone, cable television systems to serve the proposed area.
- 4.3.36 Over sizing of utilities within area to accommodate adjacent future developments.
- 4.3.37 Breakdown by area and percentage of all land uses, roads, municipal and school reserves and public utility lots within Area Structure Plan area.
- 4.3.38 Road tie-ins to adjacent undeveloped quarter-sections.
- 4.3.39 Licensing requirements for infrastructure under the Water Act.
- 4.3.40 Location and design criteria for fire ponds.
- 4.3.41 Desired future land use district including: land use, setbacks, and other standard information.
- 4.3.42 Any other matter of interest to the County.

#### **4.4 Supporting Documents.**



- 4.4.1 All reports must be prepared by a qualified consultant and where applicable, comply with the guidelines provided in provincial legislation.
- 4.4.2 As part of your application, you will be required to submit a draft report providing recommendations on drainage, groundwater, water supply, and sewage disposal options.
- 4.4.3 **Geotechnical Reports** address soil suitability for sewage disposal systems, water table conditions and groundwater. Refer to Section 22.
- 4.4.4 **Potable Groundwater Supply Report** should demonstrate there is sufficient volume for each of the proposed lots. For water supply, the County will accept a two stage reporting process. Where a desktop study proves that there is enough water to the satisfaction of the County in accordance with the guidelines of the *Water Act*, this will be sufficient for the County Approving Authority.
- 4.4.4.1 Where the desktop study does not show that there is enough water to support the project, the developer will have the choice to either abandon water wells completely or choose cisterns, or to drill water wells and determine through an engineering report how many wells can be allowed under the Water Act. This may result in a portion of your subdivision being serviced through water wells and the remainder through cisterns.
- 4.4.4.2 Where this approach is used, the Developer will be required prior to endorsement of the subdivision to determine which lots will be serviced through wells and which will not.
- 4.4.5 **Traffic Impact Assessment** as outlined in section 27.
- 4.4.6 **Biophysical Report** as outlined in section 25
- 4.4.7 Lamont County may require additional supporting reports to be prepared subject to parcel location and natural features:

## 5. Engineering Design

- B.5.1 The Developer shall retain the services of a Developer's Engineer as defined above, who shall be responsible for the design and preparation of drawings and



specifications for all municipal improvements to be constructed within and/or related to the proposed development area. All required municipal improvements shall be designed in accordance with accepted engineering practices and shall meet or exceed Lamont County *Municipal Development Standards (MDS)* as set out herein.

- B.5.2** It shall be the responsibility of the Developer's Engineer to establish the location and alignment of all existing and proposed municipal improvements including coordination with the shallow utilities. Unless approved otherwise by the Director, the location of all underground utilities shall generally conform to the Typical Utilities Layout all illustrated in Standard Detail Drawings contained herein.
- B.5.3** The MDS apply to the preparation and submission of engineering drawings for municipal services in both residential, commercial and industrial developments or subdivisions and include without being limited to the following:
  - B.5.3.1** Water distribution systems inclusive fire protection systems, and lot service connections.
  - B.5.3.2** Sanitary sewage systems either gravity or low pressure inclusive related appurtenances and lot the lot service connections.
  - B.5.3.3** Storm collection systems and related appurtenances, lot grading, and lot service connections.
  - B.5.3.4** Facilities including water reservoirs, pump stations, sewage lift stations and storm water management facilities.
  - B.5.3.5** Roadways, sidewalks, curbs and gutters, and lane improvements.
  - B.5.3.6** Shallow utilities (i.e. gas, power, lighting, telecommunications)
  - B.5.3.7** Landscaping requirements, including hard and soft elements and walkway systems.
  - B.5.3.8** Required improvements 1
  - B.5.3.9** To offsite services.
- B.5.4** The Developers Engineer shall be responsible for carrying out all surveys and investigations necessary to prepare the design. It shall further be the responsibility of the Developer's Engineer to identify the need for any



easements of additional right-of-way required. The plans and related documents shall be prepared by a qualified licensed Alberta Land Surveyor at the Developer's expense.

- B.5.5** While the Developer's Engineer may arrange to have certain portions of the work carried out by other qualified persons, he shall remain responsible for the coordination of the work and certification of its quality and accuracy.

## **6. General Requirements for Engineering Drawings**

- B.6.1** Four (4) complete sets of plans and specifications for the proposed development servicing or subdivision area shall be submitted to the Director for review. A print of the approved tentative plan(s) of subdivision shall be included as well as the design calculations to assist in the review and evaluation of the plans and specifications.

- B.6.2** Each drawing shall include the following:

**B.6.2.1** A suitable title block, identifying:

- Name of the project,
- County File No.
- Draft or Revision No.,
- Date of drawings issued;
- Developer's/Owner's Name,
- Developer's Engineer or consulting engineering name,
- Development/Subdivision name including staging and/or phasing,
- Drawing name and number and issue date,
- Drawing scale, including horizontal and vertical axis,
- Space for the dates and signature of the designer, draftsman, reviewer or checker and approving professional or principal,
- Space for professional stamps and permits, and
- Space for revisions including number, date, description, and approval signature.

**B.6.2.2** The scale of the drawing;

**B.6.2.3** A north direction indicator;

**B.6.2.4** An appropriate space for the Professional Seal and Permit to Practice

- B.6.3** All dimensions and measurements shown in the engineering drawings shall be in metric units. Dimensioning of a drawing is extremely important and should be



such that it will not be misinterpreted. Dimensions shall be given from an iron pin, lot line, chainage station, a centreline, or any other reference that can be readily established.

- B.6.4** All elevations shown in the engineering drawings shall be referenced to geodetic datum and shall be noted as such.
- B.6.5** Elevations shall be relative to Geodetic Datum, surveys and plans are to be prepared utilizing utm2one12-North American Datum NAD83 (adopted) ground level coordinates.
- B.6.6** The standard A-1 drawing size of 594mm by 841 mm shall be used.
- B.6.7** All lettering must be a minimum of 2 mm (0.08") high.
- B.6.8** It is suggested that abbreviations and drawing symbols used in the engineering drawings be consistent with industry standards.
- B.6.9** Scales:
- B.6.9.1** Urban Residential/Industrial and Rural Industrial drawings shall be prepared using the following scales:
- i) Plan 1:500  
ii) Horizontal 1:500  
iii) Vertical 1:50
- B.6.9.2** Rural Residential drawings shall be prepared using the following scales:
- i) Plan 1:2000  
ii) Horizontal 1:2000  
iii) Vertical 1:50
- B.6.10** The engineering drawings are to provide a complete description of all existing and proposed municipal improvements, including any provisions for future extensions of utilities and systems.
- B.6.11** The engineering drawings shall include:
- B.6.11.1** Cover sheet of standard size, indicating the names of the subdivision or development, the Developer and the Consultant, and the legal location or address of the development or subdivision. In addition, Lamont County shall be identified. A key plan of Lamont County, or a significant portion thereof, shall be included illustrating the location of the



development or project.

**B.6.11.2 Site Plan**

This drawing can be made into two (2) separate drawings, one containing all underground information and the other all surface related information.

Also to be shown on this plan are a minimum of two (2) survey reference points complete with location and elevation information as per Lamont County coordinate system.

This drawing shall include, but not limited to, the following existing and proposed information:

- i) north arrow;
- ii) adjacent roads and highways, street names, lot and block numbers;
- iii) and proposed vehicle accesses, including emergency access to the *site; Bylaw 18-09*
- iv) rights-of-way and easements;
- v) water courses and drainage courses;
- vi) and identification of existing and proposed *buildings* and structures;
- vii) site dimensions and distances from property lines to proposed *development*;
- viii) dimensions of all proposed *buildings* and/or
- ix) *development* areas on the site;
- x) exterior building elevations showing height, horizontal dimensions and finishing materials of proposed *buildings (as applicable)*;
- xi) location and details of proposed *landscaping, fencing and screening*;
- xii) location and details of existing and proposed *signs*;
- xiii) location and/or description of existing and proposed *utilities*. (water, sanitary, storm information (pipes, valves, hydrants, catch basins, manholes, etc.) ;
- xiv) location and dimensions of parking, loading, garbage containment areas, and amenity areas; *Bylaw 18-09*
- xv) other pertinent information required by the *Development Authority* respecting the *site* or *adjacent lands*; and
- xvi) dimensions of private unit areas associated with each *dwelling* in any *Bare Land Condominium*, as applicable. *Bylaw 18-09* Property lines;

- xvii) Curb lines, sidewalks, trails;
- xviii) Drawing number references to plan/profile and plan details sheets;
- xix) Community mailboxes, as applicable.

**B.6.11.3** **Index plan** of standard size, scale 1:1000 or a reduction thereof, duplicating the legal plan, indicating drawing sheet number and related title. The index plan will indicate that portion of the development that relates to a particular plan/profile sheet. This plan shall also list each drawing included in the set of drawings. Each drawing is to be listed sequentially along with its corresponding drawing number.

- B.6.11.4** Contour and Land Use Plan, scale 1:1000, indicating the existing contours at 1.0 m intervals for rural developments and 0.5 m for urban developments, the proposed land use and all significant above ground features such as buildings, trees, utilities, etc.
- B.6.11.5** Lot Grading Plan, scale 1:1000, that indicates the proposed lot corner elevations, the proposed finished grades at the buildings and the direction of surface drainage on the lots, streets and swales. Proposed building elevations and sewer service invert elevations should be shown. All lots on fill, disturbed or unsuitable soil must be identified on the lot-grading plan. The plan should indicate minimum rough grading requirements to be completed by the Developer. Rough grades shall ensure that the overall drainage concept is satisfied. No standing water or areas where water may pool or pond will be permitted at the rough grading stage.
- B.6.11.6** Roadway Overall Plan, scale 1:1000, indicating all walks, lanes, roadway widths and alignments. All proposed roadways and streets shall be named on the drawings with the names, where applicable, as approved by the Lamont County. In addition, all lots shall be numbered consistent with the rural addressing system employed by the County.
- B.6.11.7** Drainage Basin, an overall drainage basin plan is required adjacent to all roadways, showing 1.0 m contours, existing overland drainage routes, and flood plains/ponding areas.
- B.6.11.8** Pavement Marking and Signage Plan, scale 1:1000, indicating pavement marking and proposed signage locations and specifications.
- B.6.11.9** Sanitary, Storm and Water Main Overall Plan, scale 1:1000, indicating the alignments and sizes of sanitary sewers, storm sewers and water mains and services, locations of manholes, catch basins, valves, hydrants and other proposed underground utilities.
- B.6.11.10** Gas, Power and Telecommunication Overall Plan(s), scale 1:1000 indicating alignment of gas, power, telephone, underground cables, and utility easements if applicable. \*



- B.6.11.11 Landscaping Plan**, scale 1:1000 identifying street names and landscape amenities including fencing, signage, screening berms, Canada Post mail boxes and pads, entrance features, entrance sign location and specifications and name and location of all trees and shrubs. The plan shall include up to three alternative names for each street. Street naming approval will be completed by County Council. The County reserves the right to select or reject proposed names (See Section H for more detail).
- B.6.11.12 General Plan & Profile Requirements**, These plans, prepared in accordance with accepted engineering drafting standards and practices, are intended to provide location, alignment and dimensioning detail respecting the proposed municipal improvements required to be constructed. Existing infrastructure and other relevant features shall also be shown in detail.
- B.6.11.12.1** Urban Residential/Industrial and Rural Industrial plans shall be prepared at a scale of 1:500 horizontal and 1:50 vertical.
  - B.6.11.12.2** Rural Residential plans shall be prepared at a scale of 1:2000 horizontal and 1:50 vertical
  - B.6.11.12.3** The plan portion shall be positioned at the top of the Standard A-1 sheet and the profile portion at the bottom.
  - B.6.11.12.4** The location and alignment of all underground utilities including main, valves, hydrants, manholes, catch basins, etc. and surface improvements including carriageways, drainage channels, ditches, approaches, culverts, etc. shall all be shown on the same drawing.
  - B.6.11.12.5** Stationing and chainage shall be so arranged that both the plan and profile portions align.
  - B.6.11.12.6** All dimensioning shall be relative to property lines. Wherever possible, all dimensions shall be provided to a minimum of two (2) property lines.
  - B.6.11.12.7 Plan Portion**
    - a) Information to be shown on the plan portion shall include, but not be limited to, the following:

- b) Legal subdivision information including lot and block numbers consistent with the rural addressing system employed by the Lamont County, and lot dimensions, where practical,
- c) Road and street names and, where applicable, civic addresses,
- d) Horizontal alignment of all roadways, carriageways, ditches, approaches, culverts, signage, etc. including horizontal curve data (curve arc lengths, chainage of PI, BC, EC, etc.), chainage and dimensions of all items tied to the property lines,
- e) Horizontal alignment of all underground mains and fittings, size and type of materials, valves, hydrants, manholes, catch basins, pipe grades, service connection locations, etc., all dimensioned through stationing and chainage and offsets to the property lines, and
- f) Any other information of data deemed necessary and/or appropriate to the Director to make the plans complete.

**B.6.11.12.8 Profile Portion**

- a) Information to be shown on the profile portion shall include, but not be limited to, the following:
- b) Existing ground profiles of both sides of any right-of-ways,
- c) Proposed design profiles for centerline of road carriageway including chainage, vertical alignments and grades, vertical curve data (chainage, elevations, length and radius of curves etc.
- d) Proposed design profile for ditch bottoms including chainage, grades, elevations, culvert inverts, ditch checks, etc.
- e) Proposed design profile for the underground utilities including chainage, percent grades, size, type and class of pipe, class of bedding, type of trench backfill, invert elevations at all inlets and outlets as well as at all grade changes, manhole rim elevations, existing underground utilities data, etc., and,
- f) Any other information of data deemed necessary and/or appropriate to the Director to make the plans complete.

**B.6.11.13 Detailed Plans & Profiles for Roadways,**

- B.6.11.13.1** Road right-of-way width, roadway width offset from property line and horizontal curve data.
- B.6.11.13.2** Original ground profiles & chainage.
- B.6.11.13.3** Proposed centreline profiles & chainage.
- B.6.11.13.4** Proposed top of curb elevations.
- B.6.11.13.5** Proposed catch basin locations and inlet elevations.
- B.6.11.13.6** Vertical curve data.
- B.6.11.13.7** Elevations of shallow utilities at road crossings.
- B.6.11.13.8** Pavement structure.

**B.6.11.14 Detailed Plans & Profiles for Water, Sanitary and Storm Sewers, scale 1:500 horizontal and 1:50 vertical showing:**

- B.6.11.14.1** Horizontal alignment and separation distances between each utility.
- B.6.11.14.2** Water main plan showing pipe sizes, location of hydrants, valves and fittings.
- B.6.11.14.3** Water main profiles showing grades, cover, pipe sizes, pipe materials and class of pipe bedding.
- B.6.11.14.4** Storm and sanitary sewer plan showing pipe sizes and manhole locations.



- B.6.11.14.5** Storm and sanitary sewer profiles showing pipe sizes and materials, manhole invert elevations, length of pipe, grades between manholes and class of bedding.
- B.6.11.14.6** Location of services and invert elevations at property line.
- B.6.11.14.7** Elevations of oil and gas pipe line crossings.
- B.6.11.15** A print of the approved tentative plan(s) of subdivision shall be included.
- B.6.11.16** Additional information required for the design review process:
  - B.6.11.16.1** The design calculations for water distribution analysis as specified in Section D, sanitary and storm sewer capacity 5 pipe loading as specified in Sections E and F.
  - B.6.11.16.2** Copy of approvals from Alberta Sustainable Resources and Development (ARSD).
  - B.6.11.16.3** Other regulatory authority's approvals.
  - B.6.11.16.4** Tender documents and specifications.
  - B.6.11.16.5** Required studies and reports.
  - B.6.11.16.6** Issued for construction drawings and contract documents.

## **7. Prerequisites to Review of Engineering Drawings**

- B.7.1** The development or subdivision plan must be approved by the County prior to the submission of engineering drawings for review and approval.
- B.7.2** The Engineering Drawings must be prepared, signed and sealed a qualified Professional Licensee (Engineering) - P.L. (Eng.), Professional Technologist (Engineering) - P.Tech (Eng) or a Professional Engineer – P.Eng. who is licensed to practice engineering in the Province of Alberta and shall be stamped with a Permit to Practice seal.
- B.7.3** The standard drawing size of 841 mm by 594 mm (or other standard sheet size) shall be used for all plan submissions with a scale of 1:1000 (index plan may be a reduction of the standard scale to allow the plan to fit the standard size sheet).
- B.7.4** The submission of drawings shall be accompanied by all supporting documents, reports, studies, calculations or any other information as required by the County.

- B.7.4.1** The County may require other non-technical submissions as part of the application.
- B.7.4.2** The County may require the Developer to submit a Historical Resource Report to identify any significant historical resources within the boundaries of the proposed development including a review for archaeological and paleontological resources, in consultation with Alberta Community Development.

## **8. Engineering Drawing Submission & Approval Procedure**

- B.8.1** The Developer shall submit four (4) complete drawing sets and specifications and one (1) digital copy in AutoCAD 2014 (.DWG format) to the Director. The design drawings, specifications, and relevant data shall be reviewed by the Director or the County's designated Municipal Engineer and shall respond to the Developer's initial submissions within four weeks and return one (1) marked up set of drawings and specifications to the Developer identifying any required revisions.
- B.8.2** The Developer's Engineer shall incorporate the required revisions and submit four (4) sets of the Contract Documents to the Director for final review and "Approval to Construct".
- B.8.3** Revised drawings shall be submitted to the Director at least twelve weeks prior to the proposed start-up of construction. The County or its designated Engineer is not responsible for any delay of approval if submissions are incomplete or found to contain excessive errors or omissions.
- B.8.4** Upon receipt of revised drawings, satisfactory to the Municipal Engineer, the County shall return two (2) complete set of the stamped "Approved to Construct" drawings to the Developer with an Approval letter for Construction within two (2) weeks of the date of receipt.
- B.8.5** The Developer shall not proceed with construction until the engineering drawings have been approved for construction.
- B.8.6** The County's Approval for Construction does not relieve the Developer or its Engineer's responsibility for the adequacy of the designs or the liability arising thereof.
- B.8.7** The Director's review of the Contract Documents is to confirm their compliance with the County's MDS; approval to construct does not, in any manner, imply

approval of the technical aspects of the engineering design.

- B.8.8** No work respecting the municipal improvements to be constructed shall commence until the subdivision is approved, the Development Agreement has been executed, and the Director's review of the drawings and plans has been completed.

## **9. Development Agreement**

- B.9.1** Developer shall enter into a Development Agreement with the County prior to the construction and installation of municipal improvements. There shall be no Building Permit issued for any construction on a particular lot within the subdivision until all municipal improvements are in place and accepted by the County and endorsement of the subdivision plans and registration at Alberta Land Titles is completed.
- B.9.2** In an effort to be both fair and consistent when dealing with large development projects, the County has created a policy to outline the requirements associated transparency to both the County rate-payers and those in the development field.
- B.9.3** The Lamont County will adhere to the guidelines outlined within this policy when dealing with development agreements for multi-lot subdivision developments within the County. This policy will clearly outline the following items:
- a) - how the County will determine Security for the development,
  - b) - the form of the security accepted by the County,
  - c) - the amount of security to be taken,
  - d) - the warranty timelines and
  - e) - the triggering events that will allow the County to release portions of security.
- B.9.4** Lamont County will require Stamped Engineer Drawings and Cost Estimates for all Municipal Infrastructure associated with the proposed development. These estimated figures will be verified by County Engineers and inserted into the 'Security' Schedule of the Development Agreement.
- B.9.4.1** Lamont County will require 60% of the total costs outlined within the 'Security' Schedule of the Development Agreement, either in the form of a certified bank draft or a self-renewing irrevocable letter of credit **PRIOR TO ENDORSEMENT** of the subdivision outlined within the



agreement, for Security purposes.

**B.9.4.2** The security will be held in its entirety until:

- a) The submission of the Record Drawings have been received;
- b) A Construction Completion Certificate (CCC) is issued by the County;
- c) The submission of the Record Drawings have been received;
- d) Letter of Certification that the built infrastructure meets County standards is received;
- e) The submission of engineering tests and reports to the satisfaction of the County. (Reference Section B.8);
- f) Additionally, if the Developer is able to provide the County with the servicing agreements and payment receipts for 'Shallow Buried Utilities' (Gas, Power, Telephone Etc.), as shown within the Development Agreement, these costs will not be included in the Security.

## **10. Engineering Supervision**

**B.10.1** For the construction of municipal improvements, the Developer's Engineer shall be responsible for:

- a) The inspection and approval of all materials to be used,
- b) Carrying out all necessary construction survey layout to ensure finished construction conforms to the lines and grades shown on the approved plans,
- c) Carry out all necessary construction supervision to ensure all construction is carried out to meet the requirements of the approved plans and specifications and any supplementary standards required by the County, and
- d) The recording of all "record" (as-built) drawings.

**B.10.2** A complete set of all approved drawings and specifications shall be maintained at the construction site at all times.

**B.10.3** In addition to the supervision carried out by the Developer's Engineer, the Director may periodically inspect the work to ensure conformance with the standards. The Director may also assist with the coordination of the subdivision works with any other related municipal works.

**B.10.4** The Director shall bring the use of any unacceptable materials or practices, in



particular matters related to safety, to the attention of the Developer's Engineer or his contractors. If remedial action is not taken to the satisfaction of the Director, he may stop the work until such time as the required corrective action has been taken.

- B.10.5** The Developer's Engineer shall be responsible for all field surveys for municipal improvements required for the development.

## **11. Testing**

- B.11.1** It shall be the responsibility of the Developer's Engineer to ensure that testing of all materials called for in the specifications are carried out by an accredited testing firm. Copies of all test results shall be forwarded to the Director as soon as possible after completing the tests. The cost of all testing shall be borne by the Developer.
- B.11.2** Underground municipal improvements shall not be permitted to operate or be operated as part of the existing municipal systems until the respective subdivision or development lands' services have been inspected, tested and approved in writing by the Director.

## **12. Municipal Acceptance**

- B.12.1** Upon the satisfactory completion of the municipal improvements in the development and, after all the identified deficiencies have been corrected, a Construction Completion Certificate (CCC) shall be issued by the Director to the Developer, noting acceptance of the work and the duration of the maintenance period. The developer shall be responsible, at his own expense, to remedy any defect, fault or deficiency in the completed work during the maintenance period, all in accordance with the terms and conditions of the Development Agreement.
- B.12.2** Upon completion of the maintenance period and after a final inspection and correction of all deficiencies thereof, a Final Acceptance Certificate (FAC) will be issued to the Developer.

## **13. Changes in Design Standards**

- B.13.1** It is the Developer's responsibility to ensure that the design and construction is in compliance with the latest edition of the Municipal Development Standards including any revisions thereto up to the date of acceptance of the detailed design.





## **14. Inspections and Final Acceptance**

- B.14.1** Upon completion of all municipal improvements, the Developer shall give notice to the County and arrange for inspections. Upon the receipt of a Construction Completion Certificate from the Developer, the Municipal Engineer, on behalf of the County, shall inspect the municipal improvements, prepare a deficiency list, and forward it to the Developer through the County.
- B.14.2** All deficiencies shall be rectified to the satisfaction of the Municipal Engineer prior to the acceptance and approval of the Construction Completion Certificate by the County and the Municipal Engineer.
- B.14.3** The warranty period shall commence upon acceptance and approval of the Construction Completion Certificate. During this period, the Developer shall repair any defect in material or workmanship.
- B.14.4** Prior to the expiry of the warranty period, the developer shall notify the County and arrange for an inspection. Upon the correction of all deficiencies satisfactory to the Municipal Engineer, the Developer's Engineer shall issue a request for the Final Acceptance Certificate for municipal improvements.

## **15. As-Built Drawings**

- B.15.1** On satisfactory completion of the municipal improvements and as a condition of issuance of the Construction Completion Certificate (CCC) the Developer's Engineer shall deliver "record" Mylar drawings to the Director, plus a computer disk in AutoCAD 2014 format.
- B.15.2** The Developer's Engineer will be required to submit a formal Letter of Certification that all construction work has been executed in accordance with the engineered plans, specifications, the MDS and that all work and deficiencies have been completed.
- B.15.3** Within three (3) months from the issuance of the CCC the Developer's Engineer will submit record drawings fully authenticated. The submission will include one (1) set of Mylar prints and an electronic copy suitable for use with Lamont County's AutoCAD and GIS systems. Failure to submit as-built drawings within the specified time frame will result in the withdrawal of the CCC.
- B.15.4** The drawings must be stamped by the project's professional of record dated to indicate as-built information. All original information shall be crossed through and as-built information written adjacent to the original information (red lining).



**B.15.5** Site Grading Drawing

- B.15.5.1** Illustrate the extent of any encroachment on adjacent lands if applicable.
- B.15.5.2** Indicate original ground contours and as built ground contours.
- B.15.5.3** Provide cut/fill as-built elevations and depth of cut or fill areas with greater than 1.2m in height highlighted on the drawing.
- B.15.5.4** Illustrate test holes locations on the plan.

**B.15.6** Roadways

- B.15.6.1** Recorded elevations are to be provided at the Edge of Pavement (EOP) at the following locations and shown on the Plan/Profile Record Drawings to confirm centerline grade as shown on the plan drawings:
  - a) Vertical Points of Intersection (VPI's), the elevation at a vertical point of intersection on a vertical curve, is to be the existing pavement elevation plus or minus mid-ordinate distance (M) to theoretical vertical point of intersection
  - b) Beginning of Vertical Curves (BVC) and end of vertical curves (EVC)
  - c) Beginning of Horizontal Curves (BC), Point of Curve to Curve (PCC), and End of Horizontal Curves (EC)
  - d) Beginning (BC), midpoint (MP), and End (EC) for all curb returns
  - e) "K" value for sag and crest vertical curves
- B.15.6.2** Illustrate grade and elevation changes if greater than 10mm difference from the design to recorded elevation.
- B.15.6.3** Revisions to the cross section, including geo-membrane fabrics.
- B.15.6.4** Revisions to the pavement marking and signage locations.
- B.15.6.5** Illustrate location and rim elevation of catch basins and sanitary manholes.

**B.15.7** Utilities

- B.15.7.1** Illustrate any revision to the lengths, grades, invert elevations,



alignments, locations of vertical points of intersection for sanitary, storm and water mains;

- B.15.7.2** Revision of “Q” for sanitary and storm water flows;
- B.15.7.3** Show all hydrants, valves, fittings, manholes, catch basins and other appurtenances locations and dimension in two (2) directions. Also note rim and invert elevations of manholes, catch basins and flange elevations of hydrants;
- B.15.7.4** Note the invert of water, sanitary and storm services and curb stop locations and dimension in two (2) directions.
- B.15.7.5** Service connections for water and sanitary will have the pipe manufacturer, material and class of pipe installed noted on the plans.

**B.15.8** Building Plans

- B.15.8.1** Provide the revised lowest top of footing elevation.

## **16. Warranty Period**

- B.16.1** Upon issuance of a CCC the County will release 35% of the TOTAL costs for the infrastructure. For clarification, the County will retain 25% of the cost for TOTAL infrastructure outlined within the ‘Security’ Schedule of the Development Agreement.
- B.16.2** The 25% security will be retained by Lamont County for warranty purposes. The warranty period will be defined in the Development Agreement and will be for a term of 3 years from the date of issuance of the CCC. The development agreement will allow the County to extend this warranty period to a term of 5 years if issues arise during the period where the County believes an extended warranty would be of benefit to protect the County interest.
- B.16.3** Following the warranty period, Lamont County will be in a position to issue a Final Acceptance Certificate (FAC) for the development. Subject to the satisfaction of the County, the FAC will be issued for the specific infrastructure and the County will release the remaining 25% of the security.
- B.16.4** Where there is a delay in the application of the final layer of asphalt on the internal roads and approaches, the warranty period for the internal roads and approaches shall be extended for a period of twelve (12) months from the date of acceptance of the Construction Completion Certificate by the County for the



final layer of asphalt.

- B.16.5** The Developer shall provide, for the duration of the warranty period, an irrevocable Letter of Credit as required by the County.

## **17. Utility, Pipeline and Railway Crossings**

- B.17.1** The Developer shall be responsible for obtaining the Crossing Agreement where a crossing of utility, roadway, pipeline or railway is required for the installation of the municipal improvements.
- B.17.2** The Developer shall comply with all terms and conditions of the Crossing Agreement and make application to transfer the Agreement to the County's name prior to the application for a Construction Completion Certificate.

## **18. Franchise Utilities**

The developer shall be responsible for all coordination with franchise utilities including design and installation. The Developer shall be responsible for any deficiencies noted as a result of installation such as curb damage, trench settlement or final boulevard grading.

## **19. Easement and Right of Way**

The Developer shall be responsible for obtaining all easements and right of ways for the installation of municipal improvements located outside of the normal right-of-way or utility lot. All permanent easements, including plans and documents, shall be registered at the Land Titles Office naming the County as the Grantor prior to application for a Construction Completion Certificate.

## **20. Permits and Licenses**

The Developer shall be responsible for obtaining all permits and licenses in compliance with the Provincial and Federal statutory requirements.

## **21. Reports and Studies**

The Developer shall provide all relevant reports and studies in the submission of engineering drawings (if not previously provided). All reports are to be addressed and submitted to:

Planning & Community Services  
Lamont County



Administration Building  
5203 50 Ave  
Lamont, Alberta T0B 2R0

Phone: (780) 895 2233

For review as part of the overall submission.

Reports submissions are as outlined below but are not limited as Lamont County may request additional supporting documentation:

## **22. Geotechnical/hydrogeological Report:**

- B.22.1** Existing soil and sub-soil conditions including frost susceptibility, soil stability, groundwater tables, sulphates, limits of any site contamination, top of bank setbacks adjacent creeks or ravines, and address slope stability requirements as well as any potential difficulties that may be encountered during the construction of the municipal improvements.
- B.22.2** If the developments water supply is ground water sourced, testing to establish both quality and quantity of groundwater is required.
- B.22.3** If in-ground private sewage systems are to be used for sewage disposal, soil percolation tests shall be conducted.
- B.22.4** The report must include specific recommendations for pavement structure construction based on existing in-situ conditions and anticipated traffic volume. A 20-year design recommended by the Geotechnical Consultant is required while maintaining minimum pavement thickness.
- B.22.5** Alternative pavement designs including supporting material must be submitted and approved by the Manager of Engineering prior to construction. All designs must incorporate a drained gravel base.
- B.22.6** The report must include specific recommendations for construction methods and procedures for trenching and backfill requirements for buried infrastructure, storm drainage facilities and service requirements for proposed private servicing requirements and building foundation requirements.
- B.22.7** Geotechnical Investigation Description
  - B.22.7.1** Sub-soil investigation will be comprised of auguring or boring at selected locations, sampling, testing, and reporting



the geotechnical properties of various soils encountered.

**B.22.7.2** The professional geotechnical agency shall prepare a summary report for each project examined. This report shall contain recommendations regarding:

- a) the suitability of each type of soil for subgrade and embankment purposes;
- b) the need for special watering or de-watering techniques;
- c) identification of any seepage or water bearing zones and their ramifications;
- d) a pavement design using the latest traffic figures (if available);
- e) ditch invert relative to road grade elevations;
- f) ground water elevations
- g) any other details considered relevant to the proposed construction.

#### **B.22.8** Test Procedures

##### **B.22.8.1** Auguring and Test Hole Logs

A log of each test hole shall include the following information:

- a) location of test hole;
- b) a profile of the various types of soil and the depths at which they are encountered;
- c) a visual description and classification of each type of soil encountered;
- d) moisture content profile;
- e) ground water level

##### **B.22.8.2** Minimum Test Hole Requirements

The field-drilling is to be supervised full-time by responsible field personnel, responsible for logging boreholes and caring for all soil samples. Soil sampling shall comprise of disturbed soil samples at 0.75 m intervals in each borehole for moisture content analysis. To obtain an indication of consistency and unconfined compressive strength of cohesive soils, pocket penetrometer (PP) readings shall be taken on intact cohesive soil samples every 0.75 m.

- a) All boreholes shall be drilled in a single mob/demob

- b) Private locates and/or hydrovac if required are the Developer's Consultant responsibility
- c) Testing frequency shall be a minimum of three test holes for every project less than 500 meters in length
- d) Project testing shall be determined by the Geotechnical Agency, but shall not be less than one test hole for each 1,000m of road

**B.22.9 Laboratory Testing**

Laboratory testing shall classify all soil samples including moisture content. In addition, Atterberg limits, hydrometer analysis, sulphate tests and sieve analysis shall be conducted, as necessary. The required number of tests shall be determined by the geotechnical engineer to adequately provide sufficient site/project specific recommendations. The Geotechnical Report will summarize details of the investigation, a description of the subsurface conditions, soil type, bedrock and groundwater conditions, and comments and recommendations related to geotechnical aspects of proposed development.

**B.22.10 Groundwater Level Analysis**

Standpipe piezometers will be installed in alternating boreholes to monitor long term groundwater levels. Initial groundwater conditions will be measured during drilling, at drilling completion and approximately 14 days following drilling completion.

**B.22.11 B.20 A Stormwater Management Plan (SWMP)**

All report preparations and design considerations are to be in accordance with *Part 5 Stormwater Management Guidelines March 2013 Standards and Guidelines for Municipal Waterworks, Wastewater and Storm drainage Systems*.

**B.22.12** SWMP is required to outlining the proposed drainage concept including calculation of pre and post-development run-off rates and the proposed method of stormwater control. The plan should outline both on-site and off-site drainage patterns as well as the ability of existing municipal infrastructure to accommodate the run-off from the development.

**B.22.13** A wetland compensation package (assessment and report) preparation will form part of the requirements of the SWMP. The developer or developer's consultant will be required to prepare and file a Wetland Impact Assessment Report, and related Impact Assessment forms to the AESRD, and copy of all documents to be provided to Lamont County.

**B.22.14** Water Act applications, Wetland Compensation Plan Recommendations,



complete with a written compilation of consultation with wetland restoration & conservation agencies and concerning stakeholders/agencies, discussions and document preparation for regulators, submission to AESRD will be copied to Lamont County.

**B.22.15** Similarly a wetland compensation plan/ report preparation, in accordance with the Water Act and Alberta Wetland Policy documents preparation with regulators, will be submitted to Lamont County.

**B.22.16** For developments that include storm water management development an application also needs to be submitted for registration of the project under EPEA. Documents created for this purpose will also be submitted to Lamont County.

### **23. Environmental Site Assessments**

Phase I Environmental Site Assessment (ESA) evaluates the potential for contamination of soil, water and/or sensitive entity on a property and/or surrounding areas. Available current and historical information shall be reviewed including but not limited to aerial photographs, land titles, insurance maps and a visual site inspection is completed. Records shall be obtained from various agencies where ever possible such as Alberta Environment and Sustainable Resource Development (ESRD), fire department, municipality, and PTMAA to identify potential non-compliance issues.

A methodological approach will be taken to assess the significance and compliance to the provincial and or federal regulatory needs as follows:

**B.23.1** The ESA shall comply with all provincial and/or federal regulatory needs as to the following procedures:

**B.23.2** Document Review:

Obtain and review current and historical records. Records may include but are not limited to:

- a) Updated and historic records of land ownership and land use from Alberta Land Titles;
- b) Obtain and review select aerial photographs of the subject property and immediately adjacent properties;



- c) Obtain and review pertinent information from municipal and provincial regulatory agencies (i.e. Lamont County, Alberta Health Services, AESRD, AER, etc.) regarding environmental status of the subject property including water well information, spills, PTMAA records, bylaw infractions, tax assessment records, AER records, fire insurance records, and building permits among others.

**B.23.3 Interviews:**

Complete interviews with current and adjacent land owners and/or key site personnel (if possible) to confirm or resolve questions, uncertainties which may arise from the above investigative steps and to obtain information related to the environmental state of the subject property.

**B.23.4 Site Investigations:**

Visual inspection of the site shall be completed of the subject property and surrounding areas that documents site conditions with photographs, GPS coordinates and drawings.

**B.23.5 Reporting:**

A report shall be prepared summarizing the findings of Phase I ESA and any additional needs (if required) for further investigations outlining the requirement of Phase II and/or Phase III study.

## **24. Environmental Impact Assessments**

An Environmental Impact Assessment (EIA) examines a proposed project development to determine the environmental, social, cultural, economic and potential health implications of the associated project.

**B.24.1** An Environmental Assessment (EA) is a major component in the completion of EIA report. The assessment might include but is not limited to an evaluation on the following components:

- a) Surface water quality
- b) Land use
- c) Hydrology and hydrogeology
- d) Wildlife and vegetation
- e) Aquatic ecology
- f) Public health and safety
- g) Environmental effects of construction

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**B.24.2** AESRD decides if an EIA is required to be completed if the project falls within



Alberta under Environmental Protection and Enhancement Act (EPEA) and Water Act. Not all projects in Alberta fall under the responsibility of AESRD and are not mandated by Water Act or EPEA, and EIA are not required in such case.

- B.24.3** The AESRD Minister can also require an EIA even if the proposed project activity is listed exempted.
- B.24.4** The EIA report shall include a project description, and information on the related infrastructure that may be involved or impacted by the proposed development, plans for air emission management, water, wastewater and waste management, conservation and reclamation plans.
- B.24.5** The EIA report shall provide a description of the Project Area (PA), Local Study Area (LSA) and the Regional Study Area (RSA). The PA is the land area subject to disturbance; LSA is the surrounding area of the proposed development; RSA considers the potential cumulative and socio-economic perspective.

## **25. Biophysical Report**

A Biophysical Impact Assessment (BIA) assess the biological and physical elements for the purposes of reducing the potential impacts of the proposed development on the natural environment. It looks as specific components of the environment such as topography, geology, hydrology, soils, vegetation, wildlife and biodiversity (terrestrial and aquatic) for a specific development area. Mitigation measures are suggested to minimize or eliminate potential environmental concerns.

The report shall include drawings/ maps showing the location and footprint of the subject site, notable land uses and locations of known and potential areas of risk relative to environmental concerns.

## **26. Erosion and Sediment Control Plan (ESC)**

- B.26.1** The ESC shall be prepared in accordance with the Alberta Soil Conservation Act.
- B.26.2** All new development and redevelopment that include land disturbing activities such as clearing, grading, filling, and excavation will require an Erosion and Sediment Control (ESC) plan and Best Management Plan (BMP).
- B.26.3** For any land disturbing construction project, the proponent shall prepare a project specific Erosion and Sediment Control (ESC) Plan outlining appropriate preventive measures against potential erosion and sedimentation.

- B.26.4** The objective is to control erosion and prevent sediment from leaving the site. The ESC plan should provide for the interception and treatment of all potential silt-laden runoff that could occur during construction activities.
- B.26.5** An ESC plan shall comprise of a report and a detailed drawing(s) illustrating structural and vegetative erosion and sediment control measures for the specific project.
- B.26.6** Latest versions of Alberta Transportation Design Guidelines for Erosion and Sediment Control for Highways and/or other industry standard guidelines may be utilized in preparing the ESC plan.
- B.26.7** The ESC plan report shall include as a minimum the following:
- B.26.7.1** Project description including proposed construction activities and the area to be disturbed.
  - B.26.7.2** Existing site conditions including soil, topography, vegetation and drainage.
  - B.26.7.3** Adjacent features such as stream, lakes, residential areas, road, environmental reserves, etc., which may be affected by the land disturbance.
  - B.26.7.4** An assessment of potential erosion and sedimentation.
  - B.26.7.5** Control measures including any temporary and permanent structural and/or non-structural erosion and sediment control practices including specifications.
  - B.26.7.6** Inspection and maintenance schedule of ESC structures.
- B.26.8** The ESC plan drawing shall include as a minimum the following:
- B.26.8.1** Site plan with contours. The site plan for an ESC plan shall be prepared by the Developer's Engineer and include the following:
    - a) Location of clearing limits,
    - b) Easements and setbacks,
    - c) Water quality sensitive areas and their buffers,
    - d) Locations and descriptions of all erosion and sediment control measures for each phase of construction, and
    - e) Cross-sections of fill or excavations.
    - f) Grading

- g) Drainage patterns
  - h) Existing vegetation - Show the existing tree lines, grassed areas, or unique vegetation.
  - i) Critical erosion areas with potentially serious erosion problems.
  - j) Location of temporary and permanent ESC structures and vegetation.
  - k) Appropriate details, notes and specifications of the ESC practices for proper installation, maintenance and inspection.
- B.26.9** The ESC plan shall be certified by a Professional Engineer or a Certified Professional in Erosion and Sediment Control (CPESC) and to be submitted as a separate package along with other design drawings/documents. The ESC plan drawing and report should bind into one document.
- B.26.10** The proponent shall notify the County and submit an updated ESC plan should the original plan changes.
- B.26.11** All ESC shall be in place prior to any site material disturbance.

## **27. Traffic Impact Assessment (TIA)**

- B.27.1** A qualified Traffic Engineer is to complete the TIA preparation. The following guidelines are a framework for the documentation required to be covered in the report and not meant as a technical guideline.
- B.27.2** The TIA shall include a description of the scope and scale of the proposed project, a summary of the projected impacts and any required mitigation measures, to ensure that the roadway can safely accommodate the proposed subdivision or development.
- B.27.3** A TIA is to be prepared utilizing accepted engineering practices with all reviews and analyses presented objectively and in a professional manner.
- B.27.4** A Traffic Impact Assessment shall contain the following information:
- a) Provide a forecast of the traffic impacts created by the proposed development;
  - b) Determine what improvements if any that are needed to accommodate the proposed development;
  - c) Provide for guiding recommendations related to land use with the existing and generated traffic conditions;
  - d) Evaluate the number, location, and design of access points required to support the development;

- e) Provide updated traffic data (projections);
- f) Identify required roadway improvements; and
- g) Provide a basis for determining the developer's responsibility for specific off-site improvements.

**B.27.5** The professional shall conduct a site visit of the project and adjacent road network and ensure the following evaluations are completed:

- a) Existing or proposed access and intersections are to be reviewed.
- b) Vertical grades are to be reviewed to confirm sightlines distances.
- c) Conduct a manual traffic count at the study area location. Traffic counts are to be recorded in 15 min intervals over a period long enough to establish peak flow periods.
- d) Traffic counts will not be conducted during inclement weather or during disrupted traffic flow events.

**B.27.6** Traffic Projections

**B.27.6.1** Establish the background traffic volumes and movements in the study area before projecting background traffic into future horizon periods.

**B.27.6.2** Traffic growth rates are to be calculated as non-compounded.

**B.27.6.3** Traffic projects are to be prepared for the proposed development construction year(s) if the project is to be built in approved phases.

**B.27.6.4** Background traffic is to be projected to the 20 year horizon.

**B.27.6.5** The peak hour traffic analysis periods (AM & PM) are to be identified for both week days and weekends illustrating the combination of existing and projected generated traffic.

**B.27.7** Analysis

**B.27.7.1** Capacity Analysis

The TIA shall include a capacity analysis for the various traffic scenarios. Capacity worksheets must be provided as an appendix to the TIA. Lamont County requires the calculations to be performed by computer modeling software (i.e. Synchro/ Simtraffic).

**B.27.7.2** Signalization Analysis

Signalized intersections are not to be considered in rural areas. Lamont County will accept the utilization of TAC's "Manual of Uniform Traffic



Control Devices” when determining the warrants for signalized intersections. All warrant calculations and analysis worksheets should be included in the appendix of the TIA.

**B.27.7.3 B.26.6.3 Illumination Warrant Analysis**

Lighting warrants for rural and semi-urban intersections shall be determined based public safety not developers desire to provide street lighting to the development area. All warrant calculations and analysis worksheets should be included in the appendix of the TIA.

**B.27.7.4 B.26.6.4 Pedestrian Warrant Analysis**

Pedestrian movement accommodation for urban and semi-urban areas are to be provided to identify improvements to pedestrian walkways where required. For isolated rural developments, pedestrian movements are not likely an issue. Refer to TAC’s “Pedestrian Crossing Control” Manual for further details. All warrant calculations and analysis worksheets should be included in the appendix of the TIA.

**B.27.7.5 B.26.6.5 Operational Analysis**

When the traffic analysis has been completed and the recommended intersection improvements have been determined, it is a requirement to ensure that the design vehicle is capable of safely manoeuvring the intersection. The intersection plans are to be provided illustrating that the design vehicle can safely manoeuvre the intersection.

**B.27.8 TIA Conclusion and Recommendations**

The TIA is to provide a summary of the findings of the various analyses conducted, including potential issues, and right-of-way requirements. A scaled plan illustrating the recommended horizontal intersection layout is to be provided.

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