



STANDARDS FOR MAJOR PLANS

December 2020



STANDARDS FOR MAJOR PLANS

1.0 GENERAL

1.1 Application

The following provides the Municipal District of Bighorn's (the "Municipality") minimum requirements as administered by Operations for the preparation and approval of Major Land Use and Subdivision Plans ("Major Plans"), such as area structure plans, area redevelopment plans, conceptual schemes and Land Use Bylaw Amendments etc., which involve the subdivision of land (the "Standards"), including condominium subdivision of private land.

These Standards do not apply to First Parcel Out residential subdivision in the Agriculture Conservation District, the subdivision of one residential lot into two registered parcels that meet the lot size regulations in the Land Use Bylaw 09-Z/18 as amended, or the subdivision of existing buildings into condominium units without the subdivision of land.

The requirements for servicing development sites which do not involve the subdivision of land, including the subdivision of existing buildings into condominium units without the subdivision of land, are published in a separate document titled *Standards for Site Servicing*.

These Standards also provide the first steps of professional assessment where a Major Plan is not required by the Planning Services Department; and for the development of municipal roads where Major Plans are not typically required.

These Standards are in addition to, but do not take precedence over, any applicable municipal bylaws and policies, including any requirements of the Planning Services Department, Subdivision and Development Regulations of the MGA, the Fire Department, and any legislative and regulatory requirement of any governmental or other competent authority having jurisdiction.

1.2 Other Standards

The design criteria and construction specifications for next steps of subdivision are published in a separate document titled *Standards for Subdivision Servicing*.

1.3 Engineer of Record

Unless otherwise authorized by Operations, the Developer shall retain a professional engineer (the "Engineer of Record") to oversee the engineering and professional assessment of the Major Plan.

The Engineer of Record shall be the primary liaison with Operations.

The Engineer of Record shall be registered to practice in Alberta with the Association of Professional Engineers and Geoscientists of Alberta (APEGA) and shall have Errors and Omissions Insurance with limits of not less than \$2 million.

All submissions prepared by the Engineer of Record shall be signed and stamped under a permit to practice.

1.4 Variances

In cases where it is not feasible to achieve these Standards, alternatives may be considered by Operations, provided that the variance meets good engineering design practices and that public safety, and the Municipality will not be placed at risk.



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All requests for a variance shall be made by and under the professional recommendation of the Engineer of Record. All requests shall formally be accepted by Operations on an Engineering Variance Form (reference Figure 1.1 attached separately to these Standards) or will otherwise be considered invalid.

1.5 Briefing Report

The Engineer of Record shall prepare a Briefing Report certifying that:

- a) The land is suitable for the purpose for which the subdivision is intended without any additional engineering or professional study or assessment.
- b) The proposed subdivision can be serviced in accordance with any applicable Water, Wastewater, Stormwater, Transportation and/or Watershed Master Plan accepted by Council.
- c) The proposed subdivision will comply with all applicable regulations without requiring any variances from the authority having jurisdiction.
- d) The proposed subdivision will not unduly impact other lands.

Two (2) hard copies and one (1) digital PDF copy of the report shall be provided.

The report shall include conceptual drawings which show the following:

- a) Development boundaries.
- b) Existing highways, railways, power lines, high pressure oil/gas pipelines etc.
- c) Water bodies and ecological boundaries.
- d) Land use areas.
- e) Setbacks.
- f) Easements.
- g) Existing and proposed surface grading with a maximum 0.5m contours.
- h) Retaining walls.
- i) Alignment of the water, wastewater and stormwater systems.
- j) Locations of treatment, storage, and pumping facilities and outfalls.
- k) Layouts and classifications of the road system.
- l) Location and types of bridge structures.
- m) Location of sound attenuation and visual screening berms, walls or fencing.
- n) Municipal solid waste and recycling collection sites.
- o) Public amenities, showing the conceptual layout of all recreational facilities, trails, playgrounds, park furnishings, fencing, parks lighting and irrigation systems.

The report shall additionally be accompanied with the required professional assessments as outlined in in Section 2.0 of these Standards.

Setbacks from creeks and rivers, including flood fringes, floodways and overland flow flood risks, and mitigations, shall meet the requirements of the Planning Services Department and the Province.

1.6 Operations Engineer / Reimbursement of Professional Costs

Operations retains a third-party engineering consultant to review and respond to engineering submissions and enquires.

All third-party engineering and other professional costs incurred by Operations are recoverable by



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the Municipality at the complete expense of the Developer.

1.7 Review and Approvals

Operations will not reply to technical enquiries or review any submissions prior to receiving a complete Major Plans Application available on the Municipality's web site, and duly signed by the Developer and the Engineer of Record.

Operations will review and provide comments to each submission within twenty-one (21) business days. Any required revisions shall be resubmitted in both hard copy and digital format. Incomplete or unstamped submissions will not be reviewed.

Operations will provide written notification when all submissions have been approved in accordance with the requirements of these Standards. Operations approval shall be conditional on receiving written confirmation, with any terms and conditions being acceptable to Operations, from all other authorities having jurisdiction.

Any reviews, acceptances and approvals undertaken by Operations are intended for general compliance of these Standards, and shall not be implied as a detailed or thorough review; and the Municipality will not assume any professional or design responsibility in this regard.

Any reviews, acceptances and approvals undertaken by Operations pertain solely to the requirements set forth in these Standards and shall not be implied as a review, acceptance or approval of any other detail, qualification, term or condition included within a submission.

Where discrepancies exist amongst submissions, the most recent submission reviewed and accepted by Operations will be considered correct.

1.8 Municipal As-built Records

It is noted that Operations does not have reliable as-built records for municipal infrastructure. All municipal as-built records shall be confirmed before proceeding with any assessment, design, or construction. All discrepancies shall be reported to Operations.

1.9 Developer's Responsibilities for Servicing

The Developer's responsibilities for servicing the subdivision will include, but are not limited to:

- a) All costs to extend or upgrade Municipal infrastructure to service the subdivision.
- b) Obtaining all necessary land acquisitions, easements, rights-of-way, and back sloping agreements.
- c) Receiving all approvals, agreements and permits from all Governmental or other competent authorities having jurisdiction over any aspect of the subdivision.
- d) Receiving all necessary approvals from any private utility and railway company having utilities near, or crossing the subdivision.
- e) Providing any required power, gas and telecommunications services to the subdivision.

1.10 Infrastructure Capacity

Under no circumstance is there an obligation of any kind on the Municipality to fund costs for the oversizing, extension or provision of a service, or to provide a new or upgrade an existing service. Any obligation on the Municipality, of any kind, made in any reference document to these Standards



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do not apply and are considered invalid.

Unless considered as part of a current Water, Wastewater, Stormwater, Transportation Master Plan and a corresponding offsite levy, the Developer will be responsible for the entire resulting cost to upgrade all municipal infrastructure necessary to accommodate the proposed subdivision.

The Developer shall be responsible for providing and for oversizing infrastructure through the proposed subdivision necessary to accommodate other future development; and the Developer may recover its costs from other developers through an endeavor to assist, as regulated by the *Municipal Government Act*.

Unless approved otherwise by Council, no proposed subdivision shall be entitled to infrastructure capacity allocated by the Municipality in a current Water, Wastewater, Stormwater or Transportation Master Plan to other future development.

Where a Subdivision is proposed with larger servicing needs than established in any Water, Wastewater, Stormwater, or Transportation Master Plan, the Developer shall be responsible for the costs incurred by the Municipality to revise or prepare new master plans and off-site levies to incorporate the changes and to reallocate the costs.

1.11 Provincial and Federal Regulatory Requirements

The Engineer of Record is responsible for ensuring that the proposed subdivision complies with all current applicable regulatory requirements and publications, including but not limited to:

.1 Government of Canada:

- a) *Canadian Environmental Assessment Act.*
- b) *Canadian Environmental Protection Act.*
- c) *Fisheries Act.*
- d) *Guidelines for Canadian Drinking Water Quality.*
- e) *Migratory Birds Convention Act.*
- f) *Navigation Protection Act.*
- g) *Species at Risk Act.*

.2 Government of Alberta:

- a) *Alberta Building Code.*
- b) *Alberta Environment Guide to Groundwater Authorization.*
- c) *Alberta Environmental Protection's Environmental Reference Manual for Review of Subdivisions in Alberta.*
- d) *Alberta Wetland Policy.*
- e) *Environment Protection and Enhancement Act.*
- f) *Forests Act.*
- g) *Government of Alberta's Proponent Guide to First Nations and Metis Settlement Consultation Process, and Proponent Guide Overview of Changes.*
- h) *Historical Resources Act.*
- i) *Municipal Government Act.*
- j) *Public Lands Act.*
- k) *Soils Conservation Act.*
- l) *Standards and Guidelines for Municipal Waterworks, Wastewater and Storm Drainage Systems.*



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- m) *Subdivision and Development Regulation.*
- n) *The Model Process for Subdivision Approval and Private Sewage.*
- o) *Water Act.*
- p) *Weed Control Act.*
- q) *Wildlife Act.*

2.0 PROFESSIONAL ASSESSMENTS

Unless otherwise authorized by Operations, through an Engineering Variance Form, the following supporting assessments are required as part of the Briefing Report:

- a) Phase I Environmental Site Assessment (reference Section 2.1).
- b) Biophysical Impact Assessment (reference Section 2.2).
- c) Historic Resources Assessment (reference Section 2.3).
- d) First Nation and Metis Settlement Consultation (reference Section 2.4).
- e) Geotechnical and Hydrogeological Assessment (reference Section 2.5).
- f) Water Assessment (reference Section 2.6).
- g) Private Water Supply Assessment (reference Section 2.7).
- h) Wastewater Assessment (reference Section 2.8).
- i) Private Wastewater Disposal Assessment (reference Section 2.9).
- j) Stormwater Assessment (reference Section 2.10).
- k) Traffic Impact/Safety Assessment (reference Section 2.11).
- l) Noise Impact Assessment (reference Section 2.12).
- m) Visual Screening Assessment (reference Section 2.13).
- n) Bridge Assessment (reference Section 2.14)
- o) Solid Waste Collection Assessment (reference Section 2.15).
- p) Municipal Parks Amenities Concept Plan (reference Section 2.16).
- q) Additional Professional Assessment (reference Section 2.17).

Each assessment shall be prepared to good engineering design standards using best practices under the stamp and seal of a professional engineer who is registered to practice with APEGA, or another professional designation as noted herein, and having expertise in the related field.

Assessments shall not be more than three (3) years old from the date of being published.

Assessments shall take into consideration any adjacent site which may impact, or which may be impacted by the proposed subdivision.

All recommendations and proposed remedial measures are subject to approval at the sole discretion of Operations and the Municipality.

The design and construction requirements of the subdivision shall be in accordance with the *Standards for Subdivision Servicing* as published separately by the Municipality.

2.1 Phase I Environmental Site Assessment

A Phase I Environmental Site Assessment (ESA) shall be undertaken to:

- a) Determine whether contamination exists or whether there is a likelihood that contamination exists. It shall be assumed that contamination exists where there is insufficient information to determine otherwise.
- b) Establish setbacks for areas which are unsuitable for development due to contamination or



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- the likelihood of contamination.
- c) Determine the need for a Phase II ESA investigation.
- d) Identify remediation measures required to address contamination or the likely presence of contamination.
- e) Establish setbacks from oil and gas rights-of-way.

The assessment shall be prepared in accordance with the Canadian Standards Association Publication titled *Phase 1 Environmental Site Assessment – Z768-01*, and where applicable, those outlined in Alberta Environment and Parks publication No. T/573 titled *Phase I Environmental Site Assessment Guidelines for Upstream Oil and Gas Sites*”.

The assessment shall additionally be undertaken in accordance with the Alberta Energy Regulator (AER) Directive 079 and Bulletin 2013-13 in determining proposed setback distances and separations from active, suspended and abandoned oil and gas wells, including associated pipelines, compressor stations, etc., which located in proximity of, or within the proposed subdivision.

The Developer may proceed with a Phase II ESA investigation (reference *Standards for Subdivision Servicing*) in order to reduce setbacks.

2.2 Biophysical Impact Assessment

A Biophysical Impact Assessment shall be undertaken to:

- a) Inventory the valued ecosystem components, such as the terrain, geology, soils, vegetation, wildlife, waterbodies, and wetlands.
- b) Identify the impacts on the valued ecosystem components.
- c) Identify mitigative measures to protect the valued ecosystem components.
- d) Assess wetlands and receive regulatory approvals required to impact a wetland.
- e) Confirm compliance with all applicable bylaws, policies and environmental regulation.

The assessment shall be prepared and stamped by a Professional Biologist who is registered with the Alberta Society of Professional Biologists (ASPB), and shall be completed to a high industry generally accepted for Biophysical Impact Assessments in Alberta.

.1 Inventory of Valued Ecosystem Components:

- a) Geographical, Geological, Pedological and Anthropogenic Features:

The assessment shall provide a physical description of the existing topography and landscape in a local and regional context. Escarpments, ravines, coulees, etc. shall be identified and mapped.

A description of surficial geology, geomorphological processes and sub-surface geological features shall be provided. Any sensitive geological feature shall be identified and mapped.

A description of the soil communities and types based on the Agricultural Region of Alberta Soil Inventory Database or any other relevant soil survey shall be provided. Saline soils, seepage areas and other sensitive soil features shall be identified and mapped.



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Any anthropogenic features of importance, such as power lines, buildings, roads, etc., shall be identified and mapped.

b) **Vegetation and Wildlife:**

On-site vegetation surveys shall be undertaken within the growing season from May to September to identify vegetation community types, local, provincial, and federal rare plants and communities, and invasive plants. The survey shall follow the methods and protocols outlined in the *Guidelines for Rare Plant Surveys in Alberta*, and *Recommendations for Botanical Surveys in Areas of Proposed Development* as published by the Alberta Native Plant Council.

On-site wildlife surveys shall be undertaken to identify species diversity, wildlife habitat value, wildlife corridor importance, and local, provincial and federal species at risk.

The listing of restricted, noxious and nuisance weeds as per Alberta Weed Act shall be searched.

The Alberta Conservation Information Management System database shall be searched to identify species and ecological communities that are tracked, watched, or listed.

The Fisheries and Wildlife Management Information System database shall be searched to identify species that are tracked, watched, or listed.

c) **Hydrological Sources, Water Bodies and Wetlands:**

Standing water features, water bodies, water courses, wetlands other natural hydrological sources, surface drainage patterns, springs, alluvial aquifers, groundwater influences, and other seasonal, intermittent, or permanent features shall be identified and mapped.

.2 **Impacts / Mitigative Measures:**

All impacts and cumulative effects on the valued ecosystem components shall be identified.

The mitigative measures which have been implemented in the layout of the proposed subdivision or which will be incorporated into design and construction to address the impacts and cumulative effects will be discussed.

The assessment shall identify alternatives which would have less impact on the valued ecosystem components, and provide rational why those alternatives were not implemented.

.3 **Wetland Impact Assessment and Compensation:**

A Wetland Impact Assessment shall be prepared in accordance with the *Provincial Wetland Policy* whenever a wetland is identified.

The Developer shall receive the required approvals from the provincial regulator in support of the Major Plan. Detailed approvals may occur at the time of subdivision.

.4 **Compliance with Other Municipal, Provincial and Federal Requirements:**



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The assessment shall confirm that the proposed subdivision complies with the requirements outlined in any applicable Municipal Watershed Management Plan; and with any requirements pertaining to the ecological boundaries of a water body within the Municipal Development Plan and Land Use Bylaw.

The assessment shall confirm that the proposed subdivision complies with all applicable provincial and federal legislation and regulatory requirements.

2.3 Historic Resources Assessment

A Historic Resources Assessment shall be undertaken to ensure compliance with the *Historical Resources Act* and *Subdivision and Development Regulation* to determine if the lands contain or have the potential to contain significant historic resources.

The assessment shall be undertaken by a professional consulting archaeologist approved by Alberta Culture, Multiculturalism and the Status of Women (ACMSW).

The assessment shall confirm that all necessary approvals from the Historic Resources Management Branch (HRMB), and any other authority having jurisdiction, have been received.

2.4 First Nation and Metis Settlement Consultation

The Alberta Aboriginal Consultation Office (ACO) oversees, monitors, and supports the consultation process in the Province. The ACO works with other Government of Alberta departments in determining consultation triggers and requirements.

A Pre-Consultation Assessment shall be undertaken through the ACO to determine the consultation process and to receive the required approvals for First Nation and Metis Settlements.

The assessment and any further notifications and consultations required by the ACO, or any other authority having jurisdiction, shall be undertaken by an experienced third-party consultant with expertise practicing in the field.

The assessment shall confirm that all necessary approvals from the ACO, and any other authority having jurisdiction, have been received.

2.5 Geotechnical and Hydrogeological Assessment

A Geotechnical and Hydrogeological Assessment shall be undertaken to:

- a) Conclude which lands within the proposed subdivision are free from geotechnical and hydrogeological hazards and are suitable for development. It shall be assumed that lands are unsuitable for development where there is insufficient information to determine otherwise.
- b) Establish setbacks for areas which are unsuitable for development due to geotechnical and hydrogeological hazards.
- c) Establish infiltration rates where stormwater infiltration is proposed and confirm that the stormwater infiltration will not impact adjacent basements, crawlspaces, private water supplies, and infrastructure etc.
- d) Identify remediation measures which will be required to address geotechnical and hydrogeological hazards and concerns.
- e) Provide specific requirements for the design and construction of infrastructure and building foundations.



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- f) Confirm that the proposed subdivision will not have any geotechnical or hydrogeological impacts on adjacent lands.

The assessment shall be prepared in accordance with the *Geotechnical Report Guidelines for Land Development Applications*, as published by The City of Calgary.

The Geotechnical Evaluation Report, Slope Stability Report and Deep Fills Report shall be completed in their entirety and will not be accepted as preliminary submissions.

2.6 Water Assessment

A Water Assessment shall be undertaken to confirm the new water infrastructure requirements, and to identify any necessary upgrades needed for the municipal system to additionally service the proposed subdivision.

The minimum water demands for single family household shall be calculated as follows:

- a) Number of persons per serviced lot: 4
- b) Average day demand per person: 340 L
- c) Maximum day demand: 2.0 times average day demand (L/day)
- d) Peak hour demand: 2.5 times maximum day demand (L/day)

For non-residential uses, the minimum water demand shall be determined based on the proposed use but shall not exceed any amount established by any applicable Water Master Plan.

For municipal water systems, fire flows shall be as established by the applicable Water Master Plan for the service area.

For the purposes of these Standards, a "Private Water System" refers to water systems located completely on private land which will not have a connection to a municipal water systems, such as water wells and cisterns.

For Private Water Systems, the Engineer of Record shall undertake an analysis for providing fire flow storage meeting the current requirements of the Alberta Building Code and NFPA 1142. The analysis shall determine:

- a) The amount of required fire flow storage.
- b) Whether the fire flow storage will be provided by storage tanks, a reservoir, a storm water retention pond, pressurized hydrants, dry hydrants or by another means.
- c) Whether the fire flow storage will be independent or integrated as part of the potable water supply system.

2.7 Private Water Supply Assessment

A hydrogeological assessment for groundwater well supplies, or a hydrological assessment for surface water supplies, shall be undertaken for Private Water Systems to:

- a) Confirm that there is a sufficient long-term supply without storage for the peak hour water demands calculated by the Engineer of Record for the proposed subdivision.
- b) Confirm the supply is suitable for potable water and shall identify each parameter requiring treatment to comply with the current version of the *Standards and Guidelines for Municipal, Wastewater and Storm Drainage Systems* as published by the Province.



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- c) Confirm the diversion will not interfere with other licensees and users.
- d) Provide mitigative measures where any of the above requirements cannot be met.
- e) Compare the suitability of the operating costs and level of maintenance of the proposed system(s) compared to other options which were dismissed.
- f) Summarize all registrations, licenses and approvals required from any authority having jurisdiction.

Hydrogeological assessments and any additional well development or aquifer testing shall be undertaken in accordance with the current *Alberta Environment Guide to Groundwater Authorization* as published by the Province; and for purposes of these Standards shall include any use normally exempted by the Province, such as household wells.

Hydrological assessments shall be prepared to good engineering design standards following methodologies and best practices utilized in Alberta.

2.8 Wastewater Assessment

A Wastewater Assessment shall be undertaken to confirm the new wastewater infrastructure requirements, and to identify any necessary upgrades needed for the municipal system to additionally service the proposed subdivision.

The minimum wastewater flows for single family household shall be calculated as follows:

- a) Number of persons per serviced lot: 4
- b) Average day flows per person: 340 L
- c) Peak Dry Weather Flow: 2.5 times average day demand (L/day) or Harmon's Peaking Factor, whichever is larger

For non-residential uses, the minimum wastewater flow shall be determined for the proposed use based on the table and calculations in the *Standards and Guidelines for Municipal Waterworks, Wastewater and Storm Drainage Systems*, but shall not exceed any amount established by any applicable Municipal Wastewater Master Plan.

2.9 Private Wastewater Disposal Assessment

For the purposes of these Standards, a "*Private Wastewater System*" refers to wastewater systems located completely on private land which will not have a connection to a municipal wastewater system, such as septic fields and holding tanks.

A Private Wastewater Disposal Assessment shall be undertaken to:

- a) Confirm the feasibility and suitability of the proposed system(s), in consideration of such factors including but not limited to the density, number of parcels, site grading, stormwater management systems and wastewater flows proposed for the subdivision, and for the existing site conditions such as topography, groundwater and the local soil characteristics etc.
- b) Establish clearance distances, setbacks, and minimum parcel sizing required for the proposed system.
- c) Identify any factor which will limit the location, design, operations or efficiency of the proposed system.
- d) Confirm the extent of any cumulative nutrient loading from the proposed subdivision on surface and groundwater quality.



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- e) Confirm that the proposed system will not impact the quality of any shallow (GWUDI) groundwater wells located within a distance of 800 metres.
- f) Compare the suitability of the operating costs and level of maintenance of the proposed system(s) compared to other options which were dismissed.
- g) Summarize all registrations, licenses and approvals required from any authority having jurisdiction.

A Level Four Assessment shall be undertaken in accordance with the most current edition of *The Model Process for Subdivision Approval and Private Sewage* as published by the Alberta Association of Municipal Districts & Counties in partnership with Alberta Municipal Affairs for Private Wastewater Systems.

2.10 Stormwater Assessment

A Stormwater Assessment shall be undertaken to:

- a) Confirm the new infrastructure requirements needed to service the proposed subdivision.
- b) Confirm that the proposed subdivision will not create any issues or constraints to adjacent lands or downstream lands.
- c) Confirm the capacity and any necessary upgrades for the municipal system to service the proposed subdivision.
- d) Provide mitigative measures required to offset any negative impacts which may result from the proposed subdivision.

The assessment shall be undertaken in accordance with the *Standards and Guidelines for Municipal Waterworks, Wastewater and Storm Drainage Systems*, as published by the province.

The assessment shall examine the existing storm basin(s), determine the predevelopment and post development peak flows, volumes, and hydrographs, define the major system flow routes and allowable discharge rate to the outfall at the first waterbody.

The assessment shall be consistent with the current Stormwater Master Plan established for the drainage basin, and notwithstanding the foregoing, post-development flows shall not exceed pre-development flows.

2.11 Traffic Impact / Safety Assessment

A Traffic Impact / Safety Assessment shall be undertaken to:

- a) Confirm that the conceptual alignment and road classifications within the proposed subdivision will comply with the *Standards for Subdivision Servicing* as published separately by the Municipality.
- b) Confirm that the proposed spacing and intersection site stopping distances of driveway approaches onto existing municipal roads will be in accordance with the *Standards for Driveway Approaches* as published separately by the Municipality.
- c) Determine traffic control requirements at intersection and approaches onto municipal roads.
- d) Confirm that the existing municipal road network is adequate for the proposed subdivision; and identify any improvements to the municipal road network required to accommodate the proposed subdivision.
- e) Determine the traffic loading for road structure and pavement designs, and for any other geotechnical requirements.



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The assessment shall be undertaken in accordance with the most current edition of the following:

- a) *Transportation Impact Analysis for Site Development*; Institute of Transportation Engineers.
- b) *Transportation and Land Development*; Institute of Transportation Engineers.
- c) *Access Management Manual*; Transportation Research Board.
- d) *Trip Generation*; Institute of Transportation Engineers.
- e) *Traffic Impact Assessment Guideline*; Alberta Transportation.

The assessment shall establish the trip generations generation rates for the different classifications of traffic and determine the requirements to ensure the safe and efficient movement of traffic, pedestrians, and bicycles.

2.12 Noise Impact Assessment

A Noise Impact Assessment shall be undertaken to ensure that excessive noise does not become bothersome in existing residential areas adjacent to the new subdivision, and within the new subdivision itself.

The target noise level in existing and new residential areas for outdoor leisure areas, such as a yard, patio or common area allocated outside a multi-residential building area shall be limited to a maximum:

- a) 60 dB (A) Leq (24); and
- b) 65 dB (A) L10.

The target noise levels shall be designed or measured at a height of 1.5 m above the ground at a distance of 3.0 m from the house. The 65 dB(A) L10 peak hour descriptor indicates that during the course of the peak hour, the noise level of 65 dB(A) will not be exceeded for more than a total of six minutes. In residential areas it is specifically the outdoor leisure area in which target levels are to be achieved.

Sound attention is required to reduce noise below the target levels. Grassed berms at a maximum 3:1 slope is the preferred method for sound attenuation.

The Engineer of Record is responsible for ensuring that the sound attenuation does not create drainage problems in terms of surface storm flows or entrapping river and creek flood waters.

2.13 Visual Screening Assessment

Visual screening shall be provided for residential subdivision along Highways 1, 1A, 40, 68 and 579 where there is a line of site at an observer eye level 1.5m above the main floor elevation of a residential property to the top of a truck located 4.0m above the centreline of the highway.

Visual screening may consist of fencing or grassed berms having a maximum 3:1 slope.

The Engineer of Record is responsible for ensuring that the visual screening does not create drainage problems in terms of surface storm flows or entrapping river and creek flood waters.

2.14 Bridge Assessment

A Bridge Assessment shall be undertaken in accordance with the *Bridge Conceptual Design Guidelines* as published by Alberta Transportation to establish constraints, review the feasibility of



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options and to determine the final bridge structure which will be designed and constructed at the next stage of subdivision.

Operations may accept lesser details where the bridge structure is located on private land, and the Municipality will not have any responsibility for ownership or maintenance.

The design shall take into consideration hydraulic constraints established by the Planning Services Department for any hazardous creek, river and floodway mitigation.

2.15 Solid Waste Collection Assessment

In those areas where the Municipality provides residential municipal solid waste and recycling collection services, the Municipality will determine whether the Developer will be required to:

- a) develop a new solid waste and recycling collection site(s) within the proposed subdivision.
- b) modify a solid waste and recycling collection site(s) within the existing community; or
- c) provide a contribution-in-kind for future infrastructure.

Where the development of a new municipal solid waste and recycling collection site is required, the assessment shall identify the location and confirm that the site can be developed in accordance with the *Subdivision Servicing Standards* as published separately by the Municipality.

Commercial, industrial and mixed use premises are responsible for providing their own solid waste and recycling storage, collection and disposal in accordance with the requirements of the Municipality's Solid Waste and Recycling Bylaw.

2.16 Municipal Parks Amenities Concept Plan

A Parks Amenities Concept Plan shall be developed showing the conceptual layout of all recreational facilities, trails, playgrounds, park furnishings, fencing, parks lighting and irrigation systems, which will be located on Municipal lands and owned and operated by the Municipality.

The concept plan will be developed primarily in consort with Community Services who is responsible for determining the Municipality's recreational needs with input from the Agriculture, Environment and Parks Department who will assume responsibility for the Operations and maintenance of the amenities.

The Municipality may require a contribution-in-kind in leau of providing Municipal Park Amenities.

2.17 Additional Professional Assessment

The Engineer of Record is responsible for undertaking any additional professional assessment required to confirm the suitability of the proposed subdivision.

Operations may also, at its sole discretion, require additional information and professional assessment to confirm the suitability of the proposed subdivision.

3.0 COMMUNAL WATER AND/OR WASTEWATER SYSTEMS

For the purposes of these Standards, a "Communal Water and/or Wastewater System" refers to a shared Private Water and/or Wastewater System located entirely on private land servicing more



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than one parcel or unit having separate ownership, which will not be connected to a municipal water and/or wastewater system.

3.1 Approval of Communal Water and/or Wastewater Systems

Although the approval of a Major Plan is ultimately at the discretion of Council, it is noted that Operations will not normally support any Major Plan which proposes a communal water and/or wastewater system, recognizing that:

- a) There is an infinite array of packaged systems that could be proposed, making it very difficult for Operations to confirm the design, lifecycle and operating costs as part of the approval process.
- b) After final acceptance, the Developer will defer all responsibility of the Communal Water and/or Wastewater System to the condominium corporation or a cooperative consisting of the landowners; and as the condominium corporation or cooperative take over operations, they will likely find the systems to be expensive and difficult to operate, and will likely try to transfer the responsibility and burden of operations over to the Municipality.

3.2 Communal Water and/or Wastewater Systems Acknowledgement

Where Council approves a Major Plan having a communal water and/or wastewater system, the Developer will be required to execute a Statement of Understanding, which acknowledges the following:

- a) The Municipality will not accept responsibility for the ownership or regulation of any Communal Water and/or Wastewater System. The operation of a Communal Water and/or Wastewater system shall be left to the licenses, approvals, and registrations required by the Province and any other competent authority having jurisdiction.
- b) A water and/or wastewater cooperative created under the Rural Utilities Act, or the condominium corporation, shall be designated as a condition of Subdivision; and such entity shall be responsible for owning and operating the Communal Water and/or Wastewater System.
- c) The Developer's security will not be released until the:
 - i. transfer and transition of operational responsibility has been confirmed to the satisfaction of Operations;
 - ii. all water wells located on the lands which are no longer being used as a water supply are decommissioned as per Provincial standards; and
 - iii. all wastewater systems located on the lands which are no longer being used as part of the Communal Water and/or Wastewater system shall be decommissioned as per Provincial standards.
- d) Any private corporation that may propose to take on the ownership of a Communal Water and/or Wastewater System will be required to enter into a Franchise Agreement with the Municipality, approved at the sole discretion and terms and conditions of Council.

4.0 OTHER PERMITS AND APPROVALS



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4.1 Municipal Permits and Approvals

Any activity on Municipal lands shall be authorized separately by the Municipality. Notwithstanding the generality of the foregoing, the following permits and approvals are required:

- a) An Overweight/Overdimension Permit and/or Road Use Agreement is required for all overweight and/or overdimension vehicles and loads.
- b) A Temporary Use of Roads / Municipal Lands Permit is required for the short-term temporary use or occupation of developed and undeveloped municipal road allowances and rights-of-way for private purposes, and other lands as applicable.
- c) A Road Licensing Agreement is required for the long-term temporary use of the municipal road allowances and road rights-of-way, such as for the installation of test wells.
- d) A Driveway Approach Permit is required for the construction of new or the modification of existing permanent and temporary driveway approaches connecting to municipal roads.
- e) A Utility Modification Agreement is required for the modification or extension of any portion of a municipal water, wastewater and/or stormwater system which is located within municipal lands or easements.
- f) A Service Connection Agreement is required for the construction or modification of the portion of a water or wastewater service located within private property, which connects to a municipal system.
- g) A Water Meter Work Order is required before the Municipality will supply or install a water meter and activate water service.
- h) A Use of Hydrants Permit is required to withdraw water or to install pressure gauges on a fire hydrant.

4.2 Protection and Repairs of Municipal Infrastructure

Every precaution shall be undertaken to protect and safeguard municipal infrastructure. The Developer shall repair any resulting damage to municipal infrastructure at their own expense. All repairs shall be made under the approval and satisfaction of Operations and the Municipality.

4.3 Private Utilities

Separate approvals and authorizations shall be obtained from any private utility, including railways, which have infrastructure in close proximity.



ENGINEERING VARIANCE FORM

Plan: _____

Developer: _____

Engineer of Record: _____

I hereby request and recommend the following variances to the Standards for Major Plans as an acceptable alternative meeting good engineering design practices:

Seal:

Permit to Practice:

Engineer of Record

Signature

Date

MUNICIPAL DISTRICT OF BIGHORN ACCEPTANCE:

Operations Engineer

Signature

Date