



FORT ST. JOHN

The Energetic City

CITY OF FORT ST. JOHN

SUBDIVISION AND DEVELOPMENT
SERVICING BYLAW No. 2405

2019

Subdivision and
Development Requirements

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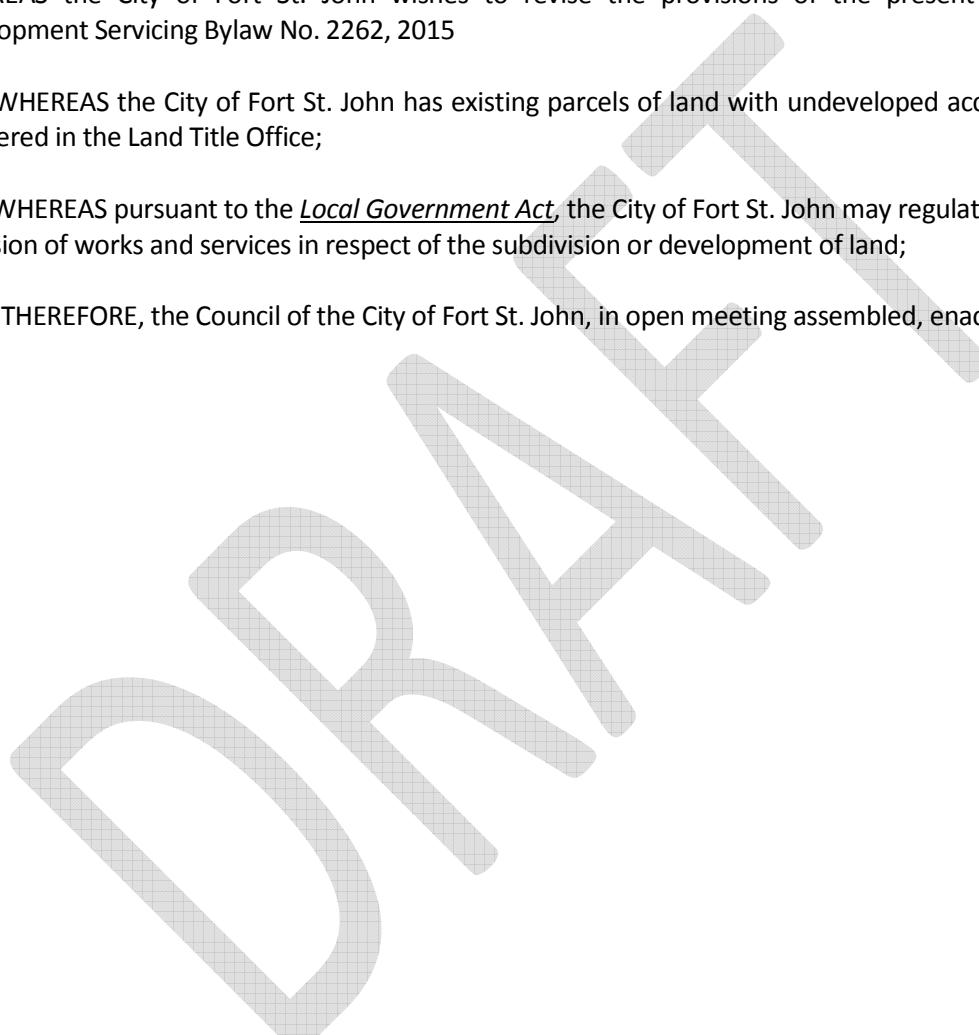
**BEING A BYLAW OF THE CITY OF FORT ST. JOHN TO ESTABLISH
SUBDIVISION AND DEVELOPMENT SERVICING STANDARDS AND CONTROLS
WITHIN THE CITY OF FORT ST. JOHN.**

WHEREAS the City of Fort St. John wishes to revise the provisions of the present Subdivision and Development Servicing Bylaw No. 2262, 2015

AND WHEREAS the City of Fort St. John has existing parcels of land with undeveloped access and services, registered in the Land Title Office;

AND WHEREAS pursuant to the *Local Government Act*, the City of Fort St. John may regulate and require the provision of works and services in respect of the subdivision or development of land;

NOW THEREFORE, the Council of the City of Fort St. John, in open meeting assembled, enacts as follows:



1.0 TITLE

This bylaw may be cited as the "Subdivision and Development Servicing Bylaw No. 2405, 2019"



2.0 APPLICATION AND ADMINISTRATION

2.01 Purpose

The Purpose of this Bylaw is to establish the standard for and to require the construction of Works and Services in connection with the Subdivision and Development of land.

2.02 Prohibition

No person shall undertake Subdivision or undertake Development of land, or commence construction of Works and Services required by this Bylaw, except in compliance with the provisions of this Bylaw.

2.03 Application

This Bylaw shall apply to all lands within the boundaries of the City of Fort St. John, except for Development of one single detached dwelling or semi-attached (duplex) dwelling on existing fully – serviced parcels.

2.04 Administration

This Bylaw shall be administered by:

- (a) the Approving Officer where Works and Services are to be provided because of Subdivision, and
- (b) the Director of Planning and Engineering where Works and Services are to be provided because of Development.

Where the Approving Officer or Director of Planning and Engineering may exercise discretion in relation to a requirement in the schedules, he or she will consider: site conditions, transportation, access, user needs and other local government matters in reaching his or her decision.

2.05 Authorization of Entry

The Approving Officer, Director of Planning and Engineering, Building Inspector or their designate, or any other officer appointed by Council, are hereby authorized to enter at all reasonable times upon any property or premises to inspect it in connection with their duties under this Bylaw and to ascertain whether the provisions of this Bylaw are being complied with.

2.06 Severability

If any section, subsection, sentence, clause or phrase of this Bylaw is for any reason held to be invalid by the decision of any court of competent jurisdiction, the invalid portion shall be severed and the decision that it is invalid shall not affect the validity of the remaining portions of this Bylaw.

If any portion of this Bylaw is held to be inconsistent with the *Local Government Act*, *Land Title Act*, or any other Provincial enactment, the applicable Provincial enactment will apply to the extent of that inconsistency.

3.0 DEFINITIONS & INTERPRETATION

3.01 INTERPRETATION

In this bylaw, unless the context indicates otherwise:

“Access” means a way or means of approach from a highway unto private property.

“Adjacent Property Owner” means the Owner of any private property adjacent to the Parcel being Subdivided or Developed on which construction is required within or across by means of a Right-of-Way, easement or other agreement, or which could benefit from services under a local area service under section 31 of the *Local Government Act*.

“Approval” means approval in writing from the authority having jurisdiction.

“Approved Design” means the detailed drawings and specifications for Works and Services prepared on behalf of the Owner in accordance with the specifications of this bylaw and MMCD documents and accepted by the Approving Officer or the Director of Planning and Engineering as the case may be.

“Boulevard” means that portion of a highway between the curb or edge of road and the adjacent property boundary.

“Building Bylaw” means the City of Fort St. John *Building Bylaw No. 2248, 2015*, as amended or replaced from time to time.

“Building Inspector” means the person appointed as Building Inspector for the City or his designate.

“Building Permit” means a permit authorizing a Development issued under the Building Bylaw.

“Business Day” means a day which is not a Saturday, Sunday, or statutory holiday recognized by the City or any other day that the City’s offices are closed for business.

“Certificate of Substantial Completion” means the written document issued by the Consulting Professional certifying that the Works and Services, or a portion thereof, are Substantially Complete, the form of which is prescribed in Appendix 2 attached to this Bylaw.

“Certificate of Substantial Completion for All Works” means a Certificate of Substantial Completion in respect of all Works, the form of which is prescribed in Appendix 2 attached to this Bylaw.

“Certificate of Substantial Completion for Deep Utilities” means a Certificate of Substantial Completion in respect of Works and Services comprising only the Deep Utilities, the form of which is prescribed in Appendix 2 attached to this Bylaw.

"Certificate of Substantial Completion for Landscaping Works" means a Certificate of Substantial Completion in respect of Works and Services comprising only the Landscaping Works, the form of which is prescribed in Appendix 2 attached to this Bylaw.

"Certificate of Final Acceptance of Non-Landscaping Works" means the written document issued by the Consulting Professional certifying that the Works and Services have been fully installed, constructed and completed, and any defects in the Works and Services remedied, in accordance with the Approved Design and this bylaw, the form of which is prescribed in Appendix 2 attached to this Bylaw.

"Certificate of Final Acceptance of Landscaping Works" means the written document issued by the Consulting Professional certifying that the Landscaping works have been fully installed, constructed, completed, and any defects in the works remedied, in accordance with Approved Design and this bylaw, the form of which is prescribed in Appendix 2 attached to this Bylaw.

"City" means the City of Fort St. John, or the lands lying within the corporate boundaries of the City of Fort St. John, as the context may require.

"Community Drainage System" means the Drainage System located within City Lands and which is owned, operated and maintained by the City.

"Community Sewer System" means a sanitary sewer system of sewage disposal works which is owned, operated and maintained by the City.

"Community Water System" means a water supply system within the meaning of the *Drinking Water Protection Act* which is owned, operated and maintained by the City or an Improvement District under the *Local Government Act*.

"Construction Security" means cash or a clean, unconditional, irrevocable and automatically renewing letter of credit drawn on a chartered bank or credit union having a branch in the City at which demand may be made on the letter of credit by the City.

"Council" means the Council of the City.

"CSA" means the Canadian Standards Association.

"Cul-de-sac" means a length of local highway made for vehicular use, the end of which is permanently closed either by subdivision design or by a natural feature such as inaccessible terrain.

"Deep Utilities" means the water, sanitary sewer and storm sewer portion of the Works and Services required for a Parcel, and their related appurtenances.

"Design Engineer" means the Professional Civil (or other Professional) Engineer engaged by the Owner to design, prepare drawings, inspect and certify construction of Works and Services in a Subdivision or Development, or the Design Engineer's authorized representative.

"Developer" means the party or contractor who has the authority to act on behalf of the Owner, to make application for Subdivision or Development and carry out Works and Services under this Bylaw.

"Develop" or "Development" means an activity that requires a Building Permit under the Building Bylaw.

"Director of Planning and Engineering" means the Director of Planning and Engineering of the City or his or her delegate.

"Drainage System" means a system of works designed and constructed to control the flow of storm water, groundwater or both.

"Excess or Extended Services" has the meaning prescribed by the *Local Government Act*.

"Final Subdivision Approval" means that approval granted by the Approving Officer when all relevant requirements of this Bylaw, the *Local Government Act*, the *Land Title Act* and any other relevant bylaws and legislation have been fulfilled."

"Highway, Arterial" means a Street which carries large volumes of all types of traffic between the principal areas of traffic generation to Collector highways or other Arterial Highways.

"Highway, Collector" means a Street which carries traffic from local Highway to one or more Arterial Highways and includes the principal entrance Streets for circulation of traffic within a subdivision.

"Highway, Local" means a Street used primarily for travel and access to and from the parcels of land contiguous thereto.

"Landscaping Works" means all landscaping including without limitation, the lawns, trees, shrubs, bushes, flowers and other flora to be provided, installed and constructed by the Owner as required by the Approving Officer in the case of Subdivision or the Director of Planning and Engineering in the case of Development, by this Bylaw and other bylaws of the City, and by the terms of the Subdivision and Development Servicing Agreement or Maintenance Agreement, as applicable, and as otherwise required under statutory authority.

"Landscaping Maintenance Security" means security for the performance of the Owner's obligation to tend, maintain and re-plant if necessary the Landscaping Works in accordance with this Agreement in the form of cash deposit, certified cheque, bank draft or in the form of a letter of credit meeting the terms and conditions set out in Schedule "D", and otherwise to be issued to the City in an amount determined by the Director of Planning and Engineering.

"Lane" means a road allowance less than 10m in width at the side or rear of the property.

"Maintenance Agreement" means the Agreement between the Owner and the City regarding approval to construct within public lands, maintenance periods and Maintenance Security for Works and Services performed prior to Subdivision approval or Building Permit issuance, in the form generally attached as Appendix 4.

"Maintenance Security" means security for the performance of the Owner's obligations to maintain the Works and Services in accordance with the terms of a Maintenance Agreement or Subdivision and Development Servicing Agreement in the form of a cash deposit, certified cheque, bank draft or a letter of credit on terms satisfactory to the Director of Planning and Engineering, in the amount of 10% of the estimated cost of constructing the Works and Services.

"MMCD" or "Master Municipal Construction Document" means the latest edition of the Master Municipal Construction Document prepared by the Master Municipal Construction Documents Association, as amended from time to time, but not including "Instructions to Tenderers" and "General Conditions" in volume II or "Measurement and Payment" sections.

"Non-Landscaping Works" means all works and services to be provided, performed and constructed by the Owner as required by the Approving Officer in the case of Subdivision or the Director of Planning and Engineering in the case of Development, by the Subdivision and Development Servicing Bylaw and other bylaws of the City, and as otherwise required under statutory authority, and without limitation, the Works include all the construction shown or referred to in the Approved Design, utilities and connections to be constructed on and off the Land, environmental protection measures, and all other utilities and services, all as listed on Schedule "F", except the Landscaping Works.

"Preliminary Approval" means provisional approval of a Subdivision application, issued by the Approving Officer setting out the requirements for achieving Final Subdivision Approval.

"Professional Engineer" means a person who is registered or duly licensed as such under the provisions of the Engineers and Geoscientists Act of British Columbia.

"Record Drawings" means the approved "for construction" drawings accurately revised to reflect actual construction changes in the field, sealed by the Design Engineer, including digital copies using the MMCD as-constructed template.

"Right-of-Way" includes land or any interest in land acquired for any public purpose, including, but not limited to:

- a) public rights of passage with or without vehicles;
- b) constructing, maintaining, or operating any railway;
- c) erecting and maintaining any pole-line;

- d) laying, placing, and maintaining drains, ditches, pipes, transmission lines or wires for the conveyance, transmission or transportation of water, electric power, communication, or for the disposal of sewage; and
- e) the operation and maintenance of road for vehicular traffic and registered as a public right-of-way.

"Service Level" means the standard of municipal services required for Subdivisions or Developments under the provisions of this Bylaw.

"Subdivision" means the division of land into two or more parcels, whether by plan or otherwise, except that the words "subdivision plan" shall also include a plan consolidating two or more parcels into a single parcel, as well as the creation of strata lots.

"Subdivision and Development Servicing Agreement" means the Agreement between the Owner and the City regarding the construction of the Works and Services by a date specified in the agreement and maintenance periods for those Works and Services, all to be performed after Final Subdivision Approval or Building Permit issuance, in the form generally attached as Appendix "3".

"Substantially Complete" means the stage of completion when the work is capable of being put to its intended use.

"Utilities" means the use of land whereby water, sanitary sewer, storm sewer, similar public services are provided and maintained.

"Walkway" means a highway or portion of a highway intended to carry pedestrian and non-motorized traffic.

"Works and Services" includes: Highways, walkways, Boulevards, boulevard crossings, transit bays, curbs, gutters, street lighting, street trees, boulevard plantings, underground wiring, electrical distribution systems, water distribution systems, fire hydrant systems, sewage collection and disposal systems, drainage collection and disposal systems, Access to Highways, and such other infrastructure or systems required by this Bylaw in connection with the Subdivision or Development of land.

3.02 INTERPRETATION

All other words, terms and expressions in this Bylaw shall be interpreted in accordance with their definitions in the *Community Charter*, the *Land Title Act*, the *Local Government Act* and the *Interpretation Act*.

3.03 REFERENCE

A reference in this Bylaw to in other bylaw of the City is a reference to that bylaw as amended from time to time and any future bylaws relating to the same subject matter.

3.04 UNITS

Metric units are used for all measurements in this Bylaw.

3.05 HEADINGS

Headings for each section of this Bylaw are intended to organize the content and are to be used for reference purposes only.



4.0 GENERAL PROVISIONS & PROCEDURES

4.01 No person shall subdivide one or more Parcels in the City unless:

- .1 the person has entered into a Maintenance Agreement, and provided to the City Maintenance Security and Landscaping Maintenance Security as defined in Appendix "4" having regard to the cost of maintaining the Works and Services during the Maintenance Period, and the Works and Services required by this Bylaw have been provided by the Owner to the satisfaction of the Approving Officer, or
- .2 the Owner has entered into a Subdivision and Development Servicing Agreement, and provided to the City Construction Security as defined in Appendix "3" having regard to the cost of installing and paying for the Works and Services.

4.02 No person shall construct a building or structure in the City for which a Building Permit is required unless:

- .1 the person has entered into a Maintenance Agreement, and provided to the City Maintenance Security and Landscaping Maintenance Security as defined in Appendix "4" having regard to the cost of maintaining the Works and Services during the Maintenance Period, and the Works and Services required by this Bylaw have been provided by the Owner to the satisfaction of the Director of Planning and Engineering, or
- .2 the Owner has entered into a Subdivision and Development Servicing Agreement, and provided to the City Construction as defined in Appendix "3" having regard to the cost of installing and paying for the Works and Services.

4.03 The Approving Officer and the Director of Planning and Engineering are hereby delegated the power to enter into Subdivision Servicing Agreements, Maintenance Agreements, and statutory Rights-of-Way on behalf of the City on such terms and conditions as may be determined acceptable by the Approving Officer or Director of Planning and Engineering, as the case may be, in his discretion.

4.04 PROCEDURE FOR DEVELOPMENT

The application for Development shall be made in writing on the form provided by the City including all the following:

- .1 the name and address of the Developer (if applicable);
- .2 the name and address of the Owner;
- .3 the legal description of the Parcel;
- .4 a site plan and description of works on the Highways adjacent to the Parcel;
- .5 Two complete, legible copies of engineered plans and drawings conforming to the design criteria of this Bylaw, showing:

- .1 the location, dimensions and boundaries of the existing Parcels, and the location, dimensions and boundaries of the immediately adjacent surrounding parcels, and rights-of-way;
- .2 engineered drawings for all Works and Services required under this Bylaw;
- .3 contours at not greater than 0.5 meter intervals; and
- .4 all such other features, particulars, and data required by this Bylaw or as may be required by the Director of Planning and Engineering.

4.05 PROCEDURE FOR SUBDIVISIONS

If an Owner proposes to Subdivide a Parcel or several adjacent Parcels, the Owner shall apply for Preliminary Approval in writing to the Approving Officer including all of the following:

- .1 the name and address of the Developer (if applicable);
- .2 the name and address of the Owner;
- .3 the intended use of the Parcel;
- .4 the legal description of the Parcel;
- .5 two complete surveyed drawings showing:
 - .1 the location, dimensions and boundaries of the existing Parcels intended to be Subdivided and surrounding existing parcels;
 - .2 the proposed Subdivision layout with dimensions;
 - .3 the area, and number of new Parcels, and their designated or intended usage; and
 - .4 the existing topography in 0.5 meter contours.
- .6 two complete, legible copies of engineered plans and drawings conforming to the design requirements of this Bylaw showing:
 - .1 the location, dimensions and boundaries of the existing Parcels proposed to be subdivided, and the location, dimensions and boundaries of the immediately adjacent surrounding parcels, and rights-of-way;
 - .2 the location and dimensions of all parcels, Highways and parks to be included in the subdivision and the locations and dimensions of the immediately adjacent parcels, Highways, walkways, parks and Utilities;
 - .3 engineered drawings for all Works and Services required under this Bylaw; and
 - .4 all such other features, particulars, and data required by this Bylaw or as may be additionally required by the Approving Officer.
- .7 Subdivision Fees: An application for Preliminary Approval shall be accompanied by the fee set in the current City Fees and Charges for Various Municipal Services Bylaw;

- .8 Taxes to be Paid: As a condition of Preliminary Approval, the Owner shall ensure all taxes on the Parcel to be Subdivided are paid in full; and
- .9 Preliminary Approval of any proposed subdivision shall be valid for 180 calendar days within which time the Owner shall submit engineered construction plans for approval to the Approving Officer. If the plans are not submitted and approved within the time limit, a complete resubmission of application for Preliminary Approval will be required unless an extension of the said 180 calendar days is granted by the Approving Officer in his discretion.

4.06 SUBDIVISIONS AND DEVELOPMENTS WHERE SERVICING REQUIREMENTS MAY BE WAIVED

- .1 At the discretion of the Approving Officer the requirements to provide Works and Services under section 4.01 may be waived where the Parcel created is to be used solely for the unattended equipment necessary for the operation of:
 - .1 a community water system;
 - .2 a community sewer system;
 - .3 a community drainage system;
 - .4 a community gas distribution system;
 - .5 a community radio or television receiving antennas;
 - .6 a radio or television broadcasting antenna;
 - .7 a telecommunications relay station;
 - .8 an automatic telephone exchange;
 - .9 an air or marine navigational aid;
 - .10 electrical substations or generating stations; or
 - .11 any other similar public service or quasi-public service facility or Utility.
- .2 If a proposed Subdivision or Development is in an area of the City in which off-site Works and Services of the types prescribed by this Bylaw have already been installed and which conform to the standards of this Bylaw,
 - .1 the Approving Officer may authorize Subdivision;
 - .2 the Director of Planning and Engineering may authorize the issuance of a Building Permit and sections 4.01 and 4.02 of this Bylaw shall not apply.
- .3 If a proposed Subdivision or Development is in an area of the City in which Works and Services of the types prescribed by this Bylaw have already been installed, and the existing Works and Services do not conform to the standards in this Bylaw, the Approving Officer, or the Director of Planning and Engineering may authorize the approval of a Subdivision or the issuance of a Building Permit without the Works and Services being improved to the standards prescribed by this Bylaw and sections 4.01 and 4.02 of this Bylaw shall not apply if the level of service already provided to the Subdivision or Development and to adjacent areas is, in the opinion of the

Approving Officer or the Director of Planning and Engineering, as the case may be, adequate and in accordance with standards generally accepted as good engineering practice in existing developed areas.

4.07 OTHER JURISDICTIONS

Where applicable, the Owner shall obtain Approvals, pay for Utility designs and construction and execute the work required by other jurisdictions in accordance with the requirements of each respective jurisdiction. Such jurisdictions include, but are not limited to:

- .1 Ministry of Transportation and Infrastructure
- .2 Ministry of Environment
- .3 Fisheries and Oceans Canada
- .4 Utility companies
- .5 CN Rail
- .6 Peace River Regional District
- .7 Ministry of Community Services;
- .8 Ministry of Energy, Mines, and Petroleum Resources;
- .9 Northern Health Authority;
- .10 School District #60 (Peace River North); and
- .11 Agricultural Land Commission

The Owner shall determine, co-ordinate and submit to the City, engineering designs from utility companies or other agencies when providing electrical, telecommunication, gas and mail delivery services to parcels.

4.08 QUALITY OF CONSTRUCTION MATERIALS

All construction materials used for Works and Services shall be CSA approved and be listed in the Approved Products List, as amended from time to time by the City, unless otherwise approved by the Approving Officer or the Director of Planning and Engineering, as the case may be.

4.09 MATERIALS STORAGE

All construction materials/debris shall be contained on-site and no storage shall be allowed on any highway.

4.10 RIGHT-OF-WAY AGREEMENT

Where the Approving Officer considers alignment of proposed Utility infrastructure requires a Right-of-Way over private land, the Owner shall enter into an agreement with the City for each Right-of-Way. The Owner is responsible for all costs relating to registry of each Right-of-Way on each respective land title. At time of Subdivision any Right-of-Way that is identified as a requirement of the Approving Officer shall be registered concurrently with the Subdivision Plan individually against each applicable parcel title. Unregistered Rights-of-Way will be considered a deficiency against the completion of the Works and Services.

4.11 FINAL SUBDIVISION APPROVAL

Prior to Final Subdivision Approval, the Owner shall provide all of the following, as applicable:

- .1 payment to the City of all the cost of connection all Utilities to serve the proposed Subdivision;
- .2 payment to the City of all costs for upgrading the existing Works and Services or installing new Works and Services that will be undertaken by the City;
- .3 payment to the City of all applicable Development Cost Charges required as prescribed in the City's Development Cost Charges Bylaw; and
- .4 three copies of all duly executed covenants, Rights-of-Way and all other relevant agreements.

Unless the Owner has entered into a Subdivision and Development Servicing Agreement, in which case the Owner shall provide the above items, as applicable, in accordance with the terms of the Subdivision and Development Servicing Agreement.

5.0 SERVICING REQUIREMENTS

5.01 LEVEL OF SERVICE

As a condition of Final Subdivision Approval or issuance of a Building Permit, the Owner shall provide Works and Services as follows:

- .1 Highways, Lanes and Walkways in accordance with the Service Level set out in Schedule A and standards set out in Schedules A and B of this Bylaw;
- .2 Curbs and Gutters in accordance with the Service Level set out in Schedule A and standards set out in Schedule C of this Bylaw;
- .3 Water systems in accordance with the Service Level set out in Schedule A and standards set out in Schedule D of this Bylaw;
- .4 Sanitary sewer systems in accordance with the Service Level set out in Schedule A and standards set out in Schedule E of this bylaw;
- .5 Drainage systems in accordance with the Service Level set out in Schedule A and standards set out in Schedule F of this Bylaw;
- .6 Landscaping in accordance with Service Level set out in Schedule A and standards set out in Schedule G of this Bylaw;
- .7 Street lighting in accordance with the Service Level set out in Schedule A and standards set out in Schedule H of this Bylaw;
- .8 Electrical, telecommunication and gas distribution in accordance with the Service Level set out in Schedule A and standards set out in Schedule I of this Bylaw;
- .9 Preparation of design and construction Record Drawings in accordance with Schedule J of this Bylaw;
- .10 Specifications and standards for construction of Works and Services set out in Schedule K of this Bylaw; and
- .11 In accordance with the standards and specifications set out in MMCD.

5.02 MINIMUM STANDARDS

The standards and specifications that are set out in Schedules B through K are the minimum standards and all Approved Designs shall conform to the latest edition of the MMCD. The Design Engineer shall provide supplemental design drawings and specifications to a level of detail to assure required quality in circumstances that warrant.

5.03 COST OF SERVICES

All Works and Services required to be constructed and installed by this Bylaw shall be engineered, supplied constructed and installed at the expense of the Owner of the land being Subdivided or Developed.

5.04 EXCESS CAPACITY OF WORKS AND SERVICES

The design of any highway, sanitary sewer, water or storm drainage system shall be adequate to serve the land being Subdivided or Developed, as well as any other land that is to tributary to the system or to which the system will provide service.

Council delegates to the Approving Officer the power under section 507 and 508 of the *Local Government Act* to:

- .1 require Excess or Extended Services in accordance with section 507 of the *Local Government Act*;
- .2 determine whether the cost to the City of an Excess or Extended Service is excessive such that the Owner of the Parcel being Subdivided or Developed shall pay such costs;
- .3 determine the proportion of the cost of providing the Works and Services that constitute an Excess or Extended Service;
- .4 determine which part of the Excess or Extended Service will benefit each of the parcels that will be served by an Excess or Extended Service; and
- .5 enter into an agreement with the Owner of the parcel being Subdivided or Developed to establish the period during which charges may be collected in accordance with section 508 (5) of the *Local Government Act*.

Where the Works and Services include Excess or Extended Services, the Approving Officer may require the Design Engineer to provide an itemized estimate of the proportion of the cost that is attributable to the Excess or Extended Services, the benefiting properties, and the allocation of costs among them, although such information is not to be binding on the City in its determination under section 507 or 508 of the *Local Government Act*.

6.0 ENGINEERS AND CONSULTANTS

6.01 COMMITMENT REQUIRED BY OWNER

Prior to review of any Subdivision application by the Approving Officer, where a Subdivision and Development Servicing Agreement or a Maintenance Agreement is required, the Owner shall enter into an agreement with the City to confirm the relationship between the Owner, the Design Engineer, and the City. Appendix "1" of this Bylaw contains the "Confirmation of Commitment by Owner".

This letter is to be typed on the Owner's letterhead and submitted to the City at time of Subdivision application.

6.02 SUBDIVISION AND DEVELOPMENT ENGINEERING REQUIRED

Prior to review of any Subdivision or Development by the City, where a Subdivision and Development Servicing Agreement or a Maintenance Agreement is required, the Owner's Design Engineer and Geotechnical Engineer shall each confirm their engagement with the Owner such that they will be providing professional services to the Owner to ensure that the Subdivision or Development and the Works and Services are designed and constructed in accordance with this Bylaw, the approved drawings and good practice. Appendix "1" contains the "Confirmation of Professional Assurance" letters to be typed onto each Design Engineer's letterhead and submitted to the City before or with the submission for Preliminary Approval.

7.0 OFFENCES AND PENALTIES

- 7.01** Every person who violates any of the provisions of this bylaw, or who suffers or permits any act or thing to be done in contravention of this bylaw, or who refuses, omits, or neglects to fulfill, observe, carry out, or perform any duty or obligation imposed by this Bylaw shall be guilty of an offence punishable on summary conviction and shall be liable to a fine of not less than the sum of One Hundred Dollars (\$100.00) but not exceeding the sum of Ten Thousand Dollars (\$10,000) or to imprisonment for not more than six months, or to both.
- 7.02** Any person designated as a Bylaw Enforcement Officer pursuant to the City of Fort St. John *Bylaw Notice Enforcement Bylaw No. 2428, 2018*, as amended or replaced from time to time, or the City of Fort St. John *Municipal Ticket Information System Bylaw No. 2429, 2018*, as amended or replaced from time to time, is hereby authorized and empowered to enforce the provisions of this Bylaw by the provisions of the *Bylaw Notice Enforcement Bylaw No. 2428, 2018*, as amended or replaced from time to time, or the *Municipal Ticket Information System Bylaw No. 2429, 2018*, as amended or replaced from time to time.
- 7.03** The penalty for a contravention dealt with in accordance with the *Bylaw Notice Enforcement Bylaw No. 2428, 2018*, as amended or replaced from time to time, shall be as follows:
- .1 The penalty amount set out in Column A3 of Schedule "L" is payable for the correspondence contravention except when subsection .2 or .3, below, apply;
 - .2 The early payment penalty set out in Column A4 of Schedule "L" is payable if payment is received by the City within 14 days of the person receiving or being presumed to have received the bylaw notice; and
 - .3 The late payment penalty set out in Column A5 of Schedule "L" is payable if payment is received more than 31 days after the person received or is presumed to have received the bylaw notice.
- 7.04** The penalty for a contravention dealt with in accordance with the *Municipal Ticket Information System Bylaw No. 2429, 2018*, as amended or replaced from time to time, shall be as follows:
- .1 The words and expressions in Column 1 of Schedule "M" shall designate the offence committed under the section number of this Bylaw appearing in Column 2 of Schedule "M" opposite the respective words or expressions; and
 - .2 The dollar amounts appearing in Column 3 of Schedule "M" of this Bylaw establish the fines in respect of the corresponding offence designated in Column 1.

- 7.05** Where an offence of this bylaw is a continuing offence, each day that the offence is continued shall constitute a separate offence.
- 7.06** Any penalty imposed pursuant to this bylaw shall be in addition to, and not in substitute for, any other penalty or remedy imposed pursuant to any other applicable statute, law, or legislation.



8.0 SCHEDULES AND APPENDICES

8.01 LIST OF SCHEDULES

The following is a list of schedules attached hereto and forming part of this Bylaw:

- | | | | |
|-----|------------|---|--|
| .1 | SCHEDULE A | - | Service Levels; |
| .2 | SCHEDULE B | - | Highways, Lanes and Walkways - Regulations, Standards and Specifications for Design; |
| .3 | SCHEDULE C | - | Curbs and Gutters, and Boulevards - Regulations, Standards and Specifications for Design; |
| .4 | SCHEDULE D | - | Water Systems - Regulations, Standards and Specifications for Design; |
| .5 | SCHEDULE E | - | Sanitary Sewers - Regulations, Standards and Specifications for Design; |
| .6 | SCHEDULE F | - | Drainage Systems - Regulations, Standards and Specifications for Design; |
| .7 | SCHEDULE G | - | Landscaping – Regulations, Standards and Specifications for Design; |
| .8 | SCHEDULE H | - | Street Lighting - Regulations, Standards and Specifications for Design; |
| .9 | SCHEDULE I | - | Electrical, Communications Wiring, Cablevision and Gas Distribution System - Regulations, Standards and Specifications for Installation; |
| .10 | SCHEDULE J | - | Design and Construction Record Drawings - Standards for the Preparation (bound separately); and |
| .11 | SCHEDULE K | - | Specifications and Standards for the Construction of Works and Infrastructure Designed Under Schedules B through I |
| .12 | SCHEDULE L | | Fines enforced under the <i>Bylaw Notice Enforcement Bylaw No. 2428, 2018</i> |
| .13 | SCHEDULE M | | Fines enforced under the <i>Municipal Ticket Information System Bylaw No. 2429, 2018</i> |
| .14 | SCHEDULE N | | Designated Bylaw Enforcement Officers |

8.02 STANDARD LETTERS

The following is a list of standard letters contained in **Appendix 1** to be submitted by the Owner and the Design Engineers on their letterhead to the City, and are included for convenience only and do not form part of this bylaw:

- .1 Confirmation of Commitment by Owner;
- .2 Confirmation of Professional Assurance by Civil Engineer; and
- .3 Confirmation of Professional Assurance by Geotechnical Engineer.

8.03 LIST OF CERTIFICATES

The following lists of Certificates are contained in **Appendix 2**.

- .1 Certificate of Substantial Completion;
- .2 Certificate of Substantial Completion for Deep Utilities;
- .3 Certificate of Substantial Completion for All Works;
- .4 Certificate of Final Acceptance for Non-Landscaping Works; and
- .5 Certificate of Final Acceptance for Landscaping Works.

8.04 SUBDIVISION SERVICING AGREEMENT

The sample Subdivision and Development Servicing Agreement is contained in **Appendix 3**.

8.05 MAINTENANCE AGREEMENT

The sample Maintenance Agreement is contained in **Appendix 4**.

8.06 SERVICE CARD

The sample Service Card is contained in **Appendix 5**.

8.07 STANDARD DRAWINGS

The Standard Drawings are contained in **Appendix 6**.

9.0 ENACTMENT

9.01 REPEAL OF PREVIOUS BYLAW

The Subdivision & Development Servicing Bylaw No. 2262, 2015, and all amendments thereto, are hereby repealed.

Read a FIRST time this _____ day of _____, 2019

Read a SECOND time this _____ day of _____, 2019

Read a THIRD time this _____ day of _____, 2019

RECONSIDERED AND FINALLY ADOPTED this _____ day of _____, 2019

Lori Ackerman, Mayor

Janet Prestley, Director of Legislative and
Administrative Services



The City of Fort St. John
SUBDIVISION AND DEVELOPMENT SERVICING BYLAW
Bylaw No. 2405, 2019
Schedule A – Service Levels

SCHEDULE A

SERVICE LEVELS

A - 1.0 GENERAL

- .1 All Subdivision and Developments throughout the City of Fort St. John shall be constructed in accordance with the development standards outlined in this Schedule conforming to the following:
 - .1 Roadways, lanes and walkways in accordance with Schedule B;
 - .2 Curb and Gutters, Sidewalks and Boulevards in accordance with Schedule C;
 - .3 Water distribution system and connection to community water system in accordance with Schedule D;
 - .4 Sanitary sewer collection system and connection to community sanitary sewer system in accordance with Schedule E;
 - .5 Drainage systems and erosion and sediment control plans in accordance with Schedule F;
 - .6 Landscaping in accordance with Schedule G;
 - .7 Street lighting in accordance with Schedule H;
 - .8 Electrical, telecommunications and gas distribution in accordance with Schedule I;
 - .9 Design and record drawings in accordance with Schedule J; and
 - .10 Specification and standard drawings in accordance with Schedule K.

TABLE A.1
DEVELOPMENT STANDARDS BY ROAD CLASSIFICATION

Road Classification	Right-of-Way Width	Pavement Width ¹	Lane Widths	Curb Type	Minimum Sidewalk Width ²	Street Trees
2 Lane Collector	22.0m	12.0m	3.5m	Barrier	2.0m separated 3.0 separated asphalt path	Both sides
Industrial Collector	20.0m	11.0m	3.5m	Barrier	2.0m one side separated	Both Sides
Local - Low Density	20.0m	9.0m	4.5m (Travel and Parking)	Rollover	2.0m one side	Both Sides
Local – Semi Attached	20.0m	11.0m	5.5m (Travel and Parking)	Rollover	2.0m one side	Both sides
Local - Industrial	20.0m	11.0m	5.5m (Travel and Parking)	Barrier	2.0m one side ³	Not required
Local – Med-High Density Residential & Commercial	20.0m	11.0m	3.5m – Travel Lane 2.5m – Parking Lane on either side	Barrier	2.0m separate both sides	Both sides
Cul-de-sac - entrance	20.0m	9.0m	3.6m	Upright	2.0m one side	Both sides
Cul-de-sac - terminus	20.0m radius	14.5m radius	–	Upright	2.0m halfway	not applicable
Lanes	6.0m	6.0m	3.0m	Not required	not applicable	not applicable
Pedestrian Walkways	6.0m	3.0m ⁴	-	Not required	not applicable	not applicable

ALTERNATE ROAD STRUCTURES MAY BE APPROVED AT THE DISCRETION OF THE APPROVING OFFICER.

¹ Pavement width is defined as the width between the curb gutter lines (face of curb) on each side of the road.

² The width of sidewalk is measured from the back of curb.

- ³ In Industrial areas only, a sidewalk may not be required, as determined by the Approving Officer.
⁴ Finished surface.

A - 2.0 LEVELS OF WORKS AND SERVICES

- .1 The level of works and services to be provided in subdivision and development shall conform to the following:
 - .1 Water System must be connected to the Municipal System;
 - .2 Sanitary Sewer System must be connected to the Municipal System;
 - .3 Enclosed Channel (Minor) Storm Sewer System must be connected to the Municipal System. Major Storm System consisting of overland flow must be established from the subdivision or development to an acceptable outfall;
 - .4 Street lighting must be provided;
 - .5 Sidewalks must be provided as outlined in Table A.1;
 - .6 Highways must be provided as outlined in Table A.1;
 - .7 Landscaping must be provided as outlined in Table A.1; and
 - .8 Non-municipal services such as electrical, natural gas, telecommunications must be provided.



The City of Fort St. John
SUBDIVISION AND DEVELOPMENT SERVICING BYLAW
Bylaw No. 2405, 2019

SCHEDULE B

HIGHWAYS, LANES AND WALKWAYS
REGULATIONS, STANDARDS AND SPECIFICATIONS FOR DESIGN

B - 1.0 GENERAL

- .1 Where the provisions of Schedule A of this Bylaw require the construction of roads, the Owner shall construct such roads in accordance with the regulations, standards and specifications set out in this Schedule.
- .2 If Parcel requires road access along any property boundary adjacent to a highway, the owner shall meet the following requirements:
 - .1 Paved Highway
 - .1 Driveway access is limited to provisions set out in this Bylaw. Access to a parcel shall be hard surfaced with either concrete or asphaltic pavement.
 - .2 Construction consists of complete pavement standard, sidewalks, streetlights and utilities.
 - .2 Lanes
 - .1 If a lane is undeveloped, the Owner shall construct to a paved standard.
 - .3 Culverts
 - .1 If a Parcel needs road Access where ditch drainage exists, the Owner shall make application for a culvert installation.
 - .3 Highways, Lanes and Walkways shall be as per Table A.1 and the applicable Standard Drawings.

B - 1.01 Engineering Drawings

- .1 Engineering drawings showing detailed design of roads shall be prepared in accordance with the City's specifications for drawings contained in Schedule J.
- .2 Engineering drawings shall show:
 - .1 Existing ground;
 - .2 Proposed alignment;
 - .3 Grade;
 - .4 Horizontal and vertical curve information;
 - .5 Elevations at all changes in vertical alignment; and
 - .6 All other details as may be required.

B - 1.02 Classification of Highways

Prior to design of the road system, the Approving Officer shall approve the classification of each road proposed within the subdivision.

B - 1.03 Geotechnical Evaluation

- .1 In addition to the geotechnical overview undertaken during the initial phases of the project, the Owner shall engage the services of a qualified Geotechnical Engineer to investigate surface and sub-surface conditions with respect to roadworks within the proposed subdivision.
- .2 The Geotechnical Engineer shall prepare a report outlining his findings and shall provide clear, definitive recommendations on:
 - .1 geometry and placement of fill sections;
 - .2 compaction requirements over and above those stipulated in this Bylaw;
 - .3 cut slope geometry;
 - .4 pavement structures for roads; and
 - .5 any other geotechnical issues affecting road construction within the proposed subdivision.
- .3 A copy of the Geotechnical evaluation shall be submitted to the Approving Officer at the time the engineering drawings are submitted for approval.
- .4 Minimum compaction with the highway shall be as follows:
 - .1 Road Subbase - 98% standard proctor;
 - .2 Road Base - 100% standard proctor; and
 - .3 Boulevards – 98% standard proctor.

B - 2.0 DESIGN CRITERIA

B - 2.01 General Design Requirements

- .1 In the preparation of engineering plans for highways, the Owner shall take into account the following general design considerations:
 - .1 Continuation of Existing Highways:

The design and arrangement of highways within a subdivision shall provide for the continuation or projection of existing highways in the surrounding area. In no case shall the arrangement of highways within a proposed subdivision make impractical the subdivision of adjoining parcels.
 - .2 Topography:
 - .1 The design and arrangement of highways shall be suited to the topography of the land proposed to be subdivided.
 - .2 Minimum grade across boulevard shall be 3.0%.

B - 2.02 Highway Right-Of-Way Requirements

- .1 Highway rights-of-way widths shall be at least the minimum width specified in Table A.1 of Schedule A.
- .2 The tops of road cuts and the toes of road fills that are outside the highway right-of-way shall be identified and protected by a wider right-of-way.

B - 2.03 Local Highways

Local highways within a proposed subdivision shall be arranged so that their use by through traffic will be discouraged.

B - 2.04 Cul-de-Sacs

- .1 Cul-de-sacs are only permitted with the approval of the Approving Officer.
- .2 Cul-de-sacs shall not exceed 150 metres in length measured from the centreline of intersection to the centre of the cul-de-sac in accordance with the applicable standard drawings.

B - 2.05 Lanes

Lanes, meeting the standards set out in this bylaw, shall be provided where the Approving Officer deems them to be necessary.

B - 2.06 Intersections

- .1 Unless indicated elsewhere herein, all intersection design standards shall conform to those outlined in the latest edition of "Geometric Design Standards for Canadian Roads and Streets" as published by the Transportation Association of Canada (TAC).
- .2 Intersections shall be designed as follows:
 - .1 Intersecting highways shall meet substantially at right angles (between 70 degrees and 110 degrees)
 - .2 Jogs in highway alignment at intersections shall be avoided except where the distance between centrelines is sufficient to ensure traffic safety.
 - .3 The minimum spacing between the intersections along a highway shall be 40.0 metres for T- intersections and 60.0 metres for all others.
 - .4 The maximum spacing between intersections shall be 405 meters.
 - .5 Intersections having more than four intersecting legs will not be permitted.
- .3 Approach grades for a crest curve of minor highway at intersections to major highways shall not exceed 75% of the maximum grade allowed for that highway classification. The minor highway shall be designed to intersect the major highway with a vertical curve of minimum length required for that highway classification listed in Table B.1.
- .4 Providing the minor intersecting highway is marked with a Stop sign, the following may be used for the minor highway. The minor highway may be designed to intersect the major

highway with a vertical curve of minimum length required for that highway classification listed in Table B.4. The vertical curve shall terminate at the projected curb line of the major highway meeting the crossfall of the major highway. In extreme cases, with the approval of the Director of Planning and Engineering, sag curves may terminate at the curb line of the major highway at a 0% slope.

TABLE B.1

MINIMUM K VALUES FOR VERTICAL CURVES AT INTERSECTIONS

Intersecting Highway	Minimum K Value (in metres)		
	Crest Curve	Sag Curve	
		With Lighting	Without Lighting
Arterial	MoTI/TAC		
4 Lane Collector	17	17	17
2 Lane Collector	7	7	10
Local	4	4	6

B - 2.07 Driveways

.1 General

- .1 Minimum distance from property line to start of driveway on corner lots shall be (See Figure B-2.07.01):
 - .1 9.0 meters on local highway; and
 - .2 30.0 meters on all other road classifications.
- .2 All driveways shall be constructed to provide minimum clearance of 1.5m from any structure including hydrants, service pedestals and transformers.

.2 Single Detached and Semi-Attached:

- .1 Minimum driveway width shall be 3.0 metres;
- .2 Maximum driveway width shall be 9.0 metres except in the case small lot zones where maximum driveway width is 6.0m and in the case of Semi-Attached zones where combination of driveways shall not exceed 12.0m
- .3 Minimum front yard open space requirements, as per the Zoning Bylaw, shall not be exceed;
- .4 Driveway widths in excess of 9.0 metres (6.0 metres in small lot zones) must be approved in writing by the Director of Planning and Engineering;

- .5 One on street parking space a minimum of 6m in length shall be provided for every lot in the subdivision, except for lots located on heel or cul-de-sac bulb. Unless otherwise approved by Approving Officer or Director of Planning and Engineering, as the case may be. See Figure B-2.07.02;
- .6 Driveway access roads must have a minimum of 9.0 meter centre line radius on all curves and corners along the road;
- .7 Maximum driveway grade across boulevard shall be 8%;
- .8 Turn around facilities are to be provided for any dead-end access driveway fronting an arterial roadway; and
- .9 Unless otherwise approved in writing by the Director of Planning and Engineering, only one driveway will be permitted into each lot.

- .3 Common Access Driveways for Three (3) or more Single Family Residences, Multi-Family, Commercial, Industrial and Institutional Developments:
 - .1 Minimum driveway widths shall be 6.0 metres.
 - .2 Maximum driveway width shall be 9.0 metres.
 - .3 Driveway widths in excess of 9.0 metres must be approved in writing by the Director of Planning and Engineering.
 - .4 Driveway to be hard surfaced as per Building Bylaw.
 - .5 Curb and gutter shall be installed as required.
 - .6 Surface water from driveways on private property must be contained on-site, unless otherwise approved in writing by the Director of Planning and Engineering. A connection to the City drainage system may be permitted but at a controlled rate of discharge.
 - .7 Driveway grades shall meet BC Building code requirements.
 - .8 Driveway access roads shall conform to BC Building Code fire access requirements on all curves and corners along the road.
 - .9 Driveway access roads shall be designed to accommodate current City fire apparatus. Current apparatus specifications will be provided by the City.
 - .10 Turn around facilities are to be provided for any dead-end access driveway for emergency vehicle egress.
 - .11 Unless otherwise approved in writing by the Director of Planning and Engineering, a maximum of two access driveways will be permitted into a development.

B - 2.08 Walkways

- .1 Walkways shall be provided where the Approving Officer or Director of Planning and Engineering, as the case may be, deems them to be necessary to provide access through a

subdivision to schools, parks, playgrounds, commercial areas or other community facilities, or for the safe and efficient circulation of pedestrian traffic.

- .2 Walkways for pedestrian access to transit, shopping and school sites shall be constructed.
- .3 Walkways grades shall not exceed 9%. All walkways must be wheel chair accessible.
- .4 Walkways shall be graded to the full width between property lines to provide proper access and drainage.

B - 2.09 Design Speeds

The design speeds used for design of Highways shall be as in Table B.2.

TABLE B.2
DESIGN SPEED

Road Type	Design Speed
Arterial	50-70 km/h
Collector	50 km/h
Local	30-50 km/h

B - 2.10 Road Crown

The road crown shall be 3%. Cross falls may be permitted through areas of adverse topography, only with written permission of the Approving Officer. 2% inverted crowns may be used in lanes.

B - 2.11 Road Grades

- .1 Maximum road centreline grades shall be 8%. Minimum road centreline grades shall be 0.5%.
- .2 Maximum grades are to be reduced by 1% for each (or part of each) 30 meters that the centreline radius is less than 150 m.

B - 2.12 Vertical Alignment

- .1 The vertical alignment of a road shall be set so the grades of the driveway to adjacent properties shall be in accordance with Section B-2.07.
- .2 The minimum longitudinal gradient at the gutter line shall be 0.50% for all classifications of highways.

B - 2.13 Vertical Curves

- .1 Vertical curves shall be provided at all grade changes greater than 1.0%.

- .2 Vertical curves shall be designed to provide safe stopping sight distances. Minimum stopping sight distance is the least distance required to bring the vehicle to a stop under prevailing vehicle and climatic conditions.
- .3 Vertical curve length is calculated by the equation $L = KA$ where:

L is the length of the vertical curve in metres*

K is a constant related to lines and geometry of a parabolic curve**

A is the algebraic difference of grades in percent

*L shall not be less than the design speed in kilometres per hour

**Minimum K values for vertical curve design shall be as described in Table B.3.

TABLE B.3
MINIMUM K VALUES FOR VERTICAL CURVE DESIGN

Road Classification	Crest Curve	Sag Curve	
	Minimum	Lighting	No Lighting
Arterial	MoTI/TAC		
4 Lane Collector	22	15	25
2 Lane Collector	15	10	20
Local	7	6	11

B - 2.14 Horizontal Alignment

- .1 Centre Line Radii
 - .1 The minimum required centreline radius for various super elevation rates for each classification of roadways are as follows:

TABLE B.4
MINIMUM CENTRELINE RADIUS

Road Classification	Super elevation (m/m)	Horizontal Curve Radii (m)			
		None	0.02	0.04	0.06
Arterial (50-70km/h design speed)		1500	500	190	
4 Lane Collector (50 km/h design speed)	N/A	230	200	190	
2 Lane Collector (50 km/h design speed)	120	110	100	N/A	
Local (30-50 km/h design speed)	70	N/A	N/A	N/A	

.2 Spiral curves shall be designed on 4 Lane Collector Highways.

B - 2.15 Reverse Curves

If reverse curves are required in a highway alignment the Approving Officer or the Director of Planning and Engineering, as the case may be, may require that they be separated by means of tangents of sufficient length to allow super elevation rotation.

B - 2.16 Curb Return Radii

Curb return radii shall conform as below and be based on the lesser classified Highway.

TABLE B.5
CURB RETURN RADII

Road Classification	Curb Return Radii (m)
4 Lane Collector	9.0
2 Lane Collector	9.0
Industrial	9.0
Local	9.0
Cul-de-Sac Entrance	7.0
Cul-de-Sac Terminus	12.0

B - 2.17 Pavement Structure

- .1 The pavement structure shall be designed in accordance with AASHTON Guide of Design of Pavement Structure 1993 Manual.
- .2 The pavement structure shall be designed for a thirty (30) year design life. Staged construction may be considered by the Approving Officer or the Director of Planning and Engineering, as the case may be, when a road is planned to be widened at a later date.

- .3 Roads shall be classified as shown in Table B.6 for purposes of structural design of the total pavement structure.
- .4 A minimum pavement structure for roads shall be provided, notwithstanding the structural character of the subgrade. Minimum pavement structures are specified in Table B.6, and will be considered structurally adequate when the subgrade soil exhibits a California Bearing Ration (CBR) of 2.0%.
 - .1 Structure is assuming Bi-axial Geogrid Type – 2.

TABLE B.6
MINIMUM PAVEMENT STRUCTURE

Road Classification	Design Traffic (ESAL)	Granular Sub-base (mm)	Granular Base (mm)	Hot Mix Asphalt (mm)
Arterial	1.5×10^6	525	150	100 in 2 lifts
Collector - Residential	9.0×10^5	550	150	75
Collector – Commercial/Industrial	1.5×10^6	525	150	100 in 2 lifts
Local - Residential	4.5×10^5	425	150	75
Local - Commercial	6.0×10^5	475	150	75
Local – Industrial	9.0×10^5	550	150	75
Lane	Not Applicable	450	150	75
Asphalt Walkway	Not Applicable	Not Applicable	300	75

*Where sidewalk is adjacent to curb, road base shall extend under sidewalk as shown on standard details.

- .5 Table B.6 is a minimum for reference purposes. The structural design of pavements for roads shall be performed by a qualified pavement engineer. Structural designs of pavements shall be submitted to the Approving Officer or the Director of Planning and Engineering, as the case may be, in an acceptable report format.

- .6 Other pavement evaluation systems may be considered upon consultation with the Approving Officer or the Director of Planning and Engineering, as the case may be.

B - 2.18 Traffic Calming

All traffic calming measures directed towards newly constructed neighbourhoods to enhance the street environment designated by the Approving Officer will follow the *Canadian Guide to Neighbourhood Traffic Calming* (*Transportation Association of Canada/Association des Transports du Canada – December 1998*).

B - 2.19 Street Names and Traffic Signs

- .1 Street name signs and traffic signs required as a result of constructing or improving highways shall be installed and provided at the expense of the Owner.
- .2 Sign type, size and location shall be as per Manual of Uniform Traffic Control Devices for Canada (MUTCD) manual and British Columbia Ministry of Transportation and Infrastructure (BC MoTI) guidelines.
- .3 Street names shall be assigned by the City of Fort St. John.

B - 2.20 Appurtenances

- .1 The Design Engineer shall detail on the design drawings the location of all proposed traffic islands, retaining walls, guardrails, and permanent barricades. These structures shall be designed in accordance with good engineering practices.
- .2 The design shall show the location of all traffic signs, street signs, and other traffic control devices required to be placed in the highway
- .3 Where applicable, the drawings shall show all utility poles and indicate the poles to be relocated to accommodate the proposed subdivision or development design. Design drawings for underground hydro and telecommunication system shall show the location of underground conduits, and appurtenances including the connections to properties.

B - 2.21 Mail Boxes

Where required by Canada Post, the Owner shall construct a base for mailboxes in the location specified by Canada Post and approved by the Approving Officer. The Owner shall obtain location and design guidelines for mailboxes from Canada Post. The Approving Officer may require construction of a pullout at the mailbox location depending on traffic volumes and number of residences serviced from the location. The Design Engineer shall provide copies of correspondence with Canada Post confirming no requirement for mailboxes or the desired location if mailboxes are required prior to issuance of the Construction Permit.

B - 3.0 POST CONSTRUCTION DOCUMENTATION

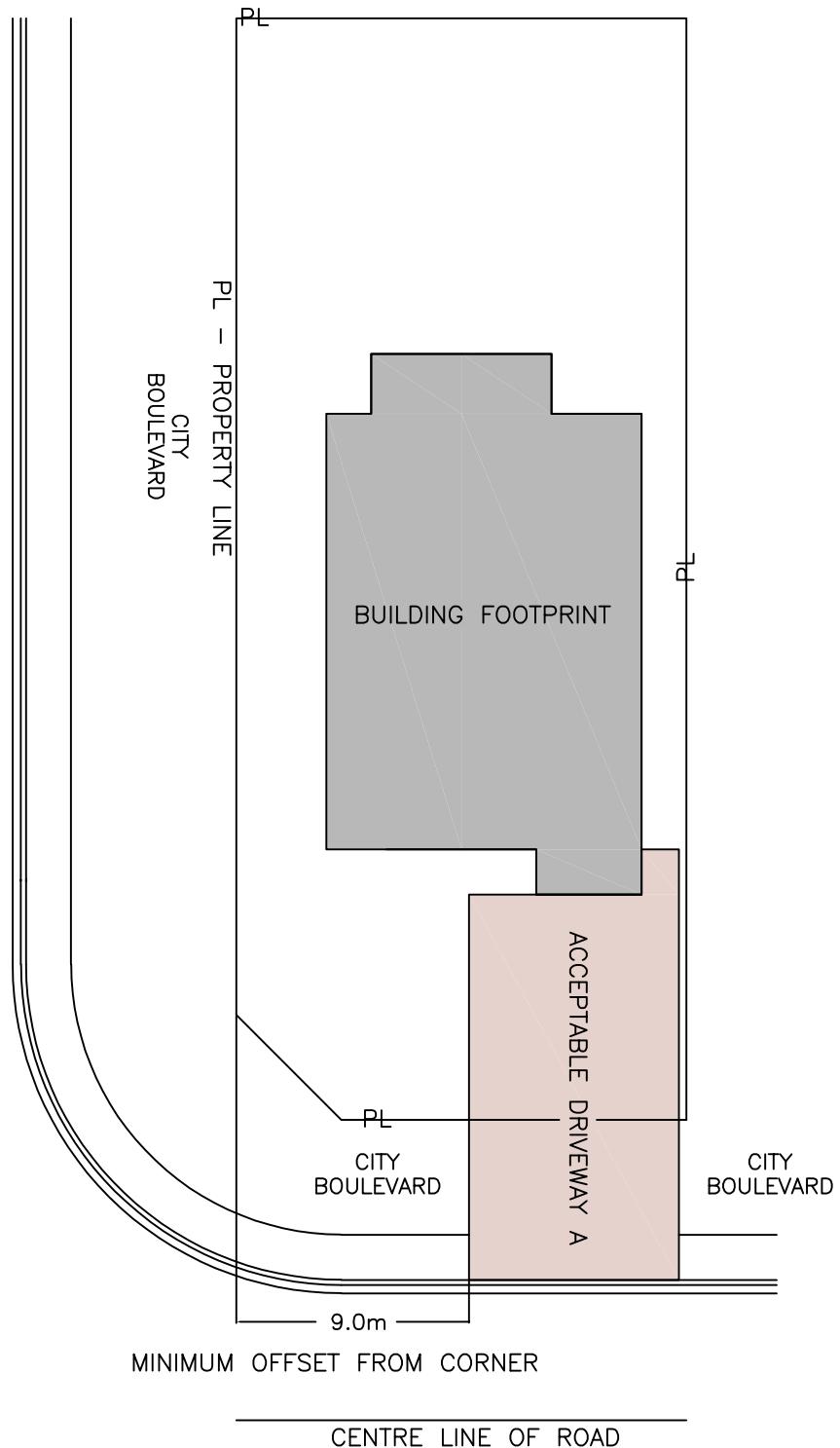
B - 3.01 Construction Documentation

Prior to issuance of a Certificate of Substantial Completion by the Approving Officer or the Director of Engineering, as the case may be, the Owner's Engineer shall submit the following:

- .1 Material testing reports, including all concrete, asphalt, compaction and gradation results on original copies signed by the testing firm.
- .2 A geotechnical report under seal of a Professional Engineer, documenting site inspections, concrete testing, compaction testing, soils testing and certification of the foundation soils of any structures constructed.

B - 3.02 Record Drawings

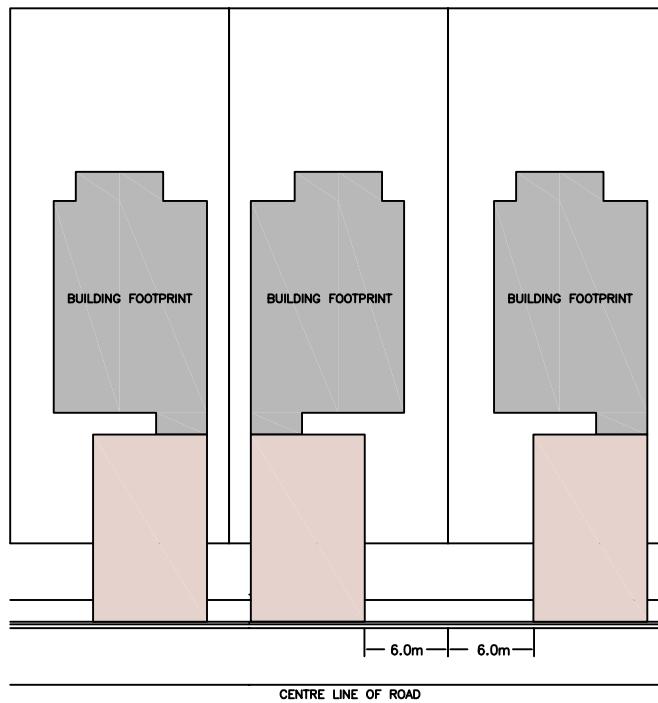
- .1 Prior to acceptance of a Certificate of Final Acceptance by the Approving Officer or the Director of Engineering, as the case may be, the Owner's Engineer shall submit the following:
 - .2 road plan/profile drawings at minimum 1:500 scale showing:
 - .1 road centreline horizontal and vertical alignments c/w curve data;
 - .2 original ground profile;
 - .3 road widths, lane configuration and Right of Way widths;
 - .4 curb and gutter line c/w return radius;
 - .5 curb type; and
 - .6 all existing utilities in area of road construction.
 - .3 Above information to be provided in format and standards specified in Schedule J – Drawing Standards – of this bylaw.



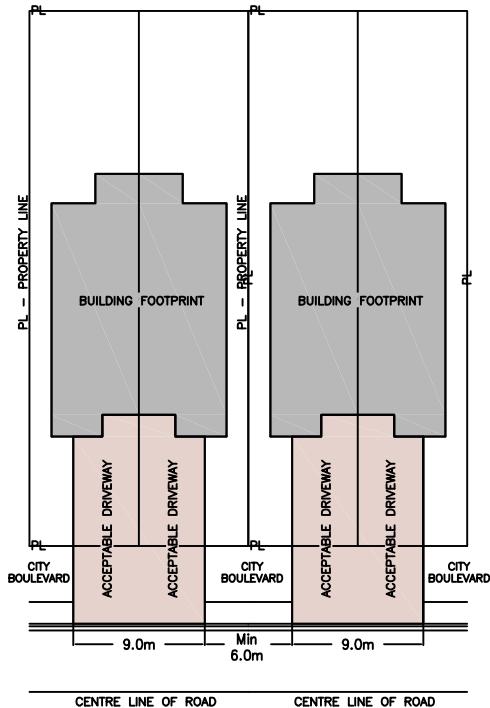
This specification must be read in conjunction with the latest version of the MMCD and the schedules in the Subdivision Servicing Bylaw. Where there are contradictions, this list shall prevail.

 FORT ST JOHN <i>The Energetic City</i>	DRIVEWAY OFFSET FROM CORNER - EXAMPLE	FIGURE B-2.07.01
	SCALE: NOT TO SCALE	SCHEDULE B

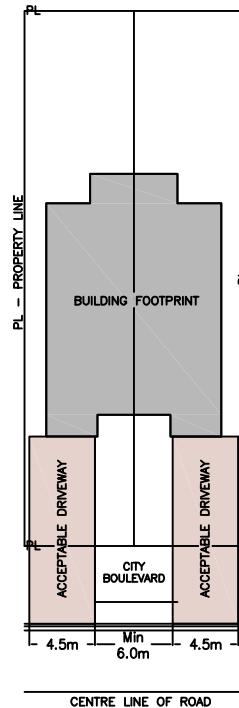
EXAMPLE



SEMI-ATTACHED
EXAMPLE 1



SEMI-ATTACHED
EXAMPLE 2



This specification must be read in conjunction with the latest version of the MMCD and the schedules in the Subdivision Servicing Bylaw. Where there are contradictions, this



The City of Fort St. John
SUBDIVISION AND DEVELOPMENT SERVICING BYLAW
Bylaw No. 2405, 2019

SCHEDULE C

**CURBS AND GUTTERS, SIDEWALKS AND BOULEVARDS
REGULATIONS, STANDARDS AND SPECIFICATIONS FOR DESIGN**

C - 1.0 GENERAL

Where the provision of Schedule A of this Bylaw require the provisions of curbs, gutters, sidewalks and boulevards, the Owner shall construct such services in accordance with the regulations, standards and specification set out in this Schedule.

C - 1.01 Engineering Drawings

- .1 Engineering drawings showing detailed design of curb, gutters, sidewalks and boulevards shall be prepared in accordance with the City's specifications for drawings contained in Schedule J.
- .2 Engineering drawings shall show:
 - .1 Existing ground;
 - .2 Proposed alignment;
 - .3 Grade;
 - .4 Horizontal and vertical curb information;
 - .5 Curb Return design details;
 - .6 Elevations at all changes in vertical alignment;
 - .7 Proposed road structure; and
 - .8 All other details as may be required.

C - 2.0 DESIGN CRITERIA

C - 2.01 Design Gradient

The design gradient shall be as specified for roads in Schedule C of this Bylaw, except that the minimum gradient around curb returns and around cul-de-sacs shall be 0.5%.

C - 2.02 Curb Returns

The minimum curb return radius shall be as set out in this Bylaw. Elevations shall be shown on the engineering drawings for the beginning and end of the curb return, as well as at any changes in grades in between. Engineering drawings shall provide all horizontal and vertical geometric details for curb returns.

C - 2.03 Sidewalks

- .1 Additional sidewalk shall be installed in areas deemed necessary by the Approving Officer. Such cases shall include areas with multi-family, institutional and commercial development and proposed bus routes.
- .2 Where a walkway exists on a cul-de-sac, sidewalk shall be extended to the walkway entrance.
- .3 Sidewalks shall at all times drain towards the gutter with a cross slope of 2%.
- .4 Wheelchair ramps shall be installed at all intersections and at cross-walks.

- .5 Where barrier curbing is used, access to properties and to lanes shall be in the form of sidewalk crossings and shall conform to municipal standards. Widths for crossings may vary as approved by the Director of Planning and Engineering.
- .6 Where rollover curbing is used, sidewalk crossings will not be required and access shall be directly over the sidewalk. Transition from rollover to barrier curbing shall in all cases be made at the beginning or end of the curb return.

C - 2.04 Grading of Boulevards

Upon completion of road, curb and gutter and sidewalk construction, boulevards shall be shaped and graded as shown on the Standard Drawings. Native material shall be placed flush with the top of curb, and shaped to conform to general lot grading. Unless otherwise approved, boulevards shall be graded to drain to the curb at a minimum slope of 3% and a maximum slope of 10% between the back of curb or sidewalk to the property line. All boulevard areas must be compacted at 98% of Proctor Standard.

C - 2.05 Granular Sub-Base and Base Gravel Depths

Granular sub-base and base gravel depths for curb and gutters, sidewalks, driveways and commercial crossovers shall conform to the depths of sub-base and base gravels specified for the road as noted in Schedule B.

C - 3.0 CONSTRUCTION DOCUMENTATION

C - 3.01 Construction Documentation

Prior to issuance of a Certificate of Substantial Completion by the Approving Officer or the Director of Planning and Engineering, as the case may be, the Owner's Engineer will submit the following:

- .1 Material testing reports, including all concrete, asphalt, compaction and gradation results on original copies signed by the testing firm.
- .2 A geotechnical report under seal of a Professional Engineer, documenting site inspections, concrete testing, compaction testing, soils testing and certification of the foundation soils of any structures constructed.

C - 3.02 Record Drawings

Prior to acceptance of the Final Acceptance Certificate by the Approving Officer or the Director of Planning and Engineering, as the case may be, the Owner's Engineer shall submit the following:

- .1 plan/profile drawings at minimum 1:500 scale show:
 - .1 curb horizontal and vertical alignments c/w return radius;
 - .2 original ground profile;
 - .3 driveway crossings and wheelchair ramps;
 - .4 sidewalk crossfalls and widths;

- .5 Curb type; and
 - .6 All existing utilities in area of road construction.
- .2 Above information to be provided in format and standards specified in Schedule J – Drawing Standards – of this bylaw.





The City of Fort St. John
SUBDIVISION AND DEVELOPMENT SERVICING BYLAW
Bylaw No. 2405, 2019
Schedule D – Water Systems

SCHEDULE D

**WATER SYSTEMS
REGULATIONS, STANDARDS AND SPECIFICATIONS FOR DESIGN**

D - 1.0 GENERAL

D - 1.01 General Requirements

- .1 Where the provisions of Schedule A of this Bylaw require the construction of a water distribution system, the Owner shall construct water distribution system in accordance with the regulations, standards and specifications set out in this Schedule.
- .2 All specifications for the construction of Works and Infrastructure shall be the most recent version of the Master Municipal Construction Document and current Northern Health Authority standards, unless referred to otherwise in this Schedule. All standards not specifically described shall be in accordance with appropriate American Water Works Association (AWWA) standards.
- .3 Northern Health Permit shall be issued prior to construction.

D - 1.02 Engineered Drawings

- .1 Engineering drawings showing detailed design of the necessary works shall be prepared in accordance with the City's specification for drawings contained in Schedule J.
- .2 Engineered drawings shall show:
 - .1 alignment, size and depths of pipes;
 - .2 pipe bedding requirements;
 - .3 existing ground line and proposed final ground line over the pipe;
 - .4 location and detail of all fittings, valves and hydrants;
 - .5 hydrant coverage;
 - .6 location of all service connections;
 - .7 location access to, size and details of any pump stations and reservoirs;
 - .8 all easements; and
 - .9 all such other details as may be required.

D - 2.0 DESIGN CRITERIA

D - 2.01 Domestic Demand Criteria

- .1 For residential areas, the daily domestic demand criteria for purposes of designing water distribution systems shall be assumed to be:

Average day: 600 Litres/day/capita

Maximum Day: 1100 Litres/day/capita

Peak Hour Domestic Flow: 1600 l/day/capita

- .2 For all other areas, the demand criteria shall be selected to suit the particular circumstances subject to the approval of the Approving Officer or the Director of Planning and Engineering, as the case may be.

D - 2.02 Fire Flow Requirements

- .1 Water distribution systems shall also be designed to ensure that fire flows as required by the Fire Underwriters' Survey are available for required duration. The amount and duration of design fire flows shall be provided to the Approving Officer for his approval prior to final design of the water distribution system.
- .2 Fire flows shall be determined in accordance with the requirements of the current edition of "Water Supply for Public Fire Protection – A Guide to Recommended Practice", published by Fire Underwriters Survey.
- .3 Fire flows are also subject to the minimum requirements in Table D.1.

TABLE D.1
FIRE FLOW REQUIREMENTS

Development Type (Without Sprinklers)	Minimum Fire Flow Requirements*
Single Family	60 L/s
Semi-Detached Dwelling	90 L/s
Medium and High Density Housing	150 L/s
Commercial	150 L/s
Institutional	150 L/s
Industrial	225 L/s

*The flow requirements in Table D.1 are design minimums. The City does not guarantee that these flows are available within the prescribed zones.

D - 2.03 Design Pressures

- .1 Water systems shall be designed for pressures in the range of 245 KPa (35 PSI) to 630 KPa, (91 PSI) with 245 KPa (35 PSI) measured under peak hourly conditions and 630 KPa (91 PSI) measured under static conditions. The minimum pressure shall be measured or calculated at the main floor elevation of the highest proposed house and an allowance made for pressure loss in the service line to the house wall. Minimum residual pressure at any hydrant shall not be less than 140 KPa (20 PSI) under:
 - .1 maximum day domestic consumption plus fire conditions; or
 - .2 peak hour demand
 whichever is greater.
- .2 Reservoir level shall be assumed at mid point for calculation of minimum pressures and full for calculation of maximum static pressures.

D - 2.04 Capacity and Sizing of Water Mains

- .1 Water distribution systems shall be designed to deliver water in adequate quantities at adequate pressures for both domestic use under peak consumption conditions and fire flows.
- .2 Mains shall be sized to carry the peak hourly flow rate or the maximum daily flow rate plus the fire flow rate, whichever is the greater. Mains shall be sized using the Hazen-William formula with "C" equal to 120 and maximum flow velocity for peak hourly demand rate of 2.0 m per second. For fire flow, plus the maximum day rate, the flow velocity shall not exceed 3.0 meters per second.
- .3 The minimum pipe diameter size shall be as per Table D.2.

TABLE D.2
MINIMUM PIPE DIAMETER

Land Use	Minimum Pipe Diameter (mm)
Residential	200
Commercial	250
Institutional	250
Industrial	300

D - 2.05 Location and Grade of Water Mains

- .1 Water mains shall be located in the road right-of-way as shown on the applicable Standard Drawings unless otherwise approved by the Approving Officer or the Director of Planning and Engineering, as the case may be. Where the location of the watermain within the road right-of-way is not practical due to topography or other factors, the watermain shall be located in a utility right-of-way with a minimum width of 6.0m registered in favour of the City of Fort St. John.
- .2 All pipes will be installed with no deflection; deflections shall be accomplished with fittings.
- .3 Curved alignments may be accepted provided that the pipe alignment is at a parallel offset with an established boundary. The design drawings shall indicate where short lengths or pipe bends are required on curves.
- .4 Vertical and horizontal clearances shall be as per Northern Health requirements.
- .5 Water mains shall be normally designed to follow a straight alignment between intersections, at grades parallel to the road centreline.
- .6 Water mains shall be designed with a rising grade wherever possible to minimize high points in the main. Where a high point is unavoidable, a fire hydrant shall be installed.
- .7 Water mains must be looped wherever possible. A dead-end point must be authorized in writing by the Approving Officer.

- .8 Where the water main network only provides marginal fire flows, installation of supplementary mains connected to existing mains may be required at the discretion of the Approving Officer or the Director of Planning and Engineering, as the case may be, and may necessitate the provision of rights-of-way in favour of the City of Fort St. John.
- .9 No gas main, electric, telecommunication duct or other utility line shall be installed in the same trench with water mains.
- .10 Where it is necessary for the water main to cross other underground services, the crossing shall be made at an angle greater than 20 degrees.
- .11 The drawings shall indicate whether the water main passes over or under other underground services which it is crossing.

D - 2.06 Fire Hydrants

- .1 Fire hydrants shall be located, in general, at intersections and at maximum spacing of 90 metres.
- .2 Additional hydrants may be required by the Approving Officer at schools, major multiple family developments, commercial buildings or other major developments consistent with the current fire flow requirements Fire Underwriters' Survey – Water Supply for Public Fire Protection, 1999 or most recent publication.
- .3 Where hydrants are located other than at intersections, they should be located on the projection of the property line dividing two lots. In selecting the location of a hydrant, the probable route of the fire engine shall be considered.
- .4 A hydrant shall not be located within 3 meters of a utility pole, pad mounted transformer or light standard, or within 1.5 meters horizontally of underground service pipes, open ditches, or edge of driveways.

D - 2.07 Line Valves

- .1 Line valves shall be located at a maximum spacing of 200 meters in a continuous line and shall generally be located so that not more than 2 hydrants or 50 dwelling units will be without adequate pressure in the event of any one water break.
- .2 Each tee shall have a minimum of two line valves
- .3 Each cross shall have a minimum of three line valves.
- .4 Each line valve shall be the same diameter as the pipe on each downstream branch of the tee or cross.
- .5 At the discretion of the Approving Officer, line valves may be required on all branches of a main intersection.
- .6 All valves at watermain intersections shall be flanged to the fitting where practical.
- .7 A line valve may be required on a new pipeline near each point of connection to existing mains.
- .8 All valve risers to be C900 PVC pipe.

- .9 All valve stems to have a chip taken from the rock guard to allow access to thaw if required.

D - 2.08 Blow Offs

- .1 Permanent blow offs are not permitted. In the event of a permanent dead-end, a fire hydrant must be installed.
- .2 Temporary blow offs may be installed to facilitate chlorination and flushing of any part of the system. After flushing, the temporary blow off shall be removed.

D - 2.09 Service Connections

- .1 The diameter of water services shall be determined by the Design Engineer and is subject to approval of the Approving Officer or the Director of Planning and Engineering, as the case may be.
- .2 Minimum diameter for water service connection is 25mm.
- .3 A water service shall be installed to provide a connection to each lot created by the subdivision and to any other existing or possible future lot which can be serviced from mains installed by or for the subdivision.
- .4 The curb stop at the end of each service pipe shall be located 0.3 meter in front of the highway/property boundary line and in accordance with the Standard Drawings.
- .5 A 50 x 100mm marker stake shall be set with the bottom of the stake at the level of the service line and the top projecting 1.0m above the ground surface. Marker stakes shall be painted blue. The stake shall be stenciled with the type and depth of service pipe.
- .6 Water services shall be located at least 1.0m from other infrastructure and located to avoid driveways where possible.

D - 2.10 Depth of Cover

- .1 The depth of the water main shall be sufficient to provide all services with a minimum cover depth of 2.7 meters to the top of the service anywhere within the Right-of-Way. A minimum cover depth of 2.7 meters shall be provided over the crown of the main.
- .2 Where minimum cover is not met, insulation shall be provided as per standard drawings.
- .3 Water service connections installed on private property shall have a minimum depth of cover of 2.7m.

D - 2.11 Tie-ins to Existing Water Mains

- .1 The Owner shall complete the work and pay for the supply of all materials, equipment and labour required to construct the tie-in.
- .2 This portion of the work, including details of materials required, shall be clearly indicated on the design drawings.

- .3 Only the City may operate valves on the existing water mains. The Owner must provide the City with minimum 72 hours notice of each tie to the City's system so that the City may supervise the works.
- .4 Connection of a new service to an existing water main generally shall be done by wet tap (hot tap) unless the existing main has an acceptable provision for a direct extension.

D - 2.12 Thrust Blocks

- .1 Concrete thrust blocking shall be provided at fitting as shown on Drawing E-2 and on hydrants as shown on Drawing E-1. Concrete shall be placed between undisturbed ground and the fitting are to be anchored such that the pipe and the fitting joints are accessible for repair. Bolts on flanged fittings shall be left free. The area of thrust block bearing on pipe and on ground shall be no less than that shown on Drawing E-2.
- .2 Temporary blocking or support of valves and fittings shall be with concrete, fabricated steel, durable rock, sand or gravel and in no case shall temporary or permanent wood blocking be used.

D - 2.13 Uni-Directional Flushing Requirements

- .1 Uni-Directional flushing of new mains is to be completed immediately after connection to existing system. Minimum turbidity after flushing shall be 0.3 ppm.
- .2 A unidirectional flushing plan shall be submitted for review and approval prior to approval for construction. Plan should include:
 - .1 Customers that could be affected;
 - .2 Order of connection to existing system to complete the flushing;
 - .3 Identification of open and closed valves;
 - .4 Discharge management plan; and
 - .5 Required flushing velocity.

D - 2.14 Pressure Testing

All piping shall be pressure tested as per MMCD.

D - 2.15 Reservoirs

- .1 Reservoirs, where required, shall be designed in consultation with the Approving Officer to suit the particular circumstances. In general, reservoir capacity shall not be less than:

$$\text{Total Storage Requirement} = A + B + C$$

where:

A = Fire Storage (as per Section D- 2.03 of this Schedule)

B = Equalization Storage (25% of maximum day demand)

C = Emergency Storage (25% of A + B)

- .2 A Geotechnical Investigation shall be undertaken prior to site approval being given.
- .3 Reservoir design, at minimum, shall incorporate the following features:
 - .1 sufficient geotechnical data to prove the site suitable for reservoir construction;
 - .2 structures to be below ground and covered, unless specifically approved otherwise;
 - .3 material - reinforced concrete;
 - .4 2 cells, each containing one-half of total required volume and capable of being drained and filled independently;
 - .5 lockable access opening in roof for cleaning and maintenance - minimum dimension 1 m x 1 m to be located between overflow pipe and wall;
 - .6 ventilation pipes or openings;
 - .7 slope floor to sump;
 - .8 sub-drain under floor to collect and drain any leakage (connect to overflow pipe in a manhole);
 - .9 interior wall ladder from roof access to floor (no exterior ladder required);
 - .10 inlet and outlet pipes to be perforated and designed to disperse water throughout the reservoir;
 - .11 overflow drain to be provided and sized to transmit the maximum pump discharge.
The overflow drain shall be connected to an acceptable point of discharge;
 - .12 access roads; and
 - .13 telemetry control and alarm system, to match, and be connected to, the City's existing system, at the Owner's expense.
- .4 Reservoir valve chamber design shall incorporate:
 - .1 sump in valve chamber floor, connected to overflow pipe;
 - .2 50 mm valved outlet off supply line within valve chamber for water supply for cleaning reservoir; and
 - .3 valves shall have open/closed indicators.

D - 2.16 Pump Stations

- .1 Pump stations, where required, shall be designed in consultation with the Approving Officer to suit the particular circumstances.
- .2 In general, pump stations shall be designed to meet maximum daily demands with the largest pump out of service with balanced storage on line.
- .3 If equalization storage is not on line, pump station capacity must meet peak hour demand with the largest pump out of service.

- .4 A Geotechnical Investigation shall be undertaken prior to site approval being given.
- .5 Pump station design, at minimum, shall incorporate the following features:
 - .1 reinforced concrete, block work or brick construction, aesthetically pleasing;
 - .2 lockable access doorways sized so that the largest piece of equipment may be safely removed and replaced. Lifting hooks or rails with pulley blocks as required;
 - .3 pumps to start and stop individually. Start and stop to be based on water levels in control reservoir. Automatic alternation of pump sequence;
 - .4 power failure protection with manual reset;
 - .5 high water override start plus alarm;
 - .6 high pressure (discharge) override start;
 - .7 low pressure (discharge) override start plus alarm;
 - .8 low pressure/no flow (suction) override start;
 - .9 alarms to be audible and visible;
 - .10 control valves to minimize starting and stopping surges;
 - .11 duplicate control cables (without splices) between pump stations and reservoirs;
 - .12 power factor correction as required by Power Authority;
 - .13 hour meters and amp meters on each pump;
 - .14 recording flow meter at each pump station;
 - .15 recording suction and discharge pressure gauges at each pump station;
 - .16 automatic heating, ventilating and dehumidifying systems;
 - .17 in-station lighting;
 - .18 floor drainage;
 - .19 interconnection with the City's alarm telemetry system;
 - .20 standby Power Receptacle - Female 3 Phase, 3 Wire, 400 Amp, 600 Volt, pin and sleeve type c/w Back Box and Cover.
 - .21 electrical phase loss protection;
 - .22 electrical drawing schematics for control panels;
 - .23 access roads; and
 - .24 pump manuals.
- .6 For each design submission to the City, an extra set of drawings pertaining to the design of the pump station, key plan, and a location plan shall be provided for the maintenance department to review.

D - 2.17 Pressure Reducing Stations

- .1 Pressure reducing stations, where required, shall be designed to suit the particular circumstances. In general, each pressure reducing station shall have a separate; pressure reducing valve and appurtenances for maximum daily demand and a separate pressure reducing valve and appurtenances for fire flows.
- .2 Pressure reducing station design, at minimum, shall incorporate the following features:
 - .1 access road to chamber;
 - .2 precast or cast in place concrete chamber suitable for H2O Highway loading;
 - .3 insulated with 50mm of rigid Styrofoam insulation to a depth of 2.0 meters,
 - .4 lockable, insulated access hatch (914mm x 914mm minimum);
 - .5 aluminium ladder and safety port;
 - .6 free draining sump or sump with sump pump assembly;
 - .7 lighting, heating, venting and one electrical outlet;
 - .8 pressure reducing valves with downstream surge control;
 - .9 wye strainers;
 - .10 isolating gate valves with open and closed indicators;
 - .11 victaulic couplings;
 - .12 pressure gauges;
 - .13 one 20mm hose bib connection;
 - .14 pipe stands; and
 - .15 ceiling and wall of chamber to be painted with two coats of latex white paint;
- .3 For each design submission to the City, two sets of hard copy drawings and one digital copy pertaining to the design of the pressure reducing station, key plan and a location plan shall be submitted.

D - 2.18 Access

Vehicular access shall be provided to all reservoirs and pump stations. The minimum standard shall be as for a paved lane as shown on Standard Drawings with curbing and drainage provisions as may be required by the Approving Officer.

D - 3.0 CONSTRUCTION DOCUMENTATION

D - 3.01 Construction Documentation

Prior to issuance of a Certificate of Substantial Completion by the Approving Officer or the Director of Planning and Engineering, as the case may be, the Owner's Engineer will submit the following:

- .1 Material Testing Reports, including all Concrete, Asphalt, Compaction and Gradation results on original copies signed by the testing firm;
- .2 Water leakage test reports for water mains and reservoirs;
- .3 Bacteriological test reports for all water mains and reservoirs;
- .4 A geotechnical report under seal of a Professional Engineer, documenting site inspections, concrete testing, compaction testing, soils testing and certification of the foundation soils of any structures constructed;
- .5 A structural report under seal of a Professional Engineer, documenting site inspections, testing and certification of any structures constructed; and
- .6 Three hard copies and a digital copy of Operation and Maintenance Manuals for all Pump Stations and Pressure Reducing Stations containing:
 - .1 Cover page and table of contents;
 - .2 As constructed shop drawings;
 - .3 Equipment layout drawings;
 - .4 Electrical, control, and alarm wiring diagrams;
 - .5 Operating instructions for all equipment;
 - .6 Maintenance instructions for all equipment, including frequency of maintenance;
 - .7 Equipment data sheets;
 - .8 Certified head/capacity curves for pumps;
 - .9 Equipment part lists;
 - .10 Emergency operating procedures; and
 - .11 Maintenance manuals shall be bound documents with name of facility on the cover.
Manuals shall be organized in a logical manner and sections clearly labelled.

D - 3.02 Record Drawings

- .1 Prior to acceptance of a Certificate of Final Acceptance by the Approving Officer or the Director of Planning and Engineering, as the case may be, the Owner's Engineer shall submit the following:
 - .1 Mainline plan/profile drawings at minimum 1:500 scale showing:
 - .1 horizontal alignment of watermain complete with curve data and offsets from property line;
 - .2 vertical alignment of watermain complete with curve data, invert elevations and depth;
 - .3 valve and appurtenances locations and elevations;
 - .4 fire hydrant locations, elevations, manufacturer and model;
 - .5 service locations and elevations (saddles, curb stops and bends);

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- .6 pipe sizes, material types and pressure classes;
 - .7 details of all fitting and connections; and
 - .8 all existing utilities in area of watermain
- .2 Reservoir plan/profile drawings at minimum 1:500 scale showing:
- .1 site layout and location;
 - .2 landscaping and fencing;
 - .3 mechanical layout, details and elevations;
 - .4 structural plan, details and elevations; and
 - .5 telemetry plans, details and schematics
- .3 Pump Station plan/profile drawings at minimum 1:250 scale showing;
- .1 site layout and building location;
 - .2 landscaping and fencing;
 - .3 mechanical layout, details and elevations;
 - .4 structural floor plan, details and elevations; and
 - .5 electrical and control plans, details and schematics
- .2 Above information to be provided in format and standards specified in Schedule J of this bylaw.



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SCHEDULE E

SANITARY SEWERS
REGULATIONS, STANDARDS AND SPECIFICATIONS FOR DESIGN

E- 1.0 GENERAL

Where the provisions of Schedule A of this Bylaw require the provision for a sanitary sewage collection the Owner shall construct such services in accordance with the regulations, standards and specifications set out in this Schedule.

E - 1.01 Engineering Drawings

- .1 Engineering drawings showing detail design of the necessary works shall be prepared in accordance with the City's specifications for drawing contained in Schedule J.
- .2 Engineering drawings shall show:
 - .1 alignment and size of pipes
 - .2 proposed grades
 - .3 distances between manholes
 - .4 manhole invert elevations
 - .5 existing ground line over pipe
 - .6 proposed final ground line over pipe
 - .7 location of all service connections to the property line
 - .8 all easements
 - .9 lift stations
 - .10 force mains
 - .11 pipe bedding requirements
 - .12 all other details which may be required

E- 2.0 DESIGN CRITERIA

E - 2.01 Pipe Capacity

- .1 Sanitary sewer facilities constructed in a subdivision shall be designed to provide sufficient capacity to carry the required quantity of sewage flow from the fully developed upstream contributing area, as defined by the Approving Officer.
- .2 Sewage design flows shall be based on Table E.1

TABLE E.1
AVERAGE FLOW PER CAPITA

Land Use Based on New Zoning	Average Flow
LDR	300 l/d/capita
MDR	300 l/d/capita
HDR	300 l/d/capita
Commercial	30,000 l/d/ha
Light Industrial	15,000 l/d/ha
Heavy Industrial	Based On Proposed Use
Institutional	Based On Proposed Use

.3 Design Criteria:

- .1 Average Flow per Capita. See Table E.1
- .2 Infiltration and Inflow Allowance = 0.17L/s/Ha
- .3 Peaking Factor – Use Harmon Peak Factor
- .4 N=0.011 for PVC, 0.013 for concrete

- .4 A peaking factor calculated using the Harmon Peak Factor curve shall be applied to the average flow as follows:

$$\text{Peak Factor} = 1 + \frac{14}{(4 + P^{\frac{1}{2}})}$$

Where P = equivalent contributing population in thousands.

- .5 Pipe sizes shall be selected so that sewers flow 3/4 full at peak hour design flow.

E - 2.02 Minimum Velocity and Design Grade

- .1 Minimum velocity for pipe flowing full or half full is 0.6 m/s.
- .2 Minimum velocity for force mains is 0.75m/s.
- .3 Maximum velocity is 3.0 m/s.
- .4 Minimum grades are as identified in Table E.2.

TABLE E.2
MINIMUM PIPE SLOPES

Pipe Diameter (mm)	Minimum Grade
100	2.0%
150	1.0%
200	0.40%
250	0.28%
300	0.22%
375	0.15%
450	0.12%
525	0.095%
600	0.08%

- .5 Assume a pipe roughness coefficient "n" of 0.013 for concrete and 0.011 for PVC.
- .6 There shall be no change in the grades of pipe between manholes.
- .7 Capacities of gravity sewer mains shall be determined using Manning's formula:

$$Q = \frac{1}{n} A R^{2/3} S^{1/2}$$

Where: Q is measured in m³ per second
A is measured in sq.m
R is measured in metres
S is measured in m/m

- .8 Capacities of force main shall be calculated using Hazen-Williams equation:

$$Q = 0.278 C D^{2.63} S^{0.54}$$

Where: Q is measured in m³ per second
C is 120 all pipe
D is measured in mm
S is measured in m/m

E - 2.03 Sizing of Sewer Mains

- .1 The minimum pipe size for all sewer mains shall be 250 mm. Through areas where five or fewer services are connected and where future extension of the sewer main is not possible, the minimum size may be reduced to 200 mm, upon approval of the Approving Officer.
- .2 No reduction of pipe size shall be made downstream, irrespective of pipe grade.

E - 2.04 Depth of Cover

- .1 The depth of the main shall be sufficient to provide all service connection piping with a minimum cover of 2.4 meters to top of the service piping anywhere within the finished sewer system.
- .2 Minimum cover of 2.4m shall be provided over the crown of gravity mains.
- .3 Sanitary mains shall be designed such that gravity drainage is possible from the full basement level of all parcels.
- .4 A minimum cover of 2.7 meters shall be provided over the crown of force mains.
- .5 Where sewer has less than minimum cover, insulation shall be provided as per standard details.

E - 2.05 Manhole Spacing

- .1 Manholes shall be installed at a maximum spacing of 120 meters and in the following locations:
 - .1 at the end of each line;
 - .2 at all changes in grade and/or alignment (for non curvilinear sewers);
 - .3 at all changes in pipe size;
 - .4 at all pipe junctions; and
 - .5 downstream end of curvilinear sewers
- .2 The relative elevations of sanitary sewers entering and leaving a manhole are to be such as to ensure that the manhole does not substantially reduce the hydraulic capacity of the system.
- .3 Minimum fall through the manhole shall be 20 mm.
- .4 Sewermain grades between manholes shall be designed to keep manhole inlet and outlet elevations to less than 100 mm difference.
- .5 Where particular circumstances preclude the use of normal manholes and where invert elevations differ by more than 600 mm only inside drop manholes on sanitary sewers may be allowed.

E - 2.06 Cleanouts

Cleanouts rather than manholes are permitted only on developments where works are not maintained by the City. Cleanouts shall be constructed in conformance with the applicable Standard Drawing.

E - 2.07 Service Connections

- .1 The diameter of sewer services shall be determined by the Design Engineer, subject to the approval of the Approving Officer or the Director of Planning and Engineer, as the case

may be, but in no case shall the diameter be less than 100 mm for residential and 150 mm otherwise.

- .2 Sewer services are to be installed to avoid driveways where possible.
- .3 A sewer cleanout shall be installed at property line as per standard details on every service.
- .4 Service connections shall be made with an approved branch wye and be installed in a straight line and at a uniform grade from the terminus at the property line to the 45 degree long radius bend at the main. An approved saddle may only be used to connect a 100 mm diameter service to an existing main. The minimum pipe grade for sewer service pipes shall be:
 - 2% for 100 mm service pipe
 - 1% for 150 mm service pipe
- .5 In areas where the depth of the service pipe at the main is less than that of the sewer main, service risers shall be constructed.
- .6 For services 200 mm and larger, a manhole shall be installed at the intersection of the main and the service.

E - 2.08 Location of Sewer Mains

- .1 Sanitary sewer mains shall, wherever possible be located in the road right-of-way as shown on the Standard Drawings.
- .2 Where the location of the sewer main within the road right-of-way is not practical due to topography or other factors, the sewer main shall be located in a utility right-of-way registered in favour of the City and having a width of not less than 6.0 meters. The Approving Officer or the Director of Planning and Engineering, as the case may be, may require a utility right-of-way wider than 6.0 m in the case where services in addition to sanitary sewer will be placed in the same right-of-way or where the depth of the sewer main requires a wider right-of-way. The entire length and width of each right-of-way shall be graded to provide access for maintenance vehicles. There shall be a minimum clear lateral distance between the outside walls of sanitary sewers and storm sewers of 300 mm.

E - 2.09 Alignment of Sewer Mains

- .1 Minimum horizontal separation between the watermain and the sanitary sewer main shall be as per Northern Health Authority standards.
- .2 Mains shall be designed to follow a straight alignment between manholes.
- .3 Curved alignments within rights-of-way shall be subject to the approval of the Approving Officer or the Director of Planning and Engineering, as the case may be, and provided that the pipe is set at a grade greater than the specified minimum and pipe alignment is at a parallel offset with an established boundary. In these cases, the radius of curvature shall be not less than twice the minimum radius recommended by the pipe manufacturer.

E - 2.10 Pipe Class and Bedding Class

- .1 The quality of pipe and bedding shall be so selected such that the installation will adequately support the loads to be placed on it during construction and in operation.
- .2 For PVC pipe, the calculations shall follow the methods outlined in the Uni-Bell Plastic Pipe Association publication *Handbook of PVC Pipe - Design and Construction*, latest edition.
- .3 Pipe class and bedding class must be identified on all engineering drawings. Pipe shall have at least Class B bedding.

E - 2.11 Force Mains

- .1 At the lowest pump delivery rate anticipated to occur at least once per day, a cleansing velocity of at least 0.75 meters per second (m/s) should be maintained. Maximum velocity should not exceed 3.0 meters per second.
- .2 An automatic air relief valve shall be placed at high points in the force main to prevent air locking.
- .3 Force mains should enter the gravity sewer system at a point not more than 600 mm above the flow line of the gravity sewer.
- .4 The size for forcemains discharging raw sewage shall be a minimum 100 mm diameter. Under special circumstances size may be reduced if approved by Approving Officer or the Director of Planning and Engineering, as the case may be.
- .5 The materials selected for force mains shall meet City standards and shall adapt to local conditions, such as character of industrial wastes, soil characteristics, exceptionally heavy external loads, abrasion and similar problems.
- .6 A tracing wire shall be installed for the purpose of locating the force main.
- .7 All force mains shall be designed to prevent damage from superimposed loads, or from water hammer or column separation phenomena.

E - 2.12 Testing

- .1 All piping shall be pressure tested as per MMCD.
- .2 All piping shall be video inspected as per MMCD.

E - 2.13 Tie-ins to Existing Sewer Mains

- .1 The owner shall complete work and pay for the supply of all materials, equipment and labour required to complete the connection of a new pipe to an existing sewer main.
- .2 This portion of the work, including details of materials required, shall be clearly indicated on the design drawings.
- .3 The Owner must provide the City with minimum 72 hours notice of each tie to the City's system so that the City may witness the works.

E - 2.14 Sanitary Lift Station - Pre-design Requirements

- .1 The objective of the City of Fort St. John is to minimize the number of sewage lift stations required and thoroughly consider other options to avoid lift stations wherever practical. The Design Engineer shall obtain approval from the Approving Officer as to the location of the lift station.
- .2 Prior to commencing detailed design of a lift station, the Design Engineer shall submit a pre-design report that addresses the design considerations of the station to the Approving Officer. Approval of the pre-design concepts must be obtained prior to the Design Engineer commencing detailed design.
- .3 Larger capacity sewage lift stations or lift stations with special design or location requirements may require additional assessment and review of criteria.
- .4 The location and layout of a lift station shall include, at minimum, an assessment of the following basic design considerations:
 - .1 Shall be designed to handle the flows of the designated catchment area;
 - .2 Type of station and impact on neighbours;
 - .3 Construction dewatering requirements;
 - .4 Access for construction and maintenance complete with asphalt driveway or approved equivalent of sufficient strength to handle heavy trucks and with enough space to accommodate turning;
 - .5 Aesthetics, noise control, odour control, and landscaping requirements;
 - .6 Security against vandalism and theft;
 - .7 Flood elevations. Station uplift design shall be based on 100 year flood level;
 - .8 Proximity of receiving sewers, watermains, and adequate power supply;
 - .9 Minimizing energy requirements;
 - .10 Standby power and its requirements and compatibility;
 - .11 Geotechnical investigation shall be undertaken prior to site approval being given;
 - .12 Convenience of operation and maintenance;
 - .13 Safety of operators and the public; and
 - .14 Capital costs and operation and maintenance costs.

E - 2.15 Sanitary Lift Station - Design Requirements

- .1 All sewage lift stations shall meet the following design requirements:
 - .1 Pumps shall meet maximum flow condition with one pump in failure mode. The pump shall handle the maximum flow with the smallest impeller for that pump size to allow for any future expansion. Pump specifications shall be approved by the Approving Officer;

- .2 Pumps shall operate alternately. However, a further safety feature shall allow for both pumps to operate at the same time during extreme flows;
- .3 Pumps shall have non-clog impellers that will pass a 75 mm minimum spherical solid;
- .4 Sloping bottom and filleted corners in wet well to direct the flow to the pump suction inlet and prevent solids deposition;
- .5 Minimum 38 mm stand pipe water supply within 10 meters of the station for wash down complete with a pressure reducer and a ball shutoff valve. Water supply to be installed minimum 2.7 meters deep, in an accessible chamber. Back flow preventers must be installed;
- .6 Liquid level sensing system EHN-10 float switches as provided by Flygt Canada Ltd. or an equivalent acceptable to the Approving Officer;
- .7 Compatible telemetering system connected to the City's alarm/monitoring system;
- .8 Emergency pump-out arrangement approved by the Approving Officer;
- .9 Sufficient access to remove components for repair;
- .10 Minimum 150 mm diameter pipe vent with vandal proof insect screen on outlet for the ventilation of the wet well. Explosion-proof exhaust fan which has sufficient capacity to exchange the total volume of air inside the well with fresh air within 3 minutes;
- .11 Check valve and isolating valve for each pump must be provided. Where possible, locate valves in a horizontal position. Where surge pressures for the check valve would be excessive, an electric activated slow closing resilient seated eccentric plug valve, with battery standby, shall be used;
- .12 A Workers' Compensation Board approved aluminum ladder for access to wet well and dry well;
- .13 Sump pump for the interior of the dry well discharging above the Top Water Level (TWL) in the wet well;
- .14 Minimum 2 hour storage between the high level alarm and the start of overflow to be provided within the wet well and influent pipes at peak wet weather flow;
- .15 The wet well shall be sized to allow a minimum of 3 minutes to elapse between successive pump starts at peak flow conditions to prevent pump burn-out;
- .16 Emergency overflow should prevent flooding of buildings connected to the sewer system and prevent damage of components in the lift station. Overflow should be to a confined storage area;
- .17 All equipment must be CSA approved;
- .18 An explosion proof light with protective cover activated by a switch inside the kiosk shall be provided;
- .19 Gate valve on the pressure line from the pump station is required;
- .20 Bell mouth on pump intake required on all dry well pumps;
- .21 Inside deck plates to be light weight fibre glass or aluminum complete with stainless steel hinges. Open grate deck plates preferred;

- .22 Special flex joints shall be used at the inlet pipe such as Flex-Tend by EBAA Iron Inc. or an approved equivalent;
- .23 The outlet pipe and all other connections to the station shall be brought to within 2.45 meters of the expected ground line around the pump station by the use of risers either on the inside of the station or attached to the outside of the station; and
- .24 Particular criteria for submersible and for dry well stations are to be reviewed with the Approving Officer.
- .2 For each design submission to the City, an extra set of drawings pertaining to the design of the pump station, the sanitary mains and forcemains, key plan and a location plan shall be provided for the maintenance department to review.
- .3 Before commencement of construction, the Design Engineer shall provide two sealed sets of mechanical shop drawings and two sealed sets of electrical line diagrams as well as design in digital format for review by the Approving Officer. Two sealed copies of design calculations shall be provided for documentation.

E - 2.16 Access

Vehicular access shall be provided to sewage lift stations. The minimum standard shall be as for a paved lane as shown on the Standard Drawings, with curbing and drainage provisions as may be required by the Approving Officer.

E- 3.0 CONSTRUCTION DOCUMENTATION

E - 3.01 Construction Documentation

Prior to issuance of a Certificate of Substantial Completion by the Approving Officer or the Director of Planning and Engineering, as the case may be, the Owner's Engineer will submit the following:

- .1 Material Testing Reports, including all Concrete, Asphalt, Compaction and Gradation results on original copies signed by the testing firm.
- .2 Sewer leakage test reports for mains.
- .3 Video Inspection of mains submitted in digital format.
- .4 A geotechnical report under seal of a Professional Engineer, documenting site inspections, concrete testing, compaction testing, soils testing and certification of the foundation soils of any structures constructed.
- .5 A structural report under seal of a Professional Engineer, documenting site inspections, testing and certification of any structures constructed.
- .6 Operation and Maintenance Manuals for all Lift Stations containing:
 - .1 Cover page and table of contents;
 - .2 As constructed shop drawings;
 - .3 Equipment layout drawings;

- .4 Electrical, control, and alarm wiring diagrams;
 - .5 Operating instructions for all equipment;
 - .6 Maintenance instructions for all equipment, including frequency of maintenance;
 - .7 Equipment data sheets;
 - .8 Certified head/capacity curves for pumps;
 - .9 Equipment part lists; and
 - .10 Emergency operating procedure.
- .7 Maintenance manuals shall be bound documents with name of facility on the cover.
Manuals shall be organized in a logical manner and sections clearly labelled.

E - 3.02 Record Drawings

Prior to acceptance of a Certificate of Final Acceptance by the Approving Officer or the Director of Planning and Engineering, as the case may be,, the Owner's Engineer shall submit the following:

- .1 Mainline plan/profile drawings at minimum 1:500 scale showing:
 - .1 horizontal alignment of sewer main c/w curve data and offsets from property line;
 - .2 vertical alignment of sewer main c/w curve data, invert elevations and depth;
 - .3 manhole and appurtenances locations and elevations;
 - .4 service locations and elevations (saddles, inspection chambers and bends);
 - .5 pipe sizes, material types and classes;
 - .6 details of all fitting and connections; and
 - .7 all existing utilities in area of sewer main.
- .2 Pump Station plan/profile drawings at minimum 1:250 scale showing:
 - .1 site layout and building location;
 - .2 landscaping and fencing;
 - .3 mechanical layout, details and elevations;
 - .4 structural floor plan, details and elevations; and
 - .5 electrical and control plans, details and schematics
- .3 The above information to be provided in format and standards specified in Schedule J of this bylaw.



The City of Fort St. John
SUBDIVISION AND DEVELOPMENT SERVICING BYLAW
Bylaw No. 2405 2019

SCHEDULE F

**DRAINAGE SYSTEMS & EROSION AND SEDIMENT CONTROL PLANS
REGULATIONS, STANDARDS AND SPECIFICATIONS FOR DESIGN**

F - 1.0 GENERAL

F - 1.01 General Provisions

- .1 Where the provisions of Schedule A of this Bylaw require the construction of a storm drainage system the Owner shall provide:
 - .1 A storm drainage system including sewer mains, manholes, service connections, and all related appurtenances consistent with the standards and specifications contained in this Schedule.
 - .2 An erosion and sediment control plan with all related appurtenance consistent with the standards and specifications contained in this schedule.

F - 1.02 Approval of Engineering Drawings Required Prior to Construction

- .1 Engineering drawings showing detail design of the necessary works shall be prepared in accordance with the City's specifications for drawings contained in Schedule J.
- .2 Engineering drawings shall show:
 - .1 overland major and minor drainage systems,
 - .2 the alignment and size of pipes,
 - .3 proposed grades,
 - .4 distances between manholes and catch basins,
 - .5 manhole and catch basin invert elevations,
 - .6 existing ground line,
 - .7 proposed final ground line over the pipe,
 - .8 location of all service connections to the property line ,
 - .9 all easements,
 - .10 pipe bedding requirements,
 - .11 erosion and sediment control plan,
 - .12 structural fill areas,
 - .13 lot grading elevations and sections,
 - .14 existing and proposed contours shown at 0.25m minimum spacing, and
 - .15 all other details as may be required.
- .3 Calculations must be attached with the drawings.

F - 1.03 Where Storm Drainage Collection System Not Required

- .1 Where storm drainage facilities are not required at the time of development, the City of Fort St. John may require rights-of-way to be provided by the Owner to allow for the eventual installation of these facilities. Such rights-of-way shall be registered in favour of the City of Fort St. John at the Owner's expense.

- .2 In this instance, the Owner will be required to provide for surface drainage as required by the Approving Officer, with all catch basins and other appurtenances designed to facilitate connection to the future storm sewer system.

F - 1.04 Storm Water Management

- .1 All drainage systems in the City of Fort St. John shall be designed considering the overall management of storm water to mitigate the hydrological impacts of land development or land use changes. The primary purpose will be to limit the effect of peak flows and volumes of runoff on properties, receiving streams and water courses.
- .2 All lots located in medium and high density residential, commercial, industrial and institutional areas and factory-built house park parcels must have on-site catch basins to collect the on-site runoff and a storm water management plan to collect and store onsite run-off, unless neighbourhood storage requirements has been designed to accommodate these lots.
- .3 Onsite catch basins with oil separation capacity are required to be installed before the connection to the city storm system.
- .4 Mitigation measures include but are not limited to the following:
 - .1 Appropriate sizing and routing of pipes and channels,
 - .2 Major flow path routing,
 - .3 Detention storage,
 - .4 Sediment removal,
 - .5 Biofiltration,
 - .6 Landscaping,
 - .7 Source Control,
 - .8 Erosion protection,
 - .9 Groundwater infiltration,
 - .10 Subsurface disposal, and
 - .11 Lot grading

F - 1.05 Minor and Major Drainage Systems

- .1 Urban areas shall have two separate and distinct drainage systems; the minor system and the major system.
- .2 The minor system includes street gutters, catch basins, underground pipes, manholes, and facilities associated with the collection and conveyance of runoff from frequently occurring rainfall events.
- .3 The major system includes overland flood flow routes, roadways, stormwater detention ponds, emergency spillways and other such works that come into operation when the

capacity of the minor system is exceeded. It shall be designed for infrequent and extreme rainfall events, and shall serve to protect public safety and property from damage.

- .4 Specific criteria to be used in the design of the major and minor systems are identified in this bylaw.

F - 1.06 Adequate Drainage

- .1 All subdivisions shall be adequately drained throughout the year. Where the whole or part of any proposed subdivision is wet or subject to intermittent or periodic flooding, approval of the subdivision will be withheld until the Approving Officer is satisfied that appropriate steps have been taken to drain the land or otherwise remedy such wet or flooding conditions. Design must attempt to maintain zero increase in peak flows over the pre-development flows using flow detention methods.
- .2 Site grading and drainage works shall be designed to:
 - .1 accommodate drainage through the site;
 - .2 accommodate drainage generated on-site;
 - .3 mitigate sub-surface drainage/groundwater problems;
 - .4 mitigate soil erosion potential; and
 - .5 mitigate siltation of adjacent or receiving City storm and sanitary mains or ditches and receiving streams and watercourses.
- .3 The Design Engineer shall prepare the appropriate drawings to explicitly show the works required to accommodate site drainage.

F - 1.07 Existing and Natural Watercourses

- .1 Where a subdivision is traversed by a watercourse, drainage way or stream, a right-of-way shall be provided along such watercourse or its planned re-alignment of a width deemed necessary by the Approving Officer for construction, maintenance, conservation, and beautification purposes.
- .2 No natural drainage course shall be altered or diverted unless such alteration or diversion has been approved by the City of Fort St. John, the Ministry of Environment and Fisheries and Oceans Canada if draining into a fish bearing stream
- .3 Storm water shall only be discharged from a subdivision to a drain or ditch that as in the opinion of the Approving Officer is adequate to receive the discharge therefrom, or which has been declared a part of the City of Fort St. John drainage system.
- .4 Storm water discharged into a watercourse, stream or other waterway draining into a fish bearing stream requires approval of the Ministry of Environment and Fisheries and Oceans Canada.

F - 1.08 Drainage Systems Through Private Property

Where it is necessary to construct a drainage system through privately-owned land, the Owner shall obtain or grant a right-of-way in favour of the City of Fort St. John to guarantee the right

of access, in perpetuity, to the drainage facility. In general all drainage systems through private property shall be piped systems, unless otherwise approved by the Approving Officer.

F - 1.09 Geotechnical Evaluation

- .1 In addition to the geotechnical overview undertaken during the initial phases of the project, the Owner shall engage the services of a qualified Geotechnical Engineer to investigate surface and sub-surface conditions with respect to site grading within the proposed subdivisions.
- .2 The Geotechnical Engineer shall prepare a report outlining his findings and shall provide clear, definitive recommendations:
 - .1 on the geometry and placement of fill sections,
 - .2 compaction requirements for structural and non-structural fills,
 - .3 cut and fill slope geometry,
 - .4 pavement structures for roads, and
 - .5 any other geotechnical issues affecting site grading construction within the proposed subdivision.
- .3 A copy of the geotechnical evaluation shall be submitted to the Approving Officer or Director of Planning and Engineering, as the case may be, at the time the engineering drawings are submitted for approval.

F - 1.10 Detailed Site Survey

Detailed site surveys are required throughout the site to ensure grading in accordance with the requirements of this Bylaw with respect to assuring the competence of non-structural and structural fills and to accommodate site drainage during and after construction of the subdivision or development. Survey data should extend a minimum of ten meters outside perimeter of project.

F - 2.0 DESIGN CRITERIA

F - 2.01 Discharge Rates and Quality

- .1 Drainage systems should include runoff controls to limit post-development peak discharge to the pre-development rates for 5-year return period storms.
- .2 Runoff quality treatment should be considered. Quality treatment facilities include but are not limited to, oil/grit separator, silt traps, detention storage facilities, grassed swales, bio-swales and constructed wetlands.

F - 2.02 Runoff Analysis

- .1 Storm drainage design should be completed as per the most recent version of the MMCD Design Guidelines, 2014. Calculations are to be submitted with design drawings.

F - 2.03 Rational Method

- .1 The Rational Method to calculate peak flows for use as indicated in section F – 2.02 as an option to computer modelling:

$$Q = KCIA$$

Where: Q = Flow in m³/s

K = Constant to establish units of compatibility (.00278)

C = Dimensionless runoff coefficient

I = Rainfall intensity (mm/hr)

A = Runoff area (ha)

The five year return frequency curve shall be used for the minor system in all areas.

- .2 Dimensionless Runoff Coefficient

- .1 For developed areas, the weighted average of pervious and impervious area runoff coefficients shall be estimated, as per Character of Surface from Table F.1.
- .2 For planning new areas, runoff coefficients may be calculated for site-specific conditions where details of ultimate site development are known. Otherwise the values of the runoff coefficient are to be selected on the basis of zoning or general land use from Table F.1

TABLE F.1
RUNOFF COEFFICIENT (C)

Type of Development	Description of Area	Runoff Coefficient (C)
Commercial		0.85
Industrial		0.85
Institutional		0.80
Residential	Suburban	0.40
	Low Density	0.55
	Medium Density	0.65
	High Density	0.75
Parks, cemeteries		0.30
Playgrounds		0.30
Undeveloped areas		0.15
Character Of Surface		Runoff Coefficient (C)
Pavement	Asphaltic	0.95
	Concrete	0.95
	Brick	0.85

Roofs		1.0
Lawns	Sandy Soil	0.15
	Heavy Soil	0.22
	Grass	0.15
	Gravel	0.5

- .3 Runoff coefficients other than those specified in Table F.1 section shall be used only with the express written consent of the Approving Officer.
- .3 Rainfall Design Intensity
 - .1 The design rainfall intensity, I, is selected from the appropriate intensity duration frequency (IDF) curve, with a duration chosen to coincide with the Time of Concentration, Tc.
 - .2 The Environment Canada IDF curve can be found in Appendix 8 Dwg. No. F-2. The below table identifies the formulas that define the IDF curve developed by Environment Canada for Fort St. John. Note this table is provided for convenience only.

TABLE F.2
INTERPOLATION EQUATION OF FORT ST. JOHN IDF CURVE

Statistics	2 yr	5 yr	10 yr	25 yr	50 yr	100 yr
Coefficient (A)	11.6	16	18.9	22.6	25.3	28
Exponent (B)	-0.651	-0.677	-0.688	-0.698	-0.703	-0.708

Interpolation Equation:

$$R = A \cdot T^B$$

Where: R = Interpolated Rainfall rate (mm/h)
 RR = Rainfall rate (mm/h)
 T = Rainfall duration (h)

.4 Time of Concentration

Time of concentration shall be calculated as per the most recent version of the MMCD design guidelines.

.5 Design Summary Sheet

Summary of Rational Method design calculations and results, Design Summary Sheet, shall be presented in tabular form similar as per MMCD design guidelines.

F - 2.04 Design Flows for areas greater than or equal to 10 ha and Stormwater Management facilities

- .1 Computational methods shall be used to determine design flows and the sizing of the systems which contain non-pipe stormwater management facilities (ie: detention ponds) or systems that include an area of land 10 hectares or larger
- .2 The selection of an appropriate computer model shall be based on the understanding of the principles, assumption and limitation in relation to the system being designed. The City of Fort St. John encourages the use of computer programs as per MMCD Design Guideline Model Selection list.
- .3 Modelling Procedures and submission of modelling results shall follow the most recent version of the MMCD design guidelines.

F - 2.05 Minor System Design

.1 Level of Service

The minor drainage system consists of pipes and appurtenances sized to convey peak 5-year return period storm runoff by gravity (non-surcharged) flow.

.2 Pipe and Channel Capacity

Manning's formula:

$$Q = AR^{0.667}S^{0.5}/n$$

Where: Q = Design flow in m³/s

A = Cross Sectional area in m²

R = Hydraulic radius (area/wetted perimeter) in m

S = Slope of hydraulic grade line in m/m

N = Roughness coefficient:

- .1 Roughness coefficients for use with the Manning's formula shall be as specified in Table F.3

TABLE F.3

ROUGHNESS COEFFICIENTS (N)

Channel Material	Roughness Coefficients (N)
PVC Pipe	0.011
Concrete Pipe	0.013
Corrugated Steel Pipe (CSP)*	0.024
Surface Channel	Roughness Coefficients (N)
Paved Roadway	0.018
Unpaved Roadway	0.030
Grassed Boulevards and Swales	0.030
Packed Clay and Excavated Ditches	0.030
Packed Gravel	0.030
Cobble Stones	0.040
Natural Channels	0.050
Light Turf	0.200
Dense Turf	0.350
Dense Shrubbery	0.400

*CSP for culverts only, not accepted on mains.

.3 Flow Velocities:

- .1 Minimum velocity of 0.6 m/s shall be maintained for pipes flowing $\frac{3}{4}$ full or half full.
- .2 Pipes shall be designed to carry the required quantity when flowing at $\frac{3}{4}$ of total flow capacity.
- .3 Designer shall ensure that supercritical flow does not occur. Where grades exceed 15%, scour protection may be needed and anchor blocks will be required. These criteria may be modified by the Approving Officer or the Director of Planning and Engineering, as the case may be, to meet local conditions.

.4 Minimum Pipe Size

- .1 Minimum pipe size shall be as per Table F.3.

TABLE F.3
MINIMUM PIPE SIZE

Type	Pipe Diameter (mm)
Mains	250
Catch Basin Leads	250
Service Connections	
• Low Density Residential	100
• Medium Density Residential	100
• High Density Residential	250
• Commercial	250
• Industrial	250
• Institutional	250

- .2 The minimum pipe size for mains accepting flows from open ditches shall be 450 mm and suitable silt traps shall be provided.

.5 Alignment of Storm Mains

Storm sewer mains shall be designed to follow a straight alignment between manholes. Curved alignments within rights-of-way shall be subject to the approval of the Approving Officer provided that the pipe is set at a grade greater than the specified minimum and pipe alignment is at a parallel offset with an established boundary. In these cases, the radius of curvature shall be twice the minimum radius recommended by the pipe manufacturer

.6 Location of Storm Mains

- .1 Storm sewer mains shall be located in the road right-of-way as shown on the Standard Drawings unless otherwise approved by Approving Officer.
- .2 Where the location of the sewer main within the road right-of-way is not practical due to topography or other factors, the sewer main shall be located in a utility right-of-way registered in favour of the City of Fort St. John and having a width of not less than 6.0 m. The Approving Officer or Director of Planning and Engineering, as the case may be, may require a utility right-of-way wider than 6.0 m in the case where services in addition to storm sewer will be placed in the same right-of-way or where the depth of the sewer main requires a wider easement.
- .3 The entire length and width of each utility right-of-way is to be graded to allow maintenance vehicle access.
- .4 There shall be a minimum clear lateral distance between the outside walls of storm sewers and sanitary sewers of 300 mm.

.7 Depth of Cover

The minimum depth of storm sewer mains shall be installed to provide a minimum cover to top of pipe of 2.7 meters from the final finished surface grade and provide all service connection a minimum cover of 2.7 meters to the top of the service, anywhere within the finished right-of-way.

.8 Manholes

- .1 Manholes shall be installed at a maximum spacing of 120 meters and in the following locations:
 - .1 All changes in grade;
 - .2 All changes in alignment, including non-curvilinear sewers;
 - .3 All changes in pipe size;
 - .4 All pipe junctions;
 - .5 All intersections; and
 - .6 Downstream end of curvilinear sections.
- .2 Manholes on curved sewers shall be installed at a maximum spacing of 90 meters along the curve. Manholes shall be located at the beginning and end of curve.
- .3 The relative elevations of storm sewers entering and leaving a manhole are to be such as to ensure that the manhole does not substantially reduce the hydraulic capacity of the system.
- .4 Minimum fall through the manhole shall be 20 mm.
- .5 Drop manhole and ramp structures should be avoided where possible by steepening inlet sewers. Where necessary, a drop structure is required as per MMCD Design Guideline.

.9 Culverts

- .1 Where an open ditch system is required to cross a road, highway or driveway, the ditch shall be enclosed by means of a culvert. All culverts shall be of sufficient size to properly drain all of the area naturally draining into the channel or ditch feeding into the culvert but shall be a minimum 450 mm diameter. Allowance shall be made for future flows as a result of full development of the upstream tributary area.
- .2 Debris screens and sedimentation basins shall be installed at all ditch inlets.
- .3 Safety grillage is required for pipes 600mm diameter and larger.

.10 Catch Basins

- .1 Catch basin shall be spaced to provide sufficient inlet capacity to collect the entire minor flow or major flow, if required, into the pipe system. In all cases an analysis of catch basin capacity shall be provided.
- .2 The depth of flow in gutters should not exceed the top of curb at any point.
- .3 Drainage should not pass through intersections, but rather, sufficient inlet capacity is to be provided to intercept all flow at the uphill side and at the upstream of the curb ramps at sag locations.
- .4 The depth of ponding at roadway sag locations and depressions is not to exceed 150mm.
- .5 The following shall be considered when choosing locations for sewer inlets:

- .1 Minimum spacing between catch basins is 75m;
 - .2 Catch basins shall be located at intervals such that surface drainage does not exceed gutter or flow channel capacities, to prevent overflow to driveways, boulevards, sidewalks, or private property;
 - .3 Inlets required at sags and/or intersections should be located at the end of curve or beginning of curve for the curb return;
 - .4 Where there is a continuous grade through the curb return at an intersection, storm water catch basins and catch basin manholes shall be located at the uphill side of the curb return (BC);
 - .5 Design locations for catch basins on residential or other roadways shall be chosen to avoid conflict with driveway crossings wherever possible;
 - .6 Lawn basins are required on boulevards and private properties where necessary to prevent ponding or flowing of sidewalks, boulevards, driveways, buildings and yards; and
 - .7 Catch basins in gravel surfaces are not acceptable, if necessary, provide bioswales to surface drain towards the catch basin.
- .6 Maximum design capacities are shown in Table F.4.

TABLE F.4
CATCH BASIN CAPACITIES

CATCH BASIN TYPE	ROAD GRADE	CAPACITIES
Type 1 Catch Basin	> 3%	20 l/s
	< 3%	30 l/s
	At Low Point	50 l/s

.11 Catch Basin Leads

- .1 Catch basin leads shall discharge into a manhole and not directly into the storm sewer pipe wherever possible.
- .2 When connection into the main is allowed by the Approving Officer or the Director of Planning and Engineering, as the case may be, the use of a wye fitting is required for new construction, or approved saddle to tie-into existing mains.
- .3 Catch basin leads shall be minimum 250 mm PVC, 300 mm PVC for double catch basins and not to exceed 30m in length.

.12 Service Connections

- .1 Storm sewer service connections shall be provided to all lots where main meets minimum cover of 2.7m. Where minimum cover of 2.7m is not met, services shall be provided to all lots other than single family and semi-attached residential.
- .2 Storm sewer service connections shall only be used for foundation perimeter drains and storm water management systems.

- .3 The diameter of storm sewer service connections shall be determined by the Design Engineer. Minimum size as per Section 2.05.4.
- .4 Service connections shall be made with an approved branch wye for new connections, or approved saddle to tie-into existing mains
- .5 Connections shall be installed in a straight line and at a uniform grade from the terminus at the property line to the 45 degree long radius bend at the main.
- .6 The minimum pipe grade for sewer service pipes shall be
 - .1 2.0% for 100mm diameters, or
 - .2 1.0% for service connections greater than 100mm
- .7 For services larger than 250 mm, a manhole shall be installed at the intersection of the main and service.
- .8 Minimum depth of 2.7m.

.13 Pipe Class and Bedding Class

- .1 The quality of pipe and bedding shall be so selected such that the installation will adequately support the loads to be placed on it during construction and in operation. Pipe class and bedding class must be identified on all engineering drawings. Pipe shall have at least Class B bedding, as defined by the Standard Drawings.
- .2 For concrete pipe, the calculations shall follow the method shown in the latest edition of the Water Pollution Control Federation Manual of Practice No. 9. A safety factor of 1.5 shall be used for concrete pipe and the bedding classifications shall be as identified on the Standard Drawing.
- .3 For PVC pipe, the calculations shall follow the methods outlined in the latest edition of the Uni-Bell PVC Pipe Association publication Handbook of PVC Pipe - Design and Construction.
- .4 For Corrugated Steel Pipe (CSP) pipe, the calculations shall follow the methods outlined in the latest edition of the American Iron and Steel Institute publication Handbook of Steel Drainage & Road Construction Products. CSP shall be used only for Culverts, not for main line piping.

F - 2.06

MAJOR SYSTEM DESIGN

.1 Level of Service

Provide protection against surface flooding and property damage for 1 in 100 year return frequency design storm

.2 Surface Flow Routing

- .1 All overland flows in excess of 0.05 m³/sec shall have specifically designed flow routes.
- .2 The Design Engineer shall provide the Approving Officer with the depth of flow along the major flow route and shall show on the Design Drawings the hydraulic grade line. Sufficient design shall be carried out to provide assurance to the Approving Officer

that no serious property damage or endangering of public safety will occur under major flow conditions.

- .3 The major flow routing shall normally be provided along roads and in natural watercourses. In some cases, the major flow may also be carried alongside the road in grassed swales, across country in rights-of-way and along public walkways. In these cases, the flow paths shall be protected by restrictive covenants or rights-of-way.
 - .4 Hydraulic grade line (HGL) is to be at least 600mm below the minimum basement elevation (MBE) of adjacent buildings
 - .5 Maximum flow depth on roadways is 300mm.
 - .6 Intersecting driveway profiles will need to be set such that roadway surface flows are contained within the public right-of-way.
 - .7 Where roadways used for major flows intersect, care shall be taken to lower the intersection to allow flows to pass over the cross street. Where major flow routes turn at intersections, similar care in the road grading design is required.
 - .8 Overflow routes are required at all sags and low points in roadways and other surface flow routes
 - .9 Major flood routes are required to exit down-slope cul-de-sacs.
 - .10 The discharge point from the development for the major flow route shall be co-ordinated with the downstream routing to outfall as determined by the City of Fort St. John. Where major flow outfalls to a receiving watercourse, the velocity shall not exceed 1.5 m/s, or energy dissipaters shall be provided to minimize erosion.
 - .11 Flooding is not permitted on private property except in flow channels in municipal right-of-ways.
 - .12 The use of Catch Basin inlet control devices to separate major and minor hydraulic grade lines may be allowed, subject to the satisfaction of the Approving Officer regarding the suitability of such control devices. Where Catch Basin inlet control devices are used, building elevations may be controlled by the hydraulic grade line occurring in the minor system.
- .3 Lot Grading (See figures F- 2.06.3.01, F-2.06.3.02, F-2.06.3.03)
- .1 The Design Engineer shall provide lot grading plans for each lot in the subdivision.
 - .2 Lot Grading plans shall indicate the minimum basement elevation based on sanitary and storm service grades.
 - .3 Lots shall be graded towards roadways, and in no case shall lots be permitted to drain onto an adjacent lot.
 - .4 Through areas where site topography prohibits drainage to roadways, lots may be graded to lot lines with drainage swales graded out to the roadways. Drainage swales shall be protected by registration of a covenant and a statutory 6.0 meters right-of-way on the lot title.
 - .5 Split drainage or front to back drainage is only permitted with the approval of the Approving Officer.

- .6 Overall site drainage to provide:
 - .1 conveyance of off-site runoff onto and through the site;
 - .2 conveyance of on-site runoff into existing watercourses or new drainage infrastructure;
 - .3 abatement of drainage from one lot to another; and
 - .4 abatement of sub-surface groundwater problems.
 - .7 Build-able lots are created that provide:
 - .1 access from fronting roadways;
 - .2 drainage from each lot and into drainage infrastructure;
 - .3 structural competence of undisturbed and embanked soils to support building loads; and
 - .4 Provide slopes, grades, and depths of underground services.
 - .8 Where lot grading is undertaken:
 - .1 maximum lot grades shall be 15%
 - .2 minimum lot grades shall be 2%
 - .3 minimum 5% away from house for 2m
 - .4 maximum driveway grades shall be 8%
 - .9 As-built lot grading plan to be completed only after all rough grading has been completed. All backfill to foundation must be finished and no piles of waste material may be left onsite
 - .10 If an applicant wants to change the lot grading from that given to them at time of permit they must provide the City with an amended grading plan stamped by a registered land surveyor, a professional engineer or a registered architect. The person stamping the grading plan must be in good standing in the province of BC. The grading plan supplied to the City must conform to the cities bylaws and work with the existing grading plan for the subdivision.
- .4 Surface Flow Capacity
- .1 Flow capacity of road surfaces and swales can be calculated using the Manning formula as indicated in section F-2.05.2.
 - .2 Design detail is to include consideration of flow velocities and the potential requirement for erosion control measures.
- .5 Piped System
- .1 In special circumstances where surface major flow routes cannot be provided, a pipe system may be designed to accommodate the required major flow, and sufficient inlet capacity will be provided to accommodate introduction of the major flow into a piped system. System details should be indicated on the Storm Water Management Plan.
 - .2 Design considerations include:
 - .1 Provisions of adequate inlets to accommodate major flows,

- .2 The requirement for surface overflow routes at potential surface ponding locations, and
 - .3 Design in accordance with minor drainage system guidelines.
- .6 Runoff Controls
- .1 Runoff Controls are required to meet the objectives as indicated in this bylaw.
 - .2 Location and maintenance options for control facilities include:
 - .1 On-site, i.e., on multi-family or non-residential development sites. Registered covenants are required to ensure appropriate maintenance by the property owners, and
 - .2 Off-site, i.e., on public lands, commonly rights-of-way or parks. Maintenance is to be carried out by the local authority.
 - .3 Control of discharge rates is commonly done through detention storage. Detention storage options include the following:
 - .1 Parking Lot Storage,
 - .2 Underground Storage,
 - .3 Dry Detention Ponds,
 - .4 Wet Detention Ponds, and
 - .5 Subsurface Disposal
 - .4 The design details for runoff controls including storage capacity, outlet restrictions, bypass and drawdown rates and other basic design parameters such as elevations and design water levels are required to be defined and documented in the preliminary submission.

F - 2.07 Stormwater Management Facility/Detention Design Requirements

- .1 On-site stormwater detention peak discharge rate from the site shall be controlled to the pre-development level in accordance with the following design criteria, Table F.5:

TABLE F.5
DETENTION POND DESIGN CRITERIA

Design Element	Design Criteria
Design Rainfall Hyetograph	1:100 year storm event
Design Discharge Rate	Pre-development 1:2 year storm event
Overflow Spill Capacity	Post-development 1:100 year storm event
Emergency Spillway Capacity	Post-development 1:100 year storm event
Duration of Storm for peak flow analysis	1 hour
Duration of storm for storage volume analysis	Maximum results between 1 hour to 24 hours

.2 Stormwater Management Facility/Detention options and design guidelines:

.1 Parking Lot Storage

- .1 Requires detailed lot grading design to ensure proper drainage, pedestrian safety and convenience, and major flow path for storm exceeding the design frequency. Ponding is to be located in remote areas of parking lot, or in grass medians.
- .2 Maximum ponding depth: 150 mm within vehicle stalls and pedestrian walk ways. 300mm outside of these areas with consideration to frequency and impact to users.

.2 Underground Storage

- .1 Facilities include tanks and oversized pipes, with outlet controls
- .2 Tanks may be on-line or off-line
- .3 Cross sections and inlet and outlet locations should be designed to minimize maintenance requirements
- .4 Structural design to accommodate traffic loads and groundwater pressure
- .5 Maintenance access provisions required

.3 Dry Stormwater Detention Ponds

- .1 Intended to provide storage only during severe storm events
- .2 May be on-line or off-line
- .3 Shall be designed to achieve the requirements specified in this section. Designers of stormwater management facilities shall give consideration to safety, protection of property, and operational convenience and efficiency.
- .4 Shall be designed to achieve the basic parameters presented in Table F.6.
- .5 Basic dry detention pond configuration shown on Figure 1.
- .6 Criteria not explicitly listed in this bylaw shall be as per Fisheries and Oceans Canada Land Development Guidelines for the Protection of Aquatic Habitat.

FIGURE 1
DRY DETENTION POND

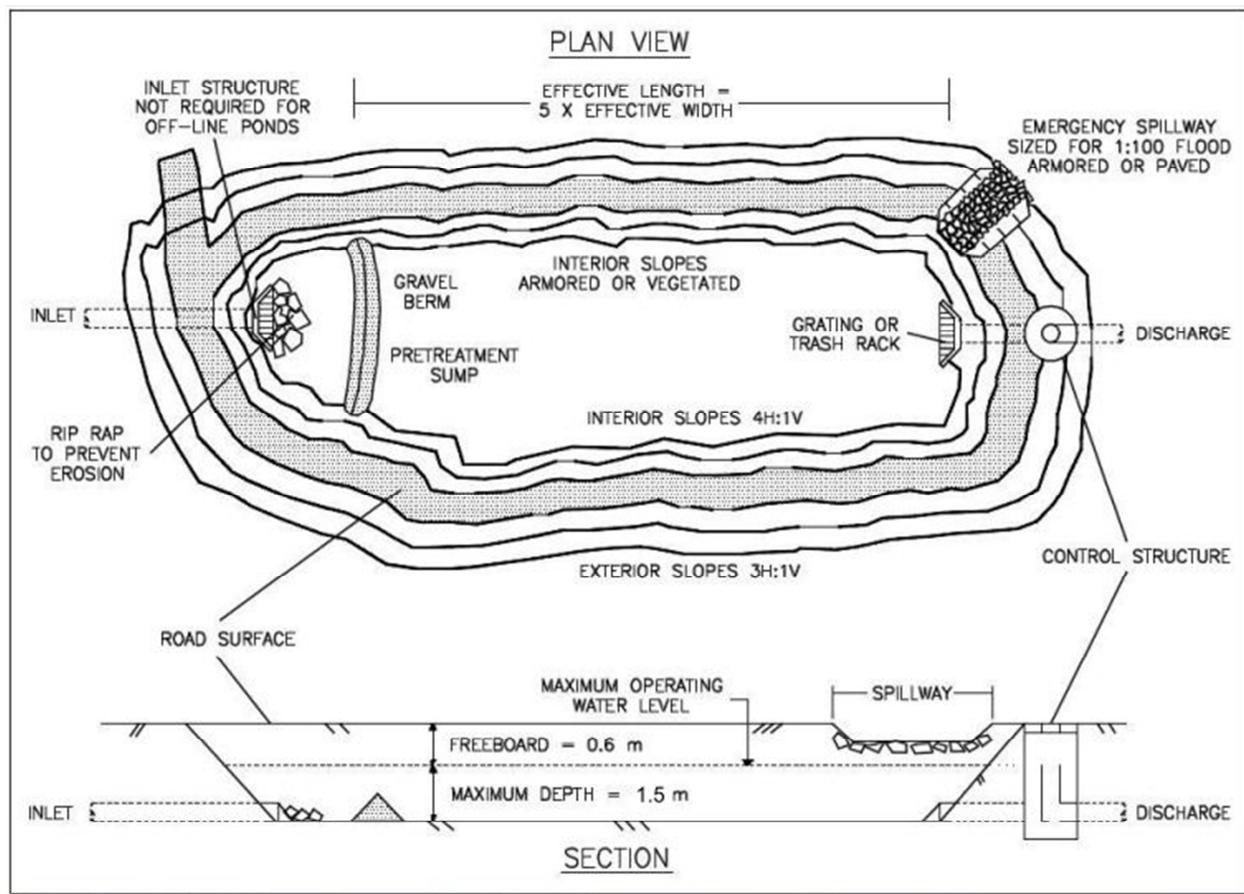


TABLE F.6
DRY DETENTION POND PARAMETERS

Design Element	Design Objective	Minimum Criteria	Recommended Criteria
Level of Service, Volumetric Sizing	Provision of approximate level of protection and adequate volume	1:100 year post-development design storm event	
Peak Discharge Rate Under Normal Operation	Protect downstream watercourses from excessive peak flow rates	2 year return period, pre-development flow rate for 1 hour duration event.	
Emergency Overflow Spillway Capacity	Protect detention pond embankment from overtopping during extreme conditions	100 year return period, post-development flow rate for 1 hour duration event, plus appropriate freeboard	
Pond Area	Maximize pond area to limit number of ponds	Minimum 0.8 ha at high water level	
Pretreatment Sump	Treatment (sedimentation)	Sump to remove sediments	
Active Storage Detention Time	Suspended solids settling	Minimum 24 hours	
Length to Width Ratio	Maximum flow path, minimize short circuiting	Minimum 5:1	
Pond Depth	Safety	Maximum 1.5 m plus 0.6 freeboard minimum	
Side Slopes	Safety	No steeper than 4:1 for internal slopes No steeper than 3:1 for outward facing slopes All surfaces to be vegetated	
Outlet Orifice	Avoid clogging/plugging	50 mm diameter minimum Contain provisions for complete drainage.	100 mm diameter minimum preferred
Gate Valve/Emergency Release	Bypass, maintenance, emergency conditions	Minimum 300 mm diameter	
Vehicle Access	Access for maintenance equipment	3.0 m wide hard surface 8.0 m turning radius Access gate at main entrance Road structure to accommodate design vehicle	
Signage	Safety	Warning signs as per standard details	

.4 Wet Stormwater Detention Ponds

- .1 Intended to provide on-line detention storage and maintain a permanent minimum water level
- .2 Shall be designed to achieve the requirements specified in this section. Designers of stormwater management facilities shall give consideration to safety, protection of property, and operational convenience and efficiency.
- .3 Catchment area must be large enough to provide sufficient baseflow to ensure wet storage is sustained without becoming stagnant.
- .4 Basic wet detention pond configuration is shown on Figure 2, and shall be designed to achieve the basic parameters presented in Table F.7.
- .5 Criteria not explicitly listed in this bylaw shall be as per Fisheries and Oceans Canada Land Development Guidelines for the Protection of Aquatic Habitat.

FIGURE 2
WET DETENTION POND

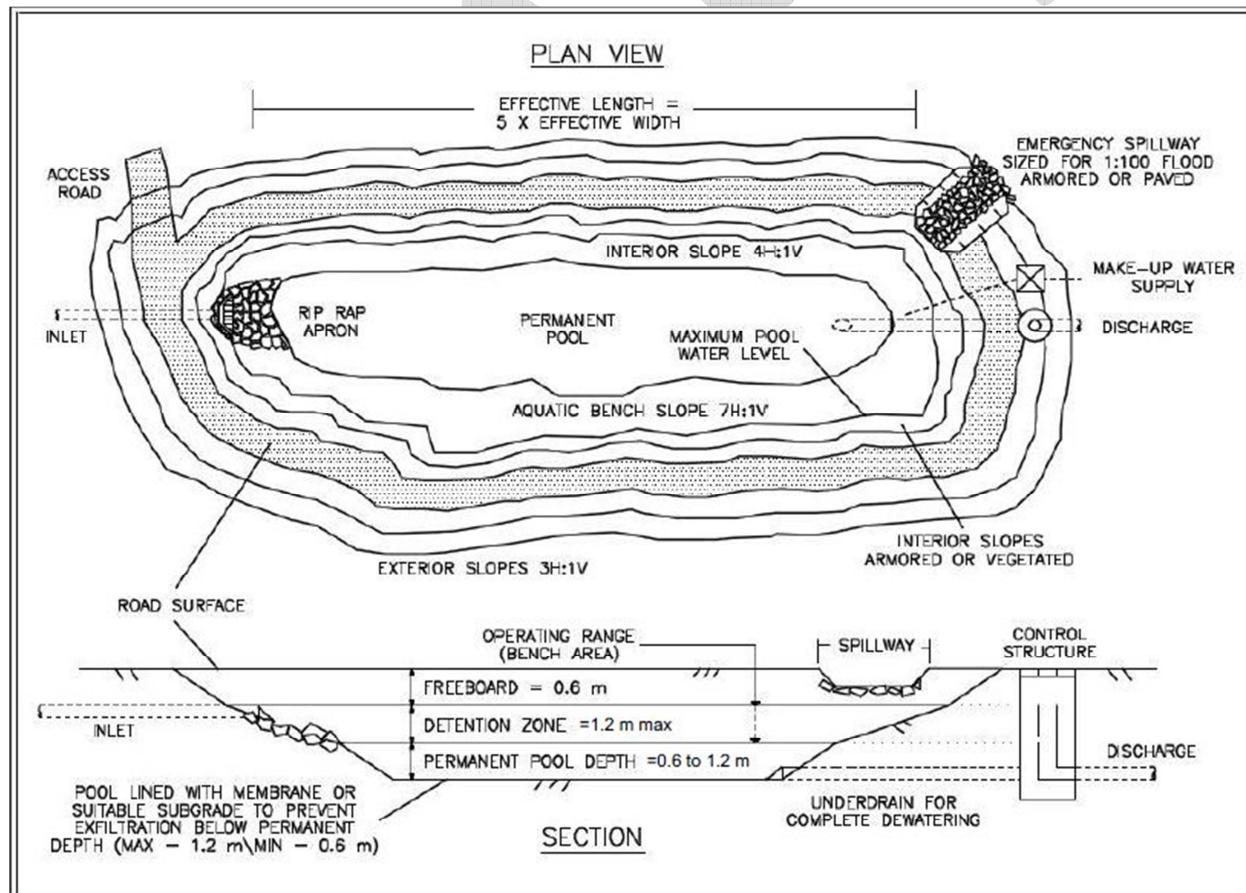


TABLE F.7
WET DETENTION POND PARAMETERS

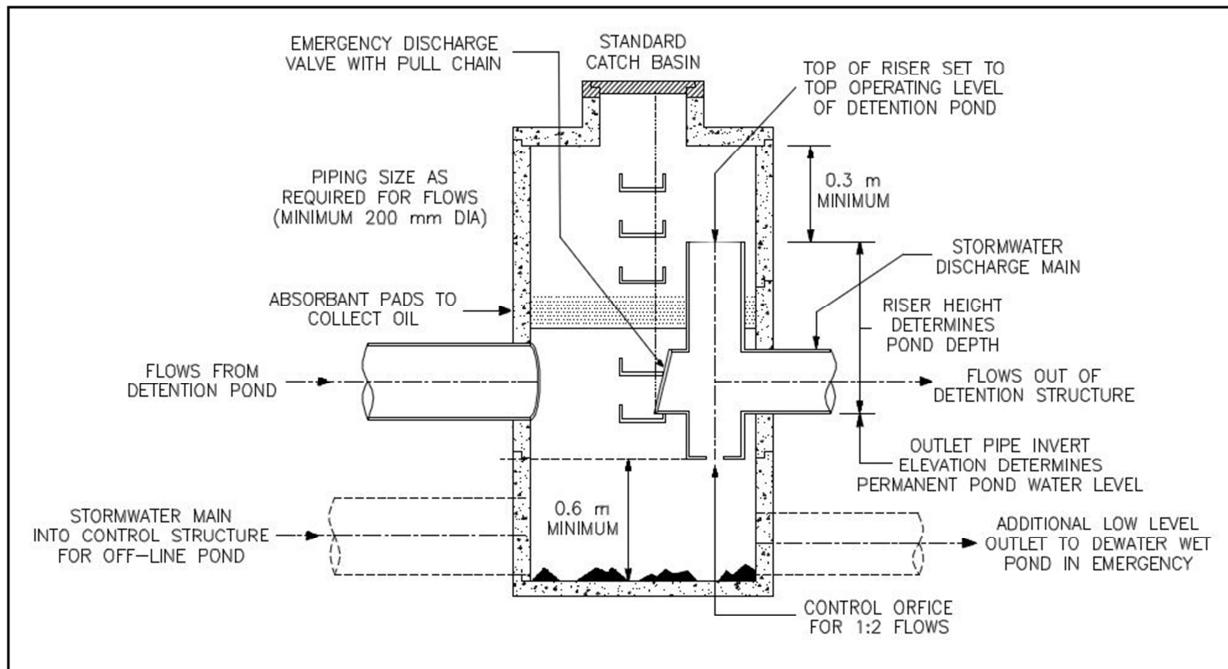
Design Element	Design Objective	Minimum Criteria	Recommended Criteria
Level of Service, Volumetric Sizing	Provision of approximate level of protection and adequate volume	1:100 year post-development design storm event	
Peak Discharge Rate Under Normal Operation	Protect downstream watercourses from excessive peak flow rates	2 year return period, pre-development flow rate for 1 hour duration event	
Emergency Overflow Spillway Capacity	Protect detention pond embankment from overtopping during extreme conditions	100 year return period, post-development flow rate for 1 hour duration event, plus appropriate freeboard	Overflow elevation needs to be coordinated with Minimum Basement Elevation.
Pond Area	Maximize pond area to limit number of ponds	Minimum 0.8 ha at high water level	
Pretreatment Sump	Treatment (sedimentation)	Remove sediments from runoff	
Active Storage Detention Time	Suspended solids settling	Minimum 24 hours	
Length to Width Ratio	Maximum flow path, minimize short circuiting	Minimum 5:1	
Pond Depth	Safety	Maximum 1.5m plus 0.6 freeboard minimum	Large enough storage so water can be sustained without becoming stagnant.
Side Slopes	Safety	No steeper than 4:1 for permanently submerged slopes and unsubmerged slopes above active storage zone No steeper than 7:1 for temporarily submerged internal slopes No steeper than 3:1 for outward facing slopes All surfaces to be vegetated	
Outlet Orifice	Avoid clogging/plugging	50 mm diameter minimum	100 mm diameter minimum preferred
Gate	Bypass, maintenance,	Minimum 300 mm diameter	

Valve/Emergency Release	emergency conditions		
Vehicle Access	Access for maintenance equipment	3.0 m wide 8.0 m turning radius Access gate at main entrance Road structure to accommodate design vehicle Top of berm must allow for vehicle passage and stable work area.	
Signage	Safety	Warning signs indicating areas can become quickly inundated	
Mosquito Control	Minimize mosquitos	Include design features to minimize mosquitos.	

.3 Outlet Control Structure Requirements

- .1 Outlet control structures shall be designed to control stormwater releases under normal operation, but shall also allow for draining detention ponds under emergency conditions, and for regular maintenance.
- .2 Provide spill control outlet structure is recommended as in Figure 3 to improve capture of floatable contaminants. Include oil absorbent pads in outlet control structures.
- .3 Discharge riser should be designed to exclude debris and large objects.
- .4 Discharge and conveyance of pond flows must not cause erosion of natural drainage systems.
- .5 Design of inlet and outlet structures is to include consideration of energy dissipation and erosion control. Safety grates are required over all inlet and outlet openings larger than 500mm diameter.

FIGURE 3
OUTLET CONTROL STRUCTURES



.4 Sediment Removal Provisions

- .1 The facility design shall incorporate the ability for sediment capture and efficient removal for the control of solids which may be washed into the facility.

.5 Landscaping

- .1 Landscaping plans for areas bounding the runoff control facility shall be submitted as part of the detailed design drawings.
- .2 Landscaping of all proposed public lands included for purposes of the facility and of all proposed rights-of-ways on proposed private property up to the design high water level, is to be part of facility requirements and be depended on the location of context of this facility.
- .3 The requirement for landscaping is to be constructed to the satisfaction of the Community Services Department.

F - 2.08 EROSION AND SEDIMENT CONTROL

- .1 To prevent the displacement of soil and the sediment transport during land-disturbing activities, Erosion and Sedimentation Control (ESC) measure are required and shall be performed as described below.
- .2 Erosion and sediment control plan to follow guidelines outlined in latest edition of the MMCD design guidelines.

F - 3.0 CONSTRUCTION DOCUMENTATION

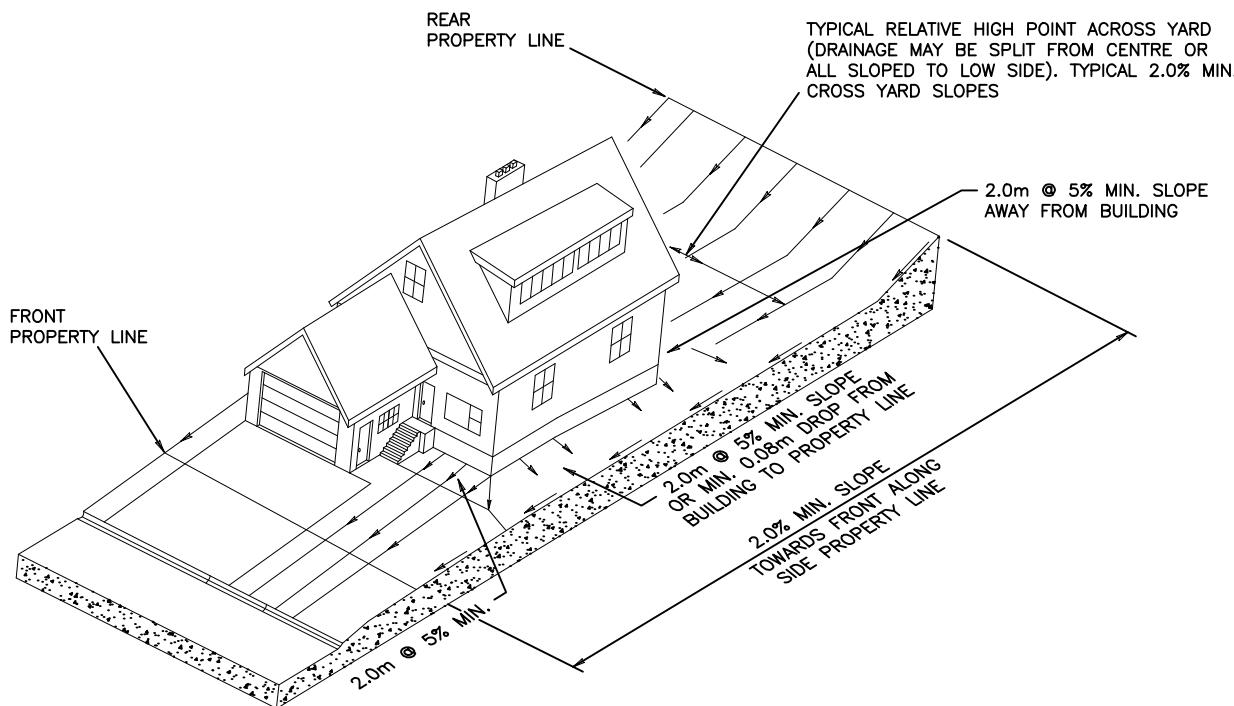
F - 3.01 Required Documentation

Prior to issuance of a Certificate of Substantial Completion by the Approving Officer or the Director of Planning and Engineering, as the case may be, the Owner's Engineer will submit the following:

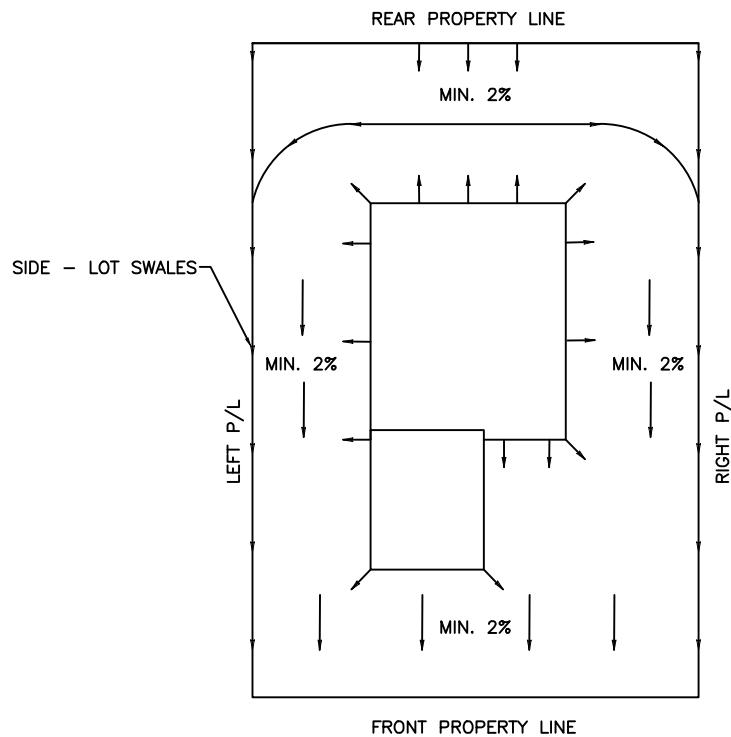
- .1 Material Testing Reports, including all Concrete, Asphalt, Compaction and Gradation results on original copies signed by the testing firm;
- .2 Video inspection of mains in digital format;
- .3 A geotechnical report under seal of a Professional Engineer, documenting site inspections, concrete testing, compaction testing, soils testing and certification of the foundation soils of any structures constructed;
- .4 Detailed site data report for each structural fill lot showing:
 - .1 cadastral lot layout,
 - .2 site topography after stripping,
 - .3 site topography after completion of structural fills,
 - .4 a profile through each lot showing the original ground line profile (after stripping) and the finished gradeline profile, and
 - .5 a geotechnical report under seal of a Professional Engineer, documenting site inspections, compaction testing and certification of the fill, together with recommendations for building construction.
- .5 Operation and Maintenance manuals for all Storm Water Management facilities:
 - .1 Maintenance manuals shall be bound documents with name of facility on the cover. Manuals shall be organized in a logical manner and sections clearly labelled. At a minimum maintenance manuals shall contain:
 - .1 A copy of the approved Engineering Drawings relating to the Stormwater Storage Facility and appurtenances, updated to "As-constructed";
 - .2 Schematic diagrams of the inlet and outlet arrangements, connections to and arrangement of upstream and downstream systems, including all controls, shutoff valves, bypasses, overflows, and any other operation or control features;
 - .3 Location plans for all operating devices and controls, access points and routes, planned overflow routes, or likely point of overlapping in the case of exceedance of the design containment volume;
 - .4 Stage discharge curves with clear relationships of the stages relative to surrounding features;
 - .5 Plan for sedimentation removal;
 - .6 Outline of normally expected operation requirements for the City; and
 - .7 Outline emergency operation requirements under possible abnormal situations.

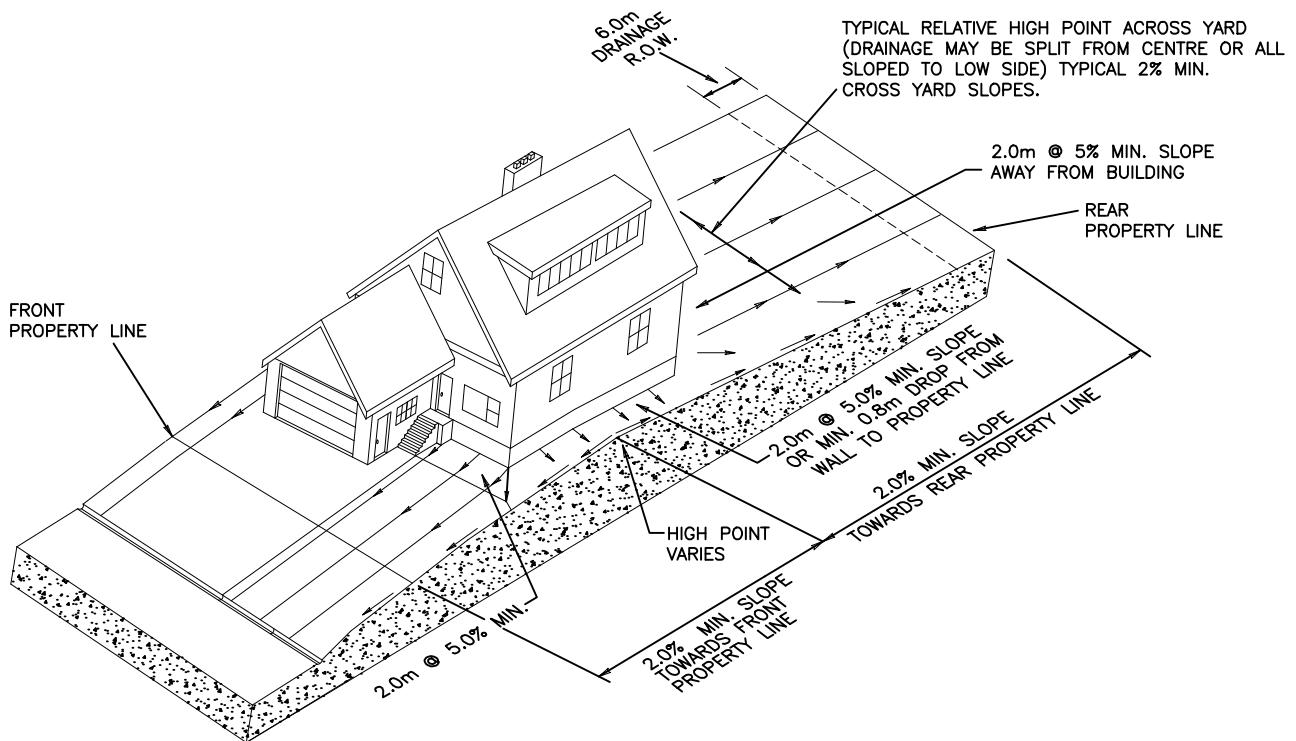
F - 3.02 Record Drawings

- .1 Prior to acceptance of a Certificate of Final Acceptance by the Approving Officer or the Director of Planning and Engineering, as the case may be, the Owner's Engineer shall submit the following:
 - .1 cadastral lot layout;
 - .2 road and other rights of ways;
 - .3 location of excavation areas;
 - .4 non-structural and structural embankments drainage courses and drainage works;
 - .5 horizontal alignment of storm main c/w curve data and offsets from property line;
 - .6 vertical alignment of storm main c/w curve data, invert elevations and bury depth;
 - .7 design hydraulic grade line for major flows;
 - .8 manhole and appurtenances locations and elevations;
 - .9 catch basin locations and elevations;
 - .10 service locations and elevations (saddles, inspection chambers and bends);
 - .11 pipe sizes, material types and classes;
 - .12 details of all fitting and connections;
 - .13 all existing utilities in area of storm main; and
 - .14 major flow routing over $0.05 \text{ m}^3/\text{s}$
- .2 Above information to be provided in format and standards specified in Schedule J of this bylaw

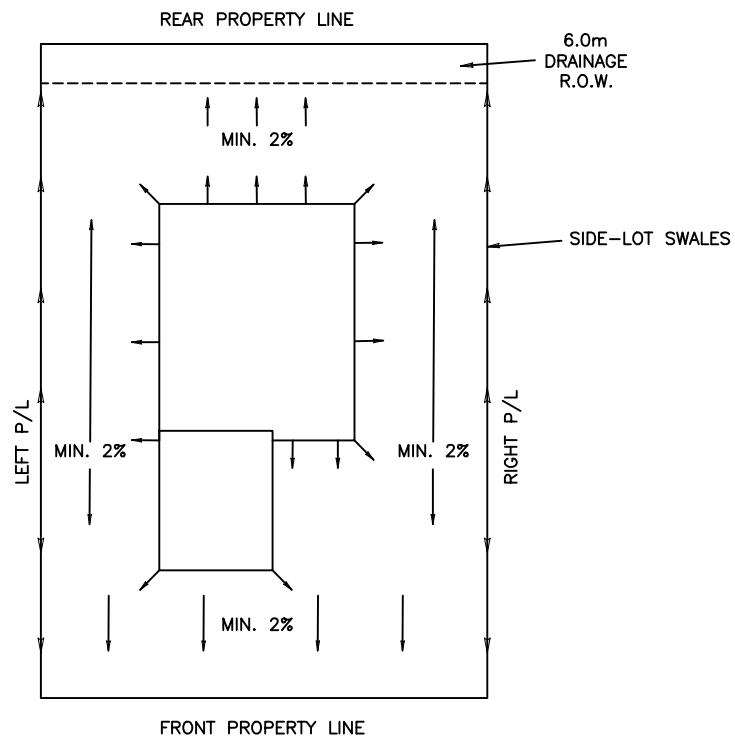


TYPE A
REAR TO FRONT DRAINAGE
2-3% OVERALL LOT SLOPE
(STRONGLY RECOMMENDED)





TYPE B
STANDARD SPLIT DRAINAGE
2-3% OVERALL LOT SLOPE



**LOT GRADING
TYPICAL DETAIL
STANDARD SPLIT DRAINAGE**

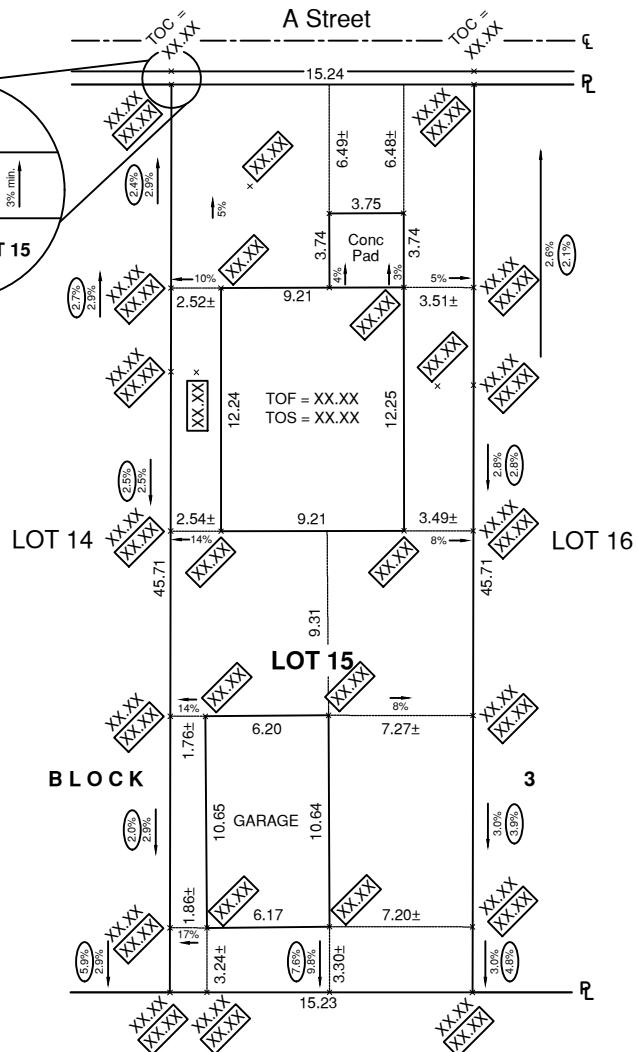
SCALE:
NOT TO SCALE

FIGURE

F-2.06.3.02

SCHEDULE F

'AS BUILT' LOT GRADE PLAN



LEGEND:

Design Elevation	.....
As Constructed Elevation	.....
Design Slope	.....
As Constructed Slope	.....
Top of Foundation	.....	TOF
Top of Slab	.....	TOS
Top of Curb	.....	TOC

NAME OF SUBDIVISION

At the date of Survey, the minimum measured separation between the "as constructed" finished grade against the building and either the Top of Foundation or Bottom of Siding is _____. metres.
All elevations must be Geodetic (compared to sea level).

SURVEY DATE: August 8th, 2018

NOTES:

Dimensions and Grades are shown in metres and decimals thereof.
Property line dimensions are derived from found survey evidence.



Civic Address: 9999 - A Street, Fort St. John, B.C.
Property Desc.: Lot 15, Block 3, PLAN 123 4567

COMPANY NAME

Scale: 1:250
Date: February 21, 2012
Drawn: Eng. Assist.

Checked:
File No.:
Revision:

'AS-BUILT' LOT
GRADING PLAN SAMPLE

SCALE:
NOT TO SCALE

FIGURE

F-2.06.3.03

SCHEDULE F



The City of Fort St. John
SUBDIVISION AND DEVELOPMENT SERVICING BYLAW
Bylaw No. 2405, 2019
Schedule G -Landscaping

SCHEDULE G

LANDSCAPING
REGULATIONS, STANDARDS AND SPECIFICATIONS FOR DESIGN

G - 1.0 GENERAL

- .1 Where the provisions of Schedule A of this Bylaw require the installation of Landscaping, the Owner shall provide landscaping consistent with the standards and specifications contained in this schedule.
- .2 All specifications for the design and construction of Works shall be the most recent version of the Canadian Landscape Standard unless otherwise referred to in this schedule or Schedule K of this bylaw.

G - 1.01 Engineered Drawings

- .1 Prior to commencement of construction, landscaping, planting and construction detail plans prepared by a qualified professional for landscaping work shall be submitted to the Approving Officer or Director of Planning and Engineering, as the case may be, for approval.
- .2 Drawing shall be scaled and include all pertinent features of the site, both existing and proposed.
- .3 Enlarge portions of the plan may be included for intricate or generalized construction details.
- .4 Plant materials list or hardscape specifications may be included as sidebars or text panels.
- .5 Drawings for landscaping shall explicitly show:
 - .1 Existing elements (horticultural and non-horticultural) to be retained or removed;
 - .2 Existing natural features;
 - .3 Location and type of protection measure for the existing vegetation/trees to be retained;
 - .4 Elevations at the base of trees to remain;
 - .5 All proposed plant material, planting beds, and lawn areas (to include all seeded and sodded areas);
 - .6 Plant list showing index or drawing key, type, size, quantity, species, spacing etc.;
 - .7 Height and material of all fences, screen walls and retainin walls, etc.;
 - .8 Storm water management landscape features;
 - .9 Above and below ground utilities including lighting facilities;
 - .10 Culturally sensitive or historical landscapes; and
 - .11 Any other landscape element that contributes to site development.
- .6 Planting Plan shall explicitly show (can be combined with Landscaping Plan):
 - .1 Location and types of proposed plant material in the project as noted in the plant schedule;

- .2 The plant schedule shall contain common and botanical names including:
 - .1 Plant Size – height, width and caliper;
 - .2 Condition – container class, balled and burlapped (field dug) or bare-root;
 - .3 Form – standard (single trunk), multi trunk , foliated to ground, grafted, dwarf, weeping, or columnar; and
 - .4 Quantities – total number of each plant type, container size and spacing
- .7 Construction Details plan shall explicitly show:
 - .1 Adequate information to construct the specific landscape product.
 - .2 Hard and soft landscape elements

G - 2.0 DESIGN CRITERIA

G - 2.01 Boulevards

- .1 Street Trees
 - .1 Street trees shall be spaced every 10m, where appropriate.
 - .2 Approved Tree species are found in Appendix 6.
 - .3 Street trees shall have a minimum distance from the following:

Lamp Standards	6.0m
Hydro Poles	6.0m
Steel/Wooden poles	3.0m
Driveways	2.0m
Catch Basins	2.0m
Manholes, valve boxes, services	1.5m
Storm	1.5m
Sanitary	2.0m
Water	1.5m
Hydrants	2.0m
Corners/intersections	not within sight triangle
 - .4 Species shall be selected so there is a minimum of 3 varieties of trees along a street and a minimum of one species must be of the conifer species.
 - .5 Trees located within 2m of sidewalk or roadways shall not be of the conifer species.

G - 2.02 Trails

- .1 On all dedicated trails bound on either side by private property, all surfaces not finished with trail shall be finished with Grass. Grass shall be to a Level four standard as per Canadian Landscaping Standards. See Standard Details for reference.

G - 2.03 Grass Areas

- .1 Grass seed shall be applied with hydraulic seeding method.

G - 3.0 CONSTRUCTION DOCUMENTATION

G - 3.01 Required Documentation

- .1 Prior to issuance of a Certificate of Substantial Completion, the Owner's Landscaping Professional will submit the following:
 - .1 Soil and growing medium test results to the requirements of Canadian Landscape Standards;
 - .2 Seed analysis or facsmilie of seed package label to the requirements of the Canadian Landscape Standards; and
 - .3 A landscape report from landscaping professional documenting site inspections.
- .2 Prior to Acceptance of a Final Acceptance Certificate by the Approving Officer or the Director of Planning and Engineering, as the case may be, the Owner's Landscape Professional shall submit the following:
 - .1 Maintenance Records for the installed works.
 - .2 Record Drawings showing:
 - .1 Plant material, planting beds, and lawn areas (to include all seeded and sodded areas);
 - .2 Plant list showing index or drawing key, type, size, quantity, species, spacing etc.;
 - .3 Height and material of all fences, screen walls and retainin walls, etc.;
 - .4 Storm water management landscape features installed; and
 - .5 Above and below ground utilities including lighting facilities



The City of Fort St. John
SUBDIVISION AND DEVELOPMENT SERVICING BYLAW
Bylaw No. 2405, 2019

SCHEDULE H

STREET LIGHTING
REGULATIONS, STANDARDS AND SPECIFICATIONS FOR DESIGN

H- 1.0 GENERAL

H- 1.01 GENERAL REQUIREMENTS

- .1 Where the provisions of Schedule A of this Bylaw require the construction of street lighting, the owner shall street lighting including all:
 - .1 conduits,
 - .2 service wiring,
 - .3 bases,
 - .4 poles,
 - .5 luminaries,
 - .6 lamps,
 - .7 photo cells,
 - .8 control equipment, and
 - .9 all other related appurtenances.
- .2 All specifications for the construction of Works and Infrastructure shall be the most recent version of the Master Municipal Construction Document, unless referred to otherwise in this Schedule, or Schedule K of this Bylaw.

H- 1.02 Permit Fees Will Be Paid By the Owner

- .1 The Owner will be responsible for obtaining all required electrical permits, arranging for all electrical inspections covering his work and pay all fees for such permits.
- .2 Copies of permits are to be submitted to the Approving Officer prior to commencement of construction.
- .3 The Owner will be responsible for paying all utility service connection fees and charges.

H- 1.03 Engineered Drawings

- .1 Engineering drawings showing detail design of the necessary works shall be prepared in accordance with the City's specifications for drawing contained in Schedule J.

H- 1.04 Rules and Regulations

- .1 All street lighting systems will be designed in accordance with the most recent version of the *Transportation Association of Canada (TAC) Guide for Design of Roadway Lighting*, excluding the section on warrants.
- .2 Scheduling with B.C. Hydro and Power Authority will be the Owner's responsibility. Systems will be compatible with power services available. Where costs are incurred with B.C. Hydro and Power Authority in installing the light system, these will be considered as part of the cost of the system.

- .3 The Owner will give all necessary notices to authorities having jurisdiction, and will be responsible for keeping all applicable public ordinances.
- .4 Schedule with BC Hydro and Power Authority will be the Owner's responsibility. Systems will be compatible with power service available. Where costs are incurred with BC Hydro and Power Authority in installing the light system, these will be considered as part of the cost of the system.

H- 2.0 DESIGN CRITERIA

H- 2.01 Lamp Standards

- .1 LED luminaries, and only LED luminaries, are to be used for all outdoor lighting applications in the City of Fort St. John.
- .2 LED luminaries must meet the minimum requirements of the City's Approved products list.

H- 2.02 Pole Locations

- .1 In general, streetlight poles will be installed as follows:

TABLE G.1
STREETLIGHT POLE LOCATIONS

Road Classification	Pole Location/Spacing	Pole Type	Lamp Standard Height
4 Lane Collector Roads	Opposite or Staggered	Davit	9.1 m
2 Lane Collector Roads	Spaced on One Side	Davit	9.1 m
Local Roads	Spaced on One Side	Davit	9.1 m
Walkway & Pathways	Entrance & Exit Points	Post or Other Non-Davit	Maximum 7.6 m

- .2 Poles will be located within 0.6 m of the property corners and shall be checked for conflict with driveways, underground services and fire hydrants.

H- 2.03 Traffic Signals

- .1 If required, Design Engineer shall coordinate design with the Approving Officer or Director of Planning and Engineering, as the case may be, to determine acceptable equipment.
- .2 Approving Officer or Director of Planning and Engineering, as the case may be, shall approve final design.

H- 2.04 Pedestrian Controlled Crosswalks

- .1 If required, Design Engineer shall coordinate design with the Approving Officer or the Director of Planning and Engineering, as the case may be, to determine acceptable equipment.
- .2 Approving Officer or the Director of Planning and Engineering, as the case may be, shall approve final design.

H- 3.0 CONSTRUCTION DOCUMENTATION

H- 3.01 Construction Documentation

- .1 Prior to issuance of a Certificate of Substantial Completion by the Approving Officer or the Director of Planning and Engineering, as the case may be,, the Owner's Engineer will submit the following:
 - .1 Material Testing Reports, including all Concrete, Asphalt, Compaction and Gradation results on original copies signed by the testing firm; and
 - .2 Certificate of Inspection by the governing electrical authorities showing that the installation is unconditionally approved.

H- 3.02 Record Drawings

- .1 Prior to issuance of a Certificate of Final Acceptance by the Approving Officer or the Director of Planning and Engineering, as the case may be, the Owner's Engineer will submit the following:
 - .2 Plan drawings at minimum 1:500 scale showing:
 - .1 horizontal alignment of conduits c/w curve data and offsets from property line;
 - .2 poles and appurtenances locations, elevations and phasing;
 - .3 power service locations and details; and
 - .4 conduit sizes and material types.
 - .3 Above information to be provided in format and standards specified in Schedule J of this bylaw.



The City of Fort St. John
SUBDIVISION AND DEVELOPMENT SERVICING BYLAW
Bylaw No. 2405, 2019

SCHEDULE I

**ELECTRICAL, TELECOMMUNICATIONS AND GAS DISTRIBUTION SYSTEM
REGULATIONS, STANDARDS AND SPECIFICATIONS FOR INSTALLATION**

I- 1.0 GENERAL

I- 1.01 Standards and Specifications to Apply to All Electrical, Telecommunications and Natural Gas

- .1 Electrical, telecommunications and natural gas distribution systems shall be provided to serve each parcel within the subdivision consistent with the standards and specifications set out in this Schedule and Schedule A, unless approved otherwise by the Approving Officer.
- .2 Design and construction shall be in accordance with the Specifications set out in Schedule K of this Bylaw.

I- 1.02 Engineered Drawings

- .1 Prior to construction, engineering drawings for each respective utility showing detailed design of the necessary works shall be acquired by the Design Engineer and forwarded to the Approving Officer as detailed below.
- .2 The Design Engineer shall assemble all utility company drawings and superimpose them onto the subdivision drawings and typical sections to ensure there are no conflicts between any of the private utilities and the City services and above ground structures and driveways. The original utility company drawings and the combined drawings are to be submitted to the Approving Officer for approval. Construction shall not start on the subdivision until all drawings have been approved by the Approving Officer and written notice provided to the Owner.
- .3 The engineering drawings shall clearly indicate the locations of structures, conduits, pipes and any other facilities required. Design elevations for all junction boxes and other structures shall be shown on the engineering drawings.

I- 1.03 Construction In Compliance With Engineering Drawings

All structures and facilities shall be constructed or installed in compliance with the engineering drawings approved by the Approving Officer.

I- 1.04 Construction In Accordance With B.C. Hydro, Telecommunications Cablevision, and Pacific Northern Gas Requirements

Electrical, Telecommunications and Gas services shall be installed in accordance with the requirements of the utility communications utility company licensed by the C.R.T.C., and the Inspector of Electrical Energy of the Province of B.C. Natural gas distribution works shall be installed in accordance with the requirements of the Provincial CAN/CSA B149.1 and 2-662 codes.

I- 1.05 Underground Electrical Systems

Underground systems shall include the supply and installation of all necessary conduits, wiring, transformers, service runs and connections for a complete and fully operative underground electrical system as laid out by the B.C. Hydro and Power Authority and approved by the Approving Officer and the Inspector of Electrical Energy of the Province of British Columbia.

I- 1.06 Underground Telecommunications

Underground telecommunication shall include the supply and installation of the necessary conduits, wiring, service runs and connections for a complete and fully operative underground telephone system as laid out by licensed communications utility company and approved by the Approving Officer.

I- 1.07 Natural Gas Distribution System

Underground systems shall include the supply and installation of all necessary systems for complete and fully operative underground gas transmission services as laid out by licensed natural gas distribution company.

I- 2.0 DESIGN CRITERIA

I- 2.01 Horizontal Location

Horizontal location of underground ducting and gas main piping shall be as shown on the applicable Standard Drawings. Systems shall be laid out with due regard for other utilities, and shall have the approval of the Approving Officer as well as the utility company involved.

I- 2.02 Vertical Location

All conduit and gas main piping to have a minimum of 750 mm cover or to the depths specified by the utility company, whichever is greater.

I- 2.03 Detailed Design

Details of design such as vertical and horizontal location of service boxes, size and type of conduits and gas mains, kiosk dimensions and ducting and all wiring details shall be as per specifications and drawings provided by B.C. Hydro and Power Authority, licensed communications utility company, and licensed Natural Gas distribution company.

I- 3.0 CONSTRUCTION DOCUMENTATION

I- 3.01 Construction Documentation

- .1 Prior to issuance of a Certificate of Substantial Completion for Landscaping Works, the Owner's Landscaping Professional will submit the following:

- .1 Material Testing Reports, including all Concrete, Asphalt, Compaction and Gradation results on original copies signed by the testing firm.
- .2 Certificate of Inspection by the governing authorities showing that the installations are approved unconditionally.

I- 3.02 Record Drawings

- .1 Prior to acceptance of a Certificate of Final Acceptance by the Approving Officer, the Owner's Engineer shall submit the following:
 - .1 Consolidated engineering plan drawings at minimum 1:500 scale showing:
 - .1 horizontal alignment of all utilities c/w offsets from property line,
 - .2 junction boxes and appurtenances locations,
 - .3 service locations and details, and
 - .4 conduit sizes and material types.
 - .2 Above information to be provided in format and standards specified in Schedule J – Drawing Standards of this bylaw
 - .3 Utility company record drawings.



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SCHEDULE J
DESIGN AND RECORD DRAWING - STANDARDS

J- 1.0 GENERAL REQUIREMENTS

J- 1.01 GENERAL

- .1 These requirements pertain to the preparation of drawings for: all works constructed or installed within City Property, City Right of Way or to be maintained by the City. All specifications for the preparation of drawings shall be the most recent version of the Master Municipal Construction Document, unless referred to otherwise in this Schedule.
- .2 This Schedule shall be read in conjunction with Schedules B through I
- .3 Digital Drawing Standards shall be as per most current edition of MMCD Infrastructure Data Standards, unless referred to otherwise in this Schedule.
- .4 Where no standard is defined or referenced in this schedule for the preparation of a drawing to portray a particular service, structure, or other items, instructions and requirements shall be obtained from the Approving Officer.

J- 2.0 DOCUMENT AND DRAWING SUBMISSIONS

The Design Engineer shall submit Design Drawings and Record Drawings as specified in this schedule to the Approving Officer for approval.

J- 2.01 Design Drawing Submissions

- .1 Plan Approval
 - .1 Two (2) full size paper copies. One (1) to be returned as Approved or For Revision.
 - .2 One (1) digital copy in PDF format.
- .2 For Construction Drawings, after design approval received from the Approving Officer.
 - .1 Two (2) full size paper copies and two (2) half size paper copies marked for construction are to be submitted prior to commencing construction.
 - .2 One (1) digital copy in PDF format.
 - .3 One (1) digital copy in AutoCAD format.
- .3 All design drawings must be signed and stamped by a Professional Engineer registered in the Province of British Columbia.

J- 2.02 Record Submissions

- .1 Prior to acceptance of the Works, the Design Engineer shall submit one (1) bound copy of Construction Documentation to the Approving Officer. Record documentation shall fully indicate the as constructed aspects of each system as well as all required operation and maintenance information.
- .2 All submitted record documentation remains the property of the City of Fort St. John after its acceptance. All documentation prepared / held by the City is subject to copyright.

- .3 As a minimum, Construction Documentation shall include the following:
- .1 All items specified in Schedules B through I under Record Documentation;
 - .2 Complete set of Record Drawings at the same scale and in the same format as the construction drawings;
 - .3 The record drawings submitted to the City will show the date of construction completion and the designation “Record Drawings” in the revision box.
- .1 Check Copy
- .1 One (1) set of paper prints to be submitted to the Approving Officer to be checked for completeness and compliance to these standards and one (1) may be returned For Revision.
 - .2 One (1) digital copy in AutoCAD format.
 - .3 One (1) digital copy in PDF format.
- .2 Final Submissions
- .1 One (1) set paper prints signed and sealed by a Professional Engineer registered in the Province of British Columbia.
 - .2 Must be stamped “For Record”
 - .3 One (1) digital copy in AutoCAD format.
 - .4 One (1) digital copy in PDF format.
- .4 A list of contractors and major subcontractors by work item.
 - .5 All shop drawings.
 - .6 Operating and Maintenance Manuals.
 - .7 A completed City of Fort St. John – Service card for all new lots created or serviced by the works (a sample sheet is included in Appendix 6 of this bylaw).

J- 3.0 PREPARATION OF DRAWING

J- 3.01 General

- .1 The following standards apply to both design and record drawings.
- .2 Combine water, sanitary and storm on one drawing as appropriate.

J- 3.02 Drawing Standards

- .1 All submitted drawings must follow MMCD design
- .2 Standard drawing size for hardcopy submissions is A1 (24" x 36").



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J- 3.03 Title Block

- .1 Design Engineer's name, address and phone number, signatures, revision number, CAD technician, and drawing date are to be on all drawings.

J- 3.04 Sheet Layout

- .1 Maintain a minimum clearance of 10 mm from all borders.
- .2 Place north arrow close to the top right hand side of the sheet whenever possible.
- .3 Show distances and location dimensions in metres and to three (3) decimal places.

J- 3.05 Scales

- .1 Use metric scales: Horizontal Scale 1:500
 Vertical Scale 1:50
- .2 The Approving Officer may request drawings at different scales.
- .3 Other drawing scales must be approved by the Approving Officer.

J- 3.06 General Notes

- .1 A key plan is required to indicate the location and the scope of the works.
- .2 All construction or alterations shown on drawings are to be distinguished from the existing items with different line weights.
- .3 All notes pertaining to the construction or alterations are to be shown on the drawing.
- .4 All stationing, elevations, coordinates are to be in metres and indicated to the nearest 0.001 metres. The dimensions and offsets for service connections, fittings etc., are to be shown to the nearest 0.1 meters.
- .5 All information will be audited to ensure accuracy, completeness and compliance with these specifications.

J- 3.07 Control and Baselines

- .1 All utility and property information is to be related to world coordinates
 - .1 Horizontal datum: UTM NAD83 Zone 10 North
 - .2 Vertical datum: CGVD 1928 - BC
- .2 All baselines are to be tied to property corners (stationing for all IP's found) and shown on the drawings.
- .3 Offsets are to be shown to both sides of the road allowance or to one side with the road right of way width annotated.

- .4 All reference features in design drawing must be surveyed.
- .5 All design features as constructed must be surveyed.
- .6 Underground features must be surveyed prior to burial.

J- 3.08 Stationing

- .1 Stations will be at 20 meter (maximum) intervals or less when higher level of detail is required (e.g. road rehabilitation, special construction).

J- 3.09 Plan View

- .1 Show utility and utility access right of ways.
- .2 Show control station monuments with identification number.
- .3 The plan views should not be fragmented or broken due to slight curves in the road right-of-way.
- .4 Show the legal layout of roads and properties, with all legal descriptions (lots and plan numbers) and dimensions. Also show existing civic addresses and all registered statutory rights of way, covenants and easements.
- .5 All offsets of mains, existing and design will be referenced to and along property lines.
- .6 The names of streets are to be indicated outside of the road boundaries. Road widths are to be annotated. Temporary names (e.g. A, B, C) will not be accepted, except for new subdivisions where the City has not yet named the streets.

J- 3.10 Profile

- .1 The profile and related data are shown on the bottom half of the sheet. Establish 0+00 station on an accented vertical grid line.
- .2 The original ground (centreline) and related data prior to construction should be shown, along with date surveyed.
- .3 All grade changes are to show stationing or ties to lot corners. Coordinates and geodetic elevations are to be shown for grade changes.
- .4 Profiles must be shown for all sanitary (for pipes greater than 100mm diameter) and storm services (for pipes greater than 250mm diameter) except where the installation of connections from an existing main is the only work performed.
- .5 The profile shall be shown at true centreline length and projected above to the PLAN VIEW in as close a relationship as possible.
- .6 Show centreline percent grade to two (2) decimal places, together with the following information on vertical curves:
 - .1 the chainage and elevations of B.C., E.C., and V.P.I.;

- .2 the algebraic difference of grades in percent (A);
- .3 the curve rate constant (K);
- .4 the length of vertical curve (L);
- .5 the chainage and elevation of the low spot of sag curves or high point of crest curves; and
- .6 on super elevated curves and crossfall sections, percent crossfall, transition length and crown should be noted.
- .7 Show profiles of invert and crown of pipes for sanitary, storm, and water mains as well as length, size, type, grade, and class of pipe (i.e. 75 m - 200 mm SAN SDR 35 PVC). Record drawings must show style and manufacturer of pipe.
- .8 Show manholes with rim elevations, and invert elevations at both inlet and outlet.
- .9 Crown of pipes shall be shown at all locations where there is the possibility of conflicts with other utilities.
- .10 Show location type and elevation of all crossing utilities.
- .11 Elevations are placed at the right and left hand side of the profile and repeated when there is a break in the profile.
- .12 Elevations are to be shown at every even metre graduation and placed on the heavy accented line.

J- 3.11 Features

For all projects submitted; the as-built features shall be attributed with the drawing labels, abbreviations and attributes as set out in the following tables. All data entry is case sensitive

ACCESTYPE

Underground Shallow Utilities Access Avenue

FEATURE PROPERTIES Accepted Data Entry	DESCRIPTION	TYPE
COV	Manhole Cover	Text
DR	Door	Text
GR	Grate	Text
HND	Hand	Text
LID	Lid	Text
OTH	Other	Text



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UNK	Unknown	Text
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CBTYPE

Catch Basin Type

FEATURE PROPERTIES Accepted Data Entry	DESCRIPTION	TYPE
CB	Catch Basin	Text
DCB	Double Catch Basin	Text
LB	Lawn Basin	Text

CBCOVERTYPE

Catch Basin Cover Type

FEATURE PROPERTIES Accepted Data Entry	DESCRIPTION	TYPE
NF30	NF30	Text
NF33	NF33	Text
NF39	NF39	Text
NF60	NF60	Text

Directions

FEATURE PROPERTIES Accepted Data Entry	DESCRIPTION	TYPE
N	North	Text



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FEATURE PROPERTIES Accepted Data Entry	DESCRIPTION	TYPE
E	East	Text
S	South	Text
W	West	Text
NE	Northeast	Text
NW	Northwest	Text
SE	Southeast	Text
SW	Southwest	Text

JOINTYPE
Utility Pipe Joint Type

FEATURE PROPERTIES Accepted Data Entry	DESCRIPTION	TYPE
BO	Bond	Text
FL	Flange	Text
OTH	Other	Text
UNK	Unknown	Text
WELD	Weld	Text

JUNCTIONMATERIAL
Fittings Junction Material

FEATURE PROPERTIES Accepted Data Entry	DESCRIPTION	TYPE
AC	Asbestos Concrete	Text

FEATURE PROPERTIES Accepted Data Entry	DESCRIPTION	TYPE
CI	Cast Iron	Text
CL	Clay	Text
DI	Ductile Iron	Text
OTH	Other	Text
PVC	Poly Vinyl Chloride	Text
STL	Steel	Text
UNK	Unknown	Text
WO	Wood	Text

LIGHTTYPE
Type of Street Light

FEATURE PROPERTIES Accepted Data Entry	DESCRIPTION	TYPE
HPS	High Pressure Sodium	Text
LED	Light Emitting Diode	Text
ICD	Incandescent Bulb	Text

LINEMATERIAL
Utility Pipe Line Material

FEATURE PROPERTIES Accepted Data Entry	DESCRIPTION	TYPE
AC	Asbestos Concrete	Text
CI	Cast Iron	Text
CL	Clay	Text

FEATURE PROPERTIES Accepted Data Entry	DESCRIPTION	TYPE
DI	Ductile Iron	Text
OTH	Other	Text
PVC	Poly Vinyl Chloride	Text
UNK	Unknown	Text
WO	Wood	Text
HDPE	High-Density Polyethylene	Text
VCT	Vitrified Clay Tile	Text
UR	Ultra-Rib	Text
UF	Ultra-Flo	Text
CF	Cor-Flo	Text
PVCUR	PVC Ultra-Rib	Text
CSP	Corrugated Steel Pipe	Text
ECSP	Epoxy Corrugated Steel Pipe	Text
ACSP	ASP-Corrugated Steel Pipe	Text
CONC	Concrete	Text
CU	Copper	Text
ST	Steel	Text
GLST	Galvanized Steel	Text

NUSAGE

Network Structure Usage

FEATURE PROPERTIES Accepted Data Entry	DESCRIPTION	TYPE
Sewage	Sewage	Text
Raw	Raw	Text
Potable	Potable	Text
Treated	Treated	Text
Storm	Storm	Text
WW Effluent	Waste Water Effluent	Text
Reclaimed	Reclaimed	Text

POLE

Material / Shape of Pole

FEATURE PROPERTIES Accepted Data Entry	DESCRIPTION	TYPE
CONCRETE	Concrete	Text
METALPOLE	Metal Pole	Text
METERPOLE	Meter Pole	Text
WOODPOST	Wood Post	Text
OTHER	Other	Text
UNKNOWN	Unknown	Text

POLEFEATURES

Features of Pole

FEATURE PROPERTIES Accepted Data Entry	DESCRIPTION	TYPE
DETACHABLE	Detachable	Text



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FEATURE PROPERTIES Accepted Data Entry	DESCRIPTION	TYPE
ONEPIECE	One Piece	Text

POLETYPE

Type of Pole

FEATURE PROPERTIES Accepted Data Entry	DESCRIPTION	TYPE
STREETLIGHT	Street Light	Text
PARKINGLOTLIGHT	Parking Lot Light	Text
PARKLIGHT	Park Light	Text
BOLLARD	Bollard	Text
TRAILLIGHT	Trail Light	Text
PARKINGMETER	Parking Meter	Text
SIGN	Sign	Text

ROADSUFFIX

Road Suffix (Road Type)

FEATURE PROPERTIES Accepted Data Entry	DESCRIPTION	TYPE
AVE	Avenue	Text
CRES	Crescent	Text
HWY	Highway	Text
RD	Road	Text
ST	Street	Text
SUBDIV	Subdivision	Text



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SURFACEMATERIAL

Ground Surface Material – Integer

FEATURE PROPERTIES Accepted Data Entry	DESCRIPTION	TYPE
1	ASPHALT	Integer
2	BRICK	Integer
3	CONCRETF	Integer
4	GRAVFI	Integer
5	GRASS	Integer

VALVEREG

Valve Regulator

FEATURE PROPERTIES Accepted Data Entry	DESCRIPTION	TYPE
FL	Flow	Text
PR	Pressure	Text

VALVETYPE

Valve Type

FEATURE PROPERTIES Accepted Data Entry	DESCRIPTION	TYPE
Ball	Ball	Text
Butterfly	Butterfly	Text
Gate	Gate	Text

WALLMATERIAL

Manhole Wall Material



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FEATURE PROPERTIES Accepted Data Entry	DESCRIPTION	TYPE
BR	Brick	Text
CO	Concrete	Text
OTHER	Other	Text
PVC	PVC	Text
ST	Steel	Text
WO	Wood	Text

WATER TYPE

Sanitary Storm Water Type

FEATURE PROPERTIES Accepted Data Entry	DESCRIPTION	TYPE
Treated	Treated Water	Text
Combined	Combined Waste Water	Text
Potable	Potable Water	Text
Raw	Raw Water	Text
Reclaimed	Reclaimed Water	Text
Salt	Salt Water	Text
Sewage	Sewage	Text
Storm	Storm Runoff	Text
Effluent	Waste Water Effluent	Text

SANITARY

Sanitary System

FIELD NAME	Feature Type	Description
sani_cleanout	point	sanitary clean out locations
sani_g_mains	polyline	sanitary gravity line system
sani_lateralpts	point	sanitary services lateral points
sani_laterals	polyline	sanitary lateral lines of sanitary
sani_manholes	point	sanitary manholes
sani_networkstructure	point	sanitary network structures
sani_p_mains	polyline	sanitary pressurized line system
sani_valves	point	sanitary valves on pressurized

sani_cleanout

FEATURE PROPERTIES	DATA TYPE	DESCRIPTION
CO_TYPE	Integer	clean out subtype
INST_DATE	Text	install date
LOCATION	Text	location description
RIM_ELEV	Real	rim elevation (ground)
INV_ELEV	Real	invert elevation (ground)
WATERTYPE	Text	water type through clean out
FRAME_MAT	Text	material that the frame is made of
ACCESS_MAT	Text	material that access point is made of
ACCESS_SIZE	Integer	access diameter of the clean out
WARRANTYDATE	Text	warranty date to
ACQUISITIONCOST	Real	installation cost



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FEATURE PROPERTIES	DATA TYPE	DESCRIPTION
EXPECTEDLIFE	Real	life expectancy

sani_lateralpts

FEATURE PROPERTIES	DATA TYPE	DESCRIPTION
ELEVATION	Real	lateral point elevation (ground)
LOCATION	Text	civic location of lateral point
WARRANTYDATE	Text	warranty date to
ACQUISITIONCOST	Real	installation cost
EXPECTEDLIFE	Real	life expectancy
INST_DATE	Text	installation date

sani_laterals

FEATURE PROPERTIES	DATA TYPE	DESCRIPTION
SIZE	Integer	line size diameter
LOCATION	Text	brief description of where line is
SERVICETYPE	Integer	sanitary line service type
WARRANTYDATE	Text	warranty date to
INST_DATE	Text	installation date
MATERIAL	Text	line material
ACQUISITIONCOST	Real	installation cost
EXPECTEDLIFE	Real	life expectancy

sani_g_mains

FEATURE PROPERTIES	DATA TYPE	DESCRIPTION
EXTERIORCOATING	Text	line segment exterior coating
JOINTYPE_FR	Text	POC segment joint type
JOINTYPE_TO	Text	POT segment joint type
PIPECLASS	Text	class rating of main line
LININGTYPE	Text	line segment lining type
ROUGHNESS	Real	friction on line
INST_DATE	Text	installation date
LOCATION	Text	location of main line
WARRANTYDATE	Text	warranty date to
US_ELEV	Real	line segment POC elevation
DS_ELEV	Real	line segment POT elevation
SLOPE	Real	decimal slope of line segment
MAINSIZE	Integer	line segment diameter size
MAINTYPE	Integer	line segment type
ACQUISITIONCOST	Real	installation cost
EXPECTEDLIFE	Real	life expectancy
MATERIAL	Text	line segment material

sani_manholes

FEATURE PROPERTIES	DATA TYPE	DESCRIPTION
EASTING	Real	X coordinate (NAD83UTM- <small>ground distance</small>)
NORTHING	Real	Y coordinate (NAD83UTM- <small>ground distance</small>)
RIM_ELEV	Real	manhole rim elevation (ground)
INV_ELEV	Real	invert elevation (elevation <small>below ground level</small>)

FEATURE PROPERTIES	DATA TYPE	DESCRIPTION
FLOWDIR	Text	flow direction
WATERTYPE	Text	water type going through
CONDITION	Text	condition of manhole (field)
BENCHDEPTH	Real	benching depth
ACCEESSIZE	Integer	access location size diameter
ACCESSTYPE	Text	access method used to get inside
WALLMATERIAL	Text	manhole wall material
INST_DATE	Text	installation date
LOCATION	Text	brief description of manhole
WARRANTYDATE	Text	warranty date to
ACQUISITIONCOST	Real	installation cost
EXPECTEDLIFE	Real	life expectancy

sani_p_mains

FEATURE PROPERTIES	DATA TYPE	DESCRIPTION
MAINSIZE	Integer	line diameter size
MAINTYPE	Integer	line usage type
DEPTH	Real	depth of line measured from ground surface
PRESSURERATING	Text	pressure rating of the main line
EXTERIORCOATING	Text	main line exterior coating
JOINTYPE_FR	Text	POC line joint type
JOINTYPE_TO	Text	POT line joint type
LININGTYPE	Text	main line lining type

FEATURE PROPERTIES	DATA TYPE	DESCRIPTION
PIPECLASS	Text	class rating of the main line
ROUGHNESS	Real	roughness inside the line
INST_DATE	Text	installation date
LOCATION	Text	location of line
WARRANTYDATE	Text	warranty date to
MATERIAL	Text	material main line is made of
ACQUISITIONCOST	Real	installation cost
EXPECTEDLIFE	Real	life expectancy

sani_valves

FEATURE PROPERTIES	DATA TYPE	DESCRIPTION
VALVE_USE	Text	valve usage
VALVETYPE	Text	valve type
BYPASSVALVE	Integer	valve has a bypass valve or not
CLOCKWISE2CLOSE	Integer	clockwise to close valve or not
CURRENTLYOPEN	Integer	valve currently in open state or
MOTORIZED	Integer	motorized controlled valve or
NORMALLYOPEN	Integer	if valve is normally open or not
PERCENTOPEN	Integer	percentage opened of valve

FEATURE PROPERTIES	DATA TYPE	DESCRIPTION
PRESSURERATING	Text	pressure rating of valve
REG_TYPE	Text	indicates how valve is regulated
TURN2CLOSE	Real	number of turns required to
SIZE	Integer	valve size
ELEVATION	Real	elevation of valve
LOCATION	Text	brief description of where valve
WARRANTYDATE	Text	warranty date to
INST_DATE	Text	installation date
ACQUISITIONCOST	Real	installation cost
EXPECTEDLIFE	Real	life expectancy

STORM (Storm System)

Feature Class	Feature Type	Description
drainage_areas	polygon	drainage systems area in FSJ
strm_catchbasins	point	storm system catch basins
strm_dischargepts	point	storm system discharge
strm_lateralpts	point	storm system service end points
strm_laterals	polyline	storm system service lines

Feature Class	Feature Type	Description
strm_mains	polyline	storm system main lines
strm_manholes	point	storm system manhole locations

strm_catchbasins

FEATURE PROPERTIES	DATA TYPE	DESCRIPTION
CB_TYPE	Text	type of catch basin
COVER_TYPE	Text	catch basin cover type
ACCESSSIZE	Integer	diameter of the access location
ACCESSMATERIAL	Text	material the access location on
ACCESSTYPE	Text	type of access to the catch basin
RIM_ELEV	Real	rim elevation of catch basin
INV_ELEV	Real	invert elevation of catch basin
INV_SIZE	Real	invert size
LEAD_DIR	Text	lead direction to
WARRANTYDATE	Text	warranty date to
INST_DATE	Text	installation date of catch basin
ACQUISITIONCOST	Real	installation cost
EXPECTEDLIFE	Real	life expectancy

strm_laterals

FEATURE PROPERTIES	DATA TYPE	DESCRIPTION
SIZE	Integer	size of line

FEATURE PROPERTIES	DATA TYPE	DESCRIPTION
SERVICETYPE	Integer	service type - subtype
LOCATION	Text	surface location where line is
WARRANTYDATE	Text	warranty date on service line
INST_DATE	Text	date feature installed
ACQUISITIONCOST	Real	installation cost
EXPECTEDLIFE	Real	life expectancy

strm_mains

FEATURE PROPERTIES	DATA TYPE	DESCRIPTION
US_ELEV	Real	upstream elevation (POC)
DS_ELEV	Real	downstream elevation (POT)
SLOPE	Real	decimal slope of line segment
MAINSIZE	Integer	line segment diameter size
XSHAPE	Text	line cross section shape
MAINTYPE	Integer	line segment type
EXTERIORCOATING	Text	line exterior coating
JOINTYPE_FR	Text	POC segment joint type
JOINTYPE_TO	Text	POT segment joint type
LININGTYPE	Text	line segment lining type
PIPECLASS	Text	class rating of main line
ROUGHNESS	Real	roughness coefficient of the
INST_DATE	Text	installation date
LOCATION	Text	brief description of where line
WARRANTYDATE	Text	warranty date to

FEATURE PROPERTIES	DATA TYPE	DESCRIPTION
MATERIAL	Text	line segment material
ACQUISITIONCOST	Real	installation cost
EXPECTEDLIFE	Real	life expectancy

strm_manholes

FEATURE PROPERTIES	DATA TYPE	DESCRIPTION
MH_TYPE	Text	type of manhole (manhole or CB)
EASTING	Real	X coordinate (NAD83UTM)
NORTHING	Real	Y coordinate (NAD83UTM)
RIM_ELEV	Real	rim elevation of manhole
INV_ELEV	Real	invert elevation of manhole
FLOW_DIR	Text	flow direction of manhole
WATERTYPE	Text	type of water through manhole
CONDITION	Text	condition of manhole
BENCHDEPTH	Real	benching depth
ACCESSSIZE	Integer	size (diameter) of manhole
ACCESSTYPE	Text	access type of manhole
WALLMATERIAL	Text	manhole side wall material
INST_DATE	Text	manhole installation date
LOCATION	Text	brief description of where
WARRANTYDATE	Text	warranty date to
ACQUISITIONCOST	Real	installation cost
EXPECTEDLIFE	Real	life expectancy

WATER (Water System)

Feature Class	Feature Type	Description
water_hydrant_coverage	polygon	hydrant required coverage buffer areas
water_hydrants	point	fire hydrant locations
water_lateralpts	point	water service distribution
water_laterals	polyline	water service connection lines
water_mains	polyline	water network main line pipe
water_valves	point	water network valves

water_lateralpts

Field Name	Data Type	Description
ELEVATION	Real	elevation of service point
LOCATION	Text	brief description of feature
WARRANTYDATE	Text	warranty date to
INST_DATE	Text	installation date
ACQUISITIONCOST	Real	installation cost
EXPECTEDLIFE	Real	life expectancy



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Bylaw No. 2405, 2019
Schedule J – Design and Record Drawings

water_laterals

Field Name	Data Type	Description
SIZE	Integer	lateral service line size
LOCATION	Text	brief description of line location
WARRANTYDATE	Text	warranty date to
SERVICETYPE	Integer	service type of line
INST_DATE	Text	installation date
MATERIAL	Text	lateral line material
ACQUISITIONCOST	Real	installation cost
EXPECTEDLIFE	Real	life expectancy

water_hydrants

Field Name	Data Type	Description
EASTING	Real	X coordinate
NORTHING	Real	Y coordinate of
ELEVATION	Real	hydrant top elevation (ground)
BARRELSIZE	Real	barrel size
FLOW	Real	flow rate of hydrant
NOZZLESIZE1	Real	diameter of nozzle on the
NOZZLESIZE2	Real	diameter of nozzle on the
NOZZLESIZE3	Real	diameter of nozzle on the
NOZZLESIZE4	Real	diameter of nozzle on the
OUTLETCONFIG	Text	configuration of the hydrant
SEATSIZE	Integer	diameter of the hydrant seat
MAINVALVETYPE	Text	type of valve used with the
LOC_STRNUM	Text	hydrant location - street number
LOC_STRNAME	Text	hydrant location - street name
LOC_STRTYPE	Text	hydrant location - street suffix
LOCATION	Text	brief description on where
WARRANTYDATE	Text	warranty date to
MANUFACT	Text	hydrant manufacturer
MFGMODEL	Text	hydrant manufacturer model
INST_DATE	Text	installation date
ACQUISITIONCOST	Real	installation cost
EXPECTEDLIFE	Real	life expectancy

water_mains

Field Name	Data Type	Description
MAINSIZE	Integer	size (diameter) of main line
MAINTYPE	Integer	main line type
DEPTH	Real	depth of line segment under
PRESSURERATING	Text	pressure rating through line
EXTERIORCOATING	Text	line exterior coating
JOINTYPE_FR	Text	POC line segment join type
JOINTYPE_TO	Text	POT line segment join type
LININGTYPE	Text	line lining type
PIPECLASS	Text	piping class
ROUGHNESS	Real	roughness coefficient of the
LOCATION	Text	brief description of main line
WARRANTYDATE	Text	warranty date to
INST_DATE	Text	installation date
ACQUISITIONCOST	Real	installation cost
EXPECTEDLIFE	Real	life expectancy
MATERIAL	Text	line material

water_valves

Field Name	Data Type	Description
VALVE_USE	Text	valve usage
VALVETYPE	Text	type of valve
BYPASSVALVE	Integer	bypass valve present or not
CLOCKWISE2CLOSE	Integer	clockwise to close valve
CURRENTLYOPEN	Integer	valve currently open or not
MOTORIZED	Integer	motorized valve or not
NORMALLYOPEN	Integer	valve normally open or not
PERCENTOPEN	Integer	valve percent open
PRESSURERATING	Text	valve pressure rating
REG_TYPE	Text	valve regulating type
TURN2CLOSE	Real	number of turns required to
SIZE	Integer	size (diameter) of valve
ELEVATION	Real	valve location elevation (ground)
LOCATION	Text	brief description of valve
WARRANTYDATE	Text	warranty date to
ACQUISITIONCOST	Real	installation cost
EXPECTEDLIFE	Real	life expectancy
INST_DATE	Text	installation date



The City of Fort St. John
SUBDIVISION AND DEVELOPMENT SERVICING BYLAW
Bylaw No. 2405 2019

SCHEDULE K

**SPECIFICATIONS AND STANDARDS FOR THE CONSTRUCTION OF WORKS
AND INFRASTRUCTURE DESIGNED UNDER SCHEDULES B THROUGH I**

K - 1.0 GENERAL

All specifications for the construction of Works and Infrastructure shall be the most recent version of the Master Municipal Construction Documents (hereto referred to as MMCD), unless referred to otherwise in this section, Appendix 6, or the applicable Schedule for this bylaw.

K - 2.0 APPROVED PRODUCTS

Acceptable materials are those listed in the Subdivision Serving Bylaw Approved Products List Administrative Procedure. Materials not listed will require permission by the Approving Officer or Director of Planning and Engineering, as the case may be.

K - 3.0 STANDARD DRAWINGS

The drawings found in Appendix 9 take precedence over specifications and drawings found in the MMCD.



The City of Fort St. John
SUBDIVISION AND DEVELOPMENT SERVICING BYLAW
Bylaw No. 2405, 2019

SCHEDULE L

Bylaw Notice Enforcement Offences

L- 1.0 GENERAL

L - 1.01 Bylaw Notice Enforcement

- .1 The penalty for a contravention dealt with by bylaw notice in accordance with the Bylaw Notice Enforcement Bylaw No. 2428, 2018 is as follows.
 - .1 The Penalty amount set out in Column A3 of Schedule “L” is payable for the corresponding contravention.
 - .2 The early Payment Penalty set out in Column A4 of Schedule “L” applies if payment is received by the City within 14 days of the person receiving or being presumed to have received the bylaw notice; and
 - .3 The Late Payment Penalty set out in Column A5 of Schedule “L” applies if payment is received more than 31 days after the person received or is presumed to have received the bylaw notice.

A1 Section	A2 Description	A3 Penalty (\$) (15-30 days)	A4 Early Payment (\$) (1-14 Days)	A5 Late Payment (\$) (31-60 Days) (Collections 60+)	A6 Compliance Agreement Available (50% of Penalty)
2.05	Refuse Entry	450.00	400.00	500.00	Yes
2.02	Construction start prior to Approval	450.00	400.00	500.00	Yes
4.02	Develop without Maintenance/Servicing agreement	450.00	400.00	500.00	Yes
4.08	Unauthorized Storage	450.00	400.00	500.00	Yes
Schedule B – 2.07	Driveway built contravening Bylaw	450.00	400.00	500.00	Yes
Schedule F – 1.01.1.2	Construction in contravention of approved erosion and sediment control plan.	450.00	400.00	500.00	Yes
Schedule F – 2.06.3.3	Drainage onto adjacent lot	450.00	400.00	500.00	Yes
Appendix 3 – Section 29 or Appendix 4 – Section 14	Failure to notify the City of Field Conditions and Field Tests	450.00	400.00	500.00	No



The City of Fort St. John
SUBDIVISION AND DEVELOPMENT SERVICING BYLAW
Bylaw 2405, 2019
Schedule L – Bylaw Notice Enforcement Offences



The City of Fort St. John
SUBDIVISION AND DEVELOPMENT SERVICING BYLAW
Bylaw No. 2405, 2019

SCHEDULE M

MUNICIPAL TICKET INFORMATION OFFENCES

M-1.0 Municipal Ticket Information Offences

M - 1.01 Municipal Ticket Information Offences

- .1 The penalty for a contravention dealt with by bylaw notice in accordance with Municipal Ticket Information System Bylaw No. 2429, 2018.

COLUMN 1 OFFENCE	COLUMN 2 SECTION	COLUMN 3 FINE
Refuse Entry	2.05	\$750
Construction start prior to Construction Permit Issued	2.02	\$1,000
Develop without Maintenance/Servicing Agreement	4.02	\$1,000
Unauthorized Storage	4.08	\$1,000
Driveway built contravening Bylaw	Schedule B – 2.07	\$1,000
Erosion and Sediment control not followed	Schedule F – 1.01.1.2	\$1,000
Drainage onto adjacent lot	Schedule F – 2.06.3.3	\$500
Failure to notify the City of Field Conditions and Field Tests	Appendix 3 – Section 29 or Appendix 4 – Section 14	\$500



The City of Fort St. John
SUBDIVISION AND DEVELOPMENT SERVICING BYLAW
Bylaw No. 2405, 2019

SCHEDULE N
DESIGNATED BYLAW ENFORCEMENT OFFICERS



The City of Fort St. John
SUBDIVISION AND DEVELOPMENT SERVICING BYLAW
Bylaw No. 2405, 2019
Schedule N

N - 1.0 DESIGNATED BYLAW ENFORCEMENT OFFICERS

Director of Planning and Engineering

Director of Public Works and Utilities

Engineering Manager

Bylaw Enforcement Officers

Building Inspectors



The City of Fort St. John
SUBDIVISION AND DEVELOPMENT SERVICING BYLAW
Bylaw No. 2405, 2019
Appendix 1

APPENDIX 1

Confirmation of Commitment by Owner

Confirmation of Professional Assurance by Civil Engineer

Confirmation of Professional Assurance by Geotechnical Engineer

Note: To be submitted to the Approving Officer prior to or with Preliminary Design Approval Documents on the Owner's letterhead

CONFIRMATION OF COMMITMENT BY OWNER

The City of Fort St. John
10631-100th Street
FORT ST. JOHN BC V1J 3Z5

Attention: Approving Officer

Re:
(Legal Description and Address of Project)

Civil Design

We _____ propose to develop a _____ subdivision or development on the above referenced property. To assist with this project we have engaged Civil and Geotechnical Engineering Consultants as follows:

Civil Predesign and Design

We have retained _____, P. Eng., of the consulting firm, _____ to provide Professional Engineering Services as the Design Engineer on this project with respect to design of the works, liaison with the City on technical matters, and submissions to the City Approving Officer for approval.

Geotechnical Predesign and Design

We have also retained _____, P. Eng., of the geotechnical consulting firm, _____ as our Geotechnical and Materials Testing Consultant, to undertake required geotechnical investigations during the preliminary and detailed design phases of the project.

We understand that as site conditions may dictate we will engage specialist consultants as required to provide assistance with the mitigation of environmental, biological, or other peculiar situations that may result from our proposed project.

Civil Construction Assurance

Upon final approval of the engineering design drawings, and receipt of written authorization to proceed with construction, we have engaged _____, P. Eng., of the consulting firm, _____ as the Engineer of Record or his/her qualified designate to undertake field reviews and inspect construction of the work in accordance with his professional discretion, to assure that construction

of the work is executed in compliance with the Subdivision and Development Servicing Bylaw, the approved drawings and good workmanship and practice.

_____ (Civil Consulting Firm) will prepare and submit to the Approving Officer a weekly report and an inspection report on each site visit. Upon Substantial Completion of the Work, they will also inspect the work, and prepare and deliver to the Approving Officer, a Certificate of Substantial Completion.

_____ (Geotechnical Consulting Firm) have been engaged to provide Geotechnical and Materials Testing Services during the course of construction, to assure that construction materials are placed in accordance with the Subdivision and Development Servicing Bylaw. Reports will be submitted to the Approving Officer as geotechnical matters are addressed and testing results are available.

Unsatisfactory Construction Assurance

We understand that the City is very much concerned about the quality of construction work with respect to conformance to the Subdivision and Development Servicing Bylaw and good workmanship and practice. We commit to having our engineering consultants provide the appropriate level of inspections by a qualified on-site inspector approved by the Approving Officer, submit weekly detailed construction works reports witnessed and inspected by the on-site inspector, and that if the City is not satisfied with the quality of construction or the level of inspection provided by our engineers, we will be given a minimum twenty four (24) hours advance notice, after which time, if the problem is not resolved to the City's satisfaction we will be issued a "stop work" order. We understand that before construction operations can resume the following must be provided:

- a written inspection program for the duration of the project by the Owner's Engineer to be submitted to, reviewed and approved in writing by the Approving Officer.

Post Construction

Upon final completion of the work, the design engineer _____ P.Eng., will prepare record drawings in accordance with the standards set out in the Subdivision and Development Servicing Bylaw, prepare Operations and Maintenance Manuals, where required, conduct a final inspection of the work and prepare and submit a Certificate of Total Completion.

Termination of Consultant

Should for some reason the relationship with our Consulting Professional be terminated, we will immediately provide advance notice to the City. We understand that construction work will cease during the interim should we not have a smooth transition between when one consultant finishes and the next one starts.

Insurance and Security

We understand that prior to construction start-up that we will have to provide proof of Insurance Coverage and Construction Security, as per the requirements of the Subdivision and Development Servicing Agreement to, respectively, indemnify the City and assure general conformance to the Subdivision and Development Servicing Bylaw. The required Insurance and Construction Security that we will post with the City are:

Insurance

Insurance coverage will be provided in accordance with the City of Fort St. John's insurance requirements specified in Subdivision and Development Servicing Bylaw which generally specifies:

- Comprehensive General Bodily Injury and Property Damage \$5,000,000
- Automobile Liability Insurance \$3,000,000
- Course of Construction Builder's Risk Insurance Full Value of Work
- Property Insurance Full Value of Work

Security

The Owner shall post with the City of Fort St. John, Construction Security, pursuant to the requirements of the Subdivision Servicing Agreement, to assure general conformance to the Subdivision and Development Servicing Bylaw. The required Security amount shall be equal to 100% of the Estimated Costs of construction of the Works and may be reduced at the following milestones:

MILESTONE	REDUCTION AMOUNT *	CIRCUMSTANCES	WHEN RELEASED
Substantial Completion for Deep Utilities	Release of 70% of Deep Utility Portion of Construction Security	All Deep Utilities are Substantially Complete and have been accepted by the City	Upon City Accepting Certificate of Substantial Completion for Deep Utilities

<p>Substantial Completion for All Works</p>	<p>Balance of Construction Security returned except for:</p> <p>(i) 10% of the original security amount for maintenance (the "Maintenance Security");</p> <p>(ii) 200% of the estimated cost on the Deficiency List for remedying deficiencies (the "Deficiency Security")</p>	<p>All Works are Substantially Complete.</p> <p>City retains Maintenance Security for maintenance purposes.</p> <p>City also retains Deficiency Security for remedying deficiencies.</p>	<p>Upon City Accepting Certificate of Substantial Completion for All Works</p>
<p>Certificate of Final Acceptance for Non-Landscaping Works</p>	<p>Maintenance Security (other than that part of it provided in respect of Landscaping Works) or remaining portion thereof.</p> <p>Deficiency Security (other than that part of it provided in respect of the Landscaping Works), or remaining portion thereof.</p>	<p>Owner has provided City with Record Drawings and Final Inspection is complete and satisfactory. All deficiencies are remedied and specified Maintenance Period is complete.</p>	<p>Upon City Accepting Certificate of Final Acceptance for Non-Landscaping Works</p>



The City of Fort St. John
SUBDIVISION AND DEVELOPMENT SERVICING BYLAW
Bylaw No. 2405, 2019
Appendix 1

Certificate of Final Acceptance for Landscaping Works	Maintenance Security held in respect of Landscaping Works or remaining portion thereof. Deficiency Security held in respect of Landscaping Works or remaining portion thereof.	Owner has provided City with Record Drawings and Final Inspection is complete and satisfactory. All deficiencies are remedied and specified Maintenance Period is complete.	Upon City Accepting Certificate of Final Acceptance for Landscaping Works
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* Interest will not be paid on any security amounts deposited with, or held by, the City.

Name of Company

Mailing Address

Name of Owner

Signature of Owner

Name of Owner

Signature of Owner

Date



**CONFIRMATION OF PROFESSIONAL ASSURANCE
BY DESIGN ENGINEER**

(To be typed onto the Engineering Consultant's letterhead)

The City of Fort St. John
10631-100th Street
FORT ST. JOHN, BC V1J 3Z5

Attention: Approving Officer

Dear Sir/Madame:

RE:

(Name of Owner and Project Description and Address)

This letter is to advise that _____ (Consulting Firm) has been retained by _____ (Owner) to provide Professional Engineering Services as the Design Engineer on the above referenced project. I, _____ P. Eng., am a Professional Engineer licensed to practice in the Province of British Columbia. I understand and acknowledge that I am responsible for the integrity of the project with respect to design and construction in accordance with the City of Fort St. John Subdivision and Development Servicing Bylaw, the approved engineering design drawings prepared for the project, and good workmanship and practice.

I will be involved in all aspects of the project from Preliminary Design through to Construction Completion. With respect to each phase of the project my responsibilities include but are not limited to:

Predesign Phase

- co-ordinate site survey and geotechnical investigations through the site.
- liaison with the City of Fort St. John with respect to project requirements.
- preparation of preliminary design drawings.
- preparation of a preliminary cost estimate.
- submission(s) to the Approving Officer to Design Phase and the project submission.
- co-ordinate specialist consultants that may be involved in the project.

Design Phase

- design the work and prepare the appropriate drawings to explicitly define the work for approvals and construction.
- ensure design complies with intent of the Subdivision and Development Servicing Bylaw.
- undertake drawing amendments as required to meet City approvals.
- sign and seal all design drawings or have specialist consultants sign and seal their respective drawings.

- submit design drawings and other supporting documentation to the Approving Officer for approval.

Construction Phase

- tender the work.
- undertake “field reviews” and inspections of the Contractor’s work to assure compliance to the Subdivision and Development Servicing Bylaw, the approved drawings and good workmanship and practice.
- submit weekly inspection reports to the Approving Officer.

I understand that “field reviews” shall mean such reviews of the work at the project site and at fabrication locations where applicable as the Professional Engineer, in his professional discretion, considers to be necessary in order to ascertain that the work substantially conforms in all material aspects to the plans and drawings approved by the City of Fort St. John.

- co-ordinate materials testing of trench backfill soils, sub-grade, sub-base and base coarse soils, concrete and asphalt.
- resolve problems or anomalies that may develop during construction, in consultation with the Approving Officer.
- witness all water system, sanitary sewer system and drainage system pressure/leakage tests.
- witness all sub-grade proof rolling operations including full remediation.
- collect as-constructed data as the work progresses.
- advise the Approving Officer of events requiring City attendance or witnessing.
- upon Substantial Performance undertake an inspection of the work with the Approving Officer and prepare and submit a Certificate of Substantial Completion.

Post Construction

- inspect the project with the City to verify rectification of deficiencies set out in the Deficiency List attached to the Certificate of Substantial Completion for All Works and prepare and submit a Certificate of Final Acceptance
- prepare as-constructed drawings in accordance with City standards.
- prepare Operation and Maintenance Manuals for lift stations, pump stations, reservoirs or other mechanical/electrical infrastructure.
- submit construction documentation such as pressure/leakage test, specialist consultant reports, etc.

Name of Consulting Firm carries \$ _____ / per occurrence

Errors and Omissions Liability Insurance and a Proof of Insurance Certificate is attached and will be in force for three (3) years after the date of acceptance by the Approving Office of the Certificate of Final Acceptance.



The City of Fort St. John
SUBDIVISION AND DEVELOPMENT SERVICING BYLAW
Bylaw No. 2405, 2019
Appendix 1

Name of Consulting Professional (Print)

Professional
Seal

Signature of Professional (Design Engineer)

Date: _____

Mailing Address (Print)

**CONFIRMATION OF PROFESSIONAL ASSURANCE
BY GEOTECHNICAL ENGINEER**

(To be typed onto the Engineering Consultant's letterhead)

The City of Fort St. John
10631-100th Street
FORT ST. JOHN, BC V1J 3Z5

Attention: Approving Officer

Dear Sir/Madame:

Re: _____

(Name of Owner and Project Description and Address)

This letter is to advise that _____ (consulting firm) has been retained by _____ (owner) to provide Professional Engineering Services on the above referenced project. I, _____ P. Eng., am a Professional Geotechnical Engineer licensed to practice in the Province of British Columbia. I understand and acknowledge that I am responsible for the geotechnical integrity of the project with respect to design and construction of works required under the Subdivision and Development Servicing Bylaw, the approved engineering design drawings prepared for the project, and good workmanship and practice.

I will be involved in all aspects of the project from Preliminary Design through to Total Performance with respect to each phase of the project. My responsibilities include but are not limited to:

Predesign Phase

- general on-site and adjacent site soil conditions
- groundwater problems
- soil/site stability
- corrosive or sulphate soils

Prepare a report documenting items, investigation findings and recommendations concerning development of the site.

Design Phase

Undertake additional geotechnical investigations as required to determine site specific requirements with respect to:

- overall site stability
- site grading

- deep utilities
- soil strength with respect to infrastructure appurtenances, such as pump stations, reservoirs, buildings
- groundwater mitigation
- frost protection
- building construction

Prepare a written report. It is understood that the following objectives are to be satisfied by this report:

- .1 confirmation that the land is safe for the use intended;
- .2 the development has been evaluated with consideration of the aquatic and steep slope setbacks, as outlined in the City Zoning Bylaw, and Environmentally Sensitive and Hazardous Area (ESHA) designations of the Official Community Plan;
- .3 mitigative prescriptions that will facilitate the safe development of the subject lands;
- .4 suitable for the registration on title of the property to advise future owners of the conditions of development; and
- .5 acknowledgement that the City may rely upon the recommendations stated in the report for the issuance of permits needed for the development of the lands.

Construction Phase

During construction I will provide materials testing services to ensure that soils, concrete and asphalt used to construct the proposed development are constructed in accordance with the Subdivision and Development Servicing Bylaw, good workmanship and practice.

I will also provide geotechnical advice during the course of the project on an as required basis to resolve any geotechnical problems or anomalies that may arise.

I will submit weekly testing reports with copies of test results.

Post Construction

Upon completion of construction I will ensure that all test reports are assembled, collated and submitted to the Approving Officer in a signed and sealed report confirming construction has met the geotechnical requirements of the Subdivision and Development Servicing Bylaw.

Name of Consulting Firm carries \$ _____ / per occurrence

Errors and Omissions Liability Insurance and a Proof of Insurance Certificate is attached and will be in force for three (3) years after the date of acceptance by the Approving Office of the Certificate of Final Acceptance.



The City of Fort St. John
SUBDIVISION AND DEVELOPMENT SERVICING BYLAW
Bylaw No. 2405, 2019
Appendix 1

Name of Professional Engineer (Print)

Professional
Seal

Signature of Professional

Date: _____

Mailing Address (Print)

Phone: _____



The City of Fort St. John
SUBDIVISION AND DEVELOPMENT SERVICING BYLAW
Bylaw No. 2405, 2019
Appendix 2

APPENDIX 2

Certificate of Substantial Completion for Deep Utilities

Certificate of Substantial Completion for Landscaping Works

Certificate of Substantial Completion for All Works

Certificate of Final Acceptance for Non-Landscaping Works

Certificate of Final Acceptance for Landscaping Works



The City of Fort St. John
SUBDIVISION AND DEVELOPMENT SERVICING BYLAW
Bylaw No. 2405, 2019
Appendix 2

CITY OF FORT ST. JOHN

SUBDIVISION & DEVELOPMENT PROJECTS

CERTIFICATE OF SUBSTANTIAL COMPLETION FOR DEEP UTILITIES

Project Name: _____

City Project No.: _____

Consulting Professional: _____ / Consulting Firm: _____

Owner: _____

Owner's Prime Contractor: _____

Date of Submission: _____

WHEREAS the City and the Owner entered into a Subdivision and Development Servicing Agreement dated the ____ day of _____, 20____; and

WHEREAS the Owner is required to complete certain Works in accordance with the Approved Engineering Drawings and the Subdivision and Development Servicing Agreement;

I, the Consulting Professional, hereby certify that to the best of my knowledge:

- (i) All Works required in respect of the Deep Utilities have been constructed in accordance with the Approved Engineering Drawings and the Subdivision Servicing Agreement;
- (ii) All Works required under the Subdivision and Development Servicing Agreement in respect of the Deep Utilities attained **Substantial Completion** as of the ____ day of _____, 20____; and
- (iii) The inspection reports and test results upon which this certification is based are attached hereto.

I hereby request that the Deep Utilities be accepted as attaining Substantial Completion.

Certified by Consulting Professional: <hr/> Signature	<p style="text-align: center;">Professional Seal</p>
	Date: _____

Accepted by City Approving Officer: <hr/> Signature	
	Date: _____

Attachment: Inspection reports and test results
cc: Owner



The City of Fort St. John
SUBDIVISION AND DEVELOPMENT SERVICING BYLAW
Bylaw No. 2405, 2019
Appendix 2

CITY OF FORT ST. JOHN
SUBDIVISION & DEVELOPMENT PROJECTS

CERTIFICATE OF SUBSTANTIAL COMPLETION FOR LANDSCAPING WORKS

Project Name: _____

City Project No.: _____

Consulting Professional: _____ / Consulting Firm: _____

Owner: _____

Owner's Prime Contractor: _____

Date of Submission: _____

WHEREAS the City and the Owner entered into a Subdivision and Development Servicing Agreement dated the ____ day of _____, 20____; and

WHEREAS the Owner is required to complete certain Works in accordance with the Approved Engineering Drawings and the Subdivision and Development Servicing Agreement;

I, the Consulting Professional, hereby certify that to the best of my knowledge:

- (i) All Works required in respect of the Landscaping have been constructed in accordance with the Approved Engineering Drawings and the Subdivision Servicing Agreement;
- (ii) All Works required under the Subdivision and Development Servicing Agreement in respect of the Deep Utilities attained **Substantial Completion** as of the ____ day of _____, 20____; and
- (iii) The inspection reports and test results upon which this certification is based are attached hereto.

I hereby request that the Landscaping Works be accepted as attaining Substantial Completion.

Certified by Consulting Professional: <hr/> <i>Signature</i>	<div style="text-align: center; padding: 10px;">Professional Seal</div>	Date: _____
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Accepted by City Approving Officer: <hr/> <i>Signature</i>	Date: _____
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Attachment: Inspection reports and test results
cc: Owner



The City of Fort St. John
SUBDIVISION AND DEVELOPMENT SERVICING BYLAW
Bylaw No. 2405, 2019
Appendix 2

CITY OF FORT ST. JOHN

SUBDIVISION & DEVELOPMENT PROJECTS

CERTIFICATE OF SUBSTANTIAL COMPLETION FOR ALL WORKS

Project Name: _____

City Project No.: _____

Consulting Professional: _____ / Consulting Firm: _____

Owner: _____

Owner's Prime Contractor: _____

Date of Submission: _____

WHEREAS the City and the Owner entered into a Subdivision Servicing Agreement dated the ____ day of _____, 20____; and

WHEREAS the Owner is required to complete certain Works in accordance with the Approved Engineering Drawings and the Subdivision and Development Servicing Agreement;

I, the Consulting Professional, hereby certify that to the best of my knowledge:

- (i) All Works required under the Subdivision and Development Servicing Agreement attained **Substantial Completion** as of the ____ day of _____, 20____;
- (ii) The deficiencies listed on the attached Deficiency List are an accurate account of the Works that are outstanding and are to be completed prior to submission of a Certificate of Final Acceptance.
- (iii) The estimated value to remedy the items on the Deficiency List is \$_____ and 200% of this estimated value should be retained by the City as security for the Owner's obligation to remedy the deficiencies.
- (iv) Pursuant to the Subdivision and Development Servicing Agreement, the **Maintenance Period** for the Works shall commence on the Approving Officer's acceptance of this Certificate of Substantial Completion of All Works by applying his/her signature below and shall terminate after:
 - a. **One year** after the Commencement Date in respect of the **Non-Landscaping Works**; and
 - b. **Two years** after the Commencement Date in respect of the **Landscaping Works**.

I hereby request that the Works be accepted as attaining Substantial Completion.

Certified by Consulting Professional:

Signature

Professional
Seal

Date: _____



The City of Fort St. John
SUBDIVISION AND DEVELOPMENT SERVICING BYLAW
Bylaw No. 2405, 2019
Appendix 2

Accepted by City Approving Officer:

Signature

Date: _____

Attachment: Deficiency List

cc: Owner



The City of Fort St. John
SUBDIVISION AND DEVELOPMENT SERVICING BYLAW
Bylaw No. 2405, 2019
Appendix 2

CITY OF FORT ST. JOHN

SUBDIVISION & DEVELOPMENT PROJECTS

CERTIFICATE OF FINAL ACCEPTANCE FOR NON- LANDSCAPING WORK

Project Name: _____

City Project No.: _____

Consulting Professional: _____ / Consulting Firm: _____

Owner: _____

Contractor: _____

Date of Issue: _____

WHEREAS the City and the Owner entered into a Subdivision and Development Servicing Agreement dated the ____ day of _____, 20____; and

WHEREAS the Owner is required to complete certain Works in accordance with the Approved Engineering Drawings and the Subdivision Servicing Agreement;

I, the Consulting Professional, hereby certify that to the best of my knowledge:

- (i) All Non-Landscaping works, in this subdivision or development are complete and built substantially in accordance with the Subdivision and Development Servicing Bylaw.
- (ii) All deficiencies set out in the Deficiency List have been corrected and that there is no outstanding work remaining to be completed on this project.
- (iii) All warranties, guarantees, maintenance manuals, as-constructed drawings, and relevant documentation for the work have been provided to the City.

I hereby request that Non Landscaping Works be accepted as attaining **Final Acceptance**.

Certified by Consulting Professional: <hr/> <i>Signature</i>	<div style="text-align: center;">Professional Seal</div>	Date: _____
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Accepted by City Approving Officer: <hr/> <i>Signature</i>	Date: _____
--	-------------

cc: Owner



The City of Fort St. John
SUBDIVISION AND DEVELOPMENT SERVICING BYLAW
Bylaw No. 2405, 2019
Appendix 2

CITY OF FORT ST. JOHN
SUBDIVISION & DEVELOPMENT PROJECTS

CERTIFICATE OF FINAL COMPLETION FOR LANDSCAPING WORKS

Project Name: _____

City Project No.: _____

Consulting Professional: _____ / Consulting Firm: _____

Owner: _____

Contractor: _____

Date of Issue: _____

WHEREAS the City and the Owner entered into a Subdivision and Development Servicing Agreement dated the ____ day of _____, 20____; and

WHEREAS the Owner is required to complete certain Works in accordance with the Approved Engineering Drawings and the Subdivision Servicing Agreement;

I, the Consulting Professional, hereby certify that to the best of my knowledge:

- (i) All Landscaping Works in this subdivision or development are complete and built substantially in accordance with the Subdivision and Development Servicing Bylaw.
- (ii) All deficiencies set out in the Deficiency List have been corrected and that there is no outstanding work remaining to be completed on this project.
- (iii) All warranties, guarantees, maintenance manuals, as-constructed drawings, and relevant documentation for the work have been provided to the City.

I hereby request that Works be accepted as attaining **Final Acceptance**.

Certified by Consulting Professional: <hr/> <i>Signature</i>	<div style="text-align: center; padding: 10px;">Professional Seal</div>	Date: _____
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Accepted by City Approving Officer: <hr/> <i>Signature</i>	Date: _____
--	-------------

cc: Owner

APPENDIX 3

Sample Subdivision and Development Servicing Agreement

SUBDIVISION and DEVELOPMENT SERVICING AGREEMENT

THIS AGREEMENT dated for reference the _____ day of _____, 20_____,

BETWEEN:

CITY OF FORT ST. JOHN
10631 - 100th Street
Fort St. John BC V1J 3Z5

(the "City")

AND:

_____ [If a corporation add] (Inc. No. _____)

(the "Owner")

WHEREAS:

- A. The Owner is the registered owner of that land in Fort St. John, B.C. having a civic address of
_____ and legally described as:

Parcel Identifier: _____

[Insert complete legal description, exactly as per land title search]

(the "Land");

[If more than one parcel of land is being subdivided, change Recital A accordingly and define as (together called the "Land")]

- B. The Owner intends to subdivide the Land in the manner shown on the plan of proposed subdivision attached to this Agreement as Schedule "A" (the "**Subdivision Plan**");
- C. Section 509 of the *Local Government Act* provides that all works and services required, pursuant to the Subdivision and Development Servicing Bylaw, to be constructed and installed at the expense of the owner of the land being subdivided must be constructed and installed before the Approving Officer approves of the subdivision unless the owner deposits security for those works and services and enters into an agreement with the City to construct and install the works and services by a specified date or forfeit the security;
- D. The Owner has applied to subdivide the Land in accordance with the Subdivision Plan and has requested approval of the Subdivision Plan prior to the construction and provision of the works and services which are required in relation to the proposed subdivision;
- E. As outlined in this Agreement, the Owner has agreed to construct and provide certain works and services as required by the Approving Officer or the Director of Planning and Engineering, as the case may be, and the Subdivision and Development Servicing Bylaw, in accordance with the drawings, standards and specifications referred to in this Agreement;
- F. The Owner has also agreed to provide revegetation and landscaping work in accordance with the landscaping plans referred to in this Agreement;
- G. The Owner has also agreed, voluntarily, to provide other works and services beyond those required by the Approving Officer or the Director of Planning and Engineering, as the case may be, and the City's bylaws, as depicted in the engineering plans approved for this development; and
- H. In accordance with the Subdivision and Development Servicing Bylaw, the Owner has provided \$ _____ in Construction Security, as that term is defined in this Agreement.

THEREFORE in consideration of the sum of \$1.00 paid to the Owner by the City, the approval of the Subdivision Plan, and other good and valuable consideration, the receipt and sufficiency of which are hereby expressly acknowledged by the Owner, the Owner covenants and agrees with the City as follows:

Interpretation

- 1. In this Agreement:

- a. **Agreement** or **this Agreement** means this agreement and includes all recitals and schedules to this agreement, and all *Land Title Act* instruments and form comprising this agreement, if any;
- b. **Approved Design** has the meaning given in section 2.b;
- c. **Business Day** means a day which is not a Saturday, Sunday, statutory holiday recognized by the City or any other day that the City's offices are closed for business;
- d. **Certificate of Substantial Completion for All Works** is defined in the Subdivision and Development Servicing Bylaw;
- e. **Certificate of Substantial Completion for Deep Utilities** is defined in the Subdivision and Development Servicing Bylaw;
- f. **Certificate of Final Acceptance of Non-Landscaping Works** has the meaning given in section 46;
- g. **Certificate of Final Acceptance of Landscaping Works** has the meaning given in section 49;
- h. **City Lands** means the lands identified in the Approved Design, which lands are registered in the name of the City or are lands dedicated as road, lane, street or park or are a portion of the Land that, in connection with the Works are, or will be, encumbered by a statutory right of way;
- i. **City Representatives** has the meaning given in section 51;
- j. **Construction Security** means security for the performance of the Owner's obligations to design, construct, install and complete the Works in accordance with this Agreement in the form of a cash deposit, certified cheque, bank draft or in the form of a letter of credit meeting the terms and conditions set out in Schedule "D", and otherwise to be issued to the City in the amount of 100% of the Estimated Costs;
- k. **Consulting Professional** means a professional person who is retained by the Owner for a purpose referred to in this Agreement and who is qualified and registered to practice in British Columbia for that purpose, and includes a professional engineer, architect and landscape architect;
- l. **Contaminants** means
 - i. "waste" as that term is defined in the *Environmental Management Act* of British Columbia (including all regulations thereto); and
 - ii. any substance which is not "waste" but which exceeds or fails to comply with the most stringent applicable land, water or air use standards set-out in the *Environmental Management Act* of British Columbia (including all regulations thereto) or any and all other standards imposed by municipal, provincial, or federal laws, regulations or policies, as the case may be;

- m. "**Deep Utilities**" means those portions of the Works comprising the sanitary sewer, storm sewer, watermain and related services, as more particularly described in the Estimated Costs;
- n. "**Deficiency List**" has the meaning given in section 35.a;
- o. "**Deficiency Security**" has the meaning given in section 35.b;
- p. "**Deficiency Time Limit**" has the meaning given in section 36;
- q. "**Director of Planning and Engineering**" is defined in the Subdivision and Development Servicing Bylaw;
- r. "**Estimated Costs**" means the estimated costs of the Works provided by the Owner to the City that are, as of the reference date of this Agreement, the costs set out in Schedule "E";
- s. "**Event of Insolvency**" means the Owner makes a general assignment for the benefit of creditors, or the Owner institutes proceedings to have itself adjudicated as a bankrupt or insolvent, including, without limitation, any application or order under the *Companies Creditors Arrangement Act* (Canada), or the Owner becomes the subject of bankruptcy or insolvency proceedings, or a judgement or decree order is entered by a court of competent jurisdiction judging the Owner bankrupt or insolvent, or the Owner or its directors pass any resolution authorizing the dissolution or winding-up of the Owner;
- t. "**Land**" has the meaning given in Recital A, and also refers to the Land after it is subdivided by the Subdivision Plan;
- u. "**Land Title Act**" means the *Land Title Act* of British Columbia, RSBC 1996, Chapter 250;
- v. "**Landscape Security**" means security for the performance of the Owner's obligations to design, construct, plant, install and complete the Landscaping Works in accordance with this Agreement in the form of cash deposit, certified cheque, bank draft or in the form of a letter of credit meeting the terms and conditions set out in Schedule "D", and otherwise to be issued to the City in the amount of 100% of the part of the Estimated Costs attributed to the Landscaping Works;
- w. "**Landscaping Works**" means all landscaping including without limitation, the lawns, trees, shrubs, bushes, flowers and other flora to be provided, installed and constructed by the Owner as required by the Approving Officer or the Director of Planning and Engineering, as the case may be,, by the Subdivision and Development Servicing Bylaw and other bylaws of the City, and as otherwise required under statutory authority, and without limitation, the landscaping works listed on Schedule "F";
- x. "**MMCD** or "**Master Municipal Construction Document**" means the latest edition of the Master Municipal Construction Document prepared by the Master Municipal Construction Documents Association, as amended from time to time, but not including "Instructions to Tenderers" and "General Conditions" in volume II or "Measurement and Payment" sections.

- y. “**Maintenance Period**” means the period which expires:
- i. one (1) year for the Non-Landscaping Works; and
 - ii. two (2) years for the Landscaping Works,

or such other period in the Approving Officer or the Director of Planning and Engineering’s, as the case may be, discretion, after the date of issuance of the City’s acceptance of the Certificate of Substantial Completion for All Works, EXCEPT THAT if the Maintenance Period expires on a date between November 1 and April 30, it shall be extended to May 1;

- z. “**Maintenance Security**” has the meaning given in section 42;
- aa. “**Non-Landscaping Works**” means all works and services to be provided, performed and constructed by the Owner as required by the Approving Officer or the Director of Planning and Engineering, as the case may be,, by the Subdivision and Development Servicing Bylaw and other bylaws of the City, and as otherwise required under statutory authority, and without limitation, the Works include all the construction shown or referred to in the Approved Design, utilities and connections to be constructed on and off the Land, environmental protection measures, and all other utilities and services, all as listed on Schedule “F”, except the Landscaping Works;
- bb. “**Notice of Default**” has the meaning given in section 62;
- cc. “**On-Site Inspection Deadline**” means the date in each year that is the earlier of:
- i. the first day of snowfall to occur after September 1 in the City of Fort St. John; and
 - ii. October 31,

provided that, if either date falls on a day that is not a Business Day, then the preceding Business Day;

- dd. “**Record Drawings**” means the approved “for construction” drawings accurately revised to reflect actual construction changes in the field, sealed by Design Engineer, including digital copies using the MMCD as constructed template.
- ee. “**Security**” means one or more of the Construction Security, Deficiency Security, Landscape Security, and Maintenance Security, as the context requires;
- ff. “**Subdivision and Development Servicing Bylaw**” means the *Subdivision and Development Servicing Bylaw No. 2405, 2018* in effect on the reference date of this Agreement;
- gg. “**Subdivision Plan**” has the meaning given in Recital B;
- hh. “**Substantial Completion**”, “**Substantially Complete**”, or other similar form of any such phrase has the meaning given to the term “Substantial Performance” in the definitions section of the General Conditions of the MMCD Documents;

- ii. **Works** includes: highways, walkways, boulevards, boulevard crossings, transit bays, curbs, gutters, street lighting, underground wiring, electrical distribution systems, water distribution systems, fire hydrant systems, sewage collection and disposal systems, drainage collection and disposal systems, access to highways, and such other infrastructure or systems required by this Bylaw in connection with the Subdivision or Development of land;
- jj. **Workers Compensation Act** means the *Workers Compensation Act* of British Columbia, RSBC 1996, Chapter 492, as may be amended from time to time;
- kk. **Works Commencement Date** has the meaning given in section 3; and
- ll. **Works Completion Date** means _____, or such other date agreed to in writing by the Approving Officer or the Director of Planning and Engineering, as the case may be, or the Director of Planning and Engineering, as the case may be.,

Commencement of Construction

- 2. The Owner shall not commence construction of the Works until the Owner has:
 - a. provided to the City, the Estimated Costs in a form and content satisfactory to the City;
 - b. prepared, in accordance with the Specifications of the MMCD Documents and the Subdivision and Development Servicing Bylaw, the final plans and specifications for the Works and obtained the City's written approval in respect thereof (such final, approved plans and specifications become the "**Approved Design**");
 - c. provided to the City written confirmation, in a form and content acceptable to the Approving Officer or the Director of Planning and Engineering, as the case may be,, that the Owner has obtained the insurance coverage as required
 - d. provided to the City confirmation, in a form and content acceptable to the Approving Officer or the Director of Planning and Engineering, as the case may be,, that all contractors, subcontractors, material suppliers and their respective personnel are registered in accordance with the *Workers Compensation Act*. Without limiting the generality of the foregoing, if the workplace in which the installation, construction and completion of the Works is being performed constitutes a "multiple-employer workplace" (as defined in the *Workers Compensation Act*), the Owner hereby agrees that the Owner shall be the "prime contractor" (as defined in the *Workers Compensation Act*) and shall comply with all of the obligations and duties of the "prime contractor" set out in the *Workers Compensation Act*, together with all regulations thereto with respect to workplace health and safety;
 - e. provide to owners of all public and private utilities, if any, that may be affected by the construction and installation of the Works, notice of the same and obtained consent, where required, and provided copies to the City of all notices and consents in respect of the same;

- f. if requested by the City, granted to the City, in a form and content acceptable to the Approving Officer or the Director of Planning and Engineering, as the case may be, such statutory rights of way, Section 219 covenants or such other instruments as are, in connection with this Agreement, required by the City in the City's absolute determination;
 - g. if requested by the City, provided to the Approving Officer or the Director of Planning and Engineering, as the case may be, in a form and content acceptable:
 - i. a traffic management plan;
 - ii. a geotechnical report;
 - iii. an environmental report of the Land; and
 - iv. such other documents, plans, certificates and confirmations.
 - h. provided to the City, notice of the Owner's intention to commence construction of the Works not less than 2 Business Days prior to such commencement;
 - i. submit to the Approving Officer or the Director of Planning and Engineering, as the case may be, a construction schedule listing an approximate start date for each phase of construction;
3. At the latest, the Owner must begin installation and construction of the Works within _____ of the date of approval of the Subdivision Plan by the Approving Officer or the Director of Planning and Engineering, as the case may be ("**Works Commencement Date**").

Construction and Installation of Works

4. The Owner covenants and agrees with the City that the Owner shall:
 - a. diligently construct, install and, on or before the Works Completion Date, complete the Works in accordance with this Agreement, the Approved Design, and the Subdivision and Development Servicing Bylaw;
 - b. comply with any changes to the Approved Design required by the Approving Officer or the Director of Planning and Engineering, as the case may be, so as to satisfy the aforementioned so that the Works will function and operate in a manner satisfactory to the City;
 - c. retain at all times a Consulting Professional to provide competent survey, layout and onsite supervision to ensure that the Works strictly conform to the Approved Design and to record the details of any field design or construction changes to the Approved Design and to record all of the relevant information for preparation of the Record Drawings;
 - d. not damage any City works, City services, City property or other property; and
 - e. not deposit or permit to be deposited on City Lands any material or debris except to the extent expressly authorized by the City and, without limiting the generality of the foregoing, any deposit authorized by the City must be free and clear of all Contaminants.

Time for Completion

5. The Owner shall, at the Owner's cost, Substantially Complete the Works and obtain a Certificate of Substantial Completion for All Works by _____, 20_____, or such other date agreed to in writing by the Approving Officer or the Director of Planning and Engineering, as the case may be.

Construction Security

6. As security for the Owner's completion of the design, installation and construction of the Works and performance of all the other promises of the Owner in this Agreement, the Owner shall issue to the City, prior to approval of the Subdivision Plan, the Construction Security.
7. The Owner acknowledges and agrees that the City has relied on the Estimated Costs prepared by the Consulting Professional in establishing the amount of the Construction Security and the Owner confirms to the City that the Owner has so advised the Consulting Professional prior to submission of those cost estimates to the City.
8. The Owner further acknowledges and agrees that the City's acceptance of the Estimated Costs shall not, in any way whatsoever, be construed as the City's agreement or acknowledgement that the Estimated Costs represent the actual costs of designing, constructing, installing and completing the Works.
9. As the Works proceed, the amount of the Construction Security may be reduced at any time in the City's discretion, with the written approval of the Approving Officer or the Director of Planning and Engineering, as the case may be.

Use of Construction Security

10. The City may draw upon the Construction Security in the form of a letter of credit, or withdraw from the deposit of the certified cheque or bank draft, as the case may be, at any time and may hold or use the proceeds in accordance with this Agreement.

City May Complete Works and Remedy Defaults

11. If, in the opinion of the Approving Officer or the Director of Planning and Engineering, as the case may be, the Works have not been:
 - a. commenced by the Works Commencement Date;
 - b. designed, constructed, installed, repaired or maintained to the standards required by this Agreement; or
 - c. completed by the Works Completion Date,

the City may and is hereby authorized without notice, through its employees, agents, contractors and subcontractors, to undertake any or all of the design, installation construction, repair or maintenance of the Works on behalf of the Owner, at the cost of the Owner, and the Owner hereby acknowledges and agrees that:

- d. the City shall be under no obligation to design, construct, install, repair or maintain any of the Works on behalf of the Owner;
 - e. the City may undertake to design, construct, install, repair or maintain the any of the Works in whole or in part;
 - f. notwithstanding any other provision of this Agreement, if the City designs, constructs, install or maintains any Works on behalf of the Owner, the City will not be bound by any timing, scheduling or deadline requirements contained in this Agreement for the design, construction, installation, repair or maintenance of such Works nor will the City be bound by any of the design, construction or maintenance obligations of the Owner in this Agreement;
 - g. if the City decides to undertake any of the Works pursuant to this section 11, the City may, without in any way limiting the City's remedies, draw upon and use the Security held by the City pursuant to this Agreement; and
 - h. if the amount of the Security held by the City is insufficient to cover the City's costs, then the Owner will reimburse the City upon receipt of the City's invoice for payment of the same, whether or not the City has completed or will complete the balance of the Works.
12. If the City undertakes all or part of the Works, the cost of the Works which is payable by the Owner shall include the City's actual costs of construction plus the costs of engineering, supervision, legal, contract administration, tendering, survey, other professional services, interest and all other costs required for completion of the Works, plus a 15% administration fee to reflect City staff time, and the City may use the Construction Security for this purpose
 13. In exercising its rights pursuant to sections 11 to 12, above, the City, together with all City Representatives, may enter onto the Land and make use of so much of the Land as is, in the Approving Officer or the Director of Planning and Engineering's, as the case may be, opinion, necessary to permit the City, without obligation to do so, to fulfil the obligations of the Owner including, without limitation, the obligation to complete the Works on the terms and conditions set out in this Agreement.

Other Use of Construction Security

14. If the City incurs any costs in correcting any breach of the Owner's obligations under this Agreement, other than non-completion of the Works, and those costs are not paid by the Owner within 30 days of receipt of the City's invoice, the City may recover those costs from the Construction Security, and Section 12 applies to the extent applicable.

15. In addition to and not in substitution of any of the City's other rights and remedies in this Agreement, the City may, without notice, immediately draw upon and use the Construction Security if:
 - a. at any time before the expiration of the applicable Maintenance Period, the balance of the term remaining on any letter of credit securing performance of the Owner's obligations under his Agreement is less than 30 days; and/or
 - b. any Event of Insolvency occurs.

Return of Construction Security

16. Upon the City's acceptance of the Certificate of Substantial Completion for Deep Utilities, a reduction in the amount of security then held by the City shall be made in the amount equal to seventy percent (70%) of that portion of the Construction Security representing security for the construction, installation and completion of the Deep Utilities.
17. If the Owner completes the Works or if the City's costs of undertaking the Works are less than the amount of the Construction Security, then the Construction Security, or the unused portion thereof, shall be returned to the Owner by the City, without interest, after the City's acceptance of the Certificate of Substantial Completion for All Works.
18. Any return of Construction Security shall be made to the Owner, despite any change in the ownership of the Land. The City will, under no circumstances, be required to pay interest on any cash held due to the drawing of a Letter of Credit.

Compliance with Laws

19. In undertaking the Works, the Owner shall construct, install and complete the Works in accordance with this Agreement and all applicable laws, bylaws, permits, licenses, statutes, regulations, orders, codes (including the BC Building Code), and other applicable enactments.

Adherence to Approved Design

20. The Owner confirms to the City that the Works have been designed by a Consulting Professional.
21. In undertaking the Works, the Owner shall strictly adhere to the Approved Design and obtain the prior written approval of the Approving Officer or the Director of Planning and Engineering, as the case may be, for any changes to the Approved Design.

Standard of Work

22. Each component of the Works shall be provided and constructed to the satisfaction of the City and to all of the following standards:
 - a. a standard which is sufficient for its intended purposes;

- b. generally accepted engineering practices; and
- c. the standards of the Subdivision and Development Servicing Bylaw.

Competent Contractors

- 23. The Owner shall not engage any employee or contractor in the construction of the Works who, in the reasonable opinion of the Approving Officer or the Director of Planning and Engineering, as the case may be, is unfit, incapable or unskilled.

On-Site Supervision

- 24. At all times during the construction and provision of the Works, the Owner shall retain one or more Consulting Professionals to oversee the completion of the Works and in addition, the Owner shall ensure that a competent superintendent is on site at all times during the construction and installation of the Works.

Essential Services

- 25. At all times after any construction has begun, the Owner shall ensure that all land where construction is underway is provided with:
 - a. highway access which is sufficient for fire trucks and other emergency vehicles; and
 - b. water service which is sufficient for fire-fighting purposes.

Notice of Work on City Lands

- 26. The Owner shall not begin the construction of any portion of the Works on City Lands without advising the Approving Officer or the Director of Planning and Engineering, as the case may be, at least five business days before beginning that portion of the Works, and the Owner must subsequently follow all instructions of the Approving Officer or the Director of Planning and Engineering, as the case may be, as to traffic control, public safety and other matters.

Debris Removal

- 27. The Owner shall promptly remove any material or debris during the course of constructing the Works, but in the event that any material or debris is left upon any highway, park or other municipal property during or after the construction of the Works, the City may remove the material or debris at the expense of the Owner.

City Review and Entry on Land

28. The Owner authorizes the City, its agents and contractors to enter upon the Land and other work sites at all times as the City may consider necessary or convenient for the carrying out of this Agreement, including without limitation for the purpose of witnessing tests or inspections or undertaking the Works. If the Approving Officer or the Director of Planning and Engineering, as the case may be, is not satisfied with the quality of construction work or is not satisfied that the Consulting Professional is providing the appropriate level of inspection, he or she may, after twenty-four (24) hours written notice, engage an inspector to provide a satisfactory level of inspection over the duration of the project. Payment for this inspection will be taken from the Security.

Utilities Tests

29. During the course of construction, the Owner shall provide advance written notice to the City so that the Approving Officer or the Director of Planning and Engineering, as the case may be, may be in attendance at various stages of construction, including:

CONSTRUCTION STAGE	MINIMUM NOTICE
Sub-grade proof rolling	3 business days
Prior to placement of curb and gutter and walkway	3 business days
Prior to paving	3 business days
Water system pressure/leakage tests	3 business days
Sanitary sewer system leakage tests	3 business days
Storm Drainage system leakage tests	3 business days
Start-up of Pump Stations, Reservoirs, etc.	3 business days
Substantial Completion Inspection	3 business days
Final Acceptance Inspection	3 business days

City Directions

30. If the City considers at any time that the Works are in any way defective or do not operate in a satisfactory manner, the City may require the Works to be corrected and Owner shall, at its own expense, modify and reconstruct the Works immediately so that the Works are fully operative and function in accordance with the required standards.

31. Any explanations, orders, instructions, directions and requests given by the City to the Consulting Professional shall be deemed to have been given to the Owner.

Certificate of Substantial Completion for Deep Utilities

32. Upon completion of the Deep Utilities to Substantial Completion, the Owner shall deliver to the City a Certificate of Substantial Completion for Deep Utilities issued, signed and sealed by the Consulting Professional certifying that the Deep Utilities have been constructed to Substantial Completion in accordance with the Approved Design and this Agreement.

Certificate of Substantial Completion for Landscaping Works

33. Upon completion of Landscaping Works to Substantial Completion, the Owner shall deliver to the City a Certificate of Substantial Completion for Landscaping Works issued, signed and sealed by the Consulting Professional certifying that the Landscaping Works have been constructed to Substantial Completion in accordance with the Approved Design and this Agreement.

Certificate of Substantial Completion for All Works

34. Upon completion of the Works to Substantial Completion, the Owner shall cause its Consulting Professional(s) to conduct a Substantial Completion Inspection of the Works before the On-site Inspection Deadline, which Substantial Completion Inspection may be observed by the Approving Officer or the Director of Planning and Engineering, as the case may be, or their designate, and the Owner, being satisfied with the completion of the Works, shall deliver to the City a Certificate of Substantial Completion for All Works issued, signed and sealed by the Consulting Professional certifying that the Works have been constructed to Substantial Completion in accordance with the Approved Design and this Agreement.

Deficiencies

35. At the time the Owner delivers to the City the Certificate of Substantial Completion for All Works, the Owner shall also:
 - a. deliver to the City a list (the "**Deficiency List**") for the City's acceptance, prepared by the Consulting Professional, specifying those portions of the Works which, in the opinion of the Consulting Professional, are not completed to the required standard as at the date of the Certificate of Substantial Completion for All Works, setting out an estimate of the cost to rectify the deficiencies set out in the Deficiency List, and the date by which such deficiencies shall be remedied;
 - b. deliver to the City, security in the amount calculated to be 200% of the estimate of the cost to rectify the deficiencies set out in the Deficiency List (the "**Deficiency Security**") as security for the performance of the Owner's obligations to correct the Deficiencies.

Deficiency Time Limit

36. The Owner will correct the deficiencies set out in the Deficiency List to the satisfaction of the Approving Officer or the Director of Planning and Engineering, as the case may be, within the time limit (the “**Deficiency Time Limit**”) specified in the Deficiency List approved by the City.

Use of Deficiency Security

37. If the Owner does not correct the Deficiencies, to the satisfaction of the City, within the Deficiency Time Limit, the City may use the Deficiency Security for the purpose of correcting the deficiencies set out in the Deficiency List.

City's Acceptance of Substantial Completion of All Works

38. Following delivery of the required Certificate(s) of Substantial Completion of All Works and the Deficiency List, the Approving Officer or the Director of Planning and Engineering, as the case may be, will then review the submission and if:
 - a. the Works are completed to his or her satisfaction;
 - b. the Deficiency List is prepared to the his or her satisfaction; and
 - c. the Owner is not otherwise in breach of any of its obligations under this Agreement,

and the Owner has:

- d. made payment to the City of any amount owing under this Agreement;
- e. delivered the Maintenance Security to the City;
- f. delivered the Deficiency Security to the City;
- g. provided to the City written confirmation, in a form and content acceptable to the Approving Officer or the Director of Planning and Engineering, as the case may be, that the Owner has obtained and maintained the insurance coverage as required under this Agreement; and
- h. delivered to the City all statutory rights of way required by section 45, in a form registrable in the *Land Title Office* and otherwise acceptable to the City,

then the Approving Officer or the Director of Planning and Engineering, as the case may be, will issue a letter of acceptance of the Certificate of Substantial Completion for All Works.

Sections Applicable

39. Sections 6-12 , 14, 15, 17, 18 of this Agreement also apply to the Deficiency Security and return of the Deficiency Security but with all necessary changes.

Maintenance Period

40. During the Maintenance Period, the Owner shall forthwith remedy any defect in the Works or failure of the Works to operate normally appearing within the Maintenance Period (excluding defects caused by reasonable wear and tear, and acts of God) and any resulting damage to other works or property.

City Operation of Works

41. During the Maintenance Period, the City will operate those parts of the Works which are within City lands with respect to road and water infrastructure. Notwithstanding that the City will operate such works, the Owner shall remain responsible for remedying any defects in the Works and maintaining the Works during the Maintenance Period and in default thereof the City may draw down on the Maintenance Security or Deficiency Security, as the case may be.

Maintenance Security

42. The Owner shall, prior to the City's acceptance of the Certificate of Substantial Completion for All Works, deposit with the City a sum equal to 10% of the Construction Security, as security for performance of the Owner's obligations under section 40 (the "**Maintenance Security**").

Use of Maintenance Security

43. If the Owner fails to remedy any defect in the Works or any failure of the Works to operate normally, the City may deduct from the Maintenance Security the City's cost of repairing the Works, remedying any defect or paying for any resulting damage.

Sections Applicable

44. Sections 6-12 , 14, 15, 17, 18 of this Agreement also apply to the Maintenance Security and return of the Maintenance Security but with all necessary changes.

Grant of Statutory Rights of Way

45. The Owner shall, prior to the City's acceptance of the Certificate of Substantial Completion for All Works, grant to the City, in the City's standard form of agreement, and cause to be registered, in priority to all charges except those accepted by the City, statutory rights of way for all portions of

the Works located on privately-owned lands which the City determines are to be owned, maintained and repaired by the City, and the Owner shall be responsible for all associated surveying and land title filing fees and registration costs.

Certificate of Final Acceptance of Non-Landscaping Works

46. No sooner than 5 weeks and no later than 3 weeks before the expiry of the Maintenance Period in respect of the Non-Landscaping Works, the Owner shall cause its Consulting Professional(s) to conduct a final inspection of the Non-Landscaping Works, which shall occur before the On-Site Inspection Deadline, which final inspection may be observed by the Approving Officer or the Director of Planning and Engineering, as the case may be, or their designate, and the Owner, being satisfied with the completion of the Non-Landscaping Works, shall deliver to the City the required certificate(s) (the "**Certificate of Final Acceptance of Non-Landscaping Works**") issued, signed and sealed by the Consulting Professional(s) certifying that the Non-Landscaping Works have been fully installed, constructed and completed, and any defects in the Non-Landscaping Works remedied, in accordance with the Approved Design and this Agreement.

Record Drawings

47. The Owner shall submit to the City final Record Drawings sealed by the Consulting Professional, including two complete sets of prints and one set of all drawings in electronic digital form, as specified in the Subdivision and Development Servicing Bylaw, of all the Works as constructed and as approved by the City, at least 2 weeks in advance of the final inspection contemplated in the previous section.

City Acceptance of Certificate of Final Acceptance of Non-Landscaping Works

48. Upon:
 - a. the City's receipt of the Certificate of Final Acceptance of Non-Landscaping Works from the Owner;
 - b. the Approving Officer or the Director of Planning and Engineering, as the case may be, being satisfied that all deficiencies have been remedied and the Non-Landscaping Works have been properly maintained during the Maintenance Period; and
 - c. the Owner's payment to the City of any amount owing to the City under this Agreement,

the City will accept, and issue a letter of acceptance, of the Certificate of Final Acceptance of Non-Landscaping Works and:

- d. return the Deficiency Security (other than that part of it provided in respect of the Landscaping Works), or remaining portion thereof, if any, to the Owner; and

- e. return the Maintenance Security (other than that part of it provided in respect of the Landscaping Works), or remaining portion, if any, to the Owner.

Certificate of Final Acceptance of Landscaping Works

49. No sooner than 5 weeks and no later than 3 weeks before the expiry of the Maintenance Period in respect of the Landscaping Works, the Owner shall cause its Consulting Professional(s) to conduct a final inspection of the Landscaping Works, which shall occur before the On-Site Inspection Deadline, which final inspection may be observed by the Approving Officer or the Director of Planning and Engineering, as the case may be, or their designate, and the Owner, being satisfied with the completion of the Landscaping Works, shall deliver to the City the required certificate(s) (the “**Certificate of Final Acceptance of Landscaping Works**”) issued, signed and sealed by the Consulting Professional(s) certifying that the Landscaping Works have been fully installed, constructed, planted and completed, and any defects in the Landscaping Works remedied, in accordance with the Approved Design and this Agreement.

City Acceptance of Certificate of Final Acceptance of Landscaping Works

50. Upon:
 - a. the City's receipt of the Certificate of Final Acceptance of Landscaping Works from the Owner;
 - b. the Approving Officer or the Director of Planning and Engineering, as the case may be, being satisfied that all deficiencies have been remedied and the Landscaping Works have been properly maintained during the Maintenance Period; and
 - c. the Owner's payment to the City of any amount owing to the City under this Agreement,
- the City will accept, and issue a letter of acceptance, of the Certificate of Final Acceptance of Landscaping Works and:
- d. return the Deficiency Security held in respect of the Landscaping Works, or remaining portion thereof, if any, to the Owner; and
 - e. return the Maintenance Security held in respect of the Landscaping Works, or remaining portion, if any, to the Owner.

Indemnification

51. The Owner shall indemnify and save harmless the City, its Council members, officers, employees, contractors and agents (the “**City Representatives**”) from and against any and all actions, causes of action, liabilities, demands, losses, damages, costs, expenses (including actual fees of professional advisors), remediation of contamination costs, fines, penalties and other harm of any

kind whatsoever, despite any negligence by the City or the City Representatives, whether related to death, bodily injury, property loss, property damage or consequential loss or damage, suffered or incurred by the City and/or any of the City Representatives arising from, resulting from, connected with or related to:

- a. this Agreement;
- b. any incident or occurrence during the construction or installation of the Works (including during the Deficiency Period and the Maintenance Period);
- c. the construction, installation, maintenance or correction of the Works (including during the Deficiency Period and the Maintenance Period);
- d. liens, non-payment for labour or materials, Workers' Compensation assessments, employment insurance, federal or provincial tax, or union dues check off;
- e. any default or breach of this Agreement by the Owner;
- f. any wrongful act, omission or negligence of the Owner or its shareholders, directors, officers, employees, agents, contractors, subcontractors, licenses, or others for whom it is responsible in law.

This indemnity shall survive any expiry or other termination of this Agreement.

Release

52. The Owner shall release the City and the City Representatives from and against any and all actions, causes of action, liabilities, demands, losses, damages, costs, expenses (including actual fees of professional advisors), remediation of contamination costs, fines, penalties and other harm of any kind whatsoever, despite any negligence by the City or the City Representatives, whether related to death, bodily injury, property loss, property damage or consequential loss or damage, which the Owner may suffer or incur in relation to this Agreement.

This release shall survive any expiry or other termination of this Agreement.

Section 219 Covenant

53. If this Agreement is registered in the Land Title Office, then the covenants and agreements contained in sections 2 and 4 the covenants of indemnity contained in section 51 of this Agreement shall, in addition to being covenants and agreements of the Owner, be covenants pursuant to Section 219 of the *Land Title Act* and therefore be charges against and running with the Land. If this Agreement is not registered in the Land Title Office, then the covenants and agreements contained in sections 2 and 4 the covenants of indemnity contained in section 51 shall, all the same, together with the balance of the Agreement, be binding on the Owner and its successors and assigns.

Insurance

54. The Owner will at the Owner's expense, carry with an insurance company or companies acceptable to and approved by the City of Fort St. John the following insurance with limits not less than shown in the following respective items:

- a. Automotive Liability Insurance (Owned and Non-Owned Units)

Limits: Bodily Injury and Property Damage – inclusive each accident \$3,000,000.

The Owner shall, at the Owner's expense, through the term of the Contract, maintain such insurance as required under the Insurance (Motor Vehicle) Act of British Columbia, except as modified above. The Owner shall provide the City of Fort St. John with a Certificate of Insurance, Insurance Corporation of British Columbia (ICBC) form No. APV 47, for owned and leased vehicles as evidence of third party motor vehicle insurance coverage.

55.

- a. Comprehensive General Bodily Injury and Property Damage Insurance

Limits: Bodily Injury and Property Damage inclusive \$5,000,000

The insurance shall include Contractor's Contingent Liability, and Contractual Liability of sufficient scope to include the liability assumed by the Owner under the terms of this Agreement, and Completed Operations Liability. The policy shall include the Owner, the City of Fort St. John, and Contract Administrator as additional insured with a cross liability clause. Any property damage deductible shall be for the account of the Owner and shall not exceed \$2,500.00 for any one occurrence.

- b. Course of Construction Builders' Risk Insurance

Coverage on an "All Risks" basis insuring the Works against loss or damage to full replacement cost, subject to a deductible provision for the Owner's account not exceeding \$2500.00 each loss. Coverage to include the City of Fort St. John as an additional insured.

Insurance on equipment rented or owned by the Owner to its full insurable value.

56. The above specified insurance policies shall have the right of subrogation waived as again the City of Fort St. John and its respective employees.
57. The Owner shall provide the City of Fort St. John with satisfactory evidence that the insurance required to be provided by the Owner under this agreement is in full force and effect.
58. The City of Fort St. John makes no representation or warranty with respect to the extent or adequacy of the insurance protection afforded by the policies above. It shall be the full

responsibility of the Owner and the Owner's contractor(s) to determine their own additional insurance coverages that are necessary and advisable for its own protection or to fulfill its obligations under this Agreement. Any such additional insurance shall be provided and maintained by the Owner at the Owner's own expense.

59. The Owner is responsible for ensuring that its subcontractors comply with the same insurance requirements as set out above.
60. All policies referred to shall provide that thirty (30) days notices of cancellation will be given in writing to each insured, including the City of Fort St. John, otherwise the policies to remain in full force and effect until the City's acceptance of the Certificate of Final Acceptance of Non-Landscaping Works. Notwithstanding the foregoing, the Comprehensive General Bodily Injury and Property Damage Liability Insurance referred to above shall remain in full force and effect from the commencement of the performance of the Works for a period of not less than twelve (12) months following the City's acceptance of the Certificate of Final Acceptance of Non-Landscaping Works and with respect to completed operations coverage for a period of not less than 24 months following the City's acceptance of the Certificate of Final Acceptance of Non-Landscaping Works.

Engineering Consultant Liability

61. Consulting Professionals involved in the design and construction of the Works shall carry minimum Errors and Omission Liability Insurance coverage of \$2,000,000 per claim occurrence and maintain such coverage over a period of three (3) years after the City's acceptance of the Certificate of Substantial Completion of All Works. The Consulting Professionals shall provide Certificates of Insurance prior to commencement of construction of the Works and from time to time at the request of the City.

Default

62. If the Approving Officer or the Director of Planning and Engineering, as the case may be, is of the opinion that the Owner is at any time in default of any of the Owner's obligations under this Agreement, then the Approving Officer or the Director of Planning and Engineering, as the case may be, may deliver written notice of default to the Owner (save in respect of emergencies occasioned by such default, in which case delivery of notice is not required) which notice will specify the default and the time period for remedying the default ("**Notice of Default**").
63. From and after the date of delivery of the Notice of Default, the Owner shall remedy the default identified in the Notice of Default within the time period specified in the Notice of Default, and to the satisfaction of the Approving Officer or the Director of Planning and Engineering, as the case may be, and if the Owner fails or neglects to remedy the default to the satisfaction of the Approving Officer or the Director of Planning and Engineering, as the case may be,, then the City may, without in any way limiting the City's remedies, draw upon and use the Security held by the City pursuant to this Agreement to remedy the default.

64. If the Security held by the City is insufficient to cover the City's costs to remedy the default, then the Owner shall reimburse the City upon receipt of the City's invoice for payment of the same, whether or not the City has remedied or will remedy the balance of the default.
65. If the City undertakes to remedy the default, the cost is payable by the Owner shall include the City's actual costs to remedy the default plus the costs of engineering, supervision, legal, contract administration, tendering, survey, other professional services, interest and all other costs required for completion of the Works, plus a 15% administration fee to reflect City staff time.
66. In exercising its rights pursuant to sections 62 to 65, above, the City, together with all City Representatives, may enter onto the Land and make use of so much of the Land as is, in the Approving Officer or the Director of Planning and Engineering's, as the case may be, opinion, necessary to permit the City, without obligation to do so, to fulfil the obligations of the Owner including, without limitation, the obligation to complete the Works on the terms and conditions set out in this Agreement.

Owner's Risk

67. The Owner acknowledges and agrees that the Owner relies exclusively on its own expertise, the Consulting Professional and contractors, and that the City does not, by its approvals, inspections, issuance of certificates, or acceptance of the Works, warrant or represent that the Works are in compliance with this Agreement or any enactment or warrant the quality, fitness for purpose, adequacy or safety of the Works. The Owner further acknowledges and agrees that all approvals and inspections of the Works by the City are for the sole benefit of the City and shall in no way relieve the Owner from constructing and installing the Works in strict compliance with this Agreement.

No Representations

68. The Owner acknowledges that the City has made no representations, covenants, warranties, guarantees, promises or agreements with the Owner with regard to the subject matter of this Agreement.

Municipal Ownership of Works

69. Upon the City's acceptance of a Certificate of Final Acceptance of Non-Landscaping Works and a Certificate of Final Acceptance of Landscaping Works, the Works specified in such certificate shall become the property of the City, free and clear of any claim by the Owner or any person claiming through the Owner, without payment of any compensation or consideration EXCEPT Works on private land (including common property of a strata corporation) unless those Works become the property of the City under a statutory right of way or other agreement with the City.

Terminology

70. Wherever the singular or the masculine are used in this Agreement, they shall be interpreted as meaning the plural or the feminine or body corporate where the context requires.

Assignment

71. The Owner's obligations and rights under this Agreement shall not be assigned without the written consent of the City, such consent not to be unreasonably withheld, EXCEPT THAT the Owner may not assign this Agreement in part nor may the Owner assign this Agreement to a person who is not the registered owner of the Land. Unless the Owner obtains the City's consent to an assignment of this Agreement, the Owner's obligations under this Agreement shall continue in effect notwithstanding any transfer of title to all or part of the Land.

Notices

72. All notices to be given under this Agreement shall be in writing and may be delivered by hand, sent by facsimile transmission, or mailed by first-class prepaid registered mail.
73. Any notice delivered by hand or sent by facsimile transmission shall be deemed to be given and received on the day it is sent. Any notice mailed shall be deemed to be given and received on the third day after it is posted (unless there is a mail strike, slow down or other labour dispute which might affect delivery, in which case the notice shall be effective only if actually delivered or sent by facsimile transmission).
74. Notices shall be addressed to the addresses or facsimile numbers on page 1 or to such other address or facsimile number as may from time to time be advised by a party in writing. Notice by the City to the Owner may be posted on the Land.
75. Notices to the City must be addressed to the attention of the **"Director of Legislative and Administrative Services"**.

Binding Effect

76. This Agreement shall enure to the benefit of and be binding upon the parties and their respective corporate successors, heirs, executors, administrators, personal representatives, and permitted assigns.

Sale of Land

77. In the event that the Owner proposes to transfer any part of the Land where a portion of the Works is to be located, prior to the transfer the Owner shall obtain the transferee's written consent to entry by the City on that part of the Land, for the purposes of this Agreement.

Joint and Several

78. If at any time more than one person (as that term is defined in the B.C. Interpretation Act) is the owner of the Land, then those persons shall be jointly and severally responsible for all the obligations of the Owner under this Agreement.

Further Acts

79. Each party shall do all further acts as may be necessary for carrying out this Agreement, including without limitation execution of all required documentation.

Time of the Essence

80. Time is of the essence of this Agreement.

Force Majeure

81. All obligations of the parties shall be suspended so long as the performance of such obligation is prevented, in whole or in part, by reason of labour dispute, fire, act of God, unusual delay by common carriers, earthquake, act of the elements, riot, civil commotion or inability to obtain necessary materials on the open market, and the period in which any party is required to perform any such obligation is extended for the period of such suspension. The impact of the Owner's financial circumstances upon the Owner's ability to perform this Agreement does not suspend the Owner's obligations under this Agreement, and for the Owner to be entitled to rely on the time suspension in this section, the Owner must give prompt notice to the City of the reason the Owner claims to be entitled to a time suspension and the Owner must obtain the City's approval for the reason and duration of the time suspension.

Waiver

82. An alleged waiver by the City of any breach by the Owner of this Agreement is effective only if it is an express waiver in writing of the breach in respect of which the waiver is asserted. A waiver by the City of a breach by the Owner of this Agreement does not operate as a waiver of any other breach of this Agreement.

No Public Law Duties

83. Whenever in this Agreement the City, or a City official, is required or entitled to exercise any discretion in the granting of consent or approval, or is entitled to make any determination, take any action or exercise any contractual right or remedy including without limitation the termination of this Agreement, the City, or the City official, may do so in accordance with the

contractual provisions of this Agreement and no public law duty whether arising from the principles of procedural fairness or the rules of natural justice shall have any application.

No Effect on Laws or Powers

84. This Agreement does not:

- a. effect or limit the discretion, rights, duties or powers of the City under any enactment or at common law, including in relation to the use or subdivision of the Land;
- b. affect or limit any enactment relating to the use or subdivision of the Land; or
- c. relieve the Owner from complying with any enactment, including in relation to the use or subdivision of the Land.

Severability

85. If any provision of this Agreement is held to be unenforceable by a court, that provision shall be severed from the remainder of this Agreement and the remainder shall continue in effect.

Amendments

86. No amendment to this Agreement shall be effective unless it is made in writing and is duly executed on behalf of both parties.

Schedules

87. The following schedules are annexed to and form part of this Agreement:

- a. Schedule "A" – Reduced Copy of Subdivision Plan
- b. Schedule "B" – List of Landscaping Plans
- c. Schedule "C" – List of Engineering Drawings
- d. Schedule "D" – Letter of Credit Requirements
- e. Schedule "E" – Estimated Costs
- f. Schedule "F" – Complete Listing of Works

Acknowledgment

88. The Owner acknowledges having read and fully understood all the terms and conditions of this Agreement and confirms that this Agreement has been entered voluntarily.



The City of Fort St. John
SUBDIVISION AND DEVELOPMENT SERVICING BYLAW
Bylaw No. 2405, 2019
Appendix 3

IN WITNESS WHEREOF the parties have executed this Agreement on the dates set out below.

DATED the _____ day of _____, 20____

The Corporate Seal of **CITY OF FORT ST. JOHN** was)
hereunto affixed in the presence of:

) C/S

)

Mayor:)

)

)

Director of Legislative and Administration Services:)

)

)



The City of Fort St. John
SUBDIVISION AND DEVELOPMENT SERVICING BYLAW
Bylaw No. 2405, 2019
Appendix 3

[If Owner is an individual, execute below]

DATED the _____ day of _____, 20_____

Signed, Sealed and Delivered in the presence of:)
_____ Name of Witness:	) _____ _____ ) Signature of Owner
_____ Address of Witness:) _____ _____)
_____ Occupation of Witness:) _____ _____)



The City of Fort St. John
SUBDIVISION AND DEVELOPMENT SERVICING BYLAW
Bylaw No. 2405, 2019
Appendix 3

[If Owner is a corporation, execute below]

DATED the _____ day of _____, 20_____

_____) The Corporate Seal of _____) C/S was hereunto affixed in the presence of its authorized signatories:) _____) _____) _____) Name:) _____) _____) Signature:) _____) _____) Name:) _____) _____) Signature:) _____) _____)	
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The City of Fort St. John
SUBDIVISION AND DEVELOPMENT SERVICING BYLAW
Bylaw No. 2405, 2019
Appendix 3

Schedule "A"

REDUCED COPY OF SUBDIVISION PLAN



The City of Fort St. John
SUBDIVISION AND DEVELOPMENT SERVICING BYLAW
Bylaw No. 2405, 2019
Appendix 3

Schedule "B"

LIST OF LANDSCAPING PLANS

[List plans, including name of landscape architect, date, version number]



The City of Fort St. John
SUBDIVISION AND DEVELOPMENT SERVICING BYLAW
Bylaw No. 2405, 2019
Appendix 3

Schedule "C"

LIST OF ENGINEERING DRAWINGS

[List plans, including name of engineer, date, version number]

Schedule "D"

LETTER OF CREDIT REQUIREMENTS

- The letter of credit must be an irrevocable, unconditional, standby letter of credit.
- The letter of credit must be issued by a Canadian chartered bank with a branch in Fort St. John, B.C. at which the letter of credit can be cashed.
- The letter of credit must be payable at the time of presentation.
- The letter of credit must not require any documentation to be presented in order for it to be cashed.
- The letter of credit must allow partial draws.
- The letter of credit must be automatically-renewing.
- The letter of credit must otherwise meet the requirements of the City.



The City of Fort St. John
SUBDIVISION AND DEVELOPMENT SERVICING BYLAW
Bylaw No. 2405, 2019
Appendix 3

Schedule "E"

ESTIMATED COSTS



The City of Fort St. John
SUBDIVISION AND DEVELOPMENT SERVICING BYLAW
Bylaw No. 2405, 2019
Appendix 3

Schedule "F"

COMPLETE LISTING OF WORKS



The City of Fort St. John
SUBDIVISION AND DEVELOPMENT SERVICING BYLAW
Bylaw No. 2405, 2019
Appendix 4

APPENDIX 4

Sample Maintenance Agreement



The City of Fort St. John
SUBDIVISION AND DEVELOPMENT SERVICING BYLAW
Bylaw No. 2405, 2019

MAINTENANCE AGREEMENT

THIS AGREEMENT dated for reference the _____ day of _____, 20_____,

BETWEEN:

CITY OF FORT ST. JOHN
10631 - 100th Street
Fort St. John BC V1J 3Z5

(the "City")

AND:

[If a corporation add] (Inc. No. _____)

(the "Owner")

WHEREAS:

- A. The Owner is the registered owner of that land in Fort St. John, B.C. having a civic address of
_____ and legally described as:

Parcel Identifier: _____

[Insert complete legal description, exactly as per land title search]

(the "Land");

[If more than one parcel of land is being subdivided, change Recital A accordingly and define as (together called the "Land")]

- B. The Owner intends to subdivide the Land in the manner shown on the plan of proposed subdivision attached to this Agreement as Schedule "A" (the "**Subdivision Plan**");
- C. Section 509 of the *Local Government Act* provides that all works and services required, pursuant to the Subdivision and Development Servicing Bylaw, to be constructed and installed at the expense of the owner of the land being subdivided must be constructed and installed before the Approving Officer approves of the subdivision unless the owner deposits security for those works and services and enters into an agreement with the City to construct and install the works and services by a specified date or forfeit the security;
- D. The Owner has elected to construct and provide certain works and services as required by the Approving Officer and the Subdivision and Development Servicing Bylaw before the Subdivision Plan is approved by the Approving Officer for the City;
- F. The Owner has also agreed to provide revegetation and landscaping work in accordance with the landscaping plans referred to in this Agreement;
- G. The Owner has also agreed, voluntarily, to provide other works and services beyond those required by the Approving Officer and the City's bylaws, as depicted in the engineering plans approved for this development; and
- H. In accordance with the Subdivision and Development Servicing Bylaw, the Owner has provided \$_____ in Maintenance Security and \$_____ in Landscaping Maintenance Security as those terms are defined in this Agreement.

THEREFORE in consideration of the sum of \$1.00 paid to the Owner by the City, the approval of the Subdivision Plan, and other good and valuable consideration, the receipt and sufficiency of which are hereby expressly acknowledged by the Owner, the Owner covenants and agrees with the City as follows:

Interpretation

- 1. In this Agreement:

- a. **Agreement** or **this Agreement** means this agreement and includes all recitals and schedules to this agreement, and all *Land Title Act* instruments and form comprising this agreement, if any;
- b. **Approved Design** has the meaning given in section 2.b;
- c. **Business Day** means a day which is not a Saturday, Sunday, statutory holiday recognized by the City or any other day that the City's offices are closed for business;
- d. **Certificate of Substantial Completion** is defined in the Subdivision and Development Servicing Bylaw;
- e. **Certificate of Substantial Completion for All Works** is defined in the Subdivision and Development Servicing Bylaw;
- f. **Certificate of Substantial Completion for Deep Utilities** is defined in the Subdivision and Development Servicing Bylaw;
- g. **Certificate of Substantial Completion for Landscaping Works** is defined in the Subdivision and Development Servicing Bylaw;
- h. **Certificate of Final Acceptance of Non-Landscaping Works** has the meaning given in section 30;
- i. **Certificate of Final Acceptance of Landscaping Works** has the meaning given in section 33;
- j. “Certificate of Final Acceptance of Landscaping Works” has the meaning given in section 33;
- k. **City Lands** means the lands identified in the Approved Design, which lands are registered in the name of the City or are lands dedicated as road, lane, street or park or a portion of the Land that, in connection with the Works are, or will be, encumbered by a statutory right of way;
- l. **City Representatives** has the meaning given in section 35;
- m. **Consulting Professional** means a professional person who is retained by the Owner for a purpose referred to in this Agreement and who is qualified and registered to practice in British Columbia for that purpose, and includes a professional engineer, architect and landscape architect;
- n. **Contaminants** means
 - i. “waste” as that term is defined in the *Environmental Management Act* of British Columbia (including all regulations thereto); and
 - ii. any substance which is not “waste” but which exceeds or fails to comply with the most stringent applicable land, water or air use standards set-out in the *Environmental Management Act* of British Columbia (including all regulations

thereto) or any and all other standards imposed by municipal, provincial, or federal laws, regulations or policies, as the case may be;

- o. “**Deep Utilities**” means those portions of the Works comprising the sanitary sewer, storm sewer, watermain and related services, as more particularly described in the Estimated Costs;
- p. “**Deficiency List**” has the meaning given in section 22.a;
- q. “**Deficiency Security**” has the meaning given in section 22.b;
- r. “**Deficiency Time Limit**” has the meaning given in section 23;
- s. “**Estimated Costs**” means the estimated costs of the Works provided by the Owner to the City that are, as of the reference date of this Agreement, the costs set out in Schedule “E”;
- t. “**Event of Insolvency**” means the Owner makes a general assignment for the benefit of creditors, or the Owner institutes proceedings to have itself adjudicated as a bankrupt or insolvent, including, without limitation, any application or order under the *Companies Creditors Arrangement Act* (Canada), or the Owner becomes the subject of bankruptcy or insolvency proceedings, or a judgement or decree order is entered by a court of competent jurisdiction judging the Owner bankrupt or insolvent, or the Owner or its directors pass any resolution authorizing the dissolution or winding-up of the Owner;
- u. “**Land**” has the meaning given in Recital A, and also refers to the Land after it is subdivided by the Subdivision Plan;
- v. “**Land Title Act**” means the *Land Title Act* of British Columbia, RSBC 1996, Chapter 250;
- w. “**Landscaping Maintenance Security**” means security for the performance of the Owner’s obligation to tend, maintain and re-plant if necessary the Landscaping Works in accordance with this Agreement in the form of cash deposit, certified cheque, bank draft or in the form of a letter of credit meeting the terms and conditions set out in Schedule “D”, and otherwise to be issued to the City in an amount determined by the Approving Officer;
- x. “**Landscaping Works**” means all landscaping including without limitation, the lawns, trees, shrubs, bushes, flowers and other flora to be provided, installed and constructed by the Owner as required by the Approving Officer, by the Subdivision and Development Servicing Bylaw and other bylaws of the City, and as otherwise required under statutory authority, and without limitation, the landscaping works listed on Schedule “F”;
- y. “**MMCD**” or “Master Municipal Construction Document” means the latest edition of the Master Municipal Construction Document prepared by the Master Municipal Construction Documents Association, as amended from time to time, but not including “Instructions to Tenderers” and “General Conditions” in volume II or “Measurement and Payment” sections.
- z. “**Maintenance Period**” means the period which expires:

- i. one (1) year for the Non-Landscaping Works; and
- ii. two (2) years for the Landscaping Works,

or such other period in the Approving Officer's discretion, after the date of issuance of the City's acceptance of the Certificate of Substantial Completion for All Works, EXCEPT THAT if the Maintenance Period expires on a date between November 1 and April 30, it shall be extended to May 1;

- aa. "**Maintenance Security**" means security for the performance of the Owner's obligations to maintain the Works in accordance with this Agreement in the form of a cash deposit, certified cheque, bank draft or in the form of a letter of credit meeting the terms and conditions set out in Schedule "D" in the amount set out in recital G to this Agreement;;
- bb. "**Non-Landscaping Works**" means all works and services to be provided, performed and constructed by the Owner as required by the Approving Officer, by the Subdivision and Development Servicing Bylaw and other bylaws of the City, and as otherwise required under statutory authority, and without limitation, the Works include all the construction shown or referred to in the Approved Design, utilities and connections to be constructed on and off the Land, environmental protection measures, and all other utilities and services, all as listed on Schedule "F", except the Landscaping Works;
- cc. "**Notice of Default**" has the meaning given in section 44;
- dd. "**On-Site Inspection Deadline**" means the date in each year that is the earlier of:
 - i. the first day of snowfall to occur after September 1 in the City of Fort St. John; and
 - ii. October 31,provided that, if either date falls on a day that is not a Business Day, then the preceding Business Day;
- ee. "**Record Drawings**" means the approved "for construction" drawings accurately revised to reflect actual construction changes in the field, sealed by Design Engineer, including digital copies using the MMCD as constructed template.
- ff. "**Security**" means one or more of the Landscape Security, Deficiency Security and Maintenance Security, as the context requires;
- gg. "**Subdivision and Development Servicing Bylaw**" means *Subdivision and Development Servicing Bylaw No. 2405, 2018*, as amended from time to time and in effect on the reference date of this Agreement;
- hh. "**Subdivision Plan**" has the meaning given in Recital B;

- ii. "**Substantial Completion**", "**Substantially Complete**", or other similar form of any such phrase has the meaning given to the term "Substantial Performance" in the definitions section of the General Conditions of the MMCD Documents;
- jj. "**Works**" includes: highways, walkways, boulevards, boulevard crossings, transit bays, curbs, gutters, street lighting, underground wiring, electrical distribution systems, water distribution systems, fire hydrant systems, sewage collection and disposal systems, drainage collection and disposal systems, access to highways,, and such other infrastructure or systems required by this Bylaw in connection with the Subdivision or Development of land;
- kk. "**Workers Compensation Act**" means the *Workers Compensation Act* of British Columbia, RSBC 1996, Chapter 492, as may be amended from time to time; and

Commencement of Construction

- 2. The Owner shall not commence construction of the Works until the Owner has:
 - a. provided to the City, the Estimated Costs in a form and content satisfactory to the City;
 - b. prepared, in accordance with the Specifications of the MMCD Documents and the Subdivision and Development Servicing Bylaw, the final plans and specifications for the Works and obtained the City's written approval in respect thereof (such final, approved plans and specifications become the "**Approved Design**");
 - c. provided to the City written confirmation, in a form and content acceptable to the Approving Officer, that the Owner has obtained the insurance coverage as required under this Agreement;
 - d. provided to the City confirmation, in a form and content acceptable to the Approving Officer, that all contractors, subcontractors, material suppliers and their respective personnel are registered in accordance with the *Workers Compensation Act*. Without limiting the generality of the foregoing, if the workplace in which the installation, construction and completion of the Works is being performed constitutes a "multiple-employer workplace" (as defined in the *Workers Compensation Act*), the Owner hereby agrees that the Owner shall be the "prime contractor" (as defined in the *Workers Compensation Act*) and shall comply with all of the obligations and duties of the "prime contractor" set out in the *Workers Compensation Act*, together with all regulations thereto with respect to workplace health and safety;
 - e. provide to owners of all public and private utilities, if any, that may be affected by the construction and installation of the Works, notice of the same and obtained consent, where required, and provided copies to the City of all notices and consents in respect of the same;
 - f. if requested by the City, granted to the City, in a form and content acceptable to the Approving Officer, such statutory rights of way, Section 219 covenants or such other

instruments as are, in connection with this Agreement, required by the City in the City's absolute determination;

- g. if requested by the Approving Officer, provided to the Approving Officer:
 - i. a traffic management plan in a form and content acceptable to the Approving Officer;
 - ii. a geotechnical report in a form and content acceptable to the Approving Officer;
 - iii. an environmental report of the Land, in a form and content acceptable to the Approving Officer; and
 - iv. such other documents, plans, certificates and confirmations as may be requested by the Approving Officer;
- h. provided to the City, notice of the Owner's intention to commence construction of the Works not less than 2 Business Days prior to such commencement;
- i. received the City's prior written authorization to proceed with installation and construction of the Works.

Construction and Installation of Works

3. The Owner covenants and agrees with the City that the Owner shall:
 - a. diligently construct, install and complete the Works in accordance with this Agreement, the Approved Design, and the Subdivision and Development Servicing Bylaw;
 - b. comply with any changes to the Approved Design required by the Approving Officer so as to satisfy the Approving Officer so that the Works will function and operate in a manner satisfactory to the City;
 - c. retain at all times a Consulting Professional to provide competent survey, layout and onsite supervision to ensure that the Works strictly conform to the Approved Design and to record the details of any field design or construction changes to the Approved Design and to record all of the relevant information for preparation of the Record Drawings;
 - d. not damage any City works, City services, City property or other property; and
 - e. not deposit or permit to be deposited on City Lands any material or debris except to the extent expressly authorized by the City and, without limiting the generality of the foregoing, any deposit authorized by the City must be free and clear of all Contaminants.

Compliance with Laws

4. In undertaking the Works, the Owner shall construct, install and complete the Works in accordance with this Agreement and all applicable laws, bylaws, permits, licenses, statutes, regulations, orders, codes (including the BC Building Code), and other applicable enactments.

Adherence to Approved Design

5. The Owner confirms to the City that the Works have been designed by a Consulting Professional.
6. In undertaking the Works, the Owner shall strictly adhere to the Approved Design and obtain the prior written approval of the Approving Officer for any changes to the Approved Design.

Standard of Work

7. Each component of the Works shall be provided and constructed to the satisfaction of the City and to all of the following standards:
 - a. a standard which is sufficient for its intended purposes;
 - b. generally accepted engineering practices; and
 - c. the standards of the Subdivision and Development Servicing Bylaw.

Competent Contractors

8. The Owner shall not engage any employee or contractor in the construction of the Works who, in the reasonable opinion of the Approving Officer, is unfit, incapable or unskilled.

On-Site Supervision

9. At all times during the construction and provision of the Works, the Owner shall retain one or more Consulting Professionals to oversee the completion of the Works and in addition, the Owner shall ensure that a competent superintendent is on site at all times during the construction and installation of the Works.

Essential Services

10. At all times after any construction has begun, the Owner shall ensure that all land where construction is underway is provided with:
 - a. highway access which is sufficient for fire trucks and other emergency vehicles; and
 - b. water service which is sufficient for fire-fighting purposes.

Work on City Lands

11. The Owner shall not begin the construction of any portion of the Works on City Lands without advising the Approving Officer at least five business days before beginning that portion of the Works, and the Owner must subsequently follow all instructions of the Approving Officer as to traffic control, public safety and other matters.

Debris Removal

12. The Owner shall promptly remove any material or debris during the course of constructing the Works, but in the event that any material or debris is left upon any highway, park or other municipal property during or after the construction of the Works, the City may remove the material or debris at the expense of the Owner.

City Review and Entry on Land

13. The Owner authorizes the City, its agents and contractors to enter upon the Land and other work sites at all times as the City may consider necessary or convenient for the carrying out of this Agreement, including without limitation for the purpose of witnessing tests or inspections. If the Approving Officer is not satisfied with the quality of construction work or is not satisfied that the Consulting Professional is providing the appropriate level of inspection, the Approving Officer may, after twenty-four (24) hours written notice, engage an inspector to provide a satisfactory level of inspection over the duration of the project. Payment for this inspection will be taken from the Security.

Utilities Tests

14. During the course of construction, the Owner shall provide advance written notice to the City so that the Approving Officer may be in attendance at various stages of construction, including:

CONSTRUCTION STAGE	MINIMUM NOTICE
Sub-grade proof rolling	3 business days
Prior to placement of curb and gutter and walkway	3 business days
Prior to paving	3 business days
Water system pressure/leakage tests	3 business days
Sanitary sewer system leakage tests	3 business days
Storm Drainage system leakage tests	3 business days
Start-up of Pump Stations, Reservoirs, etc.	3 business days
Substantial Completion Inspection	3 business days
Final Acceptance Inspection	3 business days

City Directions

15. If the City considers at any time that the Works are in any way defective or do not operate in a satisfactory manner, the City may require the Works to be corrected and Owner shall, at its own expense, modify and reconstruct the Works immediately so that the Works are fully operative and function in accordance with the required standards.
16. Any explanations, orders, instructions, directions and requests given by the City to the Consulting Professional shall be deemed to have been given to the Owner.

General Use of Security

17. If the City incurs any costs in correcting any breach of the Owner's obligations under this Agreement, including by remedying any defect or undertaking maintenance during the Maintenance Period, the City may recover all its costs in doing so, including supervision, legal, contract administration, tendering, survey, other professional services, interest and all other costs, plus a 15% administration fee to reflect staff time, by drawing down on the Security.
18. In addition to and not in substitution for the City's other rights and remedies in this Agreement, the City may, without notice, immediately draw upon the Security if:
 - a. at any time before the expiration of the Maintenance Period the balance of the term remaining on any letter of credit constituting the whole or part of the Security is less than 30 days; or
 - b. an Event of Insolvency Occurs.

Certificate of Substantial Completion for Deep Utilities

19. Upon completion of the Deep Utilities to Substantial Completion, the Owner shall deliver to the City, a Certificate of Substantial Completion for Deep Utilities issued, signed and sealed by the Consulting Professional certifying that the Deep Utilities have been constructed to Substantial Completion in accordance with the Approved Design and this Agreement.

Certificate of Substantial Completion for Landscaping Works

20. Upon completion of Landscaping Works to Substantial Completion, the Owner shall deliver to the City, a Certificate of Substantial Completion for Landscaping Works issued, signed and sealed by the Consulting Professional certifying that the Landscaping Works have been constructed to Substantial Completion in accordance with the Approved Design and this Agreement.

Certificate of Substantial Completion for All Works

21. Upon completion of the Works to Substantial Completion, the Owner shall deliver to the City a Certificate of Substantial Completion for All Works issued, signed and sealed by the Consulting

Professional certifying that the Works have been constructed to Substantial Completion in accordance with the Approved Design and this Agreement.

Deficiencies

22. At the time the Owner delivers to the City the Certificate of Substantial Completion for All Works, the Owner shall also:
 - a. deliver to the City a list (the "**Deficiency List**") for the City's acceptance, prepared by the Consulting Professional, specifying those portions of the Works which, in the opinion of the Consulting Professional, are not completed to the required standard as at the date of the Certificate of Substantial Completion for All Works, setting out an estimate of the cost to rectify the deficiencies set out in the Deficiency List, and the date by which such deficiencies shall be remedied;
 - b. deliver to the City, security in the amount calculated to be 200% of the estimate of the cost to rectify the deficiencies set out in the Deficiency List (the "**Deficiency Security**") as security for the performance of the Owner's obligations to correct the Deficiencies.

Deficiency Time Limit

23. The Owner will correct the deficiencies set out in the Deficiency List to the satisfaction of the Approving Officer within the time limit (the "**Deficiency Time Limit**") specified in the Deficiency List approved by the City.

Use of Deficiency Security

24. If the Owner does not correct the Deficiencies, to the satisfaction of the City, within the Deficiency Time Limit, the City may use the Deficiency Security for the purpose of correcting the deficiencies set out in the Deficiency List.

City's Acceptance of Substantial Completion of All Works

25. Following delivery of the required Certificate(s) of Substantial Completion of All Works and the Deficiency List, the Approving Officer will then, if there is sufficient time prior to the On-Site Inspection Deadline, inspect the Works and if:
 - a. the Works are completed to the Approving Officer's satisfaction;
 - b. the Deficiency List is prepared to the Approving Officer's satisfaction; and
 - c. the Owner is not otherwise in breach of any of its obligations under this Agreement,

and the Owner has:

- d. made payment to the City of any amount owing under this Agreement;
- e. delivered the Deficiency Security to the City;
- f. provided to the City written confirmation, in a form and content acceptable to the Approving Officer, that the Owner has obtained and maintained the insurance coverage as required under this Agreement; and
- g. delivered to the City all statutory rights of way required by section 2, in a form registrable in the *Land Title Office* and otherwise acceptable to the City,

then the Approving Officer will issue a letter of acceptance of the Certificate of Substantial Completion for All Works.

Maintenance Period

- 26. During the Maintenance Period, the Owner shall forthwith remedy any defect in the Works or failure of the Works to operate normally appearing within the Maintenance Period (excluding defects caused by reasonable wear and tear, and acts of God) and any resulting damage to other works or property.

City Operation of Works

- 27. During the Maintenance Period, the City will operate those parts of the Works which are within City Lands with respect to road and water infrastructure. Notwithstanding that the City will operate such works, the Owner shall remain responsible for remedying any defects in the Works and maintaining the Works during the Maintenance Period, and in default thereof the City may draw down on the Maintenance Security or Deficiency Security, as the case may be.

Use of Maintenance Security

- 28. If the Owner fails to remedy any defect in the Works or any failure of the Works to operate normally, the City may deduct from the Maintenance Security the City's cost of repairing the Works, remedying any defect or paying for any resulting damage.

Grant of Statutory Rights of Way

- 29. The Owner shall, prior to the City's acceptance of the Certificate of Substantial Completion for All Works, grant to the City, in the City's standard form of agreement, and cause to be registered, in priority to all charges except those accepted by the City, statutory rights of way for all portions of the Works located on privately-owned lands which the City determines are to be owned, maintained and repaired by the City, and the Owner shall be responsible for all associated surveying and land title filing fees and registration costs.

Certificate of Final Acceptance of Non-Landscaping Works

30. No sooner than 5 weeks and no later than 3 weeks before the expiry of the Maintenance Period in respect of the Non-Landscaping Works, the Owner shall cause its Consulting Professional(s) to conduct a final inspection the Non-Landscaping Works, which shall occur before the On-Site Inspection Deadline, which final inspection may be observed by the Approving Officer or their designate, and the Owner, being satisfied with the completion of the Non-Landscaping Works, shall deliver to the City the required certificate(s) (the "**Certificate of Final Acceptance of Non-Landscaping Works**") issued, signed and sealed by the Consulting Professional(s) certifying that the Non-Landscaping Works have been fully installed, constructed and completed, and any defects in the Non-Landscaping Works remedied, in accordance with the Approved Design and this Agreement.

Record Drawings

31. The Owner shall submit to the City final Record Drawings sealed by the Consulting Professional, including two complete sets of prints and one set of all drawings in electronic digital form, as specified in the Subdivision and Development Servicing Bylaw, of all the Works as constructed and as approved by the City, at least 2 weeks in advance of the final inspection contemplated in the previous section.

City Acceptance of Certificate of Final Acceptance of Non-Landscaping Works

32. Upon:
 - a. the City's receipt of the Certificate of Final Acceptance of Non-Landscaping Works from the Owner;
 - b. the Approving Officer being satisfied that all deficiencies have been remedied and the Non-Landscaping Works have been properly maintained during the Maintenance Period; and
 - c. the Owner's payment to the City of any amount owing to the City under this Agreement,

the City will accept, and issue a letter of acceptance, of the Certificate of Final Acceptance of Non-Landscaping Works and:

- d. return the Deficiency Security, or remaining portion thereof, if any, to the Owner; and
- e. return the Maintenance Security, or remaining portion, if any, to the Owner.

Certificate of Final Acceptance of Landscaping Works

33. No sooner than 5 weeks and no later than 3 weeks before the expiry of the Maintenance Period in respect of the Landscaping Works, the Owner shall cause its Consulting Professional(s) to conduct

a final inspection of the Landscaping Works, which shall occur before the On-Site Inspection Deadline, which final inspection may be observed by the Approving Officer or their designate, and the Owner, being satisfied with the completion of the Landscaping Works, shall deliver to the City the required certificate(s) (the “**Certificate of Final Acceptance of Landscaping Works**”) issued, signed and sealed by the Consulting Professional(s) certifying that the Landscaping Works have been fully installed, constructed, planted and completed, and any defects in the Landscaping Works remedied, in accordance with the Approved Design and this Agreement.

City Acceptance of Certificate of Final Acceptance of Landscaping Works

34. Upon:

- a. the City's receipt of the Certificate of Final Acceptance of Landscaping Works from the Owner;
- b. the Approving Officer being satisfied that all deficiencies have been remedied and the Landscaping Works have been properly maintained during the Maintenance Period; and
- c. the Owner's payment to the City of any amount owing to the City under this Agreement,

the City will accept, and issue a letter of acceptance, of the Certificate of Final Acceptance of Landscaping Works and:

- d. return the Landscaping Maintenance Security, or remaining portion thereof, if any, to the Owner.

Indemnification

35. The Owner shall indemnify and save harmless the City, its Council members, officers, employees, contractors and agents (the “**City Representatives**”) from and against any and all actions, causes of action, liabilities, demands, losses, damages, costs, expenses (including actual fees of professional advisors), remediation of contamination costs, fines, penalties and other harm of any kind whatsoever, despite any negligence by the City or the City Representatives, whether related to death, bodily injury, property loss, property damage or consequential loss or damage, suffered or incurred by the City and/or any of the City Representatives arising from, resulting from, connected with or related to:

- a. this Agreement;
- b. any incident or occurrence during the construction or installation of the Works (including during the Deficiency Period and the Maintenance Period);
- c. the construction, installation, maintenance or correction of the Works (including during the Deficiency Period and the Maintenance Period);

- d. liens, non-payment for labour or materials, Workers' Compensation assessments, employment insurance, federal or provincial tax, or union dues check off;
- e. any default or breach of this Agreement by the Owner;
- f. any wrongful act, omission or negligence of the Owner or its shareholders, directors, officers, employees, agents, contractors, subcontractors, licenses, or others for whom it is responsible in law.

This indemnity shall survive any expiry or other termination of this Agreement.

Release

36. The Owner shall release the City and the City Representatives from and against any and all actions, causes of action, liabilities, demands, losses, damages, costs, expenses (including actual fees of professional advisors), remediation of contamination costs, fines, penalties and other harm of any kind whatsoever, despite any negligence by the City or the City Representatives, whether related to death, bodily injury, property loss, property damage or consequential loss or damage, which the Owner may suffer or incur in relation to this Agreement.

This release shall survive any expiry or other termination of this Agreement.

Insurance

37. The Owner will at the Owner's expense, carry with an insurance company or companies acceptable to and approved by the City of Fort St. John the following insurance with limits not less than shown in the following respective items:

- a. Automotive Liability Insurance (Owned and Non-Owned Units)

Limits: Bodily Injury and Property Damage – inclusive each accident \$3,000,000.

The Owner shall, at the Owner's expense, through the term of the Contract, maintain such insurance as required under the Insurance (Motor Vehicle) Act of British Columbia, except as modified above. The Owner shall provide the City of Fort St. John with a Certificate of Insurance, Insurance Corporation of British Columbia (ICBC) form No. APV 47, for owned and leased vehicles as evidence of third party motor vehicle insurance coverage.

- b. Comprehensive General Bodily Injury and Property Damage Insurance

Limits: Bodily Injury and Property Damage inclusive \$5,000,000.

The insurance shall include Contractor's Contingent Liability, and Contractual Liability of sufficient scope to include the liability assumed by the Owner under the terms of this Agreement, and Completed Operations Liability. The policy shall include the Owner, the City

of Fort St. John, and Contract Administrator as additional insured with a cross liability clause. Any property damage deductible shall be for the account of the Owner and shall not exceed \$2,500.00 for any one occurrence.

- c. Course of Construction Builders' Risk Insurance

Coverage on an "All Risks" basis insuring the Works against loss or damage to full replacement cost, subject to a deductible provision for the Owner's account not exceeding \$2500.00 each loss. Coverage to include the City of Fort St. John as an additional insured Insurance on equipment rented or owned by the Owner to its full insurable value.
- 38. The above specified insurance policies shall have the right of subrogation waived as against the City of Fort St. John and its respective employees.
- 39. The Owner shall provide the City of Fort St. John with satisfactory evidence that the insurance required to be provided by the Owner under this agreement is in full force and effect.
- 40. The City of Fort St. John makes no representation or warranty with respect to the extent or adequacy of the insurance protection afforded by the policies above. It shall be the full responsibility of the Owner and the Owner's contractor(s) to determine their own additional insurance coverages that are necessary and advisable for its own protection or to fulfill its obligations under this Agreement. Any such additional insurance shall be provided and maintained by the Owner at the Owner's own expense.
- 41. The Owner is responsible for ensuring that its subcontractors comply with the same insurance requirements as set out above.
- 42. All policies referred to shall provide that thirty (30) days notices of cancellation will be given in writing to each insured, including the City of Fort St. John, otherwise the policies to remain in full force and effect until the City's acceptance of the Certificate of Final Acceptance of Non-Landscaping Works. Notwithstanding the foregoing, the Comprehensive General Bodily Injury and Property Damage Liability Insurance referred to above shall remain in full force and effect from the commencement of the performance of the Works for a period of not less than twelve (12) months following the City's acceptance of the Certificate of Final Acceptance of Non-Landscaping Works and with respect to completed operations coverage for a period of not less than 24 months following the City's acceptance of the Certificate of Final Acceptance of Non-Landscaping Works.

Consulting Professionals Liability

- 43. Consulting Professionals involved in the design and construction of the Works shall carry minimum Errors and Omission Liability Insurance coverage of \$2,000,000 per claim occurrence and maintain such coverage over a period of three (3) years after the date of the City's acceptance of the Certificate of Substantial Completion of All Works. The Consulting Professionals shall

provide Certificates of Insurance prior to commencement of construction of the Works and from time to time at the request of the City.

Default

44. If the Approving Officer is of the opinion that the Owner is at any time in default of any of the Owner's obligations under this Agreement, then the Approving Officer may deliver written notice of default to the Owner (save in respect of emergencies occasioned by such default, in which case delivery of notice is not required) which notice will specify the default and the time period for remedying the default ("**Notice of Default**").
45. From and after the date of delivery of the Notice of Default, the Owner shall remedy the default identified in the Notice of Default within the time period specified in the Notice of Default, and to the satisfaction of the Approving Officer and if the Owner fails or neglects to remedy the default to the satisfaction of the Approving Officer, then the City may, without in any way limiting the City's remedies, draw upon and use the Security held by the City pursuant to this Agreement to remedy the default.
46. If the Security held by the City is insufficient to cover the City's costs to remedy the default, then the Owner shall reimburse the City upon receipt of the City's invoice for payment of the same, whether or not the City has remedied or will remedy the balance of the default.
47. If the City undertakes to remedy the default, the cost is payable by the Owner shall include the City's actual costs to remedy the default plus the costs of engineering, supervision, legal, contract administration, tendering, survey, other professional services, interest and all other costs required for completion of the Works, plus a 15% administration fee to reflect City staff time.
48. In exercising its rights pursuant to sections 44 to 48, above, the City, together with all City Representatives, may enter onto the Land and make use of so much of the Land as is, in the Approving Officer's opinion, necessary to permit the City, without obligation to do so, to fulfil the obligations of the Owner including, without limitation, the obligation to complete the Works on the terms and conditions set out in this Agreement.

Owner's Risk

49. The Owner acknowledges and agrees that the Owner relies exclusively on its own expertise, the Consulting Professional and contractors, and that the City does not, by its approvals, inspections, issuance of certificates, or acceptance of the Works, warrant or represent that the Works are in compliance with this Agreement or any enactment or warrant the quality, fitness for purpose, adequacy or safety of the Works. The Owner further acknowledges and agrees that all approvals and inspections of the Works by the City are for the sole benefit of the City and shall in no way relieve the Owner from constructing and installing the Works in strict compliance with this Agreement.

No Representations

50. The Owner acknowledges that the City has made no representations, covenants, warranties, guarantees, promises or agreements with the Owner with regard to the subject matter of this Agreement.

Municipal Ownership of Works

51. Upon the City's acceptance of a Certificate of Final Acceptance of Non-Landscaping Works and a Certificate of Final Acceptance of Landscaping Works, the Works specified in such certificate shall become the property of the City, free and clear of any claim by the Owner or any person claiming through the Owner, without payment of any compensation or consideration EXCEPT Works on private land (including common property of a strata corporation) unless those Works become the property of the City under a statutory right of way or other agreement with the City.

Terminology

52. Wherever the singular or the masculine are used in this Agreement, they shall be interpreted as meaning the plural or the feminine or body corporate where the context requires.

Assignment

53. The Owner's obligations and rights under this Agreement shall not be assigned without the written consent of the City, such consent not to be unreasonably withheld, EXCEPT THAT the Owner may not assign this Agreement in part nor may the Owner assign this Agreement to a person who is not the registered owner of the Land. Unless the Owner obtains the City's consent to an assignment of this Agreement, the Owner's obligations under this Agreement shall continue in effect notwithstanding any transfer of title to all or part of the Land.

Notices

54. All notices to be given under this Agreement shall be in writing and may be delivered by hand, sent by facsimile transmission, or mailed by first-class prepaid registered mail.
55. Any notice delivered by hand or sent by facsimile transmission shall be deemed to be given and received on the day it is sent. Any notice mailed shall be deemed to be given and received on the third day after it is posted (unless there is a mail strike, slow down or other labour dispute which might affect delivery, in which case the notice shall be effective only if actually delivered or sent by facsimile transmission).

56. Notices shall be addressed to the addresses or facsimile numbers on page 1 or to such other address or facsimile number as may from time to time be advised by a party in writing. Notice by the City to the Owner may be posted on the Land.
57. Notices to the City must be addressed to the attention of the "**Director of Legislative and Administrative Services**".

Binding Effect

58. This Agreement shall enure to the benefit of and be binding upon the parties and their respective corporate successors, heirs, executors, administrators, personal representatives, and permitted assigns.

Sale of Land

59. In the event that the Owner proposes to transfer any part of the Land where a portion of the Works is to be located, prior to the transfer the Owner shall obtain the transferee's written consent to entry by the City on that part of the Land, for the purposes of this Agreement.

Joint and Several

60. If at any time more than one person (as that term is defined in the B.C. Interpretation Act) is the owner of the Land, then those persons shall be jointly and severally responsible for all the obligations of the Owner under this Agreement.

Further Acts

61. Each party shall do all further acts as may be necessary for carrying out this Agreement, including without limitation execution of all required documentation.

Time of the Essence

62. Time is of the essence of this Agreement.

Force Majeure

63. All obligations of the parties shall be suspended so long as the performance of such obligation is prevented, in whole or in part, by reason of labour dispute, fire, act of God, unusual delay by common carriers, earthquake, act of the elements, riot, civil commotion or inability to obtain necessary materials on the open market, and the period in which any party is required to perform any such obligation is extended for the period of such suspension. The impact of the Owner's financial circumstances upon the Owner's ability to perform this Agreement does not suspend the

Owner's obligations under this Agreement, and for the Owner to be entitled to rely on the time suspension in this section, the Owner must give prompt notice to the City of the reason the Owner claims to be entitled to a time suspension and the Owner must obtain the City's approval for the reason and duration of the time suspension.

Waiver

64. An alleged waiver by the City of any breach by the Owner of this Agreement is effective only if it is an express waiver in writing of the breach in respect of which the waiver is asserted. A waiver by the City of a breach by the Owner of this Agreement does not operate as a waiver of any other breach of this Agreement.

No Public Law Duties

65. Whenever in this Agreement the City, or a City official, is required or entitled to exercise any discretion in the granting of consent or approval, or is entitled to make any determination, take any action or exercise any contractual right or remedy including without limitation the termination of this Agreement, the City, or the City official, may do so in accordance with the contractual provisions of this Agreement and no public law duty whether arising from the principles of procedural fairness or the rules of natural justice shall have any application.

No Effect on Laws or Powers

66. This Agreement does not:
 - a. effect or limit the discretion, rights, duties or powers of the City under any enactment or at common law, including in relation to the use or subdivision of the Land;
 - b. affect or limit any enactment relating to the use or subdivision of the Land; or
 - c. relieve the Owner from complying with any enactment, including in relation to the use or subdivision of the Land.

Severability

67. If any provision of this Agreement is held to be unenforceable by a court, that provision shall be severed from the remainder of this Agreement and the remainder shall continue in effect.

Amendments

68. No amendment to this Agreement shall be effective unless it is made in writing and is duly executed on behalf of both parties.

Schedules

69. The following schedules are annexed to and form part of this Agreement:

- a. Schedule "A" – Reduced Copy of Subdivision Plan
- b. Schedule "B" – List of Landscaping Plans
- c. Schedule "C" – List of Engineering Drawings
- d. Schedule "D" – Letter of Credit Requirements
- e. Schedule "E" – Estimated Costs
- f. Schedule "F" – Complete Listing of Works

Acknowledgment

70. The Owner acknowledges having read and fully understood all the terms and conditions of this Agreement and confirms that this Agreement has been entered voluntarily.



The City of Fort St. John
SUBDIVISION AND DEVELOPMENT SERVICING BYLAW
Bylaw No. 2405, 2019

IN WITNESS WHEREOF the parties have executed this Agreement on the dates set out below.

DATED the _____ day of _____, 20____



The City of Fort St. John
SUBDIVISION AND DEVELOPMENT SERVICING BYLAW
Bylaw No. 2405, 2019

[If Owner is an individual, execute below]

DATED the _____ day of _____, 20_____

Signed, Sealed and Delivered in the presence of:)
)
)
Name of Witness:)
)
	) Signature of Owner
Address of Witness:)
)
)
Occupation of Witness:)
)
)



The City of Fort St. John
SUBDIVISION AND DEVELOPMENT SERVICING BYLAW
Bylaw No. 2405, 2019

[If Owner is a corporation, execute below]

DATED the _____ day of _____, 20_____

_____) The Corporate Seal of _____) C/S was hereunto affixed in the presence of its authorized signatories: _____) _____) _____) Name: _____) _____) _____) Signature: _____) _____) _____) Name: _____) _____) _____) Signature: _____) _____) _____)	
---	--



The City of Fort St. John
SUBDIVISION AND DEVELOPMENT SERVICING BYLAW
Bylaw No. 2405, 2019



The City of Fort St. John
SUBDIVISION AND DEVELOPMENT SERVICING BYLAW
Bylaw No. 2405, 2019

Schedule "A"

REDUCED COPY OF SUBDIVISION PLAN



The City of Fort St. John
SUBDIVISION AND DEVELOPMENT SERVICING BYLAW
Bylaw No. 2405, 2019

Schedule "B"

LIST OF LANDSCAPING PLANS

[List plans, including name of landscape architect, date, version number]



The City of Fort St. John
SUBDIVISION AND DEVELOPMENT SERVICING BYLAW
Bylaw No. 2405, 2019

Schedule "C"

LIST OF ENGINEERING DRAWINGS

[List plans, including name of engineer, date, version number]

Schedule "D"

LETTER OF CREDIT REQUIREMENTS

- The letter of credit must be an irrevocable, unconditional, standby letter of credit.
- The letter of credit must be issued by a Canadian chartered bank with a branch in Fort St. John, B.C. at which the letter of credit can be cashed.
- The letter of credit must be payable at the time of presentation.
- The letter of credit must not require any documentation to be presented in order for it to be cashed.
- The letter of credit must allow partial draws.
- The letter of credit must be automatically-renewing.
- The letter of credit must otherwise meet the requirements of the City.



The City of Fort St. John
SUBDIVISION AND DEVELOPMENT SERVICING BYLAW
Bylaw No. 2405, 2019

Schedule "E"

ESTIMATED COSTS



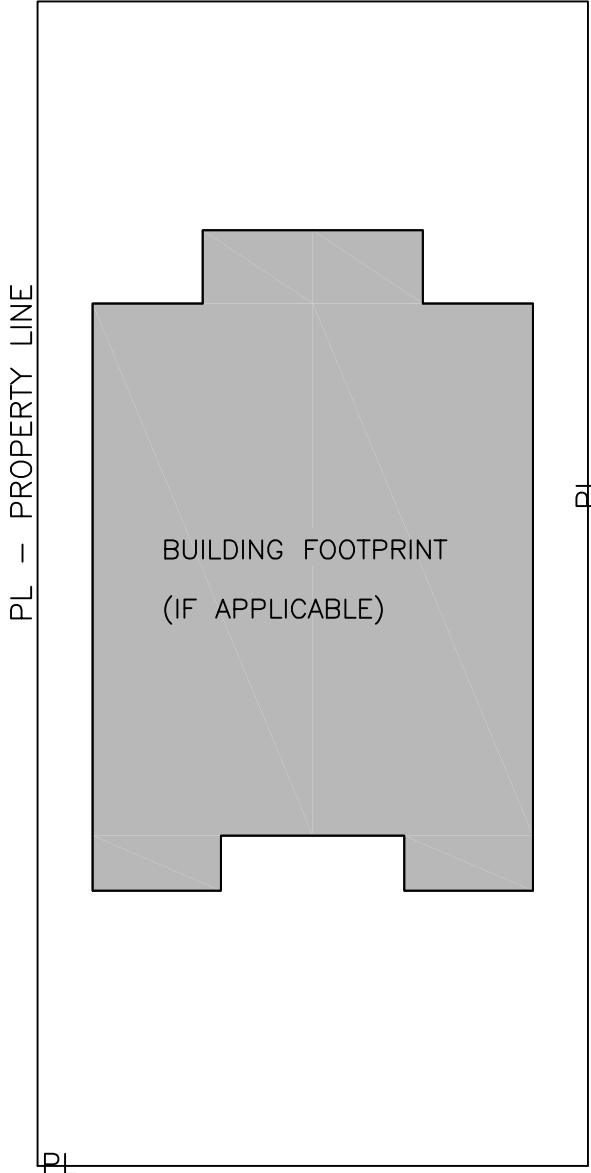
The City of Fort St. John
SUBDIVISION AND DEVELOPMENT SERVICING BYLAW
Bylaw No. 2405, 2019

Schedule "F"

COMPLETE LISTING OF WORKS

APPENDIX 5

Sample Service Card



WATER	
INSTALLATION DATE:	
SIZE	
DISTANCE FROM MAIN TO CURB STOP	
DISTANCE FROM PROPERTY LINE TO CURB STOP	
DISTANCE FROM EX, BUILDING CORNER TO CURB STOP (if applicable)	

SANITARY	
INSTALLATION DATE:	
SIZE	
LENGTH	
DISTANCE FROM PROPERTY LINE SERVICE	
DEPTH AT PROPERTY LINE	
DISTANCE FROM CURB STOP TO SANITARY SERVICE	

STORM	
INSTALLATION DATE:	
SIZE	
LENGTH	
DISTANCE FROM PROPERTY LINE SERVICE	
DEPTH AT PROPERTY LINE	



The City of Fort St. John
SUBDIVISION AND DEVELOPMENT SERVICING BYLAW
Bylaw No. 2405, 2019
Appendix 6- Standard Drawings

APPENDIX 6

Standard Drawings

Standard Drawings

The following standard drawings take precedence over the Master Municipal Construction Documents (MMCD). When no reference is made in the relevant Schedule or this section, the MMCD specifications shall prevail.

INDEX

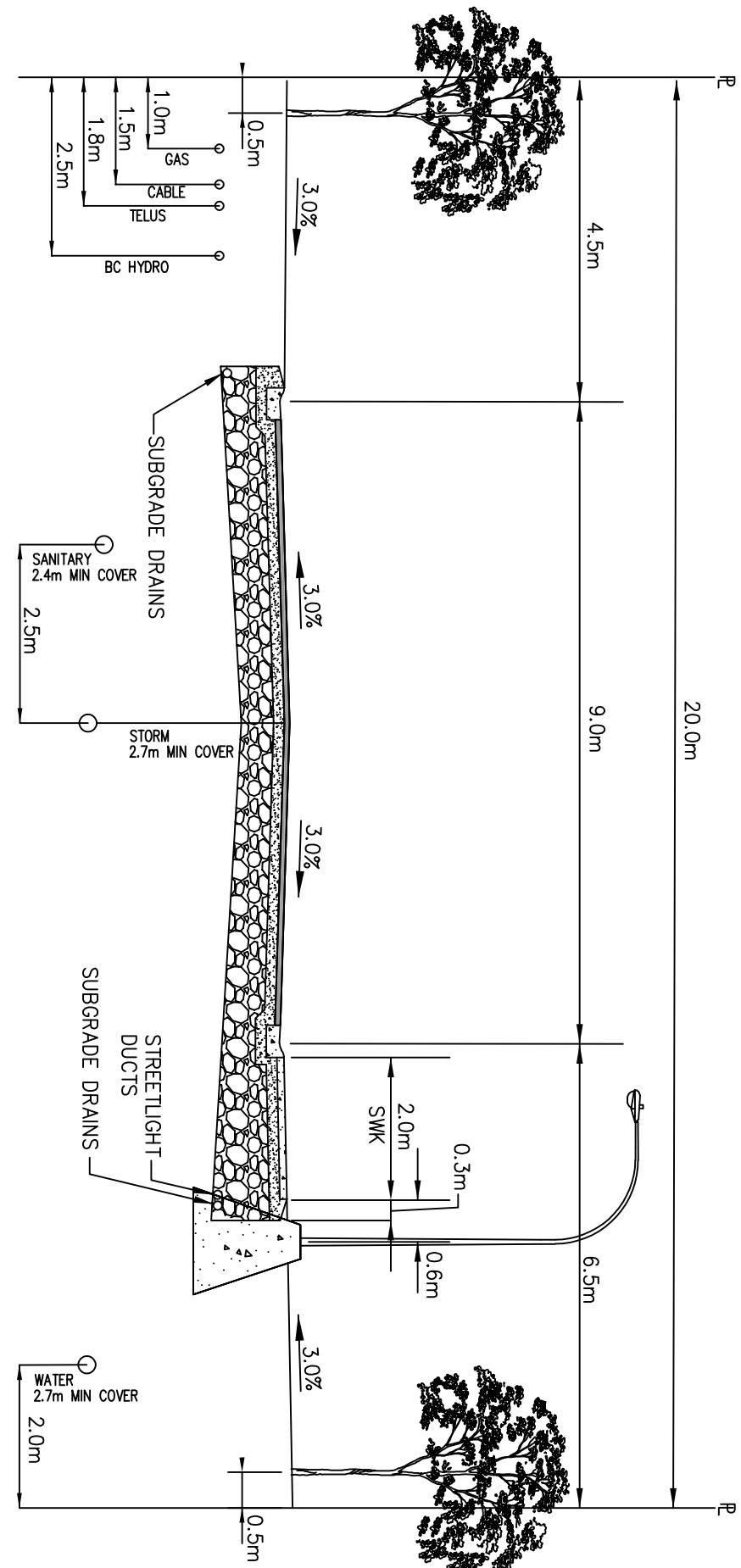
Schedule Reference	Drawing Name	Drawing Number
A – Service Levels	Local Low Density	A-1
	Local Semi-Attached	A-2
	Local Industrial	A-3
	Local Med-High Density and Commercial	A-4
	Collector Two Lane	A-5
	Collector Industrial	A-6
	Cul-de-sac	A-7
	Local Heel	A-8
	Lane	A-9
B- Roads, Walkways	Walkway	B-1
	Sign Installation Detail	B-2
C- Concrete	Separated Sidewalk	C-1
D - Water	Fire Hydrant	D-1
	Pressure Main Thrust Block	D-2
	Water and Sewer Services	D-3
	Water and Sewer Services – Small Diameter	D-3A
	Water and Sewer Services – Large Diameter	D-3B
	Typical Utility Trench Section	D-4
	Pipe Bedding	D-5
	Pipe Insulation	D-6
	Water & Sewer Crossings	D-7
	Buried Standpipe	D-8
	Typical Anode Installation	D-9
E- Sewer	Standard Air Valve Installation	E-1
F- Storm	Catchbasin	F-1
	Rainfall Intensity Graph	F-2
	Rainfall Distribution – 1 Hour Event	F-3
	Rainfall Distribution – 24 Hour Event	F-4
	Storm Pond Warning Sign	F-5

Standard Drawings

The following standard drawings take precedence over the Master Municipal Construction Documents (MMCD). When no reference is made in the relevant Schedule or this section, the MMCD specifications shall prevail.

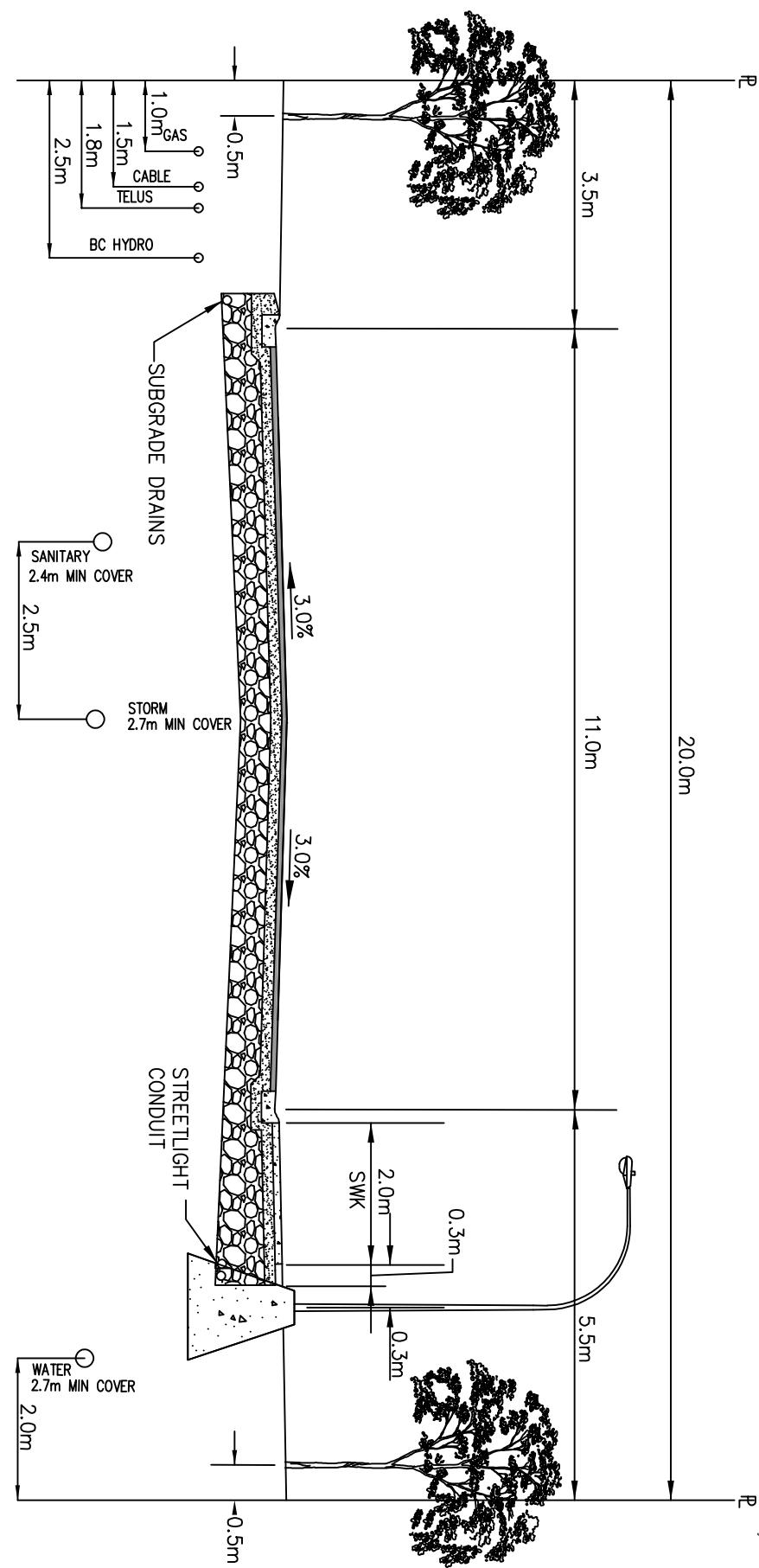
INDEX

Schedule Reference	Drawing Name	Drawing Number
G- Landscaping	Landscaping Approved Tree Species	G-1
	Tree & Shrub Planting Detail	G-2
H - Lighting	Streetlights	H-1
I - Utilities	Underground Utility Locations	I-1



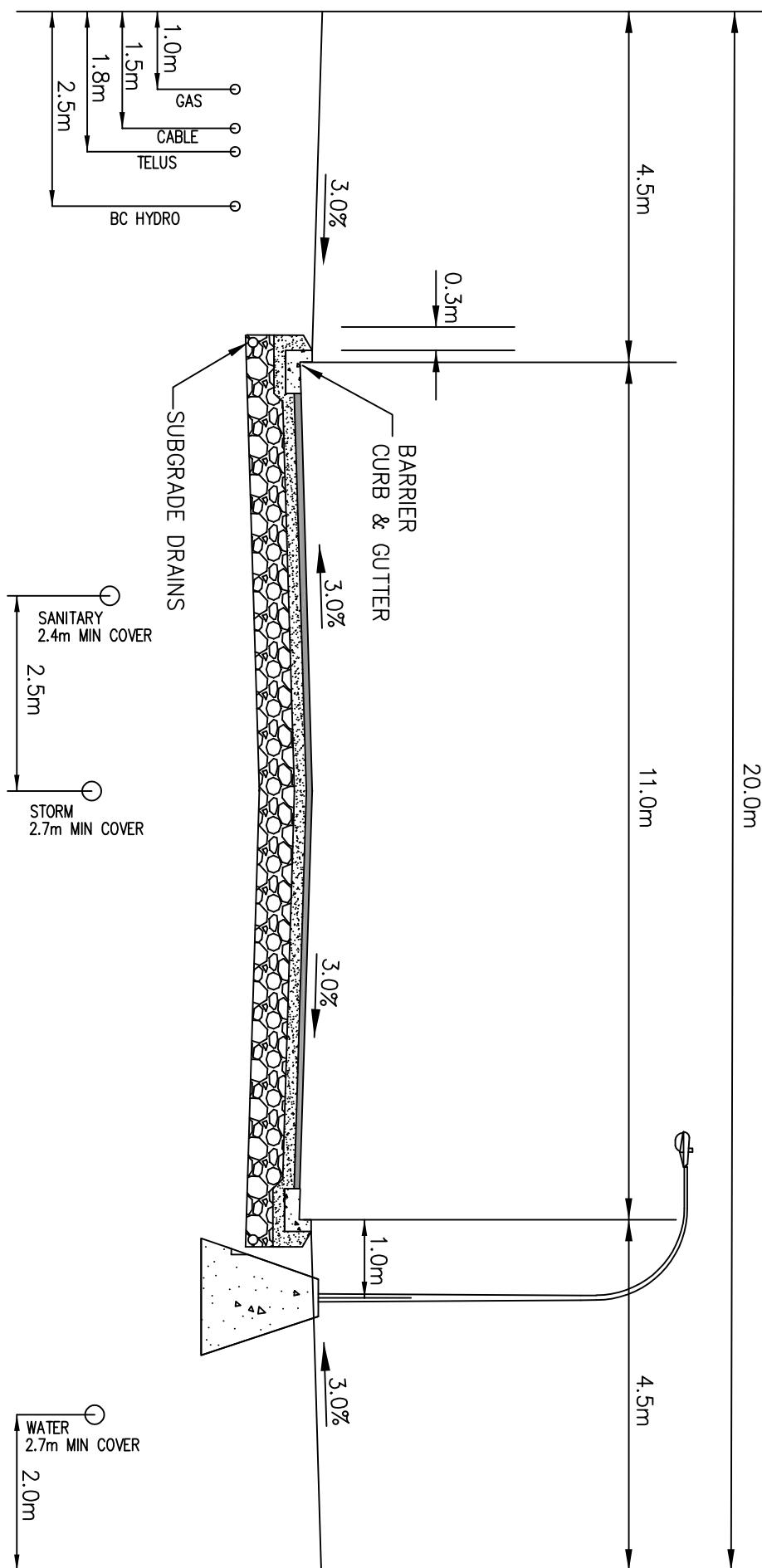
NOTE:

1. THE ROAD WIDTH IS MEASURED AS THE DISTANCE BETWEEN THE GUTTERLINES ON EACH SIDE OF THE ROAD.
2. SIDEWALK WIDTH IS MEASURED FROM THE BACK OF CURB.
3. CUT & FILL SLOPES SHALL BE MINIMUM 2:1.
4. WHERE SIDEWALKS TO BE INSTALLED ON ONLY ONE SIDE OF THE STREET, IT SHALL BE PLACED ON THE NORTH OR EAST SIDE. STREETLIGHT TO BE PLACED BEHIND SIDEWALK.



NOTE:

1. THE ROAD WIDTH IS MEASURED AS THE DISTANCE BETWEEN THE GUTTERLINES ON EACH SIDE OF THE ROAD.
2. SIDEWALK WIDTH IS MEASURED FROM THE BACK OF CURB.
3. CUT & FILL SLOPES SHALL BE MINIMUM 2:1.
4. WHERE SIDEWALKS TO BE INSTALLED ON ONLY ONE SIDE OF THE STREET, IT SHALL BE PLACED ON THE NORTH OR EAST SIDE. STREETLIGHT TO BE PLACED BEHIND SIDEWALK.



NOTE:

1. THE ROAD WIDTH IS MEASURED AS THE DISTANCE BETWEEN THE GUTTERLINES ON EACH SIDE OF THE ROAD.
2. CUT & FILL SLOPES SHALL BE MINIMUM 2:1.
3. SIDEWALK MAY BE REQUIRED AT THE DISCRETION OF APPROVING OFFICER

 <p>FORT ST. JOHN <i>The Energetic City</i></p>	LOCAL INDUSTRIAL Typical Section	DWG.No. A-3
		SCALE: NOT TO SCALE

4.5m

11.0m

4.5m

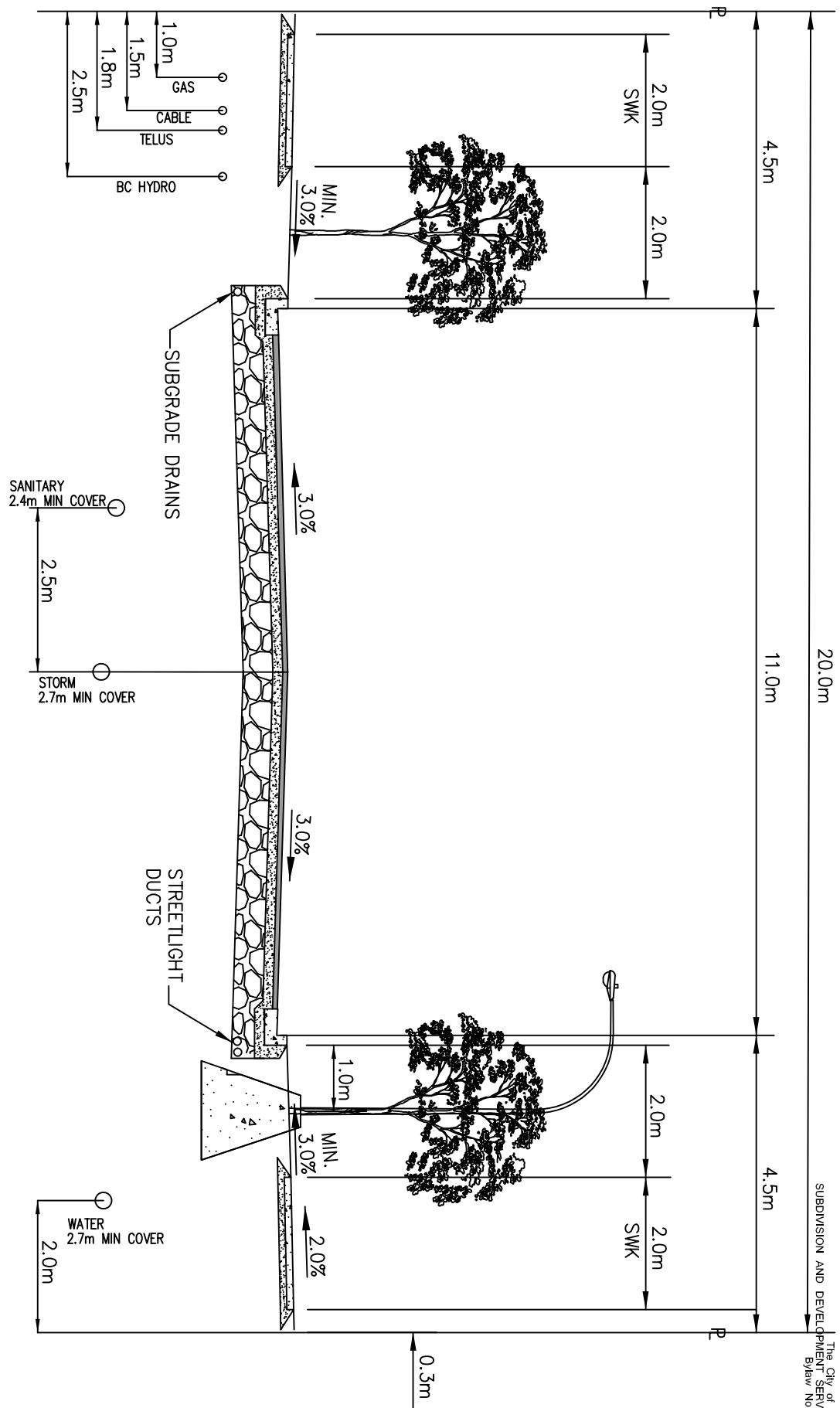
P

P

P

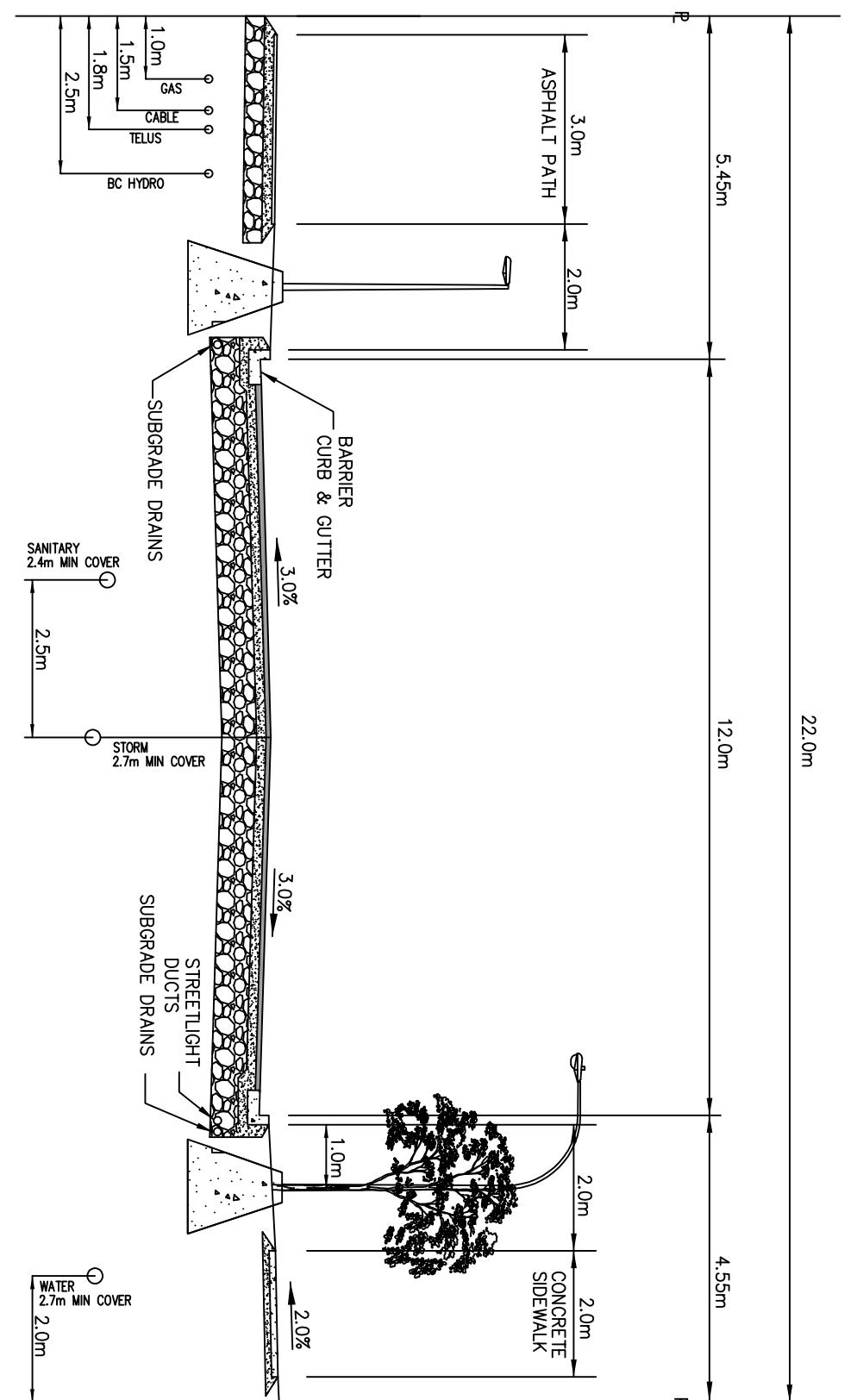
2.0m
SWK
2.0m2.0m
SWK
2.0m

0.3m



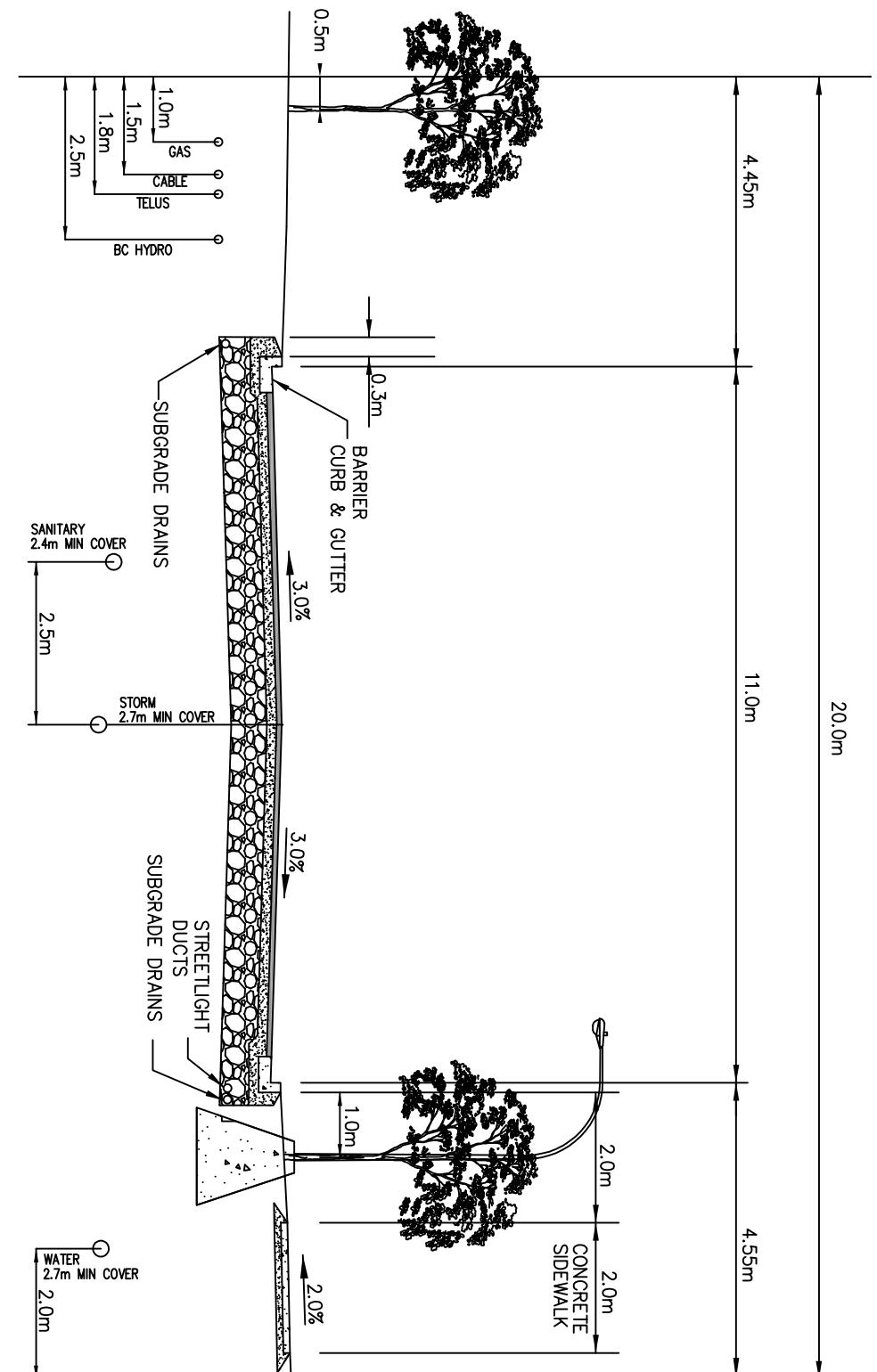
NOTE:

1. THE ROAD WIDTH IS MEASURED AS THE DISTANCE BETWEEN THE GUTTERLINES ON EACH SIDE OF THE ROAD.
2. CUT & FILL SLOPES SHALL BE MINIMUM 2:1.



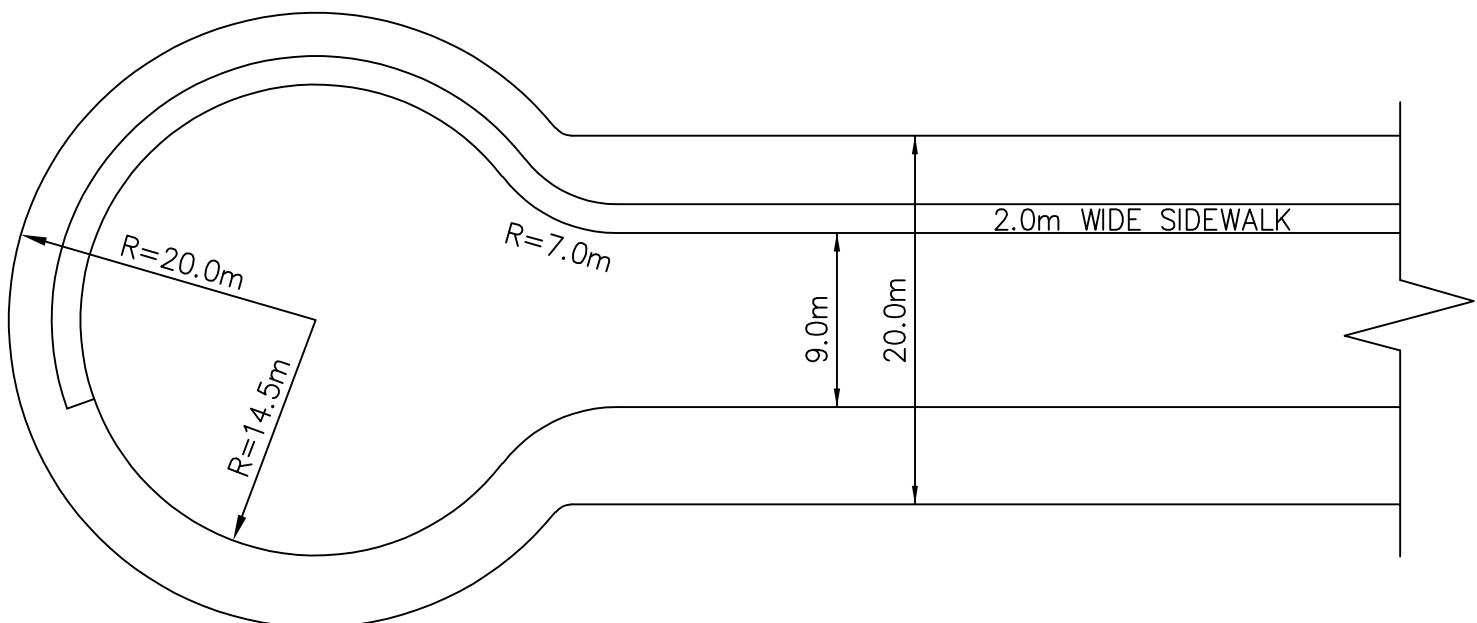
NOTE:

1. THE ROAD WIDTH IS MEASURED AS THE DISTANCE BETWEEN THE GUTTERLINES ON EACH SIDE OF THE ROAD.
2. SIDEWALK WIDTH IS MEASURED FROM THE BACK OF CURB.
3. CUT & FILL SLOPES SHALL BE MINIMUM 2:1.
4. SIDEWALK PLACED ON SOUTH OR EAST SIDE OF THE STREET



NOTE:

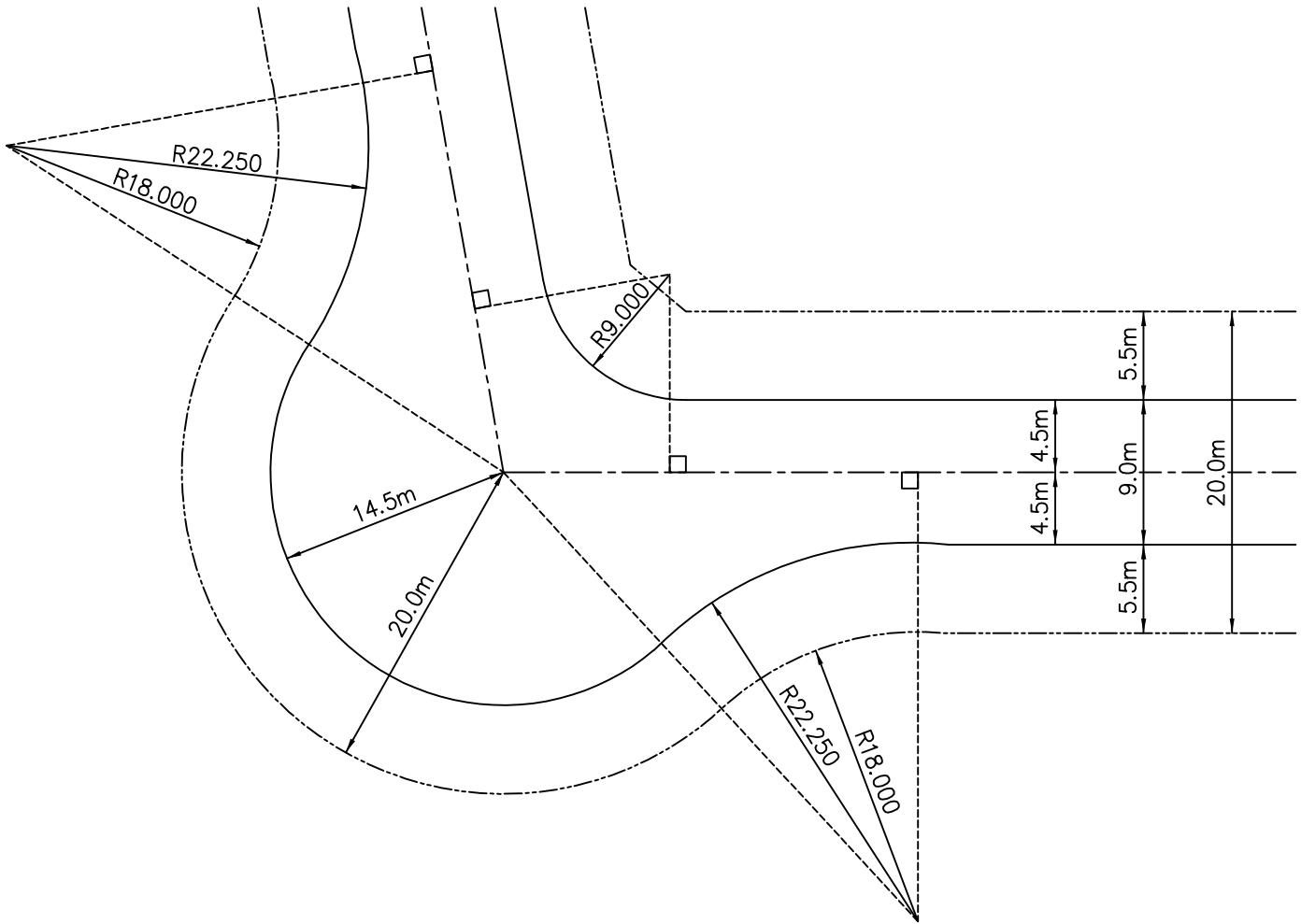
1. THE ROAD WIDTH IS MEASURED AS THE DISTANCE BETWEEN THE GUTTERLINES ON EACH SIDE OF THE ROAD.
2. SIDEWALK WIDTH IS MEASURED FROM THE BACK OF CURB.
3. CUT & FILL SLOPES SHALL BE MINIMUM 2:1.
4. SIDEWALK PLACED ON NORTH OR EAST SIDE OF THE STREET



NOTE:

1. THE THICKNESS OF SUBBASE & BASE GRAVELS MAY CHANGE DEPENDING ON THE INTEGRITY OF SUBGRADE SOILS DETERMINED BY A GEOTECHNICAL ENGINEER.
2. THE THICKNESS OF SUBBASE & BASE GRAVELS MAY CHANGE GUTTERLINES ON EACH SIDE OF THE ROAD.
3. SIDEWALK WIDTH IS MEASURED FROM THE BACK OF THE CURB.

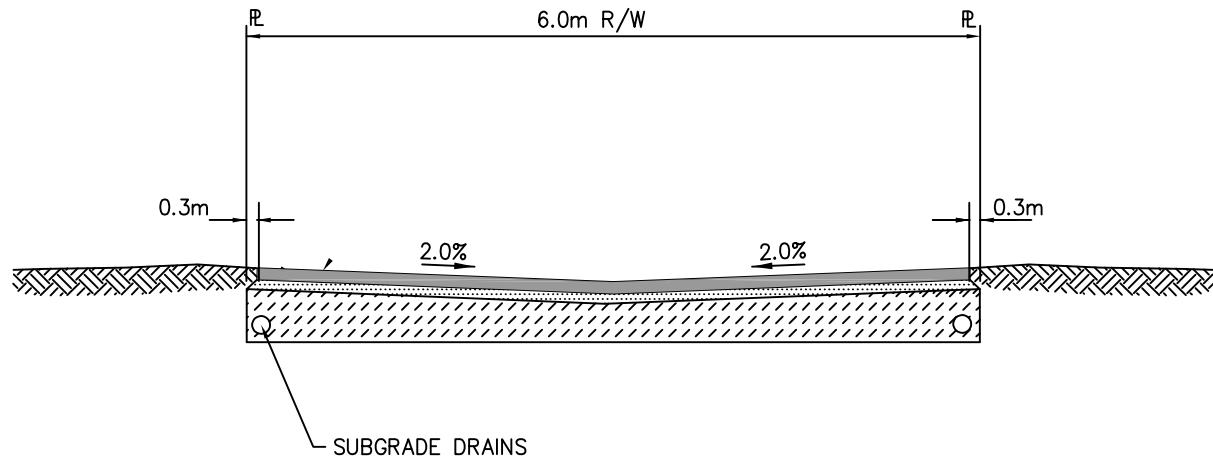
 FORT ST. JOHN <i>The Energetic City</i>	CUL-DE-SAC TYPICAL SECTION	DWG.No. A-7
	SCALE: NOT TO SCALE	APPENDIX 6



NOTE:

1. THE THICKNESS OF SUBBASE & BASE GRAVELS MAY CHANGE DEPENDING ON THE INTEGRITY OF SUBGRADE SOILS DETERMINED BY A GEOTECHNICAL ENGINEER.
2. THE ROAD WIDTH IS MEASURED AS THE DISTANCE BETWEEN THE GUTTERLINES ON EACH SIDE OF THE ROAD.
3. SIDEWALK WIDTH IS MEASURED FROM THE BACK OF CURB.
4. CUT & FILL SLOPES SHALL BE MINIMUM 2:1.

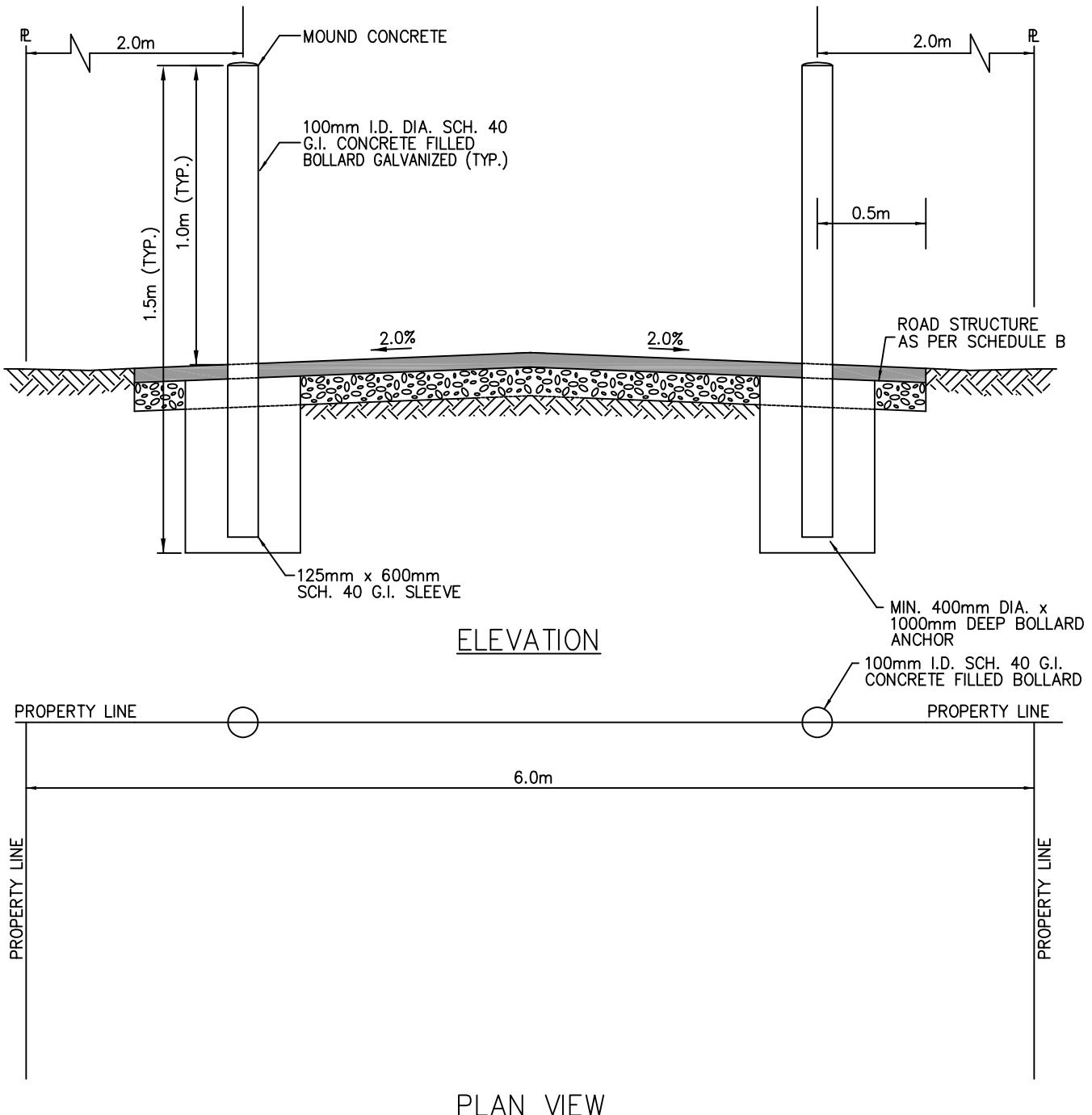
 FORT ST JOHN <i>The Energetic City</i>	LOCAL 'HEEL' TYPICAL SECTION	DWG.No. A-8
	SCALE: NOT TO SCALE	APPENDIX 6



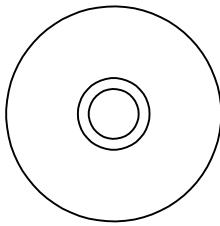
NOTE:

1. ROAD SURFACE TO BE 2% INVERTED CROWN.
2. ALL CATCH BASINS ARE TO BE PLACED ON CROWN LINE (LOW POINT)
CROWN LINE OFFSET MAY BE MOVED TO ANY POINT ON THE ROAD SURFACE.
IN ORDER TO FACILITATE EASE OF INSTALLATION AND REDUCE INTERFERENCE
WITH OTHER EXISTING OR PROPOSED SERVICES.
3. SUBGRADE TO BE CROWNED AT 2%
4. THE THICKNESS OF GRAVEL SUB-BASE MAY CHANGE, DEPENDING ON
THE INTEGRITY OF SUBGRADE SOIL.

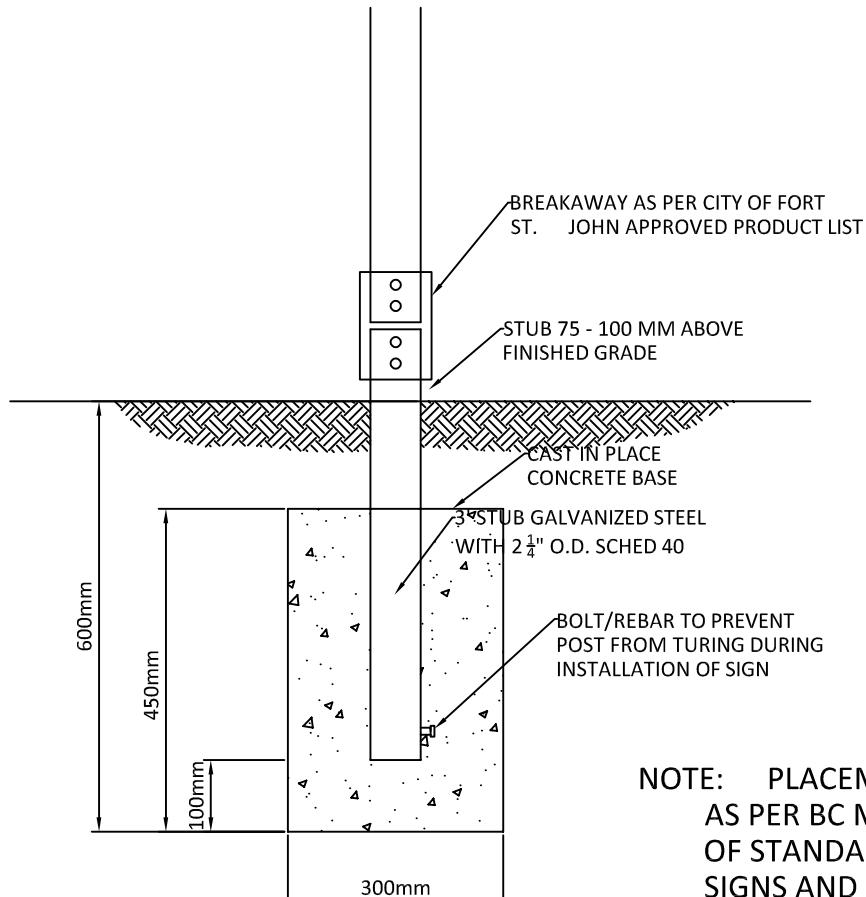
 FORT ST JOHN <i>The Energetic City</i>	LANE PAVED TYPICAL SECTION	DWG.No. A-9
	SCALE: NOT TO SCALE	APPENDIX 6



 FORT ST. JOHN <i>The Energetic City</i>	WALKWAY PAVED TYPICAL SECTION	DWG.No. B-1
	SCALE: NOT TO SCALE	APPENDIX 6

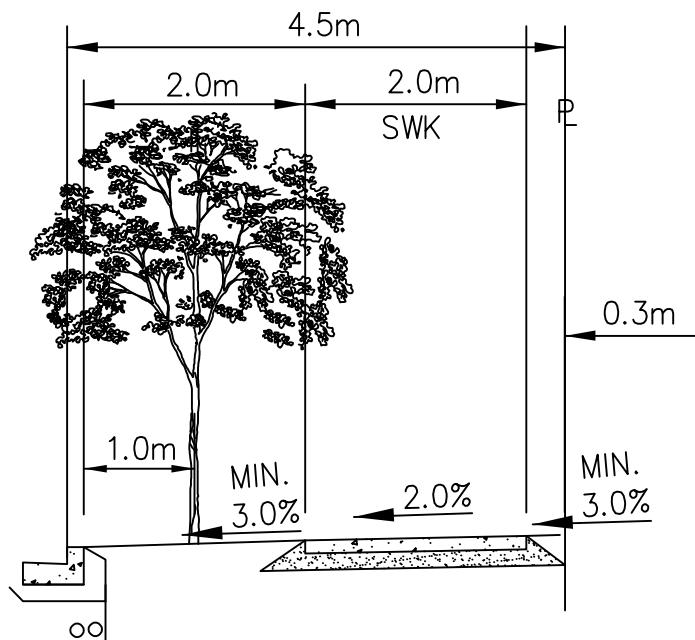


PLAN VIEW



This specification must be read in conjunction with the latest version of the MMCD and the schedules in the Subdivision Servicing Bylaw. Where there are contradictions, this list shall prevail.

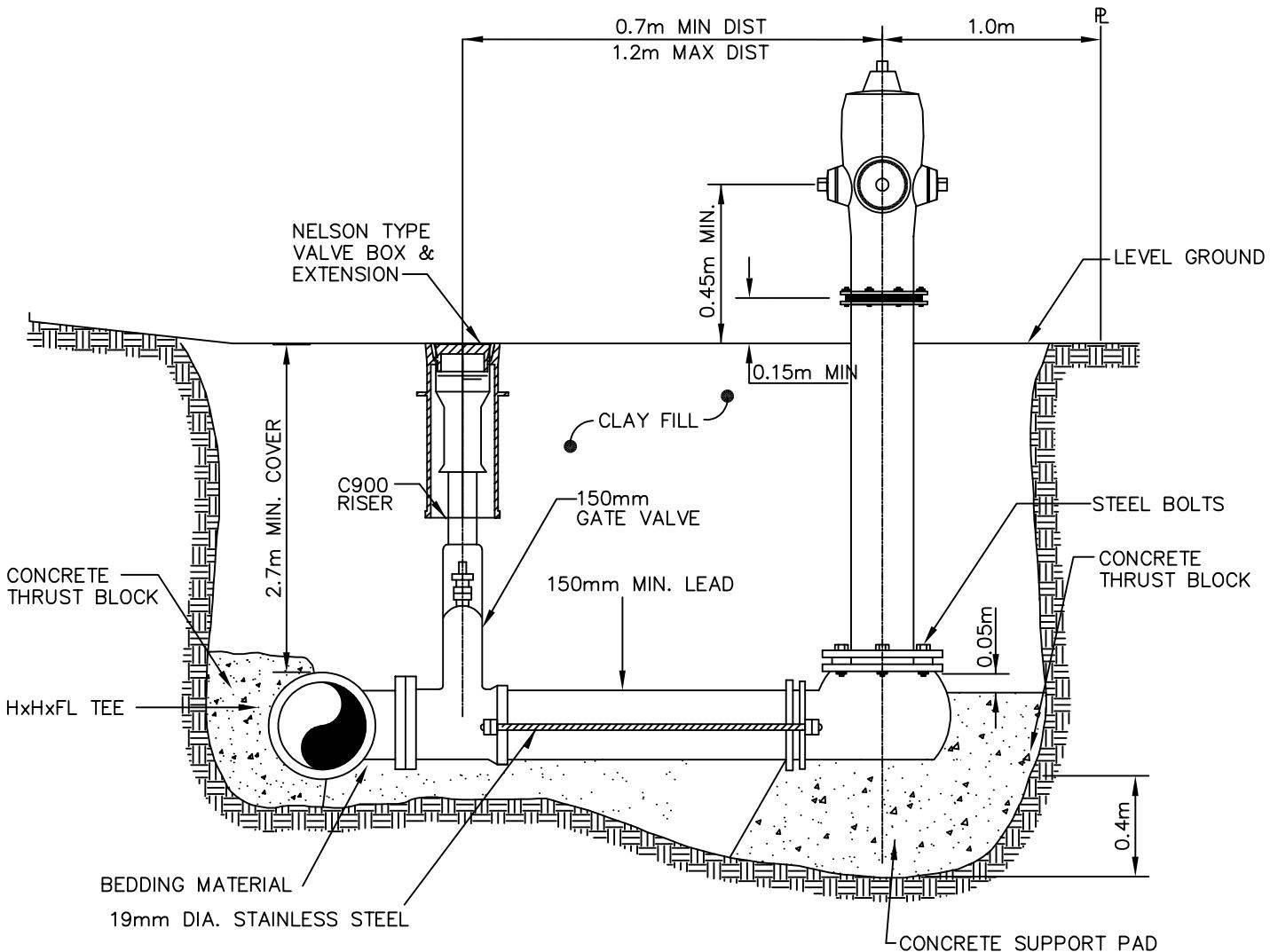
	SIGN INSTALLATION DETAIL	DWG.No.
	SCALE: NOT TO SCALE	B-2
		APPENDIX 6



NOTE:

1. CONCRETE SIDEWALK TO BE A MINIMUM OF 120 mm DEPTH.
2. SIDEWALK BASE TO BE 150mm – 19mm MINUS GRANULAR BASE COMPACTED TO 100% SPMDD.

 <p>FORT ST. JOHN <i>The Energetic City</i></p>	<p>SEPARATED SIDEWALK DETAIL</p>	DWG.No. C-1
	SCALE: NOT TO SCALE	APPENDIX 6

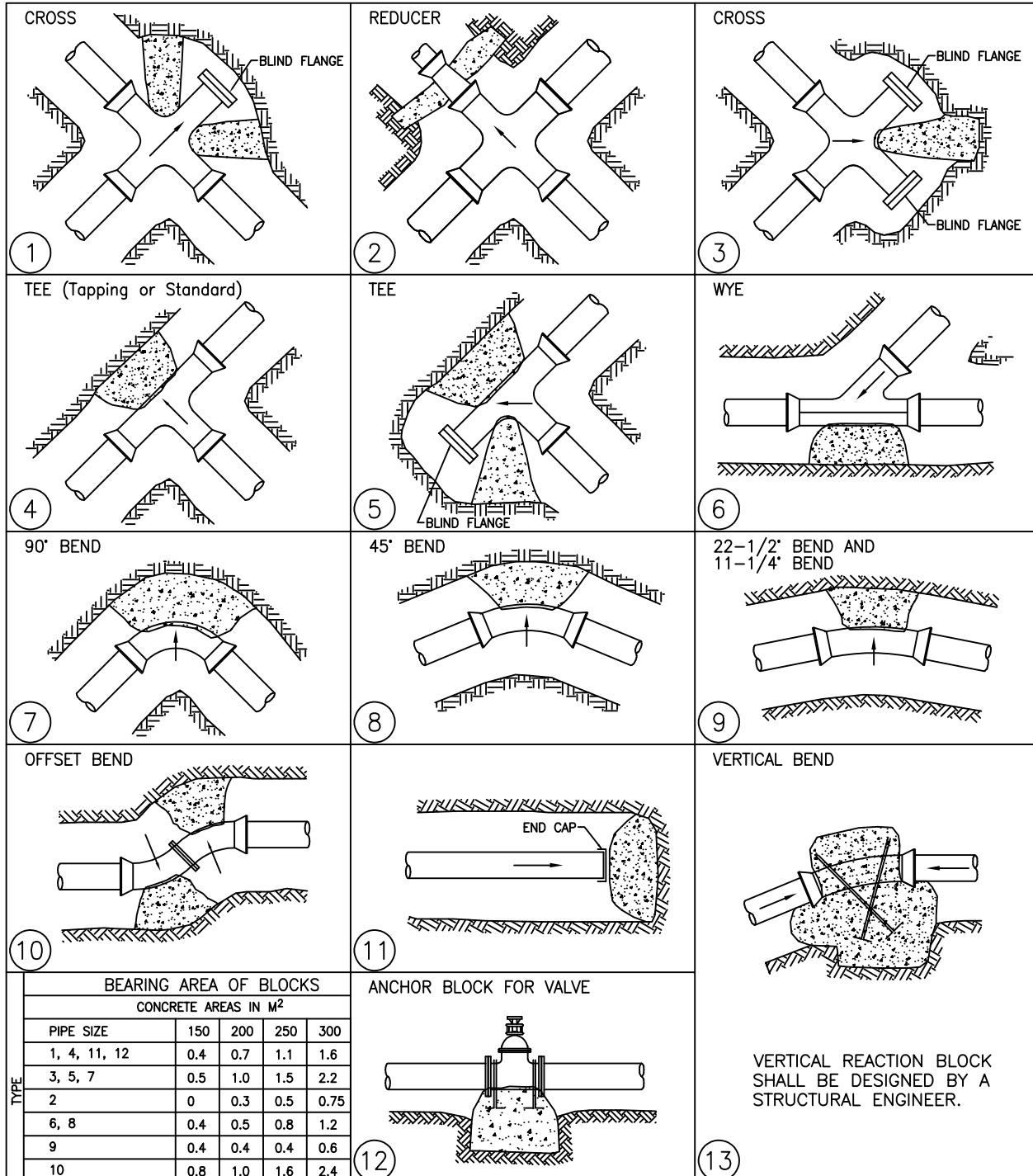


NOTES:

1. HYDRANTS SHALL BE COMPRESSION TYPE AND EACH SHALL CONTAIN
 - A) PUMPER PORT-N.F.P.A STANDARD 101.6mm I.D. AND 127mm O.D., FOUR (4) THREADS PER 25.4mm AMERICAN NATIONAL HOUSE COUPLING THREADS. LENGTH OF NIPPLE – 31.75mm. LENGTH OF PILOT TO START OF SECOND THREAD – 30.163mm. DIAMETER OF WASHER SEAT – 130mm. LENGTH OF COUPLING INTERNAL THREAD – 22.225MM. LENGTH FROM FACE OF COUPLING TO START OF SECOND THREAD – 9.525MM.
 - B) HOSE OUTLETS – 63.5mm NOMINAL I.D. – 8 THREADS PER 25.4mm.
2. PUMPER OUTLET MUST FACE CURB
3. HYDRANT BOOT SIZED FOR 150mm PIPE
4. HYDRANT DRAIN MUST BE PLUGGED WITH THREADED BOLT
5. BOOT AND BODY REQUIRES 17 POUND MAGNESIUM ANODE

This specification must be read in conjunction with the latest version of the MMCD and the schedules in the Subdivision Servicing Bylaw. Where there are contradictions, this list shall prevail.

	FIRE HYDRANT INSTALLATION DETAIL	DWG.No. D-1
	SCALE: NOT TO SCALE	APPENDIX 6



NOTES:

- CONCRETE MUST BE TYPE 50
- THRUST BLOCK EXTENDED TO UNDISTURBED GROUND
- THRUST BLOCKS FOR MAINS LARGER THAN 300mm^Ø SHALL BE DESIGNED BY A PROFESSIONAL ENGINEER AND SHOWN ON THE ENGINEERED DRAWINGS
- OWNER'S PROFESSIONAL ENGINEER TO CONFIRM SIZE AND CONFIGURATION OF THRUST BLOCKS OR OTHER MEANS OF RESTRAINTS TO SUIT ACTUAL CONDITIONS

DESIGN ASSUMPTIONS

- HYDRAULIC HEAD=1.38 MPa.
- SOIL BEARING VALUE = 0.096 MPa. (MED SOFT CLAY)

THIS SPECIFICATION MUST BE READ IN CONJUNCTION WITH THE LATEST VERSION OF THE MMCD AND THE SCHEDULES IN THE SUBDIVISION SERVICING BYLAW. WHERE THERE ARE CONTRADICTIONS, THIS DRAWING SHALL PREVAIL.

NOTE:

WRAP ALL SEWER SERVICE JOINTS TO BE WRAPPED AS PER NORTHERN HEALTH REQUIREMENTS.

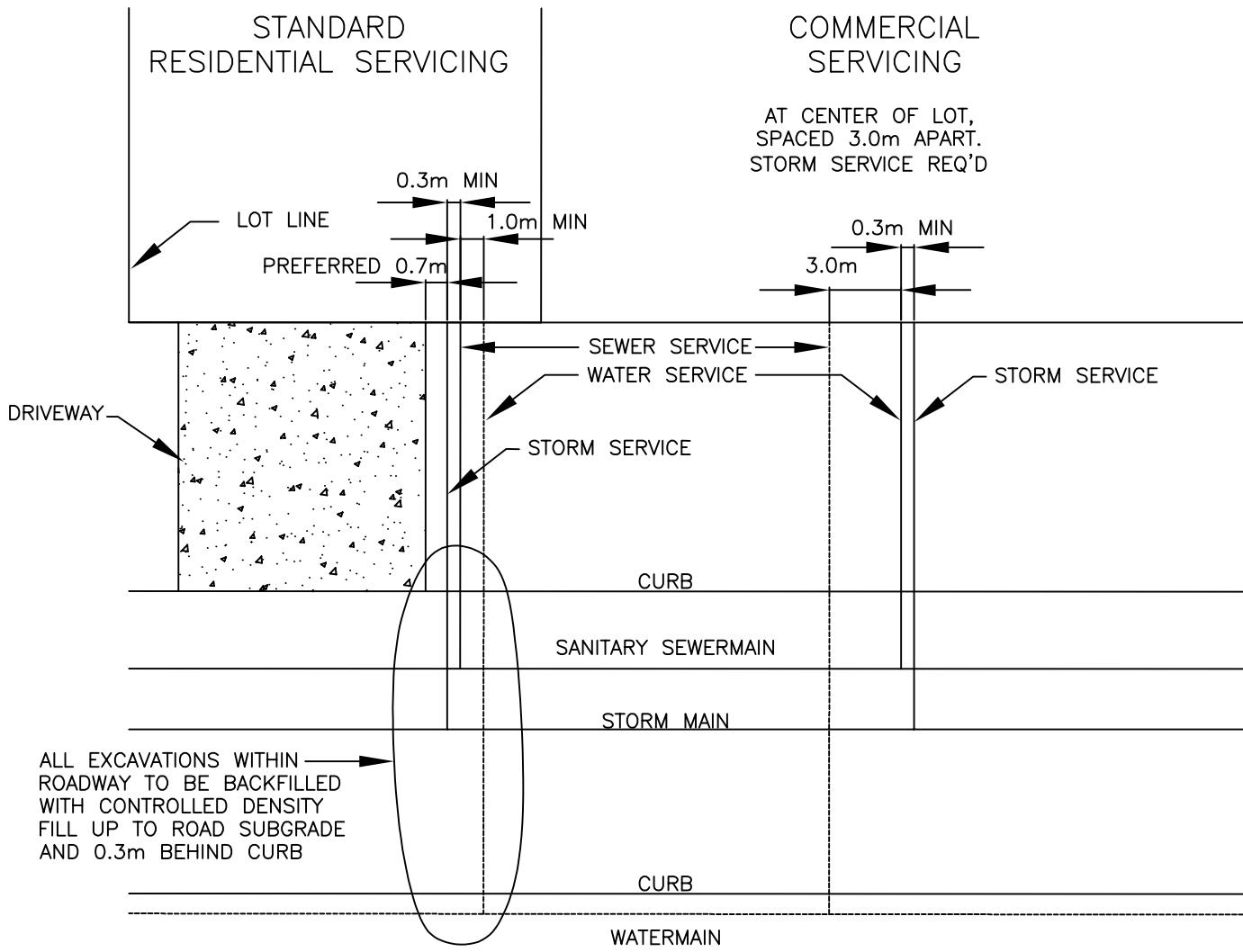
CLASS 'B' BEDDING TO BE USED UNLESS OTHERWISE SPECIFIED (REFER TO DWG E-5).

ALL BACK FILL & COMPACTION ON CITY PROPERTY TO BE TO 98% SPD. (REFER TO DWG E-4).

SANITARY MIN GRADE: 2% FOR 100mm DIAMETER, 1% FOR 150mm DIAMETER.

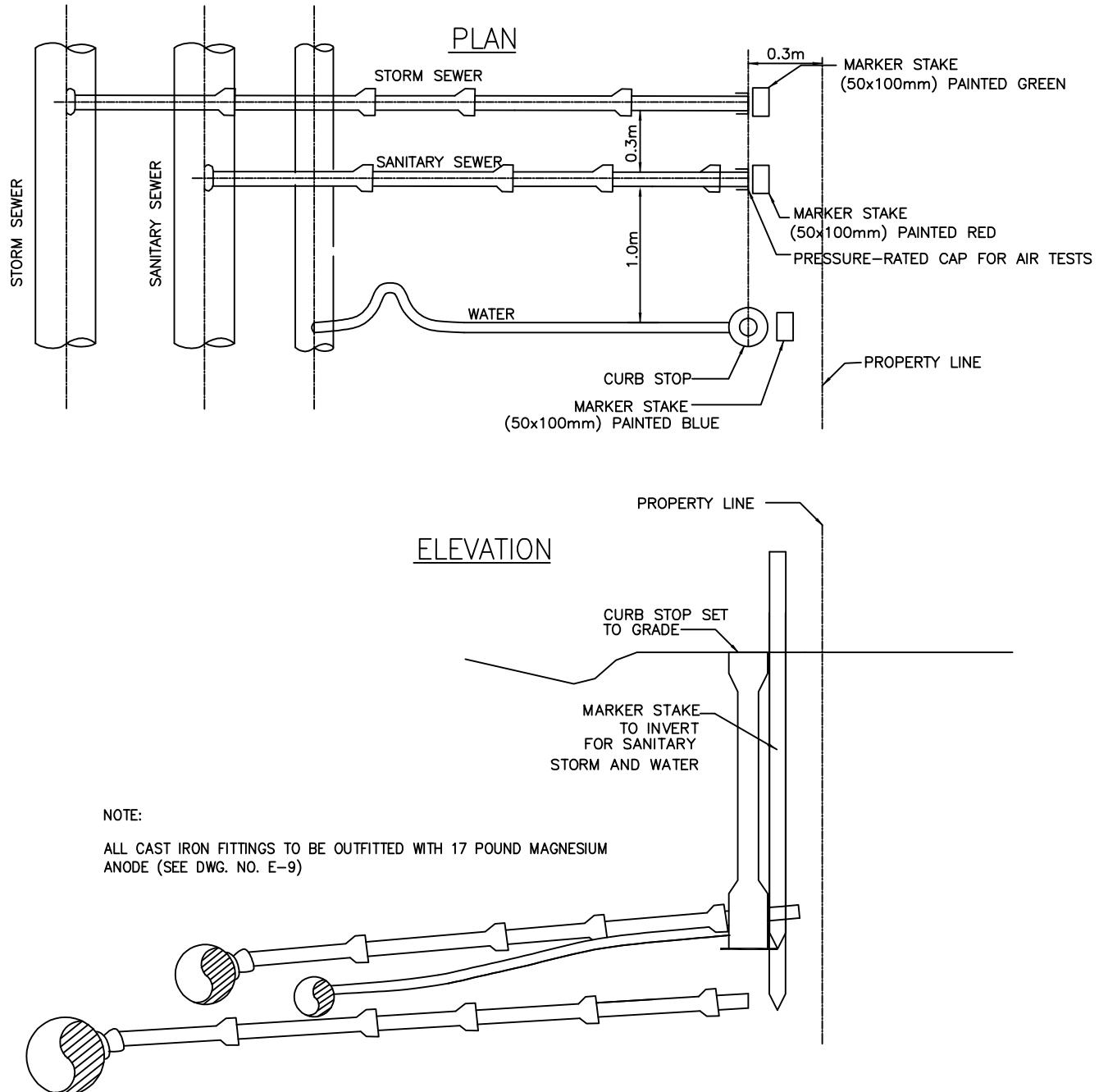
MIN PIPE COVER: WATER 2.7M, FORCEMAIN 2.7M, SANITARY 2.4M, STORM 1.2M. INSULATION REQUIRED AT LESSER DEPTHS (REFER TO DWG E-6).

IN ZONES, WHERE A DUPLEX MAY BE BUILT, TWO INDEPENDENT WATER & SEWER SERVICES MUST BE INSTALLED.



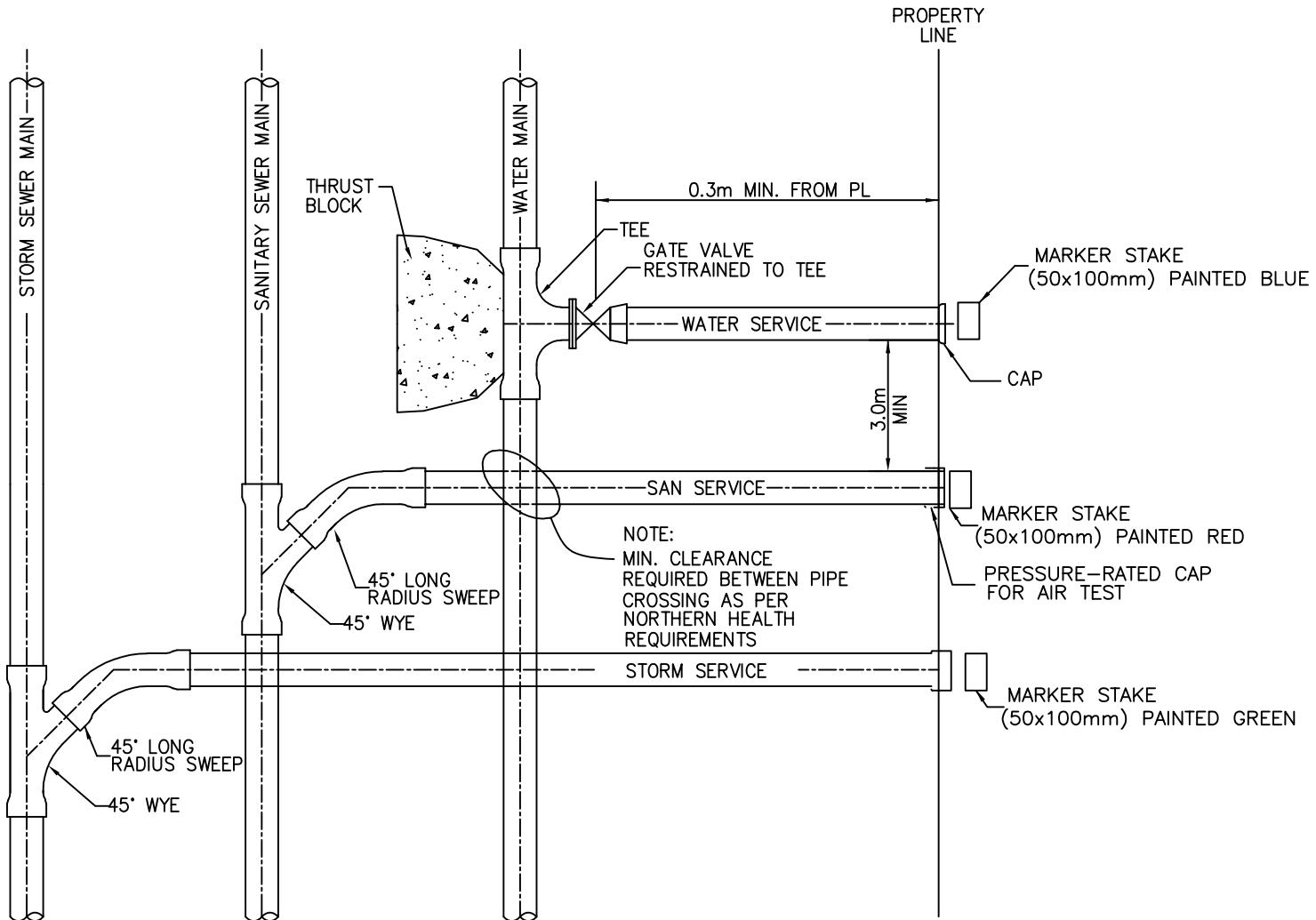
This specification must be read in conjunction with the latest version of the MMCD and the schedules in the Subdivision Servicing Bylaw. Where there are contradictions, this list shall prevail.

	WATER AND SEWER SERVICES	DWG.No.
	SCALE: NOT TO SCALE	D-3
		APPENDIX 6



This specification must be read in conjunction with the latest version of the MMCD and the schedules in the Subdivision Servicing Bylaw. Where there are contradictions, this drawing shall prevail.

 FORT ST. JOHN <i>The Energetic City</i>	WATER AND SEWER SERVICES SMALL DIAMETER	DWG.No.
	SCALE: NOT TO SCALE	D-3A
		APPENDIX 6



STORM SERVICE REQ'D FOR ALL COMMERCIAL PROPERTIES. LOCATION TO BE GREATER THAN 3m FROM THE WATER SERVICE.

THIS DRAWING IS APPLICABLE WHEN WATER SERVICES ARE GREATER THAN 50mm DIAMETER OR SEWER SERVICES ARE GREATER THAN 100mm DIAMETER

This specification must be read in conjunction with the latest version of the MMCD and the schedules in the Subdivision Servicing Bylaw. Where there are contradictions, this drawing shall prevail.

UNIMPROVED AREA
TO BE RESTORED WITH
150mm DEPTH OF
TOPSOIL

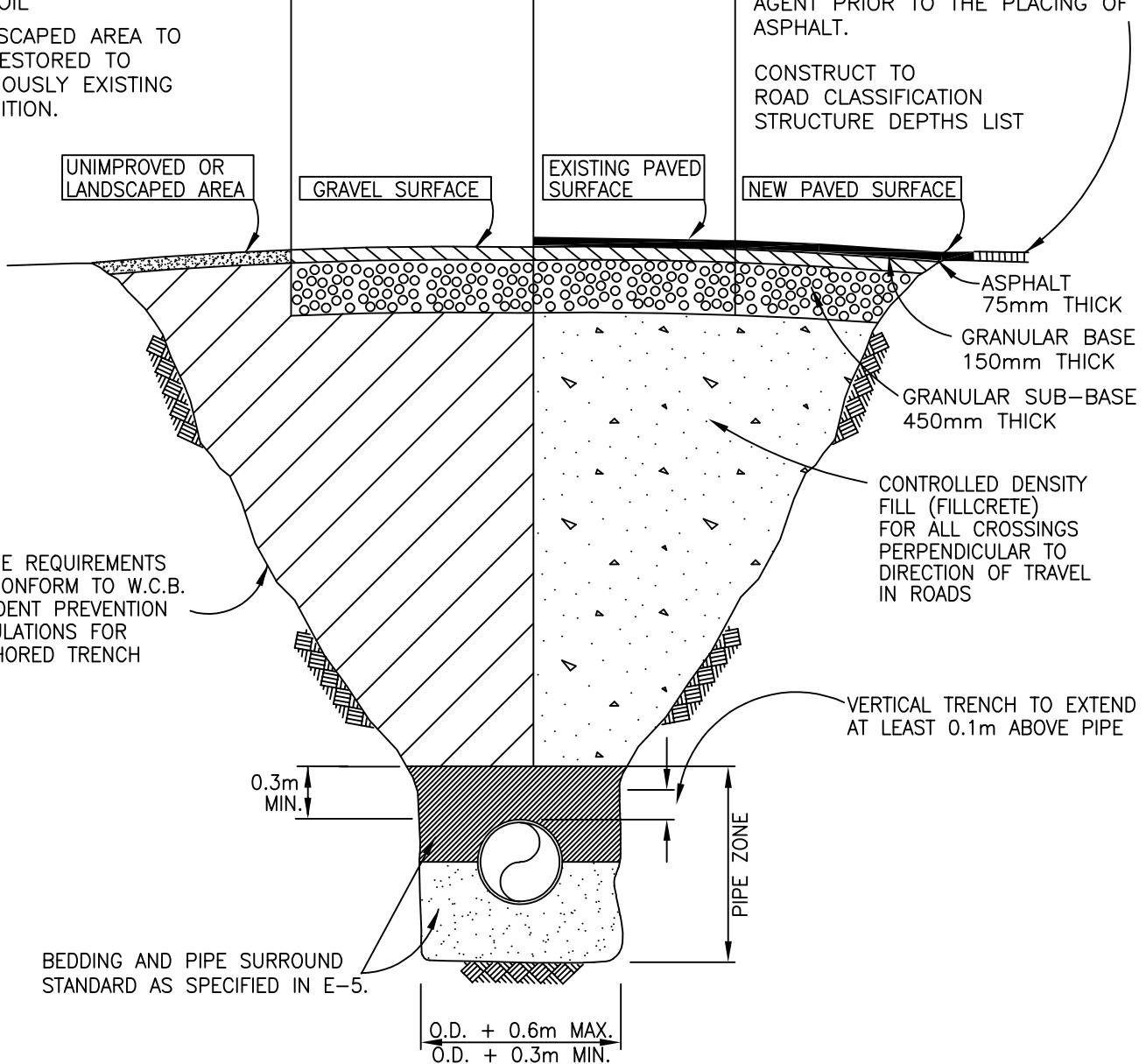
LANDSCAPED AREA TO
BE RESTORED TO
PREVIOUSLY EXISTING
CONDITION.

RESTORE WITH MIN
300mm OF 40mm
MINUS GRAVEL

RESTORE TO
SPECIFIED
DEPTHS

THE EDGES OF EXISTING PAVEMENT
SHALL BE COATED WITH AN
APPROVED BITUMINOUS BONDING
AGENT PRIOR TO THE PLACING OF
ASPHALT.

CONSTRUCT TO
ROAD CLASSIFICATION
STRUCTURE DEPTHS LIST



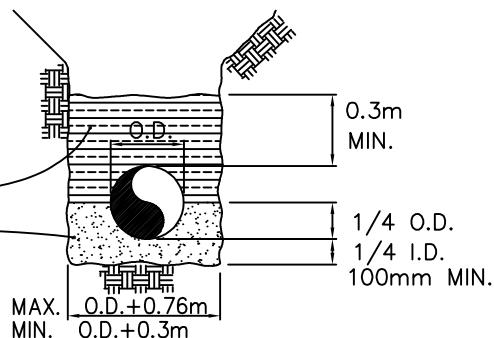
GENERAL NOTE:
ALL BACKFILL AND COMPACTION
TO BE 98% STANDARD PROCTOR
DENSITY.

This specification must be read in conjunction with the latest version of the MMCD and the schedules in the Subdivision Servicing Bylaw. Where there are contradictions, this drawing shall prevail.

CLASS "A" BEDDING

SELECT EXCAVATED OR
 IMPORTED GRANULAR MATERIAL
 PLACE IN MAXIMUM 100mm
 LIFTS. COMPACT TO 95% S.P.D.

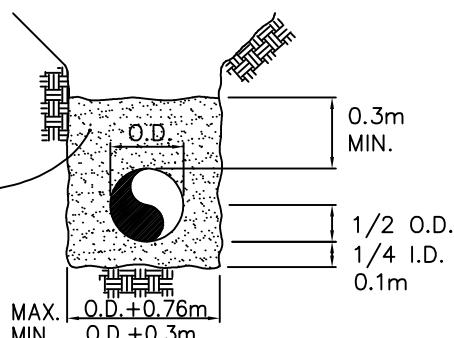
CONCRETE - 20MPa.
 TYPE 50



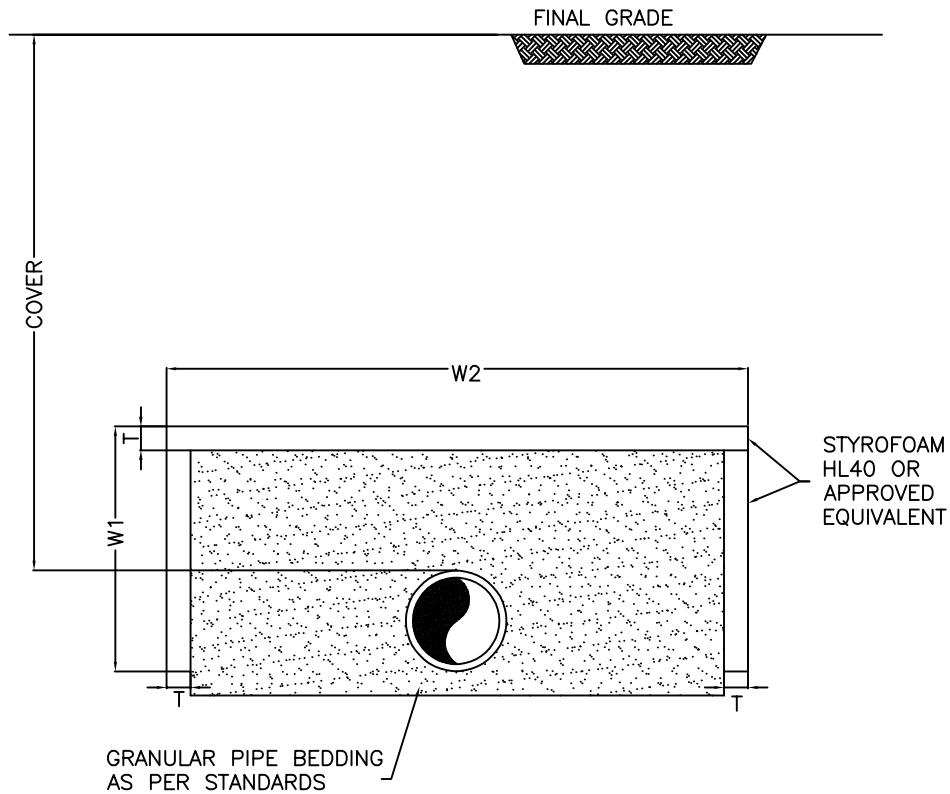
CLASS "B" BEDDING

FINE GRANULAR MATERIAL
 PLACE IN MAXIMUM 100mm
 LIFT. COMPACT TO 95% S.P.D.

NOTES:
 -CLASS 'B' TO BE USED
 UNLESS OTHERWISE SPECIFIED



This specification must be read in conjunction with the latest version of the MMCD and the schedules in the Subdivision Servicing Bylaw. Where there are contradictions, this drawing shall prevail.



PIPE COVER (m)	MINIMUM INSULATION THICKNESS T (mm)	MINIMUM INSULATION WIDTH, W=2W1+W2 (m)								
		PIPE DIAMETER 150-200mm			PIPE DIAMETER 250-300mm			PIPE DIAMETER 350-400mm		
		CLAY	MIX	GRAVEL	CLAY	MIX	GRAVEL	CLAY	MIX	GRAVEL
1.6-1.7	75	2.4	3.0	3.6	2.5	3.1	3.7	2.6	3.2	3.8
1.8-1.9	50	2.0	2.6	3.2	2.1	2.7	3.3	2.4	2.8	3.4
2.0-2.1	50	1.8	2.2	2.8	2.1	2.3	2.9	2.4	2.4	3.0
2.2-2.3	50	1.8	1.8	2.4	2.1	2.1	2.5	2.4	2.4	2.6
2.4-2.5	50	*0.8	1.8	2.0	*0.9	2.1	2.1	*1.0	2.4	2.4

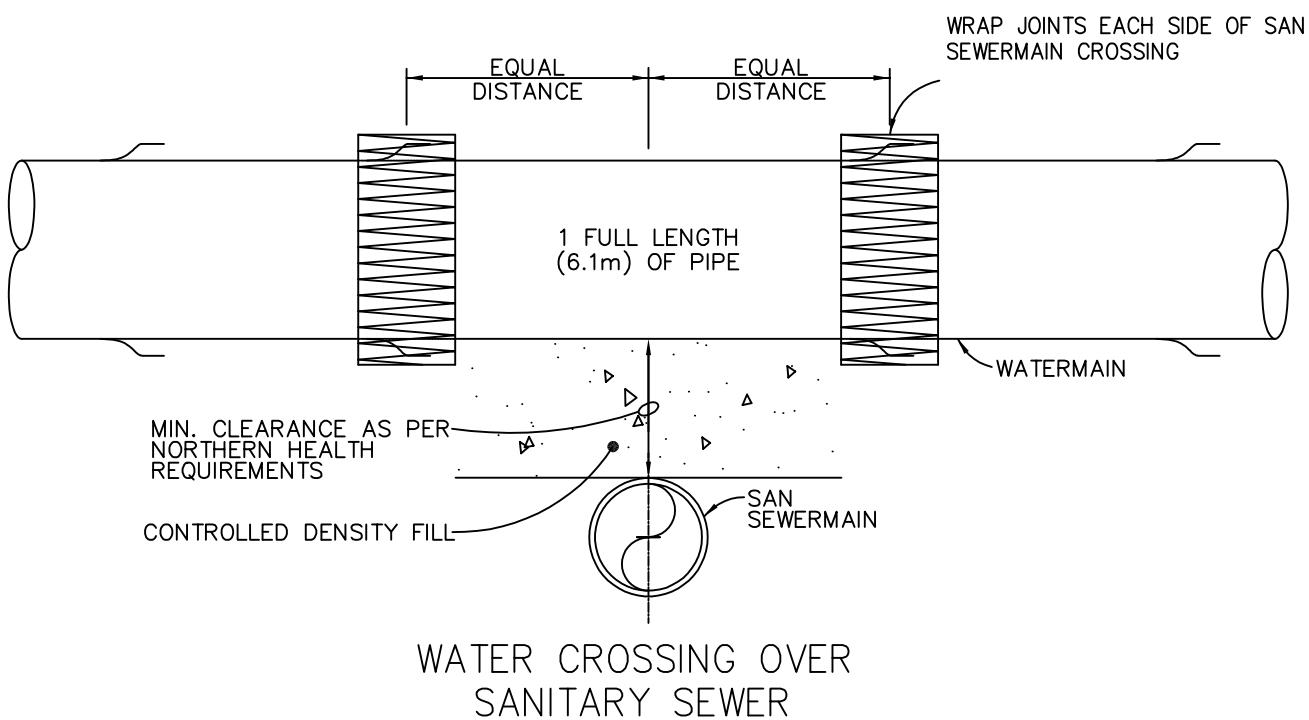
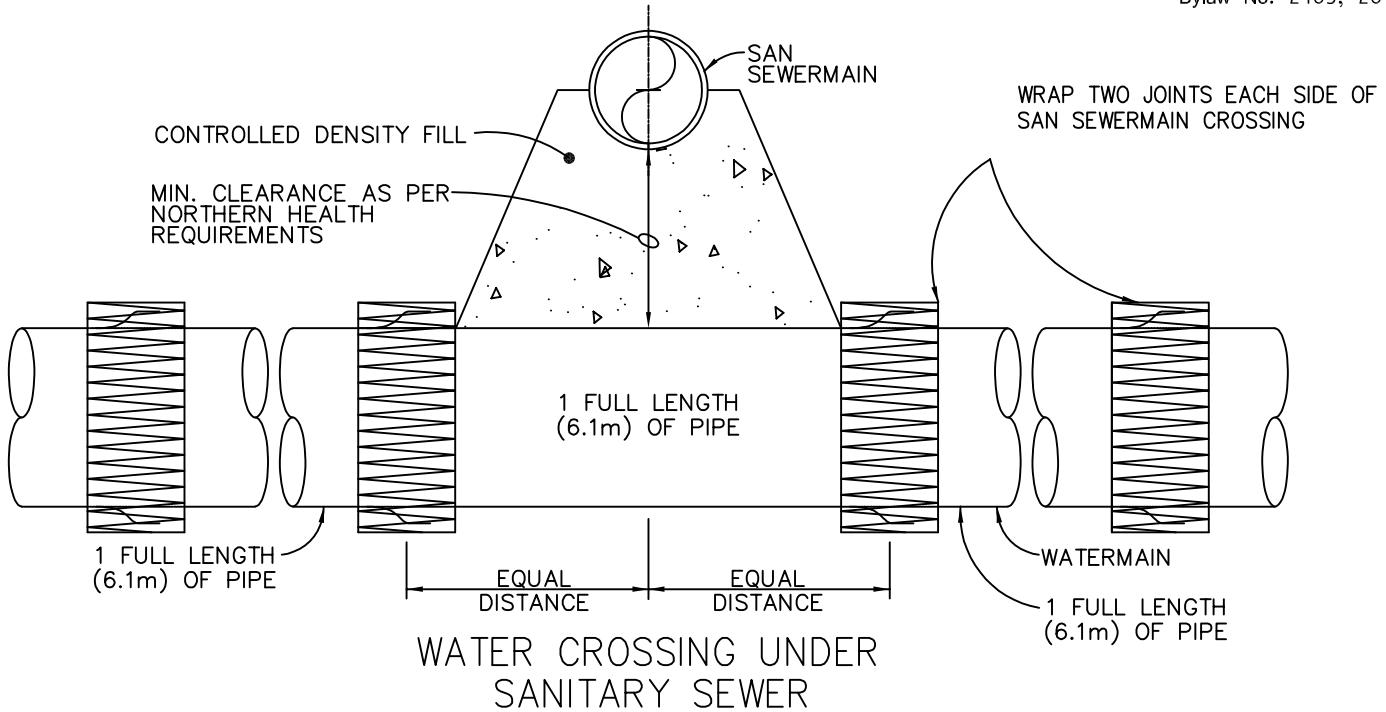
*REQUIRES ONLY HORIZONTAL INSULATION LAYER (W2)

GENERAL NOTES:

1. INSULATION REQUIRED, SHALL BE STYROFOAM (R) HIGH LOAD INSULATION 40, OR APPROVED EQUIVALENT.
2. BOTTOM OF VERTICAL INSULATION LEGS (W1) SHOULD BE LEVEL WITH BOTTOM OF THE PIPE.

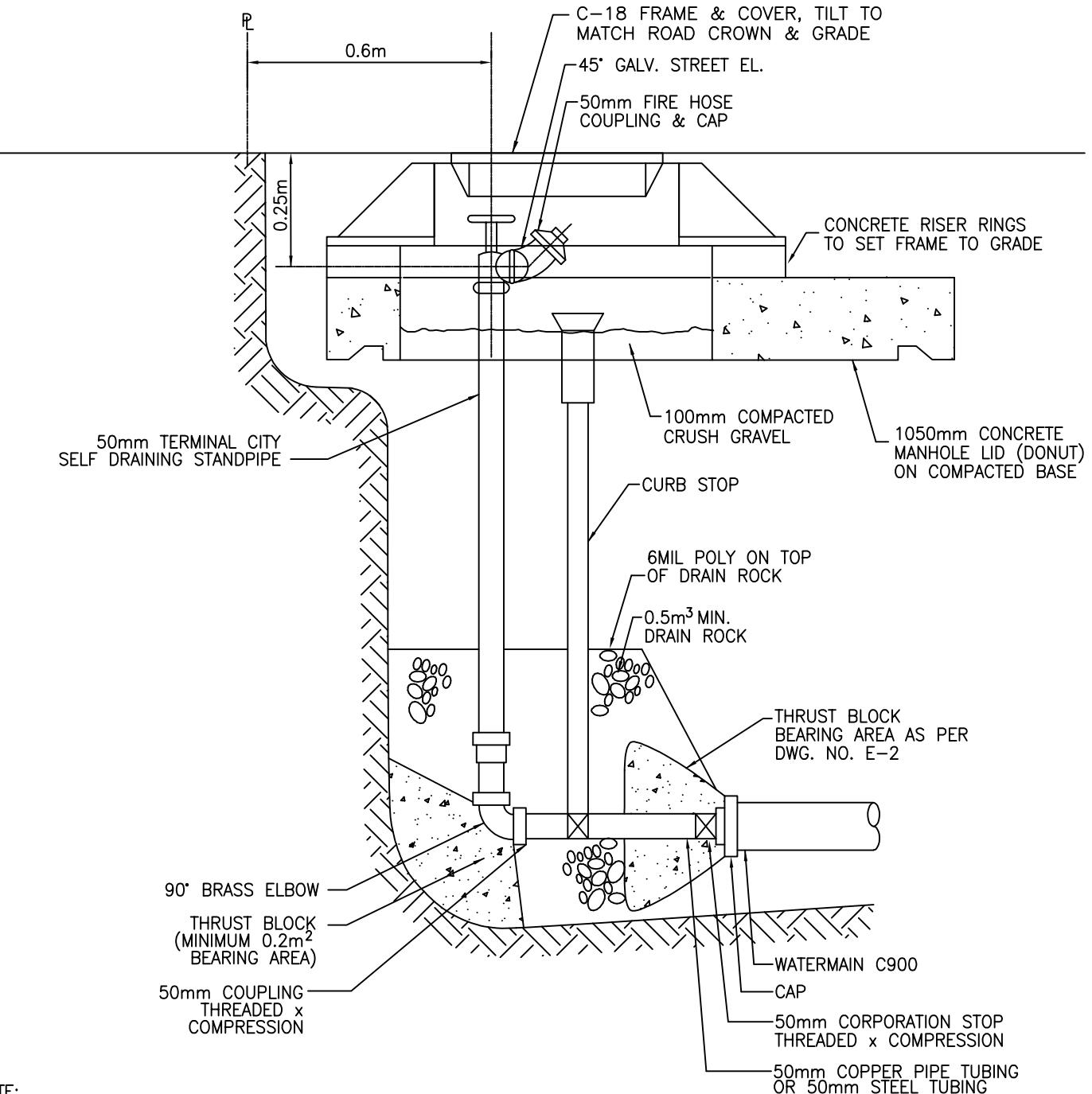
This specification must be read in conjunction with the latest version of the MMCD and the schedules in the Subdivision Servicing Bylaw. Where there are contradictions, this drawing shall prevail.

 FORT ST. JOHN <i>The Energetic City</i>	PIPE INSULATION	DWG.No.
		D-6
	SCALE: NOT TO SCALE	APPENDIX 6



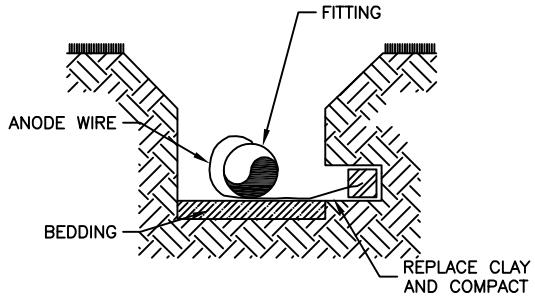
This specification must be read in conjunction with the latest version of the MMCD and the schedules in the Subdivision Servicing Bylaw. Where there are contradictions, this drawing shall prevail.

	WATER AND SANITARY SEWER CROSSING	DWG.No. D-7
	SCALE: NOT TO SCALE	APPENDIX 6

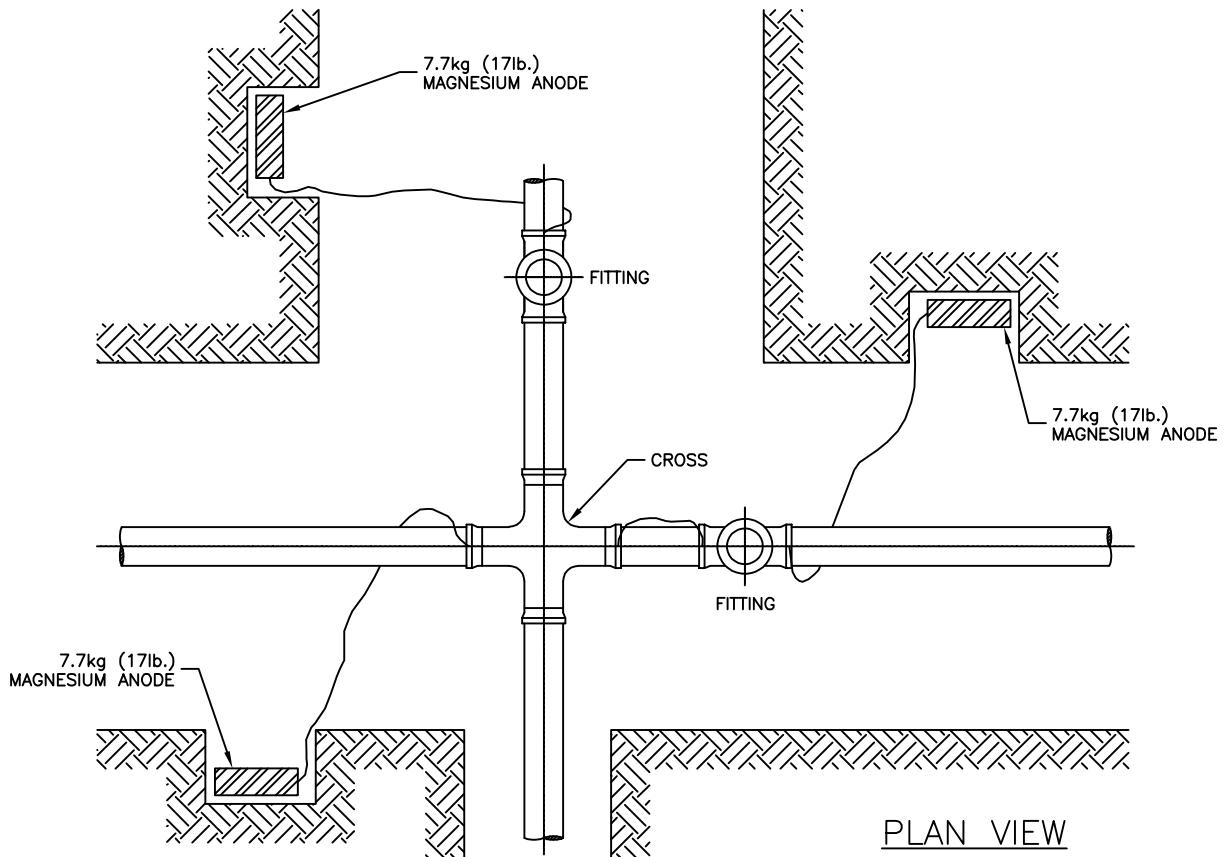


NOTE:
ALL CAST IRON FITTINGS TO BE OUTFITTED
WITH 17 POUND MAGNESIUM ANODE (SEE
DWG. NO. E-9)

This specification must be read in conjunction with the latest version of the MMCD and the schedules in the Subdivision Servicing Bylaw. Where there are contradictions, this drawing shall prevail.



END VIEW

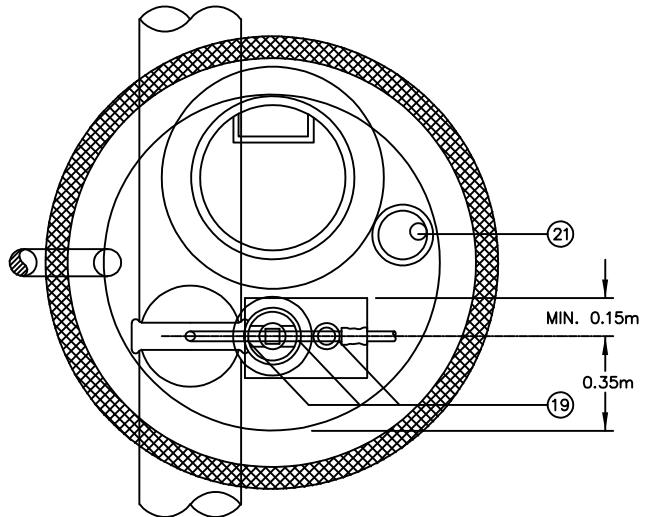
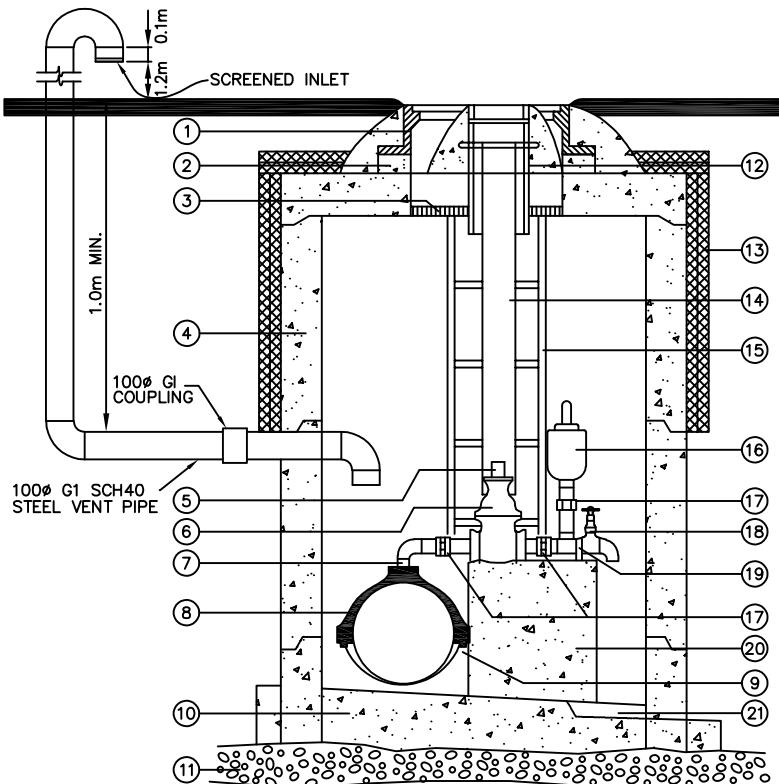


PLAN VIEW

INSTALLATION PROCEDURES:

- 1.) INSTALL ANODE AT APPROX. PIPE DEPTH IN NATIVE SOIL.
- 2.) ANODES TO BE EMBEDDED INTO TRENCH WALL TO PROVIDE FOR A MINIMUM OF 50mm OF NATIVE CLAY COMPLETELY SURROUNDING THE ANODE.
- 3.) ANODES TO BE AT LEAST 300mm CLEAR OF THRUST BLOCK.
- 4.) INSTALL ONE 17 POUND (7.7kg) MAGNESIUM ANODE PER FITTING (INSTEAD OF THE 12 POUND ZINC ANODE). ACCORDING TO THE APPROVED PRODUCTS LIST.
- 5.) ATTACH ANODE TO FITTING BY FUSING METHODS (CADWELD OR THERMITE WELD)
- 6.) IF FITTINGS ARE IN CLOSE PROXIMITY, CONDUCTIVELY CONNECT FITTINGS WITH A #10 WIRE THERMITE WELDED TO FITTINGS
- 7.) ALL METALLIC FITTINGS TO BE EPOXY COATED ACCORDING TO THE APPROVED PRODUCTS LIST. IF EPOXY COATING IS CHIPPED, USE TOUCH UP EPOXY PAINT.
- 8.) WHERE BOLTS ARE USED TO CONNECT FLANGES OR FITTINGS, SCRATCH EPOXY COATING TO ENSURE CONTINUITY BETWEEN FITTINGS AND BOLTS.
- 9.) DO NOT USE DENSO TAPE ON BOLTS, FITTINGS OR HYDRANT BARREL, UNLESS GAPS ARE SMOOTHED OUT WITH MASTIC UNDER THE TAPE TO PREVENT ANY WATER OR AIR FROM SITTING IN GAPS.

This specification must be read in conjunction with the latest version of the MMCD and the schedules in the Subdivision Servicing Bylaw. Where there are contradictions, this list shall prevail.



NOTE:

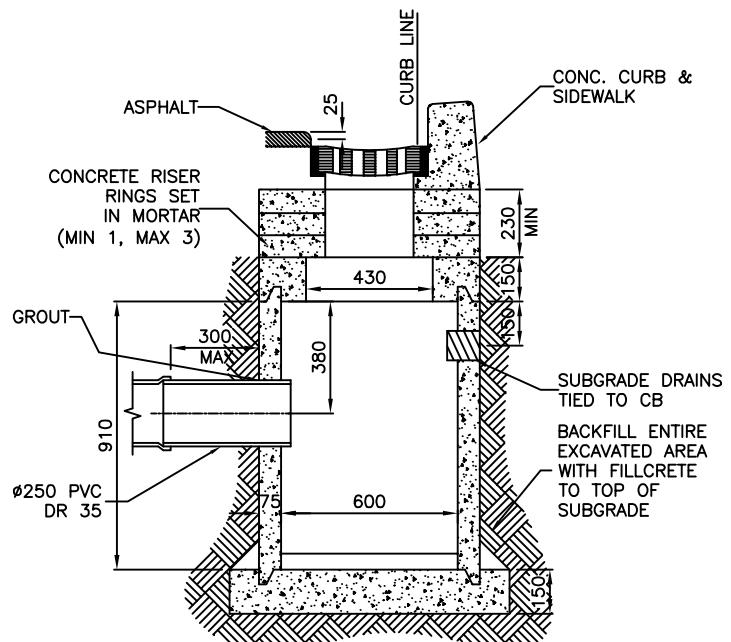
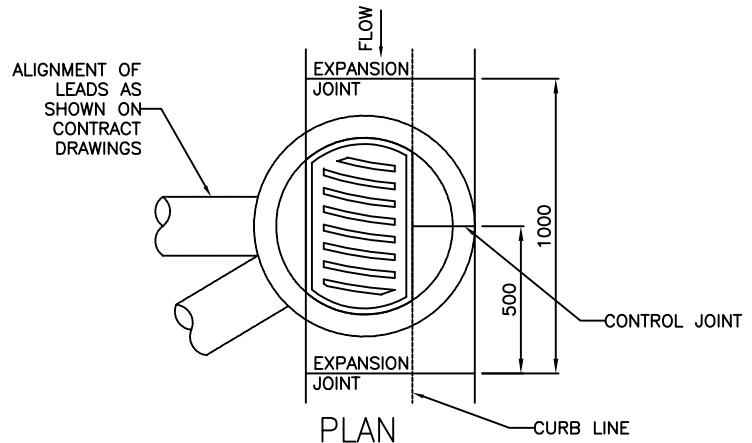
MANHOLE BARRELS TO BE 75mm CLEAR OF WATER MAIN.
ALL FITTINGS TO BE BRASS;
ALL JOINTS TO BE MORTARED WATER TIGHT INSIDE AND OUT;
INSTALLATIONS OCCURRING OUTSIDE OF ASPHALT
ROADWAYS WILL HAVE CONCRETE SURFACE PADS
MEASURING 1500mm x 1500mm x 150mm

SCHEDULE OF QUANTITIES

ITEM	DESCRIPTION
(1)	MANHOLE FRAME & COVER (DOBNEY FOUNDRY C-18), MORTAR INSIDE & OUT.
(2)	PRECAST CONCRETE RISER RINGS IN 50mm, 100mm, & 150mm HEIGHTS. USE A MINIMUM OF 1 & A MAXIMUM OF 3 RINGS WITH MAXIMUM TOTAL HEIGHT OF 250mm.
(3)	HALF MOON TREATED PLYWOOD COVERS WITH HANDLES, & 50mm RIGID UNSULATION ON LOWER SIDE.
(4)	PRECAST CONCRETE SECTIONS, 1500mm DIAMETER. LID REINFORNCED TO H-20 LOADING.
(5)	50mm SQUARE OPERATING NUT.
(6)	50mm CAST IRON RESILIENT SEAT GATE VALVE WITH 50mm OPERATING NUT.
(7)	50mm CORP. STOP
(8)	ROBAR 2706 SERIES SERVICE SADDLE, DOUBLE STAINLESS STEEL STRAPS.
(9)	50mm MINIMUM CLEARANCE
(10)	CONCRETE BASE POURED IN PLACE, MINIMUM 27.5Mpa, MINIMUM 150mm THICKNESS. SURFACE TO SLOPE AT 2% TOWARDS SUMP.
(11)	150mm LAYER OF 38mm MINUS GRAVEL COMPACTED TO 100% STANDARD PROCTOR DENSITY.
(12)	'MR' TYPE WATER VALVE BOX, MORTAR INSIDE AND OUT.
(13)	50mm RIGID FOAM INSULATION (SM). EXTENDED MINIMUM 1.2m BELOW SURFACE
(14)	150mm PVC C900 DR18 WATER PIPE. RISER TO VALVE BOX CORED INTO LID
(15)	ALUMINUM LADDER RUNGS
(16)	COMBINATION AIR & VACUUM RELEASE VALVE; 50mm c/w VENT CAP
(17)	UNION.
(18)	150PSI RATED 19mm HOSE BIB.
(19)	STAINLESS STEEL OR GALVANIZED STRAPPING ANCHORED TO SUPPORT BLOCK WITH HILTI BOLTS.
(20)	CONCRETE SUPPORT BLOCK TO BE CAST IN PLACE WITH BASE.
(21)	DRAIN TO STORM OR ROCK PIT.

This specification must be read in conjunction with the latest version of the MMCD and the schedules in the Subdivision Servicing Bylaw. Where there are contradictions, this list shall prevail.

	STANDARD AIR VALVE INSTALLATION FOR SANITARY FORCemain	DWG.No.
	SCALE: NOT TO SCALE	E-1
		APPENDIX 6



CATCHBASIN DETAIL

NOTE:

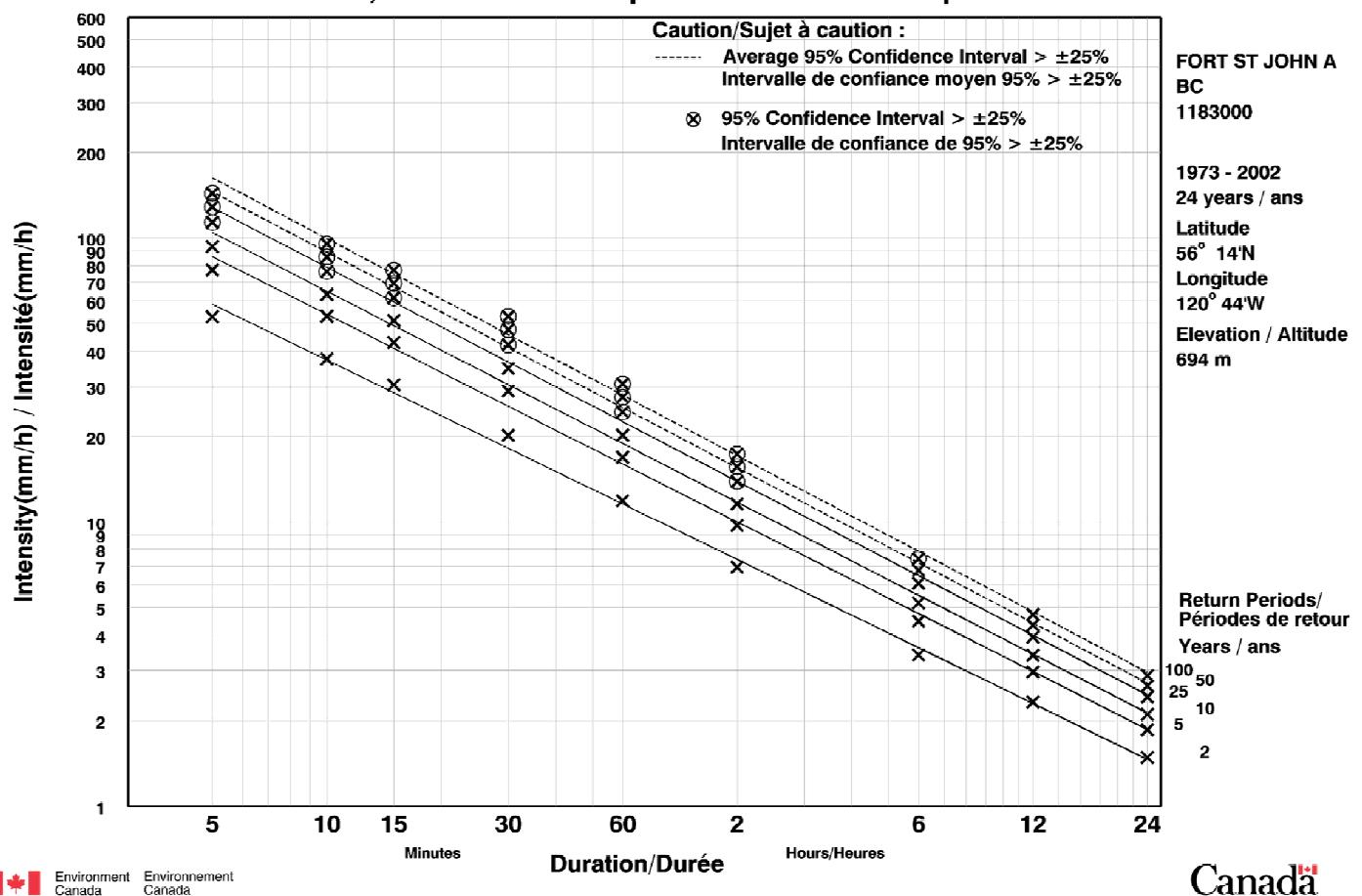
1. LEADS TO BE A STRAIGHT RUN FROM CB BARREL TO MAIN AT 2%
2. LEADS TO PROTRUDE INTO CB BARREL 50mm

This specification must be read in conjunction with the latest version of the MMCD and the schedules in the Subdivision Servicing Bylaw. Where there are contradictions, this list shall prevail.

Short Duration Rainfall Intensity-Duration-Frequency Data

2010/04/13

Données sur l'intensité, la durée et la fréquence des chutes de pluie de courte durée



Intensity Duration Frequency Data supplied by Atmospheric Environment Service
 Data is from 1973 - 2002 taken at the FSJ airport

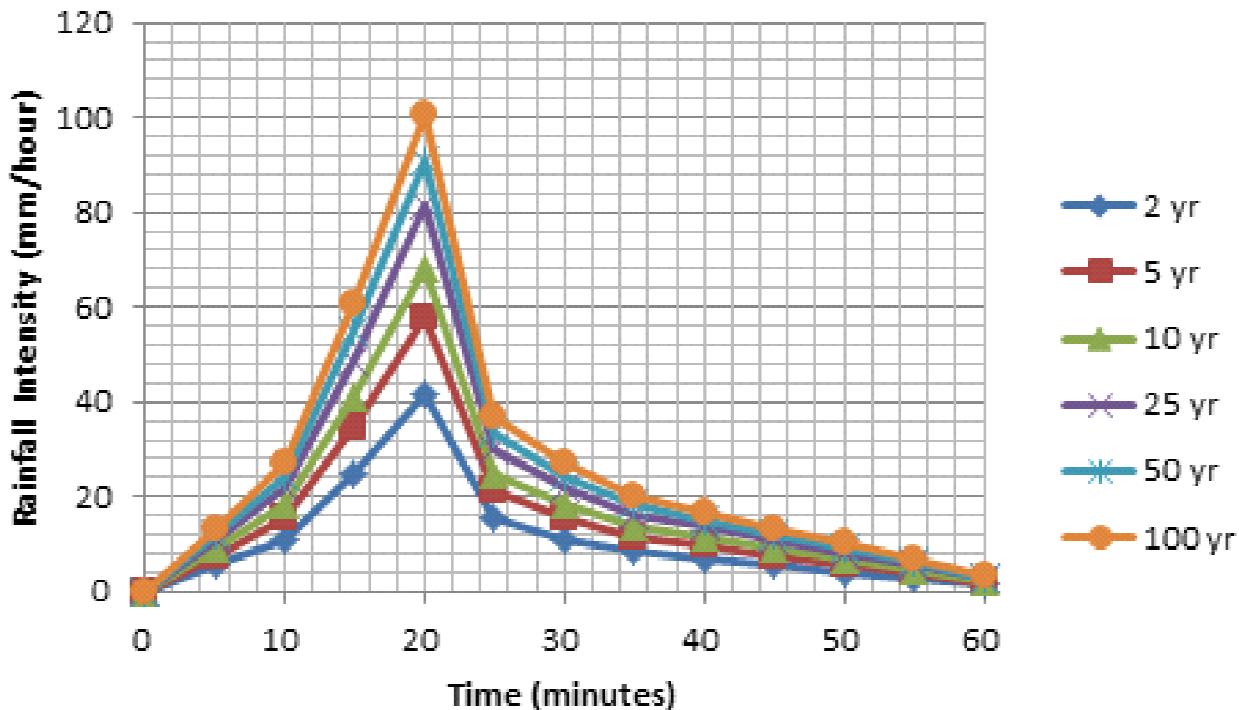
Return Period Rainfall Rates (mm/h)						
Duration	2 Year	5 Year	10 Year	25 Year	50 Year	100 Year
5 min	52.8	77.2	93.3	113.7	128.8	143.8
10 min	37.5	53.0	63.3	76.2	85.8	95.4
15 min	30.5	42.9	51.2	61.6	69.4	77.1
30 min	20.2	29.0	34.8	42.2	47.6	53.0
1 h	11.9	16.9	20.2	24.5	27.6	30.7
2 h	6.9	9.7	11.6	13.9	15.7	17.4
6 h	3.4	4.5	5.2	6.1	6.7	7.4
12 h	2.3	3.0	3.4	3.9	4.3	4.7
24 h	1.5	1.9	2.1	2.4	2.6	2.9

Return Period Rainfall Amounts (mm)						
Duration	2 Year	5 Year	10 Year	25 Year	50 Year	100 Year
5 min	4.4	6.4	7.8	9.5	10.7	12.0
10 min	6.3	8.8	10.5	12.7	14.3	15.9
15 min	7.6	10.7	12.8	15.4	17.3	19.3
30 min	10.1	14.5	17.4	21.1	23.8	26.5
1 h	11.9	16.9	20.2	24.5	27.6	30.7
2 h	13.9	19.5	23.2	27.9	31.3	34.8
6 h	20.4	26.8	31.1	36.5	40.5	44.5
12 h	27.9	35.6	40.7	47.2	52.0	56.7
24 h	35.6	44.6	50.5	58.0	63.6	69.1

This specification must be read in conjunction with the latest version of the MMCD and the schedules in the Subdivision Servicing Bylaw. Where there are contradictions, this list shall prevail.

 FORT ST JOHN <i>The Energetic City</i>	RAINFALL INTENSITY GRAPH	DWG.No.
	SCALE: NOT TO SCALE	F-2
		APPENDIX 6

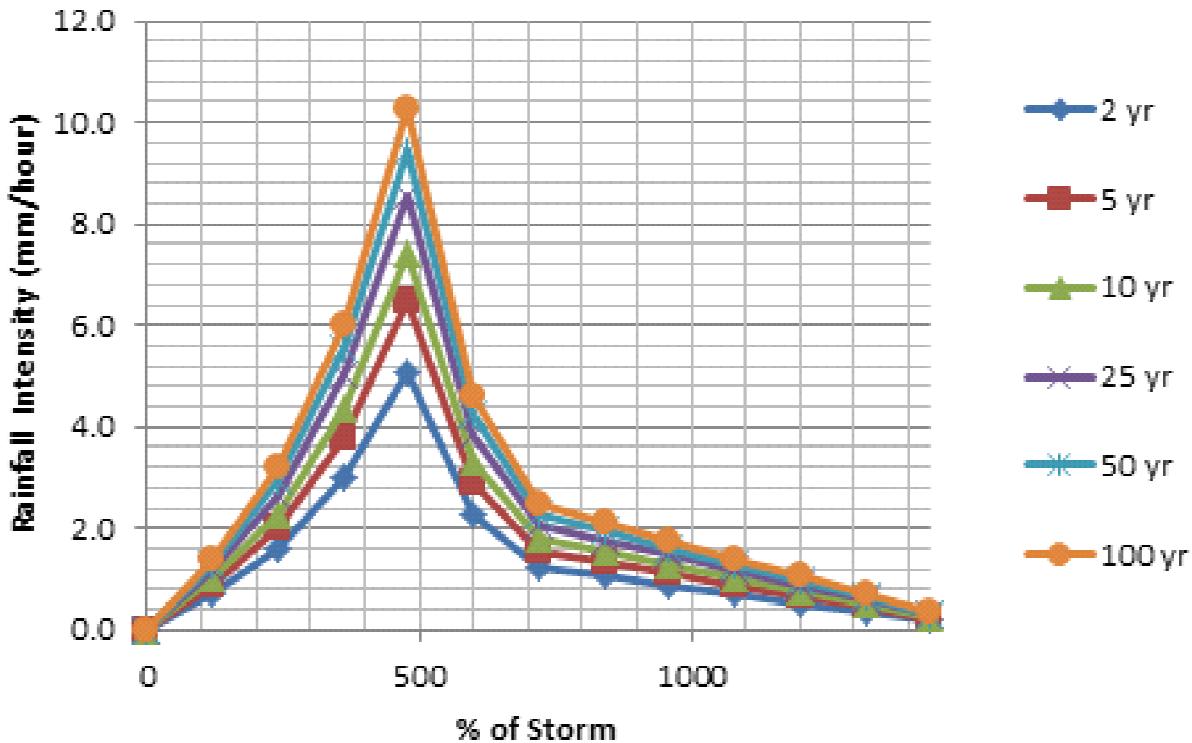
1 Hour Event Hyetograph



Time (minutes)	1 hour					
	2 yr	5 yr	10 yr	25 yr	50 yr	100 yr
0	0.0	0.0	0.0	0.0	0.0	0.0
5	5.6	7.7	9.1	10.8	12.1	13.4
10	11.1	15.4	18.1	21.7	24.3	26.9
15	25.1	34.6	40.8	48.8	54.6	60.5
20	41.8	57.6	68.0	81.4	91.1	100.8
25	15.3	21.1	24.9	29.8	33.4	37.0
30	11.1	15.4	18.1	21.7	24.3	26.9
35	8.4	11.5	13.6	16.3	18.2	20.2
40	7.0	9.6	11.3	13.6	15.2	16.8
45	5.6	7.7	9.1	10.8	12.1	13.4
50	4.2	5.8	6.8	8.1	9.1	10.1
55	2.8	3.8	4.5	5.4	6.1	6.7
60	1.4	1.9	2.3	2.7	3.0	3.4

This specification must be read in conjunction with the latest version of the MMCD and the schedules in the Subdivision Servicing Bylaw. Where there are contradictions, this list shall prevail.

24 Hour Event Hyetograph



Time (minutes)	24 hour					
	2 yr	5 yr	10 yr	25 yr	50 yr	100 yr
0	0.0	0.0	0.0	0.0	0.0	0.0
120	0.7	0.9	1.0	1.2	1.3	1.4
240	1.6	2.0	2.3	2.7	2.9	3.2
360	3.0	3.8	4.3	5.0	5.5	6.0
480	5.1	6.5	7.4	8.6	9.4	10.3
600	2.3	2.9	3.3	3.8	4.2	4.6
720	1.2	1.6	1.8	2.1	2.3	2.5
840	1.1	1.3	1.5	1.8	2.0	2.1
960	0.9	1.1	1.3	1.5	1.6	1.8
1080	0.7	0.9	1.0	1.2	1.3	1.4
1200	0.5	0.7	0.8	0.9	1.0	1.1
1320	0.4	0.4	0.5	0.6	0.7	0.7
1440	0.2	0.2	0.3	0.3	0.3	0.4

This specification must be read in conjunction with the latest version of the MMCD and the schedules in the Subdivision Servicing Bylaw. Where there are contradictions, this list shall prevail.

	FORT ST. JOHN RAINFALL DISTRIBUTION 24 HOUR EVENT	DWG.No.
		F-4
	SCALE: NOT TO SCALE	APPENDIX 6

CITY OF FORT ST. JOHN PUBLIC WORKS & UTILITIES

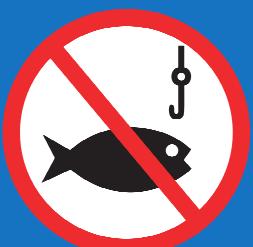
This is a man-made pond designed to control storm water and is not monitored. Water levels can change suddenly without notice. For your safety, avoid the water area.



No sledding



No skating



No fishing



No swimming



No wading



No drinking

fortstjohn.ca



This specification must be read in conjunction with the latest version of the MMCD and the schedules in the Subdivision Servicing Bylaw. Where there are contradictions, this list shall prevail.

 FORT ST. JOHN <i>The Energetic City</i>	STORM POND WARNING SIGN	DWG.No. F-5
	SCALE: NOT TO SCALE	APPENDIX 6

G-1 Landscaping Approved Tree Species

Deciduous Trees

Common Name	Latin Name	Salt Tolerance	Notes
Maple	Acer negundo 'Sensation'		
Tartarian Maple	Acer tartaricum spp. Ginnala		
Dakota Pinacle birch	Betaul Papyrifera 'Dakota Pinacle'		
Paper Birch	Betula papyrifera 'snowy'	X	
Weeping Birch	Betula pendula		
Hawthorn	Crataegus var.	X	
Russian Olive	Eleagnus augustifoila		
Foothills Green Ash	Fraxinus ' Foothills Green Ash'		
Black Ash	Fraxinus Nigra		
Fall Gold Ash	Fraxinus Nigra 'Fall Gold'		
Green Ash, Manchurian Ash	Fraxinus pennsylvanica larseolata		
Prairie Spire	Fraxinus Penssylvanica 'Rugby'		
Patmore Ash Tree	Fraxinus Pensylvanica 'Patmore'		
Northern Treasure	Fraxinus x		
Northern Gem Ash	Fraxinus X 'Northern Gem'		
Royalty Flowering Crab	Malus ' Royalty'		
Spring Snow Flowering Crab	Malus 'Spring Snow'		
Thunderchild Flowering Crab	Malus 'Thunderchild'		
Starlite Flowering Crab	Malus x 'Jeflite'		
Lombardy Poplar	Populus nigra italicica		
Prairie Sky Poplar	Populus 'Prairie Sky'	X	
Swedish Aspen	Populus tremula erecta		
Trembling Aspen	Populus Tremuloides		
Assiniboine Poplar	Populus X Assiniboine		
Tower Poplar	Populus X Canescens		
Amur Chokecherry	Prunus Maackii		
Mayday	Prunus padas 'Sweetheart'		
Early Gold Pear	Pyrus Ussuriensis 'Early Gold'		
Bur Oak	Quercus macrocarpa	X	
Laruel Leaf Willow	Salix pentandra	X	
European Mountain Ash	Sorbus aucuparia		
Little Leaf Linden	Tilia Cordata		

Greenspire Linden *Tilia Cordata 'Greenspire'*

Deciduous Trees (Cont'd)

Common Name	Latin Name	Salt Tolerance	Notes
Bigleaf Linden	<i>Tilia platyphyllos</i>		
Dropmore Linden	<i>Tilia x flavescens 'Dropmore'</i>		

Fruit Trees

Common Name	Latin Name	Salt Tolerance	Notes
Schubert Chokecherry	<i>Prunus virginiana 'Schubert'</i>		
Cherry Plum	<i>Prunus cerasifera</i>		
Plum	<i>Prunus spp.</i>		
Pear	<i>Pyrus communis spp.</i>		
Apricot	<i>Prunus armeniaca spp.</i>		
Crab, Apple	<i>Malus var.</i>		

Evergreen Trees

Common Name	Latin Name	Salt Tolerance	Notes
Balsam Fir	<i>Abies Balsamea</i>		
Easter Red Cedar	<i>Juniperus virginiana</i>		
Tamarack	<i>Larix laricina</i>		
Siberian Larch	<i>Larix sibirica</i>	X	
White Spruce	<i>Picea glauca</i>	X	
Colorado Blue Spruce	<i>Picea pungens</i>	X	
Lodgepole Pine	<i>Pinus 'Lodgepole'</i>		
Red Pine	<i>Pinus 'Red'</i>		
Scots Pine Tree	<i>Pinus 'Scots'</i>		
Eastern White Cedar	<i>Thuja occidentalis</i>		

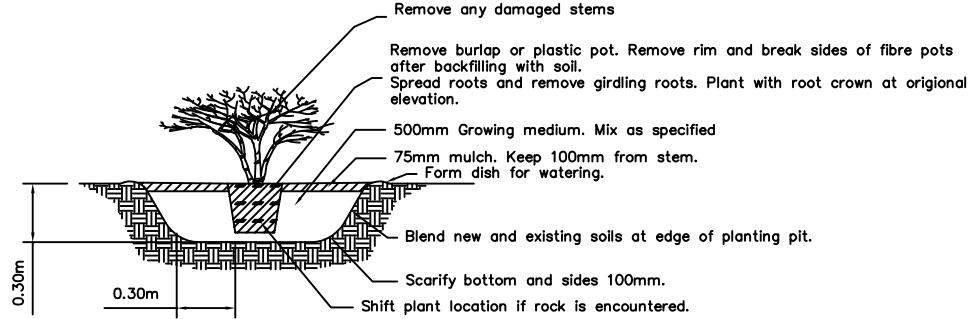
Shrubs

Common Name	Latin Name	Salt Tolerance	Notes
Siberian Pea	<i>Caragana spp.</i>		
Bridlewreath Spiraea	<i>Spiraea prunifolia</i>		
Dogwood	<i>Cornus spp.</i>		
Rose	<i>Rosecea spp.</i>		
Silver Buffalo Berry	<i>Shepherdia argentea</i>		



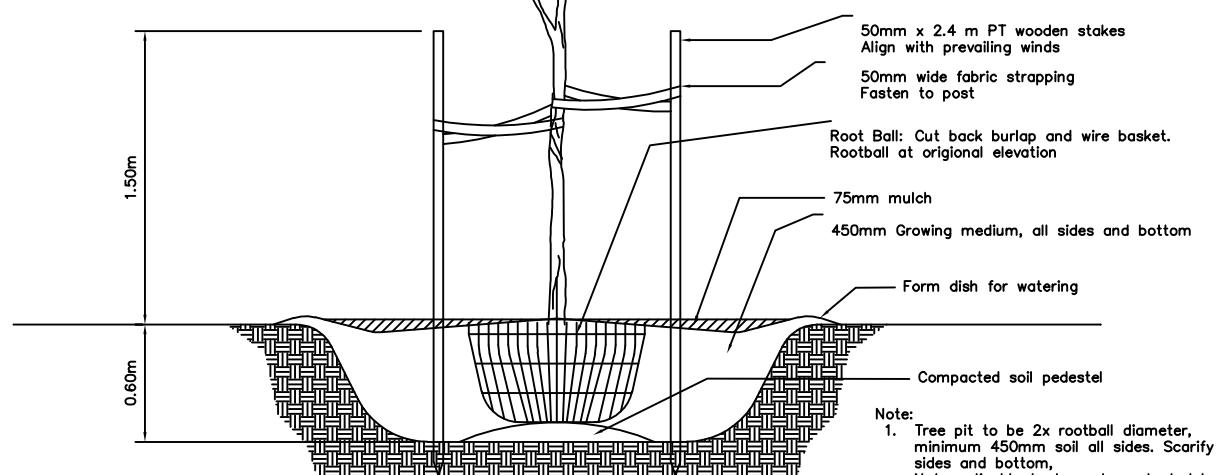
The City of Fort St. John
SUBDIVISION AND DEVELOPMENT SERVICING BYLAW
Bylaw No. 2405, 2019
Appendix 6 – DWG G-1

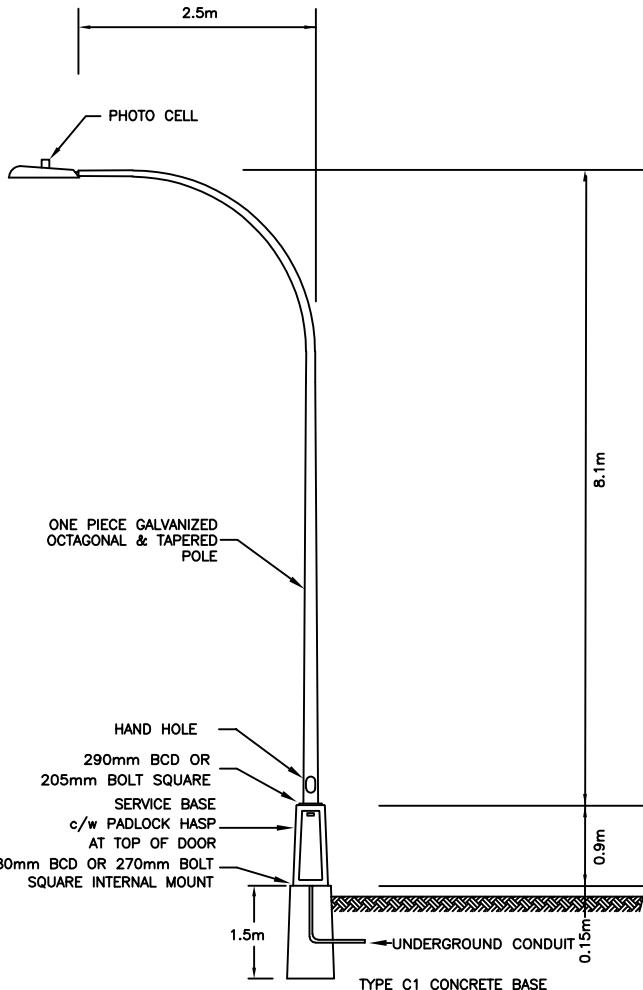
Common Name	Latin Name	Salt Tolerance	Notes
Cotoneaster	Cotoneaster spp.		
<u>Shrubs (cont'd)</u>			
Mock Orange	Philadelphus		
Goji Berry	Lycium barbarum		
Hardy Kiwi	Actinidia kolomikta		
Grape	Vitis var.		
Blueberry	Vaccinium var.		
High Bush Cranberry	Viburnum trilobum		
Raspberry	Rubus var.		
Golden Current	Ribes spp.		
White Current	Ribes spp.		
Red Current	Ribes spp.		
Saskatoon	Amelanchier alnifolia		
Honey berry (Borealis, Northern Lights)	Haskap		
Dwarf Sour Cherry	Prunus cerasus		



Note:

1. Planting and plant material in accordance with latest BCSLA/BCLNA Landscape Standard.
2. Soil depth for shrubs 300mm depth plus 300mm around all sides.
3. Planting depth to be continuous in planting beds.





NOTES:

1. POLE BASE TO BE INSTALLED WITH TOP 150mm (6") ABOVE FINISHED GRADE
2. POLES SHALL BE STEEL, ANCHOR BASE TYPE OCTAGONAL OR SQUARE IN CROSS-SECTION, STRAIGHT OR TAPERED FULL LENGTH WITH ONLY ONE WELDED LONGITUDINAL SEAM, DESIGNED FOR 160KMH WIND LOADING (+1.3 GUST FACTOR).
3. POLES TO BE EQUIPPED WITH REINFORCED HAND HOLE MINIMUM 120mm X 120mm AND COVER ASSEMBLY GROUNDING STUD TO BE WELDED INSIDE POLE WITHIN REACH OF HAND HOLE, COMPLETE WITH 2 NUTS.
4. DOOR TO SERVICE BASE TO FACE SIDEWALK WHERE APPLICABLE

This specification must be read in conjunction with the latest version of the MMCD and the schedules in the Subdivision Servicing Bylaw. Where there are contradictions, this list shall prevail.

	STREETLIGHTS	DWG.No. H-1
	SCALE: NOT TO SCALE	APPENDIX 6