

TOWN OF GIBSONS



WATER REGULATION BYLAW No. 1192, 2014

Adopted: February 4th, 2014

**Consolidated for convenience October, 2018
to include amendments up to Bylaw No. 1192-05**

This version of this bylaw is a consolidation of amendments to the original bylaw as of the date specified. This consolidation is done for the convenience of users and accurately reflects the status of the bylaw as of the specified date but must not be construed as the original bylaw and is not admissible in Court unless specifically certified by the Director of Corporate Administration for the Town of Gibsons. Persons interested in the definitive wording of this bylaw and its amendments should view the original sealed bylaws at the Town of Gibsons.

AMENDMENTS IN THIS CONSOLIDATION

NO.	BYLAW NO.	DATE	AMENDMENT
1.	1192-01	July 29, 2014	• Adding definition for Bulk Water Supply Area • Amending the words “unmetered service surcharges and minimum fees” in subsection 6.1.2 to “surcharges and minimum fees” • Inserting subsection 6.1.4 • Inserting subsection 6.1.11 • Adding Schedule C
2.	1192-02	July 29, 2014	• Adding definitions for Gibsons Aquifer and Lower Gibsons Aquifer Sub-Area • Section 3.1.4 amended to read “any well on the Owner’s parcel or on another parcel over which the Owner holds an easement to obtain groundwater, other than a well that the Director of Infrastructure Services is satisfied has no capacity to draw water from the Gibsons Aquifer” • Adding Schedule D, Lower Gibsons Aquifer Sub-Area Map • Adding Section 7, Protection of the Gibsons Aquifer • Adding Schedule E, Sample Drilling Program
3.	1192-03	March 24, 2015	• Adding definition for Private Water Service • Subsection 6.1.9 amended to read “Where an Owner or Occupier advises the Town that a leak has occurred in the Private Water System of a Parcel, as outlined in sections 6.1.10 to 6.1.15, the Collector may adjust the consumption for one billing period, as defined in 6.2.1, if the water leak was not due to an act or omission of the Owner or Occupier. For the Collector to consider an adjustment the Owner shall supply:” • Adding Subsection 6.1.9.1 and 6.1.9.2 • Adding subsections 6.1.10 to 6.1.14
4.	1192-04	April 4, 2017	• Amending the definition of Backflow Prevention Device • Adding Subsection 6.1.2.1 • Amending the words “consumption fees” to “user fees” in Subsection 6.1.3 • Deleting the words “in respect of land in, the Bulk Water Supply Area” in Subsection

			6.1.16 • Adding the words “and Schedule F” in Subsection 7.2.4 • Replacing Schedule A • Replacing Standard Detail Drawing SS-W1 • Replacing Standard Detail Drawing SS-W3 • Replacing Standard Detail Drawing SS-W4A • Replacing Standard Detail Drawing SS-W4B • Adding Schedule F, Subsurface Exploration
5.	1192-05	October 2, 2018	• Replacing section 1.5.2 • Adding the definition for Bulk Water Supply Agreement • Deleting Subsections 5.2.2 and 5.2.4 • Adding Subsection regarding outdoor water use restrictions • Adding Schedule G

TABLE OF CONTENTS

SECTION 1	GENERAL PROVISIONS.....	6
1.1	SHORT TITLE.....	6
1.2	REPEAL.....	6
1.3	PURPOSE.....	6
1.4	BYLAW SCHEDULES.....	6
1.5	NO OBLIGATION TO SUPPLY.....	7
1.6	DEFINITIONS	7
SECTION 2	ADMINISTRATION	13
2.1	SEVERABILITY.....	13
2.2	NOTICES	13
2.3	STOP WORK ORDER	13
SECTION 3	CONNECTION	13
3.1	CONNECTION REQUIRED	13
3.2	APPLICATION FOR CONNECTION.....	14
3.3	REQUIREMENT TO DISCONNECT	15
SECTION 4	CONNECTION STANDARDS.....	15
4.1	GENERAL.....	15
4.2	INSTALLATION STANDARDS.....	16
SECTION 5	WATER REGULATIONS	16
5.1	COMMUNITY WATER SYSTEM REGULATIONS.....	16
5.2	WATER USAGE AND SPRINKLING REGULATIONS.....	17
5.3	FIRE HYDRANTS	18
SECTION 6	FEES AND CHARGES	19
6.1	FEES.....	19
6.2	BILLING	21
6.3	BACK BILLING.....	22

SECTION 7	PROTECTION OF THE GIBSONS AQUIFER	22
7.1	DECOMMISSIONING OF ABANDONED WELLS.....	22
7.2	INTERFERENCE WITH AQUIFER	23
SECTION 8	INSPECTIONS, COMPLIANCE, AND OFFENCES.....	24
8.1	INSPECTIONS.....	24
8.2	COMPLIANCE	24
8.3	OFFENCES.....	25

**TOWN OF GIBSONS
BYLAW NO. 1192**

A bylaw to regulate the connection to, and service from,
the Town of Gibsons Community Water System

WHEREAS Section 8(2) of the *Community Charter* authorizes a municipality to provide any service the Council considers necessary or desirable;

AND WHEREAS Section 194 of the *Community Charter* authorizes a council, by bylaw, to impose a fee in respect of all or part of a service of the municipality;

NOW THEREFORE the Council of the Town of Gibsons, in open meeting assembled, enacts as follows:

SECTION 1 GENERAL PROVISIONS

1.1 SHORT TITLE

This Bylaw may be cited for all purposes as "Water Regulation Bylaw No. 1192".

1.2 REPEAL

1.2.1 The Town of Gibsons Water Service and Connection Bylaw No. 1090, 2008, and any amendments thereto, are hereby repealed.

1.2.2 The Water User Rates Bylaw No. 1181, 2013, and any amendments thereto, are hereby repealed.

1.3 PURPOSE

The purpose of this Bylaw is to establish the standard for potable water use and quality, service connections, and fees within the Town.

1.4 BYLAW SCHEDULES

Attached as integral parts of the Bylaw are the following Schedules:

- Schedule "A" Design Specifications and Guidelines
- Schedule "B" Standard Drawings

1.5 NO OBLIGATION TO SUPPLY

- 1.5.1 No section in this bylaw shall be construed to impose any liability on the Town, or its officers, employees, or agents, by reason of cessation in whole or in part of water pressure or water supply, or changes in operating pressures, or by reason of the water containing sediments.
- 1.5.2 The Town shall not be liable for any disruption in service or damage caused by the failure of any part of the Community Water System, shutting off of the water for the purposes of connections of services, or the repairing, maintaining, expansion, or cleaning of the Community Water System.
- 1.5.3 The Town reserves the right to change the operation of the Community Water System for the purpose of repair, alteration, or any other reason.
- 1.5.4 Should a long-term change in pressure or water flow to any portion of the Community Water System occur for any reason, the Owner of a Parcel shall be responsible for, and bear the costs of, making any required changes to the Private Water System of that Parcel.

1.6 DEFINITIONS

In this Bylaw, unless the context requires otherwise, the following words and terms shall have the meanings hereinafter assigned to them:

BACKFLOW PREVENTION DEVICE

means a configuration of piping or a mechanical device accepted by the Director of Infrastructure Services as suitable for preventing the backflow of water or any other substances into the potable water system through cross connections and to meet the design and approval criteria of the Canadian Standards Association (CSA) B64 Series 01 (or most current edition) "Backflow preventers and vacuum breaker" and installed in conformance with CSA B64.10 "Selection and installation of backflow preventers" as referenced in the British Columbia Plumbing Code.

A "testable Backflow Prevention Device" means a mechanical backflow preventer that is designed to be tested and repaired in-line and to meet the performance and testing criteria of the Canadian Standards Association B64.10.01 (most current edition) "Maintenance and field testing of backflow preventers";

BRITISH COLUMBIA BUILDING CODE	means the <i>British Columbia Building Code</i> as amended from time to time.
BUILDING BYLAW	means Town of Gibsons Building Bylaw No. 1284, 2020, as amended from time to time.
BUILDING PERMIT	means a building permit issued under the Building Bylaw.
BULK WATER SUPPLY AGREEMENT	means the agreement with the Sunshine Coast Regional District to supply bulk water to the Bulk Water Supply Area, dated for reference the 3 rd day of June 2013 and as amended from time to time.
BULK WATER SUPPLY AREA	means the area of the Town shown on Schedule C, being the area to which domestic water is supplied by the Sunshine Coast Regional District pursuant to the bulk water supply agreement dated for reference the 3 rd day of June, 2013.
CERTIFIED CROSS CONNECTION CONTROL TESTER	means a person certified by the British Columbia Water and Waste Association as a Cross Connection Control Tester and having the qualifications outlined in the Canadian Standards Association <i>Manual for the Selection and Installation of Backflow Prevention Devices/Manual for the Maintenance and Field Testing of Backflow Prevention Devices</i> (CSA-B64.10.1-01.
COMMERCIAL USER	means each part of a building being serviced by the Community Water System intended to be used or actually used for a distinct business, institutional, or not-for-profit premises.
COMMUNITY WATER SYSTEM	means the Gibsons Aquifer and the Town-owned network of pipes and other facilities which are used to distribute water from the source, transmission, or storage facilities to the water user including Water Service Connections, Meters, valves, chambers, hydrants, Backflow Prevention Device(s) or any other fittings and appurtenances.

COMPLIANCE ORDER	means a notice served on an Owner 1. stating that a Parcel owned by the Owner is not in compliance with this Bylaw; 2. requiring the Owner to take remedial action to bring the Parcel into compliance with this Bylaw within a specified time period; 3. notifying the Owner that if the Owner fails to remedy the non-compliance in the specified time period the Town may: a. by its officers, employees or authorized contractors, complete the remedial action at the Owner's expense, b. disconnect the Private Water System from the Community Water System of the Parcel not in compliance with this Bylaw, or c. take both actions (a) and (b) above; and 4. notifying the Owner that the Owner may apply for an opportunity to be heard in respect of the matter, a. in relation to the actions in 3(a) above, by the Director of Infrastructure Services, or b. in relation to the actions in 3(b) or 3(c) above, by Council.
CROSS CONNECTION	means any actual or potential connection between the Community Water System and any source of contamination that results in a substance other than Potable Water entering the Community Water System.
DIRECTOR OF INFRASTRUCTURE SERVICES	means the person appointed by the Town as Director of Infrastructure Services, their deputy, or a person authorized by the Director to perform duties of the Director under this bylaw.
DIRECTOR OF PUBLIC WORKS	means the person appointed by the Town as Director of Public Works, their deputy, or a person authorized by the Director to perform duties of the

DRINKING WATER PROTECTION ACT	Director under this bylaw. means the British Columbia <i>Drinking Water Protection Act</i> , SBC 2011, c 9, and regulations enacted thereunder, as amended from time to time.
DOMESTIC USER	means each Dwelling Unit being serviced by the Community Water System
DWELLING UNIT	means a building or part of a building intended to be used or actually used as the domicile of at least one person, which is self-contained and includes at least one set of cooking facilities.
FIRE SERVICE LINE	means a dedicated pipe that conveys water from the Community Water System via a Private Water System to the inside of a building for the purpose of supplying water to a fire sprinkler or standpipe system.
GIBSONS AQUIFER	means the water-bearing sand and gravel deposit from which the Town withdraws water for supply to Commercial and Domestic users through the Community Water System.
GREEN ROOF	means a roof of a building that is partially or completely covered with vegetation and a growing medium, planted over a waterproofing membrane. It may also include additional layers such as a root barrier and drainage and irrigation systems.
HIGH CROSS-CONNECTION HAZARD	means any Cross-Connection involving a Backflow of any substance that could be a danger to health, as classified in accordance with Canadian Standards Association 2001 Standard B64.10-01 <i>Manual for the Selection and Installation of Backflow Prevention Devices</i> .
HIGHWAY	means a public Road, Lane, walkway, or bridge, and any other way open to public use, but does not include a Private Road or a private easement on private property.
LOWER GIBSONS AQUIFER SUB-AREA	means all of those parcels of land, any portion of which is within the Lower Gibsons Sub-Area

shown on Schedule D.

**MASTER MUNICIPAL
CONSTRUCTION
DOCUMENT (MMCD)**

means the Platinum Edition of the Master Municipal Construction Document, Specifications and Standard Detail Drawings and Design Guideline Manual and any subsequent amendment to that Edition or any replacement Edition.

METER

means an instrument for measuring and recording the quantity of water passing through it and shall include all pipes, valves, and other appurtenances and accessory materials required for its installation and operation.

METER BOX

means a chamber installed in the ground over a Water Service Connection for the purpose of installing and maintaining a Meter contained therein.

**MINOR CROSS-
CONNECTION HAZARD**

means any Cross-Connection involving a Backflow of any substance that constitutes a nuisance, with no possibility of becoming any health hazard, as classified in accordance with Canadian Standards Association 2001 Standard B64.10-01 *Manual for the Selection and Installation of Backflow Prevention Devices*.

**MODERATE CROSS-
CONNECTION HAZARD**

means any Cross-Connection Hazard that has a low probability of becoming a High Cross-Connection Hazard, as classified in accordance with Canadian Standards Association 2001 Standard B64.10-01 *Manual for the Selection and Installation of Backflow Prevention Devices*.

PARCEL

means any lot, block or other area in which land is held or into which land is subdivided.

POTABLE WATER

means all water within the Community Water System that meets the bacteriological quality parameters for human consumption as defined in the Drinking Water Protection Act.

**PRIVATE WATER
SERVICE**

means the privately-owned pipe which is located upon any Parcel that conveys water from the Water Service Connection to the inside of a

PRIVATE WATER SYSTEM	building. means an assembly of pipes, fittings, fixtures, traps, and appurtenances constructed to convey potable water upon any Parcel.
RATES, FEES AND CHARGES BYLAW	means the Town of Gibsons Rates, Fees and Charges Bylaw No. 1196, 2014, as amended from time to time
STOP WORK ORDER	means a written notice issued by the Town, that requires the contractor, Professional Engineer or Owner to stop all construction activities specified in the notice until permitted by the Director of Infrastructure Services in writing to continue such construction activities.
SUBDIVISION AND DEVELOPMENT SERVICING AND STORMWATER MANAGEMENT BYLAW	means the Town of Gibsons Subdivision and Development Servicing and Stormwater Management Bylaw No. 1175, 2013, as amended from time to time.
TWO-FAMILY DWELLING	means a detached building consisting of two Dwelling Units, and does not include secondary suites.
UNPAID FEES NOTICE	means a notice served on an Owner 1. stating that fees levied under this Bylaw in respect of a Parcel owned by the Owner are due and payable and remain unpaid; 2. requiring the Owner to pay the unpaid fees within a specified time period; and 3. notifying the Owner that if the Owner fails to pay the unpaid fees in the specified time period the Town may disconnect the Community Water System from the Private Water System of the Parcel in respect of which the fees and charges remain unpaid.
WATER SERVICE CONNECTION	means the Town-owned pipe or fitting which is located at the property line of a Parcel, or at the edge of a statutory right of way, which forms the connection between a Private Water System and the Community Water System.

SECTION 2 ADMINISTRATION

2.1 SEVERABILITY

The provisions of this Bylaw are severable. If any provision is for any reason held to be invalid by a decision of any court of competent jurisdiction, such decision shall not affect the validity of the remaining provisions of this Bylaw.

2.2 NOTICES

2.2.1 The Town shall serve a Compliance Order or an Unpaid Fees Notice under this Bylaw by

2.2.1.1 mailing it by registered mail to an Owner at the address of the Owner shown on the real property assessment roll prepared pursuant to the Assessment Act; or

2.2.1.2 hand-delivering it to the Owner.

2.3 STOP WORK ORDER

2.3.1 The Director of Infrastructure Services may issue a Stop Work Order when work is proceeding in contravention of this Bylaw.

2.3.2 The Owner of a Parcel on in respect of which a Stop Work Order has been posted, and every other person, shall cease all construction work in respect of the parcel and shall not do any work until the Director of Infrastructure Services provides written authorization for work to continue.

SECTION 3 CONNECTION

3.1 CONNECTION REQUIRED

3.1.1 An Owner of a Parcel created by subdivision or development pursuant to the Subdivision and Development Servicing and Stormwater Management Bylaw shall connect the Parcel to the Community Water System.

3.1.2 An Owner of a Parcel on which a building with a Private Water System is installed at the time of adoption of this Bylaw shall connect the Parcel to the Community Water System unless the Community Water System is further than 60 metres away from the Parcel.

3.1.3 Where the Community Water System is extended to within 60 metres of a Parcel on which a building with a Private Water System is installed, the Owner of the Parcel shall extend the Community Water System as necessary to serve the Parcel and connect the Parcel to the Community Water System. The Owner of such a Parcel shall apply for connection within

150 days of receiving a notice to connect, and connection shall be made within 180 days of the Community Water System being available for connection, or sooner if in the opinion of the Director of Infrastructure Services a nuisance or public health hazard exists as a result of the Parcel not being connected.

- 3.1.4 Following connection of a Private Water System to the Community Water System, an Owner shall have any well on the Owner's parcel or on another parcel over which the Owner holds an easement to obtain groundwater, other than a well that the Director of Infrastructure Services is satisfied has no capacity to draw water from the Gibsons Aquifer decommissioned by a qualified well driller according to the standards detailed in the British Columbia Ground Water Protection Regulation and to the satisfaction of the Director of Infrastructure Services.

3.2 APPLICATION FOR CONNECTION

- 3.2.1 Where an Owner is required to connect a Parcel to the Community Water System, the Owner shall apply in writing.
- 3.2.2 Prior to or concurrently with an application to connect, an Owner shall
 - 3.2.2.1 Pay all applicable fees and charges for the connection and for any works required to establish the connection under this Bylaw, the Rates, Fees and Charges Bylaw, or any other bylaw of the Town; and
 - 3.2.2.2 Where rights-of-way or other easements are necessary, negotiate, arrange and coordinate the required documentation and provide the Director of Infrastructure Services evidence that the rights-of-way or easements have been successfully registered in the Land Title Office.
- 3.2.3 An Owner shall not connect the Private Water System of a Parcel to a Water Service Connection or undertake any construction related to that connection until the Owner has obtained a Building Permit.
- 3.2.4 An Owner or his or her contractor shall not backfill any works installed to establish a connection between the Private Water System of a Parcel and the Community Water System until the works are inspected by the Town and approved by the Building Inspector or the Director of Infrastructure Services.
- 3.2.5 Where the Town issues a refund of fees collected under 3.2.2, the Town shall retain the minimum administration fee according to the Rates, Fees and Charges Bylaw and any cost of labour or other unrecoverable costs incurred by the Town in respect of the work for which the fees were

collected.

3.3 REQUIREMENT TO DISCONNECT

- 3.3.1 An Owner shall apply in writing for a permit to disconnect the Private Water System of a parcel from a Water Service Connection, and pay the applicable Rates, Fees and Charges Bylaw, where
 - 3.3.1.1 A building has been damaged beyond the point of reconstruction or repair, as determined by the Building Inspector;
 - 3.3.1.2 A building is to be, or has been, demolished;
 - 3.3.1.3 A building has been abandoned;
 - 3.3.1.4 A Private Water System is no longer in use and is not required by the Building Bylaw to service a building on the Parcel;
 - 3.3.1.5 In the opinion of the Director of Infrastructure Services, contaminants could enter the Community Water System through the Private Water System; or
 - 3.3.1.6 A Water Service Connection remains shut off and the Owner of the Parcel has not been billed for water use for the Parcel for a period of two years.
- 3.3.2 Where an Owner of a Parcel has failed to apply for a permit to disconnect pursuant to 3.3.1, the Town may issue the Owner a Compliance Order.
- 3.3.3 Where an Owner has made an unauthorized connection to the Community Water System, the Town may disconnect the Community Water System from the Private Water System of the Parcel in respect of which the unauthorized connection was made.

SECTION 4 CONNECTION STANDARDS

4.1 GENERAL

- 4.1.1 All works required for connection to the Community Water System shall conform to the standards in the Schedules and the Subdivision and Development Servicing and Stormwater Control Bylaw unless otherwise noted in this Bylaw and Schedules.
- 4.1.2 Where a conflict occurs between the MMCD and this Bylaw, including all Schedules, this Bylaw and the Schedules shall prevail.
- 4.1.3 Where a conflict occurs between the Standard Drawings in Schedule “B”

and the text of this Bylaw or the text of Schedule “A”, the text of the Bylaw or Schedule “A” shall prevail.

4.2 INSTALLATION STANDARDS

- 4.2.1 All buildings connected to the Community Water System shall be equipped with a pressure regulating valve.
- 4.2.2 A Meter shall be installed on all Water Service Connections according to the standards in this Bylaw and Schedules.
- 4.2.3 A Backflow Prevention Device shall be installed on all Water Service Connections according to the standards in this Bylaw and Schedules.
- 4.2.4 No person shall connect or cause to be connected or permit to be connected to the Community Water System any piping, fixture, container or appliance, in a manner which in any circumstances could result in any substance other than Potable Water entering the Community Water System.
- 4.2.5 The requirements for Backflow Prevention Devices including in this Bylaw are supplemental to the requirements of the British Columbia Building Code.

SECTION 5 WATER REGULATIONS

5.1 COMMUNITY WATER SYSTEM REGULATIONS

- 5.1.1 No person shall tamper, destroy, damage or interfere in any manner with a Water Service Connection or any part of the Community Water System.
- 5.1.2 No person shall
 - 5.1.2.1 sell or dispose,
 - 5.1.2.2 carry or take away or permit to be carried or taken away, or
 - 5.1.2.3 use or apply or permit to be used or applied for the benefit of an Owner or Occupier of another Parcelthe water delivered by the Community Water System to a Parcel.
- 5.1.3 All connections to the Community Water System are to be completed by the Town or under supervision of Town staff with the exception of the connection of a Private Water System to a Water Service Connection.
- 5.1.4 No person shall connect to or operate any pipe, valve, Meter, hydrant, or any other part of the Community Water System unless authorized by the Director of Infrastructure Services or under this Bylaw.

5.2 WATER USAGE AND SPRINKLING REGULATIONS

5.2.1 No person shall

5.2.1.1 permit a Private Water System to leak;

5.2.1.2 in the opinion of the Director of Infrastructure Services unreasonably delay in repairing leaking fittings, pipes or appurtenances;

5.2.1.3 use water in quantities or in a manner that the Director of Infrastructure Services deems extraordinary;

5.2.1.4 use water in contravention of this Bylaw for powering machinery; or

5.2.1.5 connect, operate, or permit to be connected or operated any apparatus, fitting or fixture which may cause noises, pressure surges or any other disturbance which may, in the opinion of the Director of Infrastructure Services, annoy any other person, damage a Private Water System or damage the Community Water System.

5.2.2 The Director of Infrastructure Services may, in the event of water supply shortages, impose Outdoor Water Use Restrictions according to Schedule G and, for the Bulk Water Supply Area, consistent with the Bulk Water Supply Agreement.

5.2.3 The Director of Infrastructure Services or the Corporate Officer for the Town of Gibsons may issue a notice which designates the times and places sprinkling of lawns or grounds is permitted and advertise those times and places in local newspapers or through other means. Where a notice designates the Parcels permitted to sprinkle lawns by civic address, an Owner or Occupier of any building, Dwelling Unit, or strata unit on a Parcel bearing that civic address is permitted to sprinkle lawns or grounds at the designated times.

5.2.4 No person shall use more than one hose and one sprinkler head at any one time to sprinkle the lawns or grounds of a Parcel. This limitation does not apply to automatic underground water sprinkling installations.

5.2.5 No person shall permit water supplied by the Community Water System and used for sprinkling or irrigation to leak or be wasted. Specifically, no person shall:

5.2.5.1 Allow water to flow over paved areas such as driveways or

overflow off the Parcel being sprinklered or irrigated; or

- 5.2.5.2 Sprinkle or water roofs of buildings, unless such sprinkling is for the purpose of irrigating a Green Roof.
- 5.2.6 Notwithstanding 5.2.2, during extremely dry conditions, sprinkling may be permitted on grassed sports fields provided that
 - 5.2.6.1 A permit is issued by the Director of Infrastructure Services;
 - 5.2.6.2 The sprinkling only occurs between the hours of 3:00 AM and 7:00 AM; and
 - 5.2.6.3 Each irrigation zone of the sports field to be sprinkled is restricted to 25 millimetres of water per week in a manner supported by best landscaping practices.
- 5.2.7 The Town reserves the right to deny any sprinkling requests made pursuant to 5.2.6 during times of extremely low water reserves in the Town or the Sunshine Coast Regional District.
- 5.2.8 During times of extremely low water reserves in the Town or the Sunshine Coast Regional District, the Director of Infrastructure Services may make orders and deny or revoke permits in order to manage the supply of Potable Water.

5.3 FIRE HYDRANTS

- 5.3.1 No Person, except an employee of the Town in the course of his or her employment, shall, without a permit issued by the Director of Infrastructure Services or Director of Public Works under 5.3.2:
 - 5.3.1.1 open a hydrant or standpipe;
 - 5.3.1.2 use water from a hydrant or standpipe; or
 - 5.3.1.3 operate any valve on the Community Water System.
- 5.3.2 To obtain a permit to access a hydrant, standpipe or valve, a Person shall apply and pay a damage deposit and the applicable fee prescribed in the Rates, Fees and Charges Bylaw.
- 5.3.3 Whether or not a permit was used under 5.3.2, the Town may order a Person to stop any activity described in 5.3.1 at any time for any reason.
- 5.3.4 Unless a statutory right of way exists that states a hydrant is owned by the Town, an Owner shall maintain a hydrant on a Parcel connected to a Private Water System according to the BC Building Code.

SECTION 6 FEES AND CHARGES

6.1 FEES

- 6.1.1 An Owner shall pay the applicable fees prescribed in the Rates, Fees and Charges Bylaw, where under this Bylaw the Town
 - 6.1.1.1 performs work or services to land or improvements, including those related the connection, maintenance, inspection, and disconnection of a Private Water System to the Community Water System;
 - 6.1.1.2 supplies materials pertaining to the installation of a Water Service Connection, Meter, Meter Box, or the connection, maintenance, and disconnection of a Private Water System to the Community Water System; or
 - 6.1.1.3 turns on/off the water supply
- 6.1.2 An Owner shall pay the applicable Commercial User and Domestic User Rates, surcharges and minimum fees prescribed in the Rates, Fees and Charges Bylaw in respect of all Parcels owned by the Owner.
 - 6.1.2.1 User fees for each Dwelling Unit of a Two Family Dwelling shall be calculated using Single Family rates according to the Rates, Fees and Charges Bylaw.
- 6.1.3 Charges of water user fees by the Town, according to the Rates, Fees and Charges Bylaw, shall commence upon connection of the Private Water System to the Water Service Connection.
 - 6.1.3.1 Connection shall be deemed to have occurred upon the installation of the Meter according to the provisions of this Bylaw; or
 - 6.1.3.2 Upon date of physical connection, in the event that connection has occurred without a Meter being installed.
- 6.1.4 Commencing April 1, 2014, for commercial Water Service Connections, where a service does not have a Backflow Prevention Device installed, one-twelfth of the annual unprotected water service surcharge prescribed in the Rates, Fees and Charges Bylaw shall be charged for each month, or portion thereof.
- 6.1.5 For non-metered Domestic Users and Commercial User, one-twelfth of the annual unmetered user fee prescribed in the Rates, Fees and Charges Bylaw shall be charged for each month, or portion thereof commencing on

the date of connection according to 6.1.3.

- 6.1.6 Commencing July 1, 2013, for non-metered commercial Water Service Connections, where service has been unmetered, one-twelfth of the annual unmetered service surcharge prescribed in the Rates, Fees and Charges Bylaw shall be charged for each month, or portion thereof.
- 6.1.7 Where one or more Meters serving a Parcel measures the water consumption of a residential building strata or residential bare land strata according to the provisions of Schedule A, the quantity of water delivered to the residential strata shall be divided evenly among the individual residential strata units or residential strata lots and billed separately to the owner of each residential strata unit or residential strata lot.
- 6.1.8 Where one or more Meters serving a Parcel measures the water consumption of a commercial building strata or commercial bare land strata according to the provisions of Schedule A, the quantity of water delivered to the strata shall be divided evenly among the individual commercial strata units or commercial strata lots and billed separately to the owner of each commercial strata unit or lot.
- 6.1.9 Where an Owner or Occupier advises the Town that a leak has occurred in the Private Water System of a Parcel, as outlined in sections 6.1.10 to 6.1.15, the Collector may adjust the consumption for one billing period, as defined in 6.2.1, if the water leak was not due to an act or omission of the Owner or Occupier. For the Collector to consider an adjustment the Owner shall supply:
 - 6.1.9.1 a completed application form; and
 - 6.1.9.2 supporting documentation in the form of a receipt or receipts indicating that the leak has been repaired.
- 6.1.10 Adjustments will only be granted for leaks in the Private Water Service(s) between the water meter and the building(s).
- 6.1.11 Leak adjustments on utility bills will not be made for the following:
 - a) any internal plumbing systems and fixtures;
 - b) irrigation and/or sprinkler systems on a property;
 - c) in-ground or above-ground pools, ponds, and fountains;
 - d) any auxiliary lines connected to the Private Water Service.
- 6.1.12 Only one leak adjustment per Private Water Service within a twenty-four (24) month period will be permitted.

- 6.1.13 Town staff reserve the right to inspect the repair prior to considering a leak adjustment.
- 6.1.14 Town staff will make every effort to notify the property owner if staff become aware of unusual water consumption however, accept no responsibility for failure to do so.
- 6.1.15 The adjustment in 6.1.9 shall be calculated based on the per diem consumption of water during the previous billing period of an equivalent season. If the adjustment is approved by the Collector, a leak adjustment fee will be charged according to the Rates, Fees and Charges Bylaw.
- 6.1.16 Every person who obtains approval of a subdivision in, or issuance of a building permit, other than a building permit authorizing the construction of three or fewer self-contained dwelling units or a building permit authorizing construction valued at less than \$50,000, shall pay at the time of approval of the subdivision or issuance of the building permit, as the case may be, the bulk water facilities charge prescribed in the Rates, Fees and Charges Bylaw. No charge is payable in respect of a building permit authorizing the construction of a building in a subdivision in respect of which all applicable charges have been paid under this section.

6.2 BILLING

- 6.2.1 Commercial Users and Domestic Users shall be invoiced semi-annually, separately from the annual property tax notice. Amounts shall be due and payable at the office of the Collector one month after an invoice is issued.
- 6.2.2 Unless otherwise specified in this Bylaw, all fees levied under this Bylaw and specified in the Rates, Fees and Charges Bylaw are due and payable on the due date specified on the invoice.
- 6.2.3 Where fees under this Bylaw remain unpaid for more than 30 days after the date on which they became due and payable, the Town may issue an Unpaid Fees Notice.
- 6.2.4 Where an Owner has received an Unpaid Fees Notice and has failed to pay the unpaid fees in the time specified on the Unpaid Fees Notice, the Town may seal the Water Service Connection or disconnect the Private Water System from the Community Water System to the real property in respect of which the fees remain unpaid.
- 6.2.5 Upon change of ownership of the property the Owner may request that the Collector provide an estimate of consumption and charges.

6.3 BACK BILLING

- 6.3.1 On discovery that a Meter has failed to properly measure the consumption of water of a Domestic User or Commercial User, the Collector shall estimate the consumption of water and bill accordingly giving due consideration to the following factors:
- 6.3.1.1 previous average consumption rate;
 - 6.3.1.2 seasonal variation;
 - 6.3.1.3 changes in occupancy; and
 - 6.3.1.4 any other factors which, in the opinion of the Collector, may affect the consumption of water.
- 6.3.2 Where a Domestic User or Commercial User has been under-billed, the Owner shall pay the corrected invoice on or before the date shown on the invoice.
- 6.3.3 Where a Domestic User or Commercial User has been over-billed and paid that invoice or invoices, the Town shall credit the Owner's account by the amount overpaid.

SECTION 7 PROTECTION OF THE GIBSONS AQUIFER

7.1 DECOMMISSIONING OF ABANDONED WELLS

- 7.1.1 No person shall, being the owner of a parcel on which is located a well that penetrates the Gibsons Aquifer and is not in use, and having been notified by the Director of Infrastructure Services to do so, fail to have the well decommissioned by a qualified well driller according to the standards detailed in Section 6 of the Ground Water Protection Regulation and to the satisfaction of the Director of Infrastructure Services, within the time specified in the notification.
- 7.1.2 An owner may, in lieu of having a well decommissioned as described in 7.1.1 and with the approval of the Director of Infrastructure Services, grant to the Town a perpetual statutory right of way in a form satisfactory to the Director, that entitles the Town to enter on the owner's land from time to time to inspect the well, install in the well such equipment as the Director may require for monitoring the Gibsons Aquifer, and monitor, repair and replace such equipment from time to time. The Director may, in approving a monitoring arrangement under this section, require the owner to restrict the use of the well to such purposes as the Director may specify, and to grant to the Town a covenant under s. 219 of the Land Title Act restricting the use

of the well to those purposes.

- 7.1.3 If any person fails to comply with a notice issued under 7.1.1 the Director of Infrastructure Services may enter on the land, decommission the well at the owner's cost, and if the costs remain unpaid by the owner on December 31 of the year in which the work is done, collect the amount in the same manner and with the same remedies as property taxes.

7.2 INTERFERENCE WITH AQUIFER

- 7.2.1 No person shall, being the owner of a parcel on which is located a well that penetrates the Gibsons Aquifer and that is in use, and having been notified by the Director of Infrastructure Services to do so, fail to protect the well head in the manner prescribed in Part 2 of the Ground Water Protection Regulation, within the time specified in the notification.
- 7.2.2 No person shall drive any pile, drill or bore any well, test hole or similar penetration of the earth, or excavate any soil within the Lower Gibsons Aquifer Sub-Area without authorization issued in writing by the Director of Infrastructure Services.
- 7.2.3 The Director of Infrastructure Services may issue an authorization referred to in 7.2.2 if in the Director's opinion the work will not create an unacceptable risk to the integrity of the Gibsons Aquifer including any related aquitard, or impair the quality or quantity of water that the Town may extract from the Gibsons Aquifer for water supply purposes.
- 7.2.4 The Director may require an applicant for an authorization referred to in 7.2.3 to provide a report by a qualified professional hydrogeologist addressing the risks specified in 7.2.3 and a proposed drilling program, substantially in the form provided in Schedule E and Schedule F in the case of applications to drill or bore a well or test hole, and the Director may submit the report and proposed drilling program for review by another qualified professional hydrogeologist selected by the Director, at the cost of the applicant.
- 7.2.5 No person shall fail to comply with the terms of any authorization issued by the Director of Infrastructure Services under 7.2.3.
- 7.2.6 No person shall fail to give notice of the terms of the authorization issued by the Director of Infrastructure Services under 7.2.3 to any contractor, sub-contractor, consultant, or other person engaged by the owner to carry out the work.
- 7.2.7 7.2.2 does not apply to the driving of any pile, drilling or boring of any well, test hole or similar penetration of the earth, or excavation of a building site and related works for the construction or alteration of a single family

residential dwelling, provided that at no point the depth of any pile, well, test hole or similar penetration of the earth, or excavation exceeds 1.5 metres, below natural grade.

SECTION 8 INSPECTIONS, COMPLIANCE, AND OFFENCES

8.1 INSPECTIONS

- 8.1.1 In accordance with the provisions of the *Community Charter*, SBC 2003, c 26, the Director of Infrastructure Services and any other employee or Town contractor acting under his or her direction may enter onto any Parcel to inspect and determine whether all regulations, prohibitions and requirements of this Bylaw are being met.
- 8.1.2 No person shall interfere with, or otherwise obstruct the entry of the Director of Infrastructure Services or other Town officer, employee or contractor in carrying out an inspection under the provisions of this Bylaw.

8.2 COMPLIANCE

- 8.2.1 The Director of Infrastructure Services may issue a Compliance Order to an Owner of a Parcel or a portion of a Parcel that is found to be in contravention of this Bylaw.
 - 8.2.1.1 Where an Owner has received a Compliance Order, has failed to take the remedial action required by the Compliance Order in the specified time, and has been given an opportunity to make representations to the Director of Infrastructure Services, the Town may, by its officers, employees, or contractors, carry out the work specified in the Compliance Order at the expense of the Owner and recover the costs of undertaking such work either as a debt against the Owner or in the same manner and with the same remedies as property taxes.
 - 8.2.1.2 The Town may, after the Owner has failed to take the remedial action required by a Compliance Order in the specified time and has been given an opportunity to make representations to Council, shut off or disconnect the Private Water System from the Community Water System until property is in compliance with this Bylaw or the Director is satisfied that the property shall be in compliance with this Bylaw.
 - 8.2.1.3 The Town may, after the Owner has failed to take the remedial action required by a Compliance Order in the specified time and has been given an opportunity to make representations to Council, take both actions in 8.2.1.1 and 8.2.1.2.

8.3 OFFENCES

- 8.3.1 A person who contravenes this Bylaw or who suffers or permits any act or thing done in contravention of the Bylaw, or who refuses, omits, or neglects to do anything required to be done by this Bylaw commits an offence and upon summary conviction is liable to a fine of not less than \$100 and not more than \$10,000, or imprisonment of not more than 6 months, or both, plus the cost of prosecution.
- 8.3.2 Each day that a contravention of this Bylaw continues shall constitute a separate offence.
- 8.3.3 A person who contravenes 5.2.1, 5.2.2, 5.2.4, or 5.2.5 of this Bylaw shall be liable for the fines and penalties established in the Town of Gibsons Bylaw Notice Enforcement Bylaw 1125, 2010, as amended from time to time.
- 8.3.4 A penalty imposed under 8.3.3 is a supplement to any other remedy or action that may be available under this Bylaw or any other applicable laws or enactments.

~SCHEDULE A~

DESIGN CRITERIA AND SPECIFICATIONS

TABLE OF CONTENTS

1	INSTALLATION STANDARDS.....	2
1.1	General.....	2
1.2	Water Service Connections.....	2
1.3	Private Water Systems.....	2
1.4	Water Meters.....	3
1.5	Prevention of Contamination	5
Annex 1	Water Meter Sizing Calculation Sheet and Example	
Annex 2	Approved Products List	

1 INSTALLATION STANDARDS

1.1 General

1.1.1 All work shall be done in a substantial and workmanlike manner with materials, articles and workmanship of the best quality and description and as required by and in strict conformity with this Bylaw. All materials shall be new unless otherwise permitted by the Director of Engineering.

1.1.2 Subject to the Director of Engineering's approval, the Owner of a Parcel who desires to remove, alter, or relocate any portion of the Community Water System shall pay the costs of removal, alteration, or relocation.

1.2 Water Service Connections

1.2.1 A Water Service Connection shall

1.2.1.1 be laid above sanitary and drainage sewer services; and

1.2.1.2 maintain a minimum 3.0 metre horizontal and 0.45 metre vertical separation from sanitary and drainage sewer services

unless, in the opinion of the Director of Engineering, no other reasonable option is available.

1.2.2 With the exception of 1.2.3, a single Water Service Connection and accompanying Meter shall be provided for each Parcel, unless, in the opinion of the Director of Engineering, no other reasonable option is available.

1.2.3 A Two-Family Dwelling on its own Parcel may be served by

1.2.3.1 a single Water Service Connection with a minimum size of 25mm (1") serving the Private Water Systems of both Dwelling Units; or

1.2.3.2 a separate Water Service Connection with a minimum size of 19mm (3/4") serving each Dwelling Unit

and shall be metered according to 1.4.4.

1.3 Private Water Systems

1.3.1 All Private Water System installations involving pipes 50 millimetres or smaller shall conform to the BC Building Code.

1.3.2 All Private Water System installations involving pipes larger than 50 millimetres shall conform to the Subdivision and Development Servicing and Stormwater Control Bylaw, including all testing and disinfection requirements. All testing and disinfection procedures must be witnessed by the Director of Engineering.

- 1.3.3 Unless otherwise specifically approved by the Director of Engineering, Private Water Systems installed parallel to the Town watermains shall have at least 3 metres (9.8 ft.) horizontal separation.
- 1.3.4 No Private Water System shall be installed or operated on Town Highways without the approval of the Director of Engineering.
- 1.3.5 A Two-Family Dwelling on its own Parcel shall have a separate Private Water System for each Dwelling Unit connected to the Water Service Connection according to the criteria in 1.2.3;
- 1.3.6 Water delivered by the Community Water System to a Parcel shall not be transported via the Private Water System of another Parcel.

1.4 Water Meters

- 1.4.1 All Meters installed on a Water Service Connection shall be installed in a Meter Box according to the Standard Drawings and Approved Products List (Annex 2), unless an alternate Meter location is approved as per 1.4.2.
 - 1.4.1.1 For Meters greater than 25mm (1"), the Owner shall submit shop drawings, including proposed Meter Box / chamber dimensions, lid / hatch details, piping / valves, and all other ancillary works.
 - 1.4.1.2 Thrust beams shall be provided for all chambers housing equipment or piping 75mm (3") or greater.
 - 1.4.1.3 All chambers housing meters 75mm (3") or larger shall have a sump with the drain discharging to a storm sewer or daylighting to a ditch.
- 1.4.2 Notwithstanding 1.4.1, Meters may be installed in an alternate location, including inside the building the Meter will serve, if, in the opinion of the Director of Engineering no other reasonable option is available.
- 1.4.3 An Owner must obtain a Building Permit for the installation of any Meter within a building.
- 1.4.4 For a Parcel consisting of mixed commercial and residential units, separate meters must be installed for the commercial and residential portions of the Parcel.
- 1.4.5 A Two-Family Dwelling on its own Parcel shall have individual Meters for each Dwelling Unit connected to the Water Service Connection according to the criteria in 1.2.3;
- 1.4.6 A Meter Box shall not be located within a present or future planned sidewalk or vehicular crossing unless, in the opinion of the Director of Engineering, no other reasonable location for installation is possible.
- 1.4.7 All Meter Boxes that are installed in areas subject to present or future vehicular loading, including any installations within 1.5 metres from a surface that, in the opinion of the Director of Engineering, may be subject to present or future vehicular loading, must be

Schedule "A" – Design Criteria and Specifications

rated for such loading conditions.

1.4.8 Meters

1.4.8.1 16mm x 19mm (5/8" x 3/4") in diameter shall be supplied and installed by the Town or its authorized contractor;

1.4.8.2 larger than 16mm x 19mm (5/8" x 3/4") and up to 50mm (2") in diameter may be supplied and installed by the Town, its authorized contractor, or an Owner as directed by the Director of Engineering;

1.4.8.3 larger than 50mm (2") in diameter shall be supplied and installed by an Owner.

1.4.8.4 larger than 16mm x 19mm (5/8" x 3/4") shall be justified by a sizing calculation to be completed by the Owner using the Town's Water Meter Sizing Calculation Sheet provided in Annex 1.

1.4.9 The cost of supplying and installing a Meter, Meter Box and ancillary components shall be borne by the Owner.

1.4.10 Meters, including ancillary components such as boxes and setters, shall be of the makes and models identified in the Approved Products List (Annex 2).

1.4.11 Once installed, a Meter remains the property of the Town, despite any rule of law to the contrary.

1.4.12 The Building Inspector may permit a Meter to be installed in such a manner to permit the Fire Service Line to bypass the Meter.

1.4.13 Where a Meter is installed in a manner that registers both domestic and Fire Service Lines, the Owner must engage a professional engineer to ensure the Meter specifications and installation do not restrict the Private Water System from delivering necessary fire flows.

1.4.14 An Owner of a metered Parcel shall provide convenient access to the Parcel for the purposes of installing, supporting, protecting, operating, inspecting, reading, maintaining, repairing, and replacing a Meter.

1.4.15 Where a Meter is damaged or destroyed due to the negligence of an Owner, or his or her employee, agent, contractor, licensee, lessee, or invitee, the Owner shall pay the Town the cost of repairing or replacing the Meter.

1.4.16 Where, in the opinion of the Director of Engineering, the location of a Meter, which was chosen by an Owner, is unsafe or creates a dangerous situation for a Meter reader, the Town shall relocate the Meter to a location determined by the Director of Engineering at the cost of the Owner.

1.4.17 Where a Meter is rendered unserviceable through normal wear and tear, the Town shall replace the Meter at its cost.

- 1.4.18 The Director of Engineering may issue a Compliance Order, according to the provisions of this Bylaw, for a Water Service Connection to be shut off if the Meter remains inaccessible for reading and maintenance for a period of longer than four months.
- 1.4.19 Where a Meter is installed and an Owner notifies the Director, in writing, that a past charge for water consumption is excessive due to a Meter inaccuracy, the Director of Engineering may arrange to have the Meter tested at the expense of the Owner according to 1.4.20.
- 1.4.20 Before the Town conducts a Meter test according to 1.4.19, the Owner requesting the test shall pay the fee set out in the Rates, Fees and Charges Bylaw.
 - 1.4.20.1 A Meter shall be considered to be accurate unless the meter testing result indicates that Meter does not meet the accuracy limits provided in the most recent version of *AWWA Manual M6 Water Meters – Selection, Installation, testing, and Maintenance*.
 - 1.4.20.2 If the test shows that the Meter is not accurate according to 1.4.20.1, the Meter testing fee shall be refunded to the Owner; the meter shall be replaced or repaired by the Town; and the Owner’s account adjusted according to the provisions of this Bylaw.
 - 1.4.20.3 If the test shows that the Meter is accurate, the Meter testing fee shall be retained by the Town, no refunds or adjustments shall be made in favour of the Owner and the Meter shall not be replaced or repaired by the Town.

1.5 Prevention of Contamination

- 1.5.1 Backflow Prevention Devices shall be of the makes and models identified in the Approved Products List (Annex 2), and shall be installed in accordance with the standards prescribed by the Canadian Standards Association Manual for the Selection and Installation of Backflow Prevention Devices, CSA B64.10, Series-01, (2001), or latest edition thereof, and the Town’s Cross-Connection Control standards supplement.
- 1.5.2 Dual check valves (DuCs) shall be installed on Water Service Connections with a maximum size of 25mm and meeting all of the following criteria:
 - 1.5.2.1 Residential developments unless the criteria in 1.5.6 or 1.5.7 dictates otherwise; and
 - 1.5.2.2 a Parcel with a Low Cross-Connection Hazard.
- 1.5.3 DuCs shall be incorporated into the meter setter according to Standard Drawing SS-W1 for Water Service Connections meeting all of the following criteria:
 - 1.5.3.1 the criteria of 1.5.2; and
 - 1.5.3.2 Meters installed in a Meter Box.

Schedule "A" – Design Criteria and Specifications

- 1.5.4 DuCs installed according to 1.5.3 shall be the property and responsibility of the Town.
- 1.5.5 All Fire Service Lines are to be equipped with a Backflow Prevention Device according to the criteria in 1.5.6 and 1.5.7. The Backflow Prevention Device shall include provisions for the Town to connect a detector ("tattle tale") meter at their discretion.
- 1.5.6 Double check valve assemblies (DCVAs) shall be installed by the Owner at the Owner's expense on:
 - 1.5.6.1 Water Service Connections larger than 25mm (1");
 - 1.5.6.2 Water Service Connections serving a privately owned standpipe or fire hydrant;
 - 1.5.6.3 Water Service Connections with a Moderate Cross-Connection Hazard; and
 - 1.5.6.4 Fire Service Lines that pose a Moderate Cross-Connection Hazard.
- 1.5.7 Reduced pressure backflow assemblies shall be installed by the Owner at the Owner's expense on:
 - 1.5.7.1 Water Service Connections with a High Cross-Connection Hazard; and
 - 1.5.7.2 Fire Service Lines that pose a High Cross-Connection Hazard.
- 1.5.8 Following installation of a testable Backflow Prevention Device and at the Owner's expense, a Certified Cross Connection Tester shall test the Backflow Prevention Device and submit a report in the approved form to the Director of Engineering's satisfaction, stating that the Backflow Prevention Device is in good working condition.
- 1.5.9 Backflow Prevention Devices providing premises isolation from the Community Water System, with the exception of DuCs :
 - 1.5.9.1 shall be tested by the Town with the exception of the requirements of 1.5.8; and
 - 1.5.9.2 shall be the property and responsibility of the Town of Gibsons once installed and tested according to 1.5.8.
- 1.5.10 Backflow Prevention Devices
 - 1.5.10.1 not meeting the criteria of 1.5.4 or 1.5.9; or
 - 1.5.10.2 installed on a Fire Service Line

shall be the property and responsibility of the Owner of the Parcel which is served by the Backflow Prevention Device.

 - 1.5.10.3 All dedicated Fire Service Lines equipped with Backflow Prevention Devices, that do not also have a common Town Backflow Prevention Device installed at

Schedule "A" – Design Criteria and Specifications

property line, are to be tested annually by the Owner with test results provided to the Town.

1.5.10.4 All Backflow Prevention Devices installed on Fire Service Lines shall be FM Approved and UL Listed.

1.5.11 An Owner of a Parcel shall report any backflow incident immediately to the Director of Engineering.

~Annex 1~

Water Meter Sizing Calculation Sheet and Example



Water Meter Sizing Calculation Sheet
For Non-Fire Service Meters
Methodology: AWWA M22

Example

General Information

Customer Name:

Example

PID Number:

Example

Address:

Example

Building Permit Number:

Example

Type of Occupancy:

Multifamily

☒

Institutional

☐

Industrial

☐

Commercial

☐

Other

☐

Number of Units:

30

Is this a phased development?

Yes

☐

No

☒

Calculations presented below are for:

Buildout

☒

Phase

☐

Phase Number:

Separate calculations must be provided for both current phase and buildout.

This meter sizing calculation is based on the AWWA M22 Fixture Value Methodology. Owners (and their Engineers) are expected to purchase and use the *AWWA Manual of Water Supply Practices M22 Sizing Water Service Lines and Meters* when completing this methodology.

This section includes general information about the customer and proposed development.

A 30 unit townhouse complex has been chosen as an example to demonstrate the use of this sizing methodology.

Step 1: Calculate Total Domestic Fixture Value

Fixture	Fixture Value (GPM @ 60 psi)		No. of Fixtures		Fixture Value (GPM @ 60 psi)
Bathtub	8	x	30	=	240
Bedpan Washers	10	x		=	
Bidet	2	x		=	
Dental Unit	2	x		=	
Dishwasher	2	x	30	=	60
Drinking Fountain - Public	2	x		=	
Hose Bibs (c/w 50 ft Wash Down):					
- 1/2 inch	5	x	30	=	150
- 5/8 inch	9	x		=	
- 3/4 inch	12	x		=	
Kitchen Sink	2.2	x	30	=	66
Lavatory	1.5	x	90	=	135
Showerhead (Shower only)	2.5	x	30	=	75
Service Sink	4	x		=	
Toilet:					
- Flush Valve	35	x		=	
- Tank Type	4	x	90	=	360
Urinal:					
- Pedestal Flush Valve	35	x		=	
- Wall Flush Valve	16	x		=	
Wash Sink (Each Set of Faucets)	4	x	30	=	120
Washing Machine (Non Industrial)	6	x	30	=	180
Other:					
		x		=	
		x		=	
		x		=	
Total Domestic Fixture Value =					1386 GPM (A)

In this example, the following fixtures are identified for each of the 30 units in the proposed development:

- 1 bathtub
- 1 shower
- 3 toilets (tank type)
- 3 bathroom sinks
- 1 dishwasher
- 1 kitchen sink
- 1 washing machine (residential type)
- 1 laundry sink
- 1 hose bib (1/2 inch)

These fixtures yield a Total Domestic Fixture Value of 1386 GPM.

Note: If a fixture is proposed that is not on the list then the peak flow value (fixture value) can be included on one of the blank lines under "Other" based on the manufacturer's information.



Water Meter Sizing Calculation Sheet
For Non-Fire Service Meters
Methodology: AWWA M22

Example

Step 2: Calculate Probable Peak Domestic Demand

Refer to Figure 4-2 or 4-3

Probable Peak Domestic Demand = 65 GPM (B)

The AWWA Manual M22 includes two graphs (Figures 4-2 and 4-3) which provide a correlation between the Total Domestic Fixture Value and Probable Peak Domestic Demand for various development types.

For this example, Figure 4-3 applies since the Total Domestic Fixture Value is in the "high range". The "Apartments" curve indicates that a Total Domestic Fixture Value of 1386 GPM corresponds to a Probable Peak Domestic Demand of 65 GPM.

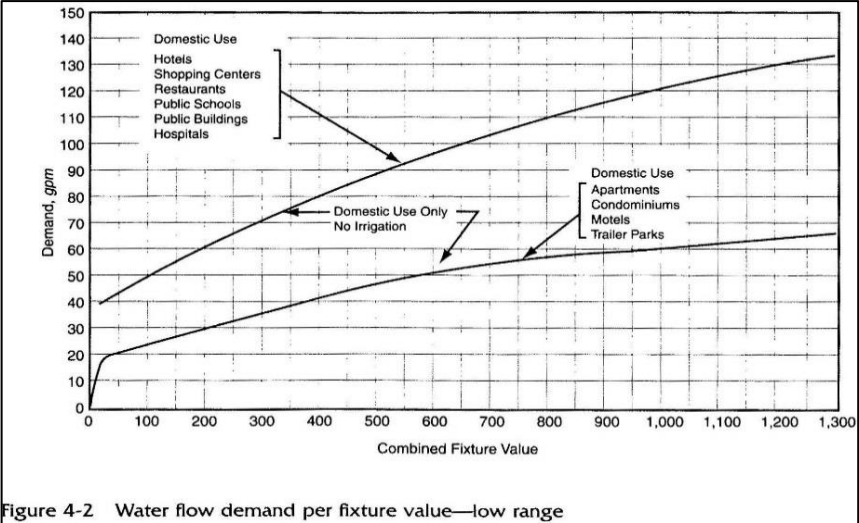


Figure 4-2 Water flow demand per fixture value—low range

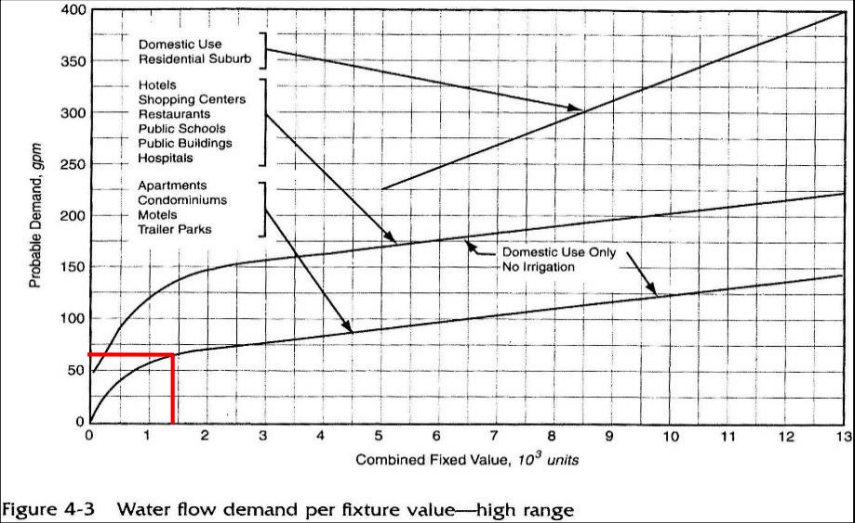


Figure 4-3 Water flow demand per fixture value—high range

Step 3: Apply Pressure Adjustment Factor

Community Water System Pressure (varies by location) = 70 psi
Pressure Factor from Table 4-1 = 1.09 (C)
Adjusted Peak Domestic Demand (B x C) = 70.85 GPM (D)

The fixture values listed in Step 1 are based on a pressure of 60 psi. This step increases or decreases the peak demand based on the pressure at the outlet of the meter. Table 4-1 in the AWWA M22 Manual provides adjustment factors for various pressures.

For this example, the pressure downstream of the meter is identified as 70 psi. From Table 4-1, the pressure adjustment factor is 1.09 and the Adjusted Peak Domestic Demand is 70.85 GPM.

Table 4-1 Pressure adjustment factors*		
Working Pressure at Meter Discharge (psi)	Average Flow from 50 ft of 5/8-in. Hose and Sprinkler (gpm)	Pressure Adjustment Factor
35	6.7	0.74
40	7.2	0.80
50	8.1	0.90
60	9.0	1.00
70	9.8	1.09
80	10.5	1.17
90	11.2	1.25
100	12.1	1.34

*derived from Table 4-1 and 4-2 of Manual M22 (1975).
NOTE: To convert psi to kPa: psi × 6.89476; to convert gpm to m³/hr: gpm × 0.227.



Water Meter Sizing Calculation Sheet
For Non-Fire Service Meters
Methodology: AWWA M22

Example

Step 4: Identify Irrigation Demand

Total Irrigation Demand = 23.2 GPM (E)

For irrigation demands greater than 35 GPM, a detailed irrigation plan shall be provided for approval by the Director of Engineering.

The Total Irrigation Demand is identified in this step. The AWWA Manual M22 provides guidance for calculating irrigation demands. However, the Owner / Engineer may refer to an irrigation system design flow specified by the manufacturer or identified by the irrigation system designer.

For this example, an area of 2000 ft² is irrigated by a spray irrigation system. The AWWA M22 Manual indicates that for spray irrigation each "section" represents a flow of 1.16 GPM. A "section" is defined as 100 ft². So the calculation yields:

Total Irrigation Demand = 2000 ft² / 100 ft² = 20 sections x 1.16 GPM = 23.2 GPM

Step 5: Confirm Design Demand

Design Demand (Greater of D & E) = 70.85 GPM (F)

The Design Demand is the greater of the Adjusted Peak Domestic Demand from Step 3 and the Total Irrigation Demand from Step 4.

In this example, the Adjusted Peak Domestic Demand of 70.85 GPM governs over the Total Irrigation Demand of 23.2 GPM.

Step 6: Size and Select Water Meter

Design Demand *		Meter Make / Model	Meter Size	
(L/s)	(GPM)	Neptune	(mm)	(inches)
0 - 1.26	0 - 20	T-10	16x19	5/8 x 3/4
1.26 - 1.89	20 - 30	T-10	19	3/4
1.89 - 3.15	30 - 50	T-10	25	1
3.15 - 6.31	50 - 100	T-10	38	1 1/2
6.31 - 10.09	100 - 160	T-10	50	2
10.09 - 28.39	160 - 450	TRU/FLO	75	3
28.39 - 63.09	450 - 1000	TRU/FLO	100	4

* Based on normal operating range of Town approved meters.

Water Meter Make / Model: = Neptune T-10

Water Meter Size = 38 mm

Water Service Connection Size (for information only) = 50 mm

Description of Meter Location: Outside: 5.3m East of West Property Line

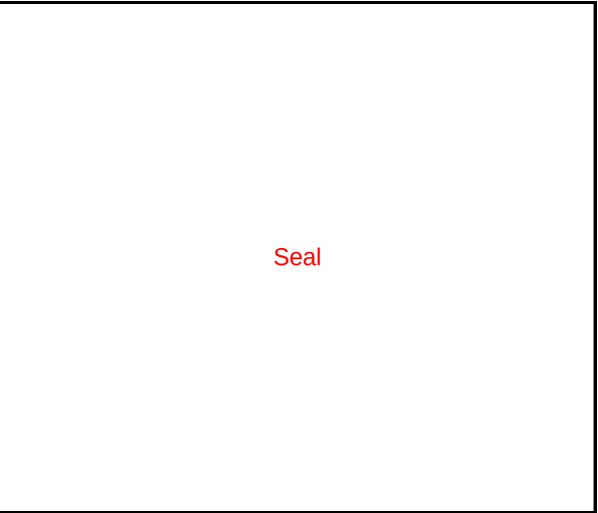
Using the sizing table provided in Step 6, a Design Demand of 70.85 GPM corresponds to a meter size of 1.5" (38mm).

Note that the Water Service Connection is one size larger than the meter at 2" (50mm) in this case, which is fairly common.

The meter is located outside as per the Town's preferred location and the location offset from property line is provided.

Note that the AWWA M22 sizing methodolgy is based on US customary units. The fixture values, probability curves, and pressure adjustment factors have all been derived using US units. In this final step of the sizing calculation sheet, the units are converted to metric.

Professional Certification



Seal

Seal

Name: Example

Company: Example

Date: Example

Comments:

This section is for the Owner's Engineer to certify the water meter sizing calculation.

The comments space is provided to explain any unique aspects of the development that impact the proposed meter sizing.

Note that GPM = USGPM

~Annex 2~

Approved Products List

The products listed in this Approved Products List have been reviewed by the Director of Engineering and deemed acceptable for use within the Town of Gibsons. This list is by no means inclusive of all items that may be required for works associated with the Community Water System, it is provided solely for information purposes. Further, products that are included on this Approved Products List do not automatically represent approved alternates / substitutes for products specified in contract documents.

Section *	Item	Product	Size	Comments / Restrictions
1.4.10	Meter Boxes	Armttec	B937	• 16mm x 19mm and 19mm meters.
			T266	• 25mm meters.
			5686	• 38mm and 50mm meters.
1.4.10	Water Meters	Neptune T-10 c/w E-Coder R900i v4 Register / Radio and Antenna Pad	16mmx19mm 19mm 25mm 38mm 50mm	• E-Coder R900i Register / Radio and Antenna Pad to be Pit version, unless an inside meter installation is approved by the Town. • 38mm and 50mm meters to have flanged inlet / outlet.
		Neptune TRU/FLO Compound c/w E-Coder R900i v4 Registers / Radios and Antenna Pads	≥75mm	• Strainer to be provided upstream.
		Neptune HP Protectus III Fire Service Meter c/w E-Coder R900i v4 Registers / Radios and Antenna Pads	≥100mm	• Combined domestic / fire services to be approved by the Town.

Schedule "A" – Design Criteria and Specifications

1.4.10	Meter Setters	Cambridge Brass Series 6020NL	16mm x 19mm 19mm 25mm	• To comply with NSF 61 Annex F/G. • Outlet Ball Valve vs Dual Check Valve as per Section 1.5.3
		Cambridge Brass Series 6020NL c/w High Bypass	38mm 50mm	• To comply with NSF 61 Annex F/G. • Outlet Ball Valve vs Dual Check Valve as per Section 1.5.3

* Refers to pertinent section of Schedule "A" – Design Criteria and Specifications

~SCHEDULE B~

STANDARD DRAWINGS

The following Standard Drawings are supplemental to MMCD and shall supersede MMCD Standard Drawings, where applicable.

Drawing Number	Drawing Name
SS-W1	Meter Box Assembly for 19mm & 25mm Service Connection
SS-W2	Temporary Water Service Using a Municipal Hydrant
SS-W3	Typical Interconnected Servicing with Backflow Preventer Arrangements
SS-W4A	Minimum Clearance for all DCVA Assembly Installations
SS-W4B	Minimum Clearance for Reduced Pressure Installations
SS-W4C	Backflow Prevention Device Minimum Clearance Dimensions
SS-W5	Irrigation Device Check Valve Assembly



1. ALL POTABLE WATER PIPING UPSTREAM OF METER ASSEMBLY TO BE TYPE "K" COPPER
2. PLASTIC IDLER BAR TO BE INSTALLED IN PLACE OF METER (METER TO BE SUBSEQUENTLY INSTALLED BY TOWN)
3. FOIL BUBBLE WRAP INSULATION SHALL BE PROVIDED (CUT TO FIT METER BOX OPENING)
4. CONNECTION TO WATER SERVICE TO BE INSPECTED BY MUNICIPAL INSPECTOR (PLUMBING PERMIT REQUIRED)

TITLE : METER BOX ASSEMBLY FOR 19mm + 25mm
SERVICE CONNECTION

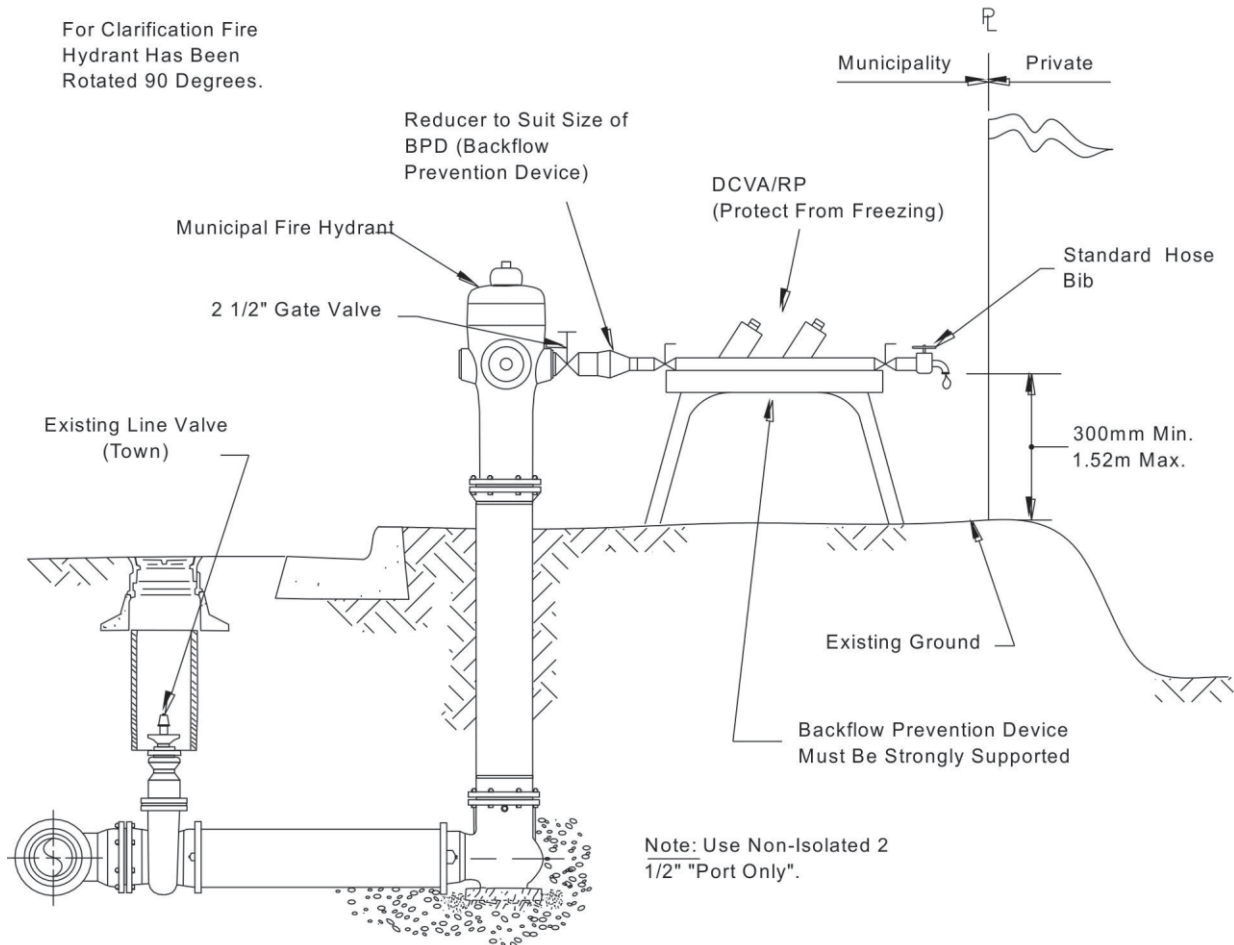
DWG. No. :

SS-W1



TOWN OF GIBSONS

STANDARD DETAIL DRAWINGS



Notes :

- 1- The use of a fire hydrant for the purpose of construction water requires the acceptance of the Director of Engineering and maybe allowed under permit but is severely restricted.
- 2- A meter is required on any temporary construction service.
- 3- The Owner is responsible for all costs associated with the permit, installation of the backflow preventer and meter, in addition to all consumption charges.
- 4- The customer shall install an accepted, currently tested (after installation) and privately owned backflow prevention device entirely on private property in a secure manner.
- 5- On metered construction services, the backflow preventer shall be downstream of the Municipal water meter.
- 6- The backflow prevention device shall be either an accepted double check valve assembly or a reduced pressure principle assembly depending upon the degree of on site health hazard.

TITLE : **TEMPORARY WATER SERVICE,
USING A MUNICIPAL FIRE HYDRANT**

DWG. No. :

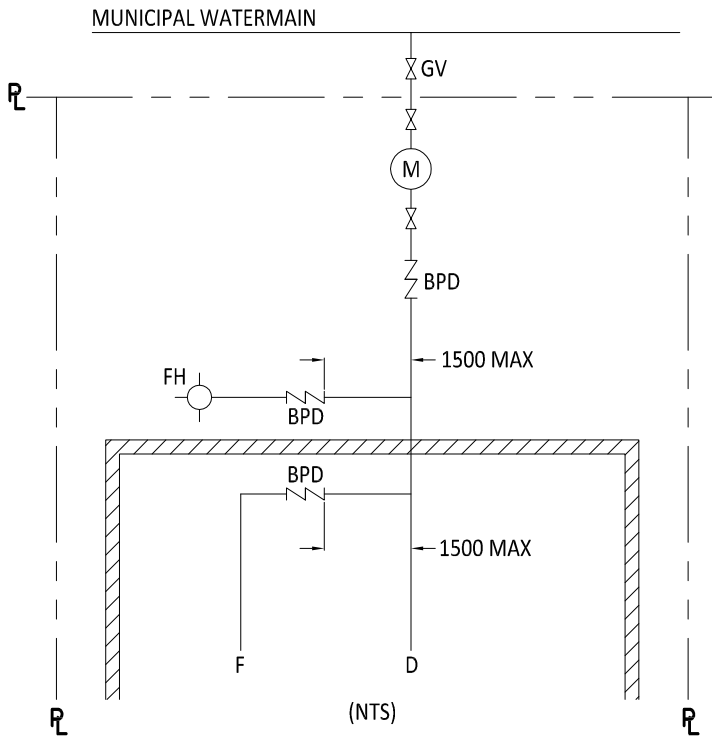
SS-W2



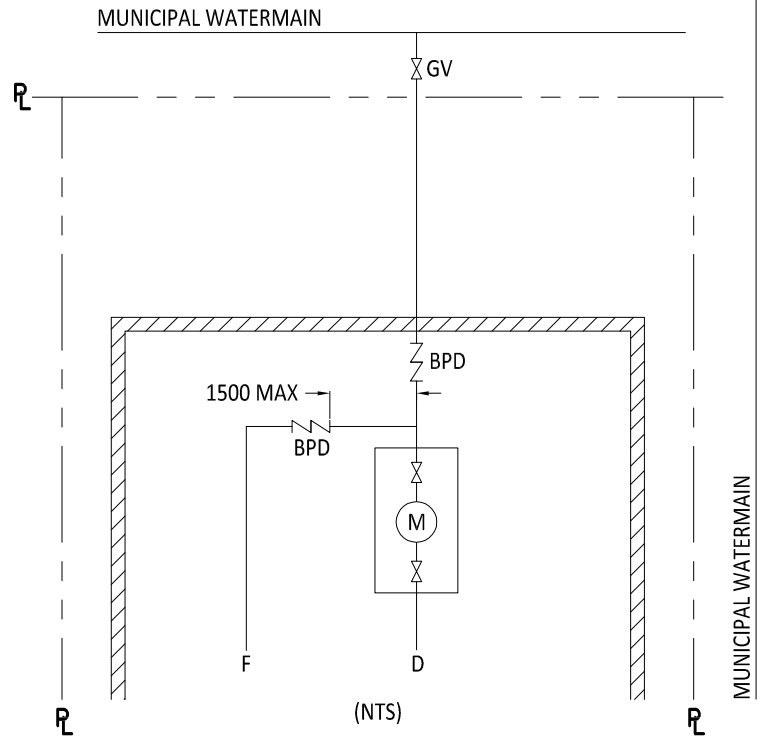
TOWN OF GIBSONS

STANDARD DETAIL DRAWINGS

EXTERIOR METER LOCATION



INTERIOR METER LOCATION



LEGEND:

- GV - GATE VALVE
- D - DOMESTIC LINE
- M - METER
- F - FIRE LINE
- BPD - BACKFLOW PREVENTER DEVICE
- FH - FIRE HYDRANT

NOTES:

1. THE BPD MUST BE WITHIN 1.5m OF THE DOMESTIC LINE CONNECTED TO A COMBINED SERVICE.
2. THE DIRECTOR OF ENGINEERING WILL DETERMINE WHAT OPTION IS USED.

TITLE : **TYPICAL INTERCONNECTED SERVICING WITH BACKFLOW PREVENTER ARRANGEMENTS**

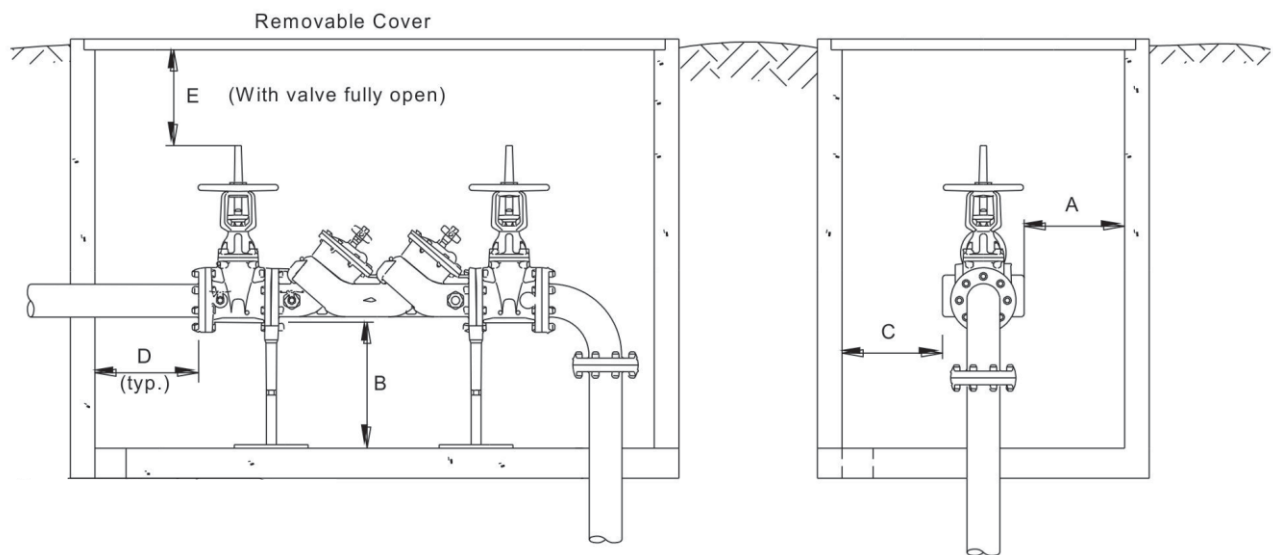
DWG. No. :

SS-W3



TOWN OF GIBSONS

STANDARD DETAIL DRAWINGS



SIDE ELEVATION

END ELEVATION

8mm Resilient seated full port stopcock or existing size as supplied on accepted device.

Test cocks point to be plugged if assembly is installed below ground.

Sump to be provided with discharge to ditch or storm sewer.

(See DWG No. SS-W4C for dimensions A,B,C,D & E)

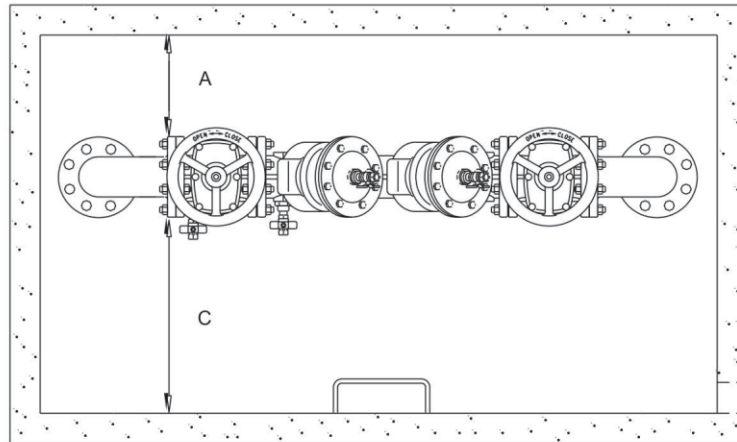
TITLE : MINIMUM CLEARANCE FOR ALL DOUBLE CHECK VALVE ASSEMBLY INSTALLATIONS

DWG. No. : SS-W4A

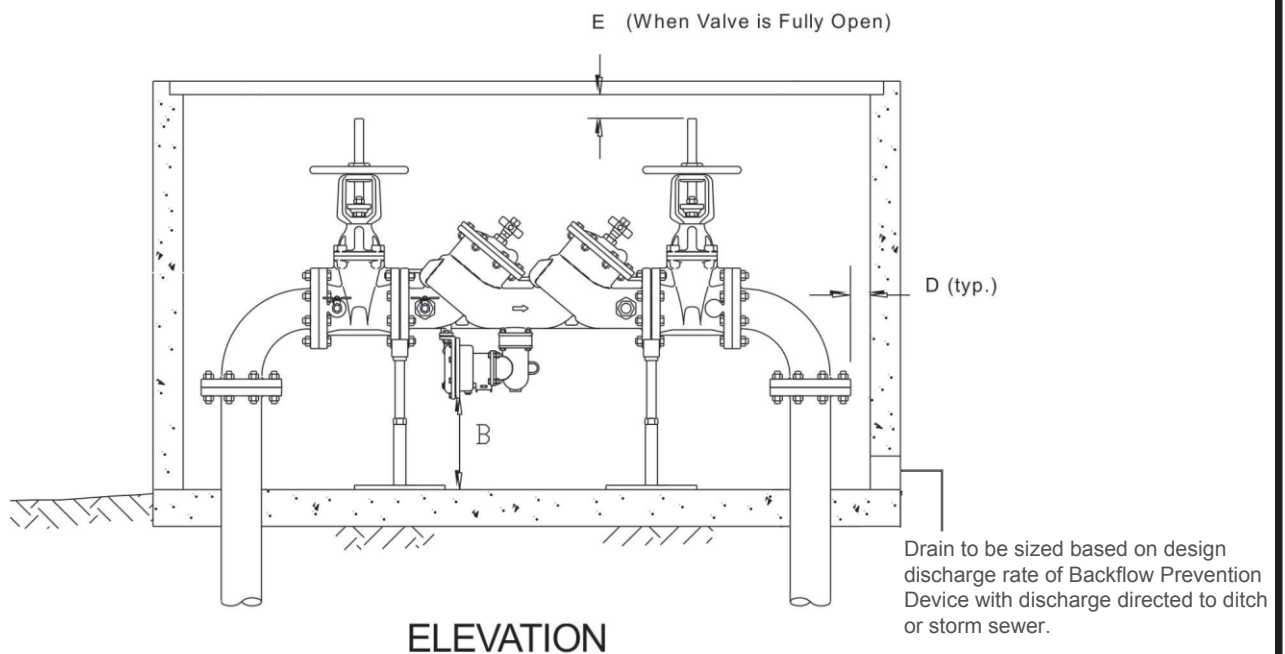


TOWN OF GIBSONS

STANDARD DETAIL DRAWINGS



PLAN



ELEVATION

(See DWG No. SS-W4C for dimensions A,B,C,D & E)

TITLE : MINIMUM CLEARANCES FOR
REDUCED PRESSURE PRINCIPAL ASSEMBLY
AND RPDA INSTALLATIONS

DWG. No. :

SS-W4B



TOWN OF GIBSONS

STANDARD DETAIL DRAWINGS

MINIMUM CLEARANCE DIMENSIONS FOR DOUBLE CHECK VALVE ASSEMBLY AND REDUCED PRESSURE PRINCIPAL ASSEMBLY FOR INSTALLATION, MAINTENANCE AND TESTING

Nominal Diameter of Device	A	B	C	D	E
20 mm- 40 mm	0.3 m	0.3m	0.6 m	75 mm	75 mm
50 mm- 75 mm	0.3 m	0.3 m	0.6 m	75 mm	75 mm
100 mm- 150 mm	0.3 m	0.3 m	0.6 m	75 mm	75 mm
200 mm- 250 mm	0.3 m	0.3 m	0.6 m	75 mm	75 mm

Notes :

1- CHECK MANUFACTURE'S LITERATURE FOR DEVICE DIMENSIONS.

2- When the upstream and downstream piping are not at the same level, clearance to be taken from the lowest pipe.

Maximum dimension: 1.3m

3- For installation, maintenance and testing, there shall be at least 0.6m of clear space in front of the test cocks and 0.3m of clear space between the back of the device and the wall or nearest permanent obstruction.

TITLE : **BACKFLOW PREVENTION DEVICE
MINIMUM CLEARANCE DIMENSIONS**

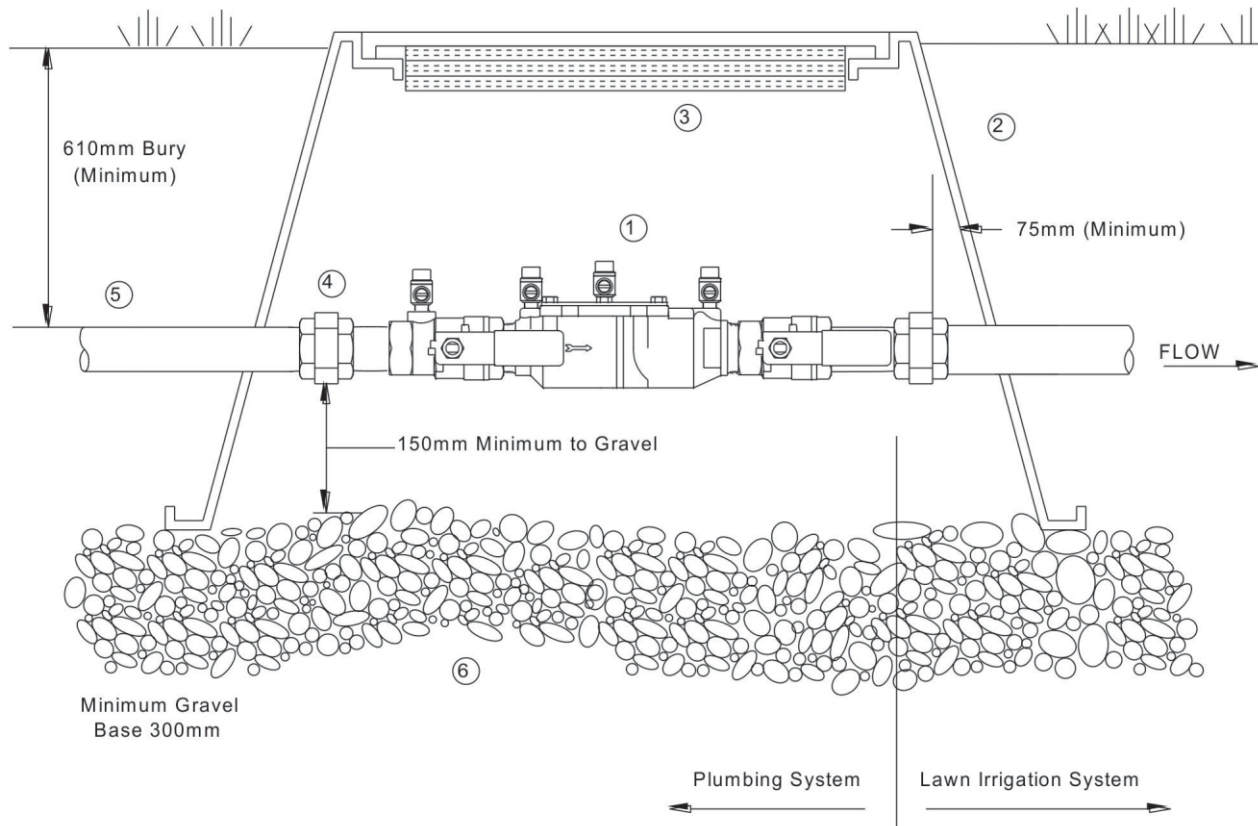
DWG. No. :

SS-W4C



TOWN OF GIBSONS

STANDARD DETAIL DRAWINGS



1. Hydraulically designed and "accepted" Double Check Valve Assembly.
All test cocks shall face upward and be plugged.
2. Plastic meter box, "Ametex" or approved equal. No union.
3. Rigid styrofoam insulation, 25mm minimum.
4. "Mueller 110" compression fitting or equal. No union permitted in piping;
to be maintained in line.
5. Upstream (potable water) piping shall be type "K" copper or polyethylene
only, per B.C. BUILDING CODE 1998, PART 7, PLUMBING SERVICES.
6. 20mm drain rock, minimum 300mm depth.
7. Connection to water service to be inspected by the Municipal Inspector
(Plumbing permit required).

Note : Backflow prevention device and box must be installed completely on private property

TITLE :

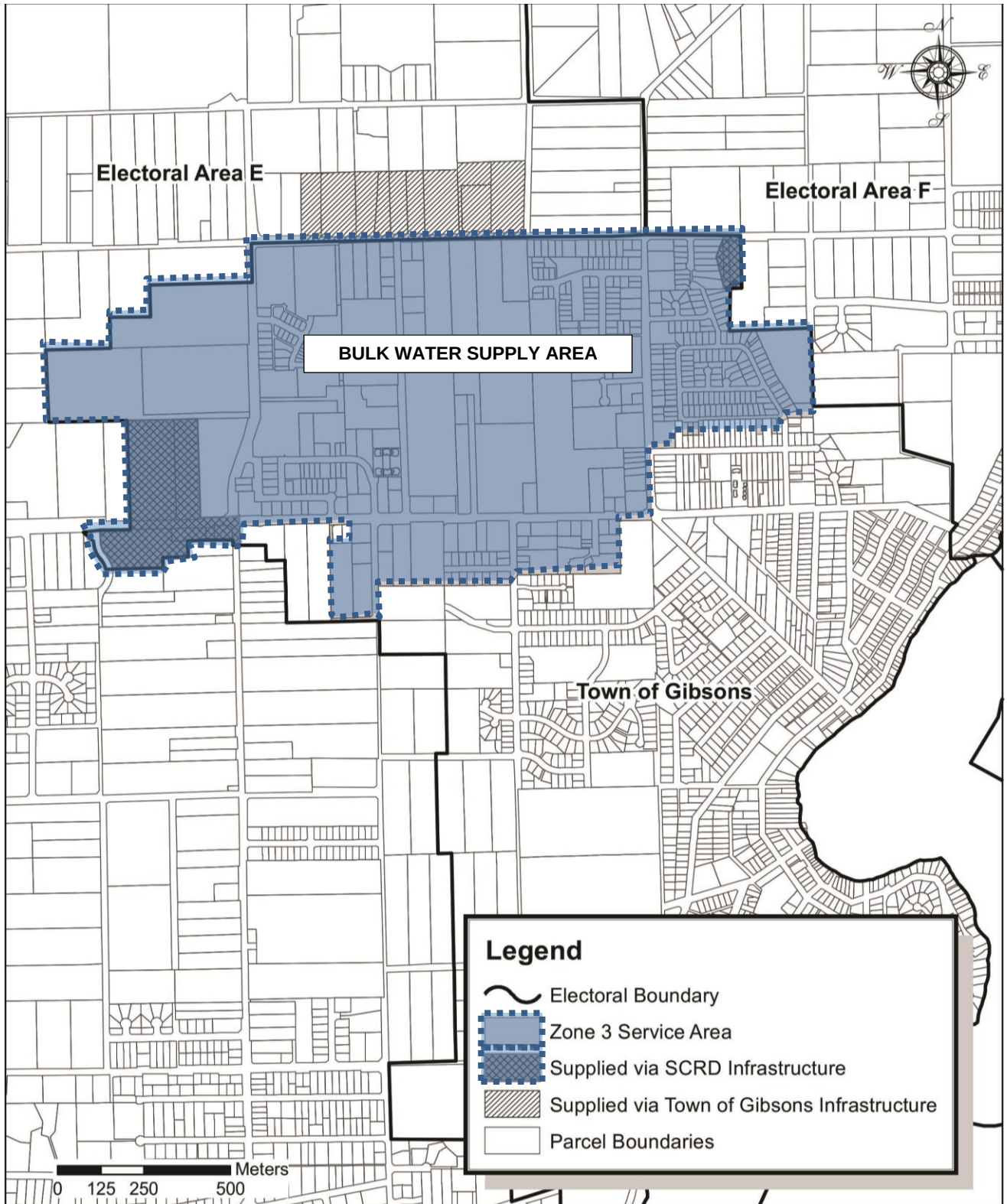
**IRRIGATION DOUBLE CHECK VALVE
ASSEMBLY INSTALLATION**

DWG. No. :

SS-W5

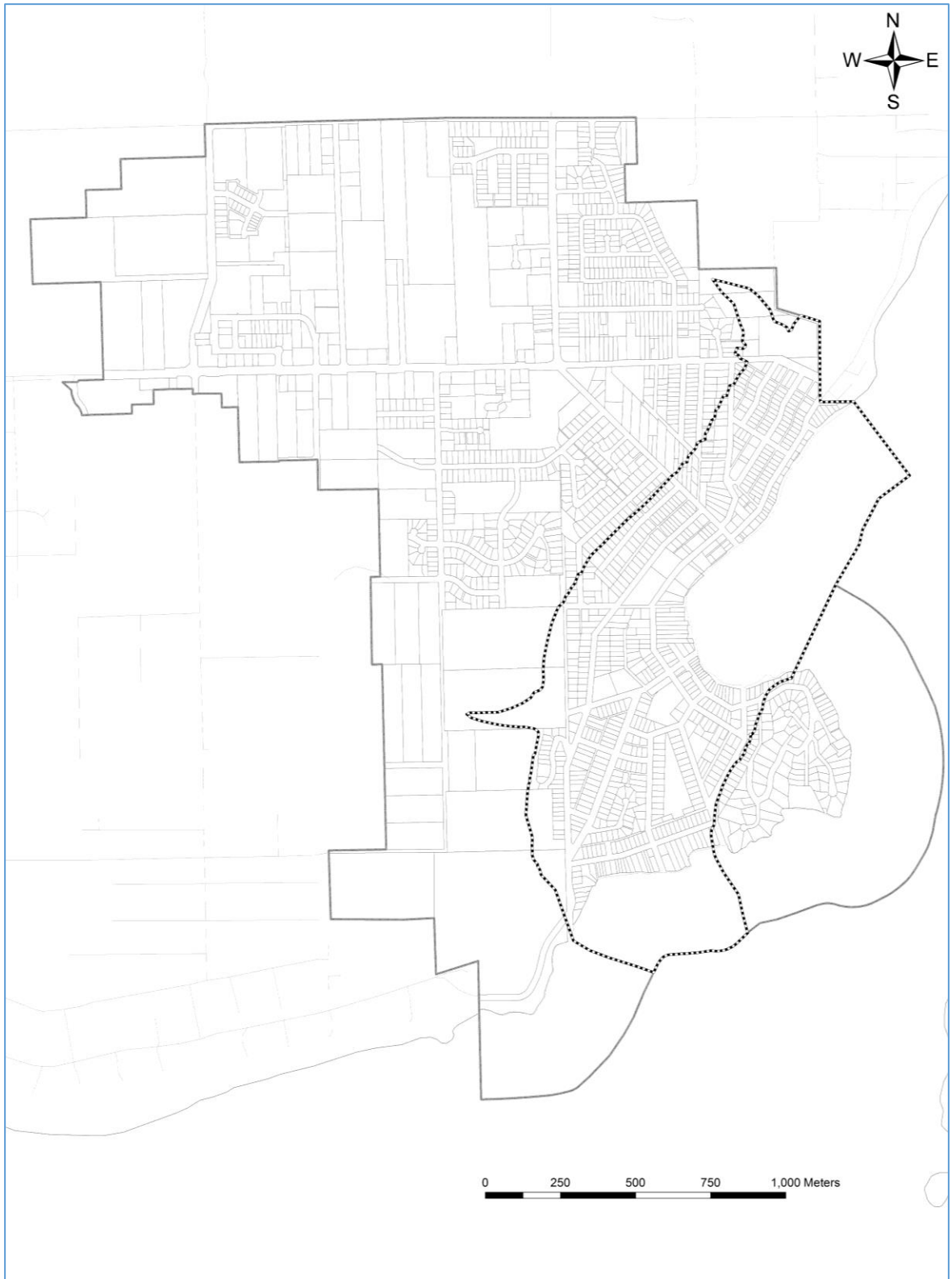
~SCHEDULE C~

BULK WATER SUPPLY AREA



~SCHEDULE D~

LOWER GIBSONS AQUIFER SUB AREA



~SCHEDULE E~

Proposed Drilling Program for *[enter project name]*

Submitted to: The Town of Gibsons

Date Issued: _____

PREPARED BY: *[The primary qualified professional consultant]*

CC: Town of Gibsons representative _____
Town's hydrogeology consultant _____
Drilling contractor _____
Barge Contractor (if applicable) _____
Other personnel on site (if applicable) _____

CONTACT LIST

EMERGENCY NUMBERS

Town of Gibsons Representative: *[Name, work phone number, cell phone number]*
Drilling Contractor Owner/Principal: *[Name, work phone number, cell phone number]*
Ambulance/Hospital **911**

Prime Consultant in Charge

Principal Consultant: *[Name, work phone number, cell phone number]*
Field Consultant: *[Name, work phone number, cell phone number]*

Town Hydrogeology Consultant

Principal Hydrogeologist: *[Name, work phone number, cell phone number]*
Field Hydrogeologist: *[Name, work phone number, cell phone number]*

SERVICE COMPANIES

Drilling Contractors: *[Name, work phone number, cell phone number]*
Grouting/Cement Contractor: *[Name, work phone number, cell phone number]*
Vacuum Truck: *[Name, work phone number, cell phone number]*
Waste Removal Contractor: *[Name, work phone number, cell phone number]*
Barge Operator: *[Name, work phone number, cell phone number]*
Other: *[Name, work phone number, cell phone number]*

TO BE POSTED ON SITE

~SCHEDULE E~

1 OVERVIEW

1.1 The purpose of subject the drilling program is to:

- *Provide summary of drilling program objectives*

1.2 As outlined in the Town of Gibsons Development Permit Area Guidelines, the proposed drilling area is underlain by a known artesian aquifer (the Gibson Aquifer) and therefore an increased standard of care is needed to protect the aquifer.

- *Describe location of site relative to the mapped Gibsons Aquifer and or to the Town Wells*

1.3 [Primary Contractor] envisage that the following risks would be involved in the proposed drilling program:

- *Outline the risks related to drilling in artesian conditions. Refer to BC MoE Flowing Artesian Wells document available at:*

http://www.env.gov.bc.ca/wsd/plan_protect_sustain/groundwater/flowing_artesian_wells.pdf)

- *Examples:*

- *Uncontrolled artesian flow if aquitard is breached.*
- *Development of a sink hole if artesian flow is left unattended or site worker are unprepared to mitigate the flow.*
- *Impact on the Town of Gibsons' water wells if the aquifer is breached and left unsealed.*
- *Potential loss of aquifer pressure if the aquifer is breached and not sealed properly.*
- *Barge drilling risks (if applicable).*
- *Etc.*

1.4 Table 1 summarizes the proposed drilling program with anticipated depth, location, and decommissioning plan. The proposed borehole locations are shown on [e.g. Figure 1].

Table 1: Example table of proposed borehole details

Borehole Name	Location	Planned Depth	Decommission Plan
			<i>[e.g. decommission, install standpipe, etc]</i>

~SCHEDULE E~

2 PRE-DRILLING REQUIREMENTS

2.1 The following must be established prior to drilling commencement:

- Knowledge and understanding of British Columbia's Groundwater Protection Regulation
 - (http://www.bclaws.ca/Recon/document/ID/freeside/11_299_2004)
- WorkSafe BC program
 - *List site specific H&S requirements, special considerations (e.g., life jackets worn at all times if drilling on barge).*
- Permit Requirements:
 - *e.g. Town of Gibsons Development Permit, Ministry of Environment, Department of Ocean and Fisheries, if applicable*
- Driller certification:
 - *List training courses for the drillers that will be conducting the subject drilling program are attached (include in appendix).*
- All rig lifting equipment, and overhead equipment must be certified to the Original Equipment Manufacturers Specifications (OEM).
 - *Provide statement*
- Casing handling and running procedures:
 - *To be provided by the drilling contractor. May be included in appendix*
- Certificate of Insurance and WorkSafe BC letter are attached
 - *Include in appendix.*
- Drill rig specifications are attached
 - *Include in appendix.*
- Additional pre-drilling requirements:
 - *Refer to BC MoE Flowing Artesian Wells document. May be included in appendix.*

~SCHEDULE E~

3 RIG MOVE, RIG UP AND SITE SAFETY

3.1 The following procedures site safety provisions must be followed in mobilizing, set up and operation of the drilling rig:

- *Provide procedures, e.g.:*
 - *Drilling contractor to contact prime consultant in change the day before mobilization to site to confirm site and drill is ready. If drilling with a barge, confirm barge location and condition.*
 - *Move in and rig up drilling rig and auxiliary equipment on site (or onto the barge if applicable). Prior to initiating drilling, carry out detailed rig inspection and report any unsafe conditions to prime consultant.*
 - *Hold a pre-drilling safety meeting with the rig crew and all consultants on site to discuss the Hazardous Operations and drilling program.*
 - *Certified driller to be onsite at all times during drilling.*

4 GENERAL DRILLING PROCEDURES

4.1 Roles and responsibilities:

- *Describe roles and responsibilities of all personnel on site*

4.2 Methodology of data and sample collection:

- *Describe roles and responsibilities of all personnel on site. For example:*
 - *Prime field consultant and Town's hydrogeology consultant to be onsite to collect formation cutting samples every (XX) m from surface. Formation cuttings samples to be collected and retained every (XX) m in the zone of interest for each well.*
 - *Additional data collection during drilling (e.g. standard penetration tests, electrical conductivity, groundwater levels or pressures, artesian flow rates, airlift rates etc.)*

4.3 Drilling Details

4.3.1 Borehole #####

- *Provide details on each proposed borehole, e.g.:*
 - *Borehole will be drilled vertically to approximately (XX) m and logged by the prime field consultant. The actual total depth of borehole will be finalized in the field based on subsurface conditions, cutting samples and geophysical logs (if applicable).*

~SCHEDULE E~

- *Drilling contractor to drill and install the (XX)-inch surface casing conductor to the top of the aquitard, approximately (XX) m below ground (based on nearest drilled borehole or well record).*
- *Drilling contractor to drill and install (XX)-inch production casing by telescoping through surface casing.*
- *Fit conductor with annular diverter over surface casing in order to control artesian flow.*
- *Drilling rate should be sufficiently slow to allow for the collection of core samples by prime field consultant.*
- *Prime field consultant to complete geological logging, various geotechnical measurements (pressure, flow, salinity, etc...).*
- *Town's hydrogeology consultant to observe process and assist wherever possible.*
- *Measure water levels and electrical conductivity between drill runs.*
- *If the aquifer soil (which is understood to comprise coarse grained sand and/or gravel) and/or artesian pressures or fresh water are encountered, borehole to be abandoned immediately or completed as a monitoring well (piezometer), as described below.*
- *Refer to BC MoE Flowing Artesian Wells document for guidance.*
- *Must provide details describing control*

4.3.2 Monitoring Well / Piezometer Installation Details (If Required)

- *Refer to BC MoE Flowing Artesian Wells document for guidance.*
- *Explain in detail how the well will be completed and sealed to ensure no leakage through well cap, annular space or surface casing.*
- *Include details including: materials to be provided on site (pvc, screens, pressure gauge, barite, bentonite, cement, etc.), anticipated grout or cement mixtures to be used, well head completion details.*
- *Include how the well will be verified and monitored to ensure it remains sealed.*

4.3.3 Borehole Abandonment Program (Artesian Flowing Well Bore)

- *Describe all planned abandonment details including: maintaining control of artesian flow, grout mixture to be used.*
- *Method of placing grout/cement into borehole (pressure grouting, tremie line system etc.)*
- *Confirm that cement/grout has set and sealed before moving off of location.*

~SCHEDULE E~

- *If borehole drilled in foreshore, final abandonment to be completed by cutting of the casing at the seabed so as not to create a navigation hazard.*

4.3.4 Borehole Abandonment Program (Non-artesian Flowing Well Bore)

- *Describe all planned abandonment details including grout mixture or bentonite to be used.*
- *Method of placing grout/cement into borehole (pressure grouting, tremie line system etc.)*
- *Confirm that grout or bentonite has set and sealed before moving off of location.*
- *If borehole drilled in foreshore, final abandonment to be completed by cutting of the casing at the seabed so as not to create a navigation hazard.*

5 FIELD PACKAGE

- The following documents are attached:
 - *Proposed borehole/well location plan*
 - *Site specific Health and Safety Plan*
 - *Drilling Contractor Materials (procedures, rig equipment and operation)*
 - *Permits*
 - *Utility clearances*
 - *BC MoE Flowing Artesian Well Document*
 - *Any other relative documentation.*
 - *Other relative documentation.*

~SCHEDULE F~

SUBSURFACE EXPLORATION

Table 1

Subsurface Investigation Summary

Completed by: _____

Project: EXAMPLE

DATE: _____

A	Number (Test Pit, Well, borehole, etc...)	TP-1
B	Subsurface Disturbance Type (from Table 2)	Test Pit
C	Method of exploration (from Table 3)	Hand Auger
D	Northing (m)	463048.7
E	Easting (m)	547081.4
F	Ground Elevation (m amsl)	22.53
G	Proposed testing depth below ground (m)	5
H	Previously Encountered Depth to top of Gibsons Aquitard (ie: Till-Like Soil (m))	4.0
I	Previously Encountered Depth to top of Gibsons Aquifer (ie: Sand and gravel with Artesian flow (m))	6.0
J	Distance of existing subsurface information to proposed new intrusive work (m)	20.0
K	Report Reference for previous work to support new proposed work (Copies of original logs/records should be attached)	Consultant X Report 2017
L	Estimated depth offset to top of Gibson Aquitard Row H minus Row I (m, + if above and - if below)	-1.0
M	Estimated depth offset to top of Gibson Aquifer Row L minus Row G (m, + if above and - if below)	1.0
N	Comment on uncertainty and potential risk to aquifer	Existing data far from new location, heterogeneous soils, subsurface disturbance expected to breach aquitard, encroaching on aquifer, risk is judged to be moderate to high
O	Describe Aquifer Protection measures to be implemented	Drill with sealed surface casing to maintain well control. re-seal aquitard with bentonite

Table 1

Subsurface Investigation Summary

Project: _____ DATE: _____ Completed by: _____

A	<i>Number (Test Pit, Well, borehole, etc...)</i>			
B	<i>Subsurface Disturbance Type (from Table 2)</i>			
C	<i>Method of exploration (from Table 3)</i>			
D	<i>Northing (m)</i>			
E	<i>Easting (m)</i>			
F	<i>Ground Elevation (m amsl)</i>			
G	<i>Proposed testing depth below ground (m)</i>			
H	<i>Previously Encountered Depth to top of Gibsons Aquitard (ie: Till-Like Soil (m))</i>			
I	<i>Previously Encountered Depth to top of Gibsons Aquifer (ie: Sand and gravel with Artesian flow (m))</i>			
J	<i>Distance of existing subsurface information to proposed new intrusive work (m)</i>			
K	<i>Report Reference for previous work to support new proposed work (Copies of original logs/records should be attached)</i>			
L	<i>Estimated depth offset to top of Gibson Aquitard Row H minus Row I (m, + if above and - if below)</i>			
M	<i>Estimated depth offset to top of Gibson Aquifer Row L minus Row G (m, + if above and - if below)</i>			
N	<i>Comment on uncertainty and potential risk to aquifer</i>			
O	<i>Describe Aquifer Protection measures to be implemented</i>			

Table 2
Subsurface Disturbance Type

Borehole
Monitoring Well
Standpipe
Piezometer
water well
Test Pit
Hand Excavation
Pushing or driving (Piles or samplers)
Other

Table 3
Method of Exploration

Core
Solid Stem Auger
Hollow Stem Auger
Hand Auger
Rotary with sealed casing
Rotary with no casing
Hydrovac
Backhoe
Drive Point
Cone penetrometer (DCPT or other)
Hand or tube surface sample
Other

~SCHEDULE G~

OUTDOOR WATER USE RESTRICTIONS

OUTDOOR WATER USE RESTRICTIONS				
	Stage 1	Stage 2	Stage 3	Stage 4
Water Supply Level	Normal	Moderate	Acute	Severe
Sprinkling or soaker hose for lawns, trees, shrubs, flowers and vegetables	Even addresses: Tues, Thurs, Sun 7:00 to 9:00 a.m. and 7:00 to 9:00 p.m. Odd addresses: Mon, Wed, Sat 7:00 to 9:00 a.m. and 7:00 to 9:00 p.m.	Even addresses: Thurs, Sun 7:00 to 9:00 a.m. Odd addresses: Wed, Sat 7:00 to 9:00 a.m.	Not allowed	Not allowed
Micro/drip irrigation (25 psi or less) for trees, shrubs, flowers and vegetables	OK at any time	OK at any time	OK at any time	Not allowed
Sprinkling unestablished new lawns beyond allowable times.	By permit only, must be displayed on lawn	As per existing permit. No new permits issued	Not allowed	Not allowed
Hand watering lawns	OK at any time, ONLY with container or spraytrigger nozzle	OK at any time, ONLY with container or spraytrigger nozzle	Not allowed	Not allowed
Hand watering trees, shrubs, flowers and vegetables	OK at any time, ONLY with container or spraytrigger nozzle	OK at any time, ONLY with container or spraytrigger nozzle	OK at any time, ONLY with container or spraytrigger nozzle	Not allowed
Washing vehicles or boats	OK at any time, ONLY with container or spraytrigger nozzle	OK at any time, ONLY with container or spraytrigger nozzle	Not allowed except for washing salt water from equipment	Not allowed
Washing sidewalks and driveways, windows, fences or exterior building surfaces	OK at any time, ONLY with container or spraytrigger nozzle	Not allowed except pressure washing to prep for paint, etc. or as required by law for health/safety	Not allowed except as required for health/safety	Not allowed except as required for health/safety
Filling swimming pools, spas, garden ponds, decorative fountains	OK	OK	Not allowed	Not allowed