Subdivision and Development Standards Bylaw, 2014

THE CORPORATION OF THE DISTRICT OF SOOKE

BYLAW NO. 404, *SUBDIVISION AND DEVELOPMENT STANDARDS BYLAW, 2014*

ADOPTED: OCTOBER 14, 2014

CONSOLIDATED FOR REFERENCE
APRIL 11, 2023

BYLAW NO. 404, SUBDIVISION AND DEVELOPMENT STANDARDS BYLAW, 2014
SUBDIVISION AND DEVELOPMENT STANDARDS AMENDMENT BYLAW NO. 768 (404-1), 2019
SUBDIVISION AND DEVELOPMENT STANDARDS AMENDMENT BYLAW NO. 832 (404-02), 2021
SUBDIVISION AND DEVELOPMENT STANDARDS AMENDMENT BYLAW NO. 875 (404-03), 2023

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Note: Schedule: “Application Fees” deleted by Bylaw No. 768 (404-1), 2019 and subsequent schedules renumbered.

DISTRICT OF SOOKE

BYLAW NO. 404

A Bylaw to regulate and require the provision of works and services in respect of the subdivision and development of land in the District of Sooke.

The Council of the District of Sooke, in open meeting assembled, enacts as follows:

1.0 CITATION

1.1 This Bylaw is the *Subdivision and Development Standards Bylaw, 2014*.

2.0 APPLICATION OF BYLAW

2.1 This Bylaw applies to all land, buildings and structures within the geographical area incorporated as the District of Sooke.

2.2 As a condition of

(a) the approval of a subdivision, or
(b) the issuance of a building permit

the Owner of the land must provide Works and Services in accordance with the standards established in this Bylaw on the land being subdivided or on which the building permit is authorizing the construction or placement of a building, and on that portion of a highway immediately adjacent to the site being subdivided or developed.

2.3 No statutory rights of way on private property for District of Sooke utility services are permitted without the approval of the Municipal Engineer.

2.4 Unless exempted by the Municipal Engineer, based on the minor extent of servicing required, the Owner must retain, at the Owner's expense, a Professional Engineer who must be responsible for the design, layout, approval of materials, field reviews of installation, communication with the Contractor, information for and certification of as-built drawings and documents, for all services that are the responsibility of the Owner under this Bylaw.

2.5 This Bylaw must be used in conjunction with the Schedules to this Bylaw, and the District of Sooke *Fees and Charges Bylaw*, *Official Community Plan,* and *Sooke Zoning Bylaw*. *[amended by Bylaw No. 768 (404-1), 2019]*

2.6 Users of this Bylaw are advised that they should also be knowledgeable about the requirements of other applicable enactments including without limitation the:

a) *Land Title Act;*
b) *Local Government Act*;
c) *Community Charter;*
d) *Strata Property Act* and *Bare Land Strata Regulations*;
e) Agricultural Land Commission Act;
f) Real Estate Development Marketing Act;
g) *Land Survey Act;*
h) Private Managed Forest Land Act;
i) Environmental Management Act;
j) *Transportation Act;*
k) *Builders Lien Act;*
l) *Water Act.*

3.0 SEVERABILITY

No provision of this Bylaw depends for its validity on any other provision and if any section, subsection, clause, sub-clause or phase of this Bylaw is for any reason held to be invalid by the decision of any court of competent jurisdiction, such decision will not affect the validity of the remaining portions of this Bylaw.

4.0 INTERPRETATION

4.1 Unless otherwise defined in this Bylaw, a word or expression in this Bylaw has the meaning assigned to it in the *Local Government Act* or *Interpretation Act*, or in the *Community Charter* or *Land Title Ac*t if not defined in the *Local Government Act* or *Interpretation Act*.

4.2 Schedules 1 to 9 form a part of this Bylaw. *[amended by Bylaw No. 768 (404-1), 2019]*

4.3 In this Bylaw,

ACCEPTANCE means acceptance of the Works and Services other than landscaping by the Municipal Engineer when all deficiencies are rectified, as-constructed documentation is provided, the Owner's Professional Engineer certifies that all Works and Services have been constructed as approved by the Municipal Engineer, and required securities are in place; all in accordance with this Bylaw. Acceptance for the purposes of landscaping means acceptance of the landscaping by the Municipal Engineer, following completion of the required one year maintenance period by the Developer;

APPLICANT means an Owner of land who applies for approval to subdivide or develop that land and includes an agent duly authorized in writing by the Owner;

BC CODE and BC REGULATION means the British Columbia *Building and Plumbing Code* and the British Columbia *Fire Code*;

COLLECTOR ROAD means a road designated as a collector road in the Complete Street Network Map Schedule 3 R410*;*

CONSTRUCTION COMPLETION CERTIFICATE (CCC) means the certificate issued by the Professional Engineer to the District of Sooke requesting acceptance of the completed Works and Services, excepting only minor deficiencies, such that the respective Works and Services have been fully tested, are functional and can be used for their intended purpose, all to the satisfaction of the Municipal Engineer;

CONTRACTOR is the person, firm or corporation under contract with the owner of land being subdivided or developed to provide labour, equipment and or materials for the execution of the works required by this Bylaw;

CUL-DE-SAC means a vehicular turning area at the end of a highway of which one end is designed to be permanently or temporarily closed to motor vehicles;

DEVELOPMENT or DEVELOPED means to improve multi family residential, commercial, industrial, institutional or agricultural lands, highways or rights-of-way, including the construction or alteration of a building as authorized by a building permit;

FINAL ACCEPTANCE CERTIFICATE (FAC) means the certificate issued by the Professional Engineer to the District of Sooke requesting final acceptance of the Works and Services at the end of the Maintenance Period for each phase of the Works and Services and certifying that all outstanding deficiencies with respect to the Works and Services have been remedied in accordance with this Bylaw to the satisfaction of the Municipal Engineer;

FINAL SUBDIVISION APPROVAL means the Approving Officer's approval of a subdivision plan or bare land strata plan;

FRONTAGE means frontage as defined in Bylaw No. 600, *Sooke Zoning Bylaw, 2014;*

FRONTAGE IMPROVEMENTS means works described in Schedules 2 through 8 of this Bylaw. *[amended by Bylaw No. 768 (404-1), 2019]*

HIGHWAY means a highway as defined in the *Transportation Act*;

LOCAL ROAD means a road designated as a local road under the Complete Street Network Map Schedule 3 R410*;*

LOT means any lot, block, or other area in which real property is held or into which real property is subdivided, and includes a strata lot created under the *Bare Land Strata Regulations* pursuant to the *Strata Property Act*, but specifically excludes any other strata lot created pursuant to the *Strata Property Act;*

LOT LINE ADJUSTMENT means a subdivision to adjust or alter the existing boundaries between legally defined parcels of land that does not create additional lots;

LOT WIDTH – means lot width as defined in Bylaw No. 600, *Sooke Zoning Bylaw, 2014*;

MAINTENANCE PERIOD means a one year period commencing on the date of the acceptance of the Construction Completion Certificate, and terminating with the acceptance of the Final Acceptance Certificate during which the Owner is required to remedy defects and deficiencies in the Works and Services or a defined portion of the Works and Services;

MASTER MUNICIPAL CONSTRUCTION DOCUMENTS means the Municipal Infrastructure Design Guideline Manual and the Master Municipal Specifications and Standard Detail Drawings in Volume II of the Platinum Edition of the Master Municipal Construction Documents (2009) published by the Master Municipal Construction Documents Association, and includes:

a) the definitions of such terms used in the Master Municipal Specifications and Standard Detail Drawings as are set out in the General Conditions in Volume II; and

b) all documents supplemental to the Master Municipal Specifications, the Standard Detail Drawings and the relevant definitions set out in the General Conditions that are issued from time to time by the Association,

but excludes all references to measurement and payment in the Master Municipal Specifications;

MEDICAL HEALTH OFFICER means the Medical Health Officer for Island Health;

MUNICIPAL ENGINEER means the Professional Engineer appointed from time to time by Council to perform duties under this Bylaw, or any person authorized to act on his or her behalf;

MUNICIPAL UTILITY means any District of Sooke system having facilities installed in a highway or right-of-way for the purpose of providing a service to property, including water distribution, sewage and drainage collection, and street lighting systems;

MUNICIPAL SEWER SYSTEM means the network of pipes and infrastructure placed so as to receive and convey sewage from parcels of land to a treatment facility, which system is owned and operated, by or on behalf of the District of Sooke;

ON-SITE WORKS AND SERVICES means the Works and Services located within the boundaries of the lot being subdivided or developed and not located within a dedicated highway;

OWNER in respect of real property means the registered Owner of an estate in fee simple, and includes:

a) the tenant for life under a registered life estate;
b) the registered holder of the last registered agreement for sale;
c) the holder or occupier of land held in the manner mentioned in sections 356 and 357 of the *Local Government Act*;

PARCEL means a Lot;

POTABLE WATER means water which meets the standards contained in the latest edition of the "*Guidelines for Canadian Drinking Water Quality"* and meets the water quality requirements set out in Schedule 6; *[amended by Bylaw No. 768 (404-1), 2019]*

PRELIMINARY LAYOUT ASSESSMENT means written notification of the review of information presented to the Approving Officer prior to submission of a subdivision or strata plan for final approval;

PRIVATE UTILITY means any system having facilities installed in an easement, common property or right-of-way for the purpose of providing a service to property by an

entity other than a local government, including water distribution, sewage and drainage collection, street lighting, electric power distribution, telephone, cable television, and gas distribution systems;

PROFESSIONAL ENGINEER means a person who is registered or licenced as a professional engineer registered under the *Engineers and Geoscientists Act* and retained by the Owner to design, supervise and certify the construction and installation of Works and Services required by this Bylaw;

ROAD means a highway that affords a means of vehicular access to abutting lots;

ROADWAY means the portion of a road that is improved, designed and used for vehicular traffic;

RURAL AREA means that part of the District of Sooke that is not an Urban Area or a Suburban Area;

SECURITY means a cash deposit or clean, unconditional irrevocable letter of credit issued by a Canadian Chartered Bank or Credit Union to ensure the completion of Works and Services required by this Bylaw;

SERVICE LEVEL means the standard of services required for development or subdivisions;

SIDEWALK and TRAIL means a highway or area of land for pedestrian or bicycle traffic only, except that a sidewalk or trail may be designed to afford emergency vehicle use;

SSA means the **Sooke Core Sewer Specified Area** under Bylaw No. 147, *Sooke Core Sewer Specified Area Bylaw, 2003;*

STREET TREE means any tree located within a highway;

SUBDIVISION means the division of land into two or more lots whether by plan, descriptive words, or otherwise, but excludes a strata plan which is not a bare land strata plan. It also includes lot line adjustments;

SUBDIVISION APPROVAL means approval of the subdivision of land granted by the Approving Officer when all relevant requirements of this Bylaw, the *Land Title Act*, the *Local Government Act* and any other relevant Bylaws and enactments have been fulfilled;

SUBURBAN AREA means the area within the community growth boundary designated in the *Official Community Plan* that is not designated as the Urban Area on the servicing areas map SDD-AP01 in Schedule 1;

SUBSTANTIAL COMPLETION means completion of the Works and Services, excepting only minor deficiencies, such that the respective Works and Services have been fully tested, are functional and can be used for their intended purpose, in accordance with this Bylaw as determined by the Municipal Engineer;

SURVEYOR means a land surveyor licenced and registered as a land surveyor in the Province of British Columbia;

TOWN CENTRE means the area of the District of Sooke that is designated as Town Centre in the *Official Community Plan*;

URBAN AREA means the area shown as such on the servicing areas map SDD-AP01 in Schedule 1;

WATERCOURSE means any man-made or natural drainage course or source of water, whether usually containing water or not, and includes any lake, river, stream, creek, spring, ravine, swamp or gulch;

WATER UTILITY means the entity or successor entity providing the retail water supply in the District of Sooke, and includes the Capital Regional District Water Services and the Kemp Lake Waterworks District;

WORKS AND SERVICES means those works and services to be provided for in relation to the subdivision and development of land under this Bylaw, including but not limited to roadways, lanes, drainage, water and sewer systems, earthworks, slope stabilization, sidewalks, walkways, boulevards, landscaping, street lighting, underground/overhead wiring, and includes works and services whether on highways, rights of way or common property.

WORKS AND SERVICES AGREEMENT means an agreement between the District of Sooke and the Owner in accordance with s. 940 of the *Local Government Act* that Works and Services will be completed to service a subdivision or development by a date specified in the agreement and that sufficient security has been provided to the District of Sooke to secure the construction of those works.

ZONE means a zone established by the District of Sooke Zoning Bylaw.

5.0 INCORPORATION OF DOCUMENT BY REFERENCE

The *Master Municipal Construction Documents* are hereby incorporated by reference into and form part of this Bylaw, except to the extent that they are inconsistent with a specific provision of the Bylaw.

6.0 APPLICATION FOR APPROVAL

6.1 Under the procedures set out in **Schedule 1 – Application Procedures**, an Owner of land may apply to the District of Sooke:

a) to subdivide a parcel of land; and,
b) to develop a parcel of land.

6.2 An application must:

a) be signed by the Owner of each parcel of land that is the subject of the application or by a person authorized in writing by the Owner to act as his or her agent for the purpose of making the application;
b) be made in writing on the application forms prescribed by the Approving Officer or Chief Administrative Officer;
c) include the information required under this Bylaw; and
d) be accompanied by the applicable fees set out in the District's *Fees and Charges Bylaw*. *[amended by Bylaw No. 768 (404-1), 2019]*

7.0 APPROVING OFFICER

7.1 Council delegates to the Approving Officer the powers, duties and functions of Council under the following sections of the *Local Government Act*:

a) section 938(4), (5), (6) and (7) [Subdivision servicing requirements];

b) section 939(2) and (5) [Excess or extended services and latecomer payments] ; and

c) section 944(1) [Parcel frontage on highway].

7.2 The delegation to the Approving Officer in section 7.1(a) of this Bylaw, is subject to the following:

a) full frontage improvements are required in accordance with this Bylaw in relation to the approval of any subdivision;

b) for any subdivision outside of the Urban Area as defined in Schedule 1 to this Bylaw which creates three or fewer new lots, servicing for water, sanitary sewer and rain water management in accordance with this Bylaw must be provided as per the existing standard prevailing on adjacent lands as determined by the Municipal Engineer, and any required road dedication must be secured either by immediate dedication or some form of legal mechanism for future dedication;

c) for any lot line adjustment subdivisions, no frontage improvements will be required and any required road dedication must be secured either by immediate dedication or some form of legal mechanism for future dedication;

d) no frontage improvements will be required if improvements of that type already exist and are in a condition that the Municipal Engineer determines to be acceptable;

e) frontage improvements need not be provided if it is physically impossible to provide them due to the topography or composition of the land;

f) the Approving Officer may permit the provision of a cash-in-lieu of construction of the frontage improvements required under this Bylaw where the frontage improvements can be more efficiently or economically provided as part of other works and services that are planned for the future, and for that purpose the Municipal Engineer may require the applicant to provide a Professional Engineer's estimate of the cost of the frontage improvements required under this Bylaw.

7.3 Unless a power, duty or function of Council has been expressly delegated by this Bylaw all of the powers, duties and functions of Council remain with Council.

7.4 For certainty, a person to whom a power, duty or function has been delegated under this Bylaw has no authority to further delegate the power, duty or function to another person.

8.0 BYLAW COMPLIANCE

8.1

a) Every person who contravenes a provision of this Bylaw, or who consents, allows or permits an act or thing to be done in violation of a provision of this Bylaw, or who neglects or refrains from doing anything required by a provision of this Bylaw, commits

an offence punishable upon summary conviction and is liable to a fine not exceeding $10,000 and costs of prosecution.

b) Each day that an offence exists or continues under this Bylaw constitutes a separate and distinct offence.

9.0 TRANSITION

9.1 A completed application for a building permit which is received prior to the adoption date of this Bylaw will be processed in accordance with Bylaw No. 65, *Subdivision and Development Standards Bylaw, 2003* if the building permit is issued within 12 months of the adoption date of this Bylaw.

10.0 REPEAL

10.1 District of Sooke Bylaw No. 65, *Subdivision and Development Standards Bylaw, 2003,* is repealed except to the extent required for the purposes of section 9.2.

10.2 District of Sooke Bylaw No. 546, *Delegation of Exemption from Minimum Frontage Requirement Bylaw, 2012* is repealed.

10.3 Sections 7.1, 7.3, 7.4 and 7.5 of District of Sooke Bylaw No. 474, *Delegation Bylaw, 2010* are repealed.

Introduced and read a first time the 6th day of October, 2014.

Read a second time the 6th day of October, 2014.

Read a third time the 6th day of October, 2014.

Adopted on the 14th day of October, 2014.

"original signed by:"

Wendal Milne
Mayor

"original signed by:"

Bonnie Sprinkling
Corporate Officer

SCHEDULES

Schedule 1	Application Procedures
Schedule	Application Fees *[deleted by Bylaw No. 768 (404-1), 2019]*
Schedule 2	Submission Standards
Schedule 3	Road Design and Construction
Schedule 4	Sanitary Sewerage Systems
Schedule 5	Rain Water Management
Schedule 6	Water Servicing
Schedule 7	Sidewalks and Trails
Schedule 8	Street Trees
Schedule 9	Electrical, Telephone, Street Lighting and other services supplied through wires

Note: Schedule: “Application Fees” deleted by Bylaw No. 768 (404-1), 2019 and subsequent schedules renumbered.

SCHEDULE 1

APPLICATION PROCEDURES

1.0 GENERAL

1.1 An Applicant for a subdivision or development may request a pre-design meeting prior to submitting an application under this Bylaw.

1.2 The Works and Services required under this Bylaw, specific to the Servicing Areas noted on Supplemental Detail Drawing SDD-AP01 of this Schedule, must be completed prior to final subdivision approval or issuance of a building permit.

2.0 APPLICATION FOR PRELIMINARY LAYOUT ASSESSMENT

2.1 An Applicant wishing to subdivide land including by lot line adjustment, and applying for a preliminary layout assessment of the subdivision, must pay the applicable fees set out in the District's *Fees and Charges Bylaw*. *[amended by Bylaw No. 768 (404-1), 2019]*

3.0 PHASED STRATA OR STRATA CONVERSION

3.1 Applications for approval of a phased strata plan declaration or strata conversion must be accompanied by applicable fees in accordance with Schedule 2.

4.0 APPLICATION FOR BUILDING PERMIT

4.1 An Applicant wishing to apply for a building permit, must do so in accordance with the District of Sooke *Building Regulation Bylaw* and this Bylaw and pay the applicable fees set out in the District's *Fees and Charges Bylaw*. *[amended by Bylaw No. 768 (404-1), 2019]*

4.2 For any commercial, industrial or institutional building permit which authorizes the construction of one or more new buildings or alterations to an existing building which are valued at more than 20% of the assessed value of the building, full frontage improvements are required in accordance with this Bylaw except that the cost of the required frontage improvements must not exceed 20% of the value of the work authorized by the permit and the Municipal Engineer will determine which of the otherwise required frontage improvements must be provided.

4.3 The provision of a cash-in-lieu of construction of the frontage improvements required under this Bylaw may be permitted where the frontage improvements can be more efficiently or economically provided as part of other works and services that are planned for the future, and for that purpose the Municipal Engineer may require the applicant to provide a Professional Engineer's estimate of the cost of the frontage improvements required under this Bylaw.

5.0 APPLICATION FOR FINAL SUBDIVISION APPROVAL

5.1 An Applicant intending to apply for final subdivision approval must pay the applicable fees specified in the District's *Fees and Charges Bylaw*. *[amended by Bylaw No. 768 (404-1), 2019]*

5.2 Final subdivision approval will not be granted to the applicant by the Approving Officer unless the Municipal Engineer has signed off on the Construction Completion Certificate, or the applicant has entered into a Works and Services Agreement with the District of Sooke.

6.0 WORKS AND SERVICES AGREEMENTS

6.1 In the event that an Applicant wishes to obtain final subdivision approval or issuance of a building permit prior to the construction of Works and Services required by this bylaw, the Applicant may enter into a Works and Services Agreement (in the form prescribed by the Chief Administrative Officer) with the District of Sooke upon payment of the fee specified in the District's *Fees and Charges Bylaw*. *[amended by Bylaw No. 768 (404-1), 2019]*. All Works and Services Agreements will be executed by the District of Sooke authorized signatories. No such agreement must be entered into with respect to works affecting soil stability including retaining walls.

6.2 A Works and Services Agreement may only be entered into when the secured services are to be located on municipal land, an existing public highway or statutory right-of-way in favour of the District of Sooke.

6.3 A Works and Services Agreement will only be executed after the Permission to Construct form (in the form prescribed by the Chief Administrative Officer) has been issued for construction of the Works and Services.

6.4 An Applicant intending to enter into a Works and Services Agreement pursuant to this section must provide to the District of Sooke a letter of credit, or cash equal to the full amount of the cost of the Works and Services required, including construction, engineering and administrative costs and contingency allowances, the estimate of which is to be certified by a Professional Engineer, and must provide a date for the completion of the Works and Services for the purposes of s.940 of the *Local Government Act*. The security must be returned to the Applicant upon acceptance of the Construction Completion Certificate (in the form prescribed by the Chief Administrative Officer) by the District of Sooke, less any amount retained as security for the Applicant's obligations during the Maintenance Period.

7.0 MAINTENANCE PERIOD, SECURITY AND FINAL ACCEPTANCE

7.1 Upon acceptance of the Construction Completion Certificate, for underground, landscaping, surface works and street lights, the Applicant must maintain the Works and Services for a one year Maintenance Period. The Applicant must remedy all defects and deficiencies becoming apparent in the Works and Services during that period, and must provide, in a form acceptable to the Municipal Engineer, security in the amount of 10% of the actual cost of the Works and Services to ensure performance of the Applicant's obligations, which must be returned to the Applicant upon acceptance of the Final Acceptance Certificate form (in the form prescribed by the Chief Administrative Officer).

7.2 Should a deficiency be noted at any time during the one-year maintenance period, the Applicant will be notified in writing and given 30 days to repair the deficiency to District of Sooke standards except that the Municipal Engineer may give verbal notice and may specify a lesser period in the case of a deficiency constituting an emergency. After

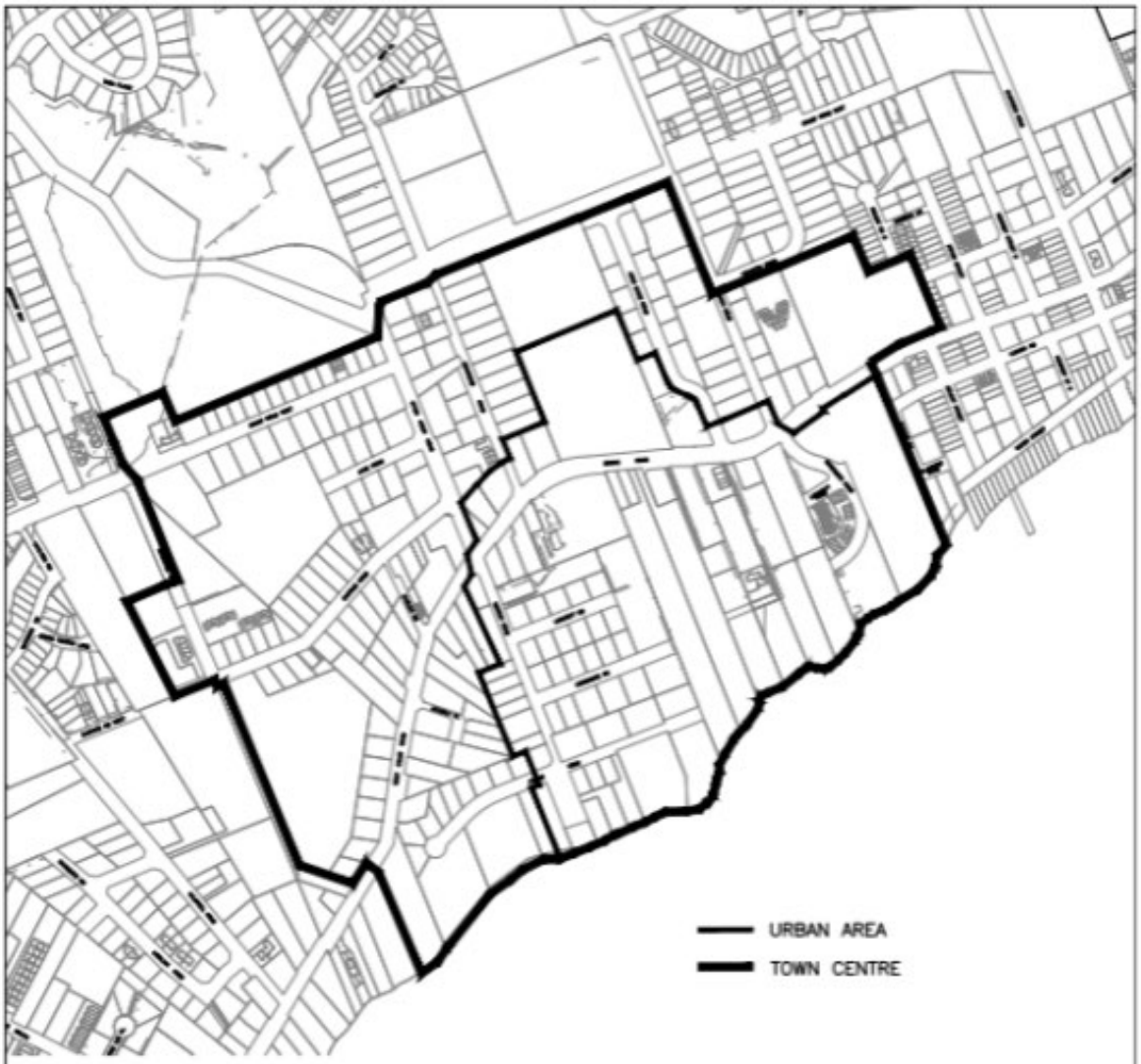
acceptance of the repair, the District of Sooke may elect to extend the maintenance period for the repaired item for up to one year.

7.3 If the Applicant fails to make repairs within the time specified in the notice, then the District of Sooke may make the necessary repairs and recover the costs by drawing down the maintenance security or require reimbursement by the Applicant if the security is insufficient.

7.4 Upon expiration of the one year maintenance period the Professional Engineer must submit two copies of the Final Acceptance Certificate (FAC) (in the form prescribed by the Chief Administrative Officer) complete with a sketch map showing the location of those Works and Services to be accepted and owned by the District of Sooke.

7.5 Upon submission of the FAC to the District of Sooke, the Professional Engineer must arrange for a Final Acceptance inspection to inspect the Works and Services and note any deficiencies. Once the Applicant has remedied all defects and deficiencies, the District of Sooke will accept the Final Acceptance Certificate of the appropriate works.

7.6 Once the Works and Services have been accepted a copy of the signed FAC will be returned to the Professional Engineer for their records and the Maintenance Period will be deemed to be completed and the maintenance security will be returned, subject to section 7.3.



THIS FIGURE INDICATES THE LOCATION OF THE URBAN AREA OF THE DISTRICT OF SOOKE AS IT RELATES TO LEVELS FOR WORKS AND SERVICES. THE SUBURBAN AREA IS BOUNDED BY THE COMMUNITY GROWTH BOUNDARY AS DETAILED IN THE OFFICIAL COMMUNITY PLAN WITH THE REMAINING AREA IN THE DISTRICT DESIGNATED AS THE RURAL AREA.

TITLE:	DATE:	DRAWN:	
SERVICING AREAS	AUGUST 2014		District of Sooke
	SCALE: N.T.S.	APPROVED:	DWG No. SDD–AP01

SCHEDULE 2

SUBMISSION STANDARDS

1.0 GENERAL PROCEDURES

1.0 The purpose of this Schedule is to outline the minimum standards and requirements the District of Sooke will accept in the design and drawing submissions for Works and Services.

1.1 Incomplete or substandard submissions will be returned to the Professional Engineer without comment on the drawings and with a short letter of explanation as to why the drawings are being returned.

1.2 The standards of this Schedule are to be applied to all drawing submissions required under this Bylaw to ensure that the District of Sooke receives consistent drawings compatible with its corporate GIS system.

1.3 The standards are based on current versions of the industry standards software by Autodesk and ESRI. AutoCad and ESRI ArcGIS are the preferred drafting, design and GIS programs to be utilized by all contractors to the District of Sooke. The only file formats that the District of Sooke will accept are AutoCad .dwg files or ESRI .shp file sets. A Data Dictionary must be submitted with the digital files.

1.4 All engineering surveys must be conducted in a safe manner so as to not create a nuisance to traffic or the public at large. Permission of the registered owners is required before entering private property.

1.5 Any information received from the District of Sooke on existing services must be used as a guide only. Verification of locations and elevations must be checked and confirmed by a qualified professional. The District of Sooke takes no responsibility for the exactness of service information obtained from District of Sooke files and drawings.

1.6 Elevations must be shown in metric geodetic datum. All survey work must be tied into an accepted benchmark using NAD83 UTM 10 data. The reference benchmark and elevation must be shown on the design drawing.

1.7 The elevation of all existing basement floors and proposed minimum basement elevations (MBE's) must be shown.

1.8 All existing rights-of-way and easements and their permitted uses must be confirmed through the Land Title Office and be shown lightly shaded on the design drawing.

1.9 All proposed rights-of-way or easements for new services must be shown as a dashed line and tied to the iron pin in each lot together with their width, permitted use and the note "acquired" or "proposed." Right-of-way documents must be prepared and submitted to the District of Sooke for review prior to registration in the Land Title Office.

1.10 A north arrow, existing and proposed road names must be shown on the design drawing(s).

1.11 All services must be shown on one plan with curbs, sidewalks, sanitary sewers, drains, water, and underground wiring and poles identified as MC or NMC, S/W, S, D, W, and U/G, H or T respectively.

1.12 All existing watermains, fire hydrants, sanitary sewer mains, storm drain mains (including all appurtenances), ditches, pavement, curbs, sidewalks, underground wiring, gas lines, underground ducting, poles, fences, hedges, existing buildings, unusual ground conditions, wells, septic systems, water courses, ponds, lakes, and service connections must be indicated in plan and profile.

1.13 Drawings must show all proposals for construction that are not covered or specifically detailed by standards or specifications in this bylaw. It is not always necessary to include details which are in the MMCD or this bylaw as a Standard Drawing. Standard or Supplementary Drawing numbers may be quoted.

1.14 No person may amend any approved plan of subdivision or development or any approved design drawings or specifications without first having obtained the approval of the Approving Officer in writing.

2 DESIGN AND DRAWING SUBMISSIONS

2.1 All design drawings required for subdivision or development that require acceptance to construct Works and Services, must be accompanied by the applicable forms (as prescribed by the Chief Administrative Officer) complete with appropriate fees as set out in the District's *Fees and Charges Bylaw*. *[amended by Bylaw No. 768 (404-1), 2019]* of this Bylaw.

2.2 Concurrent with the submission of the design drawings, any Professional Engineer engaged by the applicant must provide the District of Sooke with a letter that:

a) States that the Professional Engineer's scope of engagement includes assurance of the completeness of the design, certification and submission of construction drawings, coordination of engineering sub-consultants and as-constructed drawings and certification that all works (designed and installed) substantially meet the requirements of this Bylaw;
b) States that the Professional Engineer has read and understands the relevant District of Sooke bylaws, policies and specifications; and
c) States that the Professional Engineer will advise the Municipal Engineer of any severance of engagement during the course of design and construction.

2.3 A sealed copy of the Professional Engineer's undertaking form (as prescribed by the Chief Administrative Officer) must be completed and submitted to the Municipal Engineer at the time of design drawing submission.

2.4 The first complete design drawing submission must consist of:

a) two complete sets of full sized drawings plus one PDF copy;
b) one paper and one PDF copy of the rain water management plan complete with one sealed copy of the Drainage Certificate form (as prescribed by the Chief Administrative Officer) as per Schedule 5 (item 1.10) of this Bylaw; t *[amended by Bylaw No. 768 (404-1), 2019]*
c) two sets of street lighting design plans;
d) two additional sets of sanitary sewerage system drawings including site and key plan with each set, together with a completed application to Island Health or the Ministry of Environment as applicable;

e) soils report to verify road structure design for all new road construction where required; and
f) all applicable utility calculations (sanitary, storm drainage) and reports as required by this Bylaw.

2.5 Subsequent design submissions involving changes to the previous submission must consist of:

a) two complete sets of drawings;
b) any changes made by the Professional Engineer that are in addition to "Red Line" changes required by the District of Sooke, highlighted in yellow; and
c) the Professional Engineer's response to all items "Red Lined" by the District of Sooke.

2.6 The final submission for District of Sooke acceptance must consist of two complete sets of drawings plus one PDF copy as well as a cost estimate of Works and Services to be owned by the District of Sooke, certified by the Professional Engineer.

2.7 The Municipal Engineer may review the design drawings and calculations to verify general compliance with the District of Sooke requirements but is not responsible for the adequacy or accuracy of the Professional Engineer's design. Any errors or omissions will be the sole responsibility of the Professional Engineer whose seal appears on the drawings.

2.8 Any construction of Works and Services required under this Bylaw prior to permission to construct by the Municipal Engineer is at the owner's risk.

3 DRAWING INFORMATION

3.1 All drawings must be prepared in accordance with the following requirements and all other requirements under this Bylaw.

3.2 All design submissions must have an original dated signature and seal of a Professional Engineer registered in British Columbia. Omission of this will result in the plans being returned without comment. The Professional Engineer's seal and original signature with date will be taken to indicate that all works as proposed are structurally sound, comply with the applicable design criteria of this bylaw, and constitute good engineering practice.

3.3 All drawings must clearly identify the works in sufficient detail.

3.4 Where applicable, cross-sections will be required. The sections must include centreline, edge of pavement or gutter line, edge of shoulder, ditch invert, top of ditch, trail or pathway, property line, and an existing ground elevation inside property line.

3.5 Standard sheet size is A1 metric size 594 mm x 841 mm.

3.6 All drawing sheets are to be submitted complete with title block in the lower part of the sheet making reference to the District of Sooke file number.

3.7 Dimensioning of drawing must be given from an existing or proposed iron pin or lot line.

3.8 All new works must be drafted in bold dashed lines.

3.9 Road chainage must be tied to an iron pin from the start of construction.

3.10 Plans must show the legal layout of roads and properties, with all legal descriptions (lots and plan numbers) and dimensions (to the nearest 0.01m). Plan must also show existing house numbers and registered statutory rights-of-way.

3.11 A cover sheet must be prepared and attached to the front of all drawing sets. The cover sheet must note the Professional Engineer's company name and contact information, the applicant's name and contact information, the District of Sooke file number, the legal description of the lands involved, a site plan at a 1:5000 scale, and a drawing index. The plan must note all existing and proposed roads and buildings as appropriate. The cover sheet may be utilized to show the drainage catchment area.

4 REQUIREMENTS FOR SUBDIVISION OR DEVELOPMENT KEY PLAN

4.1 A key plan must be provided to 1:2500 scale and must include the following:

a) a plan of adjacent roads and existing lots with roads named and legal description of adjacent lots given;
b) the civic address and the property being subdivided or developed shown shaded;
c) a north arrow;
d) the contours at 2.0 metres intervals except on very steeply sloping ground where 5 metre intervals will be accepted;
e) if the subdivision or development is to be developed in stages, each proposed stage is to be shown clearly outlined and in the order of development indicated; and
f) the location of existing survey monuments.

5 REQUIREMENTS FOR RAIN WATER MANAGEMENT PLANS

5.1 The rain water management plan must be at an acceptable scale and identified as per key plan if more than one sheet is required. The Rain Water Management Plan must include:

a) contours as per subsection 4 of this Schedule extending a minimum of 200 metres outside the subdivision or development site;
b) indication of any areas of cut or fill with existing property pin elevations uncircled and proposed elevations circled. Fill over 0.5 metres is to be shaded with fill over 1 metre highlighted;
c) the proposed building envelope for each lot along with the minimum building elevation (MBE);
d) the minor (1:10 year) storm drainage system with the flows as per Schedule 5 of this Bylaw; *[amended by Bylaw No. 768 (404-1), 2019]*
e) the major (1:100 year) storm drainage system with the flows noted as per Schedule 5 of this Bylaw. *[amended by Bylaw No. 768 (404-1), 2019]* Provision must be made for potential upstream development;
f) all swales and ditches as well as existing channels required in the Rain Water Management Plan. Easements required over any lot accepting directed drainage from upstream lots; and
g) no increase in surface drainage flowing off site over adjacent lands unless provision is made for offsite works to be constructed in compliance with District of Sooke standards.

6 REQUIREMENTS FOR ROAD OR PARKING AREAS DRAWINGS

6.1 Show all iron pins adjacent to the works and the existing ground elevation at each pin or proposed pin.

6.2 Both plan and profile must be tied to an iron pin, preferably near or at 0+00 chainage. If the chainage exceeds 120 m, a second tie must be shown.

6.3 Show the road width, curb, edge of pavement and sidewalk offsets measured from the property line where applicable.

6.4 Road profiles must show the gutter of curb and/or centreline of road elevations.

6.5 Detail the road construction with a typical cross-sectional view.

6.6 The profile must be shown at true centreline length and provided in as close relationship as possible to the plan.

6.7 Locate catch basins in accordance with specifications.

6.8 Locate barricades.

6.9 Locate ditches and centre of pavement in road construction by offsetting to property line.

6.10 Existing and proposed critical driveway locations within the subdivision or development must be shown as well as a profile of each driveway from the road centreline to the end of the driveway within the property.

6.11 Chainage of the BC and EC for horizontal curves must be shown together with the centreline radius. Curb radii are not required if the centre line radius and road width are shown, except on curb returns at intersections if other than 8 metres, at the end of cul-de-sacs, and on any curbs where alignment is not directly related to the centreline radius.

6.12 The percent grade to two decimal places must be shown on the profile together with the following information on vertical curves:

a) the station and elevations of BVC, EVC, and VPI;
b) the external value;
c) the length of vertical curve;
d) the elevation and station at 20 metre intervals and the low spot of sag curves;
e) the % grades of the adjacent vertical alignment; and
f) the K value for vertical curves.

6.13 On super elevated curves and cul-de-sacs on vertical and horizontal curves, show a profile of each curb or the edge of pavement (no centreline profile).

6.14 Road cross-sections must be scaled at 1:100 horizontal and 1:50 vertical and must note the existing ground elevation, the proposed elevations of the road centreline, the curb and gutter (or road edge), the invert and top of any ditches, centreline of trails or sidewalks, and property lines. Cross-sections are required at 20 metre intervals. Additional sections may be

required or requested where excessive cuts or fills are involved. Side and back slopes are to be shown. Each sheet must have a typical cross section.

6.15 Show pavement markings and traffic control signs on all drawings.

7 REQUIREMENTS FOR SANITARY SEWER AND DRAIN DRAWINGS

7.1 The following information must be shown on the profile:

a) size, type and class of pipe, class of bedding;
b) percent grades to two decimal places. If critical, mark "CR" after the grade, if not critical, show the minimum grade thus: (1.08% min.);
c) invert elevations at both inlet and outlet of manholes;
d) rim elevations on all manholes and catch basins;
e) existing Sanitary Sewer and Drain where required.

7.2 The following information must be shown on the plan:

a) information on horizontal curves as detailed in paragraph 6.11;
b) pipe offsets from property line; and
c) the grade of any service connection from the upper end to the drop to the main if other than two percent.

7.3 The following additional information must also be shown on the appropriate part of the drawing:

a) sanitary sewer manholes and cleanouts must be lettered in consultation with District of Sooke staff;
b) storm drain manholes, cleanouts and silt traps must be numbered in consultation with District of Sooke staff;
c) structural detail of all manholes not covered by MMCD Standard Drawings;
d) cross sections and plan views of any swales or ditches required for the subdivision or development;
e) details regarding any storm water retention or treatment facilities required for the development;
f) where an open ditch drainage system is proposed, note the size of future driveway culverts required to conform to the design.

7.4 The information requested in this Bylaw for on-site sanitary sewerage systems must be shown and detailed on a suitably scaled drawing. Information and details regarding soils tests, treatment proposed and sewage disposal system proposed must be adequately and accurately detailed and noted on the drawings or attached submissions.

8 REQUIREMENTS FOR UNDERGROUND WIRING AND OVERHEAD POLE DRAWINGS

8.1 Dimension the offset from property line and/or iron pins of the existing underground conductors or mains and the location of all appurtenances related to the system including house connections. Refer to the appropriate utility for complete details of existing underground installations. Offsets to be verified through the appropriate utility.

8.2 Show proposed overhead or underground hydro/telephone/cable service schematically.

8.3 Dimension the location of all poles, both existing and proposed, from the pole surface face to property line and/or iron pin.

9 REQUIREMENTS FOR STREET LIGHTING DRAWINGS

9.1 Location, type and wattage of luminaries complete with ducting information to be shown.

9.2 Details of service base and wiring must be shown if not as per standard drawings.

10 REQUIREMENTS FOR WATER DRAWINGS

10.1 The following information must be shown on the plan and profile drawings:

a) size, type, and class of pipe;
b) class of the pipe bedding;
c) elevations and grades of the pipe;
d) ground profiles and pipe cover; and
e) valves, bends, fire hydrants, other appurtences, etc. are to be shown complete with chainages; and
f) all other requirements of the water utility.

10.2 The full pipe must be shown for the watermain on the profile.

10.3 All crossover points with sewers must be noted and shown to be protected in accordance with the water utility requirements.

10.4 The design drawings for a private utility must be provided.

11 REQUIREMENTS FOR CONSTRUCTION

11.1 All Works and Services required for a subdivision or development must be inspected and supervised during construction by the Professional Engineer for compliance with this Bylaw and the design, specifications and drawings accepted by the District of Sooke.

11.2 Enough resident supervision is required during construction to enable the Professional Engineer to certify that the works are constructed in accordance with this Bylaw and the design, specifications and drawings accepted by the District of Sooke.

11.3 The Professional Engineer, on a weekly basis, must submit copies of daily inspection reports to the Municipal Engineer.

11.4 During construction of the subdivision or development, the applicant must ensure that all streets affected by the subdivision or development are cleaned every Friday before 3:00 p.m. for the duration of works, and as required by the Municipal Engineer. If the Applicant fails to do so, the District of Sooke may arrange for the street cleaning at the cost of the Applicant, which cost is payable to the District of Sooke immediately upon the presentation of the District of Sooke invoice to the applicant.

12 ACCEPTANCE OF WORKS AND SERVICES

12.1 Upon completion of the Works and Services to the satisfaction of the Municipal Engineer, the Professional Engineer is to submit two copies of a sealed Construction Completion

Certificate (CCC) in the form prescribed by the Chief Administrative Officer, and all other required final documentation as required by this Bylaw for the works.

12.2 The following documents are required to be submitted to and accepted by the Municipal Engineer upon completion of the works and services:

a) Two (2) paper copies of the as-constructed drawings signed and sealed by the Professional Engineer showing the completed works, identified with the words "CERTIFIED RECORD DRAWINGS" in bold letters and the certification "I certify that this drawing accurately represents the works and services as designed, installed and inspected", and bearing the District of Sooke file number, as well as one PDF copy of the drawings;
b) As-constructed inventory sheet complete with certified cost estimate sealed by a Professional Engineer;
c) Geotechnical certification in accordance with this bylaw;
d) Acceptance of all utilities for Works and Services installed within road rights of way by the appropriate utility;
e) If part of the Works and Services are operated by the Water Service, confirmation in writing from the Water Service of the adequacy of the design and construction of such Works and Services and of the connection of such Works and Services to the system operated by the Water Service;
f) Electrical declaration from the Provincial Safety Authority;
g) Streetlight Activation Form, in the form prescribed by the Chief Administrative Officer; and
h) A sealed copy of the Certification of Inspection Form, in the form prescribed by the Chief Administrative Officer.

12.3 The following information must be shown on the as-constructed (record) drawings:

a) a key plan at a 1:1000 scale noting water, sanitary, drainage works, streetlights, roadworks, driveway widths, benchmarks and monuments. The plan must show the as-constructed offsets for those works and the size and location of all service connections relative to the lot lines;

b) detailed plan profile drawings for water, sanitary, drainage and roadworks. Elevations, inverts, curved pipe (both horizontal and vertical) and offsets must show the works as constructed. The profile drawings for the utilities must state the pipe materials used and the month and year of installation;

c) where required in the design submission, the rain water management plan including any lot grading performed. The plan must note the elevations at all lot corner pins, lawn basin and catch basin rims, culverts and swale inverts. Grades in graded areas must be uniform unless indicated otherwise on the plan (to a tolerance of ± 300 mm). The lot grade must not be less than the minimum;

d) streetlight drawings must show make, model and type of luminaire unit and locations of service bases and photocells except those provided by B.C. Hydro;

e) plans of details for which there is no municipal standard (pump stations, water wells, treatment plants, etc.);

f) in all cases, notes with instructions to the Contractor must be removed or amended to indicate the results of construction. Previously existing works that have been removed as a result of construction, or reconstructed in accordance with the design must be

removed or amended to show works as constructed. The as-built drawings must show the works as they have been constructed in order to provide accurate and detailed information when adding to, or maintaining, the works shown on the plans.

12.4 One marked-up set of the as-constructed drawing paper prints will be returned to the Professional Engineer for revision if required. The Professional Engineer will re-submit two (2) sets of revised paper prints for a second review.

12.5 When the District of Sooke is satisfied with the record (as-constructed) drawings submission, the Professional Engineer must submit the following:

a) One set of sealed paper drawings;
b) One set of digital drawings, in AutoCAD DWG format
c) Drawing files must:
    i. be opened using an unaltered copy of Autocad (no third party entities, fonts etc.);
    ii. be constructed entirely in model space;
    iii. have the colour of entities modifiable by changing layer colours (blocks must be built on layer 0 with colour by layer); and
    iv. be plotted by using extents and a fit scale (or noted scale on the appropriate paper size).

12.6 The following results and information must be provided as part of the "as-constructed" package submission:

a) Roads
    i. compaction test results on base and sub-base;
    ii. material test results pertaining to asphaltic materials and concrete;
    iii. geotechnical certification of rock faces and rock fill; and
    iv. structural certification of retaining walls 1.2m or higher.

b) Sewers and Drains
    i. results of air tests;
    ii. video inspection results where required; and
    iii. video inspection results before and after construction tie-ins

c) Water
    i. Letter of acceptance from the Water Service;
    ii. certificate of Public Convenience and Necessity as required; and
    iii. results of water quality and quantity study of well(s) as required.

d) Electrical
    i. provincial Electrical Inspector’s Certificate; and
    ii. confirmation of B.C. Hydro connection made and all fees paid.

SCHEDULE 3

ROAD DESIGN AND CONSTRUCTION

1.0 All roads and roundabouts must be designed in accordance with the recommended practice as outlined in the *Manual of Geometric Design Standards for Canadian Roads* as published and amended from time to time by the *Transportation Association of Canada* (TAC) except where this Schedule requires otherwise.

2.0 Roads must be designed and constructed in accordance with the MMCD except as varied by this Schedule and as shown on the Supplemental Detail Drawings included in this Schedule.

3.0 Closed end roads in excess of 90 linear metres to be designed to permit the turning of motor vehicles at the end, either with a cul-de-sac or approved alternative.

4.0 The maximum slope permitted on a cul-de-sac is 8%. The minimum property line radius of the turning area on a cul-de-sac must be 15 metres. The minimum edge of pavement radius of a cul-de-sac must be 10 metres.

5.0 The design of cul-de-sacs is not limited to the above and the Professional Engineer may propose alternatives provided that good engineering practice is followed. Alternative designs are subject to review and acceptance by the Municipal Engineer.

6.0 Intersecting roads boundaries must be rounded to a 6 metre radius curve. The edge of pavement or curb return radius must be 7 metres.

7.0 Jogs in road alignment at intersections may be permitted, provided the distances between centre lines at the jog is a minimum of 80 metres, unless it is impractical to comply because of the existing road configuration.

8.0 Intersecting roads must meet substantially at right angles. In no case may roads intersect at an angle of less than 80 degrees. Grades of roads at intersections must be adjusted where topographic or other conditions dictate the use of maximum or near maximum permissible grades.

9.0 Roads are to be laid out with due regard to the topography so as to avoid flat or excessive grades. The maximum allowable road grade is 12%. The minimum allowable longitudinal road grade permitted is 0.6%.

10.0 Standard cross-slopes on roads must be 2.5% with a centreline crown. Where topography is involved, local roads may be designed with cross-slopes from 1% to 3% and with one-way cross falls subject to the acceptance of the Municipal Engineer.

11.0 The design speed for small lot local roads and cul-de-sacs is 30 kmph and for all others 50 kmph.

12.0 Typical design cross-sections for each class of road in each of the service areas are indicated as follows:

Class of Road and Service Area	Drawing
Urban / Suburban Collector	R401
Urban / Suburban Local Road	R402
Rural Collector	R403
Rural Local	R404
Town Centre Street	R405
Laneway	R406
Arterial 25m Collector	R407
Arterial 20m Collector	R408
Highway 14	R409
Complete Streets Network	R410

13.0 Road classification designations are contained in the Complete Street Network Map, Schedule 3 R410.

14.0 Construction of pedestrian facility and provision for drainage adjacent to Highway 14 for subdivision and development is required, complete with sufficient allowance for the facility.

15.0 Supplemental Construction details to be adhered to for the construction of new roads are provided in Supplementary Detail Drawings SDD-R09 and SDD-R10.

16.0 The design of new roads must be based on the results of the analysis of materials from test holes dug on the proposed road site at representative intervals. A qualified soils test company must take test holes and samples and all reports must be signed and sealed by a qualified Geotechnical Engineer where required.

17.0 If paved pullouts are provided at group mailbox locations, they must be a minimum of 3 metres wide, 7 metres long and have 3 metres long tapers on each end.

18.0 Where applicable, the road design must ensure that the road cross-sections are established to accommodate the 1-to-100 year Flood Path Routing.

19.0 If cut or fill slopes, including any required for trail or walkway construction on the roadway, extend beyond the road allowance, a right-of-way sufficient to support the slope plus 1 metre must be registered in favour of the District of Sooke.

20.0 Where the construction of a Small Lot Local Road is approved, the Applicant must design and build within the subdivision or development additional public vehicle parking in the amount of one stall for every two lots fronting on the Small Lot Local Road.

21.0 The entire area of all roads must be brought to the designed grades and shapes. All unsuitable material must be removed and replaced within the right-of-way. Where possible existing trees and vegetation must be preserved within the right-of-way and any disturbed area must be re-vegetated.

22.0 The Applicant must supply and install all street name blades in accordance with Policy No. 11.7, *Highway Naming Policy*, traffic signage and pavement markings required for each project. Street name blades at intersections are to delineate both streets and are to be marked with block numbers.

23.0 Residential driveway access to a collector road is to be limited unless alternate access is not possible. Wherever physically possible, alternate local road access should be dedicated to preclude residential driveways accessing directly onto collector roads.

24.0 Driveway access to residential properties is limited to one driveway per road frontage. Where a residential lot abuts roads of different classifications, the driveway should access the road of the lower classification and be located at least 5 metres from the lot corner nearest an intersection.

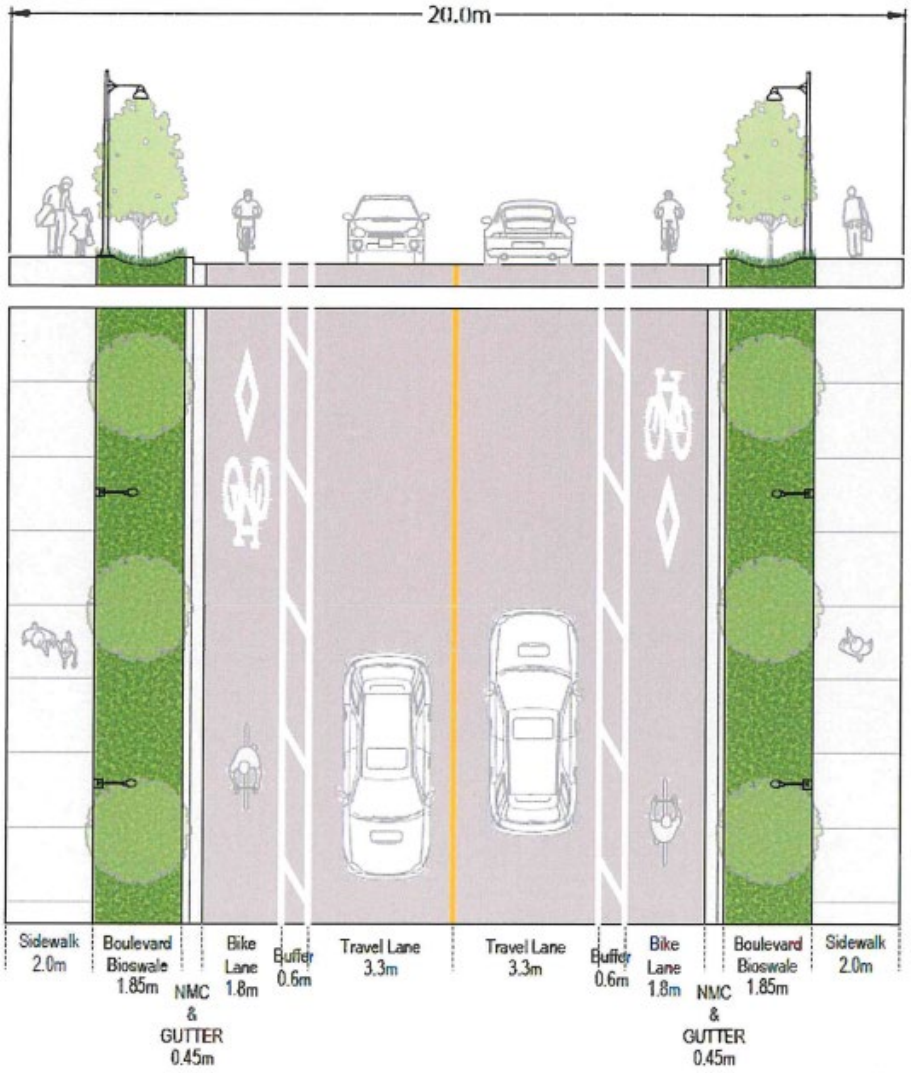
25.0 In Urban and Suburban areas, the minimum residential driveway width must be 4.5 metres pavement from road edge to property line; and a maximum width of 6.0 metres.

(a) A wider driveway may be applied for up to a maximum of 50% of lot frontage to a maximum of 9.0m, as long as it does not impact on street parking. The remainder of the boulevard is to be landscaped with sod and street trees per Schedule 8.0, Street Trees.

26.0 Driveway access grades must be designed to permit the appropriate vehicular access for the zone, without “bottoming-out” or “hanging-up”. A driveway is not permitted to exceed a 6% grade within the existing or required road right-of-way.

27.0 Driveways shall be a minimum 1.5m from any street tree, streetlights, fire hydrant, utility kiosk or any above ground structure within the road right of way, unless the utility can be protected by a bollard or curb to the satisfaction of the Director of Operations. All other requirements for individual utility providers must be met.

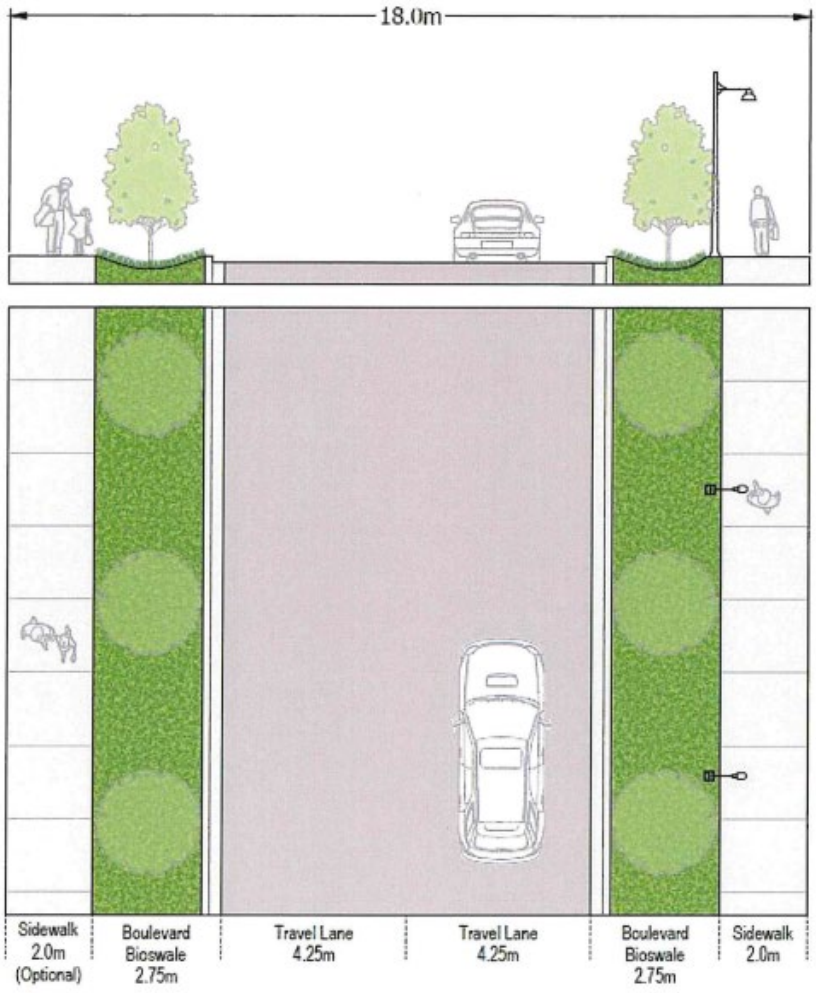
28.0 All driveways within public property are to be hard surfaced (asphalt, concrete or brick pavers) to the property line, and where required, complete with a culvert with concrete or mortared rock headwall as per this Bylaw. Where sidewalk crosses a driveway the sidewalk material governs over the driveway.



Notes

- Trail may be added to one or both sides at the discretion of the District of Sooke
- 0.3m buffer to be added at the back of sidewalk where adjacent a wall or fence
- Elements of this section may be reconfigured on new installations as Accepted by the Municipal Engineer

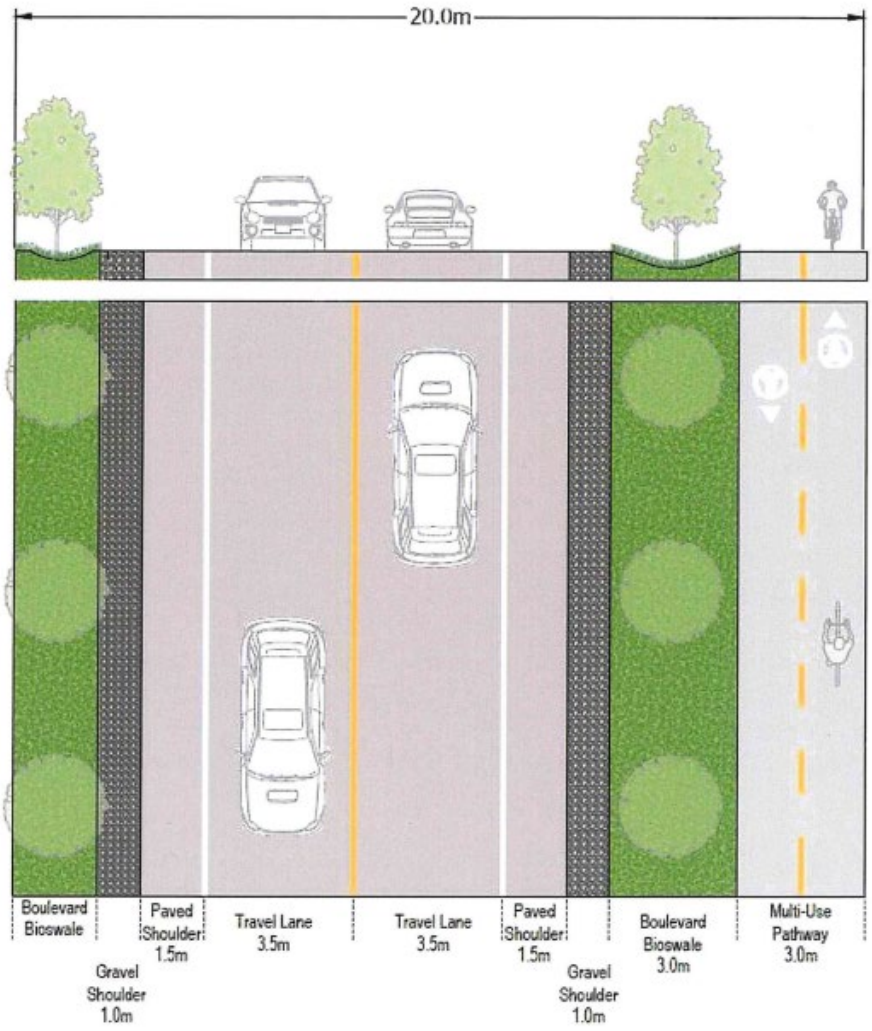
TITLE:	DATE:	DRAWN:	
URBAN / SUBURBAN COLLECTOR	MARCH 2023		District of Sooke
	SCALE: N.T.S.	APPROVED:	DWG No. R401



Notes

- Sidewalks not required on cul-de-sacs unless sidewalk or trail connection at end of cul-de-sac
- Sidewalks on both sides where fronted by a park, school, commercial, or multi-family residential Land use
- Elements of this section may be reconfigured on new installations as Accepted by the Municipal Engineer

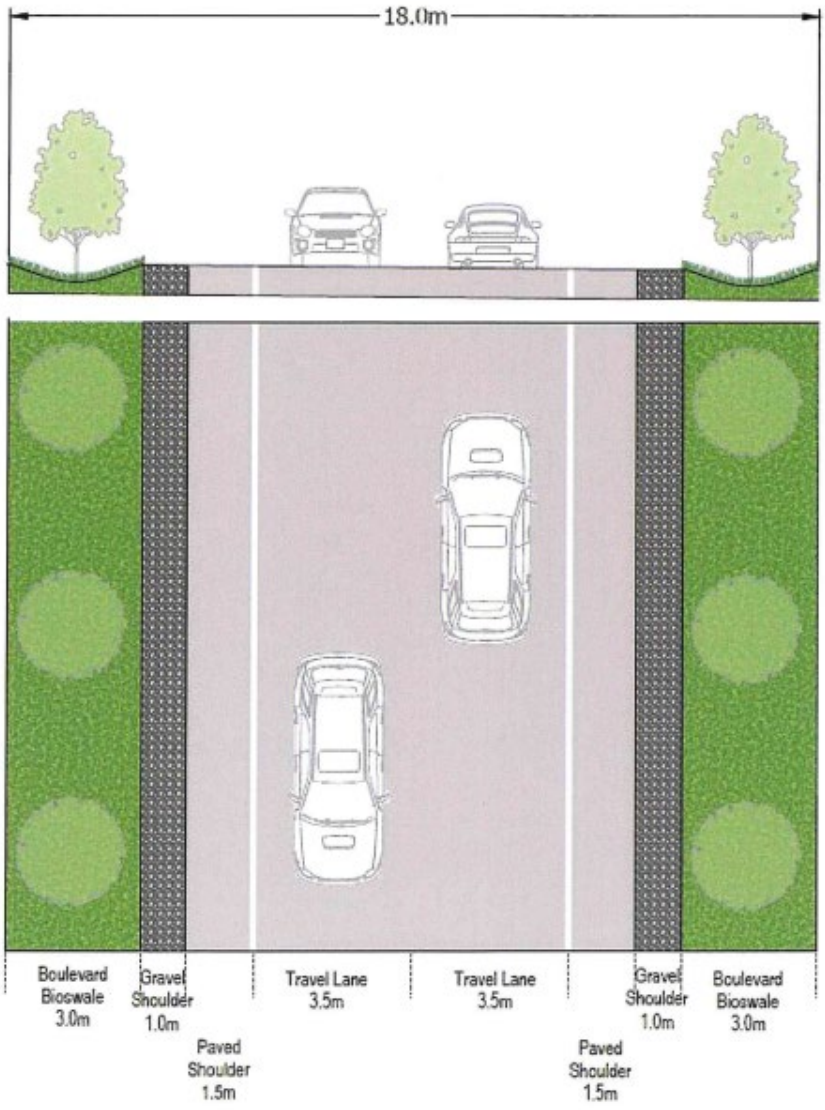
TITLE:	DATE:	DRAWN:	
URBAN/SUBURBAN LOCAL	MARCH 2023		District of Sooke
	SCALE: N.T.S.	APPROVED:	DWG No. R402



Notes

- Boulevard may be reduced in width where topography or other natural features are to be retained
- The multi-use trail is to be incorporated in areas where opportunity exists
- Where the multi-use trail is not feasible, the paved shoulder width should be increased to 2.0m
- Elements of this section may be reconfigured on new installations as Accepted by the Municipal Engineer

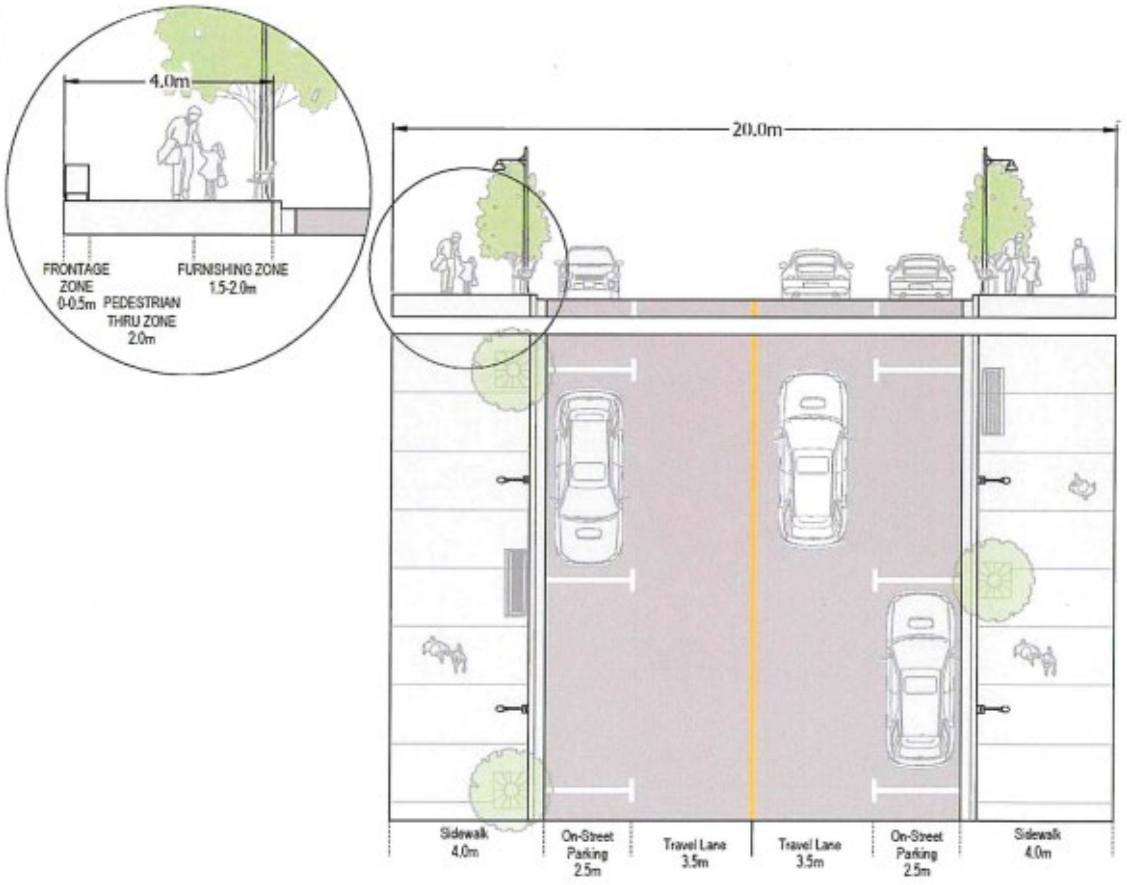
TITLE:	DATE:	DRAWN:	
RURAL COLLECTOR	MARCH 2023		District of Sooke
	SCALE: N.T.S.	APPROVED:	DWG No. R403



Notes

- Multi-use trail may be included where connections to nearby trail network
- Elements of this section may be reconfigured on new installations as Accepted by the Municipal Engineer

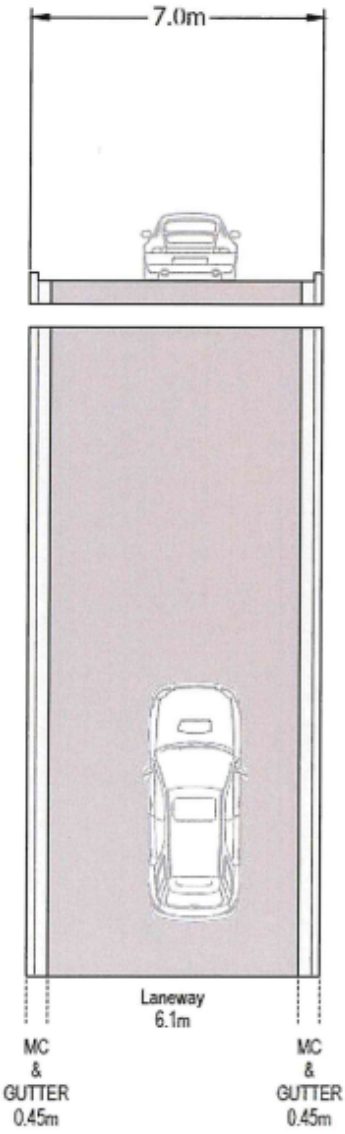
TITLE:	DATE:	DRAWN:	
RURAL LOCAL	MARCH 2023		District of Sooke
	SCALE: N.T.S.	APPROVED:	DWG No. R404



Notes

- Elements of this section may be reconfigured on new installations as Accepted by the Municipal Engineer

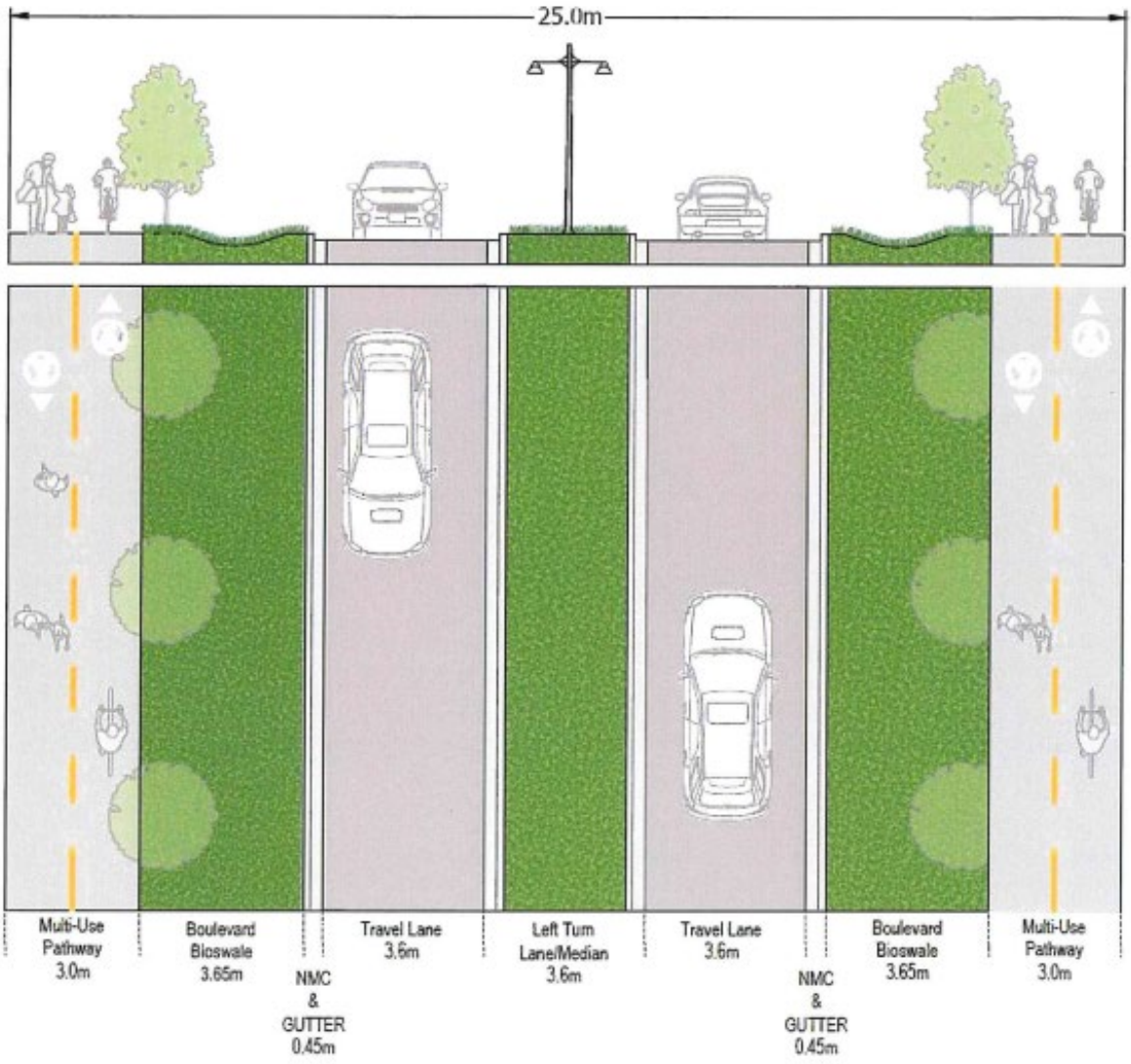
TITLE:	DATE:	DRAWN:	
TOWN CENTRE STREET	MARCH 2023		District of Sooke
	SCALE: N.T.S.	APPROVED:	DWG No. R405



Notes

- Laneways are not to be used in place of standard road cross sections
- Elements of this section may be reconfigured on new installations as Accepted by the Municipal Engineer

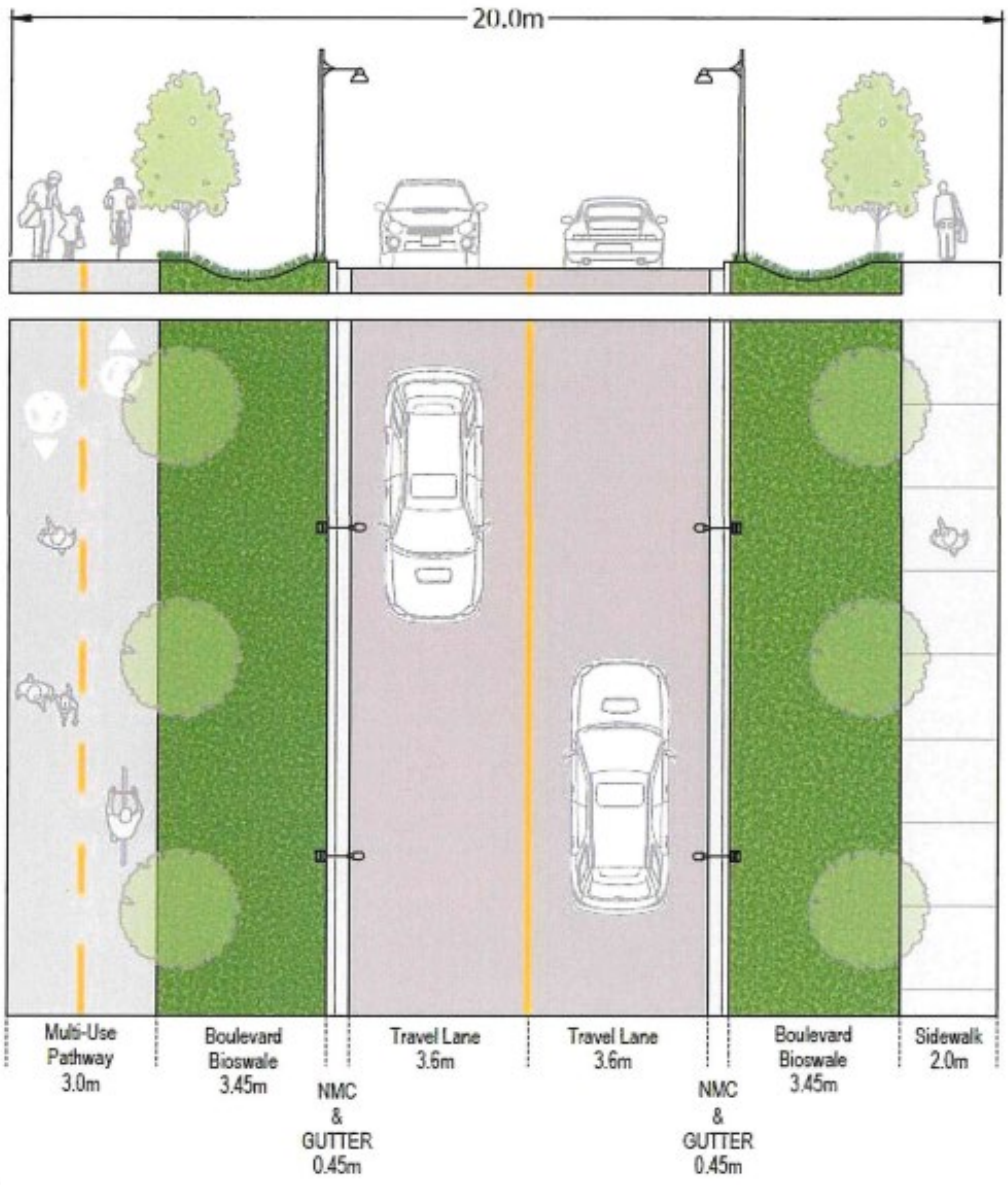
TITLE:	DATE:	DRAWN:	
LANEWAY	MARCH 2023		District of Sooke
	SCALE: N.T.S.	APPROVED:	DWG No. R406



Notes

- 3.5m bus bay to be located within boulevard where needed
- On street parking may be located within boulevard where needed
- Elements of this section may be reconfigured on new installations as Accepted by the Municipal Engineer

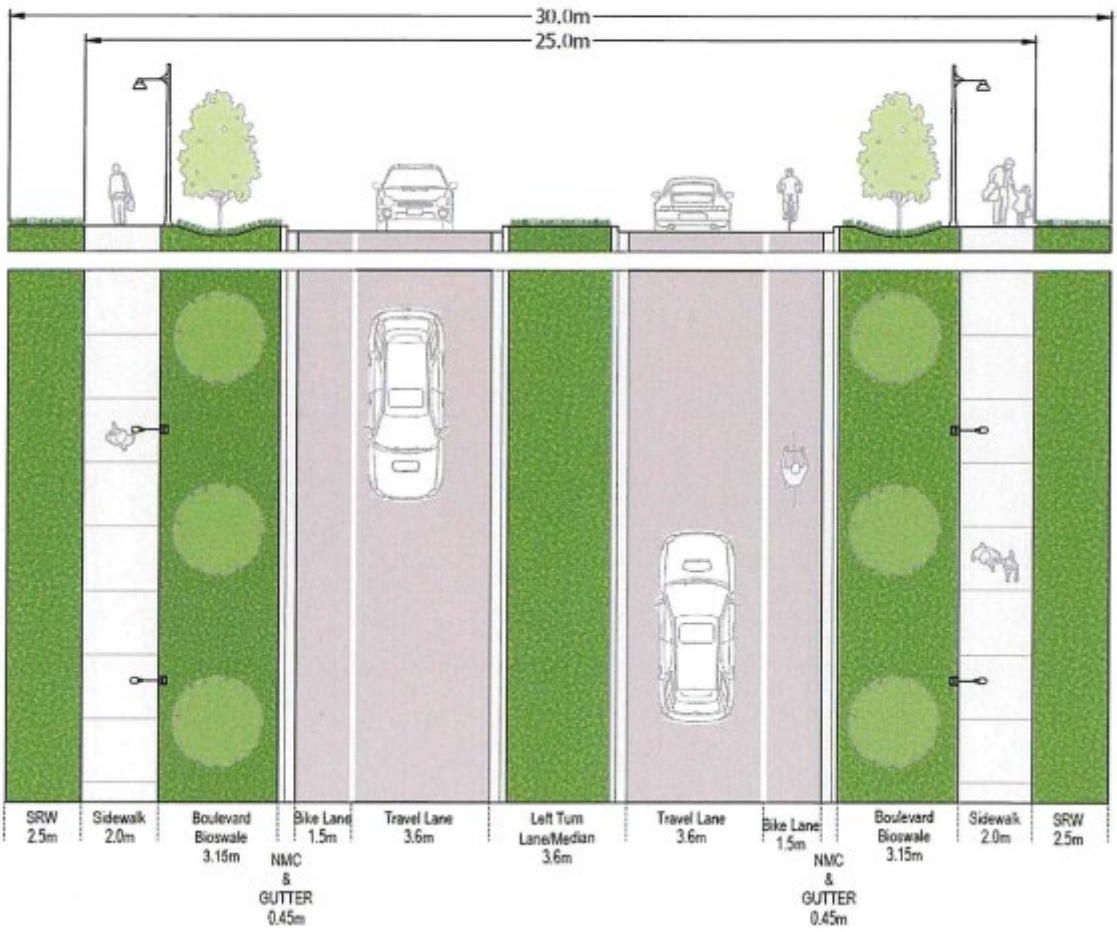
TITLE:	DATE:	DRAWN:	
ARTERIAL 25m CONNECTOR	MARCH 2023		District of Sooke
	SCALE: N.T.S.	APPROVED:	DWG No. R407



Notes

- 3.5m bus bay to be located within boulevard where needed
- On street parking may be located within boulevard where needed
- Elements of this section may be reconfigured on new installations as Accepted by the Municipal Engineer

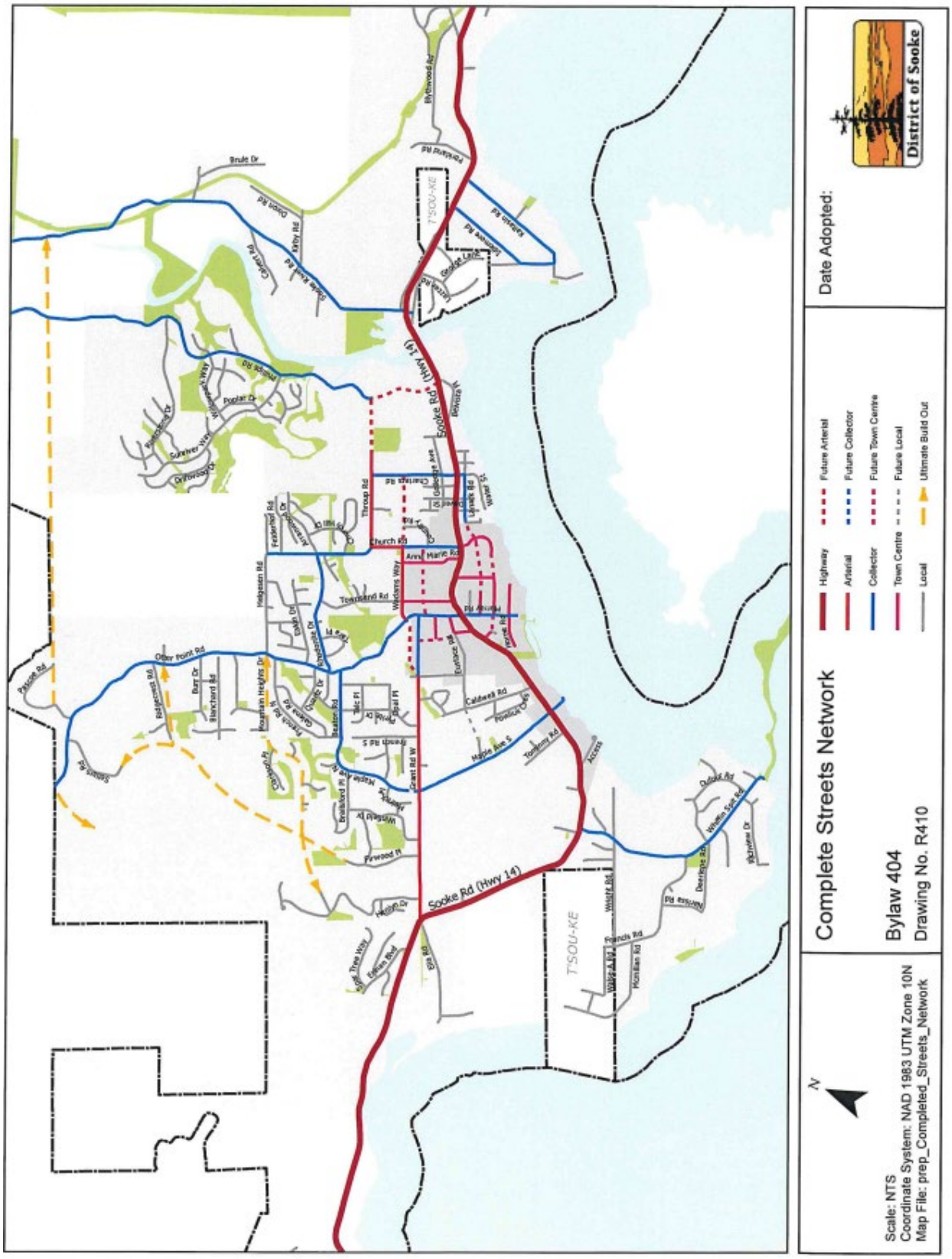
TITLE:	DATE:	DRAWN:	
ARTERIAL 20m CONNECTOR	MARCH 2023		District of Sooke
	SCALE: N.T.S.	APPROVED:	DWG No. R408



Notes

- 2.5m landscape zone within SRW to be maintained by property owners
- 3.0m bus bay to be located within boulevard where needed
- Elements of this section may be reconfigured on new installations as Accepted by the Municipal Engineer

TITLE:	DATE:	DRAWN:	
HIGHWAY 14	MARCH 2023		District of Sooke
	SCALE: N.T.S.	APPROVED:	DWG No. R409


Complete Streets Network
Bylaw 404
Drawing No. R410
Date Adopted:
District of Sooke
Highway
Arterial
Collector
Town Centre
Local
Future Arterial
Future Collector
Future Town Centre
Future Local
Ultimate Build Out
Scale: NTS
Coordinate System: NAD 1983 UTM Zone 10N
Map File: prep_Completed_Streets_Network
N
Sooke Rd (Hwy 14)
T'SOU-KE

SCHEDULE 4

SANITARY SEWAGE SYSTEM

1.0 GENERAL

1.1 All lots created by subdivision or being developed within the Sewer Specified Area (SSA) must be connected to a municipal sanitary sewage collection, treatment and disposal system.

1.2 Prior to approval of the subdivision or development, the applicant must apply for a sewer serviceability study (on the form prescribed by the Chief Administrative Officer) with the fee specified in the District's *Fees and Charges Bylaw*. *[amended by Bylaw No. 768 (404-1), 2019]* to confirm that the proposed subdivision or development can be adequately accommodated by the existing system. If the existing system cannot handle the proposed flows, then the serviceability study will be used to identify what upgrades are required in order to service the proposed subdivision or development. All required upgrades to the municipal system will be at the Applicant's expense.

1.3 Tie in to existing manholes must be plugged at the manhole until the entire new system is appropriately commissioned and accepted by the District of Sooke by means of the issuance of the signed Construction Completion Certificate for the sanitary sewer system.

1.4 Where sanitary sewer infrastructure required to serve a bare land strata subdivision is located in highways, the applicant subdividing the lands must obtain from the District of Sooke the required highway use permit on behalf of the strata corporation to operate the sewage collection system on the highway.

2.0 DESIGN OF SANITARY SEWERS AND SERVICE CONNECTIONS

2.1 This specification must govern the design of all sanitary sewer mains and appurtenances within the District of Sooke.

2.2 Mains must be designed to carry the required quantity when flowing full.

2.3 Main capacity must be determined by the Manning Formula using a roughness coefficient of n = 0.013 for concrete and n=0.011 for PVC.

2.4 The minimum grade of gravity sanitary sewer mains must be that which produces a minimum velocity of 0.61 metres per second in the pipe. A velocity of 0.9 metres per second must be attained in the pipe above the last manhole of a non-extendable system.

2.5 Service connections for single family dwellings must be 100 millimetres minimum diameter pipe laid at a grade not less than two percent and connected at right angles to the main with monolithic wyes, tees, or hubs of acceptable design and materials as shown on MMCD Drawing Number S7.

2.6 All service connections must be provided with an inspection chamber at the property line or at the right of way boundary in accordance with MMCD Drawing Number S9. Sanitary sewer inspection chambers located in driveways require a H20 loading pull box with lid

permanently marked “Sanitary”. All sanitary sewer inspection chambers located outside of driveways require a pull box of similar dimensions to allow for protection and accessibility of the inspection chamber.

2.7 Service connections for other than single-family dwellings must be designed according to the criteria contained herein for main lines and connected to the main as shown on MMCD Drawing Number S7. All service connections must be dye-tested.

2.8 Mains must not be less than 150 millimetres in diameter.

2.9 All pipes must be new, free of defects and be of the size and class shown on the design drawings.

2.10 The following pipe is permitted for sewers providing it is designated on the design drawing; acceptable alternatives will be considered:

SIZE	MATERIAL AND CLASS	USE	CURRENT STANDARDS
100mm & up	Ductile Iron - 1035 kPa	Where ground cover is less than 450mm, where ground cover is less than 750mm carrying vehicular traffic or similar loading within 750mm of a foundation wall or footing	AWWA C151-76
100mm & 150mm	PVC Gravity Sewer Pipe rubber gasket with integral bell type PSM Poly (Vinyl Chloride) Dimensional Ration (DR) of 28 with a pipe stiffness not less than 625 kPa	Service connections	CSA B182.2 ASTM D3034
150 mm & up	PVC Gravity Sewer Pipe rubber gasket with integral bell type PSM Poly (Vinyl Chloride) Dimensional Ration (DR) of 35 with a pipe stiffness not less than 320 kPa	Sewer mains	CSA B182.2 ASTM D3034 ASTM F679

2.11 The class and type of pipe and fittings, together with required class of bedding and trench widths must be selected so that the pipe will support the anticipated earth loading and any other surface dead and live loads with a safety factor of 1.5 for rigid and 1.9 for non-rigid pipe.

2.12 Notwithstanding the generality of paragraphs 2.11 and 2.13, the following minimum requirements must be met:

a) sanitary sewers should be of sufficient depth to permit gravity service connections to basements.

b) minimum cover for sanitary sewer pipe must be 1 metre except when using ductile iron pipe.

2.13 Sanitary sewer mains must be normally designed to follow a straight alignment and constant grade between manholes.

2.14 Any curve in a sanitary sewer main, whether horizontal or vertical, must be accepted by the Municipal Engineer. Curves will only be acceptable under unusual topographical or subsoil conditions. In addition:

a) The radius of a horizontal curve must be not less than 60 metres, or that radius recommended by the pipe manufacturer, whichever is greater.

b) A vertical curve must not be less than 30 metres in length. The curve must be designed so that the pipe deflection does not exceed the manufacturer's specifications.

c) Only one curve, either horizontal or vertical, may be permitted between manholes.

2.15 The maximum distance between sanitary sewer manholes is 125 metres.

2.16 Manholes must be provided at the following additional locations:

a) at all changes of grade and/or alignment;

b) at all changes of pipe size;

c) at all pipe junctions other than service connections;

d) where the service connection is the same size as the main; and,

e) at the end of all sanitary sewer lines.

2.17 Exterior drop manholes may be allowed only where particular circumstances preclude the use of normal manholes. These must be constructed wherever the change in invert elevations through the manhole is greater than 0.60 m. Allowance must be made in the design for the effect of the resulting turbulence on the hydraulic capacity of the system.

2.18 The relative elevations entering and leaving a manhole are to be such as to ensure that the manhole does not reduce the hydraulic capacity of the system. In addition:

a) Allowances for energy losses or changes in velocity are to be determined in accordance with sound hydraulic principles.

b) Junctions require special treatment as must all situations involving a pipe flowing into a smaller pipe and on a steeper grade.

2.19 Manholes are normally constructed in accordance with the details as shown on MMCD Drawing Numbers S1, S2, and S3. In cases where these details will not suffice, a detailed design drawing must be submitted to the Municipal Engineer for review and acceptance.

3.0 DESIGN OF SANITARY SEWER FORCEMAINS AND LOW PRESSURE SYSTEMS

3.1 This specification must govern the design of all sanitary sewer forcemains, low pressure systems and appurtenances within the District of Sooke.

3.2 Minimum velocity in sanitary sewer force mains is 0.91 metres per second.

3.3 In areas beyond the reach of the community gravity sewer system and not large enough to provide economic justification for a community pump station, or where soil conditions or topography are not suitable for gravity sewers, low pressure sewer systems, which involve private pump units discharging into a public low pressure sewage force main may be provided with the acceptance of the Municipal Engineer.

3.4 Low pressure service connections for single family dwellings must be installed as per the details provided in Supplementary Detail Drawings SDD-SS01 to SDD-SS04.

a) Private pump units must be specified and certified by a qualified professional to accommodate the expected flows and pressures for the site specific conditions and must be capable of solids grinding and of delivering 9 G.P.M. (U.S.) at 60psi (138 feet) of total dynamic head.

b) Under no circumstances will trash or normal sewage pumps be accepted.

c) Any pump, other than a grinder pump must be removed from the system as directed and replaced with a grinder pump that meets the requirements of this Schedule.

d) Tank Requirements:

i. Fiberglass Construction. The tank must be a wetwell design consisting of a single wall, laminated fiberglass construction. The resin used must be of a commercial grade suitable for the environment. The reinforcing material must be a commercial grade of glass fiber capable of bonding with the selected resin. The inner surface must have a smooth finish and be free of cracks and crazing. The exterior tank surface must be relatively smooth with no exposed fiber or sharp projections present. The tank wall and bottom must be of sufficient thickness and construction to withstand the imposed loading.

ii. High Density Polyethylene Construction (HDPE). The tank must be a wetwell design made of high density polyethylene of a grade selected for environmental stress cracking resistance. Corrugated sections are to be made of a double wall construction with the internal wall being generally smooth to promote scouring.

e) Each low pressure service must include an alarm panel with external audible and visual alarm.

4.0 TESTING AND COMMISSIONING OF SANITARY SEWER INFRASTRUCTURE

4.1 Minimum quality control test frequencies specified are the minimum number required to determine sufficient trench compaction. The Contractor must perform as many tests as are necessary to ensure that the Works and Services conform to the requirements of this Bylaw regardless of the minimum number required as follows;

4.1.1 Trench bedding (mainline) – one test for every 75 metres of trench.

Minimum one between any two manholes.

4.1.2 Trench backfill (mainline) – one test for every 75 metres of trench at each 1.0 metres fill depth. Minimum one between any two manholes.

4.1.3 Trench bedding (service) – one per road crossing.

4.1.4 Trench backfill (service) – one per road crossing at each 1.0 metres fill depth.

4.1.5 Roadbase – one per road crossing.

4.1.6 Roadbase – one for every 75 metres of trench with a minimum of one between any two manholes.

4.2 Upon completion of all sanitary sewer system installations all sewer collection mains and services, up to the plugged Inspection Chambers, must be thoroughly power flushed with potable water to remove sediments and solids.

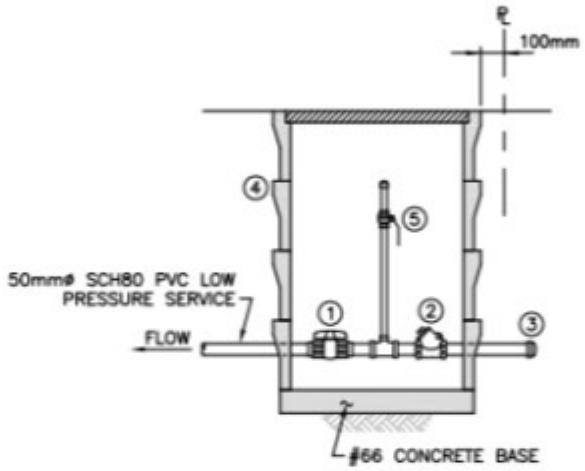
4.3 Flush water must not be discharged to the storm sewer system. Flush water and debris must be discharged to a suitable disposal area satisfactory to the District of Sooke.

4.4 All sanitary sewers must be video inspected and the Professional Engineer must certify that all the videos have been viewed and that the sewer and connections are clean and free of defects prior to submission to the Municipal Engineer for acceptance.

4.5 If the CCTV inspection indicates that the main flushing did not clean the sewer mains appropriately; or that deficiencies exist that require repairs to the main, such repairs must be made by the Contractor and the flushing and CCTV inspection repeated, at the Contractor's expense, until the sewer mains are found to be in a state acceptable to the District of Sooke.

4.6 After the successful completion of the sewer main flushing and CCTV inspection, the mains must remain isolated until the District of Sooke signs the Construction Completion Certificate.

4.7 The system must be flushed and re-videoed prior to issuance of the 1 year Final Acceptance Certificate.



① 50ø PVC BALL VALVE c/w HANDLE. REMOVE OR LOCK HANDLE UPON COMPLETION.

② 50ø SWING CHECK VALVE (BRASS).

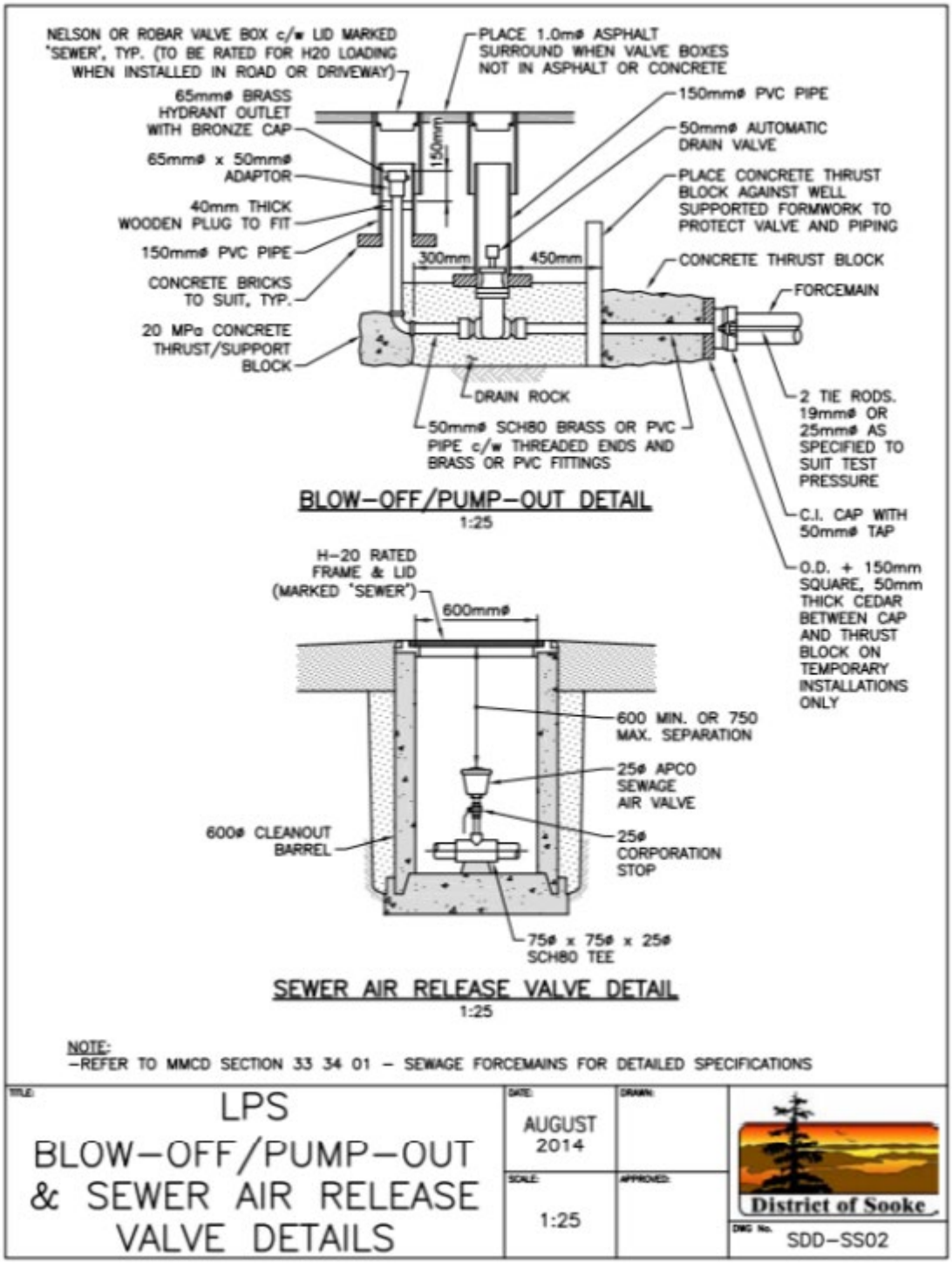
③ LEAVE SUFFICIENT ROOM FOR CAP REMOVAL AND 50mm EXTENSION TO ON-SITE PUMP UNIT.

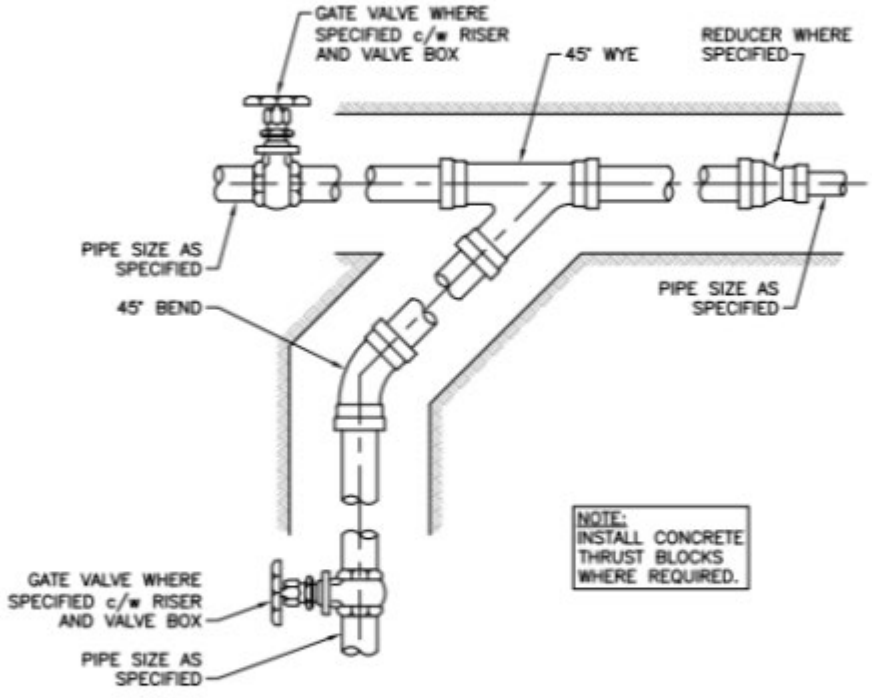
④ LANGLEY CONCRETE TYPE #66 WATER METER BOX c/w CAST IRON LID MARKED 'SEWER' (TO BE RATED FOR H20 LOADING WHEN INSTALLED IN ROAD OR DRIVEWAY).

⑤ 12ø VALVE AND CAP c/w 50øx12ø TEE (FOR PRESSURE TESTING).

NOTE:
-REFER TO MMCD SECTION 33 34 01 – SEWAGE FORCEMAINS FOR DETAILED SPECIFICATIONS
-REFER TO APPROVED PARTS LIST FOR ADDITIONAL INFORMATION

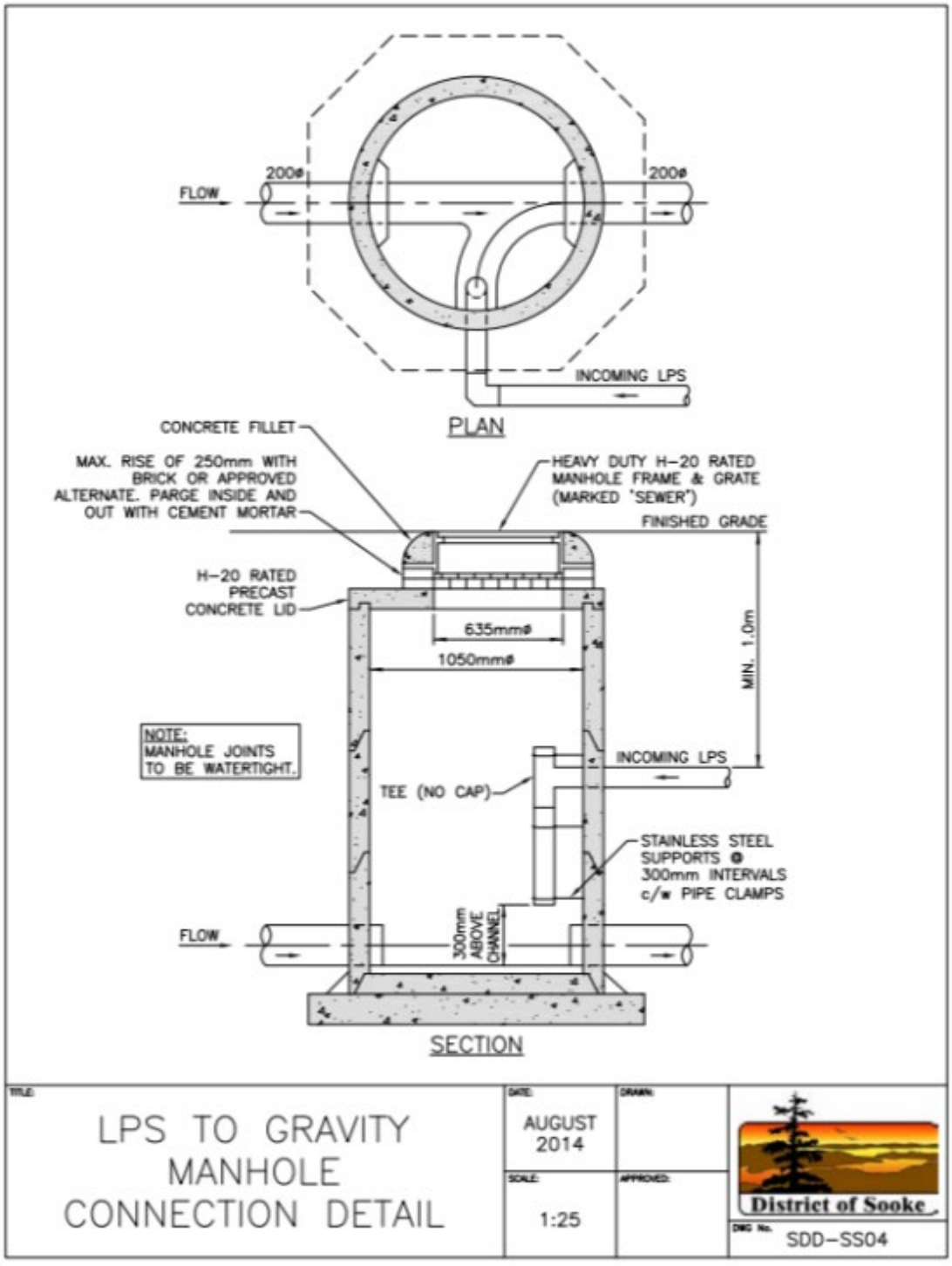
TITLE:	DATE:	DRAWN:	
LOW PRESSURE SERVICE CONNECTION DETAIL	AUGUST 2014		District of Sooke
	SCALE: 1:25	APPROVED:	DWG No. SDD-SS01


NELSON OR ROBAR VALVE BOX c/w LID MARKED 'SEWER', TYP. (TO BE RATED FOR H20 LOADING WHEN INSTALLED IN ROAD OR DRIVEWAY)
PLACE 1.0mø ASPHALT SURROUND WHEN VALVE BOXES NOT IN ASPHALT OR CONCRETE
65mmø BRASS HYDRANT OUTLET WITH BRONZE CAP
65mmø x 50mmø ADAPTOR
40mm THICK WOODEN PLUG TO FIT
150mmø PVC PIPE
CONCRETE BRICKS TO SUIT, TYP.
20 MPa CONCRETE THRUST/SUPPORT BLOCK
150mm
300mm
450mm
150mmø PVC PIPE
50mmø AUTOMATIC DRAIN VALVE
PLACE CONCRETE THRUST BLOCK AGAINST WELL SUPPORTED FORMWORK TO PROTECT VALVE AND PIPING
CONCRETE THRUST BLOCK
FORCEMAIN
DRAIN ROCK
50mmø SCH80 BRASS OR PVC PIPE c/w THREADED ENDS AND BRASS OR PVC FITTINGS
2 TIE RODS. 19mmø OR 25mmø AS SPECIFIED TO SUIT TEST PRESSURE
C.I. CAP WITH 50mmø TAP
O.D. + 150mm SQUARE, 50mm THICK CEDAR BETWEEN CAP AND THRUST BLOCK ON TEMPORARY INSTALLATIONS ONLY
BLOW-OFF/PUMP-OUT DETAIL
1:25
H-20 RATED FRAME & LID (MARKED 'SEWER')
600mmø
600 MIN. OR 750 MAX. SEPARATION
25ø APCO SEWAGE AIR VALVE
600ø CLEANOUT BARREL
25ø CORPORATION STOP
75ø x 75ø x 25ø SCH80 TEE
SEWER AIR RELEASE VALVE DETAIL
1:25
NOTE:
-REFER TO MMCD SECTION 33 34 01 – SEWAGE FORCEMAINS FOR DETAILED SPECIFICATIONS
TITLE:
LPS
BLOW-OFF/PUMP-OUT & SEWER AIR RELEASE VALVE DETAILS
DATE:
AUGUST 2014
DRAWN:
SCALE:
1:25
APPROVED:
District of Sooke
DWG No.
SDD-SS02



LOW PRESSURE SYSTEM BRANCH DETAIL
N.T.S.

TITLE:	DATE:	DRAWN:	
LOW PRESSURE SYSTEM BRANCH DETAILS	AUGUST 2014		District of Sooke
	SCALE: 1:25	APPROVED:	DWG No. SDD–SS03


FLOW
200ø
200ø
INCOMING LPS
PLAN
CONCRETE FILLET
MAX. RISE OF 250mm WITH BRICK OR APPROVED ALTERNATE. PARGE INSIDE AND OUT WITH CEMENT MORTAR
HEAVY DUTY H–20 RATED MANHOLE FRAME & GRATE (MARKED "SEWER")
FINISHED GRADE
H–20 RATED PRECAST CONCRETE LID
635mmø
1050mmø
MIN. 1.0m
NOTE: MANHOLE JOINTS TO BE WATERTIGHT.
INCOMING LPS
TEE (NO CAP)
STAINLESS STEEL SUPPORTS @ 300mm INTERVALS c/w PIPE CLAMPS
300mm ABOVE CHANNEL
FLOW
SECTION
LPS TO GRAVITY MANHOLE CONNECTION DETAIL
DATE: AUGUST 2014
DRAWN:
SCALE: 1:25
APPROVED:
District of Sooke
DWG No. SDD–SS04

SCHEDULE 5

RAIN WATER MANAGEMENT

1.0 GENERAL

1.1 A rain water management system must be designed and constructed for all subdivisions or developments subject to this Bylaw. The system must be designed by a Professional Engineer, taking into account the existing drainage conditions in the entire watershed in which the development is located, so that for all events up to the predicted 1-in-100 year rainfall event, there is no increase in water levels or rates of erosion at any point in the watershed as a result of the subdivision or the development compared to the pre-existing conditions, prior to the removal of any natural vegetation from the site.

1.2 The above requirement applies to the temporary conditions on site during construction and to the completed subdivision or development.

1.3 The rain water management system, design, and construction must be in accordance with the requirements of this Schedule and the drainage system in the subdivision or development must be fully integrated with the systems in adjoining areas.

1.4 For infill development within the Suburban and Rural areas, a rain water management system is required where existing soil or site conditions make a drainage system necessary to protect the established amenities of adjoining properties or roads. Where a drainage system is required a ditch may be permitted which flows to an infiltration system, a watercourse or other ditch acceptable to the Municipal Engineer.

1.5 Within the Urban Area, the rain water management system may require an enclosed system installed by the Applicant complete with service connections to serve all lots and roads being created by subdivision or development at a depth and of capacity sufficient to serve the upstream catchment area including the proposed subdivision or development. The system must discharge to an infiltration system, a watercourse, ditch or enclosed drain acceptable to the Municipal Engineer.

1.6 This specification must govern the design of all drainage facilities within the District of Sooke.

1.7 The District of Sooke reserves the right to make all connections or alterations to existing drainage systems at the expense of the Applicant where it can be demonstrated that such works are necessary to accommodate the Applicant's development.

1.8 All drainage works must be designed with considerations for public safety, regulatory requirements, economic benefits and the natural environment.

1.9 The presence of an existing municipal drainage system does not mean, or imply, that the system has adequate capacity to receive the proposed design flows, nor does it indicate that the existing system pattern is acceptable to the District of Sooke. Existing facilities must be upgraded at the Applicant's expense to accommodate the required flows. Alternative drainage proposals may be considered.

1.10 The Professional Engineer is to submit a Drainage Certificate (in the form prescribed by the Chief Administrative Officer) that certifies that downstream drainage facilities for a distance of 3 km have been checked with respect to line, grade and size, and that the downstream facilities are capable of handling the drainage created by this project,

without causing any adverse effect to District of Sooke or private property.

1.11 Infiltration trenches and drywells are permitted where the native soils demonstrate high permeability and the groundwater table is well below the invert of the trench. Design must be site specific and include a positive drainage outlet.

1.12 An erosion and sediment control plan, prepared by a qualified professional, is required prior to commencement of any construction onsite. The plan is to satisfactorily address the control of soils and sediment during the construction period and until constructed earthwork stabilizes. The qualified professional is to provide written reports to the District of Sooke on a monthly basis on the status of the erosion and sediment control works. Any breach of the erosion and sediment control plan must be reported to the Municipal Engineer immediately.

1.13 All areas of exposed soil are to be covered up by September 15th of the year. This is to be done by the use of sprayed, seed impregnated composted mulch, its equivalent, or suitable alternative acceptable to the Municipal Engineer.

1.14 Runoff must be kept on the surface and treated in rainwater management systems (e.g. swales or ponds). Where roads or parking lots are fully paved, runoff shall, wherever possible, be intercepted and treated with an oil-grit separator and a surface detention facility or approved equal prior to discharge to a watercourse.

1.15 Designs and plans must be accepted by the Municipal Engineer prior to construction.

2.0 RAIN WATER MANAGEMENT PRINCIPLES

2.1 Rain Water Management is the planning, analysis and control of rain water runoff in consideration of the entire watershed. The design of the drainage system must incorporate techniques such as minor-major systems, lot grading, surface infiltration, subsurface disposal, storage, erosion control and other acceptable methods to mitigate the runoff impacts due to changes in land use.

2.2 A comprehensive Rain Water Management Plan is required for all subdivisions or developments. The plan must include all drainage facilities, lot grading (showing pre- and post- development ground elevations at lot corners and the building site), major flood path routing, and all other appropriate information pertinent to the design.

2.3 Minor systems, being those designed and installed as part of the Works and Services for the subdivision or development, must be designed for a 1-in-10 year rainfall event, providing the existing overland flow system will not have any increase in flow in a 1-in-100 year rainfall event.

2.4 The drainage system design must create an overland route within the subdivision or development for the 1-in-100 year rainfall event to allow for the failure of the minor drainage system. This route must be protected and have a statutory right-of-way in favour of the District of Sooke.

2.5 Where, in the opinion of the Municipal Engineer, future subdivision or development is probable for the lands adjacent to the subdivision or development, the drainage infrastructure must be extended to the property boundary in accordance with this Bylaw. A statutory right-of-way in favour of the District of Sooke must be provided for drainage infrastructure located on private property for access and maintenance.

3.0 DESIGN CRITERIA: RUNOFF PREDICTION

3.1 A Tributary Area Schematic diagram of the Drainage System must be submitted with the following:

a) the existing drainage system, if a system exists, indicated with a solid blue line;

b) an outline with a solid red line of the proposed drainage system from the existing upstream drainage system to the downstream end of the subdivision or development. Mains together with any proposed retention or detention structures to be installed must be shown with a solid line and proposed ditching with a broken “squiggly” line. The schematic must show the pipe diameter and grade and ditch grades;

c) an outline of the drainage area with a solid green line, indicating the tributary area of all surface water added to the proposed drainage system below the last existing outfall. When the subdivision or development is at the upper end of the drainage system, the green line must outline the tributary area of all water added to the proposed drainage system;

d) a broken green line indicating within this drainage area the sub-areas of additional drainage added at each tributary drainage facility; and

e) the calculated numerical values of major and minor flows (Q) in litres per second, Tributary (A) in hectares and Time of Concentration (T) in minutes at the downstream end of the subdivision or development. When the subdivision or development is not at the upper end of the drainage system, the same information noted above must be provided at the upstream end of the subdivision or development.

3.2 The Professional Engineer must summarize drainage computations pertaining to the project and submit this data together with the above diagram.

3.3 The intensity-duration curve to be used must be that of Supplementary Detail Drawing SDD-RW01.

3.4 The following minimum values must be used for the inlet time to the upstream end of non- extendable drainage works for the coefficient of runoff (R):

a) unimproved areas, parks, playgrounds, etc. - inlet time to be determined using standard engineering practice acceptable to the District of Sooke and R = 0.35;

b) residential areas - low density, single family dwelling neighbourhoods – inlet time = 15 minutes and R = 0.60;

c) largely impervious areas – inlet time = 5.0 minutes and 0.90 <R <1.0.

The above standards are minimum values only. Composite values based on percentages of different types of contributory areas may be established from the above figures. Care should be taken to incorporate future land use in the design.

3.5 French drains, diversion ditches, catch basins, etc. must be installed as required in areas subject to excessive overland flows.

4.0 DESIGN CRITERIA: PIPE AND DITCH CAPACITY

4.1 Pipes must be designed to carry the required design flow when flowing full except for pipes carrying flows less than that required for the minimum pipe size.

4.2 Pipe capacity must be determined by the Manning Formula using a roughness co-efficient of n = 0.013 for concrete, n=0.011 for PVC, and n = 0.015 for C.M.P.

4.3 The minimum grade for pipes must normally be that which produces a velocity of 1.0 metre per second in the pipe when flowing full. Where unavoidable steep grades result in velocities exceeding 6 m/s, engineering measures are to be presented and accepted by the Municipal Engineer that prevent pipe erosion and movement and demonstrate normal life-expectancy of the overall drainage feature.

4.4 Service connections for single family dwellings must be 100 mm minimum diameter pipe laid at a grade not less than two percent and connected at right angles to the main as shown on MMCD Drawing S7 with monolithic wyes, tees, or hubs of acceptable design and material.

4.5 All service connections must be provided with an inspection chamber at the property line or at the right of way boundary in accordance with MMCD Drawing Number S9. All inspection chambers located in driveways require a H20 loading pull box complete with lid permanently marked “Drain”. All inspection chambers outside driveways require a pull box of similar dimensions to allow for protection and accessibility of the inspection chamber.

4.6 Service connections for other than single-family dwellings must be sized according to the criteria contained in the BC Code. Manholes must be installed at the junction with the main line of all service connections greater than or equal to 200 mm in size.

4.7 Mains must not be less than 200 mm in diameter.

4.8 Catch basin leads must be a minimum 150 mm diameter laid at a minimum grade of one percent. Only a single catch basin may be connected to each lead and double catch basins must have separate leads to the main.

4.9 Catch basins as detailed in MMCD Drawing S11 must be provided as required to collect from a maximum area of 400 square metres of road at the beginning of curb returns to which water flows and at low points. Rim elevations must be 10 mm below finished pavement grade. Side inlet catch basins must be installed at low points and in locations required by the District of Sooke.

4.10 Open ditches must enter an enclosed drain system through an inlet as per MMCD Drawing S13. The pipe accepting the flow from the ditch must be a minimum 300 mm diameter.

4.11 Outfall structures must be provided where the drainage system discharges. The area around and over the sewer must be built up with sandbags. The end of the storm sewer must project 300 mm from the toe of the backfill and be placed on standard sandbags filled with 17 MPa dry concrete mix. In the Town Centre area, the area around and over the storm sewer must be built up with mortared rock or acceptable alternative. A rock

riprap apron or other velocity dissipating structure must be placed immediately downstream.

4.12 Driveway culverts must be a minimum 300 mm diameter complete with headwalls. In the Town Centre area, the headwalls must be mortared rock or acceptable alternative.

4.13 Pre-cast or cast in place reinforced concrete outfall structures must be provided at all watercourses. In all cases energy dissipation must be provided to reduce maximum outlet flow velocity to 1.0 m/s.

4.14 Where an open channel or pipe system is not feasible for rain water management due to a lack of point of discharge or other reasons, an in-ground drainage disposal system may be considered subject to the following:

a) a geotechnical report of the soil condition by a qualified consultant;

b) a Professional Engineer designed seepage pit complete with size, location, specified material, an inlet structure and a positive emergency drainage outlet; and

c) the inclusion of appropriate pre-sediment treatment and clean out.

5.0 FIELD SUPPORT STRENGTH

5.1 The class and type of pipe and fittings, together with required class of bedding and trench widths must be selected so that the pipe will support the anticipated earth loading and any other surface dead and live loads with a safety factor of 1.5. Highway standard H20 loading is a minimum design load.

5.2 Notwithstanding the generality of paragraphs 5.1 and 6.1, the following minimum requirements must be met.

a) Drainage pipes should be of sufficient depth to permit gravity service to all tributary areas; and

b) minimum cover for pipes must be 1 metre.

6.0 ALIGNMENT AND GRADE

6.1 Drainage mains must be normally designed to follow a straight alignment and constant grade between manholes.

6.2 Whether horizontal or vertical, curves will only be acceptable when a straight alignment and constant grade between manholes is not possible.

a) The radius of a horizontal curve must not be less than 60 metres, or that radius recommended by the pipe manufacturer, whichever is the greater;

b) A vertical curve must not be less than 30 metres in length. The curve must be designed so that the pipe deflection does not exceed the manufacturer's specifications;

c) Only one curve, either horizontal or vertical, may be permitted between manholes.

7.0 LOCATION OF DRAINAGE INFRASTRUCTURE

7.1 Drain mains must be located within the road allowance where possible. Service connections must be installed to each proposed lot, connected to the main, and where feasible in a common trench with other services.

7.2 In locating the drainage main, the designer must make provision for the installation of other services such as water mains, sanitary sewers, curbs, sidewalks, gas, power, and telephone facilities.

7.3 Service connections must be extended to the edge of any right-of-way.

7.4 Where the drainage infrastructure can be extended to accommodate future subdivision or development upstream, the infrastructure must be extended to the limits of the project at the applicant's expense.

8.0 MANHOLES AND CLEANOUTS

8.1 The maximum distance between drain manholes may vary according to the pipe diameters as shown in the table below:

Pipe Size	**Maximum Spacing**
200 mm up to and including 375 mm	120 metres
400 mm up to and including 1200 mm	180 metres
over 1200 mm	300 metres

8.2 Manholes must be provided at the following additional locations:

a) at all changes of grade and/or alignment, except as provided in section 8.1 of this section;

b) at all changes of pipe size;

c) at all pipe junctions other than service connections and catch basin leads;

d) at the end of all drainage mains.

8.3 External drop manholes may be allowed only where particular circumstances preclude the use of normal manholes. These must be constructed wherever the change in invert elevations through the manhole is greater than 0.60m. Allowance must be made in the design for the effect of the resulting turbulence on the hydraulic capacity of the system.

8.4 The relative elevations entering and leaving a manhole must be such as to ensure that the manhole does not reduce the hydraulic capacity of the system. Allowances for energy losses or changes in velocity must be determined in accordance with sound hydraulic principles. Junctions must require special treatment as must all situations involving a pipe flowing into a smaller pipe on a steeper grade.

8.5 Manholes are normally constructed in accordance with the details as shown on MMCD Drawings S1, S2, and S3. In cases where these details will not suffice, a detailed design drawing must be submitted to the Municipal Engineer for consideration. All manholes with pipes 450 mm or larger must be individually designed.

8.6 Stubs must be placed in manholes to allow for future connections. The length of the stubs must be 0.60 metres minimum from the outside of the manhole and the end must be securely capped.

9.0 TESTING AND COMMISSIONING OF DRAINAGE INFRASTRUCTURE

9.1 Minimum quality control test frequencies specified are the minimum number required to determine sufficient trench compaction. The Contractor must perform as many tests as are necessary to ensure that the Works and Services conform to the requirements of this Bylaw regardless of the minimum number required as follows:

a) Trench bedding (mainline) – one test for every 75m of trench with a minimum of one between any two manholes.

b) Trench backfill (mainline) – one test for every 75m of trench at each 1.0m fill depth with a minimum of one between any two manholes.

c) Trench bedding (service) – one per road crossing.

d) Trench backfill (service) – one per road crossing at each 1.0m fill depth.

e) Roadbase – one per road crossing.

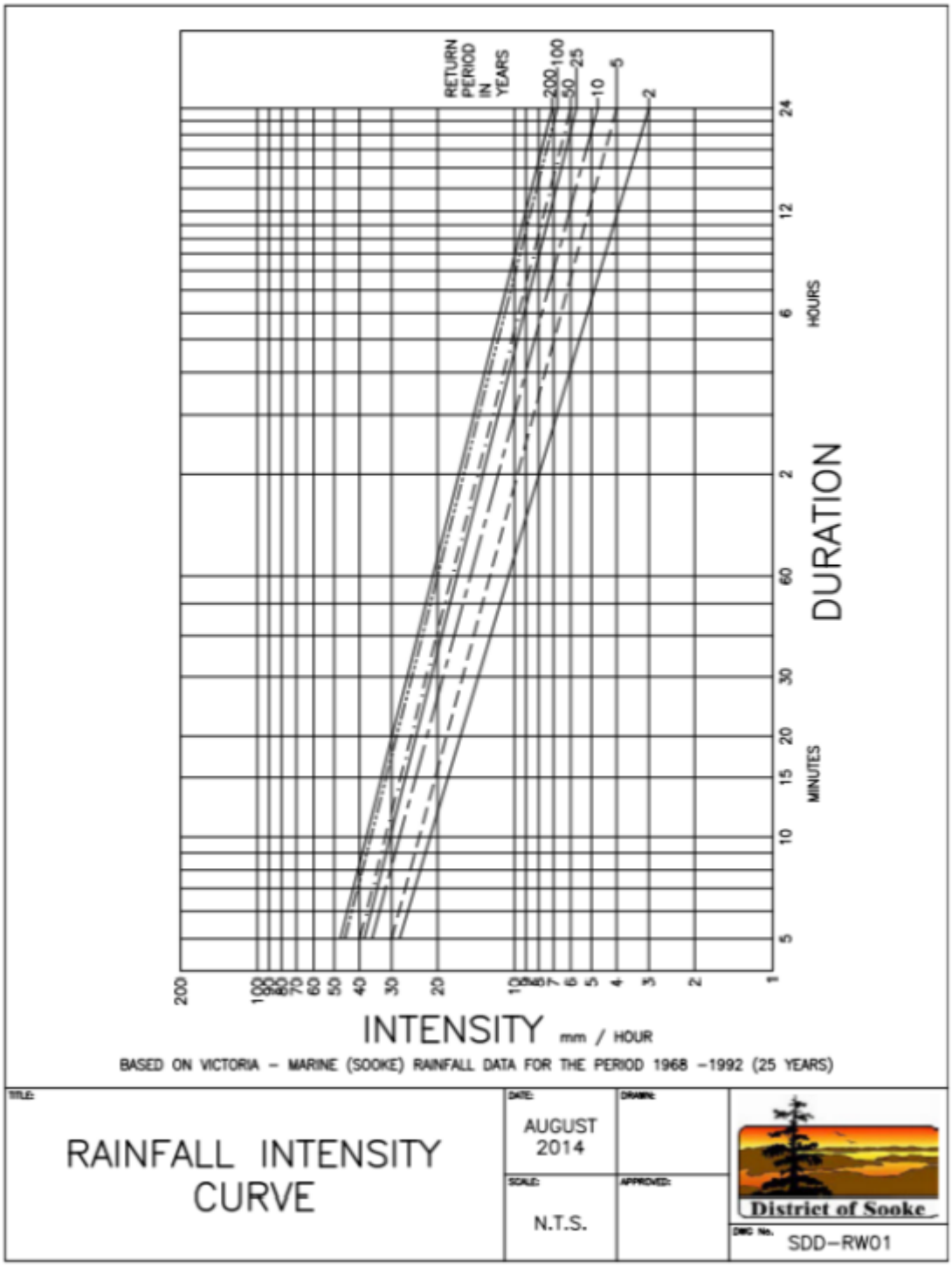
f) Roadbase – one for every 75m of trench with a minimum of one between any two manholes.

9.2 Upon completion of all drainage infrastructure, all mains and services up to the plugged Inspection Chambers must be thoroughly power flushed with potable water to remove sediments and solids. Flush water must not be directly discharged to the drainage system. Flush water and debris must be discharged to a suitable disposal area satisfactory to the District of Sooke.

9.3 All sewers must be video inspected and the Professional Engineer must certify that all the videos have been viewed and that the sewer and connections are clean and free of defects prior to submission to the Municipal Engineer for acceptance.

9.4 If the CCTV inspection indicates that the main flushing did not appropriately clean the drainage mains; or that deficiencies exist that require repairs to the main, such repairs must be made by the Contractor and the flushing and CCTV inspection repeated, at the Contractor's expense, until the storm sewer mains are found to be in a state acceptable to the District of Sooke.

9.5 The system must be flushed and re-videoed prior to acceptance of the 1 year Final Acceptance Certificate.


RETURN PERIOD IN YEARS
200
100
50
25
10
5
2
DURATION
HOURS
MINUTES
24
12
6
2
60
30
20
15
10
5
200
100
90
80
70
60
50
40
30
20
10
9
8
7
6
5
4
3
2
1
INTENSITY mm / HOUR
BASED ON VICTORIA – MARINE (SOOKE) RAINFALL DATA FOR THE PERIOD 1968 –1992 (25 YEARS)
TITLE:
RAINFALL INTENSITY CURVE
DATE:
AUGUST 2014
DRAWN:
SCALE:
N.T.S.
APPROVED:
District of Sooke
DWG No.
SDD–RW01

SCHEDULE 6

WATER SERVICING

1.0 GENERAL

1.1 All lots created by subdivision or being developed and located in areas serviced by a Water Utility must be connected to the Water Utility distribution system.

1.2 All lots created by subdivision or being developed and located within 30 metres of the terminus of the Water Utility infrastructure must extend and connect to the Water Utility distribution system.

1.3 All lots created by subdivision or being developed and not located in or within 30 metres of areas serviced by a Water Utility:

a) require an individual well, constructed on the lot, for which the requirements of this Schedule have been met; or

b) require that prior to Final Subdivision Approval, each lot be connected to a private utility for water, which has been granted a "Certificate of Public Convenience and Necessity" by the Ministry of Forests, Lands & Natural Resource Operations, Utility Regulation Section, Water Management Branch and meets all requirements of this Schedule.

1.4 Upon approval by the District of Sooke in accordance with s.921 of the *Local Government Act*, a suitable alternative Water Utility will be considered provided that it meets all the requirements for water supply and potable water of this Schedule.

1.5 All designs must be submitted to and accepted by the Municipal Engineer prior to construction.

2.0 WATER SYSTEM IN WATER UTILITY AREAS

2.1 Where water is supplied by a Water Utility, the Water Utility specifications have precedence. If the Water Utility specifications are silent on any issue, the specifications in this Schedule apply.

2.2 The location of the fire-fighting platform for each lot must be within 150 metres, measured along any access route and along the highway to which the access route connects, of a fire hydrant.

2.3 Wherever possible and practicable, in the opinion of the Municipal Engineer, pipes supplying water to a subdivision or development must be free of dead ends or must be constructed to the property boundary of the subdivision or development so that future subdivision or development shown in the *Official Community Plan* for the District of Sooke can provide for the continuation of these water supply lines to eliminate dead ends.

2.4 Where a final road pattern of a subdivision or development creates a watermain network with excessive dead ends, a supplementary connection of a minimum of 150mm diameter is required to an existing main and may necessitate the provision of a right of way over private property in favour of the Water Utility.

2.5 Where a water tower or reservoir is required to provide adequate supply to the subdivision or development, an independent review by an environmental and a Geo-technical engineer is required. The location and access routes must be accepted by the Municipal Engineer, the Water Utility and any other jurisdictions having authority. It must be demonstrated by the Applicant that the proposed tower or reservoir will not interfere with the aesthetics of the existing and potential future development of the surrounding area.

2.6 Fire Hydrants on private property must have a right-of-way in favour of the Water Utility for maintenance, and must be installed and mounted by the appropriate Water Utility Department.

3.0 INDIVIDUAL WELLS

3.1 Individual groundwater wells are required to meet the following requirements:

a) A Professional Engineer or a Geoscientist who is a hydro-geologist experienced in groundwater must be responsible for the location, evaluation, design, and construction of the groundwater well. This professional is required to certify that the groundwater wells constructed for the subdivision or development supply potable water which meets the bacteriological standards of the Drinking Water Protection Act unless other wise directed by the Approving Officer.

b) The Professional Engineer must prepare, seal and submit a recent hydro-geological evaluation report, which includes an assessment of the aquifer's vulnerability to contamination, on this groundwater system for providing drinking water for the subdivision or development. This report must include a to-scale site plan showing the location of the well sites including any unsuccessful test wells. The report must discuss, as a minimum, the impact of the proposed development on this well and all others in the aquifer, the hydro geological setting of the well, aquifer boundaries, recharge conditions, well water quality now and in the future, and the possibility of well contamination. The report must include the results of all water quality and quantity testing undertaken as part of the testing program and the comments from other authorities reviewing the data.

c) Wells must be located, constructed, tested and disinfected in accordance with the current provincial regulations and codes of practice.

d) The total dependable yield of the well must exceed 2500 litres per day of potable water as defined in this Bylaw. The groundwater source must be capable of sustaining this rate of flow continuously without utilizing more than 70% of the available draw down below the lowest seasonal static groundwater level. A well test must be carried out after the well is constructed to determine if the well is capable of meeting the design demand of 2500 litres per day per lot served. This test must involve continuous pumping at a constant discharge rate for a minimum of 10 hours and recovery level monitoring until the original groundwater level is achieved. In addition the well must be capable of providing a sustained yield of 9 litres per minute per lot served for a minimum of 2 hours.

4.0 WATER SUPPLY FOR FIREFIGHTING IN AREAS NOT SERVICED BY A WATER UTILITY

4.1 This standard identifies in areas not serviced by a Water Utility the minimum requirements for the provision of a water supply by the Applicant for fire fighting purposes.

4.2 Fire flow demand must be in accordance with the current ”Water Supply for Public Fire Protection”, by the Fire Underwriters Survey (FUS) for the existing or anticipated land use.

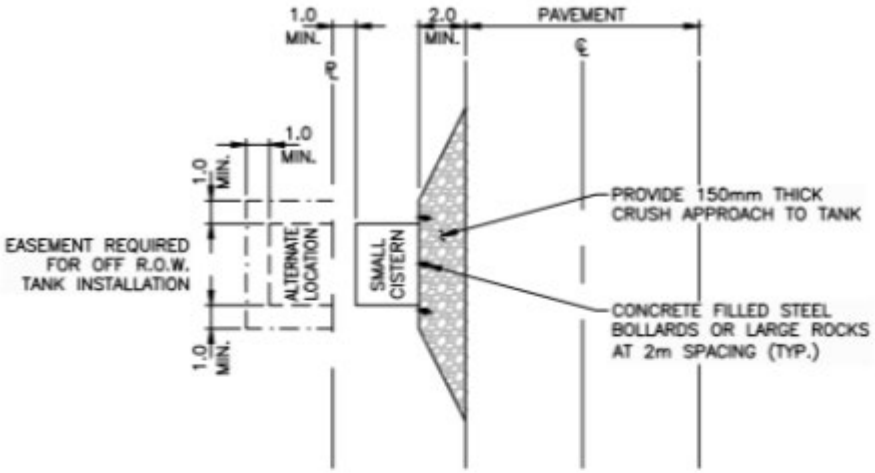
4.3 If the FUS recommended fire flows are not available, a reduction to the prescribed fire flows may be permitted subject to:

a) In the case of subdivision, the registration of a section 219 covenant under the *Land Title Act* on the property title that requires all residential buildings to be serviced with residential fire sprinklers in accordance with NFPA 13D [National Fire Protection Association “Standard for the Installation of Sprinkler Systems in 1 and 2 Family Dwellings and Manufactured Homes”]; or

b) In the case of development on an existing lot, any residential building for which a building permit application is issued being serviced with residential fire sprinklers in accordance with that standard.

4.4 An all weather access road suitable for fire fighting vehicles is to be provided, with any required rights of way, to all dry hydrants and cisterns in the system.

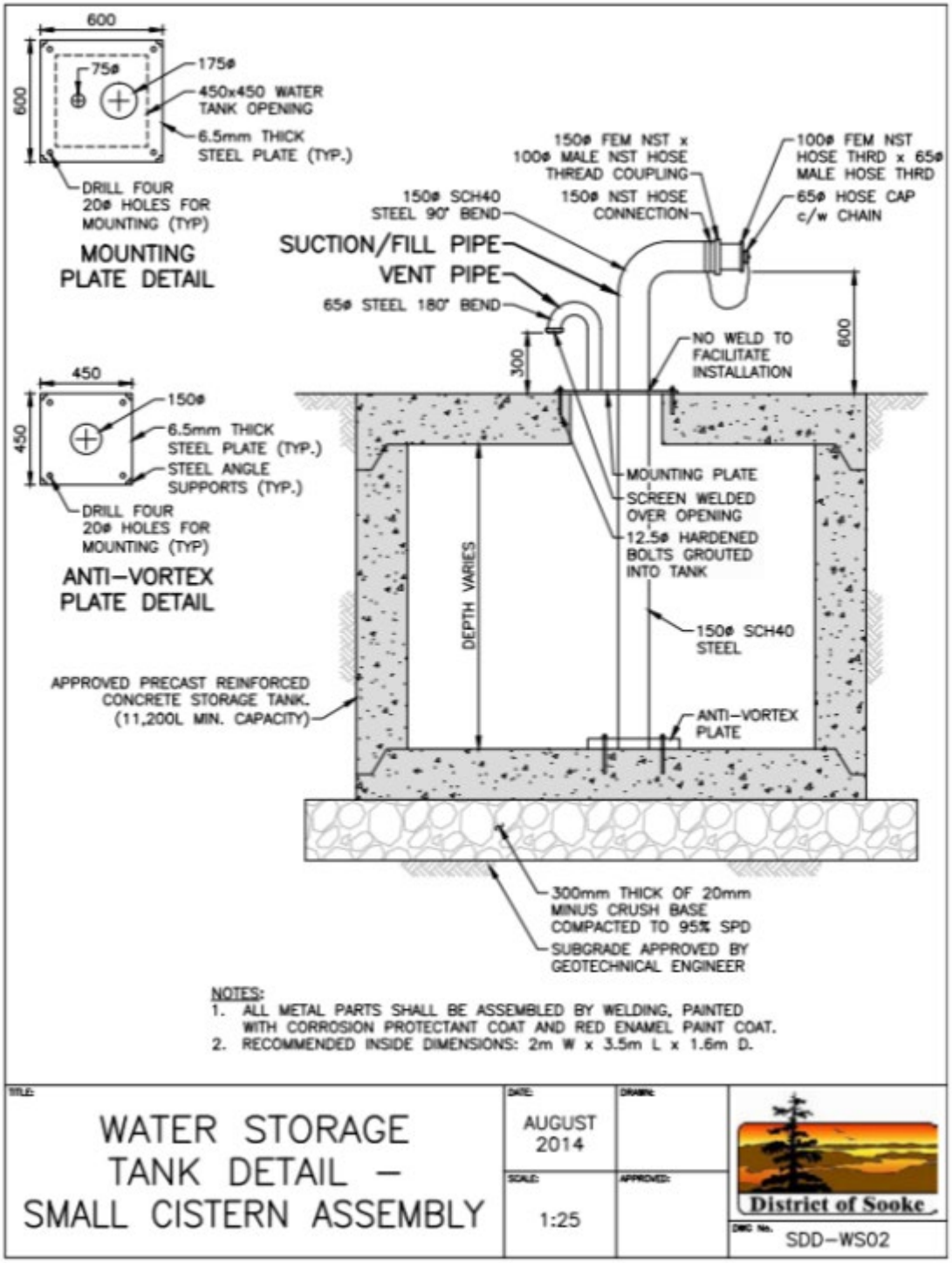
4.5 The establishment of a minimum water supply for fire fighting in each subdivision or development area must be accepted by the Municipal Engineer prior to the design of the water supply system for fire fighting.



SPECIFICATIONS:

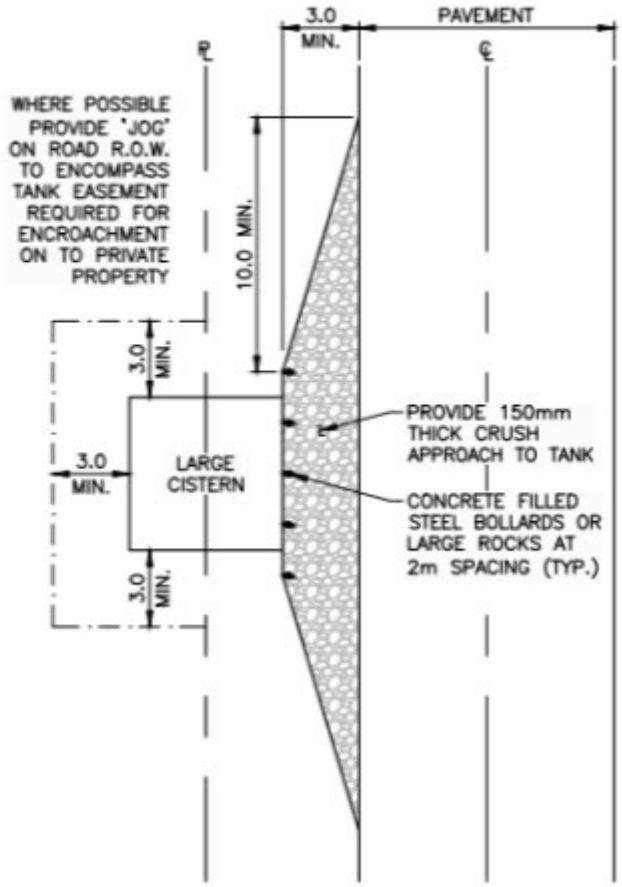
1. IF BUILDING IS MORE THAN 305m FROM A MAJOR WATER SOURCE (LARGE CISTERN, DRY HYDRANT, ETC.), A SMALL CISTERN IS REQUIRED. CISTERN SHALL BE SITED 15–30m FROM THE BUILDING SITE.
2. MINIMUM CISTERN CAPACITY TO BE 11,200L.
3. PREFABRICATED CONCRETE STORAGE TANKS WILL BE CONSIDERED. DESIGN OF THE CISTERN TO BE SUBMITTED TO THE DISTRICT OF SOOKE APPROVING OFFICER OR DESIGNATED PERSONNEL FOR APPROVAL PRIOR TO CONSTRUCTION. PLANS SHOULD IDENTIFY SITING LOCATIONS.
4. CAST–IN–PLACE CONCRETE TO ACHIEVE 20,700kPa 28–DAY STRENGTH. CONCRETE SHALL BE MIXED, PLACED, AND CURED WITHOUT THE USE OF CALCIUM CHLORIDE.
5. ALL SUCTION, VENT AND FILL PIPING TO BE SCHEDULE 40 STEEL.
6. INITIAL SUCTION CONNECTION MUST BE 150Ø NST HOSE THREAD. FINAL CONNECTION MUST BE 65Ø NST HOSE THREAD. FINAL CONNECTION MUST BE CAPPED.
7. ENTIRE CISTERN TO BE COMPLETED AND INSPECTED PRIOR TO ANY BACKFILLING. NATIVE BACKFILL MAY BE USED COMPACTED TO MIN. 95% SPD.
8. BEDDING FOR CISTERN SHALL CONSIST OF MIN. 300mm THICK OF 20mm MINUS PIT–RUN GRAVEL COMPACTED TO MIN. 95% SPD.
9. TANK TO BE DESIGNED SO THAT CISTERN WILL NOT FLOAT WHEN EMPTY.
10. DEPENDING ON SITING, TANK MAY HAVE BACKFILL OVER TOP. ALL BACKFILL SHALL EXTEND 3m BEYOND THE EDGE OF THE CISTERN AND THEN HAVE A MAX. 3:1 SLOPE TO BE TOPSOILED AND SEEDED.
11. PITCH OF SHOULDER AND VEHICLE PAD FROM EDGE OF PAVEMENT TO PUMPER SUCTION CONNECTION SHALL BE FROM 1% TO 6% TOWARDS ROAD.
12. SHOULDER AND VEHICLE PAD TO BE SUFFICIENT LENGTH TO PERMIT CONVENIENT TRUCK CONNECTION.
13. ALL HORIZONTAL SUCTION PIPING TO HAVE 1% SLOPE AWAY FROM PUMPER TRUCK CONNECTION.
14. INSTALLER TO BE RESPONSIBLE FOR COMPLETELY FILLING CISTERN UPON ACCEPTANCE BY DISTRICT OF SOOKE.

TITLE:	DATE:	DRAWN:	
WATER STORAGE TANK DETAIL – SMALL CISTERN PLAN	AUGUST 2014		District of Sooke
	SCALE: 1:250	APPROVED:	DWG No. SDD–WS01


600
600
75ø
175ø
450x450 WATER TANK OPENING
6.5mm THICK STEEL PLATE (TYP.)
DRILL FOUR 20ø HOLES FOR MOUNTING (TYP)
MOUNTING PLATE DETAIL
450
450
150ø
6.5mm THICK STEEL PLATE (TYP.)
STEEL ANGLE SUPPORTS (TYP.)
DRILL FOUR 20ø HOLES FOR MOUNTING (TYP)
ANTI-VORTEX PLATE DETAIL
150ø FEM NST x 100ø MALE NST HOSE THREAD COUPLING
100ø FEM NST HOSE THRD x 65ø MALE HOSE THRD
150ø SCH40 STEEL 90° BEND
150ø NST HOSE CONNECTION
65ø HOSE CAP c/w CHAIN
SUCTION/FILL PIPE
VENT PIPE
65ø STEEL 180° BEND
300
600
NO WELD TO FACILITATE INSTALLATION
MOUNTING PLATE
SCREEN WELDED OVER OPENING
12.5ø HARDENED BOLTS GROUTED INTO TANK
DEPTH VARIES
150ø SCH40 STEEL
APPROVED PRECAST REINFORCED CONCRETE STORAGE TANK. (11,200L MIN. CAPACITY)
ANTI-VORTEX PLATE
300mm THICK OF 20mm MINUS CRUSH BASE COMPACTED TO 95% SPD
SUBGRADE APPROVED BY GEOTECHNICAL ENGINEER
NOTES:
1. ALL METAL PARTS SHALL BE ASSEMBLED BY WELDING, PAINTED WITH CORROSION PROTECTANT COAT AND RED ENAMEL PAINT COAT.
2. RECOMMENDED INSIDE DIMENSIONS: 2m W x 3.5m L x 1.6m D.
TITLE:
WATER STORAGE TANK DETAIL – SMALL CISTERN ASSEMBLY
DATE:
AUGUST 2014
DRAWN:
SCALE:
1:25
APPROVED:
District of Sooke
DWG No.
SDD–WS02

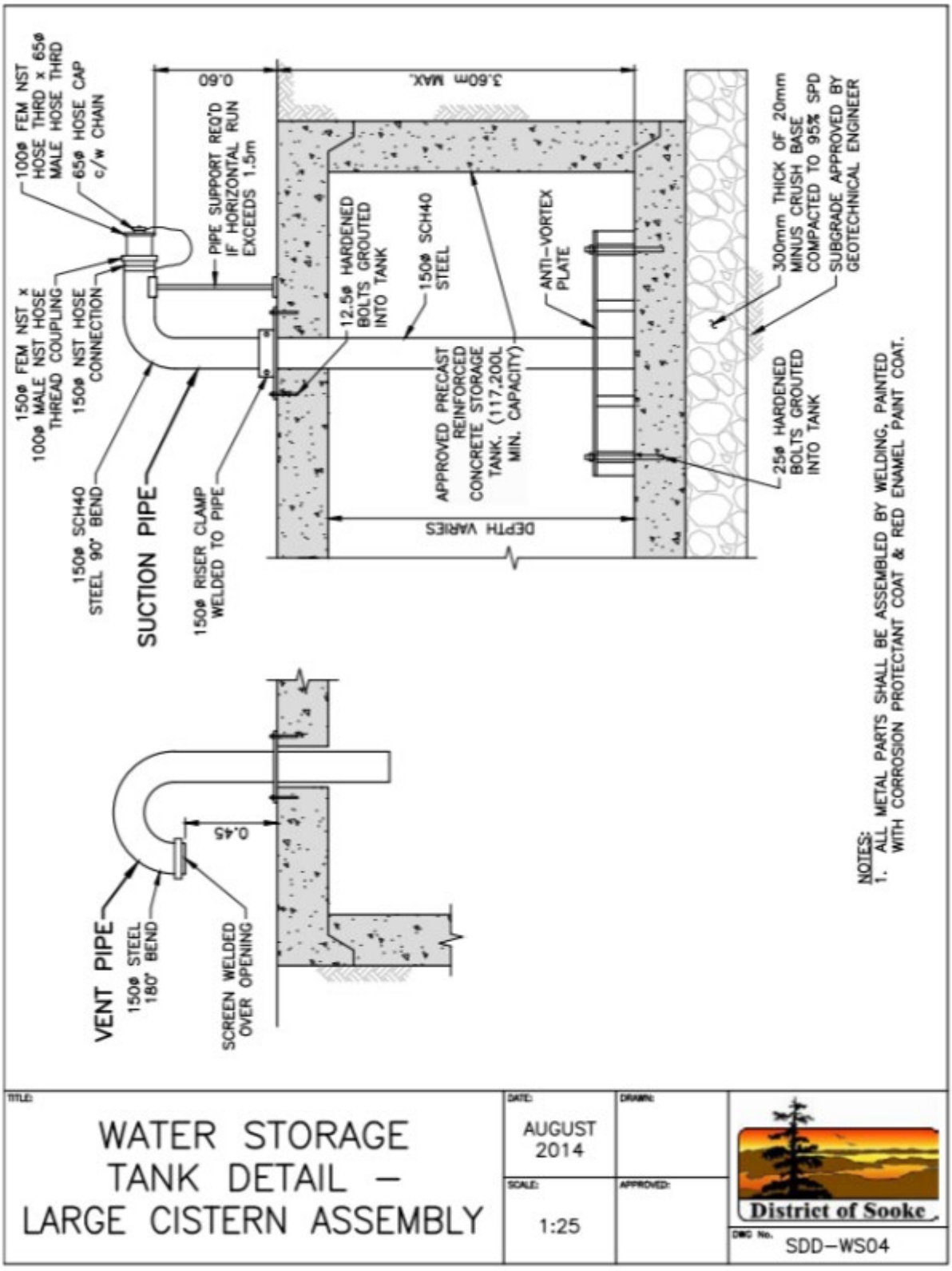
SPECIFICATIONS:

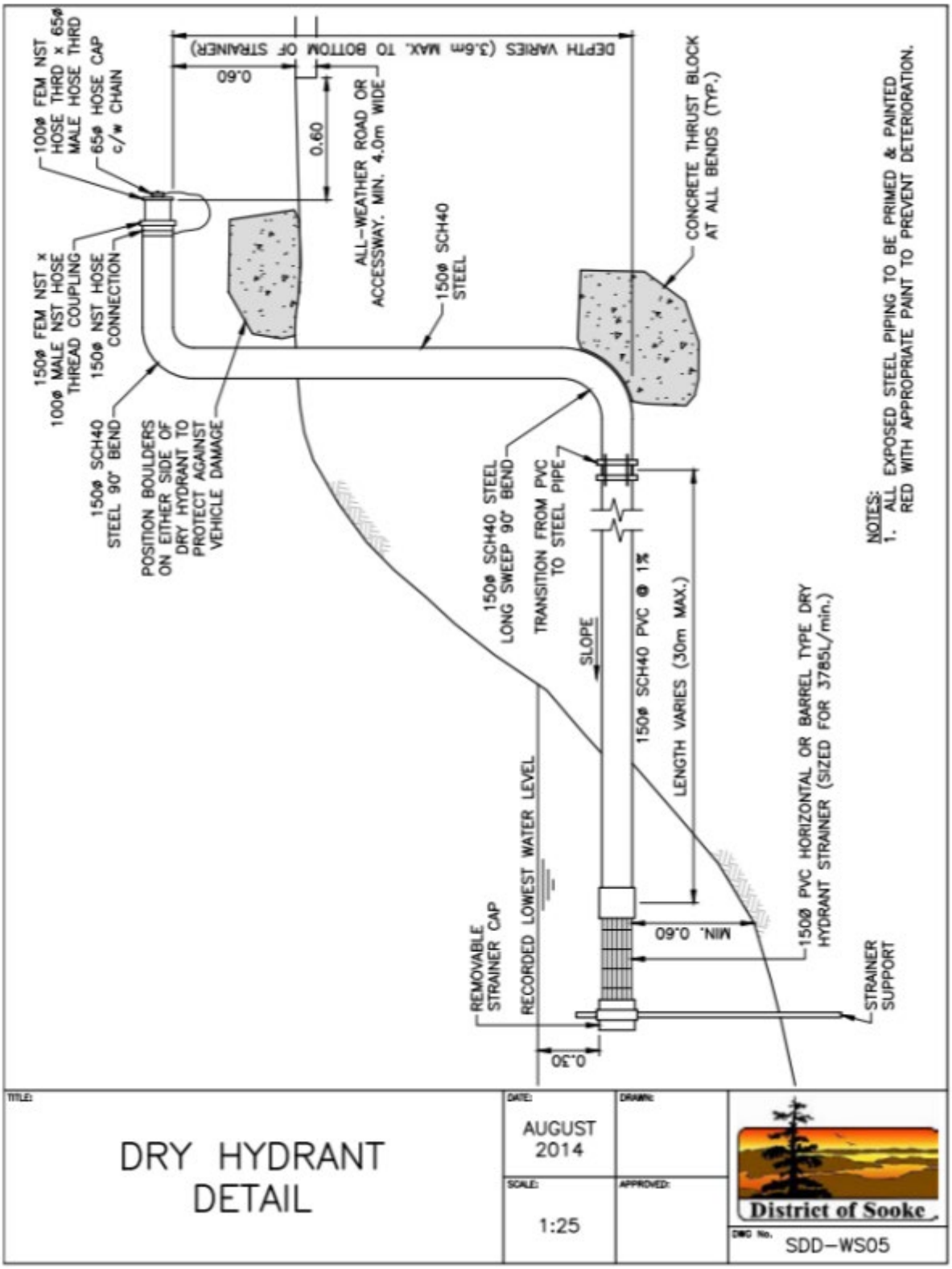
1. THE LARGE CISTERNS SHALL BE LOCATED NO MORE THAN 610m FROM ANOTHER APPROVED LARGE CAPACITY WATER SOURCE (LARGE CISTERN, DRY HYDRANT ETC.).
2. MINIMUM CISTERN CAPACITY TO BE 113,500L.
3. SUCTION PIPING SYSTEM TO BE CAPABLE OF DELIVERING 3800L/MIN FOR 75% OF THE CISTERN CAPACITY.
4. DESIGN OF THE CISTERN TO BE SUBMITTED TO THE DISTRICT OF SOOKE APPROVING OFFICER OR DESIGNATED PERSONNEL FOR APPROVAL PRIOR TO CONSTRUCTION. ALL PLANS MUST BE SIGNED BY A REGISTERED PROFESSIONAL ENGINEER. PLANS SHOULD IDENTIFY SITING LOCATIONS.
5. ENTIRE CISTERN TO BE RATED FOR HIGHWAY LOADING.
6. CAST-IN-PLACE CONCRETE TO ACHIEVE 20,700kPa 28-DAY STRENGTH. CONCRETE SHALL BE MIXED, PLACED, AND CURED WITHOUT THE USE OF CALCIUM CHLORIDE.
7. ALL SUCTION, VENT, AND FILL PIPING TO BE SCHEDULE 40 STEEL.
8. INITIAL SUCTION CONNECTION MUST BE 150Ø NST HOSE THREAD. FINAL CONNECTION MUST BE 65Ø NST HOSE THREAD. FINAL CONNECTION MUST BE CAPPED.
9. SUCTION PIPE CONNECTION TO BE 0.5m-0.6m ABOVE LEVEL OF AREA WHERE VEHICLE WILL BE LOCATED WHEN CISTERN IS IN USE.
10. SUCTION PIPE MUST BE SUPPORTED EITHER TO TOP OF TANK OR TO A LEVEL BELOW FROST LINE.
11. BOTTOM OF SUCTION PIPE TO PUMPER CONNECTION NOT TO EXCEED 3.6m VERTICAL DISTANCE.
12. FILLER PIPE SIAMESE SHALL HAVE 65Ø NATIONAL STANDARD FEMALE THREADS WITH PLASTIC CAPS.
13. FILLER PIPE SIAMESE SHALL BE AT 0.45m ABOVE FINAL BACKFILL GRADE.
14. ENTIRE CISTERN MUST BE COMPLETED AND INSPECTED PRIOR TO ANY BACKFILLING.
15. ALL BACKFILL MATERIAL WITHIN 1.5m OF TANK TO BE SCREENED GRAVEL WITH NO STONES LARGER THAN 38mm & COMPACTED IN 300mm LIFTS. NATIVE BACKFILL MAY BE USED OUTSIDE OF 1.5m COMPACTED IN 450mm LIFTS.
16. BEDDING FOR CISTERN SHALL CONSIST OF MIN. 300mm THICK OF 25mm MINUS PIT-RUN GRAVEL COMPACTED TO MIN. 95% SPD.
17. TANK TO BE DESIGNED SO THAT CISTERN WILL NOT FLOAT WHEN EMPTY.
18. PERIMETER OF TANK AT FLOOR/WALL JOINT MUST BE SEALED WITH 200mm PVC WATER STOP OR APPROVED EQUAL.
19. PUMPER TRUCK MUST BE ABLE TO PARK WITHIN 3m OF SUCTION PIPE.
20. DEPENDING ON SITING, TANK MAY HAVE BACKFILL OVER TOP. ALL BACKFILL SHALL EXTEND 3m BEYOND EDGE OF THE CISTERN AND THEN HAVE A MAX 3:1 SLOPE. SLOPE TO BE TOPSOILED & SEEDED.



22. PITCH OF SHOULDER AND VEHICLE PAD FROM EDGE OF PAVEMENT TO PUMPER SUCTION CONNECTION SHALL BE FROM 1% TO 6% TOWARDS ROAD.
23. SHOULDER AND VEHICLE PAD TO BE SUFFICIENT LENGTH TO PERMIT CONVENIENT TRUCK CONNECTION.
24. ALL HORIZONTAL SUCTION PIPING TO HAVE 1% SLOPE AWAY FROM PUMPER TRUCK CONNECTION.
25. INSTALLER TO BE RESPONSIBLE FOR COMPLETELY FILLING CISTERN UPON ACCEPTANCE BY DISTRICT OF SOOKE.
26. CISTERN TO HAVE A 1050Ø MANHOLE & LOCKABLE LID, OF A TYPE APPROVED BY DISTRICT OF SOOKE, EXTENDED TO FINISHED GRADE.
27. CISTERN SHALL HAVE 19mm GALVANIZED IRON RUNGS SPACED 300mm ON CENTRE GROUTED INTO WALL & EXTENDED FROM ACCESS TO FLOOR OF TANK.

TITLE:	DATE:	DRAWN:	
WATER STORAGE TANK DETAIL – LARGE CISTERN PLAN	AUGUST 2014		District of Sooke
	SCALE: 1:250	APPROVED:	DWG No. SDD–WS03


100ø FEM NST HOSE THRD x 65ø MALE HOSE THRD
65ø HOSE CAP c/w CHAIN
PIPE SUPPORT REQ'D IF HORIZONTAL RUN EXCEEDS 1.5m
0.60
3.60m MAX.
150ø FEM NST x 100ø MALE NST HOSE THREAD COUPLING
150ø NST HOSE CONNECTION
12.5ø HARDENED BOLTS GROUTED INTO TANK
150ø SCH40 STEEL
ANTI-VORTEX PLATE
300mm THICK OF 20mm MINUS CRUSH BASE COMPACTED TO 95% SPD
SUBGRADE APPROVED BY GEOTECHNICAL ENGINEER
APPROVED PRECAST REINFORCED CONCRETE STORAGE TANK. (117,200L MIN. CAPACITY)
25ø HARDENED BOLTS GROUTED INTO TANK
150ø SCH40 STEEL 90° BEND
SUCTION PIPE
150ø RISER CLAMP WELDED TO PIPE
DEPTH VARIES
NOTES:
1. ALL METAL PARTS SHALL BE ASSEMBLED BY WELDING, PAINTED WITH CORROSION PROTECTANT COAT & RED ENAMEL PAINT COAT.
0.45
VENT PIPE
150ø STEEL 180° BEND
SCREEN WELDED OVER OPENING
TITLE:
WATER STORAGE TANK DETAIL – LARGE CISTERN ASSEMBLY
DATE:
AUGUST 2014
DRAWN:
SCALE:
1:25
APPROVED:
District of Sooke
DWG No.
SDD–WS04


100ø FEM NST HOSE THRD x 65ø MALE HOSE THRD
65ø HOSE CAP c/w CHAIN
150ø FEM NST x 100ø MALE NST HOSE THREAD COUPLING
150ø NST HOSE CONNECTION
150ø SCH40 STEEL 90° BEND
POSITION BOULDERS ON EITHER SIDE OF DRY HYDRANT TO PROTECT AGAINST VEHICLE DAMAGE
DEPTH VARIES (3.6m MAX. TO BOTTOM OF STRAINER)
0.60
0.60
ALL-WEATHER ROAD OR ACCESSWAY, MIN. 4.0m WIDE
150ø SCH40 STEEL
CONCRETE THRUST BLOCK AT ALL BENDS (TYP.)
150ø SCH40 STEEL LONG SWEEP 90° BEND
TRANSITION FROM PVC TO STEEL PIPE
SLOPE
150ø SCH40 PVC @ 1%
LENGTH VARIES (30m MAX.)
NOTES:
1. ALL EXPOSED STEEL PIPING TO BE PRIMED & PAINTED RED WITH APPROPRIATE PAINT TO PREVENT DETERIORATION.
150Ø PVC HORIZONTAL OR BARREL TYPE DRY HYDRANT STRAINER (SIZED FOR 3785L/min.)
MIN. 0.60
REMOVABLE STRAINER CAP
RECORDED LOWEST WATER LEVEL
STRAINER SUPPORT
0.30
TITLE:
DRY HYDRANT DETAIL
DATE:
AUGUST 2014
DRAWN:
SCALE:
1:25
APPROVED:
District of Sooke
DWG No.
SDD–WS05

SCHEDULE 7

SIDEWALKS AND TRAILS

1.0 GENERAL

1.1 Sidewalks and trails must be provided and constructed to serve all subdivisions and developments as per the *Parks & Trails Master Plan, 2009* (PTMP), and where, as determined by the Approving Officer or Municipal Engineer, they are needed to provide pedestrian access to schools, parks, playgrounds, open spaces, recreational areas, transportation facilities, trail systems, beaches, and other community facilities, or for proper circulation of pedestrian traffic.

1.2 Sidewalks and trails must meander where possible to avoid trees and natural features as well as above ground permanent infrastructure.

1.3 The grades of trails may vary where appropriate to provide improved connectivity with sidewalks, parks, and trail systems.

1.4 Gravel shoulders are not permitted along sidewalks. Grass or landscape area must be reinstated to the edge of the sidewalk within the right-of-way.

2.0 TRAIL STANDARDS

2.1 Trails not constructed on highways must be within a minimum 5 m statutory right-of-way granted by the applicant to the District of Sooke.

2.2 Removable bollards per MMCD Drawing C12, or bicycle baffle per MMCD Drawing C11 are to be installed at all trail entrances, depending on trail usage and crossing location.

2.3 The entrance to parks or designated trail systems must be identified with the appropriate address sign and directional signage in accordance with the *Sign Regulation Bylaw*.

2.4 Trails must be constructed to the following requirements:

a) travelled trail width must be a minimum of 1.5 metres;

b) vegetation 0.5 metres on either side of the traveled trail must be cleared of all overhanging limbs, and all brush to a height of 3.0 metres above the travelled trail;

c) unless a suitable alternative is accepted by the Municipal Engineer, the travelled trail surface must be constructed of compacted native soils with packed quarry fines (10 mm) surfacing;

d) Drainage works must be provided by the applicant along the trail as determined through onsite review and detailed design;

e) The maximum sustained trail grade must be 10%. Grades of up to 15% maximum will be permitted in sections less than 100 metres long provided that they constitute in total less than 20% of the trails provided by the applicant; and

f) On trails located between two private lots, a 1.5 m fence must be constructed on the private lots and along the entire length of the trail. The fence must be maintained by the Owners.

3.0 SIDEWALK STANDARDS

3.1 Sidewalks must be constructed by the applicant within the highway right of way as shown on the Supplemental Detail Drawings of Schedule 3 *[amended by Bylaw No. 768 (404-1), 2019]*, except as provided in section 1.2 above.

3.2 Sidewalks must be constructed to the following requirements:

a) sidewalk width must be a minimum of 2.0 metres, with the exception of the following:

i. unless tying to an existing sidewalk that is narrower;

b) in the Suburban Area, sidewalk to be constructed of concrete or asphalt depending on the ambient standard;

c) within the area; south of Sooke Road, Highway 14, east of Murray Road and west of Slemko Road, sidewalks to be constructed of brick pavers. Pavers to be “Harvest” colour to match the existing pavers in the Town Centre, ashlar pattern for sidewalk, and herringbone pattern for driveway crossings. Brick paver sidewalks shall be 60mm thick where non-mountable curbs are specified and 80mm thick at driveway crossings, crosswalks, and parking bays.

d) drainage on sidewalk to be directed towards the roadway; and

e) the cross-slope of a sidewalk to be 2%, except at driveways and wheel chair ramps.

3.3 Wheelchair ramps, as per MMCD Drawings C8 or C9, from sidewalks, medians and traffic islands to pedestrian crossings must be provided at highway intersections and trail access points.

SCHEDULE 8

STREET TREES

1.0 GENERAL

1.1 A Tree Planting Plan must be submitted for review by the Municipal Engineer under this Bylaw prior to Final Subdivision Approval within those areas designated as Urban area and Suburban area in this Bylaw. The Tree Planting Plan must be implemented at the time of Building Permit or Highway Use Permit.

1.2 A Tree Planting Plan must be submitted for review by the Municipal Engineer under this Bylaw prior to issuance of Building Permit for a development within those areas designated as Urban area and Suburban area in this Bylaw. The Tree Planting Plan must be implemented prior to issuance of Building Permit.

1.3 Boulevard trees will not be required under the following conditions:

a) Where healthy boulevard street trees or healthy trees on adjacent private lands are growing at not less than the density or spacing requirements of this Schedule;
b) Where there are rock barriers or soil conditions which will not sustain a healthy tree;
c) where due to the size of the boulevard area fronting the lot and the presence of driveways or other site services, there is insufficient rom to plan a tree.

1.4 Notwithstanding section 1.3, in the event that street trees are not required or it is not possible to plant trees, cash in lieu of the normally required amount of trees will be paid to the District of Sooke at time of subdivision or Building Permit for development.

1.5 The Tree Planting Plan must be accepted by the Municipal Engineer prior to Final Subdivision Approval or issuance of a building permit. The tree planting plan must include:

a) tree species list with botanical and common names;
b) size, quantity and spacing of trees;
c) location of trees, utilities and sight-lines;
d) protection buffer for existing trees; and
e) staking and guying techniques.

2.0 UNIFORMITY

2.1 Each road section separated by intersecting streets must be planted with no more than two species. Wider boulevards may include different species positioned away from main road section plantings. Medians may include one additional tree species.

3.0 TYPE

3.1 Street trees acceptable to the District of Sooke will be in accordance with Table 9.1 or upon agreement for suitable alternative.

4.0 SIZE

4.1 The minimum tree sizes are as follows:

Road Type	Deciduous Calliper Size/Height	Coniferous Trees Calliper Size/Height
Local Roads	5 cm (3.0 to 4.25 m)	5 cm (2.0 to 2.25 m)
Other Roads	8 cm (4.5 to 5.8 m)	8 cm (4.0 to 4.25 m)

5.0 SPACING

5.1 Street trees must be planted a maximum of 15 m apart and be planted on both sides of the highway for new roads and each new lot fronting existing roads.

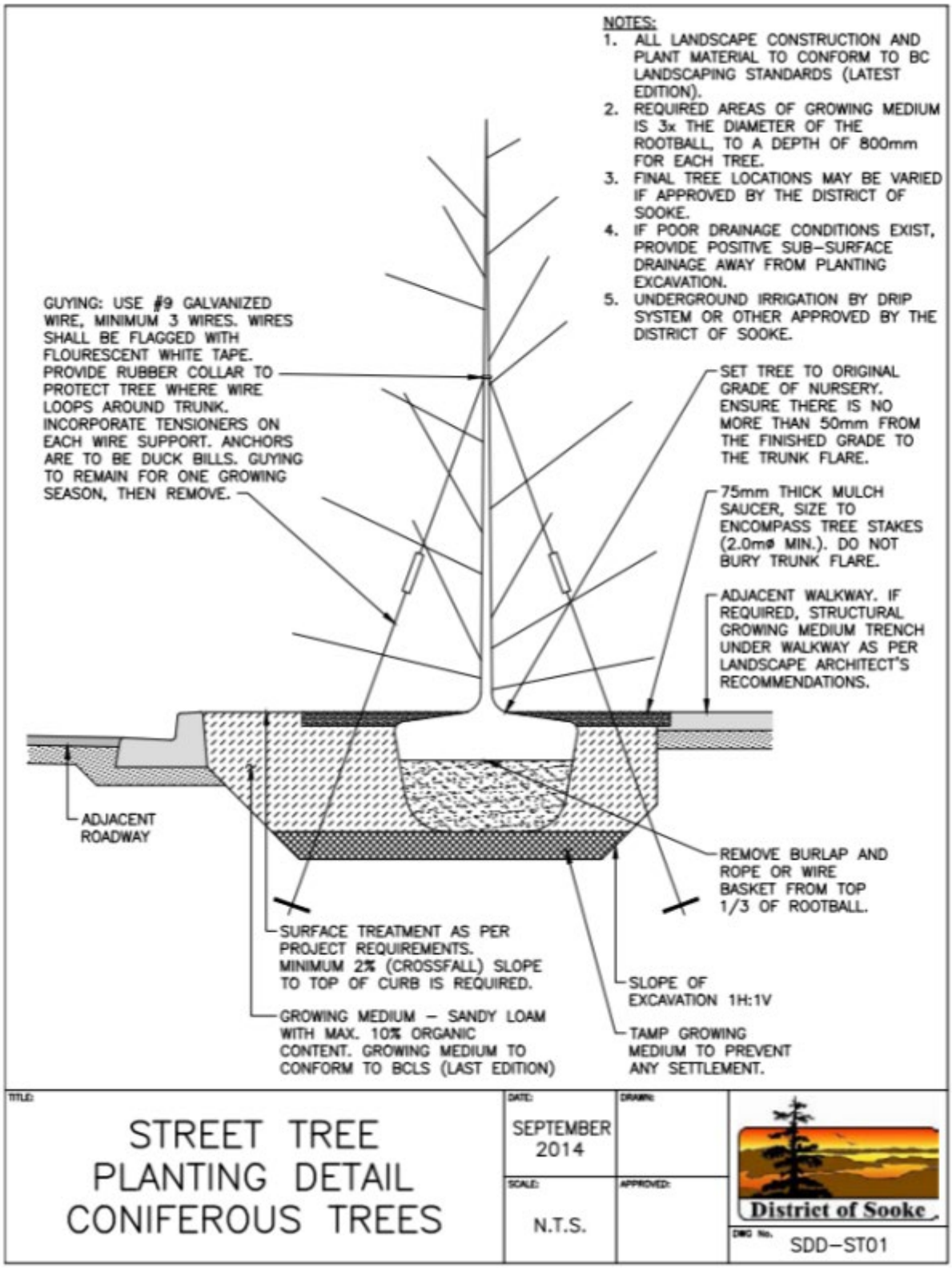
6.0 INSTALLATION

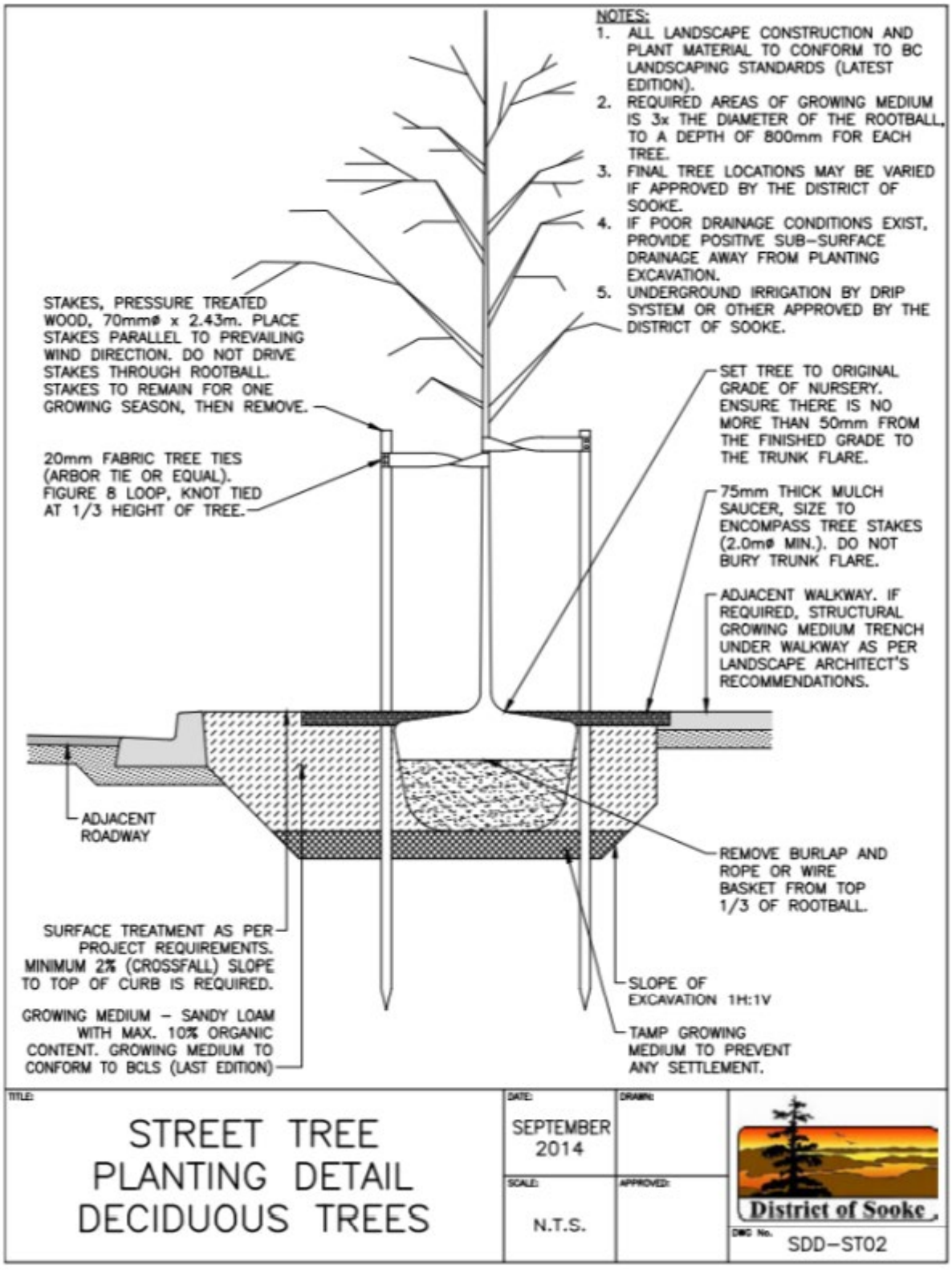
6.1 Street trees must be planted for the appropriate planting situation in accordance with the Supplementary Detail Drawings in this section as follows:

Street Tree	Drawing
Coniferous Species	SDD-ST01
Deciduous Species	SDD-ST02
Planting Detail in Structural Soil	SDD-ST03

TABLE 8.1

STREET TREES						
Species (DECIDUOUS)	**Common name**	**Foliage /Bark**	**Flower**	**Fruit**	**Fall colour**	**Other Attributes**
Small tree species						
Acer davidii	Snake bark maple	B			X	
Cornus kousa	Korean dogwood	F	X			Disease resistant
Crataegus x lavallei	Carriere Hawthorn	F		X		Pest resistant
Parrotia persica (standard form)	Ironwood tree	F			X	Good form
Prunus serrulata 'Kwanzan'	Ornamental fl cherry	F	X		X	
Medium tree species						
Betula jacquemontii	Jacquemont Birch	B	catkins		X	Good form
Betula papyrifera	Paperbark birch	B	catkins		X	Good form
Betula nigra 'Cully'	River birch	B	catkins		X	Pest resistant
Carpinus betula *	Hornbeam	F			X	Good form
Cercidiphyllum japonicum	Katsura tree	F			X	Scented leaves in Fall
Gleditsia triacanthos var. inermis *	Thornless honeylocust	F				Good form
Sorbus aucuparia (Cultivars)	Mountain ash	F	X	X	X	
Large tree species						
Acer platanoides *	Norway maple	F			X	Good form
Acer rubrum	Red maple	F			X	Pyramidal form
Fraxinus oxycarpa 'Raywood'	Ash	F				
Liquidamber styraciflua	American sweetgum	F			X	
Liriodendron tulipifera	Tulip tree	F	X		X	Good form
Quercus pallustris	Pin oak	F			X	
Tilia x euchlora *	Lime / linden	F			X	Pest resistant
Species (EVERGREEN CONIFERS)						
Cryptomeria japonica 'Elegans'	Incense cedar	F			X	Good form
Picea omorika	Serbian spruce	F				Columnar form
Pinus nigra	Austrian Pine	F				Good form
Pseudotsuga menzeisii	Douglas fir	F				Good form
Thuya plicata	Western red cedar	F				Good form
Tsuga heterophylla	Western hemlock	F				Good form
* Suitable for planting into Structural Soil tree pits						
COLUMNAR TREES FOR MEDIANS AND NARROW STREETS						
Acer rubrum 'Bowhall' *	Fastigiate red maple	F			X	Good form
Acer platanoides 'Columnar' *	Columnar Norway maple	F			X	Good form
Fagus sylvatica fastigiata ('Dawyek') *	Fastigiate beech	F			X	Good form
Quercus robur 'Fastigiata' *	Fastigiate oak	F				Good form
Pyrus calleryana 'Chanticleer' *	Columnar pear	F	X		X	Good form
* Suitable for planting into Structural Soil tree pits						


NOTES:
1. ALL LANDSCAPE CONSTRUCTION AND PLANT MATERIAL TO CONFORM TO BC LANDSCAPING STANDARDS (LATEST EDITION).
2. REQUIRED AREAS OF GROWING MEDIUM IS 3x THE DIAMETER OF THE ROOTBALL, TO A DEPTH OF 800mm FOR EACH TREE.
3. FINAL TREE LOCATIONS MAY BE VARIED IF APPROVED BY THE DISTRICT OF SOOKE.
4. IF POOR DRAINAGE CONDITIONS EXIST, PROVIDE POSITIVE SUB-SURFACE DRAINAGE AWAY FROM PLANTING EXCAVATION.
5. UNDERGROUND IRRIGATION BY DRIP SYSTEM OR OTHER APPROVED BY THE DISTRICT OF SOOKE.
GUYING: USE #9 GALVANIZED WIRE, MINIMUM 3 WIRES. WIRES SHALL BE FLAGGED WITH FLOURESCENT WHITE TAPE. PROVIDE RUBBER COLLAR TO PROTECT TREE WHERE WIRE LOOPS AROUND TRUNK. INCORPORATE TENSIONERS ON EACH WIRE SUPPORT. ANCHORS ARE TO BE DUCK BILLS. GUYING TO REMAIN FOR ONE GROWING SEASON, THEN REMOVE.
SET TREE TO ORIGINAL GRADE OF NURSERY. ENSURE THERE IS NO MORE THAN 50mm FROM THE FINISHED GRADE TO THE TRUNK FLARE.
75mm THICK MULCH SAUCER, SIZE TO ENCOMPASS TREE STAKES (2.0mø MIN.). DO NOT BURY TRUNK FLARE.
ADJACENT WALKWAY. IF REQUIRED, STRUCTURAL GROWING MEDIUM TRENCH UNDER WALKWAY AS PER LANDSCAPE ARCHITECT'S RECOMMENDATIONS.
ADJACENT ROADWAY
REMOVE BURLAP AND ROPE OR WIRE BASKET FROM TOP 1/3 OF ROOTBALL.
SURFACE TREATMENT AS PER PROJECT REQUIREMENTS. MINIMUM 2% (CROSSFALL) SLOPE TO TOP OF CURB IS REQUIRED.
SLOPE OF EXCAVATION 1H:1V
GROWING MEDIUM – SANDY LOAM WITH MAX. 10% ORGANIC CONTENT. GROWING MEDIUM TO CONFORM TO BCLS (LAST EDITION)
TAMP GROWING MEDIUM TO PREVENT ANY SETTLEMENT.
TITLE:
STREET TREE PLANTING DETAIL CONIFEROUS TREES
DATE:
SEPTEMBER 2014
DRAWN:
SCALE:
N.T.S.
APPROVED:
District of Sooke
DWG No.
SDD–ST01


NOTES:
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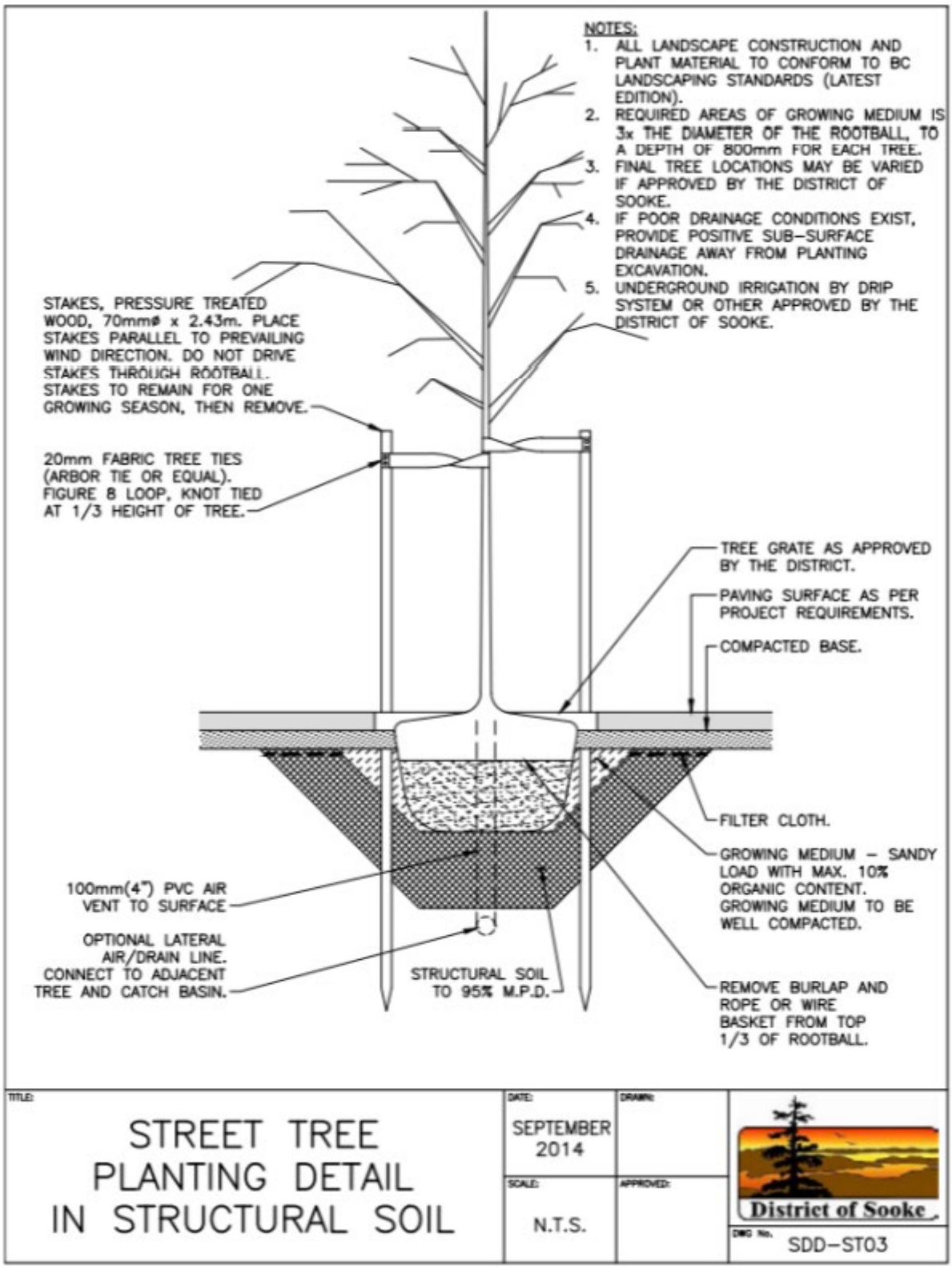
2. REQUIRED AREAS OF GROWING MEDIUM IS 3x THE DIAMETER OF THE ROOTBALL, TO A DEPTH OF 800mm FOR EACH TREE.
3. FINAL TREE LOCATIONS MAY BE VARIED IF APPROVED BY THE DISTRICT OF SOOKE.
4. IF POOR DRAINAGE CONDITIONS EXIST, PROVIDE POSITIVE SUB-SURFACE DRAINAGE AWAY FROM PLANTING EXCAVATION.
5. UNDERGROUND IRRIGATION BY DRIP SYSTEM OR OTHER APPROVED BY THE DISTRICT OF SOOKE.
STAKES, PRESSURE TREATED WOOD, 70mmø x 2.43m. PLACE STAKES PARALLEL TO PREVAILING WIND DIRECTION. DO NOT DRIVE STAKES THROUGH ROOTBALL. STAKES TO REMAIN FOR ONE GROWING SEASON, THEN REMOVE.
20mm FABRIC TREE TIES (ARBOR TIE OR EQUAL). FIGURE 8 LOOP, KNOT TIED AT 1/3 HEIGHT OF TREE.
SET TREE TO ORIGINAL GRADE OF NURSERY. ENSURE THERE IS NO MORE THAN 50mm FROM THE FINISHED GRADE TO THE TRUNK FLARE.
75mm THICK MULCH SAUCER, SIZE TO ENCOMPASS TREE STAKES (2.0mø MIN.). DO NOT BURY TRUNK FLARE.
ADJACENT WALKWAY. IF REQUIRED, STRUCTURAL GROWING MEDIUM TRENCH UNDER WALKWAY AS PER LANDSCAPE ARCHITECT'S RECOMMENDATIONS.
ADJACENT ROADWAY
REMOVE BURLAP AND ROPE OR WIRE BASKET FROM TOP 1/3 OF ROOTBALL.
SURFACE TREATMENT AS PER PROJECT REQUIREMENTS. MINIMUM 2% (CROSSFALL) SLOPE TO TOP OF CURB IS REQUIRED.
GROWING MEDIUM – SANDY LOAM WITH MAX. 10% ORGANIC CONTENT. GROWING MEDIUM TO CONFORM TO BCLS (LAST EDITION)
SLOPE OF EXCAVATION 1H:1V
TAMP GROWING MEDIUM TO PREVENT ANY SETTLEMENT.
TITLE:
STREET TREE PLANTING DETAIL DECIDUOUS TREES
DATE:
SEPTEMBER 2014
DRAWN:
SCALE:
N.T.S.
APPROVED:
District of Sooke
DWG No.
SDD–ST02


NOTES:
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2. REQUIRED AREAS OF GROWING MEDIUM IS 3x THE DIAMETER OF THE ROOTBALL, TO A DEPTH OF 800mm FOR EACH TREE.
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20mm FABRIC TREE TIES (ARBOR TIE OR EQUAL). FIGURE 8 LOOP, KNOT TIED AT 1/3 HEIGHT OF TREE.
TREE GRATE AS APPROVED BY THE DISTRICT.
PAVING SURFACE AS PER PROJECT REQUIREMENTS.
COMPACTED BASE.
FILTER CLOTH.
GROWING MEDIUM – SANDY LOAM WITH MAX. 10% ORGANIC CONTENT. GROWING MEDIUM TO BE WELL COMPACTED.
100mm(4") PVC AIR VENT TO SURFACE
OPTIONAL LATERAL AIR/DRAIN LINE. CONNECT TO ADJACENT TREE AND CATCH BASIN.
STRUCTURAL SOIL TO 95% M.P.D.
REMOVE BURLAP AND ROPE OR WIRE BASKET FROM TOP 1/3 OF ROOTBALL.
TITLE:
STREET TREE PLANTING DETAIL IN STRUCTURAL SOIL
DATE:
SEPTEMBER 2014
DRAWN:
SCALE:
N.T.S.
APPROVED:
District of Sooke
DWG No.
SDD-ST03

SCHEDULE 9

ELECTRICAL, TELEPHONE, STREET LIGHTING, AND OTHER SERVICES SUPPLIED THROUGH WIRES

1.0 GENERAL

1.1 Within the Urban Area, all lots created by subdivision or being developed are required to provide underground wiring and ornamental street lighting.

1.2 Within the Suburban Area, underground wiring is required only if that is the standard of wiring immediately adjacent to the subdivision or development.

1.3 Within the Rural Area, the Municipal Engineer may require that davit arm type street lighting be provided at intersections, at fire hydrant locations or at other static sources of water for firefighting.

1.4 All utility services, junction boxes, transformers and service facilities for street lighting must be located within the road right-of-way unless in the opinion of the Municipal Engineer, a right of way on private property affords the same level of accessibility.

1.5 Street lights are to be located as shown on the Supplementary Detail Drawings in Schedule 3 *[amended by Bylaw No. 768 (404-1), 2019]* and where possible are to be aligned with side parcel boundaries to avoid driveway conflicts.

1.6 All community mail boxes and transit stops created or enhanced by subdivision or development require the installation of a street light, either ornamental or davit arm type, subject to the servicing area.

2.0 STANDARDS FOR STREET LIGHTING

2.1 The street light system must be designed under the direction of a Professional Engineer. Lighting levels must be in accordance with the “Guide for the Design of Roadway Lighting” as published and amended from time to time by the Transportation Association of Canada.

2.2. Where new lighting systems are replacing existing lights on power poles, the applicant is to submit to the Municipal Engineer a list of the poles from which the lights are to be removed for District of Sooke coordination with BC Hydro.

2.3 **Type of Lighting**

a) Davit Arm Lighting
   i) Davit arm style street lighting is provided by BC Hydro and mounted on BC Hydro poles. They must be installed at only those locations accepted by the Municipal Engineer.
   ii) Luminaires may be attached to power poles on roadways designated by the District of Sooke for overhead power lines, provided that davit arms of sufficient length are installed to bring the fixture to the edge of the travelled portion of the roadway.

b) Ornamental Lighting
   i) Ornamental street lighting in the Town Centre Area must be jet black, Cyclone - model specification # NEL3001 with a total of 2 receptacles (1 top and 1 at the base of the adjacent tree), banner arms and plant hanger hardware to accommodate one (1) banner and one (1) hanging basket with irrigation tubing.
   ii) Ornamental street lighting in the Suburban Area outside the Town Centre must be either black, green or blue Cyclone - model specification CY1507-F1 or CL4102-F1. On all through roads that facilitate transportation continuity, ornamental street lighting is to be provided with a total of 2 receptacles (1 top and 1 at the base of the adjacent tree), banner arms and plant hanger hardware to accommodate one (1) banner and one (1) hanging basket with irrigation tubing.
   iii) Plant hanger and top banner arm for banner to be placed at a height of 4.5m on 5.9m to 6.5m poles and 6.5m for 9m (30') poles.
   iv) The Applicant must provide five hundred dollars ($500.00) for the purchase of banners and or baskets for each ornamental street light that can accommodate a banner and or basket.

2.4 **Luminaire Pole Standards**

a) All luminaire poles must be Cyclone PS40; maximum height of 6.5m; with one of the following bases:
   i) BD55 Base; or
   ii) Round decorative skirt
   or alternatives accepted by the District of Sooke.

b) All luminaire pole components must be galvanized steel and powder coated to District of Sooke colour specification as follows (Cyclone RAL colour as accepted by the Municipal Engineer):
   i) Jet Black: RAL9005TX
   ii) Cobalt Blue: RAL5013TX
   iii) Moss Green: RAL6005TX

c) All street light poles situated within 9 metres of the travelled portion of a roadway must be designed to shear under high impact.

d) All street light poles must be certified for wind loadings suitable to the exposure of the location, but not less than 160 kmph.

2.5 **Luminaires**

a) Luminaires and all electrical components must be C.S.A. approved.

b) Road luminaires must be so placed and of distribution type to avoid excessive light pollution to residences. I.E.S. Type V distribution may only be used where no residences would be adversely affected.

c) Where required by the Municipal Engineer, streetlights must be fitted with an appropriate baffle or shield to deflect light away from private residences without compromising the effectiveness of the light on roads, sidewalks and trails.

2.6 **Lamps**

All lamps must be Light Emitting Diode (LED).

2.7 **Conduits and Underground Wiring**

a) Conduits must be parallel or perpendicular to the roadway, and routed to run in a direct line between adjacent poles or junction boxes.

b) There must be a maximum two (2) 90 degree bends in a conduit run. Where this cannot be avoided junction boxes must be used.

c) All conduits and wiring must be in accordance with the requirements of the British Columbia Electrical Code. Not limiting the foregoing, the following are the District of Sooke minimum requirements:
   i) All underground wiring must be installed in P.V.C. conduits of a minimum of 35 mm in size.
   ii) Utility warning tape must be placed 300 mm over all underground conduit runs.

2.8 **Concrete Bases**

a) Concrete bases must be provided for all light standards.

b) Bases must not protrude more than 150 mm above the finished grade of the adjacent ground, or less than 25 mm.

c) Bases must exceed the width of the luminaire base plate by a minimum of 25 mm at all points around the base.

d) Concrete bases and bolts must be adequate to withstand the wind loads identified in section 2.4(d), being installed in the ground to a minimum depth of 1.5 metres.

e) The Professional Engineer must confirm proposed or existing utility locations to mitigate conflicts with proposed concrete bases.

3.0 TESTING AND COMMISSIONING

3.1 Prior to acceptance of the Works and Services by the District of Sooke, the Contractor must carry out all adjustments and tests necessary to ensure that the entire electrical installation and all its equipment, material and components are in satisfactory physical condition and perform the intended function and operations. Any adjustments required to make the system operate in the manner intended by the Professional Engineer must be made by the Contractor.