

**APPENDICES**

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AMENDMENT RECORD

***(REVISED MAY 2020)***

**Revision Request Summary Sheet  
for the Manual of Engineering Standards and Specifications**

**APPENDIX A**

**Revision Request No.:** \_\_\_\_\_  
(filed by Engineering Services Technologist)

**Date:** \_\_\_\_\_

**To:** Engineering Services Technologist – City of Nanaimo

**From:** \_\_\_\_\_ **Department:**  
(or company name) \_\_\_\_\_

**Phone No.:** \_\_\_\_\_

**Section Number / Drawing Reference:** \_\_\_\_\_

**Change Requested:** \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Reason for Change:** \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Signature:** \_\_\_\_\_

**Date:** \_\_\_\_\_

**Action:**  
(Eng Ser Tech) \_\_\_\_\_

**Date:** \_\_\_\_\_

CONDITION SHEET

REFERENCE: \_\_\_\_\_

DATE: \_\_\_\_\_

NAME: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

The undersigned agrees to grant access to the property as mentioned herein for the purpose of a \_\_\_\_\_, subject to the following conditions for restoration.

\_\_\_\_\_

\_\_\_\_\_

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\_\_\_\_\_

CITY OF NANAIMO  
455 Wallace Street, Nanaimo, B.C., V9R 5J6

EASEMENT RELEASE AND INSPECTION FOLLOWING INSTALLATION OF UTILITY

Contractor: \_\_\_\_\_ Contract No.: \_\_\_\_\_

Owner's Name: \_\_\_\_\_ Easement  
Reference No.: \_\_\_\_\_

Mailing Address: \_\_\_\_\_

Location: \_\_\_\_\_

Legal Description: \_\_\_\_\_

Manhole No.: \_\_\_\_\_ to Manhole No.: \_\_\_\_\_

Clean-up of easement is satisfactory and meets the requirements as set out in the easement condition form.

Date: \_\_\_\_\_ Property Owner: \_\_\_\_\_

Clean-up of easement is NOT satisfactory until the following work has been carried out: \_\_\_\_\_

Date: \_\_\_\_\_ Property Owner: \_\_\_\_\_

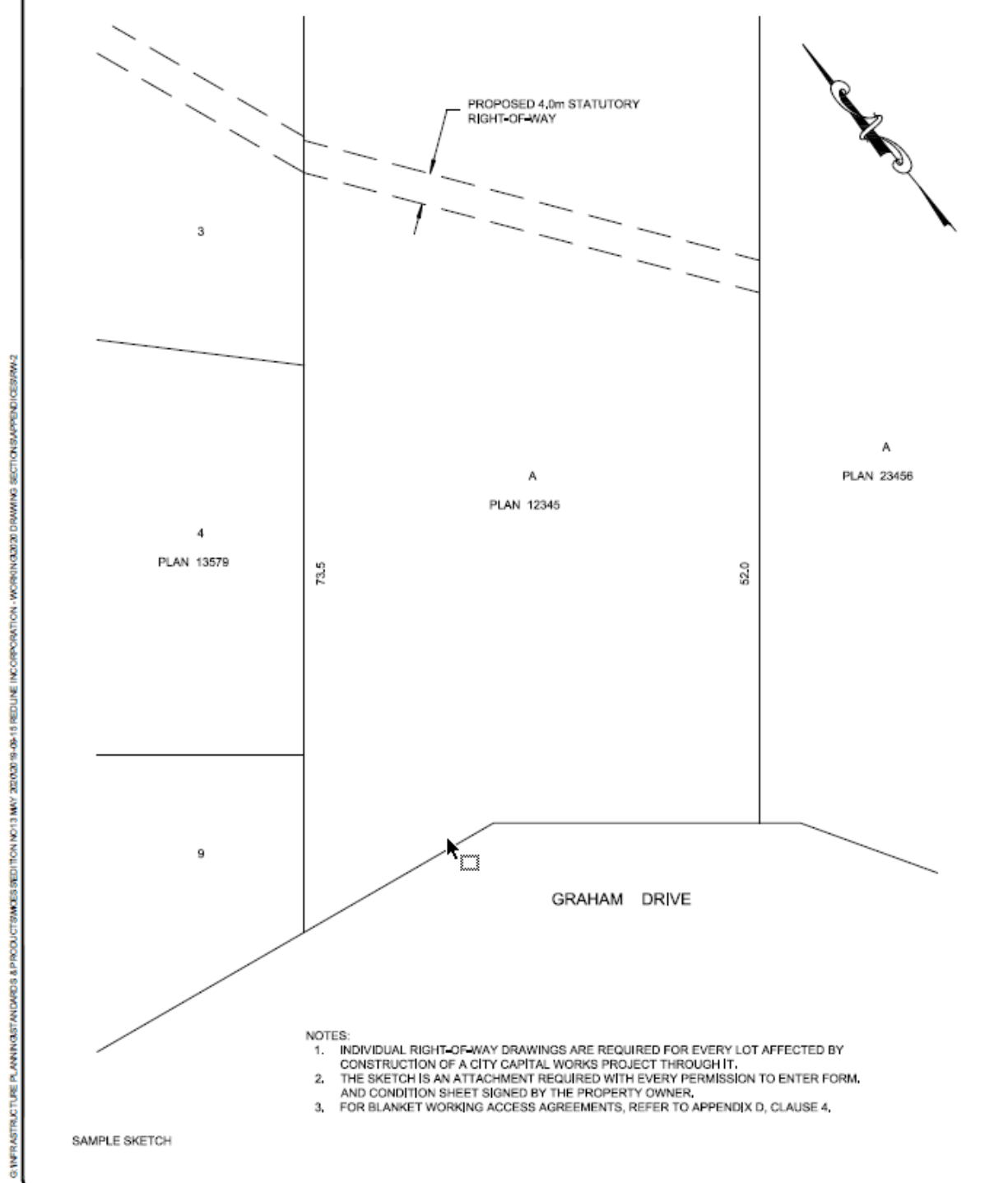
Contractor's Agent: \_\_\_\_\_

=====

Consulting Engineers' Approval and Recommendation: \_\_\_\_\_

\_\_\_\_\_  
Consulting Engineer

APPENDIX C



G:\INFRASTRUCTURE\PLANNING\STANDARDS & PRODUCTS\STANDARDS\SECTION 10\13 MAY 2020\09-08-15 REDLINE INCORPORATION - WORKING DRAWING - SECTION\APPENDIX C\RW-2

10.10.2019



PROPOSED RIGHT OF WAY

Scale: N.T.S.  
Created: MAY 2013  
Rev Date: MAY 2020  
Dwg No: RW-2

**MINIMUM REQUIRED STATUTORY RIGHT-OF-WAY AND TEMPORARY WORKING EASEMENT  
WIDTHS FOR UNDERGROUND SERVICES THROUGH PRIVATE PROPERTY**

1. Where location of a municipal utility in a statutory right-of-way is permitted by the *City Engineer*, the right-of-way widths shall be as follows:

(a)	Single utility.	R.O.W. width =	Twice the depth from surface to the crown of the pipe rounded up to nearest half meter [4.0 m minimum width]
(b)	Two utilities within the same trench.	R.O.W. width =	Twice the depth from surface to the crown of the deeper pipe rounded up to the nearest half meter [5.0 m minimum width]
(c)	Two or more utilities adjacent to one another but in separate trenches.	R.O.W. width =	Cumulative widths for single services PLUS any difference to provide the required separation rounded up to nearest half meter [6 m minimum width]
(d)	The maximum depth shall be used to determine the R.O.W. width and the width shall be consistent throughout the length of the R.O.W.		
(e)	For pipes 900 mm or larger, add an additional 2.0 m to R.O.W. width.		
(f)	When the utility is within a Road allowance and the distance from the property line to the centre of the utility is less than half of the width indicated above for a single utility, the difference shall be provided as right-of-way on the adjacent property.		
(g)	Modified right-of-ways will be considered where supported by design and/or supplemental report(s).		

2. Rear and side yard utility right-of-ways are acceptable if appropriate access is provided to the utilities for maintenance and replacement by conventional open cut method.
3. In all cases, the width of rights-of-way shall be sufficient to permit an open excavation with side slopes and access for construction equipment in accordance with the WorkSafeBC regulations, without impacting on or endangering adjacent structures. The *Consultant* shall provide cross sections indicating the minimum safe distances to adjacent building footings based on a safe angle of repose from the limits of the excavation.
4. Blanket access agreements are required on private property for the purpose of moving construction equipment and materials onto the utility right-of-way.
5. Right-of-way locations shall be selected to avoid environmentally sensitive areas such as watercourses and wetlands.

**SUBSTANTIAL COMPLETION STATISTICS RECORD  
ASSETS FOR (FROM) DEVELOPMENT**

DATE OF SUBMISSION: \_\_\_\_\_

FILE NO: \_\_\_\_\_

ASBUILT NO.: \_\_\_\_\_

ENG. CO: \_\_\_\_\_

LOCATION: \_\_\_\_\_

DATE OF CERTIFICATION: \_\_\_\_\_

(Same date as G2 Certification of Installed Works)

**WATER ASSETS**

ITEM	TYPE	DR	UNIT	QUANTITY	COST PER UNIT (\$)	VALUE (\$)
PIPE			L.M.			
FIRE HYDRANT			EACH			
FLUSHOUT			EACH			
PRESSURE REDUCING VALVE			EACH			
METER			EACH			
FITTINGS			EACH			
<b>WATER ASSETS TOTAL</b>						

**SANITARY SEWER ASSETS**

ITEM	TYPE	DR	UNIT	QUANTITY	COST PER UNIT (\$)	VALUE (\$)
PIPE			L.M.			
MANHOLE			EACH			
TEMPORARY CLEANOUT			EACH			
DROP MANHOLE			EACH			
<b>SANITARY SEWER ASSETS TOTAL</b>						

**STORM SEWER ASSETS**

ITEM	TYPE	DR	UNIT	QUANTITY	COST PER UNIT (\$)	VALUE (\$)
PIPE			L.M.			
MANHOLE			EACH			
TEMPORARY CLEANOUT			EACH			
CATCH BASIN			EACH			
STORM DETENTION			EACH			
<b>STORM SEWER ASSETS TOTAL</b>						



**TRANSPORTATION ASSETS**

ITEM	UNIT	QUANTITY	COST PER UNIT (\$)	VALUE (\$)
50 mm Asphalt Road/Lane	L.M.			
75mm Asphalt Road	L.M.			
Asphalt Widening & Patching	S.M.			
Mountable Curb and Gutter	L.M.			
Non-mountable Curb or Curb and Gutter	L.M.			
Roundabouts	EACH			
Medians	EACH			
Traffic Calming – Circle	EACH			
Traffic Calming – Curb Extension	EACH			
Traffic Calming – Speed Hump	EACH			
Pedestrian Crossings	EACH			
Pedestrian Islands	EACH			
Pedestrian Sidewalk - Concrete	L.M.			
Pedestrian Sidewalk - Asphalt	L.M.			
Pedestrian 1.8m Wide Sidewalk - Asphalt	L.M.			
Walkway - Asphalt	L.M.			
Trail*	L.M.			
Trail*	L.M.			
Transit – Bus Shelters	EACH			
Transit – Pads	EACH			
Cycling Marked Bike Lane – Same as Road	L.M.			
Cycling Buffered Lane – Concrete Separator	L.M.			
Cycle Track Bike Lane	L.M.			
Streetlights**	EACH			
Traffic Signal	EACH			
<b>TRANSPORTATION ASSETS TOTAL</b>				

*\*Note the width of the trail and the material type.*

*\*\*The cost per unit for streetlights or traffic signal includes supply of all materials and installation of electrical service equipment, concrete pole base, conduit, wiring, pole and lamp for each streetlight or traffic signal.*

**(REVISED MAY 2020)**

**LANDSCAPING & IRRIGATION ASSETS**

ITEM	UNIT	QUANTITY	COST PER UNIT (\$)	VALUE (\$)
Street Trees	EACH			
ØIrrigation Piping	L.M.			
Irrigation Controller	EACH			
Top Soil	S.M.			
Sod/Seeding	S.M.			
Rock/Block Wall	L.M.			
Bio Swale	L.M.			
<b>LANDSCAPING AND IRRIGATION ASSETS TOTAL</b>				

**STATISTIC SUMMARY**

DATE OF SUBMISSION: \_\_\_\_\_

FILE NO: \_\_\_\_\_

ASBUILT NO.: \_\_\_\_\_

ENG. CO: \_\_\_\_\_

LOCATION: \_\_\_\_\_

DATE OF CERTIFICATION: \_\_\_\_\_

*(Same date as G2 Certification of Installed Works)*

ITEM	UNITS	QUANTITY	TOTAL VALUE (\$)
WATERMAINS	L.M.		
SANITARY SEWERS	L.M.		
STORM SEWERS	L.M.		
STORM DETENTION	EACH		
ROADS/LANES	L.M.		
SIDEWALKS	L.M.		
WALKWAYS/TRAILWAYS	L.M.		
BIKE LANES	L.M.		
CURB AND GUTTER	L.M.		
FIRE HYDRANTS	EACH		
STREETLIGHTS	EACH		
LANDSCAPING/IRRIGATION	L.S.		
TRANSIT FACILITY	EACH		
<b>GRAND TOTAL VALUE OF ALL ASSETS</b>			

# CITY OF NANAIMO SERVICE SHEET

## SINGLE FAMILY RESIDENTIAL LOT

APPENDIX F1

HOUSE NO:	STREET NAME:	
PLAN NO:	LOT NO:	FILE NO:
<p>SHOW: 1) LOT. 2) STREET R/W NAME. 3) RIGHT OF WAYS IF ANY. 4) NORTH ARROW. 5) LOCATION OF ALL UTILITIES – IDENTIFIED &amp; DIMENSIONED.</p>		

NOTE: "FROM LPL" = FROM LEFT PROPERTY LINE & "FROM RPL" = FROM RIGHT PROPERTY LINE

VACANT LOT	DEVELOPED LOT	CAPITAL PROJECT	L.I.P.	D.C.C.
LOCATION		CONNECTED		SIZE / MATERIAL
		YES	NO	
WATER:				
FIRE LINE:				
SANITARY SEWER:				INVERT EL.
STORM SEWER:				INVERT EL.

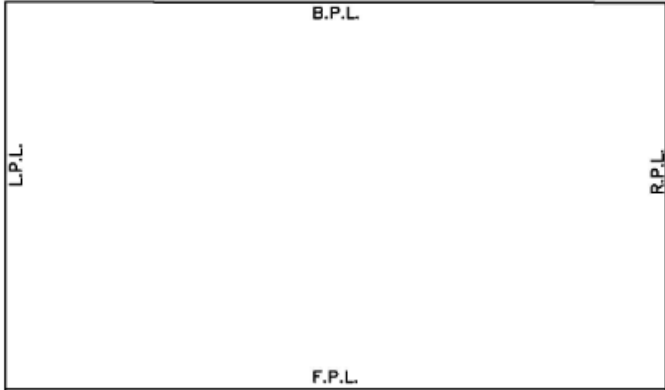
MINIMUM BASEMENT ELEVATION:
CERTIFIED ACCURATE BY:

COMMENTS:

SEAL / ENGINEER'S STAMP

# CITY OF NANAIMO SERVICE SHEET FOR ALL LOTS EXCLUDING SINGLE FAMILY

HOUSE NO:	STREET:	CARD NO:
PLAN NO:	LOT NO:	PERMIT NO:
		FILE NO:



- NEW INSTALL
- CHANGE/UPDATE
- METER REMOVAL
- SERVICE CONNECTION
- SERVICE DISCONNECT
- METER REPLACEMENT

COMMENTS:  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

SHOW THE FOLLOWING:  
1) LOT 2) STREET NAME 3) R.O.W.(S) IF ANY 4) NORTH ARROW  
5) LOCATION OF ALL UTILITIES (DIMENSIONED FROM CIVIC ADDRESS)

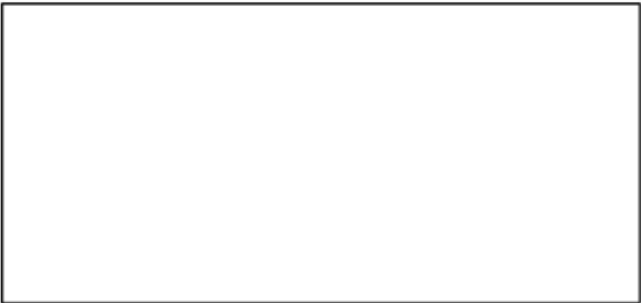
NOTE: "FROM LPL" = FROM LEFT PROPERTY LINE; "FROM R.P.L." = FROM RIGHT PROPERTY LINE;  
"FROM FPL" = FROM FRONT PROPERTY LINE; "FROM B.P.L." = FROM BACK PROPERTY LINE;

- VACANT LOT     DEVELOPED LOT     CAPITAL PROJECT     LOCAL IMPROVEMENT PROJECT     D.C.C.

SERVICE	LOCATION	NEW	EXIST	CONNECTED		SIZE (mm)	MATERIAL
				YES	NO		
WATER	DOMESTIC	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	FIRE LINE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	COMBINATION	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
SANITARY		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	M.B.F.E.:	INVERT ELEVATION:					
STORM		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	M.B.F.E.:	INVERT ELEVATION:					

M.B.F.E. = Minimum Basement Floor Elevation    NOTE: Inverts to Geodetic Datum

METERS	
NEW	REGISTER NO.
	READING
OLD	REGISTER NO.
	READING



COMPLETED BY: \_\_\_\_\_  
DATE: \_\_\_\_\_

PLACE METER STICKER/STAMP IN BOX

SEAL / ENGINEER'S STAMP

**TO:** Finance Department  
City of Nanaimo  
411 Dunsmuir Street  
Nanaimo, BC V9R 5E4

Building Permit or File # \_\_\_\_\_

Civic Address \_\_\_\_\_

**BUILDING DEVELOPMENT WATER METER  
INFORMATION SHEET**

TO BE USED ON BUILDING DEVELOPMENTS WHERE THE DETECTOR CHECK/METER CHAMBER IS DEVELOPER INSTALLED. COMPLETE FORM FOR EACH METER.

TO BE SUBMITTED UPON INSTALLATION OF WATER METER/DETECTOR CHECK.

1. Type of Water Meter:  Domestic Meter  Detector Check  Combination Meter  
2.(a) Date of Installation of Water Meter: \_\_\_\_\_

(b) Date of Installation of Detector Check, if applicable: \_\_\_\_\_

OR:

(c) Date of Installation of Combination Meter, if applicable: \_\_\_\_\_

3. Make and Model of meter installed:

Domestic \_\_\_\_\_ Register No. \_\_\_\_\_

Detector Check \_\_\_\_\_ Register No. \_\_\_\_\_

Combination \_\_\_\_\_ Register No. \_\_\_\_\_

4. Size of meter installed: Domestic: \_\_\_\_\_  
Detector Check: \_\_\_\_\_  
Combination: \_\_\_\_\_

5. Meter reading at date of installation: Domestic: \_\_\_\_\_  
Detector Check: \_\_\_\_\_  
Combination: \_\_\_\_\_

6. Reading type: Metric \_\_\_\_\_

7. Does reading contain decimal places: Yes \_\_\_\_\_ No \_\_\_\_\_

8. If reading contains decimal places, how many decimal places are there? \_\_\_\_\_

9. Location of meter/service: \_\_\_\_\_

(must be stated on this sheet)

\_\_\_\_\_ P.Eng.

\_\_\_\_\_  
(Please Print Name)

\_\_\_\_\_  
(Company Name)

\_\_\_\_\_  
(Address)

cc: Manager, Utilities, Public Works  
Manager, Revenue Services, Finance

**(REVISED MAY 2020)**

**CERTIFICATION OF DESIGN**

I, \_\_\_\_\_, a Professional Engineer registered in the Province of British Columbia, hereby certify that the works, as herein set out on the attached drawings entitled

\_\_\_\_\_  
\_\_\_\_\_

have been designed in accordance with the City of Nanaimo's Engineering Standards and Specifications, and in accordance with good engineering practice where such design is not covered by the City's Engineering Standards and Specifications.

\_\_\_\_\_

I have been retained to provide design, supervision, inspection, as-built drawings, this project

and final certification for this project by: \_\_\_\_\_  
(Name of Client)

Phone: \_\_\_\_\_ Fax: \_\_\_\_\_

Address: \_\_\_\_\_

I am satisfied that in the contractual mandate which exists between myself and my client, the terms of reference will permit me to render a level of supervision of the construction work which will allow me to put my name and seal to the "Certification of Works" required by the City of Nanaimo, a sample copy of which is attached to this document and initialed by me.

In the event that my client releases me from this project, or in the event that I find the terms of reference do not permit me to render a level of supervision of the construction work which will allow me to put my name and seal to the form of certification required by the City of Nanaimo, I will notify the City of Nanaimo within twenty-four (24) hours verbally and follow it up with written confirmation and clarification.

Signed this \_\_\_\_\_ day of \_\_\_\_\_ 20 \_\_\_\_\_.

\_\_\_\_\_ P. Eng.  
(Signature)

I understand that the "CERTIFICATION OF WORKS" is to be completed in this format and submitted with the "AS-BUILT" drawings. \_\_\_\_\_

**Engineer**

SEAL / ENGINEER'S STAMP

\_\_\_\_\_  
Engineer (Signature)

\_\_\_\_\_  
Engineering Firm

Effective January 1995

**CERTIFICATION OF INSTALLED WORKS**

**NOTE: To be completed in this format and submitted with the "As-Built" drawings**

Location of the Construction Site and Works: (Legal Description)

\_\_\_\_\_

all within the City of Nanaimo, British Columbia.

I, \_\_\_\_\_, a Registered Professional Engineer (Reg. No. \_\_\_\_\_) in the Province of British Columbia, hereby certify:

1. THAT the following construction tests were carried out to confirm that construction met the specifications required:

(a) \_\_\_\_\_

(b) \_\_\_\_\_

etc.

2. THAT I was able to monitor the construction and provide a level of supervision of the construction work sufficient to be able to confirm that: specifications in force and effect by the City of Nanaimo and in the applicable design drawings for the said Works were generally met during the Construction Period and that all materials incorporated into the Works that are regulated by the City's Approved Product List are materials noted at the time of installation, and

3. THAT the accompanying plans labeled:

(i) \_\_\_\_\_

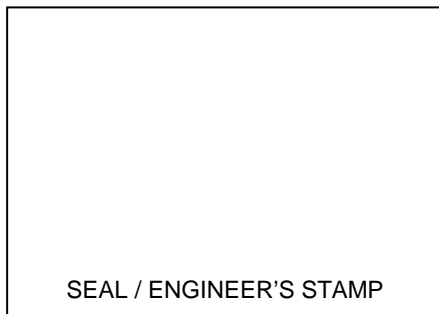
(ii) \_\_\_\_\_

(iii) \_\_\_\_\_

accurately record the materials, grades, inverts, offsets and dimensions of the constructed work.

DATED this \_\_\_\_\_ day of \_\_\_\_\_ 20 \_\_\_\_\_.

(DATE OF CERTIFICATION)



\_\_\_\_\_  
Engineer (Signature)

\_\_\_\_\_  
Engineering Firm

Effective January 1995



**CERTIFICATION OF STREET LIGHT INSTALLATION**

Location of the Construction site and Works (Legal Description)

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all within the City of Nanaimo, British Columbia.

I, \_\_\_\_\_, a Registered Professional Engineer (Reg. No. \_\_\_\_\_), in the Province of British Columbia, hereby certify that:

- 1. I have received the final electrical inspection request and declaration for the street lighting installation from the electrical Field Safety Representative (copy attached).
- 2. All of the street lighting system is installed in accordance with all the specifications in force and effect by the Provincial Government and the City of Nanaimo as shown on the drawings and specifications authorized by me and submitted to the City of Nanaimo, Engineering Division. The system has been energized and tested. The system is in working order and will be ready for use once it is connected to the B.C. Hydro and Power Authority's system.
- 3. The accompanying plans labeled:

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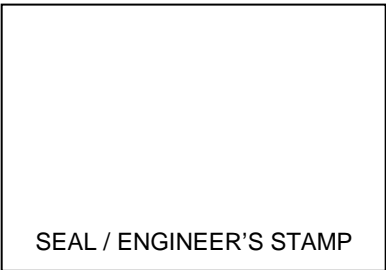
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are certified "as-builts" and truly record the construction of all the street lighting required for the subject project.

DATED this \_\_\_\_\_ day of \_\_\_\_\_ 20 \_\_\_\_\_.



\_\_\_\_\_  
Engineer (Signature)

\_\_\_\_\_  
Engineering Firm

**CERTIFICATION OF LANDSCAPE INSTALLATION**

**NOTE: To be completed in this format and submitted with the “As-Built” drawings**

Location of the Construction Site and Works: (Legal Description)

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

all within the City of Nanaimo, British Columbia.

I, \_\_\_\_\_, a Landscape Architect, and member in good standing of British Columbia Society of Landscape Architects, hereby certify

1. THAT the following construction tests were carried out to confirm that construction met the specifications required:

1. THAT I was able to monitor the construction and provide a level of supervision of the construction work sufficient to be able to confirm that the specifications in force and effect by the City of Nanaimo and in the applicable design drawings for the said Works were generally met during the Construction Period and

2. THAT the accompanying plans labeled:

- (i) \_\_\_\_\_
- (ii) \_\_\_\_\_
- (iii) \_\_\_\_\_

accurately record the materials, species, as-built locations, offsets and dimensions of the constructed work.

DATED this \_\_\_\_\_ day of \_\_\_\_\_ 20\_\_\_\_\_.



\_\_\_\_\_  
Landscape Architect (Signature)

\_\_\_\_\_  
Landscape Architecture Firm

Effective May 1998

**CITY OF NANAIMO SANITARY SEWER FLOW ANALYSIS – CALCULATION SHEET**

Project \_\_\_\_\_

ENGINEERING COMPANY \_\_\_\_\_

ADDRESS \_\_\_\_\_

ENGINEER \_\_\_\_\_

Seal/ Engineer's Stamp	Date: _____		Harmon Peaking Factor: PF = 1 + 14/(4+P <sup>1/2</sup> )
	Design By: _____		
	Sheet _____	of _____	Mannings Formula: V = (R <sup>2/3</sup> * S <sup>1/2</sup> )/n Q = V*A                      n = 0.013

Area No.	MH No. To MH No.	Location	Area (Hectares) A	Units or Lots	Density pp Ha	Equiv. Pop. (ca)	Cum. Equiv. Pop. (ca)	Average Flow (L/day)	Peaking Factor	Sewage Flow		Infiltration & Inflow		Total Flow		Pipe Data					
										Peak Flow (L/day)	Peak Flow (ML/day)	Infilt. (ML/day)	Cum. Infilt (ML/day)	Total Flow (ML/day)	Flow (L/s) Q	Pipe Size (mm) D	Pipe Slope (m/m) S	Pipe Capacity (L/s)	Velocity (m/s) V		

**CITY OF NANAIMO STORMWATER MANAGEMENT FLOW ANALYSIS – CALCULATION SHEET**

PROJECT: \_\_\_\_\_

ENGINEERING COMPANY: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

ENGINEER: \_\_\_\_\_

Return Period: \_\_\_\_\_ Years

Date: \_\_\_\_\_

Mannings Formula

Design By: \_\_\_\_\_

$$V = \frac{(R)^{2/3} \times (S)^{1/2}}{n}$$

Sheet \_\_\_\_\_ of \_\_\_\_\_

$$Q = V \times A \quad n = 0.013$$

Rational Formula:  $Q = C \times I \times A \times 2.78$

SEAL / ENGINEER'S STAMP

MH To MH	Area (Ha) (A)	Coeff. (C)	Area x Coeff. (AC)	Accum. A x C	Time Of Concent (Mins)	Rainfall Intensity (mm/hr) (I)	Q (l/s)	Diam. (mm) (D)	Design Slope (%) (S)	Installed Slope (%)	Cap. (l/s)	Velocity (m/s) (V)	Length M.H. to M.H. (m)	Time of Flow-MH to MH (Mins)

CITY OF NANAIMO  
 FIRE FLOW CALCULATION SHEET  
 (Calculations based on "Guide for Determination of Fireflow"  
 prepared by Fire Underwriter's Survey)

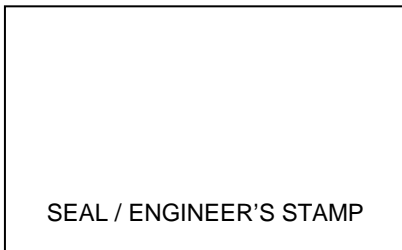
- 1. Type (s) of Construction: \_\_\_\_\_  
 Co-efficient (c) based on type of construction = \_\_\_\_\_  
 Ground Floor Area: \_\_\_\_\_ ft<sup>2</sup>          No. of Stories: \_\_\_\_\_  
 Total Floor Area: \_\_\_\_\_ ft<sup>2</sup>  
 Fire Flow From Formula ( F = 14.8 C √ A ): \_\_\_\_\_ IGPM (a)
- 2. Type of Occupancy: \_\_\_\_\_ Hazard: Low \_\_\_\_\_ High \_\_\_\_\_ Other \_\_\_\_\_  
 Hazard Allowance: Add or subtract: \_\_\_\_\_ % x (a) = \_\_\_\_\_ IGPM  
 Sub Total: \_\_\_\_\_ IGPM (b)
- 3. Automatic Sprinklers: \_\_\_\_\_ (yes/no)  
 Sprinkler Allowance: Subtract (max. 50%): \_\_\_\_\_ % X (b) = \_\_\_\_\_ IGPM (c)  
 Sub Total: \_\_\_\_\_ IGPM (d)
- 4. Exposures: Distance/Hazard
  - 1. Front \_\_\_\_\_ Add \_\_\_\_\_ %
  - 2. Left \_\_\_\_\_ Add \_\_\_\_\_ %
  - 3. Rear \_\_\_\_\_ Add \_\_\_\_\_ %
  - 4. Right \_\_\_\_\_ Add \_\_\_\_\_ %
 Exposure Allowance: Add: \_\_\_\_\_ (e) % X (b) = \_\_\_\_\_ IGPM (f)
 

**TOTAL FIRE FLOW REQUIRED:** \_\_\_\_\_ IGPM (g)  
**REQUIRED PRESSURE:** \_\_\_\_\_ P.S.I.


**SPRINKLER SYSTEM INFORMATION**

- (a) If building has automatic sprinklers:  
 Distance from sprinkler fire connections at  
 building to nearest available fire hydrant on  
 an unobstructed route \_\_\_\_\_ m  
 Will sprinkler systems be wet or dry:                  Wet \_\_\_\_\_ Dry \_\_\_\_\_  
 If wet, will system contain anti-freeze or any other chemical additive?    Yes \_\_\_\_\_ No \_\_\_\_\_  
 Backflow protection: (describe) \_\_\_\_\_

- (b) If building has no automatic sprinklers:  
 Distance from main building entrance to nearest  
 available fire hydrant on an unobstructed route \_\_\_\_\_ m



Calculations by: \_\_\_\_\_ P. Eng.  
 Signature: \_\_\_\_\_  
 Date: \_\_\_\_\_



**CITY OF NANAIMO**  
THE HARBOUR CITY

**Water Meter Sizing Calculation Sheet**  
For Non-Fire Service Meters  
AWWA M22 Fixture Value Methodology  
Page 1 of 2

---

**General Information**

Customer Name: \_\_\_\_\_ File No. \_\_\_\_\_  
 Address / Legal Description: \_\_\_\_\_ Building Permit No. \_\_\_\_\_

Occupancy Type: Industrial  Commercial  Institutional   
 Multifamily  Agricultural  Other  \_\_\_\_\_

Is this a phased development? Yes  No


Calculations pertain to: Buildout  Phase  Phase No. \_\_\_\_\_

---


**Step 1: Calculate Total Domestic Fixture Value**

Fixture	Fixture Value (GPM @ 60 psi)	x	No. of Fixtures	=	Fixture Value
Bathtub	8	x	_____	=	_____
Bedpan Washers	10	x	_____	=	_____
Bidet	2	x	_____	=	_____
Dental Unit	2	x	_____	=	_____
Dishwasher	2	x	_____	=	_____
Drinking Fountain - Public	2	x	_____	=	_____
Hose Bibs (c/w 50 ft wash down):					
- 1/2 inch	5	x	_____	=	_____
- 5/8 inch	9	x	_____	=	_____
- 3/4 inch	12	x	_____	=	_____
Kitchen Sink	2.2	x	_____	=	_____
Lavatory	1.5	x	_____	=	_____
Showerhead (Shower Only)	2.5	x	_____	=	_____
Service Sink	4	x	_____	=	_____
Toilet:					
- Flush Valve	35	x	_____	=	_____
- Tank Type	4	x	_____	=	_____
Urinal:					
- Pedestal Flush Valve	35	x	_____	=	_____
- Wall Flush Valve	16	x	_____	=	_____
Wash Sink (Each Set of Faucets)	4	x	_____	=	_____
Washing Machine	6	x	_____	=	_____


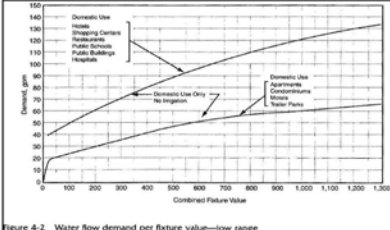
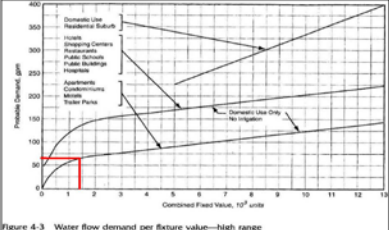
For single family residential properties, the meter size shall be 19 mm, unless the Applicant can demonstrate the need for a larger meter.


	<b>Water Meter Sizing Calculation Sheet</b> Page 2 of 2																								
<b>Step 1 (cont.)</b>																									
<table border="0" style="width: 100%;"> <thead> <tr> <th style="text-align: left;">Fixture</th> <th style="text-align: center;">Fixture Value (GPM @ 60 psi)</th> <th style="text-align: center;">No. of Fixtures</th> <th style="text-align: center;">Fixture Value</th> </tr> </thead> <tbody> <tr> <td>Other:</td> <td></td> <td></td> <td></td> </tr> <tr> <td>_____</td> <td style="text-align: center;">_____</td> <td style="text-align: center;">x _____</td> <td style="text-align: center;">= _____</td> </tr> <tr> <td>_____</td> <td style="text-align: center;">_____</td> <td style="text-align: center;">x _____</td> <td style="text-align: center;">= _____</td> </tr> <tr> <td>_____</td> <td style="text-align: center;">_____</td> <td style="text-align: center;">x _____</td> <td style="text-align: center;">= _____</td> </tr> <tr> <td colspan="3" style="text-align: right;"><b>Total Domestic Fixture Value</b></td> <td style="text-align: center;"><b>= _____ GPM (A)</b></td> </tr> </tbody> </table>	Fixture	Fixture Value (GPM @ 60 psi)	No. of Fixtures	Fixture Value	Other:				_____	_____	x _____	= _____	_____	_____	x _____	= _____	_____	_____	x _____	= _____	<b>Total Domestic Fixture Value</b>			<b>= _____ GPM (A)</b>	
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<b>Step 2: Calculate Probable Peak Domestic Demand</b>																									
Refer to AWWA Manual M22, Sizing Water Service Lines and Meters, Figure 4-2 or 4-3	<b>Probable Peak Domestic Demand = _____ GPM (B)</b>																								
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City Water System Pressure (not to exceed 80 psi) = _____ psi																									
Pressure Factor from *Table 4 = _____ (C)																									
*AWWA Manual M22, Sizing Water Service Lines and Meters	<b>Adjusted Peak Domestic Demand (B x C) = _____ GPM (D)</b>																								
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<b>Step 5: Calculate Total Peak Demand</b>																									
<b>Total Peak Demand (D + E) = _____ GPM (F)</b>																									
<b>Step 6: Select Water Meter</b>																									
Water Meter Make / Model: = _____																									
Water Meter Size * = _____ inches																									
Water Service Connection Size = _____ inches																									
* Total Peak Demand (F) not to exceed 80% of Meter Rated Peak Instantaneous Flow * Pressure Loss at Total Peak Demand (F) not to exceed 5 psi																									
<b>Professional Certification</b>																									
<div style="border: 1px solid black; width: 100%; height: 100%; margin-bottom: 5px;"></div> Seal	Name: _____ Company: _____ Date: _____ Comments: _____ _____ _____ _____																								

For single family residential properties, the meter size shall be 19 mm, unless the Applicant can demonstrate the need for a larger meter.

 <b>Water Meter Sizing Calculation Sheet</b> For Non-Fire Service Meters AWWA M22 Fixture Value Methodology	Example																																																																																																																
<p><b>General Information</b></p> <p>Customer Name: <u>Example</u> File No. <u>Example</u></p> <p>Address / Legal Description: <u>Example</u> Building Permit No. <u>Example</u></p> <p>Occupancy Type: Industrial <input type="checkbox"/> Commercial <input type="checkbox"/> Institutional <input type="checkbox"/></p> <p>Multifamily <input checked="" type="checkbox"/> Agricultural <input type="checkbox"/> Other <input type="checkbox"/></p> <p>Is this a phased development? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p> <p>Calculations pertain to: Buildout <input checked="" type="checkbox"/> Phase <input type="checkbox"/> Phase No. _____</p>	<p style="text-align: right;">Page 1 of 3</p> <p>This meter sizing calculation is based on the AWWA M22 Fixture Value Methodology. Applicant's Engineers are expected to purchase and use the <i>AWWA Manual of Water Supply Practices M22 Sizing Water Service Lines and Meters</i> when completing this methodology.</p> <p>This section includes general information about the customer and proposed development.</p> <p>A 30 unit townhouse complex has been chosen as an example to demonstrate the use of this sizing methodology.</p>																																																																																																																
<p><b>Step 1: Calculate Total Domestic Fixture Value</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Fixture</th> <th style="text-align: center;">Fixture Value (GPM @ 60 psi)</th> <th style="text-align: center;">No. of Fixtures</th> <th style="text-align: center;">Fixture Value</th> </tr> </thead> <tbody> <tr><td>Bathtub</td><td style="text-align: center;">8</td><td style="text-align: center;">x 30</td><td style="text-align: center;">= 240</td></tr> <tr><td>Bedpan Washers</td><td style="text-align: center;">10</td><td style="text-align: center;">x</td><td style="text-align: center;">=</td></tr> <tr><td>Bidet</td><td style="text-align: center;">2</td><td style="text-align: center;">x</td><td style="text-align: center;">=</td></tr> <tr><td>Dental Unit</td><td style="text-align: center;">2</td><td style="text-align: center;">x</td><td style="text-align: center;">=</td></tr> <tr><td>Dishwasher</td><td style="text-align: center;">2</td><td style="text-align: center;">x 30</td><td style="text-align: center;">= 60</td></tr> <tr><td>Drinking Fountain - Public</td><td style="text-align: center;">2</td><td style="text-align: center;">x</td><td style="text-align: center;">=</td></tr> <tr><td>Hose Bibs (o/w 50 ft wash down):</td><td></td><td></td><td></td></tr> <tr><td>- 1/2 inch</td><td style="text-align: center;">5</td><td style="text-align: center;">x 30</td><td style="text-align: center;">= 150</td></tr> <tr><td>- 5/8 inch</td><td style="text-align: center;">9</td><td style="text-align: center;">x</td><td style="text-align: center;">=</td></tr> <tr><td>- 3/4 inch</td><td style="text-align: center;">12</td><td style="text-align: center;">x</td><td style="text-align: center;">=</td></tr> <tr><td>Kitchen Sink</td><td style="text-align: center;">2.2</td><td style="text-align: center;">x 30</td><td style="text-align: center;">= 66</td></tr> <tr><td>Lavatory</td><td style="text-align: center;">1.5</td><td style="text-align: center;">x 90</td><td style="text-align: center;">= 135</td></tr> <tr><td>Showerhead (Shower Only)</td><td style="text-align: center;">2.5</td><td style="text-align: center;">x 30</td><td style="text-align: center;">= 75</td></tr> <tr><td>Service Sink</td><td style="text-align: center;">4</td><td style="text-align: center;">x</td><td style="text-align: center;">=</td></tr> <tr><td>Toilet:</td><td></td><td></td><td></td></tr> <tr><td>- Flush Valve</td><td style="text-align: center;">35</td><td style="text-align: center;">x</td><td style="text-align: center;">=</td></tr> <tr><td>- Tank Type</td><td style="text-align: center;">4</td><td style="text-align: center;">x 90</td><td style="text-align: center;">= 360</td></tr> <tr><td>Urinal:</td><td></td><td></td><td></td></tr> <tr><td>- Pedestal Flush Valve</td><td style="text-align: center;">35</td><td style="text-align: center;">x</td><td style="text-align: center;">=</td></tr> <tr><td>- Wall Flush Valve</td><td style="text-align: center;">16</td><td style="text-align: center;">x</td><td style="text-align: center;">=</td></tr> <tr><td>Wash Sink (Each Set of Faucets)</td><td style="text-align: center;">4</td><td style="text-align: center;">x 30</td><td style="text-align: center;">= 120</td></tr> <tr><td>Washing Machine</td><td style="text-align: center;">6</td><td style="text-align: center;">x 30</td><td style="text-align: center;">= 180</td></tr> <tr><td>Other:</td><td></td><td></td><td></td></tr> <tr><td>_____</td><td style="text-align: center;">x</td><td style="text-align: center;">=</td><td style="text-align: center;">=</td></tr> <tr><td>_____</td><td style="text-align: center;">x</td><td style="text-align: center;">=</td><td style="text-align: center;">=</td></tr> <tr><td>_____</td><td style="text-align: center;">x</td><td style="text-align: center;">=</td><td style="text-align: center;">=</td></tr> <tr> <td style="text-align: right;"><b>Total Domestic Fixture Value</b></td> <td style="text-align: center;"><b>=</b></td> <td style="text-align: center;"><b>1386</b></td> <td style="text-align: center;"><b>GPM (A)</b></td> </tr> </tbody> </table>	Fixture	Fixture Value (GPM @ 60 psi)	No. of Fixtures	Fixture Value	Bathtub	8	x 30	= 240	Bedpan Washers	10	x	=	Bidet	2	x	=	Dental Unit	2	x	=	Dishwasher	2	x 30	= 60	Drinking Fountain - Public	2	x	=	Hose Bibs (o/w 50 ft wash down):				- 1/2 inch	5	x 30	= 150	- 5/8 inch	9	x	=	- 3/4 inch	12	x	=	Kitchen Sink	2.2	x 30	= 66	Lavatory	1.5	x 90	= 135	Showerhead (Shower Only)	2.5	x 30	= 75	Service Sink	4	x	=	Toilet:				- Flush Valve	35	x	=	- Tank Type	4	x 90	= 360	Urinal:				- Pedestal Flush Valve	35	x	=	- Wall Flush Valve	16	x	=	Wash Sink (Each Set of Faucets)	4	x 30	= 120	Washing Machine	6	x 30	= 180	Other:				_____	x	=	=	_____	x	=	=	_____	x	=	=	<b>Total Domestic Fixture Value</b>	<b>=</b>	<b>1386</b>	<b>GPM (A)</b>	<p>In this example, the following fixtures are identified for each of the 30 units in the proposed development:</p> <ul style="list-style-type: none"> <li>- 1 bathtub</li> <li>- 1 shower</li> <li>- 3 toilets (tank type)</li> <li>- 3 bathroom sinks</li> <li>- 1 dishwasher</li> <li>- 1 kitchen sink</li> <li>- 1 washing machine</li> <li>- 1 laundry sink</li> <li>- 1 hose bib (1/2 inch)</li> </ul> <p>These fixtures yield a Total Domestic Fixture Value of 1386 GPM.</p> <p>Note: If a fixture is proposed that is not on the list then the peak flow value (fixture value) can be included on one of the blank lines under "Other" based on the manufacturer's information.</p>
Fixture	Fixture Value (GPM @ 60 psi)	No. of Fixtures	Fixture Value																																																																																																														
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 <p style="text-align: center;"><b>Water Meter Sizing Calculation Sheet</b> For Non-Fire Service Meters AWWA M22 Fixture Value Methodology</p>	<p><b>Example</b></p> <p style="text-align: right;">Page 2 of 3</p>																											
<p><b>Step 2: Calculate Probable Peak Domestic Demand</b></p> <p>Refer to Figure 4-2 or 4-3</p> <p style="text-align: right;">Probable Peak Domestic Demand = <u>65</u> GPM (B)</p>	<p>The AWWA Manual M22 includes two graphs (Figures 4-2 and 4-3) which provide a correlation between the Total Domestic Fixture Value and Probable Peak Domestic Demand for various development types.</p> <p>For this example, Figure 4-3 applies since the Total Domestic Fixture Value is in the "high range". The "Apartments" curve indicates that a Total Domestic Fixture Value of 1386 GPM corresponds to a Probable Peak Domestic Demand of 65 GPM.</p> <div style="display: flex; justify-content: space-around;">   </div> <p>Figure 4-2 Water flow demand per fixture value—low range</p> <p>Figure 4-3 Water flow demand per fixture value—high range</p>																											
<p><b>Step 3: Apply Pressure Adjustment Factor</b></p> <p>City Water System Pressure (not to exceed 80 psi) = <u>70</u> psi</p> <p>Pressure Factor from Table 4-1 = <u>1.09</u> (C)</p> <p>Adjusted Peak Domestic Demand (B x C) = <u>70.85</u> GPM (D)</p>	<p>The fixture values listed in Step 1 are based on a pressure of 60 psi. This step increases or decreases the peak demand based on the pressure at the outlet of the meter. Table 4-1 in the AWWA M22 Manual provides adjustment factors for various pressures.</p> <p>For this example, the pressure downstream of the meter is identified as 70 psi. From Table 4-1, the pressure adjustment factor is 1.09 and the Adjusted Peak Domestic Demand is 70.85 GPM.</p> <p>Note that for the purpose of this sizing methodology, the maximum pressure for which to apply an adjustment is 80 psi.</p> <table border="1" data-bbox="1188 1000 1633 1219"> <caption>Table 4-1 Pressure adjustment factors*</caption> <thead> <tr> <th>Working Pressure at Meter Discharge (psi)</th> <th>Average Flow from 50 ft of 1/2 in. Hose and Sprinkler (gpm)</th> <th>Pressure Adjustment Factor</th> </tr> </thead> <tbody> <tr><td>35</td><td>6.7</td><td>0.74</td></tr> <tr><td>40</td><td>7.2</td><td>0.80</td></tr> <tr><td>50</td><td>8.1</td><td>0.90</td></tr> <tr><td>60</td><td>9.0</td><td>1.00</td></tr> <tr><td><b>70</b></td><td>9.8</td><td><b>1.09</b></td></tr> <tr><td>80</td><td>10.5</td><td>1.17</td></tr> <tr><td>90</td><td>11.2</td><td>1.25</td></tr> <tr><td>100</td><td>12.1</td><td>1.34</td></tr> </tbody> </table> <p><small>*derived from Table 4-1 and 4-2 of Manual M22 (1975). NOTE: To convert psi to kPa: psi x 6.89476; to convert gpm to m<sup>3</sup>/hr: gpm x 0.227.</small></p>	Working Pressure at Meter Discharge (psi)	Average Flow from 50 ft of 1/2 in. Hose and Sprinkler (gpm)	Pressure Adjustment Factor	35	6.7	0.74	40	7.2	0.80	50	8.1	0.90	60	9.0	1.00	<b>70</b>	9.8	<b>1.09</b>	80	10.5	1.17	90	11.2	1.25	100	12.1	1.34
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 <p style="text-align: center;"><b>Water Meter Sizing Calculation Sheet</b> For Non-Fire Service Meters AWWA M22 Fixture Value Methodology</p>	<p style="color: red; font-size: 1.2em;">Example</p> <p style="text-align: right; font-size: 0.8em;">Page 3 of 3</p>
<p><b>Step 4: Identify Irrigation Demand</b></p> <p style="text-align: right;">Total Irrigation Demand = <u>23.2</u> GPM (E)</p> <p style="font-size: 0.8em;">For irrigation demands greater than 35 GPM, a detailed irrigation plan shall be provided with appropriately designed zones.</p>	<p>The Total Irrigation Demand is identified in this step. The AWWA Manual M22 provides guidance for calculating irrigation demands. However, the Applicant's Engineer may refer to an irrigation system design flow specified by the manufacturer or identified by the irrigation system designer.</p> <p style="color: red; font-size: 0.8em;">For this example, an area of 2000 ft<sup>2</sup> is irrigated by a spray irrigation system. The AWWA M22 Manual indicates that for spray irrigation each "section" represents a flow of 1.16 GPM. A "section" is defined as 100 ft<sup>2</sup>. So the calculation yields:</p> <p style="color: red; font-size: 0.8em;">Total Irrigation Demand = 2000 ft<sup>2</sup> / 100 ft<sup>2</sup> = 20 sections x 1.16 GPM = 23.2 GPM</p>
<p><b>Step 5: Calculate Total Peak Demand</b></p> <p style="text-align: right;">Total Peak Demand (D + E) = <u>94.05</u> GPM (F)</p>	<p>The Adjusted Peak Domestic Demand of 70.85 GPM from Step 3 is combined with the Total Irrigation Demand of 35 GPM from Step 4 to yield a Total Peak Demand of 105.85 GPM.</p>
<p><b>Step 6: Select Water Meter</b></p> <p style="text-align: right;">Water Meter Make / Model: = <u>Sensus OMNI C<sup>2</sup></u></p> <p style="text-align: right;">Water Meter Size * = <u>1.5</u> inches</p> <p style="text-align: right;">Water Service Connection Size = <u>2</u> inches</p> <p style="font-size: 0.7em;">* Total Peak Demand (F) not to exceed 80% of Meter Rated Peak Instantaneous Flow * Pressure Loss at Total Peak Demand (F) not to exceed 5 psi</p>	<p>The selected meter is a 1.5" Sensus OMNI C<sup>2</sup>.</p> <p style="color: red; font-size: 0.8em;">The manufacturer specified maximum intermittent flow rating for this meter is 200 GPM. 80% of 200 GPM = 160 GPM &gt; 94.05 GPM</p> <p style="color: red; font-size: 0.8em;">The manufacturer specified pressure loss for this meter (with strainer) at 94.05 GPM is approximately 4 psi (&lt; 5 psi).</p>
<p><b>Professional Certification</b></p> <div style="border: 1px solid black; width: 100px; height: 100px; display: flex; align-items: center; justify-content: center; margin-bottom: 10px;"> <span style="color: red;">Seal</span> </div> <div style="display: flex;"> <div style="flex: 1;"> <p>Name: <u>Example</u></p> <p>Company: <u>Example</u></p> <p>Date: <u>Example</u></p> <p>Comments: _____</p> <p>_____</p> <p>_____</p> <p>_____</p> </div> <div style="flex: 1; border-left: 1px solid black; padding-left: 5px;"> <p style="font-size: 0.8em;">This section is for the Applicant's Engineer to certify the water meter sizing calculation.</p> <p style="font-size: 0.8em;">The comments space is provided to explain any unique aspects of the development that impact the proposed meter sizing.</p> </div> </div> <p style="text-align: center; font-size: 0.7em;">Seal</p>	



STOP  
RA 1  
600mm x 600mm



YIELD  
RA 2  
750mm x 750 x mm 750mm



SCHOOL CROSSWALK  
RA 3L/R  
600mm x 750mm



PEDESTRIAN CROSSWALK  
RA 4L/R  
600mm x 750mm



CROSS BUCK  
RA 6  
CROSS LENGTHS 1200 x 200mm



RAILWAY CROSSING SIGN  
RA 6S  
700mm X 450mm



ROUNDBABOUT YIELD  
RA 7  
750mm x 750mm x 750mm



MAXIMUM SPEED  
RB 1  
600mm x 750mm



NO TURN  
RB-11 L/R  
600mm X 600mm



TURN ONLY  
RB-14 L/R  
600mm x 600mm

NOTES:

1. THIS HANDBOOK IS FOR GENERAL REFERENCE ONLY.
2. REFER TO SECTION 9.14 STREET NAME AND TRAFFIC SIGNS.

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10.10.2019



CITY OF NANAIMO'S FIELD HANDBOOK  
OF GENERAL SIGNS

Scale: N.T.S.  
Created: JUNE 2013  
Rev Date: MAY 2020  
Dwg No: SHT-1

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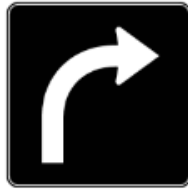
ONE WAY  
RB 21  
900mm x 300mm



DO NOT ENTER  
RB 23  
600mm x 600mm



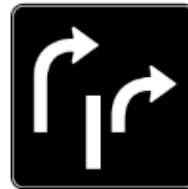
KEEP RIGHT  
RB 25  
600mm x 750mm



TURN ONLY LANE  
RB-41 L/R  
600mm x 600mm



THRU OR TURN LANE  
RB-42 L/R  
600mm x 600mm



DOUBLE TURN ONLY  
RB-46 L/R  
600mm x 600mm



STRAIGHT OR DOUBLE TURN LANE  
RB-47 L/R  
600mm x 600mm



STOP LINE  
RC-4 L/R  
600mm x 750mm

- NOTES:
1. THIS HANDBOOK IS FOR GENERAL REFERENCE ONLY.
  2. REFER TO SECTION 9.14 STREET NAME AND TRAFFIC SIGNS.

10.15.2019



CITY OF NANAIMO'S FIELD HANDBOOK  
OF GENERAL SIGNS

Scale: N.T.S.  
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TWO WAY LEFT TURN LANE  
RB-48  
900mm x 900mm



CENTER LANE  
RB-48S  
600mm x 300mm



NO PARKING ANYTIME  
RB-52  
300mm x 450mm



NO STOPPING  
RB-57  
300mm x 450mm



RESERVED BIKE LANE  
RB-91  
600mm x 750mm



RESERVED BIKE LANE ENDS  
RB 92  
600mm x 750mm



LEFT TURN SIGNAL  
RB-18  
600mm x 750mm



LEFT TURN  
YIELD  
ON GREEN  
R-110  
450mm X 600mm (MOTI)



CURVE 90°  
WA-1 L/R  
600mm x 600mm



SHARP CURVE  
WA-2 L/R  
600mm x 600mm



CURVE  
WA-3 L/R  
600mm x 600mm



REVERSE TURN  
WA-4 L/R  
600mm x 600mm

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CITY OF NANAIMO'S FIELD HANDBOOK  
OF GENERAL SIGNS

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REVERSE CURVE  
WA-5L/R  
600mm x 600mm



WINDING ROAD  
WA-6L/R  
600mm x 600mm



CHECKERBOARD  
WA-8B  
750mm x 750mm



CHEVRON ALIGNMENT  
WA-9  
450mm x 600mm



CONCEALED INTERSECTION  
WA-11  
600mm x 600mm



ACUTE ANGLE CONCEALED INTERSECTION  
WA-12L/R  
600mm x 600mm



90 ANGLE CONCEALED INTERSECTION  
WA-13L/R  
600mm x 600mm



RAILWAY CROSSING STRAIGHT  
WA-18  
750mm x 750mm



RAILWAY CROSSING ANGLED  
WA-18L/R  
750mm x 750mm



LANE ENDS  
WA-33L/R  
750mm x 750mm



OBJECT MARKER  
WA-36  
450mm x 900mm

NOTES:

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2. REFER TO SECTION 9.14 STREET NAME AND TRAFFIC SIGNS.

10/10/2019



CITY OF NANAIMO'S FIELD HANDBOOK  
OF GENERAL SIGNS

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OBJECT MARKER  
WA-36L  
300mm x 900mm



ROUNDBOUT DIRECTION  
WA-38  
60mm x 1660mm



ROUNDBOUT AHEAD  
WA-39  
900mm x 900mm



NEIGHBOURHOOD SPEED HUMP  
WA-50  
600mm x 600mm



STOP AHEAD  
WB-1  
750mm x 750mm



YIELD AHEAD  
WB-2  
750mm x 750mm



SIGNAL AHEAD  
WB-4  
600mm x 600mm



BIKE LANE AHEAD  
WB-10  
750mm x 750mm



SCHOOL CROSSWALK AHEAD  
WB-16L/R  
600mm x 600mm



PEDESTRIAN CROSSWALK AHEAD  
WC-2L/R  
600mm x 600mm



PLAYGROUND AHEAD  
WC-3R/L  
600mm x 600mm



BICYCLE CROSSING AHEAD  
WC-7  
600mm x 600mm

- NOTES:
1. THIS HANDBOOK IS FOR GENERAL REFERENCE ONLY.
  2. REFER TO SECTION 9.14 STREET NAME AND TRAFFIC SIGNS.

10-18-2019



CITY OF NANAIMO'S FIELD HANDBOOK  
OF GENERAL SIGNS

Scale: N.T.S.  
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Dwg No: SHT-5

G. INFRASTRUCTURE PLANNING STANDARDS & PRODUCTS | MOOSE JUNCTION NO. 13 MAY 2020 | 2015-09-15 REDLINE INCORPORATION - WORKING DRAWING SECTION | APPENDICES | SHT-6



FIRE TRUCK ENTRANCE  
WC-17L/R  
750mm x 750mm



BIKE PEDESTRIAN CROSSING AHEAD  
WC-46L/R  
600mm x 600mm



BIKES ON ROADWAY  
WC-19  
600mm x 600mm



CUL-DE SAC SIGN  
ID-31  
600mm x 600mm



PEDESTRIAN PUSHBUTTON SIGN  
ID-21L/R  
130mm x 200mm

NOTES:

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10.15.2019



CITY OF NANAIMO'S FIELD HANDBOOK  
OF GENERAL SIGNS

Scale: N.T.S.  
Created: JUN 2013  
Rev Date: MAY 2020  
Dwg No: SHT-6



SAMPLE - BC Hydro SLIM Connection Form – Ornamental Lights

Development Title:

Date: \_\_\_\_\_

Comments:

**Request:**

Request Type:

Reason Type:

Lamp Type:

Wattage:

Lens Type:

Request Details:

*(# of lights, wattages, etc.)*

**Electrician:**

Name:

Company:

Phone #:

Permit #:

*\*\*provided by electrician*

SLIM

ID#: \_\_\_\_\_