



Proposed Rainwater Management Requirements in July 2025

Phillip White, Chris Radziminski,
Peter Alm & Andrew Power

City of Vancouver

September 19, 2024 starting at 11:30 am

Any mention of trade names or commercial products does not
constitute endorsement or recommendation for use.

Proposed Rainwater Management Requirements in July 2025

- Slides will be published at vancouver.ca/rainwater
- Professional development / continuing education credits will be discussed at the end of the webinar.
- Please type in any questions using the Q&A function. Questions will be answered at the end.

 Q & A

Any mention of trade names or commercial products does not constitute endorsement or recommendation for use.





Proposed Rainwater Management Requirements in July 2025

1. **Summary:** Does this apply to you?
2. **Background:** Why the requirement?
3. **Details:** What is a detention tank?
What are the proposed requirements?
4. **Questions & answers**

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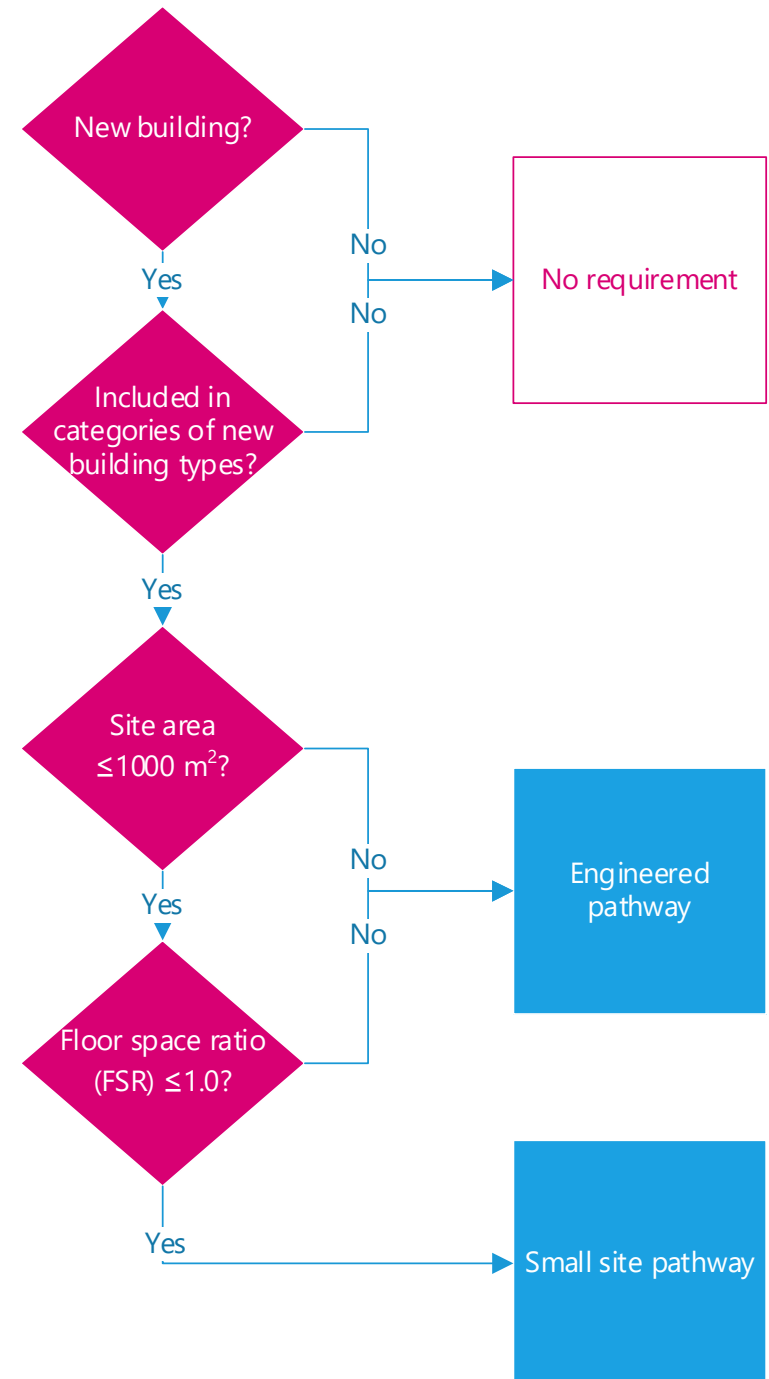
Does this apply to you?

If **yes**, two compliance pathways:



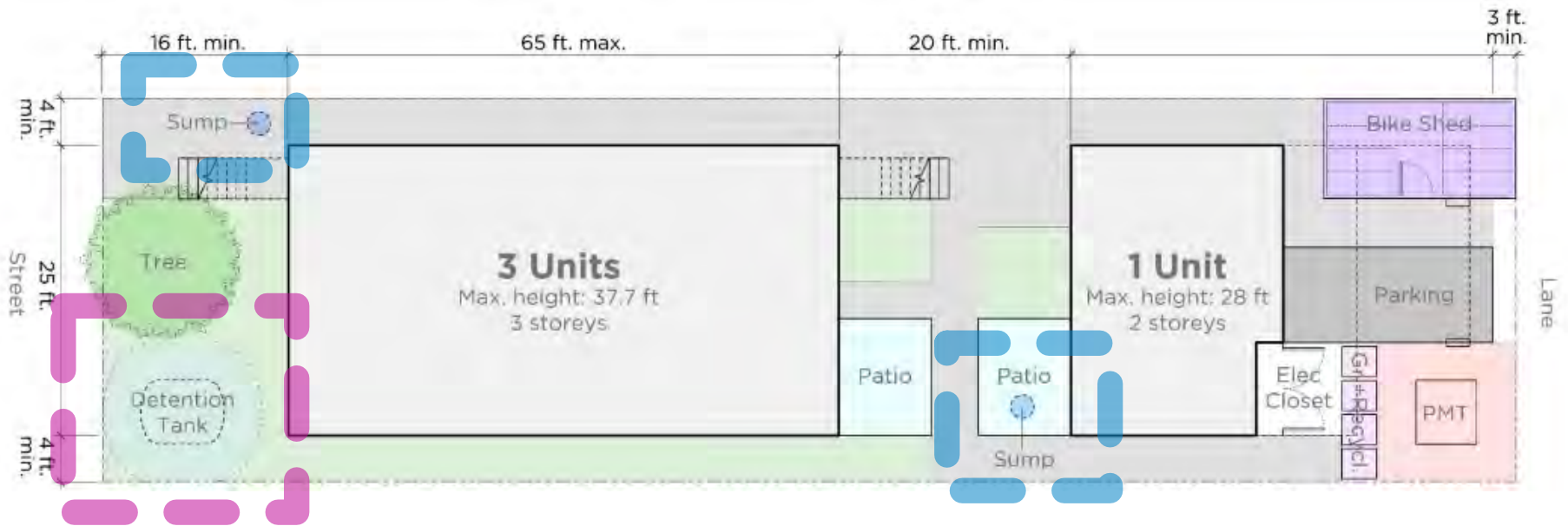
VBBL Book II, Division B, Article 2.4.2.5.

- **Engineered pathway** (existing)
 - Engineer required.
 - Meet performance objectives:
 - Minimum detention volume
 - Maximum release rate
- **Small site pathway** (proposed)
 - No engineer required.
 - Provide a detention tank.



Rainwater Management

Proposed Small Site Pathway (detention tank)



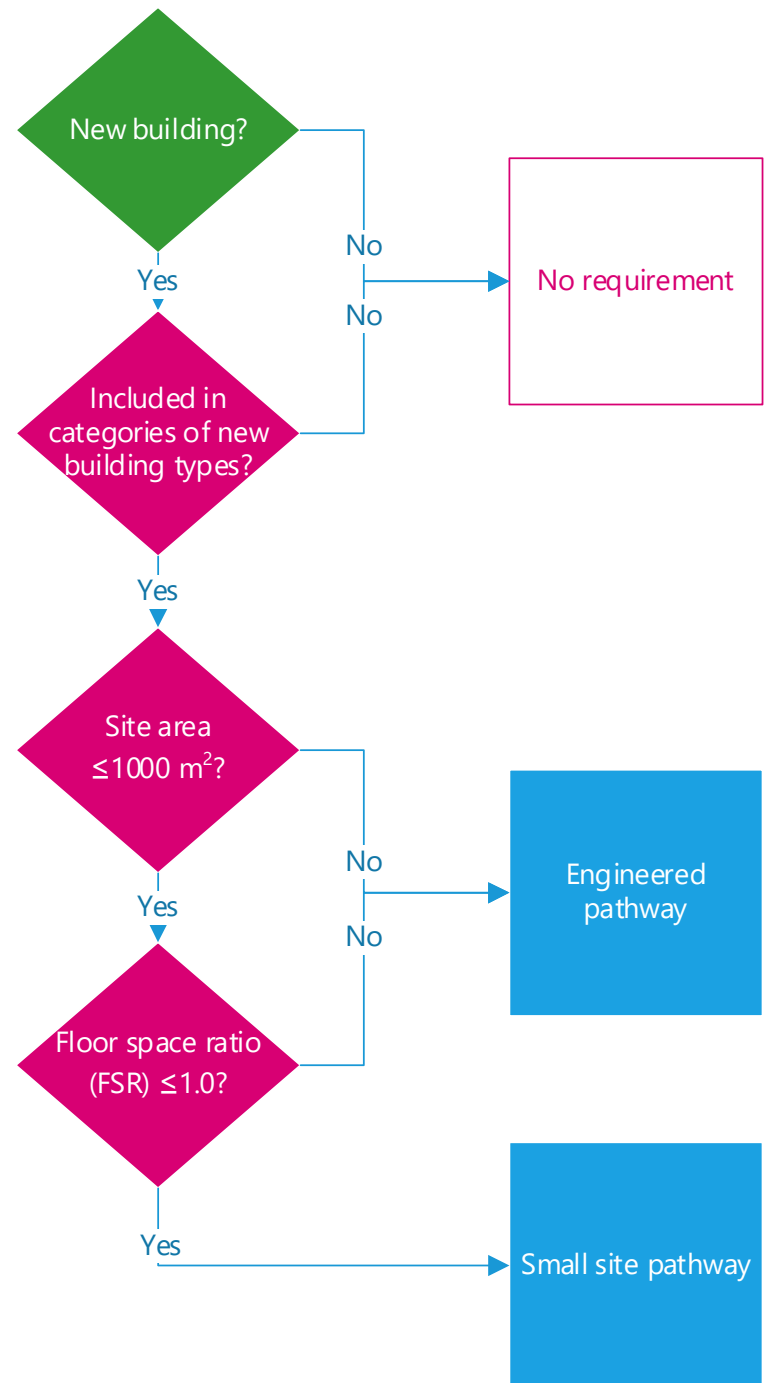


Is this a new building?

Rainwater management requirements are not retroactive and are not applicable to alterations to existing buildings



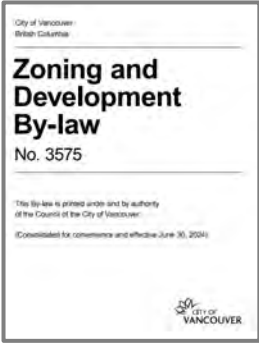
VBBL Book I, Div B, Sentence 11.2.1.1.(2)



Does your new building require rainwater management?

Requirements are applicable to all new buildings **except:**

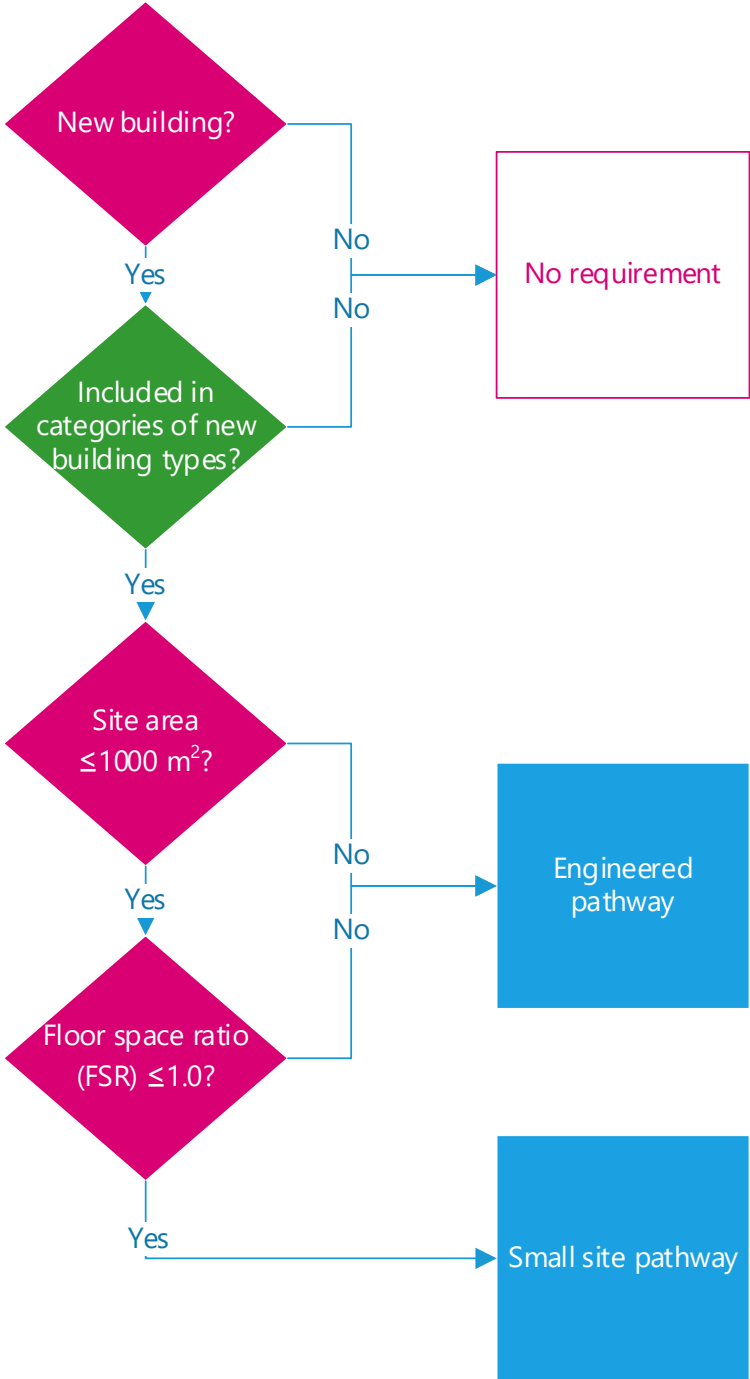
- 1. Laneway houses or infill on sites **up to** 1,000 m² (about 10,760 sq ft)
- 2. Accessory buildings
- 3. Float homes
- 4. Marinas
- 5. Temporary buildings



Section 2



Div A, Article 1.4.1.2.
Div C, Subsection 1.6.8.



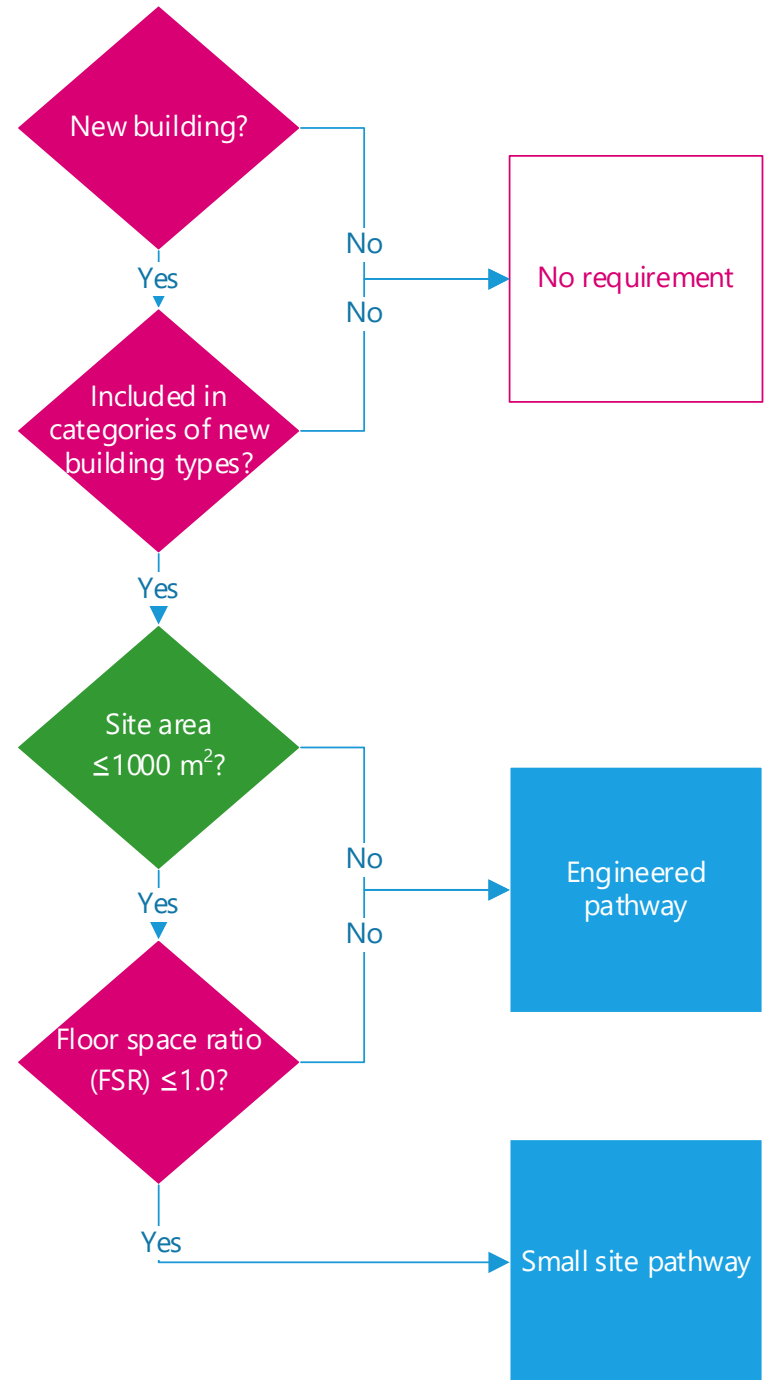
Is the site area no greater than 1,000 m²?

97% of properties in R1-1 are < 1,000 m²


If **site area > 1,000 m²**, compliance is by the existing **Engineered pathway**



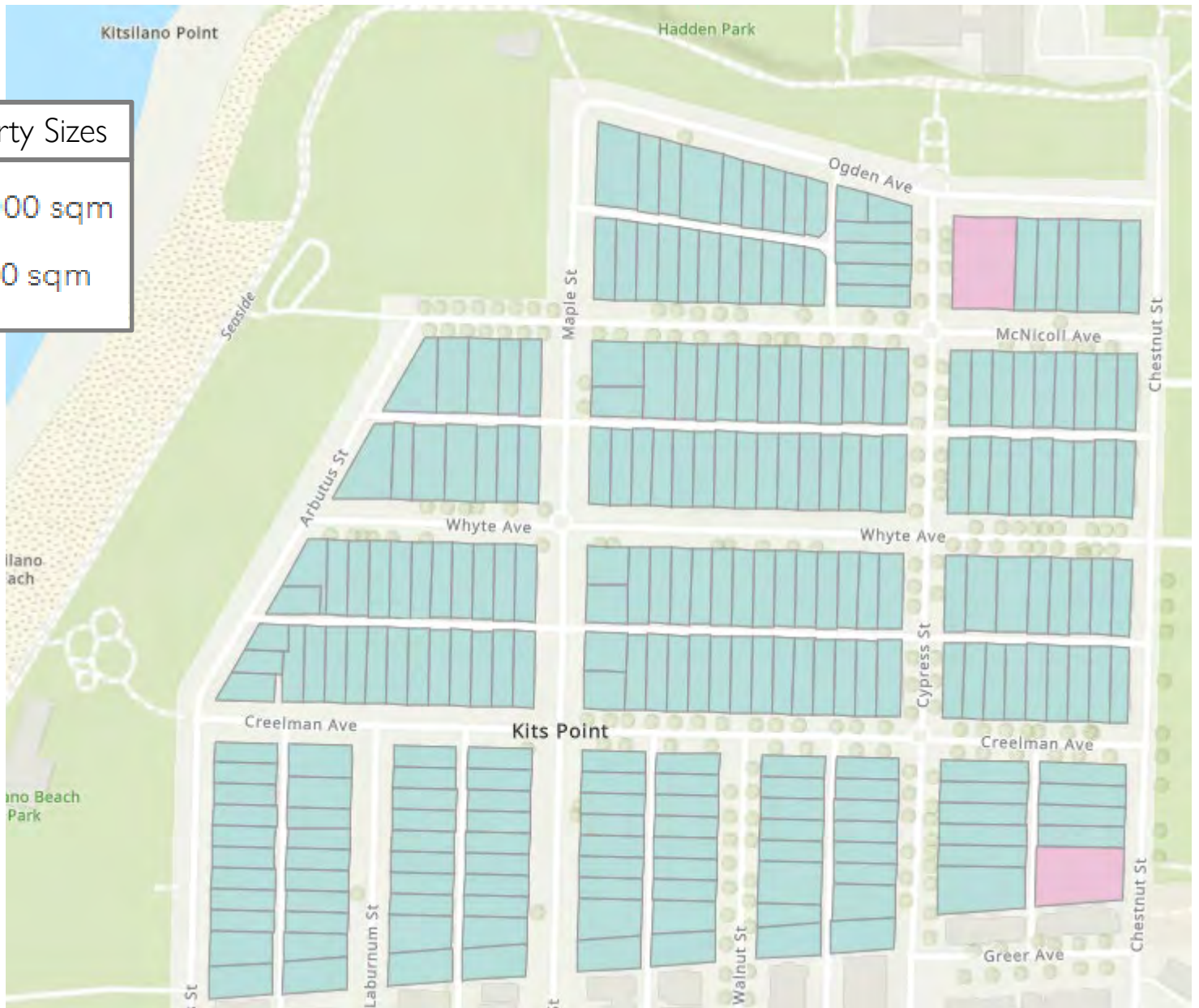
Div B, Article 2.4.2.5.
(vancouver.ca/rainwater)



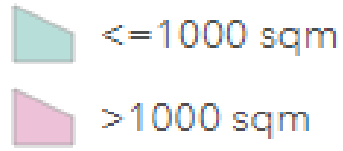
RT-9 Property Sizes

 ≤ 1000 sqm

 > 1000 sqm



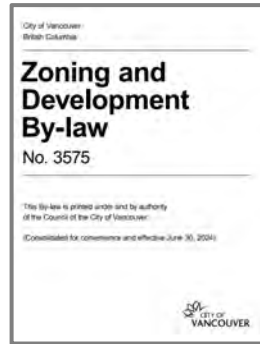
RT-7 Property Sizes



Is the floor space ratio (FSR) no greater than 1.0?

FSR is computed by the Zoning & Development By-law.

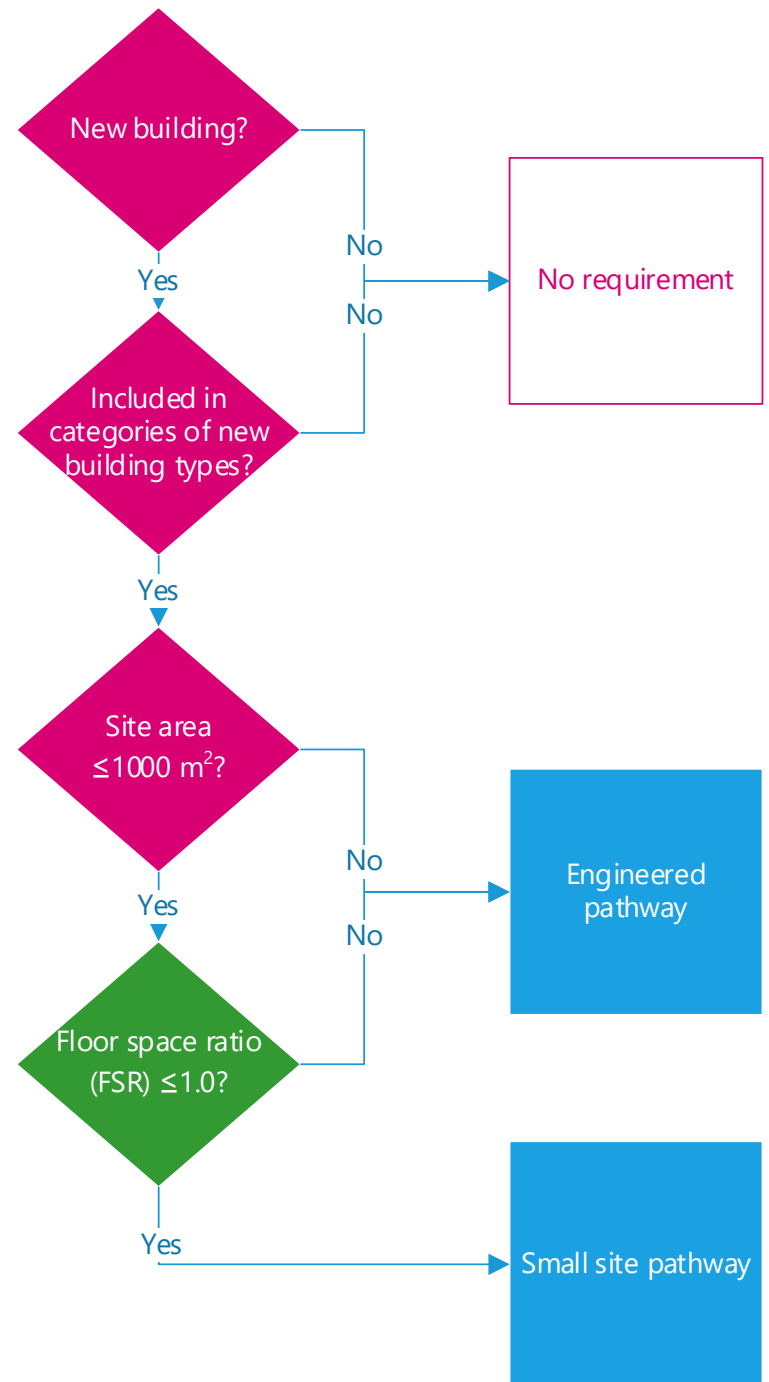
Housing options in R1-1 are up to 1.0 FSR.



If **FSR > 1.0**, compliance is by the existing **Engineered pathway**



Div B, Article 2.4.2.5.
(vancouver.ca/rainwater)



Housing Options in Low Density Areas (R1-1 Zone)

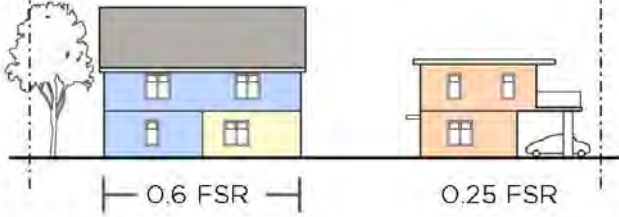
Single Detached House

- Principal Unit
- Optional Secondary Suite
- Optional LWH

House with optional secondary suite



House with optional secondary suite and laneway house (LWH)



Duplex

- Unit 1
- Unit 2
- Optional Secondary Suite

New build only

Duplex



Duplex with optional secondary suite



Housing Options in Low Density Areas (R1-1 Zone)

Character House Retention

■ Unit 1
 ■ Unit 2
 ■ Unit 3
 ■ Optional LWH

Pre-1940 homes (character merit assessment required)

Multiple conversion dwelling



House with addition, optional secondary suite and LWH



House with optional secondary suite and infill

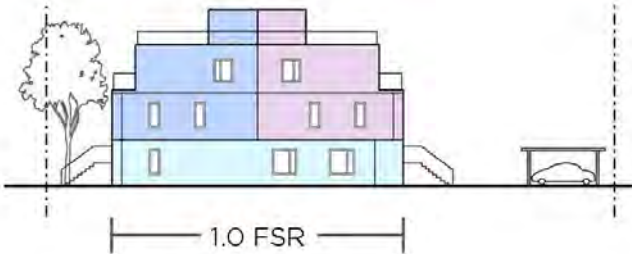


Multiple Dwelling (Multiplex)

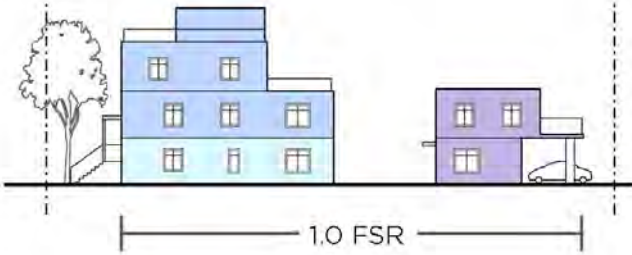
■ Unit 1
 ■ Unit 2
 ■ Unit 3
 ■ Unit 4

New build only

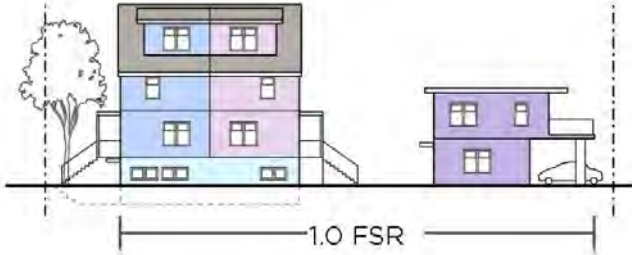
Multiple dwelling (Multiplex) in a single building



Multiple dwelling (Multiplex) in two buildings



Multiple dwelling (Multiplex) in two buildings



Does this apply to you?

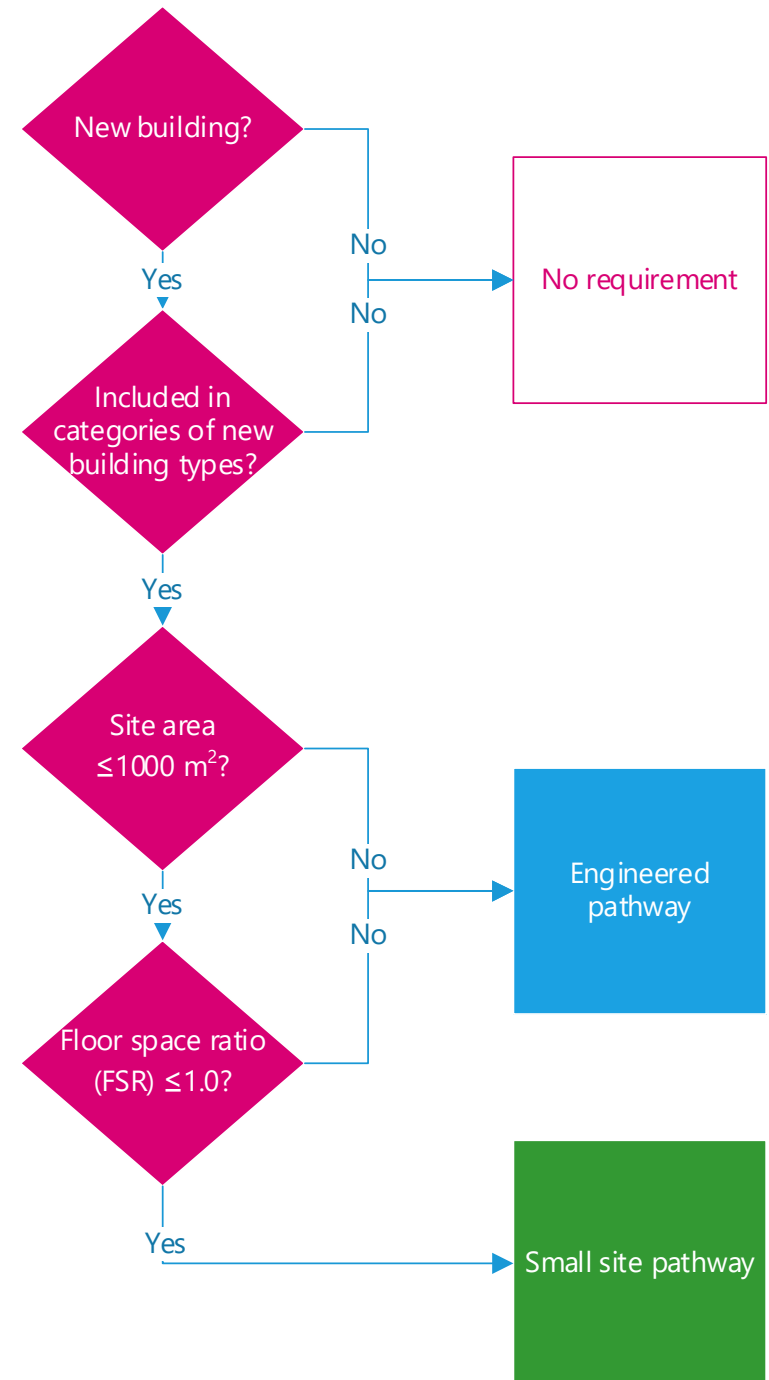
If **yes**, two compliance pathways:



VBBL Book II, Division B, Article 2.4.2.5.

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 - Provide a detention tank.



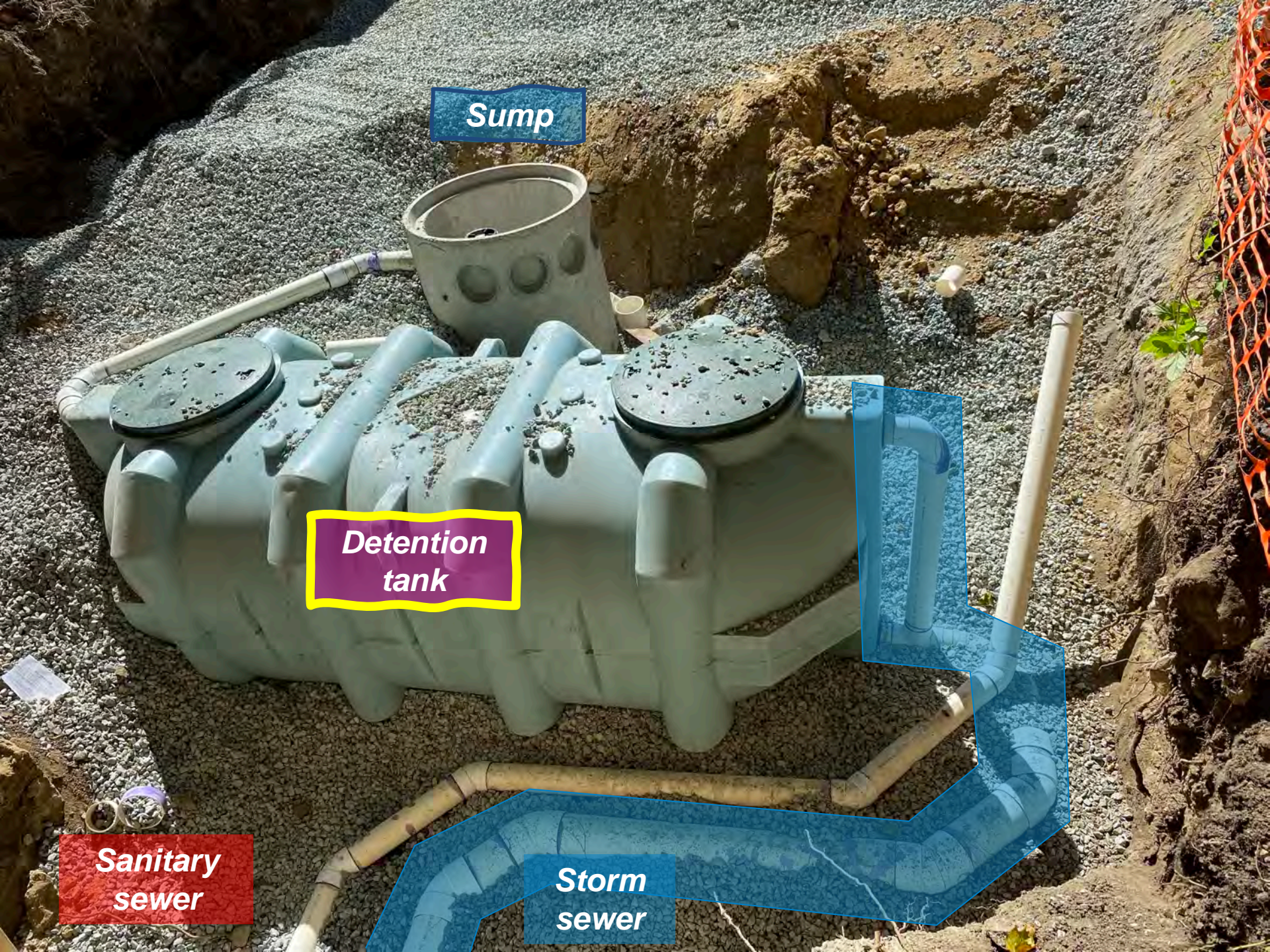


Sump

**Detention
tank**

**Sanitary
sewer**

**Storm
sewer**





**Sanitary
sewer**

Sanitary sewage control

Water efficiency requirements

(Existing requirements for ALL buildings – no changes proposed)



TOILETS

4.8 L/flush.
Full flush on a dual-flush toilet shall not exceed 4.8 L



CLOTHES WASHERS



DISHWASHERS



PIPE SIZING

IAPMO Water Demand Calculator may be used.



SHOWER HEADS**

7.6 L/minute



LAVATORY FAUCETS**

5.7 L/minute (private use)



KITCHEN FAUCETS**

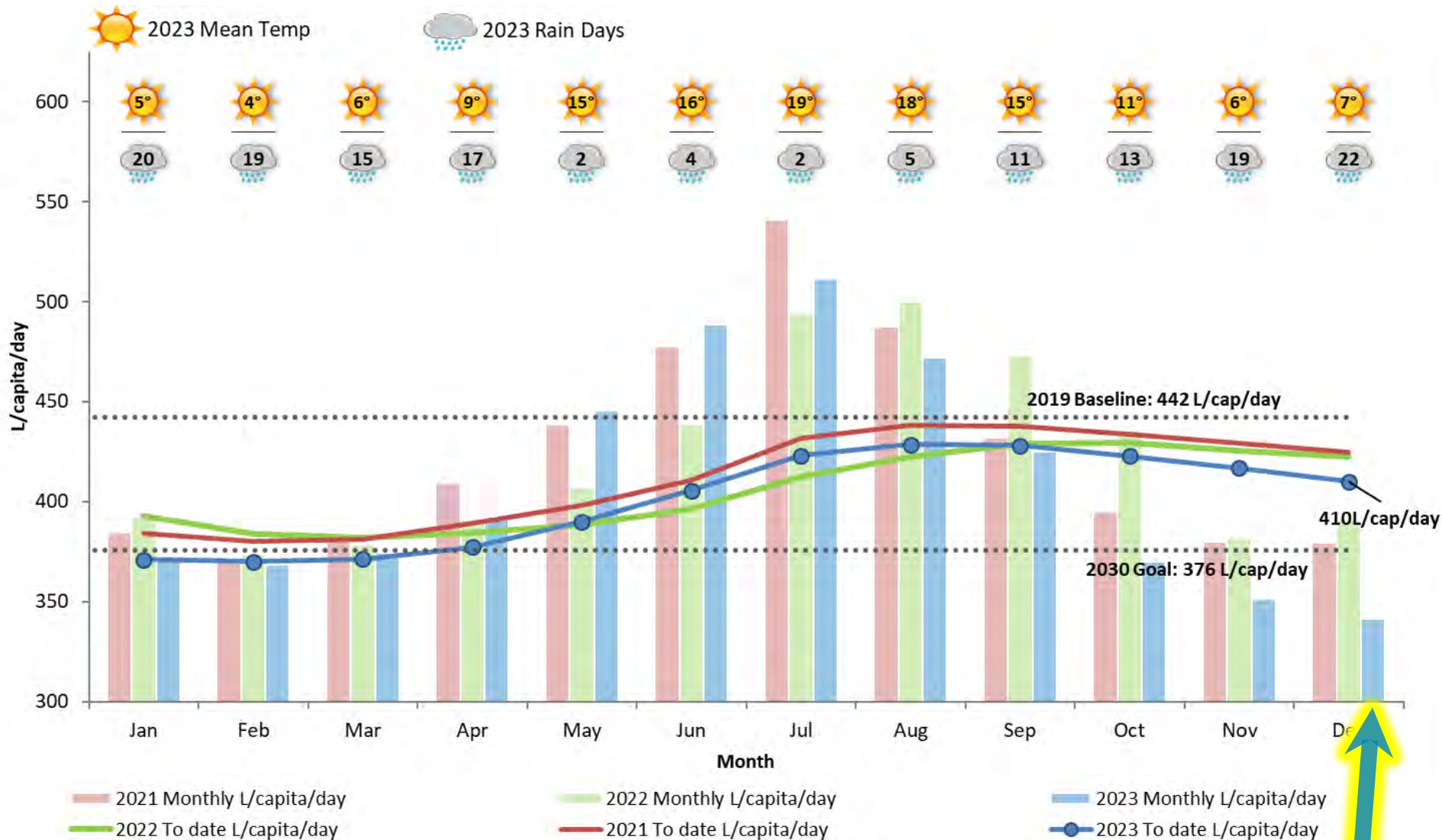
6.8 L/minute (residential use)



GEOEXCHANGE SYSTEMS

Open-loop systems prohibited for residential buildings with up to 8 units. Open-loop systems shall not discharge to the sewer. Closed-loop systems shall not use methanol.

City of Vancouver: Daily Drinking Water Use per Person



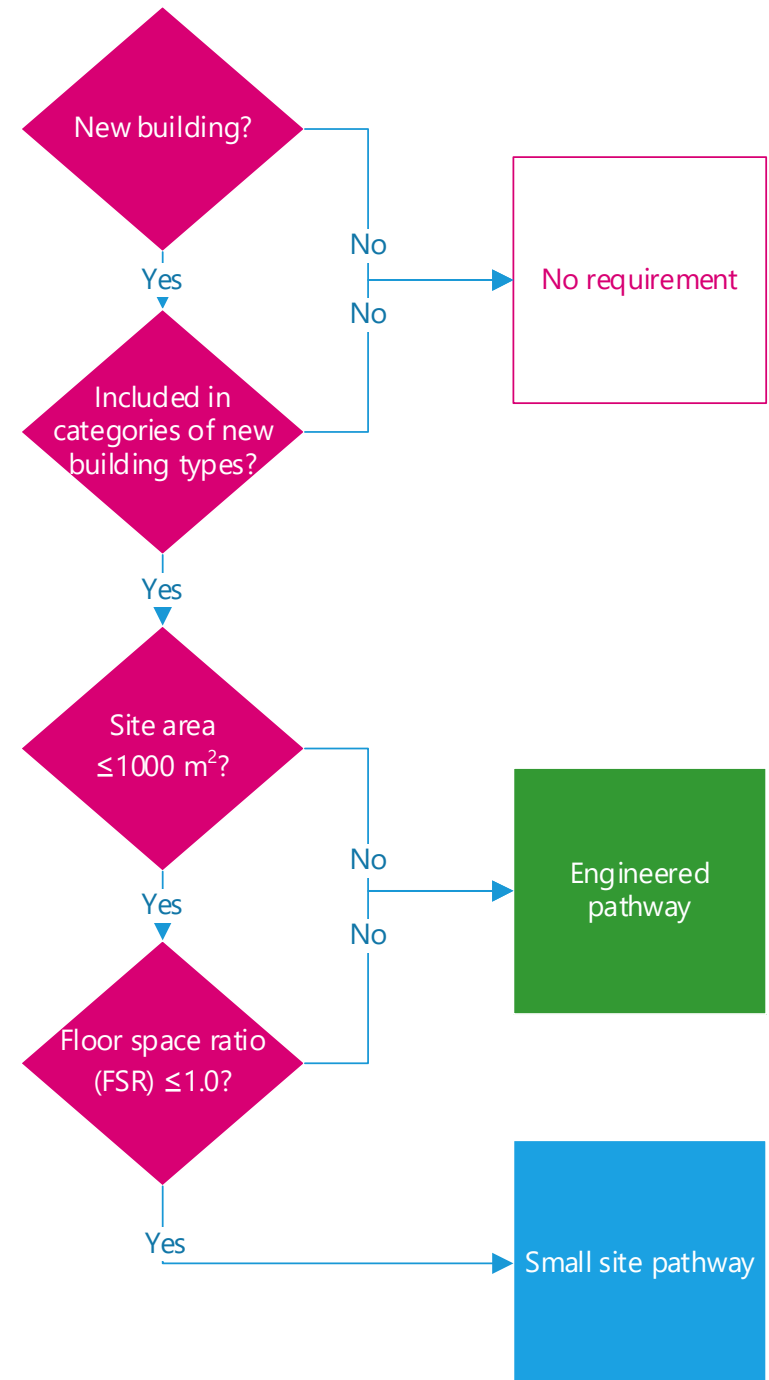
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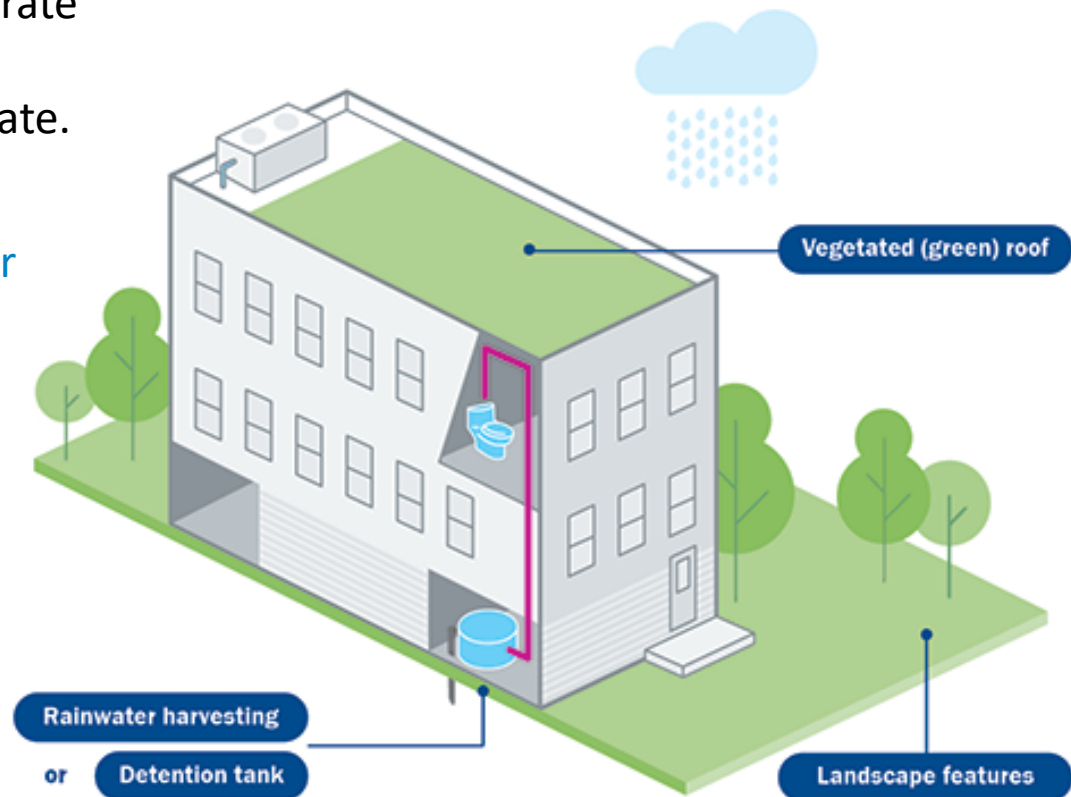


Existing Requirements: Engineered Pathway

Requirements:

1. Retain/detain **24 mm** of rainwater in 24 hours.
2. Peak **release rate** control: post-development rate no greater than pre-development rate.

Refer to
vancouver.ca/rainwater



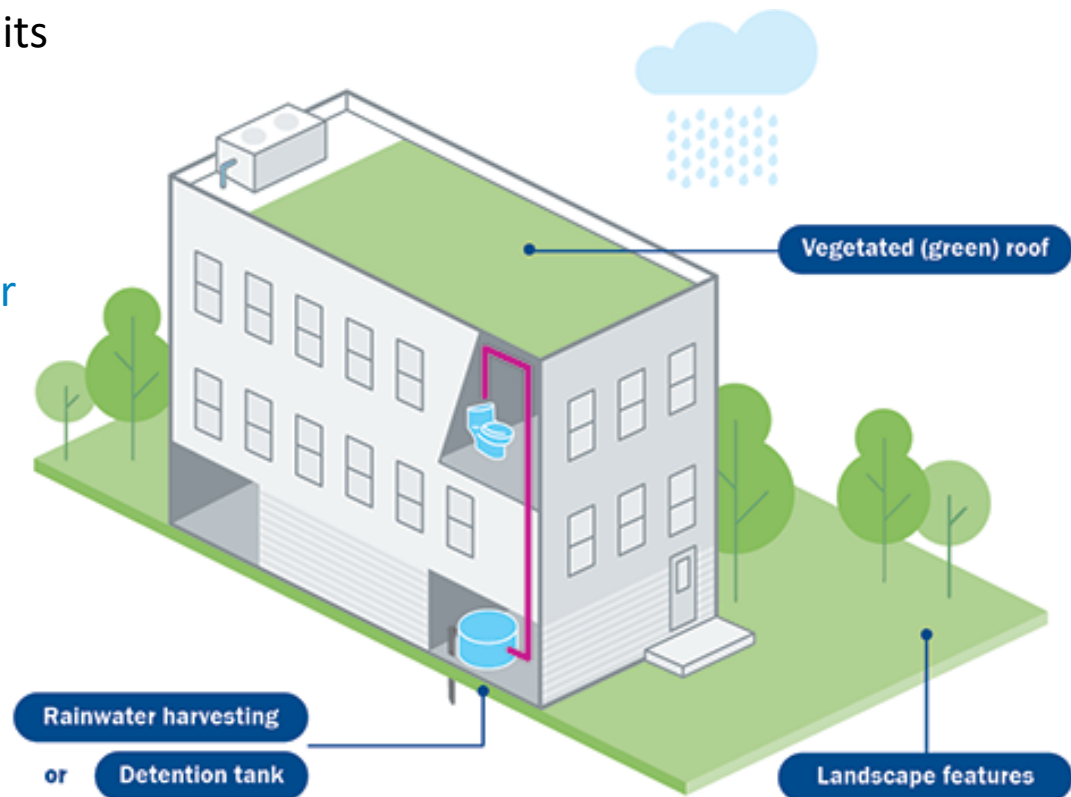
Existing Requirements: Engineered Pathway

Current applicability:

All new buildings except:

1. Part 9 buildings
2. Buildings used exclusively for residential occupancy with up to 8 dwelling units
3. Float homes
4. Marinas

Refer to
vancouver.ca/rainwater



Existing Requirements: Engineered Pathway

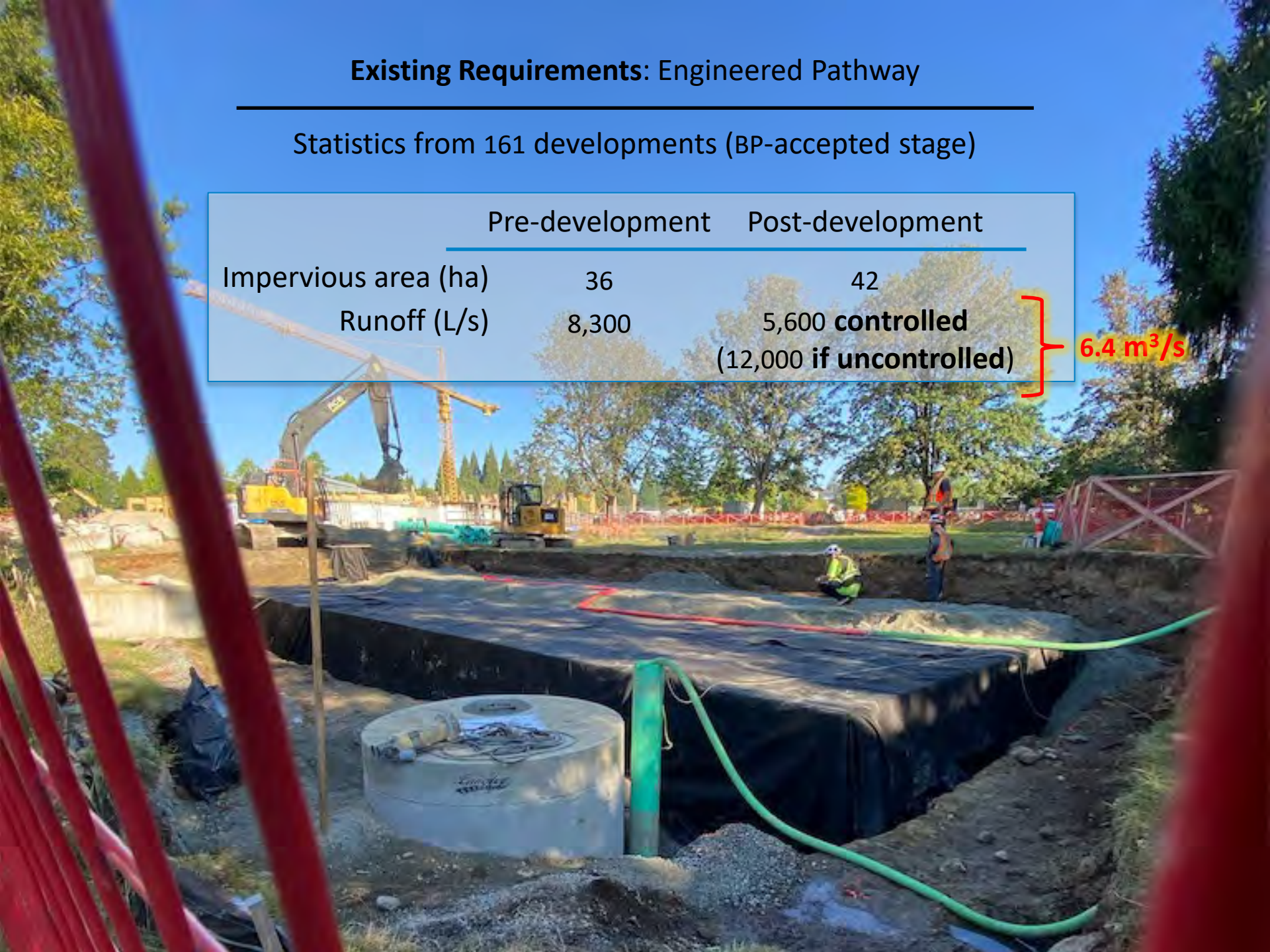


Existing Requirements: Engineered Pathway

Statistics from 161 developments (BP-accepted stage)

	Pre-development	Post-development
Impervious area (ha)	36	42
Runoff (L/s)	8,300	5,600 controlled (12,000 if uncontrolled)

6.4 m³/s



Existing Requirements: Engineered Pathway

Statistics from 161 developments (BP-accepted stage)

	Pre-development	Post-development
Impervious area (ha)	36	42
Runoff (L/s)	8,300	5,600 controlled (12,000 if uncontrolled)

6.4 m³/s

Capilano River

Wednesday, 18 Sep, 12:45-12:59

● Flow: 1.597 m³/s

Existing Requirements: Engineered Pathway

Statistics from 161 developments (BP-accepted stage)

62 vegetated (green) roof assemblies (3.4 ha)
Comparison: Nanaimo Park (2.91 ha)



Existing Requirements: Engineered Pathway

Statistics from 161 developments (BP-accepted stage)

5 non-potable water systems



Does this apply to you?

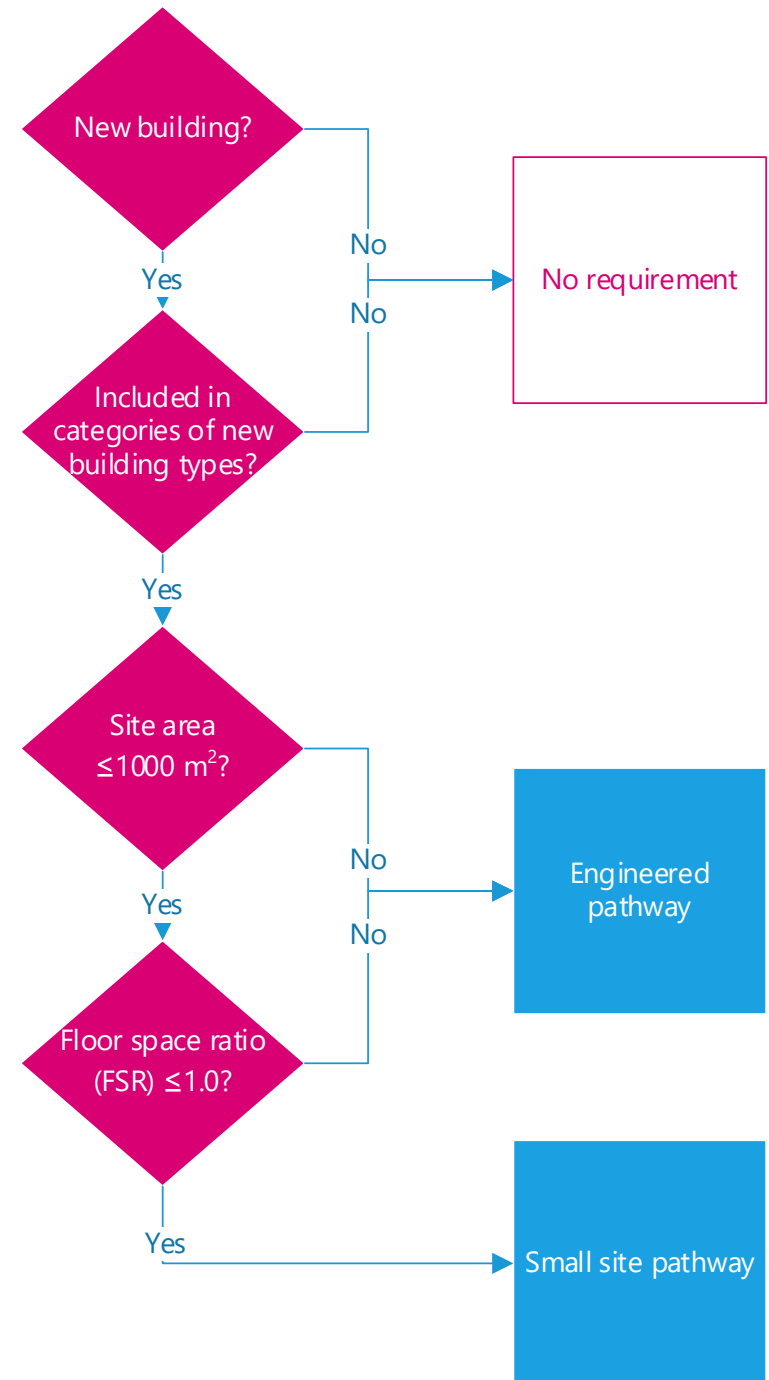
Additional, area-specific rainwater management requirements exist:

- First Shaughnessy District
- Southlands RA-1
- Specific CD-1 by-laws in the Nanaimo and Joyce-Collingwood areas



3-3-3-1 Permit Approval Framework

Staff are seeking to integrate area-specific requirements into the **Engineered pathway** to simplify permit issuance.





Proposed Rainwater Management Requirements in July 2025

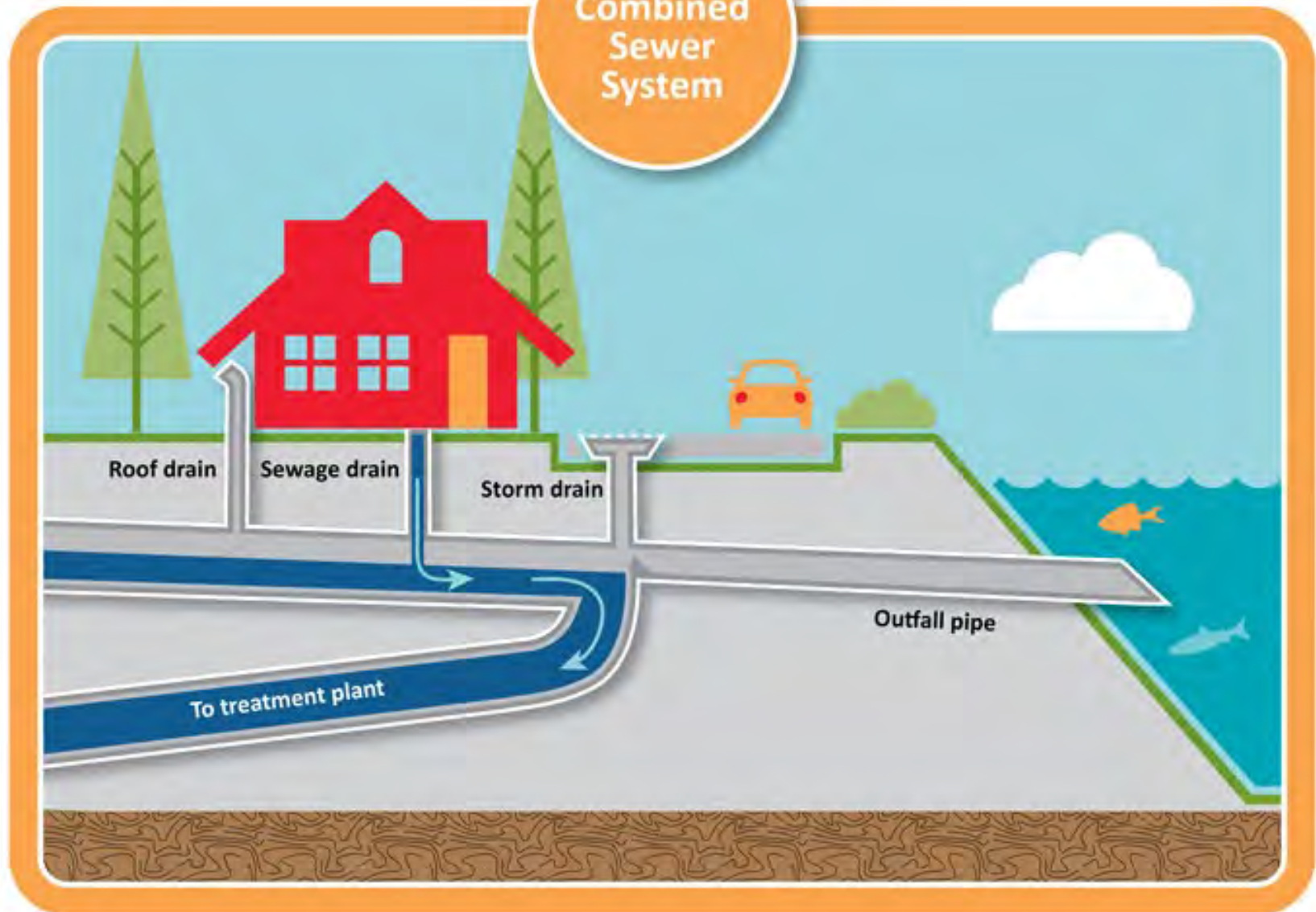


1. **Summary:** Does this apply to you?
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Combined Sewer System



**Combined Sewer
Overflow Outfall**
- a relief point for
an overloaded
system



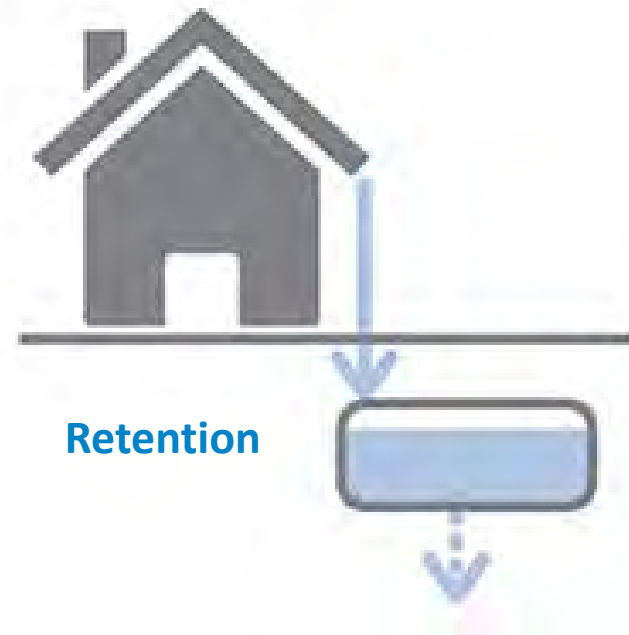


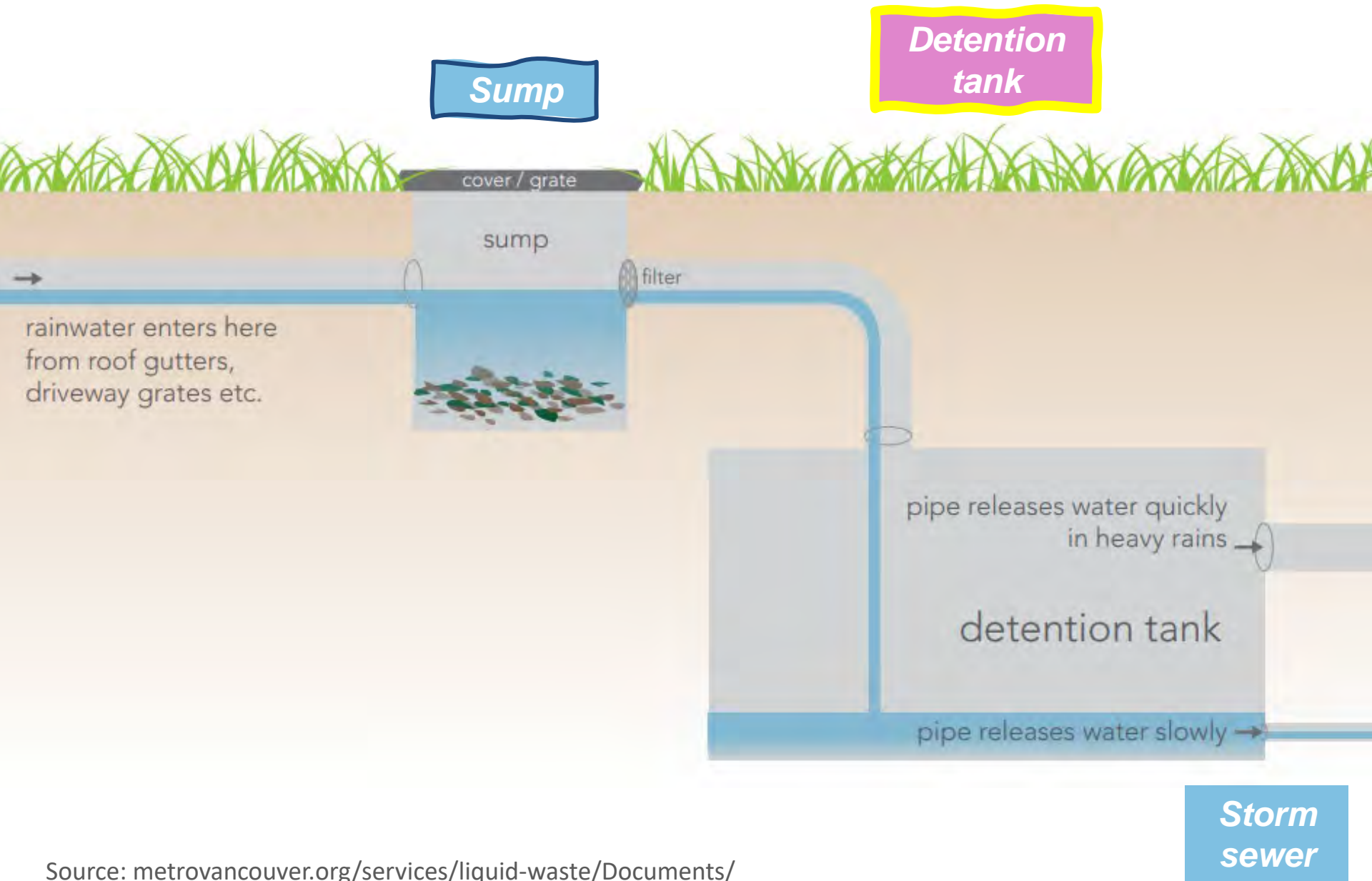
East King Edward Avenue & Glen Drive, Vancouver
Source: [youtube.com/watch?v=5LCloopx6ks](https://www.youtube.com/watch?v=5LCloopx6ks)

**Combined Sewer
Overflow Outfall
- a relief point for
an overloaded
system**

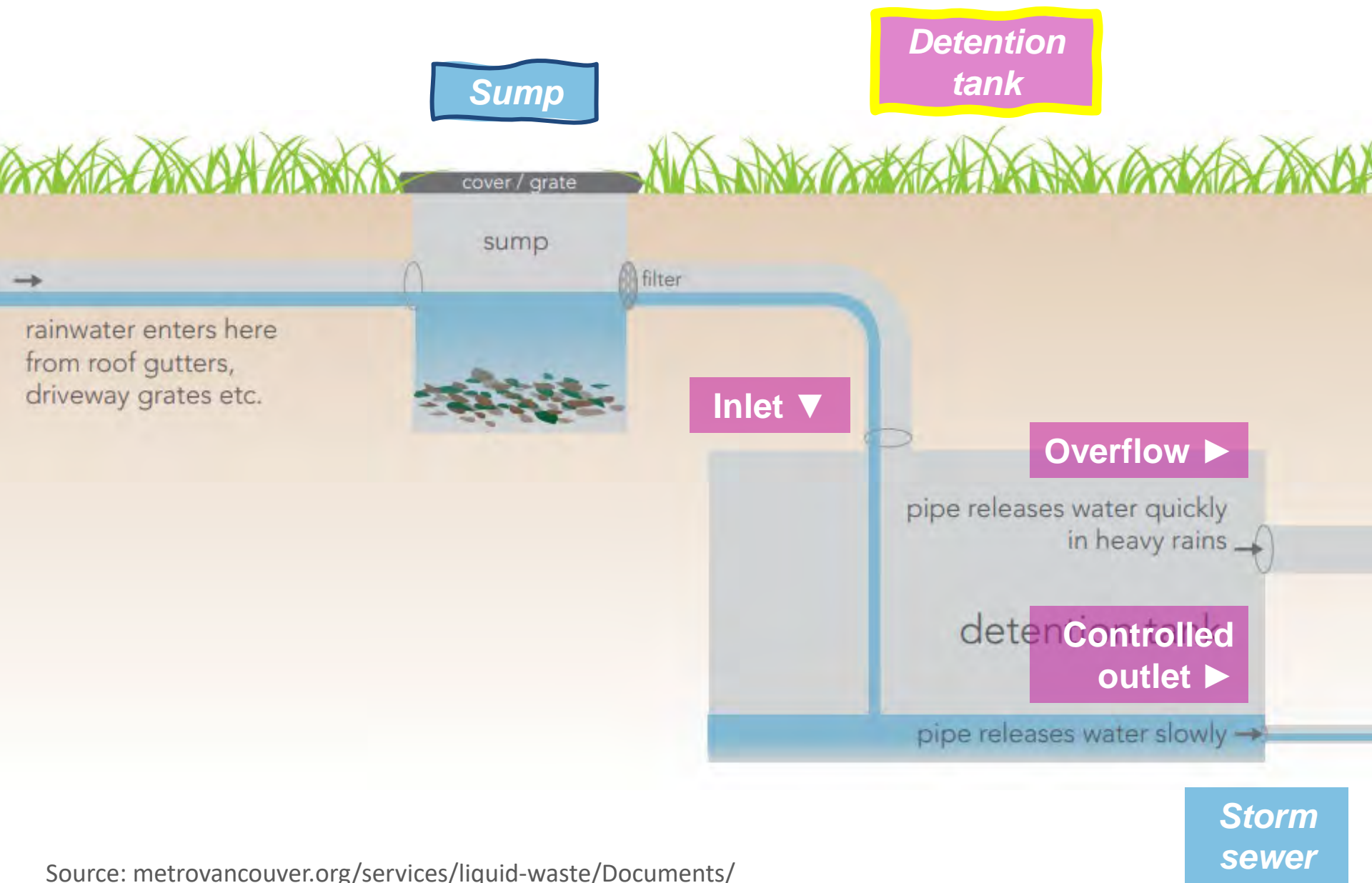


Detention *versus* Retention (infiltration)





Source: metrovancover.org/services/liquid-waste/Documents/homeowners-guide-stormwater-management.pdf



Source: metrovancover.org/services/liquid-waste/Documents/homeowners-guide-stormwater-management.pdf

Release Rate Control (Detention)

— Original site

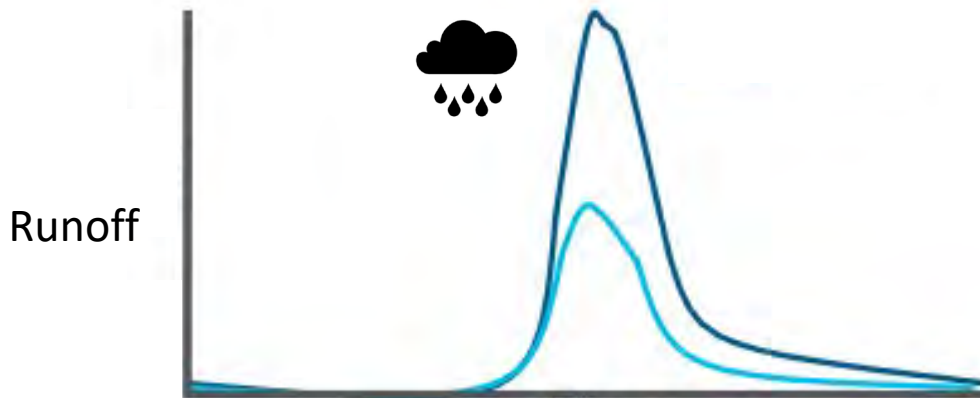


— Redeveloped site

- *More dense*
- *Less permeable*



No control:



Release Rate Control (Detention)

Original site



Redeveloped site

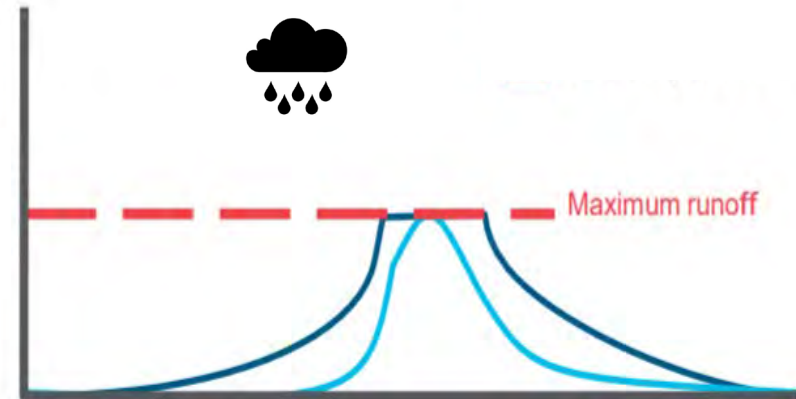
- More dense
- Less permeable



No control:



With release rate control:



Proposed Rainwater Management Requirements in July 2025



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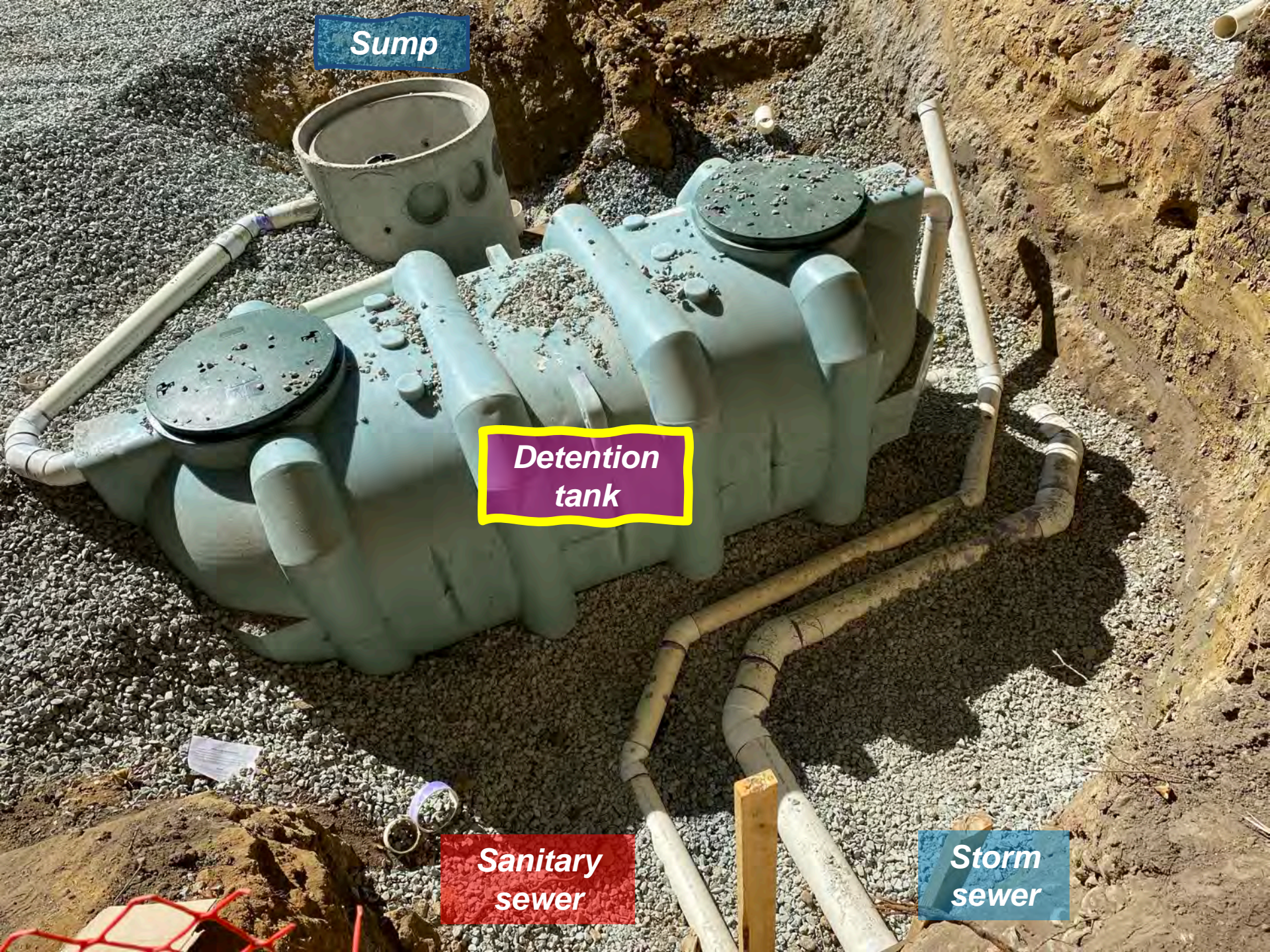


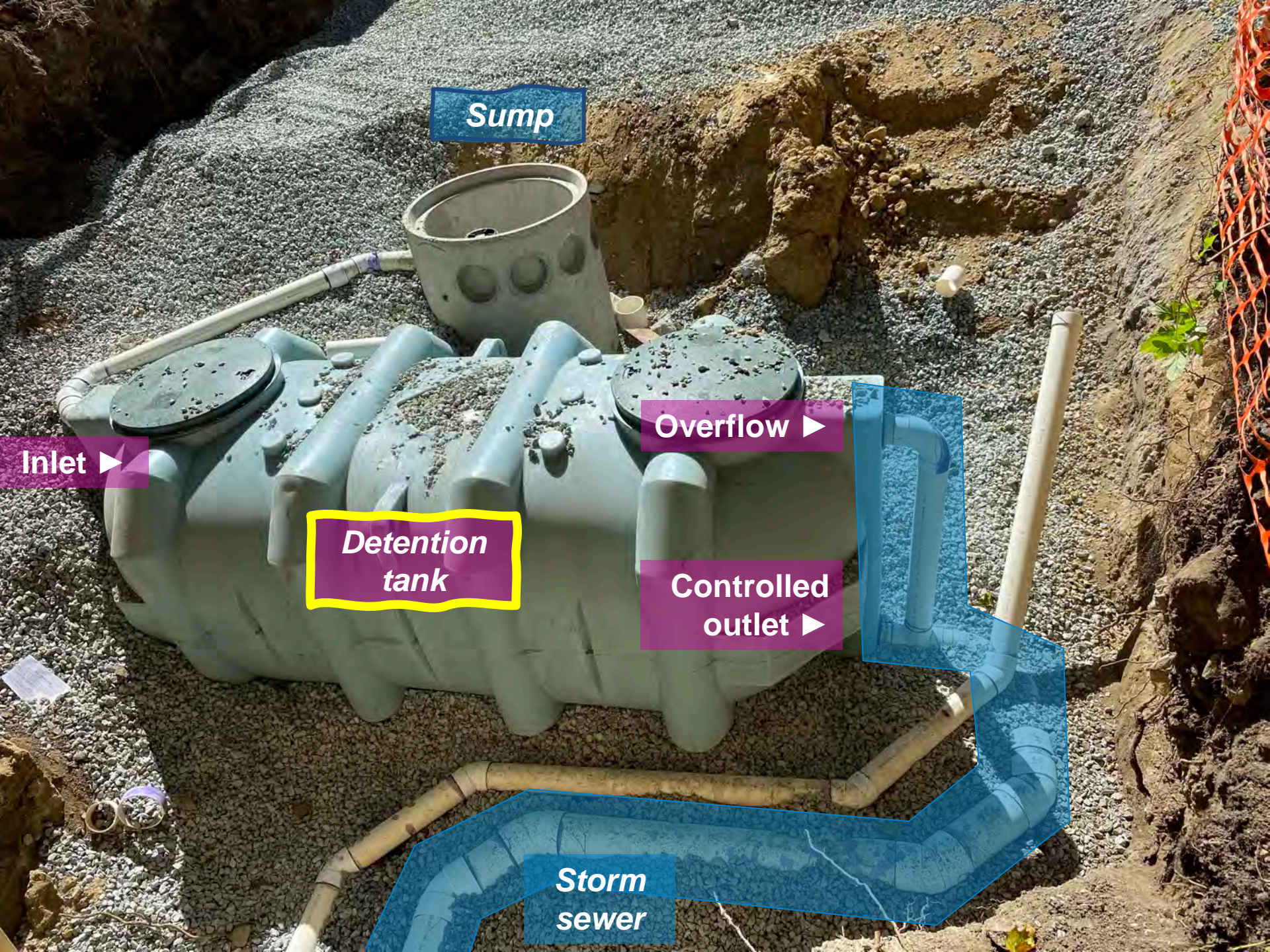
Sump

**Detention
tank**

**Sanitary
sewer**

**Storm
sewer**





Sump

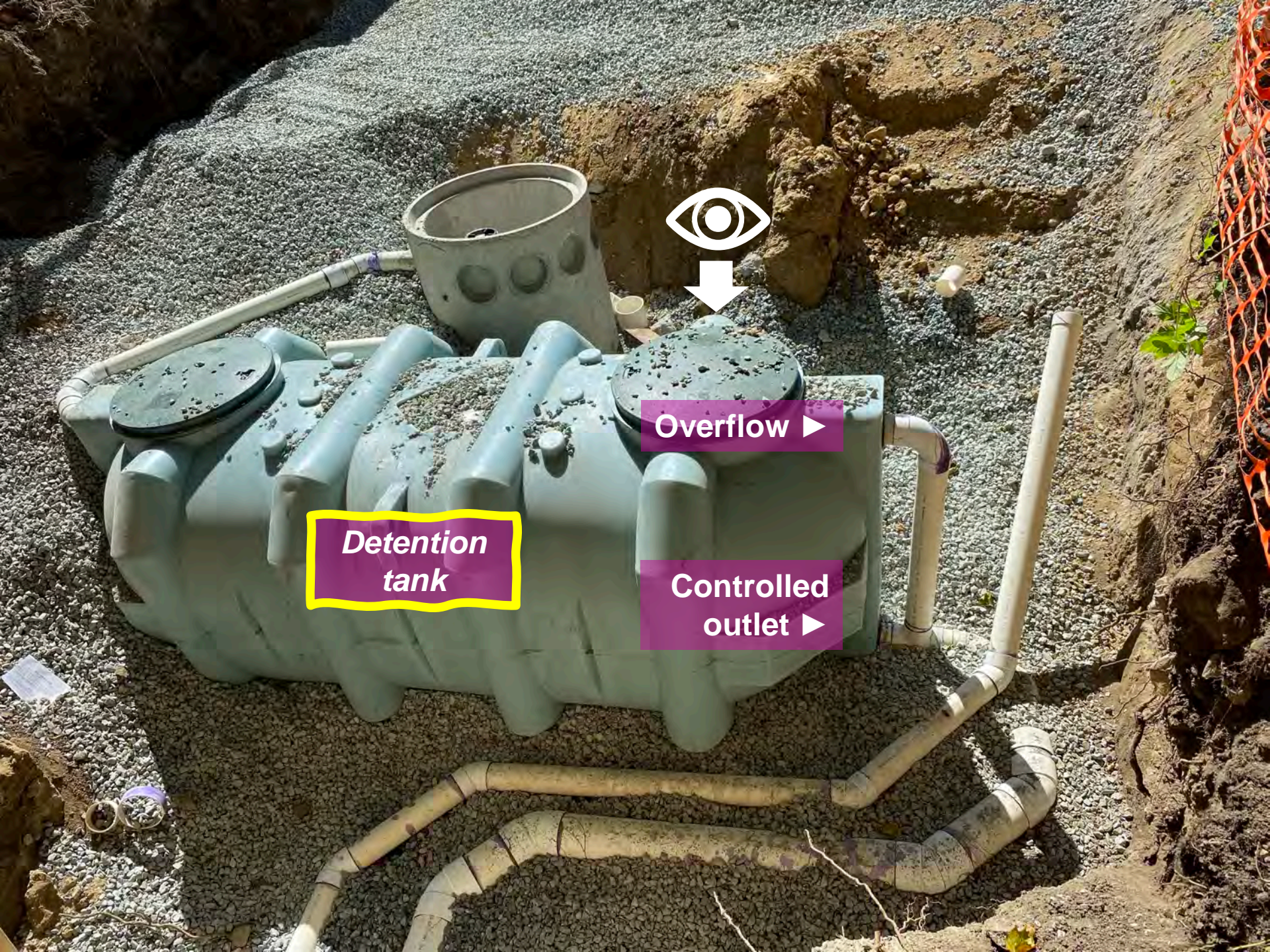
Inlet

Detention tank

Overflow

Controlled outlet

Storm sewer



Overflow ▶

Detention tank

Controlled outlet ▶

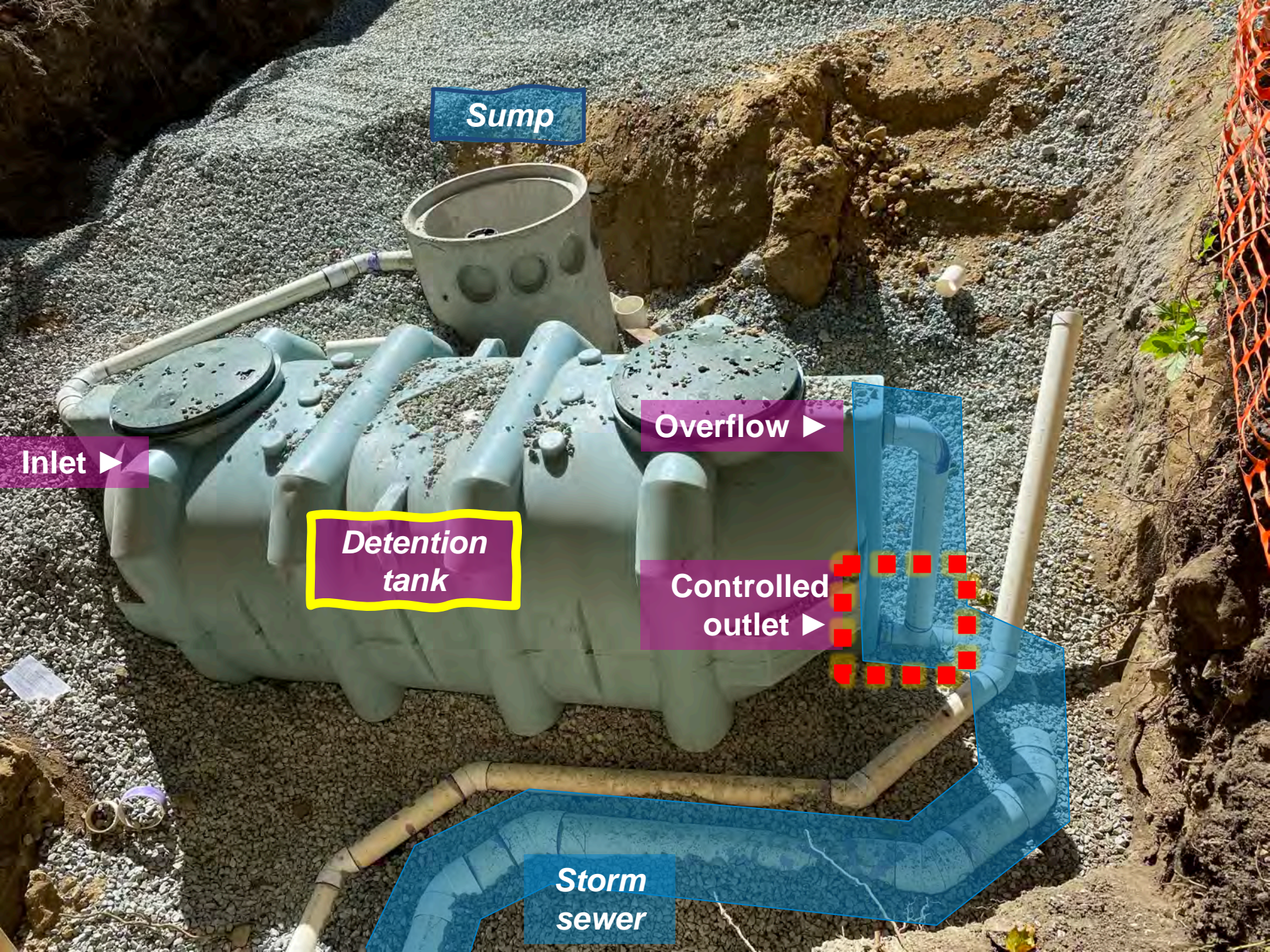
Detention
tank

Controlled
outlet ▶

Overflow ▶

Overflow must:

- drain **by gravity** to the sewer
- connect downstream of the controlled outlet



Sump

Inlet

Detention tank

Overflow

Controlled outlet

Storm sewer

**Detention
tank**

**Controlled
outlet ▶**



Orifice
(flow regulator)

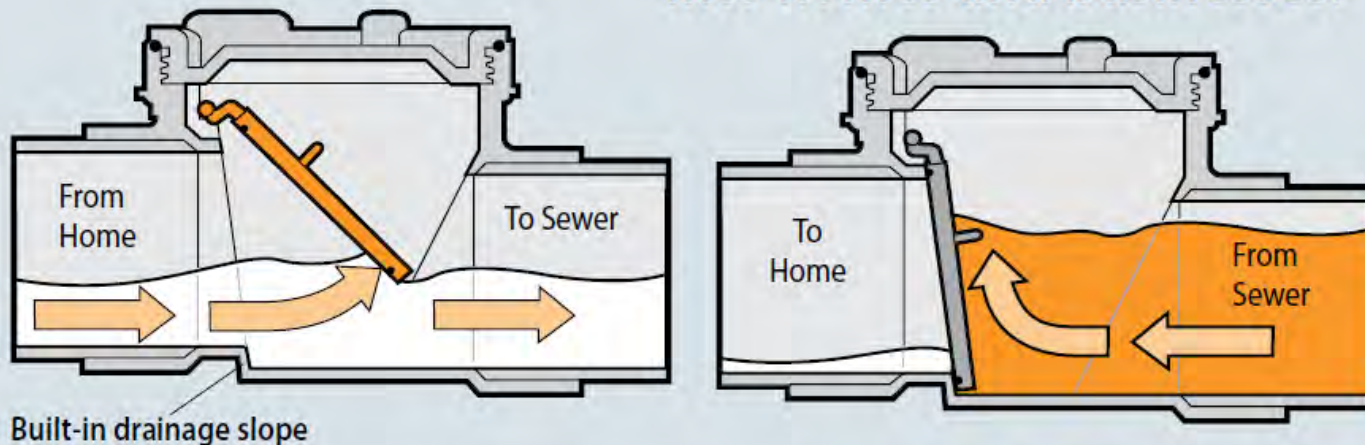
*Required, but not
pictured: Trap*
(for sewer gases)

Backwater valve
(for sewer surcharge)



Backwater Valves

These simple devices offer effective protection against the backflow of sewage and stormwater into homes and businesses.



Under Normal Operation, the lightweight flapper opens and allows waste water to exit to sewer line.

During a backflow, the flapper seals closed, stopping the flow from reaching interior drains entering the living space.

**Detention
tank**

**Controlled
outlet ▶**



Orifice
(flow regulator)

*Required, but not
pictured: Trap*
(for sewer gases)

Backwater valve
(for sewer surcharge)



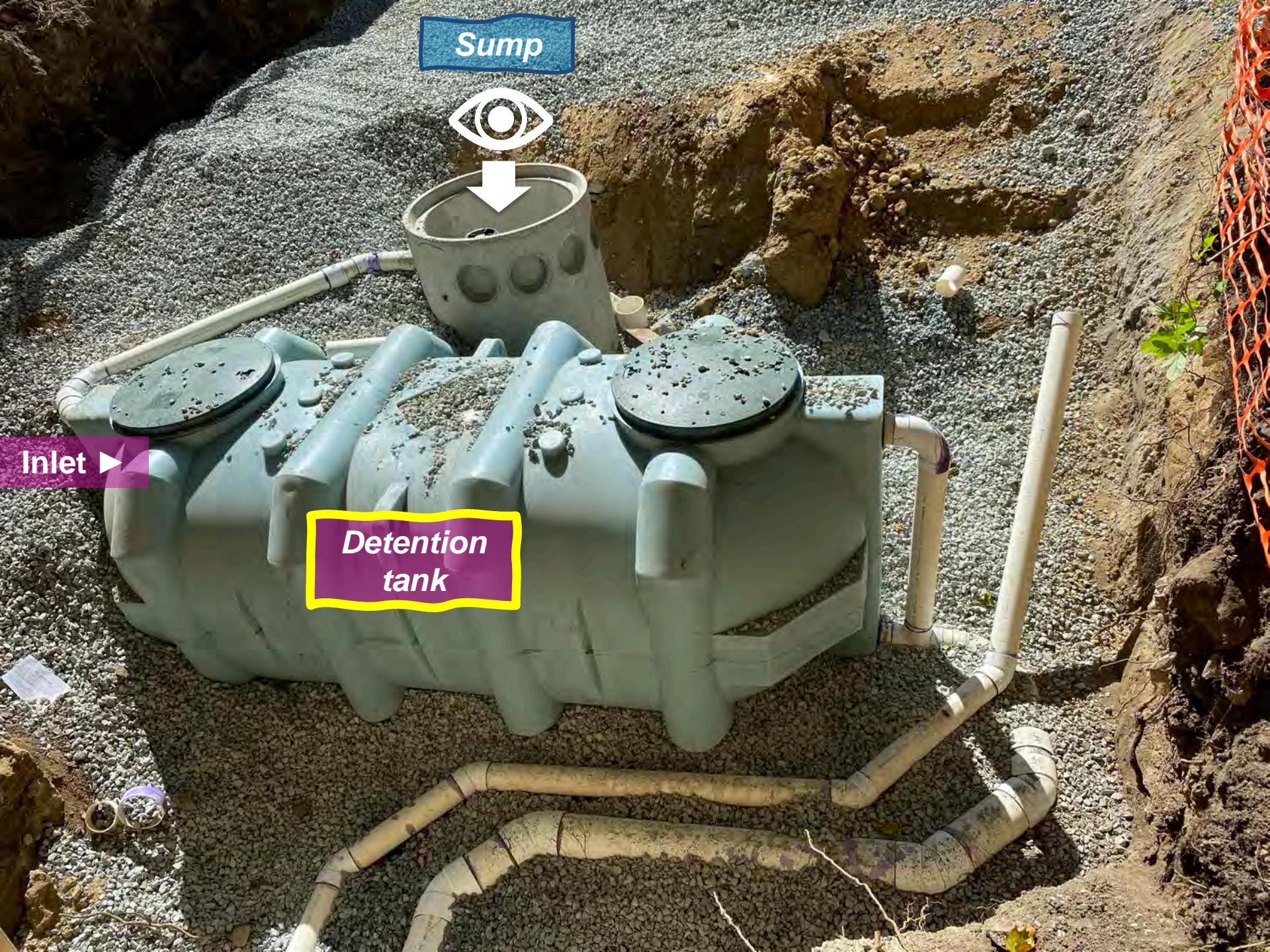
Sump



Inlet



Detention
tank





◀ Inlet

Backwater valve
(for sewer surcharge)

Sump

Trap (90° bend)
(for sewer gases)

Proposed Regulations: Rainwater Management



Proposed requirement:

For the **small site pathway**, provide a detention tank based on site area.

Key parameters:

- Minimum active storage capacity
- Orifice plate diameter

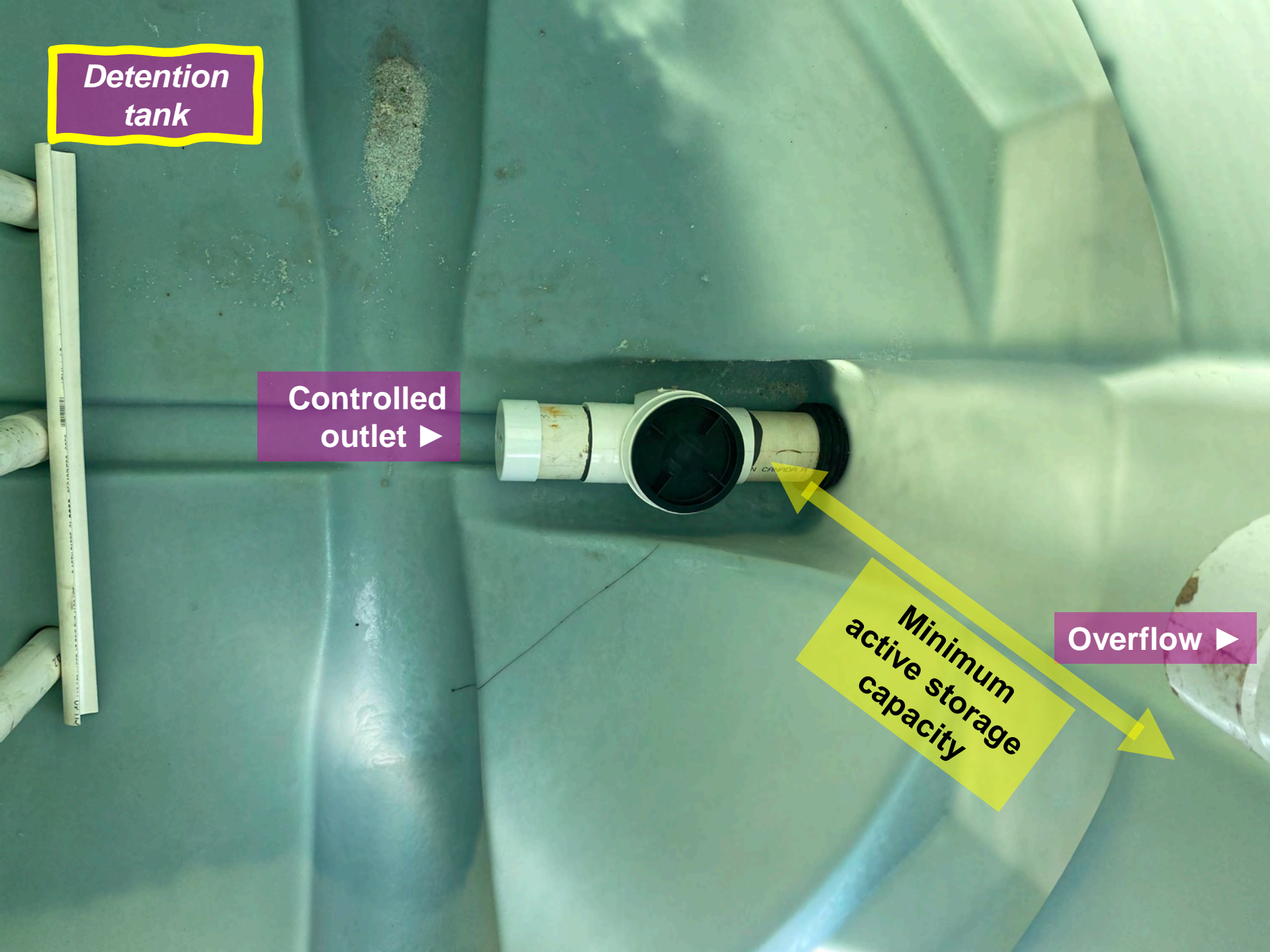
Site Area (m ²)	Minimum Active Storage Capacity (L)	Orifice Plate Diameter (mm)
No greater than 400	3,400	30
Greater than 400 to no greater than 500	3,900	35
Greater than 500 to no greater than 750	4,600	45
Greater than 750 to no greater than 1000	7,200	50

**Detention
tank**

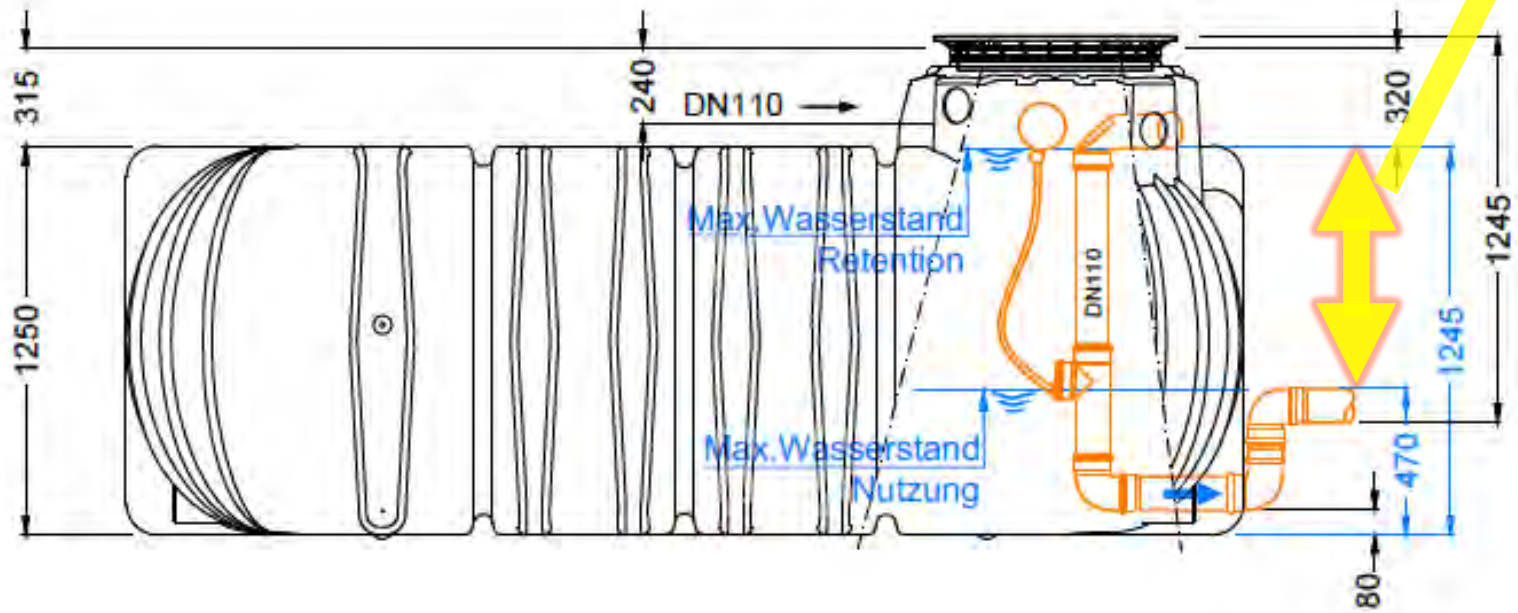
**Controlled
outlet ▶**

**Minimum
storage
active
capacity**

Overflow ▶



**Minimum
active storage
capacity**



**Detention
tank**

**Controlled
outlet ▶**



**Orifice
diameter**

*Required, but not
pictured: Trap
(for sewer gases)*

**Backwater valve
(for sewer surcharge)**

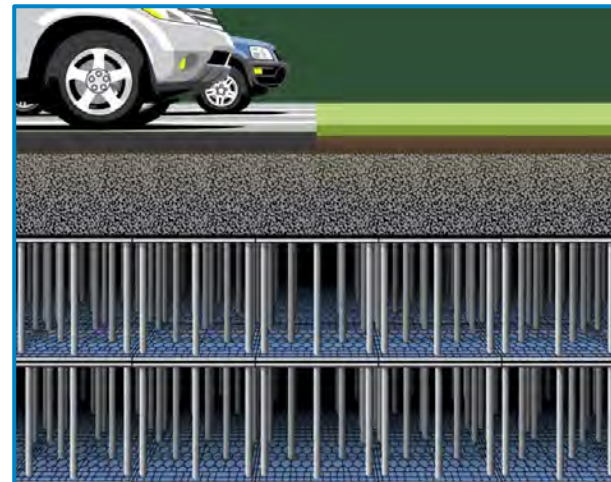


Proposed Regulations: Rainwater Management



With the detention tank, provide:

- **Cleanouts** with access to the outlet and overflow.
- For subsurface detention tanks, the capability of **supporting** the design depth of cover and surface loads.



Existing Requirements

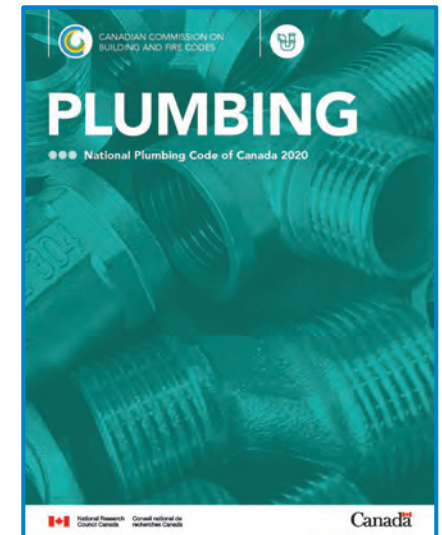


With the detention tank, provide:

- Sewer gas protection (trap)
Div B, Article 2.4.5.2.
- Sewer surcharge protection (backwater valve)
Div B, Article 2.4.6.4.




Proposed harmonisation of Articles 2.4.5.2. & 2.4.6.4. with the 2024 BCBC & 2020 NPC



Caution: Sewer Connection Depths



CONNECTIONS AS INSTALLED at: 

ADDRESS:

SANITARY **STORM**

Connected to: Connected to:

___m___ of the ___ PL ___m___ of the ___ PL

___m Depth Sold ___m Depth Sold

___m SFR Class 1or 2 ___m SFR Class 1or 2

© 2011 City of Vancouver

**Sanitary
sewer**

**Storm
sewer**

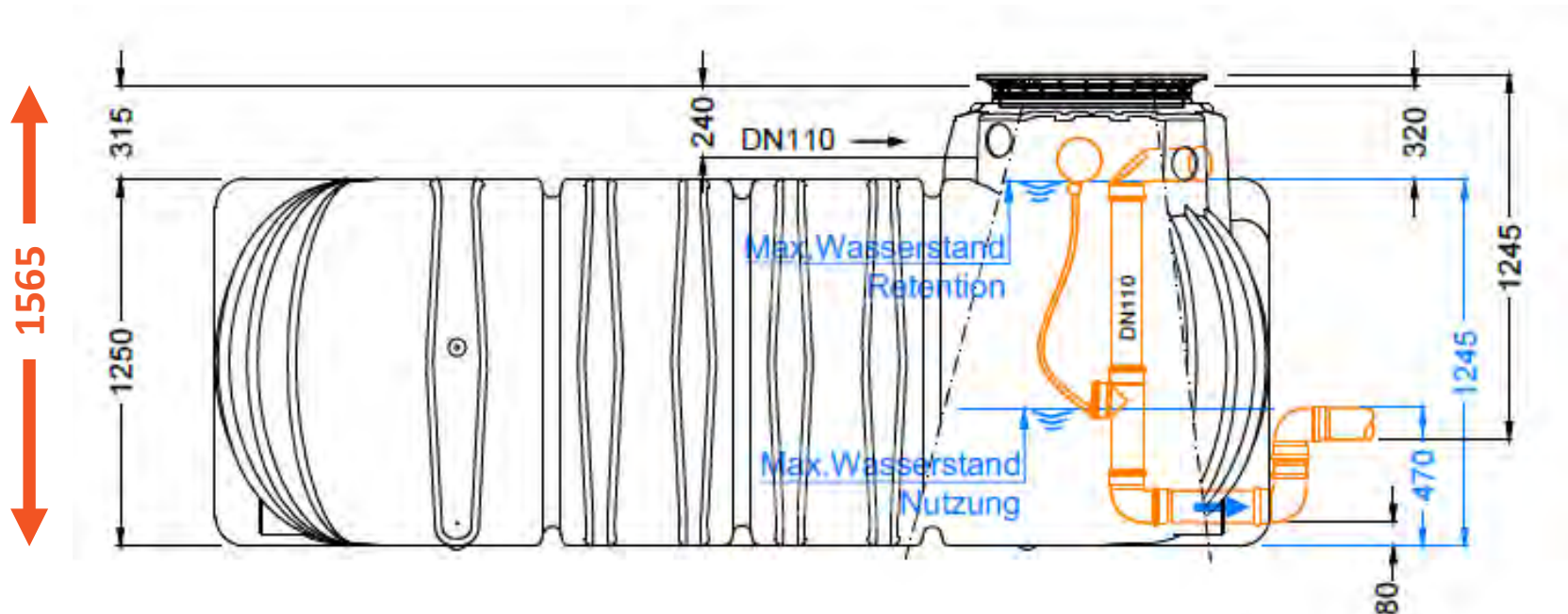


Caution: Sewer Connection Depths

Typical sewer connection depth is 1.52 m

Ensure **sufficient elevation** for a trap between the detention tank and the sewer connection.

This is more challenging if the detention tank is on the property line adjacent to the sewer connection.



Sewer Connection Depth

vancouver.ca/rainwater



Storm sewer connection

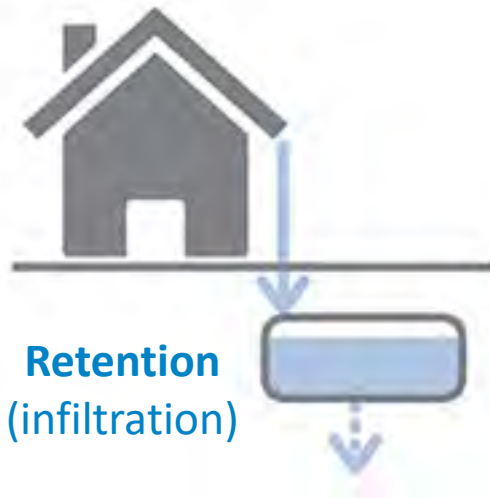
The location and depth of the storm sewer connection are determined through the [sewer connection permit](#) process. Typically, the depth of cover is 1.52 m for low-density residential development and may be up to 2.4 m for complex buildings.

In some cases, this may prevent gravity drainage of a detention tank. To accommodate a gravity connection, you can request a deeper storm invert by contacting Sewer Connections staff at eng.swpermits@vancouver.ca. This request may be submitted as early as at the development permit stage. There is no guarantee that a deeper connection can be supported, as local constraints may limit the maximum permissible connection depth.



Clarification: 5 m setback

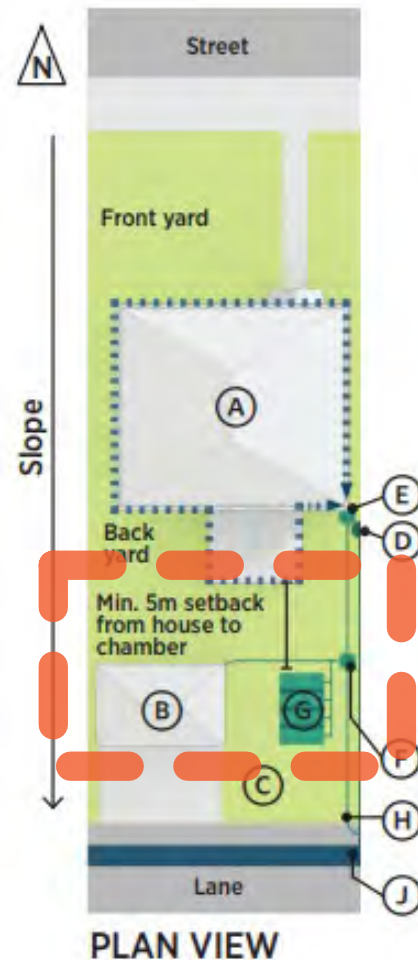
Detention tanks **do not** require a 5 m setback from buildings



Retention
(infiltration)



Div B, Sentence 9.14.5.3.(2)
is applicable



PLAN VIEW



Detention



Div B, Sentence 9.14.5.3.(2)
is not applicable

Proposed Regulations: Rainwater Management



Proposed processing:

For the **small site pathway**:

- No new DP or BP requirements.
- No engineered drawings and no **Schedule B** needed.
- Compliance verified at the existing plumbing permit application stage.
- No impact to permit processing times.

Proposed Regulations: Rainwater Management



Proposed processing:

For the **small site pathway**, excavation may be precluded by:

- Archaeological resources
(Archaeological Impact Assessment)
- Artesian conditions
(Hydrogeological or geotechnical engineering report)
- Contamination
(Notification of Likely or Actual Migration)
- Geotechnical limitations
(Geotechnical engineering report)

The owner must make a reasonable attempt to meet the requirements, including the use of above-ground tanks. Relaxation is at the discretion of the Chief Building Official.

Proposed Regulations: Rainwater Management



Proposed timeline:

1. **September 26, 2024:** comment period closes (vancouver.ca/rainwater)
2. **November 2024:** City Council report

If approved by City Council:

3. **Q1 & Q2 2025:** Virtual “open office hour” Q&A sessions
4. **July 1, 2025:** Regulations in force

Proposed Regulations: Rainwater Management



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Transition Period

A DP application opened before January 1, 2025 is sheltered from the new requirements **if** a BP application is opened before January 1, 2026.

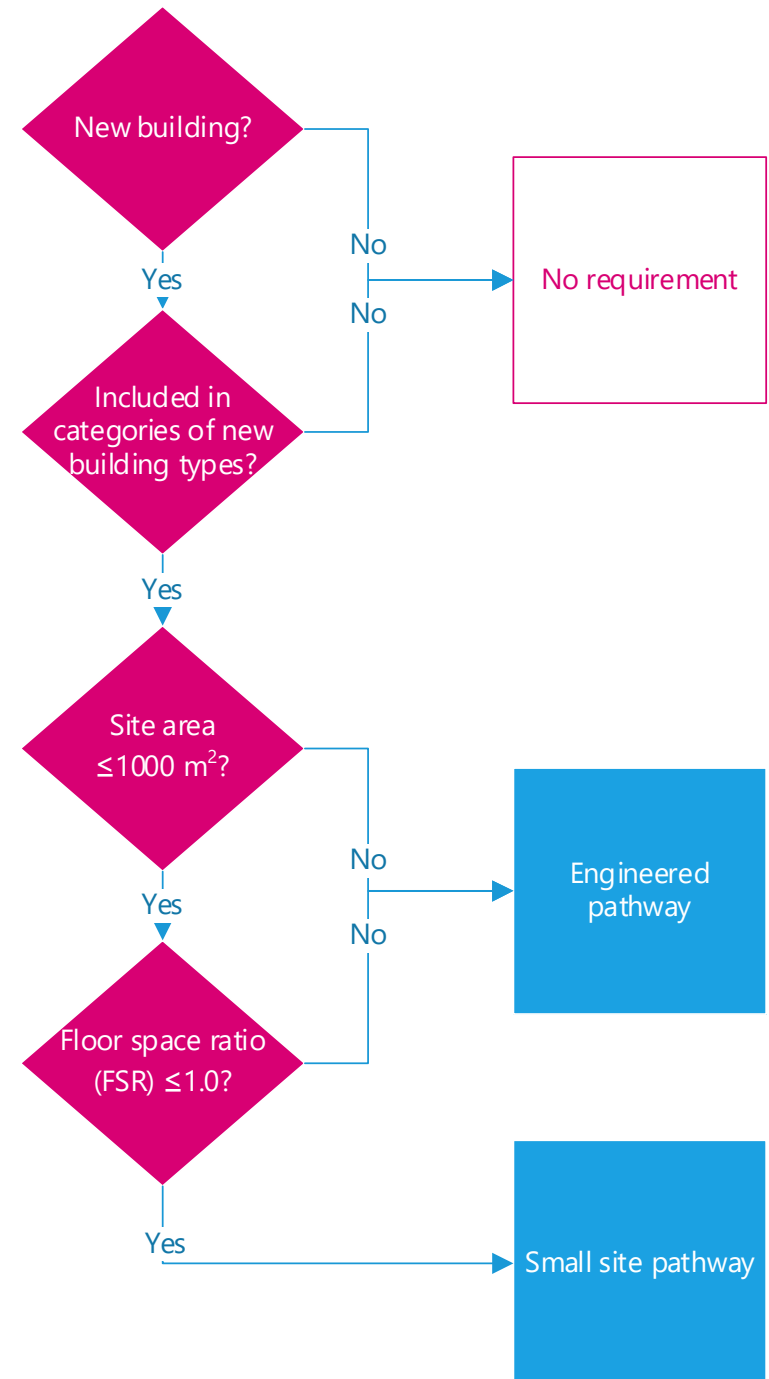
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Proposed Regulations: Rainwater Management



To stay informed:

1. Subscribe to the CBO (Chief Building Official) distribution list: vancouver.ca/building-bylaw
2. Visit vancouver.ca/rainwater for updates



3-3-3-1 Permit Approval Framework

Staff are seeking to integrate area-specific requirements into the **Engineered pathway** to simplify permit issuance.

Proposed Rainwater Management Requirements in July 2025

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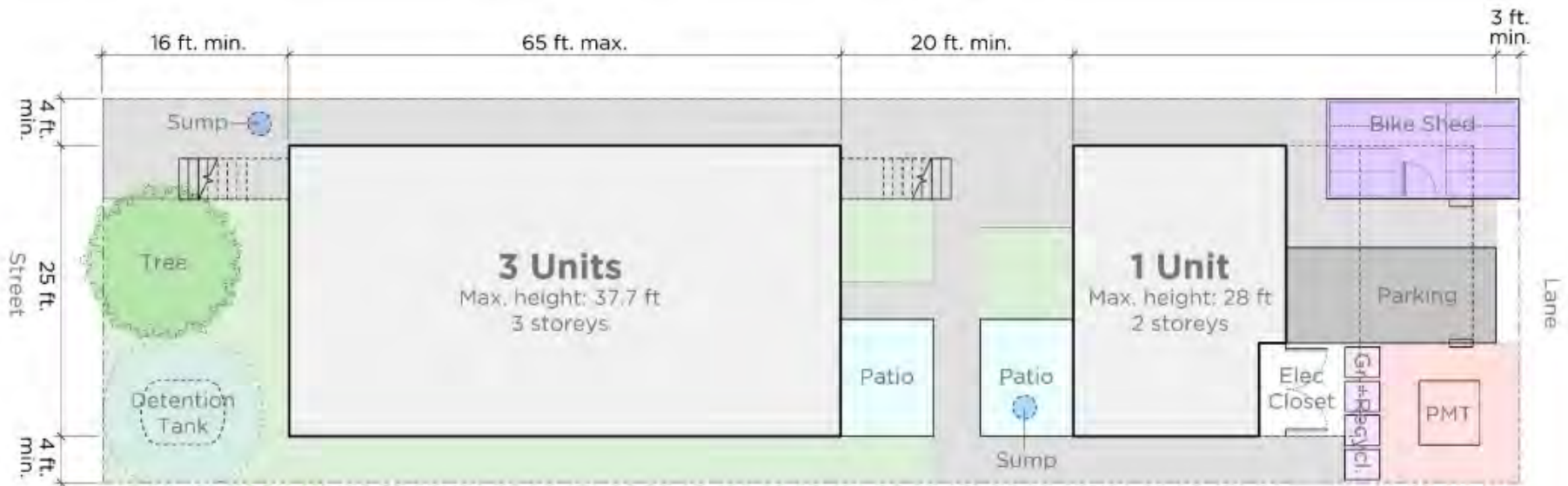
Any mention of trade names or commercial products does not constitute endorsement or recommendation for use.





Applicability

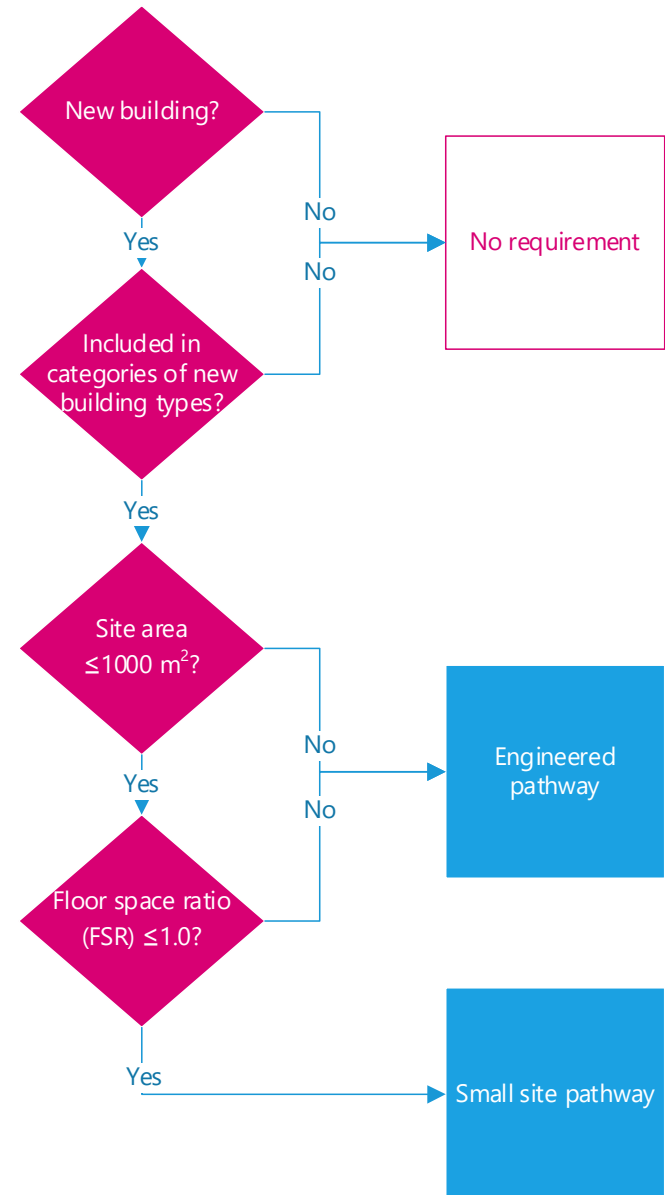
I just wanted to determine whether this was something new or was this what was proposed 2 years ago? By this, I mean is this something other than Storm Water Detention Tanks?





Applicability

For the **Small Site vs Engineered pathway** options, the divider of $</> 1.0$ FSR for Lots $<1000\text{ m}^2$ it is based on "Permitted" FSR after all exclusions have been deducted, yes?





Applicability

Although it will make some clients happier to know that they are not yet required to put detention tanks in for their Duplex and Single-Family projects, the fact is that they will likely still have to put them in by the time their BP's get submitted.

Transition Period

A DP application opened before January 1, 2025 is sheltered from the new requirements **if** a BP application is opened before January 1, 2026.



Cost

What is the cost to the homeowner? I estimate \$25,000 per new home.

How much would this system likely cost to the developer of multiplexes? (Because ultimately the buyers are the ones to pay for it).





Building setbacks

If all homes in a block dig the hole for rainwater management the ground will be saturated and will have a negative effect on the ground quality also for building structural safety.

On other projects in Shaughnessy, there is a requirement for the tank to NOT be located within 5 m of the foundation of the house or garage. Will this still apply? It is challenging when we have to retain trees etc.



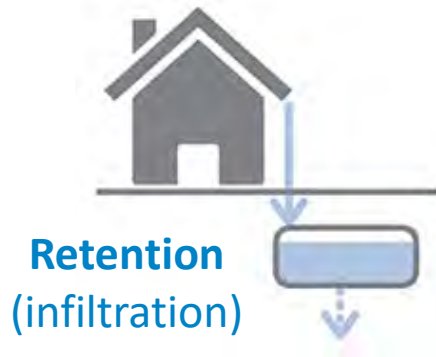
Div B, Sentence 9.14.5.3.(2)

is not applicable



Building setbacks

Based on BCBC should filtration tanks be at least 5 meters away from all foundations, including garages, or just from deep foundations?



Div B, Sentence 9.14.5.3.(2)
is applicable



BUT: for detached garages, see
Div B, Sentence 9.35.3.3.(1)




Process



For new building permit applications after July 2025, will the City require a Schedule B to be submitted for the "engineered pathway" described in proposed Section 2.4.2.5. Rainwater Management?




Plumbing permit

Compliance with the [Building By-law rainwater management requirements](#)  will be verified at the [plumbing permit](#) application stage.

The plumbing permit application is submitted online and must contain:

- [Project Summary form](#)  (88 KB)
- Site schematic showing rainwater management and drainage components ([example of a site schematic](#)  (560 KB)). The Project Summary form may be included on the same page as this schematic.
- Design drawings, supporting calculations, and references
- Schedule B from the plumbing *registered professional of record* and the civil *registered professional of record* (if not already submitted at the [building permit](#) application stage)

For guidance on Schedule B, refer to the Province's [Guide to the Letters of Assurance \(section 21.2\)](#) .



Vegetated (green) roof assemblies

Is the city considering the long-term maintenance and wildlife habitat issues of green roofs?



New standards for vegetated (green) roof installations came into effect on July 1, 2024. Visit vancouver.ca/rainwater



Tools



Rainwater harvesting (non-potable water use)

What are the purposes we can use rain water?

1- Does the city provide any incentives to encourage property owners to implement rainwater management systems? If yes could you provide a link or any information please?

2- Are there any standards regarding rainwater systems, such as the CSAB805?



Div B, Section 2.7

vancouver.ca/operating-permit



Rainwater harvesting and other alternative (non-potable) water systems



Artificial turf

I'm hoping that you will consider inclusion of restrictions or the complete banning of artificial turf use on private property as a critical component of rainwater management in the Building By-law revisions.

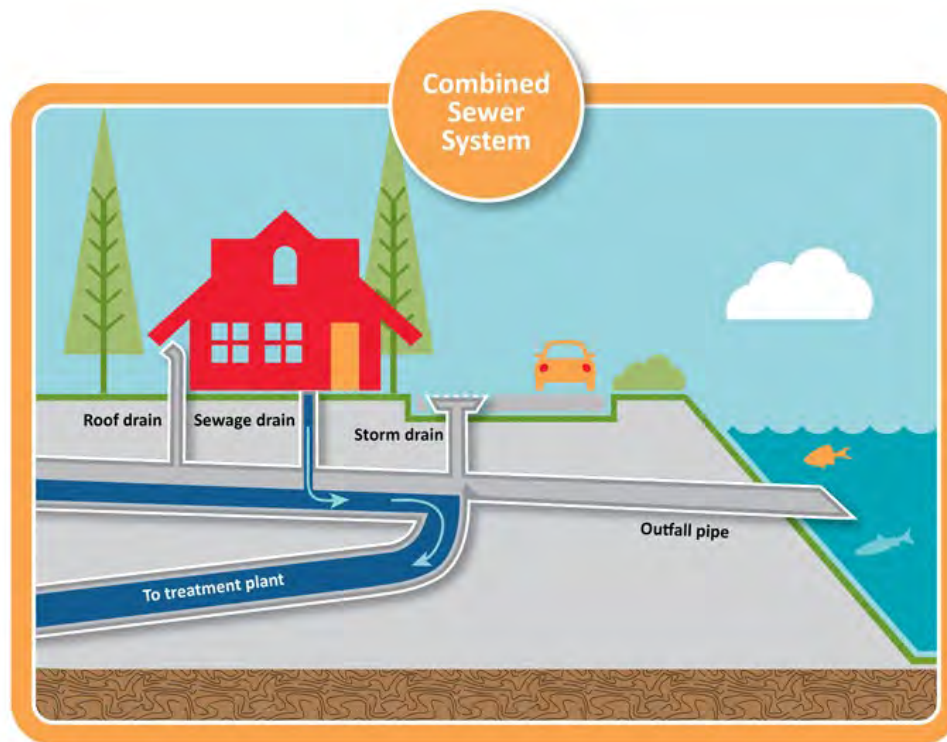


There are no regulations or guidelines related to artificial turf on private property.



Public sewer infrastructure

Any area in Vancouver has already a separate Storm Water and a Separate Sewer? and when they have them done? Were they City planning or development driven?





Profession development / continuing education credits:

- **AIBC members** – eligible for 1.5 core LUs.
Attendance will be forwarded directly to AIBC.

ASTTBC, BC Housing & EGBC members – Request a certificate of attendance via rainwater@vancouver.ca by Friday, September 27, 2024. These will be sent by e-mail by Friday, October 4, 2024.

- **ASTTBC** – eligible for 1.5 CPD hours in the “Technical Training” learning category.
- **BC Housing** – eligible for 1.0 CPD hours (informal).



Proposed Rainwater Management Requirements in July 2025

The following slides summarise the questions that were asked during the webinar. Questions are grouped thematically and have been edited for clarity.

Please note that the webinar was not recorded.

Any mention of trade names or commercial products does not constitute endorsement or recommendation for use.



Sump

Is a building sump required downstream of the detention tank?

Answer: No. What is required is a trap to protect against sewer gases.



Water quality

Is filtration required for post sump flows?

Answer: No, this is not a Building By-law requirement.



Pumping

Are you allowed to pump the detention volume?

Answer: Yes, but the overflow must drain by gravity.



Location

*Your examples show detention tanks in the front yard.
Can they be located in the backyard/courtyard for small-scale multi-unit housing?*

Answer: Yes. There is no prescribed location for a detention tank. However, it is likely that the front yard will be the most feasible location due to the expected lot configuration, grading and storm sewer connection location.



Deep basements

Are there any concerns with and/or limitations to fully subterranean basements?

Answer: Yes. The primary concern with a deep basement will be the sewer connection depth. A separate sump for the drain tile may be required, and the water from this sump would likely have to be pumped to the sewer connection.



Sewer connection depth

What is a reasonable depth to consider for the detention tank outlet?

Answer: The typical sewer connection depth is 1.52 m, and the final design invert is provided on the Sewer Connection Permit. The detention tank outlet invert will need to be higher than the connection.



Professional involvement

Are two professionals needed for this? A mechanical engineer and a civil engineer? Related to this, recognizing you cannot recommend professionals, is there a list of professionals working with small scale residential projects?

Answer: No professional engineers are required to meet the detention tank requirement under the “small site pathway.” Conversely, professional engineering expertise is required for the “engineered pathway” (see slide 4).



Product list

Will the City have an approved products list for detention tanks?

Answer: Pending City Council approval of the proposed by-law update, we intend to post a contact list of suppliers who have stated they have products available at vancouver.ca/rainwater. This list will be offered as a convenience to home builders, and the City does not endorse, guarantee or recommend any particular product.



Service life

*What is the expected life of the tank?
Would it need to be replaced?*

Answer: Contact your tank supplier for information. Some suppliers specify a minimum expected service life for their products, such as 50 or 75 years. Tank life will depend on the product used, maintenance, site conditions and other factors. Replacement is not expected frequently.



Buoyancy

Are there buoyancy concerns for detention systems?

Answer: Most detention tanks are not expected to intercept the groundwater table. Buoyancy concerns are not generally expected.

Detention tanks are expected to be relatively shallow, since the typical storm connection depth is about 1.52 m.

Where high groundwater conditions exist, the tank may be located above the groundwater table, designed to withstand high groundwater conditions, placed above-ground, or in rare cases with acceptable supporting justification from a geotechnical engineer, an exemption from the requirement may be granted where it is not feasible to install a tank.



Infiltration

Are the proposed detention tanks exclusive of systems that allow for infiltration into the surrounding soil via porous systems wrapped in a geotextile?

Answer: The proposed tank volumes are for **detention** storage and slow release into the public sewer system (see slide 37).

Infiltration or other retention-based storage is not an alternative to this requirement. This is because retention storage may not always be available for flow control during a storm event, and the sizing calculations assume a constant release rate from the tank during the storm event.



Retention tanks

For retention tanks, which infiltrate into the ground, is the tank impermeable and what material is the tank made of?

If you have a retention tank with a system to water the lawns and gardens, is this subject to the 5 m setback?

Answer: To be clear, the “small site pathway” requires a **detention** tank, which holds rainwater and slowly releases that water directly into the sewer system. The specified detention tank volumes (see slide 53) are for storage without infiltration and it is generally expected that the detention tanks will be impermeable. Various materials may be used as long as the storage volume and orifice flow control requirements are met.

On the other hand, a **retention** tank – which is not a requirement of the “small site pathway” – infiltrates rainwater into the ground and the tank material therefore allows water to pass through. For retention tanks, there is a variety of materials used. Local suppliers will be able to assist you with their specific products.

A 5 m setback from buildings applies when infiltrating water (see slide 62), regardless if the retention tank is also providing water for lawns and gardens.



Conflict with trees

For a 33' x 122' lot, will the city allow any relaxation on the requirements of the Protection of Trees By-law when it is challenging to provide new required trees & a detention tank?

How about conflicts with tree protection zones? In a property with a number of trees, it may be difficult to locate the detention tank without impacts to trees.

Answer: In general, the detention tank should be located outside of the critical root zone of any trees that must be retained or any new trees required. There is flexibility in the detention tank location and product type to allow for site-specific constraints such as trees, including the use of above-ground tanks.

In rare cases where it is not feasible to install the required tank, subject to supporting documentation such as an arborist's report and the discretion of the Chief Building Official, an exemption to the tank requirement may be granted.



Existing buildings

Is there any lot level detention strategy to address rooftop runoff from existing residential buildings?

Answer: No. The proposed requirements are applicable only to new developments and there is no retrofit requirement.



Single family dwellings & laneway homes

On standard 33' x 122' residential lots for new proposed single family dwellings and laneway builds, will detention tanks be mandatory after Jan 1, 2025?

Answer: The proposed requirements would take effect on **July 1, 2025** with City Council approval (please see slide 66, which also summarises the proposed transition period). Note that for new laneway homes, the requirements would not apply if the laneway is being built on a lot up to 1,000 m² in site area with an existing home (please see slide 8).



Floor space ratio (FSR) calculation

Is the FSR 1.0 determination before exclusions, such as those for a Zero Emission Building?

Answer: The FSR proposed to be used (please see slide 13) would be as it is computed under the Zoning & Development By-law, after applicable exclusions.



Transition period

Which deadline would a combined DP/BP application for single family house fall under? Jan 2025 or Jan 2026?

Answer: A DP application or a combined DP/BP application opened before January 1, 2025 may be sheltered from the new requirements that would come into effect July 1, 2025. In the case of a DP application, a BP application must be also opened before January 1, 2026 to be sheltered from the new requirements.



Renovations

So for renovations, as long as the foundation isn't modified the rainwater management requirements do not apply?

If a house is deconstructed to the point where a new home warranty is triggered by BC Housing, will a new rainwater detention tank be required?

Answer: If your project falls within the exemption provided by VBBL Book I, Div B, Sentence 11.2.1.1.(2), reproduced below, rainwater management requirements would not be applicable:

2) An *alteration* to an *existing building* shall not trigger upgrading of the *existing building* to meet the rainwater management requirements described in Article 2.4.2.5. of Division B of Book II (Plumbing Systems) of this By-law.

→ *Existing building* means a *building* lawfully constructed and completed under a permit before submission of the current *permit* application.

→ *Alteration* means a change or extension to any matter or thing or to any *occupancy* regulated by this By-law.



Environmental impact

Has the City considered the additional carbon footprint this work will have? Environmental considerations? Additional dump trucks and machine time will pollute quite a bit. Also, are there any concerns about the plastic leaching and affecting groundwater?

Answer: The proposed tank requirement targets the more immediate public health and environmental concern of potential sewer backups.

It is intended to be relatively simple and easy to install. The City has not assessed the estimated carbon footprint of the requirement. It is noted that the excavation for a detention tank would likely be coordinated with the excavation for the development itself.

Detention tanks can be made of a variety of materials, including plastics, like rainwater barrels. However, buried underground, the material will not be subject to degradation by ultraviolet radiation. Additionally, as a detention tank, it is not designed to allow water to pass through for infiltration into the ground, and instead directs the collected water to the sewer at a controlled flow rate.



Combined sewer overflows

The combined sewer schematic from King County (slides 33 & 34) is misleading. It suggests there are no sanitary flows draining to water courses.

Answer: In the City of Vancouver, there are combined sewer overflow (CSO) outlets to water bodies such as the Burrard Inlet, English Bay and the Fraser River. Information on the locations of City of Vancouver and Metro Vancouver combined sewer outfalls is available at vancouver.ca/home-property-development/combined-sewer-overflows.aspx



Design storm event

Are we dealing with a 100 year storm event as well?

Answer: The tank sizes target the typical design event for sewer systems within residential areas, with an approximately 5-year return period. A requirement to control the 100-year event would result in significantly larger tank sizes and is not included with the proposed requirements.



Rainwater use

Why does the “small site pathway” ignore the reuse of rain?

Answer: In order to provide the intended peak flow control to the sewer system, detention storage is required under the “small site pathway.”

Although the proposed regulation does not specifically address rainwater re-use options, a low-density residential development has the option to install voluntarily a non-potable water system which uses rainwater, in compliance with VBBL Book II, Division B, Section 2.7, but this will not reduce the minimum detention storage requirement.

The “engineered pathway” allows for the use of a non-potable water system to address the volume capture criteria.



Rainwater use

Can we use rainwater for a washing machine?

Answer: Yes, when the requirements of VBBL Book II, Division B, Section 2.7 are met. Please refer to vancouver.ca/operating-permit for more information. Note that the proposed “small site pathway” requirements are for detention storage, and installing a rainwater reuse system with a low-density residential development does not reduce the detention storage requirement.

Can we also use rainwater for a car wash, patio cleaning, interior mopping etc.?

Answer: Treated rainwater can be used for water closets, urinals, trap primers, irrigation of non-food purpose plants, clothes washers, vehicle wash facilities, make-up water for hydronic systems, make-up water for cooling towers, adiabatic cooling systems, and tempering of discharge. Please refer to VBBL Book II, Division B, Article 2.7.1.3.



Note: The following question pertains to the “engineered pathway.”

Please refer to slide 4 for applicability.



Blue roofs

Why doesn't the engineered pathway include blue roofs?

Answer: Understanding a “blue roof” to mean a roof that holds rainwater and controls its release, such a roof can be used to help meet the performance requirements of the “engineered pathway.”

Please see VBBL Book II, Division B, Sentence 2.4.2.5.(2).