

## BYLAW NO. 4403, 2013

Consolidated with amendments in Bylaw Nos. 4606, 2015; 5273, 2022

**NOTE: This is a consolidation for convenience purposes only and does not have the force of law.**

A Bylaw to protect the stream and drainage systems in the City of Coquitlam

### WHEREAS:

- A. The *Community Charter*, S.B.C. 2003, c. 26 (the “*Community Charter*”) authorizes Council to regulate, prohibit and impose requirements in relation to the protection of the natural environment;
- B. The *Community Charter* authorizes Council to prohibit a person from fouling, obstructing or impeding the flow of a stream, creek, waterway, waterworks, ditch, drain or sewer;
- C. The *Community Charter* authorize Council to require works and services for drainage collection and disposal; and
- D. Council deems it in the best interests of the environmental well-being of the community that streams, creeks, waterways, watercourses, ditches, drains and sewers are protected from pollution, obstructions, sediment, and sediment laden water,

NOW THEREFORE, the Council of the City of Coquitlam, in open meeting lawfully assembled, ENACTS AS FOLLOWS:

### 1 Name of Bylaw

This Bylaw may be cited for all purposes as the “Stream and Drainage System Protection Bylaw No. 4403, 2013”.

### 2 Interpretation

- 2.1 In this Bylaw, unless the context otherwise requires, the following words have the following meanings:

**CITY** means the City of Coquitlam;

**CONSTRUCTION** means erecting buildings and structures, and installing or repairing services, utilities and other engineering works, and includes but is not limited to, clearing, grading, excavating, filling, soil deposition or removal, landscaping, and land development, but does not include an activity that will not result in the disruption of any soil;

**DEVELOPMENT** means a subdivision or any *Construction* for which a building permit, conservation permit, development permit or tree cutting permit is required and shall also include the demolition of a building or structure where a demolition permit is required;

**DEVELOPER** means an owner, as defined in the Local Government Act, R.S.B.C. 1996, c. 323, who subdivides land, or applies for a building permit, conservation permit, development permit, tree cutting permit, demolition permit and includes a duly authorized representative of the Owner;

**DRAINAGE SYSTEM** means any natural, designed, constructed or installed system or network of streams, creeks, waterways, watercourses, waterworks, ditches, drains or sewers located in the City on private or public property that conveys, or is capable of conveying, drainage or runoff.

**DELETERIOUS SUBSTANCE** has the same meaning as defined in the *Fisheries Act*, R.S.C. 1985, c. F-14, as amended.

**EROSION AND SEDIMENT CONTROL (ESC) FACILITIES** means all erosion and sediment control works, measures, facilities and methods constructed, installed or employed to reduce the likelihood of sediment and sediment laden water reaching the *Drainage System* during all stages of *Development*.

**EROSION AND SEDIMENT CONTROL (ESC) PLAN** means the specifications, drawings, plans, phased *Development* schedules and design calculations of a Professional Engineer or Certified Professional in Erosion and Sediment Control in accordance with Schedule B of this Bylaw.

**EROSION AND SEDIMENT CONTROL (ESC) SUBMISSION FORM** means the documentation and related submission requirements in the format prescribed for that purpose by the *Manager*.

**EROSION AND SEDIMENT CONTROL (ESC) SUPERVISOR** means a *Qualified Professional* who is experienced in implementing *ESC Plans* and who is responsible for the inspection and monitoring of *ESC Facilities* to ensure these are installed and maintained in accordance with the *ESC Plan*, and if necessary, are modified during *Development* to ensure compliance with the requirements of this Bylaw;

**MANAGER** means the General Manager of Engineering and Public Works or his or her designates;

**PRE-DEVELOPMENT APPROVAL** means *City* acceptance to proceed with *Development* following an on site meeting involving City staff, the *ESC Supervisor* and the *Developer*;

**QUALIFIED PROFESSIONAL** means an individual, whether acting alone or together with another Qualified Professional, who:

- (a) is registered, in good standing, and acting under the Code of Ethics, of one or more of the following professional organizations: Association of Professional Engineers and Geoscientists of BC; Association of BC Forest Professionals; College of Applied Biology; Applied Science Technologists and Technicians of BC; BC Institute of Agrologists; EnviroCert International (Certified Professional in Erosion and Sediment Control); or BC Society of Landscape Architects,
- (b) is registered, in good standing, and acting under the Code of Ethics of the Erosion and Sediment Control Association of British Columbia,
- (c) has an area of expertise that is recognized in the field of Erosion and Sediment Control as one that is acceptable for the purpose of providing all or part of the design, inspection and monitoring of *ESC Facilities*; and
- (d) is acting within their area of expertise;

**REAL-TIME MONITORING FACILITIES** means the facilities described in Schedule “D”.

**SIGNIFICANT RAINFALL EVENT** means any precipitation event, which meets or exceeds the intensity of 25 mm per 24 hour period;

**TURBIDITY** means the measurement of the suspended particulate matter in water, which affects the clarity or degree of transparency of the water by interfering with the passage of a beam of light through the water. Turbidity values are generally reported in Nephelometric Turbidity Units (NTU);

**WASTE** has the same meaning as defined in the *Environmental Management Act*, S.B.C 2003, c. 53, as amended.

### 3 Prohibition of Discharge

- 3.1 No person shall obstruct or impede the flow of the *Drainage System*.
- 3.2 No person shall place, store, transport or dispose of any *Waste* or *Deleterious Substance* in such manner, so as to permit the likely escape of the materials into the *Drainage System*, or any part of it.
- 3.3 No person shall cause or permit to be released, directly or indirectly into the *Drainage System* any *Waste* or *Deleterious Substance*.

- 3.4 Without limiting the generality of s.3.3, no person shall cause or permit to be released, directly or indirectly into the *Drainage System* any sediment, earth, *Construction* or excavation wastes, cement, concrete, or other substances, which when mixed with water, will result in:
- 3.4.1 a pH value outside the range of 6.5 to 8.0; or
  - 3.4.2 a discharge exceeding a Turbidity level of 25 NTU, except during and for 24 hours following a Significant Rainfall Event a discharge exceeding 100 NTU.
- 3.5 If during any *Construction* work, any *Waste, Deleterious Substance*, or water that exceeds the limits outlined in s.3.4, is being released directly or indirectly into the *Drainage System*, or otherwise impedes the *Drainage System* as described in s.3.1, the *Developer* performing the work must immediately notify the *City*, as well as the appropriate Federal and Provincial agencies.

#### **4 Erosion and Sediment Control (ESC) Requirements**

- 4.1 Every person who proposes to carry out *Development* under a building permit for single family or duplex residential dwellings shall first before carrying out any *Development* on the land:
- 4.1.1 submit a completed and signed *ESC Submission Form* in the format prescribed for that purpose by the *Manager*;
  - 4.1.2 submit a non-refundable Infrastructure Inspection Fee as specified in the City of Coquitlam *Fees and Charges Bylaw, No. 4338, 2012* as amended; and
  - 4.1.3 install the minimum *ESC Facilities* identified in Schedule A, and ensure these are maintained in good working order during all phases of *Development*.
- 4.2 Every person who proposes to carry out *Development* other than Section 4.1 shall first before carrying out any *Development* on the land:
- 4.2.1 submit to the *City* a completed and signed *ESC Submission Form* in the format prescribed for that purpose by the *Manager*, accompanied by:
    - 4.2.1.1 an *ESC Plan* in accordance with Schedule “B” and, if applicable, Schedule “D” of this Bylaw, and to the acceptance of the *Manager*;
    - 4.2.1.2 a certified cost estimate for the *ESC Facilities* design, installation, monitoring, and maintenance;

- 4.2.1.3 a non-refundable Administration and Inspection Fee as specified in the City of Coquitlam *Subdivision and Development Servicing Bylaw, No. 3558, 2003* as amended; and
- 4.2.1.4 security deposit in accordance with Section 7;
- 4.2.2 post on the land, advisory signage, in the format prescribed for that purpose by the *Manager*; and
- 4.2.3 obtain *Pre-Development Approval* from the *Manager*.
- 4.2.4 install the *ESC Facilities* identified in an approved *ESC Plan* including, but not limited to, the minimum *ESC Facilities* identified in Schedule A, and ensure these are maintained in good working order during all phases of *Development*.
- 4.2.5 for *Developments* identified in Section 1 Application of Schedule “D”, install the *Real-Time Monitoring Facilities* and ensure these are maintained in good working order during all phases of *Development*.
- 4.3 Notwithstanding the provisions of Sections 4.1 and 4.2, in the case of *Development* under a building permit for single family or duplex residential dwellings, the *Manager* may require a *Developer* to comply with one or more of the requirements of Section 4.2 where the *Manager* considers this necessary for the protection of the *Drainage System*.

## **5 Exemptions From Erosion and Sediment Control (ESC) Submission Requirements**

- 5.1 The *Manager* may waive one or more of the requirements of section 4.2 where in the opinion of the *Manager* the proposed *Development* is in response to an emergency, or can be shown to the *Manager’s* satisfaction to have no negative impact on the *Drainage System*.

## **6 Erosion and Sediment Control (ESC) Implementation, Monitoring and Maintenance Requirements**

- 6.1 Every person who proposes to carry out *Development* is responsible to ensure the site is in compliance with the Bylaw for the duration of *Development*, which includes ensuring that all *ESC Facilities* and *Real-Time Monitoring Facilities* are constructed, installed, implemented, and maintained for the duration of *Development*.
- 6.2 Where the requirements of section 4.2 apply, the *Developer* must:
  - 6.2.1 appoint an *ESC Supervisor* who is a *Qualified Professional* trained in implementing *ESC Plans*;
  - 6.2.2 ensure the *ESC Supervisor* implements an *ESC Plan* that has been prepared in accordance with Schedule B of this Bylaw;

- 6.2.3 ensure the *ESC Supervisor* conducts the inspection, monitoring and maintenance of the *ESC Facilities* in accordance with Schedule C of this Bylaw;
  - 6.2.4 immediately notify the *City* and cease *Development*, if for any reason the *ESC Supervisor's* services are terminated or withdrawn, until a replacement *ESC Supervisor* is appointed;
  - 6.2.5 where *Real-Time Monitoring Facilities* are required pursuant to this Bylaw, ensure the *ESC Supervisor* conducts the inspection and monitoring of the *Real-Time Monitoring Facilities* in accordance with Schedule "D" of this Bylaw; and
  - 6.2.6 where *Real-Time Monitoring Facilities* are required pursuant to this Bylaw, ensure the *Real-Time Monitoring Facilities* provider conducts the inspection, maintenance and monitoring of the *Real-Time Monitoring Facilities* in accordance with Schedule "D" of this Bylaw.
- 6.3 Notwithstanding the provisions of Section 4.2.5 the *Manager* may require the installation of *Real-Time Monitoring Facilities* at any *Development* where one or more of the following conditions are met and the *Manager* considers this necessary for the protection of the *Drainage System*:
- 6.3.1 on 2 or more occasions, water with a turbidity level greater than 25 NTUs has been discharged into the *Drainage System* when a *Significant Rainfall Event* has not occurred during the preceding 24 hours;
  - 6.3.2 on 2 or more occasions, water with a turbidity level greater than 100 NTUs has been discharged into the *Drainage System*; or,
  - 6.3.3 on 2 or more occasions, water with a pH outside the range of 6.5 to 8.0 has been discharged into the *Drainage System*.

## **7 Erosion and Sediment Control (ESC) Security Requirements**

- 7.1 The *Manager* may require a security deposit in an amount of 110% of the certified *ESC Facilities* design, installation, monitoring and maintenance cost or \$5,000, whichever is greater, to secure the full and proper compliance with the provisions of this Bylaw.
- 7.2 If the amount of the security deposit is insufficient for the *City* to complete the remedial work, the *Developer*, will pay any deficiency to the *City* on demand.
- 7.3 When the *Developer* complies with the provisions of this Bylaw the *City* will return the security deposit at such a time as the *ESC Supervisor* provides the *City* with written notice that all *Development* at the site is complete, the site is stable and under control, and no longer poses a threat to the *Drainage System*, and the *ESC Facilities* have been removed to the acceptance of the *Manager*.

## **8 Remedial Action**

- 8.1 If any person is carrying on any *Construction* work or any activity in contravention of this Bylaw, and which in the opinion of the *Manager* is causing or is likely to result in contravention of this Bylaw, then the *Manager* may order the immediate suspension of all or any portion of such *Construction* work or other activity by posting a notice to that effect at the place where the construction work or other activity is ongoing.
- 8.2 In addition to the authority of the *Manager* under section 8.1, the *Manager* may direct that steps be taken to prevent further contravention of this Bylaw. The *Manager* shall send a copy of the written notice to the owner of the land where the *Construction* or activity is occurring at the owner's address as it appears on the records of the Land Title Office, or other last known address.
- 8.3 If in the opinion of the *Manager* immediate steps should be taken to prevent the likely or ongoing contravention of this Bylaw, or if the *Manager* is not satisfied that the owner, or other responsible person, has taken appropriate steps to mitigate the damages, then the *City* may enter onto the property to take such steps as are necessary in the circumstances. The *Manager* must provide written notice of the actions taken or proposed.

## **9 Offence**

- 9.1 Every person who violates any provision of this Bylaw, or who causes, permits or allows any act or thing to be done in violation of this Bylaw, or who neglects to or refrains from doing anything required to be done by any provision of this Bylaw, is guilty of an offence against this Bylaw and each day that a violation continues is deemed to be a separate offence against this Bylaw.
- 9.2 Every person who violates a provision of this Bylaw, or who causes, permits, or allows 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, is guilty of an offence and is liable, upon summary conviction, to a fine not exceeding the maximum set out in the *Offence Act*, R.S.B.C. 1996, c. 338, as amended.

## **10 Severance**

- 10.1 The provisions of this Bylaw are intended to be severable and, should any part of this Bylaw be found to be invalid by a court of competent jurisdiction, the finding of invalidity will not affect the validity of the remainder of this Bylaw.

## **11 Repeal and Transition**

- 11.1 The *City of Coquitlam Sediment Control Bylaw No. 2929, 1995* is repealed in its entirety.
- 11.2 The *City of Coquitlam Stream and Drainage System Protection Bylaw No. 3447, 2001* is repealed in its entirety.

11.3 Notwithstanding section 11.2 of this Bylaw, the *City of Coquitlam Stream and Drainage System Protection Bylaw No. 3447, 2001* will continue to apply to *Development* work for which a permit, permission or approval of the *City* was required, and for which an application was received by the *City*, prior to the date of final adoption of this Bylaw.

READ A FIRST TIME this 29<sup>th</sup> day of July, 2013.

READ A SECOND TIME this 29<sup>th</sup> day of July, 2013.

READ A THIRD TIME this 29<sup>th</sup> day of July, 2013.

GIVEN FOURTH AND FINAL READING and the Seal of the Corporation affixed this 9<sup>th</sup> day of September, 2013.

\_\_\_\_\_ MAYOR

\_\_\_\_\_ CLERK







## Schedule “B”

6. the design calculations, installation specifications and maintenance requirements for each ESC Facility;
7. for ESC Plans utilizing treatment chemicals, technical specifications including ecological toxicity data from the treatment chemical manufacturer and specifications for the location of treatment and general deployment;
8. the proposed methods to restore disturbed areas following the completion of development (where applicable, application rates and specifications for mulch must be clearly defined);
9. all other details pertaining to the proposed development, describing how the ESC Facilities will meet the criteria set out in Section 3 of the Stream and Drainage System Protection Bylaw No. 4403, 2013;
10. locations of property line(s) and other legal designations of the subject property or properties;
11. location(s) of existing underground services, as well as any proposed connections to existing services from the site;
12. location(s) of existing drainage infrastructure and the proposed measures to protect it;
13. location(s) of existing and proposed watercourses, ditches, swales or other bodies of water within 50m of the site boundaries, along with the proposed protection measures;
14. location(s) of existing and proposed buildings, including residential buildings or ancillary buildings or structures;
15. existing and proposed contours and relevant spot elevations;
16. the name, address and telephone number of the ESC Supervisor;
17. location(s) of water quality monitoring site(s); and
18. the proposed monitoring and inspection schedule.

# Schedule “C”

## Topic Responsibilities of the Erosion & Sediment Control (ESC) Supervisor

### 1. ESC Supervisor Qualifications

The *ESC Supervisor* is defined by the **Stream and Drainage System Protection Bylaw No. 4403, 2013** (the Bylaw) as a *Qualified Professional* who is experienced in implementing *ESC Plans* and ESC best management practices. While the *ESC Supervisor* is the person responsible for site inspections, monitoring and reporting, a suitably qualified individual acting under the direction of the *ESC Supervisor* can conduct site monitoring and inspections. The *ESC Supervisor* must, however, sign off on all correspondence with the City and be ultimately responsible to identify and address ESC issues as they arise.

### 2. ESC Supervisor Responsibilities

The primary duties of the *ESC Supervisor* are:

- a) assisting the Professional Engineer (P.Eng.) or Certified Professional in Erosion and Sediment Control (CPESC) in preparing the *ESC Plan* and acknowledging/signing the *ESC Plan*;
- b) attending the pre-*Development* meeting held with the City;
- c) inspecting, maintaining, monitoring and reporting on the *ESC Facilities*, which include, but are not limited to:
  - monitoring/inspecting the site to ensure *ESC Facilities* are implemented according to the *ESC Plan*, through all phases of *Development*;
  - advising the Engineer/CPESC and/or *Developer* of any ESC deficiencies and/or corrective actions required to adapt to changing site conditions or unforeseen problems that arise regarding erosion and sediment control;
  - requiring the suspension of *Development* based on pending or existing weather conditions or based on unusual, unacceptable or inappropriate *Development* practices to ensure compliance with the Bylaw; and
  - coordinating the removal of *ESC Facilities* with site decommissioning.
- d) maintaining a logbook of all inspections, and making the logbook available to the City upon request; and
- e) delivering written notice to the City’s assigned Engineering Inspector and Environmental Services Division staff when all *Development* at the site is completed, the site is stable and under control and no longer poses a threat to the Drainage System and the *ESC Facilities* may be safely removed

# Schedule “C”

## 3. Inspection, Monitoring and Reporting Frequency

Regular and ongoing inspections of *ESC Facilities* and adhering to the *ESC Plan* are crucial to compliance with the Bylaw. To ensure that the prescribed *ESC Facilities* remain effective, regular inspections and maintenance must be conducted through all phases of *Development*. Site inspections must include daily visual checks that target critical areas on and off the site as per the **Daily Site Inspection Checklist** available from the City’s website. The *ESC Supervisor* must ensure that copies of the checklists are kept on site and made available for inspection by City staff. Under the guidance of the *ESC Supervisor*, daily inspections may be conducted by suitably qualified on-site personnel (such as the site superintendent or designate).

In addition to the daily site inspections, water quality monitoring by the *ESC Supervisor*, or suitably qualified designate, of the site discharge, as well as assessments of the condition and performance of *ESC Facilities* must be conducted and reported to the City’s Environmental Services Division at the minimum regular intervals noted in Table C-1, below. Summary reports shall include a review of *ESC Facilities* implemented and any deficiencies observed, maintenance undertaken, or recommendations of adaptive measures to ensure compliance with the approved *ESC Plan*. A summary table of in-situ monitoring results and/or laboratory analysis results must also be included in the submitted report (see **ESC Site Monitoring Report Template** available from the City’s website).

Table C-1. Monitoring and Reporting Frequencies.

	<b>Minimum monitoring frequency</b>	<b>Minimum reporting frequency</b>
Wet season (October 15 to May 15)	Weekly	Bi-weekly
Dry season (May 16 to October 14)	Bi-weekly	Monthly
<i>Significant Rainfall Events</i>	48 hours prior to event; During and within 24 hours of event	Within 7 days of event

Although the Bylaw requires post-event monitoring after a *Significant Rainfall Event*, spot checks should be conducted during these events to evaluate *ESC Facility* performance under storm flow conditions when the likelihood of deficiencies is more prevalent. If a *Significant Rainfall Event* is forecast (via Environment Canada or other) or anticipated, the *ESC Supervisor* must, 48 hours prior to the event, conduct an onsite *ESC Facilities* review meeting with the *Developer* and site superintendent and document this meeting using the **Significant Rainfall Event Planning Checklist** available from the City’s website.

# Schedule “C”

## 4. Inspection and Monitoring Parameters

### a) Turbidity (NTUs)

Water turbidity will be used as an in-situ indicator for the level of sediment concentration within site storm water discharge. As per section 3.4 of the Bylaw, no person shall cause or permit the discharge into the *Drainage System*, either directly or indirectly, of water which has a turbidity level greater than 25 NTUs. Where a *Significant Rainfall Event* has occurred within the preceding 24 hours, water with a turbidity level greater than 25 NTUs may be discharged into the drainage system during a 24 hour grace period provided that no discharge into the drainage system may exceed 100 NTUs. Monitoring locations shall be based on the designated monitoring locations in the approved *ESC Plan*.

### b) pH

Concrete works or the use of recycled concrete aggregate (RCA) can result in very alkaline (high pH) site runoff. As per section 3.4 of the Bylaw, no person shall cause or permit the discharge into the Drainage System, either directly or indirectly, of water which has a pH value outside of 6.5 – 8.0. Monitoring locations shall be based on the designated monitoring locations in the approved ESC Plan.

### c) Water Quality Sampling Locations

Water quality monitoring locations should appropriately reflect site discharge at the down stream boundary of the Development site and be independent of drainage ditches that convey off site storm water flows. If the primary point of discharge is piped flow or if there is a potential for storm water flows conveyed off-site as piped flow, then water quality sampling must be conducted of flows as they leave the site.

### d) ESC Facilities: Installation and Condition

The ESC Supervisor is required to conduct visual inspections to ensure that all ESC Facilities are installed in accordance with the approved ESC Plan. The inspections should identify any installation deficiencies that could impair the ESC Facilities performance and notify the Developer or designate to remedy the deficiency. Time and date-stamped photos must be taken for inclusion in the monitoring report.

### e) ESC Facilities: Maintenance and Performance

It is the responsibility of the ESC Supervisor to identify any maintenance issues that need addressing whereby the effectiveness of the ESC Facilities is likely to be compromised. Likewise it is up to the discretion of the ESC Supervisor to evaluate whether or not the installed ESC Facilities are capable of meeting the ESC requirements of the ESC Plan and ensure that measures are undertaken to mitigate any potential deficiencies in the ESC Facilities.

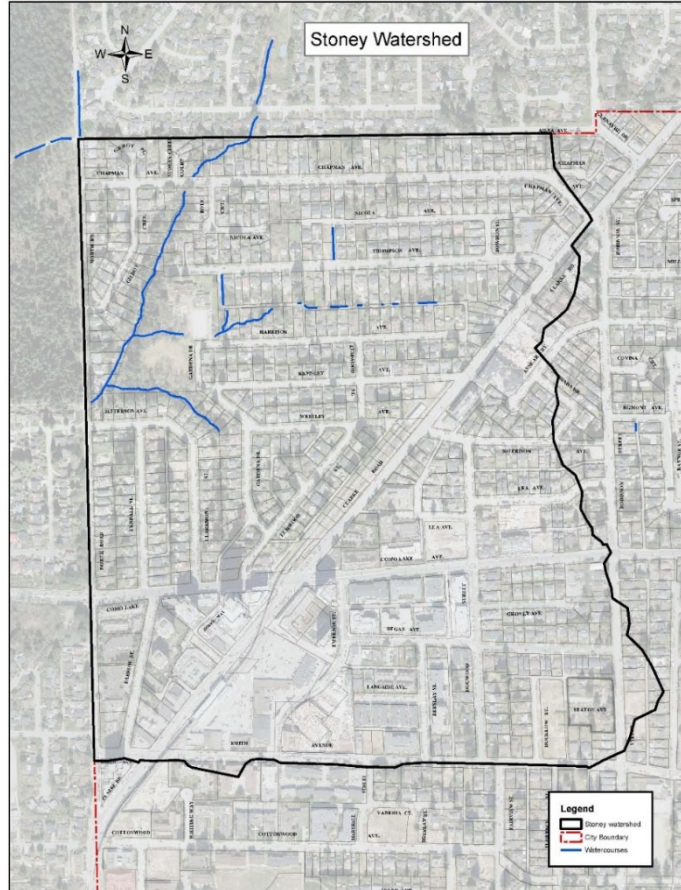
# Schedule “D”

Topic

Real-Time Monitoring Facilities

## 1. Application

- 1.1. The requirements in this Schedule “D” apply to *Developments* within the Stoney Creek watershed shown outlined in bold on the following map:



- 1.2. Notwithstanding the provisions of section 1.1 the requirements of Schedule “D” do not apply to the following *Developments*:

- 1.2.1. *Developments* that only require a demolition permit as defined in The City of Coquitlam Building Bylaw No. 3598, 2003, as amended or replaced from time to time; and,
- 1.2.2. The following *Developments* as defined in the City of Coquitlam Zoning Bylaw No. 3000, 1996, as amended or replaced from time to time:
- *Triplex Residential*
  - *Fourplex Residential*
  - *Multiplex Residential*

# Schedule “D”

## 2. **Real-Time Monitoring Facilities for Construction Site Discharge Water Quality**

### 2.1. **Variations of these Requirements**

2.1.1. Minor variations or alternates to these requirements are permitted at the discretion of the *Manager*.

### 2.2. **ESC Plans**

2.2.1. Where this Schedule “D” applies, the *ESC Plan* must include all *Real-Time Monitoring Facilities* required by this Schedule “D” including but not limited to the following:

- The location of all *Real-Time Monitoring Facilities* on site;
- Drawings and schematics detailing all *Real-Time Monitoring Facilities*;
- Any Notification Limits or Shut Off Limits required in addition to the minimum requirements listed in Section 2.5 Notification and Shut Off Limits;
- The design calculations, installation specifications and maintenance requirements for the *Real-Time Monitoring Facilities*; and,
- Timing for installation and removal of the *Real-Time Monitoring Facilities*.

### 2.3. **Real-Time Monitoring Facility Design, Operation and Maintenance**

2.3.1. *Real-Time Monitoring Facilities* must be designed by a *Qualified Professional*;

2.3.2. *Real-Time Monitoring Facilities* must be installed, operated, calibrated and maintained in accordance with the designer’s and manufacturer’s recommendations as described in documented Standard Operating Procedures supplied by the *Real-Time Monitoring Facilities* provider. The *City* may require that a copy of these procedures is provided to the *City*, a copy must be available for inspection on site.

2.3.3. Date and time-stamped administrative activity logs including maintenance, parts replacement, calibrations and other servicing must be kept available for inspection on site or made available to the *City* and *ESC Supervisor* through the dashboard.

2.3.4. The *ESC Supervisor* must carry out the responsibilities described in Schedule “C” and must also:

- complete routine inspections of the *Real-Time Monitoring Facilities* in accordance with the Standard Operating Procedures;
- compare data collected during monitoring under Schedule “C” to data provided by the *Real-Time Monitoring Facilities*, investigate any discrepancies outside the limits of accuracy for any analysis, and take any remedial action required to ensure accuracy of the data collected by routine monitoring and by the *Real-Time Monitoring Facilities*.



# Schedule “D”

## 2.4. Water Quality Parameters

2.4.1. *Real-Time Monitoring Facilities* must provide monitoring of at least the following water quality parameters:

- pH;
- turbidity measured in NTU or FNU;
- temperature measured in °C;
- discharge flow rate measured in cubic metres per second or litres per second;
- cumulative discharge volume measured in cubic metres or litres; and,
- recirculation flow rate measured in cubic metres per second or litres per second.

2.4.2. The *Real-Time Monitoring Facilities* must obtain and report on local rainfall data from an accredited source which will provide data to the system allowing for shut off in the event that turbidity exceeds limits linked to *Significant Rainfall Events*.

2.4.3. The water quality parameters listed in Section 2.4.1 will be sampled no less frequently than once every 45 seconds.

## 2.5. Notification and Shut Off Limits

2.5.1. The *Real-Time Monitoring Facilities* will provide automated SMS and email notifications to the *City*, the *ESC Supervisor* and appropriate site staff whenever the following notification limits are reached and at any additional limits specified by the *ESC Plan*:

Parameter	Notification Limit
pH	When pH is less than 6.5; and, When pH is above 8.0
Turbidity	No Significant Rainfall Event and turbidity is greater than 25 NTU for 60 seconds; and Turbidity is greater than 100 NTU for 60 seconds
Valve State	The discharge valve is closed for 60 minutes
Data Transmission	No data transmission for one or more sensors for 15 minutes

2.5.2. The Notification Limits for a particular *Development* may be changed at the discretion of the *Manager*;

2.5.3. The *Real-Time Monitoring Facilities* will automatically shut off discharge and recirculate the storm water for further treatment whenever the following shut of limits are reached and at any additional limits specified by the *ESC Plan*:

# Schedule “D”

Parameter	Shut Off Limit
pH	When pH is below 6.5 for 5 min; and When pH is above 8.0 for 5 min
Turbidity	No Significant Rainfall Event and turbidity is greater than 25 NTU for 5 mins; and Turbidity is greater than 100 NTU for 5 mins
Power Failure	In the event of a power failure to the <i>Real-Time Monitoring Facilities</i> or the <i>ESC Facilities</i> , the discharge shut off valve must close automatically and remain closed until full functioning is restored

2.5.4. The *Manager* may require that the Shut Off Limits be changed in the event that these limits do not ensure that the *ESC Facilities* are able to treat the storm water to the extent that it complies with the requirements of this Bylaw and any other applicable legislation.

## 2.6. Data Sharing Capabilities

2.6.1. The *Real-Time Monitoring Facilities* will include a cloud-based data sharing dashboard that provides the following information and capabilities to the *City* and the *ESC Supervisor*:

- Real-time and historical data for all monitored water quality parameters and rainfall data;
- historical data must be available from the start of the *Development* to such time as the *Manager* or their designate grants permission for the removal of the *Real-Time Monitoring Facilities*;
- the dashboard must also allow for the download of all data related to the *Development* to pdf or excel format;
- the dashboard must show the notification limits and shut off limits in use at all times
- the dashboard must show the maintenance record and any other periods during which the *Real-Time Monitoring Facilities* are not operational.