Welcome

ESC Customer Update
2019

Agenda

i. Common Information Requests

ii. *Break*

iii. ESC Inspection requirements

iv. Drainage Code of Practice and Drainage Approvals Update

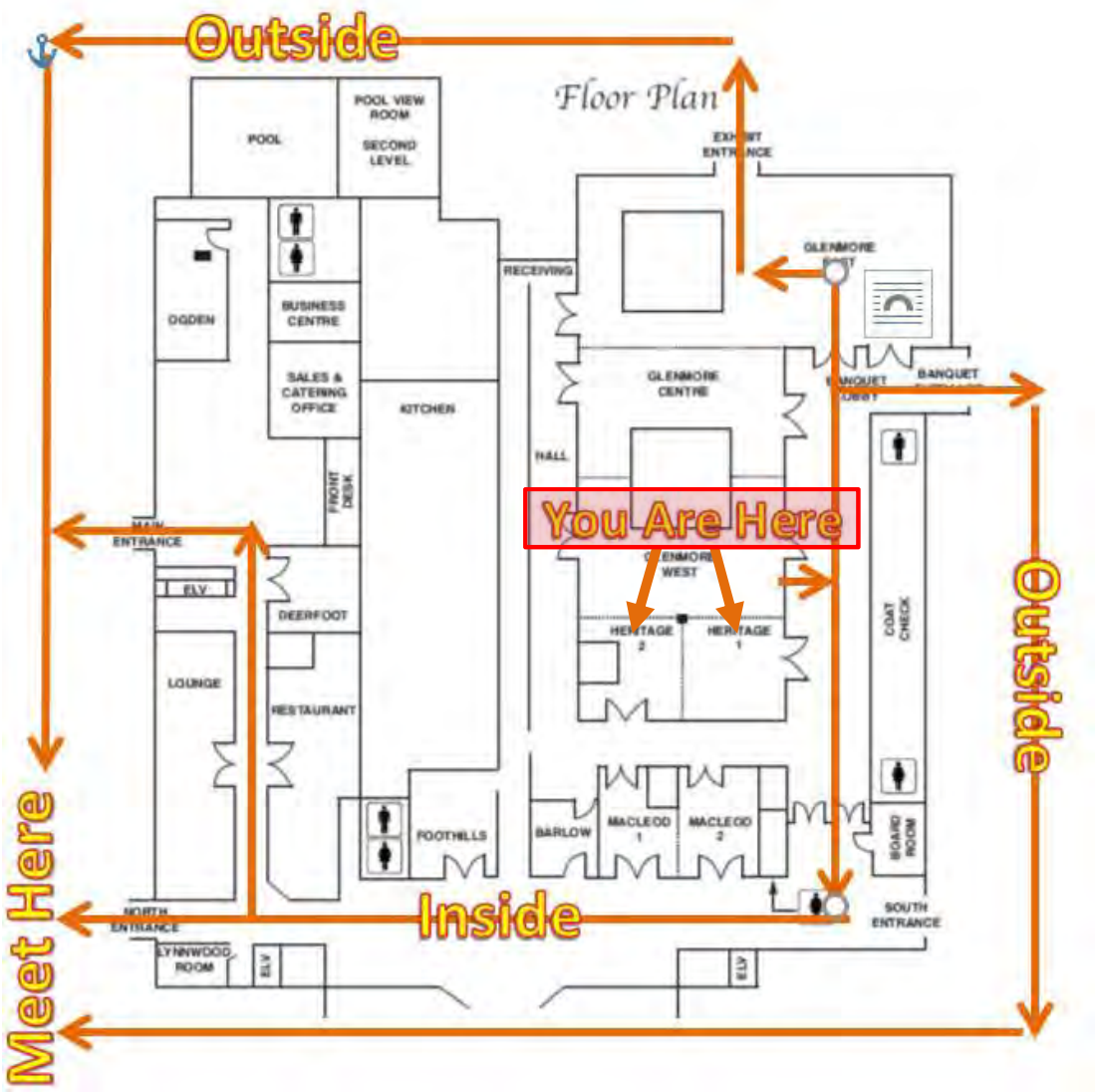
www.calgary.ca/esc

Housekeeping items

Washrooms

Fire exit

Muster points



Common Information Requests

1. ESC Good Housekeeping Approval

2. ESC Plan Further Information Requests (FIRs)

1. Good Housekeeping Approval

- Point of Confusion:
  - Receive frequent requests for GH Approval letters when customers don't require them or their site does not meet requirements to qualify.

1. Good Housekeeping Approval

- When <u>do you</u> require a Good Housekeeping Approval?
  - You have a Prior to Release (PTR) condition on your Development Permit for an ESC Plan because your site size is >0.4 ha ✓
  - But, your soil disturbance area is < than 0.4 ha ✓
  - And your site has no potential of an adverse effect to property, infrastructure, health and safety, or the environment. ✓

1. Good Housekeeping Approval

- When <u>do you not</u> require a Good Housekeeping Approval?
  - You do not have a PTR condition on your DP for an ESC Plan as your site size is <0.4 ha ✓
  - No potential of an adverse effect to property, infrastructure, health and safety, or the environment. ✓

1. Good Housekeeping Approval

IMPORTANT

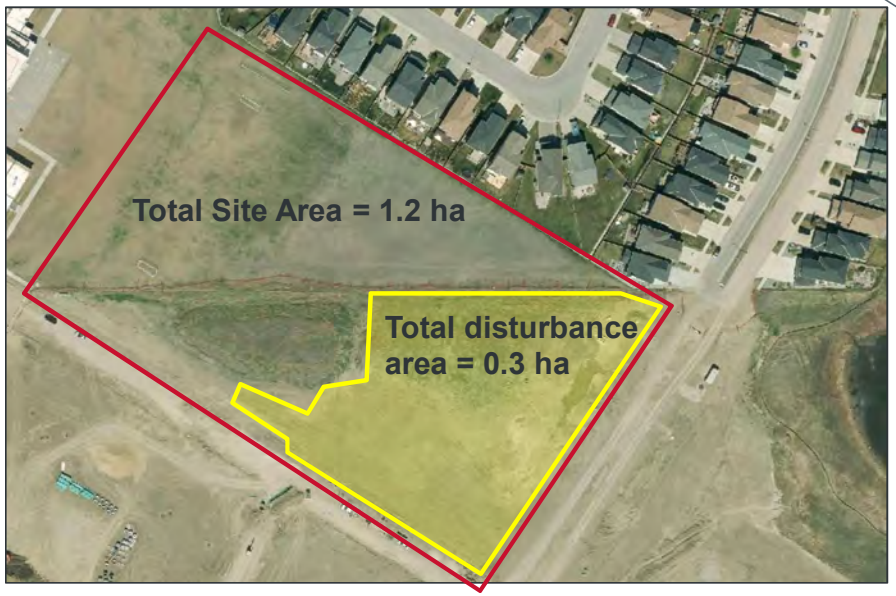
- All soil disturbance projects within Calgary must comply with Section 100 General Requirements of the *Standard Specifications Erosion and Sediment Control (2017)*.

IMPORTANT

- Any site with soil disturbance >0.4 ha will require a ESC Plan submission.

1. Good Housekeeping Approval

- What to provide when applying for a GH Approval:
  - Development Permit or Development Agreement Number
  - A plan view drawing that clearly delineates and quantifies:
    - Site area
    - Soil disturbance area
  - Site Address
  - Owner's contact information:
    - Name
    - Company
    - E-mail address



1. Good Housekeeping Approval

- Examples:

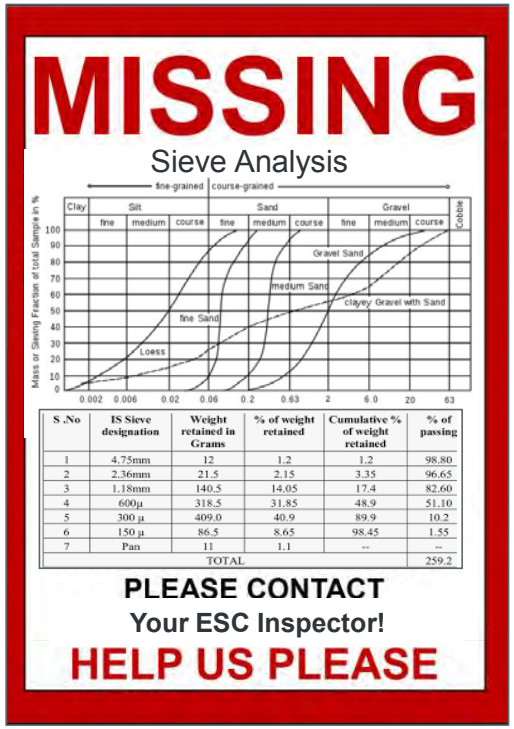
Site size (ha)	Soil disturbance size (ha)	Areas adjacent to project site	Require a Good Housekeeping Approval?	ESC Plan Required?
0.4	0.4	Steep escarpment to Elbow River	No	Yes
1	0.3	Stripping and Grading site	Yes	No
0.3	0.3	Existing high rise condo	No	No

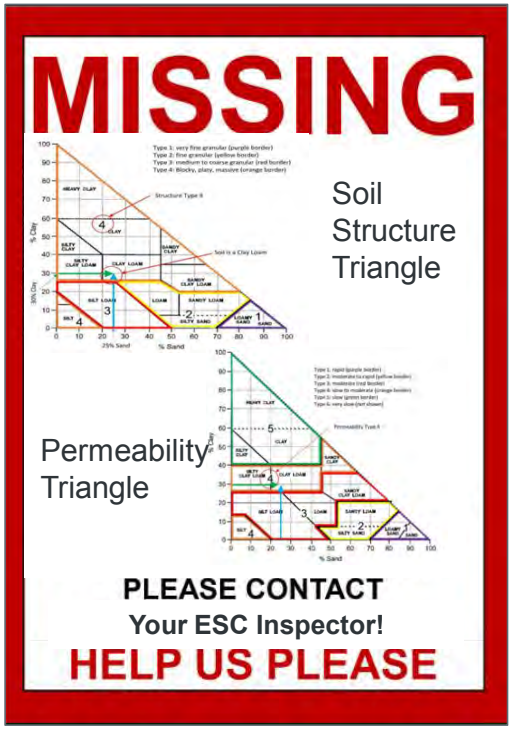
2. Common ESC Plan Further Information Requests (FIRs)

- **Section 5.3 – Geotechnical Information and Nomograph**
- **Section 6 – Winterization Plan**
- **Section 8 – Construction Drawings**
- **Section 11 – Erosion and Sediment Controls:**
  - 200.1.1 Existing Cover
  - 200.1.6 Aggregate Cover
  - 200.2.2 V-ditches vs 200.2.3 Diversion Ditches
- **Section 16 - ESC Certification**

2. Common ESC Plan FIRs

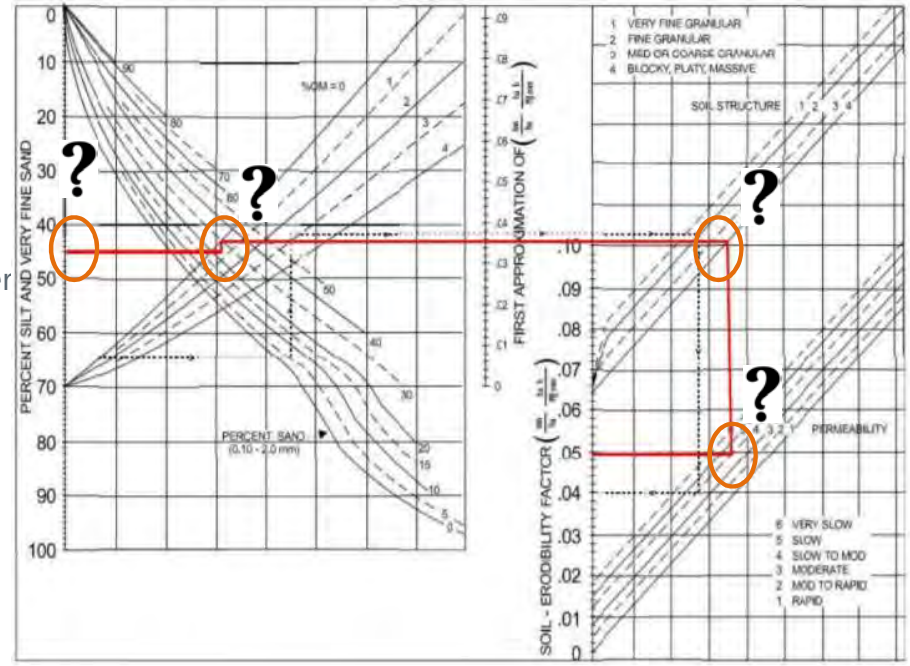
- **Section 5.3 – Geotechnical Information and Nomograph**
  - Information Request: Supporting information for nomograph





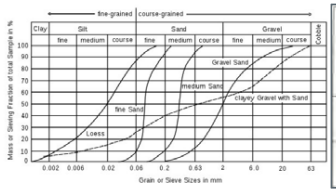
2. Common ESC Plan FIRs

- **Section 5.3 – Geotechnical Information and Nomograph**
  - Why we need this information: to verify values selected in nomograph.
  - Eg. Don't know what exact value have been chosen for this nomograph.
  - Must quantify values chosen and support with proper backup.
  - Save you a Further Information Request!



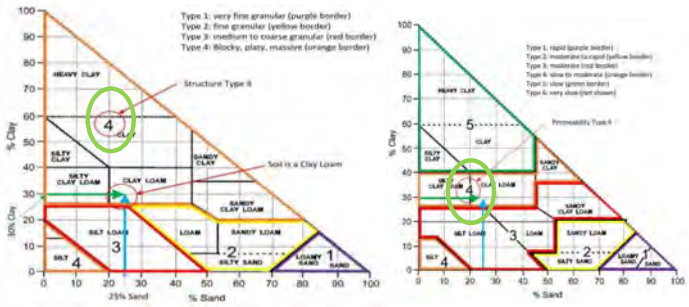
2. Common ESC Plan FIRs

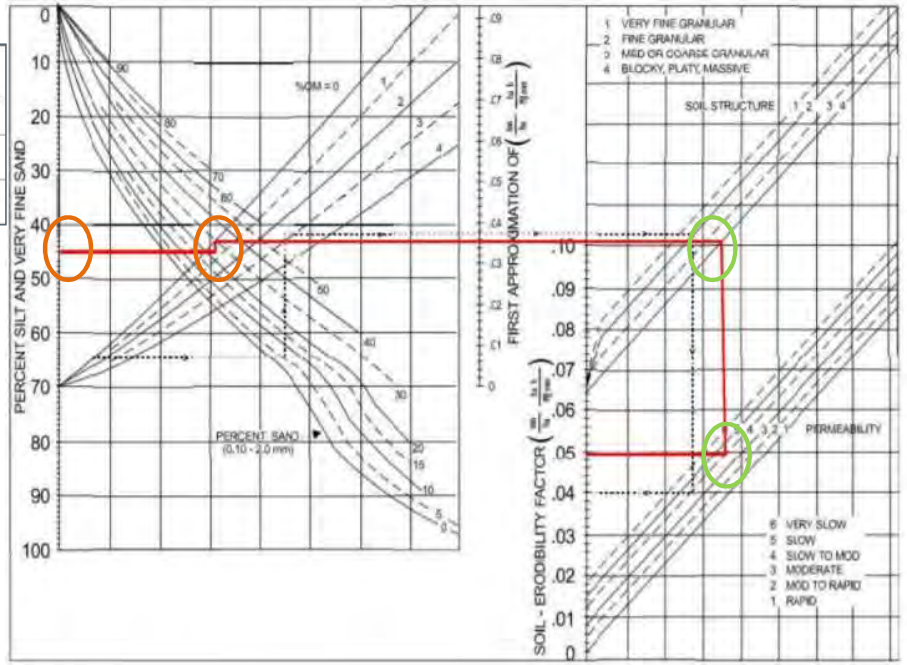
- **Section 5.3 – Geotechnical Information and Nomograph**
  - Sieve Analysis:



Sample No.	Soil Class (USDA)	Percentage Composition					Organics (%)
		Clay	Silt	Very Fine Sand	Other Sand	Gravel	
7-1	Clay Loam	33	49	7	29.9	2.2	0.5
18-1	Lay Loam	34.1	34.1	4.7	27.0	2.4	3.9

  - Soil Structure and Permeability Triangles:





2. Common ESC Plan FIRs

- **Section 6 – Winterization**
  - Information Request: Winterization tables missing practices and information for the last three columns.

6.0 Winterization Plan				If No either confirm that it must be installed prior to winter or provide an alternate control that will be used instead.	
List all Controls Used on Site (section 11.0 Erosion and Sediment Controls)	Winter Removal?	If No - provide maintenance requirements. If Yes - when will it be installed?	Can it be Installed on Frozen and/or Snow Covered Ground?	Must *install* before *Winter* **or**	Provide an Alternate Control if installation is required during frozen conditions
Sod	No	None		☐	
Hydromulch	No	Install in all required areas		☐	
Pit Run Gravel	No	Top dress where required		☐	
Sediment Pond	No	Dewater and clean before freeze-up		☐	
Surface Roughening	No	Reinstall if not in good condition		☐	
Silt Fence	No	Clean to full capacity		☐	
Gravel Pad	No	Top dress, dewater and clean sediment pond		☐	

2. Common ESC Plan FIRs

- **Section 6 – Winterization**
  - Why this information is required:
    - Provides more detailed direction on what needs to be installed prior to frost setting in ✓
    - Provides back-up controls to use if winterization occurs late when frost has already set-in. ✓
    - Prevents an amendment (time and $$) if site decides to work into frost season. Back-up is already approved. ✓

6.0 Winterization Plan				If No either confirm that it must be installed prior to winter or provide an alternate control that will be used instead.	
List all Controls Used on Site (section 11.0 Erosion and Sediment Controls)	Winter Removal?	If No - provide maintenance requirements. If Yes - when will it be installed?	Can it be Installed on Frozen and/or Snow Covered Ground?	Must *install* before *Winter* **or**	Provide an Alternate Control if installation is required during frozen conditions
Sod	No	None	No	☐	Use XYZ Blanket
Hydromulch	No	Install in all required areas	No	☐	Use XYZ Blanket
Pit Run Gravel	No	Top dress where required	Yes	☐	
Sediment Pond	No	Dewater and clean before freeze-up	Yes	☐	
Surface Roughening	No	Reinstall if not in good condition	Yes	☐	
Silt Fence	No	Clean to full capacity	No	☒	
Gravel Pad	No	Top dress, dewater and clean sediment pond	Yes	☐	
				☐	
INLET PROTECTION	Yes	APRIL 15TH	No	☐	N/A

2. Common ESC Plan FIRs

- **Section 6 – Construction Drawings**
  - Information Request: 'Mandatory Drawings' are missing from ESC Plan and explanation for omission is missing.

B.0 Construction Drawings, check applicable drawings

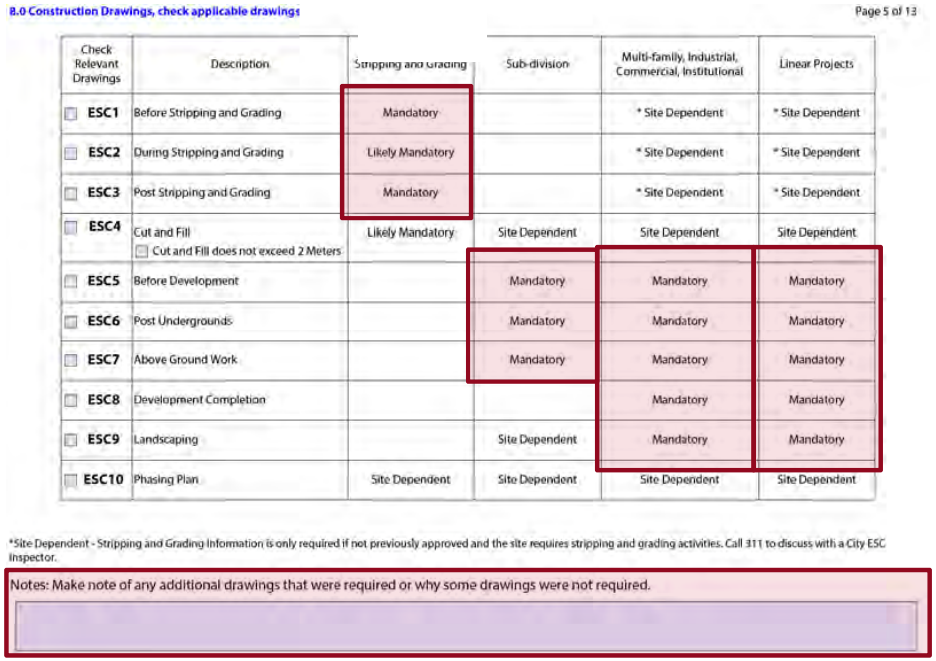
Check Relevant Drawings	Description	Stripping and Grading	Sub-division	Multi-family, Industrial, Commercial, Institutional	Linear Projects
☐ ESC1	Before Stripping and Grading	Mandatory		* Site Dependent	* Site Dependent
☐ ESC2	During Stripping and Grading	Likely Mandatory		* Site Dependent	* Site Dependent
☐ ESC3	Post Stripping and Grading	Mandatory		* Site Dependent	* Site Dependent
☐ ESC4	Cut and Fill ☐ Cut and Fill does not exceed 2 Meters	Likely Mandatory	Site Dependent	Site Dependent	Site Dependent
☐ ESC5	Before Development		Mandatory	Mandatory	Mandatory
☐ ESC6	Post Undergrounds		Mandatory	Mandatory	Mandatory
☐ ESC7	Above Ground Work		Mandatory	Mandatory	Mandatory
☐ ESC8	Development Completion			Mandatory	Mandatory
☐ ESC9	Landscaping		Site Dependent	Mandatory	Mandatory
☐ ESC10	Phasing Plan	Site Dependent	Site Dependent	Site Dependent	Site Dependent

*Site Dependent - Stripping and Grading Information is only required if not previously approved and the site requires stripping and grading activities. Call 311 to discuss with a City ESC Inspector.

Notes: Make note of any additional drawings that were required or why some drawings were not required.

2. Common ESC Plan FIRs

- **Section 6 – Construction Drawings**
  - Why we need this information:
    - Combined drawings are accepted, given they are explained in note section.
    - Eg. ESC2 may be omitted if the intent is to move from ESC1 directly to ESC3.
    - Eg. ESC8 and ESC9 may be the same drawing depending on the project.



8.0 Construction Drawings, check applicable drawings

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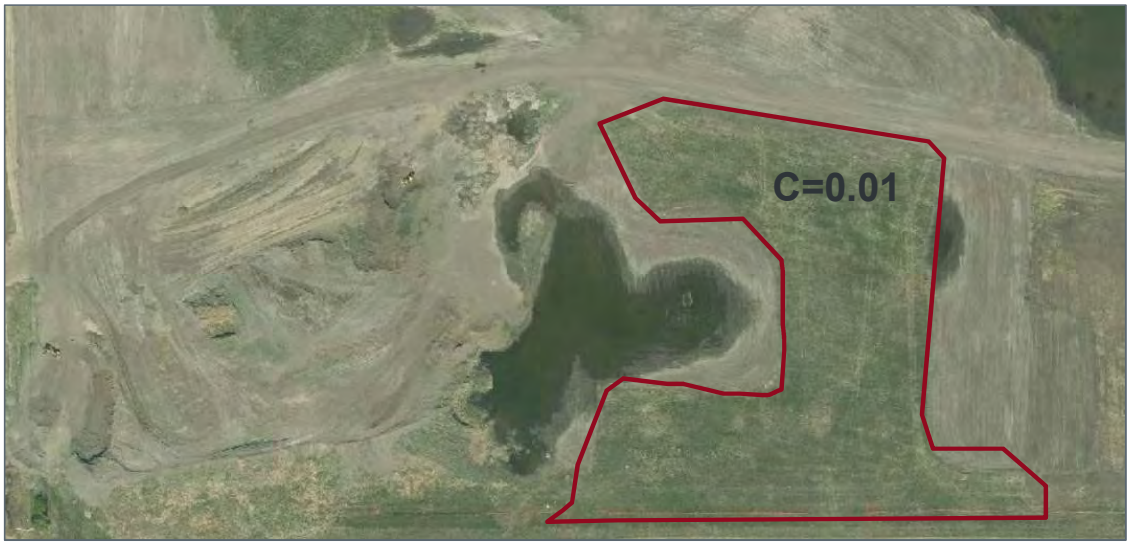
Check Relevant Drawings	Description	Stripping and Grading	Sub-division	Multi-family, Industrial, Commercial, Institutional	Linear Projects
ESC1	Before Stripping and Grading	Mandatory		* Site Dependent	* Site Dependent
ESC2	During Stripping and Grading	Likely Mandatory		* Site Dependent	* Site Dependent
ESC3	Post Stripping and Grading	Mandatory		* Site Dependent	* Site Dependent
ESC4	Cut and Fill Cut and Fill does not exceed 2 Meters	Likely Mandatory	Site Dependent	Site Dependent	Site Dependent
ESC5	Before Development		Mandatory	Mandatory	Mandatory
ESC6	Post Undergrounds		Mandatory	Mandatory	Mandatory
ESC7	Above Ground Work		Mandatory	Mandatory	Mandatory
ESC8	Development Completion			Mandatory	Mandatory
ESC9	Landscaping		Site Dependent	Mandatory	Mandatory
ESC10	Phasing Plan	Site Dependent	Site Dependent	Site Dependent	Site Dependent

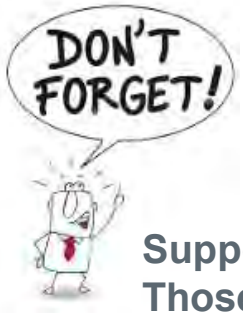
*Site Dependent - Stripping and Grading information is only required if not previously approved and the site requires stripping and grading activities. Call 311 to discuss with a City ESC Inspector.

Notes: Make note of any additional drawings that were required or why some drawings were not required.

2. Common ESC Plan FIRs

- **Section 11 – Erosion and Sediment Control: 200.1.1 Existing Cover**
- Information Request: Justification for the chosen C-value for existing vegetation cover is not provided.

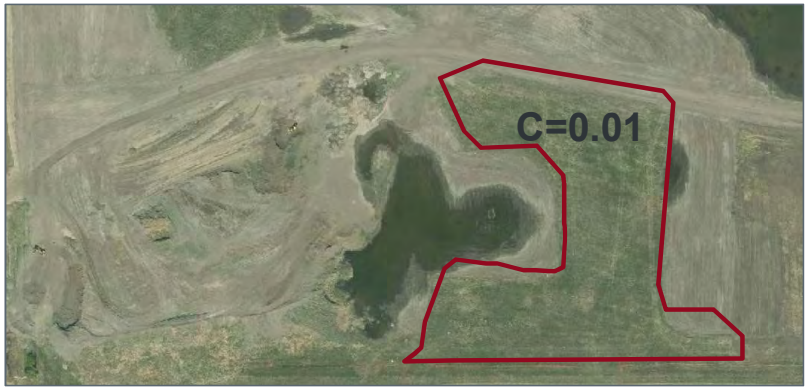


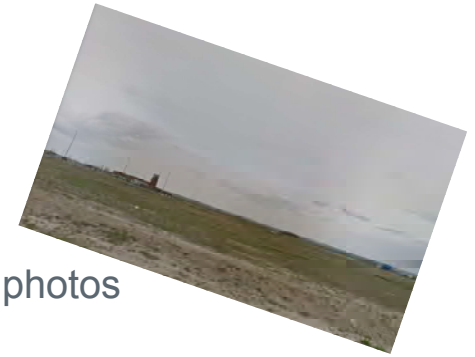


Supporting information must be provided if a practice is assigned a C or P value that does not match Those values provided in the Standard Specifications

2. Common ESC Plan FIRs

- **Section 11 – Erosion and Sediment Control: 200.1.1 Existing Cover**
- What information is required:

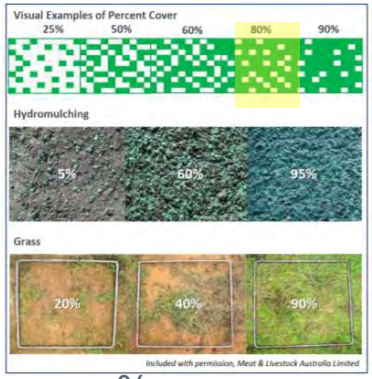




Site photos

Why is this information required:

To easily assist us in verifying that the proper amount of cover is currently on site



% cover

Vegetative Canopy Type and Height	Percent cover	Type	Cover that contacts the soil surface Percent ground cover 0	20	40	60	80	95+
No appreciable canopy		G	0.45	0.20	0.10	0.04	0.01	0.00
		W	0.45	0.24	0.15	0.09	0.04	0.01
Tall weeds or short brush with average drop fall height of 20 inches	25	G	0.36	0.17	0.09	0.04	0.01	0.00
		W	0.36	0.20	0.13	0.08	0.04	0.01
	50	G	0.26	0.13	0.07	0.35	0.01	0.00
		W	0.26	0.16	0.11	0.08	0.04	0.01
	75	G	0.17	0.10	0.06	0.03	0.01	0.00
		W	0.17	0.12	0.09	0.07	0.04	0.01
Appreciable brush or bushes, with average drop fall height of 6 1/2 feet	25	G	0.40	0.18	0.09	0.04	0.01	0.00
		W	0.40	0.22	0.14	0.09	0.04	0.01
	50	G	0.34	0.16	0.08	0.04	0.01	0.00
		W	0.34	0.19	0.13	0.08	0.04	0.01
	75	G	0.28	0.14	0.08	0.04	0.01	0.00
		W	0.28	0.17	0.13	0.08	0.04	0.01
Trees, but no appreciable low brush. Average drop fall of 13 feet	25	G	0.42	0.19	0.10	0.04	0.01	0.00
		W	0.42	0.23	0.14	0.09	0.04	0.01
	50	G	0.39	0.18	0.09	0.04	0.01	0.00
		W	0.39	0.21	0.14	0.09	0.04	0.01
	75	G	0.36	0.17	0.09	0.04	0.01	0.00
		W	0.36	0.20	0.13	0.08	0.04	0.01

RUSLEFAC C-value given % cover

2. Common ESC Plan FIRs

- **Section 11 – Erosion and Sediment Control: 200.1.6 Aggregate Cover**
- Information Request: Pit-run/road crush gravel and clean wash aggregate are given incorrect C/K values.

AGGREGATE COVER

C-Value & K-Value Adjustments

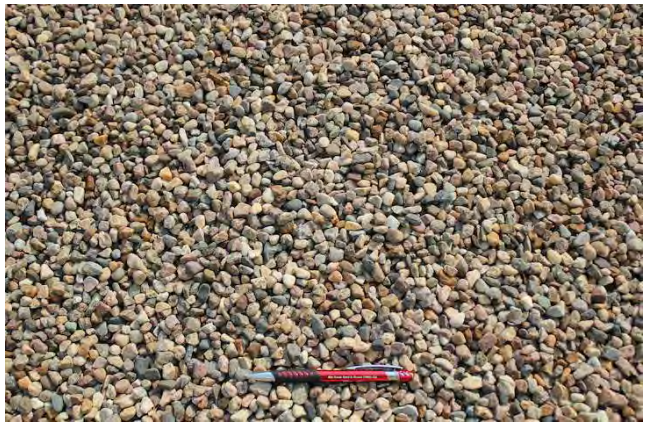
Type	Application Rate tons/acre	Application Rate Kg/ha	Slope %	C-Factor	Length limit feet	Length limit meters
Crushed Stone 6.35 mm (1/4") – 38.1 mm (1 1/2")	135	302,630	<16	0.05	200	61
	135	302,630	16-20	0.05	150	46
	135	302,630	21-33	0.05	100	30
	135	302,630	34-50	0.05	75	23
	340	538,009	<21	0.02	300	91
	340	538,009	21-33	0.02	200	61
	340	538,009	34-50	0.02	150	46

K-value Adjustments

K-Value Adjustment Factor (Si)*	% Stones > 2 mm
	Stones may be present in the onsite soil or they may be imported, such as a 150 mm blanket of pit run
0.740	Equal to or greater than 10% but less than 25%
0.312	Equal to or greater than 25% but less than 50%
0.074	Equal to or greater than 50%

Drawing N/A

Clean wash



Pit-run/Road crush

Main difference (in terms of ESC) is % of fines.

2. Common ESC Plan FIRs

- **Section 11 – Erosion and Sediment Control: 200.1.6 Aggregate Cover**
- <u>What's required:</u>
  - Clean wash gravel (1/4"-1/2" diameter) assigned a C-value based on RUSLEFAC (varies based on application rate)
  - Pit-run/road crush gravel assigned a K-value adjustment value to take into account erosion protection (varies based on % stones >2mm)

AGGREGATE COVER

C-Value & K-Value Adjustments

Type	Application Rate tons/acre	Application Rate Kg/ha	Slope %	C-Factor	Length limit feet	Length limit meters
Crushed Stone 6.35 mm (1/4") – 38.1 mm (1 1/2")	135	302,630	<16	0.05	200	61
	135	302,630	16–20	0.05	150	46
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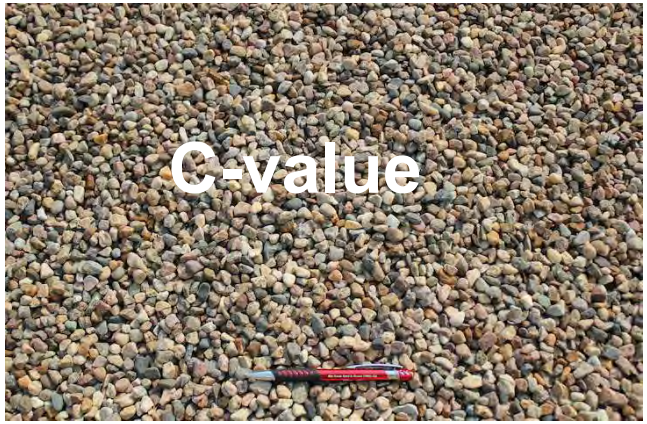
	135	302,630	34–50	0.05	75	23
	340	538,009	<21	0.02	300	91
	340	538,009	21–33	0.02	200	61
	340	538,009	34–50	0.02	150	46

K-value Adjustments

K-Value Adjustment Factor (Sf)*	% Stones > 2 mm
	Stones may be present in the onsite soil or they may be imported. Such as a 150 mm blanket of pit run
0.740	Equal to or greater than 10% but less than 25%
0.912	Equal to or greater than 25% but less than 50%
0.974	Equal to or greater than 50%

Drawing N/A

Clean wash

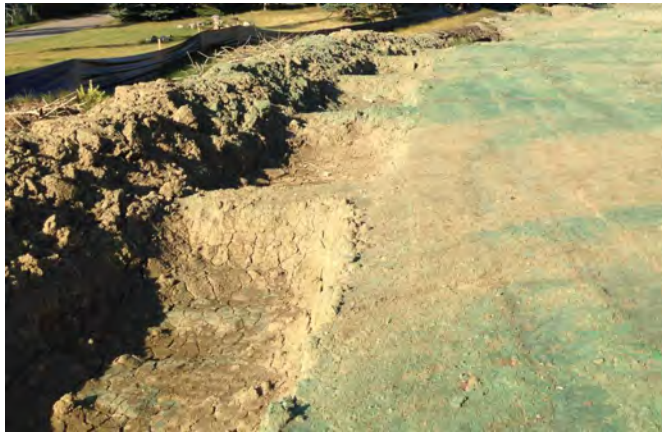


Pit-run/Road crush

2. Common ESC Plan FIRs

– **Section 11 – Erosion and Sediment Control: 200.2.2 V-Ditches vs 200.2.3 Diversion Channels**

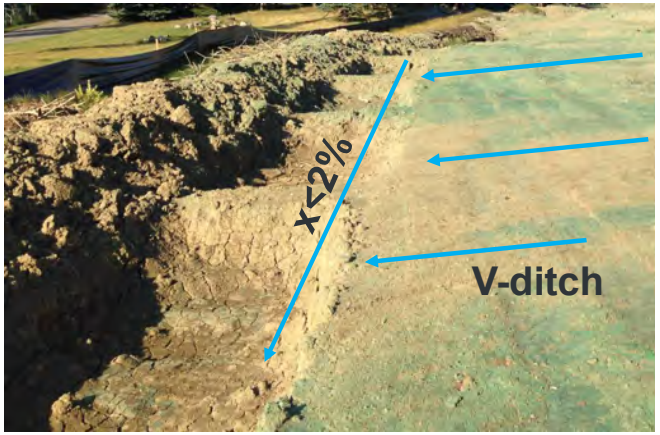
- Information Request: V-ditches and Diversion Channels are used are proposed as the same practice.
- Differences: Function, Installation, P-value



2. Common ESC Plan FIRs

– **Section 11 – Erosion and Sediment Control:**

200.2.2 V-Ditches



- Sediment Containment
- 0%-2% (max) slopes
- Soil check dams
- Can be assigned a P-value

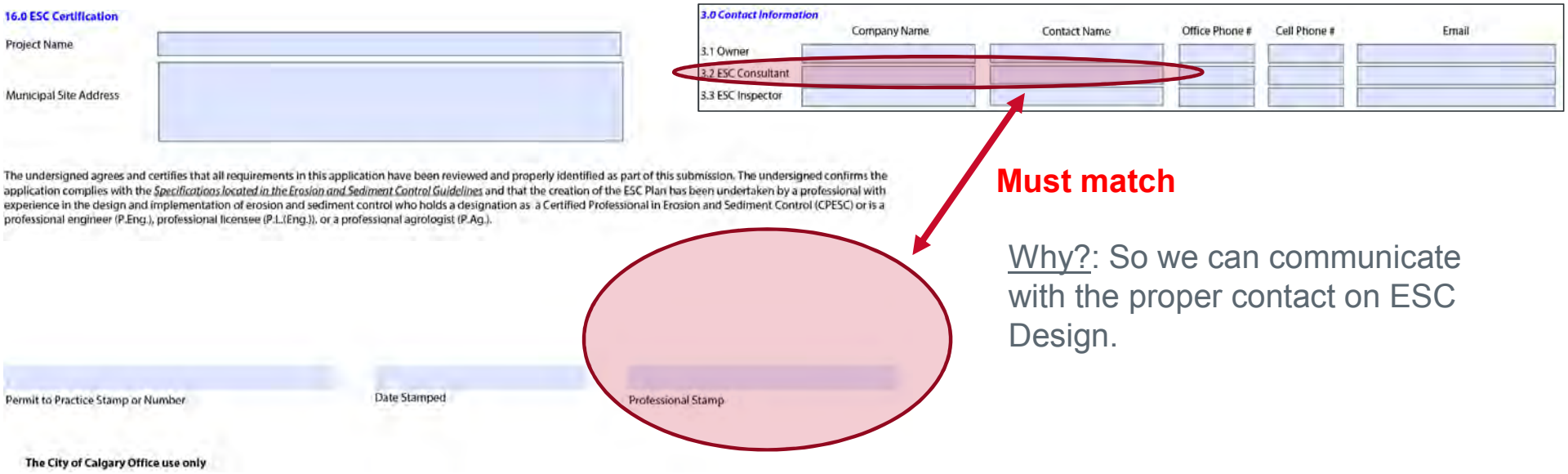
200.2.3 Diversion Channels

- Stormwater diversion (no P-value)
  - To a sediment containment system
- 2% (min) - 5% (max) slope
- Erosion control required
- Rock check dams required

2. Common ESC Plan FIRs

– Section 16 – Certification

- Information Request: Contact that stamps ESC Plan is not listed in Section 3 of the Application as the ESC Consultant



Why?: So we can communicate with the proper contact on ESC Design.

Break

The Issue

- Recently, some amendments have been submitted late, submitted incorrectly or not submitted at all

Why this is a problem

- Amendments help us keep our file up to date and current
- Amendments allow for flexibility on site. If things change you aren't held to a plan that wont work

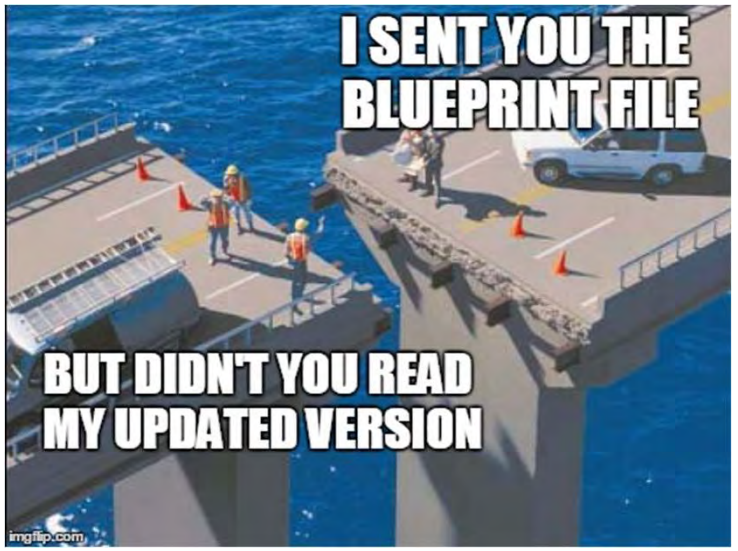
Amendments

1. What to do if plans change
2. Types of amendments
   a. What a consultant needs to do
   b. What you can do
3. Examples
4. Where and how to submit an amendment

What if plans change?

Considerations:

- Your approval is your legal commitment.
- City inspectors can only inspect what has been approved.
- We need to know what has changed and that the site still meets City requirements.
- Some changes can be done on site, some must be done by the Owner or Owners' Representative



2 types of amendments

1. **Change affects the RUSLE calculation**

   (Needs to be done by an ESC consultant)

   - Add/remove cover such as mulch and tackifier
   - Add/remove protection such as straw wattles

2 types of amendments

2. Change does not affect RUSLE calculation (Done by you, get approval from your City ESC inspector)

- Moving gravel access to a new location
- Stockpile size/volume
- Removing perimeter controls that don't affect RUSLE

Get written approval first

For both types of amendment

- Before implementing your amendment, make sure you get written approval from your area inspector
- This will save you from removing or replacing products or controls that don't get approved.

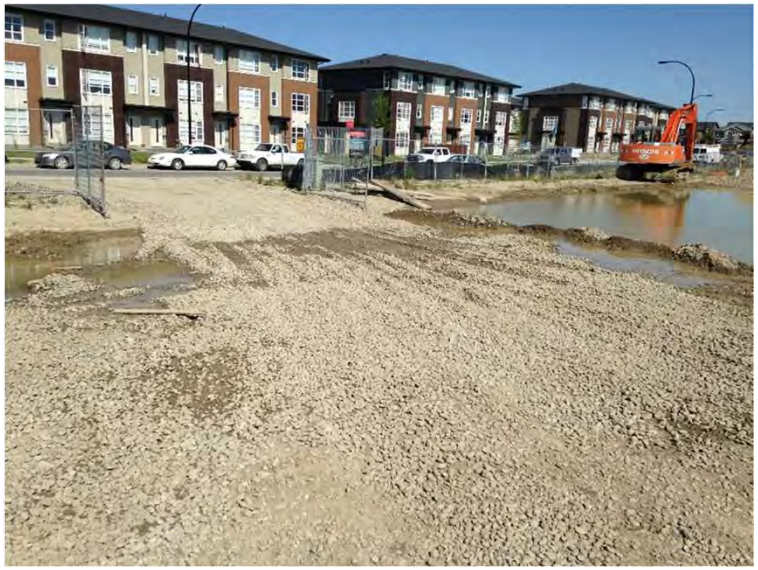
Example: Removing cover + replacing with gravel

- The plan calls for mulch & tackifier in an area where trades are parking.
- You would prefer to use gravel which holds up better to vehicle traffic.

➔ Get in touch with the ESC consultant (contact section of the approval)

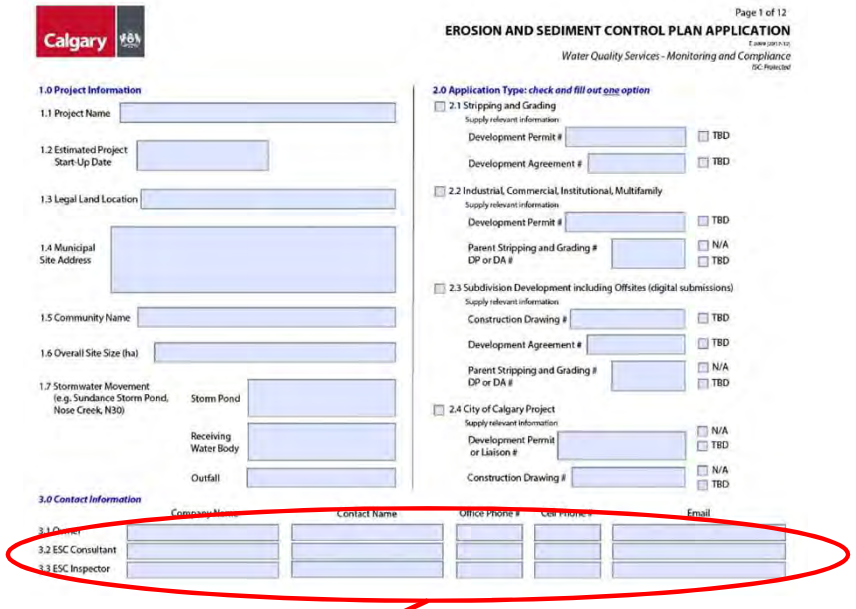
Example: Relocating a gravel access

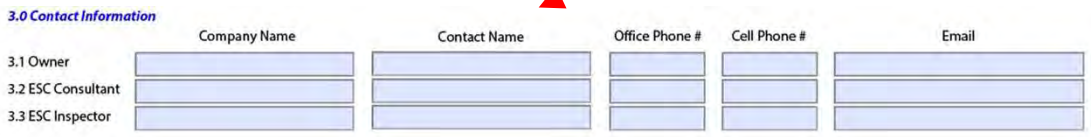
- The plan calls for a gravel access on the north side of your site from a busy road.
- Due to traffic it's safer for people to access the site from a side street to the south
  - ➔ Contact your ESC inspector & provide a drawing showing the change.
  - ➔ If you are unsure, contact the Owner or Owner's Representative



Sending Amendment information: (ESC Consultant Required)

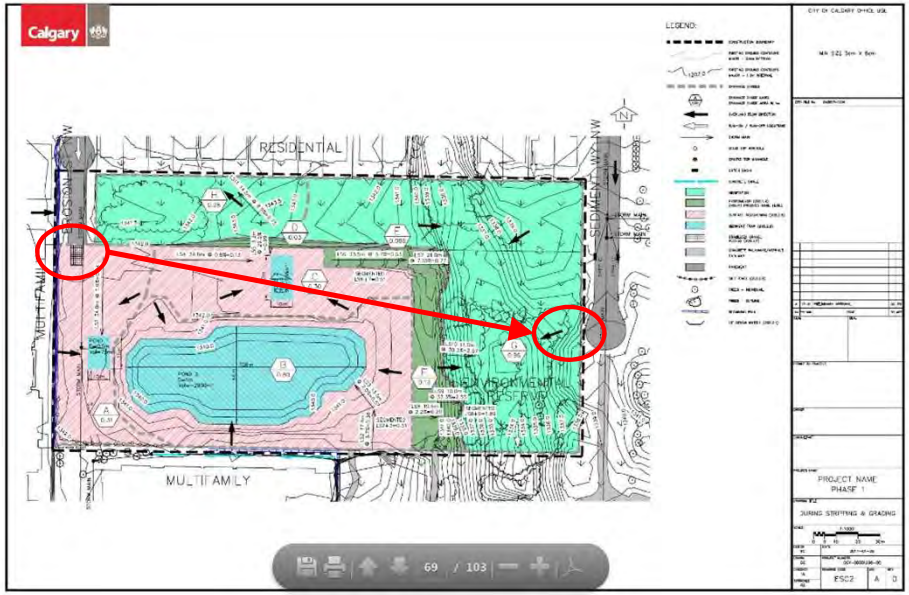
- Contact the person listed and arrange to have an amendment submitted.
- They will handle submissions and let you know when they are approved.
- Make sure to get an updated copy of the amended drawings for site.





Sending Amendment information: ESC Consultant not required

- Contact the ESC inspector for your area (call 3-1-1)
- Email or mail a marked-up drawing to your inspector:
  - Ben Ethier (north) – ben.ethier@calgary.ca
  - Bobby Chong (south) - bobby.chong@calgary.ca
- Keep a copy of the approved amended drawings and written approval on site.



What you can do

- Be proactive – submit amendments as early as possible to allow for review and revision
- Know your amendment– only submit full drawings when needed
- Get written approval first – get approval before installation to avoid having to remove controls that don't work

The Issue

- There is some confusion over what the role of the inspector is

Why this is a problem

- Inspections are a legal requirement and part of your approval
- Many people rely on accurate and clear inspection reports, including City staff and site owners.
- Confirm the site matches the Approved ESC plan not just that ESC measures are installed

Inspections

1. Your role as an ESC inspector

Your Role

I. Inspect
   - Know what should be installed and what has been installed
   - Conduct 7 day and rainfall inspections

II. Document
   - Any deficient, missing or unmaintained ESC measures

III. Communicate
   - What measures need to be installed, maintained or removed

What you can do

- Know your role – inspect, document, and report
- Do not mandate changes– Unless you are qualified
- Be accurate – make sure your inspections are an accurate representation of site conditions
- Does the site match the drawings? – this is a City requirement

The Issue

- Some inspection formats do not match Section 13 of the ESC plan application
- Some inspections are unclear or ineffective at accurately showing whether a site matches the approved plan.

Why this is a problem

- The inspection sheet provided in Section 13 of the ESC plan application has been formatted to ensure:
  - Site inspectors are able to accurately inspect sites
  - City inspectors are able to quickly determine compliance
  - Owners can easily determine areas of site that require attention

Inspections

1. A complete inspection

Fill out your inspection form as a group

Control	Drawing	Location	Observations (effectiveness of the measure used) Include Deficiencies or Noted Concerns. Optional Photo	Maintenance Requirements or Changes Required for the ESC Report and/or Drawings	Performed Actions When and What Repairs/Maintenance were done and by Whom	Performance (Concerns/ Meets/Exceeds)
Mulch/Tackifer	Post Stripping and Grading	3:1 Slopes located mid site	• Application does not meet 80% cover • Mulch and tackifier has been damaged or removed • *BONUS* cat tracking wrong direction	• Reapply Mulch and tackifier at a minimum 80% cover • Re-establish cat tracking perpendicular to slope	• Deficiencies noted and referred to owner on 25-Jan-2018	Concerns
Sediment Containment	Post Stripping and Grading	Toe of slope along natural contours	• Full of water and possibly sediment • Rilling • No cat tracking or support practice present	• Remove accumulated water and sediment • Re-establish cat tracking	• Deficiencies noted and referred to owner on 25-Jan-2018	Concerns
Silt Fence	Post Stripping and Grading	SW corner of site	• Not trenched/undermined • Sediment accumulated • J-hooks are not hooked	• Remove accumulated sediment • Re-establish and compact bottom of fence • Install up hill hooks	• Deficiencies noted and referred to owner on 25-Jan-2018	Concerns
Stabilized Gravel Access	Post Stripping and Grading	NW access				

What you can do

- Use Section 13 – This format was set up to help site inspectors and City staff
- Be detailed – The more detailed you are the easier it is to determine next steps
- Inspect the whole site – not just the perimeter or hot spots.
- Does the site match the plan?

The Issue

- Some winter inspection frequency reduction requests are incomplete or confusing.

Why this is a problem

- We receive 50-75 winter inspection reduction requests a year
- Before approving an inspection reduction we must be confident there is a low risk of release from the site.
- Incomplete or confusing or non-compliant applications take more time and effort to review
- This can cause response delays to both reduction requests and ESC reviews (both are in the same queue)

9 items

1. Site name and DP/CD#
2. Site Size and Total amount of open land
3. Site active or inactive (construction)
4. Construction stage and ESC drawing and drawing numbers that the site matches
5. Esc Controls per the ESC plan
6. Photos of ESC controls (recent 1-4 inspection reports) showing the site matches the noted plan
7. Maximum LS on site
8. Winter Shutdown measures that were completed
9. Have all socks and donuts or inlet control measures been removed?

At a minimum

1. The site MUST match one of the approved or approved amended drawings
2. There must be no active construction on site
3. All socks and donuts or inlet protection must be removed
4. No bylaw infraction such as
    1. Mud tracking
    2. Dirt ramps
    3. Sediment release

What you can do

- Show us that you can meet the minimum requirements:
  1. Match drawings
  2. No active construction
  3. Socks and donuts removed
  4. No bylaw infractions
- If the site doesn't meet these requirements it is your job to provide enough information to convince us the site is at a low risk of release.

Code of Practice for Drainage Activities Update

www.calgary.ca/esc - see Permits

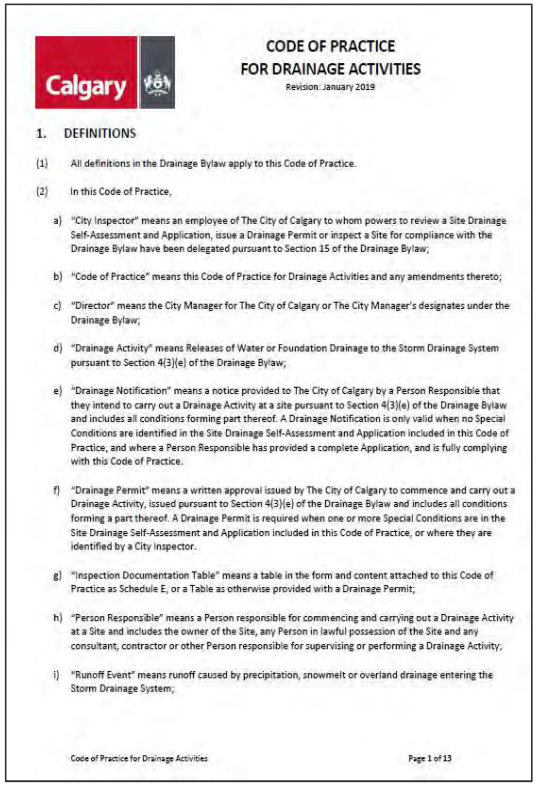
1. Drainage Code of Practice – What is it and what has changed?
2. Nuisance Water Disposal Flowchart
3. Schedule A: Drainage Self-Assessment and Application – Updated form

1. Code of Practice for Drainage Activities

- What is a Drainage Activity?
  - » Release of Water or Foundation Drainage to the Storm Drainage System

*(e) Water in accordance with a **permit** or **written approval** from the Director, Water Resources"*

- What is the Code of Practice for Drainage Activities?
  - » A legal document that includes the process for applying for an approval and the conditions which apply



CODE OF PRACTICE
FOR DRAINAGE ACTIVITIES
Revision: January 2019

1. DEFINITIONS

(1) All definitions in the Drainage Bylaw apply to this Code of Practice.

(2) In this Code of Practice,

a) "City Inspector" means an employee of The City of Calgary to whom powers to review a Site Drainage Self-Assessment and Application, issue a Drainage Permit or inspect a Site for compliance with the Drainage Bylaw have been delegated pursuant to Section 15 of the Drainage Bylaw;

b) "Code of Practice" means this Code of Practice for Drainage Activities and any amendments thereto;

c) "Director" means the City Manager for The City of Calgary or The City Manager's designates under the Drainage Bylaw;

d) "Drainage Activity" means Releases of Water or Foundation Drainage to the Storm Drainage System pursuant to Section 4(3)(e) of the Drainage Bylaw;

e) "Drainage Notification" means a notice provided to The City of Calgary by a Person Responsible that they intend to carry out a Drainage Activity at a site pursuant to Section 4(3)(e) of the Drainage Bylaw and includes all conditions forming part thereof. A Drainage Notification is only valid when no Special Conditions are identified in the Site Drainage Self-Assessment and Application included in this Code of Practice, and where a Person Responsible has provided a complete Application, and is fully complying with this Code of Practice.

f) "Drainage Permit" means a written approval issued by The City of Calgary to commence and carry out a Drainage Activity, issued pursuant to Section 4(3)(e) of the Drainage Bylaw and includes all conditions forming a part thereof. A Drainage Permit is required when one or more Special Conditions are in the Site Drainage Self-Assessment and Application included in this Code of Practice, or where they are identified by a City Inspector.

g) "Inspection Documentation Table" means a table in the form and content attached to this Code of Practice as Schedule E, or a Table as otherwise provided with a Drainage Permit;

h) "Person Responsible" means a Person responsible for commencing and carrying out a Drainage Activity at a Site and includes the owner of the Site, any Person in lawful possession of the Site and any consultant, contractor or other Person responsible for supervising or performing a Drainage Activity;

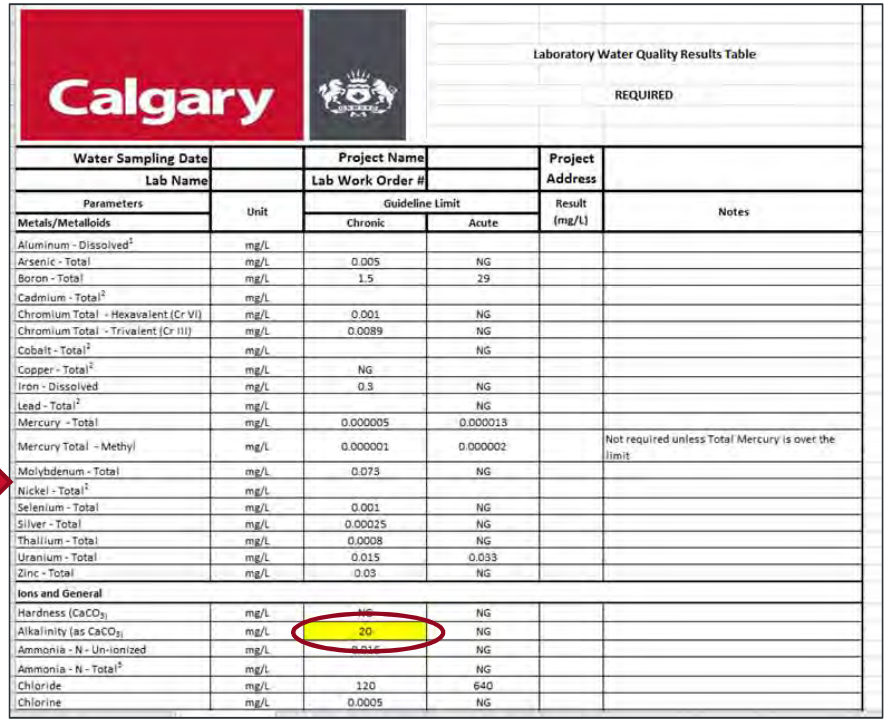
i) "Runoff Event" means runoff caused by precipitation, snowmelt or overland drainage entering the Storm Drainage System;

Code of Practice for Drainage Activities Page 1 of 13

1. Code of Practice for Drainage Activities

What has changed?

- Simplified terminology
- Updated, more user-friendly application form (Schedule A: Drainage Self-Assessment and Application)
- Simplified process, including removal of commencement notification and amendment process
- Laboratory Water Quality Results reporting table
- www.calgary.ca/esc - See Permits page



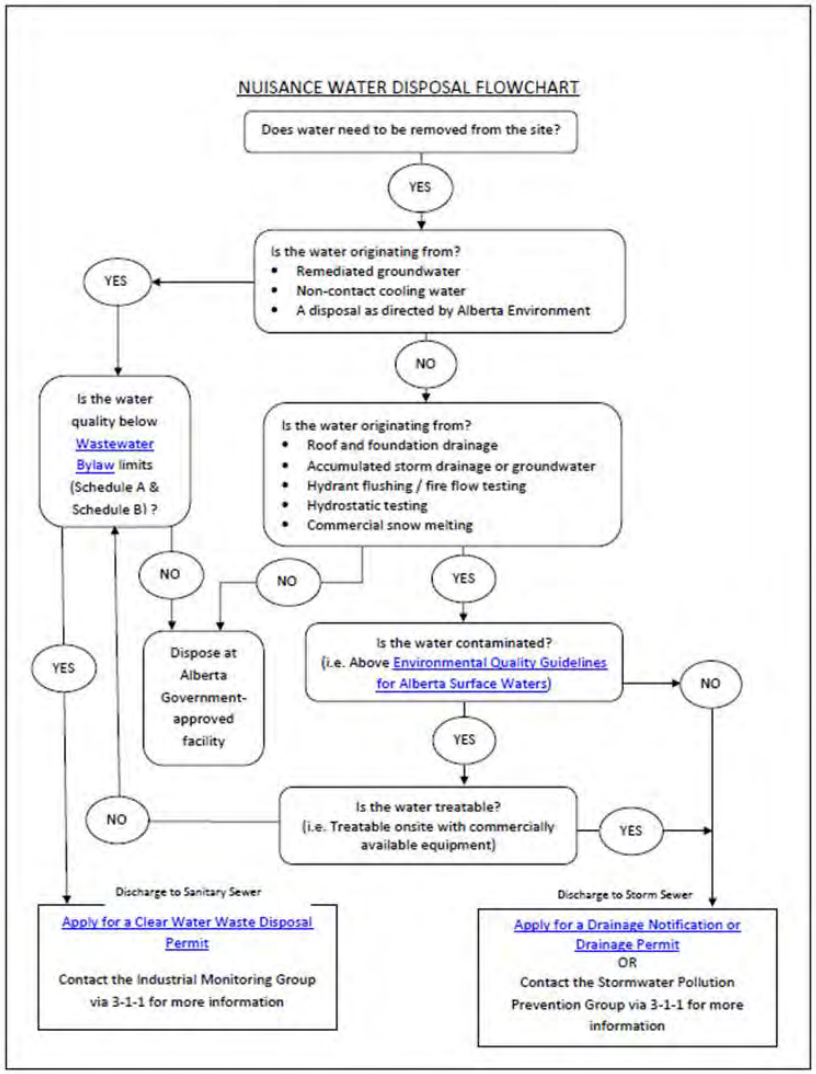
Laboratory Water Quality Results Table

REQUIRED

Water Sampling Date		Project Name		Project Address	
Lab Name		Lab Work Order #			
Parameters	Unit	Guideline Limit		Result (mg/L)	Notes
Metals/Metalloids		Chronic	Acute		
Aluminum - Dissolved[4]	mg/L				
Arsenic - Total	mg/L	0.005	NG		
Boron - Total	mg/L	1.5	29		
Cadmium - Total[2]	mg/L				
Chromium Total - Hexavalent (Cr VI)	mg/L	0.001	NG		
Chromium Total - Trivalent (Cr III)	mg/L	0.0089	NG		
Cobalt - Total[2]	mg/L		NG		
Copper - Total[2]	mg/L	NG			
Iron - Dissolved	mg/L	0.3	NG		
Lead - Total[2]	mg/L		NG		
Mercury - Total	mg/L	0.000005	0.000013		
Mercury Total - Methyl	mg/L	0.000001	0.000002		Not required unless Total Mercury is over the limit
Molybdenum - Total	mg/L	0.073	NG		
Nickel - Total[2]	mg/L				
Selenium - Total	mg/L	0.001	NG		
Silver - Total	mg/L	0.00025	NG		
Thallium - Total	mg/L	0.0008	NG		
Uranium - Total	mg/L	0.015	0.033		
Zinc - Total	mg/L	0.03	NG		
Ions and General					
Hardness ($CaCO_3$)	mg/L	NG	NG		
Alkalinity (as $CaCO_3$)	mg/L	20	NG		
Ammonia - N - Un-ionized	mg/L	[illegible]	NG		
Ammonia - N - Total[5]	mg/L		NG		
Chloride	mg/L	120	640		
Chlorine	mg/L	0.0005	NG		

2. Nuisance Water Disposal Flowchart

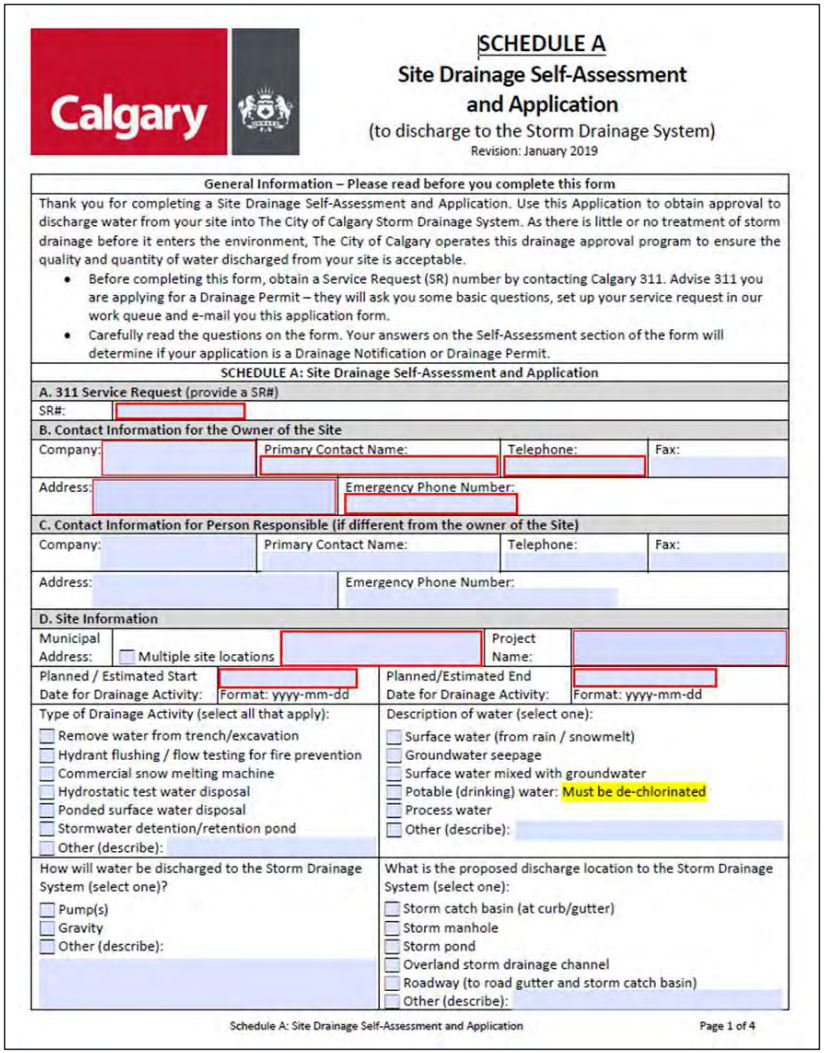
- Updated in 2019
  - Provides customers an overview of possible options to dispose of 'nuisance' water
  - Disposal to the Storm Drainage System is considered a primary option. However, concerns such as
    - » the source of the water and water quality, may require other disposal options such as the Wastewater System or a third-party, Alberta Government approved facility



3. Schedule A: Drainage Self-Assessment and Application

Key things to know:

- There is little or no treatment water that enters catch basins before it enters the environment
- Special Conditions: require a higher level of risk management
- Drainage Notification: no Special Conditions
- Drainage Permit: one or more Special Conditions. Customer must wait for an application review and Drainage Permit before proceeding



SCHEDULE A
Site Drainage Self-Assessment and Application
(to discharge to the Storm Drainage System)
Revision: January 2019

General Information – Please read before you complete this form

Thank you for completing a Site Drainage Self-Assessment and Application. Use this Application to obtain approval to discharge water from your site into The City of Calgary Storm Drainage System. As there is little or no treatment of storm drainage before it enters the environment, The City of Calgary operates this drainage approval program to ensure the quality and quantity of water discharged from your site is acceptable.

- Before completing this form, obtain a Service Request (SR) number by contacting Calgary 311. Advise 311 you are applying for a Drainage Permit – they will ask you some basic questions, set up your service request in our work queue and e-mail you this application form.
- Carefully read the questions on the form. Your answers on the Self-Assessment section of the form will determine if your application is a Drainage Notification or Drainage Permit.

SCHEDULE A: Site Drainage Self-Assessment and Application

A. 311 Service Request (provide a SR#)

SR#:

B. Contact Information for the Owner of the Site

Company: | Primary Contact Name: | Telephone: | Fax:

Address: | Emergency Phone Number:

C. Contact Information for Person Responsible (if different from the owner of the Site)

Company: | Primary Contact Name: | Telephone: | Fax:

Address: | Emergency Phone Number:

D. Site Information

Municipal Address: ☐ Multiple site locations | Project Name:

Planned / Estimated Start Date for Drainage Activity: Format: yyyy-mm-dd | Planned/Estimated End Date for Drainage Activity: Format: yyyy-mm-dd

Type of Drainage Activity (select all that apply):
- ☐ Remove water from trench/excavation
- ☐ Hydrant flushing / flow testing for fire prevention
- ☐ Commercial snow melting machine
- ☐ Hydrostatic test water disposal
- ☐ Ponded surface water disposal
- ☐ Stormwater detention/retention pond
- ☐ Other (describe):

Description of water (select one):
- ☐ Surface water (from rain / snowmelt)
- ☐ Groundwater seepage
- ☐ Surface water mixed with groundwater
- ☐ Potable (drinking) water: Must be de-chlorinated
- ☐ Process water
- ☐ Other (describe):

How will water be discharged to the Storm Drainage System (select one)?
- ☐ Pump(s)
- ☐ Gravity
- ☐ Other (describe):

What is the proposed discharge location to the Storm Drainage System (select one):
- ☐ Storm catch basin (at curb/gutter)
- ☐ Storm manhole
- ☐ Storm pond
- ☐ Overland storm drainage channel
- ☐ Roadway (to road gutter and storm catch basin)
- ☐ Other (describe):

Schedule A: Site Drainage Self-Assessment and Application — Page 1 of 4

Questions?

Thank you