



Instruction Manual for Erosion and Sediment Control Plan Applications 2022

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i. Introduction

An Erosion and Sediment Control (ESC) Plan outlines controls and practices that will be undertaken during all stages of construction, to prevent sediment loss from a parcel. Keeping sediment on site prevents it from causing adverse effects to roadways, storm infrastructure, and rivers and creeks all while protecting human health and safety.

Being the registered owner of the public stormwater system, The City assumes responsibility for protecting it from activities that could cause an adverse effect to the integrity of the system or the quality of stormwater. During construction significant erosion and sedimentation may occur, putting the quality of stormwater and the integrity of the stormwater system at a higher risk. For this reason, all construction sites over 0.4 hectares must create and implement an ESC Plan which has been reviewed and approved by The City Environmental Compliance Specialist, Stormwater Pollution Prevention.

The requirement for an ESC Plan will be communicated by one of the following three methods:

- 1) It was a Prior to Releases condition on a Development Permit that you applied for,
- 2) It is a condition of the Development Agreement (for construction drawing projects or for stripping and grading (when no stripping and grading development permit was obtained) and/or
- 3) The project is a City of Calgary construction project with soil disturbances above 0.4ha

Regardless of what triggered the requirement for a plan, it is imperative that the ESC Plan is approved via an ESC Approval letter prior to the commencement of work that exposes soil.

An ESC Plan consists of an [Erosion and Sediment Control Plan Application Form](#), relevant ESC Drawings, required attachments, and the *ESC Standard Specifications (Specifications)* This instruction manual is designed to assist you when filling out the 2022 ESC Application. If you are unable to find the answer you are looking for in this manual, contact 3-1-1 and ask to be put in touch with a City Environmental Compliance Specialist, Stormwater Pollution Prevention.

ii. Submitting an ESC Plan

Use the ESC Application section of this instruction manual to assist you with filling out the [Erosion and Sediment Control Plan Application Form](#).

Where to submit

Where you send your application is dependent on the type of application and if the application is a first submission or a resubmission.

Application Type	1st Submission	Resubmissions
Stripping and Grading Development Permits and Development Agreements	Digital submission will get assigned to Engineering Generalist who will forward to ESC@calgary.ca	Email to ESC@calgary.ca
Development Permits City Projects Circulation Drawings	Email to ESC@calgary.ca	Email to ESC@calgary.ca

Submission Format

A digital ESC Plan should consist of four separate PDF documents in the following file breakdown.

Title	Content example
ESC Application	Fillable PDF
ESC Drawings	Digital drawings
Geotechnical Documents	Geotechnical report, letters, nomographs
Attachments	Photos (combine into a single PDF), specifications, haul routes, permission letters, RUSLE calculations, etc.

The maximum file size is 20MB, if the file exceeds this size, contact ESC@calgary.ca for assistance.

Note: Hard copy application are no longer accepted.

Submission Responses

The City attempts to review all ESC Plan applications within fourteen (14) business days of receipt. After the initial submission, most applications require one or more resubmissions prior to receiving ESC Approval. To prevent construction commencement delays, schedule your application timing accordingly.

Note: How much time should you plan for obtaining approval on an ESC Plan? Knowing City target review timelines allows you to estimate.

Example: If you submit an ESC Plan application on **Tuesday March 1, 2022** The City Environmental Compliance Specialist, Stormwater Pollution Prevention has till **Monday, March 21, 2022** to respond. If the response is an FIR letter, edits will need to be made prior to resubmission. If it takes one week to update the ESC Plan it would be returned to The City on **Monday March 28, 2022**. The City Environmental Compliance Specialist, Stormwater Pollution Prevention now has until **Monday, April 18, 2022** to respond to the resubmission. If all information requests have been satisfied, ESC Approval would be granted in **six and a half weeks (45 days)**.

Many applications receive approval on the second submission, but it is not uncommon for three or more submissions to be required. If your site is more intricate and another FIR letter is received on April 18, 2022 instead of an Approval letter, one could assume another week to update the ESC Plan. This would result in a resubmission of **April 25, 2022**. Now The City Environmental Compliance Specialist, Stormwater Pollution Prevention has till **May 13, 2022** to provide a response. If ESC Approval is granted at this point, it has taken **ten and a half weeks (73 days)**.

March 2022							April 2022							May 2022						
SU	MO	TU	WE	TH	FR	SA	SU	MO	TU	WE	TH	FR	SA	SU	MO	TU	WE	TH	FR	SA
27	28	1	2	3	4	5						1	2	1	2	3	4	5	6	7
6	7	8	9	10	11	12	3	4	5	6	7	8	9	8	9	10	11	12	13	14
13	14	15	16	17	18	19	10	11	12	13	14	15	16	15	16	17	18	19	20	21
20	21	22	23	24	25	26	17	18	19	20	21	22	23	22	23	24	25	26	27	28
27	28	29	30	31			24	25	26	27	28	29	30	29	30	31				

There are three possible outcomes from the review of an ESC Plan:

- 1) An Approval,
- 2) A Further Information Requested (FIR) letter/comments, or
- 3) A notice of Rejection

Approval

When an Approval is granted, an Approval letter, with conditions, is supplied to the owner of the site. The Approval letter, application form, *Specifications* and all drawings and attachments collectively form the complete ESC Plan. The issuance of an Approval letter deems the ESC Plan a legally binding document under the [Stormwater Bylaw](#). As such, the plan must be implemented and followed to ensure the construction site remains in compliance. Should the construction site ownership change, the ESC Plan is tied to the land and must be adhered to by the new owner.

Note: An approved ESC plan consists of the Approval letter, Erosion and Sediment Control Plan Application form, ESC Drawings, all attachments (including geotechnical information, site photos and manufacturer’s specifications), and the *Standard Specifications for Erosion and Sediment Control*.

Further Information Requested (FIR)

After a submission, you may receive a letter or email containing FIR comments. These comments must be resolved via a resubmission. When resubmitting ensure that you have:

- 1) Provided a numbered response letter that matches the format of the FIR letter which outlines how each of the FIR questions has been resolved and that indicates all the locations where changes have been made in the resubmission. Clearly state the applicable sections, pages, drawings and/or note numbers of all changes (not supplying a complete and detailed response letter could result in a resubmission being rejected).
- 2) Resubmitted a complete package of information. Our office stamps the submission that is approved. Ensure the resubmission contains all pages of the application form, all attachments, and all drawings. Partial resubmissions are only acceptable if prior approval for such has been granted by the Environmental Compliance Specialist – Stormwater Pollution Prevention.

Rejection

When information is missing from the application, the incorrect application form is used, or when submission information is unclear, the ESC Plan application will be rejected. Providing feedback on applications with limited information result in confusion and additional work for all parties involved.

Amendments

Once an ESC Plan is approved, it is legally binding and must be followed on the construction site. If, for any reason, an approved ESC Plan cannot be followed, an amendment must be submitted. An amendment request must contain the:

- a) Project name;
- b) Project reference number (Development Permit, Development Agreement, Development Liaison, Airport Development, or Circulation Drawing number);
- c) Municipal site address;
- d) Notification that it is an amendment for a previous ESC Approval;
- e) A detailed description of what is being amended; and
- f) Applicable amended drawing, calculations, and details portions of the ESC Plan.

Amendments must be submitted to The City Environmental Compliance Specialist, Stormwater Pollution Prevention following the process outlined at the following link www.calgary.ca/StmPP.

iii. ESC Applications

ESC Applications must comply with the [Standard Specifications - ESC \(Specifications\)](#). While creating an ESC Plan you will need to refer to these *Specifications* frequently.

The following instructions are to be used while completing the [Erosion and Sediment Control Plan Application](#).

GENERAL PROJECT INFORMATION

1.0 Project Information

General project information provides basic details about when and where the project is taking place.

1.1 Project Name

The name of the project as it is identified on the Land Use Bylaw authorization (e.g. Development Permit, Development Agreement).

1.2 Estimated Project Start-up Date

This timeline can be expressed as a month and a year if the exact start-up date is not known. Attempt to be as accurate as possible as this information may be used to schedule the ESC preconstruction meeting.

1.3 Legal Land Location:

This information must be expressed in section-township-range-meridian format, for example, 27-25-02-W5.

1.4 Address

List the site address for the property at the commencement of construction. If there are multiple addresses, list them all. If the project is a linear project, provide the closest intersections.

1.5 Community Name

Provide the community name that the construction site is located in.

1.6 Overall Site Size (ha)

Provide the overall site size in hectares. If only part of the site is being exposed to erosion, this information will be outlined in later calculations.

1.7 Stormwater Movement

This information clearly shows where water that leaves the construction site will discharge to. In the event of a sediment release from a construction site, this information is very useful for field staff to determine the extent and impacts of the release. It will identify how far mitigation work is required. If a storm pond is present, provide the name and number of the pond, indicate the receiving water body and the outfall (e.g. Harvest Hills Lake WP3, Nose Creek, N38).

If there are multiple discharge locations be sure to include them all as part of the application.

[Storm Utility Section Maps](#) are available online to assist in locating this information.

1.8 Owner ID#

Populating this section is optional. Customers who have a unique file identifier, as part of their internal management system, may enter this information here to better facilitate communication and file organization.

2.0 Application Type

The application type will define what information should be present in the ESC Plan. For example, a stripping and grading project would not have a landscape plan included, while a development permit for a multi-family project would.

First choose which of the four application types best describes your project:

- 1) Stripping and Grading (Development Permit or Development Agreement)
- 2) Industrial, Commercial, Institutional, Multi-family (Development Permit, Development Liaisons, Airport Developments)

- 3) Subdivision Development including Offsites and fee simple row houses (Construction Drawing)
- 4) City of Calgary Project (Development Permit, Development Agreements Development Liaison, Construction Drawing)

Check the box that aligns with your project. Only fill out the one section (e.g. 2.1 Stripping and Grading) next to the box that you have checked. If your project requires multiple boxes to be checked, you are likely trying to create an ESC Plan that is associated with multiple development applications. Call 3-1-1 and request to be put in contact with a City Environmental Compliance Specialist, Stormwater Pollution Prevention to discuss your options.

2.1 Stripping and Grading

Supply the Development Permit (DP) or Development Agreement (DA) number for the project that under which the ESC Plan is being submitted. If you are applying for DP and do not have the number, the Engineering Generalist will add this number prior to sending the ESC Application to the City Environmental Compliance Specialist – Stormwater Pollution Prevention. If you are applying for a DA stripping and grading application and the DA# is not yet assigned, a Subdivision Number may be used for communication purposes during the review stage. An ESC Approval letter will not be issued until such time that either the relevant DA or DP number is known.

2.2 Industrial, Commercial, Institutional, Multi-family

Provide the Development Permit number.

For sites that are already stripped and graded, provide the parent stripping and grading number. If the site is not tied to a stripping and grading ESC Plan, write N/A.

Generally, all construction sites greater than 0.4ha in size require an ESC Plan, there would have been one approved for the site prior to soil being exposed to erosion. If you have purchased a piece of stripped and graded property, you as the owner are now responsible for following the Approved ESC Plan for the stripping and grading phase, as this document is tied to the land. Be sure to obtain a copy during the land purchase. The site will most likely be at the final conditions phase of the stripping and grading plan. Familiarize yourself with the approved ESC Plan and ensure that it is implemented.

2.3 Subdivision Development

Subdivision developments, offsites (sanitary, storm, water, roadways) and fee simple row houses are related to construction drawings.

Provide the Construction Drawing number as well as the Development Agreement number for the project. Next, indicate what the parent stripping and grading is for the construction site. The parent stripping and grading ESC file will have been approved under either a Development Agreement or a Development Permit. Fill that information in on the third line of this section.

Next, add the subdivision number (SB) for the project.

All fee simple lot ESC drawings are prepared and submitted during the larger subdivision approval process by the Developer and are governed by the associated subdivision Development Agreement. Copies of these ESC drawings should be supplied by the Developer to each individual builder who is constructing in the subdivision. No additional ESC drawings for fee simple housing (row, semi-detached or detached) developments are needed and none are required during the Development Permit process. If the builder wants to amend the original ESC plans for their specific lots, they will be required to submit an amendment to the approved site ESC Plan.

2.4 City of Calgary Projects

City of Calgary projects may be conducted under a Development Permit, Development Agreement (DA), Development Liaison (DL), Airport Development (AD), or Construction Drawings (CD) and an ECO Plan. If there is a DA, DP, DL, AD or CD associated with the project, provide the number in this section.

If there is no DA, DP, DL, AD, or CD a City of Calgary ESC Project Number will be assigned by the Environmental Compliance Specialist – Stormwater Pollution Prevention after the application has been submitted.

3.0 Contact Information

To ensure effective communication throughout a development, it is important that accurate information is provided as part of the application. The contact information must be complete prior to Approval of the ESC Plan being granted.

3.1 Owner's Representative

The owner's representative is the individual or the corporation hired to assist the owner with obtaining development authorizations under the *Land Use Bylaw*. This representative may subcontract the ESC portfolio to an alternate consultant, or they may fulfill the ESC role themselves.

3.2 Parcel Owner

The owner is the person or entity who appears on land titles. The person or company listed in the Parcel Owner section should be an exact match for the owner or company title listed on the land title.

The owner is ultimately responsible for ESC on their land and for confirming compliance with approvals and regulations. The ESC Approval will be issued to the parcel owner.

3.3 ESC Consultant

The ESC consultant is the professional with experience in the design and implementation of erosion and sediment controls who signed and stamped the drawings and holds a designation as a Certified Professional in Erosion and Sediment Control (CPESC), an APEGA Certified Professional Engineer (P.Eng.), an APEGA Certified Professional Licensee (P.L.(Eng.)), or a Professional Agrologist (P.Ag) certified by the Alberta Institute of Agrologists. They are responsible for developing the initial ESC Plan and for submitting relevant amendments.

3.4 ESC Inspector

The ESC Inspector is the person hired to conduct regular inspections on the construction site. They are trained in ESC, understand how to read ESC Plans, and have experience in construction, inspection, and maintenance of ESC practices. The ESC Inspector understands the importance of documentation and records information accordingly. The ESC Inspector is the person who assesses to see if the Approved ESC Plan is being followed on site. They will note deficiencies in their ESC inspection report and communicate these to relevant parties.

3.5 Site Contact

The site contact could be the site superintendent or primary contractors' representative. If a City Environmental Compliance Specialist, Stormwater Pollution Prevention sees a concern on a construction site while driving by, this is the person whom they would contact to get immediate safe access to the site.

CONSTRUCTION SITE INFORMATION

The application format is set up for use of field staff. Information relevant to implementation of the ESC Plan is located at the beginning of the document. Details that are used to develop the plan are located further back in the application.

4.0 Unit Product Supply List

The unit product supply list will outline, for site staff, what controls and practices needs to be acquired to successfully implement the ESC Plan. It will also outline earth moving activities which will clarify what equipment will be required on the site.

List all the controls that will be purchased for the construction site and then indicate the quantity require for each product (e.g. meters of silt fence, kg of mulch and tackifier).

Next, list the earth moving controls required and the volume, length, or area required to install these controls. (e.g. length of v-ditches, area surface roughened, total volume of sediment ponds).

Either populate this section or provide a screenshot of an existing supply list that has the required information. Bluebeam will allow the screenshot to sit over the fillable cells while Adobe will push the screenshot behind the fillable cells. To move the screenshot in front of the fillable cells, print the completed form to PDF.

5.0 Construction Drawings and Documents Relevant to Project Implementation

Check all the relevant drawings that were submitted as part of the application. The drawings checked here will match the drawings checked in Section 12.0. This section is specifically for staff operating on site to confirm they have the drawings needed on the site.

6.0 Erosion and Sediment Controls

The *Specifications* include the installation, inspection, maintenance, winter operations, and removal requirements for standard controls and practices. Populate section 6.0 Erosion and Sediment Controls with the controls and practices that are used.

RECP Specification #200.1.3

C-value	Blanket Type	Drawing(s) When Used	Description Where Used	Additional Information
0.08	XYZ Blanket Brand	Contingency plan for ESC5 and ESC6	Steep slopes in area 22 where mulch and tackifier was specified	Control to be installed if mulch and tackifier can't be installed due to winter weather conditions.
APLES Alternates RECP in the APLES with a C-value equal to or lower than above				

Attach: manufacturer's installation information and supporting data for the C-value

Populate the C or P-value for the product. If the C or P-value doesn't come from the *Specifications*, attach the manufacturer's information that supports the value provided and which is later used in RUSLE calculations. Indicate the product type, size, and application rates (each control and practices will indicate what information should be supplied) of the product that is being installed. Next, identify which drawing this control or practice is used on. If the control is for a contingency plan or a site stabilization requirement indicate this in the *Drawing When Used* column. Then describe where on the drawings the product will be used. Next, provide any information that has not been provided which is relevant to the installation of the product.

The APLES Alternative section stands for *Approved Products List Erosion and Sediment* which allows for the use of alternate controls on some of the controls and practices. This will allow staff in the field to use alternate controls if the APLES Alternates indicates this is an option.

If a control or practice that you wish to use is not located in the *Specifications*, then refer to the Nonstandard Specifications section below.

Non-Standard Control

The world of erosion and sediment control is continuously evolving. In support of this evolution, The City encourages innovation and new practices. If you wish to use an alternate control or practice not listed in the *Specifications*, populate the Non-Standard Control Section. If more than one Non-Standard Control is used, additional Non-Standard Control forms can be accessed on our webpage.

To fill out the Non-Standard Controls follow the directions below.

Type/Name of Control

Indicate the type and, if applicable, the name of the control. If the manufacturer uses a specific name for the item, include it here.

Detailed Description of Control

Identify what the control is and how it will be used. Be sure to include:

- 1) What the control looks like;
- 2) What the product is made of, including relevant Chemical Abstracts Service (CAS) numbers and toxicity testing; and
- 3) A description of how the product works.

C or P-Value

Indicate the C or P-value that represents the control or practice. To support this value, you will need to attach the manufacturer's testing information. This is particularly important when the C and P-values differ depending on spacing, thickness, size, etc.

Drawing When Used and Description Where Used

Like the information provided for standard specifications, provide details on Drawing When Used and Description Where Used.

Additional Information

This section of the application allows an opportunity to provide any relevant additional information that The City Environmental Compliance Specialist, Stormwater Pollution Prevention and/or staff on site need to be aware of.

Design Requirements

Design requirements outline what performance a control or practice is capable of and what requirements must be followed to operate as designed. For examples, refer to the Design Requirements sections of the *Specifications*.

Specification Detail Drawing

The specification detail drawing is the actual descriptive drawing that shows how the product should be installed. For examples, refer to the drawings provided in the *Specifications*. If the drawing does not fit in the specification box provided in the application, indicate that supplemental information is attached and provide the documentation.

Installation Method

In this section include details on exactly how the product will be installed. These details typically include timing, depths, sizes, application rates, site preparation and methods. When creating this section, write it as if you are giving instructions to someone who is not familiar with the product and who has only your instructions to follow.

Inspection Requirements

Outline what a person would look for when determining if the control or practice is functioning as it is designed to. Inspection requirements are very dependent on the type of control or practice used. Ask yourself the following three questions when determining what to include in this section for inspection requirements:

- 1) What are you looking for to determine if a control or practice is properly installed?
- 2) What are signs that the control or practice has been damaged, or is no longer functioning, and
- 3) How do you know when to clean or replace the control or practice?

Maintenance Requirements

Maintenance requirements outline what must be done to keep a control or practice functioning as proposed. While inspection requirements may identify when a control or practice needs service, it is the maintenance requirements that indicate *how* to service it. For example, an inspection requirement for a sediment trap determines if the trap is 1/3 full of sediment, and this triggers maintenance of the trap. The maintenance of the sediment trap would include the removal of sediment to regain capacity along with a description of what to do with the sediment from the cleanup.

Winter Operations

Indicate what must be done to prepare the control or practice for winter. Also provide information on what must be done if the product is installed during the winter.

Removal Requirements

Some controls and practices are intended to remain in place after completion of the project while others must be removed. For example, a mulch, seed and tackifier would remain in place while a silt fence would be removed. In this section of the form, identify if the control or practice is to be removed and if so, outline how it will be removed.

7.0 Stockpile Stabilization Requirements

Stockpile requirements are covered in Section 100.19 of the *Specifications*.

Stockpile types can be categorized into three types:

- 1) Trench backfill stockpiles,
- 2) Short-term stockpiles, and
- 3) Long-term stockpiles

Trench Backfill Stockpiles

It is assumed that all construction sites with an underground component will have trench backfill stockpiles present at different stages during construction. As open trenches pose little concern from an ESC perspective, details on how these will be managed for the short period they are present are not required. The main concern with underground installation is the presence of trench backfill stockpiles.

To manage trench backfill stockpiles, follow Section 100.9 Trench Excavations of the *Specifications*. To summarize, the stockpiles must be placed on the up-gradient side of trenches whenever possible, they may not be placed on paved surfaces without barrier protection and they should not be in place for more than a few days.

As the *Specifications* manage the risks associated with the placement of trench backfill stockpiles, this information automatically forms part of your ESC Plan.

Short-Term Stockpiles

Short-term stockpiles are those that are in place for a period of less than 30 days. Although under normal circumstances they do not require cover, they must have functional sediment control practices on the down-gradient side of the pile. Some examples of this could include silt fence, fibre rolls and compost socks.

Long-Term Stockpiles

Long-term stockpiles are those that are in place for 30 days or more. These stockpiles require functional sediment control practices on the down-gradient side as well as some form of cover such as mulch and tackifier, vegetation or other suitable erosion control measure.

8.0 Idle Site Management

As per Section 100.18 of the *Standard Specifications Erosion and Sediment Control* when all or part of the construction site is inactive for a period greater than 30 days, but less than 365 short-term inactivity may require additional controls. The requirement for these controls will be based upon the site size. If the overall site is 2ha or less, no short-term cover requirements are triggered. If a overall site is greater than 2 hectares either short-term cover or a water retention plan will be required. If a site is greater than 10ha, a limited exposure plan will also be required.

8.0 Idle Site Management Specification #100.18.1

Idle site management is required for any idle exposed areas in accordance with the requirements listed below. These requirements may apply to the entire site, if the entire site is idle, or parts of the site if only parts are the site are idle.

Overall Site Size in Ha	Short Term Inactive for 30-365 days	Long Term Cover – Install when exposed areas(s) will be inactive for 365+ days
Check relevant box Small Site (0-2ha) <input type="checkbox"/>	Mandatory Short-Term Cover not required	Product Details: Include relevant application rates, product type, seed type etc. If vegetation grown from seed is being used as the long-term cover, the vegetation must be established at 365 days, not installed at 365 days.
Medium Site (2+ - 10ha) <input type="checkbox"/>	1) Install Short Term Cover Type and Application Rate: <input type="text"/> or 2) Comply with the attached Water Retention Plan (ESC2 or ESC6)	
Large Sites (10+ha) <input type="checkbox"/>	1) Short Term Cover Type and Application Rate: <input type="text"/> or 2) Comply with the Water Retention Plan (ESC2 or ESC6) and the Limited Exposure Plan (ESC10)	

These cover requirements are for areas that are idle, and which do not have a cover already installed on them in the approved ESC Plan for the drawing being followed. Designers must populate both short-term and long-term cover in the table above. It is up to site staff to choose which option they will follow for short term inactive sites.

To populate this section of the application first add the site size in ha. Next, check the box that aligns with the site size (small sites, medium sites, large sites). For small sites, the short-term requirement is complete. For medium and large sites populate the short-term cover requirements section.

Site staff will have the option of following short-term cover **or** they can comply with the attached Water Retention Plan. If the site is larger than 10ha the site must also comply with a Limited

Exposure Plan (ESC10). For more information on Water Retention Plans refer to Section 11.0 (6)(e) Water Retention Plans of this document.

All construction sites, regardless of size, will require a long-term cover plan. Populate Section 8.0 with the long-term cover that would be used on the property if the site goes idle.

Be sure to include the short-term and long-term cover requirements in Section 6.0 of the ESC Plan Application. In the *Drawings When Used* column, simply write 'idle site management'.

9.0 Attachment/Supporting Documents

Mandatory Attachments

9.1 Photos

Provide photos of the site and a map that shows the location and direction that the photo was taken from. The photos provided should be recent and enough photos should be provided to show relevant areas of the site.

9.2 RUSLE Calculations

Provide Revised Universal Soil Loss Equation (RUSLE) Calculations for each of the ESC drawings (RUSLE is not required for ESC4, cut and fill, ESC9 Landscape Plan, and ESC10 Limited Exposure Plan). Use The City created RUSLE Calculator.

The City of Calgary uses the RUSLE to determine the effectiveness of controls and practices on construction sites to justify that proposed ESC Plans are adequate.

This threshold should not be interpreted to mean that The City is approving a sediment loss in tonnes/ha/yr, but rather acknowledgment that these controls and practices reduce sediment releases. The City deems any slope that is calculated to release 2 tonnes/ha/yr or more of sediment, a slope of concern. All slopes of concern must have either control, practices or a combination thereof installed to reduce estimated sediment losses to offsite to at or below 2 tonnes/ha/yr.

For drainage divides that will not discharge off site either at the construction site boundary or at access points to the stormwater system, The City will allow discharges at or below 4 tonnes/ha/yr.

If a slope exceeds these limits and you feel there is no risk of offsite releases, you are entitled to provide professional justification for review in the Supplemental Information section at the bottom of your RUSLE calculations.

The RUSLE calculations in the application serve two main purposes. First, they confirm that each slope meets The City thresholds of 2 tonnes/ha/yr or 4 tonnes/ha/yr and second, they provide Project Mass Estimates for the construction site during all stages. A Project Mass Estimate is the total predicted amount of soil loss that would occur over a one-year period 1) when controls and practices are present and 2) when controls and practices are not present.

Project Mass Estimates clearly show which projects are of higher risk based on size, soil type, slope length and steepness. They also demonstrate the positive impacts that your practices and controls can have on soil loss.

To fill out your RUSLE Calculation tables populated the Drawing Code to match the drawing the calculations represent.

Add New Sheet		RUSLE Calculations												
Drawing Code:														
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
													Site Erosion Potential	
Drainage Area Identifier	LS Identifier	LS Area Size (In Ha)	Slope (%)	Slope Length (m)	Description of Controls and Practices	R-Value	K-Value	LS-Value	C-Value(s)	P-Value(s)	Slope Alone With No Controls	A-Value Tonnes/ha*yr	Soil Loss With Controls and Practices Tonnes/yr	Soil Loss Without Controls and Practices Tonnes/yr
Area # 1	LS21	0.5	20	50	Sediment Pond - 0.5 ; Mulch, tackifier, seed -	320	0.048	5.20	0.01	0.1	79.825	0.080	0.040	39.9
Add Row														
Overall Site Size		0.00										Total Soil Loss Estimates	0.000	0.0
Supplemental Information and justification for any A-value in Column 13 that exceeds 2 tonnes/ha/yr														

Drainage Area and LS Information

All construction site drawings are broken up into drainage areas, shown by drainage divides (Section 11.0 Drawing Requirements). If rain were to fall on the construction site, the water in each drainage area would collect together and be separate from the water that had fallen in another drainage area.

The LS values take into account the topography of the site by accounting for the length and steepness of overland flow paths. For more information on how to calculate LS values refer to the RUSLE-FAC section of the Erosion and Sediment Control Guidelines.

When filling out your table, start by entering the lowest numbered Drainage Area Identifier in column 1. Next, enter all the LS Identifiers in column 2 and the respective LS Area Size in column 3. Once you have completely populated the table, the LS Area Sizes should add up to the Overall Site Size.

Next include the Slope % and Slope Length in column 4 and 5 for each of the LS Identifiers.

Description of Controls and Practices

Populate the Description of Controls and Practices column 6. Only controls that hold sediment in place along the LS line area or practices that impact the sediment after it becomes displaced along the LS line area should be included in the table. For example, if there is silt fence

upstream of the LS line area, it would not be included as a control since water would not flow in that direction during a storm event.

Controls are objects that cover the soil and prevent erosion. They are represented in RUSLE by a C-value. Examples of controls include blankets, mulch, and vegetation. Practices, on the other hand, are methods that collect/contain sediment or filter sediment laden water. They are represented in RUSLE by a P-value. Examples of practices include silt fence, wattles, and vegetative buffers.

Some P-values and C-values for standard controls are located in the *Specifications*, but often these values are product specific and must be obtained from the supplier. When you populate the Description of Controls and Practices also populate the C-value, column 10 and P-value column 11.

If multiple controls and practices are used, in brackets, behind each control or practices provide the C or P values.

R-Value

The R-value in column 7 represents the erosivity index as it relates to precipitation. Presently, The City of Calgary accepts an R-value of 320.

K-Value

The K-value represents how susceptible soil is to erosion. Populate the K-value(s) in column 8 that have been supported with information submitted under 10.6 Geotechnical Information (borehole locations in relation to construction boundaries, sieve data, structure, and permeability information and Nomographs). If the K-value for the construction site is not known, you may use 0.079 (a conservative value for Calgary).

LS-Value

The LS value in column 9 will auto populate by means of a behind the scenes calculation using the data entered column 4 (slope %) and column 5 (slope length).

Soil Losses

The A-value represents the annual soil loss due to erosion in tonnes/ha/yr. The table will auto populate columns 12, 13, 14, and 15.

Column 12 represents the Slope Alone With No Controls in place in tonnes/yr. This number is important because it reflects the slope risk prior to installation of controls and practices.

Column 13 represents A-Value Tonnes/ha/yr, this column should show soil losses at 2 tonnes/ha/yr or lower. If the background of the cell goes red, the soil loss exceeds 2 tonnes/ha/yr so in the supplemental information section, at the bottom of the RUSLE table, you will need to provide professional justification on why this number is acceptable. For example, if run-off from the slope is 100% contained inside the drainage divide.

Site Erosion Potential

The Site Erosion Potential is represented by two different numbers. The first number, column 14, shows the erosion potential of the site when controls and practices are installed, while column 15 demonstrates the soil loss from the site when no controls or practices are in place. These two columns consider the drainage divide area and represents tonnes/yr.

The total potential soil loss of a site when no controls or practices are installed is a good indicator of the level of risk a site represents. For example, a site that has a soil loss of 4 tonnes/yr poses a significantly lower environmental and infrastructure risk than a site that is estimated to lose 500 tonnes/yr. Drainage areas with high erosion potential should be priority locations for the rapid installation of controls and practices.

9.3 Inspection Sheet

Populate a copy of the inspection sheet and add it to the ESC Application here. The Inspection Sheet is available on The City website.

Populate Section A. of the inspection sheet with company information.

Populate Section B. add the project name, municipal site address, Urban File # (AD, DP, DL, AD, or CD), owner name, ESC consultant name, and ESC Inspector name.

Populate Section E. by adding all controls and practices and identifying the location of each.

The other sections of the Inspection Sheet will be populated on site during inspections at future dates.

Site Specific Attachments

9.4 Sediment Containment System Information

Sediment containment systems are a popular method for sediment control as they are easy to install with equipment already present on the construction site and they can be used to break up slope lengths. These practices are efficiency rated for the Calgary area based on historical local rainfall data.

When filling out the Sediment Containment System Data, column A allows you to indicate what Drawing the practice is located on. Next, provide a Location reference in column B. An easy way to do this is to label the drainage divides and then reference the drainage divide identifier. Since a single drainage divide may have multiple sediment containment systems, each system should also have a unique Sediment Containment Systems Identifier that can be noted in column C.

Next, identify the Volume in Cubic Metres of the containment system in column D. On the drawings, be sure to show the length, width, and depth of the sediment containment systems so it is easier for staff on site to ensure they are properly installed.

Supply the Area Served in Hectares in column E. The more water a sediment containment system can accommodate per hectare, the lower the P-value associated with it.

Lastly, in column F, indicate if the pond is a simple sediment containment system (SCS) or a designed SCS which is a sediment containment system that had a forebay and designed length and width ratios.

Sediment Containment Systems							
A	B	C	D	E	F	G	H
Drawing	Location (referenced on Drawing)	Sediment Containment System Identifier	Volume in Cubic Metres	Area Served in Hectares	Sediment Containment System (SCS) Type	Design Volume	P-value
ESC5	Drainage Area #4	Sediment Pond B	980	5.0	Simple SCS	196	0.6
ESC5	Drainage Area #5	Sediment Pond A	1000	2.0	Designed SCS	500.0	0.1

Both column G and H will auto populate for you. Column G calculates the Design Volume, which is the volume of the sediment containment system divided by the number of hectares that it serves. Column H calculates the P-value that is associated with the sediment containment system. This value can be copied into the relevant location of your RUSLE Calculations.

9.5 Manufacturers Information

When a C or P value is not provided in the *Specifications*, provide the manufacturer's specification sheets that support the C or P-value used in the Revised Universal Soil Loss Equation calculations. Include any details, not already present in the *Specifications*, to ensure the product is properly installed. Examples typically include product size, spacing, application rates and staple patterns.

9.6 Geotechnical Data

Provide data on soil structure and texture for the soils that will be disturbed during construction, including existing soils on site and those that are being imported as fill.

Submit the most recent site geotechnical report and any soil survey information available at the time of the report development, including representative soil texture data (sieve and hydrometer analysis), bore holes locations in relation to the construction site boundary, and nomographs. If organic matter information is not available, 0% should be used when determining the K-value. For more information on determining your site K-value refer to the Erosion and Sediment Control Guidelines.

If there is no soil data for the construction site a default K-value of 0.079, the highest known value for Calgary, will be accepted. If you are going to use this value, identify this decision in the in Section 9.6 by checking the box that indicates you are defaulting to this value.

9.7 Permission Letters Relevant to ESC

Attach any permissions and approval letters, that are relevant to erosion and sediment control, for work that is being conducted on land outside of the construction boundary. This could

include adjacent properties, water bodies such as wetlands, transportation utility corridors or public property such as a park.

When water exits a construction site and it does not go to the stormwater system, including surface drainage facilities, or a public street the owner of the property where the water will enter must provide a permission letter that acknowledges the acceptance of this water during the construction stage of the project.

9.8 Large Site Safety Plan

A large site safety plan is required when the ESC Plan covers a site that is greater than 65ha. The intent of the plan is to recognise risk that are present due to the size of the site and identify responses that are taken to reduce these risks.

A large site safety plan must include, at minimum, the following information:

- 1) Total site size;
- 2) The name(s), phone number(s) of the individual(s) responsible for ensuring the large site safety plan gets implement on sites;
- 3) A list of activities that have the potential of generating dust (e.g. haul routes, work related to stockpiles);
- 4) A list of all parties that may be impacted (e.g. hospital, commuters, airport, assisted living facilities, nurseries, farmers - crops);
- 5) A plan that identifies what dust mitigation actions will be taken for each activity type and clear direction on when the dust mitigation action is triggered;
- 6) A communication plan that explains:
 - a. how the plan is successfully implemented when needed;
 - b. outlines how staff working on site will be educated about the large site safety plan;
 - c. identifies how complaints will be addressed; and
 - d. outlines when, how, and where release will be reported to.

Supplemental Information

Indicate any other attachments or supporting documents that have been supplied as part of the application. For example, if terracing is being used on the construction project, a letter from a qualified geotechnical engineer should be attached to the ESC Plan application.

10.0 Research for Drawing Development

10.1 Project Description

Provide a brief description of the nature and extent of the construction project. This information will clarify what will be present on the site after the construction project is complete. For example, if a multi-family project is being installed, this section would outline how many buildings are being constructed, if they are apartment style or townhomes, and if there is above ground or underground parking present.

10.2 Site Visit

10.2.1 *Site Visit Date*

This is the date the site was visited to obtain information to support the ESC Plan application. The date of the site visit should be as close as possible to the development of the ESC Plan. If there has been a delay between when the site was visited and when the application was submitted or if The City Environmental Compliance Specialist, Stormwater Pollution Prevention has reason to believe that the present conditions drawing no longer matches the site, updated site photos may be requested as part of a FIR letter.

10.2.2 *Visit Limitations*

State any limitations of the field investigation such as snow cover, restricted access, on-going construction and/or safety concerns.

10.2.3 *Present Cover and Practices*

Provide a description of the cover and practices that are present on the site during the site visit.

In this section, indicate the areas that are vegetated and the areas that are stripped. If applicable, provide information on the type(s) and density of the vegetation present. Include any information on existing stockpiles, berms, and existing ESC practices.

10.3 Protected Areas

10.3.1 *Adjacent Properties*

List all the adjacent properties that the construction site borders. This would include if the adjacent property is existing or under construction. (e.g. existing homes, subdivision name and phase X under construction, existing commercial, Environmental Reserves, storm pond).

10.3.2 *Critical Areas*

Discuss any critical areas located within or adjacent to the proposed development site that could be adversely impacted by erosion, sediment-laden run-off, or sedimentation. Examples of critical areas include steep slopes, highly erodible soils, water bodies, contamination and hard to rehabilitate areas like golf course, parks, and environmental reserves.

10.3.3 *Low Impact Developments*

Low Impact Developments are on site stormwater management systems that are easily impacted by sediment. Some examples include bioswales, infiltration galleries and rain gardens. Due to their sensitive nature, the preference for installation of LIDs, in order, is as follows:

- 1) Install LIDs last after all other construction is complete
- 2) Protect LIDs using sacrificial measures
- 3) Ensure 100% isolation from construction area

In this section provide details on what low impact developments are to be installed on or near the site and explain, in detail, how they will be protected during the construction period.

10.4 Referenced Documents

List any other documents that were referenced for the development of the ESC Plan (e.g. environmental site assessment, research paper).

10.5 Project Specific Information

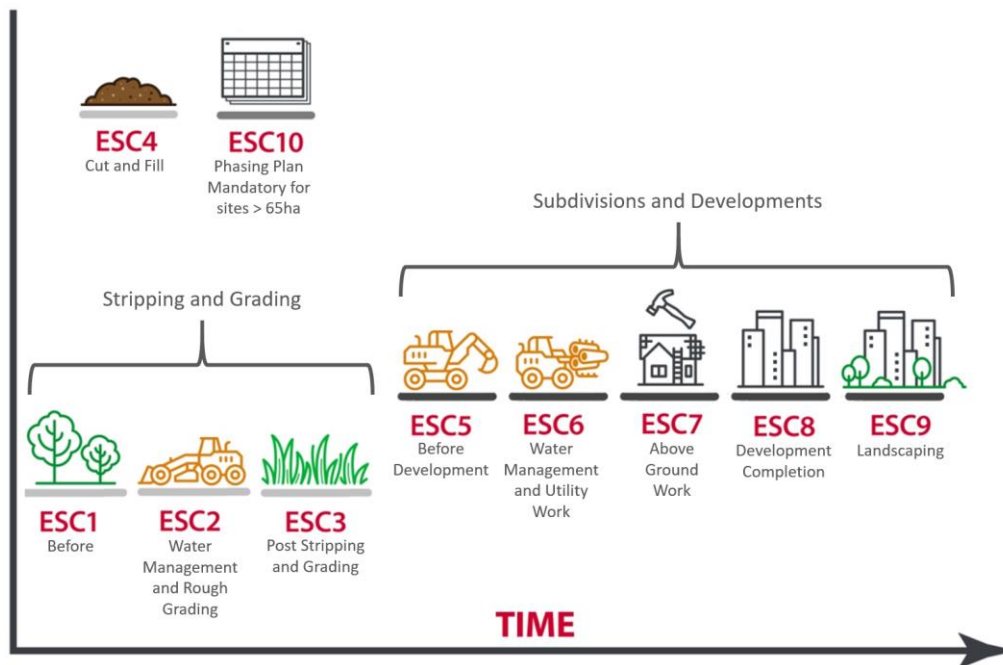
This section is provided so that you may include any project specific information related to erosion and sediment control that not fit into the previous sections but that you feel is relevant to this application.

11.0 Drawing Requirements

When creating the ESC drawings, confirm they comply with the requirements outlined below. These requirements serve the following purposes:

- 1) Ensure that all information is present;
- 2) Walk a designer through the drawing planning process;
- 3) Create consistency between applications; and
- 4) Decrease review time required thanks to consistent format.

Drawings represent plateaus of stabilization and show the site, or portions of the site, at a factual period. Each drawing should include details of what is present at that stage, no more, no less. For example, do not show onsite undergrounds storm infrastructure to be installed on ESC5 – Before Development, because these would not be present at this phase in time.



Keep in mind that a construction site may match more than one drawing. For example, part of the site may match ESC5, Before Development, because no work has started here, while another part of the site may be following ESC6, Utilities, while the show home being built on another part of the property is following ESC7, Above Ground work. The key to using more than one drawing on a site is to ensure the controls and practices for each drainage divide are present and to split between drawings at drainage divide locations.

Below is an explanation of what each drawing number should represent:

- ESC1 Before Stripping and Grading: This part of the plan would describe how the site looked prior to development.
- ESC2 Water Management and/or Rough Grading: This is the part of the plan that explains how water will be managed on the site during active rough grading when cover types are easily destroyed. During this stage of construction, designers need to focus on managing slope lengths while incorporating storage.
- ESC3 Post Stripping and Grading: This drawing would show how the site would be protected post-stripping and grading. It must consider idle site management requirements. If the site is to be idle less than a year, this could be either short-term cover or alternate plans (water management and limited exposure plans). If all or part of the site is idle for over a year, long-term cover is required and should be shown on the drawing.
- ESC4 Cut Fill: A separate cut and fill plan is required for sites with cut and/or fill depths that are greater than 2 m.
- ESC5 Before Development Commences: Describes how the site is protected prior to starting construction of below and above ground infrastructure. In some cases, for example when the site is the same size and the construction boundaries are the same, this drawing could be the same as ESC3.
- ESC6 Water Management Plan and/or Underground Work: This drawing describes how the site is protected prior to the start of construction of above ground infrastructure and during the installation of deep and shallow utilities. Prior to this, many sites will have limited or no internal stormwater system while construction of on-site storm infrastructure will increase the number of points where sediment laden water can discharge from the site. Designers should focus on managing slope lengths while incorporating storage and identifying any areas that could benefit from permanent stabilization.
- ESC7 Above Ground Work: This drawing provides details on the continued need for ESC while new homes and other developments are being erected. Designers should acknowledge an increase in vehicle and equipment movement during the above ground stage. Some controls and practices do not lend themselves well to vehicular traffic.
- ESC8 Development Completion: This drawing shows how the site would be stabilized at completion of the development. Temporary controls should be removed and controls such as seed will have grown into a grass cover.

- **ESC9 Landscaping:** This drawing also details the final stabilization for the site and provides information on cover and plant types. While ESC8 will be done by the ESC designer, the landscaping plan is often created by others.
- **ESC10 Phasing:** This drawing describes in detail in which order the site will be constructed. Approximate durations for each stage are required on this drawing as well. When sites are greater than 65ha a phasing plan is mandatory. If a site is greater than 10ha a phasing plan is likely required to show how the site will be managed in the event that short term cover is not installed.

Information on The City's CAD Standards is available on The City web page. A sample ESC Drawing and an Annotated ESC Drawing may also be found on this web site.

Below are the requirements that must be included for each ESC drawing:

1) Project Information:

Project identifiers

- Project Name
- Owner
- City Project Number (e.g. DA, DP, CD, DL)

2) General Format Requirements:

Standard requirements for all drawings to support reviews

- Location Key Plan:** That shows the location of the project in relation to The City of Calgary boundaries
- Drawing Title:** (e.g. before stripping and grading)
- Scale:** Include a scale bar. Drawings must be scaled for readability (generally, a scale of greater than 1:1000 may be rejected) and font size must be legible
- Date:** All the dates in the Project Information section must match (except for the cut and fill and landscape drawings)
- Professional Stamp:** Permit – Seal (CPESC, Alberta P.Eng., Alberta P.L.Eng or Alberta P.Ag)
- Office Use Space:** Designated and labelled City of Calgary Office Use (approximately 8 cm in length and 5 cm in height when drawings are printed on A1 paper)
- Drawing Code:** The drawing code is labeled to match Section 12.0 ESC Drawing Code's identified in the Construction Drawings section of the Erosion and Sediment Control Plan Application
- Revision Table:** All drawings include a properly populated revisions table
- North Arrow**
- Match Line:** Where more than one drawing is required to show a single stage in time, match lines must be shown on the drawings
- Legend Items:** Include a legend on the right side of the page for all ESC1, ESC2, ESC3 and ESC5, ESC6, ESC7 and ESC8 drawings

Legend Item:	Examples:
Storm Infrastructure	catch basins, grated top manholes, storm pipes, low impact developments, concrete drainage swales, ditches, culverts, storm ponds, outfalls
Erosion Controls	blankets, mulch and tackifier, aggregate cover
Sediment Controls	silt fence with J-hook locations, sediment ponds, wattles, sediment ditches with cross check structure location
Cover Types	asphalt, exposed soil, gravel, grass
Drainage Patterns	drainage divides, flow direction arrows, run-on and run-off locations, emergency overland flow route arrows
Stockpiles	topsoil, common stockpiles

3) Structures:

These are items that while flat on the drawing will form a three-dimensional structure during their presence on the site.

- a. **Buildings:** Show the location of the footprint where the construction project is being built. Only show this if the building is occurring at the time that the drawing represents (e.g. building footprints would not show up on stripping and grading drawings). Examples of footprints include building footprints, overpasses, and storm mains. Ensure footprints reflect the actual size of the structure
- b. **Stockpiles:** Provide the locations of stockpile staging area, both on and off site. Indicate what type of stockpile is in place and the estimated volume of the pile
- c. **Retaining Walls:** Show the height and location of retaining walls
- d. **ESC 6 Utility Key Plan:** On the ESC6 drawing, provide a key plan that specifically shows the location of the deep and shallow underground utilities that are being installed *Specifications 100.9.1*

4) Boundaries

- a. **Construction Boundary:** The construction boundary is delineated (must match the land use application)
- b. **Lot Boundaries:** There may be additional boundaries inside the construction boundary such as single-family lots, municipal reserves, and future condo sites. Show these as they become relevant (e.g. you wouldn't show lot boundaries for a subdivision on ESC5, but they may come into play on ESC6)

5) Protected Areas:

These are the areas that the ESC Plan is going to protect from the impacts of erosion and sedimentation. By keeping these in mind while developing the ESC Plan a designer is ensuring a more accurate final product.

- a. **Adjacent Properties:** Show, and label, the adjacent properties (e.g. rivers, residential, commercial area, environmental/municipal reserves, and roadways).
- b. **Critical Areas:** Identify the location of critical areas within or near the development. Critical areas may include, but are not limited to, areas that are environmentally sensitive such as environmental reserves, water bodies, hard to rehabilitate lands (golf course) and natural areas

- c. **Low Impact Developments:** These are LID's to be developed on the site as well as those nearby. Ensure LID installation and protection complies with the *Specification* Section 100.15
- d. **Storm Infrastructure:** Include the location of existing and proposed permanent storm drain inlets, pipes, outlets, drainage swales, and other permanent facilities onsite and for the surrounding area that are present at the stage of time the drawing represents

6) Water Movement:

The following information is provided to identify where water will move on site. You know what areas need protecting, now you need to figure out water movement may impact those areas.

- a. **Contours:** Include contours at 0.5m
- b. **LS Values:** Using an arrows, indicate the slopes, show length and direction with all slope lengths and LS values marked (25m@6% = LS 0.72); attach a unique LS identifier to each LS value (e.g. LS21) that will align with the RUSLE calculations. Ensure enough LS values are present within each drainage divide to prove each divide has been adequately assessed. These LS values are used to confirm the number used in the RUSLE calculations represents the worst-case slope within each drainage divide. Additionally, each unique control/practice present within the drainage divides must have an associated LS value to ensure suitable protection of the slope.
- c. **Drainage Patterns:** Indicate the patterns of overland drainage including:
 - i. **run-on** – where water enters the site during a rain or melt event. Identify critical run-on pathways (e.g. bridge abutment slopes) where water will enter your construction site either by sheet flow or concentrated flow. Additional practices and controls may be required to manage run-on
 - ii. **run-off** – where water leaves the site during a rain or melt event. Identify critical run-off pathways, which are the low areas on your site where water will leave the property during a rain event. Sediment discharges can result in adverse effects to the environment, infrastructure, and property. By identifying your critical run-off locations, you can propose and install controls and practices that prevent or mitigate these adverse effects.
 - iii. **emergency overland flow routes** – where concentrated water leaves the site during a significant rain or melt event. Identify emergency overland flow locations. This is where water will travel during high flow events. The emergency overland flow location may form part of the final stormwater management design or, it may be a temporary structure to only be used during construction (e.g. where water will overflow from a sediment containment system); and
 - iv. **approving neighbors** – neighbors who have given permission to accept sediment laden water during construction (this permission doesn't absolve the requirement to meet the 2 tonnes/ha/yr limit)

When water exits a construction site and it does not go to the stormwater system, including surface drainage facilities, or a public street the owner of the property where the land enters must provide approval under Section 9.7 of the ESC Application in the form of a Permission Letter.

- d. **Drainage Divides:** Show the drainage divides to define drainage areas and indicate the drainage area sizes in ha. Provide each drainage area a unique drainage area identifier (e.g. Area #1)
- e. **Water Retention Plans (ESC2 or ESC6 for sites greater than 2ha):** A Water Retention Plan is required for all **sites greater than 2 hectares**. While sites 2ha or less can have a Water Retention Plan it is not a requirement.

A Water Retention Plan will be shown on ESC2 for stripping and grading sites and ESC6 for other projects. If the project requires, additional drawings that include Water Retention Plans may be provided as part of the drawing set.

Water Retention Plans allow a construction site to deviate from short-term cover requirements when all or part of the site is inactive for a period greater than 30 days but less than 365 days. As sediment containment systems (ditches and ponds) can be built almost year-round, they are a more resilient option during winter months when many cover practices simply can't be installed.

The water retention plan will show how the construction site is able to retain a minimum of 250 cubic meters of water per hectare using sediment containment systems. These containment systems may consist of storage ditches or ponds with properly stabilized overflows. These overflow locations must be identified on the drawings. Roadways are exempt from requiring 250 cubic meters storage if the road has catch basins installed that will take the water.

7) Cover, Controls, and Practices:

How erosion and sediment transport offsite will be prevented or reduced.

- a. **Cover:** Indicate what cover is present on each of the drawings (e.g. asphalt, mulch/tackifier, gravel, grass)
- b. **Vegetated Areas:** Delineate all vegetated areas. For those that are to be protected/retained, clearly indicate what barriers, controls and practices are being installed to ensure this
- c. **Perimeter Controls:** Indicate what perimeter controls will be installed to project offsite property and infrastructure as well as manage run-on and run-off [requirement 6(c)(i) and 6(c)(ii)].
- d. **Infrastructure Controls:** Indicate what infrastructure controls will be installed to protect the stormwater system. These could include but are not limited to inlet controls, and stabilized access points.
- e. **Erosion and Sediment Controls:** Show the locations, types, dimensions and details for all erosion and sediment controls present at the stage of construction

the drawing represents (e.g. for sediment containment systems include the length, width and depth, and stabilized overflow location; for storage ditches show the locations of cross check structures; for silt fence show the locations where J-hooks will be installed)

8) Additional Plans:

Other plans that provide information on the project.

- a. **Cut and Fill:** Provide a separate cut and fill plan. No cut and fill plan is required if no cuts or fills on the site exceed 2m. If your site does not have cut and fills over 2m, check the box next to Cut and Fill Doesn't Exceed 2 Meters in Section 12.0 of the application
- b. **Water Management Plans:** While ESC2 and ESC6 are water management plans that show the stage of construction when water will be maintained on site, a designer may create an additional water management plan for any stage of construction where such an approach is feasible
- c. **Landscaping Plan:** Provide a separate landscaping plan that includes details on seed, sod, plants, and garden areas. Landscaping plans are not required for stripping and grading applications. As many landscape drawings are created by others, they are exempt from having a permit –seal
- d. **Phasing:** Provide a copy of the phasing plan if the area is to be constructed in phases. Phases represent how different areas on the construction project will be worked on at different phases in time (e.g. Phase 1 will be constructed in 2024 Phase 2 in 2026 and Phase 3 in 2027)

12.0 Construction Drawing Requirements

Below is a table that outlines the drawings that are typically required by project type. Find your project type and ensure that you are submitting the drawings that are always part of your application, and if relevant, drawings that may be part of your application.

Project Type	Mandatory Part of Application	May Be Part of Application
Stripping and Grading	ESC1-ESC3	ESC4, ESC10
Subdivision Development	ESC5-ESC7	ESC4, ESC8, ESC9, ESC10
Storm Ponds	ESC5-ESC9	ESC4, ESC10
Multi-family, Industrial, Commercial, Institutional, Bareland Condo, Park	ESC5-ESC9	ESC1-ESC4, ESC10
Linear Projects (e.g. mains, roads)	ESC5-ESC9	ESC1-ESC4, ESC10

In the application, check the drawings that have been supplied as part of the application. If a drawing is mandatory in the table above, but it was not included in the application, supply details as to why this occurred in the text box below the table. In this text section, you can also supply information on why additional drawings were supplied.

13.0 ESC Authentication

Provide confirmation that the application complies with the *Specifications* and that it was created by a Qualified Individual (CPESC, APEGA Certified P.Eng., APEGA Certified P.L.Eng. or P.A.g. certified by the Alberta Institute of Agrologists).

Include the Permit to Practice Stamp or Number and Professional Stamp.

When your ESC Plan is approved, The City Environmental Compliance Specialist, Stormwater Pollution Prevention will validate the ESC Application and all the associated drawings.