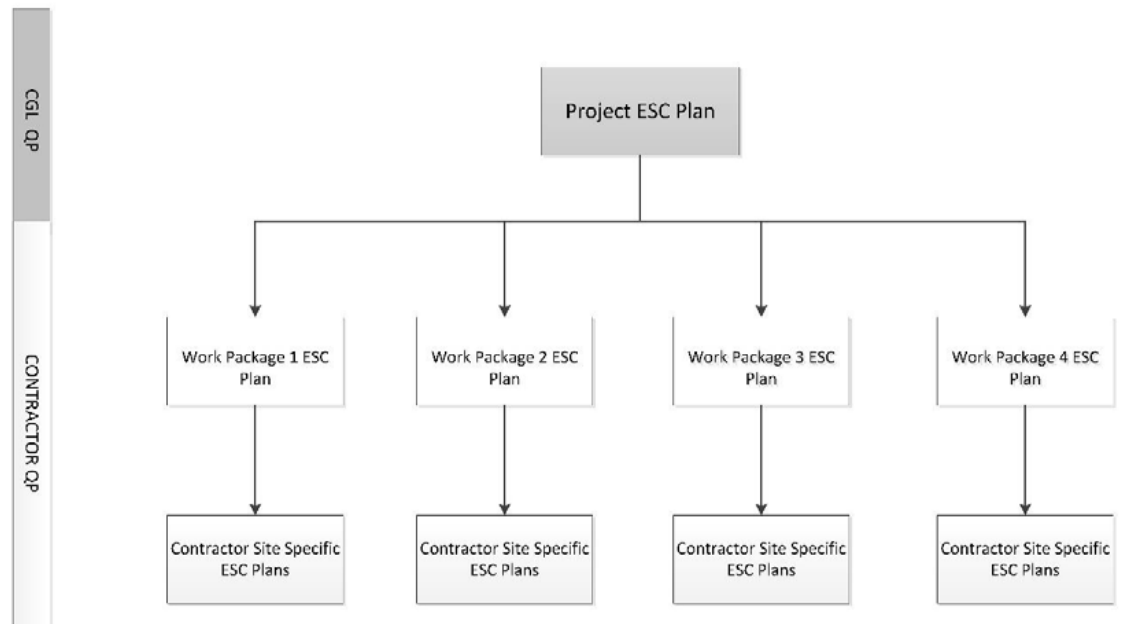


Project Name	Coastal GasLink Pipeline Project	Inspection Status	Final
EA Certificate #	#E14-03	Inspection No.	IR2020-055
Project Status	Certified	Inspection Start	2020-10-19
Sector	Energy	UTM	10U 533697 E 6071620 N
Trigger	Planned Inspection	Inspection Type	Field
Project Description	The Coastal GasLink Pipeline Project (Project) is an approximately 650 kilometer (km) long natural gas pipeline connecting facilities in northeast British Columbia (BC) to the LNG Canada facility near Kitimat.		
Location Description	The Project is near Groundbirch (40 km west of Dawson Creek) in northeast BC to the LNG Canada facility near Kitimat. This inspection focused on work being carried out in Sections 1 through 5 of the Project.		
Inspection Summary	<p>From October 19 to 23, 2020 Environmental Assessment Office (EAO) Director of Compliance and Enforcement Chris Parks and Compliance and Enforcement Officer Clayton Smith (collectively EAO C&E) inspected the Coastal GasLink Pipeline Project (Project) against requirements of the Environmental Assessment Certificate (EAC) #E14-03 (Appendix 1). On November 2, 2020 EAO C&E conducted a follow up inspection in Section 4 of the Project near KP 244, north of Prince George, B.C.</p> <p>The Project was in Construction at the time of inspection. The focus of the inspection was erosion and sediment control in Sections 1, 2, 3, 4 and 5, covering various locations from Groundbirch B.C. to Endako B.C.</p> <p>This inspection included a virtual debrief of observations with Project staff at approximately 13:00 hours on October 28, 2020. A second virtual debrief, which included the findings from the follow-up inspection conducted on November 2, was held on November 4, 2020 at approximately 11:00 hours.</p> <p>Condition 26 of the Environmental Assessment Certificate (#E14-03) for the Coastal GasLink Pipeline Project, Schedule B Table of Conditions (Appendix 3) requires the Holder to develop and implement an Environmental Management Plan (EMP) (Appendix 4) per Appendix A of the EAC. Appendix A of the EAC includes a Soil Erosion Contingency Plan. The Project has developed an Erosion and Sediment Control Plan (Appendix 6) as a component of the EMP required by Condition 26 which is intended as a high-level planning document to outline the general approach and expectations for erosions and sediment control (ESC) across the entire Project consistent with regulatory requirements. As described in the Project Erosion and Sediment Control Plan, this Plan has been prepared following the Project's Environmental Management Plan commitments and Environmental Assessment Certificate conditions, permit conditions, other regulatory requirements, best management practices (BMPs), and the Plan authors' ESC experience. The intent of the Plan is to minimize uncontrolled surface water runoff and sediment transport on the Project.</p> <p>Within the Project's Erosion and Sediment Control Plan, Section 2.1 Erosion and Sediment Control Context it states in part:</p>		

The overall strategy for ESC planning relies on Qualified Professionals (QPs) planning, designing, and overseeing ESC mitigation in a three-fold approach (Figure 1): Coastal GasLink’s overall plan across the entire Project; Contractor-specific plans; and, site-specific plans (as determined by the Contractors’ QP).

Figure 1. Three-Fold Approach to ESC Planning (from CGL Project ESC Plan)



A portion of the findings in this Inspection Record are connected to Condition 26, the Project ESC Plan, Contractor-specific ESC plans, or site-specific ESC plans.

After review of observations and information obtained during the inspection, the following compliance determinations have been made:

1. NOT DETERMINED with Condition 26 of Schedule B regarding timing and work scheduling in ESC planning and implementation.
2. NOT COMPLIANT with Condition 26 of Schedule B regarding the lack of approved Contractor specific and site-specific Erosions and Sediment Control Plans for Section 5 of the Project.
3. NOT COMPLIANT with Condition 26 of Schedule B regarding adherence to site-specific ESC plans in work packages 1 and 2 of the Project.
4. NOT COMPLIANT with Condition 26 of Schedule B regarding the installation of sediment fencing following the Best Management Practices in work package 1 of the Project.
5. NOT COMPLIANT with Condition 26 of Schedule B regarding the installation of sediment fencing following the Best Management Practices in work package 2 of the Project.
6. NOT COMPLIANT with Condition 26 of Schedule B regarding effective installation of sediment fence in work package 3 of the Project.

	<ol style="list-style-type: none"> 7. NOT COMPLIANT with Condition 26 of Schedule B regarding stabilizing exposed surface material and installing ESC on approach slopes to all watercourses. 8. NOT COMPLIANT with Condition 26 of Schedule B regarding installation of ESC measures as per Appendix B of the EMP. 9. NOT COMPLIANT with Condition 26 of Schedule B regarding geotextile fabric from bridges reaching the channel below and causing sediment inputs into watercourses. 10. NOT COMPLIANT with Condition 26 of Schedule B regarding the installation of ESC measures at watercourse crossing #WC272. 11. NOT COMPLIANT with Condition 26 of Schedule B regarding stabilizing exposed surface material near KP244+540. 12. NOT COMPLIANT with Condition 26 of Schedule B regarding installing and inspecting ESC structures on slopes in the KP244 area of Section 4. 13. NOT COMPLIANT with Condition 26 of Schedule B regarding not making all necessary Contractor equipment and personnel available as water erosion was evident. 14. NOT COMPLIANT with Condition 26 of Schedule B regarding not implementing the Water Quality Monitoring Plan when planning to undertake instream work. 15. NOT COMPLIANT with EN2019-003 and Condition 26 of Schedule B regarding storing waste and debris in animal proof containers. 16. NOT COMPLIANT with Condition 26 of Schedule B regarding reducing idling of equipment. 17. NOT COMPLIANT with Condition 26 of Schedule B regarding posting signage at watercourses following clearing in Section 5 of the Project. <p>Additional detail regarding these findings may be found in the sections below.</p> <p>The compliance determinations in this report reflect the findings from the inspection dates noted above. These determinations can change at any time upon information gathered through future inspections or if new information is obtained by EAO C&E.</p>
In Attendance	<p>Lead Environmental Inspectors, Coastal GasLink Environmental Construction Coordinator, Coastal GasLink General Inspector, Coastal GasLink</p>
Certificate Holder	<p>Coastal GasLink Pipeline Ltd.</p>
Mailing Address	<p>450 1st Street S.W. Calgary, AB T2P 5H1</p>
Contact	<p>Dan WYMAN, Regulatory Team Lead, Coastal GasLink, TransCanada</p>
Phone No.	<p>403 920-6296</p>
Email	<p>dan_wyman@tcenergy.com</p>

INSPECTION DETAILS

Requirement 1: Condition 26

The Holder must develop and implement an Environmental Management Plan (EMP) in accordance with Section 25 and Appendix 2A of the Application. *See Appendix 3 for full Condition wording.*

Coastal GasLink Pipeline Project, Erosion and Sediment Control Plan, April 13, 2020 (Appendix 6)

Section 6.4 Timing and Work Scheduling

Timing and work scheduling are preferred mitigation approaches that shall be considered in ESC planning and implementation. For example, clearing tall vegetation in advance of grading is standard practice, but avoiding grubbing until grading is imminent is a best practice. Another example is thoughtful winterization; minimizing exposed soils that will be subject to spring melt and installing ESC measures such as surface water drainage proactively before freeze-up (emphasis added by EAO C&E).

Findings:

Over the course of the inspection, which covered work packages 1, 2 & 3 (Sections 1 through 5) of the Project, EAO C&E frequently observed locations on the right of way where stripping and grading works had progressed well ahead of the next phases of construction. Each work package inspected had examples of earthworks on the right of way resulting in an abundance of exposed soil material. When discussing the Project schedule EAO C&E learned that each work package also had locations where the next stages of construction were not planned to take place in the near term and stripping and grading had progressed to a point well ahead of further construction. In some locations, EAO C&E was informed that the next phase of work was not scheduled to take place until the Spring of 2021. In the meantime, the surface materials on the right of way would be left exposed and at risk of erosion and sediment transport.

The “preferred mitigation approaches” in the Project’s ESC plan surrounding timing and work scheduling are not being implemented. Thoughtful winterization, minimizing exposed soils that will be subject to spring melt and installing ESC measures proactively before freezing did not take place in the inspected work packages.

On November 27, 2020 during the Opportunity to Respond to this Inspection Record, the Certificate Holder provided the following response (Appendix 10):

Coastal GasLink notes that in addition to the text cited in the Draft Inspection Record, Section 6.0 of the Coastal GasLink ESC Plan outlines that “Except as otherwise noted, the following sections and best practices are not prescriptions; rather, they are general information and recommendations for consideration in ESC planning and implementation.” As such, Coastal GasLink notes that the entirety of Section 6.0, including Section 6.4, is written to outline the best practices rather than requirements. While Coastal GasLink agrees that those practices may not yet have been properly implemented to their entirety at the time of the inspection, it still expects that those practices will be considered by its Prime Contractors and their Qualified Professionals; and will be implemented where required as part of their Contractor-specific ESC plans.

The contemplation and implementation of these best management practices should be carried out through the appropriate stages of construction and on an on-going basis. Although the Certificate Holder states that these practices “will be implemented where required as part of their Contractor-specific ESC plans”, this does not appear

to be taking place at this time. Best management practices noted in Project Plans should be adhered to in order to avoid or minimize environmental impacts from the Project.



Photo 1: Example of stripped right of way near KP79. EAO C&E understands that this area of the Project will not have subsequent phases of construction until Spring 2021.



Photo 2: Exposed right of way near KP244. Lack of winterization following stripping has caused erosion on the right of way leading to impacts to a fish-bearing stream.



Photo 3: Exposed right of way near KP402. Lack of winterization on right of way through this portion of the Project.

Compliance Determination: Not Determined

Requirement 2: Condition 26

The Holder must develop and implement an Environmental Management Plan (EMP) in accordance with Section 25 and Appendix 2A of the Application. *See Appendix 3 for full Condition wording.*

Appendix C.7 of the EMP [Appendix 2-A of Application] - Soil Erosion Contingency Plan -

Coastal GasLink Pipeline Project, Erosion and Sediment Control Plan, April 13, 2020 (Appendix 6)

Section 1.0 Foreword

The intent of this high-level planning document is to outline in one document the general approach and expectations for erosion and sediment control across the entire Project consistent with regulatory requirements. This plan has been prepared following the Projects Environmental Management Plan (EMP) commitments and Environmental Assessment Certificate (EAC) conditions, permit conditions, other regulatory requirements, best management practices (BMPs), and the authors ESC experience.

Section 2.3 Contractor Specific Plans

Contractors are required to develop comprehensive, construction-ready ESC plans specific to their work package.

In addition to work-package ESC plans, Contractors shall be required to develop site-specific plans to address high risk sites and activities. Site-specific plans shall:

- Identify specific mitigation approaches, including construction timing, mitigation measures and devices, site plan drawings, standards for design, materials specifications and installation directions, monitoring and maintenance schedules, etc.

*Bulleted lists have been shortened from the original version.

Findings:

During inspection in Section 5 on October 23, 2020 a work package specific ESC plan was not available for Section 5 of the Project. A document titled Drainage, Erosion and Sediment Control Plan R0, created by the Contractor responsible for construction in work package 3 (Pacific Atlantic Pipeline Construction), was provided to EAO C&E prior to the inspection (Appendix 9). This document covers Project works in work package 3 including Sections 6 and 7 only but does not include Section 5, although Section 5 of the Project falls within work package 3.

Additionally, no site-specific plans addressing ESC mitigations for high risk sites and activities within Section 5 were provided to EAO C&E prior to the inspection as requested. During the inspection, active construction, including watercourse crossing installation and work near wetlands, were observed to be taking place in Section 5.

The Project is out of compliance with this requirement as the Contractor is undertaking work in Section 5 and has not developed a construction ready ESC plan specific to Section 5, nor have site-specific plans been created for high risk sites or activities within Section 5.

On November 27, 2020 the Certificate Holder provided EAO C&E a response to this Inspection Record; a portion of the response states:

Coastal GasLink confirms that it received the required Section 5 Erosion and Sediment Control Plans from the new Prime Contractor on November 23, 2020, and they are currently being reviewed against the Project requirements. Once these plans are available, they will be implemented in the field as required by the Coastal GasLink ESC Plan, and will be available to the EAO upon request.

Compliance Determination: Out - Warning - Refer to Enforcement Summary

Requirement 3: Condition 26

The Holder must develop and implement an Environmental Management Plan (EMP) in accordance with Section 25 and Appendix 2A of the Application. *See Appendix 3 for full Condition wording.*

Coastal GasLink Pipeline Project, Erosion and Sediment Control Plan, April 13, 2020 (Appendix 6)

Section 2.3 Contractor Specific Plans

In addition to work-package ESC plans, Contractors shall be required to develop site-specific plans to address high risk sites and activities. Site-specific plans shall:

- Identify specific mitigation approaches, including construction timing, mitigation measures and devices, site plan drawings, standards for design, materials specifications and installation directions, monitoring and maintenance schedules, etc.

*Bulleted lists have been shortened to include relevant information only.

Findings:

During inspection of work package 1, which includes Sections 1 & 2 of the Project, EAO C&E visited various high-risk sites which have had site-specific erosion and sediment control plans created by a Qualified Professional. EAO C&E inspected the in-field ESC mitigations against the requirements within the site-specific plans and observed that the practices installed in the field did not align with the site-specific plans. Examples of this include:

- KP_4+518_Site-Specific ESC Plan_Rev02. Commitment to reshape area to remove gully erosion and install wattles to slow down water movement in the ditch line were not followed. The ditch line (approx. 200 m long) leading towards wetland ID 0065 was left unprotected and deposited sediment at the base of the slope adjacent to the wetland. This material appears to have not been removed, showing a lack of maintenance, winterization and adherence to the site-specific plan. See photos 4 to 6 below;
- KP_5+034_CPESC_Site-Specific ESC Plan_Rev1. Commitments in the site-specific plan to install straw wattles, repair failing sediment fencing and remove accumulated material from the fence do not appear to have been followed through. See photo 7 below;
- KP_5+607_CPESC_Site-Specific ESC Plan_Rev1. Temporary measures have been installed at this bridge crossing site; however, the installation is not per the site-specific plans. Additionally, exposed soil on the left bank downstream of the crossing have the potential to mobilize sediment into the fish-bearing watercourse as there is a large gap in the sediment fencing. See photo 8 below;
- KP_5+818_CPESC_Site-Specific ESC Plan_Rev1. Temporary measures have been installed at this bridge crossing site; however, the installation is not per the site-specific plan. Notably, on the left bank downstream side of the crossing the site is sloped towards the channel and a gap in the sediment fence may allow for the passage of water from exposed upslope area to mobilize into the fish-bearing stream. See photos 9 & 10 below; and,
- KP_24+550_CPESC_Site-Specific ESC Plan_Rev1. Commitments in the site-specific plan to seed, install water bars and install rock apron appear to not be in place. Temporary measures, such as rock check dams, have been installed in isolated locations. However, of the four check dams that were observed, the uppermost check dam was spaced 9 m apart from the next check dam down slope, with a slope of roughly 14 percent, the second check dam was spaced 14 m apart from the third with a slope of roughly 22 percent and the third check dam was spaced 15 m apart from the fourth with a slope of roughly 10 percent. The four check dams that were observed were spaced 9 m apart from the uppermost check dam to the next check dam down slope with a slope of roughly 14% between, 14 m apart from the second to third check dam with a slope of roughly 22%, and 15 m apart from the third to fourth check dam with a slope of roughly 10%. The material that the check dams are constructed of is too coarse which will limit the dam's functionality and can cause additional erosion. According to BMP #7 (rock check dam) within the Contractor's ESC Plan, check dams are "suitable for grades from 5% to 8%" and the spacing specifications do not match those measured in the field. The check dams observed appear to not be installed according to the best management practices. See 11 to 13 below.



Photo 4: Ditch leading to wetland ID 0065, no ESC controls.



Photo 5: Fine soils in ditch line from photo above.

Date & Time: Tue, Oct 20, 2020, 10:29:48 MST

Position: 10 N 631273 6181523 (±4.7m)

Altitude: 713m (±3.4m)

Datum: WGS-84

Azimuth/Bearing: 287° S27W 3680mils Magnetic (±12°)

Elevation Grade: -013%

Horizon Grade: +000%

Zoom: 1.0X

4+518



Photo 6: KP 4+518, bottom of ditch, sediment deposition adjacent to wetland ID 0065.

Date & Time: Tue, Oct 20, 2020, 10:50:38 MST

Position: 10 N 631266 6180992 (±49.6m)

Altitude: 705m (±13.8m)

Datum: WGS-84

Azimuth/Bearing: 176° S04E 3129mils Magnetic (±13°)

Elevation Grade: -022%

Horizon Grade: +007%

Zoom: 1.0X

WL 040

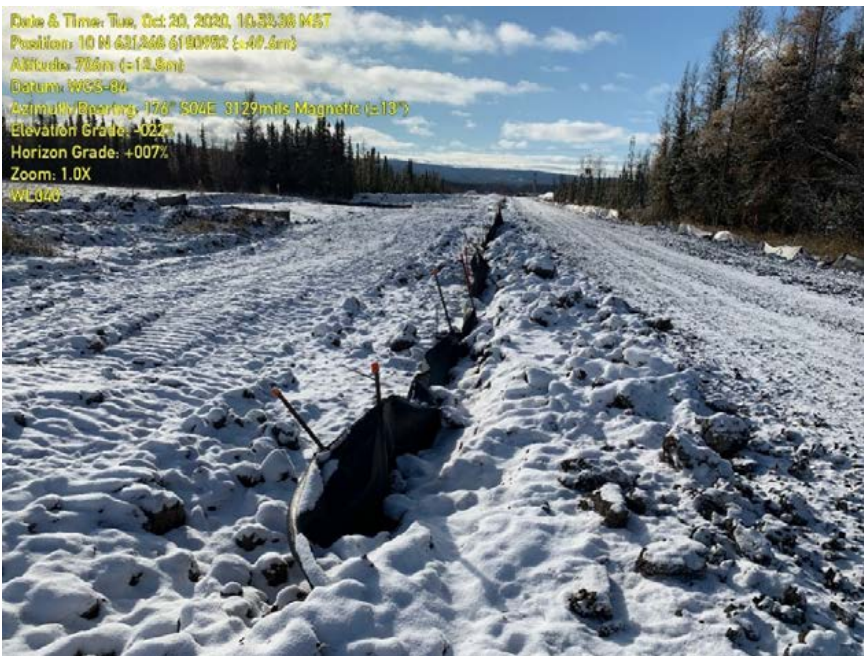


Photo 7: Wetland ID 040, failing sediment fence.

Date & Time: Tue, Oct 20, 2020, 10:06:32 MST
Position: 10 N 631272 6180408 (+4.8m)
Altitude: 702m (+3.3m)
Datum: WGS-84
Azimuth Bearing: 173° S07E 3073mils Magnetic (+12°)
Elevation Grade: -005%
Horizon Grade: +002%
Zoom: 1.0X
S:600



Photo 8: KP 5+607 with disturbed and exposed slopes leading to fish-bearing stream (S3).

Date & Time: Tue, Oct 20, 2020, 11:05:41 MST
Position: 10 N 631186 6180135 (+4.8m)
Altitude: 705m (+3.6m)
Datum: WGS-84
Azimuth Bearing: 076° N76E 1351mils Magnetic (+13°)
Elevation Grade: -021%
Horizon Grade: +002%
Zoom: 1.0X
S:800



Photo 9: KP 5+890. ESC not installed to site-specific plan. Risk of sediment mobilizing to watercourse.



Photo 10: KP 5+890. ESC not installed to site-specific plan. Risk of sediment mobilizing to watercourse.



Photo 11: KP 24+550, Murray HDD site. Drainage channel on left side of pad. Continuous ditch line leading down slope with no ESC measures within ditch.



Photo 12: Red arrow indicating failed sediment fence at base of drainage ditch on left side of Murray HDD pad.



Photo 13: Drainage ditch on right side of Murray HDD pad. Check dams discontinuous and not installed to specification. Note coarse material.

During inspection in work package 2, which includes Sections 3 & 4 of the Project, EAO C&E visited various high-risk sites which have had site-specific erosion and sediment control plans created by a Qualified Professional. EAO C&E inspected the in-field ESC mitigations against the commitments within the site-specific plans and observed that the practices installed in the field did not align with the site-specific plans. Examples of this include:

- KP244+540. No silt-saver or water bars installed on low chain side of the crossing. No wood chips installed;
- KP244+610. No water bars installed on low chain side of crossing.

The above observations provide evidence of non-compliance with the site-specific erosion and sediment control plans in work packages 1 and 2 of the Project. Additionally, these are further examples of timing and work scheduling within the Project’s ESC plan not being implemented (Requirement 1 above) as winterization, minimizing exposed soils that will be subject to spring melt and installing ESC measures proactively before freezing did not take place at each of these sites.

For more information see the Regulatory Considerations section below.

Compliance Determination: Out - Order - Refer to Enforcement Summary

Requirement 4: Condition 26

The Holder must develop and implement an Environmental Management Plan (EMP) in accordance with Section 25 and Appendix 2A of the Application. *See Appendix 3 for full Condition wording.*

Coastal GasLink Pipeline Project, Erosion and Sediment Control Plan, April 13, 2020 (Appendix 6)

Section 2.3 Contractor Specific Plans

Contractors are required to develop comprehensive, construction-ready ESC plans specific to their work package.

Work Package 1 - Coastal GasLink Pipeline Project: Section 1 and 2 – Erosion and Sediment Control Plan (Appendix 7)

Section 4.3.5 Sediment Fencing and Temporary Berms

Appendix A, BMP #1

Limitations:

- Applicable for sheet flow, cannot handle concentrated channel flow volumes.
- May fail under high runoff events.
- Low permeability silt fences may not be strong enough to support weight of water retained behind it and may require reinforcement.
- Sediment build-up needs to be removed on a regular basis.

Construction Considerations:

- Site selection
 - Size of drainage area should be no greater than 0.1 ha per 30 m length of silt fence.
 - Maximum flow path length above silt fence should be no greater than 30 m.
 - Maximum slope gradient above the silt fence should be no greater than 2H:1V.
- Ends of fence should be angled upslope to collect runoff.
- Fence should be placed on contour to produce proper ponding.

Inspection and Maintenance:

- Repair undercut fences and repair or replace split, torn, slumping or weathered fabric immediately.

*Bulleted lists have been shortened from the original version.

Findings:

Construction in work package 1, which includes Sections 1 and 2 of the Project, is being managed by Surerus Murphy Joint Venture (SMJV). Project activities inspected by EAO C&E in Sections 1 and 2 primarily included stripping and grading as well as watercourse and wetland crossings. During the inspection in Sections 1 and 2, EAO

C&E observed various examples of sediment fencing installed not according to the best management practices (BMPs) within the Section 1 and 2 Erosion and Sediment Control Plan. This included:

- Sediment fencing installed across riparian features or drainage channel (Photos 14 & 15);
- Failing and/or not maintained sediment fencing (Photos 16 and 17);
- Sediment fence installed in a way that allows water to escape around the edge, in some cases potentially causing erosion and sediment transport (Photo 18);
- Sediment fencing installed in locations not supported by the BMPs (Photos 19 and 20); and,
- Discontinuous sediment fence which allowed for potential sediment mobilization towards watercourses (Photo 21).



Photo 14: Sediment fence installed across an NCD feature at KP80+851.

Date & Time: Tue, Oct 20, 2020, 08:45:39 MST
Position: 10 N 631276 6185739 (±4.1m)
Altitude: 706m (±12.4m)
Datum: WGS-84
Azimuth Bearing: 183° NCE 1120mils Magnetic (±12°)
Elevation Grade: -00%Horizon Grade: +00%
Zoom: 1.0X
Wilde Lake Compressor



Photo 15: Sediment fence across outlet channel at Wilde Lake Compressor Site.

Date & Time: Tue, Oct 20, 2020, 10:53:13 MST
Position: 10 N 631261 6180930 (±11.8m)
Altitude: 706m (±10.7m)
Datum: WGS-84
Azimuth Bearing: 182° S02W 3230mils Magnetic (±14°)
Elevation Grade: -00%
Horizon Grade: -00%
Zoom: 1.0X
WLD040



Photo 16: Wetland ID 040, failing sediment fence.

Date & Time: Tue, Oct 20, 2020, 10:50:38 MST
 Position: 10 N 631266 6190992 (+47.5m)
 Altitude: 726m (+13.5m)
 Datum: WGS-84
 Azimuth/Bearing: 176° S04E 3129mils Magnetic (+13°)
 Elevation Grade: -022%
 Horizon Grade: +007%
 Zoom: 1.0X
 WL040

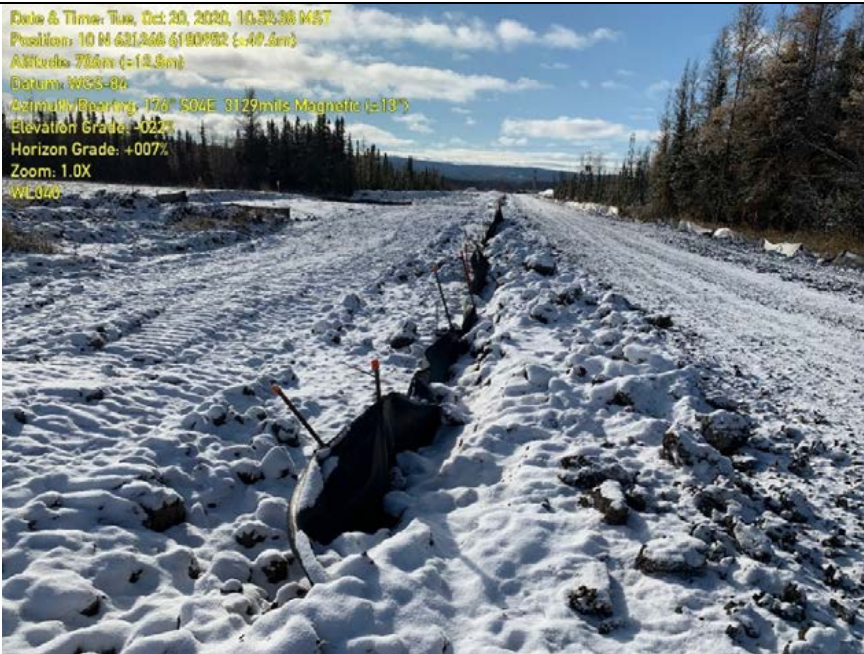


Photo 17: Wetland ID 040, failing sediment fence.

Date & Time: Tue, Oct 20, 2020, 09:37:51 MST
 Position: 10 N 631687 6196277 (+12.7m)
 Altitude: 787m (+13.5m)
 Datum: WGS-84
 Azimuth/Bearing: 206° S28W 3662mils Magnetic (+12°)
 Elevation Grade: -018%
 Horizon Grade: +005%
 Zoom: 1.0X
 berm



Photo 18: Sediment fence at end of berm, near KP 1+800. Potential for water to pool and escape around the edges of the sediment fence and cause erosion.



Photo 19: 11a road ditch line, example of sediment fencing installed in ditch line. Not a recommended use for sediment fencing; will increase erosion in ditch.



Photo 20: Example of sediment fence installed across a ditch.



Photo 21: Discontinuous sediment fencing adjacent to fish-bearing stream feature.

The Coastal GasLink Pipeline Project: Section 1 and 2 – Erosion and Sediment Control Plan often references BMP #1 – Install Sediment Fence as an erosion and sediment control prescription. During inspection of Sections 1 and 2 of the Project, EAO C&E observed frequent instances where sediment fence has not been installed and maintained in accordance with requirements, including instances where the installation of sediment fence will increase erosion of soil and cause sediment transport off the Project to sensitive receptors such as watercourses and wetlands.

For more information see the Regulatory Considerations section below.

Compliance Determination: Out - Order - Refer to Enforcement Summary

Requirement 5: Condition 26

The Holder must develop and implement an Environmental Management Plan (EMP) in accordance with Section 25 and Appendix 2A of the Application. *See Appendix 3 for full Condition wording.*

Work Package 2 – Sections 3 and 4, SAEG ESC Plan (Appendix 8)

Section 7.6.1 Sediment Retention Devices

Sediment Fence “Silt Fence” Barriers

Sediment fence barriers shall be installed as required based on site conditions, according to the manufacturer’s instructions and as outlined in BMP #23 in Appendix C of the National Guide to Erosion and Sediment Control on Roadway Projects (TAC 2005). Sediment fence shall be installed to intercept sheet flow only and will not be used in areas of confined flow such as ditches or channels.

Appendix A, ESC Best Management Practices (Typicals)

2. Bottom of fence must be placed within a trench, with the fabric facing the expected source of flow of migration.

6. Sediment fence must be inspected routinely and repaired. Many repairs can be implemented with a shovel and a staple gun.

*Lists have been shortened from the original version.

Findings:

Construction in work package 2, which includes Sections 3 & 4 of the Project, is being managed by Somerville Aecon Energy Group (SAEG). Project activities inspected by EAO C&E in Sections 3 and 4 primarily included stripping and grading as well as watercourse and wetland crossings. During the inspection in Sections 3 and 4, EAO C&E observed various examples of sediment fencing installed not according to SAEG’s Erosion and Sediment Control Plan. Examples can be seen in the photos below.



Photo 22: Sediment fence installed across a channel downstream of culvert outlet at 7 km on 21a road. Crooked River in background downslope of this location.



Photo 23: Sediment fence installed across water feature and overwhelmed. Straw bails installed incorrectly. Sediment laden water discharging towards Crooked River downslope of site.



Photo 24: Sediment fence across channel at culvert outlet on 21a road. Fencing overwhelmed, not maintained and sediment laden water discharging off site.



Photo 25: KP272+156. Sediment fence beside S3 watercourse overwhelmed, at risk of failing and with water passing over top of the fence.



Photo 26: Sediment fence adjacent to watercourse not fastened correctly to another length of sediment fence. Large gap allows water to flow beneath.



Date & Time: Thu, Oct 22, 2020, 14:31:30 PDT
 Position: 10 N 677946 6018434 (±4.7m)
 Altitude: 870m (±0.5m)
 Datum: WGS-84
 Azimuth: -012 (±0.13mils (±12°))
 Elevation Angle: +50°
 Horizon Angle: 75.6°
 Zoom: 20X
 268 +500 to 300

Photo 27: Sediment fence overwhelmed and at risk of failing, signs of gully erosion can be seen leading toward this section of the fence. NCD at base of slope.

During inspection of Sections 3 and 4 of the Project, EAO C&E observed a variety of deficiencies regarding the installation, appropriate use and maintenance of sediment fencing.

During the Opportunity to Respond to this Inspection Record the Certificate Holder informed EAO C&E that in October 2020 Sinclair Forest Products Ltd. (Sinclair) obtained a road permit from the Ministry of Forests Lands and Natural Resource Operations and Rural Development for the 21a road (also known as RE-140.1) and has assumed full control of the road. Coastal GasLink communicated to EAO C&E that Sinclair has been informed of the issues identified above. However, EAO C&E notes that the erosion and sediment control measures installed along the 21a road were completed by the Project prior to Sinclair taking full control of the road and the ESC measures installed reflect the ESC approaches taken by the Project. As a result, the documented ESC measures from the 21a road seen above have been included in this Inspection Record.

For more information see the Regulatory Considerations section below.

Compliance Determination: Out - Order - Refer to Enforcement Summary

Requirement 6: Condition 26

The Holder must develop and implement an Environmental Management Plan (EMP) in accordance with Section 25 and Appendix 2A of the Application. *See Appendix 3 for full Condition wording.*

**Coastal GasLink Pipeline Project, Environmental Management Plan
 Section 8.4 Watercourse Crossings**

- Install erosion and sediment control such as silt fences at all watercourses or waterbodies and on approach slopes to watercourses and waterbodies as directed by the Environmental Inspector(s).
- Where water erosion is evident and there is potential for runoff from the ROW to flow into a watercourse, refer to the Soil Erosion Contingency Plan (Appendix C.7).

Appendix C.7 - Soil Erosion Contingency Plan

Water Erosion

Implement one or a combination of the following mitigations:

- Install silt fences near the base of slopes

*Bulleted lists have been shortened from the original version.

Findings:

Construction in work package 3, which includes Sections 5, 6 and 7 of the Project, is being managed by Pacific Atlantic Pipeline Construction (PAPC). At the time of inspection PAPC did not have an approved Contractor-specific ESC Plan (See Requirement 2 above).

Project activities inspected by EAO C&E in Section 5 primarily included stripping and grading as well as watercourse and wetland crossings. During the inspection in Section 5, EAO C&E observed various examples of sediment fencing installed incorrectly and/or at risk of failing. Examples can be seen in the photos below.

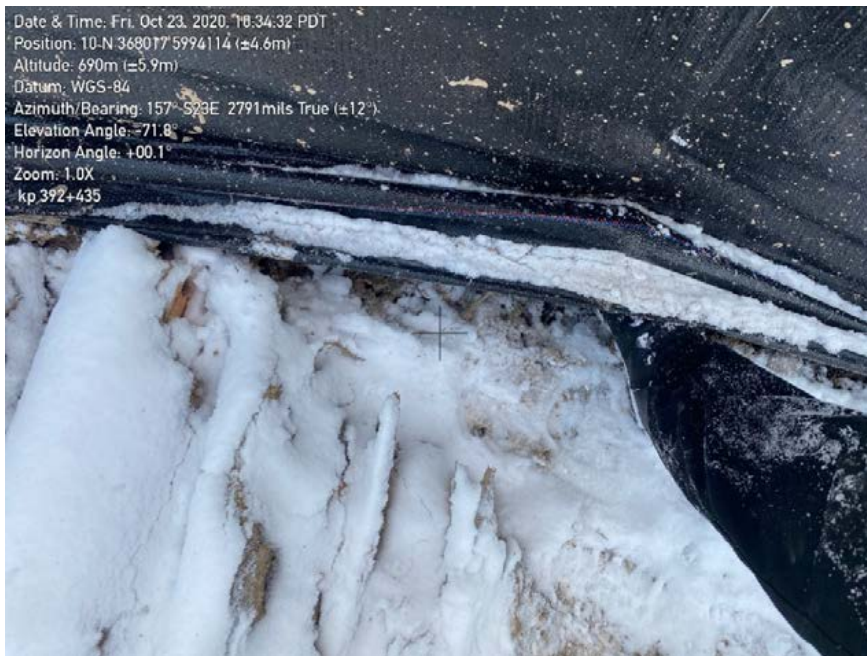


Photo 28: Gap beneath sediment fence at watercourse crossing, making ESC measure ineffective.



Photo 29: Material from bridge approach overwhelming sediment fence. Fence at risk of failing. Wetland (W2) at this location.



Photo 30: Sediment fence stapled to bridge over S3 stream. Ineffective installation.



Photo 31: Gap left between sections of sediment fence. Water can pass through this gap. This incorrect installation practice was commonly seen including at KP402+803, 404+200 and 408+592.



Photo 32: Sediment fence not attached to geotextile, large gap. S4 in background.

During inspection of Section 5 of the Project, EAO C&E observed deficiencies regarding the installation, appropriate use and maintenance of sediment fencing.

For more information see the Regulatory Considerations section below.

Compliance Determination: Out - Order - Refer to Enforcement Summary

Requirement 7: Condition 26

The Holder must develop and implement an Environmental Management Plan (EMP) in accordance with Section 25 and Appendix 2A of the Application. *See Appendix 3 for full Condition wording.*

Coastal GasLink Pipeline Project, Environmental Management Plan

Section 8.2 - Clearing

Reduce grading throughout the ROW, especially at watercourses, wetlands, and rare plant sites and on moderately steep slopes, if practical. Reduce the width of grading in order to limit the potential for erosion and subsoil compaction, where practical.

Section 8.3 - Surface Material Removal, Salvage and Grading

Stabilize exposed surface material and subsoil where the potential for erosion exists. Refer to the Soil Erosion Contingency Plan (Appendix C.7) for additional information.

Section 8.4 - Watercourse Crossings

Install erosion and sediment control such as silt fences at all watercourses or waterbodies and on approach slopes to watercourses and waterbodies as directed by the Environmental Inspector(s).

*Lists have been shortened from the original version.

Findings:

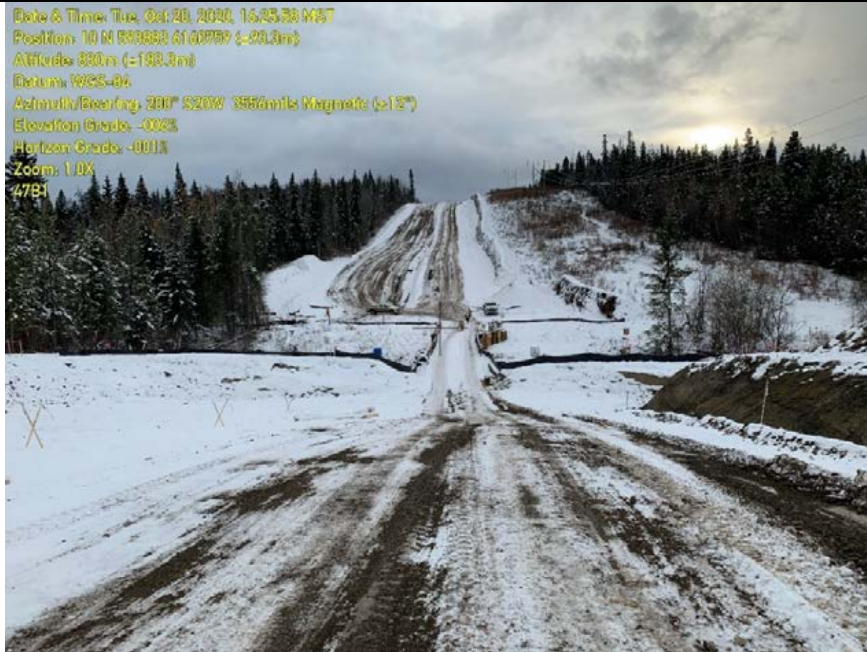
Throughout the October 19-23 inspection of the Project, large portions of stripped and graded right of way (ROW) with exposed soils were observed. EAO C&E noted that approach slopes to watercourses and wetlands were frequently left exposed and relied on the installation of sediment fencing, typically a single row, adjacent to watercourses and wetlands to protect from sediment inputs. See photos below for examples of exposed surface materials, including approach slopes to watercourses at risk of eroding and mobilizing materials to off site areas including watercourses.



Photo 33: Work package 1, KP54+204. Exposed right of way drains to single row of sediment fence adjacent to S3 stream.



Photo 34: Work package 1, KP54+204. Right bank approach to S3 stream is roughly 170 m long of exposed material. Single row of sediment fence at the base of the slope as ESC measure.



Date & Time: Tue, Oct 20, 2020, 16:25:38 MST
 Position: 10 N 593652 6160759 (±23.3m)
 Altitude: 830m (±193.3m)
 Datum: WGS-84
 Azimuth/Bearing: 200° S20W 355mils (±12°)
 Elevation Grade: -002%
 Horizon Grade: -001%
 Zoom: 1.0X
 47B1

Photo 35: Work package 1, KP55+310. Right bank approach to S3 stream is roughly 390 m long. Single row of sediment fence at the base of the slope to protect the watercourse from sediment inputs.



Date & Time: Tue, Oct 20, 2020, 16:32:01 MST
 Position: 10 N 593860 6160629 (±4.7m)
 Altitude: 849m (±3.4m)
 Datum: WGS-84
 Azimuth: +048° +0853mils (±13°)
 Elevation Angle: +40.8°
 Horizon Angle: +01.1°
 Zoom: 1.0X
 55310

Photo 36: Work package 1, KP55+310. Material from ROW eroded and transported to this section of sediment fence. Sediment fence overwhelmed.



Photo 37: Same location as photo above. Sediment fence overwhelmed with material from the ROW. Material discharging off site.



Photo 38: Work package 1, Timber Deck Area 1. Exposed material sloping towards single row of sediment fence.



Photo 39: Work package 1. Low point along sediment fence in Timber Deck Area 1. Staining on sediment fence showing how high sediment build up in this area has been previously.



Photo 40: Work pack 1, exposed soils from right of way draining down slope towards S6 stream feature. Blue arrow roughly indicating location of stream.



Photo 41: Work package 2. At the left bank side of Crooked River DPI site, low-chain looking towards high-chain. Long exposed slope draining to single row of sediment fence.

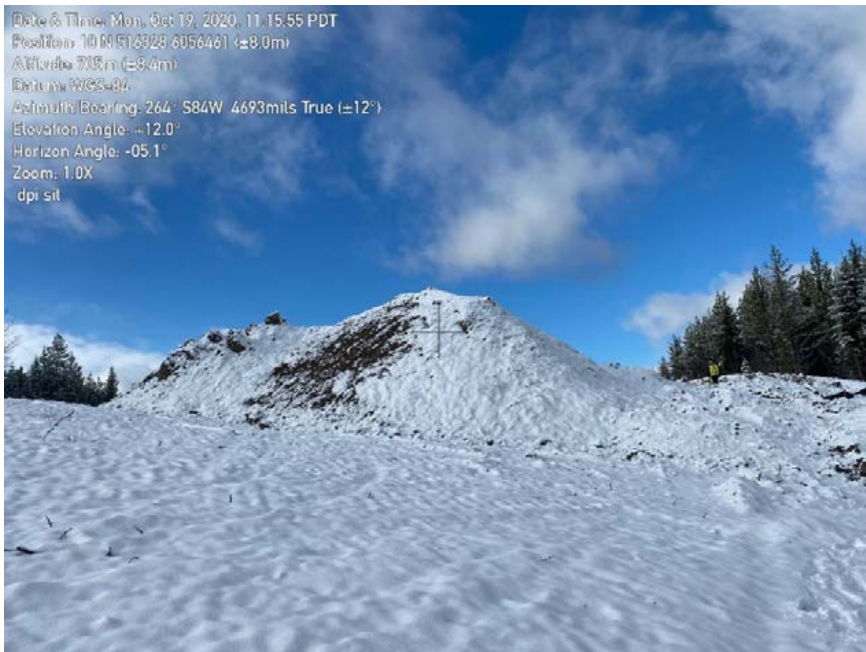
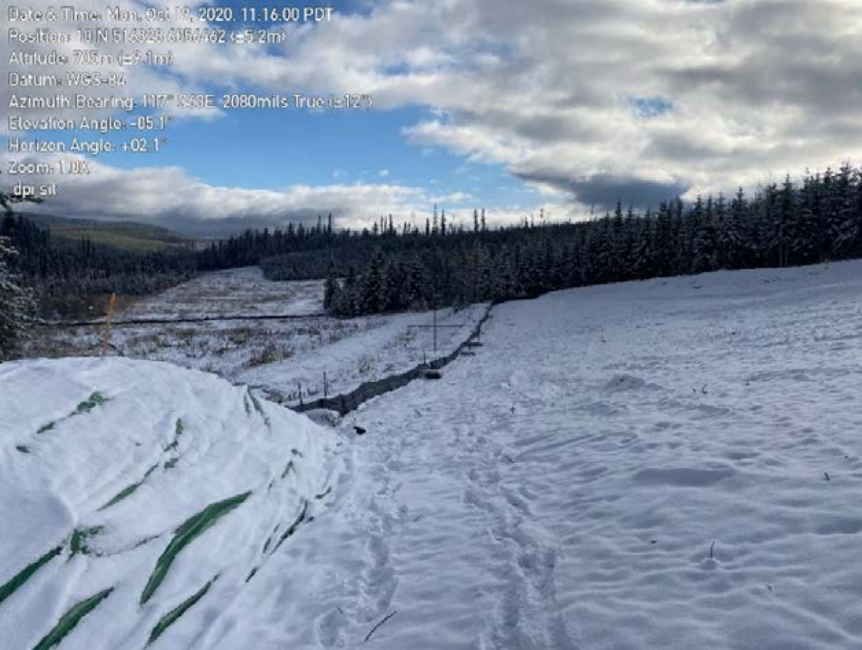


Photo 42: Work package 2. Exposed soil pile on top of slope on low chain side of Crooked River DPI site. Pile all drains to single row of sediment fence.



Date & Time: Mon, Oct 19, 2020, 11:16:00 PDT
Position: 10 N 516365 6056462 (±5.2m)
Altitude: 705m (±9.1m)
Datum: WGS-84
Azimuth/Bearing: 117° N56E 2080mils True (±12°)
Elevation Angle: -05.1°
Horizon Angle: +02.1°
Zoom: 1.0X
dpi: silt

Photo 43: Work package 2. All flow from low chain side of Crooked River DPI site controlled by this row of sediment fence.



Date & Time: Mon, Oct 19, 2020, 11:12:12 PDT
Position: 10 N 516365 6056439 (±9.5m)
Altitude: 701m (±15.9m)
Datum: WGS-84
Azimuth/Bearing: 051° N51E 0907mils True (±12°)
Elevation Angle: -26.0°
Horizon Angle: +00.3°
Zoom: 1.0X
dpi: silt

Photo 44: Work package 2. High chain looking towards low chain at Crooked River DPI. Large exposed area and soil stockpile all flows to this section of sediment fence. Fence overwhelmed and had previously failed.



Photo 45: Work package 2. Right bank side of Crooked River. Exposed right of way with limited erosion and sediment controls in place. Approach is roughly 600 m long x 80 m wide with the cleared laydown measuring approximately 130 m long x 125 m wide. Both upslope areas report to the base of the slope adjacent to the Crooked River. See photo below for different perspective of where this location drains to.



Photo 46: Work package 2. Right bank side of Crooked River. Location where water from right of way reports to. Crooked River out of frame to left of the photo.



Photo 47. Work package 3, exposed soils on right of way draining towards single confined area. See Photo 57 below for image of where this material is designed to drain to.

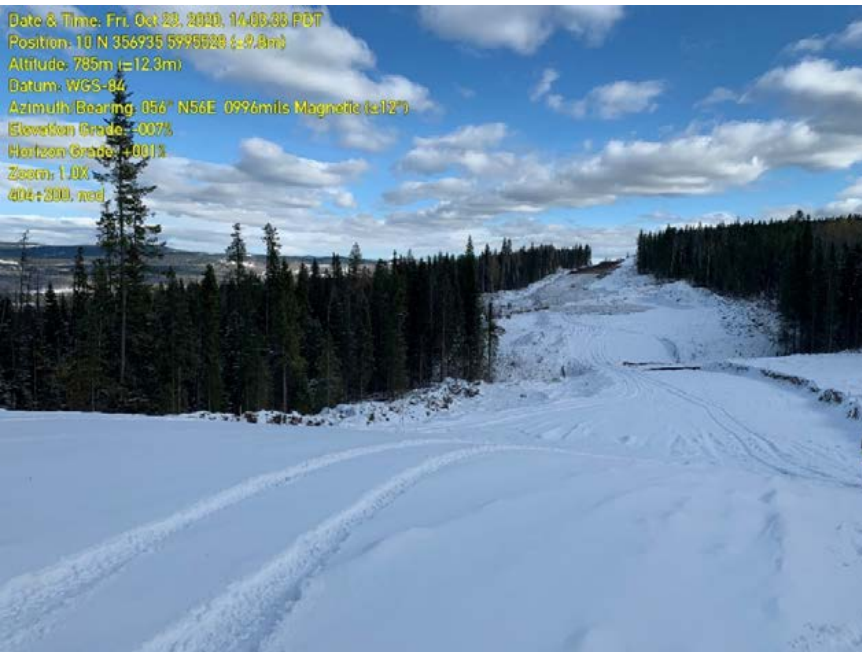


Photo 48: Work package 3. Exposed right of way sloping towards NCD feature. Single row of sediment fence installed adjacent to NCD.

The above observations provide evidence that the requirements to reduce grading on moderately steep slopes near wetlands and watercourses, stabilize exposed surface material and subsoil where erosion potential exists and to install erosion and sediment control at and on approach slopes to all watercourses have not been met. The absence of adequately implementing these requirements has put receptors such as wetlands and watercourses at risk of receiving Project related sediment inputs.

EAO C&E notes that on November 5, 2020 a Water Quality Exceedance notification email was provided by Coastal GasLink to EAO and other Regulators. That email describes a 24-hour water quality exceedance at watercourse #47B1 (S3, KP55+310, photos 35 to 37 above) where “sediment inputs resulted from overwhelmed ESC measures”. Additionally, on November 8, 2020 EAO C&E received a Water Quality Exceedance notification email from Coastal GasLink indicating that, amongst other watercourses, watercourse WC46B1 (S3) at KP54+204 (photos 33 & 34 above) experienced a 24 hour water quality exceedance due to “sediment inputs from overwhelmed ESC measures from the right of way.”

For more information see the Regulatory Considerations section below.

Compliance Determination: Out - Order - Refer to Enforcement Summary

Requirement 8: Condition 26

The Holder must develop and implement an Environmental Management Plan (EMP) in accordance with Section 25 and Appendix 2A of the Application. *See Appendix 3 for full Condition wording.*

Coastal GasLink Pipeline Project, Environmental Management Plan (Appendix 4)

Section 8.4 - Watercourse Crossings

Install erosion and sediment control such as silt fences at all watercourses or waterbodies and on approach slopes to watercourses and waterbodies as directed by the Environmental Inspector(s). (Appendix B, Dwgs. STDS-03-ML-05-001, STDS-03-ML-05-131, STDS-03-ML-05-132, **STDS-03-ML-05-137**, STDS-03-ML-05-608).

Findings:

The typical drawing in Appendix B of the EMP titled, Sediment Control Check Dam /Filter (dwg# STDS-03-ML-05-137) states *“Sediment control devices can be used to control erosion in locations where no channel / swale exists; or where a definite channel / swale exists, and are useful in areas of low flow. Where large volumes of water can be expected, a more extensive check dam may be required. The centre of the sandbag, straw-roll, geo-ridge, silt fence, clean rock or equivalent approved material fill will be slightly lower than the adjacent sections to provide a natural spillway for any overflow.”*

During the inspection, EAO C&E observed various locations where ESC measures were not installed as per the Sediment Control Check Dam /Filter drawing in Appendix B of the EMP. Examples are included in the following photographs:



Photo 49: Ineffective straw bail not installed as required at Crooked River DPI site. Bail was not keyed into place. Water has eroded beneath the bail.



Photo 50: Close up of gap beneath straw bail at Crooked River DPI site.



Photo 51: Incorrectly installed straw bails at the Salmon River DPI site. Bails not keyed in place and erosion has taken place beneath. Note the rocks installed upslope which are not acting as an effective ESC measure.



Photo 52: Incorrectly installed straw bails at the Salmon River DPI site. Water has eroded beneath the structures.



Photo 53: Non-functioning straw bails at Salmon River DPI site. Large volume of water around the straw bails.

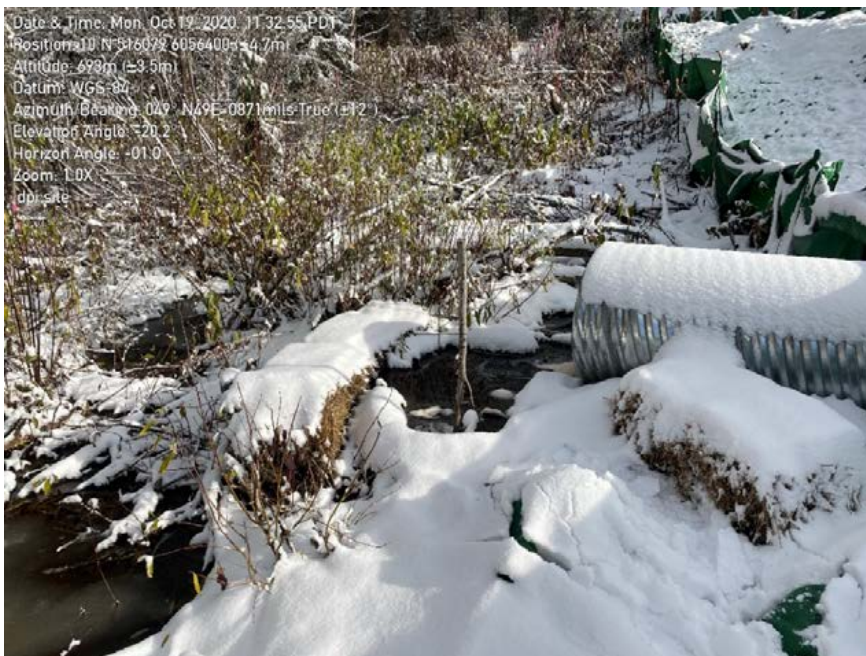


Photo 54: Incorrect installation of straw bails at Crooked River DPI. Not intended to be used within a channel at inlet or outlet of culvert.



Photo 55: Work package 3. Straw rolls not keyed into place correctly. Gap beneath roll allowing water to flow beneath measure.



Photo 56: Work package 3. Straw roll keyed in too deep, limited catchment area as a result.



Photo 57: Work package 3. Check dam of sandbags covered with poly installed in ditch. Measure does not extend across ditch; flow can escape around the structure. Not effective. Exposed area seen in Photo 47 above is designed to drain to this ditch and then into the vegetated area beyond the right of way.



Photo 58: Work package 3. Straw rolls not keyed into place; arrow indicating gap beneath the straw roll.

The above observations are examples of erosion and sediment control measures not installed as per the requirements in the Environmental Management Plan, Appendix B - Typical Drawings, specifically drawings STDS-03-ML-05-137.

For more information see the Regulatory Considerations section below.

Compliance Determination: Out - Order - Refer to Enforcement Summary

Requirement 9: Condition 26

The Holder must develop and implement an Environmental Management Plan (EMP) in accordance with Section 25 and Appendix 2A of the Application. *See Appendix 3 for full Condition wording.*

Coastal GasLink Pipeline Project, Environmental Management Plan (Appendix 4)

Section 8.4 - Watercourse Crossings

- Install erosion and sediment control such as silt fences at all watercourses or waterbodies and on approach slopes to watercourses and waterbodies as directed by the Environmental Inspector(s). (Appendix B, Dwgs. STDS-03-ML-05-001, STDS-03-ML-05-131, STDS-03-ML-05-132, STDS-03-ML-05-137, STDS-03-ML-05-608).
- Inspect all temporary sediment control structures [related to watercourse crossings] on a regular basis and following precipitation events and snowmelt. Where repairs are warranted, repair before the end of the working day.

Section 8.4.3 - Specific Measures

Vehicle Crossings, General

- Line single span bridges with geotextile. All watercourse crossing structures must have a minimum of 30-cm-high side boards. Side containment for single span bridges must be constructed of plywood. Snow bridges can use watered snow.
- Install and remove any temporary vehicle crossings in a manner that protects the banks from erosion and maintains the flow in the waterway. These crossings will be returned to their construction preparation condition.
- Ensure stormwater from the bridge deck, side slopes and bridge approaches is directed away from the watercourse onto a well-vegetated area.

*Lists have been shortened from the original version.

Findings:

During inspection in work package 3 (Section 5) on October 23, 2020 EAO C&E observed geotextile fabric, which was installed beneath three bridges, sagging into the flowing channel below. The fabric had been previously wrapped beneath the bridges and had captured sediment, snow and water from above. The fabric was sagging low enough to be within the actively flowing channel of two separate fish-bearing streams and a third stream that is classified as non fish-bearing. Material being held within the fabric (sediment) was slowly being released into the channel as water from the flowing channel was passing through the fabric. This finding was observed at KP392+435 (S4), KP401+971 (S6), and 402+800 (S3).



Photo 59: Geotextile from bridge over S4 stream at KP392+435 sagging into channel.



Photo 60: Close up of geotextile from bridge over S4 stream at KP392+435 sagging into channel.



Photo 61: Work package 3. Geotextile fabric from bridge crossing sagging into watercourse.

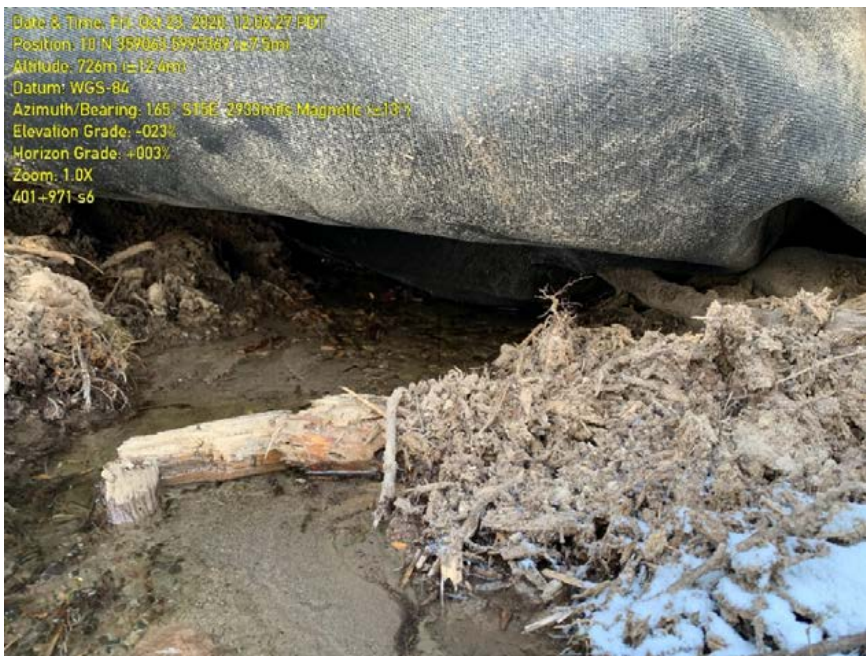


Photo 62: Geotextile containing sediment; sagging within the channel of S6 watercourse.



Date & Time: Fri, Oct 23, 2020, 12:00:21 PDT
Position: 10 N 359062 5995375 (±4.3m)
Altitude: 726m (±10.2m)
Datum: WGS-84
Azimuth (Bearing, 291° N69W, 5173mils Magnetic (±13°)
Elevation Grade: -195%
Horizon Grade: -001%
Zoom: 1.0X
401-971 s6

Photo 63: Sediment in S6 channel immediately downstream of the bridge shown in above photos.



Date & Time: Fri, Oct 23, 2020, 12:46:03 PDT
Position: 10 N 358350 5995636 (±4.7m)
Altitude: 706m (±3.4m)
Datum: WGS-84
Azimuth (Bearing, 145° S85E, 2578mils Magnetic (±12°)
Elevation Grade: -103%
Horizon Grade: -003%
Zoom: 1.0X
402-803 S3 "burrito" in water

Photo 64: Work package 3. Geotextile beneath bridge containing sediment and sagging into the water of fish-bearing (S3) watercourse.



Photo 65: Geotextile within S3 channel.

Having the geotextile from the bridges sagging and reaching the watercourse has the potential to introduce deleterious substances into the watercourse, as observed at KP401+971, and may impact stream flows. The observations above provide evidence that installation of geotextile at the three above noted watercourse crossings have not contained material to the bridge deck, have not directed stormwater from the bridge deck away from the watercourse and have not been repaired when warranted.

For more information see the Regulatory Considerations section below.

Compliance Determination: Out - Order - Refer to Enforcement Summary

Requirement 10: Condition 26

The Holder must develop and implement an Environmental Management Plan (EMP) in accordance with Section 25 and Appendix 2A of the Application. *See Appendix 3 for full Condition wording.*

Coastal GasLink Pipeline Project, Environmental Management Plan (Appendix 4)

Section 8.4 - Watercourse Crossings

Install erosion and sediment control such as silt fences at all watercourses or waterbodies and on approach slopes to watercourses and waterbodies as directed by the Environmental Inspector(s). (Appendix B, Dwgs. STDS-03-ML-05-001, STDS-03-ML-05-131, STDS-03-ML-05-132, STDS-03-ML-05-137, STDS-03-ML-05-608).

Findings:

On November 2, 2020 during inspection of watercourse crossing #WC272, located at approximately KP244+510, sediment and erosion control measures were not observed on the banks of the fish-bearing stream feature (S3). See photos below for more information.



Photo 66: KP 244+510, low chain looking towards high chain. No ESC measures along banks of S3.



Photo 67: WC272, Low chain looking towards high chain. ESC measures along banks of stream are limited to incorrectly installed and unmaintained sediment fence, increasing risk of sediment transport to fish-bearing watercourse. Red arrow showing erosion and sediment transport towards and into fish-bearing stream.



Photo 68: WC272, no ESC measures where turbid flow from erosion on right-of-way entering fish bearing watercourse.

The above appears to provide evidence of non-compliance with the requirement to install erosion and sediment control such as silt fences at all watercourses or waterbodies and on approach slopes to watercourses and waterbodies.

For more information see the Regulatory Considerations section below.

Compliance Determination: Out - Order - Refer to Enforcement Summary

Requirement 11: Condition 26

The Holder must develop and implement an Environmental Management Plan (EMP) in accordance with Section 25 and Appendix 2A of the Application. *See Appendix 3 for full Condition wording.*

Coastal GasLink Pipeline Project, Environmental Management Plan (Appendix 4)

Section 8.3 - Surface Material Removal, Salvage and Grading

Stabilize exposed surface material and subsoil where the potential for erosion exists. Refer to the Soil Erosion Contingency Plan (Appendix C.7) for additional information.

Findings:

On November 2, 2020 during inspection of the slopes on the low chain side of watercourse #WC272, EAO C&E observed exposed surface material that had not been stabilized. An area of stripped right of way approximately 50 m wide by over 150 m long slopes towards watercourse #WC272 on the low chain side of the watercourse feature. Water from snow melt and recent rain events was observed to be actively eroding the right of way and has caused sediment from the right of way to transport downslope towards the watercourse. See photos below for more information.



Photo 69: Exposed surface materials from stripping of right of way, active erosion. Sediment mobilizing towards watercourse #WC272.



Photo 70. Water from water bar directed to back side of berm and flowing towards watercourse. Erosion taking place and sediment mobilizing towards watercourse #WC272.



Date & Time: Mon, Nov 02, 2020, 12:28:01 PST
 Position: 10 N 454681 6036699 (-9.8m)
 Altitude: 794m (+16.1m)
 Datum: WGS-84
 Azimuth/Heading: 291° N07W 5170mils Magnetic (+12°)
 Elevation Grade: -001°
 Horizon Grade: +006°
 Zoom: 1.0X
 26 road - low chain side of s3 crossing.

Photo 71: Exposed surface material eroding slope and draining towards fish-bearing watercourse.

The above observations provide evidence of non-compliance with the requirement to stabilize exposed surface material and subsoil where the potential for erosion exists near KP244+540.

For more information see the Regulatory Considerations section below.

Compliance Determination: Out - Order - Refer to Enforcement Summary

Requirement 12: Condition 26

The Holder must develop and implement an Environmental Management Plan (EMP) in accordance with Section 25 and Appendix 2A of the Application. *See Appendix 3 for full Condition wording.*

Coastal GasLink Pipeline Project, Environmental Management Plan (Appendix 4)

Section 8.2 - Clearing

Install sediment control structures such as temporary berms on approach slopes to watercourses following grading, as required (Dwgs.STDS 03 ML 05-001, STDS 03 ML 05-608, STDS-03-ML-05-132, STDS-03-ML-12-221, STDS-03-ML-12-222, and STDS-03-ML-12-223). Inspect the temporary sediment control structures on a daily basis and, if repairs are required, complete before the end of each working day.

Section 8.5 - Pipeline Activities

Inspect and install erosion control measures such as cross ditches and berms where required on long or moderately steep to steep slopes.

*Lists have been shortened from the original version.

Findings:

Temporary berms and water bars were inspected during EAO C&E's time on site on November 2, 2020. At that time it was observed that two berms on the low chain side of watercourse #WC272 (KP244+510) were non-functioning. The first (upper most) berm was installed to direct water from the right of way to a settling area, however, where the water accumulated a notch in the berm was present and water continued to flow uninterrupted down the right of way. This caused additional erosion and sediment transport downstream. See the three photos below for more information.



Photo 72: Berm used to direct water from ROW to low point.



Photo 73: Notch in berm causing water to continue to travel down slope towards fish-bearing stream.

Date & Time: Mon, Nov 22, 2020, 11:06:55 PST
 Position: 10 N 554526 6036989 1-4.7m
 Altitude: 81.5m (-3.4m)
 Datum: NAD83-11
 Azimuth/Bearing: 199° S16W 3530mils Magnetic (+12°)
 Elevation Grade: -327%
 Horizontal Grade: -002%
 Zoom: 1.0X
 26 road - low chain side of s3- water captured here temp. but gap in berm



Photo 74: Flow down slope after the berm.

EAO C&E followed the water from the above berm down slope where it eventually drained into the catchment at the end of a second berm. The outlet location of this small berm / water bar had sediment fence and straw bails installed to aid in sediment retention prior to the water discharging through a gap in a topsoil windrow. It is assumed that the water bar was designed to direct water off the right of way through the gap in the topsoil windrow and into the forested area beyond the right of way. However, after the water passed through the straw and sediment fence the water continued to travel down the slope along the back side of the topsoil windrow and towards a fish-bearing stream feature. As the water continued to travel down slope additional erosion and sediment transport occurred. See the five photos below for more information.



Photo 75: Sediment laden water pooling at low point of berm / water bar. Red arrow indicates erosion of exposed soils on ROW.



Photo 76: Gap in topsoil windrow. Sediment laden water passing through sediment fence and straw.



Photo 77: Opposite side of sediment fence. Sediment laden water now flowing down slope on opposite side of topsoil windrow.



Photo 78: Opposite side of sediment fence. Sediment laden water now flowing down slope on opposite side of topsoil windrow.



Photo 79: Red arrow indicating sediment laden water on back side of windrow continuing to flow down slope. Blue arrow indicates fish-bearing stream at base of slope.

At the high chain approach to the fish-bearing (S4) stream at KP244+610, two water bars were observed. The right bank approach was measured to be approximately 180 m long x 74 m wide. An additional 220 m long roadside ditch (from the 26 road) also drains to the right of way in this location. This large catchment area is controlled by these water bars and a single sump the size of an excavator's bucket.

Material from a soil stockpile had sloughed into the upper extent of the upper most water bar. Following the water bar south across the right of way, a machine had previously crossed the bar leaving imprints and causing water within the bar to escape in the now established low point. Additionally, the upper most water bar does not extend the full length of the right of way, causing the water to reach the south end of the bar, flow down slope causing erosion along the south side of the right of way before it joins with the second water bar lower down the slope. Once the water from the upper water bar flows down the right of way and joins the second water bar, this second water bar discharges through a gap in a topsoil berm on the south side of the right of way. This gap in the berm has sediment fence installed across it. However, the sediment fence is not correctly keyed into place and the water flows beneath the sediment fence uninterrupted to the vegetated area beyond the right of way and adjacent to the fish-bearing (S4) stream. See the six photos below for more information.



Photo 80: Soil stockpile material sloughing into water bar.



Photo 81: Upper water bar looking north, red arrow indicates tracks through water bar.



Photo 82: Exit point of upper water bar not functioning. Water continues to travel down ROW causing erosion.



Photo 83: Water discharge location from lower most water bars.



Photo 84: Gap in sediment fence at end of water bar.



Photo 85: Sediment laden water in vegetation beyond water bar discharge location. Risk of this material reaching S4 feature.

The above observations appear to provide evidence of non-compliance with respect to installing, inspecting, and maintaining sediment and erosion control measures on slopes.

For more information see the Regulatory Considerations section below.

Compliance Determination: Out - Order - Refer to Enforcement Summary

Requirement 13: Condition 26

The Holder must develop and implement an Environmental Management Plan (EMP) in accordance with Section 25 and Appendix 2A of the Application. *See Appendix 3 for full Condition wording.*

Coastal GasLink Pipeline Project, Environmental Management Plan (Appendix 4)

Appendix C.7 - Soil Erosion Contingency Plan

If wind or water erosion is evident during the construction phase of the Project, all necessary Contractor equipment and personnel will be made available to control the erosion. During the construction phase, the Environmental Inspector(s) in consultation with Coastal GasLink's Environmental Advisor will determine appropriate procedures to be implemented to control soil erosion and other soil handling problems encountered.

Findings:

During inspection on November 2, 2020 EAO C&E observed sediment laden Project water leaving the site and entering directly into a fish-bearing watercourse (#WC272). The release of this material was underway prior to EAO C&E arriving on-site and was observed by EAO C&E during inspection of WC272. This observation was brought forward to Coastal GasLink's General Inspector on site at approximately 11:40 hours, however, the General Inspector was already aware of the sediment release into the watercourse as he was on the bridge spanning watercourse WC272 and within eyesight of the release at the time EAO C&E discussed the observations.

The Contractor's Environmental Monitor was made aware of the sediment release into the watercourse at approximately 12:01 hours by the General Inspector. EAO C&E, the General Inspector and the Contractor's Environmental Monitor viewed the sediment release into the watercourse from the temporary bridge crossing. At that time, the Environmental Monitor contacted the Site Foreman, who was within eyesight, using a handheld radio to inform of the sediment release into the watercourse and request personnel and supplies to begin addressing the sediment release.

As he was contacted, the Site Foreman was in the process of directing works launching girders to install a bridge over the nearby S4 stream feature at KP244+610. The Site Foreman responded to the Environmental Monitor on the radio that he would make crews available once the girders had been set into place over the S4 stream. No timeline was provided for this work to be completed.

Girder launching was taking place using two excavators, and two bulldozers. Crew members were also stationed on the ground to help as necessary. However, EAO C&E notes that many crew members were stationed well away from the active girder launch in order to stay safe and out of the "line of fire." These crew members were not made available to begin to address the sediment laden water release into the fish-bearing stream when first requested by the Environmental Monitor.

At approximately 12:24 hours, after girder launching was stopped due to in-stream work requirements being triggered (see Requirement 14), the Foreman directed crews to work with the Contractor's Environmental Monitor and begin addressing the sediment laden water that was discharging into the fish-bearing stream.



Photo 86: Arrow indicating crew members installing ESC measures on slope to S3 stream.

The above observations appear to provide evidence of non-compliance as water erosion causing sediment release into a watercourse was underway prior to EAO C&E arriving on site, was observed by EAO C&E and was communicated from EAO C&E to Coastal GasLink’s General Inspector who then informed the Contractor’s Environmental Monitor. From there the Site Foreman was informed of the erosion and subsequent sediment release into a watercourse. However, the General Inspector did not action crews to deal with the release, the Foreman chose to continue work and Contractor personnel and equipment were not made available until stop work was implemented as a result of the failed girder launch and subsequent in-stream work requirements being triggered.

Compliance Determination: Out - Warning - Refer to Enforcement Summary

Requirement 14: Condition 26

The Holder must develop and implement an Environmental Management Plan (EMP) in accordance with Section 25 and Appendix 2A of the Application. *See Appendix 3 for full Condition wording.*

Coastal GasLink Pipeline Project, Environmental Management Plan (Appendix 4)

Section 8.4 - Watercourse Crossings

Implement the Water Quality Monitoring Plan (Appendix E.2) to monitor water quality during instream construction activities. Exceedances of water quality parameters will be reported to the Environmental Inspector and corrective actions will be developed in consultation with the Resource Specialist, the construction management team and the BC OGC. If corrective actions are not successful, construction activities will be temporarily suspended until effective solutions are identified.

Findings:

As EAO C&E conducted the inspection around the KP244+540 S3 bridge (#WC272), the Contractor was actively working to install a bridge crossing over a nearby fish-bearing (S4) stream at KP244+610. The works included launching steel girders across the channel to place them on previously installed abutments. As the girders were being launched, they were dropped and fell into the active channel of the S4. The Contractor was planning to move forward with girder install by “pulling the girders out” of the channel. However, EAO C&E intervened and spoke with CGL’s General Inspector and both the Contractors’ Environmental Monitor and Site Foreman to inform them that in-stream work requirements had been triggered and urged them to review the Project requirements as they relate to the Plan(s) before taking next steps. At that time, work was stopped, the Contractor reached out to request water quality monitoring specialists to attend site, and crews were actioned to begin installing ESC measures elsewhere on site (see Requirement 13).

The observations above provide evidence of non-compliance with the requirement to implement the Water Quality Monitoring Plan during in-stream construction activities. Water quality monitoring during in-stream work was not planned to take place even though the Contractor communicated to EAO C&E that the removal of the girders was going to move forward by pulling the girders out of the channel of a fish-bearing watercourse. Furthermore, prior to the girders falling into the active channel of a fish-bearing stream, EAO C&E observed crew members walking back and forth through the riparian area and edges of the S4 channel while working to install the bridge abutments and girders. Walking in the channel can stir up sediment and impact available fish habitat.



Photo 87: Steel girder dropped into S4 channel. Upstream looking downstream.



Photo 88: Steel girder in S4 channel. Left bank facing right bank.



Photo 89: Steel girder in S4 channel. Downstream facing upstream.

Compliance Determination: Out - Warning - Refer to Enforcement Summary

Requirement 15: Environmental Assessment Act, 2002, Order Under Section 34(1)

EN2019-003, June 17, 2019

Pursuant to Section 34(1) of the Act, I order that the Certificate Holder, as of the date of this Order, and hereafter for the life of the Project, secure, dispose of, remove, or otherwise manage all wildlife attractants in a manner that prevents the attraction of wildlife and/or access to attractants by wildlife, to the satisfaction of EAO Compliance and Enforcement.

Condition 26

The Holder must develop and implement an Environmental Management Plan (EMP) in accordance with Section 25 and Appendix 2A of the Application. *See Appendix 3 for full Condition wording.*

Coastal GasLink Pipeline Project, Environmental Management Plan (Appendix 4)

Appendix C - Chemical and Waste Management Plan – Waste Disposal

- Each construction site will be equipped with adequate garbage receptacles for solid non-hazardous wastes and debris. These materials will be collected as required and disposed of at approved locations. Food wastes will be stored in animal proof (bear-proof) containers and transported to an appropriate landfill site.

*Lists have been shortened from the original version.

Findings:

While EAO C&E was on the Project right of way, accessed off the Lone Prairie Road, a waste bin containing anthropogenic food waste was observed to be left open and had a raven eating from it. Food waste could be observed on the ground outside of the bin and bags within the bin showed evidence of foraging from the bird. This was brought to the attention of the CGL representatives who were in attendance during the inspection. This observation occurred at approximately 14:20 hours, the inspection carried on and when passing back through the area at approximately 16:47 hours the bin remained open and the bird was again observed in the area of the bin. See photos below for more information.



Photo 90: Raven observed scavenging from waste bin.



Photo 91: Contents of bin above.



Photo 92: Banana peel, drink containers and food wrappers on ground outside of the bin.



Photo 93: Bin as seen at 16:47 hours.

The observations above appear to provide evidence of non-compliance.

Compliance Determination: Out - Warning - Refer to Enforcement Summary

Requirement 16: Condition 26

The Holder must develop and implement an Environmental Management Plan (EMP) in accordance with Section 25 and Appendix 2A of the Application. *See Appendix 3 for full Condition wording.*

Coastal GasLink Pipeline Project, Environmental Management Plan (Appendix 4)

Section 8.1 - General Environmental Protection Measures

Section 8.1.3 - Specific Measures

Air Quality and Emissions

- Reduce idling of equipment, where practical.

*Lists have been shortened from the original version.

Findings:

During EAO C&E's inspection in Section 4 on November 2, 2020 a Contractor vehicle (# SA2-515) was observed to be left idling while unattended for a prolonged time period. At 10:44 hours, EAO C&E noted that the vehicle was idling. When inspecting the area, no workers could be found. When EAO C&E left the area at 11:12 hours, the vehicle remained idling and still no workers were observed. The vehicle was parked on a secondary access road, away from the active construction, on the low chain side of KP244+510, which is where the active works were taking place.

EAO C&E brought this finding forward to CGL's General Inspector who was on site and was informed that the vehicle is operated by one of the workers who was taking part in the bridge install. The worker would have arrived on site around 09:45 hours and walked to the location where work is taking place. The operator of the vehicle walked from the parking location to the work front, approximately 500 m or more, and left the vehicle idling on departure. From there the worker would return to the vehicle for lunch or at the end of the day. The temperature during the inspection ranged from +5° Celsius to +8° Celsius.

At approximately 12:24 hours, EAO C&E observed the General Inspector tell the vehicles operator to return to the vehicle and shut the truck off.

The observations above appear to provide evidence of non-compliance with this requirement as the vehicle had no practical reason to remain idling while the workers conducted tasks outside of the vehicle for the day.

Date & Time: Mon, May 04, 2020, 11:06:09 PST
 Position: 10 N 654521 6036512 (-4.7m)
 Altitude: 81.6m (-3.4m)
 Datum: NAD83-84
 Azimuth/Bearing: 023° N23E 0409mils Magnetic (-12°)
 Elevation Grade: +000%
 Horizon Grade: +001%
 Zoom: 4.0X
 20 road - low chain side of rd, pick-up idling, no worker found in area.



Photo 94: Vehicle observed to be unattended and idling for at least 1 hour and 40 minutes. Temperature ranged from 5 to 8 degrees Celsius while on site.

Compliance Determination: Out - Notice of Non-Compliance

Requirement 17: Condition 26

The Holder must develop and implement an Environmental Management Plan (EMP) in accordance with Section 25 and Appendix 2A of the Application. *See Appendix 3 for full Condition wording.*

Coastal GasLink Pipeline Project, Environmental Management Plan (Appendix 4)

Section 8.4.3 Specific Measures

Signage

Post signs immediately following clearing (including name, number and KP) for watercourses. Signs will be posted 100 m from the watercourse or at the top of the valley slope, whichever is greater, to alert the Contractor of the upcoming watercourse.

Findings:

During inspection of Section 5 on October 23, 2020 EAO C&E noted that not all watercourses have signage posted in the field. It is EAO C&E's understanding that the Contractor responsible for construction in this Section has recently been awarded work in this area of the Project and are working to meet the Requirements of the contract. However, construction activities including bridge installation and earth works were observed to be underway in Section 5 during the inspection.

The observations provide evidence of non-compliance with the Requirement to post signs immediately following clearing for watercourses.

EAO C&E notes that Inspection Records IR2020-021, IR2020-047 and IR2020-051 document non-compliance with this requirement. The Project has previously received both a Notice of Non-Compliance and two Warnings relating

to this requirement. Future non-compliance with this requirement will result in additional enforcement action by EAO C&E.

Compliance Determination: Out - Warning - Refer to Enforcement Summary

Actions Required by Certificate Holder & Additional Comments

None at this time.

Enforcement Summary

COASTAL GASLINK PIPELINE LTD. IS WARNED THAT THE PROJECT IS NOT COMPLIANT WITH CONDITION # 26 OF EAC #E14-03 REGARDING:

- **The lack of approved Contractor and site-specific erosion and sediment control Plans in Section 5 – Requirement 2 above;**
- **Making personnel available when erosion is evident – Requirement 13 above;**
- **Implementing the Water Quality Monitoring Plan – Requirement 14 above;**
- **Securing, disposing of, removing or otherwise managing wildlife attractants – Requirement 15 above; and,**
- **Installing signage at watercourses in Section 5 – Requirement 17 above.**

Coastal GasLink Pipeline Ltd. has been issued a Notice of Non-Compliance with Condition 26 of Schedule B regarding idling of equipment – Requirement 16 above.

IN ADDITION, COASTAL GASLINK PIPELINE LTD. IS NOT COMPLIANT WITH CONDITION #26 OF EAC #E14-03. SEE APPENDIX 11 FOR AN ORDER ISSUED UNDER SECTION 53 OF THE ENVIRONMENTAL ASSESSMENT ACT.

EAO C&E MAY INSPECT TO DETERMINE IF THE COASTAL GASLINK PIPELINE PROJECT HAS BEEN BROUGHT BACK INTO COMPLIANCE WITH THESE REQUIREMENTS. CONTINUED NON-COMPLIANCE WITH THESE REQUIREMENTS MAY RESULT IN ADDITIONAL ENFORCEMENT UNDER THE ENVIRONMENTAL ASSESSMENT ACT. SEE REGULATORY CONSIDERATIONS SECTION FOR ADDITIONAL INFORMATION.

Regulatory Considerations

Non-compliance with Requirements 3 through 12 relating to erosion and sediment control have resulted in the Coastal GasLink Pipeline Project receiving an Order under Section 53(1) of the Environmental Assessment Act (2018). See Appendix 11.

Inspection Conducted by



Clayton Smith
Senior Compliance & Enforcement Officer

Date Sent to Certificate Holder for Opportunity to Respond
2020-11-16

Date Finalized
2020-12-08

Appendices

Appendix 1: EA Certificate # #E14-03
Appendix 2: Schedule A

- Appendix 3: Schedule B
- Appendix 4: CGL_EMP_2018
- Appendix 5: CGL_EMP Appendix C_Contingency Plans_2018
- Appendix 6: CGL Erosion and Sediment Control Plan
- Appendix 7: Work Package 1, SMJV_ESC_Plan_Final
- Appendix 8: Work Package 2, SAEG_ESC_Plan
- Appendix 9: Work Package 3, PAPC_Drainage Erosion and Sediment Control Plan R0
- Appendix 10: CGL4703-CGP-BCEAO-REG-LTR-4273_Response to IR2020-055 Draft Inspection Record (002)
- Appendix 11: EN2020-011_Coastal Gaslink_2020-12-08_Section_53_Order_ESC

Environmental Assessment Office - Compliance & Enforcement Branch

<p>Mailing Address: PO Box 9426 Stn Prov Govt Victoria, BC V8W 9V1</p>	<p>Phone: 250-387-0131 Email: eao.compliance@gov.bc.ca Website: www.gov.bc.ca/eao</p>
---	---