

Detailed Response to City of Pitt Meadows Comments
CP Logistics Park: Vancouver

Prepared for:

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Project No. 104415-04

July 18, 2022

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August 2, 2022

Mark Roberts
Chief Administrative Officer
City of Pitt Meadows
12007 Harris Road
Pitt Meadows, B.C. V3Y 2B5

Dear Mr. Roberts,

Thank you for your letter of March 18, 2022 and for providing feedback on both the draft Environmental Effects Evaluation (EEE) and the supporting technical studies that assist in evaluating potential effects and proposed mitigation measures. The EEE is a critical component of CP's application to the Canadian Transportation Agency (CTA), and your input has been helpful to refine the EEE and technical studies.

Since the beginning of our engagement on the proposed Project, our goal has been to identify, consider, and address issues and potential effects identified by the City of Pitt Meadows (the City), First Nations, and the broader community before an application is made to the CTA. CP has met with the City's staff on multiple occasions over the last two years (April 14, 2020; June 20, 2020; June 24, 2020; July 14, 2020; November 25, 2020; December 1, 2020; December 15, 2020; January 11, 2021; February 11, 2021; April 8, 2021; June 10, 2021; December 16, 2021; January 13, 2022; January 20, 2022; February 15, 2022; February 17, 2022; March 17, 2022) to seek input and feedback. Our application to the CTA will include a summary of our community engagement process, including how CP has considered and made revisions to our proposed project based on community input.

As a result of the submission from the City, CP initiated a process of reviewing and considering additional changes to our submission. In Appendix 1, we have provided a summary of the revisions to the EEE and/or technical studies in response to the comments of subject matter experts engaged by the City. In addition, Appendix 1 of our submission provides a response to all comments identified by subject matter experts in Appendix B-F of the City's letter of March 18, 2022.

Given the substantial overlap in comments presented in Appendix A of the City's letter of March 18, 2022, that are also presented in Appendices B-F, CP has focused its responses on the comments provided by subject matter experts engaged by the City (Appendices B-F). In addition, below we have provided a response to the key topics identified in the City's cover letter and Appendix 1.

1. Enhancement and refinement of technical studies

Based on a review of comments on the draft EEE and technical studies provided by qualified professionals engaged by the City, CP has updated documents in Appendix 1. The majority of these updates provide greater clarity on the methods used to undertake the effects evaluation presented in the draft EEE including the clarification of key assumptions, data sets, inputs and source materials used to support the effects evaluation.

In addition to those updates, in response to comments from the City, CP has expanded the scope of technical studies in a number of key areas. CP appreciates the feedback that led to enhancing technical studies that support the EEE. Following the completion of this additional work, the respective technical studies and EEE that will be included in CP's application to the CTA have been updated to reflect the findings and conclusions of this additional technical work.

The areas where CP has undertaken additional technical studies, or otherwise refined the scope of studies, include the following:

- Undertaking quantitative vibration modelling for piling during the pre-construction and construction phase;

- Modifying air quality assessment methodology (for NO2) to reflect regulatory guidance released in late 2021 (after technical studies were complete) and re-running the air quality modeling undertaken; and
- Refining the methodology used to model stormwater volumes, and support the design of stormwater and drainage infrastructure, to align with the City's requirements.

2. Traffic

CP and its team have made a concerted effort to consider the City's feedback and plans related to transportation infrastructure in the design of the project. CP has met with (virtual, in-person, and phone) City staff and Council on at least 11 occasions over the last two years and has engaged in dialogue on a number of issues related to transportation infrastructure. CP appreciates the constructive dialogue with the City, including but not limited to the potential impacts of the project on Kennedy Road and a future McTavish Connector.

- **Kennedy Road** - through the Pitt Meadows Road and Rail Improvement Project (PMRRIP), CP has been actively engaged in dialogue with the City and the Vancouver Fraser Port Authority on the future of Kennedy Road. That work was paused in March 2021 at the request of the City. CP strongly supports moving forward with a new grade separation on Kennedy Road as part of the PMRRIP when the City is prepared to continue with those discussions.
- **Intersection at Kennedy and Lougheed** – CP's traffic study carefully examined and shared detailed assumptions about the potential impact of the proposed project on the intersection at Kennedy Road and Lougheed Highway (Highway 7). Lougheed Highway is a roadway that is under provincial jurisdiction, and CP has been in ongoing dialogue with the Ministry of Transportation and Infrastructure (MOTI) about the plans for the CP Logistics Park: Vancouver. CP is prepared to continue to work with MOTI and the City to provide information and participate in discussions about the future of this important intersection.
- **McTavish Connector** - CP is aware that the City has raised the McTavish Connector as a potential issue related to the proposed CP Logistics Park: Vancouver, and addressed this topic in the *Consideration Memo* prepared following the first round of community consultation. CP has had preliminary conversations and looks forward to continuing to discuss a potential alternative that is designed to protect the Katzie Slough, accommodate a more gradual turn and create greater separation from the proposed Project by using property currently owned by CP.
- **Active Transportation** – CP acknowledges and supports the City's interest in enhancing active transportation infrastructure adjacent to the Project. CP also notes that, at this early stage of project planning and in the context of the findings of the draft EEE, CP has not identified any impacts to active transportation infrastructure resulting from the proposed project that may require mitigation. Notwithstanding the conclusion of the draft EEE, and consistent with CP's commitment to collaboration through all stages of project planning and development, CP will continue to work with the City to identify opportunities for enhancements to active transportation that could potentially be included in the final design of project.

CP looks forward to continuing to address concerns related to transportation infrastructure with the City as it moves forward through the CTA process. CP has been in touch with MOTI to share information about our proposed project to assist MOTI with their planning for transportation infrastructure in the area. CP is committed to working with MOTI to address the impacts of the project on the regional road network.

3. Emergency response

Operating safely is a responsibility CP takes very seriously; it is foundational to our operations. Railroads are the safest mode to ship goods long haul in North America.

CP has heard and addressed comments from the City and other members of the community about concerns regarding the ability of Pitt Meadows Fire and Rescue Service (PMFRS) to properly service the proposed facility. CP safely moves the goods being proposed for the CP Logistics Park: Vancouver through Pitt Meadows every day, as required by our common carrier obligation.

CP has reached out directly to the Fire Chief of the PMFRS to discuss the proposed Project and better understand the needs of the existing fire service. CP will continue to work with emergency response agencies to ensure the necessary

training and procedures are in place before operation. We are committed to engaging with the community, the City and the PMFRS as we move forward with the CTA process.

4. Drainage

With respect to drainage and stormwater management considerations associated with the Project, the draft EEE acknowledges the potential for changes to existing conditions and proposes mitigation measures to address potential effects including a stormwater management system with stormwater retention ponds. The draft EEE further notes that with the application of mitigation measures, Project-related effects are anticipated to be fully mitigated.

CP considers the work to confirm detailed designs and address potential drainage effects an iterative process. In this context, CP looks forward to continuing to work with the City to refine modeling work that will guide the design to address potential impacts to the local drainage system. As evidence of this commitment, CP has undertaken refinements to the model used to guide stormwater design for the Project, in response comments from the City's qualified professional. The results of this updated and refined modeling have been incorporated into the EEE that will be submitted to the CTA.

In addition, CP has had an active dialogue with the City over the past year regarding potential investments in local drainage infrastructure to mitigate project-related effects and assist the City in enhancing infrastructure that supports enhanced flood protection, agricultural land use and habitat values. CP looks forward to continuing to have these discussions with the City to confirm potential investments in local drainage and water management infrastructure.

5. Air quality, noise and human health

CP understands the critical importance of undertaking a robust evaluation of potential effects of the project on air quality, noise/vibration and human health. As such, CP appreciates the review and input provided by qualified professionals on behalf of the City. These comments provide an important opportunity to refine and enhance the comprehensive studies that have been undertaken.

In response to these comments, CP has instructed the qualified professionals undertaking technical studies as part of the EEE to consider the comments, and where appropriate, update technical work to reflect comments provided to CP. As noted in Section 1 above, this has resulted in CP expanding the scope of some air and noise studies. This additional work will be reflected in revised technical studies and the EEE that will be submitted as part of CP's application to the CTA.

CP appreciates the collaboration with the City and its experts to help improve the EEE and CP's proposed project. As with all of the potential effects and mitigation proposed as part of the EEE, CP looks forward to working closely with the City during future stages of project planning to continue to incorporate feedback and additional information the City may share. These future stages of collaboration will focus on finalizing mitigation concepts and ensuring that potential effects are effectively mitigated.

6. Agriculture

CP understands the importance of agriculture to both the local and regional economy, as well as the importance of agricultural land in the Lower Mainland. One of the goals of the proposed project is to create critical infrastructure to ensure Canadian agricultural products can reach international markets. Responsibly reconciling these two important objectives is a challenge that CP takes seriously.

In recognition of this, and with additional work to explore other potential sites in the Lower Mainland, CP made the decision to propose an expansion adjacent to an existing facility to minimize a variety of important potential impacts that might come with a greenfield site.

While CP is not required to obtain regulatory approval from the Agricultural Land Commission as a federally regulated railway whose work is designated for the general advantage of Canada, CP takes the assessment of potential effects and proposed mitigation and offsetting of potential effects on agricultural land seriously. CP is working closely with the local

agricultural interests to ensure the scope of effects is appropriately considered, and that the mitigation proposed reflects their input. Building on the evaluation of agriculture and soils presented in the draft EEE, CP looks forward to working with the City, and local agricultural interests, to finalize a mitigation and offsetting proposal that addresses the effects of the project.

7. Information sharing

CP acknowledges that there have been a number of requests from the City to provide specific technical studies that support the draft EEE. As noted to the City previously, all information that has been generated to support the technical studies and draft EEE (other than stand-alone studies that CP has already shared with the City including those referred to in the City's March 18, 2022 letter) is included in the draft EEE. This includes information such as key assumptions and technical inputs that support the evaluation of issues considered in the draft EEE.

As CP has noted to the City, the contents of draft baseline study reports have been fully integrated into the EEE to facilitate ease of access to information for the CTA as well as any external audiences with an interest in the proposed project. As such, all the information required to understand the methods employed to support the technical studies and draft EEE undertaken by CP is publicly available. Any additional information that is provided to the CTA as part of their process will also be publicly available.

In Appendix 1, CP has provided direction to assist the City in finding specific information that has been requested.

8. Integration of previous COPM comments

CP's goal through the public consultation period has been to identify issues of importance to the community, and to receive and consider feedback about the project in an effort to improve our application to the CTA. As part of this effort, CP designed a three round public consultation program that included seeking input from the City of Pitt Meadows and members of the community. Following each round of consultation, CP developed a *Consideration Memo* (Round 1; Round 2; Round 3). The consideration memos respond to issues raised during each round of consultation. These consideration memos cover topics from agriculture, to human health, to noise and vibration.

The Consideration Memo following Round 1 specifically addressed some of the feedback raised regarding the comparative site evaluation on page 10, as well as a number of other relevant subjects throughout. Together, the Consideration Memos include over 30 pages of substantive responses to issues being raised through the pre-application consultation period, including examples of how the proposed project plans or studies were modified as a result of input. In addition, CP developed a comprehensive EEE, which comprehensively addresses many of the topics raised by the City and members of the community.

This engagement has helped improve CP's EEE and application to the CTA, and CP looks forward to continuing to work with the City to identify and address potential issues related to the project.

9. Supporting Engagement

CP recognizes that communities want more opportunities to provide input into the development of projects earlier in the process. That is why CP designed a three round public consultation program to take place prior to an application to the CTA, with each round seeking input from the City of Pitt Meadows and members of the community.

This process started back in December 2020 with the first round of engagement, and began with CP seeking feedback on potential valued components important to the community. In a second round of engagement, CP shared a Terms of Reference that formed the basis of the EEE, outlining the existing conditions, study objectives, and potential mitigation approaches across over 13 subject areas including air quality, agriculture and safety. Building on the first two rounds of consultation, the third round of consultation focused on the detailed EEE, which provided more details on the studies that were completed, the conclusions of those studies and proposed mitigation measures.

This comprehensive consultation program took place over the course of more than a year, and included multiple opportunities for input to be provided and considered. In total, CP held nine open houses, developed three discussion

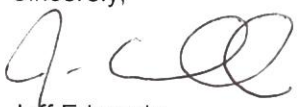
guides to help members of the community understand the materials, and responded to hundreds of emails as well as written and oral questions during the open houses.

CP welcomes additional input from the City and members of the community as it moves forward with an application to the CTA. CP is committed to ongoing engagement through the CTA process, which will include additional opportunities for public input.

Conclusion

CP appreciates the engagement from the City and its experts, which has provided valuable information and insights that have helped CP address comments, clarify information, and improve the technical studies that will be submitted in its application to the CTA. It is CP's view that the refinements to the technical studies have enhanced the analysis presented in the EEE, which increases CP's confidence in the overall findings of the EEE and proposed mitigation. CP recognizes the need for ongoing dialogue and engagement with the City through the upcoming CTA process. Through our response, we have made a number of commitments on subjects that require additional discussion with the City, and we look forward to the opportunity to move forward on these shared priorities.

Sincerely,

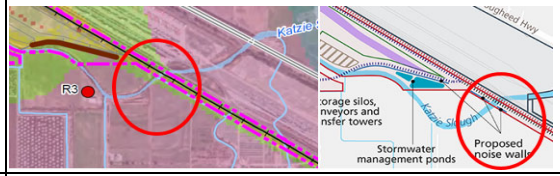


Jeff Edwards
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APPENDIX A

Response to the City of Pitt Meadows February 2022 Comments

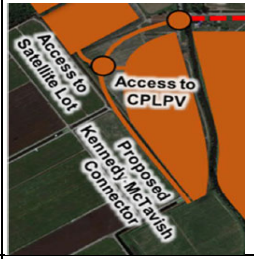
Comment Response Tracking Sheet - City of Pitt Meadows Batch 1

Comment #	Theme	Reviewer	Date	Reviewer Comments	Response to Comment
1	Noise and Vibration	City of Pitt Meadows	18-Feb-22	Please explain how the existing VIF sources were included (or excluded) in the 2021 noise assessment (along with a rationale as to why?)	The baseline noise levels determined for the Project Area and LEA, are inclusive of noise generated from the exiting VIF facility. Baseline noise levels were determined in the 2021 noise assessment based on monitoring results that were also used to inform modelling of baseline conditions over a wider area. Noise sources from the existing VIF facility are not included in the Project effects modelling as modelling is intended to consider potential Project-related changes only.
2	Noise and Vibration	City of Pitt Meadows	18-Feb-22	Can CP identify where pile driving, shoring, caissons or other below-grade structures or foundations may be installed?	Areas where pile driving, shoring, caissons, or other major below ground structures or foundations are illustrated in the provided sketch. Recent review of available information on pile driving identified that design had advanced sufficiently to undertake a conceptual noise model for piling activities. The results of this study will be added to the EEE.
3	Noise and Vibration	City of Pitt Meadows	18-Feb-22	Please outline the expected number of trains that will be operational in the Logistics Park during the day (average and peak) and hourly (average and peak)?	The Facility is expected to receive an average of one unit agricultural train every three days (i.e., 120 trains annually), and two manifest liquids and auto trains per day (i.e., 720 trains annually). Due to bunching of traffic on the rail network, the Facility may receive more or fewer trains than the average on any given day.
4	Noise and Vibration	City of Pitt Meadows	18-Feb-22	Can CP provide additional detail of the proposed noise walls, including length and type (reflective vs absorptive)?	Based on the modeling, the preliminary design for the proposed noise walls are currently anticipated to be approximately 1 km (Harris Road), 420 m (near McTavish Road), and 330 m (Kennedy Road) in length. Lengths of noise walls may be adjusted during further engineering design but will be specified to reduce impacts at adjacent residences. All noise walls are expected to be of the absorptive type.
5	Noise and Vibration	City of Pitt Meadows	18-Feb-22	CP's map on the LPV website shows two smaller noise walls on either side of Katzie Slough, but these walls are not included in the EEE. See below and please clarify: 	This is an error in figure production for the LPV website. The noise walls depicted in the EEE are correct. The LPV website has been updated with revised figures.
6	Air Quality/Human Health	City of Pitt Meadows	18-Feb-22	Can CP please provide additional operational data used to calculate air emissions, including: o Equipment/engine types o Emission factors o Throttle settings o Operating speeds o Operational timeframes	As described in Section 9.4.2.2 of the EEE, emission factors for locomotives were obtained from the Railway Association of Canada. These emission factors are based on the horsepower usage and working times. Operating speeds do not directly affect emission calculations. Air emissions were calculated based on 4,400 hp road switchers on unit agricultural trains and 3,000 hp yard switchers at the Facility. Duty cycles (i.e., percent of time in each throttle setting) were obtained from the Railway Association of Canada and reflect average operating data for the Canadian fleet. Working times for road switchers and yard switchers were determined from Project specific studies.

Comment Response Tracking Sheet - City of Pitt Meadows Batch 1

Comment #	Theme	Reviewer	Date	Reviewer Comments	Response to Comment
7	Agriculture and Soils	City of Pitt Meadows	18-Feb-22	On Table 15.1 of the EEE, the indicators selected do not include agricultural specific socio-economic indicators except for traffic, light and noise. Did CP consider other socio-economic concerns (e.g., agri-tourism impacts, agricultural land value impacts, health impacts to farm workers), and if no, why not?	Socio-economic concerns were considered as part of mitigation planning, and can be correlated to the loss of Class 1 to 3 improved agricultural land and change in agricultural products or production. To mitigate potential effects to agrultural use and associated socio-econimic effects, compensation and offsetting are being considered, and have been informed by the local agricutlural community and a net present value analysis related to current and future crop production. Specifcially, a concept being explored is to offset the permanent loss of productive agricultural land through the provision of an agricultural benefit fund (see Section 15.4.3). Human Health, including to farm workers, is addressed in Section 19 of the EEE.
8	Surface Water, Groundwater and Drainage	City of Pitt Meadows	18-Feb-22	In the EEE and studies, preloading impacts to groundwater is only considered in the context of impacting groundwater quality by importing contaminated fill or aggregate. There is no apparent mention or assessment of impacts to groundwater levels, which will be impacted by preloading and dewatering activities. A thorough assessment of groundwater level changes during and following preloading should have been completed to evaluate impacts to surrounding areas given the naturally high groundwater levels. Was this assessment completed, and if yes, could it be provided?	An assessment of potential groundwater level changes during and following preloading was not carried out. However, the expectation is that groundwater will mound within the fill materials at a level above the natural pre-filling level. The groundwater expressed from settlement of the underlying soil as well as infiltration from precipitation will flow through the fill material toward the perimeter drains or into the subsurface drainage system (Golder 2020). Waterlogging of the ground adjacent to the preload is not anticipated provided the drains adequately capture these flows.
9	Surface Water, Groundwater and Drainage	City of Pitt Meadows	18-Feb-22	Preloading impacts to Katzie Slough and surrounding surface water bodies should have been assessed in the context of groundwater level changes. Was this assessment completed, and if yes, could it be provided?	Groundwater modelling was not completed because the conceptual model determined that numerical groundwater modelling was not warranted given the low conductive surficial materials over much of the area. The conceptual model maintains that precipitation will slowly infiltrate the topsoil and travel at a very low velocity toward the Pitt River and Katzie Slough. This is evidenced by numerous historic channels in the Katize Slough riparian and towards the Pitt River. The volume of water expected to infiltrate the silt and clay unit (recharge) is expected to be small compared to the lateral flow in deeper sand units that comprise the aquifer underlying the area. Although preloading will express groundwater to surface, this volume is expected to be small compared to site runoff. Drainage modelling considered existing and post development conditions and can be used to evaluate flows to Katzie Slough during the preloading period. The Hydrogeology Baseline Report and Katzie Watershed Modeling report have now been shared with the City for review.
10	Hatch's Stormwater Management Report	City of Pitt Meadows	18-Feb-22	Please provide clarification as to why Unit Area Release Rates were used as a method to establish pre- and post-development runoff rates, as this is not common practice within Lower Mainland	Unit Area Release Rates were used as they provided verifiable run-off rates in a catchment with similar pre-development conditions.
11	Hatch's Stormwater Management Report	City of Pitt Meadows	18-Feb-22	No detailed calculations or analysis have been provided demonstrating that there is sufficient attenuation of runoff that would result in post-development rates being less than or equal to pre-development runoff. Could this be provided?	This information can be provided. The Stormwater Management Report will be updated to include the requested information.

Comment Response Tracking Sheet - City of Pitt Meadows Batch 1

Comment #	Theme	Reviewer	Date	Reviewer Comments	Response to Comment
12	Transportation	City of Pitt Meadows	18-Feb-22	Hatch's study shows CP's proposed routing of the McTavish Connector (as shown below), but doesn't provide any assessment of proposed project impacts to the Connector nor City ROWs. Was additional assessment completed, and if yes, could this assessment be provided? 	Section 16.5 of the EEE discusses the cumulative effects of the Project, from a transporation perspective, with respect to the Kennedy-McTavish Connector. Given the conceptual nature of the proposed connector, a detailed assessment was not completed, however high level assessment is provided in Section 16 of the EEE, with acknowledgement that further assessment will be required should the proposed connector go ahead.
13	Transportation	City of Pitt Meadows	18-Feb-22	Can Hatch provide a recommendation on a timing plan that could be used for pre-construction, construction, and operation at the Kennedy Road / Lougheed Highway intersection? Granted that projections may change, but a recommendation should have been made.	A Traffic Management Plan will be developed for the project pre-construction and construction phases. This plan will developed in consultation with relevant authorities to determine appropriate timing and routing plans and will include measures to continuously assess the effects and measures in place for traffic management.
14	Transportation	City of Pitt Meadows	18-Feb-22	Hatch's traffic study uses a PHF of 1.0. Traffic data in Hatch's appendix shows actual PHFs. Why weren't the actual PHFs used in the study?	The actual PHFs were used for the intersection of Kennedy Road and CP Driveway. However, an overall PHF of 1.0 was used for the intersections of Lougheed Highway with Kennedy Road/Old Dewdney Trunk Road and Harris Road due to the poor operations of these intersections under existing conditions as discussed in Section 2.1.2.3 of the Report. If actual PHFs were used for these intersections, it would result in multiple movements operating with volume to capacity ratios of greater than one under existing conditions. Hence, for calibration purposes to replicate the oversaturated conditions of these intersections, the PHFs were adjusted to 1.0 for all movements. It should be noted that even with an overall PHF of 1.0, few movements were found to operate over capacity and/or with LOS 'F' for the Lougheed Highway intersections during the A.M. and P.M. peak hours
15	Transportation	City of Pitt Meadows	18-Feb-22	Regarding available information: signal timing plans for the intersections on Hwy 7 can obtained from MOTI, bus schedules and ridership are available on Translink's public tableau, data on R3 rapidbus is available on Translink's website as it launched in January 2020	At the time of writing, signal timing plans were not obtained for the intersections on Lougheed Highway. Traffic signal timings were derived and optimized from the Traffic Reports developed by Stantec Consulting Ltd. for the Kennedy Road Overpass and the Harris Road Underpass projects as discussed in Section 2.1.2.3. A mixture of bus only and HOV lanes were provided in the study area. For the intersection of Lougheed Highway and Kennedy Road/Old Dewdney Trunk Road, the eastbound and westbound curbside bus lanes were ignored representing a conservative analysis. Publicly available information on bus schedules on the Translink website were used to determine bus blockage values that were inputted in the Synchro model.

APPENDIX B

Response to Air Quality and Human Health Comments (Envirochem)

Comment Response Tracking Sheet - City of Pitt Meadows Batch 2, Appendix B

Comment #	Consultant IR #	Source	References	Reviewer Comments	Response to Comment	Comment Incorporated? (Y/N)	Changes to Document, or Rational why no changes occurred	Location of changes to document (Chapter, Section, Page)
1	A1	Envirochem	Section 9.0	The following abbreviations used in this section of the report are missing in the "ACRONYMS AND ABBREVIATIONS" section of the report: CAAQS, AEP, ECCC and MOVES	Thank you for your comment, these terms will be added to the Acronyms and Abbreviations.	Y	Update Acronyms and Abbreviations to include CAAQS, AEP, ECCC and MOVES	Acronyms and Abbreviations list
2	A2	Envirochem	Section 9.1	The third bullet notes that ambient concentrations with project are expected to remain below relevant air quality criteria at sensitive receptors. However, this study finds multiple exceedances of ambient air quality objectives. The final bullet point therefore may oversimplify the findings of the air quality study.	Exceedances of air quality criteria are noted at the boundary of the Project Area. Air quality criteria at identified sensitive receptors (e.g. residences, schools etc) are not exceeded. Further, exceedances at the Project boundary are predicted to occur prior to the application of additional mitigation measures outside of standard Project design and therefore represent a worst case scenario. Therefore the findings of the air quality study, as stated, are considered appropriate.	N	No changes required	No changes required
3	A3	Envirochem	Section 9.2.3.1 LEA	No information/rationale is provided on the choice of size of the LEA or regarding the size of the modelling domain. It is unclear if the CALMET domain is large enough to capture the effects of significant terrain to the north of the project location on the typical wind flows that are experienced in the local region.	Appendix A has been added to the EEE describing the dispersion modelling methodology, including the size of the CALMET domain.	Y	An appendix has been added to Section 9 (Air Quality) of the EEE to provide additional information on modelling methodology and reference provided in Section 9.3.2.1.	Appendix A added to Section 9.
4	A4	Envirochem	Section 9.2.4 Table 9.2	The Canadian Locomotive Emissions Regulations (enforced by Transport Canada) should be considered when referencing key policies/guidelines.	The Canadian Locomotive Emissions Regulations are expected to be considered indirectly through the use of emission factors from the Railway Association of Canada.	N	Locomotives used by CP need to follow these regulations but it's not unique to the Project as the Project will just be making use of their overall fleet. The Railway Association of Canada provides emission factors and methodologies for companies such as CP to calculate their emissions and report them. The evaluation used the same emission factors/methodology (which would presumably include the Canadian Locomotive Emissions Regulations). As such no changes to the EE are required	No changes required
5	A5	Envirochem	Section 9.2.4.1 Table 9.3	The air quality evaluation included diesel particulate matter, various common criteria air contaminants, and VOCs. Rationale is not provided for the exclusion of other potentially relevant air contaminants from the evaluation (e.g., carbon monoxide, dioxins/furans, metals, other VOCs).	As discussed in Section 9.2.2, the EEE focuses on the priority VOCs identified for the Metro Vancouver region based on their potential to cause acute or chronic health effects. Project-related effects associated with other VOCs are expected to be less than those associated with the priority VOCs considered. CO is not considered a key transportation related air emission and was not included in the EEE. The key transportation related air emissions are NO2, PM10, PM2.5, and black carbon. Of these, NO2 is considered to be the most direct measure of transportation related air pollution and is considered in the EEE. Dioxins/furans and metals was not included in the scope agreed upon in the Terms of Reference as they are not identified by the US EPA as priority urban air toxics emitted by mobile sources. DPM, assessed in the EEE, consists of a complex mixture of constituents including dioxins/furans and metals and it is not necessary to evaluate individual constituents. Evaluating individual constituents may lead to greater uncertainty in the assessment as it does not account for chemical interactions which may occur during exposure to DPM.	N	Rationale provided in response to comment, no changes to the EEE are required.	No changes required
6	A6	Envirochem	Section 9.2.4.1 Table 9.3	It should be noted that DPM and dustfall are not categorized as CACs.	Noted. While DPM and dustfall are not strictly categorized as CACs, they have been included in the EEE as CACs as they relate to particulate matter and to differentiate them from VOCs.	N	Clarification provided in response to comment, no changes to the EEE are required.	No changes required
7	A7	Envirochem	Section 9.2.4.1 Table 9.3	Table 9.3, footnote (e): "Based on the annual 98th percentile of daily average". For CAAQs annual averages, the 3-year average of the annual average of the daily 24-hour average concentrations should be calculated. The statistical approach used should be confirmed to ensure the calculated value is correct.	Footnote e has been corrected.	Y	Footnote to Table 9-3 has been revised to read "Based on annual average of daily concentrations, averaged over 3 consecutive years."	Table 9.3
8	A8	Envirochem	Section 9.2.4.1 Table 9.4	Table 9.4 includes a footnote identifying that the annual Ontario objectives presented for benzene and 1,3-butadiene have been adjusted. It is not clear what adjustment has been made here. The Ontario annual objectives for benzene and 1,3-butadiene are both an order of magnitude lower than the values presented in Table 9.4 at 0.45 µg/m^3, and 2 µg/m^3, respectively. Additionally, the 24-hour Ontario ambient air quality objectives of 2.3 µg/m^3 for benzene and 10 µg/m^3 for 1,3-butadiene are excluded from Table 9.4 without justification presented in the EEE. If the Ontario 24-hour and annual objectives for benzene were used to assess the benzene modelling results, exceedances of each of these values would be predicted at sensitive receptor locations.	The Ontario annual average air quality criteria for benzene and 1,3-butadiene were derived to achieve a cancer risk level of 1E-6 (i.e., one in a million) based on continuous lifetime exposure. These air quality criteria have been adjusted in the EEE to reflect the a risk threshold of 1E-5 accepted by BC and Health Canada to represent minimum or negligible risk.	Y	Footnote to Table 9-4 hasb been revised to read: The original Ontario ambient air quality criteria were derived to achieve a cancer risk level of 1×10-6 and have been adjusted to reflect BC Ministry of Environment and Climate Change Strategy and Health Canada acceptable risk threshold of 1×10-5	Table 9.4
9	A9	Envirochem	Section 9.2.4.1 Table 9.4	The Texas Commission on Environmental Quality (TCEQ) presents multiple air quality threshold types for some of the VOCs and averaging periods included in this study. The approach used to select between these thresholds for each contaminant is not explained in the EEE. It appears the TCEQ thresholds that were selected are based on a hazard quotient (HQ) of 1 to be considered in the human health aspect of the EEE. Justification is not presented for why the TCEQ short-term and long-term Effects Screening Levels (ESLs) were not considered in Table 9.4 for identification of the most stringent air quality criteria to be used for assessment of potential air quality exceedances. In more than one case the ESLs are lower than the most stringent air quality criteria identified for evaluation of a particular VOC and averaging period.	The TCEQ Air Monitoring Comparison Values (AMCVs) were used in the EEE. Upon further review, the EEE has been updated to consider the TCEQ Effects Screening Levels (ESLs)	Y	Tables 9.4, 9.5, 9.8 have been updated with ESLs. The following text has also been added to section 9.3.2.2: *Formaldehyde concentrations near the LEA in 2017 also approached the Texas short-term criterion of 15 µg/m3, although concentrations remained well below the BC objective of 60 µg/m3*	Table 9.4, 9.5 and 9.8 Section 9.3.2.2
10	A10	Envirochem	Section 9.2.4.2 Greenhouse Gases	Section 9.2.4.2 discusses greenhouse gases (GHGs) and targets including reference to the Metro Vancouver Climate 2050 Strategic Framework. As this framework is referenced, it would be beneficial for the EEE to outline how this project will align with objectives and strategies outlined in the Climate 2050 Roadmaps that are part of this framework (especially rail in the Transportation Roadmap, and non-road diesel equipment in the Industry Roadmap).	In the context of this application by CP Rail, Metro Vancouver's Climate 2050 Strategic Framework and the Transportation Roadmap notes that: "All medium and heavy-duty trucks and rail locomotives operating within the region use zero emission technologies powered by clean, renewable energy. By 2030: •35% reduction in greenhouse gas emissions, from 2010 levels By 2050: •100% reduction in greenhouse gas emissions •All medium duty trucks are zero emission, powered by clean, renewable electricity or hydrogen •All heavy-duty trucks and rail locomotives use either zero emission technologies or biofuels." Rail service, whether for goods or movement of people, is a federally regulated activity. As such, the tools available to Metro Vancouver for affecting emissions reductions in this sector are limited to working with other levels of government as articulated in Strategy 4 of its Transportation Roadmap (page 44 to 46). In its recent 2030 Emissions Reductions Plan, the "Government of Canada commits to explore additional opportunities [for emissions reductions from the rail] including [building] on successive voluntary agreements with industry, develop an action plan to decarbonize rail in line with Canada's net-zero by 2050 goal, which could include efforts to advance zero-emission locomotives and locomotive electrification." As described in Volume 4 section 24 of the Environmental Effects Evaluation CP Logistics Park: Vancouver, CP's 2021 Climate Plan commits to the following: •Reduce absolute Scope 1 and Scope 2 GHG emissions from non-locomotive operations, including emissions associated with buildings and facilities, by 27.5% by 2030. •Reduce well-to-wheel GHG emissions intensity (grams per revenue ton-mile) from locomotive operations by 38.3% by 2030. Reducing absolute emissions by 27.5% is directionally and substantively consistent with Metro Vancouver's goals. In addition, as described in the application, CP has initiated a pilot program to convert 3 different types of diesel-electric locomotives into zero-emission, hydrogen-powered locomotives. This could lead to a full conversion of all locomotives reduce to close to zero. This action is consistent with Metro Vancouver's desire to see "accelerated emissions from rail locomotives" using cleaner fuels (page 32 of the Transportation Roadmap.) Metro Vancouver does not specify an energy intensity goal, but this is an important metric because it is a measure of efficiency. Being more efficient means using less fuel and producing fewer GHG emissions and other air contaminants. Since 1990, CP has improved fuel efficiency in its locomotive operations by 43%. Its goal to reduce well-to-wheel GHG emissions intensity (as noted above) is an important part of the approach not only for its climate commitments but also for overall business operations.	Y	The following text has been added to Section 9.2.4.2 for clarity: *Particularly applicable to the Project, Metro Vancouver's Climate 2050 Strategic Framework and the Transportation Roadmap notes that:* *"All medium and heavy-duty trucks and rail locomotives operating within the region use zero emission technologies powered by clean, renewable energy.* *By 2030:* *•35% reduction in greenhouse gas emissions, from 2010 levels* *By 2050:* *•100% reduction in greenhouse gas emissions* *•All medium duty trucks are zero emission, powered by clean, renewable electricity or hydrogen* *•All heavy-duty trucks and rail locomotives use either zero emission technologies or biofuels."*	Section 9.2.4.2 - end of first paragraph

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11	A11	Envirochem	Section 9.3	The basis of the list of air quality drivers listed as impacting local air quality in this section and the relative magnitude of each is unclear.	The air quality drivers discussed in Section 9.3 were identified as the likely sources impacting local air quality, based on a review of air quality data from Pitt Meadows (T20), Coquitlam (T32), Port Moody (T09), Maple Ridge (T30), and Surrey East (T15) as well as the location of each of these stations relative to land use in the area. The relative magnitude of each driver is beyond the scope of this EEE.	N	Clarification provided in response to comment, no updates required to the EEE.	No changes required
12	A12	Envirochem	Section 9.3.2.1 Regional Climate	Within the description of the regional climate, it is highlighted that the predominant wind directions in the vicinity of the LPV are from the northeast. This factor is important for a number of reasons related to the ambient air quality concentrations monitored by the Metro Vancouver (MV) air quality monitoring station in Pitt Meadows (Station T20). This monitoring station is located to the north of the proposed LPV location and the existing CP operations in Pitt Meadows (the Vancouver Intermodal Facility (VIF), and mainline freight trains). As a result of the winds at the station location predominantly coming from the opposite direction to the rail operations, the air quality captured by the monitoring instruments at this station often will likely not include the full impacts of existing rail operations. Assessment of air quality concentrations relative to wind directions at this monitoring station show when the wind direction is from the south, concentrations of air contaminants such as PM2.5 and NO_2 are often higher that when the wind direction is from the north (land use to the northeast is predominantly agricultural or forested land with fewer transportation and industrial emission sources). Ambient air concentrations (especially for short-term periods) are likely to be higher closer to the rail operations and emission sources than at the location of the T20 monitoring station.	While predominant wind directions in the vicinity of the LPV are from the northeast, winds blowing from existing CP operations (VIF) towards Pitt Meadows (T20) station are still expected to occur over 10% of the time. The use of the 98th to 99th percentile observations for background concentrations is therefore expected to include contribution from existing CP operations (VIF). The air quality assessment follows standard industry practice and the BC Air Quality Dispersion Modelling Guidelines, whereby a single value is used for background concentration that represents all locations in the LEA. It is recognized that background concentrations may be higher at locations immediately adjacent to existing rail operations and emission sources.	N	Rationale provided in response to comment, no changes to the EEE are required.	No changes required
13	A13	Envirochem	Section 9.3.2.2 Table 9-5	Table 9-5 does not provide information on the statistical forms used for the calculation of baseline concentrations for the contaminants and averaging periods. There is a lack of definition presented for the baseline calculations other than BC guidelines being followed, including but not limited to years of data considered, methods for data QA/QC, and statistical approaches used.	Background concentrations are based on one year of data (2019) from Pitt Meadows (T20), Coquitlam (T32), Port Moody (T09), Maple Ridge (T30), and Surrey East (T15). Metrics are as prescribed in the BC Air Quality Dispersion Modelling Guideline, as follows: 1-hour SO2 is based on the 99th percentile of daily maximum 1-hour values 1-hour NO2 is based on the 98th percentile by hour of day Short-term (1-hour and 24-hour) for other CACs is based on the 98th percentile of the hourly dataset Annual concentrations are based on the annual mean calculated from the hourly dataset If there is more than one monitoring station, the representative baseline value is the arithmetic average of all stations	N	Clarification is provided in response to comment, no changes to the EEE are required.	No changes required
14	A14	Envirochem	Section 9.3.2.2 Table 9-5	The data sources for baseline concentrations of DPM and VOCs in the LEA, presented in Table 9.5 are unclear	Baseline VOCs are based on the maximum observed concentrations in 2017 at Port Moody. Baseline DPM is estimated as 17% of baseline PM2.5 based on information from Metro Vancouver's Burrard Inlet Area Local Air Quality Study. Text has been revised to provide clarification.	Y	Table 9.5 has been updated	Table 9.5
15	A15	Envirochem	Section 9.3.2.2 footnote a Table 9-5	Table 9.5, footnote (a): states that NOx background levels were added to project related results prior to conversion to NO_2 which is against the recently updated provincial NO_2 modelling guidance. Additionally, details on the NOx conversion approach used are not presented in the EEE.	NOX background levels were added to Project-related results prior to conversion to NO2 as per the 2015 BC Air Quality Dispersion Modelling Guidelines, which represents the latest guidance at the time this study was completed. It is recognized that this guidance has changed in the latest November 2021 guidance and the assessment has now been updated for the latest guidance. Appendix A has been added to the EEE which discusses the dispersion modelling methodology, including the NOX conversion approach.	N	Section 9 has been updated for the November 2021 guideance, and Appendix A added.	Section 9
16	A16	Envirochem	Section 9.4.1 Table 9.6	Table 9.6 notes that fugitive dust is the potential effect from roadways and truck queuing zones. It should be noted that roadways and truck queuing zones will also result in other emissions (i.e., idling of generated truck traffic) in addition to fugitive dust.	The specific activity of 'roadways and truck queuing zones' included within Table 9.6 refers to the activity of *placing sub-grade material, granular base, sub-base, and asphalt or concrete. Truck queuing will occur off public roadways within the Project Area,* as described in Section 4.4.2.4 (Project Activities) and Table 4.6 of the EEE. Emissions from roadway use and queuing are incorporated in the assessment for Project operation through the inclusion of vehicle exhaust emissions.	N	Clarification provided in response to comment, no changes to the EEE required.	No changes required
17	A17	Envirochem	Section 9.4.2 Potential Effects - Emissions of GHGs	What is considered 'direct' and 'indirect' emissions in this study are unclear. The organizational and operational boundaries used for the calculation of GHG emissions are not clearly defined. Further details would be needed to confirm estimations align with standards listed in the GHG Protocol Corporate Standard developed by the WBCSD and WRI for Scope 1, Scope 2, and Scope 3 emissions.	The EEE considers all "direct" Scope 1 GHG emissions from the Project, as well as "indirect" Scope 2 GHG emissions related to electricity consumption. Scope 3 emissions related to product transport and employee vehicle traffic along LPV access road and Kennedy Road were also included. Other Scope 3 emissions are not included in the EEE as per standard industry practice in CTA applications and EAs.	N	Clarification provided in response to comment, no changes to the EEE required.	No changes required
18	A18	Envirochem	Section 9.4.2.1 Project Pre-Construction and Construction	There is not enough information presented in this section of the EEE to confirm the conclusion that air emissions during preconstruction and construction project phases are minor. This study has not assessed the air quality expected due to preconstruction and construction activities and it should be highlighted here that this has not been directly assessed. The previous project experience described here is not identified in enough detail to support these conclusions with confidence.	Project-related effects during pre-construction and construction are discussed qualitatively as per standard industry practice in CTA applications and environmental assessment. Given construction methodologies and equipment requirements are not yet confirmed, there is insufficient information to conduct a quantitative assessment of Project-related effects during pre-construction and construction. Furthermore, modelling of variable construction emissions is not practical. It is expected that effects will be well managed using best practices.	N	Clarification provided in response to comment, no changes to the EEE required.	No changes required
19	A19	Envirochem	Section 9.4.2.2 Air Emissions from Project Operation	It is unclear if locomotive idling emissions were included in emission estimates.	Locomotive idling emissions were included in the emission estimates. Text has been revised for clarification.	Y	Section 9.4.2.2 Air Emissions from Project Operation, fist bullet point has been revised to read: Operation of unit trains along the agricultural loop track and operation *(including idling)* of terminal switchers at the automobile and liquids subsites. Manifest trains will not operate for extended periods at the Project site and are not included.	Section 9.4.2.2 Air Emissions from Project Operation, fist bullet point
20	A20	Envirochem	Section 9.4.2.2 Air Emissions from Project Operation	It is unclear if truck idling emissions during onsite idling and/or Kennedy Road rail crossing closures were considered in emission estimates. Additionally, it is unclear if the time limit in Mitigation M9-7 – Anti-Idling Policy is considered if these potential emissions are calculated.	With the implementation of Mitigation M9-7, onsite truck idling emissions are expected to be minimal and were not included in the emission estimates. Truck idling at the Kennedy Road rail crossing was also not included in the emission estimates. However, the proposed Kennedy Road Overpass (see Section 9.5) is expected to eliminate this rail crossing.	N	Clarification provided in response to comment, no changes to the EEE required.	No changes required
21	A21	Envirochem	Section 9.4.2.2 Air Emissions from Project Operation	Details/assumptions for the emission factors used are not provided	The sources of emission factors and general methodology is described in Section 9.4.2.2. and is consistent with what is commonly included in EAs.	N	Clarification provided in response to comment, no changes to the EEE required.	No changes required
22	A22	Envirochem	Section 9.4.2.2 Air Emissions from Project Operation	Details for the activity estimates/assumptions used in calculating emission rates for each activity are not provided	See comment #21	N	Clarification provided in response to comment, no changes to the EEE required.	No changes required
23	A23	Envirochem	Section 9.4.2.2 Loco/Switchers	CAC emission factors referenced from personal communication ('Bajwa comm, June 2021') are not provided or available to review	See comment #21	N	Clarification provided in response to comment, no changes to the EEE required.	No changes required
24	A24	Envirochem	Section 9.4.2.2 Loco/Switchers	Duty cycle information referenced from personal communication ("Bajwa comm, June 2021") and duty cycle assumptions not provided or available to review	See comment #21	N	Clarification provided in response to comment, no changes to the EEE required.	No changes required
25	A25	Envirochem	Section 9.4.2.2 Loco/Switchers	The report states a large portion of the locomotive fleet will meet US EPA Tier 1+ emissions standards by 2028 and assumes that all train unit locomotives meet these standards. Additional detail/references supporting that all trains would meet this standard is needed to confirm the assumption is reasonable. The report also states that "a large portion will meet" the Tier 1+ standards by 2028, which seem to contradict the assumption. It is unclear if all locomotives were assumed to be Tier 1+ or if a fleet distribution was used with a proportion of locomotives of higher emission tiers.	The Tier 1+ emission factors were used for all locomotives, excluding terminal switchers. While the future fleet distribution of locomotives that will call to CPLPV is not known, it is expected that a large portion will meet Tier 1+ standards by 2028. The small portion of locomotives that do not meet Tier 1+ standards is expected to be offset by locomotives that meet more stringent standards, and the use of Tier 1+ emission factors is expected to be reasonable.	N	Clarification provided in response to comment, no changes to the EEE required.	No changes required
26	A26	Envirochem	Section 9.4.2.2 Loco/Switchers	The reference link for 'CP Rail 2021' appears to be broken	This reference has been updated and new link provided.	Y	Text in Section 9.4.2.2 Locomotives and terminal Switchers has been updated to read: *CP has recently undertaken* a Locomotive Modernization Program, a multi-year program to renew emissions produced by CP's locomotive fleet. Under this program, *386 locomotives have been* upgraded and retrofit with emission reduction technologies Reference is also updated:	Section 9.4.2.2 update reference and amend wording. Section 9.8 update reference with https://www.cpr.ca/en/about-cp-site/Documents/CP-2021.22-Winter-Plan.pdf

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27	A27	Envirochem	Section 9.4.2.2 Vehicles	The parameters used for extracting emission factors from the EPA MOVES model (identified as obtained from Metro Vancouver) were not presented in the report to allow for review.	MOVES model inputs for fuel characteristics, vehicle age, and climatic conditions were obtained from Metro Vancouver and used in the emissions modelling. Reference to Metro Vancouver source has been added.	Y	Reference has been added for Metro Vancouver source.	Section 9.4.2.2 and Section 9.8
28	A28	Envirochem	Section 9.4.2.2 Vehicles	The speed parameter used to extract emission factors form the US EPA MOVES model is identified as being based on "the design speeds of the roads (i.e., 40 km per hour [km/h] for the CPLPV access road and 50 km/h for Kennedy Road)". This appears to be an unrealistic assumption as it is unlikely that heavy trucks accessing and operating at the LPV are able to reach the 40 km/h speed identified here on site, due both to the layout of the roads and intersections on site, and the likelihood of lower site speed limits for safety reasons. Likewise, trucks are unlikely to spend much time at the 50 km/h speed limit on Kennedy Road; the average speed is likely lower due to the short distances between the LPV and VIF entrances, intersection controls, and the Kennedy Road at-grade rail crossing or incline of the proposed overpass. The speed parameter used to extract the emission rates for these vehicles is a key variable as the MOVES model assumes at higher speeds the vehicles are cruising and predicts lower emissions rates, while if lower average speeds are used, the model considers a likely scenario factoring in periods of acceleration and braking and predicts higher emission rates. Using lower average speeds for the vehicle movements would therefore lead to higher emission estimates. For example, if emission rates are extracted from the MOVES model for trucks with an average speed of 15 km/h (referenced in Mitigation Measure M19-4), the total exhaust particle emission rate would be approximately 40% higher, and the total hydrocarbon emission rate approximately 150% higher, than the emission rates that are extracted if the average speed applied in this project of 40 km/h is used.	The actual speed of vehicles along roads will vary with time and cannot be predicted to any certainty. The use of design speeds / speed limits is consistent with standard industry practice. It is recognized that emission rates from vehicle exhaust may be higher at lower speeds. However, as shown in Table 9.7, vehicle exhaust emissions are expected to be an order of magnitude less than other sources, with the exception of GHGs. The use of a different vehicle speed in MOVES is not expected to change overall conclusions of the study. Note, M19-4 (revised to M9-6) refers specifically to limiting speed of vehicles and equipment to 15 km/hr *on site* to minimize dust generation.	N	Clarification and rationale provided in response to comment, no changes to the EEE are required	No changes required
29	A29	Envirochem	Section 9.4.2.2 Vehicles	The scope of the vehicle activity considered in the emission calculations is unclear from the level of detail presented regarding the modelling of vehicles. For example, whether idling emissions of vehicles were included in the assessment and the spatial extent that was considered. While it is stated that vehicle traffic on Lougheed Highway and beyond were not included, providing a spatial bound for trucks arriving and leaving CP's operations in Pitt Meadows, to what extent the heavy truck traffic between the proposed LPV and existing VIF is considered is unclear.	The scope of vehicle activity includes all truck transport of products from the LPV, along the LPV access road, and along Kennedy Road. As described in Section 9.4.2.2, vehicle exhaust emissions along roads are estimated based on the design speed of the roads. Truck idling along roads is not considered. Truck traffic associated with the existing VIF is not Project-related and is not considered in the emission estimation and dispersion modelling. Effects associated with the existing VIF and associated truck traffic are included through the use of background concentrations.	N	Clarification and rationale provided in response to comment, no changes to the EEE are required	No changes required
30	A30	Envirochem	Section 9.4.2.2 Road Dust	This section notes that mitigation of precipitation was considered on annual basis but not hour to hour. It is unclear if the precipitation correction was applied to the evaluation of short-term air quality criteria such as 1-hour and 24-hour averages, or if multiple scenarios were modelled for the short-term and annual averaging periods.	Summary of annual emissions in Table 9.7 includes the mitigation of precipitation. Precipitation is not considered in dispersion modelling and thus predicted concentrations in Table 9.8 are expected to be conservative.	N	Clarification provided in response to comment, no changes to the EEE are required.	No changes required
31	A31	Envirochem	Section 9.4.2.2 Road Dust	It is unclear what silt loading value was assumed as a default for road dust calculations	The ubiquitous baseline silt loading values in AP-42 Table 13.2.1-2 were used for the road dust calculations.	N	Clarification provided in response to comment, no changes to the EEE are required.	No changes required
32	A32	Envirochem	Section 9.4.2.2 Road Dust	The US EPA 2011 reference used in this section references AP-42 'Chapter 13.2.2: Paved Roads'. It should be noted that '13.2.2' is the AP-42 section number for unpaved roads. It is unclear if paved or unpaved road emission factors were used in emission calculations.	The reference has been updated to indicate Chapter 13.2.1: Paved Roads.	Y	Section 9.8 US EPA 2011 reference updated to read: US EPA. 2011. AP-42, Fifth Edition Compilation of Air Pollutant Emission Factors, Volume 1: Stationary Point and Area Sources, Chapter 13.2.1: Paved Roads. Available at https://www.epa.gov/sites/default/files/2020-10/documents/13.2.2_unpaved_roads.pdf.	Section 9.8 US EPA 2011 reference to be updated
33	A33	Envirochem	Section 9.4.2.2 Emissions Summary	Emissions inventory/calculations used in developing the emissions summary shown in Table 9.7 are not included in sufficient detail as part of the EEE to review the calculated emissions presented.	Please see response to comment # 21	N	Clarification provided in response to comment, no changes to the EEE are required.	No changes required
34	A34	Envirochem	Section 9.4.2.2 Table 9.7	Direct' and 'indirect' GHGs were described earlier in this report. However, is it unclear if the GHG emission quantified in this table refer to direct or indirect emissions.	Table 9-7 includes all GHG emissions considered in the EEE. Please also refer to response to comment # 17.	N	Clarification provided in response to comment, no changes to the EEE are required	No changes required
35	A35	Envirochem	Section 9.4.2.2 Table 9.7	Table 9.7 presents a summary of emissions from project operation separated by emission calculation. As the particulate emissions from locomotives considered are all from diesel combustion, the predicted DPM emissions are equal to the PM10 emissions (with the vast majority at 97% being smaller than 2.5 microns, i.e., PM2.5). While other particulate emission pathways are considered from vehicle traffic such as brake wear and tire wear (using emission factors from the MOVES model), and some exhaust emissions are expected to be from gasoline vehicles, it is surprising that the DPM emissions relative to the PM2.5 emissions predicted for vehicle traffic are only 5%, especially considering the large number of diesel-powered heavy trucks which will service the project per day. Without further detail on which vehicle activities associated with the project were considered in the emissions calculations, it is not possible to evaluate why these DPM emissions appear lower than expected.	DPM in Table 9.7 has been revised to include the correct numbers. The DPM in Table 9.7 includes all PM emissions related to vehicle exhaust from diesel vehicles as predicted by MOVES. Other PM emissions include brake wear, tire wear, and gasoline vehicle exhaust from employee vehicle traffic.	Y	Table 9.7 to be revised with correct DPM numbers	Section 9.4.2.2 Table 9.7
36	A36	Envirochem	Section 9.4.2.2 Change in…	Which version of each model in the CALPUFF modelling package (CALPUFF, CALMET, CALPOST) used for this study was not provided.	CALMET Version 6.5.0, CALPUFF Version 7.2.1, CALPOST Version 7.1.0 were used, and represent the latest versions available at time of work. Appendix A of the EEE has been updated to reflect the versions used.	Y	Appendix A has been added to the EEE and includes information to reflect which versions of each model was used.	Appendix A added to Section 9.
37	A37	Envirochem	Section 9.4.2.2 Change in…	Information on the meteorological modelling conducted was not provided such as: •What prognostic meteorological data was used? •Was CALMET ran in hybrid mode utilizing station observation data, and if so, which stations were included? •Which year(s) were modelled? •What size domain was used for meteorological modelling (was this large enough to capture the terrain features close to the LEA), and what grid resolution was used? •Were QA/QC checks performed to assess the validity of the CALMET input and output data and what were the findings?	Appendix A has been added to the EEE that describes the dispersion modelling methodology. Appendix A also provides key CALMET output to assess the validity of modelled meteorology.	Y	An appendix has been added to Section 9 (Air Quality) of the EEE to provide additional information on modelling methodology.	Appendix A added to Section 9.
38	A38	Envirochem	Section 9.4.2.2 Change in…	The receptors used in the CALPUFF model were not identified: •What was the size and density of the receptor grid? •Which sensitive receptors were considered? Some sensitive receptors are presented on the choice results figures included but these do not identify residences other than two residences close to the project where exceedances are predicted.	Appendix A has been added to the EEE that describes the dispersion modelling methodology. The EEE considers all known sensitive receptors, including residences, in the LEA. However, given that Pitt Meadows does not provide a residential dataset and given the number of residences in the LEA, only potentially impacted residences (i.e., where exceedances are predicted) are shown on the figures.	Y	An appendix has been added to Section 9 (Air Quality) of the EEE to provide additional information on modelling methodology.	Appendix A added to Section 9.
39	A39	Envirochem	Section 9.4.2.2 Change in…	The height above ground for receptors in the model is not provided. To model dustfall/deposition, a receptor height of 0 m is required, whereas to model ground-level concentrations of air contaminants, it is common practice to use a typical breathing height of 1.5 m. The difference in receptor height between 0 and 1.5 m can have meaningful impacts on the model results. For potential future development, and for potential multi-storey buildings, what considerations were made for potentially elevated receptors.	A receptor height of 0 m was used. As per the BC Air Quality Dispersion Modelling Guideline, concentration predictions at ground-level are sufficient under most situations since the concentration profile within the first few metres of the ground is expected to be fairly homogenous due to mechanical mixing.	N	Clarification is provided in response to comment, no changes to the EEE are required.	No changes required

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40	A40	Envirochem	Section 9.4.2.2 Change in…	No information is provided on the source types and parameters used to characterize the emission sources in the model.	Appendix A has been added to the EEE that describes the dispersion modelling methodology.	Y	An appendix has been added to Section 9 (Air Quality) of the EEE to provide additional information on modelling methodology.	Appendix A added to Section 9.
41	A41	Envirochem	Section 9.4.2.2 Change in…	It is not clear if multiple scenarios were considered for the time periods relevant to the assessed air quality objectives. For example, were higher worst-case emission rates assessed for short-term 1-hour objectives, or were these predictions based on daily average emissions?	The dispersion modelling was based on design Project criteria of 1 unit (agricultural) train every 3 days, and 3 manifest (liquids and automobiles) trains every day. It is recognized that some days may see more trains due to bunching of rail traffic on the network but this cannot be predicted to any certainty and was not considered in the modelling.	N	Clarification is provided in response to comment, no changes to the EEE are required.	No changes required
42	A42	Envirochem	Section 9.4.2.2 Change in…	The approach to convert model predicted concentrations of nitrogen oxides (NOx) to nitrogen dioxide concentrations (NO_2) is not described in the EEE. A footnote on Table 9.5 suggests NOx baseline concentrations were added to the model predictions prior to the conversion of NOx to NO_2. This approach does not follow the most recent NO_2 modelling guidance published by the BC Ministry of Environment and Climate Change Strategy which identifies that NO_2 baseline concentrations should instead be added to the NO_2 model predictions after the conversion is completed. This recommended approach would likely result in higher results for NO_2 than those presented in this section.	Appendix A has been added to the EEE that describes the dispersion modelling methodology, including the NOX conversion approach. The approach followed the 2015 BC Air Quality Dispersion Modelling Guideline which represents the latest available guidance at the time of work. It is recognized that the guidance has changed in the latest November 2021 guidance. The air quality assessment has now been updated to reflect the latest guidance. Please also refer to response to comment #15	N	Section 9 has been updated for the November 2021 guideance, and Appendix A added.	Section 9
43	A43	Envirochem	Section 9.4.2.2 Change in…	The NO_2 results are described in this section as not exceeding existing ambient air quality criteria, prior to comparison to the lower 2025 CAAQS. As this project is not proposed to begin operation until after 2025, the project should likely be reviewed relative to the 2025 CAAQS and results described as such. While background NO_2 concentrations may decrease due to the factors described ahead of potential project operation, other factors are likely to negate some of this decrease on a local level. Some changes in emission sources in the LEA are not considered in this assessment, specifically the anticipated doubling of mainline rail traffic from current operation to 2030 projections which will occur adjacent to the proposed project location. Additionally, the Metro Vancouver area is expected to see a population increase ahead of the project operation timeline which could lead to a higher number of vehicles on the road which could negate some of the reduction achieved in average NOx emission per vehicle due to the factors described in the EEE.	The 2025 CAAQS have not yet been adopted as an air quality objective in BC. Nonetheless, comparison of NO2 results to 2025 CAAQS is discussed in Section 9.4.2.2 as well as in Section 19. Metro Vancouver's latest emission inventory and forecast predicts that the region will see a marked decrease in NOX emissions toward 2035. The forecast considers the projected population increase as well as projected increase in rail traffic. However, these are expected to be more than offset by decrease in other sectors including vehicle traffic and agriculture.	N	Clarification provided in response to comment, no changes to the EEE required.	No changes required
44	A44	Envirochem	Section 9.4.2.2 Table 9.8	Maximum predicted dustfall is presented in Table 9.8 which implies that deposition was modelled. However, this is not described in the body of the EEE, and it is not clear if wet and dry deposition was modelled, or whether deposition results were considered in the prediction of ground-level air contaminant concentrations. Considering deposition in predictions of air contaminant concentrations is not a common practice.	Wet and dry deposition of particulate matter were modelled to predict dustfall deposition rates and to more accurately predict ambient concentrations. Modelling deposition is in line with standard industry practice in BC EAs.	N	Clarification provided in response to comment, no changes to the EEE required.	No changes required
45	A45	Envirochem	Section 9.4.2.2 Figures	Frequency of exceedances figures or results have not been provided to add context to the presented maximum results. This information is needed to inform decisions regarding residual effect magnitude and significance.	24-hour TSP is the only parameter for which exceedances are predicted at a sensitive receptor. The frequency of exceedance for 24-hour TSP is discussed in Section 9.4.2.2.	N	Clarification provided in response to comment, no changes to the EEE required.	No changes required
46	A46	Envirochem	Section 9.4.2.2 Figures	To note – figures are labelled as draft and residence locations are not presented.	Noted, all figures have been updated for the final CTA submission.	Y	All figures have been updated.	All figures
47	A47	Envirochem	Section 9.4.2.2 Figures	Background values added for TSP indicated in the figures do not match background values in Table 9.5 – clarification for the correct background values that were used is needed. Additionally, the NO_2 background added does not match the NO_2 baseline presented in Table 9.5 – clarification on the methodology used to determine NO_2 background is needed.	Table 9.5 has been updated. Note that, per the 2015 BC dispersion modelling guidelines, background NOX is added to model predictions prior to NO2 conversion. NO2 background were presented in Table 9.5 for comparison purposes. The assessment has now been updated to reflect recent changes in the BC dispersion modelling guidelines.	Y	Table 9.5 has been updated	Table 9.5
48	A48	Envirochem	Section 9.4.2.3 Indirect Regional Effects	It is not clear what activity levels and what emission boundaries assumed for each of the three scenarios (existing conditions, base case, build case) or the assumptions that that were made in terms of rail, truck, and marine activities included in each of these scenarios.	Activity levels and emission boundaries are described in Parson's traffic study for truck and in Ausenco's rail simulation study for rail. A reference to Parsons (2021) has been added to 9.4.2.3. Marine activities are not included in the EEE.	Y	Reference to "Parsons (2021)" has been added to first sentence of second paragraph in 9.4.2.3	9.4.2.3
49	A49	Envirochem	Section 9.4.2.3 Table 9.9	"Direct' and 'indirect' GHGs were described earlier in this report. However, the GHG emissions attributable to direct and indirect emissions are not clear.	All GHG emissions discussed in Section 9.4.2.3 relate to product transportation and are considered Scope 3 GHG emissions. Please also see response to comment # 17.	N	Clarification provided in response to comment, no changes to the EEE required.	No changes required
50	A50	Envirochem	Section 9.4.2.3 Table 9.9	With regards to consideration of the predicted increases in mainline rail traffic, 9.4.2.3 of the EEE implies that increases to rail traffic was considered as part of the Ausenco Rail Simulation Study and the assessment of indirect regional effects, therefore, it is notable that these predicted increases are not considered in the air quality assessment as they are relevant to this project. It should be noted that the Ausenco Rail Simulation Study referenced is not publicly available for review to be able to confirm what train volumes were considered.	The Rail Simulation Study estimated annual diesel fuel consumption and resulting CO_2 emissions for existing (2019) volumes and future (2030) volumes with and without the Project. As described in Section 9.4.2.3, modelling indicated that GHG emissions are predicted to decrease with the Project (versus to the same future mainline traffic volume without the Project). Therefore, projected growth in mainline rail traffic in future years were not evaluated as part of the air quality assessment.	N	The response clarifies that mainline rail traffic was not evaluated in the air quality assessment because it is not Project related.	No changes required
51	A51	Envirochem	Section 9.4.3 Mitigation M94	Mitigation M9-4 identifies that water will be applied to reduce dust generation and enhance particle deposition during construction phases. How will dry periods be identified and how frequently is this anticipated to be employed? More details should be provided on this mitigation measure.	As Project details progress an Air Quality Monitoring program to monitor fugitive dust will be developed and implemented, based on engagement with Indigenous communities and stakeholders, and consultation with government regulators. This program will detail watering frequency, visual monitoring, inspection, record keeping, responsibility, training, complaint response, and corrective actions.	N	The Construction Environmental Management Plan will have further details on how mitigation measures will be implemented, no changes to the EEE are required.	No changes required
52	A52	Envirochem	Section 9.4.3 Mitigation M97	Mitigation M9-7 identifies an anti-idling policy will be in place for trucks accessing the facility in line with the City of Pitt Meadows policy for municipal vehicles (maximum idling time of 3 minutes). Limited information is provided on this policy. How will this antiidling policy be enforced? Trucks are specifically mentioned in this description but will this policy also apply to other vehicles and equipment on site? Will this policy apply to all project related activity, such as the truck travel between the LPV and VIF when trucks are held at the Kennedy Road at-grade rail crossing of the mainline, or be restricted to within the LPV.	Anti idling policies are largely enforced by education and voluntary compliance. Mitigation M9-3 (formerly 9.7) has been updated to clarify that the anti-idling policy is applicable to all Project equipment and vehicles. CP will encourage application of this policy to all Project-related activities.	Y	Update New M9-3 to "~~Although not directly applicable to the Project~~, an anti-idling policy consistent with the City of Pitt Meadows Council Policy C025 (City of Pitt Meadows 2015) will be ~~in place for all trucks accessing the facility~~ applied to all Project equipment and vehicles.	Section 9.4.3 M9-3

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53	A53	Envirochem	Section 9.4.3 Mitigation M98	Mitigation M9-8 discusses vacuum sweeping of Kennedy Road. Will this measure also be employed on the internal LPV roads? No details are provided as to what will trigger the implementation of this mitigation measure. During the pre-construction and construction phases of the project specifically, considerable dirt and dust could be tracked onto the internal LPV roads and out onto Kennedy Road and this mitigation measure should be employed regularly to reduce silt loadings and therefore road dust emissions. Limited detail is provided on when road sweeping will occur and who will be responsible.	Mitigation measures have been refined/re-organized to present a clearer, more consistent approach across all disciplines. M9-8 has been updated to clarify that sweeping may occur on internal Project areas or on adjacent public roadways, such as Kennedy Road. As currently stated in M9-8, the schedule for sweeping Kennedy Road will be coordinated with CoPM.	Y	Mitigation M9-8 has been updated to read - Conduct Vacuum Sweeping: *Reduce road dust emissions by removing material deposited on the roadway surface and decreasing silt loading available for re-entrainment by vehicles travelling over the road. One demonstrated control technique is the use of vacuum sweeping, which can reduce instantaneous road dust emissions by approximately 34% (US EPA 1988). Both internal roadways on the Project site and public roadways, such as Kennedy Road, may require vacuum sweeping.* *Conduct weekly inspections of Kennedy Road and coordinate with the City of Pitt Meadows to enable vacuum sweeping of Kennedy Road as required, with particular emphasis near residential receptors west of the Project Area. Assuming a 34% reduction in road dust emissions only along Kennedy Road, the maximum predicted 24-hour TSP concentration including background contribution at the potentially impacted residences west of the Project area are expected to be reduced to 114 µg/m3, below the BC ambient air quality objective of 120 µg/m3*	Section 9.4.3 M9-8
54	A54	Envirochem	Section 9.4.4 Table 9-11	The source of the effects and ratings definitions used to assess residual effects is not described. These definitions are used to determine if the residual effects are deemed to be significant.	As per the Terms of Reference for the Project, and per standard EA practice, effects criteria for each VC were described quantitatively where feasible and qualitatively where necessary. For Section 9.0 Air Quality, the effects ratings were defined based on professional judgement and previous project experience with other EAs.	N	Clarification provided in response to comment, no changes to the EEE are required	No changes required
55	A55	Envirochem	Section 9.4.4 Table 9-12	The magnitude of the pre-construction and construction effects are described in Table 9.12 as low as they "are expected to be minor relative to baseline and remain below ambient air quality criteria". This study has not assessed the air quality expected due to pre-construction and construction activities and it should be highlighted here that this has not been directly assessed. The previous project experience described here is not identified in enough detail to support these conclusions with confidence.	A Low rating was assigned for Magnitude during the Pre-construction and Construction phases as it is expected that air emissions will be well managed using best management practices (BMPs). As per Metro Vancouver's Non Road Diesel Engine Bylaw, all older equipment that meet the less stringent Tier 0 and Tier 1 emission criteria need to be registered, and a registration fee will apply. It is likely that any equipment used for Project Pre-construction and Construction will meet the more stringent Tier 2 and higher emission criteria. Therefore, emissions of DPM, NOx, SO2, VOCs, and GHGs are expected to be minimal. As per industry standard practice for EAs, the air quality assessment focuses on the Operation phase when air quality effects will be greatest.	N	Clarification provided in response to comment, no changes to the EEE are required	No changes required
56	A56	Envirochem	Section 9.4.4.1 Project Operation	No quantitative evaluation is provided in the EEE to support the impact of the mitigation measures and support the statement: "*predicted ambient concentrations are expected to remain below relevant ambient air quality criteria at sensitive receptors with the implementation of mitigation measures* ..." as exceedances of some ambient air quality criteria are presented in this air quality study.	The dispersion modelling is expected to be conservative and based on a review of model results and potential control efficiencies associated with the implementation of mitigation measures, ambient concentrations are expected to remain below relevant air quality criteria at sensitive receptors. Mitigation measure M9-8 has been updated to provide a quantification of predicted TSP concentrations at residences with the implementation of vacuum sweeping. Continuous air quality monitoring at Pitt Meadows (T20) is expected to be sufficient in verifying the assessment results.	N	Mitigation M9-8 has updated	Mitigation 9-8
57	A57	Envirochem	Section 9.4.4 Table 9-13	Magnitude of effect during the Project Operation phase is deemed to be moderate in Table 9.13. Based on the definition of the low, moderate, and high ratings for magnitude presented in Table 9.11 this seems incorrect. Moderate effect is defined as no exceedances of ambient air quality criteria at sensitive receptors; however, in this study exceedances of the TSP objective was predicted at the nearby residences, as well as exceedances of the 2025 CAAQS for NO_2 which will be in place ahead of the project operation time period. If the magnitude of effects is changed to high, this would require the conclusion of significance to be changed from "not significant" to "significant". Table 9.13 also defines the confidence of the effects characterization as "high". As mentioned throughout this review, based on the level of detail presented in the EEE, it is difficult to assess if the assumptions made in the air quality study are conservative enough to warrant high confidence in the results.	See Comment #56. With the implementation of mitigation measures (beyond those included in dispersion modelling), ambient concentrations are expected to remain below relevant air quality criteria at sensitive receptors. Therefore Magnitude is rated moderate.	N	Clarification provided in response to comment, no changes to the EEE are required	No changes required
58	A58	Envirochem	Section 9.4.4.2 Table 9-15	Magnitude of effects is deemed to be low as: "Project-related GHG emissions are expected to be less than 0.1% of regional totals and less than 0.01% of provincial totals." A comparison of the GHG emissions to the regional and provincial totals does not appear to be provided.	As discussed in Section 9.4.2.2, Project-related GHG emissions represents 0.02% of total regional emissions in Metro Vancouver and 0.005% of total provincial emissions in BC	N	Clarification provided in response to comment, no changes to the EEE are required	No changes required
59	A59	Envirochem	Section 9.5 Table 9-17	It is unclear why projects/activities far from the proposed LPV are included in Table 9.17, especially when expected changes in adjacent operations such as increases in mainline rail traffic, are not included.	The full list of reasonably foreseeable projects identified for cumulative effects assessment in the EEE can be found in Table 8.6 and Figure 8.1. Table 9.17 includes all projects for which there is spatial overlap (i.e., located in the REA for Air Quality) and temporal overlap and therefore potential for cumulative effects. The table differentiates between local effects and regional effects. Future mainline rail traffic was not included as modeling indicated that GHG emissions are predicted to decrease with the Project (versus to the same future mainline traffic volume without the Project). See Comment #50.	N	Rationale for included projects provided in response to comment, no changes to the EEE are required.	No changes required
60	A60	Envirochem	Section 9.5.2.2 Cumulative effects … GHGS	Limited detail is provided in this section to justify the ratings of the cumulative effects presented. The sources and definitions for the ratings used (e.g., NS, S, etc.) are not included to provide context to the reader.	Definitions of cumulative effects ratings are the same as residual effects ratings and are provided in Table 11. A discussion of the cumulative effects ratings is provided in the text above Table 9.18.	N	Clarification provided in response to comment, no changes to the EEE are required	No changes required
61	A61	Envirochem	Section 9.6 Monitoring	It was noted in the report that "…the Project is expected to meet all ambient air quality criteria at sensitive receptors". This statement does not match the findings of the study as described in earlier sections. Model results show potential exceedances for TSP at residences as well as exceedances of the 2025 CAAQS for NO_2. There is no quantitative measure indicating that proposed mitigation will remove these exceedances.	See Comment #56. With the implementation of mitigation measures (beyond those included in dispersion modelling), ambient concentrations are expected to remain below relevant air quality criteria at sensitive receptors.	N	Clarification provided in response to comment, no changes to the EEE are required	No changes required
62	A62	Envirochem	Section 9.6 Monitoring	Pitt Meadows station is T20 not T30. This monitoring station is currently surrounded by agricultural land and concentrations observed are likely to be different to those observed at sensitive receptors close to the project. The prevailing wind direction at the station location is from the northeast therefore this station is unlikely to capture the full impacts of this project on local air quality.	The EEE has been revised to correctly indicate T20. While air quality concentrations at T20 may not be fully representative of sensitive receptors adjacent to the Project, comparisons of air quality concentrations before and after the Project can provide an indication of Project-related effects.	Y	Section 9.6 has been updated to state T20, rather than T30.	Section 9.6
63	A63	Envirochem	Section 9.7 Conclusion	Mainline rail traffic is a notable local emission source that should be included in the list of sources deemed to have significant influence to air quality in the LEA. Cumulative effects should consider significant predicted increases in mainline rail traffic prior to the proposed operation timeline of this project.	Effects of the existing mainline rail traffic are included in the background concentrations established based on recent monitoring data. Modelling of future mainline rail traffic and associated growth is outside the scope of the EEE. While mainline rail traffic may increase in the future, the locomotive fleet will also shift towards lower emission units based on normal roll over and active modernization efforts by CP. Metro Vancouver's latest emission inventory and forecast predicts that the region will see a decrease in emissions toward 2035. The forecast considers the projected population increase as well as projected increase in rail traffic. However, these are expected to be more than offset by decrease in other sectors including vehicle traffic and agriculture. This trend is expected to extend to the LEA.	N	Clarification provided in response to comment, no changes to the EEE are required	No changes required
64	A64	Envirochem	Section 9.7 Conclusion	Comments are provided on this subject in other sections but the conclusions that air quality will remain below relevant air quality criteria does not match the results presented in other sections of this study. Therefore, the rating of the project effects as moderate in magnitude would not be correct based on the definitions presented in Table 9.11 of low, moderate, and high magnitude of effects.	Please refer to response to comment #56 and #57.	N	Clarification provided in response to comment, no changes to the EEE are required	No changes required
65	B1	Envirochem	Section 19.2.3.1 Table 19.4	The MV non-road diesel bylaw is an existing bylaw in this region which is not listed in this table. It is therefore not clear if it has been considered. This bylaw would likely cover equipment used during construction phases and some equipment during the operation phase such as on-site cargo handling equipment.	Although not directly applicable to federal lands, the equipment fleet owned and operated by local construction companies and used for the Project will likely comply with Metro Vancouver's Non-Road Diesel Engine Emission Regulation Bylaw (see Section 9.4.3). This bylaw has been added to Table 19.4	Y	Add "*and Non-Road Diesel Engine Emission Regulation Bylaw 1161*" to last column of Table 19.4 in Metro Vancouver Bylaw row.	Section 19.2.4 Table 19.4

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66	B2	Envirochem	Section 19.2.3.1 After Table 19.6	The report states "Life expectancy in Pitt Meadows is slightly lower than in BC overall, as were rates of asthma, COPD and heart failure." however the presented asthma COPD and heart failure rates are higher in the LHA than BC in Table 19.6.	Thank you for your comment, the text has been updated. Life expectancy in the Maple Ridge / Pitt Meadows LHA is lower than BC. Rates of asthma, COPD and heart failure in the Maple Ridge / Pitt Meadows LHA were higher than BC.	N	The last sentence of paragraph after Table 19.6 has been revised to read: *"Life expectancy in Pitt Meadows is slightly lower than BC overall, and rates of asthma, COPD and heart failure in Pitt Meadows are higher. "*	Section 19.3.2.1 After Table 19.6
67	B3	Envirochem	Section 19.3.2.2 Air Quality	The air quality evaluation included diesel particulate matter, various common criteria air contaminants, and VOCs. Rationale was not provided for the exclusion of other potentially relevant air contaminants from the evaluation (e.g., carbon monoxide, dioxins/furans, metals, other VOCs).	Please refer to response to comment #5	N	Clarification provided in response to comment, no changes to the EEE are required	No changes required
68	B4	Envirochem	Section 19.3.2.2 Table 19.7 Footnote	Please see Comment A18 in Appendix A of this report (as seen on page A3). A18: There is not enough information presented in this section of the EEE to confirm the conclusion that air emissions during preconstruction and construction project phases are minor. This study has not assessed the air quality expected due to preconstruction and construction activities and it should be highlighted here that this has not been directly assessed. The previous project experience described here is not identified in enough detail to support these conclusions with confidence.	Thank you for your comment. As indicated in 19.4.2.1, a detailed quantitative assessment of potential direct and indirect air emissions associated with Project activities during the pre-construction and construction phases was not completed as full information on material quantities, equipment required, and duration of use were not available. However, the magnitude of pre-construction and construction emissions was considered minor relative to existing conditions, consistent with similar development projects in the region and can be effectively managed using best management practices.	N	Response indicates that although information required for a detail assessment of air emissions was not available, project related emissions during preconstruction and construction were considered to be minor.	No changes required
69	B5	Envirochem	Section 19.3.2.2 Table 19.7 Footnote	Background data is described as being based on 5 identified MV stations however it is unclear which years were considered. The statistical approaches used are not identified and it is unclear if any periods were excluded for any of the contaminants considered.	Please refer to response to comment #13	N	Clarification is provided in response to comment, no changes to the EEE are required.	No changes required
70	B6	Envirochem	Section 19.4.2 Air Quality	It is stated in this section that: "conservative assumptions were made to bias the conclusions in the direction of being fully protective of human health in the face of any uncertainties". As described throughout this review, limited details are provided in many sections describing the methodology and approaches applied in this study. The conservative assumptions made, and uncertainties that are referenced here are not discussed in the EEE.	A discussion on the assumptions applied to the study and uncertainties has been added to Section 9.	Y	Section 9 has been updated to include assumptions	Section 9.4.2.2
71	B7	Envirochem	Section 19.4.2 HHE from Air Quality	This section notes that an assessment of construction impacts was not completed due to data limitations. It is unclear if an assessment will be conducted in the future (following attainment of relevant data)., It is possible to review the impacts of the construction phase using conservative estimates of operating activity.	It is not common practice to conduct quantitative air quality assessments of construction given the lack of detailed information regarding construction equipment and earthworks, and the spatially and temporally variable nature of construction activities. It is expected that air quality effects from construction will be similar to any other construction within the region, well managed using best management practices, and short term in duration. Please also refer to response to comment #18 and #55.	N	Clarification provided in response to comment, no changes to the EEE are required	No changes required
72	B8	Envirochem	19.4.2.1	Some risk assessment practitioners and Health Canada (2004) have advocated for the estimation of increased mortality and morbidity rates for the criteria air contaminants (i.e., PM2.5, NO2, SO2, CO) since air quality objectives for these substances are not purely health-based and may not be adequately protective in some cases. Rationale is not provided for why the EEE did not include such an evaluation of mortality/morbidity and/or for the protectiveness of the exposure limits applied for these parameters.	The air quality criteria / toxicity reference values used for the assessment are the most up to date available and reflect current scientific understanding of the toxicity of each pollutant. It is emphasized that when setting standards Health Canada and other regulatory agencies need to balance the effects information with the associated costs-benefits of their standards and this is reflected in the criteria adopted.	N	Clarification provided in response to comment, no changes to the EEE are required	No changes required
73	B9	Envirochem	Section 19.4.2.1 HHE from Air Quality	The report states "The exposure limits recommended for PM are therefore intended to reduce health effects to a minimum". However, details on how the exposure limit was selected are not disclosed. The BC and MV objectives chosen here (both short term and annual) are not purely health-based thresholds for PM.	Please refer to response to comment #72.	N	Clarification provided in response to comment, no changes to the EEE are required	No changes required
74	B10	Envirochem	Section 19.4.2.1 Exposure Limits	It is stated that: "In general, the most stringent exposure limit most scientifically defensible limit was applied". It is not clear or discussed if there were any cases based on this description where the most stringent exposure limit for a substance was not applied due to a limit being deemed not "scientifically defensible". Clarification/ examples on any case(s) where the most stringent exposure limit was not applied is not provided for reader context.	Section 19.4.2.1 has been updated to clarify that the most stringent exposure limits for acute and chronic (non-cancer and cancer) exposures published by BC Ministry of Environment and Climate Change, Metro Vancouver, Canadian Council of Ministers of the Environment, Health Canada (including CAAQS), Alberta Environmental and Parks, Ontario Ministry of Enviroment, Conservation and Parck, United States Environmental Protection Agency, Agency for Toxic Substances and Disease Registry, California Environmental Protection Agency, and Texas Commiission of Environmental Quality. Three exceptions are noted: 1.For chronic (non-cancer) exposure to benzene, an exposure limit of 10 µg/m3 was adopted. Alberta has a chronic exposure limit of 3 µg/m3, but this is based on cancer. Similarly, Ontario has a chronic limit based on cancer of 0.45 µg/m3, but this value is normalized to an excess cancer risk of 1 in 1,000,000. When adjusted to a 1 in 100,000 cancer risk, which is the default risk level used in BC, the resulting limit is 4.5 µg/m3. The supporting toxicological data upon which the Texas value was derived could not be found, but is expected to be based on cancer as well. The Alberta, Ontario, and Texas values for cancer are higher than the 0.3 µg/m3 limit used in the assessment. 2.For acute exposure to acetaldehyde, an exposure limit of 470 µg/m3 was adopted. Alberta has an acute exposure limit of 90 µg/m3 and Texas has an acute exposure limit of 120 µg/m3, but both of these values are based on odour perception and are not strictly health-based. 3.For acute exposure to 1,3-butadiene, an exposure limit of 660 µg/m3 was adopted. Texas has an acute exposure limit of 510 µg/m3 but this value is based on odour perception and is not strictly health-based.	Y	Section 19.4.2.1 has been updated to clarify the standards used and where exceptions have been made, as per response to comment.	Section 19.4.2.1, above Table 19.11
75	B11	Envirochem	Section 19.4.2.1 Table 19.11	An acute inhalation exposure limit of 3,700 mg/m3 was used for 1,3-butadiene. The Risk Assessment Information System (RAIS) recommends 660 mg/m3 based on data from CalEPA. There is no apparent rationale as to why this more conservative value was not used.	The acute inhalation exposure limit has been revised to 660 µg/m3 as suggested.	N	The acute inhalation exposure limit has been revised to 660 µg/m3 as described in response to comment #74.	Table 19.11
76	B12	Envirochem	Section 19.4.2.1 Table 19.12	Health Canada (2016) identifies DPM as a carcinogen, though does not provide a cancer TRV. It is not clear whether the EEE evaluates the cancer risks of DPM, despite the availability of cancer TRVs from other health agencies (e.g., CalEPA).	The Health Canada reference values (non-cancer) for DPM were used. As noted, Health Canada has not derived a reference value based on cancer effects, although they acknowledge based on evidence that it is carcinogenic.	Y	Section 19.4.2.1 has been updated to clarify consideration of potential cancer effects due to DPM exposure associated with the project.	Section 19.4.2.1, after paragraph above Table 19.12
77	B13	Envirochem	Section 19.4.2.1 Risk Characterization	it should be noted that Risk quotients (RQs) were compared to an acceptability threshold of one (1). Rationale is not provided for why Health Canada's threshold of acceptable non-cancer health risks (RQ = 0.2) was not applied, given that rail operations are federally regulated.	Section 19.4.2.1 has been revised for clarity. Inhalation exposure to pollutants in ambient air consider exposure to pollutants based on existing levels (background) as well as the future (Project + background) and cumulative (Project + background + other foreseeable projects). Use of a 0.2 RQ threshold is inappropriate because it would "double count" exposure from background sources. A 0.2 HQ threshold is often used, if exposure to the same contaminants from other sources (i.e., outside the project) are unknown or can not be reliably quantified. Since the assessment considered background levels, exposure to all sources that contribute to background air quality are already accounted for.	Y	Add to end of first paragraph under "Risk Characterization": For the assessment, RQs were compared to an acceptability threshold of one (1) rather than Health Canada's RQ threshold of 0.2 for acceptable non-cancer health risks. An RQ of 0.2 is used where exposure to background levels has not been considered. Since the air quality assessment considered background levels, a 0.2 RQ threshold was not adopted because it would "double count" exposure from background sources.	Section 19.4.2.1, after Table 19.13, end of first paragraph under "Risk Characterization"
78	B14	Envirochem	Section 19.4.2.1 Results of Human Health Risk / Assessment of Air Quality Effects	It is not clear whether predicted exposure concentrations for the various receptor types (e.g., child care, residence) were modified by the exposure time, frequency and duration that such a receptor would be present, or if the risk estimates assume fulltime presence regardless of receptor type. There is some qualitative discussion of likely exposure time for the locations where exceedances of ambient air quality objectives are predicted but limited discussion of the methodology is presented.	Predicted Risk Quotients were not modified based on exposure time, frequency, or duration, and assume 24/7 exposure at all locations. Discussion of exposure time, frequency, and duration is provided in the bullet points preceding Table 19.14 and Table 19.15.	N	Clarification provided in response to comment, no changes to the EEE are required	No changes required
79	B15	Envirochem	Section 19.4.2.1 Results	This section states that "Acute inhalation of COPCs is expected to be generally below health-based exposure limits". Further clarification on the meaning of 'generally below' in this sentence should be provided for context.	"Generally below" means that except for a few isolated cases, which are discussed in the bullet points following the statement, exposure concentrations are below thresholds. A few exceedances were noted, but these do not present a significant health risk given the low exposure potential (i.e., duration and frequency of exposure are low), as discussed in the bullet points preceding Table 19.14.	N	Clarification provided in response to comment, no changes to the EEE are required	No changes required
80	B16	Envirochem	Section 19.4.2.1 Results	RQs greater than 1 are presented for all sensitive receptor categories for NO2. Where this result is described, it is deemed to be unlikely to occur "give the conservative approach used in the air dispersion modelling for NOx" and references the Air Quality section of the EEE. There is currently no detail provided in the text of the EEE detailing the approach used for NOx modelling.	Modeling for NO2 has been updated, please refer to comment #15, 42, 43 and 70. Based on the results of updated modeling, The RQs for 1-hour NO2 are less than 1 for all sensitieve receptor locations; however, may exceed 1 at the MPOI located along the right-of way adjacent to Advent Rd.	Y	Section 19.4.2.1 of the EEE has been updated to reflect updated modeling completed in Section 9.	Section 19.4.2.1

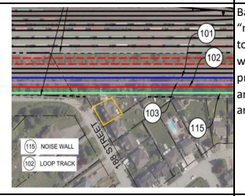
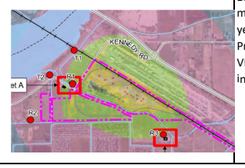
Comment Response Tracking Sheet - City of Pitt Meadows Batch 2, Appendix B

Comment #	Consultant IR #	Source	References	Reviewer Comments	Response to Comment	Comment Incorporated? (Y/N)	Changes to Document, or Rational why no changes occurred	Location of changes to document (Chapter, Section, Page)
81	B17	Envirochem	Section 19.4.2.1	The location of residences and receptors used in the model are unclear. No figures or tables detailing the receptors used are presented in the EEE.	All known sensitive receptors in the LEA were considered in the EEE. Schools, childcare, and senior care facilities were identified based on information from DataBC and entered as discrete receptors in dispersion modelling. Given the large number of residences in the LEA and given that the City of Pitt Meadows does not provide a residential dataset, residences could not identified as discrete receptors in dispersion modelling. Rather, maximum contaminant concentrations for residences were interpolated from the generic gridded receptor points based on aerial imagery using Geographic Information System (GIS) mapping software. Sensitive receptors are identified on the figures presented in Sections 9 (Air Quality) and 10 (Noise, Vibration and Light) for which cross references are provided throughout Section 19 (Human Health).	N	Clarification provided in response to comment, no changes to the EEE are required	No changes required
82	B18	Envirochem	Section 19.4.2.1 Table 19.6	Health Canada (2016) identifies DPM as a carcinogen, though does not provide a cancer TRV. It is not clear whether the EEE evaluates the cancer risks of DPM, despite the availability of cancer TRVs from other health agencies (e.g., CalEPA).	Please refer to response to comment #76	Y	Section 19.4.2.1 has been updated to clarify consideration of potential cancer effects due to DPM exposure associated with the project.	Section 19.4.2.1, after paragraph above Table 19.12
83	B19	Envirochem	Section 19.4.2.4 HHR from water quality	It is not clear whether impacts to water quality related to the deposition of contaminants in dust were considered in the evaluation of human health risks from changes to water quality.	Water quality, as related to dust depostion was not considered as the expected volume of deposition of dust within Katzie Slough and connected drainage and irrigation channels is not likely to be sufficient to result in a measureable change in water quality. In addition, existing soil quality meets applicable standards and is representative of background conditions in the area. Further, any material bought onto site will also be required to meet applicable standards.	N	Clarification provided in response to comment, no changes to the EEE required.	No changes required
84	B20	Envirochem	Section 19.4.2.5 HHR from Traditional Foods	It is not clear whether impacts to plant and animal tissues related to the deposition of contaminants in dust were considered in the evaluation of human health risks from changes to the quality of traditional foods.	Please refer to response #83.	N	Clarification provided in response to comment, no changes to the EEE required.	No changes required

APPENDIX C

Response to Noise and Vibration Comments (RWDI)

Comment Response Tracking Sheet - City of Pitt Meadows Batch 2, Appendix C

Comment #	Consultant IR #	Source	References	Reviewer Comments	Response to Comment	Comment Incorporated? (Y/N)	Changes to Document, or Rational why no changes occurred	Location of changes to document (Chapter, Section, Page)
1	2.1- 1.	RWDI	Figure 1 	Based on a review of the spatial boundary, the Project area is limited to the new proposed Project lands only which are south of the mainline as shown in Figure 1. However, the EEE states that, for CP, the proposed Project is: "…an expansion to its existing, adjacent Vancouver Intermodal Facility…" The Minister of Environment and Climate Change's decision to not designate this Project under the Impact Assessment Act was based on the proposed logistics hub being an expansion to the VIF resulting in a less than 50% increase in total area per the Impact Assessment Agency of Canada's Analysis Report. As an expansion of the VIF, the VIF should be included within the Project area and be considered cumulatively along with the effects of the new logistics park.	The application CP is putting forward is requesting Approval under sec. 98 of the *Canada Transportation Act* to develop the Logistics Park south of the existing tracks. The EEE was scoped to align with the application which will be before the CTA such that the CTA can accurately assess the potential effects of the proposed Logistics Park. Noise, vibration and light from the VIF are considered in the assessment through inclusion in the background/baseline data.	N	Clarification provided in response to comment, no changes required to the EEE.	No changes required
2	2.1 - 2.	RWDI	Section 8.1.22	In Section 8.1.2.2 (Temporal Boundaries), existing conditions are defined as: "… the conditions that exist prior to Project construction and operation and comprise the effects to date of other projects and activities that have been carried out, including their cumulative effects". The EEE indicates that: "… Existing conditions reflect the current land use and are strongly influenced by transportation and agricultural activities." In Section 10 of the EEE, when describing existing noise baseline, the assessment mentions that: "Overall, baseline noise levels in the LEA vary depending on proximity to existing rail traffic along the CP mainline and to existing rail yard activities at the VIF as described below." Hence, it appears the existing VIF noise contributions in the area are included in the baseline which forms the basis of the change assessment for noise. Although existing VIF activities are included in baseline monitoring, measurements represent a "snapshot" in time and are only representative of the period in which they are taken; they may not represent the maximum operations scenario. It is not clear how or if the maximum operations from VIF were included in the assessment	The standard approach to estimate baseline noise conditions is direct measurement rather than modelling of all baseline noise sources. Baseline noise monitoring is intended to capture representative baseline noise levels associated with typical VIF operations and not necessarily maximum potential operations at VIF. The noise monitoring was scheduled in consultation with CP to ensure noise monitoring was done at appropriate times.	N	Clarification provided in response to comment, no changes required to the EEE.	No changes required
3	2.1 - 3.	RWDI		Noise and vibration VCs are evaluating the "change" which is typical for Environmental Assessments. Considering the existing noise and vibration levels are high, absolute criteria should be considered as well as relative change criteria.	Health Canada provides an absolute criterion of 75 dBA above which there may be strong appeals to authorities to stop noise. The FTA also provides absolute criteria of 70 dBA for moderate impacts and 80 dBA for severe impacts regardless of baseline noise levels. These absolute criteria have been considered in the EEE and predicted future noise levels remain below these absolute criteria. FTA vibration criteria used in the EEE represent absolute criteria. However, vibration levels caused by different sources are typically assessed independently. That is baseline vibration from the mainline track and Project-related vibration from the departure/arrivals track are not cumulative.	N	Clarification provided in response to comment, no changes required to the EEE.	No changes required
4	2.2- 4.	RWDI	Table 10.22	The EEE qualitatively assessed construction noise and did not provide information to validate the effects characteristics ratings and significance for construction presented in Table 10.22. It is not clear what is meant by "modelling of mobile equipment across the Project Area would not provide meaningful results for the EEE". This type of assessment is common and expected for a project of this scale. Quantitative results for pre-construction and construction activities are needed to identify sources that require mitigation. Mitigation measures such as shrouds for pile drivers, temporary construction noise barriers, and/or administrative controls should be identified at this stage of the Project. This information will inform the Construction Environmental Management Plan (CEMP). At a minimum, this Section does not even identify which construction activities will happen in which location	Recent review of available information on pile driving has identified that engineering design has advanced sufficiently to undertake a conceptual noise model for piling activities. The results of this study have been added to the EEE. Any noise effects from other sources (e.g., equipment) are expected to be well below those from pile driving. Additional mitigation measures have been incorporated as required.	Y	Section 10 of the EEE has been updated with conceptual noise modelling results for construction activities.	Section 10.2.4.1; 10.4.2.1; 10.4.3; 10.4.4.1; 10.4.4.2; 10.6; 10.7
5	2.2 - 5.	RWDI		Given that activities during this phase could include notable noise and vibration sources (e.g., pile driving, compaction) this lack of any kind of assessment is a large void and significant oversight. Projects of this scope and size include an assessment of construction since it may include the most limiting effects and may establish the need for mitigation that can be difficult or complex to implement given the nature of construction activities. The assessment suggestion that previous experience is sufficient to neglect any assessment of construction noise, or that levels can be managed or would not be important, is inappropriate and neglects the potential significance of this phase of the project.	Please refer to response to comment #4	Y	Section 10 of the EEE has been updated with conceptual noise modelling results for construction activities.	Section 10.2.4.1; 10.4.2.1; 10.4.3; 10.4.4.1; 10.4.4.2; 10.6; 10.7
6	2.2 - 6.	RWDI	Figure 2 	Based on the information provided, the construction assessment confidence should be rated "low" (no data) not "medium". The magnitude could be "high", particularly for noise from pile driving given the proximity to homes to the Project area (i.e., homes are within 16 m of the proposed loop track and even closer to proposed retaining walls). An excerpt from the Project's Facility General Arrangement Plan is provided in Figure 2 which shows the proximity of the closest identified home (12548 188 St., Pitt Meadows, BC) to the proposed retaining/noise wall and the proposed loop track. There is no indication of the location, type, or duration of piled driving in the EEE, and insufficient discussion or rationale to justify these ratings.	Please refer to response to comment #4	Y	Section 10 of the EEE has been updated with conceptual noise modelling results for construction activities.	Section 10.2.4.1; 10.4.2.1; 10.4.3; 10.4.4.1; 10.4.4.2; 10.6; 10.7
7	2.2 - 7.	RWDI	Figures 10. 4 - 10.7 	Based on a review of the noise contour plots (Figures 10.4 – 10.7), it appears that there may be noise sources modelled within the existing VIF. An excerpt of Figure 10.4 from the EEE is provided in Figure 3 below (see faint yellow areas within the existing VIF which appears to identify a 70 – 80 dBA region). All noise sources within the Project area should be defined. In addition, given the proposed Project is an expansion of the existing VIF, future VIF operations should be incorporated into the analysis. Only the existing VIF contributions appear to be included in the analysis as part of the existing baseline and are not included as part of the project contributions.	The area in Figure 10.4 shown within the yellow (70 - 80 dBA) isopleth is associated with the transportation of empty and loaded agricultural product containers between VIF and CP LPV. With the exception of this additional truck traffic, the Project is not expected to change other activities at the VIF and therefore the baseline noise levels determined from monitoring is expected to include effects from existing and future operations at the VIF.	N	Clarificaiton provided in response to comment, no changes required to the EEE.	No changes required

Comment Response Tracking Sheet - City of Pitt Meadows Batch 2, Appendix C

Comment #	Consultant IR #	Source	References	Reviewer Comments	Response to Comment	Comment Incorporated? (Y/N)	Changes to Document, or Rational why no changes occurred	Location of changes to document (Chapter, Section, Page)
8	2.2 - 8.	RWDI	Appendix A	Based on a review of Appendix A, the sources levels do not appear to be reliable. Parameters such as the definition of “daytime” or “nighttime” are not defined, and given they have equivalent sound levels in the table, do not appear properly defined. Normally a 15-hour day and 9-hour night are used in the determination of the day-night sound level (Ldn) in accordance with Health Canada (HC) guidelines6 and international standards. When time adjustments are applied to the train movements, the reduction from the peak hour levels to the average daytime and nighttime sound levels are notably reduced by 8 to 20 dB which seem very low. For example, for train movements on the main receiving/departure track with a peak hour level of 66.8 dBA, to achieve the stated average daytime or nighttime levels of 47.3 dBA trains would only operate for 10 minutes of a 15-hour day or 6 minutes of a 9-hour night. It seems improbable that this is the expectation for this facility, or else the values are not properly quantified or expressed.	The noise assessment considers daytime as the 15-hour period from 7 am to 10 pm, and nighttime as the 9-hour period from 10 pm to 7 am, consistent with Health Canada and international standards. Based on the Project design criteria, three manifest trains are expected to call at CPLPV per day, resulting in a total of 6 train trips along the main receiving/departure track over a 24-hour period. The peak hour conservatively assumes 3 train trips within the hour i.e., 50% of the daily activity.	N	Clarification provided in response to comment, no changes required to the EEE.	No changes required
9	2.2 - 9.	RWDI	Appendix A	Further, for many activities, the peak hour sound power levels do not appear to be realistic based on our experience. For example, the CTA guidance indicates an idling locomotive has a sound power level of 107 dBA, or a sound pressure level of 69 dBA at 25 m. The values presented in Appendix A for train movements are labelled as “sound power levels” yet seem more aligned to expected sound pressure level values which is how some entries are described in the “Adjustment” column. Assuming “sound power level” is labelled in error and these are actually sound pressure levels, the sound pressure levels identified at 25 m for moving trains are still lower than a single idling locomotive per the CTA guidance. Train movements would be expected to have higher sound levels than an idling locomotive as they generally include multiple locomotives acting at higher throttle and many moving rail cars. Similarly, the shunting sound levels seem more indicative of sound power levels (albeit low compared to our experience), yet these are potentially indicated as “sound exposure levels” in the last column. A sound exposure level applies at a distance and yet no distance is noted	As discussed in Section 10.4.2.2, sound pressure levels for train movements (at 25 m) are calculated using the empirical equation from the FTA, which considers the number of locomotives, number of rail cars, and speed along the track. Values in Appendix A for shunting represent the sound power level, adjusted for the expected duration of shunting.	N	Clarification provided in response to comment, no changes required to the EEE.	No changes required
10	2.2 - 10.	RWDI	Appendix A	Other inconsistencies in Appendix A include whether the impulsive penalty noted is included in the reference levels or if they are applied in addition.	Values in Appendix A do not include any penalties. Penalties (adjustments) are added on top of the values shown, where required.	N	Clarification provided in response to comment, no changes required to the EEE.	No changes required
11	2.2 - 11.	RWDI	Appendix A	No information is provided to substantiate the values in Appendix A and there is no indication of the source of the sound data which would be required to comment on the appropriateness of the levels. Given the wide range of inconsistencies in the source data presented, we do not have confidence in the source information used, which therefore also extends to the modelling approach and efficacy of any of the results presented.	Sources of sound level data are described in Section 10.4.2.2.	N	Clarification provided in response to comment, no changes required to the EEE.	No changes required
12	2.2 - 12a.	RWDI	Section 10.3.2.1	The assessment applies a change assessment using the HC and FTA indicators for operations. Additional impacts associated with noise such as noise-induced sleep disturbance, interference with speech comprehension, and low-frequency noise should be evaluated as well per the HC Guideline. Some of these are discussed in the Human Health effects Section 19 of the EEE. According to the HC Guideline, mitigation may be considered where additional indicators are exceeded.	As noted, comparison to guidance levels for speech comprehension and sleep disturbance are discussed in Section 19. With the implementation of mitigation measures, future sound levels at nearby residences may exceed these guidance levels (see Table 19.21). However, it is important to recognize that existing sound levels (see Section 19.8) at these locations already exceed these guidance levels without the Project. The Project will not cause an increase in the number of homes that exceed these guidance levels, and therefore, the Project is not anticipated to cause any impacts to speech comprehension and sleep disturbance. Future sounds levels with mitigation at nearby residences are predicted to be <3dB higher than existing sound levels. 3 dB is the general threshold for a perceptible change. An assment of LFN effects has been added to Section 10 and Section 19.	Y	Section 10 (Noise, Vibration and Light) and Section 19 (Human Health) of the EEE have been updated with results and discussion as they relate to low frequency noise.	Section 10.2.2; 10.2.4.1; 10.3.2.1; 10.4.2.2; 10.4.4.1; 10.7
13	2.2 - 12b.	RWDI	Section 10.3.2.1	HC’s absolute criteria for potential effects such as sleep disturbance, interference with speech comprehension, and low-frequency noise should be incorporated more transparently into the assessment. According to the CTA, an absolute assessment and a relative change assessment are both acceptable. Given the existing noisy environment, an assessment to absolute criteria such as those noted would be appropriate.	Please refer to response to comment #12	Y	Section 10 (Noise, Vibration and Light) and Section 19 (Human Health) of the EEE have been updated with results and discussion as they relate to low frequency noise.	Section 10.2.2; 10.2.4.1; 10.3.2.1; 10.4.2.2; 10.4.4.1; 10.7
14	2.2 - 12c.	RWDI	Section 10.4.3 / Section 26.3 page 26-2	This section of the EEE does not specify that there will be an environmental management plan for operations. Volume 4 of the EEE (Section 26.3 page 26-2) indicates that no noise or vibration considerations are included in the post construction and operations management and monitoring requirements. Given some residual effects exist post-mitigation (i.e., for Trans Canada Trail), it would seem noise and vibration should be considered. According to the HC Guideline, “Noise management and noise monitoring plans, including complaint resolution plans, are often incorporated as part of the EA’s Environmental Management Plan. When health effects from project-related noise are possible, Health Canada prefers that a noise management plan detailing the actions that will be taken to minimize human health impacts due to project noise (mitigation measures) be developed and included in the EA.”	Section 10.6 has been updated based on further evaluation of potential noise and vibration effects. To verify the accuracy of the effects evaluation and the efficacy of mitigation measures, one noise and light monitoring event will be conducted upon full operation of the Project, at the nearest residential receptors to the Project Area. CP will also follow a complaint management process to monitor ongoing effects, which will inform the need for additional management or monitoring.	Y	Section 10.6 has been updated with the following: To verify the accuracy of the effects evaluation and the efficay of mitigation measures, one noise and light moitoring event should be conducted upon full Project operation at the nearest residential receptor	Section 10.6
15	2.2 - 13.	RWDI	Section 10.2.4	The noise criteria chosen for the assessment is consistent with the FTA noise criteria “Option A” as detailed in the FTA Manual Section 4.1. However, “Option B” appears to be more appropriate considering “Option A” is applicable where “the project noise source is a new source of transit noise in the community, such as a new project in an area currently without transit”. “Option B” criteria is most appropriate for evaluating cumulative noise impacts where “changes are proposed to an existing transit system, as opposed to a new project in an area previously without transit. Such changes might include operations of a new type of vehicle, modifications of track alignments within existing transit corridors, or changes in facilities that dominate existing noise levels	The Project is considered a new facility for the purposes of the noise assessment as the Project will not require changes to any existing noise sources (e.g., VIF, mainline track). Therefore the use of Option A is appropriate.	N	Clarification provided in response to comment, no changes required to the EEE.	No changes required
16	2.2 - 14a.	RWDI	Section 10.2.4	CTA guidance indicates that an assessment based on absolute and change criteria may be appropriate. The assessment was carried out primarily using a relative change assessment per the HC Guidance and the FTA Manual. Given the prevalence of existing rail sources in the area, inclusion of absolute assessment criteria in addition would be appropriate as they incorporate additional parameters that would more appropriately assess the impact on the community.	Please refer to response to comment #3.	N	Clarification provided in response to comment, no changes required to the EEE.	No changes required

Comment Response Tracking Sheet - City of Pitt Meadows Batch 2, Appendix C

Comment #	Consultant IR #	Source	References	Reviewer Comments	Response to Comment	Comment Incorporated? (Y/N)	Changes to Document, or Rational why no changes occurred	Location of changes to document (Chapter, Section, Page)
17	2.2 - 14b.	RWDI	Section 10.3.2.1	Within the evaluation of noise, there is a discussion of a change in representative community type based on the ambient noise environment. These community types/classifications are based on those provided by the CTA for different ambient noise levels. It's unclear what role the change in representative community plays in the overall evaluation of noise. The assessment uses the Ldn sound level to define the community type, but the intent of the CTA guidance is to use the community type to define the potential ambient sound level when baseline monitoring hasn't occurred. The community type is defined based on the description and population density, not sound level. It is misleading for the assessment to say that the receptors are classified "in accordance with descriptors from the Canadian Transportation Agency". This suggests that the sound levels are based on the community type when in fact the Ldn is inflated due to the existing influence from local rail sources (i.e., the VIF and CP mainline), rather than typical ambient sounds that would be experienced in those communities. For example, in Section 10.3.2.1, the assessment defines the community type of the residences near Advent Road and 188 Street as "very noisy urban residential". As per the CTA (and HC), the community type is actually defined as a major population centre typically with a population density of 24,324 people per square kilometer. In the lower mainland, only downtown Vancouver would have a population density close to this value so this categorization is inappropriate.	As discussed in Section 10.3.2.1, the community type is presented to show what existing sound levels are. For example, residences near Advent Road and 188 Street currently experience sound levels that a "very noisy urban residential" community would experience. These community types are not intended to portray the actual community type of the residences, as defined by population density. The community type is used as an additional layer of guidance for the noise assessment, in addition to the HC and FTA criteria. For example, if a location currently experiences sound levels representative of an "urban residential" community, the Project should not change noise levels at that location such that it will experience sound levels representative of a "noisy urban residential" community.	N	Clarification provided in response to comment, no changes required to the EEE.	No changes required
18	2.2 - 14c.	RWDI	Section 2.2.2. of CTA	Low-frequency noise should be considered as part of a rail assessment according to Section 2.2.2 of CTA 2011. As noted above, low frequency noise was not considered in the noise evaluation, although it is noted later in the Human Health (Section 19) chapter. Given the prevalence of low frequency sound from the rail sources and trucks involved in this project, a more rigorous review is warranted. Low frequency sound, especially from locomotives, is particularly challenging to mitigate or reduce at receptor	Assessment of LFN has been added to Section 10 (Noise, Vibration and Light) and Section 19 (Human Health) the EEE.	Y	Section 10 (Noise, Vibration and Light) and Section 19 (Human Health) of the EEE have been updated with results and discussion as they relate to low frequency noise.	Section 10.2.2; 10.2.4.1; 10.3.2.1; 10.4.2.2; 10.4.4.1; 10.7
19	2.2 - 14d.	RWDI	Section 2.2.2. of CTA	Tonal or impulsive sounds should be considered as part of a rail assessment according to Section 2.2.2 of CTA guidelines. From Appendix A of the assessment, it is apparent that impulsive penalties according to HC guidance were applied to some sources but there is no mention of tonal noise.	Based on a qualitative analysis of noise sources and a review of the available octave band sound power levels, the Project noise sources are not expected to be tonal in nature.	N	Clarification provided in response to comment, no changes required to the EEE.	No changes required
20	2.2 - 15.	RWDI	Table 10.22 and Table 10.23	Considering deficiencies around the application of criteria as detailed above, there is insufficient rationale to validate the effects characteristics ratings and significance presented in Table 10.22 and Table 10.23 for pre-construction / construction noise and operations noise, respectively.	The effects characteristics ratings for pre-construction / construction noise (Table 10.22) has been updated based on results of the conceptual noise modelling that has been added to the EEE. Please refer to response to comment #4. Please refer to responses to comments #3 and #15 regarding application of criteria related to operation noise.	N	Section 10 of the EEE has been updated with conceptual noise modelling results for construction activities.	Section 10.2.4.1; 10.4.2.1; 10.4.3; 10.4.4.1; 10.4.4.2; 10.6; 10.7
21	2.2- 16	RWDI		RWDI has previously compared the vibration levels and found that RWDI-measured vibration levels in the area are higher than those reported by BKL, in some cases notably higher (i.e., typically 10 VdB re: 1 nm/s at representative monitoring locations). The difference is speculated to be related, in part, to BKL averaging train pass by levels rather than considering the maximums.	Acknowledged. The intent of the vibration assessment was to consider typical ground-borne vibration levels with equipment in good condition. It is possible for occasional train passbys to result in higher vibration levels.	N	Clarification provided in response to comment, no changes required to the EEE.	No changes required
22	2.2 - 17.	RWDI	Section 10.3.2.2	The assessment acknowledges that baseline vibration levels are already high and even "exceed the US FTA criteria for vibration" but then proceeds to justify those levels will only be "slightly perceptible" and that they "remain below those that cause public annoyance". Exceeding the FTA criteria would be evidence that annoyance is expected. In general, vibration perceptibility is linked to public annoyance in the literature; hence this conclusion seems ill-conceived and not supported	In accordance with the US FTA guidance document, the text in the EEE has been updated to indicate that baseline vibration levels are perceptible and may cause some degree of public annoyance.	Y	Text in Section 10.3.2.2 and has been amended to read: Baseline vibration levels exceed the US FTA criteria for vibration, suggesting that vibration may be ~~slightly~~ perceptible, *resulting in some degree of public annoyance* at adjacent residences, although levels remain well below those that may cause ~~public annoyance or~~ building damage.	Section 10.3.2.2
23	2.2 - 18.	RWDI	Section 10.3.2.2	The level of detail and assessment are lacking for a construction assessment. For this type of project, construction may become the limiting scenario particularly since mitigation measures are not installed and heavy activities may be prevalent in proximity to receptors.	Please refer to response to comment #4	Y	Section 10 of the EEE has been updated with conceptual noise modelling results for construction activities.	Section 10.2.4.1; 10.4.2.1; 10.4.3; 10.4.4.1; 10.4.4.2; 10.6; 10.7
24	2.2 - 19.	RWDI	Section 10.3.2.2	For construction vibration, setback distances are provided for certain activities to prevent building damage. However, the lack of consideration of annoyance effects due to construction vibration is an oversight. Given annoyance occurs at thresholds below building damage onset, complaint issues would be expected at lower levels of vibration than those that would cause damage	Setback distances has been provided for annoyance based on the conceptual modeling results for construction activities that have been added to the EEE. Please also refer to response to comment # 4.	Y	Section 10.4.2.1 of the EEE has been udpated to include setback distances for public annoyance.	Section 10.4.2.1; Table 10.15
25	2.2 - 20.	RWDI	Table 10.15	Within Table 10.15, a worst-case setback distance of 19 m is shown for impact pile driving. Based on a review of a preliminary geotechnical report prepared by Golder, there appears to be retaining walls planned along the mainline right-of-way to support the loop track, which are within 8 m of some dwellings. It is reasonable to assume that pile driving, caisson installation, compaction or other heavy vibration activities will likely occur within this area to construct the retaining walls and tracks. The assessment should verify where these activities will occur and assess and mitigate their influence.	Vibration effects associated with construction pile driving activities have been added, please also refer to response to comments #4 and #24.	Y	Section 10, including Table 10.15 of the EEE has been updated to incorporate restuls of conceptual noise modelling for construction activities.	Section 10.2.4.1; 10.4.2.1; 10.4.3; 10.4.4.1; 10.4.4.2; 10.6; 10.7
26	2.2 - 21.	RWDI	Section 10.3.2.2	Per Section 10.3.2.2 it is noted that peak ambient vibration levels reach 1.2 mm/s (PPV) near 13071 Kennedy Road which is said to be "well below levels that may cause public annoyance or building damage". Table 10.5 indicates that levels of 1 mm/s PPV can be perceptible but tolerated. These values appear to derive in part from the Caltrans document referenced but refer to historical data (1931) the document presents based on parameters that are generally no longer used for annoyance. The Caltrans document cites ISO 2631 as the modern references, which relies on RMS velocity (sometimes expressed in VdB) as the most appropriate metric to use for annoyance, not PPV. These RMS metrics are consistent with FTA and other vibration criteria. Conversion of criteria from RMS to PPV requires certain assumptions which are not always appropriate hence such levels may be misconstrued. The threshold in PPV for annoyance is thus not clearly determined for this assessment.	The 1 mm/s PPV threshold in Table 10.5 was obtained from BSI 5228-2, dated 2008. BSI 5228-2 provides some guidance for human response to vibration in PPV rather than RMS. No conversion of RMS to PPV was done when listing criteria in Table 10.5. These criteria were used to evaluate Project construction for which equipment vibration levels are typically provided in PPV. The equation to predict Project operation vibration gives RMS. It was previously compared to PPV criteria in Table 10.5 to provide setback distances in Table 10.18. Table 10.18 has been revised to refer to the FTA scale which is in RMS, to avoid the conversion from PPV to RMS. Additional comparison to ISO 2631 has been added to Section 19 for evaluation of human health effects. Please also refer to response to comment # 22.	Y	Table 10.18 has been revised to FTA scale (in RMS).	Table 10.18

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Comment #	Consultant IR #	Source	References	Reviewer Comments	Response to Comment	Comment Incorporated? (Y/N)	Changes to Document, or Rational why no changes occurred	Location of changes to document (Chapter, Section, Page)
27	2.2 - 22.	RWDI	Table 10.18	For vibration during operations, the application of criteria according to FTA7, BSI8 and CalTrans9 is somewhat confusing. The criteria give only absolute thresholds and then within the evaluation section provides an evaluation applying baseline vibration levels. Table 10.18 provides setback distances to avoid annoyance, disturbance or building damage. These setback distances could not be validated due to a lack of information provided. Within this table, the worst-case setback distance of 25 m is provided for residential receptors based on FTA criteria. There are homes within 16 m of the mainline where the proposed loop track starts which the assessment acknowledges. Yet the assessment comes to the conclusion that operational vibration would only be "slightly perceptible" and would not lead to annoyance or damage. Where the setback distance is not met, an effect is expected. It is not sufficient to simply neglect demonstrated results as insignificant.	It is recognized that the receiving/departure track or the loop track may cause vibration levels at adjacent residences that exceed FTA criteria. However, it is important to note that these residences already experience vibration levels that exceed FTA criteria due to rail traffic along the mainline. As per the FTA document, the Project is deemed to have no impact on vibration if existing conditions already exceed the criteria, the number of events does not increase significantly, and the Project vibration does not exceed the existing vibration by 3 dB or more.	N	Clarification provided in response to comment, no changes to the EEE required.	No changes required
28	2.2 - 23.	RWDI	Table 10.25	There is not enough information or rationale to justify the Project operations vibration residual effects ratings presented in Table 10.25. Given the preceding comments, the conclusion that that magnitude of effects will only be moderate given the assessment is not consistent with the fact it exceeds criteria. Per Table 10.21, a "moderate" magnitude is associated with results that are below criteria. A "high" magnitude is associated with levels above criteria	Please refer to response to comment #27. Magnitude is rated moderate because the Project is deemed to have no impact on vibration based on FTA guidance, despite the fact that the general vibration criteria may be exceeded.	N	Clarification provided in response to comment, no changes to the EEE required.	No changes required
29	2.2 - 24 (a-g)	RWDI	Table 10.16	Proposed mitigation M8-8 (Noise Walls on the Right-of-Way) and M10-3 (Noise Walls for Main Site): a) The rationale for where mitigation is required is not clear. Within the criteria section, the only instance where mitigation is mentioned is as follows: "A Project-related change in %HA of more than 6.5% represents a severe impact, and noise mitigation measures are recommended". b) Based on the assessment, the desired effectiveness of the barrier walls "should be of a height sufficient to reduce noise effects". The design criteria for the barrier walls should be better defined. According to this guidance, a <1 dB reduction in noise level could be considered sufficient. However, noise walls must typically achieve a minimum 5 dB reduction at the closest homes to be considered effective. c) The length of recommended walls is not defined. The extent of the sound walls is only shown on figures. It is recommended that a table be included to provide details for each recommended sound wall including expected dimensions, type (e.g., reflective vs absorptive), and comments on local topography that could affect installation. d) It is recommended that final engineering design include detailed noise modelling to verify the design criteria is met. This commitment does not appear to be made. e) Mitigation is proposed to protect a number of receptors, however it is unclear what criteria or methodology was used to determine where barriers were warranted since the results do not appear to align to the impact assessment (e.g. Table 10.16) and no rationale or discussion is provided. f) Given a noise wall is necessary to protect the residences represented by receptor R4 from noise, then a new barrier wall north of the CP's loop track and mainline should also be included to protect the residences to the north of the corridor. These north residences are within 50 m of the proposed loop track and even closer to the two mainline tracks. g) As per Table 10.16, there is an assumed sound reduction due to mitigation of 10 dB at R4. This result appears to be an overly optimistic noise reduction for a 6 m barrier wall. In practice, the wall will likely have to be higher to achieve this type of reduction, likely over 8 m above top-of-rail. As per the note above, the design criteria should be a minimum of 5 dB and the appropriate height should be determined through detailed design. The rationale for the proposed mitigation should be better substantiated and explained.	a) Text has been updated to provide more clarity on when mitigation is recommended. b) Mitigation measure has been updated to stipulate that specifications of noise walls will be sufficient to reduce Project-related noise levels to meet the criteria used in this evaluation. c) Design specifications will be defined during detailed design. d) Mitigation M8-15 has been revised to indicate that noise effects will be verified with the engineering team as project design progresses, should the recommended design criteria not be feasible. e) See a) above. f) The noise wall south of the loop track and mainline was not identified based on the noise assessment, but proposed by CP to help mitigate against high levels of noise currently experienced at adjacent residences. This has been clarified in the text. The residences noth of the mainline/VIF lead are being assessed as part of the PMRRIP project (a seperate project led by Vancouver Fraser Port Authority). g) The reduction of 10 dB is estimated based on simulations using the CadnaA noise model. See also c) and f) above.	Y	a)Text in Section 10.4.2.2 has been updated to include the following:.....*the implemetnation of mitigation measues will reduce Project noise levels to meet the Health Canada threshold for %HA and to represent a no impact rating based on the US FTA noise criteria*.... b) Mitigation 8-15 has been updated to include: .....*The noise walls should be of a length, height, and surface density sufficient to reduce Project-related noise effects to meet the criteria used in this evaluation. Should these specifications not be feasible, noise effects will be assessed further via modelling as engineering design progresses*..... c) No changes required d) See changes for b) above e) See changes for a) above f) Note has been added to Table 10.16: *Noise wall by the right-of-way (see Section 10.4.3) is proposed not to meet the Health Canada, US FTA, or ANSI noise criteria but to reduce cumulative noise exposure at adjacent receptors.* g) No changes required	a) Section 10.4.2.2 b) Section 10.4.3, M8-15 c) No changes required d)Section 10.4.3, M8-15 e) Section 10.2.4.1, Section 10.4.2.2 f) Section 10.4.2.2; Table 10.16 g) No changes required
30	2.2 - 25 (a-c)	RWDI	Section 10.4.3	Proposed mitigation M10-1 (Advanced notification and complaint management): a) Without providing construction activity details, it's unclear what construction activities will occur and what is considered "noisy activity". b) There is a commitment to provide a "timely" response. The response time should be defined in the CEMP. c) A complaint should trigger a complaint investigation which may result in monitoring to determine if additional mitigation is required. More adaptive management details should be included in the CEMP.	a) Text has been updated to provide additional clarity around when advanced notification will be required. b) Complaint management is now covered in M8-9. The complaint management process is in development. Response times cannot be defined as each situation is unique and may require various levels of response/resources. c) Regarding complaint investigations, M8-9 has been updated as recommended. Adaptative management is an over-arching principal of applying mitigation and is included in the CEMP. CP	Y	Mitigation M10-1 has been updated to read: *Providing advance notification of construction work that may increase noise helps to manage public awareness and acceptance. Provide notification of activities generating noise levels above 85 dBA as measured at a distance of 15 m from the activity (e.g., pile driving, clam shovel operation, jackhammer operation, concrete saw operation), particularly if night work is required, to receptors within a 250 m radius in advance of planned work (this radius is considered appropriate based on professional experience; there is no standard to apply* Mitigation M8-9 has been udpated as recommended.	Section 10.4.3
31	2.2 - 26.	RWDI	Section 10.4.3	Proposed mitigation M10-2 (Manage Construction Scheduling): a) This mitigation measure indicates that construction will occur during the daytime only, in accordance with the City Noise Control Bylaw. However, it also mentions that there will be nightwork (i.e. outside of the City allowable construction hours) which is contradictory. To construct outside the allowable construction hours, the contractor needs to apply for a variance. That should be clearly stated.	Mitigation M10-2 has been revised for clarity.	Y	Mitigation M10-2 has been revised to read: *Although not required on federal lands, the Project will voluntarily adhere to Pitt Meadows Noise Control Bylaw No. 2138 by limiting construction to the hours of 7:00 a.m. to 9:00 p.m., excluding bank holidays and Sundays, to the greatest extent possible. Construction activities, especially high-dB work work (e.g., pile driving, clam shovel operation, concrete saw operation), during nighttime hours (i.e., 9:00 pm to 7:00 am) should be minimized to the extent practicable.*	Section 10.4.3

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Comment #	Consultant IR #	Source	References	Reviewer Comments	Response to Comment	Comment Incorporated? (Y/N)	Changes to Document, or Rational why no changes occurred	Location of changes to document (Chapter, Section, Page)
32	2.2 - 27.	RWDI	Table 10.20	Table 10.20 identified the need for a Construction Environmental Management Plan (CEMP) which will clearly outline how noise and vibration will be managed throughout construction. There is no mention of a noise and vibration environmental management plan for operations. It is recommended that CP commit to a noise and vibration environmental management plan for operations, including conducting publicly available noise audits to ensure that the actual sound levels emitted from the Project's operation matches predicted levels or installing permanent continuous monitoring around the site such as that used at various facilities by VFPA in the region	Thank you for your comment and recommendation. One noise monitoring event will be conducted upon full Project operation to verify the accuracy of the effects assessment and the efficacy of mitigation measures. Project-related noise levels, based on a conservative assessment assuming concurrent operation of all equipment and activities at the design basis of the Project, are predicted to remain below relevant noise criteria. Therefore, the installation of permanent continuous monitoring around the site is not currently required. Results of the noise monitoring event during Project operation and on-going complaint management will be evaluated to determine the need for additional monitoring.	Y	Section 10.6 has been updated with the following: *To verify the accuracy of the effects evaluation and the efficay of mitigation measures, one noise and light moitoring event should be conducted upon full Project operation at the nearest residential receptors to the Project Area. A complaint management process will also be estalised to monitor on-going effects.*	Section 10.6
33	2.2 - 28.	RWDI	Section 10.4.3	The mitigation measures proposed above alone will likely not be effective enough to minimize the effects of noise and vibration within the community based on the information provided for the pre-construction, construction and operation phases. It is assumed that the assessment included all significant sources of noise and vibration, however there is also an assumption that general good practice is being applied. To ensure good practices are followed, additional mitigative measures should be considered in the CEMP for the preconstruction and construction phases as well as in an environmental management plan for the operation phase. These measures include: a) Use of adaptive equipment alarms (i.e. backup alarms) particularly for nighttime construction b) Develop and implement an idle reduction policy that focuses on reducing noise and vibration emissions from construction equipment and vehicles; c) Awareness training for all workers on potential disturbance from impulsive events.	Additional mitigation has been included in the EEE and CEMP as recommended.	Y	New mitigation measure M10-6 has been added to Section 10.4.3 the EEE: *Self-adjusting backup alarms may be installed on equipment used for nighttime construction to reduce noise emissions. Self-adjusting and directional backup alarms can limit noise exposure by focusing noise to a certain area or only be slightly louder than the ambient noise in the vicinity of the vehicle* Mitigation M9-3 Anti-idling Policy has been added to Section 10.4.3.	Section 10.4.3
34	2.2 - 29.	RWDI	Section 10.5.1	For the cumulative effects assessment, the existing VIF, mainline tracks, and Maersk facility are not noted as a additional sources. This seems to indicate that the existing VIF is a part of the Project, and there is a suggestion its noise levels were included in the baseline sound levels. If that is the case, the existing VIF should have been included in the Project Area and evaluated cumulatively with the proposed new Project. This represents an inconsistency in how the assessment is presented.	The effects of existing projects such as VIF, mainline tracks, and the Maersk facility are considered as part of existing conditions and are included in the baseline sound levels. The cumulative effects assessment is intended to consider potential effects from other reasonably foreseeable projects.	N	Clarification provided in response to comment, no changes to the EEE required	No changes required
35	2.3 - 30	RWDI	Section 19.4.2.2	As per HC guideline, complaint criteria is also an indicator of potential human health effects. This section provides the criteria for when complaints are expected but does not incorporate this criterion into the evaluation.	Section 19.4.2.2 indicates *"Noise complaints may be viewed as another qualitative method of measurement for human health effects* ." CP has committed to developing and implementing a Complaint Management Process (see Mitigation M8-9 in Section 10).	N	Clarification provided in response to comment, no changes to the EEE required	No changes required
36	2.3 - 31.	RWDI	Section 19.4.2.2	As mentioned, LFN is evaluated. The LFN rattle criterion is not clearly stated however and the predicted LFN level at each receptor is not documented.	Assessment of potential LFN effects and associated criteria has been added to Section 10 and Section 19. Please also refer to comment # 12 and 13.	Y	Section 10 (Noise, Vibration and Light) and Section 19 (Human Health) of the EEE have been updated with results and discussion as they relate to low frequency noise.	Section 10.2.2; 10.2.4.1; 10.3.2.1; 10.4.2.2; 10.4.4.1; 10.7
37	2.3 - 32	RWDI	Section 19.4.2.2	The assessment indicates that "Low-frequency noise was not monitored". The assessment did not provide details on the monitoring methods used. However, most type 1 or type 2 sound level meters (SLM), as recommended by the CTA guidelines for noise monitoring, are capable of filtering octave band levels into the LFN range. In the absence of monitoring data, an assessment should be conducted, and rationale provided to support any conclusions. Considering that LFN is a major concern within communities in close proximity to rail lines, this is a significant oversight.	Assessment of potential LFN effects and associated criteria has been added to Section 10 and Section 19. Please also refer to comment # 12 and 13.	Y	Section 10 (Noise, Vibration and Light) and Section 19 (Human Health) of the EEE have been updated with results and discussion as they relate to low frequency noise.	Section 10.2.2; 10.2.4.1; 10.3.2.1; 10.4.2.2; 10.4.4.1; 10.7
38	2.3 - 33	RWDI	Section 19.4.2.2	For the pre-construction and construction phases, based on the assessment reporting, noise is predicted to "remain below the Health Canada guidelines for %HA, Ld, and Ln at all sensitive receptors." There is no quantitative support for this statement	Text and tables have been updated based on conceptual modelling of noise effects from piling activities. See also response to comment # 4.	Y	Section 10 of the EEE has been updated with conceptual noise modelling results for construction activities.	Section 10.2.4.1; 10.4.2.1; 10.4.3; 10.4.4.1; 10.4.4.2; 10.6; 10.7
39	2.3 - 34.	RWDI	Table 19.17	For the operation phase, based on the assessment reporting "While no health risks are anticipated, noise levels are anticipated to be above both the speech comprehension (3 receptor locations, including R1, R3, and R4) and sleep disturbance criteria (all 4 receptor locations), which indicates that some individuals may be adversely affected by the increase in noise from the Project (Table 19.17)." It's not clear how the assessment can conclude there are no health risks anticipated when various human health effects criteria are exceeded. This seems like a contradiction. Note that this statement is related to sound levels without mitigation	Please refer to response to comment # 12	N	Clarification provided in response to comment #12. No changes to the EEE required.	No changes required
40	2.3 - 35.	RWDI	Section 19.4.4.2	Within the residual effects section (19.4.4.2), it was found that with mitigation, "Residual effects are expected to be moderate in magnitude and localized with the potential to disrupt speech comprehension and sleep for some individuals at residences located west of the North Lot, west of South Lot, on McTavish Road, and near Advent Road and 188 Street. While such disturbance could cause annoyance, the effect is not at the level that is anticipated to pose a health risk. No significant adverse effects on human health are expected." Even with mitigation, it is found that they are exceeding human health criteria but acknowledging adverse effects within the residual effects ratings for operation noise. This conclusion is contradictory to the results	Please refer to response to comment # 12	N	Clarification provided in response to comment #12. No changes to the EEE required.	No changes required
41	2.3 - 36.	RWDI	Section 10.0	The assessment of vibration pre-construction /construction and operation phases of the Project which regards to human health effects is not robust. The assessment reports that: "…there is no widely accepted approach to quantitatively assess the associated potential health effects beyond the results and details presented in Section 10.0 – Noise, Vibration, and Light." Methods to assess and quantify construction vibration, including its potential effects on people do exist and have been validated in many previous projects such as the Milton Logistics Hub11 in Milton, Ontario or the Trans Mountain Expansion Project12 in the BC Lower Mainland. Further, based on this statement, it does not seem like the proponent can provide residual effects ratings for human health effects from vibration as presented in Table 19.22. An assessment should be conducted and then evaluated based on the results, not merely considered qualitatively without supporting rationale or demonstrated outcomes, otherwise the evaluation appears to be merely conjecture.	Additional conceptual modeling for the Project has been completed, as per response to comment #4 and results incorporation into Section 19 Human Health. In addtion, CP has reviewed the Milton Logistics Hub assessment and has updated Section 19 with additional discussion on potential impacts to human health associated with vibration.	Y	Added text in Section 19.4.2.2 under heading Indicators of vibration-related Health Effects. Also update Section 19 with results of conceptual modeling as per response to comment #4.	Section 19.4.2.2

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Comment #	Consultant IR #	Source	References	Reviewer Comments	Response to Comment	Comment Incorporated? (Y/N)	Changes to Document, or Rational why no changes occurred	Location of changes to document (Chapter, Section, Page)
42	2.4 - 37.	RWDI	Table 25.1	Table 25.1 indicated residual effects for noise but indicates that the effects are not significant. There is no supporting rationale for this judgment	The Project will generate noise and no amount of mitigation can reduce the Project-related noise to zero, therefore residual effects is rated "yes" in Table 25.1. The magnitude of residual effects is expected to remain below relevant criteria and therefore the effects are considered not significant. This is explained in Section 10.	N	Clarification provided in response to comment, no changes to the EEE required	No changes required
43	2.4 - 38.	RWDI	Table 25.1	Table 25.1 indicates that a noise wall for wildlife is "along the south side of the property", but it is not clear which noise wall is referenced or if such a wall exists in the assessment. There is no discussion of a noise assessment on wildlife in the noise sections of the EEE that were reviewed. In addition, in some cases, the effects of blasting and pile driving can be an important consideration for fish and aquatic receptors	Section 10 focused on noise, light and vibration disturbances to humans; such disturbances to fish and wildlife were assessed in Sections 12 and 14, respectively. Mitigation measures are being refined/re-organized to present a clearer, more consistent approach across all disciplines. The "noise wall" mitigation for wildlife has been updated and is detailed in Section 14.4.3.	N	Clarification provided in response to comment, no changes to the EEE required.	No changes required
44	2.4 - 39.	RWDI		It's not clear how potential changes to local transportation was considered for local receptors. For example, the proposed Project will attract trucks using the facility (i.e., its purpose to integrate trucking and rail). There should be clarification around how these potential effects were considered.	The project effects evaluation for transportation are discussed in Section 16.4.	N	Clarification provided in response to comment, no changes to the EEE required	No changes required

APPENDIX D

Response to Environmental Effects Evaluation Comments (ISL)

Comment Response Tracking Sheet - City of Pitt Meadows Batch 2, Appendix D

Comment #	Consultant IR #	Source	Reviewer	References	Reviewer Comments	Response to Comment	Comment Incorporated? (Y/N)	Changes to Document, or Rational why no changes occurred	Location of changes to document (Chapter, Section, Page)
1	1.01	-	ISL	General Comment	CP and their respective consultants (the developer) should provide the City with all future design documentation and technical reports as it is indicated throughout several documents that further information and details for site components will be provided in future documents.	CP will share documents with stakeholders, including COPM, for review and comment as the Project progresses.	N	Response indicates that future documents will be shared. No updates to EEE required.	No updates required
2	1.02	Hatch Stormwater Management Report 30% Design	ISL	General Comment	Generally, the report is hard to follow as the cross sections provided throughout note mile markings (such as Figures 3-12 to 3-14) however no drawings are provided showing these locations or noting mile markings. Additionally, ditches and other stormwater infrastructure (such as JT11, JT10) are mislabelled or are not included in the model results. The developer should revise this report to clarify all general inconsistencies and note mile markings on a general layout for the purpose of review and coordination.	Report will be updated with mile markers and inconsistencies corrected.	Y	Mile markers have been added to Figure B-9, Figure B-10 and Figure B-11 in Appendix B. Ditches JT11 and JT10 have been correctly labeled in Figure B-11 and Figure B-14. All general inconsistencies have been corrected throughout the report text and tables, figures in Appendix B, and results tables in Appendix C.	Appendix B: Report Figures. Appendix C: Model Results Table.
3	1.03	Hatch Stormwater Management Report 30% Design	ISL	General Comment	Approvals from environmental authorities will be required. Provincial and municipal policies should be followed and adhered to.	CP thanks the City of Pitt Meadows for their comment, all required environmental approvals will be obtained.	N	Response does not require updates to any documents.	No changes required
4	1.04	Hatch Stormwater Management Report 30% Design	ISL	General Comment	SWMP Plan drawings should include 1.0m contours and note any major flow paths as per the City of Pitt Meadows Subdivision and Development Servicing Bylaw no. 2589	Noted, these elements have been added to SWMP drawing.	Y	Existing ground contours from the Underhill survey in July 2020, and major flow paths have been included to all figures in Appendix B.	Appendix B: Report Figures.
5	1.05	Hatch Stormwater Management Report 30% Design	ISL	Executive Summary	The report notes that ongoing studies to be completed by Hemmera will aid in quantifying any potential impacts to the Katzie Slough System but these studies were either not ready for review, or not made available for review at the time of submission to the City. The developer should confirm what studies are being completed and results should be provided for City review prior to CP's submission to the Canadian Transportation Agency. Other sections of this SWMP report note that portions of Hemmera's analysis have been completed and included in this report. For clarity, the report should be revised to clarify what analysis is still to be completed and what analysis has been completed. If these studies include sections in the EEE then please refer to comments relating to those studies.	Please refer to response to comment #1 with regards to the provision project documents for the City's review. The report has been updated with reference to any additional studies that have been completed, or may be required to support ongoing engineering design.	Y	Text in executive summary has been updated and references the latest report from Hemmera in January 2022. This report has also been added to Appendix A.	Executive Summary, last paragraph. Appendix A: Available Data, 12th bullet point.
6	1.06	Hatch Stormwater Management Report 30% Design	ISL	Stormwater Network Design Objectives, 2.1	The developer should confirm ground water infiltration will have no negative impacts to adjacent waterbodies or downstream infrastructure. Most notably through dry detention ponds where water could likely be contaminated with hydrocarbons.	There are upstream coalescing oil water separators that will capture hydrocarbons before they enter the pond. Ponds will be lined to prevent infiltration where there is a potential for hydrocarbon contamination. Section 11 of the EEE discusses the potential effects of the Project to adjacent waterbodies. The assessment is support by the Hydrogeology Baseline Report and Katzie Watershed Modeling report which have now been shared with the City for review.	N	Clarification is provided in response to comment, no changes to the report are required.	No changes required
7	1.07	Hatch Stormwater Management Report 30% Design	ISL	Stormwater Network Design Objectives, 2.1	Pre-development and post-development runoff should be calculated using the hydrograph method outlined in the City's bylaw no. 2589 (Section E.3.1) and the runoff coefficients should be taken from the City's bylaw (Section E.3.5). The developer should provide clarification as to why Unit Area Release Rates (UARR) were used as a method to establish pre and post development runoff rates, as this is not common practice within Lower Mainland British Columbia.	No runoff coefficients were used since a PC SWMM model was chosen to conduct this study instead of the Rational Method. The report has been updated to provide pre-development runoff rates, rather than a UARR.	Y	Pre-development and post-development conditions were modelled in PCSWMM. The percent impervious values have been revised to closely reflect values from the City's bylaw (Section E.3.5). Paragraph explaining the UARR method and Table 2-1 illustrating the UARR targets have been removed from section 2.1.	Appendix C: Model Results Tables, Table C-1 and Table C-5. Section 2.1, second paragraph and Table 2-1 removed from previous report.
8	1.08	Hatch Stormwater Management Report 30% Design	ISL	Stormwater Network Design Objectives, 2.1	If using Unit Area Release Rates (UARR) for this project, the developer should provide a site specific pre-development UARR. Where no specific criteria is included in a municipal bylaw, or master drainage plan, best practices indicate estimating a site pre-development UARR by performing a frequency assessment using relative information from a number of nearby and comparative watersheds and watercourses. The developer should provide any calculations or analysis that supports their proposed pre-development rate of 10 L/s/ha or further justification as to why the UARR from 'West Creek' satisfies these best practices. The current information provided is insufficient.	The report has been updated to provide pre-development runoff rates, rather than a UARR.	Y	Paragraph explaining the UARR method and Table 2-1 illustrating the UARR targets have been removed from section 2.1.	Section 2.1, second paragraph and Table 2-1 removed from previous report.
9	1.09	Hatch Stormwater Management Report 30% Design	ISL	Post-Development Conditions, 3.1	The report notes that runoff generated by the LPV will be captured on each sub-site and directed to one of three ponds. No design is provided for this ponds and it does not mention if groundwater infiltration will be utilized. The developer should confirm whether or not ground water infiltration will be required and confirm there are no negative impacts to downstream watercourses or infrastructure as a result.	Tables 3-1, 3-2, and 3-3 contain pond results from the PCSWMM model in addition to geometric information. Groundwater infiltration will not be utilized in the ponds. All storm ponds will have an impermeable layer and, a subdrain network underneath the ponds is anticipated to alleviate groundwater uplifting forces. This design feature will be implemented in a future design phase. Text will be updated.	Y	Tables 3-1, 3-2 and 3-3 from section 3.2.7 have been relocated to section 8. Tables 8-2, 8-3 and 8-4 have been revised to illustrate the ponds geometric information and modelling results. Text has been updated in section 3.2.7 to mention ponds will have an impermeable liner and a subdrain network.	Section 3.2.7, tables 3-1, 3-2 and 3-3 removed. Section 3.2.7, first paragraph, last sentence. Section 8, tables 8-2, 8-3 and 8-4 included.
10	1.1	Hatch Stormwater Management Report 30% Design	ISL	3.2.1.1	The developer should outline their plan for treatment and disposal of the oil/gas/diesel collected in the oil/water separators.	Thank you for your comment and suggestion. The design of stormwater infrastructure, including operational procedures, are still being refined as the Project advances.	N	Clarification is provided in response to comment, no changes to the report are required.	No changes required
11	1.11	Hatch Stormwater Management Report 30% Design	ISL	3.2.6.2	The developer should ensure that the Liquid Staging area and all other track yard sections are sloped towards their necessary and required containment areas.	Thank you for your comment and suggestion. Design plans are being refined and will consider site conditions, project requirements and best management practices. CP is committed to continuing engagement with the City of Pitt Meadows and values their input on Stormwater Management.	N	Clarification is provided in response to comment, no changes to the report are required.	No changes required
12	1.12	Hatch Stormwater Management Report 30% Design	ISL	3.2.6.3	This section notes that overland ditches are to drain proposed tracks and adjacent residential properties with a conceptual image provided in Figure 3-12. The developer should confirm that there will be no impact to the existing drainage ditch or flood levels as a result of Figure 3-12, and demonstrate that residential and post development flow rates at different design storms, can be accommodated within the drainage ditch. Additionally, the developer should comment on maintenance access to prevent issues with conveyance over time as well as maintenance procedures to ensure debris blockages and excessive overgrowth, both of which could impact drainage over the long term.	The existing drainage ditch will be impacted by the proposed tracks and retaining wall. The proposed ditch has been sized to accommodate both CP tracks and adjacent residential properties. Flood levels in the proposed ditch are primarily reliant upon the flood levels in Cook Slough. Maintenance procedures are not available at this time, but will developed in future phases. Drainage modeling has been completed to assess potential effects of the Project. The Katzie Watershed Modeling Report has now been shared with the City.	N	Clarification is provided in response to comment, no changes to the report are required.	No changes required

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Comment #	Consultant IR #	Source	Reviewer	References	Reviewer Comments	Response to Comment	Comment Incorporated? (Y/N)	Changes to Document, or Rational why no changes occurred	Location of changes to document (Chapter, Section, Page)
13	1.13	Hatch Stormwater Management Report 30% Design	ISL	3.2.6.3	Similar comment as above, Figure 3-13 notes "V ditch" and a storm sewer. The developer should provide a site plan with layout noting mile markings for easier review of conceptual cross section. The developer should confirm that there will be no impact to the existing drainage ditch or flood levels, and demonstrate that residential and post development flow rates can be accommodated within the proposed infrastructure. Furthermore, CP provides no detail on how CP intends to protect private property of adjacent residents when constructing right up to the property line.	Noted, site plan with Mile markings will be provided. Existing ditch will need to be relocated and the Hatch design has included a new ditch and pipe that is sized appropriately to maintain existing conditions. No construction will occur off CPs property. CP will consider more potential offsite effects in more detail in later phases of design. Based on the preliminary designs, typical construction BMPs, conducting monitoring during construction and implementing a complaint management process are potential measures that can be utilized.	Y	Mile markers have been added to Figure B-11 in Appendix B.	Appendix B: Report Figures, figure B-11.
14	1.14	Hatch Stormwater Management Report 30% Design	ISL	3.2.7	The developer should confirm that all ponds include a restricted outlet designed to maintain the discharge to the downstream drainage system at a rate of the pre- development run-off for a ten-year return period. Outlet controls for these onsite storage facilities should be design using the standard orifice and/or weir equations and the designer should provide calculations and information pertaining to the flow control devices mentioned in the report.	PC SWMM model output and input parameters (orifice / weir) regarding pond design, including outlet discharge capacity, to demonstrate design adequacy is provided in Appendix C.	Y	Table C-2 in Appendix C includes the PCSWMM model results regarding the culverts discharging flows from ponds. Hydrographs of pond inflow and outflow culverts have been included in figures 8-1, 8-2 and 8-3 in section 8 to demonstrate design adequacy.	Appendix C: Model Results Tables, table C-2. Section 8, figures 8-1, 8-2 and 8-3.
15	1.15	Hatch Stormwater Management Report 30% Design	ISL	3.2.7	Ditches including JT10 and JT11 appear to be mislabelled in appendix B or are not included in the model results (Appendix C).	Ditches JT10 and JT11 has been updated in Appendix B.	Y	Ditches JT11 and JT10 have been correctly labeled in Figure B-11 and Figure B-14.	Appendix B: Report Figures, figures B-11 and B-14.
16	1.16	Hatch Stormwater Management Report 30% Design	ISL	3.2.7.1	Per the City's bylaw, Section E.3.20, the maximum depth for a dry detention basin is to be 1.0m max.	As a federally regulated railway undertaking, the Project is not subject to municipal bylaws. We understand the intent of this section of the bylaw is for public safety in an urban environment. The safety risk is much lower on this site given it is industrial in nature, with no public access, with fenced perimeter around the ponds as a mitigation. The depth of the pond will be refined as design is progressed, but a 1.0m max may not be achievable given site constraints.	N	Clarification provided in response to comment, no changes to the report are required.	No changes required
17	1.17	Hatch Stormwater Management Report 30% Design	ISL	3.2.7.2	Per the City's bylaw, Section E.3.20, the maximum depth for a dry detention basin is to be 1.0m max.	Please refer to response to comment #16	N	Clarification provided in response to comment, no changes to the report are required.	No changes required
18	1.18	Hatch Stormwater Management Report 30% Design	ISL	3.2.7.3	Per the City's bylaw, Section E.3.20, the maximum depth for a dry detention basin is to be 1.0m max.	Please refer to response to comment #16	N	Clarification provided in response to comment, no changes to the report are required.	No changes required
19	1.19	Hatch Stormwater Management Report 30% Design	ISL	4.2	In recent months, the lower mainland has experienced record levels of rainfall. Has the designer considered this in their climate change factor of 1.15 for rainfall intensities and hyetographs? Pitt Meadows received 90.7mm of rain on November 14, and 72.1mm on November 15, for a total of 162.8mm over 48 hours. Nearby locations received totals that were near (Agassiz - 127.3mm) or exceeded (Hope - 174mm) this value in a 24hr period as well. It should be noted that CP's calculated 100 year return period rainfall amount in 24 hours is shown as 130mm	The 1.15 climate change adjustment factor came from the Master Municipal Construction Documents (MMCD) Association Design Guidelines (2014), page 3 of 21. This was referenced on page 22 of the Report. We acknowledge the events of November 2022 were extreme weather events, and may form the basis for updated regional standards in the future.	N	Clarification provided in response to comment, no changes to the report are required.	No changes required
20	1.2	Hatch Stormwater Management Report 30% Design	ISL	4.2	In past experiences with development reviews in the City of Pitt Meadows the 10 year 2 hour storm event has been the critical storm event for minor systems. As such, the developer should provide a hyetograph for the 10 year 2 hour storm and confirm that the 10 year 6 hour storm event would still be the critical event.	Noted. The report has been revised to include the 10 year 2 hour storm in identifying the critical storm.	Y	Text in section 2.1 revised to include the 10 year 2 hour storm in identifying the critical storm. Completed critical storm exercise and 10 year 2 hour hydrograph has been included in section 4.2.	Section 2-1, second paragraph. Section 4.2: Figure 4-3.
21	1.21	Hatch Stormwater Management Report 30% Design	ISL	4.2	It appears the designer has used two different critical storms to size different components of the minor system. The designer should provide clarification as to why different storms were selected. Further to the previous comment, past experience has identified the 10 year 2 hour storm as the critical storm event in Pitt Meadows.	For the minor system, only 1 critical storm was used in the sizing. For the major system, 2 critical storms were used. This is described in section 3.2.7 of the report. Please also refer to response to comment #20.	Y	The 10 year 24 hour storm was exclusively used to compare the pre & post development peak discharge flows. Text in Section 4.2 has been revised to provide clarification. The 10 year 2 hour storm was identified to be the critical storm used to size the minor system. Table C-4 in Appendix C has been updated to show the results from this storm event.	Section 4-2, Paragraph before Figure 4-2. Appendix C: Model Results Tables, Table C-4.
22	1.22	Hatch Stormwater Management Report 30% Design	ISL	4.6	Table 4-3 provides Katzie Slough Water levels for major storm events. The Hemmera report (EEE, Table 11.4 and 11.10) provides pre and post development water levels at 3 junctions along the Katzie and Cook Sloughs including the Kennedy Pump Station. It appears that the water levels used for post development boundary conditions of the SWMP outfall do not coincide with this analysis as the SWMP 30% report date precedes the date of the Hemmera report ISL has been asked to review. The designer should confirm that the most recent information is being used. With that being said, following recent record rainfalls on November 14th and November 15th, the Kennedy PS recorded a max water level of 1.44m. As such, the boundary conditions appear to be reasonable.	The report has been updated to reflect the updated modeling data.	Y	Models updated to reflect the latest results from Hemmera's analysis, and stage hydrograph figures 4-6 and 4-7 have been provided in section 4.6.	Section 4.6, figures 4-6 and 4-7.
23	1.23	Hatch Stormwater Management Report 30% Design	ISL	4.6	The developer should provide plan and profile drawings for all stormwater outfalls and pipe networks showing the 10 year HGL to determine whether or not the amount of flow in the piped system will surcharge on-site should for example a 10 year storm event occur at the same time as high water levels in the Katzie or Cook Slough. 100 year HGL should be provided to understand at what point overland flooding would occur and where.	Thank you for your comment. Design plans are being refined and will consider site conditions, project requirements and best management practices. CP is committed to continuing engagement with the City of Pitt Meadows and values their input.	N	Clarification provided in response to comment, no changes to the report are required.	No changes required
24	1.24	Hatch Stormwater Management Report 30% Design	ISL	5.1.1	CP should provide and outline the operation and maintenance program for maintaining the Oil Grit Separators and Oil Water Separators.	Thank you for your comment and suggestion. The design, operation and maintenance of stormwater infrastructure is still being refined as the Project advances. CP is committed to continuing engagement with the City of Pitt Meadows and values their input.	N	Clarification provided in response to comment, no changes to the report are required.	No changes required

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Comment #	Consultant IR #	Source	Reviewer	References	Reviewer Comments	Response to Comment	Comment Incorporated? (Y/N)	Changes to Document, or Rational why no changes occurred	Location of changes to document (Chapter, Section, Page)
25	1.25	Hatch Stormwater Management Report 30% Design	ISL	Impacts to the Katzie Slough Watershed, 6	While the report notes that post-development flow rates are equal to pre-development flow rates, section 11.4.2.1 of the provided Hemmera Environmental Effects Evaluation notes an increase in total water volume discharged into the slough post-development. This is a clear impact to the Katzie Slough water levels and volume as a result of the development.	Section 11.4.2.1 of the EEE noted that the Project would increase the maximum water level in Katzie Slough up to 6% for the 10-year storm and up to 4% for the 100-year storm from the existing water levels. This section also identified that the measures integrated in the Project design (e.g., stormwater ponds) were shown to be efficient in mitigating the potential adverse impacts so that the increased water levels from the post-development condition were similar to those of pre-development conditions. Thus, we understand the impacts to have been adequately mitigated. Further, following the re-design of the retention ponds, post-development conditions (with mitigation measures) were re-modelled, the results of which show that peak water levels in Katzie Slough actually lower with the Project in place by between 4 and 36 mm at different points (in the order of model temporal fluctuations between time-steps). The updated modelling results have been added to Section 11.4.2.1 of the EEE. A time-series of existing and post-development (with mitigation measures) were compared and found to be almost identical, as such no further findings were deduced.	N	Clarification provided in response to comment, no changes to the report are required.	No changes required
26	1.26	Hatch Stormwater Management Report 30% Design	ISL	Groundwater, 7	Hatch noted that existing groundwater levels could potentially stabilize 1 to 2m above existing ground elevation as a result of the preload design. The lateral extent of settlements due to the depth of the compressible soils is identified in the preliminary Geotech report as being significant. Given the hydrogeological conditions in the area (compressible soils and a high groundwater table), presumably groundwater levels will rise in the area surrounding the preloading. Golder should predict the groundwater level changes over time with preloading and evaluate the impacts to both the groundwater table within and outside the site, as well as to the Katzie Slough and other surface water bodies. Groundwater level monitoring before, during and following preloading should be completed to verify any predictions. The developer should confirm any dewatering and treatment plans with the City prior to preloading, construction or operation.	Please refer to response to comment #67 with respect to dewatering. Please refer to response to comment #66 & #69 with respect to groundwater levels.	N	Clarification provided in response to comment, no changes to the report are required.	No changes required
27	1.27	Hatch Stormwater Management Report 30% Design	ISL	Groundwater, 7	The developer should complete a review of the dry detention ponds to ensure there is no uplift of the liner as a result of elevated ground levels when the pond is empty. The developer should also provide the City with a dewatering and treatment plan prior to preloading and construction.	Thank you for your comment and suggestion. The design of stormwater infrastructure and plans are still being refined as the Project advances. CP is committed to continuing engagement with the City of Pitt Meadows and values their input.	N	Clarification provided in response to comment, no changes to the report are required.	No changes required
28	1.28	Hatch Stormwater Management Report 30% Design	ISL	Groundwater, 7	The developer should provide the City with a report for review outlining any subsurface drainage systems that are developed as the design progresses.	CP thanks the City of Pitt Meadows for their comment. CP is committed to continuing engagement with the City of Pitt Meadows and values their input.	N	Clarification provided in response to comment, no changes to the report are required.	No changes required
29	1.29	Hatch Stormwater Management Report 30% Design	ISL	Model Results, 8	Refer to similar comment from section 2.1. This section of the report notes that pre-development rates for all outfall locations are provided although Table 8-1 notes that these rates are post-development. The designer should clarify and provide further information on how the pre and post development rates were calculated. The designer should also provide further clarification as to how the max flow rates and contributing areas were calculated for table 8-1 as there appears to be general inconsistencies between other information provided in this report and appendices.	The text before this table was incorrect, and referred to pre-development, when post-development was intended. The max flow rates and contributing areas were extracted from the model results. Text has been updated and inconsistencies corrected.	Y	Text in section 8 has been corrected. Table 8-1 has been updated to illustrate a comparison of the pre and post peak runoff rates.	Section 8, second paragraph Section 8, Table 8-1.
30	1.3	Hatch Stormwater Management Report 30% Design	ISL	Model Results, 8	No quantitative information has been provided demonstrating that there is sufficient attenuation of runoff that would result in post-development runoff being less than or equal to pre-development runoff. The designer should provide information and calculations for detention pond storage and how it satisfies the requirements under the 100 year critical storm event. More modelling may be required.	Model output hydrographs have been included in the Report revisions that demonstrates adequate pond attenuation.	Y	Hydrographs of pond inflow and outflow culverts have been included in figures 8-1, 8-2 and 8-3 in section 8 to demonstrate design adequacy.	Section 8, figures 8-1,8-2and 8-3.
31	1.31	Hatch Stormwater Management Report 30% Design	ISL	Summary and Conclusions, 9	The developer should identify at what point overland flooding would occur throughout the site. 10 year and 100 year HGL to be provided on design drawings and submitted to the City for review	Thank you for your comment. Design plans are being refined and will consider site conditions, project requirements and best management practices. CP is committed to continuing engagement with the City of Pitt Meadows and values their input.	N	Clarification provided in response to comment, no changes to the report are required.	No changes required
32	1.32	Hatch Stormwater Management Report 30% Design	ISL	Summary and Conclusions, 9	As part of the next stages of design, the developer should address those comments noted above including but not limited to how the pre-loading, final design elevations and settlement will impact future groundwater levels and ultimately water levels within adjacent water courses.	Thank you for your comment and suggestion. Stormwater management is still being refined as the Project advances. Any changes to groundwater levels or water levels in adjacent watercourses because of changes in the design will be updated in the applicable reports. CP is committed to continuing engagement with the City of Pitt Meadows and values their input.	N	Clarification provided in response to comment, no changes to the report are required.	No changes required
33	1.33	Hatch Stormwater Management Report 30% Design	ISL	Summary and Conclusions, 9	CP should provide the future detailed design SWMP reports for City of Pitt Meadows review as the design has significant impact on downstream water courses and infrastructure.	CP thanks the City of Pitt Meadows for their comment. CP is committed to sharing Stormwater Management Plan when the information is available.	N	No changes to the report are required.	No changes required
34	1.34	Hatch Stormwater Management Report 30% Design	ISL	Table C-2	The developer should provide culvert sizes/diameters to ensure they meet City of Pitt Meadows minimum requirements.	The report has been updated to include culvert sizes and materials.	Y	Table C-2 in Appendix C has been updated to include culvert sizes and materials	Table C-2 in Appendix C
35	1.35	Hatch Stormwater Management Report 30% Design	ISL	Table C-3	The developer should confirm that the water level in any ditches adjacent to traveled roadways does not exceed 1 metre in depth as per City of Pitt Meadows requirements.	Noted. As a federally regulated railway undertaking, the Project is not subject to municipal bylaws. However, the design has been updated to ensure ditches adjacent to traveled roadways do not exceed 1m in depth.	Y	Design has been updated to ensure ditches adjacent to traveled roadways do not exceed 1m in depth.	Table C-3 in Appendix C
36	1.36	Hatch Stormwater Management Report 30% Design	ISL	Table C-4	The developer should confirm the pipe materials, sizes and rationale for varying roughness coefficients.	The report has been updated to include material and pipe sizes.	Y	Material and pipe sizes have been added. Rationale is as per PC SWMM reference tables.	Table C-4 in Appendix C

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37	1.37	Hatch Stormwater Management Report 30% Design	ISL	Table C-4	Storm sewers are shown at < 1.0%. Minimum grades of storm sewers are as required to obtain the minimum velocity of 0.6m/s. Per table C-4, a significant portion of the storm pipe network has a max velocity < 0.6m/s. A minimum of 1% is recommended.	As a federally regulated railway undertaking, the Project is not subject to municipal bylaws. However, CP will voluntarily maintain the intent of City of Pitt Meadows bylaws where possible. CP notes that site grading and minimum cover requirements will not permit steeper slopes in some cases. Stormwater management and site grading is still being refined as the Project advances	N	No changes to the report are required.	No changes required
38	1.38	Hatch Stormwater Management Report 60% Preload Design	ISL	Executive Summary	Design criteria should note the designer is to Limit the post-development peak rate of runoff to the pre-development peak rate of runoff for the 10-year design storm. This should be proved using the hydrograph method as provided in the City's development and servicing bylaw	The design objectives have been updated to include limiting the post development run-off rate to the pre-development peak rate of runoff for the 10-year design storm.	Y	Text explaining the UARR method and Table illustrating UARR have been removed. Text clarifying post development peak rate design objective has been added to Section 2.1	Section 2.1, second paragraph and Table 2-1 removed from previous report.
39	1.39	Hatch Stormwater Management Report 60% Preload Design	ISL	Executive Summary	The City should be provided with a detailed erosion and sediment control plan for review.	Specific Environmental Protection Plans, such as the ESCP, will be developed as the Project advances and will include specific mitigation that reflects detailed design. CP is committed to sharing Project documents such as the CEMP, the ESCP, and other management and monitoring plans when available.	N	Clarification provided in response to comment, no changes to the report are required.	No changes required
40	1.4	Hatch Stormwater Management Report 60% Preload Design	ISL	2.1	Pre-development and post-development runoff should be calculated using the hydrograph method outlined in the City's bylaw (Section E.3.1) and the runoff coefficients should be taken from the City's bylaw (Section E.3.5). The developer should provide clarification as to why Unit Area Release Rates were used as a method to establish pre and post development runoff rates, as this is not common practice within Lower Mainland British Columbia.	Noted. Pre-development rates have been updated in the report. Please also refer to response to comment # 8.	Y	Pre-development and post-development conditions were modelled in PCSWMM. The percent impervious values have been revised to closely reflect values from the City's bylaw (Section E.3.5). Paragraph explaining the UARR method and Table 2-1 illustrating the UARR targets have been removed from section 2.1.	Section 3.6, tables 3-7 and 3-8. Section 2.1, second paragraph and Table 2-1 removed from previous report.
41	1.41	Hatch Stormwater Management Report 60% Preload Design	ISL	2.1	Similar comment as the 30% design report. If using Unit Area Release Rates for this H46project, the developer should provide a site specific pre-development UARR. Where no specific criteria is included in a municipal bylaw, or master drainage plan, best practices indicate estimating a site pre-development UARR by performing a frequency assessment using relative information from a number of nearby and comparative watersheds and watercourses. The developer should provide any calculations or analysis that supports their proposed pre-development rate of 10 L/s/ha or further justification as to why the UARR from 'West Creek' satisfies these best practices. The current information provided is insufficient.	Noted. Pre-development rates have been included in an updated report. Please also refer to response to comment # 8.	Y	Paragraph explaining the UARR method and Table 2-1 illustrating the UARR targets have been removed from section 2.1.	Section 2.1, second paragraph and Table 2-1 removed from previous report.
42	1.42	Hatch Stormwater Management Report 60% Preload Design	ISL	2.2	Silt fencing is noted in the drainage ditches and swales every 100m to 200m. Best practices would include silt fencing along the top of bank outside the riparian buffer/setback for all drainage ditches and watercourses as well as where the toe of preload material is in proximity to the Katzie and Cook Sloughs. The developer should provide the City with a detailed erosion and sediment control plan for review which includes and outlines how the silt fence will be installed and maintained over the preload duration. All ESC monitoring reports should be shared with the City. This applies to all phases of construction where fill material can be washed into watercourses by surface runoff.	See comment #39	N	Clarification provided in response to comment, no changes to the report are required.	No changes required
43	1.43	Hatch Stormwater Management Report 60% Preload Design	ISL	2.2	As per City bylaw Section E.3.20 (b), ground water infiltration shall be used where site-specific studies determine this practice is appropriate. The developer should confirm that any ground water infiltration will have no negative impacts to adjacent waterbodies or downstream infrastructure.	Noted. As a federally regulated railway undertaking, the Project is not subject to municipal bylaws. However, CP will voluntarily maintain the intent of City of Pitt Meadows bylaws where possible.	N	Clarification provided in response to comment, no changes to the report are required.	No changes required
44	1.44	Hatch Stormwater Management Report 60% Preload Design	ISL	3.1	The preliminary Geotech report notes that fill material required to raise the site grade for drainage and flood protection purposes, is predicted to result in settlements in the order of 2.0m during the preloading/surcharging phase. Offsite impacts as a result of the preload should be assessed. The developer should demonstrate and confirm that there is no impact to the pre-development drainage conditions or flood levels for residential lots on 124 Ave and 124a Ave as well as the agricultural property adjacent to the rail ditch along and west of Advent Road.	Stress influence of preload and related increase in porewater pressure will only occur at significant depth beyond the fill perimeter. While this will theoretically result in upward flow, the fine-grained, low-permeability nature of the soils will result in volume and rate of flow being very low, such that the impacts on the natural groundwater regime beyond the filled area will be very minor, possibly expressing itself as a slight increase in GW level during the drier periods of the year. Much of this area is known to flood during wet periods. The biggest potential for off-site water impacts would be from surface water discharge, if not well controlled with ditching. Settlement of the ground close to the toe of the fill may also result in more extensive ponding during wet periods, unless surface drainage is improved, or the area is occasionally regraded. If wick drains are selected as part of the preload program, this will further aid the impact of excess porewater pressures at the site and beyond. No preload is proposed adjacent to the residential lots at 124 Ave and 124a Ave. Additional settlement analysis to determine off site impacts is planned as part of the next phase of design. See also responses to comments #201, 205 and 207.	N	Clarification provided in response to comment, no changes to the report are required.	No changes required
45	1.45	Hatch Stormwater Management Report 60% Preload Design	ISL	3.2	Figure 3-4, Does the designer have any concern that the preload design is insufficient with respect to erosion protection? If settlement occurs unevenly across the pre-load is it possible that pooling would occur in outer areas and result in potential over-topping of the 300mm berm thus releasing a higher rate of surface runoff?	The PC SWMM results show that the infiltration rates for the material specified are so high that insignificant amounts of temporary ponding would occur. For the depth values calculated, it is unlikely that the 300 mm berm will overtop.	N	Clarification provided in response to comment, no changes to the report are required.	No changes required
46	1.46	Hatch Stormwater Management Report 60% Preload Design	ISL	3.2.1	Figure 3-5, the developer should consider and address ponding between the preload toe and the existing track. Nothing is specified or provided outlining how ponding in this area will be alleviated. In other cross sections, such as Figure 3-10 for the MSE walls, 100mm HDPE drains are noted. It should be noted that these drains are shown as CSP in other cross sections.	Noted. This will be addressed in further stages of design.	N	Clarification provided in response to comment, no changes to the report are required.	No changes required
47	1.47	Hatch Stormwater Management Report 60% Preload Design	ISL	3.2	For all lots and preload areas, it is recommended that the minimum slope for any drainage ditch or swale be 0.5% (per City Bylaw section E.3.22 (b)) to ensure positive conveyance and reduce the risk of flooding	Noted. As a federally regulated railway undertaking, the Project is not subject to municipal bylaws. However, CP will voluntarily maintain the intent of City of Pitt Meadows bylaws where possible.	N	Clarification provided in response to comment, no changes to the report are required.	No changes required

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48	1.48	Hatch Stormwater Management Report 60% Preload Design	ISL	3.2.4	For all cross sections where stripping and grubbing is required, the designer should consider immediately placing topsoil, hydroseed and erosion control blankets to ensure the risk for erosion of adjacent banks is minimized This information should be included in a detailed sediment and erosion control plan.	Noted.	N	No changes to the report are required.	No changes required
49	1.49	Hatch Stormwater Management Report 60% Preload Design	ISL	3.2.5	Figure 3-10, the developer should confirm long term maintenance access and management plans for the drainage ditches. If these drainage ditches are not properly maintained and cleared of overgrown vegetation, conveyance issues will lead to ponding and potential flooding of adjacent lots.	Noted.	N	No changes to the report are required.	No changes required
50	1.5	Hatch Stormwater Management Report 60% Preload Design	ISL	3.2.5	As a large portion of the preload material is expected to be retained, the developer should consider benching in the preload material to ensure proper compaction between proposed material and existing material. This applies to all cross sections and preloading areas where fill is to be retained.	Noted.	N	No changes to the report are required.	No changes required
51	1.51	Hatch Stormwater Management Report 60% Preload Design	ISL	3.2.5	The developer should provide plan and profile drawings for all stormwater outfalls and pipe networks showing the 10 year HGL to determine whether or not the amount of flow in the piped system will back up and surcharge on-site causing overland flow if for example a 10 year storm event occurs at the same time as high water levels in the Katzie or Cook Slough. 100 year HGL should be provided to understand at what point overland flooding would occur and where.	Please refer to response to comment # 23.	N	Clarification provided in response to comment, no changes to the report are required.	No changes required
52	1.52	Hatch Stormwater Management Report 60% Preload Design	ISL	3.4	In recent months, the lower mainland has experienced record levels of rainfall. Has the designer considered this in their climate change factor of 1.15 for rainfall intensities and hyetographs? Pitt Meadows received 90.7mm of rain on November 14, and 72.1mm on November 15, for a total of 162.8mm over 48 hours. Nearby locations received totals that were near (Agassiz - 127.3mm) or exceeded (Hope - 174mm) this value in a 24hr period as well. It should be noted that CP's calculated 100 year return period rainfall amount in 24 hours is shown as 130mm	Please refer to response to comment #19.	N	Clarification provided in response to comment, no changes to the report are required.	No changes required
53	1.53	Hatch Stormwater Management Report 60% Preload Design	ISL	3.4	In past experiences with development reviews in the City of Pitt Meadows the 10 year 2 hour storm event has been the critical storm event for minor systems. As such, the developer should provide a hyetograph for the 10 year 2 hour storm and confirm that the 10 year 6 hour storm event would still be the critical event.	Please refer to response to comment # 20.	Y	Preload design doesn't include components of a minor system therefore, The 10 year 24 hour storm was exclusively used to compare the pre & post development peak discharge flows. Text in Section 3.4 has been revised to provide clarification.	Section 3-4, above figure 3-12.
54	1.54	Hatch Stormwater Management Report 60% Preload Design	ISL	3.4	Accordingly to the City's bylaw (Section E.2.1 (a) and (b), minor systems shall be designed to convey flows of a 10 year return flow frequency while major systems should be designed to carry flows of a 100 year system. In the 30% SWMP, it is noted that the critical storm for the outlet pipes from ponds and ditches into major watercourses was determine to be a 10 year frequency. In this report, the critical storm for outlet pipes from ponds and ditches into major watercourses is noted to be a 100 year frequency. The designer should confirm the critical storms for all outlet pipes from ponds and ditches. Hyetographs for all durations should be provided.	All proposed components of the drainage system during preload are considered to be part of the major system therefore, are sized for the 100 year frequency. For the purpose of limiting the post-development peak rate of runoff to the pre-development, the 10 year frequency critical storm will be identified. Text and results have been updated. Please also refer to response to comment #21.	Y	Preload design doesn't include components of a minor system therefore, The 10 year 24 hour storm was exclusively used to compare the pre & post development peak discharge flows. Text in Section 3.4 has been revised to provide clarification.	Section 3-4, above figure 3-12.
55	1.55	Hatch Stormwater Management Report 60% Preload Design	ISL	Boundary Conditions, 3.7	Table 3-8 provides Katzie Slough Water levels for major storm events. The Hemmera report (EEE, Table 11.4 and 11.10) provides pre and post development water levels at 3 junctions along the Katzie and Cook Sloughs including the Kennedy Pump Station. It appears that the water levels used for post development boundary conditions of the SWMP outfall do not coincide with this analysis as the SWMP 60% preload design report date precedes the date of the Hemmera report ISL has been provided to review.	Please refer to response to comment #22.	Y	Models updated to reflect the latest results from Hemmera's analysis, and stage hydrograph figures 3-20 and 3-21 have been provided in section 3.7.	Section 3.7, figures 3-20 and 3-21.
56	1.56	Hatch Stormwater Management Report 60% Preload Design	ISL	Boundary Conditions, 3.7	The developer should confirm what climate change factor was included or used to determine these boundary condition water levels. Has the designer taken into account the recent atmospheric rivers? Kennedy Pump Station recorded a max water level for the Katzie Slough of 1.44m on November 16th.	Hemmera implemented the potential impact of climate change through multiple inputs to the model. Projected increases in extreme precipitation events (similar to the recent Atmospheric River), were considered by using Intensity-Duration-Frequency (IDF) curves for the most severe climate scenarios (RCP8.5/SSP5 – representing the upper boundary of the range of scenarios). Hydraulic modelling of these meteorological scenarios resulted in simulated maximum water levels, as high as +2.00 (amsl) larger than the those measured from Atmospheric River Event. These high water levels were reported to Hatch for their design purposes. Also, boundary conditions of the Katzie Slough watershed (at Pitt and Fraser Rivers in pump stations), were considered for 100-Year storm events with climate change to take into account the effect of raised water levels on pumping capacities. Please also refer to Comment #19	N	Clarification provided in response to comment, no changes to the report are required.	No changes required
57	1.57	Hatch Stormwater Management Report 60% Preload Design	ISL	Groundwater, 4	Hatch noted that existing groundwater levels could potentially stabilize 1 to 2m above existing ground elevation as a result of the preload design. The lateral extent of settlements due to the depth of the compressible soils is identified in the preliminary Geotech report as being significant. Given the hydrogeological conditions in the area (compressible soils and a high groundwater table), presumably groundwater levels will rise in the area surrounding the preloading. Golder should predict the groundwater level changes over time with preloading and evaluate the impacts to both the groundwater table within and outside the site, as well as to the Katzie Slough and other surface water bodies. Groundwater level monitoring before, during and following preloading should be completed to verify any predictions. CP should confirm any dewatering and treatment plans with the City prior to preloading, construction, or operation	Please refer to response to comment #67 with respect to dewatering. Please refer to response to comment #66 & #69 with respect to groundwater levels.	N	Clarification provided in response to comment, no changes to the report are required.	No changes required

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Comment #	Consultant IR #	Source	Reviewer	References	Reviewer Comments	Response to Comment	Comment Incorporated? (Y/N)	Changes to Document, or Rational why no changes occurred	Location of changes to document (Chapter, Section, Page)
58	1.58	Hatch Stormwater Management Report 60% Preload Design	ISL	Model Results, 8	Refer to similar comment from section 2.1. This section of the report notes that pre-development rates for all outfall locations are provided although Table 8-1 notes that these rates are post-development. Additionally, the report notes that "By meeting this criterion, no downstream detrimental impacts are expected, although these impacts have not yet been full quantified". The designer should clarify and provide further information on how the pre and post development rates were calculated. The designer should also provide further clarification as to how the max flow rates and contributing areas were calculated for table 8-1 as there appears to be general inconsistencies between other information provided in this report and appendices. Furthermore, the designer should quantify all downstream impacts for review to determine whether or not they can be classified as detrimental.	Please refer to the EEE (Section 11) for a review of potential effects and mitigations related to Surface Water, Groundwater and Drainage. Please also refer to response to comment #25 and #29. The report has been updated to provide additional information clarifying predevelopment rates.	Y	Text and Table 5-1 have been revised.	Section 5, third paragraph. Section 5, Table 5-1.
59	1.59	Hatch Stormwater Management Report 60% Preload Design	ISL	Model Results, 8	Can the designer clarify why the post-development contributing area (17.08ha) in Table 5-1 of this report is significantly lower than the post-development contributing area (55.33ha) in Table 8-1 of the 30% SWMP report? No quantitative information has been provided demonstrating that there is sufficient attenuation of runoff that would result in post-development runoff being less than or equal to pre-development runoff. The designer should provide information and calculations for detention pond storage and how it satisfies the requirements under the 100 year critical storm event. More modelling may be required.	The contributing areas differ because the pre-load design fully captures and infiltrates 100% of the precipitation and thus, effectively there is no runoff. Only perimeter swales and culverts mentioned in Table 5-1 contribute flows to Katzie Slough and Cook Slough in the pre-load design. Text and Table 5-1 have been revised.	Y	Text and Table 5-1 have been revised.	Section 5, third paragraph. Section 5, Table 5-1.
60	1.6	Hatch Stormwater Management Report 60% Preload Design	ISL	Model Results, 8	For all lots and preload areas, it is recommended that the minimum slope for any drainage ditch or swale be 0.5% (per City Bylaw Section E.3.22 (b)) to ensure positive conveyance and reduce the risk of flooding	Please refer to response to comment #48.	N	Clarification provided in response to comment, no changes to the report are required.	No changes required
61	1.61	Hatch Stormwater Management Report 60% Preload Design	ISL	Model Results, 8	All slopes for culverts are very flat. Minimum slope of 0.5% is recommended but it is understood that there is constraints with tie-in elevations and cover.	Noted.	N	No changes to the report are required.	No changes required
62	1.62	Hatch Stormwater Management Report 60% Preload Design	ISL	Model Results, 8	It is understood that some of the infrastructure installed as part of the pre-load design will remain for ultimate build out, however information for these items provided in Tables 5-2, and 5-3 does not appear to match information provided in the SWMP 30% report for the same items. Can the designer clarify?	Noted. Reports have been reviewed and revised for inconsistencies.	Y	Tables 5-2 and 5-3 have been updated to match design information in the SWMP 30% report.	Section 5, Tables 5-2 and 5-3.
63	1.63	Hatch Stormwater Management Report 60% Preload Design	ISL	Summary and Conclusions, 6	The information provided does not address the requirements of the local jurisdictions.	Thank you for your comment. CP is committed to continuing engagement with the City of Pitt Meadows and values their input.	N	No changes to the report are required.	No changes required
64	1.64	Hatch Stormwater Management Report 60% Preload Design	ISL	Summary and Conclusions, 6	Future refined design information should be provided to the City for review including riprap sizing/layer thickness, culvert/ditch installation details, etc.	Thank you for your comment. CP is committed to continuing engagement with the City of Pitt Meadows and values their input.	N	No changes to the report are required.	No changes required
65	1.65	Hatch Stormwater Management Report 60% Preload Design	ISL	Available Data	The City's most recent drainage and irrigation study was not included or referenced in this report.	Thank you for the suggestion. This report was not provided to CP but can be reviewed when available.	N	No changes to the report are required.	No changes required
66	1.66	Golder Preliminary Geotechnical Design Report	ISL	Exec Summary - Key Design Issues	Golder identified "significant consolidation settlements within the compressible clayey deposits", with preloading/surcharging identified to limit long-term settlements. The lateral extent of settlements due to the depth of the compressible soils is identified as being significant. Golder and Hemmera both did not consider the impacts to groundwater levels due to the extensive preloading. Given the hydrogeological conditions in the area (compressible soils and a high groundwater table), presumably groundwater levels will rise in the area surrounding the preloading. Golder should predict the groundwater level changes over time with preloading and evaluate the impacts to both the groundwater table within and outside the site, as well as to Katzie Slough and other surface water bodies. Groundwater level monitoring before, during, and following preloading should also be completed to verify any predictions.	Stress influence of preload and related increase in porewater pressure will only occur at significant depth beyond the fill perimeter. While this will theoretically result in upward flow, the fine-grained, low-permeability nature of the soils will result in volume and rate of flow being very low, such that the impacts on the natural groundwater regime beyond the filled area will be very minor, possibly expressing itself as a slight increase in GW level during the drier periods of the year. The area is known to flood during wet periods. The biggest potential for off-site water impacts would be from surface water discharge, if not well controlled with ditching. Settlement of the ground close to the toe of the fill may also result in more extensive ponding during wet periods, unless surface drainage is improved or the area is occasionally regraded. If wick drains are selected as part of the preload program, this will further aid the impact of excess porewater pressures at the site and beyond. See also responses to comments # 201, 205 and 207	N	Clarification provided in response to comment, no changes to the report are required.	No changes required
67	1.67	Golder Preliminary Geotechnical Design Report	ISL	Exec Summary - Conceptual (10%) Geotechnical Design Recommendations	Excavations for some structures are noted to extend below the groundwater table, but there is no discussion of dewatering plans or impacts to groundwater, surface water, and the Katzie Slough expected during dewatering. Groundwater levels during preloading conditions should also be considered.	This will be addressed during subsequent design. Dewatering is not expected to be problematic at this site because of the low permeability of the near-surface soils, resulting mostly from precipitation entering excavations. For the same reasons, impacts of excavation on adjacent groundwater or Katzie Slough will be minimal. Future shoring, where required, will be installed through the fills and extend into the clayey deposits providing cut off to groundwater ingress. See also response to comment #223	N	Clarification provided in response to comment, no changes to the report are required.	No changes required
68	1.68	Golder Preliminary Geotechnical Design Report	ISL	4.3 Groundwater Conditions	Upward gradients are predicted when the permanent grade fills are placed and during consolidation. This further highlights the need for an assessment on groundwater level impacts to off-site properties.	See response to comment # 67.	N	No changes to the report are required.	No changes required
69	1.69	Golder Preliminary Geotechnical Design Report	ISL	7.4 Drainage Considerations	Groundwater levels are predicted to rise within the new fills, above the natural levels. This amount of rise and locations of rise should be presented along with an assessment of this impact to surrounding properties and to surface water and the Katzie Slough.	This occurs on any site where the grade is raised, where the groundwater level temporarily adjusts to the new elevation. The rise will depend on a number of factors, including the fill properties, which are not presently confirmed. However, the only impact this is expected to have on adjacent properties or Katzie Slough during the preload program will be to moderate peak flows during wet periods, since ponding of surface water will no longer occur, and storage provided by the fill will slow discharge.	N	Clarification provided in response to comment, no changes to the report are required.	No changes required

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Comment #	Consultant IR #	Source	Reviewer	References	Reviewer Comments	Response to Comment	Comment Incorporated? (Y/N)	Changes to Document, or Rational why no changes occurred	Location of changes to document (Chapter, Section, Page)
70	1.7	Golder Preliminary Geotechnical Design Report	ISL	1.0 Introduction	Pavement design assumes groundwater levels will be maintained at least 1 m below the base of sub-base layer, but groundwater levels are predicted to rise into fill areas. The designer should confirm if groundwater conditions and impacts to levels have been considered in the pavement design.	Groundwater conditions have been considered in design, although design is still at an early stage.	N	Clarification provided in response to comment, no changes to the report are required.	No changes required
71	1.71	Golder Preliminary Geotechnical Design Report	ISL	Key Design Issues	The report mainly looks at impacts within CP's ROW and the project area. Off-site impacts to adjacent properties and watercourses are not adequately discussed or reviewed.	Off-site impacts will be considered further in later phases of design. See comment #13.	N	Offsite impacts considered in later phases. No changes to report required.	No changes required
72	1.72	Golder Preliminary Geotechnical Design Report	ISL	Executive Summary - Seismic Review	Mainline stationing differs between Hatch report and provided drawings making report hard to follow.	Thank you for highlighting this inconsistency across project reports. The Geotechnical Design Report has been updated to reference stationing consistent with Hatch's engineering reports. The site plan figure has also been updated to include this stationing.	Y	Station references are updated throughout the geotechnical report. Site plan figure also updated to include this track stationing.	Throughout the Geotechnical Design Report
73	1.73	Golder Preliminary Geotechnical Design Report	ISL	Executive Summary - Construction Considerations	The City should be provided with a copy of the 60% detailed design report once it is developed and updated. Our understanding is this report will include advancement of the current design with respect to feasibility, constructability and schedule considerations. Further details, recommendations, and specifications will be developed and updated by Golder and Hatch during this stage. Dewatering should be assessed due to excavations below the water table. Golder should comment on the effects that dewatering will have to adjacent properties, and watercourses.	CP thanks the City of Pitt Meadows for their comment. CP is committed to continuing engagement with the City of Pitt Meadows and values their input.	N	No changes to the report are required.	No changes required
74	1.74	Golder Preliminary Geotechnical Design Report	ISL	5.4, Frost Depth	It is recommended that buried pipes have a minimum cover of 1.2m.	The recommended burial depth is based on frost penetration, as per the Canadian Foundation Engineering Manual (2006) and local experience. If the City has experience with freezing below 450 mm or is referring to a different requirement, please advise.	N	Clarification provided in response to comment, no changes to the report are required.	No changes required
75	1.75	Golder Preliminary Geotechnical Design Report	ISL	5.5.7, Liquefaction Assessment	The report mentioned that no site-specific seismic response analysis has been completed east of Katzie Slough and is considered outside the current scope of the project, however further down in this section it notes that liquefaction is more prominent east of Cook Slough. It is recommended that a seismic response analysis be completed for the entirety of the project area including where it extends east past the Katzie slough and into residential areas. Where the project area is adjacent to residential properties STA172 +800 to 173 +800, the report notes 270mm to 650mm of estimated settlement. Has there been any consideration as to the potential impact to adjacent residential properties from settlements and lateral displacements as a result of liquefaction? Are mitigative measures included in retaining wall designs? The designer should confirm the extents of the seismic review that was completed.	Only preliminary design (30%) has been completed for the track and retaining walls located east of Cook Slough where liquefiable soils were identified as part of the preliminary seismic assessment. For this, code-based parameters were adopted for Site Class E conditions in lieu of a site specific response analysis for Site Class F conditions. We consider this appropriate and conservative for this phase of the design. A site specific response analysis will be considered for future design phases. Section 5.9.8.1.2 discusses ground improvement concepts to mitigate the impacts of liquefaction on the stability of the retaining structures adjacent to residential property. Design of such ground improvement will be carried out during the next phase of project design.	N	Clarification provided in response to comment, no changes to the report are required.	No changes required
76	1.76	Golder Preliminary Geotechnical Design Report	ISL	5.8.1, Discussion	The report notes that the placement of significant quantities of fill, which will be required to raise the site grade for drainage and flood protection purposes, is predicted to result in settlements in the order of 2.0m during preloading/surcharging phases and in the order of approximately 0.5m for long-term post-construction settlement. As it is expected that preload/surcharging and ultimate build out is expected to be constructed within close proximity to adjacent properties, city assets, and water courses, the potential impacts of such settlements should be assessed in detail and mitigative measures developed. The report goes on to note that that the settlement can be reduced but not eliminated due to the depth of compressible sub-surface layers at the LPV site.	This will be addressed in subsequent design phases.	N	Clarification provided in response to comment, no changes to the report are required.	No changes required
77	1.77	Golder Preliminary Geotechnical Design Report	ISL	5.9.8.1.2	The City should be provided with a revised report which includes detailed mitigation measures.	CP thanks the City of Pitt Meadows for their comment. CP is committed to continuing engagement with the City of Pitt Meadows and values their input.	N	No changes to the report are required.	No changes required
78	1.78	Golder Preliminary Geotechnical Design Report	ISL	5.10, Kennedy McTavish Connector Road	The City should be provided with a detail design of the Kennedy McTavish Connector Road ("Private Extension of Kennedy Road") for review as CP is suggesting that it may tie into existing Roadways and potential future alignments.	CP thanks the City of Pitt Meadows for their comment. CP is committed to continuing engagement with the City of Pitt Meadows and values their input.	N	No changes to the report are required.	No changes required
79	1.79	Golder Preliminary Geotechnical Design Report	ISL	6.1, Liquid Tanks	CP should confirm design mitigation measures for the Liquid Tanks to ensure settlement tolerances are met as any leaks from the fuel tanks has the potential to impact storm and groundwater.	This will be addressed in subsequent design phases.	N	Clarification provided in response to comment, no changes to the report are required.	No changes required
80	1.8	Golder Preliminary Geotechnical Design Report	ISL	6.5, Cook Slough Relocation	No additional information has been provided for the potential relocation of Cook Slough in any of the documents provided to ISL including the 30% and 60% reload SWMPS. CP should provided any relevant information on these discussions and any design/report information for the City's review.	Cook Slough relocation is no longer being considered.	N	Clarification provided in response to comment, no changes to the report are required.	No changes required
81	1.81	Golder Preliminary Geotechnical Design Report	ISL	7.0 Construction Considerations	No mention of preloading or dewatering impacts. As noted in other areas, these impacts should be assessed. A copy of Golder's 60% preload design should be provided for the City's review.	See responses to comments #66, 67 and 69.	N	Clarification provided in response to comment, no changes to the report are required.	No changes required
82	1.82	Golder Preliminary Geotechnical Design Report	ISL	7.2 Excavation	No mention of dewatering impacts to neighboring properties and watercourses as a result of significant dewatering required for deep excavations. As mentioned, in other sections, these potential impacts should be assessed.	See responses to comments #66, 67 and 69.	N	Clarification provided in response to comment, no changes to the report are required.	No changes required
83	1.83	Hemmera EEE Volume 1 Section 8 Evaluation Scope and Methodology	ISL	Table 8.1, Value Components Selected for the Project	Valued component number 3 "Surface water, groundwater and drainage" should note "change in surface water quantity" as a potential project effect. Groundwater impacts are not fully outlined in the EEE / reports. Additional information and documentation should be provided outlining full comprehension of the groundwater impacts. Further modelling may be required.	The identified potential effect of 'Temporary or permanent change in drainage system' assesses potential effects related to surface water quantity. Thank you for your comment regards to groundwater, the perceived deficiencies are addressed in comment responses related to Section 11. (see IR# 3.01 to 3.33)	N	No changes required	No changes required
84	1.84	Hemmera EEE Volume 1 Section 8 Evaluation Scope and Methodology	ISL	Table 8.2	Valued component number 3 "Surface water, groundwater and drainage" - Indicating that the Regional Evaluation Area ends to the south at Ford Rd and not the Fraser River is in conflict with Section 11. The Fraser River clearly is a hydrological divide that would be a logical boundary for groundwater and surface water impacts	Table 8.2 has been amended to reflect the LEA and REA description presented in Section 11.2.3.1, including amendment to read 'Fraser River' instead of 'Ford Rd' as per the description of the REA in Section 11.2.3.1.	Y	Replaced 'Ford Rd' with 'Fraser River'. See also comment #84	Table 8.2; 3. Surface water, groundwater, and drainage

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85	1.85	Hemmera EEE Volume 1 Section 8 Evaluation Scope and Methodology	ISL	Table 8.3	Preloading is noted to take three years from 2023-2026 but unclear if this is considered in the Existing Conditions or Future Conditions	Existing conditions are broadly defined as those currently occurring onsite. Preloading is considered a Project Activity and therefore are considered future conditions with potential effects of associated activities evaluated in this assessment.	N	No changes required	No changes required
86	1.86	Hemmera EEE Volume 1 Section 8 Evaluation Scope and Methodology	ISL	Table 8.1 Valued Components Selected for the Project (Wildlife)	Lighting risk defined, but pollinator insects described in agricultural assessment volume not discussed here. Reader should at least be referenced to the discussion on pollinator insects in the agriculture volume.	Reference to the agriculture section has been added to Section 14 Wildlife. Please refer to comment response # 2.94.	Y	After first sentence, add: "*potential project effects to pollinating insects are included in Section 15, Agricultural Use and Soil*."	Section 14.2.1, second paragraph, after first sentence.
87	1.87	Hemmera EEE Volume 1 Section 8 Evaluation Scope and Methodology	ISL	Table 8.2 Local and Regional Evaluation Area Boundaries (Surface water groundwater and drainage)	Since drainage in Katzie Slough is complex, a solely downstream look is not entirely appropriate	Table 8.2 has been amended to reflect the LEA and REA description presented in Section 11.2.3.1. All waterways within the LEA and REA are considered whether upstream or downstream.	Y	Update Table 8.2 such that the description of the LEA and REA is same as that presented in Section 11.2.3.1. In addition the description of the LEA and REA have been updated, the reference to a 'wedge of the Pitt River downgradient of the Project' is part of the REA, not the LEA. This is the bathymetric low and represents the expected spatial limit of groundwater discharge to surface water.	Table 8.2 and Section 11.2.3.1
88	1.88	Hemmera EEE Volume 1 Section 8 Evaluation Scope and Methodology	ISL	Table 8.2 Local and Regional Evaluation Area Boundaries (Fish and fish habitat)	Depending on project components, the project could potentially affect habitats well upstream of the 300 m boundary cited, depending on the layout, design, as well as the flow and water quality impacts of all LPV phases.	Outside of small areas of direct instream and riparian habitat loss, the primary predicted effect to fish and fish habitat are sediments that may be released during construction in and around project watercourses. The 300 m distances upstream and downstream of potential project interactions is identified as the primary zone of influence for releases of sediment. There are no predicted effects due to project activities that are expected to extend beyond these identified boundaries.	N	Clarification provided in response to comment, no changes to EEE required.	No changes required
89	1.89	Hemmera EEE Volume 1 Section 8 Evaluation Scope and Methodology	ISL	8.3.3 Mitigation Measures	M8-2 - Refers to emergency response, but not spill response. CP needs to clarify commitment to spill response for all phases of construction and operation.	Mitigation measures are being refined/re-organized to present a clearer, more consistent approach across all disciplines. **New M8-3** - develop and implement an Emergency Response Plan and **New M8-4** -develop and implement a Spill Response Plan have been added/revised for clarity.	Y	Mitigation measures throughout the EEE have been updated.	Throughout the EEE
90	1.9	Hemmera EEE Volume 1 Section 8 Evaluation Scope and Methodology	ISL	8.3.3 Mitigation Measures	In the context of federal assessment, it is our understanding that mitigation is not offsetting. Offsetting (habitat compensation) is what is done when mitigation efforts are unsuccessful in addressing the impact.	IAAC define mitigation measures as: *Measures to eliminate, reduce, control or offset the adverse effects of a project or designated project, and includes restitution for any damage caused by those effects through replacement, restoration, compensation or any other means.* Reference: Glossary of Terms for the Impact Assessment of Designated Projects Under the Impact Assessment Act, July 2021. The definition and reference has been updated to reflect the federal definition.	Y	The definition of mitigation measures has been updated to reflect language used for federal assessment. Reference has been updated to federal guidance.	Section 8.3.3 Mitigation Measures, first sentence.
91	1.91	Hemmera EEE Volume 1 Section 8 Evaluation Scope and Methodology	ISL	Table 8.5 Project Mitigation	M8-11 - Difficult to see how a rail crossing yard upgrade could maintain navigation given current high water elevations, low overhead clearance.	Mitigation measures are being refined/re-organized to present a clearer, more consistent approach across all disciplines. Clearspan bridges, as recommended in M8-11 (**new M8-20**) are the most effective crossing structure to protect fish habitat and navigation (compared to other crossing options such as culverts).	Y	Mitigation measures throughout the EEE have been updated.	Throughout the EEE
92	1.92	Hemmera EEE Volume 1 Section 8 Evaluation Scope and Methodology	ISL	Table 8.5 Project Mitigation (LIGHT)	M8-14 /8-15 This mitigation suggests benefits for residents and wildlife, however impacts to birds/bats/insects is not mentioned. What is the baseline that effectiveness performance would be compared against? When would that data be collected? Current baseline as presented seems inadequate to undertaken before and after comparisons. Starting to run out of time given Proponents permit timeline (late 2022-early 2023) Quantitative metrics for determining effectiveness?	Mitigation measures are being refined/re-organized to present a clearer, more consistent approach across all disciplines. Section 8 specifically discusses mitigation to be incorporated into Project design. Potential effects and mitigation related to specific VCs, such as wildlife, are discussed in subsequent sections of the EEE (e.g. Section 14.0).	Y	Mitigation measures throughout the EEE have been updated.	Throughout the EEE
93	1.93	Hemmera EEE Volume 1 Section 8 Evaluation Scope and Methodology	ISL	Table 8.5 Project Mitigation	M8-16 - Unclear how the site layout is mitigation. Claim of existing industrial lands seems off given considerable part of project is productive agricultural lands.	Mitigation measures are being refined/re-organized to present a clearer, more consistent approach across all disciplines. Site layout is intended to minimize ecological disturbance by utilizing previously disturbed areas to the greatest extent possible. Mitigation measure has been revised for clarity.	Y	Mitigation measures throughout the EEE have been updated.	Throughout the EEE
94	1.94	Hemmera EEE Volume 2 Section 12 Fish and Fish Habitat	ISL	12.0 Fish and Fish Habitat, 12.1 Overview	Reference to diked Katzie Slough. Katzie Slough is surrounded by dikes on the Pitt River, Fraser River and Alouette River but not all banks of Katzie Slough are diked.	We acknowledge that Katzie Slough may not be diked throughout its watershed, however, within and in the vicinity of the Project, Katzie Slough is bounded by dikes as described in Section 12.3.2.2: "Katzie Slough, in the vicinity of the Project Area, is a homogenous, low-gradient channel confined by dikes along both banks..."	N	Response acknowledges comment and clarifies context of dikes on Katzie Slough	No changes required
95	1.95	Hemmera EEE Volume 2 Section 12 Fish and Fish Habitat	ISL	12.0 Fish and Fish Habitat, 12.1 Overview	Salmonids were not detected, but the sampling period was August. This is the least likely time to find salmonids. However there is potential for salmonids in fall, winter and spring. They have been captured in south Katzie as late as July	We acknowledge that winter is the most likely period that salmonids would be present in Project area watercourses given the very high water temperatures in summer. Additional sampling would be recommended during pre-construction monitoring during winter months. The assessment does not rule out the presence of salmonids in Project area watercourses, but merely comments on the poor quality of habitat for summer rearing or spawning for salmonids.	N	Response acknowledges comment and explains assessment.	No changes required
96	1.96	Hemmera EEE Volume 2 Section 12 Fish and Fish Habitat	ISL	12.0 Fish and Fish Habitat, 12.1 Overview	Reference to term 'small area of potential fish habitat' is unusual here. The impacts presented later in the EEE are considerable compared to some projects.	Noted. The reference to 'small' has been removed.	Y	Delete 'small' from 5th bullet point of Section 12.1	5th bullet point of Section 12.1
97	1.97	Hemmera EEE Volume 2 Section 12 Fish and Fish Habitat	ISL	12.0 Fish and Fish Habitat, 12.1 Overview	Reference to mitigation, but we disagree with the author on whether mitigation is offsetting, so suggest that offsetting should be referenced separately. See also Item 1.90.	Noted. Please refer to response to comment #90	N	Updates have been made to Section 8.3.3 as per comment #90. No further updates required to this section	Not required
98	1.98	Hemmera EEE Volume 2 Section 12 Fish and Fish Habitat	ISL	12.2.1 Selection as a Valued Component	Report references to watercourses as a filterer of pollutants. It is not appropriate to think of watercourses as receivers and treaters of pollution. Goal would be to treat at source.	Agreed. This is general text, the purpose of which is to set the context as to why Fish and Fish Habitat were considered important to select as a valued component to be evaluated for this project.	N	Response clarifies intent of text.	No changes required
99	1.99	Hemmera EEE Volume 2 Section 12 Fish and Fish Habitat	ISL	12.2.1 Selection as a Valued Component	Reference to commercial value of fish. This seems unlikely given Katzie Slough condition, drainage system operation, slough conditions and overall low numbers of salmonids and in fact fish that could be forage species.	Agreed. This is general text, the purpose of which is to set the context as to why Fish and Fish Habitat were considered important to select as a valued component to be evaluated for this project.	N	Response clarifies intent of text.	No changes required

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Comment #	Consultant IR #	Source	Reviewer	References	Reviewer Comments	Response to Comment	Comment Incorporated? (Y/N)	Changes to Document, or Rational why no changes occurred	Location of changes to document (Chapter, Section, Page)
100	2	Hemmera EEE Volume 2 Section 12 Fish and Fish Habitat	ISL	12.2.1 Selection as a Valued Component	Reference to aquatic biota being sensitive to changes in environmental conditions. This is not true for all species, including several that are in Katzie Slough.	Acknowledged. This is general text, the purpose of which is to set the context as to why Fish and Fish Habitat were considered important to select as a valued component to be evaluated for this project.	N	Response clarifies intent of text.	No changes required
101	2.01	Hemmera EEE Volume 2 Section 12 Fish and Fish Habitat	ISL	12.2.1 Selection as a Valued Component	Reference to riparian effects being indirect effects. Labelling riparian effects as indirect solely because it is not instream appears to be an artificial delineation. Note in Table 12.1 (page 12-2) the author links the two closely.	Acknowledged. Text has been updated to read 'Project activities may *directly or* indirectly interact…'	Y	Added 'directly or'. Sentence now reads …, Project activities may *directly or* indirectly interact with watercourses by altering riparian function and reducing the quality of habitat as well as affecting water quality by introducing contaminants into watercourses.	Section 12.2.1, last sentence of last paragraph
102	2.02	Hemmera EEE Volume 2 Section 12 Fish and Fish Habitat	ISL	12.2.2 Selection of Indicators	The list of fish habitat attributes (Water quality, substrate composition, fish cover, habitat complexity), and statement that these are required for fish habitation, is incorrect. Fish habitat complexity, cover and substrate do not determine whether a population can be supported, but they certainly can affect local abundance.	Acknowledged. It is not stated that these are required for fish habitation. The text states that a combination of these elements are required to support *healthy and functioning* ecosystems, not simply habitation.	N	Response acknowledges comment and clarifies text.	No changes required
103	2.03	Hemmera EEE Volume 2 Section 12 Fish and Fish Habitat	ISL	Table 12.1 Selection of Indicators	Here and in contrast to material presented in last sentence of 12.2.1 indicating riparian effects are indirect, instream and riparian effects are seen as so closely linked they fall under the same indicator review and rationale.	Acknowledged. See response to comment #101.	Y	See Comment #101	Section 12.2.1, last sentence of last paragraph
104	2.04	Hemmera EEE Volume 2 Section 12 Fish and Fish Habitat	ISL	Table 12.1 Selection of Indicators	Table 12.1 references water quality with respect to turbidity and TSS but nothing on potential changes in volume or on water quality related to runoff during operations. If these are covered in other volumes it would be good to include table 12.1 in those areas as well.	There are no proposed water withdrawals or predicted changes to water quantity that would alter the hydrological regime of project area watercourses, therefore, changes in water quantity was not included as a potential effect for fish and fish habitat. Section 11 assesses potential changes to water quantity and water quality during operations.	N	Response clarifies why water quantity was not assessed for fish and fish habitat.	No changes required
105	2.05	Hemmera EEE Volume 2 Section 12 Fish and Fish Habitat	ISL	12.2.4 Regulatory and Policy Context	Reference to regulatory process being a federal mandate, and provincial legislation merely as guidelines. Federal and provincial governments have shared jurisdiction of water. Presumably province would be a stakeholder in any kind of federal review process.	CP is federally regulated and, as such, Provincial regulations or guidelines, such as the BC Approved Water Quality Guidelines, do not apply to the Project. Where federal guidance or regulations do not exist provincial guidance is applied.	N	Response clarifies regulatory context.	No changes required
106	2.06	Hemmera EEE Volume 2 Section 12 Fish and Fish Habitat	ISL	12.3 Existing Conditions	Reference to the slough not being tidally influenced. It is, but it is under less tidal influence than historically. The flood gates can be opened to allow water to flood into the slough for irrigation.	It is acknowledged that the flood gates can be opened to allow water to flood into the slough, however this does not equate to the current conditions of the slough being tidally influenced for the purposes of description of Fish and Fish Habitat. Under this scenario the slough is manually influenced to support irrigation needs.	N	Response acknowledges comment and explains position of assessment.	No changes required
107	2.07	Hemmera EEE Volume 2 Section 12 Fish and Fish Habitat	ISL	12.3 Existing Conditions	Reference to the flows being cut off by the Kennedy pump station. This is a common misconception. It is not the pump station that cuts off fish passage per se, the cut-off conditions is a function of the way the entire diking and water management system was originally designed. There are floodgates that allow water ingress and egress and fish may pass when the gates are open.	Text has been updated to better define the role of Kennedy Road Pump station in limiting movement of fish.	Y	Section 12.3 has been amended to read: "It is likely that operation of the dike water-management system and operation of the Kennedy Road Pump Station limits fish movement between the Pitt River and Katzie Slough at the Kennedy Pump Station gates."	Section 12.3, second paragraph, second last sentence.
108	2.08	Hemmera EEE Volume 2 Section 12 Fish and Fish Habitat	ISL	12.3 Existing Conditions	Reference to channel dredging. Reviewer has worked with City on channel maintenance activities throughout Katzie Slough. The activities do not meet the threshold of dredging and are in fact channel vegetation maintenance. Certainly silts are pulled up along with the rafts of invasive aquatics, but to date there is no need to dredge back to ARSDA channel design depths and widths upon removal of the vegetation.	Katzie Slough and associated agricultural ditches have historically been maintained through dredging (Porter 2017). Text has been updated to reflect "historical" dredging and current channel maintenance activities.	Y	Section 12.3 has been amended to read: "The channel has been subject to historical dredging and regular maintenance (e.g., aquatic vegetation removal) since the dike and drainage system were established for flood control."	Section 12.3, second paragraph, last sentence.
109	2.09	Hemmera EEE Volume 2 Section 12 Fish and Fish Habitat	ISL	12.3.1.2 Field Surveys	Salmonids were not detected, but the sampling period was August. This is the least likely time to find salmonids. However there is some potential for salmonids in fall, winter and spring. They have been captured in limited quantities south Katzie as late as July.	See Comment #95	N	No changes to EEE required.	No changes required
110	2.1	Hemmera EEE Volume 2 Section 12 Fish and Fish Habitat	ISL	Fish and Fish Habitat Survey Locations Map	Weakness of the aquatic field survey is the sampling has been done only at limited mainstem areas and then just two sites in the project area. There is the potential for refugia habitats in tributaries to Katzie Slough. Assessment to negate that potential is warranted.	Sampling was completed at six locations in the Project area at locations where water depths were sufficient to sample for fish. Sampling is not intended to provide a comprehensive list of species that may be present, but is intended to show the general species composition and relative abundance at the time of sampling. Results of fish sampling does not definitively rule out the presence of other fish species.	N	Response clarifies intent of sampling program.	No changes required
111	2.11	Hemmera EEE Volume 2 Section 12 Fish and Fish Habitat	ISL	12.3.1.3 Fish Sampling	Methodology information, including number of traps, and trap spacing is missing. With respect to bait, dry cat food can be used, but is less effective than wet food, and certainly less effective than roe. For population level assessments a more fulsome trapping program should have been used.	Section 12.3.1.2, 12.3.1.3, 12.3.2.2 and Table 12.5 in Volume 2 of the EEE contains the requested information. In particular, Table 12.5 provides soak times, number of fish captured by species and calculation of CPUE. Figure 12.2 provides the locations of traps. While it is acknowledged that different types of bait may have different effectiveness depending on many variables (e.g., species, hydrology, water temp.), professional experience under many conditions, and with side-by-side comparisons of fish capture success using different bait (including roe) has demonstrated no consistent differences in bait effectiveness.	N	Response explains professional opinion of bait effectiveness.	No changes required
112	2.12	Hemmera EEE Volume 2 Section 12 Fish and Fish Habitat	ISL	12.3.1.3 Fish Sampling	eDNA will likely not be definitive in the context of Katzie Slough. CP didn't provide an opportunity to see the raw data to understand their findings	The results of eDNA sampling has not been put forward as the definitive species presence/composition. It was used as a second method to support direct fish sampling surveys and historical information.	N	Response clarifies use of eDNA in sampling program.	No changes required
113	2.13	Hemmera EEE Volume 2 Section 12 Fish and Fish Habitat	ISL	12.3.2.1 Desktop Analysis	Reference again to the pumps being the barrier to fish passage. There are other things going on in the slough that limit productive capacity. The pumps don't draw water from the Pitt or Fraser, so the only exchange of fresh water is through flood boxes. When the flood boxes close they become obstacles to fish egress.	Acknowledged.	N	Response acknowledges comment.	No changes required

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114	2.14	Hemmera EEE Volume 2 Section 12 Fish and Fish Habitat	ISL	12.3.2.1 Desktop Analysis	Too much focus on the idea that the pump stations are the barrier. This paints to narrow a picture of how the system operates. It is a dyked system with control gates (floodgates), which restrict water exchange with rivers outside of the dyke. Pumps are responsible for one direction flow (out of slough). There are other factors affecting productivity of fish habitat in the slough (lack of natural headwaters, poor riparian cover, poor water quality, etc.). A permanent barrier is something entirely impassable to fish, the flood gates appear to allow passage under certain conditions.	Section 12.3.2.1. does not assert permanent barriers to fish passage and does not assess habitat quality, only historical species distribution and water quality.	N	Response explains content of the described section.	No changes required
115	2.15	Hemmera EEE Volume 2 Section 12 Fish and Fish Habitat	ISL	12.3.2.1 Desktop Analysis	To be clear cutthroat trout have been captured in Harris Ditch and that appears to be in the REA	Acknowledged. Cutthroat trout as well as many other salmonid species (coho, chinook) and a number of other species not present in the LEA are present in the REA.	N	Response acknowledges comment.	No changes required
116	2.16	Hemmera EEE Volume 2 Section 12 Fish and Fish Habitat	ISL	12.3.2.1 Desktop Analysis	Reference to 1968 Kennedy pump station as affecting Indigenous preferred fish species. To be clear, the diking system is at least a century old, and there have been impellor style pumps in service since that time. It is unclear why the report references this specific late date, other than that time was the construction /reconstruction of original pump stations. Prior to that time there would have been other non fish friendly pumps in service.	Text has been updated to better reflect installation of flood control and dikes.	Y	"The installation flood controls and dikes, including the Kennedy Pump Station in 1968, has constrained Indigenous-preferred fish species in Katzie Slough."	Section 12.3.2.1, second paragraph, last sentence
117	2.17	Hemmera EEE Volume 2 Section 12 Fish and Fish Habitat	ISL	Table 12.4 Historical Fish Species Presence in Katzie Slough	Cutthroat trout referenced as absent from 'project area'. There is definitely cutthroat trout potential in south Katzie Slough. The CP assessment has not described why this species would not be present in the project area if present in south Katzie Slough (perhaps seasonal use). Also, in the table there is a reference to cutthroat trout as listed. I believe the listed species is the subspecies coastal cutthroat trout, not cutthroat trout generally.	The report acknowledges that cutthroat trout have been observed in other areas of the Katzie Slough but no historical observations of this species have occurred in the Project area. It does not assert that cutthroat trout is definitively absent from the project area. While the general species cutthroat trout has no specific status, the two sub-species in B.C. are coastal cutthroat trout (provincially blue-listed), and westslope cutthroat trout (blue-listed and SARA listed). The cutthroat trout in Katzie Slough would be coastal cutthroat trout (as indicated by the subspecies listed in Table 12.4).	N	Response explains assessment of cutthroat trout in the Project area and the listed status.	No changes required
118	2.18	Hemmera EEE Volume 2 Section 12 Fish and Fish Habitat	ISL	Table 12.4 Historical Fish Species Presence in Katzie Slough	Brassy minnow. Species is blue listed in the CWHdm and xm.	Table 12.4 has been updated to show that Brassy minnow, Pacific Group is a blue-listed species.	Y	Add "Blue-listed" to last column in Brassy minnow row.	Section 12.3.2.1, Table 12.4
119	2.19	Hemmera EEE Volume 2 Section 12 Fish and Fish Habitat	ISL	12.3.2.1 Desktop Analysis, Water Quality	Reference to high water temperatures in mainstem. While this is entirely true, there is suitable water quality in portions of the slough through to early summer. Also known that cutthroat trout could find refuge in off-channel tributaries.	Acknowledged. Coastal cutthroat trout presence has not been ruled out. Merely that there have been no historical observations or current observations of coastal cutthroat trout in Katzie Slough in the Project Area.	N	Response acknowledges comment and explains evaluation of cutthroat trout in the Project area.	No changes required
120	2.2	Hemmera EEE Volume 2 Section 12 Fish and Fish Habitat	ISL	12.3.2.2 Field Surveys, Fish Sampling	Weather loach referenced as invasive. It is actually regulated as an alien invasive.	Section 12.3.2.2 has been updated to note that Oriental Weatherfish is a controlled alien species under Schedule 3 of the Controlled Alien Species Regulation of the Wildlife Act.	Y	Change to: "This is a non-native, invasive fish species known to occur in the Lower Fraser Valley, and in the Alouette River watershed in particular (which Katzie Slough connects to in the north). *It is a controlled alien species under Schedule 3 of the Controlled Alien Species Regulation of the Wildlife Act* ."	Section 12.3.2.2 - second sentence under "fish sampling"
121	2.21	Hemmera EEE Volume 2 Section 12 Fish and Fish Habitat	ISL	12.3.2.2 Field Surveys, Fish Sampling	Fish species captured (warm water invasives) is not surprising given the timing of CP's survey, but does not quite paint an accurate picture of potential species use.	Agreed. Other seasonal species compositions may differ.	N	Response acknowledges comment.	No changes required
122	2.22	Hemmera EEE Volume 2 Section 12 Fish and Fish Habitat	ISL	Table 12.5 Summary of Minnow Trap Sampling in Katzie Slough and Cook Slough, August 2020	No control fish samples are referenced.	Noted. The intent of the comment is not understood, further information can not be provided at this time.	N	No changes to the EEE required.	No changes required.
123	2.23	Hemmera EEE Volume 2 Section 12 Fish and Fish Habitat	ISL	Table 12.5 Summary of Minnow Trap Sampling in Katzie Slough and Cook Slough, August 2020	Fish trapping results presented. The study methods are not sufficiently explained for this and other study components. How many fish traps? CPUE is catch per unit effort, but we don't know if it is one, six traps or different per site?	See response to comment #111.	N	Response clarifies location of field method information.	No changes required
124	2.24	Hemmera EEE Volume 2 Section 12 Fish and Fish Habitat	ISL	12.3.2.2 Field Surveys, Fish Habitat	Reference to dikes, but the ones alongside Katzie Slough are not formal dikes. True dikes are on the perimeter of the Fraser River, Pitt River, and Alouette River.	Acknowledged. This terminology was used for simplicity.	N	Response acknowledges comment and explains choice of nomenclature.	No changes required
125	2.25	Hemmera EEE Volume 2 Section 12 Fish and Fish Habitat	ISL	12.3.2.2 Field Surveys, Fish Habitat	There is an inference that the pump stations are causing fines and organics, however this can also be the natural condition. We have found geotechnical boreholes with peat soils that would have been laid down hundreds of years ago, before pump stations were in place.	Acknowledged. There are many reasons a system can have fine substrates. The report simple states that the Katzie Slough substrates are typical of low flow, pump controlled channels in other parts of the Lower Mainland.	N	Response acknowledges comment and clarifies report's statement.	No changes required
126	2.26	Hemmera EEE Volume 2 Section 12 Fish and Fish Habitat	ISL	12.3.2.2 Field Surveys, Fish Habitat	Reference to potential for overwintering east of the project area (but not in the project area). This conclusion is not appropriate given the data collected. If there is rearing habitat east then there is potential here (at certain times of the year). The situation is simply that not enough data has been collected by the assessment team to confirm this. This is not to say there is good habitat, but the author has drawn conclusions about the site not supported by the data they collected.	Text has been updated to indicate potential for over-wintering habitat in areas of Katzie Slough.	Y	Change "There is the potential for over-wintering salmonid habitat in areas further east in Katzie Slough outside of the Project Area" to "*There is the potential for over-wintering salmonid habitat in areas of Katzie Slough ; however ;...*"	Section 12.3.2.2 last paragraph
127	2.27	Hemmera EEE Volume 2 Section 12 Fish and Fish Habitat	ISL	Table 12.7 Potential Project Interactions with Fish and Fish Habitat and Potential Effects	Reference to "pre-construction" phase is odd, given there are a lot of key construction activities associated with pre-loading. Not clear why the preload phase has been designated as pre-construction.	Section 4.4 of the EEE describes each project phase and the activities that are expected to occur within that phase. Section 4.4.4, specifically Table 4.6, provides a summary of the project phases and associated activities. Preloading is commonly considered a pre-construction activity, similar to stripping and grading, as it is preparing a site for construction.	N	Response provides reference to project phases and activities and explains why preloading is considered in pre-construction.	No changes required
128	2.28	Hemmera EEE Volume 2 Section 12 Fish and Fish Habitat	ISL	Table 12.7 Potential Project Interactions with Fish and Fish Habitat and Potential Effects	In Table 12.7 under 'operations', it seems that the effects of "Spills" could interact with fish habitat? No mitigation with respect to that is developed in this volume.	Potential effects of a spill to water, including impacts to fish and fish habitat, are discussed in Volume 4, Section 22.6.	N	Response provides reference to where effects of spills to water are assessed.	No changes required
129	2.29	Hemmera EEE Volume 2 Section 12 Fish and Fish Habitat	ISL	12.4.2.1 Changes in Fish Habitat, Change in Access to Habitats	Bullet list misses water quality effects related to operations (contaminants).	Change in contaminant concentrations is addressed in Section 12.4.2.2 Changes in Fish Health.	N	Response provides reference to where change in contaminant concentrations is addressed.	No changes required

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130	2.3	Hemmera EEE Volume 2 Section 12 Fish and Fish Habitat	ISL	12.4.2.1 Changes in Fish Habitat, Change in Habitat Structure and Cover	Generic reference to swift currents, but this is not applicable at the project site, nor 99% of Katzie Slough. Only place of swift currents is near the pump stations when the pumps turn on.	The reference to swift water was meant to broadly describe the function of instream physical features. Text has been updated for clarity.	Y	~~In the Project Area,~~ Instream physical structures (e.g., rock, woody debris, vegetation) provide fish with shelter ~~from swift currents~~, *areas of rest* , cover from predators, and critical habitat for specific life-stages or activities (e.g., foraging sites, spawning sites).	Section 12.4.3.1 Change in Habitat Structure and Cover Second sentence
131	2.31	Hemmera EEE Volume 2 Section 12 Fish and Fish Habitat	ISL	12.4.2.1 Changes in Fish Habitat, Change in Habitat Structure and Cover	Reference to the general function of riparian areas. Unfortunately the key limiting factor in Katzie Slough is a lack of riparian cover and its relationship to increased solar insolation is missing. Some expansion on this ecological limited state and associated temperature moderation/dissolved oxygen issues, and biological oxygen demand could inform mitigation and offsetting prescriptions.	This section refers to potential effects of altering habitat and does not refer to the existing conditions. It is meant to illustrate what can happen when changes to riparian vegetation occur.	N	Response clarifies intent of text.	No changes required
132	2.32	Hemmera EEE Volume 2 Section 12 Fish and Fish Habitat	ISL	12.4.2.1 Changes in Fish Habitat, Change in Habitat Structure and Cover	Reference to LWD loading in pools and stream channels in WRP manual. This is somewhat out of context. This reference is from WRP Tech Circ 9 and that density is what was observed in natural forested settings. Katzie Slough, even prior to disturbance would have been more of a lentic system than lotic system. LWD function and processes for LWD recruitment quite different than forested uplands.	This section refers to potential effects of altering habitat and does not refer to the existing conditions. It is meant to illustrate what can happen when changes to riparian vegetation occur. While LWD may not historically be a large contributor to Katzie slough morphology, this acknowledges that even limited treed riparian areas provide some function.	N	Response clarifies intent of text.	No changes required
133	2.33	Hemmera EEE Volume 2 Section 12 Fish and Fish Habitat	ISL	12.4.2.1 Changes in Fish Habitat, Change in Habitat Structure and Cover	Reference to boulder cover is not really applicable to the historic project context, but perhaps boulders could be used to introduce some complexity. Risk is they hang up debris, creating a maintenance or conveyance issue, or simply sink into the soft peaty channel beds.	Acknowledged.	N	Response acknowledges comment.	No changes required
134	2.34	Hemmera EEE Volume 2 Section 12 Fish and Fish Habitat	ISL	12.4.2.1 Changes in Fish Habitat, Change in Habitat Structure and Cover	Statement that Katzie Slough provides flows and food and nutrient is problematic. Pre-diking, the slough would have been in constant tidal exchange between Fraser River, Pitt River and slough. Not about discharge provisions since the slough itself has no headwater source, more of back and forth tidal exchange. Now, outflow is provided when the pumps turn on, or when flap gates are open on a falling hydrograph. The volumes of the Pitt-Fraser, and tidal exchanges are so large compared to pump discharges as to render the latter negligible as 'food and nutrient" provision. As for the flow providing 'significant' food and nutrients that seems tenuous because of the above noted volumes, but also from the fact discharge from the slough at certain time of year may be more akin to pollution (low DO, temperature, eutrophic conditions) then food and nutrients.	Food and nutrient inputs may be small but are valuable for areas downstream within the system, as well as to larger watercourses downstream. This statement is intended to inform the assessment and required mitigations/offsetting for riparian clearing required for the project. Any riparian clearing should be offset so that the overall riparian function of the system is not decreased.	N	Response explains intent of statement.	No changes required
135	2.35	Hemmera EEE Volume 2 Section 12 Fish and Fish Habitat	ISL	Table 12.8 Fish Habitat Area Affected by the Project	The report does not define 'riparian' with reference to relevant legislation. CP should provide clarification.	Section 12.2.2 has been updated to provide a definition of fish habitat and riparian habitat.	Y	As per subsection 2(1) of the Fisheries Act, Fish habitat includes all waters frequented by fish and any other areas upon which fish depend directly or indirectly to carry out their life processes (i.e., instream aquatic habitat and out-of-stream habitat features such as side channels, wetlands and riparian areas). From a fisheries perspective, the term “riparian” usually refers to the upland community adjacent to water bodies that provides desirable conditions for healthy fish habitat. This includes shade, soil/bank stability, detritus (including leaf matter, insects, etc.), large woody debris, etc.	Section 12.2.2 Selection of Indicators, after first paragraph.
136	2.36	Hemmera EEE Volume 2 Section 12 Fish and Fish Habitat	ISL	Table 12.8 Fish Habitat Area Affected by the Project	Reference to fish use of Katzie Slough being warm water and invasive species. However that description is only partially accurate and it is unclear on what actual data the consultants conclusion is based on. Our findings are not dissimilar but there remain data gaps on salmonid use at certain times of year, and that should be discussed /elaborated upon by the consultant. Later in the report, the consultant indicates their is potential for Coho over-wintering.	Our assessment does not rule out the potential presence of salmonids, but recognizes that there have been no observations of salmonids in historical or current surveys, and water quality (in summer) and poor access (due to flood management controls, limits the potential for salmonids. Table 12.8 has been updated for clarity: "Low quality habitat *primarily* utilized by warm water and invasive species."	Y	Add "primarily" to text in last column.	Section 12.4.2.1 Table 12.8, last column
137	2.37	Hemmera EEE Volume 2 Section 12 Fish and Fish Habitat	ISL	12.4.2.1 Changes in Fish Habitat, Change in Habitat Structure and Cover	Reference to the word 'direct' with respect to riparian effects. Elsewhere riparian effects were described by the consultant as being 'indirect'.	The only use of the word 'direct' in this section refers to instream works, not riparian effects. Unable to provide further comment as reference to direct riparian effects has not been found.	N	No changes to the EEE are required.	No changes required
138	2.38	Hemmera EEE Volume 2 Section 12 Fish and Fish Habitat	ISL	12.4.2.1 Changes in Fish Habitat, Change in Food and Nutrient Concentrations	The report provides lots of general background material, that does not directly apply to the project site or project context.	This section is meant to provide a general overview of the ways in which Project activities can change fish habitat. The background material is important to provide context.	N	Response explains intent of the section.	No changes required
139	2.39	Hemmera EEE Volume 2 Section 12 Fish and Fish Habitat	ISL	12.4.2.1 Changes in Fish Habitat, Change in Access to Habitats	Reference to coho salmon moving into off-channel areas to overwinter. This is possible, the problem is the reports earlier descriptions cite only warm water fish and invasive species. Report needs elaborate on potential species use in winter not just rely on August sampling.	The report relies on historical and current sampling to provide a list of observed species. the report does not preclude the presence of other species, nor does the assessment state that effective offsetting or mitigations are not required because of the observed species to date.	N	Response explains that report does not preclude presence of other species.	No changes required
140	2.4	Hemmera EEE Volume 2 Section 12 Fish and Fish Habitat	ISL	12.4.2.1 Changes in Fish Habitat, Change in Access to Habitats	Issue of contaminants raised but none of the mitigation in this volume addresses potential effects of contaminants from operations on water quality. Noted that the HATCH report does speak to stormwater WQ treatment. This volume of the report should be brought into alignment for clarity.	Potential effects on water quality, which are not specific to fish and fish habitat and also have the potential to affect other VCs, are considered in detail in Sections 11.0. A reference to Section 11 has been added for clarity. Mitigation specific to water quality are provided in Section 11.4.3. Mitigation measures are being refined/re-organized to present a clearer, more consistent approach across all disciplines.	Y	Add "*Potential effects on water quality, which are not specific to fish and fish habitat and also have the potential to affect other VCs, are considered in detail in Sections 11.0.*" after first sentence under 12.4.2. Mitigation measures throughout the EEE have been updated. Add mitigation from Section 11 (e.g., new M8-24, M11-1)	Section 12.4.2 and 12.4.3
141	2.41	Hemmera EEE Volume 2 Section 12 Fish and Fish Habitat	ISL	12.4.2.2 Changes in Fish Health, Changes in Mortality of Fish and Eggs	Reference to the use of pumps for temporary bypasses during construction. This will entail a potential restriction in reaches upstream of the work site, potential restricting functionality of drainage system that the City is responsible for maintaining (i.e. drainage during rainy periods and irrigation water during the growing and harvesting seasons). CP will need to further assess the impacts to operations and provide mitigation/solutions to engage with the City to confirm that potential risks to the City's operational requirements are addressed.	At this time, there are no plans to wholly divert flows in any watercourse. It is most likely that a section of a watercourse will require isolation and dewatering (e.g., around a bridge abutment). In this case, the isolated work area would be dewatered using "dam and pump" methodology, which would not affect instream flows or drainage functionality. Should complete diversion be required, best practice (as recommended by DFO Codes of Practice and BC MOE Standards and Best Practices), downstream flow must be maintained at all times. Therefore, pumps would be sized to maintain regular flows in the watercourse.	N	Response explains why pumping will not affect drainage functionality.	No changes required
142	2.42	Hemmera EEE Volume 2 Section 12 Fish and Fish Habitat	ISL	12.4.2.2 Changes in Fish Health, Changes in Mortality of Fish and Eggs	Reference to fish burst speeds. A continually operating pump can overcome not only a fish's burst speed but also its sustained swimming speed.	Agreed. But the critical speed is the burst speed that a fish will use to escape pump intakes. If the pump overcomes burst speed, exceedance of the sustained speed is implied.	N	Response rationalizes bust speed.	No changes required

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Comment #	Consultant IR #	Source	Reviewer	References	Reviewer Comments	Response to Comment	Comment Incorporated? (Y/N)	Changes to Document, or Rational why no changes occurred	Location of changes to document (Chapter, Section, Page)
143	2.43	Hemmera EEE Volume 2 Section 12 Fish and Fish Habitat	ISL	12.4.2.2 Changes in Fish Health, Changes in Contaminant Concentrations	Contaminants could reach fish habitat not only through seeps, but directly through a heavy spill/malfunction discharging to catch basins	Acknowledged. Text has been updated for clarity and a reference to Volume 4, Section 22.6 which addresses effects and mitigation for accidental spills or release of deleterious substance to water will be added.	Y	Water containing contaminants may *be* discharged *over surface* or seep into fish-bearing watercourses during any phase of the Project. *Accidental release of a deleterious substance to the aquatic environment is discussed in ~~Volume 4,~~ Section 22.6.*	Section 12.4.2.2, "Changes in Contaminant Concentrations", second sentence.
144	2.44	Hemmera EEE Volume 2 Section 12 Fish and Fish Habitat	ISL	12.4.3 Mitigation Measures	Reference to the implementation of mitigation in a CEMP; however, a CEMP does not actually implement any measures. The CEMP merely lays out commitments by Owner to Regulatory agencies (i.e. Project EMP) or by Contractor to Owner (CEMP).	CP thanks the City of Pitt Meadows for their comment. Text has been updated for clarity.	Y	The sentence has been amended to read: The mitigation measures, the effect(s) they address, and the Project phase in which they will be implemented~~, and their implementation in a relevant Construction Environmental Management Plan (CEMP)~~ are summarized in Table 12.9	Section 12.4.3 Second paragraph, last sentence
145	2.45	Hemmera EEE Volume 2 Section 12 Fish and Fish Habitat	ISL	12.4.3 Mitigation Measures	More detail is extremely important to demonstrate spill response has been sufficiently considered and planned for. It would be appropriate to reference key provisions of the spill response program, either here or in an Appendix.	Mitigation measures are being refined/re-organized to present a clearer, more consistent approach across all disciplines. More detailed spill response procedures are provided in Volume 4, Section 22.6 (see "Emergency Response Procedures" for various spill scenarios. A cross-reference to Section 22.6 can be added.	Y	Mitigation measures throughout the EEE have been updated. Add a cross reference to Emergency Response Procedures in Section 22.6 to M12-5 (**new M8-4**) in 12.4.3	Section 12.4.3
146	2.46	Hemmera EEE Volume 2 Section 12 Fish and Fish Habitat	ISL	12.4.3 Mitigation Measures, Mitigation M8-11 Project Design - Free Span Watercourse Crossing	Mitigations in this list lack detail and do not align with the level of detail usually provided for assessments of projects of this scope and size.	CP thanks the City of Pitt Meadows for their comment. The EEE is based on minimum requirements and industry best practices as Project designs are not yet finalized. Specific Environmental Protection Plans, such as an ESCP or a Site Restoration Plan, will be developed as the Project advances and will include more specific mitigation that reflects detailed design.	N	Response indicates that mitigation presented in report are sufficient and more detailed measures will be provided as the Project progresses.	No changes required
147	2.47	Hemmera EEE Volume 2 Section 12 Fish and Fish Habitat	ISL	12.4.3 Mitigation Measures, Mitigation M12-2 Reduce Riparian Disturbance and Maintain Riparian Buffers	Reference to a 15 m setback. No explanation on derivation, of appropriateness with respect to ecological limiting factors. No reference to setback with respect to legislation or guidelines. Compare and contrast to 30 m setbacks elsewhere in Katzie Slough pursuant to RAPR (while this is provincial legislation, it establishes DFO threshold for riparian HADD generally). Also setback appears to be different than the DFO Land Development Guidelines. Note that with of riparian corridor and treatment of riparian has potential implications for City drainage operations maintenance. It would be useful for the report to provide more detail on footprint impact locations with the output being the proposed offsetting. Where riparian buffers are too be reduced from the established standard the report should identify, at least conceptually, the form and location for the offsetting.	DFO's Land Use Guidelines recommend a "leave strip" of 15 m for a watercourse with well defined high water mark in a Residential/Low Density area. Because the Project area is primarily agricultural, and because existing riparian vegetation did not exceed 15 m, this buffer was considered appropriate. See also Comment #149	Y	Editorial review of EEE to ensure all references to riparian buffer are 15 m	Throughout the EEE
148	2.48	Hemmera EEE Volume 2 Section 12 Fish and Fish Habitat	ISL	12.4.3 Mitigation Measures, Mitigation M12-2 Reduce Riparian Disturbance and Maintain Riparian Buffers	Reference to Coarse Woody Debris (CWD) in the riparian area. CWD in the 15 m setback will not meet City drainage maintenance operations requirements. No reference to vegetation replanting or enhancements.	Mitigation measures are being refined/re-organized to present a clearer, more consistent approach across all disciplines. Reference to leaving felled trees in riparian area has been removed from M12-2 Mitigation M12-8 (**new M12-5**) references conducting restoration and reclamation activities, such as replanting.	Y	M12-2, remove bullet "Leave trees felled within riparian areas, above the high-water mark, in place as coarse woody debris."	Throughout the EEE
149	2.49	Hemmera EEE Volume 2 Section 12 Fish and Fish Habitat	ISL	12.4.3 Mitigation Measures, Mitigation M12-3 Conduct Erosion and Sediment Control	Peculiar reference to installation of ESC measures per QEP. Appropriate erosion and sediment control plan design requires planning, schedule considerations and actual design. Suggesting that ESC would be solely the responsibility of a project QEP is not appropriate for a project of this scale and intensity. The report reference to a line drawn at 30 m appears to be at odds with riparian setbacks elsewhere in the report that cite a 15 m setback/riparian area.	The EEE does not state that ESC is solely the responsibility of the EM. It is intended that a site-specific ESCP be developed by the Contractor when final designs, equipment etc. are known and will provide detailed methodologies for mitigation and monitoring. ESC measures will be implemented under the supervision of the EM. The EM will use adaptive management to ensure the designed measures reflect actual site conditions (e.g., silt fencing may be moved from the 'designed' location to a more appropriate location based on observed conditions). Text has been updated to state ESC measures should be installed within 15 m of a watercourse, to be consistent with the 15 m riparian buffer recommended elsewhere.	Y	Update bullet in M12-3 (new 8-2) Install and maintain ESC measures within ~~30 m~~ *15 m* of watercourses as directed by the AQP.	M12-3 (new M8-2)
150	2.5	Hemmera EEE Volume 2 Section 12 Fish and Fish Habitat	ISL	12.4.3 Mitigation Measures, Mitigation M12-3 Conduct Erosion and Sediment Control	Reference to water quality monitoring programs, but only for instream works. Water quality monitoring should also be conducted for all upland work that could impact riparian and instream areas through spills or sedimentation.	Mitigation measures have been refined/re-organized to present a clearer, more consistent approach across all disciplines. Mitigation 12-3 (new M8-2) have been updated to include "or during any upland activity where sediment laden water could be released to a watercourse." Mitigation (new M8-5) has been added and requires implementation of various monitoring plans.	Y	Mitigation 12-3 (new M8-2) has been updated to include "or during any upland activity where sediment laden water could be released to a watercourse."	Section 12.4.3 Under current M12-3
151	2.51	Hemmera EEE Volume 2 Section 12 Fish and Fish Habitat	ISL	12.4.3 Mitigation Measures, Mitigation M12-3 Conduct Erosion and Sediment Control	Reference to QEP response expected as undefined WQ thresholds approached. The report should identify what water quality standards and thresholds will be used and compare them applicable standards. Note that If sediment laden water is pouring into an upland catch basin then a monitoring program focussed only on instream works would not detect this condition.	The specific standards and thresholds to be utilized will be included in the specific monitoring plans that are expected to be developed once project designs are finalized.	N	Response provides when specific details will be provided.	No changes required
152	2.52	Hemmera EEE Volume 2 Section 12 Fish and Fish Habitat	ISL	12.4.3 Mitigation Measures, Mitigation M12-4 Manage Vehicle and Equipment Access	The City's bylaw Section E.2.1 (b) notes that roadway culverts should be sized to carry flows of a 100 year return frequency. Section B.6.1 of the bylaw notes that all bridge design shall be in accordance with the Canadian Bridge Code. Under the Navigation Protection Act (NPA), for small watercourses caring only canoes, kayaks and other small craft, a vertical clearance of 1.7m above the 100-year flood level is considered to be adequate. CP should confirm design elevations, design water levels and clearance for all bridge structures crossing the Katzie and Cook Sloughs.	CP thanks the City of Pitt Meadows for their comment. Engineering design is ongoing and will consider all appropriate standards.	N	No changes required	No changes required

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Comment #	Consultant IR #	Source	Reviewer	References	Reviewer Comments	Response to Comment	Comment Incorporated? (Y/N)	Changes to Document, or Rational why no changes occurred	Location of changes to document (Chapter, Section, Page)
153	2.53	Hemmera EEE Volume 2 Section 12 Fish and Fish Habitat	ISL	12.4.3 Mitigation Measures, Mitigation M12-4 Manage Vehicle and Equipment Access	Reference to avoiding fueling in riparian areas. What standard/distance is intended here?	Mitigation measures have been refined/re-organized to present a clearer, more consistent approach across all disciplines. Mitigations have been updated to specify that designated refueling areas and stockpiles will be located >30 m from a watercourse, where possible.	Y	**update EEE M8-4 (in Chapter 12):** "*Refuelling and maintenance of equipment as well as the storage of any excess fuels, oils, lubricants or other petrochemical products should occur at a designated station that is at least 30 m from any watercourse. Topographic features and slope should be considered; flat surfaces are recommended* ." **Update M8-2 (in Chapter 11):** to specify stockpiles will be located >30 m from watercourse). *"Locate stockpiles away from (>30 m, where possible) watercourses and environmentally sensitive areas. Protect stockpiles against erosion by water and wind immediately after establishing them* ."	Vol 2, 11.4.3 and 12.4.3
154	2.54	Hemmera EEE Volume 2 Section 12 Fish and Fish Habitat	ISL	12.4.3 Mitigation Measures, Mitigation M12-5 Spill Prevention and Response	The report has referenced corporate spill response as the overarching way spills would be managed, but no details are provided to the reader on what that response actually looks like. It appears to be at the level of small truck sized spill response equipment. This is not enough for a project of this size, scope and intensity. The lack of detail on spill response in the volumes reviewed is troubling.	Mitigation measures have been refined/re-organized to present a clearer, more consistent approach across all disciplines. More detailed spill response procedures are provided in Volume 4, Section 22.6 (see "Emergency Response Procedures" for various spill scenarios. A cross-reference to Section 22.6 can be added.	Y	Add a cross reference to Emergency Response Procedures in Section 22.6 to M12-5 (**new M8-4**) in 12.4.3	Section 12.4.3
155	2.55	Hemmera EEE Volume 2 Section 12 Fish and Fish Habitat	ISL	12.4.3 Mitigation Measures, Mitigation M12-6 Avoidance of Environmentally Sensitive Areas	Flagging of sensitive areas, rootwads overhangs, etc. The report should clarify the intended purpose of this proposed mitigation measure. If the rootward or overhang is in an area that will be destroyed by a crossing, what will flagging do from a mitigation standpoint?	Mitigation measures have been refined/re-organized to present a clearer, more consistent approach across all disciplines. Mitigation has been revised to clarify flagging is intended to demarcate the limits of disturbance (i.e., indicate zone where equipment should not encroach).	Y	(see **new M11-3**), and add "The area(s) to be cleared should be clearly marked with highly visible materials (i.e., flagging tape, snow fencing) to ensure equipment operators are aware of the area they are to work in."	Throughout the EEE
156	2.56	Hemmera EEE Volume 2 Section 12 Fish and Fish Habitat	ISL	12.4.3 Mitigation Measures, Mitigation M12-7 High Flow Mitigations	Report reference to postponement of works if excessive flows or flood. Instream works could span many weeks. It is not possible to always predict these conditions. There should be multiple planning steps before postponement is relied upon. Seasonal timing, storm event modelling, ensuring adequate bypass capacity, duplicate pumps.	Agreed. Postponement of activity is only one possible mitigation.	N	Response acknowledges comment and clarifies activity is only one possible mitigation.	No changes required
157	2.57	Hemmera EEE Volume 2 Section 12 Fish and Fish Habitat	ISL	12.4.3 Mitigation Measures, Mitigation M12-8 Conduct Restoration and Reclamation Activities	Report reference to QEP 'choice' for impact mitigation and restoration. It is hard to conceive of a project review process that would rely on QEP choice to decide appropriateness, scope and scale of mitigation and restoration, and that this would be acceptable to federal regulators. The QEP should know footprint, mitigation and offset, well before construction so referencing the requirement to fall during onsite work is off-the- mark. Perhaps something else was intended by the author(s).	Mitigation measures have been refined/re-organized to present a clearer, more consistent approach across all disciplines. Mitigation has been revised for clarity and the sentence "The QEP will determine onsite whether other restoration or stabilization methods are needed" will be removed.	Y	Remove "The QEP will determine onsite whether other restoration or stabilization methods are needed" from **New M12-5)**	Throughout the EEE
158	2.58	Hemmera EEE Volume 2 Section 12 Fish and Fish Habitat	ISL	12.4.3 Mitigation Measures, Mitigation M12-9 Implement Habitat Offsetting	Offsetting is discussed, but there are virtually no details of what would be done or where it would be done. Usually at a concept stage the consultant would put that forward as a working environmental design concept. Offsetting requirements should be developed with input from DFO, KFN, City and other impacted stakeholders and rightsholders to ensure it addresses the overall impacts and interests.	Habitat offsetting options are being developed in consultation with Fisheries and Oceans Canada, potentially affected stakeholders and Indigenous communities. Specific details are being designed as the Project progresses.	N	Response indicates that consultation is occurring and that details are being refined.	No changes required
159	2.59	Hemmera EEE Volume 2 Section 12 Fish and Fish Habitat	ISL	12.4.3 Mitigation Measures, Mitigation M12-9 Implement Habitat Offsetting	Installation of rootwads is impractical in City maintained Katzie Slough reaches. The risk that LWD would create better habitat for bass populations at the expensive of native species would need to be considered.	Noted. Habitat offsetting is being designed by an Appropriately Qualified Professional, in consultation with regulatory agencies, potentially affected stakeholders and Indigenous Communities.	N	Response acknowledges comment.	No changes required
160	2.6	Hemmera EEE Volume 2 Section 12 Fish and Fish Habitat	ISL	12.4.3 Mitigation Measures, Mitigation M12-10 Follow Least-risk Windows for Instream Works	Reference to least risk timing windows. This is an unusual prescription given the report conclusions that only warm water and invasive species are present. If that is the case what specific species risks are thought to be in play. Certainly there is no spawning or eggs in gravel at the project site.	While cutthroat trout have not been observed in the Project Area, they are still considered potentially present as they have been observed in other parts of the Katzie Slough drainage. Therefore, the provincial least risk windows (LRW) of August 1 to September 15 have been recommended (as DFO defers freshwater timing windows to provincial guidelines). If instream works are unable to adhere to the LRWs, a decision should be made by a QEP on site as to the best timing of construction activities given the habitat and likelihood of species being present. For most areas in the Project area, the LRWs could likely be amended as the provincial guidelines are intended to protect spawning fish, eggs, and pre-emergent fish primarily, and Katzie Slough generally does not provided habitat for spawning cutthroat trout.	N	Response clarifies rationale for applying least risk window.	No changes required
161	2.61	Hemmera EEE Volume 2 Section 12 Fish and Fish Habitat	ISL	12.4.3 Mitigation Measures, Mitigation M12-11 Isolate Instream Works and Conduct Fish Salvage	"Release fish unharmed' is a generic prescription that fails to consider the Project's context and study's own finding. Weather loaches for instance are required to be euthanized as part of fish collection permits.	Noted. Mitigation has been revised to state "Prior to dewatering the isolated work area, an AQP will conduct an aquatic fish and lifeform salvage in accordance with relevant provincial and federal permits."	Y	Revise new M12-8 to say "Prior to dewatering the isolated work area, an AQP will conduct an aquatic fish and lifeform salvage in accordance with relevant provincial and federal permits"	Section 12.4.3
162	2.62	Hemmera EEE Volume 2 Section 12 Fish and Fish Habitat	ISL	12.4.4 Characterization of Residual Effects, Significance	Definition of significance of a change in fish habitat based on turbidity, returning to 'background' levels after construction. This is not valid. There is nothing in the Fisheries Act that gives the project a time frame during construction for the deposition of deleterious substances (including turbidity). The project does not have a carte blanche to fill up drainage systems maintained by the City with sediments during construction. Note too a reference to a return to baseline, but as of this reading it is unclear what the baseline would be since that varies seasonally and only limited WQ data is presented.	This definition recognizes that elevated turbidity can occur during construction activities. The CEMP requires that a Water Quality Monitoring Plan be developed and define what level of increases will result in cessation of project activities. If these acceptable levels of turbidity do not return to pre-construction levels, then a significant change in water quality has occurred. The MOE Approved Water Quality Guidelines: Aquatic Life, Wildlife and Agriculture (AWQG) is the provincial standard that considers both TSS and Turbidity. DFO's Land Development Guidelines are similar. According to According to BC MOE's Technical Appendix Addendum Sampling Strategy for Turbidity, Suspended and Benthic Sediment baseline (or background) conditions can be established before project activities commence or by establishing appropriate upstream sites that can be referenced throughout the project.	N	Response provides rationale for definition of significance	No changes required
163	2.63	Hemmera EEE Volume 2 Section 12 Fish and Fish Habitat	ISL	12.4.4 Characterization of Residual Effects, Significance	To know if there has been change, then there would need to be a baseline. But the work referenced in this report is inadequate as a baseline for this project. It only collected samples in August. A proper baseline would entail data collection over multi-seasons, because the effects can be multiseasonal.	CP thanks City of Pitt Meadows for their comment. Further multi seasonal sampling will be included as a part of ongoing monitoring for the Project. Fish and fish habitat monitoring will be conducted during the Project's pre-construction and construction phase (Section 12.6)	N	Response clarifies recommendation for additional sampling.	No changes required

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164	2.64	Hemmera EEE Volume 2 Section 12 Fish and Fish Habitat	ISL	12.4.4.1 Residual Effects on Fish and Fish Habitat, Change in Fish Habitat	Crossing methods and BMP's mitigating loss of habitat. This may be true for well designed bridges not true for culvert infills/culvert crossings. BMPs do not mitigate loss of habitat in culverts. What can help mitigate effects on fish (i.e. passage, food and nutrients, rearing) is well designed crossings. Culvert infills are likely not mitigatable and instead require offsetting.	Acknowledged. The text states that permanent loss will result in a residual effect and will be offset. Reference to crossing and BMPs are to *reduce* the amount of affected habitat, either permanently or temporarily.	N	Response clarifies that appropriate crossing methods will reduce, not eliminate, effects to habitat.	No changes required
165	2.65	Hemmera EEE Volume 2 Section 12 Fish and Fish Habitat	ISL	12.4.4.1 Residual Effects on Fish and Fish Habitat, Change in Fish Habitat	ESC BMPs. For a project of this size, scale and intensity BMP's, are not the solution to mitigate risk. This project requires fulsome phased ESC Plans, with an accompanying monitoring program. This volume should clearly indicate that as a requirement.	The EEE is based on minimum requirements and industry best practices as Project designs are not yet finalized. Specific Environmental Protection Plans, such as the ESCP or the Site Restoration Plan, will be developed as the Project advances and will include more specific mitigation that reflects detailed design.	N	Response indicates when more specific and detailed measures will be developed.	No changes required
166	2.66	Hemmera EEE Volume 2 Section 12 Fish and Fish Habitat	ISL	12.4.4.1 Residual Effects on Fish and Fish Habitat, Change in Fish Habitat	Change in water temperature not predicted. The reports conclusion is spurious since it is not based on any data analysis that the reader can review. This is the clearing and then creation of tarmac and railyard with entirely different albedo than current context. Blazing hot conditions in late spring into early fall could affect water in detention ponds and depending on degree of solar insolation The lack of any detail on restoration of stream channels after construction could mean that there is substantially more risk related to temperature (there is the risk is that a bad situation is made even worse). The report should include far more detail of riparian upland and channel restoration concepts to help clarify potential impacts.	Please refer to response to comment #228, 146 and 165	N	No changes to the EEE are required.	No changes required
167	2.67	Hemmera EEE Volume 2 Section 12 Fish and Fish Habitat	ISL	12.4.4.1 Residual Effects on Fish and Fish Habitat, Change in Fish Habitat	Food and nutrient significance. It is unclear how the conclusion is derived since there is no work up to the conclusion, and the reasons for not carrying this through to significance determination is not appropriate given the lack of reasoning for the conclusion. Reference to BMP's is so ubiquitous as to render that mitigation meaningless.	Minimizing clearing of riparian vegetation during construction and offsetting for areas where riparian vegetation has been removed (i.e., no net loss of riparian habitat) is predicted to result in no change of food and nutrient inputs to Katzie Slough.	N	Response clarifies why no change to food and nutrient inputs anticipated.	No changes required
168	2.68	Hemmera EEE Volume 2 Section 12 Fish and Fish Habitat	ISL	12.4.4.1 Residual Effects on Fish and Fish Habitat, Change in Fish Habitat	The conclusion that a change in water quality/residual effect is not anticipated, seems spurious and without justification. Had there been reference to the SWMP treatment chain (per HATCH) then this could be construed as reasonable, but in this volume the risk is not analysed and mitigated. The development has significant risk of WQ changes if operational water quality is not addressed through design.	Reference to Section 11.0, where water quality has been assessed, and mitigation specific to developing and implementing a stormwater management plan, has been added.	Y	Add New M11-1 (Develop and Implement a Stormwater Management Plan) to mitigations. In 12.4.4.1 add reference that water quality has been assessed in Section 11.0 See 11.6, "*Therefore, no residual effects on surface water quality, groundwater quantity or quality, or drainage are expected from the Project* ."	Section 12.4.3 Section 12.4.4.1
169	2.69	Hemmera EEE Volume 2 Section 12 Fish and Fish Habitat	ISL	Table 12.11 Summary of Residual Effects Characteristics Ratings and Significance for Change in Fish Habitat	Report reference to the concept that suspended solids will return to baseline after construction. There is no Authorization "window" for deposition of deleterious substances for a project of this type. That is the point of mitigation, to prevent deposition of deleterious substances.	See response to comment # 162	N	Response provides rationale for definition of significance	No changes required
170	2.7	Hemmera EEE Volume 2 Section 12 Fish and Fish Habitat	ISL	Table 12.13 Potential for Interaction between Other Projects/Activities and Project Residual Effects	City Drainage Maintenance Operations and cumulative effects interaction should have been considered.	CP assumed that City Drainage and Maintenance activities do not harmfully alter or destroy fish habitat (prohibited by the Fisheries Act), or are authorized by the appropriate regulatory bodies, and therefore there would not be interactions with changes in fish habitat resulting from the project.	N	Response clarifies why the activity was not included in cumulative effects.	No changes required
171	2.71	Hemmera EEE Volume 2 Section 12 Fish and Fish Habitat	ISL	12.5.1.1 Potential Cumulative Effects, Changes in Fish Habitat	Reference in report to 'upgrades to the pump station may improve flushing flows'. Upgrades to pump stations may improve flushing flows, but more assessment is needed to determine the veracity of this statement. Flood gate management could also potentially improve water exchange, but more assessment would be needed on that as well. A fish- friendly pump would not be the sole mechanism for improved flushing flows and recolonization'. Fish friendly pumps can often be less efficient than impellor styles. Fish friendly pumps can be less efficient than impellor styles. Lastly, the inference that just installing a fish friendly pump could lead to recolonization is wrong. There are multiple ecological limiting factors that could affect successful 'recolonization' (water temperature, low dissolved oxygen, pollution from agriculture), and there would need to be risk management assessment for proponents of fish friendly pump installation.	Acknowledged. CP have provided a level of assessment appropriate to the publicly available information on this project. Although there are limited details available for the proposed pump station upgrades, there is an opportunity for a positive effect, albeit with more planning, study and collaboration between the City, First Nations, agricultural community and CP. It is acknowledged that there are multiple factors involved and installing a fish friendly pump alone is unlikely to be sufficient for successful recolonization of Katzie Slough. Text has been revised to clarify.	Y	Add "*It is noted that the installation of a fish friendly pump alone is unlikely to be sufficient for successful re-colonization of Katzie Slough and that additional rehabilitation work would be required in the Slough for successful re-colonization.*" to end of last paragraph	Section 12.5.1.1, first paragraph, after last sentence
172	2.72	Hemmera EEE Volume 2 Section 12 Fish and Fish Habitat	ISL	12.5.1.2 Additional Mitigation Measures	Unmitigated HADD's will be offset. This is contrary to statements earlier in this report that describe offsetting as mitigation	Text has been updated to "All HADDs will be offset…"	Y	Change: ~~*Unmitigated*~~ *All* HADDs will be offset as determined through a Fisheries Act authorization.	Section 12.5.1.2, last paragraph

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173	2.73	Hemmera EEE Volume 2 Section 13 Vegetation and Wetlands	ISL	13.2.2 Selection of Indicators	Riparian area. This report does not adequately define or provide a reference of meant by riparian area/boundary. How is this defined by the authors?	The definition has been updated to be more clear in how it pertains to the Vegetation and Wetlands EEE. See Section 13.2.2.	Y	Riparian vegetation can include any vegetation adjacent to a waterbody or watercourse regardless of the ecological characteristics or species composition of the community (MacKenzie & Moran 2004) and regardless of the ecological or conservation value. Hence riparian areas are not assessed as a stand-alone indicator within the Vegetation and Wetlands VC ~~EEE (Section 13~~). Rather, riparian areas are addressed in Section 12, Fish and Fish Habitat. To capture ecosystems that are ecologically distinct because of their adjacency to waterbodies, (such as flooding/erosion/sedimentation/subirrigation), flood ecological communities are assessed in the Vegetation and Wetlands VC ~~EEE~~ and serve as an indicator of the health of an ecological community of management concern. [delete]: "Riparian vegetation includes any vegetation adjacent to a waterbody or watercourse regardless of the ecological characteristics. Information on riparian vegetation is included in the evaluation of fish and fish habitat (Section 12.0). However, the flood ecological community indicator is a type of riparian vegetation that is also captured in this evaluation. "	Insert text in Section 13.2.2, before "Plant Species of Management Concern" (following the bullets that end in Flood Ecological communities) Removed the first 3 sentences immediately following Table 13.1.
174	2.74	Hemmera EEE Volume 2 Section 13 Vegetation and Wetlands	ISL	13.2.3.1 Spatial Boundaries	RAPR requiring a 30 m is not universally true (i.e. if using detailed assessment methodology). It is true that the Riparian Assessment Area in RAPR is 30 m from top of bank. Buffers (SPEA's) are variable and dependent on channel width, solar angle and measures. The report should provide a more accurate explanation of what they feel constitute riparian areas and expected riparian buffers.	This section describes how the LEA/REA was determined and describes why a 30 m buffer (i.e., boundary for the LEA) was considered appropriate. While it is true that the RAPR does not universally apply a 30 m protection zone (SPEA), this was used as an example to show a conservative assessment area. Riparian vegetation has been defined in Section 13.2.2, and the riparian buffer (15m) has been included in Section 12, Fish and Fish Habitat.	N	Response clarifies use of 30 m and RAPR reference.	No changes required
175	2.75	Hemmera EEE Volume 2 Section 13 Vegetation and Wetlands	ISL	13.2.3.1 Spatial Boundaries	The report references residual effects as not being considered likely. If fully explained through the analysis in the report that analysis should speak for itself in the appropriate section. By placing that reference here it appears the author is drawing conclusions before the analysis is presented.	This statement has been removed from Section 13.2.3.1 to avoid any further confusion as it was not the intent of the statement to draw any conclusions on residual effects associated with the Project, rather to explain reasoning behind the sizing of the REA.	Y	Delete last sentence of description for REA (second bullet point): Although residual effects to vegetation and wetlands are not anticipated to occur out to this full extent, this is an outer limit to consider for the cumulative effects evaluation and provides context in the area beyond the LEA.	Section 13.2.3.1 last sentence of second bullet point
176	2.76	Hemmera EEE Volume 2 Section 13 Vegetation and Wetlands	ISL	Table 13.2 Key Federal Legislation Summary	Vegetation removal would also be subject to Fisheries Act considerations of HADD and should be acknowledged in this section of the report.	Fisheries Act HADD calculations are considered in Section 12 Fish and Fish Habitat where riparian vegetation as it relates to Fish and Fish Habitat is already being considered. This will reduce risk of inconsistencies between disciplines and double counting areas. Please see response to comment #173 for clarified definition of 'riparian' and where in the EEE it is assessed.	N	No change to document	No changes required
177	2.77	Hemmera EEE Volume 2 Section 13 Vegetation and Wetlands	ISL	13.3.2.1 Desktop Analysis	Reference to Letter Report from the Kwantlen. Is there a reason it was not included as an Appendix? Would there be something similar from the Katzie FN ?	This was not included as an appendix because details of communications with First Nations are confidential.	N	Response addresses comment	No changes required
178	2.78	Hemmera EEE Volume 2 Section 13 Vegetation and Wetlands	ISL	Table 13.9 Ecosystem Management Concern Area Summaries by Spatial Boundary	Reference to wetland size in ha. With these very small wetlands the appropriate scale is probably m2	Acknowledged. Report has been updated and wetland area is conveyed in m2.	Y	Table 13.9 change cells with 0.002 to 20 m2. All references have been ammended to m2 (from ha).	Section 13.3.2.2 Table 13.9
179	2.79	Hemmera EEE Volume 2 Section 13 Vegetation and Wetlands	ISL	13.3.2.2 Field Surveys, Wetland Function	Fish would potentially have access to wetlands at least at high during high rainfall events and surcharge.	This is acknowledged in Sections 13.3.2.2 Wetland Function and 13.4.2.1, Change in Wetland Function (e.g., "Wetlands in the REA support a number of wildlife and plant species as well as fish and fish habitat"). Bullet points in Section 13.3.2.2 refer to only confirmed species or ecological communities within the REA.	N	Response addresses comment with location of fish and fish habitat reference.	No changes required
180	2.8	Hemmera EEE Volume 2 Section 13 Vegetation and Wetlands	ISL	Table 13.12 Potential Project Interactions with Vegetation and Wetlands and Potential Effects	Project phases appear arbitrarily defined. Unclear how vegetation stripping is not considered part of construction.	Section 4.4 of the EEE describes each project phase and the activities that are expected to occur within that phase. Section 4.4.4, specifically Table 4.6, provides a summary of the project phases and associated activities. Vegetation stripping is commonly considered a pre-construction activity as it is preparing a site for construction. See also response to comment #127	N	Clarification provided in response to comment, no changes to the EEE required.	No changes required
181	2.81	Hemmera EEE Volume 2 Section 13 Vegetation and Wetlands	ISL	13.4.2.1 Ecosystems of Management Concern, Change in Abundance of Ecosystems of Management Concern	Using m2 would be better at this small scale. A 3x7 wetland is better described as 20 m2 rather than 0.002 ha as it is easier to visualize.	Please see response to comment #178	Y	All references have been ammended to m2 (from ha).	Section 13

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182	2.82	Hemmera EEE Volume 2 Section 13 Vegetation and Wetlands	ISL	13.4.2.1 Ecosystems of Management Concern, Change in Abundance of Ecosystems of Management Concern	The report should explain how a 3x7 wetland supports Great Blue Heron, preferentially over the existing open ditches and canals of Katzie Slough and its tributaries. The small patch doesn't offer nesting, so presumably it is forage area. Great blue heron (including the fannini sub-species, which is listed as a species of conservation concern) have been observed around these channelized reaches of Katzie Slough.	The report identifies that this wetland has minor habitat function capacity for species noted, not that it would be considered preferential habitat over other areas in the Project Area. The potential habitat functions noted provide a conservative assesment of the potential value of the wetland. Of the species identified on site, it was considered that the Great Blue Heron would be the most likely to utilise this habitat. However, of note, this is considered a low probability given there is little to no open water (seasonally dependent) and the wetland is not contiguous with any other water bodies. It is unlikely that the wetland would support fish for Heron (or other species) to forage. For clarity text in the EEE has been revised.	N	The EEE has been udpated to read: The affected wetland (Wm05) has minor habitat function capacity in terms of its potential to support wildlife, plant species, and possibly fish habitat. Potential habitat functions for this wetland could include the following, at minimum (only confirmed wildlife species in the Project Area are included): •Providing foraging and nesting habitat for migratory birds; (a total of 22 migratory bird species were identified during wildlife surveys (Section 14.0 Wildlife)) •Contributing to habitat diversity, as indicated by this community supporting a blue-listed wetland community (the Wm05) •Supporting federally and provincially listed wildlife species in the area, with the (eg. though low probability, of the species identified in the Project Area, most likely species using this wetland being the great blue heron (Ardea herodias ssp. fannini)) has the greatest potential to use this habitat).	No changes required
183	2.83	Hemmera EEE Volume 2 Section 13 Vegetation and Wetlands	ISL	13.4.3 Mitigation Measures, Mitigation M8-16 Project Design: Site Layout	The report should clarify how and where there have been design efforts to minimize edge effects. What were the original concept designs that did not minimize edge effects?	Site layout and design is ongoing and considers engineering requirements of the Project while maintaining as much ecological integrity as possible. As mentioned in M8-16 (new M8-8), this includes utilizing previously disturbed areas and minimizing vegetation removal as much as possible.	N	Response addresses comment	No changes required
184	2.84	Hemmera EEE Volume 2 Section 13 Vegetation and Wetlands	ISL	13.4.3 Mitigation Measures, M13-1 Integrated Vegetation Management	Reference to CP management practice (IVMP) and BC Integrated Pest Management Regulation. The report should clarify how the IVMP will effect riparian impact, offsetting and function of riparian areas. The report should clarify the built out condition of the south bank of canal. Could veg affects through IVMP/IPMR be mitigated there, or will it be in a continual state of maintenance and covered with blackberries?	The built out condition of Katzie Slough is not fully known at this time. Management of noxious weeds and invasive plants is included in the CEMP which provides general/guiding mitigation. A Noxious Weed Management Plan, that is compliant with CP's IVMP and provincial guidelines, will be developed by a QEP prior to pre-construction activities that will include more specific mitigation for species that are known to be present on the site. A key objective of CP's Integrated Vegetation Management Plan is to maintain a stable, self-sustaining, plant community that is compatible with federal railway safety requirements. This will further be supported by the development of the Site Restoration Plan, when developed. The Site Restoration Plan will be mindful of balancing ecological benefits, adjacent agricultural uses and operational requirements of CP. One of the commitments in CP's IVMP is the control of noxious weeds and invasive plants as mandated under the BC Weed Control Act, and other applicable provincial legislation. Further information on the management of invasive species may be found in CP's Integrated Vegetation Management Plan (IVMP) which has been developed in accordance with the BC Integrated Pest Management Regulation. This IVMP will be applied to the Project and can be found on CP's website: https://www.cpr.ca/en/community-site/Documents/CP-IVMP-2020-2025.docx.pdf.	N	Response addresses comment	No changes required
185	2.85	Hemmera EEE Volume 2 Section 13 Vegetation and Wetlands	ISL	13.4.3 Mitigation Measures, Mitigation M13-2 Construction Environmental Management Plan	Very generic environmental management mitigation is proposed. Complete lack of detail in the mitigation specifications (i.e. "proper handling" of noxious weeds). This is not a viable prescription. Reference to "prompt" action is meaningless if not attached to an actual schedule or response timelines. Similarly, reference to "Meets all relevant industry standards and regulatory standards" begs the question what standards? The language suggests no real thought has been given to specific mitigation measures on this specific project, and what are being thrown out is generic prescriptions more typical of an Preliminary Environmental Assessment as opposed to an evaluation of effect.	The EEE is based on minimum requirements and industry best practices as Project designs are not yet finalized. Specific Environmental Protection Plans, such as a Noxious Weed Management Plan that is compliant with CP's IVMP and provincial guidelines, will be developed by an AQP as the Project advances and will include more specific mitigation that reflects detailed design. One of the commitments in CP's IVMP is the control of noxious weeds and invasive plants as mandated under the BC Weed Control Act, and other applicable provincial legislation.. Specific measures and methodology may be adjusted by an AQP/EM based on the species encountered in the field.	N	Response addresses comment	No changes required
186	2.86	Hemmera EEE Volume 2 Section 13 Vegetation and Wetlands	ISL	13.4.3 Mitigation Measures, Mitigation M13-3 Wetland Compensation	Agree that this effect is so small, the impact can in fact be readily mitigated (not offset) through good design rather than requiring offsetting. However the report should clarify and provide a reasonable offsetting proposal that includes design information.	Habitat offsetting options are being developed as the Project advances in consultation with Fisheries and Oceans Canada, potentially affected stakeholders and Indigenous communities.	N	Response addresses comment	No changes required
187	2.87	Hemmera EEE Volume 2 Section 14 Wildlife	ISL	14.2.3.2 Temporal Boundaries	Pre-construction phase includes activities that are clearly construction activities.	Please refer to response to comment #127 and #180	N	Response addresses comment	No changes required
188	2.88	Hemmera EEE Volume 2 Section 14 Wildlife	ISL	14.2.3.2 Temporal Boundaries	"Wildlife species use habitat seasonally". Perhaps true of some migratory birds but what about Great Blue Heron and non-avian species use including small mammals, muskrat, coyote, amphibians etc. They are essentially resident if they take up occupancy or use the habitat for food procurement and cover.	Acknowledged. This statement was not intended to restrict the assessment, rather to acknowledge that there are some time periods wildlife considerations are heightened. All wildlife have been considered based on species specific habitat uses. This statement has been rephrased to avoid further confusion.	Y	Paragraph has been rephrased: *Some wildlife species are year round residents but most wildlife species use habitat seasonally with peak usage during the spring and summer. The critical period for wildlife usage begins with breeding in late March, with rearing of young occurring through mid-August for most wildlife species. These timing windows, along with Project activities and schedules, have informed the EEE.*	Section 14.2.3.2 last paragraph
189	2.89	Hemmera EEE Volume 2 Section 14 Wildlife	ISL	14.2.4.2 Migratory Birds Convention Act	While it would appear that the project would be federally legislated CP should confirm whether provincially listed species would not be a management concern. Example Mountain Beaver, are blue listed in BC but special concern per COSEWIC but have required considerable management planning through federal environmental approval processes.	As discussed in Section 3 of the EEE, since CP is under federal jurisdiction, the Project is not subject to provincial legislation at the permitting level. However, CP does follow provincial best practice and complies with the spirit of provincial legislation (e.g. *Wildlife Act*). CP's Project team has fully considered provincial and municipal legislation and regulations, which have provided valuable guidance and context to the EEE.	N	Clarification provided in response to comment, no changes to the EEE required.	No changes required

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190	2.9	Hemmera EEE Volume 2 Section 14 Wildlife	ISL	Table 14.5 Species of Concern with the Potential to Interact with the Project Local Evaluation Area	Long list of species of concern with potential to occur in the LEA/REA. Later this is followed up with observations of a subcomponent of that list. However, there is no analysis of many of the species of concern and why they have potential/no potential. PWS is so cryptic, that it would not be observed during this assessment work. The report is silent on certain risks to certain species.	Section 14.3.1 of the EEE has been udpated to provide more details on the methods and results of species present in the LEA, of which PWS was surveyed for using eDNA.	N	Section 14.3.1 of the EEE has been udpated to provide additional detail of field study methodology	Section 14.3.1
191	2.91	Hemmera EEE Volume 2 Section 14 Wildlife	ISL	14.4.21 Increase of risk of direct mortality	The report claims that effects on upland vegetation are expected to be negligible (since it is similar to agricultural activity). This statement is not wholly true. The site is not often tilled, and species could use this area without much risk until mowing. If Owner begins work in winter (likely to avoid nesting bird conditions) those fallow hay fields could support numerous species and individuals when work commences. For very cryptic species, like PWS, this is a very big risk. If adequate baseline work was done to refute presence of potential species of concern (i.e. ones the regulators care about) then the idea of minimal effect would make more sense.	Section 14.3.1 of the EEE has been udpated to provide more details on the methods and results of species present in the LEA. Methods to determine presence of species of concern followed standards developed by the Resource Inventory Standards Committee (RISC).	N	Section 14.3.1 of the EEE has been udpated to provide additional detail of field study methodology	Section 14.3.1
192	2.92	Hemmera EEE Volume 2 Section 14 Wildlife	ISL	14.4.2.2 Decrease in terrestrial habitat	The idea that the effects of the project are not very significant due to their being lots of other habitat in the REA is misleading. This is the heart of cumulative effects evaluation (assessment). Incremental losses can ultimately lead to no available habitat. The area located at the remnant mouth of Katzie Slough and Pitt River is probably more dissimilar than similar to the balance of the REA.	Acknowledged. Regional habitat availability is commonly used as a *contributing* indicator of significance in defining importance of habitat and in assessing potential impacts. Cumulative effects are addressed in Section 14.5	N	Response provides location of cumulative effects assessment.	No changes required
193	2.93	Hemmera EEE Volume 2 Section 14 Wildlife	ISL	14.4.2.2 Decrease in terrestrial habitat	Reference to a lack of observations of amphibians/baseline, yet conclusion is drawn that the risk is low. Later in the report salvage of amphibians is referenced as a mitigation measure. The report needed to outline the methodology, level of effort undertaken, data gaps, additional study needed to address the gaps, before drawing such broad conclusions.	Section 14.3.1 of the EEE has been udpated to provide more details on the methods and results of species present in the LEA.	N	Section 14.3.1 of the EEE has been udpated to provide additional detail of field study methodology	No changes required
194	2.94	Hemmera EEE Volume 2 Section 14 Wildlife	ISL	14.4.2.4 Sensory disturbance	The study did not investigate pollinating insects as per agricultural section. It would be useful for this section to define wildlife as all vertebrates excluding invertebrates and then direct the reader to the appropriate section in he agricultural EEE for interpretation of effects of lighting on nocturnal, pollinating insects.	CP thanks the City of Pitt Meadows for their comment. A reference to Section 15, Agricultural Use and Soils, has been added to the Wildlife section to direct readers to assessment of pollinating insects.	Y	After first sentence, add: "*potential project effects to pollinating insects are included in Section 15, Agricultural Use and Soil*."	Section 14.2.1, second paragraph, after first sentence.
195	2.95	Hemmera EEE Volume 2 Section 14 Wildlife	ISL	Mitigation M14-1 Vegetation stripping	The mitigation would be unlikely to work for small mammals or amphibians which could be active and using the site by mid February. There is a paucity of assessment data (evidence) to support the idea that small mammals would not be using the long grass habitats in February. The peer reviewer is unaware of any other projects where pushing soil out of the way in one direction was a BMP for limiting death and injury to small animals during site clearing activities (i.e. PWS).	In the absence of a BMP to consider small mammals when clearing land, clearing in one direction was offered as a solution. In our assessment, PWS was not detected.	N	Response addresses comment.	No changes required
196	2.96	Hemmera EEE Volume 2 Section 14 Wildlife	ISL	Mitigation M8-15 Directional lighting	How would the effectiveness of this treatment be evaluated. Wouldn't there need to be a baseline established as to current ambient light, followed by post construction ambient light readings. What if the treatment didn't work?	The effectiveness of directional lighting has been shown in the literature and best management practices.	N	Response indicates effectiveness of measure is established by literature and BMP.	No changes required
197	2.97	Hemmera EEE Volume 2 Section 14 Wildlife	ISL	Mitigation M14-2 Amphibian salvage	Earlier the report said that no native amphibians of concern were observed, so effects were deemed not very significant, but here the author back-tracks and includes more amphibian survey and salvage for native species. It appears the author is less confident here than earlier in the risk assessment.	This mitigation was included because instream works are planned for the Project and best practice is to conduct fish and amphibian salvage prior to dewatering isolated work areas.	N	Response clarifies inclusion of the mitigation measure.	No changes required
198	2.98	Hemmera EEE Volume 2 Section 14 Wildlife	ISL	Mitigation M14-3 Re-Establish vegetation	Here, a 10 m riparian zone adjacent to Katzie Slough is identified. Elsewhere 15 m and 30 m has been defined as the riparian area. The report should set out the rationale for riparian setback establishment, consistent with relevant legislation (i.e., perhaps the RAPR?) and /or Guidelines. If a lesser riparian setback distance is desired, it should be established based on a written QEP rationale. There are recognized approaches for establishing a defensible riparian setback distance and this work should have been undertaken prior to drafting the EEE. What is the riparian area this project intends to establish and protect at the end of the project.	Report has been updated to reflect a consistent riparian setback of 15 m. Please also refer to comment #147.	Y	Editorial review of EEE to ensure all references to riparian buffer are 15 m	Throughout the EEE
199	2.99	Hemmera EEE Volume 2 Section 14 Wildlife	ISL	Table 14.12 Potential Interactions	A foreseeable, but difficult cumulative effect to assess would be the changeover to different crop type. Fallow hay fields, which will be removed as part of this project are quite different habitats to blueberry or cranberry fields. Some engagement between the agricultural specialist and wildlife specialist with respect to changing crops would be appropriate since continued loss of hay type crops, particularly in ecotone areas (like the LEA) may magnify project specific effects on wildlife and require a bit broader analysis.	The agricultural fields within the LEA are used primarily as foraging areas for insectivorous species, such as swallows and bats. The area south of the LEA is predominately agricultural fields, which would provide the forage needed for these species. Mitigation to supplement nesting and roosting sites for these species, in the form of barn swallow nest boxes and bat boxes will be built in the LEA, is included.	N	Response explains wildlife use and mitigation for potential effects due to change in crop type.	No changes required
200	3	Hemmera EEE Volume 2 Section 14 Wildlife	ISL	14.6 Monitoring Program	The proposed monitoring program for barn swallow lacks detail and appears to be inadequate for assessing whether the risks identified in this section have been fully mitigated (offsetting, vegetation planting, directional lighting, etc.)	The EEE is based on minimum requirements and industry best practices as Project designs are not yet finalized. Specific Environmental Protection Plans and Monitoring Plans, such as Barn Swallow Nesting Monitoring Plan, will be developed as the Project advances and will include more specific details that reflects detailed design.	N	Response indicates that details will be provided as project advances.	No changes required

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201	3.01	Hemmera EEE Volume 2 Section 11 Surface Water, Groundwater, and Drainage	ISL	All	Global comment: preloading impacts to groundwater is only considered in the context of impacting groundwater quality by importing contaminated fill or aggregate. There is no apparent mention or assessment of impacts to groundwater levels, which will be impacted by preloading and dewatering activities. A thorough assessment of groundwater level changes during and following preloading is required to evaluate impacts to surrounding areas given the naturally high groundwater levels. The impacts in turn to Katzie Slough and surrounding surface water bodies should also be assessed in the context of groundwater level changes. It should be noted that Hatch's 60% Preload Design report predicts "During the preload program, the groundwater level will tend to mound above the existing ground level, probably in the order of 1 to 2 m." and "Ground water levels within the permanent grade fills will likely stabilize at a higher elevation than current levels, and almost certainly higher than the current ground surface." The on- and off-site impacts from this need to be assessed.	The EEE has been updated with additional discussion on potential effects to groundwater quantity (levels) and incorporates discussion/results of Hatch's 60% Preload Design Report. In particular, a conceptual groundwater model was developed for the Project. A description of the conceptual model methodology and results has been added to the EEE.	Y	Section 11 of the EEE has been updated with conceptual modeling methodology and results and additional data collected including water quality and transducer. Additional discussion on potential effects has also been provided.	Section 11.3.1.2; 11.3.2.3; 11.4.2
202	3.02	Hemmera EEE Volume 2 Section 11 Surface Water, Groundwater, and Drainage	ISL	11.1 Overview	Katzie Slough is also hydraulically connected to the shallow groundwater in the area	Noted. This is covered in the body of Section 11.	N	No changes required.	No changes required.
203	3.03	Hemmera EEE Volume 2 Section 11 Surface Water, Groundwater, and Drainage	ISL	11.2.3.1 Spatial Boundaries	Discrepancy in this section with the REA description - this section indicates the south boundary is the Fraser River, but Volume 1 and Figure 11.1 illustrates the south boundary as being north of the Fraser River.	Please refer to response to comment # 1.84 and #1.87	Y	The discrepancies between Section 8 and 11 have been amended. Please refer to response to comment #84 and #87	Table 8.2 Section 11.2.3.1
204	3.04	Hemmera EEE Volume 2 Section 11 Surface Water, Groundwater, and Drainage	ISL	11.2.3.2 Temporal Boundaries	Unclear if preloading is considered in the Existing Conditions assessment	Please refer to response to comment #1.85, #2.27 and #2.80	N	No changes to the EEE are required.	No changes required.
205	3.05	Hemmera EEE Volume 2 Section 11 Surface Water, Groundwater, and Drainage	ISL	11.3.1.2 Modelling of Hydrology and Hydrogeology	The model and methods described in this section focuses solely on surface water and drainage modelling. Hydrogeological modelling is not described and is unclear if it was completed.	A conceptual groundwater model was developed for the Project. A description of the conceptual model undertaken has been added to section 11.3.1.2. Further groundwater modelling was not completed because the conceptual model determined that numerical groundwater modelling was not warranted.	Y	Section 11.3.1.2 has been updated to provide a description of the conceptual groundwater model that was completed for the Project.	Section 11.3.1.2
206	3.06	Hemmera EEE Volume 2 Section 11 Surface Water, Groundwater, and Drainage	ISL	11.3.1.3 Field Surveys	Transducers were installed in four monitoring wells, but the data is not included nor discussed in this report. Temporal groundwater level data is crucial to evaluate baseline conditions and impacts. Results of hydraulic conductivity testing are also not mentioned again.	At the time of presenting the EEE for public review, transducer data was not available. The data is now available and the EEE has been updated to include transducer and hydraulic conductivity data, where required/appropriate.	Y	Section 11.3.2.3 of the EEE has been updated with additional data collected.	Section 11.3.1.2
207	3.07	Hemmera EEE Volume 2 Section 11 Surface Water, Groundwater, and Drainage	ISL	11.3.2.3 Project Area - Baseline	This section details the hydraulic connection between Katzie Slough and the shallow groundwater and illustrates the need for a more robust assessment of impacts to groundwater levels by the Project	Please refer to response to comment #1.66, #3.01 and #3.05.	N	Please refer to response to comment #66 #201 and #205	No changes required.
208	3.08	Hemmera EEE Volume 2 Section 11 Surface Water, Groundwater, and Drainage	ISL	Table 11.7; 11.3.2.3 Groundwater Quality	There is an inadequate discussion on the exceedances compared to the well depths. For example, presumably some of the wells with exceedances are shallow ('S' label in the well name). However, elevated chloride and sodium are interpreted to represent remnant seawater from deeper strata yet there is no way to confirm this by comparing well depths with exceedances. There is also an insufficient discussion regarding the source of the exceedances and the impacts that Existing Conditions groundwater quality exceeding guidelines has on the remaining Project effects evaluation.	The EEE has been updated to provide additional discussion on exceedances. To clarify, exceedance of the freshwater aquatic life criteria (CCME FALx10) for chloride was in the deepest well and none of the exceedances have been found to be contributable to existing site activities.	Y	Section 11.3.2.3 of the EEE has been updated to provide further discussion around exceedance of applied groundwater criteria.	Section 11.3.2.3
209	3.09	Hemmera EEE Volume 2 Section 11 Surface Water, Groundwater, and Drainage	ISL	Table 11.9	There is no discussion surrounding the reasoning for the selection of these Project Activities to assess the Project interactions. Preloading is again not considered in terms of groundwater quantity. Transloading has the potential to impact groundwater quality if a spill occurs.	With regards to the selection of Project Activities, please refer to response to comments #127 and #180 Additional text has been added to Table 11.9, specifically the Project Activity 'Preload and surcharge placement' to indicate a potential effect to groundwater quantity. The potential effects of spills during transloading activities is addressed in Section 22.0, Accidents and Malfunctions, of the EEE.	Y	Table 11.9 has been updated to include specific reference to the potential effect to groundwater quantity associated with preloading activities.	Table 11.9
210	3.1	Hemmera EEE Volume 2 Section 11 Surface Water, Groundwater, and Drainage	ISL	11.4.2 Potential Effects	Potential effects do not mention means that groundwater quantity could be impacted	Noted. Additional text has been added to bullet point to identify the potential effect of the placement of preload material across the site on groundwater quantity.	Y	4th bullet point in Section 11.4.2 has been ammended to read: *Increased runoff volume and flooding affecting drainage and/or groundwater quantity.*	Section 11.4.2
211	3.11	Hemmera EEE Volume 2 Section 11 Surface Water, Groundwater, and Drainage	ISL	11.4.2.3 Temporary or Permanent Change in Groundwater Quantity or Quality	No mention of preloading impacts, nor dewatering impacts, which is also likely needed during construction. No discussions of hydraulic connection to Katzie Slough if groundwater quality is impacted. Focus is on preferential pathways, but natural flow pathways exist as per the one regional cross section provided and the statement that the Katzie Slough is hydraulically connected to shallow groundwater. Additional inferences on natural pathways cannot be made due to the lack of borehole logs, temporal water level data, groundwater flow maps, and hydraulic conductivity analyses included in the report.	Section 11.4.2.3 has been updated with additional discussion on the potential effects to groundwater quantity and quality. With regards to dewatering please refer to response to comment #67.	Y	Section 11.4.2.3 has been updated with additional discussion on the potential effects to groundwater quantity.	Section 11.4.2.3

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212	3.12	Hemmera EEE Volume 2 Section 11 Surface Water, Groundwater, and Drainage	ISL	11.4.3.2 Groundwater Quantity and Quality Mitigation Measures	The proposed mitigation for temporary or permanent changes to groundwater quantity or quality are insufficient. Changes to groundwater levels by preloading or dewatering were not adequately assessed and there are no mitigation measures proposed to reduce or eliminate impacts. Due to the inadequate assessment a determination of no residual effects cannot be made.	The EEE has been updated to provide more discussion on potential effects to groundwater quantity and quality. Please refer to response to comments #201, 205, 206, 208, and 211. The results of the conceptual model showed that while some groundwater may be expressed, the volume and rate was so low that no potential effects were identified and therefore mitigation measures are not required. With respect to dewatering, please refer to response to comment #67. The determination of no residual effects is considered appropriate, the additional information provided throughout Section 11 will support this.	N	Clarification has been provided in the response to comment, changes associated with the comment are provided in referenced responses.	No changes required.
213	3.13	Hemmera EEE Volume 2 Section 11 Surface Water, Groundwater, and Drainage	ISL	11.4.3.3 Summary of Effects to be Carried Forward	No discussion whether reduced infiltration will have an effect on shallow groundwater, the Katzie Slough or adjacent properties.	Additional discussion has been added to the EEE to clarify potential effects.	Y	Additional discussion provided in Section 11.4.2.3	Section 11.4.2.3
214	3.14	Hemmera EEE Volume 2 Section 11 Surface Water, Groundwater, and Drainage	ISL	11.5 Monitoring	Additional information regarding the groundwater quality frequency and locations should be provided. Further, groundwater levels should be incorporated into the monitoring plan, particularly during and following preloading.	As stated in Section 11.5 a water quality monitoring plan, that includes groundwater, will be developed and implemented for the Project. The Construction Environmental Management Plan will provide further guidance on the content of the water quality monitoring plan that will subsequently be developed, prior to pre-construction. An additional bullet point has been added to Section 11.5 to include the monitoring of groundwater levels.	Y	Section 11.5 of the EEE has been updated to include the monitoring of groundwater levels.	Section 11.5, after 4th bullet point, add another bullet point to read: *Monitor groundwater levels within the Project Area.*
215	3.15	Hemmera EEE Volume 2 Section 11 Surface Water, Groundwater, and Drainage	ISL	11.6 Conclusion	Level of confidence is not groundwater specific, as there was no modelling completed that was demonstrated. Further, key Project-specific hydrogeological information (well logs, water levels, groundwater flow maps and gradients, and hydraulic conductivity information) was not included to allow a reviewer to confirm the findings and conclusions.	A conceptual model has been completed, please refer to response to comment #201, 205, and 206. Additional information has been added to Section 11 of the EEE based on recently received data.	N	Please refer to response to comment #201, 205, 206	No changes required.
216	3.16	Hemmera EEE Volume 2 Section 11 Surface Water, Groundwater, and Drainage	ISL	11.3, Existing Conditions	Hemmera does not reference or include the most recent City of Pitt Meadows Drainage and Irrigation study completed by ISL	CP does not have a copy of this study, nor is it publicly available. CP would welcome the receipt of this study for consideration and inclusion in the EEE.	N	No changes to the EEE are required	No changes required.
217	3.17	Hemmera EEE Volume 2 Section 11 Surface Water, Groundwater, and Drainage	ISL	11.3.1, Field Surveys	Water level monitoring and measurements should be coordinated with the City to occur at times where water levels are expected to be at their highest levels. July and October are typically times where the water in the sloughs are at their lower levels.	Noted. CP thanks the City of Pitt Meadows for their comment. CP is committed to continuing engagement with the City of Pitt Meadows and values their input.	N	No changes to the EEE are required.	No changes required.
218	3.18	Hemmera EEE Volume 2 Section 11 Surface Water, Groundwater, and Drainage	ISL	11.3.2.1, Drainage	While at times the Katzie Slough acts as a closed system, the flood gates and the Kennedy Road Pump Station do accommodate some flow to occur. This should be acknowledged in the report.	This is already acknowledged in the previous paragraph. Paragraphs have been restructured.	Y	The last paragraph has been moved in front of the discussion on the flow of Katzie Slough.	11.3.2.1 Drainage
219	3.19	Hemmera EEE Volume 2 Section 11 Surface Water, Groundwater, and Drainage	ISL	11.4.1 Project Interactions	A detailed Erosion and Sediment Control plan should be developed and provided to the City of Pitt Meadows for review as it will impact their flood infrastructure	A detailed ESCP will be developed as the Project advances and will include more specific mitigation that reflects detailed design.	N	No changes to the EEE are required.	No changes required
220	3.2	Hemmera EEE Volume 2 Section 11 Surface Water, Groundwater, and Drainage	ISL	11.4.2.1, Temporary or Permanent change in the drainage system	The report should mention preloading impacts to water levels in adjacent sloughs as a result of groundwater stabilization or settlement of preload/existing material. The report should also cover impact to operation of downstream pump stations as a result of increased water levels due to these potential impacts. Groundwater impacts also need to be assessed to better understand potential impacts.	Please refer to response to comment # 201, 213. The EEE has been updated to include additional discussion on the potential effects of preloading on groundwater levels and those in Katzie Slough.	Y	Section 11.4.2.3 has been updated to include a discussion on flow pathways between groundwater and surface water and potential effects.	Section 11.4.2.3
221	3.21	Hemmera EEE Volume 2 Section 11 Surface Water, Groundwater, and Drainage	ISL	11.4.2.1, Temporary or Permanent change in the drainage system	While Figure 11.8 confirms that the ARDSA criteria for conveyance is satisfied, it also confirms that the project has a permanent impact on drainage as it notes that there is an increase of 1.5 hours above baseline for each ARDSA storm event (10-year 2-day and 10- year 5-day) compared to existing conditions. The drainage system may be capable of removing runoff, and post-development runoff rates may be less than or equal to pre- development rates, however this clearly shows that there is an impact to the volume of water in the drainage system post-development. Further modelling may be required.	Noted. Modelling is ongoing as design progresses.	N	No changes required	No changes required.
222	3.22	Hemmera EEE Volume 2 Section 11 Surface Water, Groundwater, and Drainage	ISL	11.4.3.1, Drainage and Surface Water Quality Mitigation Measures, Site management	In additional to minimizing exposed soil, it is recommended that covering exposed areas, through the installation or implementation of erosion control blankets, polyethylene sheets etc., be included as a mitigation for reducing the erosion potential. As mentioned in previous comments, the City should be provided with a detailed Erosion and Sediment Control plan for all stages of the project.	Mitigation measures have been refined/re-organized to present a clearer, more consistent approach across all disciplines. Detailed management plans, such as an ESCP, are required in the CEMP and will be developed as the Project advances.	N	Mitigation measures throughout the EEE have been updated.	No changes required.
223	3.23	Hemmera EEE Volume 2 Section 11 Surface Water, Groundwater, and Drainage	ISL	11.4.3.1, Drainage and Surface Water Quality Mitigation Measures, Site management	A detailed dewatering and treatment plan should for construction be provided for the City's review.	Please refer to response to comment # 67. As design progresses, dewatering requirements, if any, will be developed.	N	No changes required	No changes required.
224	3.24	Hemmera EEE Volume 2 Section 11 Surface Water, Groundwater, and Drainage	ISL	11.4.3.3, Drainage and Surface Water Quality Mitigation Measures, Summary of Effects to Be Carried Forward	Table 11.11, notes that there will be no residual effects as a result of temporary or permanent changes in the drainage system, however it is our understanding that there are residual effects as compaction and introduction of impermeable surfaces will permanently affect the surface and subsurface drainage during operation. At this time there not enough information was provided to determine with a high level of confidence that these are not residual effects.	Residual effects are those which cannot be removed even after using the mitigation measures. The design of the proposed ponds will adequately mitigate the additional peak flows and thus no residual effect to the water level is expected after the addition of stormwater ponds.	N	Clarification provided in response to comment, no changes to the EEE required.	No changes required.

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225	3.25	Hemmera EEE Volume 2 Section 11 Surface Water, Groundwater, and Drainage	ISL	11.4.3.3, Drainage and Surface Water Quality Mitigation Measures, Summary of Effects to Be Carried Forward	This section notes that the proposed stormwater management ponds as a mitigation measure would reduce the increased water levels from the post-development condition to those of pre-development conditions and that water levels can be effectively managed. However, similar to comments stemming from the review of the two SWMPs, no calculations or analysis has been shown by the designer outlining the attenuation of these ponds except for a comparison between pre and post development unit area release rates. The designer should provide further information on the development of these unit area release rates, stormwater management ponds, and their respective onsite storage capacities	Please refer to response to comments on the Stormwater Management Report, specifically comment #30.	N	No changes required.	No changes required.
226	3.26	Hemmera EEE Volume 2 Section 11 Surface Water, Groundwater, and Drainage	ISL	11.5, Monitoring	Water level monitoring and measurements should be coordinated with the City to occur at times where water levels are expected to be at their highest levels so they can be compared to historical and modelled information.	Please see response to comment #217	N	No changes required.	No changes required.
227	3.27	Hemmera EEE Volume 2 Section 11 Surface Water, Groundwater, and Drainage	ISL	11.6, Conclusion	The level of confidence, that potential effects of the Project on drainage are expected to be effectively managed and mitigated, is not high. Impacts are evident and there is little modelling or quantitative information provided that demonstrates these effects will be managed or mitigated appropriately.	Several stormwater ponds within the new development are included to collect, store and damp the excess peak flow from the proposed impervious surfaces. The flow hydrographs from the LPV site are incorporated into the Katzie Slough drainage model. The addition of the site post development hydrographs (after the use of storage attenuation ponds) showed no significant impacts to the Katzie Slough water levels. The reviewer is encouraged to review the stormwater management reports to understand how the proposed ponds will reduce the post development peak flow rates to those of the pre-development rates for a 10-year design storm, in line with City of Pitt Meadows, Subdivision and Development Servicing Bylaw, Schedule C: Design Criteria, Part E: Storm Drainage System Please also see response to comment #225	N	Clarification provided in response to comment, no changes to the EEE required.	No changes required.
228	3.28	Hemmera EEE Volume 2 Section 11 Surface Water, Groundwater, and Drainage	ISL	11.0 Surface Water, Groundwater, and Drainage, 11.1 Overview	Reference to large stormwater ponds. These large open water bodies can act as heat sinks. If this is discharged to the slough it could worsen already marginal conditions in spring, early summer and fall.	All ponds proposed for the Project are designed as dry ponds, whereby stormwater is only retained for short periods of time to provide attenuation of the peak flows and then released. Based on this it is not expected that water would be retained for periods of time long enough for heating to occur.	N	As it is not expected that water would be retained long enough for heating of the water to occur, no changes to the EEE are required.	No changes required.
229	3.29	Hemmera EEE Volume 2 Section 11 Surface Water, Groundwater, and Drainage	ISL	11.2.1 Selection as a Valued Component	Fisheries Act prohibition against deposition of deleterious substances should also be cross referenced as should BC Water Quality Guidelines	Additional text has been added to section 11.2.1. The applied leglislation, including the Fisheries Act, polices and guidelines applied to the Project are detailed in Section 11.2.4.	Y	The following text has been added to Section 11.2.1: "*Project activities could release deleterious substances to surface water, affecting water quality which is managed by federal and provincial regulations/guidelines.* " before last sentence.	Section 11.2.1
230	3.3	Hemmera EEE Volume 4 Section 25 Summary of Residual Effects and Mitigation	ISL	Effects Table, Surface Water, Groundwater and Drainage	The proposed mitigation for temporary or permanent changes to groundwater quantity or quality are insufficient, see notes for Section 11.4.3.2. Unclear what "Review Project design" is referring to and how specifically that would be considered a mitigation measure without further description or context.	Mitigation measures have been refined/re-organized to present a clearer, more consistent approach across all disciplines. Table 25.1 has been updated to reflect the revised mitigation measures.	Y	Table 25.1 has been updated based on refined/re-organised mitigation measures.	Vol 4. Section 25.0, Table 25.1
231	3.31	Hemmera EEE Volume 4 Section 25 Summary of Residual Effects and Mitigation	ISL	26.2 Construction Environmental Management Plan	Groundwater levels should also be monitored at purpose-specific groundwater monitoring wells. Also no mention of how groundwater quality within the LEA will be assessed - will offsite monitoring wells be used? If so a more robust groundwater monitoring plan should be completed such that groundwater level impacts can also be monitored and assessed.	Please refer to response to comment #214. An additional bullet point has been added to Section 26.2 to include the monitoring of groundwater levels.	Y	Section 11.5 and 26.2 of the EEE has been updated to include the monitoring of groundwater levels.	Section 11.5, 1st set of bullet points: add a bullet point at the end to read: *Monitor groundwater levels in the Project Area* Section 26.2, last set of bullet points: after 4th bullet point, add another bullet point to read: *Groundwater levels within the Project Area.*
232	3.32	Hemmera EEE Volume 4 Section 25 Summary of Residual Effects and Mitigation	ISL	26.3 Post Construction and Operations Management and Monitoring Requirements	Groundwater levels and quality should be assessed continuously throughout operation of the project as part of an annual groundwater monitoring program.	A requirement for groundwater monitoring for operations has been added to the EEE post-construction monitoring requirements.	Y	Additional bullet point has been added to Section 26.3 that stipulates the inclusion of groundwater monitoring.	Section 26.3, after 1st bullet point, add a bullet point to read: *Groundwater levels and quality*
233	3.33	Hemmera EEE Volume 4 Section 25 Summary of Residual Effects and Mitigation	ISL	Effects Table, Surface Water, Groundwater and Drainage	The proposed mitigations for temporary or permanent change in the drainage system are insufficient, see notes for Section 11.4.2.1. Further modelling and assessment may be required.	Please refer to response to comment #221 Modeling completed to date has confirmed that there is no impact to the water level from the change to impervious surfaces at the Project site. The mitigation measures proposed are therefore considered sufficient in mitigating the potential effects of the Project. In addition, mitigation measures are being refined/re-organised to present a clearer, more consistent approach across all disciplines and will be updated throughout the EEE.	N	Clarification provided in response to comment, no changes to the EEE required.	No changes to the EEE required.
234	3.34	Hemmera EEE Volume 3 Section 15 Agriculture Use & Soil	ISL	15.3.2.2 Drainage and Irrigation	Reference to Katzie Slough providing fish habitat in the past tense. Katzie Slough still provides fish habitat but it is certainly much reduced from its former productive capacity. The report documents fish use and potential use.	Acknowledged. Text has been amended to "Historically, Katzie Slough was a tidally influenced side channel that was used as a travel system for members of the Katzie First Nation and provided *functioning* fish habitat."	Y	Text in Section 15.3.2.2 has been revised to read: Historically, Katzie Slough was a tidally influenced side channel that was used as a travel system for members of the Katzie First Nation and provided *functioning* fish habitat.	Section 15.3.2.2, third paragraph and text box

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235	3.35	Hemmera EEE Volume 3 Section 15 Agriculture Use & Soil	ISL	15.3.2.2 Drainage and Irrigation	Metals pollution identified. This is interesting from a City ISWMP perspective/sourcing. Have not seen the Phase I and Phase II to understand this risk.	A reference to water quality results in Section 11 has been added.	Y	Reference to "Hemmera 2021" has been revised to: "*See Section 11.3.2.2*"	Section 15.3.2.2 , last sentence of third last paragraph
236	3.36	Hemmera EEE Volume 3 Section 15 Agriculture Use & Soil	ISL	15.4.21. Agricultural Use - Offsite effects on agricultural production	Artificial light and risk to nocturnal pollinators. This risk did not find its way into the environmental section of the report. Ultimately mitigation is proposed, but how would it be known if the mitigation was effective without some kind of baseline assessment of current species and conditions.	Although a baseline assessment of nocturnal or daytime pollinators was not completed, the mitigations to reduce light, noise and dust from the Project, which are intended to achieve levels appropriate for human health, are also applicable to wildlife. Contrasting noise and light to human health is considered sufficient at this time, which results in mitigation that include a noise wall, light shrouds and dimming capability. A high-level review of literature shows that bees are affected by noise pollution over 106 dB. The Project activities and resulting noise mitigation are based on Health Canada limits for human health of 75 dBA. The effect of light is also contrasted to human health based on international standards. Additional mitigation for re-vegetation (new M13-2) has been added to Section 15.4.3 and includes planting multi-story vegetation including flowering plants to support pollinators. The Site Restoration Plan, which will include re-vegetation efforts, will be developed by an AQP and the selection of species will be in consultation with the adjacent agricultural producers to ensure there is not potential adverse effect such as shading. Please see response to comment #194	Y	Add mitigation: M13-2 to Section 15.4.3. Revise M13-2 to include: "*Re-stablishing vegetation will be a part of the Site Restoration Plan that will be developed by an AQP and will include shrubs and forbs, specifically plant species utilized by pollinators* . "	Section 15 Ag, Section 15.4.3
237	3.37	Hemmera EEE Volume 3 Section 15 Agriculture Use & Soil	ISL	15.4.3 Mitigation measures	Idea of mitigating intermixed with offsetting. I do not believe these concepts align exactly. Offsetting would be those things that could not be effectively mitigated	Noted. Please refer to response to comment #90	N	Response (comment #90) explains definition of offsetting and how it is considered mitigation.	No changes required.
238	3.38	Hemmera EEE Volume 3 Section 15 Agriculture Use & Soil	ISL	15.4.3 Mitigation measures	Light management. Would shading and possible dimming mitigate this sufficiently. What evidence is there for the effectiveness of this treatment for nocturnal pollinating insects. How would effectiveness be derived if no baseline. What happens if it is not effective?	Although a baseline assessment of nocturnal or daytime pollinators was not completed, the mitigations to reduce light from the Project are to achieve levels appropriate for human health based on international standards. Contrasting light to human health is considered sufficient at this time, as are mitigations that include light shrouds and dimming capability (Mitigation M10-5). Additional mitigations proposed since the EEE draft are to improve the vegetative barrier between the Project area and adjacent agricultural land. This will include planting multi-story vegetation including flowering plants to support pollinators. The chosen vegetation height will have to be a balance with the agricultural producers, who do not want prolonged shade over crops.	N	See comment #236	No changes required.
239	3.39	Hemmera EEE Volume 3 Section 15 Agriculture Use & Soil	ISL	15.4.3 Mitigation measures	Reference to possible mitigation. There is really no commitment to implementing any of the identified mitigation measures or offsetting (which are not the same thing). This is concerning in the context of an Environmental Effects Evaluation (Assessment?). Less so if the report is intended merely as a Preliminary Environmental Assessment.	These mitigations have been informed by offsetting and compensation that has been required as a condition of ALC permits granted to provincial government agencies for transportation infrastructure that is considered to serve the public interest, as well as by engagement with the local agricultural community. CP has assumed that these mitigations will be adopted. However, CP acknowledges that should engagement with the agricultural community determine that the Agriculture Benefit Fund is not feasible, or that that all of the soil cannot be relocated and reused, the significance determination will be affected and additional mitigation measures will be required to retain a determination of not significant. With respect to mitigation vs offsetting, please refer to response to comment #90.	N	Clarification provided in response to comment, no changes to the EEE required.	No changes required.
240	3.4	Hemmera EEE Volume 3 Section 15 Agriculture Use & Soil	ISL	Mitigation 8-15 and 8-15 Light Management	Monitoring. It is proposed but there are no details of how this would be done or the baseline condition they would be monitoring to. No nocturnal pollinating insect data is presented.	Specific Environmental Protection Plans and Monitoring Plans, such as the Post Construction Monitoring Plan, will be developed as the Project advances. CP has included additional mitigation/monitoring for noise and light: *Noise and light monitoring near potentially impacted residences will be included as part of the Post Construction Monitoring Plan.* The primary adjacent land use is agriculture, which relies mostly on rented bee hives to pollinate. Insects were not part of agriculture or wildlife baseline or valued components. From a biodiversity perspective, to add flowering vegetation to support pollinators will be an improvement to the local area and habitat availability (M13-3 [New M13-2] includes "*Re-stablishing vegetation will be a part of the Site Restoration Plan that will be developed by an AQP and will include shrubs and forbs, specifically plant species utilized by pollinators* . "). A valid comparison will be the current versus future plant diversity along Katzie slough. Plant diversity, number and abundance of flowering species can be an indicator for pollinator habitat potential.	Y	Noise and light monitoring near potentially impacted residences will be included as part of the Post Construction Monitoring Plan.	Section 10.4.3, 10.6
241	3.41	Hemmera EEE Volume 3 Section 15 Agriculture Use & Soil	ISL	Mitigation 11-1 - Surface Water Management	Ponds only appear to function as detention facilities. The report should reference to water quality management as well (oil water separators, treatment swales and the like). These details appear to have been captured in the HATCH report but not entirely captured here.	Mitigation measures are being refined/re-organized to present a clearer, more consistent approach across all disciplines. This mitigation (M11-1) has been updated with more specific design criteria. A cross reference to Section 11.4.3, which contains mitigation specifically to address water quality, has been added.	Y	Cross reference to Section 11.4.3 for water quality has been added. Mitigation measures have been updated throughout the EEE.	Section 15.4.3
242	3.42	Hemmera EEE Volume 3 Section 15 Agriculture Use & Soil	ISL	Mitigation M15-2 Site Monitoring	Reference to 'Develop a site monitoring plan'. Since there is offsetting for fish habitat, that implies DFO Authorization would be required. Offsetting requires a monitoring program to be submitted. Reports of this kind would usually provide at least a preliminary layout of how Effectiveness Monitoring would be approached (typical parameters, time-scale, etc.).	Habitat offsetting options are being developed in consultation with Fisheries and Oceans Canada, potentially affected stakeholders and Indigenous communities. Parameters of the Offsetting Plan and parameters of any regulatory requirements will be determined through such consultation as the Project advances.	N	No changes required.	No changes required.

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243	3.43	Hemmera EEE Volume 3 Section 15 Agriculture Use & Soil	ISL	Mitigation 15-4 Soil Salvage and Reuse	As above, the mitigation here is quite conditional, and far less than a commitment to actually to do it.	Please refer to response to comment #239.	N	No changes required.	No changes required.
244	3.44	Hemmera EEE Volume 3 Section 15 Agriculture Use & Soil	ISL	Mitigation 15-5 Agricultural Benefits Fund	Of all the mitigation proposed (and really this is offsetting as stated not mitigation), the idea of a Benefits Fund has the least commitment to it. The report is unclear whether the accounting used in valuation is appropriate for this kind of offset. Concern regarding the deduction for other offsets? Would this be all offsets or just the agricultural ones?	CP is engaged with the agricultural community to determine the feasibility and implementation of the Agriculture Benefit Fund. However, CP acknowledges that should engagement with the agricultural community determine that the Agriculture Benefit Fund is not feasible, the significance determination will be affected and additional mitigation measures will be required to retain a determination of not significant. The deduction of other offsets is associated with agricultural offsets only, as detailed in Mitigation Measure M15-5. With respect to mitigation vs offsetting, please refer to response to comment #90.	N	Clarification provided in response to comment, no changes to the EEE required.	No changes required.
245	3.45	Hemmera EEE Volume 3 Section 15 Agriculture Use & Soil	ISL	15.4.3.1 Summary of Effects to be Carried forward (Table 15.8)	Reference to a CEMP, as the document that informs Environmental Management. This requires more details and explanation in the report. Our understanding is that there is usually a Project EMP which is formulated for regulatory submission then a version of the EMP is derived as a supplementary specification to Tender. The CEMP is usually prepared by a QEP working for the Contractor who successfully bids the job. In that context, the CEMP is too late in the review, permitting process to be the sole document for 'Environmental Management'	Noted, CP thanks the City of Pitt Meadows for their comment. The CEMP will be provided with the CTA application with the requirement for further detailed management plans to be developed by the contractor and/or CP, as required.	N	Clarification provided in response to comment, no changes to the EEE required.	No changes required.
246	3.46	Hemmera EEE Volume 3 Section 15 Agriculture Use & Soil	ISL	15.4.3.1 Summary of Effects to be Carried forward (Table 15.8)	Table references water volume but not water quality. The mitigation of contaminants from operations is not addressed effectively. Of note the HATCH report does provide details on WQ treatment in its designs. This report should be brought into alignment with the design work HATCH is undertaking.	Section 15.4.2 notes that "Potential effects on *water quality* and soil quality, which are not specific to agriculture and also have the potential to affect other VCs, are considered in detail in Sections 11.0." Therefore, water quality is not specifically addressed in this section. However, as 'Changes in irrigation water quality from onsite soil erosion or stormwater releases' is identified in Table 15.1 as a potential effect to agricultural use, cross reference to specific mitigation measures in Section 11 Surface water, Groundwater and Drainage have been added to Section 15.4.3.	Y	Section 15.4.3 has been updated with additional mitigation measures to address potential effects to water quality.	Section 15.4.3
247	3.47	Hemmera EEE Volume 3 Section 15 Agriculture Use & Soil	ISL	15.4.4.1 Agricultural use	The phrase "may include funding", is well below a commitment to offset. The report is consistently vague in its proposition to offset and commitment to offset.	Please refer to response to comment #244.	N	No changes required.	No changes required.
248	3.48	Hemmera EEE Volume 3 Section 15 Agriculture Use & Soil	ISL	15.5.1.2 Cumulative Effects Categorization	A cumulative effect is identified. It is deemed of moderate significance if the effect is mitigated through the measures identified. However the mitigation treatments including the funding are all referenced by "ifs" and could, and without a commitment then the question is "Will the mitigation be implemented", or "when would the City, public FN, Regulators know about this commitment".	Please refer to response to comment #244.	N	No changes required.	No changes required.
249	3.49	Hemmera EEE Volume 3 Section 15 Agriculture Use & Soil	ISL	15-7 Conclusions	Reference to water quality, but this is not discussed in any detail in this part of the Environmental Effects Evaluation	Please refer to response to comment #246	N	No changes required.	No changes required.

APPENDIX E

Response to Agricultural Use and Soil Comments (McTavish)

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1	2.1	Hemmera Agriculture and Soils EEE	McTavish	Overview (Section 15.1)	This Section states that there are no significant Project-related residual or cumulative effects on agricultural use and soils following application of mitigation. However, at least two residual effect items are identified in Section 15.4.4 and two cumulative effects are identified in Section 15.5 (i.e., loss of Class 1 to 3 agricultural land and change in soil quantity available for agricultural production).	Residual or cumulative effects may be present but determined to be not significant. As per Section 15.4.4, the significance of residual effects is considered not significant if the magnitude is low or moderate, the geographic extent of the adverse effect is within the LEA, and the effect is fully or partially reversible.	N	Redsidual/cumulative effects can be present and be considered not significant, no changes to the EEE are required.	No changes required
2	2.2	Hemmera Agriculture and Soils EEE	McTavish	Introduction (Section 15.2)	The use of "potential effects" throughout document should be revised. Although there are some evaluated effects with a potential to occur (e.g., effects to water quality), we know the Project will affect agricultural uses and soils (i.e., footprint effects are not potential). This Section should include definitions of "Class" of land. This definition is in Section 15.3; however, it should be introduced before "Class" of land is used. CP should clarify what the improved vs. unimproved Class means In Table 15.1, the indicators selected do not include agricultural- specific socio-economic indicators except for traffic, light and noise. Other Socio-economic concerns that should be considered include agritourism, agricultural land value, and health of farm workers.	Thank you for your comment. "Potential effect" is standard terminology used in undertaking impact assessment and is applied throughout the report. Effects are characterized in Section 15.4.4, including a description of likelihood. The definition of land class has been moved and text added to clarify improved vs. unimproved land class. Socio-economic concerns were considered as part of mitigation planning, and can be correlated to the loss of Class 1 to 3 improved agricultural land and change in agricultural products or production. To mitigate potential effects to agricultural use and associated socio-econimic effects, compensation and offsetting are being considered, and have been informed by engagement with the local agricutlural community. Specifcially, a concept being explored is to offset the permanent loss of productive agricultural land through the provision of an agricultural benefit fund (see Section 15.4.3). Human Health, including to farm workers, is addressed in Section 19 of the EEE.	Y	A definition of Land Capability Classification, including 'improved' and 'unimproved' has been added to Section 15.2.2, preceding Table 15.1.	Section 15.2.2
3	2.3	Hemmera Agriculture and Soils EEE	McTavish	Existing Conditions (Section 15.3)	There is no discussion around whether land capability Class is affected by the filling activities noted on the South Lot. Water quality in sloughs is noted as low; however, the referenced document comments on water quality from an ecological perspective. Clarify whether the water quality is sufficient for agricultural/ irrigation purposes (e.g., low dissolved oxygen or flows do not generally affect the suitability for irrigation). In Table 15.5, this report should acknowledge that ornamental nursery stock is shipped all year, not just April to August. Peak shipping is typically from March to June. Construction and interference with road infrastructure could have a short-term negative impact on the Large Nursery (Specimen Trees) that is south of the Logistics Park. This should be better described or expanded in future work. Shipping of nursery products is very time sensitive and delays in shipping due to construction and road closures can have significant negative impacts on nursery businesses.	While not directly referencing the filling activities noted on the south lot, the last paragraph of Section 15.3.2.4 notes that based on the field surveys the applicable improved ratings of the land within the Project Area is a mix of class 2 and 3. Section 11.3.2.2, Table 11.6 provides a review of water quality as compared to CCME water quality guidelines for Agricultural Use (Irrigation). Concentration of TDS, total iron and total manganese exceeded agricultural guidelines during monitoring events in 2021/2022. Ongoing monthly monitoring is occurring to determine whether there is a seasonality to the exceedances. Text in Section 15.3.2.2 has been revised ro reflect this. Text has been revised to reflect year round transport for nursery. The mitigations are based on communication and timing within days, not seasons, so this change will not change the effects assessment.	Y	Text in Section 15.3.2.2, immediatley following Figure 15.4 has been revised to read: Algal blooms, non-native plant and animal species, e-coli bacteria, metal pollutants, and erosion are prevalent and reduce the functionality of the slough for irrigation and water supply. The water quality in the sloughs exceeds agricultural water quality criteria for total dissolved solids, total iron, total manganese, as discussed in Section 11.3.2.2. Table 15.5 has been revised to show that timing is year-round with peak March to June. In addition, a sentence has been added to Section 15.3.2.5 which states: Nursery stock is shipped all year, with higher volumes shiped in the spring, roughly March to June.	Section 15.3.2.2, Table 15.5 and Section 15.3.2.5
4	2.4	Hemmera Agriculture and Soils EEE	McTavish	Project Effects Evaluation (Section 15.4)	Several Project activities and interactions listed in Table 15.6 and discussed in this Section require reevaluation and discussion.	Thank you for your comment. It is our opinion that the potential Project interactions presented in Table 15.6 are adequately addressed based on current information and understanding. Revisions will be made, as necessary, if updates to the EEE affect the potential interactions.	N	Project interactions are adequately addressed.	No changes required
5	2.4.1	Hemmera Agriculture and Soils EEE	McTavish	Vegetation, soil stripping, excavation, granular fill placement and grading	The ALC and Metro Vancouver have documented that the majority of filling project have negatively impacted surrounding property drainage . Not considered in the evaluation are potential impacts to drainage and soil capability due to raising groundwater tables in surrounding Properties of the LEA by fill placement/compaction. Reference to the geotechnical sections should be provided to detail the level of impact. Flood mitigation is also a huge benefit of agricultural land, and the Project will reduce the LEA and REA's buffering capacity for flooding events without proper mitigation.	Groundwater levels are not expected to rise in land surrounding the development; these lands already have drainage ditches to prevent water-logging. However, water levels may rise during preloading and in the permanent grade fills within the developed site. This groundwater, which includes precipitation and that expessed from shallow soils due to preloading will predominantly report to the drainage system to be installed around the facility; for example, see Figure 3-10 and Appendix B in Hatch's Stormwater Managment Report (October 2021). The general surface hardening as a result of the project will potentially reduce the buffering capacity of the agricultural land on flooding; however, this buffering capacity is limited because of the high water table and low permeability soils. Several stormwater managment ponds will be installed to manage peak flows.	N	Response explains why groundwater levels are not expected to rise and why buffering capacity will not be reduced.	No changes required
6	2.4.2	Hemmera Agriculture and Soils EEE	McTavish	Construction of agricultural products transload infrastructure	Looking at published media information this means "Agricultural hub where Canadian agricultural products will be received by rail and transloaded to shipping containers for distribution in custom allotments around the world". This should be better defined in the document, and address the following points: • How will construction improve transportation of local agricultural goods and services as noted in table 15.6? • Is there a demand for this project at the local or regional level or is this demand only national and international? • Will other products (i.e., other than peas, beans and lentils) be stored at the facility? If this is only for products from outside the Lower Mainland, this should be explained better in the document, along with a clear discussion of whether there will be any positive impact within the REA or LEA.	Table 15.6 has been amended to further explain the rationale for improving transportation of local agricultural goods and services. This has been moved to the 'operation' activity, as it was erroneously added to the 'construction' activity. While the majority of agricultural products received and distributed by the Project will come from outside the Lower Mainland, local products will also be moved. A key goal of the Project is to give agricultural producers an alternative to the bulk export model that currently supports the vast majority of agricultural exports from BC by providing shipping options for containers with smaller volumes, which would benefit local producers. Only agricultural products will be stored at the Agricultural Products Transload Subsite. Other subsites in the Project area will handle automobiles and liquids such as ethanol and transportation fuels for regional distribution.	Y	Table 15.6 has been updated. Under 'Construction of agricultural products transload infrastructure' row: While vibration from the installation of piles can cause liquefication and reduce soil stability, the effect would only be within the immediate area of the piling, isolating it to several metres of soil within the Project Area. This is now identified as not having an interaction, as per construction of the auto and liquids infrastructure. Under 'Agricultural products transload operations' row: Agricultural transload operations may result in the accidental release of pests and adverse vectors. The potential effect is a change in agricultural products or production. This activity may provide improved transportation of agricultural goods and services through increased distribution capacity and providing shipping options for containers with smaller volumes, resulting in a positive effect in the REA	Section 15.4.1, Table 15.6
7	2.4.3	Hemmera Agriculture and Soils EEE	McTavish	Agricultural Products Transload Operations	The document states "Auto transload operations may result in the accidental release of pests and adverse vectors. The potential effect is a change in agricultural products or production". This should be explained in detail as this could have serious implications to local producers. How would pests be released, what types of crops would be affected, and what would the impact be at the local level (REA or LEA)?	This is a typo, the text should read 'Agricultural' not 'Auto'. This has been amended in the EEE. Section 15 has been updated to provide additional discussion of the potential effects and management of invasive pests.	Y	Typo in Table 15.6 has been amended. Section 15.4.2.1, page 15-31, Under heading Change in agricultural products or production, create a new paragraph below the livestock one: While the movement of agricultural products has the potential to transport and spread pests to agricultural areas adjacent to the Project Area potentially affecting agricultural crops, the products transloaded at CPLPV are domestic, originating from Canadian farms, and the risk of introducing plant disease or insect pests that are not already present in BC is considered negligible. In addition, the movement of agricultural products within Canada, as well as import and export of agricultural products within international markets is regulated, specifically to limit the risk of facilitating the spreading pest species domestically and internationally. As such, taking into account adherence to such regulatory requirements, focused on limiting the movement of disease and insects pests, the potential for introducing and spreading pest species to adjacent agricultural areas is considered negligible.	Table 15.6, Section 15.4.2.1
8	2.4.4	Hemmera Agriculture and Soils EEE	McTavish	Revegetation	It is unclear what the revegetation plan is, but for revegetation efforts to result in an improvement, efforts would have to be substantial (e.g., including a mix of shrubs and trees rather than just grass) and weed management over the life of the facility would have to be implemented. Otherwise, it is likely to be neutral or negative rather than a benefit.	CP has committed to conducting site restoration activities including revegetation. The Site Restoration Plan, will be developed by an AQP as the Project advances and will reflect detailed design. It is acknowledged that there will be limited space for revegetation but site restoration design will consider engineering requirements of the Project while providing as much ecological benefit as possible (e.g., replacing invasive species such as Himalayan blackberry with native vegetation).	N	Revegetation, to be included in Site Restoration Plan, will be developed at a later stage when Project is sufficiently advanced.	No changes required
9	2.4.5	Hemmera Agriculture and Soils EEE	McTavish	Change in Agricultural Products or Production	It is stated that the loss of forage and berry production is considered a minor effect and therefore it is not discussed as a residual effect. Is the residual effect in Table 15.8 a "no" because the plan is to use the Agricultural Benefit Fund to increase production elsewhere? If so, this argument is only valid if the fund is confirmed, adequately funded, and its use fully offsets lost productivity. Justification on why they did not include the loss of production as a residual effect should be stronger. Alternatively, this potential effect should be added to the below sections (i.e., residual/cumulative effects sections). It is a permanent loss and there are cumulative impacts regarding changes to production on neighboring properties (e.g., land values, buffering against flooding). Arguably, the effect is just as substantial or greater than the loss of topsoil.	CP has assumed that the proposed measures (e.g., Agriculture Benefit Fund, used to offset lost productivity) will be implemented and able to mitigate the potential effect. Therefore no residual effects are currently considered. However, CP acknowledges that should engagement with the agricultural community determine that the Agriculture Benefit Fund is not feasible additional measures will be required. Alternative measures are being developed in consultation with the agricultural community. If the addtional measures do not adequately mitigate the potential effect residual effects will be considered at that time.	N	Clarification provided in response to comment, no changes to the EEE required.	No changes required

Comment Response Tracking Sheet - City of Pitt Meadows Batch 2, Appendix E

Comment #	Consultant IR #	Source	Reviewer	References	Reviewer Comments	Response to Comment	Comment Incorporated? (Y/N)	Changes to Document, or Rational why no changes occurred	Location of changes to document (Chapter, Section, Page)
10	2.4.6	Hemmera Agriculture and Soils EEE	McTavish	Mitigation Measures (Section 15.4.3)	Mitigation was modeled after a MOTI application to the ALC. Given this statement, CP should clearly show how the Project serves public interest and how development of ALR lands could not be avoided. Otherwise, the impacts and mitigation should be evaluated differently for this Project. The document describes the permanent loss of prime agricultural land and the plan to salvage topsoil for reuse in Pitt Meadows. This is the only alternative to the permanent loss of productive soil when an area is taken out of production. It will be important to find a site for this soil to go where it will improve agricultural productivity and potential relatively equal to the extent that will be lost. There is no agricultural gain to haul and spread the soil on a site/farm that already Class 1 – 3. Surface Water Management mitigation is critical and the history of developments affecting drainage and hydrology of agricultural land is poor. There are typically issues with storing storm water on site and attempting to release it at a rate that does not negatively impact drainage infrastructure. The site will be covered with impermeable hard surface versus the present permeable surface with soil water storage capacity. This will result in a significant increase in peak flows in a much shorter time period then takes place now. CP will need to demonstrate that the Project is able to fully manage the amount of stormwater runoff that will be generated from a site this size in a matter that does not negatively impact surrounding agricultural lands and the drainage system. CP should discuss agricultural impacts related to weed/disease spread. Especially with the movement of soils and plants (e.g., blueberry scorch or blueberry shock), this is a potential negative impact introduced by the proposed mitigation. There should also be mitigation measures included to address the accidental release of pests and vectors from facility operations (mentioned in Table 15.6). Mitigation M15-4 (Soil Salvage and Re-use) partially offsets the loss of forage and berry production by salvaging blueberry plants. More details on how soils and plants will be advertised/made available to farmers should be included. In addition, CP should consider committing to the responsibilities of consulting with the ALC and City on pairing clean fill sources to fill applications, adequately notifying nearby farmers of the salvaged blueberries, accepting the responsibility for the cost of relocation, and checking for disease prior to moving to other properties. Mitigation M15-5 (Agricultural Benefit Fund) states that the fund's magnitude will consider the present value of the land, but it should also consider the productivity losses for the long-term future as well as other negative impacts to surrounding producers and larger impacts to farming in the REA (e.g., land affordability, increased wildlife crop damage due to displacement). Summary Table 15.8 should include the residual effect of loss of production; this production loss is permanent and only partially mitigated by salvaging plants. Unless (as described above), the fund results in increased production on other properties.	The approach isn't specific to MOTI linear disturbance, CP's approach to mitigation is informed by offsetting and compensation that has been required as a condition of ALC permits granted to provincial government agencies (per text in section 15.4.3). At the time of soil salvage and re-use, a soil salvage plan will be developed. There will be a stipulation to add soil to land that can be improved, and likely Class 3 or worse (higher), unimproved. CP would contract the facilitation of ALC application fees and approval process. Several stormwater ponds within the new development are included to collect, store and damp the excess peak flow from the proposed impervious surfaces. The flow hydrographs from the LPV site are incorporated into the Katzie Slough drainage model. The addition of the site post development hydrographs (after the use of storage attenuation ponds) showed no significant impacts to the Katzie Slough water levels. The reviewer is encouraged to review the stormwater management reports to understand how the proposed ponds will reduce the post development peak flow rates to those of the pre-development rates for a 10-year design storm, in line with City of Pitt Meadows, Subdivision and Development Servicing Bylaw, Schedule C: Design Criteria, Part E: Storm Drainage System. CP follows their own Integrated Vegetation Management Plan (CP Rail 2015). One of the commitments in the plan is the control of noxious weeds and invasive plants as mandated under the BC Weed Control Act, and other applicable provincial legislation. CP commits to working cooperatively with provincial invasive plant councils, regional weed control committees as well as federal agencies to support weed management research on CP rights-of-way. Text has been added to Table 15.6 (Pre-construction Activity, Vegetation, soil stripping, excavation, granular fill placement, and grading) to include spread of weeds or disease as a potential effect. Mitigation M15-4 has been revised to include "Before salvage, a crop advisory will review for health and appropriate of transplanting." Soil and plant availability can be advertised through the local Agricultural Advisory Committee and word of mouth. The estimated value of the land, which is informing the funding, is based on current and long-term agricultural costs and production from the properties. CP acknowledge that should engagement with the agricultural community determine that the Agriculture Benefit Fund is not feasible, the significance determination will be affected and additional mitigation measures will be required to retain a determination of not significant. Because there is uncertainty in the confidence of this effects evaluation (Table 15.12) has been changed to Low.	Y	Mitigation M15-1 has been revised to read: Salvaging and beneficially using soil from agricultural land in the Project Area helps mitigate its loss and can improve agricultural land capability in the REA. Where soil stripping is required to meet project design requirements, viable topsoil will be made available for re-use within the currently farmed areas of the Project Area and REA (Figure 15.5). The relocation of topsoil will be the responsibility of the receiving producer/farmer and work to support topsoil salvage and re-use must align with the overall construction schedule and comply with CP health and safety and insurance requirements. Soil to be relocated will be assessed prior to relocation to ensure it meets appropriate standards at the receiving location. Prior to construction, a Soil Salvage and Management Plan will be developed by a Professional Agrologist, which will include methods for stripping, stockpile, and the quality and risks associated with soil re-use specific to weed and disease spread. Where interest in soil beneficial re-use is identified by a local producer, a Notice of Intent under the Agricultural Land Commission Act will be initiated by the receiver. The application will identify methods and receiving site characteristics with detail to support regulatory approval for fill placement. Specifically, placement on land in the ALR will comply with the requirements outlined in ALC Policy P-10 and Information Bulletin 07- Soil and Fill Uses in the ALR (ALC 2021b). Prior to site development, blueberry plants will be offered to local producers for salvage. Before salvage, a crop advisory will review for health and risk of disease spread, and appropriate of transplanting timing. Soil and plant availability can be advertised through the local Agricultural Advisory Committee.	Section 15.4.3, new Mitigation 15-1 (old 15-4)
11	2.4.7	Hemmera Agriculture and Soils EEE	McTavish	Residual Effects (Section 15.4.4)	If taking a conservative approach, based on the uncertainty around the demand for topsoil, the magnitude should remain high.	The effects characteristics and subsequent determination of significance has been made based on the assumption that these mitigaton measures will be adopted. Local producers have stated that they would be able to utilize the soil to improve their land, which would require appropriate ALC approval and will be pursued in the event of project approval. However, CP acknowledges that should engagement with the agricultural community determine that the Agriculture Benefit Fund is not feasible, or that soil cannot be relocated and reused, additional/alternative mitigation measures will be required to retain a determination of not significant.	N	Response does not require changes.	No changes required
12	2.5	Hemmera Agriculture and Soils EEE	McTavish	Cumulative Effects Evaluation (Section 15.5)	This Section was reviewed, and we have no feedback of substance at this time. Considerations for effects to be added to this Section are included in the above comments.	Thank you for your comment.	N	Response does not require changes.	No changes required
13	2.6	Hemmera Agriculture and Soils EEE	McTavish	Monitoring (Section 15.6)	This Section was reviewed, and we have no feedback of substance at this time.	Thank you for your comment.	N	Response does not require changes.	No changes required
14	3	Hemmera Agriculture and Soils EEE	McTavish	Minor Edits and Comments within Document	Table 1. Minor edits and comments within the document that do not require a discussion. **Section** / **Comment/Edit** 15.2 — **Wording change**: "this evaluation considers the potential ~~environmental~~ agricultural effects from the Project" 15.4.3 — **Clarification**: The document states the Agricultural Benefit Fund contributions ***may*** be used to provide an agricultural benefit. If this is used as mitigation, CP should have committed to this action. Is this fund confirmed? 15.4.3.1 — **Error**: Section "0" is cited, this should be updated with the correction Section #. 15.4.4.1 — **Clarification:** G. Hazaparu personal communication is cited on what appears to be a calculation/fact. Is this citation incorrect?	Document will be reviewed and edited. With regards to the Agricultural Benefit Fund, CP are continuing to engage with the agricultural community. Please refer to response to comment # 11 for further details on application of this mitigation.	Y	Section 15.2 - 'environmental' has been revised to 'agricultural' Section 15.4.3.1 - Reference to Section 15.4.4 provided Section 15.4.4.1 - G. Hazaparu citation has been moved to earlier in the sentence to better reflect the referenced information.	Section 15.2 Section 15.4.3.1 Section 15.4.4.1

APPENDIX F

Response to Transportation Comments (McElhanney)

Comment Response Tracking Sheet - City of Pitt Meadows Batch 2, Appendix F

Comment #	Source	Reviewer	References	Reviewer Comments	Response to Comment	Comment Incorporated? (Y/N)	Changes to Document, or Rational why no changes occurred	Location of changes to document (Chapter, Section)
1	McElhanney	COPM	Executive Summary / Existing Transportation Conditions Table ES-1: The Existing Transportation Network	Should note if these are TransLink MRN roads and if they are designated truck routes.	Noted, text has been added identifying Lougheed Highway as a provincial truck route.	Y	The Executive Summary and Section 2.1.1 in the TIS has been updated to identify the Major Road Networks identified by Translink in the study area and the City Truck Routes.	Existing Transportation Conditions in the Executive Summary & Section 2.1.1
2	McElhanney	COPM	Executive Summary / Existing Transportation Conditions / Intersection Capacity Analysis	For MoTI intersections, LOS threshold is LOS D for highway movements. *Comment attached to highlighted text that reads:* For this analysis, critical intersections were identified when the overall volume to capacity (v/c) ratio exceeds 0.85 or has a Level of Service (LOS) of E or F.	LOS D is considered acceptable for urban highway movements. Hence, movements worse than LOS D (LOS E or F) were identified as critical movements. Source: https://www2.gov.bc.ca/assets/gov/driving-and-transportation/funding-engagement-permits/subdividing-land/planning_designing_access_developments_manual.pdf	Y	The Executive Summary in the TIS has been updated to identify source used to identify criteria for critical intersections.	Intersection Capacity Analysis in the Executive Summary
3	McElhanney	COPM	Executive Summary / Existing Transportation Conditions / Transit Services	Peak direction only	Noted. The text has been updated to acknowledge that the West Coast Express train service operates in the peak direction only.	Y	The Executive Summary in the TIS has been updated to identify that the West Coast Express train service operates in the peak direction only.	Transit Services in the Executive Summary
4	McElhanney	COPM	Executive Summary / Background Future Conditions / Road network upgrades	NLC and Kennedy-McTavish Connector will have impacts on the results of this TIS. Sensitivity analysis should be included. *Comment attached to highlighted text that reads:* Due to the uncertainty in the timelines, the future background conditions were analyzed without these improvements	CP is aware that the City has raised the McTavish Connector as a potenTISl issue related to the proposed CP Logistics Park: Vancouver. This was addressed in the Consideration Memo prepared following the first round of community consultation. CP has had preliminary conversations and looks forward to continuing to discuss a potenTISl alternative that is designed to protect the Katzie Slough, accommodate a more gradual turn, and create greater separation from the proposed Project by using property currently owned by CP. If the City has more details related to the McTavish Connector and/or North Lougheed Connector, CP would be willing to consider the impact of these potenTISl projects in the context of CP's proposed development. In addition, Section 16.5 of the EEE discusses the cumulative effects of the Project from a transportation perspective with respect to the Kennedy-McTavish Connector and NLC. Given the conceptual nature of the Kennedy-McTavish connector, a detailed assessment was not completed, however high level assessment is provided in Section 16 of the EEE, with acknowledgement that further assessment will be required should the proposed connector go ahead.	N	Clarification provided in response to comment, no changes to TIS are required.	No changes required
5	McElhanney	COPM	Executive Summary / Background Future Conditions / Road network upgrades	locations or extents?	The text has been updated to indicate Figure ES-5 displays project locations.	Y	The Executive Summary in the TIS has been rephrased to indicate Figure ES-5 displays project locations.	Road network upgrades in the Executive Summary
6	McElhanney	COPM	Executive Summary / Background Future Conditions / Future Developments	NLAP will add EB/WB trips to Hwy 7, so the TIS is likely under-representing trips. *Comment attached to highlighted text that reads* : As no proposed developments are publicly available at the time of writing this report, additional trips generated from the NLAP were not considered in the analysis of the future background conditions	CP has not been provided any specific information on the proposed developments in the NLAP, and to its best knowledge, additional information that would change the modelling is not publicly available. If the City has additional information that it is prepared to share, CP would be willing to consider it in the context of CP's proposed development. In addition, as the NLAP development is not related to CP, it would not have an impact on the estimated trip generation of the proposed CP development. This information would likely result in the share of CP's impact on local roads decreasing as an overall percentage of traffic, and would not substantively change the conclusions of the TIS. Further, Section 16.5 of the EEE discusses the cumulative effects of the Project from a transportation perspective with respect to the NLAP and other local projects.	N	Clarification provided in response to comment, no changes to TIS are required.	No changes required
7	McElhanney	COPM	Executive Summary / Background Future Conditions / Background Traffic Growth	What is the basis for this? Historical growth on Pitt River Bridge is only 0.4% between 2015 and 2019 and constrained by the Lougheed/ODTR signalized intersection.	Background traffic growth was based on future traffic projections provided in the City TMP. The City of Pitt Meadows TMP in 2014 (Page 27) states that "it is anticipated that Lougheed Highway traffic volumes in the westbound morning rush hour and afternoon eastbound rush hour volumes will increase by 30% by 2041" (translates to a 1.1% growth rate on Lougheed Highway annually). Population growth has also grown by 0.94 percent per year from 2011 to 2014. A rate of 1 percent growth rate was used in previously published reports for the Kennedy Overpass and the Harris Underpass Transportation Analysis Reports conducted by Stantec Consulting Ltd. in 2020 on the same intersections in the study area. There was not sufficient evidence to deviate from the growth rate used by the two reports that analyzed traffic for the same study intersections. Using a larger growth rate results in a more conservative analysis. It is our opinion that changing the background growth rate on Lougheed Highway to 0.5% would not significantly change the findings of the traffic analysis. If more current information to justify a lower growth rate on Lougheed Highway (such as historical growth rate) is available, CP requests that the COPM provide such information so that it can be considered for integration into the study. . Source: City of Pitt Meadows TMP: https://www.pittmeadows.ca/sites/default/files/docs/city-services/2014-02-25_pitt_meadows_transportation_master_plan_summary_report.pdf City of Pitt Meadows Population growth: https://www.pittmeadows.ca/sites/default/files/docs/housing_and_population_growth.pdf	N	Clarification provided in response to comment, no changes to TIS required.	No changes required
8	McElhanney	COPM	Executive Summary / Background Future Conditions / Transit Upgrades	Was this considered in the mode share analysis?	For conservative traffic impact analysis, it was assumed that: (1) all trip generating from the development (both inbound and outbound), will be vehicular trips, (2) one vehicular trip per employee, (3) both inbound and outbound trips (as a result of change in daily shifts) will occur within same hour. While we acknowledge that not all employees will travel within same hour, may car pool or use other mode of transportation to commute, these three assumptions were made to ensure conservative traffic impact analysis. Mode share was described in Section 7.2 of the report.	Y	Section 6.2.1 in the TIS has been updated to clarify and document assumptions. EEE: Text from updated Hatch TIS (Rev E) for Section 6.2.1 copied into EEE (Text prior to Section 16.10).	Section 6.2.1 EEE: Section 16.4.2.2
9	McElhanney	COPM	Executive Summary / CPLPV Impact Assessment / Impact Assessment on access intersections	which leg(s) is stop controlled? 3-way stop proposed *Comment attached to highlighted text that reads:* a three-legged stop-controlled intersection	See Figure 6-1 for location of the new three-legged intersection. The eastbound leg would be stop-controlled for this intersection.	N	Clarification provided in response to comment, no changes to TIS required.	No changes required
10	McElhanney	COPM	Executive Summary / CPLPV Impact Assessment / Impact Assessment on access intersections	A sensitivity analysis should have been completed as part of this report. *Comment attached to highlighted text that reads:* However, the warrants for signalization should be re-assessed if the Kennedy-McTavish Connector is to be constructed in the future.	Please refer to response to comment #4.	N	Clarification provided in response to comment, no changes to TIS are required.	No changes required
11	McElhanney	COPM	Executive Summary / Mitigation / CPLPV Full-build out	This TIS should provide a recommendation on a timing plan that could be used. Analysis should be completed to determine if LOS for the other movements is compromised. *Comment attached to highlighted text that reads:* It is recommended that the queue lengths be monitored and signal timings be adjusted if queueing exceeds storage length	The optimized timing plan is the recommended plan. Amber time, all-red time, ped time, cycle length and phase types were not changed from previously published reports. The optimized signal timings for the Lougheed Highway intersections remained the same for the existing and the future background conditions such that the traffic impacts could be identified properly. A Traffic Management Plan will be developed for the project pre-construction and construction phases. CP will continue to engage with MoTI regarding what, if any, mitigation is contemplated at this location and the results incorporated into the Traffic Management Plan. As noted in other responses to comments on the traffic impact study, CP will be coordinating with the Ministry of Transportation and Infrastructure with respect to monitoring road conditions during pre-construction, construction, and operations. Such monitoring will inform the need for, and nature of, further mitigation such as refinements to signal timing and will also be included in the Traffic Management Plan.	Y	The Executive Summary and Section 8.1 in the TIS have been updated to expand on the mitigation measures and coordination required for the Site Preload Program.	Mitigation Measures in the Executive Summary & Section 8.1

Comment Response Tracking Sheet - City of Pitt Meadows Batch 2, Appendix F

Comment #	Source	Reviewer	References	Reviewer Comments	Response to Comment	Comment Incorporated? (Y/N)	Changes to Document, or Rational why no changes occurred	Location of changes to document (Chapter, Section)
12	McElhanney	COPM	Executive Summary / Mitigation / CPLPV Full-build out	CoPM has designated Kennedy Road a neighbourhood bikeway already. This TIS should provide recommendations based on the impacts the proposed development will have. Comment attached to highlighted text that reads: A review of Kennedy Road, south of Ferryslip Road, should be conducted by the City of Pitt Meadows to verify if the road should be classified as a neighbourhood bikeway after the full build-out of the facility	The City of Pitt Meadows Cycling Map shows that Kennedy Road from south of Ferryslip Road to Woodbridge Road is a neighbourhood bikeway (an informal bicycle route without any markings). Based on the review of the British Columbia Active Transportation Design Guide developed in 2019, a road is not recommended to be classified as a neighbourhood bikeway if the speed limit is above 30 km/h and the AADT is over 1,000 vehicles per day (see Figure D-29 of document). Moreover, as per the Bikeway Selection Guide of Federal Highway Administration (FHWA), if the truck proportion is more than 5%, shared bikeway path on a narrow road is not recommended (see Figure 10). Based on a review of existing conditions, the posted speed limit on Kennedy Road under existing conditions is 50 km/h and the existing bi-directional AADT on the Kennedy Road railway crossing is estimated to be 1,600 with 15% trucks (assuming daily traffic is 10 times the P.M. peak hour traffic volumes). In the 2040 background conditions (without development) the bi-directional AADT on Kennedy Road is expected to grow slightly to 2,100 vehicles per day with 15% trucks. With the development, it is expected the bi-directional AADT would be 3,170 vehicles per day with 34% trucks. Based on the current posted speed limit, designating Kennedy Road as a neighbourhood bikeway is not recommended. A buffered bicycle lane or a bicycle lane is recommended on Kennedy Road in existing conditions (see Figure D-29 of the BC Active Transportation Guide) or an alternate bicycle route could be identified as a mitigation measure. PotenTIsl mitigation options, such as noted above, will be discussed, with the City and the Port, as part of CP's ongoing engagement related to upgrades contemplated for the Kennedy Road corridor, as part of the Pitt Meadows Road and Rail Project. Source: https://www2.gov.bc.ca/assets/gov/driving-and-transportation/funding-engagement-permits/grants-funding/cycling-infrastructure-funding/active-transportation-guide/2019-06-14_bcatdg_compiled_digital.pdf https://safety.fhwa.dot.gov/ped_bike/tools_solve/docs/fhwasa18077.pdf	Y	The Executive Summary and Section 8.2 in the TIS have been updated to expand on the mitigation measures and coordination required for the CPLPV full build out.	Mitigation Measures in the Executive Summary & Section 8.2
13	McElhanney	COPM	2.0 Existing Conditions	Need a section on trucks given that Lougheed is a provincial highway/truck route and this site is a goods movement hub. *Comment attached to Existing Conditions 2020 section.*	Noted. A section has been added to describe truck routes in the study area.	Y	A paragraph in Section 2.1.1 and Figure 2-1 has been added in the TIS to describe truck routes in the study area. EEE: Updated truck routes section under 16.3.1.1. Also added bullet point for additional reference under Section 16.3.1.	Section 2.2.1 EEE: Section 16.3.1.1; 16.3.1
14	McElhanney	COPM	2.1.2.1 Background Traffic Growth	Historical growth on Pitt River Bridge is only 0.4% between 2015 and 2019 and constrained by the Lougheed/ODTR signalized intersection.	Please refer to response to comment #7.	N	Please refer to response to comment #7.	No changes required
15	McElhanney	COPM	2.1.2.3 Assumptions and Variances TMC Data	Counts should have been conducted at locations where data was not available. Parking lot can hold 100+ vehicles. *Comment attached to highlighted text that reads:* Traffic counts were not available for the intersections of Kennedy Road with Ferryslip Road and the CP VIF Parking Lot.	Traffic volumes at these intersections were taken from the Kennedy Overpass Transportation Analysis Report by Stantec Consulting Ltd. which was conducted in 2020 for the same intersections in the study area. It is our opinion that collecting actual counts at this location would not significantly change the findings of the traffic analysis since the intersections along Kennedy Road operate significantly below capacity.	Y	Section 2.1.2.3 of the TIS has been updated to indicate that collecting actual counts is not expected to change the findings of the study.	Section 2.1.2.3
16	McElhanney	COPM	2.1.2.3 Assumptions and Variances TMC Data	Signal timing plans for intersections on Hwy 7 can be obtained from MoTI and should have been considered as part of this analysis. *Comment attached to highlighted text that reads:* Traffic signal timing plans for the two signalized intersections in study area were not provided by the City of Pitt Meadows.	At the time of writing, signal timing plans were not obtained for the intersections on Lougheed Highway. Traffic signal timings were derived and optimized from the Traffic Reports developed by Stantec Consulting Ltd. for the Kennedy Road Overpass and the Harris Road Underpass projects. Amber time, all-red time, cycle length and phase types were not changed. The optimized signal timings for the Lougheed Highway intersections remained the same for the existing and the future background conditions so that the traffic impacts could be identified properly. It is our opinion that incorporating actual signal timings would not significantly change the findings of the traffic analysis.	N	Section 2.1.2.3 of the TIS has been updated to indicate that collecting actual signal timing data is not expected to change the findings of the study.	Section 2.1.2.3
17	McElhanney	COPM	2.1.2.3 Assumptions and Variances / TMC Data / Peak Hour Factor (PHF)	Typically, a default PHF of 0.92 would be used if it is not known. Traffic data in the appendix shows actual PHFs - these should be used for analysis.	The actual PHFs were used for the intersection of Kennedy Road and CP Driveway. However, an overall PHF of 1.0 was used for the intersections of Lougheed Highway with Kennedy Road/Old Dewdney Trunk Road and Harris Road due to the poor operations of these intersections under existing conditions. If actual PHFs were used for these intersections, it would result in multiple movements operating with volume to capacity ratios of greater than one under existing conditions. The demand is likely more than throughput at this intersection as v/c is greater than one for many movements. Therefore, a PHF of 1.00 was used to calibrate the demand with observed traffic. Moreover, using PHF of less than 1.00 will likely diminish the impact of CP traffic on the intersection. It should be noted that even with an overall PHF of 1.0, few movements were found to operate over capacity and/or with LOS 'F' for the Lougheed Highway intersections during the A.M. and P.M. peak hours.	N	Clarification provided in response to comment, no changes to TIS required.	No changes required
18	McElhanney	COPM	2.1.2.3 Assumptions and Variances / TMC Data / Bus/HOV Lanes	Bus schedules and ridership are available on TransLink's public tableau: https://public.tableau.com/app/profile/translink/viz/2019TSPRBusSeaBusSummaries/TheWorkbook	For conservative traffic impact analysis, it was assumed that: (1) all trip generating from the development (both inbound and outbound), will be vehicular trips, (2) one vehicular trip per employee, (3) both inbound and outbound trips (as a result of change in daily shifts) will occur within same hour. We believe that there will be no impact as buses have their own queue jump lanes and development traffic is not interfering with those queue jump lanes. Please also refer to response to comment #19 for more information.	Y	Section 6.2.1 in the TIS has been updated to clarify and document assumptions.	Section 6.2.1
19	McElhanney	COPM	2.1.2.3 Assumptions and Variances / TMC Data / Bus/HOV Lanes	Should be included since the R3 rapidbus was launched in Jan 2020.	A mixture of bus only and HOV lanes were provided in the study area. Lougheed Highway generally has three lanes in each direction. At the eastbound and westbound approaches to the Lougheed Highway and Kennedy Road/Old Dewdney Trunk Road, an additional short curbside bus lane is provided. This was ignored representing a conservative analysis since bus volumes were accounted for in the general purpose lanes. For the intersection of Lougheed Highway and Harris Road, the northbound approach provides two left turns, one through lane and a right turn lane. The through lane allows left turn movement only for buses and HOV vehicles only during peak hours. This was ignored for a conservative analysis. The curbside lane for the westbound approach operates as an HOV lane only during the peak hours which was ignored for the purposes of this analysis. It is likely that the findings of this report would be similar if the analysis was to be updated to include utilization factors for all these lanes. As such, these were ignored in previously published reports for the Kennedy Overpass and the Harris Underpass Transportation Analysis Reports conducted by Stantec Consulting Ltd. in 2020 on the same intersections in the study area. Publicly available information on bus schedules on the Translink website were used to determine bus blockage values that were inputted in the Synchro model. It is our opinion that incorporating these bus/HOV lanes into the analysis would not significantly change the findings of the traffic analysis.	Y	Section 2.1.2.3 of the TIS has been updated to indicate that these assumptions are conservative and are consistent with previously published reports for the Kennedy Overpass traffic report and the Harris Underpass traffic report.	Section 2.1.2.3
20	McElhanney	COPM	2.1.2.3 Assumptions and Variances / TMC Data / Bus/HOV Lanes	Site surveys should have been conducted to estimate lane utilization. Bus schedules are available on Translink's website. *Comment attached to highlighted text that reads* : Since lane utilization of this lane was not available, the impact of this type of lane upon traffic operations was ignored	Please refer to response to comment #19	Y	Please refer to response to comment #19	Section 2.1.2.3

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21	McElhanney	COPM	2.1.2.3 Assumptions and Variances / TMC Data / COVID-19	Any commentary on potenTISl long term effects of Covid?	It is assumed that post COVID, traffic volumes on local and regional roads will return to pre-COVID volumes and patterns of travel. Any changes in such trends will be determined in the future as part of local and regional transportation planning.	N	Rationale provided in response to comment, no changes to technical study required.	No changes required
22	McElhanney	COPM	2.1.2.4 Traffic Operations Analysis	Need to note that traffic counts represent throughput, and not necessarily demand. Where demand exceeds capacity, queues start to form.	Agreed. Hence, PHF of 1.00 was used as demand exceeds capacity in existing conditions.	N	Rationale provided in response to comment, no changes to technical study required.	No changes required
23	McElhanney	COPM	2.1.2.4 Traffic Operations Analysis Figure 2-1: Traffic Volumes for Existing Conditions (2020)	Google earth show 80+ vehicles in the parking lot but the TIS assumes only 10 arrive/depart during peak hours.	Please refer to response to comment #15.	Y	Please refer to response to comment #15.	Section 2.1.2.3
24	McElhanney	COPM	2.1.2.4 Traffic Operations Analysis Figure 2-1: Traffic Volumes for Existing Conditions (2020)	NB imbalance of 300 vehicles in the AM peak. About 90 vehicle imbalance in the PM peak.	Traffic counts for both these intersections were collected in November, 2019 and have the same peak hour. The intersection of Allen Way in between could contribute to some imbalance. In addition, locations with a volume imbalance of within 10% is generally considered acceptable for traffic analysis. Absolute balancing at this intersection would likely diminish the impact of development traffic. It is our opinion that absolute balancing would not significantly change the findings of the traffic analysis.	N	Clarification and rationale provided in response to comment, no changes to TIS required	No changes required
25	McElhanney	COPM	2.1.2.4 Traffic Operations Analysis Figure 2-3: 2020 Existing Conditions Traffic Operation during the PM Peak Hour	Surprised that the PM peak performs better than AM when the volumes are 610 vs 190 respectively. Possibly because the WB volumes are lower during the PM peak, which gives more green time to the EB LT. Also possibly due to the use of optimized timing plans versus the actual timing plans.	The traffic operations operate similarly for both AM and PM peak hours with the traffic operations during the AM peak hour slightly worse. This is likely due to the significant SBR traffic volumes which requires a protected phase. The traffic operations from the previously published report for the Kennedy Overpass Transportation Analysis Reports conducted by Stantec Consulting Ltd. in 2020 also indicates poorer operations in the AM peak hour.	N	Clarification provided in response to comment, no changes to TIS required	No changes required
26	McElhanney	COPM	2.1.2.5.2 Scenario 2: 15 minutes Duration	Would expect the SB queue to be higher since there are 88vph SB and 72vph NB during PM peak. *Comment attached to highlight text that reads:* 145 metres in the northbound direction and 135 meters in the southbound direction during the P.M. peak period	Peak hour factors for the northbound movement used in the analysis is lower than that for the southbound movement. In addition, SimTraffic analysis was used to estimate the 95th percentile queues on Kennedy Road during a rail event. Unlike Syncrho, SimTraffic is a microsimulation software which estimates queuing by simulating traffic in real world conditions.SimTraffic accounts for effects of traffic in upstream and downstream intersections and takes into account the full impact of queuing and blocking which could be the reason why the model shows slightly shorter queues in the southbound direction.	N	Clarification provided in response to comment, no changes to TIS required	No changes required
27	McElhanney	COPM	2.1.2.5.2 Scenario 2: 15 minutes Duration	Increase in volumes from development increase the likelihood of these impacts. Comment attached to highlighted text that reads: The northbound queues may impact driveway access to a residenTISl property located on the east side of Kennedy Road while the southbound queues may impact access to the CP VIF parking lot located on the east side of Kennedy Road	increased queuing described in Section 7.1.5.	N	Clarification provided in response to comment, no changes to TIS required	No changes required
28	McElhanney	COPM	2.1.2.5.2 Scenario 2: 15 minutes Duration Figure 2-5: Kennedy Road Rail Crossing Queue Lengths under Existing Conditions (2020) for a 15-minute rail event duration	As part of the Harris Road & Kennedy Road Traffic & Rail Data Collection Study prepared by Bunt & Associates (Draft V02, January 10, 2020), rail events were observed which showed the maximum southbound queue extended close to Ferryslip Road during the PM peak hour. This graphic shows the queue only extending to the CP VIF Parking Lot Access. Site investigations should be conducted to verify the findings of the analysis. Adding trucks to this road as a result of the development will further extend these queue lengths	The Bunt & Associates report observed queue lengths during peak periods over 7 days. The report indicated that one vehicle queue on three days (around 3% of overall instances during the peak periods over the course of 7 days) were observed to extend short of Ferryslip Road. This can be classified as an outlier. The SimTraffic simulation provides an estimate of 95th percentile queues and not maximum queues.	N	Clarification provided in response to comment, no changes to TIS required	No changes required
29	McElhanney	COPM	2.2 Transit Services	No information provided on transit ridership to summarize existing conditions. This is available in TransLink's 2019 Service Performance Review: https://public.tableau.com/app/profile/translink/viz/2019TSPRBusSeaBusSummaries/TheWorkbook	Mode shift was ignored in this analysis and it was assumed that 100 percent of trips generated would drive instead of using transit for conservative development traffic analysis. Hence, transit ridership would not influence the traffic analysis and was not included in this section. Mode share was described in Section 7.2 of the report.	Y	Section 6.2.1 in the TIS has been updated to clarify and document assumptions.	Section 6.2.1
30	McElhanney	COPM	2.2 Transit Services / R3 Lougheed Highway RapidBus	RapidBus	Noted. Text has been changed.	Y	Text in Section 2.2 in the TIS has been updated to identify RapidBus.	Section 2.2
31	McElhanney	COPM	2.2 Transit Services / West Coast Express	in the peak direction	Noted. Text has been changed.	Y	Text in Section 2.2 in the TIS has been updated to identify that the West Coast Express operates in the peak direction.	Section 2.2
32	McElhanney	COPM	2.3 Active Transportation Facilities	Peds and bikes were included in the traffic counts and some commentary on active mode volumes should be included in the existing conditions assessment.	Noted. Text has been changed.	Y	Section 2.3 in the TIS has been updated to provide commentary on active mode transportation volumes. EEE: Text from TIS added to Section 2.3 into Section 16.3.1.1.	Section 2.3 EEE: Section 16.3.1.1
33	McElhanney	COPM	3.1.1.1 Road Network Upgrades	At-grade crossing is already an issue - development traffic will make this worse. *Comment attached to teach that reads:* Rail traffic was identified that results in congestion and delays at the at-grade crossings on Harris Road and Kennedy Road. Safety concerns were identified relating to vehicles making illegal maneuvers to avoid waiting at the crossing	Increased queuing described in Section 7.1.5.	N	Clarification provided in response to comment, no changes to technical study	No changes required
34	McElhanney	COPM	3.1.1.1 Road Network Upgrades	These will have an impact on the study area. The NLC and development will increase traffic EB/WB on Hwy 7. The Kennedy-McTavish Connector will increase volumes through the Kennedy Road. *Comment attached to highlighted text that reads:* The timelines for the implementation of the various road network improvement strategies by the City of Pitt Meadows have not been confirmed. Due to the uncertainty in the timelines, the 2025 site preload program year, the 2030 full build-out year and 2040 planning horizon were analyzed without these improvements. The proposed strategies are illustrated in Figure 3-1	Please refer to response to comment #4.	N	Clarification provided in response to comment, no changes to TIS are required.	No changes required
35	McElhanney	COPM	3.1.1.2.2 North Lougheed Area Plan	This development will add trips to the network. The TIS should include some form of estimate in the background volumes. *Comment attached highlight text that reads:* As no proposed developments are publicly available at the time of writing this report, additional trips generated from the NLAP were not considered in the analysis of the future background conditions.	Please refer to response to comment #6.	N	Clarification provided in response to comment, no changes to TIS are required.	No changes required
36	McElhanney	COPM	3.1.1.3 Background Traffic Growth	Difficult to support since growth between 2015 and 2019 was running at 0.4%.	Please refer to response to comment #7.	N	Clarification provided in response to comment, no changes to TIS required.	No changes required
37	McElhanney	COPM	3.1.1.3 Background Traffic Growth	Employment growth will result in redistribution and internalization of trips resulting in lower growth rates on the regional road network. Further, there will be some mode shift further suppressing regional traffic growth rates.	Please refer to response to comment #7.	N	Clarification provided in response to comment, no changes to TIS required.	No changes required
38	McElhanney	COPM	3.1.2 Site Preload Program Year (2025)	We know there is congestion and development will make it worse. We need diagrams that show queues and v/c ratios to really understand impacts to capacity. *Comment attached to highlighted text that reads:* As some intersections and movements are already operating over or near capacity under existing conditions, increases in background traffic volumes for future scenarios will cause operations at these intersections to worsen by the site preload program year of 2025.	Tables summarizing the LOS, delay, v/c ratios and queues for each intersection for the A.M. and P.M. peak hours are shown in the appendices (Appendix D shows the existing conditions traffic operations, Appendix E shows the future background conditions traffic operations and Appendix F shows the total conditions traffic operations)	N	Clarification provided in response to comment, no changes to TIS required.	No changes required
39	McElhanney	COPM	3.1.2 Site Preload Program Year (2025) Figure 3-10: 2026 Background Conditions Traffic Operation during the A.M. peak hour	Queue lengths would help illustrate traffic conditions here. Saying "increased delays and continue operating over capacity" doesn't help quantify the impact of growth.	Please refer to response to comment #38.	N	Clarification provided in response to comment, no changes to TIS are required.	No changes required

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40	McElhanney	COPM	3.1.3 Full Build-Out Year (2030) Figure 3-12: Traffic Volumes for Future Background Conditions (2030)	The parking lot access has been removed, likely because of CP's assumption that the Kennedy Road O/P would be complete by 2030. However, a sensitivity analysis was also run without the O/P. A volume figure for this scenario should be included.	An intersection capacity analysis for a scenario without the Kennedy Overpass is expected to be redundant since the traffic operations for the intersections along Kennedy Road operate significantly under capacity with no critical movements. In addition, the sensitivity analysis would cause no changes to the traffic volumes at the signalized Lougheed Highway intersections. As requested, the traffic analysis for this scenario will be conducted and the report has been updated accordingly. A sensitivity analysis was conducted on queue lengths on the at-grade Kennedy crossing if the Kennedy Overpass was not to be constructed.	Y	The Executive Summary and the Section 3.1.1.1 in the TIS has been updated to indicate that the Kennedy Overpass completion date is uncertain and that 2030 and 2040 traffic analysis was conducted with and without the Kennedy Overpass. Text has been changed and three figures (traffic volume figures and LOS maps) have been added for each of Section 3.1.3, Section 3.1.4, Section 7.1.1 and Section 7.1.2. EEE: Text changed in 16.3.1.3 to reflect wording changes from Hatch TIS. Text and figures updated in Section 16.3.2 to reflect analysis scenario updates from Hatch TIS, and upgraded graphics. Minor worrding changes in 16.4.2.2. Section 16.5 - updated text in cumulative effects table.	Road network upgrades in the Executive Summary & Section 3.1.1.1 Section 3.1.3 Section 3.1.4 Section 7.1.1 Section 7.1.2 EEE: 16.3.1.3., 16.3.2, 16.4.2.2, 16.5
41	McElhanney	COPM	3.1.3 Full Build-Out Year (2030) Figure 3-12: Traffic Volumes for Future Background Conditions (2030)	More information is needed regarding the traffic re-distribution that was done. In 2025 there were 87vph SB during the PM peak travelling towards the rail crossing. In 2030 there are only 46vph. 51vph turn right at Ferryslip Rd.	The analysis assumes the Kennedy Overpass was to take place in the 2030 traffic analysis which would result in more traffic entering Ferryslip Road instead of going through southbound on Kennedy Road. This assumption was based on findings from the Kennedy Overpass Transportation Analysis Reports conducted by Stantec Consulting Ltd. in 2020 on the same intersections in the study area. As requested, the traffic analysis for scenario without the Kennedy Overpass will be conducted and the report has been updated accordingly.	Y	Please refer to response to comment #40.	Road network upgrades in the Executive Summary & Section 3.1.1.1 Section 3.1.3 Section 3.1.4 Section 7.1.1 Section 7.1.2
42	McElhanney	COPM	3.1.3 Full Build-Out Year (2030) / Lougheed Highway and Kennedy Road/Old Dewdney Trunk Road	Same comment as above "increased delays and continue operating over capacity" doesn't help quantify or visualize the impact of growth. Need to show queuing diagrams.	Please refer to response to comment #38.	N	Clarification provided in response to comment, no changes to TIS are required.	No changes required
43	McElhanney	COPM	3.1.3 Full Build-Out Year (2030) Figure 3-13: 2030 Background Conditions Traffic Operation during the A.M. peak hour	Sensitivity analysis of the parking lot access assuming the Kennedy Road O/P is not complete by 2030?	Please refer to response to comment #40.	Y	Please refer to response to comment #40.	Road network upgrades in the Executive Summary & Section 3.1.1.1 Section 3.1.3 Section 3.1.4 Section 7.1.1
44	McElhanney	COPM	3.1.3 Full Build-Out Year (2030) Figure 3-14: 2030 Background Conditions Traffic Operation during the P.M. peak hour	Sensitivity analysis of the parking lot access assuming the Kennedy Road O/P is not complete by 2030?	Please refer to response to comment #40.	Y	Please refer to response to comment #40.	Road network upgrades in the Executive Summary & Section 3.1.1.1 Section 3.1.3 Section 3.1.4 Section 7.1.1 Section 7.1.2
45	McElhanney	COPM	3.1.3 Full Build-Out Year (2030) Figure 3-15: Traffic Volumes for Future Background Conditions (2040)	Same comment as 2030.	Please refer to response to comment #40.	Y	Please refer to response to comment #40.	Road network upgrades in the Executive Summary & Section 3.1.1.1 Section 3.1.3 Section 3.1.4 Section 7.1.1 Section 7.1.2
46	McElhanney	COPM	3.1.3 Full Build-Out Year (2030) / Lougheed Highway and Kennedy Road/Old Dewdney Trunk Road	Need queuing diagram, same as above.	Please refer to response to comment #38.	N	Clarification provided in response to comment, no changes to TIS are required.	No changes required
47	McElhanney	COPM	3.1.3 Full Build-Out Year (2030) Figure 3-16: 3040 Background Conditions Traffic Operations during the A.M. peak hour	Same comment as 2030.	Please refer to response to comment #40.	Y	Please refer to response to comment #40.	Road network upgrades in the Executive Summary & Section 3.1.1.1 Section 3.1.3 Section 3.1.4 Section 7.1.1 Section 7.1.2
48	McElhanney	COPM	3.1.3 Full Build-Out Year (2030) Figure 3-17: 3040 Background Conditions Traffic Operations during the P.M. peak hour	Same comment as 2030.	Please refer to response to comment #40.	Y	Please refer to response to comment #40.	Road network upgrades in the Executive Summary & Section 3.1.1.1 Section 3.1.3 Section 3.1.4 Section 7.1.1 Section 7.1.2
49	McElhanney	COPM	3.1.5.1 Site Preload Program Year (2025)	These are the same assumptions as the 2020 existing conditions. However, information from the Vancouver Fraser Port Authority suggests that by 2030, total daily train activity at Kennedy Road (i.e. the time that vehicles are blocked by a crossing) will triple. This will impact the assessment of queue lengths for future horizon years. There will be more crossing events, which could be longer in duration and more closely spaced. Increase in train activity should be accounted for in the TIS.	Report has been updated to include increase in the number of trains in 2030 background conditions, based on train forecasts provided by CP. We assume that you are referring to the infographic displayed during the Pitt Meadows Road and Rail Improvement Project information sessions and project information pamphlets that illustrates average daily traffic delay at Kennedy Road in a 24 hour period rising from 1.75 hours in 2017 to between 4.75 hours and 6 hours in 2030. The traffic impact analysis at Kennedy Road in our TIS utilized actual crossing activation times and train counts from the Harris Road & Kennedy Road Traffic & Rail Data Collection Study, completed by Bunt in 2020 which is the most recent and uses observed data.	Y	Text and Figures in Section 3.1.5 in the TIS have been updated to reflect increase in train frequency in the background conditions. Text and Figures in Section 5.1.4 in the TIS has also been updated to reflect increase in train frequency in the preload conditions. EEE: Updated Section 16.4.2.1 with new scenarios / analysis per Hatch TIS. Updated Section 16.4.2.2 with new scenarios / analysis per Hatch TIS.	Section 3.1.5 Section 5.1.4 EEE: Section 16.4.2.1 Section 16.4.2.2
50	McElhanney	COPM	3.1.5.1.1 Scenario 1: 5 minutes Duration	Similar comment as before - SB PM volume of 92vph vs NB of 75vph - expect SB queue to be higher. *Comment attached to highlighted text that reads:* approximately 145 metres in the northbound direction and 135 meters in the southbound direction during the P.M. peak period.	Please refer to response to comment #26.	N	Clarification provided in response to comment, no changes to TIS are required.	No changes required

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51	McElhanney	COPM	3.2 Active Transportation Conditions	What about the marked crossing on Kennedy Rd? *Comment attached to highlighted text that reads:* The intersection of Harris Road and Lougheed Highway was identified as a dangerous crossing for cyclists. Collaborative efforts between the City, MOTI and CP Rail to address these concerns is recommended. Additionally, it is recommended that a pedestrian/bicycle overpass be built over Lougheed Highway	This section identified issues identified in the City of Pitt Meadows TMP. The marked crossing on Kennedy Road was not identified in the TMP as a dangerous crossing.	N	Clarification provided in response to comment, no changes to TIS required.	No changes required
52	McElhanney	COPM	3.3 Transit Conditions	What about growth in transit ridership, and impacts to service utilization and service levels?	Please refer to response to comment #29.	Y	Section 6.2.1 in the TIS has been updated to clarify and document assumptions.	Section 6.2.1
53	McElhanney	COPM	3.3. Transit Conditions	It already exists. The R3 rapidbus already provides this connection.	Noted. Text has been changed.	Y	Text in Section 3.3. in the TIS has been amended to indicate that the Evergreen Line has already been opened.	Section 3.3
54	McElhanney	COPM	4.2 Trip Distribution and Assignment	Would expect a higher proportion using Lougheed Highway since ODTR only provides access to residenTISl and agricultural areas.	The distribution was applied based on location of preload suppliers. Pitt River Quarries can be accessed using Old Dewdney Trunk Road.	N	Clarification provided in response to comment, no changes to TIS required.	No changes required
55	McElhanney	COPM	4.2 Trip Distribution and Assignment Figure 4-2: Truck Trip Distribution during the Site Preload Program	Surely some trucks would use the Pitt River Bridge to provide site preload? Does Golder have insight into locations of preload suppliers?	The distribution was applied based on location of likely preload suppliers.	N	Clarification provided in response to comment, no changes to TIS required.	No changes required
56	McElhanney	COPM	5.1.1 Site Preload Program year Traffic Operations (2025)	Were heavy vehicle auto equivalence factors applied to account for larger and slower vehicles?	Yes, truck percentages were changed in the Synchro model. Trucks were assumed to be equivalent to 2 passenger cars per unit in the Synchro model. Future truck percentages during the preload program are shown in Sketch 13 of Appendix B.	N	Clarification provided in response to comment, no changes to TIS required.	No changes required
57	McElhanney	COPM	5.1.1 Site Preload Program year Traffic Operations (2025) Figure 5-2: Preload Program Construction Traffic Volumes (2025)	Will all trucks entering the site be staged on site? Or is it anticipated that staging will occur on the roadway? A review of this should be included as part of the TIS. If staging is to occur on the roadway, there will be impacts to traffic operations of the road, which will be further complicated during a railway crossing event.	Trucks will be staged on-site. CP will utilize existing property in the area to stage trucks off Kennedy road in the event of a prolonged rail blockage.	Y	Section 4 in the TIS has been updated to indicate that the trucks will be staged on-site during the preload program. The Executive Summary and Section 8.1 in the TIS has also been updated to indicate staging trucks off Kennedy Road in the event of a prolonged blockage as a mitigation measure.	Mitigation Measures in the Executive Summary & Section 4 Section 8.1
58	McElhanney	COPM	5.1.1 Site Preload Program year Traffic Operations (2025) Table 6-1: Percent contribution from the construction traffic in 2026 on Lougheed Highway	Should measure this using the auto equivalence factors for heavy vehicles.	Noted. Table has been updated accordingly assuming the passenger car equivalent of a truck is 2.0.	Y	An additional table has been included in Section 5.1.1 and Section 5.1.4 to indicate percent contribution using an auto equivalence factor for heavy vehicles of 2.0. EEE: Updated tables 16.7 and 16.8 (and introductory text descriptions) in Section 16.4.2.1. Also added a new acronym definition for PCU at the start of the document.	Section 5.1.1 Section 5.1.4 EEE: Section 16.4.2.1 Acronyms and abbreviations table.
59	McElhanney	COPM	5.1.1 Site Preload Program year Traffic Operations (2025)	Were optimized timing plans used? 2025 is only 3 years away and existing timing plans should have been used for analysis. *Comment attached to highlighted text that reads:* The impact of the traffic volumes generated by the site preload program on the operation of signalized intersections is described below:	Please refer to response to comment #16.	N	Clarification provided in response to comment, no changes to TIS required.	No changes required
60	McElhanney	COPM	5.1.2 Impact on Queueing	The results are based on optimized timing plans. What are the impacts with the current timing plans? Or will new timing plans be submitted to MoTI before proceeding with the preload program? *Comment attached to highlighted text that reads:* Based on the optimized timing assume	Please refer to response to comment #16.	N	Clarification provided in response to comment, no changes to TIS required.	No changes required
61	McElhanney	COPM	5.1.2 Impact on Queueing	Queues will consist of more heavy vehicles - shouldn't assume that they can be accommodated within the taper. *Comment attached to highlighted text that reads:* Hence, the queues are expected to be accommodated within the taper length.	Truck percentages were changed in the Synchro model. Future truck percentages for the ultimate condition are shown in Sketch 17 of Appendix B. Hence, queue lengths calculated account for the projected number of trucks. CP has been engaging with Ministry of Transportation and Infrastructure (MOTI) on the Logistics Park Vancouver Project since December 2020. During this time, CP has met with MOTI four times. CP is committed to continued engagement with MOTI to receive feedback that could potenTISlly be included in the final design of the project.	Y	Section 5.1.2 in the TIS has been updated to indicate that increased trucks have been accounted for in the traffic analysis. The Executive Summary and Section 8.1 in the TIS has also been updated to indicate need for coordination with MoTI as a mitigation measure.	Mitigation Measures in the Executive Summary & Section 5.1.2 Section 8.1
62	McElhanney	COPM	5.2 Pedestrian, Cycling and Transit Assessment	Analysis / backup information to support this? There will also be safety concerns due to increased truck traffic and pedestrian/cyclist activity. *Comment attached to highlighted text that reads:* The increased number of trucks are not expected to trigger upgrades at the pedestrian and cycling midblock crossing on Kennedy Road between the CP VIF Driveway and Ferryslip Road.	Discussed in Section 7.2 for ultimate conditions. Since the ultimate conditions does not trigger upgrades to this pedestrian crossing, the preload program would also not since the traffic generated during preload program is estimated to be lesser. Text has been updated in the report for clarity.	Y	Section 5.2 in the TIS has been updated to provide more clarity around conclusion that the pedestrian crossing does not need to be upgraded.	Section 5.2
63	McElhanney	COPM	6. Site-Generated Traffic	How will this be accommodated? Figure 6-1 doesn't show the connector alignment. *Comment attached to highlighted text that reads:* The new road is anticipated to ultimately form part of the proposed Kennedy McTavish Connector.	The possible connection point is shown in Appendix A.	N	Clarification provided in response to comment, no changes to TIS required.	No changes required
64	McElhanney	COPM	6. Site-Generated Traffic Figure 6-1: Access intersections to the CPLPV	This is currently a free flow movement for EB Kennedy Road. Adding a stop control will add delays here.	Agreed. The addition of the south leg makes the intersection 3-legged. It is recommended that the eastbound movement is stop-controlled for safety purposes. The delays for the eastbound movement is expected to be low as shown in the appendices. There is expected to be more traffic using the northbound and southbound approach on Kennedy Road and hence, these movements were prioritized as free movements. In addition, if the Kennedy-McTavish connector was to be built in the future, the traffic on Kennedy Road would significantly increase further justifying the northbound and southbound movements operating as free movements.	N	Clarification provided in response to comment, no changes to TIS required.	No changes required
65	McElhanney	COPM	6.1.1 Trip Generation	This seems too low since the port and railways have defined operating hours.	The containers for the Agricultural facility are shuttled between the CP Vancouver Intermodal Facility and this site and will occur 24 hours per day. They will not be restricted by Port operating hours. The railway operates 24 hours per day.	Y	Section 6.1.1 in the TIS has been updated to indicate that this movement will not be restricted by the port operating hours. EEE: Updated text in Section 16.4.2.2. (just below Table 16.9)	Section 6.1.1 EEE: Section 16.4.2.2.
66	McElhanney	COPM	6.1.1 Trip Generation	Is this based on rail schedules or something else?	It's based on historical operating patterns for a similar facility.	Y	Section 6.1.1 in the TIS has been updated to indicate that these travel patterns were developed based on historical operating patterns for similar facilities. EEE: Updated text in Section 16.4.2.2. (just below Table 16.9)	Section 6.1.1 EEE: Section 16.4.2.2.
67	McElhanney	COPM	6.1.1 Trip Generation Table 6-3: AM and PM Peak Hour Truck Trips Summary	Is this the combined 2-way volume (i.e. inbound + outbound) or is it meant to show 8 inbound and 8 outbound? The 2-way daily agricultural trips were shown to be 372, distributed evenly across 24 hours. That would equal approximately 16 2-way trips during each peak hour.	The table shows one-way truck trips so total would be 16 trips per each peak hour. This report has been updated to clearly indicate that it is one-way trips.	Y	Table 6-3 in Section 6.1.1 in the TIS has been updated to indicate that these trips are one way trips. Table 6-4 in Section 6.2.1 in the TIS was also updated to indicate that the employee trips are one way trips. EEE: Updated text in Section 16.4.2.2.	Section 6.1.1 Section 6.2.1 EEE: Section 16.4.2.2.

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Comment #	Source	Reviewer	References	Reviewer Comments	Response to Comment	Comment Incorporated? (Y/N)	Changes to Document, or Rational why no changes occurred	Location of changes to document (Chapter, Section)
68	McElhanney	COPM	6.2.1 Trip Generation	How many stalls will be provided? Helps understand the potenTISl in/out volumes during peak hours. Comment attached to highlighted text that reads: Employee parking will be provided within the facility	This trip generation is based on current staffing projections. Sufficient parking will be provided. Current site layout provides 62 employee parking spots, and may be revised as the facility design matures.	Y	Section 6.2.1 in the TIS has been updated to reference Facility General Arrangement Plan.	Section 6.2.1
69	McElhanney	COPM	6.2.2 Trip Distribution and Assignment	Maybe also look at current traffic volumes during peak hours (minus trucks) to get a sense of where employees are coming from? Comment attached to highlighted text that reads: The employee trips were distributed based on the spaTISl distribution of residenTISl neighborhoods in the surrounding area.	Land uses were used to identify where employees would most likely travel. ResidenTISl areas were found to be concentrated on Harris Road south of Lougheed Highway and west of Pitt River. There were found to be very minimal residenTISl areas north of Lougheed Highway.	N	Clarification provided in response to comment, no changes to TIS required.	No changes required
70	McElhanney	COPM	6.2.2 Trip Distribution and Assignment Figure 6-3: Employee Trip Distribution	Surely some employees would use ODTR to access the site?	Land uses were used to identify where employees would most likely travel. ResidenTISl areas were found to be concentrated on Harris Road south of Lougheed Highway and west of Pitt River. There were found to be very minimal residenTISl areas north of Lougheed Highway. The provision of a small percentage on ODTR would result in very low cars coming from this road and would have no bearing on this analysis.	N	Clarification provided in response to comment, no changes to TIS required.	TBD
71	McElhanney	COPM	7. Impact Assessment	Can be obtained from MoTI. *Comment attached to highlighted text that reads:* It should be noted that the impact of the CPLPV on the intersection of Lougheed Highway and Allen Way was not analyzed since the TMC data for this intersection was not available.	The intersection of Lougheed Highway and Allen Way was not analyzed since turning movements for this intersection are not expected to be impacted. Traffic volumes are expected to increase only for the eastbound and westbound through movement on Lougheed Highway. Through traffic along Lougheed Highway is projected to increase by a maximum of 1.3% in 2040 and hence, additional green time is not expected to be required for the eastbound and westbound through movements due to this facility. CP has been engaging with Ministry of Transportation and Infrastructure (MOTI) on the Logistics Park Vancouver Project since December 2020. During this time, CP has met with MOTI four times. CP is committed to continued engagement with MOTI to receive feedback that could potenTISlly be included in the final design of the project.	N	Clarification provided in response to comment, no changes to TIS required	No changes required
72	McElhanney	COPM	7. Impact Assessment	Increase in EB through will require more green time. WB Left (protected) and NB Left movements may be impacted as a result. The TIS should confirm the impacts. *Comment attached to highlighted text that reads:* expected to be minimal since there will be no increase in site-generated turning volumes at this intersection	Please refer to response to comment #71.	N	Clarification provided in response to comment, no changes to TIS required.	No changes required
73	McElhanney	COPM	7.1.1 Full Build-Out Year Traffic Operations -2030 Table 7-1: Percent contribution from the CPLPV in 2030 on Lougheed Highway	Need to confirm if auto equivalence factors were applied for heavy vehicles.	Noted. Will change table accordingly assuming the passenger car equivalent of a truck is 2.0.	Y	An additional table has been included in Section 7.1.1, Section 7.1.2 and Section 7.1.5 in the TIS to indicate percent contribution using an auto equivalence factor for heavy vehicles of 2.0. EEE: Updated tables 16.11 and 16.12 (and introductory text descriptions) in Section 16.4.2.2.	Section 7.1.1 Section 7.1.2 Section 7.1.5 EEE:Section 16.4.2.2
74	McElhanney	COPM	7.1.1 Full Build-Out Year Traffic Operations (2030) / Lougheed Highway and Kennedy Road/Old Dewdney Trunk Road	But the figure shows this as a critical movement? Similar comment for other critical movements. Need to also better explain minimal impact; what does this mean? A table or figure that shows the before and after LOS, queueing, v/c is required to make it easier to compare the differences.	Please refer to response to comment #38.	N	Clarification provided in response to comment, no changes to TIS required.	No changes required
75	McElhanney	COPM	7.1.3 Impact on Queueing	This could potenTISlly block access to the NB right turn lane Comment attached to highlighted text that reads: This queue could potenTISlly be larger in the event that the Kennedy Overpass is not completed 60 metres in the P.M. peak hour	Noted. Text has been changed.	Y	Text in Section 7.1.3 in the TIS has been updated to indicate that the access to the NB right turn lane may be blocked. EEE: Section 16.4.2.2 updated with text extracted from Hatch TIS.	Section 7.1.3 EEE: Section 16.4.2.2
76	McElhanney	COPM	7.1.3 Impact on Queueing	Once again, more large trucks here - should not assume the taper can accommodate them. *Comment attached to highlighted text that reads:* Hence, the queues are expected to be accommodated within the taper length.	Please refer to response to comment #61.	Y	Section 7.1.3 in the TIS has been updated to indicate that increased trucks have been accounted for in the traffic analysis. The Executive Summary and Section 8.2 in the TIS has also been updated to indicate need for coordination with MoTI as a mitigation measure.	Mitigation Measures in the Executive Summary & Section 7.1.3 Section 8.2
77	McElhanney	COPM	7.1.4 Impact on Access Intersections	A sensitivity scenario is required to determine impact of the Kennedy-McTavish connector, including warrants for signalization. *Comment attached to highlighted text that reads:* However, the warrants for signalization should be re-assessed if the Kennedy-McTavish Connector is to be constructed in the future.	Please refer to response to comment #4.	N	Clarification provided in response to comment, no changes to TIS required.	No changes required
78	McElhanney	COPM	7.1.5 Impact on Kennedy Road railway crossing	Are mitigation measures required as a result? *Highlighted text - no comment:* The CPLPV is expected to significantly increase the number of vehicles crossing the Kennedy Road at-grade railway crossing, as shown in Table 7-3	CP will continue to engage with the City, and the Port related to upgrades contemplated for the Kennedy Road corridor, including a grade separation, as part of the Pitt Meadows Road and Rail Project. In the event the Kennedy Road Grade Separation does not occur, it is expected that trucks in the CP LPV lot would not exit the facility during a long duration event, reducing the northbound queues.	Y	The Executive Summary and Section 8.2 in the TIS has been updated to indicate that trucks would not exit the facility during a long duration event.	Mitigation Measures in the Executive Summary & Section 8.2
79	McElhanney	COPM	7.1.5 Impact on Kennedy Road railway crossing	See previous comment regarding information from the Vancouver Fraser Port Authority. Daily train activity is expected to triple by 2030. The increase shown here is less than double.	Please refer to response #49.	N	Clarification provided in response to comment, no changes to TIS required.	No changes required
80	McElhanney	COPM	7.1.5.2 Scenario 2: 15 minutes Duration Figure 7-9: Kennedy Road Rail Crossing Queue Lengths under Total Conditions (2040 for a 15 Minute Rail Event Duration	Queue spillback to new intersection.	Impact was identified and described in Section 7.1.5.2.	N	Clarification provided in response to comment, no changes to TIS required.	No changes required
81	McElhanney	COPM	7.2 Pedestrian, Cyclist and Transit Assessment	Should also consider pick up/drop off space for ride share services such as Uber and Lyft.	Vehicular trips to the CP LPV site would be employee trips. It is very unlikely that employees would use rideshare services such as Uber and Lyft as a daily mode of transportation to the CP LPV site. Inclusion of rideshare would not significantly impact our results.	N	Clarification provided in response to comment, no changes to TIS required.	No changes required
82	McElhanney	COPM	7.2.1 Active Transportation Mode Share / Cyclist Conditions	This could change significantly with the adoption of e-bikes and e-scooters.	Inclusion of e-bikes and e-scooters would not significantly impact our results. Mode shift is not expected as discussed in Section 7.2 of the Report. It was assumed that 100 percent of trips generated would drive for a conservative development traffic analysis.	N	Rationale provided in response to comment, no changes to TIS required.	No changes required
83	McElhanney	COPM	7.2.1. Active Transportation Mode / Transit Conditions	Why would some accommodation not be provided for these people along Kennedy Rd?	CP will continue to engage with the City, and the Port related to upgrades contemplated for the Kennedy Road corridor, including a grade separation, as part of the Pitt Meadows Road and Rail Project.	N	Clarification provided in response to comment, no changes to TIS required.	No changes required

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Comment #	Source	Reviewer	References	Reviewer Comments	Response to Comment	Comment Incorporated? (Y/N)	Changes to Document, or Rational why no changes occurred	Location of changes to document (Chapter, Section)
84	McElhanney	COPM	7.2.2 Impact on the midblock crossing on Kennedy Road	Active modes data over the summer time period is required to determine seasonal impacts. *Comment attached to highlighted text that reads:* During the weekend, the number of pedestrians and cyclists are significantly higher with a maximum of 30 observed during the midday peak hour. It should be noted that these volumes are likely underestimated since it was collected during the winter season.	It is acknowledged in the report that the counts collected during winter is likely lower compared to summer. Two standards were reviewed in determining whether additional traffic volumes trigger upgrades to the Kennedy midblock pedestrian crossing. The pedestrian and cyclist volumes do not have an impact in the determining of the type of pedestrian crossing for the more recent TAC standard developed in 2018 and therefore additional data is not considered necessary as it wouldn't change the warrant analysis. This depends on the number of lanes, speed limit and AADT which recommends a GM system. The current pedestrian crossing is a GM+ system. The report also recommends an additional "Crosswalk Ahead Warning Sign" to be implemented on the northbound approach to the crossing to account for sightline issues.	N	Clarification provided in response to comment, no change to TIS required.	No changes required
85	McElhanney	COPM	7.2.2.1 Pedestrian Crossing Control Manual for British Columbia Figure 7-14: Estimate Crossing Opportunities for a Two Lane Cross-Section (BC Highway Safety Branch, 1994)	Rail crossing will develop platoons, which will likely impact crossing opportunities once the train is clear. Also have significant heavy truck volumes here - not typical conditions.	It is recognized that this is a unique pedestrian crossing. Hence, two warrants were used to determine if the additional traffic volumes would trigger upgrades to the Kennedy midblock pedestrian crossing. The Pedestrian Crossing Control Manual for British Columbia developed in 1994 depends on the number of pedestrians during the peak period, number and configuration of lanes and crossing opportunities while the TAC Pedestrian Crossing Control Guide developed in 2018 depends on the daily traffic volumes, number of lanes and speed limit. Both these standards indicate that the existing treatment at the midblock crossing is sufficient. It should be noted that the recent TAC warrants developed in 2018 were used which were not based on crossing opportunities per hour. The report also recommends an additional "Crosswalk Ahead Warning Sign" to be implemented on the northbound approach to the crossing to account for sightline issues.	N	Clarification provided in response to comment, no change to TIS required.	No changes required
86	McElhanney	COPM	7.2.2.2 TAC's Pedestrian Crossing Control Guide, 3rd Edition Table 7-8 Decision Support Tool - Treatment Selection Matrix (Transportation Association of Canada, 2018)	Even if you assume 3-lanes (total exposed crossing distance is about 11m), GM is only recommended. *Relates to highlighted text that reads:* Table 7-6 indicates that a Ground Mounted System (GM)	Agreed. The current treatment of the Kennedy Road pedestrian crossing can be considered a GM+ type. Hence, upgrades are not warranted.	N	Clarification provided in response to comment, no change to TIS required.	No changes required
87	McElhanney	COPM	7.2.2.2 TAC's Pedestrian Crossing Control Guide, 3rd Edition	A lot of these items are "desirable components" for GM. *Comment attached to highlighted text that reads:* side-mounted signs with zebra pavement and elephant's feet marking along with specific upgrades such as advanced warning signs and speed limit reductions to account for the limited visibility in the area.	The current treatment of the Kennedy Road pedestrian crossing can be considered a GM+ type. Hence, upgrades are not warranted. Treatment categories are described in Section 7.2.2.2.	N	Clarification provided in response to comment, no change to TIS required.	No changes required
88	McElhanney	COPM	8.1 Mitigation Measures for the Site Preload Program	There will be an impact during rail crossing events, particularly if the actual queue lengths are longer than what has been estimated. See previous comment regarding discrepancies between estimated and observed queues.	Please refer to response to comment #28.	N	Clarification provided in response to comment, no change to TIS required.	No changes required
89	McElhanney	COPM	8.1 Mitigation Measures for the Site Preload Program	This is based on optimized timings - what about the current timing plan? Who will monitor and implement changes during preload? *Comment attached to highlighted text that reads:* It is recommended that the queue lengths for this movement be monitored and signal timings be adjusted if queueing exceeds storage length.	The intersection operates poorly in existing and future background (without the preload program) conditions. The preload program is anticipated to impact the westbound left turn movement and northbound movement causing queues to increase slightly for these movements. The existing and future background condition (without the preload program) suggest improvements are required at this intersection. Monitoring is recommended at this intersection due to the uncertainty of the degree of impact the preload program may have on this intersection. The uncertainty is due to the existing poor operation of this intersection, the queue length being very sensitive to the green time provided for a movement, and the highly conservative analysis conducted for this study (assumed both inbound and outbound employee trips would all occur at the same hour during the shift time change). CP has been engaging with Ministry of Transportation and Infrastructure (MOTI) on the Logistics Park Vancouver Project since December 2020. During this time, CP has met with MOTI four times. CP is committed to continued engagement with MOTI to receive feedback that could potenTISlly be included in the final design of the project.	Y	The Executive Summary and Section 8.1 in the TIS has been updated to expand on mitigation measures required for the preload program.	Mitigation Measures in the Executive Summary & Section 8.1
90	McElhanney	COPM	8.2 Mitigation Measures for the CPLPV Fullbuild out	But the background growth and congestion levels are high, so even a small increase in vehicles will result in increases to queuing and delays.	As noted in the draft EEE, during the operations phase (2030), modelling shows the Project would result in a small increase of between 0.9 % and 1.4 % in traffic volumes on the Lougheed Highway though the TIS acknowledges that existing road conditions in the Project area include moderate to high levels of congestion at the Kennedy and Harris Rd intersections. CP is aware that the City of Pitt Meadows Transportation Master Plan includes planned future works aimed at alleviating some of this congestion and CP is committed to working with the City, and Ministry of Transportation and Infrastructure, on improvements to local transportation infrastructure.	N	Clarification provided in response to comment, no change to TIS required.	No changes required
91	McElhanney	COPM	8.2 Mitigation Measures for the CPLPV Fullbuild out	The TIS previously stated that queues will back into tapers, which is not acceptable given high truck volumes. *Comment attached to highlighted text that reads:* The CPLPV is expected to increase the queues on the westbound left turn movement at the intersection of Lougheed Highway and Kennedy Road/Old Dewdney Trunk Road. The queue lengths for this movement is very sensitive to the green time provided for this movement	CP has been engaging with Ministry of Transportation and Infrastructure (MOTI) on the Logistics Park Vancouver Project since December 2020. During this time, CP has met with MOTI four times. CP is committed to continued engagement with MOTI to receive feedback that could potenTISlly be included in the final design of the project.	Y	The Executive Summary and Section 8.2 in the TIS has been updated to expand on mitigation measures required for the CPLPV full build out.	Mitigation Measures in the Executive Summary & Section 8.2
92	McElhanney	COPM	8.2 Mitigation Measures for the CPLPV Fullbuild out	What about provision for transit users?	CP acknowledges the City's general interest in enhancing access to transit users in Pitt Meadows. CP also notes that, at this early stage of project planning, and in the context of the findings of the draft EEE, CP has not identified any impacts to transit access as a result of the proposed project that may require mitigation. Notwithstanding the conclusion of the draft EEE, and in respect of CP's commitment to collaboration through all stages of project planning and development, CP will continue to work with the City to identify opportunities to enhance access to transit that could potenTISlly be included in the final design of project.	N	Clarification provided in response to comment, no change to TIS required.	No changes required
93	McElhanney	COPM	8.2 Mitigation Measures for the CPLPV Fullbuild out	Why not provide a bike lane along Kennedy Rd to separate vehicles from cyclists?	CP will continue to engage with the City, and the Port related to upgrades contemplated for the Kennedy Road corridor as part of the Pitt Meadows Road and Rail Project.	Y	The Executive Summary and Section 8.2 in the TIS has been updated to expand on mitigation measures required for the CPLPV full build out.	Mitigation Measures in the Executive Summary & Section 8.2
94	McElhanney	COPM	8.2 Mitigation Measures for the CPLPV Fullbuild out	RRFB doesn't seem to be warranted based on Ped Crossing Control Guide, but we do have a special case here - limited sight distance, high truck volumes, platooning from signal and/or rail crossing. It is a good idea to include RRFB to enhance visibility and safety at this crossing, which does connect to the Trans Canada Trail.	It is recognized that this is a unique pedestrian crossing. Hence, two warrants were used to determine if the additional traffic volumes would trigger upgrades to the Kennedy midblock pedestrian crossing. The Pedestrian Crossing Control Manual for British Columbia developed in 1994 depends on the number of pedestrians during the peak period, number and configuration of lanes and crossing opportunities while the TAC Pedestrian Crossing Control Guide developed in 2018 depends on the daily traffic volumes, number of lanes and speed limit. Both these standards indicates that Rectangular Rapid Flashing Beacons (RRFBs) is not required. The report also recommends an additional "Crosswalk Ahead Warning Sign" to be implemented on the northbound approach to the crossing to account for sightline issues.	N	Clarification provided in response to comment, no changes to TIS required.	No changes required
95	McElhanney	COPM	9. Findings and Conclusions / 3.	If this development pushes the LOS F further, shouldn't a mitigation for the Lougheed/Kennedy intersection be proposed? At least mitigations should be proposed to address queues from spilling outside storage lengths - it is not acceptable to have queues in tapers.	CP has been engaging with Ministry of Transportation and Infrastructure (MOTI) on the Logistics Park Vancouver Project since December 2020. During this time, CP has met with MOTI four times. CP is committed to continued engagement with MOTI to receive feedback that could potenTISlly be included in the final design of the project.	N	Clarification provided in response to comment, no change to TIS required.	No changes required

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96	McElhanney	COPM	9. Findings and Conclusions / .6	Mitigations should be proposed. *Comment attached to highlighted text that reads:* The increased number of trucks during the site preload program may cause cyclist discomfort on Kennedy Road	CP will continue to engage with the City, and the Port related to upgrades contemplated for the Kennedy Road corridor as part of the Pitt Meadows Road and Rail Project. CP has also been engaging with Ministry of Transportation and Infrastructure (MOTI) on the Logistics Park Vancouver Project since December 2020. During this time, CP has met with MOTI four times. CP is committed to continued engagement with MOTI to receive feedback that could potenTISIly be included in the final design of the project.	N	Clarification provided in response to comment, no change to TIS required.	No changes required
97	McElhanney	COPM	9. Findings and Conclusions / 8.	How will it tie in? *Comment attached to highlighted text that reads:* Kennedy McTavish Connector.	The possible connection point is shown in Appendix A.	N	Clarification provided in response to comment, no changes to TIS required	No changes required
98	McElhanney	COPM	9. Findings and Conclusions / 9.	This should be further clarified, since the intersection is already at LOS F.	Noted. Text has been changed.	Y	This line has been removed in Section 9 in the TIS.	Section 9
99	McElhanney	COPM	9. Findings and Conclusions / 11.	What about mitigations for queues from rail crossing events? The queues will likely spillback and block accesses / intersections. This will be made worse by the development. What is being proposed for this?	Please refer to response to comment #78.	N	Clarification provided in response to comment, no change to TIS required.	No changes required
100	McElhanney	COPM	9. Findings and Conclusions / 12.	What about the optimized timing plans that were used? Shouldn't a mitigation be developing these timing plans and submitting to Moti? Maybe more detail needed here as well - who will monitor the queues? Who will determine the timing plans?	As noted in the draft EEE (Mitigation M16-1 - Coordination with Road Authorities during pre-construction and construction and M16-3 - Coordination with Road Authorities during operations), CP will coordinate with the Ministry of Transportation and Infrastructure to ensure that monitoring is undertaken to assess road conditions during pre-construction, construction and operations. Where monitoring determines that additional mitigation may be required, including but not limited to changes in signal timing, CP will work with MOTI in the implementation of mitigation.	Y	Section 9 in the TIS has been updated to expand on the mitigation measures required.	Section 9
101	McElhanney	COPM	9. Findings and Conclusions / 13.	This presumes that people will not take transit or active modes and concludes too prematurely that no facilities should be provided. If safe routes for peds and cyclists are provided, then more people would use these modes. This doesn't seem to provide enough choice for mode of travel.	CP acknowledges and supports the City's interest in enhancing active transportation infrastructure adjacent to the Project. CP also notes that, at this early stage of project planning, and in the context of the findings of the draft EEE, CP has not identified any impacts to active transportation infrastructure, resulting from the proposed project, that may require mitigation. Notwithstanding the conclusion of the draft EEE, and in respect of CP's commitment to collaboration through all stages of project planning and development, CP will continue to work with the City to identify opportunities for enhancements to active transportation that could potenTISIly be included in the final design of project.	N	Clarification provided in response to comment, no changes to TIS required.	No changes required