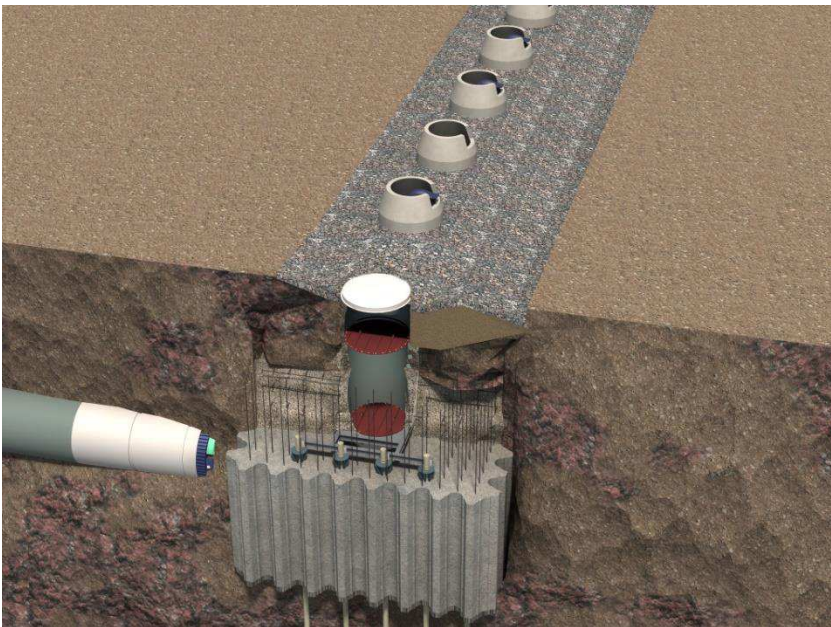


APPENDIX H NOISE STUDIES

H.1: Noise Assessment Screening Worksheet

Annacis Island WWTP New Outfall System

Vancouver Fraser Port Authority
Project and Environmental Review Application



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SERVICES AND SOLUTIONS FOR
A LIVABLE REGION

**CDM
Smith**

 **BKL**

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APPENDIX I – NOISE ASSESSMENT SCREENING WORKSHEET

This worksheet should be employed by one or more informed individuals representing the applicant in order to establish the potential to create noise impacts within surrounding areas. This screening procedure is opinion-based and largely qualitative in nature and involves completing a series of questions.

1. Complete this worksheet scoring each of the ten items.
2. Transfer the ten questionnaire scores into the Weighted Project Screening Scorecard provided as Appendix II – Noise Assessment Project Score.
3. Follow procedure in Appendix II

Question 1 – New Activity, Replacement or Expansion		
Will the project involve only the replacement of existing equipment or activities or the expansion of a pre-existing facility or activity, or will it involve significant new noise sources or activities?		
• Replacement of Existing Equipment or Activities		Score 1 point
• Expansion of Existing Equipment or Activities		Score 3 points
• New Equipment or Activities		Score 5 points

Question 2 – Noise Levels Expected on Project Site		
Based on experience with similar operations at the current location or elsewhere, or on your best judgment, do you expect that noise levels within the project site will be:		
• Very Low		Score 1 point
• Low		Score 2 points
• Moderate		Score 3 points
• High		Score 4 points
• Very High		Score 5 points


Question 3 - Presence of Undesirable Characteristics		
Will any of the key activities/sources create ongoing noise which:		
(1). is clearly tonal (hums, whirs, whines),		
(2). is impulsive or has very rapid onset (bumps, bangs, material handling impacts, rail car shunting, compressed air release etc.), or		
(3). contains strong low-frequency content (e.g. large diesel engines, large fans or air compressors).		
• No		Score 0 points
• Yes, noise will contain one such characteristic		Score 3 points
• Yes, noise will contain two or three such characteristics		Score 5 points


Question 4 – Presence of High-Energy Impulsive Noise		
Will any activities create ongoing noise which could be classified as “High-energy Impulsive”? Examples of such sources are limited in the port context but could include the industrial use of explosives or explosive circuit breakers.		
• No		Score 0 points
• Yes		Score 5 points


Question 5 – Hours/ Days of Operation		
Will the normal operating schedule be:		
• Day Shift only (5 days/week)		Score 1 point
• Day Shift only (7 days per week)		Score 2 points
• Day & Evening Shifts (5 days/week)		Score 2 points
• Day & Evening Shifts (7 days/week)		Score 3 points
• 24-hours per day (5 days /week)		Score 4 points
• 24-hours per day (7 days per week)		Score 5 points

Question 6 – Proximity to Noise-Sensitive Areas		
How far is the nearest noise-sensitive land use (residences, schools, hospitals, passive parks etc.) from the property line of the project site?		
• More than 1,000 m		Score 0 points
• 500 to 1,000 m		Score 1 point
• 250 to 500 m		Score 2 points
• 125 to 250 m		Score 3 points
• 60 to 125 m		Score 4 points
• less than 60 m		Score 5 points

Question 7 – Presence of Noise Shielding or Reflection		
Will buildings, structures and/or landforms partially or totally screen (that is, interrupt the line of sight and direct hearing) project noise sources from nearby noise receptors? Here consideration should be given to the relative elevations of the noise sources, the noise receivers (ground and upper floors) and the intervening buildings and/or landforms. Noise shielding effects are maximized when intervening buildings and/or landforms are higher and wider than both the noise source area and the noise receiver area. Alternatively, the project may involve construction of a building or other structure that, while not necessarily a significant source of noise itself, reflects noise from other sources towards adjacent noise-sensitive areas. This other noise may originate from project operations or from sources not related to the project, such as other port operations or transportation facilities related sources.		
• Substantial, continuous noise shielding		Score 0 points
• Substantial, but not total, screening		Score 1 point
• Intermittent shielding, e.g., row of smaller, non-adjointing buildings		Score 2 points
• Scattered shielding by objects, machinery, stockpiles		Score 3 points
• No shielding potential		Score 4 points
• No noise shielding and will reflect noise towards sensitive areas		Score 5 points

Question 8 – Baseline Noise Environment	
How would you rate the baseline (pre-project) noise environment within the noise sensitive area nearest the project site?	
 <ul style="list-style-type: none"> Very noisy (near busy highway, busy port, airport, heavy industry) Score 1 point • Noisy (near busy arterial road, light industrial area, urban core) Score 2 points • Moderately noise (near collector road, suburban residential) Score 3 points • Quiet (suburban residential away from collector roads) Score 4 points • Very Quiet (rural residential, well away from industry or main roads) Score 5 points 	

Question 9 – Population Potentially Exposed to Project Noise	
Approximately how many residences or other noise sensitive land uses are located within 500 m of the project site’s property line?	
 <ul style="list-style-type: none"> 5 or less Score 1 point • 5 to 15 Score 2 points • 16 to 40 Score 3 points • 41 to 100 Score 4 points • more than 100 Score 5 points 	

Question 10 – Level of Community Concern about Noise	
What level of concern (e.g., complaint history) currently exists among residents/users of adjacent noise sensitive lands regarding noise emissions from PMV lands in general and your project site in particular?	
 <ul style="list-style-type: none"> • No history of concern or complaints Score 1 point Minor concerns have been expressed Score 2 points • Unknown Score 3 points • Moderate level of concern, some complaints Score 4 points • High level of concern/organized complaints Score 5 points 	

APPENDIX II – NOISE ASSESSMENT PROJECT SCORE

This worksheet should be used together with the questionnaire in Appendix I – Noise Assessment Screening Worksheet. For each of the ten questions, this worksheet applies a weighting factor that is reflective of the relative importance of that attribute in forecasting noise impact potential. The overall noise impact potential of the project is determined by tallying the weighted values of all response scores to obtain a *Total Weighted Project Score* as follows:

1. Complete the questionnaire as provided in Appendix I – Noise Assessment Screening Worksheet, scoring each of the ten items.
2. Transfer the ten questionnaire scores into the Weighted Project Screening Scorecard provided below.
3. Apply the *Importance Weighting* factor (multiplying the weighting factor by the questionnaire score) and determine a *Weighted Score* for each item.
4. Tally the *Weighted Scores* and determine the *Total Weighted Project Score*
5. Submit a completed project score worksheet as part of the PER project permit application

No.	Attribute of Project or Project Setting	Questionnaire Score (Appendix I)	Importance Weighting	Weighted Score
1	New Activity, Replacement or Expansion	3	1.2	3.6
2	Noise Levels Expected on Project Site	1	1.8	1.8
3	Presence of Undesirable Characteristics	0	1.6	0.0
4	Presence of High Energy Impulsiveness Noise	0	1.6	0.0
5	Hours/Days of Operation	5	1.2	6.0
6	Proximity to Noise Sensitive Areas	1	1.6	1.6
7	Presence of Noise Shielding or Reflection	0	1.8	0.0
8	Baseline Noise Environment	1	1.6	1.6
9	Population Potentially Exposed to Project Noise	1	1.0	1.0
10	Level of Community Concern About Noise	2	1.2	2.4
Total Weighted Project Score :				18.0

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