Lower Duwamish Waterway Upper Reach Remedial Action

Noise Control Plan

Revision 6

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Quality information

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Abbreviations

BMP	Best management practices
CQA Team	King County's Construction Quality Assurance Team
dB(A)	A-weighted decibel
EMB	Environmental Mitigation Binder
KC	King County
LDW	Lower Duwamish Waterway
Plan	Noise Control Plan
PPM	Pacific Pile & Marine
Site	Lower Duwamish Waterway Superfund Site
SMA	Sediment Management Area
SMC	Seattle Municipal Code
TMC	Tukwila Municipal Code

1. Introduction

This Noise Control Plan (Plan) for the Lower Duwamish Waterway (LDW) Upper Reach describes noise control requirements and procedures to be implemented during remedial construction activities for the upper reach of the Lower Duwamish Waterway Superfund Site (Site) in King County, Washington.

The general scope of work includes the following:

- Mobilization of construction equipment and materials;
- Site preparation activities, including construction and setup of the staging and stockpile area(s), temporary erosion and sediment controls, water collection and treatment management practices, utility disconnection, and clearing/grubbing;
- Dredging, excavation, potential contingency re-dredging, barge dewatering, in-water transportation, transloading, upland transportation and disposal of dredge material, dredge debris, identified debris, and piling from the Sediment Management Areas (SMAs);
- Placement of clean imported materials in and around the SMAs;
- Removal of pilings, bulkhead strengthening and reinforcement, replacing of piling with steel pipe, and installation of outfall energy dissipation structures; and
- Site restoration, cleanup, and demobilization.

1.1 Purpose

The purpose of this Plan is to identify, minimize, and mitigate project-related quality of life impacts associated with noise generating Site activities that have the risk of affecting the surrounding community and to perform the remedial action complying with all federal, state, and local noise standards. The following Site documents were used to prepare aspects of this Plan:

- 100% Remedial Design Basis Volume II, Part I Construction Quality Assurance Plan for Lower Duwamish Waterway Upper Reach (Anchor QEA, 2024);
- Specification Section 01 33 00 (Submittals); and
- Specification Section 01 35 43 (Environmental Procedures).

Work for the Site will be performed in accordance with the plans and specifications or as directed by the Project Representative to execute this Plan.

1.2 Key Roles and Responsibilities

The Remedial Action Work Plan (RAWP) provides an organizational chart of key Site personnel, roles, and a summary of responsibilities. King County's Construction Quality Assurance Team will be responsible for performing all noise monitoring as outlined in the Construction Quality Assurance Plan (Anchor QEA, 2024).

2. Performance Standards and Noise Generating Equipment

2.1 Performance Standards

Referenced standards applicable to this Noise Control Plan include those stated in **Table 2-1**:

Table 2-1 Reference Standards

REFERENCE	TITLE
King County (KC) Title 12.86	Noise Standards
Seattle Municipal Code (SMC) Chapter 25.08	Noise Control
Tukwila Municipal Code (TMC) Chapter 8.22	Noise Standards

Local ordinances establish strict maximum permissible sounds levels produced from construction activities to the receiving properties including, residential properties (upland areas and live-aboard residential marinas) during daytime and nighttime, commercial, and industrial properties. SMC 25.08.410 sets a 60 A-weighted decibel (dB[A]) limit for industrial to residential noise generation during daytime hours and 50 dB(A) during nighttime hours[1]. SMC 25.08.425 allows an additional 25 dB(A) for heavy equipment used in construction activities, making the maximum permissible daytime sound level at the receiving residential property 85 dB(A) measured at the Site perimeter, identified as the shoreline boundary when the Contractor is working over water and upland property boundaries when the Contractor is working on land in the CQAP, Appendix C, page C-7, Section 2.1.2 Performance Standards or 50-feet from the nearest equipment, whichever is further (except in SMA 13, 50' will apply). The 85 dB(A) maximum permissible sound level is applicable between the hours of 7:00 a.m. and 10:00 p.m. on weekdays and between 9:00 a.m. and 10:00 p.m. on weekends and legal holidays. SMA 5 is classified as a Commercial property and the Duwamish Reload Facility is classified as an Industrial property. **Table 2-2** displays the maximum permissible sound levels from local standards to be enforced on Site.

Table 2-2: Maximum Permissible Sound Levels from All Local Ordinances[1]

District of Sound-Producing Sources	Maximum Permissible Sound Level of Receiving Property[2]			
	Residential, Daytime	Residential, Nighttime	Commercial	Industrial
Industrial	60 dB(A)[3]	50 dB(A)	65 dB(A)[3]	70 dB(A)[3]
At Site Perimeter or 50-feet from Equipment (whichever is further), Daytime Only[2]	Additional noise allowance of 25 dB(A)	N/A	Additional noise allowance of 25 dB(A)	

Notes:

1. Anchor QEA, 2024. 100% Remedial Design Volume II, Part I Construction Quality Assurance Plan for Lower Duwamish Waterway Upper Reach. Anchor QEA. January 2024.

2. The maximum permissible noise level is applied to a minimum measurement interval of 1 minute for a constant sound source or a 1-hour measurement for a non-continuous sound source.

3. Daytime is defined as the most stringent daytime period among all local ordinances: between 7:00 a.m. and 10:00 p.m. on weekdays and between 9:00 a.m. and 10:00 p.m. on weekends and legal holidays. This definition is also applicable to construction equipment used on public projects per SMC 25.08.425.

dB(A): A-weighted decibel

N/A: not applicable

SMC: Seattle Municipal Code

All Site activities including work conducted at the PPM yard (700 S Riverside Dr. Seattle, WA 98108) and the Duwamish Reload Facility will comply with the maximum permissible sound levels for the

[1] Daily daytime construction work hours will be 7 am to 7 pm. In the winter, it will be dark outside before 7 pm. This is still considered daytime work. Nighttime work is from 10 pm to 7 am.

cities of Seattle and Tukwila and unincorporated King County required by the Specification Section 01 35 43 (Environmental Procedures). When working close to residential areas such as upland areas and live-aboard residential marinas adjacent to the site perimeter, PPM will implement best management practices (BMPs) that limit the extent of noise impacts on the community.

Due to the excavation requirements at SMA 5, noise generating equipment will be operated during the low tide hours which will generally be between the hours of 6:00 pm and 6:00 am which is outside of the standard Site hours. Prior to executing work at SMA 5 and in the event that other Site activities are necessary outside of the standard Site hours, PPM will notify KC and request Project Representative approval per Section 01 14 00 (Work Restrictions). If approved by the Project Representative, PPM will comply with the SMC, TMC, and King County Title 12 noise ordinances that correspond to the time that work will be conducted.

2.2 Noise Generating Equipment

Noise-generating construction activities will be limited to standard working hours (between the hours of 7:00 a.m. and 7:00 p.m. for weekdays and 9:00 a.m. and 7:00 p.m. for weekends and legal holidays) to the extent possible. Due to the excavation requirements at SMA 5, work will generally be conducted between 6:00 pm and 6:00 am. The planned dates for work to be completed at SMA 5 is between December 28th, 2026 and March 9th, 2027.

Noise generating equipment proposed for use at the Site, the expected activities of use, estimated operating hours, and typical noise generation levels are outlined in **Table 2-3**.

Table 2-3: Noise Generating Equipment

Equipment	Construction Activity/Activities	Typical Noise Level (Lmax)[1] dB(A) at 50 feet	Associated BMPs & Mitigation Measures (Section 3)
All Other Equipment > HP	Bulkhead Wall	85	A, B, C, D
Air Compressor	Bulkhead Wall	80	A, B, C, D
Work Skiffs	All marine-based activities	72	K, F, J
Crane	Bulkhead Wall	85	A, B, C
Dump Truck	SMA 5 Excavation and placement	84	A, B, C, D, F
Excavator	Dredging & Material Placement, SMA 5 Excavation and Placement	85	A, B, C, E, H, K, I, J
Front End Loader	Material Placement, SMA 5 Excavation and Placement	73	B, C, E, H, K, I, J
Generator	All marine-based activities	82	B, C, E, G, H, K, J
Pickup Truck	All activities	55	B, C, E, H, K, I, J
Pump	Dredging & Excavation Activities	73	B, C, E, H, K, J
Tugboat	All marine-based activities	87	C, E, G, F

Vibratory Pile Driver	Bulkhead Wall	95	A, B, C, E, G, H, K, J
Welder Units	Bulkhead Wall	85	B, C, D, E, G, H, K, J

Notes:

Source: Federal Highway Administration Construction Noise Handbook, 2006

1. The L_{max} is the maximum measured sound level at any instant in time.

3. Noise Reduction and Mitigation

Typical work configurations for upland (SMA 5) and in-water work are depicted on **Figure 1** and **Figure 2-4** respectively.

Noise reduction and preventative measures will be implemented during Site activity, in response to noise monitoring exceedances, and at the request of the Project Representative. Noise monitoring will be conducted at the beginning of work activities to confirm that operations are in compliance with applicable standards and if there are multiple noise complaints in accordance with the Construction Quality Assurance Plan (Anchor QEA, 2024). BMP preventative measures that will be implemented during noise generating Site activities are included below with a letter associated for each, see **Table 2-3** for the noise generating equipment that each BMP is applicable for.

A. Use electric or hydraulic tools and equipment as practicable.
B. Use the best available equipment and technology that assist in meeting noise requirements.
C. Equipment with properly sized and maintained mufflers and silencers will be used.
D. Idling time of on-road vehicles, including delivery and haul trucks, will be limited to 5 minutes maximum (not a requirement for heavy marine construction equipment).
E. Equipment engines will be turned off when the equipment will be inactive for more than 30 minutes.
F. Reduce vehicle speeds when transiting near residential areas.
G. Use broadband alarms on equipment with backup alarms.

Mitigation measures that will be selected from and implemented in response to noise monitoring exceedances and at the request of the Project Representative are included below with a letter associated for each, see **Table 2-3** for the noise generating equipment that each mitigation measure is applicable for.

H. Adjusting noisy operations within the hours of Work.
I. Install individual noise barriers or enclosures around equipment.
J. Phase work with construction equipment that generates noise.
K. Limit work hours for certain activities in locations near residential or liveaboard occupancy.

If compliance with noise monitoring levels cannot be achieved with the BMPs and mitigation measures described above, a path forward will be discussed with the Project Representative. Site activities may temporarily be stopped or redirected to a different location while a path forward is discussed.

4. Quality Control

4.1 Documentation

The PPM Project Engineer will be responsible for documenting the following information for each noise monitoring event:

- Date/time;
- Weather information;
- If noise monitoring was performed, reason for monitoring event including the generating source;
- If monitoring event was in response to community complaint(s), details of the complaint(s) shall be documented including:
    - Time of complaint,
    - Location complaint is in reference to,
    - Generating source of complaint, and
    - Summary of the complaint received.
- Location of monitoring event;
- Results of monitoring;
- Summary of response actions taken, effectiveness, and duration if the monitoring event was due to community complaint(s); and
- Summary of communications with the Project Representative including the time that the complaint(s) were addressed if the monitoring event was in response to complaint(s).

4.2 Reporting

The Construction Quality Control Officer will compile the documentation outlined in **Section 4.1** into the following reports and include the information summarized below at a minimum.

Daily Construction Reports, due the morning of the next workday, will include the following information:

- Document noise criteria compliance, associated issues, and community complaint as applicable;
- BMPs implemented; and
- Response actions taken to address community complaints or Project Representative requests.

Weekly Construction Reports, due the Monday morning of the following work week, will include the following information:

- Document noise criteria compliance associated issues, and community complaints as applicable;
- BMPs implemented;
- Response actions taken to address community complaints or Project Representative requests;
- Summary of communication with the Project Representative regarding the information and requirements described in this Plan;
- Summary of outstanding issues; and
- Photographs documenting Site activities and mitigation measures.

Monthly Progress Reports, due with each Application for Payment, will include the following information;

- Brief summary of monitoring events;
- Brief summary of all mitigation measures; and
- Brief summary of community complaints received, and mitigation measures implemented to address complaints, if applicable.

5. References

Anchor QEA, 2024. 100% Remedial Design Volume II, Part I Construction Quality Assurance Plan for Lower Duwamish Waterway Upper Reach. Anchor QEA. January 2024.

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