EXHIBIT J
TO EXTRAORDINARY PETITION OF KIC FOR AFFIRMATION OF VARIANCE
Cohen, Justin L.

From: Hunter.Sydnor <Hunter.Sydnor@kiewit.com>
Sent: Sunday, August 19, 2018 1:40 PM
To: Cohen, Justin L.; Farbes, Hubert; Matt.Sanman; Tom.Howell
Subject: FW: CORA Request Fulfillment
Attachments: CORA Request Noise Variance before the Board from 2010-2016.pdf

Kiewit - Meridiam

Hunter Sydnor
Kiewit – Meridiam Partners
Public Information
303-549-2671 cell
hunter.sydnor@kiewit.com

From: Hollins, Linda L. - DEH Admin Support Asst IV [mailto:Linda.Hollins@denvergov.org]
Sent: Tuesday, August 14, 2018 10:25 AM
To: Hunter.Sydnor <Hunter.Sydnor@kiewit.com>
Subject: [EXTERNAL] FW: CORA Request Fulfillment

2nd document for your CORA request.

Thank you.

Linda Hollins
(720) 865-5392
Noise Variances Heard before the Board of Public Health & Environment (previously, the Board of Environmental Health (BEH))

2010

6-10-10 Docket BEH 10-79 Lafarge West/Variance granted

2011

None

2012

2-9-12 Docket BEH 12-04 CDOT & Edward Kraemer & Sons/Variance Granted
3-8-12 Docket BEH 12-21 CDOT & Hamon Contractors/Variance Granted
3-8-12 Docket BEH 12-05 CDOT & Lawrence Construction Co./Variance Granted
11-20-12 Docket BEH 12-181 Kiewit/Variance Granted

2013

4-11-13 Docket BEH 13-40 Lawrence Construction Co./Extension to Existing Variance/Variance Extension Granted
9-12-13 Docket BEH 13-101 RTD & Railroad Specialties/Variance Granted

2014

1-19-14 Docket BEH 13-142 CDOT & Edward Kraemer & Sons/Variance Granted
10-9-14 Docket BEH 14-74 Denver Transit Constructors/Variance Granted
11-13-14 Docket BEH 14-84 Jalisco International Inc./Variance Granted

2015

1-8-15 Docket BEH 14-94 Concrete Works of Colorado & Denver Public Works (Phase 2)/Variance Granted
4-9-15 Docket BEH 15-19 ABCO Contracting Co., Inc. & CDOT/Variance Granted
5-14-15 Docket BEH 15-31 Lawrence Construction Co./Variance Granted
6-11-15 Docket BEH 15-42 Denver Water/Variance Granted
INTRODUCTION

APC Construction Co. (applicant) submitted for consideration a request for a variance to the City and County of Denver's Noise Ordinance, Denver Revised Municipal Code Chapter 36 for the Sheridan Blvd. from US 285 to W. Arizona Ave. Improvement Project. This is a Colorado Department of Transportation (CDOT) project. The applicant is requesting this variance for the purpose of making improvements to Sheridan Blvd. from US 285 to W. Arizona Ave. The project is within both the City and County of Denver and City of Lakewood, Jefferson County.

The overall scope of this project is to mill and resurface the roadway, complete concrete repairs and replacement of curb, gutter, and sidewalks, bring ramps up to ADA standards, upgrade traffic signals, complete bridge deck repairs, and other miscellaneous needs to Sheridan Blvd. from US 285 to W. Arizona Ave. This project will take place over approximately a six-month period of time.

Nighttime work will consist primarily of asphalt milling, resurfacing, concrete work and bridge deck repairs to Sheridan Blvd. The project corridor is located adjacent to single and multi-family residential properties and commercial properties.

The project will require an overall time frame of approximately 153 days to complete. The time frame accounts for potential schedule delays and other changes to the schedule that may occur. Night work is scheduled to begin as soon as July 13, 2017.

The Noise Ordinance, section 36-7(5) a., states that:

"No person shall operate any construction equipment nor conduct any construction activities between the hours of 9:00 p.m. and 7:00 a.m. Monday – Friday, and 5:00 p.m. and 8:00 a.m. Saturday – Sunday, that exceeds the noise limits of Table A."

NOTE: Variances to the construction restrictions may be granted by the Board of Environmental Health if it can be demonstrated that such activities would interfere with traffic or jeopardize public safety if completed during daytime hours.

Table A lists the allowable noise levels from 10:00 p.m. to 7:00 a.m. as 50 dBA in residential areas and from 7:00 a.m. to 10:00 p.m. allowable noise levels are 55 dBA in residential areas. However, an
exemption for construction noise during daytime is provided in Section 36-6(b)(7). When background sound levels at the receiving premises equal or exceed the allowable levels specified in Table A, then the background sound levels become the standard.

RECOMMENDATION

The Denver Department of Environmental Health (DEH) recommends that the variance request submitted by the applicant be approved with conditions.

In making this recommendation, DEH took into consideration the following information:

- reported public health effects of differing noise levels and durations from construction equipment;
- the schedule necessary for the applicant to minimize public inconvenience due to traffic congestion and/or closure of major roadways;
- public safety considerations;
- the proximity of the project to residential and noise sensitive populations;
- existing and proposed noise mitigation measures;
- existing background noise levels; and
- opportunities for public participation and notification plans.

DEH has attempted to balance public health with the requirement that the Sheridan Blvd. Improvement Project be completed. DEH believes that neither will be significantly compromised if the conditions described herein are implemented.

Based on the information submitted by the applicant, DEH recommends that the Board approve the variance request, contingent upon the following conditions. Within these conditions, the terms are as defined in Appendix A of these recommendations, attached hereto and incorporated herein by reference.

1) **Duration:** This variance shall extend through completion of road construction improvement activities on Sheridan Blvd. from US 285 to W. Arizona Ave., associated with the Sheridan Blvd. Improvement Project but not later than December 31, 2017.

2) **Construction Activity Allowable Noise Levels:** Construction noise levels shall not exceed an hourly Leq of 75 dBA or an Lmax of 86 dBA during the hours of 9:00 p.m. to 7:00 a.m. Monday – Friday and 5:00 p.m. to 8:00 a.m. Saturday and Sunday (Nighttime Hours) unless accommodations described in 3) are provided.

3) **Hotel accommodations within eligibility zones:** The applicant shall make hotel accommodations available for persons residing within eligibility zones where the nighttime construction noise levels are predicted to exceed the allowable noise levels described in 2). The eligibility zone shall be determined in advance of the Construction Activities through a sound study conducted by the applicant using sound modeling and provided to DEH for review and approval prior to a seven-day notification period. The applicant shall consider any special circumstances brought to their attention regarding individuals in the eligibility zone who cannot utilize hotel vouchers and who may be at risk during this period of time, e.g., residents of 24-hour health care facilities. The applicant shall make their best effort to accommodate the needs of such individuals during Construction Activity. Additionally, if construction noise complaints are received from outside of the eligibility zone, the applicant is provided the option of either immediately offering hotel vouchers to the complainant or conducting noise monitoring to determine if the Leq or the Lmax at the complainant’s location exceeds the allowable noise levels described in 2) and thus warrants a hotel voucher. Without supporting noise
monitoring data, a construction noise complaint from outside of the eligibility zone must immediately be offered a hotel voucher as a mitigation option by the applicant.

a) At facilities where employees, residents and patients do not have the ability to relocate during construction operations, work shall not take place within 460 ft of those facilities between the hours of 10 p.m. and 7 a.m.

4) Notifications: Notification must be completed not less than seven days prior to commencement of construction during Nighttime Hours, the applicant shall notify DEH and Residential Neighborhood Organizations (RNOs) located within a 200 foot radius of the construction (see Appendix A). Notice shall be in writing or by direct personal contact from the applicant’s representative, and shall include the expected start time, expected duration, character of work activity planned, names and telephone numbers of available contact persons (for additional information or questions), contact numbers for complaints, and any other relevant parameters or programs. Households within the eligibility zone shall receive notice regarding their eligibility for hotel vouchers at the same time or earlier. DEH shall be given as part of a weekly report: a list of RNOs receiving notifications; a list of households eligible for hotel vouchers; a copy of the notification sent to the RNOs; and a copy of the hotel vouchers offered to eligible households.

5) Mitigation Requirements/Activity Restraints: When construction is conducted during Nighttime Hours and such activity emits noise levels that exceed the applicable background noise levels at residential properties, the applicant shall utilize BMPs to mitigate construction noise impacts to the adjacent property owners. DEH shall be given as part of a weekly report the BMPs utilized during nightly operations. BMPs include the following:

a) Using reasonable best efforts to complete the construction as quickly as possible.
b) Minimizing nighttime construction duration near residential areas whenever possible.
c) Re-routing of truck traffic away from residential streets when possible.
d) Conducting truck loading, unloading and hauling operations so that noise levels are kept to a minimum such as but not limited to eliminating slamming of truck beds, truck tailgates, and equipment buckets.
e) Idle equipment motors down when the equipment is not in immediate use.
f) Configuring equipment on the site to minimize back-up alarm noise, where practical and feasible (for example, by using circular movement of trucks).
g) Shielding equipment, such as but not limited to jackhammers, saws and pavement breakers, through use of an existing sound barrier wall or a temporary barrier where practicable.
h) Maintaining all equipment to meet manufacturer’s specifications.
i) Informing employees, contractors and subcontractors performing construction of the general requirements of this variance and exercising best efforts to ensure that such employees, contractors and subcontractors follow BMPs in mitigating construction noise.

6) Monitoring:

a) The applicant must perform monitoring to demonstrate compliance with requirements described in 2) when complaints are received from outside of the eligibility zone and the applicant chooses not to immediately provide hotel voucher mitigation to the individual(s) submitting the complaint. In this case the following shall apply to demonstrate noise levels are below limits requiring hotel voucher mitigation.
i) Noise measurements shall be collected using ANSI guidelines for community noise monitoring including the following general guidelines:
(1) Manufacturer’s specifications for appropriate meter use shall be followed.
(2) All noise measurements shall be made using the A-weighted scale (dBA) and a fast response.
(3) Noise measurements shall be made at the nearest residential property line, unless physically impractical.

ii) Monitoring shall meet the following requirements:
(1) Noise monitoring shall be provided in response to all noise complaints.
(2) Construction Activity shall be monitored for $L_{\text{max}}$ and 30-minute $L_{\text{eq}}$ levels.
(3) All noise monitoring data and documentation shall be provided to DEH in a weekly report, and such data shall be available to the public from DEH. DEH or their designated representatives may inspect collected data more frequently.

iii) The following documentation shall be provided for noise monitoring that is conducted and shall be provided to DEH in a weekly report in a manner and form mutually agreed upon by the applicant and DEH:
(1) Manufacturer names, model numbers, and serial numbers of each SLM and acoustical calibrator used.
(2) Software manufacturer, program and version.
(3) Dates of annual certified calibration of SLM, microphone and acoustical calibrator.
(4) Pre- and post-monitoring calibration data for the SLM.
(5) Date and specific location (address if appropriate) of monitoring.
(6) Start time and end time of monitoring.
(7) Ambient weather conditions including temperature, relative humidity, wind speed and cloud cover.
(8) Signature of technician collecting the data.
(9) List of each 30-minute $L_{\text{eq}}$ for the monitoring period, with associated $L_{\text{max}}$ levels.
(10) All measurements associated with any unusual noise events that occurred, cause of such event, correction of such event (if any), and adjusted and unadjusted measurements.

b) The applicant may elect to conduct monitoring in lieu of using the Roadway Construction Noise Model for determining eligibility zones. If monitoring is the choice of the applicant, the applicant shall perform monitoring sufficient to demonstrate compliance with the requirements of the noise variance and to demonstrate to the community the noise levels that are present.

i) Noise measurements shall be collected using ANSI guidelines for community noise monitoring including the following general guidelines:
(1) Manufacturer's specifications for appropriate meter use shall be followed.
(2) All noise measurements shall be made using the A-weighted scale (dBA) and a slow response. Fast response measurements may be used to measure impulsive noise sources.
(3) Noise measurements shall be made at the nearest residential property line, unless physically impractical.

ii) All nighttime Construction Activity shall be initially monitored. Monitoring shall include spot measurements, as appropriate and 30-minute $L_{\text{eq}}$ measurements. Monitoring shall be required for, but not limited to, the following activity groups:
(1) Demolition operations
(2) Rubble load-out
(3) Construction operations
(4) Excavation

iii) Monitoring shall meet the following requirements:
(1) Each construction activity shall be monitored a minimum of two days for $L_{\text{max}}$ and 30-minute $L_{\text{eq}}$ levels to establish an activity baseline for each activity when initially undertaken, and to establish the expected worst case situation.
(2) Noise monitoring shall be provided in response to all noise complaints.
(3) All noise monitoring data and documentation shall be provided to DEH in a weekly report, and such data shall be available to the public from DEH. DEH or their designated representatives may inspect collected data more frequently.
iv) The following documentation shall be provided for noise monitoring that is conducted and shall be provided to DEH in a weekly report in a manner and form mutually agreed upon by the applicant and DEH:

1. Manufacturer names, model numbers, and serial numbers of each SLM and acoustical calibrator used
2. Software manufacturer, program and version.
3. Dates of annual certified calibration of SLM, microphone and acoustical calibrator.
4. Pre- and post-monitoring calibration data for the SLM.
5. Date and specific location (address if appropriate) of monitoring.
6. Start time and end time of monitoring
7. Ambient weather conditions including temperature, relative humidity, wind speed and cloud cover.
8. Signature of technician collecting the data.
9. List of each 30-minute $L_{eq}$ for the monitoring period, with associated $L_{max}$ levels.
10. All measurements associated with any unusual noise events that occurred, cause of such event if known, correction of such event (if any), and adjusted and unadjusted measurements.

7) **Complaint Notification and Response:** The applicant shall ensure that methods are available to receive, address and respond to concerns raised by people in the community, through:

a) Assuring that a field representative is available to respond to complaints regarding construction noise levels and provide monitoring if applicant desires in lieu of hotel voucher mitigation when complaint comes from outside of the eligibility zone. The field representative shall be empowered to shut down Construction Activity, authorize correction or remediation of sources of excess noise, and authorize resumption of Construction Activity as necessary to maintain compliance with allowable noise levels.

b) Providing telephone access to a field representative during hours of project activities to receive complaints or comments from the public for the duration of the project. All complaints immediately shall be recorded, investigated and addressed as appropriate by the field representative and reported to DEH in a manner mutually agreed by DEH and the applicant. A response, in a reasonable form requested by the caller, summarizing the investigation and any corrective actions taken by the applicant shall be provided to the caller. Written copies of complaints received and responses by the applicant shall be provided to DEH in the weekly report.

8) **Weekly Report:** A weekly report from the applicant will be supplied to DEH in a manner mutually agreed by DEH and the applicant beginning a minimum of seven days prior to commencement of nighttime project activity and continuing on a weekly base throughout the duration of this noise variance or completion of nighttime project activity whichever occurs first. The weekly report shall include but not be limited to the following:

- the list of RNOs receiving notifications;
- the list of households eligible for hotel vouchers;
- a weekly report a copy of the notification sent to the RNOs;
- a weekly report a copy of the hotel vouchers offered to eligible households;
- the BMPs utilized during nightly operations;
- all documentation noted and set forth in RECOMMENDATION 6) b) iv) 1-10;
- written copies of all complaints received and responses given by the applicant.

9) **Fines and Penalties:** Each violation of a condition and any line item contained within a condition constitute a separate violation of this variance and the City and County of Denver's noise ordinance,
10) Revocation: Upon notice to the applicant and after a hearing before Denver’s Board of Environmental Health, the Board of Environmental Health may revoke this variance if the applicant fails to comply with its terms.
APC Construction Co. Sheridan Blvd. – US 285 to W. Arizona Ave. Improvement Project Variance Request
Findings and Recommendations of the Department of Environmental Health
June 27, 2017. Page 7

APPENDIX A

APC Construction Co. Sheridan Blvd. – US 285 to W. Arizona Ave. Improvement Project City Council District and Residential Neighborhood Organization Information:

**Denver Neighborhood Association, Inc.**
1285 Dexter St.
Denver, CO 80220
Contact: Bradley L. Zieg
Phone 1: 303-994-1395
Phone 2: 303-329-0046
Email: bradleyzieg@msn.com
secy.denverna@gmail.com
N: City Limits (Excluding DIA)
S: City Limits
E: City Limits
W: City Limits
Last Changed: 12/15/2017

**Greater Mar-Lee Community Organization**
PO Box 19412
Denver, CO 80219
Contact: Steve Hildmann
Phone 1: 303-801-7833
Phone 2: 303-935-0062
Email: greatermarlee@msn.com
donnarepp@gmail.com
N: Mississippi Ave.
S: Jewel Ave.
E: Federal Blvd.
W: Sheridan Blvd.
Last Changed: 5/10/2017

**Inter-Neighborhood Cooperation (INC)**
PO Box 300684
Denver, CO 80218
Contact: JJ Niemann
Phone 1: 303-887-2233
Email: president@denverinc.org
Website: http://www.denverinc.org/
N: City Limits
S: City Limits
E: City Limits
W: City Limits
Last Changed: 1/23/2017
Harvey Park Improvement Association
PO Box 36294
Denver, CO 80236
Contact: Xochitl Gaytan
Phone1: 720-838-3573
Phone2: 970-237-0761
Email: harveypark.president@gmail.com
harveypark.treasurer@gmail.com
Website: http://www.harveypark.org/
N: Jewell Ave.
S: Hampden Ave.
E: Lowell Blvd.
W: Sheridan Blvd.
Last Changed: 5/7/2017

Bear Valley Improvement Association
2757 S. Joslin Ct.
Denver, CO 80227
Contact: Richard Saiz
Phone 1: 303-898-6840
Phone2: 303-985-1035
Email: bviaemail@yahoo.com
rjsaiz05@gmail.com
Website: http://www.bearvalleyimprovementassociation.us/
N: Yale Ave.
S: Darmouth Ave.
E: Sheridan Blvd.
W: Wadsworth Blvd.
Last Changed: 1/9/2017

Kevin Flynn, Councilman District 2
3100 S Sheridan Blvd Unit D
Denver, CO 80227
Phone: (720) 337-2222
Fax: (720) 337-2226
kevin.flynn@denvergov.org
Dana Montano, Council Aide
dana.montano@denvergov.org

Paul D. López, Councilman District 3
1437 Bannock Street, Room 451
Denver, CO 80202
Phone: (720) 337-3333
paul.lopez@denvergov.org
Jesús Orrantia, Council Aide
jesus.orrantia@denvergov.org
Adriana Magaña, Council Aide
adriana.magna@denvergov.org
Definitions

**Background sound level** shall mean the A-weighted sound level of all sound associated with a given environment, exceeded ninety (90) percent of the time ($L_{eq}$) measured and being a composite of sounds from many sources during the period of observation while the sound from the noise source of interest is not present.

**Construction Activity** shall mean all construction, demolition and excavation activity that is associated with bridge or roadway improvements by the applicant, including all activity in or related to development of any associated right-of-way within the City and County of Denver (the "City").

**Hourly Leg** shall mean the equivalent continuous noise level of A-weighted sound energy averaged over a one-hour period.

**Integrating Sound Level Meter** shall mean an ANSI standard S1.4 Type 1 (Precision) or Type 2 (General Purpose) sound measurement device.

**$L_{max}$** shall mean the maximum sound level measured during the monitoring period with the SLM set to A weighting and fast response.

**Nighttime Hours** shall mean the timeframe from 9:00 p.m. to 7:00 a.m. Monday – Friday and from 5:00 p.m. to 8:00 a.m. Saturday – Sunday.

**Temporary Sound Barrier Curtain** shall mean and include:

a) A Mobile Curtain Wall, which shall mean and include a temporary curtain-wall structure (truck cargo box trailers with sound-absorbent skirting or equivalent) capable of transport to various locations along the project right-of-way. The Mobile Curtain Wall will be 12 feet high, extendable to a maximum length of 200 feet, and be designed and deployed to achieve a 10-dBA insertion loss at the insertion point. The Mobile Curtain Wall shall be deployed during Nighttime Hours so as to extend at least 50 feet beyond the furthest boundaries of primary Construction Activity; and

b) A site-specific or equipment-specific acoustical curtain wall structure (utilizing Sound Seal Acoustical H-D [or equivalent] sound absorbent material) constructed or designed for suppression of general construction activity noise levels which exceed the background noise level but are not otherwise shielded by an existing sound barrier wall or a Mobile Curtain Wall. Acoustical curtain walls may be designed or manufactured for particular pieces of equipment, or may be specially constructed by the applicant, to accomplish a 10-dBA insertion loss at the insertion point from noise emissions without curtain wall controls.
To: Board of Environmental Health  
From: Division of Public Health Inspections  
Date: 7/26/2017  
Re: Petition for Variance Request – BEH Docket No. 17-27  
Brannan Sand and Gravel Company Sheridan Blvd. Resurfacing Project  
Findings and Recommendations of the Department of Environmental Health  

INTRODUCTION  

Brannan Sand and Gravel Company (applicant) submitted for consideration a request for a variance to the City and County of Denver’s Noise Ordinance, Denver Revised Municipal Code Chapter 36 for the Sheridan Blvd. Resurfacing Project. This is a Colorado Department of Transportation (CDOT) project. The applicant is requesting this variance for the purpose of resurfacing Sheridan Blvd. from 25th to 52nd Avenues. The project is within the City and County of Denver, Cities of Edgewater, Wheat Ridge, Mountain View and Lakeside in Jefferson County.

The overall scope of this project is to mill and resurface Sheridan Blvd. from 25th to 52nd Avenues. This project will take place over approximately a four-month period of time.

Nighttime work will consist primarily of asphalt milling and paving of Sheridan Blvd. The project corridor is located adjacent to single and multi-family residential properties and commercial properties.

The project will require an overall time frame of approximately 120 days to complete. The time frame accounts for potential schedule delays and other changes to the schedule that may occur. Night work is scheduled to begin as soon as September 2, 2017.

The Noise Ordinance, section 36-7(5) a., states that:

"No person shall operate any construction equipment nor conduct any construction activities between the hours of 9:00 p.m. and 7:00 a.m. Monday – Friday, and 5:00 p.m. and 8:00 a.m. Saturday – Sunday, that exceeds the noise limits of Table A."

NOTE: Variances to the construction restrictions may be granted by the Board of Environmental Health if it can be demonstrated that such activities would interfere with traffic or jeopardize public safety if completed during daytime hours.

Table A lists the allowable noise levels from 10:00 p.m. to 7:00 a.m. as 50 dBA in residential areas and from 7:00 a.m. to 10:00 p.m. allowable noise levels are 55 dBA in residential areas. However, an exemption for construction noise during daytime is provided in Section 36-6(b)(7). When background sound levels at the receiving premises equal or exceed the allowable levels specified in Table A, then the background sound levels become the standard.
RECOMMENDATION

The Denver Department of Environmental Health (DEH) recommends that the variance request submitted by the applicant be approved with conditions.

In making this recommendation, DEH took into consideration the following information:

- reported public health effects of differing noise levels and durations from construction equipment;
- the schedule necessary for the applicant to minimize public inconvenience due to traffic congestion and/or closure of major roadways;
- public safety considerations;
- the proximity of the project to residential and noise sensitive populations;
- existing and proposed noise mitigation measures;
- existing background noise levels; and
- opportunities for public participation and notification plans.

DEH has attempted to balance public health with the requirement that the Sheridan Blvd. Resurfacing Project be completed. DEH believes that neither will be significantly compromised if the conditions described herein are implemented.

Based on the information submitted by the applicant, DEH recommends that the Board approve the variance request, contingent upon the following conditions. Within these conditions, the terms are as defined in Appendix A of these recommendations, attached hereto and incorporated herein by reference.

1) Duration: This variance shall extend through completion of road construction improvement activities on Sheridan Blvd. from 25th Ave. to 52nd Ave., associated with the Sheridan Blvd. Resurfacing Project but not later than December 2, 2017.

2) Construction Activity Allowable Noise Levels: Construction noise levels shall not exceed an hourly $L_{eq}$ of 75 dBA or an $L_{max}$ of 86 dBA during the hours of 9:00 p.m. to 7:00 a.m. Monday – Friday and 5:00 p.m. to 8:00 a.m. Saturday and Sunday (Nighttime Hours) unless accommodations described in 3) are provided.

3) Hotel accommodations within eligibility zones: The applicant shall make hotel accommodations available for persons residing within eligibility zones where the nighttime construction noise levels are predicted to exceed the allowable noise levels described in 2). The eligibility zone shall be determined in advance of the Construction Activities through a sound study conducted by the applicant using sound modeling and provided to DEH for review and approval prior to a seven-day notification period. The applicant shall consider any special circumstances brought to their attention regarding individuals in the eligibility zone who cannot utilize hotel vouchers and who may be at risk during this period of time, e.g., residents of 24-hour health care facilities. The applicant shall make their best effort to accommodate the needs of such individuals during Construction Activity. Additionally, if construction noise complaints are received from outside of the eligibility zone, the applicant is provided the option of either immediately offering hotel vouchers to the complainant or conducting noise monitoring to determine if the $L_{eq}$ or the $L_{max}$ at the complainant’s location exceeds the allowable noise levels described in 2) and thus warrants a hotel voucher. Without supporting noise monitoring data, a construction noise complaint from outside of the eligibility zone must immediately be offered a hotel voucher as a mitigation option by the applicant.
a) At facilities where employees, residents and patients do not have the ability to relocate during construction operations, work shall not take place within 510 feet of those facilities between the hours of 10 p.m. and 7 a.m.

4) Notifications: Notification must be completed not less than seven days prior to commencement of construction during Nighttime Hours, the applicant shall notify DEH and Residential Neighborhood Organizations (RNOs) located within a 200 foot radius of the construction (see Appendix A). Notice shall be in writing or by direct personal contact from the applicant’s representative, and shall include the expected start time, expected duration, character of work activity planned, names and telephone numbers of available contact persons (for additional information or questions), contact numbers for complaints, and any other relevant parameters or programs. Households within the eligibility zone shall receive notice regarding their eligibility for hotel vouchers at the same time or earlier. DEH shall be given as part of a weekly report: a list of RNOs receiving notifications; a list of households eligible for hotel vouchers; a copy of the notification sent to the RNOs; and a copy of the hotel vouchers offered to eligible households.

5) Mitigation Requirements/Activity Restraints: When construction is conducted during Nighttime Hours and such activity emits noise levels that exceed the applicable background noise levels at residential properties, the applicant shall utilize BMPs to mitigate construction noise impacts to the adjacent property owners. DEH shall be given as part of a weekly report the BMPs utilized during nightly operations. BMPs include the following:
a) Using reasonable best efforts to complete the construction as quickly as possible.
b) Minimizing nighttime construction duration near residential areas whenever possible.
c) Re-routing of truck traffic away from residential streets when possible.
d) Conducting truck loading, unloading and hauling operations so that noise levels are kept to a minimum such as but not limited to eliminating slamming of truck beds, truck tailgates, and equipment buckets.
e) Idle equipment motors down when the equipment is not in immediate use.
f) Configuring equipment on the site to minimize back-up alarm noise, where practical and feasible (for example, by using circular movement of trucks).
g) Shielding equipment, such as but not limited to jackhammers, saws and pavement breakers, through use of an existing sound barrier wall or a temporary barrier where practicable.
h) Maintaining all equipment to meet manufacturer’s specifications.
i) Informing employees, contractors and subcontractors performing construction of the general requirements of this variance and exercising best efforts to ensure that such employees, contractors and subcontractors follow BMPs in mitigating construction noise.

6) Monitoring:
a) The applicant must perform monitoring to demonstrate compliance with requirements described in 2) when complaints are received from outside of the eligibility zone and the applicant chooses not to immediately provide hotel voucher mitigation to the individual(s) submitting the complaint. In this case the following shall apply to demonstrate noise levels are below limits requiring hotel voucher mitigation.
i) Noise measurements shall be collected using ANSI guidelines for community noise monitoring including the following general guidelines:
   (1) Manufacturer’s specifications for appropriate meter use shall be followed.
   (2) All noise measurements shall be made using the A-weighted scale (dBA) and a fast response.
   (3) Noise measurements shall be made at the nearest residential property line, unless physically impractical.
Monitoring shall meet the following requirements:

1. Noise monitoring shall be provided in response to all noise complaints.
2. Construction Activity shall be monitored for $L_{\text{max}}$ and 30-minute $L_{\text{eq}}$ levels.
3. All noise monitoring data and documentation shall be provided to DEH in a weekly report, and such data shall be available to the public from DEH. DEH or their designated representatives may inspect collected data more frequently.

The following documentation shall be provided for noise monitoring that is conducted and shall be provided to DEH in a weekly report in a manner and form mutually agreed upon by the applicant and DEH:

1. Manufacturer names, model numbers, and serial numbers of each SLM and acoustical calibrator used
2. Software manufacturer, program and version.
3. Dates of annual certified calibration of SLM, microphone and acoustical calibrator.
4. Pre- and post-monitoring calibration data for the SLM.
5. Date and specific location (address if appropriate) of monitoring.
6. Start time and end time of monitoring
7. Ambient weather conditions including temperature, relative humidity, wind speed and cloud cover.
8. Signature of technician collecting the data.
9. List of each 30-minute $L_{\text{eq}}$ for the monitoring period, with associated $L_{\text{max}}$ levels.
10. All measurements associated with any unusual noise events that occurred, cause of such event, correction of such event (if any), and adjusted and unadjusted measurements.

The applicant may elect to conduct monitoring in lieu of using the Roadway Construction Noise Model for determining eligibility zones. If monitoring is the choice of the applicant, the applicant shall perform monitoring sufficient to demonstrate compliance with the requirements of the noise variance and to demonstrate to the community the noise levels that are present.

Noise measurements shall be collected using ANSI guidelines for community noise monitoring including the following general guidelines:

1. Manufacturer's specifications for appropriate meter use shall be followed.
2. All noise measurements shall be made using the A-weighted scale (dBA) and a slow response. Fast response measurements may be used to measure impulsive noise sources.
3. Noise measurements shall be made at the nearest residential property line, unless physically impractical.

All nighttime Construction Activity shall be initially monitored. Monitoring shall include spot measurements, as appropriate and 30-minute $L_{\text{eq}}$ measurements. Monitoring shall be required for, but not limited to, the following activity groups:

1. Demolition operations
2. Rubble load-out
3. Construction operations
4. Excavation

Monitoring shall meet the following requirements:

1. Each construction activity shall be monitored a minimum of two days for $L_{\text{max}}$ and 30-minute $L_{\text{eq}}$ levels to establish an activity baseline for each activity when initially undertaken, and to establish the expected worst case situation.
2. Noise monitoring shall be provided in response to all noise complaints.
3. All noise monitoring data and documentation shall be provided to DEH in a weekly report, and such data shall be available to the public from DEH. DEH or their designated representatives may inspect collected data more frequently.
iv) The following documentation shall be provided for noise monitoring that is conducted and shall be provided to DEH in a weekly report in a manner and form mutually agreed upon by the applicant and DEH:
   (1) Manufacturer names, model numbers, and serial numbers of each SLM and acoustical calibrator used
   (2) Software manufacturer, program and version.
   (3) Dates of annual certified calibration of SLM, microphone and acoustical calibrator.
   (4) Pre- and post-monitoring calibration data for the SLM.
   (5) Date and specific location (address if appropriate) of monitoring.
   (6) Start time and end time of monitoring
   (7) Ambient weather conditions including temperature, relative humidity, wind speed and cloud cover.
   (8) Signature of technician collecting the data.
   (9) List of each 30-minute Leq for the monitoring period, with associated Lrm, levels.
   (10) All measurements associated with any unusual noise events that occurred, cause of such event if known, correction of such event (if any), and adjusted and unadjusted measurements.

7) Complaint Notification and Response: The applicant shall ensure that methods are available to receive, address and respond to concerns raised by people in the community, through:
   a) Assuring that a field representative is available to respond to complaints regarding construction noise levels and provide monitoring if applicant desires in lieu of hotel voucher mitigation when complaint comes from outside of the eligibility zone. The field representative shall be empowered to shut down Construction Activity, authorize correction or remediation of sources of excess noise, and authorize resumption of Construction Activity as necessary to maintain compliance with allowable noise levels.
   b) Providing telephone access to a field representative during hours of project activities to receive complaints or comments from the public for the duration of the project. All complaints immediately shall be recorded, investigated and addressed as appropriate by the field representative and reported to DEH in a manner mutually agreed by DEH and the applicant. A response, in a reasonable form requested by the caller, summarizing the investigation and any corrective actions taken by the applicant shall be provided to the caller. Written copies of complaints received and responses by the applicant shall be provided to DEH in the weekly report.

8) Weekly Report: A weekly report from the applicant will be supplied to DEH in a manner mutually agreed by DEH and the applicant beginning a minimum of seven days prior to commencement of nighttime project activity and continuing on a weekly base throughout the duration of this noise variance or completion of nighttime project activity whichever occurs first. The weekly report shall include but not be limited to the following:
   • the list of RNOs receiving notifications;
   • the list of households eligible for hotel vouchers;
   • a weekly report a copy of the notification sent to the RNOs;
   • a weekly report a copy of the hotel vouchers offered to eligible households;
   • the BMPs utilized during nightly operations;
   • all documentation noted and set forth in RECOMMENDATION 6) b) iv) 1-10;
   • written copies of all complaints received and responses given by the applicant.
9) **Fines and Penalties:** Each violation of a condition and any line item contained within a condition constitute a separate violation of this variance and the City and County of Denver's noise ordinance, Denver Revised Municipal Code Chapter (DRMC) 36 Noise Control. Fines and penalties are subject to the DRMC and Noise Program Policies and Procedures.

10) **Revocation:** Upon notice to the applicant and after a hearing before Denver's Board of Environmental Health, the Board of Environmental Health may revoke this variance if the applicant fails to comply with its terms.
Brannan Sand and Gravel Company Sheridan Blvd. – 25th Ave. to 52nd Ave. Resurfacing Project Variance Request
Findings and Recommendations of the Department of Environmental Health
July 26, 2017, Page 7

APPENDIX A

Brannan Sand and Gravel Company Sheridan Blvd. – 25th Ave. to 52nd Ave. Resurfacing Project City
Council District and Residential Neighborhood Organization Information:

Rafael Espinoza, Councilman District 1
1437 Bannock St. #451
Denver, CO 80202
Phone: (720) 337-7701
DistrictOne@denvergov.org
Amanda Sandoval, Council Aide
Amanda.Sandoval@denvergov.org
Gina Volpe, Council Aide
Gina.volpe@denvergov.org

Denver Neighborhood Association, Inc.
1285 Dexter St.
Denver, CO 80220
Contact: Bradley L. Zieg
Phone1: 303-994-1395
Phone2: 303-329-0046
Email: bradleyzieg@msn.com
secy.denvernia@gmail.com
N: City Limits (Excluding DIA)
S: City Limits
E: City Limits
W: City Limits
Last Changed: 12/15/2016

Inter-Neighborhood Cooperation (INC)
PO Box 300684
Denver, CO 80218
Contact: JJ Niemann
Phone1: 303-887-2233
Email: president@denverinc.org
Website: http://www.denverinc.org/
N: City Limits
S: City Limits
E: City Limits
W: City Limits
Last Changed: 1/5/2017
Sloan's Lake Citizen's Group
PO Box 140663
Denver, CO 80214
Contact: Marjorie Grimsley
Phone 1: 303-455-5928
Phone 2: 303-477-8423
Email: m_grimsley@msn.com
sloanslakecitizensgroup@gmail.com
Website: http://sloanslakecitizensgroup.org/
N: 29th Ave.
S: 10th Ave.
E: Federal Blvd.
W: Sheridan Blvd.
Last Changed: 1/30/2017

Sloan's Lake Neighborhood Association
1750 Meade St.
Denver, CO 80204
Contact: Jane Parker-Ambrose
Phone 1: 303-571-1744
Phone 2: 720-490-1991
Email: jpa@earthnet.net
LDA@earthnet.net
N: 29th Ave.
S: Colfax Ave.
E: Julian St.
W: Sheridan Blvd.
Last Changed: 1/29/2017

United Northside Neighborhood
3849 Vallejo St.
Denver, CO 80211
Contact: Ambrose Cruz
Phone: 720-517-8288
Email: Larazanorthside@gmail.com
N: City Limit
S: 20th Ave.
E: Inca St.
W: City Limit
Last Changed: 12/16/2016
West Highland Neighborhood Association
3284 Osceola St.
Denver, CO 80212
Contact: Trevor Greco
Phone: 303-495-0787
Email: trevor@westhighlandneighborhood.org
Website: http://westhighlandneighborhood.org/
N: 38th Ave.
S: 29th Ave.
E: Federal Blvd.
W: Sheridan Blvd.
Last Changed: 12/1/2016

Berkeley Regis United Neighbors, Inc.
3905 Zenobia St.
Denver, CO 80212
Contact: Paul Vomdran
Phone: 720-837-8940
Email: info@berkeleyregisneighbors.org
brunker@gmail.com
Website: http://www.berkeleyregisneighbors.org/
N: City Limits
S: W. 38th Ave.
E: Federal Blvd.
W: Sheridan Blvd.
Last Changed: 5/9/2017

Berkeley Neighborhood Association
4420 W. 52nd Place
Denver, CO 80212
Contact: Gloria Rudden
Phone: 303-433-7653
Phone2: 303-888-6350
Email: seminoggrandma@gmail.com
ruddenwendy@gmail.com
N: City Limits
S: 46th Ave.
E: Federal Blvd.
W: Sheridan Blvd.
Last Changed: 1/25/2017
Inspiration Point Neighborhood Association
4975 Gray St.
Denver, CO 80212
Contact: Jerry Guida
Phone1: 720-935-1381
Email: gerald_guida@hotmail.com
N: 52nd Ave
S: 48th Ave
E: Sheridan Blvd
W: Harlan St.
Last Changed: 1/28/2017
Definitions

**Background sound level** shall mean the A-weighted sound level of all sound associated with a given environment, exceeded ninety (90) percent of the time (L\(_{90}\)) measured and being a composite of sounds from many sources during the period of observation while the sound from the noise source of interest is not present.

**Construction Activity** shall mean all construction, demolition and excavation activity that is associated with bridge or roadway improvements by the applicant, including all activity in or related to development of any associated right-of-way within the City and County of Denver (the "City").

**Hourly Leg** shall mean the equivalent continuous noise level of A-weighted sound energy averaged over a one-hour period.

**Integrating Sound Level Meter** shall mean an ANSI standard S1.4 Type 1 (Precision) or Type 2 (General Purpose) sound measurement device.

**L\(_{max}\)** shall mean the maximum sound level measured during the monitoring period with the SLM set to A weighting and fast response.

**Nighttime Hours** shall mean the timeframe from 9:00 p.m. to 7:00 a.m. Monday – Friday and from 5:00 p.m. to 8:00 a.m. Saturday – Sunday.

**Temporary Sound Barrier Curtain** shall mean and include:

a) A Mobile Curtain Wall, which shall mean and include a temporary curtain-wall structure (truck cargo box trailers with sound-absorbent skirting or equivalent) capable of transport to various locations along the project right-of-way. The Mobile Curtain Wall will be 12 feet high, extendable to a maximum length of 200 feet, and be designed and deployed to achieve a 10-dBA insertion loss at the insertion point. The Mobile Curtain Wall shall be deployed during Nighttime Hours so as to extend at least 50 feet beyond the furthest boundaries of primary Construction Activity; and

b) A site-specific or equipment-specific acoustical curtain wall structure (utilizing Sound Seal Acoustical H-D [or equivalent] sound absorbent material) constructed or designed for suppression of general construction activity noise levels which exceed the background noise level but are not otherwise shielded by an existing sound barrier wall or a Mobile Curtain Wall. Acoustical curtain walls may be designed or manufactured for particular pieces of equipment, or may be specially constructed by the applicant, to accomplish a 10-dBA insertion loss at the insertion point from noise emissions without curtain wall controls.
To:       Board of Environmental Health

From:    Division of Public Health Inspections

Date:   12/07/2017

Re:    Petition for Variance Request – BEH Docket No. 18-1
       Denver Water - Pipe Installation Project
       Findings and Recommendations of the Department of Environmental Health

INTRODUCTION

Denver Water (applicant) submitted for consideration a request for a variance to the City and County of Denver's Noise Ordinance, Denver Revised Municipal Code Chapter 36 for the purpose of construction required for Denver Water's water pipe installation project on Sheridan Blvd. from Morrison Rd. to Arizona Ave. The project is within both the City County of Denver and the city of Lakewood.

The overall scope of this project is to remove and install water pipe along Sheridan Blvd. from Morrison Rd. to Arizona Ave. Project activities will consist of saw cutting, trenching, pipe installation, backfilling and asphalt paving on Sheridan Blvd. from Morrison Rd. to Arizona Ave. over approximately a four-month period of time.

Nighttime work will consist of saw cutting, trenching, pipe installation, backfilling and asphalt paving on Sheridan Blvd. The project corridor is located adjacent to commercial properties with single family residential properties located east of the commercial properties beginning on the east side of the alley.

The project will require an overall time frame of approximately 123 days to complete. The time frame accounts for potential schedule delays and other changes to the schedule that may occur. Night work is scheduled to begin as soon as May 1, 2018.

The Noise Ordinance, section 36-7(5) a., states that:

"No person shall operate any construction equipment nor conduct any construction activities between the hours of 9:00 p.m. and 7:00 a.m. Monday – Friday, and 5:00 p.m. and 8:00 a.m. Saturday – Sunday, that exceeds the noise limits of Table A."

NOTE: Variances to the construction restrictions may be granted by the Board of Environmental Health if it can be demonstrated that such activities would interfere with traffic or jeopardize public safety if completed during daytime hours.

Table A lists the allowable noise levels from 10:00 p.m. to 7:00 a.m. as 50 dBA in residential areas and from 7:00 a.m. to 10:00 p.m. allowable noise levels are 55 dBA in residential areas. However, an exemption for construction noise during daytime is provided in Section 36-6(b)(7). When background
sound levels at the receiving premises equal or exceed the allowable levels specified in Table A, then the background sound levels become the standard.

RECOMMENDATION

The Denver Department of Environmental Health (DEH) recommends that the variance request submitted by the applicant be approved with conditions.

In making this recommendation, DEH took into consideration the following information:

- reported public health effects of differing noise levels and durations from construction equipment;
- the schedule necessary for the applicant to minimize public inconvenience due to traffic congestion and/or closure of major roadways;
- public safety considerations;
- the proximity of the project to residential and noise sensitive populations;
- existing and proposed noise mitigation measures;
- existing background noise levels; and
- opportunities for public participation and notification plans.

DEH has attempted to balance public health with the requirement that the Colorado Blvd. Water Pipe Installation Project be completed. DEH believes that neither will be significantly compromised if the conditions described herein are implemented.

Based on the information submitted by the applicant, DEH recommends that the Board approve the variance request, contingent upon the following conditions. Within these conditions, the terms are as defined in Appendix A of these recommendations, attached hereto and incorporated herein by reference.

1) **Duration:** This variance shall extend through completion of the water pipe removal and installation activities on Sheridan Blvd. from Morrison Rd. to Arizona Ave., associated with the Denver Water Pipe Installation Project but not later than August 31, 2018.

2) **Construction Activity Allowable Noise Levels:** Construction noise levels shall not exceed an hourly $L_{\text{eq}}$ of 75 dBA or an $L_{\text{max}}$ of 86 dBA during the hours of 9:00 p.m to 7:00 a.m. Monday – Friday and 5:00 p.m to 8:00 a.m. Saturday and Sunday (Nighttime Hours) unless accommodations described in 3) are provided.

3) **Hotel accommodations within eligibility zones:** The applicant shall make hotel accommodations available for persons residing within eligibility zones where the nighttime construction noise levels are predicted to exceed the allowable noise levels described in 2). The eligibility zone shall be determined in advance of the Construction Activities through a sound study conducted by the applicant using sound modeling and provided to DEH for review and approval prior to a seven-day notification period. The applicant shall consider any special circumstances brought to their attention regarding individuals in the eligibility zone who cannot utilize hotel vouchers and who may be at risk during this period of time, e.g., residents of 24-hour health care facilities. The applicant shall make their best effort to accommodate the needs of such individuals during Construction Activity. Additionally, if construction noise complaints are received from outside of the eligibility zone, the applicant is provided the option of either immediately offering hotel vouchers to the complainant or conducting noise monitoring to determine if the $L_{\text{eq}}$ or the $L_{\text{max}}$ at the complainant’s location exceeds the allowable noise levels described in 2) and thus warrants a hotel voucher. Without supporting noise
monitoring data, a construction noise complaint from outside of the eligibility zone must immediately be offered a hotel voucher as a mitigation option by the applicant.

a) At facilities where employees, residents and patients do not have the ability to relocate during construction operations, work shall not take place within 320 ft of those facilities between the hours of 10 p.m. and 7 a.m.

4) **Notifications:** Notification must be completed not less than seven days prior to commencement of construction during Nighttime Hours, the applicant shall notify DEH and Residential Neighborhood Organizations (RNOs) located within a 200 foot radius of the construction (see Appendix A). Notice shall be in writing or by direct personal contact from the applicant's representative, and shall include the expected start time, expected duration, character of work activity planned, names and telephone numbers of available contact persons (for additional information or questions), contact numbers for complaints, and any other relevant parameters or programs. Households within the eligibility zone shall receive notice regarding their eligibility for hotel vouchers at the same time or earlier. DEH shall be given as part of a weekly report: a list of RNOs receiving notifications; a list of households eligible for hotel vouchers; a copy of the notification sent to the RNOs; and a copy of the hotel vouchers offered to eligible households.

5) **Mitigation Requirements/Activity Restraints:** When construction is conducted during Nighttime Hours and such activity emits noise levels that exceed the applicable background noise levels at residential properties, the applicant shall utilize BMPs to mitigate construction noise impacts to the adjacent property owners. DEH shall be given as part of a weekly report the BMPs utilized during nightly operations. BMPs include the following:

a) Using reasonable best efforts to complete the construction as quickly as possible.

b) Minimizing nighttime construction duration near residential areas whenever possible.

c) Re-routing of truck traffic away from residential streets when possible.

d) Conducting truck loading, unloading and hauling operations so that noise levels are kept to a minimum such as but not limited to eliminating slamming of truck beds, truck tailgates, and equipment buckets.

e) Idle equipment motors down when the equipment is not in immediate use.

f) Configuring equipment on the site to minimize back-up alarm noise, where practical and feasible (for example, by using circular movement of trucks).

g) Shielding equipment, such as but not limited to jackhammers, saws and pavement breakers, through use of an existing sound barrier wall or a temporary barrier where practicable.

h) Maintaining all equipment to meet manufacturer’s specifications.

i) Informing employees, contractors and subcontractors performing construction of the general requirements of this variance and exercising best efforts to ensure that such employees, contractors and subcontractors follow BMPs in mitigating construction noise.

6) **Monitoring:**

a) The applicant must perform monitoring to demonstrate compliance with requirements described in 2) when complaints are received from outside of the eligibility zone and the applicant chooses not to immediately provide hotel voucher mitigation to the individual(s) submitting the complaint. In this case the following shall apply to demonstrate noise levels are below limits requiring hotel voucher mitigation.

i) Noise measurements shall be collected using ANSI guidelines for community noise monitoring including the following general guidelines:

(1) Manufacturer’s specifications for appropriate meter use shall be followed.

(2) All noise measurements shall be made using the A-weighted scale (dBA) and a fast response.
(3) Noise measurements shall be made at the nearest residential property line, unless physically impractical

ii) Monitoring shall meet the following requirements:
   (1) Noise monitoring shall be provided in response to all noise complaints.
   (2) Construction Activity shall be monitored for \( L_{\text{max}} \) and 30-minute \( L_{\text{eq}} \) levels.
   (3) All noise monitoring data and documentation shall be provided to DEH in a weekly report, and such data shall be available to the public from DEH. DEH or their designated representatives may inspect collected data more frequently.

iii) The following documentation shall be provided for noise monitoring that is conducted and shall be provided to DEH in a weekly report in a manner and form mutually agreed upon by the applicant and DEH:
   (1) Manufacturer names, model numbers, and serial numbers of each SLM and acoustical calibrator used.
   (2) Software manufacturer, program and version.
   (3) Dates of annual certified calibration of SLM, microphone and acoustical calibrator.
   (4) Pre- and post-monitoring calibration data for the SLM.
   (5) Date and specific location (address if appropriate) of monitoring.
   (6) Start time and end time of monitoring.
   (7) Ambient weather conditions including temperature, relative humidity, wind speed and cloud cover.
   (8) Signature of technician collecting the data.
   (9) List of each 30-minute \( L_{\text{eq}} \) for the monitoring period, with associated \( L_{\text{max}} \) levels.
   (10) All measurements associated with any unusual noise events that occurred, cause of such event, correction of such event (if any), and adjusted and unadjusted measurements.

b) The applicant may elect to conduct monitoring in lieu of using the Roadway Construction Noise Model for determining eligibility zones. If monitoring is the choice of the applicant, the applicant shall perform monitoring sufficient to demonstrate compliance with the requirements of the noise variance and to demonstrate to the community the noise levels that are present.

i) Noise measurements shall be collected using ANSI guidelines for community noise monitoring including the following general guidelines:
   (1) Manufacturer's specifications for appropriate meter use shall be followed.
   (2) All noise measurements shall be made using the A-weighted scale (dBA) and a slow response. Fast response measurements may be used to measure impulsive noise sources.
   (3) Noise measurements shall be made at the nearest residential property line, unless physically impractical.

ii) All nighttime Construction Activity shall be initially monitored. Monitoring shall include spot measurements, as appropriate and 30-minute \( L_{\text{eq}} \) measurements. Monitoring shall be required for, but not limited to, the following activity groups:
   (1) Demolition operations
   (2) Rubble load-out
   (3) Construction operations
   (4) Excavation

iii) Monitoring shall meet the following requirements:
   (1) Each construction activity shall be monitored a minimum of two days for \( L_{\text{max}} \) and 30-minute \( L_{\text{eq}} \) levels to establish an activity baseline for each activity when initially undertaken, and to establish the expected worst case situation.
   (2) Noise monitoring shall be provided in response to all noise complaints.
   (3) All noise monitoring data and documentation shall be provided to DEH in a weekly report, and such data shall be available to the public from DEH. DEH or their designated representatives may inspect collected data more frequently.
iv) The following documentation shall be provided for noise monitoring that is conducted and shall be provided to DEH in a weekly report in a manner and form mutually agreed upon by the applicant and DEH:

1. Manufacturer names, model numbers, and serial numbers of each SLM and acoustical calibrator used
2. Software manufacturer, program and version.
3. Dates of annual certified calibration of SLM, microphone and acoustical calibrator.
4. Pre- and post-monitoring calibration data for the SLM.
5. Date and specific location (address if appropriate) of monitoring.
6. Start time and end time of monitoring.
7. Ambient weather conditions including temperature, relative humidity, wind speed and cloud cover.
8. Signature of technician collecting the data.
9. List of each 30-minute Leq for the monitoring period, with associated Lmax levels.
10. All measurements associated with any unusual noise events that occurred, cause of such event if known, correction of such event (if any), and adjusted and unadjusted measurements.

7) Complaint Notification and Response: The applicant shall ensure that methods are available to receive, address and respond to concerns raised by people in the community, through:

a) Assuring that a field representative is available to respond to complaints regarding construction noise levels and provide monitoring if applicant desires in lieu of hotel voucher mitigation when complaint comes from outside of the eligibility zone. The field representative shall be empowered to shut down Construction Activity, authorize correction or remediation of sources of excess noise, and authorize resumption of Construction Activity as necessary to maintain compliance with allowable noise levels.

b) Providing telephone access to a field representative during hours of project activities to receive complaints or comments from the public for the duration of the project. All complaints immediately shall be recorded, investigated and addressed as appropriate by the field representative and reported to DEH in a manner mutually agreed by DEH and the applicant. A response, in a reasonable form requested by the caller, summarizing the investigation and any corrective actions taken by the applicant shall be provided to the caller. Written copies of complaints received and responses given by the applicant shall be provided to DEH in the weekly report.

8) Weekly Report: A weekly report from the applicant will be supplied to DEH in a manner mutually agreed by DEH and the applicant beginning a minimum of seven days prior to commencement of nighttime project activity and continuing on a weekly base throughout the duration of this noise variance or completion of nighttime project activity whichever occurs first. The weekly report shall include but not be limited to the following:

- the list of RNOs receiving notifications;
- the list of households eligible for hotel vouchers;
- a weekly report copy of the notification sent to the RNOs;
- a weekly report copy of the hotel vouchers offered to eligible households;
- the BMPs utilized during nightly operations;
- all documentation noted and set forth in RECOMMENDATION 6) b) iv) 1-10;
- written copies of all complaints received and responses given by the applicant.

9) Fines and Penalties: Each violation of a condition and any line item contained within a condition constitute a separate violation of this variance and the City and County of Denver's noise ordinance,
Denver Revised Municipal Code Chapter (DRMC) 36 Noise Control. Fines and penalties are subject to the DRMC and Noise Program Policies and Procedures.

10) **Revocation:** Upon notice to the applicant and after a hearing before Denver’s Board of Environmental Health, the Board of Environmental Health may revoke this variance if the applicant fails to comply with its terms.
APPENDIX A

Denver Water Sheridan Blvd. from Morrison Rd. to Arizona Ave. Pipe Installation Project City Council District and Residential Neighborhood Organization Information:

Paul D. López  
Councilman District 3  
1437 Bannock Street, Room 451  
Denver, CO 80202  
Phone: (720) 337-3333  
Email: paul.lopez@denvergov.org  
Jesús Orrantia, Council Aide  
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Adriana Magaña, Council Aide  
Email: adriana.magan@denvergov.org

Denver Neighborhood Association, Inc.  
1285 Dexter St.  
Denver, CO 80220  
Contact: Bradley L. Zieg  
Phone 1: 303-994-1395  
Phone 2: 303-329-0046  
Email: bradleyzieg@msn.com  
Email: secy.denverna@gmail.com  
N: City Limits (Excluding DIA)  
S: City Limits  
E: City Limits  
W: City Limits  
Last Changed: 12/15/2016

Greater Mar-Lee Community Organization  
PO Box 19412  
Denver, CO 80219  
Contact: Steve Hildmann  
Phone 1: 303-801-7833  
Phone 2: 303-935-0062  
Email: greatermarlee@msn.com  
Email: donnarepp@gmail.com  
N: Mississippi Ave.  
S: Jewel Ave.  
E: Federal Blvd.  
W: Sheridan Blvd.  
Last Changed: 5/10/2017
Inter-Neighborhood Cooperation (INC)
PO Box 300684
Denver, CO 80218
Contact: JJ Niemann
Phone 1: 303-887-2233
Email: president@denverinc.org
Website: http://www.denverinc.org/
N: City Limits
S: City Limits
E: City Limits
W: City Limits
Last Changed: 1/23/2017

Westwood Residents Association
401 S. Raleigh St. Apt A
Denver, CO 80219
Contact: Michelle Schoen
Phone 1: 720-334-3280
Email: michelle@michelleschoen.com
N: Alameda Ave.
S: Mississippi Ave.
E: Federal Blvd.
W: Sheridan Blvd.
Last Changed: 1/20/2017

Westwood Unidos
4200 Morrison Rd. Unit 5
Denver, CO 80219
Contact: Norma Brambila
Phone 1: 720-435-5691
Phone 2: 720-217-5468
Email: normabrambila2@gmail.com
Email: westwoodunidos@gmail.com
Website: http://www.westwoodunidos.com/
N: Alameda Ave.
S: Mississippi Ave.
E: Federal Blvd.
W: Sheridan Blvd.
Last Changed: 12/8/2016
Definitions

**Background sound level** shall mean the A-weighted sound level of all sound associated with a given environment, exceeded ninety (90) percent of the time (L90) measured and being a composite of sounds from many sources during the period of observation while the sound from the noise source of interest is not present.

**Construction Activity** shall mean all construction, demolition and excavation activity that is associated with bridge or roadway improvements by the applicant, including all activity in or related to development of any associated right-of-way within the City and County of Denver (the "City").

**Hourly Leq** shall mean the equivalent continuous noise level of A-weighted sound energy averaged over a one-hour period.

**Integrating Sound Level Meter** shall mean an ANSI standard S1.4 Type 1 (Precision) or Type 2 (General Purpose) sound measurement device.

**Lmax** shall mean the maximum sound level measured during the monitoring period with the SLM set to A weighting and fast response.

**Nighttime Hours** shall mean the timeframe from 9:00 p.m. to 7:00 a.m. Monday – Friday and from 5:00 p.m. to 8:00 a.m. Saturday – Sunday.

**Temporary Sound Barrier Curtain** shall mean and include:

a) A Mobile Curtain Wall, which shall mean and include a temporary curtain-wall structure (truck cargo box trailers with sound-absorbent skirting or equivalent) capable of transport to various locations along the project right-of-way. The Mobile Curtain Wall will be 12 feet high, extendable to a maximum length of 200 feet, and be designed and deployed to achieve a 10-dBA insertion loss at the insertion point. The Mobile Curtain Wall shall be deployed during Nighttime Hours so as to extend at least 50 feet beyond the furthest boundaries of primary Construction Activity; and

b) A site-specific or equipment-specific acoustical curtain wall structure (utilizing Sound Seal Acoustical H-D [or equivalent] sound absorbent material) constructed or designed for suppression of general construction activity noise levels which exceed the background noise level but are not otherwise shielded by an existing sound barrier wall or a Mobile Curtain Wall. Acoustical curtain walls may be designed or manufactured for particular pieces of equipment, or may be specially constructed by the applicant, to accomplish a 10-dBA insertion loss at the insertion point from noise emissions without curtain wall controls.
To: Board of Environmental Health
From: Division of Public Health Inspections
Date: 8/28/2017
Re: Petition for Variance Request – BEH Docket No. 17-42
Denver Water - Pipe Installation Project
Findings and Recommendations of the Department of Environmental Health

INTRODUCTION

Denver Water (applicant) submitted for consideration a request for a variance to the City and County of Denver's Noise Ordinance, Denver Revised Municipal Code Chapter 36 for the purpose of construction required for Denver Water's water pipe installation project on Colorado Blvd. from Colfax Ave. to 26th Ave. The entire project is within the City and County of Denver.

The overall scope of this project is to remove and install water pipe along Colorado Blvd. from Colfax Ave. to 26th Ave. Project activities will consist of saw cutting, trenching, pipe installation, backfilling and asphalt paving of Colorado Blvd. from Colfax Ave. to 26th Ave. over approximately a seven-month period of time.

Nighttime work will consist of saw cutting, trenching, pipe installation, backfilling and asphalt paving on Colorado Blvd. The project corridor is located adjacent to single and multi-family residential properties, commercial properties, a museum, golf course and park.

The project will require an overall time frame of approximately 218 days to complete. The time frame accounts for potential schedule delays and other changes to the schedule that may occur. Night work is scheduled to begin as soon as September 26, 2017.

The Noise Ordinance, section 36-7(5) a., states that:

"No person shall operate any construction equipment nor conduct any construction activities between the hours of 9:00 p.m. and 7:00 a.m. Monday – Friday, and 5:00 p.m. and 8:00 a.m. Saturday – Sunday, that exceeds the noise limits of Table A."

NOTE: Variances to the construction restrictions may be granted by the Board of Environmental Health if it can be demonstrated that such activities would interfere with traffic or jeopardize public safety if completed during daytime hours.

Table A lists the allowable noise levels from 10:00 p.m. to 7:00 a.m. as 50 dBA in residential areas and from 7:00 a.m. to 10:00 p.m. allowable noise levels are 55 dBA in residential areas. However, an exemption for construction noise during daytime is provided in Section 36-6(b)(7). When background
sound levels at the receiving premises equal or exceed the allowable levels specified in Table A, then the background sound levels become the standard.

RECOMMENDATION

The Denver Department of Environmental Health (DEH) recommends that the variance request submitted by the applicant be approved with conditions.

In making this recommendation, DEH took into consideration the following information:

• reported public health effects of differing noise levels and durations from construction equipment;
• the schedule necessary for the applicant to minimize public inconvenience due to traffic congestion and/or closure of major roadways;
• public safety considerations;
• the proximity of the project to residential and noise sensitive populations;
• existing and proposed noise mitigation measures;
• existing background noise levels; and
• opportunities for public participation and notification plans.

DEH has attempted to balance public health with the requirement that the Colorado Blvd. Water Pipe Installation Project be completed. DEH believes that neither will be significantly compromised if the conditions described herein are implemented.

Based on the information submitted by the applicant, DEH recommends that the Board approve the variance request, contingent upon the following conditions. Within these conditions, the terms are as defined in Appendix A of these recommendations, attached hereto and incorporated herein by reference.

1) Duration: This variance shall extend through completion of the water pipe removal and installation activities on Colorado Blvd. from Colfax Ave. to 26th Ave., associated with the Denver Water Pipe Installation Project but not later than April 30, 2018.

2) Construction Activity Allowable Noise Levels: Construction noise levels shall not exceed an hourly $L_{eq}$ of 75 dBA or an $L_{max}$ of 85 dBA during the hours of 9:00 p.m. to 7:00 a.m. Monday – Friday and 5:00 p.m. to 8:00 a.m. Saturday and Sunday (Nighttime Hours) unless accommodations described in 3) are provided.

3) Hotel accommodations within eligibility zones: The applicant shall make hotel accommodations available for persons residing within eligibility zones where the nighttime construction noise levels are predicted to exceed the allowable noise levels described in 2). The eligibility zone shall be determined in advance of the Construction Activities through a sound study conducted by the applicant using sound modeling and provided to DEH for review and approval prior to a seven-day notification period. The applicant shall consider any special circumstances brought to their attention regarding individuals in the eligibility zone who cannot utilize hotel vouchers and who may be at risk during this period of time, e.g., residents of 24-hour health care facilities. The applicant shall make their best effort to accommodate the needs of such individuals during Construction Activity. Additionally, if construction noise complaints are received from outside of the eligibility zone, the applicant is provided the option of either immediately offering hotel vouchers to the complainant or conducting noise monitoring to determine if the $L_{eq}$ or the $L_{max}$ at the complainant’s location exceeds the allowable noise levels described in 2) and thus warrants a hotel voucher. Without supporting noise
monitoring data, a construction noise complaint from outside of the eligibility zone must immediately be offered a hotel voucher as a mitigation option by the applicant.

a) At facilities where employees, residents and patients do not have the ability to relocate during construction operations, work shall not take place within 460 ft of those facilities between the hours of 10 p.m. and 7 a.m.

4) Notifications: Notification must be completed not less than seven days prior to commencement of construction during Nighttime Hours, the applicant shall notify DEH and Residential Neighborhood Organizations (RNOs) located within a 200 foot radius of the construction (see Appendix A). Notice shall be in writing or by direct personal contact from the applicant’s representative, and shall include the expected start time, expected duration, character of work activity planned, names and telephone numbers of available contact persons (for additional information or questions), contact numbers for complaints, and any other relevant parameters or programs. Households within the eligibility zone shall receive notice regarding their eligibility for hotel vouchers at the same time or earlier. DEH shall be given as part of a weekly report: a list of RNOs receiving notifications; a list of households eligible for hotel vouchers; a copy of the notification sent to the RNOs; and a copy of the hotel vouchers offered to eligible households.

5) Mitigation Requirements/Activity Restraints: When construction is conducted during Nighttime Hours and such activity emits noise levels that exceed the applicable background noise levels at residential properties, the applicant shall utilize BMPs to mitigate construction noise impacts to the adjacent property owners. DEH shall be given as part of a weekly report the BMPs utilized during nightly operations. BMPs include the following:

a) Using reasonable best efforts to complete the construction as quickly as possible.
b) Minimizing nighttime construction duration near residential areas whenever possible.
c) Re-routing of truck traffic away from residential streets when possible.
d) Conducting truck loading, unloading and hauling operations so that noise levels are kept to a minimum such as but not limited to eliminating slamming of truck beds, truck tailgates, and equipment buckets.
e) Idle equipment motors down when the equipment is not in immediate use.
f) Configuring equipment on the site to minimize back-up alarm noise, where practical and feasible (for example, by using circular movement of trucks).
g) Shielding equipment, such as but not limited to jackhammers, saws and pavement breakers, through use of an existing sound barrier wall or a temporary barrier where practicable.
h) Maintaining all equipment to meet manufacturer’s specifications.
i) Informing employees, contractors and subcontractors performing construction of the general requirements of this variance and exercising best efforts to ensure that such employees, contractors and subcontractors follow BMPs in mitigating construction noise.

6) Monitoring:

a) The applicant must perform monitoring to demonstrate compliance with requirements described in 2) when complaints are received from outside of the eligibility zone and the applicant chooses not to immediately provide hotel voucher mitigation to the individual(s) submitting the complaint. In this case the following shall apply to demonstrate noise levels are below limits requiring hotel voucher mitigation.

i) Noise measurements shall be collected using ANSI guidelines for community noise monitoring including the following general guidelines:

(1) Manufacturer’s specifications for appropriate meter use shall be followed.
(2) All noise measurements shall be made using the A-weighted scale (dBA) and a fast response.
(3) Noise measurements shall be made at the nearest residential property line, unless physically impractical

ii) Monitoring shall meet the following requirements:
   (1) Noise monitoring shall be provided in response to all noise complaints.
   (2) Construction Activity shall be monitored for L_{max} and 30-minute L_{eq} levels.
   (3) All noise monitoring data and documentation shall be provided to DEH in a weekly report, and such data shall be available to the public from DEH. DEH or their designated representatives may inspect collected data more frequently.

iii) The following documentation shall be provided for noise monitoring that is conducted and shall be provided to DEH in a weekly report in a manner and form mutually agreed upon by the applicant and DEH:
   (1) Manufacturer names, model numbers, and serial numbers of each SLM and acoustical calibrator used
   (2) Software manufacturer, program and version.
   (3) Dates of annual certified calibration of SLM, microphone and acoustical calibrator.
   (4) Pre- and post-monitoring calibration data for the SLM.
   (5) Date and specific location (address if appropriate) of monitoring.
   (6) Start time and end time of monitoring.
   (7) Ambient weather conditions including temperature, relative humidity, wind speed and cloud cover.
   (8) Signature of technician collecting the data.
   (9) List of each 30-minute L_{eq} for the monitoring period, with associated L_{max} levels.
   (10) All measurements associated with any unusual noise events that occurred, cause of such event, correction of such event (if any), and adjusted and unadjusted measurements.

b) The applicant may elect to conduct monitoring in lieu of using the Roadway Construction Noise Model for determining eligibility zones. If monitoring is the choice of the applicant, the applicant shall perform monitoring sufficient to demonstrate compliance with the requirements of the noise variance and to demonstrate to the community the noise levels that are present.

i) Noise measurements shall be collected using ANSI guidelines for community noise monitoring including the following general guidelines:
   (1) Manufacturer’s specifications for appropriate meter use shall be followed.
   (2) All noise measurements shall be made using the A-weighted scale (dBA) and a slow response. Fast response measurements may be used to measure impulsive noise sources.
   (3) Noise measurements shall be made at the nearest residential property line, unless physically impractical.

ii) All nighttime Construction Activity shall be initially monitored. Monitoring shall include spot measurements, as appropriate and 30-minute L_{eq} measurements. Monitoring shall be required for, but not limited to, the following activity groups:
   (1) Demolition operations
   (2) Rubble load-out
   (3) Construction operations
   (4) Excavation

iii) Monitoring shall meet the following requirements:
   (1) Each construction activity shall be monitored a minimum of two days for L_{max} and 30-minute L_{eq} levels to establish an activity baseline for each activity when initially undertaken, and to establish the expected worst case situation.
   (2) Noise monitoring shall be provided in response to all noise complaints.
   (3) All noise monitoring data and documentation shall be provided to DEH in a weekly report, and such data shall be available to the public from DEH. DEH or their designated representatives may inspect collected data more frequently.
iv) The following documentation shall be provided for noise monitoring that is conducted and shall be provided to DEH in a weekly report in a manner and form mutually agreed upon by the applicant and DEH:
   (1) Manufacturer names, model numbers, and serial numbers of each SLM and acoustical calibrator used
   (2) Software manufacturer, program and version.
   (3) Dates of annual certified calibration of SLM, microphone and acoustical calibrator.
   (4) Pre- and post-monitoring calibration data for the SLM.
   (5) Date and specific location (address if appropriate) of monitoring.
   (6) Start time and end time of monitoring
   (7) Ambient weather conditions including temperature, relative humidity, wind speed and cloud cover.
   (8) Signature of technician collecting the data.
   (9) List of each 30-minute Leq for the monitoring period, with associated Lmax levels.
   (10) All measurements associated with any unusual noise events that occurred, cause of such event if known, correction of such event (if any), and adjusted and unadjusted measurements.

7) Complaint Notification and Response: The applicant shall ensure that methods are available to receive, address and respond to concerns raised by people in the community, through:
   a) Assuring that a field representative is available to respond to complaints regarding construction noise levels and provide monitoring if applicant desires in lieu of hotel voucher mitigation when complaint comes from outside of the eligibility zone. The field representative shall be empowered to shut down Construction Activity, authorize correction or remediation of sources of excess noise, and authorize resumption of Construction Activity as necessary to maintain compliance with allowable noise levels.
   b) Providing telephone access to a field representative during hours of project activities to receive complaints or comments from the public for the duration of the project. All complaints immediately shall be recorded, investigated and addressed as appropriate by the field representative and reported to DEH in a manner mutually agreed by DEH and the applicant. A response, in a reasonable form requested by the caller, summarizing the investigation and any corrective actions taken by the applicant shall be provided to the caller. Written copies of complaints received and responses by the applicant shall be provided to DEH in the weekly report.

8) Weekly Report: A weekly report from the applicant will be supplied to DEH in a manner mutually agreed by DEH and the applicant beginning a minimum of seven days prior to commencement of nighttime project activity and continuing on a weekly base throughout the duration of this noise variance or completion of nighttime project activity whichever occurs first. The weekly report shall include but not be limited to the following:
   • the list of RNOs receiving notifications;
   • the list of households eligible for hotel vouchers;
   • a weekly report a copy of the notification sent to the RNOs;
   • a weekly report a copy of the hotel vouchers offered to eligible households;
   • the BMPs utilized during nightly operations;
   • all documentation noted and set forth in RECOMMENDATION 6) b) iv) 1-10;
   • written copies of all complaints received and responses given by the applicant.

9) Fines and Penalties: Each violation of a condition and any line item contained within a condition constitute a separate violation of this variance and the City and County of Denver's noise ordinance,
Denver Revised Municipal Code Chapter (DRMC) 36 Noise Control. Fines and penalties are subject to the DRMC and Noise Program Policies and Procedures.

10) Revocation: Upon notice to the applicant and after a hearing before Denver's Board of Environmental Health, the Board of Environmental Health may revoke this variance if the applicant fails to comply with its terms.
APPENDIX A

Denver Water Colorado Blvd. from Colfax Ave to 26th Ave. Pipe Installation Project City Council District and Residential Neighborhood Organization Information:

Denver Neighborhood Association, Inc.
1285 Dexter St.
Denver, CO 80220
Contact: Bradley L. Zieg
Phone 1: 303-994-1395
Phone 2: 303-329-0046
Email: bradleyzieg@msn.com
secy.denverna@gmail.com
N: City Limits (Excluding DIA)
S: City Limits
E: City Limits
W: City Limits
Last Changed: 12/15/2017

Inter-Neighborhood Cooperation (INC)
PO Box 300684
Denver, CO 80218
Contact: JJ Niemann
Phone 1: 303-887-2233
Email: president@denverinc.org
Website: http://www.denverinc.org/
N: City Limits
S: City Limits
E: City Limits
W: City Limits
Last Changed: 1/23/2017

Bellevue-Hale Neighborhood Association
PO Box 200084
Denver, CO 80220
Contact: Laurie Bogue
Phone 1: 303-388-7929
Email: reddogurs@msn.com
Website: http://bellevue-hale.ning.com/
N: Colfax Ave.
S: 8th Ave.
E: Eudora St.
W: Colorado Blvd.
Last Changed: 1/6/2017
Bluebird Business Improvement District
3121 E. Colfax Ave.
Denver, CO 80206
Contact: Don Novak
Phone 1: 720-326-6246
Phone 2: 303-503-0408
Email: staff@bluebirddistrict.org
Website: http://www.bluebirdbeat.com/
N: 16th Ave.
S: 14th Ave.
E: Colorado Blvd.
W: St. Paul St.
Last Changed: 1/10/2017

Capitol Hill United Neighborhoods, Inc.
1290 Williams St., Ste. 102
Denver, CO 80218
Contact: Mark Cossin
Phone 1: 303-830-1651
Email: zoning.transportation@chundenver.org
chun@chundenver.org
Website: http://chundenver.org/
N: 22nd Ave
S: 1st Ave
E: Colorado Blvd
W: Broadway
Last Changed: 1/24/2017

City Park Friends and Neighbors
2060 Albion St.
Denver, CO 80207
Contact: Lamone Noles
Phone 1: 720-988-4433
Email: monee41145@gmail.com
Website: http://cpfan.org
N: MLK Blvd.
S: 8th /12th / 13th Ave.
E: Monaco St.
W: Downing St.
Last Changed: 5/12/2017
Denver Water - Pipe Installation Project Variance Request
Findings and Recommendations of the Department of Environmental Health
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Greater Park Hill Community, Inc.
2823 Fairfax St.
Denver, CO 80207
Contact: Sierra Fleenor
Phone: 303-388-0918
Email: director@greaterparkhill.org
chair@greaterparkhill.org
Website: http://greaterparkhill.org/
N: City Limits
S: Colfax Ave.
E: Quebec St.
W: Colorado Blvd.
Last Changed: 1/31/2017

South City Park Neighborhood Association
PO Box 18375
Denver, CO 80218
Contact: Terry Neyland
Phone: 769-233-3062
Email: southcitypark@gmail.com
scpnssecretary@gmail.com
Website: http://scpna.org/
N: 23rd Ave.
S: Colfax Ave.
E: Colorado Blvd.
W: York St.
Last Changed: 2/5/2017

The Points Historical Redevelopment Corp
2518 Kearney St.
Denver, CO 80207
Contact: Robert Eanes
Phone: 303-388-4465
Email: thepointsredevelopment@yahoo.com
N: 42nd Ave.
S: Colfax Ave.
E: Colorado Blvd.
W: Arapahoe
Last Changed: 1/15/2017
Denver Waier - Pipe Installation Project Variance Request
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Definitions

**Background sound level** shall mean the A-weighted sound level of all sound associated with a given environment, exceeded ninety (90) percent of the time ($L_{90}$) measured and being a composite of sounds from many sources during the period of observation while the sound from the noise source of interest is not present.

**Construction Activity** shall mean all construction, demolition and excavation activity that is associated with bridge or roadway improvements by the applicant, including all activity in or related to development of any associated right-of-way within the City and County of Denver (the "City").

**Hourly Leg** shall mean the equivalent continuous noise level of A-weighted sound energy averaged over a one-hour period.

**Integrating Sound Level Meter** shall mean an ANSI standard S1.4 Type 1 (Precision) or Type 2 (General Purpose) sound measurement device.

$L_{max}$ shall mean the maximum sound level measured during the monitoring period with the SLM set to A weighting and fast response.

**Nighttime Hours** shall mean the timeframe from 9:00 p.m. to 7:00 a.m. Monday – Friday and from 5:00 p.m. to 8:00 a.m. Saturday – Sunday.

**Temporary Sound Barrier Curtain** shall mean and include:

a) A Mobile Curtain Wall, which shall mean and include a temporary curtain-wall structure (truck cargo box trailers with sound-absorbent skirting or equivalent) capable of transport to various locations along the project right-of-way. The Mobile Curtain Wall will be 12 feet high, extendable to a maximum length of 200 feet, and be designed and deployed to achieve a 10-dBA insertion loss at the insertion point. The Mobile Curtain Wall shall be deployed during Nighttime Hours so as to extend at least 50 feet beyond the furthest boundaries of primary Construction Activity; and

b) A site-specific or equipment-specific acoustical curtain wall structure (utilizing Sound Seal Acoustical H-D [or equivalent] sound absorbent material) constructed or designed for suppression of general construction activity noise levels which exceed the background noise level but are not otherwise shielded by an existing sound barrier wall or a Mobile Curtain Wall. Acoustical curtain walls may be designed or manufactured for particular pieces of equipment, or may be specially constructed by the applicant, to accomplish a 10-dBA insertion loss at the insertion point from noise emissions without curtain wall controls.
To: Board of Environmental Health
From: Division of Public Health Inspections
Date: 3/30/2017
Re: Petition for Variance Request – BEH Docket No. 17-7
Denver Water Valve Replacement Project
Findings and Recommendations of the Department of Environmental Health

INTRODUCTION

Denver Water (applicant) submitted for consideration a request for a variance to the City and County of Denver’s Noise Ordinance, Denver Revised Municipal Code Chapter 36 for the purpose of construction required for water line valve and piping replacement within the City and County of Denver. The project is located within both the City and County of Denver to the east and the City of Wheat Ridge to the west.

Daytime and nighttime work will consist primarily of demolishing an existing Denver Water (DW) valve vault located at the north property line of the W. 29th Ave. and Sheridan Blvd intersection, and replacing it with new buried valves and connecting piping. The project site is located adjacent to both residential and commercial properties.

The overall scope of this project is to complete demolition and replacement of a valve vault and associated valves and piping over approximately a two (2) month period of time. Night work is scheduled to begin no sooner than April 13, 2017 and to be completed no later than June 13, 2017. Approximately thirty (30) days/night of construction activity will be needed to complete this project. This time frame accounts for potential schedule delays and other changes to the schedule that may occur.

The Noise Ordinance, section 36-7. (5) a., states that:

“No person shall operate any construction equipment nor conduct any construction activities between the hours of 9:00 p.m. and 7:00 a.m. Monday – Friday, and 5:00 p.m. and 8:00 a.m. Saturday – Sunday, that exceeds the noise limits of Table A.”

NOTE: Variances to the construction restrictions may be granted by the Board of Environmental Health if it can be demonstrated that such activities would interfere with traffic or jeopardize public safety if completed during daytime hours.

Table A lists the allowable noise levels for residential properties from 10:00 p.m. to 7:00 a.m. as 50 dBA and from 7:00 a.m. to 10:00 p.m. as 55 dBA and lists the allowable noise levels for commercial properties from 10:00 p.m. to 7:00 a.m. as 60 dBA and from 7:00 a.m. to 10:00 p.m. as 65 dBA or when background sound levels at the receiving premises residential or commercial properties equal or exceed the allowable levels specified in Table A, then the background sound levels become the standard. However, an exemption for construction noise during daytime is provided in Section 36-6. (b) (7).
RECOMMENDATION

The Denver Department of Environmental Health (DEH) recommends that the variance request submitted by the applicant be approved with conditions.

In making this recommendation, DEH took into consideration the following information:

- reported public health effects of differing noise levels and durations from construction equipment;
- the schedule necessary for the applicant to minimize public inconvenience due to traffic congestion and/or closure of major roadways;
- public safety considerations;
- the proximity of the project to residential and noise sensitive populations;
- existing and proposed noise mitigation measures;
- existing background noise levels; and
- opportunities for public participation and notification plans.

DEH has attempted to balance public health with the requirement that the Denver Water Valve Replacement Project be completed. DEH believes that neither will be significantly compromised if the conditions described herein are implemented.

Based on the information submitted by the applicant, DEH recommends that the Board approve the variance request, contingent upon the following conditions. Within these conditions, the terms are as defined in Appendix A of these recommendations, attached hereto and incorporated herein by reference.

1) Duration: This variance shall extend through demolition and construction activities associated with the Denver Water Valve Replacement Project but not later than June 13, 2017.

2) Construction Activity Allowable Noise Levels: Construction noise levels shall not exceed an hourly $L_{eq}$ of 75 dBA or an $L_{max}$ of 86 dBA during the hours of 9:00 p.m. to 7:00 a.m. Monday—Friday and 5:00 p.m. to 8:00 a.m. Saturday and Sunday (Nighttime Hours) unless accommodations described in condition "3)" are provided.

3) Hotel accommodations within eligibility zones: The applicant shall make hotel accommodations available for persons residing within eligibility zones where the nighttime construction noise levels are predicted to exceed the allowable noise levels described in 2). The eligibility zone shall be determined in advance of the Construction Activities through a sound study conducted by the applicant using sound modeling and provided to DEH for review and approval prior to a seven-day notification period. The applicant shall consider any special circumstances brought to their attention regarding individuals in the eligibility zone who cannot utilize hotel vouchers and who may be at risk during this period of time, e.g., residents of 24-hour health care facilities. The applicant shall make their best effort to accommodate the needs of such individuals during Construction Activity. Additionally, if construction noise complaints are received from outside of the eligibility zone, the applicant is provided the option of either immediately offering hotel vouchers to the complainant or conducting noise monitoring to determine if the $L_{eq}$ or the $L_{max}$ at the complainant’s location exceeds the allowable noise levels described in 2) and thus warrants a hotel voucher. Without supporting noise monitoring data, a construction noise complaint from outside of the eligibility zone must immediately be offered a hotel voucher as a mitigation option by the applicant.
4) **Notifications:** Notification must be completed not less than seven days prior to commencement of construction during Nighttime Hours, the applicant shall notify DEH and Residential Neighborhood Organizations (RNOs) located within a 200-foot radius of the construction (see Appendix A). Notice shall be in writing or by direct personal contact from the applicant's representative, and shall include the expected start time, expected duration, character of work activity planned, names and telephone numbers of available contact persons (for additional information or questions), contact numbers for complaints, and any other relevant parameters or programs. Households within the eligibility zone shall receive notice regarding their eligibility for hotel vouchers at the same time or earlier. DEH shall be given as part of a weekly report: a list of RNOs receiving notifications; a list of households eligible for hotel vouchers; a copy of the notification sent to the RNOs; and a copy of the hotel vouchers offered to eligible households.

5) **Mitigation Requirements/Activity Restraints:** When construction is conducted during Nighttime Hours and such activity emits noise levels that exceed the applicable background noise levels at residential properties, the applicant shall utilize BMPs to mitigate construction noise impacts to the adjacent property owners. DEH shall be given as part of a weekly report the BMPs utilized during nightly operations. BMPs include the following:
   a) Using reasonable best efforts to complete the construction as quickly as possible.
   b) Minimizing nighttime construction duration near residential areas whenever possible.
   c) Re-routing of truck traffic away from residential streets when possible.
   d) Conducting truck loading, unloading and hauling operations so that noise levels are kept to a minimum such as but not limited to eliminating slamming of truck beds, truck tailgates, and equipment buckets.
   e) Idle equipment motors down when the equipment is not in immediate use.
   f) Configuring equipment on the site to minimize back-up alarm noise, where practical and feasible (for example, by using circular movement of trucks).
   g) Shielding equipment, such as but not limited to jackhammers, saws and pavement breakers, through use of an existing sound barrier wall or a temporary barrier where practicable.
   h) Maintaining all equipment to meet manufacturer's specifications.
   i) Informing employees, contractors and subcontractors performing construction of the general requirements of this variance and exercising best efforts to ensure that such employees, contractors and subcontractors follow BMPs in mitigating construction noise.

6) **Monitoring:**
   a) The applicant must perform monitoring to demonstrate compliance with requirements described in 2) when complaints are received from outside of the eligibility zone and the applicant chooses not to immediately provide hotel voucher mitigation to the individual(s) submitting the complaint. In this case the following shall apply to demonstrate noise levels are below limits requiring hotel voucher mitigation.
      i) Noise measurements shall be collected using ANSI guidelines for community noise monitoring including the following general guidelines:
         (1) Manufacturer's specifications for appropriate meter use shall be followed.
         (2) All noise measurements shall be made using the A-weighted scale (dBA) and a fast response.
         (3) Noise measurements shall be made at the nearest residential property line, unless physically impractical.
      ii) Monitoring shall meet the following requirements:
         (1) Noise monitoring shall be provided in response to all noise complaints.
         (2) Construction Activity shall be monitored for $L_{max}$ and 30-minute $L_{eq}$ levels.
(3) All noise monitoring data and documentation shall be provided to DEH in a weekly report, and such data shall be available to the public from DEH. DEH or their designated representatives may inspect collected data more frequently.

iii) The following documentation shall be provided for noise monitoring that is conducted and shall be provided to DEH in a weekly report in a manner and form mutually agreed upon by the applicant and DEH:
1. Manufacturer names, model numbers, and serial numbers of each SLM and acoustical calibrator used
2. Software manufacturer, program and version.
3. Dates of annual certified calibration of SLM, microphone and acoustical calibrator.
4. Pre- and post-monitoring calibration data for the SLM.
5. Date and specific location (address if appropriate) of monitoring.
6. Start time and end time of monitoring.
7. Ambient weather conditions including temperature, relative humidity, wind speed and cloud cover.
8. Signature of technician collecting the data.
9. List of each 30-minute $L_{eq}$ for the monitoring period, with associated $L_{max}$ levels.
10. All measurements associated with any unusual noise events that occurred, cause of such event, correction of such event (if any), and adjusted and unadjusted measurements.

b) The applicant may elect to conduct monitoring in lieu of using the Roadway Construction Noise Model for determining eligibility zones. If monitoring is the choice of the applicant, the applicant shall perform monitoring sufficient to demonstrate compliance with the requirements of the noise variance and to demonstrate to the community the noise levels that are present.

i) Noise measurements shall be collected using ANSI guidelines for community noise monitoring including the following general guidelines:
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2. All noise measurements shall be made using the A-weighted scale (dBA) and a slow response. Fast response measurements may be used to measure impulsive noise sources.
3. Noise measurements shall be made at the nearest residential property line, unless physically impractical.

ii) All nighttime Construction Activity shall be initially monitored. Monitoring shall include spot measurements, as appropriate and 30-minute $L_{eq}$ measurements. Monitoring shall be required for, but not limited to, the following activity groups:
1. Demolition operations
2. Rubble load-out
3. Construction operations
4. Excavation

iii) Monitoring shall meet the following requirements:
1. Each construction activity shall be monitored a minimum of two days for $L_{max}$ and 30-minute $L_{eq}$ levels to establish an activity baseline for each activity when initially undertaken, and to establish the expected worst case situation.
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(5) Date and specific location (address if appropriate) of monitoring.
(6) Start time and end time of monitoring
(7) Ambient weather conditions including temperature, relative humidity, wind speed and cloud cover.
(8) Signature of technician collecting the data.
(9) List of each 30-minute $L_{eq}$ for the monitoring period, with associated $L_{max}$ levels.
(10) All measurements associated with any unusual noise events that occurred, cause of such event if known, correction of such event (if any), and adjusted and unadjusted measurements.

7) Complaint Notification and Response: The applicant shall ensure that methods are available to receive, address and respond to concerns raised by people in the community, through:

a) Assuring that a field representative is available to respond to complaints regarding construction noise levels and provide monitoring if applicant desires in lieu of hotel voucher mitigation when complaint comes from outside of the eligibility zone. The field representative shall be empowered to shut down Construction Activity, authorize correction or remediation of sources of excess noise, and authorize resumption of Construction Activity as necessary to maintain compliance with allowable noise levels.

b) Providing telephone access to a field representative during hours of project activities to receive complaints or comments from the public for the duration of the project. All complaints immediately shall be recorded, investigated and addressed as appropriate by the field representative and reported to DEH in a manner mutually agreed by DEH and the applicant. A response, in a reasonable form requested by the caller, summarizing the investigation and any corrective actions taken by the applicant shall be provided to the caller. Written copies of complaints received and responses by the applicant shall be provided to DEH in the weekly report.

8) Weekly Report: A weekly report from the applicant will be supplied to DEH in a manner mutually agreed by DEH and the applicant beginning a minimum of seven days prior to commencement of nighttime project activity and continuing on a weekly base throughout the duration of this noise variance or completion of nighttime project activity whichever occurs first. The weekly report shall include but not be limited to the following:

- the list of RNOs receiving notifications;
- the list of households eligible for hotel vouchers;
- a weekly report a copy of the notification sent to the RNOs;
- a weekly report a copy of the hotel vouchers offered to eligible households;
- the BMPs utilized during nightly operations;
- all documentation noted and set forth in RECOMMENDATION 6) b) iv) 1-10;
- written copies of all complaints received and responses given by the applicant.

9) Fines and Penalties: Each violation of a condition and any line item contained within a condition constitute a separate violation of this variance and the City and County of Denver's noise ordinance, Denver Revised Municipal Code Chapter (DRMC) 36 Noise Control. Fines and penalties are subject to the DRMC and Noise Program Policies and Procedures.
10) **Revocation:** Upon notice to the applicant and after a hearing before Denver's Board of Environmental Health, the Board of Environmental Health may revoke this variance if the applicant fails to comply with its terms.
APPENDIX A

Denver Water Valve Replacement Project Residential Neighborhood Organization and City Council District Information:

City Council District 1
Rafael Espinoza, Councilman District 1
1437 Bannock St #451
Denver, CO 80202
Phone: (720) 337-7711
Rafael.Espinoza@denvergov.org

Denver Neighborhood Association, Inc.
1285 Dexter St.
Denver, CO 80220
Contact: Bradley L. Zieg
Phone1: 303-994-1395
Phone2: 303-329-0046
Email: bradleyzieg@msn.com secy.denverna@gmail.com
N: City Limits (Excluding DIA)
S: City Limits
E: City Limits
W: City Limits
Last Changed: 12/15/2016

Inter-Neighborhood Cooperation (INC)
PO Box 300684
Denver, CO 80218
Contact: JJ Niemann
Phone1: 303-887-2233
Email: president@denverinc.org
Website: http://www.denverinc.org/
N: City Limits
S: City Limits
E: City Limits
W: City Limits
Last Changed: 1/5/2017

Sloan’s Lake Citizen’s Group
PO Box 140663
Denver, CO 80214
Contact: Marjorie Grimsley
Phone1: 303-455-5928
Phone2: 303-477-8423
Email: m_grimsley@msn.com Sloanlakecitizensgroup@gmail.com
Website: http://sloanlakecitizensgroup.org/
N: 29th Ave.
S: 10th Ave.
E: Federal Blvd.
W: Sheridan Blvd.
Last Changed: 1/30/2017
Sloan's Lake Neighborhood Association
1750 Meade St.
Denver, CO 80204
Contact: Jane Parker-Ambrose
Phone1: 303-571-1744
Phone2: 720-490-1991
Email: jpa@earthnet.net  LDA@earthnet.net
N: 29th Ave.
S: Colfax Ave.
E: Julian St.
W: Sheridan Blvd.
Last Changed: 1/29/2017

United Northside Neighborhood
3849 Vallejo St.
Denver, CO 80211
Contact: Ambrose Cruz
Phone1: 720-517-8288
Email: Lirazanorthside@gmail.com
N: City Limit
S: 20th Ave.
E: Inca St.
W: City Limit
Last Changed: 12/16/2016

West Highland Neighborhood Association
3284 Osceola St.
Denver, CO 80212
Contact: Trevor Greco
Phone1: 303-495-0787
Email: trevor@westhighlandneighborhood.org  jackieyoungblood@comcast.net
Website: http://westhighlandneighborhood.org/
N: 38th Ave.
S: 29th Ave.
E: Federal Blvd.
W: Sheridan Blvd.
Last Changed: 12/1/2016
Definitions

Background sound level shall mean the A-weighted sound level of all sound associated with a given environment, exceeded ninety (90) percent of the time (L₉₀) measured and being a composite of sounds from many sources during the period of observation while the sound from the noise source of interest is not present.

Construction Activity shall mean all construction, demolition and excavation activity that is associated with bridge or roadway improvements by the applicant, including all activity in or related to development of any associated right-of-way within the City and County of Denver (the "City").

Hourly Leq shall mean the equivalent continuous noise level of A-weighted sound energy averaged over a one-hour period.

Integrating Sound Level Meter shall mean an ANSI standard S1.4 Type 1 (Precision) or Type 2 (General Purpose) sound measurement device.

Lₘₚₚ shall mean the maximum sound level measured during the monitoring period with the SLM set to A weighting and fast response.

Nighttime Hours shall mean the timeframe from 9:00 p.m. to 7:00 a.m. Monday – Friday and from 5:00 p.m. to 8:00 a.m. Saturday – Sunday.

Temporary Sound Barrier Curtain shall mean and include:

1) A Mobile Curtain Wall, which shall mean and include a temporary curtain-wall structure (truck cargo box trailers with sound-absorbing skirting or equivalent) capable of transport to various locations along the project right-of-way. The Mobile Curtain Wall will be 12 feet high, extendable to a maximum length of 200 feet, and be designed and deployed to achieve a 10-dBA insertion loss at the insertion point. The Mobile Curtain Wall shall be deployed during Nighttime Hours so as to extend at least 50 feet beyond the furthest boundaries of primary Construction Activity; and

2) A site-specific or equipment-specific acoustical curtain wall structure (utilizing Sound Seal Acoustical H-D [or equivalent] sound absorbent material) constructed or designed for suppression of general construction activity noise levels which exceed the background noise level but are not otherwise shielded by an existing sound barrier wall or a Mobile Curtain Wall. Acoustical curtain walls may be designed or manufactured for particular pieces of equipment, or may be specially constructed by the applicant, to accomplish a 10-dBA insertion loss at the insertion point from noise emissions without curtain wall controls.
To: Board of Environmental Health
From: Division of Public Health Inspections
Date: 4/20/2017
Re: Petition for Variance Request – BEH Docket No. 17-11
Brannan Sand and Gravel Co., L.L.C.
Findings and Recommendations of the Department of Environmental Health

INTRODUCTION

Brannan Sand and Gravel Co., L.L.C. (applicant) submitted for consideration a request for a variance to the City and County of Denver's Noise Ordinance, Denver Revised Municipal Code Chapter 36 for the US 40 (Colfax Ave) – Galapago St. to Colorado Blvd. Resurfacing Project. This is a Colorado Department of Transportation (CDOT) project. The applicant is requesting this variance for the purpose of resurfacing US 40 (Colfax Ave) from Galapago St. to Colorado Blvd. The entire project is within the City and County of Denver.

The overall scope of this project is to resurface US 40 (Colfax Ave) from Galapago St. to Colorado Blvd. This project will consist of road construction improvement activities to include asphalt milling and resurfacing of US 40 (Colfax Ave) over approximately a six-month period of time.

Nighttime work will consist of asphalt milling and resurfacing of US 40 (Colfax Ave). The project corridor is located adjacent to single and multi-family residential properties, commercial properties, three medical facilities and one Denver fire station.

The project will require an overall time frame of approximately 211 days to complete. The time frame accounts for potential schedule delays and other changes to the schedule that may occur. Night work is scheduled to begin as soon as May 11, 2017.

The Noise Ordinance, section 36-7(5) a., states that:

"No person shall operate any construction equipment nor conduct any construction activities between the hours of 9:00 p.m. and 7:00 a.m. Monday – Friday, and 5:00 p.m. and 8:00 a.m. Saturday – Sunday, that exceeds the noise limits of Table A."

NOTE: Variances to the construction restrictions may be granted by the Board of Environmental Health if it can be demonstrated that such activities would interfere with traffic or jeopardize public safety if completed during daytime hours.

Table A lists the allowable noise levels from 10:00 p.m. to 7:00 a.m. as 50 dBA in residential areas and from 7:00 a.m. to 10:00 p.m. allowable noise levels are 55 dBA in residential areas. However, an exemption for construction noise during daytime is provided in Section 36-6(b)(7). When background
sound levels at the receiving premises equal or exceed the allowable levels specified in Table A, then the background sound levels become the standard.

RECOMMENDATION

The Denver Department of Environmental Health (DEH) recommends that the variance request submitted by the applicant be approved with conditions.

In making this recommendation, DEH took into consideration the following information:
- reported public health effects of differing noise levels and durations from construction equipment;
- the schedule necessary for the applicant to minimize public inconvenience due to traffic congestion and/or closure of major roadways;
- public safety considerations;
- the proximity of the project to residential and noise sensitive populations;
- existing and proposed noise mitigation measures;
- existing background noise levels; and
- opportunities for public participation and notification plans.

DEH has attempted to balance public health with the requirement that the US 40 (Colfax Ave.) Resurfacing Project be completed. DEH believes that neither will be significantly compromised if the conditions described herein are implemented.

Based on the information submitted by the applicant, DEH recommends that the Board approve the variance request, contingent upon the following conditions. Within these conditions, the terms are as defined in Appendix A of these recommendations, attached hereto and incorporated herein by reference.

1) Duration: This variance shall extend through completion of road construction improvement activities on US 40 (Colfax Ave.) from Galapago St. to Colorado Blvd., associated with the US 40 (Colfax Ave.) Resurfacing Project but not later than October 31, 2017.

2) Construction Activity Allowable Noise Levels: Construction noise levels shall not exceed an hourly \( L_{eq} \) of 75 dBA or an \( L_{max} \) of 86 dBA during the hours of 9:00 p.m. to 7:00 a.m. Monday – Friday and 5:00 p.m. to 8:00 a.m. Saturday and Sunday (Nighttime Hours) unless accommodations described in 3) are provided.

3) Hotel accommodations within eligibility zones: The applicant shall make hotel accommodations available for persons residing within eligibility zones where the nighttime construction noise levels are predicted to exceed the allowable noise levels described in 2). The eligibility zone shall be determined in advance of the Construction Activities through a sound study conducted by the applicant using sound modeling and provided to DEH for review and approval prior to a seven-day notification period. The applicant shall consider any special circumstances brought to their attention regarding individuals in the eligibility zone who cannot utilize hotel vouchers and who may be at risk during this period of time, e.g., residents of 24-hour health care facilities. The applicant shall make their best effort to accommodate the needs of such individuals during Construction Activity. Additionally, if construction noise complaints are received from outside of the eligibility zone, the applicant is provided the option of either immediately offering hotel vouchers to the complainant or conducting noise monitoring to determine if the \( L_{eq} \) or the \( L_{max} \) at the complainant's location exceeds the allowable noise levels described in 2) and thus warrants a hotel voucher.
monitoring data, a construction noise complaint from outside of the eligibility zone must immediately be offered a hotel voucher as a mitigation option by the applicant.

a) At facilities where employees, residents and patients do not have the ability to relocate during construction operations, work shall not take place within 460 ft of those facilities between the hours of 10 p.m. and 7 a.m.

4) Notifications: Notification must be completed not less than seven days prior to commencement of construction during Nighttime Hours, the applicant shall notify DEH and Residential Neighborhood Organizations (RNOs) located within a 200 foot radius of the construction (see Appendix A). Notice shall be in writing or by direct personal contact from the applicant’s representative, and shall include the expected start time, expected duration, character of work activity planned, names and telephone numbers of available contact persons (for additional information or questions), contact numbers for complaints, and any other relevant parameters or programs. Households within the eligibility zone shall receive notice regarding their eligibility for hotel vouchers at the same time or earlier. DEH shall be given as part of a weekly report: a list of RNOs receiving notifications; a list of households eligible for hotel vouchers; a copy of the notification sent to the RNOs; and a copy of the hotel vouchers offered to eligible households.

5) Mitigation Requirements/Activity Restraints: When construction is conducted during Nighttime Hours and such activity emits noise levels that exceed the applicable background noise levels at residential properties, the applicant shall utilize BMPs to mitigate construction noise impacts to the adjacent property owners. DEH shall be given as part of a weekly report the BMPs utilized during nightly operations. BMPs include the following:

a) Using reasonable best efforts to complete the construction as quickly as possible.

b) Minimizing nighttime construction duration near residential areas whenever possible.

c) Re-routing of truck traffic away from residential streets when possible.

d) Conducting truck loading, unloading and hauling operations so that noise levels are kept to a minimum such as but not limited to eliminating slamming of truck beds, truck tailgates, and equipment buckets.

e) Idle equipment motors down when the equipment is not in immediate use.

f) Configuring equipment on the site to minimize back-up alarm noise, where practical and feasible (for example, by using circular movement of trucks).

g) Shielding equipment, such as but not limited to jackhammers, saws and pavement breakers, through use of an existing sound barrier wall or a temporary barrier where practicable.

h) Maintaining all equipment to meet manufacturer’s specifications.

i) Informing employees, contractors and subcontractors performing construction of the general requirements of this variance and exercising best efforts to ensure that such employees, contractors and subcontractors follow BMPs in mitigating construction noise.

6) Monitoring:

a) The applicant must perform monitoring to demonstrate compliance with requirements described in 2) when complaints are received from outside of the eligibility zone and the applicant chooses not to immediately provide hotel voucher mitigation to the individual(s) submitting the complaint. In this case the following shall apply to demonstrate noise levels are below limits requiring hotel voucher mitigation.

i) Noise measurements shall be collected using ANSI guidelines for community noise monitoring including the following general guidelines:

(1) Manufacturer’s specifications for appropriate meter use shall be followed.
(2) All noise measurements shall be made using the A-weighted scale (dBA) and a fast response.

(3) Noise measurements shall be made at the nearest residential property line, unless physically impractical

ii) Monitoring shall meet the following requirements:
   (1) Noise monitoring shall be provided in response to all noise complaints.
   (2) Construction Activity shall be monitored for \( L_{\text{max}} \) and 30-minute \( L_{\text{eq}} \) levels.
   (3) All noise monitoring data and documentation shall be provided to DEH in a weekly report, and such data shall be available to the public from DEH. DEH or their designated representatives may inspect collected data more frequently.

iii) The following documentation shall be provided for noise monitoring that is conducted and shall be provided to DEH in a weekly report in a manner and form mutually agreed upon by the applicant and DEH:
   (1) Manufacturer names, model numbers, and serial numbers of each SLM and acoustical calibrator used
   (2) Software manufacturer, program and version.
   (3) Dates of annual certified calibration of SLM, microphone and acoustical calibrator.
   (4) Pre- and post-monitoring calibration data for the SLM.
   (5) Date and specific location (address if appropriate) of monitoring.
   (6) Start time and end time of monitoring
   (7) Ambient weather conditions including temperature, relative humidity, wind speed and cloud cover.
   (8) Signature of technician collecting the data.
   (9) List of each 30-minute \( L_{\text{eq}} \) for the monitoring period, with associated \( L_{\text{max}} \) levels.
   (10) All measurements associated with any unusual noise events that occurred, cause of such event, correction of such event (if any), and adjusted and unadjusted measurements.

b) The applicant may elect to conduct monitoring in lieu of using the Roadway Construction Noise Model for determining eligibility zones. If monitoring is the choice of the applicant, the applicant shall perform monitoring sufficient to demonstrate compliance with the requirements of the noise variance and to demonstrate to the community the noise levels that are present.

i) Noise measurements shall be collected using ANSI guidelines for community noise monitoring including the following general guidelines:
   (1) Manufacturer's specifications for appropriate meter use shall be followed.
   (2) All noise measurements shall be made using the A-weighted scale (dBA) and a slow response. Fast response measurements may be used to measure impulsive noise sources.
   (3) Noise measurements shall be made at the nearest residential property line, unless physically impractical

ii) All nighttime Construction Activity shall be initially monitored. Monitoring shall include spot measurements, as appropriate and 30-minute \( L_{\text{eq}} \) measurements. Monitoring shall be required for, but not limited to, the following activity groups:
   (1) Demolition operations
   (2) Rubble load-out
   (3) Construction operations
   (4) Excavation

iii) Monitoring shall meet the following requirements:
   (1) Each construction activity shall be monitored a minimum of two days for \( L_{\text{max}} \) and 30-minute \( L_{\text{eq}} \) levels to establish an activity baseline for each activity when initially undertaken, and to establish the expected worst case situation.
   (2) Noise monitoring shall be provided in response to all noise complaints.
(3) All noise monitoring data and documentation shall be provided to DEH in a weekly report, and such data shall be available to the public from DEH. DEH or their designated representatives may inspect collected data more frequently.

iv) The following documentation shall be provided for noise monitoring that is conducted and shall be provided to DEH in a weekly report in a manner and form mutually agreed upon by the applicant and DEH:
   (1) Manufacturer names, model numbers, and serial numbers of each SLM and acoustical calibrator used.
   (2) Software manufacturer, program and version.
   (3) Dates of annual certified calibration of SLM, microphone and acoustical calibrator.
   (4) Pre- and post-monitoring calibration data for the SLM.
   (5) Date and specific location (address if appropriate) of monitoring.
   (6) Start time and end time of monitoring.
   (7) Ambient weather conditions including temperature, relative humidity, wind speed and cloud cover.
   (8) Signature of technician collecting the data.
   (9) List of each 30-minute L_{eq} for the monitoring period, with associated L_{max} levels.
   (10) All measurements associated with any unusual noise events that occurred, cause of such event if known, correction of such event (if any), and adjusted and unadjusted measurements.

7) Complaint Notification and Response: The applicant shall ensure that methods are available to receive, address and respond to concerns raised by people in the community, through:
   a) Assuring that a field representative is available to respond to complaints regarding construction noise levels and provide monitoring if applicant desires in lieu of hotel voucher mitigation when complaint comes from outside of the eligibility zone. The field representative shall be empowered to shut down Construction Activity, authorize correction or remediation of sources of excess noise, and authorize resumption of Construction Activity as necessary to maintain compliance with allowable noise levels.
   b) Providing telephone access to a field representative during hours of project activities to receive complaints or comments from the public for the duration of the project. All complaints immediately shall be recorded, investigated and addressed as appropriate by the field representative and reported to DEH in a manner mutually agreed by DEH and the applicant. A response, in a reasonable form requested by the caller, summarizing the investigation and any corrective actions taken by the applicant shall be provided to the caller. Written copies of complaints received and responses by the applicant shall be provided to DEH in the weekly report.

8) Weekly Report: A weekly report from the applicant will be supplied to DEH in a manner mutually agreed by DEH and the applicant beginning a minimum of seven days prior to commencement of nighttime project activity and continuing on a weekly base throughout the duration of this noise variance or completion of nighttime project activity whichever occurs first. The weekly report shall include but not be limited to the following:
   • the list of RNOs receiving notifications;
   • the list of households eligible for hotel vouchers;
   • a weekly report a copy of the notification sent to the RNOs;
   • a weekly report a copy of the hotel vouchers offered to eligible households;
   • the BMPs utilized during nightly operations;
   • all documentation noted and set forth in RECOMMENDATION 6) b) iv) 1-10;
9) **Fines and Penalties:** Each violation of a condition and any line item contained within a condition constitute a separate violation of this variance and the City and County of Denver's noise ordinance, Denver Revised Municipal Code Chapter (DRMC) 36 Noise Control. Fines and penalties are subject to the DRMC and Noise Program Policies and Procedures.

10) **Revocation:** Upon notice to the applicant and after a hearing before Denver's Board of Environmental Health, the Board of Environmental Health may revoke this variance if the applicant fails to comply with its terms.
APPENDIX A

US 40 (Colfax Ave) from Galapago St. to Colorado Blvd. Resurfacing Project City Council District and Residential Neighborhood Organization Information:

Mary Beth Susman  
Councillwoman District 5  
1437 Bannock St. #451  
Denver, CO 80202  
Phone: (720)337-5555  
marybeth.susman@denvergov.org

Christopher Herndon  
Councilman, District 8  
4685 Peoria St. #245  
Denver, CO 80239  
Phone: (720) 337-8888  
Christopher.Herndon@denvergov.org

Albus Brooks  
Councilman District 9  
2855 Tremont Pl. #201  
Denver, CO 80205  
albus.brooks@denvergov.org  
Phone: (720) 337-7709

Wayne New  
Councilman District 10  
1437 Bannock St. #451  
Denver, CO 80202  
Phone: (720) 337-7710  
wayne.new@denvergov.org

Denver Neighborhood Association, Inc.  
1285 Dexter St.  
Denver, CO 80220  
Contact: Bradley L. Zieg  
Phone1: 303-994-1395  
Phone2: 303-329-0046  
Email: bradleyzieg@msn.com  
geyer.denverna@gmail.com

N: City Limits (Excluding DIA)  
S: City Limits  
E: City Limits  
W: City Limits  
Last Changed: 12/15/2016
Inter-Neighborhood Cooperation (INC)
PO Box 300684
Denver, CO 80218
Contact: JJ Niemann
Phone 1: 303-887-2233
Email: president@denverinc.org
Website: http://www.denverinc.org/
N: City Limits
S: City Limits
E: City Limits
W: City Limits
Last Changed: 1/5/2017

The Points Historical Redevelopment Corp
2518 Kearney St.
Denver, CO 80207
Contact: Robert Eanes
Phone 1: 303-388-4465
Email: thepointsredevelopment@yahoo.com
N: 42nd Ave.
S: Colfax Ave.
E: Colorado Blvd.
W: Arapahoe
Last Changed: 1/15/2017

Cultural Arts Residential Organization
975 Lincoln St. 11E
Denver, CO 80203
Contact: Mary Jane Giordano
Phone 1: 303-731-8631
Phone 2: 720-887-0757
Email: mjgeducationaltherapist@yahoo.com
margieandwally@gmail.com
N: Colfax Ave. / 14th Ave.
S: 4th Ave.
E: Logan St.
W: Cherokee St.
Last Changed: 1/3/2017
Brannan Sand and Gravel Co., L.L.C. US 40 (Colfax Ave) - Galapago St. to Colorado Blvd. Resurfacing Project
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Capitol Hill United Neighborhoods, Inc.
1290 Williams St., Ste. 102
Denver, CO 80218
Contact: Mark Cossin
Phone: 303-830-1651
Email: zoning.transportation@chundenver.org
Website: http://chundenver.org/
N: 22nd Ave
S: 1st Ave
E: Colorado Blvd
W: Broadway
Last Changed: 1/24/2017

Colfax on the Hill, Inc.
3121 E. Colfax Ave.
Denver, CO 80206
Contact: Don Novak
Phone: 720-326-6246
Email: don@colfaxonthehill.com
don@propagandalabs.com
Website: http://www.colfaxonthehill.com/
N: 16th Ave.
S: 14th Ave.
E: Colorado Blvd.
W: Broadway
Last Changed: 1/5/2017

The Shire of Capitol Hill
945 Washington St Apt 300
Denver, CO 80203
Contact: John Riecke
Phone: 720-326-6104
Email: theshirecaphill@gmail.com
N: Colfax Ave.
S: 7th Ave.
E: Downing St.
W: Broadway
Last Changed: 12/1/2016
Uptown on the Hill
1308 E. 17th Ave.
Denver, CO 80218
Contact: Johan Barrios
Phone 1: 727-742-9608
Email: jcb033@hotmail.com
Website: http://www.uptowndenver.org/
N: 23rd Ave. / 20th Ave.
S: Colfax Ave.
E: York St.
W: Broadway
Last Changed: 1/5/2017

Colfax Business Improvement District
PO Box 18853
Denver, CO 80218
Contact: Frank Locantore
Phone 1: 303-832-2086 x 1
Phone 2: 303-832-2086 x 2
Email: frank@colfaxave.com
Website: http://colfaxave.com/
N: 16th Ave.
S: 14th Ave.
E: Columbine St.
W: Grant St.
Last Changed: 1/12/2017

Unsinkables, Inc.
1266 Pearl St
Denver, CO 80203
Contact: Kathi Anderson
Phone 1: 303-343-4069
Phone 2: 303-830-7334
Email: unsinkablesindenver@gmail.com
findkathi@gmail.com
N: Colfax Ave
S: 11th Avenue
E: Clarkson Street
W: Logan Street
Last Changed: 12/13/2017
Swallow Hill Neighborhood Association
1575 Ogden St.
Denver, CO 80218
Contact: Bob Hampton
Phone: 303-900-2090
Email: bobhampton@gmail.com
Website: https://www.facebook.com/groups/SHNADenver/
N: 17th Avenue
S: Colfax Ave.
E: Downing St.
W: Clarkson St.
Last Changed: 1/24/2017

City Park Friends and Neighbors
2060 Albion St.
Denver, CO 80207
Contact: Hank Bootz
Phone: 303-495-0819
Email: hankboottz@msn.com
Website: http://cpf4.org
N: MLK Blvd.
S: 8th /12th / 13th Ave.
E: Monaco St.
W: Downing St.
Last Changed: 12/22/2016

City Park West Neighborhood Organization
2004 Vine St.
Denver, CO 80205
Contact: Elizabeth Pearlman
Phone: 303-513-9440
Email: lizpearlmanS@gmail.com
N: 23rd Ave.
S: Colfax Ave.
E: York St.
W: Downing St.
Last Changed: 1/25/2017
Friends & Neighbors for Cheesman Park
1299 Gilpin St. #15E.
Denver, CO 80218
Contact: Jay H. Rust
Phone: 720-280-5759
Email: rustj1@aol.com
N: Colfax Ave.
S: 6th Ave
E: York St.
W: Downing St.
Last Changed: 12/6/2016

City Park West Neighborhood Organization
2004 Vine St.
Denver, CO 80205
Contact: Elizabeth Pearlman
Phone: 303-513-9440
Email: lizpearlman5@gmail.com
N: 23rd Ave.
S: Colfax Ave.
E: York St.
W: Downing St.
Last Changed: 1/25/2017

Congress Park Neighbors, Inc.
2917 E. 10th Ave.
Denver, CO 80206
Contact: Tom Conis
Phone: 303-388-1968
Email: cppnetify@congressparkneighbors.org
president@congressparkneighbors.org
Website: http://www.congressparkneighbors.org/
N: Colfax Ave.
S: 6th Ave.
E: Colorado Blvd.
W: York St.
Last Changed: 12/3/2016
Brannan Sand and Gravel Co., L.L.C. US 40 (Colfax Ave) – Galapago St. to Colorado Blvd. Resurfacing Project
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South City Park Neighborhood Association
PO Box 18375
Denver, CO 80218
Contact: Terry Neyland
Phone 1: 769-233-3062
Email: southcitypark@gmail.com
scpnssecretary@gmail.com
Website: http://scpna.org/
N: 23rd Ave.
S: Colfax Ave.
E: Colorado Blvd.
W: York St.
Last Changed: 2/5/2017

Easthigh Neighbors
2990 E. 17th Ave. #1007
Denver, CO 80206
Contact: Marc Anthony Vaida
Phone 1: 303-204-1710
Phone 2: 303-832-2100
Email: easthighneighbors@gmail.com
mavaida@vaidamail.net
Website: www.easthighneighbors.com
N: 17th Ave.
S: Colfax Ave.
E: Alley West of St. Paul St.
W: Josephine St.
Last Changed: 1/7/2017

Bluebird Business Improvement District
3121 E. Colfax Ave.
Denver, CO 80206
Contact: Don Novak
Phone 1: 720-326-6246
Phone 2: 303-503-0408
Email: staff@bluebirddistrict.org
Website: http://www.bluebirdbeat.com/
N: 16th Ave.
S: 14th Ave.
E: Colorado Blvd.
W: St. Paul St.
Last Changed: 1/10/2017
Definitions

Background sound level shall mean the A-weighted sound level of all sound associated with a given environment, exceeded ninety (90) percent of the time (L90) measured and being a composite of sounds from many sources during the period of observation while the sound from the noise source of interest is not present.

Construction Activity shall mean all construction, demolition and excavation activity that is associated with bridge or roadway improvements by the applicant, including all activity in or related to development of any associated right-of-way within the City and County of Denver (the "City").

Hourly Leg shall mean the equivalent continuous noise level of A-weighted sound energy averaged over a one-hour period.

Integrating Sound Level Meter shall mean an ANSI standard S1.4 Type 1 (Precision) or Type 2 (General Purpose) sound measurement device.

Lmax shall mean the maximum sound level measured during the monitoring period with the SLM set to A weighting and fast response.

Nighttime Hours shall mean the timeframe from 9:00 p.m. to 7:00 a.m. Monday – Friday and from 5:00 p.m. to 8:00 a.m. Saturday – Sunday.

Temporary Sound Barrier Curtain shall mean and include:

a) A Mobile Curtain Wall, which shall mean and include a temporary curtain-wall structure (truck cargo box trailers with sound-absorbent skirting or equivalent) capable of transport to various locations along the project right-of-way. The Mobile Curtain Wall will be 12 feet high, extendable to a maximum length of 200 feet, and be designed and deployed to achieve a 10-dBA insertion loss at the insertion point. The Mobile Curtain Wall shall be deployed during Nighttime Hours so as to extend at least 50 feet beyond the furthest boundaries of primary Construction Activity; and

b) A site-specific or equipment-specific acoustical curtain wall structure (utilizing Sound Seal Acoustical H-D [or equivalent] sound absorbent material) constructed or designed for suppression of general construction activity noise levels which exceed the background noise level but are not otherwise shielded by an existing sound barrier wall or a Mobile Curtain Wall. Acoustical curtain walls may be designed or manufactured for particular pieces of equipment, or may be specially constructed by the applicant, to accomplish a 10-dBA insertion loss at the insertion point from noise emissions without curtain wall controls.