



Labyrinth
Management Group, Inc

Strategic Environmental, Safety & Health Solutions

**Environmental Impact Report
For
Fechko Excavating, Inc.
Concrete Crushing Operation
865 W Liberty Street
Medina, Ohio**



Prepared for:

**City of Medina
132 North Elmwood Ave.
Medina, Ohio 44256**

April 24, 2019

Helping Companies Find Their Way

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Executive Summary

The City of Medina retained Labyrinth Management Group, Inc. (LMG) to conduct an Environmental Impact Report (EIR) for the Fechko Excavating, LLC (Fechko) concrete crushing operations located on Medina City Lot 6774 in the City of Medina (the subject property). The scope of services for this EIR project is fully described in LMG's proposal to Jonathan Mendel with the City of Medina dated November 29, 2018 (LMG Reference: CM18-518).

LMG understands that the parcel of land and the concrete crushing operations at the subject property are currently under review as part of the City of Medina's Planning Commission Case No. P18-14. Furthermore, the results of LMG's EIR will be incorporated as part of this review and relied upon by the City of Medina.

The overall objective of the EIR was to provide the City of Medina with detailed information and LMG's evaluation of the environmental aspects of the current and proposed permanent concrete crushing operations including environmental effects on adjacent and nearby properties and methods to minimize any significant potential adverse environmental effects. LMG included noise as part of the environmental aspects evaluated by the project.

During LMG's evaluation for the EIR, operations at the subject property included concrete crushing, heavy equipment material handling, and onsite concrete debris storage. In addition, the proposed permanent operation will include truck load-in of concrete debris and load-out of crushed concrete that is proposed to occur when the crushing equipment is not in active use.

Summary of Findings

Based on the results of LMG's evaluation, the EIR has identified the following major findings regarding the environmental aspects of the crushing operation at the subject property including potential environmental effects on surrounding properties:

- 1) Fechko's "crushing equipment" appears to be in compliance with Ohio Environmental Protection Agency (EPA) portable source air permitting and relocation notification requirements. However, in LMG's opinion, the unpaved roadways and parking areas associated with the current crushing operation do not currently comply with applicable Ohio EPA air permitting requirements. Based on existing information, Fechko's current and proposed permanent crushing operation's unpaved roadways and traffic areas are subject to obtaining coverage under Ohio EPA's Permit-by-Rule (PBR) regulations or an Ohio EPA general air permit.
- 2) The unpaved roadways and traffic areas associated with Fechko's crushing operations are significant potential sources of particulate matter (PM) emissions that have the potential to adversely impact adjacent properties. Ohio's PBR regulations for unpaved roadways and parking areas include requirements for implementation of inspections, monitoring, operational restrictions, and various control measures that are important to reduce PM emissions from the crushing operations. The effective use of these PM control measures also will be critical for the proposed permanent crushing location to eliminate adverse PM impacts to the southern and possibly other adjacent properties.

- 3) LMG's ambient air monitoring generally demonstrates that particulate matter 10 microns and less in size (PM₁₀) emissions from Fechko's crushing operations will not result in offsite PM₁₀ concentrations that exceed the Clean Air Act's (CAA's) National Ambient Air Quality Standard (NAAQS) at adjacent properties.
- 4) The PM₁₀ monitoring results indicate that the proposed permanent crushing location has the potential to adversely impact ambient air quality at downwind adjacent properties if existing operational restrictions and effective PM control measures are not maintained. In addition, the close proximity of the proposed permanent crushing operation to the southern adjacent property could result in adverse PM₁₀ impacts to that property, if additional fixed dust mitigation controls are not installed.
- 5) LMG's qualitative ambient air sampling results also indicate that nuisance dust/TSP emissions from the current and permanent crushing operation locations will not pose adverse public health risks to downwind adjacent properties.
- 6) The ambient air sampling results do indicate that nuisance dust/TSP emissions from the proposed permanent location could adversely impact downwind adjacent properties, if effective nuisance dust/TSP control measures are not implemented and maintained by Fechko. Furthermore, the close location of the proposed permanent crushing operation to the southern adjacent property may result in nuisance dust impacts to that property if additional fixed dust mitigation controls are not installed.
- 7) Respirable Crystalline Silica (RCS) potentially present in the concrete dust generated by the Fechko crushing operation was not detected in samples collected from the ambient air downwind from the crusher operation at the subject property. These qualitative results indicate that the ambient air at adjacent properties downwind of the proposed permanent location should not be impacted by concentrations of silica during winter crushing operations. In addition, silica should not impact adjacent properties during other time periods of the year when truck unloading and loading operations are conducted if required watering is conducted for the unpaved areas and concrete storage piles to control visible emissions of nuisance dust.
- 8) LMG's noise monitoring results demonstrate that adjacent properties were not adversely impacted by elevated noise levels from the current crushing operation. In addition, no adverse noise impacts are expected to the northern, western and eastern adjacent properties from the location of the proposed permanent crushing operation. This finding incorporates the existing restrictions on the crushing operation's daily hours and calendar months of operation.
- 9) The noise monitoring results indicate that the proposed permanent location of the crushing operation is likely to result in adverse noise impacts on the adjacent southern property if this property is developed as high-density residential and noise mitigation measures are not implemented at the subject property. This finding is based on the current noise monitoring results and the potential close proximity of future residences and their associated outdoor areas to the operational area for the crushing operation.

Summary of Recommendations

Based on the major findings and conclusions, LMG has the following recommendations for the City of Medina:

- 1) Require Fechko to obtain PBR coverage/Ohio EPA general PTIO for the unpaved (and possibly paved) roadways and parking areas associated with the crushing operation or provide the City of Medina with a determination from ARAQMD that air permitting of the unpaved roadways and traffic areas is not required. Incorporate the extensive PBR or general air PTIO requirements for the effective control of these fugitive dust emissions into the approval of the proposed permanent crushing operation at the subject property.
- 2) Require the proposed permanent concrete crushing operation to be relocated approximately 200 feet north of the southern adjacent property or include in the site plan requirements the installation of an elevated soil berm with evergreen trees to act as a barrier to nuisance dust emissions from the operation.
- 3) Require Fechko to prepare and implement a Work Practice Plan (WPP) for fugitive particulate air emissions and conduct watering or other control measures on a daily basis when any visible emissions are noted from emission sources. WPPs have been recently required by Ohio EPA in air emission permits for fugitive particulate emission sources such as roadways and storage piles. The WPP should be submitted to the City of Medina for review.
- 4) Require the installation of a “noise barrier” between the proposed location of the permanent crushing operation and the adjacent southern property, if the crushing operation is not relocated approximately 200 feet further to the north. LMG recommends the noise barrier at the subject property be at least 12 to 14 feet high. As a rule-of-thumb, a noise barrier also must generally extend four times the distance between the barrier and the last receiver to be effective at reducing noise for the last receiver. Therefore, the noise barrier should run along the entire southern property line.
- 5) Restrict operating hours to eliminate early morning and evening crushing operations during the weekdays and continue the prohibition of weekend crushing operations when occupants and residences to the east and south (when developed) of the subject property are most likely to be outside and aware of the noise associated with the crushing operation. The prohibition on weekend operations should include truck unloading of concrete debris and the loading of crushed concrete.
- 6) Require Fechko to investigate and report back to the City of Medina that back-up alarms on heavy equipment have been adjusted to be 10 dB above background noise levels and the costs to use “White Sound” adjusting backup alarms that rely on a white sound (broadband sound) instead of the single frequency sound alarms.
- 7) If the proposed permanent crushing operation is not relocated north, require Fechko to conduct additional noise monitoring after the noise barrier is installed and other noise mitigation measures are implemented to evaluate if residential noise impacts continue to occur at the adjacent southern property.

1.0 INTRODUCTION

The City of Medina retained Labyrinth Management Group, Inc. (LMG) to conduct an Environmental Impact Report (EIR) for the Fechko Excavating, LLC (Fechko) concrete crushing operations located on Medina City Lot 6774 in the City of Medina (the subject property). The subject property is owned by Fechko, and the crushing operation's location has access to South Progress Drive and West Liberty Street in Medina, Ohio.

During LMG's evaluation for the EIR, operations at the subject property included concrete crushing, heavy equipment material handling, and onsite concrete debris storage. In addition, the proposed permanent operation will include truck load-in of concrete debris and load-out of crushed concrete that is proposed to occur when the crushing equipment is not in active use.

Based on regulatory agency filings and information from Fechko, the concrete crusher at the subject property is owned and operated by Fechko. The subject property consists of approximately 3.4 acres of land that is within a 7.22-acre parcel of developed land on the west side of the City of Medina. A site location map of the subject property is provided in Figure 1 behind the Figures Tab. A site layout and aerial view of the crushing operation that includes a Wind Rose is provided in Figure 2 behind the Figures Tab.

The north side of the subject property is developed with light industrial, and the east side is developed with multi-family residential. The west side of the subject property consists of a Fechko-owned multi-tenant commercial building where Fechko's offices are also located. The south side of the subject property is currently undeveloped land that LMG understands is zoned C-3 for commercial, retail, and high-density residential uses.

1.1 PURPOSE

The overall objective of the EIR was to provide the City of Medina with detailed information and LMG's evaluation of the environmental aspects of the current and proposed permanent concrete crushing operations including environmental effects on adjacent and nearby properties and methods to minimize any significant adverse environmental effects. LMG included noise as part of the environmental aspects evaluated by the project.

LMG understands that the parcel of land and the concrete crushing operations at the subject property are currently under review as part of the City of Medina's Planning Commission Case No. P18-14. Furthermore, the results of LMG's EIR will be incorporated as part of this review and relied upon by the City of Medina.

1.2 SCOPE

The scope of services for this EIR project is fully described in LMG's proposal to Jonathan Mendel with the City of Medina dated November 29, 2018 (LMG Reference: CM18-518). As part of the scope of work, LMG conducted six (6) integrated tasks that included the following:

- Reviewing subject property characteristics, Fechko's crushing equipment, and operations located at the subject property, expected average and maximum operating parameters, and Fechko's operating practices.

- Evaluating Fechko's crushing operations air pollutant and emission characteristics to reconfirm all required criteria to accurately estimate the potential average and maximum air pollutant emissions from the Fechko operations. These air pollutant emissions may include particulate matter (PM), PM 10 microns and smaller (PM₁₀), PM 2.5 microns and smaller (PM_{2.5}) that are also included in PM₁₀, nitrogen oxides, sulfur dioxide, and hazardous air pollutant (HAP) emissions. Based on this information, LMG conducted an evaluation of the crushing operation's compliance with applicable Ohio Environmental Protection Agency (EPA) air pollution regulations and requirements.
- Conducting five (5) working days of particulate PM₁₀ monitoring near adjacent properties using the Met One E-Bam ambient air monitor. LMG also conducted "background" PM₁₀ monitoring when crushing operations were not being conducted. LMG located the monitor downwind of the crushing operations based on the daily wind direction and speed observations.
- Conducting ambient air sampling for the collection and laboratory analysis of ambient air nuisance dust (total PM) and silica samples. These samples were collected at downwind locations near adjacent property boundaries during two (2) different sampling dates when crushing operations were being conducted. LMG also collected and analyzed one (1) background air sample for nuisance dust and silica when crushing operations were not being conducted.
- Performing two (2) visible emissions (VE) observations on separate days of crushing operations. The VE observations conducted that were in accordance with USEPA Method 9 contained in Appendix A of 40 CFR Part 60 to determine the opacity of dust emissions for comparison to permitted opacity limits.
- Conducting noise dosimeter monitoring at two (2) adjacent property line locations during two (2) days when crushing operations are being conducted and during one (1) day for background noise data when operations are not being conducted.

As part of the EIR project, LMG did not implement the proposal task associated with incorporating the results of prior PM₁₀ and PM_{2.5} ambient air dispersion modeling conducted for the crushing operations at the Osborne site for the qualitative evaluation of the proposed Fechko crushing operations at the subject property. This task was dropped from LMG's scope of work based on the following;

- (1) project budgetary constraints resulting from weather-related interruptions on performing the E-BAM PM₁₀ monitoring that increased the cost of this task;
- (2) LMG's professional opinion that the Fechko crushing operations were significantly different from Osborne's operations; and
- (3) LMG's knowledge and experience that the E-BAM ambient air monitoring results would more accurately evaluate actual potential environmental impacts from the Fechko crushing operations at the subject property and the importance of emission controls in meeting applicable National Ambient Air Quality Standards (NAAQS).

Mr. Traves, President of LMG, was the Project Director that oversaw the performance of all LMG tasks and was the primary author of the EIR. Mr. Traves has more than 25 years of experience in conducting various types of environmental assessments and reviews of industrial

operations. He has also testified as environmental compliance and industrial air pollutant emission/impact expert in administrative and legal proceedings. The ambient air evaluation was led by Mr. Charles Sisia, Principal Consultant with LMG. Mr. Sisia has 15 years of industrial air pollutant emission source characterization, air quality assessment and ambient air quality evaluation experience including ambient air monitoring and dispersion modeling.

Mr. Korey McAllister, Staff EHS Consultant with LMG, supported the completion of all the EIR tasks including fieldwork associated with the ambient air PM10 monitoring, ambient air nuisance dust and silica sampling, and noise monitoring. The professional profiles for Messrs. Traves and Sisia are provided in the Appendices CD behind Tab 1.

During the performance of the project, LMG staff conducted various evaluation tasks that included inspections, observations, monitoring, and sampling associated with the concrete crushing operation at the subject property on the following dates in 2019:

- January 7, 9, and 11;
- February 11, 14, 15, 25, 26, and 28; and
- March 1, 11, 12 and 16.

LMG staff also conducted a limited number of additional “drive-by” observations of the subject property to determine if concrete crushing operations were occurring on various dates.

1.3 LIMITATIONS AND EXCEPTIONS

As discussed in Section 1.2, a minor modification of LMG’s scope of work for the EIR was approved by the City of Medina based LMG’s follow-up. In LMG’s opinion, this minor scope of work modification does not adversely impact LMG’s evaluation of the potential environmental impact of Fechko’s current or proposed permanent crushing operations. However, LMG’s evaluation of Fechko’s potential ambient air impacts to adjacent and nearby properties is limited by the performance of the ambient air monitoring, ambient air sampling, and visible emission (VE) observations during winter weather conditions that included generally wet surface conditions.

In completing the EIR LMG also used information available from publicly available documents and documents provided by Fechko. In cases where Fechko specific information was not available, LMG relied upon other public information that, in LMG’s opinion, was technically appropriate and reasonable for use in the evaluation.

The public information required to complete this EIR was obtained from various sources including: (1) regulations, and guidance from the Ohio EPA (2) information and records from the ARAQMD, (3) reference documents available from the United States Environmental Protection Agency (USEPA), and (4) various additional other public sources referenced within the report. To the extent that public information from these sources was relied on to form LMG’s findings and opinions, the information was assumed to be complete and correct. LMG is not responsible for the quality or content of the information from these sources.

This report includes the application of scientific principles and professional judgment to certain results and facts with potential subjective interpretations. Professional judgments and opinions expressed herein are based on the facts and results currently available within the limits of the existing known data and the project scope of work.

2.0 EMISSION SOURCE REVIEW

As an initial step in the ambient air evaluation, LMG identified the various emission sources associated with the Fechko crushing operation and calculate the estimated PM₁₀ and PM_{2.5} emissions from these sources. LMG also completed a screening evaluation of the crushing operation's compliance with Ohio EPA air pollutant emission regulations.

Additional information on these topics is provided below.

2.1 SOURCE EMISSION CALCULATIONS

As the first step in calculating emissions, LMG evaluated the PM₁₀ and PM_{2.5} emissions from all potential emission sources associated with the crushing operation. Based on LMG's evaluation these sources included:

- Crushing and screening operations: particulate emissions from the crushing and sizing of concrete;
- Material Transfer points: particulate emissions that are generated when the material is disturbed; typically moved from a pile to the loader, loader to the hopper, conveyor to a pile, etc.;
- Diesel fuel combustion: particulate emission from the crushing unit's exhaust stack;
- Storage Piles: wind erosion from the surface of the concrete debris and crushed concrete pile(s) and the load-in and load-out of the piles;
- Truck and heavy equipment traffic on unpaved surfaces: loaders moving material throughout the site, trucks adding or removing material from the subject property; and
- Truck traffic on paved surfaces when truck is entering the subject property to add or remove material from the subject property via Progress Drive.

The Fechko crusher was manufacturer by the Eagle Crusher Company and is identified as the Eagle 1000-15CC Portable Crushing and Screening Plant, Serial Number 30562. The crusher has a maximum throughput rating of 150 tons per hour (tph) when crushing concrete to produce a specified product.

The PM₁₀ and PM_{2.5} emissions from the various sources associated with the concrete crushing operations at the subject property were calculated by LMG using emission factors from USEPA's AP-42 reference. USEPA's AP-42, Compilation of Air Pollutant Emission Factors, has been published since 1972 as the primary compilation of EPA's emission factor information. It contains emission factors and process information for more than 200 air pollution source categories. A source category is a specific industry sector or group of similar emitting sources. The emission factors have been developed and compiled from source test data, material balance studies, and engineering estimates. The Fifth Edition of AP-42 was published in January 1995.

Emission factors for PM_{2.5} are not specified on AP-42 Table 11.19.2-2 for all of the material handling and crushing/screening emission sources. For the Fechko crushing operation sources where a PM_{2.5} factor was not listed, LMG adjusted the PM₁₀ emission factor according to the particle size multipliers presented in AP-42 13.2.4 - Aggregate handling.

Material Throughput rates

The PM₁₀ and PM_{2.5} emission calculations for the concrete crushing operation's sources require information on material (i.e., concrete) throughput rates, with the exception of emissions from storage piles. LMG based the throughput rates on the portable source air Permit-by-Rule (PBR) information and Ohio EPA relocation notification form for the concrete crusher submitted by Fechko to Ohio EPA. This information indicated a maximum throughput of 150 tons per hour (tph) for concrete processing. This 150 tph rate was also used for calculation of emissions from the material handling operations including load-in and load-out operations.

Emission Control Assumptions

All of the concrete crushing operation PM₁₀ and PM_{2.5} emission rates calculated by LMG are based on "uncontrolled" emissions with the exception of unpaved material handling areas and roadway traffic. LMG incorporated a 50% control credit for watering to emission rates of PM₁₀ and PM_{2.5} from the unpaved material handling areas and roadway traffic. The 50% control credit is consistent with Ohio EPA's Reasonable Available Control Measure guidance.

Using uncontrolled emission factors adds a potential layer of conservatism to the evaluation, as PM₁₀ emissions from these process operations can also be reduced by watering and minimizing drop heights in loading and stacking operations. However, LMG did not observe watering of storage piles, or loading operations, as part of normal crushing operations during our observations of the site.

Summary of PM₁₀ and PM_{2.5} Emissions

A summary of the various LMG identified emission sources with corresponding PM₁₀ emission rates is provided in Table 1 below. Total PM and PM₁₀ emissions will be the largest type of air pollutant emitted by the Fechko crushing operations at the subject property. The estimated PM_{2.5} emissions and the detailed emission calculation worksheets for the emission sources listed are provided in the Appendices CD as Tab 2.

As shown in Table 1, the largest single source of both PM₁₀ (and expected PM and PM_{2.5}) emissions is estimated to be the concrete crusher equipment. However, the second largest source of PM₁₀ (and expected PM) emissions are fugitive emissions from the combined truck and heavy equipment (loader) traffic areas at the subject property.¹

The PM₁₀ (and PM_{2.5}) emission rates from these emission sources assume the effective use of water sprays for the crushing equipment and the 50% control from watering of the unpaved roadways and loader traffic areas. As a result, in LMG's opinion, the required and effective use of these air pollutant emission controls will be critical to eliminate potential adverse ambient air impacts from Fechko's crushing operations to adjacent properties.

¹ The total PM emissions from traffic areas are expected to be greater than the total PM emissions from the crusher equipment based on the expected size distribution of the PM.

Table 1
Summary of Concrete Crushing Operation PM₁₀ Emission Sources and Emission Rates

Description	Emission Rate PM ₁₀		Source
	lbs/hr	g/sec	
Load-out Truck Traffic*	1.34E-01	1.69E-02	AP-42 Chapter 13.2.2 Equation 1a, Table 13.2.2-2
Loader Traffic - Hopper Load-in*	1.13E-01	1.43E-02	AP-42 Chapter 13.2.2 Equation 1a, Table 13.2.2-2
Loader/Excavator Traffic – Working Material Transfers*	2.40E-01	3.02E-02	AP-42 Chapter 13.2.2 Equation 1a, Table 13.2.2-2
Loader Traffic – Truck Loading*	1.46E-01	1.84E-02	AP-42 Chapter 13.2.2 Equation 1a, Table 13.2.2-2
Finished Pile	2.37E-03	2.98E-04	Air Pollution Engineering Manual, Chapter 4 “Fugitive Emissions, Wind Erosion.”
Working Pile	2.37E-03	2.98E-04	Air Pollution Engineering Manual, Chapter 4 “Fugitive Emissions, Wind Erosion.”
Finished Pile Load-in	0.165	2.08E-02	AP-42 Chapter 11.19.2, Table 11.19.2-2
Hopper Load-in	0.0024	3.02E-04	AP-42 Chapter 11.19.2, Table 11.19.2-2
Crusher to belt	0.165	2.08E-02	AP-42 Chapter 11.19.2, Table 11.19.2-2
Belt to Stacker	0.165	2.08E-02	AP-42 Chapter 11.19.2, Table 11.19.2-2
Finish Pile Load-out	0.0024	3.02E-04	AP-42 Chapter 11.19.2, Table 11.19.2-2
Truck Load-in	0.0024	3.02E-04	AP-42 Chapter 11.19.2, Table 11.19.2-2
Crushing and Screening	1.665	2.10E-01	AP-42 Chapter 11.19.2, Table 11.19.2-2
Engine Emissions	2.40E-01	3.02E-02	“Estimated Exhaust Emission Levels” document, Eagle Crusher

*Incorporates information from prior Osborne crushing operation EIR

2.2 OHIO AIR PERMITTING REVIEW

As part of the emission source review, LMG also conducted an evaluation of the Ohio EPA air permit status of the Fechko crushing operation. The objective was to evaluate Fechko's compliance with applicable Ohio air regulations and requirements designed to minimize air pollutant emissions.

Based on information from Fechko and Ohio EPA database records, Fechko submitted an Ohio EPA Permit-by-Rule (PBR) Notification Form for Crushing and Screening Plants to obtain air permit coverage for the crusher located at the subject property in early January 2019. Ohio EPA subsequently approved the PBR for the crusher with an effective date of January 24, 2019.

As noted in Section 1.2, Fechko was conducting crushing operations on January 7, 9, and 11, 2019. Therefore, Fechko appears to have begun crushing operations at the subject property prior to issuance of the PBR coverage. However, Fechko appears to have operated the crusher before PBR coverage under an Ohio air Permit-to-Install and Operate (PTIO) that was issued for the crusher equipment in 2009 and was effective through March 2019 (Air PTIO No. P0104667). Fechko had obtained Ohio EPA's site pre-approval for the relocation of the portable crusher (designated as Emission Unit F001) to the subject property in August 2018. LMG understands that this early relocation approval was required because the crusher was being moved from a prior nearby site of operation to the subject property for storage.

Based on these findings, Fechko's concrete "crusher and screening equipment" located at the subject property appears to be in compliance with Ohio EPA regulations on portable non-metallic crushing and screening plant air permitting. Copies of the Ohio EPA PBR coverage documentation and the Ohio EPA's site pre-approval relocation letter are provided in the Appendices CD as Tab 3.

As a PBR-regulated emission source, Fechko's crusher is subject to compliance with the following Ohio EPA operating and recordkeeping requirements:

- (1) employ a baghouse, wet scrubber, water sprays or combination thereof that is designed and operated to emit no more than ten percent opacity from the stack or fugitive emission points, or employ an enclosed design that is designed and operated to emit no more than fifteen percent opacity from the stack or fugitive emission points,
- (2) maintain daily records on (as applicable):
 - (a) Material throughput in tons per day.
 - (b) Pressure drop readings across the control device as applicable.
 - (c) Meter readings of quantities of water used for wet scrubbing and spray applications.
 - (d) Operating hours of the crushing and grinding equipment.

As part of the EIR, LMG confirmed that Fechko's crusher and screening equipment is designed to use water sprays to minimize potential PM emissions from these operations. During the performance of fieldwork at the subject property, LMG staff also observed a Fechko water truck with a hose connection to the crusher. In addition, crushed material observed dropping from the crushing plant's load-out conveyor to the onsite storage pile appeared to be wet/moist.

LMG did not confirm whether or not Fechko maintained the Ohio EPA PBR-required daily records. However, these required records could be requested by ARAQMD upon inspection and be used by the City of Medina in the future to obtain additional compliance information for the crusher operations conducted by Fechko if adjacent properties have complaints of alleged adverse PM impacts from the crushing operations.

As discussed in Section 2.1, the second largest source of PM emissions from the crushing operation is the associated truck and heavy equipment traffic on unpaved roadways/traffic areas and parking lots. More importantly, according to Ohio EPA's "*Engineering Guide 44: Portable Source Permitting, Relocation and Compliance*", supporting emission units should be included in any portable facility permit. Otherwise, these permittable emission units would require their own permits at the location to which the portable facility is moved.

In the case of Fechko's Ohio EPA's PBR coverage, the PBR only covers the crusher and screening equipment as noted in the EUID Description. As a result, the PM (and PM₁₀) emissions associated unpaved/paved roadways and parking areas at the subject property are not covered under Ohio EPA's PBR for non-metallic crushing and screening plants. Therefore, in LMG's opinion, the Fechko crushing operations at the subject property are not currently in full compliance with Ohio EPA air permitting regulations.

LMG's conclusion is supported by the fact that Ohio EPA specifically provides a facility with the option to notify and obtain PBR coverage for unpaved and paved roadways, traffic areas, and parking that would be associated with operations at a facility and be an air pollutant emission source.² As noted in the PBR "*Notification Form for Unpaved Roadways and Parking Areas*" the "qualifying option" for this PBR is that the facility-wide total unpaved roadways and parking areas are greater than 12,000 square feet (sq. /ft.) but less than 30,000 sq. /ft. in size.

Based on LMG's evaluation, the area associated with Fechko's potential unpaved roadways and current heavy equipment traffic areas around the crushing equipment clearly exceed the 12,000 sq. /ft. criteria. In LMG's opinion, the unpaved roadways could also potentially exceed the PBR's upper limit of 30,000 sq. /ft. and, therefore, require the issuance of an Ohio EPA air PTIO. As a result, Fechko is required to obtain Ohio EPA PBR coverage (or a general permit) for the unpaved roadways and heavy equipment traffic areas associated with the crushing operations at the subject property. If Fechko does not agree with this finding, LMG recommends the City of Medina obtain a determination on this requirement from ARAQMD.

Obtaining Ohio EPA PBR coverage of the unpaved roadways and parking areas at the subject property will result in important additional enforceable PM emission limitations, PM emission control measures, emission monitoring activities, and various recordkeeping that are not currently required for the Fechko crushing operations. These requirements will include:

- (1) Employing fugitive dust control measures in order to minimize or eliminate fugitive dust emissions.
- (2) Allowing no visible particulate emissions (PE) except for thirteen minutes during any sixty minutes.

² See <https://epa.ohio.gov/dapc/pbr/permitbyrule#130454190-forms-and-instructions>

- (3) Not allowing the unpaved roadway and parking area's dust emissions to cause a public nuisance.
- (4) Employing reasonably available control measures to minimize or eliminate visible PM emissions of fugitive dust to include:
 - a. Periodic application of asphalt, oil, water or other suitable dust suppression chemicals on gravel roads and parking lots.
 - b. Prompt removal, in a manner, as to minimize or prevent resuspension, earth or other material from paved streets onto which such material has been deposited by trucking or earth moving equipment or erosion by water or other means.
 - c. Requiring open-bodied vehicles transporting materials likely to become airborne to have such materials covered at all times if the control measure is necessary for the materials being transported.

Under the PBR, Fechko will also be subject to operational restrictions to treat the unpaved roadways and parking areas by the application of chemical stabilization/dust suppressants or watering at sufficient treatment frequencies to ensure compliance. Furthermore, the needed frequencies of the implementation of the control measures will be determined by inspections conducted by Fechko personnel pursuant to the monitoring section of the PBR. These Ohio EPA monitoring and recordkeeping requirements include:

- (1) *"The permittee shall monitor the roadways and parking areas to determine if treatment is necessary.*
- (2) *The permittee shall determine the frequency of monitoring the roadways and parking areas based on their knowledge of ambient conditions, the frequency of use, the roadway type, and the roadway condition in order to minimize or eliminate fugitive dust emissions.*
- (3) *The permittee shall maintain records of the following information:*
 - (i) *The dates the control measures were implemented.*
 - (ii) *A description of the type of control measure implemented (watering, sweeping, application of dust suppressant, etc.)."*

Fechko will be required to provide copies of the records required by the PBR to the Ohio EPA upon request. LMG recommends that the City of Medina also incorporate the requirement for the provision of these records to the City of Medina, if requested, as part of the approval of the proposed permanent location of the crushing operations.

As discussed in Section 3.3 below, the Fechko crushing operations at the subject property appear to have the potential to result in adverse ambient air impacts on the adjacent properties if PM emissions from all emission sources are not well controlled. Therefore, obtaining Ohio EPA PBR coverage for the unpaved roadways and parking areas further ensures the control of air pollutants from this emission source and enforceability of control measures.

More importantly, in LMG's opinion, the close proximity of the property line of the south adjacent property with the proposed permanent location of the crushing equipment (estimated 50 feet) and the results of the EIR indicate that "effective" PM controls will be required to avoid future potential adverse air pollutant (PM) impacts to the south adjacent property. The best method to ensure effective air pollutant controls for the unpaved areas is for PBR coverage and effective enforcement of the PBR requirements.

3.0 AMBIENT AIR PM₁₀ MONITORING

As part of the EIR, LMG completed an evaluation of the Fechko crushing operation's potential impact on the ambient air at adjacent and nearby properties. This evaluation included LMG performing direct monitoring of the PM₁₀ concentrations in the ambient air at the subject property's downwind boundary when crushing operations were being conducted by Fechko.

3.1 PM₁₀ MONITORING EQUIPMENT

LMG used the MetOne E-BAM monitor to measure PM₁₀ concentrations in the ambient air by continuously sampling and reporting PM₁₀ concentration data. This is accomplished with the adaptation of Beta Attenuation to the performance of the ambient air monitoring. The E-BAM monitor is a USEPA-approved lightweight, portable instrument that operates directly in hostile environments without a large exterior enclosure. LMG requested that the monitor used at the subject property be configured such that the ambient air inlet removed particles larger than 10 microns. The inlet is not affected by wind speed or wind direction. The flow dependent cut points in the size selective inlets are maintained using an integral flow meter, pressure sensor, and ambient temperature sensor.

The E-BAM Monitor as typically deployed is shown in Exhibit 1 below. Photographs of the E-BAM Monitor as actually deployed at the subject property are also provided in the Appendices CD as Tab 4.

Exhibit 1: MetOne E-BAM Ambient Air Monitor



See: <https://metone.com/air-quality-particulate-measurement/regulatory/e-bam/>

After installation and set-up, the E-BAM monitor performs a series of self-test diagnostics and alerts the installer of any corrective action. Upon completion, the E-BAM automatically places itself in normal operating mode and begins monitoring. However, the manual for the E-BAM indicates the unit must warm up for at least one hour before optimum accuracy of the concentration data can be obtained. Therefore, according to Met-One, the first hour of data should be discarded or ignored. LMG followed this protocol and did not include the 1st hour of each monitoring event as part of our evaluation. However, all the raw data for each monitoring date is present in the data record log for the E-BAM monitor provided in the Appendices CD as Tab 5.

LMG selected an ambient air PM₁₀ monitoring interval of one (1) sample per 15 minutes for the performance of this project. The PM₁₀ monitoring was conducted by LMG on the dates and corresponding times provided in Table 2 below. The monitoring events included five (5) days during crushing operations and two (2) days when crushing operations were not being conducted to evaluate background ambient air PM₁₀ concentrations.

**Table 2
Summary of PM₁₀ Monitoring Events**

Date	Monitoring Type	Location*	Wind Direction**	Wind Speed (max/ave-mph)	Site/Weather Notes***
2/11/2019	Operating	AA-1	ESE	4.0/1.7	Very Wet Surface, Cold, Snow in PM
2/14/2019	Operating	AA-1	S/SSW	16.0/7.9	Very Wet Surface, Rain & Snow PM 2/11 & 2/12
2/15/2019	Background	AA-1	W/WSW	25.9/15.2	Wet Surface, No Precip. Prior 3 Days
2/25/2019	Operating	AA-2	W/WSW	23.8/13.7	Moist Surfaces, Temps Warmer, No Precip. Prior 5 Days
2/26/2019	Operating	AA-2	N/NNE	11.0/7.1	Moist Surfaces, Temps Warmer, No Precip. Prior 6 Days
2/28/2019	Operating	AA-2	NE/NNE	9.9/3.1	Moist Drying Surfaces, Temps Colder, No Precip. Prior 7 Days
3/1/2019	Background	AA-2	N/NE	12.9/4.2	Moist Drying Surfaces, Temps Colder, No Precip. Prior 8 Days

* See Figure 3 behind Figures Tab

** Primary Wind Direction from the Direction Noted

** Weather based on Cleveland Hopkins information

It is important to note that LMG's results for the ambient air PM₁₀ monitoring are not likely to be representative of PM₁₀ concentrations in the ambient air during summer months as LMG monitoring was limited to dates in February and March 2019. As noted in Table 2, weather conditions at the subject property during the performance of the monitoring were generally cold to cool with heavy moisture in the soils and concrete debris located at the subject property.

3.2 PM10 MONITOR SITING CRITERIA

LMG's siting of the PM₁₀ ambient air monitor at the locations used in the ambient air impact evaluation was in general accordance with USEPA requirements and criteria contained in 40 CFR Part 58 Subpart G Appendix D and Appendix G. These requirements included the general specification that the monitor location be in the downwind direction from the source of the PM₁₀ emissions (the crushing operation) on the date the ambient air monitoring is performed. LMG also incorporated the following additional USEPA factors:

- Use of "Microscale" siting criteria that are used to evaluate specific source impacts at fence lines and concentrations of air pollutants in areas with dimensions up to about 100 meters;
- Monitor probe is located at least 2 meters above ground level;
- The monitor is not to be located in unpaved areas unless vegetative ground is present year round;
- The monitor is to be 10 meters or more from the drip line of trees; and
- The monitor is at least 20 meters (preferred 40) from the nearest road,

For daily siting, LMG determined the wind direction/wind speed (WS/WD) to ensure the PM₁₀ Monitor was placed in the general downwind direction from the crushing operations. The WS/WD was determined using a Kestrel 5500 Weather Meter. The WS/WD data was electronically logged as part of the daily ambient air monitoring.

Based on the WS/WD information obtained during the daily siting evaluation, the PM₁₀ Monitor was installed at two (2) different locations. These locations are shown in Figure 3 behind the Figures Tab. The locations included the Northeast corner and Southwest corner of the subject property within approximately 20 feet of the property line.

3.3 PM10 MONITORING RESULTS

The results of LMG's ambient air PM₁₀ monitoring of the crushing operations and background air are summarized in Table 3 on the following page. As shown in Table 3, the maximum 15-minute and 1-hour average PM₁₀ concentration measured during four of the five individual monitoring dates were well below the Clean Air Act's (CAA) 24-hour average NAAQS of 150 ug/m³. On these four monitoring dates, the PM₁₀ concentrations were also generally the same or slightly lower than the concentrations measured during background dates.

On February 25, 2019, the maximum PM₁₀ concentration measured during any 15-minute interval was 206 µg/m³ and during any 1-hour average was 164 µg/m³. Both of these maximum short term PM₁₀ concentrations are above the Clean Air Act's (CAA) 24-hour average National Ambient Air Quality Standard (NAAQS) of 150 ug/m³.³ However, the NAAQS standard for PM₁₀ is based on a 24-hour standard. Therefore, LMG's 1-hour average monitoring results are not directly comparable to NAAQS. However, these results are informative for potential impacts.

³ See <https://www.epa.gov/criteria-air-pollutants/naaqs-table>

Table 3
Summary of LMG's Ambient Air PM₁₀ Monitoring Results

Date	Max 15-Minute PM₁₀ Air Concentration (ug/m³)	Max 1-Hour Average PM₁₀ Air Concentration* (ug/m³)	USEPA 24-Hour Average PM₁₀ NAAQS** (ug/m³)	Comments
2/11/2019	26	28	150	Very wet surface conditions, cold, and low wind speeds
2/14/2019	26	9		Very wet surface conditions, cold with higher wind speeds
2/25/2019	206	164		Continued moist surfaces as some drying are occurring. Very high wind speed conditions. Warmer. No precipitation for 5 days.
2/26/2019	36	22		Continued drying with moist surfaces and no precipitation. Warmer and wind speeds about 50% lower than 2/25.
2/28/2019	21	16		Continued drying with moist surfaces and no precipitation. Colder than 2/26 and wind speed further reduced about 20% lower than 2/26 and 70% lower than 2/25
Background Monitoring (No Active Crushing Operations)				
2/15/2019	45	31	150	Wet surface conditions with very high wind speeds
3/1/2019	44	33		Continued drying with moist surfaces and no precipitation. Colder than 2/28 and wind speed slightly higher than 2/28.

ug/m³ = micrograms per cubic meter of air

NAAQS= National Ambient Air Quality Standard

*Based on calculated average for the monitoring time period

**See <https://www.epa.gov/criteria-air-pollutants/naaqs-table>

The EIR's PM₁₀ monitoring results should not be directly compared to the NAAQS because Fechko's crushing operations did not operate after approximately 16:00 hours. As a result, the ambient PM₁₀ concentrations for an estimated 12 to 14 hours per day would be expected to be similar to the background 1-hour average of approximately 30 µg/m³. As a result, any maximum 24-hour average PM₁₀ concentration would be significantly less than the 1-hour averages for a 10 to 12 hour time period during crushing operations. As a result, LMG estimates that the 24-hour average PM₁₀ concentration would have been well below 100 µg/m³ on February 25, 2019, if the monitoring had been continued when crushing operations were not occurring.

Based on these findings, Fechko's concrete crushing operations should not result in actual offsite ambient air PM₁₀ concentrations that exceed the 24-hour NAAQS. However, as discussed in Section 2.2, the unpaved roadways and parking areas are a significant source of potential PM₁₀ emissions at the subject property. Therefore, obtaining required Ohio EPA PBR coverage for the unpaved roadways and parking areas at the subject property is also necessary to ensure compliance with the 24-hour NAAQS for PM₁₀. This additional Ohio EPA PBR coverage will result in enforceable PM emission limits, operating requirements, and air pollution controls on the second largest source of PM emissions from the Fechko crushing operations; namely the unpaved roadways and parking areas.

To further ensure that offsite ambient air PM₁₀ concentrations do not exceed the 24-hour NAAQS and nuisance PM concentrations do not adversely impact adjacent properties, LMG recommends that the City of Medina require Fechko to prepare and implement a Work Practice Plan (WPP) that including conducting watering on a daily basis when any visible emissions are noted from PM₁₀ emission sources including the unpaved and paved roadways and parking areas.

WPPs are not required as part of Ohio EPA PBR coverage. However, these plans have been recently required by Ohio EPA in both general and site-specific air emission permits for fugitive particulate emission sources such as roadways and storage piles. The plans are designed to ensure further that control measures for particulate emissions are effective. LMG also recommends that Fechko submit the WPP to the City of Medina for review and comment.

LMG understands that Fechko has proposed to operate the future concrete crushing and screening equipment at the subject property seasonally from January through April. However, LMG understands that heavy trucks would access the subject property for load-in (dumping) of concrete debris year round including the summer months. In addition, Fechko was not clear whether or not any front-end loaders or other heavy equipment would manage the load-in of concrete debris into a more defined storage pile/specific area or load-out of crushed concrete during the balance of the year.

In LMG's experience, watering is the most common air pollution control specification for PM emissions from unpaved roadways and parking areas at the same or similar operations when permitted as stationary sources. In addition, the wet winter conditions have demonstrated that high moisture is an effective PM control measure. However, as moisture content drops and high winds occur, PM emissions from the crushing operations can increase dramatically.

Additional watering as an air pollution control measure will further reduce PM₁₀ and PM_{2.5} emissions and the corresponding offsite ambient air concentrations. The emission sources identified for watering should include truck and heavy equipment roadways/traffic areas, storage piles, and the material handling operations (.i.e. load-in and load-out).

4.0 TOTAL DUST AND SILICA IN AMBIENT AIR

As part ambient air impact evaluation, LMG also conducted ambient air sampling for total PM (i.e., nuisance dust) and silica. As discussed in Section 3.0, the E-BAM ambient air monitoring did not include PM at sizes larger than 10 microns in size.

Based on LMG's past experience, larger size PM is less likely to travel distances that result in the dispersing offsite to adversely impact adjacent properties. However, the distance from the crushing operation's proposed future location appears to be significantly less (50 feet) to the adjacent southern property than the current location's distance to any adjacent properties. The total PM sampling was conducted to further evaluate this potential issue.

According to scientific literature and the results of LMG's previous EIR conducted for the Osborne concrete crushing operation in Medina, silica can be present in concrete and concrete dust.⁴ As a result, there is also the potential for silica to be emitted into the ambient air from the Fechko crushing operations that could also impact offsite properties. The silica air sampling was conducted to further evaluate this potential issue.

It is important to note that the total PM and silica air sampling conducted by LMG does not represent ambient air monitoring and was not performed in accordance with USEPA ambient air monitoring requirements or guidance for obtaining quantitative data on total PM or silica concentrations in the ambient air. Therefore, the results of LMG's air sampling can only be used to provide qualitative information on the potential for ambient air nuisance dust or silica impacts associated with crushing operations at the subject property.

Additional information on the air sampling activities for nuisance dust and silica and the results of the evaluation is provided below.

4.1 AIR SAMPLING AND ANALYSIS FOR NUISANCE DUST AND SILICA

LMG conducted the nuisance dust and respirable crystalline silica (RCS) ambient air sampling in general accordance with guidance contained in OSHA's Technical Manual for conducting worker nuisance dust and silica exposure assessments. The sampling events included two (2) operating days and one (1) background day when Fechko's crushing operations were not being conducted (see Table 4).

During the performance of the ambient air sampling, Fechko's onsite crushing operations and the conditions at the subject property generally appeared consistent with LMG's observations during the PM₁₀ monitoring. Based on LMG's onsite observations, visible emissions (VE) of particulates (i.e., dust) at the subject property were not present during the sampling events. As discussed in Section 5.0, Mr. Sisia with LMG conducted one (1) of the VE opacity tests when the ambient air samples were also being collected during Fechko's crushing operations. Based on the results of the opacity reading, Mr. Sisia observed 0% opacity during the test.

⁴ Quartz is the most common form of crystalline silica. Cristobalite and tridymite are two other forms of crystalline silica. All three forms may become respirable size particles when workers chip, cut, drill, or grind objects that contain crystalline silica. See https://www.osha.gov/OshDoc/data_General_Facts/crystalline-factsheet.pdf

LMG's ambient air sampling equipment was set-up generally downwind from the crushing operation based on the wind direction measurements for that date. This resulted in the use of three different sampling locations during the three (3) sampling events.

The locations of the sampling equipment are provided in Figure 4 behind the Figures Tab and detailed in Tables 4 and 5 below. The DS-1 and DS-2 sample events that occurred during Fechko's crushing operations were located approximately 80 and 90 feet from the crushing equipment. The location of DS-1 was an estimated 15 feet from the west property line, and the DS-2 location was an estimated 30 feet from the west property line. The DS-3 background sample location was placed in at approximately the center of the subject property.

The ambient air sampling equipment was configured to sample the ambient air from approximately 48 to 50 inches off the surface of the ground. During each sampling event, one (1) air sample was collected for nuisance dust analysis and one (1) air sample was collected for silica analysis at the designated location. Photographs of the air sampling equipment are provided in the Appendices CD behind Tab 4

The samples collected for nuisance dust analysis were collected using a Dawson High-Vol Pump followed by filter sampling train. The sampling train consisted of a 37 mm polyvinyl chloride (PVC) 5.0-micron pore size filter mounted in 3-piece polystyrene cassette. The high-vol sampling pump was calibrated to operate at 20.0 liters/minute by the vendor Pine Environmental before the sampling event.

The samples collected for RCS analysis were collected using a Gillian Air Pump followed by filter sampling train. The sampling train consisted of a 37 mm polyvinyl chloride (PVC) 5.0-micron pore size filter mounted in 3-piece polystyrene cassette. The RCS sampling pumps were calibrated to operate at 2.0 liters/minute, and this calibration was checked by LMG both before and after the sampling.

After completion of each air sampling event, the sample cassettes were removed and placed into sealed packaging for holding at LMG's offices. After completion of all the sampling events, the sample cassettes with corresponding blanks were shipped under chain-of-custody to Galson Laboratories (Galson) for analysis. Galson is a highly accredited analytical laboratory located at 6601 Kirkville Road in East Syracuse, New York.

The air sampling cassettes were analyzed by Galson for nuisance dust using modified NIOSH Method 0500; Gravimetric and RCS using modified NIOSH Method 7500, OSHA ID-142: XRD. A copy of the chain-of-custody associated with the air samples is provided in the Appendices CD as Tab 6.

4.2 NUISANCE DUST AIR SAMPLING RESULTS

A summary of the results of LMG's qualitative ambient air nuisance dust sampling is provided in Table 4 on the following page. Detailed laboratory analytical results are in the Appendices CD as Tab 6.

As shown in Table 4, a maximum average ambient air nuisance dust concentration of 0.12 mg/m³ was detected downwind from the crushing operations on March 11, 2019. This operational total dust concentration is compared to less than 0.024 mg/m³ for the sample collected when Fechko's crushing operations were not being conducted.

**Table 4
Nuisance Dust (Total PM) Air Sampling Results**

Location & Type	Sampling Date	Sample Identification	Nuisance (Total) Dust Air Concentration (mg/m³)
DS-1 Operating	3/11/2019	TD031119	0.12
DS-2 Operating	3/12/2019	TD031219	0.040
DS-3 Not Operating	3/16/2019	TD031619	<0.024
N/A	N/A	Blank	<0.050
USEPA Historical Total Suspended Particle (TSP) 24-Hour Standard*			0.260

*see https://www3.epa.gov/ttn/naaqs/standards/pm/s_pm_history.html. The TSP NAAQS standard was replaced in 1987 with the PM₁₀ 24-hour NAAQS.

Based on the results of the qualitative sampling, as expected, total nuisance dust is present in the ambient air near the property lines downwind from the crushing equipment during active operations. However, the concentrations of the nuisance dust measured by LMG were well below historical USEPA health-based standards for equivalent total suspended particles (TSP) that were based on potential 24-hour exposures to sensitive populations when established under the CAA.

LMG's also understands that Fechko's current and future crushing operations are not expected to operate more than 10 hours per day. Therefore, this operational restriction further limits potential exposures to individuals located at adjacent properties. As a result, in LMG's opinion, Fechko's proposed winter crushing operations at the new location, that is also closer to the adjacent southern property, should not result in offsite concentrations of nuisance dust/TSP at adjacent properties that represents a public health risk.

It is important to note that during LMG's qualitative ambient air sampling events the surface conditions at the subject property were generally very moist to wet. Therefore, potential nuisance dust/TSP emissions from the crushing equipment and heavy equipment travel during the crushing operations were significantly reduced as compared to potential days with low moisture surface conditions.

In LMG's opinion, the effective use of water sprays with the crushing equipment and the watering of the unpaved roadways and traffic areas will be critical to ensure that nuisance dust/TSP emissions do not adversely impact adjacent properties. These control measures will be required during low surface

moisture time periods when the crushing equipment is operated (i.e., January through April) and other months of the year when heavy trucks are bringing concrete debris to the subject property for pile load-in and crushed concrete is being loaded-out.

4.3 SILICA AIR SAMPLING RESULTS

A summary of the results of LMG's bulk dust and qualitative air samples is provided in Table 5 below. The detailed laboratory analytical results are provided in the Appendices CD as Tab 6.

As shown in Table 5, concentrations of respirable crystalline silica in the ambient air samples were below detection limit (BDL) for the NIOSH method used for the laboratory analysis. Furthermore, as provided in the detailed analytical results, the individual forms of RSC were not detected on the sample filters.

Table 5
Respirable Crystalline Silica Air Sampling Results

Location & Type	Sampling Date	Sample Identification	Silica Air Concentration (ug/m³)
DS-1 Operating	3/11/2019	RS031119	BDL*
DS-2 Operating	3/12/2019	RS031219	BDL*
DS-3 Not Operating	3/16/2019	RS031619	BDL*
N/A	N/A	Blank	BDL*

*The RCS detection limit for the samples ranged from 5.0 to 9.4 ug/m³

In LMG's opinion, these findings demonstrate that silica and potential RCS in dust that might be generated at Fechko's proposed permanent crushing operation will not pose a potential adverse impact to adjacent or nearby properties. As discussed in Section 4.2, this conclusion assumes that Fechko will employ effective control measures such as water sprays and the watering of roadways to minimize potential PM emission regardless of the time of year or status of the crushing operations.

5.0 VISIBLE EMISSION TESTING

As the final component of the ambient air impact evaluation, LMG conducted PM VE opacity readings (testing) of the Fechko crushing operation located at the subject property. This VE testing was conducted by Mr. Sisia with LMG on March 11 and March 25, 2019.

Mr. Sisia conducted the VE testing in accordance with USEPA's Method 9 – Visual Determination of the Opacity of Emissions From Stationary Sources and guidance from Visible Emissions Field Manual – EPA Methods 9 and 22 (EPA 340/1-92-004). A copy of Mr. Sisia's current USEPA Method 9 Certification is provided in the Appendices CD as Tab 7.

The material being crushed during the VE test events was the concrete located at the subject property. Actual throughput values of the crushing operation during the observation periods were not provided by Fechko. However, the crusher loading hopper was continuously loaded during those times, so the equipment is assumed to have been running at or close to its rated capacity.

LMG observed a total of eight (8) emission points over three (3) VE observation test runs conducted on each date. Each material transfer point was observed for one eighteen-minute observation period on each date. Additional information on the VE testing activity is contained in LMG's "Testing Notes" document provided in the Appendices CD as Tab 7.

A summary of the testing results (VE observations) is provided in Table 6 on the following page. Based on the testing results, the crushing operation did not exceed the Ohio EPA PBR maximum allowable VE limit for the crusher of 15% opacity during any of the test runs conducted by LMG. All of the VE test runs had visible opacity levels of less than 5% as a six-minute average. The maximum VE rate observed by LMG during any 15 second time period was also 5%.

Copies of the USEPA Method 9 Observation Field Logs completed by Mr. Sisia for the visible emission test runs are provided in the Appendices CD as Tab 8.

Table 6
Summary of LMG VE Observation Testing Results

Observation	Date	Begin Time	End Time	Duration (min)	Max 3 Minute Average (%)	Max 6 Minute Average (%)
Crusher Hopper (Run 1)	3/11/2019	11:34	11:52	18	0.00	0.00
Crusher to Sizing Conveyor (Run 1)	3/11/2019	11:34	11:52	18	0.00	0.00
Sizing Conveyor to Screener (Run 1)	3/11/2019	11:34	11:52	18	0.00	0.00
Screener to Conveyor (Run 1)	3/11/2019	12:01	12:19	18	0.00	0.00
Screener to Oversize Conveyor (Run 1)	3/11/2019	12:01	12:19	18	0.00	0.00
Oversize Conveyor to Crusher Hopper (Run 1)	3/11/2019	12:01	12:19	18	0.00	0.00
Conveyor to Stacker (Run 1)	3/11/2019	13:38	13:56	18	0.00	0.00
Stacker to Pile (Run 1)	3/11/2019	13:38	13:56	18	0.00	0.00
Crusher Hopper (Run 2)	3/25/2019	12:03	12:22	18	2.08	0.83
Crusher to Sizing Conveyor (Run 2)	3/25/2019	12:03	12:22	18	0.00	0.00
Sizing Conveyor to Screener (Run 2)	3/25/2019	12:03	12:22	18	0.00	0.00
Screener to Conveyor (Run 2)	3/25/2019	12:25	12:44	18	0.00	0.00
Screener to Oversize Conveyor (Run 2)	3/25/2019	12:25	12:44	18	0.00	0.00
Oversize Conveyor to Crusher Hopper (Run 2)	3/25/2019	12:25	12:44	18	0.00	0.00
Conveyor to Stacker (Run 2)	3/25/2019	12:49	13:07	18	0.00	0.00
Stacker to Pile (Run 2)	3/25/2019	12:49	13:07	18	0.00	0.00

6.0 NOISE EVALUATION

LMG conducted noise monitoring of Fechko's crushing operation to evaluate the current and potential future noise impacts from the crushing operation to adjacent properties. The noise monitoring was conducted by LMG at the subject property's eastern property line shared with Lincoln Crossing Apartments and offsite at the FireDex property located adjacent to the subject property's north property line. LMG also obtained noise level readings at various onsite locations around the crushing equipment at the subject property during crushing operations.

LMG obtained site access agreements with both SP State Street, LLC (owner of Lincoln Crossing Apartments) and FireDex, LLC to conduct the noise monitoring.

6.1 NOISE MONITORING METHODOLOGY

The noise monitoring methodology used in LMG's evaluation generally incorporated methods used by the Occupational Safety and Health Administration (OSHA) for the classification of occupational spaces for noise exposures to workers and evaluating noise impacts related to highway projects conducted for the Federal Highway Administration (FHWA).⁵ Specifically, LMG used 3M Edge eg-5 dosimeters to obtain ambient area noise levels at various monitored locations when Fechko crushing operations were occurring on two (2) different days and during a designated "background" day when crushing operations were not being conducted.

The dosimeters measured sound pressures in decibels, or tenths of a Bel, at the monitoring locations. The sound pressure level is indicated as dB SPL. Because the human ear can detect sounds with an extensive range of amplitude, a decibel scale is used to simplify the measurement results. For example, the ratio between the threshold of hearing and threshold of pain in the human ear if measured in true energy is 10,000,000 times. The same range using the dB scale is 0 - 140 dB referenced to 20 μ Pa (Micropascals).

The 3M Edge eg-5 noise dosimeter is composed of the following: a microphone with a preamplifier, a weighted network, fast or slow response time, an internal clock, calculator, and memory to store logged data. According to 3M, the dosimeter microphone will when exposed to sound pressure, generate an electrical signal and that signal will be increased by a preamplifier, and then regulated to an applicable level by the range control (dB range). The signal then goes through a filter set or weighting system. The next circuit is the response circuit, which controls the dampening of the readout. The response choices are typically slow or fast. Finally, the results will display on the dosimeter screen.

For computation and storage, the dosimeter's clock tracks the sampling time. Dosimeters can record how long sound levels exceeded a set upper limit. The calculator also can compute a Long term average (LAVG), an 8-hour Time Weighted Average (TWA), and other shorter-term monitoring data such as 1-minute averages. The memory stores all times, calculations, and measurements.

⁵ See: https://www.fhwa.dot.gov/environment/noise/construction_noise/handbook/

The image below in Exhibit 2 provides an illustration of the 3M Edge eg-5 dosimeter. The dosimeters (and sound level monitor) used by LMG were calibrated prior to each monitoring event using a Quest QC-10 Calibrator, which had been factory-calibrated within the previous week.

Exhibit 2: View of 3M Edge eg-5 noise dosimeter



The dosimeters were all set on the parameters summarized in Table 7 in accordance with the general FHWA and OSHA noise guidance.

**Table 7
 Dosimeter Parameters**

Parameter	Value 1 (dB)	Value 2 (dB)
Exchange Rate	5	5
Range	90-115	80-115
Criterion	90	85
Response	Slow	Slow
Weighting	A	A

A wind screen was present on the dosimeters at all times during the noise monitoring. However, as noted in Table 8 below, the wind speeds during the days the monitoring was conducted were generally calm to moderate and similar to the “background” monitoring date.

Monitoring Locations

LMG’s specific noise monitoring locations are provided in Figure 5 behind the Figures Tab. Selected photographs of the noise dosimeter monitor set-up are provided in the Appendices CD as Tab 4. The noise monitoring locations (and dates) are provided in Table 8. For both continuous monitoring locations, the 3M dosimeters were placed on a tripod to be at or near the typical hearing zone.

Table 8

Summary of Fechko Noise Monitoring Conducted by LMG

Location	Type of Monitoring	Dates	Purpose	Monitoring Interval	Weather/Wind
(SM-1) Northwest Corner of 780 S. Progress Drive, Medina, Ohio	Continuous Ambient for FireDex Property Line	Monday, January 7, 2019	Operating Impact	10:32:07-16:16:07	46° F Wind: 8 mph SSE
		Wednesday, January 9, 2019	Operating Impact	10:37:04-15:26:04	28° F Wind:17 mph WNW
		Friday, January 11, 2019	Background	9:10:04-15:43:04	28° F Wind: Calm
(SM-2) Far East Side of Subject Property Adjacent to West Side of Lincoln Crossing Apartments, Medina, Ohio	Continuous Ambient for Eastern Property Line	Monday, January 7, 2019	Operating Impact	10:01:14-16:05:14	See Above
		Wednesday, January 9, 2019	Operating Impact	10:27:01-15:15:01	See Above
		Friday, January 11, 2019	Background	8:58:05-15:46:05	See Above
Fechko Crushing Operation, City Lot 6772, Medina, Ohio	Intermittent Ambient for On-site Crushing Operations*	Monday, January 7, 2019	Operating Impact	12:04:00-15:35:00	See Above
		Wednesday, January 9, 2019	Operating Impact	12:05:00-15:07:00	See Above

* One-minute noise level readings repeated during the monitoring interval

During the continuous dosimeter monitoring, LMG also conducted intermittent noise monitoring on-site at locations around the crushing operation. These locations are also shown on Figure 5 behind the Figure tab. During this monitoring, LMG staff generally walked to specific locations with a dosimeter to take spot readings for approximately 1-minute intervals and recorded the reading.

According to the guidance, a noise study evaluating noise-sensitive land uses should focus on exterior areas of frequent human use.⁶ Therefore, the dosimeter monitoring was conducted near a frequent outdoor employee area near an entrance at FireDex as well as at the subject property's eastern property line near the backyards of the Lincoln Crossing Apartments. LMG conducted the monitoring to evaluate the potential maximum offsite noise levels expected to occur from the locations of the current and proposed future crushing operation.

Monitoring Time Periods

As shown in Table 8, LMG conducted noise monitoring during two (2) different dates when concrete crushing operations were being conducted at the subject property. LMG also conducted monitoring on one (1) date when the crushing operations were not being conducted at the subject property to obtain "background" noise monitoring data for comparison purposes. The noise monitoring was conducted on a continuous basis for the time periods provided in Table 8. The on-site spot location monitoring was conducted by LMG on an intermittent basis.

At the end of each monitoring event, the noise dosimeters were removed and paused to stop data collection. The information was subsequently downloaded at LMG's offices to a personal computer for interpretation with 3M Detection Management Software.

Background Noise Identification

In evaluating noise impacts from the concrete crushing operations, it is important to consider the events and activities which may typically occur during the monitoring time period for which the source of the noise is to be evaluated. Therefore, it is important to note infrequent noise events such as trains, sirens, nearby construction activities, etc. separately from the Fechko's crushing operation's noise evaluation. Therefore, LMG also noted these types of infrequent "background" noise events in field notes during the noise monitoring.

The number of short term infrequent noise events from sources unrelated to the concrete crushing operation was very limited during the monitoring. LMG noted four (4) background noise events on January 7th and three (3) noise events on January 9th. In LMG's opinion, the noise level measured during the events while elevated did not reach levels to significantly influence average hourly noise levels. The shorter term 1-minute average noise levels were likely influenced by these background noise events. However, LMG has noted this influence in the discussion of the results below.

To further evaluate the existing "background" noise levels at and adjacent to the subject property, LMG also conducted noise monitoring when Fechko's crushing operations were not occurring during a normal weekday at both noise monitoring locations (SM-1 and SM-2) on January 11, 2019. The duration of the background monitoring was approximately 6.5 hours during the same general time period when Fechko's crushing operations would typically be conducted.

⁶ See https://www.fhwa.dot.gov/environment/noise/construction_noise/handbook/

6.2 COMPARISON NOISE STANDARDS AND CRITERIA

Based on LMG's review, the City of Medina and the State of Ohio do not have specific noise level standards (or criteria). Selected cities in Ohio do have standards. However, those standards are not generally designed for long-term noise impacts such as potentially occurring as a result of the crushing operations at the subject property. Therefore, LMG identified guidance and regulations for determining when noise impacts occur from new highways and related construction projects for use in the evaluation of potential noise impacts from Fechko's crushing operation.

According to FHWA guidance, a noise "Impacted Receptor" is defined as a noise receptor that is predicted or demonstrated to experience noise levels that "approach or exceed" the land use activity category's FHWA Noise Abatement Criteria (NAC) based on hourly A-weighted sound levels. For residential exterior areas, the FHWA NAC noise level is 67 dBA. For office and other commercial exterior areas, the FHWA NAC noise level is 72 dBA. These criteria have also been adopted for use by the Ohio Department of Transportation (ODOT). A noise level of 115 dBA would exceed the FHWA short term exposure limit (STEL).

FHWA noise regulations allow individual states to define what level "approaches" the NAC. Based on LMG's review, ODOT has established a definition of "approach" that is one dBA less than the applicable NAC.⁷ Therefore, noise impacts could potentially start to occur in residential areas at 66 dBA and 71 dBA at commercial/industrial properties, if these noise levels were not associated with background. For this noise evaluation, LMG used the FHWA and ODOT criteria for an "Impacted Receptor" to determine if noise levels from the crushing operation on the subject property have impacted surrounding properties.

6.3 NOISE MONITORING RESULTS

A summary of the results of LMG's noise monitoring is provided in Tables 9 and 10 and Exhibits 3 and 4 on the following pages. The 3M software downloads of the noise monitoring data are provided in the Appendices CD behind Tab 9. The detailed discussion of the results are provided below.

Continuous Monitoring – Offsite FireDex

As shown in Table 9 and Exhibit 3, LMG conducted continuous off-site monitoring at the FireDex location (designated as SM-1) during two different (2) dates when the concrete crusher was in operation. The total duration of this noise monitoring was approximately 10 hours and 38 minutes.

Based on the results of the monitoring, 1-minute noise levels equal to or exceeding the FHWA residential noise impact criteria of 67 dBA occurred on 46 separate occasions near the south property line of FireDex during crushing operations. However, there were only five separate 1-minute noise levels equal to or exceeding a commercial/industrial criteria of 72 dBA. There also were no instantaneous noise levels recorded at greater than 115 dBA at this location.

The highest recorded 1-minute noise level recorded at the FireDex location was 81 dBA. However, this maximum elevated noise level appears to be related to a train horn that was noted by LMG field staff at the approximate same time.

⁷See https://www.ohioturnpike.org/wp-content/uploads/2013/05/Summary_Report_Full_Compressed.pdf

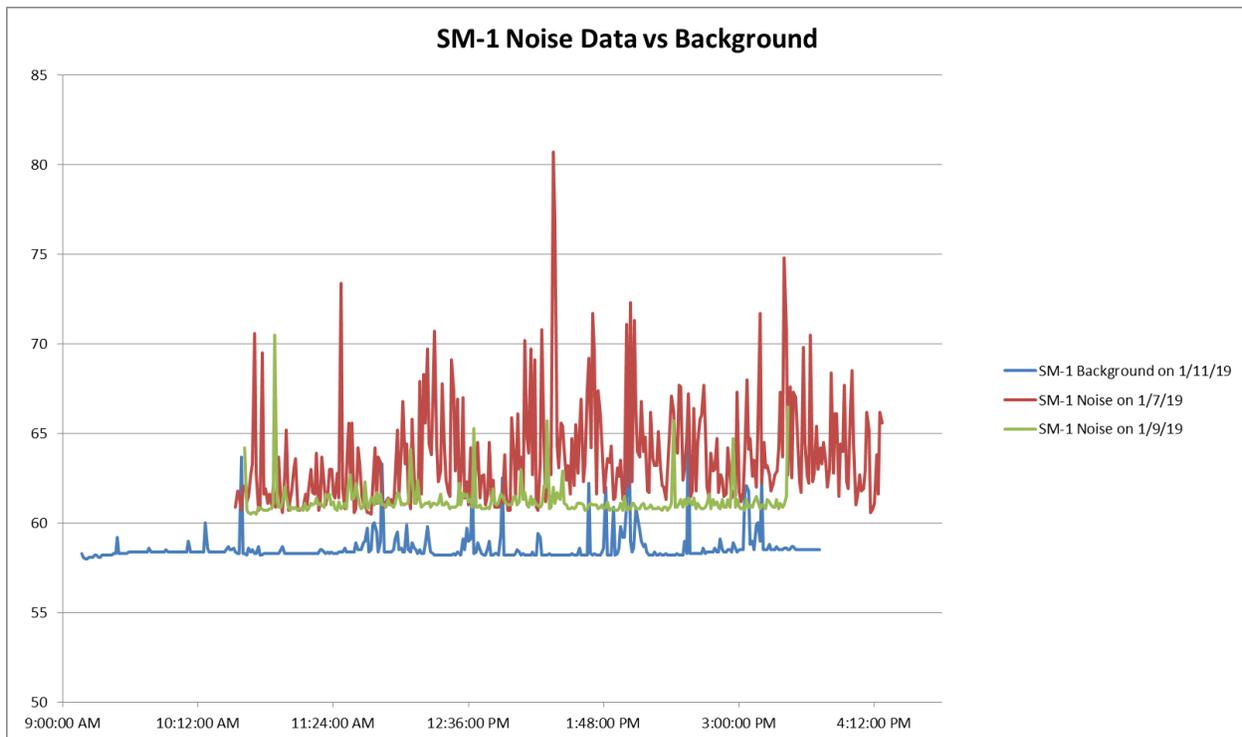
As shown in Exhibit 3, the noise levels measured at SM-1 (the FireDex location) during crushing operations generally trended at only 4 to 10 dBA above the measured background noise levels. In LMG's opinion, these results indicate that the crushing operations had a minimal impact on the average noise level at this location.

Table 9
Summary of Noise Monitoring Results at SM-1 (FireDex)

Monitor Identification	Date	# of 1-Minute Noise Levels ≥ 67 dBA	# of 1-Minute Noise Levels ≥ 72 dBA	# of Instantaneous Noise Levels >115 dBA*
Crushing Operations Running				
FireDex, 780 S. Progress Drive	1/7/2019	45	5	0
	1/9/2019	1	0	0
Background - Crushing Operations Not Running				
FireDex, 780 S. Progress Drive	1/11/2019	2	0	0

*Note: 115 dBA is the Federal Highway Administration Short Term Exposure Limit (STEL)

Exhibit 3



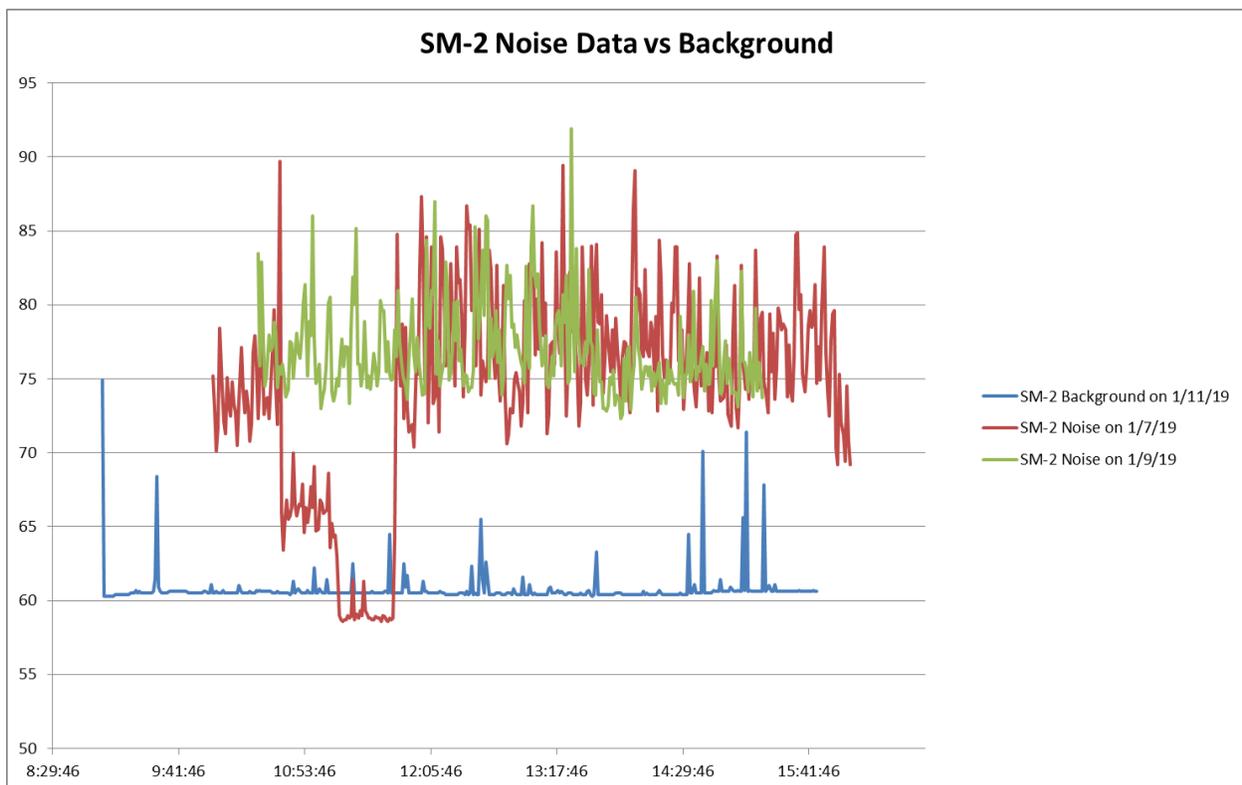
Continuous Monitoring Results – Eastern Property Line

As shown in Table 10 and Exhibit 4, LMG also conducted continuous on-site monitoring at the subject property's eastern property line near the backyards of Lincoln Crossing Apartments (designated as SM-2) during two different (2) dates when concrete crushing was occurring. The total duration of this noise monitoring was approximately 10 hours and 52 minutes.

Table 10
Summary of Noise Monitoring Results at SM-2 (East Property Line)

Monitor Identification	Date	# of 1-Minute Noise Levels ≥ 67 dBA	# of 1-Minute Noise Levels ≥ 70 dBA	# of Instantaneous Noise Levels >115 dBA*
Crushing Operations Running				
East Property Line Adjacent to Lincoln Crossing.	1/7/2019	304	297	0
	1/9/2019	289	289	0
Background - Crushing Operations Not Running				
East Property Line Adjacent to Lincoln Crossing.	1/11/2019	1	1	0

Exhibit 4



Based on the results of monitoring, 1-minute noise levels equal to or exceeding the FHWA residential noise impact criteria of 67 dBA occurred on a total of 593 separate occasions at SM-2 near the eastern property line during crushing operations. There also were 586 separate 1-minute noise levels equal to or exceeding 70 dBA. However, there were no instantaneous noise levels recorded at greater than 115 dBA at this location.

The highest recorded 1-minute noise level recorded at SM-2 near the backyards of Lincoln Crossing Apartments was 92 dBA. This elevated noise level may be related to a train horn that was noted by LMG field staff at the approximate same time.

As shown in Exhibit 4, the noise levels measured during the crushing operation near the backyards of the Lincoln Crossing Apartments generally trended at least 10 to upwards of 20 dBA above measured background noise levels. These daytime noise levels also generally ranged above the FHWA and ODOT residential criteria of 67 dBA.

Intermittent Noise Level Data – Onsite Surrounding Crushing Operation

As part of the noise evaluation, LMG also obtained periodic noise level data at four (4) locations around the crushing operation to further evaluate potential future offsite noise impacts. The intermittent data was collected approximately once per hour for each location on the two dates when the continuous monitoring was conducted. A summary of the results of the intermittent onsite sound level data is provided in Table 11.

**Table 11
Summary of Intermittent Noise Monitoring Results**

Monitor Identification	Date	Time	Highest Observed 1-Minute Average Noise Level (dBA)
Crushing Operations Running			
Monitoring Point A	1/7/2019	14:24:00	68.6
Monitoring Point B	1/7/2019	14:35:00	72.6
Monitoring Point C	1/7/2019	12:04:00	67.9
Monitoring Point D	1/7/2019	14:33:00	71.4
Monitoring Point A	1/9/2019	13:02:00	65.5
Monitoring Point B	1/9/2019	12:09:00	63.8
Monitoring Point C	1/9/2019	13:00:00	65.7
Monitoring Point D	1/9/2019	12:08:00	64.2

Based on the results of the intermittent monitoring, 1-minute noise levels approaching the NAC commercial/ industrial noise impact criteria of 72 dBA were measured only two (2) times at the sampling locations around the crushing operation. However, based on the continuous noise monitoring results, the limited number of elevated intermittent noise levels recorded by LMG appears to result from the intermittent nature of the monitoring.

The total time period associated with the intermittent monitoring at each location was limited to approximately 1 or 2 minutes. Therefore, these results appear to underestimate the noise levels from the crushing equipment and operations because the intermittent monitoring missed specific higher noise level activities when they occurred. Based on the short-term and intermittent nature of the monitoring at each location, graphical presentations of the noise level data also is not useful. Therefore, LMG has not provided graphical results in this EIR.

6.4 NOISE IMPACT FINDINGS AND POTENTIAL MITIGATION

Based on the noise monitoring results, the current location of the Fechko crushing operation does not result in the classification of the northern adjacent FireDex commercial property as potentially having a noise "Impacted Receptors" under the FHWA and Ohio DOT criteria. Furthermore, in LMG's opinion, the noise levels potentially impacting any other adjacent commercial/industrial property also would not result in adverse noise impacts.

The noise levels from the current crushing operation could result in the classification of the eastern adjacent residential property as having noise "Impacted Receptors." However, in LMG's opinion, adverse noise impacts do not/did not occur at this adjacent residential property for the following reasons;

- (1) The crushing operation was being conducted during the winter months when outdoor use of the patios and rear green lawn at the Lincoln Crossing Apartments is limited.
- (2) The distance from the apartment's rear patios to the crushing operation is approximately twice the distance of monitoring location (SM-2). This additional distance will further elevated noise levels impacting these residential properties from the concrete crushing operation on the subject property. As a rule of thumb, if you double the distance from a source of noise you reduce by half the increased sound levels.
- (3) There were no high-noise instantaneous or "impact" noise levels (i.e., 100 dBA or greater) measured at the SM-2 location.

In LMG's opinion, the proposed permanent location of the crushing operation also will not result in adverse noise impacts to the north and west adjacent commercial/industrial properties. In addition, the distance from the permanent location to the east adjacent residential property is greater than the current location. Therefore, LMG does not expect adverse noise impacts on this eastern adjacent residential property from the permanent crushing operation's location.

However, as discussed in Section 1.0, LMG understands the vacant southern adjacent property is currently zoned to include high-density residential development. In addition, the proposed permanent location of the crushing operation appears to be only approximately 25 to 30 feet north of this adjacent property's boundary. Therefore, future residential units could have outside patios and recreational spaces within 75 to 100 feet of the crushing equipment and truck/heavy equipment traffic areas around the permanent crushing operation. Furthermore, the SM-2 noise levels documented by LMG were obtained at approximately 125 to 150 feet from the current crusher equipment and heavy equipment traffic areas.

Based on these findings, potential future residential units at the adjacent southern property are likely to have adverse noise impacts from the proposed permanent location of the crushing operation. These noise impacts would include frequent and sustained noise levels from 10 to 20 dBA above the

Ohio DOT residential NAC of 66 dBA and FHWA residential NAC of 67 dBA during the winter crushing time period. These elevated noise levels may even be noticeable inside future residences. Furthermore, in LMG's opinion, adverse noise impacts are also likely to be present at the adjacent southern property during the summer and fall when trucks were dropping loads of concrete debris, and heavy equipment was loading trucks with crushed concrete from winter piles.

As a result, LMG recommends that any approval of the proposed permanent crushing location include provisions requiring noise mitigation using noise barriers along the southern property line of the subject property and other measures if this property is developed as high-density residential. LMG also recommends that additional noise monitoring be conducted at the adjacent southern property if the property is developed as commercial. In addition, these future noise monitoring results should be used to determine if additional noise mitigation using barriers are required to eliminate adverse impacts to commercial development.

It is important to note that as an alternative to the installation of a noise barrier described below, Fechko could relocate the permanent crushing operational area at least approximately 200 feet north from the southern adjacent property line. LMG would continue to recommend that the other noise mitigation measures discussed below to be put in place regardless of the relocation of the permanent crushing operation.

Noise Mitigation Measures

Noise mitigation measures are typically implemented for impacted receptors after an additional evaluation of the effectiveness of various noise mitigation measures. Therefore, LMG's discussion of potential noise mitigation measures for the proposed permanent crushing location at the subject property should be considered preliminary in nature. Additional information and evaluation should be conducted to confirm whether or not the measures would be effective in the specific case of the subject property. However, based on LMG's review of the literature, the following noise mitigation measures are recommended:

- 1) Require installation of a "noise barrier" between the crushing operation on the subject property and the southern adjacent high-density residential zone property. Noise barriers reduce noise by blocking the path of sound between the source of the noise and the receiver.⁸

Studies have shown that 200-foot depth of dense vegetation can reduce noise levels by up to 10 dBA and a 2 to 3 dB decrease in noise levels is possible with a narrow 30-foot belt of vegetation. However, the subject property has a very limited distance from the proposed permanent crushing location to the adjacent southern property, so a tree/vegetation barrier is not expected to be effective in reducing offsite noise levels from the crushing operation. Therefore, an additional noise barrier should be constructed of an elevated soil berm, engineered wall panel, or other noise reflecting and absorbing the material.

According to Ohio DOT, highway noise barriers typically range in height from 10 to 16 feet. At a minimum, the line of sight from noise sources should be eliminated by the noise barrier to be effective. Based on this information, LMG recommends the noise barrier at the subject property be at least 12 to 14 feet high as the crushing operation includes elevated equipment and elevated operations that create noise.

⁸ See https://www.dot.state.oh.us/Divisions/Planning/Environment/NEPA_policy_issues/NOISE/Pages/

According to LMG's review, as a rule-of-thumb, a noise barrier must generally extend four times the distance between the barrier and the last receiver to be effective at reducing noise for the last receiver. In addition, any noise barrier should be located adjacent to either the source or the receiver. Therefore, LMG recommends that the noise barrier run along the entire southern property line of the subject property.

- 2) Restrict the operating hours of the active crushing operations during the weekday as already proposed by Fechko but also extend this prohibition to weekdays during the balance of the year when truck load-in and load-out operations may occur. LMG also recommends a prohibition on the weekend crushing operations and a restriction on the operating hours of truck load-in and load-out on weekends to 8 am to 4 pm during the balance of year when occupants of any future residences on the adjacent southern property are most likely to be outside and aware of the noise associated with the truck operations.
- 3) Require Fechko to investigate and report back to the City of Medina confirmation that back-up alarms on heavy equipment have been adjusted to be 10 dB above background noise levels and the costs to use "White Sound" adjusting backup alarms that rely on a white sound (broadband sound) instead of the single frequency sound alarms.

If the proposed permanent crushing operation is not relocated north, require Fechko to conduct additional noise monitoring after the noise barrier is installed and other noise mitigation measures are implemented to evaluate if residential noise impacts would continue to occur at the adjacent southern property.

7.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the results of LMG's evaluation, the following major findings and conclusions regarding the environmental aspects of the current and proposed permanent location of the crushing operation at the subject property have been identified including potential environmental effects on adjacent properties:

- 1) Fechko's "crushing equipment" appears to be in compliance with Ohio EPA portable source air permitting and relocation notification requirements. However, in LMG's opinion, the unpaved roadways and parking areas associated with the current crushing operation do not currently comply with applicable Ohio EPA air permitting requirements. Based on existing information, Fechko's current and proposed permanent crushing operation's unpaved roadways and traffic areas are subject to obtaining coverage under Ohio EPA's PBR regulations or an Ohio EPA general air permit.
- 2) The unpaved roadways and traffic areas associated with Fechko's crushing operations are significant sources potential of PM emissions that have the potential to adversely impact adjacent properties. Ohio's PBR regulations for unpaved roadways and parking areas include requirements for implementation of inspections, monitoring, operational restrictions, and various control measures that are important to reduce PM emissions from the crushing operations. The effective use of these PM control measures also will be critical for the proposed permanent crushing location to eliminate adverse PM impacts to the southern and possibly other adjacent properties.
- 3) LMG's ambient air monitoring generally demonstrates that PM₁₀ emissions from the Fechko crushing operations will not result in offsite PM₁₀ concentrations that exceed the CAA's NAAQS at adjacent properties. However, the PM₁₀ monitoring results do indicate that the proposed permanent location has the potential to adversely impact ambient air quality at downwind adjacent properties if operational restrictions and effective PM control measures are not maintained. In addition, the close location of the proposed permanent crushing operation to the adjacent southern property could result in adverse PM₁₀ impacts to that property, if additional fixed dust mitigation controls are not installed.
- 4) LMG's qualitative ambient air sampling results also indicate that nuisance dust/TSP emissions from the current and permanent crushing operation locations will not pose adverse public health risks to downwind adjacent properties. However, the sampling results also indicate that nuisance dust/TSP emissions from the proposed permanent location could adversely impact downwind adjacent properties, if effective nuisance dust/TSP control measures are not implemented and maintained by Fechko. Furthermore, the close location of the proposed permanent crushing operation to the adjacent southern property may result in nuisance dust impacts to that property if additional fixed dust mitigation controls are not installed.
- 5) RCS (i.e., silica) potentially present in the concrete dust generated by the Fechko crushing operation was not detected in samples collected from the ambient air downwind from the crusher operation at the subject property. These qualitative results indicate that the ambient air at adjacent properties downwind of the proposed permanent location should not be impacted by concentrations of silica during winter crushing operations. In

addition, silica should not impact adjacent properties during other time periods of the year when truck unloading and loading operations are conducted if required watering is conducted for the unpaved areas and concrete storage piles to control visible emissions of nuisance dust.

- 6) LMG's noise monitoring results demonstrate that the adjacent properties to the current crushing operation were not adversely impacted by elevated noise levels. This finding incorporates the existing restrictions on the crusher equipment's daily hours and calendar months of operation.
- 7) The noise monitoring results indicate that the proposed permanent location of the crushing operation is not expected to result in adverse noise impacts to the commercial/ industrial properties adjacent to the north and west or the east adjacent multi-family residential property. However, adverse noise impacts are expected to occur on the adjacent southern property, if this property is developed as high-density residential and noise mitigation measures are not implemented at the subject property. This finding is based on the close proximity of the residences and their associated outdoor areas at the adjacent southern property future and the operational area for the proposed permanent crushing operation.

Summary of Recommendations

Based on the major findings and conclusions, LMG has the following recommendations for the City of Medina:

- 1) Require Fechko to obtain PBR coverage/Ohio EPA general PTIO for the unpaved (and possibly paved) roadways and parking areas associated with the crushing operation or provide the City of Medina with a determination from ARAQMD that air permitting of the unpaved roadways and traffic areas is not required. Incorporate the extensive PBR or general air PTIO requirements for the effective control of these fugitive dust emissions into the approval of the proposed permanent crushing operation at the subject property.
- 2) Require the proposed permanent concrete crushing operation to be relocated approximately 200 feet north of the adjacent southern property or include in the site plan requirements the installation of an elevated soil berm with evergreen trees to act as a barrier to nuisance dust emissions from the operation.
- 3) Require Fechko to prepare and implement a WPP for fugitive particulate air emissions and conduct watering or other control measures on a daily basis when any visible emissions are noted from emission sources. WPPs have been recently required by Ohio EPA in air emission permits for fugitive particulate emission sources such as roadways and storage piles. The WPP should be submitted to the City of Medina for review.
- 4) Require the installation of a "noise barrier" between the proposed location of the permanent crushing operation and the adjacent southern property, if the crushing operation is not relocated approximately 200 feet further to the north. LMG recommends the noise barrier at the subject property be at least 12 to 14 feet high. As a rule-of-thumb, a noise barrier also must generally extend four times the distance between the barrier and the last receiver to be effective at reducing noise for the last receiver. Therefore, the noise barrier should run along the entire southern property line.

- 5) Restrict operating hours to eliminate early morning and evening crushing operations during the weekdays and continue the prohibition of weekend crushing operations when occupants and residences to the east and south (when developed) of the subject property are most likely to be outside and aware of the noise associated with the crushing operation. The prohibition on weekend operations should include truck unloading of concrete debris and the loading of crushed concrete.
- 6) Require Fechko to investigate and report back to the City of Medina that back-up alarms on heavy equipment have been adjusted to be 10 dB above background noise levels and the costs to use "White Sound" adjusting backup alarms that rely on a white sound (broadband sound) instead of the single frequency sound alarms.
- 7) If the proposed permanent crushing operation is not relocated north, require Fechko to conduct additional noise monitoring after a noise barrier is installed and other noise mitigation measures are implemented to evaluate if residential noise impacts would continue to occur at the adjacent southern property.

8.0 CERTIFICATION

The undersigned hereby certifies that:

The reported reviews, analyses, opinions and conclusions are personal, unbiased, professional, and limited only by the assumptions and qualifications stated herein. Compensation is not contingent upon an action or an event resulting from the reviews, analyses, opinions, or conclusions in, or the use of, this report. This evaluation has been performed in accordance with all applicable legal requirements and in accordance with generally accepted practices prevailing in the environmental assessment consulting industries subject to the project's scope of work including limitations and exceptions.

We have no present or prospective interest in the subject property or the parties involved. If necessary, expert testimony and other legal appearances will be provided for a reasonable fee to be arranged.

The personnel who performed the investigation are properly licensed and certified in accordance with the requirements of federal, state and local laws, rules and regulations. Mr. Sisia has 15 years of environmental experience including conducting an environmental assessment, air quality permitting, and environmental compliance projects. Mr. Traves is Certified Hazardous Materials Manager (CHMM) with more than 25 years of environmental experience and has conducted a wide range of comprehensive environmental assessment, air permitting, and environmental compliance project throughout the United States. Mr. Traves has also been served as an expert witness in administrative and judicial proceedings involving air quality, environmental compliance, and contaminated site issues.

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9.0 SELECTED REFERENCES

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