# NSP Phase 2 Hibbard Park Project Wilmette, Illinois

# VIBRATION MONITORING REPORT-2

Mike Warning V3 Companies 7325 Janes Avenue Woodridge, IL 60517

March 1, 2021



March 1, 2021

Mike Warning V3 Companies 7325 Janes Avenue Woodridge, IL 60517

RE: **Report: 2 -** Ground Vibration Monitoring for the Wilmette NSP Phase 2 Hibbard Park Project located in Wilmette, Illinois.

Mr. Warning,

Construction Testing and Instrumentation, Inc. (CTI) have prepared this vibration monitoring report to evaluate vibrations during all construction activities. This report summarizes the results of ground vibration monitoring for three seismographs, all located around the surrounding project site (see attached location diagram). This summary report covers the monitoring period from February 22, 2021 through March 1, 2021.

The vibration equipment at the site are Geosonic WR3000LC seismographs that have the capacity to record peak particle velocity (PPV) and frequency (Hertz). The maximum allowable peak particle velocity is 0.50 inches per second (IPS), which is based upon the specifications established by the U.S Bureau of Mines (USBM) and a typical threshold for construction vibration monitoring. The seismographs are set to trigger whenever vibration levels exceed 0.003 in/s lowest (PPV) and continuously monitor vibrations during all construction activities.

All vibration recordings during this report period have been below the 0.50-inch per second threshold limit. The maximum PPV for the monitoring period are below.

February 23, 2021	491 Skokie Boulevard	Unit #3817	V	0.188 (in/s)
March 1, 2021	3000 Hill Street	Unit #3559	T	0.128 (in/s)
February 22, 2021	3005 Wilmette Avenue	Unit #3734	V	0.083 (in/s)

V- Vertical Vibration

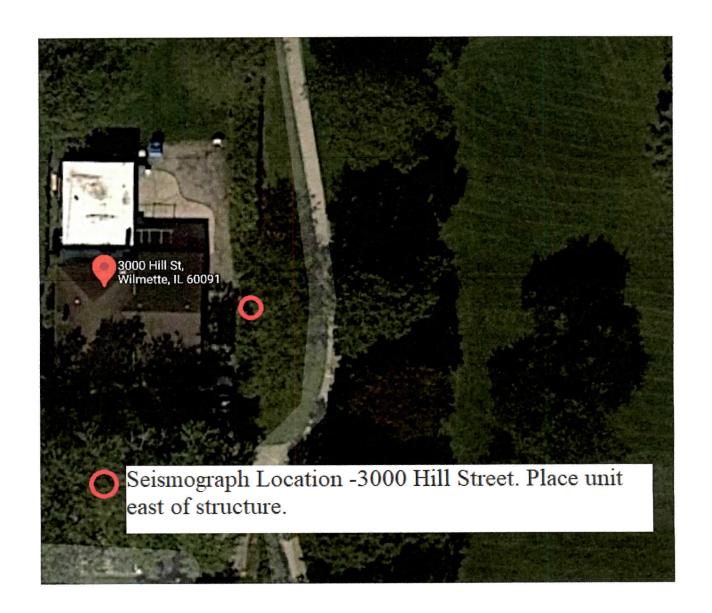
T- Transversal Vibration

L- Longitudinal Vibration

Sincerely,

Daniel W. McCarthy Senior Instrumentation Engineer







3817 v3.22

Date:

02/22/2021 Time: 09:13:00

Event:

5

Client: Operation: V3 COMPANIES CONSTRUCTION HIBBARD PARK

Location: Distance:

15.

CTI INC Operator:

Comment:

491 SKOKIE BLVD

#### **Additional Info:**

### **Continuous Monitor Recording**

**Summary Data** 

 $\mathbf{L}$ T 0.038

0.040 0.060

PPV (in/s) FREQ (Hz)

31.3

13.5 20.0

Peak Air Pressure: 78 db

Recording Time: 526 minutes

1440

Sample Size: Interval Size: 60 seconds

#### Shaketable Calibrated: 10/14/2020

By: GeoSonics Inc.

359 Northgate Drive

Warrendale, PA 15086 U.S.A.

TEL: 724.934.2900 FAX: 724.934.2999

#### SN: 3817 Event: 5

### Record Max PPV: 0.060 in/s Record Max DB: 78 db 0.10 → 0.05-**⊢** 0.05-0.00 > 0.05 0.00\_ 02/22/21 02/22/21 02/22/21 02/22/21 02/22/21 02/22/21 02/22/21 02/22/21 02/22/21 10:05:00 10:58:00 11:51:00 12:44:00 13:37:00 14:30:00 15:23:00 16:16:00 17:09:00 Time Interval

SN: 3817 v3.22

02/23/2021 Time: 06:01:00 Date:

Event: 6

V3 COMPANIES Client: CONSTRUCTION Operation: Location: HIBBARD PARK

Distance: 15.

Additional Info:

CTI INC Operator:

Comment:

491 SKOKIE BLVD

Continuous Monitor Recording **Summary Data** 

L T PPV (in/s) 0.110 0.175 0.188 FREQ (Hz) 31.3 29.4 33.3

Peak Air Pressure: 78 db

Recording Time: 718 minutes

Sample Size: 1440 **Interval Size:** 60 seconds

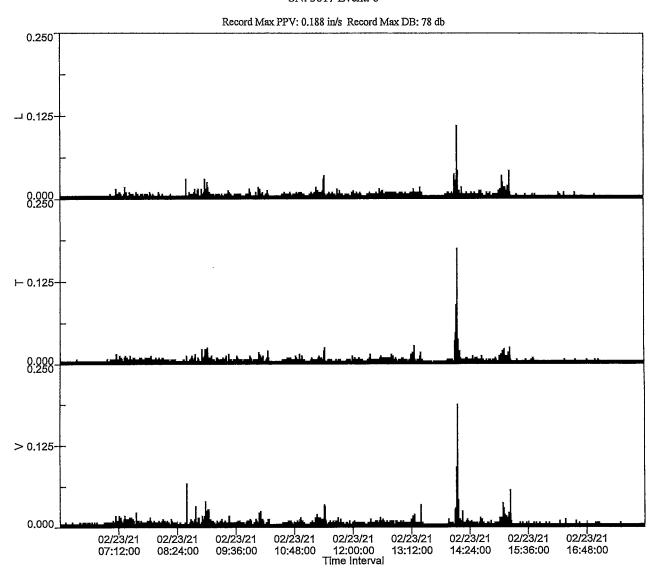
Shaketable Calibrated: 10/14/2020

By: GeoSonics Inc.

359 Northgate Drive

Warrendale, PA 15086 U.S.A.

SN: 3817 Event: 6



3817 v3.22

Date:

02/24/2021 Time: 06:01:00

Event:

Client: Operation:

Additional Info:

V3 COMPANIES CONSTRUCTION

Location: HIBBARD PARK Distance: 15.

7

Operator: CTI INC

Comment: 491 SKOKIE BLVD  $\mathbf{L}$ T

V PPV (in/s) 0.045 0.023 0.048 FREQ (Hz) 45.5 38.5 35.7

**Summary Data** 

Continuous Monitor Recording

Peak Air Pressure: 78 db

Recording Time: 718 minutes

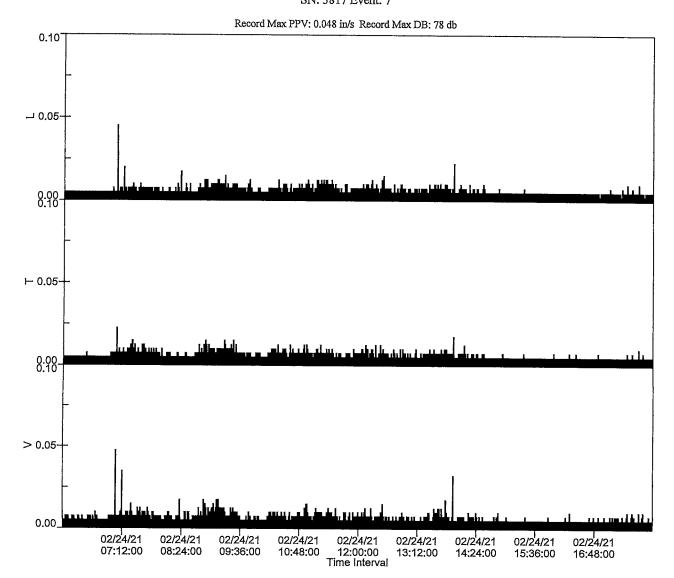
Sample Size: 1440 Interval Size: 60 seconds

Shaketable Calibrated: 10/14/2020

By: GeoSonics Inc. 359 Northgate Drive

Warrendale, PA 15086 U.S.A.

SN: 3817 Event: 7



3817 v3.22

Date:

02/25/2021 Time: 06:01:00

Event:

8

Client: Operation:

V3 COMPANIES CONSTRUCTION HIBBARD PARK

Location: Distance: 15.

Additional Info:

Operator:

Comment:

CTI INC

491 SKOKIE BLVD

Recording Time: 718 minutes

Peak Air Pressure: 79 db

Sample Size:

PPV (in/s)

FREQ (Hz)

1440

Continuous Monitor Recording

L

11.4

0.045

**Summary Data** 

T

0.023

15.2

0.075

13.2

Interval Size:

60 seconds

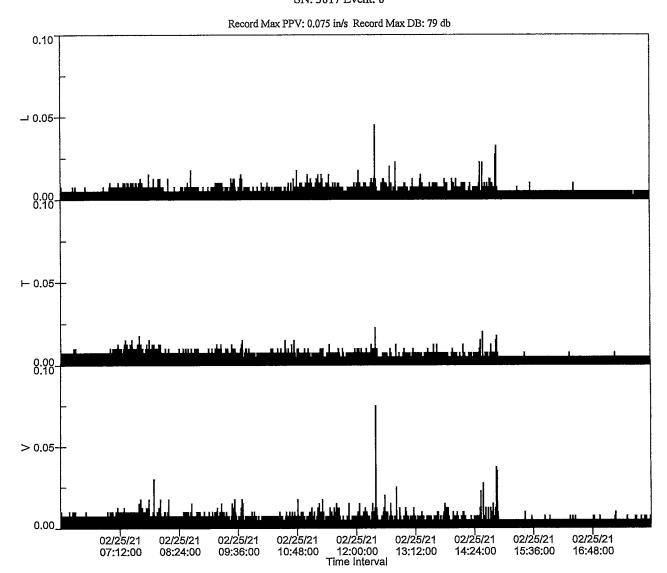
#### Shaketable Calibrated: 10/14/2020

By: GeoSonics Inc.

359 Northgate Drive

Warrendale, PA 15086 U.S.A.

SN: 3817 Event: 8



3817 v3.22

Date:

02/26/2021 Time: 06:01:00

Event:

9

Client: Operation: V3 COMPANIES CONSTRUCTION HIBBARD PARK

Location: Distance:

15.

Operator: CTI INC

Additional Info:

Comment:

491 SKOKIE BLVD

#### Continuous Monitor Recording **Summary Data**

 $\mathbf{L}$  $\mathbf{T}$ v PPV (in/s) 0.043 0.028 0.065 FREQ (Hz) 20.8 14.3 13.2

Peak Air Pressure: 84 db

Recording Time: 718 minutes

Sample Size: Interval Size:

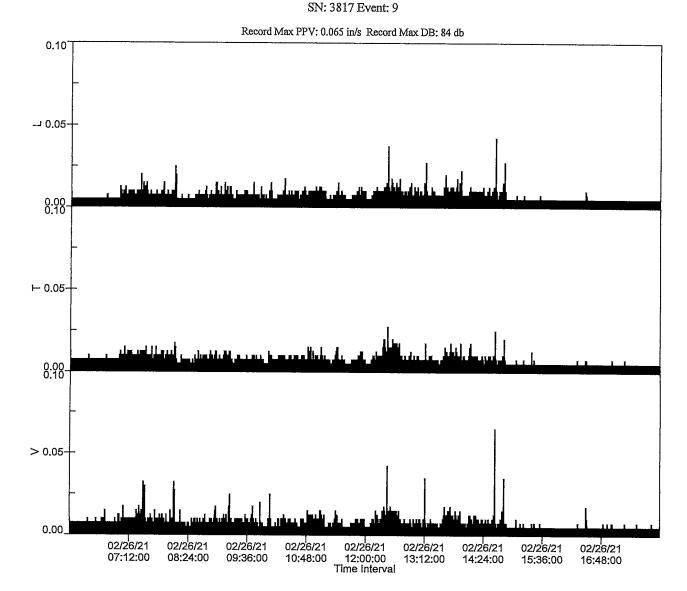
60 seconds

1440

Shaketable Calibrated: 10/14/2020

By: GeoSonics Inc. 359 Northgate Drive

Warrendale, PA 15086 U.S.A.



**SN:** 3817 v3.22

Date: 02/27/2021 Time: 06:01:00

Event: 10

Client: V3 COMPANIES
Operation: CONSTRUCTION
Location: HIBBARD PARK

Distance: 15.

Additional Info:

Operator: CTI INC

Comment: 491 SKOKIE BLVD

#### Continuous Monitor Recording Summary Data

L T V
PPV (in/s) 0.013 0.013 0.015
FREQ (Hz) 31.3 45.5 15.2

Peak Air Pressure: 78 db

Recording Time: 718 minutes

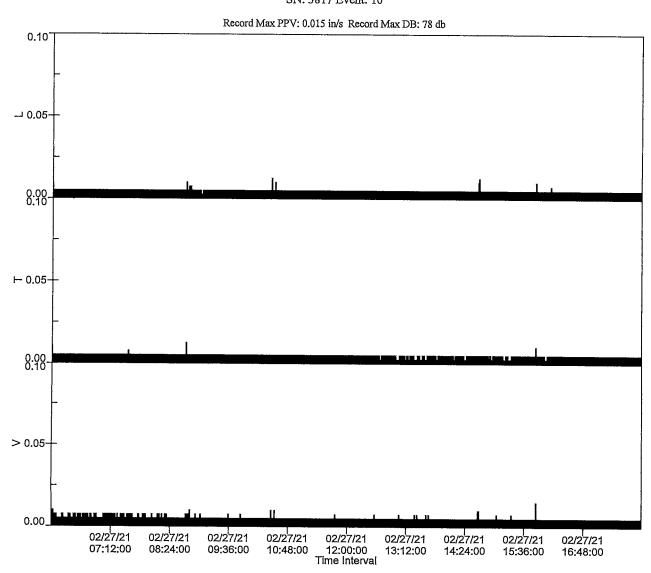
Sample Size: 1440 Interval Size: 60 seconds

Shaketable Calibrated: 10/14/2020

By: GeoSonics Inc. 359 Northgate Drive

Warrendale, PA 15086 U.S.A.

SN: 3817 Event: 10



3817 v3.22

Date: Event: 02/28/2021 Time: 06:01:00

11

Client: V3 COMPANIES Operation:

CONSTRUCTION HIBBARD PARK

Location: Distance:

15.

Operator: Comment: CTI INC

491 SKOKIE BLVD

Continuous Monitor Recording **Summary Data** 

L

T 0.010

0.013

0.010 .4

7.4

15.6

Peak Air Pressure: 92 db

Recording Time: 718 minutes

PPV (in/s)

FREQ (Hz)

1440

Sample Size:

Interval Size:

60 seconds

Additional Info:

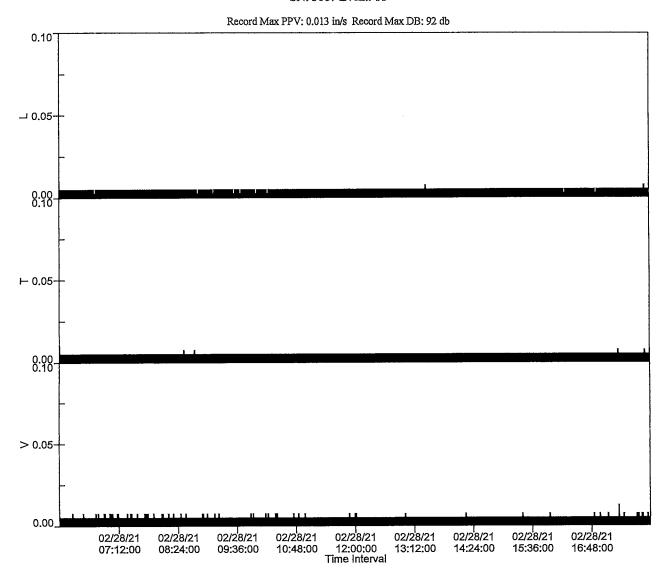
Shaketable Calibrated: 10/14/2020

By: GeoSonics Inc.

359 Northgate Drive

Warrendale, PA 15086 U.S.A.

SN: 3817 Event: 11



**SN:** 3817 v3.22

Date: 03/01/2021 Time: 06:01:00

Event: 12

Client: V3 COMPANIES
Operation: CONSTRUCTION
Location: HIBBARD PARK

Distance: 15.

**Additional Info:** 

Operator: CTI INC

Comment: 491 SKOKIE BLVD

#### Continuous Monitor Recording Summary Data

L T V
PPV (in/s) 0.038 0.035 0.030
FREQ (Hz) 22.7 20.0 26.3

Peak Air Pressure: 92 db

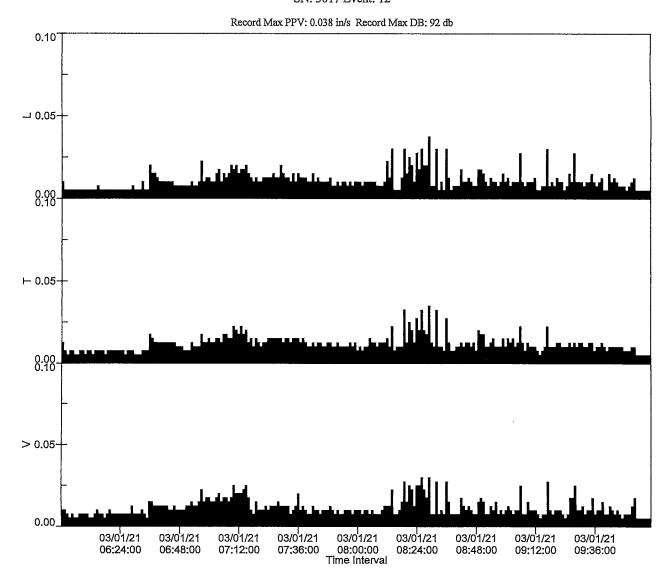
Recording Time: 238 minutes Sample Size: 1440 Interval Size: 60 seconds

Shaketable Calibrated: 10/14/2020

By: GeoSonics Inc. 359 Northgate Drive

Warrendale, PA 15086 U.S.A.

SN: 3817 Event: 12



3559 v2.75

Date:

02/22/2021 Time: 09:22:00

Event:

5

Client: Operation:

V3 COMPANIES CONSTRUCTION HIBBARD PARK

Location: Distance:

15.

CTI INC Operator:

Additional Info:

Comment:

3005 WILMETTE AVENUE

Continuous Monitor Recording **Summary Data** 

 $\mathbf{L}$ 

 $\mathbf{T}$ 0.050

PPV (in/s) FREQ (Hz) 0.053 18.5

23.8

0.048 25.0

Peak Air Pressure: 84 db

Recording Time: 517 minutes

Sample Size:

1440

Interval Size: 60 seconds

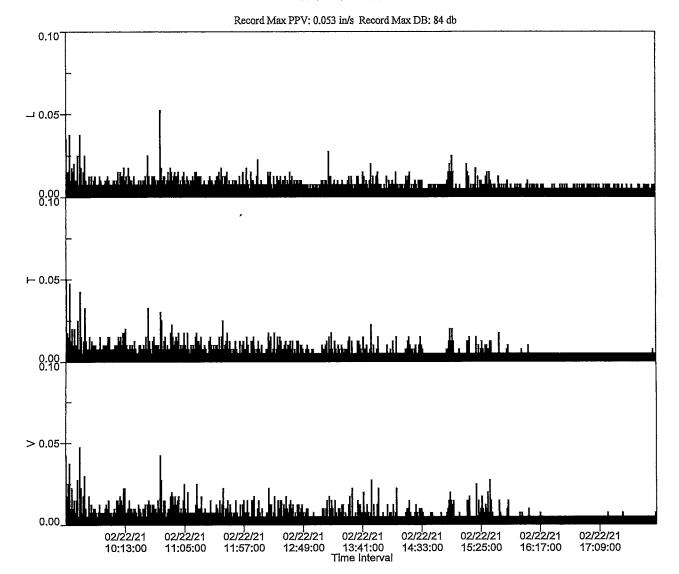
Shaketable Calibrated: 03/27/2020

By: GeoSonics Inc.

359 Northgate Drive

Warrendale, PA 15086 U.S.A.

TEL: 724.934.2900 FAX: 724.934.2999



Date: 02/23/2021 Time: 06:01:00

Event: 6

Client: V3 COMPANIES
Operation: CONSTRUCTION
Location: HIBBARD PARK

Distance: 15.

**Additional Info:** 

Operator: CTI INC

Comment: 3005 WILMETTE AVENUE

Continuous Monitor Recording Summary Data

L T V
PPV (in/s) 0.025 0.043 0.043
FREQ (Hz) 21.7 29.4 26.3

Peak Air Pressure: 81 db

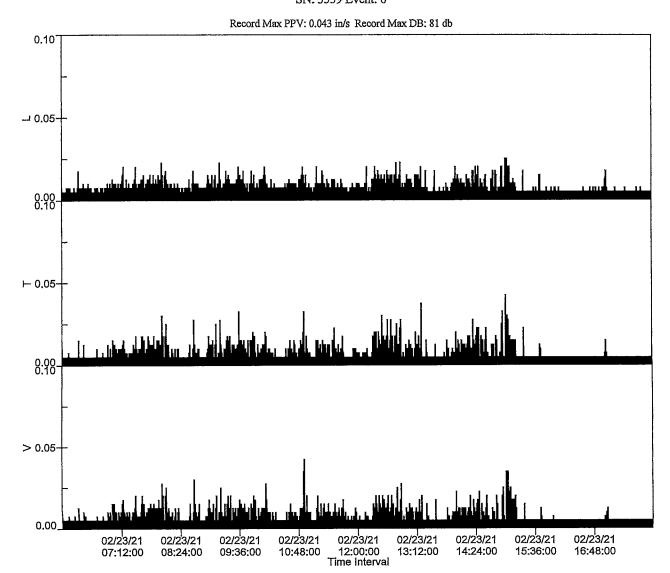
Recording Time: 718 minutes Sample Size: 1440 Interval Size: 60 seconds

Shaketable Calibrated: 03/27/2020

By: GeoSonics Inc. 359 Northgate Drive

Warrendale, PA 15086 U.S.A.

TEL: 724.934.2900 FAX: 724.934.2999



3559 v2.75

Date:

02/24/2021 **Time:** 06:01:00

Event:

7

Client: V3 COMPANIES
Operation: CONSTRUCTION
Location: HIBBARD PARK

Location: Distance:

15.

Operator:

**Additional Info:** 

CTI INC

Comment:

3005 WILMETTE AVENUE

#### Continuous Monitor Recording Summary Data

L T V
PPV (in/s) 0.038 0.045 0.040
FREQ (Hz) 16.7 21.7 23.8

Peak Air Pressure: 78 db

Recording Time: 718 minutes

Sample Size: 1440

Interval Size: 60 seconds

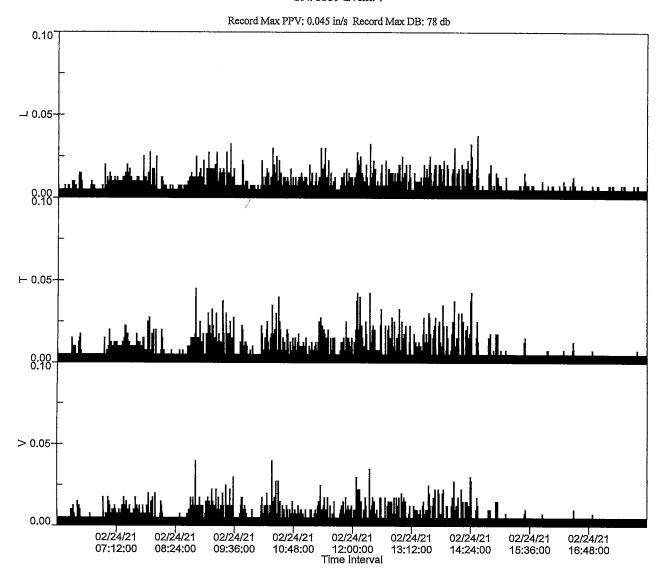
Shaketable Calibrated: 03/27/2020

By: GeoSonics Inc.

359 Northgate Drive

Warrendale, PA 15086 U.S.A.

SN: 3559 Event: 7



3559 v2.75

Date: Event: 02/25/2021 Time: 06:01:00

Client: Operation: Location:

V3 COMPANIES CONSTRUCTION HIBBARD PARK

Distance: 15.

**Additional Info:** 

Operator:

Comment:

CTI INC 3005 WILMETTE AVENUE

#### Continuous Monitor Recording **Summary Data**

0.033

29.4

 $\mathbf{L}$  $\mathbf{T}$ PPV (in/s) 0.050 0.045 33.3 27.8 FREQ (Hz)

Peak Air Pressure: 86 db

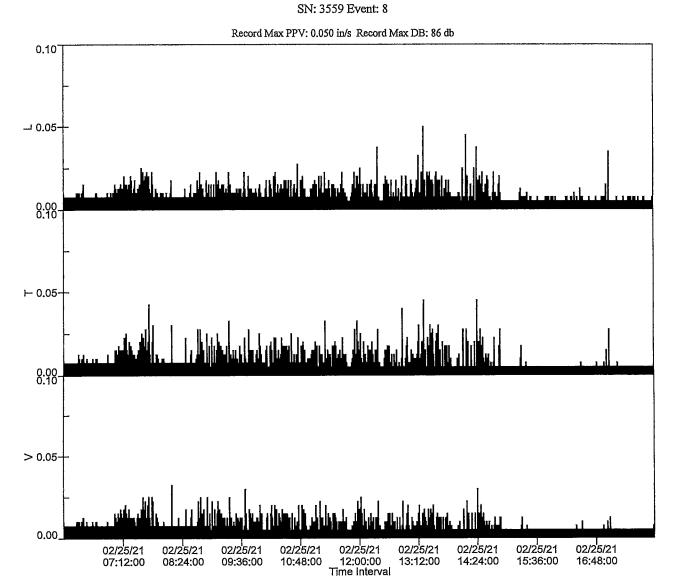
Recording Time: 718 minutes

1440 Sample Size: Interval Size: 60 seconds

Shaketable Calibrated: 03/27/2020

By: GeoSonics Inc. 359 Northgate Drive

Warrendale, PA 15086 U.S.A.



3559 v2.75

Date:

02/26/2021 Time: 06:01:00

Event:

0

Client: Operation:

V3 COMPANIES
on: CONSTRUCTION
h: HIBBARD PARK

Location:

Distance: 15.
Operator: CTI INC

Additional Info:

Comment:

3005 WILMETTE AVENUE

## Summary Data L T

**Continuous Monitor Recording** 

PPV (in/s) 0.050 FREQ (Hz) 20.8

0.050 20.0 0.033 18.5

V

Peak Air Pressure: 86 db

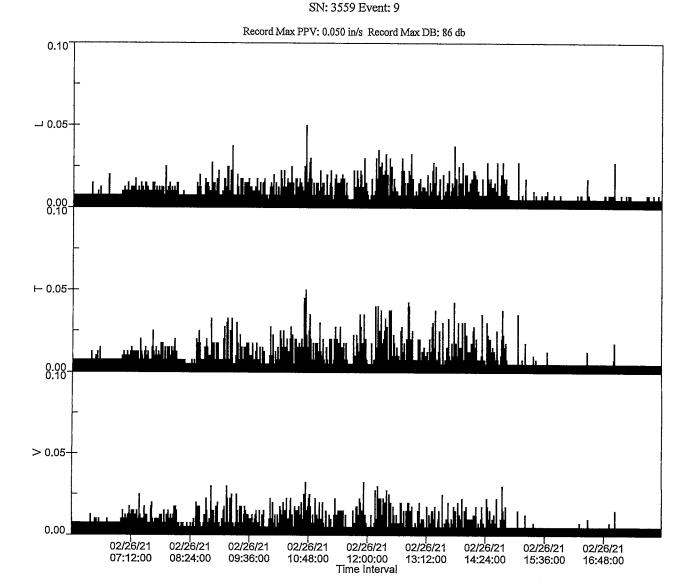
Recording Time: 718 minutes

Sample Size: 1440 Interval Size: 60 seconds

Shaketable Calibrated: 03/27/2020

By: GeoSonics Inc. 359 Northgate Drive

Warrendale, PA 15086 U.S.A.



Date: 02/27/2021 Time: 06:01:00

Event: 10

Client: V3 COMPANIES
Operation: CONSTRUCTION
Location: HIBBARD PARK

Distance: 15.

Additional Info:

Operator: CTI INC

Comment: 3005 WILMETTE AVENUE

Continuous Monitor Recording Summary Data

L T V
PPV (in/s) 0.025 0.015 0.010
FREQ (Hz) 15.2 16.1 .3

Peak Air Pressure: 84 db

Recording Time: 718 minutes

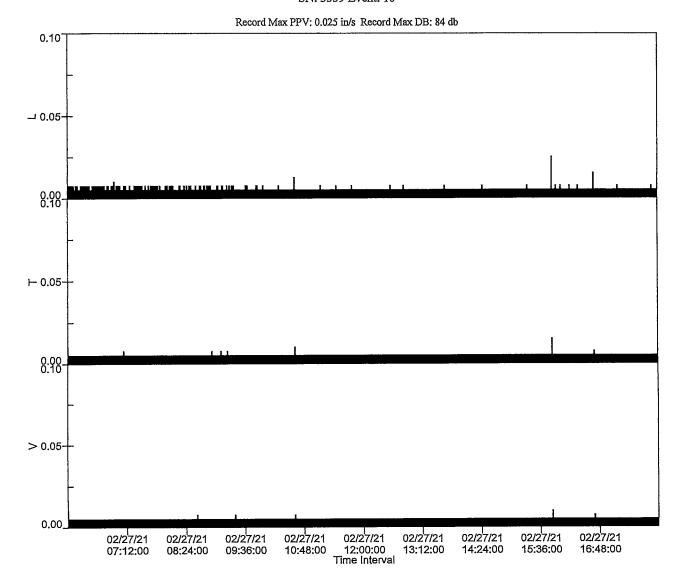
Sample Size: 1440 Interval Size: 60 seconds

Shaketable Calibrated: 03/27/2020

By: GeoSonics Inc. 359 Northgate Drive

Warrendale, PA 15086 U.S.A.

TEL: 724.934.2900 FAX: 724.934.2999



Date: 02/28/2021 Time: 06:01:00

Event: 11

Client: V3 COMPANIES
Operation: CONSTRUCTION

Location: HIBBARD PARK

Distance: 15.

Additional Info:

Operator: CTI INC

Comment: 3005 WILMETTE AVENUE

Continuous Monitor Recording Summary Data

L T V
PPV (in/s) 0.010 0.010 0.008
FREQ (Hz) 12.2 1.9 .3

Peak Air Pressure: 92 db

Recording Time: 718 minutes

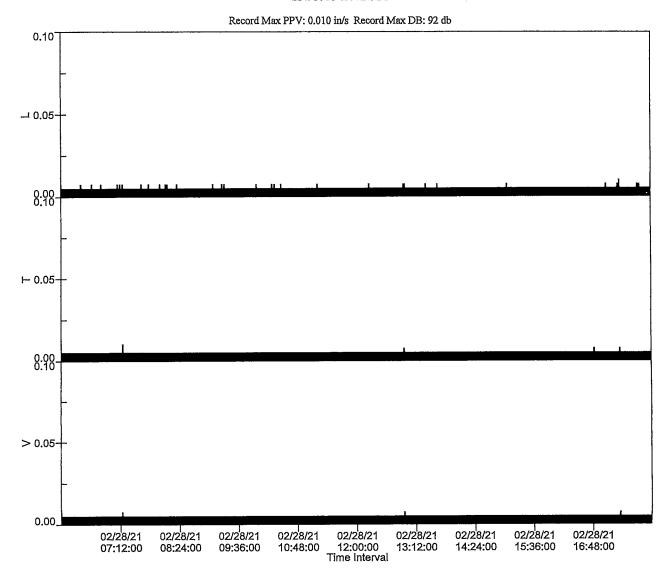
Sample Size: 1440 Interval Size: 60 seconds

Shaketable Calibrated: 03/27/2020

By: GeoSonics Inc. 359 Northgate Drive

Warrendale, PA 15086 U.S.A.

TEL: 724.934.2900 FAX: 724.934.2999



Date: 03/01/2021 Time: 06:01:00

Event: 12

Svent: 12

Client: V3 COMPANIES
Operation: CONSTRUCTION
Location: HIBBARD PARK

Distance: 15.

Operator: CTI INC

Comment: 30

**Additional Info:** 

3005 WILMETTE AVENUE

Continuous Monitor Recording Summary Data

L T V
PPV (in/s) 0.075 0.128 0.085
FREQ (Hz) 38.5 31.3 22.7

Peak Air Pressure: 101 db

Recording Time: 253 minutes

Sample Size: 1440

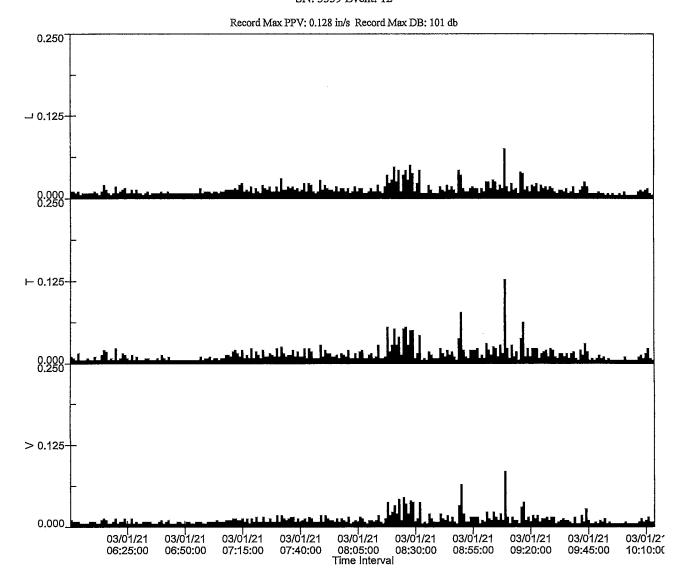
Interval Size: 60 seconds

Shaketable Calibrated: 03/27/2020

By: GeoSonics Inc. 359 Northgate Drive

Warrendale, PA 15086 U.S.A.

TEL: 724.934.2900 FAX: 724.934.2999



3734 v3.22

Date:

02/22/2021 Time: 09:18:00

Event:

5

Client: Operation:

V3 COMPANIES CONSTRUCTION HIBBARD PARK

Distance: 15.

Operator: CTI INC

Comment:

Location:

3000 HILL STREET

Recording Time: 521 minutes

Peak Air Pressure: 79 db

Sample Size: 1440 **Interval Size:** 

PPV (in/s)

FREQ (Hz)

60 seconds

**Continuous Monitor Recording** 

 $\mathbf{L}$ 

0.040

15.6

**Summary Data** 

 $\mathbf{T}$ 

0.035

16.7

0.083

12.5

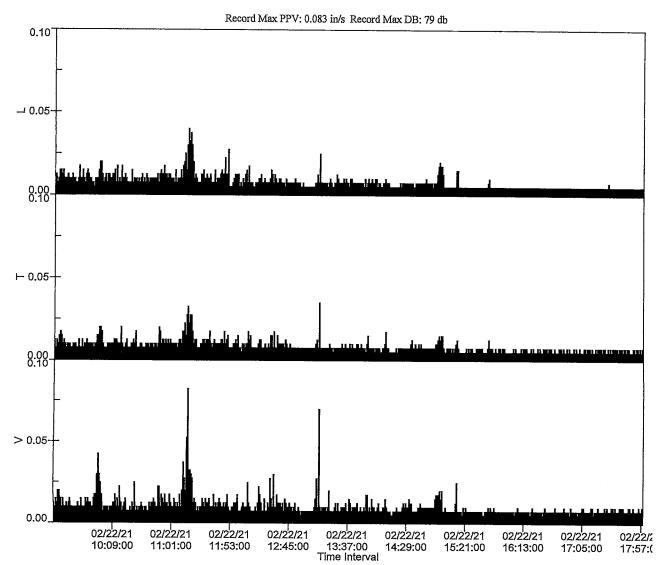
#### Additional Info:

Shaketable Calibrated: 10/14/2020

By: GeoSonics Inc. 359 Northgate Drive

Warrendale, PA 15086 U.S.A.

SN: 3734 Event: 5



3734 v3.22

Date:

02/23/2021 Time: 06:01:00

Event:

6

V3 COMPANIES Client: Operation:

CONSTRUCTION HIBBARD PARK Location:

Distance:

15.

CTI INC Operator:

Comment: 3000 HILL STREET Continuous Monitor Recording **Summary Data** 

 $\mathbf{L}$ T 0.058 0.048 PPV (in/s) 0.050 FREQ (Hz) 23.8 25.0 45.5

Peak Air Pressure: 79 db

Recording Time: 718 minutes

Sample Size:

1440

**Interval Size:** 

60 seconds

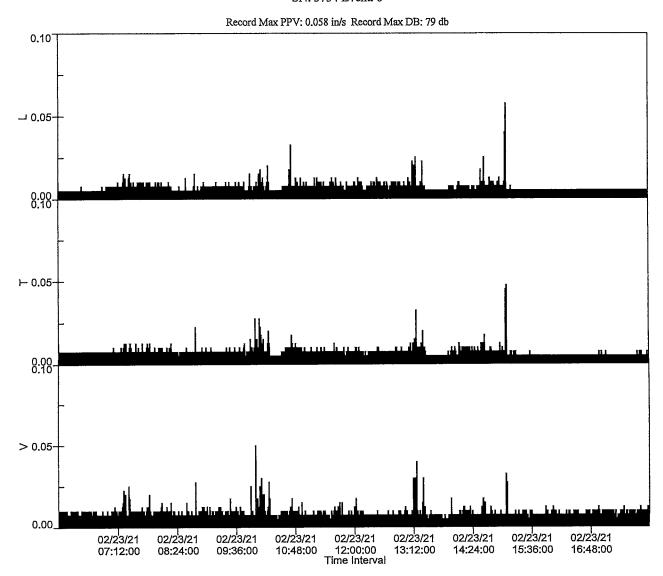
Shaketable Calibrated: 10/14/2020 **Additional Info:** 

By: GeoSonics Inc.

359 Northgate Drive

Warrendale, PA 15086 U.S.A.

SN: 3734 Event: 6



SN: 3734 v3.22

Date: 02/24/2021 Time: 06:01:00

Event:

Client: V3 COMPANIES Operation: CONSTRUCTION HIBBARD PARK Location:

Distance: 15.

Additional Info:

Operator: CTI INC

Comment: 3000 HILL STREET Continuous Monitor Recording **Summary Data** 

 $\mathbf{L}$ T V PPV (in/s) 0.028 0.023 0.033 FREQ (Hz) 21.7 10.4 11.1

Peak Air Pressure: 78 db

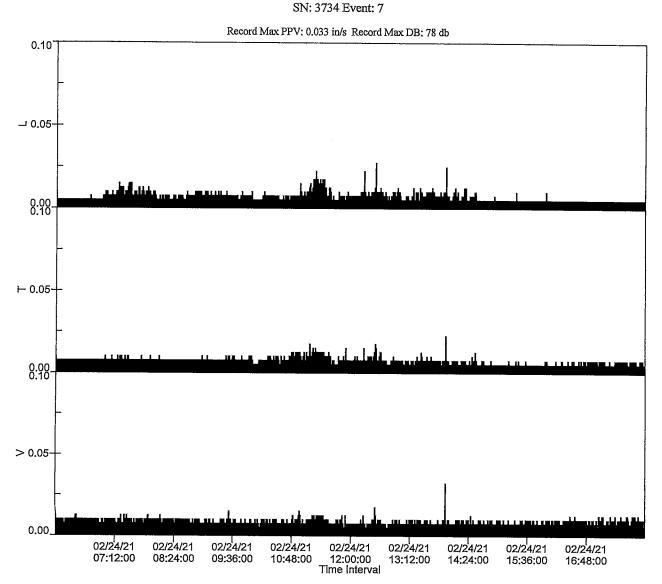
Recording Time: 718 minutes

Sample Size: 1440 **Interval Size:** 60 seconds

Shaketable Calibrated: 10/14/2020

By: GeoSonics Inc. 359 Northgate Drive

Warrendale, PA 15086 U.S.A.



3734 v3.22

Date:

02/25/2021 Time: 06:01:00

Event:

8

Client: Operation:

V3 COMPANIES CONSTRUCTION HIBBARD PARK

Location: Distance:

Additional Info:

15.

CTI INC Operator:

Comment:

3000 HILL STREET

#### Continuous Monitor Recording

**Summary Data** 

L 0.025

 $\mathbf{T}$ 0.045 0.045 11.6

20.0

14.3

Peak Air Pressure: 87 db

Recording Time: 718 minutes

Sample Size:

PPV (in/s)

FREQ (Hz)

1440

Interval Size: 60 seconds

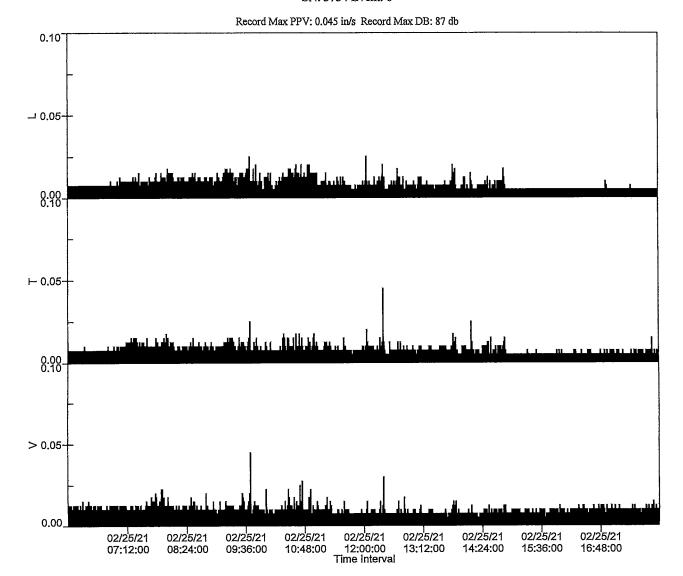
Shaketable Calibrated: 10/14/2020

By: GeoSonics Inc.

359 Northgate Drive

Warrendale, PA 15086 U.S.A.

SN: 3734 Event: 8



3734 v3.22

Date:

02/26/2021 Time: 06:01:00

Event:

9

Client: V3 COMPANIES
Operation: CONSTRUCTION
Location: HIBBARD PARK

Distance:

15.

Operator: C

Comment: 3000

CTI INC 3000 HILL STREET Continuous Monitor Recording

**Summary Data** 

L T V
PPV (in/s) 0.040 0.025 0.028
FREQ (Hz) 13.5 31.3 9.4

Peak Air Pressure: 87 db

Recording Time: 718 minutes

Sample Size: 1440 Interval Size: 60 se

60 seconds

Additional Info:

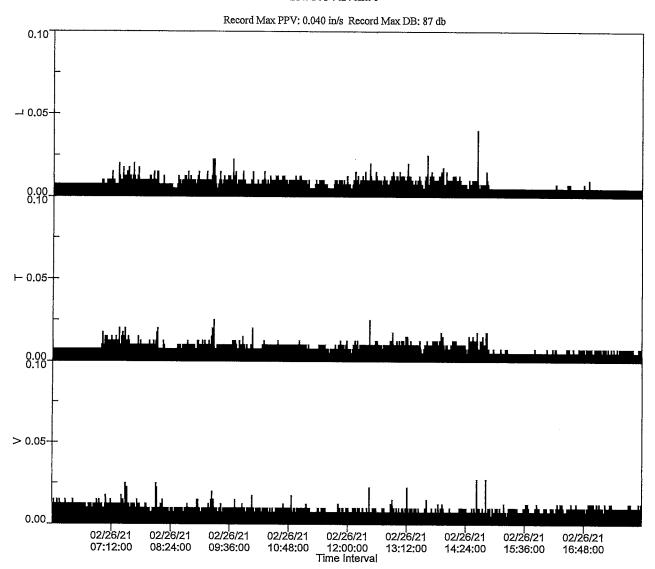
Shaketable Calibrated: 10/14/2020

By: GeoSonics Inc.

359 Northgate Drive

Warrendale, PA 15086 U.S.A.

SN: 3734 Event: 9



3734 v3.22

Date:

02/27/2021 Time: 06:01:00

**Event:** 

10

Client: Operation:

V3 COMPANIES CONSTRUCTION

Location:

HIBBARD PARK

Distance:

Additional Info:

15.

Operator: Comment: CTI INC

3000 HILL STREET

Continuous Monitor Recording **Summary Data** 

L 0.010

 $\mathbf{T}$ 0.010

0.013

.3

3.8

.2

Peak Air Pressure: 81 db

Recording Time: 718 minutes

PPV (in/s)

FREQ (Hz)

1440

Sample Size: 60 seconds

Interval Size:

Shaketable Calibrated: 10/14/2020

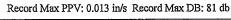
By: GeoSonics Inc.

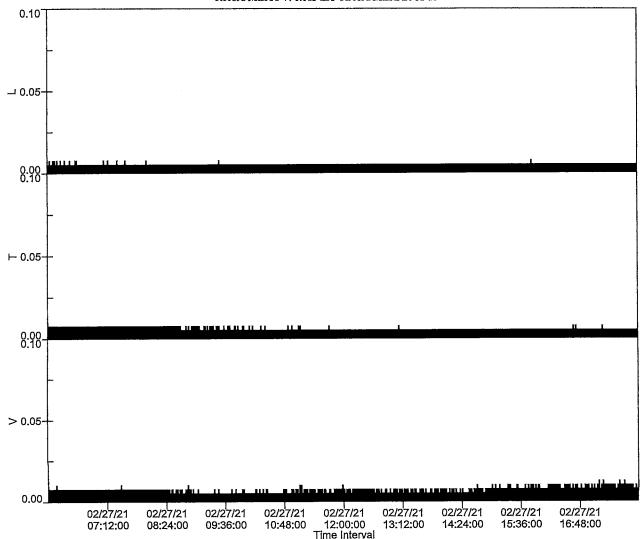
359 Northgate Drive

Warrendale, PA 15086 U.S.A.

TEL: 724.934.2900 FAX: 724.934.2999

SN: 3734 Event: 10





3734 v3.22

Date:

02/28/2021 Time: 06:01:00

Event:

11

V3 COMPANIES Client: CONSTRUCTION Operation:

Location:

HIBBARD PARK

Distance:

Operator: CTI INC

Comment:

3000 HILL STREET

**Continuous Monitor Recording** 

**Summary Data** 

 $\mathbf{L}$  $\mathbf{T}$ 0.010 0.010

0.013 7.4 17.9

FREQ (Hz) .2 Peak Air Pressure: 89 db

Recording Time: 718 minutes

PPV (in/s)

Sample Size: 1440

Interval Size: 60 seconds

Additional Info:

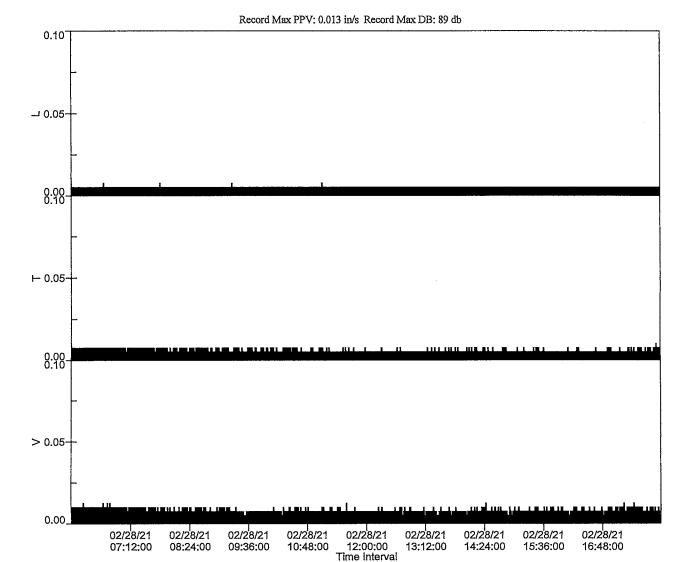
Shaketable Calibrated: 10/14/2020

By: GeoSonics Inc.

359 Northgate Drive

Warrendale, PA 15086 U.S.A.

SN: 3734 Event: 11



**SN:** 3734 v3.22

Date: 03/01/2021 Time: 06:01:00

Event: 12

Client: V3 COMPANIES
Operation: CONSTRUCTION
HIBBARD PARK

Distance: 15.

Additional Info:

Operator: CTI INC

Comment: 3000 HILL STREET

Continuous Monitor Recording Summary Data

L T V
PPV (in/s) 0.033 0.050 0.035
FREQ (Hz) 19.2 16.1 13.5

Peak Air Pressure: 94 db

Recording Time: 247 minutes

Sample Size: 1440 Interval Size: 60 seconds

Shaketable Calibrated: 10/14/2020

By: GeoSonics Inc. 359 Northgate Drive

Warrendale, PA 15086 U.S.A.

