

# **APPENDIX D**

## ***Construction and Operational Noise Analysis***



# Noise Measurement Data

**Field Noise Measurement Data**

Record: 262

|              |                  |
|--------------|------------------|
| Project Name | Pomona Yard      |
| Observer(s)  | Connor Burke     |
| Date         | 2016-11-16       |
| autoemail    | cburke@dudek.com |

**Meteorological Conditions**

|                   |          |
|-------------------|----------|
| Temp (F)          | 65       |
| Humidity % (R.H.) | 50       |
| Wind              | Calm     |
| Wind Speed (MPH)  | 3        |
| Wind Direction    | East     |
| Sky               | Overcast |

**Instrument and Calibrator Information**

|                            |                  |
|----------------------------|------------------|
| Instrument Name List       | (ENC) Rion NL-52 |
| Instrument Name            | (ENC) Rion NL-52 |
| Instrument Name Lookup Key | (ENC) Rion NL-52 |
| Manufacturer               | Rion             |
| Model                      | NL-52            |
| Serial Number              | 553896           |
| Calibrator Name            | (ENC) LD CAL150  |
| Calibrator Name            | (ENC) LD CAL150  |
| Calibrator Name Lookup Key | (ENC) LD CAL150  |
| Calibrator Manufacturer    | Larson Davis     |
| Calibrator Model           | LD CAL150        |
| Calibrator Serial #        | 5152             |
| Pre-Test (dBA SPL)         | 94               |
| Post-Test (dBA SPL)        | 94               |
| Windscreen                 | Yes              |
| Weighting?                 | A-WTD            |
| Slow/Fast?                 | Slow             |
| ANSI?                      | Yes              |

**Recordings**

|                        |                                                                                                                                                                                 |
|------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Record #               | 1                                                                                                                                                                               |
| Site ID                | M5                                                                                                                                                                              |
| Site Location          | Latitude:34.060234,<br>Longitude:-117.759822,<br>Altitude:261.770496,<br>Speed:0.460000,<br>Horizontal Accuracy:5.000000,<br>Vertical Accuracy:3.000000,<br>Time:9:35:04 AM PST |
| Begin (Time)           | 09:34:00                                                                                                                                                                        |
| End (Time)             | 09:44:00                                                                                                                                                                        |
| Leq                    | 69.3                                                                                                                                                                            |
| Lmax                   | 90.4                                                                                                                                                                            |
| Lmin                   | 42.1                                                                                                                                                                            |
| Other Lx?              | L90, L50, L10                                                                                                                                                                   |
| L90                    | 47.8                                                                                                                                                                            |
| L50                    | 55.8                                                                                                                                                                            |
| L10                    | 64.5                                                                                                                                                                            |
| Other (Specify Metric) |                                                                                                                                                                                 |
| Primary Noise Source   | Traffic                                                                                                                                                                         |

|                                                                         |                                                                 |
|-------------------------------------------------------------------------|-----------------------------------------------------------------|
| Other Noise Sources (Background)                                        | Birds, Distant Dog Barking, Distant Industrial, Distant Traffic |
| Other Noise Sources Additional Description                              | Ambulance noise. Medium trucks coming out of yard.              |
| Is the same instrument and calibrator being used as previously notated? | Yes                                                             |
| Are the meteorological conditions the same as previously notated?       | Yes                                                             |

### Description / Photos

| Site Photos            |                                                                                     |
|------------------------|-------------------------------------------------------------------------------------|
| Photo                  |  |
| Comments / Description | Facing north towards Monterey Ave.                                                  |

| Recordings                                 |                                                                                                                                                                                 |
|--------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Record #                                   | 2                                                                                                                                                                               |
| Site ID                                    | M2                                                                                                                                                                              |
| Site Location                              | Latitude:34.059829,<br>Longitude:-117.761299,<br>Altitude:255.489124,<br>Speed:0.000000,<br>Horizontal Accuracy:5.000000,<br>Vertical Accuracy:6.000000,<br>Time:9:48:30 AM PST |
| Begin (Time)                               | 09:48:00                                                                                                                                                                        |
| End (Time)                                 | 09:58:00                                                                                                                                                                        |
| Leq                                        | 51.6                                                                                                                                                                            |
| Lmax                                       | 63.6                                                                                                                                                                            |
| Lmin                                       | 39.8                                                                                                                                                                            |
| Other Lx?                                  | L90, L50, L10                                                                                                                                                                   |
| L90                                        | 42.4                                                                                                                                                                            |
| L50                                        | 45.6                                                                                                                                                                            |
| L10                                        | 56.4                                                                                                                                                                            |
| Other (Specify Metric)                     |                                                                                                                                                                                 |
| Primary Noise Source                       | Traffic                                                                                                                                                                         |
| Other Noise Sources (Background)           | Birds, Distant Aircraft, Distant Dog Barking, Distant Industrial, Distant Traffic, Rustling Leaves                                                                              |
| Other Noise Sources Additional Description | Rail noise                                                                                                                                                                      |

|                                                                         |     |
|-------------------------------------------------------------------------|-----|
| Is the same instrument and calibrator being used as previously notated? | Yes |
| Are the meteorological conditions the same as previously notated?       | Yes |

### Description / Photos

#### Site Photos

| Photo |                                                                                     |
|-------|-------------------------------------------------------------------------------------|
|       |  |

#### Recordings

|                                                                         |                                                                                                    |
|-------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|
| Record #                                                                | 3                                                                                                  |
| Site ID                                                                 | M4                                                                                                 |
| Site Location                                                           |                                                                                                    |
| Begin (Time)                                                            | 10:00:00                                                                                           |
| End (Time)                                                              | 10:10:00                                                                                           |
| Leq                                                                     | 54.8                                                                                               |
| Lmax                                                                    | 68.1                                                                                               |
| Lmin                                                                    | 43.2                                                                                               |
| Other Lx?                                                               | L90, L50, L10                                                                                      |
| L90                                                                     | 47.5                                                                                               |
| L50                                                                     | 51.5                                                                                               |
| L10                                                                     | 57.0                                                                                               |
| Primary Noise Source                                                    | Industrial                                                                                         |
| Other Noise Sources (Background)                                        | Birds, Distant Aircraft, Distant Dog Barking, Distant Industrial, Distant Traffic, Rustling Leaves |
| Other Noise Sources Additional Description                              | Trucks leaving the yard. Industrial noise from yard.                                               |
| Is the same instrument and calibrator being used as previously notated? | Yes                                                                                                |
| Are the meteorological conditions the same as previously notated?       | Yes                                                                                                |

Description / Photos

Site Photos

| Photo                  |                                                                                    |
|------------------------|------------------------------------------------------------------------------------|
|                        |  |
| Comments / Description | Facing project site.                                                               |

Recordings

|                                                                         |                                                                                                                                                                                    |
|-------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Record #                                                                | 4                                                                                                                                                                                  |
| Site ID                                                                 | M1                                                                                                                                                                                 |
| Site Location                                                           | Latitude:34.059071,<br>Longitude:-117.763198,<br>Altitude:242.020081,<br>Speed:0.280000,<br>Horizontal Accuracy:30.000000,<br>Vertical Accuracy:12.000000,<br>Time:10:14:50 AM PST |
| Begin (Time)                                                            | 10:15:00                                                                                                                                                                           |
| End (Time)                                                              | 10:25:00                                                                                                                                                                           |
| Leq                                                                     | 69.8                                                                                                                                                                               |
| Lmax                                                                    | 86                                                                                                                                                                                 |
| Lmin                                                                    | 46                                                                                                                                                                                 |
| Other Lx?                                                               | L90, L50, L10                                                                                                                                                                      |
| L90                                                                     | 50.1                                                                                                                                                                               |
| L50                                                                     | 64.5                                                                                                                                                                               |
| L10                                                                     | 72.3                                                                                                                                                                               |
| Primary Noise Source                                                    | Traffic                                                                                                                                                                            |
| Other Noise Sources (Background)                                        | Distant Aircraft, Distant Conversations / Yelling, Distant Dog Barking, Distant Industrial, Distant Traffic, Rustling Leaves                                                       |
| Other Noise Sources Additional Description                              | Rail noise.                                                                                                                                                                        |
| Is the same instrument and calibrator being used as previously notated? | Yes                                                                                                                                                                                |
| Are the meteorological conditions the same as previously notated?       | Yes                                                                                                                                                                                |

| Recordings                                                              |                                                                                                                                                                                   |
|-------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Record #                                                                | 5                                                                                                                                                                                 |
| Site ID                                                                 | M3                                                                                                                                                                                |
| Site Location                                                           | Latitude:34.058311,<br>Longitude:-117.762874,<br>Altitude:249.213684,<br>Speed:0.000000,<br>Horizontal Accuracy:5.000000,<br>Vertical Accuracy:12.000000,<br>Time:10:27:49 AM PST |
| Begin (Time)                                                            | 10:27:00                                                                                                                                                                          |
| End (Time)                                                              | 10:37:00                                                                                                                                                                          |
| Leq                                                                     | 58.8                                                                                                                                                                              |
| Lmax                                                                    | 68.6                                                                                                                                                                              |
| Lmin                                                                    | 47.7                                                                                                                                                                              |
| Other Lx?                                                               | L90, L50, L10                                                                                                                                                                     |
| L90                                                                     | 50.8                                                                                                                                                                              |
| L50                                                                     | 56.8                                                                                                                                                                              |
| L10                                                                     | 62.2                                                                                                                                                                              |
| Other (Specify Metric)                                                  |                                                                                                                                                                                   |
| Primary Noise Source                                                    | Traffic                                                                                                                                                                           |
| Other Noise Sources (Background)                                        | Distant Conversations / Yelling, Distant Industrial, Distant Traffic                                                                                                              |
| Other Noise Sources Additional Description                              | Forklift. Ice machine on receivers property.                                                                                                                                      |
| Is the same instrument and calibrator being used as previously notated? | Yes                                                                                                                                                                               |
| Are the meteorological conditions the same as previously notated?       | Yes                                                                                                                                                                               |

| Description / Photos |
|----------------------|
|----------------------|

| Site Photos |                                                                                      |
|-------------|--------------------------------------------------------------------------------------|
| Photo       |  |

# Construction Noise Analysis Runs

# Roadway Construction Noise Model (RCNM),Version 1.1

Report date 12/1/2016

Case Descr Architectural Coating\_Annex

## ---- Receptor #1 ----

| Description Land Use    | Baselines (dBA) |          |                 |                   |                          |                           |
|-------------------------|-----------------|----------|-----------------|-------------------|--------------------------|---------------------------|
|                         | Daytime         | Evening  | Night           |                   |                          |                           |
| Residence - Residential | 65              | 60       | 55              |                   |                          |                           |
| Description             |                 |          | Equipment       |                   | Receptor Distance (feet) | Estimated Shielding (dBA) |
|                         | Impact Device   | Usage(%) | Spec Lmax (dBA) | Actual Lmax (dBA) |                          |                           |
| Compressor (air)        | No              | 40       |                 | 77.7              | 50                       | 0                         |
| Pickup Truck            | No              | 40       |                 | 75                | 50                       | 0                         |

## Results

| Equipment        | Calculated (dBA) |      | Noise Limits (dBA) |     |              |     |
|------------------|------------------|------|--------------------|-----|--------------|-----|
|                  | *Lmax            | Leq  | Day Lmax           | Leq | Evening Lmax | Leq |
| Compressor (air) | 77.7             | 73.7 | N/A                | N/A | N/A          | N/A |
| Pickup Truck     | 75               | 71   | N/A                | N/A | N/A          | N/A |
| Total            | 77.7             | 75.6 | N/A                | N/A | N/A          | N/A |

\*Calculated Lmax is the Loudest value.

## ---- Receptor #2 ----

| Description Land Use    | Baselines (dBA) |          |                 |                   |                          |                           |
|-------------------------|-----------------|----------|-----------------|-------------------|--------------------------|---------------------------|
|                         | Daytime         | Evening  | Night           |                   |                          |                           |
| Residence - Residential | 65              | 60       | 55              |                   |                          |                           |
| Description             |                 |          | Equipment       |                   | Receptor Distance (feet) | Estimated Shielding (dBA) |
|                         | Impact Device   | Usage(%) | Spec Lmax (dBA) | Actual Lmax (dBA) |                          |                           |
| Compressor (air)        | No              | 40       |                 | 77.7              | 200                      | 0                         |
| Pickup Truck            | No              | 40       |                 | 75                | 200                      | 0                         |

## Results

| Equipment        | Calculated (dBA) |      | Noise Limits (dBA) |     |              |     |
|------------------|------------------|------|--------------------|-----|--------------|-----|
|                  | *Lmax            | Leq  | Day Lmax           | Leq | Evening Lmax | Leq |
| Compressor (air) | 65.6             | 61.6 | N/A                | N/A | N/A          | N/A |
| Pickup Truck     | 63               | 59   | N/A                | N/A | N/A          | N/A |
| Total            | 66.8             | 66.2 | N/A                | N/A | N/A          | N/A |

\*Calculated Lmax is the Loudest value.

# Roadway Construction Noise Model (RCNM),Version 1.1

Report date 12/1/2016

Case Descr Building\_Const\_Annex

## ---- Receptor #1 ----

| Description Land Use    | Baselines (dBA) |          |                 |                   |                          |                           |
|-------------------------|-----------------|----------|-----------------|-------------------|--------------------------|---------------------------|
|                         | Daytime         | Evening  | Night           |                   |                          |                           |
| Residence - Residential | 65              | 60       | 55              |                   |                          |                           |
| Description             | Impact Device   | Usage(%) | Equipment       |                   | Receptor Distance (feet) | Estimated Shielding (dBA) |
|                         |                 |          | Spec Lmax (dBA) | Actual Lmax (dBA) |                          |                           |
| Welder / Torch          | No              | 40       |                 | 74                | 50                       | 0                         |
| Welder / Torch          | No              | 40       |                 | 74                | 75                       | 0                         |
| Welder / Torch          | No              | 40       |                 | 74                | 100                      | 0                         |
| Man Lift                | No              | 20       |                 | 74.7              | 50                       | 0                         |
| Crane                   | No              | 16       |                 | 80.6              | 50                       | 0                         |
| Generator               | No              | 50       |                 | 80.6              | 75                       | 0                         |

## Results

| Equipment      | Calculated (dBA) |     | Noise Limits (dBA) |     |              |     |
|----------------|------------------|-----|--------------------|-----|--------------|-----|
|                | *Lmax            | Leq | Day Lmax           | Leq | Evening Lmax | Leq |
| Welder / Torch | 74               |     | 70 N/A             | N/A | N/A          | N/A |
| Welder / Torch | 70.5             |     | 66.5 N/A           | N/A | N/A          | N/A |
| Welder / Torch | 68               |     | 64 N/A             | N/A | N/A          | N/A |
| Man Lift       | 74.7             |     | 67.7 N/A           | N/A | N/A          | N/A |
| Crane          | 80.6             |     | 72.6 N/A           | N/A | N/A          | N/A |
| Generator      | 77.1             |     | 74.1 N/A           | N/A | N/A          | N/A |
| Total          | 80.6             |     | 78.2 N/A           | N/A | N/A          | N/A |

\*Calculated Lmax is the Loudest value.

## ---- Receptor #2 ----

| Description Land Use    | Baselines (dBA) |          |                 |                   |                          |                           |
|-------------------------|-----------------|----------|-----------------|-------------------|--------------------------|---------------------------|
|                         | Daytime         | Evening  | Night           |                   |                          |                           |
| Residence - Residential | 65              | 60       | 55              |                   |                          |                           |
| Description             | Impact Device   | Usage(%) | Equipment       |                   | Receptor Distance (feet) | Estimated Shielding (dBA) |
|                         |                 |          | Spec Lmax (dBA) | Actual Lmax (dBA) |                          |                           |
| Welder / Torch          | No              | 40       |                 | 74                | 200                      | 0                         |
| Welder / Torch          | No              | 40       |                 | 74                | 200                      | 0                         |
| Welder / Torch          | No              | 40       |                 | 74                | 200                      | 0                         |
| Man Lift                | No              | 20       |                 | 74.7              | 200                      | 0                         |

|           |    |    |      |     |   |
|-----------|----|----|------|-----|---|
| Crane     | No | 16 | 80.6 | 200 | 0 |
| Generator | No | 50 | 80.6 | 200 | 0 |

| Equipment      | Results          |     |          |                    |         |     |
|----------------|------------------|-----|----------|--------------------|---------|-----|
|                | Calculated (dBA) |     |          | Noise Limits (dBA) |         |     |
|                | *Lmax            | Leq | Day      | Leq                | Evening | Leq |
|                |                  |     | Lmax     |                    | Lmax    |     |
| Welder / Torch | 62               |     | 58 N/A   | N/A                | N/A     | N/A |
| Welder / Torch | 62               |     | 58 N/A   | N/A                | N/A     | N/A |
| Welder / Torch | 62               |     | 58 N/A   | N/A                | N/A     | N/A |
| Man Lift       | 62.7             |     | 55.7 N/A | N/A                | N/A     | N/A |
| Crane          | 68.5             |     | 60.6 N/A | N/A                | N/A     | N/A |
| Generator      | 68.6             |     | 65.6 N/A | N/A                | N/A     | N/A |
| Total          | 68.6             |     | 68.5 N/A | N/A                | N/A     | N/A |

\*Calculated Lmax is the Loudest value.

# Roadway Construction Noise Model (RCNM),Version 1.1

Report date 12/1/2016  
Case Descr Grading\_Annex

## ---- Receptor #1 ----

| Description Land Use    | Baselines (dBA) |          |                 |                   |                          |                           |
|-------------------------|-----------------|----------|-----------------|-------------------|--------------------------|---------------------------|
|                         | Daytime         | Evening  | Night           |                   |                          |                           |
| Residence - Residential | 65              | 60       | 55              |                   |                          |                           |
| Description             |                 |          | Equipment       |                   | Receptor Distance (feet) | Estimated Shielding (dBA) |
|                         | Impact Device   | Usage(%) | Spec Lmax (dBA) | Actual Lmax (dBA) |                          |                           |
| Backhoe                 | No              | 40       |                 | 77.6              | 50                       | 0                         |
| Grader                  | No              | 40       | 85              |                   | 60                       | 0                         |
| Dozer                   | No              | 40       |                 | 81.7              | 75                       | 0                         |

## Results

| Equipment | Calculated (dBA) |      | Noise Limits (dBA) |     |              |     |
|-----------|------------------|------|--------------------|-----|--------------|-----|
|           | *Lmax            | Leq  | Day Lmax           | Leq | Evening Lmax | Leq |
| Backhoe   | 77.6             | 73.6 | N/A                | N/A | N/A          | N/A |
| Grader    | 83.4             | 79.4 | N/A                | N/A | N/A          | N/A |
| Dozer     | 78.1             | 74.2 | N/A                | N/A | N/A          | N/A |
| Total     | 83.4             | 81.4 | N/A                | N/A | N/A          | N/A |

\*Calculated Lmax is the Loudest value.

## ---- Receptor #2 ----

| Description Land Use    | Baselines (dBA) |          |                 |                   |                          |                           |
|-------------------------|-----------------|----------|-----------------|-------------------|--------------------------|---------------------------|
|                         | Daytime         | Evening  | Night           |                   |                          |                           |
| Residence - Residential | 65              | 60       | 55              |                   |                          |                           |
| Description             |                 |          | Equipment       |                   | Receptor Distance (feet) | Estimated Shielding (dBA) |
|                         | Impact Device   | Usage(%) | Spec Lmax (dBA) | Actual Lmax (dBA) |                          |                           |
| Backhoe                 | No              | 40       |                 | 77.6              | 200                      | 0                         |
| Grader                  | No              | 40       | 85              |                   | 200                      | 0                         |
| Dozer                   | No              | 40       |                 | 81.7              | 200                      | 0                         |

## Results

| Equipment | Calculated (dBA) |      | Noise Limits (dBA) |     |              |     |
|-----------|------------------|------|--------------------|-----|--------------|-----|
|           | *Lmax            | Leq  | Day Lmax           | Leq | Evening Lmax | Leq |
| Backhoe   | 65.5             | 61.5 | N/A                | N/A | N/A          | N/A |
| Grader    | 73               | 69   | N/A                | N/A | N/A          | N/A |

|       |       |      |      |     |     |     |     |
|-------|-------|------|------|-----|-----|-----|-----|
| Dozer |       | 69.6 | 65.6 | N/A | N/A | N/A | N/A |
|       | Total | 73   | 71.1 | N/A | N/A | N/A | N/A |

\*Calculated Lmax is the Loudest value.

# Roadway Construction Noise Model (RCNM),Version 1.1

Report date 12/1/2016

Case Descr Paving\_Annex

## ---- Receptor #1 ----

|                            |        | Baselines (dBA) |         |        |          |           |
|----------------------------|--------|-----------------|---------|--------|----------|-----------|
| Descriptor Land Use        |        | Daytime         | Evening | Night  |          |           |
| Residence · Residential    |        | 65              | 60      | 55     |          |           |
|                            |        | Equipment       |         |        |          |           |
|                            |        |                 | Spec    | Actual | Receptor | Estimated |
|                            |        | Impact          | Lmax    | Lmax   | Distance | Shielding |
| Description                | Device | Usage(%)        | (dBA)   | (dBA)  | (feet)   | (dBA)     |
| Concrete Mixer Truck       | No     | 40              |         | 78.8   | 50       | 0         |
| Paver                      | No     | 50              |         | 77.2   | 75       | 0         |
| All Other Equipment > 5 HP | No     | 50              | 85      |        | 100      | 0         |
| Roller                     | No     | 20              |         | 80     | 50       | 0         |
| Crane                      | No     | 16              |         | 80.6   | 50       | 0         |
| Front End Loader           | No     | 40              |         | 79.1   | 75       | 0         |

## Results

|                            |  | Calculated (dBA) |      | Noise Limits (dBA) |     |         |     |
|----------------------------|--|------------------|------|--------------------|-----|---------|-----|
|                            |  |                  |      | Day                |     | Evening |     |
| Equipment                  |  | *Lmax            | Leq  | Lmax               | Leq | Lmax    | Leq |
| Concrete Mixer Truck       |  | 78.8             | 74.8 | N/A                | N/A | N/A     | N/A |
| Paver                      |  | 73.7             | 70.7 | N/A                | N/A | N/A     | N/A |
| All Other Equipment > 5 HP |  | 79               | 76   | N/A                | N/A | N/A     | N/A |
| Roller                     |  | 80               | 73   | N/A                | N/A | N/A     | N/A |
| Crane                      |  | 80.6             | 72.6 | N/A                | N/A | N/A     | N/A |
| Front End Loader           |  | 75.6             | 71.6 | N/A                | N/A | N/A     | N/A |
| Total                      |  | 80.6             | 81.3 | N/A                | N/A | N/A     | N/A |

\*Calculated Lmax is the Loudest value.

## ---- Receptor #2 ----

|                            |        | Baselines (dBA) |         |       |        |          |           |
|----------------------------|--------|-----------------|---------|-------|--------|----------|-----------|
| Descriptor Land Use        |        | Daytime         | Evening | Night |        |          |           |
| Residence · Residential    |        | 65              | 60      | 55    |        |          |           |
|                            |        | Equipment       |         |       |        |          |           |
|                            |        |                 |         | Spec  | Actual | Receptor | Estimated |
|                            |        | Impact          |         | Lmax  | Lmax   | Distance | Shielding |
| Description                | Device | Usage(%)        | (dBA)   | (dBA) | (feet) | (dBA)    |           |
| Concrete Mixer Truck       | No     | 40              |         | 78.8  | 200    | 0        |           |
| Paver                      | No     | 50              |         | 77.2  | 200    | 0        |           |
| All Other Equipment > 5 HP | No     | 50              | 85      |       | 200    | 0        |           |
| Roller                     | No     | 20              |         | 80    | 200    | 0        |           |

|                  |    |    |      |     |   |
|------------------|----|----|------|-----|---|
| Crane            | No | 16 | 80.6 | 200 | 0 |
| Front End Loader | No | 40 | 79.1 | 200 | 0 |

| Equipment                  | Results          |      |                    |     |         |     |
|----------------------------|------------------|------|--------------------|-----|---------|-----|
|                            | Calculated (dBA) |      | Noise Limits (dBA) |     |         |     |
|                            | *Lmax            | Leq  | Day                | Leq | Evening | Leq |
|                            |                  |      | Lmax               |     | Lmax    |     |
| Concrete Mixer Truck       | 62               | 58   | N/A                | N/A | N/A     | N/A |
| Paver                      | 62               | 58   | N/A                | N/A | N/A     | N/A |
| All Other Equipment > 5 HP | 62               | 58   | N/A                | N/A | N/A     | N/A |
| Roller                     | 62.7             | 55.7 | N/A                | N/A | N/A     | N/A |
| Crane                      | 68.5             | 60.6 | N/A                | N/A | N/A     | N/A |
| Front End Loader           | 68.6             | 65.6 | N/A                | N/A | N/A     | N/A |
| Total                      | 68.6             | 68.5 | N/A                | N/A | N/A     | N/A |

\*Calculated Lmax is the Loudest value.

# Roadway Construction Noise Model (RCNM),Version 1.1

Report date 12/1/2016

Case Descr Site Preparation Annex Phase

## ---- Receptor #1 ----

|                         |    | Baselines (dBA) |          |       |        |          |           |
|-------------------------|----|-----------------|----------|-------|--------|----------|-----------|
| Descriptor Land Use     |    | Daytime         | Evening  | Night |        |          |           |
| Residence - Residential |    | 65              | 60       | 55    |        |          |           |
|                         |    | Equipment       |          |       |        |          |           |
|                         |    | Impact          |          | Spec  | Actual | Receptor | Estimated |
|                         |    | Device          | Usage(%) | Lmax  | Lmax   | Distance | Shielding |
| Description             |    |                 |          | (dBA) | (dBA)  | (feet)   | (dBA)     |
| Backhoe                 | No |                 | 40       |       | 77.6   | 50       | 0         |
| Grader                  | No |                 | 40       | 85    |        | 60       | 0         |
| Dozer                   | No |                 | 40       |       | 81.7   | 75       | 0         |

## Results

|           |  | Calculated (dBA) |      | Noise Limits (dBA) |     |         |     |
|-----------|--|------------------|------|--------------------|-----|---------|-----|
|           |  |                  |      | Day                |     | Evening |     |
| Equipment |  | *Lmax            | Leq  | Lmax               | Leq | Lmax    | Leq |
| Backhoe   |  | 77.6             | 73.6 | N/A                | N/A | N/A     | N/A |
| Grader    |  | 83.4             | 79.4 | N/A                | N/A | N/A     | N/A |
| Dozer     |  | 78.1             | 74.2 | N/A                | N/A | N/A     | N/A |
| Total     |  | 83.4             | 81.4 | N/A                | N/A | N/A     | N/A |

\*Calculated Lmax is the Loudest value.

## ---- Receptor #2 ----

|                         |        | Baselines (dBA) |            |            |                 |                 |           |
|-------------------------|--------|-----------------|------------|------------|-----------------|-----------------|-----------|
| Description Land Use    |        | Daytime         | Evening    | Night      |                 |                 |           |
| Residence - Residential |        | 65              | 60         | 55         |                 |                 |           |
|                         |        | Equipment       |            |            |                 |                 |           |
|                         |        | Impact          |            | Spec       | Actual          | Receptor        | Estimated |
| Description             | Device | Usage(%)        | Lmax (dBA) | Lmax (dBA) | Distance (feet) | Shielding (dBA) |           |
| Backhoe                 | No     | 40              |            |            | 77.6            | 200             | 0         |
| Grader                  | No     | 40              |            | 85         |                 | 200             | 0         |
| Dozer                   | No     | 40              |            |            | 81.7            | 200             | 0         |

## Results

|           |  | Calculated (dBA) |      | Noise Limits (dBA) |     |         |     |
|-----------|--|------------------|------|--------------------|-----|---------|-----|
|           |  |                  |      | Day                |     | Evening |     |
| Equipment |  | *Lmax            | Leq  | Lmax               | Leq | Lmax    | Leq |
| Backhoe   |  | 65.5             | 61.5 | N/A                | N/A | N/A     | N/A |
| Grader    |  | 73               | 69   | N/A                | N/A | N/A     | N/A |

|       |       |      |      |     |     |     |     |
|-------|-------|------|------|-----|-----|-----|-----|
| Dozer |       | 69.6 | 65.6 | N/A | N/A | N/A | N/A |
|       | Total | 73   | 71.1 | N/A | N/A | N/A | N/A |

\*Calculated Lmax is the Loudest value.

# Roadway Construction Noise Model (RCNM),Version 1.1

Report date 12/1/2016

Case Descr Architectural Coating\_Water Yard / Sewer Lot

## ---- Receptor #1 ----

| Description Land Use    | Baselines (dBA) |          |                 |                   |                          |                           |
|-------------------------|-----------------|----------|-----------------|-------------------|--------------------------|---------------------------|
|                         | Daytime         | Evening  | Night           |                   |                          |                           |
| Residence - Residential | 65              | 60       | 55              |                   |                          |                           |
| Description             |                 |          | Equipment       |                   | Receptor Distance (feet) | Estimated Shielding (dBA) |
|                         | Impact Device   | Usage(%) | Spec Lmax (dBA) | Actual Lmax (dBA) |                          |                           |
| Compressor (air)        | No              | 40       |                 | 77.7              | 50                       | 0                         |
| Pickup Truck            | No              | 40       |                 | 75                | 50                       | 0                         |

## Results

| Equipment        | Calculated (dBA) |      | Noise Limits (dBA) |     |         |     |
|------------------|------------------|------|--------------------|-----|---------|-----|
|                  |                  |      | Day                |     | Evening |     |
|                  | *Lmax            | Leq  | Lmax               | Leq | Lmax    | Leq |
| Compressor (air) | 77.7             | 73.7 | N/A                | N/A | N/A     | N/A |
| Pickup Truck     | 75               | 71   | N/A                | N/A | N/A     | N/A |
| Total            | 77.7             | 75.6 | N/A                | N/A | N/A     | N/A |

\*Calculated Lmax is the Loudest value.

## ---- Receptor #2 ----

| Description Land Use    | Baselines (dBA) |          |                 |                   |                          |                           |
|-------------------------|-----------------|----------|-----------------|-------------------|--------------------------|---------------------------|
|                         | Daytime         | Evening  | Night           |                   |                          |                           |
| Residence - Residential | 65              | 60       | 55              |                   |                          |                           |
| Description             |                 |          | Equipment       |                   | Receptor Distance (feet) | Estimated Shielding (dBA) |
|                         | Impact Device   | Usage(%) | Spec Lmax (dBA) | Actual Lmax (dBA) |                          |                           |
| Compressor (air)        | No              | 40       |                 | 77.7              | 200                      | 0                         |
| Pickup Truck            | No              | 40       |                 | 75                | 200                      | 0                         |

## Results

| Equipment        | Calculated (dBA) |      | Noise Limits (dBA) |     |         |     |
|------------------|------------------|------|--------------------|-----|---------|-----|
|                  |                  |      | Day                |     | Evening |     |
|                  | *Lmax            | Leq  | Lmax               | Leq | Lmax    | Leq |
| Compressor (air) | 65.6             | 61.6 | N/A                | N/A | N/A     | N/A |
| Pickup Truck     | 63               | 59   | N/A                | N/A | N/A     | N/A |
| Total            | 66.8             | 66.2 | N/A                | N/A | N/A     | N/A |

\*Calculated Lmax is the Loudest value.

# Roadway Construction Noise Model (RCNM),Version 1.1

Report date 12/1/2016

Case Descr Building\_Const\_Annex

## ---- Receptor #1 ----

| Description Land Use    | Baselines (dBA) |          |                 |                   |                          |                           |
|-------------------------|-----------------|----------|-----------------|-------------------|--------------------------|---------------------------|
|                         | Daytime         | Evening  | Night           |                   |                          |                           |
| Residence - Residential | 65              | 60       | 55              |                   |                          |                           |
| Description             |                 |          | Equipment       |                   | Receptor Distance (feet) | Estimated Shielding (dBA) |
|                         | Impact Device   | Usage(%) | Spec Lmax (dBA) | Actual Lmax (dBA) |                          |                           |
| Welder / Torch          | No              | 40       |                 | 74                | 50                       | 0                         |
| Welder / Torch          | No              | 40       |                 | 74                | 75                       | 0                         |
| Welder / Torch          | No              | 40       |                 | 74                | 100                      | 0                         |
| Man Lift                | No              | 20       |                 | 74.7              | 50                       | 0                         |
| Man Lift                | No              | 20       |                 | 74.7              | 50                       | 0                         |
| Crane                   | No              | 16       |                 | 80.6              | 75                       | 0                         |
| Generator               | No              | 50       |                 | 80.6              | 75                       | 0                         |
| Backhoe                 | No              | 40       |                 | 77.6              | 75                       | 0                         |

## Results

| Equipment      | Calculated (dBA) |      | Noise Limits (dBA) |     |              |     |
|----------------|------------------|------|--------------------|-----|--------------|-----|
|                | *Lmax            | Leq  | Day Lmax           | Leq | Evening Lmax | Leq |
| Welder / Torch | 74               | 70   | N/A                | N/A | N/A          | N/A |
| Welder / Torch | 70.5             | 66.5 | N/A                | N/A | N/A          | N/A |
| Welder / Torch | 68               | 64   | N/A                | N/A | N/A          | N/A |
| Man Lift       | 74.7             | 67.7 | N/A                | N/A | N/A          | N/A |
| Man Lift       | 74.7             | 67.7 | N/A                | N/A | N/A          | N/A |
| Crane          | 77               | 69.1 | N/A                | N/A | N/A          | N/A |
| Generator      | 77.1             | 74.1 | N/A                | N/A | N/A          | N/A |
| Backhoe        | 74               | 70.1 | N/A                | N/A | N/A          | N/A |
| Total          | 77.1             | 78.6 | N/A                | N/A | N/A          | N/A |

\*Calculated Lmax is the Loudest value.

## ---- Receptor #2 ----

| Description Land Use    | Baselines (dBA) |          |                 |                   |                          |                           |
|-------------------------|-----------------|----------|-----------------|-------------------|--------------------------|---------------------------|
|                         | Daytime         | Evening  | Night           |                   |                          |                           |
| Residence - Residential | 65              | 60       | 55              |                   |                          |                           |
| Description             |                 |          | Equipment       |                   | Receptor Distance (feet) | Estimated Shielding (dBA) |
|                         | Impact Device   | Usage(%) | Spec Lmax (dBA) | Actual Lmax (dBA) |                          |                           |

|                |    |    |      |     |   |
|----------------|----|----|------|-----|---|
| Welder / Torch | No | 40 | 74   | 200 | 0 |
| Welder / Torch | No | 40 | 74   | 200 | 0 |
| Welder / Torch | No | 40 | 74   | 200 | 0 |
| Man Lift       | No | 20 | 74.7 | 200 | 0 |
| Man Lift       | No | 20 | 74.7 | 200 | 0 |
| Crane          | No | 16 | 80.6 | 200 | 0 |
| Generator      | No | 50 | 80.6 | 200 | 0 |
| Backhoe        | No | 40 | 77.6 | 200 | 0 |

| Equipment      | Results          |      |      |                    |         |     |
|----------------|------------------|------|------|--------------------|---------|-----|
|                | Calculated (dBA) |      |      | Noise Limits (dBA) |         |     |
|                | *Lmax            | Leq  | Day  | Leq                | Evening |     |
|                |                  |      | Lmax |                    | Lmax    | Leq |
| Welder / Torch | 62               | 58   | N/A  | N/A                | N/A     | N/A |
| Welder / Torch | 62               | 58   | N/A  | N/A                | N/A     | N/A |
| Welder / Torch | 62               | 58   | N/A  | N/A                | N/A     | N/A |
| Man Lift       | 62.7             | 55.7 | N/A  | N/A                | N/A     | N/A |
| Man Lift       | 62.7             | 55.7 | N/A  | N/A                | N/A     | N/A |
| Crane          | 68.5             | 60.6 | N/A  | N/A                | N/A     | N/A |
| Generator      | 68.6             | 65.6 | N/A  | N/A                | N/A     | N/A |
| Backhoe        | 65.5             | 61.5 | N/A  | N/A                | N/A     | N/A |
| Total          | 68.6             | 69.4 | N/A  | N/A                | N/A     | N/A |

\*Calculated Lmax is the Loudest value.

# Roadway Construction Noise Model (RCNM),Version 1.1

Report date 12/1/2016

Case Descr Grading\_Water Yard / Sewer Lot

## ---- Receptor #1 ----

| Description Land Use    | Baselines (dBA) |          |                 |                   |                          |                           |
|-------------------------|-----------------|----------|-----------------|-------------------|--------------------------|---------------------------|
|                         | Daytime         | Evening  | Night           |                   |                          |                           |
| Residence - Residential | 65              | 60       | 55              |                   |                          |                           |
| Description             |                 |          | Equipment       |                   | Receptor Distance (feet) | Estimated Shielding (dBA) |
|                         | Impact Device   | Usage(%) | Spec Lmax (dBA) | Actual Lmax (dBA) |                          |                           |
| Tractor                 | No              | 40       | 84              |                   | 50                       | 0                         |
| Front End Loader        | No              | 40       |                 | 79.1              | 60                       | 0                         |
| Grader                  | No              | 40       | 85              |                   | 75                       | 0                         |
| Dozer                   | No              | 40       |                 | 81.7              | 50                       | 0                         |

## Results

| Equipment        | Calculated (dBA) |      | Noise Limits (dBA) |     |         |     |
|------------------|------------------|------|--------------------|-----|---------|-----|
|                  | *Lmax            | Leq  | Day                |     | Evening |     |
|                  |                  |      | Lmax               | Leq | Lmax    | Leq |
| Tractor          | 84               | 80   | N/A                | N/A | N/A     | N/A |
| Front End Loader | 77.5             | 73.5 | N/A                | N/A | N/A     | N/A |
| Grader           | 81.5             | 77.5 | N/A                | N/A | N/A     | N/A |
| Dozer            | 81.7             | 77.7 | N/A                | N/A | N/A     | N/A |
| Total            | 84               | 83.8 | N/A                | N/A | N/A     | N/A |

\*Calculated Lmax is the Loudest value.

## ---- Receptor #2 ----

| Description Land Use    | Baselines (dBA) |          |                 |                   |                          |                           |
|-------------------------|-----------------|----------|-----------------|-------------------|--------------------------|---------------------------|
|                         | Daytime         | Evening  | Night           |                   |                          |                           |
| Residence - Residential | 65              | 60       | 55              |                   |                          |                           |
| Description             |                 |          | Equipment       |                   | Receptor Distance (feet) | Estimated Shielding (dBA) |
|                         | Impact Device   | Usage(%) | Spec Lmax (dBA) | Actual Lmax (dBA) |                          |                           |
| Tractor                 | No              | 40       | 84              |                   | 200                      | 0                         |
| Front End Loader        | No              | 40       |                 | 79.1              | 200                      | 0                         |
| Grader                  | No              | 40       | 85              |                   | 200                      | 0                         |
| Dozer                   | No              | 40       |                 | 81.7              | 200                      | 0                         |

## Results

| Calculated (dBA) | Noise Limits (dBA) |         |
|------------------|--------------------|---------|
|                  | Day                | Evening |

| Equipment        | *Lmax | Leq  | Lmax | Leq | Lmax | Leq |
|------------------|-------|------|------|-----|------|-----|
| Tractor          | 72    | 68   | N/A  | N/A | N/A  | N/A |
| Front End Loader | 67.1  | 63.1 | N/A  | N/A | N/A  | N/A |
| Grader           | 73    | 69   | N/A  | N/A | N/A  | N/A |
| Dozer            | 69.6  | 65.6 | N/A  | N/A | N/A  | N/A |
| Total            | 73    | 73   | N/A  | N/A | N/A  | N/A |

\*Calculated Lmax is the Loudest value.

# Roadway Construction Noise Model (RCNM),Version 1.1

Report date 12/1/2016

Case Descr Paving\_Water Yard / Sewer Lot

## ---- Receptor #1 ----

|                            |        | Baselines (dBA) |            |            |                 |                 |  |
|----------------------------|--------|-----------------|------------|------------|-----------------|-----------------|--|
| Descriptor Land Use        |        | Daytime         | Evening    | Night      |                 |                 |  |
| Residence - Residential    |        | 65              | 60         | 55         |                 |                 |  |
|                            |        | Equipment       |            |            |                 |                 |  |
|                            | Impact |                 | Spec       | Actual     | Receptor        | Estimated       |  |
| Description                | Device | Usage(%)        | Lmax (dBA) | Lmax (dBA) | Distance (feet) | Shielding (dBA) |  |
| Concrete Mixer Truck       | No     | 40              |            | 78.8       | 50              | 0               |  |
| Paver                      | No     | 50              |            | 77.2       | 75              | 0               |  |
| All Other Equipment > 5 HP | No     | 50              | 85         |            | 100             | 0               |  |
| Roller                     | No     | 20              |            | 80         | 50              | 0               |  |
| Roller                     | No     | 20              |            | 80         | 50              | 0               |  |
| Front End Loader           | No     | 40              |            | 79.1       | 75              | 0               |  |

## Results

|                            |       | Calculated (dBA) |      | Noise Limits (dBA) |      |         |     |
|----------------------------|-------|------------------|------|--------------------|------|---------|-----|
|                            |       |                  |      | Day                |      | Evening |     |
| Equipment                  | *Lmax | Leq              | Lmax | Leq                | Lmax | Leq     |     |
| Concrete Mixer Truck       | 78.8  | 74.8             | N/A  | N/A                | N/A  | N/A     | N/A |
| Paver                      | 73.7  | 70.7             | N/A  | N/A                | N/A  | N/A     | N/A |
| All Other Equipment > 5 HP | 79    | 76               | N/A  | N/A                | N/A  | N/A     | N/A |
| Roller                     | 80    | 73               | N/A  | N/A                | N/A  | N/A     | N/A |
| Roller                     | 80    | 73               | N/A  | N/A                | N/A  | N/A     | N/A |
| Front End Loader           | 75.6  | 71.6             | N/A  | N/A                | N/A  | N/A     | N/A |
| Total                      | 80    | 81.3             | N/A  | N/A                | N/A  | N/A     | N/A |

\*Calculated Lmax is the Loudest value.

## ---- Receptor #2 ----

|                            |        | Baselines (dBA) |         |       |        |          |           |
|----------------------------|--------|-----------------|---------|-------|--------|----------|-----------|
| Descriptor Land Use        |        | Daytime         | Evening | Night |        |          |           |
| Residence · Residential    |        | 65              | 60      | 55    |        |          |           |
|                            |        | Equipment       |         |       |        |          |           |
|                            |        |                 |         | Spec  | Actual | Receptor | Estimated |
|                            |        | Impact          |         | Lmax  | Lmax   | Distance | Shielding |
| Description                | Device | Usage(%)        | (dBA)   | (dBA) | (feet) | (dBA)    |           |
| Concrete Mixer Truck       | No     | 40              |         |       | 78.8   | 200      | 0         |
| Paver                      | No     | 50              |         |       | 77.2   | 200      | 0         |
| All Other Equipment > 5 HP | No     | 50              | 85      |       |        | 200      | 0         |
| Roller                     | No     | 20              |         |       | 80     | 200      | 0         |

|                  |    |    |      |     |   |
|------------------|----|----|------|-----|---|
| Roller           | No | 20 | 80   | 200 | 0 |
| Front End Loader | No | 40 | 79.1 | 200 | 0 |

| Equipment                  | Results          |     |          |                    |         |     |
|----------------------------|------------------|-----|----------|--------------------|---------|-----|
|                            | Calculated (dBA) |     |          | Noise Limits (dBA) |         |     |
|                            | *Lmax            | Leq | Day      | Leq                | Evening | Leq |
|                            |                  |     | Lmax     |                    | Lmax    |     |
| Concrete Mixer Truck       | 66.8             |     | 62.8 N/A | N/A                | N/A     | N/A |
| Paver                      | 65.2             |     | 62.2 N/A | N/A                | N/A     | N/A |
| All Other Equipment > 5 HP | 73               |     | 69.9 N/A | N/A                | N/A     | N/A |
| Roller                     | 68               |     | 61 N/A   | N/A                | N/A     | N/A |
| Roller                     | 68.5             |     | 60.6 N/A | N/A                | N/A     | N/A |
| Front End Loader           | 67.1             |     | 63.1 N/A | N/A                | N/A     | N/A |
| Total                      | 73               |     | 72.5 N/A | N/A                | N/A     | N/A |

\*Calculated Lmax is the Loudest value.

# Roadway Construction Noise Model (RCNM),Version 1.1

Report date 12/1/2016

Case Descr Site Preparation Water Yard / Sewer Lot

## ---- Receptor #1 ----

| Description Land Use    | Baselines (dBA) |          |                 |                   |                          |                           |
|-------------------------|-----------------|----------|-----------------|-------------------|--------------------------|---------------------------|
|                         | Daytime         | Evening  | Night           |                   |                          |                           |
| Residence - Residential | 65              | 60       | 55              |                   |                          |                           |
| Description             | Impact Device   | Usage(%) | Equipment       |                   | Receptor Distance (feet) | Estimated Shielding (dBA) |
|                         |                 |          | Spec Lmax (dBA) | Actual Lmax (dBA) |                          |                           |
| Backhoe                 | No              | 40       |                 | 77.6              | 50                       | 0                         |
| Grader                  | No              | 40       | 85              |                   | 60                       | 0                         |
| Scraper                 | No              | 40       |                 | 83.6              | 75                       | 0                         |

## Results

| Equipment | Calculated (dBA) |      | Noise Limits (dBA) |     |              |     |
|-----------|------------------|------|--------------------|-----|--------------|-----|
|           | *Lmax            | Leq  | Day Lmax           | Leq | Evening Lmax | Leq |
| Backhoe   | 77.6             | 73.6 | N/A                | N/A | N/A          | N/A |
| Grader    | 83.4             | 79.4 | N/A                | N/A | N/A          | N/A |
| Scraper   | 80.1             | 76.1 | N/A                | N/A | N/A          | N/A |
| Total     | 83.4             | 81.8 | N/A                | N/A | N/A          | N/A |

\*Calculated Lmax is the Loudest value.

## ---- Receptor #2 ----

| Description Land Use    | Baselines (dBA) |          |                 |                   |                          |                           |
|-------------------------|-----------------|----------|-----------------|-------------------|--------------------------|---------------------------|
|                         | Daytime         | Evening  | Night           |                   |                          |                           |
| Residence - Residential | 65              | 60       | 55              |                   |                          |                           |
| Description             | Impact Device   | Usage(%) | Equipment       |                   | Receptor Distance (feet) | Estimated Shielding (dBA) |
|                         |                 |          | Spec Lmax (dBA) | Actual Lmax (dBA) |                          |                           |
| Backhoe                 | No              | 40       |                 | 77.6              | 200                      | 0                         |
| Grader                  | No              | 40       | 85              |                   | 200                      | 0                         |
| Scraper                 | No              | 40       |                 | 83.6              | 200                      | 0                         |

## Results

| Equipment | Calculated (dBA) |      | Noise Limits (dBA) |     |              |     |
|-----------|------------------|------|--------------------|-----|--------------|-----|
|           | *Lmax            | Leq  | Day Lmax           | Leq | Evening Lmax | Leq |
| Backhoe   | 65.5             | 61.5 | N/A                | N/A | N/A          | N/A |
| Grader    | 73               | 69   | N/A                | N/A | N/A          | N/A |

|         |      |      |     |     |     |     |
|---------|------|------|-----|-----|-----|-----|
| Scraper | 71.5 | 67.6 | N/A | N/A | N/A | N/A |
| Total   | 73   | 71.8 | N/A | N/A | N/A | N/A |

\*Calculated Lmax is the Loudest value.

