

Appendix E

Noise Calculations

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Appendix E-1

Field Noise Data Sheets

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Field Noise Measurement Data

Record: 1307

| | |
|--------------|---------------|
| Project Name | 14800 Schulte |
| Observer(s) | |
| Date | 2020-10-14 |

Meteorological Conditions

| | |
|-------------------|------------|
| Temp (F) | 80 |
| Humidity % (R.H.) | 20 |
| Wind | Light |
| Wind Speed (MPH) | 3 |
| Wind Direction | South West |
| Sky | Sunny |

Instrument and Calibrator Information

| | |
|----------------------------|--------------|
| Instrument Name Lookup Key | |
| Manufacturer | Larson Davis |
| Model | 831 |
| Serial Number | 02559 |
| Calibration Date | 042019 |
| Calibrator Name Lookup Key | |
| Calibrator Manufacturer | Larson Davis |
| Calibrator Model | Cal 200 |
| Pre-Test (dBA SPL) | 114 |
| Windscreen | Yes |
| Weighting? | A-WTD |
| Slow/Fast? | Slow |

Monitoring

| | |
|---|------------------------|
| Record # | 1 |
| Site ID | St-06 |
| Site Location Lat/Long | 37.730062, -121.531718 |
| Begin (Time) | 13:58:00 |
| End (Time) | 14:08:00 |
| Leq | 60.3 |
| Lmax | 71.5 |
| Lmin | 49.6 |
| Other Lx (Specify Metric) | L |
| Primary Noise Source | Traffic |
| Other Noise Sources (Background) | Distant Dog Barking |
| Is the same instrument and calibrator being used as previously noted? | Yes |
| Are the meteorological conditions the same as previously noted? | Yes |

Source Info and Traffic Counts

| | |
|--|------------------|
| Number of Lanes | 2 |
| Lane Width (feet) | 12 |
| Roadway Width (feet) | 24 |
| Roadway Width (m) | 7.3 |
| Distance to Roadway (feet) | 115 |
| Distance to Roadway (m) | 35.1 |
| Distance Measured to Centerline or Edge of Pavement? | Centerline |
| Roadway Type | AC |
| Estimated Vehicle Speed (MPH) | 30 |
| Speeds Estimated by: | Driving the Pace |
| Posted Speed Limit Sign (MPH) | 40 |

Traffic Counts

| | |
|--|-----------------------------|
| Vehicle Count Summary | A 97, MT 6, HT 0, B 0, MC 0 |
| Select Method for Recording Count Duration | Enter Manually |
| Counting Both Directions? | Yes |
| Count Duration (minutes) | 10 |
| Select Method for Vehicle Counts | Use Counter (+/-) |
| Number of Vehicles - Autos | 97 |
| Number of Vehicles - Medium Trucks | 6 |
| Number of Vehicles - Heavy Trucks | 0 |
| Number of Vehicles - Buses | 0 |
| Number of Vehicles - Motorcycles | 0 |

Description / Photos

| | |
|---------|------|
| Terrain | Soft |
|---------|------|

Site Photos



| | |
|------------------------|-------------------------------------|
| Comments / Description | At setback distance of first house. |
|------------------------|-------------------------------------|

Monitoring

| | |
|---|------------------------|
| Record # | 2 |
| Site ID | St-05 |
| Site Location Lat/Long | 37.736780, -121.513098 |
| Begin (Time) | 14:21:00 |
| End (Time) | 14:31:00 |
| Leq | 64 |
| Lmax | 80.3 |
| Lmin | 54.3 |
| Other Lx (Specify Metric) | L |
| Primary Noise Source | Traffic |
| Is the same instrument and calibrator being used as previously noted? | Yes |
| Are the meteorological conditions the same as previously noted? | Yes |

Source Info and Traffic Counts

| | |
|--|------------------|
| Number of Lanes | 2 |
| Lane Width (feet) | 12 |
| Roadway Width (feet) | 24 |
| Roadway Width (m) | 7.3 |
| Distance to Roadway (feet) | 25 |
| Distance to Roadway (m) | 7.6 |
| Distance Measured to Centerline or Edge of Pavement? | Centerline |
| Roadway Type | AC |
| Estimated Vehicle Speed (MPH) | 40 |
| Speeds Estimated by: | Driving the Pace |
| Posted Speed Limit Sign (MPH) | 35 |

Traffic Counts

| | |
|--|-----------------------------|
| Vehicle Count Summary | A 20, MT 0, HT 0, B 0, MC 1 |
| Select Method for Recording Count Duration | Enter Manually |
| Counting Both Directions? | Yes |
| Count Duration (minutes) | 10 |
| Select Method for Vehicle Counts | Use Counter (+/-) |
| Number of Vehicles - Autos | 20 |
| Number of Vehicles - Medium Trucks | 0 |
| Number of Vehicles - Heavy Trucks | 0 |
| Number of Vehicles - Buses | 0 |
| Number of Vehicles - Motorcycles | 1 |

Description / Photos

| | |
|---------|-------|
| Terrain | Mixed |
|---------|-------|

Site Photos

Photo



Comments / Description

At fence line adjacent to house.

Monitoring

| | |
|---|------------------------|
| Record # | 3 |
| Site ID | St-01 |
| Site Location Lat/Long | 37.721536, -121.514192 |
| Begin (Time) | 14:42:00 |
| End (Time) | 14:52:00 |
| Leq | 64.6 |
| Lmax | 76.4 |
| Lmin | 49.2 |
| Other Lx (Specify Metric) | L |
| Primary Noise Source | Traffic |
| Is the same instrument and calibrator being used as previously noted? | Yes |
| Are the meteorological conditions the same as previously noted? | Yes |

Source Info and Traffic Counts

| | |
|--|------------------|
| Number of Lanes | 2 |
| Lane Width (feet) | 12 |
| Roadway Width (feet) | 24 |
| Roadway Width (m) | 7.3 |
| Distance to Roadway (feet) | 115 |
| Distance to Roadway (m) | 35.1 |
| Distance Measured to Centerline or Edge of Pavement? | Centerline |
| Roadway Type | AC |
| Estimated Vehicle Speed (MPH) | 45 |
| Speeds Estimated by: | Driving the Pace |

Traffic Counts

| | |
|--|------------------------------|
| Vehicle Count Summary | A 108, MT 4, HT 0, B 0, MC 1 |
| Select Method for Recording Count Duration | Enter Manually |
| Counting Both Directions? | Yes |
| Count Duration (minutes) | 10 |
| Select Method for Vehicle Counts | Use Counter (+/-) |
| Number of Vehicles - Autos | 108 |
| Number of Vehicles - Medium Trucks | 4 |
| Number of Vehicles - Heavy Trucks | 0 |
| Number of Vehicles - Buses | 0 |
| Number of Vehicles - Motorcycles | 1 |

Description / Photos

Site Photos

Photo



Comments / Description

Looking North

Site Photos

Photo



Comments / Description

Looking East towards station

Monitoring

| | |
|---|------------------------|
| Record # | 4 |
| Site ID | St-02 |
| Site Location Lat/Long | 37.719215, -121.512359 |
| Begin (Time) | 15:13:00 |
| End (Time) | 15:23:00 |
| Leq | 54.3 |
| Lmax | 65.6 |
| Lmin | 44 |
| Other Lx (Specify Metric) | L |
| Primary Noise Source | Traffic |
| Is the same instrument and calibrator being used as previously noted? | Yes |
| Are the meteorological conditions the same as previously noted? | Yes |

Traffic Counts - Lammers Rd.

| | |
|--|-----------------------------|
| Vehicle Count Summary | A 78, MT 1, HT 1, B 0, MC 0 |
| Select Method for Recording Count Duration | Enter Manually |
| Counting Both Directions? | Yes |
| Count Duration (minutes) | 10 |
| Select Method for Vehicle Counts | Use Counter (+/-) |
| Number of Vehicles - Autos | 78 |
| Number of Vehicles - Medium Trucks | 1 |
| Number of Vehicles - Heavy Trucks | 1 |
| Number of Vehicles - Buses | 0 |
| Number of Vehicles - Motorcycles | 0 |

Traffic Counts - W. Schulte Rd.

| | |
|--|-----------------------------|
| Vehicle Count Summary | A 59, MT 1, HT 2, B 0, MC 0 |
| Select Method for Recording Count Duration | Enter Manually |
| Counting Both Directions? | Yes |
| Count Duration (minutes) | 10 |
| Select Method for Vehicle Counts | Use Counter (+/-) |
| Number of Vehicles - Autos | 59 |
| Number of Vehicles - Medium Trucks | 1 |
| Number of Vehicles - Heavy Trucks | 2 |
| Number of Vehicles - Buses | 0 |
| Number of Vehicles - Motorcycles | 0 |

Description / Photos

| | |
|---------|------|
| Terrain | Soft |
|---------|------|

Site Photos



Comments / Description

At residence looking towards Hansen Rd.

Site Photos

Photo



Comments / Description

Adjacent to building facade

Monitoring

| | |
|---|------------------------|
| Record # | 5 |
| Site ID | St-03 |
| Site Location Lat/Long | 37.719720, -121.476911 |
| Begin (Time) | 15:27:00 |
| End (Time) | 15:37:00 |
| Leq | 58.3 |
| Lmax | 68 |
| Lmin | 44.1 |
| Other Lx (Specify Metric) | L |
| Primary Noise Source | Traffic |
| Is the same instrument and calibrator being used as previously noted? | Yes |
| Are the meteorological conditions the same as previously noted? | Yes |

Description / Photos

| | |
|---------|------|
| Terrain | Soft |
|---------|------|

Site Photos

Photo



Comments / Description

Looking towards S Lammers Rd.

Site Photos

Photo



Comments / Description

Looking towards W Schulte Rd.

Monitoring

| | |
|---|------------------------|
| Record # | 6 |
| Site ID | St-04 |
| Site Location Lat/Long | 37.717083, -121.476171 |
| Begin (Time) | 15:46:00 |
| End (Time) | 15:56:00 |
| Leq | 58.3 |
| Lmax | 69.3 |
| Lmin | 47.2 |
| Other Lx (Specify Metric) | L |
| Primary Noise Source | Traffic |
| Is the same instrument and calibrator being used as previously noted? | Yes |
| Are the meteorological conditions the same as previously noted? | Yes |

Source Info and Traffic Counts

| | |
|--|------------|
| Number of Lanes | 2 |
| Lane Width (feet) | 12 |
| Roadway Width (feet) | 24 |
| Roadway Width (m) | 7.3 |
| Distance to Roadway (feet) | 116 |
| Distance to Roadway (m) | 35.4 |
| Distance Measured to Centerline or Edge of Pavement? | Centerline |
| Roadway Type | AC |
| Estimated Vehicle Speed (MPH) | 45 |
| Posted Speed Limit Sign (MPH) | 35 |

Traffic Counts

| | |
|--|------------------------------|
| Vehicle Count Summary | A 118, MT 1, HT 0, B 0, MC 0 |
| Select Method for Recording Count Duration | Enter Manually |
| Counting Both Directions? | Yes |
| Count Duration (minutes) | 10 |
| Vehicle Count Tally | |
| Select Method for Vehicle Counts | Enter Manually |
| Number of Vehicles - Autos | 118 |
| Number of Vehicles - Medium Trucks | 1 |
| Number of Vehicles - Heavy Trucks | 0 |
| Number of Vehicles - Buses | 0 |
| Number of Vehicles - Motorcycles | 0 |

Description / Photos

| | |
|---------|------|
| Terrain | Soft |
|---------|------|

Site Photos

Photo



Comments / Description

Looking towards Lammers.

Site Photos

Photo



Comments / Description

Looking towards house

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Appendix E-2

Construction Noise Modeling Input and Output

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Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 12/23/2020
 Case Description: Schulte Road Warehouse Project - Site Prep

---- Receptor #1 ----

| Description | Land Use | Baselines (dBA) | | |
|-------------------------------|-------------|-----------------|---------|-------|
| | | Daytime | Evening | Night |
| Nearest - 1,500' to northeast | 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 | 1500 | 0 | |
| Tractor | No | 40 | 84 | | 1600 | 0 | |
| Backhoe | No | 40 | | 77.6 | 1700 | 0 | |
| Tractor | No | 40 | 84 | | 1800 | 0 | |
| Front End Loader | No | 40 | | 79.1 | 1900 | 0 | |
| Front End Loader | No | 40 | | 79.1 | 1800 | 0 | |
| Front End Loader | No | 40 | | 79.1 | 2000 | 0 | |

Results

| Equipment | Calculated (dBA) | | Noise Limits (dBA) | | | |
|------------------|------------------|-------------|--------------------|------------|------------|------------|
| | *Lmax | Leq | Day | | Evening | |
| | | | Lmax | Leq | Lmax | Leq |
| Backhoe | 48 | 44 | N/A | N/A | N/A | N/A |
| Tractor | 53.9 | 49.9 | N/A | N/A | N/A | N/A |
| Backhoe | 46.9 | 43 | N/A | N/A | N/A | N/A |
| Tractor | 52.9 | 48.9 | N/A | N/A | N/A | N/A |
| Front End Loader | 47.5 | 43.5 | N/A | N/A | N/A | N/A |
| Front End Loader | 48 | 44 | N/A | N/A | N/A | N/A |
| Front End Loader | 47.1 | 43.1 | N/A | N/A | N/A | N/A |
| Total | 53.9 | 54.6 | N/A | N/A | N/A | N/A |

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

| Description | Land Use | Baselines (dBA) | | |
|----------------------------|-------------|-----------------|---------|-------|
| | | Daytime | Evening | Night |
| 2nd nearest - 3,000' to SW | 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 | 3000 | 0 | |
| Tractor | No | 40 | 84 | | 3100 | 0 | |
| Backhoe | No | 40 | | 77.6 | 3200 | 0 | |
| Tractor | No | 40 | 84 | | 3300 | 0 | |
| Front End Loader | No | 40 | | 79.1 | 3100 | 0 | |
| Front End Loader | No | 40 | | 79.1 | 3400 | 0 | |
| Front End Loader | No | 40 | | 79.1 | 3500 | 0 | |

Results

| Equipment | Calculated (dBA) | | Noise Limits (dBA) | | | |
|-----------|------------------|-----|--------------------|-----|---------|-----|
| | *Lmax | Leq | Day | | Evening | |
| | | | Lmax | Leq | Lmax | Leq |
| Backhoe | 42 | 38 | N/A | N/A | N/A | N/A |

| | | | | | | |
|------------------|------|------|-----|-----|-----|-----|
| Tractor | 48.2 | 44.2 | N/A | N/A | N/A | N/A |
| Backhoe | 41.4 | 37.5 | N/A | N/A | N/A | N/A |
| Tractor | 47.6 | 43.6 | N/A | N/A | N/A | N/A |
| Front End Loader | 43.3 | 39.3 | N/A | N/A | N/A | N/A |
| Front End Loader | 42.5 | 38.5 | N/A | N/A | N/A | N/A |
| Front End Loader | 42.2 | 38.2 | N/A | N/A | N/A | N/A |
| Total | 48.2 | 49.2 | N/A | N/A | N/A | N/A |

*Calculated Lmax is the Loudest value.

---- Receptor #3 ----

| | | | | |
|---------------------------|-------------|-----------------|---------|-------|
| Description | Land Use | Baselines (dBA) | | |
| | | Daytime | Evening | Night |
| 3rd-nearest - 3,000' to E | Residential | 65 | 60 | 55 |

| Description | Impact Device | Usage(%) | Equipment | | | Estimated Shielding (dBA) |
|------------------|---------------|----------|-----------------|-------------------|--------------------------|---------------------------|
| | | | Spec Lmax (dBA) | Actual Lmax (dBA) | Receptor Distance (feet) | |
| Backhoe | No | 40 | | 77.6 | 3000 | 0 |
| Tractor | No | 40 | 84 | | 3100 | 0 |
| Backhoe | No | 40 | | 77.6 | 3300 | 0 |
| Tractor | No | 40 | 84 | | 3400 | 0 |
| Front End Loader | No | 40 | | 79.1 | 3200 | 0 |
| Front End Loader | No | 40 | | 79.1 | 3400 | 0 |
| Front End Loader | No | 40 | | 79.1 | 3500 | 0 |

Results

| Equipment | Calculated (dBA) | | Noise Limits (dBA) | | | |
|------------------|------------------|-----|--------------------|-----|--------------|-----|
| | *Lmax | Leq | Day Lmax | Leq | Evening Lmax | Leq |
| Backhoe | 42 | | 38 | N/A | N/A | N/A |
| Tractor | 48.2 | | 44.2 | N/A | N/A | N/A |
| Backhoe | 41.2 | | 37.2 | N/A | N/A | N/A |
| Tractor | 47.3 | | 43.4 | N/A | N/A | N/A |
| Front End Loader | 43 | | 39 | N/A | N/A | N/A |
| Front End Loader | 42.5 | | 38.5 | N/A | N/A | N/A |
| Front End Loader | 42.2 | | 38.2 | N/A | N/A | N/A |
| Total | 48.2 | | 49.1 | N/A | N/A | N/A |

*Calculated Lmax is the Loudest value.

---- Receptor #4 ----

| | | | | |
|---------------------------|-------------|-----------------|---------|-------|
| Description | Land Use | Baselines (dBA) | | |
| | | Daytime | Evening | Night |
| 4th nearest - 3,300' to E | Residential | 65 | 60 | 55 |

| Description | Impact Device | Usage(%) | Equipment | | | Estimated Shielding (dBA) |
|------------------|---------------|----------|-----------------|-------------------|--------------------------|---------------------------|
| | | | Spec Lmax (dBA) | Actual Lmax (dBA) | Receptor Distance (feet) | |
| Backhoe | No | 40 | | 77.6 | 3300 | 0 |
| Tractor | No | 40 | 84 | | 3500 | 0 |
| Backhoe | No | 40 | | 77.6 | 3600 | 0 |
| Tractor | No | 40 | 84 | | 3600 | 0 |
| Front End Loader | No | 40 | | 79.1 | 3400 | 0 |
| Front End Loader | No | 40 | | 79.1 | 3800 | 0 |
| Front End Loader | No | 40 | | 79.1 | 4000 | 0 |

Results

| Equipment | Calculated (dBA) | | Noise Limits (dBA) | | | |
|------------------|------------------|-----|--------------------|-----|--------------|-----|
| | *Lmax | Leq | Day Lmax | Leq | Evening Lmax | Leq |
| Backhoe | 42 | | 38 | N/A | N/A | N/A |
| Tractor | 48.2 | | 44.2 | N/A | N/A | N/A |
| Backhoe | 41.2 | | 37.2 | N/A | N/A | N/A |
| Tractor | 47.3 | | 43.4 | N/A | N/A | N/A |
| Front End Loader | 43 | | 39 | N/A | N/A | N/A |
| Front End Loader | 42.5 | | 38.5 | N/A | N/A | N/A |
| Front End Loader | 42.2 | | 38.2 | N/A | N/A | N/A |
| Total | 48.2 | | 49.1 | N/A | N/A | N/A |

*Calculated Lmax is the Loudest value.

| | | | | | | |
|------------------|------|------|-----|-----|-----|-----|
| Backhoe | 41.2 | 37.2 | N/A | N/A | N/A | N/A |
| Tractor | 47.1 | 43.1 | N/A | N/A | N/A | N/A |
| Backhoe | 40.4 | 36.4 | N/A | N/A | N/A | N/A |
| Tractor | 46.9 | 42.9 | N/A | N/A | N/A | N/A |
| Front End Loader | 42.5 | 38.5 | N/A | N/A | N/A | N/A |
| Front End Loader | 41.5 | 37.5 | N/A | N/A | N/A | N/A |
| Front End Loader | 41 | 37.1 | N/A | N/A | N/A | N/A |
| Total | 47.1 | 48.3 | N/A | N/A | N/A | N/A |

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 12/23/2020
Case Description: Schulte Road Warehouse Project - Grading

---- Receptor #1 ----

| Description | Land Use | Baselines (dBA) | | | Equipment | | | |
|-------------------------------|-------------|-----------------|----------|-------|-----------------|-------------------|--------------------------|---------------------------|
| | | Daytime | Evening | Night | Spec Lmax (dBA) | Actual Lmax (dBA) | Receptor Distance (feet) | Estimated Shielding (dBA) |
| Nearest - 1,500' to northeast | Residential | 65 | 60 | 55 | | | | |
| Description | | Impact Device | Usage(%) | | | | | |
| Excavator | | No | 40 | | 80.7 | 1500 | 0 | |
| Excavator | | No | 40 | | 80.7 | 1600 | 0 | |
| Grader | | No | 40 | 85 | | 1700 | 0 | |
| Front End Loader | | No | 40 | | 79.1 | 1800 | 0 | |
| Scraper | | No | 40 | | 83.6 | 1600 | 0 | |
| Scraper | | No | 40 | | 83.6 | 1900 | 0 | |
| Backhoe | | No | 40 | | 77.6 | 2000 | 0 | |
| Tractor | | No | 40 | 84 | | 1800 | 0 | |

Results

| Equipment | Calculated (dBA) | | Noise Limits (dBA) | | | |
|------------------|------------------|------|--------------------|---------|--------------|-------------|
| | *Lmax | Leq | Day Lmax | Day Leq | Evening Lmax | Evening Leq |
| Excavator | 51.2 | 47.2 | N/A | N/A | N/A | N/A |
| Excavator | 50.6 | 46.6 | N/A | N/A | N/A | N/A |
| Grader | 54.4 | 50.4 | N/A | N/A | N/A | N/A |
| Front End Loader | 48 | 44 | N/A | N/A | N/A | N/A |
| Scraper | 53.5 | 49.5 | N/A | N/A | N/A | N/A |
| Scraper | 52 | 48 | N/A | N/A | N/A | N/A |
| Backhoe | 45.5 | 41.5 | N/A | N/A | N/A | N/A |
| Tractor | 52.9 | 48.9 | N/A | N/A | N/A | N/A |
| Total | 54.4 | 56.8 | N/A | N/A | N/A | N/A |

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

| Description | Land Use | Baselines (dBA) | | | Equipment | | | |
|----------------------------|-------------|-----------------|----------|-------|-----------------|-------------------|--------------------------|---------------------------|
| | | Daytime | Evening | Night | Spec Lmax (dBA) | Actual Lmax (dBA) | Receptor Distance (feet) | Estimated Shielding (dBA) |
| 2nd nearest - 3,000' to SW | Residential | 65 | 60 | 55 | | | | |
| Description | | Impact Device | Usage(%) | | | | | |

| | | | | | | |
|------------------|----|----|----|------|------|---|
| Excavator | No | 40 | | 80.7 | 3000 | 0 |
| Excavator | No | 40 | | 80.7 | 3100 | 0 |
| Grader | No | 40 | 85 | | 3200 | 0 |
| Front End Loader | No | 40 | | 79.1 | 3300 | 0 |
| Scraper | No | 40 | | 83.6 | 3100 | 0 |
| Scraper | No | 40 | | 83.6 | 3400 | 0 |
| Backhoe | No | 40 | | 77.6 | 3500 | 0 |
| Tractor | No | 40 | 84 | | 3600 | 0 |

Results

| Equipment | Calculated (dBA) | | Noise Limits (dBA) | | | |
|------------------|------------------|------|--------------------|-----|---------|-----|
| | *Lmax | Leq | Day | | Evening | |
| | | | Lmax | Leq | Lmax | Leq |
| Excavator | 45.1 | 41.2 | N/A | N/A | N/A | N/A |
| Excavator | 44.9 | 40.9 | N/A | N/A | N/A | N/A |
| Grader | 48.9 | 44.9 | N/A | N/A | N/A | N/A |
| Front End Loader | 42.7 | 38.7 | N/A | N/A | N/A | N/A |
| Scraper | 47.7 | 43.8 | N/A | N/A | N/A | N/A |
| Scraper | 46.9 | 43 | N/A | N/A | N/A | N/A |
| Backhoe | 40.7 | 36.7 | N/A | N/A | N/A | N/A |
| Tractor | 46.9 | 42.9 | N/A | N/A | N/A | N/A |
| Total | 48.9 | 51.2 | N/A | N/A | N/A | N/A |

*Calculated Lmax is the Loudest value.

---- Receptor #3 ----

| Description | Land Use | Baselines (dBA) | | |
|---------------------------|-------------|-----------------|---------|-------|
| | | Daytime | Evening | Night |
| 3rd-nearest - 3,000' to E | Residential | 65 | 60 | 55 |

| Description | Device | Usage(%) | Equipment | | | | |
|------------------|--------|----------|-----------|------------|------------|-----------------|-----------------|
| | | | Impact | Spec | Actual | Receptor | Estimated |
| | | | | Lmax (dBA) | Lmax (dBA) | Distance (feet) | Shielding (dBA) |
| Excavator | No | 40 | | 80.7 | 3000 | 0 | |
| Excavator | No | 40 | | 80.7 | 3100 | 0 | |
| Grader | No | 40 | 85 | | 3300 | 0 | |
| Front End Loader | No | 40 | | 79.1 | 3400 | 0 | |
| Scraper | No | 40 | | 83.6 | 3200 | 0 | |
| Scraper | No | 40 | | 83.6 | 3500 | 0 | |
| Backhoe | No | 40 | | 77.6 | 3600 | 0 | |
| Tractor | No | 40 | 84 | | 3300 | 0 | |

Results

| Equipment | Calculated (dBA) | | Noise Limits (dBA) | | | |
|------------------|------------------|------|--------------------|-----|---------|-----|
| | *Lmax | Leq | Day | | Evening | |
| | | | Lmax | Leq | Lmax | Leq |
| Excavator | 45.1 | 41.2 | N/A | N/A | N/A | N/A |
| Excavator | 44.9 | 40.9 | N/A | N/A | N/A | N/A |
| Grader | 48.6 | 44.6 | N/A | N/A | N/A | N/A |
| Front End Loader | 42.5 | 38.5 | N/A | N/A | N/A | N/A |
| Scraper | 47.5 | 43.5 | N/A | N/A | N/A | N/A |
| Scraper | 46.7 | 42.7 | N/A | N/A | N/A | N/A |
| Backhoe | 40.4 | 36.4 | N/A | N/A | N/A | N/A |
| Tractor | 47.6 | 43.6 | N/A | N/A | N/A | N/A |
| Total | 48.6 | 51.1 | N/A | N/A | N/A | N/A |

*Calculated Lmax is the Loudest value.

---- Receptor #4 ----

| Description | Land Use | Baselines (dBA) | | |
|---------------------------|-------------|-----------------|---------|-------|
| | | Daytime | Evening | Night |
| 4th nearest - 3,300' to E | Residential | 65 | 60 | 55 |

| Description | Impact Device | Usage(%) | Equipment | | Receptor Distance (feet) | Estimated Shielding (dBA) |
|------------------|---------------|----------|-----------------|-------------------|--------------------------|---------------------------|
| | | | Spec Lmax (dBA) | Actual Lmax (dBA) | | |
| Excavator | No | 40 | | 80.7 | 3300 | 0 |
| Excavator | No | 40 | | 80.7 | 3500 | 0 |
| Grader | No | 40 | 85 | | 3600 | 0 |
| Front End Loader | No | 40 | | 79.1 | 3700 | 0 |
| Scraper | No | 40 | | 83.6 | 3400 | 0 |
| Scraper | No | 40 | | 83.6 | 3800 | 0 |
| Backhoe | No | 40 | | 77.6 | 3700 | 0 |
| Tractor | No | 40 | 84 | | 3500 | 0 |

| Equipment | Results | | | | | |
|------------------|------------------|------|--------------------|-----|--------------|-----|
| | Calculated (dBA) | | Noise Limits (dBA) | | | |
| | *Lmax | Leq | Day Lmax | Leq | Evening Lmax | Leq |
| Excavator | 44.3 | 40.3 | N/A | N/A | N/A | N/A |
| Excavator | 43.8 | 39.8 | N/A | N/A | N/A | N/A |
| Grader | 47.9 | 43.9 | N/A | N/A | N/A | N/A |
| Front End Loader | 41.7 | 37.7 | N/A | N/A | N/A | N/A |
| Scraper | 46.9 | 43 | N/A | N/A | N/A | N/A |
| Scraper | 46 | 42 | N/A | N/A | N/A | N/A |
| Backhoe | 40.2 | 36.2 | N/A | N/A | N/A | N/A |
| Tractor | 47.1 | 43.1 | N/A | N/A | N/A | N/A |
| Total | 47.9 | 50.5 | N/A | N/A | N/A | N/A |

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 12/23/2020
Case Description: Schulte Road Warehouse Project - Building Construction

---- Receptor #1 ----

| Description | Land Use | Baselines (dBA) | | |
|-------------------------------|-------------|-----------------|---------|-------|
| | | Daytime | Evening | Night |
| Nearest - 1,500' to northeast | Residential | 65 | 60 | 55 |

| Description | Impact Device | Usage(%) | Equipment | | Receptor Distance (feet) | Estimated Shielding (dBA) |
|-------------------------------|---------------|----------|-----------------|-------------------|--------------------------|---------------------------|
| | | | Spec Lmax (dBA) | Actual Lmax (dBA) | | |
| Crane | No | 16 | | 80.6 | 1500 | 0 |
| Man Lift | No | 20 | | 74.7 | 1600 | 0 |
| Man Lift | No | 20 | | 74.7 | 1800 | 0 |
| Man Lift | No | 20 | | 74.7 | 1900 | 0 |
| Generator (<25KVA, VMS signs) | No | 50 | | 72.8 | 1800 | 0 |
| Backhoe | No | 40 | | 77.6 | 2000 | 0 |
| Backhoe | No | 40 | | 77.6 | 1900 | 0 |
| Front End Loader | No | 40 | | 79.1 | 2100 | 0 |
| Tractor | No | 40 | 84 | | 2200 | 0 |
| Welder / Torch | No | 40 | | 74 | 1800 | 0 |

| Equipment | Results | | | | | |
|-----------|------------------|-----|--------------------|-----|--------------|-----|
| | Calculated (dBA) | | Noise Limits (dBA) | | | |
| | *Lmax | Leq | Day Lmax | Leq | Evening Lmax | Leq |
| | | | | | | |

| | | | | | | |
|-------------------------------|------|------|-----|-----|-----|-----|
| Crane | 51 | 43 | N/A | N/A | N/A | N/A |
| Man Lift | 44.6 | 37.6 | N/A | N/A | N/A | N/A |
| Man Lift | 43.6 | 36.6 | N/A | N/A | N/A | N/A |
| Man Lift | 43.1 | 36.1 | N/A | N/A | N/A | N/A |
| Generator (<25KVA, VMS signs) | 41.7 | 38.7 | N/A | N/A | N/A | N/A |
| Backhoe | 45.5 | 41.5 | N/A | N/A | N/A | N/A |
| Backhoe | 46 | 42 | N/A | N/A | N/A | N/A |
| Front End Loader | 46.6 | 42.7 | N/A | N/A | N/A | N/A |
| Tractor | 51.1 | 47.2 | N/A | N/A | N/A | N/A |
| Welder / Torch | 42.9 | 38.9 | N/A | N/A | N/A | N/A |
| Total | 51.1 | 51.8 | N/A | N/A | N/A | N/A |

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

| Description | | Land Use | Baselines (dBA) | | |
|----------------------------|--|-------------|-----------------|---------|-------|
| 2nd nearest - 3,000' to SW | | Residential | Daytime | Evening | Night |
| | | | 65 | 60 | 55 |

| Description | Impact Device | Usage(%) | Equipment | | | Estimated Shielding (dBA) |
|-------------------------------|---------------|----------|-----------------|-------------------|--------------------------|---------------------------|
| | | | Spec Lmax (dBA) | Actual Lmax (dBA) | Receptor Distance (feet) | |
| Crane | No | 16 | | 80.6 | 3000 | 0 |
| Man Lift | No | 20 | | 74.7 | 3100 | 0 |
| Man Lift | No | 20 | | 74.7 | 3200 | 0 |
| Man Lift | No | 20 | | 74.7 | 3300 | 0 |
| Generator (<25KVA, VMS signs) | No | 50 | | 72.8 | 3200 | 0 |
| Backhoe | No | 40 | | 77.6 | 3400 | 0 |
| Backhoe | No | 40 | | 77.6 | 3500 | 0 |
| Front End Loader | No | 40 | | 79.1 | 3300 | 0 |
| Tractor | No | 40 | 84 | | 3800 | 0 |
| Welder / Torch | No | 40 | | 74 | 3100 | 0 |

Results

| Equipment | Calculated (dBA) | | Noise Limits (dBA) | | | |
|-------------------------------|------------------|-----|--------------------|---------|--------------|-------------|
| | *Lmax | Leq | Day Lmax | Day Leq | Evening Lmax | Evening Leq |
| Crane | 45 | | 37 | N/A | N/A | N/A |
| Man Lift | 38.9 | | 31.9 | N/A | N/A | N/A |
| Man Lift | 38.6 | | 31.6 | N/A | N/A | N/A |
| Man Lift | 38.3 | | 31.3 | N/A | N/A | N/A |
| Generator (<25KVA, VMS signs) | 36.7 | | 33.7 | N/A | N/A | N/A |
| Backhoe | 40.9 | | 36.9 | N/A | N/A | N/A |
| Backhoe | 40.7 | | 36.7 | N/A | N/A | N/A |
| Front End Loader | 42.7 | | 38.7 | N/A | N/A | N/A |
| Tractor | 46.4 | | 42.4 | N/A | N/A | N/A |
| Welder / Torch | 38.2 | | 34.2 | N/A | N/A | N/A |
| Total | 46.4 | | 46.9 | N/A | N/A | N/A |

*Calculated Lmax is the Loudest value.

---- Receptor #3 ----

| Description | | Land Use | Baselines (dBA) | | |
|---------------------------|--|-------------|-----------------|---------|-------|
| 3rd-nearest - 3,000' to E | | Residential | Daytime | Evening | Night |
| | | | 65 | 60 | 55 |

| Description | Impact Device | Usage(%) | Equipment | | | Estimated Shielding (dBA) |
|-------------|---------------|----------|-----------------|-------------------|--------------------------|---------------------------|
| | | | Spec Lmax (dBA) | Actual Lmax (dBA) | Receptor Distance (feet) | |
| Crane | No | 16 | | 80.6 | 3000 | 0 |
| Man Lift | No | 20 | | 74.7 | 3100 | 0 |

| | | | | | | |
|-------------------------------|----|----|----|------|------|---|
| Man Lift | No | 20 | | 74.7 | 3300 | 0 |
| Man Lift | No | 20 | | 74.7 | 3400 | 0 |
| Generator (<25KVA, VMS signs) | No | 50 | | 72.8 | 3200 | 0 |
| Backhoe | No | 40 | | 77.6 | 3500 | 0 |
| Backhoe | No | 40 | | 77.6 | 3600 | 0 |
| Front End Loader | No | 40 | | 79.1 | 3300 | 0 |
| Tractor | No | 40 | 84 | | 3700 | 0 |
| Welder / Torch | No | 40 | | 74 | 3200 | 0 |

| | | Results | | | | | |
|-------------------------------|-------|------------------|-----|----------|--------------------|---------|-----|
| | | Calculated (dBA) | | | Noise Limits (dBA) | | |
| | | | | Day | | Evening | |
| Equipment | | *Lmax | Leq | Lmax | Leq | Lmax | Leq |
| Crane | | 45 | | 37 N/A | N/A | N/A | N/A |
| Man Lift | | 38.9 | | 31.9 N/A | N/A | N/A | N/A |
| Man Lift | | 38.3 | | 31.3 N/A | N/A | N/A | N/A |
| Man Lift | | 38 | | 31.1 N/A | N/A | N/A | N/A |
| Generator (<25KVA, VMS signs) | | 36.7 | | 33.7 N/A | N/A | N/A | N/A |
| Backhoe | | 40.7 | | 36.7 N/A | N/A | N/A | N/A |
| Backhoe | | 40.4 | | 36.4 N/A | N/A | N/A | N/A |
| Front End Loader | | 42.7 | | 38.7 N/A | N/A | N/A | N/A |
| Tractor | | 46.6 | | 42.6 N/A | N/A | N/A | N/A |
| Welder / Torch | | 37.9 | | 33.9 N/A | N/A | N/A | N/A |
| | Total | 46.6 | | 46.9 N/A | N/A | N/A | N/A |

*Calculated Lmax is the Loudest value.

---- Receptor #4 ----

| | | Baselines (dBA) | | |
|---------------------------|-------------|-----------------|---------|-------|
| Description | Land Use | Daytime | Evening | Night |
| 4th-nearest - 3,300' to E | Residential | 65 | 60 | 55 |

| | | Equipment | | | | |
|-------------------------------|--------|-----------|------------|------------|-----------------|-----------------|
| | | Impact | Spec | Actual | Receptor | Estimated |
| Description | Device | Usage(%) | Lmax (dBA) | Lmax (dBA) | Distance (feet) | Shielding (dBA) |
| Crane | No | 16 | | 80.6 | 3300 | 0 |
| Man Lift | No | 20 | | 74.7 | 3400 | 0 |
| Man Lift | No | 20 | | 74.7 | 3500 | 0 |
| Man Lift | No | 20 | | 74.7 | 3600 | 0 |
| Generator (<25KVA, VMS signs) | No | 50 | | 72.8 | 3400 | 0 |
| Backhoe | No | 40 | | 77.6 | 3700 | 0 |
| Backhoe | No | 40 | | 77.6 | 3800 | 0 |
| Front End Loader | No | 40 | | 79.1 | 3400 | 0 |
| Tractor | No | 40 | 84 | | 3600 | 0 |
| Welder / Torch | No | 40 | | 74 | 3800 | 0 |

| | | Results | | | | | |
|-------------------------------|-------|------------------|-----|----------|--------------------|---------|-----|
| | | Calculated (dBA) | | | Noise Limits (dBA) | | |
| | | | | Day | | Evening | |
| Equipment | | *Lmax | Leq | Lmax | Leq | Lmax | Leq |
| Crane | | 44.2 | | 36.2 N/A | N/A | N/A | N/A |
| Man Lift | | 38 | | 31.1 N/A | N/A | N/A | N/A |
| Man Lift | | 37.8 | | 30.8 N/A | N/A | N/A | N/A |
| Man Lift | | 37.6 | | 30.6 N/A | N/A | N/A | N/A |
| Generator (<25KVA, VMS signs) | | 36.2 | | 33.1 N/A | N/A | N/A | N/A |
| Backhoe | | 40.2 | | 36.2 N/A | N/A | N/A | N/A |
| Backhoe | | 39.9 | | 36 N/A | N/A | N/A | N/A |
| Front End Loader | | 42.5 | | 38.5 N/A | N/A | N/A | N/A |
| Tractor | | 46.9 | | 42.9 N/A | N/A | N/A | N/A |
| Welder / Torch | | 36.4 | | 32.4 N/A | N/A | N/A | N/A |
| | Total | 46.9 | | 46.6 N/A | N/A | N/A | N/A |

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 12/23/2020
 Case Description: Schulte Road Warehouse Project - Paving

---- Receptor #1 ----

| Description | Land Use | Baselines (dBA) | | |
|-------------------------------|-------------|-----------------|---------|-------|
| | | Daytime | Evening | Night |
| Nearest - 1,500' to northeast | Residential | 65 | 60 | 55 |

| Description | Impact Device | Usage(%) | Equipment | | | Receptor Distance (feet) | Estimated Shielding (dBA) |
|----------------------|---------------|----------|-----------------|-------------------|--|--------------------------|---------------------------|
| | | | Spec Lmax (dBA) | Actual Lmax (dBA) | | | |
| Paver | No | 50 | | 77.2 | | 1500 | 0 |
| Paver | No | 50 | | 77.2 | | 1600 | 0 |
| Concrete Pump Truck | No | 20 | | 81.4 | | 1700 | 0 |
| Concrete Mixer Truck | No | 40 | | 78.8 | | 1800 | 0 |
| Roller | No | 20 | | 80 | | 1700 | 0 |
| Roller | No | 20 | | 80 | | 1900 | 0 |

Results

| Equipment | Calculated (dBA) | | Noise Limits (dBA) | | | |
|----------------------|------------------|-------------|--------------------|------------|--------------|------------|
| | *Lmax | Leq | Day Lmax | Leq | Evening Lmax | Leq |
| Paver | 47.7 | 44.7 | N/A | N/A | N/A | N/A |
| Paver | 47.1 | 44.1 | N/A | N/A | N/A | N/A |
| Concrete Pump Truck | 50.8 | 43.8 | N/A | N/A | N/A | N/A |
| Concrete Mixer Truck | 47.7 | 43.7 | N/A | N/A | N/A | N/A |
| Roller | 49.4 | 42.4 | N/A | N/A | N/A | N/A |
| Roller | 48.4 | 41.4 | N/A | N/A | N/A | N/A |
| Total | 50.8 | 51.3 | N/A | N/A | N/A | N/A |

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

| Description | Land Use | Baselines (dBA) | | |
|----------------------------|-------------|-----------------|---------|-------|
| | | Daytime | Evening | Night |
| 2nd nearest - 3,000' to SW | Residential | 65 | 60 | 55 |

| Description | Impact Device | Usage(%) | Equipment | | | Receptor Distance (feet) | Estimated Shielding (dBA) |
|----------------------|---------------|----------|-----------------|-------------------|--|--------------------------|---------------------------|
| | | | Spec Lmax (dBA) | Actual Lmax (dBA) | | | |
| Paver | No | 50 | | 77.2 | | 3000 | 0 |
| Paver | No | 50 | | 77.2 | | 3100 | 0 |
| Concrete Pump Truck | No | 20 | | 81.4 | | 3200 | 0 |
| Concrete Mixer Truck | No | 40 | | 78.8 | | 3300 | 0 |
| Roller | No | 20 | | 80 | | 3200 | 0 |
| Roller | No | 20 | | 80 | | 3400 | 0 |

Results

| Equipment | Calculated (dBA) | | Noise Limits (dBA) | | | |
|-----------|------------------|------|--------------------|-----|--------------|-----|
| | *Lmax | Leq | Day Lmax | Leq | Evening Lmax | Leq |
| Paver | 41.7 | 38.6 | N/A | N/A | N/A | N/A |
| Paver | 41.4 | 38.4 | N/A | N/A | N/A | N/A |

| | | | | | | |
|----------------------|-------------|-------------|------------|------------|------------|------------|
| Concrete Pump Truck | 45.3 | 38.3 | N/A | N/A | N/A | N/A |
| Concrete Mixer Truck | 42.4 | 38.4 | N/A | N/A | N/A | N/A |
| Roller | 43.9 | 36.9 | N/A | N/A | N/A | N/A |
| Roller | 43.3 | 36.4 | N/A | N/A | N/A | N/A |
| Total | 45.3 | 45.7 | N/A | N/A | N/A | N/A |

*Calculated Lmax is the Loudest value.

---- Receptor #3 ----

| | | | | |
|---------------------------|-------------|-----------------|---------|-------|
| | | Baselines (dBA) | | |
| Description | Land Use | Daytime | Evening | Night |
| 3rd-nearest - 3,000' to E | Residential | 65 | 60 | 55 |

| Description | Impact Device | Usage(%) | Equipment | | | Estimated Shielding (dBA) |
|----------------------|---------------|----------|-----------------|-------------------|--------------------------|---------------------------|
| | | | Spec Lmax (dBA) | Actual Lmax (dBA) | Receptor Distance (feet) | |
| Paver | No | 50 | | 77.2 | 3000 | 0 |
| Paver | No | 50 | | 77.2 | 3100 | 0 |
| Concrete Pump Truck | No | 20 | | 81.4 | 3300 | 0 |
| Concrete Mixer Truck | No | 40 | | 78.8 | 3400 | 0 |
| Roller | No | 20 | | 80 | 3200 | 0 |
| Roller | No | 20 | | 80 | 3400 | 0 |

| Equipment | Calculated (dBA) | | Results | | | |
|----------------------|------------------|-------------|------------|------------|----------------------------|------------|
| | *Lmax | Leq | Day | | Noise Limits (dBA) Evening | |
| | | | Lmax | Leq | Lmax | Leq |
| Paver | 41.7 | 38.6 | N/A | N/A | N/A | N/A |
| Paver | 41.4 | 38.4 | N/A | N/A | N/A | N/A |
| Concrete Pump Truck | 45 | 38 | N/A | N/A | N/A | N/A |
| Concrete Mixer Truck | 42.1 | 38.2 | N/A | N/A | N/A | N/A |
| Roller | 43.9 | 36.9 | N/A | N/A | N/A | N/A |
| Roller | 43.3 | 36.4 | N/A | N/A | N/A | N/A |
| Total | 45 | 45.6 | N/A | N/A | N/A | N/A |

*Calculated Lmax is the Loudest value.

---- Receptor #4 ----

| | | | | |
|---------------------------|-------------|-----------------|---------|-------|
| | | Baselines (dBA) | | |
| Description | Land Use | Daytime | Evening | Night |
| 4th-nearest - 3,300' to E | Residential | 65 | 60 | 55 |

| Description | Impact Device | Usage(%) | Equipment | | | Estimated Shielding (dBA) |
|----------------------|---------------|----------|-----------------|-------------------|--------------------------|---------------------------|
| | | | Spec Lmax (dBA) | Actual Lmax (dBA) | Receptor Distance (feet) | |
| Paver | No | 50 | | 77.2 | 3300 | 0 |
| Paver | No | 50 | | 77.2 | 3400 | 0 |
| Concrete Pump Truck | No | 20 | | 81.4 | 3500 | 0 |
| Concrete Mixer Truck | No | 40 | | 78.8 | 3600 | 0 |
| Roller | No | 20 | | 80 | 3500 | 0 |
| Roller | No | 20 | | 80 | 3700 | 0 |

| Equipment | Calculated (dBA) | | Results | | | |
|----------------------|------------------|------|---------|-----|----------------------------|-----|
| | *Lmax | Leq | Day | | Noise Limits (dBA) Evening | |
| | | | Lmax | Leq | Lmax | Leq |
| Paver | 40.8 | 37.8 | N/A | N/A | N/A | N/A |
| Paver | 40.6 | 37.6 | N/A | N/A | N/A | N/A |
| Concrete Pump Truck | 44.5 | 37.5 | N/A | N/A | N/A | N/A |
| Concrete Mixer Truck | 41.7 | 37.7 | N/A | N/A | N/A | N/A |
| Roller | 43.1 | 36.1 | N/A | N/A | N/A | N/A |

| | | | | | | | |
|--------|-------|------|------|-----|-----|-----|-----|
| Roller | | 42.6 | 35.6 | N/A | N/A | N/A | N/A |
| | Total | 44.5 | 44.9 | N/A | N/A | N/A | N/A |

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 12/23/2020
Case Description: Schulte Road Warehouse Project - Architectural Coating

| | | | | | | | |
|-------------------------------|-------------|-----------------------|----------|--------------------|------------|-----------------|-----------------|
| | | ---- Receptor #1 ---- | | | | | |
| | | Baselines (dBA) | | | | | |
| Description | Land Use | Daytime | Evening | Night | | | |
| Nearest - 1,500' to northeast | Residential | 65 | 60 | 55 | | | |
| | | Equipment | | | | | |
| | | Impact | Spec | Actual | Receptor | Estimated | |
| Description | | Device | Usage(%) | Lmax (dBA) | Lmax (dBA) | Distance (feet) | Shielding (dBA) |
| Compressor (air) | | No | 40 | | 77.7 | 1500 | 0 |
| | | Results | | | | | |
| | | Calculated (dBA) | | Noise Limits (dBA) | | | |
| | | | | Day | Evening | | |
| Equipment | | *Lmax | Leq | Lmax | Leq | Lmax | Leq |
| Compressor (air) | | 48.1 | 44.1 | N/A | N/A | N/A | N/A |
| | Total | 48.1 | 44.1 | N/A | N/A | N/A | N/A |

*Calculated Lmax is the Loudest value.

| | | | | | | | |
|----------------------------|-------------|-----------------------|----------|--------------------|------------|-----------------|-----------------|
| | | ---- Receptor #2 ---- | | | | | |
| | | Baselines (dBA) | | | | | |
| Description | Land Use | Daytime | Evening | Night | | | |
| 2nd nearest - 3,000' to SW | Residential | 65 | 60 | 55 | | | |
| | | Equipment | | | | | |
| | | Impact | Spec | Actual | Receptor | Estimated | |
| Description | | Device | Usage(%) | Lmax (dBA) | Lmax (dBA) | Distance (feet) | Shielding (dBA) |
| Compressor (air) | | No | 40 | | 77.7 | 3000 | 0 |
| | | Results | | | | | |
| | | Calculated (dBA) | | Noise Limits (dBA) | | | |
| | | | | Day | Evening | | |
| Equipment | | *Lmax | Leq | Lmax | Leq | Lmax | Leq |
| Compressor (air) | | 42.1 | 38.1 | N/A | N/A | N/A | N/A |
| | Total | 42.1 | 38.1 | N/A | N/A | N/A | N/A |

*Calculated Lmax is the Loudest value.

| | | | | | | | |
|---------------------------|-------------|-----------------------|----------|------------|------------|-----------------|-----------------|
| | | ---- Receptor #3 ---- | | | | | |
| | | Baselines (dBA) | | | | | |
| Description | Land Use | Daytime | Evening | Night | | | |
| 3rd-nearest - 3,000' to E | Residential | 65 | 60 | 55 | | | |
| | | Equipment | | | | | |
| | | Impact | Spec | Actual | Receptor | Estimated | |
| Description | | Device | Usage(%) | Lmax (dBA) | Lmax (dBA) | Distance (feet) | Shielding (dBA) |
| Compressor (air) | | No | 40 | | 77.7 | 3000 | 0 |

| Equipment | Calculated (dBA) | Results | | | | |
|------------------|------------------|---------|------|--------------------|------|-----|
| | | Day | | Noise Limits (dBA) | | |
| | | Leq | Lmax | Leq | Lmax | Leq |
| Compressor (air) | 42.1 | 38.1 | N/A | N/A | N/A | N/A |
| Total | 42.1 | 38.1 | N/A | N/A | N/A | N/A |

*Calculated Lmax is the Loudest value.

---- Receptor #4 ----

| Description | Land Use | Baselines (dBA) | | |
|---------------------------|-------------|-----------------|---------|-------|
| | | Daytime | Evening | Night |
| 4th-nearest - 3,300' to E | Residential | 65 | 60 | 55 |

| Description | Impact Device | Usage(%) | Equipment | | | Estimated Shielding (dBA) |
|------------------|---------------|----------|-----------------|-------------------|--------------------------|---------------------------|
| | | | Spec Lmax (dBA) | Actual Lmax (dBA) | Receptor Distance (feet) | |
| Compressor (air) | No | 40 | | 77.7 | 3300 | 0 |

| Equipment | Calculated (dBA) | Results | | | | |
|------------------|------------------|---------|------|--------------------|------|-----|
| | | Day | | Noise Limits (dBA) | | |
| | | Leq | Lmax | Leq | Lmax | Leq |
| Compressor (air) | 41.3 | 37.3 | N/A | N/A | N/A | N/A |
| Total | 41.3 | 37.3 | N/A | N/A | N/A | N/A |

*Calculated Lmax is the Loudest value.

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Appendix E-3

Traffic Noise Calculations

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INPUT: ROADWAYS

12620

| Dudek | | 20 January 2021 | | | | | | | | | |
|--|-------|-----------------------------------|-----|--------------------------|---------|--------|---|------------------|---------------------------|-------------------|------------|
| M Greene | | TNM 2.5 | | | | | | | | | |
| INPUT: ROADWAYS | | | | | | | Average pavement type shall be used unless a State highway agency substantiates the use of a different type with the approval of FHWA | | | | |
| PROJECT/CONTRACT: | | 12620 | | | | | | | | | |
| RUN: | | 14800 Schulte Rd Consto- Existing | | | | | | | | | |
| Roadway Name | Width | Points Name | No. | Coordinates (pavement) X | Y | Z | Flow Control Control Device | Speed Constraint | Percent Vehicles Affected | Segment Pvmt Type | On Struct? |
| | ft | | | ft | ft | ft | | mph | % | | |
| W. Schulte Road - e. of Mtn House Pkwy | 60.0 | point36 | 36 | 1,721.8 | 5,029.1 | 150.00 | | | | Average | |
| | | point12 | 12 | 1,957.9 | 4,945.8 | 150.00 | | | | Average | |
| | | point13 | 13 | 2,173.1 | 4,945.8 | 150.00 | | | | Average | |
| | | point14 | 14 | 7,137.3 | 4,897.2 | 150.00 | | | | | |
| W. Schulte Road - e. of Hansen | 60.0 | point41 | 41 | 7,137.3 | 4,897.2 | 150.00 | | | | Average | |
| | | point15 | 15 | 11,740.5 | 4,820.8 | 150.00 | | | | Average | |
| | | point16 | 16 | 13,768.5 | 4,804.3 | 150.00 | | | | Average | |
| | | point34 | 34 | 16,279.0 | 4,769.3 | 150.00 | | | | Average | |
| | | point18 | 18 | 17,757.4 | 4,034.5 | 150.00 | | | | | |

INPUT: TRAFFIC FOR LAeq1h Volumes

12620

| Dudek M Greene | | 20 January 2021 TNM 2.5 | | | | | | | | | | |
|--|---------|-----------------------------------|---------|-----|---------|-----|---------|-----|--------|-----|-------------|-----|
| INPUT: TRAFFIC FOR LAeq1h Volumes | | | | | | | | | | | | |
| PROJECT/CONTRACT: | | 12620 | | | | | | | | | | |
| RUN: | | 14800 Schulte Rd Consto- Existing | | | | | | | | | | |
| Roadway | Points | | | | | | | | | | | |
| Name | Name | No. | Segment | | MTrucks | | HTrucks | | Buses | | Motorcycles | |
| | | | V | S | V | S | V | S | V | S | V | S |
| | | | veh/hr | mph | veh/hr | mph | veh/hr | mph | veh/hr | mph | veh/hr | mph |
| W. Schulte Road - e. of Mtn House Pkwy | point36 | 36 | 949 | 45 | 77 | 45 | 257 | 40 | 0 | 0 | 0 | 0 |
| | point12 | 12 | 949 | 45 | 77 | 45 | 257 | 40 | 0 | 0 | 0 | 0 |
| | point13 | 13 | 949 | 45 | 77 | 45 | 257 | 40 | 0 | 0 | 0 | 0 |
| | point14 | 14 | | | | | | | | | | |
| W. Schulte Road - e. of Hansen | point41 | 41 | 622 | 45 | 50 | 45 | 168 | 40 | 0 | 0 | 0 | 0 |
| | point15 | 15 | 622 | 45 | 50 | 45 | 168 | 40 | 0 | 0 | 0 | 0 |
| | point16 | 16 | 622 | 45 | 50 | 45 | 168 | 40 | 0 | 0 | 0 | 0 |
| | point34 | 34 | 622 | 45 | 50 | 45 | 168 | 40 | 0 | 0 | 0 | 0 |
| | point18 | 18 | | | | | | | | | | |

INPUT: RECEIVERS

12620

| Dudek M Greene | | | | | | 20 January 2021 TNM 2.5 | | | | | |
|-----------------------------|-----|-----------------------------------|----------------------|---------|--------|----------------------------|---------------------------------|------------------|-------------------|------------|-----------------------|
| INPUT: RECEIVERS | | | | | | | | | | | |
| PROJECT/CONTRACT: | | 12620 | | | | | | | | | |
| RUN: | | 14800 Schulte Rd Consto- Existing | | | | | | | | | |
| Receiver | | | | | | | | | | | |
| Name | No. | #DUs | Coordinates (ground) | | | Height above Ground | Input Sound Levels and Criteria | | | | Active in Calc. |
| | | | X | Y | Z | | Existing LAeq1h | Impact LAeq1h | Criteria Sub'l | NR Goal | |
| | | | ft | ft | ft | ft | dBA | dBA | dB | dB | |
| Mntn Hs Rd to Hansen @ 100' | 1 | 1 | 4,949.0 | 4,819.1 | 150.00 | 5.00 | 0.00 | 66 | 10.0 | 8.0 | Y |
| Hansen to S Lammers @ 100' | 10 | 1 | 8,404.7 | 4,776.9 | 150.00 | 5.00 | 0.00 | 66 | 10.0 | 8.0 | Y |

RESULTS: SOUND LEVELS

12620

| | | | | | | | | | | | | |
|------------------------------|------------|--|------------------------|-------------------|---------------|-------------------------------|---------------|-------------------|------------------------|-------------|-------------------|--------------|
| Dudek | | 20 January 2021 | | | | | | | | | | |
| M Greene | | TNM 2.5 | | | | | | | | | | |
| | | Calculated with TNM 2.5 | | | | | | | | | | |
| RESULTS: SOUND LEVELS | | | | | | | | | | | | |
| PROJECT/CONTRACT: | | 12620 | | | | | | | | | | |
| RUN: | | 14800 Schulte Rd Consto- Existing | | | | | | | | | | |
| BARRIER DESIGN: | | INPUT HEIGHTS | | | | | | | | | | |
| ATMOSPHERICS: | | 68 deg F, 50% RH | | | | | | | | | | |
| Receiver | | | | | | | | | | | | |
| Name | No. | #DUs | Existing | No Barrier | | | | | With Barrier | | | |
| | | | LAeq1h | LAeq1h | | Increase over existing | Type | Calculated | Noise Reduction | | | |
| | | | | Calculated | Crit'n | Calculated | Crit'n | LAeq1h | Calculated | Goal | Calculated | minus |
| | | | | | | Sub'l Inc | | | | | Goal | Goal |
| | | | dBA | dBA | dBA | dB | dB | | dBA | dB | dB | dB |
| Mntn Hs Rd to Hansen @ 100' | 1 | 1 | 0.0 | 68.9 | 66 | 68.9 | 10 | Snd Lvl | 68.9 | 0.0 | 8 | -8.0 |
| Hansen to S Lammers @ 100' | 10 | 1 | 0.0 | 67.0 | 66 | 67.0 | 10 | Snd Lvl | 67.0 | 0.0 | 8 | -8.0 |
| Dwelling Units | | # DUs | Noise Reduction | | | | | | | | | |
| | | | Min | Avg | Max | | | | | | | |
| | | | dB | dB | dB | | | | | | | |
| All Selected | | 2 | 0.0 | 0.0 | 0.0 | | | | | | | |
| All Impacted | | 2 | 0.0 | 0.0 | 0.0 | | | | | | | |
| All that meet NR Goal | | 0 | 0.0 | 0.0 | 0.0 | | | | | | | |

INPUT: ROADWAYS

12620

| Dudek | | 20 January 2021 | | | | | | | | | |
|--|-------|---|-----|---------------|--------------|--------|---|------------------|---------------------------|-------------------|------------|
| M Greene | | TNM 2.5 | | | | | | | | | |
| INPUT: ROADWAYS | | | | | | | Average pavement type shall be used unless a State highway agency substantiates the use of a different type with the approval of FHWA | | | | |
| PROJECT/CONTRACT: | | 12620 | | | | | | | | | |
| RUN: | | 14800 Schulte Rd Consto- Existing w Prj | | | | | | | | | |
| Roadway Name | Width | Points Name | No. | Coordinates X | (pavement) Y | Z | Flow Control Control Device | Speed Constraint | Percent Vehicles Affected | Segment Pvmt Type | On Struct? |
| | ft | | | ft | ft | ft | | mph | % | | |
| W. Schulte Road - e. of Mtn House Pkwy | 60.0 | point36 | 36 | 1,721.8 | 5,029.1 | 150.00 | | | | Average | |
| | | point12 | 12 | 1,957.9 | 4,945.8 | 150.00 | | | | Average | |
| | | point13 | 13 | 2,173.1 | 4,945.8 | 150.00 | | | | Average | |
| | | point14 | 14 | 7,137.3 | 4,897.2 | 150.00 | | | | | |
| W. Schulte Road - e. of Hansen | 60.0 | point41 | 41 | 7,137.3 | 4,897.2 | 150.00 | | | | Average | |
| | | point15 | 15 | 11,740.5 | 4,820.8 | 150.00 | | | | Average | |
| | | point16 | 16 | 13,768.5 | 4,804.3 | 150.00 | | | | Average | |
| | | point34 | 34 | 16,279.0 | 4,769.3 | 150.00 | | | | Average | |
| | | point18 | 18 | 17,757.4 | 4,034.5 | 150.00 | | | | | |

INPUT: TRAFFIC FOR LAeq1h Volumes

12620

| Dudek M Greene | | 20 January 2021 TNM 2.5 | | | | | | | | | | |
|--|---------|---|--------|-----|---------|-----|---------|-----|--------|-----|-------------|-----|
| INPUT: TRAFFIC FOR LAeq1h Volumes | | | | | | | | | | | | |
| PROJECT/CONTRACT: | | 12620 | | | | | | | | | | |
| RUN: | | 14800 Schulte Rd Consto- Existing w Prj | | | | | | | | | | |
| Roadway | Points | | | | | | | | | | | |
| Name | Name | No. | Autos | | MTrucks | | HTrucks | | Buses | | Motorcycles | |
| | | | V | S | V | S | V | S | V | S | V | S |
| | | | veh/hr | mph | veh/hr | mph | veh/hr | mph | veh/hr | mph | veh/hr | mph |
| W. Schulte Road - e. of Mtn House Pkwy | point36 | 36 | 949 | 45 | 77 | 45 | 257 | 40 | 0 | 0 | 0 | 0 |
| | point12 | 12 | 949 | 45 | 77 | 45 | 257 | 40 | 0 | 0 | 0 | 0 |
| | point13 | 13 | 949 | 45 | 77 | 45 | 257 | 40 | 0 | 0 | 0 | 0 |
| | point14 | 14 | | | | | | | | | | |
| W. Schulte Road - e. of Hansen | point41 | 41 | 622 | 45 | 50 | 45 | 168 | 40 | 0 | 0 | 0 | 0 |
| | point15 | 15 | 622 | 45 | 50 | 45 | 168 | 40 | 0 | 0 | 0 | 0 |
| | point16 | 16 | 622 | 45 | 50 | 45 | 168 | 40 | 0 | 0 | 0 | 0 |
| | point34 | 34 | 622 | 45 | 50 | 45 | 168 | 40 | 0 | 0 | 0 | 0 |
| | point18 | 18 | | | | | | | | | | |

INPUT: RECEIVERS

12620

| Dudek M Greene | | | | | | 20 January 2021 TNM 2.5 | | | | | |
|-----------------------------|-----|---|----------------------|---------|--------|----------------------------|---------------------------------|------------------|-------------------|------------|-----------------------|
| INPUT: RECEIVERS | | | | | | | | | | | |
| PROJECT/CONTRACT: | | 12620 | | | | | | | | | |
| RUN: | | 14800 Schulte Rd Consto- Existing w Prj | | | | | | | | | |
| Receiver | | | | | | | | | | | |
| Name | No. | #DUs | Coordinates (ground) | | | Height above Ground | Input Sound Levels and Criteria | | | | Active in Calc. |
| | | | X | Y | Z | | Existing LAeq1h | Impact LAeq1h | Criteria Sub'l | NR Goal | |
| | | | ft | ft | ft | ft | dBA | dBA | dB | dB | |
| Mntn Hs Rd to Hansen @ 100' | 1 | 1 | 4,949.0 | 4,819.1 | 150.00 | 5.00 | 0.00 | 66 | 10.0 | 8.0 | Y |
| Hansen to S Lammers @ 100' | 10 | 1 | 8,404.7 | 4,776.9 | 150.00 | 5.00 | 0.00 | 66 | 10.0 | 8.0 | Y |

RESULTS: SOUND LEVELS

12620

| | | | | | | | | | | | | |
|------------------------------|------------|---|------------------------|-------------------------------------|---------------|-------------------------------|------------------|--------------------|--------------------------|-------------------|------------------------|------------------------------|
| Dudek | | 20 January 2021 | | | | | | | | | | |
| M Greene | | TNM 2.5 | | | | | | | | | | |
| | | Calculated with TNM 2.5 | | | | | | | | | | |
| RESULTS: SOUND LEVELS | | | | | | | | | | | | |
| PROJECT/CONTRACT: | | 12620 | | | | | | | | | | |
| RUN: | | 14800 Schulte Rd Consto- Existing w Prj | | | | | | | | | | |
| BARRIER DESIGN: | | INPUT HEIGHTS Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA. | | | | | | | | | | |
| ATMOSPHERICS: | | 68 deg F, 50% RH | | | | | | | | | | |
| Receiver | | | | | | | | | | | | |
| Name | No. | #DUs | Existing LAeq1h | No Barrier LAeq1h Calculated | Crit'n | Increase over existing | | Type Impact | With Barrier | | Noise Reduction | |
| | | | | | | Calculated | Crit'n | | Calculated LAeq1h | Calculated | Goal | Calculated minus Goal |
| | | | | | | | Sub'l Inc | | | | | |
| | | | dBA | dBA | dBA | dB | dB | | dBA | dB | dB | dB |
| Mntn Hs Rd to Hansen @ 100' | 1 | 1 | 0.0 | 68.9 | 66 | 68.9 | 10 | Snd Lvl | 68.9 | 0.0 | 8 | -8.0 |
| Hansen to S Lammers @ 100' | 10 | 1 | 0.0 | 67.0 | 66 | 67.0 | 10 | Snd Lvl | 67.0 | 0.0 | 8 | -8.0 |
| Dwelling Units | | # DUs | Noise Reduction | | | | | | | | | |
| | | | Min dB | Avg dB | Max dB | | | | | | | |
| All Selected | | 2 | 0.0 | 0.0 | 0.0 | | | | | | | |
| All Impacted | | 2 | 0.0 | 0.0 | 0.0 | | | | | | | |
| All that meet NR Goal | | 0 | 0.0 | 0.0 | 0.0 | | | | | | | |

INPUT: ROADWAYS

12620

| Dudek | | 20 January 2021 | | | | | | | | | |
|--|-------|---------------------------------------|-----|---------------|--------------|--------|---|------------------|---------------------------|-------------------|------------|
| M Greene | | TNM 2.5 | | | | | | | | | |
| INPUT: ROADWAYS | | | | | | | Average pavement type shall be used unless a State highway agency substantiates the use of a different type with the approval of FHWA | | | | |
| PROJECT/CONTRACT: | | 12620 | | | | | | | | | |
| RUN: | | 14800 Schulte Rd Const - Ex w Prj Typ | | | | | | | | | |
| Roadway Name | Width | Points Name | No. | Coordinates X | (pavement) Y | Z | Flow Control Device | Speed Constraint | Percent Vehicles Affected | Segment Pvmt Type | On Struct? |
| | ft | | | ft | ft | ft | | mph | % | | |
| W. Schulte Road - e. of Mtn House Pkwy | 60.0 | point36 | 36 | 1,721.8 | 5,029.1 | 150.00 | | | | Average | |
| | | point12 | 12 | 1,957.9 | 4,945.8 | 150.00 | | | | Average | |
| | | point13 | 13 | 2,173.1 | 4,945.8 | 150.00 | | | | Average | |
| | | point14 | 14 | 7,137.3 | 4,897.2 | 150.00 | | | | | |
| W. Schulte Road - e. of Hansen | 60.0 | point41 | 41 | 7,137.3 | 4,897.2 | 150.00 | | | | Average | |
| | | point15 | 15 | 11,740.5 | 4,820.8 | 150.00 | | | | Average | |
| | | point16 | 16 | 13,768.5 | 4,804.3 | 150.00 | | | | Average | |
| | | point34 | 34 | 16,279.0 | 4,769.3 | 150.00 | | | | Average | |
| | | point18 | 18 | 17,757.4 | 4,034.5 | 150.00 | | | | | |

INPUT: TRAFFIC FOR LAeq1h Volumes

12620

| Dudek M Greene | | 20 January 2021 TNM 2.5 | | | | | | | | | | |
|--|---------|---------------------------------------|---------|-----|---------|-----|---------|-----|--------|-----|-------------|-----|
| INPUT: TRAFFIC FOR LAeq1h Volumes | | | | | | | | | | | | |
| PROJECT/CONTRACT: | | 12620 | | | | | | | | | | |
| RUN: | | 14800 Schulte Rd Const - Ex w Prj Typ | | | | | | | | | | |
| Roadway | Points | | | | | | | | | | | |
| Name | Name | No. | Segment | | MTrucks | | HTrucks | | Buses | | Motorcycles | |
| | | | V | S | V | S | V | S | V | S | V | S |
| | | | veh/hr | mph | veh/hr | mph | veh/hr | mph | veh/hr | mph | veh/hr | mph |
| W. Schulte Road - e. of Mtn House Pkwy | point36 | 36 | 979 | 45 | 77 | 45 | 266 | 40 | 0 | 0 | 0 | 0 |
| | point12 | 12 | 979 | 45 | 77 | 45 | 266 | 40 | 0 | 0 | 0 | 0 |
| | point13 | 13 | 979 | 45 | 77 | 45 | 266 | 40 | 0 | 0 | 0 | 0 |
| | point14 | 14 | | | | | | | | | | |
| W. Schulte Road - e. of Hansen | point41 | 41 | 652 | 45 | 50 | 45 | 177 | 40 | 0 | 0 | 0 | 0 |
| | point15 | 15 | 652 | 45 | 50 | 45 | 177 | 40 | 0 | 0 | 0 | 0 |
| | point16 | 16 | 652 | 45 | 50 | 45 | 177 | 40 | 0 | 0 | 0 | 0 |
| | point34 | 34 | 652 | 45 | 50 | 45 | 177 | 40 | 0 | 0 | 0 | 0 |
| | point18 | 18 | | | | | | | | | | |

INPUT: RECEIVERS

12620

| Dudek M Greene | | | | | | 20 January 2021 TNM 2.5 | | | | | |
|-----------------------------|-----|---------------------------------------|----------------------|---------|--------|----------------------------|---------------------------------|------------------|-------------------|------------|-----------------------|
| INPUT: RECEIVERS | | | | | | | | | | | |
| PROJECT/CONTRACT: | | 12620 | | | | | | | | | |
| RUN: | | 14800 Schulte Rd Const - Ex w Prj Typ | | | | | | | | | |
| Receiver | | | | | | | | | | | |
| Name | No. | #DUs | Coordinates (ground) | | | Height above Ground | Input Sound Levels and Criteria | | | | Active in Calc. |
| | | | X | Y | Z | | Existing LAeq1h | Impact LAeq1h | Criteria Sub'l | NR Goal | |
| | | | ft | ft | ft | ft | dB | dB | dB | dB | |
| Mntn Hs Rd to Hansen @ 100' | 1 | 1 | 4,949.0 | 4,819.1 | 150.00 | 5.00 | 0.00 | 66 | 10.0 | 8.0 | Y |
| Hansen to S Lammers @ 100' | 10 | 1 | 8,404.7 | 4,776.9 | 150.00 | 5.00 | 0.00 | 66 | 10.0 | 8.0 | Y |

RESULTS: SOUND LEVELS

12620

| | | | | | | | | | | | | |
|------------------------------|------------|---|------------------------|-------------------------------------|---------------|--|---------------|--------------------|---------------------------------------|--|----|------------------------------|
| Dudek | | 20 January 2021 | | | | | | | | | | |
| M Greene | | TNM 2.5 | | | | | | | | | | |
| | | Calculated with TNM 2.5 | | | | | | | | | | |
| RESULTS: SOUND LEVELS | | | | | | | | | | | | |
| PROJECT/CONTRACT: | | 12620 | | | | | | | | | | |
| RUN: | | 14800 Schulte Rd Const - Ex w Prj Typ | | | | | | | | | | |
| BARRIER DESIGN: | | INPUT HEIGHTS Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA. | | | | | | | | | | |
| ATMOSPHERICS: | | 68 deg F, 50% RH | | | | | | | | | | |
| Receiver | | | | | | | | | | | | |
| Name | No. | #DUs | Existing LAeq1h | No Barrier LAeq1h Calculated | Crit'n | Increase over existing Calculated | Crit'n | Type Impact | With Barrier Calculated LAeq1h | Noise Reduction Calculated Goal | | Calculated minus Goal |
| | | | dB | dB | dB | dB | dB | | dB | dB | dB | dB |
| Mntn Hs Rd to Hansen @ 100' | 1 | 1 | 0.0 | 69.0 | 66 | 69.0 | 10 | Snd Lvl | 69.0 | 0.0 | 8 | -8.0 |
| Hansen to S Lammers @ 100' | 10 | 1 | 0.0 | 67.2 | 66 | 67.2 | 10 | Snd Lvl | 67.2 | 0.0 | 8 | -8.0 |
| Dwelling Units | | # DUs | Noise Reduction | | | | | | | | | |
| | | | Min dB | Avg dB | Max dB | | | | | | | |
| All Selected | | 2 | 0.0 | 0.0 | 0.0 | | | | | | | |
| All Impacted | | 2 | 0.0 | 0.0 | 0.0 | | | | | | | |
| All that meet NR Goal | | 0 | 0.0 | 0.0 | 0.0 | | | | | | | |

INPUT: ROADWAYS

12620

| Dudek | | 20 January 2021 | | | | | | | | | |
|--|-------|--|-----|---------------|--------------|--------|---|------------------|---------------------------|-------------------|------------|
| M Greene | | TNM 2.5 | | | | | | | | | |
| INPUT: ROADWAYS | | | | | | | Average pavement type shall be used unless a State highway agency substantiates the use of a different type with the approval of FHWA | | | | |
| PROJECT/CONTRACT: | | 12620 | | | | | | | | | |
| RUN: | | 14800 Schulte Rd Const - Ex w Prj Peak | | | | | | | | | |
| Roadway Name | Width | Points Name | No. | Coordinates X | (pavement) Y | Z | Flow Control Control Device | Speed Constraint | Percent Vehicles Affected | Segment Pvmt Type | On Struct? |
| | ft | | | ft | ft | ft | | mph | % | | |
| W. Schulte Road - e. of Mtn House Pkwy | 60.0 | point36 | 36 | 1,721.8 | 5,029.1 | 150.00 | | | | Average | |
| | | point12 | 12 | 1,957.9 | 4,945.8 | 150.00 | | | | Average | |
| | | point13 | 13 | 2,173.1 | 4,945.8 | 150.00 | | | | Average | |
| | | point14 | 14 | 7,137.3 | 4,897.2 | 150.00 | | | | | |
| W. Schulte Road - e. of Hansen | 60.0 | point41 | 41 | 7,137.3 | 4,897.2 | 150.00 | | | | Average | |
| | | point15 | 15 | 11,740.5 | 4,820.8 | 150.00 | | | | Average | |
| | | point16 | 16 | 13,768.5 | 4,804.3 | 150.00 | | | | Average | |
| | | point34 | 34 | 16,279.0 | 4,769.3 | 150.00 | | | | Average | |
| | | point18 | 18 | 17,757.4 | 4,034.5 | 150.00 | | | | | |

INPUT: TRAFFIC FOR LAeq1h Volumes

12620

| Dudek | | 20 January 2021 | | | | | | | | | | |
|--|---------|--|---------|----|---------|-----|---------|-----|--------|-----|-------------|-----|
| M Greene | | TNM 2.5 | | | | | | | | | | |
| INPUT: TRAFFIC FOR LAeq1h Volumes | | | | | | | | | | | | |
| PROJECT/CONTRACT: | | 12620 | | | | | | | | | | |
| RUN: | | 14800 Schulte Rd Const - Ex w Prj Peak | | | | | | | | | | |
| Roadway | Points | | | | | | | | | | | |
| Name | Name | No. | Segment | | MTrucks | | HTrucks | | Buses | | Motorcycles | |
| | | | V | S | V | S | V | S | V | S | V | S |
| | | | Autos | | veh/hr | mph | veh/hr | mph | veh/hr | mph | veh/hr | mph |
| W. Schulte Road - e. of Mtn House Pkwy | point36 | 36 | 1049 | 45 | 77 | 45 | 277 | 40 | 0 | 0 | 0 | 0 |
| | point12 | 12 | 1049 | 45 | 77 | 45 | 277 | 40 | 0 | 0 | 0 | 0 |
| | point13 | 13 | 1049 | 45 | 77 | 45 | 277 | 40 | 0 | 0 | 0 | 0 |
| | point14 | 14 | | | | | | | | | | |
| W. Schulte Road - e. of Hansen | point41 | 41 | 722 | 45 | 50 | 45 | 188 | 40 | 0 | 0 | 0 | 0 |
| | point15 | 15 | 722 | 45 | 50 | 45 | 188 | 40 | 0 | 0 | 0 | 0 |
| | point16 | 16 | 722 | 45 | 50 | 45 | 188 | 40 | 0 | 0 | 0 | 0 |
| | point34 | 34 | 722 | 45 | 50 | 45 | 188 | 40 | 0 | 0 | 0 | 0 |
| | point18 | 18 | | | | | | | | | | |

INPUT: RECEIVERS

12620

| Dudek M Greene | | | | | | 20 January 2021 TNM 2.5 | | | | | |
|-----------------------------|-----|--|----------------------|---------|--------|----------------------------|---------------------------------|------------------|-------------------|------------|-----------------------|
| INPUT: RECEIVERS | | | | | | | | | | | |
| PROJECT/CONTRACT: | | 12620 | | | | | | | | | |
| RUN: | | 14800 Schulte Rd Const - Ex w Prj Peak | | | | | | | | | |
| Receiver | | | | | | | | | | | |
| Name | No. | #DUs | Coordinates (ground) | | | Height above Ground | Input Sound Levels and Criteria | | | | Active in Calc. |
| | | | X | Y | Z | | Existing LAeq1h | Impact LAeq1h | Criteria Sub'l | NR Goal | |
| | | | ft | ft | ft | ft | dB | dB | dB | dB | |
| Mntn Hs Rd to Hansen @ 100' | 1 | 1 | 4,949.0 | 4,819.1 | 150.00 | 5.00 | 0.00 | 66 | 10.0 | 8.0 | Y |
| Hansen to S Lammers @ 100' | 10 | 1 | 8,404.7 | 4,776.9 | 150.00 | 5.00 | 0.00 | 66 | 10.0 | 8.0 | Y |

RESULTS: SOUND LEVELS

12620

| | | | | | | | | | | | | |
|------------------------------|------------|---|------------------------|-------------------------------------|---------------|--|---------------|--------------------|---------------------------------------|--|----|------------------------------|
| Dudek | | 20 January 2021 | | | | | | | | | | |
| M Greene | | TNM 2.5 | | | | | | | | | | |
| | | Calculated with TNM 2.5 | | | | | | | | | | |
| RESULTS: SOUND LEVELS | | | | | | | | | | | | |
| PROJECT/CONTRACT: | | 12620 | | | | | | | | | | |
| RUN: | | 14800 Schulte Rd Const - Ex w Prj Peak | | | | | | | | | | |
| BARRIER DESIGN: | | INPUT HEIGHTS Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA. | | | | | | | | | | |
| ATMOSPHERICS: | | 68 deg F, 50% RH | | | | | | | | | | |
| Receiver | | | | | | | | | | | | |
| Name | No. | #DUs | Existing LAeq1h | No Barrier LAeq1h Calculated | Crit'n | Increase over existing Calculated | Crit'n | Type Impact | With Barrier Calculated LAeq1h | Noise Reduction Calculated Goal | | Calculated minus Goal |
| | | | dB | dB | dB | dB | dB | | dB | dB | dB | dB |
| Mntn Hs Rd to Hansen @ 100' | 1 | 1 | 0.0 | 69.2 | 66 | 69.2 | 10 | Snd Lvl | 69.2 | 0.0 | 8 | -8.0 |
| Hansen to S Lammers @ 100' | 10 | 1 | 0.0 | 67.5 | 66 | 67.5 | 10 | Snd Lvl | 67.5 | 0.0 | 8 | -8.0 |
| Dwelling Units | | # DUs | Noise Reduction | | | | | | | | | |
| | | | Min dB | Avg dB | Max dB | | | | | | | |
| All Selected | | 2 | 0.0 | 0.0 | 0.0 | | | | | | | |
| All Impacted | | 2 | 0.0 | 0.0 | 0.0 | | | | | | | |
| All that meet NR Goal | | 0 | 0.0 | 0.0 | 0.0 | | | | | | | |

INPUT: ROADWAYS

12620

| Dudek | | | | | 20 January 2021 | | | | | | |
|--|-------|-------------|-----|-----------------------------|---|--------|--------------------------------|---------------------|---------------------------------|-------------------------|---------------|
| M Greene | | | | | TNM 2.5 | | | | | | |
| INPUT: ROADWAYS | | | | | Average pavement type shall be used unless | | | | | | |
| PROJECT/CONTRACT: 12620 | | | | | a State highway agency substantiates the use | | | | | | |
| RUN: 14800 Schulte Road - Existing | | | | | of a different type with the approval of FHWA | | | | | | |
| Roadway Name | Width | Points Name | No. | Coordinates (pavement) X | Y | Z | Flow Control Control Device | Speed Constraint | Percent Vehicles Affected | Segment Pvmt Type | On Struct? |
| | ft | | | ft | ft | ft | | mph | % | | |
| Mountain House Pkwy | 60.0 | point1 | 1 | 812.3 | 4,283.4 | 150.00 | | | | Average | |
| | | point3 | 3 | 1,569.1 | 4,845.8 | 150.00 | | | | Average | |
| | | point4 | 4 | 1,638.5 | 4,977.7 | 150.00 | | | | Average | |
| | | point5 | 5 | 1,666.3 | 5,081.9 | 150.00 | | | | Average | |
| | | point6 | 6 | 1,756.6 | 5,262.4 | 150.00 | | | | Average | |
| | | point7 | 7 | 1,770.4 | 6,137.2 | 150.00 | | | | Average | |
| | | point8 | 8 | 1,826.0 | 9,094.8 | 150.00 | | | | Average | |
| | | point9 | 9 | 1,812.1 | 12,413.6 | 150.00 | | | | Average | |
| | | point10 | 10 | 1,812.1 | 13,357.8 | 150.00 | | | | | |
| South Lammers Rd - south of Schulte Rd | 60.0 | point30 | 30 | 17,880.3 | 799.7 | 150.00 | | | | Average | |
| | | point25 | 25 | 17,784.1 | 4,080.1 | 150.00 | | | | | |
| W. Schulte Road - e. of Mtn House Pkwy | 60.0 | point36 | 36 | 1,721.8 | 5,029.1 | 150.00 | | | | Average | |
| | | point12 | 12 | 1,957.9 | 4,945.8 | 150.00 | | | | Average | |
| | | point13 | 13 | 2,173.1 | 4,945.8 | 150.00 | | | | Average | |
| | | point14 | 14 | 7,137.3 | 4,897.2 | 150.00 | | | | | |
| Hansen Road - south of Schulte Road | 60.0 | point38 | 38 | 7,109.7 | 2,450.4 | 150.00 | | | | Average | |
| | | point20 | 20 | 7,125.4 | 4,887.9 | 150.00 | | | | | |
| Hansen Road - north of Schulte Road | 60.0 | point42 | 42 | 7,126.3 | 4,910.1 | 150.00 | | | | Average | |
| | | point22 | 22 | 7,135.9 | 9,028.6 | 150.00 | | | | Average | |
| | | point23 | 23 | 7,149.8 | 12,854.3 | 150.00 | | | | | |
| South Lammers Rd - north of Schulte Rd | 60.0 | point44 | 44 | 17,784.1 | 4,080.1 | 150.00 | | | | Average | |
| | | point26 | 26 | 17,679.1 | 12,862.7 | 150.00 | | | | | |
| W. Schulte Road - e. of Hansen | 60.0 | point41 | 41 | 7,137.3 | 4,897.2 | 150.00 | | | | Average | |
| | | point15 | 15 | 11,740.5 | 4,820.8 | 150.00 | | | | Average | |
| | | point16 | 16 | 13,768.5 | 4,804.3 | 150.00 | | | | Average | |

INPUT: ROADWAYS

12620

| | | | | | | | | | | | |
|--|--|---------|----|----------|---------|--------|--|--|--|---------|--|
| | | point34 | 34 | 16,279.0 | 4,769.3 | 150.00 | | | | Average | |
| | | point18 | 18 | 17,757.4 | 4,034.5 | 150.00 | | | | | |

INPUT: TRAFFIC FOR LAeq1h Percentages**12620**

| | | | | | | | | | | | | | |
|--|---------|----|-----|----|----|---|----|----|----|---|---|---|---|
| | point15 | 15 | 696 | 74 | 45 | 6 | 45 | 20 | 40 | 0 | 0 | 0 | 0 |
| | point16 | 16 | 696 | 74 | 45 | 6 | 45 | 20 | 40 | 0 | 0 | 0 | 0 |
| | point34 | 34 | 696 | 74 | 45 | 6 | 45 | 20 | 40 | 0 | 0 | 0 | 0 |
| | point18 | 18 | | | | | | | | | | | |

INPUT: RECEIVERS

12620

| Dudek M Greene | | | | | | 20 January 2021 TNM 2.5 | | | | | |
|--------------------------|-----|--------------------------------------|----------------------|----------|--------|----------------------------|---------------------------------|------------------|-------------------|------------|-----------------------|
| INPUT: RECEIVERS | | | | | | | | | | | |
| PROJECT/CONTRACT: | | 12620 | | | | | | | | | |
| RUN: | | 14800 Schulte Road - Existing | | | | | | | | | |
| Receiver | | | | | | | | | | | |
| Name | No. | #DUs | Coordinates (ground) | | | Height above Ground | Input Sound Levels and Criteria | | | | Active in Calc. |
| | | | X | Y | Z | | Existing LAeq1h | Impact LAeq1h | Criteria Sub'l | NR Goal | |
| | | | ft | ft | ft | ft | dBA | dBA | dB | dB | |
| ST1 | 1 | 1 | 6,808.7 | 4,756.4 | 150.00 | 5.00 | 0.00 | 66 | 10.0 | 8.0 | Y |
| ST2 | 2 | 1 | 7,320.7 | 3,923.7 | 150.00 | 5.00 | 0.00 | 66 | 10.0 | 8.0 | Y |
| ST3 | 3 | 1 | 17,394.7 | 4,647.5 | 150.00 | 5.00 | 0.00 | 66 | 10.0 | 8.0 | Y |
| ST4 | 4 | 1 | 18,151.2 | 3,162.8 | 150.00 | 5.00 | 0.00 | 66 | 10.0 | 8.0 | Y |
| ST5 | 5 | 1 | 7,207.4 | 10,376.3 | 150.00 | 5.00 | 0.00 | 66 | 10.0 | 8.0 | Y |
| ST6 | 6 | 1 | 1,585.7 | 7,903.6 | 150.00 | 5.00 | 0.00 | 66 | 10.0 | 8.0 | Y |

| Dudek M Greene | | | | | | | | | 20 January 2021 TNM 2.5 | | | | | | | | | |
|--|------|--------|-------|--------------------------|--------------------------|-----------|----------|----------------------------|----------------------------|-----|----------------------|---------|--------|-----------------|---------|----------|----|-----------|
| INPUT: BARRIERS PROJECT/CONTRACT: 12620 RUN: 14800 Schulte Road - Existing | | | | | | | | | | | | | | | | | | |
| Barrier Name | Type | Height | | If Wall \$ per Unit Area | If Berm \$ per Unit Vol. | Top Width | Run:Rise | Add'tnl \$ per Unit Length | Points Name | No. | Coordinates (bottom) | | | Height at Point | Segment | Perturbs | On | Important |
| | | Min | Max | | | | | | | | X | Y | Z | | | | | |
| | | ft | ft | \$/sq ft | \$/cu yd | ft | ft:ft | \$/ft | ft | | | ft | ft | ft | ft | | | |
| Barrier1 | W | 0.00 | 99.99 | 0.00 | | | | 0.00 | point1 | 1 | 7,351.3 | 9,412.2 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | | point3 | 3 | 7,356.8 | 9,880.6 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | | point4 | 4 | 9,395.8 | 9,853.0 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | | point5 | 5 | 9,401.3 | 9,379.1 | 150.00 | 30.00 | | | | |
| Barrier1-2-2 | W | 0.00 | 99.99 | 0.00 | | | | 0.00 | point57 | 57 | 2,029.5 | 6,857.6 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | | point38 | 38 | 2,047.0 | 5,248.0 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | | point39 | 39 | 2,711.8 | 5,265.5 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | | point40 | 40 | 2,746.8 | 6,910.1 | 150.00 | 30.00 | | | | |
| Barrier1-2-2-2-2 | W | 0.00 | 99.99 | 0.00 | | | | 0.00 | point59 | 59 | 7,243.2 | 5,055.6 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | | point42 | 42 | 8,397.9 | 5,038.1 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | | point43 | 43 | 8,380.4 | 5,353.0 | 150.00 | 30.00 | | | | |
| Barrier1-2-2-2-2-2-2 | W | 0.00 | 99.99 | 0.00 | | | | 0.00 | point61 | 61 | 9,798.1 | 6,287.2 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | | point50 | 50 | 10,426.4 | 6,298.2 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | | point51 | 51 | 10,404.3 | 7,587.7 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | | point52 | 52 | 9,787.1 | 7,576.7 | 150.00 | 30.00 | | | | |
| Barrier1-2-2-2-2-2-2-2-2 | W | 0.00 | 99.99 | 0.00 | | | | 0.00 | point63 | 63 | 12,618.5 | 3,267.0 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | | point54 | 54 | 12,971.2 | 3,267.0 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | | point55 | 55 | 12,949.2 | 4,683.3 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | | point2 | 2 | 12,591.0 | 4,677.8 | 150.00 | 30.00 | | | | |
| Barrier1-2-2 | W | 0.00 | 99.99 | 0.00 | | | | 0.00 | point65 | 65 | 804.8 | 7,452.5 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | | point29 | 29 | 962.3 | 7,085.1 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | | point30 | 30 | 787.3 | 6,927.6 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | | point31 | 31 | 1,049.7 | 6,367.8 | 150.00 | 30.00 | | | | |
| Barrier1-2-2 | W | 0.00 | 99.99 | 0.00 | | | | 0.00 | point67 | 67 | 3,356.0 | 8,513.9 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | | point11 | 11 | 4,485.8 | 7,847.1 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | | point12 | 12 | 4,700.7 | 8,227.4 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | | point13 | 13 | 4,651.1 | 8,398.2 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | | point14 | 14 | 3,708.7 | 8,910.7 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | | point15 | 15 | 3,532.4 | 8,833.5 | 150.00 | 30.00 | | | | |
| Barrier1-2-2-2-2 | W | 0.00 | 99.99 | 0.00 | | | | 0.00 | point69 | 69 | 5,576.9 | 7,136.2 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | | point18 | 18 | 5,885.5 | 7,516.4 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | | point19 | 19 | 5,251.7 | 8,051.0 | 150.00 | 30.00 | | | | |
| Barrier1-2-2-2-2-2-2 | W | 0.00 | 99.99 | 0.00 | | | | 0.00 | point71 | 71 | 7,902.4 | 8,127.5 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | | point21 | 21 | 8,409.4 | 8,138.6 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | | point22 | 22 | 8,398.4 | 8,270.8 | 150.00 | 30.00 | 0.00 | 0 | 0 | |

INPUT: BARRIERS

12620

| | | | | | | | | | | | | | | | | | | |
|------------------------|---|------|-------|------|--|--|------|--|---------|----|---------|---------|--------|-------|------|---|---|--|
| | | | | | | | | | point23 | 23 | 9,236.0 | 8,248.8 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | | point24 | 24 | 9,225.0 | 7,885.1 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | | point25 | 25 | 8,541.7 | 7,874.1 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | | point26 | 26 | 8,541.7 | 7,642.6 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| Barrier1-2-2 | W | 0.00 | 99.99 | 0.00 | | | 0.00 | | point27 | 27 | 7,902.4 | 7,664.6 | 150.00 | 30.00 | | | | |
| | | | | | | | | | point73 | 73 | 5,835.9 | 9,924.7 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | | point7 | 7 | 6,910.5 | 9,924.7 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | | point8 | 8 | 6,921.5 | 9,301.9 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| Barrier1-2-2-2-2 | W | 0.00 | 99.99 | 0.00 | | | 0.00 | | point9 | 9 | 5,841.4 | 9,313.0 | 150.00 | 30.00 | | | | |
| | | | | | | | | | point74 | 74 | 4,937.6 | 7,692.8 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| Barrier1-2-2-2 | W | 0.00 | 99.99 | 0.00 | | | 0.00 | | point17 | 17 | 5,576.9 | 7,136.2 | 150.00 | 30.00 | | | | |
| | | | | | | | | | point76 | 76 | 1,049.7 | 6,367.8 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | | point32 | 32 | 559.9 | 6,122.8 | 150.00 | 30.00 | | | | |
| Barrier1-2-2-2-2 | W | 0.00 | 99.99 | 0.00 | | | 0.00 | | point77 | 77 | 1,172.2 | 7,435.0 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | | point34 | 34 | 1,557.1 | 7,435.0 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | | point35 | 35 | 1,557.1 | 5,597.9 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | | point36 | 36 | 1,154.7 | 5,597.9 | 150.00 | 30.00 | | | | |
| Barrier1-2-2-2-2-2 | W | 0.00 | 99.99 | 0.00 | | | 0.00 | | point78 | 78 | 8,380.4 | 5,353.0 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | | point44 | 44 | 7,295.6 | 5,405.5 | 150.00 | 30.00 | | | | |
| Barrier1-2-2-2-2-2-2-2 | W | 0.00 | 99.99 | 0.00 | | | 0.00 | | point80 | 80 | 7,252.2 | 5,548.7 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | | point46 | 46 | 7,990.6 | 5,526.7 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | | point47 | 47 | 7,968.6 | 5,846.3 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | | point48 | 48 | 7,274.2 | 5,846.3 | 150.00 | 30.00 | | | | |

RESULTS: SOUND LEVELS

12620

| | | | | | | | | | | | | | |
|-----------------------|---|---|-----------------|-----------------|------------------------------|--------|-----------------------------------|---------|-------------|--------------------------------|----------------------------|------|-----------------------|
| Dudek | | 20 January 2021 | | | | | | | | | | | |
| M Greene | | TNM 2.5 | | | | | | | | | | | |
| | | Calculated with TNM 2.5 | | | | | | | | | | | |
| RESULTS: SOUND LEVELS | | | | | | | | | | | | | |
| PROJECT/CONTRACT: | | 12620 | | | | | | | | | | | |
| RUN: | | 14800 Schulte Road - Existing | | | | | | | | | | | |
| BARRIER DESIGN: | | INPUT HEIGHTS Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA. | | | | | | | | | | | |
| ATMOSPHERICS: | | 68 deg F, 50% RH | | | | | | | | | | | |
| Receiver | | | | | | | | | | | | | |
| Name | | No. | #DUs | Existing LAeq1h | No Barrier LAeq1h Calculated | Crit'n | Increase over existing Calculated | Crit'n | Type Impact | With Barrier Calculated LAeq1h | Noise Reduction Calculated | Goal | Calculated minus Goal |
| | | | | dB | dB | dB | dB | dB | | dB | dB | dB | dB |
| ST1 | 1 | 1 | 0.0 | 66.1 | 66 | 66.1 | 10 | Snd Lvl | 66.1 | 0.0 | 8 | -8.0 | |
| ST2 | 2 | 1 | 0.0 | 55.2 | 66 | 55.2 | 10 | ---- | 55.2 | 0.0 | 8 | -8.0 | |
| ST3 | 3 | 1 | 0.0 | 60.0 | 66 | 60.0 | 10 | ---- | 60.0 | 0.0 | 8 | -8.0 | |
| ST4 | 4 | 1 | 0.0 | 59.1 | 66 | 59.1 | 10 | ---- | 59.1 | 0.0 | 8 | -8.0 | |
| ST5 | 5 | 1 | 0.0 | 63.6 | 66 | 63.6 | 10 | ---- | 63.6 | 0.0 | 8 | -8.0 | |
| ST6 | 6 | 1 | 0.0 | 61.9 | 66 | 61.9 | 10 | ---- | 61.9 | 0.0 | 8 | -8.0 | |
| Dwelling Units | | # DUs | Noise Reduction | | | | | | | | | | |
| | | | Min | Avg | Max | | | | | | | | |
| | | | dB | dB | dB | | | | | | | | |
| All Selected | | 6 | 0.0 | 0.0 | 0.0 | | | | | | | | |
| All Impacted | | 1 | 0.0 | 0.0 | 0.0 | | | | | | | | |
| All that meet NR Goal | | 0 | 0.0 | 0.0 | 0.0 | | | | | | | | |

INPUT: ROADWAYS

12620

| Dudek | | | | | 20 January 2021 | | | | | | |
|--|-------|-------------|-----|-----------------------------|---|--------|--------------------------------|---------------------|---------------------------------|-------------------------|---------------|
| M Greene | | | | | TNM 2.5 | | | | | | |
| INPUT: ROADWAYS | | | | | Average pavement type shall be used unless | | | | | | |
| PROJECT/CONTRACT: 12620 | | | | | a State highway agency substantiates the use | | | | | | |
| RUN: 14800 Schulte Road - Existing w Project | | | | | of a different type with the approval of FHWA | | | | | | |
| Roadway Name | Width | Points Name | No. | Coordinates (pavement) X | Y | Z | Flow Control Control Device | Speed Constraint | Percent Vehicles Affected | Segment Pvmt Type | On Struct? |
| | ft | | | ft | ft | ft | | mph | % | | |
| Mountain House Pkwy | 60.0 | point1 | 1 | 812.3 | 4,283.4 | 150.00 | | | | Average | |
| | | point3 | 3 | 1,569.1 | 4,845.8 | 150.00 | | | | Average | |
| | | point4 | 4 | 1,638.5 | 4,977.7 | 150.00 | | | | Average | |
| | | point5 | 5 | 1,666.3 | 5,081.9 | 150.00 | | | | Average | |
| | | point6 | 6 | 1,756.6 | 5,262.4 | 150.00 | | | | Average | |
| | | point7 | 7 | 1,770.4 | 6,137.2 | 150.00 | | | | Average | |
| | | point8 | 8 | 1,826.0 | 9,094.8 | 150.00 | | | | Average | |
| | | point9 | 9 | 1,812.1 | 12,413.6 | 150.00 | | | | Average | |
| | | point10 | 10 | 1,812.1 | 13,357.8 | 150.00 | | | | | |
| South Lammers Rd - south of Schulte Rd | 60.0 | point30 | 30 | 17,880.3 | 799.7 | 150.00 | | | | Average | |
| | | point25 | 25 | 17,784.1 | 4,080.1 | 150.00 | | | | | |
| W. Schulte Road - e. of Mtn House Pkwy | 60.0 | point36 | 36 | 1,721.8 | 5,029.1 | 150.00 | | | | Average | |
| | | point12 | 12 | 1,957.9 | 4,945.8 | 150.00 | | | | Average | |
| | | point13 | 13 | 2,173.1 | 4,945.8 | 150.00 | | | | Average | |
| | | point14 | 14 | 7,137.3 | 4,897.2 | 150.00 | | | | | |
| Hansen Road - south of Schulte Road | 60.0 | point38 | 38 | 7,109.7 | 2,450.4 | 150.00 | | | | Average | |
| | | point20 | 20 | 7,125.4 | 4,887.9 | 150.00 | | | | | |
| Hansen Road - north of Schulte Road | 60.0 | point42 | 42 | 7,126.3 | 4,910.1 | 150.00 | | | | Average | |
| | | point22 | 22 | 7,135.9 | 9,028.6 | 150.00 | | | | Average | |
| | | point23 | 23 | 7,149.8 | 12,854.3 | 150.00 | | | | | |
| South Lammers Rd - north of Schulte Rd | 60.0 | point44 | 44 | 17,784.1 | 4,080.1 | 150.00 | | | | Average | |
| | | point26 | 26 | 17,679.1 | 12,862.7 | 150.00 | | | | | |
| W. Schulte Road - e. of Hansen | 60.0 | point41 | 41 | 7,137.3 | 4,897.2 | 150.00 | | | | Average | |
| | | point15 | 15 | 11,740.5 | 4,820.8 | 150.00 | | | | Average | |
| | | point16 | 16 | 13,768.5 | 4,804.3 | 150.00 | | | | Average | |

INPUT: ROADWAYS**12620**

| | | | | | | | | | | | |
|--|--|---------|----|----------|---------|--------|--|--|--|---------|--|
| | | point34 | 34 | 16,279.0 | 4,769.3 | 150.00 | | | | Average | |
| | | point18 | 18 | 17,757.4 | 4,034.5 | 150.00 | | | | | |

INPUT: TRAFFIC FOR LAeq1h Percentages**12620**

| | | | | | | | | | | | | | |
|--|---------|----|-----|----|----|---|----|----|----|---|---|---|---|
| | point15 | 15 | 852 | 74 | 45 | 6 | 45 | 20 | 40 | 0 | 0 | 0 | 0 |
| | point16 | 16 | 852 | 74 | 45 | 6 | 45 | 20 | 40 | 0 | 0 | 0 | 0 |
| | point34 | 34 | 852 | 74 | 45 | 6 | 45 | 20 | 40 | 0 | 0 | 0 | 0 |
| | point18 | 18 | | | | | | | | | | | |

INPUT: RECEIVERS

12620

| Dudek M Greene | | | | | | 20 January 2021 TNM 2.5 | | | | | |
|--------------------------|-----|---|----------------------|----------|--------|----------------------------|---------------------------------|------------------|-------------------|------------|-----------------------|
| INPUT: RECEIVERS | | | | | | | | | | | |
| PROJECT/CONTRACT: | | 12620 | | | | | | | | | |
| RUN: | | 14800 Schulte Road - Existing w Project | | | | | | | | | |
| Receiver | | | | | | | | | | | |
| Name | No. | #DUs | Coordinates (ground) | | | Height above Ground | Input Sound Levels and Criteria | | | | Active in Calc. |
| | | | X | Y | Z | | Existing LAeq1h | Impact LAeq1h | Criteria Sub'l | NR Goal | |
| | | | ft | ft | ft | ft | dBA | dBA | dB | dB | |
| ST1 | 1 | 1 | 6,808.7 | 4,756.4 | 150.00 | 5.00 | 0.00 | 66 | 10.0 | 8.0 | Y |
| ST2 | 2 | 1 | 7,320.7 | 3,923.6 | 150.00 | 5.00 | 0.00 | 66 | 10.0 | 8.0 | Y |
| ST3 | 3 | 1 | 17,394.7 | 4,647.5 | 150.00 | 5.00 | 0.00 | 66 | 10.0 | 8.0 | Y |
| ST4 | 4 | 1 | 18,151.2 | 3,162.8 | 150.00 | 5.00 | 0.00 | 66 | 10.0 | 8.0 | Y |
| ST5 | 5 | 1 | 7,207.4 | 10,376.3 | 150.00 | 5.00 | 0.00 | 66 | 10.0 | 8.0 | Y |
| ST6 | 6 | 1 | 1,585.7 | 7,903.6 | 150.00 | 5.00 | 0.00 | 66 | 10.0 | 8.0 | Y |

| Dudek M Greene | | | | | | | | | 20 January 2021 TNM 2.5 | | | | | | | | | |
|--|------|--------|-------|--------------------------|--------------------------|-----------|----------|----------------------------|----------------------------|-----|----------------------|---------|--------|-----------------|----------------|------------------|------------|-------------------------|
| INPUT: BARRIERS PROJECT/CONTRACT: 12620 RUN: 14800 Schulte Road - Existing w Project | | | | | | | | | | | | | | | | | | |
| Barrier Name | Type | Height | | If Wall \$ per Unit Area | If Berm \$ per Unit Vol. | Top Width | Run:Rise | Add'tnl \$ per Unit Length | Points Name | No. | Coordinates (bottom) | | | Height at Point | Segment Seg Ht | Perturbs #Up #Dn | On Struct? | Important Reflec-tions? |
| | | Min | Max | | | | | | | | X | Y | Z | | | | | |
| | | ft | ft | \$/sq ft | \$/cu yd | ft | ft:ft | \$/ft | | | ft | ft | ft | ft | ft | | | |
| Barrier1 | W | 0.00 | 99.99 | 0.00 | | | | 0.00 | point1 | 1 | 7,351.3 | 9,412.2 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | | point3 | 3 | 7,356.8 | 9,880.6 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | | point4 | 4 | 9,395.8 | 9,853.0 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | | point5 | 5 | 9,401.3 | 9,379.1 | 150.00 | 30.00 | | | | |
| Barrier1-2-2 | W | 0.00 | 99.99 | 0.00 | | | | 0.00 | point57 | 57 | 2,029.5 | 6,857.6 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | | point38 | 38 | 2,047.0 | 5,248.0 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | | point39 | 39 | 2,711.8 | 5,265.5 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | | point40 | 40 | 2,746.8 | 6,910.1 | 150.00 | 30.00 | | | | |
| Barrier1-2-2-2-2 | W | 0.00 | 99.99 | 0.00 | | | | 0.00 | point59 | 59 | 7,243.2 | 5,055.6 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | | point42 | 42 | 8,397.9 | 5,038.1 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | | point43 | 43 | 8,380.4 | 5,353.0 | 150.00 | 30.00 | | | | |
| Barrier1-2-2-2-2-2-2 | W | 0.00 | 99.99 | 0.00 | | | | 0.00 | point61 | 61 | 9,798.1 | 6,287.2 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | | point50 | 50 | 10,426.4 | 6,298.2 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | | point51 | 51 | 10,404.3 | 7,587.7 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | | point52 | 52 | 9,787.1 | 7,576.7 | 150.00 | 30.00 | | | | |
| Barrier1-2-2-2-2-2-2-2-2 | W | 0.00 | 99.99 | 0.00 | | | | 0.00 | point63 | 63 | 12,618.5 | 3,267.0 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | | point54 | 54 | 12,971.2 | 3,267.0 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | | point55 | 55 | 12,949.2 | 4,683.3 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | | point2 | 2 | 12,591.0 | 4,677.8 | 150.00 | 30.00 | | | | |
| Barrier1-2-2 | W | 0.00 | 99.99 | 0.00 | | | | 0.00 | point65 | 65 | 804.8 | 7,452.5 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | | point29 | 29 | 962.3 | 7,085.1 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | | point30 | 30 | 787.3 | 6,927.6 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | | point31 | 31 | 1,049.7 | 6,367.8 | 150.00 | 30.00 | | | | |
| Barrier1-2-2 | W | 0.00 | 99.99 | 0.00 | | | | 0.00 | point67 | 67 | 3,356.0 | 8,513.9 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | | point11 | 11 | 4,485.8 | 7,847.1 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | | point12 | 12 | 4,700.7 | 8,227.4 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | | point13 | 13 | 4,651.1 | 8,398.2 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | | point14 | 14 | 3,708.7 | 8,910.7 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | | point15 | 15 | 3,532.4 | 8,833.5 | 150.00 | 30.00 | | | | |
| Barrier1-2-2-2-2 | W | 0.00 | 99.99 | 0.00 | | | | 0.00 | point69 | 69 | 5,576.9 | 7,136.2 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | | point18 | 18 | 5,885.5 | 7,516.4 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | | point19 | 19 | 5,251.7 | 8,051.0 | 150.00 | 30.00 | | | | |
| Barrier1-2-2-2-2-2-2 | W | 0.00 | 99.99 | 0.00 | | | | 0.00 | point71 | 71 | 7,902.4 | 8,127.5 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | | point21 | 21 | 8,409.4 | 8,138.6 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | | point22 | 22 | 8,398.4 | 8,270.8 | 150.00 | 30.00 | 0.00 | 0 | 0 | |

INPUT: BARRIERS

12620

| | | | | | | | | | | | | | | | | | | |
|------------------------|---|------|-------|------|--|--|------|--|---------|----|---------|---------|--------|-------|------|---|---|--|
| | | | | | | | | | point23 | 23 | 9,236.0 | 8,248.8 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | | point24 | 24 | 9,225.0 | 7,885.1 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | | point25 | 25 | 8,541.7 | 7,874.1 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | | point26 | 26 | 8,541.7 | 7,642.6 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| Barrier1-2-2 | W | 0.00 | 99.99 | 0.00 | | | 0.00 | | point27 | 27 | 7,902.4 | 7,664.6 | 150.00 | 30.00 | | | | |
| | | | | | | | | | point73 | 73 | 5,835.9 | 9,924.7 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | | point7 | 7 | 6,910.5 | 9,924.7 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | | point8 | 8 | 6,921.5 | 9,301.9 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| Barrier1-2-2-2-2 | W | 0.00 | 99.99 | 0.00 | | | 0.00 | | point9 | 9 | 5,841.4 | 9,313.0 | 150.00 | 30.00 | | | | |
| | | | | | | | | | point74 | 74 | 4,937.6 | 7,692.8 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| Barrier1-2-2-2 | W | 0.00 | 99.99 | 0.00 | | | 0.00 | | point17 | 17 | 5,576.9 | 7,136.2 | 150.00 | 30.00 | | | | |
| | | | | | | | | | point76 | 76 | 1,049.7 | 6,367.8 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | | point32 | 32 | 559.9 | 6,122.8 | 150.00 | 30.00 | | | | |
| Barrier1-2-2-2-2 | W | 0.00 | 99.99 | 0.00 | | | 0.00 | | point77 | 77 | 1,172.2 | 7,435.0 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | | point34 | 34 | 1,557.1 | 7,435.0 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | | point35 | 35 | 1,557.1 | 5,597.9 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | | point36 | 36 | 1,154.7 | 5,597.9 | 150.00 | 30.00 | | | | |
| Barrier1-2-2-2-2-2 | W | 0.00 | 99.99 | 0.00 | | | 0.00 | | point78 | 78 | 8,380.4 | 5,353.0 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | | point44 | 44 | 7,295.6 | 5,405.5 | 150.00 | 30.00 | | | | |
| Barrier1-2-2-2-2-2-2-2 | W | 0.00 | 99.99 | 0.00 | | | 0.00 | | point80 | 80 | 7,252.2 | 5,548.7 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | | point46 | 46 | 7,990.6 | 5,526.7 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | | point47 | 47 | 7,968.6 | 5,846.3 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | | point48 | 48 | 7,274.2 | 5,846.3 | 150.00 | 30.00 | | | | |

RESULTS: SOUND LEVELS

12620

| | | | | | | | | | | | | |
|-----------------------|---|---|-----------------|-----------------|-------------------|--------|------------------------|---------|--------------|-----------------|------------|------------|
| Dudek | | 20 January 2021 | | | | | | | | | | |
| M Greene | | TNM 2.5 | | | | | | | | | | |
| | | Calculated with TNM 2.5 | | | | | | | | | | |
| RESULTS: SOUND LEVELS | | | | | | | | | | | | |
| PROJECT/CONTRACT: | | 12620 | | | | | | | | | | |
| RUN: | | 14800 Schulte Road - Existing w Project | | | | | | | | | | |
| BARRIER DESIGN: | | INPUT HEIGHTS Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA. | | | | | | | | | | |
| ATMOSPHERICS: | | 68 deg F, 50% RH | | | | | | | | | | |
| Receiver | | | | | | | | | | | | |
| Name | | No. | #DUs | Existing LAeq1h | No Barrier LAeq1h | Crit'n | Increase over existing | Type | With Barrier | Noise Reduction | Calculated | Calculated |
| | | | | dB | dB | dB | Calculated | Impact | Calculated | Calculated | Goal | Calculated |
| | | | | | | | Sub'l Inc | | | | | minus |
| | | | | | | | | | | | | Goal |
| | | | | dB | dB | dB | dB | | dB | dB | dB | dB |
| ST1 | 1 | 1 | 0.0 | 66.2 | 66 | 66.2 | 10 | Snd Lvl | 66.2 | 0.0 | 8 | -8.0 |
| ST2 | 2 | 1 | 0.0 | 55.3 | 66 | 55.3 | 10 | ---- | 55.3 | 0.0 | 8 | -8.0 |
| ST3 | 3 | 1 | 0.0 | 60.4 | 66 | 60.4 | 10 | ---- | 60.4 | 0.0 | 8 | -8.0 |
| ST4 | 4 | 1 | 0.0 | 59.2 | 66 | 59.2 | 10 | ---- | 59.2 | 0.0 | 8 | -8.0 |
| ST5 | 5 | 1 | 0.0 | 64.3 | 66 | 64.3 | 10 | ---- | 64.3 | 0.0 | 8 | -8.0 |
| ST6 | 6 | 1 | 0.0 | 62.1 | 66 | 62.1 | 10 | ---- | 62.1 | 0.0 | 8 | -8.0 |
| Dwelling Units | | # DUs | Noise Reduction | | | | | | | | | |
| | | | Min | Avg | Max | | | | | | | |
| | | | dB | dB | dB | | | | | | | |
| All Selected | | 6 | 0.0 | 0.0 | 0.0 | | | | | | | |
| All Impacted | | 1 | 0.0 | 0.0 | 0.0 | | | | | | | |
| All that meet NR Goal | | 0 | 0.0 | 0.0 | 0.0 | | | | | | | |

INPUT: ROADWAYS

12620

| Dudek | | | | | 20 January 2021 | | | | | | |
|--|-------|-------------|-----|-----------------------------|---|--------|--------------------------------|---------------------|---------------------------------|-------------------------|---------------|
| M Greene | | | | | TNM 2.5 | | | | | | |
| INPUT: ROADWAYS | | | | | Average pavement type shall be used unless | | | | | | |
| PROJECT/CONTRACT: 12620 | | | | | a State highway agency substantiates the use | | | | | | |
| RUN: 14800 Schulte Road - Future | | | | | of a different type with the approval of FHWA | | | | | | |
| Roadway Name | Width | Points Name | No. | Coordinates (pavement) X | Y | Z | Flow Control Control Device | Speed Constraint | Percent Vehicles Affected | Segment Pvmt Type | On Struct? |
| | ft | | | ft | ft | ft | | mph | % | | |
| Mountain House Pkwy | 60.0 | point1 | 1 | 812.3 | 4,283.4 | 150.00 | | | | Average | |
| | | point3 | 3 | 1,569.1 | 4,845.8 | 150.00 | | | | Average | |
| | | point4 | 4 | 1,638.5 | 4,977.7 | 150.00 | | | | Average | |
| | | point5 | 5 | 1,666.3 | 5,081.9 | 150.00 | | | | Average | |
| | | point6 | 6 | 1,756.6 | 5,262.4 | 150.00 | | | | Average | |
| | | point7 | 7 | 1,770.4 | 6,137.2 | 150.00 | | | | Average | |
| | | point8 | 8 | 1,826.0 | 9,094.8 | 150.00 | | | | Average | |
| | | point9 | 9 | 1,812.1 | 12,413.6 | 150.00 | | | | Average | |
| | | point10 | 10 | 1,812.1 | 13,357.8 | 150.00 | | | | | |
| South Lammers Rd - south of Schulte Rd | 60.0 | point30 | 30 | 17,880.3 | 799.7 | 150.00 | | | | Average | |
| | | point25 | 25 | 17,784.1 | 4,080.1 | 150.00 | | | | | |
| W. Schulte Road - e. of Mtn House Pkwy | 60.0 | point36 | 36 | 1,721.8 | 5,029.1 | 150.00 | | | | Average | |
| | | point12 | 12 | 1,957.9 | 4,945.8 | 150.00 | | | | Average | |
| | | point13 | 13 | 2,173.1 | 4,945.8 | 150.00 | | | | Average | |
| | | point14 | 14 | 7,137.3 | 4,897.2 | 150.00 | | | | | |
| Hansen Road - south of Schulte Road | 60.0 | point38 | 38 | 7,109.7 | 2,450.4 | 150.00 | | | | Average | |
| | | point20 | 20 | 7,125.4 | 4,887.9 | 150.00 | | | | | |
| Hansen Road - north of Schulte Road | 60.0 | point42 | 42 | 7,126.3 | 4,910.1 | 150.00 | | | | Average | |
| | | point22 | 22 | 7,135.9 | 9,028.6 | 150.00 | | | | Average | |
| | | point23 | 23 | 7,149.8 | 12,854.3 | 150.00 | | | | | |
| South Lammers Rd - north of Schulte Rd | 60.0 | point44 | 44 | 17,784.1 | 4,080.1 | 150.00 | | | | Average | |
| | | point26 | 26 | 17,679.1 | 12,862.7 | 150.00 | | | | | |
| W. Schulte Road - e. of Hansen | 60.0 | point41 | 41 | 7,137.3 | 4,897.2 | 150.00 | | | | Average | |
| | | point15 | 15 | 11,740.5 | 4,820.8 | 150.00 | | | | Average | |
| | | point16 | 16 | 13,768.5 | 4,804.3 | 150.00 | | | | Average | |

INPUT: ROADWAYS

12620

| | | | | | | | | | | | |
|--|--|---------|----|----------|---------|--------|--|--|--|---------|--|
| | | point34 | 34 | 16,279.0 | 4,769.3 | 150.00 | | | | Average | |
| | | point18 | 18 | 17,757.4 | 4,034.5 | 150.00 | | | | | |

INPUT: TRAFFIC FOR LAeq1h Percentages**12620**

| | | | | | | | | | | | | | |
|--|---------|----|-----|----|----|---|----|----|----|---|---|---|---|
| | point15 | 15 | 933 | 74 | 45 | 6 | 45 | 20 | 40 | 0 | 0 | 0 | 0 |
| | point16 | 16 | 933 | 74 | 45 | 6 | 45 | 20 | 40 | 0 | 0 | 0 | 0 |
| | point34 | 34 | 933 | 74 | 45 | 6 | 45 | 20 | 40 | 0 | 0 | 0 | 0 |
| | point18 | 18 | | | | | | | | | | | |

INPUT: RECEIVERS

12620

| Dudek M Greene | | | | | | 20 January 2021 TNM 2.5 | | | | | |
|--------------------------|-----|-----------------------------|----------------------|----------|--------|---------------------------------|---------------------|---------------------|-----------------|--------|-------|
| INPUT: RECEIVERS | | | | | | | | | | | |
| PROJECT/CONTRACT: | | 12620 | | | | | | | | | |
| RUN: | | 14800 Schulte Road - Future | | | | | | | | | |
| Receiver | | | | | | | | | | | |
| Name | No. | #DUs | Coordinates (ground) | | Height | Input Sound Levels and Criteria | | | | Active | |
| | | | X | Y | | Z | above | Existing | Impact Criteria | | NR |
| | | | | | | Ground | L _{Aeq} 1h | L _{Aeq} 1h | Sub'l | Goal | Calc. |
| | | | ft | ft | ft | ft | dBA | dBA | dB | dB | |
| ST1 | 1 | 1 | 6,808.7 | 4,756.4 | 150.00 | 5.00 | 0.00 | 66 | 10.0 | 8.0 | Y |
| ST2 | 2 | 1 | 7,320.7 | 3,923.6 | 150.00 | 5.00 | 0.00 | 66 | 10.0 | 8.0 | Y |
| ST3 | 3 | 1 | 17,394.7 | 4,647.5 | 150.00 | 5.00 | 0.00 | 66 | 10.0 | 8.0 | Y |
| ST4 | 4 | 1 | 18,151.2 | 3,162.8 | 150.00 | 5.00 | 0.00 | 66 | 10.0 | 8.0 | Y |
| ST5 | 5 | 1 | 7,207.4 | 10,376.3 | 150.00 | 5.00 | 0.00 | 66 | 10.0 | 8.0 | Y |
| ST6 | 6 | 1 | 1,585.7 | 7,903.6 | 150.00 | 5.00 | 0.00 | 66 | 10.0 | 8.0 | Y |

| Dudek M Greene | | | | | | | | | 20 January 2021 TNM 2.5 | | | | | | | | |
|--|------|--------|-------|----------|----------|-------|----------|--------|----------------------------|----------------------|----------|---------|--------|---------|----------|---------|-----------|
| INPUT: BARRIERS PROJECT/CONTRACT: 12620 RUN: 14800 Schulte Road - Future | | | | | | | | | | | | | | | | | |
| Barrier | | | | | | | | | Points | | | | | | | | |
| Name | Type | Height | | If Wall | If Berm | | Add'tnl | Name | No. | Coordinates (bottom) | | | Height | Segment | | | |
| | | Min | Max | \$ per | \$ per | Top | Run:Rise | \$ per | X | Y | Z | at | Seg | Ht | Perturbs | On | Important |
| | | ft | ft | \$/sq ft | \$/cu yd | ft | ft:ft | \$/ft | ft | ft | ft | ft | ft | ft | | | |
| | | | | Unit | Unit | Width | | Unit | | | | Point | Incre- | #Up | #Dn | Struct? | Reflec- |
| | | | | Area | Vol. | | | Length | | | | | ment | | | | tions? |
| Barrier1 | W | 0.00 | 99.99 | 0.00 | | | | 0.00 | point1 | 1 | 7,351.3 | 9,412.2 | 150.00 | 30.00 | 0.00 | 0 | 0 |
| | | | | | | | | | point3 | 3 | 7,356.8 | 9,880.6 | 150.00 | 30.00 | 0.00 | 0 | 0 |
| | | | | | | | | | point4 | 4 | 9,395.8 | 9,853.0 | 150.00 | 30.00 | 0.00 | 0 | 0 |
| | | | | | | | | | point5 | 5 | 9,401.3 | 9,379.1 | 150.00 | 30.00 | | | |
| Barrier1-2-2 | W | 0.00 | 99.99 | 0.00 | | | | 0.00 | point57 | 57 | 2,029.5 | 6,857.6 | 150.00 | 30.00 | 0.00 | 0 | 0 |
| | | | | | | | | | point38 | 38 | 2,047.0 | 5,248.0 | 150.00 | 30.00 | 0.00 | 0 | 0 |
| | | | | | | | | | point39 | 39 | 2,711.8 | 5,265.5 | 150.00 | 30.00 | 0.00 | 0 | 0 |
| | | | | | | | | | point40 | 40 | 2,746.8 | 6,910.1 | 150.00 | 30.00 | | | |
| Barrier1-2-2-2-2 | W | 0.00 | 99.99 | 0.00 | | | | 0.00 | point59 | 59 | 7,243.2 | 5,055.6 | 150.00 | 30.00 | 0.00 | 0 | 0 |
| | | | | | | | | | point42 | 42 | 8,397.9 | 5,038.1 | 150.00 | 30.00 | 0.00 | 0 | 0 |
| | | | | | | | | | point43 | 43 | 8,380.4 | 5,353.0 | 150.00 | 30.00 | | | |
| Barrier1-2-2-2-2-2 | W | 0.00 | 99.99 | 0.00 | | | | 0.00 | point61 | 61 | 9,798.1 | 6,287.2 | 150.00 | 30.00 | 0.00 | 0 | 0 |
| | | | | | | | | | point50 | 50 | 10,426.4 | 6,298.2 | 150.00 | 30.00 | 0.00 | 0 | 0 |
| | | | | | | | | | point51 | 51 | 10,404.3 | 7,587.7 | 150.00 | 30.00 | 0.00 | 0 | 0 |
| | | | | | | | | | point52 | 52 | 9,787.1 | 7,576.7 | 150.00 | 30.00 | | | |
| Barrier1-2-2-2-2-2-2-2 | W | 0.00 | 99.99 | 0.00 | | | | 0.00 | point63 | 63 | 12,618.5 | 3,267.0 | 150.00 | 30.00 | 0.00 | 0 | 0 |
| | | | | | | | | | point54 | 54 | 12,971.2 | 3,267.0 | 150.00 | 30.00 | 0.00 | 0 | 0 |
| | | | | | | | | | point55 | 55 | 12,949.2 | 4,683.3 | 150.00 | 30.00 | 0.00 | 0 | 0 |
| | | | | | | | | | point2 | 2 | 12,591.0 | 4,677.8 | 150.00 | 30.00 | | | |
| Barrier1-2-2 | W | 0.00 | 99.99 | 0.00 | | | | 0.00 | point65 | 65 | 804.8 | 7,452.5 | 150.00 | 30.00 | 0.00 | 0 | 0 |
| | | | | | | | | | point29 | 29 | 962.3 | 7,085.1 | 150.00 | 30.00 | 0.00 | 0 | 0 |
| | | | | | | | | | point30 | 30 | 787.3 | 6,927.6 | 150.00 | 30.00 | 0.00 | 0 | 0 |
| | | | | | | | | | point31 | 31 | 1,049.7 | 6,367.8 | 150.00 | 30.00 | | | |
| Barrier1-2-2 | W | 0.00 | 99.99 | 0.00 | | | | 0.00 | point67 | 67 | 3,356.0 | 8,513.9 | 150.00 | 30.00 | 0.00 | 0 | 0 |
| | | | | | | | | | point11 | 11 | 4,485.8 | 7,847.1 | 150.00 | 30.00 | 0.00 | 0 | 0 |
| | | | | | | | | | point12 | 12 | 4,700.7 | 8,227.4 | 150.00 | 30.00 | 0.00 | 0 | 0 |
| | | | | | | | | | point13 | 13 | 4,651.1 | 8,398.2 | 150.00 | 30.00 | 0.00 | 0 | 0 |
| | | | | | | | | | point14 | 14 | 3,708.7 | 8,910.7 | 150.00 | 30.00 | 0.00 | 0 | 0 |
| | | | | | | | | | point15 | 15 | 3,532.4 | 8,833.5 | 150.00 | 30.00 | | | |
| Barrier1-2-2-2-2 | W | 0.00 | 99.99 | 0.00 | | | | 0.00 | point69 | 69 | 5,576.9 | 7,136.2 | 150.00 | 30.00 | 0.00 | 0 | 0 |
| | | | | | | | | | point18 | 18 | 5,885.5 | 7,516.4 | 150.00 | 30.00 | 0.00 | 0 | 0 |
| | | | | | | | | | point19 | 19 | 5,251.7 | 8,051.0 | 150.00 | 30.00 | | | |
| Barrier1-2-2-2-2-2-2 | W | 0.00 | 99.99 | 0.00 | | | | 0.00 | point71 | 71 | 7,902.4 | 8,127.5 | 150.00 | 30.00 | 0.00 | 0 | 0 |
| | | | | | | | | | point21 | 21 | 8,409.4 | 8,138.6 | 150.00 | 30.00 | 0.00 | 0 | 0 |
| | | | | | | | | | point22 | 22 | 8,398.4 | 8,270.8 | 150.00 | 30.00 | 0.00 | 0 | 0 |

INPUT: BARRIERS

12620

| | | | | | | | | | | | | | | | | | |
|------------------------|---|------|-------|------|--|--|------|---------|----|---------|---------|--------|-------|------|---|---|--|
| | | | | | | | | point23 | 23 | 9,236.0 | 8,248.8 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | point24 | 24 | 9,225.0 | 7,885.1 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | point25 | 25 | 8,541.7 | 7,874.1 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | point26 | 26 | 8,541.7 | 7,642.6 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| Barrier1-2-2 | W | 0.00 | 99.99 | 0.00 | | | 0.00 | point27 | 27 | 7,902.4 | 7,664.6 | 150.00 | 30.00 | | | | |
| | | | | | | | | point73 | 73 | 5,835.9 | 9,924.7 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | point7 | 7 | 6,910.5 | 9,924.7 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | point8 | 8 | 6,921.5 | 9,301.9 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| Barrier1-2-2-2-2 | W | 0.00 | 99.99 | 0.00 | | | 0.00 | point9 | 9 | 5,841.4 | 9,313.0 | 150.00 | 30.00 | | | | |
| | | | | | | | | point74 | 74 | 4,937.6 | 7,692.8 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| Barrier1-2-2-2 | W | 0.00 | 99.99 | 0.00 | | | 0.00 | point17 | 17 | 5,576.9 | 7,136.2 | 150.00 | 30.00 | | | | |
| | | | | | | | | point76 | 76 | 1,049.7 | 6,367.8 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | point32 | 32 | 559.9 | 6,122.8 | 150.00 | 30.00 | | | | |
| Barrier1-2-2-2-2 | W | 0.00 | 99.99 | 0.00 | | | 0.00 | point77 | 77 | 1,172.2 | 7,435.0 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | point34 | 34 | 1,557.1 | 7,435.0 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | point35 | 35 | 1,557.1 | 5,597.9 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | point36 | 36 | 1,154.7 | 5,597.9 | 150.00 | 30.00 | | | | |
| Barrier1-2-2-2-2-2 | W | 0.00 | 99.99 | 0.00 | | | 0.00 | point78 | 78 | 8,380.4 | 5,353.0 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | point44 | 44 | 7,295.6 | 5,405.5 | 150.00 | 30.00 | | | | |
| Barrier1-2-2-2-2-2-2-2 | W | 0.00 | 99.99 | 0.00 | | | 0.00 | point80 | 80 | 7,252.2 | 5,548.7 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | point46 | 46 | 7,990.6 | 5,526.7 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | point47 | 47 | 7,968.6 | 5,846.3 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | point48 | 48 | 7,274.2 | 5,846.3 | 150.00 | 30.00 | | | | |

RESULTS: SOUND LEVELS

12620

| | | | | | | | | | | | | | |
|-----------------------|---|-----------------------------|-----------------|--------------------|------------------------------------|--------|--------------------------------------|---------------------|----------------|--------------------------------------|-------------------------------|------|-----------------------------|
| Dudek | | 20 January 2021 | | | | | | | | | | | |
| M Greene | | TNM 2.5 | | | | | | | | | | | |
| | | Calculated with TNM 2.5 | | | | | | | | | | | |
| RESULTS: SOUND LEVELS | | | | | | | | | | | | | |
| PROJECT/CONTRACT: | | 12620 | | | | | | | | | | | |
| RUN: | | 14800 Schulte Road - Future | | | | | | | | | | | |
| BARRIER DESIGN: | | INPUT HEIGHTS | | | | | | | | | | | |
| ATMOSPHERICS: | | 68 deg F, 50% RH | | | | | | | | | | | |
| Receiver | | | | | | | | | | | | | |
| Name | | No. | #DUs | Existing LAeq1h | No Barrier LAeq1h Calculated | Crit'n | Increase over existing Calculated | Crit'n Sub'l Inc | Type Impact | With Barrier Calculated LAeq1h | Noise Reduction Calculated | Goal | Calculated minus Goal |
| | | | | dBA | dBA | dBA | dB | dB | | dBA | dB | dB | dB |
| ST1 | 1 | 1 | 0.0 | 69.1 | 66 | 69.1 | 10 | Snd Lvl | 69.1 | 0.0 | 8 | -8.0 | |
| ST2 | 2 | 1 | 0.0 | 62.2 | 66 | 62.2 | 10 | ---- | 62.2 | 0.0 | 8 | -8.0 | |
| ST3 | 3 | 1 | 0.0 | 61.3 | 66 | 61.3 | 10 | ---- | 61.3 | 0.0 | 8 | -8.0 | |
| ST4 | 4 | 1 | 0.0 | 61.1 | 66 | 61.1 | 10 | ---- | 61.1 | 0.0 | 8 | -8.0 | |
| ST5 | 5 | 1 | 0.0 | 69.2 | 66 | 69.2 | 10 | Snd Lvl | 69.2 | 0.0 | 8 | -8.0 | |
| ST6 | 6 | 1 | 0.0 | 64.6 | 66 | 64.6 | 10 | ---- | 64.6 | 0.0 | 8 | -8.0 | |
| Dwelling Units | | # DUs | Noise Reduction | | | | | | | | | | |
| | | | Min | Avg | Max | | | | | | | | |
| | | | dB | dB | dB | | | | | | | | |
| All Selected | | 6 | 0.0 | 0.0 | 0.0 | | | | | | | | |
| All Impacted | | 2 | 0.0 | 0.0 | 0.0 | | | | | | | | |
| All that meet NR Goal | | 0 | 0.0 | 0.0 | 0.0 | | | | | | | | |

INPUT: ROADWAYS

12620

| Dudek | | | | | 20 January 2021 | | | | | | |
|---|-------|-------------|-----|-----------------------------|---|--------|--------------------------------|---------------------|---------------------------------|-------------------------|---------------|
| M Greene | | | | | TNM 2.5 | | | | | | |
| INPUT: ROADWAYS | | | | | Average pavement type shall be used unless | | | | | | |
| PROJECT/CONTRACT: 12620 | | | | | a State highway agency substantiates the use | | | | | | |
| RUN: 14800 Schulte Road - Future w Proj | | | | | of a different type with the approval of FHWA | | | | | | |
| Roadway Name | Width | Points Name | No. | Coordinates (pavement) X | Y | Z | Flow Control Control Device | Speed Constraint | Percent Vehicles Affected | Segment Pvmt Type | On Struct? |
| | ft | | | ft | ft | ft | | mph | % | | |
| Mountain House Pkwy | 60.0 | point1 | 1 | 812.3 | 4,283.4 | 150.00 | | | | Average | |
| | | point3 | 3 | 1,569.1 | 4,845.8 | 150.00 | | | | Average | |
| | | point4 | 4 | 1,638.5 | 4,977.7 | 150.00 | | | | Average | |
| | | point5 | 5 | 1,666.3 | 5,081.9 | 150.00 | | | | Average | |
| | | point6 | 6 | 1,756.6 | 5,262.4 | 150.00 | | | | Average | |
| | | point7 | 7 | 1,770.4 | 6,137.2 | 150.00 | | | | Average | |
| | | point8 | 8 | 1,826.0 | 9,094.8 | 150.00 | | | | Average | |
| | | point9 | 9 | 1,812.1 | 12,413.6 | 150.00 | | | | Average | |
| | | point10 | 10 | 1,812.1 | 13,357.8 | 150.00 | | | | | |
| South Lammers Rd - south of Schulte Rd | 60.0 | point30 | 30 | 17,880.3 | 799.7 | 150.00 | | | | Average | |
| | | point25 | 25 | 17,784.1 | 4,080.1 | 150.00 | | | | | |
| W. Schulte Road - e. of Mtn House Pkwy | 60.0 | point36 | 36 | 1,721.8 | 5,029.1 | 150.00 | | | | Average | |
| | | point12 | 12 | 1,957.9 | 4,945.8 | 150.00 | | | | Average | |
| | | point13 | 13 | 2,173.1 | 4,945.8 | 150.00 | | | | Average | |
| | | point14 | 14 | 7,137.3 | 4,897.2 | 150.00 | | | | | |
| Hansen Road - south of Schulte Road | 60.0 | point38 | 38 | 7,109.7 | 2,450.4 | 150.00 | | | | Average | |
| | | point20 | 20 | 7,125.4 | 4,887.9 | 150.00 | | | | | |
| Hansen Road - north of Schulte Road | 60.0 | point42 | 42 | 7,126.3 | 4,910.1 | 150.00 | | | | Average | |
| | | point22 | 22 | 7,135.9 | 9,028.6 | 150.00 | | | | Average | |
| | | point23 | 23 | 7,149.8 | 12,854.3 | 150.00 | | | | | |
| South Lammers Rd - north of Schulte Rd | 60.0 | point44 | 44 | 17,784.1 | 4,080.1 | 150.00 | | | | Average | |
| | | point26 | 26 | 17,679.1 | 12,862.7 | 150.00 | | | | | |
| W. Schulte Road - e. of Hansen | 60.0 | point41 | 41 | 7,137.3 | 4,897.2 | 150.00 | | | | Average | |
| | | point15 | 15 | 11,740.5 | 4,820.8 | 150.00 | | | | Average | |
| | | point16 | 16 | 13,768.5 | 4,804.3 | 150.00 | | | | Average | |

INPUT: ROADWAYS**12620**

| | | | | | | | | | | | | |
|--|--|---------|----|----------|---------|--------|--|--|--|--|---------|--|
| | | point34 | 34 | 16,279.0 | 4,769.3 | 150.00 | | | | | Average | |
| | | point18 | 18 | 17,757.4 | 4,034.5 | 150.00 | | | | | | |

INPUT: TRAFFIC FOR LAeq1h Percentages**12620**

| | | | | | | | | | | | | | |
|--|---------|----|------|----|----|---|----|----|----|---|---|---|---|
| | point15 | 15 | 1089 | 74 | 45 | 6 | 45 | 20 | 40 | 0 | 0 | 0 | 0 |
| | point16 | 16 | 1089 | 74 | 45 | 6 | 45 | 20 | 40 | 0 | 0 | 0 | 0 |
| | point34 | 34 | 1089 | 74 | 45 | 6 | 45 | 20 | 40 | 0 | 0 | 0 | 0 |
| | point18 | 18 | | | | | | | | | | | |

INPUT: RECEIVERS

12620

| Dudek M Greene | | | | | | 20 January 2021 TNM 2.5 | | | | | |
|--------------------------|-----|------------------------------------|----------------------|----------|--------|----------------------------|---------------------------------|------------------|-------------------|------------|-----------------------|
| INPUT: RECEIVERS | | | | | | | | | | | |
| PROJECT/CONTRACT: | | 12620 | | | | | | | | | |
| RUN: | | 14800 Schulte Road - Future w Proj | | | | | | | | | |
| Receiver | | | | | | | | | | | |
| Name | No. | #DUs | Coordinates (ground) | | | Height above Ground | Input Sound Levels and Criteria | | | | Active in Calc. |
| | | | X | Y | Z | | Existing LAeq1h | Impact LAeq1h | Criteria Sub'l | NR Goal | |
| | | | ft | ft | ft | ft | dBA | dBA | dB | dB | |
| ST1 | 1 | 1 | 6,808.7 | 4,756.4 | 150.00 | 5.00 | 0.00 | 66 | 10.0 | 8.0 | Y |
| ST2 | 2 | 1 | 7,320.7 | 3,923.6 | 150.00 | 5.00 | 0.00 | 66 | 10.0 | 8.0 | Y |
| ST3 | 3 | 1 | 17,394.7 | 4,647.5 | 150.00 | 5.00 | 0.00 | 66 | 10.0 | 8.0 | Y |
| ST4 | 4 | 1 | 18,151.2 | 3,162.8 | 150.00 | 5.00 | 0.00 | 66 | 10.0 | 8.0 | Y |
| ST5 | 5 | 1 | 7,207.4 | 10,376.3 | 150.00 | 5.00 | 0.00 | 66 | 10.0 | 8.0 | Y |
| ST6 | 6 | 1 | 1,585.7 | 7,903.6 | 150.00 | 5.00 | 0.00 | 66 | 10.0 | 8.0 | Y |

| Dudek M Greene | | | | | | | | | 20 January 2021 TNM 2.5 | | | | | | | | |
|---|------|--------|-------|--------------------------|--------------------------|-----------|----------|----------------------------|----------------------------|-----|----------------------|---------|--------|-----------------|---------|----|-----------|
| INPUT: BARRIERS PROJECT/CONTRACT: 12620 RUN: 14800 Schulte Road - Future w Proj | | | | | | | | | | | | | | | | | |
| Barrier Name | Type | Height | | If Wall \$ per Unit Area | If Berm \$ per Unit Vol. | Top Width | Run:Rise | Add'tnl \$ per Unit Length | Points Name | No. | Coordinates (bottom) | | | Height at Point | Segment | On | Important |
| | | Min | Max | | | | | | | | X | Y | Z | | | | |
| | | ft | ft | \$/sq ft | \$/cu yd | ft | ft:ft | \$/ft | | | ft | ft | ft | ft | ft | | |
| Barrier1 | W | 0.00 | 99.99 | 0.00 | | | | 0.00 | point1 | 1 | 7,351.3 | 9,412.2 | 150.00 | 30.00 | 0.00 | 0 | 0 |
| | | | | | | | | | point3 | 3 | 7,356.8 | 9,880.6 | 150.00 | 30.00 | 0.00 | 0 | 0 |
| | | | | | | | | | point4 | 4 | 9,395.8 | 9,853.0 | 150.00 | 30.00 | 0.00 | 0 | 0 |
| | | | | | | | | | point5 | 5 | 9,401.3 | 9,379.1 | 150.00 | 30.00 | | | |
| Barrier1-2-2 | W | 0.00 | 99.99 | 0.00 | | | | 0.00 | point57 | 57 | 2,029.5 | 6,857.6 | 150.00 | 30.00 | 0.00 | 0 | 0 |
| | | | | | | | | | point38 | 38 | 2,047.0 | 5,248.0 | 150.00 | 30.00 | 0.00 | 0 | 0 |
| | | | | | | | | | point39 | 39 | 2,711.8 | 5,265.5 | 150.00 | 30.00 | 0.00 | 0 | 0 |
| | | | | | | | | | point40 | 40 | 2,746.8 | 6,910.1 | 150.00 | 30.00 | | | |
| Barrier1-2-2-2-2 | W | 0.00 | 99.99 | 0.00 | | | | 0.00 | point59 | 59 | 7,243.2 | 5,055.6 | 150.00 | 30.00 | 0.00 | 0 | 0 |
| | | | | | | | | | point42 | 42 | 8,397.9 | 5,038.1 | 150.00 | 30.00 | 0.00 | 0 | 0 |
| | | | | | | | | | point43 | 43 | 8,380.4 | 5,353.0 | 150.00 | 30.00 | | | |
| Barrier1-2-2-2-2-2-2 | W | 0.00 | 99.99 | 0.00 | | | | 0.00 | point61 | 61 | 9,798.1 | 6,287.2 | 150.00 | 30.00 | 0.00 | 0 | 0 |
| | | | | | | | | | point50 | 50 | 10,426.4 | 6,298.2 | 150.00 | 30.00 | 0.00 | 0 | 0 |
| | | | | | | | | | point51 | 51 | 10,404.3 | 7,587.7 | 150.00 | 30.00 | 0.00 | 0 | 0 |
| | | | | | | | | | point52 | 52 | 9,787.1 | 7,576.7 | 150.00 | 30.00 | | | |
| Barrier1-2-2-2-2-2-2-2-2 | W | 0.00 | 99.99 | 0.00 | | | | 0.00 | point63 | 63 | 12,618.5 | 3,267.0 | 150.00 | 30.00 | 0.00 | 0 | 0 |
| | | | | | | | | | point54 | 54 | 12,971.2 | 3,267.0 | 150.00 | 30.00 | 0.00 | 0 | 0 |
| | | | | | | | | | point55 | 55 | 12,949.2 | 4,683.3 | 150.00 | 30.00 | 0.00 | 0 | 0 |
| | | | | | | | | | point2 | 2 | 12,591.0 | 4,677.8 | 150.00 | 30.00 | | | |
| Barrier1-2-2 | W | 0.00 | 99.99 | 0.00 | | | | 0.00 | point65 | 65 | 804.8 | 7,452.5 | 150.00 | 30.00 | 0.00 | 0 | 0 |
| | | | | | | | | | point29 | 29 | 962.3 | 7,085.1 | 150.00 | 30.00 | 0.00 | 0 | 0 |
| | | | | | | | | | point30 | 30 | 787.3 | 6,927.6 | 150.00 | 30.00 | 0.00 | 0 | 0 |
| | | | | | | | | | point31 | 31 | 1,049.7 | 6,367.8 | 150.00 | 30.00 | | | |
| Barrier1-2-2 | W | 0.00 | 99.99 | 0.00 | | | | 0.00 | point67 | 67 | 3,356.0 | 8,513.9 | 150.00 | 30.00 | 0.00 | 0 | 0 |
| | | | | | | | | | point11 | 11 | 4,485.8 | 7,847.1 | 150.00 | 30.00 | 0.00 | 0 | 0 |
| | | | | | | | | | point12 | 12 | 4,700.7 | 8,227.4 | 150.00 | 30.00 | 0.00 | 0 | 0 |
| | | | | | | | | | point13 | 13 | 4,651.1 | 8,398.2 | 150.00 | 30.00 | 0.00 | 0 | 0 |
| | | | | | | | | | point14 | 14 | 3,708.7 | 8,910.7 | 150.00 | 30.00 | 0.00 | 0 | 0 |
| | | | | | | | | | point15 | 15 | 3,532.4 | 8,833.5 | 150.00 | 30.00 | | | |
| Barrier1-2-2-2-2 | W | 0.00 | 99.99 | 0.00 | | | | 0.00 | point69 | 69 | 5,576.9 | 7,136.2 | 150.00 | 30.00 | 0.00 | 0 | 0 |
| | | | | | | | | | point18 | 18 | 5,885.5 | 7,516.4 | 150.00 | 30.00 | 0.00 | 0 | 0 |
| | | | | | | | | | point19 | 19 | 5,251.7 | 8,051.0 | 150.00 | 30.00 | | | |
| Barrier1-2-2-2-2-2-2 | W | 0.00 | 99.99 | 0.00 | | | | 0.00 | point71 | 71 | 7,902.4 | 8,127.5 | 150.00 | 30.00 | 0.00 | 0 | 0 |
| | | | | | | | | | point21 | 21 | 8,409.4 | 8,138.6 | 150.00 | 30.00 | 0.00 | 0 | 0 |
| | | | | | | | | | point22 | 22 | 8,398.4 | 8,270.8 | 150.00 | 30.00 | 0.00 | 0 | 0 |

INPUT: BARRIERS

12620

| | | | | | | | | | | | | | | | | | |
|------------------------|---|------|-------|------|--|--|------|---------|----|---------|---------|--------|-------|------|---|---|--|
| | | | | | | | | point23 | 23 | 9,236.0 | 8,248.8 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | point24 | 24 | 9,225.0 | 7,885.1 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | point25 | 25 | 8,541.7 | 7,874.1 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | point26 | 26 | 8,541.7 | 7,642.6 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| Barrier1-2-2 | W | 0.00 | 99.99 | 0.00 | | | 0.00 | point27 | 27 | 7,902.4 | 7,664.6 | 150.00 | 30.00 | | | | |
| | | | | | | | | point73 | 73 | 5,835.9 | 9,924.7 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | point7 | 7 | 6,910.5 | 9,924.7 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | point8 | 8 | 6,921.5 | 9,301.9 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| Barrier1-2-2-2-2 | W | 0.00 | 99.99 | 0.00 | | | 0.00 | point9 | 9 | 5,841.4 | 9,313.0 | 150.00 | 30.00 | | | | |
| | | | | | | | | point74 | 74 | 4,937.6 | 7,692.8 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| Barrier1-2-2-2 | W | 0.00 | 99.99 | 0.00 | | | 0.00 | point17 | 17 | 5,576.9 | 7,136.2 | 150.00 | 30.00 | | | | |
| | | | | | | | | point76 | 76 | 1,049.7 | 6,367.8 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | point32 | 32 | 559.9 | 6,122.8 | 150.00 | 30.00 | | | | |
| Barrier1-2-2-2-2 | W | 0.00 | 99.99 | 0.00 | | | 0.00 | point77 | 77 | 1,172.2 | 7,435.0 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | point34 | 34 | 1,557.1 | 7,435.0 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | point35 | 35 | 1,557.1 | 5,597.9 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | point36 | 36 | 1,154.7 | 5,597.9 | 150.00 | 30.00 | | | | |
| Barrier1-2-2-2-2-2 | W | 0.00 | 99.99 | 0.00 | | | 0.00 | point78 | 78 | 8,380.4 | 5,353.0 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | point44 | 44 | 7,295.6 | 5,405.5 | 150.00 | 30.00 | | | | |
| Barrier1-2-2-2-2-2-2-2 | W | 0.00 | 99.99 | 0.00 | | | 0.00 | point80 | 80 | 7,252.2 | 5,548.7 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | point46 | 46 | 7,990.6 | 5,526.7 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | point47 | 47 | 7,968.6 | 5,846.3 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | point48 | 48 | 7,274.2 | 5,846.3 | 150.00 | 30.00 | | | | |

RESULTS: SOUND LEVELS

12620

| Dudek | | 20 January 2021 | | | | | | | | | | | |
|-----------------------|-----|--|-----------------|------------|--------|------------------------|------------|--------------|-----------------|------------|------------|------------|-------|
| M Greene | | TNM 2.5 | | | | | | | | | | | |
| | | Calculated with TNM 2.5 | | | | | | | | | | | |
| RESULTS: SOUND LEVELS | | | | | | | | | | | | | |
| PROJECT/CONTRACT: | | 12620 | | | | | | | | | | | |
| RUN: | | 14800 Schulte Road - Future w Proj | | | | | | | | | | | |
| BARRIER DESIGN: | | INPUT HEIGHTS | | | | | | | | | | | |
| ATMOSPHERICS: | | 68 deg F, 50% RH | | | | | | | | | | | |
| Receiver | | Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA. | | | | | | | | | | | |
| Name | No. | #DUs | Existing | No Barrier | | | | With Barrier | | | | | |
| | | | LAeq1h | LAeq1h | Crit'n | Increase over existing | Type | Calculated | Noise Reduction | Calculated | Goal | Calculated | |
| | | | | Calculated | | | Calculated | Crit'n | Impact | LAeq1h | Calculated | Goal | minus |
| | | | | | | | Sub'l Inc | | | | | | Goal |
| | | | dBA | dBA | dBA | | dB | dB | | dBA | dB | dB | dB |
| ST1 | 1 | 1 | 0.0 | 69.3 | 66 | | 69.3 | 10 | Snd Lvl | 69.3 | 0.0 | 8 | -8.0 |
| ST2 | 2 | 1 | 0.0 | 62.2 | 66 | | 62.2 | 10 | ---- | 62.2 | 0.0 | 8 | -8.0 |
| ST3 | 3 | 1 | 0.0 | 61.6 | 66 | | 61.6 | 10 | ---- | 61.6 | 0.0 | 8 | -8.0 |
| ST4 | 4 | 1 | 0.0 | 61.1 | 66 | | 61.1 | 10 | ---- | 61.1 | 0.0 | 8 | -8.0 |
| ST5 | 5 | 1 | 0.0 | 69.4 | 66 | | 69.4 | 10 | Snd Lvl | 69.4 | 0.0 | 8 | -8.0 |
| ST6 | 6 | 1 | 0.0 | 64.7 | 66 | | 64.7 | 10 | ---- | 64.7 | 0.0 | 8 | -8.0 |
| Dwelling Units | | # DUs | Noise Reduction | | | | | | | | | | |
| | | | Min | Avg | Max | | | | | | | | |
| | | | dB | dB | dB | | | | | | | | |
| All Selected | | 6 | 0.0 | 0.0 | 0.0 | | | | | | | | |
| All Impacted | | 2 | 0.0 | 0.0 | 0.0 | | | | | | | | |
| All that meet NR Goal | | 0 | 0.0 | 0.0 | 0.0 | | | | | | | | |

INPUT: ROADWAYS

12620

| Dudek | | | | | 20 January 2021 | | | | | | |
|--|-------|-------------|-----|-----------------------------|---|--------|--------------------------------|---------------------|---------------------------------|-------------------------|---------------|
| M Greene | | | | | TNM 2.5 | | | | | | |
| INPUT: ROADWAYS | | | | | Average pavement type shall be used unless | | | | | | |
| PROJECT/CONTRACT: 12620 | | | | | a State highway agency substantiates the use | | | | | | |
| RUN: 14800 Schulte Road - Cumulative | | | | | of a different type with the approval of FHWA | | | | | | |
| Roadway Name | Width | Points Name | No. | Coordinates (pavement) X | Y | Z | Flow Control Control Device | Speed Constraint | Percent Vehicles Affected | Segment Pvmt Type | On Struct? |
| | ft | | | ft | ft | ft | | mph | % | | |
| Mountain House Pkwy | 60.0 | point1 | 1 | 812.3 | 4,283.4 | 150.00 | | | | Average | |
| | | point3 | 3 | 1,569.1 | 4,845.8 | 150.00 | | | | Average | |
| | | point4 | 4 | 1,638.5 | 4,977.7 | 150.00 | | | | Average | |
| | | point5 | 5 | 1,666.3 | 5,081.9 | 150.00 | | | | Average | |
| | | point6 | 6 | 1,756.6 | 5,262.4 | 150.00 | | | | Average | |
| | | point7 | 7 | 1,770.4 | 6,137.2 | 150.00 | | | | Average | |
| | | point8 | 8 | 1,826.0 | 9,094.8 | 150.00 | | | | Average | |
| | | point9 | 9 | 1,812.1 | 12,413.6 | 150.00 | | | | Average | |
| | | point10 | 10 | 1,812.1 | 13,357.8 | 150.00 | | | | | |
| South Lammers Rd - south of Schulte Rd | 60.0 | point30 | 30 | 17,880.3 | 799.7 | 150.00 | | | | Average | |
| | | point25 | 25 | 17,784.1 | 4,080.1 | 150.00 | | | | | |
| W. Schulte Road - e. of Mtn House Pkwy | 60.0 | point36 | 36 | 1,721.8 | 5,029.1 | 150.00 | | | | Average | |
| | | point12 | 12 | 1,957.9 | 4,945.8 | 150.00 | | | | Average | |
| | | point13 | 13 | 2,173.1 | 4,945.8 | 150.00 | | | | Average | |
| | | point14 | 14 | 7,137.3 | 4,897.2 | 150.00 | | | | | |
| Hansen Road - south of Schulte Road | 60.0 | point38 | 38 | 7,109.7 | 2,450.4 | 150.00 | | | | Average | |
| | | point20 | 20 | 7,125.4 | 4,887.9 | 150.00 | | | | | |
| Hansen Road - north of Schulte Road | 60.0 | point42 | 42 | 7,126.3 | 4,910.1 | 150.00 | | | | Average | |
| | | point22 | 22 | 7,135.9 | 9,028.6 | 150.00 | | | | Average | |
| | | point23 | 23 | 7,149.8 | 12,854.3 | 150.00 | | | | | |
| South Lammers Rd - north of Schulte Rd | 60.0 | point44 | 44 | 17,784.1 | 4,080.1 | 150.00 | | | | Average | |
| | | point26 | 26 | 17,679.1 | 12,862.7 | 150.00 | | | | | |
| W. Schulte Road - e. of Hansen | 60.0 | point41 | 41 | 7,137.3 | 4,897.2 | 150.00 | | | | Average | |
| | | point15 | 15 | 11,740.5 | 4,820.8 | 150.00 | | | | Average | |
| | | point16 | 16 | 13,768.5 | 4,804.3 | 150.00 | | | | Average | |

INPUT: ROADWAYS

12620

| | | | | | | | | | | | |
|--|--|---------|----|----------|---------|--------|--|--|--|---------|--|
| | | point34 | 34 | 16,279.0 | 4,769.3 | 150.00 | | | | Average | |
| | | point18 | 18 | 17,757.4 | 4,034.5 | 150.00 | | | | | |

INPUT: TRAFFIC FOR LAeq1h Percentages**12620**

| | | | | | | | | | | | | | |
|--|---------|----|------|----|----|---|----|----|----|---|---|---|---|
| | point15 | 15 | 1090 | 74 | 45 | 6 | 45 | 20 | 40 | 0 | 0 | 0 | 0 |
| | point16 | 16 | 1090 | 74 | 45 | 6 | 45 | 20 | 40 | 0 | 0 | 0 | 0 |
| | point34 | 34 | 1090 | 74 | 45 | 6 | 45 | 20 | 40 | 0 | 0 | 0 | 0 |
| | point18 | 18 | | | | | | | | | | | |

INPUT: RECEIVERS

12620

| Dudek M Greene | | | | | | 20 January 2021 TNM 2.5 | | | | | |
|--------------------------|-----|--|----------------------|----------|--------|---------------------------------|--------|----------|--------|--------|----------|
| INPUT: RECEIVERS | | | | | | | | | | | |
| PROJECT/CONTRACT: | | 12620 | | | | | | | | | |
| RUN: | | 14800 Schulte Road - Cumulative | | | | | | | | | |
| Receiver | | | | | | | | | | | |
| Name | No. | #DUs | Coordinates (ground) | | Height | Input Sound Levels and Criteria | | | | Active | |
| | | | X | Y | | Z | above | Existing | Impact | | Criteria |
| | | | | | | Ground | LAeq1h | LAeq1h | Sub'l | Goal | in |
| | | | ft | ft | ft | ft | dBA | dBA | dB | dB | Calc. |
| ST1 | 1 | 1 | 6,808.7 | 4,756.4 | 150.00 | 5.00 | 0.00 | 66 | 10.0 | 8.0 | Y |
| ST2 | 2 | 1 | 7,320.7 | 3,923.7 | 150.00 | 5.00 | 0.00 | 66 | 10.0 | 8.0 | Y |
| ST3 | 3 | 1 | 17,394.7 | 4,647.5 | 150.00 | 5.00 | 0.00 | 66 | 10.0 | 8.0 | Y |
| ST4 | 4 | 1 | 18,151.2 | 3,162.8 | 150.00 | 5.00 | 0.00 | 66 | 10.0 | 8.0 | Y |
| ST5 | 5 | 1 | 7,207.4 | 10,376.3 | 150.00 | 5.00 | 0.00 | 66 | 10.0 | 8.0 | Y |
| ST6 | 6 | 1 | 1,585.7 | 7,903.6 | 150.00 | 5.00 | 0.00 | 66 | 10.0 | 8.0 | Y |

| Dudek M Greene | | | | | | | | | 20 January 2021 TNM 2.5 | | | | | | | | |
|--|------|--------|-------|----------|----------|-------|----------|--------|----------------------------|----------------------|----------|---------|--------|---------|----------|---------|-----------|
| INPUT: BARRIERS PROJECT/CONTRACT: 12620 RUN: 14800 Schulte Road - Cumulative | | | | | | | | | | | | | | | | | |
| Barrier | | | | | | | | | Points | | | | | | | | |
| Name | Type | Height | | If Wall | If Berm | | Add'tnl | Name | No. | Coordinates (bottom) | | | Height | Segment | | | |
| | | Min | Max | \$ per | \$ per | Top | Run:Rise | \$ per | X | Y | Z | at | Seg | Ht | Perturbs | On | Important |
| | | ft | ft | \$/sq ft | \$/cu yd | ft | ft:ft | \$/ft | ft | ft | ft | ft | ft | ft | | | |
| | | | | Unit | Unit | Width | | Unit | | | | Point | Incre- | #Up | #Dn | Struct? | Reflec- |
| | | | | Area | Vol. | | | Length | | | | | ment | | | | tions? |
| Barrier1 | W | 0.00 | 99.99 | 0.00 | | | | 0.00 | point1 | 1 | 7,351.3 | 9,412.2 | 150.00 | 30.00 | 0.00 | 0 | 0 |
| | | | | | | | | | point3 | 3 | 7,356.8 | 9,880.6 | 150.00 | 30.00 | 0.00 | 0 | 0 |
| | | | | | | | | | point4 | 4 | 9,395.8 | 9,853.0 | 150.00 | 30.00 | 0.00 | 0 | 0 |
| | | | | | | | | | point5 | 5 | 9,401.3 | 9,379.1 | 150.00 | 30.00 | | | |
| Barrier1-2-2 | W | 0.00 | 99.99 | 0.00 | | | | 0.00 | point57 | 57 | 2,029.5 | 6,857.6 | 150.00 | 30.00 | 0.00 | 0 | 0 |
| | | | | | | | | | point38 | 38 | 2,047.0 | 5,248.0 | 150.00 | 30.00 | 0.00 | 0 | 0 |
| | | | | | | | | | point39 | 39 | 2,711.8 | 5,265.5 | 150.00 | 30.00 | 0.00 | 0 | 0 |
| | | | | | | | | | point40 | 40 | 2,746.8 | 6,910.1 | 150.00 | 30.00 | | | |
| Barrier1-2-2-2-2 | W | 0.00 | 99.99 | 0.00 | | | | 0.00 | point59 | 59 | 7,243.2 | 5,055.6 | 150.00 | 30.00 | 0.00 | 0 | 0 |
| | | | | | | | | | point42 | 42 | 8,397.9 | 5,038.1 | 150.00 | 30.00 | 0.00 | 0 | 0 |
| | | | | | | | | | point43 | 43 | 8,380.4 | 5,353.0 | 150.00 | 30.00 | | | |
| Barrier1-2-2-2-2-2 | W | 0.00 | 99.99 | 0.00 | | | | 0.00 | point61 | 61 | 9,798.1 | 6,287.2 | 150.00 | 30.00 | 0.00 | 0 | 0 |
| | | | | | | | | | point50 | 50 | 10,426.4 | 6,298.2 | 150.00 | 30.00 | 0.00 | 0 | 0 |
| | | | | | | | | | point51 | 51 | 10,404.3 | 7,587.7 | 150.00 | 30.00 | 0.00 | 0 | 0 |
| | | | | | | | | | point52 | 52 | 9,787.1 | 7,576.7 | 150.00 | 30.00 | | | |
| Barrier1-2-2-2-2-2-2-2 | W | 0.00 | 99.99 | 0.00 | | | | 0.00 | point63 | 63 | 12,618.5 | 3,267.0 | 150.00 | 30.00 | 0.00 | 0 | 0 |
| | | | | | | | | | point54 | 54 | 12,971.2 | 3,267.0 | 150.00 | 30.00 | 0.00 | 0 | 0 |
| | | | | | | | | | point55 | 55 | 12,949.2 | 4,683.3 | 150.00 | 30.00 | 0.00 | 0 | 0 |
| | | | | | | | | | point2 | 2 | 12,591.0 | 4,677.8 | 150.00 | 30.00 | | | |
| Barrier1-2-2 | W | 0.00 | 99.99 | 0.00 | | | | 0.00 | point65 | 65 | 804.8 | 7,452.5 | 150.00 | 30.00 | 0.00 | 0 | 0 |
| | | | | | | | | | point29 | 29 | 962.3 | 7,085.1 | 150.00 | 30.00 | 0.00 | 0 | 0 |
| | | | | | | | | | point30 | 30 | 787.3 | 6,927.6 | 150.00 | 30.00 | 0.00 | 0 | 0 |
| | | | | | | | | | point31 | 31 | 1,049.7 | 6,367.8 | 150.00 | 30.00 | | | |
| Barrier1-2-2 | W | 0.00 | 99.99 | 0.00 | | | | 0.00 | point67 | 67 | 3,356.0 | 8,513.9 | 150.00 | 30.00 | 0.00 | 0 | 0 |
| | | | | | | | | | point11 | 11 | 4,485.8 | 7,847.1 | 150.00 | 30.00 | 0.00 | 0 | 0 |
| | | | | | | | | | point12 | 12 | 4,700.7 | 8,227.4 | 150.00 | 30.00 | 0.00 | 0 | 0 |
| | | | | | | | | | point13 | 13 | 4,651.1 | 8,398.2 | 150.00 | 30.00 | 0.00 | 0 | 0 |
| | | | | | | | | | point14 | 14 | 3,708.7 | 8,910.7 | 150.00 | 30.00 | 0.00 | 0 | 0 |
| | | | | | | | | | point15 | 15 | 3,532.4 | 8,833.5 | 150.00 | 30.00 | | | |
| Barrier1-2-2-2-2 | W | 0.00 | 99.99 | 0.00 | | | | 0.00 | point69 | 69 | 5,576.9 | 7,136.2 | 150.00 | 30.00 | 0.00 | 0 | 0 |
| | | | | | | | | | point18 | 18 | 5,885.5 | 7,516.4 | 150.00 | 30.00 | 0.00 | 0 | 0 |
| | | | | | | | | | point19 | 19 | 5,251.7 | 8,051.0 | 150.00 | 30.00 | | | |
| Barrier1-2-2-2-2-2-2 | W | 0.00 | 99.99 | 0.00 | | | | 0.00 | point71 | 71 | 7,902.4 | 8,127.5 | 150.00 | 30.00 | 0.00 | 0 | 0 |
| | | | | | | | | | point21 | 21 | 8,409.4 | 8,138.6 | 150.00 | 30.00 | 0.00 | 0 | 0 |
| | | | | | | | | | point22 | 22 | 8,398.4 | 8,270.8 | 150.00 | 30.00 | 0.00 | 0 | 0 |

INPUT: BARRIERS

12620

| | | | | | | | | | | | | | | | | | | |
|------------------------|---|------|-------|------|--|--|--|---------|----|---------|---------|--------|-------|------|---|---|--|--|
| | | | | | | | | point23 | 23 | 9,236.0 | 8,248.8 | 150.00 | 30.00 | 0.00 | 0 | 0 | | |
| | | | | | | | | point24 | 24 | 9,225.0 | 7,885.1 | 150.00 | 30.00 | 0.00 | 0 | 0 | | |
| | | | | | | | | point25 | 25 | 8,541.7 | 7,874.1 | 150.00 | 30.00 | 0.00 | 0 | 0 | | |
| | | | | | | | | point26 | 26 | 8,541.7 | 7,642.6 | 150.00 | 30.00 | 0.00 | 0 | 0 | | |
| Barrier1-2-2 | W | 0.00 | 99.99 | 0.00 | | | | point27 | 27 | 7,902.4 | 7,664.6 | 150.00 | 30.00 | | | | | |
| | | | | | | | | point73 | 73 | 5,835.9 | 9,924.7 | 150.00 | 30.00 | 0.00 | 0 | 0 | | |
| | | | | | | | | point7 | 7 | 6,910.5 | 9,924.7 | 150.00 | 30.00 | 0.00 | 0 | 0 | | |
| | | | | | | | | point8 | 8 | 6,921.5 | 9,301.9 | 150.00 | 30.00 | 0.00 | 0 | 0 | | |
| Barrier1-2-2-2-2 | W | 0.00 | 99.99 | 0.00 | | | | point9 | 9 | 5,841.4 | 9,313.0 | 150.00 | 30.00 | | | | | |
| | | | | | | | | point74 | 74 | 4,937.6 | 7,692.8 | 150.00 | 30.00 | 0.00 | 0 | 0 | | |
| Barrier1-2-2-2 | W | 0.00 | 99.99 | 0.00 | | | | point17 | 17 | 5,576.9 | 7,136.2 | 150.00 | 30.00 | | | | | |
| | | | | | | | | point76 | 76 | 1,049.7 | 6,367.8 | 150.00 | 30.00 | 0.00 | 0 | 0 | | |
| | | | | | | | | point32 | 32 | 559.9 | 6,122.8 | 150.00 | 30.00 | | | | | |
| Barrier1-2-2-2-2 | W | 0.00 | 99.99 | 0.00 | | | | point77 | 77 | 1,172.2 | 7,435.0 | 150.00 | 30.00 | 0.00 | 0 | 0 | | |
| | | | | | | | | point34 | 34 | 1,557.1 | 7,435.0 | 150.00 | 30.00 | 0.00 | 0 | 0 | | |
| | | | | | | | | point35 | 35 | 1,557.1 | 5,597.9 | 150.00 | 30.00 | 0.00 | 0 | 0 | | |
| | | | | | | | | point36 | 36 | 1,154.7 | 5,597.9 | 150.00 | 30.00 | | | | | |
| Barrier1-2-2-2-2-2 | W | 0.00 | 99.99 | 0.00 | | | | point78 | 78 | 8,380.4 | 5,353.0 | 150.00 | 30.00 | 0.00 | 0 | 0 | | |
| | | | | | | | | point44 | 44 | 7,295.6 | 5,405.5 | 150.00 | 30.00 | | | | | |
| Barrier1-2-2-2-2-2-2-2 | W | 0.00 | 99.99 | 0.00 | | | | point80 | 80 | 7,252.2 | 5,548.7 | 150.00 | 30.00 | 0.00 | 0 | 0 | | |
| | | | | | | | | point46 | 46 | 7,990.6 | 5,526.7 | 150.00 | 30.00 | 0.00 | 0 | 0 | | |
| | | | | | | | | point47 | 47 | 7,968.6 | 5,846.3 | 150.00 | 30.00 | 0.00 | 0 | 0 | | |
| | | | | | | | | point48 | 48 | 7,274.2 | 5,846.3 | 150.00 | 30.00 | | | | | |

RESULTS: SOUND LEVELS

12620

| | | | | | | | | | | | | | | |
|-----------------------|--|---------------------------------|-------|-----------------|-------------------|--------|------------------------|--------|--------------|------------|-----------------|------------|------------|------------|
| Dudek | | 20 January 2021 | | | | | | | | | | | | |
| M Greene | | TNM 2.5 | | | | | | | | | | | | |
| | | Calculated with TNM 2.5 | | | | | | | | | | | | |
| RESULTS: SOUND LEVELS | | | | | | | | | | | | | | |
| PROJECT/CONTRACT: | | 12620 | | | | | | | | | | | | |
| RUN: | | 14800 Schulte Road - Cumulative | | | | | | | | | | | | |
| BARRIER DESIGN: | | INPUT HEIGHTS | | | | | | | | | | | | |
| ATMOSPHERICS: | | 68 deg F, 50% RH | | | | | | | | | | | | |
| Receiver | | | | | | | | | | | | | | |
| Name | | No. | #DUs | Existing LAeq1h | No Barrier LAeq1h | Crit'n | Increase over existing | Type | With Barrier | Calculated | Noise Reduction | Calculated | Goal | Calculated |
| | | | | | Calculated | | Calculated | Impact | Calculated | LAeq1h | Calculated | Goal | Calculated | minus Goal |
| | | | | dB | dB | dB | dB | | dB | dB | dB | dB | dB | dB |
| ST1 | | 1 | 1 | 0.0 | 68.8 | 66 | 68.8 | 10 | Snd Lvl | 68.8 | 0.0 | 8 | -8.0 | |
| ST2 | | 2 | 1 | 0.0 | 66.2 | 66 | 66.2 | 10 | Snd Lvl | 66.2 | 0.0 | 8 | -8.0 | |
| ST3 | | 3 | 1 | 0.0 | 65.1 | 66 | 65.1 | 10 | ---- | 65.1 | 0.0 | 8 | -8.0 | |
| ST4 | | 4 | 1 | 0.0 | 65.6 | 66 | 65.6 | 10 | ---- | 65.6 | 0.0 | 8 | -8.0 | |
| ST5 | | 5 | 1 | 0.0 | 68.8 | 66 | 68.8 | 10 | Snd Lvl | 68.8 | 0.0 | 8 | -8.0 | |
| ST6 | | 6 | 1 | 0.0 | 64.0 | 66 | 64.0 | 10 | ---- | 64.0 | 0.0 | 8 | -8.0 | |
| Dwelling Units | | | # DUs | Noise Reduction | | | | | | | | | | |
| | | | | Min | Avg | Max | | | | | | | | |
| | | | | dB | dB | dB | | | | | | | | |
| All Selected | | | 6 | 0.0 | 0.0 | 0.0 | | | | | | | | |
| All Impacted | | | 3 | 0.0 | 0.0 | 0.0 | | | | | | | | |
| All that meet NR Goal | | | 0 | 0.0 | 0.0 | 0.0 | | | | | | | | |

INPUT: ROADWAYS

12620

| Dudek | | | | | 20 January 2021 | | | | | | |
|---|-------|-------------|-----|-----------------------------|---|--------|--------------------------------|---------------------|---------------------------------|-------------------------|---------------|
| M Greene | | | | | TNM 2.5 | | | | | | |
| INPUT: ROADWAYS | | | | | Average pavement type shall be used unless | | | | | | |
| PROJECT/CONTRACT: 12620 | | | | | a State highway agency substantiates the use | | | | | | |
| RUN: 14800 Schulte Road - Cumulative w Proj | | | | | of a different type with the approval of FHWA | | | | | | |
| Roadway Name | Width | Points Name | No. | Coordinates (pavement) X | Y | Z | Flow Control Control Device | Speed Constraint | Percent Vehicles Affected | Segment Pvmt Type | On Struct? |
| | ft | | | ft | ft | ft | | mph | % | | |
| Mountain House Pkwy | 60.0 | point1 | 1 | 812.3 | 4,283.4 | 150.00 | | | | Average | |
| | | point3 | 3 | 1,569.1 | 4,845.8 | 150.00 | | | | Average | |
| | | point4 | 4 | 1,638.5 | 4,977.7 | 150.00 | | | | Average | |
| | | point5 | 5 | 1,666.3 | 5,081.9 | 150.00 | | | | Average | |
| | | point6 | 6 | 1,756.6 | 5,262.4 | 150.00 | | | | Average | |
| | | point7 | 7 | 1,770.4 | 6,137.2 | 150.00 | | | | Average | |
| | | point8 | 8 | 1,826.0 | 9,094.8 | 150.00 | | | | Average | |
| | | point9 | 9 | 1,812.1 | 12,413.6 | 150.00 | | | | Average | |
| | | point10 | 10 | 1,812.1 | 13,357.8 | 150.00 | | | | | |
| South Lammers Rd - south of Schulte Rd | 60.0 | point30 | 30 | 17,880.3 | 799.7 | 150.00 | | | | Average | |
| | | point25 | 25 | 17,784.1 | 4,080.1 | 150.00 | | | | | |
| W. Schulte Road - e. of Mtn House Pkwy | 60.0 | point36 | 36 | 1,721.8 | 5,029.1 | 150.00 | | | | Average | |
| | | point12 | 12 | 1,957.9 | 4,945.8 | 150.00 | | | | Average | |
| | | point13 | 13 | 2,173.1 | 4,945.8 | 150.00 | | | | Average | |
| | | point14 | 14 | 7,137.3 | 4,897.2 | 150.00 | | | | | |
| Hansen Road - south of Schulte Road | 60.0 | point38 | 38 | 7,109.7 | 2,450.4 | 150.00 | | | | Average | |
| | | point20 | 20 | 7,125.4 | 4,887.9 | 150.00 | | | | | |
| Hansen Road - north of Schulte Road | 60.0 | point42 | 42 | 7,126.3 | 4,910.1 | 150.00 | | | | Average | |
| | | point22 | 22 | 7,135.9 | 9,028.6 | 150.00 | | | | Average | |
| | | point23 | 23 | 7,149.8 | 12,854.3 | 150.00 | | | | | |
| South Lammers Rd - north of Schulte Rd | 60.0 | point44 | 44 | 17,784.1 | 4,080.1 | 150.00 | | | | Average | |
| | | point26 | 26 | 17,679.1 | 12,862.7 | 150.00 | | | | | |
| W. Schulte Road - e. of Hansen | 60.0 | point41 | 41 | 7,137.3 | 4,897.2 | 150.00 | | | | Average | |
| | | point15 | 15 | 11,740.5 | 4,820.8 | 150.00 | | | | Average | |
| | | point16 | 16 | 13,768.5 | 4,804.3 | 150.00 | | | | Average | |

INPUT: ROADWAYS**12620**

| | | | | | | | | | | | | |
|--|--|---------|----|----------|---------|--------|--|--|--|--|---------|--|
| | | point34 | 34 | 16,279.0 | 4,769.3 | 150.00 | | | | | Average | |
| | | point18 | 18 | 17,757.4 | 4,034.5 | 150.00 | | | | | | |

INPUT: TRAFFIC FOR LAeq1h Percentages**12620**

| | | | | | | | | | | | | | |
|--|---------|----|------|----|----|---|----|----|----|---|---|---|---|
| | point15 | 15 | 1246 | 74 | 45 | 6 | 45 | 20 | 40 | 0 | 0 | 0 | 0 |
| | point16 | 16 | 1246 | 74 | 45 | 6 | 45 | 20 | 40 | 0 | 0 | 0 | 0 |
| | point34 | 34 | 1246 | 74 | 45 | 6 | 45 | 20 | 40 | 0 | 0 | 0 | 0 |
| | point18 | 18 | | | | | | | | | | | |

INPUT: RECEIVERS

12620

| Dudek M Greene | | | | | | 20 January 2021 TNM 2.5 | | | | | |
|--------------------------|-----|---|----------------------|----------|--------|----------------------------|---------------------------------|------------------|-------------------|------------|-----------------------|
| INPUT: RECEIVERS | | | | | | | | | | | |
| PROJECT/CONTRACT: | | 12620 | | | | | | | | | |
| RUN: | | 14800 Schulte Road - Cumulative w Proj | | | | | | | | | |
| Receiver | | | | | | | | | | | |
| Name | No. | #DUs | Coordinates (ground) | | | Height above Ground | Input Sound Levels and Criteria | | | | Active in Calc. |
| | | | X | Y | Z | | Existing LAeq1h | Impact LAeq1h | Criteria Sub'l | NR Goal | |
| | | | ft | ft | ft | ft | dBA | dBA | dB | dB | |
| ST1 | 1 | 1 | 6,808.7 | 4,756.4 | 150.00 | 5.00 | 0.00 | 66 | 10.0 | 8.0 | Y |
| ST2 | 2 | 1 | 7,320.7 | 3,923.6 | 150.00 | 5.00 | 0.00 | 66 | 10.0 | 8.0 | Y |
| ST3 | 3 | 1 | 17,394.7 | 4,647.5 | 150.00 | 5.00 | 0.00 | 66 | 10.0 | 8.0 | Y |
| ST4 | 4 | 1 | 18,151.2 | 3,162.8 | 150.00 | 5.00 | 0.00 | 66 | 10.0 | 8.0 | Y |
| ST5 | 5 | 1 | 7,207.4 | 10,376.3 | 150.00 | 5.00 | 0.00 | 66 | 10.0 | 8.0 | Y |
| ST6 | 6 | 1 | 1,585.7 | 7,903.6 | 150.00 | 5.00 | 0.00 | 66 | 10.0 | 8.0 | Y |

| Dudek M Greene | | | | | | | | | 20 January 2021 TNM 2.5 | | | | | | | | | |
|---|------|--------|-------|----------|----------|-------|----------|--------|----------------------------|----------------------|----------|---------|--------|---------|----------|-----|-----------|-------------------|
| INPUT: BARRIERS PROJECT/CONTRACT: 12620 RUN: 14800 Schulte Road - Cumulative w Proj | | | | | | | | | | | | | | | | | | |
| Barrier | | | | | | | | | Points | | | | | | | | | |
| Name | Type | Height | | If Wall | If Berm | | Add'tnl | Name | No. | Coordinates (bottom) | | | Height | Segment | | | | |
| | | Min | Max | \$ per | \$ per | Top | Run:Rise | \$ per | X | Y | Z | at | Seg | Ht | Perturbs | On | Important | |
| | | ft | ft | \$/sq ft | \$/cu yd | ft | ft:ft | \$/ft | ft | ft | ft | ft | ft | ft | #Up | #Dn | Struct? | Reflec- tions? |
| | | | | Unit | Unit | Width | | Unit | | | | Point | Incre- | | | | | |
| | | | | Area | Vol. | | | Length | | | | | ment | | | | | |
| Barrier1 | W | 0.00 | 99.99 | 0.00 | | | | 0.00 | point1 | 1 | 7,351.3 | 9,412.2 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | | point3 | 3 | 7,356.8 | 9,880.6 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | | point4 | 4 | 9,395.8 | 9,853.0 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | | point5 | 5 | 9,401.3 | 9,379.1 | 150.00 | 30.00 | | | | |
| Barrier1-2-2 | W | 0.00 | 99.99 | 0.00 | | | | 0.00 | point57 | 57 | 2,029.5 | 6,857.6 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | | point38 | 38 | 2,047.0 | 5,248.0 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | | point39 | 39 | 2,711.8 | 5,265.5 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | | point40 | 40 | 2,746.8 | 6,910.1 | 150.00 | 30.00 | | | | |
| Barrier1-2-2-2-2 | W | 0.00 | 99.99 | 0.00 | | | | 0.00 | point59 | 59 | 7,243.2 | 5,055.6 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | | point42 | 42 | 8,397.9 | 5,038.1 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | | point43 | 43 | 8,380.4 | 5,353.0 | 150.00 | 30.00 | | | | |
| Barrier1-2-2-2-2-2-2 | W | 0.00 | 99.99 | 0.00 | | | | 0.00 | point61 | 61 | 9,798.1 | 6,287.2 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | | point50 | 50 | 10,426.4 | 6,298.2 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | | point51 | 51 | 10,404.3 | 7,587.7 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | | point52 | 52 | 9,787.1 | 7,576.7 | 150.00 | 30.00 | | | | |
| Barrier1-2-2-2-2-2-2-2-2 | W | 0.00 | 99.99 | 0.00 | | | | 0.00 | point63 | 63 | 12,618.5 | 3,267.0 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | | point54 | 54 | 12,971.2 | 3,267.0 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | | point55 | 55 | 12,949.2 | 4,683.3 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | | point2 | 2 | 12,591.0 | 4,677.8 | 150.00 | 30.00 | | | | |
| Barrier1-2-2 | W | 0.00 | 99.99 | 0.00 | | | | 0.00 | point65 | 65 | 804.8 | 7,452.5 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | | point29 | 29 | 962.3 | 7,085.1 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | | point30 | 30 | 787.3 | 6,927.6 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | | point31 | 31 | 1,049.7 | 6,367.8 | 150.00 | 30.00 | | | | |
| Barrier1-2-2 | W | 0.00 | 99.99 | 0.00 | | | | 0.00 | point67 | 67 | 3,356.0 | 8,513.9 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | | point11 | 11 | 4,485.8 | 7,847.1 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | | point12 | 12 | 4,700.7 | 8,227.4 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | | point13 | 13 | 4,651.1 | 8,398.2 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | | point14 | 14 | 3,708.7 | 8,910.7 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | | point15 | 15 | 3,532.4 | 8,833.5 | 150.00 | 30.00 | | | | |
| Barrier1-2-2-2-2 | W | 0.00 | 99.99 | 0.00 | | | | 0.00 | point69 | 69 | 5,576.9 | 7,136.2 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | | point18 | 18 | 5,885.5 | 7,516.4 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | | point19 | 19 | 5,251.7 | 8,051.0 | 150.00 | 30.00 | | | | |
| Barrier1-2-2-2-2-2-2 | W | 0.00 | 99.99 | 0.00 | | | | 0.00 | point71 | 71 | 7,902.4 | 8,127.5 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | | point21 | 21 | 8,409.4 | 8,138.6 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | | point22 | 22 | 8,398.4 | 8,270.8 | 150.00 | 30.00 | 0.00 | 0 | 0 | |

INPUT: BARRIERS

12620

| | | | | | | | | | | | | | | | | | |
|------------------------|---|------|-------|------|--|--|------|---------|----|---------|---------|--------|-------|------|---|---|--|
| | | | | | | | | point23 | 23 | 9,236.0 | 8,248.8 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | point24 | 24 | 9,225.0 | 7,885.1 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | point25 | 25 | 8,541.7 | 7,874.1 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | point26 | 26 | 8,541.7 | 7,642.6 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| Barrier1-2-2 | W | 0.00 | 99.99 | 0.00 | | | 0.00 | point27 | 27 | 7,902.4 | 7,664.6 | 150.00 | 30.00 | | | | |
| | | | | | | | | point73 | 73 | 5,835.9 | 9,924.7 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | point7 | 7 | 6,910.5 | 9,924.7 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | point8 | 8 | 6,921.5 | 9,301.9 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| Barrier1-2-2-2-2 | W | 0.00 | 99.99 | 0.00 | | | 0.00 | point9 | 9 | 5,841.4 | 9,313.0 | 150.00 | 30.00 | | | | |
| | | | | | | | | point74 | 74 | 4,937.6 | 7,692.8 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| Barrier1-2-2-2 | W | 0.00 | 99.99 | 0.00 | | | 0.00 | point17 | 17 | 5,576.9 | 7,136.2 | 150.00 | 30.00 | | | | |
| | | | | | | | | point76 | 76 | 1,049.7 | 6,367.8 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | point32 | 32 | 559.9 | 6,122.8 | 150.00 | 30.00 | | | | |
| Barrier1-2-2-2-2 | W | 0.00 | 99.99 | 0.00 | | | 0.00 | point77 | 77 | 1,172.2 | 7,435.0 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | point34 | 34 | 1,557.1 | 7,435.0 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | point35 | 35 | 1,557.1 | 5,597.9 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | point36 | 36 | 1,154.7 | 5,597.9 | 150.00 | 30.00 | | | | |
| Barrier1-2-2-2-2-2 | W | 0.00 | 99.99 | 0.00 | | | 0.00 | point78 | 78 | 8,380.4 | 5,353.0 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | point44 | 44 | 7,295.6 | 5,405.5 | 150.00 | 30.00 | | | | |
| Barrier1-2-2-2-2-2-2-2 | W | 0.00 | 99.99 | 0.00 | | | 0.00 | point80 | 80 | 7,252.2 | 5,548.7 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | point46 | 46 | 7,990.6 | 5,526.7 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | point47 | 47 | 7,968.6 | 5,846.3 | 150.00 | 30.00 | 0.00 | 0 | 0 | |
| | | | | | | | | point48 | 48 | 7,274.2 | 5,846.3 | 150.00 | 30.00 | | | | |

RESULTS: SOUND LEVELS

12620

| | | | | | | | | | | | | |
|-----------------------|---|---|-----------------|-----------------|-------------------|--------|------------------------|---------|--------------|-----------------|------------|------------|
| Dudek | | 20 January 2021 | | | | | | | | | | |
| M Greene | | TNM 2.5 | | | | | | | | | | |
| | | Calculated with TNM 2.5 | | | | | | | | | | |
| RESULTS: SOUND LEVELS | | | | | | | | | | | | |
| PROJECT/CONTRACT: | | 12620 | | | | | | | | | | |
| RUN: | | 14800 Schulte Road - Cumulative w Proj | | | | | | | | | | |
| BARRIER DESIGN: | | INPUT HEIGHTS Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA. | | | | | | | | | | |
| ATMOSPHERICS: | | 68 deg F, 50% RH | | | | | | | | | | |
| Receiver | | | | | | | | | | | | |
| Name | | No. | #DUs | Existing LAeq1h | No Barrier LAeq1h | Crit'n | Increase over existing | Type | With Barrier | Noise Reduction | Calculated | Calculated |
| | | | | dB | dB | dB | Calculated | Impact | Calculated | Calculated | Goal | Calculated |
| | | | | | | | Sub'l Inc | | | | | minus |
| | | | | | | | | | | | | Goal |
| | | | | dB | dB | dB | dB | | dB | dB | dB | dB |
| ST1 | 1 | 1 | 0.0 | 69.1 | 66 | 69.1 | 10 | Snd Lvl | 69.1 | 0.0 | 8 | -8.0 |
| ST2 | 2 | 1 | 0.0 | 66.2 | 66 | 66.2 | 10 | Snd Lvl | 66.2 | 0.0 | 8 | -8.0 |
| ST3 | 3 | 1 | 0.0 | 65.2 | 66 | 65.2 | 10 | ---- | 65.2 | 0.0 | 8 | -8.0 |
| ST4 | 4 | 1 | 0.0 | 65.7 | 66 | 65.7 | 10 | ---- | 65.7 | 0.0 | 8 | -8.0 |
| ST5 | 5 | 1 | 0.0 | 69.0 | 66 | 69.0 | 10 | Snd Lvl | 69.0 | 0.0 | 8 | -8.0 |
| ST6 | 6 | 1 | 0.0 | 64.1 | 66 | 64.1 | 10 | ---- | 64.1 | 0.0 | 8 | -8.0 |
| Dwelling Units | | # DUs | Noise Reduction | | | | | | | | | |
| | | | Min | Avg | Max | | | | | | | |
| | | | dB | dB | dB | | | | | | | |
| All Selected | | 6 | 0.0 | 0.0 | 0.0 | | | | | | | |
| All Impacted | | 3 | 0.0 | 0.0 | 0.0 | | | | | | | |
| All that meet NR Goal | | 0 | 0.0 | 0.0 | 0.0 | | | | | | | |

Appendix E-4

Equipment Noise Calculations

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MECHANICAL EQUIPMENT NOISE LEVEL

Input:

Equipment Locations / Source Noise Data

| Site | X | Y | Elev. At Roof or Ground | Source Height | LwA | | Sound Level at 50 feet Total | Equip. Location | | Frequency (in Hz) | 500 |
|--------|-------|------|-------------------------|---------------|---------------|-----------------|------------------------------|-----------------|-------------|-------------------|-----|
| | | | | | Single Source | Number of Units | | Site / Number | | | |
| Bldg A | 14038 | 4614 | 36.5 | 3 | 80 | 1 | 48 | Bldg A | York ZF-048 | | |
| Bldg B | 14040 | 3982 | 36.5 | 3 | 80 | 1 | 48 | Bldg B | York ZF-048 | | |
| Bldg C | 14229 | 4614 | 36.5 | 3 | 80 | 1 | 48 | Bldg C | York ZF-048 | | |

| Receivers at P.L. and Vicinity | X | Y | Z | Applicable Standard | Building | |
|--------------------------------|-------|------|---|---------------------|-----------|----------------|
| | | | | | Elevation | Roof Elevation |
| Nearest | 15886 | 5462 | 0 | 45 | 0 | 36.5 |
| SW | 10768 | 1245 | 0 | 45 | | |
| ST2 | 7487 | 3952 | 0 | 45 | | |
| ST3 | 17715 | 4143 | 0 | 45 | | |
| N1 | 14106 | 4776 | 0 | 60 | | |
| S1 | 14070 | 3558 | 0 | 55 | | |
| E1 | 14553 | 4597 | 0 | 55 | | |
| W1 | 13059 | 4589 | 0 | 66 | | |

Output:

| Source Coordinates | | | | Receiver Coordinates | | Location- Equipment | Leq (h) at 50' | Receiver Elevation (feet) | Source Elevation (feet) | Source to Receiver (feet) | Source to Barrier (feet) | Receiver to Barrier (feet) | Barrier (base) (feet) | Barrier Height (feet) | Fresnel No. at 500 Hz | Barrier Attenuation (dBA) | Leq w/o Barrier (dBA) | Leq w/Barrier (dBA) |
|--------------------|---------|--------|------|----------------------|--------|------------------------|----------------|---------------------------------|-------------------------------|---------------------------------|--------------------------------|----------------------------------|--------------------------|--------------------------|--------------------------|---------------------------------|--------------------------|--------------------------|
| | | | | Location: N1 | | | 14106.2 | 4776.1 | | 0 | Applicable Standard 75 | | | | | | | |
| Equip Site | X | Y | Z | X | Y | | | | | | | | | | | | | |
| Bldg A | 14037.9 | 4613.7 | 36.5 | 14106.2 | 4776.1 | York ZF-048 | 48 | 5 | 39.5 | 176 | 25 | 151 | 36.5 | 3.5 | 0.59 | 12 | 37 | 26 |
| Bldg B | 14039.7 | 3981.9 | 36.5 | 14106.2 | 4776.1 | York ZF-048 | 48 | 5 | 39.5 | 797 | 25 | 772 | 36.5 | 3.5 | 0.05 | 6 | 24 | 18 |
| Bldg C | 14228.9 | 4613.7 | 36.5 | 14106.2 | 4776.1 | York ZF-048 | 48 | 5 | 39.5 | 204 | 25 | 179 | 36.5 | 3.5 | 0.45 | 11 | 36 | 25 |
| TOTAL Leq: | | | | | | | | | | | | | | | | | 40 | 29 |
| Without Barrier | | | | | | | | | | | | | | | | | | With Barrier/ Parapet |

MECHANICAL EQUIPMENT NOISE LEVEL

Input:

Equipment Locations / Source Noise Data

| Site | X | Y | Elev. At | | LwA | Sound Level at | | Equip. Location | | Frequency (in Hz) | 500 |
|--------------------------------|-------|------|---------------------|---------------|----------|----------------|-----------------|-----------------|---------------|-------------------|-----|
| | | | Roof or Ground | Source Height | | Single Source | Number of Units | 50 feet Total | Site / Number | | |
| Bldg A | 14038 | 4614 | 36.5 | 3 | 80 | 1 | 48 | Bldg A | York ZF-048 | | |
| Bldg B | 14040 | 3982 | 36.5 | 3 | 80 | 1 | 48 | Bldg B | York ZF-048 | | |
| Bldg C | 14229 | 4614 | 36.5 | 3 | 80 | 1 | 48 | Bldg C | York ZF-048 | | |
| Receivers at P.L. and Vicinity | | | Applicable Standard | | Building | | Roof Elevation | | | | |
| Nearest | 15886 | 5462 | 0 | 45 | 0 | 36.5 | | | | | |
| SW | 10768 | 1245 | 0 | 45 | | | | | | | |
| ST2 | 7487 | 3952 | 0 | 45 | | | | | | | |
| ST3 | 17715 | 4143 | 0 | 45 | | | | | | | |
| N1 | 14106 | 4776 | 0 | 60 | | | | | | | |
| S1 | 14070 | 3558 | 0 | 55 | | | | | | | |
| E1 | 14553 | 4597 | 0 | 55 | | | | | | | |
| W1 | 13059 | 4589 | 0 | 66 | | | | | | | |

Output:

| | | | | Location: | | | Applicable Standard | | | | | | | | | | | | |
|--------------------|---------|--------|------|----------------------|--------|--------------------|---------------------|----------------|--------------------|------------------|--------------------|-------------------|---------------------|----------------|----------------|-----------------------|---------------------------|-----------------------|---------------------|
| | | | | S1 | | | 75 | | | | | | | | | | | | |
| | | | | 14070 | | | 3558 | | | | | | | | | | | | |
| | | | | 0 | | | | | | | | | | | | | | | |
| Source Coordinates | | | | Receiver Coordinates | | Location-Equipment | | Leq (h) at 50' | Receiver Elevation | Source Elevation | Source to Receiver | Source to Barrier | Receiver to Barrier | Barrier (base) | Barrier Height | Fresnel No. at 500 Hz | Barrier Attenuation (dBA) | Leq w/o Barrier (dBA) | Leq w/Barrier (dBA) |
| Equip Site | X | Y | Z | X | Y | | | | | | | | | | | | | | |
| Bldg A | 14037.9 | 4613.7 | 36.5 | 14070.4 | 3558.2 | York ZF-048 | 48 | 5 | 39.5 | 1,056 | 25 | 1,031 | 36.5 | 3.5 | 0.03 | 6 | 22 | 16 | |
| Bldg B | 14039.7 | 3981.9 | 36.5 | 14070.4 | 3558.2 | York ZF-048 | 48 | 5 | 39.5 | 425 | 25 | 400 | 36.5 | 3.5 | 0.12 | 7 | 30 | 22 | |
| Bldg C | 14228.9 | 4613.7 | 36.5 | 14070.4 | 3558.2 | York ZF-048 | 48 | 5 | 39.5 | 1,067 | 25 | 1,042 | 36.5 | 3.5 | 0.03 | 6 | 22 | 16 | |
| TOTAL Leq: | | | | | | | | | | | | | | | | | 31 | 24 | |
| | | | | | | | | | | | | | | | | | Without Barrier | With Barrier/Parapet | |

MECHANICAL EQUIPMENT NOISE LEVEL

Input:

Equipment Locations / Source Noise Data

| Site | X | Y | Elev. At | | LwA | Single Source | Number of Units | Sound Level at 50 feet Total | Equip. Location | | Frequency (in Hz) |
|--------|-------|------|----------------|---------------|-----|---------------|-----------------|------------------------------|-----------------|-----|-------------------|
| | | | Roof or Ground | Source Height | | | | | Site / Number | | |
| Bldg A | 14038 | 4614 | 36.5 | 3 | 80 | 1 | 48 | Bldg A | York ZF-048 | 500 | |
| Bldg B | 14040 | 3982 | 36.5 | 3 | 80 | 1 | 48 | Bldg B | York ZF-048 | | |
| Bldg C | 14229 | 4614 | 36.5 | 3 | 80 | 1 | 48 | Bldg C | York ZF-048 | | |

| Receivers at P.L. and Vicinity | | Applicable Standard | | Building Elevation | Roof Elevation |
|--------------------------------|-------|---------------------|---|--------------------|----------------|
| Nearest | 15886 | 5462 | 0 | 45 | 0 |
| SW | 10768 | 1245 | 0 | 45 | 36.5 |
| ST2 | 7487 | 3952 | 0 | 45 | |
| ST3 | 17715 | 4143 | 0 | 45 | |
| N1 | 14106 | 4776 | 0 | 60 | |
| S1 | 14070 | 3558 | 0 | 55 | |
| E1 | 14553 | 4597 | 0 | 55 | |
| W1 | 13059 | 4589 | 0 | 66 | |

Output:

| Source Coordinates | | Receiver Coordinates | | Location- Equipment | Leq (h) at 50' (dBA) | Receiver Elevation (feet) | Source Elevation (feet) | Source to Receiver (feet) | Source to Barrier (feet) | Receiver to Barrier (feet) | Barrier (base) (feet) | Barrier Height (feet) | Fresnel No. at 500 Hz | Barrier Attenuation (dBA) | Leq w/o Barrier (dBA) | Leq w/Barrier (dBA) | | |
|--------------------|---------|----------------------|------|---------------------|----------------------|---------------------------|-------------------------|---------------------------|--------------------------|----------------------------|-----------------------|-----------------------|-----------------------|---------------------------|-----------------------|----------------------|----|----|
| Equip Site | X | Y | Z | X | Y | | | | | | | | | | | | | |
| Bldg A | 14037.9 | 4613.7 | 36.5 | 14552.6 | 4597.1 | York ZF-048 | 48 | 5 | 39.5 | 515 | 25 | 490 | 36.5 | 3.5 | 0.09 | 7 | 28 | 21 |
| Bldg B | 14039.7 | 3981.9 | 36.5 | 14552.6 | 4597.1 | York ZF-048 | 48 | 5 | 39.5 | 801 | 25 | 776 | 36.5 | 3.5 | 0.05 | 6 | 24 | 18 |
| Bldg C | 14228.9 | 4613.7 | 36.5 | 14552.6 | 4597.1 | York ZF-048 | 48 | 5 | 39.5 | 324 | 25 | 299 | 36.5 | 3.5 | 0.19 | 8 | 32 | 24 |
| TOTAL Leq: | | | | | | | | | | | | | | | 34 | 26 | | |
| | | | | | | | | | | | | | | | Without Barrier | With Barrier/Parapet | | |

MECHANICAL EQUIPMENT NOISE LEVEL

Input:

Equipment Locations / Source Noise Data

| Site | X | Y | Elev. At Roof or Ground | Source Height | LwA | | | Equip. Location | | Frequency (in Hz) | 500 |
|--------|-------|------|-------------------------|---------------|---------------|-----------------|------------------------------|-----------------|-------------|-------------------|-----|
| | | | | | Single Source | Number of Units | Sound Level at 50 feet Total | Site / Number | | | |
| Bldg A | 14038 | 4614 | 36.5 | 3 | 80 | 1 | 48 | Bldg A | York ZF-048 | | |
| Bldg B | 14040 | 3982 | 36.5 | 3 | 80 | 1 | 48 | Bldg B | York ZF-048 | | |
| Bldg C | 14229 | 4614 | 36.5 | 3 | 80 | 1 | 48 | Bldg C | York ZF-048 | | |

| Receivers at P.L. and Vicinity | X | Y | Applicable Standard | Building Elevation | Roof Elevation |
|--------------------------------|-------|------|---------------------|--------------------|----------------|
| | | | | | |
| Nearest | 15886 | 5462 | 0 | 45 | |
| SW | 10768 | 1245 | 0 | 45 | |
| ST2 | 7487 | 3952 | 0 | 45 | |
| ST3 | 17715 | 4143 | 0 | 45 | |
| N1 | 14106 | 4776 | 0 | 60 | |
| S1 | 14070 | 3558 | 0 | 55 | |
| E1 | 14553 | 4597 | 0 | 55 | |
| W1 | 13059 | 4589 | 0 | 66 | |

Output:

| Source Coordinates | | | | Receiver Coordinates | | Location- Equipment | Leq (h) at 50' (dBA) | Receiver Elevation (feet) | Source Elevation (feet) | Source to Receiver (feet) | Source to Barrier (feet) | Receiver to Barrier (feet) | Barrier (base) (feet) | Barrier Height (feet) | Fresnel No. at 500 Hz | Barrier Attenuation (dBA) | Leq w/o Barrier (dBA) | Leq w/Barrier (dBA) |
|--------------------|---------|--------|------|----------------------|--------|---------------------|----------------------|---------------------------|-------------------------|---------------------------|--------------------------|----------------------------|-----------------------|-----------------------|-----------------------|---------------------------|-----------------------|-----------------------|
| Equip Site | X | Y | Z | X | Y | | | | | | | | | | | | | |
| Bldg A | 14037.9 | 4613.7 | 36.5 | 13059.2 | 4588.8 | York ZF-048 | 48 | 5 | 39.5 | 979 | 25 | 954 | 36.5 | 3.5 | 0.03 | 6 | 22 | 17 |
| Bldg B | 14039.7 | 3981.9 | 36.5 | 13059.2 | 4588.8 | York ZF-048 | 48 | 5 | 39.5 | 1,153 | 25 | 1,128 | 36.5 | 3.5 | 0.03 | 6 | 21 | 16 |
| Bldg C | 14228.9 | 4613.7 | 36.5 | 13059.2 | 4588.8 | York ZF-048 | 48 | 5 | 39.5 | 1,170 | 25 | 1,145 | 36.5 | 3.5 | 0.03 | 6 | 21 | 15 |
| TOTAL Leq: | | | | | | | | | | | | | | | | | 26 | 21 |
| Without Barrier | | | | | | | | | | | | | | | | | | With Barrier/ Parapet |

MECHANICAL EQUIPMENT NOISE LEVEL

Input:

Equipment Locations / Source Noise Data

| Site | X | Y | Elev. At Roof or Ground | Source Height | LwA | | | Equip. Location | | Frequency (in Hz) | 500 |
|--------|-------|------|-------------------------|---------------|---------------|-----------------|------------------------------|-----------------|-------------|-------------------|-----|
| | | | | | Single Source | Number of Units | Sound Level at 50 feet Total | Site / Number | | | |
| Bldg A | 14038 | 4614 | 36.5 | 3 | 80 | 1 | 48 | Bldg A | York ZF-048 | | |
| Bldg B | 14040 | 3982 | 36.5 | 3 | 80 | 1 | 48 | Bldg B | York ZF-048 | | |
| Bldg C | 14229 | 4614 | 36.5 | 3 | 80 | 1 | 48 | Bldg C | York ZF-048 | | |

| Receivers at P.L. and Vicinity | X | Y | Z | Applicable Standard | Building | |
|--------------------------------|-------|------|---|---------------------|-----------|----------------|
| | | | | | Elevation | Roof Elevation |
| Nearest | 15886 | 5462 | 0 | 45 | 0 | 36.5 |
| SW | 10768 | 1245 | 0 | 45 | | |
| ST2 | 7487 | 3952 | 0 | 45 | | |
| ST3 | 17715 | 4143 | 0 | 45 | | |
| N1 | 14106 | 4776 | 0 | 60 | | |
| S1 | 14070 | 3558 | 0 | 55 | | |
| E1 | 14553 | 4597 | 0 | 55 | | |
| W1 | 13059 | 4589 | 0 | 66 | | |

Output:

| Source Coordinates | | | | Receiver Coordinates | | Location-Nearest | | Location-Nearest | | Applicable Standard | | | | | | | | |
|--------------------|---------|--------|------|----------------------|--------|--------------------|----------------|---------------------------|-------------------------|---------------------------|--------------------------|----------------------------|-----------------------|-----------------------|-----------------------|---------------------------|-----------------------|----------------------|
| Equip Site | X | Y | Z | X | Y | Location-Equipment | Leq (h) at 50' | Receiver Elevation (feet) | Source Elevation (feet) | Source to Receiver (feet) | Source to Barrier (feet) | Receiver to Barrier (feet) | Barrier (base) (feet) | Barrier Height (feet) | Fresnel No. at 500 Hz | Barrier Attenuation (dBA) | Leq w/o Barrier (dBA) | Leq w/Barrier (dBA) |
| Bldg A | 14037.9 | 4613.7 | 36.5 | 15886.2 | 5462.3 | York ZF-048 | 48 | 5 | 39.5 | 2,034 | 25 | 2,009 | 36.5 | 3.5 | 0.02 | 5 | 16 | 11 |
| Bldg B | 14039.7 | 3981.9 | 36.5 | 15886.2 | 5462.3 | York ZF-048 | 48 | 5 | 39.5 | 2,367 | 25 | 2,342 | 36.5 | 3.5 | 0.01 | 5 | 15 | 10 |
| Bldg C | 14228.9 | 4613.7 | 36.5 | 15886.2 | 5462.3 | York ZF-048 | 48 | 5 | 39.5 | 1,862 | 25 | 1,837 | 36.5 | 3.5 | 0.02 | 5 | 17 | 12 |
| TOTAL Leq: | | | | | | | | | | | | | | | | | 21 | 16 |
| Without Barrier | | | | | | | | | | | | | | | | | | With Barrier/Parapet |

MECHANICAL EQUIPMENT NOISE LEVEL

Input:

Equipment Locations / Source Noise Data

| Site | X | Y | Elev. At | | LwA | Sound Level at | | Equip. Location | | Frequency (in Hz) | 500 |
|--------|-------|------|----------------|---------------|-----|----------------|-----------------|-----------------|---------------|-------------------|-----|
| | | | Roof or Ground | Source Height | | Single Source | Number of Units | 50 feet Total | Site / Number | | |
| Bldg A | 14038 | 4614 | 36.5 | 3 | 80 | 1 | 48 | Bldg A | York ZF-048 | | |
| Bldg B | 14040 | 3982 | 36.5 | 3 | 80 | 1 | 48 | Bldg B | York ZF-048 | | |
| Bldg C | 14229 | 4614 | 36.5 | 3 | 80 | 1 | 48 | Bldg C | York ZF-048 | | |

| Receivers at P.L. and Vicinity | | Applicable Standard | | Building Elevation | Roof Elevation |
|--------------------------------|-------|---------------------|---|--------------------|----------------|
| Nearest | 15886 | 5462 | 0 | 45 | 0 |
| SW | 10768 | 1245 | 0 | 45 | 36.5 |
| ST2 | 7487 | 3952 | 0 | 45 | |
| ST3 | 17715 | 4143 | 0 | 45 | |
| N1 | 14106 | 4776 | 0 | 60 | |
| S1 | 14070 | 3558 | 0 | 55 | |
| E1 | 14553 | 4597 | 0 | 55 | |
| W1 | 13059 | 4589 | 0 | 66 | |

Output:

| Source Coordinates | | Receiver Coordinates | | Location- Equipment | | Leq (h) at 50' | Receiver Elevation | Source Elevation | Source to Receiver | Source to Barrier | Receiver to Barrier | Barrier (base) | Barrier Height | Fresnel No. at 500 Hz | Barrier Attenuation (dBA) | Leq w/o Barrier (dBA) | Leq w/Barrier (dBA) |
|--------------------|---------|----------------------|------|---------------------|------|----------------|--------------------|------------------|--------------------|-------------------|---------------------|----------------|----------------|-----------------------|---------------------------|-----------------------|-----------------------|
| Equip Site | X | Y | Z | X | Y | | (feet) | (feet) | (feet) | (feet) | (feet) | (feet) | (feet) | | (dBA) | (dBA) | (dBA) |
| Bldg A | 14037.9 | 4613.7 | 36.5 | 10767.8 | 1245 | York ZF-048 | 48 | 39.5 | 4,695 | 25 | 4,670 | 36.5 | 3.5 | 0.01 | 5 | 9 | 4 |
| Bldg B | 14039.7 | 3981.9 | 36.5 | 10767.8 | 1245 | York ZF-048 | 48 | 39.5 | 4,266 | 25 | 4,241 | 36.5 | 3.5 | 0.01 | 5 | 10 | 5 |
| Bldg C | 14228.9 | 4613.7 | 36.5 | 10767.8 | 1245 | York ZF-048 | 48 | 39.5 | 4,830 | 25 | 4,805 | 36.5 | 3.5 | 0.01 | 5 | 9 | 4 |
| TOTAL Leq: | | | | | | | | | | | | | | | | 14 | 9 |
| Without Barrier | | | | | | | | | | | | | | | | | With Barrier/ Parapet |

MECHANICAL EQUIPMENT NOISE LEVEL

Input:

Equipment Locations / Source Noise Data

| Site | X | Y | Elev. At Roof or Ground | Source Height | LwA | | | Equip. Location | | Frequency (in Hz) | 500 |
|--------|-------|------|-------------------------|---------------|---------------|-----------------|------------------------------|-----------------|-------------|-------------------|-----|
| | | | | | Single Source | Number of Units | Sound Level at 50 feet Total | Site / Number | | | |
| Bldg A | 14038 | 4614 | 36.5 | 3 | 80 | 1 | 48 | Bldg A | York ZF-048 | | |
| Bldg B | 14040 | 3982 | 36.5 | 3 | 80 | 1 | 48 | Bldg B | York ZF-048 | | |
| Bldg C | 14229 | 4614 | 36.5 | 3 | 80 | 1 | 48 | Bldg C | York ZF-048 | | |

| Receivers at P.L. and Vicinity | X | Y | Z | Applicable Standard | Building | |
|--------------------------------|-------|------|---|---------------------|-----------|----------------|
| | | | | | Elevation | Roof Elevation |
| Nearest | 15886 | 5462 | 0 | 45 | 0 | 36.5 |
| SW | 10768 | 1245 | 0 | 45 | | |
| ST2 | 7487 | 3952 | 0 | 45 | | |
| ST3 | 17715 | 4143 | 0 | 45 | | |
| N1 | 14106 | 4776 | 0 | 60 | | |
| S1 | 14070 | 3558 | 0 | 55 | | |
| E1 | 14553 | 4597 | 0 | 55 | | |
| W1 | 13059 | 4589 | 0 | 66 | | |

Output:

| Source Coordinates | | | | Receiver Coordinates | | Location: ST2 | | | Applicable Standard | | | | | | | | | |
|--------------------|---------|--------|------|----------------------|--------|--------------------|----------------|---------------------------|-------------------------|---------------------------|--------------------------|----------------------------|-----------------------|-----------------------|-----------------------|---------------------------|-----------------------|----------------------|
| Equip Site | X | Y | Z | X | Y | Location-Equipment | Leq (h) at 50' | Receiver Elevation (feet) | Source Elevation (feet) | Source to Receiver (feet) | Source to Barrier (feet) | Receiver to Barrier (feet) | Barrier (base) (feet) | Barrier Height (feet) | Fresnel No. at 500 Hz | Barrier Attenuation (dBA) | Leq w/o Barrier (dBA) | Leq w/Barrier (dBA) |
| Bldg A | 14037.9 | 4613.7 | 36.5 | 7487.1 | 3951.8 | York ZF-048 | 48 | 5 | 39.5 | 6,584 | 25 | 6,559 | 36.5 | 3.5 | 0.01 | 5 | 6 | 1 |
| Bldg B | 14039.7 | 3981.9 | 36.5 | 7487.1 | 3951.8 | York ZF-048 | 48 | 5 | 39.5 | 6,553 | 25 | 6,528 | 36.5 | 3.5 | 0.01 | 5 | 6 | 1 |
| Bldg C | 14228.9 | 4613.7 | 36.5 | 7487.1 | 3951.8 | York ZF-048 | 48 | 5 | 39.5 | 6,774 | 25 | 6,749 | 36.5 | 3.5 | 0.01 | 5 | 6 | 1 |
| TOTAL Leq: | | | | | | | | | | | | | | | | | 11 | 6 |
| Without Barrier | | | | | | | | | | | | | | | | | | With Barrier/Parapet |

MECHANICAL EQUIPMENT NOISE LEVEL

Input:

Equipment Locations / Source Noise Data

| Site | X | Y | Elev. At Roof or Ground | Source Height | LwA | | | Equip. Location | | Frequency (in Hz) | 500 |
|--------|-------|------|-------------------------|---------------|---------------|-----------------|------------------------------|-----------------|-------------|-------------------|-----|
| | | | | | Single Source | Number of Units | Sound Level at 50 feet Total | Site / Number | | | |
| Bldg A | 14038 | 4614 | 36.5 | 3 | 80 | 1 | 48 | Bldg A | York ZF-048 | | |
| Bldg B | 14040 | 3982 | 36.5 | 3 | 80 | 1 | 48 | Bldg B | York ZF-048 | | |
| Bldg C | 14229 | 4614 | 36.5 | 3 | 80 | 1 | 48 | Bldg C | York ZF-048 | | |

| Receivers at P.L. and Vicinity | X | Y | Applicable Standard | 0 | 45 | Building Elevation | Roof Elevation |
|--------------------------------|-------|------|---------------------|----|----|--------------------|----------------|
| | | | | | | 0 | 36.5 |
| Nearest | 15886 | 5462 | 0 | 45 | | | |
| SW | 10768 | 1245 | 0 | 45 | | | |
| ST2 | 7487 | 3952 | 0 | 45 | | | |
| ST3 | 17715 | 4143 | 0 | 45 | | | |
| N1 | 14106 | 4776 | 0 | 60 | | | |
| S1 | 14070 | 3558 | 0 | 55 | | | |
| E1 | 14553 | 4597 | 0 | 55 | | | |
| W1 | 13059 | 4589 | 0 | 66 | | | |

Output:

| Source Coordinates | | | | Receiver Coordinates | | Location: ST3 | 17715 | 4143 | 0 | Applicable Standard | | | | | | | | |
|--------------------|---------|--------|------|----------------------|--------|--------------------|----------------------|---------------------------|-------------------------|---------------------------|--------------------------|----------------------------|-----------------------|-----------------------|-----------------------|---------------------------|-----------------------|----------------------|
| Equip Site | X | Y | Z | X | Y | Location-Equipment | Leq (h) at 50' (dBA) | Receiver Elevation (feet) | Source Elevation (feet) | Source to Receiver (feet) | Source to Barrier (feet) | Receiver to Barrier (feet) | Barrier (base) (feet) | Barrier Height (feet) | Fresnel No. at 500 Hz | Barrier Attenuation (dBA) | Leq w/o Barrier (dBA) | Leq w/Barrier (dBA) |
| Bldg A | 14037.9 | 4613.7 | 36.5 | 17715.4 | 4142.8 | York ZF-048 | 48 | 5 | 39.5 | 3,708 | 25 | 3,683 | 36.5 | 3.5 | 0.01 | 5 | 11 | 6 |
| Bldg B | 14039.7 | 3981.9 | 36.5 | 17715.4 | 4142.8 | York ZF-048 | 48 | 5 | 39.5 | 3,679 | 25 | 3,654 | 36.5 | 3.5 | 0.01 | 5 | 11 | 6 |
| Bldg C | 14228.9 | 4613.7 | 36.5 | 17715.4 | 4142.8 | York ZF-048 | 48 | 5 | 39.5 | 3,518 | 25 | 3,493 | 36.5 | 3.5 | 0.01 | 5 | 11 | 6 |
| TOTAL Leq: | | | | | | | | | | | | | | | | | 16 | 11 |
| Without Barrier | | | | | | | | | | | | | | | | | | With Barrier/Parapet |

RAY-TRACE PROGRAM (FOR A POINT-SOURCE)

Uses the Equation: $(A_{e4})_{point} = 20 \cdot \log[(2 \cdot \pi \cdot N)^{1/2} / \tanh(2 \cdot \pi \cdot N)^{1/2}] + 5 \text{dB}$
 (Ref. Pg.174, Noise and Vibration Control, L.L. Beranek Editor, 1971 Ed.)

Project: Schulte Road Warehouse
 Date: 1/19/21
 By: MG

Please Enter: Using English (E) units or Metric (M) units ?

| Ray Trace Number/Description | Source-Receiver Distance (ft. or m) | Source Base Elev. (ft. or m) | Source Height above Ground (ft. or m) | Receiver Base Elev. (ft. or m) | Receiver Height above Ground (ft. or m) | Horizontal Barrier Dist. (in ref. to source) (ft. or m) | Barrier Base Elev. (ft. or m) | Barrier Height (ft. or m) | Dominant Freq.(Hz) | Source-Rcvr Straight-Line Dist. (ft. or m) | Source-Top-of-Barrier Dist. (ft. or m) | Receiver-Top-of-Barrier Dist. (ft. or m) | Lambda | N _{max} | AE _(barriers) (dB) |
|------------------------------|-------------------------------------|------------------------------|---------------------------------------|--------------------------------|---|---|-------------------------------|---------------------------|--------------------|--|--|--|--------|------------------|-------------------------------|
| 1. Source -Truck Noise at NW | 1800.0 | 0.0 | 10.0 | 0.0 | 5.0 | 20.0 | 0.0 | 40.0 | 500.0 | 1800.0 | 36.1 | 1780.3 | 2.3 | 14.5 | 24.6 |
| 1. Source -Truck Noise at SE | 3000.0 | 0.0 | 10.0 | 0.0 | 5.0 | 20.0 | 0.0 | 40.0 | 500.0 | 3000.0 | 36.1 | 2980.2 | 2.3 | 14.4 | 24.6 |



TECHNICAL GUIDE

R-410A ZE/ZF/ZR/XN/XP SERIES 3 - 6 TON 60 Hertz



Description

YORK® ZE/ZF/ZR/XN/XP Series units are convertible single package high efficiency rooftops with a common roof curb for the 3, 4, 5 and 6 Ton sizes (ZE, ZR, XN, XP not available in 6 Ton). Although the units are primarily designed for curb mounting on a roof, they can also be slab-mounted at ground level or set on steel beams above a finished roof.

All ZE/ZF/ZR/XN/XP Series units are self-contained and assembled on rigid full perimeter base rails allowing for overhead rigging. Every unit is completely charged, wired, piped and tested at the factory to provide a quick and easy field installation.

All models (including those with an economizer) are convertible between bottom and horizontal duct connections.

ZE/ZF/ZR Series units are available in the following configurations: cooling only, cooling with electric heat, and cooling with one or two stage gas heat. Electric heaters are available as factory-installed option or field installed accessory.

XN/XP Series units are available in the following configurations: cooling and heating only and cooling and heating with electric heat.

Tested in accordance with:



Sound Performance

ZF/ZR/XP Indoor Sound Power Levels

| Size (Tons) | CFM | ESP (IWG) | Blower | | Sound Power, dB (10 ⁻¹²) Watts | | | | | | | | |
|----------------|------|--------------|--------|------|--|---------------------------------------|-----|-----|-----|------|------|------|------|
| | | | | | Sound Rating ¹ dB (A) | Octave Band Centerline Frequency (Hz) | | | | | | | |
| | | | RPM | BHP | | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 |
| 036 (3.0) | 1200 | 0.2 | 630 | 0.41 | 63 | 82 | 77 | 59 | 50 | 43 | 42 | 40 | 45 |
| 048 (4.0) | 1600 | 0.2 | 791 | 0.54 | 72 | 95 | 84 | 58 | 54 | 46 | 44 | 45 | 44 |
| 060 (5.0) | 2000 | 0.2 | 840 | 0.67 | 62 | 84 | 71 | 58 | 53 | 50 | 49 | 49 | 49 |
| 072 (6.0) | 2200 | 0.3 | 920 | 1.45 | 76 | 61 | 71 | 68 | 67 | 72 | 66 | 61 | 54 |

1. These values have been accessed using a model of sound propagation from a point source into the hemispheric/free field. The dBA values provided are to be used for reference only. Calculation of dBA values cover matters of system design and the fan manufacture has no way of knowing the details of each system. This constitutes an exception to any specification or guarantee requiring a dBA value of sound data in any other form than sound power level ratings.

ZE/ZF/ZR Outdoor Sound Power Levels

| Size (Tons) | Sound Rating ¹ dB (A) | Octave Band Centerline Frequency (Hz) | | | | | | | |
|----------------|-------------------------------------|---------------------------------------|------|------|------|------|------|------|------|
| | | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 |
| 036 (3.0) | 81 | 87.5 | 86.0 | 81.0 | 77.0 | 75.0 | 69.5 | 65.5 | 70.5 |
| 048 (4.0) | 80 | 84.5 | 81.0 | 80.0 | 78.0 | 75.0 | 70.0 | 67.0 | 70.5 |
| 060 (5.0) | 82 | 86.5 | 87.5 | 81.5 | 77.5 | 75.0 | 71.5 | 68.0 | 70.5 |
| 072 (6.0) | 83 | - | 84.0 | 85.0 | 79.0 | 80.0 | 72.0 | 67.5 | 62.5 |

1. Rated in accordance with AHRI 270 standard.

XN/XP Outdoor Sound Power Levels

| Size (Tons) | Sound Rating ¹ dB (A) | Octave Band Centerline Frequency (Hz) | | | | | | | |
|----------------|-------------------------------------|---------------------------------------|------|------|------|------|------|------|------|
| | | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 |
| 036 (3.0) | 76 | 83.5 | 84.5 | 76.5 | 72.0 | 68.0 | 66.0 | 60.0 | 56.0 |
| 048 (4.0) | 80 | 85.0 | 83.0 | 81.0 | 77.5 | 75.5 | 71.5 | 67.5 | 61.5 |
| 060 (5.0) | 80 | 86.0 | 84.0 | 81.0 | 77.0 | 75.5 | 71.0 | 66.5 | 60.5 |

1. Rated in accordance with AHRI 270 standard.