POTOMAC-HUDSON ENGINEERING, INC.
ENGINEERS ■ SCIENTISTS ■ PLANNERS

August 22, 2006

Mr. Paul Dumont
Related Properties
2 Manhattanville Road
Purchase, NY 10577

Re: JMC Project 6004
Parcel B Office Building/Centre at Purchase
Manhattanville Road
Town of Harrison, NY

Dear Mr. Dumont:

At your request Potomac-Hudson Engineering, Inc. (PHE) performed a noise assessment in response to Section H. Noise of the January 10, 2006 Draft Scoping Document.

## NOISE MONITORING

Noise monitoring was conducted at the location of Proposed Building "B" on July 7, 2006 from 1:30 pm to 3:30 pm. The weather was sunny and in the 90s. The following standard field procedures were observed:

- Free field microphone mounted approximately 5 feet (1.5 meters) high and at least 4 feet (1.2 meters) from any reflecting surfaces;
- Wind screen used on microphone;
- Field notes documented:
  - calibration factors,
  - selected instrument range,
  - monitoring period,
  - general weather data and time of day,
  - unusual occurrences (e.g., aircraft flyovers),
  - no monitoring during periods of significant precipitation, snow or ice cover, or wet pavement;

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- calibration of sound level meters every hour;
- batteries checked before and after each measurement period; and
- no monitoring during winds of 10 mph or more.

Measurements were made using a Quest Model 2200, which is an ANSI Type 2 standard meter.

## EXISTING NOISE LEVELS

Noise levels generally ranged from the approximately 45 dBA to 52 dBA. This is considered quiet. See Table 1 attached. The loudest (though infrequent) noise sources were helicopter flyovers (2), lawnmowers/tractors mowing the lawn on adjacent properties (about 30 minutes), and occasional single engine prop planes. The helicopter noise peaked in the low seventies. The lawnmower noise was in the mid to upper 50s. The approximate 15 prop planes that were visible during the 2 hours generated peak noise levels form the low to mid 50s, which is still considered quiet. One jet was observed a distance that it was no louder than the prop planes when they were nearby.

During the majority of the time period the noise levels were controlled by birds chirping and distant truck and automobile traffic.

These field observations are consistent with the *Westchester County Airport Aircraft Noise Study* discussed below.

## WESTCHESTER COUNTY AIRPORT

Noise information was derived from the *Westchester County Airport Aircraft Noise Study* (Westchester County Department of Transportation, August 2002). The methodology employed for the noise study to develop contour lines utilized as a noise metric the Day-Night Average Sound Level (DNL), which is a measure of the cumulative noise exposure occurring during a 24-hour period averaged over the course of one year. DNL is the standard used by all federal agencies and 49 states including New York. The contour lines were developed using the Integrated Noise Model (INM), which was developed by the U.S. Federal Aviation Administration (FAA). Aviation operations were analyzed from 1985 through 2000 and projections were made for the period 2000 through 2005.

The attached figure was taken directly from the Westchester County report. It illustrates the changes in noise exposure levels that existed from 1985 to 2000 as well as the projected line for 2005. The subject property appeared on the edge of the 60-decibel DNL contour line in 1988. By 1999, the site was located approximately 1.5 miles to the south of the 60-decibel DNL contour. From 1988 through 1999 Westchester County calculated that the total area within the 60-decibel DNL contour decreased by approximately five square miles. The site is now well outside the noise contours for Westchester Airport, and is no longer impacted by aircraft landing at or taking off from the airport.

Therefore, during the study period significant decreases in noise exposure levels were measured throughout the region and in the area of the subject property.

## NOISE MITIGATION

Because of the quiet ambient conditions no special measures or noise mitigation is required.

## CONCLUSION

The noise environment at the site is quiet and no special noise measures are necessary to develop the property.

Should you have any questions please call me. We hope that we have been able to make it clear that we do not view noise as an issue for the site.

Sincerely,
Potomac-Hudson Engineering, Inc.

A. Brook Crossan, Ph.D., P.E.

Copy: Robert B. Peake, AICP
John Meyer Consulting, PC

## Table 1
## Sound Level and Loudness of Typical Noises of Indoor and Outdoor Environments

| Noise Level (dBA) | Subjective Impression | Typical Sources | | Relative Loudness (Human Response) |
|---|---|---|---|---|
| | | Outdoor | Indoor | |
| 120-130 | Uncomfortably Loud | Air raid siren at 50 feet (threshold of pain) | Oxygen torch | 32 times as loud |
| 110-120 | Uncomfortably Loud | Turbo-fan aircraft at take-off power at 200 feet | Riveting machine<br>Rock band | 16 times as loud |
| 100-110 | Uncomfortably Loud | Jackhammer at 3 feet | | 8 times as loud |
| 90-100 | Very Loud | Gas lawn mower at 3 feet<br>Subway train at 30 feet<br>Train whistle at crossing<br>Wood chipper shredding trees<br>Chain saw cutting trees at 10 feet | Newspaper press | 4 times as loud |
| 80-90 | Very Loud | Passing freight train at 30 feet<br>Steamroller at 30 feet<br>Leaf blower at 5 feet<br>Power lawn mower at 5 feet | Food blender Milling machine Garbage disposal<br>Crowd noise at sports event | 2 times as loud |
| 70-80 | Moderately Loud | NJ Turnpike at 50 feet<br>Traffic in downtown urban area | Loud stereo<br>Vacuum cleaner<br>Food blender | Reference loudness (70 dBA) |
| 60-70 | Moderately Loud | Residential air conditioner at 100 feet<br>Gas lawn mower at 100 feet<br>Waves breaking on beach at 65 feet | Cash register<br>Dishwasher<br>Theater lobby<br>Normal speech at 3 feet | 1/2 as loud |
| 50-60 | Quiet | Large transformers at 100 feet<br>Traffic in suburban area | Living room with TV on<br>Classroom<br>Business office<br>Dehumidifier<br>Normal speech at 10 feet | 1/4 as loud |
| 40-50 | Quiet | Bird calls<br>Trees rustling<br>Crickets<br>Water flowing in brook | Putting on clothes<br>Using computer | 1/8 as loud |
| 30-40 | Very quiet | | Walking on carpet<br>Clock ticking in next room | 1/16 as loud |
| 20-30 | Very quiet | | Bedroom at night | 1/32 as loud |
| 10-20 | Extremely quiet | | Broadcast and recording studio | |
| 0-10 | Threshold of Hearing | | | |

Sources: *Noise Assessment Guidelines Technical Background*, by Theodore J. Schultz, Bolt Beranek and Newman, Inc., prepared for the US Department of Housing and Urban Development, Office of Research and Technology, Washington, D.C., undated; Sandstone Environmental Associates, Inc.; *Highway Noise Fundamentals*, prepared by the Federal Highway Administration, US Department of Transportation, September 1980; *Handbook of Environmental Acoustics*, by James P. Cowan, Van Nostrand Reinhold, 1994.

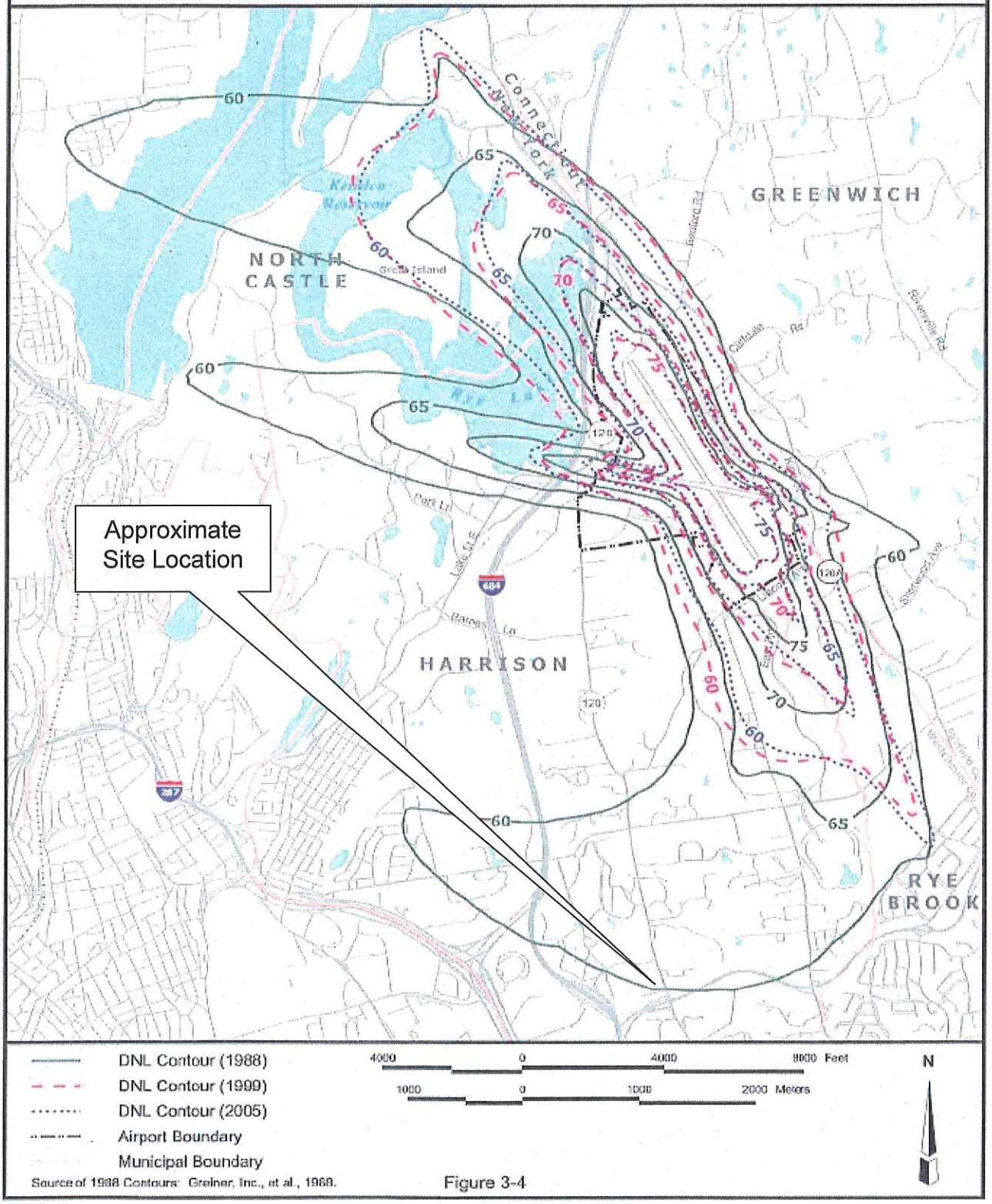
**Glossary**

A-Weighted Sound Level - A measurement of the sound pressure level, weighted to most closely approximate the range of frequencies detectable by the human ear. The sound level measurement is weighted by filtering out sounds in the lower and upper frequencies in which the human ear is less capable of detecting. Expressed as dBA.

Decibel - A logarithmic scale used to quantify sound measurement. Use of a decibel scale reduces a dynamic range of sound pressures of a million to one to a more manageable range of sound pressure levels of only 1 to 120, zero indicating the reference minimum threshold and 120 the approximate threshold of pain.

Equivalent Sound Level (Leq) - The long-term A-weighted sound level which is equal to the level of a steady-state continuous noise having the same energy as the time-varying noise, for a given situation and time period. Therefore, it is a time-integrated average sound level. The USEPA has chosen the Leq as the best environmental noise descriptor.

# Comparison of 1988, 1999, and 2005 DNL Contours




Source of 1988 Contours: Greiner, Inc., et al., 1988.

Figure 3-4