



Technical Memorandum

DATE: January 31, 2018

FROM: Larry Thomas, P.E.

SUBJECT: Morton Grove- Niles Water Commission Intermediate Pump Station
Sound Created by Operation of Standby Engine Generator in Beck
Park

The Intermediate Pump Station will have one source of sound that can be heard outside of the building at a distance of 20 feet: the standby electrical power generator. The standby generator is operated with the use of a natural gas engine. The standby power generator will operate one hour each month when it is being tested and exercised. It will also operate when there is a loss of electrical power to the site.

The engine has three primary sources of sound: the engine, cooling fan, and exhaust. The project specifications require that these sounds be limited to 75 dBA at a distance of 23 feet. This is equivalent to a gasoline engine lawn mower. Additionally, the engine generator is located within a brick and block building which muffles the engine noise; and the exhaust pipe sound is controlled by a critical grade chamber silencer that will reduce the exhaust sound by approximately 30 dBA;

The engine generator room is located at the northern end of the building. The air intake louver is located on the north wall. The air exhaust louver and the exhaust pipe are located on the west wall. The noises from these sources will be directed west towards the channel and McCormick Boulevard.

The normal background noise in residential neighborhoods is a result of traffic and human activity is approximately 45 to 55 dBA.

The City of Evanston ordinance requires that the sound from the generator not exceed 55 dBA at the property line. The nearest property line to the source of the sound is located 150 feet to the east.

Sound diminishes at the rate of 6 dBA every time the distance from the source is doubled. In this case, with a distance of 150 feet to the property line we anticipate the sound level will decline by at least 20 dBA.

With the combination of enclosing the engine generator in a building and providing the exhaust silencer we do not expect the sound on the exterior of the building to exceed 60 dBA. Taking the distance into account, the sound at the property line resulting from the engine generator will be less than 40 dBA and thereby complies with the ordinance requirements.