

5.12 NOISE

5.12.1 Introduction

Construction activities have the potential to produce noise levels that may be annoying or disturbing to humans. This Section describes existing noise conditions in the vicinity of the three potential water main connection routes—First Avenue, Sutton Place, or E. 59th Street/E. 61st Street—evaluated in the EIS and assesses the potential for construction of the water main connections along these potential routes to result in noise impacts. The methodology used to prepare this Section is described in Section 3.12, “Noise,” in Chapter 3, “Impact Methodologies.”

None of the activities associated with the activation or operation of the water mains would cause potential noise impacts, as there would be no noise-generating machinery or activities associated with these activities. As such, these activities are not assessed in this Section.

5.12.2 Existing Conditions

The following sections describe existing conditions along each of the three potential water main routes—First Avenue, Sutton Place, or E. 59th Street/E. 61st Street—based on ambient noise monitoring conducted along each route. Construction along the water main route is expected to occur during one shift. Although this work is expected to occur during a weekday daytime shift, there is a possibility that such work could occur during evening or weekend periods to avoid peak traffic periods. In order to assess potential noise impacts associated with water main construction during a possible second shift, monitoring was performed during both weekday shifts along each of the potential water main routes. Weekend monitoring was performed along each route during both shifts in order to determine weekend noise conditions in the vicinity of the water main routes. The ambient noise monitoring was performed as described in Section 3.12.

First Avenue Route

An ambient noise survey was conducted to establish baseline noise levels at sensitive receptors in the vicinity of the potential First Avenue route. The water main route runs through a noisy area that is primarily influenced by traffic noise. Traffic along the route is often heavy, particularly during the commuter rush hours. First Avenue is also a primary commercial route for truck deliveries on the East Side of Manhattan. The surrounding neighborhood along the First Avenue route is a mix of high-density residential apartment buildings, local retail stores and shops, restaurants and bars, schools, and public areas.

Monitoring Locations

Ambient noise monitoring was performed at three locations along the First Avenue route on April 14, 15, 16, and 17, 2005 to assess the existing noise environment surrounding the route. Both weekday and weekend noise monitoring was conducted for the water main connections

CHAPTER 5: WATER MAIN CONNECTIONS
5.12 NOISE

route to assess potential impacts in the event weekend water main construction were to occur. The three ambient noise monitoring locations along the water main route are shown on Figure 5.12-1 and include:

Location 1 (W1): Tree on east side of First Avenue midway between E. 56th and E. 57th Streets.

Location 2 (W2): Tree on north side of E. 55th Street mid-block between First Avenue and Second Avenue.

Location 3 (W3): Tree on south side of E. 56th Street mid-block between First Avenue and Second Avenue.

Monitoring Results

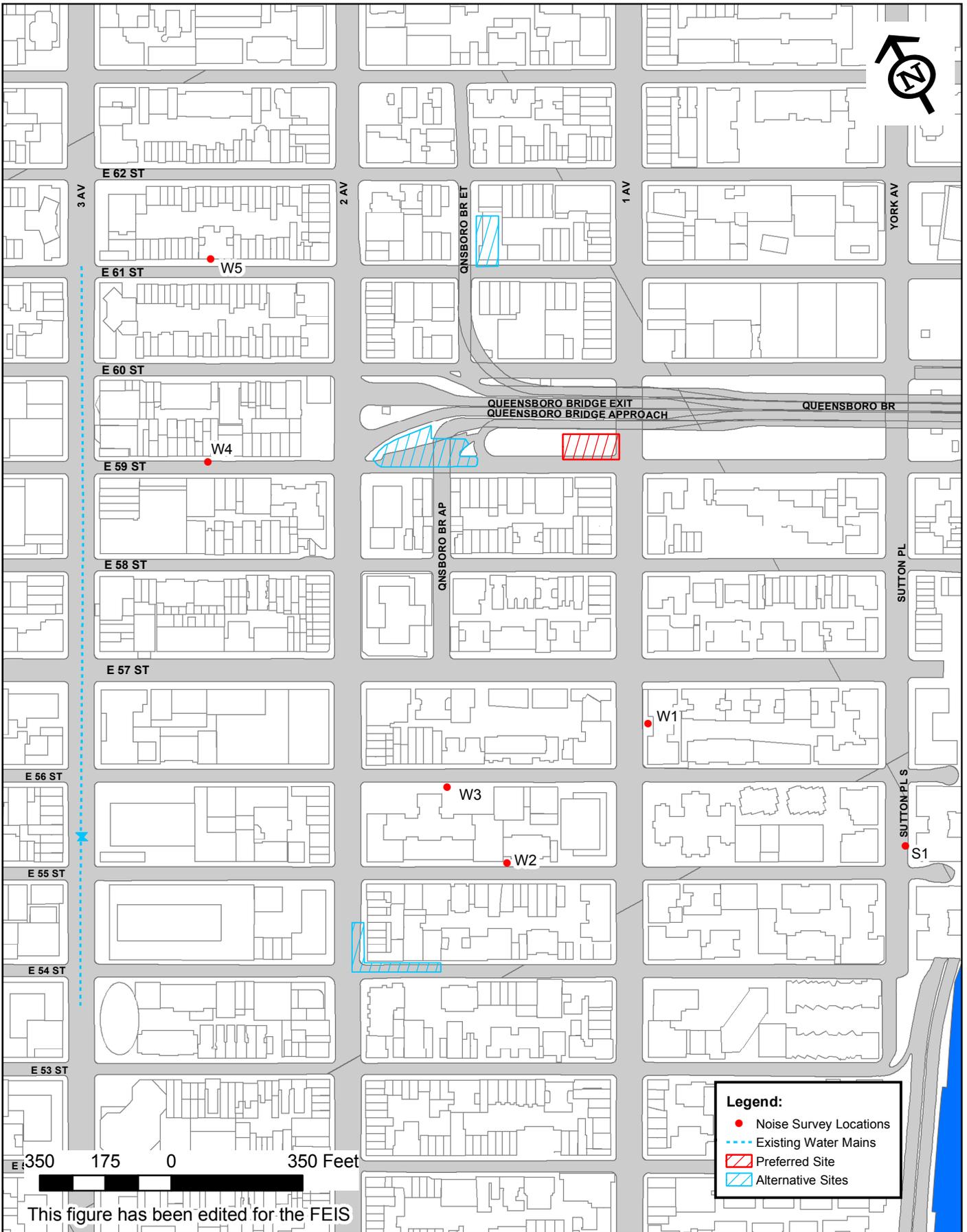
Minimum hourly Leq(1) noise levels at each of the three monitoring locations associated with the First Avenue route, based on the noise monitoring results, are provided in Table 5.12-1. Minimum hourly Leq(1) levels are provided for each of the four assessment time periods—a possible first construction shift (7:00 a.m. to 3:00 p.m.) or a possible second construction shift (3:00 p.m. to 11:00 p.m.) for both weekday and possible weekend periods.

Table 5.12-1
Baseline Ambient Noise Monitoring Results for the First Avenue Route

Noise Monitoring Locations	Weekday 1 st shift (7am to 3pm) Minimum Leq (dBA)	Weekday 2 nd shift (3pm to 11pm) Minimum Leq (dBA)	Weekend 1 st shift (7am to 3pm) Minimum Leq (dBA)	Weekend 2 nd shift (3pm to 11pm) Minimum Leq (dBA)
<u>Location 1 (W1)</u> : Tree along First Avenue between E. 56 th Street and E. 57 th Street.	73	72	70	71
<u>Location 2 (W2)</u> : Tree on north side of E. 55 th Street in the middle of the block between First Avenue and Second Avenue.	67	66	63	64
<u>Location 3 (W3)</u> : Tree on south side of E. 56 th Street in the middle of the block between First Avenue and Second Avenue.	66	66	66	67

For the first shift time period (7:00 a.m. to 3:00 p.m.), minimum hourly Leq(1) noise levels ranged between 66 dBA and 73 dBA for the weekday and 63 dBA and 70 dBA for the weekend. For the second shift time period (3:00 a.m. to 11:00 p.m.) minimum hourly Leq(1) noise levels ranged from 66 dBA to 72 dBA for the weekday and 64 dBA and 71 dBA for the weekend.

These ambient noise levels are consistently close to or above 65 dBA Leq(1), the CEQR threshold of acceptability. The primary factor influencing the high ambient conditions is vehicular traffic. Detailed noise data recorded at the survey locations is provided in Appendix 12.



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Legend:

- Noise Survey Locations
- Existing Water Mains
- ▨ Preferred Site
- ▨ Alternative Sites



**NEW YORK CITY DEPARTMENT OF ENVIRONMENTAL PROTECTION
PROPOSED SHAFT 33B TO CITY TUNNEL NO. 3
STAGE 2 - MANHATTAN LEG
WATER MAIN CONNECTIONS NOISE SURVEY LOCATIONS**

FIGURE 5.12-1

Sutton Place Route

An ambient noise survey was conducted to establish baseline noise levels at sensitive receptors in the vicinity of the potential Sutton Place route. The water main route runs through a primarily residential area with noise levels primarily influenced by traffic noise. The surrounding neighborhood along the Sutton Place route has a mix of high-density residential apartment buildings along Sutton Place and local retail stores and shops, and schools along the cross streets.

Monitoring Locations

Ambient noise monitoring was performed at one location along the Sutton Place route on August 23 and August 24, 2005 and on November 20, 2005 to assess the existing noise environment surrounding the route. Ambient noise monitoring location 4 was located on a tree on the east side of Sutton Place midway between E. 55th and E. 56th Streets and is shown on Figure 5.12-1 (see location S1).

Monitoring Results

Minimum hourly Leq(1) noise levels at monitoring location associated with the Sutton Place route, based on the noise monitoring results, are provided in Table 5.12-2. Minimum hourly Leq(1) levels are provided for each of the four assessment time periods—a possible first construction shift (7:00 a.m. to 3:00 p.m.) or a possible second construction shift (3:00 a.m. to 11:00 p.m.) for both weekday and possible weekend periods.

**Table 5.12-2
Baseline Ambient Noise Monitoring Results for the Sutton Place Route**

Noise Monitoring Locations	Weekday 1 st shift (7am to 3 pm) Minimum L _{eq} (dBA)	Weekday 2 nd shift (3pm to 11pm) Minimum L _{eq} (dBA)	Weekend 1 st shift (7am to 3pm) Minimum Leq (dBA)	Weekend 2 nd shift (3pm to 11pm) Minimum Leq (dBA)
<u>Location 4 (S1):</u> Tree along Sutton Place between E. 55 th Street and E. 56 th Street.	70	67	62	65

For survey location 4, located on Sutton Place, the first shift time period (7:00 a.m. to 3:00 p.m.), minimum hourly Leq(1) noise level was 70 dBA for the weekday and 62 dBA for the weekend. The second shift time period (3:00 a.m. to 11:00 p.m.) minimum hourly Leq(1) noise level was 67 dBA for the weekday and 65 dBA for the weekend.

These ambient noise levels are close to or above 65 dBA Leq(1), the CEQR threshold of acceptability. The primary factor influencing the high ambient conditions is vehicular traffic. Detailed noise data recorded at the survey locations is provided in Appendix 12.

E. 59th Street/E. 61st Street Route

An ambient noise survey was conducted to establish baseline noise levels at sensitive receptors in the vicinity of the potential E. 59th Street/E. 61st Street route. The water main route runs through a noisy area that is primarily influenced by traffic noise. Traffic along the route is often heavy, particularly during the commuter rush hours. All of the roadways associated with this route are primary ingress/egress routes to the Queensboro Bridge and also support heavy commercial traffic. The surrounding neighborhood along the E. 59th Street/E. 61st Street route is a mix of high-density residential apartment buildings, local retail stores and shops, restaurants and bars, and public areas.

Monitoring Locations

Ambient noise monitoring was performed at two locations along the E. 59th Street/E. 61st Street route on October 17, 18 and 19, 2005 and on November 20, 2005 to assess the existing noise environment surrounding the route. The two ambient noise monitoring locations along the E. 59th Street/E. 61st Street route are shown on Figure 5.12-1 and include:

- Location 5 (W4): Tree on north side of E. 59th Street midway between Second Avenue and Third Avenue.
- Location 6 (W5): Tree on north side of E. 61st Street midway between Second Avenue and Third Avenue.

Monitoring Results

Minimum hourly Leq(1) noise levels at both of the monitoring locations associated with the E. 59th Street/E. 61st Street route, based on the noise monitoring results, are provided in Table 5.12-3. Minimum hourly Leq(1) levels are provided for each of the four assessment time periods—a possible first construction shift (7:00 a.m. to 3:00 p.m.) or a possible second construction shift (3:00 a.m. to 11:00 p.m.) for both weekday and weekend periods.

**Table 5.12-3
Baseline Ambient Noise Monitoring Results for the
E. 59th Street/E. 61st Street Route**

Noise Monitoring Locations	Weekday 1 st shift (7am to 3pm) Minimum L _{eq} (dBA)	Weekday 2 nd shift (3pm to 11pm) Minimum L _{eq} (dBA)	Weekend 1 st shift (7am to 3pm) Minimum L _{eq} (dBA)	Weekend 2 nd shift (3pm to 11pm) Minimum L _{eq} (dBA)
<u>Location 5 (W4):</u> Tree along E. 59 th Street midway between Second Avenue and Third Avenue.	76	74	-	-
<u>Location 6 (W5):</u> Tree along E. 61 st Street midway between Second Avenue and Third Avenue.	69	66	64	64

For the first shift time period (7:00 a.m. to 3:00 p.m.) during the weekday, minimum hourly Leq(1) noise levels ranged from 69 dBA to 76 dBA. For the second shift time period (3:00 p.m. to 11:00 p.m.) during the weekday, noise levels ranged from 66 dBA to 74 dBA. For the weekend, measurements were taken along E. 61st Street. Along E. 61st Street, noise levels were 64 dBA during both the first and second shifts.

These ambient noise levels are close to or above 65 dBA Leq(1), the CEQR threshold of acceptability. The primary factor influencing the high existing ambient conditions recorded at these locations is vehicular traffic. Detailed noise data recorded at the survey locations is provided in Appendix 12.

5.12.3 Future Conditions Without the Project

As discussed in the Section 5.2, “Land Use and Community Facilities, Zoning, and Public Policy,” a project that faces the water main routes is the conversion of the Sutton Hotel on E. 56th Street between First and Second Avenues to residential units. Conditions would be expected to be comparable to those currently existing in the immediate vicinity of the water main routes.

5.12.4 Future Conditions With the Project

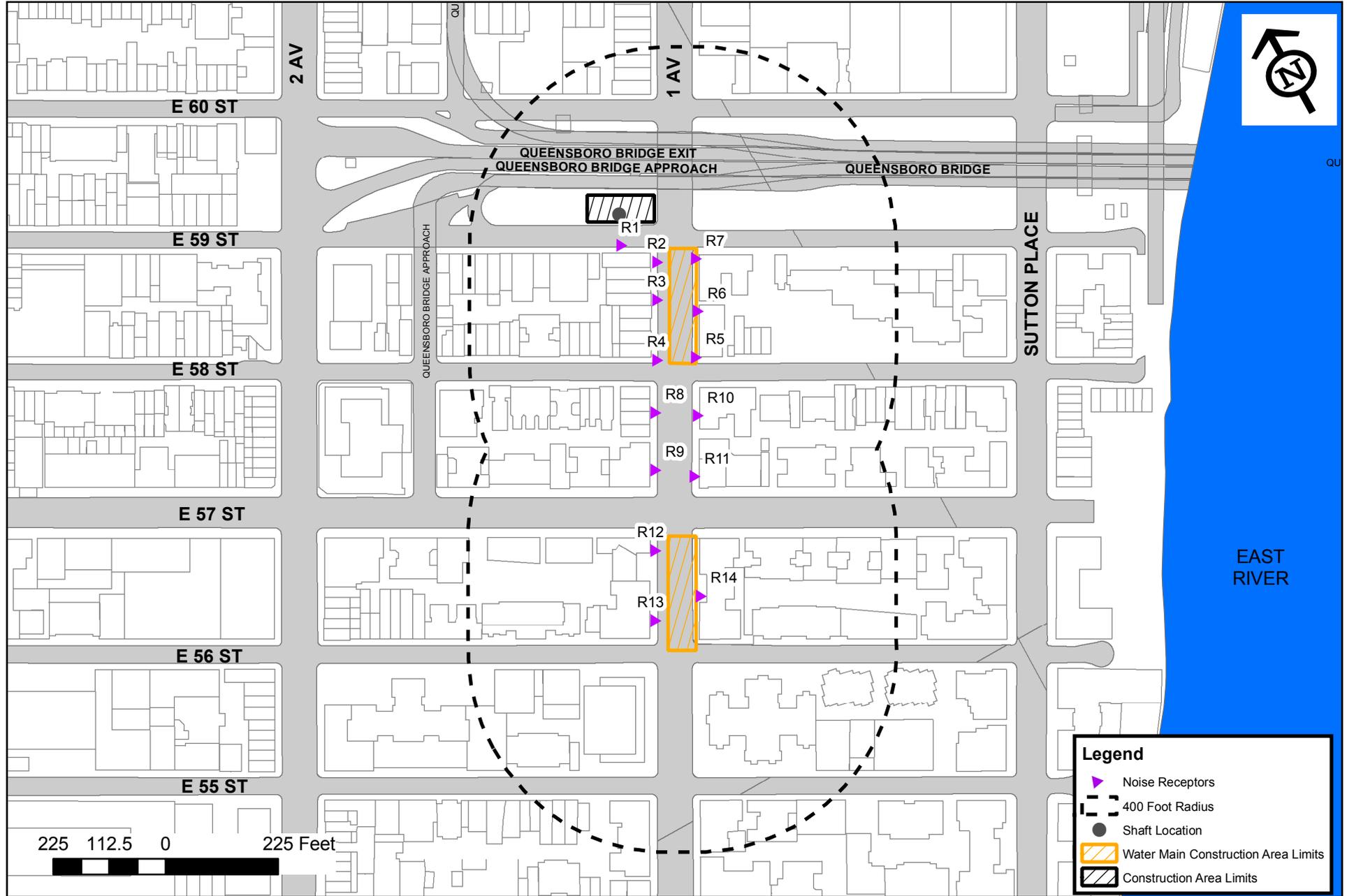
Sensitive Receptors used in the Analysis

Receptors were selected at locations in the immediate vicinity of the potential water main routes to assess construction noise impacts. The receptors evaluated are considered to be representative of other sensitive uses along any segment of the water main route. It is expected that the ground level receptors along the water main routes would represent the worst-case noise impacts since noise barrier walls would not be utilized during construction. Therefore, elevated receptors were not analyzed. For the First Avenue route, 14 receptor locations were selected along First Avenue (see Figure 5.12-2) and an additional 13 receptors were selected for the cross street analysis associated with the First Avenue route (see Figure 5.12-3). The cross street receptors would apply to the cross street analysis for the Sutton Place route. Figure 5.12-4 shows the 7 receptor locations selected for the water main construction with a venturi chamber analysis. The analysis of the water main construction with venturi chamber is applicable to all three water main routes. Figure 5.12-5 shows the 13 receptor locations along Sutton Place. Figure 5.12-6 shows the 13 receptor locations selected for the E. 59th Street/E. 61st Street route.

Scenarios Analyzed

As detailed in Section 5.1, “Project Description,” of Chapter 5, “Water Main Connections,” water main construction would occur in a segmented, cut-and-cover fashion, where the same four steps of construction would be expected to occur within each segment of construction. Each step of water main construction was modeled separately.

Construction along the water main route is expected to occur during one daytime shift. There is a possibility that some work could occur during evening or weekend periods to avoid peak traffic



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NEW YORK CITY DEPARTMENT OF ENVIRONMENTAL PROTECTION
PROPOSED SHAFT 33B TO CITY WATER TUNNEL NO. 3
STAGE 2 - MANHATTAN LEG
WATER MAIN CONNECTIONS
FIRST AVENUE ROUTE RECEPTOR LOCATIONS - WITHOUT VENTURI CHAMBERS

FIGURE 5.12-2

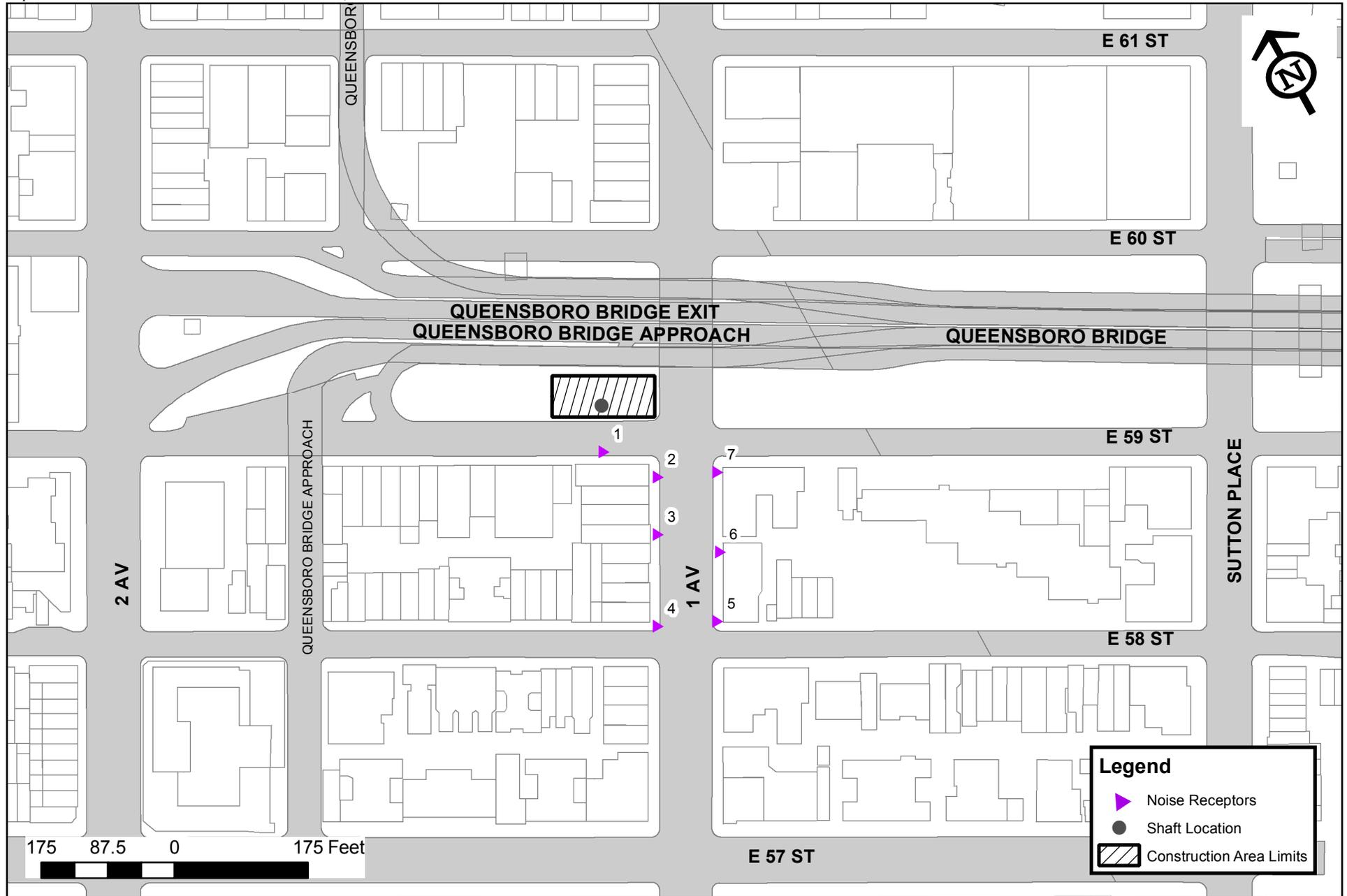
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PROPOSED SHAFT 33B TO CITY WATER TUNNEL NO. 3
STAGE 2 - MANHATTAN LEG
WATER MAIN CONNECTIONS
FIRST AVENUE ROUTE CROSS STREET RECEPTOR LOCATIONS

FIGURE 5.12-3



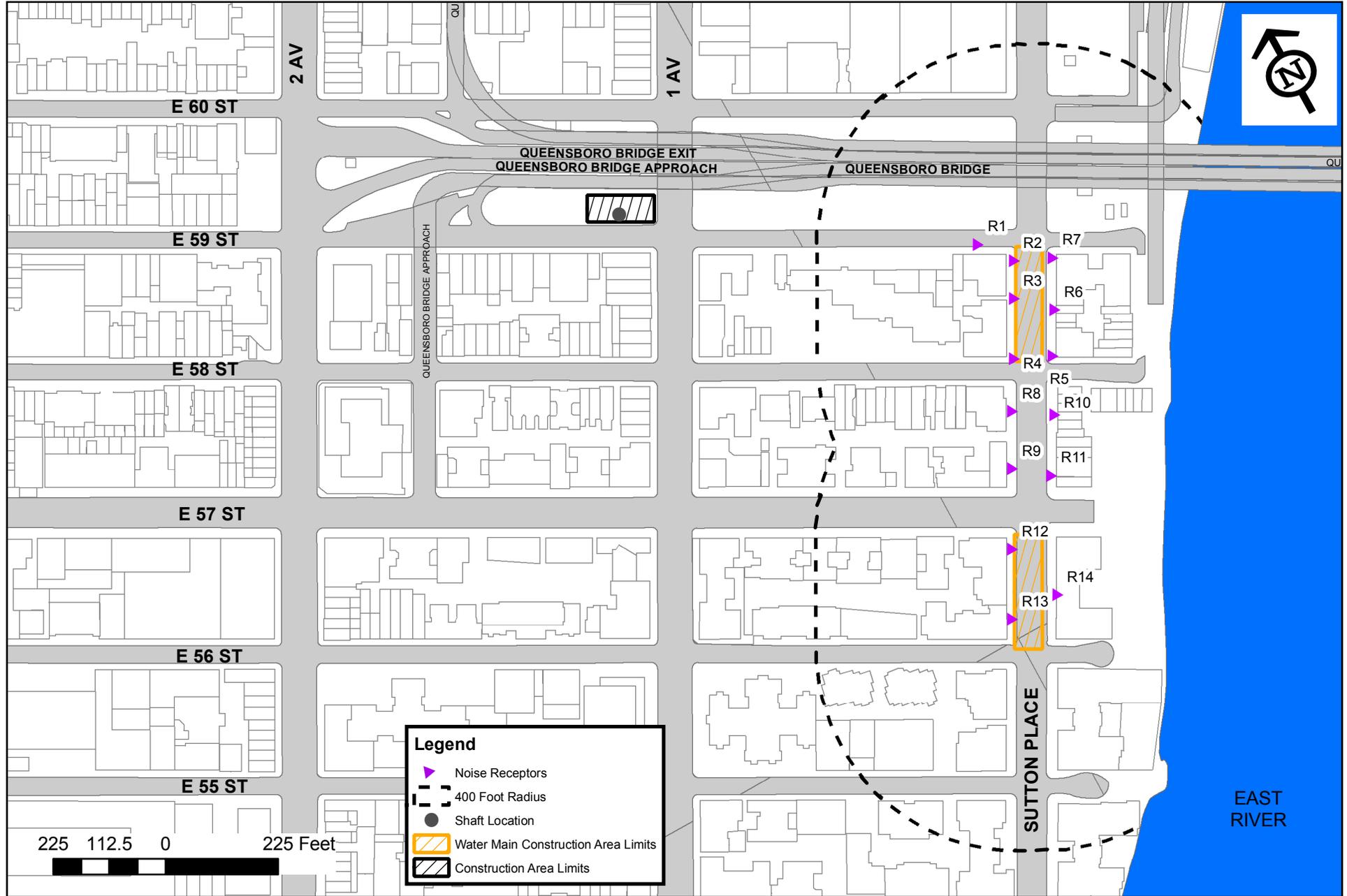


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 PROPOSED SHAFT 33B TO CITY WATER TUNNEL NO. 3
 STAGE 2 - MANHATTAN LEG
 WATER MAIN CONNECTIONS
 FIRST AVENUE ROUTE RECEPTOR LOCATIONS - WITH VENTURI CHAMBERS

FIGURE 5.12-4

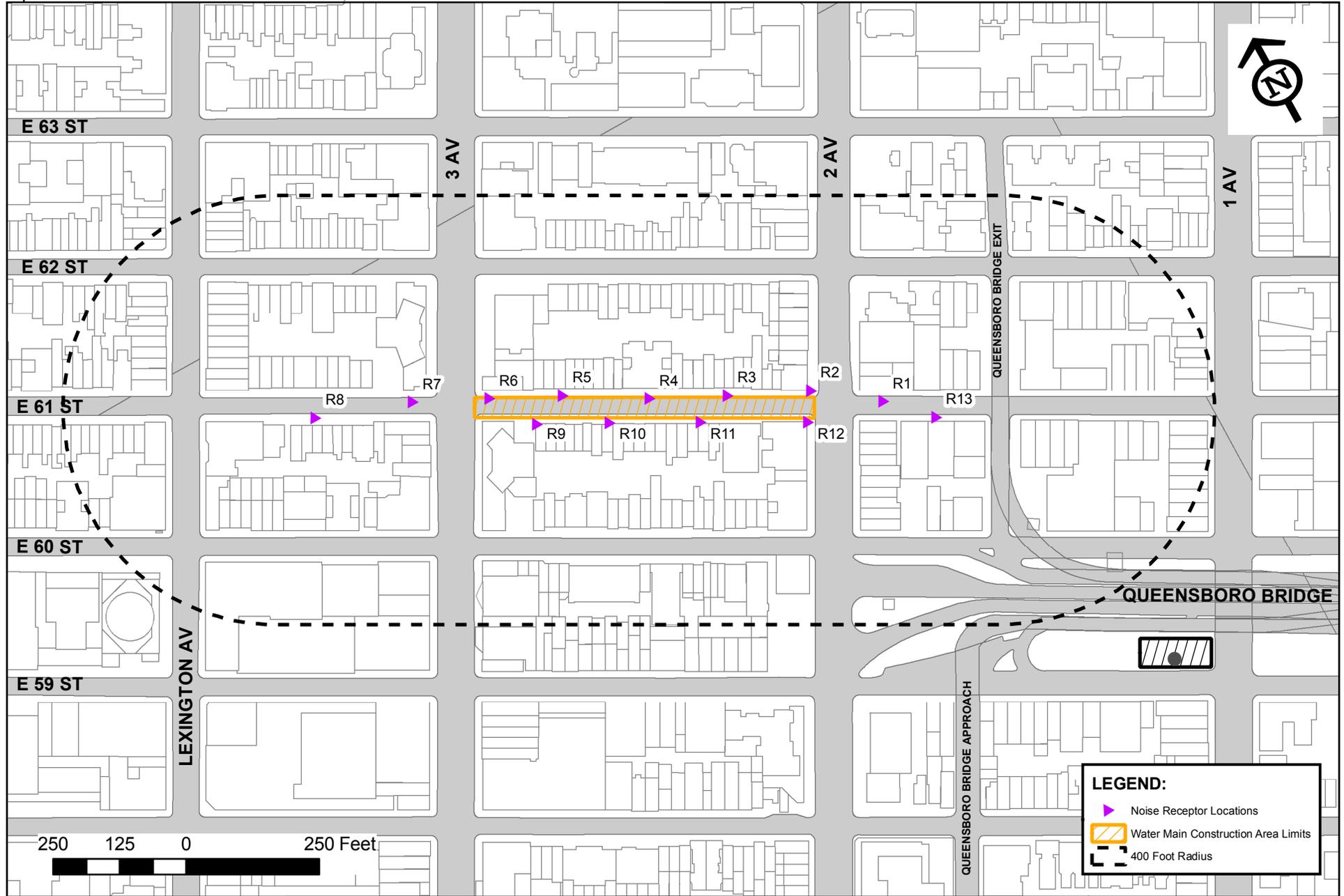


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 PROPOSED SHAFT 33B TO CITY WATER TUNNEL NO. 3
 STAGE 2 - MANHATTAN LEG
 WATER MAIN CONNECTIONS
 SUTTON PLACE RECEPTOR LOCATIONS WITHOUT VENTURI CHAMBERS**

FIGURE 5.12-5



LEGEND:

-  Noise Receptor Locations
-  Water Main Construction Area Limits
-  400 Foot Radius

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**NEW YORK CITY DEPARTMENT OF ENVIRONMENTAL PROTECTION
 PROPOSED SHAFT 33B TO CITY WATER TUNNEL NO. 3
 STAGE 2 - MANHATTAN LEG
 WATER MAIN CONNECTIONS
 E. 59TH STREET - E. 61ST STREET ROUTE CROSS STREET RECEPTOR LOCATIONS**

FIGURE 5.12-6

periods. Therefore, two weekday and two weekend shifts were analyzed for each potential route. Although it is not anticipated, NYCDOT may request that water main construction be implemented during the overnight shift (11:00 p.m. to 7:00 a.m.). Given the residential nature of the surrounding area, it is not anticipated that NYCDOT OCMC would request overnight work. Generally, impacts associated with overnight construction would likely be higher due to the quieter ambient conditions during the nighttime.

In addition, as described in detail in Section 3.12, “Noise,” in Chapter 3, “Impact Methodologies,” an 8-hour “average period” analysis and reasonable worst case “peak period” analysis were performed for each step of construction. The average period analysis is based on average equipment utilization rates over an average 8-hour shift. The peak period analysis is based on a smaller mix of equipment that would typically operate for a greater percentage of time during one or more hours of a shift. See Appendix 12 for average and peak period equipment utilization rates. The average and peak analyses are performed for each shift, including weekends.

A mobile source noise impact assessment was not conducted for construction of the water mains because a maximum of six trucks in the peak hour would be anticipated to travel to and from the water main construction zone. As described in the *CEQR Technical Manual*, a doubling of the passenger car equivalents (PCEs) would indicate the need for a detailed mobile source impact analysis. The level of traffic anticipated during construction would not represent a doubling of PCEs. Therefore, no further assessment of potential mobile source noise impacts is warranted.

Measures to Reduce Noise at the Site

While not assumed in the quantitative assessment, NYCDEP will work with NYCDDC to ensure that measures to minimize noise impacts from water main construction are implemented. These measures could include compliance with the new New York City Noise Code, use of newer equipment, mufflers and silencers, housings or enclosures for noise producing equipment, possible prohibition of the use of air or gasoline driven saws and similar equipment and implementation of a noise monitoring program. Although it will take 18 months to implement the construction provisions of the Noise Code passed in late December 2005, NYCDEP will work with the Contractor to develop “mitigation plans” for construction. These plans will be developed based on specific types of work and types of equipment listed in the Noise Code. Nighttime work will require stricter plans, with consideration given to distance to receptors.

Potential Noise Impacts

For each step and each shift, the existing ambient noise levels, noise levels generated by the construction equipment, and total combined existing and construction-generated noise levels are provided for each receptor location. The increase between the combined level and existing conditions is also provided. To determine potential noise impacts, this increase is compared to the 3 dBA CEQR impact threshold; those instances where the 3 dBA threshold is exceeded are shown in bold font on the tables.

First Avenue Route

Average Period Analysis—Avenue Segments

As shown in Table 5.12-4, the average period analysis for weekdays shows that incremental noise levels from construction would be greater than 3 dBA for all steps of construction. Potential impacts would occur at all receptors that are adjacent to the work zone—Receptors 2, 3, 4, 5, 6, 7, 12, 13, and 14 (see Figure 5.12-2). The noise analysis indicates that noise levels at these receptors would increase over existing conditions by between 4.0 and 17.5 dBA during shift 1 and 4.6 and 18.5 dBA during shift 2. These impacts would be marginally noticeable to intrusive. At receptors located on adjacent blocks (Receptors 1, 8, 9, 10 and 11) noise levels would increase over existing conditions by between 3.0 and 4.4 dBA during shift 1 and between 3.1 and 5.1 dBA during shift 2. These impacts would be marginally to readily noticeable.

If work were to occur during the weekend, potential impacts would occur at all receptors that are adjacent to the work zone—Receptors 2, 3, 4, 5, 6, 7, 12, 13, and 14. The noise analysis indicates that noise levels at these receptors would increase over existing conditions by between 6.0 and 20.4 dBA during shift 1 and 5.3 and 19.4 dBA during shift 2. These impacts would be readily noticeable to highly intrusive. At receptors located on adjacent blocks (Receptors 1, 8, 9, 10 and 11) noise levels would exceed the 3dBA CEQR impact threshold more frequently than during the weekday. At these receptors, increases over existing conditions ranged between 3.4 and 6.6 dBA during shift 1 and between 3.3 and 5.8 dBA during shift 2. These impacts would be marginally to readily noticeable.

Sensitive receptors facing the water main construction would experience elevated noise levels. On any given block, construction would typically last 12 weeks for the street segment and another 10 weeks for each intersection. Construction on one or two blocks for each of the potential water main routes could last a few weeks longer (see Section 5.1, “Project Description,” for more details on these durations). As such, each individual block segment could experience elevated noise levels for up to 32 weeks. This duration could be extended at the intersections of E. 55th Street and E. 56th Street along First Avenue where the water mains may have to cross the intersection twice (across both First Avenue and the cross street). In addition, during certain construction steps, marginally to readily noticeable noise impacts could spill over to adjacent blocks.

Average Period Analysis—Cross Street Segments

As shown in Table 5.12-5, the average period analysis for weekdays shows that incremental noise levels from construction during the weekday would be greater than 3 dBA for all steps of construction. Potential impacts would occur at all receptors that are adjacent to the work zone - the block segment where construction is occurring (see Figure 5.12-3 for locations of these receptors). The noise analysis indicates that noise levels at receptors adjacent to the work zone – Receptors 2, 3, 4, 5, 6, 9, 10, 11, 12—would increase over existing conditions by between 6.3 and 23.4 dBA during shifts 1 and 2. These impacts would be marginally noticeable to highly intrusive. Potential impacts could extend across the adjacent avenues to Receptors located along the adjacent eastern and western blocks (Receptors 1, 7, 8, and 13). Noise levels at these

Receptors would increase over existing conditions by between 3.1 and 6.8 dBA during both shifts. These impacts would be marginally to readily noticeable.

If work were to occur during the weekend, potential impacts would occur at all receptors that are adjacent to the work zone (the block segment where construction is occurring). The noise analysis indicates that noise levels at Receptors adjacent to the work zone would increase over existing conditions by between 8.7 and 26.4 dBA during shift 1 and by between 7.9 and 25.4 dBA during shift 2. These impacts would be marginally noticeable to highly intrusive. Potential noise impacts may also extend across the adjacent avenues to Receptors located along the adjacent eastern and western blocks (Receptors 1, 7, 8, and 13). Noise levels at these Receptors would increase over existing conditions by between 3.5 and 9.3 dBA during shift 1 and 3.0 and 8.5 during shift 2. These impacts would be marginally to readily noticeable.

Sensitive receptors facing the water main construction would experience elevated noise levels. Construction along the cross streets would be performed in half-block segments. Each half-block segment would last 12 weeks. Receptors along the segment would also experience potential impacts as the adjacent half-block and intersection were constructed. These elevated noise levels would last for approximately 34 weeks. In addition, during certain construction steps, marginally to readily noticeable noise impacts could spill over to adjacent blocks.

Average Period Analysis—Water Main with Venturi Chamber

As shown in Table 5.12-6, the average period analysis for construction of the water main with the venturi chamber shows that incremental noise levels from construction would be greater than 3 dBA for all steps of construction at all receptors with the exception of Receptor 1 which is located at a distance to the work zone (see Figure 5.12-4 for locations of these receptors). The noise analysis indicates that noise levels at receptors adjacent to the work zone would increase over existing conditions by between 5.2 and 17.5 dBA during shift 1 and between 6.0 and 18.5 dBA during shift 2. These impacts would be readily noticeable to intrusive. If work were to occur during the weekend, noise levels at receptors adjacent to the work zone would increase over existing conditions by between 7.5 and 20.4 dBA during shift 1 and 6.7 and 19.4 dBA during shift 2. These impacts would be readily noticeable to highly intrusive. Noise levels on adjacent blocks would be similar to the noise levels described under the avenue analysis. Noise levels at the adjacent blocks would exceed the 3dBA CEQR impact threshold during certain steps of construction during both shifts.

Sensitive receptors facing the water main with venturi chamber construction segment would experience elevated noise levels. Construction of the water main with the venturi chamber would last 20 weeks. Construction across the adjacent intersection would each take an additional 10 weeks to complete. As such, receptors along the water main with venturi chamber construction segment could experience elevated noise levels for 30 weeks. In addition, during certain construction steps, noise impacts could spill over from adjacent blocks.

Peak Period Analysis—Avenue Segments

As shown in Table 5.12-7, the peak period analysis shows that incremental noise levels from construction would be greater than 3 dBA for all steps of construction. Potential impacts would occur at most of the receptors that are adjacent to the work zone—Receptors 2, 3, 4, 5, 6, 7, 12, 13, and 14 (see Figure 5.12-2 for locations of these receptors). The noise analysis indicates that noise levels at these receptors would increase over existing conditions by between 3.1 and 23.0 dBA during shift 1 and 3.0 and 24.0 dBA during shift 2. These impacts would be marginally noticeable to highly intrusive. At receptors located on adjacent blocks (Receptors 1, 8, 9, 10 and 11), increases over existing conditions ranged between 3.0 and 9.6 dBA during shift 1 and between 3.2 and 10.5 dBA during shift 2. These impacts would be marginally noticeable to intrusive.

If work were to occur during the weekend, potential impacts would occur at virtually all receptors. The noise analysis indicates that noise levels at these receptors would increase over existing conditions by between 3.9 and 26.0 dBA during shift 1 and 3.3 and 25.0 dBA during shift 2. These impacts would be marginally noticeable to highly intrusive. At receptors located on adjacent blocks (Receptors 1, 8, 9, 10 and 11), increases over existing conditions ranged between 3.4 and 12.4 dBA during shift 1 and between 3.0 and 11.4 dBA during shift 2. These impacts would be marginally noticeable to intrusive.

As discussed above, under average conditions, impacts at receptors would last approximately 32 weeks (12 weeks for the avenue segment, and 10 weeks for each intersection).

Peak Period Analysis—Cross Street Segments

As shown in Table 5.12-8, the peak period analysis shows that incremental noise levels from construction during the weekday would be greater than 3 dBA for all construction steps. Potential impacts would occur at receptors that are adjacent to the work zone—the block segment where construction is occurring (see Figure 5.12-3 for locations of these receptors) and would extend across the avenue to the adjacent western block. The noise analysis indicates that noise levels at adjacent Receptors 2, 3, 4, 5, 6, 9, 10, 11, 12 would increase over existing conditions by between 3.1 and 32.7 dBA during shifts 1 and 2. These impacts would be marginally noticeable to highly intrusive. Potential impacts could extend across the adjacent avenue to receptors located along the adjacent eastern and western blocks (Receptors 1, 7, 8 and 13). Noise levels at these Receptors would increase over existing conditions by between 3.7 and 12.6 dBA during shifts 1 and 2. These impacts would be marginally noticeable to intrusive.

If work were to occur during the weekend, potential impacts would occur at all receptors that are adjacent to the work zone (the block segment where construction is occurring). The noise analysis indicates that noise levels at receptors adjacent to the work zone would increase over existing conditions by between 3.3 and 35.7 dBA during shift 1 and by between 3.2 and 34.7 dBA during shift 2. These impacts would be marginally noticeable to highly intrusive. Potential impacts could extend across the adjacent avenues to receptors located along the adjacent eastern and western blocks (Receptors 1, 7, 8 and 13). Noise levels at these Receptors would increase over existing conditions by between 3.5 and 15.5 dBA during shift 1 and by 3.0 to 14.6 dBA during shift 2. These impacts would be marginally noticeable to intrusive.

As discussed above, under average conditions, impacts at receptors would last approximately 34 weeks (12 weeks for each half-block segment, and 10 weeks for an intersection).

Peak Period Analysis—Water Main with Venturi Chamber

As shown in Table 5.12-9, the peak period analysis for construction of the water main with the venturi chamber shows that incremental noise levels from construction would be greater than 3 dBA for all steps of construction. The noise analysis indicates that noise levels at the other receptors would increase over existing conditions by between 3.0 and 23.0 dBA during shift 1 and 3.5 and 24.0 dBA during shift 2. These impacts would be marginally noticeable to highly intrusive. If work were to occur during the weekend, noise levels at these receptors would increase over existing conditions by between 3.5 and 26.0 dBA during shift 1 and 3.0 and 25.0 dBA during shift 2. These impacts would be marginally noticeable to highly intrusive. Noise levels on adjacent blocks would be similar to the noise levels described under the avenue analysis and may exceed the 3 dBA CEQR impact threshold during certain steps of construction during shifts 1 and 2.

As discussed above, under average conditions, impacts at receptors would last approximately 30 weeks (20 weeks for the avenue with venturi chamber, and 10 weeks for the intersection).

Potential Noise Impacts—Sutton Place Route

Average and peak period analyses of potential noise impacts were prepared for the Avenue portion of the Sutton Place route and are presented below. The analysis for the cross streets and the water main with venturi chamber presented under the First Avenue route is representative of the effects that would result for those elements if the water mains were constructed along the Sutton Place route.

Average Period Analysis –Avenue Segments

As shown on Table 5.12-10, the average period Sutton Place analysis for weekdays shows that incremental noise levels from construction would be greater than 3 dBA for all construction steps. Potential impacts would occur at all receptors that are adjacent to the work zone—Receptors 2, 3, 4, 5, 6, 7, 12, 13, and 14 (see Figure 5.12-5). The noise analysis indicates that noise levels at these receptors would increase over existing conditions by between 6.0 and 20.4 dBA during shift 1 and 8.5 and 23.4 dBA during shift 2. These impacts would be readily noticeable to highly intrusive. Noise levels at Receptor 1, which is located away from the construction zone, do not exceed the 3 dBA CEQR impact threshold for any step of construction. At receptors located on adjacent blocks (Receptors 8, 9, 10 and 11) noise levels exceed the 3dBA CEQR impact threshold during all shifts and steps of construction. The noise analysis indicates that noise levels at these receptors would increase over existing conditions by 3.4 to 6.6 dBA during shift 1 and 3.9 to 9.1 dBA during shift 2. These impacts would be marginally to readily noticeable.

If work were to occur during the weekend, potential impacts would occur at all receptors that are adjacent to the work zone—Receptors 2, 3, 4, 5, 6, 7, 12, 13, and 14. The noise analysis indicates that noise levels at these receptors would increase over existing conditions by between 13.0 and

28.4 dBA during shift 1 and 10.2 and 25.4 dBA during shift 2. These impacts would be intrusive to highly intrusive. At receptors located on adjacent blocks (Receptors 1, 8, 9, 10 and 11), increases over existing conditions ranged between 7.5 and 13.7 dBA during shift 1 and between 5.2 and 10.9 dBA during shift 2. These impacts would be readily noticeable to intrusive.

Sensitive receptors facing the water main construction would experience elevated noise levels. On any given block, construction would typically last 12 weeks for the street segment and another 10 weeks for each intersection. Construction on one or two blocks for each of the potential water main routes could last a few weeks longer (see Section 5.1, “Project Description,” for more details on these durations). As such, each individual block segment could experience elevated noise levels for up to 32 weeks. This duration could be extended at the intersections of E. 55th Street and E. 56th Street along Sutton Place where the water mains may have to cross the intersection twice (across both Sutton Place and the cross street). In addition, during certain construction steps, marginally to readily noticeable noise impacts could spill over to adjacent blocks.

Peak Period Analysis—Avenue Segments

As shown on Table 5.12-11, the peak period Sutton Place analysis for weekdays shows that incremental noise levels from construction would be greater than 3 dBA for all steps of construction. Potential impacts would occur at all receptors that are adjacent to the work zone—Receptors 2, 3, 4, 5, 6, 7, 12, 13, and 14 (see Figure 5.12-5). The noise analysis indicates that noise levels at these receptors would increase over existing conditions by between 3.9 and 26.0 dBA during shift 1 and 5.9 and 29.0 dBA during shift 2. These impacts would be marginally noticeable to highly intrusive. Noise levels at Receptor 1, which is located away from the construction zone, do not exceed the 3 dBA CEQR impact threshold except during step 1 when noise levels would increase over existing conditions by 3.9 dBA during shift 1 and 5.9 dBA during shift 2. At receptors located on adjacent blocks (Receptors 8, 9, 10 and 11), the noise analysis indicates that noise levels at these receptors would increase over existing conditions by 3.4 to 12.4 dBA during shift 1 and 4.1 to 15.2 dBA during shift 2. These impacts would be marginally noticeable to intrusive.

If work were to occur during the weekend, potential impacts would occur at virtually all receptors that are adjacent to the work zone—Receptors 2, 3, 4, 5, 6, 7, 12, 13, and 14. The noise analysis indicates that noise levels at these receptors would increase over existing conditions by between 10.1 and 34.0 dBA during shift 1 and 7.5 and 31.0 dBA during shift 2. These impacts would be readily noticeable to highly intrusive. At receptors located on adjacent blocks (Receptors 1, 8, 9, 10 and 11), increases over existing conditions ranged between 3.2 and 20.1 dBA during shift 1 and between 3.2 and 17.2 dBA during shift 2. These impacts would be marginally noticeable to intrusive.

As discussed above, under average conditions, impacts at receptors would last approximately 32 weeks (12 weeks for the avenue segment, and 10 weeks for each intersection).

Potential Noise Impacts—E. 59th Street/E. 61st Street Route

Average and peak period analyses of potential noise impacts were prepared for the cross street portion of the E. 59th Street/E. 61st Street route and are presented below. The analysis for the avenue and the water main with venturi chamber presented under the First Avenue route is representative of the range of effects that would result if the water mains were constructed along the E. 59th Street/E. 61st Street route.

Average Period Analysis—Cross Street Segments

As shown in Table 5.12-12, the average period analysis for weekdays shows that incremental noise levels from construction during the weekday would be greater than 3 dBA for all steps of construction. Potential impacts would occur at all receptors that are adjacent to the work zone - the block segment where construction is occurring (see Figure 5.12-6 for locations of these receptors). The noise analysis indicates that noise levels at receptors adjacent to the work zone would increase over existing conditions by between 4.2 and 20.4 dBA during shift 1 and between 6.3 and 23.4 dBA during shift 2. These impacts would be marginally noticeable to highly intrusive. Potential impacts could also extend across the adjacent avenues to Receptors located along the adjacent eastern and western blocks (Receptors 1, 7, 8, and 13). Noise levels at these Receptors would increase over existing conditions by between 3.2 and 4.6 dBA during shift 1 and between 3.1 and 6.8 dBA during shift 2. These impacts would be marginally to readily noticeable.

If work were to occur during the weekend, potential impacts would occur at all receptors that are adjacent to the work zone (the block segment where construction is occurring). The noise analysis indicates that noise levels at receptors adjacent to the work zone would increase over existing conditions by between 7.9 and 25.4 dBA during shifts 1 and 2. These impacts would be readily noticeable to highly intrusive. Potential noise impacts may also extend across the adjacent avenues to Receptors located along the adjacent eastern and western blocks (Receptors 1, 7, 8, and 13). Noise levels at these Receptors would increase over existing conditions by between 3.0 and 8.5 dBA during shifts 1 and 2. These impacts would be marginally to readily noticeable.

Sensitive receptors facing the water main construction would experience elevated noise levels. Construction along the cross streets would be performed in half-block segments. Each half-block segment would last 12 weeks. Receptors along the segment would also experience potential impacts as the adjacent half-block and intersection were constructed. These elevated noise levels would last for approximately 34 weeks. Construction on one or two blocks for each of the potential water main routes could last a few weeks longer (see Section 5.1, “Project Description,” for more details on these durations). In addition, during certain construction steps, marginally to readily noticeable noise impacts could spill over to adjacent blocks.

Peak Period Analysis—Cross Street Segments

As shown in Table 5.12-13, the peak period analysis shows that incremental noise levels from construction during the weekday would be greater than 3 dBA for all construction steps.

Potential impacts would occur at receptors that are adjacent to the work zone—the block segment where construction is occurring (see Figure 5.12-6 for locations of these receptors) and would extend across the avenue to the adjacent western block. The noise analysis indicates that noise levels at receptors adjacent to the work zone would increase over existing conditions by between 3.2 and 29.7 dBA during shift 1 and between 3.1 and 32.7 dBA during shift 2. These impacts would be marginally noticeable to highly intrusive. Potential impacts could extend across the adjacent avenue to receptors located along the adjacent eastern and western blocks (Receptors 1, 7, 8 and 13). Noise levels at these receptors would increase over existing conditions by between 3.2 and 9.9 dBA during shift 1 and between 3.7 and 12.6 during shift 2. These impacts would be marginally noticeable to intrusive.

If work were to occur during the weekend, potential impacts would occur at all receptors that are adjacent to the work zone (the block segment where construction is occurring). The noise analysis indicates that noise levels at Receptors adjacent to the work zone would increase over existing conditions by between 3.2 and 34.7 dBA during shifts 1 and 2. These impacts would be marginally noticeable to highly intrusive. Potential noise impacts may also extend across the adjacent avenues to Receptors located along the adjacent eastern and western blocks (Receptors 1, 7, 8, and 13). Noise levels at these Receptors would increase over existing conditions by between 3.0 and 14.6 dBA during shifts 1 and 2. These impacts would be marginally noticeable to intrusive.

As discussed above, under average conditions, impacts at receptors would last approximately 34 weeks (12 weeks for each half-block segment, and 10 weeks for an intersection).

CHAPTER 5: WATER MAIN CONNECTIONS
5.12 NOISE

Table 5.12-4
Water Main Without Venturi - First Avenue
Average Analysis - Weekday and Weekend

Weekday Average Analysis Stage 1 Construction										Weekend Average Analysis Stage 1 Construction									
Shift 1					Shift 2					Shift 1					Shift 2				
Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase
1	73	61.1	73	0.3	1	72	61.1	72	0.3	1	70	61.1	71	0.5	1	71	61.1	71	0.4
2	73	79.9	81	7.7	2	72	79.9	81	8.6	2	70	79.9	80	10.3	2	71	79.9	80	9.4
3	73	82.5	83	10.0	3	72	82.5	83	10.9	3	70	82.5	83	12.7	3	71	82.5	83	11.8
4	73	80	81	7.8	4	72	80	81	8.6	4	70	80	80	10.4	4	71	80	81	9.5
5	73	83.7	84	11.1	5	72	83.7	84	12.0	5	70	83.7	84	13.9	5	71	83.7	84	12.9
6	73	90.4	90	17.5	6	72	90.4	90	18.5	6	70	90.4	90	20.4	6	71	90.4	90	19.4
7	73	85	85	12.3	7	72	85	85	13.2	7	70	85	85	15.1	7	71	85	85	14.2
8	73	75	77	4.1	8	72	75	77	4.8	8	70	75	76	6.2	8	71	75	76	5.5
9	73	74.3	77	3.7	9	72	74.3	76	4.3	9	70	74.3	76	5.7	9	71	74.3	76	5.0
10	73	75.5	77	4.4	10	72	75.5	77	5.1	10	70	75.5	77	6.6	10	71	75.5	77	5.8
11	73	74.6	77	3.9	11	72	74.6	77	4.5	11	70	74.6	76	5.9	11	71	74.6	76	5.2
12	73	80.9	82	8.6	12	72	80.9	81	9.4	12	70	80.9	81	11.2	12	71	80.9	81	10.3
13	73	82.1	83	9.6	13	72	82.1	83	10.5	13	70	82.1	82	12.4	13	71	82.1	82	11.4
14	73	89.2	89	16.3	14	72	89.2	89	17.3	14	70	89.2	89	19.3	14	71	89.2	89	18.3
Stage 2 Construction										Stage 2 Construction									
Shift 1					Shift 2					Shift 1					Shift 2				
Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase
1	73	58.4	73	0.1	1	72	58.4	72	0.2	1	70	58.4	70	0.3	1	71	58.4	71	0.2
2	73	76.8	78	5.3	2	72	76.8	78	6.0	2	70	76.8	78	7.6	2	71	76.8	78	6.8
3	73	79.7	81	7.5	3	72	79.7	80	8.4	3	70	79.7	80	10.1	3	71	79.7	80	9.2
4	73	76.9	78	5.4	4	72	76.9	78	6.1	4	70	76.9	78	7.7	4	71	76.9	78	6.9
5	73	79.3	80	7.2	5	72	79.3	80	8.0	5	70	79.3	80	9.8	5	71	79.3	80	8.9
6	73	84.3	85	11.6	6	72	84.3	85	12.5	6	70	84.3	84	14.5	6	71	84.3	84	13.5
7	73	80.5	81	8.2	7	72	80.5	81	9.1	7	70	80.5	81	10.9	7	71	80.5	81	10.0
8	73	71.5	75	2.3	8	72	71.5	75	2.8	8	70	71.5	74	3.8	8	71	71.5	74	3.3
9	73	70.7	75	2.0	9	72	70.7	74	2.4	9	70	70.7	73	3.4	9	71	70.7	74	2.9
10	73	71.7	75	2.4	10	72	71.7	75	2.9	10	70	71.7	74	3.9	10	71	71.7	74	3.4
11	73	70.8	75	2.0	11	72	70.8	74	2.5	11	70	70.8	73	3.4	11	71	70.8	74	2.9
12	73	78	79	6.2	12	72	78	79	7.0	12	70	78	79	8.6	12	71	78	79	7.8
13	73	79.4	80	7.3	13	72	79.4	80	8.1	13	70	79.4	80	9.9	13	71	79.4	80	9.0
14	73	83.9	84	11.2	14	72	83.9	84	12.2	14	70	83.9	84	14.1	14	71	83.9	84	13.1
Stage 3 Construction										Stage 3 Construction									
Shift 1					Shift 2					Shift 1					Shift 2				
Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase
1	73	56.1	73	0.1	1	72	56.1	72	0.1	1	70	56.1	70	0.2	1	71	56.1	71	0.1
2	73	74.8	77	4.0	2	72	74.8	77	4.6	2	70	74.8	76	6.0	2	71	74.8	76	5.3
3	73	77.8	79	6.0	3	72	77.8	79	6.8	3	70	77.8	78	8.5	3	71	77.8	79	7.6
4	73	75	77	4.1	4	72	75	77	4.8	4	70	75	76	6.2	4	71	75	76	5.5
5	73	77	78	5.5	5	72	77	78	6.2	5	70	77	78	7.8	5	71	77	78	7.0
6	73	81.4	82	9.0	6	72	81.4	82	9.9	6	70	81.4	82	11.7	6	71	81.4	82	10.8
7	73	78	79	6.2	7	72	78	79	7.0	7	70	78	79	8.6	7	71	78	79	7.8
8	73	69.4	75	1.6	8	72	69.4	74	1.9	8	70	69.4	73	2.7	8	71	69.4	73	2.3
9	73	68.7	74	1.4	9	72	68.7	74	1.7	9	70	68.7	72	2.4	9	71	68.7	73	2.0
10	73	69.7	75	1.7	10	72	69.7	74	2.0	10	70	69.7	73	2.9	10	71	69.7	73	2.4
11	73	68.8	74	1.4	11	72	68.8	74	1.7	11	70	68.8	72	2.5	11	71	68.8	73	2.0
12	73	76.1	78	4.8	12	72	76.1	78	5.5	12	70	76.1	77	7.1	12	71	76.1	77	6.3
13	73	77.6	79	5.9	13	72	77.6	79	6.7	13	70	77.6	78	8.3	13	71	77.6	78	7.5
14	73	81.2	82	8.8	14	72	81.2	82	9.7	14	70	81.2	82	11.5	14	71	81.2	82	10.6

CHAPTER 5: WATER MAIN CONNECTIONS
5.12 NOISE

Table 5.12-4 (cont'd)
Water Main Without Venturi - First Avenue
Average Analysis - Weekday and Weekend

Weekday Average Analysis Stage 4 Construction										Weekend Average Analysis Stage 4 Construction									
Shift 1					Shift 2					Shift 1					Shift 2				
Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase
1	73	59.8	73	0.2	1	72	59.8	72	0.3	1	70	59.8	70	0.4	1	71	59.8	71	0.3
2	73	77.6	79	5.9	2	72	77.6	79	6.7	2	70	77.6	78	8.3	2	71	77.6	78	7.5
3	73	80.3	81	8.0	3	72	80.3	81	8.9	3	70	80.3	81	10.7	3	71	80.3	81	9.8
4	73	77.7	79	6.0	4	72	77.7	79	6.7	4	70	77.7	78	8.4	4	71	77.7	79	7.5
5	73	80.9	82	8.6	5	72	80.9	81	9.4	5	70	80.9	81	11.2	5	71	80.9	81	10.3
6	73	86.9	87	14.1	6	72	86.9	87	15.0	6	70	86.9	87	17.0	6	71	86.9	87	16.0
7	73	82.1	83	9.6	7	72	82.1	83	10.5	7	70	82.1	82	12.4	7	71	82.1	82	11.4
8	73	72.5	76	2.8	8	72	72.5	75	3.3	8	70	72.5	74	4.4	8	71	72.5	75	3.8
9	73	71.8	75	2.5	9	72	71.8	75	2.9	9	70	71.8	74	4.0	9	71	71.8	74	3.4
10	73	73	76	3.0	10	72	73	76	3.5	10	70	73	75	4.8	10	71	73	75	4.1
11	73	72.1	76	2.6	11	72	72.1	75	3.1	11	70	72.1	74	4.2	11	71	72.1	75	3.6
12	73	78.6	80	6.7	12	72	78.6	79	7.5	12	70	78.6	79	9.2	12	71	78.6	79	8.3
13	73	79.9	81	7.7	13	72	79.9	81	8.6	13	70	79.9	80	10.3	13	71	79.9	80	9.4
14	73	86	86	13.2	14	72	86	86	14.2	14	70	86	86	16.1	14	71	86	86	15.1

CHAPTER 5: WATER MAIN CONNECTIONS
5.12 NOISE

Table 5.12-5
Cross Street Analysis - First Avenue
Average Analysis - Weekday and Weekend

Weekday Average Condition Stage 1 Construction										Weekend Average Condition Stage 1 Construction									
Shift 1					Shift 2					Shift 1					Shift 2				
Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase
1	66	69.9	71	5.4	1	66	69.9	71	5.4	1	63	69.9	71	7.7	1	64	69.9	71	6.9
2	66	77.4	78	11.7	2	66	77.4	78	11.7	2	63	77.4	78	14.6	2	64	77.4	78	13.6
3	66	85.1	85	19.2	3	66	85.1	85	19.2	3	63	85.1	85	22.1	3	64	85.1	85	21.1
4	66	84.3	84	18.4	4	66	84.3	84	18.4	4	63	84.3	84	21.3	4	64	84.3	84	20.3
5	66	89.4	89	23.4	5	66	89.4	89	23.4	5	63	89.4	89	26.4	5	64	89.4	89	25.4
6	66	77.7	78	12.0	6	66	77.7	78	12.0	6	63	77.7	78	14.8	6	64	77.7	78	13.9
7	66	71.8	73	6.8	7	66	71.8	73	6.8	7	63	71.8	72	9.3	7	64	71.8	72	8.5
8	66	67.7	70	3.9	8	66	67.7	70	3.9	8	63	67.7	69	6.0	8	64	67.7	69	5.2
9	66	85.5	86	19.5	9	66	85.5	86	19.5	9	63	85.5	86	22.5	9	64	85.5	86	21.5
10	66	85.9	86	19.9	10	66	85.9	86	19.9	10	63	85.9	86	22.9	10	64	85.9	86	21.9
11	66	84.2	84	18.3	11	66	84.2	84	18.3	11	63	84.2	84	21.2	11	64	84.2	84	20.2
12	66	76.7	77	11.1	12	66	76.7	77	11.1	12	63	76.7	77	13.9	12	64	76.7	77	12.9
13	66	67.8	70	4.0	13	66	67.8	70	4.0	13	63	67.8	69	6.0	13	64	67.8	69	5.3
Stage 2 Construction										Stage 2 Construction									
Shift 1					Shift 2					Shift 1					Shift 2				
Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase
1	66	66.3	69	3.2	1	66	66.3	69	3.2	1	63	66.3	68	5.0	1	64	66.3	68	4.3
2	66	73.6	74	8.3	2	66	73.6	74	8.3	2	63	73.6	74	11.0	2	64	73.6	74	10.1
3	66	80.9	81	15.0	3	66	80.9	81	15.0	3	63	80.9	81	18.0	3	64	80.9	81	17.0
4	66	80.4	81	14.6	4	66	80.4	81	14.6	4	63	80.4	80	17.5	4	64	80.4	80	16.5
5	66	84.6	85	18.7	5	66	84.6	85	18.7	5	63	84.6	85	21.6	5	64	84.6	85	20.6
6	66	73.9	75	8.6	6	66	73.9	75	8.6	6	63	73.9	74	11.2	6	64	73.9	74	10.3
7	66	68.1	70	4.2	7	66	68.1	70	4.2	7	63	68.1	69	6.3	7	64	68.1	70	5.5
8	66	64	68	2.1	8	66	64	68	2.1	8	63	64	67	3.5	8	64	64	67	3.0
9	66	83	83	17.1	9	66	83	83	17.1	9	63	83	83	20.0	9	64	83	83	19.1
10	66	83.3	83	17.4	10	66	83.3	83	17.4	10	63	83.3	83	20.3	10	64	83.3	83	19.4
11	66	81.1	81	15.2	11	66	81.1	81	15.2	11	63	81.1	81	18.2	11	64	81.1	81	17.2
12	66	73.1	74	7.9	12	66	73.1	74	7.9	12	63	73.1	74	10.5	12	64	73.1	74	9.6
13	66	64.1	68	2.2	13	66	64.1	68	2.2	13	63	64.1	67	3.6	13	64	64.1	67	3.1
Stage 3 Construction										Stage 3 Construction									
Shift 1					Shift 2					Shift 1					Shift 2				
Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase
1	66	64.2	68	2.2	1	66	64.2	68	2.2	1	63	64.2	67	3.7	1	64	64.2	67	3.1
2	66	71.4	73	6.5	2	66	71.4	73	6.5	2	63	71.4	72	9.0	2	64	71.4	72	8.1
3	66	78.7	79	12.9	3	66	78.7	79	12.9	3	63	78.7	79	15.8	3	64	78.7	79	14.8
4	66	78.3	79	12.5	4	66	78.3	79	12.5	4	63	78.3	78	15.4	4	64	78.3	78	14.5
5	66	81.9	82	16.0	5	66	81.9	82	16.0	5	63	81.9	82	19.0	5	64	81.9	82	18.0
6	66	71.8	73	6.8	6	66	71.8	73	6.8	6	63	71.8	72	9.3	6	64	71.8	72	8.5
7	66	66.1	69	3.1	7	66	66.1	69	3.1	7	63	66.1	68	4.8	7	64	66.1	68	4.2
8	66	62	67	1.5	8	66	62	67	1.5	8	63	62	66	2.5	8	64	62	66	2.1
9	66	81.1	81	15.2	9	66	81.1	81	15.2	9	63	81.1	81	18.2	9	64	81.1	81	17.2
10	66	81.4	82	15.5	10	66	81.4	82	15.5	10	63	81.4	81	18.5	10	64	81.4	81	17.5
11	66	79.2	79	13.4	11	66	79.2	79	13.4	11	63	79.2	79	16.3	11	64	79.2	79	15.3
12	66	71.1	72	6.3	12	66	71.1	72	6.3	12	63	71.1	72	8.7	12	64	71.1	72	7.9
13	66	62.2	68	1.5	13	66	62.2	68	1.5	13	63	62.2	66	2.6	13	64	62.2	66	2.2

CHAPTER 5: WATER MAIN CONNECTIONS
5.12 NOISE

Table 5.12-5 (cont'd)
Cross Street Analysis - First Avenue
Average Analysis - Weekday and Weekend

Weekday Average Condition Stage 4 Construction										Weekend Average Condition Stage 4 Construction									
Shift 1					Shift 2					Shift 1					Shift 2				
Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase
1	66	67.6	70	3.9	1	66	67.6	70	3.9	1	63	67.6	69	5.9	1	64	67.6	69	5.2
2	66	74.9	75	9.4	2	66	74.9	75	9.4	2	63	74.9	75	12.2	2	64	74.9	75	11.2
3	66	82.4	82	16.5	3	66	82.4	82	16.5	3	63	82.4	82	19.4	3	64	82.4	82	18.5
4	66	81.7	82	15.8	4	66	81.7	82	15.8	4	63	81.7	82	18.8	4	64	81.7	82	17.8
5	66	86.5	87	20.5	5	66	86.5	87	20.5	5	63	86.5	87	23.5	5	64	86.5	87	22.5
6	66	75.2	76	9.7	6	66	75.2	76	9.7	6	63	75.2	75	12.5	6	64	75.2	76	11.5
7	66	69.4	71	5.0	7	66	69.4	71	5.0	7	63	69.4	70	7.3	7	64	69.4	71	6.5
8	66	65.4	69	2.7	8	66	65.4	69	2.7	8	63	65.4	67	4.4	8	64	65.4	68	3.8
9	66	83.4	83	17.5	9	66	83.4	83	17.5	9	63	83.4	83	20.4	9	64	83.4	83	19.4
10	66	83.8	84	17.9	10	66	83.8	84	17.9	10	63	83.8	84	20.8	10	64	83.8	84	19.8
11	66	82	82	16.1	11	66	82	82	16.1	11	63	82	82	19.1	11	64	82	82	18.1
12	66	74.3	75	8.9	12	66	74.3	75	8.9	12	63	74.3	75	11.6	12	64	74.3	75	10.7
13	66	65.5	69	2.8	13	66	65.5	69	2.8	13	63	65.5	67	4.4	13	64	65.5	68	3.8

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Table 5.12-6
Water Main with Venturi Chamber - First Avenue
Average Analysis - Weekday and Weekend

Weekday Average Analysis										Weekend Average Analysis									
Stage 1 Construction					Stage 2 Construction					Stage 3 Construction					Stage 4 Construction				
Shift 1					Shift 2					Shift 1					Shift 2				
Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase
1	73	61	73	0.3	1	72	61	72	0.3	1	70	61	71	0.5	1	71	61	71	0.4
2	73	79.8	81	7.6	2	72	79.8	80	8.5	2	70	79.8	80	10.2	2	71	79.8	80	9.3
3	73	82.4	83	9.9	3	72	82.4	83	10.8	3	70	82.4	83	12.6	3	71	82.4	83	11.7
4	73	79.8	81	7.6	4	72	79.8	80	8.5	4	70	79.8	80	10.2	4	71	79.8	80	9.3
5	73	83.6	84	11.0	5	72	83.6	84	11.9	5	70	83.6	84	13.8	5	71	83.6	84	12.8
6	73	90.4	90	17.5	6	72	90.4	90	18.5	6	70	90.4	90	20.4	6	71	90.4	90	19.4
7	73	85	85	12.3	7	72	85	85	13.2	7	70	85	85	15.1	7	71	85	85	14.2
1	73	58.3	73	0.1	1	72	58.3	72	0.2	1	70	58.3	70	0.3	1	71	58.3	71	0.2
2	73	76.7	78	5.2	2	72	76.7	78	6.0	2	70	76.7	78	7.5	2	71	76.7	78	6.7
3	73	79.6	80	7.5	3	72	79.6	80	8.3	3	70	79.6	80	10.1	3	71	79.6	80	9.2
4	73	76.7	78	5.2	4	72	76.7	78	6.0	4	70	76.7	78	7.5	4	71	76.7	78	6.7
5	73	79.2	80	7.1	5	72	79.2	80	8.0	5	70	79.2	80	9.7	5	71	79.2	80	8.8
6	73	84.3	85	11.6	6	72	84.3	85	12.5	6	70	84.3	84	14.5	6	71	84.3	84	13.5
7	73	80.5	81	8.2	7	72	80.5	81	9.1	7	70	80.5	81	10.9	7	71	80.5	81	10.0
1	73	58.6	73	0.2	1	72	58.6	72	0.2	1	70	58.6	70	0.3	1	71	58.6	71	0.2
2	73	77.1	79	5.5	2	72	77.1	78	6.3	2	70	77.1	78	7.9	2	71	77.1	78	7.1
3	73	80.1	81	7.9	3	72	80.1	81	8.7	3	70	80.1	81	10.5	3	71	80.1	81	9.6
4	73	77.2	79	5.6	4	72	77.2	78	6.3	4	70	77.2	78	8.0	4	71	77.2	78	7.1
5	73	79.4	80	7.3	5	72	79.4	80	8.1	5	70	79.4	80	9.9	5	71	79.4	80	9.0
6	73	84.1	84	11.4	6	72	84.1	84	12.4	6	70	84.1	84	14.3	6	71	84.1	84	13.3
7	73	80.6	81	8.3	7	72	80.6	81	9.2	7	70	80.6	81	11.0	7	71	80.6	81	10.1
1	73	59.7	73	0.2	1	72	59.7	72	0.2	1	70	59.7	70	0.4	1	71	59.7	71	0.3
2	73	77.5	79	5.8	2	72	77.5	79	6.6	2	70	77.5	78	8.2	2	71	77.5	78	7.4
3	73	80.2	81	8.0	3	72	80.2	81	8.8	3	70	80.2	81	10.6	3	71	80.2	81	9.7
4	73	77.4	79	5.7	4	72	77.4	79	6.5	4	70	77.4	78	8.1	4	71	77.4	78	7.3
5	73	80.8	81	8.5	5	72	80.8	81	9.3	5	70	80.8	81	11.1	5	71	80.8	81	10.2
6	73	86.9	87	14.1	6	72	86.9	87	15.0	6	70	86.9	87	17.0	6	71	86.9	87	16.0
7	73	82	83	9.5	7	72	82	82	10.4	7	70	82	82	12.3	7	71	82	82	11.3

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5.12 NOISE

Table 5.12-7
Water Main Without Venturi - First Avenue
Peak Analysis - Weekday and Weekend

Weekday Peak Analysis										Weekend Peak Analysis									
Stage 1 Construction										Stage 1 Construction									
Shift 1					Shift 2					Shift 1					Shift 2				
Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase
1	73	71.6	75	2.4	1	72	71.6	75	2.8	1	70	71.6	74	3.9	1	71	71.6	74	3.3
2	73	88.9	89	16.0	2	72	88.9	89	17.0	2	70	88.9	89	19.0	2	71	88.9	89	18.0
3	73	87.9	88	15.0	3	72	87.9	88	16.0	3	70	87.9	88	18.0	3	71	87.9	88	17.0
4	73	82.6	83	10.1	4	72	82.6	83	11.0	4	70	82.6	83	12.8	4	71	82.6	83	11.9
5	73	83.2	84	10.6	5	72	83.2	84	11.5	5	70	83.2	83	13.4	5	71	83.2	83	12.5
6	73	88.7	89	15.8	6	72	88.7	89	16.8	6	70	88.7	89	18.8	6	71	88.7	89	17.8
7	73	96	96	23.0	7	72	96	96	24.0	7	70	96	96	26.0	7	71	96	96	25.0
8	73	80	81	7.8	8	72	80	81	8.6	8	70	80	80	10.4	8	71	80	81	9.5
9	73	81.7	82	9.2	9	72	81.7	82	10.1	9	70	81.7	82	12.0	9	71	81.7	82	11.1
10	73	80.3	81	8.0	10	72	80.3	81	8.9	10	70	80.3	81	10.7	10	71	80.3	81	9.8
11	73	82.1	83	9.6	11	72	82.1	83	10.5	11	70	82.1	82	12.4	11	71	82.1	82	11.4
12	73	90.1	90	17.2	12	72	90.1	90	18.2	12	70	90.1	90	20.1	12	71	90.1	90	19.2
13	73	84	84	11.3	13	72	84	84	12.3	13	70	84	84	14.2	13	71	84	84	13.2
14	73	90.5	91	17.6	14	72	90.5	91	18.6	14	70	90.5	91	20.5	14	71	90.5	91	19.5
Stage 2 Construction										Stage 2 Construction									
Shift 1					Shift 2					Shift 1					Shift 2				
Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase
1	73	62.4	73	0.4	1	72	62.4	72	0.5	1	70	62.4	71	0.7	1	71	62.4	72	0.6
2	73	80.6	81	8.3	2	72	80.6	81	9.2	2	70	80.6	81	11.0	2	71	80.6	81	10.1
3	73	79.4	80	7.3	3	72	79.4	80	8.1	3	70	79.4	80	9.9	3	71	79.4	80	9.0
4	73	73.6	76	3.3	4	72	73.6	76	3.9	4	70	73.6	75	5.2	4	71	73.6	76	4.5
5	73	74.2	77	3.7	5	72	74.2	76	4.2	5	70	74.2	76	5.6	5	71	74.2	76	4.9
6	73	79.7	81	7.5	6	72	79.7	80	8.4	6	70	79.7	80	10.1	6	71	79.7	80	9.2
7	73	86.6	87	13.8	7	72	86.6	87	14.7	7	70	86.6	87	16.7	7	71	86.6	87	15.7
8	73	71	75	2.1	8	72	71	75	2.5	8	70	71	74	3.5	8	71	71	74	3.0
9	73	72.8	76	2.9	9	72	72.8	75	3.4	9	70	72.8	75	4.6	9	71	72.8	75	4.0
10	73	71.1	75	2.2	10	72	71.1	75	2.6	10	70	71.1	74	3.6	10	71	71.1	74	3.1
11	73	73	76	3.0	11	72	73	76	3.5	11	70	73	75	4.8	11	71	73	75	4.1
12	73	82	83	9.5	12	72	82	82	10.4	12	70	82	82	12.3	12	71	82	82	11.3
13	73	75.2	77	4.2	13	72	75.2	77	4.9	13	70	75.2	76	6.3	13	71	75.2	77	5.6
14	73	81.5	82	9.1	14	72	81.5	82	10.0	14	70	81.5	82	11.8	14	71	81.5	82	10.9
Stage 3 Construction										Stage 3 Construction									
Shift 1					Shift 2					Shift 1					Shift 2				
Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase
1	73	62.7	73	0.4	1	72	62.7	72	0.5	1	70	62.7	71	0.7	1	71	62.7	72	0.6
2	73	78.7	80	6.7	2	72	78.7	80	7.5	2	70	78.7	79	9.2	2	71	78.7	79	8.4
3	73	77.4	79	5.7	3	72	77.4	79	6.5	3	70	77.4	78	8.1	3	71	77.4	78	7.3
4	73	71.6	75	2.4	4	72	71.6	75	2.8	4	70	71.6	74	3.9	4	71	71.6	74	3.3
5	73	72	76	2.5	5	72	72	75	3.0	5	70	72	74	4.1	5	71	72	75	3.5
6	73	77.2	79	5.6	6	72	77.2	78	6.3	6	70	77.2	78	8.0	6	71	77.2	78	7.1
7	73	83.2	84	10.6	7	72	83.2	84	11.5	7	70	83.2	83	13.4	7	71	83.2	83	12.5
8	73	69	74	1.5	8	72	69	74	1.8	8	70	69	73	2.5	8	71	69	73	2.1
9	73	70.8	75	2.0	9	72	70.8	74	2.5	9	70	70.8	73	3.4	9	71	70.8	74	2.9
10	73	69.2	75	1.5	10	72	69.2	74	1.8	10	70	69.2	73	2.6	10	71	69.2	73	2.2
11	73	70.9	75	2.1	11	72	70.9	74	2.5	11	70	70.9	73	3.5	11	71	70.9	74	3.0
12	73	80.3	81	8.0	12	72	80.3	81	8.9	12	70	80.3	81	10.7	12	71	80.3	81	9.8
13	73	73.2	76	3.1	13	72	73.2	76	3.7	13	70	73.2	75	4.9	13	71	73.2	75	4.2
14	73	78.8	80	6.8	14	72	78.8	80	7.6	14	70	78.8	79	9.3	14	71	78.8	79	8.5

CHAPTER 5: WATER MAIN CONNECTIONS
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Table 5.12-7 (cont'd)
Water Main Without Venturi - First Avenue
Peak Analysis - Weekday and Weekend

Weekday Peak Analysis										Weekend Peak Analysis									
Stage 4 Construction										Stage 4 Construction									
Shift 1					Shift 2					Shift 1					Shift 2				
Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase
1	73	65.4	74	0.7	1	72	65.4	73	0.9	1	70	65.4	71	1.3	1	71	65.4	72	1.1
2	73	81.6	82	9.2	2	72	81.6	82	10.1	2	70	81.6	82	11.9	2	71	81.6	82	11.0
3	73	80.5	81	8.2	3	72	80.5	81	9.1	3	70	80.5	81	10.9	3	71	80.5	81	10.0
4	73	75	77	4.1	4	72	75	77	4.8	4	70	75	76	6.2	4	71	75	76	5.5
5	73	75.5	77	4.4	5	72	75.5	77	5.1	5	70	75.5	77	6.6	5	71	75.5	77	5.8
6	73	80.9	82	8.6	6	72	80.9	81	9.4	6	70	80.9	81	11.2	6	71	80.9	81	10.3
7	73	87.8	88	14.9	7	72	87.8	88	15.9	7	70	87.8	88	17.9	7	71	87.8	88	16.9
8	73	72.4	76	2.7	8	72	72.4	75	3.2	8	70	72.4	74	4.4	8	71	72.4	75	3.8
9	73	74.1	77	3.6	9	72	74.1	76	4.2	9	70	74.1	76	5.5	9	71	74.1	76	4.8
10	73	72.6	76	2.8	10	72	72.6	75	3.3	10	70	72.6	75	4.5	10	71	72.6	75	3.9
11	73	74.4	77	3.8	11	72	74.4	76	4.4	11	70	74.4	76	5.7	11	71	74.4	76	5.0
12	73	82.9	83	10.3	12	72	82.9	83	11.2	12	70	82.9	83	13.1	12	71	82.9	83	12.2
13	73	76.5	78	5.1	13	72	76.5	78	5.8	13	70	76.5	77	7.4	13	71	76.5	78	6.6
14	73	82.6	83	10.1	14	72	82.6	83	11.0	14	70	82.6	83	12.8	14	71	82.6	83	11.9

CHAPTER 5: WATER MAIN CONNECTIONS
5.12 NOISE

Table 5.12-8
Cross Street Analysis - First Avenue Route Peak Analysis - Weekday and Weekend

Weekday Peak Analysis										Weekend Peak Analysis									
Stage 1 Construction										Stage 1 Construction									
Shift 1					Shift 2					Shift 1					Shift 2				
Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase
1	66	70	71	5.5	1	66	70	71	5.5	1	63	70	71	7.8	1	64	70	71	7.0
2	66	66.1	69	3.1	2	66	66.1	69	3.1	2	63	66.1	68	4.8	2	64	66.1	68	4.2
3	66	75.3	76	9.8	3	66	75.3	76	9.8	3	63	75.3	76	12.5	3	64	75.3	76	11.6
4	66	80.7	81	14.8	4	66	80.7	81	14.8	4	63	80.7	81	17.8	4	64	80.7	81	16.8
5	66	98.7	99	32.7	5	66	98.7	99	32.7	5	63	98.7	99	35.7	5	64	98.7	99	34.7
6	66	85.9	86	19.9	6	66	85.9	86	19.9	6	63	85.9	86	22.9	6	64	85.9	86	21.9
7	66	78.4	79	12.6	7	66	78.4	79	12.6	7	63	78.4	79	15.5	7	64	78.4	79	14.6
8	66	73.1	74	7.9	8	66	73.1	74	7.9	8	63	73.1	74	10.5	8	64	73.1	74	9.6
9	66	94.3	94	28.3	9	66	94.3	94	28.3	9	63	94.3	94	31.3	9	64	94.3	94	30.3
10	66	84.2	84	18.3	10	66	84.2	84	18.3	10	63	84.2	84	21.2	10	64	84.2	84	20.2
11	66	76.8	77	11.1	11	66	76.8	77	11.1	11	63	76.8	77	14.0	11	64	76.8	77	13.0
12	66	72.7	74	7.5	12	66	72.7	74	7.5	12	63	72.7	73	10.1	12	64	72.7	73	9.2
13	66	68.5	70	4.4	13	66	68.5	70	4.4	13	63	68.5	70	6.6	13	64	68.5	70	5.8
Stage 2 Construction										Stage 2 Construction									
Shift 1					Shift 2					Shift 1					Shift 2				
Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase
1	66	60.8	67	1.1	1	66	60.8	67	1.1	1	63	60.8	65	2.0	1	64	60.8	66	1.7
2	66	57.1	67	0.5	2	66	57.1	67	0.5	2	63	57.1	64	1.0	2	64	57.1	65	0.8
3	66	66.2	69	3.1	3	66	66.2	69	3.1	3	63	66.2	68	4.9	3	64	66.2	68	4.2
4	66	71.7	73	6.7	4	66	71.7	73	6.7	4	63	71.7	72	9.2	4	64	71.7	72	8.4
5	66	89.6	90	23.6	5	66	89.6	90	23.6	5	63	89.6	90	26.6	5	64	89.6	90	25.6
6	66	76.8	77	11.1	6	66	76.8	77	11.1	6	63	76.8	77	14.0	6	64	76.8	77	13.0
7	66	69.3	71	5.0	7	66	69.3	71	5.0	7	63	69.3	70	7.2	7	64	69.3	70	6.4
8	66	63.9	68	2.1	8	66	63.9	68	2.1	8	63	63.9	66	3.5	8	64	63.9	67	3.0
9	66	86.1	86	20.1	9	66	86.1	86	20.1	9	63	86.1	86	23.1	9	64	86.1	86	22.1
10	66	75.4	76	9.9	10	66	75.4	76	9.9	10	63	75.4	76	12.6	10	64	75.4	76	11.7
11	66	67.7	70	3.9	11	66	67.7	70	3.9	11	63	67.7	69	6.0	11	64	67.7	69	5.2
12	66	63.5	68	1.9	12	66	63.5	68	1.9	12	63	63.5	66	3.3	12	64	63.5	67	2.8
13	66	59.2	67	0.8	13	66	59.2	67	0.8	13	63	59.2	65	1.5	13	64	59.2	65	1.2
Stage 3 Construction										Stage 3 Construction									
Shift 1					Shift 2					Shift 1					Shift 2				
Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase
1	66	59.2	67	0.8	1	66	59.2	67	0.8	1	63	59.2	65	1.5	1	64	59.2	65	1.2
2	66	56.7	66	0.5	2	66	56.7	66	0.5	2	63	56.7	64	0.9	2	64	56.7	65	0.7
3	66	64.3	68	2.2	3	66	64.3	68	2.2	3	63	64.3	67	3.7	3	64	64.3	67	3.2
4	66	69.6	71	5.2	4	66	69.6	71	5.2	4	63	69.6	70	7.5	4	64	69.6	71	6.7
5	66	85.8	86	19.8	5	66	85.8	86	19.8	5	63	85.8	86	22.8	5	64	85.8	86	21.8
6	66	74.5	75	9.1	6	66	74.5	75	9.1	6	63	74.5	75	11.8	6	64	74.5	75	10.9
7	66	67.3	70	3.7	7	66	67.3	70	3.7	7	63	67.3	69	5.7	7	64	67.3	69	5.0
8	66	62.1	67	1.5	8	66	62.1	67	1.5	8	63	62.1	66	2.6	8	64	62.1	66	2.2
9	66	84.6	85	18.7	9	66	84.6	85	18.7	9	63	84.6	85	21.6	9	64	84.6	85	20.6
10	66	73.3	74	8.0	10	66	73.3	74	8.0	10	63	73.3	74	10.7	10	64	73.3	74	9.8
11	66	65.8	69	2.9	11	66	65.8	69	2.9	11	63	65.8	68	4.6	11	64	65.8	68	4.0
12	66	61.8	67	1.4	12	66	61.8	67	1.4	12	63	61.8	65	2.5	12	64	61.8	66	2.0
13	66	57.8	67	0.6	13	66	57.8	67	0.6	13	63	57.8	64	1.1	13	64	57.8	65	0.9
Stage 4 Construction										Stage 4 Construction									
Shift 1					Shift 2					Shift 1					Shift 2				
Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase
1	66	62.8	68	1.7	1	66	62.8	68	1.7	1	63	62.8	66	2.9	1	64	62.8	66	2.5
2	66	59.8	67	0.9	2	66	59.8	67	0.9	2	63	59.8	65	1.7	2	64	59.8	65	1.4
3	66	67.9	70	4.1	3	66	67.9	70	4.1	3	63	67.9	69	6.1	3	64	67.9	69	5.4
4	66	73.2	74	8.0	4	66	73.2	74	8.0	4	63	73.2	74	10.6	4	64	73.2	74	9.7
5	66	90.6	91	24.6	5	66	90.6	91	24.6	5	63	90.6	91	27.6	5	64	90.6	91	26.6
6	66	78.2	78	12.5	6	66	78.2	78	12.5	6	63	78.2	78	15.3	6	64	78.2	78	14.4
7	66	71	72	6.2	7	66	71	72	6.2	7	63	71	72	8.6	7	64	71	72	7.8
8	66	65.8	69	2.9	8	66	65.8	69	2.9	8	63	65.8	68	4.6	8	64	65.8	68	4.0
9	66	87.3	87	21.3	9	66	87.3	87	21.3	9	63	87.3	87	24.3	9	64	87.3	87	23.3
10	66	78.8	77	11.1	10	66	78.8	77	11.1	10	63	78.8	77	14.0	10	64	78.8	77	13.0
11	66	69.4	71	5.0	11	66	69.4	71	5.0	11	63	69.4	70	7.3	11	64	69.4	71	6.5
12	66	65.4	69	2.7	12	66	65.4	69	2.7	12	63	65.4	67	4.4	12	64	65.4	68	3.8
13	66	61.4	67	1.3	13	66	61.4	67	1.3	13	63	61.4	65	2.3	13	64	61.4	66	1.9

CHAPTER 5: WATER MAIN CONNECTIONS
5.12 NOISE

Table 5.12-9
Water Main With Venturi - First Avenue Peak Analysis - Weekday and Weekend

Weekday Peak Analysis										Weekend Peak Analysis									
Stage 1 Construction										Stage 1 Construction									
Shift 1					Shift 2					Shift 1					Shift 2				
Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase
1.0	73	71.6	75	2.4	1	72	71.6	75	2.8	1	70	71.6	74	3.9	1	71	71.6	74	3.3
2	73	88.9	89	16.0	2	72	88.9	89	17.0	2	70	88.9	89	19.0	2	71	88.9	89	18.0
3	73	87.7	88	14.8	3	72	87.7	88	15.8	3	70	87.7	88	17.8	3	71	87.7	88	16.8
4	73	81.9	82	9.4	4	72	81.9	82	10.3	4	70	81.9	82	12.2	4	71	81.9	82	11.2
5	73	82.6	83	10.1	5	72	82.6	83	11.0	5	70	82.6	83	12.8	5	71	82.6	83	11.9
6	73	88.5	89	15.6	6	72	88.5	89	16.6	6	70	88.5	89	18.6	6	71	88.5	89	17.6
7	73	96	96	23.0	7	72	96	96	24.0	7	70	96	96	26.0	7	71	96	96	25.0
Stage 2 Construction										Stage 2 Construction									
Shift 1					Shift 2					Shift 1					Shift 2				
Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase
1	73	62.4	73	0.4	1	72	62.4	72	0.5	1	70	62.4	71	0.7	1	71	62.4	72	0.6
2	73	80.5	81	8.2	2	72	80.5	81	9.1	2	70	80.5	81	10.9	2	71	80.5	81	10.0
3	73	79.3	80	7.2	3	72	79.3	80	8.0	3	70	79.3	80	9.8	3	71	79.3	80	8.9
4	73	73	76	3.0	4	72	73	76	3.5	4	70	73	75	4.8	4	71	73	75	4.1
5	73	73.6	76	3.3	5	72	73.6	76	3.9	5	70	73.6	75	5.2	5	71	73.6	76	4.5
6	73	79.5	80	7.4	6	72	79.5	80	8.2	6	70	79.5	80	10.0	6	71	79.5	80	9.1
7	73	86.6	87	13.8	7	72	86.6	87	14.7	7	70	86.6	87	16.7	7	71	86.6	87	15.7
Stage 3 Construction										Stage 3 Construction									
Shift 1					Shift 2					Shift 1					Shift 2				
Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase
1	73	62.7	73	0.4	1	72	62.7	72	0.5	1	70	62.7	71	0.7	1	71	62.7	72	0.6
2	73	78.6	80	6.7	2	72	78.6	79	7.5	2	70	78.6	79	9.2	2	71	78.6	79	8.3
3	73	77.3	79	5.7	3	72	77.3	78	6.4	3	70	77.3	78	8.0	3	71	77.3	78	7.2
4	73	71	75	2.1	4	72	71	75	2.5	4	70	71	74	3.5	4	71	71	74	3.0
5	73	71.4	75	2.3	5	72	71.4	75	2.7	5	70	71.4	74	3.8	5	71	71.4	74	3.2
6	73	77	78	5.5	6	72	77	78	6.2	6	70	77	78	7.8	6	71	77	78	7.0
7	73	83.2	84	10.6	7	72	83.2	84	11.5	7	70	83.2	83	13.4	7	71	83.2	83	12.5
Stage 4 Construction										Stage 4 Construction									
Shift 1					Shift 2					Shift 1					Shift 2				
Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase
1	73	65.4	74	0.7	1	72	65.4	73	0.9	1	70	65.4	71	1.3	1	71	65.4	72	1.1
2	73	81.5	82	9.1	2	72	81.5	82	10.0	2	70	81.5	82	11.8	2	71	81.5	82	10.9
3	73	80.3	81	8.0	3	72	80.3	81	8.9	3	70	80.3	81	10.7	3	71	80.3	81	9.8
4	73	74.3	77	3.7	4	72	74.3	76	4.3	4	70	74.3	76	5.7	4	71	74.3	76	5.0
5	73	74.9	77	4.1	5	72	74.9	77	4.7	5	70	74.9	76	6.1	5	71	74.9	76	5.4
6	73	80.7	81	8.4	6	72	80.7	81	9.2	6	70	80.7	81	11.1	6	71	80.7	81	10.1
7	73	87.7	88	14.8	7	72	87.7	88	15.8	7	70	87.7	88	17.8	7	71	87.7	88	16.8

CHAPTER 5: WATER MAIN CONNECTIONS
5.12 NOISE

Table 5.12-10
Sutton Place without Venturi Chambers Analysis—Average Analysis

Weekday										Weekend									
Average Condition										Average Condition									
Stage 1 Construction										Stage 1 Construction									
Shift 1					Shift 2					Shift 1					Shift 2				
Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase
1	70	61.1	71	0.5	1	67	61.1	68	1.0	1	62	61.1	65	2.6	1	65	61.1	66	1.5
2	70	79.9	80	10.3	2	67	79.9	80	13.1	2	62	79.9	80	18.0	2	65	79.9	80	15.0
3	70	82.5	83	12.7	3	67	82.5	83	15.6	3	62	82.5	83	20.5	3	65	82.5	83	17.6
4	70	80	80	10.4	4	67	80	80	13.2	4	62	80	80	18.1	4	65	80	80	15.1
5	70	83.7	84	13.9	5	67	83.7	84	16.8	5	62	83.7	84	21.7	5	65	83.7	84	18.8
6	70	90.4	90	20.4	6	67	90.4	90	23.4	6	62	90.4	90	28.4	6	65	90.4	90	25.4
7	70	85	85	15.1	7	67	85	85	18.1	7	62	85	85	23.0	7	65	85	85	20.0
8	70	75	76	6.2	8	67	75	76	8.6	8	62	75	75	13.2	8	65	75	75	10.4
9	70	74.3	76	5.7	9	67	74.3	75	8.0	9	62	74.3	75	12.5	9	65	74.3	75	9.8
10	70	75.5	77	6.6	10	67	75.5	76	9.1	10	62	75.5	76	13.7	10	65	75.5	76	10.9
11	70	74.6	76	5.9	11	67	74.6	75	8.3	11	62	74.6	75	12.8	11	65	74.6	75	10.1
12	70	80.9	81	11.2	12	67	80.9	81	14.1	12	62	80.9	81	19.0	12	65	80.9	81	16.0
13	70	82.1	82	12.4	13	67	82.1	82	15.2	13	62	82.1	82	20.1	13	65	82.1	82	17.2
14	70	89.2	89	19.3	14	67	89.2	89	22.2	14	62	89.2	89	27.2	14	65	89.2	89	24.2
Stage 2 Construction										Stage 2 Construction									
Shift 1					Shift 2					Shift 1					Shift 2				
Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase
1	70	58.4	70	0.3	1	67	58.4	68	0.6	1	62	58.4	64	1.6	1	65	58.4	66	0.9
2	70	76.8	78	7.6	2	67	76.8	77	10.2	2	62	76.8	77	14.9	2	65	76.8	77	12.1
3	70	79.7	80	10.1	3	67	79.7	80	12.9	3	62	79.7	80	17.8	3	65	79.7	80	14.8
4	70	76.9	78	7.7	4	67	76.9	77	10.3	4	62	76.9	77	15.0	4	65	76.9	77	12.2
5	70	79.3	80	9.8	5	67	79.3	80	12.5	5	62	79.3	79	17.4	5	65	79.3	79	14.5
6	70	84.3	84	14.5	6	67	84.3	84	17.4	6	62	84.3	84	22.3	6	65	84.3	84	19.4
7	70	80.5	81	10.9	7	67	80.5	81	13.7	7	62	80.5	81	18.6	7	65	80.5	81	15.6
8	70	71.5	74	3.8	8	67	71.5	73	5.8	8	62	71.5	72	10.0	8	65	71.5	72	7.4
9	70	70.7	73	3.4	9	67	70.7	72	5.2	9	62	70.7	71	9.2	9	65	70.7	72	6.7
10	70	71.7	74	3.9	10	67	71.7	73	6.0	10	62	71.7	72	10.1	10	65	71.7	73	7.5
11	70	70.8	73	3.4	11	67	70.8	72	5.3	11	62	70.8	71	9.3	11	65	70.8	72	6.8
12	70	78	79	8.6	12	67	78	78	11.3	12	62	78	78	16.1	12	65	78	78	13.2
13	70	79.4	80	9.9	13	67	79.4	80	12.6	13	62	79.4	79	17.5	13	65	79.4	80	14.6
14	70	83.9	84	14.1	14	67	83.9	84	17.0	14	62	83.9	84	21.9	14	65	83.9	84	19.0
Stage 3 Construction										Stage 3 Construction									
Shift 1					Shift 2					Shift 1					Shift 2				
Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase
1	70	56.1	70	0.2	1	67	56.1	67	0.3	1	62	56.1	63	1.0	1	65	56.1	66	0.5
2	70	74.8	76	6.0	2	67	74.8	75	8.5	2	62	74.8	75	13.0	2	65	74.8	75	10.2
3	70	77.8	78	8.5	3	67	77.8	78	11.1	3	62	77.8	78	15.9	3	65	77.8	78	13.0
4	70	75	76	6.2	4	67	75	76	8.6	4	62	75	75	13.2	4	65	75	75	10.4
5	70	77	78	7.8	5	67	77	77	10.4	5	62	77	77	15.1	5	65	77	77	12.3
6	70	81.4	82	11.7	6	67	81.4	82	14.6	6	62	81.4	81	19.4	6	65	81.4	81	16.5
7	70	78	79	8.6	7	67	78	78	11.3	7	62	78	78	16.1	7	65	78	78	13.2
8	70	69.4	73	2.7	8	67	69.4	71	4.4	8	62	69.4	70	8.1	8	65	69.4	71	5.7
9	70	68.7	72	2.4	9	67	68.7	71	3.9	9	62	68.7	70	7.5	9	65	68.7	70	5.2
10	70	69.7	73	2.9	10	67	69.7	72	4.6	10	62	69.7	70	8.4	10	65	69.7	71	6.0
11	70	68.8	72	2.5	11	67	68.8	71	4.0	11	62	68.8	70	7.6	11	65	68.8	70	5.3
12	70	76.1	77	7.1	12	67	76.1	77	9.6	12	62	76.1	76	14.3	12	65	76.1	76	11.4
13	70	77.6	78	8.3	13	67	77.6	78	11.0	13	62	77.6	78	15.7	13	65	77.6	78	12.8
14	70	81.2	82	11.5	14	67	81.2	81	14.4	14	62	81.2	81	19.3	14	65	81.2	81	16.3
Stage 4 Construction										Stage 4 Construction									
Shift 1					Shift 2					Shift 1					Shift 2				
Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase
1	70	59.8	70	0.4	1	67	59.8	68	0.8	1	62	59.8	64	2.0	1	65	59.8	66	1.1
2	70	77.6	78	8.3	2	67	77.6	78	11.0	2	62	77.6	78	15.7	2	65	77.6	78	12.8
3	70	80.3	81	10.7	3	67	80.3	80	13.5	3	62	80.3	80	18.4	3	65	80.3	80	15.4
4	70	77.7	78	8.4	4	67	77.7	78	11.1	4	62	77.7	78	15.8	4	65	77.7	78	12.9
5	70	80.9	81	11.2	5	67	80.9	81	14.1	5	62	80.9	81	19.0	5	65	80.9	81	16.0
6	70	86.9	87	17.0	6	67	86.9	87	19.9	6	62	86.9	87	24.9	6	65	86.9	87	21.9
7	70	82.1	82	12.4	7	67	82.1	82	15.2	7	62	82.1	82	20.1	7	65	82.1	82	17.2
8	70	72.5	74	4.4	8	67	72.5	74	6.6	8	62	72.5	73	10.9	8	65	72.5	73	8.2
9	70	71.8	74	4.0	9	67	71.8	73	6.0	9	62	71.8	72	10.2	9	65	71.8	73	7.6
10	70	73	75	4.8	10	67	73	74	7.0	10	62	73	73	11.3	10	65	73	74	8.6
11	70	72.1	74	4.2	11	67	72.1	73	6.3	11	62	72.1	73	10.5	11	65	72.1	73	7.9
12	70	78.6	79	9.2	12	67	78.6	79	11.9	12	62	78.6	79	16.7	12	65	78.6	79	13.8
13	70	79.9	80	10.3	13	67	79.9	80	13.1	13	62	79.9	80	18.0	13	65	79.9	80	15.0
14	70	86	86	16.1	14	67	86	86	19.1	14	62	86	86	24.0	14	65	86	86	21.0

CHAPTER 5: WATER MAIN CONNECTIONS

5.12 NOISE

Table 5.12-11
Sutton Place without Venturi Chambers Analysis—Peak Analysis

Weekday										Weekend									
Peak Condition										Peak Condition									
Stage 1 Construction					Stage 2 Construction					Stage 1 Construction					Stage 2 Construction				
Shift 1					Shift 2					Shift 1					Shift 2				
Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase
1	70	71.6	74	3.9	1	67	71.6	73	5.9	1	62	71.6	72	10.1	1	65	71.6	72	7.5
2	70	88.9	89	19.0	2	67	88.9	89	21.9	2	62	88.9	89	26.9	2	65	88.9	89	23.9
3	70	87.9	88	18.0	3	67	87.9	88	20.9	3	62	87.9	88	25.9	3	65	87.9	88	22.9
4	70	82.6	83	12.8	4	67	82.6	83	15.7	4	62	82.6	83	20.6	4	65	82.6	83	17.7
5	70	83.2	83	13.4	5	67	83.2	83	16.3	5	62	83.2	83	21.2	5	65	83.2	83	18.3
6	70	88.7	89	18.8	6	67	88.7	89	21.7	6	62	88.7	89	26.7	6	65	88.7	89	23.7
7	70	96	96	26.0	7	67	96	96	29.0	7	62	96	96	34.0	7	65	96	96	31.0
8	70	80	80	10.4	8	67	80	80	13.2	8	62	80	80	18.1	8	65	80	80	15.1
9	70	81.7	82	12.0	9	67	81.7	82	14.8	9	62	81.7	82	19.7	9	65	81.7	82	16.8
10	70	80.3	81	10.7	10	67	80.3	80	13.5	10	62	80.3	80	18.4	10	65	80.3	80	15.4
11	70	82.1	82	12.4	11	67	82.1	82	15.2	11	62	82.1	82	20.1	11	65	82.1	82	17.2
12	70	90.1	90	20.1	12	67	90.1	90	23.1	12	62	90.1	90	28.1	12	65	90.1	90	25.1
13	70	84	84	14.2	13	67	84	84	17.1	13	62	84	84	22.0	13	65	84	84	19.1
14	70	90.5	91	20.5	14	67	90.5	91	23.5	14	62	90.5	91	28.5	14	65	90.5	91	25.5
Stage 2 Construction										Stage 2 Construction									
Shift 1					Shift 2					Shift 1					Shift 2				
Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase
1	70	62.4	71	0.7	1	67	62.4	68	1.3	1	62	62.4	65	3.2	1	65	62.4	67	1.9
2	70	80.6	81	11.0	2	67	80.6	81	13.8	2	62	80.6	81	18.7	2	65	80.6	81	15.7
3	70	79.4	80	9.9	3	67	79.4	80	12.6	3	62	79.4	79	17.5	3	65	79.4	80	14.6
4	70	73.6	75	5.2	4	67	73.6	74	7.5	4	62	73.6	74	11.9	4	65	73.6	74	9.2
5	70	74.2	76	5.6	5	67	74.2	75	8.0	5	62	74.2	74	12.5	5	65	74.2	75	9.7
6	70	79.7	80	10.1	6	67	79.7	80	12.9	6	62	79.7	80	17.8	6	65	79.7	80	14.8
7	70	86.6	87	16.7	7	67	86.6	87	19.6	7	62	86.6	87	24.6	7	65	86.6	87	21.6
8	70	71	74	3.5	8	67	71	72	5.5	8	62	71	72	9.5	8	65	71	72	7.0
9	70	72.8	75	4.6	9	67	72.8	74	6.8	9	62	72.8	73	11.1	9	65	72.8	73	8.5
10	70	71.1	74	3.6	10	67	71.1	73	5.5	10	62	71.1	72	9.6	10	65	71.1	72	7.1
11	70	73	75	4.8	11	67	73	74	7.0	11	62	73	73	11.3	11	65	73	74	8.6
12	70	82	82	12.3	12	67	82	82	15.1	12	62	82	82	20.0	12	65	82	82	17.1
13	70	75.2	76	6.3	13	67	75.2	76	8.8	13	62	75.2	75	13.4	13	65	75.2	76	10.6
14	70	81.5	82	11.8	14	67	81.5	82	14.7	14	62	81.5	82	19.5	14	65	81.5	82	16.6
Stage 3 Construction										Stage 3 Construction									
Shift 1					Shift 2					Shift 1					Shift 2				
Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase
1	70	62.7	71	0.7	1	67	62.7	68	1.4	1	62	62.7	65	3.4	1	65	62.7	67	2.0
2	70	78.7	79	9.2	2	67	78.7	79	12.0	2	62	78.7	79	16.8	2	65	78.7	79	13.9
3	70	77.4	78	8.1	3	67	77.4	78	10.8	3	62	77.4	78	15.5	3	65	77.4	78	12.6
4	70	71.6	74	3.9	4	67	71.6	73	5.9	4	62	71.6	72	10.1	4	65	71.6	72	7.5
5	70	72	74	4.1	5	67	72	73	6.2	5	62	72	72	10.4	5	65	72	73	7.8
6	70	77.2	78	8.0	6	67	77.2	78	10.6	6	62	77.2	77	15.3	6	65	77.2	77	12.5
7	70	83.2	83	13.4	7	67	83.2	83	16.3	7	62	83.2	83	21.2	7	65	83.2	83	18.3
8	70	69	73	2.5	8	67	69	71	4.1	8	62	69	70	7.8	8	65	69	70	5.5
9	70	70.8	73	3.4	9	67	70.8	72	5.3	9	62	70.8	71	9.3	9	65	70.8	72	6.8
10	70	69.2	73	2.6	10	67	69.2	71	4.2	10	62	69.2	70	8.0	10	65	69.2	71	5.6
11	70	70.9	73	3.5	11	67	70.9	72	5.4	11	62	70.9	71	9.4	11	65	70.9	72	6.9
12	70	80.3	81	10.7	12	67	80.3	80	13.5	12	62	80.3	80	18.4	12	65	80.3	80	15.4
13	70	73.2	75	4.9	13	67	73.2	74	7.1	13	62	73.2	74	11.5	13	65	73.2	74	8.8
14	70	78.8	79	9.3	14	67	78.8	79	12.1	14	62	78.8	79	16.9	14	65	78.8	79	14.0
Stage 4 Construction										Stage 4 Construction									
Shift 1					Shift 2					Shift 1					Shift 2				
Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase
1	70	65.4	71	1.3	1	67	65.4	69	2.3	1	62	65.4	67	5.0	1	65	65.4	68	3.2
2	70	81.6	82	11.9	2	67	81.6	82	14.7	2	62	81.6	82	19.6	2	65	81.6	82	16.7
3	70	80.5	81	10.9	3	67	80.5	81	13.7	3	62	80.5	81	18.6	3	65	80.5	81	15.6
4	70	75	76	6.2	4	67	75	76	8.6	4	62	75	75	13.2	4	65	75	75	10.4
5	70	75.5	77	6.6	5	67	75.5	76	9.1	5	62	75.5	76	13.7	5	65	75.5	76	10.9
6	70	80.9	81	11.2	6	67	80.9	81	14.1	6	62	80.9	81	19.0	6	65	80.9	81	16.0
7	70	87.8	88	17.9	7	67	87.8	88	20.8	7	62	87.8	88	25.8	7	65	87.8	88	22.8
8	70	72.4	74	4.4	8	67	72.4	74	6.5	8	62	72.4	73	10.8	8	65	72.4	73	8.1
9	70	74.1	76	5.5	9	67	74.1	75	7.9	9	62	74.1	74	12.4	9	65	74.1	75	9.6
10	70	72.6	75	4.5	10	67	72.6	74	6.7	10	62	72.6	73	11.0	10	65	72.6	73	8.3
11	70	74.4	76	5.7	11	67	74.4	75	8.1	11	62	74.4	75	12.6	11	65	74.4	75	9.9
12	70	82.9	83	13.1	12	67	82.9	83	16.0	12	62	82.9	83	20.9	12	65	82.9	83	18.0
13	70	76.5	77	7.4	13	67	76.5	77	10.0	13	62	76.5	77	14.7	13	65	76.5	77	11.8
14	70	82.6	83	12.8	14	67	82.6	83	15.7	14	62	82.6	83	20.6	14	65	82.6	83	17.7

CHAPTER 5: WATER MAIN CONNECTIONS

5.12 NOISE

Table 5.12-12
E. 59th St./E. 61st St. Cross Street Analysis—Average Analysis

Weekday										Weekend									
Average Condition										Average Analysis									
Stage 1 Construction					Stage 2 Construction					Stage 1 Construction					Stage 2 Construction				
Shift 1					Shift 2					Shift 1					Shift 2				
Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase
1	69	69.9	72	3.5	1	66	69.9	71	5.4	1	64	69.9	71	6.9	1	64	69.9	71	6.9
2	69	77.4	78	9.0	2	66	77.4	78	11.7	2	64	77.4	78	13.6	2	64	77.4	78	13.6
3	69	85.1	85	16.2	3	66	85.1	85	19.2	3	64	85.1	85	21.1	3	64	85.1	85	21.1
4	69	84.3	84	15.4	4	66	84.3	84	18.4	4	64	84.3	84	20.3	4	64	84.3	84	20.3
5	69	89.4	89	20.4	5	66	89.4	89	23.4	5	64	89.4	89	25.4	5	64	89.4	89	25.4
6	69	77.7	78	9.2	6	66	77.7	78	12.0	6	64	77.7	78	13.9	6	64	77.7	78	13.9
7	69	71.8	74	4.6	7	66	71.8	73	6.8	7	64	71.8	72	8.5	7	64	71.8	72	8.5
8	69	67.7	71	2.4	8	66	67.7	70	3.9	8	64	67.7	69	5.2	8	64	67.7	69	5.2
9	69	85.5	86	16.6	9	66	85.5	86	19.5	9	64	85.5	86	21.5	9	64	85.5	86	21.5
10	69	85.9	86	17.0	10	66	85.9	86	19.9	10	64	85.9	86	21.9	10	64	85.9	86	21.9
11	69	84.2	84	15.3	11	66	84.2	84	18.3	11	64	84.2	84	20.2	11	64	84.2	84	20.2
12	69	76.7	77	8.4	12	66	76.7	77	11.1	12	64	76.7	77	12.9	12	64	76.7	77	12.9
13	69	67.8	71	2.5	13	66	67.8	70	4.0	13	64	67.8	69	5.3	13	64	67.8	69	5.3
Stage 3 Construction					Stage 4 Construction					Stage 3 Construction					Stage 4 Construction				
Shift 1					Shift 2					Shift 1					Shift 2				
Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase
1	69	66.3	71	1.9	1	66	66.3	69	3.2	1	64	66.3	68	4.3	1	64	66.3	68	4.3
2	69	73.6	75	5.9	2	66	73.6	74	8.3	2	64	73.6	74	10.1	2	64	73.6	74	10.1
3	69	80.9	81	12.2	3	66	80.9	81	15.0	3	64	80.9	81	17.0	3	64	80.9	81	17.0
4	69	80.4	81	11.7	4	66	80.4	81	14.6	4	64	80.4	80	16.5	4	64	80.4	80	16.5
5	69	84.6	85	15.7	5	66	84.6	85	18.7	5	64	84.6	85	20.6	5	64	84.6	85	20.6
6	69	73.9	75	6.1	6	66	73.9	75	8.6	6	64	73.9	74	10.3	6	64	73.9	74	10.3
7	69	68.1	72	2.6	7	66	68.1	70	4.2	7	64	68.1	70	5.5	7	64	68.1	70	5.5
8	69	64	70	1.2	8	66	64	68	2.1	8	64	64	67	3.0	8	64	64	67	3.0
9	69	83	83	14.2	9	66	83	83	17.1	9	64	83	83	19.1	9	64	83	83	19.1
10	69	83.3	83	14.5	10	66	83.3	83	17.4	10	64	83.3	83	19.4	10	64	83.3	83	19.4
11	69	81.1	81	12.4	11	66	81.1	81	15.2	11	64	81.1	81	17.2	11	64	81.1	81	17.2
12	69	73.1	75	5.5	12	66	73.1	74	7.9	12	64	73.1	74	9.6	12	64	73.1	74	9.6
13	69	64.1	70	1.2	13	66	64.1	68	2.2	13	64	64.1	67	3.1	13	64	64.1	67	3.1
Stage 5 Construction					Stage 6 Construction					Stage 5 Construction					Stage 6 Construction				
Shift 1					Shift 2					Shift 1					Shift 2				
Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase
1	69	64.2	70	1.2	1	66	64.2	68	2.2	1	64	64.2	67	3.1	1	64	64.2	67	3.1
2	69	71.4	73	4.4	2	66	71.4	73	6.5	2	64	71.4	72	8.1	2	64	71.4	72	8.1
3	69	78.7	79	10.1	3	66	78.7	79	12.9	3	64	78.7	79	14.8	3	64	78.7	79	14.8
4	69	78.3	79	9.8	4	66	78.3	79	12.5	4	64	78.3	78	14.5	4	64	78.3	78	14.5
5	69	81.9	82	13.1	5	66	81.9	82	16.0	5	64	81.9	82	18.0	5	64	81.9	82	18.0
6	69	71.8	74	4.6	6	66	71.8	73	6.8	6	64	71.8	72	8.5	6	64	71.8	72	8.5
7	69	66.1	71	1.8	7	66	66.1	69	3.1	7	64	66.1	68	4.2	7	64	66.1	68	4.2
8	69	62	70	0.8	8	66	62	67	1.5	8	64	62	66	2.1	8	64	62	66	2.1
9	69	81.1	81	12.4	9	66	81.1	81	15.2	9	64	81.1	81	17.2	9	64	81.1	81	17.2
10	69	81.4	82	12.6	10	66	81.4	82	15.5	10	64	81.4	81	17.5	10	64	81.4	81	17.5
11	69	79.2	80	10.6	11	66	79.2	79	13.4	11	64	79.2	79	15.3	11	64	79.2	79	15.3
12	69	71.1	73	4.2	12	66	71.1	72	6.3	12	64	71.1	72	7.9	12	64	71.1	72	7.9
13	69	62.2	70	0.8	13	66	62.2	68	1.5	13	64	62.2	66	2.2	13	64	62.2	66	2.2
Stage 7 Construction					Stage 8 Construction					Stage 7 Construction					Stage 8 Construction				
Shift 1					Shift 2					Shift 1					Shift 2				
Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase
1	69	67.6	71	2.4	1	66	67.6	70	3.9	1	64	67.6	69	5.2	1	64	67.6	69	5.2
2	69	74.9	76	6.9	2	66	74.9	75	9.4	2	64	74.9	75	11.2	2	64	74.9	75	11.2
3	69	82.4	83	13.6	3	66	82.4	82	16.5	3	64	82.4	82	18.5	3	64	82.4	82	18.5
4	69	81.7	82	12.9	4	66	81.7	82	15.8	4	64	81.7	82	17.8	4	64	81.7	82	17.8
5	69	86.5	87	17.6	5	66	86.5	87	20.5	5	64	86.5	87	22.5	5	64	86.5	87	22.5
6	69	75.2	76	7.1	6	66	75.2	76	9.7	6	64	75.2	76	11.5	6	64	75.2	76	11.5
7	69	69.4	72	3.2	7	66	69.4	71	5.0	7	64	69.4	71	6.5	7	64	69.4	71	6.5
8	69	65.4	71	1.6	8	66	65.4	69	2.7	8	64	65.4	68	3.8	8	64	65.4	68	3.8
9	69	83.4	84	14.6	9	66	83.4	83	17.5	9	64	83.4	83	19.4	9	64	83.4	83	19.4
10	69	83.8	84	14.9	10	66	83.8	84	17.9	10	64	83.8	84	19.8	10	64	83.8	84	19.8
11	69	82	82	13.2	11	66	82	82	16.1	11	64	82	82	18.1	11	64	82	82	18.1
12	69	74.3	75	6.4	12	66	74.3	75	8.9	12	64	74.3	75	10.7	12	64	74.3	75	10.7
13	69	65.5	71	1.6	13	66	65.5	69	2.8	13	64	65.5	68	3.8	13	64	65.5	68	3.8

CHAPTER 5: WATER MAIN CONNECTIONS

5.12 NOISE

Table 5.12-13
E. 59th St./E. 61st St. Cross Street Analysis—Peak Analysis

Weekday										Weekend									
Peak Condition					Peak Condition					Peak Analysis					Peak Analysis				
Stage 1 Construction					Stage 1 Construction					Stage 1 Construction					Stage 1 Construction				
Shift 1					Shift 2					Shift 1					Shift 2				
Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase
1	69	70	73	3.5	1	66	70	71	5.5	1	64	70	71	7.0	1	64	70	71	7.0
2	69	66.1	71	1.8	2	66	66.1	69	3.1	2	64	66.1	68	4.2	2	64	66.1	68	4.2
3	69	75.3	76	7.2	3	66	75.3	76	9.8	3	64	75.3	76	11.6	3	64	75.3	76	11.6
4	69	80.7	81	12.0	4	66	80.7	81	14.8	4	64	80.7	81	16.8	4	64	80.7	81	16.8
5	69	98.7	99	29.7	5	66	98.7	99	32.7	5	64	98.7	99	34.7	5	64	98.7	99	34.7
6	69	85.9	86	17.0	6	66	85.9	86	19.9	6	64	85.9	86	21.9	6	64	85.9	86	21.9
7	69	78.4	79	9.9	7	66	78.4	79	12.6	7	64	78.4	79	14.6	7	64	78.4	79	14.6
8	69	73.1	75	5.5	8	66	73.1	74	7.9	8	64	73.1	74	9.6	8	64	73.1	74	9.6
9	69	94.3	94	25.3	9	66	94.3	94	28.3	9	64	94.3	94	30.3	9	64	94.3	94	30.3
10	69	84.2	84	15.3	10	66	84.2	84	18.3	10	64	84.2	84	20.2	10	64	84.2	84	20.2
11	69	76.8	77	8.5	11	66	76.8	77	11.1	11	64	76.8	77	13.0	11	64	76.8	77	13.0
12	69	72.7	74	5.2	12	66	72.7	74	7.5	12	64	72.7	73	9.2	12	64	72.7	73	9.2
13	69	68.5	72	2.8	13	66	68.5	70	4.4	13	64	68.5	70	5.8	13	64	68.5	70	5.8
Stage 2 Construction										Stage 2 Construction									
Shift 1					Shift 2					Shift 1					Shift 2				
Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase
1	69	60.8	70	0.6	1	66	60.8	67	1.1	1	64	60.8	66	1.7	1	64	60.8	66	1.7
2	69	57.1	69	0.3	2	66	57.1	67	0.5	2	64	57.1	65	0.8	2	64	57.1	65	0.8
3	69	66.2	71	1.8	3	66	66.2	69	3.1	3	64	66.2	68	4.2	3	64	66.2	68	4.2
4	69	71.7	74	4.6	4	66	71.7	73	6.7	4	64	71.7	72	8.4	4	64	71.7	72	8.4
5	69	89.6	90	20.6	5	66	89.6	90	23.6	5	64	89.6	90	25.6	5	64	89.6	90	25.6
6	69	76.8	77	8.5	6	66	76.8	77	11.1	6	64	76.8	77	13.0	6	64	76.8	77	13.0
7	69	69.3	72	3.2	7	66	69.3	71	5.0	7	64	69.3	70	6.4	7	64	69.3	70	6.4
8	69	63.9	70	1.2	8	66	63.9	68	2.1	8	64	63.9	67	3.0	8	64	63.9	67	3.0
9	69	86.1	86	17.2	9	66	86.1	86	20.1	9	64	86.1	86	22.1	9	64	86.1	86	22.1
10	69	75.4	76	7.3	10	66	75.4	76	9.9	10	64	75.4	76	11.7	10	64	75.4	76	11.7
11	69	67.7	71	2.4	11	66	67.7	70	3.9	11	64	67.7	69	5.2	11	64	67.7	69	5.2
12	69	63.5	70	1.1	12	66	63.5	68	1.9	12	64	63.5	67	2.8	12	64	63.5	67	2.8
13	69	59.2	69	0.4	13	66	59.2	67	0.8	13	64	59.2	65	1.2	13	64	59.2	65	1.2
Stage 3 Construction										Stage 3 Construction									
Shift 1					Shift 2					Shift 1					Shift 2				
Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase
1	69	59.2	69	0.4	1	66	59.2	67	0.8	1	64	59.2	65	1.2	1	64	59.2	65	1.2
2	69	56.7	69	0.2	2	66	56.7	66	0.5	2	64	56.7	65	0.7	2	64	56.7	65	0.7
3	69	64.3	70	1.3	3	66	64.3	68	2.2	3	64	64.3	67	3.2	3	64	64.3	67	3.2
4	69	69.6	72	3.3	4	66	69.6	71	5.2	4	64	69.6	71	6.7	4	64	69.6	71	6.7
5	69	85.8	86	16.9	5	66	85.8	86	19.8	5	64	85.8	86	21.8	5	64	85.8	86	21.8
6	69	74.5	76	6.6	6	66	74.5	75	9.1	6	64	74.5	75	10.9	6	64	74.5	75	10.9
7	69	67.3	71	2.2	7	66	67.3	70	3.7	7	64	67.3	69	5.0	7	64	67.3	69	5.0
8	69	62.1	70	0.8	8	66	62.1	67	1.5	8	64	62.1	66	2.2	8	64	62.1	66	2.2
9	69	84.6	85	15.7	9	66	84.6	85	18.7	9	64	84.6	85	20.6	9	64	84.6	85	20.6
10	69	73.3	75	5.7	10	66	73.3	74	8.0	10	64	73.3	74	9.8	10	64	73.3	74	9.8
11	69	65.8	71	1.7	11	66	65.8	69	2.9	11	64	65.8	68	4.0	11	64	65.8	68	4.0
12	69	61.8	70	0.8	12	66	61.8	67	1.4	12	64	61.8	66	2.0	12	64	61.8	66	2.0
13	69	57.8	69	0.3	13	66	57.8	67	0.6	13	64	57.8	65	0.9	13	64	57.8	65	0.9
Stage 4 Construction										Stage 4 Construction									
Shift 1					Shift 2					Shift 1					Shift 2				
Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase	Receptor	Baseline	Construction	Combined	Increase
1	69	62.8	70	0.9	1	66	62.8	68	1.7	1	64	62.8	66	2.5	1	64	62.8	66	2.5
2	69	59.8	69	0.5	2	66	59.8	67	0.9	2	64	59.8	65	1.4	2	64	59.8	65	1.4
3	69	67.9	71	2.5	3	66	67.9	70	4.1	3	64	67.9	69	5.4	3	64	67.9	69	5.4
4	69	73.2	75	5.6	4	66	73.2	74	8.0	4	64	73.2	74	9.7	4	64	73.2	74	9.7
5	69	90.6	91	21.6	5	66	90.6	91	24.6	5	64	90.6	91	26.6	5	64	90.6	91	26.6
6	69	78.2	79	9.7	6	66	78.2	78	12.5	6	64	78.2	78	14.4	6	64	78.2	78	14.4
7	69	71	73	4.1	7	66	71	72	6.2	7	64	71	72	7.8	7	64	71	72	7.8
8	69	65.8	71	1.7	8	66	65.8	69	2.9	8	64	65.8	68	4.0	8	64	65.8	68	4.0
9	69	87.3	87	18.4	9	66	87.3	87	21.3	9	64	87.3	87	23.3	9	64	87.3	87	23.3
10	69	76.8	77	8.5	10	66	76.8	77	11.1	10	64	76.8	77	13.0	10	64	76.8	77	13.0
11	69	69.4	72	3.2	11	66	69.4	71	5.0	11	64	69.4	71	6.5	11	64	69.4	71	6.5
12	69	65.4	71	1.6	12	66	65.4	69	2.7	12	64	65.4	68	3.8	12	64	65.4	68	3.8
13	69	61.4	70	0.7	13	66	61.4	67	1.3	13	64	61.4	66	1.9	13	64	61.4	66	1.9

Conclusions

During water main construction, based on the range of analysis conducted, there is the potential for temporary and transient adverse impacts to sensitive receptors along the potential water main connection routes. These impacts would range from marginally perceptible to, at times, highly intrusive. As described above, depending on the location, impacts to potential sensitive receptors could have an estimated duration of approximately 32 to 34 weeks. In addition, during certain construction steps, marginally to readily noticeable noise impacts could spill over to adjacent blocks, extending the period of exposure. The analysis presented above illustrates the worst-case conditions that could potentially result from the three connection routes analyzed. Other possible connection routes would likely result in similar impacts.

On any given block or segment, the duration of impacts to affected receptors would be similar for the three routes. However, because the overall length of each route differs substantially, there would be substantial differences in the geographic area affected for the potential three routes. The geographic area affected along the E. 59th Street/E. 61st Street route from the preferred Shaft Site, the E.59th Street/Second Avenue Shaft Site, and the E. 61st Street Shaft Site, as well as the water main route from the E. 54th Street Shaft Site, would affect fewer sensitive receptors than the longer routes along First Avenue and Sutton Place.

NYCDEP will work with NYCDDC, who will be responsible for the water main construction work, to implement measures to minimize potential noise impacts. These measures could include use of newer equipment, mufflers and silencers, housings or enclosures for noise producing equipment, possible prohibition of the use of air or gasoline driven saws and similar equipment, and implementation of a noise monitoring program.

The water main construction would occur segment by segment and would not impact receptors along any given block for an extended period. Due to the short-term duration that potential adverse impacts could occur, these impacts are considered to be temporary adverse impacts. For conclusions on significance related to the combined effects of Shaft Site construction, water main connection construction, and venturi chamber construction, see the noise sections for each of the potential Shaft Sites.

Overall, the effects of the water main construction are not unlike the effects from other major construction in Manhattan that involves the use of heavy construction in close proximity to sensitive receptors. The potential increases in noise levels are not permanent environmental changes and no changes in the noise levels will occur from this project after it has been constructed. Therefore, it is not anticipated that water main construction would result in the potential for significant adverse noise impacts during construction.

