APPENDIX D

NOISE

Kingsbridge Armory Noise Analysis Results

SiteID	Location	Date	Time	Existing Leq (dBA)				No Build Leq (dBA)				Build Leq (dBA)			
				Measured $L_{eq(1)}$ (dBA)	TNM $L_{eq(1)}$ (dBA)	Subway Noise	Difference	TNM $L_{eq(1)}$ (dBA)	Subway Noise	Difference	Predicted $L_{eq(1)}$	TNM $L_{eq(1)}$ (dBA)	Subway Noise	Difference	Predicted $L_{eq(1)}$
1	University Avenue between West 192nd Street and West Kingsbridge Road	Weekday	MD	69.5	67.7	0	-1.8	67.9	0	0.2	69.7	68.5	0	0.6	70.3
			PM	68.6	68.5	0	-0.1	68.7	0	0.2	68.8	69.2	0	0.5	69.3
			LN	72.2	72.0	0	-0.2	72.2	0	0.2	72.4	72.6	0	0.4	72.8
		Saturday	MD	65.7	67.5	0	1.8	67.7	0	0.2	65.9	68.6	0	0.9	66.8
			PM	66.0	67.8	0	1.8	68.0	0	0.2	66.2	68.8	0	0.8	67.0
			LN	64.9	65.7	0	0.8	65.9	0	0.2	65.1	66.9	0	1.0	66.1
2	West Kingsbridge Road between Sedgewick and Webb Avenues	Weekday	MD	72.6	71.4	0	-1.2	71.7	0	0.3	72.9	72.2	0	0.5	73.4
			PM	69.8	71.0	0	1.2	72.0	0	1.0	70.8	72.2	0	0.2	71.0
			LN	74.1	74.1	0	0.0	74.3	0	0.2	74.3	74.5	0	0.2	74.5
		Saturday	MD	72.7	72.7	0	0.0	72.9	0	0.2	72.9	73.3	0	0.4	73.3
			PM	70.4	69.2	0	-1.2	69.4	0	0.2	70.6	69.7	0	0.3	70.9
			LN	69.5	67.1	0	-2.4	67.3	0	0.2	69.7	67.6	0	0.3	70.0
3	West Kingsbridge Road between University and Reservoir Avenues	Weekday	MD	71.4	69.7	0	-1.7	70.2	0	0.5	71.9	71.1	0	0.9	72.8
			PM	70.2	71.2	0	1.0	71.9	0	0.7	70.9	72.4	0	0.5	71.4
			LN	70.4	69.1	0	-1.3	69.7	0	0.6	71.0	70.2	0	0.5	71.5
		Saturday	MD	68.7	70.1	0	1.4	70.8	0	0.7	69.4	71.7	0	0.9	70.3
			PM	72.3	70.0	0	-2.3	70.6	0	0.6	72.9	71.6	0	1.0	73.9
			LN	69.8	68.9	0	-0.9	69.5	0	0.6	70.4	70.5	0	1.0	71.4
4	Reservoir Avenue between West 195th and Strong Streets	Weekday	MD	67.6	65.7	0	-1.9	65.8	0	0.1	67.7	66.3	0	0.5	68.2
			PM	63.9	66.8	0	2.9	67.0	0	0.2	64.1	67.4	0	0.4	64.5
			LN	61.1	61.1	0	0.0	61.4	0	0.3	61.4	61.8	0	0.4	61.8
		Saturday	MD	64.2	64.5	0	0.3	64.7	0	0.2	64.4	65.6	0	0.9	65.3
			PM	63.5	65.1	0	1.6	65.3	0	0.2	63.7	66.1	0	0.8	64.5
			LN	66.3	64.1	0	-2.2	64.3	0	0.2	66.5	65.0	0	0.7	67.2
5	Jerome Avenue between West 195th Street and West Kingsbridge Road	Weekday	MD	81.2	68.8	80.9	na	70.5	80.9	0.1	81.3	70.7	80.9	0.0	81.3
			PM	78.9	68.4	78.5	na	70.2	78.5	0.2	79.1	70.3	78.5	0.0	79.1
			LN	77.4	67.4	76.9	na	69.1	76.9	0.2	77.6	69.2	76.9	0.0	77.6
		Saturday	MD	78.4	68.5	77.9	na	70.1	77.9	0.2	78.6	70.3	77.9	0.0	78.6
			PM	77.2	68.5	76.6	na	70.0	76.6	0.2	77.4	70.1	76.6	0.0	77.5
			LN	75.9	68.2	75.1	na	69.7	75.1	0.3	76.2	69.8	75.1	0.0	76.2
6	East Kingsbridge Road between Morris and Creston Avenues	Weekday	MD	67.7	70.2	0	2.5	70.3	0	0.1	67.8	70.7	0	0.4	68.2
			PM	70.4	71.1	0	0.7	71.3	0	0.2	70.6	71.8	0	0.5	71.1
			LN	70.4	69.4	0	-1.0	69.6	0	0.2	70.6	70.2	0	0.6	71.2
		Saturday	MD	69.5	68.9	0	-0.6	69.7	0	0.8	70.3	69.9	0	0.2	70.5
			PM	67.9	69.2	0	1.3	69.5	0	0.3	68.2	70.3	0	0.8	69.0
			LN	67.9	69.2	0	1.3	69.4	0	0.2	68.1	70.1	0	0.7	68.8

A difference of 3 dBA or less between the modeled noise levels and measured noise levels indicates that the TNM model can be used with confidence.

Noise Monitoring Noise levels in dBA

Receptor Site	Location	Date	Time	$L_{eq(1)}$	$L_{1(1)}$	$L_{10(1)}$	$L_{50(1)}$	$L_{90(1)}$	$L_{min(1)}$	$L_{max(1)}$
1	University Avenue between West 192nd Street and West Kingsbridge Road	Weekday	Midday	69.5	79.7	72.4	66.2	60.5	57.2	85.4
			PM	68.6	79.4	71.0	65.1	60.0	56.6	85.1
			Late Night	72.2	83.0	73.7	67.4	58.1	54.9	92.1
		Saturday	Midday	65.7	72.5	68.1	64.6	60.6	58.1	75.6
			PM	66.0	76.1	68.6	63.1	60.2	56.7	81.6
			Late Night	64.9	70.7	67.2	63.9	61.5	58.4	73.7
2	West Kingsbridge Road between Sedgewick and Webb Avenues	Weekday	Midday	72.6	82.1	75.9	69.7	63.5	58.7	84.3
			PM	69.8	79.6	72.6	67.2	60.0	56.6	82.2
			Late Night	74.1	82.7	77.7	71.8	64.7	58.2	86.2
		Saturday	Midday	72.7	85.0	74.4	68.2	62.3	58.3	89.0
			PM	70.4	80.9	72.9	67.5	61.1	58.8	85.3
			Late Night	69.5	78.9	72.5	66.5	61.2	58.5	84.6
3	West Kingsbridge Road between University and Reservoir Avenues	Weekday	Midday	71.4	81.9	73.5	67.9	63.5	60.6	89.0
			PM	70.2	79.6	73.2	67.1	64.1	61.6	84.4
			Late Night	70.4	81.2	73.3	65.8	61.9	59.8	89.0
		Saturday	Midday	68.7	78.0	71.6	66.1	61.2	57.0	82.0
			PM	72.3	82.4	73.5	67.9	64.4	59.9	91.9
			Late Night	69.8	80.2	72.2	66.3	63.3	61.5	85.9
4	Reservoir Avenue between West 195th and Strong Streets	Weekday	Midday	67.6	76.7	71.1	63.9	57.1	52.0	83.7
			PM	63.9	73.5	67.0	60.9	55.0	51.8	79.3
			Late Night	61.1	70.8	64.8	56.9	52.5	51.0	76.8
		Saturday	Midday	64.2	71.9	68.1	61.0	56.1	53.5	75.2
			PM	63.5	70.5	67.2	61.3	55.6	51.2	74.3
			Late Night	66.3	73.6	68.6	63.1	57.8	52.8	84.8
5	Jerome Avenue between West 195th Street and West Kingsbridge Road	Weekday	Midday	81.2	93.3	83.7	68.2	62.6	58.9	95.3
			PM	78.9	91.6	81.8	67.8	63.0	59.9	94.4
			Late Night	77.4	89.6	80.1	65.9	60.1	58.0	95.1
		Saturday	Midday	78.4	91.9	81.4	66.1	59.8	56.7	93.2
			PM	77.2	91.3	79.0	65.0	60.2	56.9	93.6
			Late Night	75.9	88.5	78.1	66.5	61.3	57.4	91.3
6	East Kingsbridge Road between Morris and Creston Avenues	Weekday	Midday	67.7	76.0	70.2	66.0	60.9	58.1	81.3
			PM	70.4	78.7	73.1	68.2	63.5	58.3	86.1
			Late Night	70.4	81.8	72.4	66.7	62.3	57.7	88.3
		Saturday	Midday	69.5	78.4	71.9	67.7	63.0	58.2	84.1
			PM	67.9	75.6	70.4	66.2	62.5	59.7	83.6
			Late Night	67.9	76.3	71.1	64.9	58.8	56.1	83.3

Noise Analysis Results in L10 (2013)

Note: This L10 calculation sheet is valid for the following in addition to Residential 7 AM - 10 PM; school, museum, library, court, house of worship, transient hotel or motel, public meeting room, auditorium, out patient public health facility, commercial

Categories	
L10 < or equal 65 dBA	acceptable
65 < L10 < or equal 70 dBA	marginally acceptable
70 < L10 < or equal 80 dBA	marginally acceptable
L10 > 80 dBA	clearly unacceptable

Receptor Location	Site	Date	Hour	NB Change	Existing L10	Category (Existing L10 noise levels)	Existing L10 + NB Change = NB L10	Category (NB L10 noise levels)	Build Change	No Build L10	No Build L10 + Build Change = L10	Category (B L10 noise levels)	CEQR criteria 45 dB(A)	Building Attenuation required
University Avenue between West 192nd Street and West Kingsbridge Road	1	Weekday	MD	0.2	72.4	MARGINALLY UNACCEPTABLE	72.6	MARGINALLY UNACCEPTABLE	0.6	72.6	73.2	MARGINALLY UNACCEPTABLE	45	28
			PM	0.2	71.0	MARGINALLY UNACCEPTABLE	71.2	MARGINALLY UNACCEPTABLE	0.5	71.2	71.7	MARGINALLY UNACCEPTABLE	45	27
			LN	0.2	73.7	MARGINALLY UNACCEPTABLE	73.9	MARGINALLY UNACCEPTABLE	0.4	73.9	74.3	MARGINALLY UNACCEPTABLE	45	29
		Saturday	MD	0.2	68.1	MARGINALLY ACCEPTABLE	68.3	MARGINALLY ACCEPTABLE	0.9	68.3	69.2	MARGINALLY ACCEPTABLE	45	24
			PM	0.2	68.6	MARGINALLY ACCEPTABLE	68.8	MARGINALLY ACCEPTABLE	0.8	68.8	69.6	MARGINALLY ACCEPTABLE	45	25
			LN	0.2	67.2	MARGINALLY ACCEPTABLE	67.4	MARGINALLY ACCEPTABLE	1.0	67.4	68.4	MARGINALLY ACCEPTABLE	45	23
West Kingsbridge Road between Sedgewick and Webb Avenues	2	Weekday	MD	0.3	75.9	MARGINALLY UNACCEPTABLE	76.2	MARGINALLY UNACCEPTABLE	0.5	76.2	76.7	MARGINALLY UNACCEPTABLE	45	32
			PM	1.0	72.6	MARGINALLY UNACCEPTABLE	73.6	MARGINALLY UNACCEPTABLE	0.2	73.6	73.8	MARGINALLY UNACCEPTABLE	45	29
			LN	0.2	77.7	MARGINALLY UNACCEPTABLE	77.9	MARGINALLY UNACCEPTABLE	0.2	77.9	78.1	MARGINALLY UNACCEPTABLE	45	33
		Saturday	MD	0.2	74.4	MARGINALLY UNACCEPTABLE	74.6	MARGINALLY UNACCEPTABLE	0.4	74.6	75.0	MARGINALLY UNACCEPTABLE	45	30
			PM	0.2	72.9	MARGINALLY UNACCEPTABLE	73.1	MARGINALLY UNACCEPTABLE	0.3	73.1	73.4	MARGINALLY UNACCEPTABLE	45	28
			LN	0.2	72.5	MARGINALLY UNACCEPTABLE	72.7	MARGINALLY UNACCEPTABLE	0.3	72.7	73.0	MARGINALLY UNACCEPTABLE	45	28
West Kingsbridge Road between University and Reservoir Avenues	3	Weekday	MD	0.5	73.5	MARGINALLY UNACCEPTABLE	74.0	MARGINALLY UNACCEPTABLE	0.9	74.0	74.9	MARGINALLY UNACCEPTABLE	45	30
			PM	0.7	73.2	MARGINALLY UNACCEPTABLE	73.9	MARGINALLY UNACCEPTABLE	0.5	73.9	74.4	MARGINALLY UNACCEPTABLE	45	29
			LN	0.6	73.3	MARGINALLY UNACCEPTABLE	73.9	MARGINALLY UNACCEPTABLE	0.5	73.9	74.4	MARGINALLY UNACCEPTABLE	45	29
		Saturday	MD	0.7	71.6	MARGINALLY UNACCEPTABLE	72.3	MARGINALLY UNACCEPTABLE	0.9	72.3	73.2	MARGINALLY UNACCEPTABLE	45	28
			PM	0.6	73.5	MARGINALLY UNACCEPTABLE	74.1	MARGINALLY UNACCEPTABLE	1.0	74.1	75.1	MARGINALLY UNACCEPTABLE	45	30
			LN	0.6	72.2	MARGINALLY UNACCEPTABLE	72.8	MARGINALLY UNACCEPTABLE	1.0	72.8	73.8	MARGINALLY UNACCEPTABLE	45	29
Reservoir Avenue between West 195th and Strong Streets	4	Weekday	MD	0.1	71.1	MARGINALLY UNACCEPTABLE	71.2	MARGINALLY UNACCEPTABLE	0.5	71.2	71.7	MARGINALLY UNACCEPTABLE	45	27
			PM	0.2	67.0	MARGINALLY ACCEPTABLE	67.2	MARGINALLY ACCEPTABLE	0.4	67.2	67.6	MARGINALLY ACCEPTABLE	45	23
			LN	0.3	64.8	ACCEPTABLE	65.1	MARGINALLY ACCEPTABLE	0.4	65.1	65.5	MARGINALLY ACCEPTABLE	45	21
		Saturday	MD	0.2	68.1	MARGINALLY ACCEPTABLE	68.3	MARGINALLY ACCEPTABLE	0.9	68.3	69.2	MARGINALLY ACCEPTABLE	45	24
			PM	0.2	67.2	MARGINALLY ACCEPTABLE	67.4	MARGINALLY ACCEPTABLE	0.8	67.4	68.2	MARGINALLY ACCEPTABLE	45	23
			LN	0.2	68.6	MARGINALLY ACCEPTABLE	68.8	MARGINALLY ACCEPTABLE	0.7	68.8	69.5	MARGINALLY ACCEPTABLE	45	25
Jerome Avenue between West 195th Street and West Kingsbridge Road	5	Weekday	MD	0.1	83.7	CLEARLY UNACCEPTABLE	83.8	CLEARLY UNACCEPTABLE	0.0	83.8	83.8	CLEARLY UNACCEPTABLE	50	34
			PM	0.2	81.8	CLEARLY UNACCEPTABLE	82.0	CLEARLY UNACCEPTABLE	0.0	82.0	82.0	CLEARLY UNACCEPTABLE	50	32
			LN	0.2	80.1	CLEARLY UNACCEPTABLE	80.3	CLEARLY UNACCEPTABLE	0.0	80.3	80.3	CLEARLY UNACCEPTABLE	50	30
		Saturday	MD	0.2	81.4	CLEARLY UNACCEPTABLE	81.6	CLEARLY UNACCEPTABLE	0.0	81.6	81.6	CLEARLY UNACCEPTABLE	50	32
			PM	0.2	79.0	MARGINALLY UNACCEPTABLE	79.2	MARGINALLY UNACCEPTABLE	0.0	79.2	79.3	MARGINALLY UNACCEPTABLE	50	29
			LN	0.3	78.1	MARGINALLY UNACCEPTABLE	78.4	MARGINALLY UNACCEPTABLE	0.0	78.4	78.4	MARGINALLY UNACCEPTABLE	50	28
East Kingsbridge Road between Morris and Creston Avenues	6	Weekday	MD	0.1	70.2	MARGINALLY UNACCEPTABLE	70.3	MARGINALLY UNACCEPTABLE	0.4	70.3	70.7	MARGINALLY UNACCEPTABLE	45	26
			PM	0.2	73.1	MARGINALLY UNACCEPTABLE	73.3	MARGINALLY UNACCEPTABLE	0.5	73.3	73.8	MARGINALLY UNACCEPTABLE	45	29
			LN	0.2	72.4	MARGINALLY UNACCEPTABLE	72.6	MARGINALLY UNACCEPTABLE	0.6	72.6	73.2	MARGINALLY UNACCEPTABLE	45	28
		Saturday	MD	0.8	71.9	MARGINALLY UNACCEPTABLE	72.7	MARGINALLY UNACCEPTABLE	0.2	72.7	72.9	MARGINALLY UNACCEPTABLE	45	28
			PM	0.3	70.4	MARGINALLY UNACCEPTABLE	70.7	MARGINALLY UNACCEPTABLE	0.8	70.7	71.5	MARGINALLY UNACCEPTABLE	45	27
			LN	0.2	71.1	MARGINALLY UNACCEPTABLE	71.3	MARGINALLY UNACCEPTABLE	0.7	71.3	72.0	MARGINALLY UNACCEPTABLE	45	27

Proposed Building Façades	Receptor Site	CEQR Limit	Build L10	Building Attenuation
Jerome Avenue	5 (Maximum L10)	50	83.8	33.8
W. Kingsbridge Rd & W. 195th Street*	5 (Minimum L10)	50	79.3	29.3
Reservoir Avenue	4 (Maximum L10)	50	71.7	21.7

* To be conservative, the minimum L10 value at site 5 was applied on façades facing W. Kingbrideg and W. 195th Street.