

Daylight and Sunlight Assessment Report

Proposed Care Home, Land at Dene Holm, Gravesend

Stroma Reference: OP-G858 DLSL1
Date: 06/05/2026
Prepared for: Building Construction Partnership Ltd

1. Executive Summary

- 1.1. This daylight and sunlight assessment report relates to the proposed new build care home in Gravesend.
- 1.2. A detailed assessment has been undertaken on the proposed development to determine the expected levels of daylight and its impact upon the daylight and sunlight levels of surrounding buildings.
- 1.3. Works described within this report have been undertaken in accordance with BRE good practice guidance document BR 209 (2022) Site Layout Planning for Daylight and Sunlight. This document includes recommendations for daylight and sunlight access and respective calculation methods.
- 1.4. Sunlight Availability Indicator: **London (51.5°N)**
- 1.5. Most of the windows on the proposed building meet BR209 recommendations for daylight and are therefore considered to provide reasonable levels of daylight.
- 1.6. A small percentage of windows assessed serving bedrooms, living/dining, and staff room spaces on the proposed building do not achieve VSCs of 27%. Many of these results are close to the target and the windows are relatively large, therefore have greater potential to provide adequate daylight levels within the rooms served.
- 1.7. The proposed layout demonstrates that multiple communal lounge, dining, and activity spaces benefit from suitably orientated windows meaning occupants will have access to living spaces with good potential for sunlight.
- 1.8. The majority of surrounding windows meet the BR209 daylight recommendations with the proposed development in place.
- 1.9. The only exceptions to this are two ground floor windows and a glazed door on the northern elevation of 1 Everest Close. VSC results and daylight losses are both relatively close to the BR209 recommended thresholds and the loss of daylight is unlikely to be very noticeable especially if the affected rooms are served by additional windows,
- 1.10. All surrounding windows meet the BR209 recommendations for sunlight with the proposed development in place.
- 1.11. This assessment does not consider Right-to-Light. Should there be concerns that a Right-to-Light exists, it is recommended that a suitably qualified specialist be consulted.**

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2. Quality Management

Prepared by		Checked by	
Jonathan Teale BSc (hons)		Richard de Fleury BEng (hons) MSc	
Senior Sustainability Consultant		Principal Sustainability Consultant	
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3. Development Overview

3.1. The proposed development is to be located on the site of an existing care home, on Dene Holm Road in Gravesend. The proposal is for the construction of a three storey, 60-bed residential care home with a separate block of six rehabilitation apartments.



Figure 1. **Proposed development (shown in yellow)**

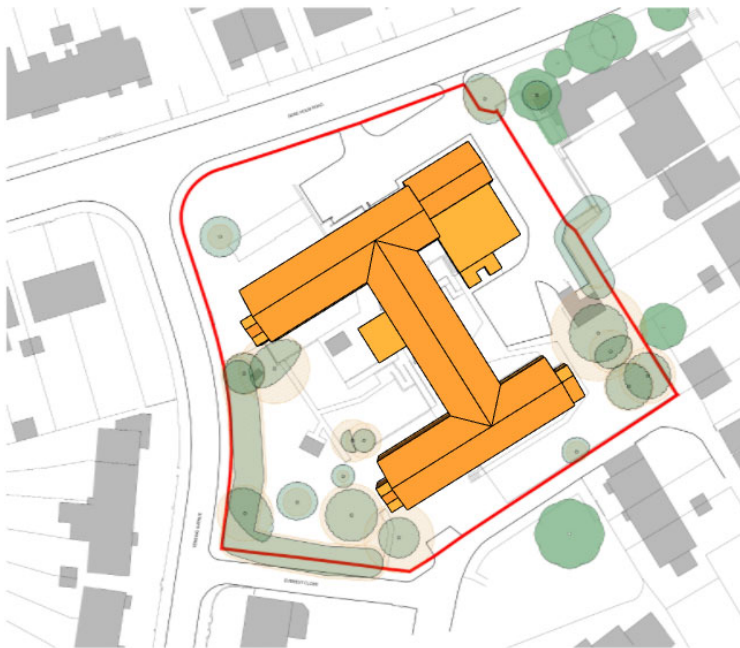


Figure 2. **Existing Building (shown in orange)**

4. Approach and Recommendations

4.1. Daylight

4.1.1. New Developments

4.1. Where windows are obstructed by large objects, the level of daylight received will be adversely affected. Large obstructions are defined by both their relative height and distance away from the window concerned.

4.2. In the case of wide obstructions, i.e. those not allowing daylight access from either side, the amount of daylight entering a room is proportional to the visible sky angle (ϕ) – measured from the centre of the windowpane.

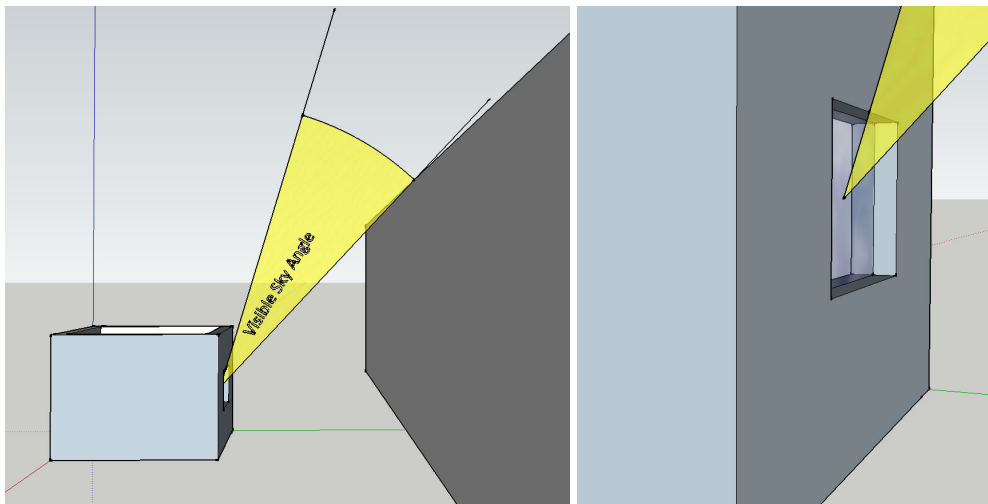


Figure 3. **Visible sky angle.**

4.3. As obstructions are not always continuous, the angle of visible sky can be difficult to estimate. In such situations, the amount of skylight falling on a vertical wall or window can be quantified as the Vertical Sky Component (VSC). The VSC is the ratio of skylight received at a reference point against that of an unobstructed horizontal plane. Measurement of the VSC is usually determined at the centre point of a window and has a maximum value of approximately 40%. BRE guidance states the following daylight performance to correspond with VSC.

Summary

2.1.21 Obstructions can limit access to light from the sky. This can be checked by measuring or calculating the angle of visible sky θ , angle of obstruction or vertical sky component (VSC) at the centre of the lowest window where daylight is required. If VSC is:

- At least 27% (θ is greater than 65° , obstruction angle less than 25°) conventional window design will usually give reasonable results.
- Between 15% and 27% (θ is between 45° than 65° , obstruction angle is between 25° and 45°) special measures (larger windows, changes to room layout) are usually needed to provide adequate daylight.
- between 5% and 15% (θ is between 25° than 45° , obstruction angle is between 45° and 65°) it is very difficult to provide adequate daylight unless very large windows are used.
- Less than 5% (θ is less than 25° , obstruction more than 65°) it is often impossible to achieve reasonable daylight, even if the whole window wall is glazed.

Figure 4. **BR 209 Summary - impact of VSC on anticipated daylight performance**¹

¹ Site Layout Planning for Daylight and Sunlight, P.J. Littlefair (2011) p.6

4.1.1. Existing Buildings

4.4. BRE guidance emphasises the importance of safeguarding daylight to nearby surroundings. Performance guidelines relate to dwelling rooms where daylight access is considered to be important. These areas include living rooms, kitchens and bedrooms. The following procedure should be followed to assess whether proposed development is likely to have a detrimental effect upon existing surroundings.

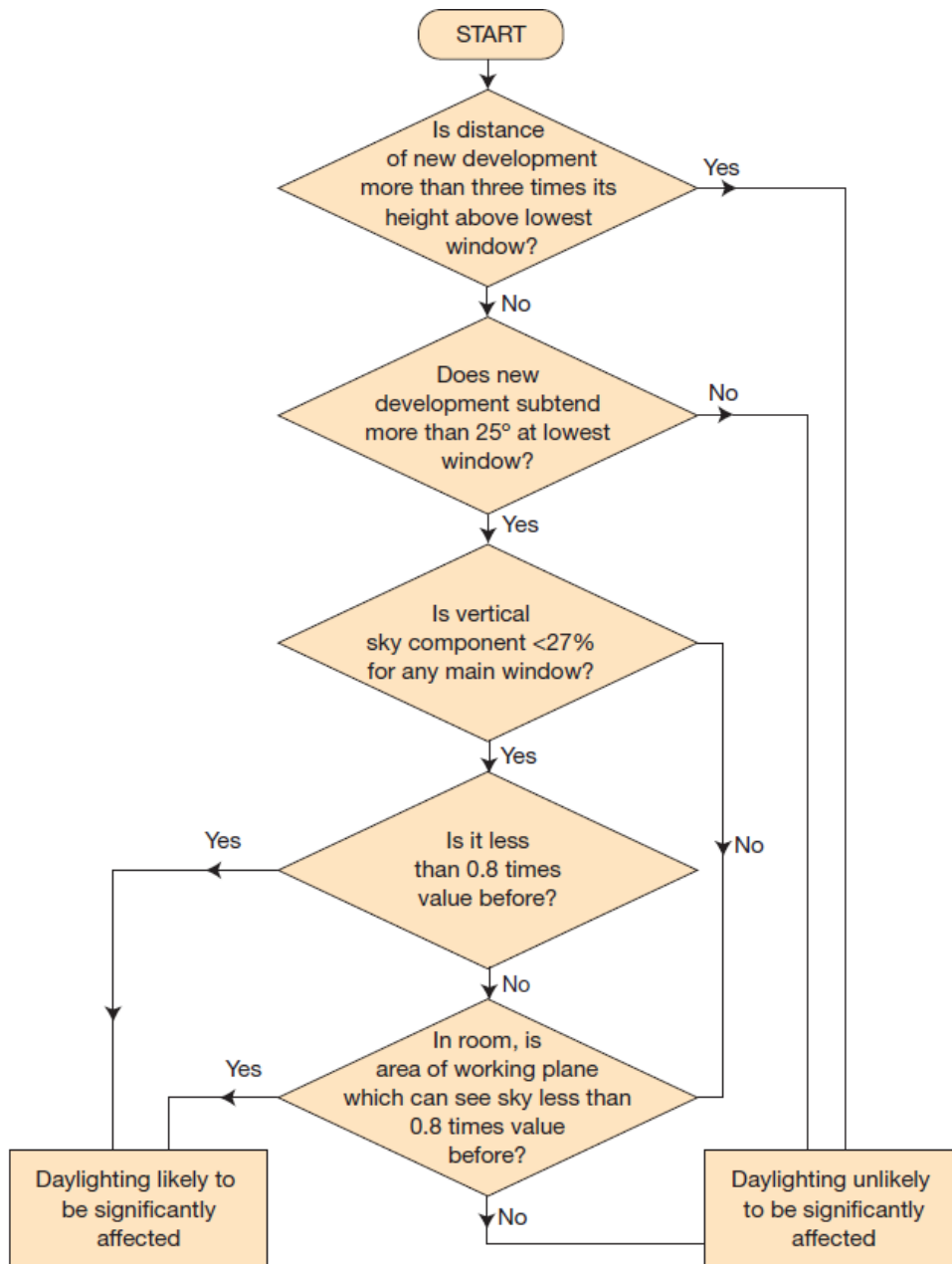


Figure 5. BR209 'Decision chart: diffuse daylight in existing buildings'²

² Site Layout Planning for Daylight and Sunlight, P.J.Littlefair (2011) p.10

4.2. Sunlight

4.2.1. New Developments

- 4.5. Ensuring access to sunlight is an important part of residential building design. The presence of direct sunlight is shown to have a positive impact upon occupant wellbeing. BRE guidance states that sunlight provision to living rooms and conservatories is of greatest importance compared with that to bedrooms and kitchens.
- 4.6. With developments in passive building design and a more frequent installation of solar collection technology, e.g. photovoltaics, the magnitude of sunlight and orientation of access is increasingly becoming a concern.

Summary – (new buildings)

3.1.15 In general a dwelling, or non-domestic building that has a particular requirement for sunlight, will appear reasonably sunlit provided:

- at least one main window wall faces within 90° of due south and
- a habitable room, preferably a main living room, can receive a total of at least 1.5 hours of sunlight on 21 March. This is assessed at the inside centre of the window(s); sunlight received by different windows can be added provided they occur at different times and sunlight hours are not double counted.

3.1.16 Where groups of dwellings are planned, site layout design should aim to maximise the number of dwellings with a main living room that meets the above recommendations.

Figure 6. **BR 209 Summary – Sunlight recommendations for new build³**

- 4.7. Unobstructed south-facing windows will receive significantly more sunlight than those facing north. East –facing aspects will receive direct sunlight during the morning and west-facing aspects in the afternoon/evening. The sunpath should be considered in setting out a development.
- 4.8. Where a dwelling has no window-wall within 90° of South, it is likely to be considered insufficiently sunlit. This is usually only a concern within apartment blocks where the number of aspects is limited. However, careful layout can help to ensure that the majority of apartments include window walls within 90° of south.
- 4.9. For interiors, access to sunlight can be quantified. BS EN 17037^[1] recommends that a space should receive a minimum of 1.5 hours of direct sunlight on a selected date between 1 February and 21 March with cloudless conditions. It is suggested that 21 March (equinox) be used. For dwellings, at least one habitable room, preferably a main living room, should meet at least the minimum criterion Assessment.
- 4.10. Please note that Annual Probable Sunlight hours (APSH) are no longer the recommended assessment approach for sunlight in proposed buildings This was removed in 2022 revision of BR 209.**

³ Site Layout Planning for Daylight and Sunlight, P.J.Littlefair (2011) p.16

4.2.2. Existing Buildings

4.11. Similar to daylight, access to sunlight should be safeguarded to critical areas of existing buildings.

4.12. BRE guidance provides the following guidance.

Summary

3.2.13 If a living room of an existing dwelling has a main window facing within 90° of due south, and any part of a new development subtends an angle of more than 25° to the horizontal measured from the centre of the window in a vertical section perpendicular to the window, then the sunlighting of the existing dwelling may be adversely affected. This will be the case if the centre of the window:

- Receives less than 25% of the annual probable sunlight hours, and less than 0.8 times its former annual value; or less than 5% annual probable sunlight hours between 21st September and 21st March and less than 0.8 times its former value during that period.
- And also has a reduction in sunlight received over the whole year greater than 4 of the annual probable sunlight hours.

Figure 7. **BR209 Summary –securing sunlight levels of existing developments**⁴

⁴ Site Layout Planning for Daylight and Sunlight, P.J.Littlefair (2022) p.17

5. Assessment

5.1. Objectives

- 5.1. Determine the daylight and sunlight levels for the living spaces of the proposed development.
- 5.2. Determine the effect of the proposed development on availability of VSC and APSH on the surrounding buildings against the existing building.

5.2. Approach

5.2.1. Proposed

- 5.3. Determine the daylight and sunlight levels for the habitable spaces of the proposed development.
- 5.4. The proposed building VSC for all windows as per elevation drawings below have been assessed for all the relevant spaces using a calculation plugin for Sketchup.

5.2.2. Surrounding

- 5.5. To assess the impact the development will have on the surrounding properties the first step is to identify which properties are likely to have their daylight and sunlight impacted.
- 5.6. Following the first rule set out in the BR 209 flow chart, an area three times the height of any proposed buildings must be determined. This can be seen in figure 8, which identifies the majority of the existing buildings with windows which have the potential to lose natural daylight and sunlight.



Figure 8. **Area three times the height of the proposed development**

5.7. To further refine the number of buildings that have the potential to be impacted by the proposed development a 25 degree angle must be taken from the centre point of any surrounding windows. Following guidance of BR 209 any existing buildings that subtends this do not need to be assessed. Figure 9 indicates a 25 degree angle from the proposed building high points, thus indicating the surrounding properties at risk.



Figure 9. **Area within a 25 degree angle from the height of proposed development**

5.8. Having identified the buildings affected it is necessary to identify the affected elevations. Elevations facing away from the proposed development will not require assessment as the impact of daylight and sunlight levels will be insignificant. Figures 10 to 12 show, in purple which elevations have been identified as needing assessment.



Figure 10. **Surrounding elevations to be assessed (1 Everest Close, 2-8 Tensing Avenue and 172 Dene Holm Road)**



Figure 11. **Surrounding elevations to be assessed (1-3 Everest Close)**

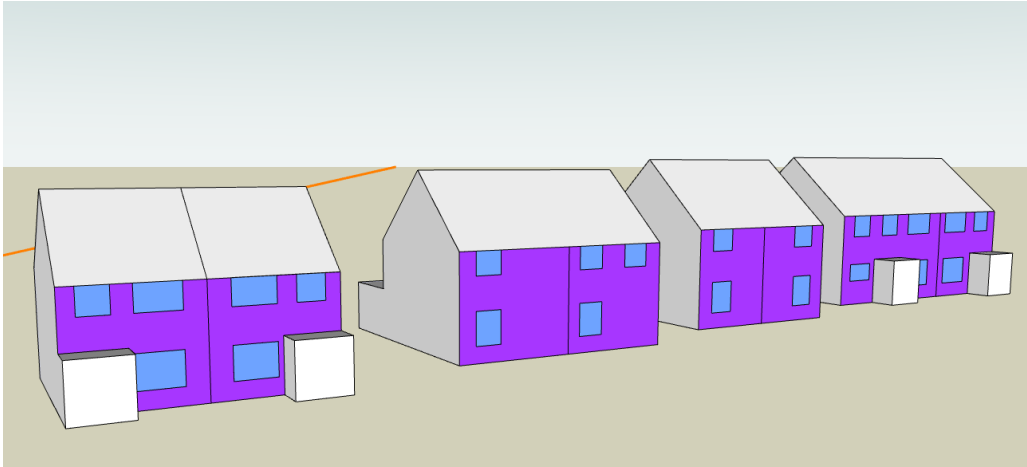


Figure 12. **Surrounding elevations to be assessed (195-209 Dene Holm Road)**

6. Results

6.1. Proposed

6.1.1. Daylight

6.1. The majority of the proposed windows assessed for daylight meet the BR209 recommendations by achieving VSCs (vertical sky component) of 27% (refer to Appendix C for full results).

6.2. There are twelve windows serving bedrooms where there is a requirement for daylight and do not achieve VSCs of 27%. The results show that some of these windows achieve close to the target. In addition, the windows serving these rooms are relatively large, according to BR209, larger windows achieving VSCs between 15-27% have more potential to provide adequate daylight.

Floor Ref.	Traffic Light Id	VSC	Meets BRE Criteria	Window Orientation	Room Served
Lower Ground	18	20.47	NO	237°	Bedroom
Lower Ground	19	24.57	NO	237°	Bedroom
Lower Ground	22	18.36	NO	237°	Bedroom
Lower Ground	23	18.09	NO	327°N	Bedroom
Lower Ground	24	23.60	NO	327°N	Bedroom
Ground	41	24.99	NO	327°N	Bedroom
Ground	42	19.78	NO	57°N	Bedroom
Ground	63	25.56	NO	147°	Bedroom
Ground	65	23.31	NO	237°	Bedroom
Ground	69	19.99	NO	237°	Bedroom
Ground	70	21.19	NO	327°N	Bedroom
First	116	24.47	NO	237°	Bedroom

Table 1. VSC (vertical sky component) results for bedrooms not meeting 27%

6.3. There is one window serving a living/dining area which does not achieve a VSC of 27%. The result is very close and is a relatively large window meaning it is likely that adequate levels of daylight can be achieved.

Floor Ref.	Traffic Light Id	VSC	Meets BRE Criteria	Window Orientation	Room Served
Lower Ground	21	25.72	NO	237°	Living Dining

Table 2. VSC (vertical sky component) results for living/dining room not meeting 27%

6.4. The window on the staff room on the lower ground floor does not achieve a VSC of 27% however the window which serves this room is relatively large, according to BR209, larger windows achieving VSCs between 15-27% have more potential to provide adequate daylight.

Floor Ref.	Traffic Light Id	VSC	Meets BRE Criteria	Window Orientation	Room Served
Lower Ground	16	20.91	NO	147°	Staff Room

Table 3. **VSC (vertical sky component) results for staff room not meeting 27%**

6.1.2. Sunlight

6.5. According to BR209 living spaces will appear reasonably sunlit provided at least one main window wall faces within 90° of due south.

6.6. Floorplans show that there are multiple communal lounge, dining or activity spaces which are served by windows facing within 90° of south available to the occupants where sunlight can be enjoyed.

6.2. Surrounding

6.2.1. Daylight

6.7. The majority of the surrounding windows meet the BR209 daylight recommendations with the proposed development in place by still achieving VSCs of 27% or any losses are calculated to be within the BR209 tolerance ratio of 0.80.(refer to Appendix D).

6.8. The only exceptions to this are two ground floor windows and a glazed door on the northern elevation of 1 Everest Close (refer to images below). The results show that the calculated VSCs are close to the recommended 27% with the proposed building in place, and the daylight losses are also close to the recommended 0.80 times their former value, therefore the loss of daylight unlikely to be very noticeable.

6.9. It should be also noted that it appears that additional windows serve the rooms affected, if this is the case the loss of daylight will be likely to be minimal.

Floor Ref.	Traffic Light Id		VSC	Pr/Ex	Meets BRE Criteria	Window Orientation
Ground	156	Existing	34.64	0.76	NO	8°N
		Proposed	24.10			
Ground	157	Existing	35.00	0.71	NO	8°N
		Proposed	24.41			
Ground	158	Existing	35.07	0.74	NO	8°N
		Proposed	26.80			

Table 4. **VSC (vertical sky component) results for 1 Everest Close**



Figure 13. **Google Earth images of 1 Everest Close (windows 156, 157 and 158 highlighted in yellow)**

6.2.2. Sunlight

6.10. All of the surrounding windows assessed for sunlight still meet the BR209 recommendations with the proposed development in place (refer to Appendix E for results). Any sunlight losses are within the BR209 tolerance ratio of 0.80.

7. Conclusion

- 7.1. The majority of proposed windows meet BR209 recommendations for daylight by achieving the BR209 vertical sky component (VSC) target of 27% and are therefore considered to provide acceptable levels of daylight.
- 7.2. A small number of windows on the proposed building, serving bedrooms, living/dining, and staff room spaces do not achieve VSCs of 27%. However, many of these results are close to the target and the windows are relatively large. According to BR209 guidance, larger windows achieving VSC values between 15% and 27% have greater potential to provide adequate daylight levels within the room.
- 7.3. The proposed layout demonstrates that multiple communal lounge, dining, and activity spaces benefit from suitably orientated windows. Therefore, occupants will have access to shared areas with good potential for sunlight.
- 7.4. The assessment of surrounding properties indicates that the majority of surrounding windows meet the BR209 daylight recommendations with the proposed development in place, either by maintaining Vertical Sky Components (VSCs) of 27% or by demonstrating daylight reductions within the accepted BR209 tolerance ratio of 0.80.
- 7.5. The only exceptions to this are two ground floor windows and a glazed door on the northern elevation of 1 Everest Close. The resulting VSC values and losses are both relatively close to the BR209 recommended thresholds and the loss of daylight is unlikely to be very noticeable especially if the affected rooms are served by additional windows,
- 7.6. All of the surrounding windows meet the BR209 recommendations for sunlight with the proposed development in place.

Appendix A. Proposed Building Window references

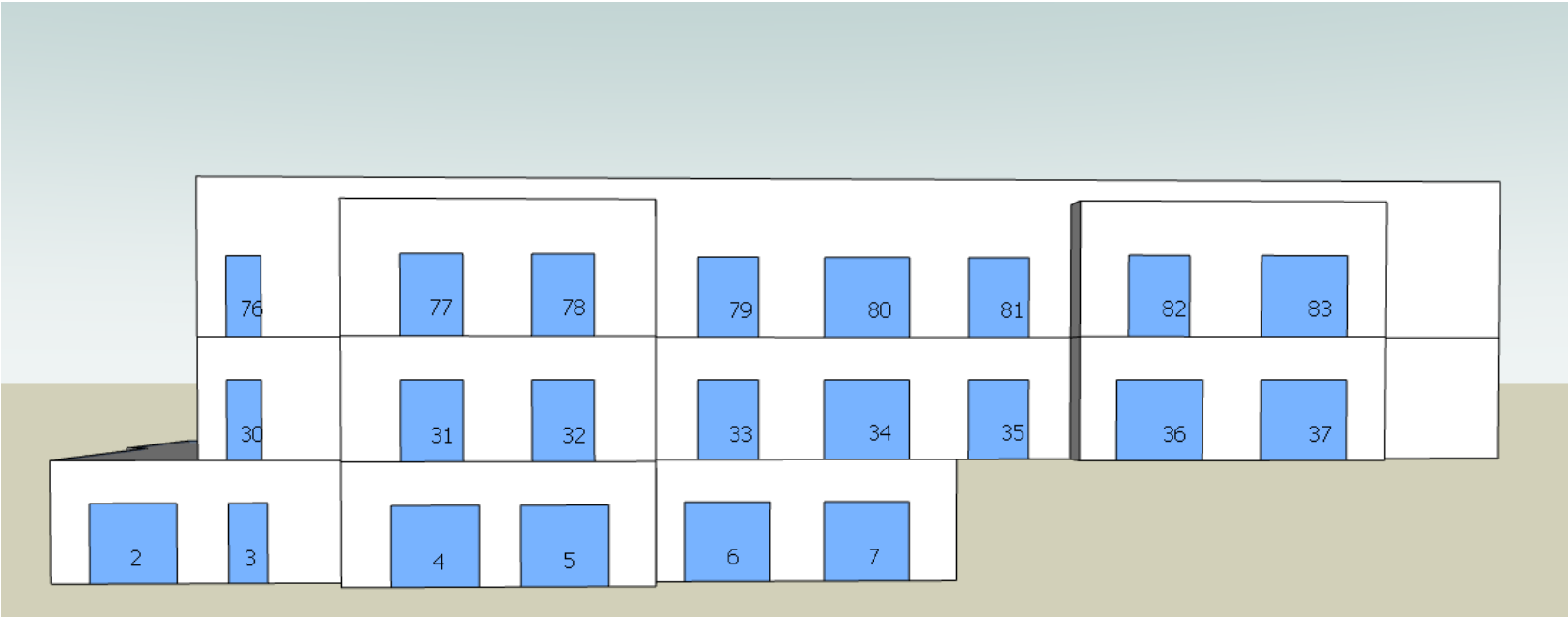


Figure 14. Proposed Building Window references (south elevation 1/2)

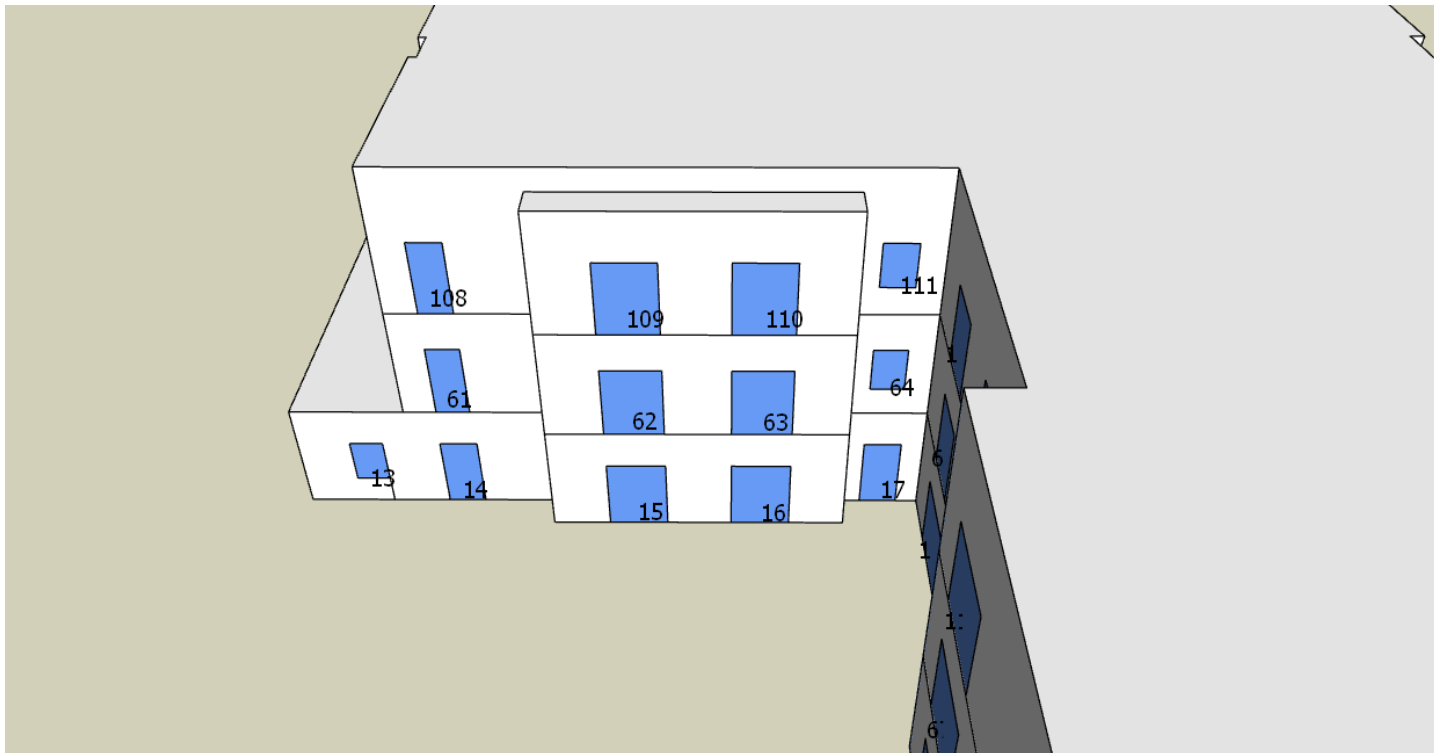


Figure 15. **Proposed Building Window references (south elevation 1/2)**

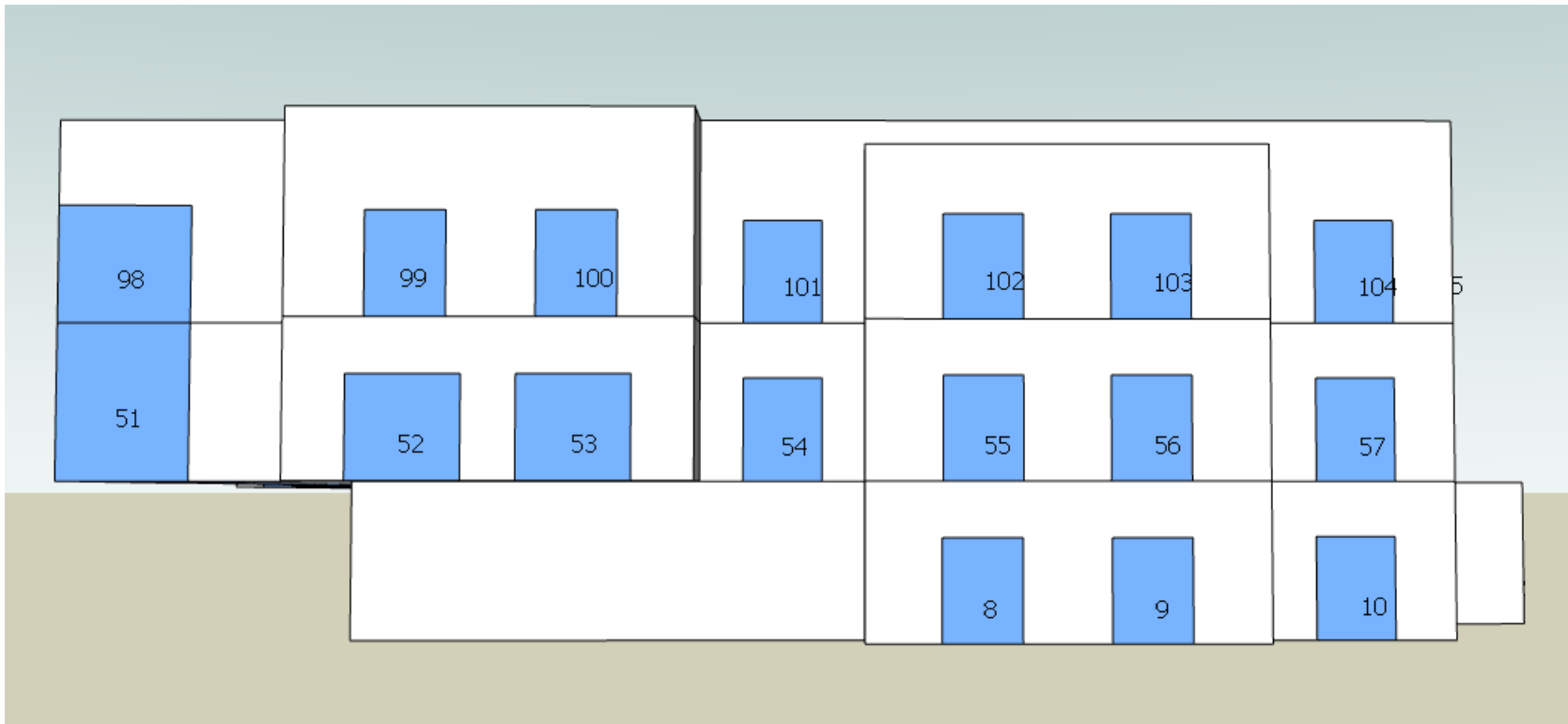


Figure 16. **Proposed Building Window references (north elevation 1/3)**

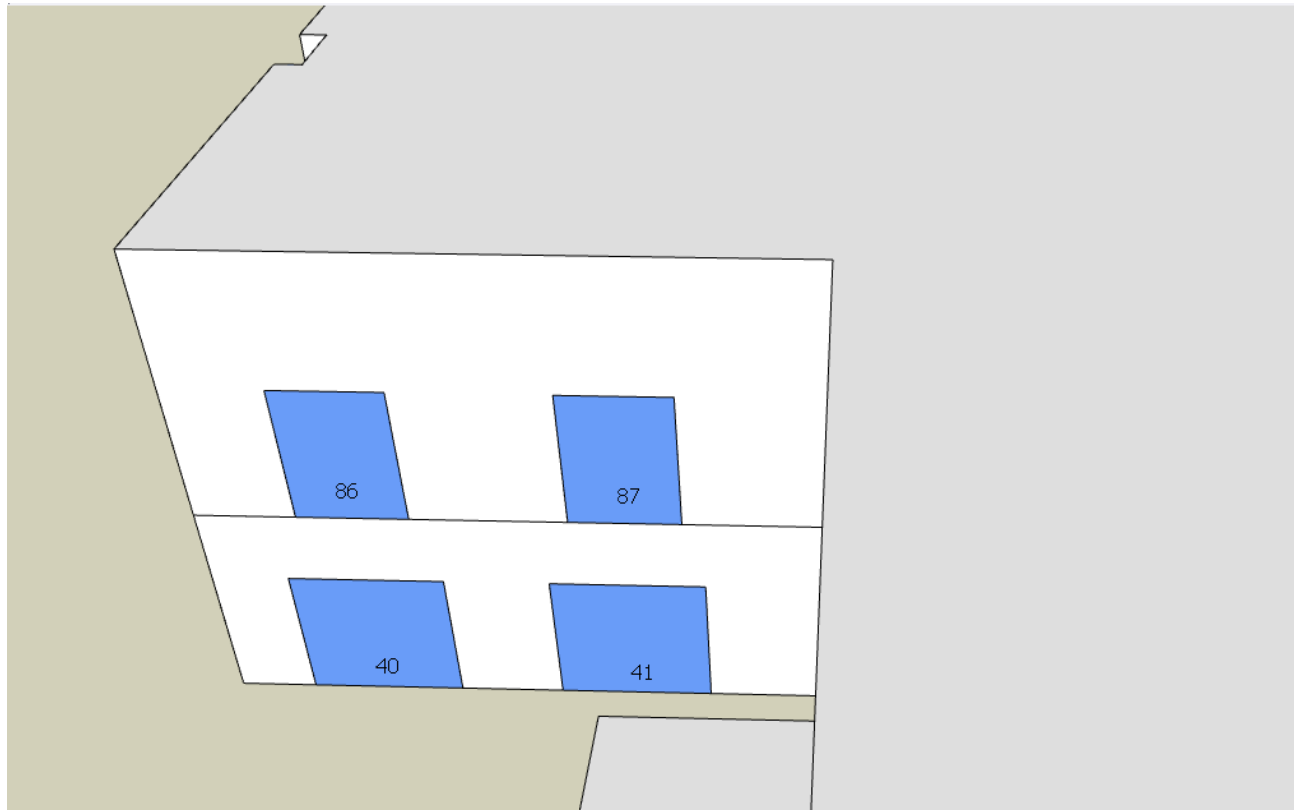


Figure 17. **Proposed Building Window references (north elevation 2/3)**



Figure 18. **Proposed Building Window references (north elevation 3/3)**

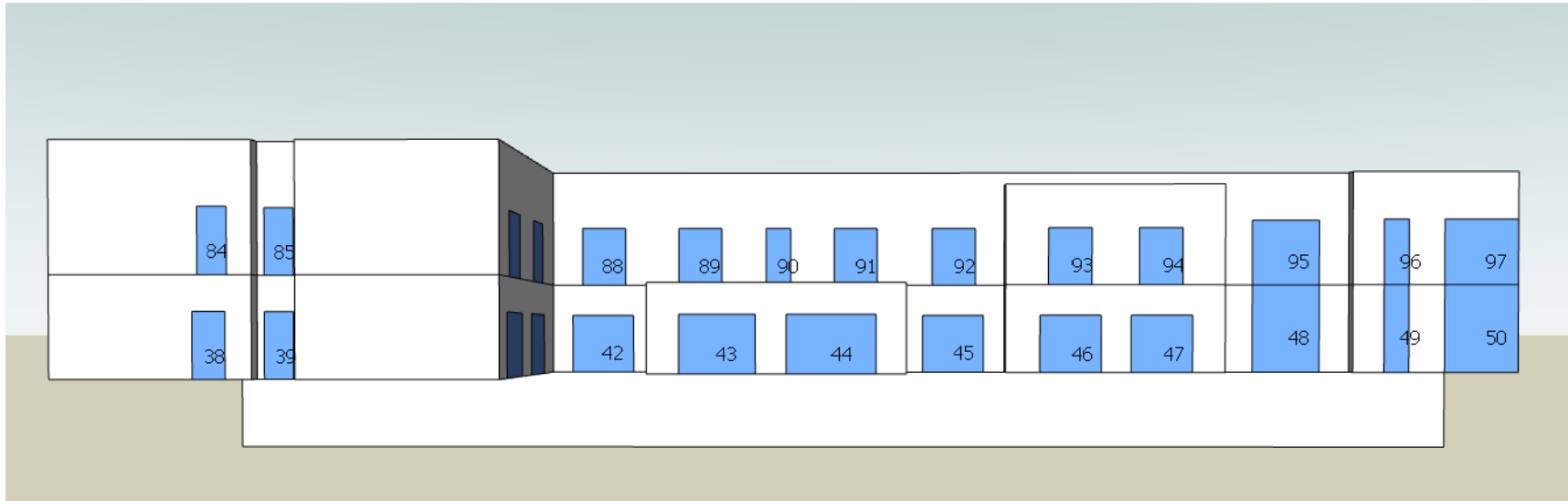


Figure 19. **Proposed Building Window references (east elevation)**

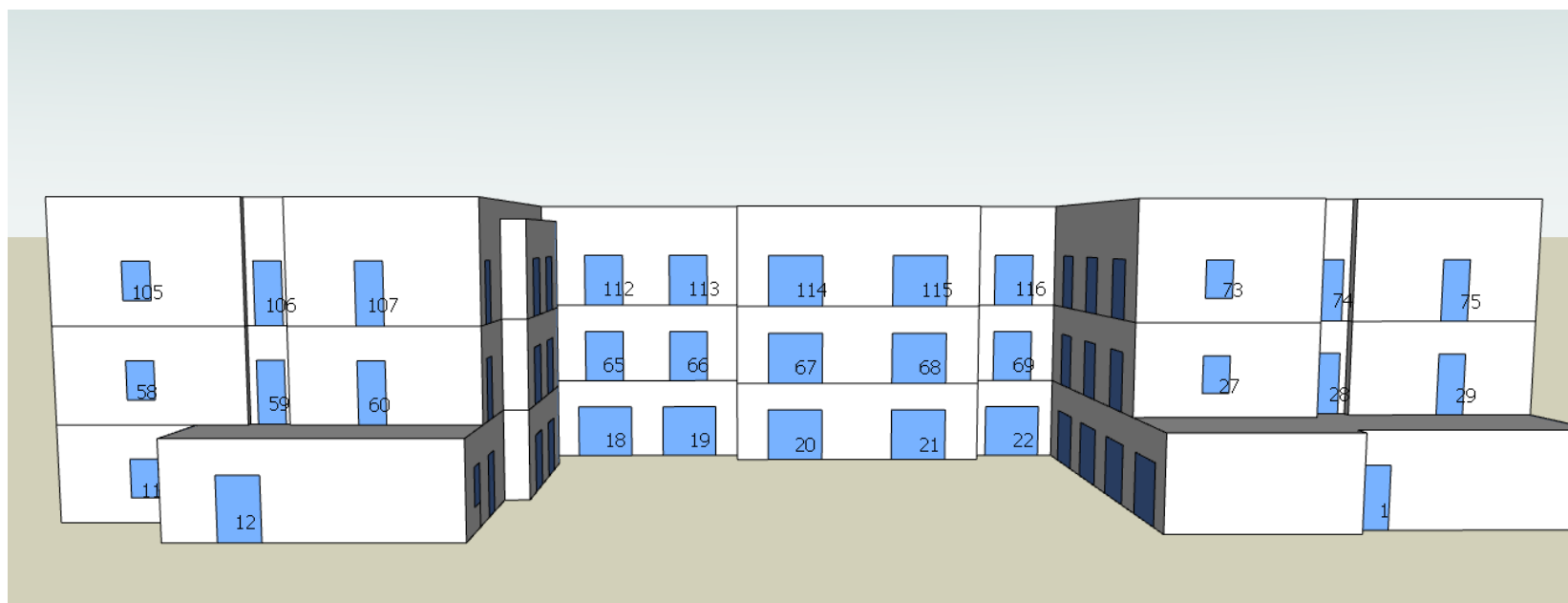


Figure 20. **Proposed Building Window references (west elevation)**

Appendix B. Surrounding Building Window References

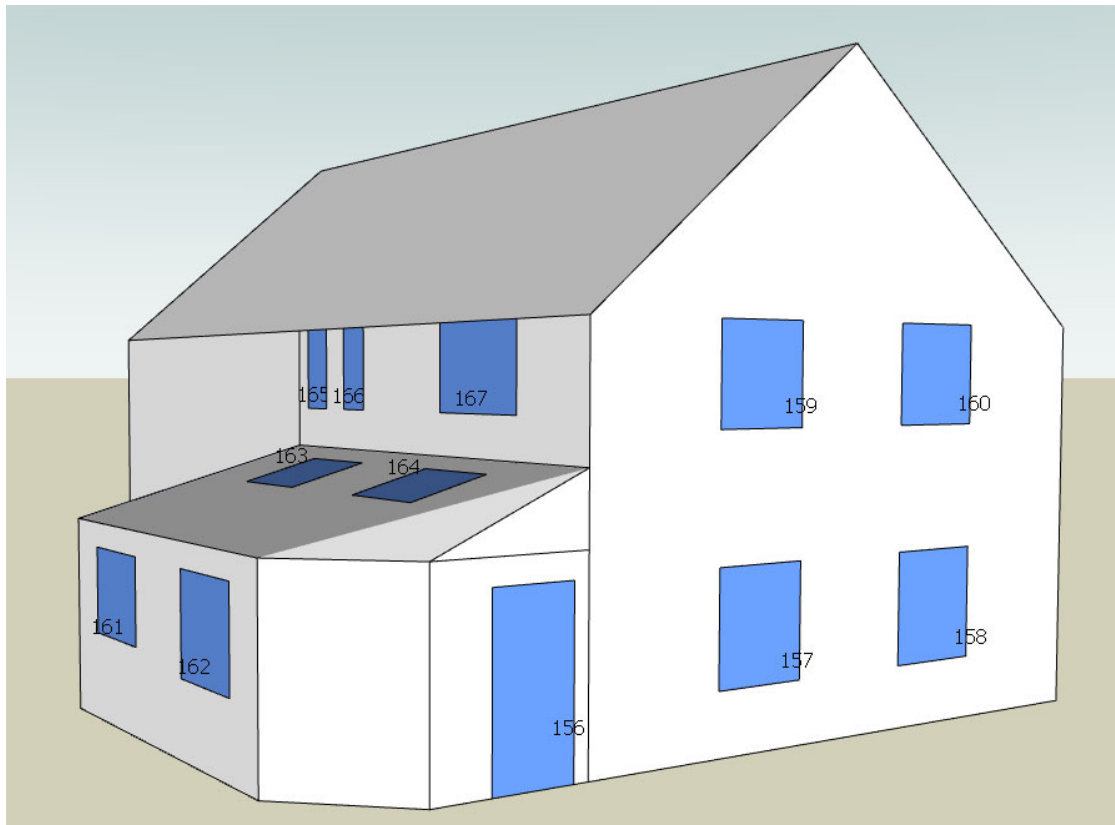


Figure 21. Surrounding Building Window references (1 Everest Close)

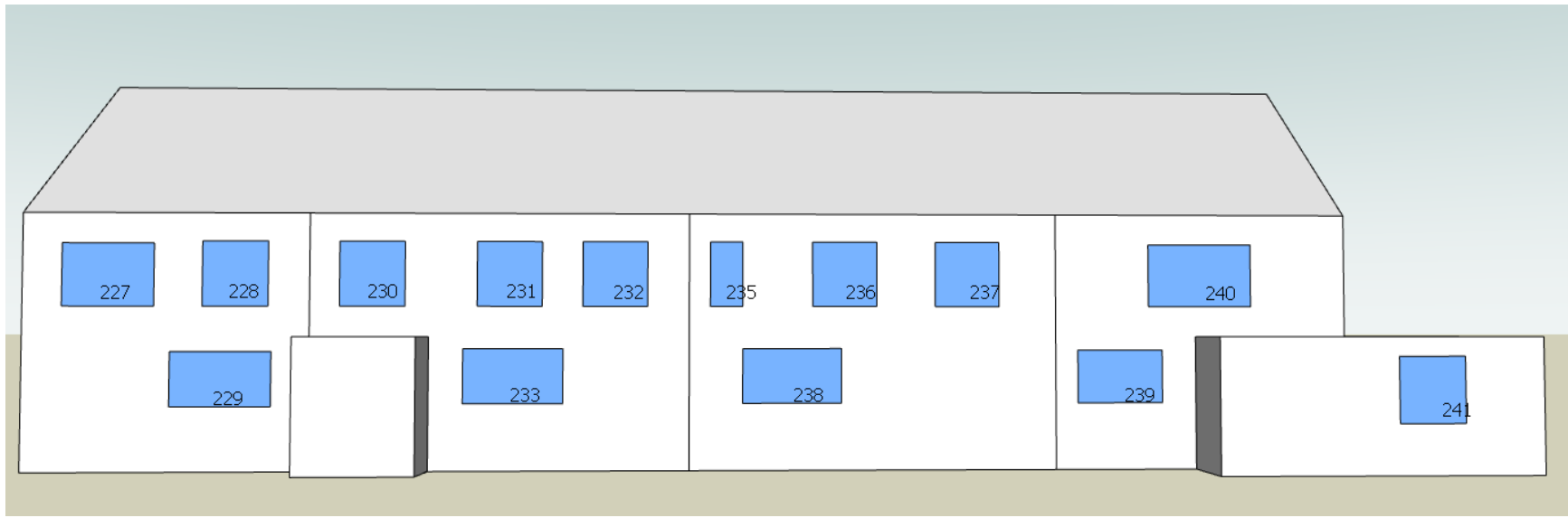


Figure 22. **Surrounding Building Window references (2-8 Tensing Avenue)**

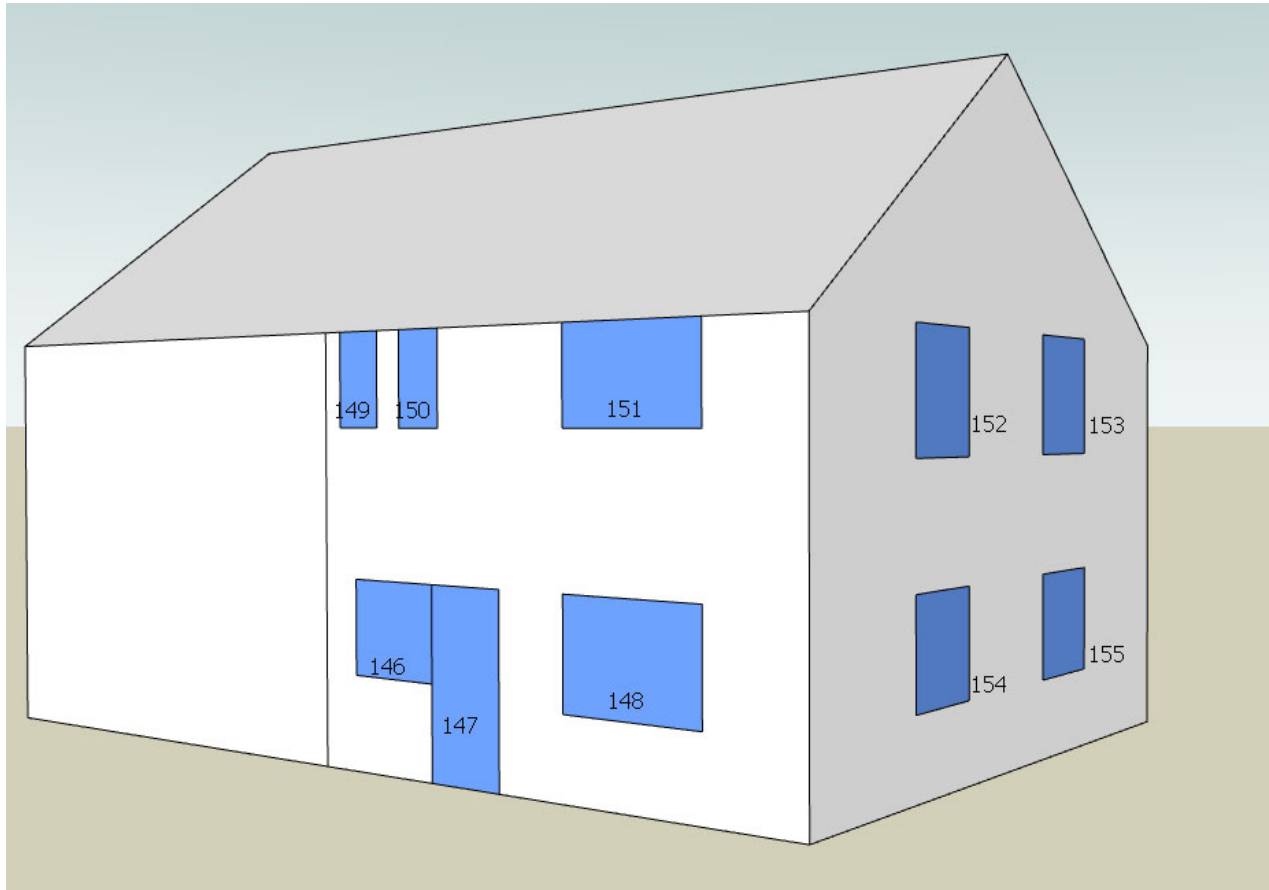


Figure 23. **Surrounding Building Window references (172 Dene Holm Road)**

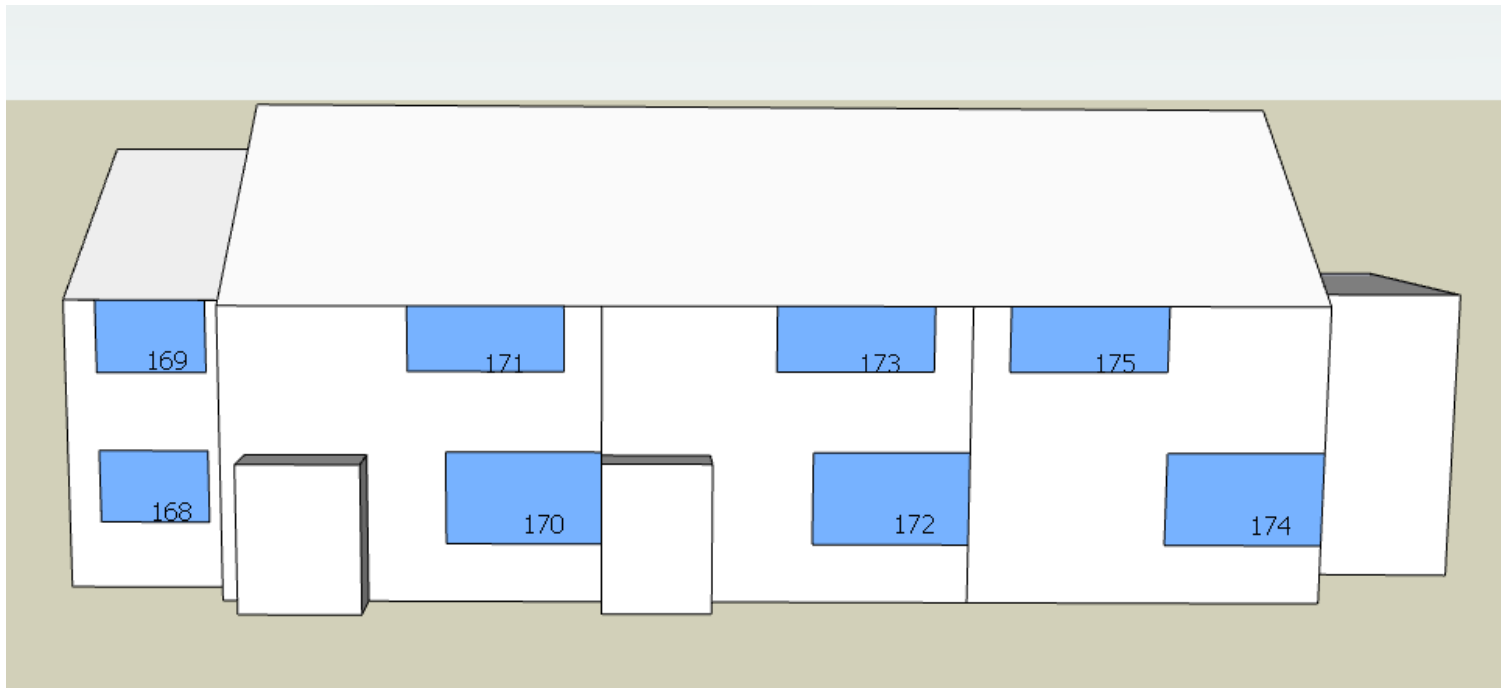


Figure 24. **Surrounding Building Window references (1-3 Everest Close)**

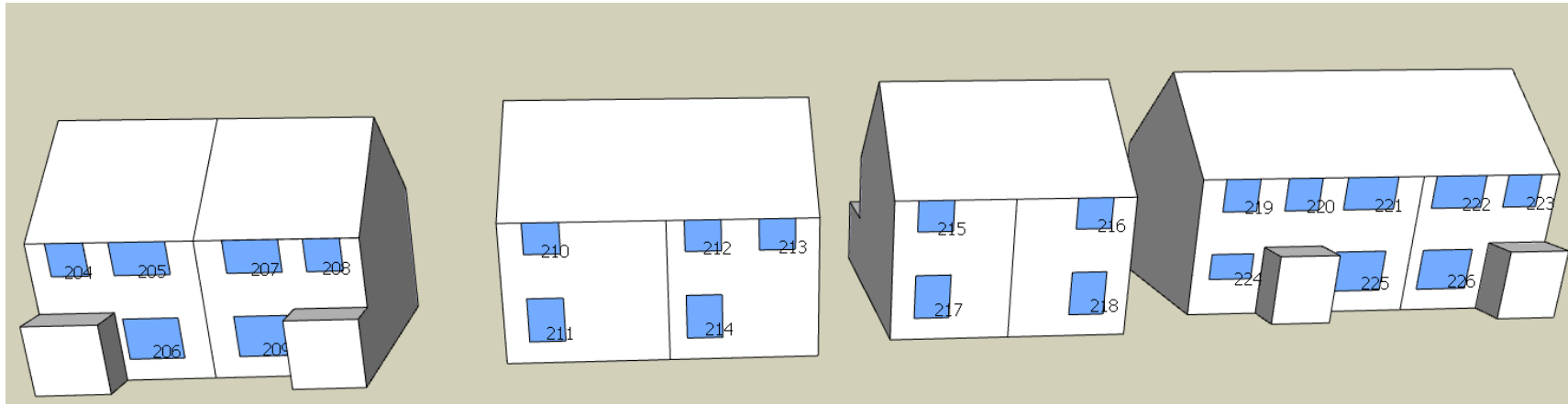


Figure 25. **Surrounding Building Window references (195-209 Dene Holm Road)**

Appendix C. Proposed VSC (Vertical Sky Component) Results

Floor Ref.	TrafficLight Id	VSC	Meets BRE Criteria	Window Orientation
Care Home				
Ground	27	33.39	YES	237°
Ground	28	23.52	NO	237°
Ground	29	34.74	YES	237°
Ground	30	37.86	YES	147°
Ground	31	38.60	YES	147°
Ground	32	38.38	YES	147°
Ground	33	36.14	YES	147°
Ground	34	37.29	YES	147°
Ground	35	35.39	YES	147°
Ground	36	36.63	YES	147°
Ground	37	35.99	YES	147°
Ground	38	39.42	YES	57°N
Ground	39	32.91	YES	57°N
Ground	40	31.44	YES	327°N
Ground	41	24.99	NO	327°N
Ground	42	19.78	NO	57°N
Ground	43	35.43	YES	57°N
Ground	44	37.88	YES	57°N
Ground	45	33.01	YES	57°N
Ground	46	38.58	YES	57°N
Ground	47	38.68	YES	57°N
Ground	48	38.17	YES	57°N
Ground	49	38.60	YES	57°N
Ground	50	38.44	YES	57°N
Ground	51	36.22	YES	327°N
Ground	52	37.39	YES	327°N
Ground	53	37.65	YES	327°N
Ground	54	31.83	YES	327°N
Ground	55	38.17	YES	327°N
Ground	56	38.36	YES	327°N
Ground	57	36.89	YES	327°N
Ground	58	38.89	YES	237°
Ground	59	36.53	YES	237°
Ground	60	38.37	YES	237°
Ground	61	32.09	YES	147°

Ground	62	29.53	YES	147°
Ground	63	25.56	NO	147°
Ground	64	14.94	NO	147°
Ground	65	23.31	NO	237°
Ground	66	28.43	YES	237°
Ground	67	32.48	YES	237°
Ground	68	29.74	YES	237°
Ground	69	19.99	NO	237°
Ground	70	21.19	NO	327°N
Ground	71	28.08	YES	327°N
Ground	72	31.66	YES	327°N
First	73	37.65	YES	237°
First	74	27.09	YES	237°
First	75	37.94	YES	237°
First	76	38.56	YES	147°
First	77	39.15	YES	147°
First	78	39.05	YES	147°
First	79	37.30	YES	147°
First	80	38.53	YES	147°
First	81	37.01	YES	147°
First	82	38.30	YES	147°
First	83	38.23	YES	147°
First	84	39.54	YES	57°N
First	85	32.95	YES	57°N
First	86	35.61	YES	327°N
First	87	30.84	YES	327°N
First	88	28.71	YES	57°N
First	89	35.99	YES	57°N
First	90	37.81	YES	57°N
First	91	38.56	YES	57°N
First	92	38.61	YES	57°N
First	93	39.17	YES	57°N
First	94	39.21	YES	57°N
First	95	38.73	YES	57°N
First	96	39.16	YES	57°N
First	97	39.10	YES	57°N
First	98	37.92	YES	327°N
First	99	38.79	YES	327°N
First	100	38.90	YES	327°N
First	101	33.32	YES	327°N
First	102	39.10	YES	327°N
First	103	39.18	YES	327°N
First	104	37.83	YES	327°N
First	105	39.52	YES	237°
First	106	37.36	YES	237°
First	107	39.40	YES	237°

First	108	36.05	YES	147°
First	109	34.94	YES	147°
First	110	32.19	YES	147°
First	111	20.30	NO	147°
First	112	29.15	YES	237°
First	113	33.44	YES	237°
First	114	36.56	YES	237°
First	115	34.92	YES	237°
First	116	24.47	NO	237°
First	117	27.10	YES	327°N
First	118	33.87	YES	327°N
First	119	36.02	YES	327°N
Lower Ground	1	19.99	NO	237°
Lower Ground	2	38.42	YES	147°
Lower Ground	3	37.47	YES	147°
Lower Ground	4	38.25	YES	147°
Lower Ground	5	37.97	YES	147°
Lower Ground	6	35.59	YES	147°
Lower Ground	7	36.68	YES	147°
Lower Ground	8	37.20	YES	327°N
Lower Ground	9	37.47	YES	327°N
Lower Ground	10	36.05	YES	327°N
Lower Ground	11	32.39	YES	237°
Lower Ground	12	37.10	YES	237°
Lower Ground	13	29.89	YES	147°
Lower Ground	14	28.06	YES	147°
Lower Ground	15	24.69	NO	147°
Lower Ground	16	20.91	NO	147°
Lower Ground	17	12.09	NO	147°
Lower Ground	18	20.47	NO	237°
Lower Ground	19	24.57	NO	237°
Lower Ground	20	28.37	YES	237°
Lower Ground	21	25.72	NO	237°
Lower Ground	22	17.86	NO	237°
Lower Ground	23	18.09	NO	327°N
Lower Ground	24	23.60	NO	327°N
Lower Ground	25	27.46	YES	327°N
Lower Ground	26	29.98	YES	327°N
Rehabilitation Apartments				
Ground	120	34.72	YES	187°
Ground	121	33.20	YES	97°
Ground	122	31.55	YES	97°
Ground	123	28.14	YES	97°

Ground	124	25.45	NO	97°
Ground	125	30.39	YES	7°N
Ground	126	31.96	YES	277°N
Ground	127	34.95	YES	277°N
Ground	128	32.96	YES	277°N
First	129	38.56	YES	187°
First	130	35.33	YES	97°
First	131	34.13	YES	97°
First	132	31.79	YES	97°
First	133	29.93	YES	97°
First	134	33.89	YES	7°N
First	135	34.58	YES	277°N
First	136	37.72	YES	277°N
First	137	35.70	YES	277°N
Second	138	39.62	YES	187°
Second	139	37.84	YES	97°
Second	140	37.40	YES	97°
Second	141	36.70	YES	97°
Second	142	35.74	YES	97°
Second	143	37.26	YES	7°N
Second	144	39.58	YES	277°N
Second	145	39.60	YES	277°N

Appendix D. Surrounding VSC (Vertical Sky Component) Results

TrafficLight Id		VSC	Pr/Ex	Meets BRE Criteria	Window Orientation
Surrounding					
227	Existing	36.79	0.97	YES	95°
	Proposed	35.54			
228	Existing	36.81	0.96	YES	95°
	Proposed	35.41			
229	Existing	35.14	0.94	YES	95°
	Proposed	33.17			
230	Existing	36.83	0.96	YES	95°
	Proposed	35.23			
231	Existing	36.84	0.95	YES	95°
	Proposed	35.03			
232	Existing	36.83	0.94	YES	95°
	Proposed	34.76			
233	Existing	34.88	0.93	YES	95°
	Proposed	32.30			
235	Existing	36.81	0.94	YES	95°
	Proposed	34.47			
236	Existing	36.77	0.93	YES	95°
	Proposed	34.19			
237	Existing	36.71	0.93	YES	95°
	Proposed	33.99			
238	Existing	35.98	0.90	YES	95°
	Proposed	32.56			
239	Existing	34.58	0.90	YES	95°
	Proposed	30.96			
240	Existing	36.51	0.92	YES	95°
	Proposed	33.75			
241	Existing	35.12	0.89	YES	95°
	Proposed	31.10			
146	Existing	37.04	0.97	YES	163°
	Proposed	36.10			
147	Existing	36.78	0.97	YES	163°
	Proposed	35.74			
148	Existing	36.88	0.97	YES	163°
	Proposed	35.82			
149	Existing	38.16	0.98	YES	163°

	Proposed	37.56			
150	Existing	38.15	0.98	YES	163°
	Proposed	37.51			
151	Existing	38.12	0.98	YES	163°
	Proposed	37.42			
152	Existing	36.70	0.97	YES	73°N
	Proposed	35.70			
153	Existing	36.78	0.98	YES	73°N
	Proposed	35.92			
154	Existing	35.55	0.96	YES	73°N
	Proposed	34.12			
155	Existing	35.68	0.97	YES	73°N
	Proposed	34.44			
156	Existing	34.64	0.70	NO	8°N
	Proposed	24.10			
157	Existing	35.00	0.70	NO	8°N
	Proposed	24.41			
158	Existing	35.07	0.74	NO	8°N
	Proposed	25.80			
159	Existing	36.45	0.79	YES	8°N
	Proposed	28.76			
160	Existing	36.51	0.82	YES	8°N
	Proposed	29.80			
161	Existing	38.00	0.99	YES	96°
	Proposed	37.69			
162	Existing	37.78	0.99	YES	96°
	Proposed	37.41			
163	Existing	81.16	0.99	YES	96° Inc
	Proposed	80.27			
164	Existing	81.72	0.98	YES	96° Inc
	Proposed	79.91			
165	Existing	38.41	0.99	YES	96°
	Proposed	38.10			
166	Existing	38.36	0.99	YES	96°
	Proposed	38.02			
167	Existing	38.21	0.99	YES	96°
	Proposed	37.73			
168	Existing	33.26	0.98	YES	239°
	Proposed	32.48			
169	Existing	36.45	0.99	YES	239°
	Proposed	36.11			
170	Existing	36.83	0.99	YES	239°
	Proposed	36.46			
171	Existing	38.78	1.00	YES	239°
	Proposed	38.61			
172	Existing	38.49	0.99	YES	239°

	Proposed	38.25			
173	Existing	39.07	1.00	YES	239°
	Proposed	38.96			
174	Existing	38.81	1.00	YES	239°
	Proposed	38.63			
175	Existing	39.19	1.00	YES	239°
	Proposed	39.10			
204	Existing	37.44	1.00	YES	158°
	Proposed	37.35			
205	Existing	37.38	1.00	YES	158°
	Proposed	37.32			
206	Existing	31.91	1.00	YES	158°
	Proposed	31.86			
207	Existing	37.31	1.00	YES	158°
	Proposed	37.30			
208	Existing	37.24	1.00	YES	158°
	Proposed	37.26			
209	Existing	31.78	1.00	YES	158°
	Proposed	31.75			
210	Existing	37.71	1.00	YES	158°
	Proposed	37.75			
211	Existing	36.20	1.00	YES	158°
	Proposed	36.36			
212	Existing	37.87	1.00	YES	158°
	Proposed	37.90			
213	Existing	37.97	1.00	YES	158°
	Proposed	37.98			
214	Existing	36.47	1.00	YES	158°
	Proposed	36.64			
215	Existing	38.42	1.00	YES	158°
	Proposed	38.34			
216	Existing	38.59	1.00	YES	158°
	Proposed	38.49			
217	Existing	37.31	1.00	YES	158°
	Proposed	37.30			
218	Existing	37.62	1.00	YES	158°
	Proposed	37.58			
219	Existing	38.76	1.00	YES	158°
	Proposed	38.67			
220	Existing	38.83	1.00	YES	158°
	Proposed	38.76			
221	Existing	38.89	1.00	YES	158°
	Proposed	38.81			
222	Existing	38.94	1.00	YES	158°
	Proposed	38.88			
223	Existing	38.97	1.00	YES	158°

	Proposed	38.92			
224	Existing	34.78	1.00	YES	158°
	Proposed	34.70			
225	Existing	35.87	1.00	YES	158°
	Proposed	35.87			
226	Existing	35.84	1.00	YES	158°
	Proposed	35.75			

Appendix E. Surrounding Annual Probable Sunlight (APSH) Results

TrafficLight Id		Window Orientation	Annual	Pr/Ex	Meets BRE Criteria	Winter	Pr/Ex	Meets BRE Criteria
Surrounding								
227	Existing	95°	49.00	0.96	YES	13.00	1.00	YES
	Proposed		47.00			13.00		
228	Existing	95°	49.00	0.96	YES	13.00	1.00	YES
	Proposed		47.00			13.00		
229	Existing	95°	49.00	0.92	YES	13.00	1.00	YES
	Proposed		45.00			13.00		
230	Existing	95°	49.00	0.94	YES	13.00	1.00	YES
	Proposed		46.00			13.00		
231	Existing	95°	50.00	0.94	YES	14.00	1.00	YES
	Proposed		47.00			14.00		
232	Existing	95°	50.00	0.94	YES	14.00	1.00	YES
	Proposed		47.00			14.00		
233	Existing	95°	45.00	0.91	YES	9.00	1.00	YES
	Proposed		41.00			9.00		
235	Existing	95°	50.00	0.94	YES	14.00	1.00	YES
	Proposed		47.00			14.00		
236	Existing	95°	51.00	0.94	YES	15.00	1.00	YES
	Proposed		48.00			15.00		
237	Existing	95°	51.00	0.94	YES	15.00	0.87	YES
	Proposed		48.00			13.00		
238	Existing	95°	50.00	0.92	YES	14.00	1.00	YES
	Proposed		46.00			14.00		
239	Existing	95°	51.00	0.90	YES	15.00	0.80	YES
	Proposed		46.00			12.00		
240	Existing	95°	51.00	0.92	YES	15.00	0.80	YES
	Proposed		47.00			12.00		
241	Existing	95°	51.00	0.92	YES	15.00	0.80	YES
	Proposed		47.00			12.00		
146	Existing	163°	87.00	0.98	YES	29.00	0.97	YES
	Proposed		85.00			28.00		
147	Existing	163°	86.00	0.95	YES	28.00	0.96	YES
	Proposed		82.00			27.00		
148	Existing	163°	86.00	0.97	YES	28.00	1.00	YES
	Proposed		83.00			28.00		
149	Existing	163°	89.00	0.98	YES	30.00	0.97	YES

	Proposed		87.00			29.00		
150	Existing	163°	89.00	0.98	YES	30.00	0.97	YES
	Proposed		87.00			29.00		
151	Existing	163°	89.00	0.99	YES	30.00	1.00	YES
	Proposed		88.00			30.00		
152	Existing	73°N		*North	*North		*North	*North
	Proposed							
153	Existing	73°N		*North	*North		*North	*North
	Proposed							
154	Existing	73°N		*North	*North		*North	*North
	Proposed							
155	Existing	73°N		*North	*North		*North	*North
	Proposed							
156	Existing	8°N		*North	*North		*North	*North
	Proposed							
157	Existing	8°N		*North	*North		*North	*North
	Proposed							
158	Existing	8°N		*North	*North		*North	*North
	Proposed							
159	Existing	8°N		*North	*North		*North	*North
	Proposed							
160	Existing	8°N		*North	*North		*North	*North
	Proposed							
161	Existing	96°	52.00	1.00	YES	15.00	1.00	YES
	Proposed		52.00			15.00		
162	Existing	96°	52.00	1.00	YES	15.00	1.00	YES
	Proposed		52.00			15.00		
163	Existing	96° Inc	66.00	1.00	YES	19.00	1.00	YES
	Proposed		66.00			19.00		
164	Existing	96° Inc	66.00	1.00	YES	19.00	1.00	YES
	Proposed		66.00			19.00		
165	Existing	96°	52.00	1.00	YES	15.00	1.00	YES
	Proposed		52.00			15.00		
166	Existing	96°	52.00	1.00	YES	15.00	1.00	YES
	Proposed		52.00			15.00		
167	Existing	96°	52.00	1.00	YES	15.00	1.00	YES
	Proposed		52.00			15.00		
168	Existing	239°	46.00	0.98	YES	14.00	1.00	YES
	Proposed		45.00			14.00		
169	Existing	239°	56.00	1.00	YES	16.00	1.00	YES
	Proposed		56.00			16.00		
170	Existing	239°	59.00	0.98	YES	18.00	1.00	YES
	Proposed		58.00			18.00		
171	Existing	239°	66.00	1.00	YES	24.00	1.00	YES
	Proposed		66.00			24.00		
172	Existing	239°	65.00	1.00	YES	24.00	1.00	YES

	Proposed		65.00			24.00		
173	Existing	239°	66.00	1.00	YES	24.00	1.00	YES
	Proposed		66.00			24.00		
174	Existing	239°	66.00	1.00	YES	24.00	1.00	YES
	Proposed		66.00			24.00		
175	Existing	239°	66.00	1.00	YES	24.00	1.00	YES
	Proposed		66.00			24.00		
204	Existing	158°	84.00	1.00	YES	28.00	1.00	YES
	Proposed		84.00			28.00		
205	Existing	158°	84.00	1.00	YES	28.00	1.00	YES
	Proposed		84.00			28.00		
206	Existing	158°	70.00	1.01	YES	19.00	1.05	YES
	Proposed		71.00			20.00		
207	Existing	158°	84.00	1.00	YES	28.00	1.00	YES
	Proposed		84.00			28.00		
208	Existing	158°	84.00	1.00	YES	28.00	1.00	YES
	Proposed		84.00			28.00		
209	Existing	158°	70.00	1.00	YES	25.00	1.00	YES
	Proposed		70.00			25.00		
210	Existing	158°	84.00	1.00	YES	28.00	1.00	YES
	Proposed		84.00			28.00		
211	Existing	158°	84.00	0.99	YES	28.00	0.96	YES
	Proposed		83.00			27.00		
212	Existing	158°	84.00	1.00	YES	28.00	1.00	YES
	Proposed		84.00			28.00		
213	Existing	158°	84.00	1.00	YES	28.00	1.00	YES
	Proposed		84.00			28.00		
214	Existing	158°	84.00	0.99	YES	28.00	0.96	YES
	Proposed		83.00			27.00		
215	Existing	158°	84.00	1.00	YES	28.00	1.00	YES
	Proposed		84.00			28.00		
216	Existing	158°	84.00	1.00	YES	28.00	1.00	YES
	Proposed		84.00			28.00		
217	Existing	158°	84.00	1.00	YES	28.00	1.00	YES
	Proposed		84.00			28.00		
218	Existing	158°	84.00	1.00	YES	28.00	1.00	YES
	Proposed		84.00			28.00		
219	Existing	158°	84.00	1.00	YES	28.00	1.00	YES
	Proposed		84.00			28.00		
220	Existing	158°	84.00	1.00	YES	28.00	1.00	YES
	Proposed		84.00			28.00		
221	Existing	158°	84.00	1.00	YES	28.00	1.00	YES
	Proposed		84.00			28.00		
222	Existing	158°	84.00	1.00	YES	28.00	1.00	YES
	Proposed		84.00			28.00		
223	Existing	158°	84.00	1.00	YES	28.00	1.00	YES

	Proposed		84.00			28.00		
224	Existing	158°	72.00	1.00	YES	26.00	1.00	YES
	Proposed		72.00			26.00		
225	Existing	158°	77.00	1.00	YES	23.00	1.00	YES
	Proposed		77.00			23.00		
226	Existing	158°	75.00	1.00	YES	28.00	1.00	YES
	Proposed		75.00			28.00		