

Room/ Floor	Room Use	Whole Room	Prev sq ft	New sq ft	Loss sq ft	%Loss
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261-268 Varsity Drive

R1/150	ASSUMED	82.7	81.3	81.3	0.0	0.0
R2/150	ASSUMED_KITC	108.7	108.6	108.6	0.0	0.0
R3/150	ASSUMED_KITC	109.7	109.4	109.4	0.0	0.0
R6/150	ASSUMED	205.8	191.2	155.0	36.2	18.9
R7/150	ASSUMED	162.3	143.9	116.1	27.8	19.3
R10/150	ASSUMED_KITC	106.6	106.4	106.4	0.0	0.0
R11/150	ASSUMED_KITC	109.0	108.8	108.8	0.0	0.0
R12/150	ASSUMED	82.4	80.9	80.9	0.0	0.0
R1/151	ASSUMED	82.7	80.7	80.7	0.0	0.0
R2/151	ASSUMED	108.7	107.5	107.5	0.0	0.0
R3/151	ASSUMED	109.7	108.3	108.3	0.0	0.0
R4/151	ASSUMED	40.7	25.9	25.9	0.0	0.0
R5/151	ASSUMED	40.6	25.4	25.4	0.0	0.0
R6/151	ASSUMED	205.8	193.9	182.9	11.0	5.7
R7/151	ASSUMED	162.3	150.0	136.9	13.1	8.7
R8/151	ASSUMED	40.8	25.4	25.4	0.0	0.0
R9/151	ASSUMED	40.8	25.9	25.9	0.0	0.0
R10/151	ASSUMED	106.6	105.1	105.1	0.0	0.0
R11/151	ASSUMED	109.0	107.1	107.1	0.0	0.0
R12/151	ASSUMED	82.4	80.3	80.3	0.0	0.0

1-12 & 15-20 Butterfield Close

R1/120	ASSUMED	131.2	130.3	130.3	0.0	0.0
R2/120	ASSUMED	110.3	108.3	108.3	0.0	0.0
R3/120	ASSUMED	109.4	107.4	107.4	0.0	0.0
R4/120	ASSUMED	137.1	135.8	135.8	0.0	0.0
R5/120	ASSUMED	138.1	136.7	136.7	0.0	0.0
R6/120	ASSUMED	109.6	107.6	107.6	0.0	0.0
R7/120	ASSUMED	109.7	107.7	107.7	0.0	0.0
R8/120	ASSUMED	145.4	143.4	143.4	0.0	0.0
R9/120	ASSUMED	159.0	156.0	156.0	0.0	0.0
R10/120	ASSUMED	72.1	71.3	71.3	0.0	0.0
R11/120	ASSUMED	150.7	135.2	130.8	4.4	3.3
R13/120	ASSUMED	153.0	140.1	137.2	2.9	2.1
R1/121	ASSUMED	131.2	129.6	129.6	0.0	0.0
R2/121	ASSUMED	110.3	107.1	107.1	0.0	0.0
R3/121	ASSUMED	109.4	106.2	106.2	0.0	0.0
R4/121	ASSUMED	137.1	135.1	135.1	0.0	0.0
R5/121	ASSUMED	138.1	136.0	136.0	0.0	0.0
R6/121	ASSUMED	109.6	106.4	106.4	0.0	0.0
R7/121	ASSUMED	109.7	106.5	106.5	0.0	0.0
R8/121	ASSUMED	145.4	142.6	142.6	0.0	0.0
R9/121	ASSUMED	159.0	154.1	154.1	0.0	0.0
R10/121	ASSUMED	72.1	70.2	70.2	0.0	0.0
R11/121	ASSUMED	150.7	149.4	141.5	7.9	5.3
R12/121	ASSUMED	93.8	90.6	90.6	0.0	0.0
R13/121	ASSUMED	153.0	150.4	146.4	4.0	2.7
R1/122	ASSUMED	131.2	127.6	127.6	0.0	0.0
R2/122	ASSUMED	110.3	107.1	107.1	0.0	0.0
R3/122	ASSUMED	109.4	106.0	106.0	0.0	0.0
R4/122	ASSUMED	137.1	133.3	133.3	0.0	0.0

Room/ Floor	Room Use	Whole Room	Prev sq ft	New sq ft	Loss sq ft	%Loss
R5/122	ASSUMED	138.1	134.3	134.3	0.0	0.0
R6/122	ASSUMED	109.6	106.4	106.4	0.0	0.0
R7/122	ASSUMED	109.7	106.5	106.5	0.0	0.0
R8/122	ASSUMED	145.4	140.9	140.9	0.0	0.0
R9/122	ASSUMED	159.0	154.5	154.5	0.0	0.0
R10/122	ASSUMED	72.1	68.9	68.9	0.0	0.0
R11/122	ASSUMED	150.7	149.7	146.2	3.5	2.3
R13/122	ASSUMED	153.0	150.4	146.4	3.9	2.6

9-14 Rugby Road

R1/130		64.4	52.4	52.4	0.0	0.0
R2/130	ASSUMED	166.6	155.0	154.0	1.0	0.6
R4/130	ASSUMED	169.5	162.7	162.7	0.0	0.0
R1/131	ASSUMED	64.4	58.7	58.7	0.0	0.0
R2/131	ASSUMED	166.6	159.5	159.3	0.1	0.1
R4/131	ASSUMED	169.5	164.9	164.9	0.0	0.0
R1/132	ASSUMED	64.4	64.4	64.4	0.0	0.0
R2/132	ASSUMED	166.6	160.5	160.2	0.3	0.2
R3/132	ASSUMED	169.5	166.1	166.1	0.0	0.0

3-8 Rugby Road

R5/130	ASSUMED	192.0	183.1	183.1	0.0	0.0
R7/130	ASSUMED	130.0	124.0	124.0	0.0	0.0
R5/131	ASSUMED	192.0	186.3	186.3	0.0	0.0
R7/131	ASSUMED	130.0	126.3	126.3	0.0	0.0
R4/132	ASSUMED	192.0	185.3	185.3	0.0	0.0
R5/132	ASSUMED	130.0	127.2	127.2	0.0	0.0

Room	Window	Room Use	Window						Room					
			Existing		Proposed		%Loss	%Loss	Existing		Proposed		%Loss	%Loss
APSH	APSH	APSH	APSH	APSH	APSH	APSH			APSH	APSH	APSH	APSH		
261-268 Varsity Drive														
R1/150	W7/150	ASSUMED	8	45	8	45	0.0	0.0	8	45	8	45	0.0	0.0
R2/150	W1/150	ASSUMED_KITCHEN	2	16	2	16	0.0	0.0	2	16	2	16	0.0	0.0
R2/150	W3/150	ASSUMED_KITCHEN	0	0	0	0	-	-	0	0	0	0	-	-
R2/150	W5/150	ASSUMED_KITCHEN	0	0	0	0	-	-	0	0	0	0	-	-
R3/150	W2/150	ASSUMED_KITCHEN	4	18	3	17	25.0	5.6						
R3/150	W4/150	ASSUMED_KITCHEN	3	27	3	27	0.0	0.0						
R3/150	W6/150	ASSUMED_KITCHEN	0	0	0	0	-	-	4	28	3	27	25.0	3.6
R6/150	W12/150	ASSUMED	18	55	18	55	0.0	0.0	18	55	18	55	0.0	0.0
R7/150	W13/150	ASSUMED	5	41	4	40	20.0	2.4	5	41	4	40	20.0	2.4
R10/150	W19/150	ASSUMED_KITCHEN	0	0	0	0	-	-						
R10/150	W21/150	ASSUMED_KITCHEN	0	21	0	21	-	0.0						
R10/150	W23/150	ASSUMED_KITCHEN	17	54	16	53	5.9	1.9	17	54	16	53	5.9	1.9
R11/150	W20/150	ASSUMED_KITCHEN	16	40	16	40	0.0	0.0						
R11/150	W22/150	ASSUMED_KITCHEN	0	0	0	0	-	-						
R11/150	W24/150	ASSUMED_KITCHEN	17	53	16	52	5.9	1.9	18	64	17	63	5.6	1.6
R12/150	W18/150	ASSUMED	18	56	17	55	5.6	1.8	18	56	17	55	5.6	1.8
R1/151	W3/151	ASSUMED	19	61	19	61	0.0	0.0	19	61	19	61	0.0	0.0
R4/151	W4/151	ASSUMED	17	79	17	79	0.0	0.0	17	79	17	79	0.0	0.0

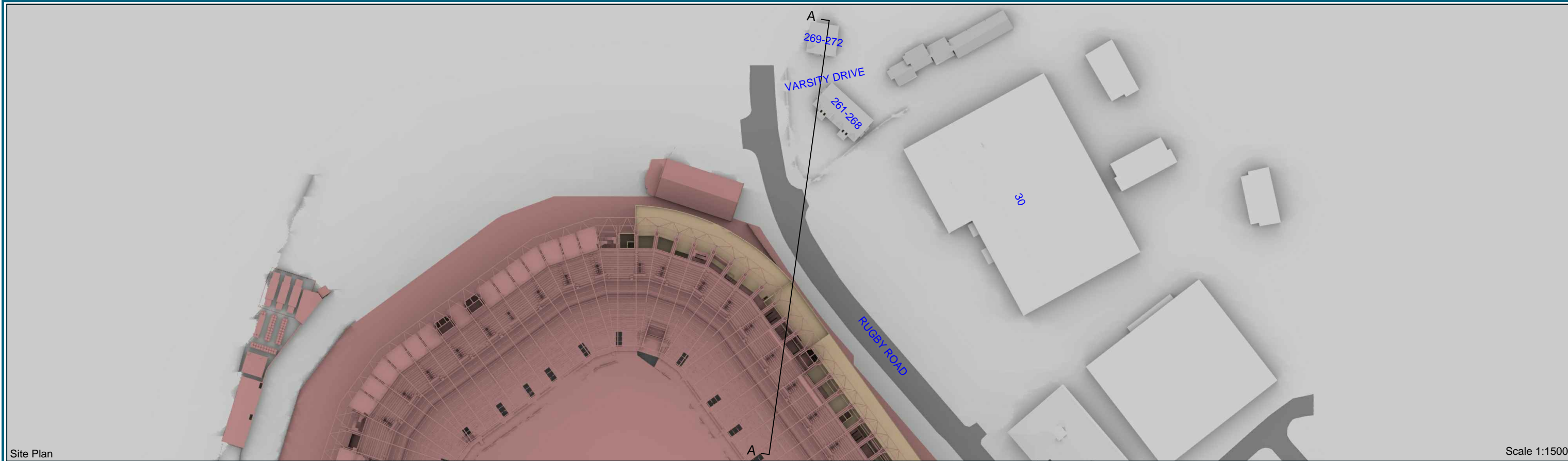
Room	Window	Room Use	Window						Room					
			Existing		Proposed		Winter %Loss	Annual %Loss	Existing		Proposed		Winter %Loss	Annual %Loss
			Winter APSH	Annual APSH	Winter APSH	Annual APSH			Winter APSH	Annual APSH	Winter APSH	Annual APSH		
R5/151	W5/151	ASSUMED	18	63	18	63	0.0	0.0	18	63	18	63	0.0	0.0
R6/151	W6/151	ASSUMED	16	58	16	58	0.0	0.0	16	58	16	58	0.0	0.0
R7/151	W7/151	ASSUMED	16	58	15	57	6.3	1.7	16	58	15	57	6.3	1.7
R8/151	W8/151	ASSUMED	16	79	16	79	0.0	0.0	16	79	16	79	0.0	0.0
R9/151	W9/151	ASSUMED	16	65	14	63	12.5	3.1	16	65	14	63	12.5	3.1
R10/151	W11/151	ASSUMED	19	64	19	64	0.0	0.0	19	64	19	64	0.0	0.0
R11/151	W12/151	ASSUMED	20	65	19	64	5.0	1.5	20	65	19	64	5.0	1.5
R12/151	W10/151	ASSUMED	20	61	17	58	15.0	4.9	20	61	17	58	15.0	4.9
1-12 & 15-20 Butterfield Close														
R11/120	W11/120	ASSUMED	0	13	0	8	-	38.5						
R11/120	W12/120	ASSUMED	14	41	14	39	0.0	4.9	14	44	14	39	0.0	11.4
R13/120	W14/120	ASSUMED	19	53	19	52	0.0	1.9						
R13/120	W15/120	ASSUMED	20	68	20	68	0.0	0.0	22	80	22	79	0.0	1.3
R11/121	W11/121	ASSUMED	0	12	0	10	-	16.7						
R11/121	W12/121	ASSUMED	14	50	14	46	0.0	8.0	14	50	14	47	0.0	6.0
R12/121	W13/121	ASSUMED	21	56	21	52	0.0	7.1	21	56	21	52	0.0	7.1

Room	Window	Room Use	Window						Room					
			Existing		Proposed		Winter %Loss	Annual %Loss	Existing		Proposed		Winter %Loss	Annual %Loss
Winter APSH	Annual APSH	Winter APSH	Annual APSH	Winter APSH	Annual APSH	Winter APSH			Annual APSH	Winter APSH	Annual APSH	Winter APSH		
R13/121	W14/121	ASSUMED	22	58	22	58	0.0	0.0						
R13/121	W15/121	ASSUMED	21	71	21	71	0.0	0.0	23	85	23	85	0.0	0.0
R11/122	W11/122	ASSUMED	0	11	0	9	-	18.2						
R11/122	W12/122	ASSUMED	19	48	19	48	0.0	0.0	19	50	19	49	0.0	2.0
R13/122	W13/122	ASSUMED	22	56	22	56	0.0	0.0						
R13/122	W14/122	ASSUMED	24	70	24	70	0.0	0.0	26	87	26	87	0.0	0.0
9-14 Rugby Road														
R2/130	W2/130	ASSUMED	17	45	17	45	0.0	0.0	17	45	17	45	0.0	0.0
R4/130	W5/130	ASSUMED	14	43	14	42	0.0	2.3	14	43	14	42	0.0	2.3
R2/131	W2/131	ASSUMED	17	54	17	54	0.0	0.0	17	54	17	54	0.0	0.0
R4/131	W4/131	ASSUMED	15	46	15	46	0.0	0.0	15	46	15	46	0.0	0.0
R2/132	W2/132	ASSUMED	22	58	22	56	0.0	3.4	22	58	22	56	0.0	3.4
R3/132	W3/132	ASSUMED	21	54	21	54	0.0	0.0	21	54	21	54	0.0	0.0
3-8 Rugby Road														
R5/130	W6/130	ASSUMED	18	50	18	49	0.0	2.0	18	50	18	49	0.0	2.0
R7/130	W9/130	ASSUMED	17	54	17	54	0.0	0.0	17	54	17	54	0.0	0.0

Room	Window	Room Use	Window						Room					
			Existing		Proposed		%Loss	%Loss	Existing		Proposed		%Loss	%Loss
			Winter APSH	Annual APSH	Winter APSH	Annual APSH			Winter APSH	Annual APSH	Winter APSH	Annual APSH		
R5/131	W5/131	ASSUMED	18	57	18	57	0.0	0.0	18	57	18	57	0.0	0.0
R7/131	W7/131	ASSUMED	17	56	17	56	0.0	0.0	17	56	17	56	0.0	0.0
R4/132	W4/132	ASSUMED	23	56	23	56	0.0	0.0	23	56	23	56	0.0	0.0
R5/132	W5/132	ASSUMED	21	55	21	55	0.0	0.0	21	55	21	55	0.0	0.0

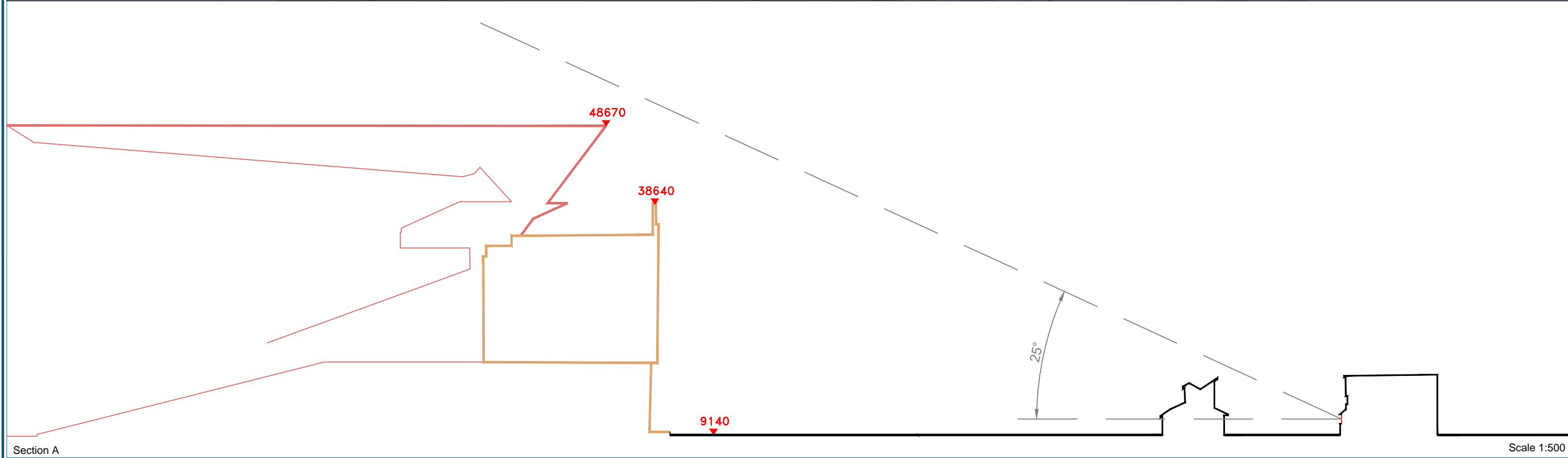
Appendix 3 – 25° Line Section Drawings





Site Plan

Scale 1:1500



Section A

Scale 1:500

Sources: Site Photos
Point Cloud Data

Ordnance Survey

15735 - ARCH Master - R16 - WORK IN PROGRESS.rvt
11585 - ARCH Master - R16 - EXISTING.rvt

Key: All the Heights in mm AOD
— Proposed Scheme
— Existing Buildings

Project: Twickenham Stadium

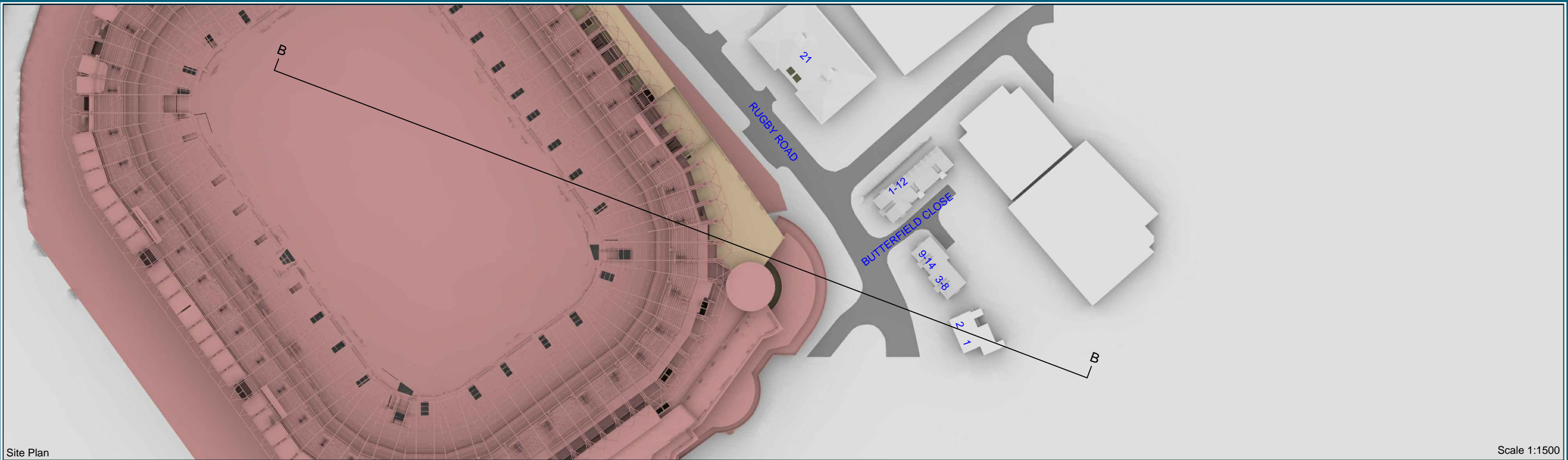
Drawn By: CGC Scale: NTS Date: MAY 16

Title: Site Plan & Section A
25° section through Varsity Drive

Proposed Scheme 09/05/16

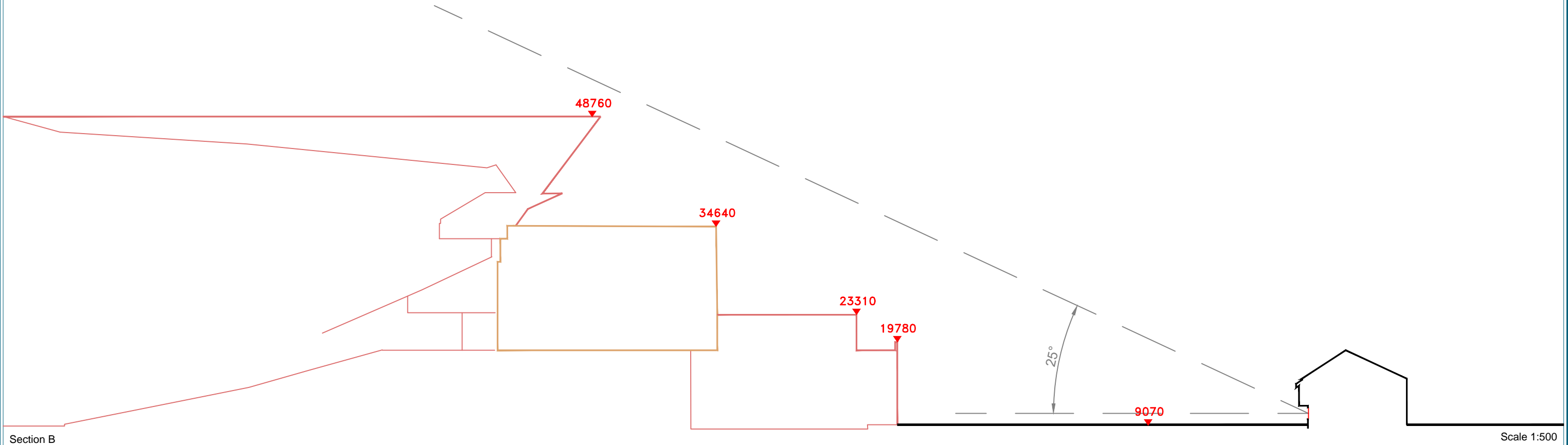
Dwg No: **P921/07**

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Site Plan

Scale 1:1500



Section B

Scale 1:500

Sources: Site Photos
Point Cloud Data

Ordnance Survey

15735 - ARCH Master - R16 - WORK IN PROGRESS.rvt
11585 - ARCH Master - R16 - EXISTING.rvt

Key: All the Heights in mm AOD
— Proposed Scheme
— Existing Buildings

Project: Twickenham Stadium

Drawn By: CGC Scale: NTS Date: MAY 16

Title: Site Plan & Section B
25° section through 2 Rugby Road

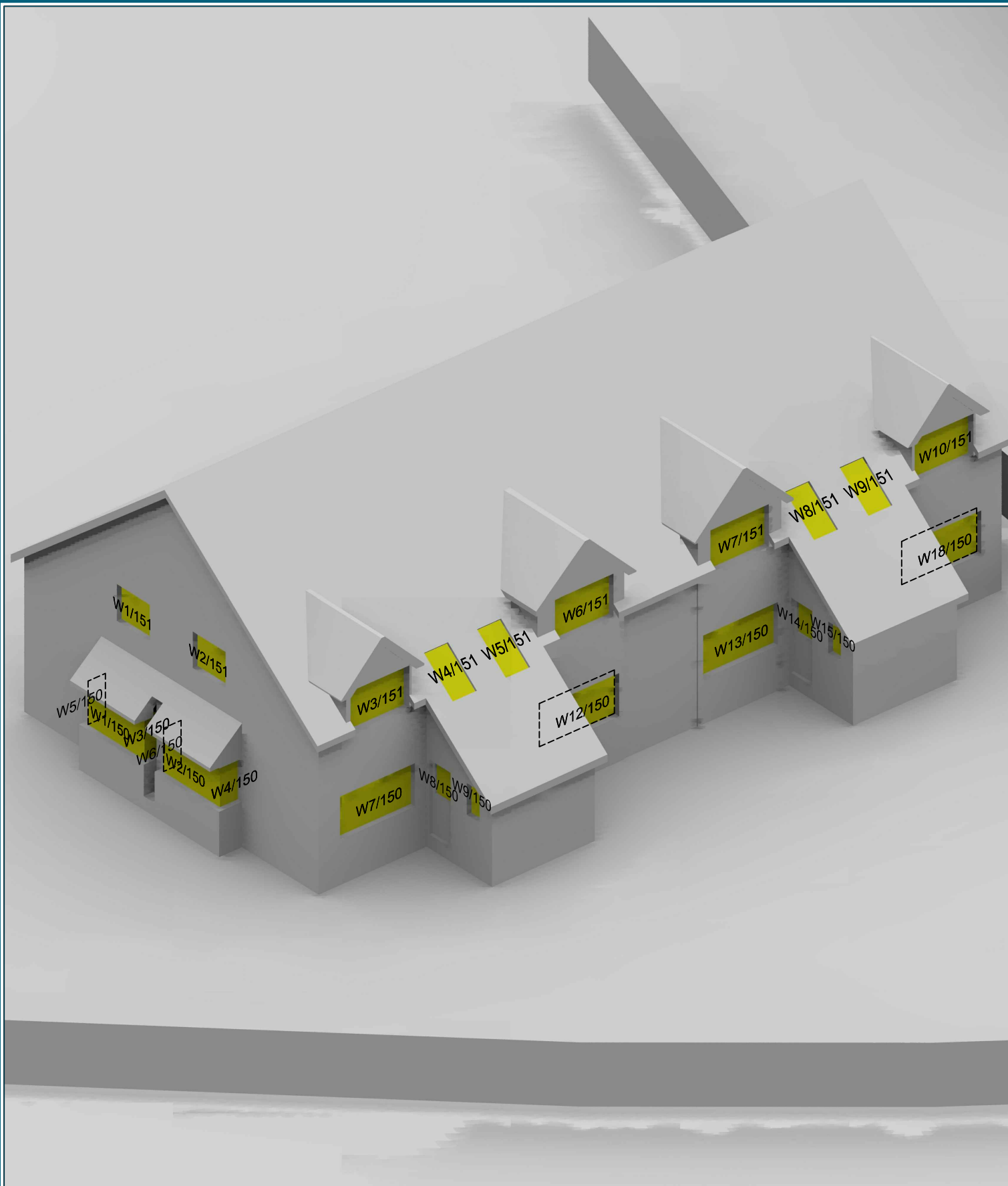
Proposed Scheme 09/05/16

Dwg No: **P921/08**

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Appendix 4 – Window Maps





Sources: Site Photos
Point Cloud Data

Ordnance Survey

15735 - ARCH Master - R16 - WORK IN PROGRESS.rvt
11585 - ARCH Master - R16 - EXISTING.rvt

Key:

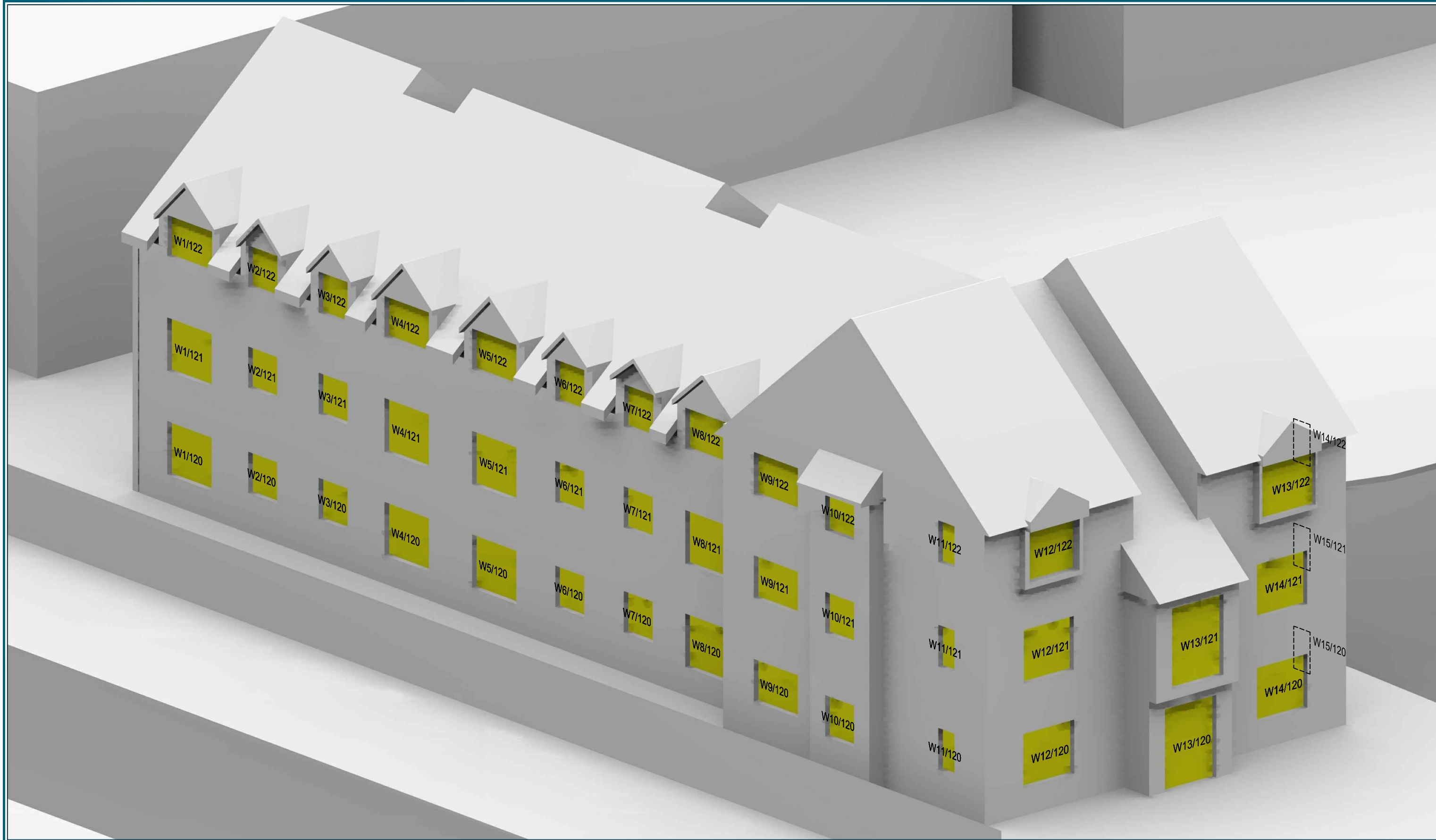
Project: Twickenham Stadium

Drawn By: CGC

Title: Window Locations
261-268 Varsity Drive

Dwg No: **P921/09**

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Sources: Site Photos
Point Cloud Data

Ordnance Survey

15735 - ARCH Master - R16 - WORK IN PROGRESS.rvt
11585 - ARCH Master - R16 - EXISTING.rvt

Key:

Project: Twickenham Stadium

Drawn By: CGC

Title: Window Locations
1-12 Butterfield Close

Dwg No: **P921/10**

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Sources: Site Photos
Point Cloud Data

Ordnance Survey

15735 - ARCH Master - R16 - WORK IN PROGRESS.rvt
11585 - ARCH Master - R16 - EXISTING.rvt

Key:

Project: Twickenham Stadium

Drawn By: CGC

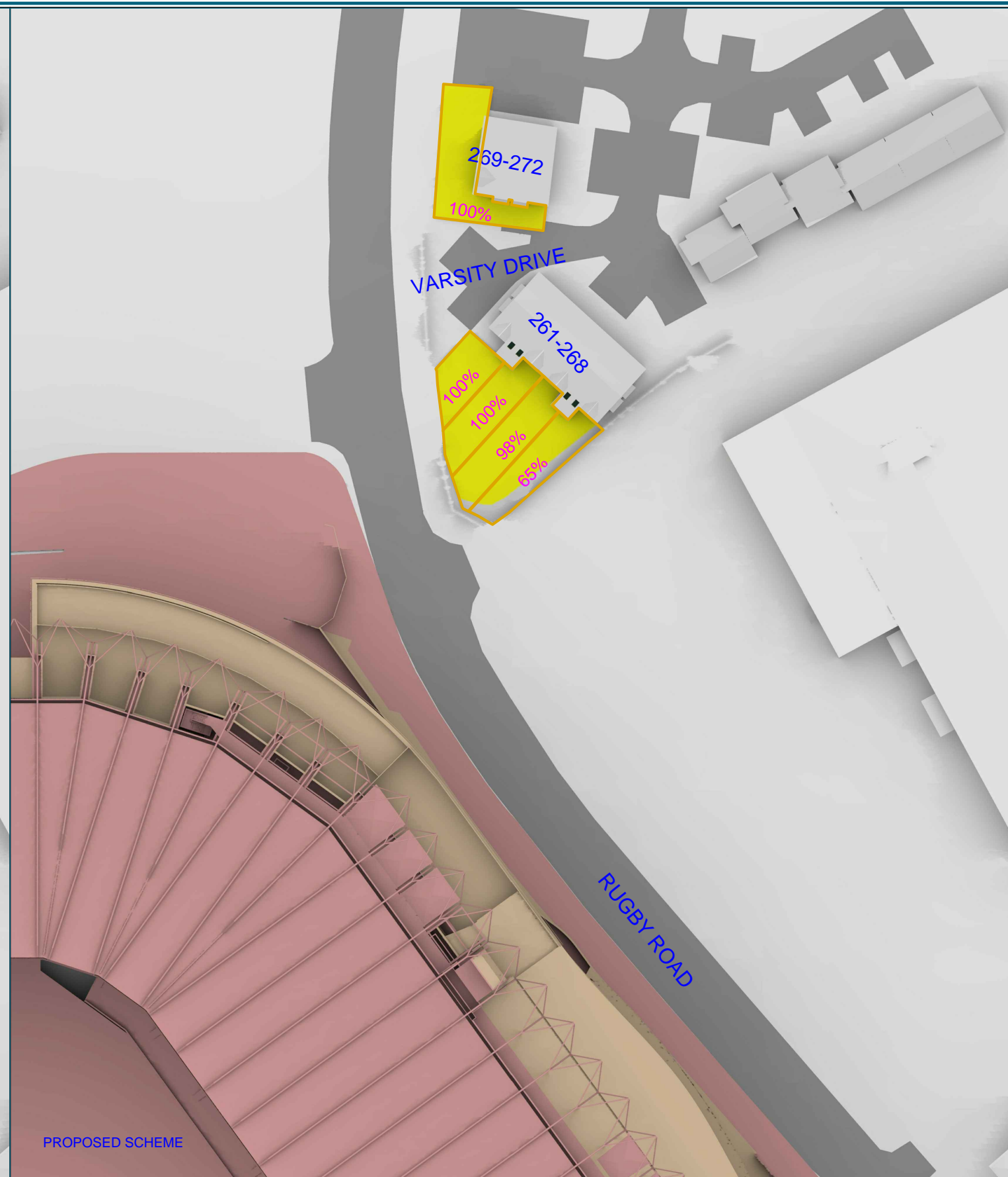
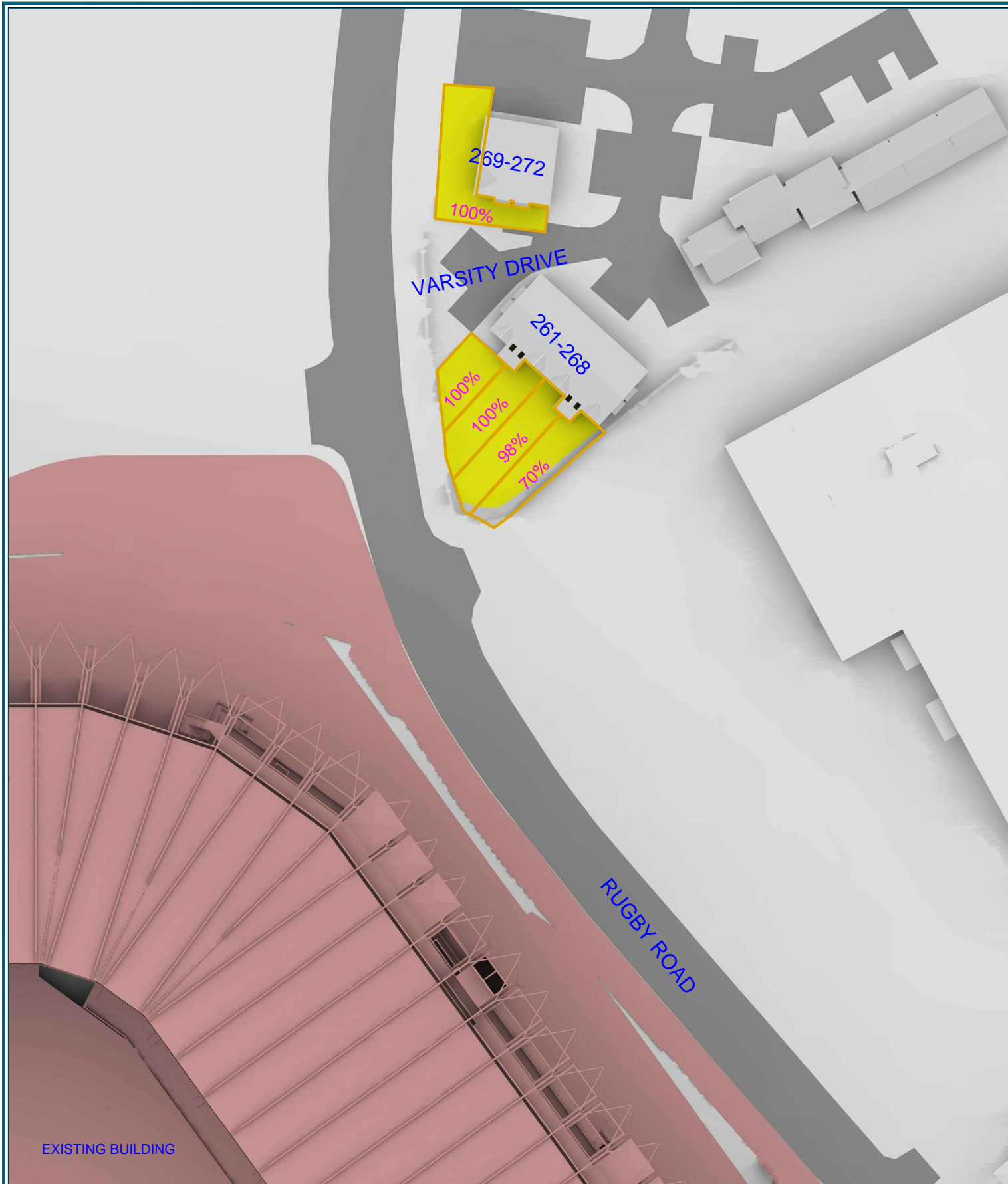
Title: Window Locations
3-8 & 9-14 Rugby Road

Dwg No: **P921/11**

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Appendix 5 – Sun on Ground Assessment






Sources: Site Photos
Point Cloud Data

Ordnance Survey

15735 - ARCH Master - R16 - 160617.rvt
Set of information:
15735TwickenhamStadiumEastStandDevelopment_210879

Key:

- Proposed Scheme
- Existing Buildings
- AREA ANALYSED
- AREA WITH MORE THAN 2 HOURS OF DIRECT SUNLIGHT
- AREA WITH LESS THAN 2 HOURS OF DIRECT SUNLIGHT
- % OF AREA WITH MORE THAN 2 HOURS OF DIRECT SUNLIGHT



Project: Twickenham Stadium

Title: 2 Hour Overshadowing Test
March 21st
Existing vs Proposed Scheme 20/06/16

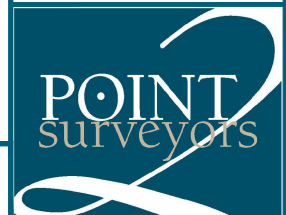
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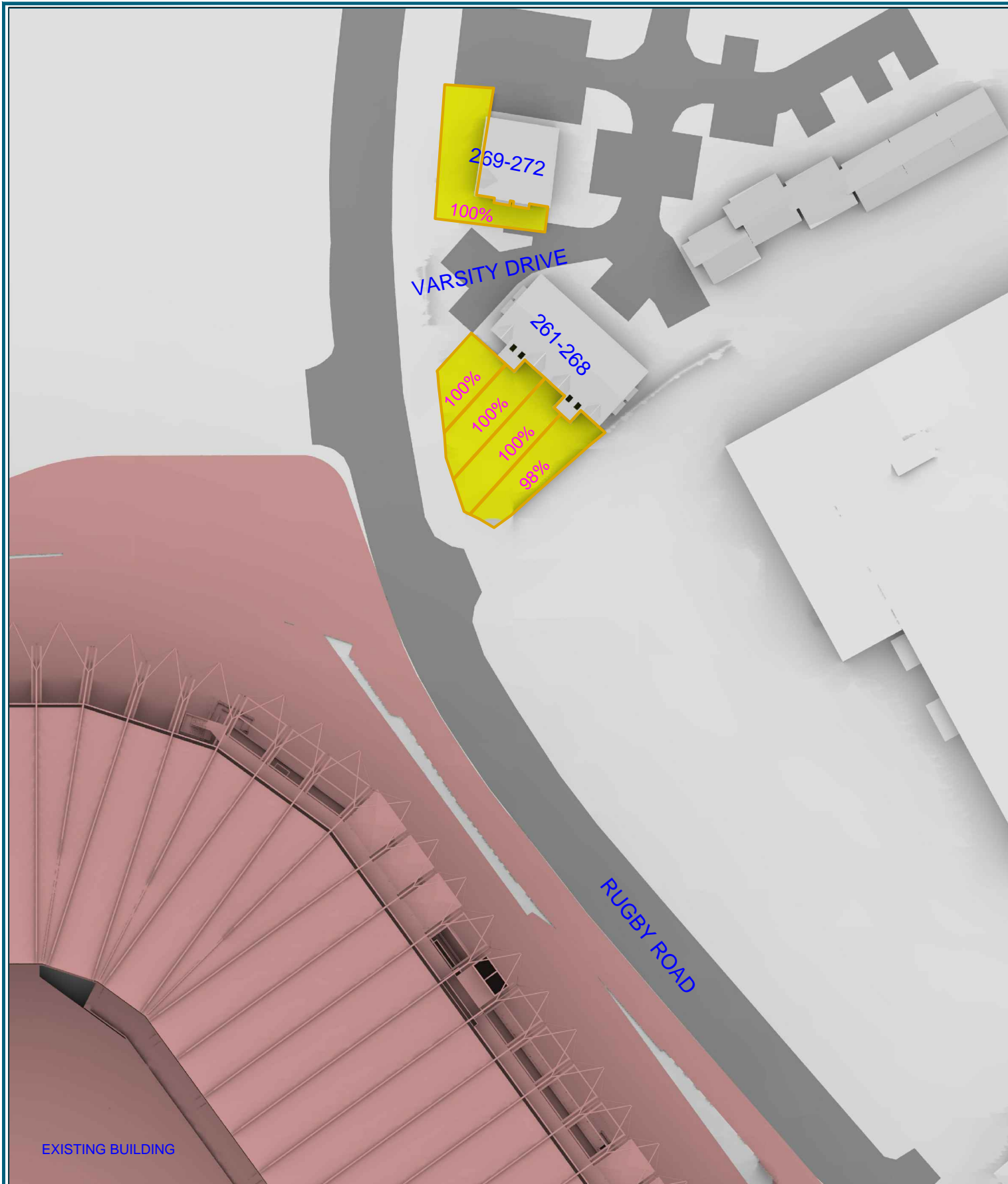
Drawn By: CGC/EVJ

Scale: 1:750

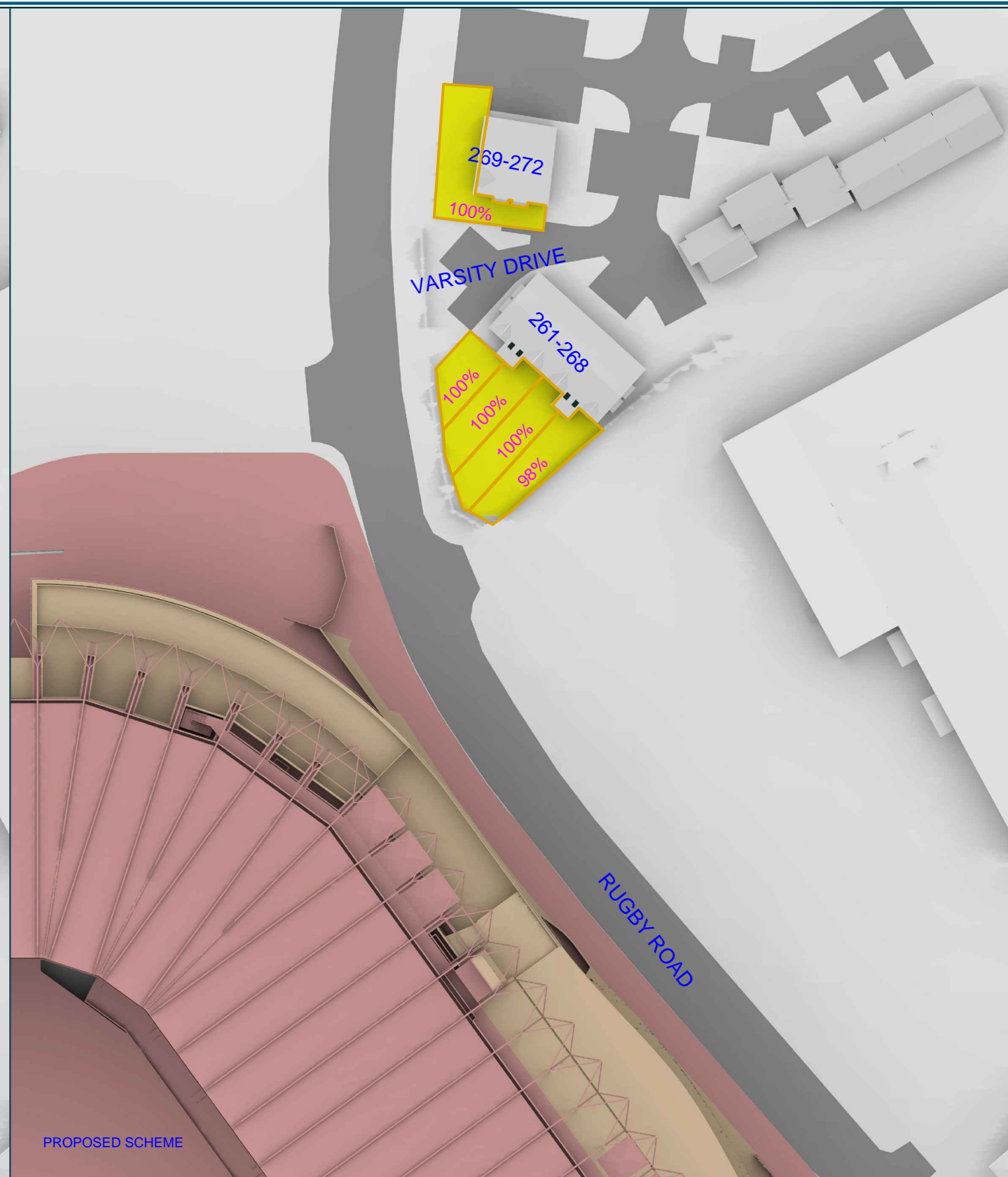
Date: JUN 16

Dwg No: **P921/SHA/03**





EXISTING BUILDING



PROPOSED SCHEME

Sources: Site Photos
Point Cloud Data

Ordnance Survey

15735 - ARCH Master - R16 - 160617.rvt
Set of information:
15735TwickenhamStadiumEastStandDevelopment_210879

Key:

- Proposed Scheme
- Existing Buildings
- AREA ANALYSED
- AREA WITH MORE THAN 2 HOURS OF DIRECT SUNLIGHT
- AREA WITH LESS THAN 2 HOURS OF DIRECT SUNLIGHT
- % OF AREA WITH MORE THAN 2 HOURS OF DIRECT SUNLIGHT

Project: Twickenham Stadium

Title: 2 Hour Overshadowing Test
June 21st
Existing vs Proposed Scheme 20/06/16

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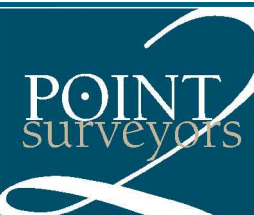
Drawn By: CGC/EVJ

Scale: 1:750

Date: JUN 16

Dwg No:

P921/SHA/04

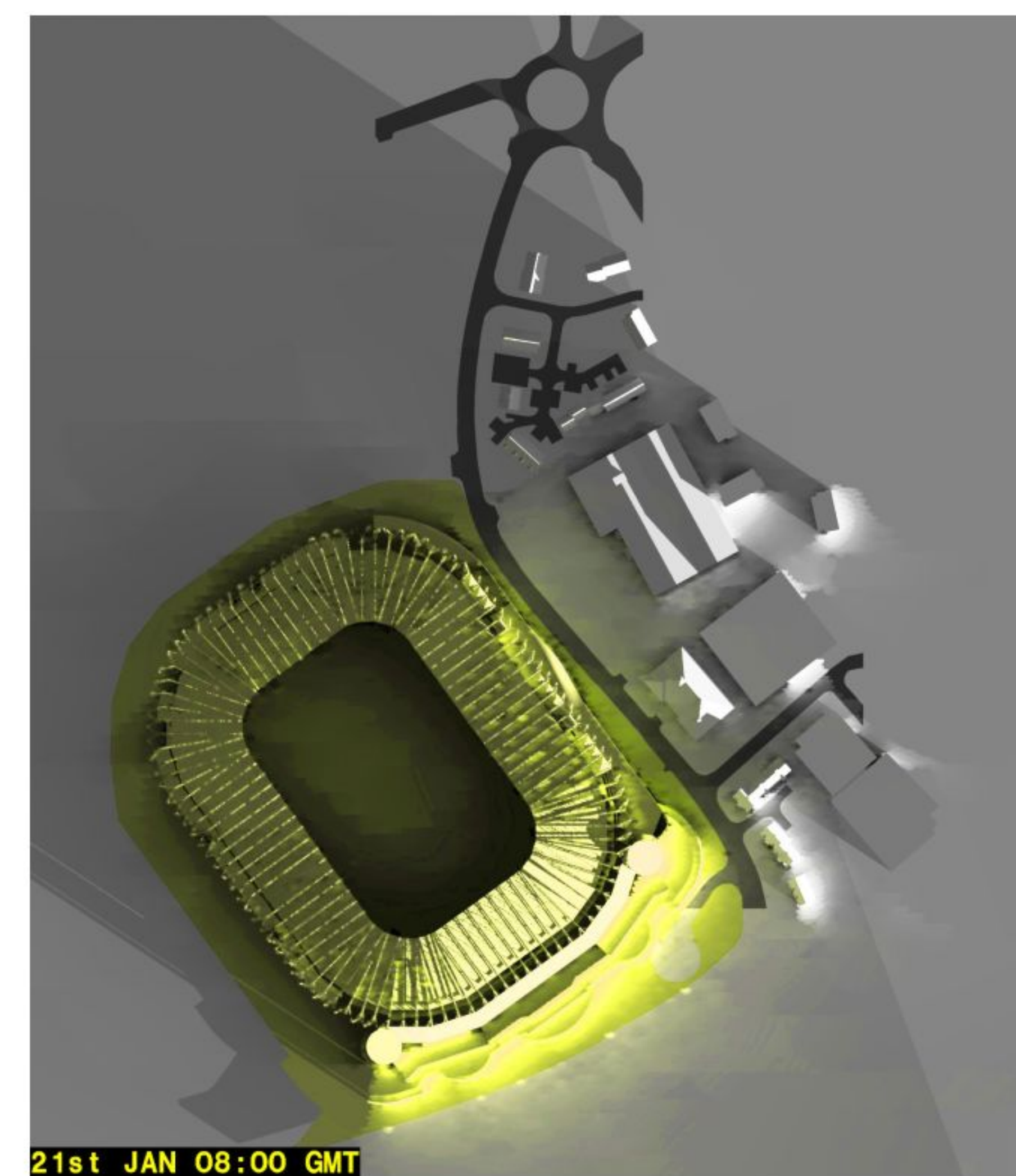


Appendix 6 – Solar Glare Assessment

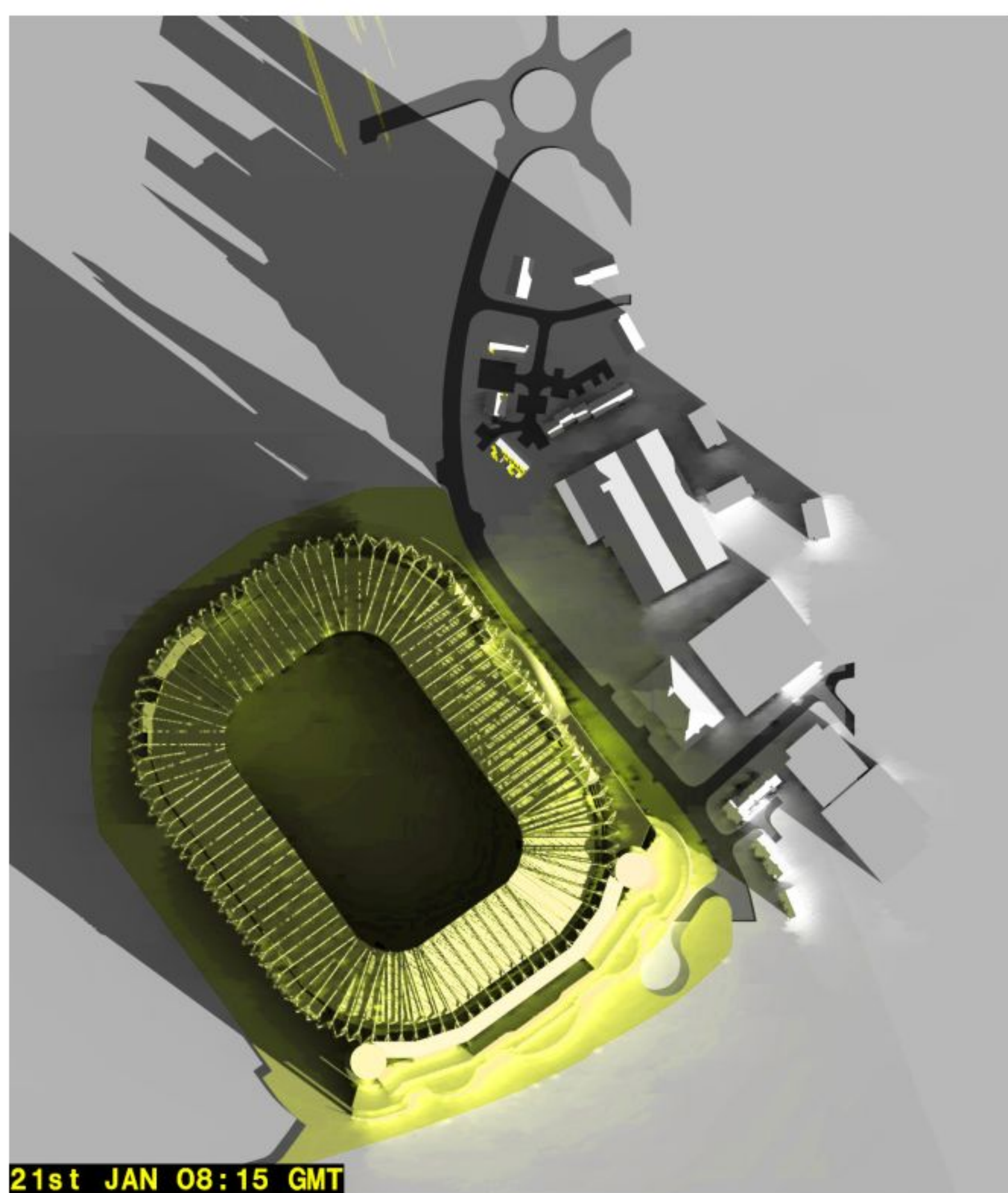


Annual Sequence Plots

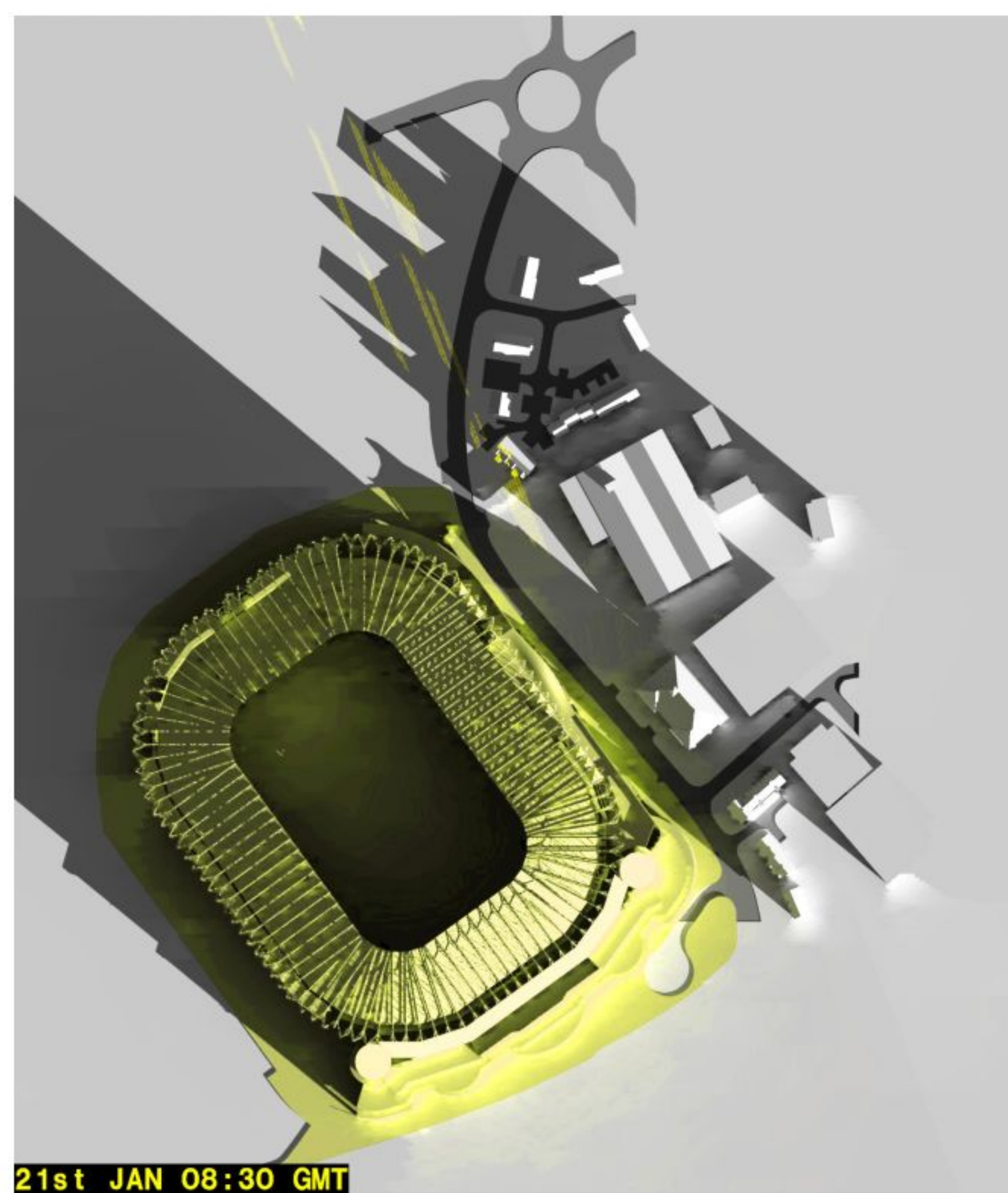




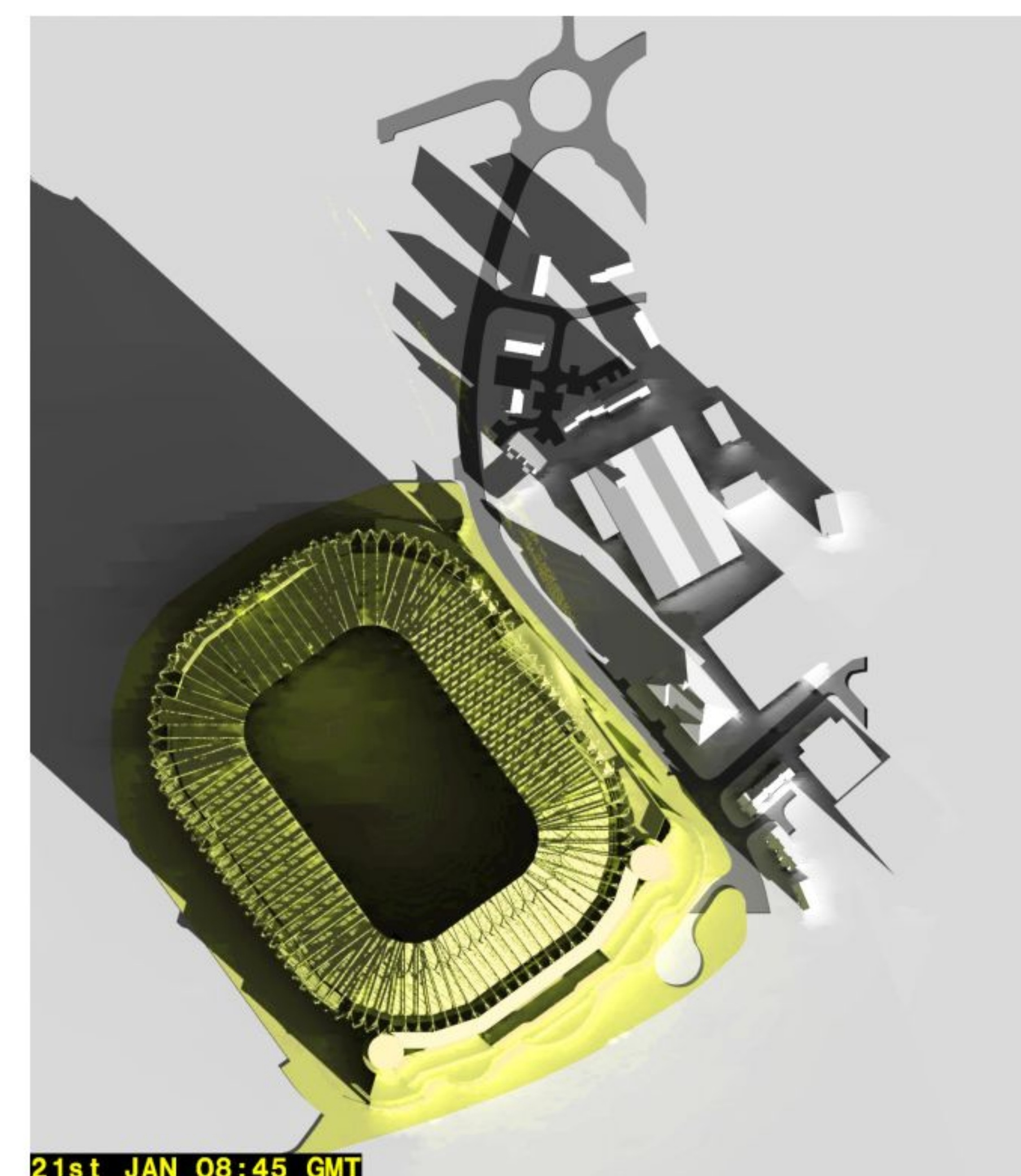
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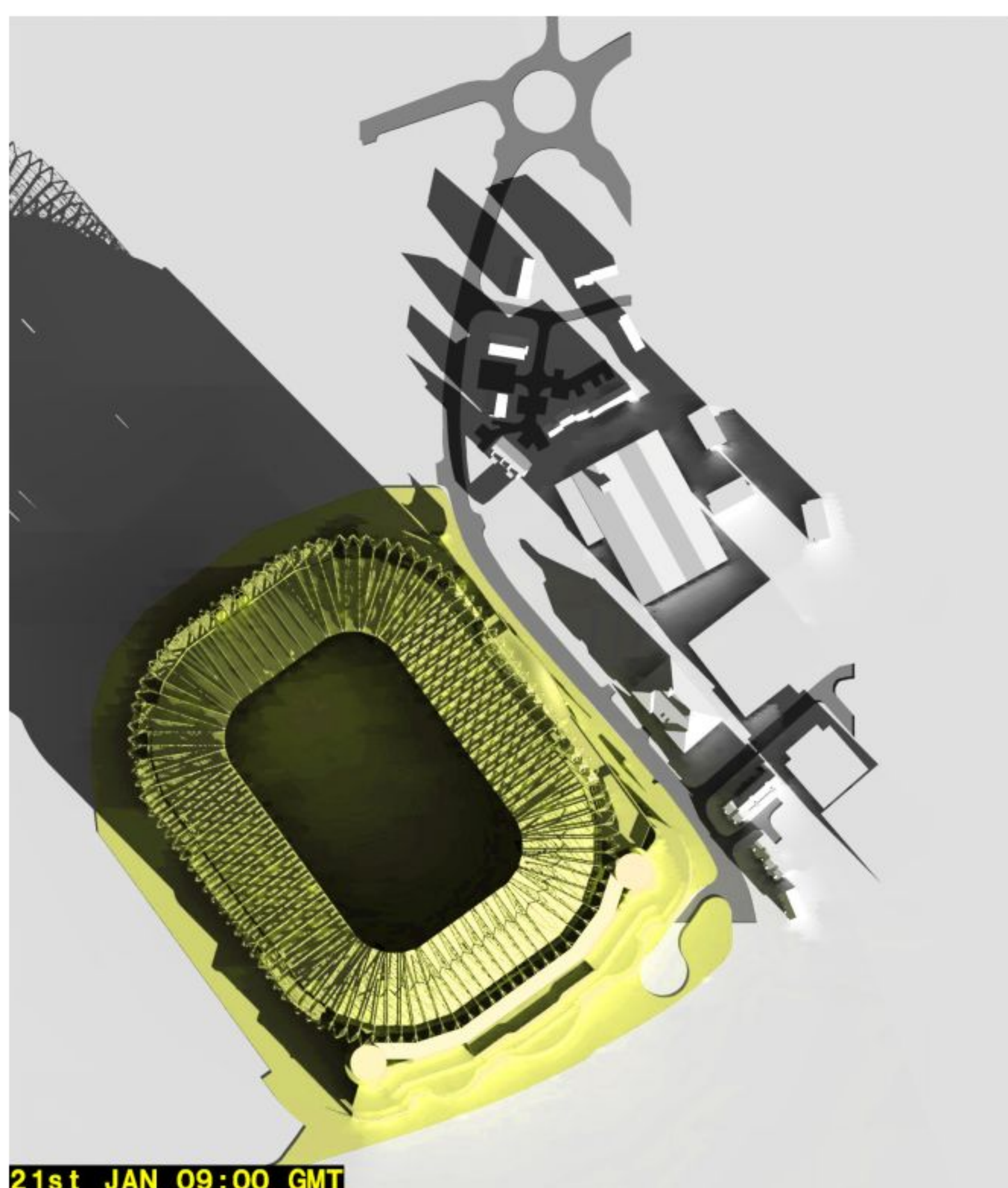
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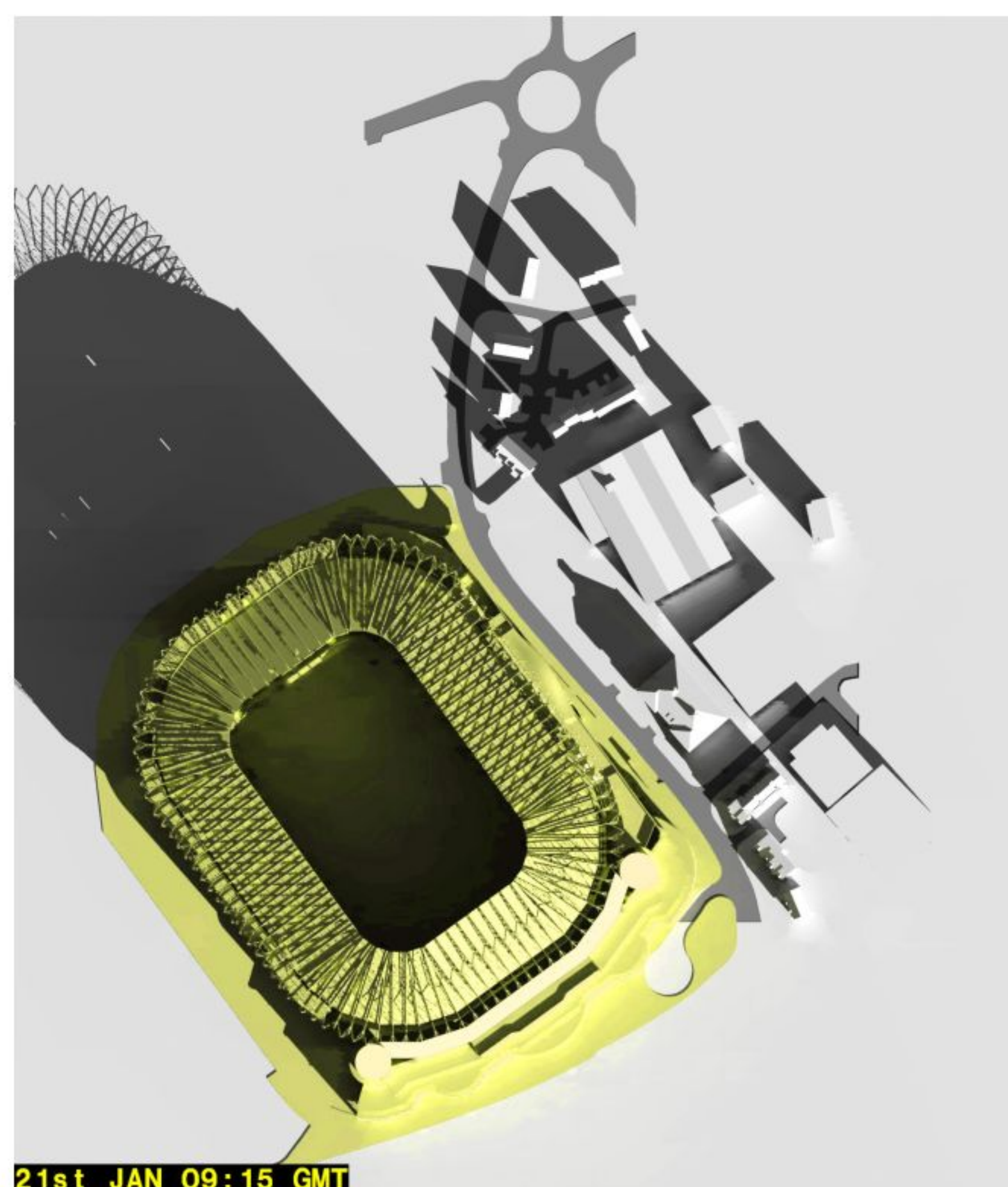
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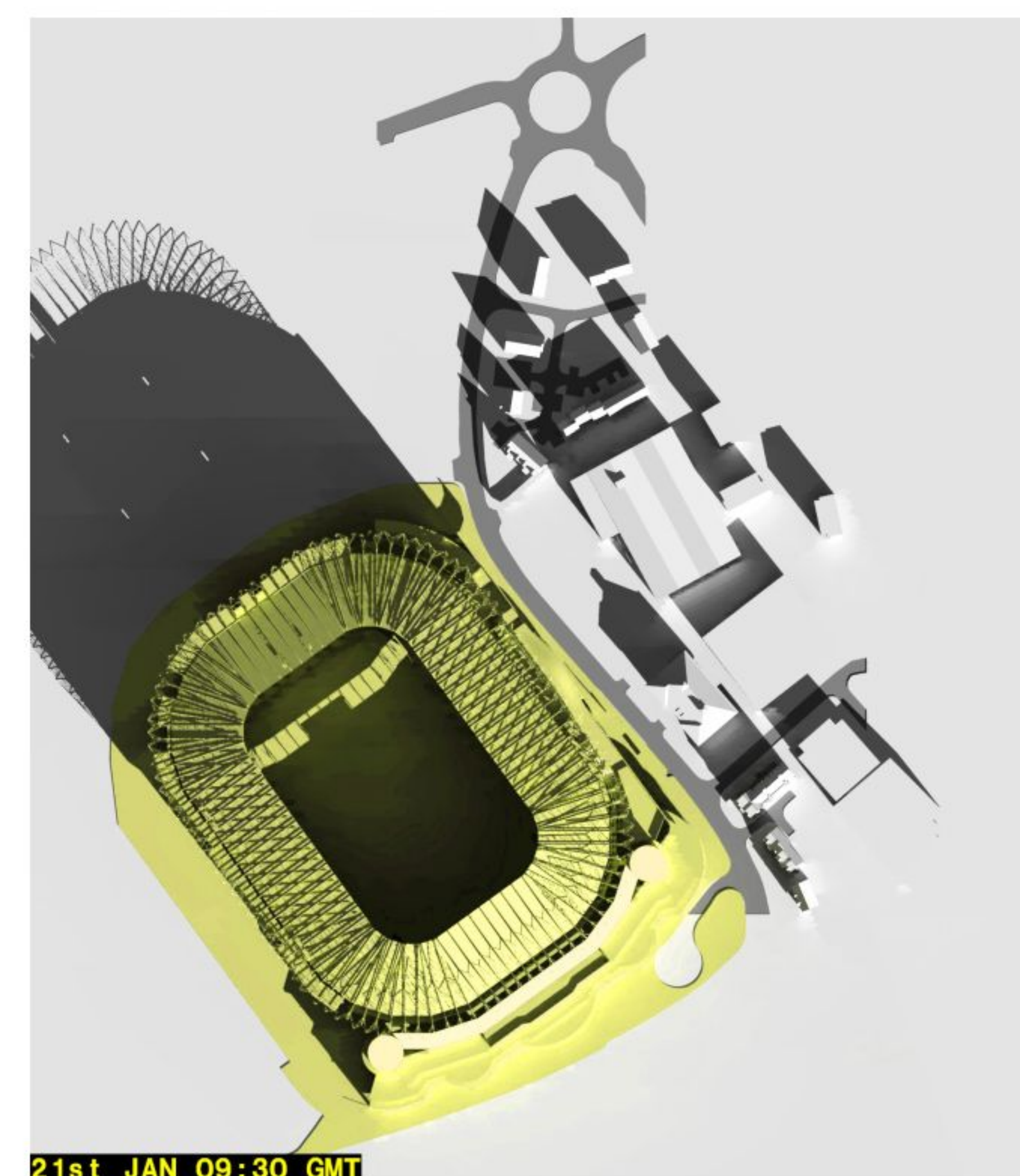
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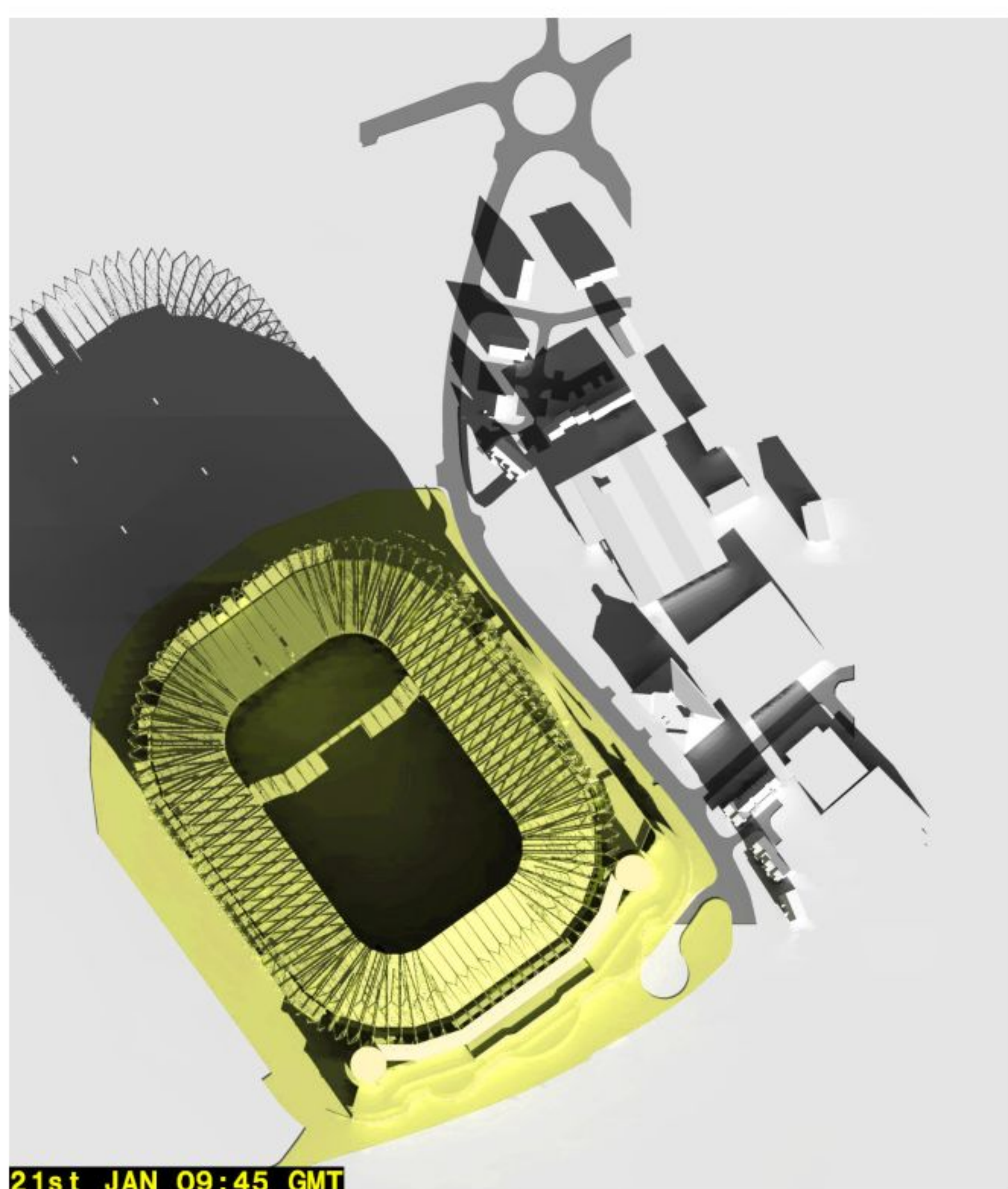
21st JAN 09:00 GMT



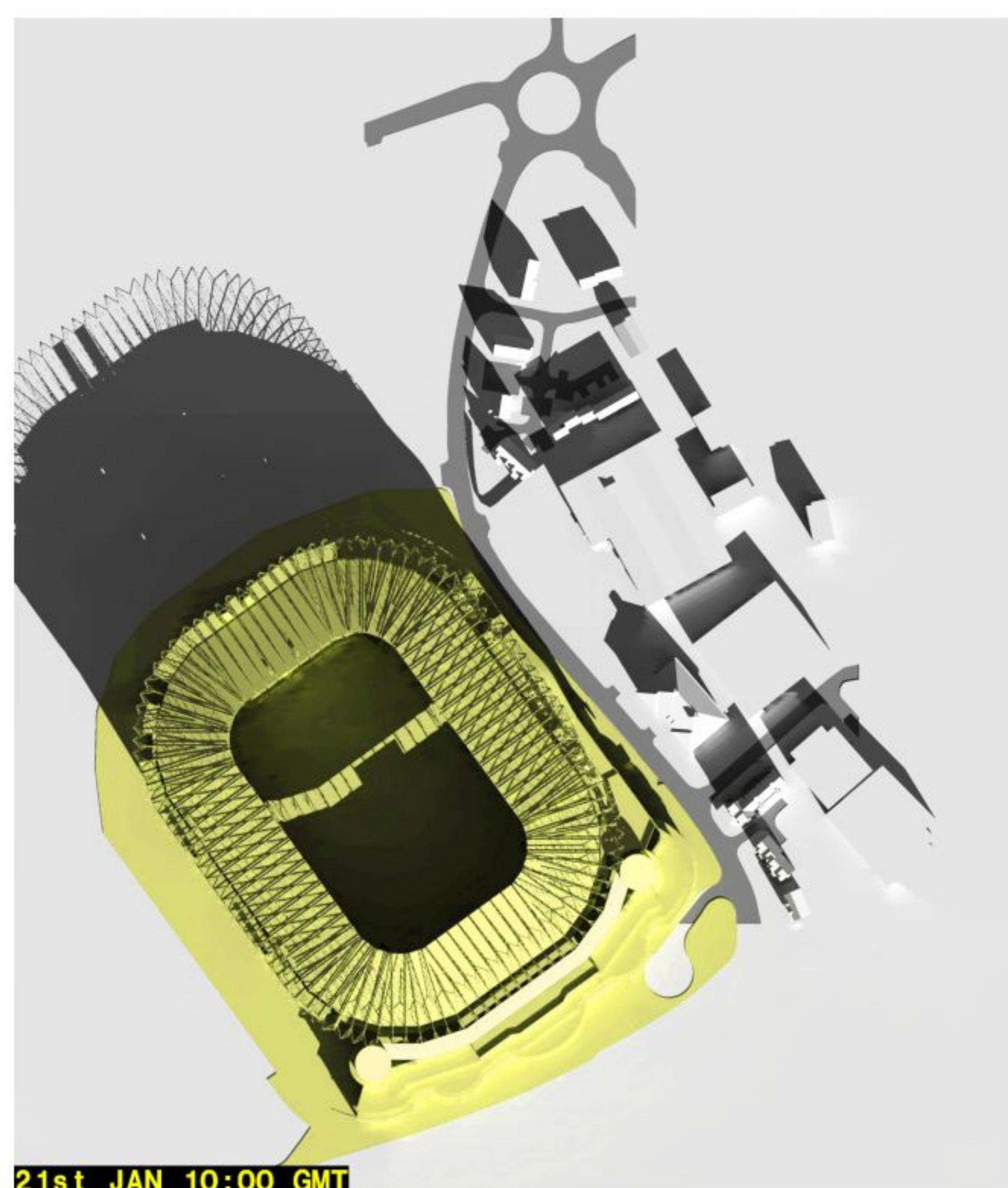
21st JAN 09:15 GMT



21st JAN 09:30 GMT



21st JAN 09:45 GMT



21st JAN 10:00 GMT

