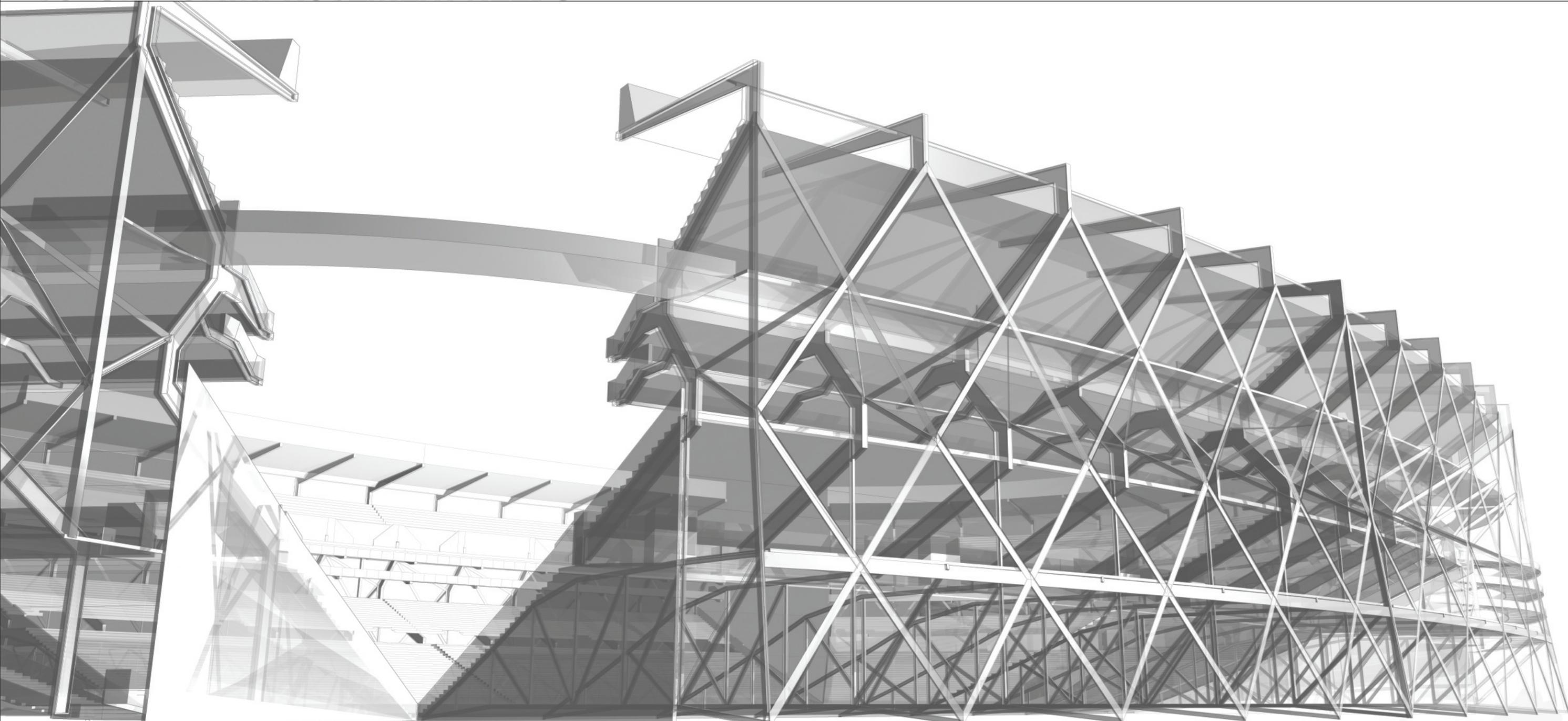


# VOLUME 3: IMPROVEMENT NEEDS



**aloha stadium** PLANNING STUDY FINAL REPORT - 12.22.05



# VOLUME 3: IMPROVEMENT NEEDS

## SECTION IV: CAPITAL IMPROVEMENTS NEEDS ASSESSMENT



**aloha stadium** PLANNING STUDY FINAL REPORT - 12.22.05



## Introduction

Based on conditions observed and documented in Volume 3, Sections II and III, the study team formulated recommended remedial measures to improve noted deficiencies. The recommended improvements contained in this section reflect the assessment of what is needed to maintain the status quo of the existing stadium, correct non conforming code items where feasible, and thus extend the useful life of the stadium at least another twenty years. Possible enhancements or upgrades to the stadium are discussed separately in Section V.

Each recommended improvement is briefly described in Section II and given a designation consistent with that used in the following Capital Improvement Schedule (CIS). Each item is given a priority ranking based on structural and safety concerns and desire to protect the value of the existing facility. The items ranked high have all exceeded their useful life along with many of the remaining items. The approximate anticipated cost of initial repair or replacement of each improvement item is indicated in the year 1 2006 column, although it is understood that the earliest likely date to implement improvements would be following the February 2007 Pro Bowl. It is important to note that all approximate costs shown are given in October 2005 dollars and cost escalation for future years should be taken into consideration for budgeting purposes. Approximate estimated future repair and or replacement costs are included for future years based on anticipated cyclical needs to maintain the facility.

The cost figures included in this report are conceptual in nature due to the limited scope of this study and the unknown aspects inherent in renovations to an existing facility over thirty years old. Due to the deteriorating condition of the coatings protecting the steel structure and other items, deferred corrective action could significantly increase the identified costs depending on the length of deferral timeframe. The CIS cost figures include a 25% soft cost amount in addition to the direct

construction cost to cover design fees and expenses, additional testing to existing coating and structural conditions, owner testing and inspections during construction, state administrative costs and limited contingencies. This compares to the new stadium 20% soft cost amount which is anticipated to be less due to its being a new construction project requiring a lower percentage of design fees and contingencies. The costs assume the most cost effective implementation approach is employed; that being the earliest possible start date with one construction contract to be implemented over a maximum of three football off seasons. The costs do not include cost escalation beyond October 2005, increased costs due to accelerated deterioration from conditions observed and other limitations.

Presuming that the recommended needed improvement items are undertaken in the near future, and systematic, cyclic capital improvements are made along the lines of that shown in the CIS, it is anticipated the stadium's useful life can be extended twenty to thirty years. Many existing collegiate sports facilities are on the order of 60 years old through employment of a regular repair and replacement program. As shown in the CIS, periodic major expenditures on certain items will be required with cycles ranging from 5 to 20 years depending on its expected longevity. It is assumed recoating of structural members will be required every ten years with intermittent power washing. Traffic toppings will need to be reapplied every seven years. Interior painting is anticipated to be needed every five years and interior floor finish replacement is needed every ten years. A design superior to the existing metal roof deck should be developed to create a more durable and longer term solution. Use of a single ply PVC roof membrane to protect a coated steel deck should be given consideration. A fabric roof should also be explored as it could be comparable in price while providing an even longer useful life and more aesthetically appealing solution for the stadium and a better game day environment for spectators.

Aloha Stadium Planning Study Existing Conditions Observations		CIS Estimated																					
		2005 Dollars																					
		2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total	
Description of Needed Capital Improvements		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
<b>A Site</b>																							
1	Replace parking lot trashcans	Medium	\$ 50,000			5,000					5,000				5,000						5,000	70,000	
2	Add safety enclosures for parking lot transformers	High	40,000																			40,000	
3	Painting of light poles in parking lots	Medium	200,000								200,000											400,000	
4	Resurface asphalt parking lots	Medium	8,700,000			250,000					8,700,000				500,000						8,700,000	26,850,000	
5	Painting of all directional signs in parking lots	High	100,000								50,000											150,000	
6	Painting of Parking lot entrance buildings	High	60,000								60,000											120,000	
7	Refurbish parking lot metal bollards	Medium	25,120								25,000											50,120	
8	Paint exterior concession stands	High	75,000								75,000											150,000	
9	Replace parking lot designation signs	High	100,000																			100,000	
10	Replace exterior way finding & prohibitive items signage	High	INC																			-	
11	Paint sign posts designating gate locations	High	20,000								20,000											40,000	
12	Enhanced vehicle intrusion protection at entry points	Medium	80,000																			80,000	
13	Clean and seal block walls at entry gates	High	75,000								75,000											150,000	
14	Paint light fixtures on posts designating gates	Medium	10,000								10,000											20,000	
15	Replace concourse trash can tops with "open" mouths	Medium	18,000			5,000					5,000					5,000					5,000	38,000	
16	Encase show power cables in conduit	Medium	16,250																			16,250	
<b>Subtotal - Site</b>			<b>9,569,370</b>	-	-	-	<b>260,000</b>	-	-	-	<b>9,225,000</b>	-	-	-	-	<b>510,000</b>	-	-	-	-	<b>8,710,000</b>	<b>28,274,370</b>	
<b>B Playing Field</b>																							
1	Review grooming & tray installation procedures with manufacturer	High	N/A																			-	
2	Monitor perimeter track & repair as required	Low	N/A																			-	
3	Replace turf system and track when deteriorated.	High						550,000								550,000						1,100,000	
<b>Subtotal - Playing Field</b>			-	-	-	-	-	<b>550,000</b>	-	-	-	-	-	-	-	<b>550,000</b>	-	-	-	-	-	<b>1,100,000</b>	
<b>C Event Level</b>																							
1	Add subroof above all finished locker room spaces occurring under bowl.	High	702,500				20,000				20,000					20,000					20,000	782,500	
2	Replace damaged flooring and finishes inc. painting in East locker rooms	High	280,600				140,300				280,600					140,300					280,600	1,122,400	
3	Replace finishes on a five year basis in main locker rooms	Medium	162,000				162,000				243,000					162,000					243,000	972,000	
4	Replace finishes on a five year basis in officials locker room	Medium	10,000				10,000				10,000					10,000					10,000	50,000	
5	Repaint office area surfaces on 5 yr. basis. Replace carpet on ten yr. basis	Medium	108,000				108,000				108,000					108,000					108,000	540,000	
<b>Subtotal - Event Level</b>			<b>1,263,100</b>	-	-	-	<b>440,300</b>	-	-	-	<b>661,600</b>	-	-	-	-	<b>440,300</b>	-	-	-	-	<b>661,600</b>	<b>3,466,900</b>	
<b>D Seating Bowl</b>																							
1	Reapply waterproofing membrane topping on all treads, risers and cross aisles	High	12,000,000			50,000			6,000,000			50,000			6,000,000				50,000			24,150,000	
2	Replace all seats and maintain seats in future	High	5,000,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	5,190,000	
3	Recoat utilities and other nonstructural steel components	High	8,500,000								8,500,000											8,500,000	25,500,000
4	Replace dented steel deck soffit and recoat	Medium	50,000								50,000											50,000	150,000
5	Recoat steel rakers and steel deck in seating bowl	See "R" costs																				-	
6	Paint walls outside vomitories at cross aisles. Replace damaged panels.	High	300,000								300,000											300,000	900,000
7	Repair floor drains in movable seating sections	High	100,000								50,000											50,000	200,000
8	Recoat stair railings, correct heights and provide guardrail at open stairs	High	312,000								100,000											100,000	512,000
9	Stiffen bowl front railings and recoat	Medium	149,500								25,000											25,000	199,500
<b>Subtotal - Seating Bowl</b>			<b>26,411,500</b>	<b>10,000</b>	<b>10,000</b>	<b>60,000</b>	<b>10,000</b>	<b>10,000</b>	<b>6,010,000</b>	<b>10,000</b>	<b>10,000</b>	<b>9,035,000</b>	<b>60,000</b>	<b>10,000</b>	<b>10,000</b>	<b>6,010,000</b>	<b>10,000</b>	<b>10,000</b>	<b>10,000</b>	<b>60,000</b>	<b>10,000</b>	<b>9,035,000</b>	<b>56,801,500</b>
<b>E Roof Canopy</b>																							
1	Upgrade to Membrane Roofing	High	1,010,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	1,010,000	2,110,000
2	Recoat all roof structural steel members, gutter and railings	See "R" costs																					-
3	Replace all roof drains.	Medium	72,000																			72,000	
<b>Subtotal - Roof Canopy</b>			<b>1,082,000</b>	<b>5,000</b>	<b>5,000</b>	<b>5,000</b>	<b>5,000</b>	<b>5,000</b>	<b>5,000</b>	<b>5,000</b>	<b>5,000</b>	<b>5,000</b>	<b>5,000</b>	<b>5,000</b>	<b>5,000</b>	<b>5,000</b>	<b>5,000</b>	<b>5,000</b>	<b>5,000</b>	<b>5,000</b>	<b>5,000</b>	<b>1,010,000</b>	<b>2,182,000</b>
<b>F Concourses</b>																							
1	Repair cracks in concrete slab @ North/South Fixed Areas	Medium	101,250								101,250					101,250						303,750	
2	Repaint vomitory walls metal decking	Medium	300,000								300,000										300,000	900,000	
3	Add intermediate rails/cables at non-code conforming guardrails	High	100,000																			100,000	
4	Replace existing signs with new signage and wayfinding program	Medium	750,000								250,000										250,000	1,250,000	
5	Repair water fountains missing buttons	Medium	10,000																			10,000	
6	Replace main concourse information booth and other deteriorated counters	Medium	10,000								10,000											20,000	
7	Replace missing usher phones	Low	20,000																			20,000	
8	Reapply waterproofing membrane topping on all elevated structural deck concourses	High	8,750,000						2,887,500						2,887,500							14,525,000	
9	Correct varying riser height at upper concourse stairs	Medium	80,000																			80,000	
10	Stiffen bridge guardrails with additional secondary steel members	Medium	184,000																			184,000	
11	Repair, clean and maintain fire extinguisher cabinets	High	10,000				10,000				10,000					10,000					10,000	50,000	
12	Clean and maintain light fixtures	Medium	37,500				37,500				37,500					37,500					37,500	187,500	
13	Add 50 self illuminated exit signs or emergency lights at existing exit signs	High	50,000																			50,000	
14	Remove asphalt topping above offices, replace with concrete and elastomeric	High	350,000								175,000					175,000						700,000	
<b>Subtotal - Concourses</b>			<b>10,752,750</b>	-	-	-	<b>47,500</b>	-	<b>3,163,750</b>	-	<b>607,500</b>	-	-	-	<b>3,201,250</b>	<b>10,000</b>	-	-	-	-	<b>597,500</b>	<b>18,380,250</b>	
<b>G Toilets</b>																							
1	Add women's toilet fixtures - On Existing Concourses	High	810,000								150,000										150,000	1,110,000	
1a	Add women's toilet fixtures - Lower Concourse Level - New Enclosure	High	660,000								150,000										150,000	960,000	
2	Replace damaged mirrors in restrooms	Medium	7,500																			7,500	
<b>Subtotal - Toilets</b>			<b>1,477,500</b>	-	-	-	-	-	-	-	<b>300,000</b>	-	-	-	-	-	-	-	-	-	<b>300,000</b>	<b>2,077,500</b>	

Description of Needed Capital Improvements		Priority	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
<b>H Concessions/Vendor Commissaries</b>																							
1	Repaint exterior of on grade concessions stands that face the parking lots	High	INC									150,000										150,000	300,000
2	Lower drain in concession stand next to Gate 1	Low	5,000																				5,000
<b>Subtotal - Concessions/Vendor Commissaries</b>			<b>5,000</b>	-	-	-	-	-	-	-	-	<b>150,000</b>	-	-	-	-	-	-	-	-	-	<b>150,000</b>	<b>305,000</b>
<b>I Ramps</b>																							
1	Repair waterproofing membrane topping in damaged locations. Recoat in future years.	High	20,000				1,463,220							1,463,220							4,434,000		7,380,440
2	Repaint steel surfaces as needed on a regular basis.		See "R" costs																				
<b>Subtotal - Ramps</b>			<b>20,000</b>	-	-	-	<b>1,463,220</b>	-	-	-	-	-	-	<b>1,463,220</b>	-	-	-	-	-	-	<b>4,434,000</b>	-	<b>7,380,440</b>
<b>J Stairs</b>																							
1	Recoat main stairs railings and risers. Upgrade lighting and graphics.	Medium	520,000									250,000										270,000	1,040,000
2	Apply safety striping to low clearance beams at main stairs	Medium	INC																				
3	Lengthen handrails and close excess guardrail openings to meet code.	Medium	107,000																				107,000
4	Replace loge level stair side rails with code compliant guardrails	High	150,000																				150,000
<b>Subtotal - Stairs</b>			<b>777,000</b>	-	-	-	-	-	-	-	-	<b>250,000</b>	-	-	-	-	-	-	-	-	-	<b>270,000</b>	<b>1,297,000</b>
<b>K Elevators</b>																							
1	Add one bank of two passenger elevators to all levels at each quadrant.	Medium	2,000,000									50,000										50,000	2,100,000
<b>Subtotal - Elevators</b>			<b>2,000,000</b>	-	-	-	-	-	-	-	-	<b>50,000</b>	-	-	-	-	-	-	-	-	-	<b>50,000</b>	<b>2,100,000</b>
<b>L Escalators</b>																							
1	Add escalator canopies at both escalators	Medium	50,000									50,000										20,000	120,000
<b>Subtotal - Escalators</b>			<b>50,000</b>	-	-	-	-	-	-	-	-	<b>50,000</b>	-	-	-	-	-	-	-	-	-	<b>20,000</b>	<b>120,000</b>
<b>M Press Boxes</b>																							
1	Repaint painted surfaces on 5 yr. basis. Replace carpet on ten yr. basis	Medium	50,000				25,000					50,000					25,000					50,000	200,000
2	Vertical Circulation in Press Box		In Elevators Above																				
3	Additional Work/Food Service Area (add'l structure req'd)	Medium	135,000									5,000										5,000	145,000
4	Additional Press Toilets (add'l structure req'd)	Medium	150,000									5,000										5,000	160,000
<b>Subtotal - Press Boxes</b>			<b>335,000</b>	-	-	-	<b>25,000</b>	-	-	-	-	<b>60,000</b>	-	-	-	-	<b>25,000</b>	-	-	-	-	<b>60,000</b>	<b>505,000</b>
<b>N Scoreboard/Video/Audio</b>																							
1	Replace 150 speaker enclosures on loge level	Medium	90,000									40,000										40,000	170,000
2	Replace video board, scoreboard and controls	Medium	1,500,000									100,000					1,500,000					50,000	3,150,000
<b>Subtotal - Scoreboard/Video/Audio</b>			<b>1,590,000</b>	-	-	-	-	-	-	-	-	<b>140,000</b>	-	-	-	-	<b>1,500,000</b>	-	-	-	-	<b>90,000</b>	<b>3,320,000</b>
<b>O ADA Accommodations</b>																							
1	Add additional ADA seating areas at loge level (Requires Elevators)	High	127,500																				127,500
2	Prioritize accommodations to provide disabled access, elevators, ramps, etc.	High	-																				-
3	Remodel ticket windows between Gates 1 & 2	High	5,000																				5,000
4	Remodel ticket windows at main box office	High	7,500																				7,500
<b>Subtotal - ADA Accommodations</b>			<b>140,000</b>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<b>140,000</b>
<b>P Mechanical/Plumbing/Fire Protection</b>																							
<b>1 INSULATION</b>																							
1a	Team locker rooms - piping only	High	256,500									50,000										50,000	356,500
1b	Team Management Office & Locker - piping only	High	45,000																				45,000
1c	Stadium Management & Ticket Sales - piping only	High	89,250																				89,250
1d	Mechanical Equipment room - piping, pumps, ducts and packaged AC unit	High	79,500																				79,500
1e	Sound booth @ Press Box area - ducts only	High	4,200																				4,200
<b>2 HVAC SYSTEMS</b>																							
2a	Jumbotron AC	High	270,000																				270,000
2b	First Aid Room AC	Medium	37,500				37,500					37,500					37,500					37,500	187,500
2c	Baseball Announcement Room AC	Medium	15,000				15,000					15,000					15,000					15,000	75,000
2d	North End Zone Maintenance Room AC	High	45,000				45,000					45,000					45,000					45,000	225,000
<b>3 PLUMBING SYSTEMS</b>																							
3a	Mens and women Locker Rooms	High	21,900				21,900					21,900					21,900					21,900	109,500
3b	Water Closet Maintenance	High	41,250				41,250					41,250					41,250					41,250	206,250
3c	Storm Drain Piping	Medium	-				-					-					-					-	-
<b>4 FIRE PROTECTION SYSTEMS</b>																							
4a	Sprinkler Heads	High	67,500				5,000					5,000					5,000					5,000	87,500
<b>Subtotal - M &amp; P</b>			<b>972,600</b>	-	-	-	<b>165,650</b>	-	-	-	-	<b>215,650</b>	-	-	-	-	<b>165,650</b>	-	-	-	-	<b>215,650</b>	<b>1,735,200</b>
<b>Q Electrical</b>																							
1	Field lights	Medium	1,375,000																			250,000	1,625,000
2	Field light transformer replacement	High	1,250,000																				1,250,000
3	Fire Alarm Upgrade	High	937,500																				937,500
4	Sports Event Lighting Controls	High	118,750																				118,750
5	Electrical Integrity Study	High	25,000											20,000									45,000
6	Electrical power distribution for concessions stands	Medium	125,000				125,000					125,000					125,000					125,000	625,000
7	Parking lot lighting transformer replacement	High	625,000																				625,000
8																							-
<b>Subtotal - Electrical</b>			<b>4,456,250</b>	-	-	-	<b>125,000</b>	-	-	-	-	<b>125,000</b>	-	<b>20,000</b>	-	-	<b>125,000</b>	-	-	-	-	<b>375,000</b>	<b>5,226,250</b>

Description of Needed Capital Improvements		Priority	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total		
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20			
<b>R Protective Painting and Corrosion Mitigation on Existing Steel</b>																									
1	Paint System P0 (Powerwash)	High	1,100,000				2,200,000			2,200,000		4,400,000			2,200,000			2,200,000					4,400,000	18,700,000	
2	Paint System P1 (Powerwash and Top Coat)	High	5,500,000									5,500,000											5,500,000	16,500,000	
3	Paint System P1+ (Powerwash, Local Repairs and Topcoat)	High	1,300,000									1,300,000											1,300,000	3,900,000	
4	Paint System P2 (Powerwash, Local Repairs, three coat system)	High	800,000									520,000											520,000	1,840,000	
5	Paint System P3 (Powerwash, Sandblasting, and Three Coat)	High	4,100,000									2,665,000											2,665,000	9,430,000	
6	Paint System P4 (Powerwash, Sandblast, Three Coat with Structural Repairs)	High	750,000									487,500											487,500	1,725,000	
6a	Apply protective coatings to one side of new metal roof deck, all stands	High	700,000									700,000											700,000	2,100,000	
7	Moveable stands: mitigate standing water at ground level: concrete pavement under moveable stands (estimated \$900,000 in 1989 dollars)	High	1,700,000									100,000											100,000	1,900,000	
7a	Moveable stands: mitigate standing water at ground level: Drainage improvements at all newly-paved areas beneath moveable stands	High	100,000																					100,000	
8	Pivot pins: paint all pins	High	-																					-	
9	Moveable Stands: Remove/ replace epoxy filler in lower truss nodes	High	144,000									144,000											144,000	432,000	
9a	Moveable Stands: Add Weep Holes at Base of Raker to Drain Water	High	59,640																					59,640	
10	Moveable Stands: Weld Stiffeners to Corroded Seat Plate Areas in Lower Field Seating	High	200,000																					200,000	
11	Moveable Stands: Install Sealant to Seat Plate Joint in Lower Field Seating	High	116,000									116,000											116,000	348,000	
12	Moveable Stands: Remove/Replace Delaminated Epoxy Filler in Exterior Bracing Hubs	High	128,000									128,000											128,000	384,000	
13	Fixed Stands: Remove/Replace Delaminated Epoxy Filler in Exterior Bracing Hubs	High	88,000									88,000											88,000	264,000	
<b>Subtotal - Protective Coatings</b>			-	16,785,640	-	-	-	2,200,000	-	-	2,200,000	-	16,148,500	-	-	2,200,000	-	-	2,200,000	-	-	-	16,148,500	57,882,640	
<b>S Structural Repairs</b>																									
1	Replace Selected Framing Members at high roof, all stands	High	822,000																					822,000	
2	Replace metal roof deck at high roof, all stands	High	8,585,000																			200,000		8,785,000	
3	Not used		-																					-	
4	Other: Replace metal deck in lower concourse	High	195,000																					195,000	
5	Other: Replace metal deck in loge area (localized area behind football press box)	High	50,000																					50,000	
6	Other: Repairs to steel framing for lighting corridor (fixed and moveable stands)	High	150,000																					150,000	
7	Other: Stairwells in Moveable Stands: Replace tread & riser plates that are damaged by corrosion and pack rust	High	125,000																					125,000	
8	Stiffening of Space Frame Diagonal members	High	750,000																					750,000	
9	Curved pedestrian bridges: stiffening and strengthening at all bridges (use arbitrary allowance of \$150,000 each bridge in 2005 dollars)	High	1,200,000																					1,200,000	
<b>Subtotal - Structural Repairs</b>			-	11,877,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	200,000	12,077,000	
<b>T Transport System Improvements</b>																									
1	Moveable stands: Major maintenance to air transport system mechanics (use previous estimate, which was \$3,760,000 in 1989 dollars)	High	7,000,000				100,000					100,000					100,000						100,000	7,400,000	
2	Other: Concrete repairs and strengthening at pivot pins	High	20,000																					20,000	
3	Curved bridges: new vertical lift hoist system due to increased bridge weight after repairs (previously estimated at \$850,000 in 1989 dollars)	High	1,600,000				20,000					20,000					20,000						20,000	1,680,000	
4	Curved bridges: new lateral transport system due to increased bridge weight after repairs (previously estimated at \$550,000 in 1989 dollars)	High	1,000,000				20,000					20,000					20,000						20,000	1,080,000	
<b>Subtotal - Transport System Improvements</b>			-	9,620,000	-	-	-	140,000	-	-	-	140,000	-	-	-	-	140,000	-	-	-	-	-	140,000	10,180,000	
<b>Grand Total for Aloha Stadium - 2005 Current Dollars</b>			-	99,184,710	15,000	15,000	65,000	4,881,670	15,000	9,728,750	2,215,000	15,000	37,163,250	65,000	1,498,220	2,215,000	9,216,250	3,480,950	2,215,000	15,000	65,000	4,449,000	38,033,250	214,551,050	
Based on information presently available and furnished to PCL by the owner, architect and/or others and various assumptions have been made as to facts not yet known, this construction cost estimate has been prepared and furnished for the sole purpose of providing approximation of anticipated construction cost. This construction estimate should not, at this time, be relied upon as commitment that the contemplated project can or will be constructed for the estimated cost.																									

SECTION V: EXISTING STADIUM ENHANCEMENT OPTIONS



**aloha stadium** PLANNING STUDY FINAL REPORT - 12.22.05



## Introduction

### Enhance versus Improve

The previous sections focused on identifying observed facility deficiencies and the associated corrective measures needed to “improve” the existing stadium in order to maintain the status quo. The recommended improvements protect the value of the State’s property by extending its useful life and where feasible, bring certain elements up to current code requirements to improve public safety, operations and accessibility by disabled patrons.

The “Enhancements” portion of the study explored various modifications that could be made to the stadium to enhance the game day experience and provide increased revenue streams. All of the options included in the study are predicated on locking the moveable stands into the football configuration and eliminating baseball from the event schedule. The financial rationale for this recommendation is discussed in Volume 4 - Section VII. From a design opportunity perspective, the existing operation of the moveable stands prevents adding any additional area along to support enhancements along the sidelines due to the resulting added weight. Removal of this constraint allows consideration of various enhancement options for the currently moveable stands and infilling of the corners, thus replacing the problematic bridges. The addition of premium seating and associated upscale amenities along the highly desirable sidelines becomes a possibility as do conversion of the existing baseball pressbox and dugouts.

Multiple enhancement options were developed for consideration in this study. A menu of eleven enhancements is included in the following section. One or more options could be implemented together with complimentary enhancements or as stand alone projects. Options 4B and Option 8 were found to be unfeasible, while the balance of options vary in degree of financial favorability and positive impact for general admission and premium patrons.

## Enhancement Option 1 Dugout Suite Conversion Description

Option 1 converts the existing baseball dugouts, home plate seating dugout and their adjacent equipment storage areas to endzone party suites, seating and lounge areas. The dugouts would include upgraded padded seating with drink rails and side tables. The space behind each of the three suites becomes hospitality lounge areas with a bar, refrigerator, private toilets, TV's and counters to serve upscale food. A suite pantry is provided to service the suites.

The concept depicted makes use of the existing dugout structures which are located 3 feet below field level. Further study could consider raising the dugout to improve sightlines at the expense of front row general seating loss behind the suites. Careful consideration for the sight lines and market research to assess the demand for premium seats in this location should be studied further before implementing this option. The Seattle Seahawks Qwest Field has received positive response to their endzone suites which are dubbed the Red Zone suites, but their front row is located 18" above the field versus 3' below the field. This condition could be assessed with the benefit of testing alternate view heights from within the existing dugouts.

## Enhancement Option 2

### Main Concourse Corner Party Decks Description

Option 2 replaces the four main concourse level bridges with new column supported party decks that will provide improved concourse circulation and additional area for new fixed and portable concessions, toilet rooms and picnic tables. The front edge of each new concourse features a lower terrace holding 6 loge boxes. These loge boxes are envisioned to be a mid-level premium seat offering that consist of four upgraded seats on casters with drink rails and tables within each box which is formed by low partitions. In-seat food and beverage service would be provided by designated staff. New passenger elevators would be positioned to provide access to this level and upper levels with disabled patrons and premium seat patrons given first priority. Disabled access is provided to the loge box terrace.

The open air party deck could feature umbrellas and/or tent structures to provide shade for patrons. Views of the playing field and the surrounding vicinity would help animate the environment. Each deck could be themed separately or in a unified manner to attract sponsorship or advertising revenues. While only 100 premium seats are added with this enhancement, it would be an added amenity benefiting the general admission patrons particularly in the lower bowl and could easily be accessed by upper bowl patrons before and after events. The new structure replaces the corner bridges avoiding necessary structural upgrades and maintenance for the bridges and could turn existing circulation space into a festive event day environment.



## Enhancement Option 3A

### Lower Bowl Fifty Yardline Suite Addition Description

Option 3A adds a total of 12 suites between the two sideline main stairs at the back of the lower bowl. Approximately 308 existing seats at the back of the upper bowl would be eliminated to accommodate a new raised floor that provides unobstructed views for suite patrons. Exclusive access would be provided to the suites via new passenger elevators that would serve the exterior suite corridor as well as providing disabled access to the other seating levels.

The suites feature two rows of upgraded 24" wide padded stadium chairs with one row of bar stools behind a drink rail, private toilets, refrigerator, ice maker and counter space for serving catered food and beverages. A hospitality area would include lounge seating. Four suites would hold 18 stadium seats and 9 barstools, four suites would hold 18 stadium seats and 8 barstools while four smaller suites would hold 6 stadium seats and 3 barstools.

The midfield location of the suites is optimum and the distance from the field is very favorable. The upper bowl provides constant shade without restricting views. The clearance under the cantilevered overhang is greater than many new NFL stadiums allowing good sightlines to the field and observing kicks. Suite fronts would be open to the seating bowl during events to maintain connection to the action while cool conditioned air could be provided to further enhance the suite environment. TV's would be added at the underside of the bowl above to allow viewing of replays due to the limited views of the video boards which is a common condition in many modern stadiums.

## Enhancement Option 3B

### Lower Bowl West Sideline Suite Addition Description

Option 3B is similar to 3A, except instead of or in addition to locating suites at midfield on both sidelines, suites are added at both ends of the west sideline. The west sideline is considered more desirable for suites than the east sideline due to its proximity to reserved parking and avoidance of looking into the sun during afternoon games. The following diagrams depict 12 large suites containing eighteen 24" wide padded stadium chairs distributed in two rows with one row of eight bar stools. Other features are similar to 3A. Approximately 410 existing seats at the back of the upper bowl would be eliminated to accommodate a new raised floor that provides unobstructed views for suite patrons. Exclusive access would be provided to the suites via new passenger elevators that would serve the exterior suite corridor as well as providing disabled access to the other seating levels. The diagrams depict a new deck inserted in the void between the two stair towers at the same location that the 50 yardline suites are proposed in Option 3A. This deck provides a required exit path and link between the suites and the new elevators. The deck could be utilized to provide added amenities for the center sections of the lower bowl, thus increasing their value.

Locating suites at the midfield as illustrated in Option 3A was found to be the more financially viable and appealing approach than that depicted in Option 3B. However, if 3A is implemented in an initial phase, the addition of more suites along the west sideline would become more cost effective due to the existence of a corridor connecting the suites to the elevators and exit stairs integral to 3A. A long term phased approach reacting to an increase in market demand could locate suites at one or both midfield locations followed by completing the west sideline and then finally, the east sideline.

## Enhancement Option 4A Sideline Club Lounge and Amenities Addition

The Loge Level is perceived and ticketed as Aloha Stadium's premium level. However, as indicated in the preceding existing conditions report section, no permanent concessions or toilets are located on this level. Loge patrons must squeeze through a narrow cross aisle that is further congested with concession carts to take stairs up to the upper concourse to access amenities. This premium seating condition is significantly substandard compared to most major collegiate and NFL stadiums today. Option 4A addresses this deficiency on the sidelines by extending the cross aisle as far as possible towards the stadium's exterior while working within the constraints of the stadium's existing diagonal structural frame. Based on the existing press box design condition, it appears that the existing structural frame could support the added floor loading with little to no supplemental support; however, this would need to be further studied if this option is pursued.

Option 4A incorporates several features that improve the amenity package for sideline club patrons, thus adding value to their tickets. First, as part of the seat replacement program identified in Section IV, padded seats with cup holders replace the existing seats while maintaining their quantity. TV's are hung from the seating deck above to broadcast video replays and enhance the game experience. Upgraded toilets and concessions stands are added at lower ratios (less people utilizing each fixture or point of sale) than in general admission seating areas. Enclosed lounge areas with tables, chairs and lounge seating provide an upscale hospitality area in an air conditioned environment that is more consistent with current standards for club patrons.

## Enhancement Option 4B

### Sideline Loge Box Seat Conversion with Club Lounge and Amenities Addition

Option 4B converts the existing sideline loge seats to loge boxes in addition to implementing all of the upgrades in Option 4A. The treads and risers supporting the 1,454 existing seats would be removed and replaced with precast concrete sections spanning between existing steel rakers to create a depressed terrace holding 78 loge boxes for a total population of 312. The loge boxes envisioned would be similar to those described in Option 2 with four seats and drink rails and tables separated by low wall partitions.

Due to the significant premium seat loss and the added cost of seating deck replacement, this option is clearly less viable than Option 4A.

## Enhancement Option 5

### South Endzone Baseball Press Box Super Suite Conversion

Option 5, illustrated in both Option 4A and 4B diagrams, converts the existing baseball press box into a super suite. It currently is used for this purpose in an ad hoc and less efficient manner during the NFL Pro Bowl. The conversion would result in a unique, upscale environment for approximately 270 premium seats. It is anticipated that tickets would be sold to small and large groups on both a season and game by game basis. This flexibility would offer corporations and families a variety of ticketing options to choose from. The hospitality area includes upscale toilets and lounge seating. It features a bar area from which to serve food and drinks. Access would be provided via new passenger elevators implemented with other recommended stadium improvements.

## Enhancement Option 6A Loge Level Corner Club Addition

Option 6A infills each corner with an enclosed club lounge featuring indoor club seats behind operable glazing and an expanded upper concourse party deck with outdoor general admission seats. The enclosed club lounge features upscale concession service and a bar area along upgraded toilets arranged around an open and flexible hospitality space. The hospitality area would be designed to host meetings and other events on non game days and would take advantage of the views to the playing field and surrounding environment. If desired, the club seats could be located outside the conditioned enclosure as a continuation of the existing loge seating.

The roof of the club lounge forms an expanded upper concourse replacing the existing corner bridges similar to Option 2 at the main concourse level. The new deck area would accommodate added fixed concessions and toilets and portable concessions. This open air upper concourse party deck could feature umbrellas and/or tent structures to provide shade for patrons. Views of the playing field and the surrounding vicinity would help animate the environment and provide an added amenity benefiting the general admission patrons in the upper bowl. Each deck could be themed separately or in a unified manner to attract sponsorship or advertising revenues. The new structure replaces the corner bridges avoiding necessary structural upgrades and maintenance for the bridges and could turn existing narrow circulation space into a festive event day environment.

Five rows of new seats along the front of the new upper concourse deck completes the ring of special seating located below the cross aisle of the upper bowl in all of the existing stands. This addition of 600 seats with excellent sightlines and direct access to amenities should be a popular offering and increase revenues. Additional disabled and companion seating positions could be incorporated into the new seats.

## Enhancement Option 6B

### Loge Level Corner and Sideline Clubs Addition – Combines Options 4A and 6A

Option 6B combines Options 4A and 6A to create an upgraded amenity package for the whole loge level. The combination of both options creates sufficient enclosed lounge space area, concessions and toilets to support the entire existing loge level population along with the added interior corner club seats.

By spreading the cost burden of the enhancements across the entire loge level population, the loge level corner club addition becomes more economically feasible. The greater impact of implementing both options will also provide an opportunity to remake the image of the loge level, thus generating more appeal for sponsorships and advertising.

## Enhancement Option 7

### Upper Concourse Corner Suites Description

Option 7 replaces the four upper concourse level bridges with new column supported decks that will provide improved concourse circulation and 3 suites at each corner. This option adds 360 new seats (12 suites with 20 fixed seats and 10 bar stools) to the stadium and does not eliminate any existing seating. Each of the 12 suites would include upgraded padded seating with drink rails. These seats would have the same relationship to the field as the existing seating at the front of the upper bowl. The space behind the seats is a hospitality lounge area with a bar; refrigerator, private toilet, TV's and counters to serve upscale food. New passenger elevators would be positioned to provide access to this level and lower levels with disabled patrons and premium seat patrons given first priority.

The open concourse area behind the suites would be a permanent structure unlike the current removable bridges. It is large enough to accommodate portable concessions, thus increasing concession points of sale. Permanent toilets and concessions would also be added. The new structure replaces the corner bridges avoiding necessary structural upgrades and maintenance for the bridges. It could turn existing circulation space into a new revenue generating opportunity.

## Enhancement Option 8 Suite Tower Addition Description

Option 8 builds a new structure at the back of the upper seating bowl along the entire west sideline. As in option 3B, the west sideline was chosen for this option because it is considered more desirable for suites than the east sideline due to its proximity to reserved parking and avoidance of looking into the sun during afternoon games. The back two rows of seats at the west upper deck are removed and reconfigured into suite and interior club seating. A new floor slab is then constructed above the top row, approximately 40 feet deep to provide upgraded amenities for these seats. This option creates 10 suites (20 fixed chairs & 10 barstools each) concentrated around the 50 yardline area with an open club seating area (321 total seats) at each end. 728 seats are lost in the existing upper deck and 621 seats are added back in this option.

At both ends of this new structure are large hospitality spaces featuring upscale concessions, suite pantry, restrooms, and conditioned club lounge areas. Banks of new passenger elevators are also provided at each end of the structure to provide vertical access to it and the levels below.

Each of the 10 suites would include upgraded padded seating with drink rails and bar stools. The space behind the seats is a hospitality lounge area with bar, refrigerator, private toilet, TV's and counters to serve upscale food. The club seating areas would also have upgraded padded seating with upgraded toilets and a bar located behind them.

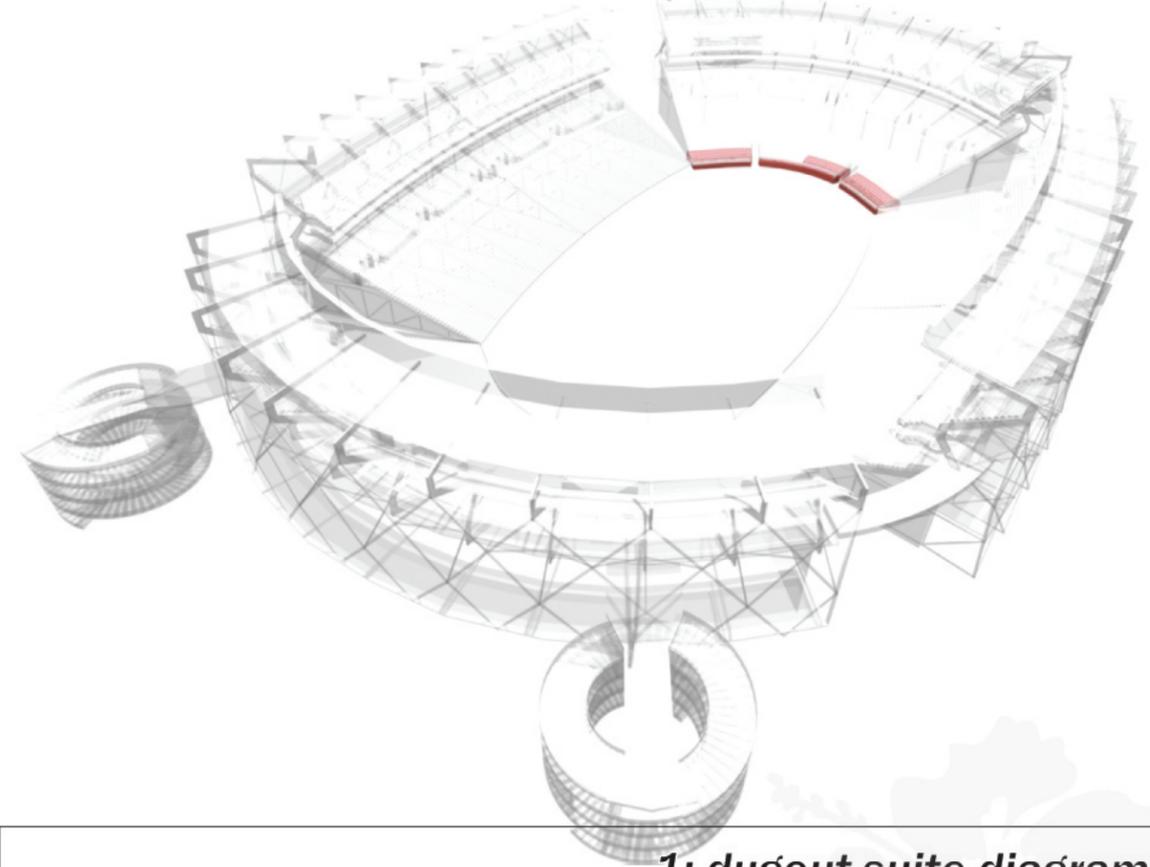
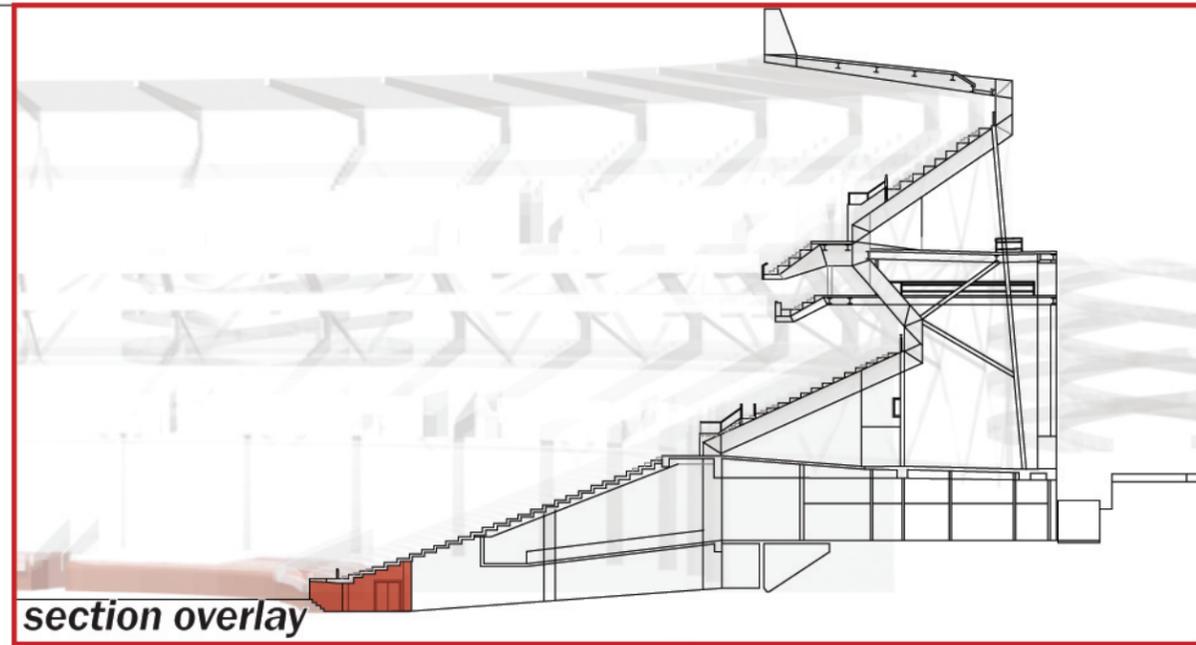
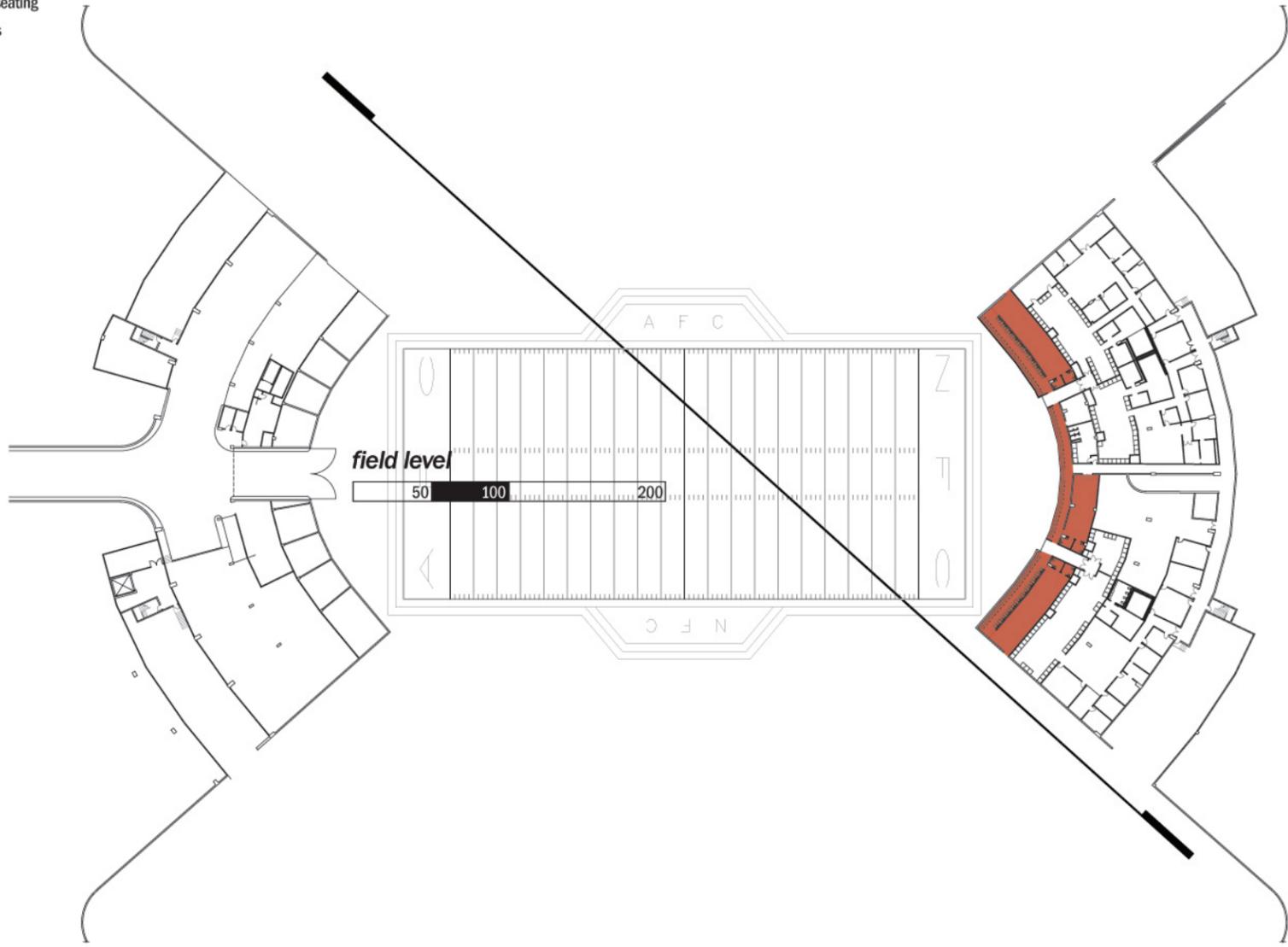
This approach is often employed at collegiate stadiums as a way to add addition premium seating areas and suites with minimal physical impact to the existing stadium. However, the suites are located much further from the field than in Option 3 and the new structure will have the greatest visual impact to the existing stadium compared to the other options presented.

# VOLUME 3: IMPROVEMENT NEEDS

⊕ 110 74 movable comfort seats & 36 fixed elevated seats in 3 suites

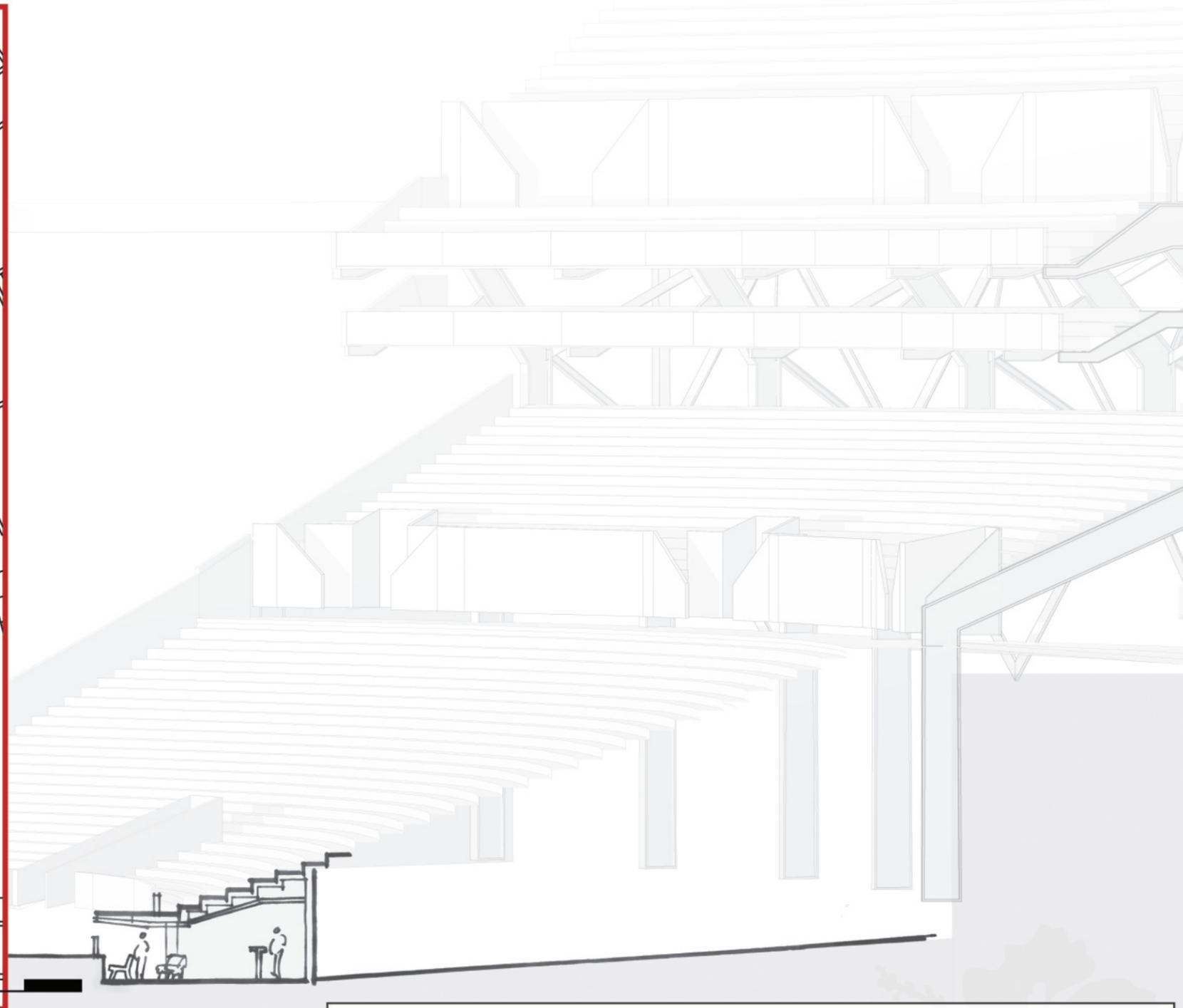
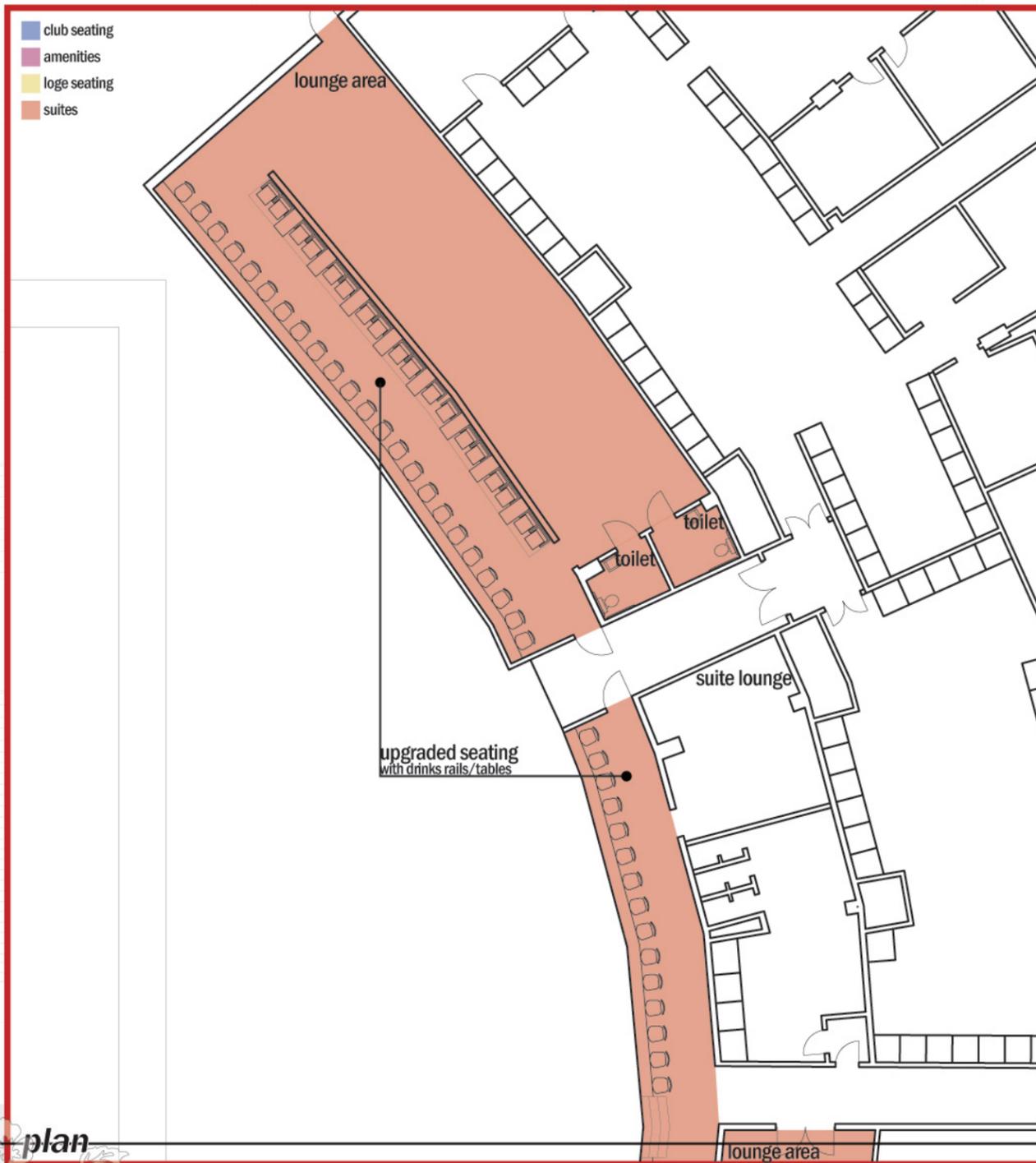
⊖ 0 2 dugouts

- club seating
- amenities
- loge seating
- suites



1: dugout suite diagrams

# VOLUME 3: IMPROVEMENT NEEDS



plan

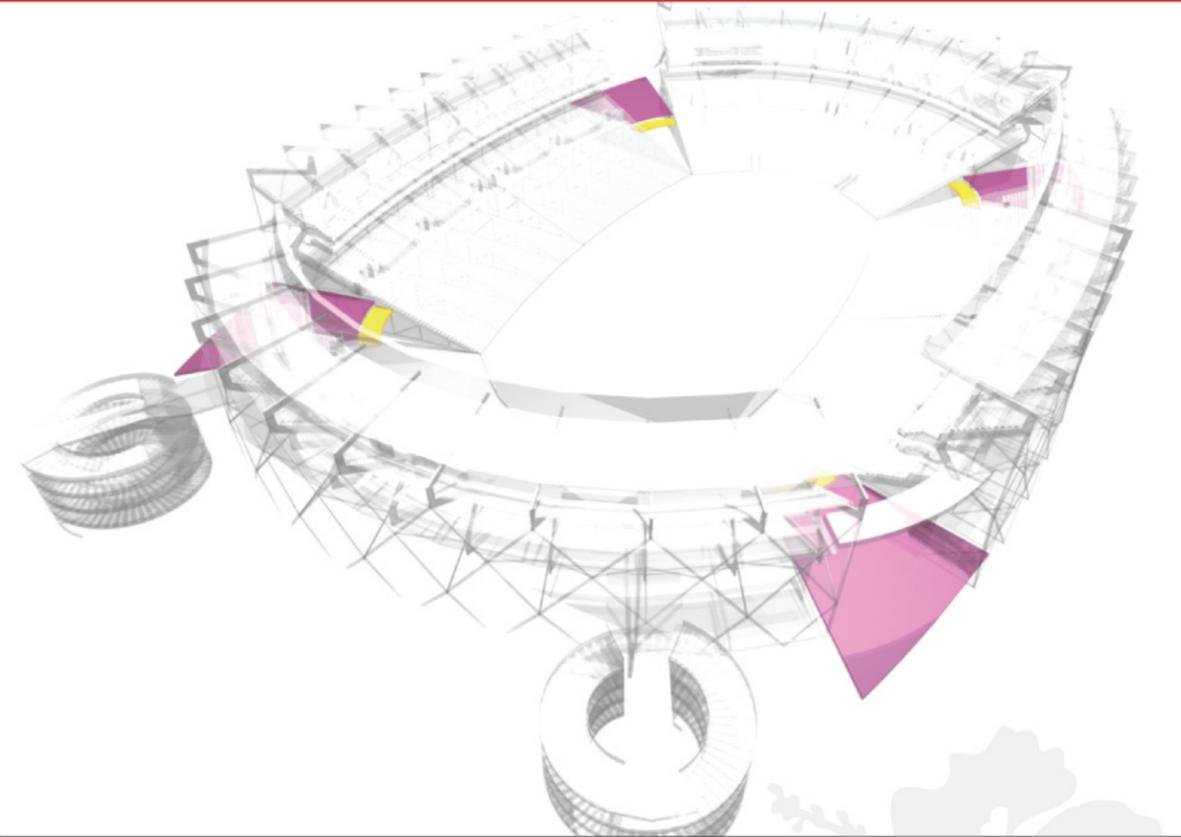
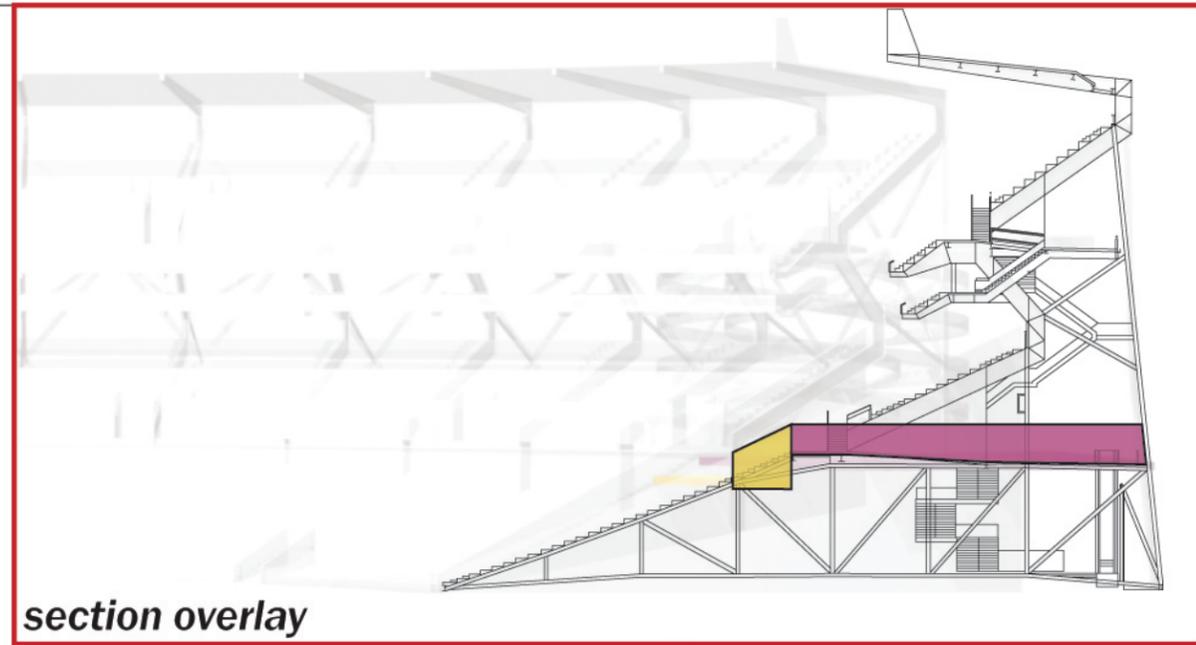
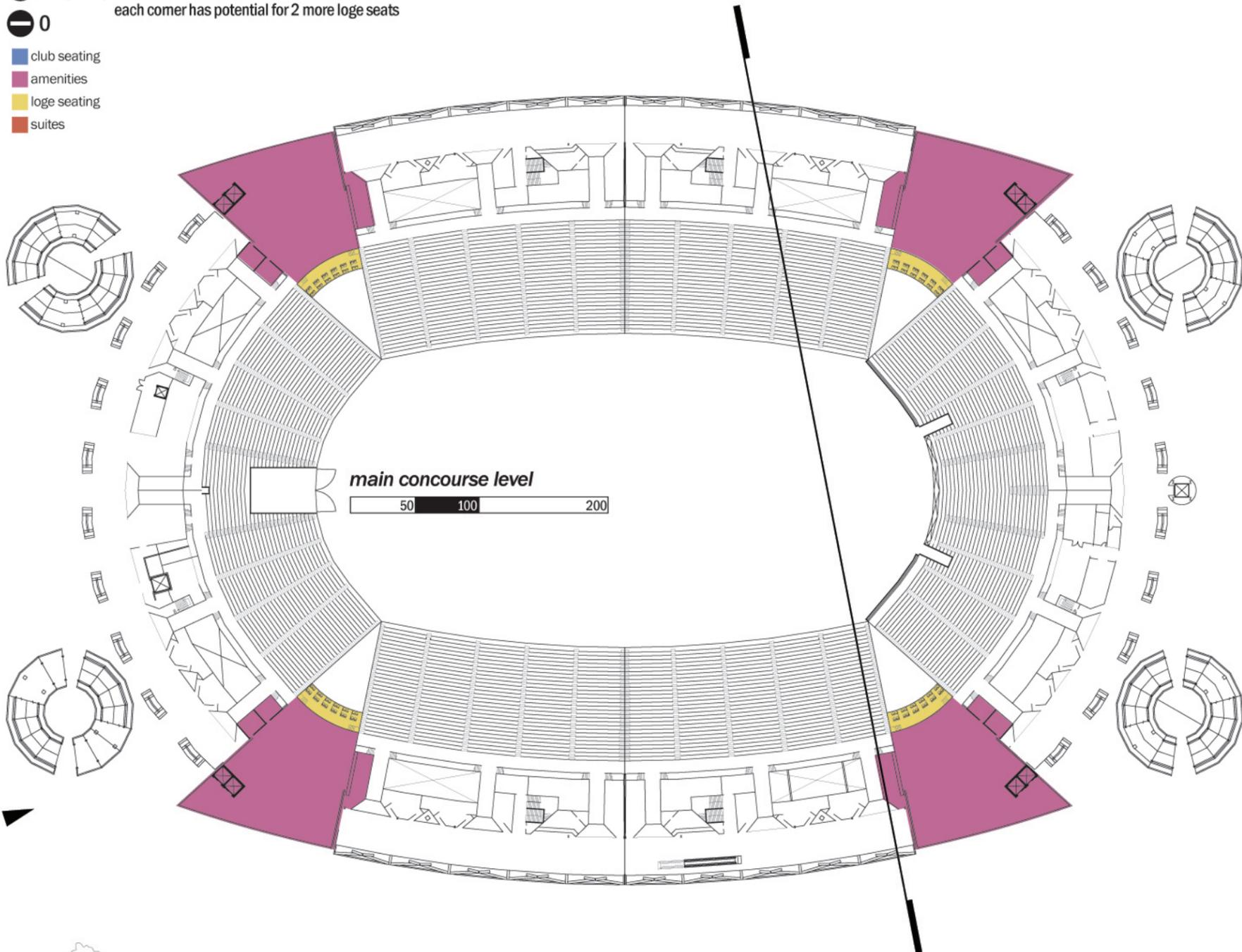
1: dugout suite diagrams



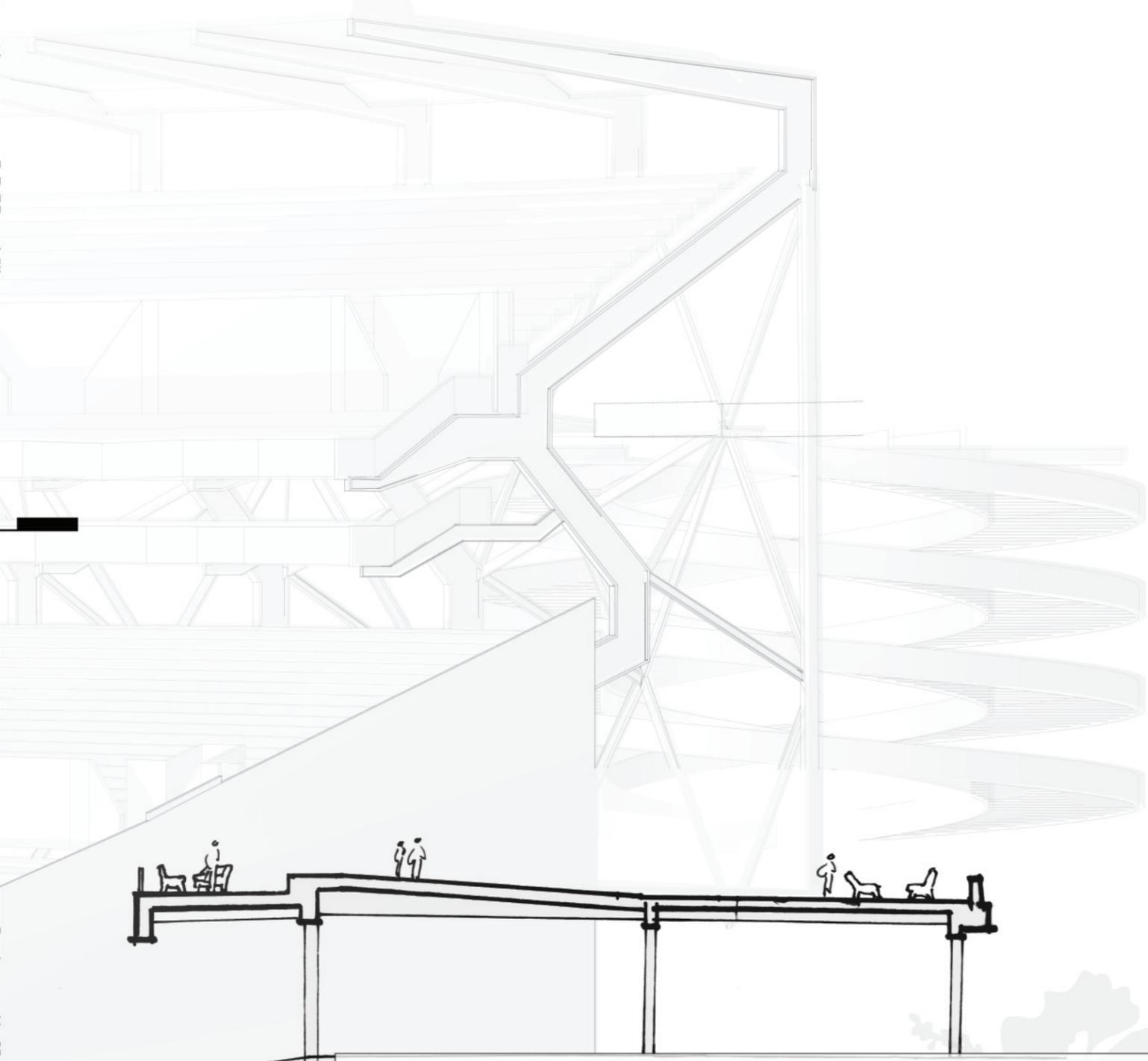
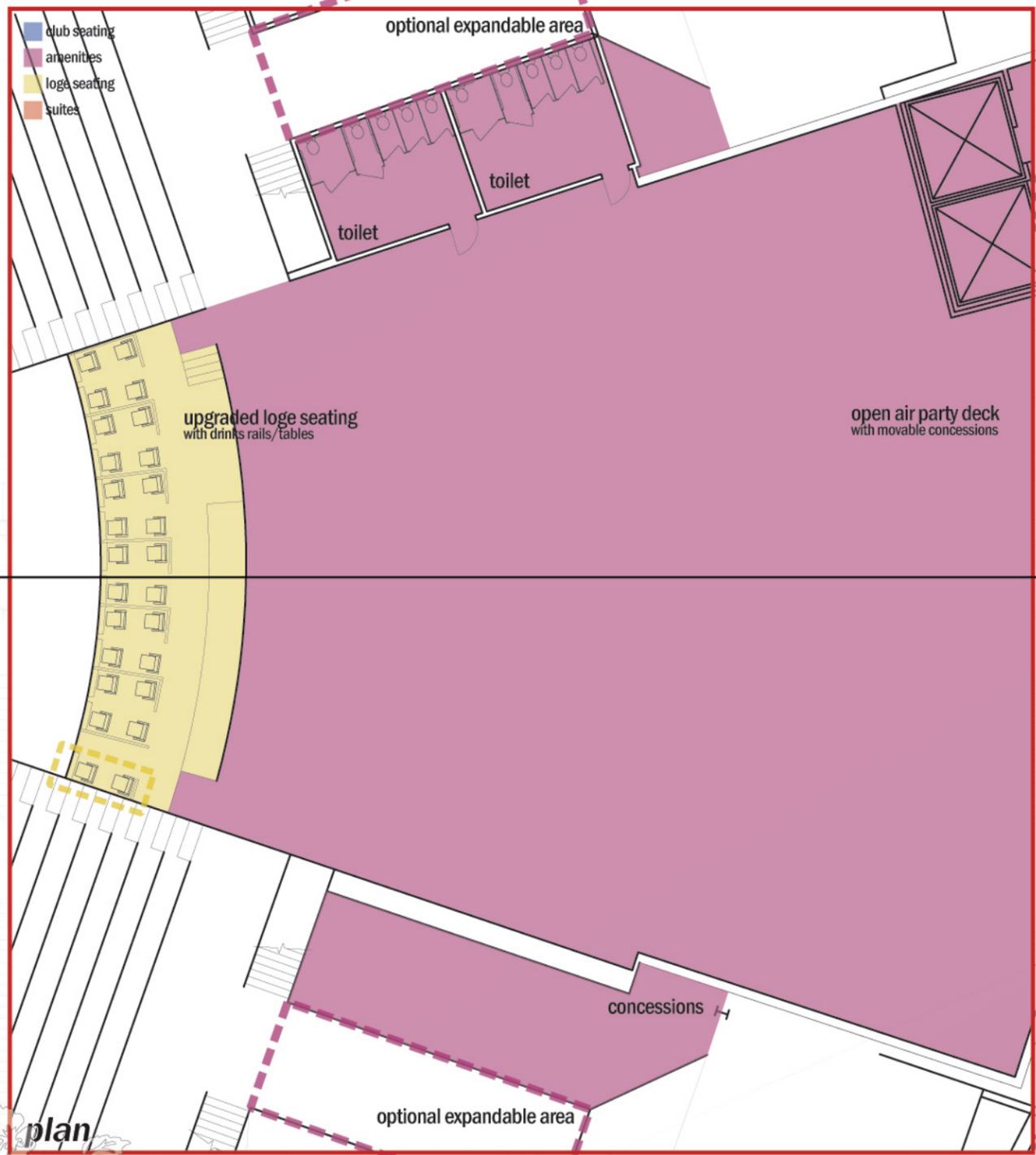
# VOLUME 3: IMPROVEMENT NEEDS

⊕ 96(104) 4 corners with 24 loge boxes @ 4 seats each  
 each corner has potential for 2 more loge seats

- ⊖ 0
- club seating
- amenities
- loge seating
- suites



# VOLUME 3: IMPROVEMENT NEEDS



plan

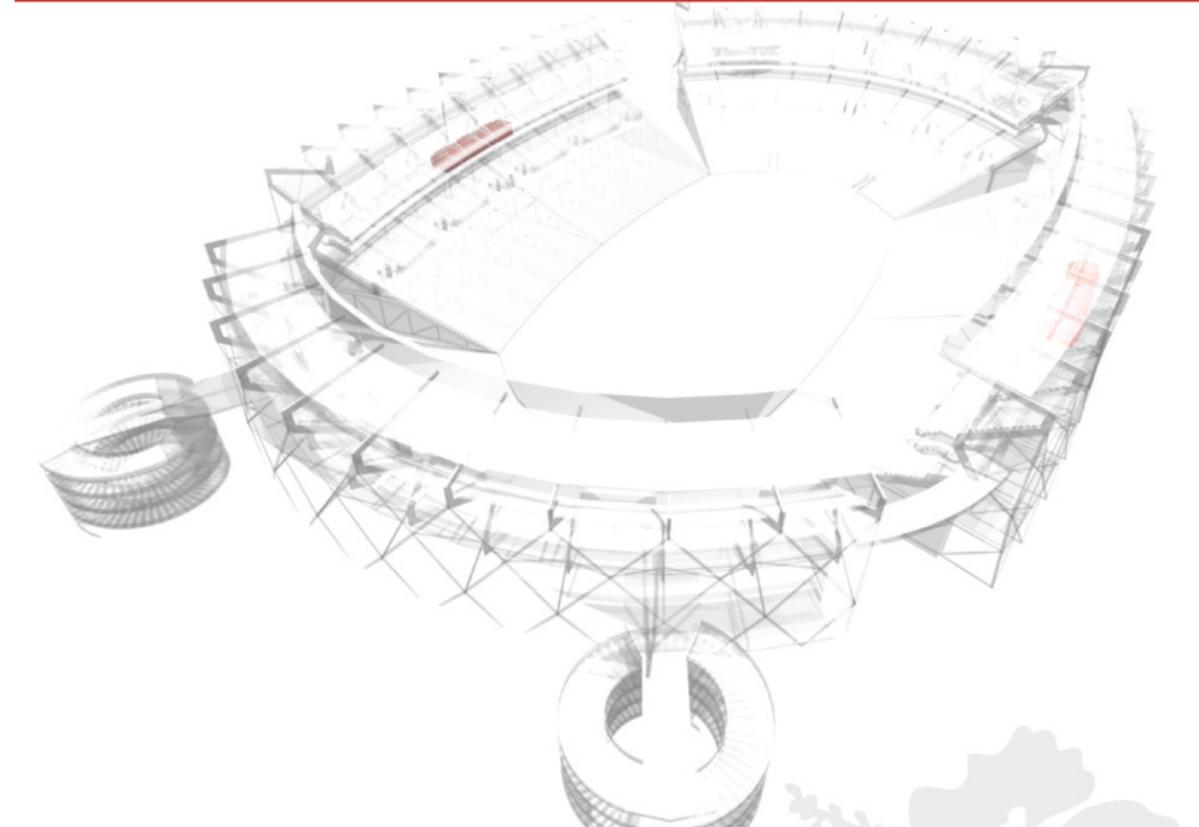
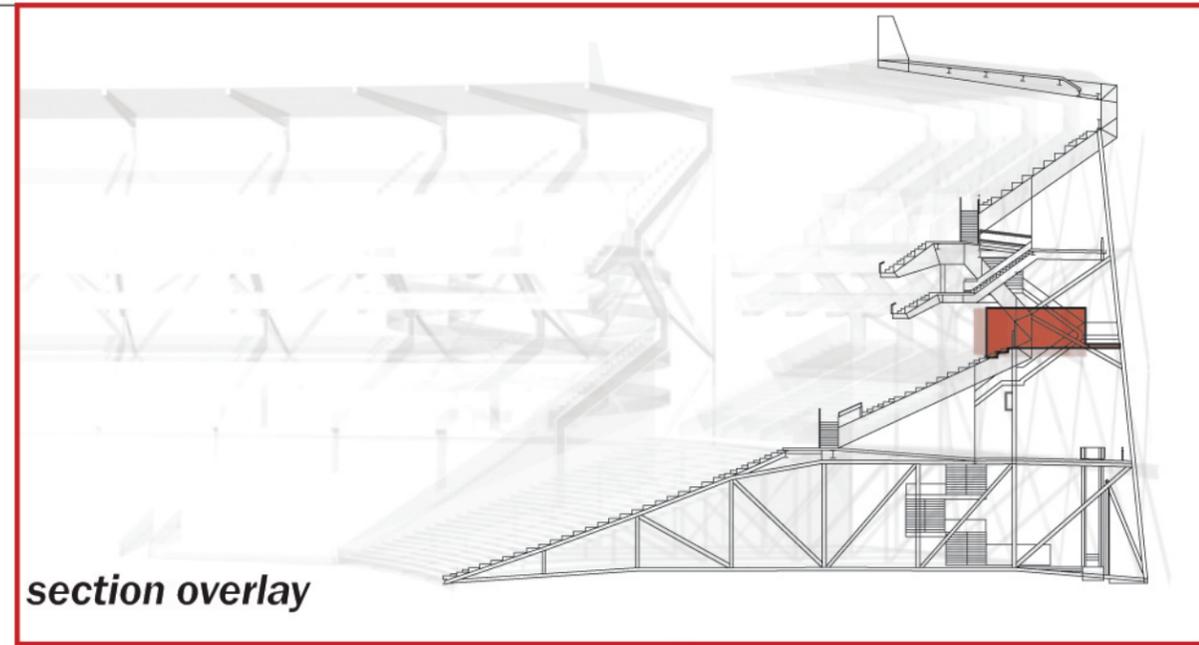
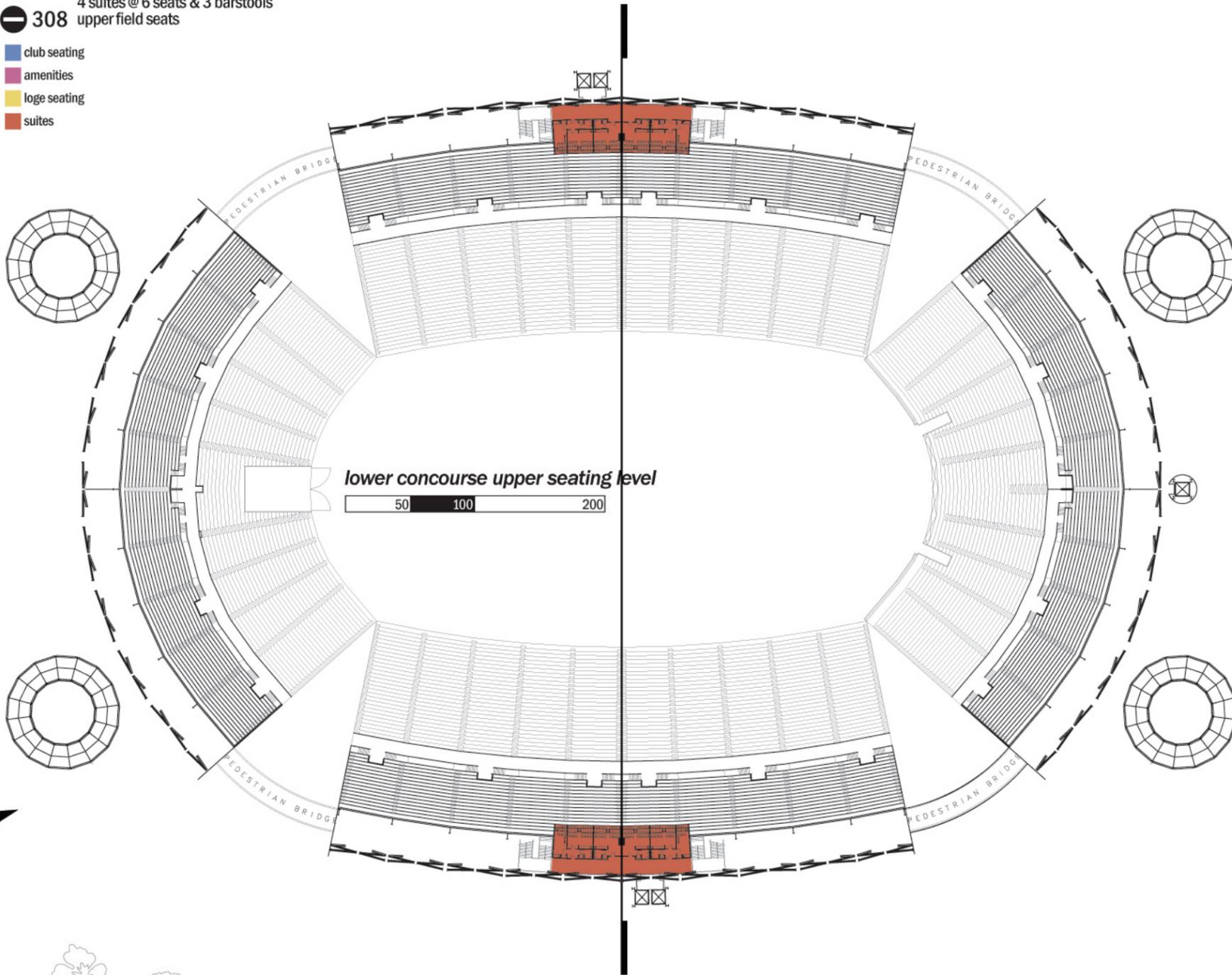
2: main concourse corner party decks



# VOLUME 3: IMPROVEMENT NEEDS

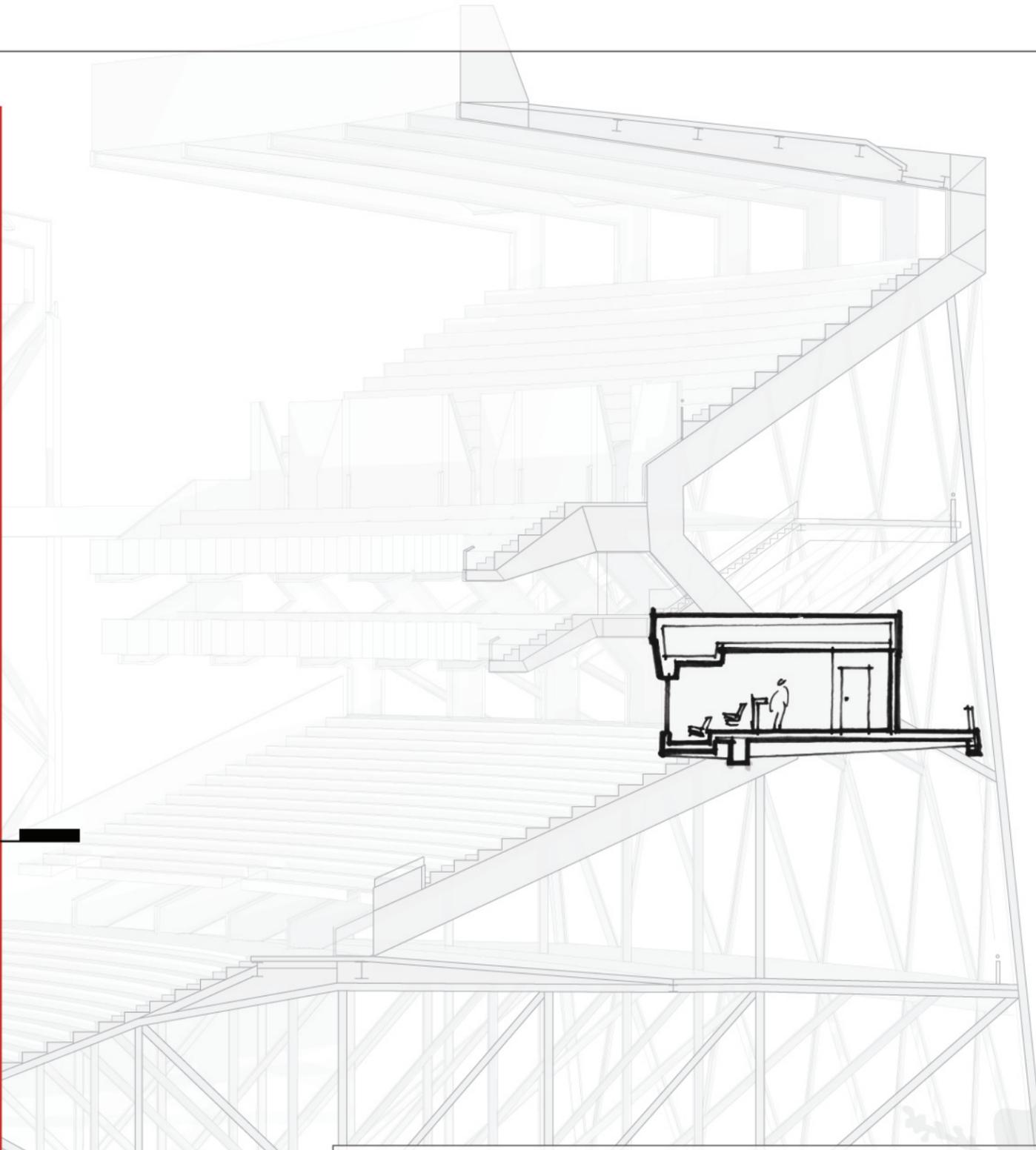
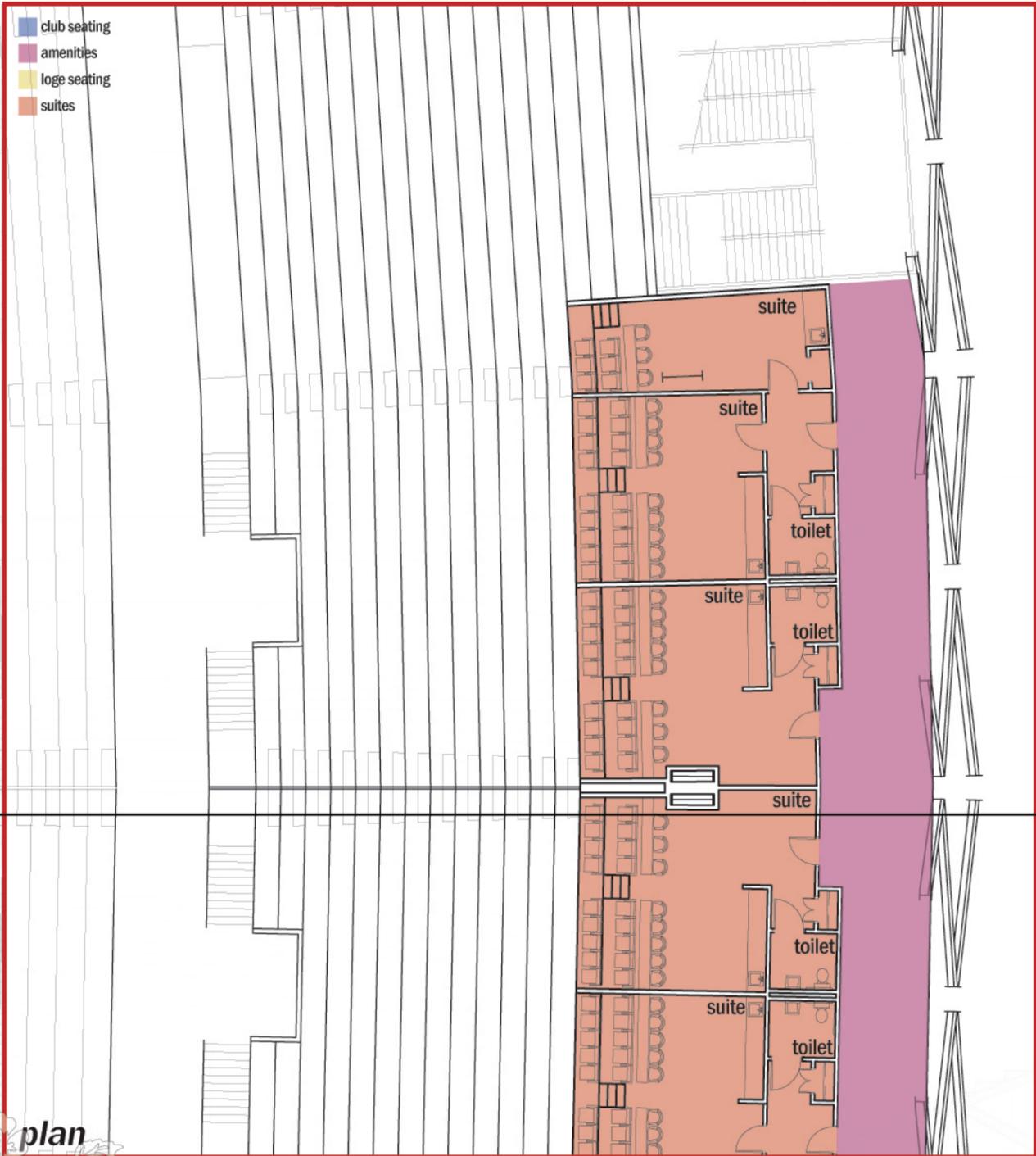
- ⊕ 248 4 suites @ 18 seats & 9 barstools
- 4 suites @ 18 seats & 8 barstools
- 4 suites @ 6 seats & 3 barstools
- ⊖ 308 upper field seats

- club seating
- amenities
- loge seating
- suites



3.A: lower bowl fifty yardline suites

# VOLUME 3: IMPROVEMENT NEEDS



3.A: lower bowl fifty yardline suites

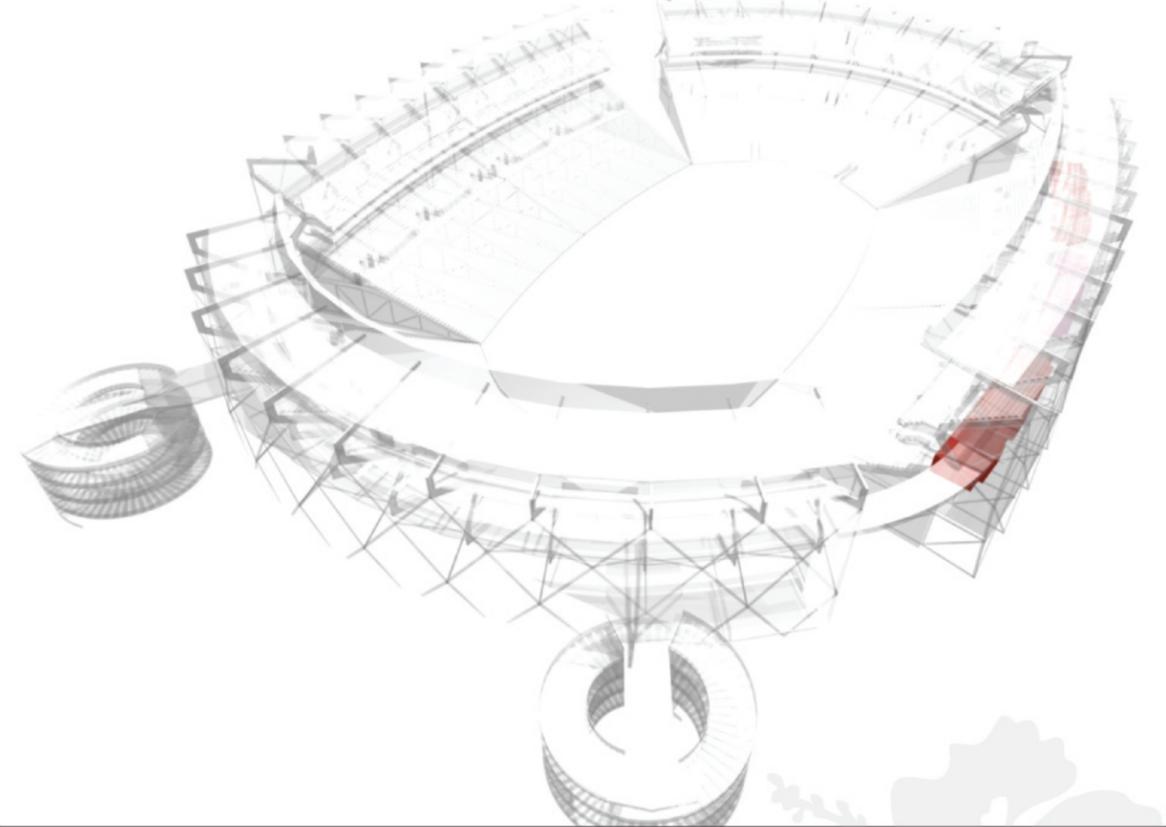
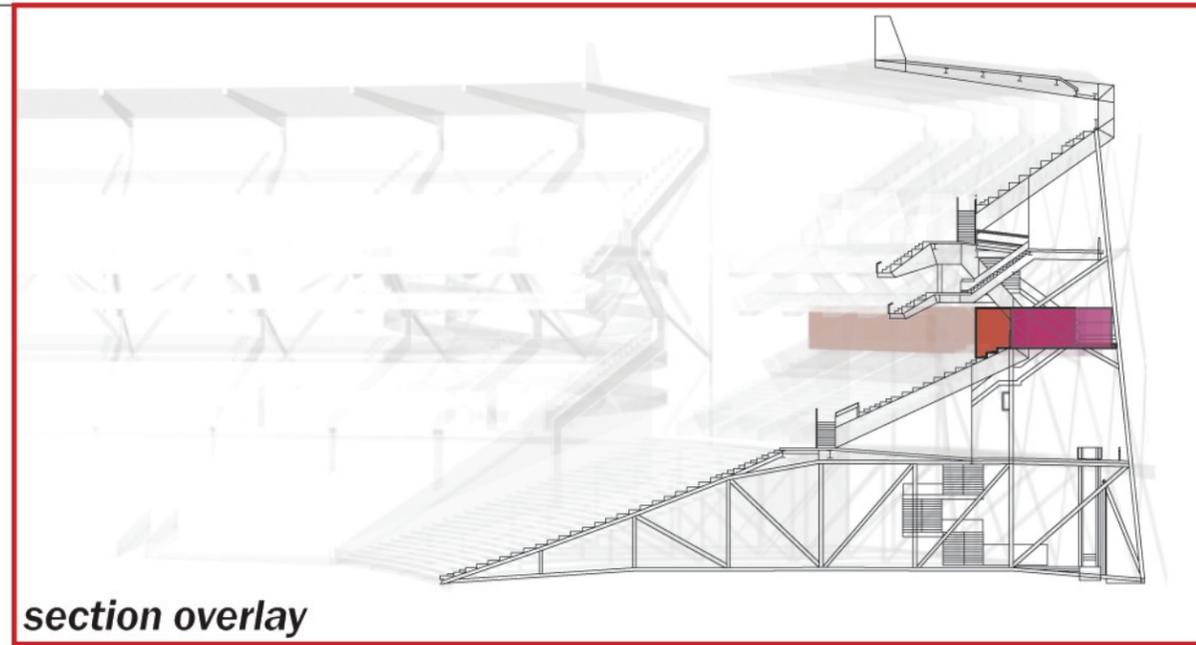
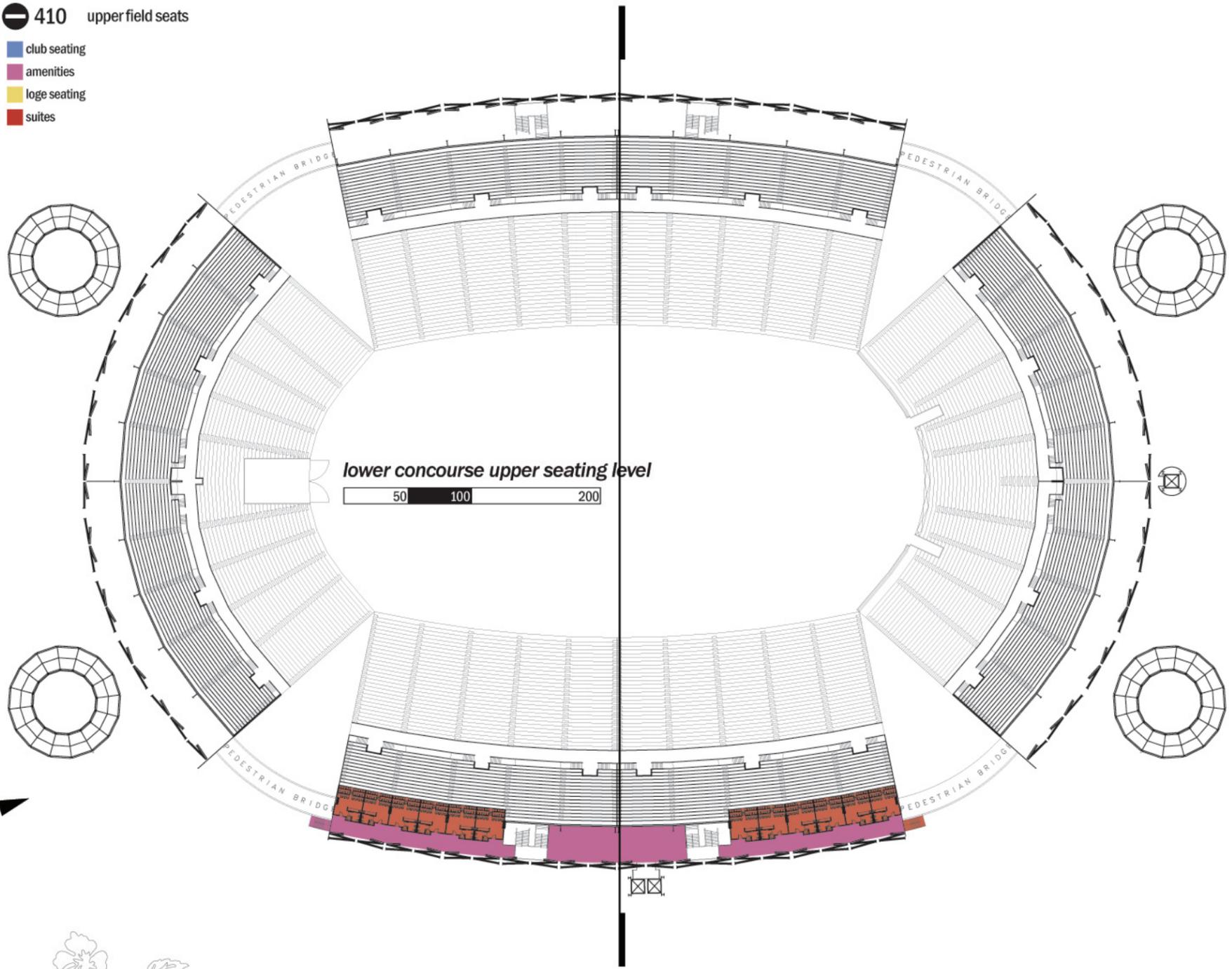


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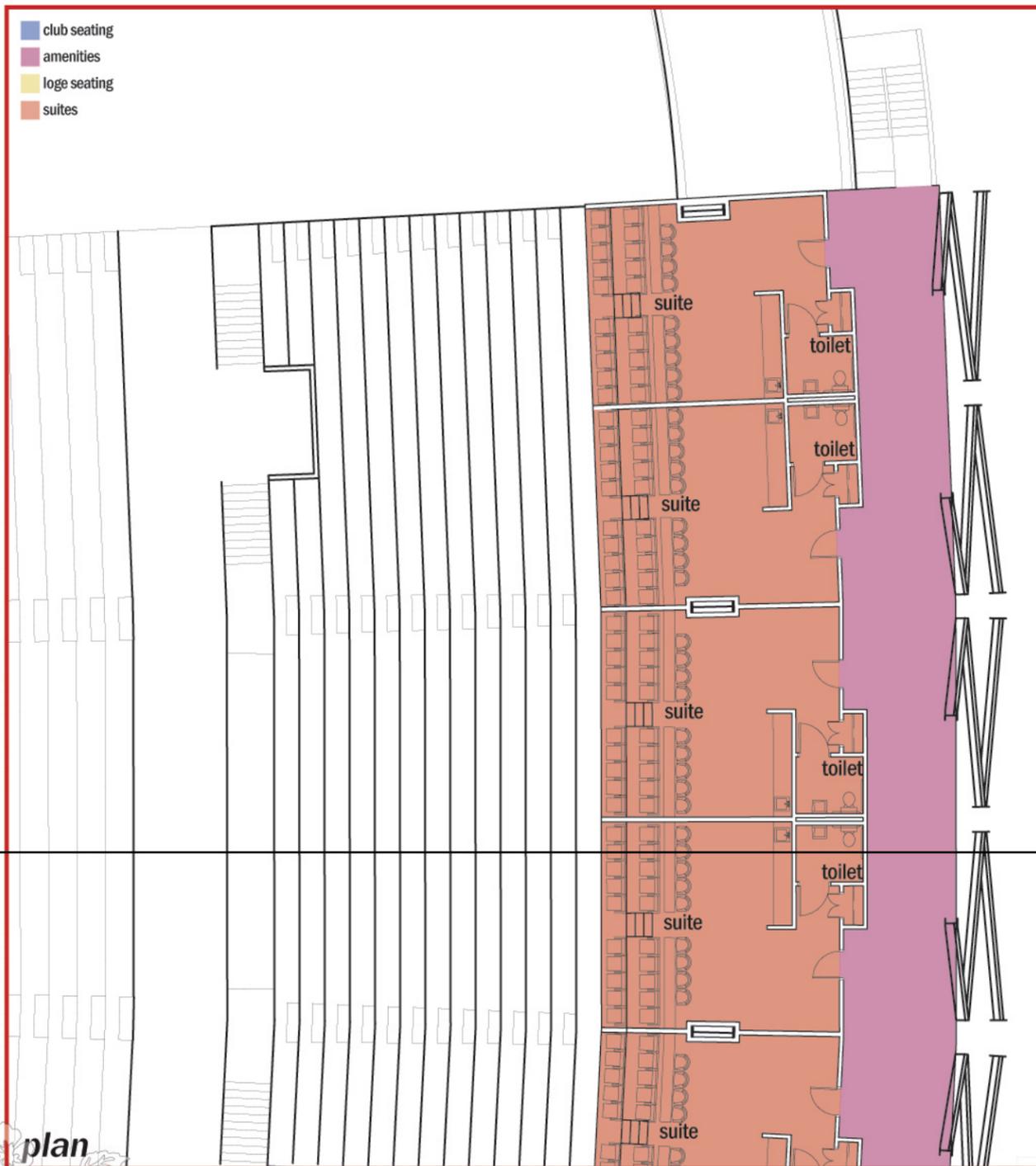
# VOLUME 3: IMPROVEMENT NEEDS

- ⊕ 260 12 suites @ 18 seats & 8 barstools
- ⊖ 410 upper field seats
- club seating
- amenities
- loge seating
- suites



3.B: lower bowl west sideline suite

# VOLUME 3: IMPROVEMENT NEEDS



3.B: lower bowl west sideline suite

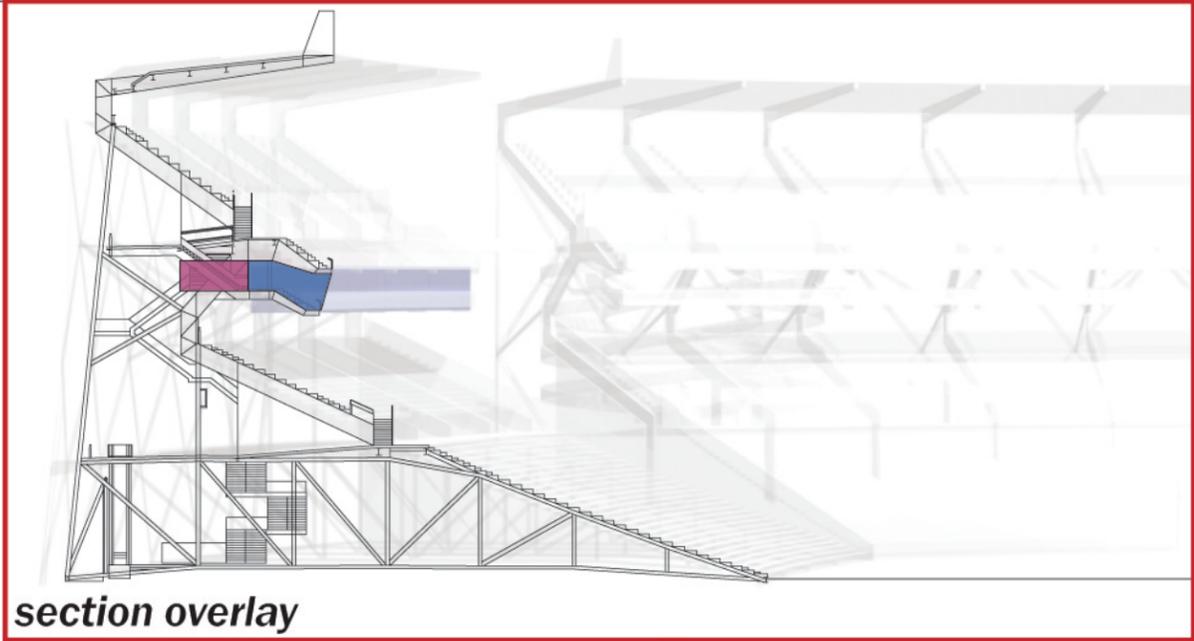
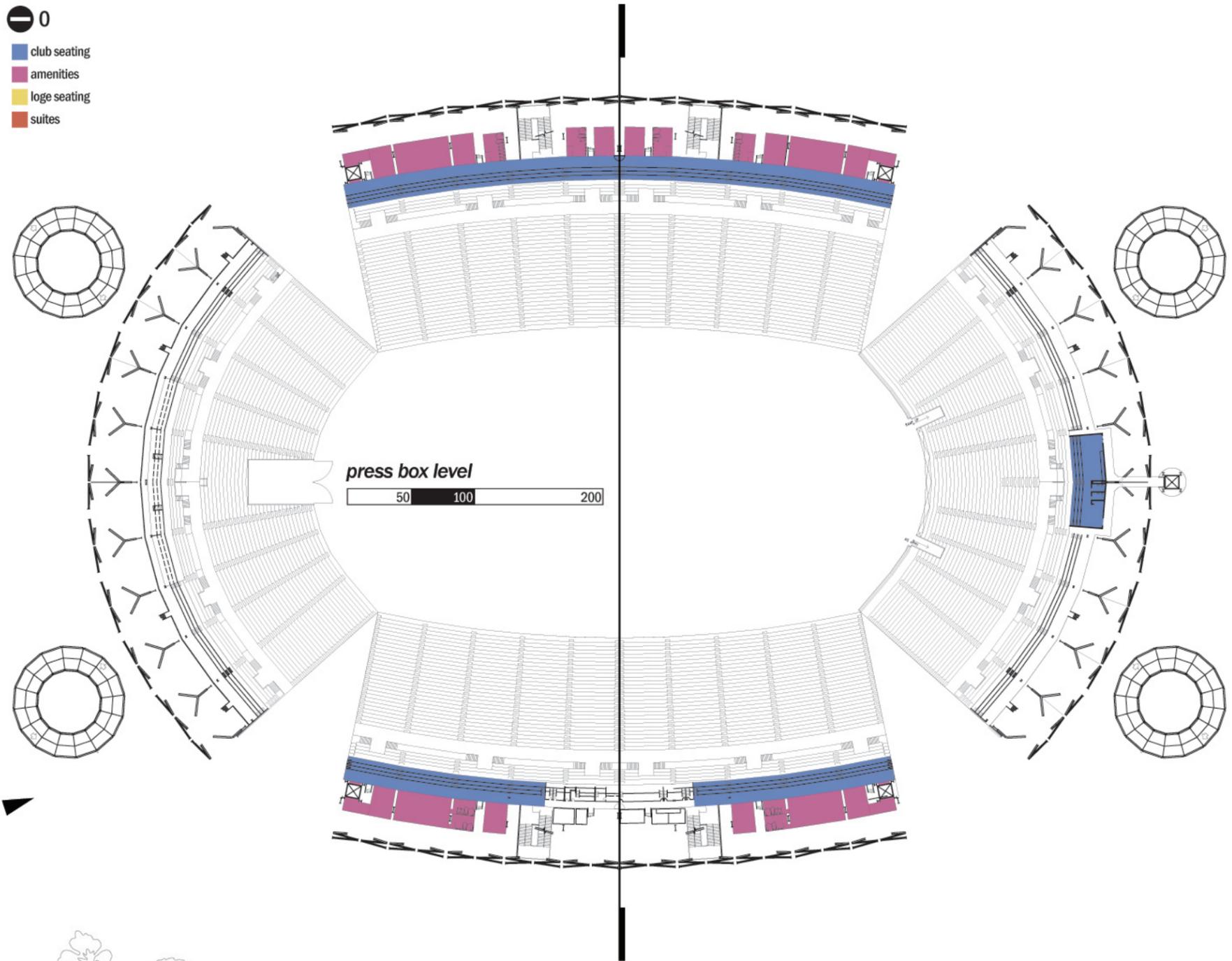


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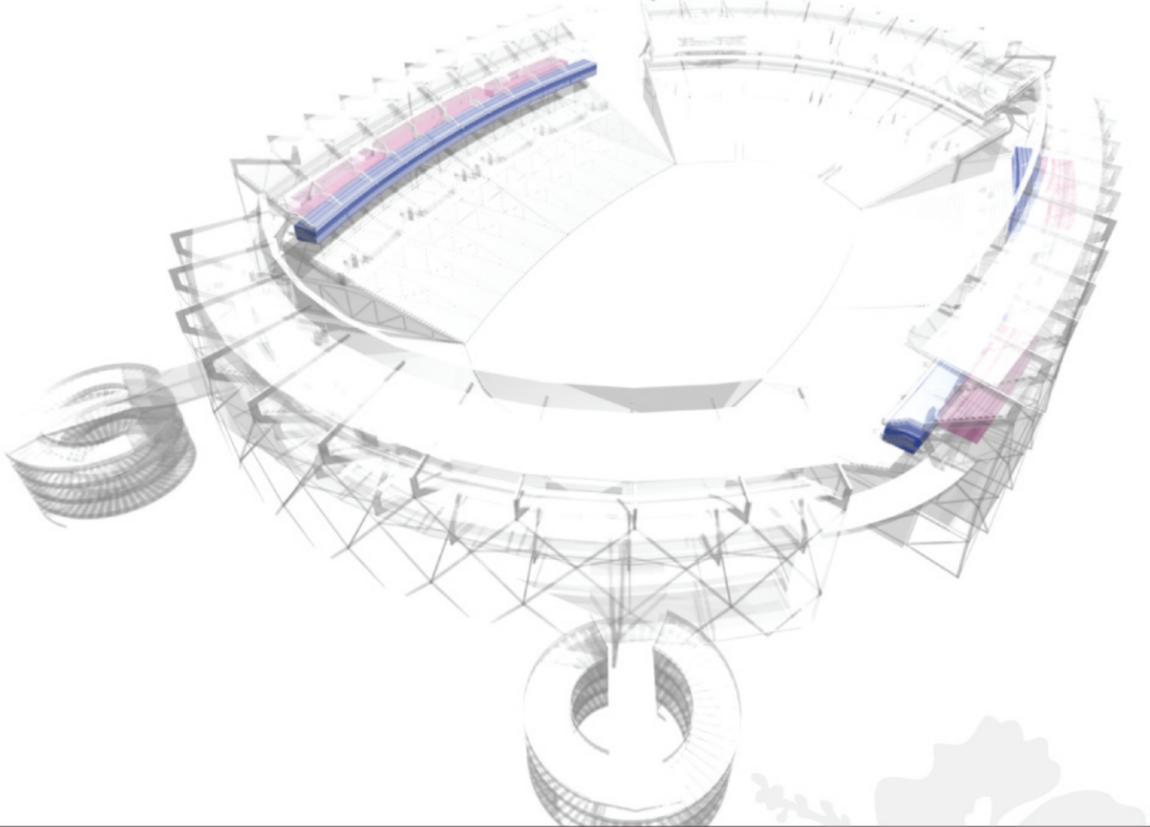


# VOLUME 3: IMPROVEMENT NEEDS

- ⊕ 0 upgrade 1454 padded seats
- ⊖ 0
- club seating
- amenities
- loge seating
- suites

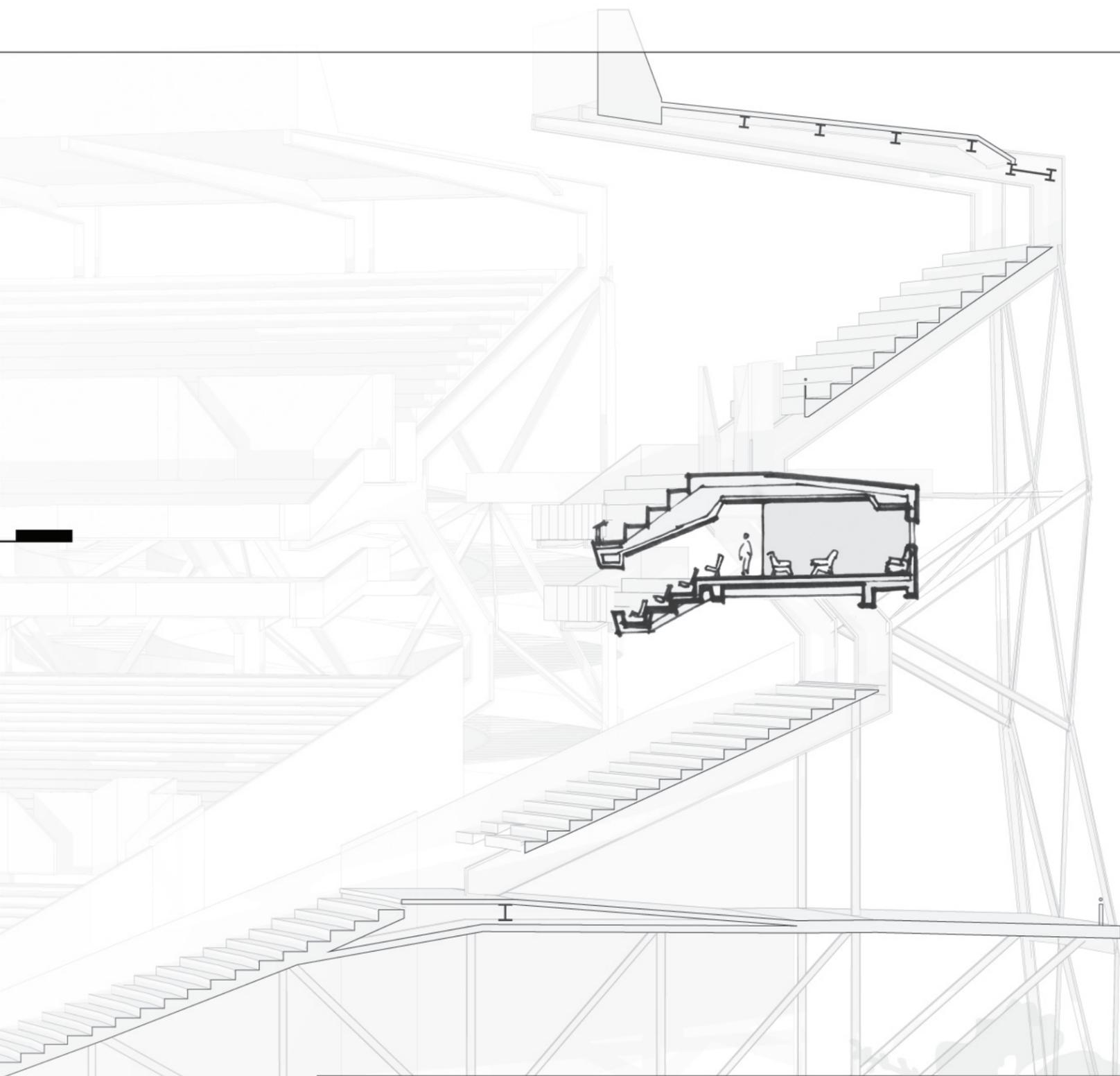
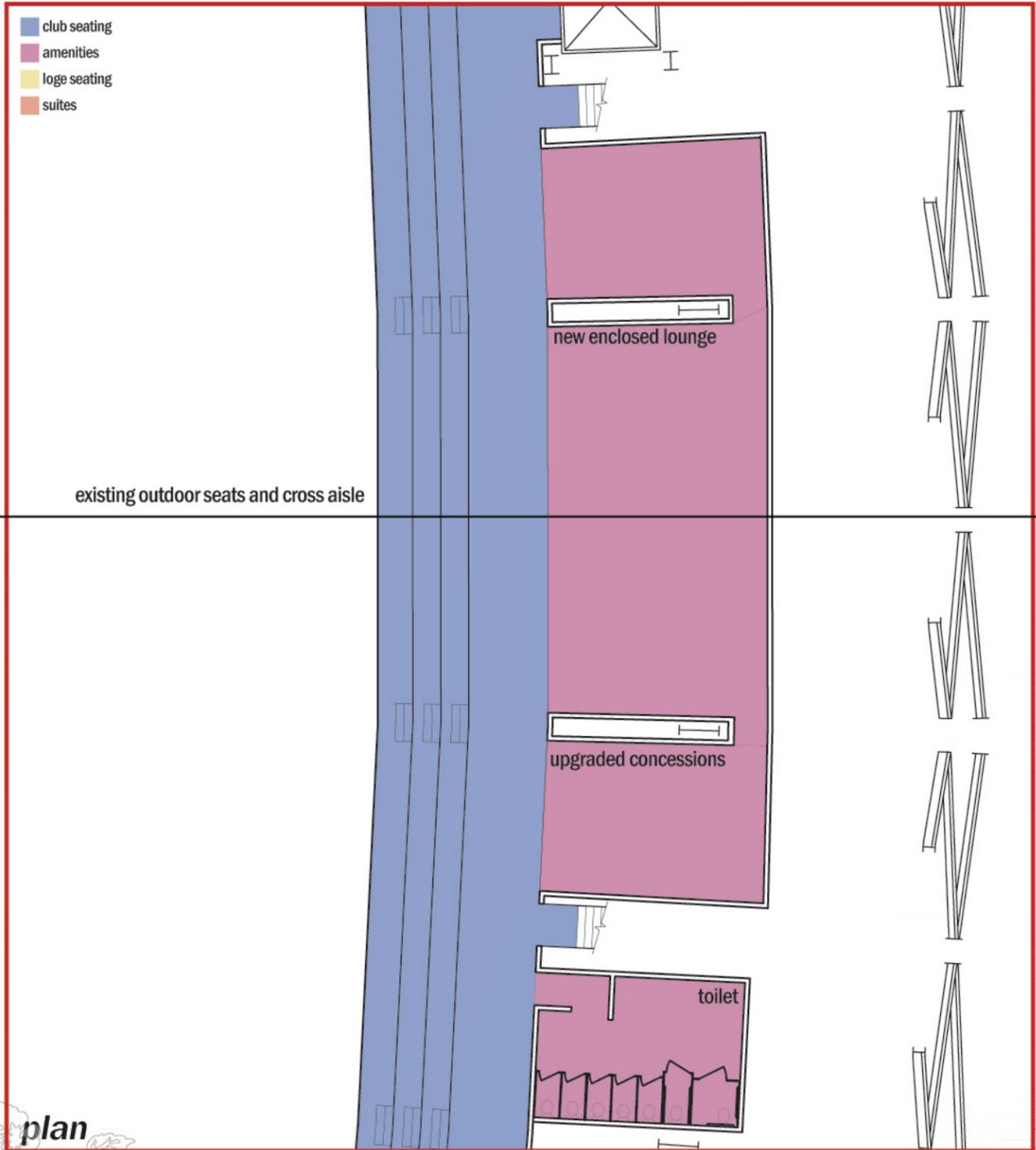


section overlay



4.A(+5): sideline club lounge and amenities

# VOLUME 3: IMPROVEMENT NEEDS



plan

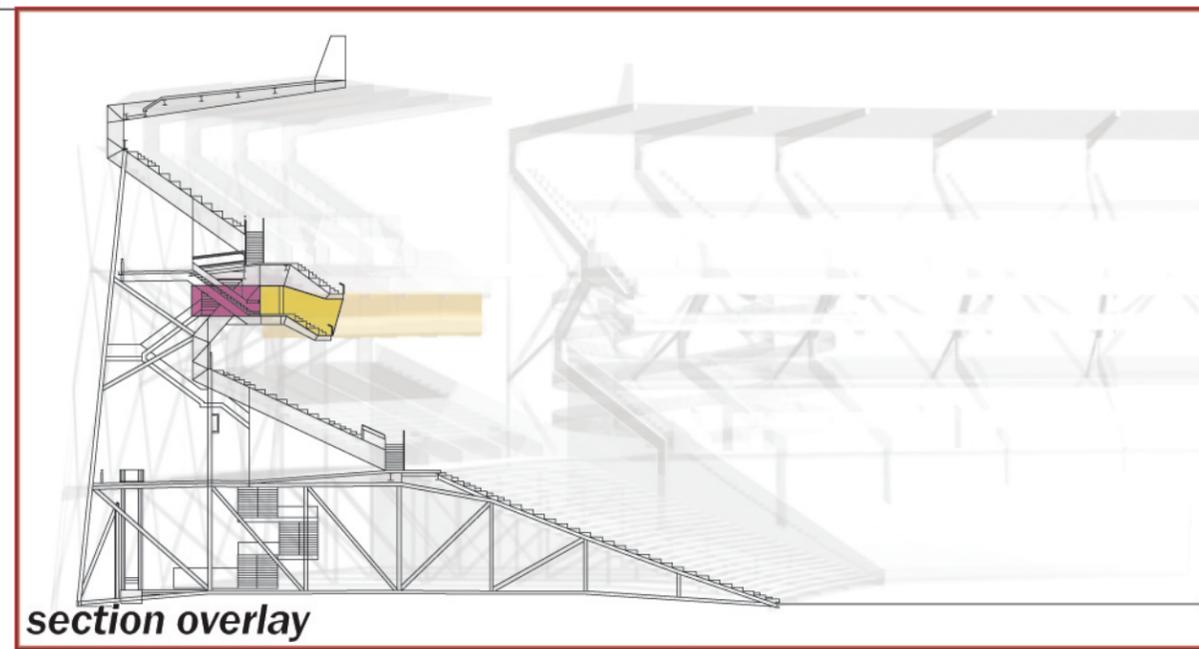
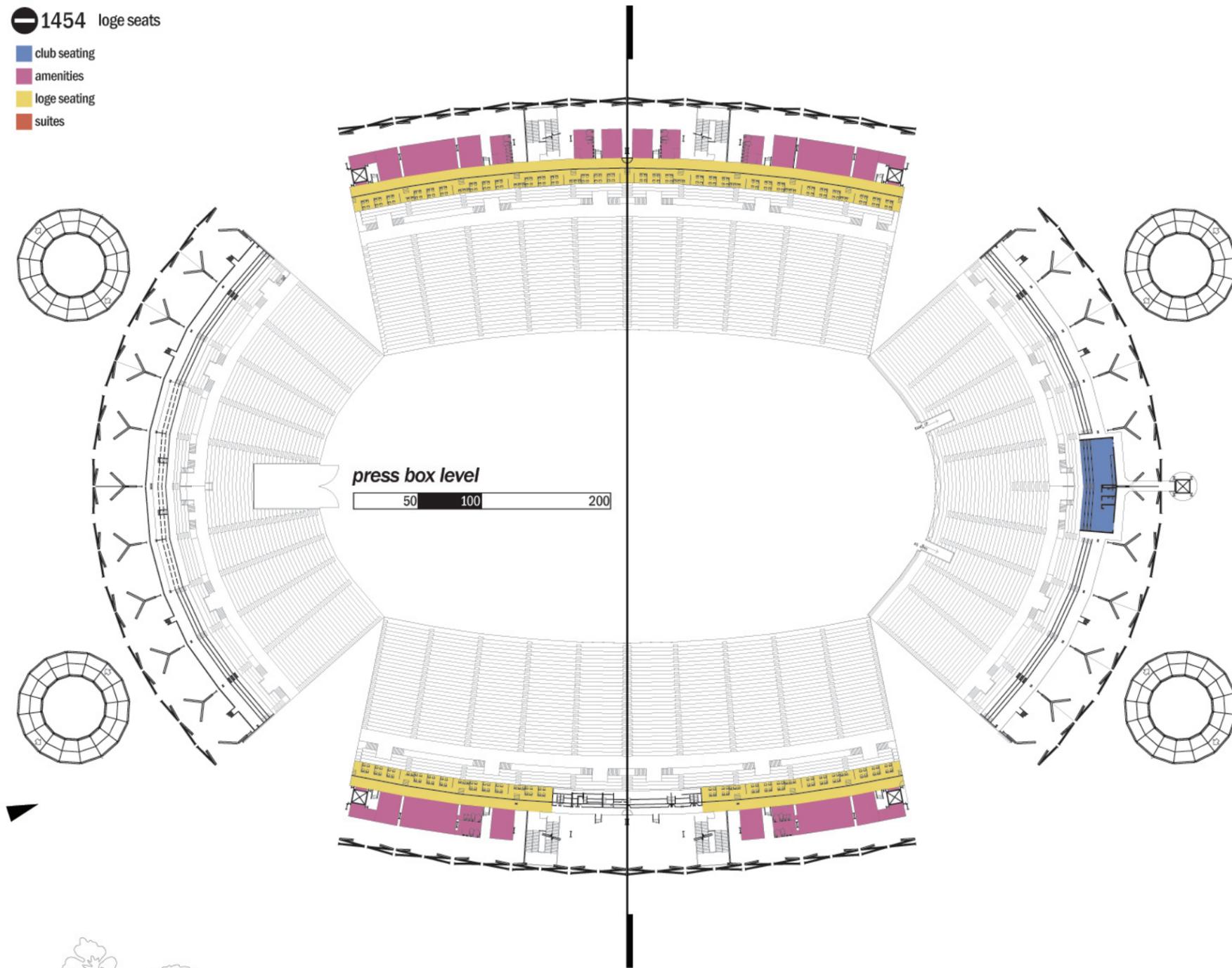
4.A(+5): sideline club lounge and amenities

# VOLUME 3: IMPROVEMENT NEEDS

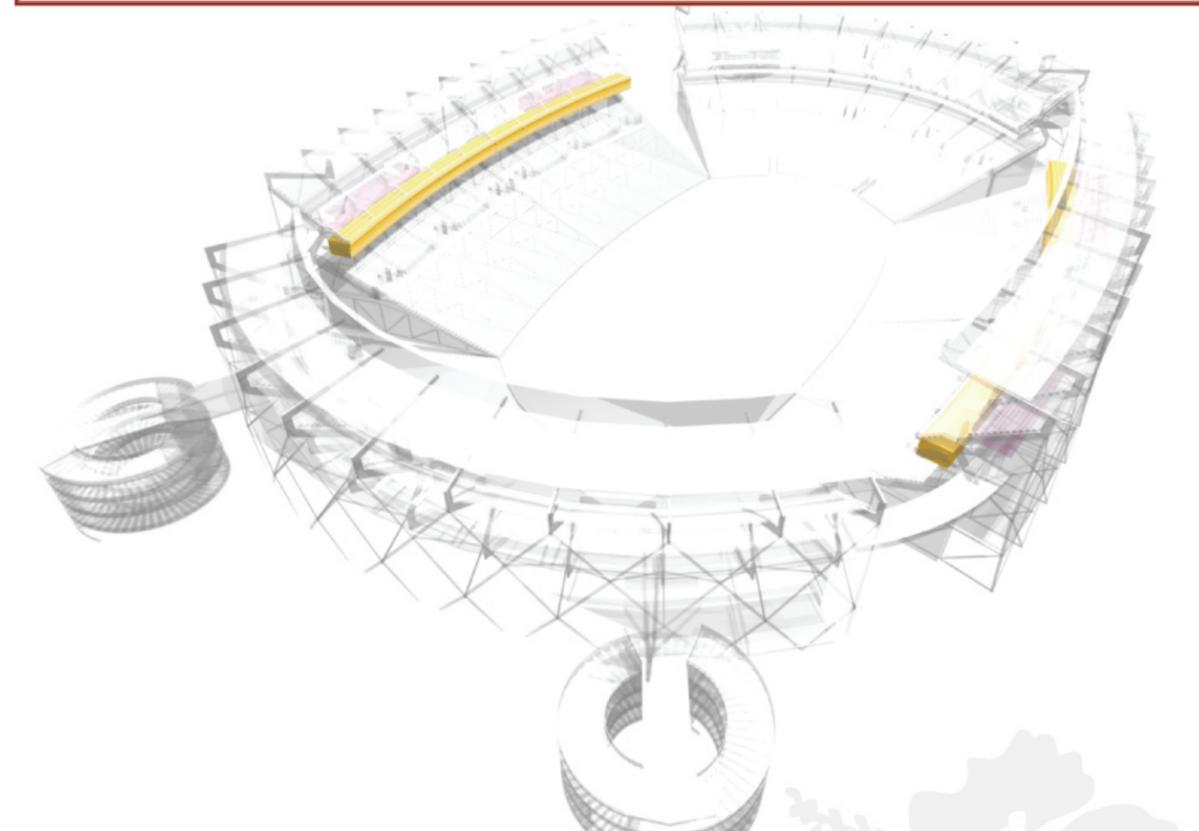
⊕ 312 78 loge boxes at 4 seats each

⊖ 1454 loge seats

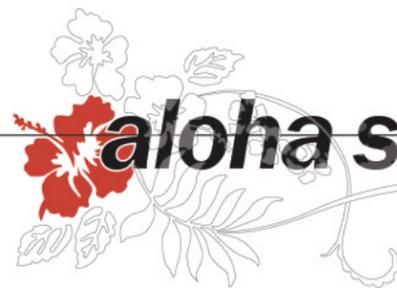
- club seating
- amenities
- loge seating
- suites



section overlay



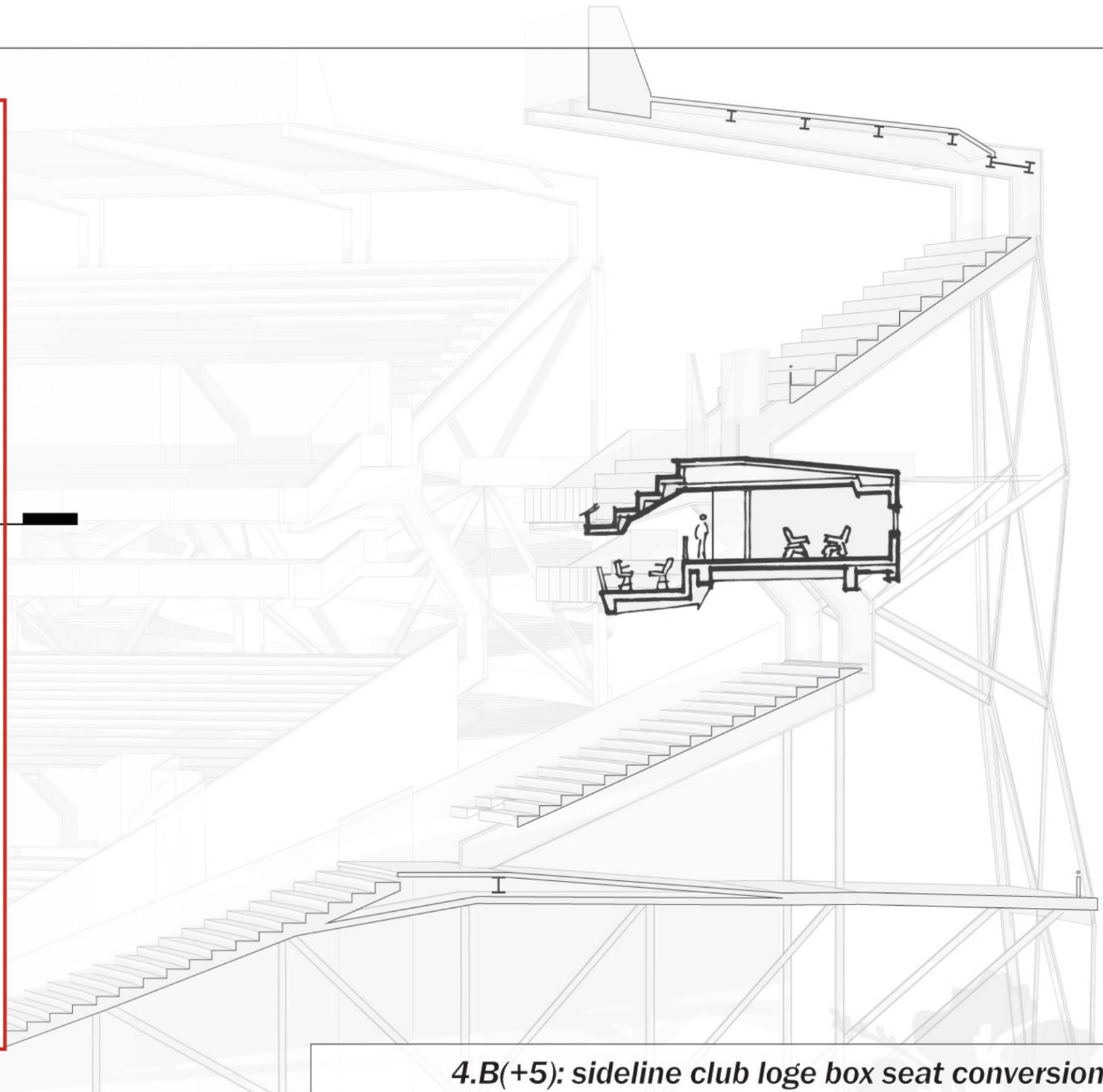
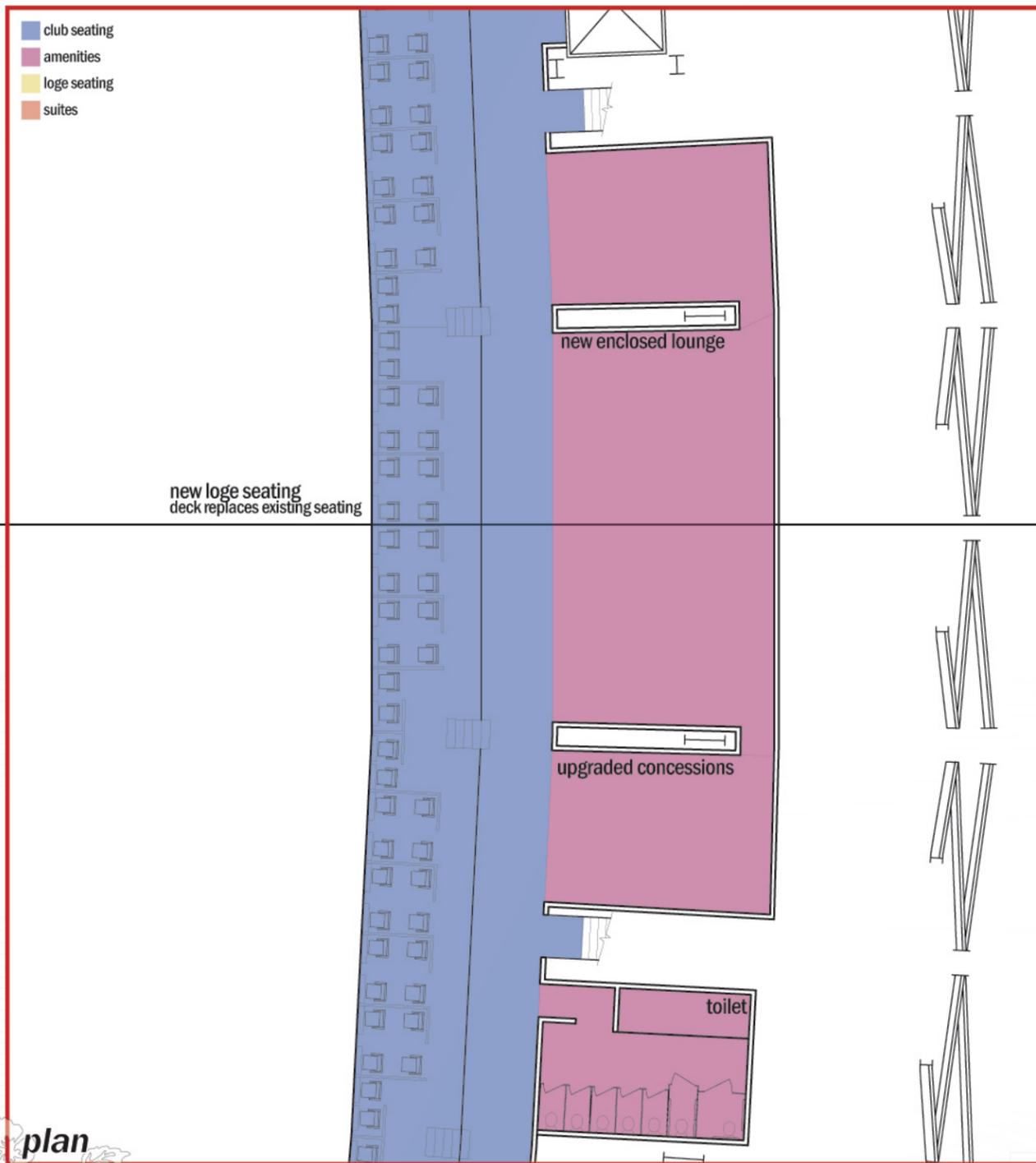
4.B(+5): sideline club loge box seat conversion



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# VOLUME 3: IMPROVEMENT NEEDS



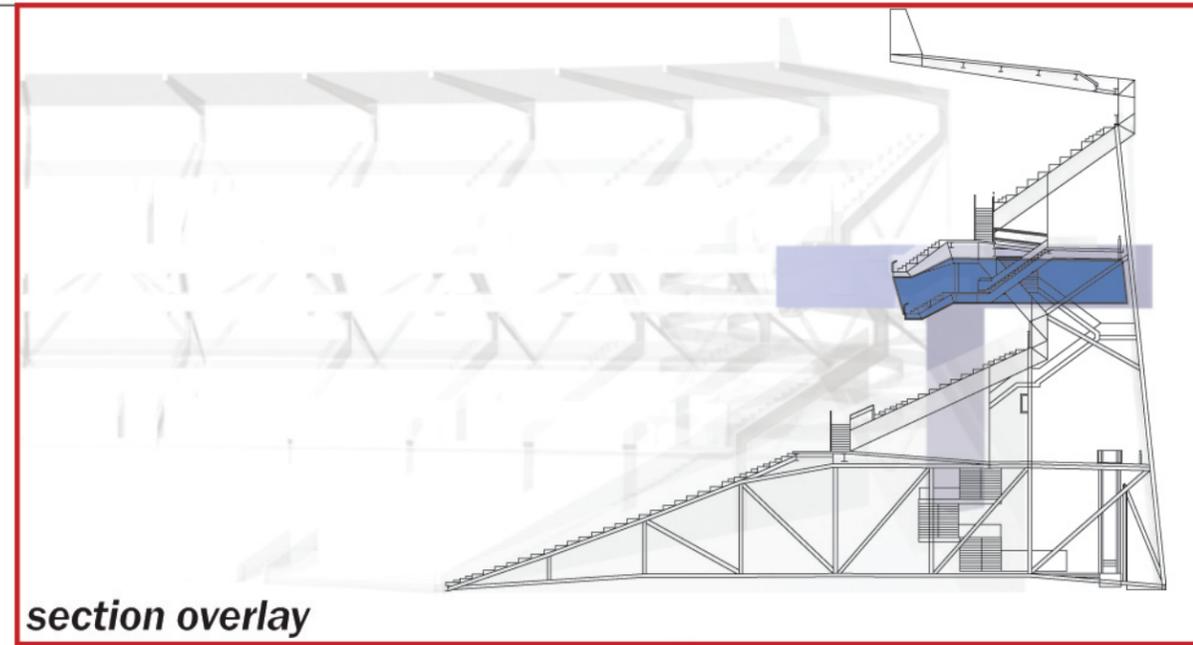
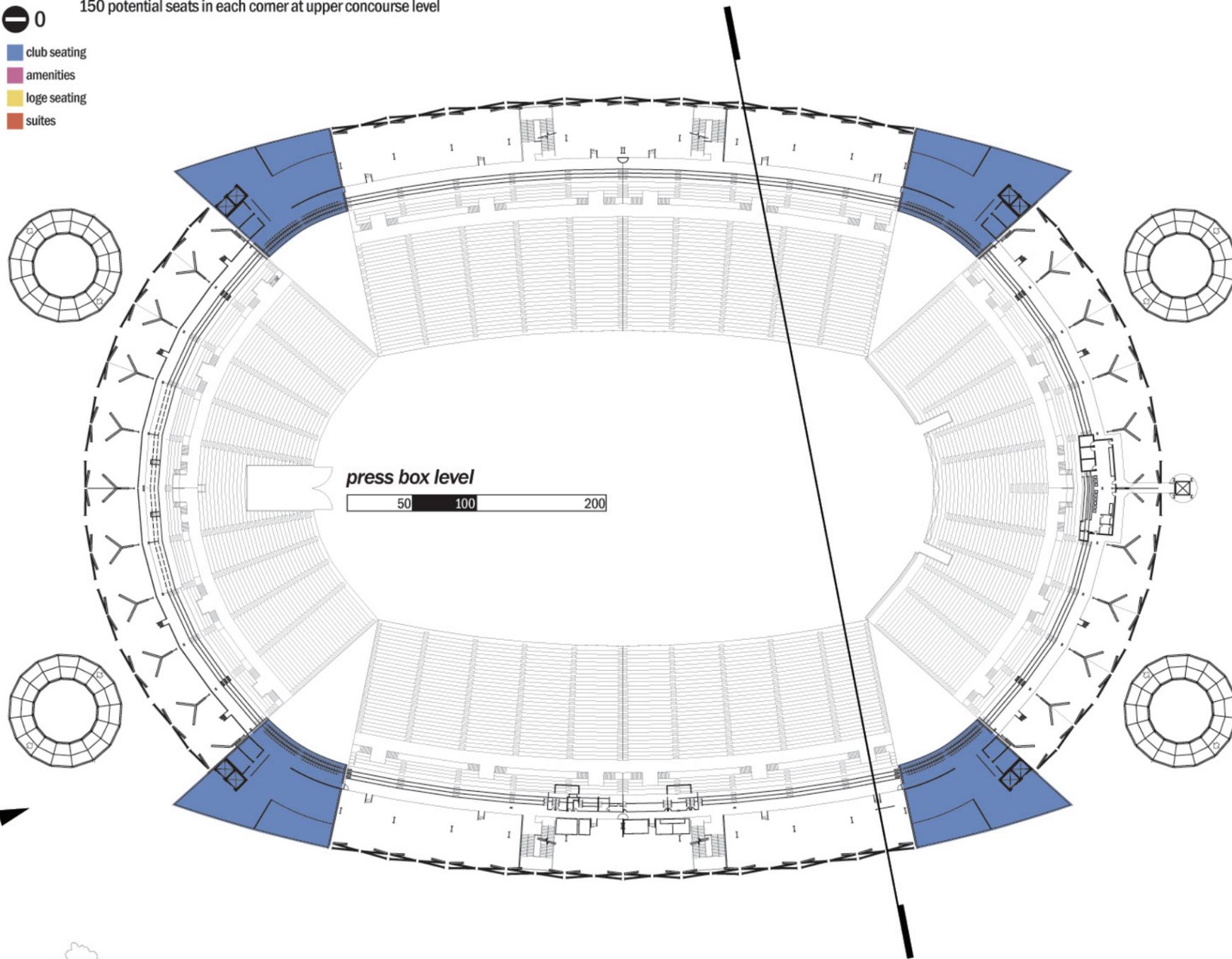
4.B(+5): sideline club loge box seat conversion



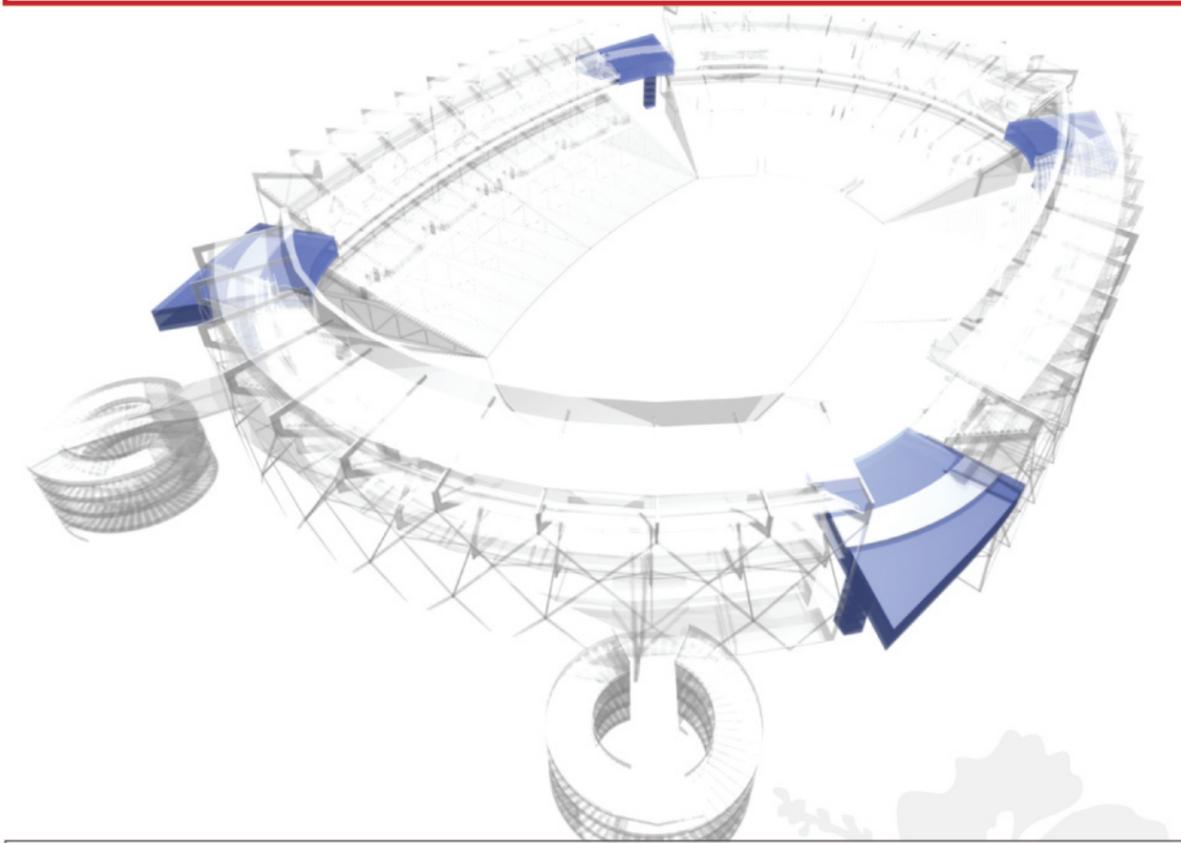
# VOLUME 3: IMPROVEMENT NEEDS

- ⊕ 960 4 clubs @ 90 seats
- ⊖ 0 150 potential seats in each corner at upper concourse level

- club seating
- amenities
- loge seating
- suites



section overlay

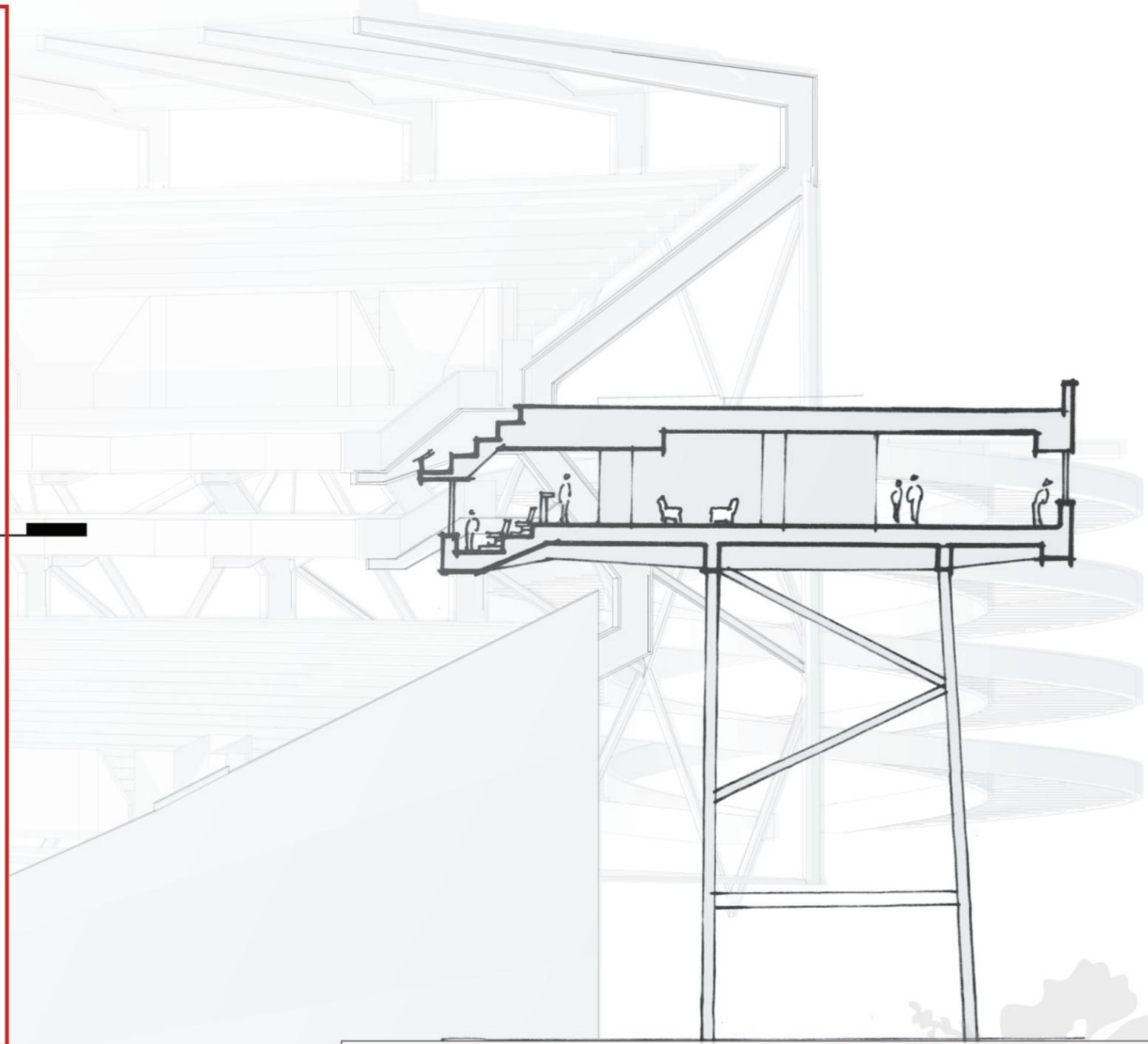
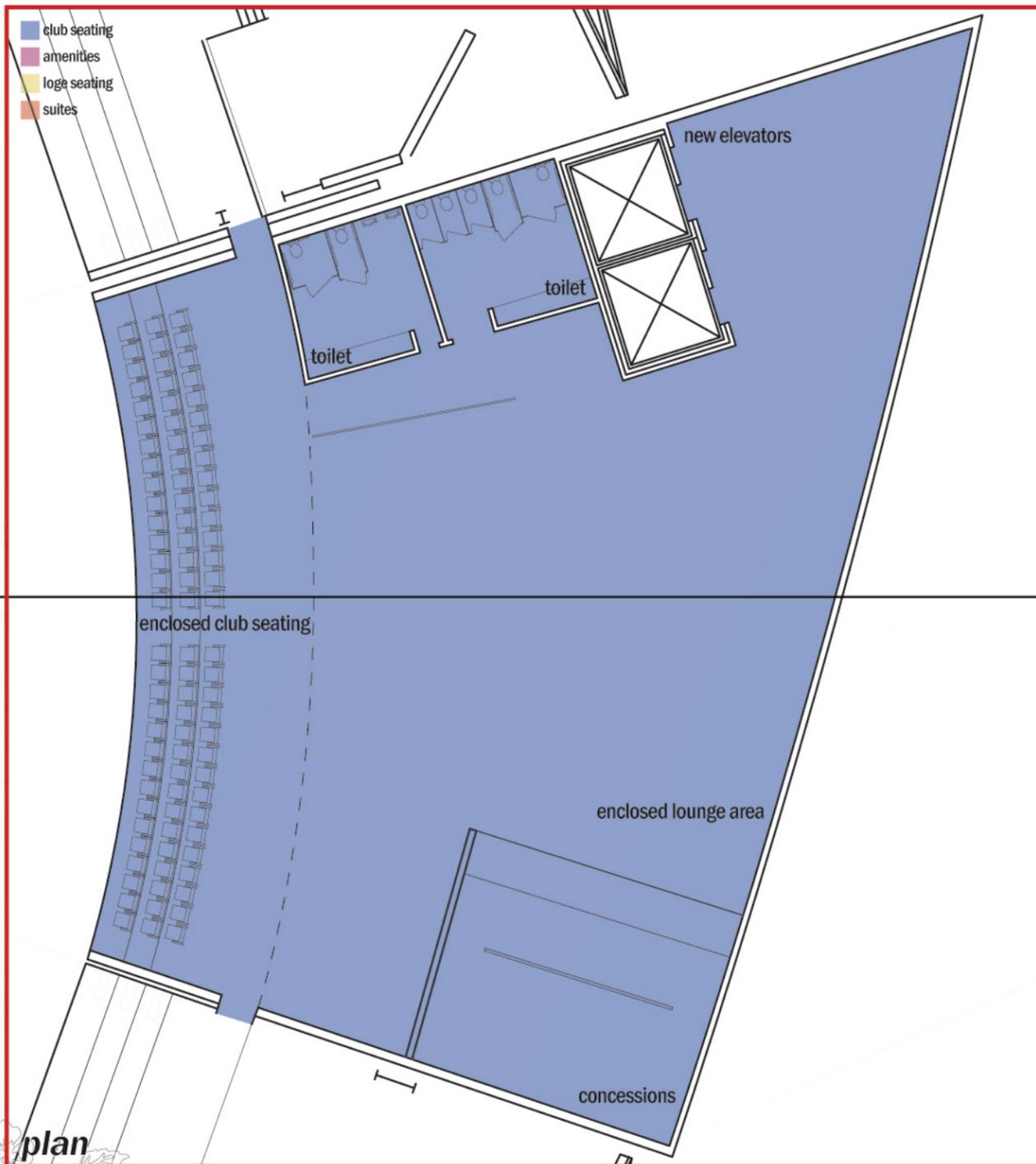


6: loge level corner clubs



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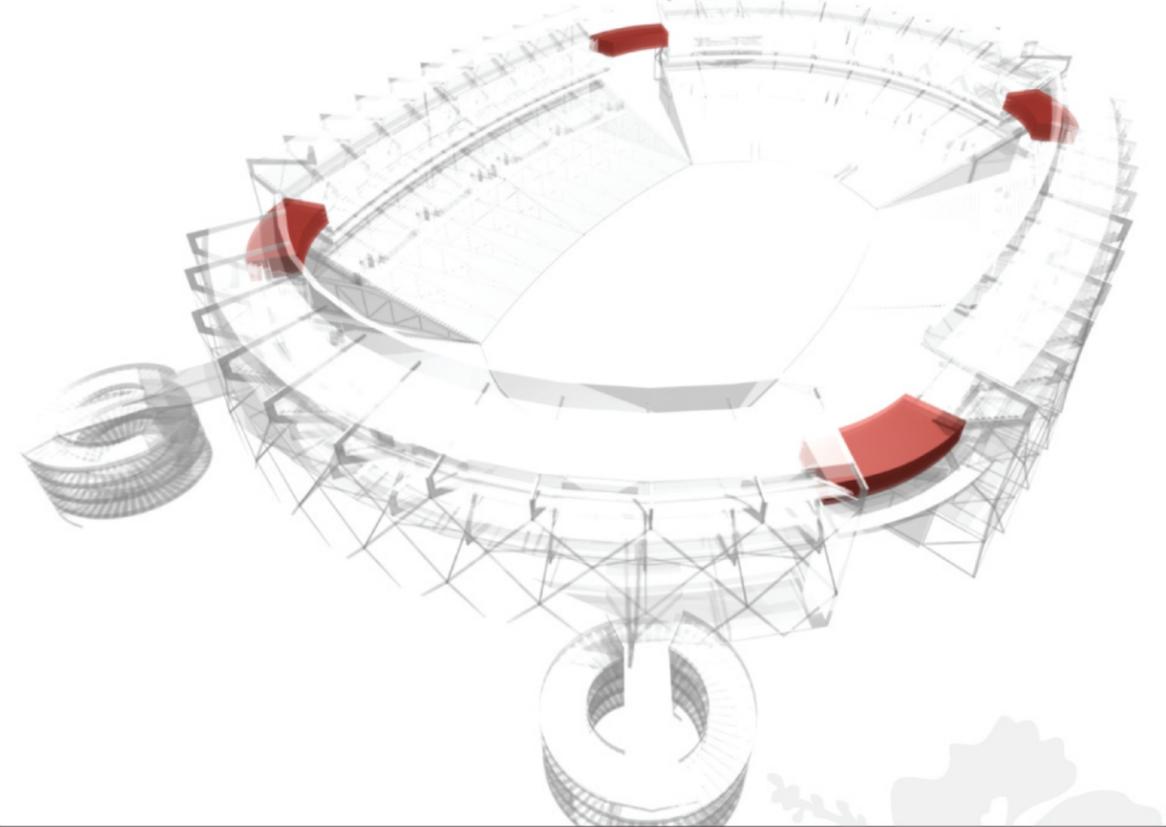
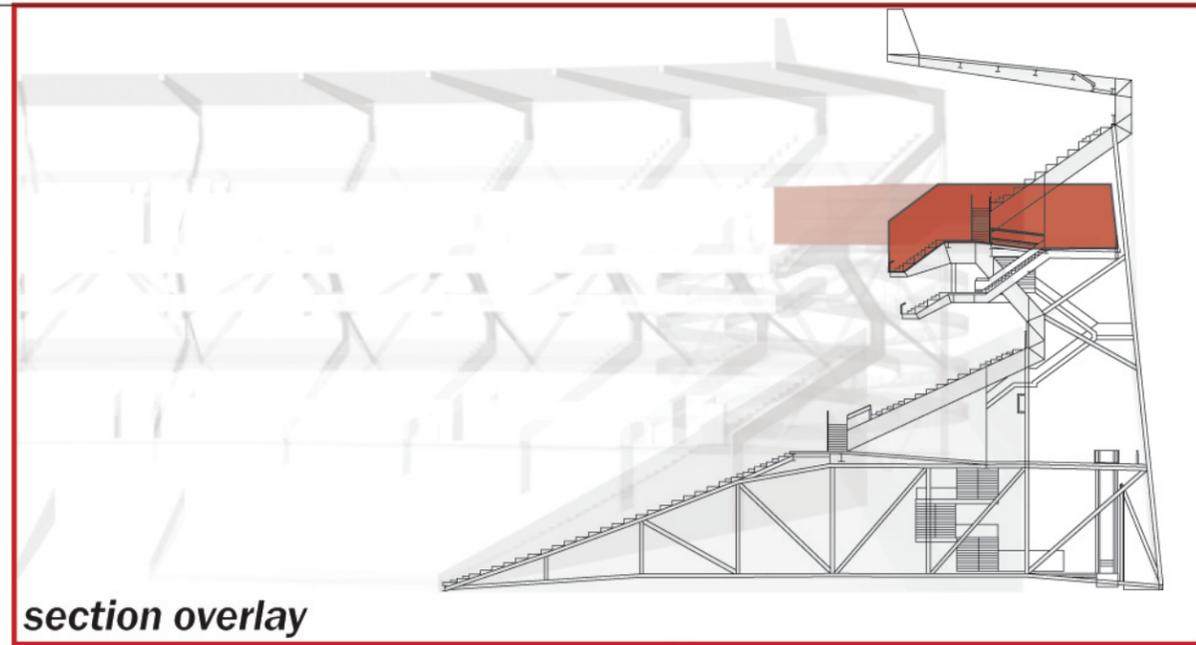
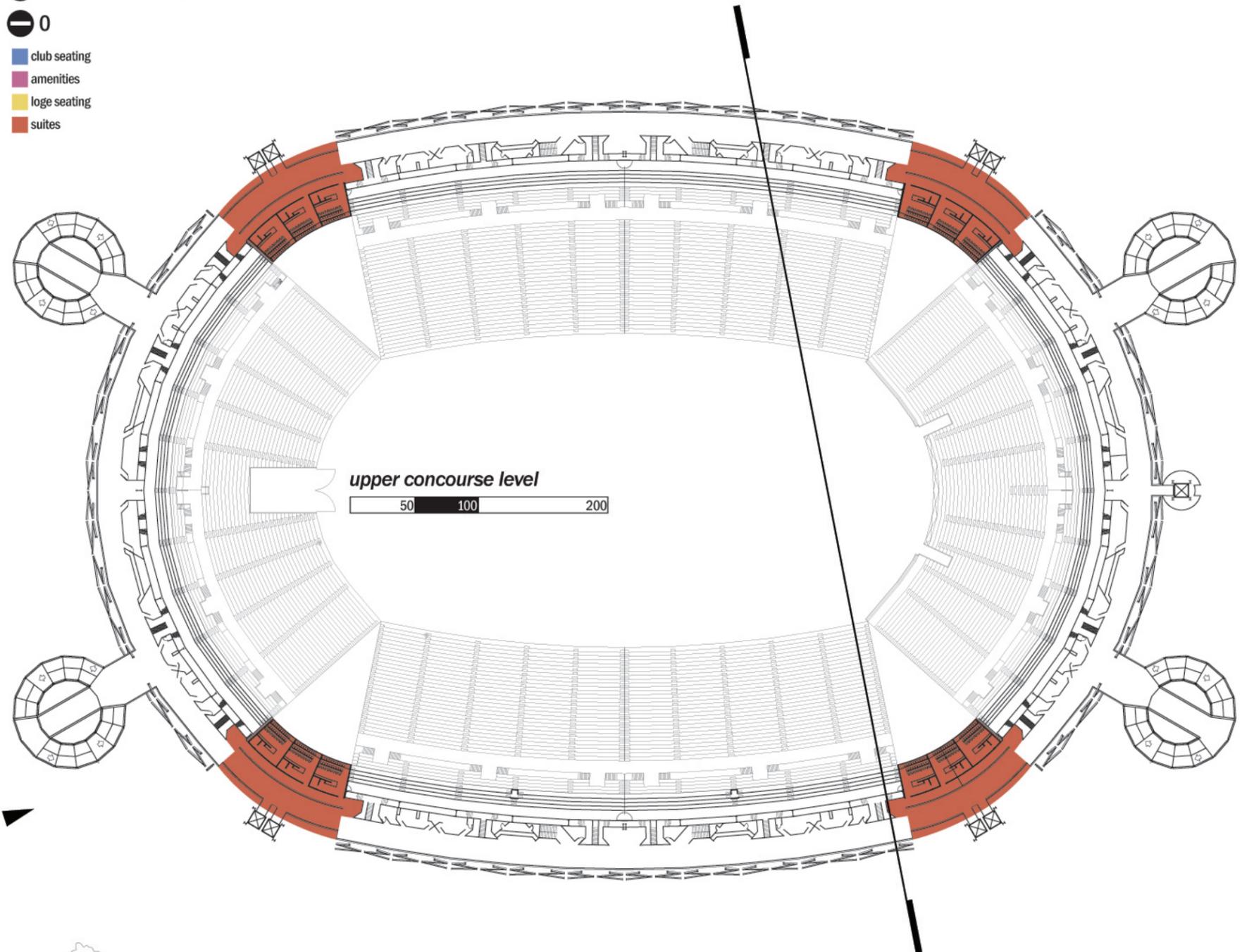
6: loge level corner clubs

# VOLUME 3: IMPROVEMENT NEEDS

⊕ 360 12 suites @ 20 seats & 10 barstools

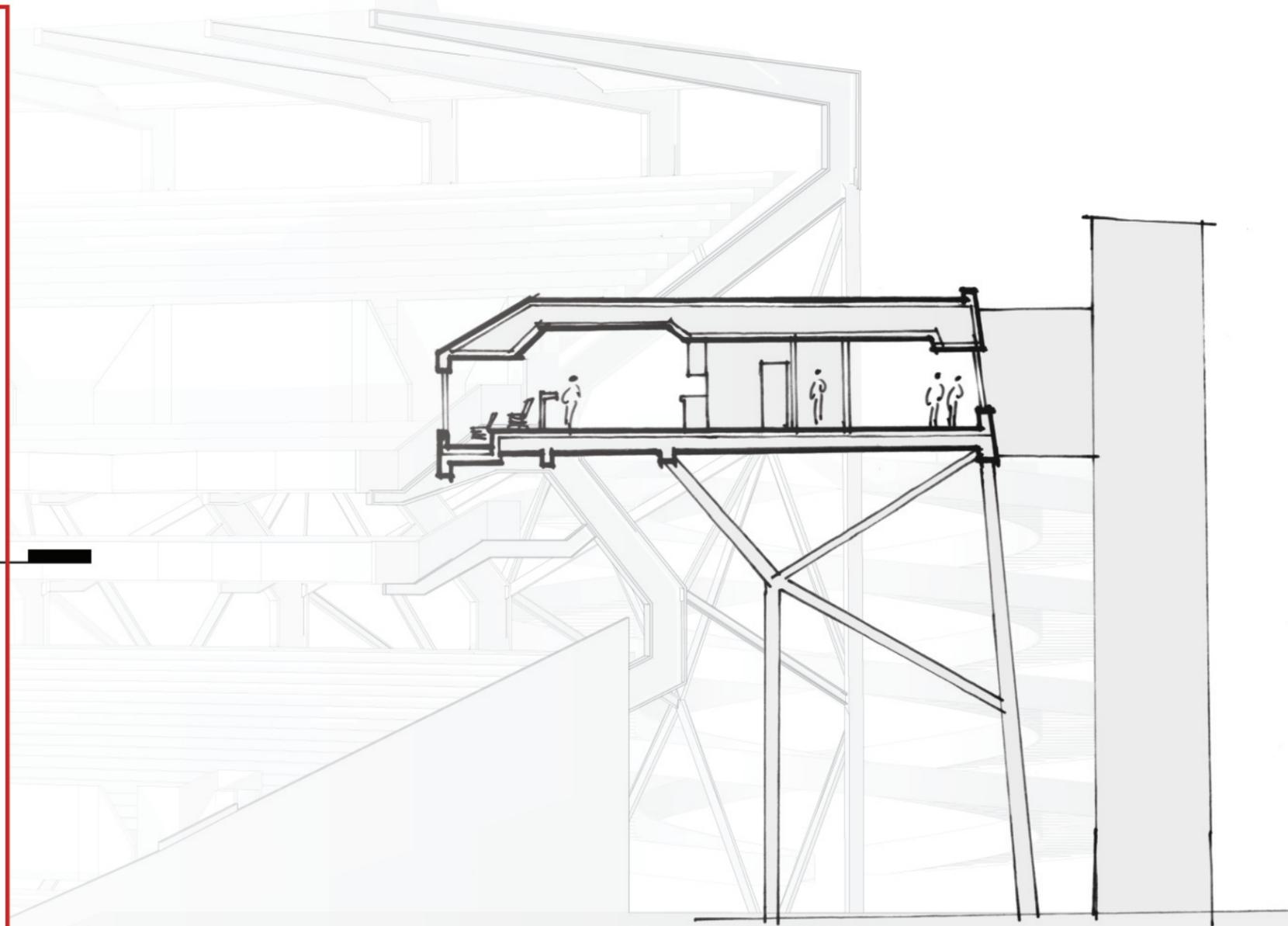
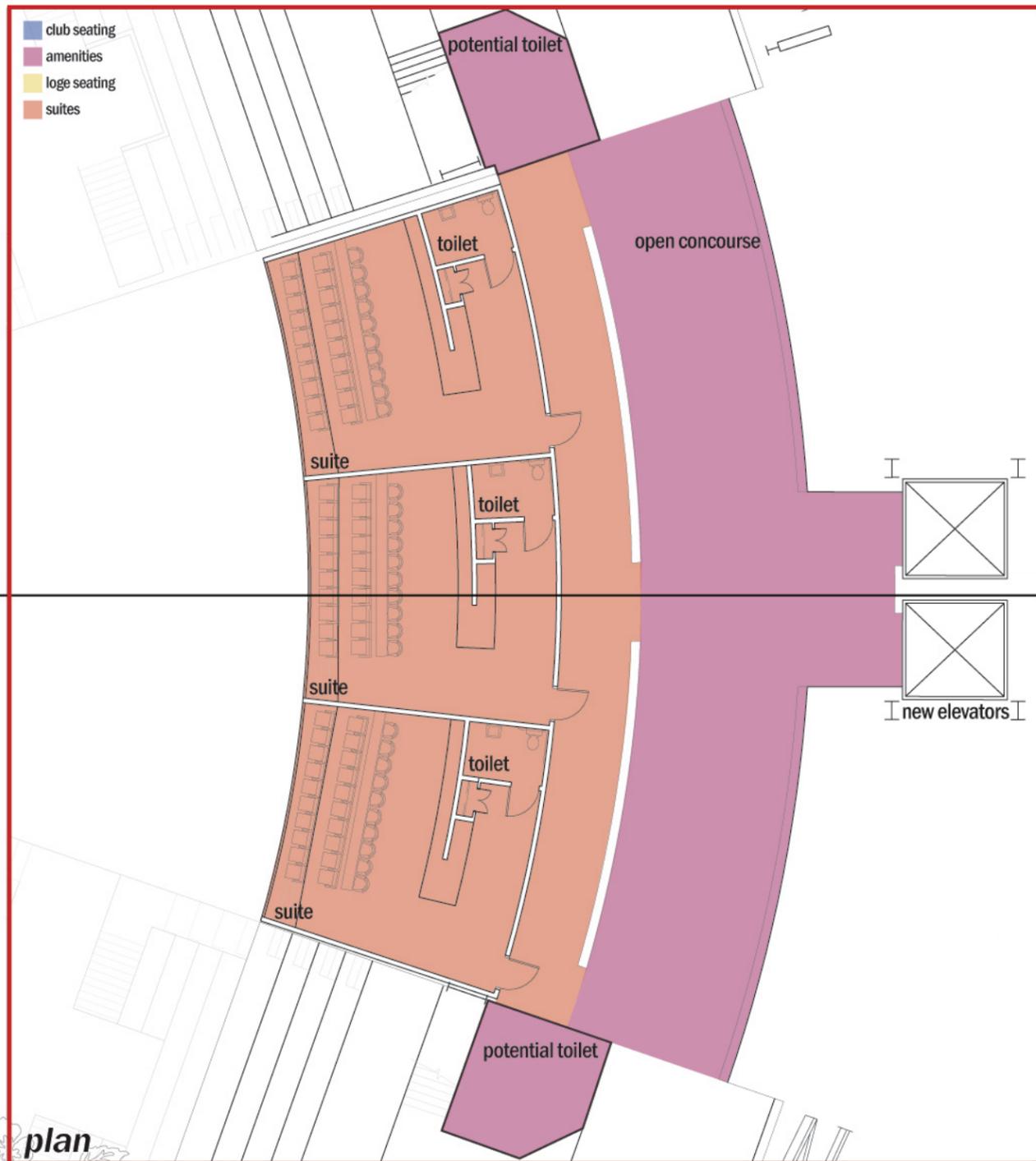
⊖ 0

- club seating
- amenities
- loge seating
- suites



**7: upper concourse corner suites**

# VOLUME 3: IMPROVEMENT NEEDS



plan

**aloha stadium** PLANNING STUDY FINAL REPORT - 12.22.05

7: upper concourse corner suites

8

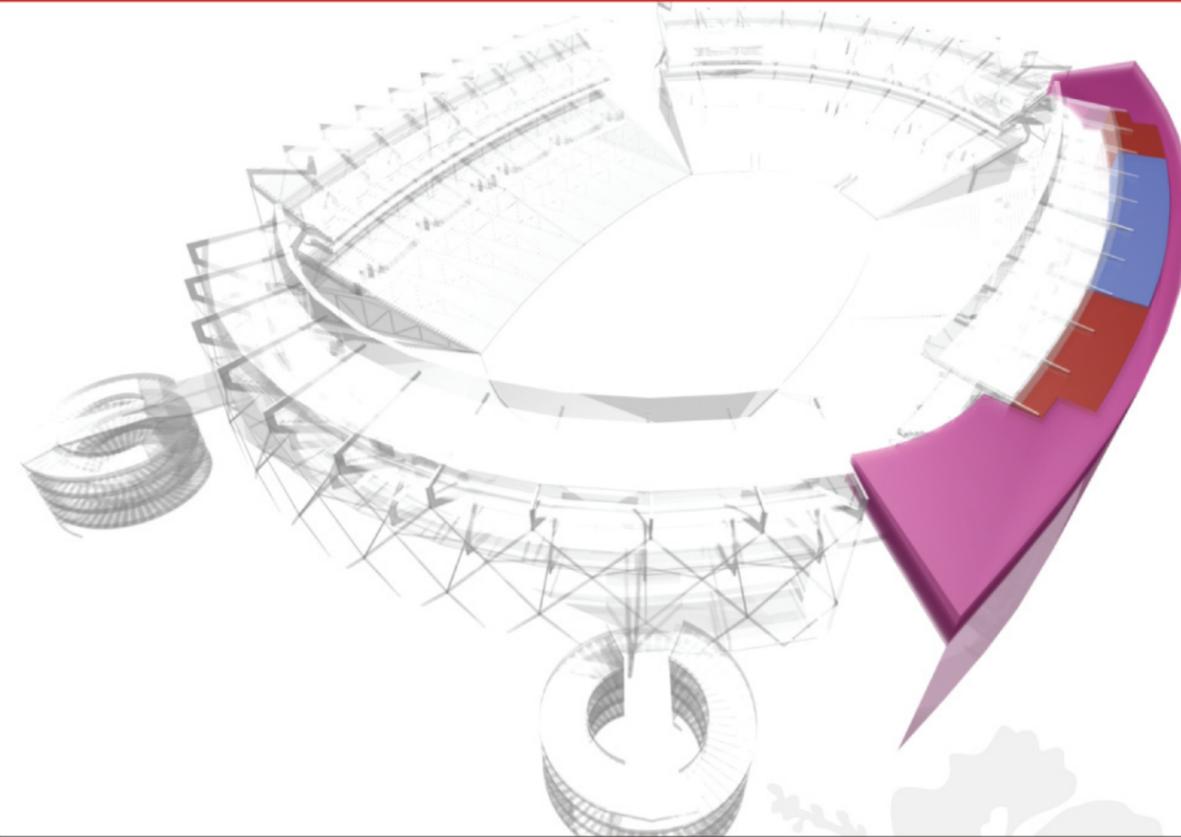
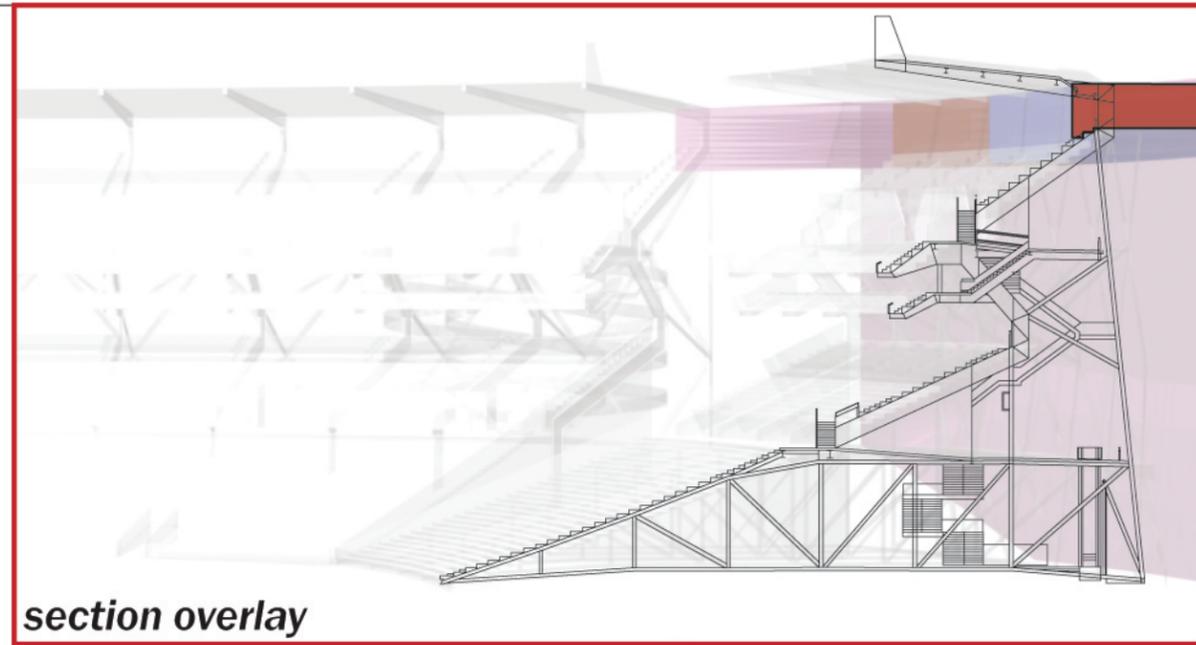
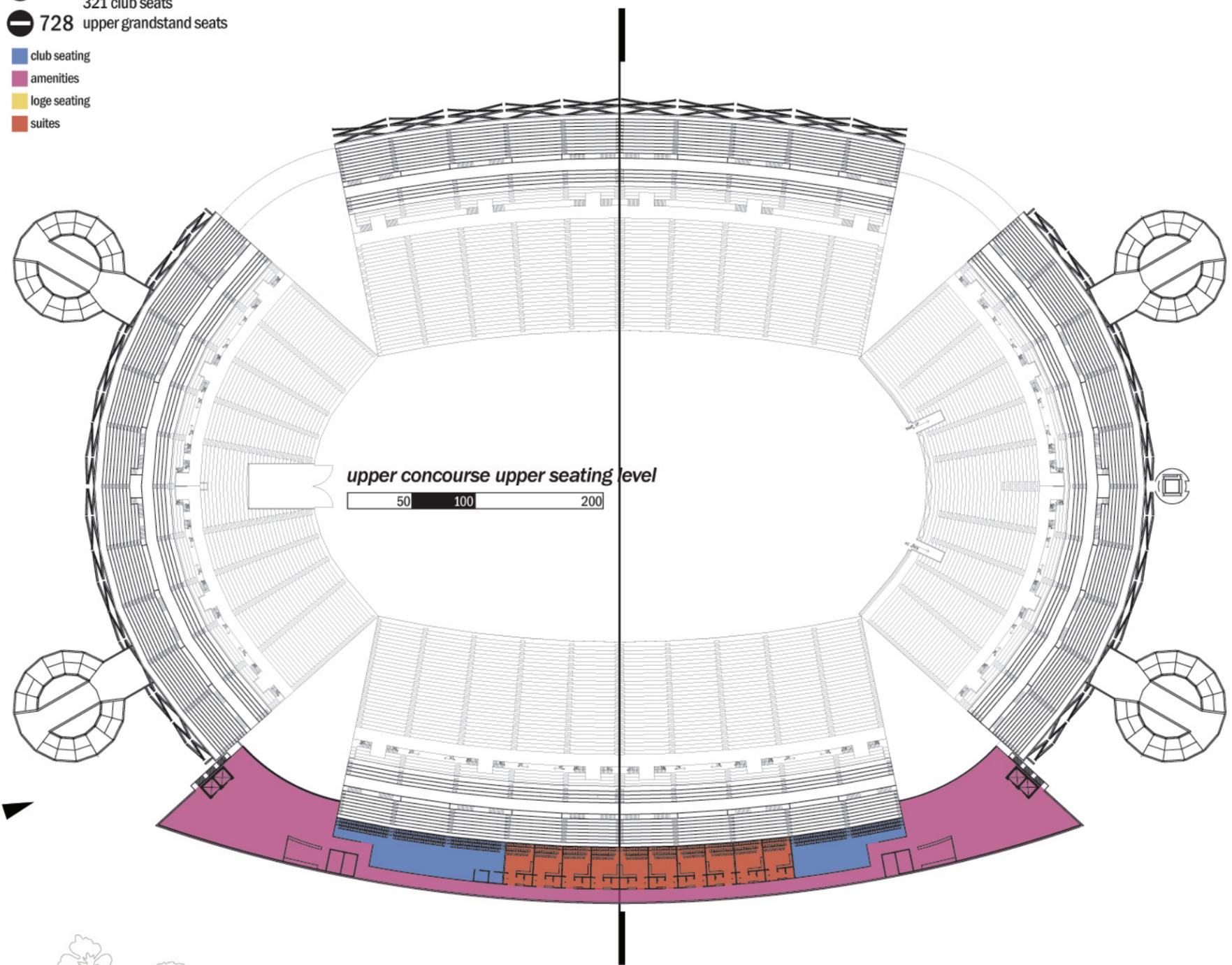
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32

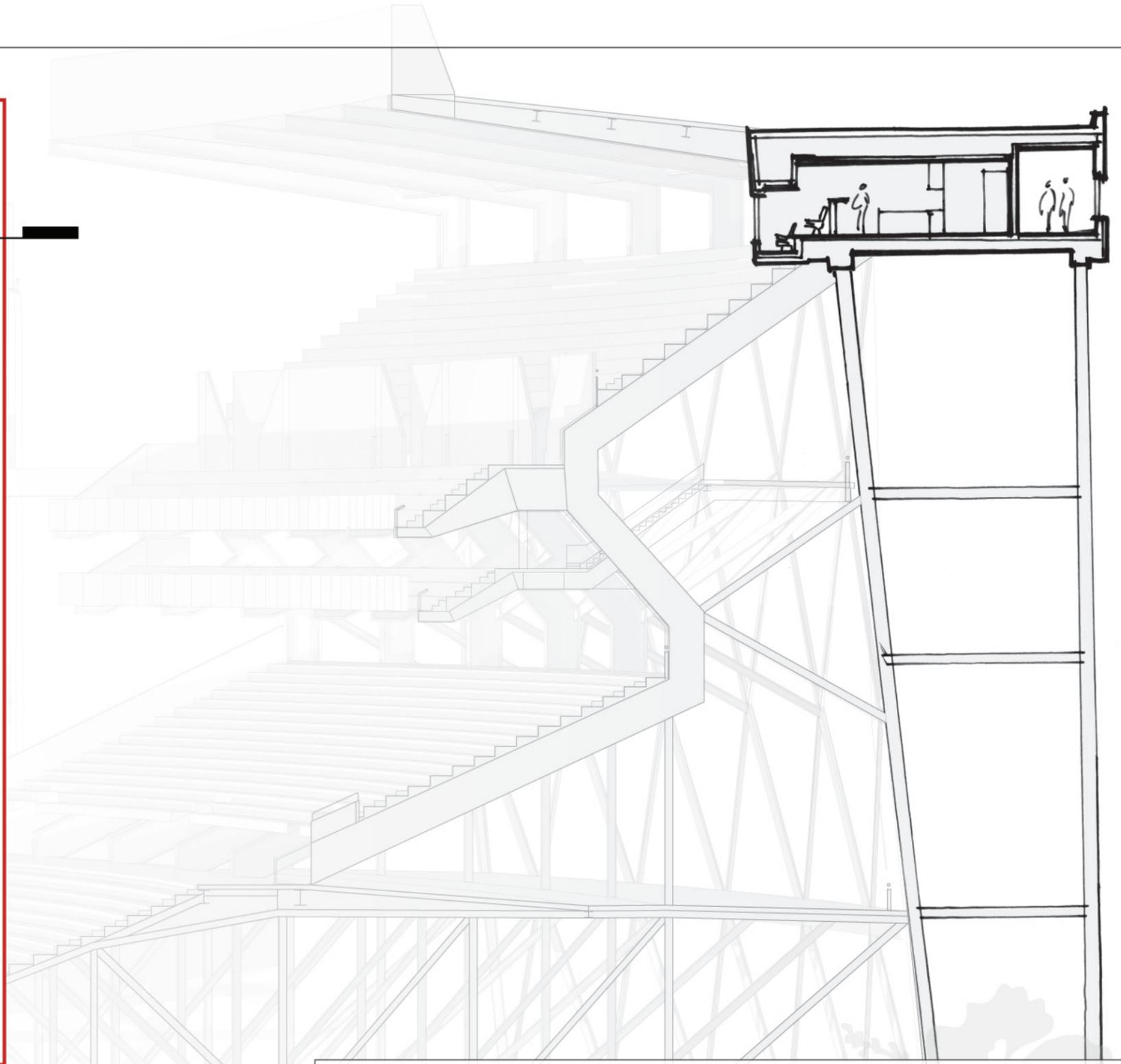
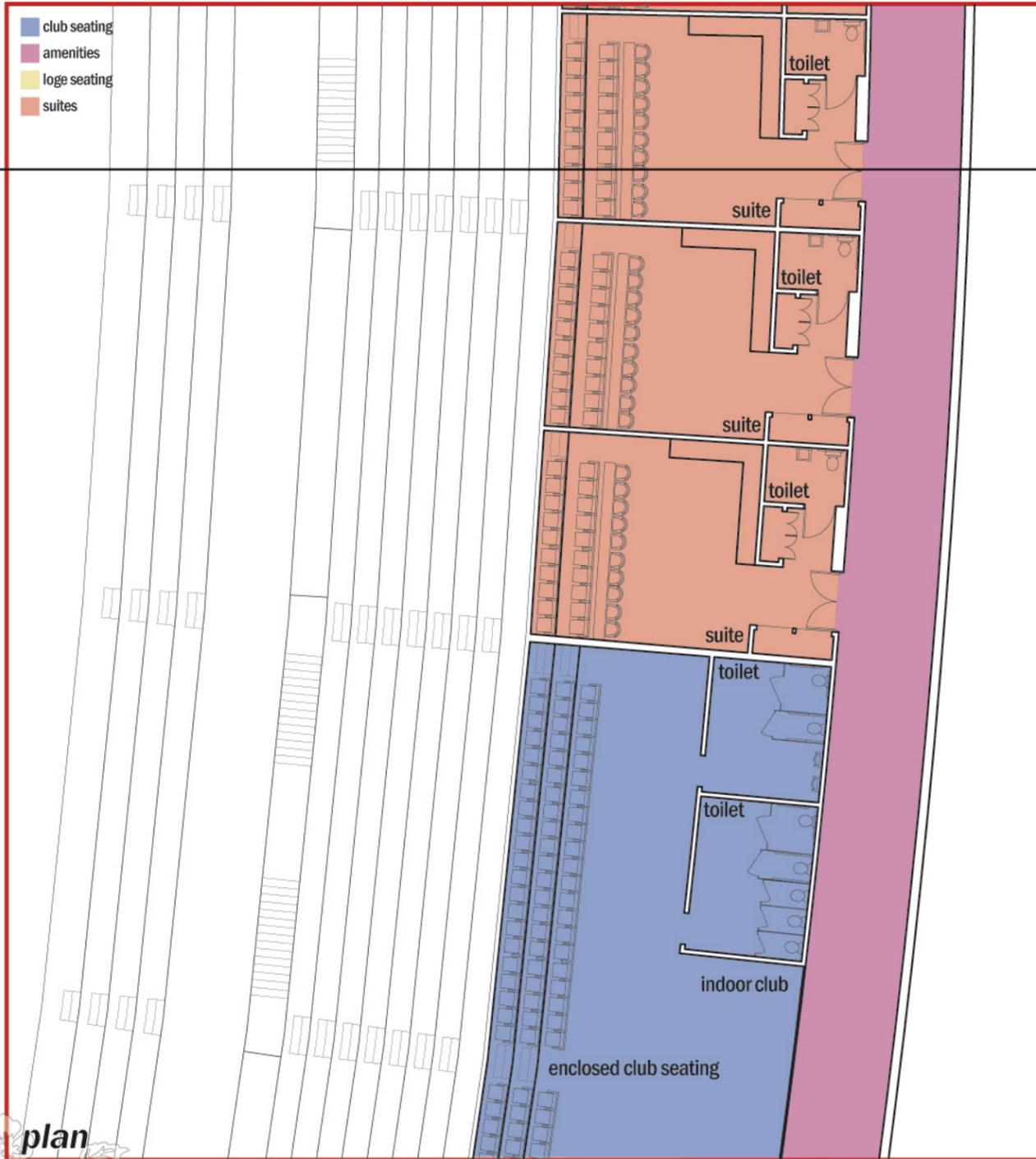


# VOLUME 3: IMPROVEMENT NEEDS

- ⊕ 621 10 suites @ 20 seats & 10 barstools  
321 club seats
- ⊖ 728 upper grandstand seats
- club seating
- amenities
- loge seating
- suites



# VOLUME 3: IMPROVEMENT NEEDS



plan

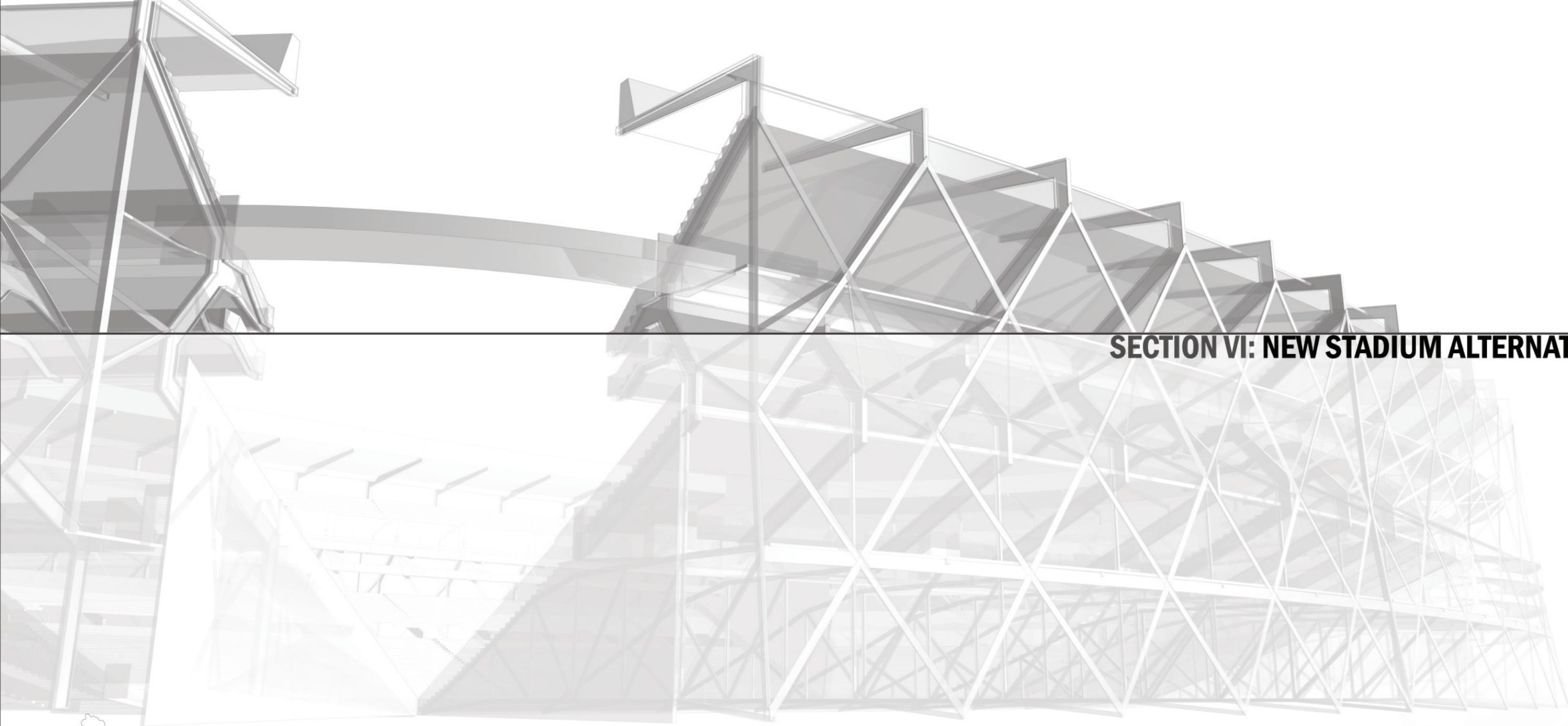
8: suite tower addition diagrams



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# VOLUME 3: IMPROVEMENT NEEDS



## SECTION VI: NEW STADIUM ALTERNATIVE



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**New Stadium Alternative**

A new stadium option was evaluated to compare its initial and 20 year maintenance program costs against the necessary initial repairs/improvements and 20 year maintenance program costs for the existing stadium. Although a detailed revenue study was not conducted, a financial analysis comparing these two options was performed by Barrett Sports Group and presented in Volume 4, Section VII. Potential enhancements to Aloha Stadium were not factored into the cost comparison because they are assumed to be self funded through their associated increased revenues.

**Existing Site Location**

An important assumption made in the study is the use of the existing site. This assumption was made after determining that it is feasible to physically locate a new stadium on the existing site. This possibility allows for less undetermined variables to be factored into evaluating new versus existing and significantly reduces cost and other challenges associated with developing a new stadium on an unknown site such as:

- significant land acquisition costs difficult to identify at this time
- delays due to determining appropriate alternate site and property acquisition particularly difficult in Honolulu given its topography and existing development
- roadway, parking and utility infrastructure improvements needed to support a new stadium
- unknown possible mitigation of regional transportation impacts due to new location on the island

Two possible locations for a new stadium are shown in the following site plans. Option One is most favorable as it more centrally locates the new stadium relative to parking and provides greater setback from existing streets. Its construction would also be easier to sequence while maintaining operation of Aloha Stadium.

**Program and Design Assumptions**

The following key program elements were used as the basis of the study based on the assumption that it was desired to continue to attract and host the NFL Pro Bowl and other major events.

- Capacity: 50,000 seats total
- Suites: 20 private suites with indoor hospitality space
- Club Seats: 2,500 club seats with associated conditioned lounge space
- Structure: Precast concrete treads and risers with concrete and steel superstructure
- Parking: Maintain existing trees and islands as much as possible. Apply new asphalt topping over existing and provide new parking and entry plaza in footprint of Aloha Stadium. Parking count remains similar to existing.

Field: Playing field is located at grade similar to existing due to water table constraints preventing depressing the lower seating bowl.

**Cost Analysis**

The above stadium program does not have a recently built precedent for cost benchmarking. Only a few new collegiate stadiums have been built in the past decade, but are all smaller and have thus been able to utilize more cost effective configuration approaches and building systems. A smaller capacity of 40,000 seats could be provided at substantially less cost due to the ability to eliminate an additional elevated concourse and simplify the seating bowl configuration. However, this would probably result in the loss of major events. Aluminum tread and riser bleacher with pre-engineered steel structural support systems could be utilized for significant savings, but the salt air environment would limit the useful life of this type of system. The estimate is based on a more durable and long lasting precast concrete structural system. The University of Minnesota has recently completed a new stadium predesign study based on a similar capacity of 50,000 seats. This study was referenced as well as historical data of the few collegiate stadiums built and the numerous NFL stadiums recently built to develop the following conceptual cost estimate for the new stadium in Honolulu. Estimated cost of demolition of Aloha Stadium is included. Costs include 12% escalation over the next two years anticipating start of design in summer 2006 and start of construction in fall 2007 with occupancy in fall 2009.

**Schedule and Operational Phasing**

The new stadium would be positioned to allow the ongoing operation of Aloha Stadium events to continue while the new stadium is built. However, the current layout of the swap meet would be impacted and would need to be reconfigured during a three year period. In Option One, the administrative offices would need to be housed in temporary trailers in order to accommodate the new construction. Construction could start in the third quarter of 2007 while events are held in Aloha Stadium through the 2009 Pro Bowl. Following this event, demolition of Aloha Stadium would commence starting with the south ramps to allow completion of the north end of the new stadium. Following the clearing of the Aloha Stadium structure, its site would be converted to parking. Recycling of the steel structure would be pursued and could offset some of its demolition costs. It would be possible to have use of some if not all of its area available for parking for the start of the 2009 football season. The swap meet's use of the site would be incorporated into the new parking plan and could be improved to be centralized on the originals stadium's footprint.

On site parking would be reduced by about 1,500 spaces during the two football seasons the new stadium is under construction. Some if not all of this parking would be replaced at the time of the new stadium's opening. Use of nearby underutilized state owned land for development of new parking should be explored to mitigate the loss of parking during construction and provide added parking for the public and additional revenues. Key milestone activities are listed below.

- Authorize new stadium design to proceed July 1, 2006
- Begin new stadium construction August 1, 2007
- Start demolition of Aloha Stadium Feb. 15, 2009
- Complete new stadium construction August 1, 2009



