SEA Report Annex
Project Strada-Senegal

Prepared for: **ASGC, AGEROUTE and Lenders to the Project**

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DOCUMENT INFORMATION

Title	SEA Report Annex
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SLR Contracting Entity	SLR Consulting Limited
SLR Project Number	425.064619.00001

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Annexes

A. Project Schedule

TABLE 1: Low Level Risk Project Components - Environmental & Social Action Plan

pr-23				Owner	2022				2023				2024				2025				2026				2027				2028			
					Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4
REF	**REGION/ACTIONS**	**CODE**	**ROAD SECTION**							1			2																			
0	**KEDOUGOU**	**N13B2**	**BANDAFASSI - DINDEFELO**																													
0.1	Subcontract Negotiations and Signing			AG/ASGC/SUB																												
0.2	Technical Surveys and Design Works			SUB																												
0.3	E&S Works and Approvals			ASGC/SUB																												
0.4	Mobilization			SUB																												
0.5	Construction Works			SUB/ASGC																												
0.6	Defects and Liability Period			SUB/AG																												
1	**TAMBACOUNDA**	**PNC**	**GOUDIRY - DOUGUE - DIANKE MAKHA SADATOU**																													
1.1	Subcontract Negotiations and Signing			AG/ASGC/SUB																												
1.2	Technical Surveys and Design Works			SUB																												
1.3	E&S Works and Approvals			ASGC/SUB																												
1.4	Mobilization			SUB																												
1.5	Construction Works			SUB/ASGC																												
1.6	Defects and Liability Period			SUB/AG																												
2	**SEDHIOU**	**PNC**	**BOUDIER (Sedhiou Bambali - Djiredji - Djibabouya - Marsassoum)**																													
2.1	Subcontract Negotiations and Signing			AG/ASGC/SUB																												
2.2	Technical Surveys and Design Works			SUB																												

pr-23				Owner	2022				2023				2024				2025				2026				2027				2028			
					Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4
REF	**REGION/ACTIONS**	**CODE**	**ROAD SECTION**																													
2.3	E&S Works and Approvals			ASGC/SUB																												
2.4	Mobilization			SUB																												
2.5	Construction Works			SUB/ASGC																												
2.6	Defects and Liability Period			SUB/AG																												
3	**SEDHIOU**	**PNC**	**CF RN4 SARE ALKALY BOGAL - NDIAMEKOUTA**																													
3.1	Subcontract Negotiations and Signing			AG/ASGC/SUB																												
3.2	Technical Surveys and Design Works			SUB																												
3.3	E&S Works and Approvals			ASGC/SUB																												
3.3	Mobilization			SUB																												
3.5	Construction Works			SUB/ASGC																												
3.6	Defects and Liability Period			SUB/AG																												
4	**SEDHIOU**	**D11100/D1100 B1**	**KARANTABA - SARE TENING (boucle pakao2)**																													
4.1	Subcontract Negotiations and Signing			AG/ASGC/SUB																												
4.2	Technical Surveys and Design Works			SUB																												
4.3	E&S Works and Approvals			ASGC/SUB																												
4.4	Mobilization			SUB																												
4.5	Construction Works			SUB/ASGC																												
4.6	Defects and Liability Period			SUB/AG																												
5	**SEDHIOU**	**PNC**	**SandiNIERY - Karantaba - DJIDINKI (boucle pakao1)**																													
5.1	Subcontract Negotiations and Signing			AG/ASGC/SUB																												
5.2	Technical Surveys and Design Works			SUB																												

pr-23				Owner	2022				2023				2024				2025				2026				2027				2028			
					Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4
REF	**REGION/ACTIONS**	**CODE**	**ROAD SECTION**																													
5.3	E&S Works and Approvals			ASGC/SUB																												
5.4	Mobilization			SUB																												
5.5	Construction Works			SUB/ASGC																												
5.6	Defects and Liability Period			SUB/AG																												
6	**KOLDA**	**PNC**	**KOLDA - SALIKENIE**																													
6.1	Subcontract Negotiations and Signing			AG/ASGC/SUB																												
6.2	Technical Surveys and Design Works			SUB																												
6.3	E&S Works and Approvals			ASGC/SUB																												
6.4	Mobilization			SUB																												
6.5	Construction Works			SUB/ASGC																												
6.6	Defects and Liability Period			SUB/AG																												
7	**KOLDA**	**PNC**	**KOLDA-PATA**																													
7.1	Subcontract Negotiations and Signing			AG/ASGC/SUB																												
7.2	Technical Surveys and Design Works			SUB																												
7.3	E&S Works and Approvals			ASGC/SUB																												
7.4	Mobilization			SUB																												
7.5	Construction Works			SUB/ASGC																												
7.6	Defects and Liability Period			SUB/AG																												
8	**KOLDA**	**PNC**	**MEDINA YORO FOULAH - PATA**																													
8.1	Subcontract Negotiations and Signing			AG/ASGC/SUB																												
8.2	Technical Surveys and Design Works			SUB																												
8.3	E&S Works and Approvals			ASGC/SUB																												
8.4	Mobilization			SUB																												
8.5	Construction Works			SUB/ASGC																												

pr-23				Owner	2022				2023				2024				2025				2026				2027				2028			
					Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4
REF	**REGION/ACTIONS**	**CODE**	**ROAD SECTION**																													
8.6	Defects and Liability Period			SUB/AG																												
9	**KOLDA**	**PNC**	**BIARO - MEDINA PAKANE**																													
9.1	Subcontract Negotiations and Signing			AG/ASGC/SUB																												
9.2	Technical Surveys and Design Works			SUB																												
9.3	E&S Works and Approvals			ASGC/SUB																												
9.4	Mobilization			SUB																												
9.5	Construction Works			SUB/ASGC																												
9.6	Defects and Liability Period			SUB/AG																												
10	**KOLDA**	**PNC**	**AWATABA - DIATAFA - KOSSANKE - DIANKANKOUNDA**																													
10.1	Subcontract Negotiations and Signing			AG/ASGC/SUB																												
10.2	Technical Surveys and Design Works			SUB																												
10.3	E&S Works and Approvals			ASGC/SUB																												
10.4	Mobilization			SUB																												
10.5	Construction Works			SUB/ASGC																												
10.6	Defects and Liability Period			SUB/AG																												
11	**KOLDA**	**PNC**	**MAMPATIM - PIDIRO - SARE DEMBEYEL - SARE KANTA**																													
11.1	Subcontract Negotiations and Signing			AG/ASGC/SUB																												
11.2	Technical Surveys and Design Works			SUB																												
11.3	E&S Works and Approvals			ASGC/SUB																												
11.4	Mobilization			SUB																												
11.5	Construction Works			SUB/ASGC																												

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					Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4
REF	**REGION/ACTIONS**	**CODE**	**ROAD SECTION**																													
11.6	Defects and Liability Period			SUB/AG																												
12	**KOLDA**	**D7302**	**KABENDOU - WASSADOU - FRONTIERE GUINEE**																													
12.1	Subcontract Negotiations and Signing			AG/ASGC/SUB																												
12.2	Technical Surveys and Design Works			SUB																												
12.3	E&S Works and Approvals			ASGC/SUB																												
12.4	Mobilization			SUB																												
12.5	Construction Works			SUB/ASGC																												
12.6	Defects and Liability Period			SUB/AG																												
13	**ZIGUINCHOR**	**D208**	**BOUCLE DU FOGNY 1 (BIGNONA - SINDIAN - DJIBYDIONE)**																													
13.1	Subcontract Negotiations and Signing			AG/ASGC/SUB																												
13.2	Technical Surveys and Design Works			SUB																												
13.3	E&S Works and Approvals			ASGC/SUB																												
13.4	Mobilization			SUB																												
13.5	Construction Works			SUB/ASGC																												
13.6	Defects and Liability Period			SUB/AG																												
14	**ZIGUINCHOR**	**PNC**	**BOUCLE DU FOGNY 2 - (CF RN5) BARANDIR - BITI BITI**																													
14.1	Subcontract Negotiations and Signing			AG/ASGC/SUB																												
14.2	Technical Surveys and Design Works			SUB																												
14.3	E&S Works and Approvals			ASGC/SUB																												

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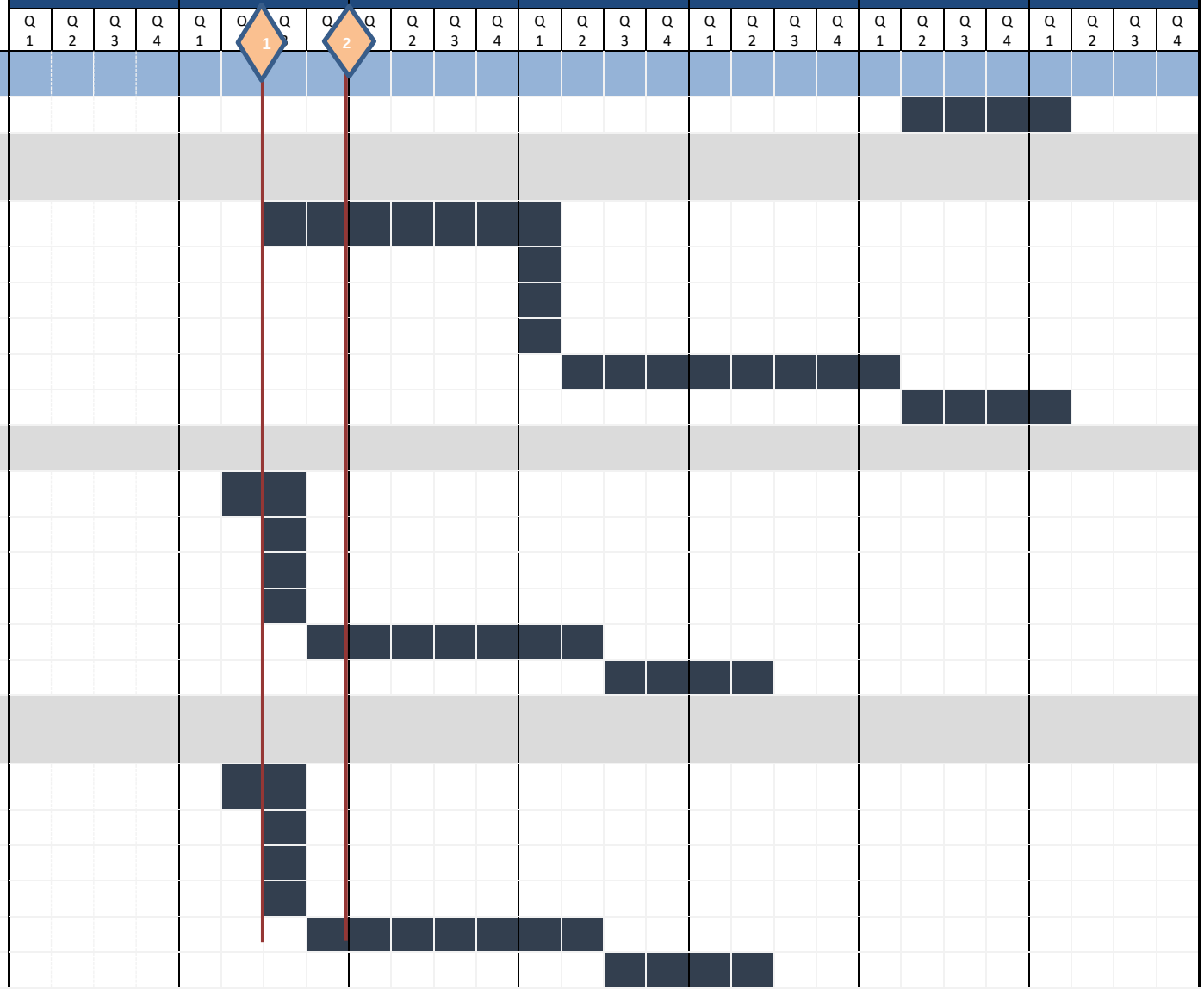
					Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4
REF	**REGION/ACTIONS**	**CODE**	**ROAD SECTION**							1			2																			
14.4	Mobilization			SUB																												
14.5	Construction Works			SUB/ASGC																												
14.6	Defects and Liability Period			SUB/AG																												
15	**ZIGUINCHOR**	**PNC**	**KATABA (CFN5) - MEDINA CHERIF**																													
15.1	Subcontract Negotiations and Signing			AG/ASGC/SUB																												
15.2	Technical Surveys and Design Works			SUB																												
15.3	E&S Works and Approvals			ASGC/SUB																												
15.4	Mobilization			SUB																												
15.5	Construction Works			SUB/ASGC																												
15.6	Defects and Liability Period			SUB/AG																												
16	**ZIGUINCHOR**	**PNC**	**EBINAKO - KATIPEU**																													
16.1	Subcontract Negotiations and Signing			AG/ASGC/SUB																												
16.2	Technical Surveys and Design Works			SUB																												
16.3	E&S Works and Approvals			ASGC/SUB																												
16.4	Mobilization			SUB																												
16.5	Construction Works			SUB/ASGC																												
16.6	Defects and Liability Period			SUB/AG																												
17	**ZIGUINCHOR**	**R140**	**KABROUSSE - SINTHIABA - OUKOUT**																													
17.1	Subcontract Negotiations and Signing			AG/ASGC/SUB																												
17.2	Technical Surveys and Design Works			SUB																												
17.3	E&S Works and Approvals			ASGC/SUB																												
17.4	Mobilization			SUB																												
17.5	Construction Works			SUB/ASGC																												

pr-23				Owner
REF	**REGION/ACTIONS**	**CODE**	**ROAD SECTION**	
17.6	Defects and Liability Period			SUB/AG
18	**ZIGUINCHOR**	**PNC**	**DAR SALAM - BARAF - DJIBELOR (CF N6)**	
18.1	Subcontract Negotiations and Signing			AG/ASGC/SUB
18.2	Technical Surveys and Design Works			SUB
18.3	E&S Works and Approvals			ASGC/SUB
18.4	Mobilization			SUB
18.5	Construction Works			SUB/ASGC
18.6	Defects and Liability Period			SUB/AG
19	**KAOLACK**	**PNC**	**LAMARAME - NDIENDIENG**	
19.1	Subcontract Negotiations and Signing			AG/ASGC/SUB
19.2	Technical Surveys and Design Works			SUB
19.3	E&S Works and Approvals			ASGC/SUB
19.4	Mobilization			SUB
19.5	Construction Works			SUB/ASGC
19.6	Defects and Liability Period			SUB/AG
20	**KAOLACK**	**PNC**	**FIRGUI - DABAL - KAYMOR - THIESSE**	
20.1	Subcontract Negotiations and Signing			AG/ASGC/SUB
20.2	Technical Surveys and Design Works			SUB
20.3	E&S Works and Approvals			ASGC/SUB
20.4	Mobilization			SUB
20.5	Construction Works			SUB/ASGC
20.6	Defects and Liability Period			SUB/AG



pr-23				Owner	2022				2023				2024				2025				2026				2027				2028			
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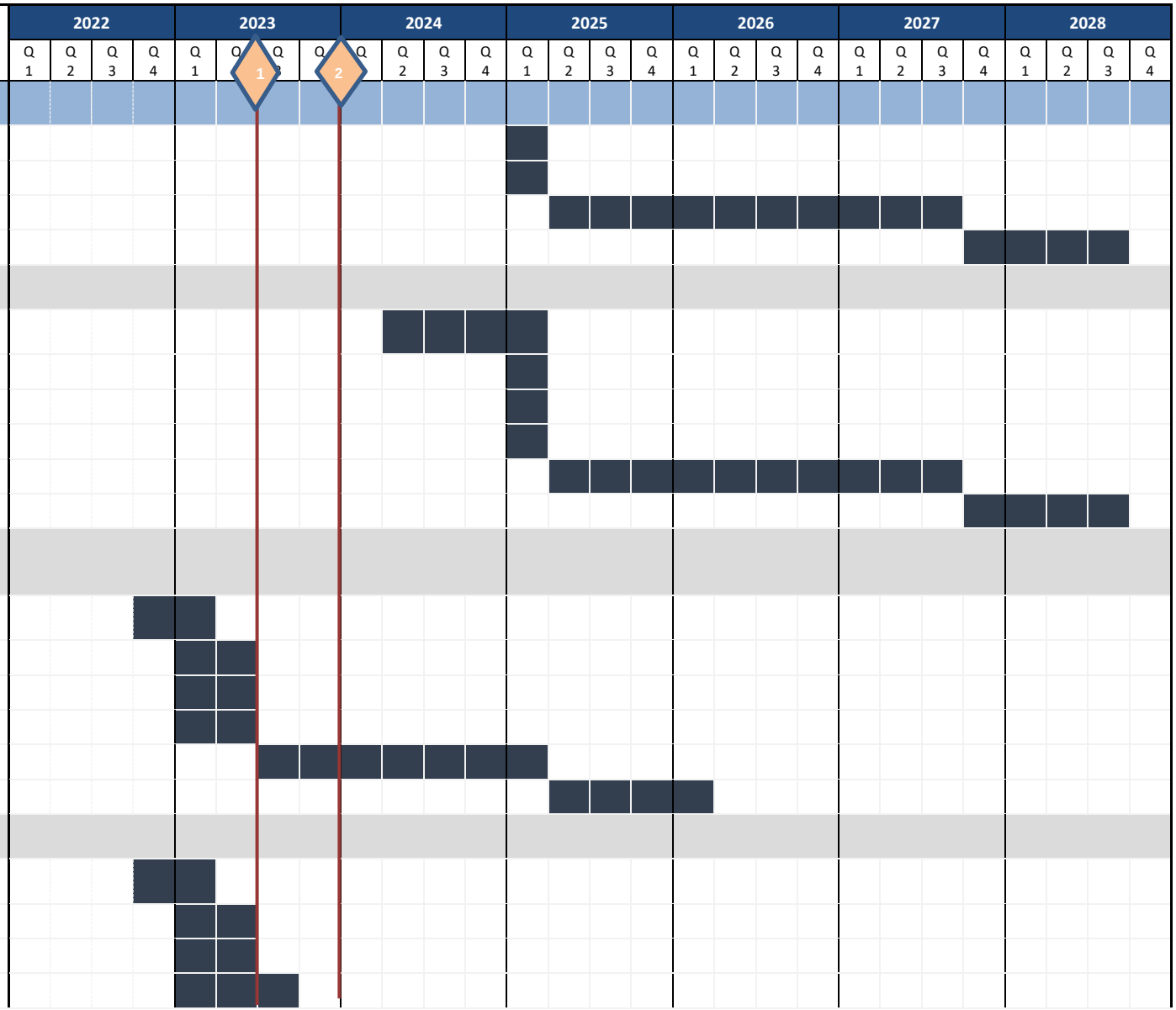
REF	**REGION/ACTIONS**	**CODE**	**ROAD SECTION**							1			2																			
21	**KAOLACK**	**PNC**	**KAYMOR - SOKONRONG - DAROU KHOUDOSS NGANDA**																													
21.1	Subcontract Negotiations and Signing			AG/ASGC/SUB																												
21.2	Technical Surveys and Design Works			SUB																												
21.3	E&S Works and Approvals			ASGC/SUB																												
21.4	Mobilization			SUB																												
21.5	Construction Works			SUB/ASGC																												
21.6	Defects and Liability Period			SUB/AG																												
22	**KAOLACK**	**PNC**	**DINGUIRA à KEUR SOUNTOU**																													
22.1	Subcontract Negotiations and Signing			AG/ASGC/SUB																												
22.2	Technical Surveys and Design Works			SUB																												
22.3	E&S Works and Approvals			ASGC/SUB																												
22.4	Mobilization			SUB																												
22.5	Construction Works			SUB/ASGC																												
22.6	Defects and Liability Period			SUB/AG																												
23	**KAOLACK**	**PNC**	**SIBASSOR - NDIEBEL**																													
23.1	Subcontract Negotiations and Signing			AG/ASGC/SUB																												
23.2	Technical Surveys and Design Works			SUB																												
23.3	E&S Works and Approvals			ASGC/SUB																												
23.4	Mobilization			SUB																												
23.5	Construction Works			SUB/ASGC																												
23.6	Defects and Liability Period			SUB/AG																												

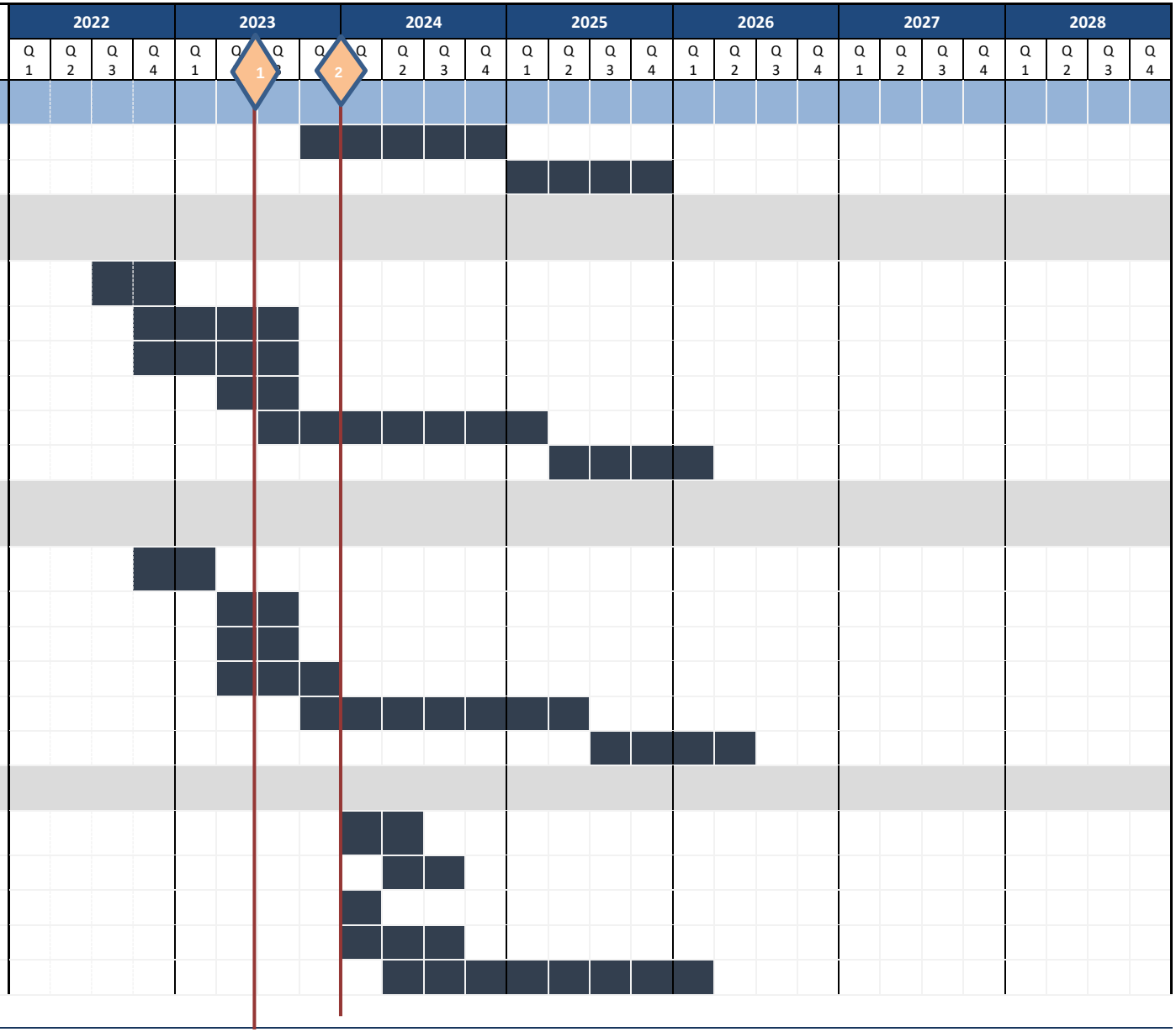
pr-23				Owner	2022				2023				2024				2025				2026				2027				2028			
					Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4
REF	**REGION/ACTIONS**	**CODE**	**ROAD SECTION**																													
24	**KAOLACK**	**PNC**	**GUINGUINEO - NGOLOUM**																													
24.1	Subcontract Negotiations and Signing			AG/ASGC/SUB																												
24.2	Technical Surveys and Design Works			SUB																												
24.3	E&S Works and Approvals			ASGC/SUB																												
24.4	Mobilization			SUB																												
24.5	Construction Works			SUB/ASGC																												
24.6	Defects and Liability Period			SUB/AG																												
25	**KAOLACK**	**PNC**	**GANDIAYE - DIAOULE**																													
25.1	Subcontract Negotiations and Signing			AG/ASGC/SUB																												
25.2	Technical Surveys and Design Works			SUB																												
25.3	E&S Works and Approvals			ASGC/SUB																												
25.4	Mobilization			SUB																												
25.5	Construction Works			SUB/ASGC																												
25.6	Defects and Liability Period			SUB/AG																												
26	**KAOLACK**	**PNC**	**KEUR WALY NDIAYE - NDIENDIENG**																													
26.1	Subcontract Negotiations and Signing			AG/ASGC/SUB																												
26.2	Technical Surveys and Design Works			SUB																												
26.3	E&S Works and Approvals			ASGC/SUB																												
26.4	Mobilization			SUB																												
26.5	Construction Works			SUB/ASGC																												
26.6	Defects and Liability Period			SUB/AG																												
27	**KAFFRINE**	**R41**	**KAFFRINE - NDIOUM GUENTE**																													

pr-23				Owner	2022				2023				2024				2025				2026				2027				2028			
					Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4
REF	**REGION/ACTIONS**	**CODE**	**ROAD SECTION**																													
27.1	Subcontract Negotiations and Signing			AG/ASGC/SUB																												
27.2	Technical Surveys and Design Works			SUB																												
27.3	E&S Works and Approvals			ASGC/SUB																												
27.4	Mobilization			SUB																												
27.5	Construction Works			SUB/ASGC																												
27.6	Defects and Liability Period			SUB/AG																												
28	**KAFFRINE**	**D4104**	**BIRKELANE - MBOS - MBAR**																													
28.1	Subcontract Negotiations and Signing			AG/ASGC/SUB																												
28.2	Technical Surveys and Design Works			SUB																												
28.3	E&S Works and Approvals			ASGC/SUB																												
28.4	Mobilization			SUB																												
28.5	Construction Works			SUB/ASGC																												
28.6	Defects and Liability Period			SUB/AG																												
29	**KAFFRINE**	**R40**	**Pathé Thiangaye - Médinatoul Salam - Nganda**																													
29.1	Subcontract Negotiations and Signing			AG/ASGC/SUB																												
29.2	Technical Surveys and Design Works			SUB																												
29.3	E&S Works and Approvals			ASGC/SUB																												
29.4	Mobilization			SUB																												
29.5	Construction Works			SUB/ASGC																												
29.6	Defects and Liability Period			SUB/AG																												
30	**KAFFRINE**	**PNC**	**RIBO - DAROU KOUM KOUM**																													
30.1	Subcontract Negotiations and Signing			AG/ASGC/SUB																												
30.2	Technical Surveys and Design Works			SUB																												

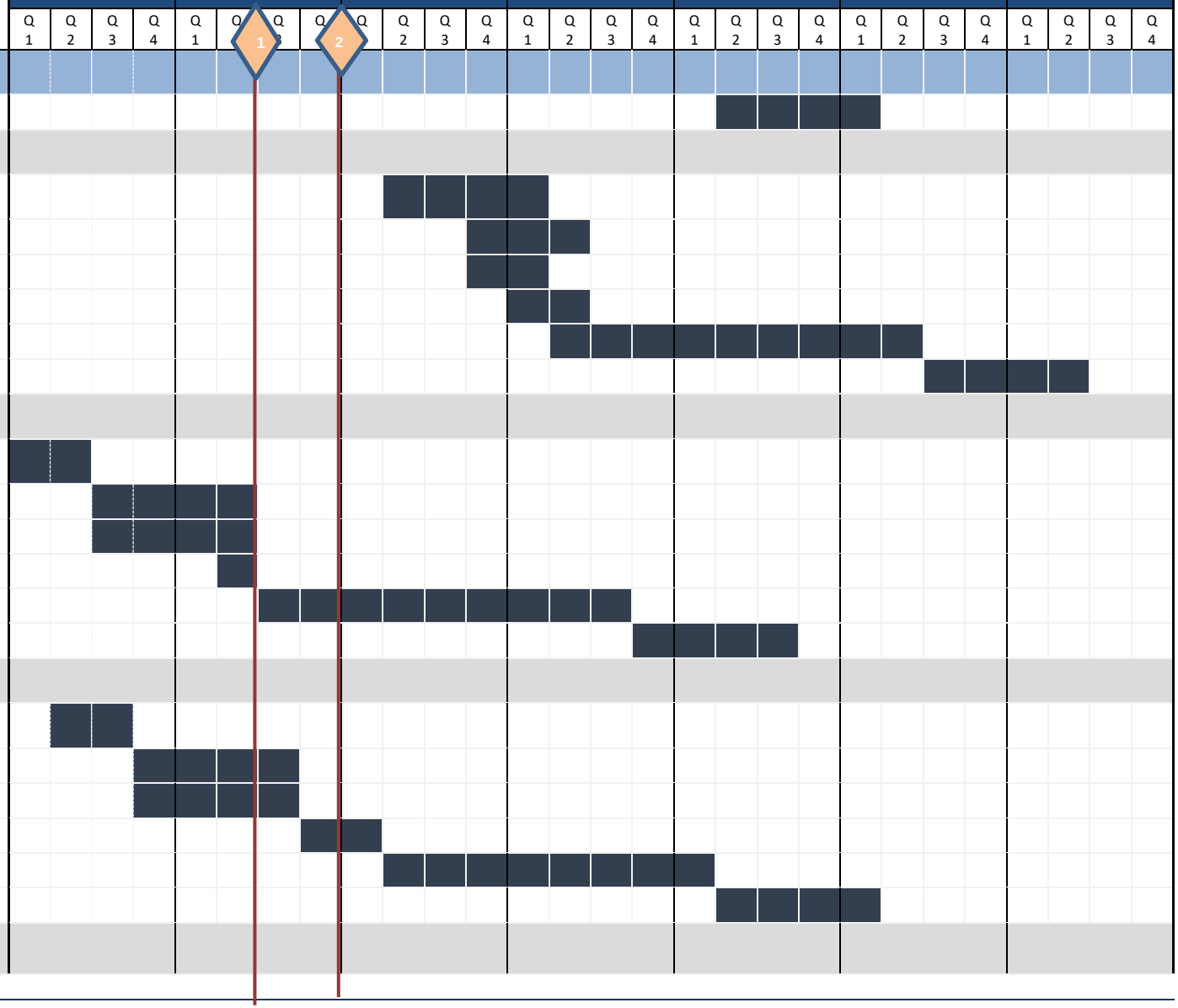
pr-23				Owner
REF	**REGION/ACTIONS**	**CODE**	**ROAD SECTION**	
30.3	E&S Works and Approvals			ASGC/SUB
30.4	Mobilization			SUB
30.5	Construction Works			SUB/ASGC
30.6	Defects and Liability Period			SUB/AG
31	**KAFFRINE**	**PNC**	**DELBI - PAFA - GUENT PATHE**	
31.1	Subcontract Negotiations and Signing			AG/ASGC/SUB
31.2	Technical Surveys and Design Works			SUB
31.3	E&S Works and Approvals			ASGC/SUB
31.4	Mobilization			SUB
31.5	Construction Works			SUB/ASGC
31.6	Defects and Liability Period			SUB/AG
32	**FATICK**	**R031**	**KEUR MARTIN - DIOHINE - WAKHAL DIAM**	
32.1	Subcontract Negotiations and Signing			AG/ASGC/SUB
32.2	Technical Surveys and Design Works			SUB
32.3	E&S Works and Approvals			ASGC/SUB
32.4	Mobilization			SUB
32.5	Construction Works			SUB/ASGC
32.6	Defects and Liability Period			SUB/AG
33	**FATICK**	**D3202**	**TOUBACOUTA - MISSIRA**	
33.1	Subcontract Negotiations and Signing			AG/ASGC/SUB
33.2	Technical Surveys and Design Works			SUB
33.3	E&S Works and Approvals			ASGC/SUB
33.4	Mobilization			SUB



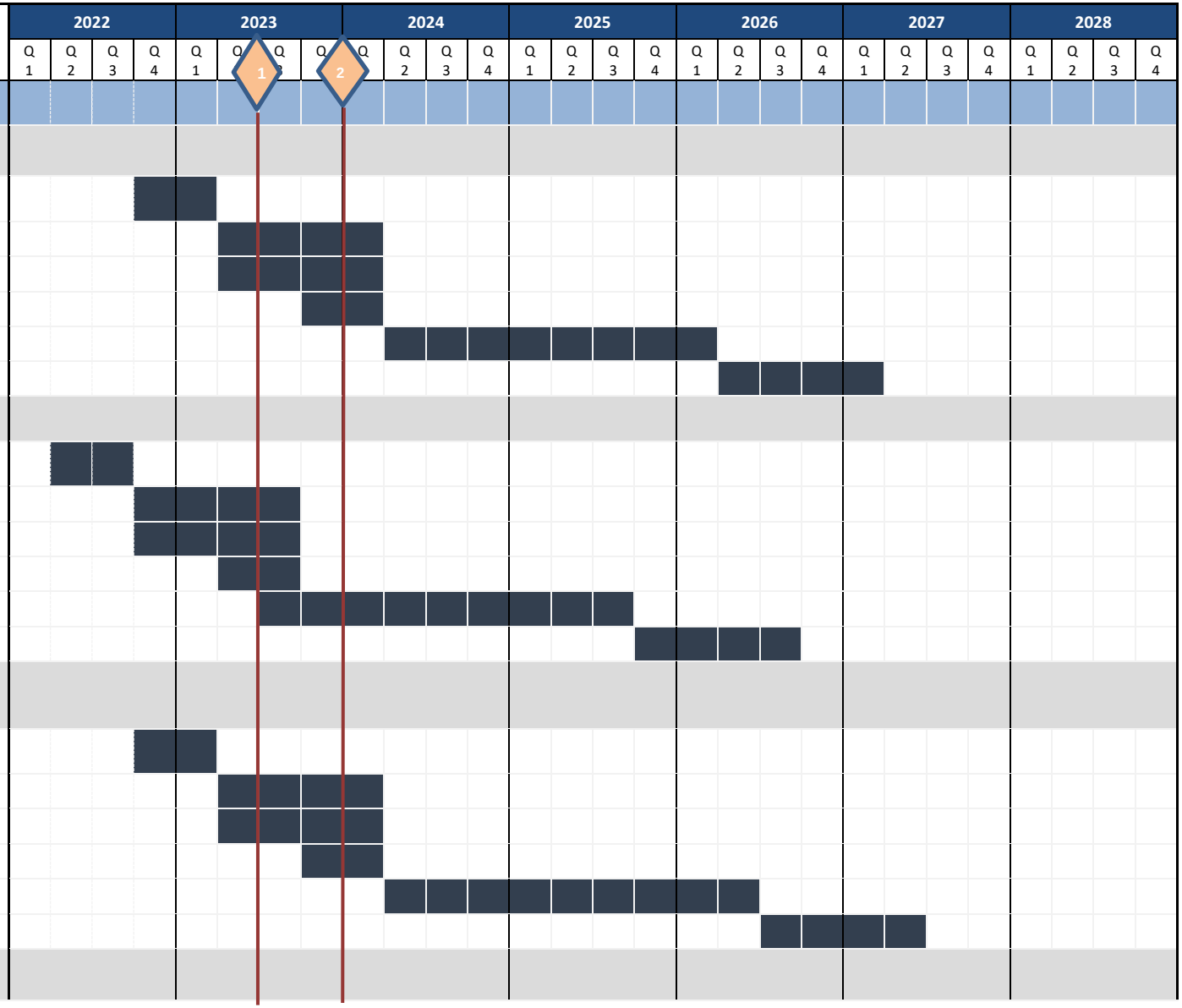
pr-23				Owner
REF	**REGION/ACTIONS**	**CODE**	**ROAD SECTION**	
33.5	Construction Works			SUB/ASGC
33.6	Defects and Liability Period			SUB/AG
34	**FATICK**	**D5101**	**GOSSAS - GUELOU - NGUINGUINEO**	
34.1	Subcontract Negotiations and Signing			AG/ASGC/SUB
34.2	Technical Surveys and Design Works			SUB
34.3	E&S Works and Approvals			ASGC/SUB
34.4	Mobilization			SUB
34.5	Construction Works			SUB/ASGC
34.6	Defects and Liability Period			SUB/AG
35	**FATICK**	**R50**	**TOUBACOUTA - KEUR SALOUM DIANE**	
35.1	Subcontract Negotiations and Signing			AG/ASGC/SUB
35.2	Technical Surveys and Design Works			SUB
35.3	E&S Works and Approvals			ASGC/SUB
35.4	Mobilization			SUB
35.5	Construction Works			SUB/ASGC
35.6	Defects and Liability Period			SUB/AG
36	**FATICK**	**PNC**	**DJILAS - NGUENIENE**	
36.1	Subcontract Negotiations and Signing			AG/ASGC/SUB
36.2	Technical Surveys and Design Works			SUB
36.3	E&S Works and Approvals			ASGC/SUB
36.4	Mobilization			SUB
36.5	Construction Works			SUB/ASGC



pr-23				Owner
REF	**REGION/ACTIONS**	**CODE**	**ROAD SECTION**	
36.6	Defects and Liability Period			SUB/AG
37	**LOUGA**	**PNC**	**BANDEIGNE - TIEPPE**	
37.1	Subcontract Negotiations and Signing			AG/ASGC/SUB
37.2	Technical Surveys and Design Works			SUB
37.3	E&S Works and Approvals			ASGC/SUB
37.4	Mobilization			SUB
37.5	Construction Works			SUB/ASGC
37.6	Defects and Liability Period			SUB/AG
38	**LOUGA**	**PNC**	**CF/R3 - TIAMENE PASS**	
38.1	Subcontract Negotiations and Signing			AG/ASGC/SUB
38.2	Technical Surveys and Design Works			SUB
38.3	E&S Works and Approvals			ASGC/SUB
38.4	Mobilization			SUB
38.5	Construction Works			SUB/ASGC
38.6	Defects and Liability Period			SUB/AG
39	**LOUGA**	**PNC**	**KAB GUEYE - TAWA PEUL**	
39.1	Subcontract Negotiations and Signing			AG/ASGC/SUB
39.2	Technical Surveys and Design Works			SUB
39.3	E&S Works and Approvals			ASGC/SUB
39.4	Mobilization			SUB
39.5	Construction Works			SUB/ASGC
39.6	Defects and Liability Period			SUB/AG
40	**LOUGA**	**PNC**	**NDANDE - NGAGNE DIOUF**	



pr-23				Owner
REF	**REGION/ACTIONS**	**CODE**	**ROAD SECTION**	
			yc bretelle de Darou Ndiaye	
40.1	Subcontract Negotiations and Signing			AG/ASGC/SUB
40.2	Technical Surveys and Design Works			SUB
40.3	E&S Works and Approvals			ASGC/SUB
40.4	Mobilization			SUB
40.5	Construction Works			SUB/ASGC
40.6	Defects and Liability Period			SUB/AG
41	**LOUGA**	**PNC**	**NDIAM FALL - NGOUFATT 2**	
41.1	Subcontract Negotiations and Signing			AG/ASGC/SUB
41.2	Technical Surveys and Design Works			SUB
41.3	E&S Works and Approvals			ASGC/SUB
41.4	Mobilization			SUB
41.5	Construction Works			SUB/ASGC
41.6	Defects and Liability Period			SUB/AG
42	**LOUGA**	**PNC**	**MBEULEUKHE - TESSEKRE - DIAGLE**	
42.1	Subcontract Negotiations and Signing			AG/ASGC/SUB
42.2	Technical Surveys and Design Works			SUB
42.3	E&S Works and Approvals			ASGC/SUB
42.4	Mobilization			SUB
42.5	Construction Works			SUB/ASGC
42.6	Defects and Liability Period			SUB/AG
43	**LOUGA**	**PNC**	**KEUR MADIALE FALL -NDEYE**	



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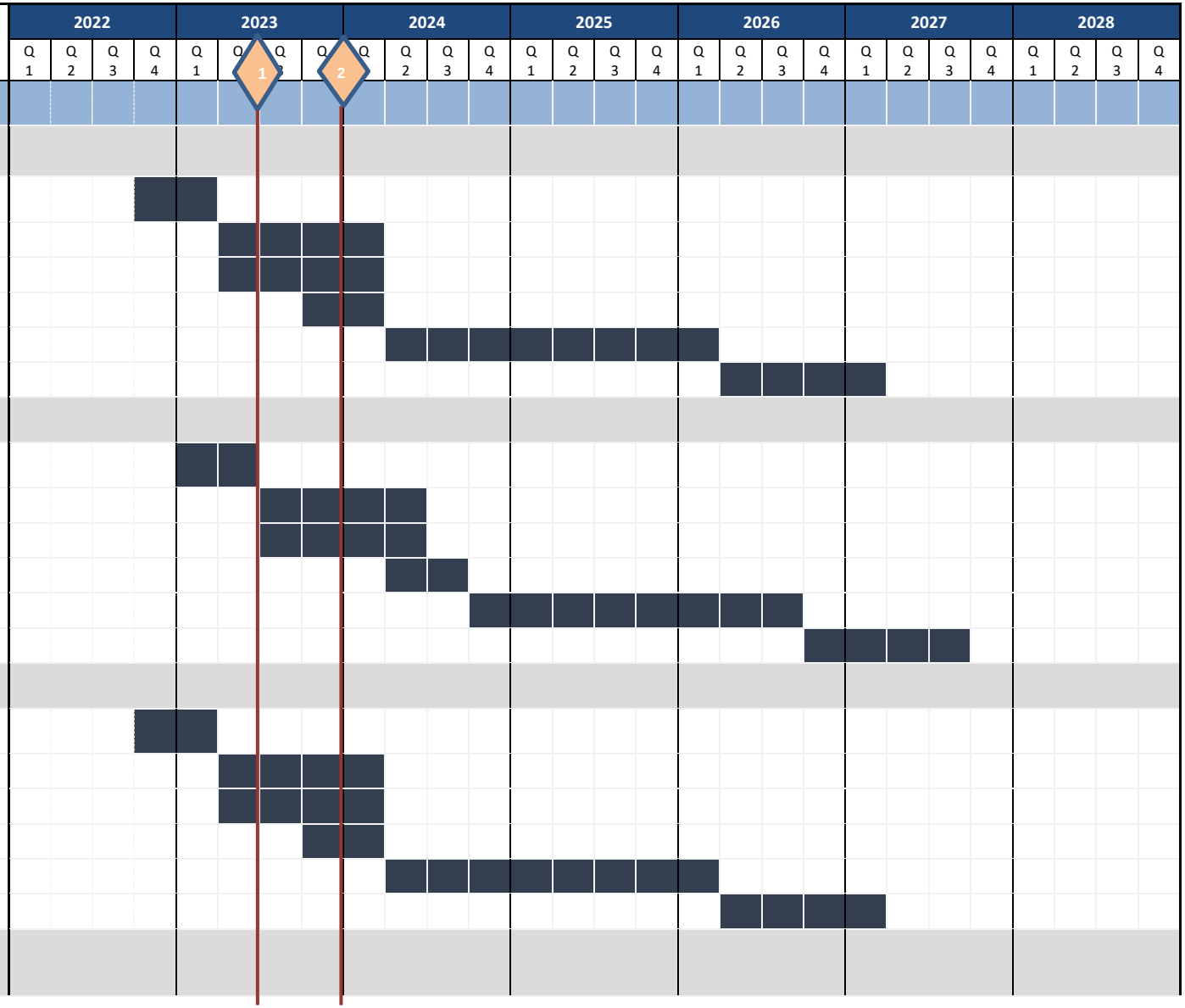
REF	**REGION/ACTIONS**	**CODE**	**ROAD SECTION**	
			SATOURE - WARENE	
43.1	Subcontract Negotiations and Signing			AG/ASGC/SUB
43.2	Technical Surveys and Design Works			SUB
43.3	E&S Works and Approvals			ASGC/SUB
43.4	Mobilization			SUB
43.5	Construction Works			SUB/ASGC
43.6	Defects and Liability Period			SUB/AG
44	**LOUGA**	**PNC**	**Route DE NIOMRE**	
44.1	Subcontract Negotiations and Signing			AG/ASGC/SUB
44.2	Technical Surveys and Design Works			SUB
44.3	E&S Works and Approvals			ASGC/SUB
44.4	Mobilization			SUB
44.5	Construction Works			SUB/ASGC
44.6	Defects and Liability Period			SUB/AG
45	**DAKAR**	**PNC**	**BAMBILOR - LAC ROSE**	
45.1	Subcontract Negotiations and Signing			AG/ASGC/SUB
45.2	Technical Surveys and Design Works			SUB
45.3	E&S Works and Approvals			ASGC/SUB
45.4	Mobilization			SUB
45.5	Construction Works			SUB/ASGC
45.6	Defects and Liability Period			SUB/AG
46	**DAKAR**	**PNC**	**Deni Birame Ndiao Sud - Benoba**	



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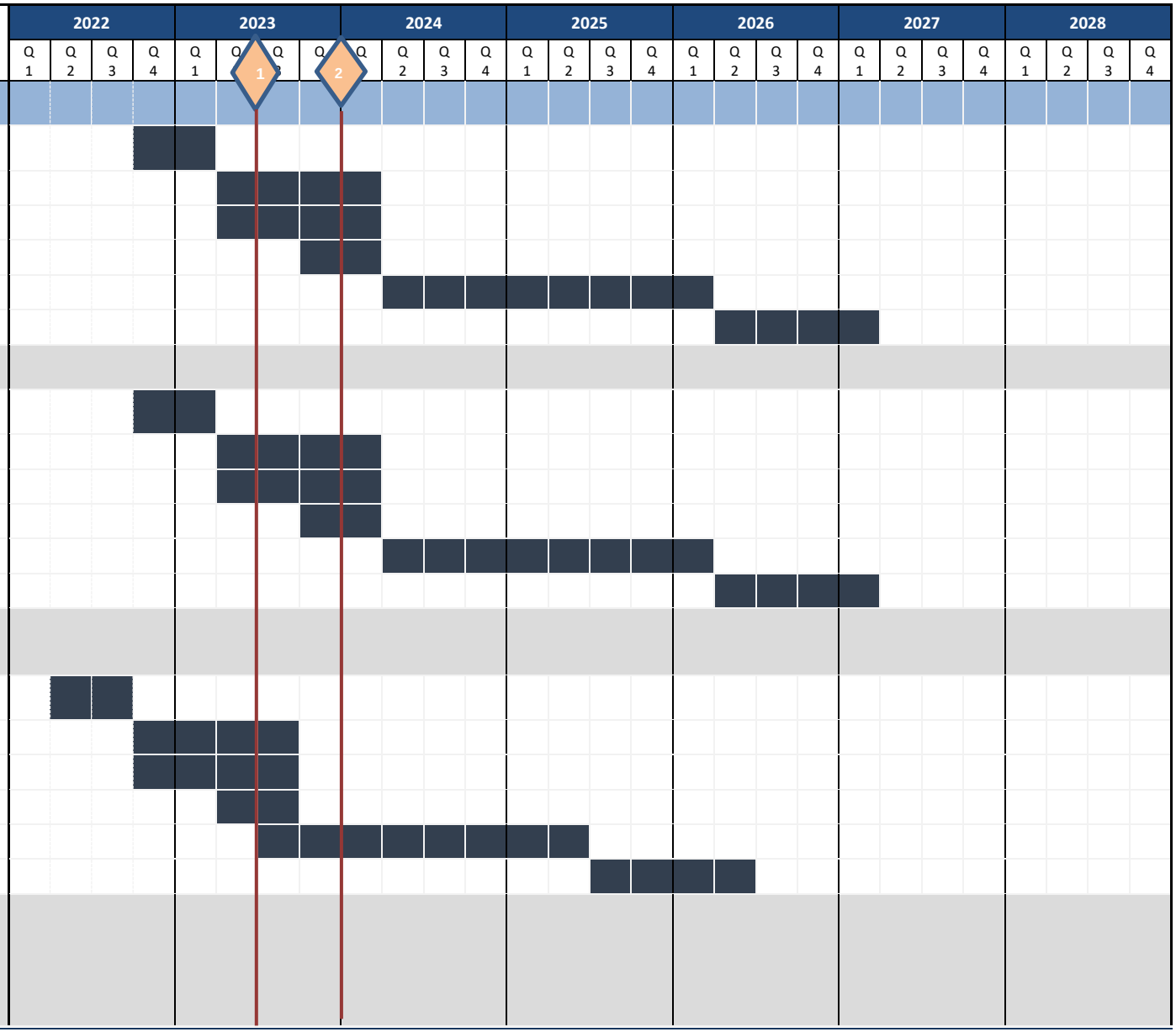
REF	**REGION/ACTIONS**	**CODE**	**ROAD SECTION**	
46.1	Subcontract Negotiations and Signing			AG/ASGC/SUB
46.2	Technical Surveys and Design Works			SUB
46.3	E&S Works and Approvals			ASGC/SUB
46.4	Mobilization			SUB
46.5	Construction Works			SUB/ASGC
46.6	Defects and Liability Period			SUB/AG
47	**DAKAR**	**PNC**	**Keur Ndiaye Lo - Sébi Ponty**	
47.1	Subcontract Negotiations and Signing			AG/ASGC/SUB
47.2	Technical Surveys and Design Works			SUB
47.3	E&S Works and Approvals			ASGC/SUB
47.4	Mobilization			SUB
47.5	Construction Works			SUB/ASGC
47.6	Defects and Liability Period			SUB/AG
48	**DAKAR**	**PNC**	**KEUR NDIAYE LO - CITE ALMADIES II**	
48.1	Subcontract Negotiations and Signing			AG/ASGC/SUB
48.2	Technical Surveys and Design Works			SUB
48.3	E&S Works and Approvals			ASGC/SUB
48.4	Mobilization			SUB
48.5	Construction Works			SUB/ASGC
48.6	Defects and Liability Period			SUB/AG
49	**DAKAR**	**PNC**	**KEUR DAOUDA SARR - FASS KOUNOUNE NGALAP - BASE MILITAIRE - ALMADIES**	



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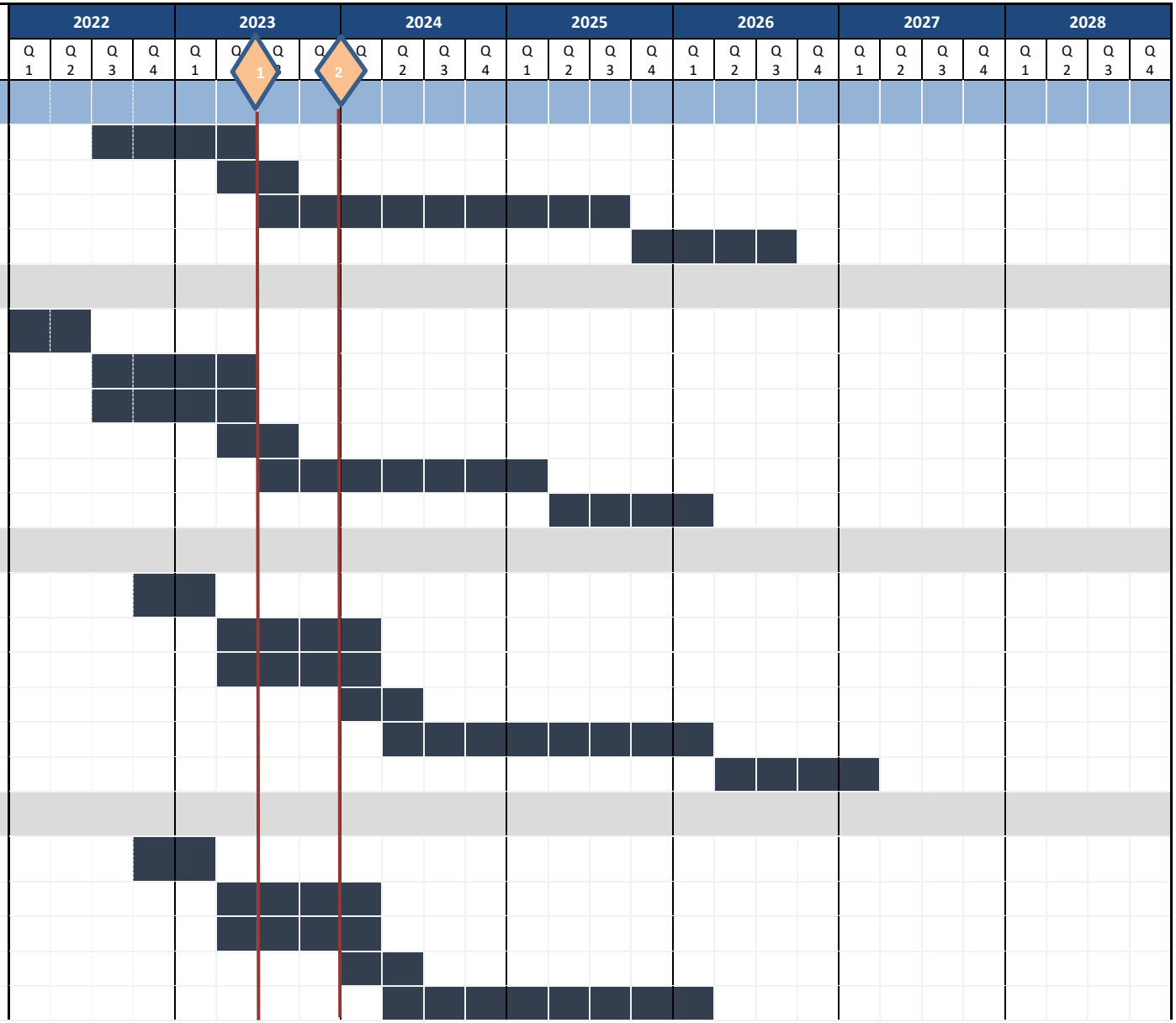
REF	**REGION/ACTIONS**	**CODE**	**ROAD SECTION**																													
49.1	Subcontract Negotiations and Signing			AG/ASGC /SUB																												
49.2	Technical Surveys and Design Works			SUB																												
49.3	E&S Works and Approvals			ASGC/SUB																												
49.4	Mobilization			SUB																												
49.5	Construction Works			SUB/ASGC																												
49.6	Defects and Liability Period			SUB/AG																												
50	**DAKAR**	**PNC**	**NOFLAYE - NIAKHIRATE PEUL - SEBIKOTANE**																													
50.1	Subcontract Negotiations and Signing			AG/ASGC/SUB																												
50.2	Technical Surveys and Design Works			SUB																												
50.3	E&S Works and Approvals			ASGC/SUB																												
50.4	Mobilization			SUB																												
50.5	Construction Works			SUB/ASGC																												
50.6	Defects and Liability Period			SUB/AG																												
51	**MATAM**	**PNC**	**OUDALAYE - SIWI YABE(salalatou)**																													
51.1	Subcontract Negotiations and Signing			AG/ASGC/SUB																												
51.2	Technical Surveys and Design Works			SUB																												
51.3	E&S Works and Approvals			ASGC/SUB																												
51.4	Mobilization			SUB																												
51.5	Construction Works			SUB/ASGC																												
51.6	Defects and Liability Period			SUB/AG																												
52	**MATAM**	**PNC**	**LOUGUERE THIOLI - TIOUKOUNGAL - BADAGOR**																													

pr-23				Owner	2022				2023				2024				2025				2026				2027				2028			
					Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4
REF	**REGION/ACTIONS**	**CODE**	**ROAD SECTION**																													
52.1	Subcontract Negotiations and Signing			AG/ASGC/SUB																												
52.2	Technical Surveys and Design Works			SUB																												
52.3	E&S Works and Approvals			ASGC/SUB																												
52.4	Mobilization			SUB																												
52.5	Construction Works			SUB/ASGC																												
52.6	Defects and Liability Period			SUB/AG																												
53	**MATAM**	**PNC**	**RANEROU - OUDALAYE**																													
53.1	Subcontract Negotiations and Signing			AG/ASGC/SUB																												
53.2	Technical Surveys and Design Works			SUB																												
53.3	E&S Works and Approvals			ASGC/SUB																												
53.4	Mobilization			SUB																												
53.5	Construction Works			SUB/ASGC																												
53.6	Defects and Liability Period			SUB/AG																												
54	**MATAM**	**PNC**	**NABADJI - SEDO SEBE - TAIBA THIANENE**																													
54.1	Subcontract Negotiations and Signing			AG/ASGC/SUB																												
54.2	Technical Surveys and Design Works			SUB																												
54.3	E&S Works and Approvals			ASGC/SUB																												
54.4	Mobilization			SUB																												
54.5	Construction Works			SUB/ASGC																												
54.6	Defects and Liability Period			SUB/AG																												
55	**THIES**	**PNC**	**PEKESSE - DIEMOUL**																													
55.1	Subcontract Negotiations and Signing			AG/ASGC/SUB																												
55.2	Technical Surveys and Design Works			SUB																												

REF	REGION/ACTIONS	CODE	ROAD SECTION	Owner
55.3	E&S Works and Approvals			ASGC/SU B
55.4	Mobilization			SUB
55.5	Construction Works			SUB/ASGC
55.6	Defects and Liability Period			SUB/AG
56	**THIES**	**R130**	**MEKHE - PEKESSE - THILMAKHA**	
56.1	Subcontract Negotiations and Signing			AG/ASGC/SUB
56.2	Technical Surveys and Design Works			SUB
56.3	E&S Works and Approvals			ASGC/SUB
56.4	Mobilization			SUB
56.5	Construction Works			SUB/ASGC
56.6	Defects and Liability Period			SUB/AG
57	**DIOURBEL**	**N9**	**BABA GARAGE - MEKHE**	
57.1	Subcontract Negotiations and Signing			AG/ASGC/SUB
57.2	Technical Surveys and Design Works			SUB
57.3	E&S Works and Approvals			ASGC/SUB
57.4	Mobilization			SUB
57.5	Construction Works			SUB/ASGC
57.6	Defects and Liability Period			SUB/AG
58	**THIES**	**PNC**	**BOUKHOU - PACKY**	
58.1	Subcontract Negotiations and Signing			AG/ASGC/SUB
58.2	Technical Surveys and Design Works			SUB
58.3	E&S Works and Approvals			ASGC/SUB
58.4	Mobilization			SUB
58.5	Construction Works			SUB/ASGC



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REF	**REGION/ACTIONS**	**CODE**	**ROAD SECTION**																													
58.6	Defects and Liability Period			SUB/AG																												
59	**SAINT LOUIS**	**PNC**	**DEGOU NIAYE - MOUIT**																													
59.1	Subcontract Negotiations and Signing			AG/ASGC/SUB																												
59.2	Technical Surveys and Design Works			SUB																												
59.3	E&S Works and Approvals			ASGC/SUB																												
59.4	Mobilization			SUB																												
59.5	Construction Works			SUB/ASGC																												
59.6	Defects and Liability Period			SUB/AG																												
60	**THIES**	**PNC**	**DIASS - MBAYAR**																													
60.1	Subcontract Negotiations and Signing			AG/ASGC/SUB																												
60.2	Technical Surveys and Design Works			SUB																												
60.3	E&S Works and Approvals			ASGC/SUB																												
60.4	Mobilization			SUB																												
60.5	Construction Works			SUB/ASGC																												
60.6	Defects and Liability Period			SUB/AG																												
61	**DIOURBEL**	**PNC**	**DIOURBEL - GAWANE**																													
61.1	Subcontract Negotiations and Signing			AG/ASGC/SUB																												
61.2	Technical Surveys and Design Works			SUB																												
61.3	E&S Works and Approvals			ASGC/SUB																												
61.4	Mobilization			SUB																												
61.5	Construction Works			SUB/ASGC																												
61.6	Defects and Liability Period			SUB/AG																												
62	**THIES**	**PNC**	**KANDAM - SEBIKHOTANE**																													

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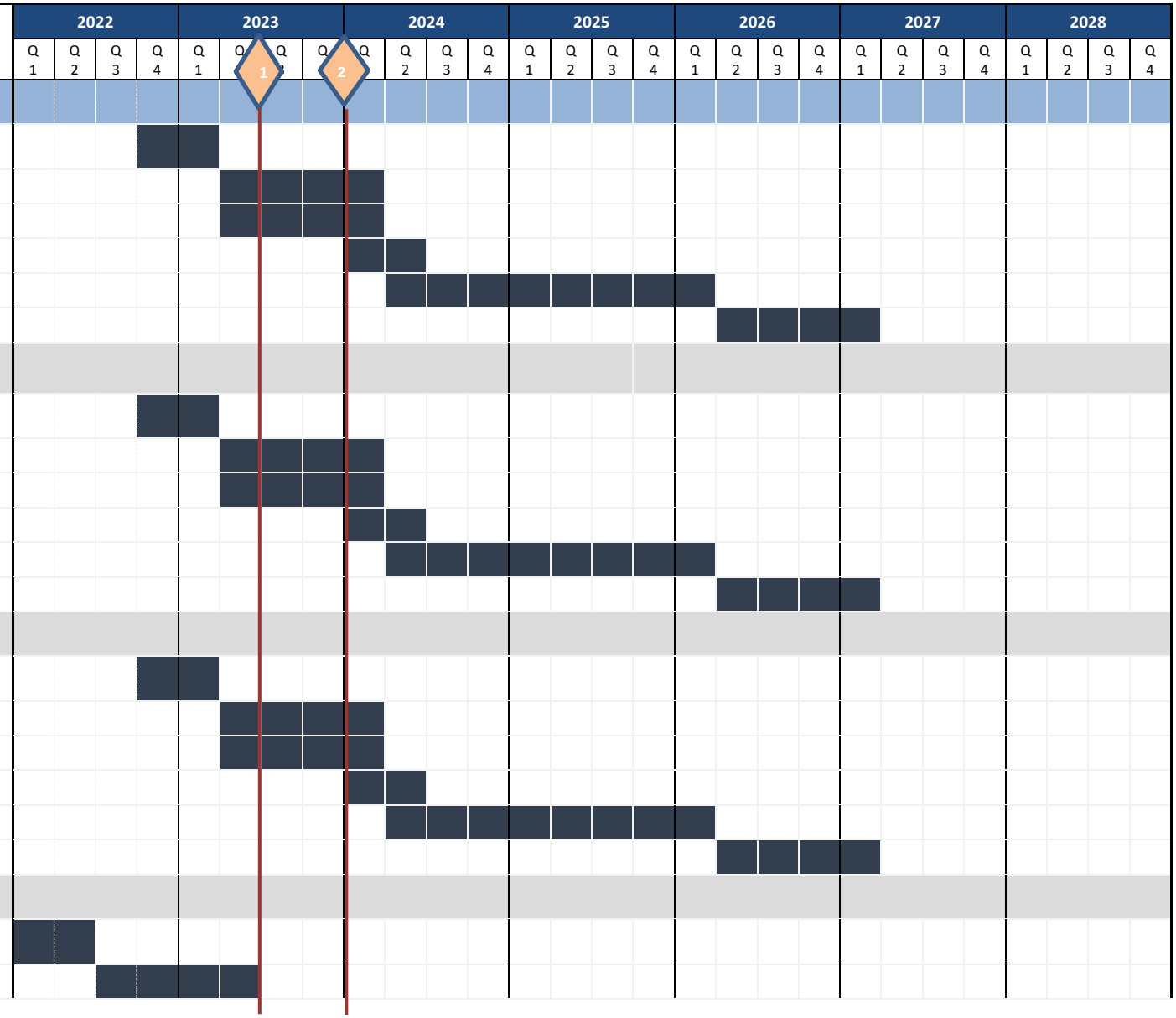
REF	**REGION/ACTIONS**	**CODE**	**ROAD SECTION**	
62.1	Subcontract Negotiations and Signing			AG/ ASGC/SUB
62.2	Technical Surveys and Design Works			SUB
62.3	E&S Works and Approvals			ASGC/SUB
62.4	Mobilization			SUB
62.5	Construction Works			SUB/ASGC
62.6	Defects and Liability Period			SUB/AG
63	**DIOURBEL**	**R021**	**KEUR NGANDA - BABA GARAGE -**	
63.1	Subcontract Negotiations and Signing			AG/ASGC/SUB
63.2	Technical Surveys and Design Works			SUB
63.3	E&S Works and Approvals			ASGC/SUB
63.4	Mobilization			SUB
63.5	Construction Works			SUB/ASGC
63.6	Defects and Liability Period			SUB/AG
64	**THIES**	**D13102**	**LIAISON NGAPAROU**	
64.1	Subcontract Negotiations and Signing			AG/ASGC/SUB
64.2	Technical Surveys and Design Works			SUB
64.3	E&S Works and Approvals			ASGC/SUB
64.4	Mobilization			SUB
64.5	Construction Works			SUB/ASGC
64.6	Defects and Liability Period			SUB/AG
65	**SAINT LOUIS**	**PNC**	**MBATIAS DIEYE - LEONA**	
65.1	Subcontract Negotiations and Signing			AG/ASGC/SUB
65.2	Technical Surveys and Design Works			SUB



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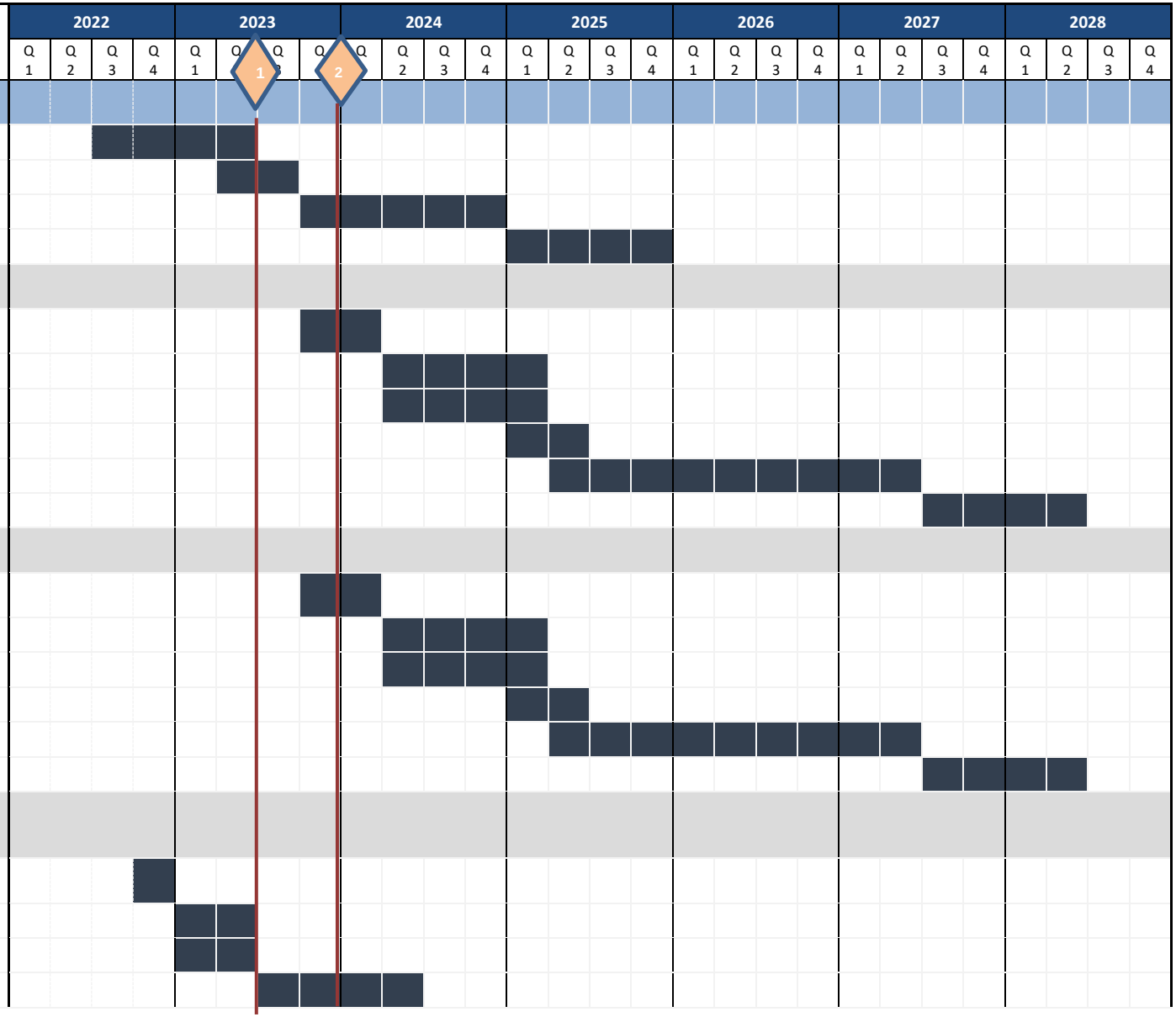
REF	**REGION/ACTIONS**	**CODE**	**ROAD SECTION**	
65.3	E&S Works and Approvals			ASGC/SUB
65.4	Mobilization			SUB
65.5	Construction Works			SUB/ASGC
65.6	Defects and Liability Period			SUB/AG
66	**SAINT LOUIS**	**D10200**	**N2 - NDIADANE - GUIA**	
66.1	Subcontract Negotiations and Signing			AG/ASGC/SUB
66.2	Technical Surveys and Design Works			SUB
66.3	E&S Works and Approvals			ASGC/SUB
66.4	Mobilization			SUB
66.5	Construction Works			SUB/ASGC
66.6	Defects and Liability Period			SUB/AG
67	**SAINT LOUIS**	**PNC**	**NDIASSENE ROSS BETHIO**	
67.1	Subcontract Negotiations and Signing			AG/ASGC/SUB
67.2	Technical Surveys and Design Works			SUB
67.3	E&S Works and Approvals			ASGC/SUB
67.4	Mobilization			SUB
67.5	Construction Works			SUB/ASGC
67.6	Defects and Liability Period			SUB/AG
68	**DIOURBEL**	**PNC**	**NDINDY - AUTOROUTE ILA TOUBA**	
68.1	Subcontract Negotiations and Signing			AG/ASGC/SUB
68.2	Technical Surveys and Design Works			SUB
68.3	E&S Works and Approvals			ASGC/SUB
68.4	Mobilization			SUB



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REF	**REGION/ACTIONS**	**CODE**	**ROAD SECTION**																													
68.5	Construction Works			SUB /ASGC																												
68.6	Defects and Liability Period			SUB/AG																												
69	**SAINT LOUIS**	**PNC**	**NGALEL - MAKA TOUBE - GANDON CF/RN2**																													
69.1	Subcontract Negotiations and Signing			AG/ASGC/SUB																												
69.2	Technical Surveys and Design Works			SUB																												
69.3	E&S Works and Approvals			ASGC/SUB																												
69.4	Mobilization			SUB																												
69.5	Construction Works			SUB/ASGC																												
69.6	Defects and Liability Period			SUB/AG																												
70	**SAINT LOUIS**	**PNC**	**PODOR - GUEDE - NDIOUM**																													
70.1	Subcontract Negotiations and Signing			AG/ASGC/SUB																												
70.2	Technical Surveys and Design Works			SUB																												
70.3	E&S Works and Approvals			ASGC/SUB																												
70.4	Mobilization			SUB																												
70.5	Construction Works			SUB/ASGC																												
70.6	Defects and Liability Period			SUB/AG																												
71	**THIES**	**D13204**	**POUT - KEUR MATAR GUEYE NDAM CF N8**																													
71.1	Subcontract Negotiations and Signing			AG/ASGC/SUB																												
71.2	Technical Surveys and Design Works			SUB																												
71.3	E&S Works and Approvals			ASGC/SUB																												
71.4	Mobilization			SUB																												
71.5	Construction Works			SUB/ASGC																												

pr-23				Owner	2022				2023				2024				2025				2026				2027				2028			
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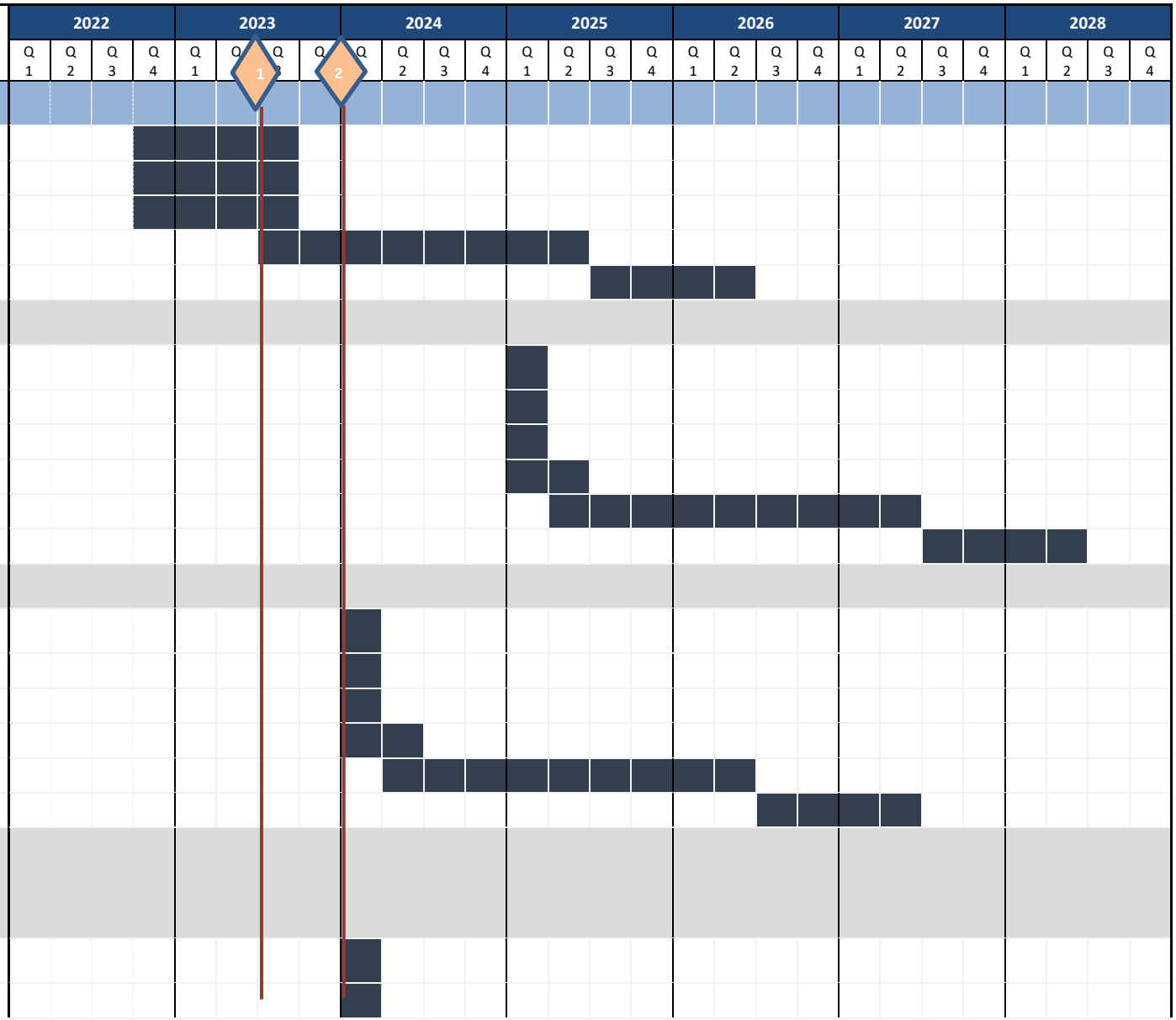
REF	**REGION/ACTIONS**	**CODE**	**ROAD SECTION**																													
71.6	Defects and Liability Period			SUB/ AG																												
72	**SAINT LOUIS**	**PNC**	**RAOUL PEUL - LEONA**																													
72.1	Subcontract Negotiations and Signing			AG/ASGC/SUB																												
72.2	Technical Surveys and Design Works			SUB																												
72.3	E&S Works and Approvals			ASGC/SUB																												
72.4	Mobilization			SUB																												
72.5	Construction Works			SUB/ASGC																												
72.6	Defects and Liability Period			SUB/AG																												
73	**DIOURBEL**	**D02306**	**SADIO - GUERLE - LR LOUGA**																													
73.1	Subcontract Negotiations and Signing			AG/ASGC/SUB																												
73.2	Technical Surveys and Design Works			SUB																												
73.3	E&S Works and Approvals			ASGC/SUB																												
73.4	Mobilization			SUB																												
73.5	Construction Works			SUB/ASGC																												
73.6	Defects and Liability Period			SUB/AG																												
74	**DIOURBEL**	**D02306**	**TAIF - SADIO**																													
74.1	Subcontract Negotiations and Signing			AG/ASGC/SUB																												
74.2	Technical Surveys and Design Works			SUB																												
74.3	E&S Works and Approvals			ASGC/SUB																												
74.4	Mobilization			SUB																												
74.5	Construction Works			SUB/ASGC																												
74.6	Defects and Liability Period			SUB/AG																												
75	**THIES**	**PNC**	**VOIRIE DE SALY**																													
75.1	Subcontract Negotiations and Signing			AG/ASGC/SUB																												

REF	REGION/ACTIONS	CODE	ROAD SECTION	Owner
75.2	Technical Surveys and Design Works			SUB
75.3	E&S Works and Approvals			ASGC/SUB
75.4	Mobilization			SUB
75.5	Construction Works			SUB/ASGC
75.6	Defects and Liability Period			SUB/AG
76	**KEDOUGOU**	**PNC**	**KEDOUGOU - FONGOLEMBI**	
76.1	Subcontract Negotiations and Signing			AG/ASGC/SUB
76.2	Technical Surveys and Design Works			SUB
76.3	E&S Works and Approvals			ASGC/SUB
76.4	Mobilization			SUB
76.5	Construction Works			SUB/ASGC
76.6	Defects and Liability Period			SUB/AG
77	**ZIGUINCHOR**	**PNC**	**EBINAKO - DJIBIDIONE**	
77.1	Subcontract Negotiations and Signing			AG/ASGC/SUB
77.2	Technical Surveys and Design Works			SUB
77.3	E&S Works and Approvals			ASGC/SUB
77.4	Mobilization			SUB
77.5	Construction Works			SUB/ASGC
77.6	Defects and Liability Period			SUB/AG
78	**KAOLACK**	**D5301**	**NIORO - TAIBA NIASSENE - KEUR MADIABEL - DRAME ESCALE - SOKONE**	
78.1	Subcontract Negotiations and Signing			AG/ASGC/SUB
78.2	Technical Surveys and Design Works			SUB



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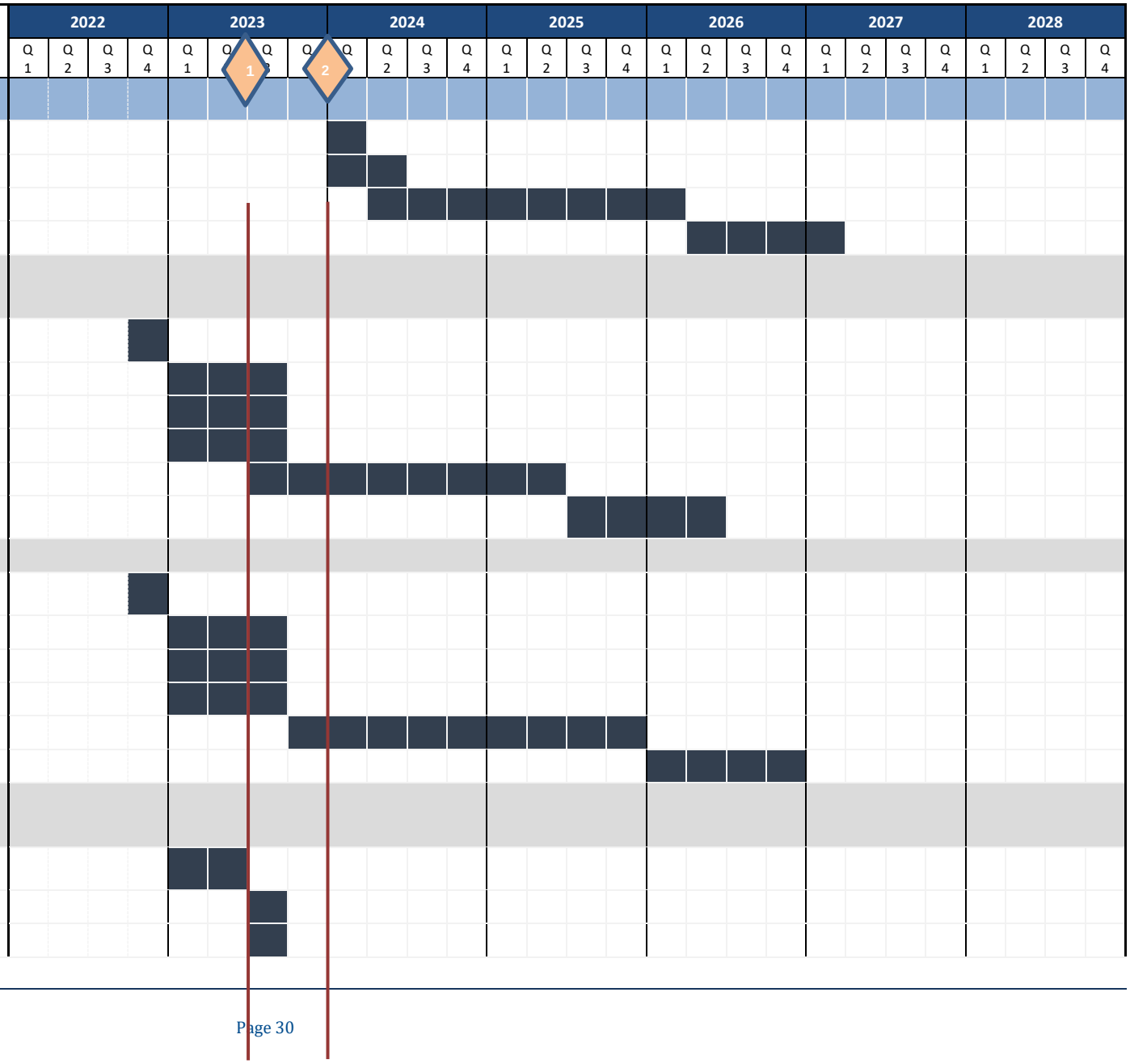
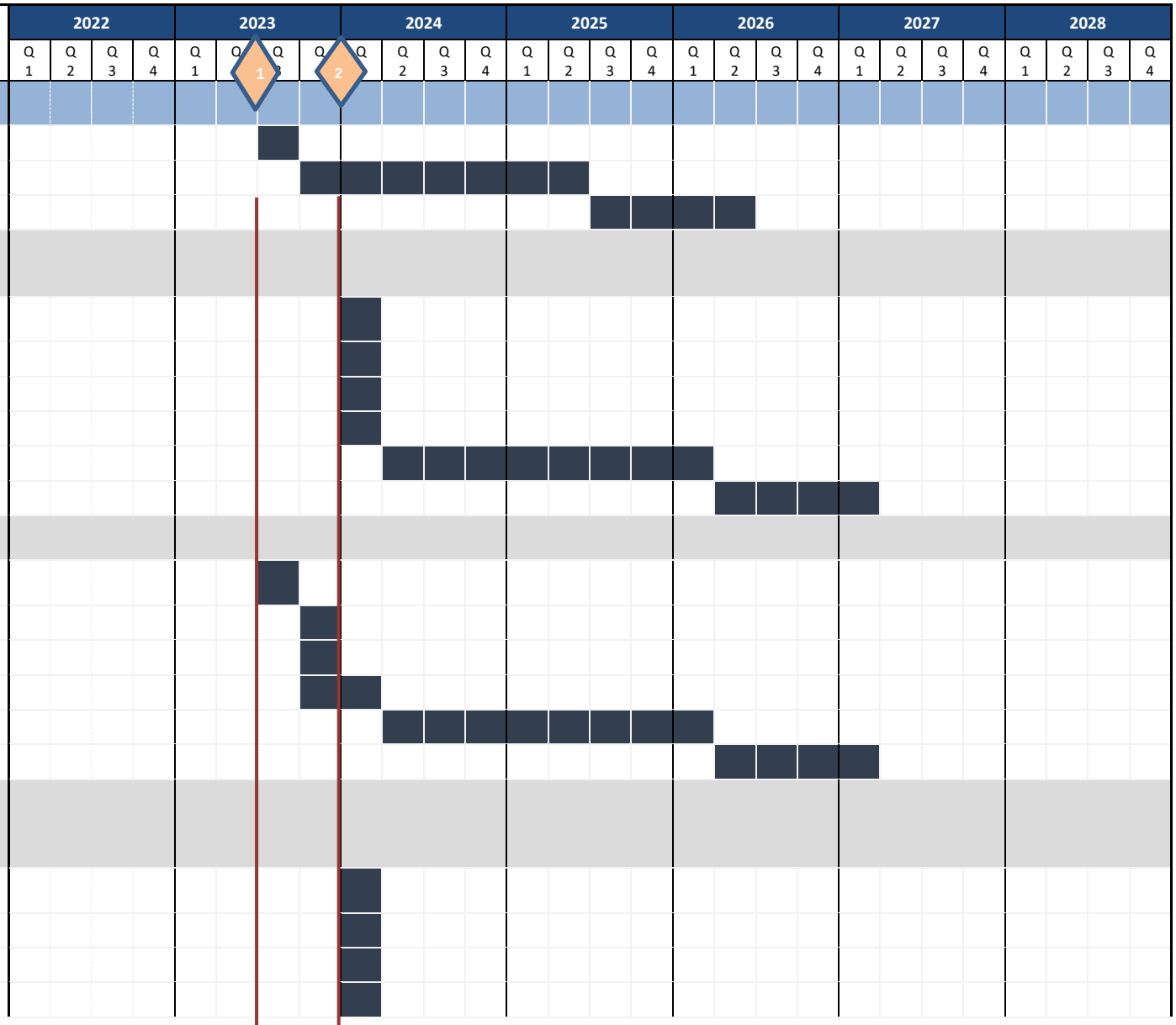
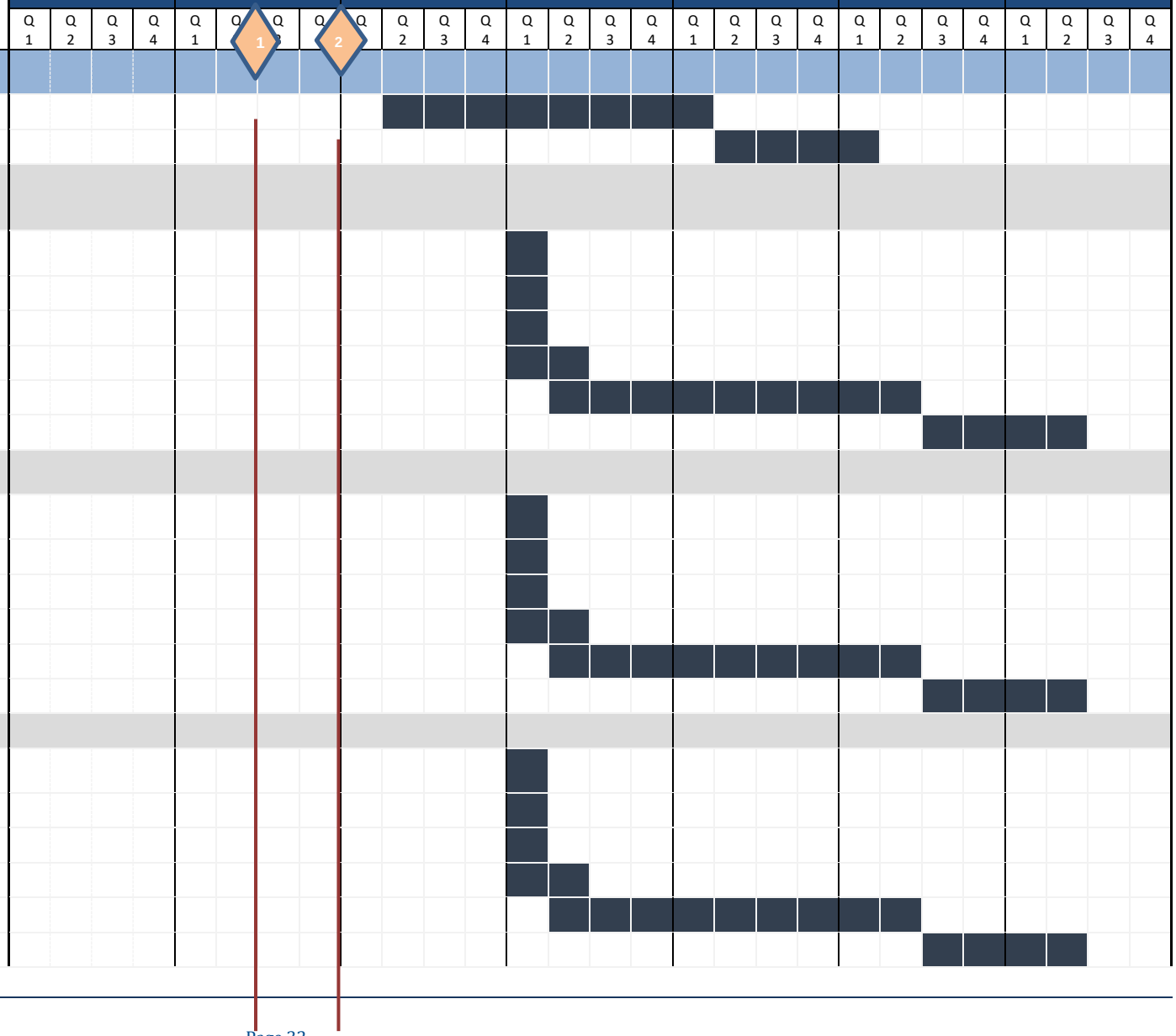
REF	**REGION/ACTIONS**	**CODE**	**ROAD SECTION**	
78.3	E&S Works and Approvals			ASGC/SUB
78.4	Mobilization			SUB
78.5	Construction Works			SUB/ASGC
78.6	Defects and Liability Period			SUB/AG
79	**THIES**	**D13200**	**NDIAGANIAO - TASSETTE - GUEKHOKH**	
79.1	Subcontract Negotiations and Signing			AG/ASGC/SUB
79.2	Technical Surveys and Design Works			SUB
79.3	E&S Works and Approvals			ASGC/SUB
79.4	Mobilization			SUB
79.5	Construction Works			SUB/ASGC
79.80	Defects and Liability Period			SUB/AG
80	**THIES**	**D13100**	**MBOUR - JOAL**	
80.1	Subcontract Negotiations and Signing			AG/ASGC/SUB
80.2	Technical Surveys and Design Works			SUB
80.3	E&S Works and Approvals			ASGC/SUB
80.4	Mobilization			SUB
80.5	Construction Works			SUB/ASGC
80.6	Defects and Liability Period			SUB/AG
81	**DAKAR**	**PNC**	**Kounoune - Dara Tioub - Jaxaay - Keur Massar**	
81.1	Subcontract Negotiations and Signing			AG/ASGC/SUB
81.2	Technical Surveys and Design Works			SUB
81.3	E&S Works and Approvals			ASGC/SUB



pr-23				Owner
REF	**REGION/ACTIONS**	**CODE**	**ROAD SECTION**	
81.4	Mobilization			SUB
81.5	Construction Works			SUB/ASGC
81.6	Defects and Liability Period			SUB/AG
82	**THIES**	**PNC**	**DIAS N1 - SAMKEDJI - RAFFO**	
82.1	Subcontract Negotiations and Signing			AG/ASGC/SUB
82.2	Technical Surveys and Design Works			SUB
82.3	E&S Works and Approvals			ASGC/SUB
82.4	Mobilization			SUB
82.5	Construction Works			SUB/ASGC
82.6	Defects and Liability Period			SUB/AG
83	**DIOURBEL**	**PNC**	**Darou Khafor - Missira**	
83.1	Subcontract Negotiations and Signing			AG/ASGC/SUB
83.2	Technical Surveys and Design Works			SUB
83.3	E&S Works and Approvals			ASGC/SUB
83.4	Mobilization			SUB
83.5	Construction Works			SUB/ASGC
83.6	Defects and Liability Period			SUB/AG
84	**DIOURBEL**	**VU**	**Sortie Autoroute Ila Touba - Contournement Mbacké**	
84.1	Subcontract Negotiations and Signing			AG/ASGC/SUB
84.2	Technical Surveys and Design Works			SUB
84.3	E&S Works and Approvals			ASGC/SUB
84.4	Mobilization			SUB



REF	REGION/ACTIONS	CODE	ROAD SECTION	Owner
84.5	Construction Works			SUB/ASGC
84.6	Defects and Liability Period			SUB/AG
85	**DIOURBEL**	**VU**	**CONTOURNEMENT (Darou Salam Mbacké - Touba)**	
6.1	Subcontract Negotiations and Signing			AG/ASGC/SUB
6.2	Technical Surveys and Design Works			SUB
6.3	E&S Works and Approvals			ASGC/SUB
6.4	Mobilization			SUB
6.5	Construction Works			SUB/ASGC
6.6	Defects and Liability Period			SUB/AG
86	**MATAM**	**PNC**	**N3 - VELINGARA FERLO**	
86.1	Subcontract Negotiations and Signing			AG/ASGC/SUB
86.2	Technical Surveys and Design Works			SUB
86.3	E&S Works and Approvals			ASGC/SUB
86.4	Mobilization			SUB
86.5	Construction Works			SUB/ASGC
86.6	Defects and Liability Period			SUB/AG
87	**MATAM**	**PNC**	**RN2 - BOYNADJI**	
87.1	Subcontract Negotiations and Signing			AG/ASGC/SUB
87.2	Technical Surveys and Design Works			SUB
87.3	E&S Works and Approvals			ASGC/SUB
87.4	Mobilization			SUB
87.5	Construction Works			SUB/ASGC
87.6	Defects and Liability Period			SUB/AG



pr-23				Owner	2022				2023				2024				2025				2026				2027				2028			
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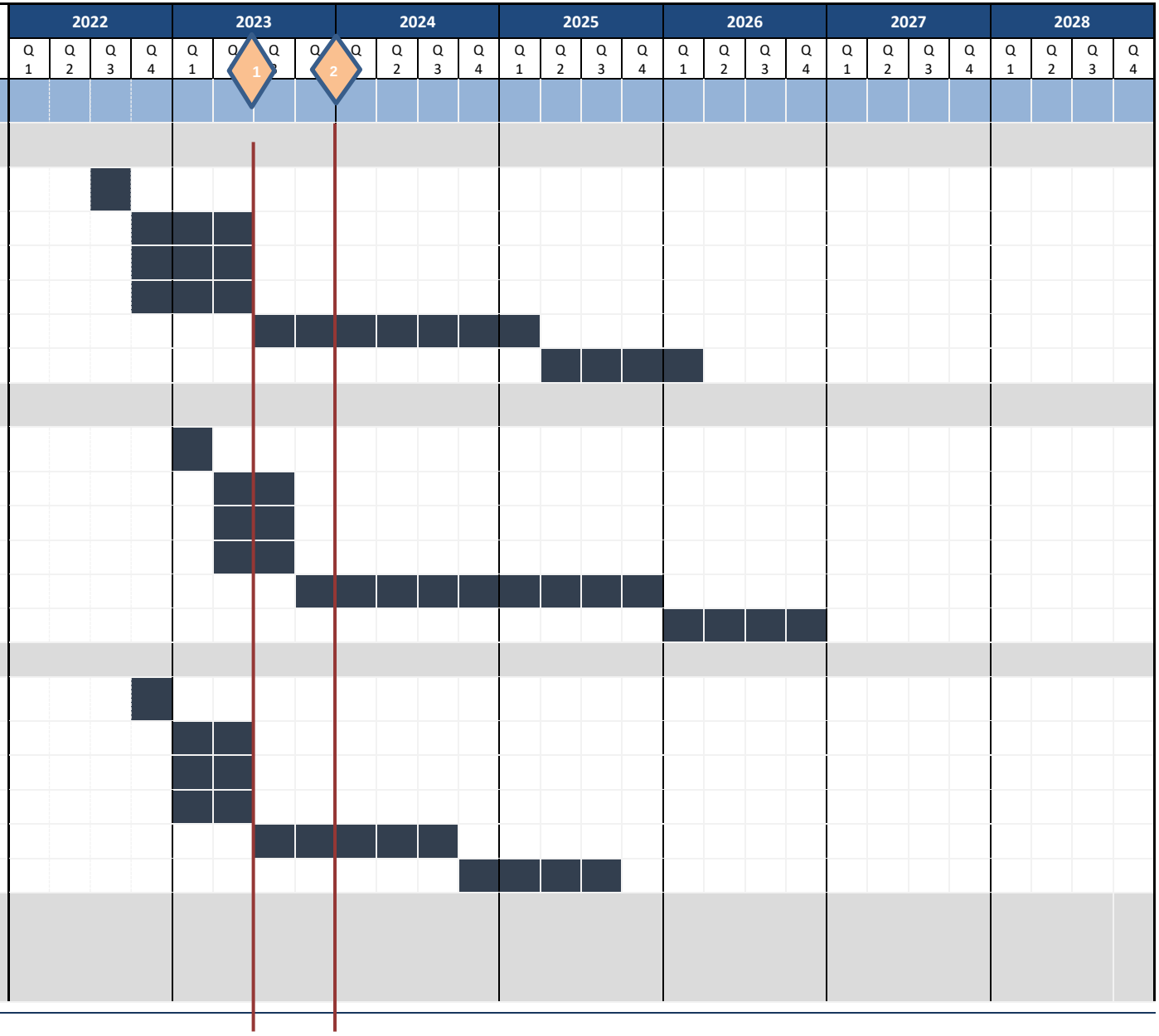
REF	**REGION/ACTIONS**	**CODE**	**ROAD SECTION**																													
88	**MATAM**	**PNC**	**SINTHIOU MBAL (N2) - TAIBA ET PETE NIEBE MOBA TAFSIR BALLA**																													
88.1	Subcontract Negotiations and Signing			AG/ASGC/SUB																												
88.2	Technical Surveys and Design Works			SUB																												
88.3	E&S Works and Approvals			ASGC/SUB																												
88.4	Mobilization			SUB																												
88.5	Construction Works			SUB/ASGC																												
88.6	Defects and Liability Period			SUB/AG																												
89	**MATAM**	**PNC**	**VELINGARA FERLO - THIOUNOUH**																													
89.1	Subcontract Negotiations and Signing			AG/ASGC/SUB																												
89.2	Technical Surveys and Design Works			SUB																												
89.3	E&S Works and Approvals			ASGC/SUB																												
89.4	Mobilization			SUB																												
89.5	Construction Works			SUB/ASGC																												
89.6	Defects and Liability Period			SUB/AG																												
90	**MATAM**	**PNC**	**VELINGARA - MBEM MBEM**																													
90.1	Subcontract Negotiations and Signing			AG/ASGC/SUB																												
90.2	Technical Surveys and Design Works			SUB																												
90.3	E&S Works and Approvals			ASGC/SUB																												
90.4	Mobilization			SUB																												
90.5	Construction Works			SUB/ASGC																												
90.6	Defects and Liability Period			SUB/AG																												

pr-23				Owner	2022				2023				2024				2025				2026				2027				2028			
					Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4
REF	**REGION/ACTIONS**	**CODE**	**ROAD SECTION**																													
91	**LOUGA**	**PNC**	**DAROU MARNANE - DAROU MOUSTY ROUTE DE BOUCHERA**																													
91.1	Subcontract Negotiations and Signing			AG/ASGC/SUB																												
91.2	Technical Surveys and Design Works			SUB																												
91.3	E&S Works and Approvals			ASGC/SUB																												
91.4	Mobilization			SUB																												
91.5	Construction Works			SUB/ASGC																												
91.6	Defects and Liability Period			SUB/AG																												
92	**KAOLACK**	**PNC**	**POROKHANE - POSTE KEUR AYIP**																													
92.1	Subcontract Negotiations and Signing			AG/ASGC/SUB																												
92.2	Technical Surveys and Design Works			SUB																												
92.3	E&S Works and Approvals			ASGC/SUB																												
92.4	Mobilization			SUB																												
92.5	Construction Works			SUB/ASGC																												
92.6	Defects and Liability Period			SUB/AG																												
93	**KAFFRINE**	**R50**	**KAFFRINE - SINTHIOU WANAR - NIORO**																													
93.1	Subcontract Negotiations and Signing			AG/ASGC/SUB																												
93.2	Technical Surveys and Design Works			SUB																												
93.3	E&S Works and Approvals			ASGC/SUB																												
93.4	Mobilization			SUB																												
93.5	Construction Works			SUB/ASGC																												
93.6	Defects and Liability Period			SUB/AG																												

pr-23				Owner
REF	**REGION/ACTIONS**	**CODE**	**ROAD SECTION**	
94	**THIES**	**D13100**	**NDANGALMA - FISSEL**	
94.1	Subcontract Negotiations and Signing			AG/ASGC/SUB
94.2	Technical Surveys and Design Works			SUB
94.3	E&S Works and Approvals			ASGC/SUB
94.4	Mobilization			SUB
94.5	Construction Works			SUB/ASGC
94.6	Defects and Liability Period			SUB/AG
95	**Matam**	**R90**	**Route du Dandé Mayo SUD**	
95.1	Subcontract Negotiations and Signing			AG/ASGC/SUB
95.2	Technical Surveys and Design Works			SUB
95.3	E&S Works and Approvals			ASGC/SUB
95.4	Mobilization			SUB
95.5	Construction Works			SUB/ASGC
95.6	Defects and Liability Period			SUB/AG
96	**Louga**	**RN2**	**Louga-Saint Louis**	
96.1	Subcontract Negotiations and Signing			AG/ASGC/SUB
96.2	Technical Surveys and Design Works			SUB
96.3	E&S Works and Approvals			ASGC/SUB
96.4	Mobilization			SUB
96.5	Construction Works			SUB/ASGC
96.6	Defects and Liability Period			SUB/AG
97	**Matam**	**PNC**	**Boke Dialloube Karawendou - GayeKadar - Ndiayene Djolof - Loumbellana**	



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REF	**REGION/ACTIONS**	**CODE**	**ROAD SECTION**																													
97.1	Subcontract Negotiations and Signing			AG/ASGC/SUB																												
97.2	Technical Surveys and Design Works			SUB																												
97.3	E&S Works and Approvals			ASGC/SUB																												
97.4	Mobilization			SUB																												
97.5	Construction Works			SUB/ASGC																												
97.6	Defects and Liability Period			SUB/AG																												
98	**Kaffrine**		**Malem Hodar - Delbi - Darou Miname**																													
98.1	Subcontract Negotiations and Signing			AG/ASGC/SUB																												
98.2	Technical Surveys and Design Works			SUB																												
98.3	E&S Works and Approvals			ASGC/SUB																												
98.4	Mobilization			SUB																												
98.5	Construction Works			SUB/ASGC																												
98.6	Defects and Liability Period			SUB/AG																												
99	**Louga**	**R81**	**Keur momar Sarr - Nguith - Colona**																													
99.1	Subcontract Negotiations and Signing			AG/ASGC/SUB																												
99.2	Technical Surveys and Design Works			SUB																												
99.3	E&S Works and Approvals			ASGC/SUB																												
99.4	Mobilization			SUB																												
99.5	Construction Works			SUB/ASGC																												
99.6	Defects and Liability Period			SUB/AG																												
100	**DAKAR**		**Voiries Diamniadio**																													
100.1	Subcontract Negotiations and Signing			AG/ASGC/SUB																												

pr-23				Owner	2022				2023				2024				2025				2026				2027				2028			
					Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4
REF	**REGION/ACTIONS**	**CODE**	**ROAD SECTION**																													
100.2	Technical Surveys and Design Works			SUB																												
100.3	E&S Works and Approvals			ASGC/SUB																												
100.4	Mobilization			SUB																												
100.5	Construction Works			SUB/ASGC																												
100.6	Defects and Liability Period			SUB/AG																												

1. Tranche No. 1

2. Tranche No. 2

AG	AGEROUTE
SUB	SUBCONTRACTORS

B. Environmental & Social Action Plans

The final SEA contains a series of Environmental & Social Action Plans (ESAPs) for each risk category as well as an overall programme level ESAP. The format of these plans is indicated below. It is assumed that these ESAPs will be implemented post-signing unless agreed otherwise. Prior to signature we recommend that the following actions are implemented with the responsible parties indicated in brackets.

- The project components to be included in Project Strada are finalised and agreed between UKEF, AGEROUTE and ASGC (UKEF, AGEROUTE and ASGC)
- AGEROUTE supplies a detailed set of route alignments with associated imagery to assist with any further project component categorisation (AGEROUTE)
- A detailed programme and schedule of E&S work including ESIAs, and other technical studies is developed and agreed (ASGC and AGEROUTE)
- The RFP is finalised (ASGC with external support)
- A Permitting Strategy and permitting schedule is developed (AGEROUTE and ASGC)
- The framework ESMS and ESMP are updated in line with the results of the SEA(ASGC)
- A detailed capacity assessment is carried out of the implementing agencies to assess the need for additional human and technical resources and the need for training on E&S topics (ASGC with external support)

TABLE 2: ESAP Actions-PSD Level

ted Standard	Gap/Issue	Actions to be taken	Indicator of completion / Means of Verification	Responsible Party -AGEROUTE -ASGC -SLR	Timeframe for Implementation -Pre-Construction -Post-Construction -Pre-Operation -During-Operation	Priority Status -High -Medium -Low
IFC PS1	PSD-level ESMS	Development of a PSD level ESMS to act as a risk management framework. ESMS to be used as part of Contractor evaluation process prior to contract award.	DEEC/AGEROUTE/Lender approved ESMS in place	ASGC/AGEROUTE	Pre-Construction	High

ted Standard	Gap/Issue	Actions to be taken	Indicator of completion / Means of Verification	Responsible Party -AGEROUTE -ASGC -SLR	Timeframe for Implementation -Pre-Construction -Post-Construction -Pre-Operation -During-Operation	Priority Status -High -Medium -Low
	PSD Level CESMP	Development of a PSD level CESMP to act as a risk management, monitoring and evaluation framework. CESMS to be used as part of Contractor evaluation process prior to contract award.	DEEC/AGEROUTE/Lender approved CESMP in place	ASGC/AGEROUTE	Pre-Construction	High
	PSD Level Materials Strategy	Development of a PSD-wide strategy setting out clear principles for the selection and exploitation of mineral resources, quarries, borrow pits, sand extraction points etc and provide clarity on the criteria to be adopted including exclusion criteria (environmental, climate change and social). Mapping of prosed locations to be provided to facilitate discussions at ESIA stage.	AGEROUTE/Lender approved PSD Materials Strategy in place	ASGC/AGEROUTE	Pre-Construction	High
IFC PS2	PSD Level CESMP	Development of a PSD level CESMP containing labour and community and human resource plans aligned with the requirements of PS2 to act as a risk management, monitoring and evaluation framework.	DEEC/AGEROUTE/Lender approved CESMP in place	ASGC/AGEROUTE	Pre-Construction	High
IFC PS3	PSD Level CCRA	Development of a detailed EP IV aligned CCRA with programme-level mitigation and resilience measures.	AGEROUTE/Lender approved detailed CCRA in place	ASGC/AGEROUTE	Pre-Construction	High
IFC PS4	PSD Level CESMP	Development of a PSD level CESMP containing a Community Health and Safety Management Plan aligned with the requirements of PS4 to act as a risk management, monitoring and evaluation framework	DEEC/AGEROUTE/Lender approved CESMP in place	ASGC/AGEROUTE	Pre-Construction	High
IFC PS5	PSD Level Resettlement Policy Framework (RPF)incorporating the requirements of the Applicable Standards	Modification and updating of existing RPF to align with scope and content requirements of the Applicable Standards.	AGEROUTE/Lender approved RPF in place	ASGC/AGEROUTE	Pre-Construction	High

ted Standard	Gap/Issue	Actions to be taken	Indicator of completion / Means of Verification	Responsible Party -AGEROUTE -ASGC -SLR	Timeframe for Implementation -Pre-Construction -Post-Construction -Pre-Operation -During-Operation	Priority Status -High -Medium -Low
IFC PS6	Development of a PSD level Critical Habitat Assessment (CHA)	Development of a CHA in accordance with IFC PS 6 requirements for the PSD as a whole to facilitate consideration and mitigation of potential biodiversity impacts across the Plan including the selection of compensation measures to achieve "no net loss". Primary fieldwork should be carried out to support the CHA	AGEROUTE/Lender approved CHA in place	ASGC/AGEROUTE	Pre-Construction	High
	Development of a Biodiversity Action Plan (BAP) at PSD level	To facilitate management of biodiversity across the PSD a BAP will be created to assist in the implementation of measures designed to safeguard biodiversity and align with the requirements of IFC PS6. This will facilitate impact management at Plan and individual project level.	AGEROUTE/Lender approved BAP in place	ASGC/AGEROUTE	Pre-Construction	High
IFC PS8	PSD Level CESMP	Development of a PSD level CESMP containing a Chance Finds Procedure aligned with the requirements of PS8 to act as a risk management, monitoring and evaluation framework.	DEEC/AGEROUTE/Lender approved CESMP in place	ASGC/AGEROUTE	Pre-Construction	High

TABLE 3: High Level Risk Projects - Environmental & Social Action Plan

Related Standard	Gap/Issue	Actions to be taken	Indicator of completion/Means of Verification	Responsible Party -AGEROUTE -ASGC -SLR	Timeframe for Implementation -Pre-Construction -Post-Construction -Pre-Operation -During-Operation	Priority Status -High -Medium -Low
IFC PS1	PS 1 aligned ESIA incorporating the	– Updating of national EIAs already carried out to national requirements and approved by the national authorities to meet the requirements of the Applicable	DEEC/AGEROUTE/Lender approved ESIA and associated documents in place	ASGC/AGEROUTE	Pre-Construction	High

Related Standard	Gap/Issue	Actions to be taken	Indicator of completion/Means of Verification	Responsible Party -AGEROUTE -ASGC -SLR	Timeframe for Implementation -Pre-Construction -Post-Construction -Pre-Operation -During-Operation	Priority Status -High -Medium -Low
	requirements of all the Applicable Standards	Standards either via an ESIA upgrade or a Supplementary Lenders Information Package (SLIP) as agreed with the Lenders. – For road sections without an already approved national EIA, carry out an ESIA to the Applicable Standards. – Primary fieldwork should be carried out for all topics considered as high risk or where baseline data is incomplete or entirely secondary in existing assessment documents. The need for primary data collection needs to be assessed at ESIA Scoping stage. – The ESIA upgrade, SLIP or ESIA should have a project specific CESMP based on the PSD level CESMP, a project specific SEP(including a Community Grievance Mechanism) based on the PSD template, a project specific BAP based on the PSD BAP and should also include specific actions arising from the HRIS and CCRA.I t should also be based on an updated Project Description that is aligned with the requirements of PS1 including the consideration of associated facilities .				
	Project specific CESMP	Based on the PSD level CESMP each project should have a bespoke plan to ensure management of any specific issues arising from the ESIA including monitoring and management actions.	DEEC/AGEROUTE/Lender approved CESMP and associated documents in place	ASGC/AGEROUTE	Pre-Construction	High

Related Standard	Gap/Issue	Actions to be taken	Indicator of completion/Means of Verification	Responsible Party -AGEROUTE -ASGC -SLR	Timeframe for Implementation -Pre-Construction -Post-Construction -Pre-Operation -During-Operation	Priority Status -High -Medium -Low
	Training of Contractors in CESMP	Carry out training of contractors in the application and implementation of the CESMP including monitoring and reporting	AGEROUTE approved training materials and training programme	ASGC	Pre-Construction	High
	Updated Project Description	Detailed design documentation to be developed to inform the ESIA process-taking into account PSD level documentation and standards.	DEEC/AGEROUTE/ASGC approved detailed design and associated documents in place	ASGC/AGEROUTE/Contractors	Pre-Construction	High
IFC PS2	Project specific CESMP	Based on the PSD level CESMP each project should have a bespoke plan to ensure management of any specific issues relating to the requirements of PS2 arising from the ESIA including monitoring and management actions.	DEEC/AGEROUTE/Lender approved CESMP and associated documents in place	ASGC/AGEROUTE	Pre-Construction	High
IFC PS3	Specific Climate Change Risk Information	Project specific aspects of CCRA to be included in the ESIA. Based on the PSD CCRA and project location, design, construction methods etc	Climate change risks and impacts, and mitigation measures included in the ESIA	ASGC and Contractors	Pre-Construction	High
IFC PS4	Project-specific Community Health and Safety Management Plan	Based on the PSD level CESMP each project should have a bespoke plan to ensure management of any specific issues relating to the requirements of PS4 arising from the ESIA including monitoring and management actions	DEEC/AGEROUTE/Lender approved CESMP and associated documents in place	ASGC/AGEROUTE	Pre-Construction	High
IFC PS5	RAP/LRP	Based on the PSD RPF develop a Resettlement Action Plan (RAP) or Livelihood Restoration Plan (LRP)in line with the Applicable Standards and implement a land acquisition and compensation process aligned with national and IFC PS 5 requirements. Implement a Grievance Mechanism for resettlement-related grievances and establish a Resettlement Implementation Team.	AGEROUTE/Lender approved RAP/LRP and associated documents in place to demonstrate successful completion of the resettlement and compensation process.	ASGC and Contractors	Pre-Construction	High

Related Standard	Gap/Issue	Actions to be taken	Indicator of completion/Means of Verification	Responsible Party -AGEROUTE -ASGC -SLR	Timeframe for Implementation -Pre-Construction -Post-Construction -Pre-Operation -During-Operation	Priority Status -High -Medium -Low
		Specific provisions for engaging with and compensating nomadic groups should be included as well as specific engagement and compensation methods to address the needs of vulnerable groups where these groups are identified by the ESIA.				
IFC PS6	Critical Habitat Assessment (CHA)	Based on the PSD level CHA prepare a project specific CHA for inclusion in the ESIA including any additional primary fieldwork that is necessary. Develop a BAP as an integral part of the CHA.	AGEROUTE/Lender approved CHA and BAP.	ASGC/AGEROUTE	Pre-Construction	High
IFC PS8	Impacts on Cultural Heritage	In addition to the Chance Finds Procedure which will be an integral part of the CESMP, the ESIA process will include engagement and data collection with communities on both tangible and intangible cultural heritage and the development of mitigation actions if required.	AGEROUTE/Lender approved ESIA.	ASGC/AGEROUTE	Pre-Construction	High

TABLE 4: Medium Level Risk Projects - Environmental & Social Action Plan

Related Standard	Gap/Issue	Actions to be taken	Indicator of completion/Means of Verification	Responsible Party -AGEROUTE -ASGC -SLR	Timeframe for Implementation -Pre-Construction -Post-Construction -Pre-Operation -During-Operation	Priority Status -High -Medium -Low
IFC PS1	PS 1 aligned ESIA incorporating the requirements of all the	– Updating of national EIAs already carried out to national requirements and approved by the national authorities to meet the requirements of the Applicable Standards either via an ESIA upgrade or a	DEEC/AGEROUTE/Lender approved ESIA and associated documents in place	ASGC/AGEROUTE	Pre-Construction	High

Related Standard	Gap/Issue	Actions to be taken	Indicator of completion/Means of Verification	Responsible Party -AGEROUTE -ASGC -SLR	Timeframe for Implementation -Pre-Construction -Post-Construction -Pre-Operation -During-Operation	Priority Status -High -Medium -Low
	Applicable Standards	Supplementary Lenders Information Package (SLIP) as agreed with the Lenders. – For road sections without an already approved national EIA, carry out an ESIA to the Applicable Standards. – Primary fieldwork should be carried out for all topics considered as high risk or where baseline data is incomplete or entirely secondary in existing assessment documents. The need for primary data collection needs to be assessed at ESIA Scoping stage. – The ESIA upgrade, SLIP or ESIA should have a project specific CESMP based on the PSD level CESMP, a project specific SEP(including a Community Grievance Mechanism) based on the PSD template, a project specific BAP based on the PSD BAP and should also include specific actions arising from the HRIS and CCRA.I t should also be based on an updated Project Description that is aligned with the requirements of PS1 including the consideration of associated facilities .				
	Project specific CESMP	Based on the PSD level CESMP each project should have a bespoke plan to ensure management of any specific issues arising from the ESIA including monitoring and management actions.	DEEC/AGEROUTE/Lender approved CESMP and associated documents in place	ASGC/AGEROUTE	Pre-Construction	High

Related Standard	Gap/Issue	Actions to be taken	Indicator of completion/Means of Verification	Responsible Party -AGEROUTE -ASGC -SLR	Timeframe for Implementation -Pre-Construction -Post-Construction -Pre-Operation -During-Operation	Priority Status -High -Medium -Low
	Training of Contractors in CESMP	Carry out training of contractors in the application and implementation of the CESMP including monitoring and reporting	AGEROUTE approved training materials and training programme	ASGC	Pre-Construction	High
	Updated Project Description	Detailed design documentation to be developed to inform the ESIA process-taking into account PSD level documentation and standards.	DEEC/AGEROUTE/ASGC approved detailed design and associated documents in place	ASGC/AGEROUTE/Contractors	Pre-Construction	High
IFC PS2	Project specific CESMP	Based on the PSD level CESMP each project should have a bespoke plan to ensure management of any specific PS2 issues arising from the ESIA including monitoring and management actions.	DEEC/AGEROUTE/Lender approved CESMP and associated documents in place	ASGC/AGEROUTE	Pre-Construction	High
IFC PS3	Specific Climate Change Risk Information	Project specific aspects of CCRA to be included in the ESIA. Based on the PSD CCRA and project location, design, construction methods etc	Climate change risks and impacts, and mitigation measures included in the ESIA	ASGC and Contractors	Pre-Construction	High
IFC PS4	Project specific CESMP	Based on the PSD level CESMP each project should have a bespoke plan to ensure management of any specific PS4 issues arising from the ESIA including monitoring and management actions.	DEEC/AGEROUTE/Lender approved CESMP and associated documents in place	ASGC/AGEROUTE	Pre-Construction	High
IFC PS5	RAP/LRP	Based on the PSD RPF develop a Resettlement Action Plan (RAP) or Livelihood Restoration Plan (LRP)in line with the Applicable Standards and implement a land acquisition and compensation process aligned with national and IFC PS 5 requirements. Implement a Grievance Mechanism for resettlement-related grievances and establish a Resettlement Implementation Team.	AGEROUTE/Lender approved RAP/LRP and associated documents in place to demonstrate successful completion of the resettlement and compensation process.	ASGC and Contractors	Pre-Construction	High

Related Standard	Gap/Issue	Actions to be taken	Indicator of completion/Means of Verification	Responsible Party -AGEROUTE -ASGC -SLR	Timeframe for Implementation -Pre-Construction -Post-Construction -Pre-Operation -During-Operation	Priority Status -High -Medium -Low
		Specific provisions for engaging with and compensating nomadic groups should be included as well as specific engagement and compensation methods to address the needs of vulnerable groups where these groups are identified by the ESIA.				
IFC PS6	Critical Habitat Assessment (CHA)	Based on the PSD level CHA prepare a project specific CHA for inclusion in the ESIA including any additional primary fieldwork that is necessary. Develop a BAP or Biodiversity Management Plan (BMP) depending on the significance of the biodiversity present and the results of the CHA as an integral part of the CHA and/or ESIA.	AGEROUTE/Lender approved CHA and BAP.	ASGC/AGEROUTE	Pre-Construction	High
IFC PS8	Impacts on Cultural Heritage	In addition to the Chance Finds Procedure which will be an integral part of the CESMP, the ESIA process will include engagement and data collection with communities on both tangible and intangible cultural heritage and the development of mitigation actions if required.	AGEROUTE/Lender approved ESIA.	ASGC/AGEROUTE	Pre-Construction	High

TABLE 5: Low Level Risk Projects - Environmental & Social Action Plan

Related Standard	Gap/Issue	Actions to be taken	Indicator of completion/Means of Verification	Responsible Party -AGEROUTE -ASGC -SLR	Timeframe for Implementation -Pre-Construction -Post-Construction -Pre-Operation -During-Operation	Priority Status -High -Medium -Low
IFC PS1	Development of an ESIA and	– Scoping Assessment compliant with Applicable Standards	DEEC/ AGEROUTE/Lender approved Impact	ASGC/AGEROUTE	Pre-Construction	High

Related Standard	Gap/Issue	Actions to be taken	Indicator of completion/Means of Verification	Responsible Party -AGEROUTE -ASGC -SLR	Timeframe for Implementation -Pre-Construction -Post-Construction -Pre-Operation -During-Operation	Priority Status -High -Medium -Low
	associated documentation.	– Development of an assessment based on DEEC requirements and incorporating any key issues identified during Scoping. The need for primary data will be assessed during Scoping This should be based on detailed design information and a Project description aligned with the requirements of PS1. – A PS1 aligned SEP – A PS 1 aligned Community Grievance Mechanism	Assessment and SEP including a Community Grievance Mechanism.			
	Project specific CESMP	Based on the PSD level CESMP each project should have a bespoke plan to ensure management of any specific issues arising from Scoping and the national assessment including monitoring and management actions.	DEEC/AGEROUTE/Lender approved CESMP and associated documents in place	ASGC/AGEROUTE	Pre-Construction	High
	Training of Contractors in CESMP	Carry out training of contractors in the application and implementation of the CESMP including monitoring and reporting	AGEROUTE approved training materials and training programme	ASGC	Pre-Construction	High
IFC PS2	Project specific CESMP	Based on the PSD level CESMP each project should have a bespoke plan to ensure management of any specific PS 2 issues arising from Scoping and the national assessment including monitoring and management actions.	DEEC/AGEROUTE/Lender approved CESMP and associated documents in place	ASGC/AGEROUTE	Pre-Construction	High
IFC PS3	Specific Climate Change Risk Information	Project specific aspects of CCRA to be included in the assessment. Based on the PSD CCRA and project location, design, construction methods etc	Climate change risks and impacts, and mitigation measures included in the assessment	ASGC and Contractors	Pre-Construction	High
IFC PS4	Project specific CESMP	Based on the PSD level CESMP each project should have a bespoke plan to ensure management of any specific PS 4 issues arising from Scoping and the national assessment including monitoring and management actions.	DEEC/AGEROUTE/Lender approved CESMP and associated documents in place	ASGC/AGEROUTE	Pre-Construction	High

Related Standard	Gap/Issue	Actions to be taken	Indicator of completion/Means of Verification	Responsible Party -AGEROUTE -ASGC -SLR	Timeframe for Implementation -Pre-Construction -Post-Construction -Pre-Operation -During-Operation	Priority Status -High -Medium -Low
IFC PS5	Community Grievance Mechanism	Development of a Community Grievance Mechanism to deal with any issues relating to community concerns over effects of construction on property and livelihoods. Disclosure of the process to local communities.	AGEROUTE/Lender approved Community Grievance Mechanism and records of disclosure.	ASGC/AGEROUTE	Pre-Construction	
IFC PS6	Biodiversity Management Plan	Development of a project specific Biodiversity Management Plan	AGEROUTE/Lender approved Biodiversity Management Plan	ASGC/AGEROUTE	Pre-Construction	
IFC PS8	Impacts on Cultural Heritage	In addition to the Chance Finds Procedure which will be an integral part of the CESMP for each project, the assessment process will include engagement and data collection with communities on both tangible and intangible cultural heritage and the development of mitigation actions if required.	AGEROUTE/Lender approved assessment.	ASGC/AGEROUTE	Pre-Construction	

C. Biodiversity Issues

Ecological characteristics

- **Protected Areas**

Senegal has 124 nationally protected areas (17 of which are marine) and 24 internationally recognised areas across the country. Various project components are located within, or in close proximity to, protected areas (refer to Table 7) or internationally recognised area (Table 8).

Also refer to **Appendix I – Figure I-1** for layout showing location of International and National Protected Areas in relation to the Project Components.

- **Ecosystems**

Senegal is made up of 4 ecoregions described below:

A. Guinean forest-savanna

The Guinean Forest savanna ecoregion is a band of forest running east to west bisecting the tropical moist forests near the coast from the West Sudanian savanna of the interior. It covers an area of 673,600 square kilometers from western Senegal to eastern Nigeria.

This region comprises grassland crossed with trees growing alongside streams and on hillsides. Fires in the landscape control the growth of trees and preserve the open nature. The mixture of forest and grassland provide habitat for a range of species from large mammals such as African leopard (*Panthera pardus*), forest elephants (*Loxodonta cyclotis*), hippopotamus (*Hippopotamus amphibius*) and antelopes such as the red-flanked duiker (*Cephalophus rufilatus*) as well as more localised species including patas monkeys (*Erythrocebus spp*.) and Ghana worm lizards (*Amphisbaenia*). The wetlands in the region are rich in birdlife, including iris glossy starling and black crowned crane.

B. Guinean mangroves

The Guinean mangroves are a coastal ecoregion comprising mangrove swamp in rivers and estuaries along the West African coast from Senegal to Sierra Leone. In Senegal this habitat type can be found in the Saloum River and Casamance deltas.

Mangroves thrive on flat coastal inlets and estuaries where the ocean tides wash warm salt water high upriver. The mangroves have a varied composition with *Rhizophora*, *Laguncularia racemosa* and *Conocarpus erectus* growing up to 10m tall in well-established areas of Rhizophora and Avicennia. The tallest trees form along the creeks, with the shorter trees in the mudflats between the creeks. The inland fringes of the mangroves support grasses, ferns and salt-loving plants.

C. Sahelian Acacia Savanna

The Sahel Acacia savanna ecoregion spans the width of Africa from northern Senegal and Mauritania in the West to Sudan and Eritrea on the East. This area is commonly referred to as the Sahel and comprises grassland dominated transition zone between savanna woodlands and the Sahara Desert.

In the northern Sahel, short grasslands grow on deep, sandy soils, with widely dispersed shrubs of *Acacia spp., Boscia senegalensis*, and *Calotropis procera*. Grass cover is continuous but often dominated by short annual species such as *Aristida mutabilis*, *Chloris prieurii*, and *Cenchrus biflorus.*

The savanna is not especially species rich. However, there are several endemic plants, most being widespread and common, such as *Indigofera senegalensis* and *Panicum laetum*, but others are highly localized and rare, such as *Andrachne gruveli* and *Barleria schmittii*. Prior to the twentieth century the area would have been rich in large animals, but these have been reduced to scattered remnants in some protected areas.

D. West Sudanian savanna

The West Sudanian savanna stretches from Senegal to the eastern border of Nigeria. It had a tropical climate that is strongly seasonal.

The vegetation consists of woodland with an understory of long grasses, shrubs, and herbs. *Combretaceae* and *Fabaceae* are the dominant plant families, with *Combretum*, *Termininalia*, and *Acacai* the most abundant genera. The southern portion of this ecoregion is mainly woodlands, where tree canopies cover at least 40 percent of the ground surface. The northern portion hosts mainly grassland dominated by numerous species of short grasses. Shrubland is scattered in patches throughout the ecoregion and usually consists of thorny shrubs, especially various *Acacia* and *Ziziplus* species.

There are many endemic plants in the ecoregion, many of them are widespread. The ecoregion also supports diverse fauna including large mammals such as bushbuck (*Tragelaphus scriptus*), warthog (*Phacochoerus africanus*), vervet monkey (*Chlorocebus spp*.), baboon (*Papio spp*.), and savanna monitor lizard (*Varanus exanthematicus*). Large herbivores such as elephant, hippopotamus, roan antelope (*Hippotragus equinus*), buffalo (*Syncerus caffer*), hartebeest (*Alcelaphus buselaphus*), and waterbuck (*Kobus ellipsiprymnus*) are restricted to protected areas. Two threatened reptiles occur, the slender-snouted crocodile (*Mecistops cataphractus*) and the dwarf crocodile (*Osteolaemus tetraspis*). During the dry season the area supports the annual passage of migrant birds on the Afrotropical-Palaearctic flyway, as well as intra-African migration associated with seasonal weather changes.

- **Species**

An initial search of the IUCN Red List of Threatened Species identified 30 Endangered or critically endangered species present in Senegal that may be at risk from impacts from roads such as collision with vehicles, pollution of watercourses and habitat loss.

TABLE 6: Endangered and Critically Endangered species in Senegal that could be impacted by the PSD.

Scientific name	Common name	IUCN Status	Location	Habitat	Potential impact
Plants					
Pterocarpus erinaceus	Kosso	Endangered	Patchy distribution Dakar region, Fathala Forest in the Delta du Saloum Reserve, Kedougou, Tambacounda and Cassamance regions	Woody savanna and dry forest	Habitat loss and degradation
Cyperus lateriticus		Endangered	Kédougou and Tambacounda regions of Senegal	Edges of temporary pools	Habitat loss and degradation
Bulbostylis bodardii		Endangered	Niokolo-Koba National Park	Temporary or permanently wet areas	Habitat loss and degradation Unlikely (no road project within the PA)
Barleria maclaudii		Endangered	Kedougou Region, Senegal	Savanna	Habitat loss and degradation
Habenaria angustissima		Endangered	Tambacounda in Senegal	Bowal habitat in Guinean forest-savanna, Guinean montane forests and West Sudanian savanna ecoregions	Habitat loss and degradation
Schizachyrium radicosum		Endangered	Ziguinchor region	Sandstone bowal areas on thin soils, which are seasonally inundated.	Habitat loss and degradation
Polycarpaea pobeguinii		Endangered	Niokolo Koba National Park and Kedougou Region, Senegal	Bowal grasslands and in wet areas on the edges of marshes, riversides and seasonal waterholes.	Habitat loss and degradation
Anadelphia polychaeta		Endangered	coastal Senegal in Ziguinchor region	Humid grasslands, in the Guinean forest-savanna and Guinean mangroves ecoregions	Habitat loss and degradation

Scientific name	Common name	IUCN Status	Location	Habitat	Potential impact
Bolboschoenus grandispicus		Critically endangered	Dakar and Mbour region	Edge of swamps in freshwater depressions behind the coastal dunes.	Habitat loss and degradation
Pandanus senegalensis		Endangered	Southeast Senegal	Gallery forest where it grows along rivers and waterfalls	Habitat loss and degradation
Insect					
Elattoneura pluotae		Critically endangered	near Kédougou in southeast Senegal	Freshwater stream (known from one location only)	Habitat degradation
Fish					
Pronothobranchius gambiensis		Endangered	Niokolo-koba National Park	Temporary pools and swamps	Habitat degradation and pollution
Reptile					
Centrochelys sulcata	African Spurred Tortoise	Endangered	Ferlo region and northern Senegal	Shrubland and grassland	Habitat fragmentation, vehicle collision, disturbance and induced access
Mecistops cataphractus	Slender-snouted Crocodile	Critically endangered	Southwest Senegal (but likely extinct)	forested rivers and other densely vegetated bodies of water	Habitat degradation and pollution
Mammal					
Colobus polykomos	King colobus	Endangered	Southwestern edge of Senegal on Guinean border	rainforest and gallery forest;	Habitat loss and fragmentation, vehicle collision, disturbance and induced access
Rhinolophus guineensis	Guinean horseshoe bat	Endangered	Southern (central) Senegal	montane tropical moist forest	Habitat loss and fragmentation, vehicle collision, disturbance and induced access
Smutsia gigantea	Giant Pangolin	Endangered	Southwest Senegal	primary and secondary rainforest forest formations, gallery forests, swamp forests, forest-savannah mosaic habitats and wooded savannah	Vehicle collision and induced access

Scientific name	Common name	IUCN Status	Location	Habitat	Potential impact
Pan troglodytes verus	Western Chimpanzee	Critically endangered	Southeast Senegal	dry and moist lowland tropical forests, and forest galleries extending into savannah woodlands	Habitat loss and fragmentation, vehicle collision, disturbance and induced access
Piliocolobus badius	Western Red Colobus	Endangered	Southy west Senegal. Substantial population in Niokolo Koba National Park.	primary, secondary, and gallery forest, woodland savanna, tree and shrub savanna, mangroves and residential gardens. Arboreal species	Habitat loss and fragmentation, vehicle collision, disturbance and induced access Unlikely (no road project within the PA)
Lycaon pictus west African subpopulation	African Wild Dog	Critically endangered	Niokolo-Koba National Park	short-grass plains, semi-desert, bushy savannas and upland forest	Habitat loss and fragmentation, vehicle collision, disturbance and induced access Unlikely (no road project within the PA)
Loxodonta cyclotis	African Forest Elephant	Critically endangered	Niokolo-Koba National Park (very small population)	variety of forest habitats including lowland humid forest on *terra firma*, swamp forests, the lower reaches of Afro-montane forests, dry forests and forest-savanna mosaics	Habitat loss and fragmentation, vehicle collision, disturbance and induced access Unlikely (no road project within the PA)
Avifauna					
Polemaetus bellicosus	Martial Eagle	Endangered	Countrywide	Open woodland, wooded savanna, bushy grassland, thornbush	Vehicle collision, disturbance and induced access
Sagittarius serpentarius	Secretarybird	Endangered	Eastern boundary adjacent to Mali	Open landscapes, ranging from open plains and grasslands to lightly wooded savanna	Vehicle collision, disturbance and induced access
Terathopius ecaudatus	Bateleur	Endangered	Countrywide	Open country, including grasslands, savanna and subdesert thornbush	Vehicle collision, disturbance and induced access

Scientific name	Common name	IUCN Status	Location	Habitat	Potential impact
Gyps africanus	White-backed Vulture	Critically endangered	Countrywide	Lowland species of open wooded savanna, particularly areas of Acacia	Vehicle collision, disturbance and induced access
Gyps rueppelli	Rüppell's Vulture	Critically endangered	Countrywide	Open areas of Acacia woodland, grassland and montane regions	Vehicle collision, disturbance and induced access
Necrosyrtes monachus	Hooded Vulture	Critically endangered	Countrywide	Open grassland, forest edge, wooded savanna, desert and along coasts	Vehicle collision, disturbance and induced access
Neophron percnopterus	Egyptian Vulture	Endangered	Countrywide	Lowland and montane regions over open, often arid, country, and also scavenges at human settlements	Vehicle collision, disturbance and induced access
Torgos tracheliotos	Lappet-faced Vulture	Endangered	Northern Senegal	Dry savanna, arid plains, deserts and open mountain slopes	Vehicle collision, disturbance and induced access
Trigonoceps occipitalis	White-headed Vulture	Critically endangered	Countrywide but extinct in significant parts	Mixed, dry woodland at low altitudes,	Vehicle collision, disturbance and induced access

These species may qualify certain areas of the project as critical habitat for which IFC Performance Standard 6 requires the following:

In areas of critical habitat, the client will not implement any project activities unless all of the following are demonstrated:

- *No other viable alternatives within the region exist for development of the project on modified or natural habitats that are not critical.*
- *The project does not lead to measurable adverse impacts on those biodiversity values for which the critical habitat was designated, and on the ecological processes supporting those biodiversity values.*
- *The project does not lead to a net reduction in the global and/or national/regional population of any Critically Endangered or Endangered species over a reasonable period of time; and*
- *A robust, appropriately designed, and long-term biodiversity monitoring and evaluation program is integrated into the client's management program.*

Critical Habitats are defined by IFC as: *areas with high biodiversity value, including (i) habitat of significant importance to Critically Endangered and/or Endangered species; (ii) habitat of significant importance to endemic and/or restricted-range species; (iii) habitat supporting globally significant concentrations of migratory species and/or congregatory species; (iv) highly threatened and/or unique ecosystems; and/or (v) areas associated with key evolutionary processes.*

It is recommended that a high-level critical habitat assessment is undertaken for the project as a whole (country wide) to understand where roads may have an impact on critical habitat and where further investigation is required. The information provided in Table C-1 is not a detailed critical habitat assessment but highlights some of the species that will need to be taken forward in the assessment.

Impacts

- **General description of impacts**

The following sections describes the generic potential impacts associated with road projects from both the construction and operational phases.

A. Construction

Habitat loss

Habitat loss will occur where new roads are being built in place of tracks or roads are being widened. Depending on the location of the road the type of habitat and ecological value of the habitat will vary. IFC require a quantification of loss of natural habitat. Any new road will require additional studies to map habitat along the route and quantify the amount of natural vs modified habitat[1].

[1] According to IFC PS6 Natural habitats are areas composed of viable assemblages of plant and/or animal species of largely native origin, and/or where human activity has not essentially modified an area's primary ecological functions and species composition. Modified habitats are areas that may contain a large proportion of plant and/or animal species of non-native origin, and/or where

There may also be other areas of habitat loss associated with construction activities including quarry sites, workers camps and construction sites. These areas will need to be identified, mapped and quantified where they are located in natural habitat.

Habitat degradation

Habitat degradation can occur through project activities such as earthworks and use of machinery that may result in dust, sedimentation, emissions or spills. These impacts are usually associated with habitats adjacent to the works area and depending on the activity can affect areas some distance from source. For example, a pollution incident may affect a water course downstream of the construction area for some kilometres.

All road construction activities should adhere to requirements stipulated in a Biodiversity Management Plan which will set out measures to manage these impacts. For those roads in sensitive habitats (aquatic habitat and protected/internationally recognised areas) a more detailed assessment of potential impacts should be undertaken.

Fatality or injury to fauna

Construction activities such as vegetation clearance and earthworks can result in fatality or injury to fauna species. Species such as small mammals and reptiles are most at risk from these impacts as they are ground dwelling and cannot easily escape.

All road construction activities should adhere to requirements stipulated in a Biodiversity Management Plan which will set out measures to manage these impacts. For those roads in sensitive habitats (protected/internationally recognised areas and critical habitat) a more detailed assessment of potential impacts should be undertaken.

Disturbance of fauna from noise and lighting

Construction activities will generate noise that can cause disturbance to fauna. Noise can cause a flight reaction in some species resulting in temporary displacement from habitat that may be used for feeding and other important functions.

Lighting may be required either at workers camps or machine storage areas or if construction activities must be undertaken at night due to access or social issues. Lighting can affect crepuscular and nocturnal species that use the cover of darkness to forage. Sensitive fauna may avoid areas that are lit, reducing habitat availability. This is of particular concern for bats if flight lines between roosts and forage areas are affected.

All road construction activities should adhere to requirements stipulated in a Biodiversity Management Plan which will set out measures to manage these impacts. For those roads in sensitive habitats (protected/internationally recognised areas and critical habitat) a more detailed assessment of potential impacts should be undertaken.

human activity has substantially modified an area's primary ecological functions and species composition. Modified habitats may include areas managed for

agriculture, forest plantations, reclaimed6 coastal zones, and reclaimed wetlands.

Introduction of alien invasive species

Construction activities such as vehicle movements and earthworks have the potential to spread alien invasive species from one area to another. Alien invasive species are often aggressive competitors, rapidly outcompeting existing species thus degrading the diversity of habitats and dominating areas.

All road construction activities should adhere to requirements stipulated in a Biodiversity Management Plan which will set out measures to manage these impacts. For those roads in sensitive habitats (protected/internationally recognised areas and critical habitat) a more detailed assessment of potential impacts should be undertaken.

B. Operation

Vehicle collision

The change in road surface from gravel or unpaved to a surfaced road significantly changes driving speeds and behaviour. This increased speed can cause increased collisions with fauna. Species such as reptiles and raptors that may be attracted to roads for warm or forage are at high risk as are highly mobile species that have large territorial ranges and frequently crossroads to access parts of their range.

This impact will be a particular concern in protected areas and critical habitat for species that may be sensitive to these impacts. All roads in sensitive areas (protected/internationally recognised areas and critical habitat) that are being upgraded from gravel or unpaved to a paved surface will require a more detailed assessment of impacts.

- **Induced Access**

One of the potentially most significant impacts from the road upgrade project is the induced access created by an improved road surface. As the road surface is improved it allows more traffic and encourages more journeys which can lead to an increase in people moving permanently or temporarily into the area. When people inhabit an area there are undesired consequence on the natural environment such as conversion of land to agriculture, increased grazing, hunting or fishing and collection of natural resources such as firewood. All of these have detrimental impacts on habitats and species.

This impact is considered most significant inroads that lead towards or through protected or internationally recognised areas or where there are already high levels of stress on existing natural resources. All roads in sensitive areas (protected/internationally recognised areas and critical habitat) that are being upgraded from gravel or unpaved to a paved surface will require a more detailed assessment of impacts.

Findings from Field Visit

The field mission undertaken over 5 days in November and December 2022 enabled a more detailed analysis of potential risks for the roads observed. However, it is important to note that only a small portion of the roads included within Project Strada were visited.

The field mission allowed SLR to understand the general approach taken to road design and engineering and the environmental and social procedures in place.

The following general comments were concluded from the roads visited during the field mission:

- Any removal of trees requires a permit from the Department or Water and Forest. They provide instructions on compensatory planting.
- There will be significant change of speed of vehicles using roads when change from gravel road or track to a surfaced road. This change has the potential to cause adverse impacts on fauna through barrier effects and collision risk.
- Consideration needs to be given to maintain flows at sites where roads cross wetlands and other aquatic systems.
- Detailed engineering and design have not been completed for many of the road sections and this will be required to fully understand impacts on biodiversity. For example, where bridges need widening or sections will be straightened leading to additional habitat loss.

Mitigation and Next Steps

➢ **Road Categorisation**

As a general rule the following roads will require more detailed assessment of impacts on biodiversity:

- Roads that are currently gravel or unsurfaced natural trail.
- Roads that are within a protected area or internationally recognised area or within 1km of such areas
- Roads that intersect with areas of likely critical habitat (requires determination through additional studies)
- Roads that cross or are within 1km of a wetland area (whether designated or not)

To manage data transparently a table of the type in the template below should be compiled to provide more detailed information on potential biodiversity issues.

Road section	Ecological sensitivity	Significant risks	Risk rating

Table 7: Nationally Protected Areas in Senegal

Site Name	Designation	Description
Kalissaye	Bird Reserve	The site lies at the mouth of the Kalissaye river in south-western Senegal (Casamance region) and consists of two sandy islands lying off the Pointe de Sankoye. The site was established as a reserve and sanctuary to protect breeding seabirds and sea-turtles. The common dolphin (*Delphinus delphis*) and the African manatee (*Trichechus senegalensis*) are also observed in the area.
Samba Dia	Classified Forest	Samba Dia Biosphere Reserve is located at the Atlantic coast within the West African woodland savanna. The flat plain is only 5-10 meters above sea level and contains one of the best remaining stands of the once widespread *Borassus aethiopum* communities. In addition to these palm stands, there are populations of *Acacia seyal*, *Combretum glutinosum* and *Anogeissus leiocarpus*.
Palmarin	Community Nature Reserve	The Site includes various water bodies (the Atlantic Ocean, Saloum Inlet, Ndangane River, bolongs, and temporary pools), intertidal mud, sand and salt flats, mangrove swamps, islands, and savannas with trees, shrubs and grasslands. These wetlands provide foraging and resting areas for water birds such as flamingo, saddle-billed stork, grey and white pelicans, African sacred ibis, pied avocet, and species of the Ardeidae family including Goliath heron and dimorphic egret. Also present is the endangered green turtle Chelonia mydas.
Tocc Tocc	Community Nature Reserve	The first nature reserve dedicated to the conservation of nesting and foraging habitat of Adanson's mud terrapin (Pelusios adansonii)
Foret de Amboura	Forest Reserve	
Foret de Ngayene	Forest Reserve	
Foret de Tilene et Ndiaye	Forest Reserve	
Foret de Patako	Forest Reserve	
Foret de l'Anambe	Forest Reserve	
Foret de Diantene	Forest Reserve	
Foret d'Oukout	Forest Reserve	
Foret de Keur Momar Sarr	Forest Reserve	
Foret de Mpal	Forest Reserve	
Foret de Leybar	Forest Reserve	
Foret de Fathala	Forest Reserve	

Site Name	Designation	Description
Foret de Kandiadiou	Forest Reserve	
Foret d'Essom	Forest Reserve	
Foret de Diamel	Forest Reserve	
Foret de Pate	Forest Reserve	
Foret de Boulierobe	Forest Reserve	
Foret des Paniates	Forest Reserve	
Foret de Sagna	Forest Reserve	
Foret de Tamba-sud	Forest Reserve	
Foret de Ndioum Dieri	Forest Reserve	
Foret de Maka-Diama	Forest Reserve	
Foret de Pire-Goureye	Forest Reserve	
Foret de Thies	Forest Reserve	
Foret de Bandia	Forest Reserve	
Foret de Panal	Forest Reserve	
Foret de Narangs	Forest Reserve	
Foret de Tamba-Nord	Forest Reserve	
Foret de Birkelane	Forest Reserve	
Foret de Goudiri	Forest Reserve	
Foret de Kassas	Forest Reserve	
Foret de Delbi	Forest Reserve	
Foret de Bala- Est	Forest Reserve	
Foret de Malem Niani	Forest Reserve	
Foret de Wélor	Forest Reserve	

Site Name	Designation	Description
Foret de Malem-Hodar	Forest Reserve	
Foret de Bala-Ouest	Forest Reserve	
Foret de Maka Yop-ouest	Forest Reserve	
Foret de Maka Yop-est	Forest Reserve	
Khogue	Forest Reserve	
Foret du Ouli	Forest Reserve	
Foret de Botou	Forest Reserve	
Foret de Ndankou	Forest Reserve	
Foret de Diambour	Forest Reserve	
Foret de Pane	Forest Reserve	
Foret de Mambi	Forest Reserve	
Foret de Baria	Forest Reserve	
Foret de Pata	Forest Reserve	
Foret de Kantora	Forest Reserve	
Foret du Guimara	Forest Reserve	
Foret des Narangs	Forest Reserve	
Foret de Bakor	Forest Reserve	
Foret de Diatouma	Forest Reserve	
Foret de Sadiata	Forest Reserve	
Foret de Koulaye	Forest Reserve	
Foret de Dabo	Forest Reserve	
Foret de Mahon	Forest Reserve	
Foret de la Kayanga	Forest Reserve	

Site Name	Designation	Description
Foret de Kalounayes	Forest Reserve	
Foret de Bari	Forest Reserve	
Foret de Yassine	Forest Reserve	
Foret de Toutoune	Forest Reserve	
Foret du Balmadou	Forest Reserve	
Foret du Boudie	Forest Reserve	
Foret de Mampaye	Forest Reserve	
Foret de Koudora	Forest Reserve	
Foret de Tobor	Forest Reserve	
Foret de Bissine	Forest Reserve	
Foret de Blaz	Forest Reserve	
Foret de Bafata	Forest Reserve	
Foret de Boukitingo	Forest Reserve	
Foret des Bayot	Forest Reserve	
Foret de Djibelor	Forest Reserve	
Foret de Mangaroungou	Forest Reserve	
Foret de Bignona	Forest Reserve	
Foret de Djipakoum	Forest Reserve	
Foret de Sangako	Forest Reserve	
Foret de Sokone	Forest Reserve	
Foret de Saboya	Forest Reserve	
Foret de Gouloumbou	Forest Reserve	
Saint-Louis	Marine Protected Area	The dominant characteristic of this littoral domain is the wide expanse of mudflats nurturing grass beds dominated by eelgrass (Zostera noltii) and manatee grass, foundations of this ecosystem under a strong estuarine influence and basis of

Site Name	Designation	Description
		a complex feeding network. The seagrass species noted alongside the West African coasts include the the Zostera noltii, the Cymodocea nodosa and the Halodule wrightii.
Kayar	Marine Protected Area	The Kayar MPA is characterised by a huge wealth in biodiversity; it is a major site for the reproduction, nursery and concentration of demersal coastal species. Most of the emblematic and endangered species noted in the Senegalese waters are present there.
Joal-Fadiouth	Marine Protected Area	AMPJF boasts a rich ecosystem; it's about a succession of marine, coastal, estuarine, lagoon and savanna (the Botanic reserve of Ngazobil) settings. The MPA hosts various and varied habitats including seagrasses, sand beaches, mangroves, bolongs, sandy and rocky islets. The MPA is a key site for the reproduction and growth of many fish species, but also a reproduction, feeding and egg-laying site for the green sea turtle. Dolphins and manatees are also present in the area.
Abéné	Marine Protected Area	The MPA's marine space is composed of a set of rocky habitats (Herr Mactar Gueye, Herr Lamine Diatta, Herr Mam) formerly considered as fishing zones owing to the high concentration of fish species. The land space is composed of a network of mangroves around the Niafrang marsh creek, with its entire ecosystemic complexity. On the beach of the MPA are egg-laying sites for the green sea turtle.
Bamboung	Marine Protected Area	
Somone	Marine Protected Area	One of 3 new MPAs created in 2020.
Sangomar	Marine Protected Area	The Sangomar MPA is high in biological diversity, and composed of different ecosystems – mangroves, forests, grassy savannahs, and mudflats. It is home to a highly diversified fauna including migratory birds, fish (more than 60 identified species), reptiles (green turtles, crocodiles), and mammals (humpback dolphins, manatees). In addition, specific zones in the MPA constitute important nursery and feed grounds for several fisheries resources that are of high economic value for the local communities' livelihoods.
Niamone-Kalounayes	Marine Protected Area	The Niamone Kalounayes MPA contains important ecosystems such as the Mangrove, the Bignona's backwater, the Baghagha'sbackwater, the Affiniam's backwater, Casamance River, Tabor's backwater and the Soungrougrou.
Kassa-Balantacounda	Marine Protected Area	The Kassa-Balantacounda MPA consists of mangrove, forest, grassland savannah, tannes, mudflats etc ...
Gandoule	Marine Protected Area	Composed of 14 islands, the AMPG contains an important network of bodies of fresh water, brackish to salt, (ponds, bolongs, etc.), a set of particular ecosystems, (mangroves, savannas, tannes, mud flats, Sang Island, etc.), which form breeding islands for birds. However, this marine protected area is threatened by the overexploitation of fishery resources, the excessive cutting of mangrove wood, the extraction of sea sand and the salinization of the land.
Kaalolaal Blouf-Fogny	Marine Protected Area	One of 3 new MPAs created in 2020.

Site Name	Designation	Description
Gorée	Marine Protected Area	One of 3 new MPAs created in 2020.
Niokolo Koba	National Park	Located in the Sudano-Guinean zone, Niokolo-Koba National Park is characterized by its group of ecosystems typical of this region, over an area of 913 000ha. Watered by large waterways (the Gambia, Sereko, Niokolo, Koulountou), it comprises gallery forests, savannah grass floodplains, ponds, dry forests -- dense or with clearings -- rocky slopes and hills and barren Bowés. This remarkable plant diversity justifies the presence of a rich fauna characterized by: the Derby Eland (the largest of African antelopes), chimpanzees, lions, leopards, a large population of elephants as well as many species of birds, reptiles and amphibians.
Delta du Saloum	National Park	Estuarine habitat including banks of intertidal sand and mud flats thick; mangrove dominated by Rhizophora racemosa, R. mangle, R. harrisonii and Avicennia nitida; open flat areas ("tanns"); islands with halophile species such as Sesuvium portulacastrum, Philoxerus vermicularis and Paspalum vaginatum; dry forest; sand dunes; birds land: site of water breeding colonies of migratory water birds including over 30 000 pairs of ROYAL TERN (Sterna maxima)
Oiseaux du Djoudj	National Park	Situated in the Senegal River delta, the Djoudj Sanctuary is a wetland of 16,000 ha, comprising a large lake surrounded by streams, ponds and backwaters. It forms a living but fragile sanctuary for some 1.5 million birds, such as the white pelican, the purple heron, the African spoonbill, the great egret and the cormorant.
Basse Casamance	National Park	The main biotopes are Guinean forests and savannah woodlands. There are 200 species of birds and 50 species of mammals, including African forest buffalo, African leopard, Campbell's mona monkey, Prince Demidoff's bushbaby and western red colobus.
Langue de Barbarie	National Park	Lying between the Senegal River and the sea, the PNLB Park presents sand dunes stabilised by beefwood alongside the sea, with the beach representing an egg-laying area for sea turtles and a bird islet with a diameter varying between 100 and 200 metres. The Park is also one of the core components of the Cross-border Biosphere Reserve of the lower delta of the Senegal River between Mauritania and Senegal.
Iles de la Madeleine	National Park	Le Parc National des Îles de la Madeleine is the smallest national park in the world, and a UNESCO World Heritage Tentative List site. Sarpan, the largest of the islands, is home to breeding colonies of red-billed tropicbird, white-breasted cormorant, and bridled tern.
Popenguine	Nature Reserve	The marine biodiversity in the Reserve is not well documented. However, the land part is home for a few mammals and populations of migratory and local birds such as the turtle dove (Streptopelia sp.), rose-ringed parakeet (Psittacula krameri) and the rare bluebird (Monticola solitarius) that regularly flocks to a small temporary lagoon that is the only water point of the Reserve.
Sogobe	Not Reported	
Six Forage	Not Reported	

Site Name	Designation	Description
Linde Sud	Not Reported	
Lougguere Todji	Not Reported	
Khadar	Not Reported	
Yonofere	Not Reported	
Barkedji Dodji	Not Reported	
Boulal	Not Reported	
Khogue	Not Reported	
Deali	Not Reported	
Velingara	Not Reported	
Oldou Debokol	Not Reported	
Bem-Bem	Not Reported	
Sab-Sabre	Not Reported	
Doli	Not Reported	
Mbegue	Not Reported	
Siné-Saloum	Not Reported	
Grande Niayes de Pikine and Dependencies	Urban Nature Reserve	
Ferlo South	Wildlife Reserve	The Ferlo biosphere reserve hosts relict plant and animal species of national, sub-regional and even international importance. It has a rich and diverse fauna and is home to emblematic species like the red-fronted gazelle (Gazella rufifrons), the golden jackal (Canis aureus), the spotted hyena (Crocuta crocuta), the oryx, the dorcas gazelle (Gazella dorcas neglecta) and the helmeted guinea fowl (Numida meleagris). Ferlo is currently the only refuge of the red-necked ostrich (Struthio camelus camelus) in the Sahel.
Ferlo North	Wildlife Reserve	The Ferlo biosphere reserve hosts relict plant and animal species of national, sub-regional and even international importance. It has a rich and diverse fauna and is home to emblematic species like the red-fronted gazelle (Gazella rufifrons), the golden jackal (Canis aureus), the spotted hyena (Crocuta crocuta), the oryx, the dorcas gazelle (Gazella dorcas neglecta) and the helmeted guinea fowl (Numida meleagris). Ferlo is currently the only refuge of the red-necked ostrich (Struthio camelus camelus) in the Sahel.

Site Name	Designation	Description
Ndiael	Wildlife Reserve	Ndiael is one of the most important sites for migratory birds from the temperate and Arctic zones of Europe, and also for intra-African migrants. During the winter it provides critical habitat to tens of thousands of wetland birds on the East Atlantic Flyway.
Gueumbeul	Wildlife Reserve	The park is home to many species of birds, reptiles, and mammals. The site is also the centre for reintroduction programs of three species of gazelles and is home to the African spurred tortoise.

TABLE 8: INTERNATIONALLY RECOGNISED AREAS

Site Name	Designation	Description of Key Biodiversity Features
Djoudj	Ramsar Site, Wetland of International Importance, KBA	A range of wetland habitats which prove very popular with migrating birds, many of which have just crossed the Sahara. Of almost 400 species of birds, the most visible are pelicans and flamingos. Less conspicuous are the aquatic warblers migrating here from Europe; for these, the park is the single most important wintering site yet discovered. A wide range of wildlife also inhabits the park, which is designated a World Heritage Site.
Djoudj National Bird Sanctuary	World Heritage Site	By its location, Djoudj National Park is more than a haven for Palaearctic migratory birds. It is an oasis in the desert consisting of a chain of lakes, backwaters, fords and sandbanks. It is the first migration stopover after crossing the Sahara for species of Palaearctic and Afrotropical birds. It should be noted that due to technical improvements to upgrade the conditions of migration reception (building nest boxes), species began to breed. With the annual renovation of these improvements and efforts to control the hydraulic system, the number of migratory as well as nesting species is increasing.
Delta du Saloum	Ramsar Site, Wetland of International Importance, UNESCO-MAB Biosphere Reserve, KBA	Estuarine habitat including banks of intertidal sand and mud flats thick; mangrove dominated by Rhizophora racemosa, R. mangle, R. harrisonii and Avicennia nitida; open flat areas ("tanns"); islands with halophile species such as Sesuvium portulacastrum, Philoxerus vermicularis and Paspalum vaginatum; dry forest; sand dunes; birds land: site of water breeding colonies of migratory water birds including over 30 000 pairs of ROYAL TERN (Sterna maxima)
Delta du Saloum (marine)	KBA	The site is included in the Senegalese Exclusive Economic Zone (EEZ). The site overlaps partially with the Delta du Saloum UNESCO-MAB Biosphere Reserve.
Gueumbeul	Ramsar Site, Wetland of International Importance	The park is home to many species of birds, reptiles and mammals. The site is also the center for reintroduction programs of three species of gazelles and is home to the African spurred tortoise.

Site Name	Designation	Description of Key Biodiversity Features
Kalissaye	Ramsar Site, Wetland of International Importance, KBA	The site lies at the mouth of the Kalissaye river in south-western Senegal (Casamance region) and consists of two sandy islands lying off the Pointe de Sankoye. The site was established as a reserve and sanctuary to protect breeding seabirds and sea-turtles. The common dolphin (Delphinus delphis) and the African manatee (Trichechus senegalensis) are also observed in the area.
Réserve Naturelle d'Intérêt Communautaire de la Somone	Ramsar Site, Wetland of International Importance	The Site consists of a lagoon with its bed and channels permanently covered by water, a zone of Rhizophora-dominated mangroves which are submerged at high tide, the sandy foreshore, tanne areas (bare and shrubbed salt flats) at the edge of the mangrove, and the transition area between the estuary and the mainland, including a barrier beach. The mangrove species include African Avicennia, red mangrove (Rhizophora mangle) and button mangrove (Conocarpus erectus). The fauna of the estuary is diverse and abundant and includes birds such as the peregrine falcon (which is rare and threatened in Senegal), the slender-billed gull, the long-tailed cormorant and African darter, the sanderling, little egret and western reef heron, the black-headed gull, the grey heron and the western cattle egret.
Réserve Naturelle Communautaire de Palmarin	Ramsar Site, Wetland of International Importance	The Site includes various water bodies (the Atlantic Ocean, Saloum Inlet, Ndangane River, bolongs, and temporary pools), intertidal mud, sand and salt flats, mangrove swamps, islands, and savannas with trees, shrubs and grasslands. These wetlands provide foraging and resting areas for water birds such as flamingo, saddle-billed stork, grey and white pelicans, African sacred ibis, pied avocet, and species of the Ardeidae family including Goliath heron and dimorphic egret. Also present is the endangered green turtle Chelonia mydas.
Bassin du Ndiaël	Ramsar Site, Wetland of International Importance, KBA	The Ndiael is one of the most important sites for migratory birds from the temperate and Arctic zones of Europe, and also for intra-African migrants. During the winter it provides critical habitat to tens of thousands of wetland birds on the East Atlantic Flyway.
Réserve Naturelle Communautaire de Tocc Tocc	Ramsar Site, Wetland of International Importance	This site is a permanent coastal freshwater lake which provides a habitat for spawning, nursery and feeding for over 98 fish species including Bagrid and Eel Catfish (Chrysichthys nigrodigitatus and Clarias anguillaris) and Guinean tilapia (Tilapia guineensis), which are species of high nutritional and commercial value to the local communities. The site serves as home for a large colony of water birds including the White Pelican (Pelecanus onocrotalus), and also the freshwater Adanson's mud turtle (Pelusios adansonii) and the iconic and vulnerable West African Manatee (Trichechus senegalensis), which was recently listed on CITES Appendix I.
Parc National du Niokolo-Koba	UNESCO-MAB Biosphere Reserve, World Heritage Site, KBA	Niokolo-Koba National Park contains all the unique ecosystems of the Sudanese bioclimatic zone such as major waterways (the Gambia, Sereko, Niokolo, Koulountou), gallery-forests, herbaceous savanna floodplains, ponds, dry forests -- dense or with clearings-- rocky slopes and hills and barren Bowés. The property has a remarkable diversity of wildlife, unique in the sub-region. It counts more than 70 species of mammals, 329 species of birds, 36 species of reptiles, 20 species of amphibians and a large number of invertebrates. Lions, reputedly the largest in Africa, are a special attraction, as well as the Derby Eland, the largest antelope in existence. Other important species are also present, such as the elephant, leopard, African

Site Name	Designation	Description of Key Biodiversity Features
		wild dog and chimpanzee. The wealth of habitats should be noted, along with the diversity of flora, with over 1,500 important plant species.
Forêt classée de Samba Dia	UNESCO-MAB Biosphere Reserve	It is primarily a borassus grove (Borassus aethiopum), associated with about twenty other species, including Acacia seyal, Combretum glutinosum and Anogeisus leiocarpus. The ronier being a multi-purpose tree, the forest was very much in demand by rural populations, who had few other resources. This is why it was established as a biosphere reserve.
Delta du Fleuve Sénégal	UNESCO-MAB Biosphere Reserve	Situated in the Delta of the Senegal River, this transboundary biosphere reserve presents few variations in altitude, but owes its diversity to its vast hydrographic network, which is divided into several basins. The landscape is very diverse and includes floodplains fed by water from natural or artificial rising of the river (through hydraulic works), backwaters, lakes, and by the sea. Continental and coastal dunes slightly mark the relief. The floodplains are deprived of vegetation in the dry season. The importance of the area with regards to conservation can be perceived through the great variety of protected areas that have been designated here. Migratory birds find refuge in the delta and more than 350 species have been recorded in the 'Oiseaux du Djoudj' National Park with a bird population of over 3 million individuals from November to May.
Basse Casamanse National Park	KBA	The site lies in the delta of the Casamance river in the south-western corner of the country. It lies to the south of the main river channel, close to the border with Guinea-Bissau, and c.50 km south-west of Ziguinchor. It is low-lying, with the highest areas in the eastern end of the park (maximum altitude 11 m above sea-level). The habitat consists of mangroves fringing tidal channels, seasonally bare saline mudflats, some wooded savanna and terrestrial forest, including the only remaining small area of Guinea–Congo forest in the country. The mangrove areas show a zonation from the water's edge, with first Rhizophora racemosa, then R. mangle with Paspalum vaginatum, then Avicennia africana with R. mangle, and Scirpus littoralis or other understorey species. The mudflats are colonized by Eleocharis mutata and E. geniculata. The Guinea–Congo Forest occurs as islands within the Santiaba–Mandjak forest and includes species such as Parinari excelsa, Pithecellobium altissimum, Chlorophora regia, Detarium senegalense, and abundant Treculia africana forming the lower canopy.
Ferlo South	KBA	The site lies due south of Ferlo North and almost due east of Dakar, separated from the eastern Senegal border with Mali by low hills, the northern outliers of the Bassari hills in the south-east of the country. It is almost contiguous with Ferlo North, separated only by the main road running west–east from Linguère to Matam (on the border with Mali). The altitude, relief, climate and vegetation are very similar to those described above for Ferlo North. However, because it lies further south, Ferlo South receives slightly higher rainfall. The soils tend to be ferruginous and there is more woodland and secondary grassland (especially towards the south of the site) than in Ferlo North.
Ferlo North	KBA	The site lies in north-eastern Senegal, south of the Senegal river which forms the border with Mauritania at this point. The site lies between the valleys of the Senegal river and the Ferlo River (the latter usually remains dry) at an altitude of less than 100 m, even though it is over 300 km inland. Although crossed by a number of river channels, the area is mainly very

Site Name	Designation	Description of Key Biodiversity Features
		dry with sandy soils and occasional pockets of clay. In the rainy season, water accumulates in old river channels and depressions, leading to concentrations of animals in these areas and more lush vegetation along these ancient watercourses. The vegetation is Sahel thorn-bush savanna, dominated by Acacia spp. and Balanites aegyptiaca, larger trees such as Bombax costatum, Pterocarpus erinaceus and Combretum glutinosum, and shrubs of Boscia spp. Episodes of low rainfall combined with overgrazing by cattle and goats have turned many areas into semi-desert and sandstorms are common as a result.
Joal-Fadiouth	KBA	The site lies just west and south of the town of Joal-Fadiouth and incorporates a length (c.5 km) of sandy coastline and a fairly large estuary with mangroves, mudbanks and small islands. The estuary consists of expanses of mud and mangroves intersected by creeks, which become at least partially inundated at high tide. At low tide, the mudbanks are important feeding areas, especially for waders. Inland, the eastern end of the estuary includes areas of dryer land and salt steppe that are not inundated. The site lies about 10 km south of the southern boundary of La Petite Côte and just north (c.4 km) of the northern boundary of Delta du Saloum
La Petite Côte	KBA	The site consists of the coastal strip (c. 70 km long) south of Dakar, running from Bargny (20 km south-east of Dakar), south to the village of Mbodiène, which lies just north of Joal-Fadiouth . It consists of mainly sandy, narrow beaches, offshore sandbars, dunes and saltmarsh, crossed by several small rivers and estuaries. There are a number of shallow lagoons and temporary wetlands in depressions behind the dunes, of varying size and salinity (depending on seasonal rainfall), some with associated mudflats and saltmarsh. The lagoons include Yène-Tode (c.150 ha), Popenguine (c.10 ha), Somone estuary (c.30 ha) and Sarène. Vegetation is generally sparse; there are some thickets of Tamarix sp. on higher ground behind the dunes and, towards the southern end of the site, mangroves (Rhizophora sp. and Avicennia sp.) on the mudflats. Along c.15 km at the northern end of the site there are sandy hills and cliffs with occasional rocky outcrops behind the dunes, reaching a maximum height of 74 m. One of the rocky outcrops (Cap de Naze) lies just behind Popenguine Avifaunal Reserve, the only officially designated site within the IBA. Popenguine consists of a freshwater lagoon and marsh, contained by a man-made barrage.
Niayes (from Dakar to St Louis)	KBA	This site consists of a string of permanent freshwater lakes and additional temporarily wet depressions (niayes) lying along a line running north-east from the outskirts of Dakar to around 60 km south-west of St Louis. The lakes lie behind the ridge of coastal sandy dunes, in shallow depressions at 1–4 m above sea-level, over a distance of c.150 km. They are replenished both by rainfall and from the underlying water-table, which lies close to the surface. The wetlands cover 40 km² at low water; at high water, all the lakes can increase their surface area five-fold. The largest lakes lie at the southern end and include Nhiarhol Pool and the lakes Mbao, Mbeubeussé, Retba, Tanma, Youyi (or Malika) and Ourouaye. Lake Retba is the largest, with an open water surface of 5 km by 1.7 km wide at low water. Niaye Hann Mariste consists of a depression covering a surface area of about 30 ha (1.3 km by 200 m), but this dried out completely in 1997 due to evaporation, compounded by abstraction of water for agriculture and building construction. The surrounding vegetation is subjected to

Site Name	Designation	Description of Key Biodiversity Features
		seasonal inundation and the area is characterized by the oil-palm Elaeis guineensis. There are also elements of vegetation more typical of the Sudan–Guinea Savanna biome and Guinea–Congo Forests biome (e.g. Prosopis africana and Ficus capensis). These are able to flourish here due to the high moisture content of the soils, which results from the water-table lying close to the surface and the moisture-bearing Alizé winds blowing in from the Atlantic. The whole site is very important in terms of human use, for cattle-grazing, fishing, vegetable, fruit and rice-growing and market gardening (estimated at 90% of national production). Many of the individual lakes also have religious and cultural significance.
Cap Vert	KBA	This marine site consists of the coastline of the peninsula known as Cap Vert, running from les Mammelles and Pointe des Almadies north to Cambérène (c.19 km in length), together with the offshore islands and reefs and the narrow strip of sea between the islands and the mainland (up to about 2 km offshore). Cap Vert is the westernmost point of Africa and is the peninsula on which Dakar stands. The two islands in question are the Ile de Yof (also known as Ile de Tenguène) and the Ile de Ngor. The coast and islands consist of rocky outcrops and some sandy beaches, and there is a string of reefs off the Pointe des Almadies, known as the 'Chaussée des Almadies'. The reefs and islands form a degree of natural protection from the Atlantic Ocean for the narrow sea channel (less than 1 km) between them and the mainland. Many migrating seabirds pass through this marine 'bottleneck', and large numbers also pass on the seaward side of the two islands.
Parc National des Iles de la Madeleine	KBA	The park consists of three rocky, volcanic islands lying about 4 km west of the Senegal coast, off the southern end of the Cap Vert peninsula on which Dakar lies, and the areas of sea between the islands. The largest, the 'Iles aux serpents', is about 15 ha. The islands are covered in steppe-grassland. Trees include baobabs Adansonia, jujubas Ziziphus, prickly-pear Opuntia and tamarinds Tamarindus.
Northern Senegal shelf break	KBA	Data unavailable at time of reporting.
Parc National de la Langue de Barbarie	KBA	The Langue de Barbarie National Park lies south-west of the Guembeul Avifaunal Reserve, about 25 km from St Louis. It consists of a 20-km length of intertidal flats and sand-dunes on a spit formed across the mouth of the Senegal river. It includes both marine and riverine (brackish) waters. The terrestrial part of the park is formed by three main islands, the Ile de Gandiole (2 ha) being the largest. The vegetation on the infertile sandy soils is Sahelian in composition and includes the species Ipomoea pes-caprae, Alternanthera maritima, Sporobolus spicatus and Sesuvium portulacastrum. There are no trees.
Parc National de la Langue de Barbarie (marine)	KBA	This Marine IBA is identified using seaward extensions around breeding colonies. It originates from the Senegal Exclusive Economic Zone (EEZ) and falls within the Atlantic, Eastern Central FAO Ocean region. The site covers an area of 1367 km2 and is 22 km away from the closet coastline. The depth ranges from 0 to 69 m and mean annual sea surface temperature falls between 22.24 and 22.91 °C.

Site Name	Designation	Description of Key Biodiversity Features
Guembeul Avifaunal Reserve and St Louis lagoons	KBA	This site lies some 12 km south of St Louis and about 60 km south-west of Djoudj wetlands. The reserve consists of an extensive lagoon of variable salinity in a shallow depression, with a relict mangrove along the shores. The lagoon is replenished both by seasonal rainfall and by inflow of salt water from the Senegal river mouth and water-levels can be controlled artificially by means of a sluice gate. In addition to the official reserve, a number of brackish lagoons around the town of St Louis, all linked to the river estuary, are included in the IBA. These vary significantly in size, depending on the water-level in the Senegal river and the rainfall. The vegetation around the lagoons is Sahelian thorn-bush savanna dominated by Acacia spp. The lagoons are highly productive and those outside the reserve support important local fishing economies. The surrounding areas are used for livestock-grazing, agriculture and fuelwood-collection, all of which (together with fishing) are prohibited in the reserve itself.
Lac de Guiers	KBA	Lac de Guiers, lying in the far north of the country, c.20 km south-west of Richard-Toll, is the only large freshwater lake in Senegal. It lies in the dry valley of the Ferlo River and is fed only by rainfall or by floodwaters coming down the Senegal river and allowed to flow south into the lake through sluices and a canal at Richard-Toll. The lake is 35 km long and 7.5 km wide at its widest point. At high-water it covers an area of nearly 17,000 ha. It is used as a water-supply for Dakar, as well as for local consumption and to supply water for the sugar refinery at Richard-Toll. It is surrounded by Sahel thorn-bush savanna, used for livestock-rearing and 'walo' (flood-recession agriculture) and areas of irrigated cultivation, including extensive sugar-cane plantations and rice-fields. There are permanent herb swamps dominated by Phragmites and Typha along parts of the lake shore and scattered acacias and other trees used for roosting and breeding by a wide variety of colonial nesting herons and egrets.
River Sénégal (Ntiagar to Richard-Toll)	KBA	The site consists of a length of about 21 km of the Senegal river and its immediate riparian habitat. It lies upstream of Djoudj wetlands and north of both Ndiaël basin and Lac de Guiers. The habitat consists of highly modified and cultivated areas of land, with extensive rice-fields and market gardens and associated irrigation and drainage canals and ditches, adjacent to areas of fairly dense human habitation. The site is very closely linked to Lac de Guiers, which receives water from the river through sluices and a canal located at Richard-Toll. Between this site and Lac de Guiers lie extensive sugar-cane plantations. The site lies in the Sahel zone and the original habitat would have been thorn-bush savanna, dominated by Acacia spp. and Balanites aegyptiaca, shrubs of Boscia senegalensis and Salvadora persica, and larger trees adjacent to the river itself, including Combretum aculeatum, Grewia bicolor, Bombax costatum and Borassus aethiopicum. There were once extensive forests of Acacia nilotica along the banks of the Senegal river that were regularly inundated by floods and formed important refuges for Palearctic migrants. These forests have largely disappeared as a result of drought and exploitation for fuelwood.

D. Biodiversity Management & Action Plan

1. INTRODUCTION

1.1 Overview

1.2 Scope

1.3 The Mitigation Hierarchy

1.4 Stakeholder Consultation and Engagement

1.5 Important Document Linkages

Figure xx: Map Showing Protected Areas within a xx km Radius

[INSERT FIGURE]

2. PROJECT DESCRIPTION

2.1 Background

2.1.1. Design specifications

3. HABITATS AND SPECIES

3.1 Description of Biodiversity

3.2 Overview of the Biodiversity Characteristics within the Project Development Area

3.3 Identification of Priority Habitats and Species

Table 3-x: Summary of Habitat Extent and Status

Habitat	Code	Status	Extent (ha) in 200 m	% of 200 m corridor	Extent (ha) in Footprint	% of footprint
TOTAL						**100**

3.4 Summary of Critical Habitat

3.4.1 Protected Areas and Internationally recognised biodiversity areas

3.4.2 Critical Habitat Qualifying Features

Table 3-x: Critical Habitat Qualifying Species

Species	Type	Status	Restricted Range	Habitat	Likelihood of occurrence	Criteria

3.4.3 Potential Impacts on Critical Habitat Qualifying Features

Table 3-x: Project Risks and Impacts to Critical Habitat Qualifying Features

Critical Habitat Qualifying Species English and Scientific Name	Status		Documented Threats	Potential Project Risks and Impacts	Net Gain (NG) Requirements
	IUCN	RR			

4. TARGETS AND ACTIONS FOR BIODIVERSITY MANAGEMENT

4.1 Overview of Project-Related Impacts to Priority Habitats and Species and other Biodiversity

4.1.1 Construction Phase

Table 4-x: Summary of Construction Activities and Potential Impacts on Biodiversity

Construction Activity	Effects	Potential Biodiversity Impacts

4.1.2 Operation phase

Table 4-x: Operational Activities and Potential Effects on Biodiversity

Operation Activity	Effects	Biodiversity and Ecosystem Services Impacts

4.2 Avoidance Measures

4.3 Mitigation and Minimisation Measures

4.4 Rehabilitation / Restoration Measures

5. MONITORING, EVALUATION AND ADAPTIVE MANAGMENT

5.1 Monitoring and Maintenance Works

Table 5-x: Monitoring of Maintenance Activities

Ref.	Activity	Requirements / specifications	Responsibility	Scheduling	Performance Indicator

5.2 Monitoring and Maintenance during Construction and Operation

E. ASGC E&S Policy for Project Strada

1 ASGC's Commitment to Environmental and Social Sustainability

Ensuring a small Environment and Social footprint is part of our companies' responsibility. The protection of the surrounding natural and human resources affected by our activities are fundamental to the success of our business.

We strive to align our own business practices and principles with the projects we deliver to our clients. We do this by committing to excellence in environmental and social performance, and in the health and safety of our employees, customers, and communities.

2 E&S Management on Project Strada

For Project Strada, ASGC is committed to working with the Lenders, the Government of Senegal, AGEROUTE and our contractors and suppliers to deliver a project that delivers outcomes that are aligned with international best practice and in accordance with the E&S performance requirements of the Lenders and national laws and policies of Senegal. Since the programme of works for implementing Project Strada involves a number of sub-projects spread out across Senegal implemented by a number of different contractors, it is important that there is a programme-wide approach to managing E&S risk and to manage performance.

To achieve these outcomes, ASGC will develop and implement a number of key management tools and processes. ASGC will implement Environmental and Social Impact Assessments (ESIAs) in accordance with international and national standards for each route section within Project Strada. Project Strada will also have a Resettlement Action Plan and Livelihood Restoration Plan to assist in the physical and economic resettlement of individuals and communities affected by the Project. This will be in accordance with international and national requirements and will have the active participation of ASGC.

In addition, ASGC will implement an Environmental and Social Management System (ESMS). This will provide a framework for the E&S management of Project Strada as a whole as well as individual sub-projects and route sections (project components). The ESMS will be shared with all contractors who will be expected to comply with its requirements and report on their E&S performance.

Underpinning the ESMS will be an Environmental and Social Management Plan (ESMP) divided into plans for each E&S issue e.g., waste management, air quality, biodiversity, and cultural heritage. All contractors will be expected to implement the elements of the ESMP relevant to their work throughout the construction programme. Each route section will have a bespoke ESMP. Contractors will be expected to monitor and report in accordance with the ESMP for their route section.

An ESMP for operations will be developed by AGEROUTE.

ASGC will implement an E&S training programme for all contractors to support them in applying and implementing the E&S requirements of Project Strada.

Paul Woodman

Managing Director

F. HSE Training Plan

Title	Scope	Target Employees	Objective / Description (Non-Exhaustive List)	Content (Non-Exhaustive List)	Duration (min)	Educational Resources/ Support	Obs.
Induction	Induction Training Training course provided prior to start work.	All workers, Members and Visitors	Inform about the general safety rules on site and yard. Inform and demonstrate on the existing and purpose of PPE and CPE. Empowering workers of knowledge to work safely. Inform on duties, obligations, and rights of workers. Inform employees of emergency numbers and the emergency procedures in case of an accident or environmental incident. Inform about all company's HSE, Environmental and CSR Policies.	• General description of construction site and it's rules • Legal requirements • Employer's requirements (if any). • Own company's specific project HSE induction. • Own company's HSE Policy and Procedural arrangements. • Individual HSE roles and responsibilities. • Site rules. • Procedures for the reporting of Incidents. • Advise all workers on the role they have to play to ensure that standards of HSE provisions are maintained. • Identification of HSE resources. • Availability use and care of Personal Protective Equipment ('PPE'). • Hazards and risks that are related to the task they perform. • Location of Welfare Facilities. • First Aid, identification of trained First Aider and location of the First Aid facilities. • Fire arrangements, evacuation procedure, etc. on site. • Disciplinary Procedures.	From 30 - 120	(Classroom and Inhouse) Videos, Technical Information, Procedures	

Title	Scope	Target Employees	Objective / Description (Non-Exhaustive List)	Content (Non-Exhaustive List)	Duration (min)	Educational Resources/ Support	Obs.
				• Environmental and Social Risks.			
Others Awareness Actions / Campaigns / Courses	Personal Protective Equipment (PPE)	All Workers	Improve workers' culture regarding the use of personal protective equipment. Inform employees about the need for use of compulsory and eventual use equipment.	• PPE introduction • Helmet • Boots; • Gloves; • Glasses; • Harness • Mandatory PPE	From 15 - 60	(Classroom and Inhouse) Videos, Technical Information, Procedures	
	Collective Protection Equipment (CPE) & Signage	All Workers	Improve workers' culture regarding the use of collective protection equipment. Train workers in identifying the needs for the use of collective protection equipment.	• CPE introduction • Guard Bodies • Scaffolding • Network Protection • Signalling Networks • Reporting	From 15 - 60	(Classroom and Inhouse) Videos, Technical Information, Procedures	

Title	Scope	Target Employees	Objective / Description (Non-Exhaustive List)	Content (Non-Exhaustive List)	Duration (min)	Educational Resources/ Support	Obs.
	Environmental Awareness	All Workers	Improve workers' culture towards environmental protection, activities and risks involved, mitigation measures and emergency preparedness. Inform about companies' policies.	• Environmental Management plan introduction • Company's Policy • Workers sensibilization for environmental importance • Assessing construction risks • Implement mitigations measures • Emergency preparedness	From 15 - 60	(Classroom and Inhouse) Videos, Technical Information, Procedures	
	Varies	All Workers	Inform and raise awareness of workers about various subjects such as hand washing, infectious diseases, workers' rights, PPE, good hygiene, etc	• Varies	N/A	Posters, brochures, mailing, technical information	
Training / Toolbox Isolated topics that will train / sensitize workers on safety at work	Risk assessment before activity	All Workers (by activity)	Raise awareness to workers for the analysis and identification of risks before activities commence	• Safety analysis by activities • HSE duties and responsibilities of the employee • Mandatory PPE for the activity • Main occupational risks for the activity • Main environmental and social risks for the activity • Emergency procedures • Reporting procedures	From 5 - 15	Technical Information, Procedures	
Specialized Training Approach to safety	Confined spaces	Workers involved in those activities	Enable workers to develop their activities profitable and safe	• Confined Spaces Fire Fighting Gas Meters • Individual protection equipment • PTW	From 30 - 120	Technical Information, Procedures	

Title	Scope	Target Employees	Objective / Description (Non-Exhaustive List)	Content (Non-Exhaustive List)	Duration (min)	Educational Resources/ Support	Obs.
rules for a specific task or activity.	Excavations	Excavation Equipment Operators, HSE Team, Workers involved in those activities	Enable workers to develop their activities profitable and safe manner. Inform employees of the risks and prevention measures activity to develop.	• Excavations Slope Work in Trenches • Disassemble with explosives • Individual protection equipment	From 30 - 120	Technical Information, Procedures	
	Working at Heights	Workers involved in those activities	Empowering workers to develop successful and secure activities. Inform employees of the risks and prevention measures activity to develop.	• Scaffolding Stairs Tower • Jobs in overpasses • Slabs, Columns works • Personal Protective Equipment • Etc	From 30 - 120	Technical Information, Procedures	
	Traffic Management	Project Director, Construction Manager, Flagman, Engineers, All vehicle and equipment Operators	Enable workers to read and understanding the traffic at site. Improve safety behaviours	• Work with the active pathways • Road Signs and Signals • Traffic rules • Signalling • Vehicle/equipment maintenance and inspection	From 30 - 120	Technical Information, Procedures	
	Hazardous Materials	Storekeeper, HSE Team, any workers handling HazMats	Improve the behaviour of workers before the use of a HazMats Enable workers to safely use of HazMats	• Collective protection equipment Safety Data Sheets • Protective equipment Labels and signs • Mandatory PPE • Emergency Procedures	From 30 - 120	Technical Information, Procedures	

Title	Scope	Target Employees	Objective / Description (Non-Exhaustive List)	Content (Non-Exhaustive List)	Duration (min)	Educational Resources/ Support	Obs.
	Environmental Protection	All Workers	Sensitizing respect to the environment; Ensure knowledge of good practice about hygiene, cleanliness and health in the workplace	• Separation of Waste • Principles of Hygiene and Cleaning • Emergency preparedness • Risks and mitigations Measures for the Environment • Handling and dispose hazardous materials • Environmental Policies and Management Plan • Reporting and documenting environmental incidents	From 30 - 120	Technical Information, Procedures	
	Emergency Procedure	HSE Team,	Train workers for action in case of emergency Inform employees for the use of fire-fighting means	• Emergency procedures Meeting Points • Emergency extinguishers • Evacuation Procedures	From 30 - 120	Technical Information, Procedures	
	Waste Management	HSE Team, any worker handling waste	Empowering workers to handle waste. Inform employees of the environmental and occupational risks and prevention measures activity to develop.	• Classification of waste • Handling waste • Reuse, Recycle and disposal • Hazardous waste • Inspections and reporting	From 30 - 120	Technical Information, Procedures	
	First Aid	HSE Team, Site Nurse	Empowering workers to develop their first aid skills, enabling them to provide first aid until authorities arrive to site.	• Assessing the Scene & Emergency • Response System Notification. • Universal Precautions. • Injury Assessment. • Different Types of Injuries and cautions	From 30 - 120	Technical Information, Procedures	

Title	Scope	Target Employees	Objective / Description (Non-Exhaustive List)	Content (Non-Exhaustive List)	Duration (min)	Educational Resources/ Support	Obs.
	Hand Tools	All Workers handling hand tools	Empowering workers to develop their skills in working hand tools. Inform employees of the risks and prevention measures	• Major risks by tools • Required PPE • Emergency Procedures	From 30 - 120	Technical Information, Procedures	
	Hot Works	Foremen, HSE Team	Empowering workers to develop their skills in working on hot activities. Inform employees of the risks and prevention measures	• Major risks of activity • Required PPE • Emergency Procedures • Firefighting Procedure	From 30 - 120	Technical Information, Procedures	
	Basic Firefighting	All Workers	Empowering workers to fight a fire. Inform employees of the risks and prevention measures	• Principles of combustion • Risks on site • Extinguishers and firefighting • Emergency procedures • Evacuation procedures	From 30 - 120	Technical Information, Procedures	
	Security Forces	Security Workers	Empowering security workers to protect the site, their colleagues and community members. Inform employees of the risks and prevention measures of their job	• Access Control • Site Protection, walk arounds and inspections • Use of Force • Code of Conduct and Harassment Policies • Dealing with community members • Emergency procedures • Evacuation procedures	From 30 - 120	Technical Information, Procedures	
Certifications Actions that accredit the worker for a task / activity / specific situation	Operators Equipment / Cranes / Forklifts	Operators	Empowering workers for the safe operation of industrial equipment Operators to Focus the inherent risk analysis activity	• Equipment Operations • Manoeuvre rules and use • Maintenance and Checks • Personal Protective Equipment • Etc ...			Training must be given by a "competent person " or by an approved third-party authority

Title	Scope	Target Employees	Objective / Description (Non-Exhaustive List)	Content (Non-Exhaustive List)	Duration (min)	Educational Resources/ Support	Obs.
	Rescuers	HSE Team, Site Nurse	Train workers to perform the tasks of rescuer	• First Aid Practices • Advanced life support • Emergency			
	Fitters scaffolding	Workers carrying out this function on the premises	Train workers to perform profitably assembly and inspections in scaffolding.	• Mounting Techniques Risks with regards to the supervision works and checklist • Personal Protective Equipment			

G. AGEROUTE E&S UNIT

Placed under the authority of the Directorate, the Environment and Social Unit's (CES) mission is to ensure that environmental and social aspects are taken into account in the management of road projects. It is a transversal unit that works with all the technical departments of the agency (DGTOA, DAPPP and DGER), the Study Coordination Unit, the Legal Unit, the Communication and Public Relations Unit, [234]the Technical Inspection and Quality Control Unit.

In carrying out its activities, the Unit also collaborates with administrative services such as the Directorate of the Environment and Classified Establishments (DEEC), the Water and Forestry Services and development partners.

The Unit is involved in all phases of a project, from formulation to operation of a road infrastructure, including studies and execution of works.

Regarding studies, the unit monitors environmental assessments from the categorization of a project to the issuance by the DEEC of the certificate of environmental compliance. In addition, the unit ensures, in conjunction with the Project Manager, the integration of environmental and social clauses as well as environmental measures into the Tender Document (DAO).

During works, the CES monitors the implementation of the environmental measures provided for in the company's scope of work in relation to the monitoring missions. Regular missions are carried out to ensure the effective implementation of the Environmental and Social Management Plan. Reports indicating the various deviations noted on site and the corrective/preventive measures to be applied to remove non-conformities are sent to companies and inspection missions at the end of these missions.

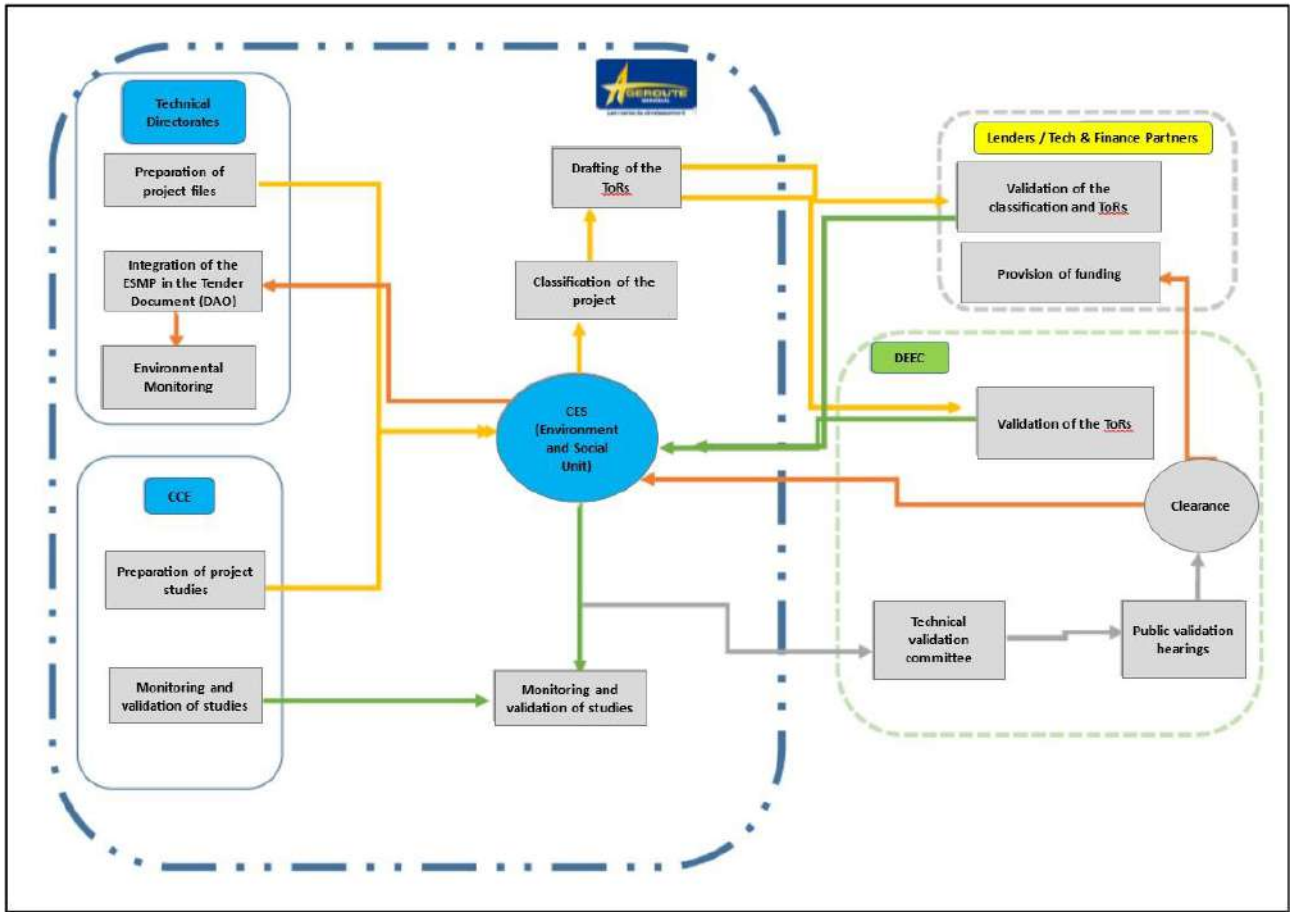
In addition, CES monitors social actions carried out within the framework of road projects. This component is managed during the studies, in particular through public consultations, in order to know the real demands of the populations and to integrate them into the financial package of the projects. This is the concept of "Roads with Social Added Value".

From a functional point of view, the diagram above summarises the extent of CES' interventions.

[2] Department of Major Works and Works of Art

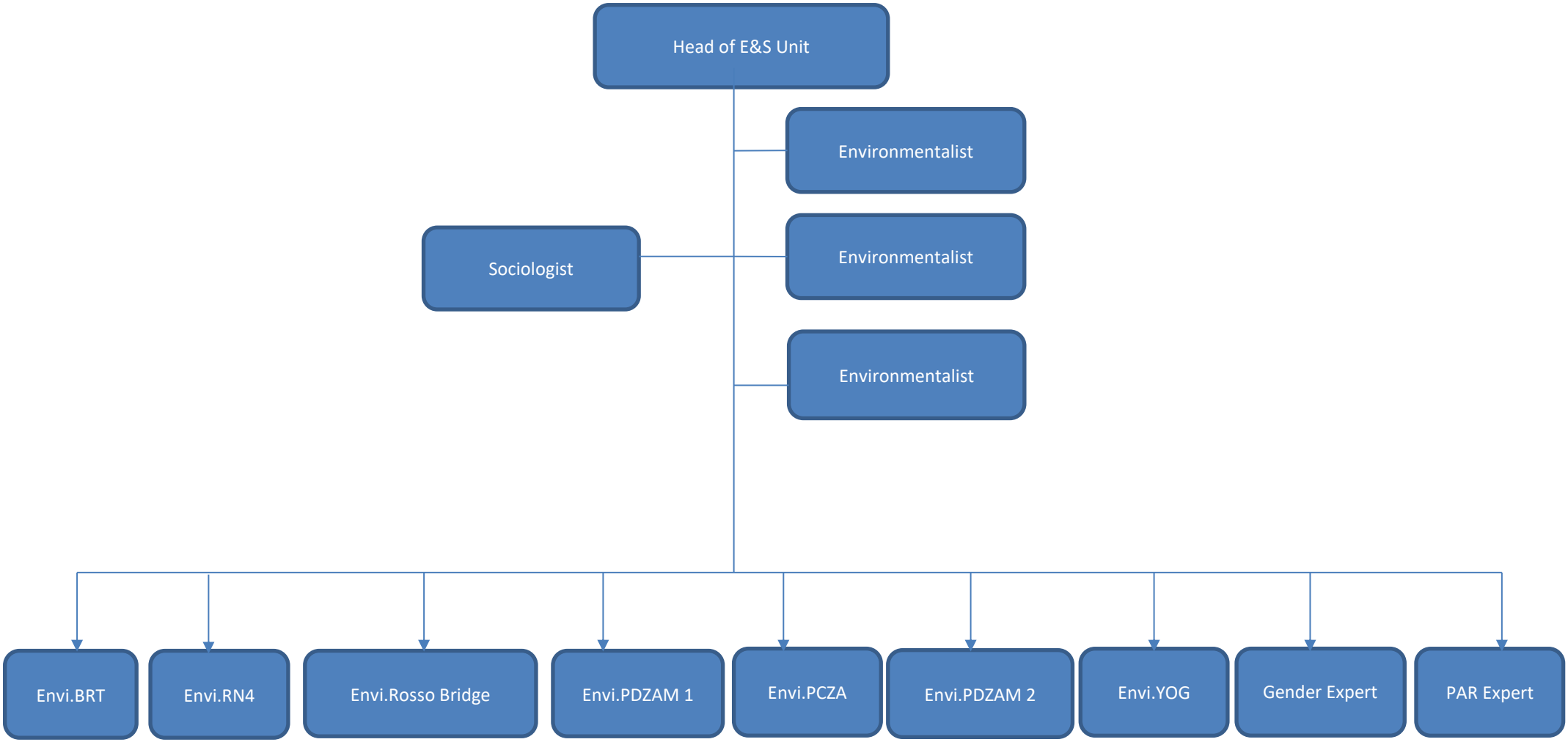
[3] Directorate of Highways and Public-Private Partnerships

[4] Directorate of Management and Maintenance of the Reseat Truck driver.



During works, CES ensures that communication between the project and the directly impacted populations is guaranteed. In doing so, it sets up, in collaboration with the local authorities, a complaints management system which is first and foremost a tool for taking ownership of the project. This system, commonly known as the Complaints Management Mechanism, makes it possible to anticipate possible shortcomings of the project, especially during works, and to take into account the various concerns of the population.

Organisation of the Unit



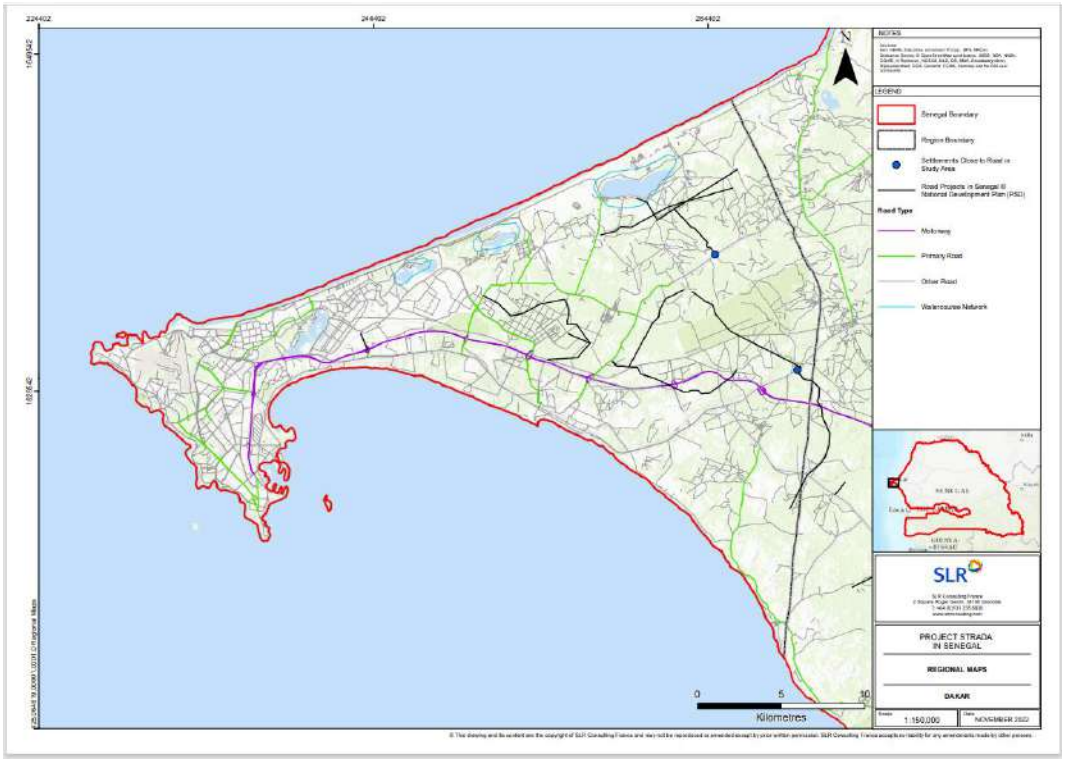
H. Project Components and Sourcing

Item Description	Supplier/Subcontractor
Earth Moving Equipment (Excavator / loader / dumper / grader / roller compactor / dump truck)	-JCB (UK) -Caterpillar (UK) -Volvo (UK) -Case (UK)
Trucks	-Mercedes-Benz Trucks UK limited -A.M. Phillip Truckteck LTD (iveco) UK -Scania (Great Britain) Limited
Generators	-Cummins UK -Caterpillar (UK) ltd -Volvo (UK) -Perkins Engines Company limited
Air Compressor	-Atlas Copco (UK) -Compressed Air Systems UK & Tanair -AirSupply UK, Unit
Drilling Machine	-Dando UK -Atlas Copco (UK) -Epiroc UK & Ireland Limited
Bitumen / Fuel	-Colas UK -Bituchem Asphalt Limited (UK) -Shell Bitumen UK -Total UK Ltd (Preston) (UK)
Street Lighting	-Brighton Lighting UK -CRLighting (UK) -Fabrikat (UK)
Steel Structure elements	-Barrett Steel Limited -PDMA Steels Ltd -Murray Steel Products
Road Signs	-Morelock (UK) -Signway (UK) -Hirst Signs Ltd (UK)
Road Marking Paints	-Amcom international -Wilson and Scott -Trade Paints
Street Furniture (Cones, Barriers, Rails, etc….)/Guard Rails	-Boplan United Kingdom -Street solutions UK -Meon UK -Architectural Street Furnishings (ASF)
Lab Equipment, Survey Equipment	-Mount Laboratories UK Ltd -Amcom international -Camlab
Logistics & Transportation	-Delta truck sales Ltd/ -JV international Ltd / -GAC UK
Design & Engineering services & environmental studies	-Sweco UK -WSP UK -Inertia consulting UK
Foreign Content	
Piping and Fittings	-AVK International A/S -Fittings Specialisten AS
Heavy Duty Equipment	-ABB Denmark -Schneider Electric Denmark A / S

Formwork	-Apex Scaffolding -Peri LLC -Acrow
Steel Structure accessories	-DUFERCO DANISH STEEL A/S -Celsa Steel Service -CSK steel -Metàl.lics Tordera -Fábregas Group
Power cables	-NKT DENMARK -Legrand Scandinavia A/S -Top Cable -Esca Cables
Road Furniture accessories	-WT Burden Street Furniture -Has Engineering LLC
Transformer, UPS	-Siemens Energy -Grainger -Schneider
Local Content	
Concrete, cement	
Reinforcement	
Demolition	
Excavations for sanitation works	
Masonry	
Curb Sidewalks	
Site cleaning, brush clearing, trees cutting	
Backfill	
Subcontracting Works (Bitumen)	
Gravels	
Sand, water	
Consultancy Services	
Site Installation	
Maintenance works	
Relocation of electricity, Phone, Water and Sanitation Works	
Paving	
Toll facilities	

I. Project Maps

Regional Maps Showing PSD Road Sections



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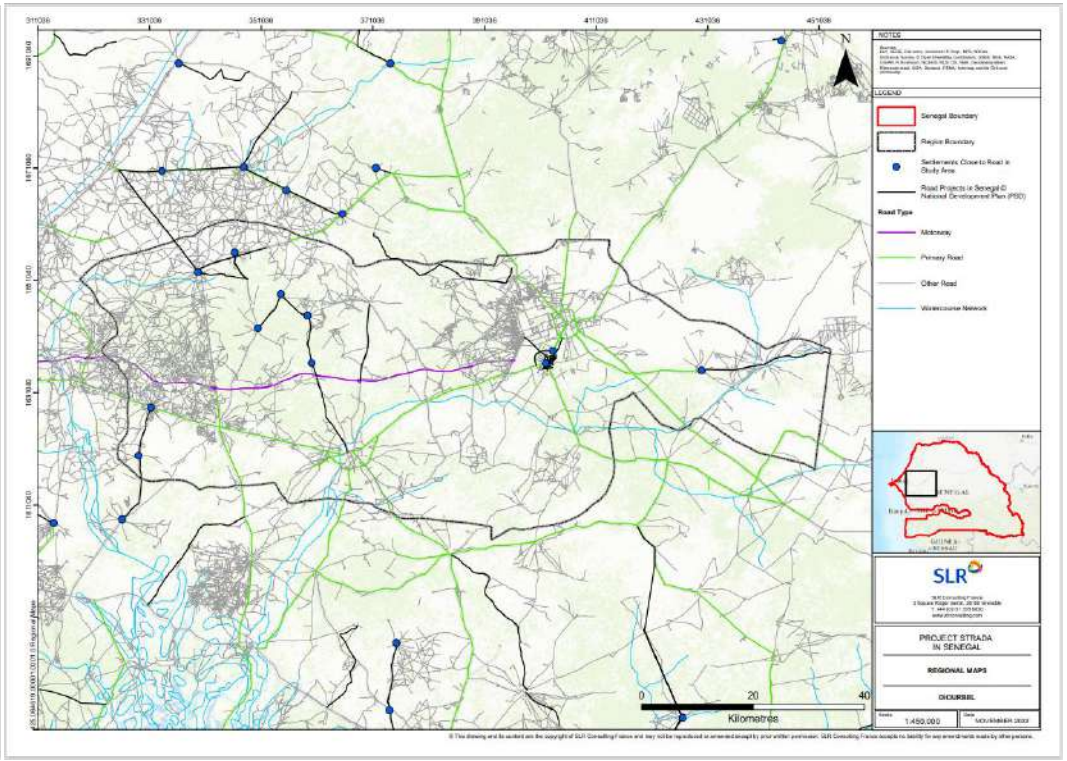

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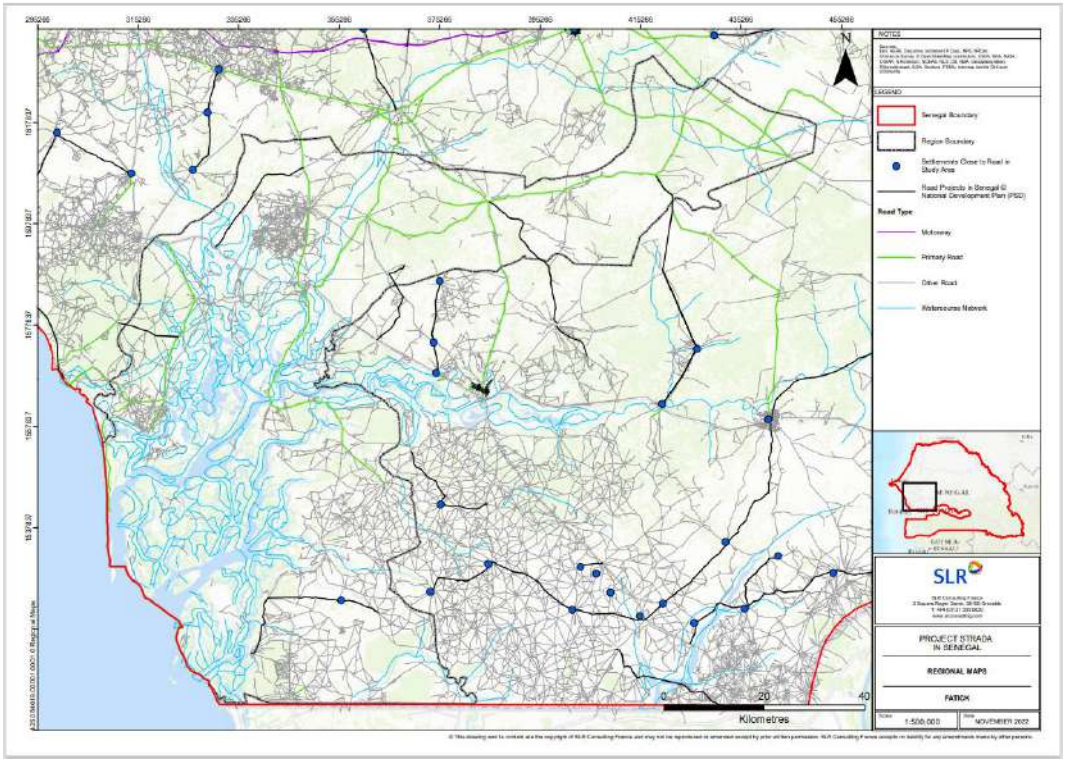

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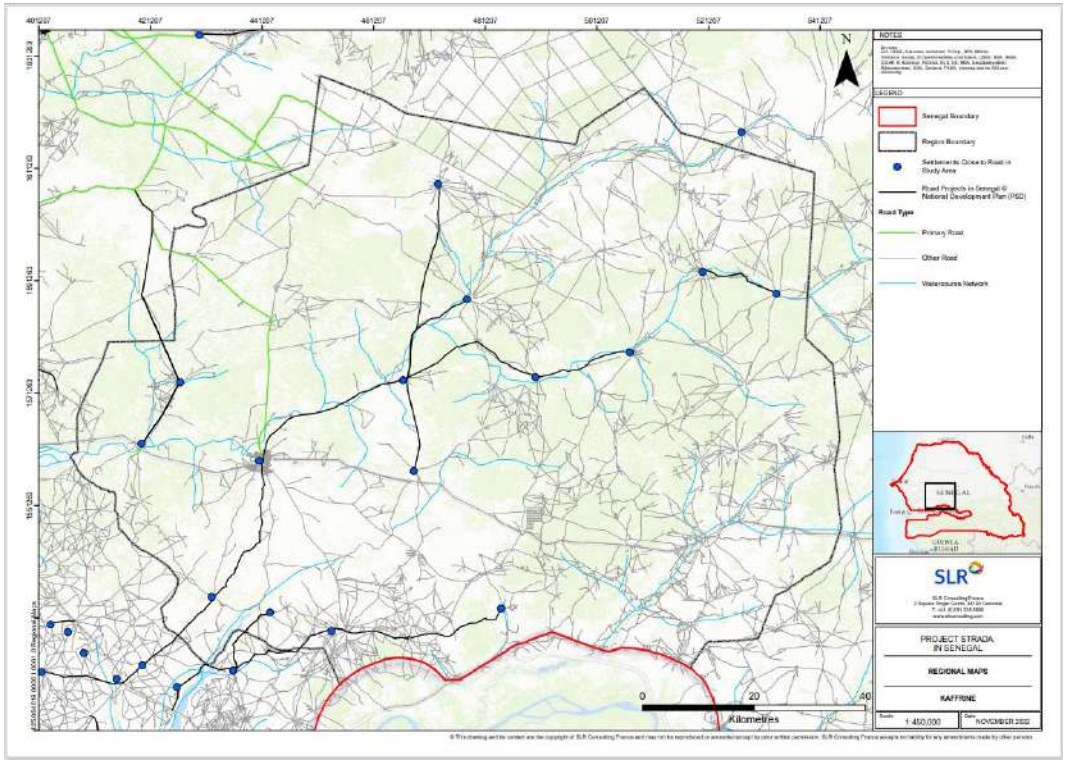

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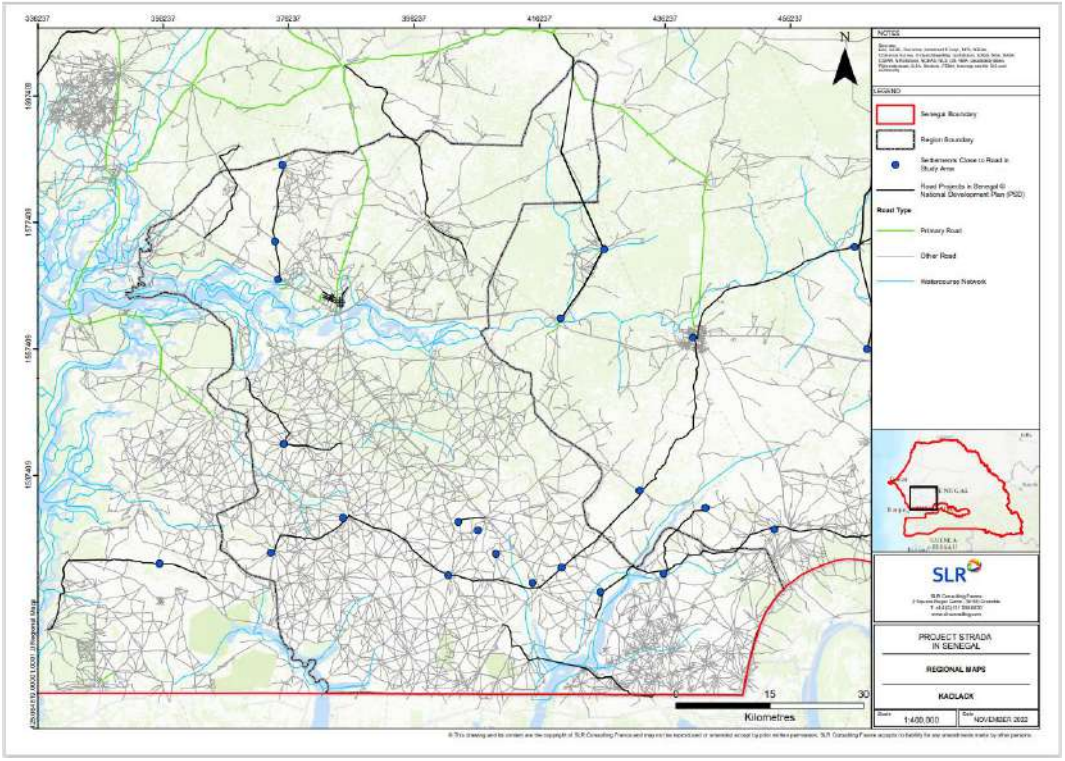

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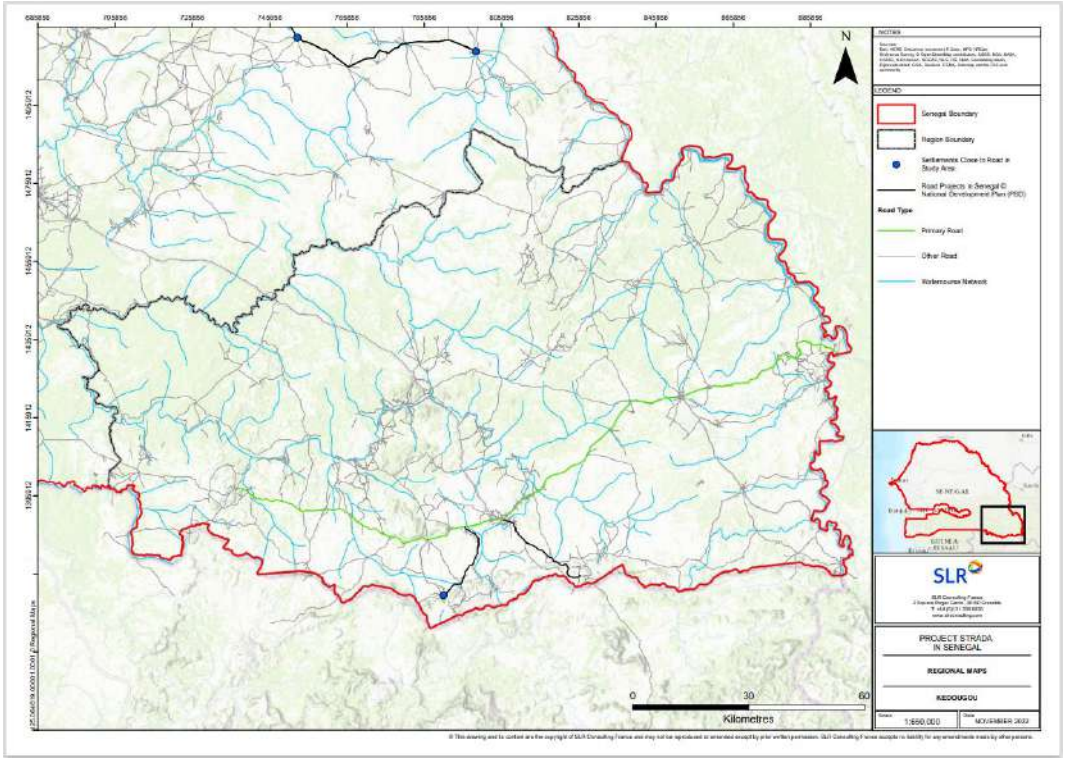
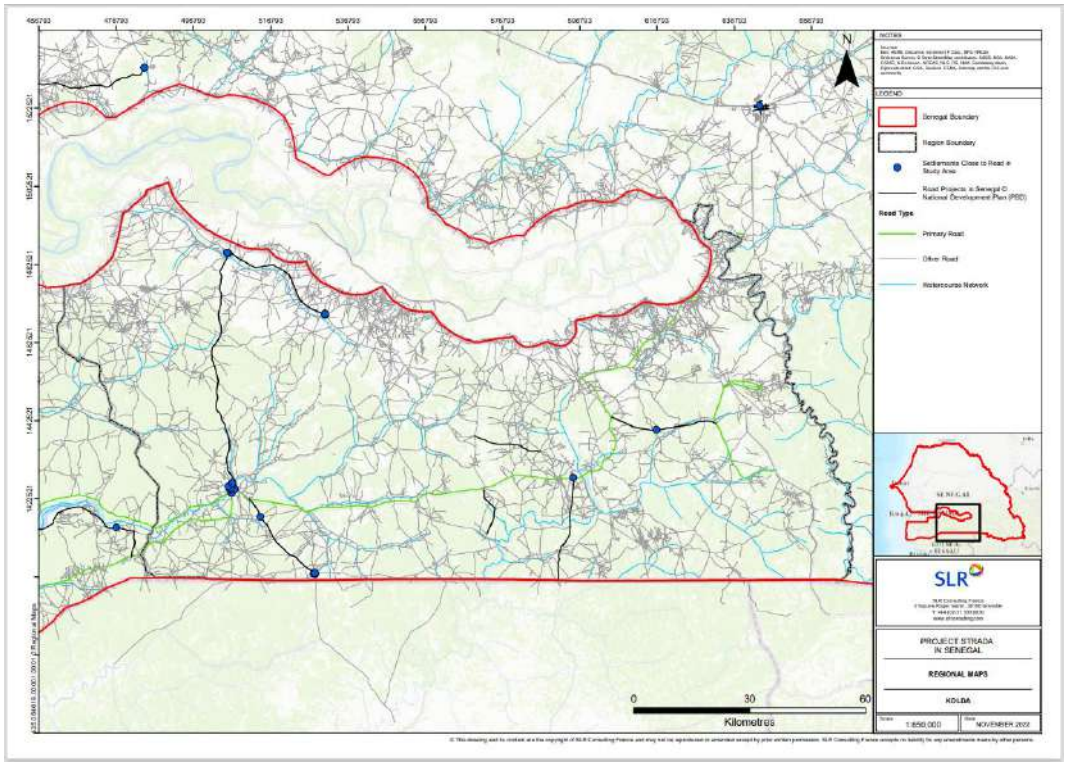


Kedougou


N
Senegal Boundary
Region Boundary
Settlements Close to Road in Study Area
Road Projects in Senegal © National Development Plan (PSD)
Road Type
Primary Road
Other Road
Watercourse Network
SLR
PROJECT STRADA IN SENEGAL
REGIONAL MAPS
KOLDA
1:850,000
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0
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60
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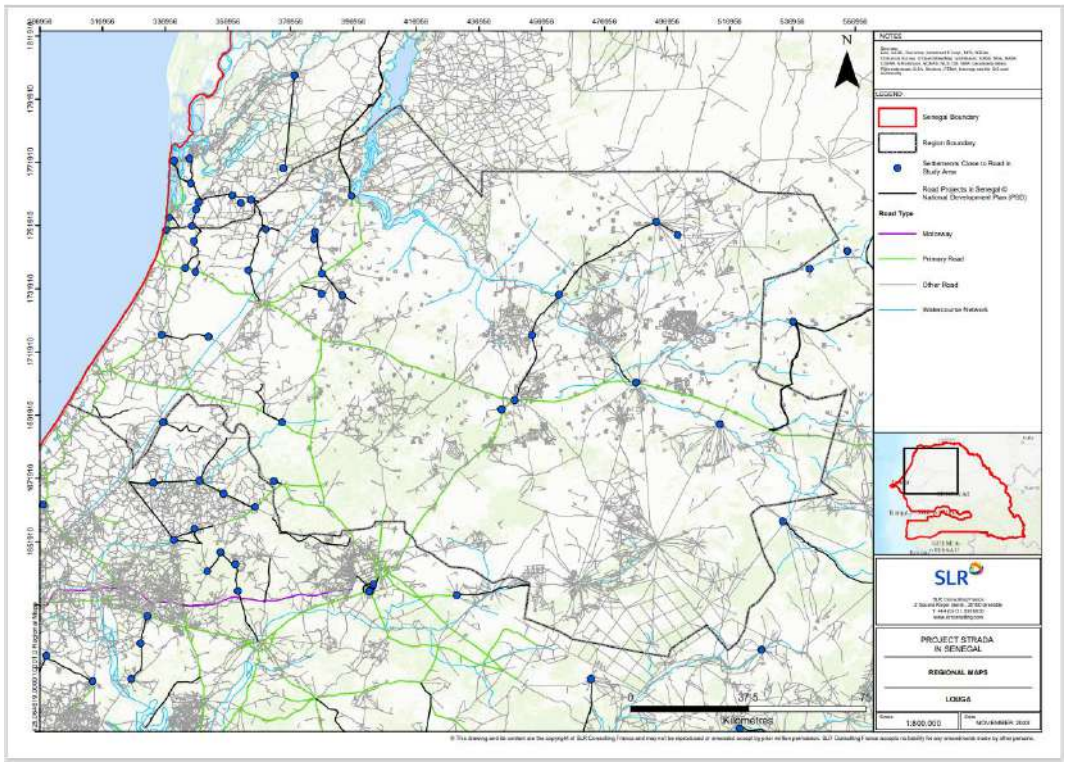
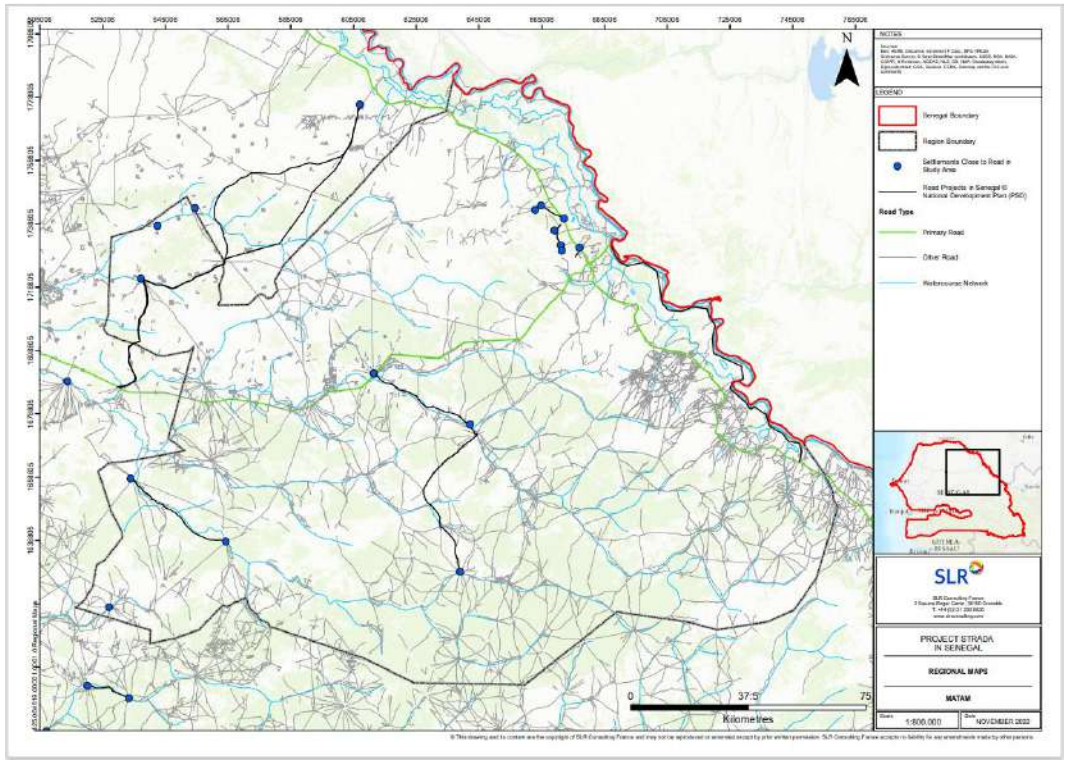
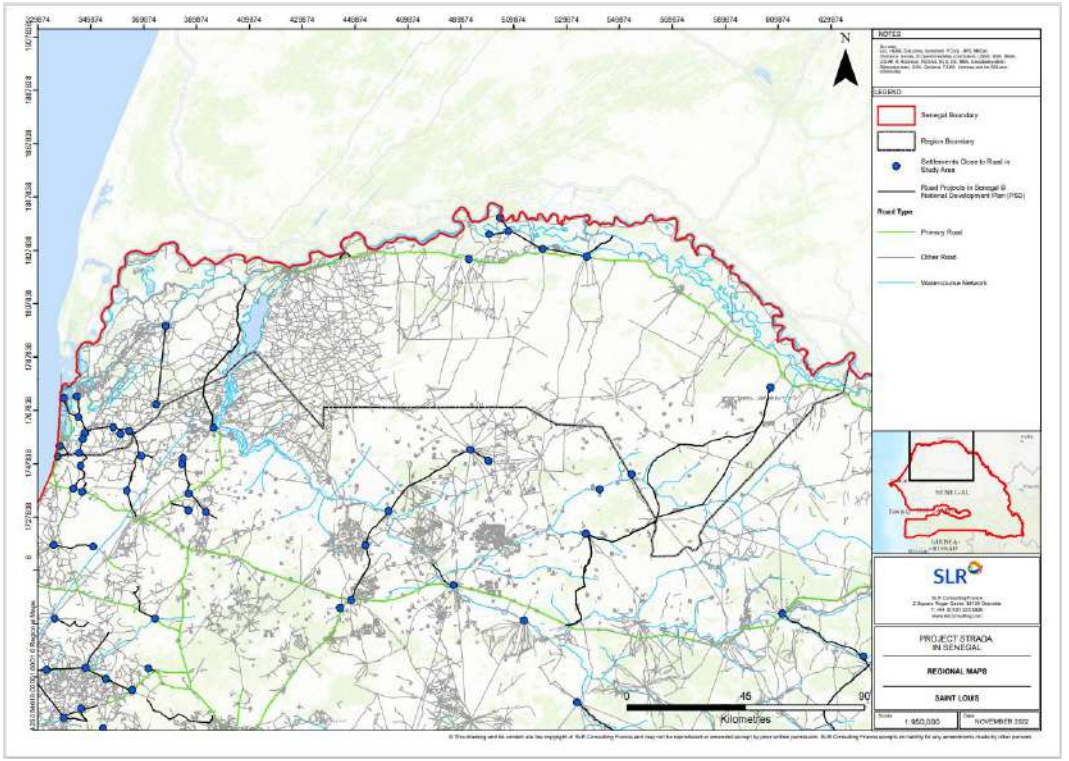
Kolda


N
Senegal Boundary
Region Boundary
Settlements Close to Road in Study Area
Road Projects in Senegal © National Development Plan (PSD)
Road Type
Motorway
Primary Road
Other Road
Watercourse Network
SLR
PROJECT STRADA IN SENEGAL
REGIONAL MAPS
LOUGA
1:800,000
NOVEMBER 2022
0
37.5
75
Kilometres

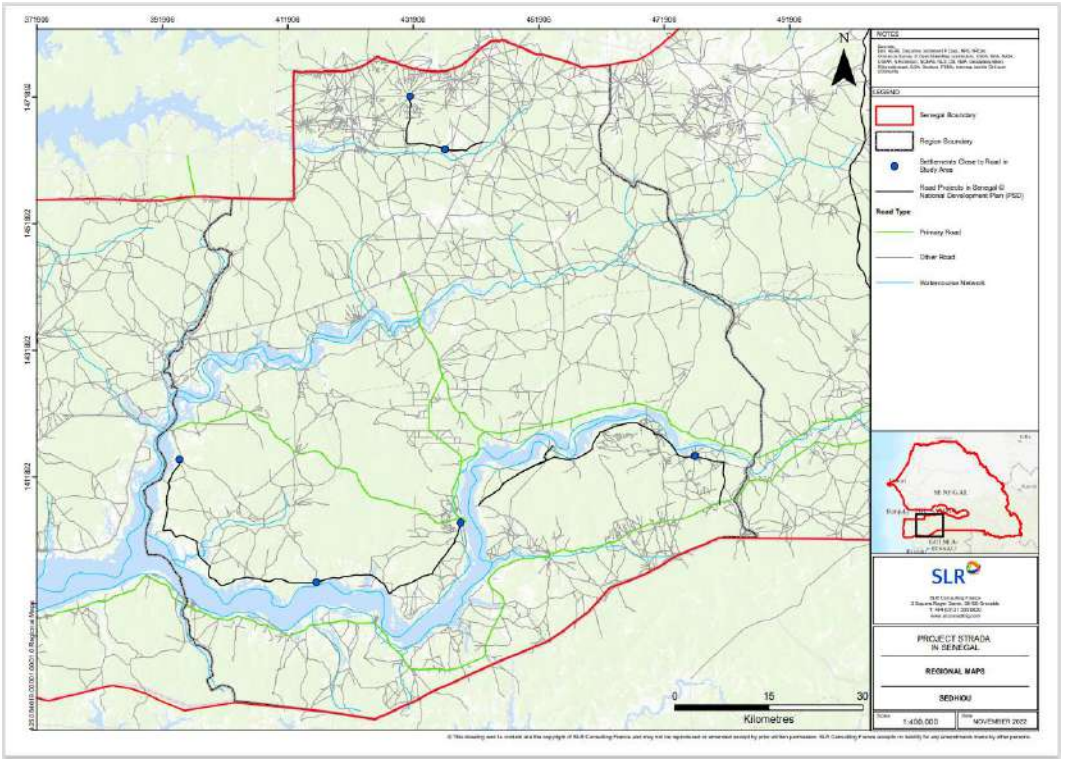
Louga



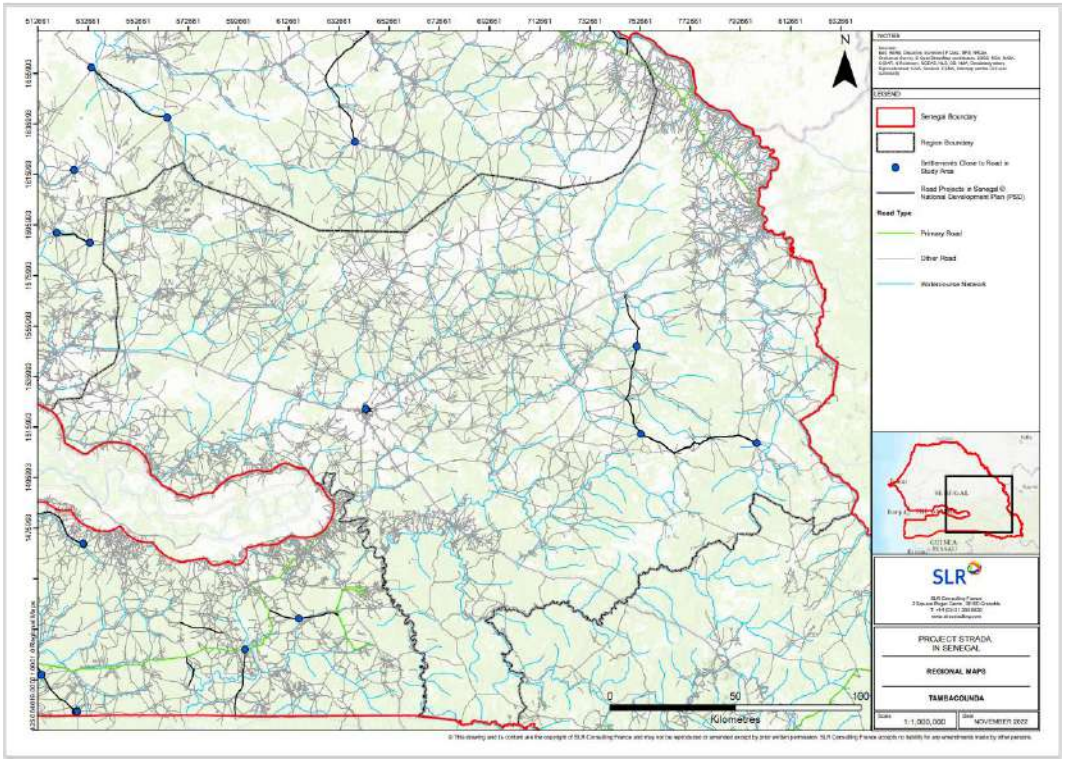
Matam



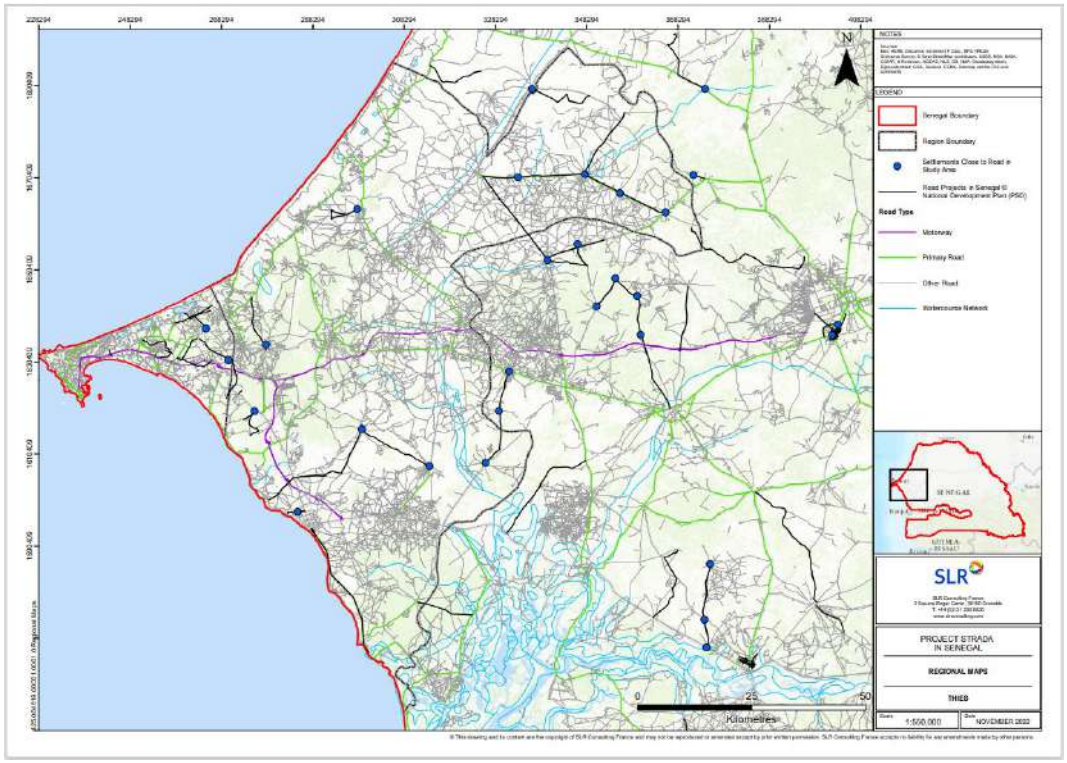
Saint Louis



Sedhiou



Tambacounda



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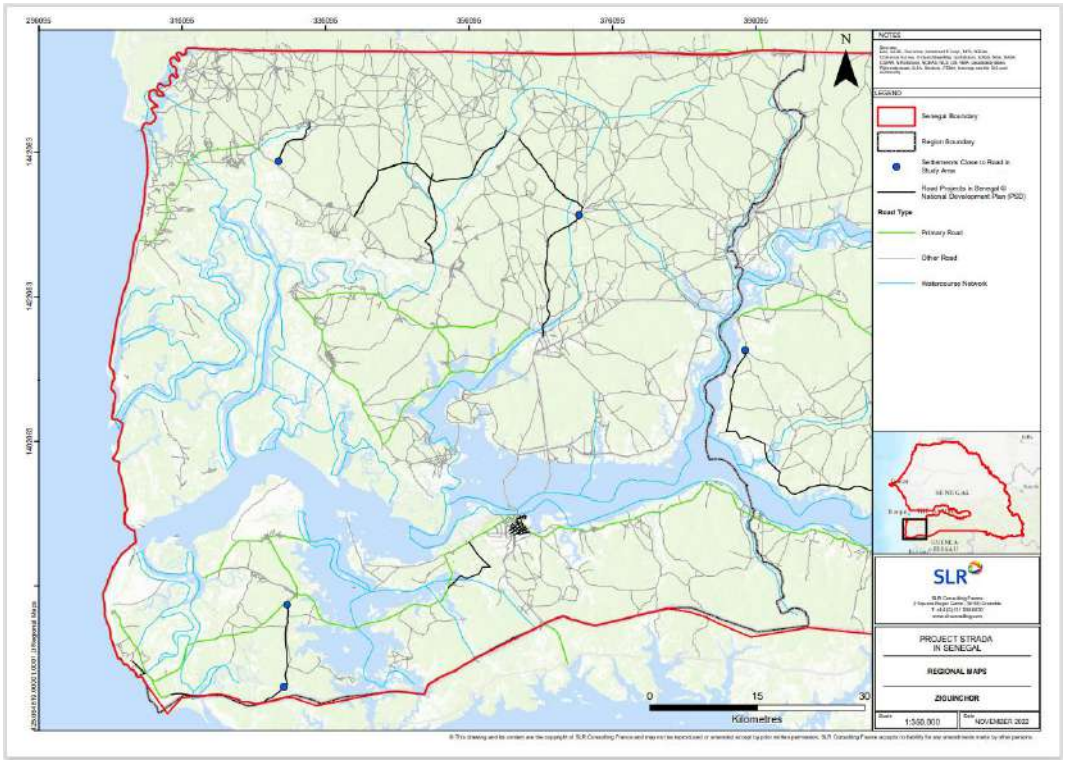
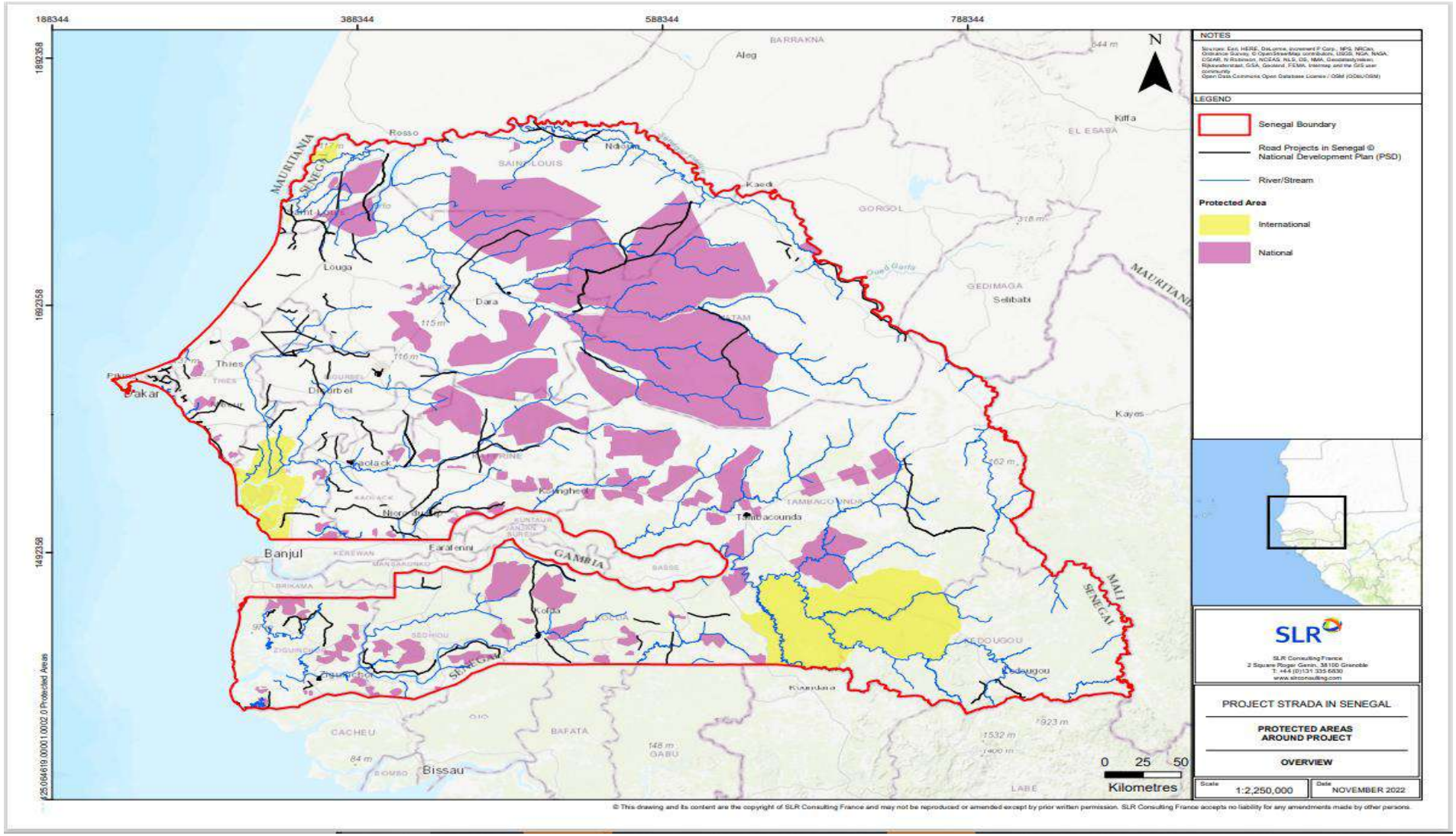


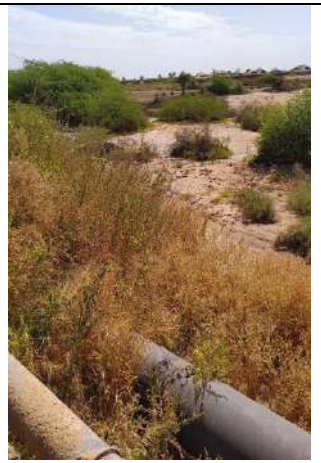
Ziguinchor

Protected Areas

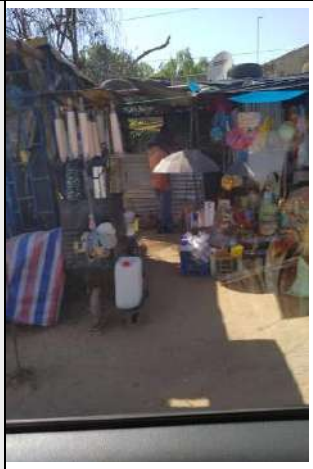
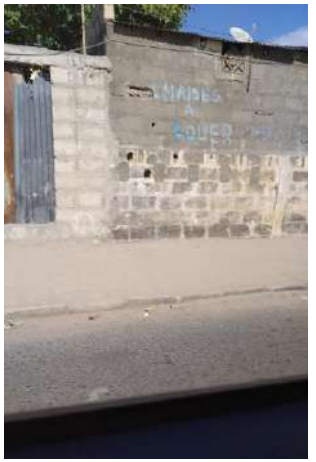
Figure I-1: Map Showing International and National Protected Areas



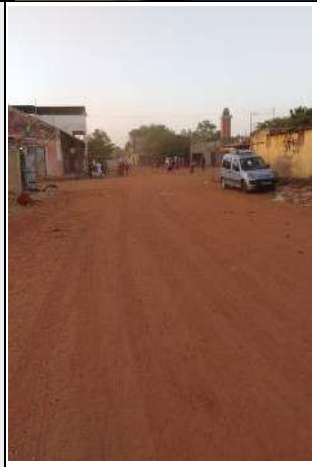
J. Photo Log

Road Section	Locality	Pictures
Mbour – Joal	Mbour	 
	Nianing	    

Road Section	Locality	Pictures
	Mbodiene	

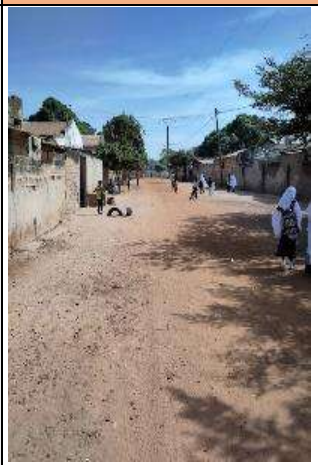
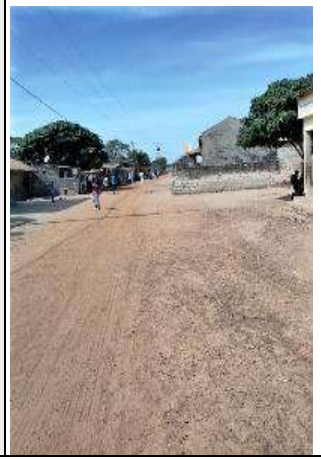
Road Section	Locality	Pictures
	Joal	     

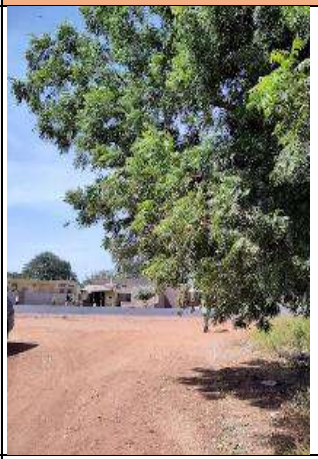
Road Section	Locality	Pictures
Keur Martin – Diohine – Wakhal Diam	Keur Martin	       

Road Section	Locality	Pictures
	Diohine	 
	Dougar	    

Road Section	Locality	Pictures
Missira – Toubacouta	Toubacouta	   
	Sourou	   

Road Section	Locality	Pictures
	Nemabah	 

Road Section	Locality	Pictures
	Missira	        

Road Section	Locality	Pictures
Toubacouta - Keur Saloum	Toubacouta	
Nioro - Keur Sountou	Nioro	 

Road Section	Locality	Pictures
Kaffrine - Sinthiou Wanar - Nioro	Kaffrine	  
	Mbede Mamoudo	  

Road Section	Locality	Pictures
	Dagabal	    
	Djama Far	    

Road Section	Locality	Pictures
	Wanar	 
Lamarame - Ndiendieng	Lamarame	   

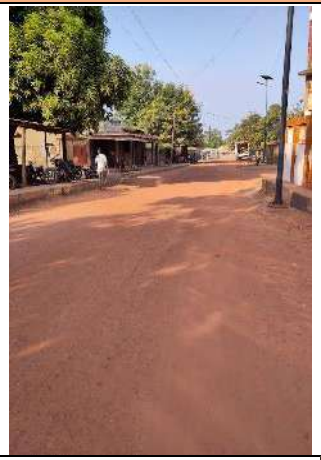
Road Section	Locality	Pictures
	Ndiedeng	  
Marsassoum - Djibabouya - Djiredji - Bambali - Sedhiou	Marsassoum	    

Road Section	Locality	Pictures
	Manguier	  
	Djibabouya	   

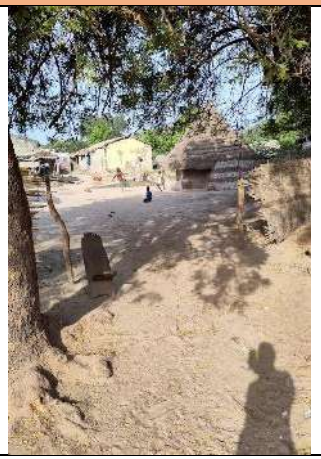
Road Section	Locality	Pictures
	Diafar Douma	
	Sibicourouto	

Road Section	Locality	Pictures
	Bamouda	    
	Sindina	

Road Section	Locality	Pictures
	Tingtingkome	
	Djiredji	    

Road Section	Locality	Pictures
	Sedhiou	 
	Sare Dianfo	  

Road Section	Locality	Pictures
	Sare Diata	   
	Dchewele Bessele	  

Road Section	Locality	Pictures
	Thiewele Bessele	   
	Ndopna	  

Road Section	Locality	Pictures
	Soulabally	
	Touba Foladou	  

Road Section	Locality	Pictures
	Pata	
Kolda - Salikegne	Kolda	

Road Section	Locality	Pictures
	Dioulacolon	       

Road Section	Locality	Pictures
	Iliao	

Road Section	Locality	Pictures
	Salikegne	     

K. ASGC ESMP FRAMEWORK

DISCLAIMER

This document has been developed with the intention of setting the minimum health, safety and environmental requirements to be applied by the Principal Works Contractor (PWC) that is engaged on project where ASGC is the Managing Contractor (MC).

Every care has been taken to incorporate the UK Export Finance ('UKEF') Environmental, Social and Human Rights (ESHR) Risk and Impact Categorisations and Contingent Liabilities, International Finance Corporation Environmental, Health, and Safety Guidelines, Senegalese Laws and best International Standards in this document. However, it should only be used as a general guidance and at no time replaces or substitutes any applicable Senegalese National & Local legislation, guidelines and standards or statutory requirements.

Although the contents are designed to cover all foreseeable work situations and hazards, it is the PWC's responsibility to ensure that their activities do not expose any person, asset or the environment to any unnecessary risk at any time. ASGC will provide oversight, guidance, monitoring and reporting to support the PWC in achieving this goal.

It is the PWC's responsibility to ensure he is aware of all statutory requirements applicable to his work activities, failure to reference a particular requirement within this document shall not relieve the PWC from being required to implement any additional standards or requirements that may be applicable.

THIS DOCUMENT IS TO BE UPDATED WITH PROJECT SPECIFIC DETAILS RELATING INDIVIDIUAL PROJECT COMPNENTS

I. GENERAL CONDITIONS

1. DEFINITIONS, TERMS AND ABBREVIATIONS

Attenuation	:	The reduction of noise achieved by hearing protection; each type of ear protector should have attenuation tables, which illustrate the noise reduction at different frequencies. e.g. 30dB (A) at 5000Hz.
ASGC	:	ASGC UK Limited and its subcontractors/subsidiaries
Borrower	:	Fonds d'Entretien Routier Autonome
Client	:	AGEROUTE Senegal
Combustible liquid	:	means any liquid having a flash point at or above 37.8 ºC and below 93.3 ºC.
Consultant	:	The Architect developing the design, which is Global for Engineering Studies, known herein after as (Global)
Contractor	:	*Name of company to be placed here / Rajouter le nom de votre compagnie*
COSHH	:	Control of Substances Hazardous To Health
CPE	:	Collective Protective Equipment
CSR	:	Corporate Social Responsibility
dB	:	A unit of sound pressure fed into an electronic weighting network and providing an approximate sound level calculated over the total frequencies.
dB (A)	:	The characteristics of sound that are filtered to replicate the noise heard by the human ear.
E&S	:	Health, Safety, Environmental and Social
E&S MP	:	Health, Safety, Environmental and Social Management Plan
Exporter	:	ASGC UK Ltd
Flammable liquid	:	means a liquid having a flash point below 37.8 ºC and having a vapour pressure not more than 275.8 kPa (absolute) at 37.8 ºC
Flash point	:	means the minimum temperature at which a liquid within a container gives off vapour in sufficient concentration to form an ignitable mixture with air near the surface of the liquid.
Frequency	:	The pitch measured in Hertz (Hz, one cycle per second) calculated from the rate of pressure fluctuations of sound waves.
HS	:	Health and Safety
HSE	:	Health, Safety, Environmental and Social
Inhalable Dust	:	Dust that enters the mouth and nose during breathing and is available for deposit in the respiratory tract, in other words the dust is trapped in the nose and throat.
Lenders	:	UKEF & MUFG
LM	:	Local Municipality
LTI	:	Lost Time Incident
Major Spill	:	A major spill is one that cannot be contained safely with the materials on the site, threatens safety to life, and/or threatens to enter the sewer system or travel beyond the boundaries of building/property to endanger the environment. The Emergency Services shall be contacted.

MC	:	Management Contractor (ASGC)
Minor Spill	:	A minor spill is one that usually presents little or no hazard to person or property and is small enough to be safely cleaned up using the emergency spill kit.
MEPC/MFB	:	Ministry of Economy, planning and cooperation/ Ministry of Finance and Budget
MSDS	:	Material Safety Data Sheets, a compilation of information on the identity of hazardous chemicals, health, and physical hazards, exposure limits, and precautions
MUFG	:	MUFG Bank
Noise	:	Unwanted sound, which at certain volume levels may cause irreparable damage to hearing.
OHS	:	Occupational Health and Safety
PPE	:	Personnel Protective Equipment
Project	:	Programme Spécial de Désenclavement
Respirable Dust	:	Dust particles that are so small they penetrate directly to the gas exchange region deep in the lungs, and are generally beyond the bodies natural clearance mechanism, and are likely to be retained eventually scaring the lung tissue
UK	:	the United Kingdom of Great Britain and Northern Ireland and includes the Channel Islands and the Isle of Man
UKEF	:	UK Export Finance
Vapour Pressure	:	Means the pressure exerted by a liquid as determined by ASTM D 323, “Vapour Pressure of Petroleum Products (Reid Method)
PWC	:	Principal Works Contractor. Is the team which will carry out the construction works.
PWD	:	Principal Works Designer. The team of architects and engineers that will carry out the design works until detailed design, which is Global.
PWS	:	Principal Works Supervisor. Is the team which will carry out quality control and HSE supervision works and make sure procedures are as per client and authorities standards

2. EMERGENCY CONTACT NUMBERS

Table 1 Emergency Contact Numbers

Emergency contact numbers	
Fire / Police / Medical	
Civil Defence	
Local Municipality	
Project Security	
Nurse / First Aider Certified	
Project Logistics	
Employer Representative	
MC Representative (ASGC)	
PWC Representative	
PWS Representative	
PWD Representative (Global)	

3. INTRODUCTION

ASGC is to be appointed to act as the Management Contractor ('MC') for the design, construction works, rehabilitation and upgrading of roads, bridges, and related infrastructures for the "Programme Spécial de Désenclavement", herein after known as the Project, on behalf of the Ministry of Infrastructure, terrestrial transportation and opening up through AGEROUTE Senegal.

As the MC, ASGC will appoint a Principal Works Contractor ('PWC') on the site together with a number of other Works Contractors that will ultimately work as subcontractors to the PWC (see below diagram). The PWC will be responsible for managing health, safety, environmental and Social ('E&S') performance, including but not limited to employee welfare, occupational health and safety and environmental and community exposure to the construction impacts, in accordance with the standards set out in this document. ASGC, working closely with the Principal Works Supervisor (PWS) and the Principal Works Designers (PWD) appointed by the client, will provide oversight, monitoring and reporting to ensure that these standards are upheld. Details of the Project such as design criteria, construction methodology, scope of construction, etc. and any bespoke HSE conditions are provided on Appendix 1 of this document.

ASGC believes that nothing is more important than the health, safety and wellbeing of its employees, employer teams, subcontractors and all others that may be affected by its activities, and the environment in which it operates.

ASGC are fully committed to ensuring that the standards implemented on projects where it has an influence or statutory obligations shall be delivered to the highest standards possible.

In its role as Management Contractor, ASGC will work with the employer, the PWC, the PWS, the PWD and all other stakeholders to promote a **'One Team Working Safely'** approach.

4. Purpose & Scope

The purpose of this document is to define and describe the operational requirements for managing Environmental and Social (E&S) during the construction of the project, and to act as an easy guidance for Environmental & Social requirements. The requirements apply to all employees, subcontractors and visitors engaged on the project.

Part of this document is a Risk Assessment and Mitigation Measures Plan showing the potential impacts associated with the construction of the Project and control mechanisms to mitigate such risks. Please refer to Appendix 2 accordingly for further information.

ASGC will be responsible for the construction phase including handing over to the employer and training of the employers' maintenance engineers. Once commissioned, the hospital will be operated by the Ministry of Health and they will become responsible for HSE matters. Additionally, there will be a 3 years defect and liability period and a 2 years maintenance period where the PWC shall guaranty the good performance of all equipment and materials installed on site. An Operations Phase ESMP shall be developed to address the operational risks of the project.

To align with contractual terminology the client is referred to as the Employer throughout the document.

5. Estimated Manpower

The estimated manpower on site will be on pick of activities, of around XXX including the subcontractors personnel. The work shift shall be from 8am until 5pm from Monday to Friday, to a maximum of 40 hours of work per week, and any extended hours (overtime) shall be controlled by a permit to work system and paid in accordance to Senegalese Labour Law.

HSE and supervisory staffs shall maintain a handing over note in their respective project office to communicate the information's from each shift's (when required). Holydays/Sundays works shall be controlled by a permit to work system by ASGC; any such arrangements will be communicated with Supervision (if required). To note that as per the programme of works, night shifts are not planned for this Project, and all construction activities shall take place during normal day schedule as stated above.

Table 2 Estimated Manpower

Management Contractor			
Operations Manager		Operations Director (International)	
HSE Engineer		Technical Manager (International)	
QC Engineer			

Supervision Team			
Resident Engineer		MEP Engineer	
Project Manager		Structural Engineer	
Senior Architect		Inspector	
Principal Works Contractor Team			
Project Director		Helper	
Project Manager		Carpenter	
Construction Manager		Steel fixer	
Project Engineer		Mason	
Site Engineers		Plant Operators	
Quality and Quantity Engineers		Site Nurse	
Project HSE Manager		Security officers	
HSE Officer		Watchman	
Safety Helpers		Fire Warden	

6. CODES, STANDARDS & REGULATIONS

6.1. International Framework

- UK Export Finance ('UKEF') Policy and Practice on Environmental, Social and Human Rights (ESHR) due diligence and Monitoring;
- UKEF Note on Human Rights and Social Risks and Impacts;
- International Finance Corporation applicable Performance Standards;
- International Finance Corporation Environment Health and Safety Guidelines for roads infrastructures;
- World Bank Group (WBG) Environmental, Health and Safety ("IFC/WBG EHS") Guidelines in force at the time of this agreement applicable to the Project; more than one guideline may be applicable to the Project depending on its nature; and
- Equator Principles IV: A financial industry benchmark for determining, assessing and managing environmental and social risk in projects, July 2020.

6.2. Local Regulations *(insérer les décrets, réglements communautaires, arrêtés… pertinents régissant le cadre réglementaire)*

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6.3. Reference Documents *(rajouter les documents de référence si pertinent)*

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7. ORGANIZATION FOR HEALTH, SAFETY, ENVIRONMENT & SOCIAL

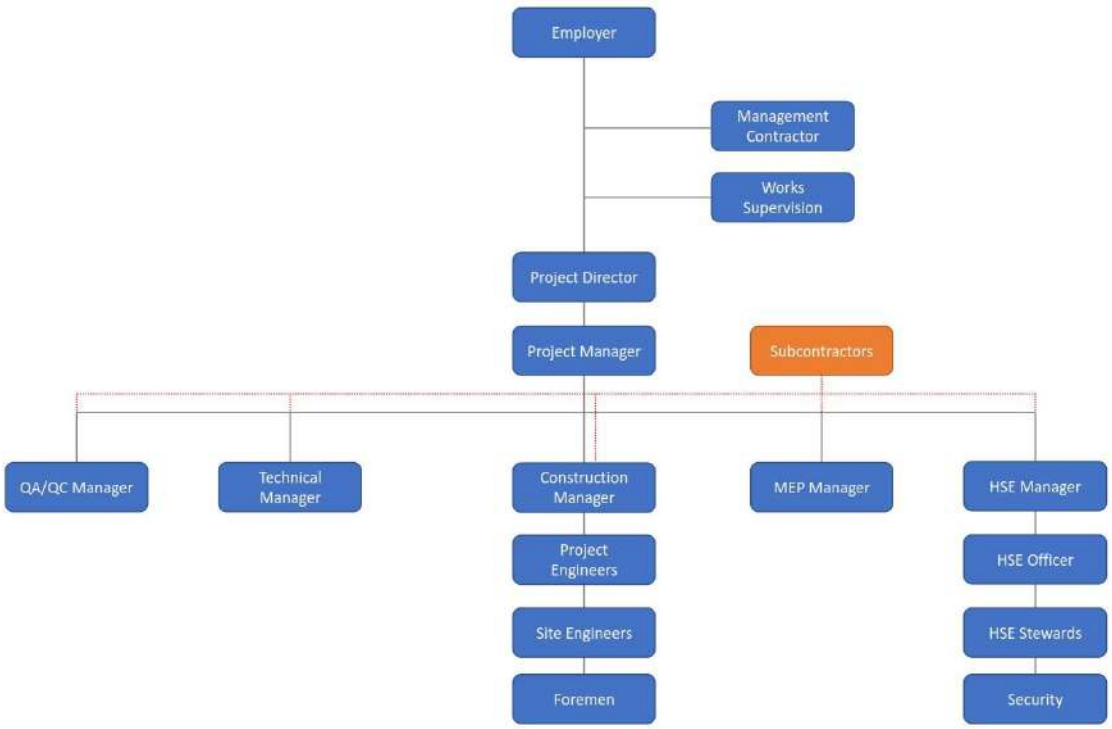

Figure 2 Organization Chart (Actualiser en fonction des spécificités de chaque sous – traitants)

Safeguarding the health, safety and wellbeing of all those working on, or visiting, the project is the responsibility of every person engaged on the project. Managers, supervisors and all senior members of staff have an additional responsibility of ensuring that their subordinates are competent in their roles, are supervised appropriately and that their health, safety and wellbeing are protected adequately.

All companies engaged in work on the project are required to define the line of command for their health and safety responsibilities.

7.1. Management Contractor - ASGC

The MC's HSE resources shall include an Senegalese dedicated on-site HSE Engineer who will have overall responsibility for all on-site activities as well as an HSE Director responsible for ASGC's international division. The HSE team, as detailed in the table below, will interact and engage with the representatives and personnel of the Employer, PWC, Supervisor and UKEF.

Table 3 MC's Contact Details

Position	Name	Mobile Number	e-mail

7.2. Principal Works Contractor

The PWC's HSE resources shall include a dedicated on-site HSE Manager who will have overall responsibility for all on-site activities. The HSE team, as detailed in the table below, will interact and engage with the representatives and personnel of the Employer, MC, Supervisor and subcontractors.

The names and contact details of personnel are as follows:

Table 4 PWC's Contact Details

Position	Name	Mobile Number	e-mail

7.3. Works Contractors & their Subcontractors

The PWC or any other subcontractor and/or supplier shall designate a responsible HSE Manager who will have overall responsibility for all on-Project activities. The HSE Manager, as detailed in the table below, will report to the PWC's Project Director and engage with the PWC's Construction Manager and other subcontractors' personnel as necessary.

Table 5 Subcontractors Contact Details

Name	Position	Company Name	Mobile Number	e-mail

Please see below some general requirements for mobilization, demobilization and termination of any subcontractor and / or supplier HSE personnel on the Project:

- ASGC reserves the right to approve or reject any or all proposed personnel and/or CV's, subject to a satisfactory justification.
- ASGC also reserves the right to reject or recommend modifications in the proposed HSE organization.
- Where required the proposed personnel must be approved by the appropriate local authority and evidence provided to ASGC.
- The proposed HSE organization shall be based on the nature, scope of work and the risks involved.
- The proposed personnel must have relevant experience matching the nature, scope of work and risks involved.
- Only approved HSE personnel shall be mobilized on the project site.
- Any subcontractor working on this Project shall comply with this document and the lenders requirements.

- Demobilization of HSE staff is not allowed without prior permission from ASGC/ Employer. Permission can be sought upon justifying the unavoidable circumstances that require demobilization.
- In case the demobilization is due to project wind-up or close-out, the PWC shall get their demobilization plans approved prior to the start of demobilization.
- The performance will be monitored continuously.
- ASGC reserves the right to ask for the removal of an HSE person from site if the performance remains unsatisfactory at any time following a first warning and/or on the grounds of poor HSE performance and/or leadership.
- Termination orders of an HSE person services shall be passed with proper justification and the prior warning shall be attached.

Duty Holder	Specific Duties	When
PWC	• Appoint qualified technical staff to supervise the application of the occupational health and safety requirements in the worksite in accordance with the relevant standards and in-line with the work/project nature and size. • Submit their proposed project HSE organization and the CV's of the proposed HSE personnel to the MC prior to mobilization for review/approval.	Prior to mobilizing on site and throughout the project life.
ASGC	• Monitor the performance of the HSE staff on the project and issue written warnings if any lapses in performance are found.	Prior to mobilizing on site and throughout the project life.

7.4. Principal Works Supervisor

The PWS's HSE resources shall include a dedicated on-site Resident Engineer who will have overall responsibility for all on-site activities. The HSE team, as detailed in the table below, will interact and engage with the representatives and personnel of the Employer, MC, and subcontractors.

The names and contact details of personnel are as follows:

Table 6 PWS's Contact Details

Position	Name	Mobile Number	e-mail
Director of Operations			
Assistant Director			
Resident Engineer			
Site Coordinator			
Architect			
HSE Manager			
HSE Officer			
Supervisor			
Supervisor			

8. DUTIES AND RESPONSIBILITIES

8.1. Duty of Care

The 'duty of care' extends beyond what is legally required and covers the moral responsibility that all persons have to ensure others are not harmed by their acts or omissions. Every person engaged on the project has a responsibility to ensure that this duty is observed at all times.

8.2. Management Contractor (MC) - ASGC

ASGC UK, as the Exporter Agreement signatory, will make sure that all parties meet the facility's requirements, including but not limited to the following:

- As the Supplier under the contract, assisting the Employer to obtain UKEF-supported funding for the Project including liaising with the lender;
- Project oversight, monitoring and reporting as required by the client, UKEF and the lenders;
- Performing procurement services in conjunction with the Principal Works Contactors to ensure that the percentages of UK, foreign and local content as stipulated in the Loan Agreement are complied with;
- In relation to the above, identifying, negotiating and placing direct orders with UK suppliers;
- Managing the payment process under the contract(s) in conjunction with the Principal Works Contactors and Principal Works Supervisor, including the preparation of Exporter Payment Requests and supporting documentation;
- Ensuring compliance with relevant HSE and Social standards as set out in the E&S MP, and RAP, and reporting to relevant stakeholders on performance;
- Undertaking technical reviews in conjunction with the PWC, specialist subcontractors and the projects' designers.

ASGC shall appoint adequate and appropriately qualified HSE resources to undertake the required implementation, monitoring and reporting required to meet lender requirements. Relevant roles and responsibilities include, but are not limited to, those listed below. The roles and responsibilities aim to enable the effective development, implementation, and maintenance of this E&S MP and therefore compliance with legal and other requirements.

a. Project Director

In addition to the responsibilities as part of the Senior Management Team, the Project Director is also responsible for:

- The overall implementation of HSE policy and E&S Documentation to prevent injury, ill health and enable compliance
- Ensuring that adequate financial provisions are made available for the implementation of the policy.
- Agreeing HSE objectives
- Promoting the liaison on HSE matters between the MC, PWS, PWC and all the Project's stakeholders
- Represent the MC on all cross-Project Committees (if applicable) (or provide a delegate).

b. HSE Manager

In addition to the responsibilities as part of the HSE team, the Project HSE Managers are also responsible for:

- Develop, implement, maintain, review, and improve the E&S Documentation throughout the lifetime of the Project. Material revisions shall be approved by Lenders.
- Ensure all applicable legal and statutory related HSE are identified and action plans are drawn for compliance by the PWC
- Discussion with Employer Representative / PWS on HSE requirements and issues during the execution phase
- Supporting the Project team in carrying out selection of subcontractors
- Communication of objectives and targets to PWC related to HSE.
- Provide liaison and external communication with the Project's stakeholders and provide periodic HSE management and performance reports (as per the monitoring and reporting framework).
- Arrange and lead HSE meetings and ensure minutes are distributed and action followed up.
- Leading the investigation of notifiable accidents or dangerous occurrences and recommending means of preventing re-occurrence.
- Supervising the analysis of information review overall HSE performance of the PWC and subcontractors.
- Managing the HSE team to ensure they support the delivery of the Project's HSE objectives and targets
- Provide advice on HSE matters and training requirements. Ensure that adequate HSE training is provided for all personnel

c. HSE Personnel

HSE personnel include HSE Officers/Stewards responsible for monitoring individual project components, and as such are responsible for:

- Monitoring, reporting on, and improving the E&S Documentation throughout the contract period
- Promote HSE throughout the Project and works as an integral part of business and operational efficiency.
- Checking to ensure that HSE requirements are being correctly implemented and monitoring on site.
- Monitor and ensure all personnel are aware of their responsibilities and conform to the requirements of this E&S MP.
- Report all material non-compliance and support the investigation
- Undertaking periodic (weekly/bi-weekly/monthly) site HSE walkovers, investigations, and reports, as per the monitoring and reporting framework, and recommendations for improving overall HSE.
- Provide advice on HSE matters to PWC and subcontractor personnel.

ASGC shall also appoint relevant independent specialists to undertake relevant assessments, such as, but not limited to, ESIAs and RAPs, and to support monitoring thereof where required.

8.3. Principal Works Contractor (PWC)

The PWC is a main duty holder and shall have a responsibility for the health, safety and wellbeing of all persons that can be affected by their undertakings. The PWC's duties in relation to health and safety at the construction phase are outlined in each section of this document.

A programme of positive intervention known as 'Don't Walk By' shall be followed throughout the project and the PWC shall adopt the programme by authorizing and requiring all its personnel and

Works Contractor employees to intervene in any unsafe act or condition and take immediate corrective action to prevent any incident occurring.

Work may be monitored by any representative of the Employer or their professional team who may intervene in any unsafe act or condition and require the PWC to take immediate corrective action to prevent accidents.

The PWC may be issued with stop work instructions, NCRs, Improvement Notices, Prohibition Notices from ASGC for any observed cases of serious or imminent danger associated with the work. On receipt of a stop work instruction the PWC shall cease the particular activity for which the instruction was issued until such time as remedial action has been taken to alleviate the serious or imminent danger and to prevent it reoccurring.

The PWC shall pro-actively intervene and stop work if any unknown or unplanned conditions occur that give rise to serious or imminent danger. In such circumstances the PWC shall assess the risks associated with any remedial work required and revise the method statements to be approved by ASGC before recommencing work.

The PWC shall support their site management, their HSE team and their workforce in establishing a positive and proactive intervention culture on the project.

Where it can be established that persons within the delivery team are not demonstrating the necessary behaviours and leadership to create a safe project, then subject to suitable evidence of failure and at the request of ASGC they shall be removed from the project regardless of seniority or employing organization.

Duty Holder	Specific Duties	When
PWC	• Encourage positive intervention at all levels in case of an unsafe conditions. • Take necessary action immediately if an unsafe act/condition is identified. • Always revise HSE documents to ensure validity.	Throughout life of project.
ASGC	• Monitor the PWC's compliance. • Intervene when necessary. • Inform the Employer if serious non-conformances are identified or PWC fails to comply.	Throughout life of project.
Employer	• Support the positive intervention policy.	Throughout life of project.

In addition to the PWC's roles and responsibilities outlined in each section within this document, the PWC shall:

- Be committed to apply all occupational health and safety procedures which shall not be less than the minimum standards stipulated in this document.
- Ensure that their subcontractors comply with legal requirements, this manual (as amended whenever required) and any other additional requirements either included in the contract specification or agreed at pre-construction meetings. Only subcontractors with a good track record and reputation for their management of HSE will be considered. Once selected, all subcontractor staff and labour will be inducted on site and attend regular toolbox talks. Their works will be regularly inspected and audited as explained in this document.
- Submit performance and incident reports to the MC, PWS, Employer and concerned authorities as and when required as per the requirements of the project or stated in this document.

- Establish effective channels to communicate all HSE matters with all stakeholders.
- Apply, as necessary, to the relevant authorities to obtain all necessary licenses and certificates pertaining to health and safety.

The roles and responsibilities of the PWC and subcontractor employees are listed below. The roles and responsibilities aim to enable the effective development, implementation and maintenance of this E&S MP and therefore compliance with legal and other requirements.

a. Project Director

In addition to the responsibilities as part of the Senior Management Team, the Project Director is also responsible for:

- The overall implementation of HSE policy and E&S Documentation to prevent injury, ill health and enable compliance
- Ensuring that adequate financial provisions are made available for the implementation of the policy.
- Agreeing HSE objectives
- Promoting the liaison on HSE matters between the PWC and all the Project's stakeholders
- Arranging for regular meetings with the appropriate personnel to discuss HSE management and performance and continual improvement plus chairing the monthly HSE meeting.
- Represent the PWC on all cross-Project Committees or provide a delegate.

b. HSE Manager

In addition to the responsibilities as part of the HSE team, the Project HSE Managers are also responsible for:

- Develop, implement, maintain, review and improve the E&S Documentation throughout the lifetime of the Project. Any new revision shall be approved by ASGC.
- Ensure all applicable legal and statutory related HSE are identified, and action plans are drawn for compliance
- Discussion with Employer Representative on HSE requirements and issues during the execution phase
- Supporting the Project team in carrying out selection of subcontractors
- Communication of objectives and targets to construction team including subcontractors related to HSE.
- Provide liaison and external communication with the Project's stakeholders and provide periodic HSE management and performance reports.
- Represent the PWC on the HSE Committees or provide a delegate
- Arrange and lead HSE meetings and ensure minutes are distributed and action followed up.
- Leading the investigation of notifiable accidents or dangerous occurrences and recommending means of preventing re-occurrence.
- Supervising the recording and analysis of information on injuries and ill-health, assess accident trends and review overall safety performance.
- Managing the HSE team to ensure that support the delivery of the Project's HSE objectives and targets
- Provide advice on HSE matters and training requirements and arrange training courses if requested. Ensure that adequate Safety Training is provided for all personnel

c. HSE Personnel

In addition to their responsibilities as Managers and Supervisors, HSE personnel are also responsible for:

- Implementing, maintaining, monitoring, reporting on and improving the E&S Documentation throughout the contract period
- Lead and promote HSE throughout the Project and works as an integral part of business and operational efficiency.
- Ensuring that HSE registers, records and reports are up-to-date and properly filled in and ensure that they are kept in a safe place.
- Ensure that copies of regulations are available and statutory notices are prominently displayed.
- Ensuring all personnel and visitors received an approved site HSE induction before being allowed on site and keep records of site inductions
- Monitor and ensure all personnel are aware of their responsibilities and conform to the requirements of this E&S MP.
- Support the provision of toolbox talks and deliver induction training
- Ensuring that subcontractors undertake toolbox talks and conduct internal HSE audits and inspections.
- Ensure that all firefighting equipment is maintained, fire exits kept clear and fire drills organised on a regular basis
- Ensure that First Aid facilities are available.
- Keep up to date daily signing in/out register and visitors book. Only site inducted personnel are allowed on site unsupervised.
- Report all notifiable accidents or dangerous occurrences and support the investigation
- Undertaking daily and periodic site HSE tours and make reports and recommendations for improving general site safety.
- Provide advice on HSE matters to construction personnel

d. Managers and Supervisors

In addition to their responsibilities as part of the workforce (all personnel), Managers and Supervisors are also responsible for:

- Considering HSE issues as part of works planning and execution so that they are carried out in accordance with the E&S MP requirements
- Organising sites so that work is carried out to the required HSE standards with minimum risk to employees, other subcontractors, the public, equipment or materials.
- Where necessary, issue written instructions that include HSE requirements.
- Planning and maintaining a tidy site: "A safe site is a tidy site".
- Implementing arrangements with subcontractors and others on site to avoid confusion over areas of responsibility for health, safety, environmental and welfare.
- Ensure that sub-contractors are aware of their responsibilities for safe working and that they are not required or permitted to take unnecessary risks.
- Stop work if they consider that there is an imminent risk of serious injury or damage.

- Ensuring all plant and equipment is tested at the statutory intervals and is not be brought onto site by anyone, including subcontractors, without the appropriate certified proof of regular testing.
- Ensuring that adequate supplies of protective clothing and equipment are maintained on site and that the equipment is suitable.
- Providing Tool Box talks
- Undertaking regular site HSE tours and inspections and recording HSE observations
- Setting a personal example when visiting sites by wearing the appropriate protective clothing and equipment, whilst complying with all site rules and ensuring that the site management teams are made aware of any potentially unsafe conditions or practices which he may come across.

e. Construction Manager and Engineering Manager

In addition to their responsibilities as part of the Senior Management Team the Construction and Engineering Managers are also responsible for:

- Ensuring the allocation of adequate HSE resources to cover working methods and reasonable welfare facilities.
- Ensuring that written instructions are provided in unusual or high-risk situations to establish working methods and sequences outline potential hazards at each stage and indicates precautions to be adopted. This requires the preparation of written assessments.
- Ensure, so far as is reasonably practicable, that work, once started is carried out as planned, and that accounts taken of changing or unforeseen conditions as work proceeds and update the written assessments as necessary and is carried out in accordance with the E&S MP
- Ensuring that any design calculations for unusual scaffolds, working platforms and lifts are independently checked.
- Ensuring that there is liaison on HSE matters between the PWC and others working on the site by regular HSE talks, distribution of HSE Bulletins and where necessary Site Meetings with other subcontractors.
- Note any person exceeding or failing to discharge their HSE responsibilities and if required take disciplinary action or provide an award
- Encourage the implementation of the Stop Work Authority.
- Provide leadership by encouraging HSE management and good practices by all personnel

f. All Personnel

- Understand, work in accordance and support the Project's HSE policy, E&S MP, Site Rules and good practice standards
- Report any accident or damage, however minor, to the HSE Manager.
- Suggesting ways of eliminating hazards and improving working methods.
- Warn new employees, particularly young people, of known hazards and HSE procedures.
- Take reasonable care for the safety of themselves and others.
- Do not start work that is unsafe and STOP and report work that is unsafe.
- Correctly use all work and personal protective equipment in accordance with instructions and training received and not to interfere with or misuse such equipment.

- Do not place yourself or others in danger
- Follow and comply with the instructions and guidance of supervisors, engineers and managers and HSE personnel.

8.4. Principal Works Supervisor (PWS)

PWS's duties and responsibilities under the contract are detailed below. Some of these activities, such as ensuring compliance with HSE and Social standards and monitoring progress, will be undertaken in conjunction with ASGC as the MC.

- Analyse and submit for the Employer's approval the construction programme for the works;
- Analyse and approve the construction methodology submitted by the PWC;
- Advise the Employer's on the need to inspect and test the materials / equipment provided under the contract and to arrange for this to be done on its behalf;
- Check the measurement of the performed works and executed quantities, and issue the respective payment certificates;
- Prepare / analyse any change orders and submit them to the Employer's for approval;
- Participate in the handing-over and inspection of the works after their completion and at the end of the defect liability period;
- Deliver to the Employer, after completion of the work, the necessary data / information for the project operation and maintenance;
- Advise the Employer on all matters related to the construction programme and cost control;
- Assist in the resolution of disputes that may arise between the client and the PWC or MC;
- Present monthly reports on the progress of the works with comments and recommendations.
- Verify and approve the general plan of the site and the setting-out of the works;
- Supervise all field and laboratory tests for the definition of concrete mixtures and testing of their compressive strength, as well as testing the materials used in the construction to confirm compliance with the specifications;
- Supervise and inspect the construction work to ensure compliance with the drawings and specifications;
- Verify that the PWC present all necessary documents, such as purchase orders, manufacturing plants, inspection certificates, progress reports for approval;
- Monitor the progress of the works;
- Ensure that the PWC comply with all E&S Documentation and social welfare requirements and regulations;
- Prepare monthly reports on the work progress throughout the construction period;
- Note all changes to the initial drawings in order to compare them to the As-Built drawings;
- Monitor the Contractor's work to ensure the quality of the project to be executed.

8.5. Visitors

- All visitors must receive an HSE induction before entering the site to understand and support the Project's HSE policy, E&S MP and standards
- Always follow the site HSE rules

- Stay with their guide/chaperone/host and follow their instructions
- Do not place themselves or others in danger
- Be aware of the emergency response process and contact numbers.

9. E&S MEETINGS

As a minimum, the following meetings shall be attended by the relevant PWC representative:

9.1. Pre-start Meeting

This is to be attended by the Employer or employer representative, ASGC and the PWC's most senior operations and HSE personnel. The following checklist is to be presented and discussed during the meeting:

- This Document
- 'One Team Working Safely' concept
- Mandatory Documentation
- Emergency & Logistics Plans
- Method Statement
- HSE Personnel
- Minimum site PPE requirements.
- Site Security & Access
- Accident notification
- Monthly statistics
- Welfare Facilities
- First Aid Facilities and personnel
- Toilets
- Drinking water
- Shaded Area
- Firefighting arrangements
- Lone Work
- NOC's

Site & office establishment

9.2. Project Progress Meetings

The PWC's senior HSE Representative is to attend this meeting to discuss HSE matters and report on HSE performance since the last meeting. HSE is to be the first item on the meeting agenda.

9.3. Project HSE Meeting

This is to be held at least every month and shall be chaired by the PWC's Project Director and attended by the ASGC Representative and the PWC's senior construction and HSE personnel. Individuals from project stakeholders may be invited at the discretion of ASGC.

Duty Holder	Specific Duties	When
PWC	• Attends project HSE meetings as above. • Takes necessary action to close out relevant items. Prepares and issues the meeting agenda for the above • meetings in a timely manner. Records, prepares and issues project HSE meeting minutes.	Throughout the life of the project.
ASGC	• Review progress of actions and close-out.	Throughout the life of the project.

10. TRAINING AND COMPETENCE

Only competent and qualified persons shall be authorized to carry out the tasks they are assigned to do. Competency gap analysis shall be performed by the PWC and ASGC and any training necessary to ensure health and safety on site shall be conducted. On Appendix 9 is attached the Training Plan specific for this Project.

Training shall be provided by specialists in the field either in-house or externally. Retraining and refresher courses shall also be provided as and when required.

In particular, work equipment, vehicles and machinery shall be operated by competent personnel in possession of the necessary license as appropriate. Training is subdivided into four different categories as described in more detail below:

10.1. Induction Training

Prior to starting work on the project all workers, members of staff and visitors to the site will receive a project-specific HSE induction. The induction should include, but not be limited to, the following:

- Legal requirements;
- Employer's requirements (if any);
- Project Specifics and ongoing activities;
- HSE Policies and Procedural arrangements;
- Individual HSE roles and responsibilities;
- Site rules;
- Procedures for the reporting of Incidents;
- Advise all workers of the role they have to play to ensure that standards of HSE provisions are maintained;
- Identification of HSE resources;
- Availability use and care of Personal Protective Equipment ('PPE');
- Hazards and risks that are related to the task they perform;
- Location of Welfare Facilities;
- First Aid, identification of trained First Aider and location of the First Aid facilities;
- Fire arrangements, evacuation
- procedure, etc. on site;
- Disciplinary Procedures;
- Grievance Mechanisms.

10.2. Toolbox Talks

An additional means of providing instruction and training to operatives is in the form of "Toolbox Talks" which are brief instruction/training sessions to highlight any relevant HSE concern. A culture of Toolbox Talks must be encouraged, and the short sessions are ideally delivered by a competent person (i.e. Engineer or Supervisor), a member of the site management team or an HSE representative.

Records and signatures of the attendees must be kept for audit purposes.

10.3. Specialist Training

These will be courses designed to meet the needs of specific operatives involved in specialized trades and will include, but not be limited to, the following:

- Safe entry into confined spaces;
- Crane operation;
- Excavation support equipment;
- First Aid;

- Slingers/banksmen;
- Scaffolding/ falsework/temporary works;
- Power Tools;
- Handling Hazardous Materials;
- Operators and drivers;
- Security/ logistics;
- Evacuation and Emergency Plan;
- Other Plant & Equipment as required.

Training requirements are identified through Method Statements that are carried out for most HSE critical activities on site. The activities listed above are the most common, higher-risk activities on a typical building project so as a matter of course these are given particular emphasis.

10.4. Certifications

For specialized tasks requiring a third party licencing or certification as per Senegalese Regulations the PWC shall take actions that accredit the worker for a task / activity / specific situation. This may include but not limited to:

- Vehicle operators
- Crane Operators
- Excavator, Shovel, Grader, Bull Dozer,
- Hot Works
- Electrical Works
- Hazardous Materials Management
- First Aid Provider Bob Cat Operators
- Confined Spaces

10.5. Others

As the case may be and as per requirements on site the PWC and ASGC may raise awareness by developing and promoting educational campaigns, brochures, posters courses, to specific issues encountered on site. This may be a simple poster showing the good practice on how to hand wash for 20 seconds or a more detailed awareness on case studies on falling objects.

10.6. Training Records

All records/ documentation relating to this procedure shall be maintained at the site office of the PWC and will be made available at any given time for auditing purposes by ASGC or the Employer.

Duty Holder	Specific Duties	When
PWC	• Appoints qualified and experienced HSE staff for the project. • Ensures competency of personnel to carry out operations. • Provides, or arranges to provide, all the necessary HSE training. • Ensures only trained personnel operate plant and equipment. • Maintains robust training and competency records. •	Throughout the life of the project.
ASGC	• Reviews and approves the PWC's site induction training. • Monitors the PWC's compliance with the above through inspections and audits.	Throughout the life of the project.

11. E&S DOCUMENTATION

The PWC must ensure that prior to the commencement of works on the site the E&S Documentation, which shall be approved by the Lenders, is available in Portuguese language, distributed throughout the key positions on site and available on site for consultation of any worker. All the necessary HSE documentation shall be maintained by companies working under the supervision of ASGC. As a minimum, the following document shall be prepared and maintained at all times:

Duty Holder	Specific Duties	When
PWC	• Submit with the tender documents a copy of their company HSE policy. • Submit their procedural arrangements and E&S MP for effectively managing HSE issues on their assigned projects upon award of the contract. • Review all documents at least annually or when required Submit, for the review and comments of the MC all the necessary documentation as stipulated above. This especially • applies for high and key risk operations. Implements and maintains a reliable document control system.	Prior to mobilization Throughout life of project.
ASGC	• Monitor compliance by auditing the HSE documents.	Throughout life of project.

11.1. E&S and CSR Policies

These policies document shall be signed by both ASGC and the PWC, and as a minimum include the following:

- A written statement of commitment with respect to the health, safety, environmental and social wellbeing of their undertakings signed by the highest-ranking person within the company.
- Details of their HSE organization and its function.
- HSE responsibilities of all concerned parties.

Please refer to Appendix 7 ASGC's Policies on this management plan.

11.2. Project E&S Management Plan

The PWC shall translate into Portuguese language this project-specific E&S MP which will cover all work activities and anticipated hazards/risks. Procedural arrangements for effectively implementing the plan must include all sections as described in this document plus all associated plans, such as Traffic and Logistics Management Plan (TLMP), Emergency Preparedness and Response Plan (EPRP), Hazardous Materials Management Plan (HMMP), Waste Management Plan (WMP) and Stakeholders Management Plan (SMP).

11.3. Emergency Preparedness and Response Plan

The PWC will abide with the emergency preparedness and response plan to cover foreseeable emergency situations that may occur on site. At a minimum the EPRP shall describe the emergency procedures in situations such as fire, spills and emergency evacuation.
Please refer to Appendix 8 of this E&S MP.

- Project Title & Site address;
- Employer contact details;
- Task/Activity;
- Names & positions of those involved;
- Equipment Materials to be used;
- Date, Time & Duration;
- Supporting Documents e.g. manuals, risk assessments, data sheets etc.;
- Possible hazards;
- Detailed work steps from preparation to completion/signing off taking into account methods to overcome hazards identified above;
- Graphs/ drawings;
- Site specific HSE requirements;
- PPE to be used;
- Special training to be given;
- Originator's name, signature & date;

11.4. Method Statements

A Method Statement is a 'Document detailing how a particular activity will be carried out'. These shall be prepared by the PWC after the Lenders approval on the E&S Documentation and in accordance with the E&S Documentation, for all activities that require certain skills and competence or entail an elevated level of risk and may lead to injury or damage of property. Method Statements shall be attached to Appendix 10 of this management plan and accessible at all times for review.

Typical Method Statement contents:

- Approver's name, signature & date;
- Circulation list.

General Requirements:

- Method of work is to be briefed to the workforce prior to starting the works;
- Any deviation from the stated method should be approved by the author and ASGC.
- The PWC must ensure that Method Statements are undertaken for all work activities that present a risk to the health and safety of employees and others who may be affected by their undertaking, damage to assets, or harm the environment.
- All Method Statements shall be reviewed and signed off by ASGC prior to starting the activity.
- All Method Statements must be recorded on Appendix 10 of this document, and a copy must be held in the project office.
- The PWC must ensure that the information contained in the Method Statements is communicated in a comprehensible way to the workforce.
- The PWC will ensure that Method Statements are regularly reviewed and kept up to date.
- ASGC will ensure all the above as part of our inspections and audit procedures.

The PWC is to develop his construction Method Statements so to eliminate and/or robustly manage at the minimum the following key risks:

- Work at Height – fall of persons
- Confined spaces;;
- Work over and adjacent to water;
- Safe access and egress;
- Hoists;

- Protection of excavations;
- Excavation;
- Electrical installations;
- Scaffolding;
- Piling operations
- Lifting Operations;
- Lifting operations;
- Plant/Vehicles - segregation of people;
- Safety exclusion zones;
- Tower crane erection & monitoring;
- Other project specific risks.

11.5. Material Safety Data Sheets (MSDS)

Safety data sheets provide information on chemical products that help users of those chemicals to make a risk assessment. They describe the hazards the chemical presents, and give information on handling, storage and emergency measures in case of accident. MSDS sheets are to be available for inspection and maintained at all times within the perimeters of the relevant materials storage areas. MSDSs shall be attached to Appendix 11 of this management plan and accessible at all times for review.

11.6. Tools & Equipment Register

Tools, devices and equipment shall bear unique identification numbers. An updated register containing the following details (as a minimum) must be available:

- ID number;
- Type of item;
- Purchase/introduction to site date;
- Recommended maintenance frequency;
- Maintenance details;
- Details of any malfunction, damage, faults etc.

Operating manuals, warranty and other documents should be kept securely, and copies are made available to the users.

11.7. Permit to Work (PTW)

The PWC is to make sure that before every critical activity takes place a permit to work (PTW) is approved by ASGC for the same activity. Need for PTW shall be clearly stated on Method Statements of each of the activities. Permit must be in possession of the person carrying out the works and should be returned to Safety department upon completion. Below are the typical permits to work (PTW) adopted for works within the construction site:

- Hot work permit:
- De-shuttering permit:
- Crane expiry notification
- Other works which may be identified as potentially hazardous by ASGC or
- Demolition of structures;
- Electrical room - Lock out/ tag out permits.
- Confined space entry permit:

- Excavation permit:
- Operations where the PWC has failed to manage the works safely and requires road closure / additional control measures.

Duty Holder	Specific Duties	When
PWC	• Identify activities which require a PTW system. • Develop and follow a strict PTW procedure. Monitor compliance.	Throughout the life of the project.
ASGC	Ensure PWC's compliance with the above by conducting inspections and audits.	Throughout the life of the project.

12. Performance Monitoring and Reporting

12.1. Performance Indicators

The PWC shall record all relevant data for further analysis and reporting to relevant stakeholders. At a minimum the following shall be recorded within the timeframes stipulated below:

Table 7 Performance Indicators & Monitoring

Performance Indicators	Monitoring Frequency
Project Progress	Weekly
Manhours	Daily
Workers on site (keep records of nationals, gender, age)	Daily
HSE accidents	Daily
Power and water consumptions	Weekly
Waste generated, reused and recycled	Daily
Training Performed (keep records of nationals)	Daily
Inspections Performed	Weekly
Non-Compliances	Daily
Environmental Incidents	Daily
Potable Water quality	Monthly
Grievances	Daily
Noise Levels and protections	Weekly
Light Levels (if night shifts are applicable)	Weekly
Air quality (dust) and protections	Daily
Air quality assessment by a 3rd party	Before Commissioning
Materials purchased, stored, and reused	Weekly
Stakeholders Engagement	Weekly
Cultural Findings	Daily
E&S Documents	Yearly
Emergency Response Drills	Yearly
Materials Storages, includes HazMat storage and refuelling areas	Monthly

Performance Indicators	Monitoring Frequency
Emergency signage, spill kits and fire extinguishers	Monthly
Maintenance to plant and equipment	Quarterly if not recommended by Manufacturers
Sewage and wastewater tanks	Monthly
Transportation trucks, drivers licenses and dust screen	Monthly
Site dust screen	At the beginning of construction
Adjacent roads to be clean	Monthly
Housekeeping and cable management	Daily
Welfare Facilities (including food vendors if appropriate)	Monthly
Awareness Programs (HIV/AIDS, Flu, COVID-19)	Monthly
Monitoring health to workers and community	Monthly

12.2. Monitoring by the PWC

a. Walk Rounds

The PWC shall conduct daily walk rounds on site to ensure all E&S requirements are being complied by their workers as well as the subcontractors workers. A Non Compliance Report (NCR) shall be issued in case any HSE issue is identified.

b. Inspections

The PWC is to ensure that regular HSE inspections are undertaken of all work areas by competent personnel including site offices and welfare facilities.

As a minimum, HSE inspections are to be undertaken weekly and a full and detailed inspection report identifying non-compliances is to be prepared and forwarded to the PWC's senior management and where requested shall be provided to ASGC.

The PWC's Project Director is responsible for ensuring that arrangements are in place to close out all non-compliances raised in the HSE inspection reports prepared by his safety personnel. The Project Director must ensure that all managers, engineers and supervisors under his control take the necessary corrective/preventative action to close out non-compliances.

c. Audits

At every twelve (12) months an HSE internal audit will be undertaken in conjunction with the MC and a full and detailed audit report prepared. Similarly, the PWC shall audit their key subcontractors at least twice a year. The PWC shall provide the MC with a report on the findings of the audit and a program that includes the steps to be taken to rectify any nonconformity. Members of the Employer and MC representatives may sit in as observers during these audits.

12.3. Monitoring by the MC

a. Walk Rounds

The MC shall conduct weekly walk rounds on site to ensure all E&S requirements are being complied by the contractor. A Non-Compliance Report (NCR) shall be issued in case any HSE issue is identified.

b. Inspections

The MC will undertake monthly inspections of the PWC's work areas and review project HSE arrangements. Senior members of staff from the PWC and key subcontractors must attend these inspections. A written HSE inspection report shall be prepared by the ASGC's Representative raising any non-compliance identified during the inspection. The PWC is responsible for ensuring that the corrective action is taken within the specified time-scale and a Close-out Report shall be prepared by the PWC and submitted to ASGC.

c. Improvement Notices

Where in the opinion of ASGC there is a continued serious safety violation that poses a significant risk that the PWC is failing to manage, then ASGC may issue an HSE Improvement Notice which shall identify the necessary actions to be taken with a stipulated period for completion of the improvements.

d. Prohibition Notices

Where in the opinion of ASGC there is a serious safety violation that is a clear and present danger to life and/or potential major incident that the PWC is failing to manage, then ASGC may issue an HSE Prohibition Notice. Where a Prohibition Notice is issued then the affected work and/or operations must cease immediately until the necessary improvements are implemented and subsequently confirmed to ASGC, the PWC must have written approval from ASGC before recommencing the works.

e. Audits

The MC may audit the PWC and at any time to verify compliance with applicable policies, procedures, guidelines and statutory regulations and requirements, as well as with this document. As a minimum, the MC will conduct such audits on an annual basis. A written HSE inspection report shall be prepared by the ASGC's Representative raising any non-compliance identified during the inspection. The PWC is responsible for ensuring that the corrective action is taken within the specified time-scale and a Close-out Report shall be prepared by the PWC and submitted to ASGC.

Duty Holder	Specific Duties	When
PWC	• Establish an HSE auditing and inspection system for own and Works Contractor activities. • Ensure that arrangements are in place to close out all non-compliances raised. • Inform ASGC if close out of an NCR is delayed or not possible. • Proactively manage the resolution of any ASGC Audits, Inspections, Improvement Notices or Prohibition Notices to the satisfaction of ASGC	Throughout life of project.
ASGC	• Establish an HSE audit and inspection programme for the PWC. • Monitor close out of all identified NCR's. • Maintain records of all inspections, audits and close out reports.	Throughout life of project.

12.4. Monitoring by the Lenders

a. Audits

The Lenders may audit the Project at any time to verify compliance with applicable policies, procedures, guidelines and statutory regulations and requirements, as well as with this document. A written HSE audit report shall be prepared by the PWC's Representative raising any non-compliance identified during the inspection. The MC is responsible for ensuring that the corrective action is taken within the specified time-scale and a Close-out Report shall be prepared by the MC and submitted to the Lenders.

12.5. PWC's E&S Monitoring Report

PWC working on the project site is required to submit a monthly E&S reports in order for ASGC and the Employer to be able to gauge the E&S Performance Indicators as per section 12.1 on the project. The measurement of E&S performance is both qualitative and quantitative; the quantifiable indicators can be proactive (such as number of inspections, training sessions, E&S meetings etc.) as well as reactive (such as number of incidents, violations, first aid cases, etc.). Hence, a good standard of record-keeping of the aforementioned indicators, as well as number of personnel and man-hours worked each month, is essential.

The submission of the reports should not be later than the tenth day of the following month. The ASGC representative shall review and analyse the report in order to formulate a report to the Employer and / or project stakeholders. Forms will be agreed with the PWC and comply with the Employer's requirements. Please refer to Appendix 5 for E&S Monitoring and Reporting Template.

12.6. MC's E&S Monitoring Report

The MC on the client's behalf is required to submit a E&S report to the Lenders showing E&S performance data. A template of the mentioned report is attached in Appendix 5 and will summarize and describe all the E&S performance, incidents and accidents as well as any stakeholder's engagement activities. The Monitoring Report shall be submitted not later than twentieth day of the following month, and on a six month period.

12.7. General Communication

With regards to the communication between project stakeholders (intervenient on the construction process), it will follow the functional connections as shown on the organization chart in Section I, 7 of this document.

To facilitate the reporting of emergency situations the HSE Manager shall arrange for the following emergency telephone numbers to be displayed on the site HSE Notice Board /s and updated as required:

- Project Manager.
- Construction Manager
- Site Engineer.
- HSE Manager
- HSE Superintendent
- Nurse/First Aider certified
- Department of Labour Inspector
- Electrician
- Consultant
- Hospital and / or doctor.
- Civil Defence
- Ambulance service
- Police station

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In addition, the HSE Manager shall arrange for the off-duty contact telephone numbers of the Project Manager, Construction Manager and own to be available on site.

An emergency shall be communicated all times through the managers or superintendent which are in position of mobile phones to contact the relevant authorities.

II. HEALTH & SAFETY

1. ACCIDENTS

An **accident** is defined by an *unplanned, undesired* event that hinders completion of a task and may cause injury, illness, or property damage or some combination of all three in varying degrees from minor to catastrophic. Unplanned and undesired do not mean *unable to prevent.* Unplanned and undesired also do not mean *unable to prepare for* Crisis planning is how we prepare for serious incidents that occur that require response for mitigation. The PWC must ensure that all personnel working on potential risks are briefed on the Method Statement and understand the associated risks related to their work activities and are fully aware of the control measures that must be in place.

The PWC shall have the procedures in place to prevent, as far as reasonably practicable, the occurrence of incidents and accidents that arms the workers, the environment or any other sensitive receptor affected by the Project. In case any accident occurs, the PWC shall manage the emergency situation, report to local authorities, the MC and the Employer and finally investigate, taking all necessary actions to prevent them from recurring.

Duty Holder	Specific Duties	When
PWC	Shall implement the procedures to: • Prevent, as far as is reasonably practicable, the occurrence of incidents and ill health; • Respond to, and manage, emergency situations; • Report accidents and incidents to the authorities and ASGC/ Employer; • Investigate all incidents and take necessary action to prevent them from recurring.	Throughout the life of the project.
ASGC	• Provide guidance to the PWC. • Provide reports to the Employer as necessary. • Ensure that the PWC complies with the above. • Lead incident investigations.	Throughout the duration of the project.

- All incidents occurring in activities executed for the project shall be reported immediately to the first-line supervision, the MC and then the Employer.
- All members of staff are required to adopt, and encourage in others, a culture of openness in reporting all accidents, including near misses. It is the responsibility of all employees who are involved in or become aware of an incident to inform their line supervision and/or HSE personnel.
- External parties shall be informed as required.
- Serious accidents, LTIs and Near Misses shall be investigated in depth and appropriate investigation method shall be adopted in establishing root causes.
- Corrective or preventative action shall be taken to eliminate the direct and underlying causes of incidents and reduce risks to as low as reasonably practical.
- All incidents shall be captured on the Monthly HSE reports.

1.1. Work Accidents Injuries:

Work accidents injuries result from an accident which took place during or because of the execution of work. There are the four types of work accidents injuries:

a. Serious Injury:

An injury arising out of, or in connection with work which results in any of the following:

- An accident leads to the death of one employee or more in the work.
- An accident results in a serious injury of one person or more persons such as fracture of the skull, spine, pelvis or any bone in the wrist, arm, leg or ankle, amputation of a hand, arm, foot, finger, thumb or any body organ.
- Absorption of any substance that might cause health danger if inhaled swallowed or through the skin.
- An accident results in lost-time injuries (LTI) of more than one person as a result of the same accident.
- Unconsciousness resulting from electric shock, heat stroke, lack of oxygen, etc.
- Second or third degree burns because of any reason.
- Any other injury which results in the admission of an injured employee to hospital for more than 24 hours for medical treatment.
- Fire, collapse, explosion or leakage of hazardous materials accidents accompanying with financial losses which lead to work suspension for a period more than one shift in one section of the Project.

b. Lost-Time Injury (LTI):

An injury arising out of, or in connection with work, which leads to an employee being absent from work for a specific period of time and bigger than one shift.

c. First Aid Case (FAC):

An injury arising out of, or in connection with work, which does not fit with any of the above categories (i.e. first aid injuries).

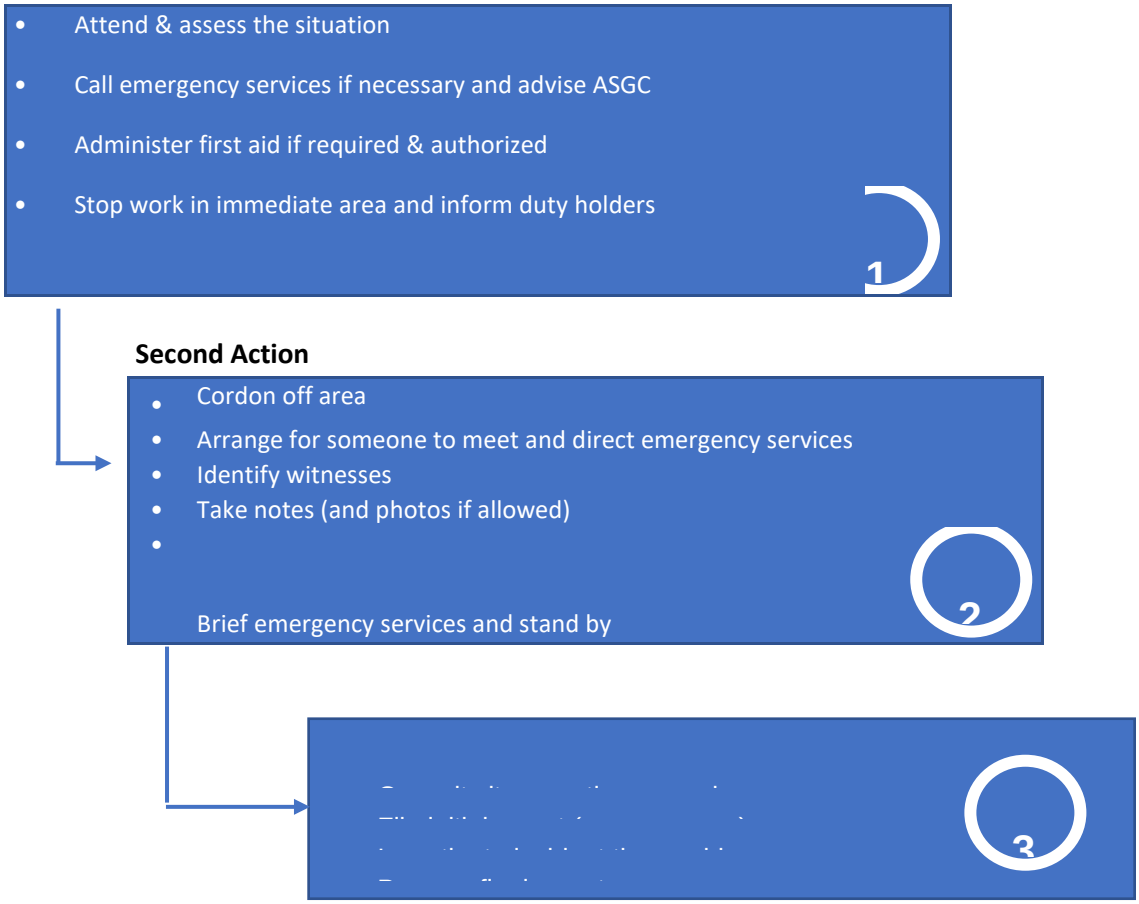
d. Near Miss Incident:

An incident in which no property was damaged and no personal injury was sustained, but where, given a slight shift in time or position, damage or injury easily could have occurred. Near misses also may be referred to as close calls, near accidents, accident precursors, injuryfree events and, in the case of moving objects, near collisions.

1.2. Emergency Arrangements & Incident Reporting Process

The PWC shall immediately advise the MC of any Incidents that are required to be notified to external authorities. The PWC will have one site clinic, one full time site nurse and one part time doctor available on the site. Additionally, there will be at least 3 personnel First Aid certified, available on site and ready to assist in any accident. The PWC will also have one ambulance on call assisting all projects in Luanda area to transport any serious cases to the nearest hospital/clinic which in the case of this Project will be the Clinic Sagrada Esperança de Zango located 22 km (35 min) away from the Project site. All work-related accidents, including near misses and serious occurrences, shall be investigated and reported as per the process below:

First Action



Type of Incident	Emergency Services	Local Municipality
Serious accident & lost-time injuries.	Inform the Police	Throughout the life of the project.
Fire, explosion, collapse of a structure or scaffold, or breakdown of a crane or any other machinery that may endanger the employees.	Inform the Civil Defence and the Police	Throughout the life of the project.
The Works Supervisor and Works Contractor shall submit a report on the accident within 72 hours of its occurrence using the form approved by the local authorities and/or Government agency.		

2. Fire Safety

Reference must be made to the IFC E&S Guidelines and Senegalese HSE Regulations in Construction any other applicable technical guidelines or authority requirements.
Fire is one of the most significant hazards on construction sites and the consequences can be detrimental. Fires in work areas are common due to:

- The presence of various combustible • Failure to follow safe systems of work; and flammable materials;

- Smoking;
- Lack of control measures;
- Faulty electrical installations;
- Ignorance or carelessness;
- Poor housekeeping.
- Improper storage of materials;

Duty Holder	Specific Duties	When
PWC	• Submit a map showing all firefighting equipment locations, rescue entries, emergency exists, means of egress, assembly points, access to all required firefighting equipment and apparatuses and fire hydrants in the workplace. • Comply with this fire protection and prevention plan throughout all phases of the construction. • Ensure the availability of all required fire protection and suppression equipment. • Establish a safe system for hot works. • Identify high risk areas and conduct risk assessments to define control measures. • Ensure adequate controls over smoking and naked flames. • Use adequate signage, storage and handling of flammable and combustible materials. • Provide training to employees. • Ensure adequate security arrangements.	Throughout the duration of the project.
ASGC	Monitor PWC's compliance with the above through audits and inspections.	Throughout the duration of the project.

2.1. Control Measures

The PWC must take into consideration the following control measures in order to prevent fires:

- Combustible materials and sources of heat are kept separate.
- Only minimum quantities of flammable materials are stored in suitable, well ventilated locations (away from buildings).
- A good standard of housekeeping is maintained.
- Smoking on site is controlled.
- Training of staff on the causes of, and the measures to prevent, fires, in accordance with the training matrix appended to this document.
- Combustible materials & vegetation must be removed at least 2 m away from any temporary building/ structure.
- Control all 'Hot Work' activities by working in safe locations away from fire hazards; never performing hot work in an area where flammable vapours or combustible materials exist; and using guards to "confine the heat, sparks, and slag, and to protect the immovable fire hazards.

- In addition, make sure appropriate fire protective PPE.
- Use of Permit to Work systems.
- Appropriate fire extinguishing shall be located on every identified fire hazard on site and never more than 50 meters apart from each other. Training on how to use fire extinguishers shall be done to all workers required to use them and as per the Training Matrix.

2.2. Emergency Management & Preparedness

The PWC shall abide by ASGC's Emergency Preparedness and Response Plan (EPRP) to attached on Appendix 8 of this document, to cover foreseeable emergency situations

Emergency drills shall be performed every twelve months or whenever construction site deviates egress routes drastically.

2.3. Emergency Situations

- All workers must know how to raise the alarm, what the fire alarm sounds like and what to do if they hear the alarm.
- The evacuation plan must be followed; escape routes to be maintained at all times.
- Fire muster points must be identified.
- Fire wardens to assist in the event of a fire must be appointed – formal training will be required.
- Emergency drills must be conducted periodically to confirm that evacuation arrangements are suitable and sufficient.

2.4. Signage

Clear signs indicating the location of fire escape routes and portable fire extinguishers must be installed and maintained in prominent positions. Also, some other considerations on signage:

- Signage shall be arranged as stipulated Local Code of constructions practice. Signage shall be permanently displayed around the site depending on the site activities and hazards present in the area. All signage shall be maintained in good condition and updated if needed. Signage shall be monitored by safety personnel on site. Signage shall include but not limited to:
- Prohibition sign: a safety sign that indicate that a specific behaviour is forbidden. (White background/red circle/black pictogram)
- Mandatory sign: safety sign that indicate a specific course of action to be taken. (blue background/blue circle/ white pictogram)
- Hazard sign: safety sign that indicates a source of potential harm. (Yellow background triangle/black pictogram)
- Information sign: safety sign that relays information i.e. exit routs, welfare facilities. (Green background/white pictogram)
- Fire equipment sign: safety sign that indicate the location or identification of fire equipment (red background/white pictogram)
- Supplementary sign; sign that is supportive of safety sign by providing additional clarification, it may compromise text or an arrow.

2.5. Storage

Combustible materials, flammable liquids, gas cylinders, foam, plastics, fibreboard or timber, must be stored in a safe place outside temporary buildings or structures under construction (no combustible material is to be stored under any temporary building). Special precautions should be

taken for the storage of highly flammable liquids and liquefied petroleum gases. Adequate stacking and storage practices will be followed and sufficient space made available for plant if required. Proper signage to be provided and appointed store keeper to be available.

2.6. Smoking

- A "No Smoking" policy must be established on site and in, and around, temporary buildings or where particular fire hazards exist, e.g. woodworking enclosure, refuse areas, and storage areas containing combustible materials
- Smoking is prohibited at all times inside offices and living accommodation. Sufficient smoking areas must be located outside in designated places.
- "No Smoking" signs must be displayed in appropriate areas.

2.7. Fire Considerations for Construction of Permanent Buildings

All permanent buildings are designed by a competent consultant complying with local and European fire and life safety codes.

On site, all activities shall comply with applicable fire and life safety practices and local requirements. As per local authorities and regulations, final building permit shall be required by Local Civil Defence.

2.8. Fire Considerations for Construction of Temporary Buildings

All temporary buildings shall conform to The Senegalese Fire Life & Safety Law . In addition:

- Any vegetation shall be kept at least 2 meters away from the building.
- Where floors are raised above ground level, the space beneath must be enclosed with wire mesh or similar, to prevent accumulation of waste, whilst still allowing under floor ventilation.

Duty Holder	Specific Duties	When
PWC	• Prevent unauthorized access & egress of personnel and material. • • Establish proper security & logistics procedures. Define the site boundaries and hence HSE areas of • responsibilities. Prevent harm to everyone even if they were trespassing.	Throughout the life of the project.
ASGC	• Monitors the PWC's compliance with the above.	Throughout the life of the project.
Employer	• Define project footprint. Please refer to Appendix 1.	Prior to starting project.

3. SITE LOGISTICS

Please refer to the Traffic and Logistics Management Plan (TLMP) for further information on site security and access, laydown and storage areas, sanitation and welfare arrangements and housekeeping.

As a minimum the Project Director must ensure that the below requirements are being followed:

- Site to be a secured perimeter with controlled access;
- Segregate public interface with construction vehicles and activities;
- Make sure to follow the site mobilization plan, including all welfare and first aid facilities, car parks, storage areas, waste segregation area and other as may be dictated by the plan; • As much as possible adopt a “one way” vehicle direction on site;
- Keep the site tidy, organized and clean.

4. TRAFFIC MANAGEMENT

A specific Traffic and Logistics Management Plan (TLMP) was developed for the Project, setting out all the requirements, site rules and describing the standards for a safe operation of light, heavy vehicles, mobile equipment and any other means of transportation within the Project. As a summary please see below major rules set out on this Project.

- Speed limit is 20 Km/h in normal circumstances unless otherwise specified.
- PWC’s site management and the HSE Officer will have the authority to apprehend violators of traffic regulations.
- Flagmen to be stationed at high-risk areas and pedestrian crossing areas.
- Reduce project traffic routing through community areas.
- Receive, record and respond to complaints from the community related to the site traffic.
- All site machinery and vehicles are to be equipped with back-up alarm which must be switched on automatically when the gear is put into the reversing position.
- Enforcement of a ‘No Reversing’ policy or establish a safe reversing procedure to be approved by ASGC.
- Where possible the logistics plan shall implement a ‘One-Way’ system and ‘Reverse Parking’ in order to reduce traffic accidents resulting from reversing of vehicles.

5. PERSONAL PROTECTIVE EQUIPMENT (PPE)

Where a risk cannot be controlled adequately by other means, employers have a duty to provide suitable PPE. The use of personal protection in the form of clothing or equipment should be considered as a last resort in the hazard control hierarchy.
The selection and use of PPE for a certain task shall be identified in the suitable and sufficient task-specific Method Statements. It is the responsibility of the employer to provide, and the duty of the employee to use, the PPE identified in the Method Statements.
However, the absolute minimum PPE required in operational zones shall be **Hard hat, Hi-Viz vest and Safety Shoes.**
PPE zones shall be identified clearly by means of warning signs and demarcation. The area users shall be notified of such areas and the risks involved through toolbox talks, information bulletins, briefings etc.
It is recommended that all PPE shall either have a kite mark or CE mark (both being recognized marks for PPE tested and approved to International Standards).
All plant/vehicle operators must comply with the minimum requirement if entering construction areas and are exiting their vehicles.

Duty Holder	Specific Duties	When
PWC	• Assess the risks associated with all activities and identify PPE. • Establish and communicate the minimum site PPE and zones. • Provide PPE to all employees and others exposed to hazards. • Provide necessary training to PPE users. • Ensure supervision of PPE users. • Establish management system for the use, maintenance, storage and disposal of PPE. • Monitor compliance and penalize violators.	Prior to starting works and throughout project life.
ASGC	• Monitor performance through audits and inspections. • Lead by example.	Prior to starting works and throughout project life.

Table 8 Mandatory PPE by activity

PPE / Activity	Overall	Safety Shoes/Boots	Apron (Leather)	Safety Vest	Spats	Gloves (Leather)	Face Masks	Goggles	Dust Mask	Ear Defender	PVC Suit	Gloves (Rubber/PVC)	Dust Coat	Hart Hat	Safety Belt	Gumboots
General Labour	X	X		X										X		
Concreting	X			X								X		X		X
Shuttering	X	X		X										X		
Support work / Scaffold	X	X		X										X	X	
Steel fixing	X	X		X				X						X		
Welding	X	X	X	X	X	X	X							X		
Grinding	X	X		X			X	X		X				X		
Compacting	X	X		X								X		X		
Gas Cutting	X	X		X				X						X		
Digging	X	X		X								X		X		X
Carpentry	X	X		X				X		X				X		
Drilling	X	X		X				X		X				X		
Jackhammer	X	X		X				X	X	X		X		X		
Paving Breaker	X	X		X				X	X	X		X		X		
Explosive Power Tool	X	X		X				X		X				X		

Chemical Sprays	X	X		X			X				X	X		X		X
Batch Plant Operators	X	X		X				X	X			X		X		
Cutting of Fibre Concrete Pipes	X	X		X				X	X			X		X		
Rigging	X	X		X								X		X	X	
Material Handling	X	X		X		X								X		
Operators / Drivers	X	X		X										X		

6. DEMOLITION WORK

There are no existing buildings on site and therefor no demolition works to be done prior to start the construction works. However, it is important to state in this document the general guidelines to perform demolition works, in case it becomes necessary throughout the lifetime of the Project. Demolition is considered to be one of the most dangerous operations in the Building/ Construction industry. Many serious health and safety hazards are associated with demolition works and hence rigorous control measures need to be put in place. These hazards may include:

- Falling of persons and materials
- Structural collapse
- Heavy Equipment Hazards (Cranes, etc.)
- Confined space hazards
- The effect on Utilities, Services and Adjacent buildings
- Exposure to hazardous substances (e.g. lead, asbestos, silica dusts etc.) etc.

Demolition activities must not commence unless an application, and all the necessary notifications, have been made to, and approved by, the relevant Authorities and service providers.
The PWC shall prepare a Demolition Plan that shall be produced by a registered professional engineer. All demolition work shall be carried out under the direct supervision of the PWC registered engineer.

Duty Holder	Specific Duties	When
PWC	• Obtain a 'Demolition Permit' from the concerned Department in Local Municipality. • • Obtain the necessary NOC's from the Authorities. Conduct a survey to establish whether asbestos, leadcontaining • materials or BCP is present. Ascertain that no asbestos or other harmful substances / • hazardous conditions are present. Develop a detailed demolition plan.	Prior to starting works.
	• Identify whether confined spaces are present.	

	• Use competent personnel and adequate supervision. • Prepare a study about the effect of noise resulting from demolition works.	
ASGC	• Review the Contactor's Demolition Plan. • Monitor PWC's compliance with the above.	Throughout the project life

7. EXCAVATIONS

Reference should be made to the IFC E&S Guidelines and Senegalese HSE Regulations avoiding danger from underground services and IFC E&S Guidelines and Senegalese HSE Regulations and any subsequent technical guidance or authority requirements.

General Requirements

- A method statement and risk assessment shall be prepared for all excavations, especially if deeper than 1.25m.
- It is highly recommended to use a PTW system for excavation works, this shall be agreed on a project-by-project basis with ASGC.
- All the necessary NOC's must be obtained from the concerned Authorities prior to starting excavation works.
- Experienced and suitable supervision shall be provided for all works carried out inside or adjacent to an excavation.
- Underground services within the excavation footing must be identified and protected by marking the ground limits of excavation footprint prior to starting the works.
- Collapse Prevention measures as dictated by the risk assessment such as trench sheets, props, baulks shall be put in place where there is a risk of side collapse, this shall also take account of vehicle movements in close proximity.
- Adequate barricades, warning signs and lights must be used and as per the risk assessment and statutory requirements.
- Adequate access and egress shall be provided to the excavation taking into consideration emergency situations.
- Air quality testing must be carried out prior to, and whilst if necessary, personnel are present in the excavation.
- Excavations must be inspected by a competent person before each shift and following any unusual events.
- Good level of housekeeping must be maintained at all times.
- All excavations deeper than 1.25m shall meet the above requirements.

Duty Holder	Specific Duties	When
PWC	• Ensure that Risk Assessments and Method Statements are prepared for all excavations especially if deeper than 1.25m. • Establish and follows a strict PTW system. • Apply all necessary measures to prevent collapse of excavation sides. Make arrangements to prevent falling into excavation.	Throughout the life of the project.

	• Ensure that only competent personnel are involved in the work. • Take all necessary actions to ensure safe access to and egress from the excavation. • Inspect excavations before every shift and after unusual events.	
ASGC	Ensure PWC's compliance with the above.	Throughout the life of the project.

8. WORK AT HEIGHT

Work that cannot be done from the ground or is next to an open excavation, and all work where there is a risk of a fall liable to cause any injury, is defined as 'Working at Height'. Falls from height account for a high percentage of fatalities and major injuries in the construction industry.

The PWC must develop a Method Statement for all works that are carried out at height where there is a risk of people or materials/objects falling.

The following hierarchy of control measures must be followed when carrying out the Method Statement:

- Eliminate the need for work at height to be carried out;
- Give priority to collective protective measures such as guardrails and toe boards;
- Use personal suspension equipment such as mobile elevating work platforms;
- Use proximity restraints to prevent access to the edge where a fall could occur;
- Use safety nets to reduce the fall but ensure nets are fitted as close as possible to the working level to minimize the fall distance;
- Use PPE such as a safety harnesses to mitigate the consequences of a fall taking account of suitably design anchorage points, drop distances, impact with other equipment and subsequent rescue procedures.

The PWC must ensure that all personnel working at height are briefed on the Method Statement for the work and are fully aware of the control measures that must be in place.

8.1. Areas of Work

The PWC is to ensure that the place where any work at height is to be carried out, including the access to the place of work, has all reasonably practicable precautions features to prevent a fall of a person and objects, including but not limited to guardrails, toe boards, safety nets, personal fall arrest systems, life lines or hole coverings. All precautions are to be taken to prevent objects from falling and any person from being struck by falling objects, including but not limited to, exclusion zones, debris fans or brick guards/nets, tool tethering.

A suitable inspection process shall be implemented by the PWC prior to starting work at height activities, the PWC shall also consider and where requested by ASGC, implement a 'Work at Height Champion' management approach to ensure the safety of employees undertaking high risk activities.

8.2. Emergency Arrangements

The PWC will ensure that an emergency procedure is implemented to deal with emergencies that may arise when work at height is being carried out. This will include, but not be limited to, dealing with the rescue of any person who may become suspended by their safety harness or any person who may become suspended in a safety net. In the case of a worker who may become suspended by their safety harness following a fall the procedure should allow for the rescue of the worker in sufficient time so as to prevent injury. The PWC should carry out rescue drills frequently and at least once a year to test the effectiveness of the emergency procedure.

Duty Holder	Specific Duties	When
PWC	• Conduct method statements for all works that are carried out at height where there is a risk of people or materials falling. • • Apply risk control hierarchy. • • Classify work at height as safety-critical activity. • Provide training on work at height. • Provide collective fall control measures. Ensure adequate supervision is provided. Make arrangements for rescuing people at height.	Prior to starting works and throughout project life.
ASGC	• Provide guidance to the PWC. • Ensure PWC's compliance through audits and inspections.	Throughout project life.

9. SCAFFOLDING

Reference must be made to the IFC E&S Guidelines and Senegalese HSE Regulations and any other applicable technical guidelines or authority requirements. General Requirements include:

- All scaffolds are to be erected, altered or dismantled by competent scaffolders only.
- Scaffolders must be assessed as competent by internal training and registration.
- All scaffolding shall be erected in accordance with industry best practice techniques.
- Scaffolding methodology shall be planned to ensure wherever possible advanced guardrails can be installed to reduce the risk of falls from height whilst erecting scaffolding.
- The required level of working platform shall be installed during on-going scaffold erection.
- An assessment shall be made to ensure that harnesses used for fall arrest are of suitable length to prevent injury during scaffold installation, this shall be presented to and approved by ASGC.
- Only compatible scaffold components which are in good condition shall be used.
- Clear identification shall be used to distinguish between safe and unsafe scaffolds.
- Access to scaffolding shall be restricted to authorized personnel only. Special arrangements to prevent unauthorized persons from accessing the scaffold shall be made by reduce scaffold entry points to the minimum required, controlling/patrolling points of entry on scaffold, restrict access to the site to authorized people only and always have visitors accompanied by HSE personnel.
- If possible, adequate access arrangements such as, at least one entry/exit per floor and at every 10 meters horizontally, taking into consideration emergency situations, may be provided.
- Scaffolds shall be inspected:
    - o After erection and/or alteration;
    - o Weekly;

o After unusual events/accidents; o Following bad weather. •

Inspections shall be recorded.

Duty Holder	Specific Duties	When
PWC	• Use competent scaffolders. • Only use sound and compatible material. • Use a scaffold tagging system. • Restrict access to scaffolding. • Inspect scaffolding and record findings.	Throughout the life of the project.
ASGC	Ensure PWC's compliance with the above by conducting inspections and audits	Throughout the life of the project.

10. LIFTING OPERATIONS

Reference must be made to the IFC E&S Guidelines and Senegalese HSE Regulations and any other applicable technical guidelines or authority requirements. General requirements include:

- A lifting plan must be prepared for all mechanical lifting operations (this is to include piling operations).
- All personnel involved in lifting operations must be competent (and certified by approved third parties if required).
- Tower cranes are to have unique identity numbers.
- All lifting equipment and accessories must be in good working order and have valid 3rd Party test certificates prior to use. The PWC shall ensure a robust checking process and regime is in place to ensure this is achieved.
- Visual or audible communications must be established between the crane operator and the signaller and where multiple cranes are on a project there must be a detailed communication strategy in place.
- Access into lifting zones must be restricted and the area must be barricaded to prevent access.
- No person is allowed to be under suspended loads, the project shall implement suitable warning techniques to warn all operatives of lifting operations in affected lifting zones.
- Damaged or uncertified lifting tackle must be removed from site and locked in a safe place.
- Where fitted, outriggers must be extended and placed on suitable load spreading pads.
- Safe Load Indicator (SLI) must be operational where fitted on cranes. Limit switches must be properly set for tower cranes.
- The maximum lifting capacity of all lifting equipment, hoists and tackles must be marked clearly on the item and be observed.
- Aviation warning lights must be fitted for any equipment, installations etc. more than 30m high.
- Measures must be in place to eliminate the possibility of collision of lifting equipment jibs.

Duty Holder	Specific Duties	When
PWC	• Prepare a lifting plan and Risk Assessments for all mechanical lifting operations. • Use competent personnel. • Only use sound equipment and accessories which have valid certificates that are in place before use. • Ensure that adequate supervision is provided.	Throughout the life of the project.
ASGC	Ensure PWC's compliance with the above.	Throughout the life of the project.

The following checklist maybe used to ensure that all safety precautions are in place prior to, during and after a lifting activity.

Table 9 Lifting Operations Check List

	Before Lifting	Y	N	N/A
01	Work area cordoned off with adequate exclusion zone?			
02	Approved lifting plan available?			
03	The ground is suitable and capable of withstanding loads?			
04	Lay down area is free from obstructions and of adequate size?			
05	Valid Certificate for the Crane is available?			
06	Valid Certificate for the Chains & Slings.			
07	Lifting tackle tagged?			
08	Hooks equipped with latches in working condition?			
09	Any signs of leaking fluids from any part of the Crane?			
10	Operator is competent and licensed by the appropriate authority?			
11	Load chart and Hand Signals pasted on the cabin?			
12	Operator is familiar with load chart?			
13	Safe Load Indicator is in good working order?			
14	Risk Assessment for the activity is available and Tool box training provided for employees?			
15	Trained Banksman available?			
16	Operator & Banksman agree set of signals?			
	During Lifting Operation			
17	Outriggers are fully extended?			
18	Load distribution beams or pads used?			
19	Tag lines are being used properly?			
20	Effective Supervision has been provided?			
21	Lifting gear and Hydraulic apparatus fault free?			
22	Wind conditions fine?			
	After Lifting Operation			
23	Area and load are secured and clear of any obstructions?			
24	Lifting gears and accessories transported and secured properly?			
25	Proper housekeeping done for the area?			

11. PERSONNEL AND MATERIAL HOISTS

Reference must be made to the IFC E&S Guidelines and Senegalese HSE Regulations and any other applicable technical guidelines or authority requirements.

- Hoists shall be given unique identity numbers which must be displayed conspicuously.
- The safe working load shall be prominently displayed

Emergency contact details shall be displayed inside the personnel hoists.

- Authorized operator details shall be displayed inside the personnel hoists.

Duty Holder	Specific Duties	When
PWC	• Only use competent personnel to install sound equipment. • Ensure statutory tests are carried out every 6 months or after any major lifting operation, major maintenance or accidents. • Arrange for a competent person to operate the hoist.	Throughout the life of the project.
ASGC	Ensure PWC's compliance with the above.	Throughout the life of the project.

12. CONFINED SPACES

Reference must be made to the IFC E&S Guidelines and Senegalese HSE Regulations and any other applicable technical guidelines or authority requirements.
PWC must identify areas of work which can be classified as confined spaces and implement a Safe System of Works (SSoW) as per the requirements.
Entry into confined spaces will be subject to a rigorous process which entails:

- Planning;
- Entry Permit;
- Atmospheric monitoring;
- Training;
- PPE;
- Supervision;
- Communication;
- Emergency arrangements;
- Special access and egress equipment, etc.

13. LONE WORKING

Lone working shall be avoided whenever possible. If unavoidable, the employer of the lone worker is to develop a procedure to ensure that all necessary precautions are put in place to safeguard the health, safety and wellbeing of the worker. No lone work shall be allowed in high risk operations or for tasks which require a Permit to Work.

Duty Holder	Specific Duties	When
PWC	• Eliminates the lone working practice if possible. • Ensures that a safety system of works is in place for lone work if unavoidable.	Throughout the life of the project.
ASGC	Monitor PWC's compliance with the above.	Throughout the life of the project.

14. NIGHT AND WEEKEND WORK

Work may be required to be carried out at night or on public holidays for a variety of reasons such as avoiding extreme weather or the presence of certain restrictions on day-time work. Additional

precautions must be implemented to ensure that the health and safety of the workers are not put at risk at any time as well as avoiding nuisance to the residents.

Construction materials shall be properly handled so that the minimum noise is generated. Overtime shall be of the maximum allowed in law and previously approved by ASGC and/or the supervisor, and workers compensated in accordance with Senegalese Labour Law overtime allowances.

Duty Holder	Specific Duties	When
PWC	• Provide sufficient lighting. • Install adequate signage and warning lamps. • Schedule high noise work during the day.	Throughout the life of the project.
ASGC	Ensure PWC's compliance with the above by conducting inspections and audits	Throughout the life of the project.

15. HANDLING OF HAZARDOUS MATERIALS

Reference must be made to the IFC E&S Guidelines and Senegalese HSE Regulations and any other applicable technical guidelines or authority requirements.

A hazardous substance is any material in solid, liquid, vapour, aerosol, gas or particulate form having properties that are harmful to human health or severely affecting the environment, such as materials that are toxic, explosive, flammable or emitting ionizing radiation.

Suitable and sufficient risk assessments for the usage, storage, handling, transportation and disposal of hazardous substances must be prepared, signed and dated by a competent person. The Material Safety Data Sheets (MSDS) must form the basis for these documents.

Storage of hazardous materials on site must be planned properly. Hazardous waste shall be removed from site regularly to avoid accumulation. Hazardous waste shall only be handled/treated by a company approved by the local authority.

As mitigation measures to control risks, PWC shall follow:

- Storing chemicals according to the manufacturer's instructions on the safety data sheet
- Keeping the minimum quantity of hazardous substances necessary
- Storing incompatible substances separately
- Taking steps to prevent release or leakage of dangerous substances
- Keeping a spill kit (containing safety goggles, gloves, disposable bags, absorbent pads or absorbent socks) near to storage areas, and ensuring staff are trained in what to do in the event of a spill
- Cleaning up any leaks or spills that occur
- Using the right precautions when handling substances - for example, wearing protective clothing or ensuring adequate ventilation
- Ensuring employees who store and handle dangerous substances are properly trained
- Checking containers used for short-term storage are properly labelled
- Hazardous wastes must be stored in sealed containers constructed of suitable material with a label that clearly identifies the contents and accumulation date

Wastes are to be disposed of properly within 90 days of being generated.

- Ensure existence of proper control measures in case of chemical spills at the storage areas, as shown on the Emergency Preparedness and Response Plan Appendix 8.
- Provide and update stock inventory

As mitigation measures to for blasting activities, PWC shall follow:

- Minimize use of explosives
- Minimize and avoid works next to existing buildings

EMERGENCY CARD NUMBER							HCEC-0023
PRODUCT NAME:	PLAXIT BOND GLUE						
DANGERS MARK ✓ ABOVE THE APPROPRIATE BLOCK BELOW TO INDICATE THE HAZARDS APPLICABLE TO THE CHEMICAL SUBSTANCE							
				✓	✓		
							
EXPLOSIVE	OXIDISING	FLAMMABLE	CORROSIVE	POISONOUS	HARMFUL/ IRRITANT	HABIT FORMING	RADIO-ACTIVE
EXPOSURE AND ISSUE LIMITS							
EXPOSURE LIMIT	8 Hours / Shift			ISSUE LIMIT	20 litres / Day		
EMERGENCY NUMBERS							
NURSE	055 693 390			STOREMAN	050 678 7763		
SAFETY OFFICER	050 7100 820			PROJECT MANAGER	050 454 9625		
STORAGE							
Store in Cool Dry Area. Protect from Moisture.							
REQUIRED - PERSONAL PROTECTIVE EQUIPMENT							
							
☑	☑	☐	☑	☑	☐		
EMERGENCY ACTION PROCEDURE							
IF THIS HAPPENS	DO THIS						
FIRE	1. DO NOT USE WATER JETS			2. DRY POWDER EXTINGUISHER ONLY			
	3. FUMES CAN CAUSE IRRITATION			4. SELF CONTAINED BREATHING APPARATUS			
LEAKS OR SPILLAGE	1. WEAR PROPER PPE			2. PREVENT ENTRY INTO DRAINAGE SYSTEM			
	3. VENTILATE AREA			4. REMOVE NON-ESSENTIAL PERSONNEL			
EXPOSURE	INHALATION	REMOVE PERSON FROM EXPOSURE					
	EYES	WASH WITH COPIOUS AMOUNT OF WATER FOR 15 MINUTES MINIMUM					
	SKIN	WASH WITH SOAP AND WATER, REMOVE AFFECTED CLOTHING					
	INGESTION	DO NOT INDUCE VOMITING. SEEK MEDICAL ATTENTION IMMEDIATELY.					

Figure 4 HAZARDOUS CHEMICAL EMERGENCY ACTION CARD (Sample)

Duty Holder	Specific Duties	When
PWC	• • Identify hazardous materials in use. • Ensure MSDS is available. Develop a handling protocol including training, risk • assessment, supervision and PPE. • Establish an emergency response procedure. Monitor performance.	Throughout the life of the project.
ASGC	• Ensure PWC's compliance with the above by conducting inspections and audits	Throughout the life of the project.

15.1. Fuel and Oil Storage

Fuel will be stored in a secure area in a steel tank supplied and maintained by the fuel suppliers. An adequate bund wall with a 110% of volume will be provided on the storage area of hazardous materials. Adequate fire prevention measures will be arranged and only the minimum amount of oil will be retained on site. Containers are also color-coded for certain common products by their classification as flammable or combustible liquids. Flammable liquids (Class I) and combustible liquids (Class II and Class III) are classified according to NFPA 30. Containers must also be labelled with the name of their contents according to OSHA's Hazard Communication regulations, 29 CFR 1910.1200.

Used oil will be collected and stored in a holding tank with the same requirements as for fuel tanks, until removed from site by specialist oil recycling company or any other alternative arrangements. Machines will be serviced on a hardened slab with a fall to a central gully. Water and oil will be separated in an adjacent oil trap. Oils so collected will be retained in a safe holding tank for collection by a specialist / oil recycling company. Oil collected by a mobile servicing unit will be stored in the service unit's sludge tank and discharged into the safe holding tank for collection as described.

All used filter materials will be stored in a secure bin for disposal off site. Any contaminated soil will be removed and replaced. Soils contaminated by fuel, oils and lubricants will be collected and disposed of at any facility designated by local authorities to accept contaminated materials.

15.2. Gas Cylinder Storage

Gas cylinders and LPG cylinders will be stored in a secure, well-ventilated area as per the ASGC standards.

- Gas cylinders shall be:
    - Secured in vertical position and fitted with regulator and back flash arrester. o Stored away from combustible materials. o Stored at ground level and be readily accessible. o Stored away from occupied building. o Stored in a well-ventilated shed, made up of non-combustible material.
    - Stored at least 3 meters' away from other cylinders like oxygen, chlorine, etc.
- Storage shed shall be kept under lock and key. Key shall be readily available all the time.
- Access must be controlled by providing a fence 2 meters high.
- Cylinder valves must be shut if not in use.

A written procedure to deal with emergencies that may arise must be prepared, communicated and tested.

- Appropriate fire extinguisher well signalized must be provided in the vicinity.
- Personnel must be trained to deal with any emergency that may arise.
- Notices such as, “LPG – Highly Flammable”, “NO SMOKING” or “NO NAKED FLAME” should be displayed in languages that are understood by the workforce.
- Pipe lines / hoses if any shall be tested for safe working / leakages.

Duty Holder	Specific Duties	When
WC	• Securely store cylinders externally in upright position in well ventilated secured location on ground level areas away from direct sunlight. • Maintain a minimum distance of 6m between LPG cylinders and other gas cylinders such as oxygen, chlorine and ammonia. • Provide training to personnel on handling gasses. • Never allow flammable gas cylinders into confined spaces. • Post warning signs. • Provide firefighting equipment in the vicinity.	Throughout the duration of the project.
ASGC	Monitor WC’s compliance with the above through audits and inspections.	Throughout the duration of the project.

15.4. Asbestos

Asbestos related diseases are extremely debilitating and in the long term can be fatal. Exposure to airborne asbestos fibres poses serious health problems. Lung cancer, mesothelioma and asbestosis are common diseases to the lungs associated with inhalation of airborne asbestos fibres although many years may lapse before their symptoms appear. The factors that can affect the progression of the disease are the amount of dust to which the individual is exposed, duration of exposure, and the personal susceptibility of the individual to the asbestos fibres.

Asbestos waste shall only be handled/treated by a company accredited by the local authority.

General Requirement

- Suspected or confirmed Asbestos Containing Materials (ACM’s) must not be disturbed.
- If ACM’s are to be removed, then this must be carried out in a controlled manner in accordance with the Asbestos Management Plan.
- The local Regulations and best international practices must be adopted in the management (abatement, removal, transportation, disposal etc.) of ACM’s.
- Works are not to resume in an area following the removal of ACM’s until a Clearance/ Asbestos Free Building Certificate is issued by the competent person.
- A suitable assessment (i.e. asbestos survey) must be carried out by a competent person prior to demolishing/refurbishing/dismantling buildings/ships or other structures to determine whether or not ACM’s are present.
- If known or suspected ACM’s are left in situ then an Asbestos Register must be produced detailing the location, type and condition of each ACM.

- Warning signs must be posted in conspicuous locations to warn area users of the presence of asbestos.

Duty Holder	Specific Duties	When
PWC	• Ascertain that no person shall be exposed to asbestos during works. • Cease work immediately if asbestos is suspected of being present until tests are carried out. • Provide training to workers who may be exposed to asbestos (i.e. demolition & renovation workers). • Carry out a suitable and sufficient risk assessment before work activities can proceed in an area where asbestos is known to be present.	Throughout the duration of the project.
ASGC	Ensure the PWC's compliance with the above.	Throughout the duration of the project.
Employer	Inform the PWC and ASGC if asbestos is known to be present in the area.	Prior to starting project.

15.5. Use of Pesticides for Pest Control

The use of pesticides during the construction phase is done for pest control purposes only, usually around kitchen and toilet blocks areas. Good pest control is based on creating conditions which prevent pests from infesting premises. however, often this will not be possible. Checks should be undertaken to ensure that only approved pesticides are being used, since the use of illegal pesticides may have insurance consequences. The pest contractor must possess valid license pesticide applicator and supervisor license. The following measures shall apply:

- Protect human health and the surrounding environment by employing a range of preventative strategies and using least-toxic products for pest control and eradication.
- Inspect and monitor pest populations to enhance control strategies.
- Minimize the quantity and toxicity of chemicals used for pest management.
- Minimize environmental impacts by using species pesticides and targeting application areas carefully.
- Establish clear criteria for acceptable circumstances in which using a pesticide other than a least-toxic pesticide is necessary; toxic pesticides shall only be used when there is a threat to public health and safety, or to prevent economic or environmental damage, and only after other alternatives have been implemented and are shown to be ineffective.
- Provide Consultant, client and all project staff and worker with advanced notice of activities involving use of a pesticide other than a least-toxic pesticide.
- For external areas, shrubs bushes and vines are often not trimmed regularly thus creating a harbourage for rodents and snakes. Rodents are good climbers, and they make use of the trees as a bridge way to gain access into the facility. "
- Traps: For insects and rodents, non-chemical baits will be used to trap pests. No chemical baits for rodents will ever be used indoors. If chemical rodent baits are necessary outdoors, they will only be used as solid blocks places in locked outdoor dispensers. If integrated pest control measures are unable to resolve the problem, least toxic pesticides will be used prior to resorting to the use of non-least toxic pesticides

Bait stations installed in the facility not only restrict infestation but also serve as a monitoring point for any rodent activity to allow further control measure to be taken if infestation levels are significant. Pest

Ideally, bait stations are installed around the perimeter of the building at 15-meter intervals and on each side of entryways / doors. Plant rooms, dry risers and false ceilings can also be fitted with bait stations

- Spraying for insect pests will be carried out in infested areas and for high-risk areas, gel baiting will be used to control cockroach infestations
- Pesticides shall not be stored on site. The pesticide subcontractor is responsible to the handling, storage and disposal of any pesticide being used on the Project.

16. ELECTRICAL SAFETY

Reference must be made to the IFC E&S Guidelines and Senegalese HSE Regulations in Construction any other applicable technical guidelines or authority requirements.

The PWC is responsible for ensuring the safety of all temporary electrical installations and for ensuring the risks associated with using electrical tools and equipment are kept as low as possible.

16.1. Protection of Electrical Cables

The PWC must ensure that all electrical cables running from a generator to the distribution board are mechanically protected. The preferred method will be the use of steel wire armoured (SWA) cable to ensure that the risk of electric shock from cable damage is greatly reduced. All connections in cables are to be made by a competent electrician and with proprietary connectors. Under no circumstances are joints to be made using solely electrical tape.

16.2. Electrical Connections

The PWC is to ensure that all external electrical connections are either waterproof or splash proof. Under no circumstances are domestic 2 or 3 pin plugs or sockets to be used. It is strictly prohibited for bare electrical cable ends to be pushed into electrical sockets in order to make a circuit.

16.3. Overhead Power Lines

There is an area surrounding every power line that is referred to as the absolute limit of approach. It is strictly forbidden to move any crane boom or load line or load into this area unless the line has been de-energized or insulated. There are no exceptions. The absolute limit of approach varies according to the following table:

Overhead Line Voltage	Absolute Limit of Approach
Up to 50 Kv	4 feet (1.2 meters)
Over 50 Kv	4 inch for every 10 Kv

Duty Holder	Specific Duties	When
PWC	• Ensure that any person working on electrical installations including temporary electrics is competent. • Ensure that all temporary electrical installations are tested by a competent electrician and that a certificate is issued for each distribution board. A copy of the certificate shall be held in a plastic wallet and fixed to the distribution board. • Earth all temporary electrical installations and prevent any possible accidental damage as per the applicable standards. • Ensure that all distribution boards are locked shut and only competent electricians are to have access to distribution boards. • Under no circumstances shall live conductors be exposed where workers could accidentally come into contact with them. • Display clear warning signs on all electrical installations. • Follow a Safe System of Works including a Lock Out/ Tag Out. Procedure.	Throughout the duration of the project.
ASGC	Monitor PWC's compliance with the above through audits and inspections.	Throughout the duration of the project.

17. EXTREME WEATHER CONDITIONS

17.1. Adverse Weather Conditions

Adverse weather conditions may occur throughout the year and can be in the form of strong winds, heavy downpours, lightning storms, etc. The PWC is to ensure that strict safety measures are in place to avoid accidents especially for work that entails:

- Crane and mechanical lifting operations;
- Work at height;
- Driving;
- Lone & isolated work;
- Excavations.

The following hazards may be encountered in windy conditions:

- Power outage;
- Flying objects;
- Reduced visibility;
- Flash Flooding;
- Falling of trees/poles;
- Dangerous driving conditions.

The following measures must be implemented during severe weather conditions:

- Extra diligence is practiced when driving/walking;
- Stop lifting operations and works at height when strong winds and/or low visibility are experienced;
- Stockpiles will be placed in sheltered or covered areas, with temporary wind screens erected around stockpiles exposed to wind effects where necessary;
- Stockpiled materials can also be dampened with water;
- Work areas should be fenced, with the fence lined with cloth or fabric (such as green garden type mesh);
- Restrict movement of vehicles and machinery to a minimum as necessary;
- Construction activities (such as excavation and transfer of surface materials) to be minimized on windy days, particularly when blowing in the direction of sensitive receptors; • Computer data back-up is performed regularly;
- Power to unused equipment is disconnected.

The National Media should be checked regularly for any storm alerts. It is also recommended to check relevant web sites such as https://www.accuweather.com/ for weather updates frequently.

Duty Holder	Specific Duties	When
PWC	• Ensure the implementation of the above measures on the site in accordance with the weather situation. • Ensures that all loose materials, equipment etc. are secured to prevent them from being blowing away. • Ensures that a shelter is available for the workforce or transportation is on stand-by should the need arise. • Establishes a weather station or arranges to obtain weather data from reliable sources especially with regards to heat and humidity.	Throughout the duration of the project.
ASGC	Ensure the PWC's compliance with the above.	Throughout the duration of the project.

17.2. Heat Stress

Compliance and reference must be made to the IFC E&S Guidelines and Senegalese HSE Regulations in the workplace and any other applicable technical guidelines or authority requirements. The below Heat Stress Index should also be referenced.

Danger Category	Apparent Temp (C) (Humiture)	Heat Syndrome
(IV) Extreme Danger	> 54⁰	Heat Stroke or Sunstroke Imminent
(III) Danger	41⁰ - 53⁰	Sunstroke, Heat Cramps, or Heat Exhaustion likely. Heat Stroke Possible with prolonged exposure and physical activity.
(II) Extreme Caution	32⁰ - 40⁰	Sunstroke, Heat Cramps, or Heat Exhaustion Possible with prolonged exposure and physical activity.
(I) Caution	27⁰ - 32⁰	Fatigue possible with prolonged expose and physical activity

* Note: Degree of Heat Stress may vary with age, health, and body characteristics

		RELATIVE HUMIDITY								
		10%	20%	30%	40%	50%	60%	70%	80%	90%
(°C)	50	44	52	>54	>54	>54	>54	>54	>54	>54
	49	43	51	>54	>54	>54	>54	>54	>54	>54
	48	43	50	53	>54	>54	>54	>54	>54	>54
	47	42	48	52	>54	>54	>54	>54	>54	>54
	46	41	47	50	>54	>54	>54	>54	>54	>54
	44	40	45	49	>54	>54	>54	>54	>54	>54
	43	39	44	48	>54	>54	>54	>54	>54	>54
	42	38	43	46	>54	>54	>54	>54	>54	>54
	41	38	41	45	52	>54	>54	>54	>54	>54
	40	37	40	43	49	>54	>54	>54	>54	>54
	39	36	38	42	47	52	>54	>54	>54	>54
	38	35	37	41	43	49	>54	>54	>54	>54
	37	34	36	38	41	43	52	>54	>54	>54
	36	33	35	37	40	42	49	53	>54	>54
	34	32	34	35	38	41	44	50	53	>54
	33	31	32	33	36	38	41	46	50	53
	32	29	31	32	33	36	38	41	46	50
	31	28	30	31	32	34	35	38	41	46
	30	27	29	29	31	32	33	36	38	43
	29	26	27	28	29	30	32	33	35	37
	28	25	26	27	27	29	30	32	33	35
	27	24	25	26	26	27	28	29	30	32
	26	22	24	25	26	26	27	27	28	29
	24	21	22	24	24	25	25	25	26	26
	23	20	21	23	23	24	24	24	24	25

Example: The temperature stands at 34⁰C and RH is now 62% the Heat Stress Temperature is over 44⁰C, in the Danger area.

Heat stress can occur due to hot weather (Increase in temperature), high humidity (amount of moisture in the air), radiant heat (Reflected heat from sun, sand, hot engine, welding torch etc.), inadequate air circulation or basically hard physical work. The following controls should be applied:

- If possible, work should be scheduled in the early morning or afternoon to avoid hot weather in summer.
- Mechanization, ventilation, job rotation and wearing light loose clothing should be arranged to reduce the risk of heat stress and exhaustion.
- Adequate supplies of potable water should be made available. Ideal re-hydration schedule must be followed.
- Shaded and cooled rest areas must be provided during break time.

- Awareness about the heat stress hazards, risk factors, danger signs, symptoms and importance of ideal re-hydration schedule must be provided.
- PWC shall ensure that emergency arrangements as specified below for treating heat stress must be in place.

  - Always have a A/C room or cooled area to take personnel on emergencies. Preferably a site clinic.
  - Have available on site cold potable water or Electrolyte-enhanced drinks.
  - Have a vehicle available on call in case patient needs transportation to closest medical facility.

Duty Holder	Specific Duties	When
PWC	• Identify high temperature working environments and carry out a risk assessment to identify control measures to reduce exposure. • Observe summer working hours requirements where applicable. • Provide cold drinking water and electrolyte replacement. • Provide adequate light clothing. • Ensure acclimatization. • Establish emergency procedures.	Throughout the duration of the project.
ASGC	Monitor PWC's compliance with the above.	Throughout the duration of the project

18. EXPOSURE TO NOISE AND VIBRATION

The PWC will endeavour to keep noise generating activities to a minimum. However, it must be understood that this is a construction site and that certain noises will emanate as such. Any noises which could cause a major disturbance will be carried out during daylight hours. Compliance with the appropriate legislation with respect to noise is mandatory.

Considering the environmental receptors for the project, generators and compressors shall be kept away from receptors such as ecological/biological receptors or human receptors.

18.1. Noise Pollution

Noise can not only affect the workers directly involved in the noise-producing activity but also others working close by or people off-site such as occupants of nearby buildings or other areas. It is therefore necessary to consider reducing the overall noise level first and then considering the use of personal protective equipment second as it will not be possible to protect everyone affected in this way.
Exposure to noise is potentially physically harmful to the ear and is a general nuisance. Harmful noise can be long-term, such as working with machinery for a long time, or short term, such as using a pneumatic drill for a period. Prolonged exposure to high levels of noise will result in auditory fatigue (temporary hearing impairment) and eventual failure of function of the ear (permanent hearing impairment). In either case, the project manager has a duty of care to his workforce and to others who may be affected by his activities.

- The major sources of noise during construction are expected to be:
- Outdoor construction equipment during site preparation, rock breaking and crushing, and backfill operations.
- Outdoor construction equipment during construction of plant buildings and facilities.

- Truck deliveries during each phase of construction.
- Noise levels due to construction activities are not continuous but vary from low levels during periods of little activity to fairly high levels during times of peak activity. Off-site construction related noise is not expected to be significant.

18.2. Noise Limits

- The action point for noise on the project is 85 dB (A). Noise levels of 85 dB (A) and over will require the provision of signs, mandatory hearing protection. Noise levels of some common construction activities are given in **Table 5T.1**
- The maximum noise levels to which anyone (with or without protection) may be exposed to are 115 dB(A) continuous and 135dB(A) impulse or short duration.
- Instances where personnel are exposed to high levels of noise will require screening to assess if any impairment to hearing has occurred.
- In areas where noise may interfere with communications, suitable arrangements shall be put in place for alerting the workforce in the event of an emergency.
- Noise Mitigation Measures
- Ensure by regular maintenance that all plant and equipment employed on the project complies with the relevant noise limits that apply to that equipment. Particular attention is to be given to the exhaust systems on engines.
- Ensure that construction vehicles are equipped with horns or other signalling devices that produce a sound sufficiently loud to serve as a danger warning but not unnecessarily loud or harsh; and use these devices only to provide danger warnings.
- Ensure all equipment used outdoors are CE compliant and noise rating is mentioned on the product label
- Minimize and avoid works next to existing buildings
- Request Special Noise License when required
- Ensure works are compliant with Labour schedule
- Minimize and avoid works next to existing buildings
- Use vehicular traffic routes as per Traffic and Logistic Plan

Table 10 Typical Noise Levels of Common Construction Activities

dB(A)	Situation
135	Limitation for impact noise.
130	Pain threshold.
125	Pneumatic breaker, un-silenced.
120	Dozer in normal operation. Pneumatic rock drills. Scrapers.
115	Dozer ripping. Hand held disc cutter.
110	Tracked loaders. Tipper truck unloading rock. Graders levelling ground.

dB(A)	Situation
105	Wheeled excavator/loader (trenching). Compressors (3.5m^3/min). Road roller (rolling gravel/brick). Drilling into a concrete beam (electric percussion drills). Diesel driven generators for arc welding. Circular saws.
100	Batching plant.
95	Concrete mixer. Loading or unloading scaffold materials.
90	Electric drill under normal loading.
85	The action point for mandatory hearing protection and signs.
70	Noise limits for workshops and machinery buildings.

- Where appropriate, for example when sitting plant such as concrete batchers or generators; choose a location that is the least obtrusive to those not directly involved in its operation or to sensitive receptors. This includes the provision of generators to power the camp for workers.
- Select the least noisy equipment. This option will depend on the availability of equipment from our own resources but if the item is to be purchased or hired, the operating noise level is to be considered as a part of the specification.
- Use acoustic barriers. This could simply be a jacket around a pneumatic drill, freestanding screens or a full enclosure. Much will depend on the location of the equipment and the practicalities involved.
- The restriction of working hours can be considered. Night working is generally less desirable as noise travels further then, and there may in any case be contractual restrictions on a project.
- Consider other methods of undertaking the works or using different types of plant order to reduce noise and vibration levels to a minimum.
- PWC to carry out noisy activities as far as possible from the existing residential, commercial buildings or any other sensitive receptor in the area.
- The PWC shall engage with sensitive receptors and inform about noisy construction periods.
- The PWC shall have available to any sensitive receptor a grievance mechanism including anonymous.

18.3. Noise Monitoring and Measurements

Noise shall be measured using a precision sound gauge in the four corners of the site periphery and at least once a month or whenever levels of noise sounds above thresholds. The noise shall also be measured where and when construction activities emits noise to workers that sounds above thresholds. The sound shall be measured using pick maximum noise level. Shown below are the IFC thresholds used in this project. Levels shall be recorded into the Noise Monitoring Report in accordance with appendix 3. Levels above guidelines shown below shall be investigated and control actions shall be put in place to mitigate noise disturbance to both workers and surrounding communities.

Table 11 Noise Levels as per IFC guidelines

Receptor	Established Noise Levels – 1-hour LAeq, dB(A)	
	Daytime 07:00 – 22:00	Night-time 22:00 – 07:00
Residential, industrial and educational zones	55	45
Industrial, commercial	70	70

18.4. Vibration

Mitigate vibration where levels are unreasonable and exceed relevant criteria set in HSE international standards by working in short durations and taking several intervals during the activity. The use of adequate PPE is mandatory for all activities using high vibrating equipment.
Avoid or reduce, as far as is practicable, the disturbance to communities from vibration during construction. Construction activities producing high levels of vibration shall be plan ahead and informed to local communities. Also the PWC shall have in place a grievance mechanism including anonymous to local community.
A significant amount of high-vibration generating equipment will be operating in relatively close proximity to vibration sensitive receptors. If Night-time construction is required in certain areas, high vibration generating equipment shall not be used during these times.

19. Ergonomics, Repetitive Motion & Manual Handling

Injuries due to ergonomic factors, such as repetitive motion, over-exertion, and manual handling, take prolonged and repeated exposures to develop, and typically require periods of weeks to months for recovery. These OHS problems should be minimized or eliminated to maintain a productive workplace.

19.1. Office Equipment

All office equipment such as computer, printers, fax and copy machines to be numbered and entered in a register to be inspected monthly for electrical connections, serviceability...etc. by competent person and proper office ergonomics, including correct chair height, adequate equipment spacing and good desk posture, can be of great help to stay comfortable at work. Sitting behind a desk for hours at a time, may incur in physical damage such as neck and back pain or sore wrists and fingers.

Controls may include:

- Facility and workstation design with 5th to 95th percentile operational and maintenance workers in mind
- Selecting and designing tools that reduce force requirements and holding times, and improve postures
- Providing user adjustable workstations
- Incorporating rest and stretch breaks into work processes, and conducting job rotation
- Implementing quality control and maintenance programs that reduce unnecessary forces and exertions
- Taking into consideration additional special conditions such as left-handed persons

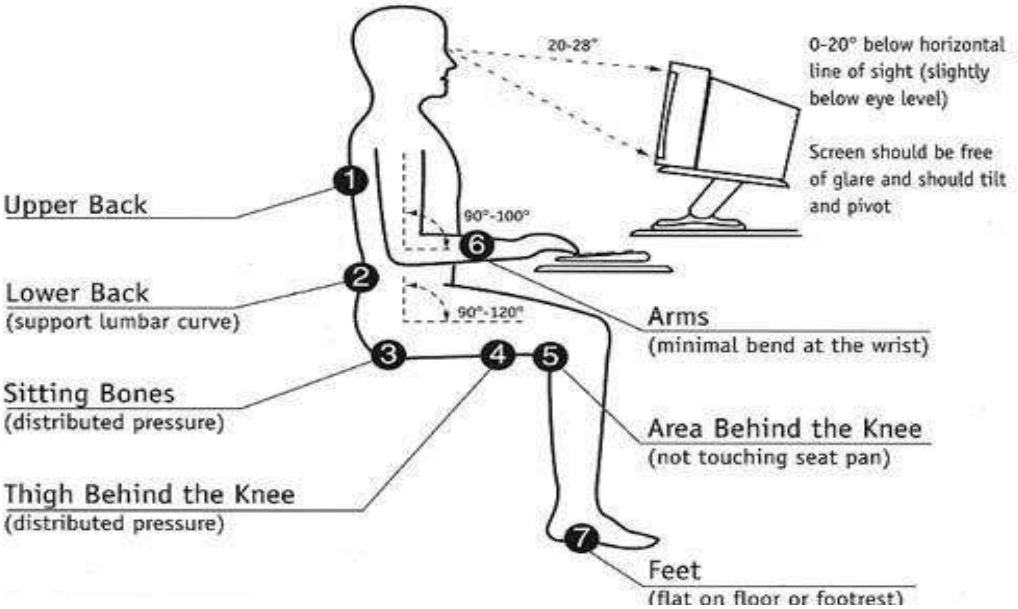


Figure 6 Office Ergonomics

- **Chair:** The chair shall be adjustable in height so that the feet rests comfortably on the floor and knees are about level with the hips. If the chair does not offer lumbar support, a cushion shall be placed between the curve in the lower back and the back of the chair.

- **Key object positioning:** such as telephone, stapler or printed materials shall be close to the worker's body to prevent excessive stretching. The worker shall stand up to reach anything that cannot be comfortably reached while sitting.

- **Mouse Position:** the mouse shall be placed within easy reach on the side of the keyboard. The worker shall keep his wrist in a natural and comfortable position when he is using the mouse.

- **Wrist:** Use of a wrist rest to minimize stress on wrists and prevent awkward wrist positions. While typing, holding hands and wrists above the wrist rest. During typing breaks, rest the heels or palms of the hands, not the wrists, on the wrist rest. While typing, keep wrists in a straight, natural position, not bent up, down or to either side.

- **Headset:** If the worker requires to frequently talk on the phone and type or write at the same time, use a headset rather than cradling the phone between your head and neck. Experiment with various styles until the worker finds the headset position that works best.

- **Footrest:** if the chair is too high for the worker to rest his feet flat on the floor, he/ she should consider using a footrest. Various types of footrests are available or be creative and make his own. A small stool or a stack of sturdy books may be enough.

- **Posture:** Centre the body in front of the monitor and keyboard. Sit up straight, keeping the thighs horizontal with the knees and at about the same level as the hips. Keep the forearms level or tilted up slightly.

- **Desk dimensions:** Generally, the desk should be at least 19 inches (48cm) deep, 30 inches (76cm) wide and, depending on the worker's height, up to 34 inches (86cm) high. Under the desk, make sure there is clearance for the legs, knees and thighs. Do not use space under the desk for storage.

- **Monitor height:** Place the monitor directly in front of the worker, about an arm's length — generally 18 to 28 inches (46 to 71 cm) — away. The top of the screen should be slightly below eye level. If glare from fluorescent lighting or sunlight is a problem, turning off some or all of the overhead lights or closing the window shades may help. Place the monitor so that the brightest light source is to the side.

19.2. Over-exertion and Manual Handling Injuries

Manual handling occurs in almost all working environments, though workers in construction, are most likely to be exposed to heavy loads. Manual handling of loads may cause cumulative disorders due to gradual and cumulative deterioration of the musculoskeletal system through continuous lifting / handling activities, e.g. low back pain. It can also cause acute trauma such as cuts or fractures due to accidents. Work-related low back pain and injuries are the most common musculoskeletal disorders caused by manual handling. Factors that increase the risk of injury include the load being too heavy, large, difficult to grasp or unstable, the task being too strenuous or involving awkward postures or movements, and the working environment lacking sufficient space, having slippery, uneven or unstable floors, having extreme temperatures or poor lighting. Prevention measures includes:

- Putting in place a purchasing policy for machinery and work equipment that meets the health and safety requirements.
- Comply with the health and safety requirements set out in this document.
- Planning the work process to minimize the number of workers who could be harmed
- Starting control activities before getting to site, e.g. by planning, training, site induction and maintenance activities
- Ensuring all persons, including managers, are trained and able to carry out their work without risk to the safety or health of themselves or other workers. The drivers and operators of vehicles and earth-moving or materials-handling equipment should be trained and physically fit.
- Avoid the need for manual handling of loads by workers;
- Take the appropriate organizational measures to reduce the risk if manual handling cannot be avoided;
- Ensure that workers receive adequate information on the weight of a load, the centre of gravity or the heaviest side when a package is unevenly loaded;
- Avoid manual lifting operations by using powered or mechanical handling equipment. If manual lifting cannot be avoided, consider if lifting loads can be reduced by using light materials or supplying materials in smaller bags
- Ensure that the lifting equipment is ergonomically well designed and well maintained.
- Improve workplace conditions to reduce the risk by planning the storage of building material close to the place where it is being processed and by keeping the work site clean and without obstacles to reduce the risk of slip injuries during manual handling.
- Ensure that materials that need to be lifted manually are positioned in a way that limited bending or reaching is needed.
- Reducing the physical task demands such as frequency and duration of manual lifting operations by introducing job rotation and the introduction of breaks.
- Inform the workers to increase their awareness of risk factors present, how to recognize and avoid unsafe working conditions and the consequences of not avoiding them.

20. EXPOSURE TO INFECTIONS & DISEASES

Construction industry workers may be exposed to general infections, blood-borne pathogens, and other communicable diseases during both the execution of their activities (specially on outdoors areas) and through the spread of HIV-AIDS and other STDs due to migratory labour force. In Senegal particularly, this constitutes a great risk only mitigated via education, training of labour force, and avoidance of exposure.

20.1. Generic Infectious Diseases

The following measures are to be implemented by the PWC free of charge to workers to reduce the risk of transferring infectious diseases to construction workers:

- Provide staff members and visitors with information on infection control policies and procedures;
- Establish Universal / Standard Precautions to treat all blood and other potentially infectious materials with appropriate precautions, including:
    - Immunization for staff members as necessary (e.g. vaccination for yellow fever, Covid19) o Use of gloves, masks, long shirts, as appropriate o Provide adequate facilities for hand washing. Hand washing is the single most important procedure for preventing infections (e.g. nosocomial and community). Hand washing should involve use of soap / detergent, rubbing to cause friction, and placing hands under running water. Provide educational brochures and posts showing adequate hand washing procedure.
    - Appropriate cleaning and waste disposal practices

20.2. Communicable Diseases

Communicable diseases pose a significant public health threat worldwide. Health hazards typically associated with large development projects are those relating to poor sanitation and living conditions and sexual transmission.

Communicable diseases of most concern during the construction phase due to labour mobility are sexually-transmitted diseases (STDs), such as HIV/AIDS. Recognizing that no single measure is likely to be effective in the long term, successful initiatives typically involve a combination of behavioural and environmental modifications.

The PWC shall implement free of charge to workers the below interventions at the project level:

- Providing surveillance and active screening and treatment of workers
- Preventing illness among workers in local communities by:
    - Undertaking health awareness and education initiatives, for example, by implementing an information strategy to reinforce person-to-person counselling addressing systemic factors that can influence individual behaviour as well as promoting individual protection, and protecting others from infection, by encouraging condom use
    - Training workers in disease prevention and if possible treatment
    - Conducting immunization programs for workers in local communities to improve health and guard against infection
- Assist workers in getting treatment through standard case management in community health care facilities. Ensuring ready access to medical treatment, confidentiality and appropriate care, particularly with respect to migrant workers.
- Promoting collaboration with local authorities to enhance access of workers families and the community to public health services and promote immunization.

20.3. Vector-Borne Diseases

Parasitic diseases in tropical regions are an important cause of morbidity and mortality. Malaria and neglected tropical diseases (NTD), such as schistosomiasis and geohelminths, incur enormous burdens

on public health, mainly affecting impoverished rural communities characterized by poor sanitation and hygiene. Ebola virus disease is a serious, often fatal condition in humans and nonhuman primates. Ebola is one of several viral haemorrhagic fevers, caused by infection with a virus of the *Filoviridae* family, genus *Ebolavirus*.

Senegal is estimated to have 3.4 million cases of malaria annually. Transmission occurs all year round, with greater seasonality in the south. Malaria is thought to be responsible for 35% of mortality in children under the age of five, 25% of maternal mortality, and 60% of hospital admissions for children under five. A recent national malaria indicator survey found that 20% of children under five and 14% of pregnant women were infected with *P. falciparum*.

Prevention is the strongest line of defence against mentioned diseases, and it starts with education and training at work environment and communities. Toolbox talks, training and bulletin boards shall be used to educate work force and visitors on the diseases types/symptoms, how to prevent them and how to treat them, thus avoiding higher problems. Avoid mosquito bites by using insect repellent, covering your arms and legs, and using a mosquito net. Please see below bulletins examples for Malaria, Ebola and Dengue.

Figure 7 Examples of PWC's disease Bulletins

Reducing the impact of vector-borne disease on the long-term is best accomplished through implementation of diverse interventions aimed at eliminating the factors that lead to disease. The PWC, in close collaboration with community health authorities, shall implement an integrated control strategy for mosquito and other arthropod-borne diseases that will involve:

Prevention of larval and adult propagation through sanitary improvements and elimination of breeding habitats inside the site

- Elimination of unusable impounded water inside site area
- Application of residual insecticide to site office walls
- Educating project personnel and area residents on risks, prevention, and available treatment
- Use of repellents, clothing, netting, and other barriers to prevent insect bites
- Monitoring and treatment of circulating and migrating populations to prevent disease reservoir spread

Other measures may apply:

- Collaboration and exchange of in-kind services with other control programs in the project area to maximize beneficial effects
- Use of chemoprophylaxis drugs by non-immune workers and collaborating with public health officials to help eradicate disease reservoirs
- Implementation of integrated vector control programs

21. Exposure to Dangerous Animals

Prevention is the strongest line of defence against mentioned wild animals, and it starts with education and training at work environment. Toolbox talks, training and bulletin boards shall be used to educate work force on the types of dangerous animals, how to prevent them from attacking, where they usually are, and how to avoid them, thus minimize bigger problems. It is also recommended that workers use the required PPE (safety boots, safety googles and gloves) and a long sleeve and trousers uniform to minimize any animals' bite. Additionally, when manually cleaning the site and/or removing natural objects form the ground such as old logs or shrubs, workers shall work in pairs and do it carefully to prevent any surprise attack. Please see below information bulletins examples.

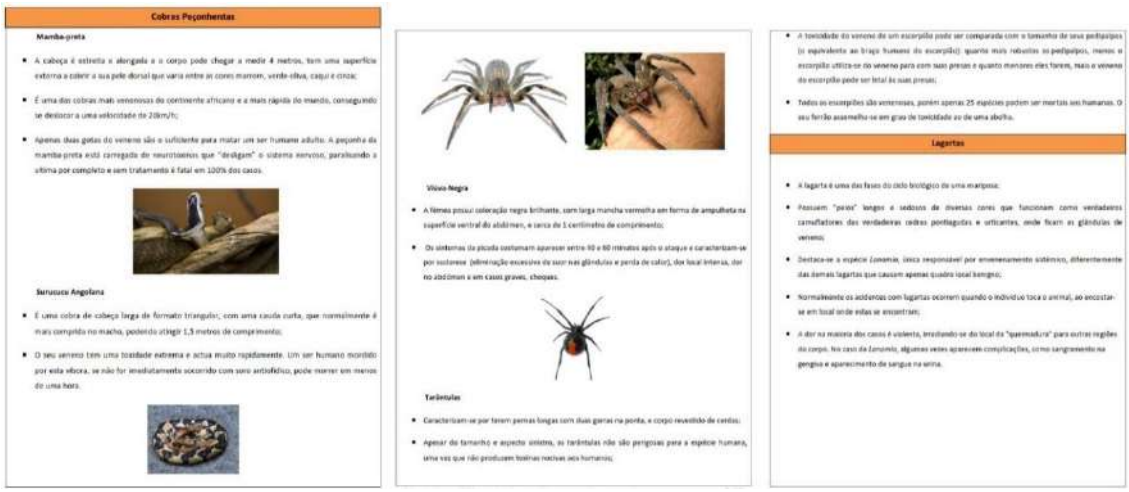


Figure 8 Examples of PWC's animals awareness Bulletins

Do's and Not Do's in case of a bite

What not to do:

- Do not suck the venom or squeeze the bite
- Do not cut or burn the wound
- Do not apply leaves, soil or others – it will get infected

What to do:

- Rest with minimum movements
- Keep bite in a high position
- Locate wound and clean with water and soap or disinfectant
- Cover wound with a clean cloth
- Keep blood pumping normal by removing all bracelets, rings and others

- Transfer patient to closer health care facility. If possible bring the responsible wild animal for identification

22. DRUGS & ALCOHOL FREE SITE

ASGC is committed to maintaining a safe, productive work environment. An employee who is under the influence of drugs or alcohol poses a serious threat to individual safety, productivity and quality. The objective is to achieve a safe working environment in which no-one is involuntarily exposed to increased danger by individuals under the influence of drugs or alcohol. ASGC enforces a zero-tolerance policy (as shown on Appendix 07) for the use and abuse of drugs, alcohol and any other substance that would compromise safety and affect a person's fitness for duty. All employees, subcontractors, visitors, or anyone working in the conduct of ASGC activities shall abide by these rules and comply with the following requirements:

- It shall be unlawful for an employer, his representative or any person having authority over workers to bring or allow anyone else to bring any kind of alcoholic beverages into a workplace for consumption therein or to allow any person in a state of drunkenness to enter or remain on the premises
- Drinking and driving is considered a serious offense. Penalties generally are assessed, license removed and huge fines might occur.
- The manufacture, distribution, dispensation, possession or use of drugs, controlled substances or alcohol on site, offices, or any other facilities is prohibited.
- Employees are prohibited from being at work while under the influence of alcohol, illegal drugs or controlled substances. Any employee violating this prohibition will be subject to disciplinary action up to and including summary dismissal.
- ASGC and the PWC to inform their employees on the problems originating from alcohol abuse and drug use by advertise educational brochures, posters and campaigns.
- Conduct random checks/tests on workers.
- Apply disciplinary actions on workers that are found with prohibited substances while working.

Where the offense is work related, the employee will be subject to disciplinary action. In the absence of any mitigating circumstances, the offence will be treated as gross misconduct. Progressive disciplinary action will be taken against any alcohol or drug related offense with the employee being issued a written warning and employment termination without notice and immediate effect in case of repetition.

Where an employee is convicted of an alcohol or drug related offense, in deciding what action to take, ASGC and/or the PWC will take the following factors into consideration: the nature of the charge, the employee's current job assignment, the employee's record, the impact of the conviction and any other factors which may consider to be relevant.

23. LABOUR RIGHTS

Contractors and sub-contractors shall ensure that operative's health is well maintained and arrange a regular periodic health examination and follow up with any serious issues. Contractors and sub-contractors shall ensure control measures in place to protect employees from dust, noise and infections by providing adequate rest areas and toilets, and by monitoring the hygienic condition of the site and welfare facilities. Regular testing to potable water shall be made to all potable water drinking points on site.

Construction is one of the most dangerous occupations in the world, incurring more occupational fatalities than any other sector. This section intends to provide the workers with the right knowledge and information, enabling them to understand their responsibilities and rights as an employee of the construction industry in Senegal. Also, please refer to the ASGC CRS Policy already provided Appendix 7. All employees to read and acknowledge CSR Policy and signed record sheet to be submitted to ASGC.

23.1. Low awareness of Labour Laws

It is crucial that labour, including migrant workers are aware of their rights as well as their duties. Educated workers will create a healthier construction site. PWC are requested to inform and educate labour of their own rights and obligations by:

- Setting health and safety requirements in tender specifications, meeting IFC's requirements.
- Ensuring all persons, including managers, are trained and able to carry out their work without risk to the safety or health of themselves or other workers.
- Ensure proper training and precise information on labour law.

23.2. Low Wages and Excessive Overtime

Construction workers in Senegal are protected by unions, and any person working on this project shall be free to join trade unions or any other recognized association by the Senegalese Ministry of Labour. However, there are some mitigations measures to be considered by both the PWC and MC as per below:

- Make sure that all workers are informed of their rights including wages and benefits and on their fundamental right to associate freely under the law;
- Communicate policies to labour intermediaries as appropriate and make sure they understand;
- Make policies contractually binding under the service agreement with labour intermediaries;
- Appoint a supervisor(s) to physically observe, on a periodic basis, the payment of wages and inspect welfare facilities and OHS practices on sites;
- Implement a risk-free communication channel to receive workers' complaints – openly or anonymously – on labour rights violations including payment of wages;
- Develop policies on remuneration, working conditions.
- Senegal Labour Law stipulates a maximum of 2 hours overtime per day and 40 hours per week and paid as per Senegalese Labour Law.
- PWC and subcontractors to have an in and out clock system that clearly register working timings. Overtime requires previous approval by MC
- A grievance mechanism, (including anonymous) to be available to workers

23.3. Strikes and Forced Labour

As part of mitigations measures for strikes, forced labour, child labour, unfair labour practices, workers engaged by the PWC and 3rd parties ASGC shall:

- Ensure that their subcontractors comply with legal requirements, E&S MP and any other additional requirements either included in the contract specification or agreed at preconstruction meetings.
- Ensure ASGC's Employment Policy is understood and complied with, by the PWC and subcontractors.
- Ensure workers are aware of ASGC's Employment Policy, Senegalese Labour Law and their rights as an employee.
- Minimum working age is set as 18 years of age.
- Labour contracts shall be clearly mentioning of the employee's position, duration of contract and probation period, monthly wage and allowances, working hours, total weekly hours, annual leave and working conditions such as place of work, type of work, employer HSE responsibilities and general employee responsibilities and duties.
- Conduct an induction training on the first day of work where the company clearly explains to the worker all of the employee contract and other specificities of work, such as employer's employment policy, grievance mechanism, how to obtain support and advice from the company, workers welfare, HSE awareness, recruitment fees, and other relevant policies and procedures.
- Minimum working age is set as 18 years of age. ASGC to conduct regular audits on the PWC and their Subcontractors.

23.4. Terrorism, Riots and Civil Disobedience

As part of mitigations measures for Terrorism, riots, hostile mobs, civil disobedience, muggings, robberies, and car-jackings and landmines (Landmines are most common in the southern provinces outside the cities.)

- Ensuring all persons, including managers, are trained and able to act on such emergency happenings.
- Local authorities emergency telephone numbers to be shown at all strategic places such as
- main gate, bulletin boards and on the site offices, and accessible to all personnel.
- Security 24/7 must be deployed at site.
- Site and surroundings must have adequate suitable lighting and signage.
- Ensuring all persons, including managers, are trained and able to act on such emergency happenings.
- Local authorities emergency telephone numbers to be shown at all strategic places and accessible to all personnel.

23.5. Non-Discrimination and Sexual Harassment

Each individual has the right to work in a professional atmosphere that promotes equal employment opportunities and prohibits unlawful discriminatory practices, including harassment. Therefore, ASGC expects that all relationships among persons will be businesslike and free of bias, prejudice and harassment. This section shall be read in connection with ASGC's Non-discrimination and Sexual Harassment Policy on Appendix 7.

This section applies to all applicants, ASGC employees, PWC's employees and the subcontractor's employees.

No employee shall be subject to discrimination on the basis of race, colour, religion, national origin, sex (including pregnancy), age, sexual orientation, marital status, physical or mental disability or any other category protected by applicable laws that does not affect an individual's ability to do the job, in employment, including in relation to hiring, salary, benefits, advancement, discipline or termination.

ASGC will not retaliate or discriminate against any employee/applicant because he/she has opposed any unlawful employment practice or filed a charge of employment discrimination, testified, assisted, or participated in any manner in an investigation, proceeding, or hearing related to employment practices. ASGC prohibits retaliation against any individual who reports discrimination or harassment or participates in an investigation of such reports.

Sexual harassment constitutes discrimination and is illegal. For the purposes of this policy, "sexual harassment" is defined as unwelcome sexual advances, requests for sexual favors and other verbal or physical conduct of a sexual nature when, for example: a) submission to such conduct is made either explicitly or implicitly a term or condition of an individual's employment, b) submission to or rejection of such conduct by an individual is used as the basis for employment decisions affecting such individual, or c) such conduct has the purpose or effect of unreasonably interfering with an individual's work performance or creating an intimidating, hostile or offensive working environment.

Sexual harassment may include a range of subtle and not-so-subtle behaviors and may involve individuals of the same or different gender. Depending on the circumstances, these behaviors may include unwanted sexual advances or requests for sexual favors; sexual jokes and innuendo; verbal abuse of a sexual nature; commentary about an individual's body, sexual prowess or sexual deficiencies; leering, whistling or touching; insulting or obscene comments or gestures; display in the workplace of sexually suggestive objects or pictures; and other physical, verbal or visual conduct of a sexual nature.

ASGC encourages reporting of all perceived incidents of discrimination, harassment or retaliation, regardless of the offender's identity or position. Individuals who believe that they have been the victim of such conduct should discuss their concerns with their immediate supervisor, any member of the personnel practices committee, human resources or any ombudsman. See the complaint procedure described below. In addition, ASGC encourages individuals who believe they are being subjected to such conduct to promptly advise the offender that his or her behavior is unwelcome and to request that it be discontinued. Often this action alone will resolve the problem. ASGC recognizes, however, that an individual may prefer to pursue the matter through complaint procedures.

23.6. Employment and Training Opportunities to Local Community

ASGC respects the rights of local communities in the country in which we operate. We work closely with the biggest developers and government authorities in order to provide a safe, socially fair and inclusive environment for the communities with who we engage. We place great importance on compliance with all directives and recommendations issued by the authorities. We have established robust procedure for stakeholder communication through client surveys, supplier pre-qualification and employee feedback mechanisms. In this Project we are.

- Job opportunities that lead to on-the-job training and know how development should be highlighted and offered to man and women from the local communities on a priority basis

- Priority opportunity for unskilled labour should be offered to residents of Belas municipality. The use of casual labour is much less desirable due to the abovementioned issues;
- The development of a specific training program for contractor's workers should be envisaged. The program shall include program dissemination among workers and middle management as well as top management engagement on motivating best workers retention and development of their professional abilities;
- Measures to subcontract Senegalese companies, whenever possible, shall also be considered:
- Subcontracting Senegalese companies can be promoted by adding on contracts' Terms of References specific criteria regarding companies' nationality;
- Monitoring of local employment and subcontracting: Transparent advertisement and monitoring of local employment is critical for succeeding on developing more positive attitudes of local communities, reducing inequities perception between settlements and attempting to reduce influx of people.

III. ENVIRONMENTAL MANAGEMENT

1. GENERAL

Every effort will be made to lessen the impact of our operations on the environment, and to educate our employees on the reasons for such a policy.

All employees will have a short lecture on environment awareness as part of the induction process. Where possible this lecture will be carried out in the language of the employee.

The PWC's site management will endeavour in their planning to avoid unnecessary damage. If environmentally sensitive areas are identified outside the actual construction areas will be sign posted and treated as "no go" areas. "No go" areas shall be clearly identified by means of signage.

All construction activities will be carried out in compliance with the MC's Environmental Management requirements, as set out in this document.

1.1. Environmental Objectives

Environmental management objectives are summarized below:

- Minimize any adverse environmental and socio-economic impacts resulting from the planned project activities;
- Conduct all Project activities in accordance with relevant Client and Luanda Municipality, Senegal legislation and guidelines;
- Periodically review the environmental management programs to allow for improvement and,
- Fulfil annual ASGC environmental objectives.

In the following sections, Environmental Management activities to be carried out on site are detailed, including the associated operational procedures and documents.

1.2. Environmental Maps

Logistics plan have been developed into maps to show locations of Project boundaries, construction activities, sensitive receptors controls and mitigation measures. The maps will be updated and refined further by the contractor to reflect changes to construction activities, mitigation measures and results of monitoring. These maps are to be used by the contractor as a tool for inductions, tool-box sessions, and training and for general display in site offices

1.3. QA Plan for Environment Management

The PWC will comply and abide with the MC's Environment Management requirements as set out in this document.

1.4. Environmental Awareness and Training

Environmental awareness constitutes a major part of achieving compliance with environmental protection. Consequently, an Environmental Awareness Orientation shall be given to all employees as part of their general orientation.

Environmental training will follow the framework established in the **"Training Matrix** "and, it shall be maintained in accordance with HSSE awareness and training schedule, which will establish the methodology to identify and define environmental training for all personnel involved in on-site activities. It also covering the levels of participants, the course levels, the refresher courses and periods of training.

2. AIR QUALITY

For all buildings under construction or renovation, building occupant and systems must be protected from airborne contaminants which are generated or spread during construction or renovation inside the buildings. Including toxic substances or substances harmful to the human body, such as asbestos, lead, pesticides, heavy metals, mold, dust, fumes, paint, ...etc Unless it is required to provide ventilation during construction, the supply and return heating, ventilation, and air conditioning (HVAC) system openings must be closed and protected from contamination. All duct and other related air distribution component openings must be covered with tape, plastic, sheet metal or other methods to prevent dust or debris from collecting in the system. If the HVAC system is used during construction or renovation, temporary return air filters must be installed with a Minimum Efficiency Reporting Value (MERV) in accordance with ASHRAE Standard 52.2-2007 or an equivalent standard. Immediately prior to occupancy, the temporary return air filters must be removed and replaced with permanent filters having Minimum Efficiency Reporting Value (MERV) in accordance with ASHRAE Standard 52.22007 or an equivalent standard.

Include the following:

- Dust suppression
- Stockpiles
- Truck loads
- Maintenance and operation of machinery / equipment / vehicles
- Other methods to prevent / minimize dust
- Adequate monitoring of equipment's which are producing emissions

Dust caused by significant winds, road and construction conditions will be controlled by means of a water tanker within the work area and where necessary, appropriate PPE's sign board will be displayed and dust control monitoring will be conducted as necessary.

2.1. Dust Pollution

Description of the Hazards:

- Inhalation of quantities of respirable dust in excess of 5mg/m3 over an 8-hour time weighted average.
- Inhalation of quantities of inhalable dust in excess of 10mg/m3 over an 8-hour time weighted average.
- Contact with eyes.
- Contact with skin.
- General nuisance dust.

Description of the Risks:

- Long-term health effects.
- Coughing spasms, etc.
- Corrosive effect on eyes.
- Burns etc. to skin due to contaminated dust.
- Fire due to contact with electrical apparatus.

Prevention and Mitigation Measures:

- The PWC will limit as far as possible dust-generating work activities that pose an immediate danger or significant nuisance to the construction workforce, general public or surrounding environment.
- Activities that produce significant dust emissions will be monitored during periods of high winds and dust control measures will be adjusted to account for ambient conditions to minimise fugitive dust.
- Where there is a possibility of excess levels of general nuisance dust, measures shall be taken to eliminate, as far as is reasonably practical, the dust at source by, for example, watering the ground. Spraying is to be done in high traffic areas and in earthwork areas and will be conducted at a frequency to keep the surfaces moist
- Where the possibility of excess levels of nuisance dust cannot be eliminated at source, other measures shall be taken to contain, as far as is reasonably practical, such dust by, for example, the provision of polythene sheeting or other shelter. In addition, finely ground materials will be stockpiled in specified locations where the material can be suitably covered.
- Where personnel are required to work in areas of respirable or inhalable dust they shall be provided with and shall wear suitable respiratory protection
- In areas such as joinery shops where high concentrations of dust can gather on electrical apparatus leading to a fire risk, regular cleaning shall be carried out
- Where dust emissions are possible from contaminated ground, the ground is to be monitored to establish levels of contamination and an assessment made of the most suitable means of containment
- Where practicable, drop heights for material transfer activities such as unloading of friable (powdery) materials will be minimised and carefully managed. Water sprays will be supplied where practicable and used during delivery and dumping of sand and gravel during periods of dry weather.
- Lightly trafficked disturbed areas are to be temporarily stabilised through watering or other suitable means. Temporary surfaces of crushed rock shall be used in heavily trafficked areas.
- Trucks will be sheeted on-site during the transportation of friable construction materials, spoil and potentially wind-blown material. Outside transport contractors will be required to comply with the applicable regulations governing open-bodied trucks hauling sand, gravel or soil between on-site and off-site areas. Loads will be fully covered.
- If sandblasting operations are required, these operations will be located so as to minimise noise and adverse dust effects on adjacent work areas.
- Should problem areas arise which result in excessive dust generation on site, individual workers are required to notify their supervisor to facilitate the appropriate response.
- Project environmental receptors such as human receptors or biological/ecological receptors - area shall be continually monitored and maintained appropriately

Training in Respiratory Equipment

- All personnel required to use respiratory protection are to be trained in the correct procedures for fitting and wearing the equipment.
- The PWC's HSE Supervisors will instruct all personnel responsible for specifying and supplying respiratory protection in the selection of suitable equipment.
- Where unusual respiratory equipment is required, specialist advice and training will be provided.

2.2. Air Pollution

- Traffic on site will be kept to a minimum. Only vehicles with specific permits will be allowed on site. Speed limit is 20 Km/h in normal circumstances unless otherwise specified.
- The majority of air pollution caused by our business originates from the internal combustion engine. Both petrol and diesel engines emit NOx (nitrogen oxides), SO_2 (sulphur dioxide) and CO (carbon dioxide) and there shall be no unnecessary idling of vehicles
- The PWC and its Site Manager shall ensure that all engines are serviced regularly according to the project requirements and manufacturer's written instructions. Employees responsible for Company cars, vans and trucks shall similarly ensure that they are serviced at the intervals specified for their vehicle;
- Minimise unnecessary operation of construction machinery, including efficiency of trip times and reduction of double handling through appropriate placement of stockpiles, haul roads, works depots and work areas. This will also aid in fuel efficiency and will assist in reducing overall costs associated with unnecessary fuel consumption;
- Use of modern machinery, with adequate pollution control devices (such as catalytic converters). A list of all machinery used on site (including date of manufacture, hours of operation, maintenance dates, fuel type and emissions control devices installed) should be kept on site by the site supervisor;
- Vehicle and fuels will be compliant with manufacturer's instructions and specifications approved in the region – specifically in relation to low-sulphur content;

3. Soil & Water Conservation

Where appropriate reasonable erosion control on new embankments resulting from our modified terrace levels shall be equal to that of Employer specification for terrace embankments at the time of site hand over.

- Land and water resources are to be protected from the encroachment of silt due to rainfall runoff by silt fence barriers. In high flows, additional protection will be provided by the placement of bunds along with the general silt fence protection.
- Throughout the construction of the project, sediment and erosion control measures will be monitored regularly and repairs will be conducted to any measures found to be unsatisfactory.
- If extreme weather situations occur such as heavy rainfall and high winds, construction activities shall be modified to better suit the weather conditions or if really required shall be suspended.

3.1. Construction Site Drainage

The PWC shall include a range of mitigation measures designed to prevent or minimise the effects of drainage as follows:

- Run-off storage basins and drainage ditches will be constructed and utilised to collect run-off during grading, excavation and construction, taking advantage of natural drainage and terrain.
- Measures as the ones shown below to be provided to hold and balance flows during periods of rainfall, allowing discharge to be made without increasing flood risks.
- Periodic inspections (audit) in order to assess topsoil quality and stockpiles condition; o Temporary and permanent seeding and mulching to absorb storm water run-off and retain some of the sediment-laden water;
- Ripping the compacted areas to encourage infiltration of storm water and minimise run off;

Regular inspections of all erosion and sedimentation controls during the construction period to ensure their continued effectiveness;

- All solid waste management practices, such as storage of spoil, will be undertaken with the incorporation of good housekeeping to prevent accidental release of dust or uncontrolled runoff.
- The management of excavation will include measures below, to avoid the generation of drainage pathways to underlying pathways**:**
  - Limiting earthworks and extension of filling to the minimum required for the proposed facilities;
  - Ensure that drain surface of drainage lines should be rock-lined to minimize erosion;
  - Managing of wastewater so it does not cause erosion to receiving channels or flooding of the discharge site.

3.2. Storm Water/ Run-off Control

Storm water / run-off originating from areas with no potential to pollute surface or ground water will be allowed to run off site. All run-off from workshop servicing equipment and fuelling areas, will be retained in contained areas, treated or passed through a suitable oil separator to minimise the risk of pollution.

3.3. Wash out Water

Wash out water shall be collected and retained in leak proof containers, so that this caustic material does not reach the soil surface and then migrate to surface waters or into the ground water or shall be recycled 100 percent of the collected concrete washout water and solids.

3.4. Silt or Concrete Run off

Measures will be taken to control and mitigate any adverse impact on the environment caused by the run-off concrete during construction activities. These measures will ensure that silty effluent will not penetrate the storm water systems.
The PWC shall install a temporary silt fence (sediment barrier made of porous fabric) at the end of the drainage slopes and site lower areas so that any sediments of concrete and silt are blocked by the fabric and can be collected and treated as waste.

3.5. Water Consumption

PWC to monitor and analyse the consumption on a weekly basis and network to be maintained without leaks. To communicate and record the meter monthly consumption. Identify locations of Potable Water and Non Potable Water.

3.6. Quarries for Aggregates

Earth materials needed for construction, for example, stones, are obtained from quarry operations. The sources of these materials will be supplied from a licensed and Ministry of Environment approved facility, which mitigates most of environmental degradation and medium- to long-term negative impacts. The quarry to be used was already identified as belonging to the company Mota Engil, in Caxito, duly licensed by the Senegalese authorities, which results in a low significance impact. Additionally, the execution of embankments and excavations should be restricted to strictly necessary areas, and the areas to be intervened should be marked out in advance. Whenever dimensions allow, the construction of embankments should adapt to the natural modelling of the terrain.

4. PUBLIC ROADS CLEANING

If problems are experienced with material such as heavy clay stuck to truck wheels and being shed on open roads, then the PWC shall proceed with the appropriate washing / brushing facilities to reinstate the existing conditions before works commenced. At a minimum the PWC shall clean the adjacent roads to the site once a month.

5. CULTURAL HERITAGE

To preserve and protect cultural heritage sites or artefacts from adverse impacts associated with Project activities. This section will aim to minimise the chance of damage to any archaeological or culturally significant sites during construction and will present a methodology and procedure for adequately mitigating for “chance finds” should they be discovered. The section outlines the cultural heritage management principles and procedures to be followed during construction in accordance with the Project’s policies and national legal requirements. As such a Chace Find Procedure was develop specifically for this Project aiming to outline actions if previously unknown heritage resources, particularly archaeological, are encountered during any construction activity. Please see section below for more details.

5.1. Chance Find Procedure

a. Purpose

This process prevents chance finds from being disturbed until an assessment by a competent specialist is made and actions consistent with the requirements are implemented.

b. Scope

This procedure is applicable to all activities conducted by the personnel, including PWC and subcontractors that have the potential to uncover a heritage item/site. The procedure details the actions to be taken when a previously unidentified and potential heritage item/site is found during construction activities. Procedure outlines the roles and responsibilities and the response times required from both project staff, and any relevant heritage authority.

c. Induction/Training

All personnel, especially those working on earth movements and excavations, are to be inducted on the identification of potential heritage items/sites and the relevant actions for them with regards to this procedure during the Project induction and regular toolbox talks.

d. Chance Find Procedure

If any person discovers a physical cultural resource, such as (but not limited to) archaeological sites, historical sites, remains and objects, or a cemetery and/or individual graves during excavation or construction, the following steps shall be taken:

a) Stop all works in the vicinity of the find, until a solution is found for the preservation of these artefacts, or advice from the relevant authorities is obtained;

b) Immediately notify a foreman. The foreman will then notify the Construction Manager and the HSE Manager;

c) HSE Manager shall record details in Incident Report including photos of the find; The report shall be sent to the Employer and MC.

d) Secure the site or area to prevent any damage or loss of removable objects. In cases of removable antiquities or sensitive remains, a night guard shall be arranged until the responsible local authorities take over;

e) The PWC shall request at his expense for a preliminary evaluation of the findings by archaeologists. The archaeologist must make a rapid assessment of the site or find to determine its importance. Based on this assessment the appropriate strategy can be implemented. The significance and importance of the findings should be assessed according to the various criteria relevant to cultural heritage such as aesthetic, historic, scientific or research, social and economic values of the find;

f) Sites of minor significance (such as isolated or unclear features, and isolated finds) should be recorded immediately by the archaeologist, thus causing a minimum disruption to the work schedule of the PWC. The results of all archaeological work must be reported to the Ministry of Culture, Tourism and Environment of Senegal (MCTE), once completed.

g) In case of significant find the MCTE, should be informed immediately and in writing within 7 days from the find.

h) The archaeologist provides the Heritage team with photos, other information as relevant for identification and assessment of the significance of heritage items and request to the Ministry investigate the fact within 2 weeks from the date of notification and provide response in writing.

i) Decisions on how to handle the finding shall be taken by the responsible authorities. This could include changes in the layout (such as when finding an irremovable remain of cultural or archaeological importance) conservation, preservation, restoration and salvage;

j) Construction works could resume only after permission is granted from the responsible authorities.

k) In case no response received within the 2 weeks period mentioned above, this is considered as authorisation to proceed with suspended construction works.

One of the main requirements of the procedure is record keeping. All finds must be registered. Photolog, copies of communication with decision making authorities, conclusions and recommendations/guidance, implementation reports – kept.

e. Additional information

- Ministry of XXX
    - Address: XXX
    - Phone: XXX
- XXX:

- Director: XXX
- Address: XXX.
- Phone: XXX,
- Fax:, XXX
- E- mail: XXX

6. Ecologic Impacts (Fauna & Flora)

- The ESIA has assessed and highlighted a number of impacts on ecology that ASGC team will be monitoring and the PWC must implement during the construction of the Project. Impacts and control measures are described below: Noise disturbance to ecologically sensitive species due to construction activities and machinery:
    - Engineering controls such as ensuring that noise generating equipment, machinery and vehicles are scheduled to daytime hours, erecting screening structures as noise barriers, and by ensuring all equipment, machinery and vehicles are maintained on a regular basis. With the implementation of noise control measures the residual impact to fauna as a result of noise disturbance during construction is negligible.
- Dust disturbance to ecological features due to construction activities:
    - Dust suppression measures are outlined in the Air Quality section III 2 of this plan and include, but are not limited to, best practice methodology for stockpiling to reduce the generation of dust during construction activities. Following implementation of the mitigation and management measures by the PWC the impact of dust on ecological features is predicted to be negligible.
- Damage to, or mortality of, ecological features within the project site:
    - Limiting areas to be disturbed by the project, good housekeeping practices and the use of herbicides and pesticides and other related horticultural chemicals should be carefully controlled and only applied by personnel adequately certified to apply pesticides and herbicides, will reduce the potential for alien invasive species to develop within the project area.

7. Site Reinstatement

All areas, wherever practicable, should be reinstated to original condition. A photographic record of pre-construction conditions and post construction conditions should be maintained as an evidence of the environmental measures taking into account to reduce the environmental impacts associated to modifications in landscape.

- Remove all structures.
- Remove all concrete slabs and foundations.
- Remove all polluted soil, material, containers etc.
- Rip all compacted areas.
- Do localised re-shaping to correct drainage, etc.
- Mark all underground services that will be left in the ground.
- Implement reasonable measures to prevent wind erosion of replaced topsoil.

At the end of the construction phase, the entire site should be landscaped to reflect the original condition of the area.

8. WASTE MANAGEMENT

8.1. Objectives and Targets

The overall objectives of the waste management plan are summarised below:

- To assess the activities involved for the proposed and determine the type, nature and estimated volumes of waste to be generated;
- To identify any potential environmental impacts from the generation of waste at the site;
- To recommend appropriate waste handling and disposal measures / routings in accordance with the current legislative and administrative requirements; and
- To categorise waste material where practicable (inert material / waste fractions) for disposal considerations i.e. public filling areas / landfill

8.2. Waste Management Contractor Roles and Responsibilities

ASGC will appoint a Waste Management Contractor to implement the following systems; they will be made responsible for the management of main collection area's and satellite stations alongside its associated removal. All documentation, such as licenses, waste transfer notes etc., will be made available to ASGC whenever requests.

8.3. Management of Waste

As far as is reasonably practicable, waste management and waste minimization will be practiced through the following waste hierarchy approach:

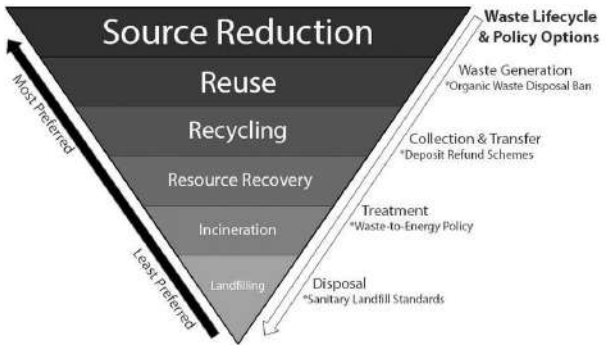


Figure 9 Hierarchy of Waste Pyramid

- **Prevention:** Waste prevention at source. Departments must plan activities to avoid the generation of waste.
- **Source Reduction:** Reduce the amount of waste produced.
- **Re-use:** Re-use materials where ever possible.
- **Recycle:** Transfer waste to approved recycling plants to minimize environmental impact.
- **Resource Recovery:** not feasible to be carried out as Construction waste does not have a high calorific value.
- **Treatment:** Utilizing the waste as energy provider or recycling materials.

- **Disposal:** Sending of waste to landfill is a ***last resort***. Hazardous waste will be disposed of and treated by authorized disposal contractors and facilities. All construction waste to be handled by hired waste management contractor.

8.4. Waste Classification

Through correct management and control, waste materials shall be identified and correctly disposed/handled based on their classification:

a) Reusable material
b) Recyclables
c) Hazardous Waste

a. Non-Hazardous Waste

DOMESTIC AND MUNICIPAL WASTE

- Garbage
- Paper
- Cardboard
- Plastic
- Cans

INDUSTRIAL AND COMMERCIAL WASTE

- Construction & demolition debris
- Glass
- Metal scrap
- Oily sand
- Wood
- Used containers
- Tyres
- Gypsum boards

b. Hazardous Waste

HAZARDOUS WASTE

- Used oils and Batteries
- Waste chemicals
- Paints / solvents
- Empty containers/Cartridges
- Thinners

MEDICAL WASTE

- Plastic
- Medicines
- Needles
- Medical waste - (First aid)

8.5. Re usable material

Reusable materials constitute those materials that are in good enough condition to be salvaged and put to use again either on or off site. This can include waste wood, empty containers, scrap steel of sufficient size, wooden pallets, split and waste concrete and any other such materials as identified during project lifetime.

8.6. Recyclables

Any materials that are insufficient in size or state to be reused and are able to be recycled given the Senegal recycling infrastructure are classified as recyclables for the purpose of this procedure. This may include:

- Glass - containers and panes
- Wood -clean non treated
- Plastic - containers, pipe, fittings, molding, doors, and packaging

- Cardboard and paper packaging and office paper (drawings, specifications, other
- reading material) from construction and administrative offices shall also be
- recycled and mixed with the cardboard and paper.
- Metals - ferrous and non-ferrous (e.g. aluminium, copper, and brass)
- Wallboard – gypsum based wallboard
- Concrete and masonry
- Food and organic material

8.7. Hazardous Waste

Hazardous wastes are classified as those wastes requiring special treatment or handling for disposal. Examples of hazardous waste from the Project may include waste material from concrete production, concrete mixer drum wash, batteries, tires, paint, thinners, ink, diesel, petrol and workshop contaminated (oil/solvent soaked) waste such as oily rags.

Sewage (black water) is also classified as a hazardous waste but is handled separately by being stored on the septic tanks and collected by the specialist contractors and send to the municipality wastewater treatment plant.

8.8. Waste Management Strategy

This procedure is set up to meet the waste diversion goal established for this project through the following measures:

- **Waste Avoidance .**
  1. In order to avoid the generation of waste ASGC will where possible;
  2. Estimate and order the required quantities of supplies.
  3. Establish a Buy Back Scheme with key suppliers, that is where ever such an option exists the supplier will take back the packing material
  4. Avoid the use of disposable materials for example drinking cups, batteries

- **Source Reduction:**

  In order to ensure reduction in waste generation, the following control measures will be introduced:

  1. Where reasonably practicable, materials shall be ordered in bulk to reduce packaging. Avoid individual packaging for volume purchases.
  2. Where possible and practicable the use of returnable containers and packing materials will be favoured.
  3. Purchase criteria will favour recycled products.
  4. Suppliers will be requested to use minimal packaging.
  5. Where possible, refillable containers will be used for the collection of waste fluids such as oil drums
  6. Ensure the correct amounts of chemicals are used when mixing or diluting chemicals to prevent avoidable waste generation
  7. Avoid generation of waste by reducing excess packaging, accurate concrete material orders, etc.

Waste Segregation:

Full efforts to partially segregate waste shall be implemented on the site such as metal, paper, concrete, empty containers, empty gas cylinders & aerosols, battery & tires. Adequate skips and bins shall be provided by hired waste management contractor .

Re-use/ Recycling:

The following control measures will be implemented to ensure reuse of generated waste

1. Output of one process to be used as input for another process, flushing back the waste into process etc.
2. Where possible, paper will be re-used such as the printing of documents on the clear side of used documents.
3. Where possible ply boards ,steel roads , concrete blocks and nails will be reused for various site activities.

Management:

1. Manage waste proactively by developing construction methods that reuse materials or limit material wastage.
2. Material evaluation shall be carried out by procurement department to avoid over ordering /reduce wastage
3. Reactively manage by keeping a track of waste generated, monitor regularly and develop plans/program to eliminate/reduce waste
4. Table 12 indicates all of the main waste streams from the project's major activities that are likely to be generated on the project, which can cause severe environmental damage or impact.
5. Storekeeper shall be maintained a tracking register for making final reports which including recycled waste quantity and salvage ratio.

8.9. Waste Management Control Measures

The following control measures will be employed within ASGC to reduce the environmental impacts from waste generation, handling, storage and disposal:

- Open burning of waste, marine dumping of waste or the dumping of waste at undesignated area within the property is prohibited.
- Separate labelled waste receptacles will be provided for, plastic, cardboard / paper, tins, glass.
- The dilution of hazardous waste is prohibited.
- The mixing of hazardous and non-hazardous waste is prohibited.
- All hazardous waste will be provided with secondary containment and suitably bunded to meet legal requirements, where necessary.
- A program for regular collection and removal of skips and bins will be implemented
- All litter will be controlled within ASGC by means of good housekeeping.
- Where possible, performance measurement and targets for reduction reuse and recycling will be developed and implemented.
- Any wastes that cannot be reused and recycled will be transported and disposed in accordance with Municipality requirements.

- Volumes and types of waste will be monitored to establish whether additional opportunities for improvements in waste management (avoid, reduce, reuse, recycle) can be adopted, where practicable.
- All colleagues will be trained on the Waste Management Plan, through shift briefs, etc

8.10. Waste Handling

One of the most sustainable ways to deal with waste is to separate it at the point of production and according to its classification. This will maximise the opportunity for reuse and segregated waste may also be sent for recycling.

It shall be the responsibility of construction team to separate waste containers [e.g. bins, skips, or containers]. The site in-charge shall keep track of all waste generated within his area of responsibility. All waste generated within the project shall be segregated, collected and stored properly prior to disposal. All waste shall be collected in suitable containers properly secured, labelled and stored in the designated area until final disposal.

Containers shall be clearly labelled and colour coded, as per the coding and categories shown below as a minimum. This will help to raise the awareness for reduction, reuse, and recycling wastes and will ensure that project is complying with its stated objectives.

Table 12 Labelling / Colour Code

Paper	Blue
Industrial Waste – Non Hazardous	Green
Plastic	Yellow
Metal	Dark Blue
Hazardous waste	Red
Medical waste	Yellow and Black

All collection areas will be correctly sign posted with instructions on waste handling written in Arabic, English and Hindi,

Use of PPE such as gloves, mask, apron as per MSDS / supplier recommendations wherever applicable shall be followed for storage, handling and disposal,

Frequent checks/ inspection shall be made at storage areas as a proactive measure in the prevention of pollution and its impact.

Care shall be taken during loading to prevent spillage,

Appropriate safety sign boards shall be displayed at the waste storage area,

Waste collection vehicles shall follow the company's traffic management plan.

8.11. Handling and Storage of Waste

Once the project has sufficient trades on site, the project will subcontract a waste contractor directly to manage all construction waste. This Waste Management Contractor will follow the procedure and must be licensed to handle all wastes being removed, including recycling transportation where applicable.

a. Arrangement of Skips:

Skips shall be situated as per site requirements. Skips shall be located to allow easy access for both waste material collection and skip removal.

Skips will be provided to all construction waste other than hazardous waste and medical waste, as per the colour coding arrangement in Table 1 above and will be highlighted with temporary indicators and instruction signs if specific colour skips are unavailable. Specific skips for material types will be made available only where that material will be generated.

b. Removal of skips:

Skip removal will be carried out by the waste management contractor on regular basis .

c. Sewage and Wastewater:

The sewage from the setup of toilet blocks will be collected in holding tanks before being pumped to a tanker for disposal at the municipal sewage treatment plant. All tanks will be emptied before reaching capacity. At this time or earlier, the sewage removal transporter, licensed by municipality recognized Waste Management carriers, must be called for immediate collection. Under no circumstances should the tanks be allowed to reach capacity as this will result in overflow to the surrounding soils. As the number of workers on site increases, more frequent disposal will be conducted as required.

d. Hazardous Waste:

All hazardous waste shall be stored in closed containers with red hazardous signage on and a label describing the kind of waste, storage and handling indications. Also, hazardous waste shall be removed by approved waste management contractor.

e. Medical Waste:

Medical wastes from the on-site first aid station will be collected in a ‘bio-hazard’ identified thick plastic bag and removed off site weekly and disposed of at an approved municipal waste treatment facility. Any needles or “sharps” will be collected in a “sharps” box with appropriate medical waste measures taken to allow the safe collection of this waste without any chance for contamination to the waste handlers. Containment will be located in the site clinics.

8.12. Recycling

Paper and plastic products collected from numerous sources shall be outsourced for recycling.

Reinforcing steel, if any, shall be collected and sub-contractor will be appointed for its collection for recycling.

Waste Mechanical Oil & lubricants shall be sent to the ASGC plant division for its appropriate reuse / disposal.

Where possible Ink and photocopy cartridges shall be collected by our Waste management contractor, for refilling/disposal.

Aluminium and metal scrap have economic value and such items to be sold to approved vendors for recycling.

8.13. Waste Removal Providers

Waste logs must be maintained for all disposals with receipts. A log should be kept detailing the current agreements in place (see Table 12 below). Where applicable to the waste type, all permits and licenses of waste removal contractor will be kept on file for Documentation.

Table 13 Waste Streams

S.N.	WASTE CATEGORIES	SOURCES OF WASTE	RECYCLE METHOD	DISPOSAL METHOD
01	Construction general waste	Maintenance, Construction and demolition work		Delivering to facilities that are legally accepting new construction, excavation and demolition materials for purpose of re-use, recycling, composting, or disposal
02	Used Plywood	Construction work	Making safety signboards	
03	Steel scrap	Construction work		Sale to approved steel crap contractors
04	Extra concrete	Casting during Const, Work	manufacture concrete block for edge protection, fence boundary base, safety pipe base for access	
05	Copper	MEP Work		Sale to purchased contractors
06	Used Paper	Office Work	Removal by appointed recycling Contractor	Removed by appointed
07	Used Plastic	common practice	Removal by appointed recycling Contractor	
08	Used Cartridge	Office printing work		Removal by appointed
09	Used cans	common practice	Removal by appointed recycling Contractor	Removal by appointed
10	Empty paint drums	Painting job		Removal by appointed waste Contractor

8.14. Training, Communication and Motivation

The project will conduct an on-site pre-construction meeting with all employees and subcontractors. Attendance will be required for all key field personnel. The purpose of the meeting is to reinforce to employees and sub-contractor's key field employees the commitments made by their companies with regard to the project goals and requirements.

Waste prevention and recycling activities will be discussed at the beginning of each weekly coordination meeting to reinforce project goals and communicate progress to date.

As each new trade or sub-contractor comes on site project management will present him/her with a copy of the plan and provide a tour of the material storage and waste areas.

All waste containers will be clearly labelled. Containers shall be located in close proximity to the building under construction in which salvageable materials will be placed.

The HSE Department shall inspect the containers on a weekly basis to insure that no contamination is occurring and precautions shall also be taken to deter any contamination by the public or any other 3rd party contractor.

The HSE Department will schedule periodic waste audits to ensure the plan is being adhered to and to provide support to the site teams where needed.

8.15. Preferred Waste Management Options for Waste Streams

This section describes preferred waste management options for the waste streams generated in the project. Some of the waste streams identified above are clubbed together which have the same disposal methods.

a. Acid/Caustic Waste

This waste stream includes acids/caustics, which are generated from the use of an acid or caustic cleaner or from general construction activities. These wastes should be handled as hazardous (corrosive) wastes if their pH is less than 2.0 or greater than 12.5.

b. Barrels, Drums, Containers

This stream applies to empty containers only. A container is empty if all material has been removed using practices commonly employed to remove the material from that type of container (e.g., pouring, pumping, aspirating). Under no circumstances can an empty container have more than one inch of residue remaining at the bottom, or more than 3% by weight of the total capacity, whichever is less.

c. Batteries

This stream includes batteries used in various construction and field operations: spent nickel cadmium, lithium, mercury-cell, and lead-acid batteries.

d. Construction Debris

In view of the inert nature of such material, its disposal is unlikely to cause long-term environmental concern. Stockpiling of all material prior to disposal should comply with the control measures outlined earlier in order to minimise any potential impacts related to dust, visual impact, water quality and general health and safety. The excessive generation of construction wastes increases disposal costs and may take up valuable landfill space. Implementation of good site management, planning and design considerations should be in place to reduce over-ordering and waste generation. Where possible, construction wastes such as wood and metal should be separated out from other wastes for recycling. All recyclable material should be clearly segregated and stored in appropriate skips/containers or stockpiled. Segregation of material will aid in the potential for re-use of material and in final disposal, if necessary. Material recycling or re-use reduces the requirement for new construction materials together with overall collection, transport and disposal costs. Only when material cannot be reused should it be disposed through approved waste management contractor.

This stream applies to wood, metal, glass, tyres and other scraps or by products of construction activities. Most of these wastes tend to be inert.

e. Contaminated Soil (Hydrocarbon)

This stream applies to soil impacted by hydrocarbons (oil) during the course of routine activities and maintenance or as a result of accidental releases. Spills or leaks could be located near pumps, pumping units, manifolds, storage tanks, tank loading racks, material storage areas and vehicle maintenance.

f. Domestic Waste/Trash

This waste stream includes discarded items from the kitchen, bathroom, laundry, warehouse, offices, etc. Many of these items may be biodegradable; others will be inert.

g. Lube Oil/Motor Oil (Used)

This waste stream includes petroleum-based lubricating greases and motor oils, as well as synthetic oils used for the same purposes. These oils may contain impurities (e.g. metals) as a result of their use.

h. Medical Waste/Trash

It includes wastes generated by medical procedures. Many of these may be potentially biohazardous materials. Examples of this stream include Bandages, gauze and other materials contaminated by body fluids, specimens, lab cultures, plastic syringes, tubing, needles and glass.

i. Paint (And Other Coating) Waste

This stream includes liquid and semi-liquid paint (and other coating) wastes generated in field and maintenance operations. Excluded from this category are dried, empty paint cans, paintbrushes, can liners, and water-based paints which, by definition, are non-hazardous.

j. Wastewater (Domestic) /Sewage

This stream applies to water containing sewage, detergents (e.g., soap, shampoo, laundry detergent, etc.) and materials washed off by people, their clothes, dishware and utensils, kitchen facilities, etc. during cleaning activities.

8.16. Guideline for Reducing Waste

The project shall insist sub-contractors and suppliers take back materials packaging for reuse or recycling.

If materials are stored on site ensure they are kept out of the way of vehicles and the main worksite, to avoid them becoming damaged and unusable.

The project shall use a policy of “Just in Time Deliveries”, i.e. the delivery of materials as they are needed, avoids long periods of onsite materials storage which can lead to damaged material that must be disposed of as waste.

The project shall avoid over ordering materials – this saves money and avoids wastage of unused materials.

Where the project cannot reduce waste, they shall look at opportunities for reusing it, on or off site, or segregating it for later recycling.

8.17. Waste Management Audit

Waste Management Audit and inspection will be conducted by ASGC HSE Dept. to ensure the implementation and compliance.

8.18. Waste Management Procedure Review

Waste management plan will be reviewed periodically and as a minimum annually to ensure that it is still appropriate for the types of waste being handle

The waste storage areas and skips will be monitored to ensure that contamination of the segregated skips does not occur. Routine inspections will be conducted on waste disposal and collections areas by authorized person / waste management contractor to ensure compliance to the Waste Management Plan.

8.19. Summary of Waste to be Disposed & Reused

Table 14 Expected Generated Waste on Project

Material Type	Time of Arising	timated total volume Generated	Estimated total volume for reuse on site	Estimated volume for offsite disposal	Proposed offsite disposal method /area
Excavated Material	1-50	5000 m3	5000m3	NIL	PWC
Food waste	Full period of the project	4000 m3	NIL	4000 m3	Waste contractor
Concrete	1-40	15000 m3	2000m3	13000 m3	Waste contractor
Plastic	1 to 50				Waste contractor
Paper	Full period of the project	2 ton	500 kg	1.50 ton	Waste contractor
Wood	1 to 35	10000 m3	3000 m3	7000 m3	Waste contractor
Steel	4 to 35	15 ton	3 ton	12 ton	Waste contractor
Glass	20 -to 50	2 ton	0	2 ton	Waste contractor
Precast	08 to 28	5 ton	0	5 ton	Waste contractor
PVC pipes	01-40	1	0.5	0.5	Waste contractor
Gypsum	10 -50	1 ton	0	1 ton	Waste contractor
Insulation materials	10-50	1.5 ton	0.5	1 ton	Waste contractor
Hazardous waste	08-28	1 ton	0	1 ton	Waste contractor
Drainage water	01-60	15000000 Gallon	0	15000000 Gallon	Waste contractor

Metal and / or plastic drums with lids will be provided at the office, workshop and other areas where required. Where considered necessary, additional drums will be installed. All waste will be removed at frequent intervals to a local authority waste site. In addition, an active ongoing anti-litter campaign involving all employees / and or subcontractors will be instituted on site. Waste will not be burnt on site without the permission from the relevant authorities and to be done under supervision. All possible waste shall be reused, recycled or recovered. PWC's shall prepare detailed Waste Management Plans for each Hospital. Please see below mitigation measures for waste management:

- Hazardous Waste should always be segregated from Non-Hazardous Waste

- Ensure that contractors handling and disposing of Hazardous Waste are licensed by the relevant regulatory agencies and following international best practices
- Wastes will be stored in a way that prevents the contact between incompatible wastes and allows for inspection to detect leaks and spills
- Store in closed containers away from direct sunlight, wind and rain
- Secondary containment should be used/constructed with materials appropriated for the waste being contained
- Provide adequate ventilation where volatile wasters are stored
- Label each container to identify its contents
- Clearly identifying and demarcating the area, including documentation of its locations on facility map or plan
- Conduct periodic inspections of waste storage areas
- Keep manifests and other records. These should include: name and identification number of the materials composing the Hazardous Waste; physical state; quantity; waste shipment tracking documentation
- Minimize the production of construction waste
- Provide adequate waste containers distributed throughout the site
- Ensure waste is placed in the correct containers

9. CLIMATE CHANGE

In the constriction phase none of the potential emissions sources are expected to be large in magnitude. Moderate magnitude emissions during construction are likely to come from:

- Embodied emissions associated with extraction and manufacturing of the required raw materials;
- Emissions from fuel and electricity used in vehicles transporting materials to the site, and away from the site; and
- Emissions from fuel and electricity used in equipment on site.

As per the ESIA, the adverse impact is considered to be short term and moderate sensitivity and magnitude.

9.1. Mitigation Measures

The magnitude of greenhouse gas emissions associated with the construction phase of the Project can be minimised using the following methods:

- Minimising materials required for construction;
- Maximising the use of construction materials and products with recycled or secondary and low carbon content, from renewable sources, and offering sustainability benefit;
- Using locally-sourced materials where available and practicable to minimise the distance materials are transported from source to site; and
- Using more efficient construction plant and delivery vehicles, and/or those powered by electricity from alternative/lower carbon fuels.

IV. STAKEHOLDER MANAGEMENT

1. PURPOSE

Stakeholder Management includes the processes required to identify the people, groups and organizations that could affect or be affected by the project, to analyse stakeholder expectations and their impact on the project, and to develop appropriate strategies and tactics for effectively engaging stakeholders in a manner appropriate to the stakeholders' interest and involvement in the project. The Stakeholder Management Plan helps ensure that stakeholders are effectively involved in project decisions and execution throughout the lifecycle of the project, to gain support for the project and anticipate resistance, conflict, or competing objectives among the project's stakeholders, as per IFC Performance Standards. The PWC shall develop a detailed and project oriented Stakeholder Management Plan following the guidance and requirements provided on this document. The Stakeholder Management Plan includes several sections:

- **Identify Stakeholders** – identify by name and title the people, groups, and organizations that have significant influence on project direction and its success or who are significantly impacted by the project.
- **Plan Stakeholder Management** – identify the strategies and mechanisms that will be used to achieve the greatest support of stakeholders and minimize resistance.
- **Manage Stakeholder Engagement** – outlines the processes and steps that will be undertaken to carry out the planned strategies.
- **Control Stakeholder Engagement** – describes the methods that will be used to monitor stakeholder engagement and alert the project team if problems are surfacing.

2. RESPONSIBILITIES

This SMP was developed to be specific to the Project. Changes to the SMP will be communicated to all relevant workers and put in place well in advance. The PWC shall review and updated this document from time to time or whenever modifications affects the Project's conditions.

2.1. PWC

The PWC is a main duty holder and shall have a responsibility for the health, safety and wellbeing of all persons that can be affected by their undertakings. The PWC's duties in relation to health and safety are outlined in E&S MP Section I.

a. Project Director

The Project Director is ultimately responsible for ensuring that stakeholders are managed and in accordance with legislative requirements and this document, however he may delegate this responsibility to site the HSE Manager.

- Ensure the implementation of this procedure through Management and coordinate monthly reports, inspections, audits, training and related education.
- Verify that the PWC's responsibilities and monthly reports are recorded for all grievances, as per this document.
- Communicate and take action in any existing grievance or recommendation.
- Ensure that all interested parties are made aware of their obligations, responsibilities and rights under the requirements of this procedure.

b. Community Liaison Officers (CLO)

The CLO will facilitate the engagements with stakeholders, particularly the affected communities, and PAPS, prior to and during construction.

3. IDENTIFICATION AND CLASSIFICATION

In order to develop an effective plan for managing stakeholders, they first need to be clearly identified and assessed. Stakeholders were identified on the ESIA by performing a stakeholder analysis (please refer to Appendix 6) in which potential stakeholders and relevant information (interests, involvement, interdependencies, influence, and potential impact on project success) are gathered, documented and analysed.

Ref.	Stakeholder Name	Ref.	Stakeholder Name
A: National Institutions and Public Services			
1		7	
2		8	
3		9	
4		10	
5		11	
B: Provincial and District Government			
1		2	
C: Affected Communities			
1		5	
2		6	
3		7	
4			
D: NGOs / Local Groups			
1		4	
2		5	
3		6	
E: Construction Team			
1		3	
2		4	
F: Project Lenders			
1	UKEF	2	MUFG

To assist with stakeholder identification and analysis, the team has created and is completing a Stakeholder Analysis Register categorized by Stakeholder Group. The Stakeholder Analysis Register captures the following information:

- Group Name

- Level of Current Engagement
- Number of Stakeholders in the Group
- Level of Desired Engagement
- Description of the Group
- Issues, Opportunities and Risks associated with each group
- Level of Impact on the Project
- Strategies and Actions to address
- Level the Group is Impacted by Project issues, risks and opportunities
- Group Contact Details

3.1. Power/Interest Classification

As mentioned above, the two contractors are assessing each group's position, as well as their impact on the project and/or how they are impacted by the project. One purpose of this activity is to help identify and categorize groups so that appropriate attention can be given to each group according to the level of engagement needed. To help in this process, the project will use the Power/Interest Grid to categorize each stakeholder group. The Power/Interest Grid analyses stakeholder groups in a visual manner to further establish stakeholders' level of interest or concern and their ability to influence the project outcomes.

An important outcome of the stakeholder identification and analysis work, including the Power/Interest Grid, is to identify the most influential and most impacted stakeholder groups so that a focused stakeholder management strategy and plan can be developed and executed.

Provided below is an example Power/Interest Grid with A-K representing the stakeholders identified above.

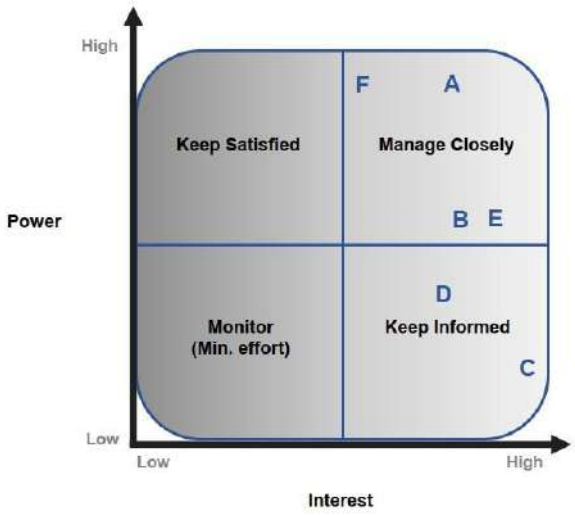


Figure 10 Power & Interest Grid

To confirm the Stakeholder Identification and Analysis process is accurate and complete, the project team, led by the Project Director/Project Manager, will help facilitate a series of reviews on existing as well as potential stakeholders. In addition, optional qualitative interviews may be performed for the Stakeholder Groups identified as most influential or most impacted by the project to validate that their issues and concerns have been captured accurately.

4. STAKEHOLDERS MANAGEMENT

Plan Stakeholders Management is the process of developing appropriate management strategies to effectively engage stakeholders throughout the lifecycle of the project, based on the analysis of their needs, interests and potential impact on project success. The key benefit of this process is that it provides a clear, actionable plan to interact with project stakeholders to support the project's interests.

Based upon the information gathered in the Stakeholder Analysis Register on Appendix 6 and as per the Communication Strategy (please refer to section 5), the PWC will be responsible for engaging stakeholders throughout the lifecycle of the project. The level of engagement required for each stakeholder may vary over the course of the project. For example, during the beginning stages of the project, it might be necessary for key stakeholders to be highly engaged. Highly engaged key stakeholders in the early stages of the project are pivotal for project kick-off, achieving staff buy-in and clearing obstacles. As the project progresses, the level of engagement will shift from key stakeholders to the broader project team and end-users.

Stakeholder Engagement Management is the process of communicating and working with stakeholders to meet their needs and expectations, and to address issues as they occur, and to systematically foster appropriate stakeholder engagement in project activities throughout the life of the project. The key benefit of this process is that it allows the Project Director to increase support and minimize resistance from stakeholders, significantly increasing the chances of achieving project success. PWC's Project Director will be responsible for managing engagement and follow-up on any grievances. Please refer to Section I, 7.2 for PWC's Project Directors contact information.

4.1. Stakeholder Engagement Activities

To ensure the correct level of engagement is being achieved by each stakeholder, the PWC will analyse current levels of engagement as mentioned on Appendix 6 in the Stakeholder Analysis. Each stakeholder group shall be assessed in terms of their current and desired level of engagement.

The PWC shall engage with all relevant stakeholders on the Project. With that in mind a Stakeholder Engagement Activities Plan (SEAP) as shown in Appendix 6 shall be followed and updated as necessary.

To note that each and every engagement with stakeholders shall be recorded through a Minutes of Meeting (MOM) or a simple meeting report and all recommendations or grievances shall be recorded, have close out action(s) and communication of those actions to relevant stakeholder.

To effectively manage stakeholder engagement, the Project will utilize the SEAP and strategies identified above to communicate project related information to key stakeholders in a proactive and timely manner. Leveraging the information provided in the SEAP (i.e., stakeholder groups, communication items, purpose, method of communication, and frequency), the project will have the ability to increase support and minimize stakeholder resistance throughout the life of the project. Managing stakeholder engagement helps to increase the probability of project success by ensuring that stakeholders clearly understand the project goals, objectives, benefits, and risks.

In line with the analysis above, the project team will also be actively listening and soliciting input and feedback to make sure communications are being received and understood, and also to capture important information to help make adjustments and to respond to problem areas.

5. COMMUNICATION STRATEGIES

Before aiming to engage and influence stakeholders, it is crucial to seek to understand the people you will be working with and relying on throughout the phases of the project life. Sharing information with stakeholders is important, but it is equally important to first gather information about your stakeholders, to understand the factors that will influence how they receive and interpret information and how they might respond. This will help you identify the best ways to communicate so that intended messages will be understood, and the desired responses achieved.

Ineffective or insufficient communication is at the root of project problems such as unclear objectives, misunderstanding the brief, poorly coordinated teamwork and ineffective risk management. Successful outcomes and benefits realization relies upon good communication, which requires a good understanding of your stakeholders, and regular reviews of your approach to engaging with them.

In terms of communication strategies to be implemented by the PWC there are two different types, an informative only strategy and another that allows for feedback. Both should be used depending on the information that is desired to communicate. Please see below different channels;

- Allow for Feedback from receptors:
- o Interviews o Meetings o Training o Websites o Phone calls
- • Do not allow for feedback from receptors
- o Radio and other media o Reports Email or letters (written Communication) o Banners and Billboards o Brochures o Bulletin board

Frequency of communication is directly related with the interest provided by the stakeholder in the Project as referred on *Figure 8* of this document. If a stakeholder shows more interest in the Project more frequent should the communication be.

Please refer to Appendix 6 showing the activities, communication strategies and frequency to be implemented on the Project. Each stakeholder shall have an appropriate type of communication at a frequency that allows the stakeholders to engage and/or assess the project.

6. RECOMMENDATIONS & GRIEVANCES

A grievance mechanism establishes communication channels for stakeholder's members to the PWC. An open, confidential or anonymously channel shall be put in place, with inquiries, concerns or even formal complaints shall be available on the Project. To create an alternative channel for stakeholders and mostly affected community's members to communicate with the PWC as part of the standard/formal stakeholder engagement process. Confidential complaints are an effective and easy way to receive feedback from affected communities. Therefore, an anonymous grievances mechanism as per below list shall be in place:

- PWC's contact number, email address and Project's website (if possible) shall be available to workers and local community members
- Suggestion boxes and grievance book shall be available to local community members and workers
- Grievance information on site compound's bulletin board
- Workers associations contact details shall be available on the welfare area's bulletin board to any worker

Another type of grievance mechanism in place is the direct publicity/information provided by the PWC. In this way stakeholders are directly informed about the projects in hand by the PWC by distributing notices at churches, mosques, schools, and civic centers, highlighting the services provided and grievance mechanisms in place. The notices are to include instructions for external stakeholders to communicate or file complaints and explain the company's procedures for handling complaints. In addition, the Project Manager/Director shall be always available to hear any kind of complaint or set up a face-to-face meeting with concerned or affected community leaders or any affected stakeholders.

For stakeholders directly related to the construction activities continuous training shall be implemented to bust morale and promote improvement. Nevertheless, management team periodically reviews complaints and the complaint system to monitor the effectiveness of the system and integrate results into the company's systems. Company conducts perception surveys among affected stakeholders to learn about their awareness of the mechanism, and to assess the perceived trustworthiness of and ease of access to the grievance mechanism and its outcomes.

The Grievance Form is another tool to collect, document, and address concerns raised by stakeholders and stakeholder management risks that have materialized into issues that must be managed. Please see **Appendix 4** for an example of the Forms utilized to collect and close out any grievances related to the site works. All grievances shall be recorded, followed up, closed with appropriate corrective actions and communicated back to the affected stakeholder.

As part of an important step towards maintaining a good relationship with the Project's stakeholders the responses to their concerns are a final and critical step in this process. The reporting back to affected communities are done through choosing the most appropriate mechanism with regards to the stakeholder involved.

For the Community Grievance Mechanism care will be taken to ensure that the available channels for reporting grievances are appropriate, accessible and enable grievances to be submitted confidentially as well as anonymously.

The PWC shall ensure that all grievances will be recorded in a grievance register, which will be used to track the status of the grievance from initial receipt to close-out. External stakeholders will be made aware of the Community Grievance Mechanism, with provisions for awareness raising. The Community Grievance Mechanism will be available for use at no cost, without retribution and without impeding access to alternative dispute mechanisms / remedies. It shall also include special provisions for the management of grievances related to gender-based violence (e.g. the appointment of a separate female contact person, special measures to protect the complainant, the conduct of investigations safely).

Prior to the start of the Project's construction phase, Liaison Officers (CLO) will be recruited by the PWC/Employer to facilitate engagements with stakeholders, particularly the affected communities, during construction.

6.1 Grievance Procedure for Workers

An employee dedicated grievance procedure shall be in place. The PWC as part of requirements set out herein shall implement a policy/mechanism and step-by-step procedure for employee grievances which is aligned with this ESMP and as follows.

- Committed to a transparent process for all employees to express their concerns and file grievances, including anonymous complaints through suggestion boxes.
- Ensure that there will be no retaliation or discrimination against those who express grievances, and that any grievances will be treated confidentially.

- Management will treat grievances seriously and take prompt and appropriate action in response.
- PWCs grievance mechanism does not replace other channels for grievance resolution as defined by law or collective agreements.

The HR manager shall be responsible for reviewing the received submission and determining whether the submission is a complaints/ grievance or observation / recommendation, and forwarding it to the identified Project personnel in line with the relevant process, as outlined in **Figure 2**.

In case of anonymous submissions received, the HR Manager, the CLO, and HSE officer shall make sure that it is raised to the relevant Project Roles (as identified in Figure 2), and the outcome shall be shared through workers trainings, inductions,/community meetings, and where required posted at relevant locations around site and project area that can be seen by all workers and community members, respectively.

As a definition:

- An observation represents an action where a worker/community member has noticed/observed a matter (something/someone) that could have, or could cause a potential risk/issue to employees/community members.
- A recommendation represents an action where a worker/ community member has noticed/observed a matter (something/someone) that could be improved and has suggested/recommended a method to be improved /performed in an adequate way.
- A grievance is where a worker/community member raise a workplace/project concern or any dissatisfaction with company's work procedure or condition because of an alleged violation of law, or project policies, and where there is a problem an employee/community member has experienced during employment/project execution.

Step 1: Dealing with grievances informally

Managers and employees are encouraged to use informal methods of resolving disagreements or disputes. If employees have a reasonable grievance or complaint regarding their work or the people they work with they should, wherever possible, start by talking it over with their line manager. It may be possible to agree a solution informally between worker and manager. This makes it more likely that disputes can be resolved faster and closer to the source of the problem and less likely that they will escalate into intractable problems. If discussions with line managers fail to resolve the issue, it is still possible to pursue an informal approach without triggering a formal procedure. For example, the Project Director could host an informal meeting or discussion.

Step 2: Formal grievance

If the matter is serious and/or the employee wishes to raise the matter formally, the employee should set out the grievance in writing to his or her manager. This submission should be factual and avoid language that is insulting or abusive. Where the grievance is against the employee's manager and the employee feels unable to approach him or her, the employee should address the grievance to the Project Director. If the employee is a union member, the employee should ask a union representative for advice and support. The employee should then fill in the grievance form (**Appendix 4** of this plan) and submit it to Project Director for review.

Step 3: Grievance hearing

The Project Director (hereafter called the 'grievance manager') will call the employee to a meeting to discuss the employee's grievance within 14 working days after receiving the complaint. The employee has the right to be accompanied by a colleague or trade union representative at this meeting on request. After the meeting and within 7 working days, the grievance manager will meet the employee

and give he or she the minutes of the meeting with a decision which will be signed by both parties. The employee shall state if he or she is happy or unhappy with the decision.

Step 4: Appeal

If the employee is unhappy with the decision about a grievance and wishes to appeal, he or she should let the grievance manager know. The employee will be invited to an appeal meeting within 14 working days and the appeal will be heard by a grievance committee formed by the PWC Project Director, HR manager, and the MC's Project HSE Manager/Project Director. The employee will have the right, on request, to be accompanied by a colleague or trade union representative at this meeting and minutes should be taken. Every effort should be made to secure a resolution in the best interests of the employee and the Project. Within 5 working days, after the meeting the grievance committee will give the employee a decision. This decision is final within the terms of the Project's internal grievance mechanism; however, the employee may refer the grievance to the labour ministry for resolution and/or redress, as specified by national labour law.

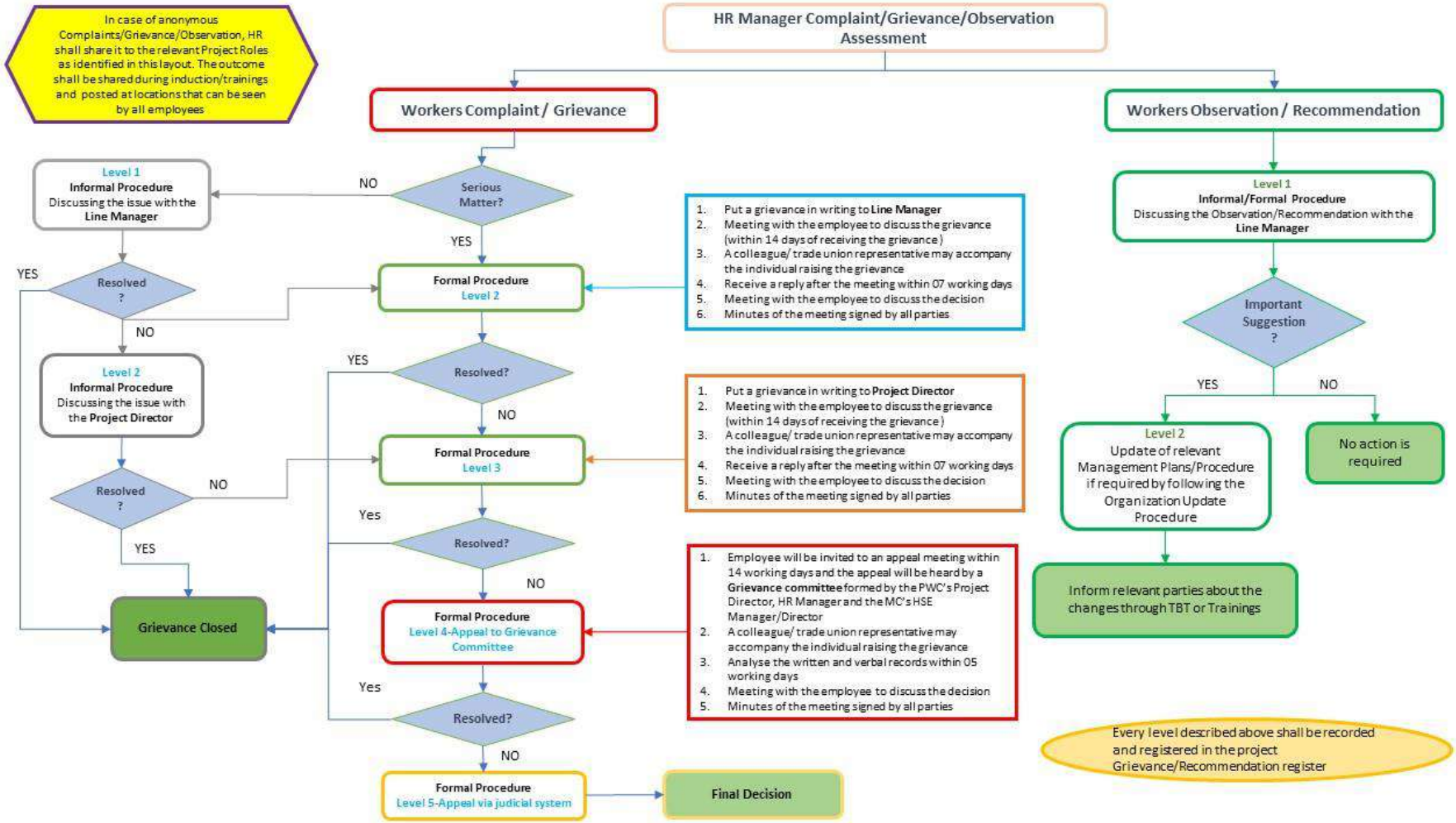


Figure 2: Worker Grievance Mechanism

6.2 Grievance Procedure for Subcontractors' Employees

The PWC must ensure that the subcontractors' employees have access to an effective grievance mechanism. The grievance mechanisms of subcontractors should be based on the same principles as those set out in this document and should be made available to all employees, even those who are employed on a short-term or temporary part-time basis. In cases where the subcontractor is unable to provide an efficient grievance mechanism, the subcontractor will sign off and acknowledge this document as his own.

Based on this principle, the PWC shall:

- Take steps to ensure that grievance mechanisms are provided by subcontractors. This includes placing contractual obligations on subcontractors to introduce and operate grievance mechanisms, and also regular monitoring of the functioning and outcomes of such mechanisms.
- Consider establishing a mechanism that extends to contract workers. In circumstances where the PWC thinks that subcontractors are either unable to provide grievance mechanisms or that the procedures established are inadequate, the PWCs must establish a means to receive grievances directly from workers. Where such a mechanism is established, the PWC should ensure that the responsibility for responding to the employee grievance, and dealing with the issues underlying it, rests with the subcontractor, who has ultimate responsibility as the direct employer of the workers in question.

6.3 Grievance Procedure for Community Members

This procedure it to establish a process whereby community members from the surrounding residential buildings or others as the case may be, can have their grievances and complaints resolved in a prompt, reasonable and consistent manner. Employees dealing with these grievances shall follow the steps below:

For the complaints/grievances or observation/recommendations received from the community, the CLO and the HSE Officers are responsible to assess it and share it with the relevant Project personnel as identified in the Figure 10.

In case of anonymous submissions received, the HR Manager, the CLO, and HSE officer shall make sure that it is raised to the relevant Project Roles (as identified in Figure 3), and the outcome shall be shared through workers trainings, inductions,/community meetings, and where required posted at relevant locations around site and project area that can be seen by all workers and community members, respectively.

<u>Step 1: Informal grievances</u>

Managers and employees are encouraged to use informal methods of resolving disagreements or disputes with community members. The employee dealing with an unhappy person on the site gates shall immediately call the Construction Manager (CM) and explain the person's concerns. The CM shall then in a calm and considerate manner try to resolve and agree on a common solution that benefits both parties. If discussions with CM fail to resolve the issue, it is still possible to pursue an informal approach without triggering a formal procedure. For example, the Project Director (PD) can host an informal meeting or discussion.

If the unhappy person calls or send an email to the PD, then he should be the owner of action and resolve the matter as prompt as possible. This makes it more likely that disputes can be resolved faster and closer to the source of the problem and less likely that they will escalate into official authorities.

In all cases the CM or the PD must fill in the Grievance Close Out attached on Appendix XXX of this document, resolving the issue described by the complainant and communicate the action taken to the

complainant. Whenever possible the complainant shall sign the form acknowledging the resolution of the problem.

Step 2 – Official Grievance;

If the matter is serious and/or the person wishes to raise the matter formally, the CM/CLO will provide a grievance form as per **Appendix XXX** of this document. This submission should be factual and avoid language that is insulting or abusive.

The CM will call the community person to a meeting to discuss the grievance within 14 working days after receiving the complaint. The community person has the right to be accompanied by Community Leader or the CLO at this meeting on request. After the meeting and within 7 working days, the grievance manager will meet the person and give he or she the minutes of the meeting with a decision which will be signed by both parties. The person shall state if he or she is happy or unhappy with the decision.

Should and agreed resolution not be reached, the grievance is to be elevated to the Grievance Committee for consideration (Step 3).

Step 3: Elevated to Grievance Committee

The person will be invited to a committee meeting within 14 working days and the grievance will be heard. The grievance committee shall comprise the PWC Project Director, CLO, and the MC's Project HSE Manager /Project Director and the village head and two community representatives selected by the community members (one male and one female for gender balance).

Every effort should be made to secure a resolution in the best interests of the person and the Project. Within 5 working days, after the meeting the grievance committee will give the person a decision. This decision is final within the terms of the Project's internal community grievance mechanism.

Step 4: Appeal

If the person is unhappy with the decision about a grievance and wishes to appeal, he or she may refer the grievance to the relevant municipality, or courts, for resolution and/or redress, as specified by national law.

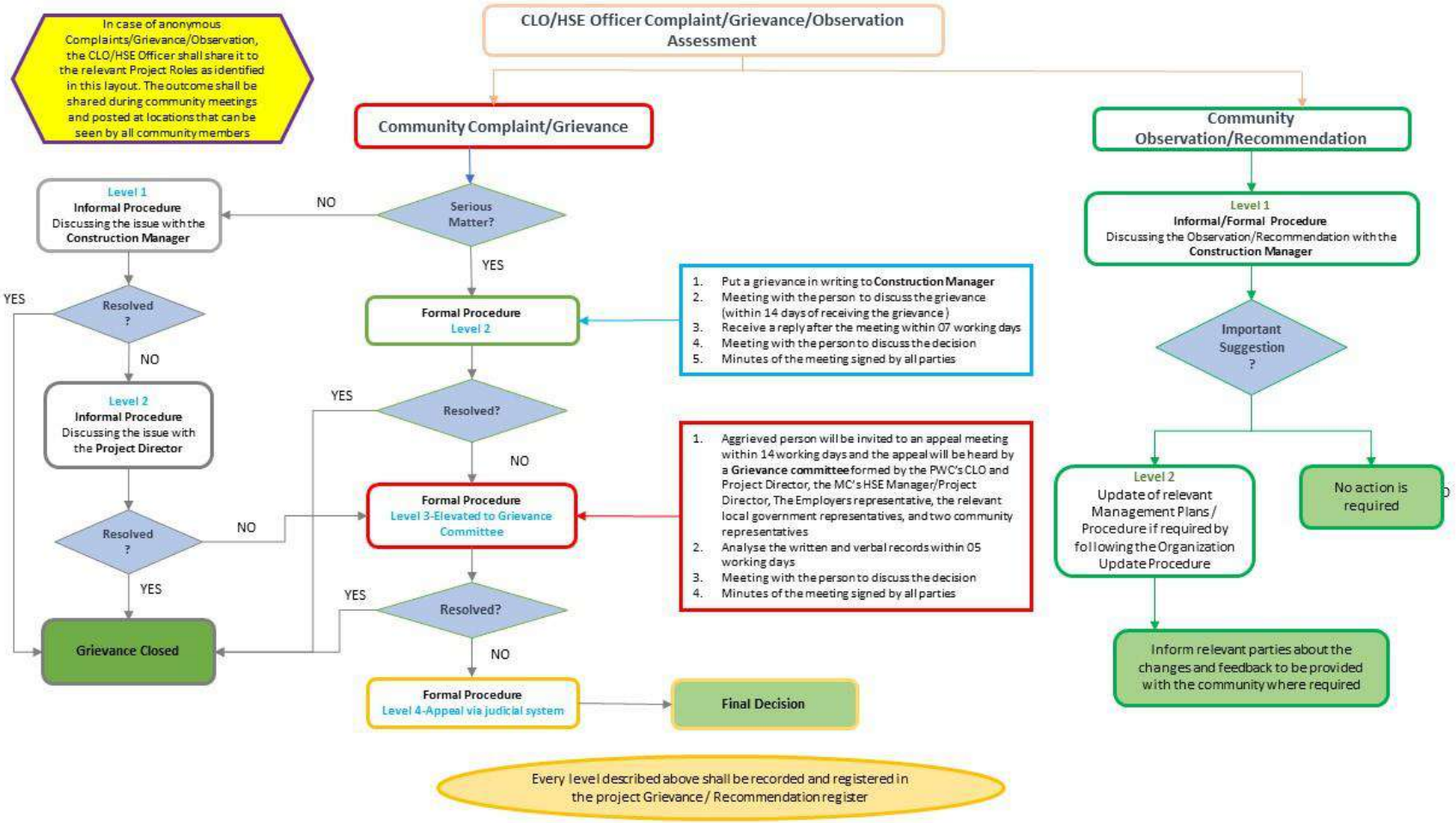


Figure 3: Community Grievance Mechanism Diagram

7 Monitoring

Monitor Stakeholder Engagement is the process of monitoring overall project stakeholder relationships and adjusting strategies and plans for engaging stakeholders. Monitor Stakeholder Engagement involves collecting data, assessing the level of engagement and using insights from the data collection to adjust strategies and tactics for engaging effectively with stakeholders.

As mentioned, the Project will have mechanisms to receive ongoing direct feedback from key stakeholders, including regular meetings, emergency contact number on Projects gate, project directors open to discussion at all times, etc. Individual stakeholders will be encouraged to participate and to voice questions and concerns, with the most serious issues and concerns that are raised addressed in a formal, rigorous process through the grievance mechanism.

The project will solicit broad participation in the collection and validation of requirements, which will uncover issues and concerns early on so they can be addressed.

All grievances including grievances raised informally or anonymously from workers and community shall be monitored and recorded. This can be used to upgrade the working performance and relation between construction activities and workers and community. At a minimum, the number of grievances, the close out status, trends in grievance types, complaint type shall be monitored and recorded.

Stakeholders are critical to the project's success. The project team has planned for and will work to involve, engage and listen to all key stakeholders throughout the project lifecycle.

8 Training & Meetings

The Project will conduct a pre-start meeting with all employees and subcontractors. Attendance will be required for all key personnel. The purpose of the meeting is to reinforce to employees and subcontractor's key employees the commitments made by them with regards to the project goals and requirements.

Any received recommendations and/or grievances will be discussed at the beginning of each progress meeting to reinforce project goals and communicate progress to date. Closeout actions shall be agreed if still not in place.

If a new subcontractor joins the Project, the PWC shall present with a copy of the plan and provide a tour throughout the communication procedures.

9 Stakeholder Plan Updates

Note that the Stakeholder Management Plan and associated documents are not static. The stakeholders identified and their information documented in the Stakeholder Analysis Register will be reviewed at least every 6 months and prior commencement of new site to ensure the plan is meeting project expectations and to make modifications if required.

V. Appendices

(to be updated as per project)

Appendix 1: Project Details

Appendix 2: Risk Assessment and Mitigation Measures Plan

Appendix 3: Noise Monitoring Report

Appendix 4: Grievances Forms Templates

Appendix 5: E&S Monitoring & Reporting Template

Appendix 6: Stakeholders Analysis & Activities

Appendix 7: ASGC's Policies

Appendix 8: Emergency Preparedness and Response Plan

Appendix 9: Training Plan

Appendix 10: Method Statements

Appendix 11: Material Safety Data Sheets

L. Permitting Strategy

PSD Permitting Strategy

Permit / Authorization	Risk Category	Approach	Responsible Applicant	Responsible Authority	Timeline
National environmental approval	Low (L)	All categorized as being Low E&S risk will require national environmental approval via approval of the Environmental and Social Management Plan (ESMP) for the relevant Project Component(s). A CESMP is to be developed per Project Component / group of Project Components located within the same eco-region (refer to Figure A below) and to be developed by the same Primary Works Contractor (PWC). The CESMP shall be developed in line with lender standards and submitted to the responsible authority for approval. All CESMPs shall be reviewed by the Lender Independent Environmental and Social Consultant (IESC) and approved by Lender prior to submission to the responsible authority.	AGEROUTE supported by ASGC	Ministry of Environment and Sustainable Development's (MEDD) - Directorate of Environment and Classified Installations (DEEC)	Prior to commencement of construction activities
	Medium / High (M) / (H)	All roads categorized as being Medium/High E&S risk will require an International ESIA to Lender Standards that considers national requirements, and a CESMP to Lender requirements. Based on priority and available information, Ageroute shall periodically release a batch of Project Components for assessment (i.e. Tranche). Project Components located within the same eco-region (see Figure 1 below) shall be grouped for assessment within a single ESIA. As there are six (6)	AGEROUTE supported by ASGC	Ministry of Environment and Sustainable Development's (MEDD) - Directorate of Environment and Classified Installations (DEEC) / National Technical Committee	Prior to commencement of construction activities

Permit / Authorization	Risk Category	Approach	Responsible Applicant	Responsible Authority	Timeline
		ecoregions in Senegal, up to six (6) ESIAs shall be undertaken per Tranche. A CESMP is to be developed per Project Component / group of Project Components located within the same eco-region and to be developed by the same Primary Works Contractor (PWC). A Resettlement Action Plan/Livelihood Restoration Plan (RAP/LRP) shall be developed, in line with Lender requirements and national regulations, for all Project Components involving physical or economic resettlement. A short-list of suitably qualified Senegalese Environmental and Social (E&S) E&S Consulting Firms shall be identified as preferred consultants to undertake the ESIA process. Based on capacity, and complexity of the Project Components, some of the firms may undertake more than one ESIA at a time. The Senegalese E&S consultancy shall be managed by an International E&S Consultancy (to be identified) to ensure alignment with Lender requirements. All ESIAs and associated documentation shall be reviewed by the Lender Independent Environmental and Social Consultant (IESC) and approved by Lender prior to submission to the responsible authority. Figure 2 below provides a graphic representation of the ESIA approval structure. The approval process in terms of the national approval process from submission of notice of Project and the Terms of Reference (ToR) to the DEEC through to approval takes approximately 100 days.			

Permit / Authorization	Risk Category	Approach	Responsible Applicant	Responsible Authority	Timeline
National environmental approval for construction permit	All (L/M/H)	The PWC must submit an application authorization or declaration at the same time as a permit to build following the law N°2001 – 01 of the 15 January 2001 bearing the code of the environment, especially in its Chapter I: facilities classified for the Protection of the environment.	PWC supported by AGEROUTE	Ministry of Environment and Sustainable Development's (MEDD) - Directorate of Environment and Classified Installations (DEEC)	Prior to commencement of construction activities
Borrow License / Authorization for extraction	All (L/M/H)	The PWC shall compile and submit the relevant documentation required as per law no 2016-32 of 8 November 2016 on the Mining Code. The company will pay all related duties and taxes. The use of borrow will be in common agreement with the populations or owners of the targeted areas. The request for authorization to open and operate the temporary quarry is subject to the opinion of the territorially competent regional mining service and the local authority concerned. The permitting process can take up to 45 days, and the permit is valid for a period of 6 months.	PWC	Ministry of Mines and Geology. Local authorities Owners	Prior to commencement of borrow activities
Quarries exploitation	All (L/M/H)	The company must follow the procedure for authorizing loans, in particular the local authorities and water and forestry services and the Ministry of Mines: The Mining Code: Law No. 2003-36 of 24 November 2003. However, the opening and exploitation of quarries require a certain number of administrative prerequisites, namely the payment of royalties and / or authorization from the mining and geology service, felling taxes and / or protocol with the Forest	PWC	Ministry of Mines and Geology. Local authorities Owners	Prior to commencement of activities

Permit / Authorization	Risk Category	Approach	Responsible Applicant	Responsible Authority	Timeline
		department or authorization to felling trees (*refer to item 5*). The company will pay all related duties and taxes. The use of quarries will be in common agreement with the populations or owners of the targeted areas. The permitting process can take up to 45 days, and the permit is valid for a period of 6 months.			
Water Abstraction Permit	All (L/M/H)	The PWC shall compile and submit the relevant documentation required as per law n° 81-13 of 04 March 1981 on the water code and according to its implementing decree n° 98-555 of 25 June 1998 implementing the provisions of the water code relating to the water police. For the exploitation of boreholes, a memorandum of understanding followed by a contract signature must be signed between the Project, the Technical Service, and the administrative authority (Prefect). Law No. 81-13 of 4 March 1981 on the Water Code: provides for the various provisions provided for making it possible to combat water pollution while reconciling the requirements linked to drinking water supply and public health, agriculture, biological life of the environment receptor and fish fauna, site protection and water conservation. Thus, any promoter is required to have the necessary authorizations before any exploitation of water resources to ensure the following principles: the health compliance of resources with WHO standards and the status of this resource as a common good.	PWC	Ministry of Water and Sanitation - Directorate of Water Resources Management and Planning	Prior to abstraction

Permit / Authorization	Risk Category	Approach	Responsible Applicant	Responsible Authority	Timeline
		Water abstraction is subject to either an authorization scheme or a declaration scheme: Law No. 81-13 of 4 March 1981 on the Water Code. Approval process takes approximately 30 days			
Tree Felling Permit	All (L/M/H)	The PWC shall compile and submit the relevant documentation required in accordance with Law No. 98-03 of 8 January 1998 on the Forest Code, any felling of trees as part of this project must comply with the provisions of the Forest Code in terms of authorization and prior payment of taxes.	PWC	Forest Department	Prior to vegetation clearance in specified area
Waste disposal	All (L/M/H)	No special authorization. Refer to Law No. 2001 - 01 of January 15, 2001 of the environment code, article L31: "*Any person who produces or retains waste must ensure its own disposal or recycling or have it disposed of or recycled by companies approved by the Minister responsible for the environment. Failing this, it must hand over this waste to the local community or to any company approved by the State for waste management. This company, or the local community itself, can sign contracts with the producers or holders of waste for their disposal or recycling. Recycling must always be done according to the standards in Senegal*. »		Division for the prevention and control of pollution and nuisances of DEEC	

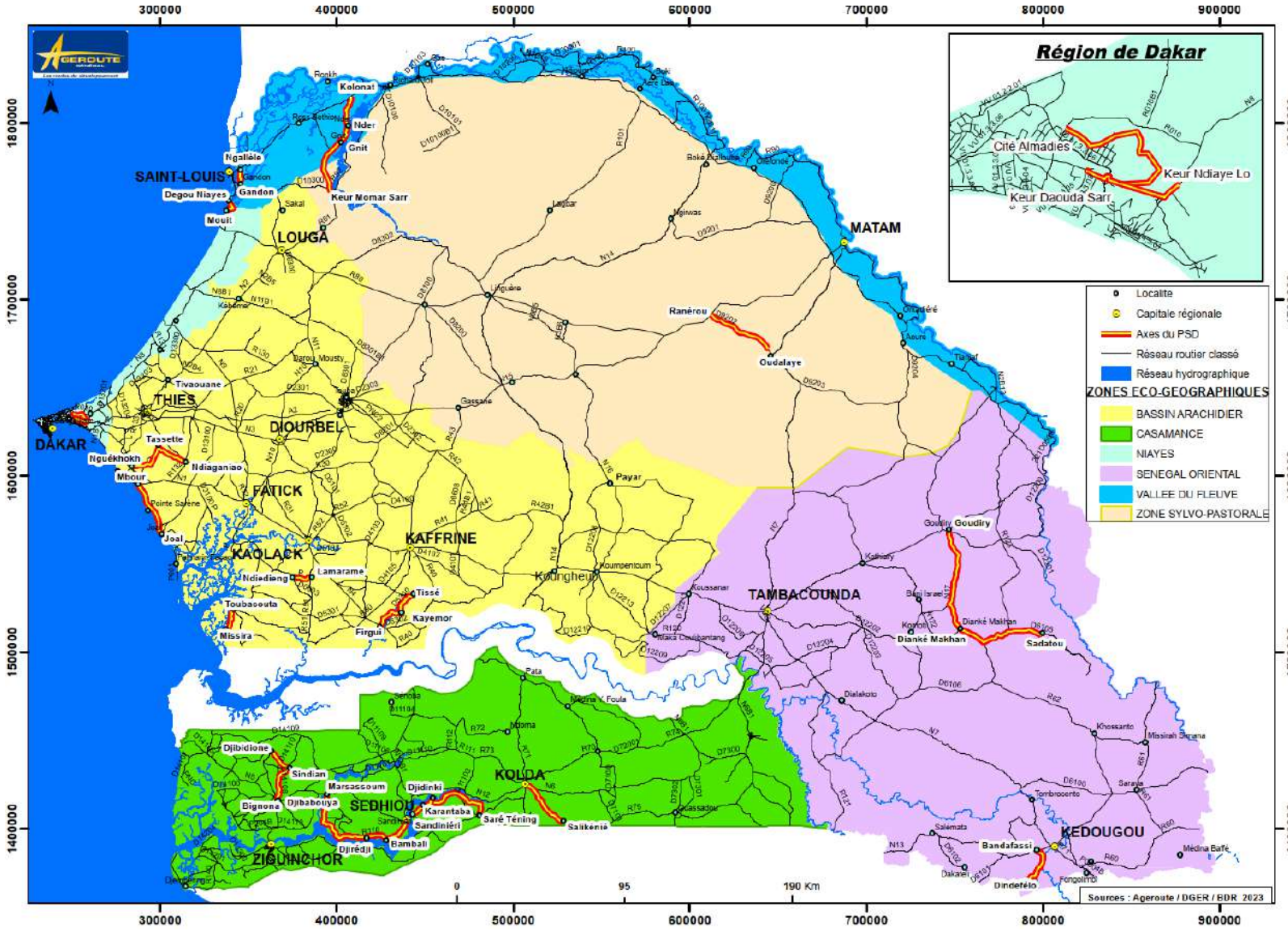


FIGURE N-1: MAP SHOWING 5 SENEGALESE ECO-REGIONS

M. Critical Habitat Assessment Approach

Introduction

A high-level nationwide approach to Critical Habitat Assessment should be undertaken to refine the risk rating for projects and understand what biodiversity risks need to be considered.

Critical Habitat Assessment are a requirement of International Finance Corporation (IFC) Performance Standard 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources (2012) and associated Guidance Note 6 (IFC, 2019) to identify areas of high biodiversity value and areas which would be sensitive to the proposed development.

Critical habitat is a description of the most significant and highest priority areas of the planet for biodiversity conservation. It considers both global and national priority setting systems and builds on the conservation biology principles of 'vulnerability' (degree of threat) and 'irreplaceability' (rarity or uniqueness).

Determination of critical habitat is based upon quantitative thresholds of biodiversity priority, which are largely based on globally accepted precedents such as the International Union for Conservation of Nature (IUCN) Red List (last update 2022) criteria and Key Biodiversity Area (KBA) thresholds.

The identification of critical habitat is based on five criteria set out in PS6:

- C1: Critically endangered and endangered species
- C2: Endemic and restricted-range species
- C3: Migratory and congregatory species.
- C4: Highly threatened or unique ecosystems.
- C5: Key evolutionary processes.

Details of the CH criterion are provided in Table 10.

TABLE 9: Critical Habitat Criterion

IFC CRITERION TYPE	DEFINITION	THRESHOLD VALUES
Criterion 1: Critically Endangered and Endangered Species	Species threatened with global extinction and listed as CR and EN on the IUCN Red List of Threatened Species shall be considered as part of Criterion 1. Critically Endangered species face an extremely high risk of extinction in the wild. Endangered species face a very high risk of extinction in the wild.	(a) areas that support globally important concentrations of an IUCN Red-listed EN or CR species (≥ 0.5% of the global population and ≥ 5 reproductive units of a CR or EN species); The IUCN KBA Standard definition of reproductive unit: "the minimum number and combination of mature individuals necessary to trigger a successful reproductive event at a site (Eisenberg 1977). Examples of five reproductive units include five pairs, five reproducing females in one harem, and five reproductive individuals of a plant species." (b) Areas that support globally important concentrations of an IUCN Red-listed VU species, the loss of which would result in the change of the IUCN Red List status to EN or CR and meet the thresholds in (a). (c) As appropriate, areas containing nationally/regionally important concentrations of an IUCN Red-listed EN or CR species.
Criterion 2 Endemic and Restricted-range Species	The term endemic is defined as restricted range. Restricted range refers to a limited extent of occurrence (EOO). For terrestrial vertebrates and plants, a restricted-range species is defined as those species that have an EOO less than 50,000 km^2. For marine systems, restricted-range species are provisionally being considered those with an EOO of less than 100,000 km^2. For coastal, riverine and other aquatic species in habitats that do not exceed 200 km width at any point (e.g., rivers), restricted range is defined as having a global range less than or equal to 500 km linear geographic span (i.e., the distance between occupied locations furthest apart).	(a) areas that regularly hold ≥10% of the global population size AND ≥10 reproductive units of a species.
Criterion 3: Migratory and Congregatory Species	Migratory species are defined as any species of which a significant proportion of its members cyclically and predictably move from one geographical area to another (including within the same ecosystem). Congregatory species are defined as species whose individuals gather in large groups on a cyclical or otherwise regular and/or predictable basis. For example:	(a) areas known to sustain, on a cyclical or otherwise regular basis, ≥ 1 percent of the global population of a migratory or congregatory species at any point of the species' lifecycle. (b) areas that predictably support ≥10 percent of the global population of a species during periods of environmental stress.

IFC CRITERION TYPE	DEFINITION	THRESHOLD VALUES
	Species that form colonies. Species that form colonies for breeding purposes and/or where large numbers of individuals of a species gather at the same time for non-breeding purposes (e.g., foraging, roosting). Species that move through bottleneck sites where significant numbers of individuals of a species pass over a concentrated period of time (e.g., during migration). Species with large but clumped distributions where a large number of individuals may be concentrated in a single or a few sites while the rest of the species is largely dispersed. Source populations where certain sites hold populations of species that make an inordinate contribution to recruitment of the species elsewhere (especially important for marine species).	
Criterion 4: Highly Threatened or Unique Ecosystems	The IUCN is developing a Red List of Ecosystems, following an approach similar to the Red List for Threatened Species (see https://iucnrle.org). This should be used where possible. Where an IUCN assessment has not been performed, an assessment should be made using systematic methods at the national/regional level, carried out by governmental bodies, recognized academic institutions and/or other relevant qualified organizations (including internationally recognized NGOs).	(a) areas representing ≥5% of the global extent of an ecosystem type meeting the criteria for IUCN status of CR or EN. (b) other areas, not yet assessed by IUCN, but determined to be of high priority for conservation by regional or national systematic conservation planning.
Criterion 5: Key Evolutionary Processes	Maintaining physical or spatial features which are of importance for evolutionary and ecological processes. Such features are often associated with species diversification. By conserving species diversity within a landscape, the processes that drive speciation, as well as the genetic diversity within species, ensures the evolutionary flexibility in a system, which is especially important in a rapidly changing climate.	No thresholds

The Critical Habitat Assessment process involves the following steps:

- Secondary data collection
- Creating a long list
- Determining Ecological Appropriate Area of Analysis
- Screening (including assessment for ecosystems)

Secondary data collection

A desk study should be undertaken to provide data on habitats and species of conservation concern.

Table 11 provides examples of some useful sources of information.

TABLE 10: Sources of Secondary Data for CHA

PROVIDER/SOURCE	LINK	USE OR TYPE OF INFORMATION PROVIDED
Bird Life - Datazone	http://datazone.birdlife.org	**KBA and IBA sites** – location and species information
Global forest watch	https://www.globalforestwatch.org/map/	Provides information on land cover, and forest types.
IBAT	https://www.ibat-alliance.org/	Provides data on **protected areas and species**.
IUCN Red List	https://www.iucnredlist.org/	Data on **Protected Species**.
GBIF	https://www.gbif.org/	**Biodiversity Data Portal**
Protected Planet	https://www.protectedplanet.net/en	Information on **protected areas**
Alliance for Zero Extinction (AZE)	https://zeroextinction.org/	Information on **AZE sites** and the species they contain
EDGE of existence	https://www.edgeofexistence.org/	Information on species that are on the verge of extinction
Amphibian web	https://amphibiaweb.org/index.html	Information on amphibian declines, natural history, conservation, and taxonomy.
Global 200 Ecoregions WWF	https://www.worldwildlife.org/publications/global-200	Data relating to Ecoregions.
IUCN Ecosystems	https://iucnrle.org/assessments/	Status of a number of ecosystems.
Fishbase	https://www.fishbase.se/search.php	Data relating to fish
Convention on Biological Diversity Country Profiles	https://www.cbd.int/	Understanding of threats, trends and priorities for the country

Creating a long-list

Using the data collected through the desk study the first step is to screen species present to identify candidate species that might possibly trigger critical habitat to create a longlist. The outputs of this screening process. The long list will involve an initial screening of species against the five critical habitat criteria. For a national approach to CHA this long list is likely to include a list of all range restricted, IUCN Vulnerable and above species and those forming significant congregations within the country. It will be important at this stage to provide data on habitat associations and geographical ranges (potentially through the purchase of shapefiles through IBAT) to help streamline the subsequent stages of assessment.

Determining Ecological Appropriate Area of Analysis

The Ecological Appropriate Area of Analysis (EAAA) is the geographic area considered during the critical habitat assessment. This area is specific to each feature considered within the assessment. The approximate location of a project and its Area of Influence are considered when establishing an EAAA but the project type, its impacts and its mitigation strategy are irrelevant when determining if critical habitat is present within the EAAA. They can be developed for individual species or groups of species depending on the context of the assessment. For a national approach the EAAA may need to correspond directly to the species range.

Screening

Where possible, the following information was collected about the biodiversity features identified whilst creating the long list:

- estimates of population size at the global and national levels
- estimates of population density at the global and national levels
- ranges of extent of occurrence (EOO) at the global and national levels
- distribution maps of species ranges
- area of occupancy (AOO) at the global and national levels
- reproductive units of a species at the global and national levels (i.e. number of breeding pairs)
- reliable records of species distribution and numbers and reproductive units within known protected areas relevant to the area of analysis and the surrounding landscapes.

Candidate features can then be screened against the IFC critical habitat criteria to determine critical habitat.

When considering the threshold criteria relevant to a species, the proportion of the global (or national) population represented by the units of analysis is based on the estimates of population size and/or its geographical extent and, for some criterion, the number of reproductive units. The output value is a percentage of the extent of the species' global or national population (and reproduction units) in which the EAAA covers.

For some species, the geographical extent of the population within the area of analysis is estimated by dividing the area of analysis by the known home range of an individual animal. Hence, if the global range of a species covers 1,000 km^2 and 100 km^2 of this range is included within the EAAA, the proportion is 10%. For some species where the estimated numbers of individuals per population and reproductive units are known, at the global scale and within the area of analysis (i.e. a protected area species account) the proportion was calculated as a percentage.

In some instances, the EOO or AOO is used as a proxy for population size. For many species, particularly those that face a very high risk of extinction, there is little data available and hence a precautionary approach is needed.

Assessment for ecosystems

The IUCN is developing a Red List of Ecosystems (IUCN-CEM, 2016; IFC, 2019), following a similar approach to the IUCN Red List of Threatened Species (2021). Where formal IUCN assessments of ecosystems have been undertaken, these can be used to assess habitats for Criterion 4.

Where no formal IUCN assessments have been undertaken, habitats may trigger Criterion 4 if they are determined to be of high priority for conservation by regional or national systematic conservation planning.

For assessment under Criterion 5 the structural attributes of a region, such as its topography, geology, soil, temperature and vegetation, and combinations of these variables, can influence the evolutionary processes that give rise to regional configurations of species and ecological properties (IFC, 2019). Guidance Note 6 (2019) provides the following examples of spatial features associated with evolutionary processes include:

- Landscapes with high spatial heterogeneity, which are a driving force in speciation as species are naturally selected on their ability to adapt and diversify
- Environmental gradients, or ecotones, which produce transitional habitat which has been associated with the process of speciation and high species and genetic diversity
- Edaphic interfaces which are specific juxtapositions of soil types (e.g. serpentine outcrops and limestone deposits) which have led to the formation of unique plant communities characterised by both rarity and endemism
- Connectivity between habitats ensures species migration and gene flow
- Sites of demonstrated importance to climate change adaptation for either species of ecosystems.

Guidance Note 6 (paragraph 81, 2019) states that in the majority of cases, this criterion will be triggered in areas that have been previously investigated and that are already known or suspected to be associated with unique evolutionary processes. It is further noted that while systematic methods to measure and prioritise evolutionary processes in a landscape do exist, they are typically beyond a reasonable expectation of studies conducted by the private sector.

Output

A typical Critical Habitat Assessment will result in a final table of a handful of species and habitats that trigger critical habitat. This national approach should provide a wider assessment and is likely to result in a list of potential triggers for each region or ecosystem that will form the focus of any further biodiversity studies within that ecosystem or region.

N. Monitoring and Reporting Framework

Below outline the proposed monitoring and reporting framework for the Project. The framework is subject to amendment through the next stages of the project in alignment with lender requirements.

Monitoring and Reporting Framework

Level	Party	Monitoring	Risk Category	Responsible	Reporting[1]	Auditing
Project Component (PC)	PWC	Daily/Weekly/Monthly monitoring as per Section 12.1 of the ESMP – of PWC and subcontractors' activities. Includes daily site walkovers, weekly inspections, and sampling/analysis as per required schedules.	All (L/M/H)[2]	PWC HSE Officer (minimum 1 per PC) and HSE Manager Project Director responsible for ensuring that arrangements are in place to close out all non-compliances.	Daily site diary / logs (internal) Weekly inspection report identifying non-compliances (NC's) (internal to PWC senior management) – findings presented at weekly progress meetings (internal) Monthly HSE report prepared consolidating weekly results - submitted to the MC (external)	Bi-annual (every 6 months) HSE audit of subcontractors undertaken by PWC Annual HSE audit (internal) undertaken - in conjunction with the MC - and a full and detailed audit report prepared
	MC	Bi-Weekly[3] site walkovers (every 2 weeks).	L	MC HSE Officer[4]	Site walkover summary report	Annual HSE audit of PWC undertaken by MC - and a full
		Weekly[5] site walkovers	M/H	MC HSE Officer[6]		

[1] HSE non-conformances / incidents resulting in significant E&S damage / impact, or Lost-time injury (LTI) is to be reported to the MC within 24 hours of occurrence. MC is to notify Lenders within 24 hours of receipt of notice from PWC.

[2] Low (L), Medium (M), High (H)

[3] For first 3 months – thereafter frequency to be adjusted to less frequent dependent on compliance results - in agreement with lenders

[4] HSE Officer/Steward to be responsible for more than one PC – dependent on logistics and risk categories

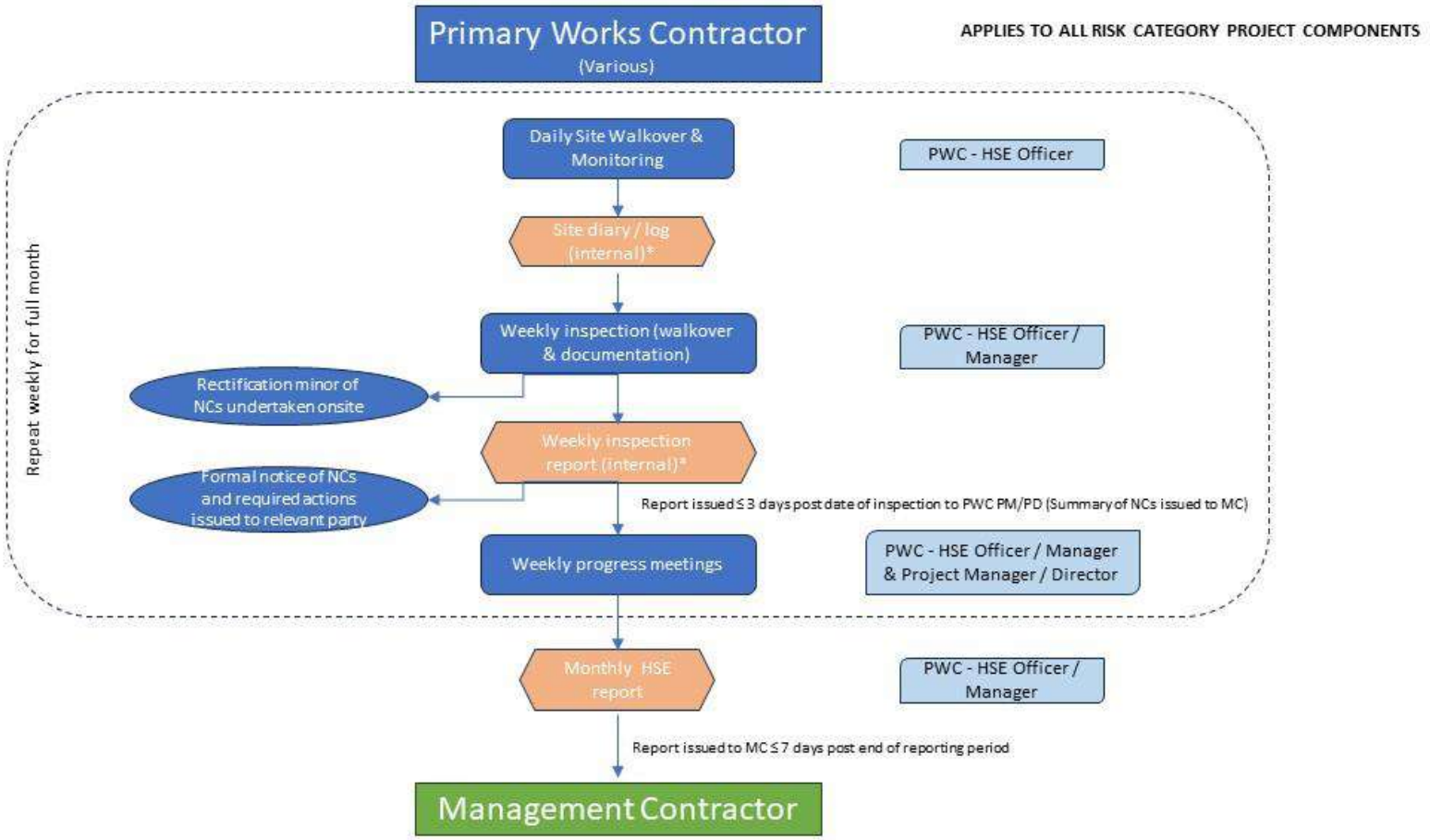
[5] For first 3 months – thereafter frequency to be adjusted to less frequent dependent on compliance results - in agreement with lenders

[6] HSE Officer/Steward to be responsible for more than one PC – dependent on logistics and risk categories

Level	Party	Monitoring	Risk Category	Responsible	Reporting[1]	Auditing
					NCR's issued to PWC (if required)	and detailed audit report prepared
		Monthly[1] inspections of the PWC's work areas and review project HSE arrangements and displacement process (where applicable) *(≤ 2 weeks post receipt of PWC Monthly HSE report)*	All (L/M/H)	MC HSE Officer / Manager Social Specialist (where applicable)	Inspection report	
Tranche	MC	Bi-annually (every 6 months) the PC monitoring reports for the period are compiled into single Self-Monitoring Report	All (L/M/H)	MC HSE Officer / Manager HSE Director	Self-Monitoring Report	Auditing undertaken at PC level
	Lenders	Ad-hoc – Lenders can undertake site visit at any time. Periodic – Review of monitoring reports submitted by MC	All (L/M/H)	Lender Case Officer (supported by Lender team)	Internal	Ad-hoc – Lenders can undertake audit at any time.
Project	MC	Annually the self-monitoring reports for the period shall be summarized into a Project Summary Report	All (L/M/H)	MC HSE Officer / Manager HSE Director	Project Summary Report	Auditing undertaken at PC level
	Lenders	Ad-hoc – Lenders can undertake site-visit at any time. Periodic – Review of monitoring reports submitted by MC	All (L/M/H)	Lender Case Officer (supported by Lender team)	Internal	Ad-hoc – Lenders can undertake audit at any time.

The Monitoring and Reporting Framework is illustrated in the Figures N-1 to N-3 below (see overleaf):

[1] For first 3 months – thereafter frequency to be adjusted to less/more frequent dependent on compliance results - in agreement with lenders



*All internal documentation shall be available for inspection / audit purposes

FIGURE N-1: PWC - MONITORING AND REPORTING FRAMEWORK

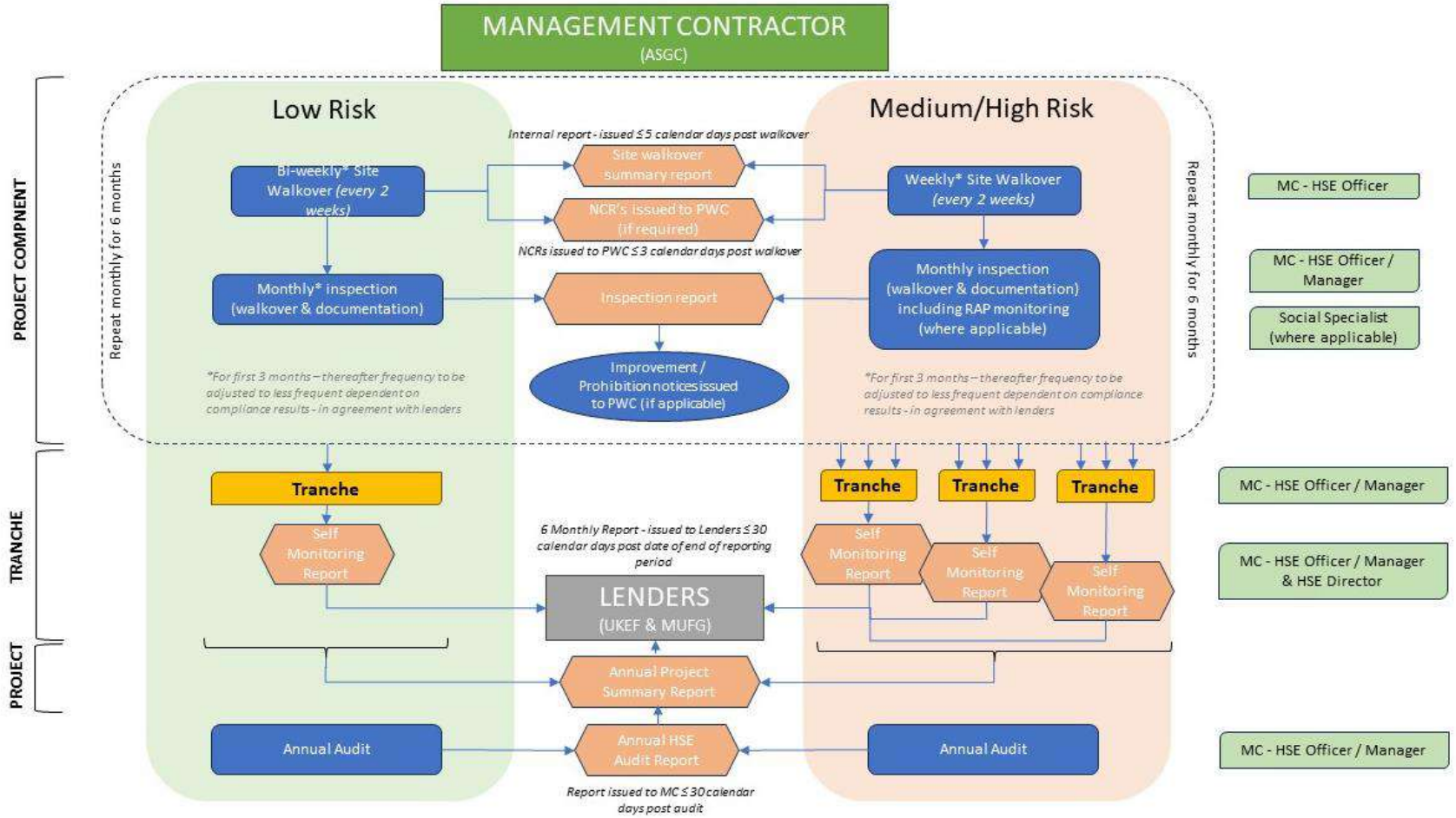


FIGURE N-2: MC - MONITORING AND REPORTING FRAMEWORK

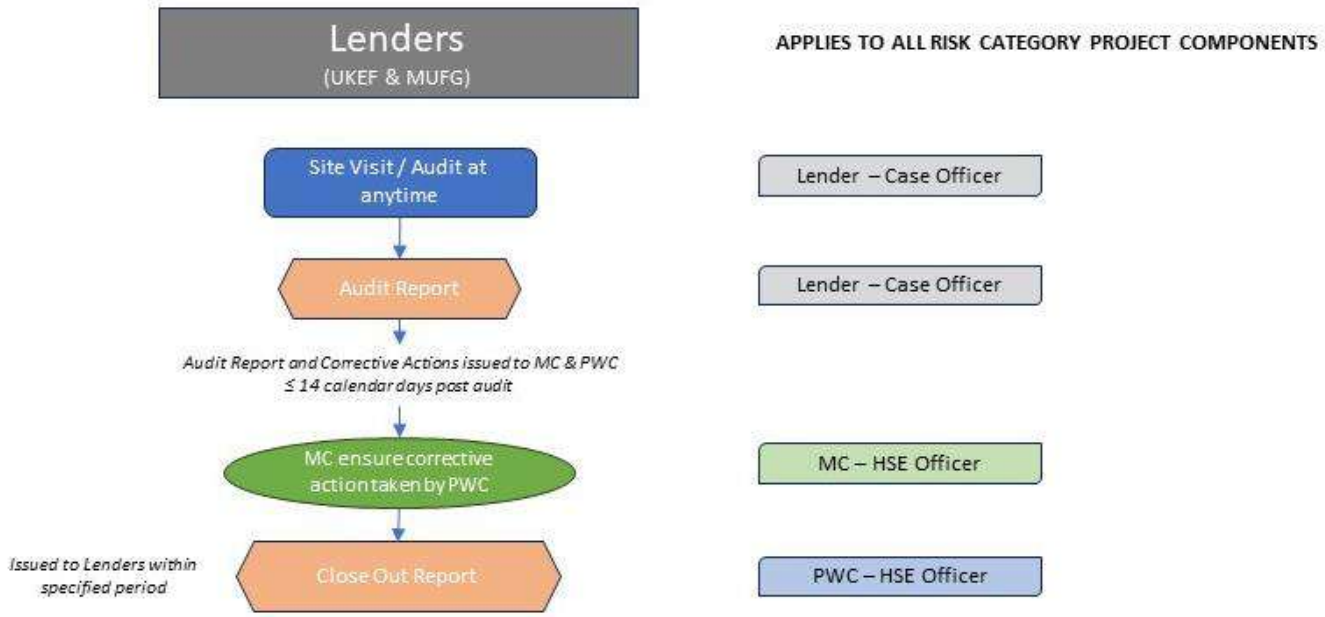


FIGURE N-3: LENDER - MONITORING AND REPORTING FRAMEWORK