

東南亞日本 2 號(SJC2)海纜 建設計畫

SJC2 S5A(枋山)及 S5(淡水)區段

海纜鋪設作業資料

申請單位（所有人）：中華電信股份有限公司 國際電信分公司

中華民國 111 年 03 月

# 目 錄

1. SJC2 海纜鋪設作業相關許可文件 .....	3
2. SJC2 海纜鋪設作業內容 .....	4
3. SJC2 海纜鋪設作業區域圖、路由位置表 (RPL) 及作業時程 .....	5
3.1 SJC2(台灣附近區段)鋪設作業區域圖 .....	5
3.2 SJC2 海纜系統路由位置表 (RPL) .....	6
3.3 SJC2 S5A 枋山區段 (枋山登陸點至 24 哩範圍內) .....	9
3.3A SJC2 S5A (枋山區段) 海纜鋪設作業預定時程 .....	10
3.4 SJC2 S5 淡水區段 (淡水登陸點至 24 哩範圍內) .....	11
3.4A SJC2 S5 (淡水區段) 海纜鋪設作業預定時程 .....	12
4. SJC2 海纜鋪設作業船舶(含船舶彩色照片、基本資料及其設備) .....	13
4.1 「世界路號(SEGERO)」鋪設作業船舶與設備資料 .....	13
4.1A 「世界路號(SEGERO)」人員名單 .....	16
4.2 「未來路號 (M/V MIRAERO)」鋪設作業船舶與設備資料 .....	18
4.2A 「未來路號 (M/V MIRAERO)」人員名單 .....	22

## 1. SJC2 海纜鋪設作業相關許可文件

### 東南亞日本 2 號(SJC2)海纜建設計畫

#### 主管機關核准文件列表

項次	項 目	主管機關	發文日期	文號
1	海底電纜路線勘測成果報告已予備查函	內政部	108.11.27	台內地字第 1080148438 號
2	海底電纜預定路由沿線之水下文化資產調查成果報告書同意備查函	文化部	109.03.11	文授資局物字第 1093002770 號
3	依「非都市土地使用管制規則」第 6 之 2 規定審查許可函，並核發海域用地區位許可證明	內政部	109.05.22	台內營字第 1090809036 號
4	一海岸管理法第 25 條規定許可函	內政部	109.06.17	台內營字第 1090809463 號
5	海底電纜鋪設路線許可同意函	內政部	109.05.17	台內地字第 1090117413 號
6	海底電纜鋪設路線許可同意函 (展延至 111 年 12 月 31 日)	內政部	110.07.05	台內地字第 1100124123 號
7	「世界路號 SEGERO」 非本國籍工作船來台作業同意辦理函	交通部 航港局	111.02.16	航北字第 1113100998 號
8	「未來路號 Miraero」 非本國籍工作船來台作業同意辦理函	交通部 航港局	111.02.16	航北字第 1113100998 號

## 2. SJC2 海纜鋪設作業內容

### ● 海纜鋪設前準備階段：海纜船隊調度及作業前準備

#### ◆ 作業項目：

- 施工前海纜船隊調度準備（鄰近各國作業許可確認）
- 海纜檢驗與運送
- 施工通告發佈
- 海纜船施工前會議

### ● 第一階段作業：海纜路線清理、海纜登陸及鋪設

#### (A) 海纜路線清理作業(RC & PLGR)

- 作業範圍：SJC2 海纜系統自海纜岸端人孔（BMH）至 15 公尺等深線區域
- 作業內容：執行海纜鋪設前路線清理（RC & PLGR）工作

#### (B) 岸端作業（海纜登陸）

- 作業範圍：岸端人孔(BMH) 至海纜船登陸停駐點(PLDN)15 公尺等深線
- 作業項目：海纜登陸及海纜登陸後岸端復原

#### (C) 近岸作業（近岸端保護管設置作業）

- 作業範圍：岸端人孔(BMH) 至安裝海纜鑄鐵保護管作業區
  - 作業項目：登陸完成後潛水人員進行海纜埋設/安裝海纜鑄鐵保護管作業
- 備註：枋山（S5A）區段近岸作業部份已完成）**

#### (D) 離岸作業（海纜埋設作業）

- 作業範圍：15 公尺等深線至 500 公尺等深線沿線之海纜系統鋪設區域
- 作業內容：海纜鋪設及犁埋作業（完成海纜登陸、測試海纜光電特性、且一切正常後，海纜船將開始往台灣領海水深 500 公尺處執行海纜鋪設及犁埋作業）

#### (E) 離岸作業（海纜直鋪與海纜分岔器 BU 接續、設置作業）

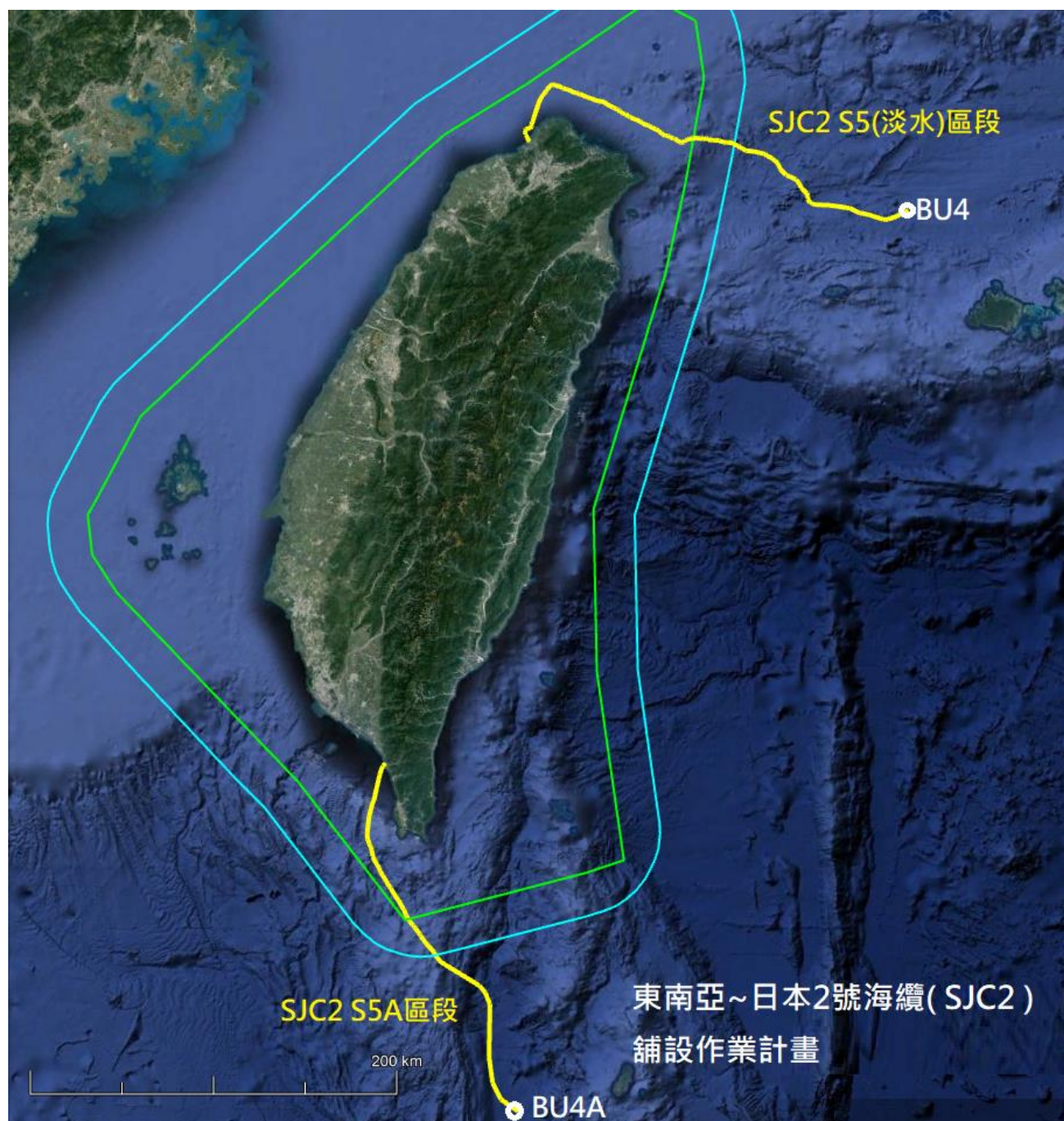
- 作業範圍：海纜系統自 500 公尺等深線以上沿線之海纜系統鋪設區域
- 作業內容：佈纜船海纜直鋪鋪設作業

### ● 第二階段作業：海纜鋪設後檢查作業(PLIB)

- 作業範圍：海纜埋設區域
- 作業內容：水下遙控無人載具（ROV）檢查與噴埋作業  
海纜鋪設完成後，在犁埋機埋深不足處、天候影響海纜埋設作業、海纜交會、海纜接續點等區段，利用水下遙控無人載具（ROV），在上述區段執行海纜鋪設後檢查工作，如發現海纜埋深不足處，則以 ROV 執行海纜噴埋工作，確保海纜安全無虞。

### 3. SJC2 海纜鋪設作業區域圖、路由位置表（RPL）及作業時程

#### 3.1 SJC2(台灣附近區段)鋪設作業區域圖



### 3.2 SJC2 海纜系統路由位置表 (RPL)

#### (1) SJC2-S5：台灣淡水至 BU4 路由位置表 (RPL)

#	緯度	經度	AC Point
1	N 25° 11.293'	E 121° 24.928'	淡水 BMH
2	N 25° 11.293'	E 121° 24.921'	AC1
3	N 25° 11.293'	E 121° 24.920'	AC2
4	N 25° 11.293'	E 121° 24.914'	AC3
5	N 25° 11.293'	E 121° 24.910'	AC4
6	N 25° 11.293'	E 121° 24.900'	AC5
7	N 25° 11.293'	E 121° 24.896'	AC6
8	N 25° 11.293'	E 121° 24.890'	AC7
9	N 25° 11.293'	E 121° 24.885'	AC8
10	N 25° 11.293'	E 121° 24.875'	AC9
11	N 25° 11.295'	E 121° 24.867'	AC10
12	N 25° 11.307'	E 121° 24.832'	AC11
13	N 25° 11.309'	E 121° 24.830'	AC12
14	N 25° 11.312'	E 121° 24.826'	AC13
15	N 25° 11.314'	E 121° 24.823'	AC14
16	N 25° 11.321'	E 121° 24.820'	AC15
17	N 25° 11.324'	E 121° 24.818'	AC16
18	N 25° 11.332'	E 121° 24.816'	AC17
19	N 25° 11.342'	E 121° 24.811'	AC18
20	N 25° 11.360'	E 121° 24.802'	AC19
21	N 25° 11.383'	E 121° 24.798'	AC20
22	N 25° 11.408'	E 121° 24.789'	AC21
23	N 25° 11.713'	E 121° 24.608'	AC22
24	N 25° 13.109'	E 121° 23.870'	AC23
25	N 25° 13.376'	E 121° 23.771'	AC24
26	N 25° 13.487'	E 121° 23.631'	AC25
27	N 25° 14.637'	E 121° 23.428'	AC26
28	N 25° 14.857'	E 121° 23.471'	AC27
29	N 25° 15.011'	E 121° 23.634'	AC28
30	N 25° 15.296'	E 121° 25.198'	AC29
31	N 25° 15.378'	E 121° 25.312'	AC30
32	N 25° 15.617'	E 121° 25.460'	AC31
33	N 25° 15.914'	E 121° 25.534'	AC32
34	N 25° 16.242'	E 121° 25.532'	AC33
35	N 25° 16.751'	E 121° 25.682'	AC34
36	N 25° 17.442'	E 121° 26.007'	AC35
37	N 25° 22.345'	E 121° 27.743'	AC36
38	N 25° 23.811'	E 121° 28.489'	AC37
39	N 25° 24.623'	E 121° 29.097'	AC38
40	N 25° 25.012'	E 121° 29.528'	AC39
41	N 25° 25.724'	E 121° 30.094'	AC40

#	緯度	經度	AC Point
42	N 25° 25.975'	E 121° 30.216'	AC41
43	N 25° 26.078'	E 121° 30.292'	AC42
44	N 25° 26.359'	E 121° 30.599'	AC43
45	N 25° 26.983'	E 121° 31.097'	AC44
46	N 25° 27.234'	E 121° 31.422'	AC45
47	N 25° 27.442'	E 121° 31.870'	AC46
48	N 25° 27.515'	E 121° 32.099'	AC47
49	N 25° 27.537'	E 121° 32.384'	AC48
50	N 25° 27.448'	E 121° 32.978'	AC49
51	N 25° 26.891'	E 121° 34.448'	AC50
52	N 25° 26.400'	E 121° 35.380'	AC51
53	N 25° 26.220'	E 121° 36.338'	AC52
54	N 25° 26.080'	E 121° 36.917'	AC53
55	N 25° 25.527'	E 121° 38.043'	AC54
56	N 25° 25.133'	E 121° 39.083'	AC55
57	N 25° 25.053'	E 121° 39.637'	AC56
58	N 25° 24.806'	E 121° 40.425'	AC57
59	N 25° 24.698'	E 121° 40.619'	AC58
60	N 25° 24.269'	E 121° 41.867'	AC59
61	N 25° 23.853'	E 121° 42.739'	AC60
62	N 25° 23.693'	E 121° 43.423'	AC61
63	N 25° 22.801'	E 121° 45.746'	AC62
64	N 25° 22.642'	E 121° 46.420'	AC63
65	N 25° 22.516'	E 121° 47.071'	AC64
66	N 25° 22.436'	E 121° 47.608'	AC65
67	N 25° 22.132'	E 121° 48.448'	AC66
68	N 25° 21.323'	E 121° 49.767'	AC67
69	N 25° 20.625'	E 121° 51.171'	AC68
70	N 25° 20.261'	E 121° 52.086'	AC69
71	N 25° 20.078'	E 121° 52.445'	AC70
72	N 25° 19.868'	E 121° 52.695'	AC71
73	N 25° 19.645'	E 121° 53.142'	AC72
74	N 25° 19.400'	E 121° 53.426'	AC73
75	N 25° 18.957'	E 121° 54.146'	AC74
76	N 25° 18.682'	E 121° 54.928'	AC75
77	N 25° 18.175'	E 121° 55.862'	AC76
78	N 25° 18.026'	E 121° 56.178'	AC77
79	N 25° 17.830'	E 121° 56.457'	AC78
80	N 25° 17.688'	E 121° 56.867'	AC79
81	N 25° 17.296'	E 121° 57.519'	AC80
82	N 25° 17.136'	E 121° 58.189'	AC81

#	緯度	經度	AC Point
83	N 25° 16.146'	E 122° 00.180'	AC82
84	N 25° 15.822'	E 122° 00.615'	AC83
85	N 25° 15.653'	E 122° 01.006'	AC84
86	N 25° 15.398'	E 122° 01.914'	AC85
87	N 25° 15.310'	E 122° 02.134'	AC86
88	N 25° 15.033'	E 122° 02.525'	AC87
89	N 25° 14.597'	E 122° 03.449'	AC88
90	N 25° 14.171'	E 122° 04.592'	AC89
91	N 25° 13.614'	E 122° 05.445'	AC90
92	N 25° 13.238'	E 122° 06.109'	AC91
93	N 25° 12.730'	E 122° 06.593'	AC92
94	N 25° 12.496'	E 122° 07.039'	AC93
95	N 25° 12.308'	E 122° 07.488'	AC94
96	N 25° 12.258'	E 122° 07.858'	AC95
97	N 25° 12.244'	E 122° 08.285'	AC96
98	N 25° 12.095'	E 122° 08.701'	AC97
99	N 25° 11.509'	E 122° 09.779'	AC98
100	N 25° 11.413'	E 122° 09.897'	AC99
101	N 25° 11.354'	E 122° 10.067'	AC100
102	N 25° 11.326'	E 122° 10.337'	AC101
103	N 25° 11.255'	E 122° 10.528'	AC102
104	N 25° 11.063'	E 122° 10.860'	AC103
105	N 25° 10.733'	E 122° 11.392'	AC104
106	N 25° 10.468'	E 122° 11.875'	AC105
107	N 25° 10.350'	E 122° 12.258'	AC106
108	N 25° 10.302'	E 122° 12.645'	AC107
109	N 25° 10.338'	E 122° 12.974'	AC108
110	N 25° 10.412'	E 122° 13.147'	AC109
111	N 25° 10.860'	E 122° 13.661'	AC110
112	N 25° 10.952'	E 122° 14.081'	AC111
113	N 25° 11.038'	E 122° 14.352'	AC112
114	N 25° 11.086'	E 122° 14.612'	AC113
115	N 25° 11.227'	E 122° 15.068'	AC114
116	N 25° 11.315'	E 122° 15.717'	AC115
117	N 25° 11.377'	E 122° 15.967'	AC116
118	N 25° 11.366'	E 122° 16.269'	12 湊
119	N 25° 11.343'	E 122° 16.948'	AC117
120	N 25° 11.339'	E 122° 17.554'	AC118
121	N 25° 11.307'	E 122° 18.280'	AC119
122	N 25° 11.190'	E 122° 19.073'	AC120
123	N 25° 11.201'	E 122° 20.328'	AC121

#	緯度	經度	AC Point
124	N 25° 11.114'	E 122° 20.768'	AC122
125	N 25° 10.971'	E 122° 21.117'	AC123
126	N 25° 10.737'	E 122° 21.715'	AC124
127	N 25° 10.657'	E 122° 22.217'	AC125
128	N 25° 10.658'	E 122° 22.615'	AC126
129	N 25° 10.724'	E 122° 23.018'	AC127
130	N 25° 10.609'	E 122° 24.092'	AC128
131	N 25° 10.334'	E 122° 24.866'	AC129
132	N 25° 10.079'	E 122° 25.681'	AC130
133	N 25° 09.989'	E 122° 26.506'	AC131
134	N 25° 10.072'	E 122° 26.999'	AC132
135	N 25° 09.817'	E 122° 28.334'	AC133
136	N 25° 09.293'	E 122° 29.311'	24 湊
137	N 25° 08.116'	E 122° 31.502'	AC134
138	N 25° 07.536'	E 122° 32.748'	AC135
139	N 25° 07.302'	E 122° 34.850'	AC136
140	N 25° 06.619'	E 122° 37.937'	AC137
141	N 25° 05.278'	E 122° 40.547'	AC138
142	N 25° 03.836'	E 122° 42.245'	AC139
143	N 25° 01.973'	E 122° 43.192'	AC140
144	N 25° 00.405'	E 122° 44.869'	AC141
145	N 24° 59.060'	E 122° 47.877'	AC142
146	N 24° 57.998'	E 122° 48.872'	AC143
147	N 24° 56.759'	E 122° 49.449'	AC144
148	N 24° 56.039'	E 122° 50.092'	AC145
149	N 24° 55.582'	E 122° 50.686'	AC146
150	N 24° 55.070'	E 122° 51.144'	AC147
151	N 24° 54.317'	E 122° 51.470'	AC148
152	N 24° 53.422'	E 122° 51.506'	AC149
153	N 24° 52.509'	E 122° 52.064'	AC150
154	N 24° 52.050'	E 122° 52.870'	AC151
155	N 24° 51.550'	E 122° 58.334'	AC152
156	N 24° 50.595'	E 123° 04.384'	AC153
157	N 24° 49.184'	E 123° 07.463'	AC154
158	N 24° 48.691'	E 123° 10.121'	AC155
159	N 24° 48.017'	E 123° 12.103'	AC156
160	N 24° 47.241'	E 123° 14.615'	AC157
161	N 24° 47.500'	E 123° 17.139'	AC158
162	N 24° 47.949'	E 123° 18.579'	AC159
163	N 24° 49.617'	E 123° 22.490'	BU4

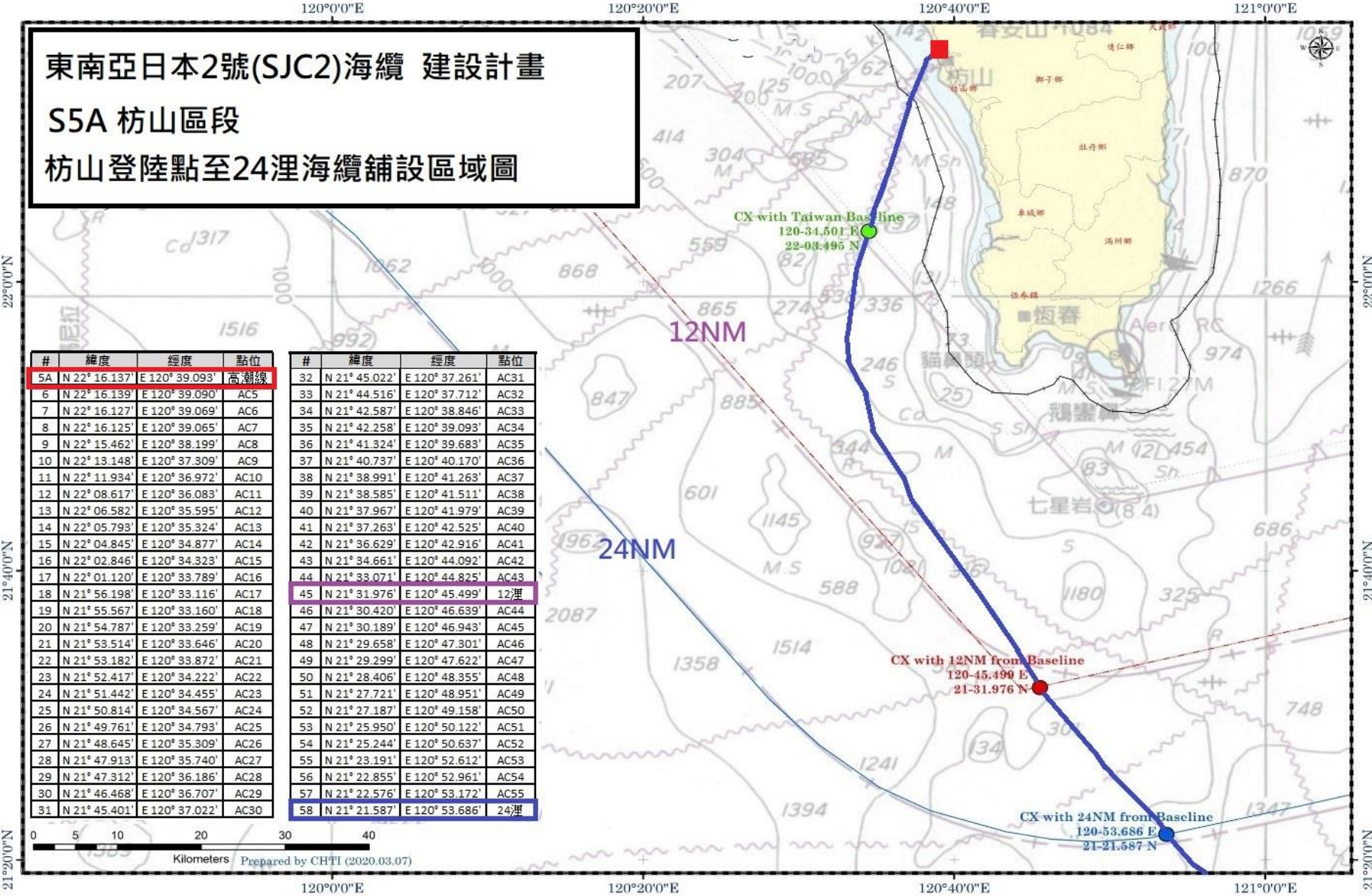
## (2) SJC2-S5A：台灣枋山至 BU4A 路由位置表（RPL）

	緯度	經度	AC Point
1	N 22° 16.171'	E 120° 39.128'	枋山 BMH
2	N 22° 16.170'	E 120° 39.128'	AC1
3	N 22° 16.169'	E 120° 39.128'	AC2
4	N 22° 16.170'	E 120° 39.126'	AC3
5	N 22° 16.150'	E 120° 39.101'	AC4
6	N 22° 16.139'	E 120° 39.090'	AC5
7	N 22° 16.127'	E 120° 39.069'	AC6
8	N 22° 16.125'	E 120° 39.065'	AC7
9	N 22° 15.462'	E 120° 38.199'	AC8
10	N 22° 13.148'	E 120° 37.309'	AC9
11	N 22° 11.934'	E 120° 36.972'	AC10
12	N 22° 08.617'	E 120° 36.083'	AC11
13	N 22° 06.582'	E 120° 35.595'	AC12
14	N 22° 05.793'	E 120° 35.324'	AC13
15	N 22° 04.845'	E 120° 34.877'	AC14
16	N 22° 02.846'	E 120° 34.323'	AC15
17	N 22° 01.120'	E 120° 33.789'	AC16
18	N 21° 56.198'	E 120° 33.116'	AC17
19	N 21° 55.567'	E 120° 33.160'	AC18
20	N 21° 54.787'	E 120° 33.259'	AC19
21	N 21° 53.514'	E 120° 33.646'	AC20
22	N 21° 53.182'	E 120° 33.872'	AC21
23	N 21° 52.417'	E 120° 34.222'	AC22
24	N 21° 51.442'	E 120° 34.455'	AC23
25	N 21° 50.814'	E 120° 34.567'	AC24
26	N 21° 49.761'	E 120° 34.793'	AC25
27	N 21° 48.645'	E 120° 35.309'	AC26
28	N 21° 47.913'	E 120° 35.740'	AC27
29	N 21° 47.312'	E 120° 36.186'	AC28
30	N 21° 46.468'	E 120° 36.707'	AC29
31	N 21° 45.401'	E 120° 37.022'	AC30
32	N 21° 45.022'	E 120° 37.261'	AC31
33	N 21° 44.516'	E 120° 37.712'	AC32
34	N 21° 42.587'	E 120° 38.846'	AC33

	緯度	經度	AC Point
35	N 21° 42.258'	E 120° 39.093'	AC34
36	N 21° 41.324'	E 120° 39.683'	AC35
37	N 21° 40.737'	E 120° 40.170'	AC36
38	N 21° 38.991'	E 120° 41.263'	AC37
39	N 21° 38.585'	E 120° 41.511'	AC38
40	N 21° 37.967'	E 120° 41.979'	AC39
41	N 21° 37.263'	E 120° 42.525'	AC40
42	N 21° 36.629'	E 120° 42.916'	AC41
43	N 21° 34.661'	E 120° 44.092'	AC42
44	N 21° 33.071'	E 120° 44.825'	AC43
45	N 21° 31.976'	E 120° 45.499'	12 哩
46	N 21° 30.420'	E 120° 46.639'	AC44
47	N 21° 30.189'	E 120° 46.943'	AC45
48	N 21° 29.658'	E 120° 47.301'	AC46
49	N 21° 29.299'	E 120° 47.622'	AC47
50	N 21° 28.406'	E 120° 48.355'	AC48
51	N 21° 27.721'	E 120° 48.951'	AC49
52	N 21° 27.187'	E 120° 49.158'	AC50
53	N 21° 25.950'	E 120° 50.122'	AC51
54	N 21° 25.244'	E 120° 50.637'	AC52
55	N 21° 23.191'	E 120° 52.612'	AC53
56	N 21° 22.855'	E 120° 52.961'	AC54
57	N 21° 22.576'	E 120° 53.172'	AC55
58	N 21° 21.587'	E 120° 53.686'	24 哩
59	N 21° 20.812'	E 120° 54.306'	AC57
60	N 21° 19.705'	E 120° 55.335'	AC58
61	N 21° 13.066'	E 121° 06.900'	AC59
62	N 21° 11.072'	E 121° 08.694'	AC60
63	N 21° 07.696'	E 121° 10.038'	AC61
64	N 20° 52.611'	E 121° 09.433'	AC62
65	N 20° 45.237'	E 121° 10.339'	AC63
66	N 20° 40.481'	E 121° 12.759'	AC64
67	N 20° 37.074'	E 121° 17.899'	BU4A



3.3 SJC2 S5A 枋山區段（枋山登陸點至 24 哩範圍內）



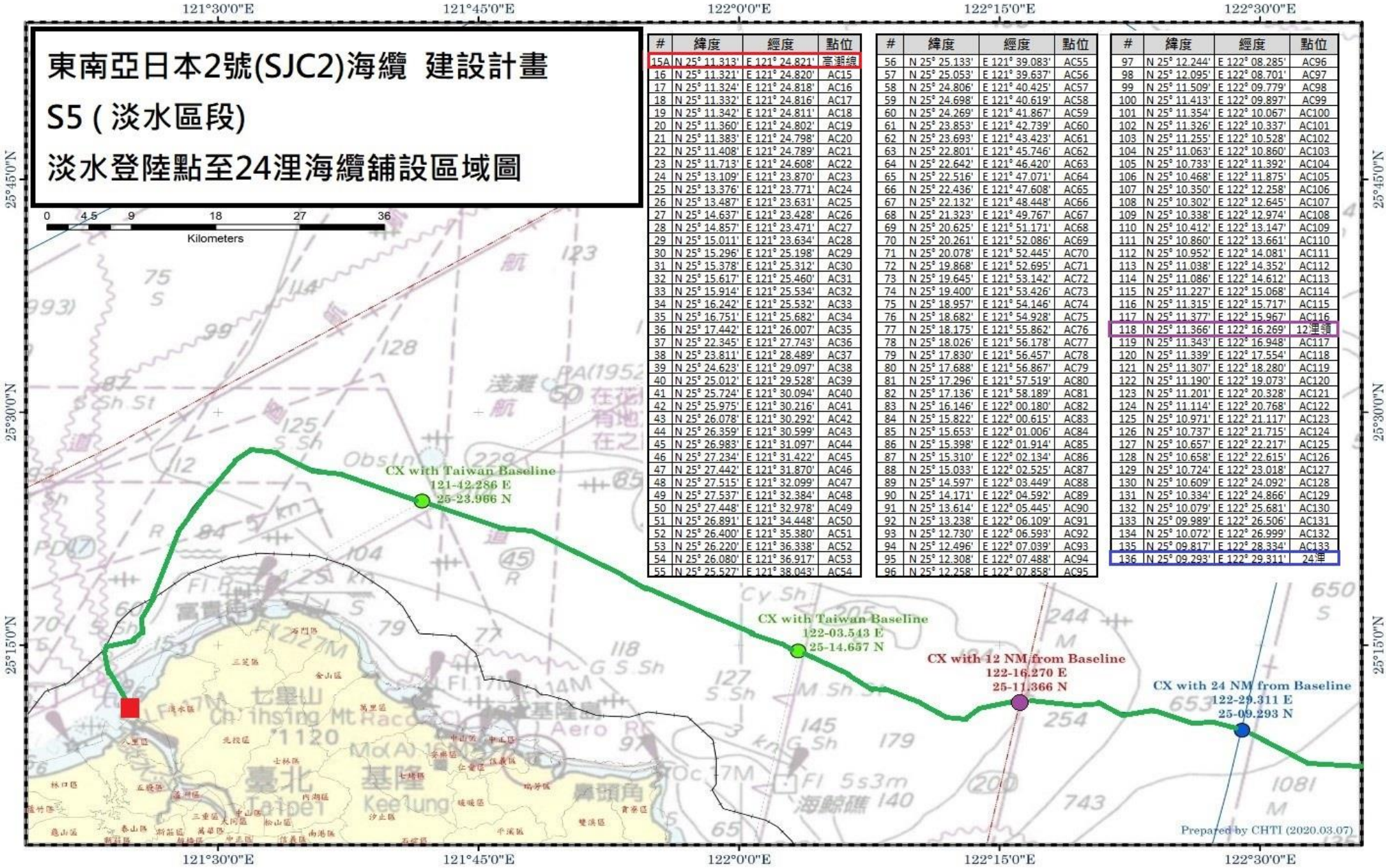
### 3.3A SJC2 S5A（枋山區段）海纜鋪設作業預定時程

工作項目 / 時間	111.03	111.04	111.05	111.06	111.07	111.08	111.09～111.12
<b>第一階段作業：</b> <b>海纜路線清理及鋪設作業</b>							
啓航 S5A（枋山區段）作業區							
(A) 海纜路線清理作業							
(B) 離岸作業（海纜埋設作業）							
(C) 離岸作業（海纜鋪設直鋪作業）							
天候等待及海事備用時間							
<b>第二階段：</b> <b>海纜鋪設後（PLIB）檢查作業</b>							
啓航 S5A（枋山區段）作業區							
海纜鋪設後（PLIB）檢查作業							
天候等待及海事備用時間							

備註：此為預估時程；實際作業期間將視工程進度、當時天候海象狀況、船舶調度以及是否遭遇不可抗力因素（如：COVID-19）而另行調整之。



3.4 SJC2 S5 淡水區段 (淡水登陸點至 24 哩範圍內)



### 3.4A SJC2 S5（淡水區段）海纜鋪設作業預定時程

工作項目 / 時間	111.03	111.04	111.05	111.06	111.07	111.08	111.09~111.12
<b>第一階段作業：</b> <b>海纜路線清理、海纜登陸及鋪設</b>							
啓航 S5（淡水區段）作業區							
(A) 海纜路線清理作業							
(B) 岸端作業（海纜登陸及登陸後復原）							
(C) 離岸作業（海纜埋設作業）							
(D) 離岸作業（海纜直鋪與 BU 設置作業）							
返航基隆港整補							
天候等待及海事備用時間							
<b>第二階段：</b> <b>海纜鋪設後（PLIB）檢查作業</b>							
啓航 S5（淡水區段）作業區							
(A) 海纜鋪設後（PLIB）檢查作業							
天候等待及海事備用時間							

備註：此為預估時程；實際作業期間將視工程進度、當時天候海象狀況、船舶調度以及是否遭遇不可抗力因素（如：COVID-19）而另行調整之。



## 4. SJC2 海纜鋪設作業船舶(含船舶彩色照片、基本資料及其設備)

### 4.1 「世界路號(SEGERO)」鋪設作業船舶與設備資料

- ◆ 主要規格：115.38 m（長）；20.02 m（寬）；12.6 m（深）；
- ◆ 8,323ton（總噸位）；6,409 ton（淨噸位）
- ◆ 船級：特殊儀裝佈纜船（Cabl Ship）
- ◆ 國籍：韓國籍（Korea）
- ◆ MMSI no :441500000； IMO no : 9165188
- ◆ 船呼（Call Sign）：DSPZ4



# 「世界路號 (SEGERO)」技術規格



<http://www.ktsubmarine.co.kr>

## CABLE SHIP

# SEGERO

### Characteristics

General Vessel Name	Cable Ship SEGERO
Flag	Korea
Classification	KR
Year Built	Busan, Korea - April, 1998
Port of Registry	Jeju, Korea
Ship Builder	HANJIN HEAVY INDUSTRY CO. LTD.
Accommodation	62persons

### Principal Dimensions

Length Overall (LOA)	115.38m
Length (LPP)	95.60m
Breadth Moulded	20.00m
Draft	7.814m
Deadweight	6,409ton
Net Register Tonnage (NRT)	2,496ton
Gross Tonnage	8,323ton

### Deck Equipment

Telescopic Crane	20t X 11m & 8t X 15m on the upper deck
Knuckle Crane	30t X 4-24m on the main deck (Port Side)
Provision Crane	2t X M for ship service on fore side
A-Frame Type	- 50t SWL (Maker : SMD) - Out Reach : 14.5m - Max. Down Reach : 5.6m - Free Width : 10.2m

### Cable Laying Equipment

Cable Tank	- 2 Main Tanks Dia.-16m - Coiling Capacity 1,888.20m <sup>3</sup> - 2 Spare Tanks Dia.-6.75m - Coiling Capacity 159.0m <sup>3</sup>
Drum Engines	- 2 X 40t (Dia.4m) - Maker : DOWTY
DOHB	- 2 X 4 Wheel Pair - Cable : Dia.125mm - Repeater : Dia.400mm
Transporters	- 2 Wheel pair - Max : 2t - Maker : DOWTY
Repeater Stowage (Cooling / Max number)	Total Stacking Capacity 120 Repeaters

### Propulsion System

Main Generator Engine	Large (2Set) 4800PS X 720RPM-SSHI/MAN-B&W Medium (1Set) 3600PS X 720RPM-SSHI/MAN-B&W Small (1Set) 1305PS X 900RPM-SSHI/MAN-B&W
Main AC Generators	Large (2Set) Output-4250KVA / 3,300V/60Hz / 3Phases Medium (1Set) Output-2875KVA / 3,300V/60Hz / 3Phases Small (1Set) Output-1063KVA / 3,300V/60Hz / 3Phases
Propulsion Thrusters	USE4001 Azimuth Thrusters X 2Sets, Propeller RPM-232
Tunnel Thrusters	FT16H X 2Sets, Propeller RPM-275
Gill Thrusters	T3S Vertical Shaft
Economical	13.5knots

### Navigation Equipment

X-band Radar	SAM ELECTRONICS, RP1109-2A8X
S-band Radar	SAM ELECTRONICS, RP1109-3A14S
AIS	Furuno, FA-100
NAVTEX RECEIVER	JRC, NRC 300A
GPS	JRC, JLR-6800
Echo Sounder	STN ATLAS, FILIA 522
Hydrographic Echo Sounder	SIMRAD, EA500
MAGNETIC Compass	SARACOM, C.PLATH
Gyro Compass	2 X TOKIMAC, TG 800
DOPPLER SPEED Log	2 X STN ATLAS, DOLOG 20
Monotoring S/W	Winfrog, Makai Plan

### Technical Rooms

Technical Rooms	Cable Joint Works
Test Room for Cable	Transmission, Fiber Test
X-Ray Room (Main Deck)	For Jointing & Moulding

### Communication Equipment

Satellite Communication	V-SAT (Phone, FAX, Telex), T.O.P. System
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**Head Office** : 6F, KT Songjeong-Tower B/D, #42, Songjeonggwangeogol-ro, Haeundae-gu, Busan, Korea  
TEL : 051-704-0002, FAX : 051-704-0030  
**Geoje Office** : 887, Geojebuk-ro, Yeoncho-myeon, Geoje-si, Gyeongsangnam-do, Korea  
TEL : 055-639-5110, FAX : 055-636-4900



# CABLE SHIP

# SEGERO

## Characteristics

General Vessel Name	Cable Ship SEGERO
Flag	Korea
Classification	KR
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Telescopic Crane	20t X 11m & 8t X 15m on the upper deck
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Cable Tank	- 2 Main Tanks Dia.-16m - Coiling Capacity 1,888.20m³ - 2 Spare Tanks Dia.-6.75m - Coiling Capacity 159.0m³
Drum Engines	- 2 X 40t (Dia.4m) - Maker : DOWTY
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Economical	13.5knots

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S-band Radar	SAM ELECTRONICS, RP1109-3A14S
AIS	Furuno, FA-100
NAVTEX RECEIVER	JRC, NRC 300A
GPS	JRC, JLR-6800
Echo Sounder	STN ATLAS, FILIA 522
Hydrographic Echo Sounder	SIMRAD, EA500
MAGNETIC Compass	SARACOM, C.PLATH
Gyro Compass	2 X TOKIMAC, TG 800
DOPPLER SPEED Log	2 X STN ATLAS, DOLOG 20
Monotoring S/W	Winfrog, Makai Plan

## Technical Rooms

Technical Rooms	Cable Joint Works
Test Room for Cable	Transmission, Fiber Test
X-Ray Room (Main Deck)	For Jointing & Moulding

## Communication Equipment

Satellite Communication	V-SAT (Phone, FAX, Telex), T.O.P. System
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#### 4.1A 「世界路號(SEGERO)」人員名單

由於工程作業人員及船員因採 4 ～ 6 週輪替上船值勤，因此將不定期變動，故本公司將依許可規定於正式作業前提供最新維護工程作業人員及船員資料供備查；以下資料先供參考。

##### (1) 「世界路號(SEGERO)」船員名單

No.	Name 姓名	Rank 職稱	Nationality 國籍	Date of Birth 出生年月日	Passport No 護照號碼	Passport Expire Date 護照效期
1	JAE OG, JOO	Master	S.KOREA	3/Sep/1957	M83596495	23/Mar/2028
2	HYEONBIN, JEON	C/OFF	S.KOREA	22/Apr/1993	M38045907	29/Jul/2031
3	SANGHOON, JEONG	2/OFF	S.KOREA	10/Dec/1997	M50980514	12/Nov/2025
4	SEUNGMIN, HAN	3/OFF	S.KOREA	10/Sep/1997	M18745734	24/Feb/2026
5	SEUNGYONG, PARK	C/ENG	S.KOREA	14/May/1985	M143R1588	4/Feb/2032
6	SUSANG, JEONG	1/ENG	S.KOREA	10/Sep/1988	M63881685	5/Aug/2025
7	MUYEOL, RYU	2/ENG	S.KOREA	8/Mar/1986	M40924265	13/Oct/2030
8	MINWOO, KIM	2/ENG	S.KOREA	11/Feb/1998	M311M6867	27/Jan/2022
9	JINHO, MUN	3/ENG	S.KOREA	14/Mar/1997	M36785841	31/May/2026
10	NOSIK, PARK	BSN	S.KOREA	4/Apr/1967	M81942229	2/Mar/2025
11	JAEHOON, KIM	STK	S.KOREA	27/Dec/1970	M50180754	11/Feb/2026
12	UK, YUN	AB	S.KOREA	20/Jul/1971	M99937226	21/May/2030
13	BYEONGJU, JEONG	AB	S.KOREA	24/Nov/1974	M03147919	23/Jun/2027
14	YONG JIN, LEE	OS	S.KOREA	20/Jun/1962	M22620439	19/Nov/2023
15	EUNG YONG, OH	OS	S.KOREA	14/Jan/1972	M69593906	17/Nov/2031
16	TAEJIN, CHO	NO.1 OLR	S.KOREA	31/Jul/1968	M41076398	17/Jun/2023
17	YEONGGEUN, HAN	OLR	S.KOREA	8/Mar/1966	M24488073	19/Apr/2031
18	JONGHEUN, KIM	WPR	S.KOREA	24/May/1970	M89254731	8/Apr/2031
19	WONJUN, JO	WPR	S.KOREA	14/Jan/1991	M57742848	22/Apr/2031
20	CHANG SICK, LIM	C/S	S.KOREA	3/Sep/1970	M95785174	4/Apr/2026
21	KI HYUN, PARK	COOK	S.KOREA	18/Jan/1969	M25647742	18/Sep/2027
22	WONKYU, LEE	DPO	S.KOREA	4/Mar/1991	M49543642	15/Apr/2029
23	ABIDIN	OS	INDONESIA	5/Jan/1985	C8428253	14/Feb/2027
24	ADITYA DWITAMA	OS	INDONESIA	25/Oct/1995	C6582265	8/Mar/2026
25	JUMARDI	OS	INDONESIA	10/Dec/1983	C6582971	27/May/2026
26	MUHAMAD SAFARI	OS	INDONESIA	1/Jan/1981	C1976466	3/Dec/2023
27	PRANA ATHANASIOS	OS	INDONESIA	26/Apr/1990	C8104369	10/Dec/2026
28	JIHEON, JANG	OS	S.KOREA	21/Jul/1979	M05764364	1/May/2028
29	KWANGHYUN, PARK	OS	S.KOREA	13/May/1978	M84434625	16/Oct/2028
30	HOYUN, KIM	OS	S.KOREA	18/Oct/1967	M60144207	5/Jun/2029
31	DO-OK, LEE	OS	S.KOREA	20/Dec/1982	M11742201	1/Sep/2031
32	JAEOYOUNG, HER	OS	S.KOREA	14/Jun/1973	M68749059	5/Apr/2027
33	ARMANSYAH	WPR	INDONESIA	7/Dec/1997	C3213844	27/Mar/2024



34	TEGUH SANTOSO	WPR	INDONESIA	9/Nov/1996	C7158022	23/Nov/2025
35	ABDUL MUKTI SYUEB	MM	INDONESIA	4/Oct/1993	C3941953	24/May/2024
36	IWAN PRASETYO	MM	INDONESIA	21/Mar/1982	C7784760	16/Feb/2026
37	FRANGKY ADY KUNCORO PUTRO A	MM	INDONESIA	12/Sep/1998	C4493144	1/Aug/2024
38	SUNGBEONG, PARK	MM	S.KOREA	3/Jan/1972	M88208685	29/Mar/2023
39	CHANWOO, JIN	OS	S.KOREA	24/Dec/1999	M612U0401	23/Feb/2032
40	MINYEONG, PAK	OS	S.KOREA	1/Mar/1989	M44570930	16/Oct/2023
41	SEONGMIN, JU	OS	S.KOREA	6/Mar/1984	M631B3091	7/Jan/2032
42	WOOJIN, KIM	OS	S.KOREA	4/May/1989	M01297403	5/Aug/2024
43	SUWON, YU	OS	S.KOREA	6/Dec/1999	M006Y7904	9/Feb/2032
44	YONGJUN, MOON	OS	S.KOREA	23/Aug/1971	M32373865	14/Dec/2026
45	BONGSEOK, SEO	OS	S.KOREA	8/Jan/1983	M56771725	3/Aug/2025
46	SOOMAN, BANG	OS	S.KOREA	10/Jun/1984	M78042407	15/Mar/2029
47	DONGJIN, LEE	OS	S.KOREA	26/Jun/1986	M14378507	7/Jun/2028
48	SEOHYEON, KIM	OS	S.KOREA	22/Jul/1985	M12490932	8/Jul/2026
49	HOJIN, LEE	OS	S.KOREA	2/Aug/1987	M78219925	29/Sep/2030
50	DEOKKYU, SHIN	OS	S.KOREA	28/Sep/1983	M55382121	12/Feb/2030
51	WANG DAE, JUNG	OS	S.KOREA	10/Feb/1985	M35970117	21/Sep/2025
52	MIN GOO, LEE	OS	S.KOREA	7/Apr/1988	M11260178	5/Dec/2029
53	HANBIN, LEE	OS	S.KOREA	21/Feb/1992	M34842122	24/May/2028
54	TAEWAN, KIM	OS	S.KOREA	18/Sep/1991	M15343383	17/Sep/2030
55	HYEONJONG, LEE	OS	S.KOREA	15/Sep/1990	M46182847	4/Jan/2028
56	EDWARD HUFFER	Technician	UK	13/Oct/1974	528003803	13/Oct/2024
57	LEE BRAY	Technician	UK	16/Dec/1977	510810562	24/Dec/2023
58	MARK DOYLE	Technician	UK	30/Jan/1969	538893065	8/Feb/2027

**(2) 「未來路號 (M/V MIRAERO)」買方代表人員名單**

No.	Name	Rank	Nationality	Date of Birth	Passport No	Passport Expire Date
1	ANDREW LAURIE MURRAY	Customer	JAPAN	1/Nov/1960	TL0335146	19/Feb/2024
2	IKUHIRO TAKENAKA	Customer	JAPAN	8/Aug/1968	TT1633332	9/Feb/2031
3	MASANOLI YOSHIDA	Customer	JAPAN	24/Aug/1983	TZ1226708	15/Sep/2027

## 4.2 「未來路號 (M/V MIRAERO)」 鋪設作業船舶與設備資料

- ◆ 主要規格：70.5 m (長)；14.9 m (寬)；1,999 ton (總噸位)
- ◆ 船級：多功能支援船 (Mother Vessel)
- ◆ 國籍：韓國籍 (Korea)
- ◆ AIS 系統：MMSI No. 440041000 & IMO No. 9422017
- ◆ 船呼 (Call Sign)：DSRB3



## M/V MIRAERO

### GENERAL CHARACTERISTICS

Vessel Name	Multi-purposed support Vessel MIRAERO
Type of Vessel	Offshore Support, Towing, Anchor Handling & Fire Fighting
Classification	ABS+A1(E), Towing Vessel, Fire Fighting Vessel Class 1, Offshore Support Vessel AH, AMS, DPS-2
Year Built	Batam, Indonesia - February 2008
Port of Registry	Jeju, Korea
Ship Builder	PT Jaya Asiatic Shipyard
Total Number of Bunk	52 men
Deck Space	478m <sup>2</sup>
Mezzanine Deck	16m x 5m - 5mt per m <sup>2</sup>

### Principal Dimensions

Length Overall (LOA)	70.05m
Length (LPP)	64.32m
Breadth Moulded	14.95m
Summer / Maximum Draft	5.016m
Deadweight	1800ton
Net Register Tonnage (NRT)	599ton
Gross Tonnage	1999ton
Displacement (Max.)	3689ton

### Deck Crane & A-Frame

Port Crane	Knuckle Boom Crane 30ton 2ton @ 12m / 5.9ton @ 6m
A-Frame Type	40ton A-Frame

### Dynamic Position System

Class Definition	DPS-2
Type	Kongsberg KPOS
DGPS	2 units Seatex DPS 116 Kongsberg

### Propulsion System

Main Engine	2 x 2025kW @ 1000 rpm, Wartsila 6L26A, 4 Stroke Cycle, Medium Speed Engine
Propeller	2 x Wartsila Propulsion (CPP), 4 Blades, 2700 mm Dia.
Fuel Type - MGO / HFO	Marine Gas Oil (MGO)
Rudder	2 x Becker Rudder
Steering Gear	1 x Wagner, Twin LA2 4.4-45-CB2
BHP	5508
KW	4050
Bollard Pull (Static)	70.1mt
Bow Thruster	2 x 515kW Electric-driven Kawasaki KT-72B3 Tunnel Type (CPP); 8mt Thrust
Stern Thruster	1 x 515 kW Electric-driven Kawasaki KT-72B3 Tunnel Type (CPP); 8mt Thrust
Economical Speed	11knots
Max Speed	13.8knots

### Navigation Equipment

X-band Radar	1 x Furuno FR-2115
S-band Radar	1 x Furuno FR-2135S
AIS	1 x Furuno FA-100
Autopilot	1 x Pilotstar D
GPS	1 x Furuno GP-90
Echo Sounder	1 x Furuno FE-700
Std Compass	1 x Lilley & Gillie MK2000
Gyro Compass	3 x C-Plath Navigat X MK1, MOD 10
Log	1 x Furuno DS-80
Wind Gauge	1 x Gill, WindObserver II 1390

### Communication Equipment

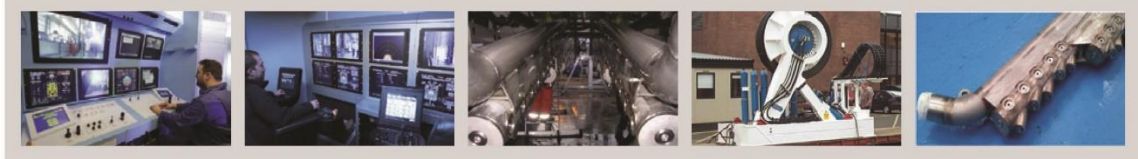
Satellite Communication	FAX, Voice, Data and GMDSS
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3.0m Trenching ROV System with 1,000hp

## Q1000 ROV



### Q1000 ROV System

Q1000 ROV system is newly supplied by SMD in 2015, and is Track & Free swimming type ROV for cable & pipes up to 2,000m water depth. Maximum burial depth achievable is 3.0m(subject to soil conditions) with 1,000Hp of power that will trench down telecom & power cables, as well as small diameter pipelines.

- |  |  |
|--|--|
| <ul style="list-style-type: none"> <li>o Q1000 Subsea Trenching Vehicle is comprised with ;</li> <li>- ROV Equipment(Surveillance)</li> <li>- ROV Cable Maintenance Tools</li> <li>- ROV Pipeline Trenching Tools(Eductor &amp; Backfill Tools)</li> <li>- Q1000 Mk2 Upgrade to 600mm product</li> </ul> | <ul style="list-style-type: none"> <li>o Umbilical Winch Including</li> <li>- 2200m of umbilical cable</li> <li>- Motion base providing high load cable protection</li> <li>o Docking Head and Interface to Client Supply A-Frame</li> </ul> |
|--|--|

## 3.0m Trenching ROV System with 1,000hp

# Q1000 ROV

### General

Depth Capability	: 5 to 2000m water depth
Dimensions	
- Length	: 5.50m(tracker stowed)
- Width	: 5.50m(over track guides)
- Height	: 3.35m(excluding lift point)
Weight in air(estimated)	
- Up to 22.0 tonnes(with skids)	
- Up to 24.0 tonnes(with tracks)	

### Power Distribution

Subsea Power	
- 2 x 500hp(375kW), 4 pole, 60Hz motors(Manufacturer:Sytek/SME)	
Horizontal Thrusters	
- Forward/Reverse	: 2 x Curvtech HTE500
- Left/Right	: 2 x Curvtech HTE500
- Rear(balance)	: 2 x Curvtech HTE500
Vertical Thrusters	: 4 x Curvtech HTE500
Thrusters	
- Individual isolation, 5 thruster voids per compensator	

### Performance

Maximum bollard pull	
- 2600kg in free swimming mode(FWD/AFT)	
- 1300kg in free swimming mode(Lateral)	
- 600kg additional from track drive	
Predicted Performance	
- Vertical	: Up to 2.0 knots
- FWD/AFT	: Up to 3.5 knots
- Lateral	: Up to 2.0 knots
Predicted Power	
- Minimum of 50kW to any thruster(Approx 900Kgf)	

### Jet Burial Tools

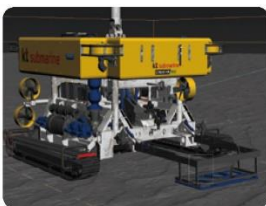
Power	
- Two vertically mounted, hydraulically driven water pumps	
Variable speed control from surface 0-300kW per pump	
(0 ~ 350kW in tracked mode)	
Pressure	: 7-9bar approx. flow 1000m <sup>3</sup> /hr @8bar per each
Trench depth	
- 0.0 ~ 3.0m(3m swords included) - continuously variable	
through smart hydraulic cylinder	
- 0.0 ~ 2.0m(2m swords included) - continuously variable	
through smart hydraulic cylinder	
Maximum leg width	: Up to 650mm
Product size standard	: Up to 500mm
Product size upgrade	: Up to 600mm

### Cable Maintenance Tools Package

Manipulators	
- 2 x Schilling Orion Extended Reach 7 function, position control operation	
Cutters	
- WCS38D Webtool cutter & Soft Line Cutter	
- Intensifier(ready to accept 75mm or 100mm Cutter)	
Backfill	
- Located at the rear of the vehicle mounted on existing eductor feed flange	
Control	: Separate operator control screen

### Both Track & Skid Mode

Configuration	
- Track modules bolt to chassis(interchangeable with skids)	
Track drive	
- Hydraulic independent proportional drive to each track	
Track Tension controlled by oil filled piston	
Minimum soil strength	: 5KPa



## 4.2A 「未來路號 (M/V MIRAERO)」 人員名單

由於工程作業人員及船員因採 4 ~ 6 週輪替上船值勤，因此將不定期變動，故本公司將依許可規定於正式作業前提供最新維護工程作業人員及船員資料供備查；以下資料先供參考。

### (1) 「未來路號 (M/V MIRAERO)」 船員名單

Name of ship M/V MIRAERO			Port of Departure: GEOJE, R.O.KOREA				Date of Departure: 18/Jan/2022				
Nationality of ship R.O.KOREA			Port of Arrival:						Passport No.	Passport Expiry Dates	Seaman's Book No.
No.	Given name, Family Name	Rank or rating	Nationality	Age	Date and place of birth		Date and Port of Engagement				
1	LIM JIHOON	MASTER	S.KOREA	37	4/Mar/1984	GYEONGGI	27/Dec/2021	Geoje, Korea	M15623646	18/Jan/2029	IC132-00547
2	KWAK TAEYONG	C/O	S.KOREA	45	7/Aug/1976	BUSAN	14/Jan/2022	Geoje, Korea	M01090938	17/Nov/2025	BS202-01119
3	KIM WONJEONG	2/O	S.KOREA	31	5/Jul/1990	BUSAN		Geoje, Korea	M04078494	16/Mar/2025	BS156-01247
4	LEE SUNGJONG	3/O	S.KOREA	25	9/Aug/1996	CHEONAN	29/Nov/2021	Geoje, Korea	M89287612	31/Mar/2025	PT174-00010
5	BAE SANGYEON	3/O	S.KOREA	24	24/Jul/1997	GYEONGNAM	27/Dec/2021	Geoje, Korea	M06370097	18/Jun/2025	BS177-01505
6	KIM HYUNGCHAN	C/E	S.KOREA	41	19/Jul/1980	DAEGU	10/Dec/2020	Geoje, Korea	M10475011	23/Apr/2028	BS207-02423
7	KIM SEONGCHEOL	1/E	S.KOREA	33	17/Jul/1988	BUSAN	2/Aug/2021	Geoje, Korea	M21402289	5/Apr/2027	CM080-00141
8	PARK WOOSUNG	2/E	S.KOREA	26	4/Jan/1996	SEOUL	10/Nov/2021	Geoje, Korea	M07947406	3/Mar/2025	IC170-00178
9	PARK JINWON	3/E	S.KOREA	22	21/May/1999	GWANGJU	10/Jan/2022	Geoje, Korea	M88580394	31/Dec/2023	BS195-02799
10	LEE YOUNGCHAN	BSN	S.KOREA	52	1/Feb/1969	BUSAN	21/Dec/2020	Geoje, Korea	M28137041	6/Sep/2029	BS100-01585
11	YOON YONG TAE	AB	S.KOREA	55	25/Mar/1966	CHILGOK	22/Sep/2020	Geoje, Korea	M58392529	18/Dec/2027	BS939-50568
12	KIM SUNG DAE	AB	S.KOREA	53	27/May/1968	GEOJE	19/Jul/2021	Geoje, Korea	M90309645	15/Jan/2028	CM182-00011
13	SEO HEOUNG KOOG	AB	S.KOREA	54	30/Nov/1967	BUSAN	4/Jan/2022	Geoje, Korea	M22949090	3/Aug/2027	BS129-02294
14	PARK KWANG DAL	NO.1 OLR	S.KOREA	58	21/Jul/1963	BUSAN		Geoje, Korea	M22523992	22/Sep/2030	BS201-02427
15	PARK SEONGGIL	OLR	S.KOREA	57	21/Dec/1964	BUSAN	31/Mar/2020	Geoje, Korea	M20339629	21/Aug/2025	BS205-00142
16	JO SEE HYREN	C/S	S.KOREA	60	15/Sep/1961	BUSAN	22/Sep/2020	Geoje, Korea	M15466121	23/Sep/2030	BS134-02425
17	CHO JEBANG	OS	S.KOREA	42	11/Jul/1979	BUSAN		Geoje, Korea	M13308443	13/Oct/2024	BS159-00482
18	KIM SUNG GOO	OS	S.KOREA	51	18/Nov/1970	BUSAN		Geoje, Korea	M88829238	4/Nov/2031	BS210-03884
19	JO JEONGIL	OS	S.KOREA	52	29/Sep/1969	BUSAN		Geoje, Korea	M39619310	8/Jun/2031	BS216-01808
20	KIM BYENGJUN	OS	S.KOREA	52	1/Jun/1969	BUSAN		Geoje, Korea	M11615800	10/Sep/2031	IC210-00086
21	BAE LEEJO	OS	S.KOREA	53	25/Jan/1968	BUSAN		Geoje, Korea	M10221633	18/Nov/2031	BS131-00085
22	LEE CHUN RYEONG	OS	S.KOREA	57	26/Mar/1964	BUSAN		Geoje, Korea	M22583300	12/Apr/2027	BS179-02848
23	KIM HOYUN	OS	S.KOREA	54	18/Oct/1967	BUSAN		Geoje, Korea	M60144207	5/Jun/2029	BS206-01920
24	KIM SUENG TAE	WIPER	S.KOREA	49	18/Mar/1972	GANGJU		Geoje, Korea	M21211120	6/Mar/2028	BS219-02425
25	IM SUNGSAM	M/B	S.KOREA	51	7/Jun/1970	BUSAN		Geoje, Korea	M70441363	23/Oct/2030	BS200-03782
26	SO HANEUL	M/B	S.KOREA	25	22/Oct/1996	BUSAN		Geoje, Korea	M57472188	9/Aug/2027	BS225-00089
27	PARK KWANGMIN	M/B	S.KOREA	39	8/Dec/1982	BUSAN		Geoje, Korea	M00868123	15/Oct/2025	BS195-04309
28	LEE DONG HO	M/B	S.KOREA	57	1/Jun/1964	BUSAN		Geoje, Korea	M60303990	28/Apr/2030	BS162-04870
29	PARK JONGBEOM	OS	S.KOREA	47	15/Feb/1974	BUSAN		Geoje, Korea	M28000074	14/Oct/2030	BS207-02712
30	KANG KI SUNG	OS	S.KOREA	37	9/Oct/1984	BUSAN		Geoje, Korea	M46927912	3/Feb/2030	BS180-00641
31	LEE GYUTAE	OS	S.KOREA	31	16/Apr/1990	DAEGU		Geoje, Korea	M24769595	9/Feb/2031	BS210-00473
32	LEE MYUNG BAK	OS	S.KOREA	34	4/Jun/1987	POHANG		Geoje, Korea	M48182413	14/Jun/2031	PH210-00089



33	OK DU HWAN	OS	S.KOREA	34	17/Nov/1987	GEOJE		Geoje, Korea	M670C8834	6/Jan/2032	CM221-00025
34	PARK KYUMIN	OS	S.KOREA	31	10/Mar/1990	GEOJE		Geoje, Korea	M407N5946	30/Dec/2031	CM217-00309
35	SHIN WONBEOM	OS	S.KOREA	48	27/Sep/1973	BUSAN		Geoje, Korea	M12942715	21/Oct/2025	BS180-04523
36	JUNG YOUNGTAE	OS	S.KOREA	39	5/Oct/1982	BUSAN		Geoje, Korea	M59491827	21/Feb/2028	BS208-02431
37	KIM JEONGKU	OS	S.KOREA	38	1/May/1983	GEOJE		Geoje, Korea	M49023769	28/Nov/2029	CM183-00319
38	KWON KISUP	OS	S.KOREA	41	2/Jan/1981	CHUNGJU		Geoje, Korea	M58923791	10/Jun/2030	BS207-02516
39	KIM HODONG	OS	S.KOREA	31	13/Nov/1990	ANDONG		Geoje, Korea	M30103158	17/Jan/2023	CM188-00307
40	HA YOUNCHAN	OS	S.KOREA	33	29/Jun/1988	NAMHAE		Geoje, Korea	M31441767	25/Jun/2023	CM180-00310
41	LEE HANBIN	OS	S.KOREA	29	21/Feb/1992	BUSAN		Geoje, Korea	M34842122	24/May/2028	CM188-00312
42	TARK JEONGHUN	OS	S.KOREA	30	24/Feb/1991	BUSAN		Geoje, Korea	M03473853	2/Jul/2030	BS207-02393