



[Appendix 附件一]

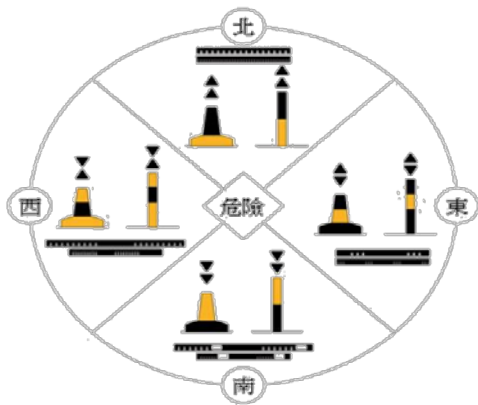

Navigation Plan and Register

航路標識資料

 <b>FORMOSA 2</b> 海能風力發電股份有限公司	 <b>Jan De Nul n.v.</b> TAIWAN BRANCH	
<b>海能風電離岸風場專案 - FCSA</b> <b>Formosa 2 Offshore Wind Farm Project - FCSA</b>	<b>參考資料</b> <b>Reference</b>	F2-FOU-CON-JDN-PL-TI-00009 F2-FOU-CON-JDN-PL-TI-00009
臨時信標計畫 Temporary Beacons Plan	<b>修訂版本</b> <b>Revision</b>	D D

## ANNEX C-1 臨時導航燈和界線浮標概覽-基樁平台安裝前

### OVERVIEW TEMPORARY NAVIGATION LIGHTS AND DEMARCATION BUOYS - Before Jacket Installation

類別 Cat.	基點浮標 Cardinal Buoy					波浪浮標 Wave buoy	
序號 No.	1	2	3	4	5	1	2
示意圖							
Photo							
名稱 Name	BU01 N	BU02 E	BU07 W	BU08 W	BU09 W	F2WBN	F2WBS
點位(WGS 84) Position	120°48' 21"E , 24° 47' 47" N	120°50' 15"E , 24° 45' 21" N	120°40' 32"E , 24° 37' 36" N	120°42' 13"E , 24° 40' 19" N	120°44' 20"E , 24° 42' 47" N	120° 47.70" E 24° 45.52" N	120° 43.45" E 24° 40.61" N
燈質 characteristic	顏色：黃色，頂部帶黑色水平條紋  Color: Yellow with a top horizontal stripe in black	顏色：黑色，中間帶黃色水平條紋  Color: Black with a central horizontal stripe in yellow	顏色：黃色，中間帶黑色水平條紋  Color: Yellow with a central horizontal stripe in black	顏色：黃色，中間帶黑色水平條紋  Color: Yellow with a central horizontal stripe in black	顏色：黃色，中間帶黑色水平條紋  Color: Yellow with a central horizontal stripe in black	燈色:黃 閃爍週期:20s (1秒明, 1暗)  FL (5) 20S	燈色:黃 閃爍週期:20s (1秒明, 1暗)  FL (5) 20S
外觀  Description	頂部標記：兩個黑色底邊朝下的三角形垂直堆疊  Topmark: Two black base- standing cones stacked vertically	頂部標記：一個黑色底邊朝下的三角形，下方有一個黑色尖端朝下的  Topmark: One black base- standing cone on top of a black apex- standing cone	頂部標記：一個黑色尖端朝下的三角形，下方有一個黑色底邊朝下的  Topmark: One black apex- standing cone on top of a black base- standing cone	頂部標記：一個黑色尖端朝下的三角形，下方有一個黑色底邊朝下的  Topmark: One black apex- standing cone on top of a black base- standing cone	頂部標記：一個黑色尖端朝下的三角形，下方有一個黑色底邊朝下的三角形  Topmark: One black apex- standing cone on top of a black base- standing cone	位於浮球內部  Inside of buoy	位於浮球內部  Inside of buoy
高潮面上高度(公尺) Elevation above HW (meter)	3m TWVD2001	3m TWVD2001	3m TWVD2001	3m TWVD2001	3m TWVD2001	約70cm TWVD	約70cm TWVD
見距(海裡) Range(mile)	2nm	2nm	2nm	2nm	2nm	1-4nm	1-4nm
構造及高度(公尺)  Structure & Height (meter)	高約 3 公尺  height approximate at 3m	高約 3 公尺  height approximate at 3m	高約 3 公尺  height approximate at 3m	高約 3 公尺  height approximate at 3m	高約 3 公尺  height approximate at 3m	黃色具游泳圈之浮標  Yellow buoy with buoy ring	黃色具游泳圈之浮標  Yellow buoy with buoy ring
備註、訊號、區域 Remarks, signals, sectors	1 個燈  1 Lamp	1 個燈  1 Lamp	1 個燈  1 Lamp	1 個燈  1 Lamp	1 個燈  1 Lamp	搭配使用虛擬AIS  With virtual AIS	搭配使用虛擬AIS  With virtual AIS



 <b>FORMOSA 2</b> 海能風力發電股份有限公司	 <b>Jan De Nul n.v.</b> TAIWAN BRANCH	
海能風電離岸風場專案 - FCSA Formosa 2 Offshore Wind Farm Project - FCSA	參考資料 Reference	F2-FOU-CON-JDN-PL-TI-00009 F2-FOU-CON-JDN-PL-TI-00009
臨時信標計畫 Temporary Beacons Plan	修訂版本 Revision	D D

## ANNEX C-2 臨時導航燈和界線浮標概覽-基樁平台安裝後

### OVERVIEW TEMPORARY NAVIGATION LIGHTS AND DEMARCATION BUOYS - After Jacket Installation

與前一階段之差異:

- 移除風場實體基點燈浮標(BU01N、BU02E、BU09W、BU08W和BU07W)
- 新設兩座虛擬AtoN訊號作為邊界警示 (F2DBN、F2DBS)
- 設置47座臨時燈標於基礎平台上 (涵蓋於原計畫書內容)

類別 Cat.	虛擬基點浮標 Visual Cardinal Buoy		波浪浮標Wave buoy		臨時導航燈 Temporary Beacon				
序號 No.	1	3	1	2	1	2	3	4	5
示意圖  Photo									
名稱 Name	F2DBN	F2DBS	F2WBN	F2WBS	B12 舊稱: WTG01	B06 舊稱: WTG02	B05 舊稱: WTG03	B04 舊稱: WTG04	B11 舊稱: WTG05
點位(WGS 84) Position	120°48' 21"E , 24° 47' 47" N	120°40' 32"E , 24° 37' 36" N	120° 47.70' E 24° 45.52' N	120° 43.45' E 24° 40.61' N	120°48' 2.19" E 24°46' 58.77" N	120°48' 28.15" E 24°46' 40.11" N	120°48' 52.64" E 24°46' 21.89" N	120°47' 52.59" E 24°45' 59.29" N	120°47' 31.92" E 24°46' 27.64" N
燈質 characteristic	無, 虛擬浮標  NA, Visual AtoN only	無, 虛擬浮標  NA, Visual AtoN only	燈色:黃 閃爍週期:20s (1秒明, 1暗)  FL (5) 20S	燈色:黃 閃爍週期:20s (1秒明, 1暗)  FL (5) 20S	燈色: 黃 閃爍間隔: 2.5 秒 (1秒明, 1.5 秒暗) Flash code: 2.5 sec (1 sec ON, 1.5 sec OFF)	燈色: 黃 閃爍間隔: 2.5 秒 (1 秒明, 1.5 秒暗) Flash code: 2.5 sec (1 sec ON, 1.5 sec OFF)	燈色: 黃 閃爍間隔: 2.5 秒 (1 秒明, 1.5 秒暗) Flash code: 2.5 sec (1 sec ON, 1.5 sec OFF)	燈色: 黃 閃爍間隔: 2.5 秒 (1 秒明, 1.5 秒暗) Flash code: 2.5 sec (1 sec ON, 1.5 sec OFF)	燈色: 黃 閃爍間隔: 2.5 秒 (1 秒明, 1.5 秒暗) Flash code: 2.5 sec (1 sec ON, 1.5 sec OFF)
外觀 Description	無, 虛擬浮標 NA, Visual AtoN only	無, 虛擬浮標 NA, Visual AtoN only	位於浮球內部 Inside of buoy	位於浮球內部 Inside of buoy	位於平台上 located at platform	位於平台上 located at platform	位於平台上 located at platform	位於平台上 located at platform	位於平台上 located at platform
高潮面上高度 (公尺) Elevation above HW (meter)	NA	NA	約70cm TWVD	約70cm TWVD	25m TWVD2001	25m TWVD2001	25m TWVD2001	25m TWVD2001	25m TWVD2001
見距 (海浬) Range(mile)	NA	NA	1-4nm	1-4nm	3-5nm	3-5nm	3-5nm	3-5nm	3-5nm
構造及高度 (公尺) Structure & Height (meter)	無, 虛擬浮標  NA, Visual AtoN only	無, 虛擬浮標  NA, Visual AtoN only	黃色具游泳圈之浮標  Yellow buoy with buoy ring	黃色具游泳圈之浮標  Yellow buoy with buoy ring	高約 30公分。裝設在管架式黃色鋼構護欄上。 Approx 30cm high. Mounted on yellow steel railing on jacket.	高約 30公分。裝設在管架式黃色鋼構護欄上。 Approx 30cm high. Mounted on yellow steel railing on jacket.	高約 30公分。裝設在管架式黃色鋼構護欄上。 Approx 30cm high. Mounted on yellow steel railing on jacket.	高約 30公分。裝設在管架式黃色鋼構護欄上。 Approx 30cm high. Mounted on yellow steel railing on jacket.	高約 30公分。裝設在管架式黃色鋼構護欄上。 Approx 30cm high. Mounted on yellow steel railing on jacket.
備註、訊號、區域 Remarks, signals, sectors	994161034 (設備名稱: BU01N)	994161040 (設備名稱: BU07W)	搭配使用虛擬AIS With virtual AIS	搭配使用虛擬AIS With virtual AIS	電池: 超過30 天 防水性: IP68	電池: 超過30 天 防水性: IP68	電池: 超過30 天 防水性: IP68	電池: 超過30 天 防水性: IP68	電池: 超過30 天 防水性: IP68

[illegible][illegible]

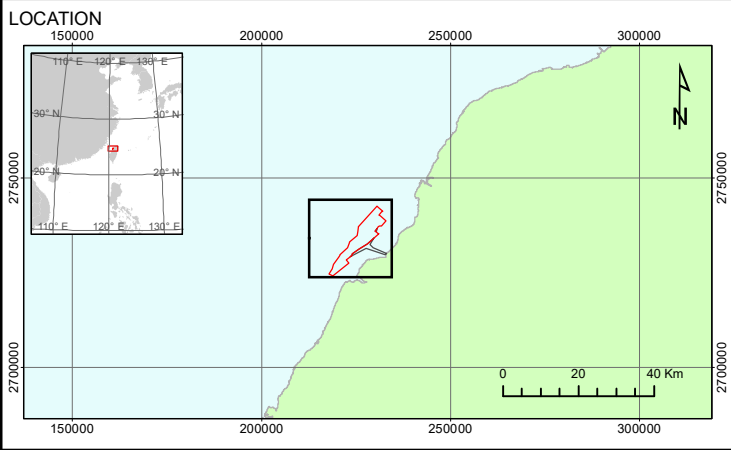
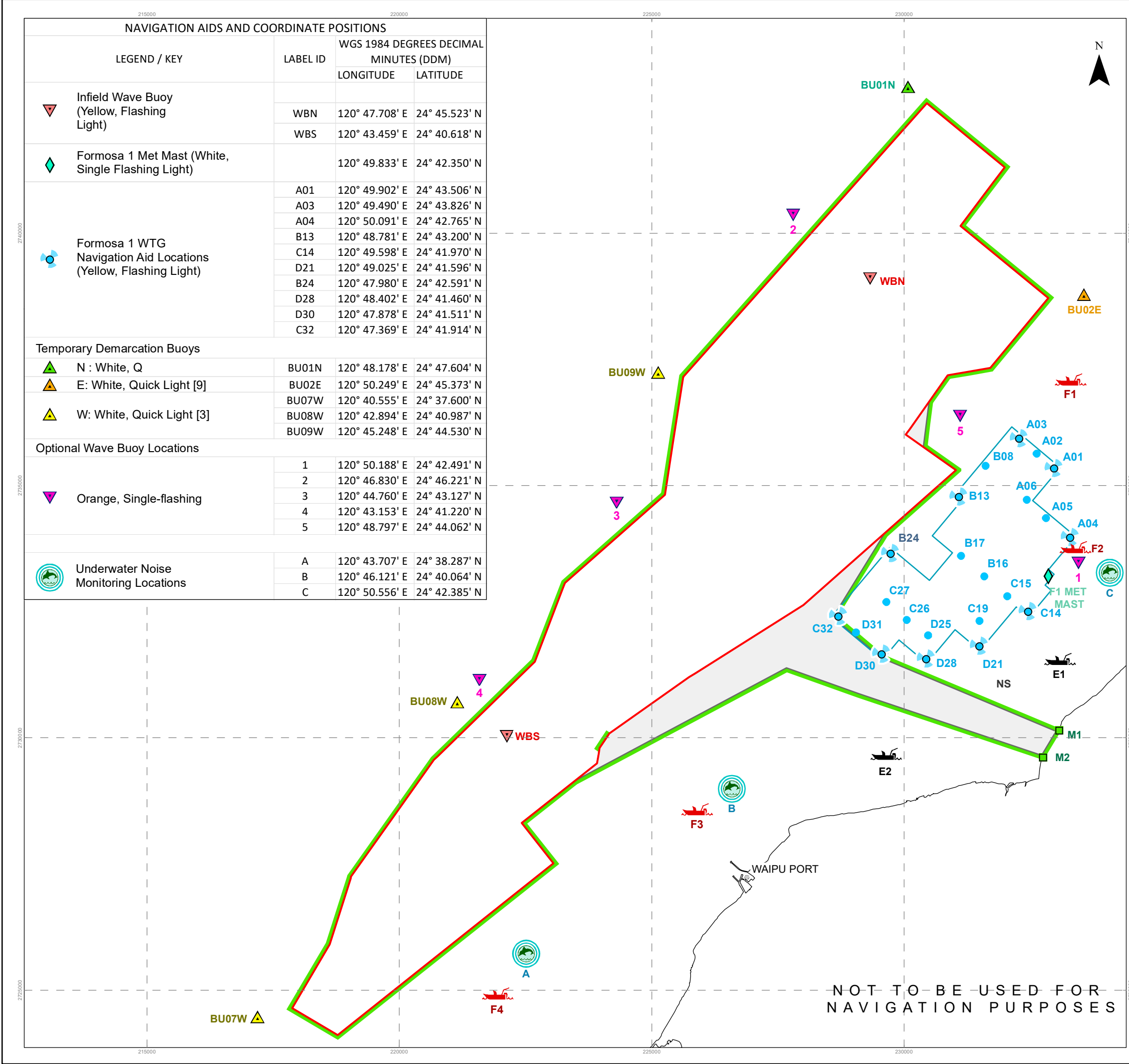
[illegible][illegible]

 <b>FORMOSA 2</b> 海能風力發電股份有限公司	 <b>Jan De Nul n.v.</b> TAIWAN BRANCH	
海能風電離岸風場專案 - FCSA Formosa 2 Offshore Wind Farm Project - FCSA	參考資料 Reference	F2-FOU-CON-JDN-PL-TI-00009 F2-FOU-CON-JDN-PL-TI-00009
臨時信標計畫 Temporary Beaconing Plan	修訂版本 Revision	D D

## ANNEX G 臨時風場導航分布圖 Temporary Marking Plan

- 風場打樁期間 During Piling
- 基樁平台&臨時燈標安裝後 After Jacket installation





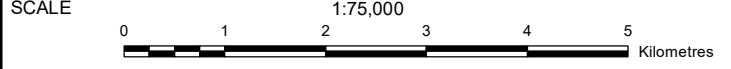
**LEGEND AND NOTES**

	Formosa 2 License Boundary
	Formosa 2 Construction Boundary
	Formosa 2 Export Cable Corridor
	Formosa 1 License Boundary

NFA Vessel Position	LABEL ID	WGS 1984 DEGREES DECIMAL MINUTES (DDM)	
		LONGITUDE	LATITUDE
	F1	120° 50.100' E	24° 44.460' N
	F2	120° 50.160' E	24° 42.660' N
	F3	120° 45.720' E	24° 39.840' N
	F4	120° 43.380' E	24° 37.860' N
	E1	120° 49.980' E	24° 41.460' N
	E2	120° 47.940' E	24° 40.440' N
	M1	120° 49.966' E	24° 40.694' N
	M2	120° 49.776' E	24° 40.404' N

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REV.	REVISION	BY	DATE	CKD.	APPVD.
5	FOR INFORMATION ONLY	AG	16/03/2021	AT	PH
6	FOR INFORMATION ONLY	AG	27/04/2021	AT	PH
7	FOR INFORMATION ONLY	AG	25/06/2021	AT	PH
8	FOR INFORMATION ONLY	AG	04/05/2022	AT	PH



<b>COORDINATE SYSTEM</b>	
Coordinate System: TWD 1997 TM Taiwan	Central Meridian: 121.0000
Projection: Transverse Mercator	Scale Factor: 0.9999
Datum: TWD 1997	Latitude Of Origin: 0.0000
False Easting: 250,000.0000	Units: Metre
False Northing: 0.0000	

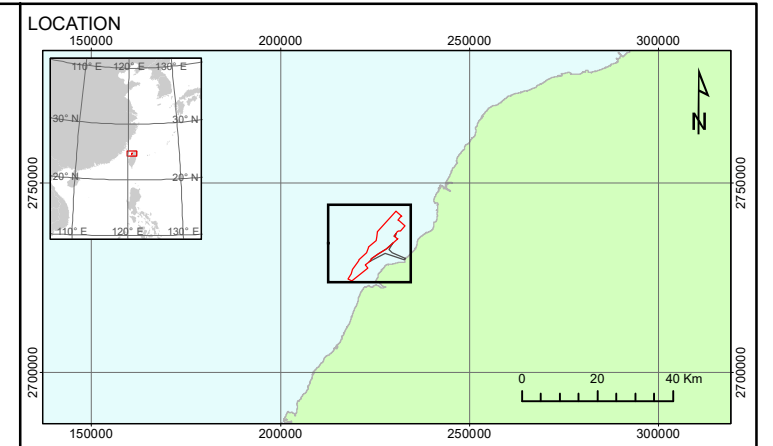
SOURCE: Formosa 2 © 2020 © ESRI (2018)	AUTHOR:  海能風力發電股份有限公司
----------------------------------------------	-----------------------------

PROJECT	<b>FORMOSA 2 OFFSHORE WIND FARM PROJECT</b>
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TITLE	<b>MARKING PLAN DURING CONSTRUCTION (DURING PILING INSTALLATION)</b>
-------	--------------------------------------------------------------------------

DOCUMENT NUMBER	<b>F2-ENG-CON-F2-PL-LO-00001-1</b>
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DRAWN BY Andrew Goh	ISSUED ON 27/04/2022	SHEET SIZE A3	REV. 8
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- Formosa 2 License Boundary
- Formosa 2 Construction Boundary
- Formosa 2 Export Cable Corridor
- Formosa 1 License Boundary

NFA Vessel Position		LABEL ID	WGS 1984 DEGREES DECIMAL MINUTES (DDM)	
			LONGITUDE	LATITUDE
	Infield Patrol	F1	120° 50.100' E	24° 44.460' N
		F2	120° 50.160' E	24° 42.660' N
		F3	120° 45.720' E	24° 39.840' N
		F4	120° 43.380' E	24° 37.860' N
	Export Cable / MMO Patrol	E1	120° 49.980' E	24° 41.460' N
		E2	120° 47.940' E	24° 40.440' N
	MMO Observer	M1	120° 49.966' E	24° 40.694' N
		M2	120° 49.776' E	24° 40.404' N

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REV.	REVISION	BY	DATE	CKD.	APPVD.
0	FOR INFORMATION ONLY	AG	30/03/2020	AT	PH
1	FOR INFORMATION ONLY	AG	16/07/2020	AT	PH
2	FOR INFORMATION ONLY	AG	25/06/2021	AT	PH
3	FOR INFORMATION ONLY	AT	02/08/2022	AT	PH

SCALE 1:75,000

0 1 2 3 4 5 Kilometres

COORDINATE SYSTEM	
Coordinate System: TWD 1997 TM Taiwan	Central Meridian: 121.0000
Projection: Transverse Mercator	Scale Factor: 0.9999
Datum: TWD 1997	Latitude Of Origin: 0.0000
False Easting: 250,000.0000	Units: Metre
False Northing: 0.0000	

<p>SOURCE: Formosa 2 © 2020 © ESRI (2018)</p>	<p>AUTHOR:</p>  <p>FORMOSA 2 海能風力發電股份有限公司</p>
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PROJECT	<b>FORMOSA 2</b> <b>OFFSHORE WIND FARM PROJECT</b>
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TITLE	MARKING PLAN DURING CONSTRUCTION (AFTER JACKET INSTALLATION)
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DOCUMENT NUMBER  
F2-ENG-CON-F2-PL-LO-00001-2

DRAWN BY	ISSUED ON	REVISED BY	ISSUED ON	SHEET SIZE	REV.
Andrew Goh	04/05/2022	Arden Tsai	02/08/2022	A3	3



[Appendix 附件二]

Vessel Specification and Information

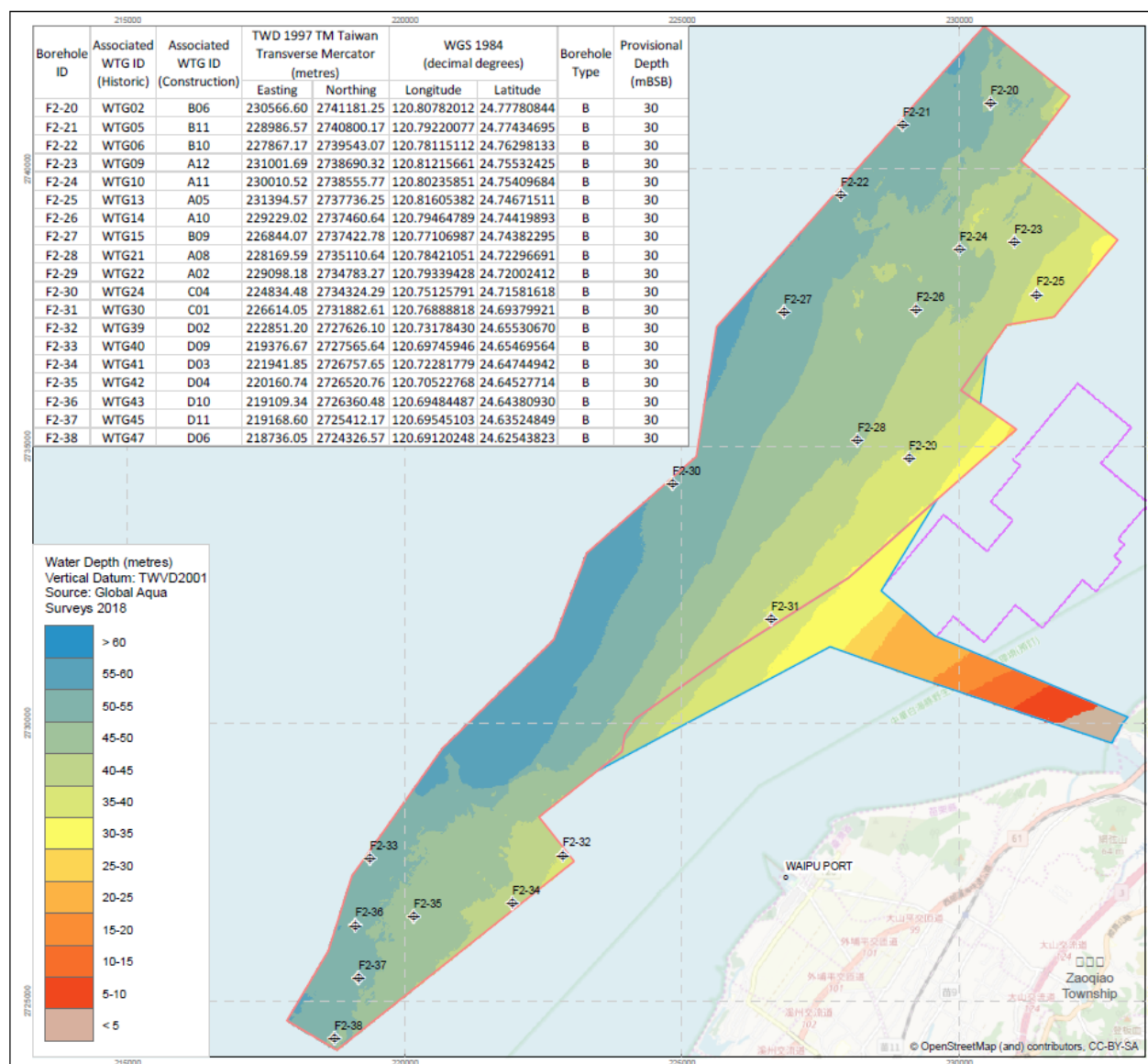
船舶與作業相關資訊

## Vessel Specification and Information

## 1.0 作業範圍 SITE AREA

## 1.1 作業區域 Layout of Site

下圖1可見其風場範圍（橘色與綠色框線內），關於此區之座標請詳見表2。Operation area as shown in below picture 1 (outlined with orange and green).



**Figure 1-1 : Offshore Windfarm boundary and survey boundary**

### 風場位置圖及調查範圍

Task Name:	Cardinal Buoy Removal
Page:	3
Package:	FCSA
Issued Date:	2022/09/07

## Vessel Specification and Information

### 1.2 風場邊界座標資訊 Coordinate of Site Boundary

詳細座標如下表所示。The coordinate information is as below.

編號 (No.)	TWD 97		WGS 84 (deg, deg)		WGS 84 (deg, min, sec)	
	E	N	E	N	E	N
C1	217872.89	2724643.02	120.682670	24.628277	120°40'57.61"	24°37'41.79"
B2	218777.04	2724108.93	120.691612	24.623474	120°41'29.8"	24°37'24.5"
B1	223051.42	2727512.60	120.733765	24.654285	120°44'1.55"	24°39'15.42"
C2	222420.02	2728313.81	120.727511	24.661508	120°43'39.03"	24°39'41.42"
A13	223918.65	2729494.82	120.742295	24.672197	120°44'32.26"	24°40'19.9"
A14	223968.13	2729800.37	120.742779	24.674957	120°44'34"	24°40'29.84"
A15	224159.06	2730083.03	120.744660	24.677512	120°44'40.77"	24°40'39.04"
A16	225741.48	2731201.52	120.760277	24.687636	120°45'36.99"	24°41'15.48"
A17	228006.96	2732629.73	120.782642	24.700565	120°46'57.51"	24°42'2.03"
C3	231031.62	2735304.39	120.812498	24.724754	120°48'44.99"	24°43'29.11"
C4	230033.37	2736007.16	120.802621	24.731086	120°48'9.43"	24°43'51.9"
A22	230863.75	2737186.68	120.810813	24.741747	120°48'38.92"	24°44'30.28"
A23	231711.18	2737333.89	120.819189	24.743086	120°49'9.08"	24°44'35.1"
A26	232857.59	2738717.59	120.830506	24.755592	120°49'49.82"	24°45'20.13"
A27	231116.90	2740145.99	120.813276	24.768468	120°48'47.79"	24°46'6.48"
A28	231996.72	2741308.46	120.821961	24.778974	120°49'19.05"	24°46'44.3"
5-12	230451.67	2742576.32	120.806664	24.790402	120°48'23.99"	24°47'25.44"
5-11	225622.66	2737153.28	120.758999	24.741371	120°45'32.39"	24°44'28.93"
5-10	225260.72	2734817.01	120.755462	24.720272	120°45'19.66"	24°43'12.97"
5-9	223280.88	2733067.65	120.735926	24.704444	120°44'9.33"	24°42'15.99"
5-8	222685.42	2731509.97	120.730071	24.690370	120°43'48.25"	24°41'25.33"
6-17	220684.84	2729561.41	120.710342	24.672740	120°42'37.23"	24°40'21.86"
6-16	219041.03	2727242.50	120.694151	24.651771	120°41'38.94"	24°39'6.37"
6-15	218617.86	2725904.15	120.689999	24.639679	120°41'23.99"	24°38'22.84"

**Table 1-1 : Coordinate of Site Boundary**  
 風場範圍座標



Task Name:	Cardinal Buoy Removal
Page:	4
Package:	FCSA
Issued Date:	2022/09/07

## Vessel Specification and Information

### 2.0 船舶基本資料 VESSEL INFORMATION

#### 2.1 Vessel 1

船名 Vessel Name:	Connector
船籍港 Home Port:	Luxembourg
總噸數 Gross Tonnage:	20190
船長 LOA:	156.9 m
船寬 Width:	32 m
IMO:	9435480
MMSI:	253751000



Figure 2-1 : Photo of Connector

Task Name:	Cardinal Buoy Removal
Page:	5
Package:	FCSA
Issued Date:	2022/09/07

## Vessel Specification and Information

### 2.2 Vessel 2 :

船名 Vessel Name:	Orient Constructor
船籍港 Home Port:	Taichung
總噸數 Gross Tonnage:	7883
船長 LOA:	115.4 m
船寬 Width:	22 m
IMO:	9682148
MMSI:	416007369



**Figure 2-2 : Photo of Orient Constructor**

Task Name:	Cardinal Buoy Removal
Page:	6
Package:	FCSA
Issued Date:	2022/09/07

## Vessel Specification and Information

### 2.3 Vessel 3 :

船名 Vessel Name:	Grand Canyon II
船籍港 Home Port:	Alesund / Norway
總噸數 Gross Tonnage:	12433
船長 LOA:	127.75 m
船寬 Width:	25 m
IMO:	9653874
MMSI:	257038580



Figure 2-3 : Photo of Grand Canyon II



Task Name:	Cardinal Buoy Removal
Page:	7
Package:	FCSA
Issued Date:	2022/09/07

## Vessel Specification and Information

### 3.0 緊急聯絡人與專案負責人 CONTACT INFORMATION

專案公司 Project company 海能公司 Formosa 2			
職位 Position	公司 Company	姓名 Name	電話 Mobile Phone
海事協調中心	海能風力發電股份有限公司	MCC	+886 928 193 922 +886 972 779 573
海事經理	海能風力發電股份有限公司	Arden Tsai 蔡亞霖	+886 911 374 469
運輸&安裝經理	海能風力發電股份有限公司	Oliver Stettner	+886 916 548 103
施工經理	海能風力發電股份有限公司	Paul Hammond	+886 971 007 716

**Table 4-1 : Contact Information of Project Company**

專案公司聯絡人資訊

工程公司 Contractor <<Name of Contractor>>			
職位 Position	公司 Company	姓名 Name	電話 Mobile Phone
Port Captain	JDN	Julijo Viskovic	+886905427244

**Table 4-2 : Contact Information of Contractor**

海事工程公司聯絡人資訊

船舶聯絡人 Vessel Contact					
船名 Vessel	職位 Position	公司 Company	姓名 Name	電話 Phone	Mobile
Connector	Superintendent	JDN	Marko Kalanj	+886933753165	
Orient Constructor	Superintendent	JDN	Brodie Rivers	+886928937961	
Grand Canyon II	Superintendent	JDN	Matthieu Van Damme	+886928937897	

**Table 4-3 : Contact Information of vessel**

船舶聯絡人資訊