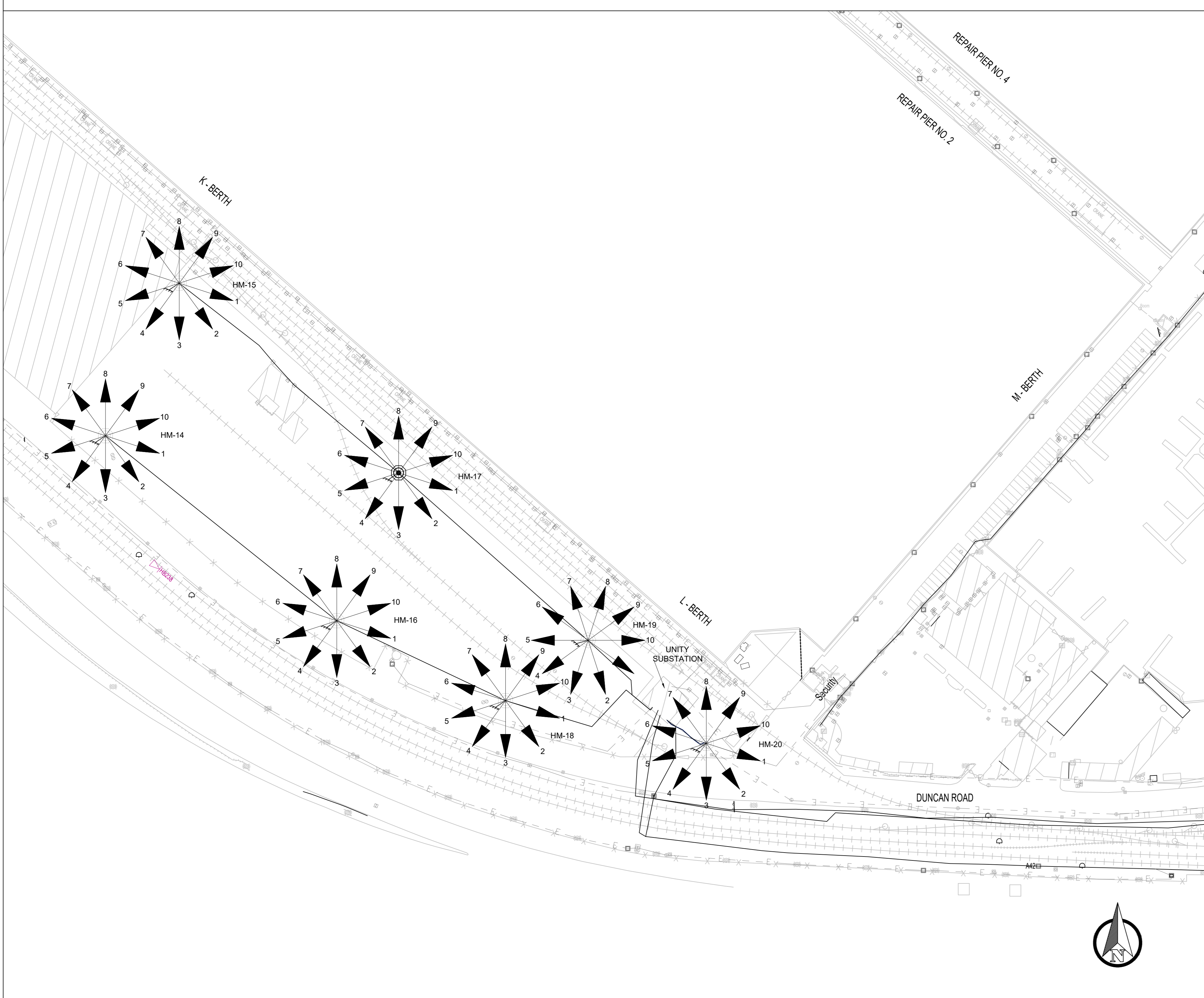


K AND L BERTH - LIGHTING LAYOUT (SCALE: 1:1000)



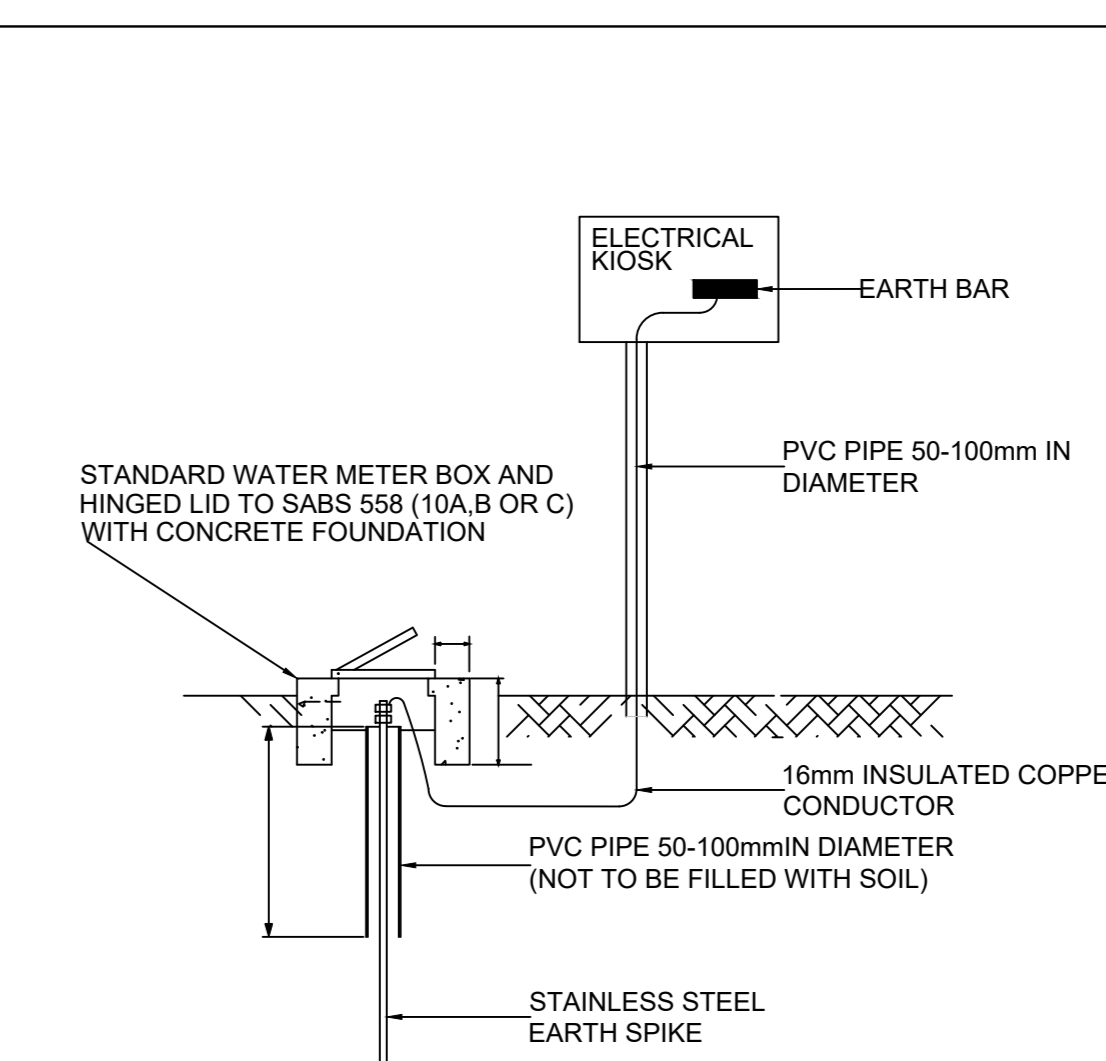
K AND L BERTH AREA LUMINAIRE LOCATION SUMMARY (SCALE: NTS)

LUMINAIRE LOCATION SUMMARY						LUMINAIRE LOCATION SUMMARY					
MAST/POLE	LABEL	MAST/POLE HEIGHT	ORIENT.	TILT	PHASE	MAST/POLE	LABEL	MAST/POLE HEIGHT	ORIENT.	TILT	PHASE
HM14	L1	30	254°	65°	R	HM16	L1	30	259°	65°	R
HM14	L2	30	214°	65°	W	HM16	L2	30	219°	65°	W
HM14	L3	30	174°	65°	B	HM16	L3	30	179°	65°	B
HM14	L4	30	134°	65°	R	HM16	L4	30	139°	65°	R
HM14	L5	30	94°	65°	W	HM16	L5	30	99°	65°	W
HM14	L6	30	54°	65°	B	HM16	L6	30	59°	65°	B
HM14	L7	30	14°	65°	R	HM16	L7	30	19°	65°	R
HM14	L8	30	334°	65°	W	HM16	L8	30	339°	65°	W
HM14	L9	30	294°	65°	B	HM16	L9	30	299°	65°	B
HM15	L1	30	283°	65°	R	HM17	L1	30	246°	65°	R
HM15	L2	30	243°	65°	W	HM17	L2	30	206°	65°	W
HM15	L3	30	203°	65°	B	HM17	L3	30	166°	65°	B
HM15	L4	30	163°	65°	R	HM17	L4	30	126°	65°	R
HM15	L5	30	123°	65°	W	HM17	L5	30	86°	65°	W
HM15	L6	30	83°	65°	B	HM17	L6	30	46°	65°	B
HM15	L7	30	43°	65°	R	HM17	L7	30	6°	65°	R
HM15	L8	30	3°	65°	W	HM17	L8	30	326°	65°	W
HM15	L9	30	323°	65°	B	HM17	L9	30	286°	65°	B

LEGEND

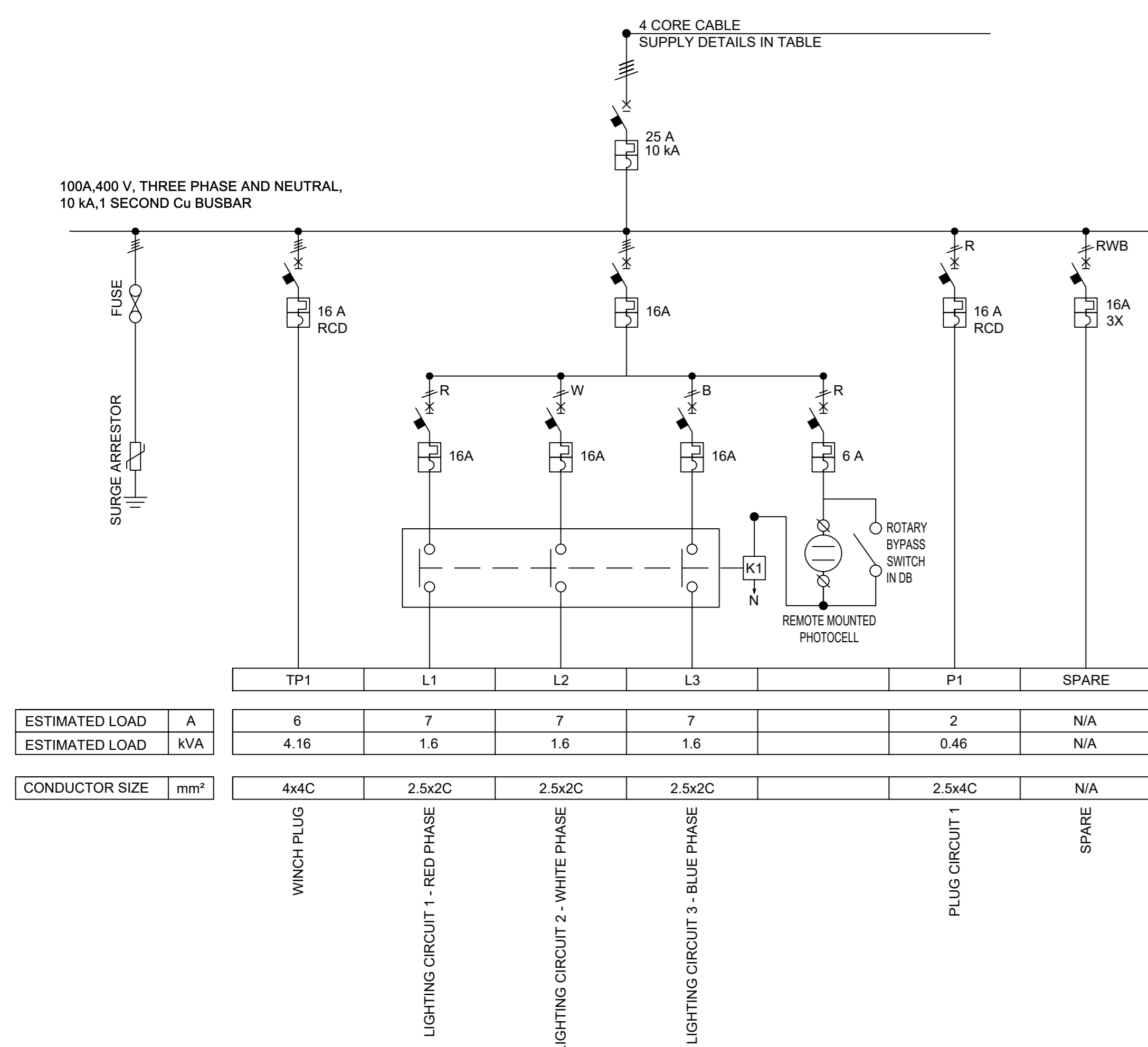
- 30M HIGH MAST BASE
- EQUAL OR SIMILAR APPROVED TO BEKA OMNIBLAST 1-E, 455W, 5188 OPTIC, 59000 LUMEN WITH A 7 PIN NEMA SOCKET - MOUNTED ON 30M HIGH MAST RING
- EQUAL OR SIMILAR APPROVED TO BEKA LEDLUME MAXI 128 LED, 135W, 5248 OPTIC WITH BOTTOM ENTRY SPIGOT FOR ADJUSTMENT UP TO 15°, INTEGRATED PHOTOCELL WITH NEMA 7-PIN SOCKET
- EARTHING AS PER TRANSNET NATIONAL PORTS AUTHORITY SPECIFICATION
- ELECTRICAL KIOSK
- ELECTRICAL CABLE

TYPICAL HIGH MAST POLE EARTHING DETAILS (SCALE: NTS)



LUMINAIRE LOCATION SUMMARY						LUMINAIRE LOCATION SUMMARY					
MAST/POLE	LABEL	MAST/POLE HEIGHT	ORIENT.	TILT	PHASE	MAST/POLE	LABEL	MAST/POLE HEIGHT	ORIENT.	TILT	PHASE
HM18	L1	30	234°	65°	R	HM20	L1	30	243°	65°	R
HM18	L2	30	194°	65°	W	HM20	L2	30	203°	65°	W
HM18	L3	30	154°	65°	B	HM20	L3	30	163°	65°	B
HM18	L4	30	114°	65°	R	HM20	L4	30	123°	65°	R
HM18	L5	30	74°	65°	W	HM20	L5	30	83°	65°	W
HM18	L6	30	34°	65°	B	HM20	L6	30	43°	65°	B
HM18	L7	30	354°	65°	R	HM20	L7	30	3°	65°	R
HM18	L8	30	314°	65°	W	HM20	L8	30	323°	65°	W
HM18	L9	30	274°	65°	B	HM20	L9	30	283°	65°	B
HM19	L1	30	239°	65°	R						
HM19	L2	30	199°	65°	W						
HM19	L3	30	159°	65°	B						
HM19	L4	30	119°	65°	R						
HM19	L5	30	79°	65°	W						
HM19	L6	30	39°	65°	B						
HM19	L7	30	359°	65°	R						
HM19	L8	30	319°	65°	W						
HM19	L9	30	279°	65°	B						

TYPICAL HIGH MAST DISTRIBUTION BOARD (SCALE: NTS)



HIGH MAST AND CABLE INFORMATION

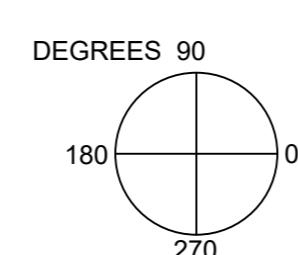
CABLE ROUTING			
CABLE PATH	CABLE TYPE	EXISTING CABLE	DIST.
UNITY SUBSTATION - HM14	16mm² 4 CORE CABLE	YES	295m
UNITY SUBSTATION - HM15	16mm² 4 CORE CABLE	YES	288m
UNITY SUBSTATION - HM16	35mm² 4 CORE CABLE	YES	163m
UNITY SUBSTATION - HM17	25mm² 4 CORE CABLE	YES	156m
UNITY SUBSTATION - HM18	35mm² 4 CORE CABLE	YES	80m
UNITY SUBSTATION - HM19	25mm² 4 CORE CABLE	YES	45m
UNITY SUBSTATION - HM20	25mm² 4 CORE CABLE	YES	43m

HIGH MAST - SETTING OUT DATA		
HIGH MAST	POSITION Y	POSITION X
HM17	-51923.286	-3754886.324

LUMINAIRE SCHEDULE			
SYMBOL	QTY	ARRANGEMENT	TOTAL LAMP LUMENS
	70	10@36° PER MAST	59000

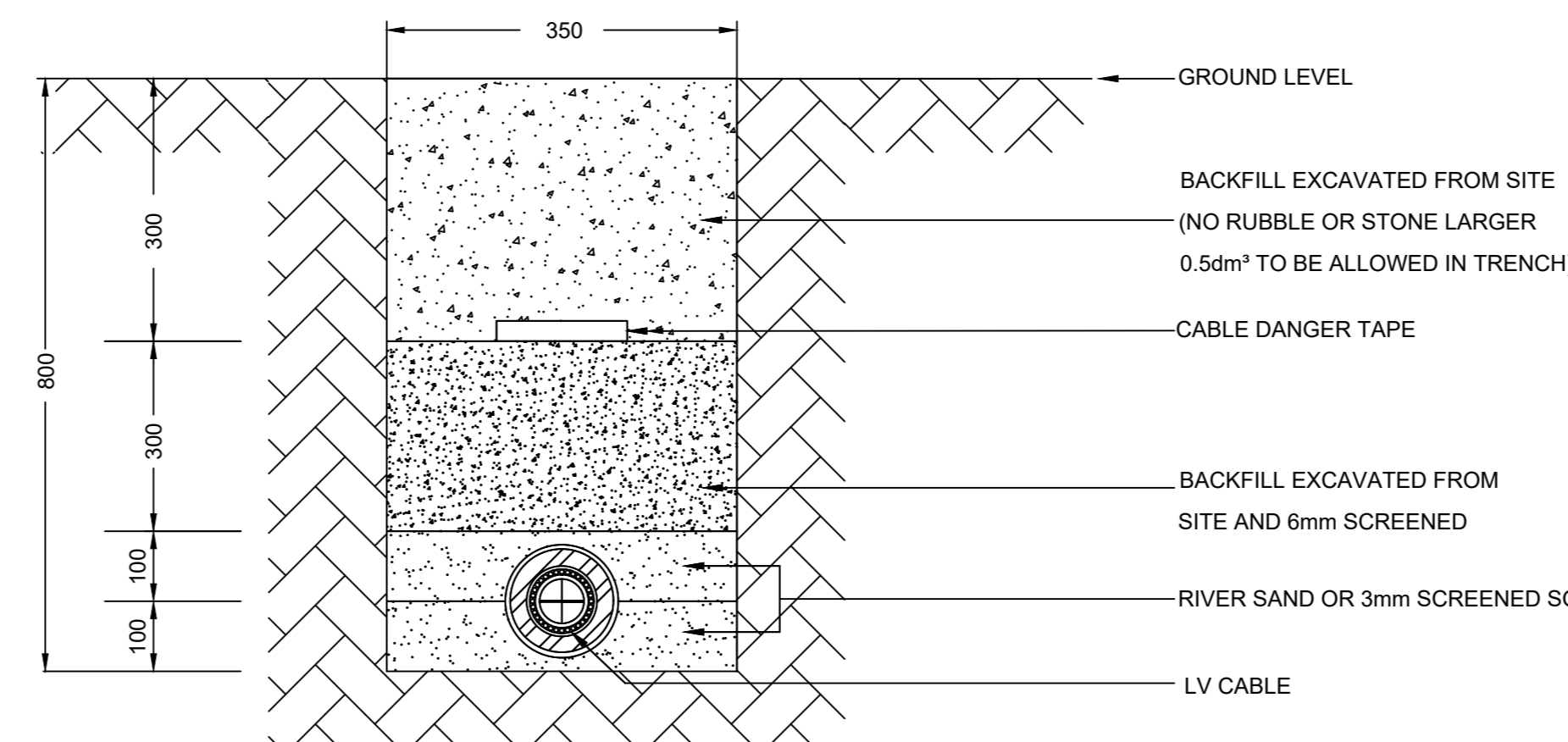
CALCULATION SUMMARY				
AREA	CALC TYPE	UNITS	AVG	MAX
K-L BERTH	ILLUMINANCE	LUX	26.4	46.0

LUMINAIRE ORIENTATION

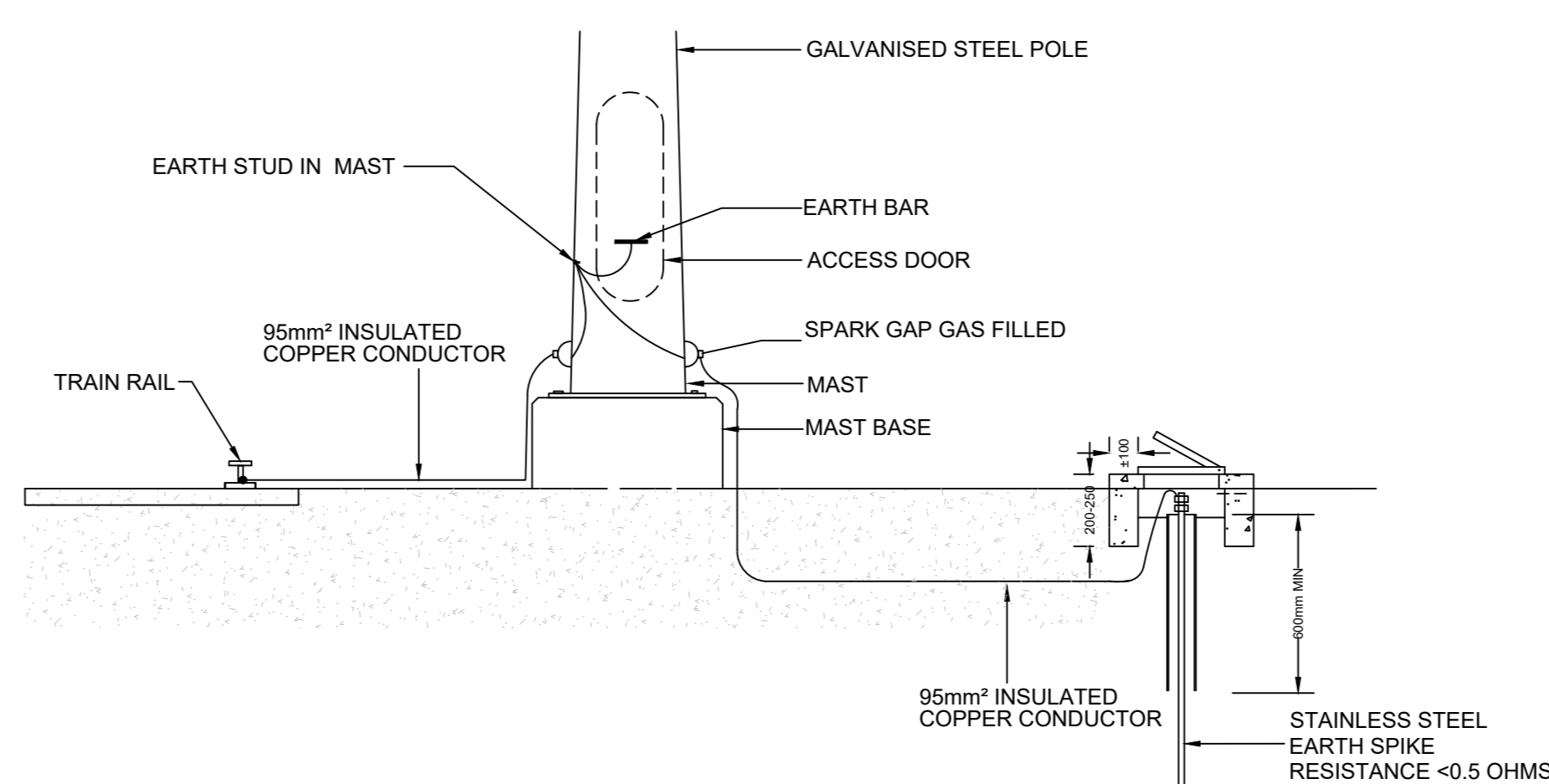


DISTRIBUTION BOARD SPECIFICATION	
SPARE WAYS	30%
DISTRIBUTION BOARD TYPE	STAND MOUNTED
MATERIAL	3CR12
THICKNESS OF MATERIAL	1.6mm
PAINT TYPE	POWDER COATED (80 MICRONS)
FRAME COLOUR	ORANGE
IP RATING	65
SWITCHGEAR MAKE	EQUAL OR SIMILAR APPROVED TO ABB

TYPICAL CABLE TRENCH DETAILS (SCALE: NTS)



TYPICAL HIGH MAST POLE EARTHING DETAILS (SCALE: NTS)



KEYPLAN (SCALE: NTS)



NOTES:

- THE WIDTH OF THE TRENCH FOR THE CASE OF MULTIPLE CABLES RUNNING IN THE SAME TRENCH IS AS FOLLOWS:
 - SPACING BETWEEN ANY TWO LV CABLES MUST BE A MINIMUM OF 300mm BETWEEN THE OUTER SHEATHING OF ANY TWO ADJACENT CABLES.
 - FOR TWO LV CABLES ADD 150mm TO THE WIDTH OF THE TRENCH AND FOR ADDITIONAL CABLES THERE AFTER ADD 300mm.
 - EACH LV CABLE SHALL HAVE ITS OWN CABLE GUARD.
- LV CABLES MUST NEVER CROSS EACH OTHER AND MUST BE LAID PARALLEL TO EACH OTHER IN THE HORIZONTAL PLANE.

ELECTRICAL NOTES:

- THIS DRAWING FOR EL&P ONLY.
- A CERTIFICATE OF COMPLIANCE TO BE COMPLETED BY CONTRACTOR ON COMPLETION OF WORK.
- ALL WORK MUST COMPLY WITH THE GENERAL REQUIREMENTS OF SANS 10142-1 (as amended), THE CONTRACTOR AND PANEL MANUFACTURER IS REFERRED SPECIFICALLY TO CLAUSE 6.6.6.6.2.6.5.3.6.6.4 AND 6.6.5.
- ALL SAMPLES OF LIGHTING AND FIXTURES TO BE APPROVED BY ELECTRICAL ENGINEER PRIOR TO ORDERING.
- ALL CABLE ROUTES ARE PROVISIONAL AND SUBJECT TO CHANGE.

NO.	DESCRIPTION / REVISIONS	DATE

FOR APPROVAL

NO.	DESCRIPTION / REVISIONS	DATE



PROJECT / AREA / ASSET / SUBJECT
PORT OF CAPE TOWN LIGHTING AND INFRASTRUCTURE UPGRADE

DRAWING TITLE			
K AND L-BERTH LIGHTING LAYOUT AND AIMING ANGLES			
DATE	03/04/2023	DESIGNED BY	TM
SCALE	AS SHOWN	CHECKED BY	LR
PROJECT NUMBER	KCTE0025-E-LA-0002-0A-SR	DRAWING NO.	
REGISTRATION NUMBER	25191677	REV.	
SIGNATURE		DATE	02/04/2023
SIGNATURE		DATE	02/04/2023
SIGNATURE		DATE	02/04/2023
SIGNATURE		DATE	02/04/2023
PAPER SIZE	A0		

DUNCAN ROAD 1 - LIGHTING LAYOUT (SCALE: 1:1000)



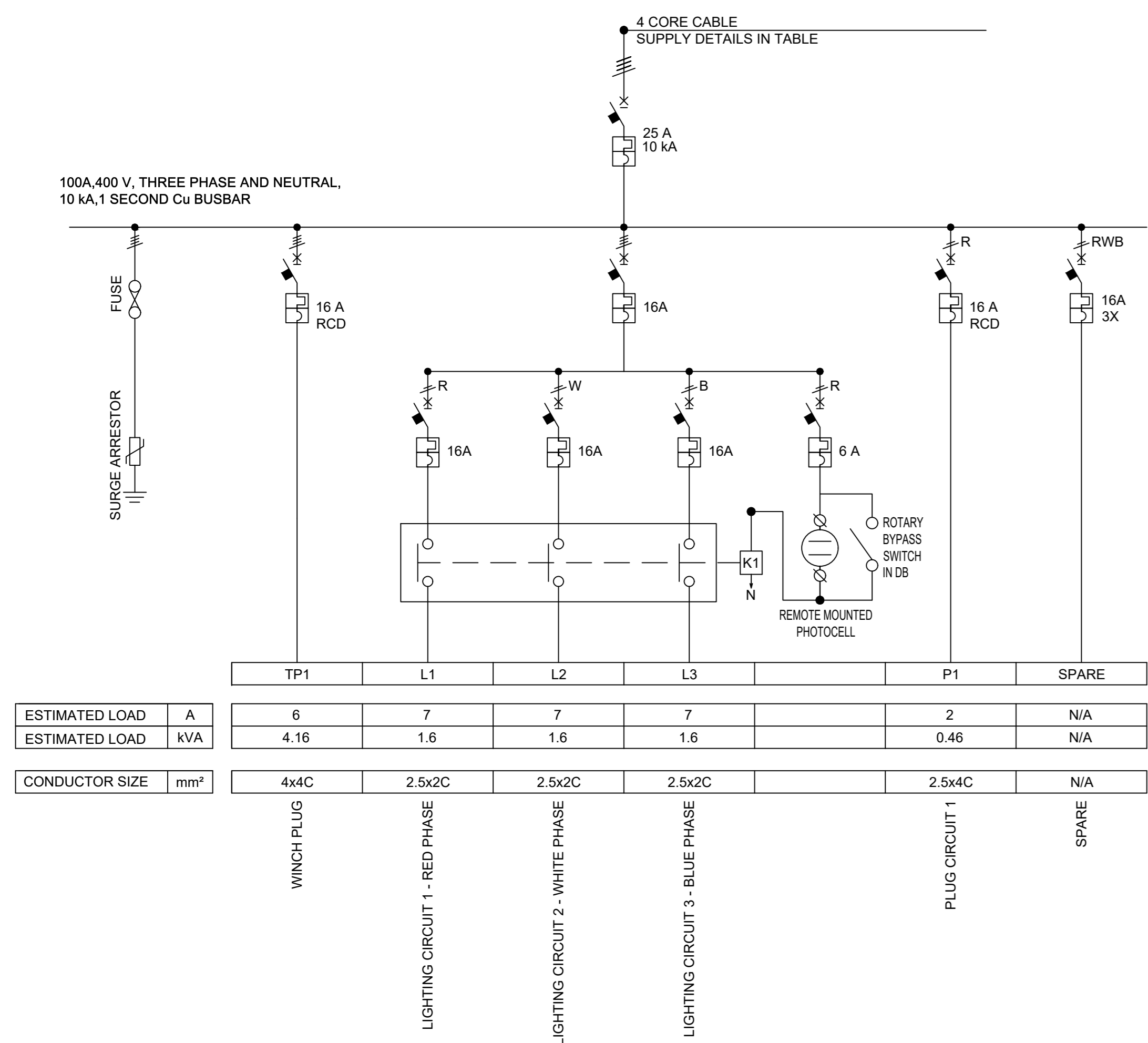
DUNCAN ROAD 1- AREA LUMINAIRE LOCATION SUMMARY (SCALE: NTS)

LUMINAIRE LOCATION SUMMARY					
MAST/POLE	LABEL	MAST/POLE HEIGHT	ORIENT.	TILT	PHASE
HM09	L1	30	90°	65°	R
HM09	L2	30	130°	65°	W
HM09	L3	30	170°	65°	B
HM09	L4	30	210°	65°	R
HM09	L5	30	250°	65°	W
HM09	L6	30	290°	65°	B
HM09	L7	30	330°	65°	R
HM09	L8	30	10°	65°	W
HM09	L9	30	50°	65°	B
HM10	L1	30	90°	65°	R
HM10	L2	30	130°	65°	W
HM10	L3	30	50°	65°	B
HM10	L4	30	10°	65°	R

LUMINAIRE LOCATION SUMMARY						LUMINAIRE LOCATION SUMMARY					
MAST/POLE	LABEL	MAST/POLE HEIGHT	ORIENT.	TILT	PHASE	MAST/POLE	LABEL	MAST/POLE HEIGHT	ORIENT.	TILT	PHASE
HM(TPT)01	L1	30	90°	65°	R	P1	L1	6	65°	15°	EX
HM(TPT)01	L2	30	130°	65°	W	P2	L1	6	65°	15°	EX
HM(TPT)01	L3	30	170°	65°	B	P3	L1	6	65°	15°	EX
HM(TPT)01	L4	30	210°	65°	R	P4	L1	6	65°	15°	EX
HM(TPT)01	L5	30	250°	65°	W	P5	L1	6	65°	15°	EX
HM(TPT)01	L6	30	290°	65°	B	P6	L1	6	65°	15°	EX
HM(TPT)01	L7	30	330°	65°	R	P7	L1	6	65°	15°	EX
HM(TPT)01	L8	30	10°	65°	W	P8	L1	6	65°	15°	EX
HM(TPT)01	L9	30	50°	65°	B	P9	L1	6	65°	15°	EX
HM(TPT)02	L1	30	90°	65°	R	P10	L1	6	65°	15°	EX
HM(TPT)02	L2	30	130°	65°	W	P11	L1	6	65°	15°	EX
HM(TPT)02	L3	30	170°	65°	B	D1	L1	12	71°	15°	R
HM(TPT)02	L4	30	210°	65°	R	D1	L2	12	131°	15°	W
HM(TPT)02	L5	30	250°	65°	W	D2	L1	9	7°	15°	EX
HM(TPT)02	L6	30	290°	65°	B	D2	L2	9	303°	15°	EX
HM(TPT)02	L7	30	330°	65°	R						
HM(TPT)02	L8	30	10°	65°	W						
HM(TPT)02	L9	30	50°	65°	B						

LEGEND	
	30M HIGH MAST BASE
	EQUAL OR SIMILAR APPROVED TO BEKA OMNIBLAST 1-E, 455W, 5188 OPTIC, 59000 LUMEN WITH A 7 PIN NEMA SOCKET - MOUNTED ON 30M HIGH MAST RING
	EQUAL OR SIMILAR APPROVED TO BEKA LEDLUME MAXI 128 LED, 135W, 5248 OPTIC WITH BOTTOM ENTRY SPIGOT FOR ADJUSTMENT UP TO 15°, INTEGRATED PHOTOCELL WITH NEMA 7-PIN SOCKET
	EQUAL OR SIMILAR APPROVED TO BEKA LEDLUME MIDL 48 LED, 104W, 5248 OPTIC WITH BOTTOM ENTRY SPIGOT FOR ADJUSTMENT UP TO 15°, INTEGRATED PHOTOCELL WITH NEMA 7-PIN SOCKET
	EARTHING AS PER TRANSNET NATIONAL PORTS AUTHORITY SPECIFICATION
	ELECTRICAL KIOSK
	ELECTRICAL CABLE

TYPICAL HIGH MAST DISTRIBUTION BOARD (SCALE: NTS)



	TP1	L1	L2	L3	P1	SPARE
ESTIMATED LOAD	6	7	7	7	2	N/A
ESTIMATED LOAD	4.16	1.6	1.6	1.6	0.46	N/A
CONDUCTOR SIZE	4x4C	2.5x2C	2.5x2C	2.5x2C	2.5x4C	N/A

DISTRIBUTION BOARD SPECIFICATION	
SPPARE WAYS	30%
DISTRIBUTION BOARD TYPE	STAND MOUNTED
MATERIAL	3CR12
THICKNESS OF MATERIAL	1.6mm
PAINT TYPE	POWDER COATED (80 MICRONS)
FRAME COLOUR	ORANGE
IP RATING	65
SWITCHGEAR MAKE	EQUAL OR SIMILAR APPROVED TO ABB

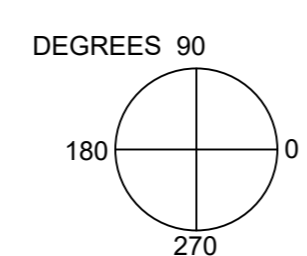
HIGH MAST AND CABLE INFORMATION

CABLE ROUTING			
CABLE PATH	CABLE TYPE	EXISTING CABLE	DIST.
CRUISE TERMINAL DB - HM09	25mm² 4 CORE CABLE	YES	60m
HM10	16mm² 4 CORE CABLE	YES	130m
HM(TPT)01	TO BE VERIFIED	YES	TBC
HM(TPT)02	TO BE VERIFIED	YES	TBC
MACHINE ROOM SUB - D1	6mm² 2 CORE ECC CABLE	NO	80m

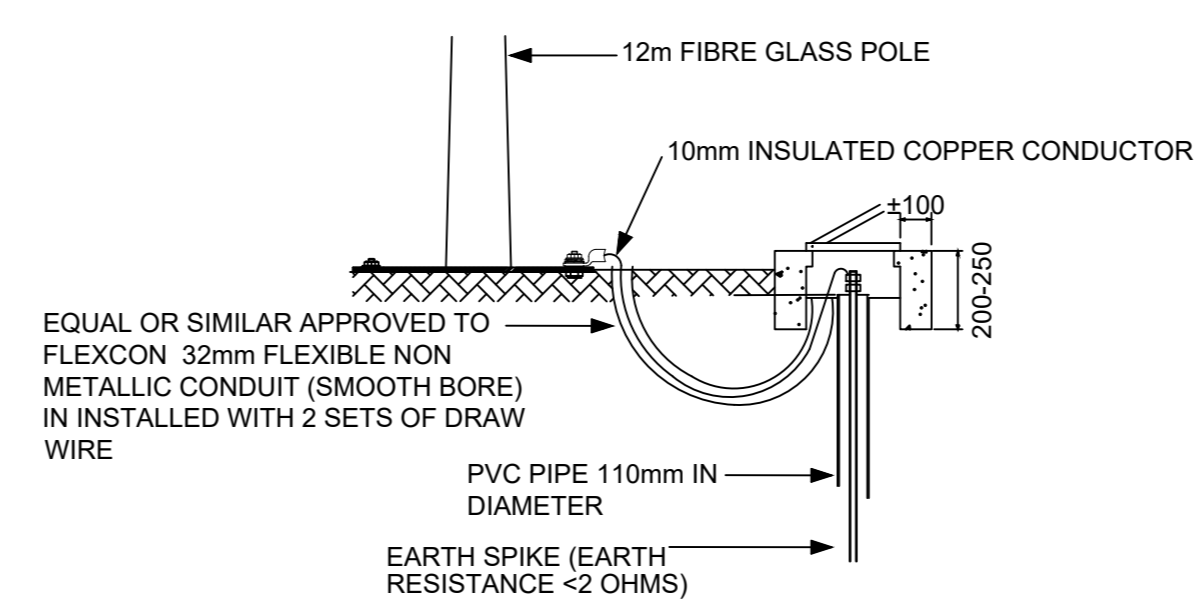
LUMINAIRE SCHEDULE			
SYMBOL	QTY	ARRANGEMENT	TOTAL LAMP LUMENS
	34	10@36° PER MAST AND 4@45°	59000
	11	1 PER MAST	15157
	1	2 PER MAST @ 60°	22856

CALCULATION SUMMARY				
AREA	CALC TYPE	UNITS	AVG	MAX
DUNCAN ROAD SECTION	ILLUMINANCE	LUX	23.6	68.4
OLD DUNCAN INTERSECTION	ILLUMINANCE	LUX	20.1	35.7

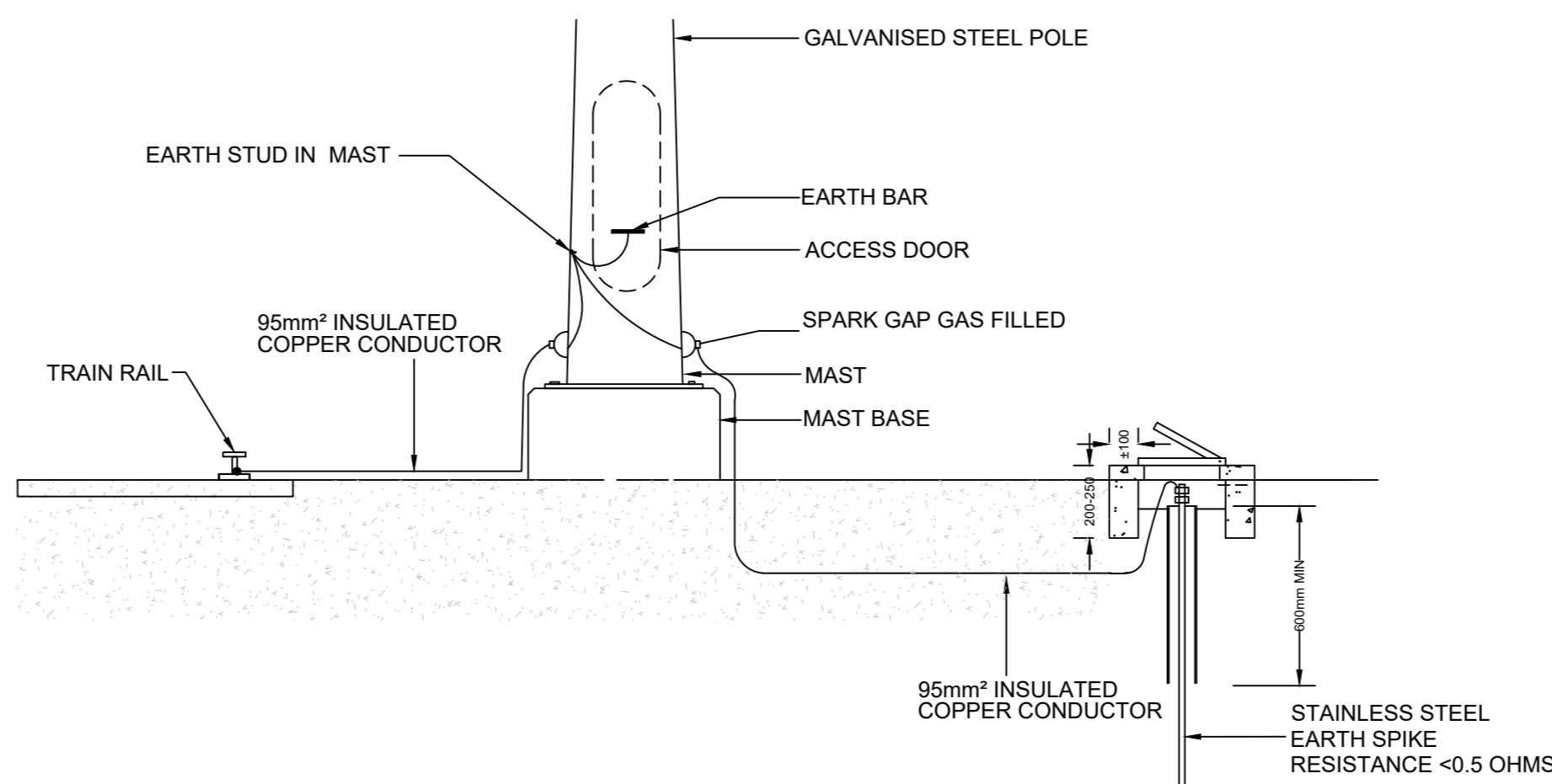
LUMINAIRE ORIENTATION



TYPICAL EARTHING DETAIL (SCALE: NTS)



TYPICAL HIGH MAST POLE EARTHING DETAILS (SCALE: NTS)



KEYPLAN (SCALE: NTS)



NOTES:

- THE WIDTH OF THE TRENCH FOR THE CASE OF MULTIPLE CABLES RUNNING IN THE SAME TRENCH IS AS FOLLOWS:
 - SPACING BETWEEN ANY TWO LV CABLES MUST BE A MINIMUM OF 300mm BETWEEN THE OUTER SHEATHING OF ANY TWO ADJACENT CABLES.
 - FOR TWO LV CABLES ADD 150mm TO THE WIDTH OF THE TRENCH AND FOR ADDITIONAL CABLES THERE AFTER ADD 300mm.
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- LV CABLES MUST NEVER CROSS EACH OTHER AND MUST BE LAID PARALLEL TO EACH OTHER IN THE HORIZONTAL PLANE.

ELECTRICAL NOTES:

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- ALL SAMPLES OF LIGHTING AND FIXTURES TO BE APPROVED BY ELECTRICAL ENGINEER PRIOR TO ORDERING.
- ALL CABLE ROUTES ARE PROVISIONAL AND SUBJECT TO CHANGE.
- ALL STREET LIGHTING POLES ARE EXISTING AND CABLING SHALL BE REUSED WITH EXISTING CIRCUITING AND SWITCHGEAR UNLESS OTHERWISE STATED.
- POLE D2 WITH LUMINAIRES IS EXISTING - CONTRACTOR TO ADJUST AIMING ANGLE AND TILTS ONLY.

DH - HARBOUR MASTER	DATE	DH - FINANCIAL MANAGER	DATE
DH - RISK MANAGER	DATE	DH - ENVIRONMENTAL MANAGER	DATE
DH - SECURITY MANAGER	DATE	DH - PROPERTY MANAGER	DATE
DH - CORPORATE AFFAIRS MANAGER	DATE	DH - MARINE OPERATIONS MANAGER	DATE
DH - MARKETING MANAGER	DATE	DH - CHIEF FIRE OFFICER	DATE

FOR APPROVAL

04 ISSUED FOR TENDER 05/04/2023



PROJECT / AREA / ASSET / SUBJECT
PORT OF CAPE TOWN LIGHTING AND INFRASTRUCTURE UPGRADE

DRAWING TITLE
DUNCAN ROAD 1 - LIGHTING LAYOUT AND AIMING ANGLES

DATE	03/04/2023	TPNPA EDS
SCALE	AS SHOWN	REGISTRATION NUMBER: 20210177
DESIGNED BY	DATE	SIGNATURE
CHECKED BY	ZM	DATE: 05/04/2023
DRAWN BY	DATE	SIGNATURE
CHECKED BY	LR	DATE: 02/04/2023
PAPER SIZE	AO	
PROJECT NUMBER	0025-E-LA-0003-0A-SR	

DUNCAN ROAD 2 - LIGHTING LAYOUT (SCALE: 1:1000)



DUNCAN ROAD 2 - AREA LUMINAIRE LOCATION SUMMARY (SCALE: NTS)

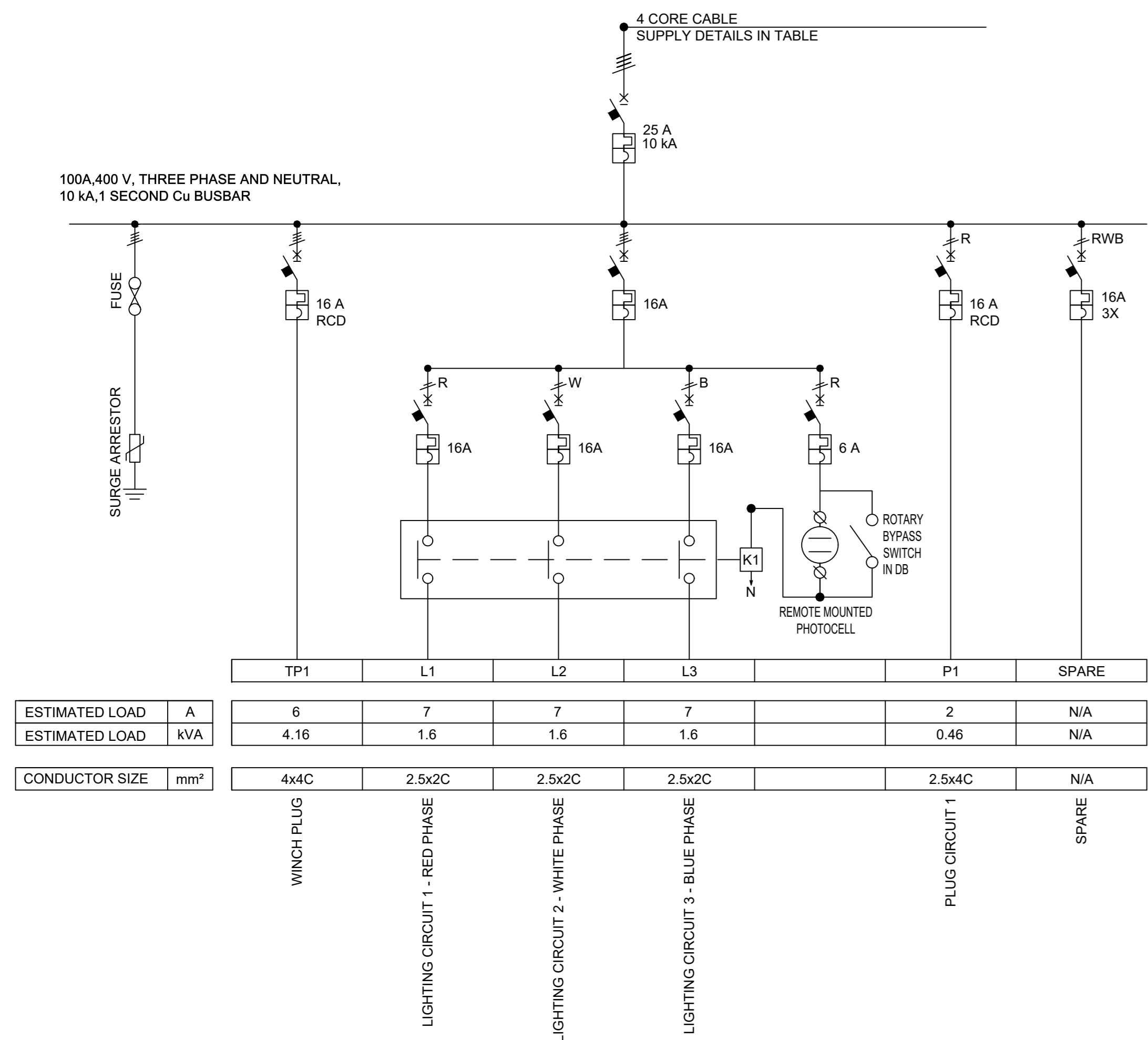
LUMINAIRE LOCATION SUMMARY					
MAST/POLE	LABEL	MAST/POLE HEIGHT	ORIENT.	TILT	PHASE
P12	L1	6	65°	15°	EX
P13	L1	6	65°	15°	EX
P14	L1	6	65°	15°	EX
P15	L1	6	65°	15°	EX
P16	L1	6	65°	15°	EX
P17	L1	6	65°	15°	EX
P18	L1	6	65°	15°	EX
P19	L1	6	50°	10°	EX
P20	L1	6	50°	10°	EX
P21	L1	6	50°	10°	EX
P22	L1	6	50°	10°	EX
P23	L1	6	50°	10°	EX
P24	L1	6	50°	10°	EX
P25	L1	6	50°	10°	EX

LUMINAIRE LOCATION SUMMARY						LUMINAIRE LOCATION SUMMARY					
MAST/POLE	LABEL	MAST/POLE HEIGHT	ORIENT.	TILT	PHASE	MAST/POLE	LABEL	MAST/POLE HEIGHT	ORIENT.	TILT	PHASE
HM(TPT)03	L1	30	90°	65°	R	D3	L1	6	49°	10°	EX
HM(TPT)03	L2	30	130°	65°	W	D3	L2	6	229°	10°	EX
HM(TPT)03	L3	30	170°	65°	B	D4	L1	6	49°	10°	EX
HM(TPT)03	L4	30	210°	65°	R	D4	L2	6	229°	10°	EX
HM(TPT)03	L5	30	250°	65°	W	D5	L1	6	49°	10°	EX
HM(TPT)03	L6	30	290°	65°	B	D5	L2	6	229°	10°	EX
HM(TPT)03	L7	30	330°	65°	R	D6	L1	6	49°	10°	EX
HM(TPT)03	L8	30	10°	65°	W	D6	L2	6	229°	10°	EX
HM(TPT)03	L9	30	50°	65°	B						
HM(TPT)04	L1	30	90°	65°	R						
HM(TPT)04	L2	30	130°	65°	W						
HM(TPT)04	L3	30	170°	65°	B						
HM(TPT)04	L4	30	210°	65°	R						
HM(TPT)04	L5	30	250°	65°	W						
HM(TPT)04	L6	30	290°	65°	B						
HM(TPT)04	L7	30	330°	65°	R						
HM(TPT)04	L8	30	10°	65°	W						
HM(TPT)04	L9	30	50°	65°	B						

LEGEND

	30M HIGH MAST BASE
	EQUAL OR SIMILAR APPROVED TO BEKA OMNIBLAST 1-E, 455W, 5188 OPTIC, 59000 LUMEN WITH A 7 PIN NEMA SOCKET - MOUNTED ON 30M HIGH MAST RING
	EQUAL OR SIMILAR APPROVED TO BEKA LEDLUME MIDI 48 LED, 104W, 5248 OPTIC WITH BOTTOM ENTRY DUAL SPIGOT FOR ADJUSTMENT UP TO 15°, INTEGRATED PHOTOCELL WITH NEMA 7-PIN SOCKET
	EQUAL OR SIMILAR APPROVED TO BEKA LEDLUME MIDI 48 LED, 104W, 5248 OPTIC WITH BOTTOM ENTRY SPIGOT FOR ADJUSTMENT UP TO 15°, INTEGRATED PHOTOCELL WITH NEMA 7-PIN SOCKET
	EARTHING AS PER TRANSNET NATIONAL PORTS AUTHORITY SPECIFICATION
	ELECTRICAL KIOSK
	ELECTRICAL CABLE

TYPICAL HIGH MAST DISTRIBUTION BOARD (SCALE: NTS)



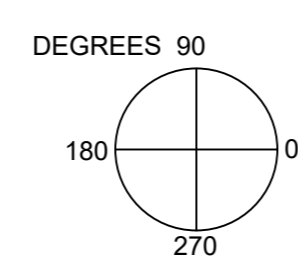
HIGH MAST AND CABLE INFORMATION

CABLE ROUTING			
CABLE PATH	CABLE TYPE	EXISTING CABLE	DIST.
HM(TPT)01	TO BE VERIFIED	YES	TBC
HM(TPT)02	TO BE VERIFIED	YES	TBC

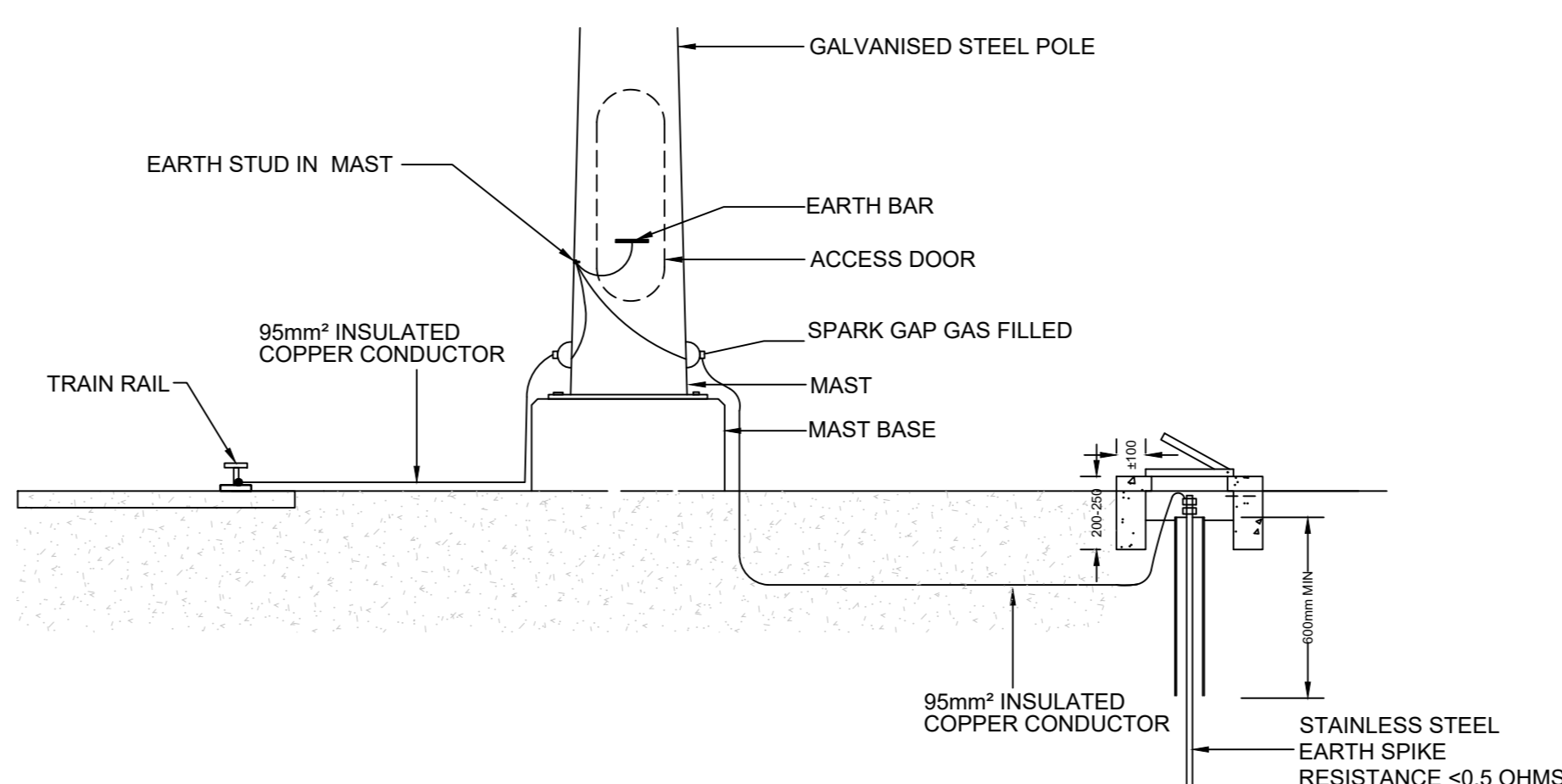
LUMINAIRE SCHEDULE			
SYMBOL	QTY	ARRANGEMENT	TOTAL LAMP LUMENS
	20	10@40° PER MAST	50000
	25	1 PER MAST	15157
	4	2 PER MAST @ 180°	15157

CALCULATION SUMMARY				
AREA	CALC TYPE	UNITS	AVG	MAX
DUNCAN ROAD SECTION	ILLUMINANCE	LUX	33.1	61.3

LUMINAIRE ORIENTATION



TYPICAL HIGH MAST POLE EARTHING DETAILS (SCALE: NTS)



KEYPLAN (SCALE: NTS)



Signature	Date	Signature	Date
Signature	Date	Signature	Date
Signature	Date	Signature	Date
Signature	Date	Signature	Date
Signature	Date	Signature	Date
Signature	Date	Signature	Date
Signature	Date	Signature	Date

FOR APPROVAL

GA	ISSUED FOR TENDER	05/04/2023
No.	DESCRIPTION / REVISIONS	DATE



PROJECT / AREA / ASSET / SUBJECT
PORT OF CAPE TOWN LIGHTING AND INFRASTRUCTURE UPGRADE

DRAWING TITLE
DUNCAN ROAD 2 - LIGHTING LAYOUT AND AIMING ANGLES

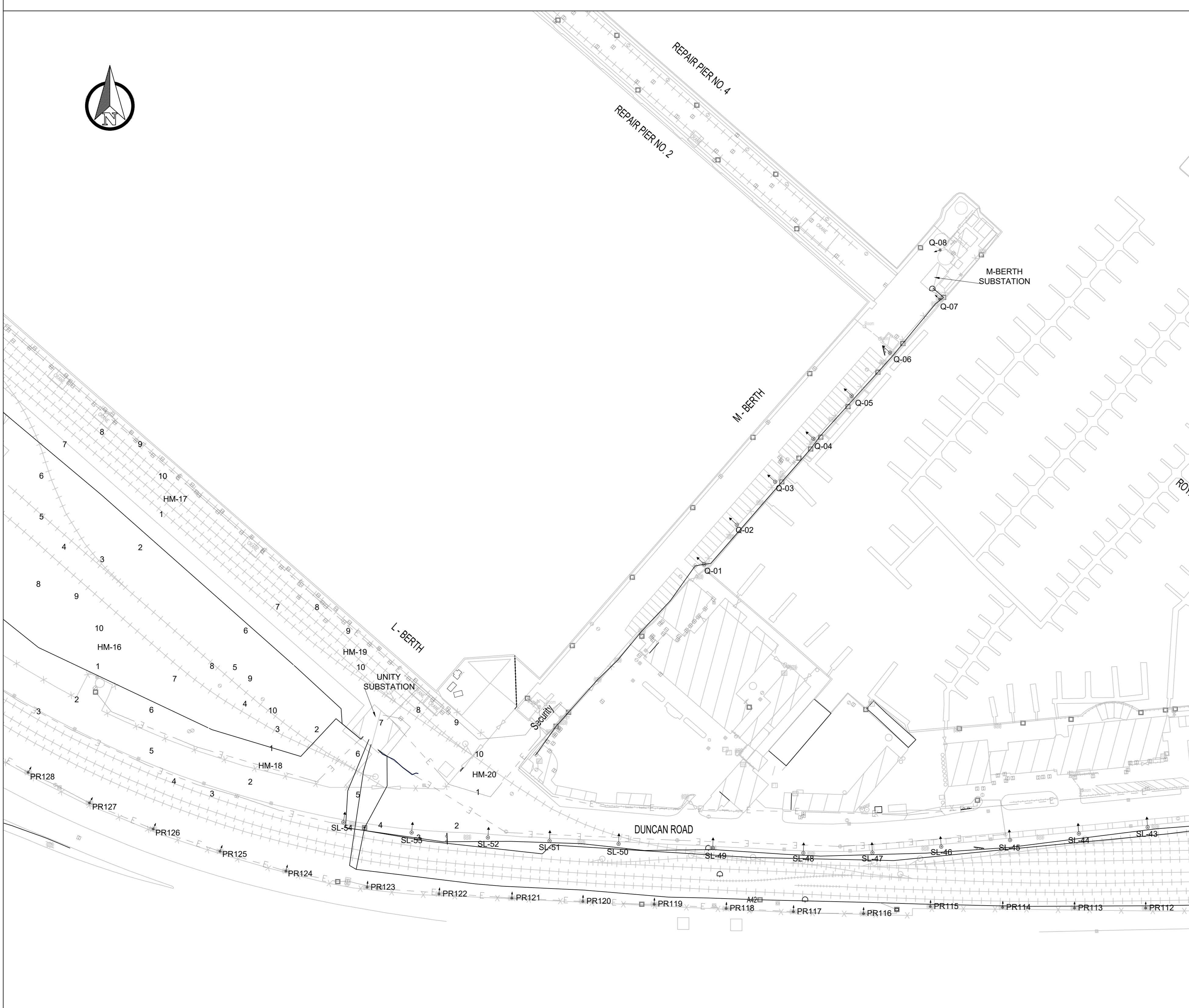
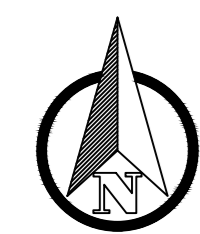
DATE	03/04/2023	TPNPA EDS
SCALE	AS SHOWN	REGISTRATION NUMBER: 20241677
DESIGNED BY	ZM	SIGNATURE: [Signature] DATE: 02/04/2023
CHECKED BY	LR	SIGNATURE: [Signature] DATE: 02/04/2023
DRAWN BY		
CHECKED BY		
PAPER SIZE	AO	

NOTES:

1. THE WIDTH OF THE TRENCH FOR THE CASE OF MULTIPLE CABLES RUNNING IN THE SAME TRENCH IS AS FOLLOWS:
 - a) SPACING BETWEEN ANY TWO LV CABLES MUST BE A MINIMUM OF 300mm BETWEEN THE OUTER SHEATHING OF ANY TWO ADJACENT CABLES.
 - b) FOR TWO LV CABLES ADD 150mm TO THE WIDTH OF THE TRENCH AND FOR ADDITIONAL CABLES THERE AFTER ADD 300mm.
 - c) EACH LV CABLE SHALL HAVE ITS OWN CABLE GUARD.
2. LV CABLES MUST NEVER CROSS EACH OTHER AND MUST BE LAID PARALLEL TO EACH OTHER IN THE HORIZONTAL PLANE.

ELECTRICAL NOTES:

1. THIS DRAWING FOR EL&P ONLY.
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3. ALL WORK MUST COMPLY WITH THE GENERAL REQUIREMENTS OF SANS 10142-1 (as amended). THE CONTRACTOR AND PANEL MANUFACTURER IS REFERRED SPECIFICALLY TO CLAUSE 6.6.6.5.2.6.5.3.6.5.4 AND 6.6.5.
4. ALL SAMPLES OF LIGHTING AND FIXTURES TO BE APPROVED BY ELECTRICAL ENGINEER PRIOR TO ORDERING.
5. ALL CABLE ROUTES ARE PROVISIONAL AND SUBJECT TO CHANGE.



LUMINAIRE LOCATION SUMMARY					
MAST/POLE	LABEL	MAST/POLE HEIGHT	ORIENT.	TILT	PHASE
PR112	L1	6	89°	15°	EX
PR113	L1	6	89°	15°	EX
PR114	L1	6	89°	15°	EX
PR115	L1	6	89°	15°	EX
PR116	L1	6	89°	15°	EX
PR117	L1	6	65°	15°	EX
PR118	L1	6	65°	15°	EX
PR119	L1	6	50°	10°	EX
PR120	L1	6	50°	10°	EX
PR121	L1	6	50°	10°	EX
PR122	L1	6	50°	10°	EX
PR123	L1	6	84°	10°	EX
PR124	L1	6	74°	10°	EX
PR125	L1	6	69°	10°	EX
PR126	L1	6	66°	10°	EX
PR127	L1	6	61°	10°	EX
PR128	L1	6	61°	10°	EX

LUMINAIRE LOCATION SUMMARY						LUMINAIRE LOCATION SUMMARY					
MAST/POLE	LABEL	MAST/POLE HEIGHT	ORIENT.	TILT	PHASE	MAST/POLE	LABEL	MAST/POLE HEIGHT	ORIENT.	TILT	PHASE
SL43	L1	12	95°	10°	R	Q01	L1	12	137°	15°	R
SL44	L1	12	95°	10°	W	Q02	L1	12	137°	15°	W
SL45	L1	12	95°	10°	B	Q03	L1	12	137°	15°	B
SL46	L1	12	95°	10°	R	Q04	L1	12	137°	15°	R
SL47	L1	12	93°	10°	W	Q05	L1	12	137°	15°	W
SL48	L1	12	88°	10°	B	Q06	L1	12	137°	15°	B
SL49	L1	12	88°	10°	R	Q07	L1	9	137°	10°	EX
SL50	L1	12	88°	10°	W	Q08	L1	6	197°	10°	EX
SL51	L1	12	88°	10°	B						
SL52	L1	12	86°	10°	R						
SL53	L1	12	84°	10°	W						
SL54	L1	12	80°	10°	B						

	EQUAL OR SIMILAR APPROVED TO BEKA LEDLUME MAXI 128 LED, 135W, 5248 OPTIC WITH BOTTOM ENTRY SPIGOT FOR ADJUSTMENT UP TO 15°, INTEGRATED PHOTOCELL WITH NEMA 7-PIN SOCKET
	EQUAL OR SIMILAR APPROVED TO BEKA LEDLUME MUDI 48 LED, 104W, 5248 OPTIC WITH BOTTOM ENTRY SPIGOT FOR ADJUSTMENT UP TO 15°, INTEGRATED PHOTOCELL WITH NEMA 7-PIN SOCKET
	EARTHING AS PER TRANSNET NATIONAL PORTS AUTHORITY SPECIFICATION
	ELECTRICAL KIOSK
	ELECTRICAL CABLE

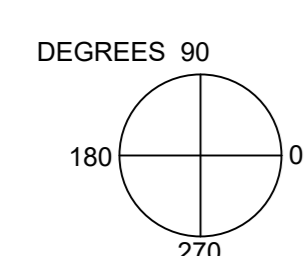
HIGH MAST AND CABLE INFORMATION

CABLE ROUTING			
CABLE PATH	CABLE TYPE	EXISTING CABLE	DIST.
M-BERTH SUB - Q1-6	TO BE VERIFIED	YES	170M
UNITY SUBSTATION - SL CIRCUIT	TO BE VERIFIED	YES	TBC

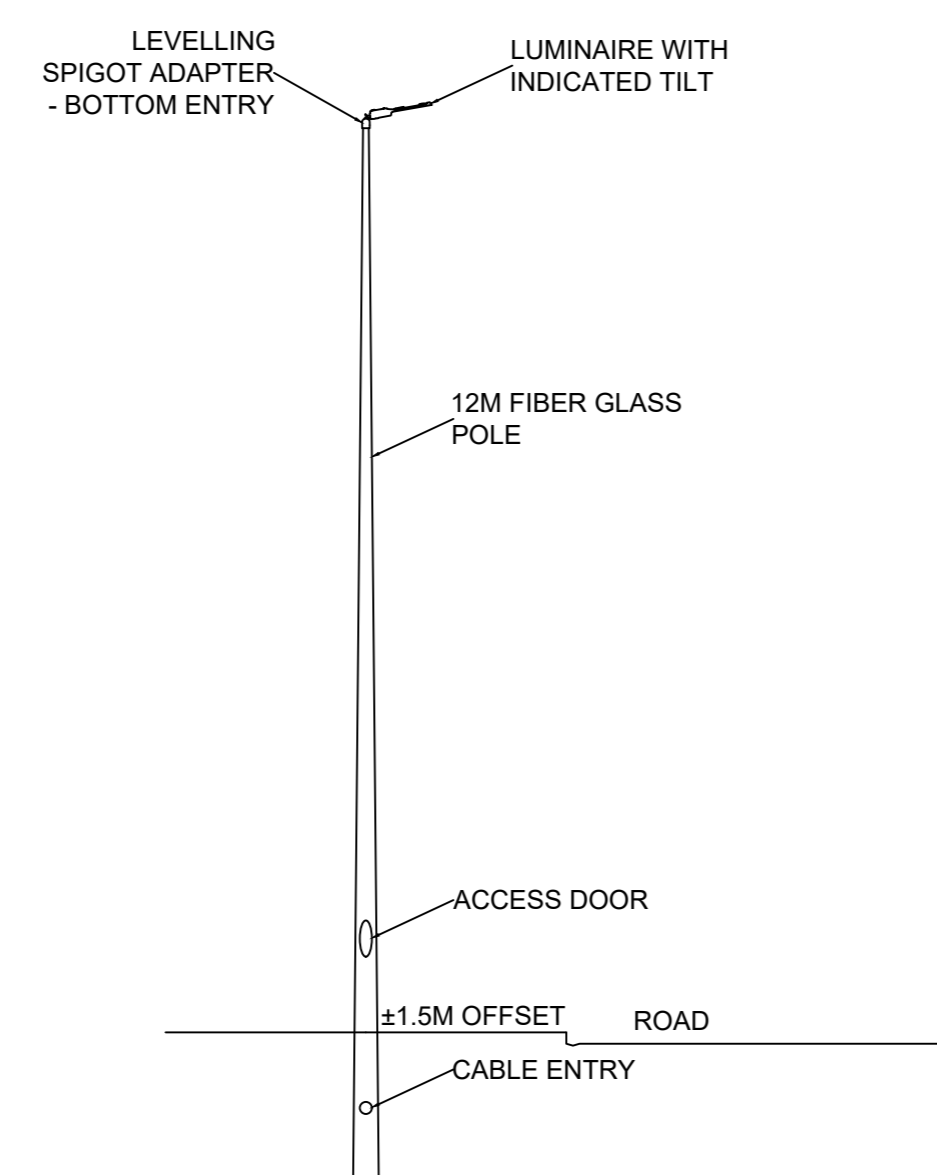
LUMINAIRE SCHEDULE			
SYMBOL	QTY	ARRANGEMENT	TOTAL LAMP LUMENS
--	19	1 PER MAST	15157
←→	18	1 PER MAST	22656

CALCULATION SUMMARY				
AREA	CALC TYPE	UNITS	AVG	MAX
DUNCAN ROAD SECTION	ILLUMINANCE	LUX	20.4	30.6
M-BERTH ACCESS	ILLUMINANCE	LUX	22.3	31.9

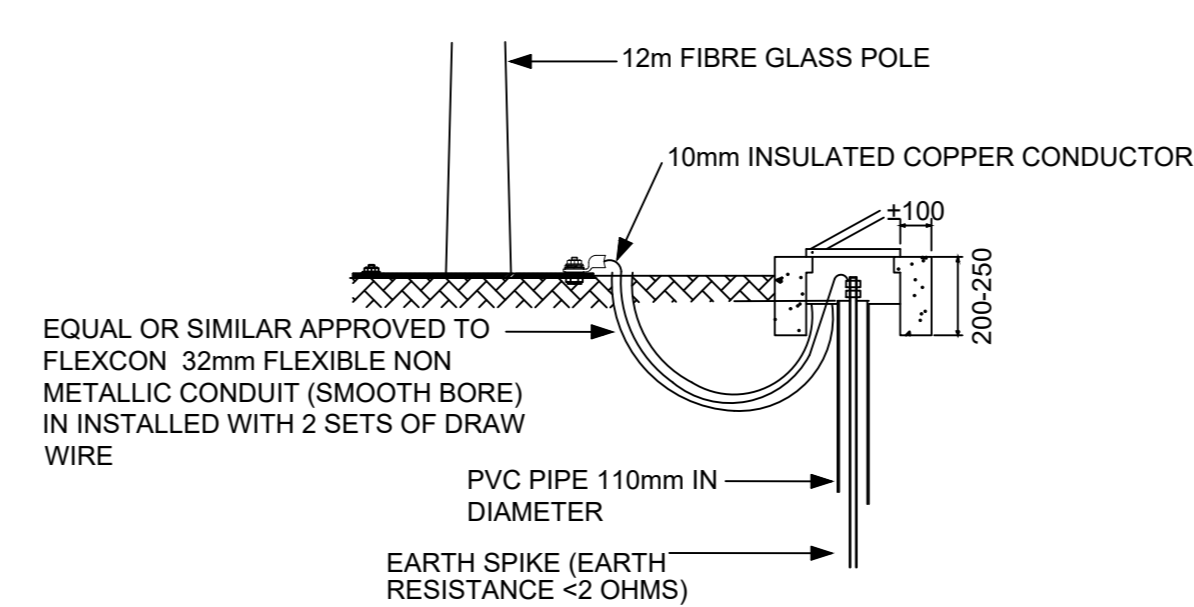
LUMINAIRE ORIENTATION



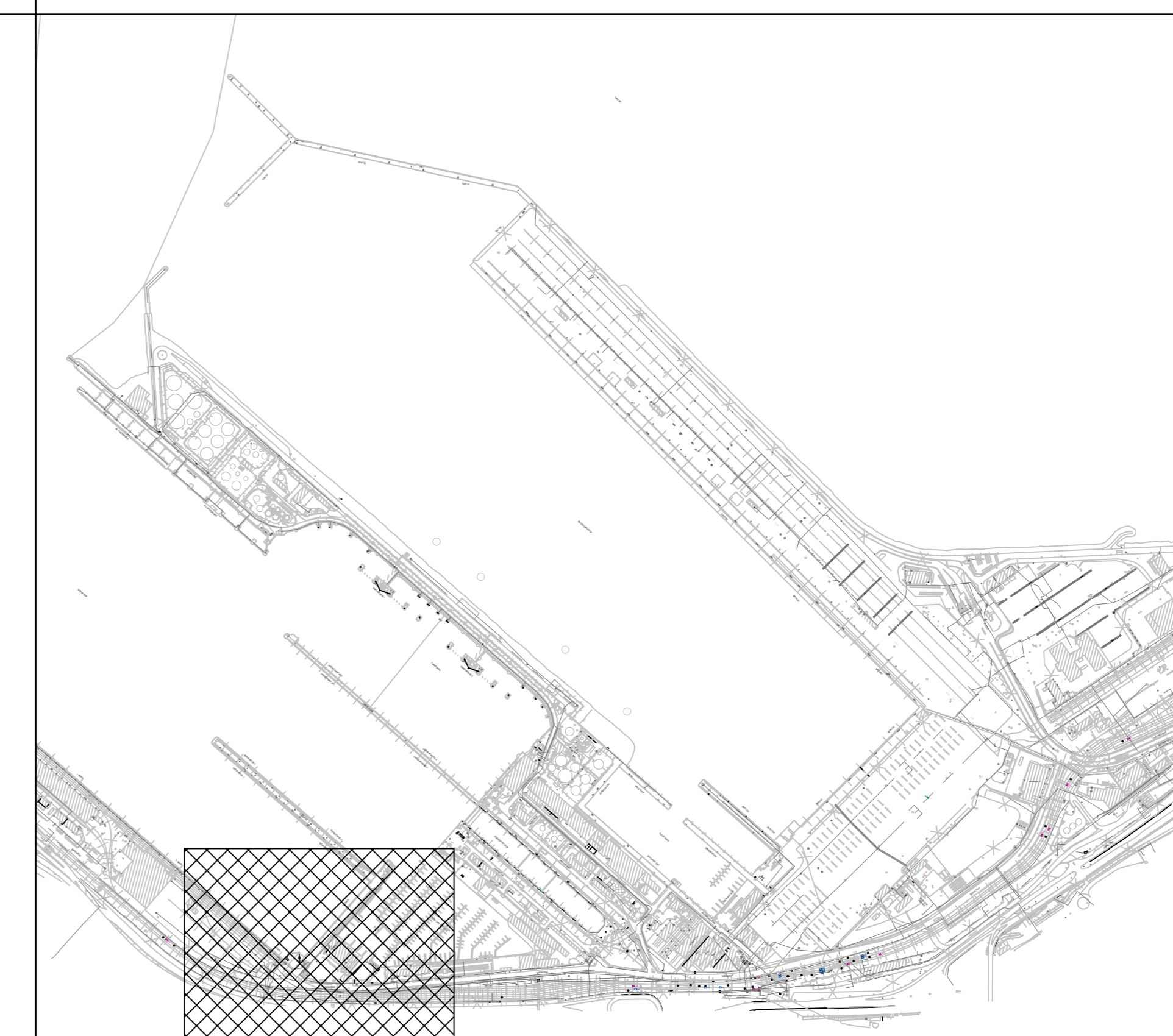
TYPICAL 12M STREET LIGHTING POLE (SCALE:NTS)



TYPICAL EARTHING DETAIL (SCALE:NTS)



KEYPLAN (SCALE: NTS)



NOTES:

- THE WIDTH OF THE TRENCH FOR THE CASE OF MULTIPLE CABLES RUNNING IN THE SAME TRENCH IS AS FOLLOWS:
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- ALL SAMPLES OF LIGHTING AND FIXTURES TO BE APPROVED BY ELECTRICAL ENGINEER PRIOR TO ORDERING
- ALL CABLE ROUTES ARE PROVISIONAL AND SUBJECT TO CHANGE

DH - HARBOUR MASTER	DATE	SIGNATURE	DATE	DH - FINANCIAL MANAGER	DATE	SIGNATURE
DH - RISK MANAGER	DATE	SIGNATURE	DATE	DH - ENVIRONMENTAL MANAGER	DATE	SIGNATURE
DH - SECURITY MANAGER	DATE	SIGNATURE	DATE	DH - PROPERTY MANAGER	DATE	SIGNATURE
DH - CORPORATE AFFAIRS MANAGER	DATE	SIGNATURE	DATE	DH - MARINE OPERATIONS MANAGER	DATE	SIGNATURE
DH - MARKETING MANAGER	DATE	SIGNATURE	DATE	DH - CHIEF FIRE OFFICER	DATE	SIGNATURE

FOR APPROVAL

DA	ISSUED FOR TENDER	05/04/2023
No.	DESCRIPTION / REVISIONS	DATE



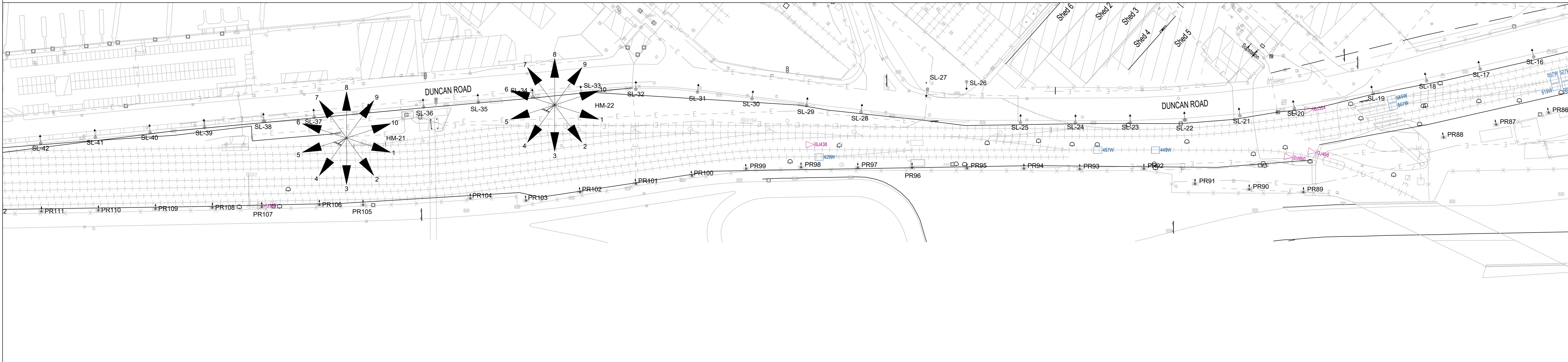
PROJECT / AREA / ASSET / SUBJECT
PORT OF CAPE TOWN LIGHTING AND INFRASTRUCTURE UPGRADE

DRAWING TITLE
DUNCAN ROAD 3 AND M-BERTH ACCESS - LIGHTING LAYOUT AND AIMING ANGLES

DATE	03/04/2023	PROJECT MANAGER	J. MALHOTRA
SCALE	AS SHOWN	REGISTRATION NUMBER	20510177
DESIGNED BY	DATE	SIGNATURE	DATE
CHECKED BY	ZM	DATE	03/04/2023
DRAWN BY	DATE	DATE	03/04/2023
CHECKED BY	LR	DATE	03/04/2023
PAPER SIZE	A0		

PROJECT NUMBER	DISC	TYPE	DRAWING NO.	REV.	ID
KCTE0025	E	LA	0005	0A	SR

DUNCAN ROAD 4 - LIGHTING LAYOUT (SCALE: 1:1000)



LEGEND	
	EQUAL OR SIMILAR APPROVED TO BEKA OMNIBLAST 1-E, 455W, 5188 OPTIC, 59000 LUMEN WITH A 7 PIN NEMA SOCKET
	EQUAL OR SIMILAR APPROVED TO BEKA LEDLUME MAXI 128 LED, 135W, 5248 OPTIC WITH BOTTOM ENTRY SPIGOT FOR ADJUSTMENT UP TO 15°, INTEGRATED PHOTOCELL WITH NEMA 7-PIN SOCKET
	EQUAL OR SIMILAR APPROVED TO BEKA LEDLUME MIDI 48 LED, 104W, 5248 OPTIC WITH BOTTOM ENTRY SPIGOT FOR ADJUSTMENT UP TO 15°, INTEGRATED PHOTOCELL WITH NEMA 7-PIN SOCKET
	EARTHING AS PER TRANSNET NATIONAL PORTS AUTHORITY SPECIFICATION
	ELECTRICAL KIOSK
	ELECTRICAL CABLE

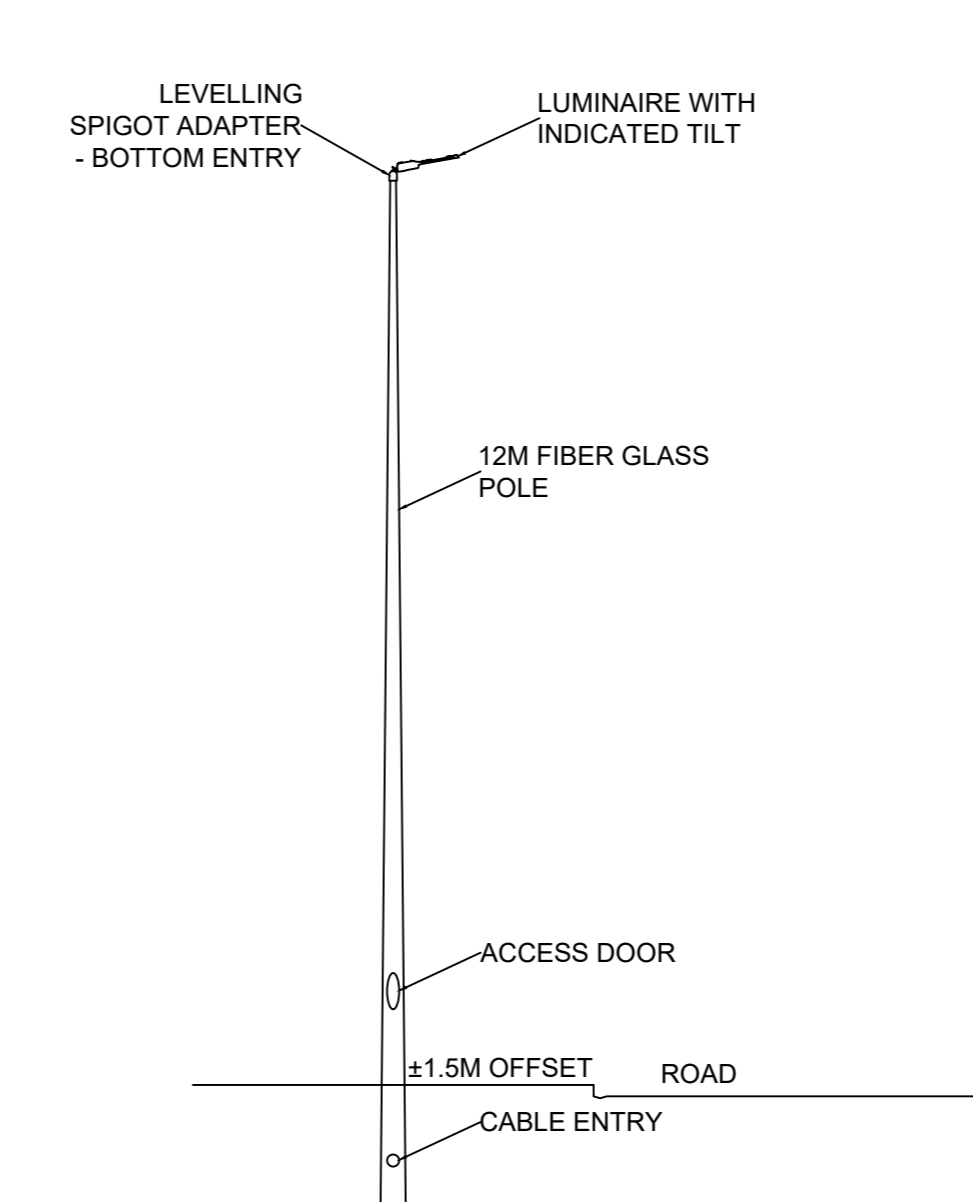
DUNCAN ROAD 4- AREA LUMINAIRE LOCATION SUMMARY (SCALE: NTS)

TYPICAL 12M STREET LIGHTING POLE (SCALE:NTS)

LUMINAIRE LOCATION SUMMARY					
MAST/POLE	LABEL	MAST/POLE HEIGHT	ORIENT.	TILT	PHASE
PR86	L1	6	103°	10°	EX
PR87	L1	6	103°	10°	EX
PR88	L1	6	103°	10°	EX
PR89	L1	6	90°	10°	EX
PR90	L1	6	90°	10°	EX
PR91	L1	6	90°	10°	EX
PR92	L1	6	90°	10°	EX
PR93	L1	6	90°	10°	EX
PR94	L1	6	90°	10°	EX
PR95	L1	6	90°	10°	EX
PR96	L1	6	90°	10°	EX
PR97	L1	6	90°	10°	EX
PR98	L1	6	90°	10°	EX
PR99	L1	6	97°	10°	EX
PR100	L1	6	99°	10°	EX
PR101	L1	6	99°	10°	EX
PR102	L1	6	99°	10°	EX
PR103	L1	6	99°	10°	EX

LUMINAIRE LOCATION SUMMARY					
MAST/POLE	LABEL	MAST/POLE HEIGHT	ORIENT.	TILT	PHASE
PR104	L1	6	93°	10°	EX
PR105	L1	6	90°	10°	EX
PR106	L1	6	90°	10°	EX
PR107	L1	6	90°	10°	EX
PR108	L1	6	90°	10°	EX
PR109	L1	6	90°	10°	EX
PR110	L1	6	90°	10°	EX
PR111	L1	6	90°	10°	EX

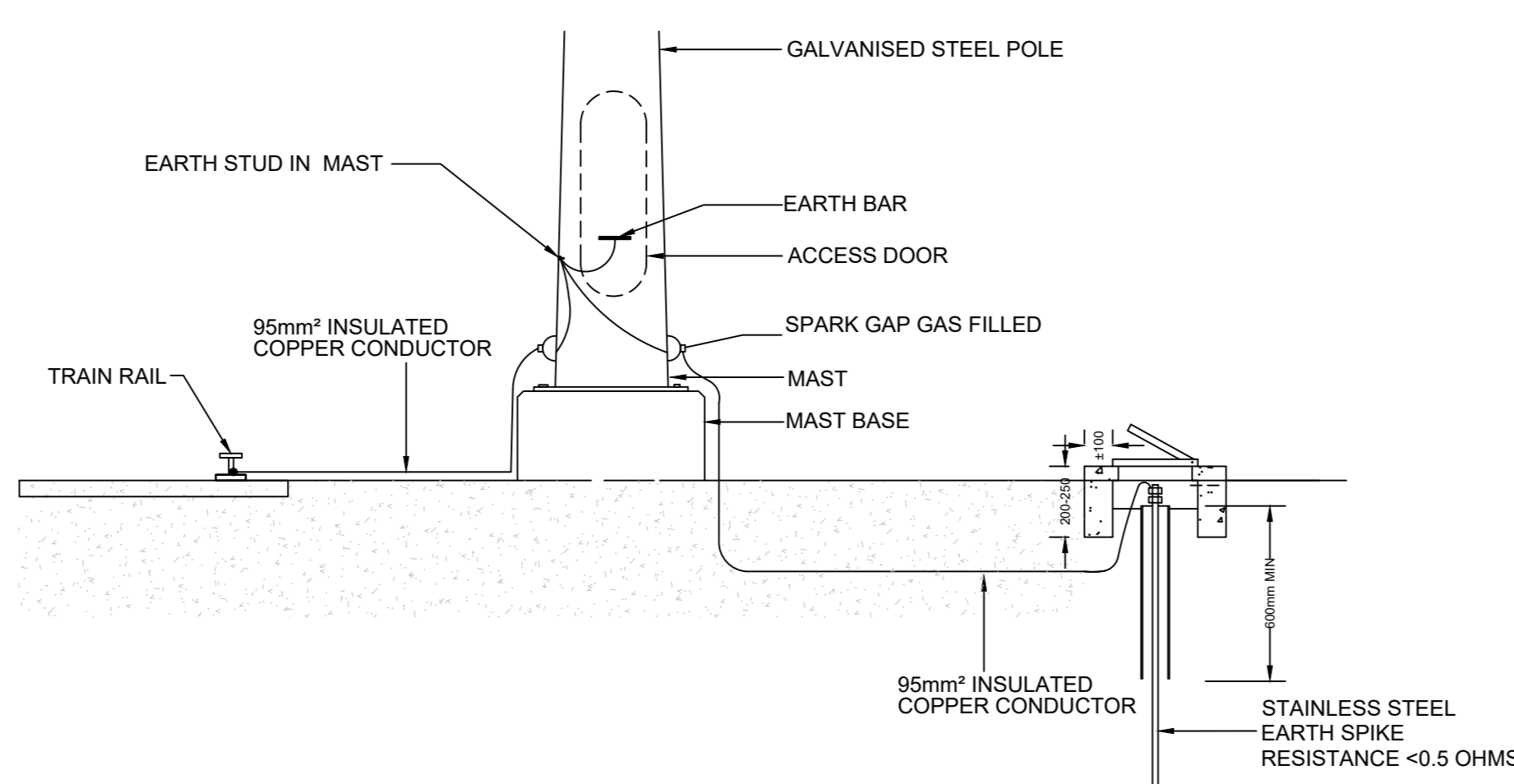
LUMINAIRE LOCATION SUMMARY					
MAST/POLE	LABEL	MAST/POLE HEIGHT	ORIENT.	TILT	PHASE
HM21	L1	30	90°	65°	R
HM21	L2	30	130°	65°	W
HM21	L3	30	170°	65°	B
HM21	L4	30	210°	65°	R
HM21	L5	30	250°	65°	W
HM21	L6	30	290°	65°	B
HM21	L7	30	330°	65°	R
HM21	L8	30	10°	65°	W
HM21	L9	30	50°	65°	B
HM22	L1	30	90°	65°	R
HM22	L2	30	130°	65°	W
HM22	L3	30	170°	65°	B
HM22	L4	30	210°	65°	R
HM22	L5	30	250°	65°	W
HM22	L6	30	290°	65°	B
HM22	L7	30	330°	65°	R
HM22	L8	30	10°	65°	W
HM22	L9	30	50°	65°	B



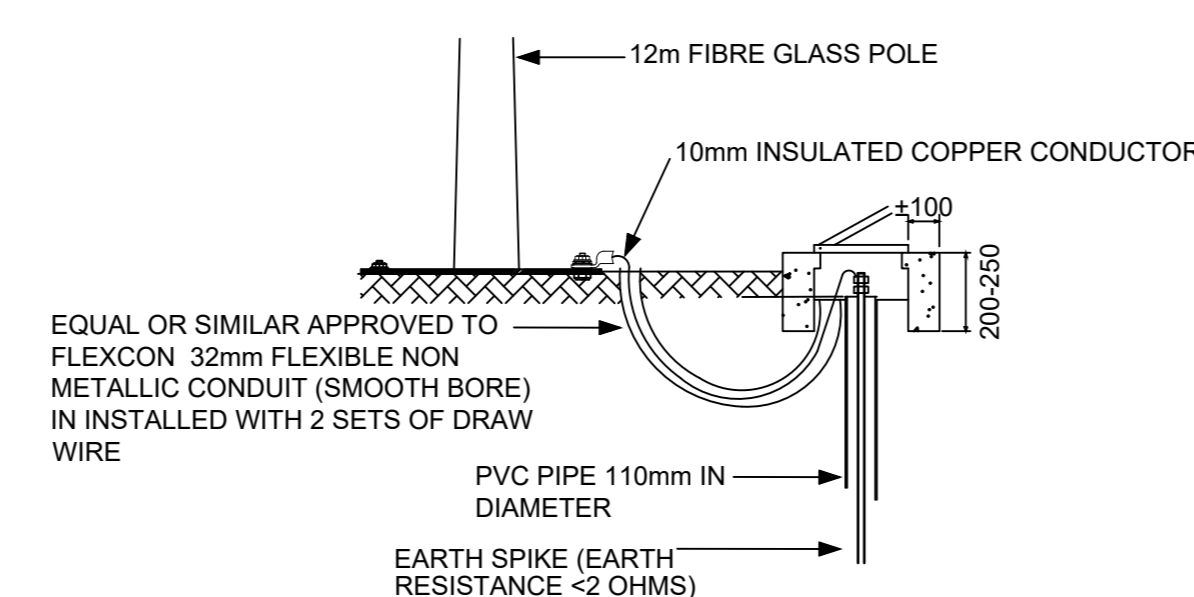
LUMINAIRE LOCATION SUMMARY					
MAST/POLE	LABEL	MAST/POLE HEIGHT	ORIENT.	TILT	PHASE
SL16	L1	12	103°	10°	R
SL17	L1	12	103°	10°	W
SL18	L1	12	103°	10°	B
SL19	L1	12	103°	10°	R
SL20	L1	12	103°	10°	W
SL21	L1	12	103°	10°	B
SL22	L1	12	100°	10°	R
SL23	L1	12	98°	10°	W
SL24	L1	12	94°	10°	B
SL25	L1	12	92°	10°	R
SL26	L1	12	89°	10°	W
SL27	L1	12	89°	10°	B
SL28	L1	12	89°	10°	R
SL29	L1	12	84°	10°	W
SL30	L1	12	83°	10°	B
SL31	L1	12	83°	10°	R
SL32	L1	12	83°	10°	W
SL33	L1	12	83°	10°	B

LUMINAIRE LOCATION SUMMARY					
MAST/POLE	LABEL	MAST/POLE HEIGHT	ORIENT.	TILT	PHASE
SL34	L1	12	90°	10°	R
SL35	L1	12	94°	10°	W
SL36	L1	12	97°	10°	B
SL37	L1	12	95°	10°	R
SL38	L1	12	95°	10°	W
SL39	L1	12	95°	10°	B
SL40	L1	12	95°	10°	R
SL41	L1	12	95°	10°	W
SL42	L1	12	95°	10°	B

TYPICAL HIGH MAST POLE EARTHING DETAILS (SCALE: NTS)



TYPICAL EARTHING DETAIL (SCALE:NTS)



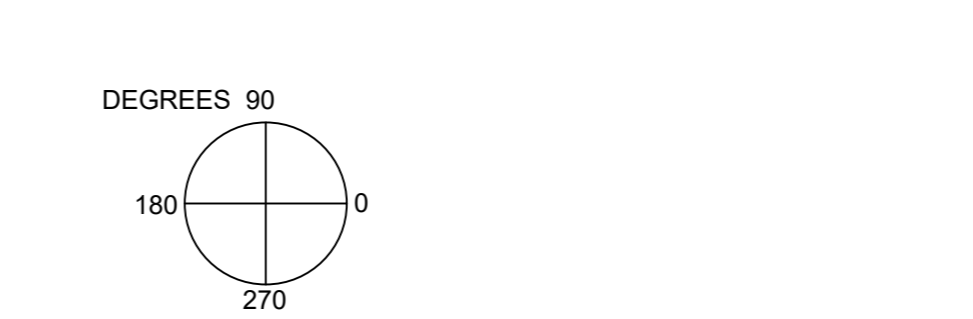
HIGH MAST AND CABLE INFORMATION

CABLE ROUTING			
CABLE PATH	CABLE TYPE	EXISTING CABLE	DIST.
M-BERTH SUB - Q1-6	TO BE VERIFIED	YES	170M
UNITY SUBSTATION - SL CIRCUIT	TO BE VERIFIED	YES	TBC

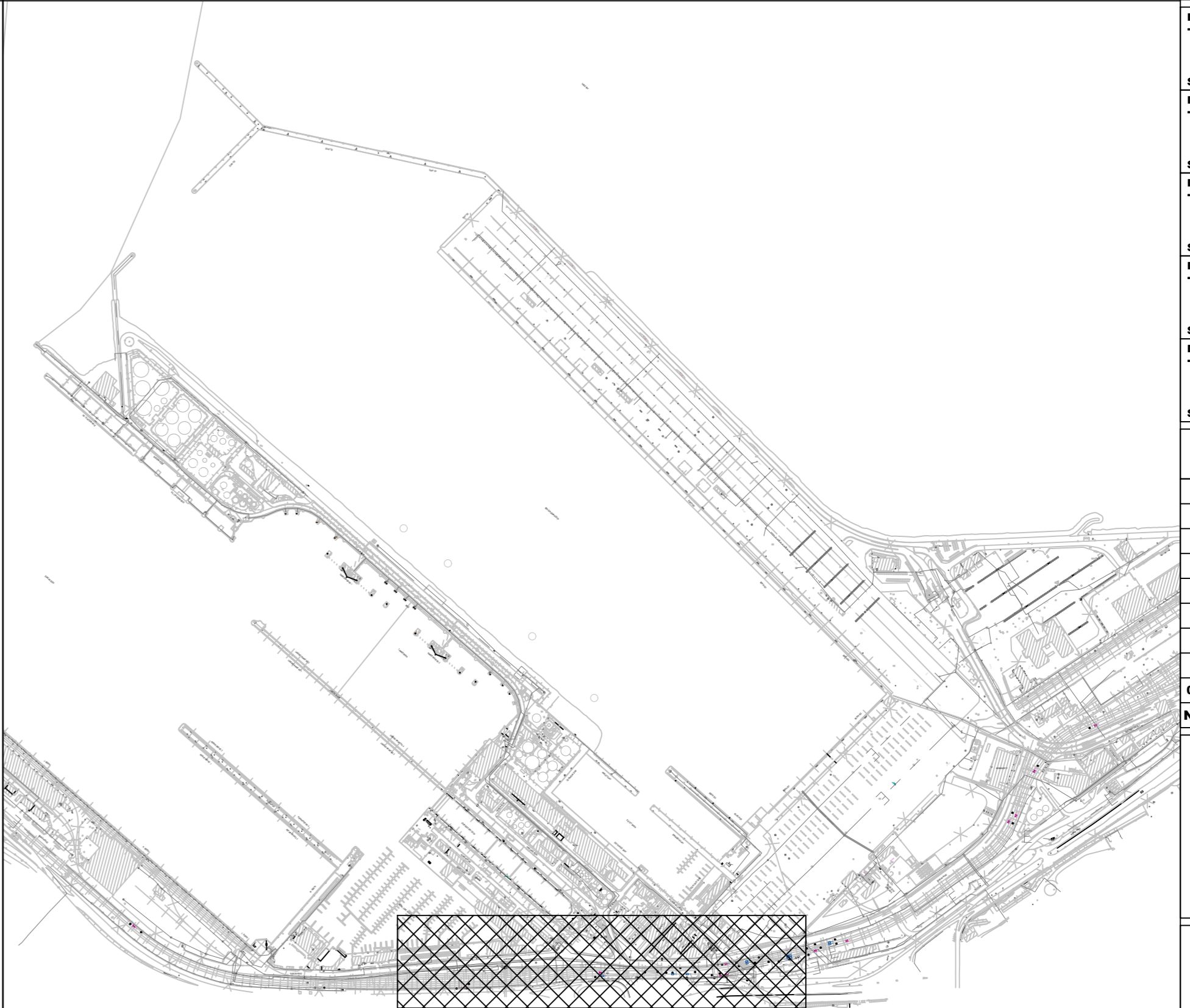
LUMINAIRE SCHEDULE			
SYMBOL	QTY	ARRANGEMENT	TOTAL LAMP LUMENS
↔	26	1 PER MAST	15157
↔↔	27	1 PER MAST	22656
▶	20	10@36° PER MAST	59000

CALCULATION SUMMARY				
AREA	CALC TYPE	UNITS	AVG	MAX
DUNCAN ROAD SECTION	ILLUMINANCE	LUX	21.2	32.1

LUMINAIRE ORIENTATION



KEYPLAN (SCALE: NTS)



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 5. ALL CABLE ROUTES ARE PROVISIONAL AND SUBJECT TO CHANGE

DH - HARBOUR MASTER	DATE	SIGNATURE	DATE	DH - FINANCIAL MANAGER	DATE	SIGNATURE
DH - RISK MANAGER	DATE	SIGNATURE	DATE	DH - ENVIRONMENTAL MANAGER	DATE	SIGNATURE
DH - SECURITY MANAGER	DATE	SIGNATURE	DATE	DH - PROPERTY MANAGER	DATE	SIGNATURE
DH - CORPORATE AFFAIRS MANAGER	DATE	SIGNATURE	DATE	DH - MARINE OPERATIONS MANAGER	DATE	SIGNATURE
DH - MARKETING MANAGER	DATE	SIGNATURE	DATE	DH - CHIEF FIRE OFFICER	DATE	SIGNATURE

FOR APPROVAL

NO.	ISSUED FOR TENDER	05/04/2023
DESCRIPTION / REVISIONS	DATE	

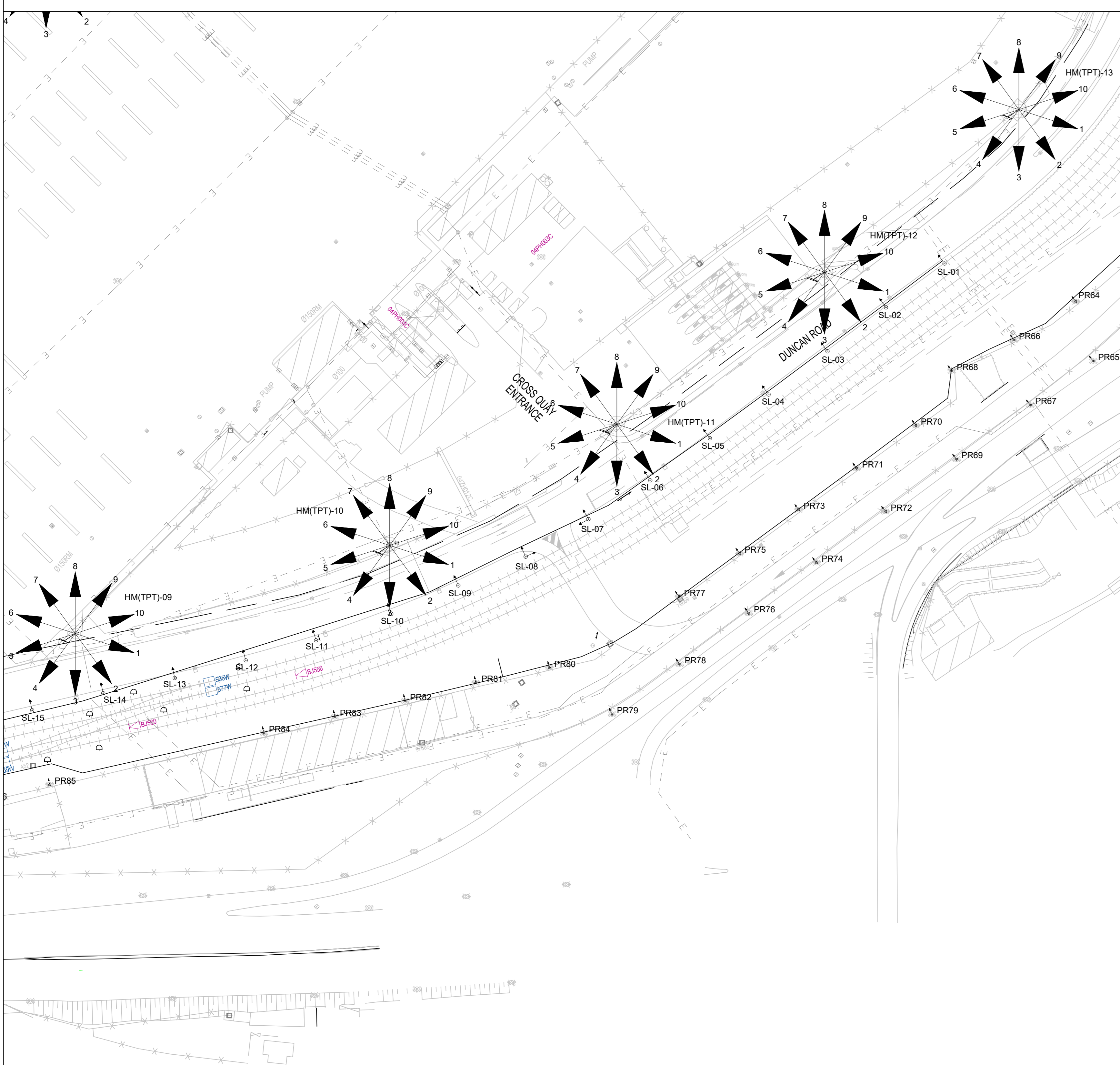


PROJECT / AREA / ASSET / SUBJECT
PORT OF CAPE TOWN LIGHTING AND INFRASTRUCTURE UPGRADE

DRAWING TITLE
DUNCAN ROAD 4 - LIGHTING LAYOUT AND AIMING ANGLES

DATE	03/04/2023	TPNA EDS
SCALE	AS SHOWN	REGISTRATION NUMBER: 20519167
DESIGNED BY	ZM	DATE: 03/04/2023
DRAWN BY	LR	DATE: 03/04/2023
CHECKED BY	LR	DATE: 03/04/2023
PAPER SIZE	A0	
PROJECT NUMBER	00025-E-LA-0006-0A-SR	

DUNCAN ROAD 5 - LIGHTING LAYOUT (SCALE: 1:1000)



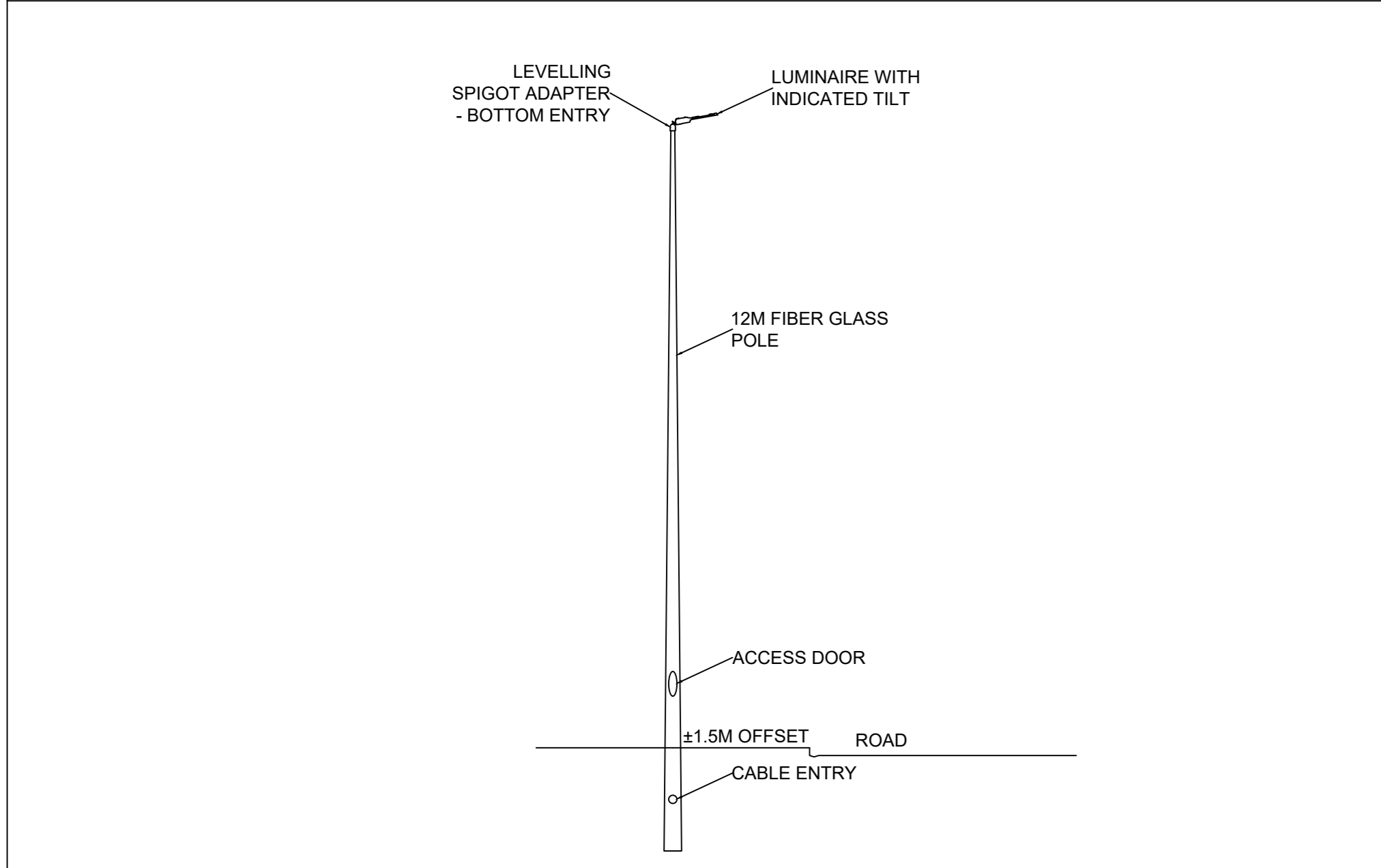
DUNCAN ROAD 5 - AREA LUMINAIRE LOCATION SUMMARY (SCALE: NTS)

LUMINAIRE LOCATION SUMMARY						LUMINAIRE LOCATION SUMMARY					
MAST/POLE	LABEL	MAST/POLE HEIGHT	ORIENT.	TILT	PHASE	MAST/POLE	LABEL	MAST/POLE HEIGHT	ORIENT.	TILT	PHASE
HM(TPT)09	L1	30	90°	65°	R	HM(TPT)11	L1	30	90°	65°	R
HM(TPT)09	L2	30	130°	65°	W	HM(TPT)11	L2	30	130°	65°	W
HM(TPT)09	L3	30	170°	65°	B	HM(TPT)11	L3	30	170°	65°	B
HM(TPT)09	L4	30	210°	65°	R	HM(TPT)11	L4	30	210°	65°	R
HM(TPT)09	L5	30	250°	65°	W	HM(TPT)11	L5	30	250°	65°	W
HM(TPT)09	L6	30	290°	65°	B	HM(TPT)11	L6	30	290°	65°	B
HM(TPT)09	L7	30	330°	65°	R	HM(TPT)11	L7	30	330°	65°	R
HM(TPT)09	L8	30	10°	65°	W	HM(TPT)11	L8	30	10°	65°	W
HM(TPT)09	L9	30	50°	65°	B	HM(TPT)11	L9	30	50°	65°	B
HM(TPT)10	L1	30	90°	65°	R	HM(TPT)12	L1	30	90°	65°	R
HM(TPT)10	L2	30	130°	65°	W	HM(TPT)12	L2	30	130°	65°	W
HM(TPT)10	L3	30	170°	65°	B	HM(TPT)12	L3	30	170°	65°	B
HM(TPT)10	L4	30	210°	65°	R	HM(TPT)12	L4	30	210°	65°	R
HM(TPT)10	L5	30	250°	65°	W	HM(TPT)12	L5	30	250°	65°	W
HM(TPT)10	L6	30	290°	65°	B	HM(TPT)12	L6	30	290°	65°	B
HM(TPT)10	L7	30	330°	65°	R	HM(TPT)12	L7	30	330°	65°	R
HM(TPT)10	L8	30	10°	65°	W	HM(TPT)12	L8	30	10°	65°	W
HM(TPT)10	L9	30	50°	65°	B	HM(TPT)12	L9	30	50°	65°	B

LEGEND	
	EQUAL OR SIMILAR APPROVED TO BEKA OMNIBLAST 1-E, 455W, 5188 OPTIC, 59000 LUMEN WITH A 7 PIN NEMA SOCKET
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	EQUAL OR SIMILAR APPROVED TO BEKA LEDLUME MIDI 48 LED, 104W, 5248 OPTIC WITH BOTTOM ENTRY SPIGOT FOR ADJUSTMENT UP TO 15°, INTEGRATED PHOTOCCELL WITH NEMA 7-PIN SOCKET
	EARTHING AS PER TRANSET NATIONAL PORTS AUTHORITY SPECIFICATION
	ELECTRICAL KIOSK
	ELECTRICAL CABLE

LUMINAIRE LOCATION SUMMARY						LUMINAIRE LOCATION SUMMARY						LUMINAIRE LOCATION SUMMARY					
MAST/POLE	LABEL	MAST/POLE HEIGHT	ORIENT.	TILT	PHASE	MAST/POLE	LABEL	MAST/POLE HEIGHT	ORIENT.	TILT	PHASE	MAST/POLE	LABEL	MAST/POLE HEIGHT	ORIENT.	TILT	PHASE
SL01	L1	12	127°	15°	R	PR84	L1	6	126°	10°	EX	PR82	L1	6	103°	10°	EX
SL02	L1	12	126°	15°	W	PR65	L1	6	128°	10°	EX	PR83	L1	6	103°	10°	EX
SL03	L1	12	126°	15°	B	PR66	L1	6	126°	10°	EX	PR84	L1	6	103°	10°	EX
SL04	L1	12	126°	15°	R	PR67	L1	6	128°	10°	EX	PR85	L1	6	103°	10°	EX
SL05	L1	12	126°	15°	W	PR68	L1	6	126°	10°	EX	HM(TPT)13	L1	30	90°	65°	R
SL06	L1	12	123°	15°	B	PR69	L1	6	128°	10°	EX	HM(TPT)13	L2	30	130°	65°	W
SL07	L1	12	123°	15°	R	PR70	L1	6	126°	10°	EX	HM(TPT)13	L3	30	170°	65°	B
SL07	L2	12	213°	15°	W	PR71	L1	6	126°	10°	EX	HM(TPT)13	L4	30	210°	65°	R
SL08	L1	12	25°	15°	B	PR72	L1	6	128°	10°	EX	HM(TPT)13	L5	30	250°	65°	W
SL08	L2	12	115°	15°	R	PR73	L1	6	126°	10°	EX	HM(TPT)13	L6	30	290°	65°	B
SL09	L1	12	114°	15°	W	PR74	L1	6	128°	10°	EX	HM(TPT)13	L7	30	330°	65°	R
SL10	L1	12	110°	15°	B	PR75	L1	6	126°	10°	EX	HM(TPT)13	L8	30	10°	65°	W
SL11	L1	12	107°	15°	R	PR76	L1	6	126°	10°	EX	HM(TPT)13	L9	30	50°	65°	B
SL12	L1	12	105°	15°	W	PR77	L1	6	126°	10°	EX						
SL13	L1	12	103°	15°	B	PR78	L1	6	126°	10°	EX						
SL14	L1	12	103°	15°	R	PR79	L1	6	115°	10°	EX						
SL15	L1	12	103°	15°	W	PR80	L1	6	103°	10°	EX						
						PR81	L1	6	103°	10°	EX						

TYPICAL 12M STREET LIGHTING POLE (SCALE: NTS)



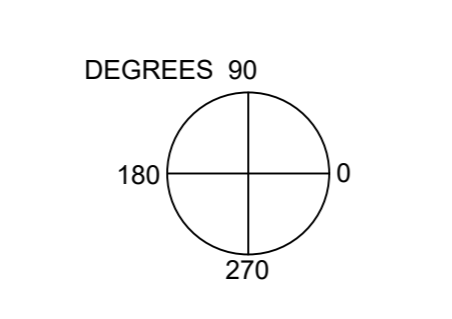
HIGH MAST AND CABLE INFORMATION

CABLE ROUTING			
CABLE PATH	CABLE TYPE	EXISTING CABLE	DIST.
PERIMETER	TO BE VERIFIED	YES	TBC
HM(TPT)09	TO BE VERIFIED	YES	TBC
HM(TPT)11	TO BE VERIFIED	YES	TBC
HM(TPT)12	TO BE VERIFIED	YES	TBC
HM(TPT)13	TO BE VERIFIED	YES	TBC
STREET LIGHTING CIRCUITS	TO BE VERIFIED	YES	TBC

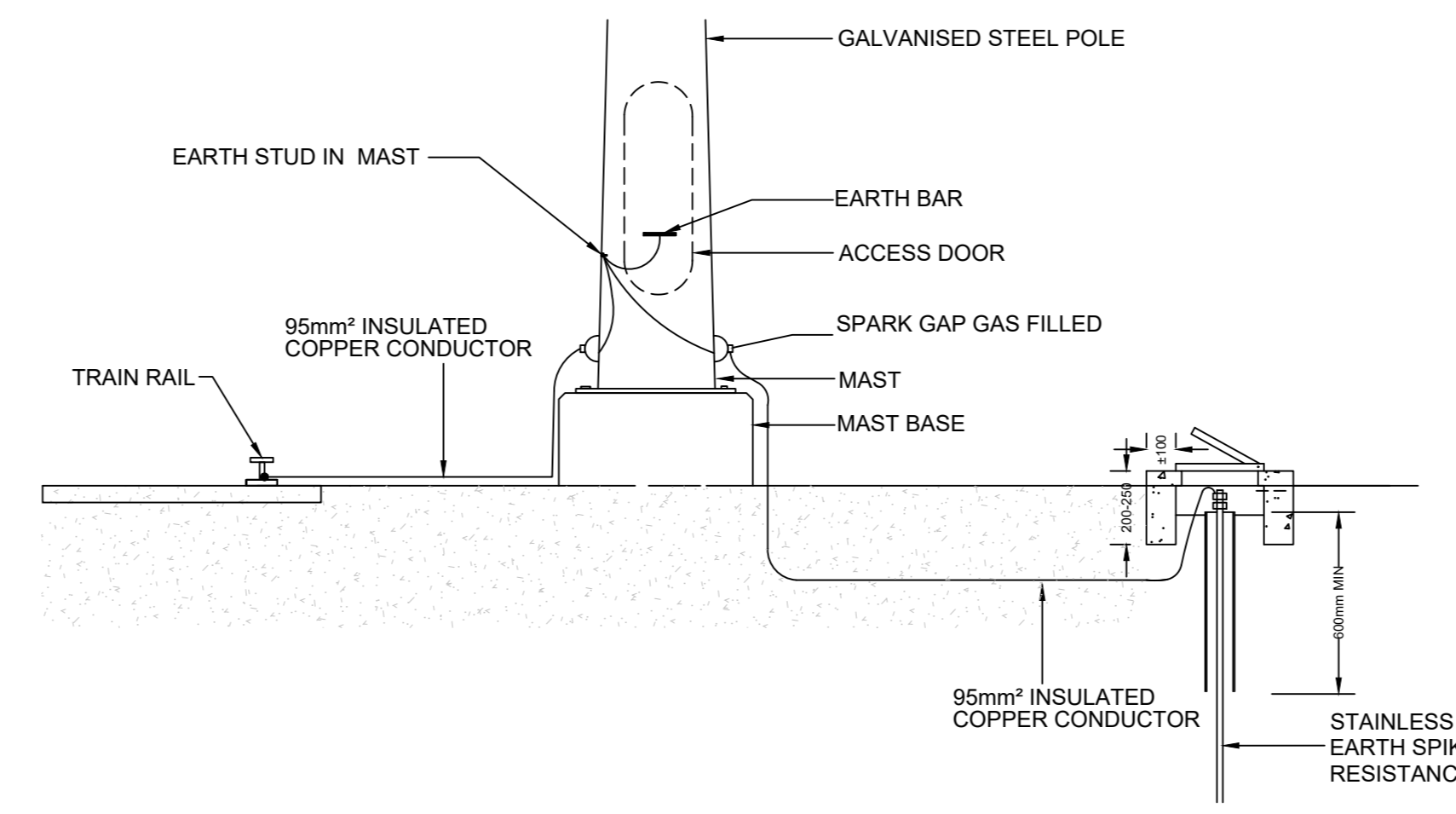
LUMINAIRE SCHEDULE			
SYMBOL	QTY	ARRANGEMENT	TOTAL LAMP LUMENS
↔	22	1 PER MAST	15157
↔↔	17	1 PER MAST AND 2@90°	22656
↔↔↔	50	10@30° PER MAST	59000

CALCULATION SUMMARY				
AREA	CALC TYPE	UNITS	AVG	MAX
DUNCAN ROAD SECTION	ILLUMINANCE	LUX	22.9	54.3
DUNCAN ROAD INTERSECTION	ILLUMINANCE	LUX	25.4	52.0

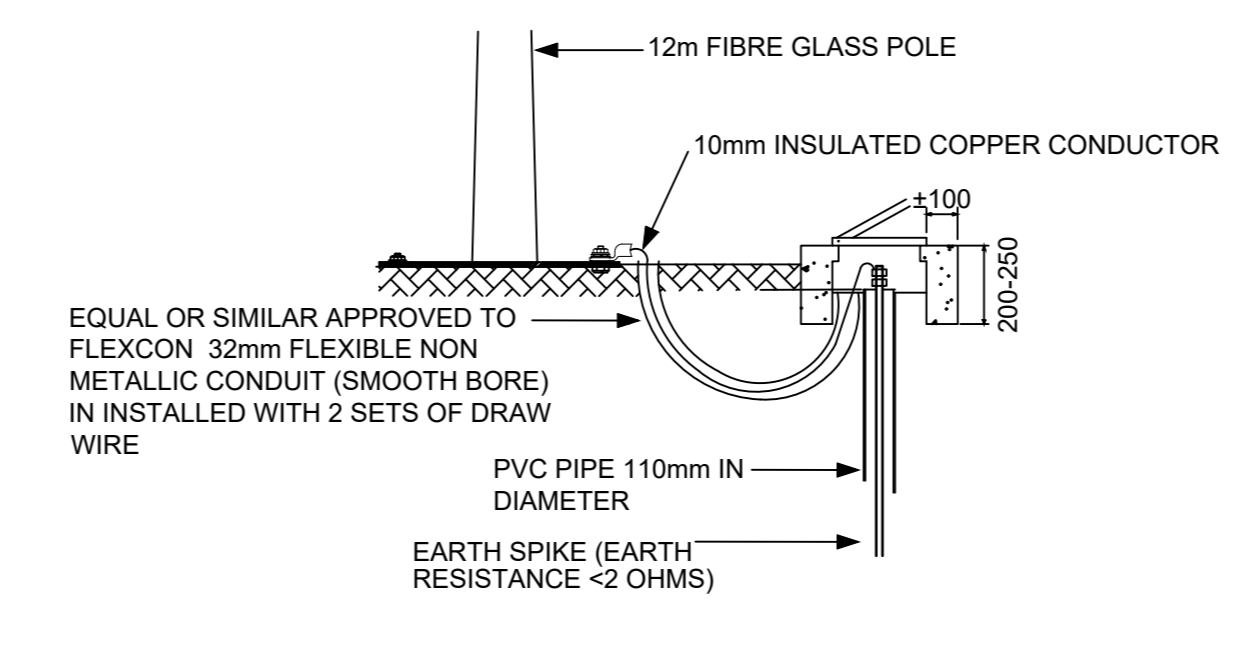
LUMINAIRE ORIENTATION



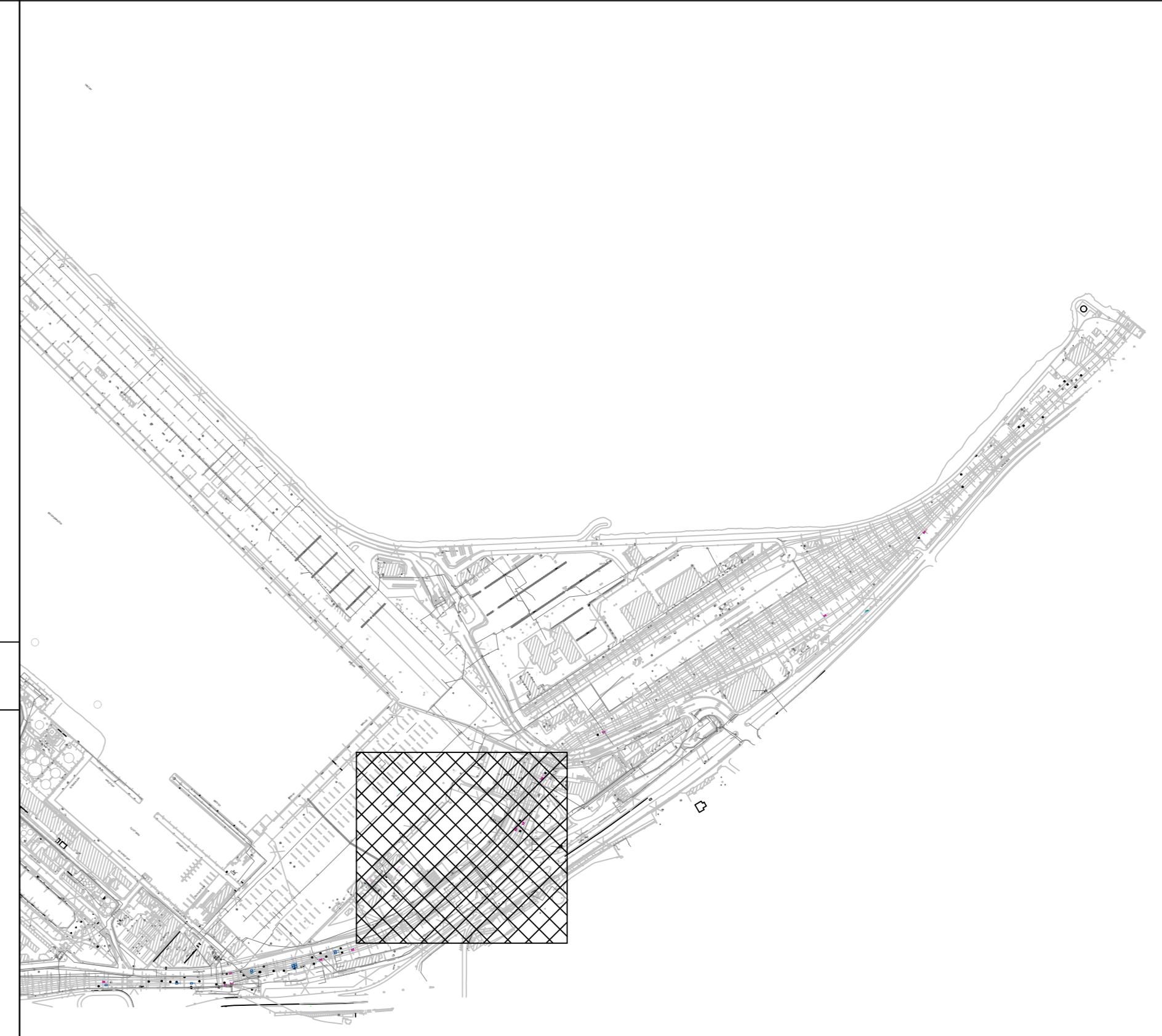
TYPICAL HIGH MAST POLE EARTHING DETAILS (SCALE: NTS)



TYPICAL EARTHING DETAIL (SCALE: NTS)



KEYPLAN (SCALE: NTS)



NOTES:

- THE WIDTH OF THE TRENCH FOR THE CASE OF MULTIPLE CABLES RUNNING IN THE SAME TRENCH IS AS FOLLOWS:
 - SPACING BETWEEN ANY TWO LV CABLES MUST BE A MINIMUM OF 300mm BETWEEN THE OUTER SHEATHING OF ANY TWO ADJACENT CABLES.
 - FOR TWO LV CABLES ADD 150mm TO THE WIDTH OF THE TRENCH AND FOR ADDITIONAL CABLES THERE AFTER ADD 300mm.
 - EACH LV CABLE SHALL HAVE ITS OWN CABLE GUARD.
- LV CABLES MUST NEVER CROSS EACH OTHER AND MUST BE LAID PARALLEL TO EACH OTHER IN THE HORIZONTAL PLANE.

ELECTRICAL NOTES:

- THIS DRAWING FOR EL&P ONLY.
- A CERTIFICATE OF COMPLIANCE TO BE COMPLETED BY CONTRACTOR ON COMPLETION OF WORK.
- ALL WORK MUST COMPLY WITH THE GENERAL REQUIREMENTS OF SANS 10142-1 (as amended). THE CONTRACTOR AND PANEL MANUFACTURER IS REFERRED SPECIFICALLY TO CLAUSE 6.6.6.5.2.6.5.3.6.4 AND 6.6.5.
- ALL SAMPLES OF LIGHTING AND FIXTURES TO BE APPROVED BY ELECTRICAL ENGINEER PRIOR TO ORDERING
- ALL CABLE ROUTES ARE PROVISIONAL AND SUBJECT TO CHANGE

DH - HARBOUR MASTER	DATE	DH - FINANCIAL MANAGER	DATE
DH - RISK MANAGER	DATE	DH - ENVIRONMENTAL MANAGER	DATE
DH - SECURITY MANAGER	DATE	DH - PROPERTY MANAGER	DATE
DH - CORPORATE AFFAIRS MANAGER	DATE	DH - MARINE OPERATIONS MANAGER	DATE
DH - MARKETING MANAGER	DATE	DH - CHIEF FIRE OFFICER	DATE

FOR APPROVAL

0A ISSUED FOR TENDER 05/04/2023



PROJECT / AREA / ASSET / SUBJECT
PORT OF CAPE TOWN LIGHTING AND INFRASTRUCTURE UPGRADE

DRAWING TITLE
DUNCAN ROAD 5 - LIGHTING LAYOUT AND AIMING ANGLES

DATE	03/04/2023	TPNA EDS
SCALE	AS SHOWN	REGISTRATION NUMBER: 20516177
DESIGNED BY	ZM	SIGNATURE: [Signature]
CHECKED BY	LR	SIGNATURE: [Signature]
DRAWN BY		
PAPER SIZE	AO	

PROJECT NUMBER: KCTE0025-E-LA-0007-0A-SR

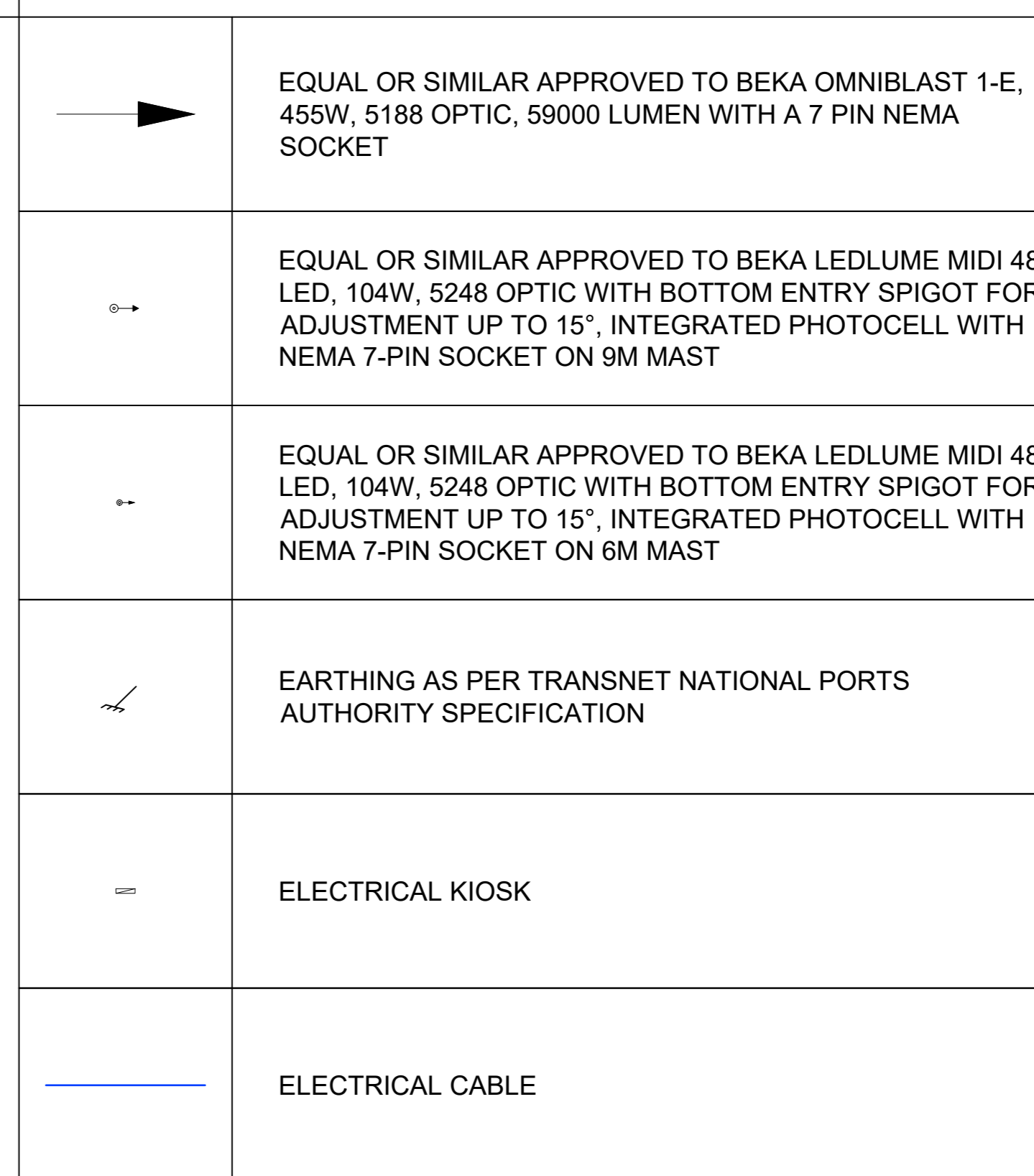
MARINE DRIVE ENTRANCE AREA - LIGHTING LAYOUT (SCALE: 1:1000)



MARINE DRIVE ENTRANCE - AREA LUMINAIRE LOCATION SUMMARY (SCALE: NTS)

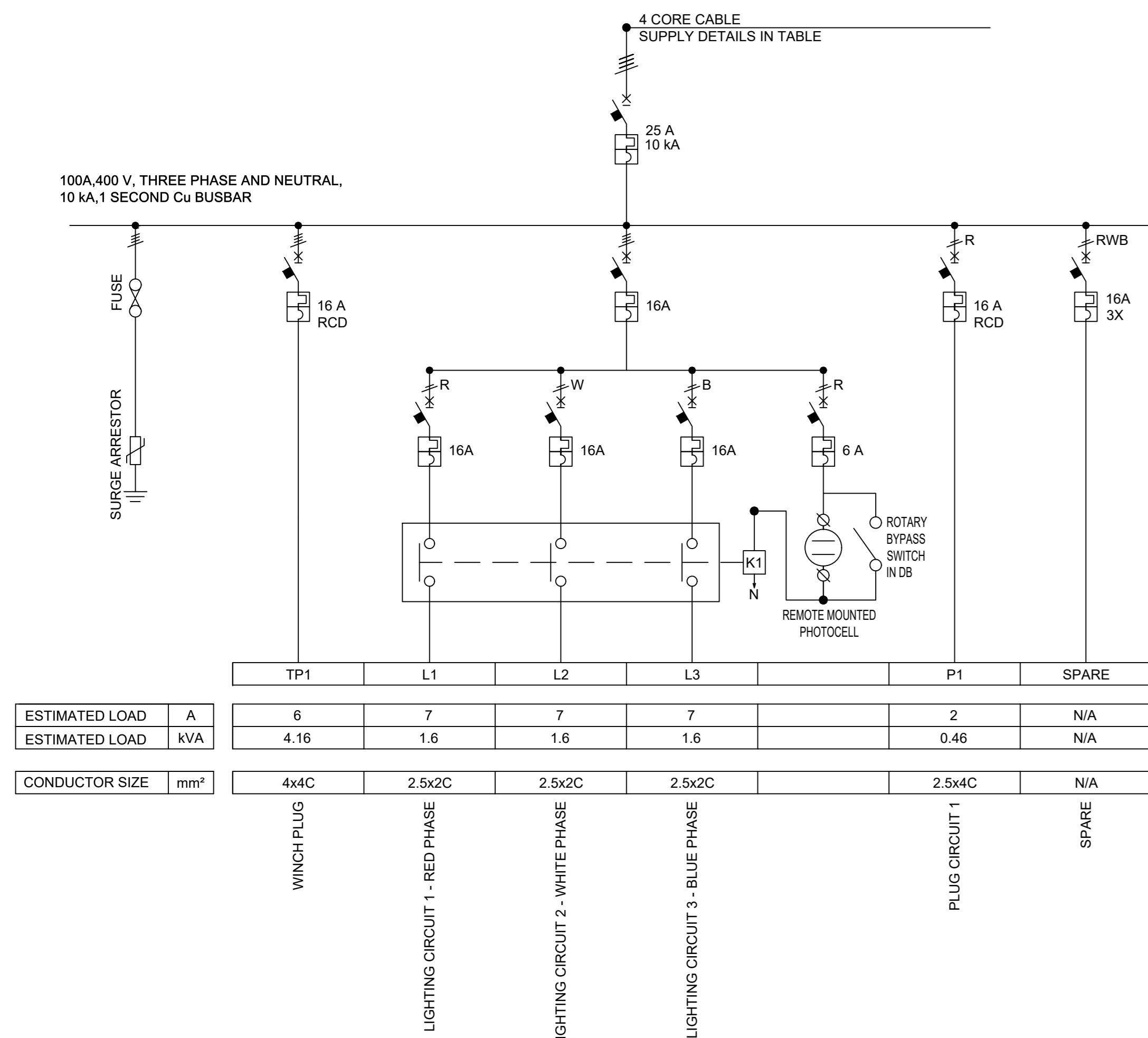
LUMINAIRE LOCATION SUMMARY						LUMINAIRE LOCATION SUMMARY					
MAST/POLE	LABEL	MAST/POLE HEIGHT	ORIENT.	TILT	PHASE	MAST/POLE	LABEL	MAST/POLE HEIGHT	ORIENT.	TILT	PHASE
PR31	L1	6	115°	10°	EX	PR49	L1	6	125°	10°	EX
PR32	L1	6	44°	10°	EX	PR50	L1	6	125°	10°	EX
PR33	L1	6	103°	10°	EX	PR51	L1	6	125°	10°	EX
PR34	L1	6	316°	10°	EX	PR52	L1	6	125°	10°	EX
PR35	L1	6	333°	10°	EX	PR53	L1	6	125°	10°	EX
PR36	L1	6	334°	10°	EX	PR54	L1	6	125°	10°	EX
PR37	L1	6	332°	10°	EX	PR55	L1	6	125°	10°	EX
PR38	L1	6	313°	10°	EX	PR56	L1	6	125°	10°	EX
PR39	L1	6	307°	10°	EX	PR57	L1	6	117°	10°	EX
PR40	L1	6	297°	10°	EX	PR58	L1	6	126°	10°	EX
PR41	L1	6	297°	10°	EX	PR59	L1	6	128°	10°	EX
PR42	L1	6	297°	10°	EX	PR60	L1	6	126°	10°	EX
PR43	L1	6	302°	10°	EX	PR61	L1	6	128°	10°	EX
PR44	L1	6	129°	10°	EX	PR62	L1	6	126°	10°	EX
PR45	L1	6	129°	10°	EX	PR63	L1	6	128°	10°	EX
PR46	L1	6	129°	10°	EX						
PR47	L1	6	129°	10°	EX						
PR48	L1	6	125°	10°	EX						

LEGEND



LUMINAIRE LOCATION SUMMARY						LUMINAIRE LOCATION SUMMARY						LUMINAIRE LOCATION SUMMARY					
MAST/POLE	LABEL	MAST/POLE HEIGHT	ORIENT.	TILT	PHASE	MAST/POLE	LABEL	MAST/POLE HEIGHT	ORIENT.	TILT	PHASE	MAST/POLE	LABEL	MAST/POLE HEIGHT	ORIENT.	TILT	PHASE
HM34	L1	30	90°	65°	R	HM38	L1	30	90°	65°	R	HM40	L1	30	90°	65°	R
HM34	L2	30	130°	65°	W	HM38	L2	30	130°	65°	W	HM40	L2	30	130°	65°	W
HM34	L3	30	170°	65°	B	HM38	L3	30	170°	65°	B	HM40	L3	30	170°	65°	B
HM34	L4	30	210°	65°	R	HM38	L4	30	210°	65°	R	HM40	L4	30	210°	65°	R
HM34	L5	30	250°	65°	W	HM38	L5	30	250°	65°	W	HM40	L5	30	250°	65°	W
HM34	L6	30	290°	65°	B	HM38	L6	30	290°	65°	B	HM40	L6	30	290°	65°	B
HM34	L7	30	330°	65°	R	HM38	L7	30	330°	65°	R	HM40	L7	30	330°	65°	R
HM34	L8	30	10°	65°	W	HM38	L8	30	10°	65°	W	HM40	L8	30	10°	65°	W
HM34	L9	30	50°	65°	B	HM38	L9	30	50°	65°	B	HM40	L9	30	50°	65°	B
HM35	L1	30	90°	65°	R	HM39	L1	30	90°	65°	R	P1	L1	9	90°	10°	EX
HM35	L2	30	130°	65°	W	HM39	L2	30	130°	65°	W	P2	L1	9	90°	10°	EX
HM35	L3	30	170°	65°	B	HM39	L3	30	170°	65°	B	P3	L1	9	90°	10°	EX
HM35	L4	30	210°	65°	R	HM39	L4	30	210°	65°	R	P4	L1	9	90°	10°	EX
HM35	L5	30	250°	65°	W	HM39	L5	30	250°	65°	W	P5	L1	9	90°	10°	EX
HM35	L6	30	290°	65°	B	HM39	L6	30	290°	65°	B	P6	L1	9	90°	10°	EX
HM35	L7	30	330°	65°	R	HM39	L7	30	330°	65°	R	P7	L1	9	90°	10°	EX
HM35	L8	30	10°	65°	W	HM39	L8	30	10°	65°	W						
HM35	L9	30	50°	65°	B	HM39	L9	30	50°	65°	B						

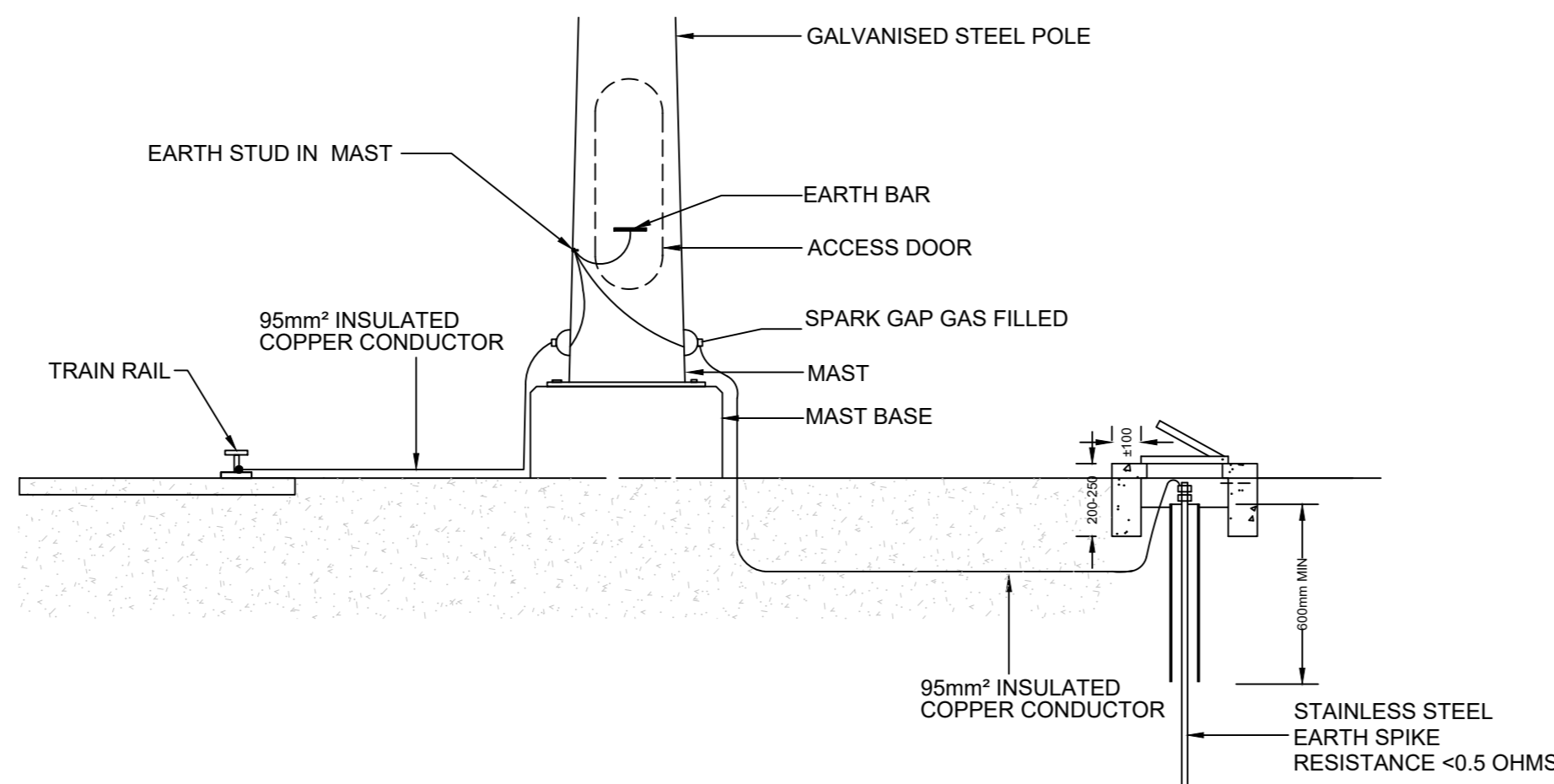
TYPICAL HIGH MAST DISTRIBUTION BOARD (SCALE: NTS)



ESTIMATED LOAD	A	7	7	7	2	N/A
ESTIMATED LOAD	KVA	4.16	1.6	1.6	0.46	N/A
CONDUCTOR SIZE	mm²	4x4C	2.5x2C	2.5x2C	2.5x2C	2.5x4C
		WINCH PLUG	LIGHTING CIRCUIT 1 - RED PHASE	LIGHTING CIRCUIT 2 - WHITE PHASE	LIGHTING CIRCUIT 3 - BLUE PHASE	PLUG CIRCUIT 1
						SPARE

DISTRIBUTION BOARD SPECIFICATION	
SPARE WAYS	30%
DISTRIBUTION BOARD TYPE	STAND MOUNTED
MATERIAL	3CR12
THICKNESS OF MATERIAL	1.6mm
PAINT TYPE	POWDER COATED (80 MICRONS)
FRAME COLOUR	ORANGE
IP RATING	65
SWITCHGEAR MAKE	EQUAL OR SIMILAR APPROVED TO ABB

TYPICAL HIGH MAST POLE EARTHING DETAILS (SCALE: NTS)



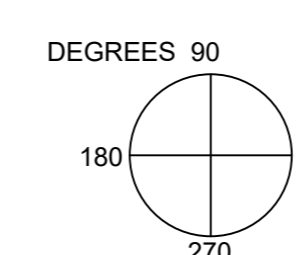
HIGH MAST AND CABLE INFORMATION

CABLE ROUTING			
CABLE PATH	CABLE TYPE	EXISTING CABLE	DIST.
EX PERIMETER	TO BE VERIFIED	YES	TBC
HARBOUR MAIN MINISUB - HM34	35mm² 4 CORE CABLE	YES	TBC
HARBOUR MAIN MINISUB - HM35	35mm² 4 CORE CABLE	YES	TBC
HARBOUR MAIN MINISUB u HM114 - HM38	35mm² 4 CORE CABLE	YES	TBC
HARBOUR MAIN MINISUB - HM39	35mm² 4 CORE CABLE	YES	TBC
ROAD TO RAIL SUB - HM40	70mm² 4 CORE CABLE	YES	TBC
EX RODENRUIS	TO BE VERIFIED	YES	TBC

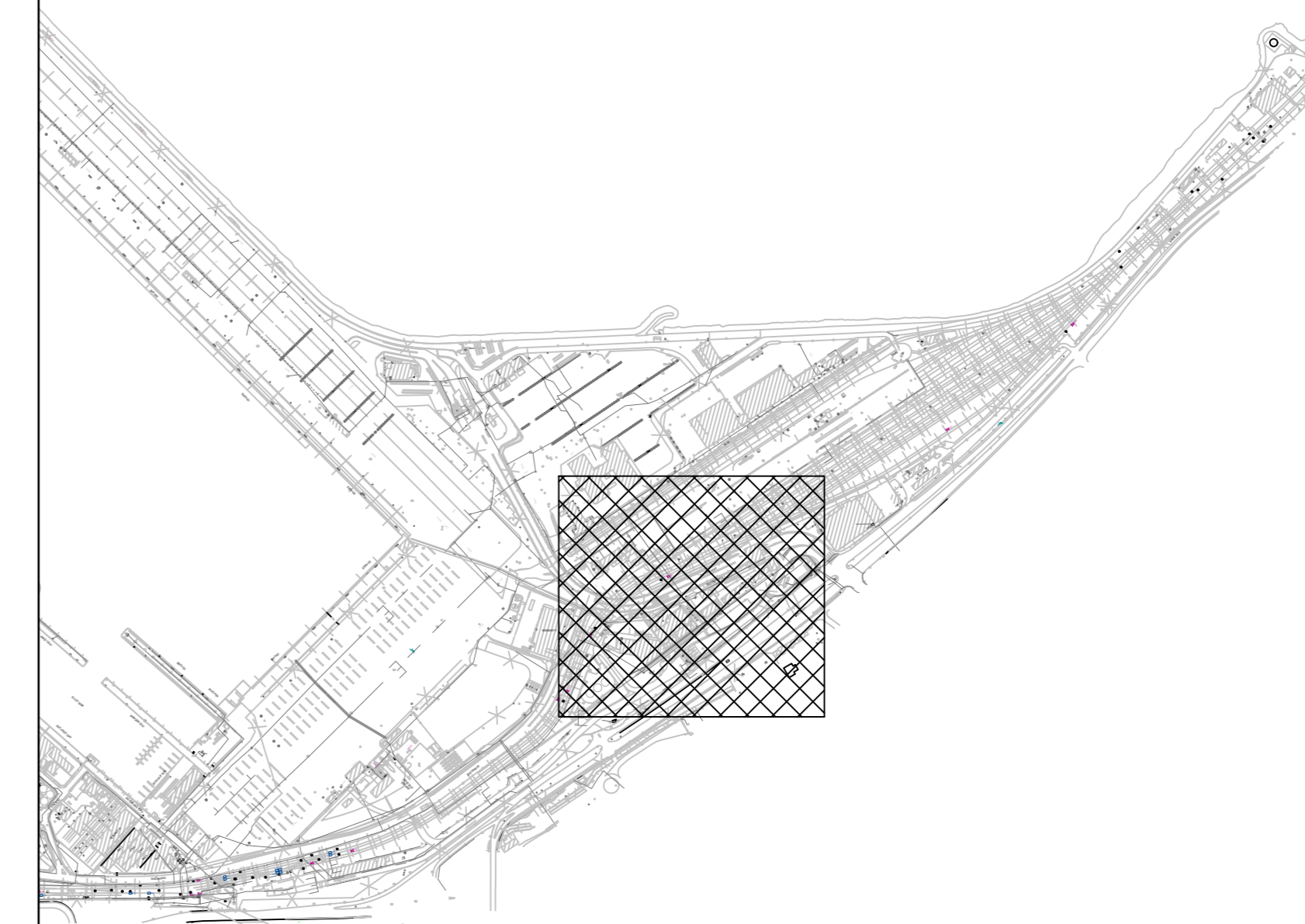
LUMINAIRE SCHEDULE			
SYMBOL	QTY	ARRANGEMENT	TOTAL LAMP LUMENS
↔	33	1 PER MAST	15157
▶	60	10@36° PER MAST	59000
↔	7	1 PER MAST	15157

CALCULATION SUMMARY				
AREA	CALC TYPE	UNITS	AVG	MAX
MARINE DRIVE ROAD SECTION	ILLUMINANCE	LUX	24.2	47.3
RAIL YARD	ILLUMINANCE	LUX	23.4	62.6
RODENRUIS ROAD	ILLUMINANCE	LUX	27.4	55.8

LUMINAIRE ORIENTATION



KEYPLAN (SCALE: NTS)



- NOTES:
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 - a) SPACING BETWEEN ANY TWO LV CABLES MUST BE A MINIMUM OF 300mm BETWEEN THE OUTER SHEATHINGS OF ANY TWO ADJACENT CABLES.
 - b) FOR TWO LV CABLES ADD 150mm TO THE WIDTH OF THE TRENCH AND FOR ADDITIONAL CABLES THERE AFTER ADD 300mm.
 - c) EACH LV CABLE SHALL HAVE ITS OWN CABLE GUARD.
 2. LV CABLES MUST NEVER CROSS EACH OTHER AND MUST BE LAID PARALLEL TO EACH OTHER IN THE HORIZONTAL PLANE.
- ELECTRICAL NOTES:
1. THIS DRAWING FOR EL&P ONLY.
 2. A CERTIFICATE OF COMPLIANCE TO BE COMPLETED BY CONTRACTOR ON COMPLETION OF WORK.
 3. ALL WORK MUST COMPLY WITH THE GENERAL REQUIREMENTS OF SANS 10142-1 (as amended). THE CONTRACTOR AND PANEL MANUFACTURER IS REFERRED SPECIFICALLY TO CLAUSE 6.6.6, 6.2.6, 6.3.6, 6.4 AND 6.6.5.
 4. ALL SAMPLES OF LIGHTING AND FIXTURES TO BE APPROVED BY ELECTRICAL ENGINEER PRIOR TO ORDERING.
 5. ALL CABLE ROUTES ARE PROVISIONAL AND SUBJECT TO CHANGE.
 6. STEEL ARM ON MAST P3 TO BE REPLACED.

DH - HARBOUR MASTER		DH - FINANCIAL MANAGER	
SIGNATURE	DATE	SIGNATURE	DATE
DH - RISK MANAGER		DH - ENVIRONMENTAL MANAGER	
DH - SECURITY MANAGER		DH - PROPERTY MANAGER	
DH - CORPORATE AFFAIRS MANAGER		DH - MARINE OPERATIONS MANAGER	
DH - MARKETING MANAGER		DH - CHIEF FIRE OFFICER	

FOR APPROVAL

0A ISSUED FOR TENDER 05/04/2023

No. DESCRIPTION / REVISIONS DATE



PROJECT / AREA / ASSET / SUBJECT
PORT OF CAPE TOWN LIGHTING AND INFRASTRUCTURE UPGRADE

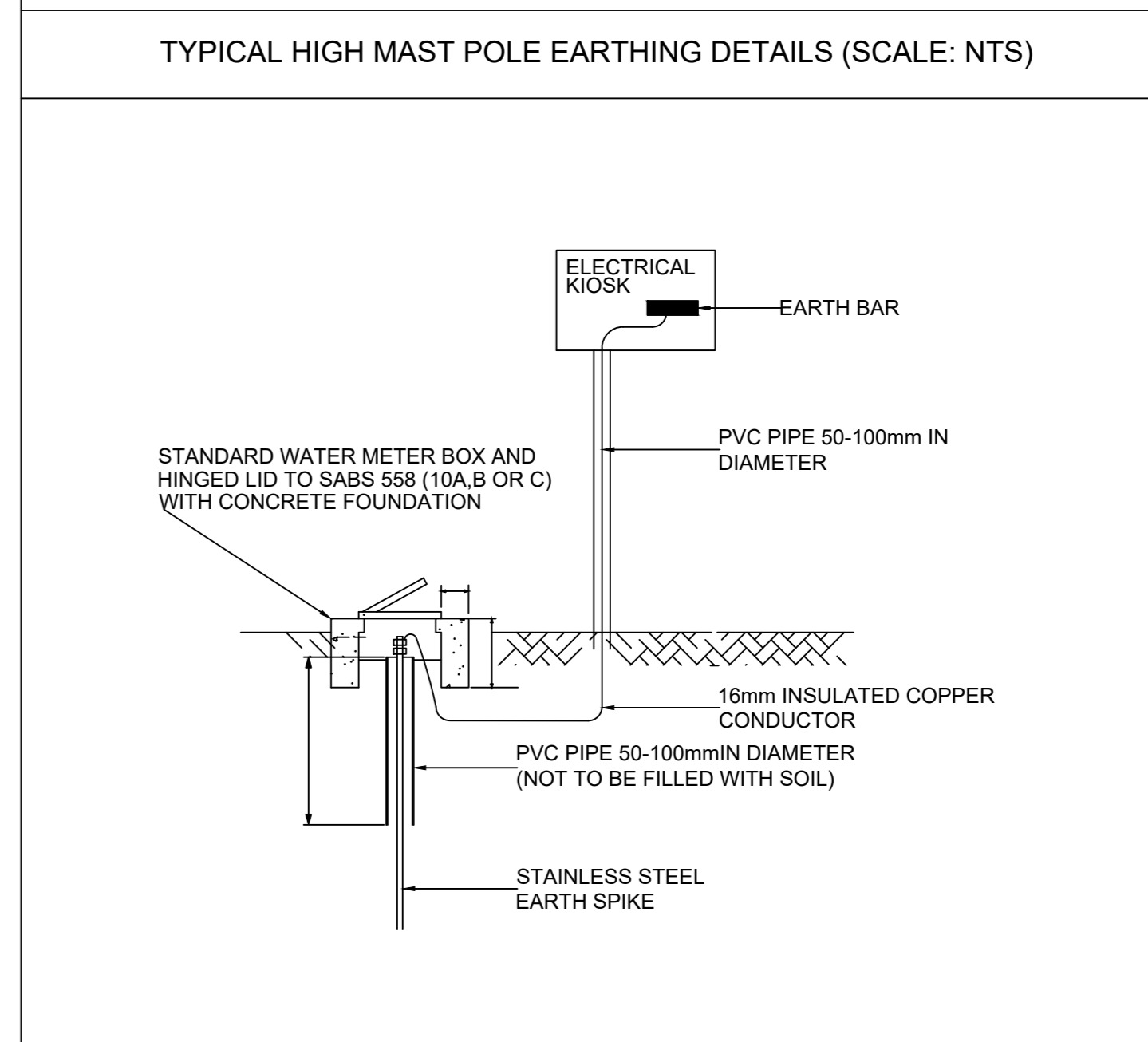
DRAWING TITLE
MARINE DRIVE AND INTERIOR ROADS - LIGHTING LAYOUT AND AIMING ANGLES

DATE	03/04/2023	TNPA EDS
SCALE	AS SHOWN	REGISTRATION NUMBER: 20210127
CHECKED BY	ZM	SIGNATURE: [Signature]
DRAWN BY	LR	SIGNATURE: [Signature]
CHECKED BY	LR	SIGNATURE: [Signature]
PAPER SIZE	A0	
PROJECT NUMBER	KCTE0025-E-LA-0008-0A-SR	

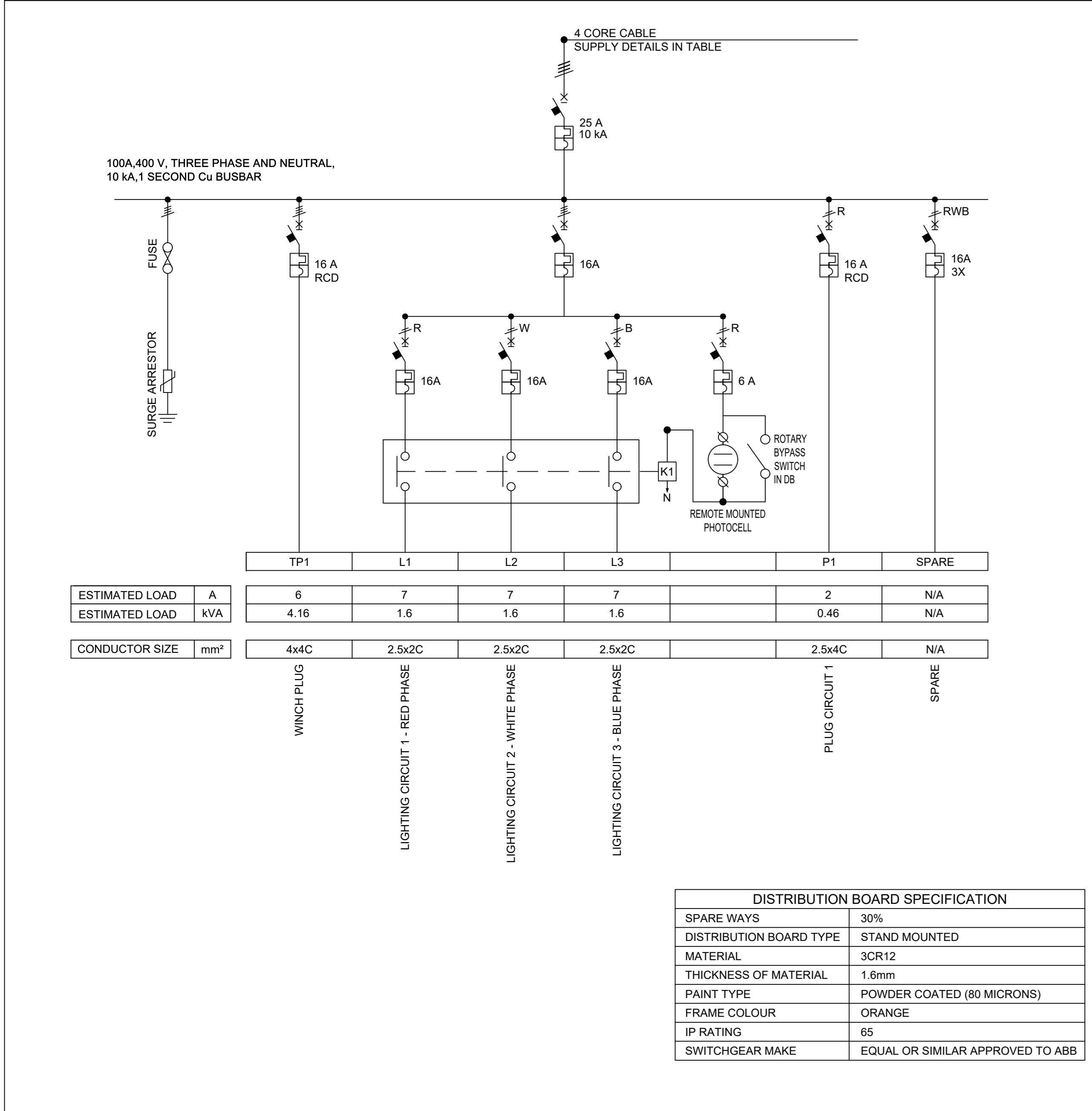


LEGEND

- EQUAL OR SIMILAR APPROVED TO BEKA OMNIBLAST 1-E, 455W, 5188 OPTIC, 59000 LUMEN WITH A 7 PIN NEMA SOCKET
- EQUAL OR SIMILAR APPROVED TO BEKA LEDLUME MIDI 48 LED, 104W, 5248 OPTIC WITH BOTTOM ENTRY SPIGOT FOR ADJUSTMENT UP TO 15°, INTEGRATED PHOTOCELL WITH NEMA 7-PIN SOCKET ON 9M MAST
- EQUAL OR SIMILAR APPROVED TO BEKA LEDLUME MIDI 48 LED, 104W, 5248 OPTIC WITH BOTTOM ENTRY SPIGOT FOR ADJUSTMENT UP TO 15°, INTEGRATED PHOTOCELL WITH NEMA 7-PIN SOCKET ON 6M MAST
- EARTHING AS PER TRANSTNET NATIONAL PORTS AUTHORITY SPECIFICATION
- ELECTRICAL KIOSK
- ELECTRICAL CABLE



TYPICAL HIGH MAST DISTRIBUTION BOARD (SCALE: NTS)



HIGH MAST AND CABLE INFORMATION

CABLE PATH	CABLE TYPE	EXISTING CABLE	DIST.
REEFER SUB - HM36	35mm² 4 CORE CABLE	YES	TBC
REEFER SUB - HM37	35mm² 4 CORE CABLE	YES	TBC
ROAD TO RAIL SUB - HM41	35mm² 4 CORE CABLE	YES	TBC
ROAD TO RAIL SUB - HM42	35mm² 4 CORE CABLE	YES	TBC
ROAD TO RAIL SUB - HM43	35mm² 4 CORE CABLE	YES	TBC
ROAD TO RAIL SUB - HM44	70mm² 4 CORE CABLE	YES	TBC
ROAD TO RAIL SUB - HM45	70mm² 4 CORE CABLE	YES	TBC
ROAD TO RAIL SUB - HM46	35mm² 4 CORE CABLE	YES	TBC
ROAD TO RAIL SUB - HM47	35mm² 4 CORE CABLE	YES	TBC
ROAD TO RAIL SUB - HM48	35mm² 4 CORE CABLE	YES	TBC
ROAD TO RAIL SUB - HM49	35mm² 4 CORE CABLE	NO	TBC

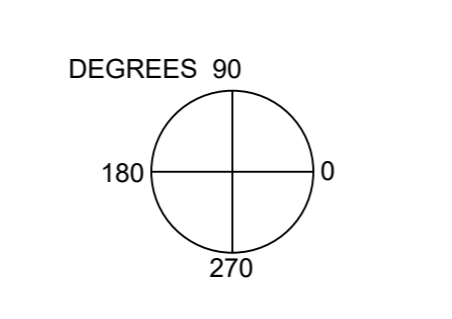
LUMINAIRE SCHEDULE

SYMBOL	QTY	ARRANGEMENT	TOTAL LAMP LUMENS
	110	10@36° PER MAST	59000

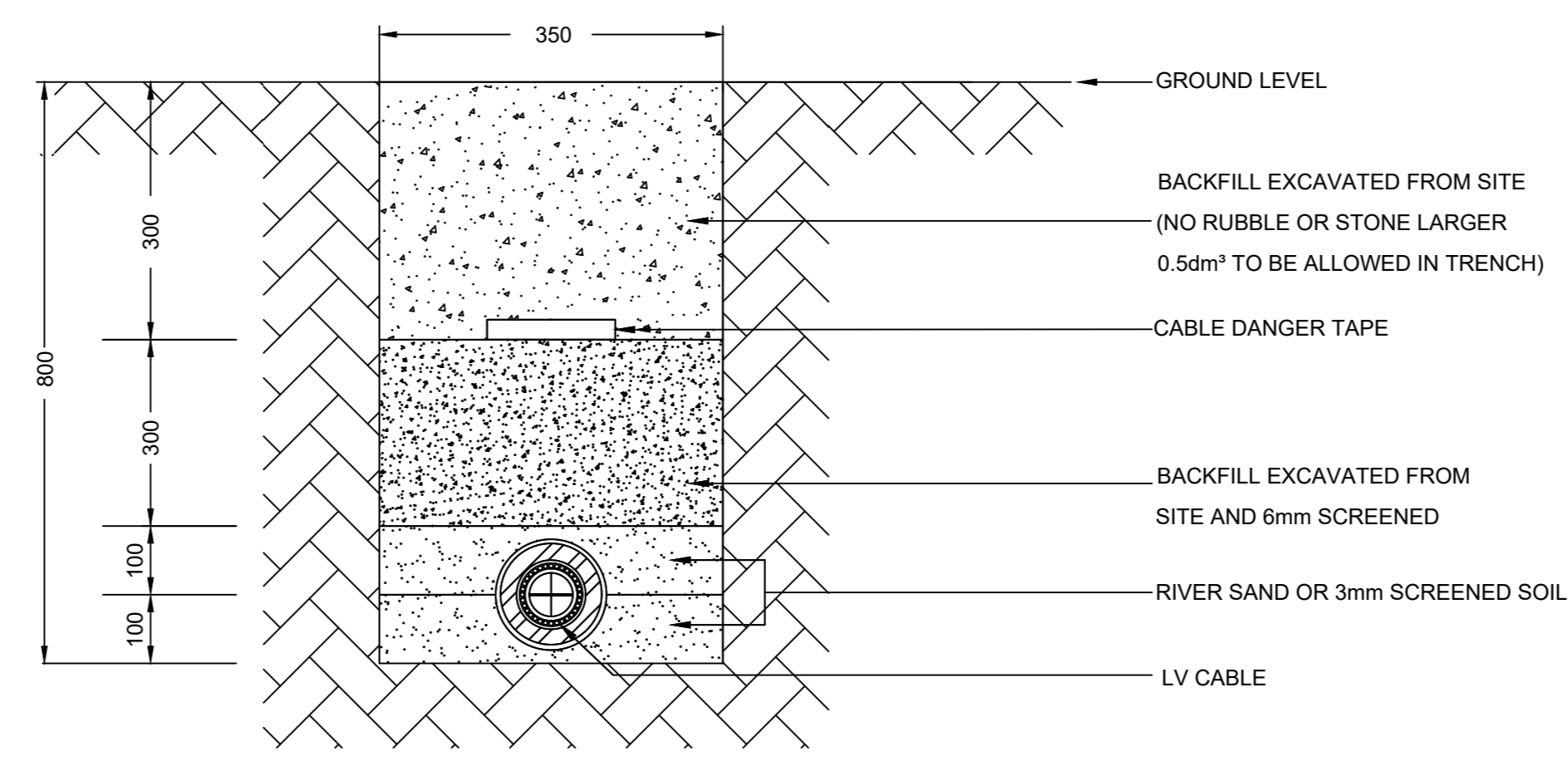
CALCULATION SUMMARY

AREA	CALC TYPE	UNITS	AVG	MAX
RAIL YARD	ILLUMINANCE	LUX	22.2	34.7

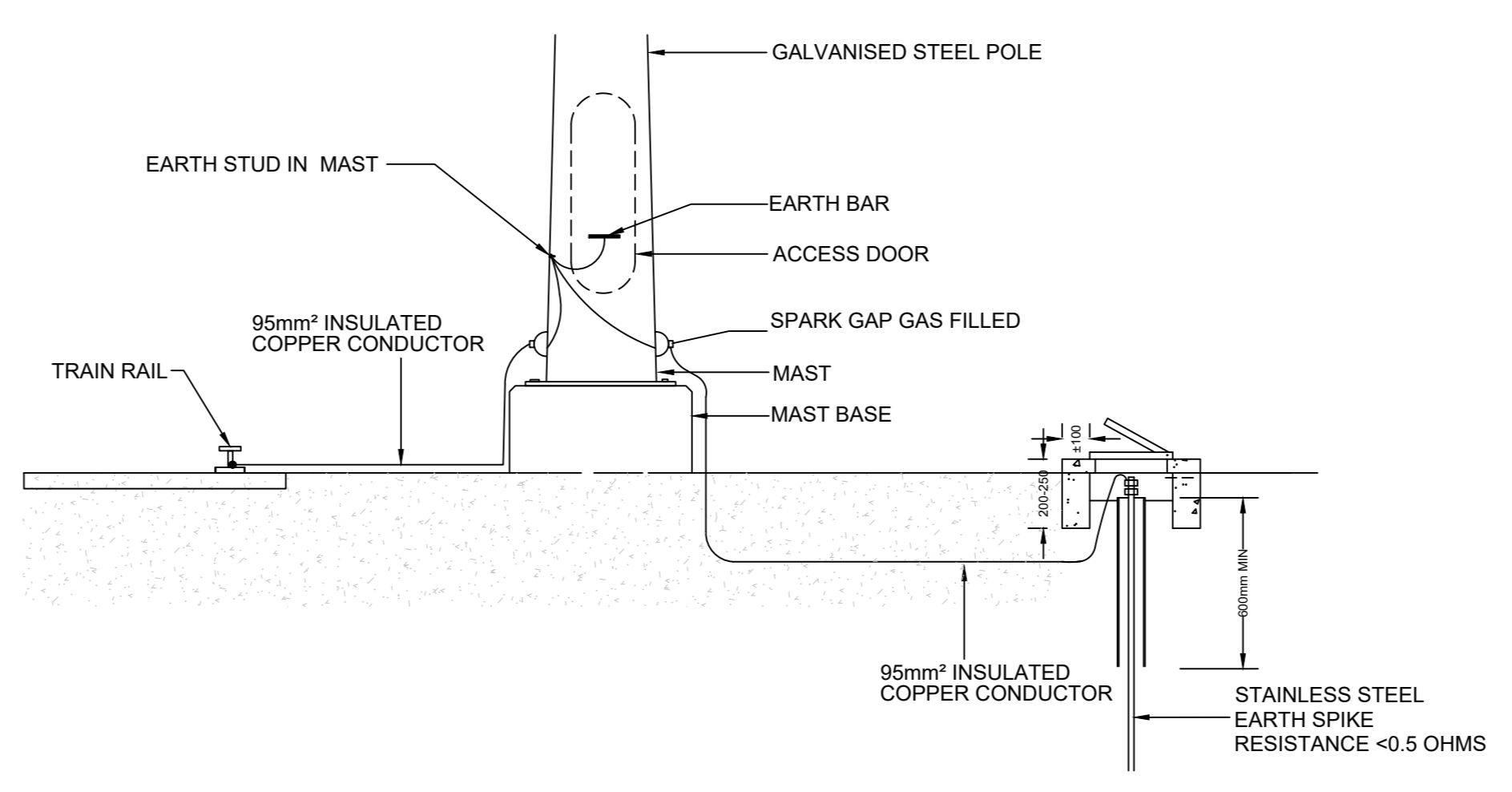
LUMINAIRE ORIENTATION



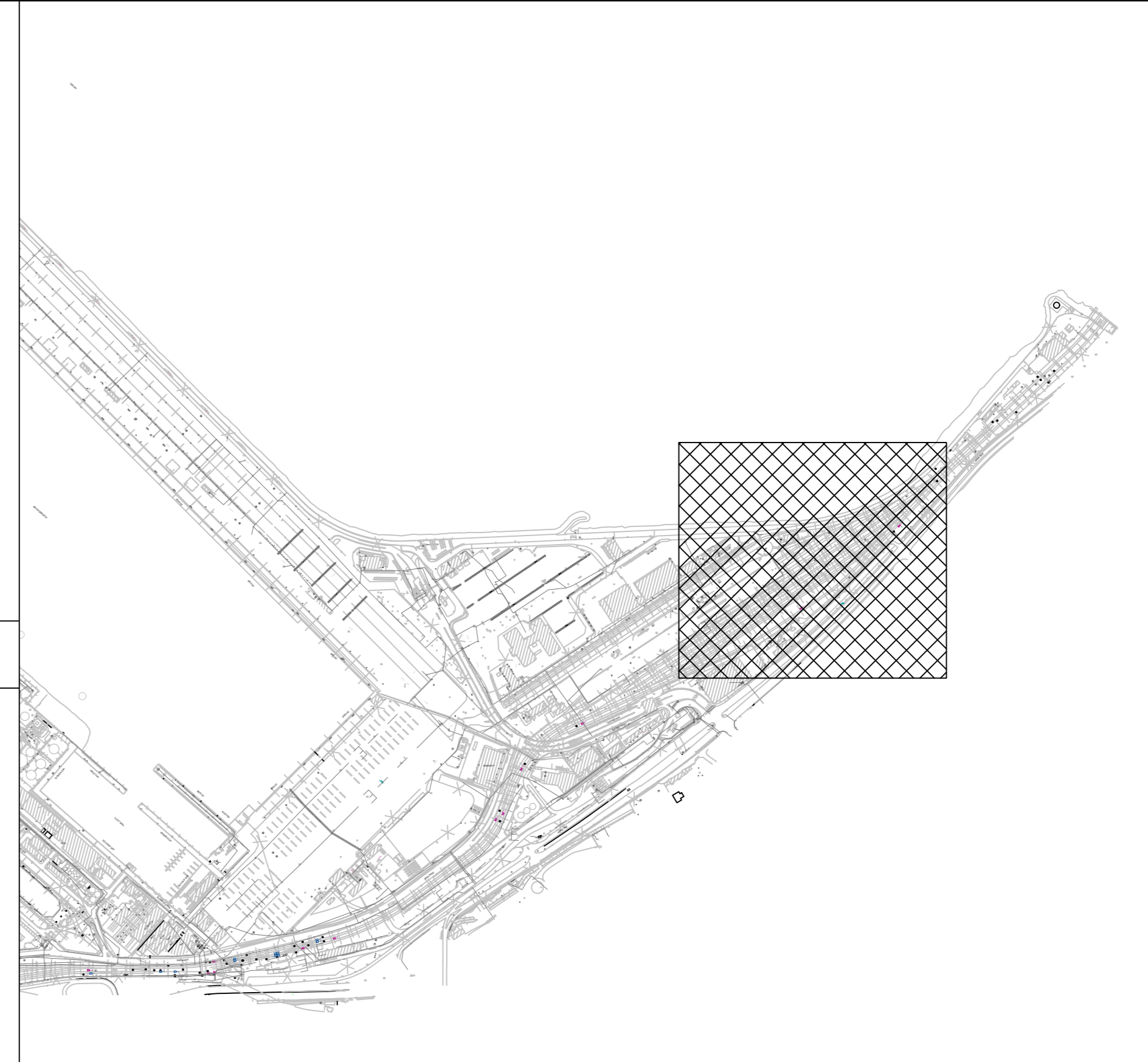
TYPICAL CABLE TRENCH DETAILS (SCALE: NTS)



TYPICAL HIGH MAST POLE EARTHING DETAILS (SCALE: NTS)



KEYPLAN (SCALE: NTS)



- NOTES:**
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 - ALL WORK MUST COMPLY WITH THE GENERAL REQUIREMENTS OF SANS 10142-1 (as amended), THE CONTRACTOR AND PANEL MANUFACTURER IS REFERRED SPECIFICALLY TO CLAUSE 6.8.6.5.2.6.5.3.6.5.4 AND 6.6.5.
 - ALL SAMPLES OF LIGHTING AND FIXTURES TO BE APPROVED BY ELECTRICAL ENGINEER PRIOR TO ORDERING.
 - ALL CABLE ROUTES ARE PROVISIONAL AND SUBJECT TO CHANGE

DH - HARBOUR MASTER	DATE	DH - FINANCIAL MANAGER	DATE
DH - RISK MANAGER	DATE	DH - ENVIRONMENTAL MANAGER	DATE
DH - SECURITY MANAGER	DATE	DH - PROPERTY MANAGER	DATE
DH - CORPORATE AFFAIRS MANAGER	DATE	DH - MARINE OPERATIONS MANAGER	DATE
DH - MARKETING MANAGER	DATE	DH - CHIEF FIRE OFFICER	DATE

FOR APPROVAL

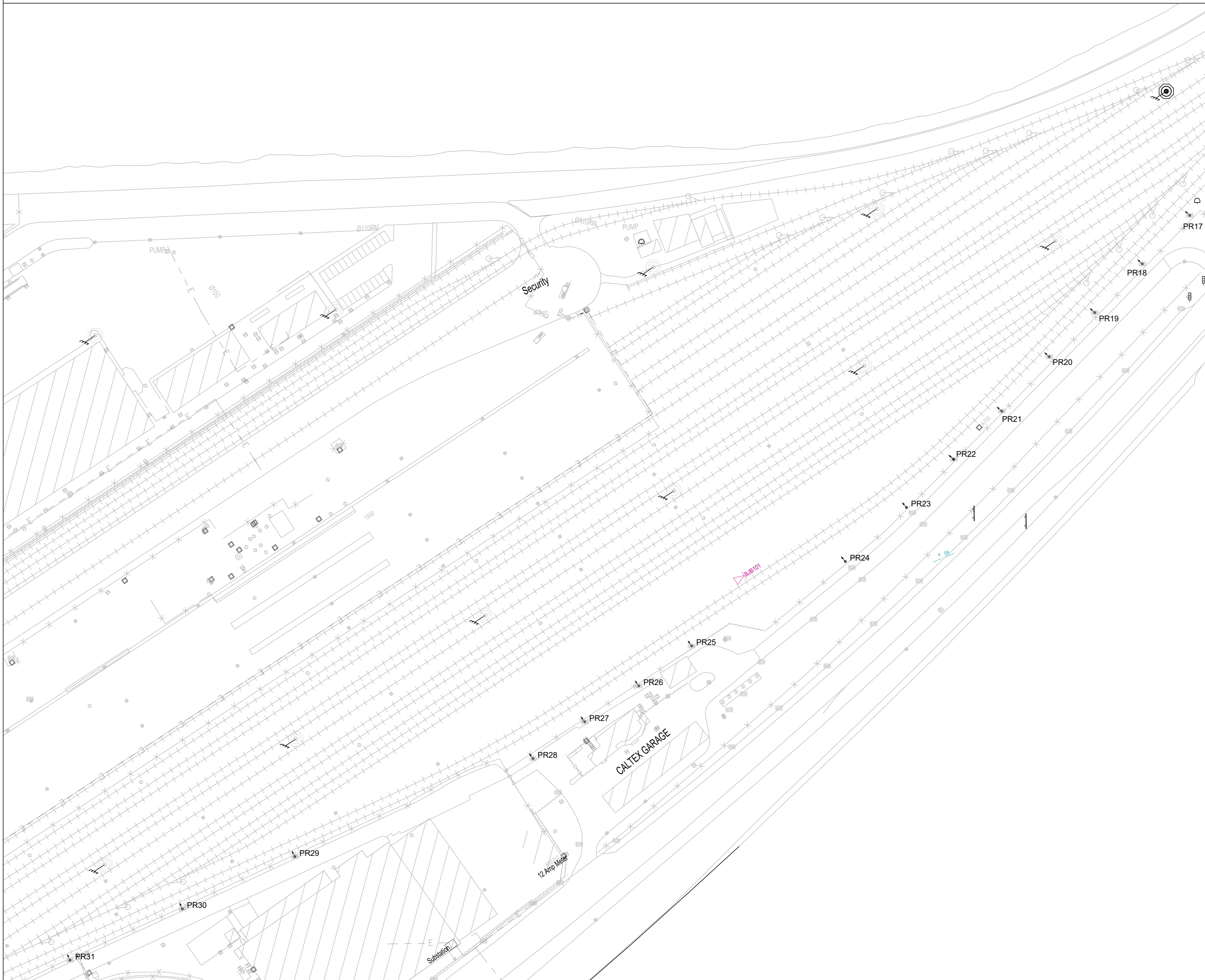
DA ISSUED FOR TENDER	DATE	05/04/2023
No.	DESCRIPTION / REVISIONS	DATE



PROJECT / AREA / ASSET / SUBJECT
PORT OF CAPE TOWN LIGHTING AND INFRASTRUCTURE UPGRADE (SHEET 1)

DRAWING TITLE
RAIL MARSHALLING YARD 1 - LIGHTING LAYOUT AND AIMING ANGLES

DATE	03/04/2023	TPNA EDS
SCALE	AS SHOWN	REGISTRATION NUMBER: 202101677
DESIGNED BY	DATE	SIGNATURE
CHECKED BY	DATE	SIGNATURE
DRAWN BY	DATE	SIGNATURE
CHECKED BY	DATE	SIGNATURE
PAPER SIZE	A0	
PROJECT NUMBER	DISC	DRAWING NO.
KCTE0025-E-LA-0009-0A-SR		



RAIL MARSHALLING YARD 1 - LUMINAIRE LOCATION SUMMARY (CONTINUED)

LUMINAIRE LOCATION SUMMARY						LUMINAIRE LOCATION SUMMARY						LUMINAIRE LOCATION SUMMARY					
HIGH MAST	LABEL	HIGH MAST HEIGHT	ORIENT.	TILT	PHASE	HIGH MAST	LABEL	HIGH MAST HEIGHT	ORIENT.	TILT	PHASE	HIGH MAST	LABEL	HIGH MAST HEIGHT	ORIENT.	TILT	PHASE
HM47	L1	30	90°	65°	R	HM49	L1	30	90°	65°	R	PR17	L1	6	138°	10°	EX
HM47	L2	30	130°	65°	W	HM49	L2	30	130°	65°	W	PR18	L1	6	138°	10°	EX
HM47	L3	30	170°	65°	B	HM49	L3	30	170°	65°	B	PR19	L1	6	138°	10°	EX
HM47	L4	30	210°	65°	R	HM49	L4	30	210°	65°	R	PR20	L1	6	138°	10°	EX
HM47	L5	30	250°	65°	W	HM49	L5	30	250°	65°	W	PR21	L1	6	138°	10°	EX
HM47	L6	30	290°	65°	B	HM49	L6	30	290°	65°	B	PR22	L1	6	138°	10°	EX
HM47	L7	30	330°	65°	R	HM49	L7	30	330°	65°	R	PR23	L1	6	130°	10°	EX
HM47	L8	30	10°	65°	W	HM49	L8	30	10°	65°	W	PR24	L1	6	130°	10°	EX
HM47	L9	30	50°	65°	B	HM49	L9	30	50°	65°	B	PR25	L1	6	126°	10°	EX
HM48	L1	30	90°	65°	R							PR26	L1	6	126°	10°	EX
HM48	L2	30	130°	65°	W							PR27	L1	6	126°	10°	EX
HM48	L3	30	170°	65°	B							PR28	L1	6	126°	10°	EX
HM48	L4	30	210°	65°	R							PR29	L1	6	116°	10°	EX
HM48	L5	30	250°	65°	W							PR30	L1	6	116°	10°	EX
HM48	L6	30	290°	65°	B												
HM48	L7	30	330°	65°	R												
HM48	L8	30	10°	65°	W												
HM48	L9	30	50°	65°	B												

LUMINAIRE LOCATION SUMMARY						LUMINAIRE LOCATION SUMMARY					
HIGH MAST	LABEL	HIGH MAST HEIGHT	ORIENT.	TILT	PHASE	HIGH MAST	LABEL	HIGH MAST HEIGHT	ORIENT.	TILT	PHASE
HM36	L1	30	90°	65°	R	HM41	L1	30	90°	65°	R
HM36	L2	30	130°	65°	W	HM41	L2	30	130°	65°	W
HM36	L3	30	170°	65°	B	HM41	L3	30	170°	65°	B
HM36	L4	30	210°	65°	R	HM41	L4	30	210°	65°	R
HM36	L5	30	250°	65°	W	HM41	L5	30	250°	65°	W
HM36	L6	30	290°	65°	B	HM41	L6	30	290°	65°	B
HM36	L7	30	330°	65°	R	HM41	L7	30	330°	65°	R
HM36	L8	30	10°	65°	W	HM41	L8	30	10°	65°	W
HM36	L9	30	50°	65°	B	HM41	L9	30	50°	65°	B
HM37	L1	30	90°	65°	R	HM42	L1	30	90°	65°	R
HM37	L2	30	130°	65°	W	HM42	L2	30	130°	65°	W
HM37	L3	30	170°	65°	B	HM42	L3	30	170°	65°	B
HM37	L4	30	210°	65°	R	HM42	L4	30	210°	65°	R
HM37	L5	30	250°	65°	W	HM42	L5	30	250°	65°	W
HM37	L6	30	290°	65°	B	HM42	L6	30	290°	65°	B
HM37	L7	30	330°	65°	R	HM42	L7	30	330°	65°	R
HM37	L8	30	10°	65°	W	HM42	L8	30	10°	65°	W
HM37	L9	30	50°	65°	B	HM42	L9	30	50°	65°	B
HM43	L1	30	90°	65°	R	HM45	L1	30	90°	65°	R
HM43	L2	30	130°	65°	W	HM45	L2	30	130°	65°	W
HM43	L3	30	170°	65°	B	HM45	L3	30	170°	65°	B
HM43	L4	30	210°	65°	R	HM45	L4	30	210°	65°	R
HM43	L5	30	250°	65°	W	HM45	L5	30	250°	65°	W
HM43	L6	30	290°	65°	B	HM45	L6	30	290°	65°	B
HM43	L7	30	330°	65°	R	HM45	L7	30	330°	65°	R
HM43	L8	30	10°	65°	W	HM45	L8	30	10°	65°	W
HM43	L9	30	50°	65°	B	HM45	L9	30	50°	65°	B
HM44	L1	30	90°	65°	R	HM46	L1	30	90°	65°	R
HM44	L2	30	130°	65°	W	HM46	L2	30	130°	65°	W
HM44	L3	30	170°	65°	B	HM46	L3	30	170°	65°	B
HM44	L4	30	210°	65°	R	HM46	L4	30	210°	65°	R
HM44	L5	30	250°	65°	W	HM46	L5	30	250°	65°	W
HM44	L6	30	290°	65°	B	HM46	L6	30	290°	65°	B
HM44	L7	30	330°	65°	R	HM46	L7	30	330°	65°	R
HM44	L8	30	10°	65°	W	HM46	L8	30	10°	65°	W
HM44	L9	30	50°	65°	B	HM46	L9	30	50°	65°	B

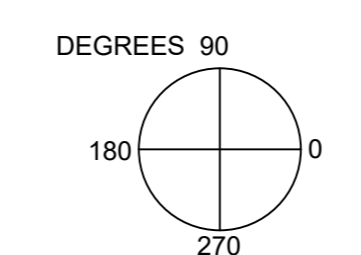
- EQUAL OR SIMILAR APPROVED TO BEKA OMNIBLAST 1-E, 455W, 5188 OPTIC, 59000 LUMEN WITH A 7 PIN NEMA SOCKET
- EQUAL OR SIMILAR APPROVED TO BEKA LEDLUME MIDI 48 LED, 104W, 5248 OPTIC WITH BOTTOM ENTRY SPIGOT FOR ADJUSTMENT UP TO 15°, INTEGRATED PHOTOCCELL WITH NEMA 7-PIN SOCKET ON 9M MAST
- EQUAL OR SIMILAR APPROVED TO BEKA LEDLUME MIDI 48 LED, 104W, 5248 OPTIC WITH BOTTOM ENTRY SPIGOT FOR ADJUSTMENT UP TO 15°, INTEGRATED PHOTOCCELL WITH NEMA 7-PIN SOCKET ON 6M MAST
- EARTHING AS PER TRANSNET NATIONAL PORTS AUTHORITY SPECIFICATION
- ELECTRICAL KIOSK
- ELECTRICAL CABLE

HIGH MAST AND CABLE INFORMATION

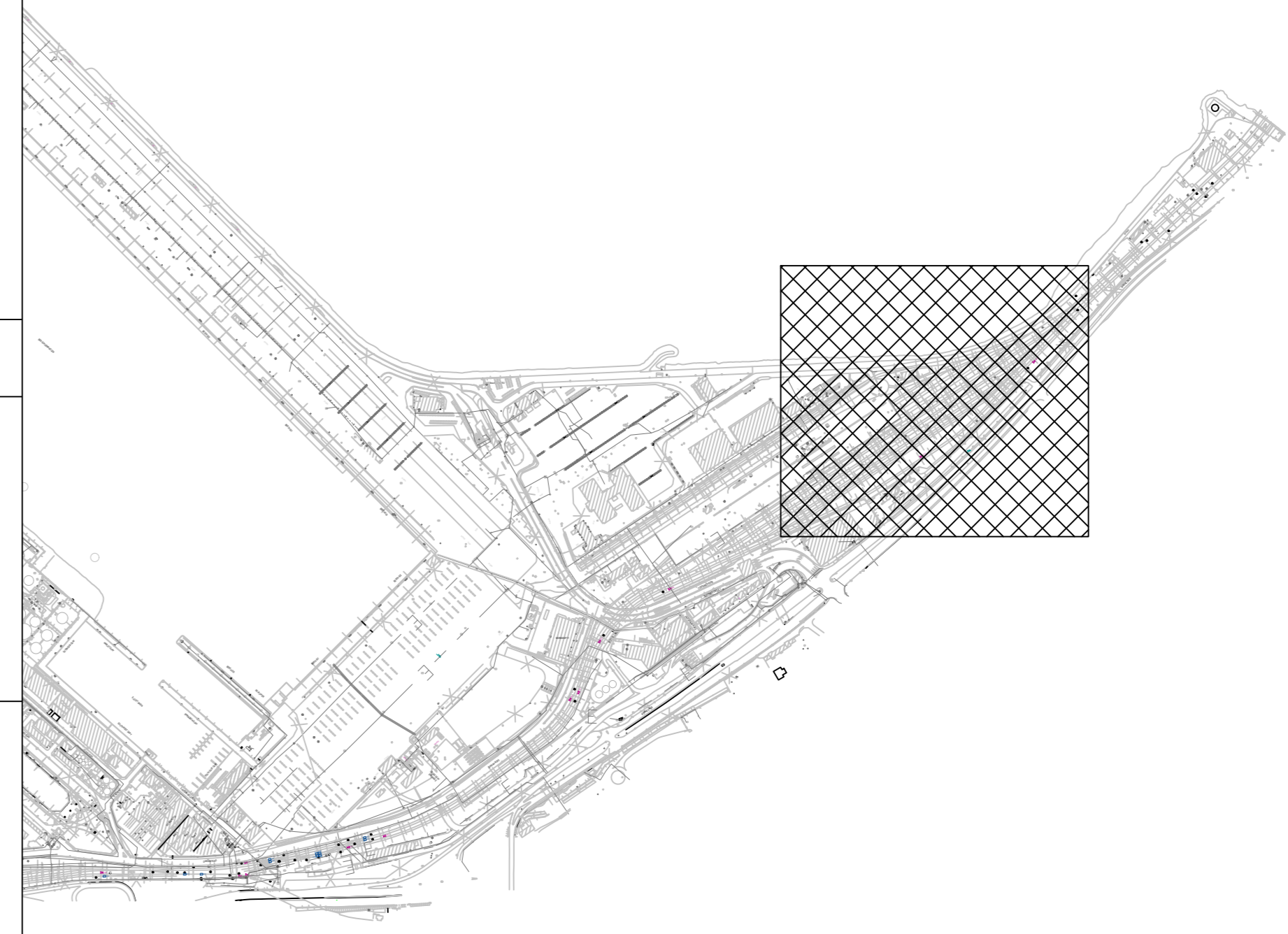
CABLE ROUTING			
CABLE PATH	CABLE TYPE	EXISTING CABLE	DIST.
EX. PERIMETER	TO BE VERIFIED	YES	TBC

LUMINAIRE SCHEDULE			
SYMBOL	QTY	ARRANGEMENT	TOTAL LAMP LUMENS
--	72	9@40° PER MAST	59000

LUMINAIRE ORIENTATION



KEYPLAN (SCALE: NTS)



NOTES:

- THE WIDTH OF THE TRENCH FOR THE CASE OF MULTIPLE CABLES RUNNING IN THE SAME TRENCH IS AS FOLLOWS:
 - a) SPACING BETWEEN ANY TWO LV CABLES MUST BE A MINIMUM OF 300mm BETWEEN THE OUTER SHEATHING OF ANY TWO ADJACENT CABLES.
 - b) FOR TWO LV CABLES ADD 150mm TO THE WIDTH OF THE TRENCH AND FOR ADDITIONAL CABLES THERE AFTER ADD 300mm.
 - c) EACH LV CABLE SHALL HAVE ITS OWN CABLE GUARD.
- LV CABLES MUST NEVER CROSS EACH OTHER AND MUST BE LAID PARALLEL TO EACH OTHER IN THE HORIZONTAL PLANE.

ELECTRICAL NOTES:

- THIS DRAWING FOR EL&P ONLY.
- A CERTIFICATE OF COMPLIANCE TO BE COMPLETED BY CONTRACTOR ON COMPLETION OF WORK.
- ALL WORK MUST COMPLY WITH THE GENERAL REQUIREMENTS OF SANS 10142-1 (as amended), THE CONTRACTOR AND PANEL MANUFACTURER IS REFERRED SPECIFICALLY TO CLAUSE 6.0.6.5, 2.6.5, 3.6.5.4 AND 6.6.5.
- ALL SAMPLES OF LIGHTING AND FIXTURES TO BE APPROVED BY ELECTRICAL ENGINEER PRIOR TO ORDERING
- ALL CABLE ROUTES ARE PROVISIONAL AND SUBJECT TO CHANGE
- PERIMETER LIGHTING TO REUSE EXISTING CABLING

DH - HARBOUR MASTER	DH - FINANCIAL MANAGER
DH - RISK MANAGER	DH - ENVIRONMENTAL MANAGER
DH - SECURITY MANAGER	DH - PROPERTY MANAGER
DH - CORPORATE AFFAIRS MANAGER	DH - MARINE OPERATIONS MANAGER
DH - MARKETING MANAGER	DH - CHIEF FIRE OFFICER

FOR APPROVAL

DATE	05/04/2023
DESCRIPTION / REVISIONS	

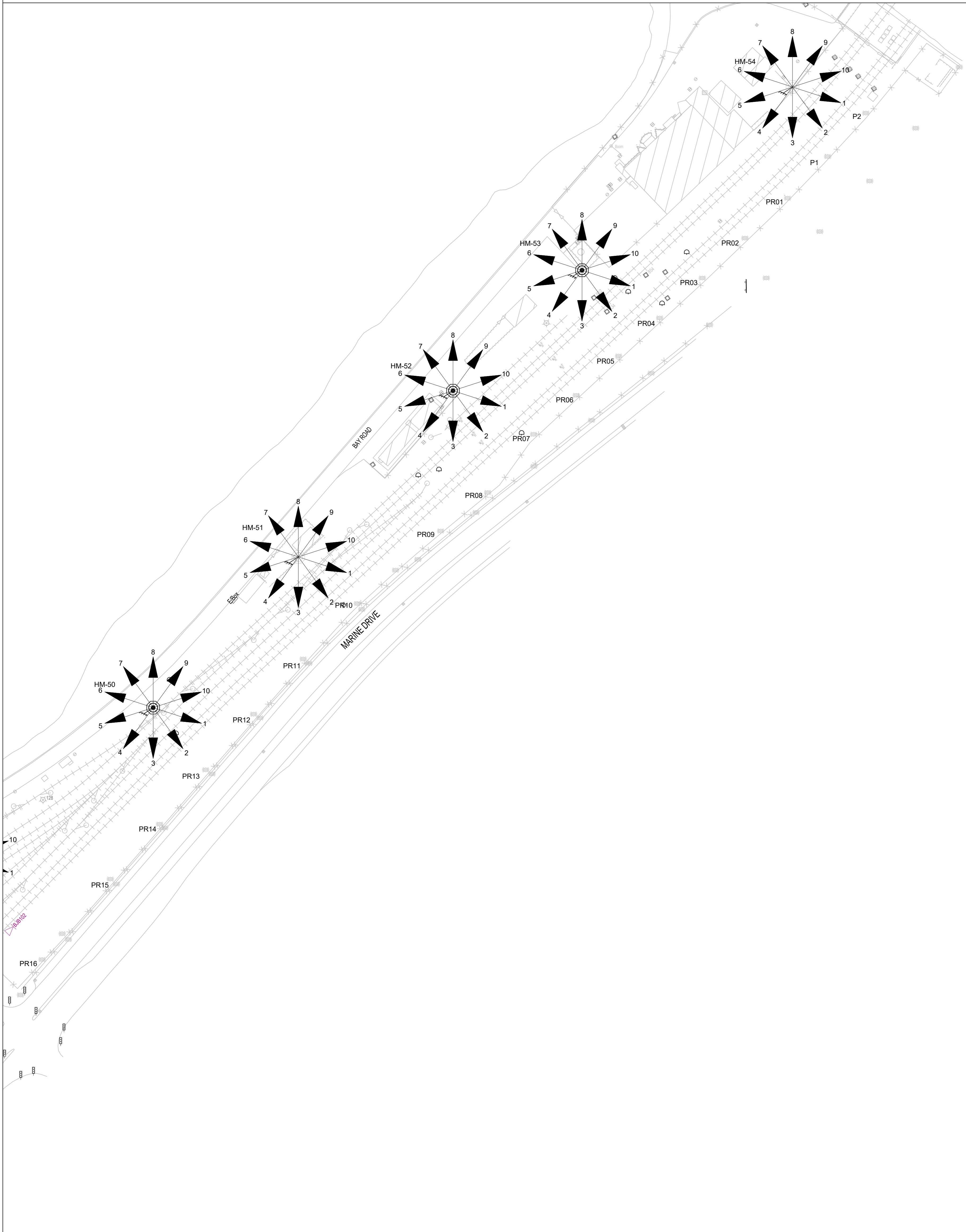


PROJECT / AREA / ASSET / SUBJECT
PORT OF CAPE TOWN LIGHTING AND INFRASTRUCTURE UPGRADE

DRAWING TITLE
RAIL MARSHALLING YARD 1 - LIGHTING LAYOUT AND AIMING ANGLES (SHEET 2)

DATE	03/04/2023	TNPA EDS
SCALE	AS SHOWN	REGISTRATION NUMBER: 20210127
DESIGNED BY		SIGNATURE: DATE:
CHECKED BY	ZM	SIGNATURE: DATE: 03/04/2023
DRAWN BY		SIGNATURE: DATE:
CHECKED BY	LR	SIGNATURE: DATE: 02/04/2023
PAPER SIZE	A0	

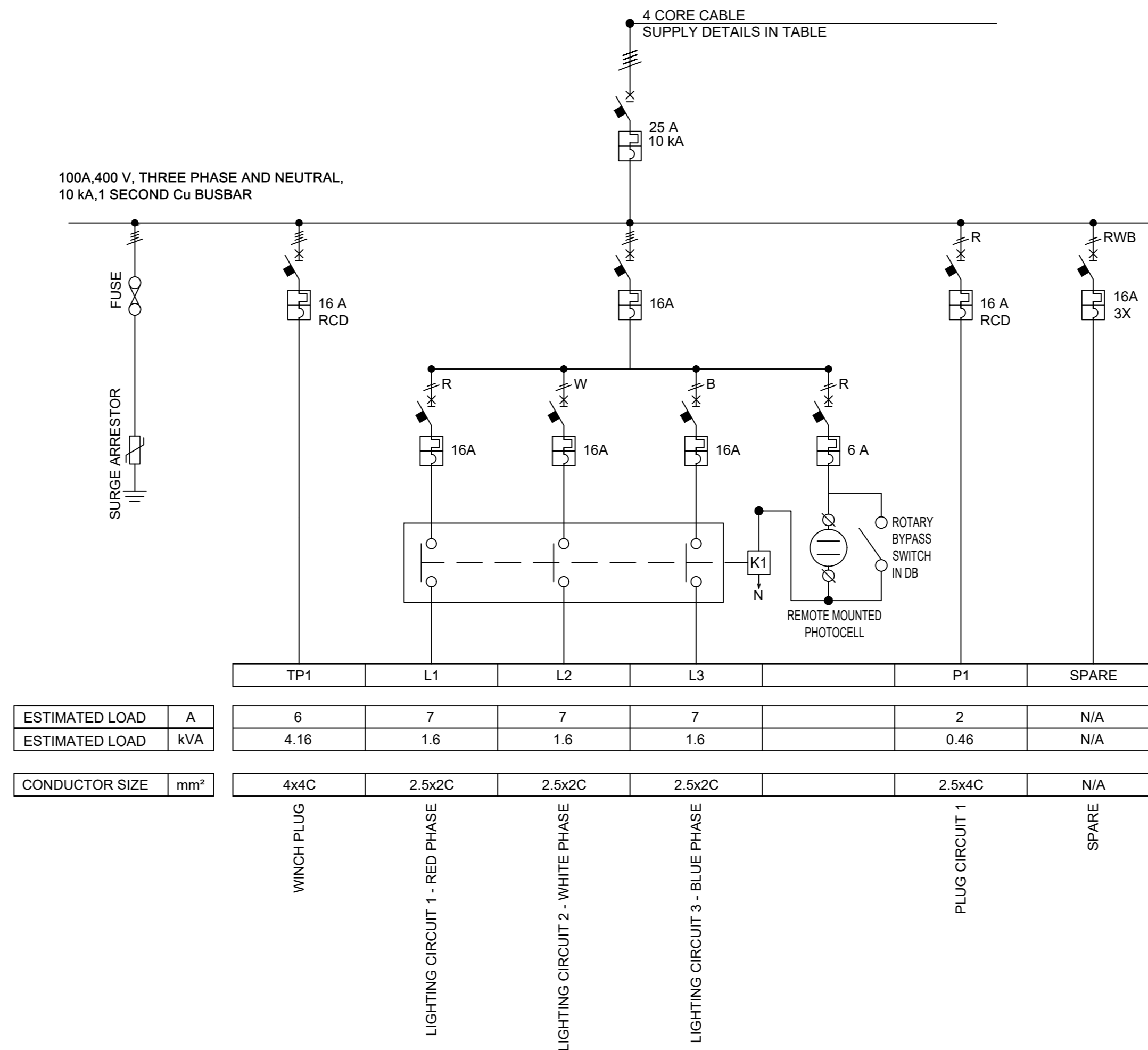
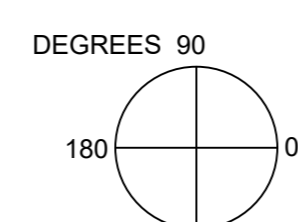
PROJECT NUMBER	DWG TYPE	DRAWING NO.	REV.	ID.
KCTE0025	E-LA	0009-0A	SR	



CABLE ROUTING			
CABLE PATH	CABLE TYPE	EXISTING CABLE	DIST.
SIGNAL SUB - HM50	35mm ² 4 CORE CABLE	YES	TBC
SIGNAL SUB - HM51	35mm ² 4 CORE CABLE	YES	TBC
SIGNAL SUB - HM52	35mm ² 4 CORE CABLE	REROUTE	TBC
SIGNAL SUB - HM53	16mm ² 4 CORE CABLE	REROUTE	TBC
SIGNAL SUB - HM54	35mm ² 4 CORE CABLE	YES	TBC

LUMINAIRE SCHEDULE				
SYMBOL	QTY	ARRANGEMENT	TOTAL LAMP LUMENS	
	50	10@36° PER MAST	59000	
CALCULATION SUMMARY				
AREA	CALC TYPE	UNITS	AVG	MAX
RAIL YARD	ILLUMINANCE	LUX	23.4	62.6

LUMINAIRE ORIENTATION

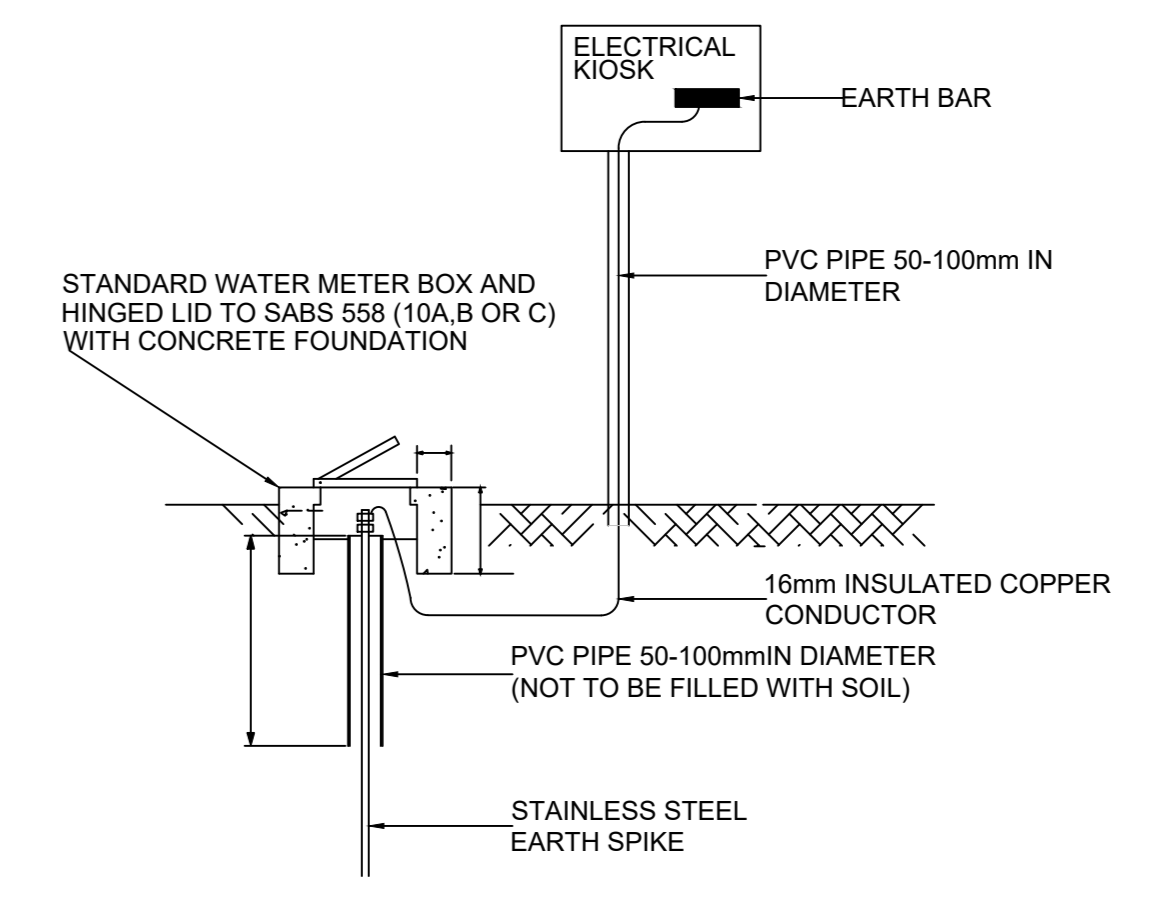


ESTIMATED LOAD	A	6	7	7	7	2	N/A
ESTIMATED LOAD	KVA	4.16	1.6	1.6	1.6	0.46	N/A
CONDUCTOR SIZE	mm ²	4x4C	2.5x2C	2.5x2C	2.5x2C	2.5x4C	N/A

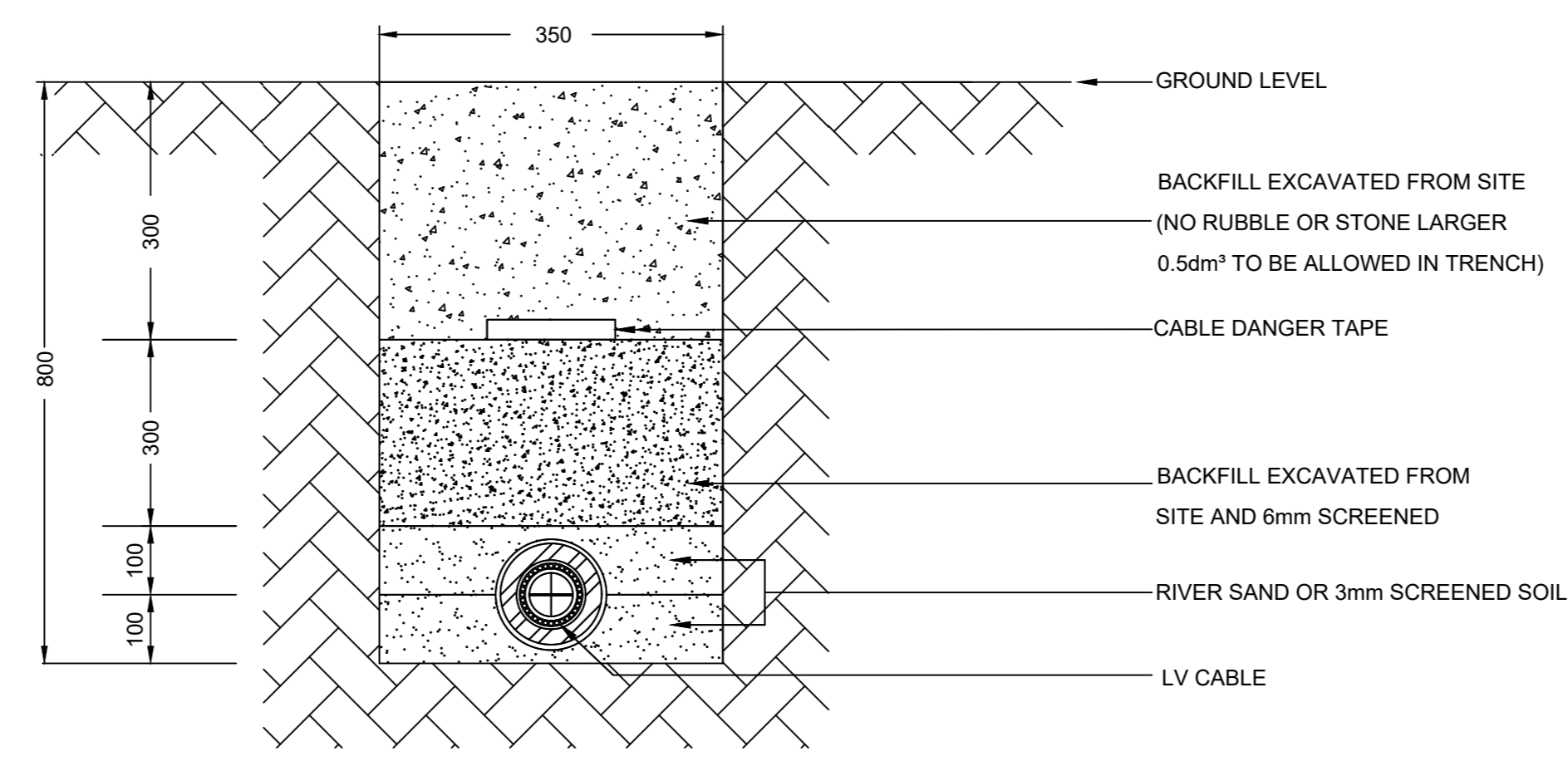
DISTRIBUTION BOARD SPECIFICATION	
SPARE WAYS	30%
DISTRIBUTION BOARD TYPE	STAND MOUNTED
MATERIAL	3CR12
THICKNESS OF MATERIAL	1.5mm
PAINT TYPE	POWDER COATED (80 MICRONS)
FRAME COLOUR	ORANGE
IP RATING	65
SWITCHGEAR MAKE	EQUAL OR SIMILAR APPROVED TO ABB

- EQUAL OR SIMILAR APPROVED TO BEKA OMNIBLAST 1-E, 455W, 5188 OPTIC, 59000 LUMEN WITH A 7 PIN NEMA SOCKET
- EQUAL OR SIMILAR APPROVED TO BEKA LEDLUME MIDI 48 LED, 104W, 5248 OPTIC WITH BOTTOM ENTRY SPIGOT FOR ADJUSTMENT UP TO 15°, INTEGRATED PHOTOCCELL WITH NEMA 7-PIN SOCKET ON 9M MAST
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- EARTHING AS PER TRANSNET NATIONAL PORTS AUTHORITY SPECIFICATION
- ELECTRICAL KIOSK
- ELECTRICAL CABLE

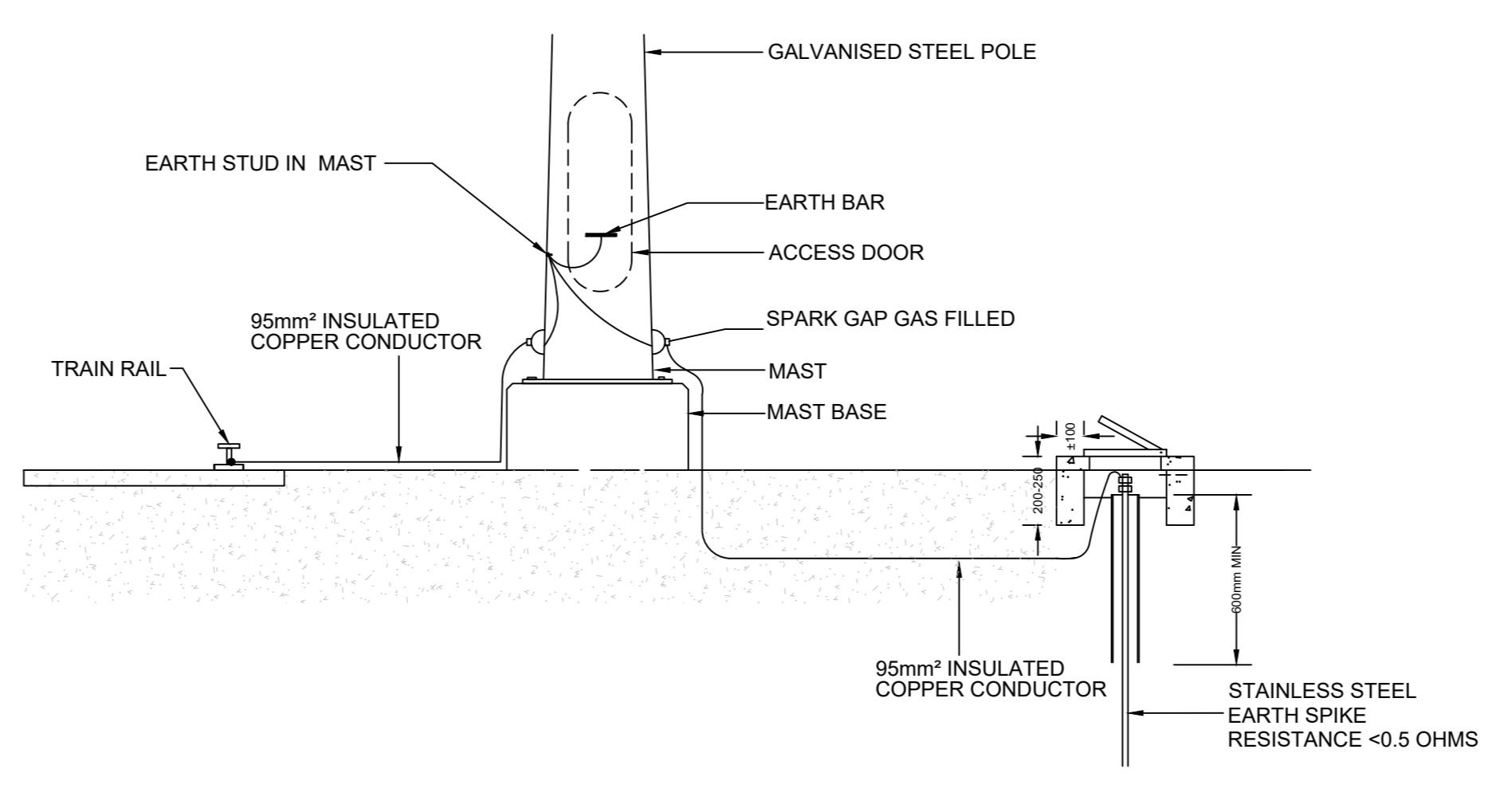
TYPICAL HIGH MAST POLE EARTHING DETAILS (SCALE: NTS)



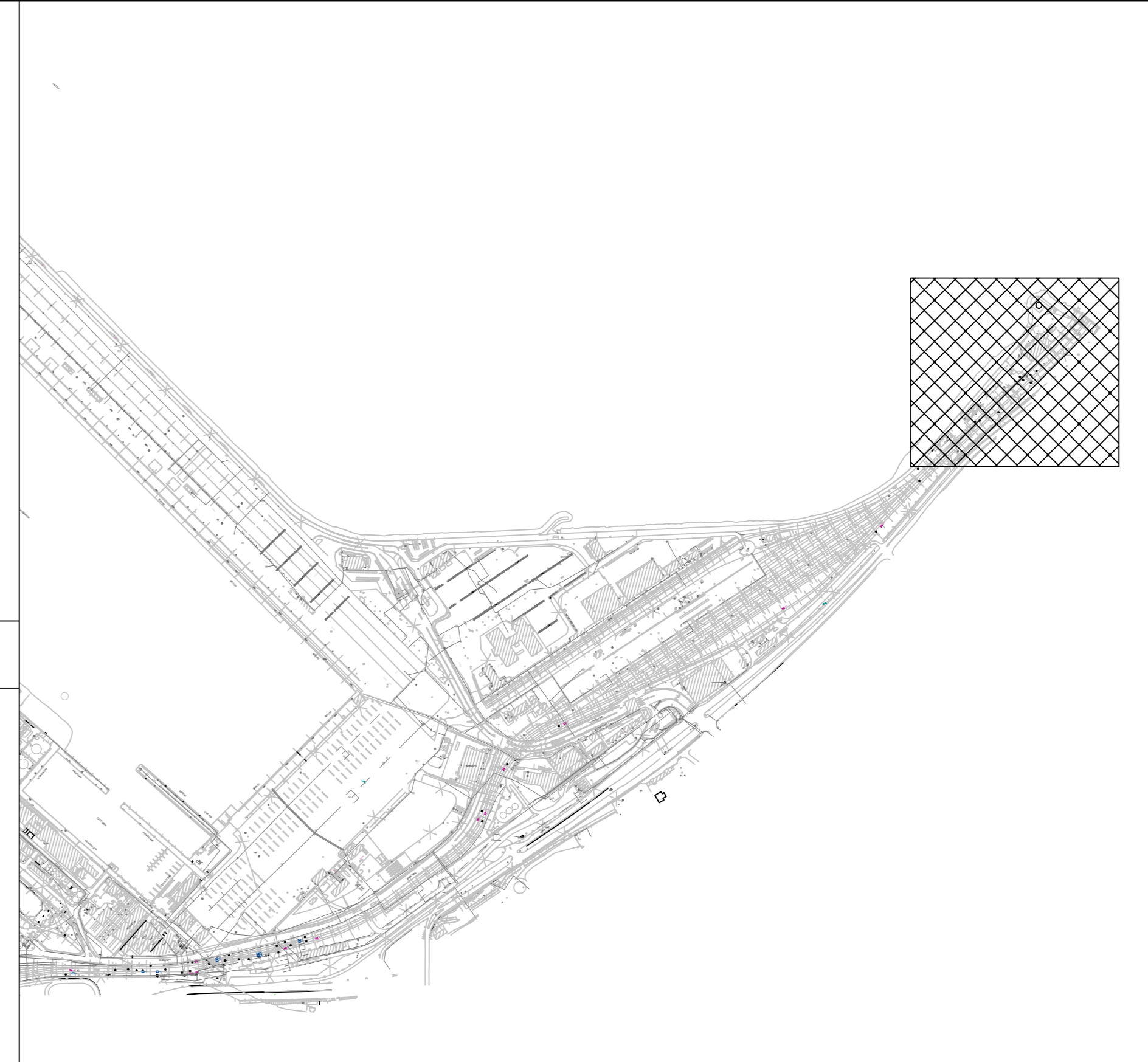
TYPICAL CABLE TRENCH DETAILS (SCALE: NTS)



TYPICAL HIGH MAST POLE EARTHING DETAILS (SCALE: NTS)



KEYPLAN (SCALE: NTS)



DH - HARBOUR MASTER	DATE	DH - FINANCIAL MANAGER	DATE
DH - RISK MANAGER	DATE	DH - ENVIRONMENTAL MANAGER	DATE
DH - SECURITY MANAGER	DATE	DH - PROPERTY MANAGER	DATE
DH - CORPORATE AFFAIRS MANAGER	DATE	DH - MARINE OPERATIONS MANAGER	DATE
DH - MARKETING MANAGER	DATE	DH - CHIEF FIRE OFFICER	DATE

FOR APPROVAL



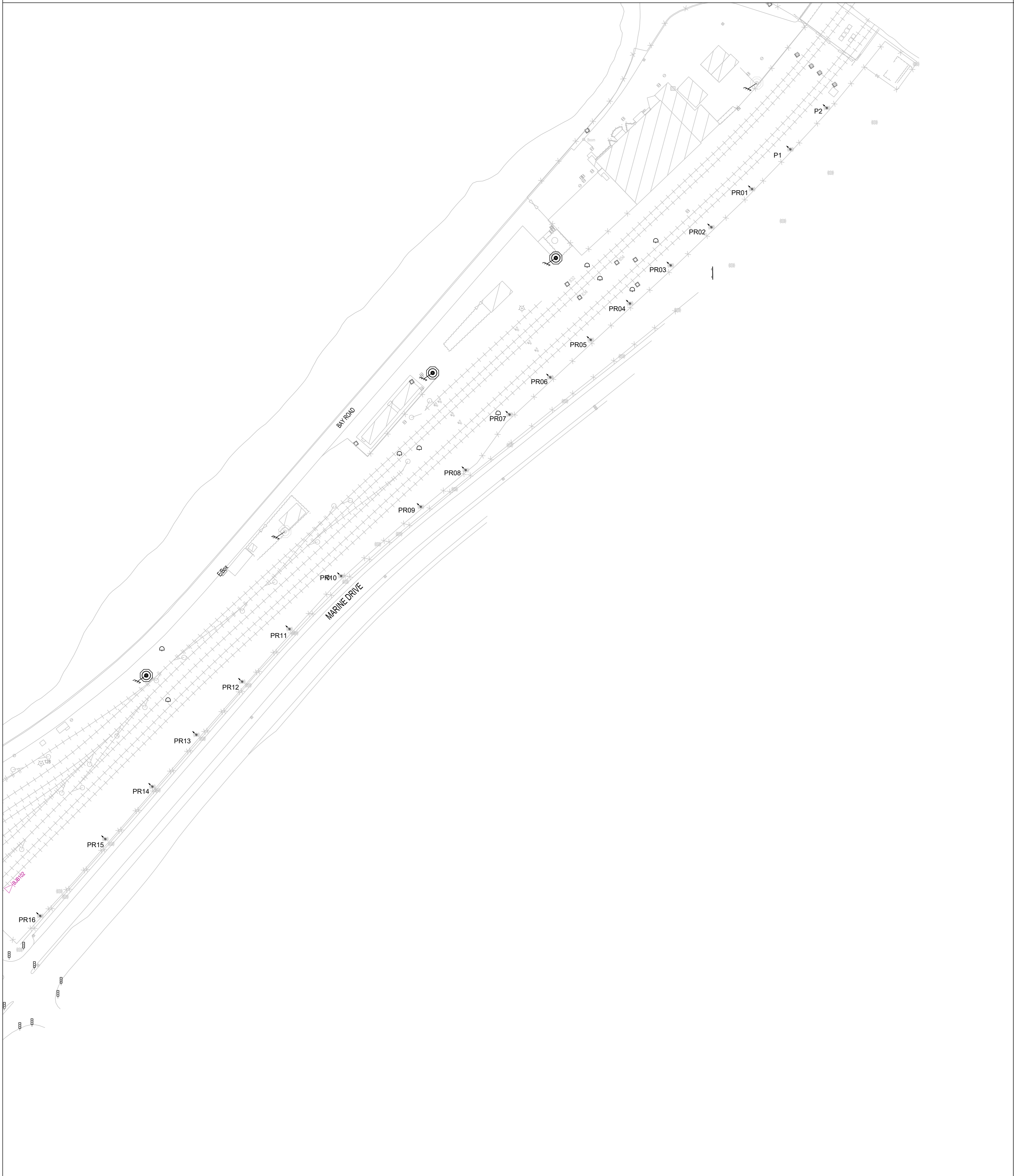
PROJECT / AREA / ASSET / SUBJECT
PORT OF CAPE TOWN LIGHTING AND INFRASTRUCTURE UPGRADE

DRAWING TITLE
RAIL MARSHALLING YARD 2 - LIGHTING LAYOUT AND AIMING ANGLES (SHEET 1)

DATE	03/04/2023	TPNA EDS
SCALE	AS SHOWN	REGISTRATION NUMBER: 20519177
DESIGNED BY	ZM	DATE: 03/04/2023
CHECKED BY	LR	DATE: 03/04/2023
DRAWN BY		
CHECKED BY		
PAPER SIZE	AO	
PROJECT NUMBER	KCTE0025-E-LA-0010-0A-SR	

- NOTES:
1. THE WIDTH OF THE TRENCH FOR THE CASE OF MULTIPLE CABLES RUNNING IN THE SAME TRENCH IS AS FOLLOWS:
 - a) SPACING BETWEEN ANY TWO LV CABLES MUST BE A MINIMUM OF 300mm BETWEEN THE OUTER SHEATHING OF ANY TWO ADJACENT CABLES.
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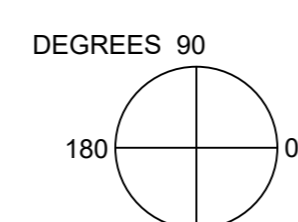
- ELECTRICAL NOTES:
1. THIS DRAWING FOR EL&P ONLY.
 2. A CERTIFICATE OF COMPLIANCE TO BE COMPLETED BY CONTRACTOR ON COMPLETION OF WORK.
 3. ALL WORK MUST COMPLY WITH THE GENERAL REQUIREMENTS OF SANS 10142-1 (as amended). THE CONTRACTOR AND PANEL MANUFACTURER IS REFERRED SPECIFICALLY TO CLAUSE 6.6.6.2.6.5.3.6.8.4 AND 6.6.5.
 4. ALL SAMPLES OF LIGHTING AND FIXTURES TO BE APPROVED BY ELECTRICAL ENGINEER PRIOR TO ORDERING.
 5. ALL CABLE ROUTES ARE PROVISIONAL AND SUBJECT TO CHANGE.



CABLE ROUTING			
CABLE PATH	CABLE TYPE	EXISTING CABLE	DIST.
EX PERIMETER	TO BE VERIFIED	YES	TBC

LUMINAIRE SCHEDULE			
SYMBOL	QTY	ARRANGEMENT	TOTAL LAMP LUMENS
--	18	1 PER MAST	15157

LUMINAIRE ORIENTATION

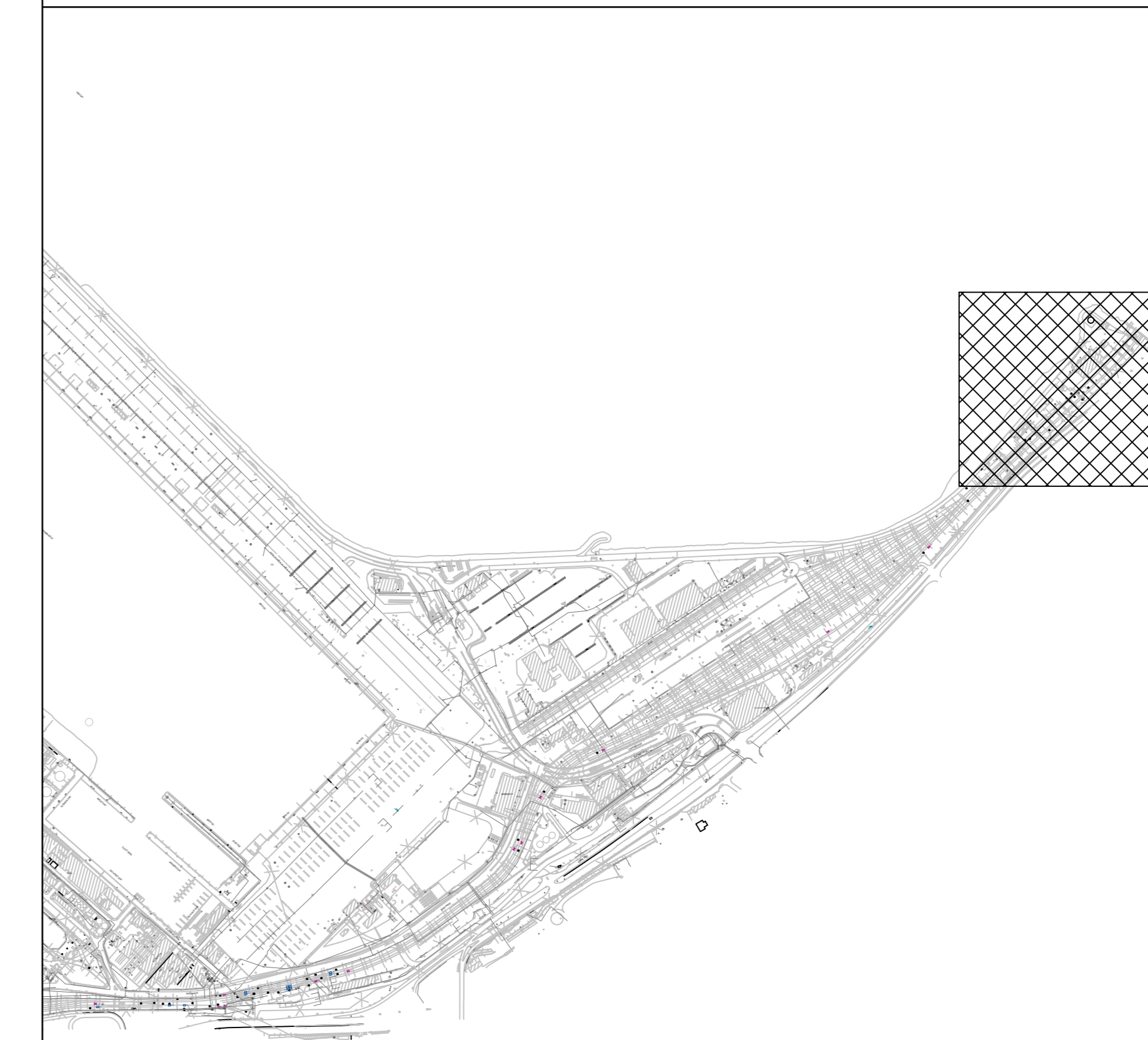


LUMINAIRE LOCATION SUMMARY						LUMINAIRE LOCATION SUMMARY					
HIGH MAST	LABEL	HIGH MAST HEIGHT	ORIENT.	TILT	PHASE	HIGH MAST	LABEL	HIGH MAST HEIGHT	ORIENT.	TILT	PHASE
HM50	L1	30	90°	65°	R	HM52	L1	30	90°	65°	R
HM50	L2	30	130°	65°	W	HM52	L2	30	130°	65°	W
HM50	L3	30	170°	65°	B	HM52	L3	30	170°	65°	B
HM50	L4	30	210°	65°	R	HM52	L4	30	210°	65°	R
HM50	L5	30	250°	65°	W	HM52	L5	30	250°	65°	W
HM50	L6	30	290°	65°	B	HM52	L6	30	290°	65°	B
HM50	L7	30	330°	65°	R	HM52	L7	30	330°	65°	R
HM50	L8	30	10°	65°	W	HM52	L8	30	10°	65°	W
HM50	L9	30	50°	65°	B	HM52	L9	30	50°	65°	B
HM51	L1	30	90°	65°	R	HM53	L1	30	90°	65°	R
HM51	L2	30	130°	65°	W	HM53	L2	30	130°	65°	W
HM51	L3	30	170°	65°	B	HM53	L3	30	170°	65°	B
HM51	L4	30	210°	65°	R	HM53	L4	30	210°	65°	R
HM51	L5	30	250°	65°	W	HM53	L5	30	250°	65°	W
HM51	L6	30	290°	65°	B	HM53	L6	30	290°	65°	B
HM51	L7	30	330°	65°	R	HM53	L7	30	330°	65°	R
HM51	L8	30	10°	65°	W	HM53	L8	30	10°	65°	W
HM51	L9	30	50°	65°	B	HM53	L9	30	50°	65°	B

LUMINAIRE LOCATION SUMMARY						LUMINAIRE LOCATION SUMMARY					
HIGH MAST	LABEL	HIGH MAST HEIGHT	ORIENT.	TILT	PHASE	HIGH MAST	LABEL	HIGH MAST HEIGHT	ORIENT.	TILT	PHASE
HM54	L1	30	90°	65°	R	P1	L1	6	138°	10°	EX
HM54	L2	30	130°	65°	W	P2	L1	6	138°	10°	EX
HM54	L3	30	170°	65°	B	PR01	L1	6	138°	10°	EX
HM54	L4	30	210°	65°	R	PR02	L1	6	138°	10°	EX
HM54	L5	30	250°	65°	W	PR03	L1	6	138°	10°	EX
HM54	L6	30	290°	65°	B	PR04	L1	6	138°	10°	EX
HM54	L7	30	330°	65°	R	PR05	L1	6	138°	10°	EX
HM54	L8	30	10°	65°	W	PR06	L1	6	138°	10°	EX
HM54	L9	30	50°	65°	B	PR07	L1	6	138°	10°	EX
						PR08	L1	6	138°	10°	EX
						PR09	L1	6	138°	10°	EX
						PR10	L1	6	138°	10°	EX
						PR11	L1	6	138°	10°	EX
						PR12	L1	6	138°	10°	EX
						PR13	L1	6	138°	10°	EX
						PR14	L1	6	138°	10°	EX
						PR15	L1	6	138°	10°	EX
						PR16	L1	6	138°	10°	EX

EQUAL OR SIMILAR APPROVED TO BEKA OMNIBLAST 1-E, 455W, 5188 OPTIC, 59000 LUMEN WITH A 7 PIN NEMA SOCKET
 EQUAL OR SIMILAR APPROVED TO BEKA LEDLUME MIDI 48 LED, 104W, 5248 OPTIC WITH BOTTOM ENTRY SPIGOT FOR ADJUSTMENT UP TO 15°, INTEGRATED PHOTOCCELL WITH NEMA 7-PIN SOCKET ON 9M MAST
 EQUAL OR SIMILAR APPROVED TO BEKA LEDLUME MIDI 48 LED, 104W, 5248 OPTIC WITH BOTTOM ENTRY SPIGOT FOR ADJUSTMENT UP TO 15°, INTEGRATED PHOTOCCELL WITH NEMA 7-PIN SOCKET ON 6M MAST
 EARTHING AS PER TRANSNET NATIONAL PORTS AUTHORITY SPECIFICATION
 ELECTRICAL KIOSK
 ELECTRICAL CABLE

KEYPLAN (SCALE: NTS)



DH - HARBOUR MASTER	DH - FINANCIAL MANAGER
SIGNATURE	SIGNATURE
DATE	DATE
DH - RISK MANAGER	DH - ENVIRONMENTAL MANAGER
SIGNATURE	SIGNATURE
DATE	DATE
DH - SECURITY MANAGER	DH - PROPERTY MANAGER
SIGNATURE	SIGNATURE
DATE	DATE
DH - CORPORATE AFFAIRS MANAGER	DH - MARINE OPERATIONS MANAGER
SIGNATURE	SIGNATURE
DATE	DATE
DH - MARKETING MANAGER	DH - CHIEF FIRE OFFICER
SIGNATURE	SIGNATURE
DATE	DATE

FOR APPROVAL

No.	DESCRIPTION / REVISIONS	DATE
0A	ISSUED FOR TENDER	05/04/2023



PROJECT / AREA / ASSET / SUBJECT
PORT OF CAPE TOWN LIGHTING AND INFRASTRUCTURE UPGRADE

DRAWING TITLE
RAIL MARSHALLING YARD 2 - LIGHTING LAYOUT AND AIMING ANGLES (SHEET 2)

DATE	03/04/2023	TPNA EDS
SCALE	AS SHOWN	REGISTRATION NUMBER: 25241677
DESIGNED BY	ZM	SIGNATURE: [Signature]
CHECKED BY	LR	SIGNATURE: [Signature]
DRAWN BY	LR	DATE: 05/04/2023
CHECKED BY	LR	DATE: 05/04/2023
PAPER SIZE	A0	DATE: 02/04/2023

NOTES:

1. THE WIDTH OF THE TRENCH FOR THE CASE OF MULTIPLE CABLES RUNNING IN THE SAME TRENCH IS AS FOLLOWS:
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4. ALL SAMPLES OF LIGHTING AND FIXTURES TO BE APPROVED BY ELECTRICAL ENGINEER PRIOR TO ORDERING.
5. ALL CABLE ROUTES ARE PROVISIONAL AND SUBJECT TO CHANGE.



LUMINAIRE LOCATION SUMMARY					
MAST/POLE	LABEL	MAST/POLE HEIGHT	ORIENT.	TILT	PHASE
P1	L1	9	44°	10°	EX
P2	L1	9	44°	10°	EX
P3	L1	9	44°	10°	EX
P4	L1	9	44°	10°	EX
P5	L1	9	44°	10°	EX
P6	L1	9	44°	10°	EX
PP1	L1	9	319°	10°	EX
PP2	L1	9	140°	10°	EX
PP3	L1	9	140°	10°	EX
PP4	L1	9	229°	10°	EX
PP5	L1	9	229°	10°	EX
PP6	L1	9	41°	10°	EX
PP7	L1	9	229°	10°	EX
PP8	L1	9	229°	10°	EX
PP9	L1	9	229°	10°	EX
PP10	L1	9	229°	10°	EX
PP11	L1	9	139°	10°	EX
PP12	L1	9	167°	10°	EX

	EQUAL OR SIMILAR APPROVED TO BEKA LEDLUME MIDI 48 LED, 104W, 5248 OPTIC WITH BOTTOM ENTRY SPIGOT FOR ADJUSTMENT UP TO 15°, INTEGRATED PHOTOCCELL WITH NEMA 7-PIN SOCKET
	EARTHING AS PER TRANSNET NATIONAL PORTS AUTHORITY SPECIFICATION
	ELECTRICAL KIOSK
	ELECTRICAL CABLE

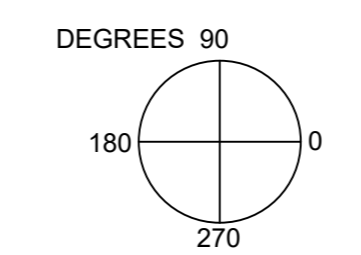
HIGH MAST AND CABLE INFORMATION

CABLE ROUTING			
CABLE PATH	CABLE TYPE	EXISTING CABLE	DIST.
EX OCEAN ROAD CIRCUIT	TO BE VERIFIED	YES	TBC
EX BERRIO ROAD CIRCUIT	TO BE VERIFIED	YES	TBC
EX TITAN ROAD CIRCUIT	TO BE VERIFIED	YES	TBC

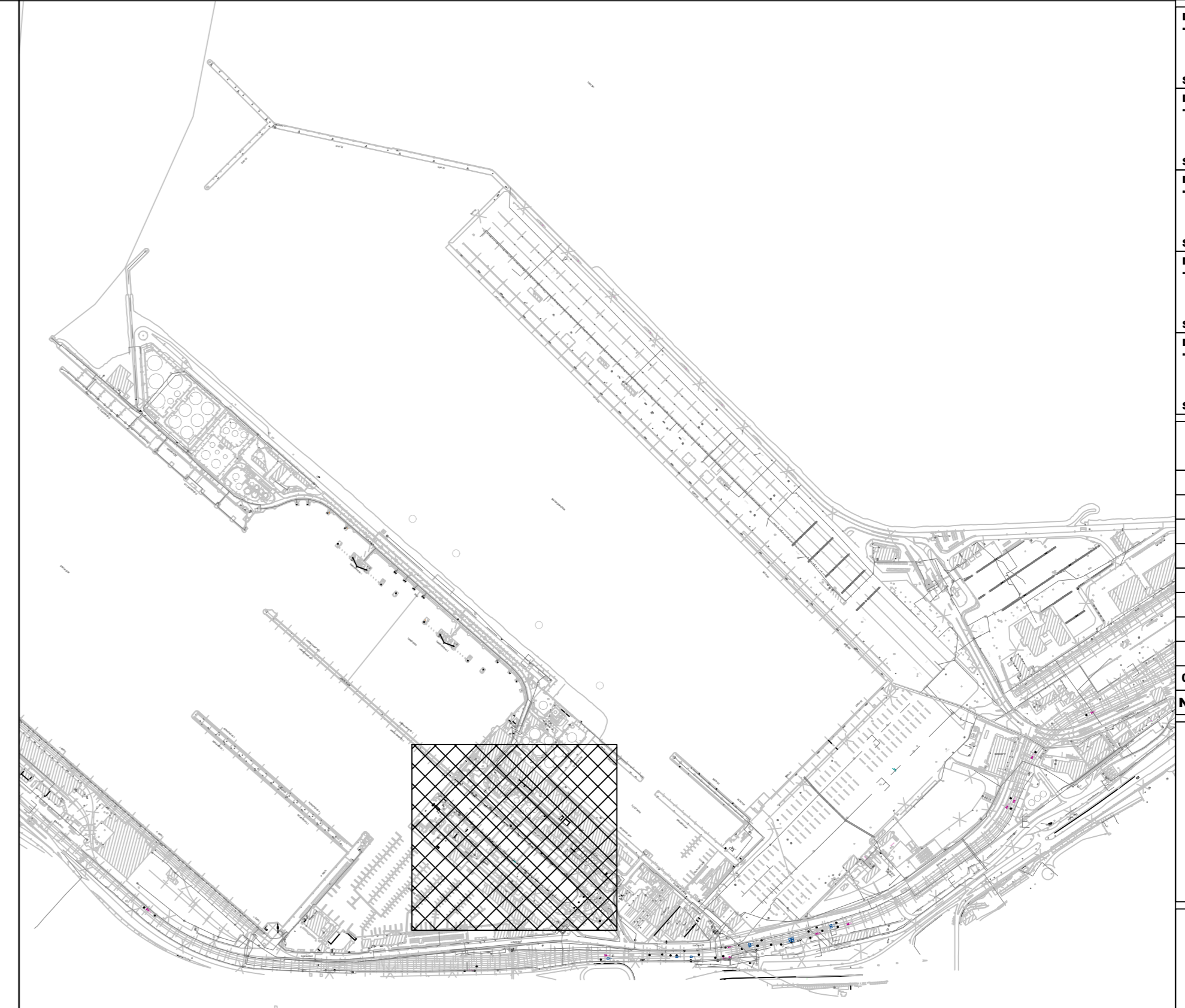
LUMINAIRE SCHEDULE			
SYMBOL	QTY	ARRANGEMENT	TOTAL LAMP LUMENS
--	18	1 PER MAST	15157

CALCULATION SUMMARY				
AREA	CALC TYPE	UNITS	AVG	MAX
BERRIO ROAD	ILLUMINANCE	LUX	24.4	73.6
OCEAN ROAD	ILLUMINANCE	LUX	25.2	78.5
TITAN ROAD	ILLUMINANCE	LUX	23.5	74.2
VANGUARD ROAD	ILLUMINANCE	LUX	19.8	74.6

LUMINAIRE ORIENTATION



KEYPLAN (SCALE: NTS)



DH - HARBOUR MASTER	DH - FINANCIAL MANAGER
DH - RISK MANAGER	DH - ENVIRONMENTAL MANAGER
DH - SECURITY MANAGER	DH - PROPERTY MANAGER
DH - CORPORATE AFFAIRS MANAGER	DH - MARINE OPERATIONS MANAGER
DH - MARKETING MANAGER	DH - CHIEF FIRE OFFICER

FOR APPROVAL

0A ISSUED FOR TENDER	05/04/2023
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PROJECT / AREA / ASSET / SUBJECT
PORT OF CAPE TOWN LIGHTING AND INFRASTRUCTURE UPGRADE

DRAWING TITLE
BERRIO, OCEAN AND VANGUARD ROADS - LIGHTING LAYOUT AND AIMING ANGLES

DATE	03/04/2023	PROJECT NO.	25416177
SCALE	AS SHOWN	REGISTRATION NO.	25416177
DESIGNED BY	ZM	SIGNATURE	[Signature]
CHECKED BY	LR	SIGNATURE	[Signature]
DRAWN BY	ZM	DATE	03/04/2023
CHECKED BY	LR	DATE	03/04/2023
PAPER SIZE	A0	DATE	03/04/2023

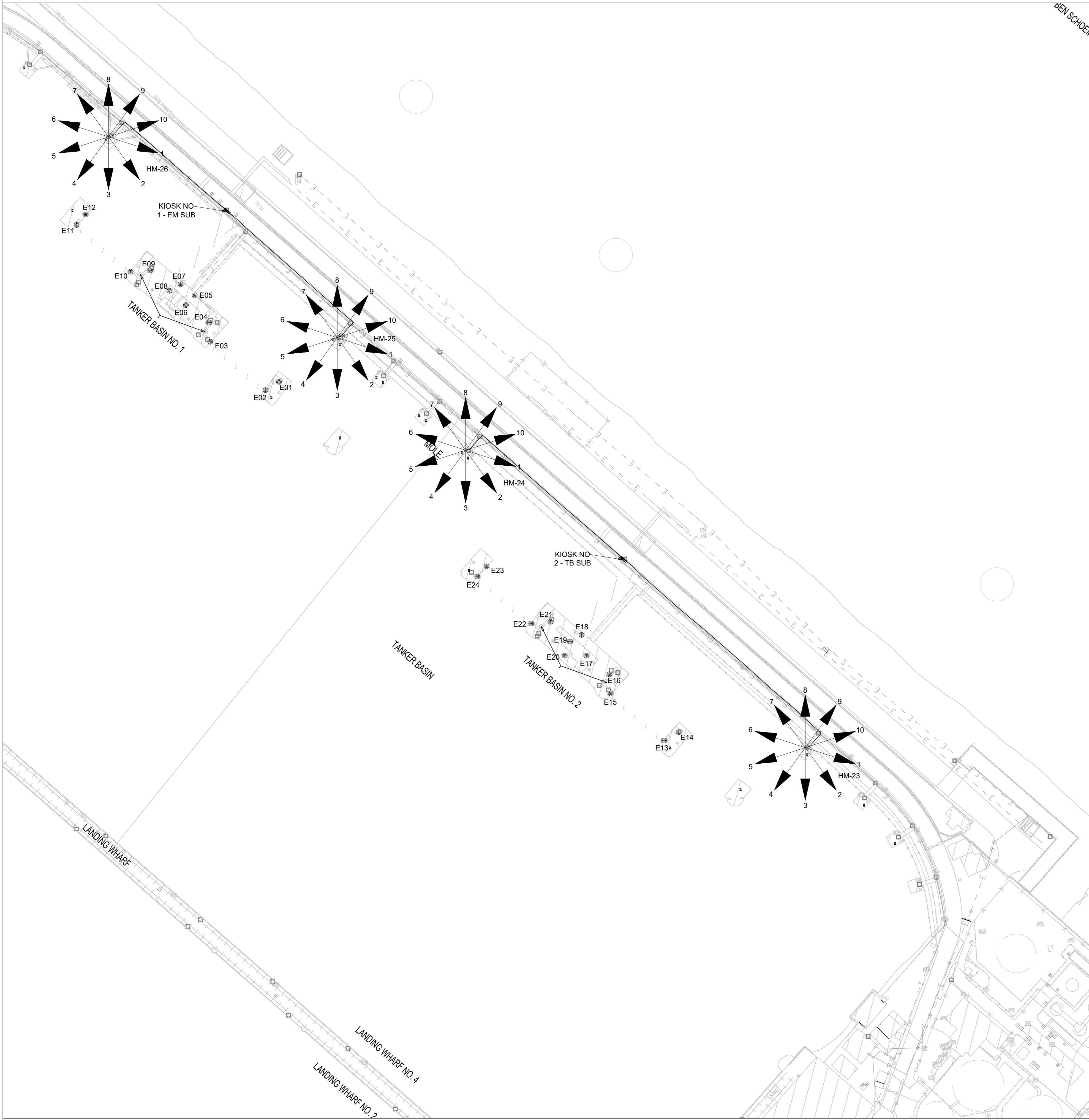
NOTES:

- THE WIDTH OF THE TRENCH FOR THE CASE OF MULTIPLE CABLES RUNNING IN THE SAME TRENCH IS AS FOLLOWS:
 - a) SPACING BETWEEN ANY TWO LV CABLES MUST BE A MINIMUM OF 300mm BETWEEN THE OUTER SHEATHING OF ANY TWO ADJACENT CABLES.
 - b) FOR TWO LV CABLES ADD 150mm TO THE WIDTH OF THE TRENCH AND FOR ADDITIONAL CABLES THERE AFTER ADD 300mm.
 - c) EACH LV CABLE SHALL HAVE ITS OWN CABLE GUARD.
- LV CABLES MUST NEVER CROSS EACH OTHER AND MUST BE LAID PARALLEL TO EACH OTHER IN THE HORIZONTAL PLANE.

ELECTRICAL NOTES:

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- ALL WORK MUST COMPLY WITH THE GENERAL REQUIREMENTS OF SANS 10142-1 (as amended), THE CONTRACTOR AND PANEL MANUFACTURER IS REFERRED SPECIFICALLY TO CLAUSE 6.6.6.2.6.6.3.6.4 AND 6.6.5.
- ALL SAMPLES OF LIGHTING AND FIXTURES TO BE APPROVED BY ELECTRICAL ENGINEER PRIOR TO ORDERING
- ALL CABLE ROUTES ARE PROVISIONAL AND SUBJECT TO CHANGE

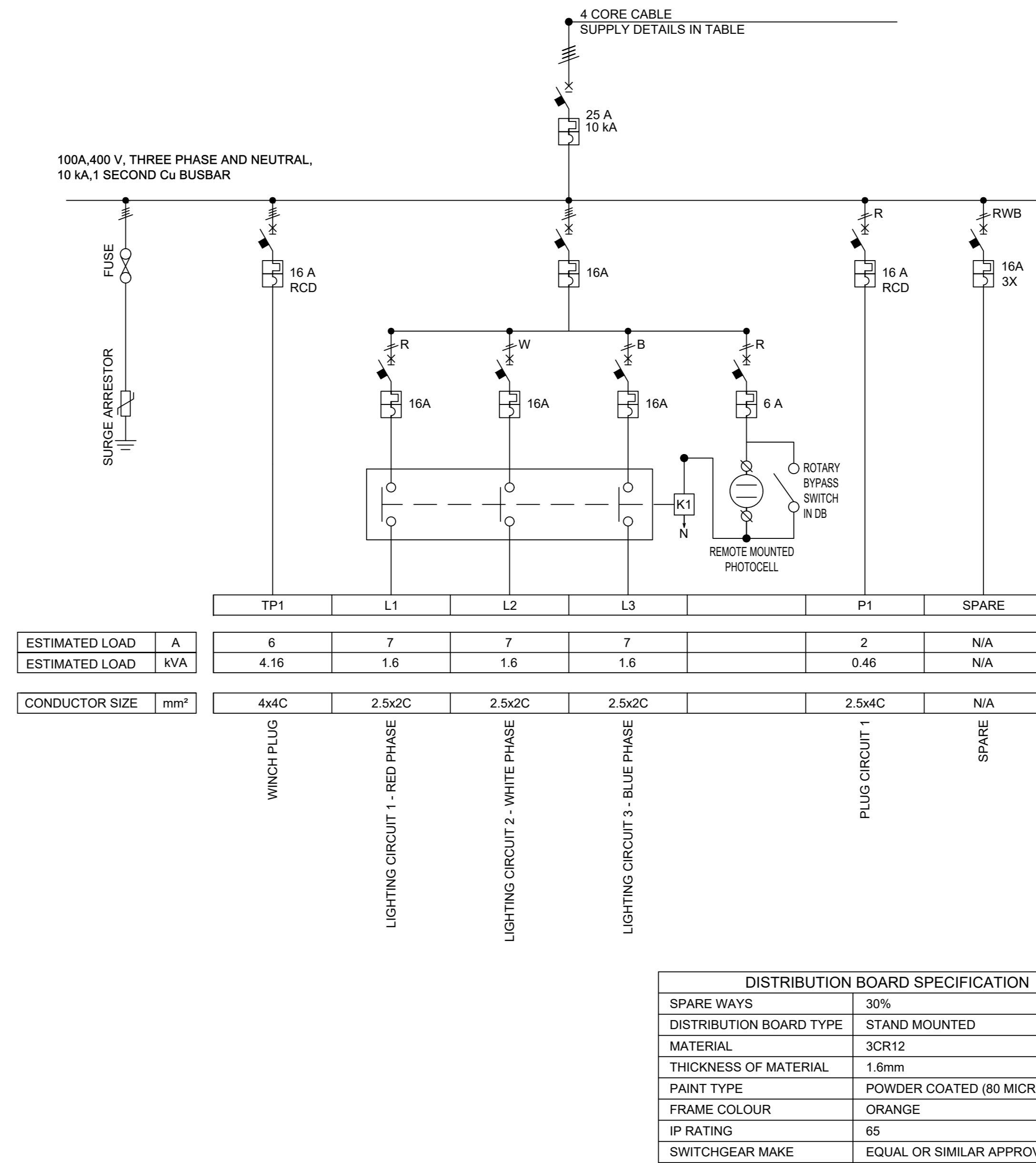
TANKER BASIN - HIGH MAST AND BERTH LIGHTING LAYOUT (SCALE: 1:1000)



TANKER BASIN HIGH MAST AND BERTH LIGHTING - AREA LUMINAIRE LOCATION SUMMARY

LUMINAIRE LOCATION SUMMARY						LUMINAIRE LOCATION SUMMARY					
MAST/POLE	LABEL	MAST/POLE HEIGHT	ORIENT.	TILT	PHASE	MAST/POLE	LABEL	MAST/POLE HEIGHT	ORIENT.	TILT	PHASE
HM23	L1	30	90°	65°	R	HM25	L1	30	90°	65°	R
HM23	L2	30	130°	65°	W	HM25	L2	30	130°	65°	W
HM23	L3	30	170°	65°	B	HM25	L3	30	170°	65°	B
HM23	L4	30	210°	40°	R	HM25	L4	30	210°	40°	R
HM23	L5	30	250°	40°	W	HM25	L5	30	250°	40°	W
HM23	L6	30	290°	40°	B	HM25	L6	30	290°	40°	B
HM23	L7	30	330°	40°	R	HM25	L7	30	330°	40°	R
HM23	L8	30	10°	40°	W	HM25	L8	30	10°	40°	W
HM23	L9	30	50°	40°	B	HM25	L9	30	50°	40°	B
HM24	L1	30	90°	65°	R	HM26	L1	30	90°	65°	R
HM24	L2	30	130°	65°	W	HM26	L2	30	130°	65°	W
HM24	L3	30	170°	65°	B	HM26	L3	30	170°	65°	B
HM24	L4	30	210°	40°	R	HM26	L4	30	210°	40°	R
HM24	L5	30	250°	40°	W	HM26	L5	30	250°	40°	W
HM24	L6	30	290°	40°	B	HM26	L6	30	290°	40°	B
HM24	L7	30	330°	40°	R	HM26	L7	30	330°	40°	R
HM24	L8	30	10°	40°	W	HM26	L8	30	10°	40°	W
HM24	L9	30	50°	40°	B	HM26	L9	30	50°	40°	B

TYPICAL HIGH MAST DISTRIBUTION BOARD (SCALE: NTS)



LEGEND

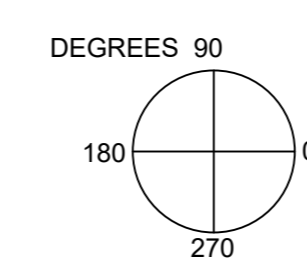
- EQUAL OR SIMILAR APPROVED TO BEKA OMNIBLAST 1-E, 455W, 5188 OPTIC, 59000 LUMEN WITH A 7 PIN NEMA SOCKET
- EARTHING AS PER TRANSTNET NATIONAL PORTS AUTHORITY SPECIFICATION
- ELECTRICAL KIOSK
- ELECTRICAL CABLE
- EQUAL OR SIMILAR APPROVED TO NORDLAND HA1 LED EX-PROOF PENDANT LIGHT, 40W WITH LUMEN OUTPUT OF 5117. TO BE MOUNTED ON 6M POLES ON FUEL BERTHS

HIGH MAST AND CABLE INFORMATION

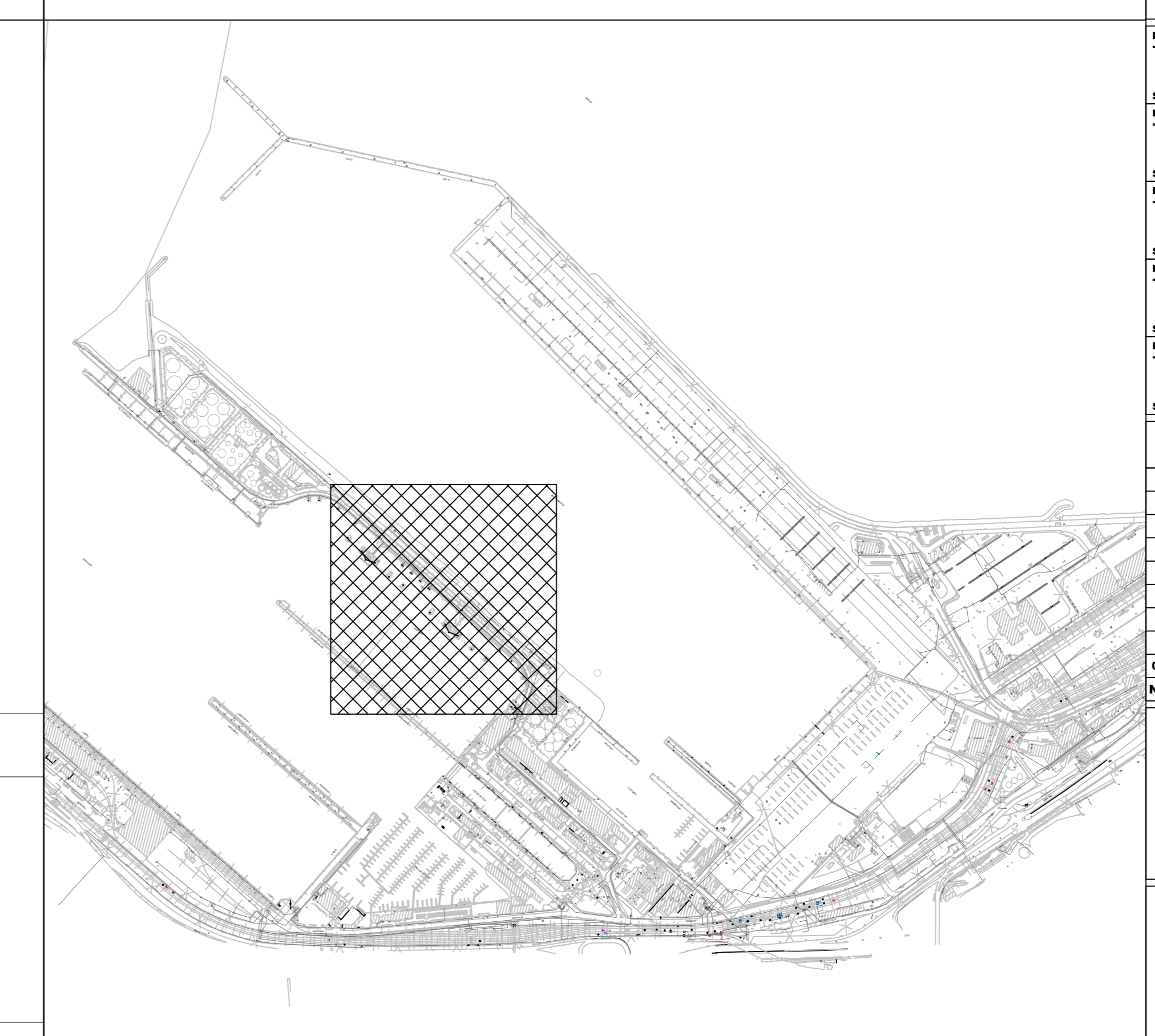
CABLE ROUTING			
CABLE PATH	CABLE TYPE	EXISTING CABLE	DIST.
KIOSK NO2 TB SUB - HM23	16mm² 4 CORE CABLE	YES	138M
KIOSK NO2 TB SUB - HM24	16mm² 4 CORE CABLE	YES	102M
KIOSK NO1 EM SUB - HM25	25mm² 4 CORE CABLE	YES	92M
KIOSK NO1 EM SUB - HM25	25mm² 4 CORE CABLE	YES	73M
TANKER BASIN 2 BERTH		TO BE REPLACED	TBC
TANKER BASIN 1 BERTH		TO BE REPLACED	TBC

LUMINAIRE SCHEDULE			
SYMBOL	QTY	ARRANGEMENT	TOTAL LAMP LUMENS
⊙	24	1 PER MAST	5117
▶	40	10@36° PER MAST	59000

LUMINAIRE ORIENTATION



KEYPLAN (SCALE: NTS)



NOTES:

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DH - HARBOUR MASTER	DATE	SD - FINANCIAL MANAGER	DATE
DH - RISK MANAGER	DATE	DH - ENVIRONMENTAL MANAGER	DATE
DH - SECURITY MANAGER	DATE	DH - PROPERTY MANAGER	DATE
DH - CORPORATE AFFAIRS MANAGER	DATE	DH - MARINE OPERATIONS MANAGER	DATE
DH - MARKETING MANAGER	DATE	DH - CHIEF FIRE OFFICER	DATE
DATE	DATE	DATE	DATE

FOR APPROVAL

No.	DESCRIPTION / REVISIONS	DATE

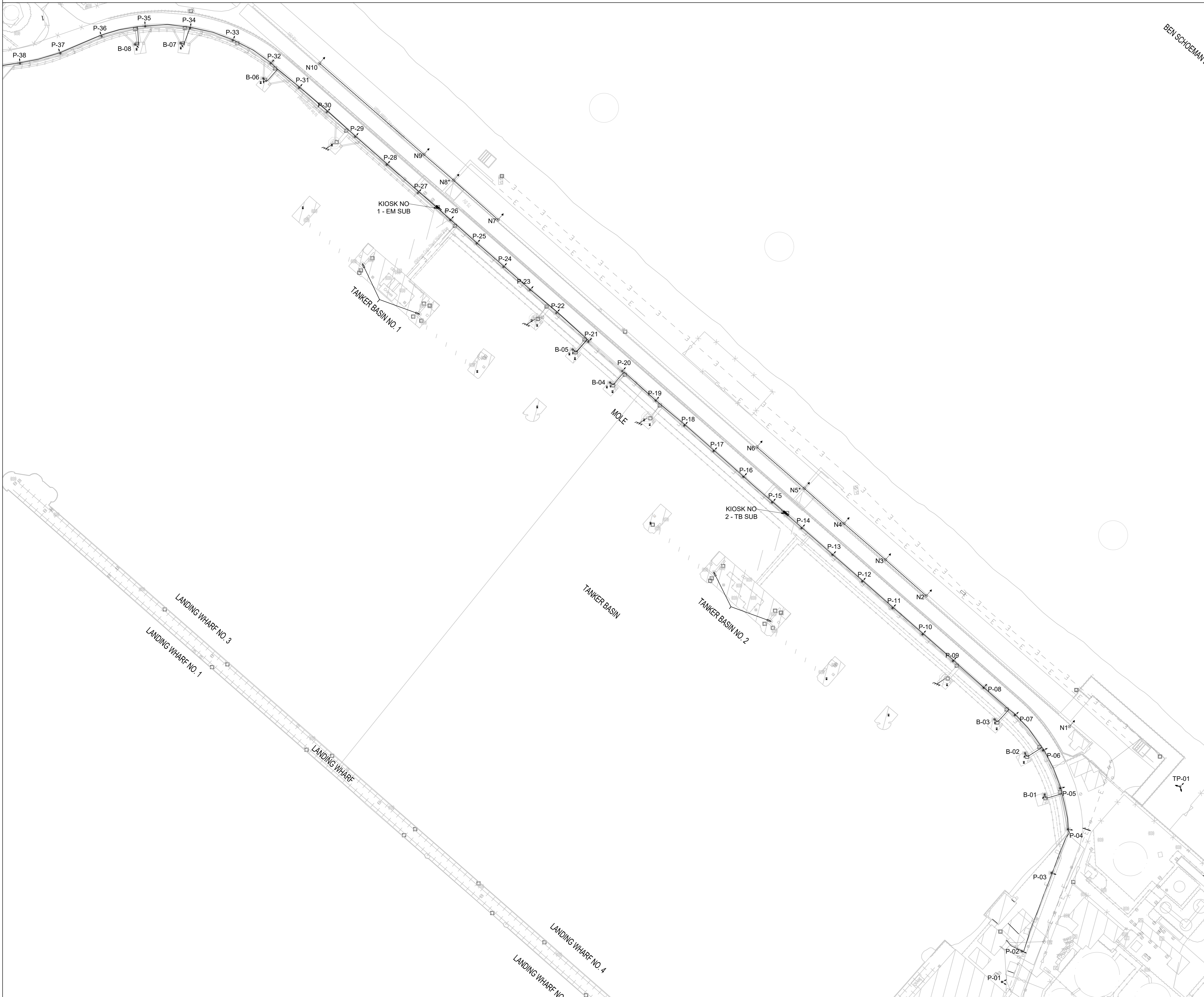


PROJECT / AREA / ASSET / SUBJECT
PORT OF CAPE TOWN LIGHTING AND INFRASTRUCTURE UPGRADE

DRAWING TITLE
TANKER BASIN - LIGHTING LAYOUT AND AIMING ANGLES (SHEET 1)

DATE	03/04/2023	TNPA EDS
SCALE	AS SHOWN	REGISTRATION NUMBER: 202101677
DESIGNED BY	ZM	SIGNATURE: [Signature]
CHECKED BY	LR	SIGNATURE: [Signature]
DRAWN BY		DATE: 03/04/2023
CHECKED BY		DATE: 03/04/2023
PAPER SIZE	AO	

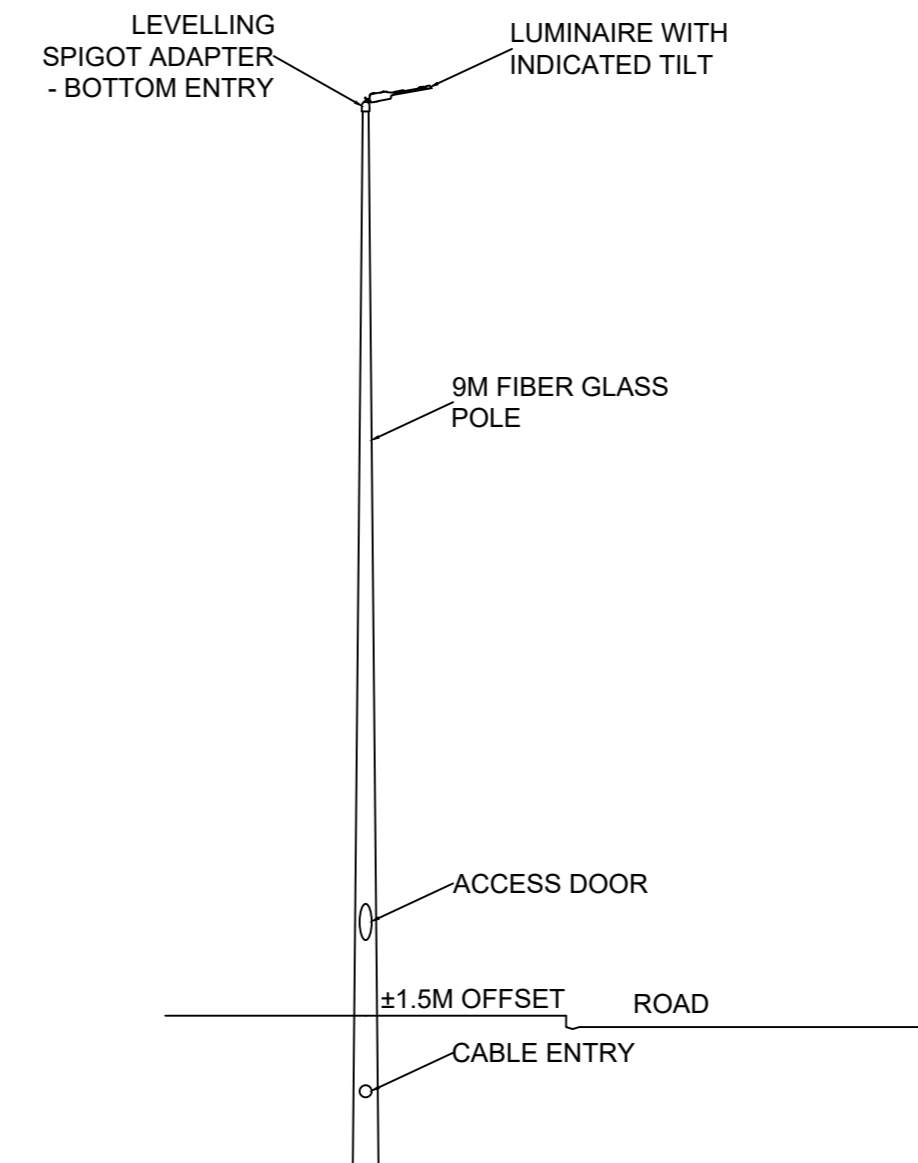
PROJECT NUMBER	DISC	TYPE	DRAWING NO.	REV.	ID.
KCTE0025	E	LA	0012	0A	SR



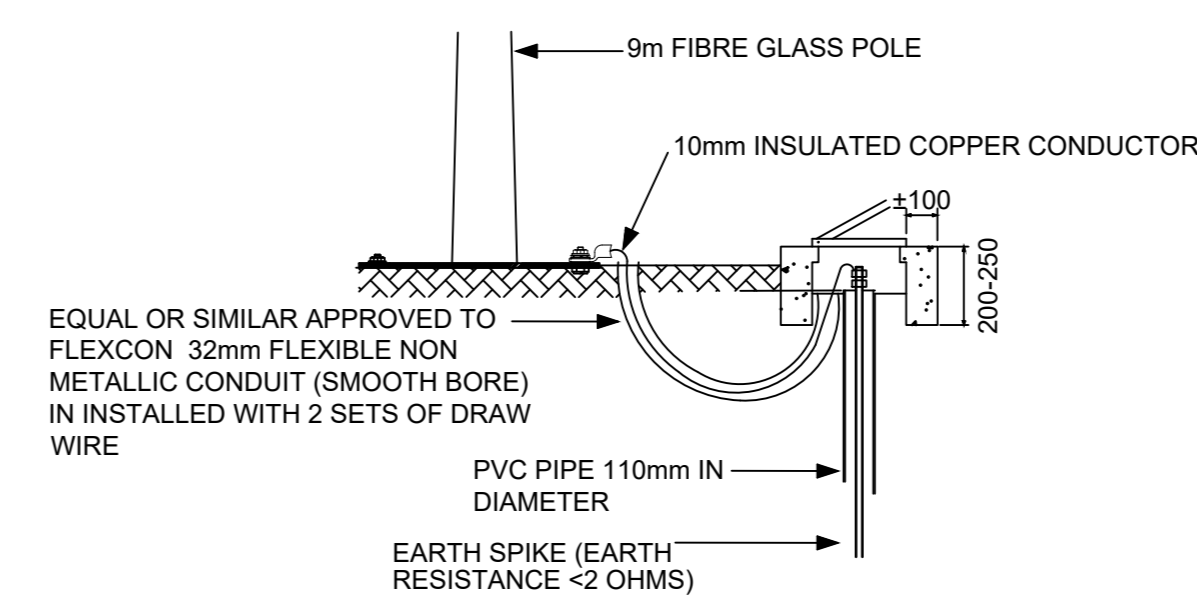
TANKER BASIN - ROAD AND DOLPHIN LIGHTING LAYOUT - AREA LUMINAIRE LOCATION SUMMARY

LUMINAIRE LOCATION SUMMARY					LUMINAIRE LOCATION SUMMARY					LUMINAIRE LOCATION SUMMARY					LUMINAIRE LOCATION SUMMARY									
MAST/POLE	LABEL	MAST/POLE HEIGHT	ORIENT.	TILT	PHASE	MAST/POLE	LABEL	MAST/POLE HEIGHT	ORIENT.	TILT	PHASE	MAST/POLE	LABEL	MAST/POLE HEIGHT	ORIENT.	TILT	PHASE	MAST/POLE	LABEL	MAST/POLE HEIGHT	ORIENT.	TILT	PHASE	
P1	L1	9	64°	15°	EX	P18	L1	6	64°	10°	EX	P36	L1	6	109°	10°	EX	N8*	L1	N/A	49°	15°	W	
P1	L2	9	326°	15°	EX	P19	L1	6	326°	10°	EX	P37	L1	6	112°	10°	EX	N9	L1	9	49°	15°	B	
P2	L1	6	340°	10°	EX	P20	L1	6	340°	10°	EX	P38	L1	6	96°	10°	EX	N10	L1	9	49°	15°	R	
P3	L1	6	340°	10°	EX	P21	L1	6	340°	10°	EX	B1	L1	6	243°	0°	EX	TP1	L1	15	45°	40°	R	
P4	L1	6	350°	10°	EX	P22	L1	6	350°	10°	EX	B2	L1	6	256°	0°	EX	TP1	L2	15	165°	40°	W	
P5	L1	6	12°	10°	EX	P23	L1	6	12°	10°	EX	B3	L1	6	274°	0°	EX	TP1	L3	15	285°	40°	B	
P6	L1	6	27°	10°	EX	P24	L1	6	27°	10°	EX	B4	L1	6	274°	0°	EX							
P7	L1	6	40°	10°	EX	P25	L1	6	40°	10°	EX	B5	L1	6	274°	0°	EX							
P8	L1	6	47°	10°	EX	P26	L1	6	47°	10°	EX	B6	L1	6	274°	0°	EX							
P9	L1	6	48°	10°	EX	P27	L1	6	48°	10°	EX	B7	L1	6	303°	0°	EX							
P10	L1	6	48°	10°	EX	P28	L1	6	48°	10°	EX	B8	L1	6	320°	0°	EX							
P11	L1	6	48°	10°	EX	P29	L1	6	48°	10°	EX	N1	L1	9	49°	15°	R							
P12	L1	6	48°	10°	EX	P30	L1	6	48°	10°	EX	N2	L1	9	49°	15°	W							
P13	L1	6	48°	10°	EX	P31	L1	6	48°	10°	EX	N3	L1	9	49°	15°	B							
P14	L1	6	48°	10°	EX	P32	L1	6	48°	10°	EX	N4	L1	9	49°	15°	R							
P15	L1	6	48°	10°	EX	P33	L1	6	65°	10°	EX	N5*	L1	N/A	49°	15°	W							
P16	L1	6	48°	10°	EX	P34	L1	6	70°	10°	EX	N6	L1	9	49°	15°	B							
P17	L1	6	48°	10°	EX	P35	L1	6	94°	10°	EX	N7	L1	9	49°	15°	R							

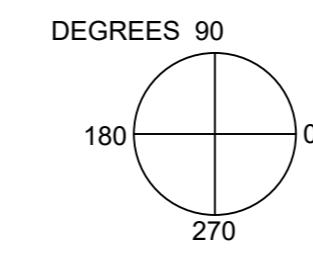
TYPICAL 9M MAST (SCALE: NTS)



TYPICAL EARTHING DETAIL (SCALE: NTS)



LUMINAIRE ORIENTATION



LEGEND

⊙	EQUAL OR SIMILAR APPROVED TO BEKA LEDLUME MIDI 48 LED, 104W, 5248 OPTIC WITH BOTTOM ENTRY SPIGOT FOR ADJUSTMENT UP TO 15°, INTEGRATED PHOTOCCELL WITH NEMA 7-PIN SOCKET
⊕	EARTHING AS PER TRANSTEN NATIONAL PORTS AUTHORITY SPECIFICATION
⊖	ELECTRICAL KIOSK
—	ELECTRICAL CABLE
⊙	EQUAL OR SIMILAR APPROVED TO BEKA LEDFLOOD MIDI 80 LED, 122W WITH 5121 OPTIC, INCORPORATED NEMA 7 PIN SOCKET MOUNTED ON 15M MAST
⊙	EQUAL OR SIMILAR APPROVED TO BEKA LEDLUME MAXI 128 LED, 135W, 5248 OPTIC WITH BOTTOM ENTRY SPIGOT FOR ADJUSTMENT UP TO 15°, INTEGRATED PHOTOCCELL WITH NEMA 7-PIN SOCKET MOUNTED ON 9M MAST

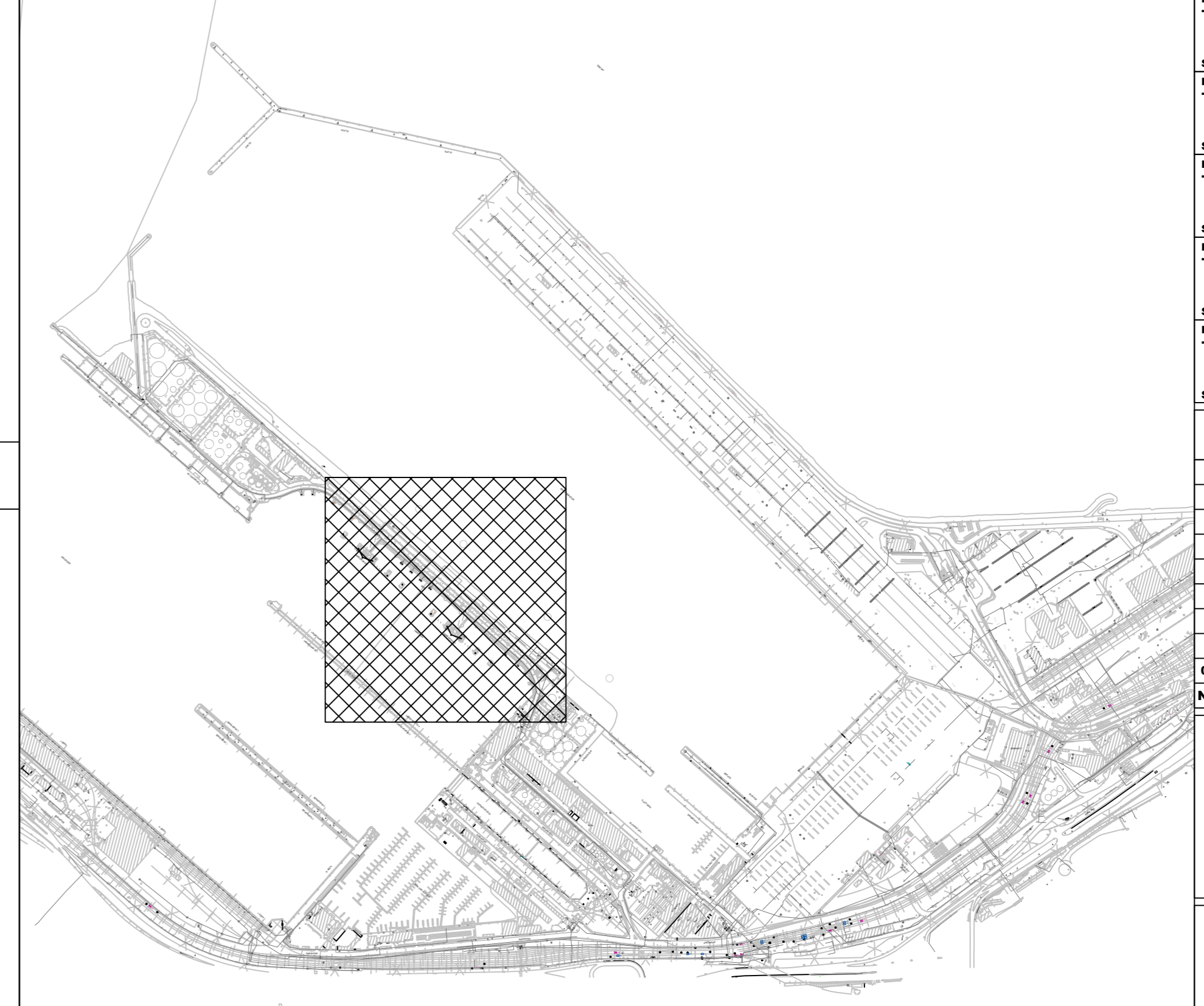
CIRCUIT AND CABLE INFORMATION

CABLE ROUTING			
CABLE PATH	CABLE TYPE	EXISTING CABLE	DIST.
TB SUB - STREET LIGHTING CIRCUIT 1	TO BE VERIFIED	YES	TBC
EM SUB - STREET LIGHTING CIRCUIT 2	TO BE VERIFIED	YES	TBC
(N2-N6) - TB VIEWING STATION	10mm² 4 CORE CABLE	NO	135M
(N6-N9) - TB1 VIEWING STATION	10mm² 4 CORE CABLE	NO	145M
SEWER PUMP DB - TP1	4mm² 4 CORE CABLE	NO	15M

LUMINAIRE SCHEDULE			
SYMBOL	QTY	ARRANGEMENT	TOTAL LAMP LUMENS
⊙	47	1 PER MAST	15157
⊕	10	1 PER MAST	22656
⊙	1	3 PER MAST @ 60°	20088

AREA CALCULATION SUMMARY				
AREA	CALC TYPE	UNITS	AVG	MAX
BERTH ROAD SECTION	ILLUMINANCE	LUX	42.9	88.6
OUTER ROAD INTERSECTION	ILLUMINANCE	LUX	19.9	23.4

KEYPLAN (SCALE: NTS)



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3. ALL SETTING OUT INFORMATION SHALL BE TAKEN FROM THE CIVIL ENGINEERS DRAWINGS.

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DH - HARBOUR MASTER	DH - FINANCIAL MANAGER
SIGNATURE	SIGNATURE
DATE	DATE
DH - RISK MANAGER	DH - ENVIRONMENTAL MANAGER
SIGNATURE	SIGNATURE
DATE	DATE
DH - SECURITY MANAGER	DH - PROPERTY MANAGER
SIGNATURE	SIGNATURE
DATE	DATE
DH - CORPORATE AFFAIRS MANAGER	DH - MARINE OPERATIONS MANAGER
SIGNATURE	SIGNATURE
DATE	DATE
DH - MARKETING MANAGER	DH - CHIEF FIRE OFFICER
SIGNATURE	SIGNATURE
DATE	DATE

FOR APPROVAL

NO.	ISSUED FOR TENDER	05/04/2023
DATE	DESCRIPTION / REVISIONS	DATE

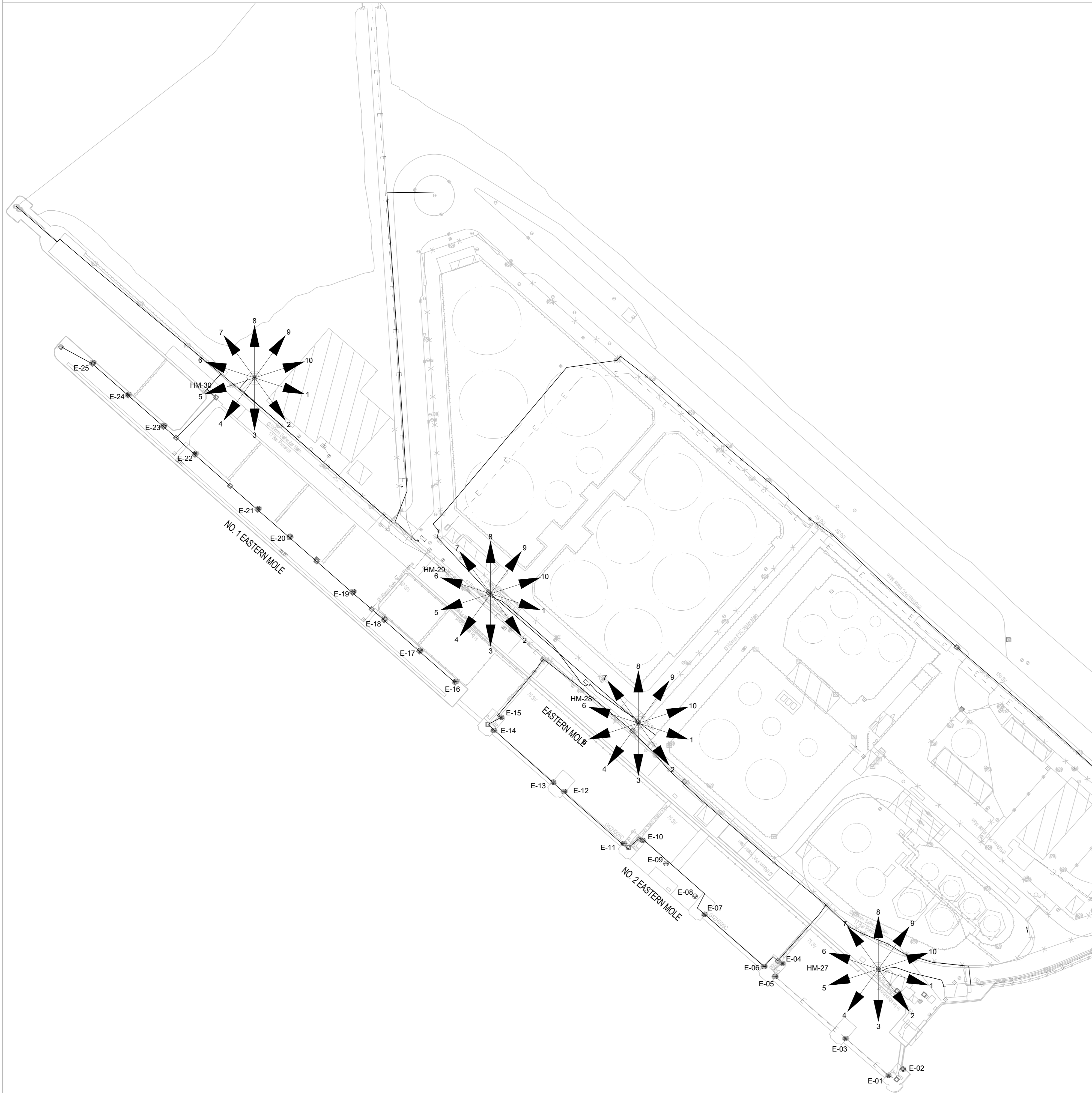


PROJECT / AREA / ASSET / SUBJECT
PORT OF CAPE TOWN LIGHTING AND INFRASTRUCTURE UPGRADE

DRAWING TITLE
TANKER BASIN - LIGHTING LAYOUT AND AIMING ANGLES (SHEET 2)

DATE	03/04/2023	TNPA EDS
SCALE	AS SHOWN	REGISTRATION NUMBER: 20519177
CHECKED BY	ZM	SIGNATURE: [Signature]
DRAWN BY	LR	SIGNATURE: [Signature]
CHECKED BY	LR	SIGNATURE: [Signature]
PAPER SIZE	A0	

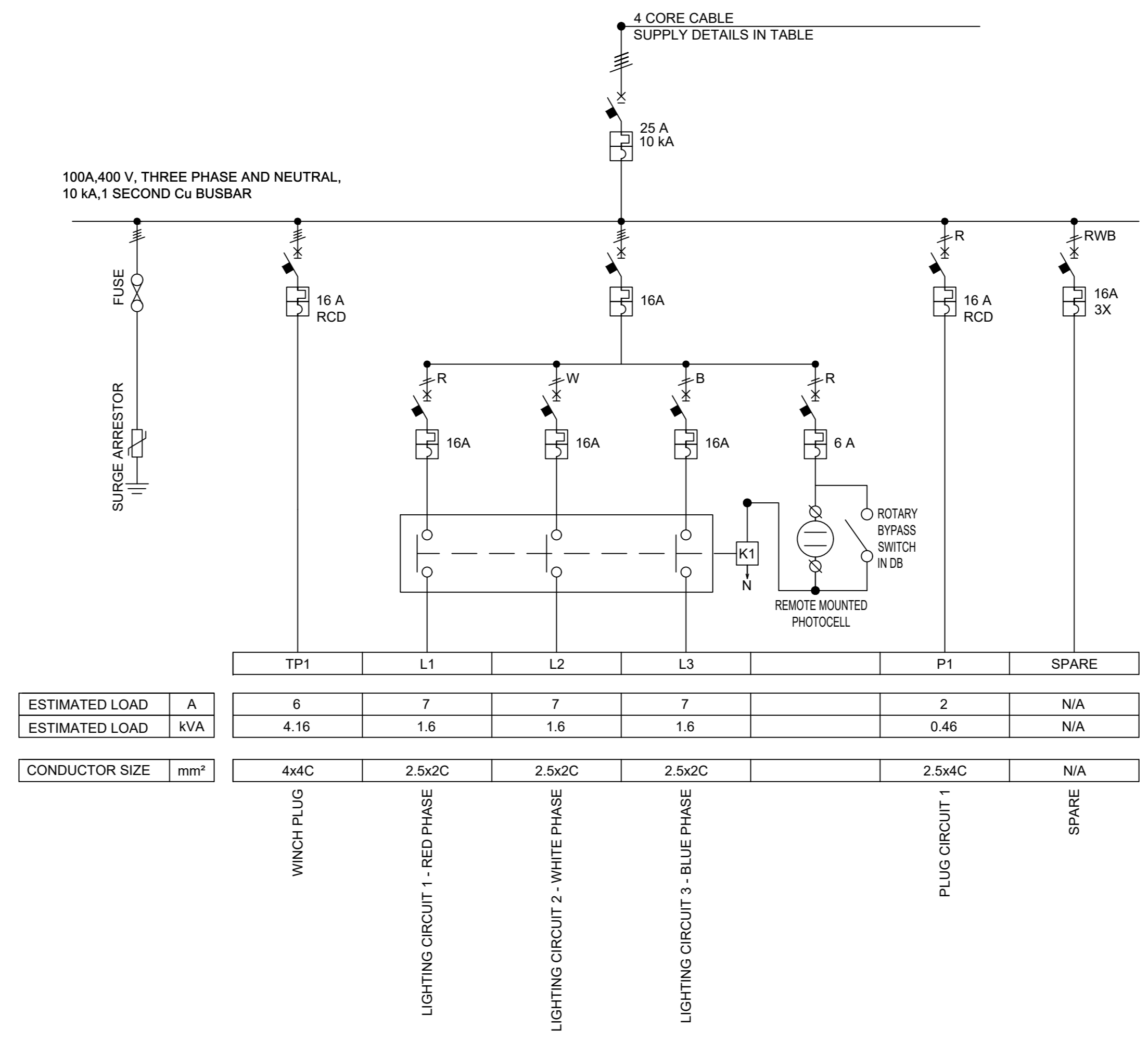
EASTERN MOLE - HIGH MAST AND BERTH LIGHTING LAYOUT (SCALE: 1:1000)



EASTERN MOLE HIGH MAST AND BERTH LIGHTING - AREA LUMINAIRE LOCATION SUMMARY

LUMINAIRE LOCATION SUMMARY						LUMINAIRE LOCATION SUMMARY					
MAST/POLE LABEL	MAST/POLE HEIGHT	ORIENT.	TILT	PHASE		MAST/POLE LABEL	MAST/POLE HEIGHT	ORIENT.	TILT	PHASE	
HM27	L1	30	90°	40°	R	HM29	L1	30	90°	40°	R
HM27	L2	30	130°	40°	W	HM29	L2	30	130°	40°	W
HM27	L3	30	170°	40°	B	HM29	L3	30	170°	40°	B
HM27	L4	30	210°	40°	R	HM29	L4	30	210°	40°	R
HM27	L5	30	250°	40°	W	HM29	L5	30	250°	40°	W
HM27	L6	30	290°	40°	B	HM29	L6	30	290°	40°	B
HM27	L7	30	330°	40°	R	HM29	L7	30	330°	40°	R
HM27	L8	30	10°	40°	W	HM29	L8	30	10°	40°	W
HM27	L9	30	50°	40°	B	HM29	L9	30	50°	40°	B
HM28	L1	30	90°	40°	R	HM30	L1	30	90°	40°	R
HM28	L2	30	130°	40°	W	HM30	L2	30	130°	40°	W
HM28	L3	30	170°	40°	B	HM30	L3	30	170°	40°	B
HM28	L4	30	210°	40°	R	HM30	L4	30	210°	40°	R
HM28	L5	30	250°	40°	W	HM30	L5	30	250°	40°	W
HM28	L6	30	290°	40°	B	HM30	L6	30	290°	40°	B
HM28	L7	30	330°	40°	R	HM30	L7	30	330°	40°	R
HM28	L8	30	10°	40°	W	HM30	L8	30	10°	40°	W
HM28	L9	30	50°	40°	B	HM30	L9	30	50°	40°	B

TYPICAL HIGH MAST DISTRIBUTION BOARD (SCALE: NTS)



ESTIMATED LOAD	A	TP1	L1	L2	L3	P1	SPARE
ESTIMATED LOAD	A	0	7	7	7	2	N/A
ESTIMATED LOAD	KVA	4.16	1.6	1.6	1.6	0.46	N/A
CONDUCTOR SIZE	mm²	4x4C	2.5x2C	2.5x2C	2.5x2C	2.5x4C	N/A

DISTRIBUTION BOARD SPECIFICATION	
SPARE WAYS	30%
DISTRIBUTION BOARD TYPE	STAND MOUNTED
MATERIAL	3CR12
THICKNESS OF MATERIAL	1.6mm
PAINT TYPE	POWDER COATED (80 MICRONS)
FRAME COLOUR	ORANGE
IP RATING	65
SWITCHGEAR MAKE	EQUAL OR SIMILAR APPROVED TO ABB

LEGEND

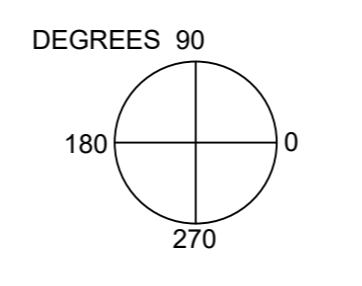
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- EARTHING AS PER TRANSNET NATIONAL PORTS AUTHORITY SPECIFICATION
- ELECTRICAL KIOSK
- ELECTRICAL CABLE
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HIGH MAST AND CABLE INFORMATION

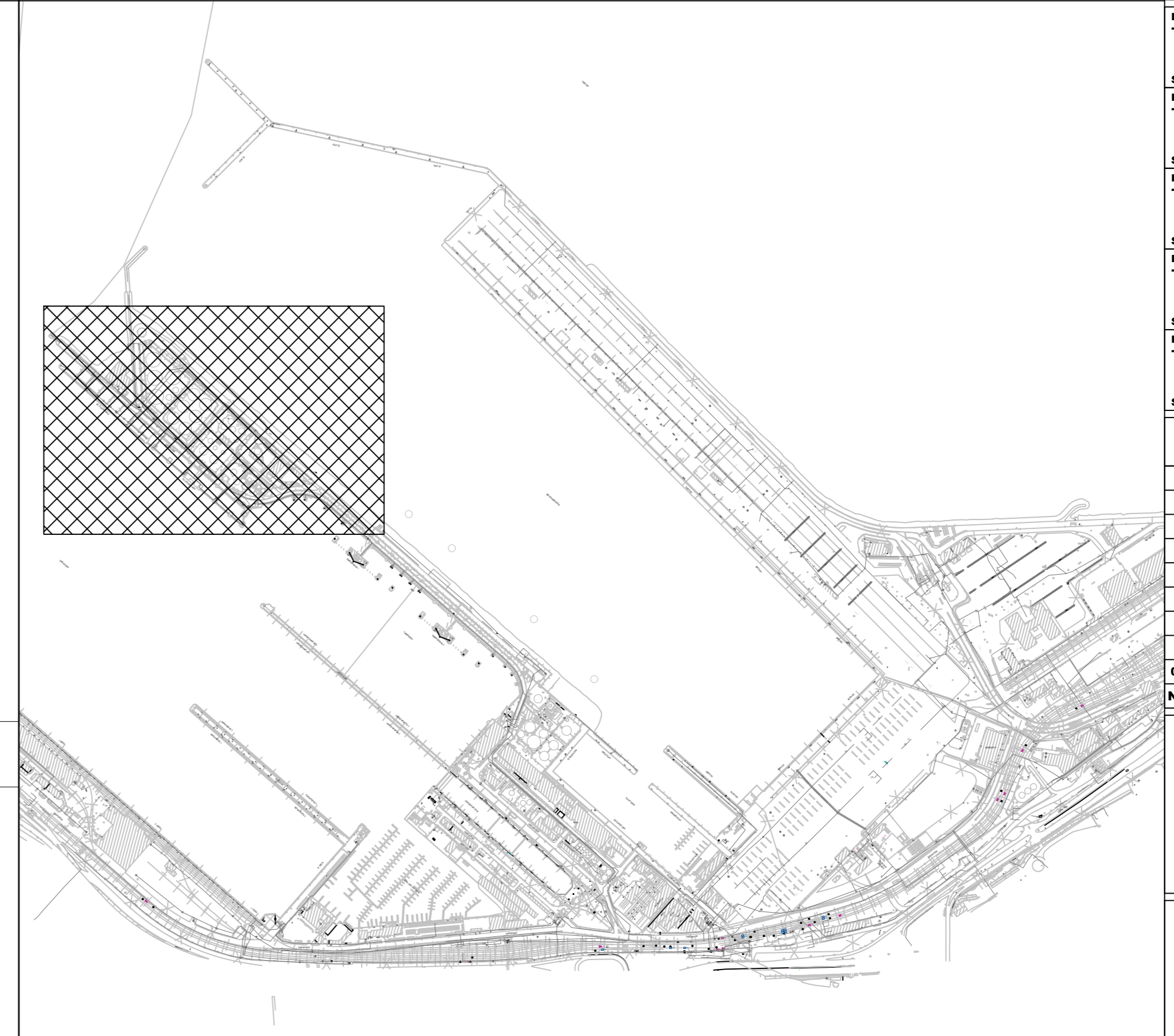
CABLE ROUTING			
CABLE PATH	CABLE TYPE	EXISTING CABLE	DIST.
EASTERN MOLE SUB - HM27	TO BE VERIFIED	YES	43M
EASTERN MOLE MINISUB - HM28	TO BE VERIFIED	YES	35M
EASTERN MOLE MINISUB - HM29	TO BE VERIFIED	YES	75M
EASTERN MOLE GREY KIOSK - HM30	6mm² 4 CORE CABLE	YES	130M
EASTERN MOLE 2 BERTH	TO BE VERIFIED	YES	TBC
EASTERN MOLE 1 BERTH	TO BE VERIFIED	YES	TBC

LUMINAIRE SCHEDULE			
SYMBOL	QTY	ARRANGEMENT	TOTAL LAMP LUMENS
⊙	25	1 PER MAST	5117
▶	40	10@36° PER MAST	59000

LUMINAIRE ORIENTATION



KEYPLAN (SCALE: NTS)



DH - HARBOUR MASTER	DATE	SDH - FINANCIAL MANAGER	DATE
SDH - RISK MANAGER	DATE	SDH - ENVIRONMENTAL MANAGER	DATE
SDH - SECURITY MANAGER	DATE	SDH - PROPERTY MANAGER	DATE
SDH - CORPORATE AFFAIRS MANAGER	DATE	SDH - MARINE OPERATIONS MANAGER	DATE
SDH - MARKETING MANAGER	DATE	SDH - CHIEF FIRE OFFICER	DATE
SDH - CHIEF FIRE OFFICER	DATE	SDH - CHIEF FIRE OFFICER	DATE

FOR APPROVAL

DATE	03/04/2023	PROJECT MANAGER	DATE
SCALE	AS SHOWN	REGISTRATION NUMBER	20241617
DESIGNED BY	DATE	SIGNATURE	DATE
CHECKED BY	ZM	SIGNATURE	DATE
DRAWN BY	DATE	SIGNATURE	DATE
CHECKED BY	LR	SIGNATURE	DATE
PAPER SIZE	AO	DATE	03/04/2023



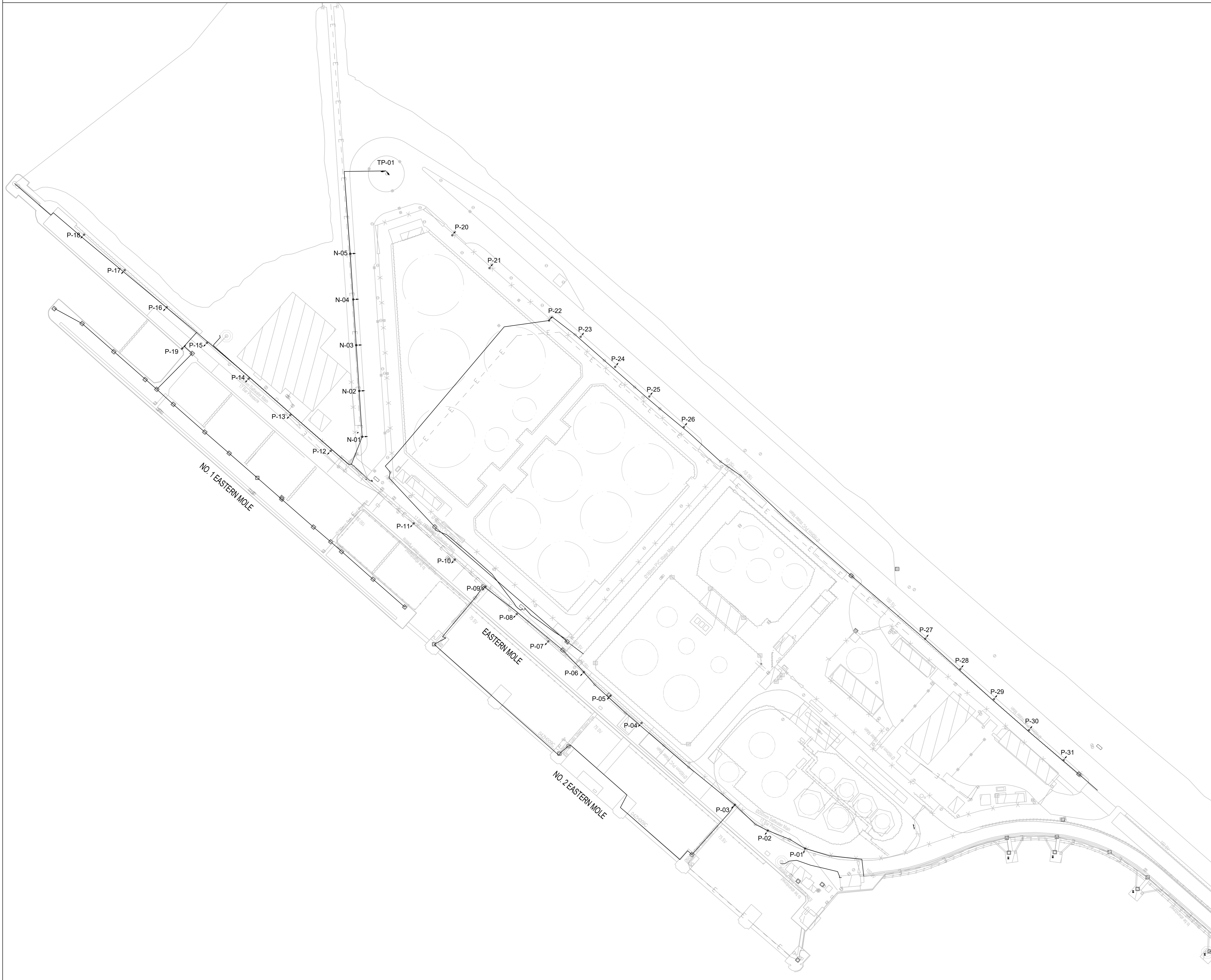
PROJECT / AREA / ASSET / SUBJECT
PORT OF CAPE TOWN LIGHTING AND INFRASTRUCTURE UPGRADE

DRAWING TITLE
EASTERN MOLE - LIGHTING LAYOUTS AND AIMING ANGLES (SHEET 1)

DATE	03/04/2023	PROJECT MANAGER	DATE
SCALE	AS SHOWN	REGISTRATION NUMBER	20241617
DESIGNED BY	DATE	SIGNATURE	DATE
CHECKED BY	ZM	SIGNATURE	DATE
DRAWN BY	DATE	SIGNATURE	DATE
CHECKED BY	LR	SIGNATURE	DATE
PAPER SIZE	AO	DATE	03/04/2023

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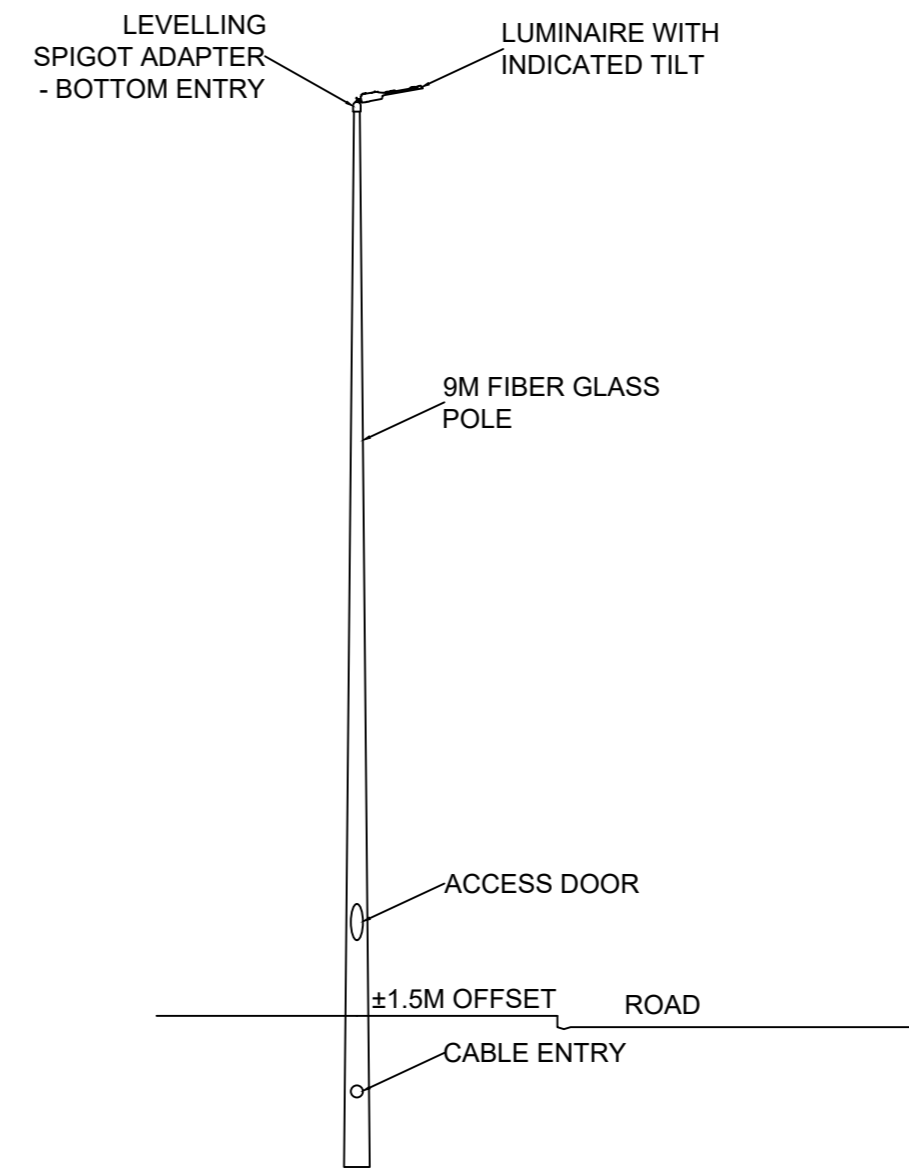
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 - ALL SAMPLES OF LIGHTING AND FIXTURES TO BE APPROVED BY ELECTRICAL ENGINEER PRIOR TO ORDERING
 - ALL CABLE ROUTES ARE PROVISIONAL AND SUBJECT TO CHANGE



EASTERN MOLE - STREET AND AREA LIGHTING LAYOUT - AREA LUMINAIRE LOCATION SUMMARY

LUMINAIRE LOCATION SUMMARY						LUMINAIRE LOCATION SUMMARY						LUMINAIRE LOCATION SUMMARY					
MAST/POLE	LABEL	MAST/POLE HEIGHT	ORIENT.	TILT	PHASE	MAST/POLE	LABEL	MAST/POLE HEIGHT	ORIENT.	TILT	PHASE	MAST/POLE	LABEL	MAST/POLE HEIGHT	ORIENT.	TILT	PHASE
P1	L1	6	252°	10°	EX	P19	L1	6	78°	10°	EX	N1	L1	6	3°	15°	R
P2	L1	6	236°	10°	EX	P20	L1	6	52°	10°	EX	N2	L1	6	3°	15°	W
P3	L1	6	225°	10°	EX	P21	L1	6	52°	10°	EX	N3	L1	6	3°	15°	B
P4	L1	6	226°	10°	EX	P22	L1	6	52°	10°	EX	N4	L1	6	3°	15°	R
P5	L1	6	226°	10°	EX	P23	L1	6	52°	10°	EX	N5*	L1	6	3°	15°	W
P6	L1	6	226°	10°	EX	P24	L1	6	52°	10°	EX	TP1	L1	15	0°	25°	R
P7	L1	6	226°	10°	EX	P25	L1	6	52°	10°	EX	TP1	L2	15	120°	25°	W
P8	L1	6	226°	10°	EX	P26	L1	6	52°	10°	EX	TP1	L3	15	240°	25°	B
P9	L1	6	226°	10°	EX	P27	L1	6	52°	10°	EX						
P10	L1	6	226°	10°	EX	P28	L1	6	52°	10°	EX						
P11	L1	6	226°	10°	EX	P29	L1	6	52°	10°	EX						
P12	L1	6	226°	10°	EX	P30	L1	6	52°	10°	EX						
P13	L1	6	226°	10°	EX	P31	L1	6	52°	10°	EX						
P14	L1	6	226°	10°	EX												
P15	L1	6	226°	10°	EX												
P16	L1	6	226°	10°	EX												
P17	L1	6	226°	10°	EX												
P18	L1	6	226°	10°	EX												

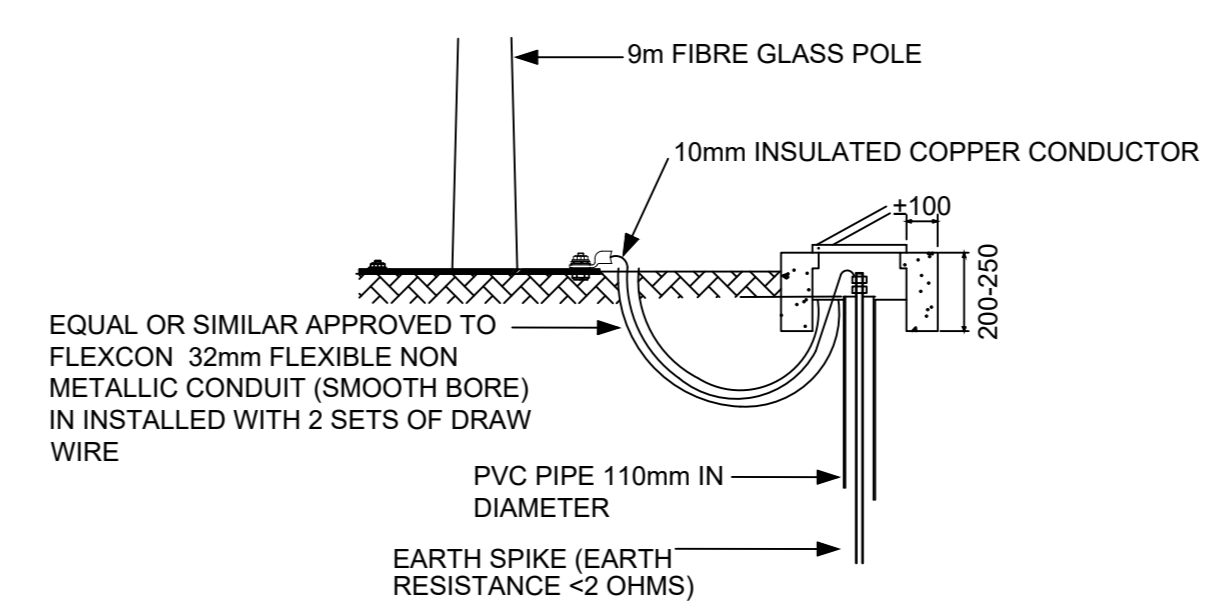
TYPICAL 9M MAST (SCALE: NTS)



LEGEND

---	EQUAL OR SIMILAR APPROVED TO BEKA LEDLUME MIDI 48 LED, 104W, 5248 OPTIC WITH BOTTOM ENTRY SPIGOT FOR ADJUSTMENT UP TO 15°, INTEGRATED PHOTOCCELL WITH NEMA 7-PIN SOCKET
---	EARTHING AS PER TRANSTEN NATIONAL PORTS AUTHORITY SPECIFICATION
---	ELECTRICAL KIOSK
---	ELECTRICAL CABLE
---	EQUAL OR SIMILAR APPROVED TO BEKA LEDFLOOD MIDI 80 LED, 122W WITH 5121 OPTIC, INCORPORATED NEMA 7 PIN SOCKET MOUNTED ON 15M MAST

TYPICAL EARTHING DETAIL (SCALE: NTS)



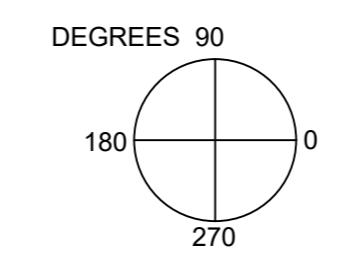
CIRCUIT AND CABLE INFORMATION

CABLE ROUTING			
CABLE PATH	CABLE TYPE	EXISTING CABLE	DIST.
P22-P31 - EM MINISUB	TO BE VERIFIED	YES	TBC
P01-P11 - EM SUBSTATION	TO BE VERIFIED	YES	TBC
P12-P19 - GREY KIOSK	TO BE VERIFIED	YES	TBC
(N01-N05, TP1) - GREY KIOSK	16mm² 4 CORE CABLE	NO	210M

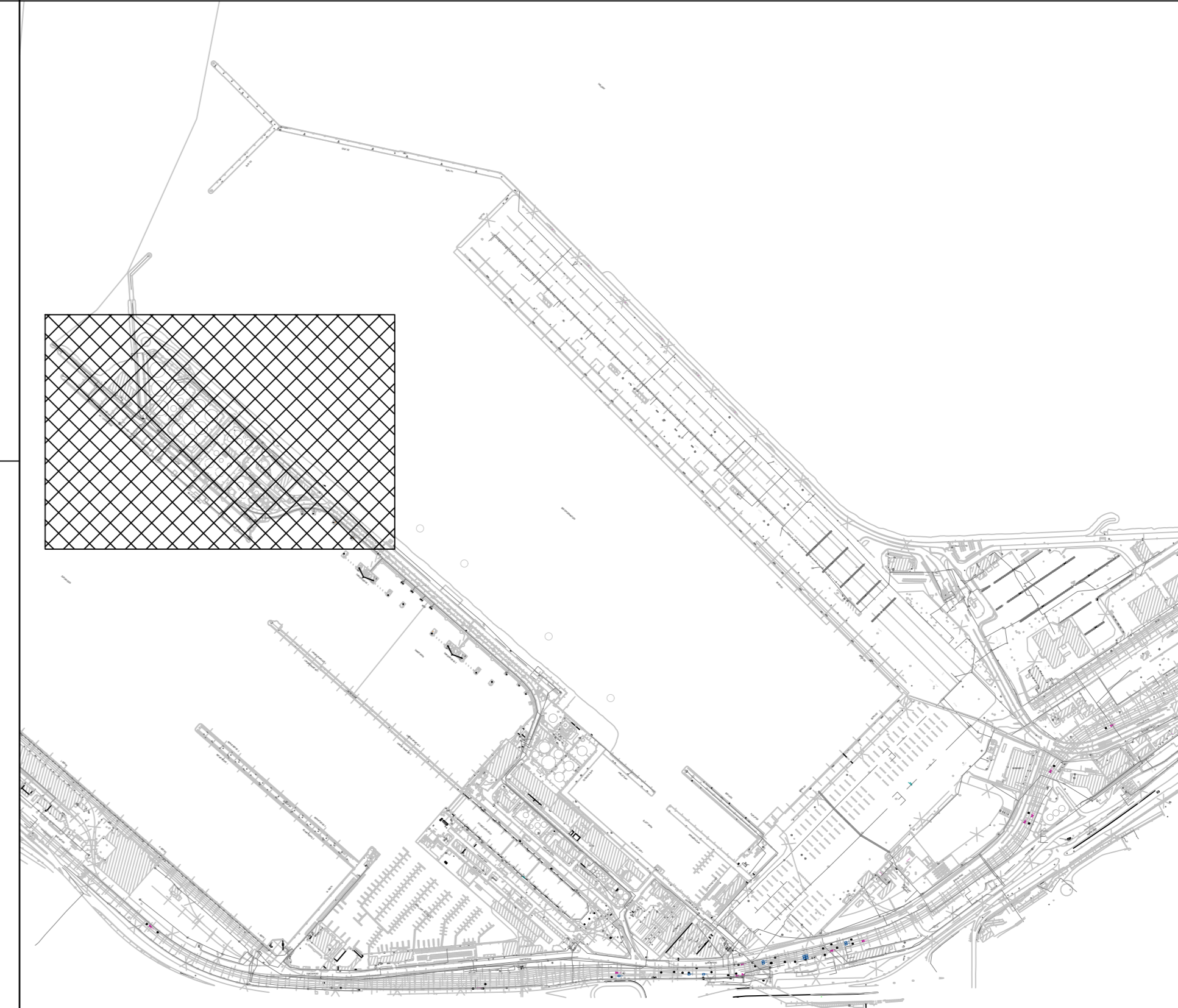
LUMINAIRE SCHEDULE			
SYMBOL	QTY	ARRANGEMENT	TOTAL LAMP LUMENS
---	35	1 PER MAST	15157
---	1	3 PER MAST @ 60°	20088

AREA CALCULATION SUMMARY				
AREA	CALC TYPE	UNITS	AVG	MAX
BERTH ROAD SECTION	ILLUMINANCE	LUX	57.9	160.6
CONNECTION ROAD	ILLUMINANCE	LUX	20.5	45.7

LUMINAIRE ORIENTATION



KEYPLAN (SCALE: NTS)



DH - HARBOUR MASTER	DATE	SD - FINANCIAL MANAGER	DATE
DH - RISK MANAGER	DATE	DH - ENVIRONMENTAL MANAGER	DATE
DH - SECURITY MANAGER	DATE	DH - PROPERTY MANAGER	DATE
DH - CORPORATE AFFAIRS MANAGER	DATE	DH - MARINE OPERATIONS MANAGER	DATE
DH - MARKETING MANAGER	DATE	DH - CHIEF FIRE OFFICER	DATE
DH - ...	DATE	DH - ...	DATE

FOR APPROVAL

DA ISSUED FOR TENDER	05/04/2023
No.	DESCRIPTION / REVISIONS



PROJECT / AREA / ASSET / SUBJECT
PORT OF CAPE TOWN LIGHTING AND INFRASTRUCTURE UPGRADE

DRAWING TITLE
EASTERN MOLE - LIGHTING LAYOUTS AND AIMING ANGLES (SHEET 2)

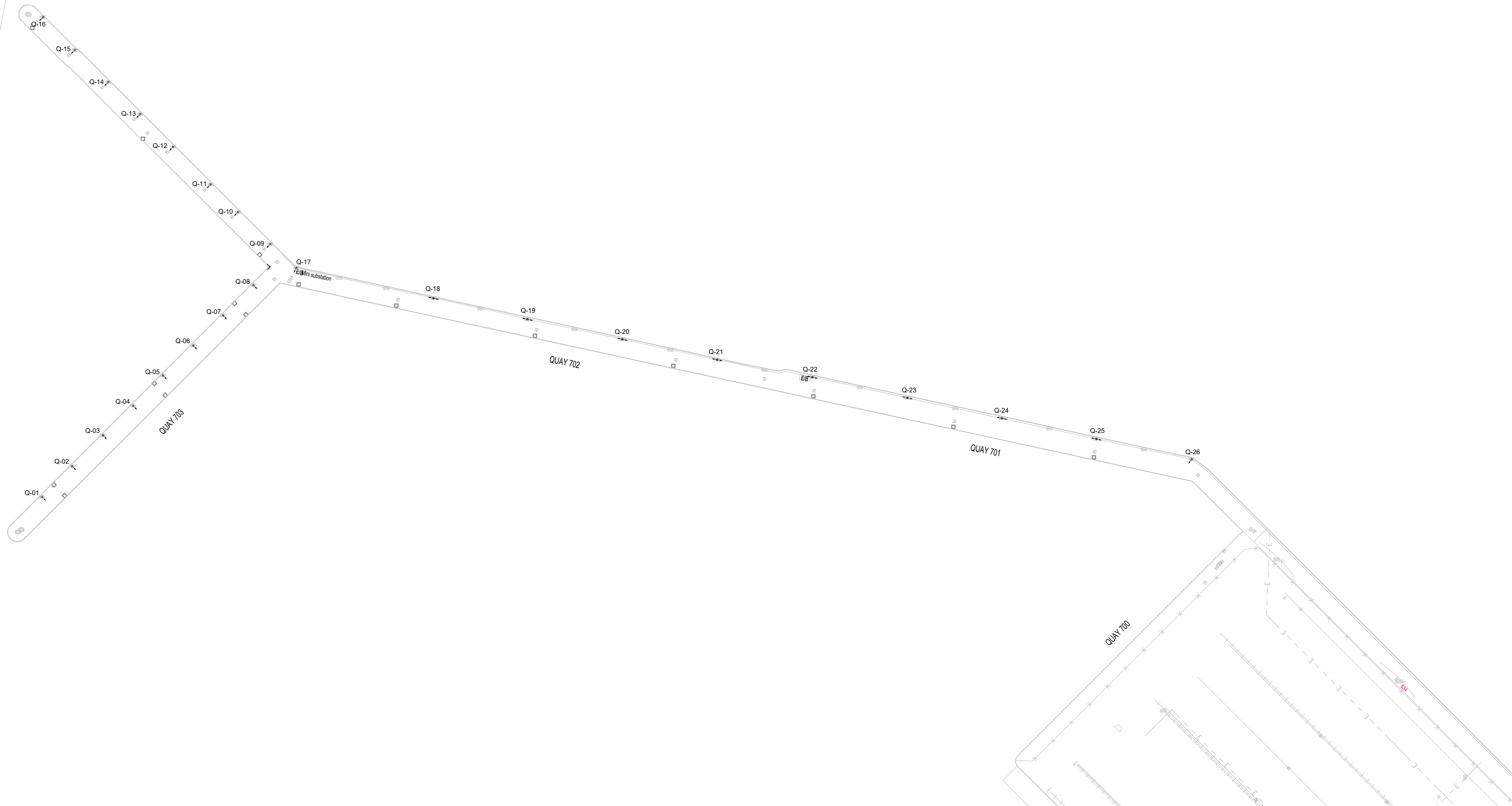
DATE	03/04/2023	TPNPA EDS
SCALE	AS SHOWN	REGISTRATION NUMBER: 20519177
DESIGNED BY	ZM	SIGNATURE: [Signature]
CHECKED BY	LR	SIGNATURE: [Signature]
DRAWN BY		
CHECKED BY		
PAPER SIZE	A0	

NOTES:

1. THE WIDTH OF THE TRENCH FOR THE CASE OF MULTIPLE CABLES RUNNING IN THE SAME TRENCH IS AS FOLLOWS:
a) SPACING BETWEEN ANY TWO LV CABLES MUST BE A MINIMUM OF 300mm BETWEEN THE OUTER SHEATHING OF ANY TWO ADJACENT CABLES.
b) FOR TWO LV CABLES ADD 150mm TO THE WIDTH OF THE TRENCH AND FOR ADDITIONAL CABLES THERE AFTER ADD 300mm.
c) EACH LV CABLE SHALL HAVE ITS OWN CABLE GUARD.
2. LV CABLES MUST NEVER CROSS EACH OTHER AND MUST BE LAID PARALLEL TO EACH OTHER IN THE HORIZONTAL PLANE.

ELECTRICAL NOTES:

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4. ALL SAMPLES OF LIGHTING AND FIXTURES TO BE APPROVED BY ELECTRICAL ENGINEER PRIOR TO ORDERING
5. ALL CABLE ROUTES ARE PROVISIONAL AND SUBJECT TO CHANGE



LEGEND	
--	EQUAL OR SIMILAR APPROVED TO BEKA LEDLUME MIDI 48 LED, 104W, 5248 OPTIC WITH BOTTOM ENTRY SPIGOT FOR ADJUSTMENT UP TO 15°. INTEGRATED PHOTOCELL WITH NEMA 7-PIN SOCKET MOUNTED ON 6M MAST
---	EQUAL OR SIMILAR APPROVED TO BEKA LEDLUME MIDI 48 LED, 104W, 5248 OPTIC WITH BOTTOM ENTRY SPIGOT FOR ADJUSTMENT UP TO 15°. INTEGRATED PHOTOCELL WITH NEMA 7-PIN SOCKET MOUNTED ON 15M MAST
~	EARTHING AS PER TRANSNET NATIONAL PORTS AUTHORITY SPECIFICATION
=	ELECTRICAL KIOSK
—	ELECTRICAL CABLE

QUAY 700'S AREA LUMINAIRE SUMMARY

LUMINAIRE LOCATION SUMMARY						LUMINAIRE LOCATION SUMMARY					
MAST/POLE	LABEL	MAST/POLE HEIGHT	ORIENT.	TILT	PHASE	MAST/POLE	LABEL	MAST/POLE HEIGHT	ORIENT.	TILT	PHASE
Q1	L1	6	315°	10°	EX	Q18	L2	15	170°	10°	EX
Q2	L1	6	315°	10°	EX	Q19	L1	15	350°	10°	EX
Q3	L1	6	315°	10°	EX	Q19	L2	15	170°	10°	EX
Q4	L1	6	315°	10°	EX	Q20	L1	15	350°	10°	EX
Q5	L1	6	315°	10°	EX	Q20	L2	15	170°	10°	EX
Q6	L1	6	315°	10°	EX	Q21	L1	15	350°	10°	EX
Q7	L1	6	315°	10°	EX	Q21	L2	15	170°	10°	EX
Q8	L1	6	315°	10°	EX	Q22	L1	15	350°	10°	EX
Q9	L1	6	225°	10°	EX	Q22	L2	15	170°	10°	EX
Q10	L1	6	225°	10°	EX	Q23	L1	15	350°	10°	EX
Q11	L1	6	225°	10°	EX	Q23	L2	15	170°	10°	EX
Q12	L1	6	225°	10°	EX	Q24	L1	15	350°	10°	EX
Q13	L1	6	225°	10°	EX	Q24	L2	15	170°	10°	EX
Q14	L1	6	225°	10°	EX	Q25	L1	15	350°	10°	EX
Q15	L1	6	225°	10°	EX	Q25	L2	15	170°	10°	EX
Q16	L1	6	225°	10°	EX	Q26	L1	6	234°	10°	EX
Q17	L1	6	241°	10°	EX						
Q18	L1	15	350°	10°	EX						

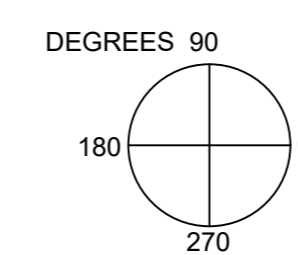
CIRCUIT AND CABLE INFORMATION

CABLE ROUTING			
CABLE PATH	CABLE TYPE	EXISTING CABLE	DIST.
QUAY 704 - QUAY 700 MINISUB	10mm² 4 CORE CABLE	TO BE REPLACED	TBC
QUAY 705 - EM MINISUB	10mm² 4 CORE CABLE	TO BE REPLACED	TBC
QUAY 702 - QUAY 700 EB	10mm² 4 CORE CABLE	YES	TBC
QUAY 701 - QUAY 700 EB	10mm² 4 CORE CABLE	YES	TBC

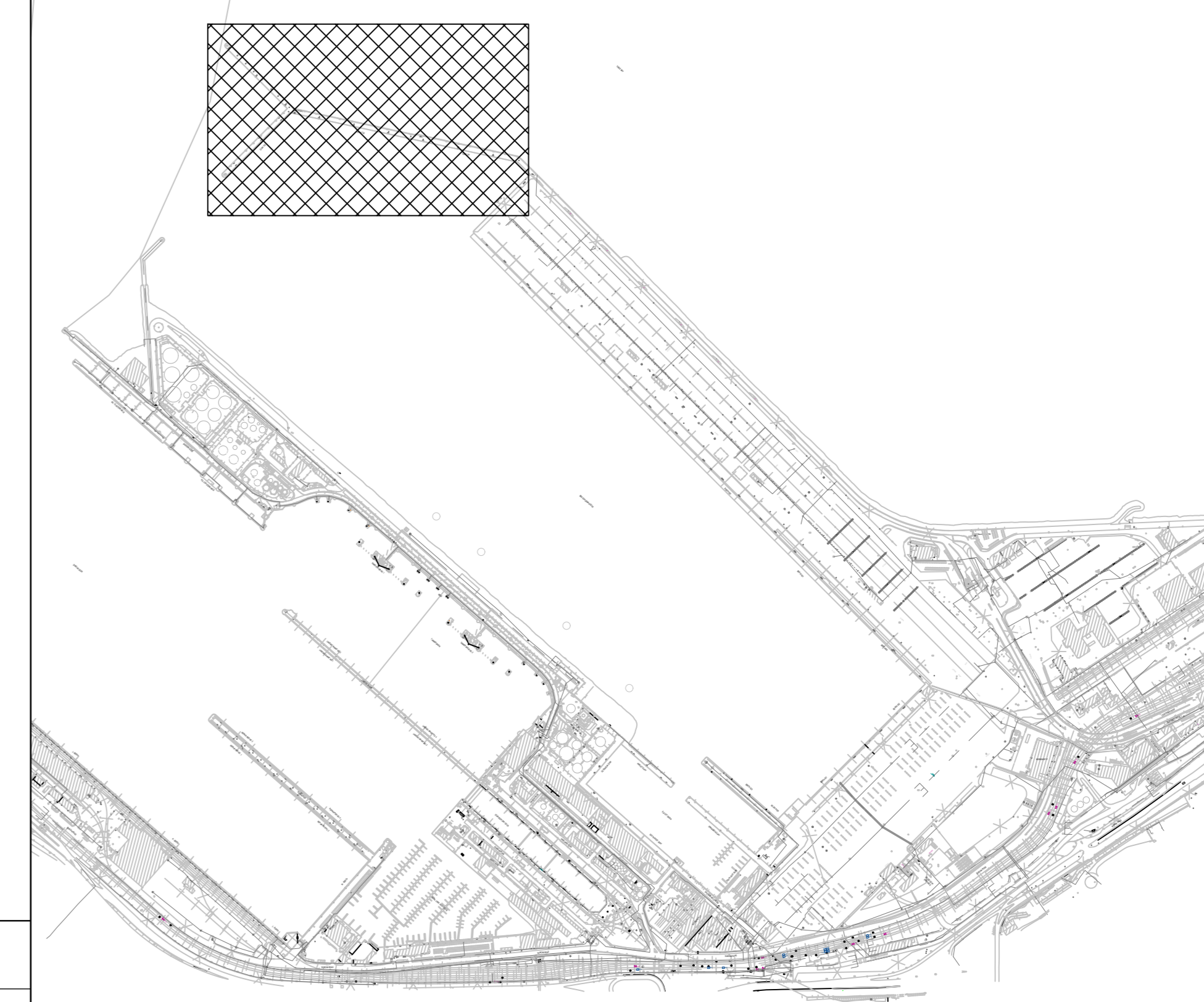
LUMINAIRE SCHEDULE			
SYMBOL	QTY	ARRANGEMENT	TOTAL LAMP LUMENS
--	18	1 PER MAST	15157
---	8	2 PER MAST @ 180°	15157

AREA CALCULATION SUMMARY				
AREA	CALC TYPE	UNITS	AVG	MAX
QUAY 701-702 SECTION	ILLUMINANCE	LUX	25.7	37.9
QUAY 703 SECTION	ILLUMINANCE	LUX	24.7	46.3
QUAY 705 SECTION	ILLUMINANCE	LUX	21.8	46.7

LUMINAIRE ORIENTATION



KEYPLAN (SCALE: NTS)



NOTES:

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- Q04 AND Q06 REQUIRE NEW MASTS TO BE INSTALLED.

DH - HARBOUR MASTER	DH - FINANCIAL MANAGER
SIGNATURE	SIGNATURE
DATE	DATE
DH - RISK MANAGER	DH - ENVIRONMENTAL MANAGER
SIGNATURE	SIGNATURE
DATE	DATE
DH - SECURITY MANAGER	DH - PROPERTY MANAGER
SIGNATURE	SIGNATURE
DATE	DATE
DH - CORPORATE AFFAIRS MANAGER	DH - MARINE OPERATIONS MANAGER
SIGNATURE	SIGNATURE
DATE	DATE
DH - MARKETING MANAGER	DH - CHIEF FIRE OFFICER
SIGNATURE	SIGNATURE
DATE	DATE

FOR APPROVAL

NO.	DESCRIPTION / REVISIONS	DATE

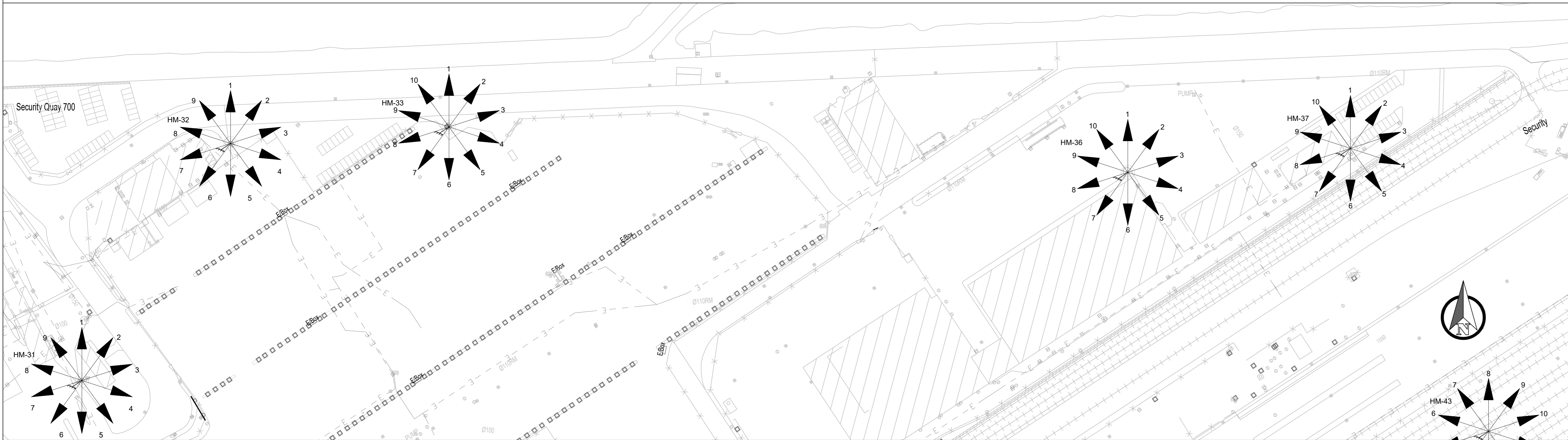


PROJECT / AREA / ASSET / SUBJECT
PORT OF CAPE TOWN LIGHTING AND INFRASTRUCTURE UPGRADE

DRAWING TITLE
QUAY 700'S LIGHTING LAYOUTS AND AIMING ANGLES

DATE	03/04/2023	PROJECT MANAGER	DR. J. S. ...
SCALE	AS SHOWN	REGISTRATION NUMBER	25416177
DESIGNED BY		SIGNATURE	
CHECKED BY	ZM	SIGNATURE	[Signature]
DRAWN BY		SIGNATURE	
CHECKED BY	LR	SIGNATURE	[Signature]
PAPER SIZE	AO	DATE	2023/04/03

PROJECT NUMBER	DATE	TYPE	DRAWING NO.	REV.	ID.
KCTE0025-E-LA	0014	0A	SR		



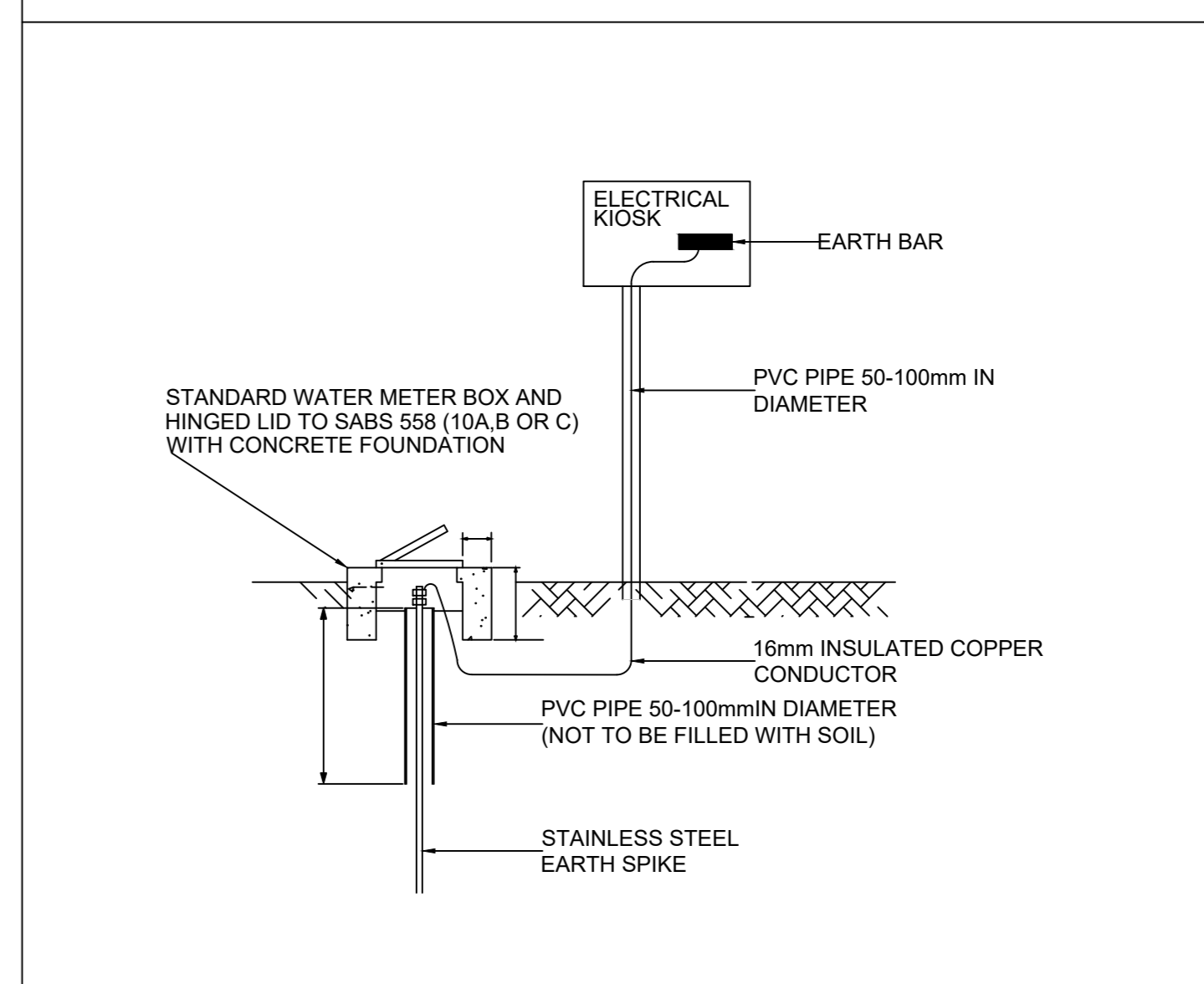
LEGEND

	30M HIGH MAST BASE
	EQUAL OR SIMILAR APPROVED TO BEKA OMNIBLAST 1-E, 455W, 5188 OPTIC, 59000 LUMEN WITH A 7 PIN NEMA SOCKET
	EARTHING AS PER TRANSNET NATIONAL PORTS AUTHORITY SPECIFICATION
	ELECTRICAL KIOSK
	ELECTRICAL CABLE

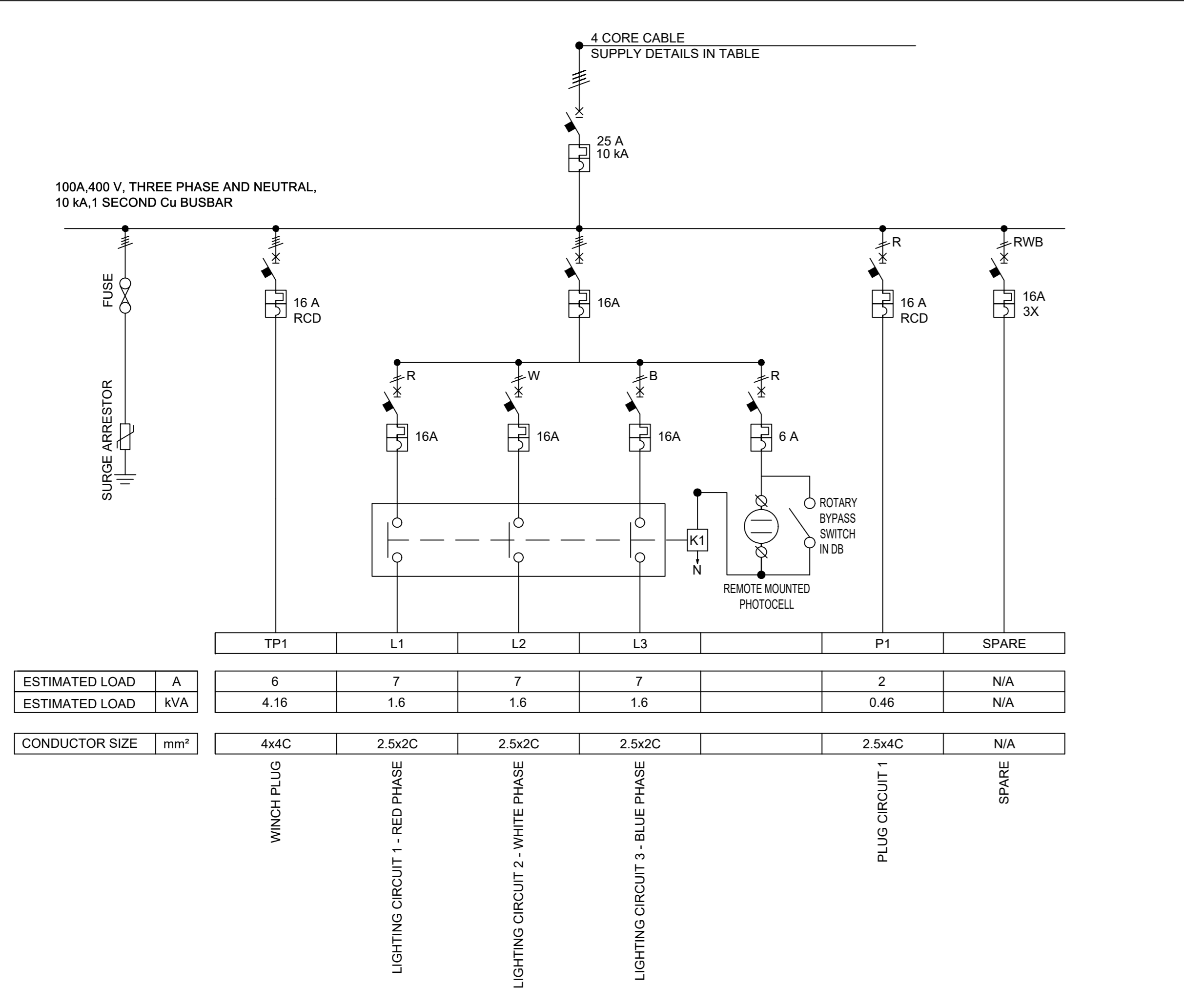
RAIL ACCESS ROAD HIGH MASTS LUMINAIRE LOCATION SUMMARY

LUMINAIRE LOCATION SUMMARY						LUMINAIRE LOCATION SUMMARY						LUMINAIRE LOCATION SUMMARY					
HIGH MAST	LABEL	HIGH MAST HEIGHT	ORIENT.	TILT	PHASE	HIGH MAST	LABEL	HIGH MAST HEIGHT	ORIENT.	TILT	PHASE	HIGH MAST	LABEL	HIGH MAST HEIGHT	ORIENT.	TILT	PHASE
HM31	L1	30	90°	40°	R	HM33	L1	30	90°	40°	R	HM37	L1	30	90°	40°	R
HM31	L2	30	130°	40°	W	HM33	L2	30	130°	40°	W	HM37	L2	30	130°	40°	W
HM31	L3	30	170°	40°	B	HM33	L3	30	170°	40°	B	HM37	L3	30	170°	40°	B
HM31	L4	30	210°	40°	R	HM33	L4	30	210°	40°	R	HM37	L4	30	210°	40°	R
HM31	L5	30	250°	40°	W	HM33	L5	30	250°	40°	W	HM37	L5	30	250°	40°	W
HM31	L6	30	290°	40°	B	HM33	L6	30	290°	40°	B	HM37	L6	30	290°	40°	B
HM31	L7	30	330°	40°	R	HM33	L7	30	330°	40°	R	HM37	L7	30	330°	40°	R
HM31	L8	30	10°	40°	W	HM33	L8	30	10°	40°	W	HM37	L8	30	10°	40°	W
HM31	L9	30	50°	40°	B	HM33	L9	30	50°	40°	B	HM37	L9	30	50°	40°	B
HM32	L1	30	90°	40°	R	HM36	L1	30	90°	40°	R						
HM32	L2	30	130°	40°	W	HM36	L2	30	130°	40°	W						
HM32	L3	30	170°	40°	B	HM36	L3	30	170°	40°	B						
HM32	L4	30	210°	40°	R	HM36	L4	30	210°	40°	R						
HM32	L5	30	250°	40°	W	HM36	L5	30	250°	40°	W						
HM32	L6	30	290°	40°	B	HM36	L6	30	290°	40°	B						
HM32	L7	30	330°	40°	R	HM36	L7	30	330°	40°	R						
HM32	L8	30	10°	40°	W	HM36	L8	30	10°	40°	W						
HM32	L9	30	50°	40°	B	HM36	L9	30	50°	40°	B						

TYPICAL HIGH MAST POLE EARTHING DETAILS (SCALE: NTS)



TYPICAL HIGH MAST DISTRIBUTION BOARD (SCALE: NTS)

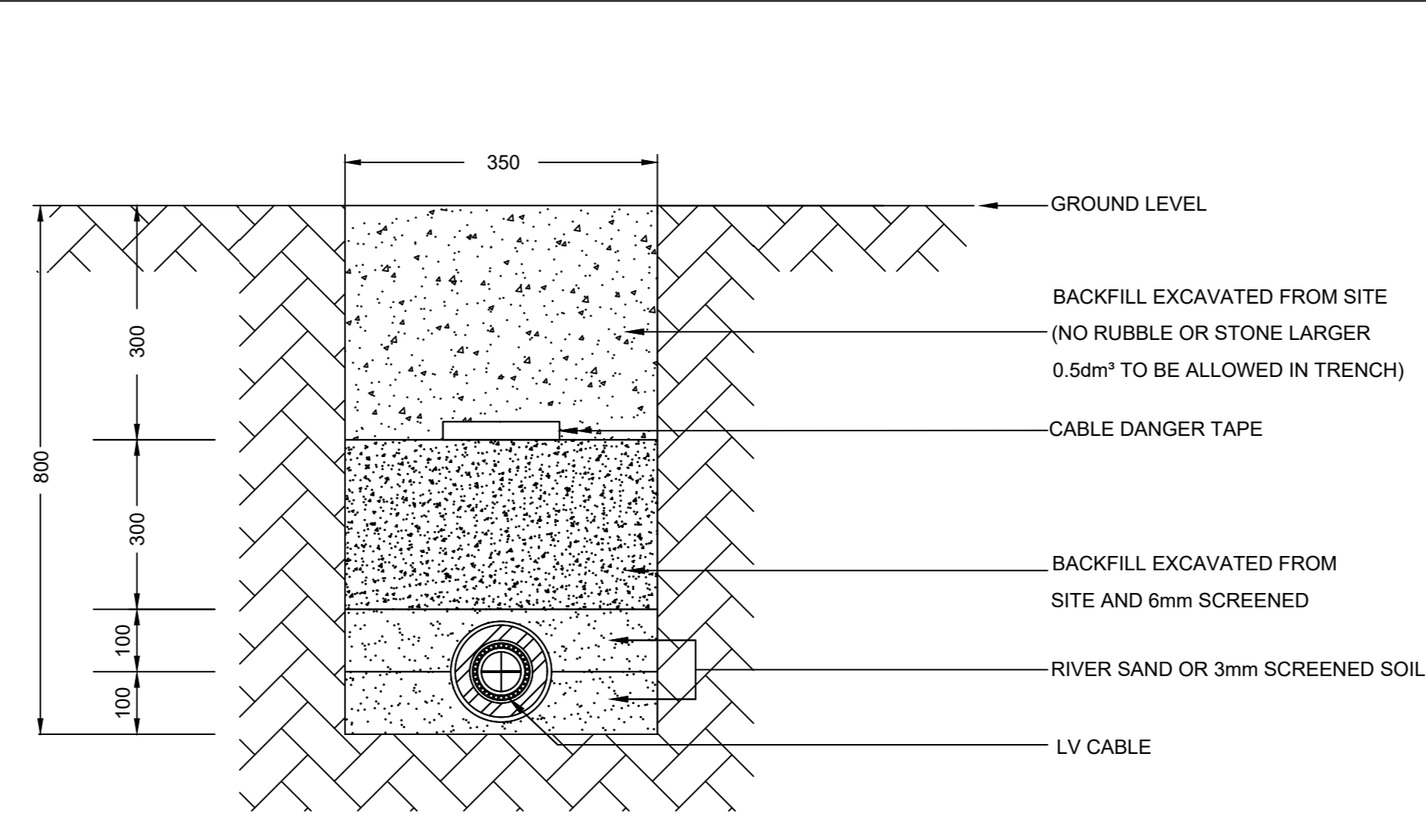


HIGH MAST AND CABLE INFORMATION

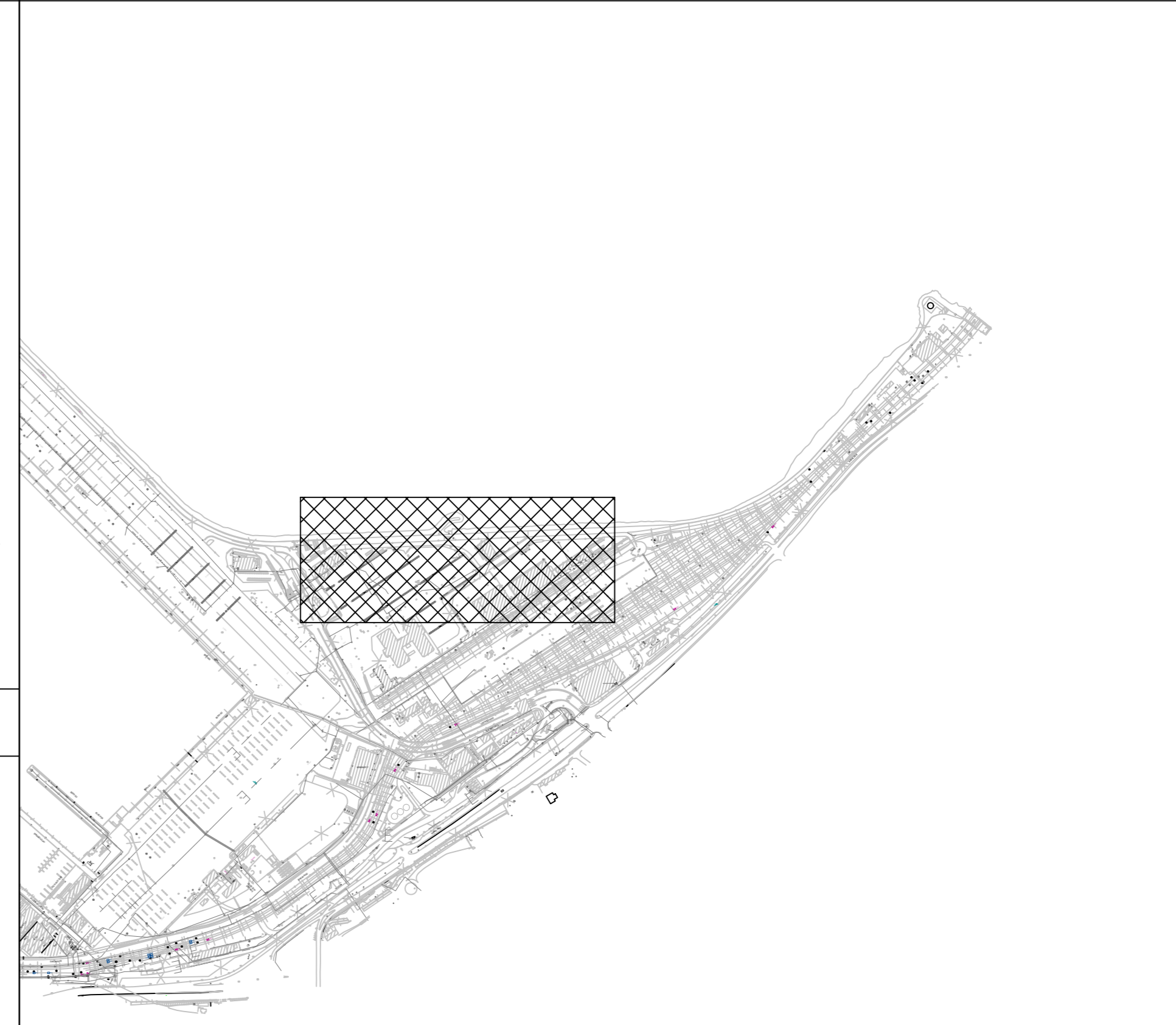
CABLE ROUTING			
CABLE PATH	CABLE TYPE	EXISTING CABLE	DIST.
ADMIN SUB - HM31	35mm² 4 CORE CABLE	YES	TBC
HM 32	TO BE VERIFIED	YES	TBC
KIOSK - HM 33	TO BE VERIFIED	YES	TBC
REEFER SUB - HM36	35mm² 4 CORE CABLE	YES	TBC
REEFER SUB - HM37	35mm² 4 CORE CABLE	YES	TBC

LUMINAIRE SCHEDULE			
SYMBOL	QTY	ARRANGEMENT	TOTAL LAMP LUMENS
	50	10@36° PER MAST	59000

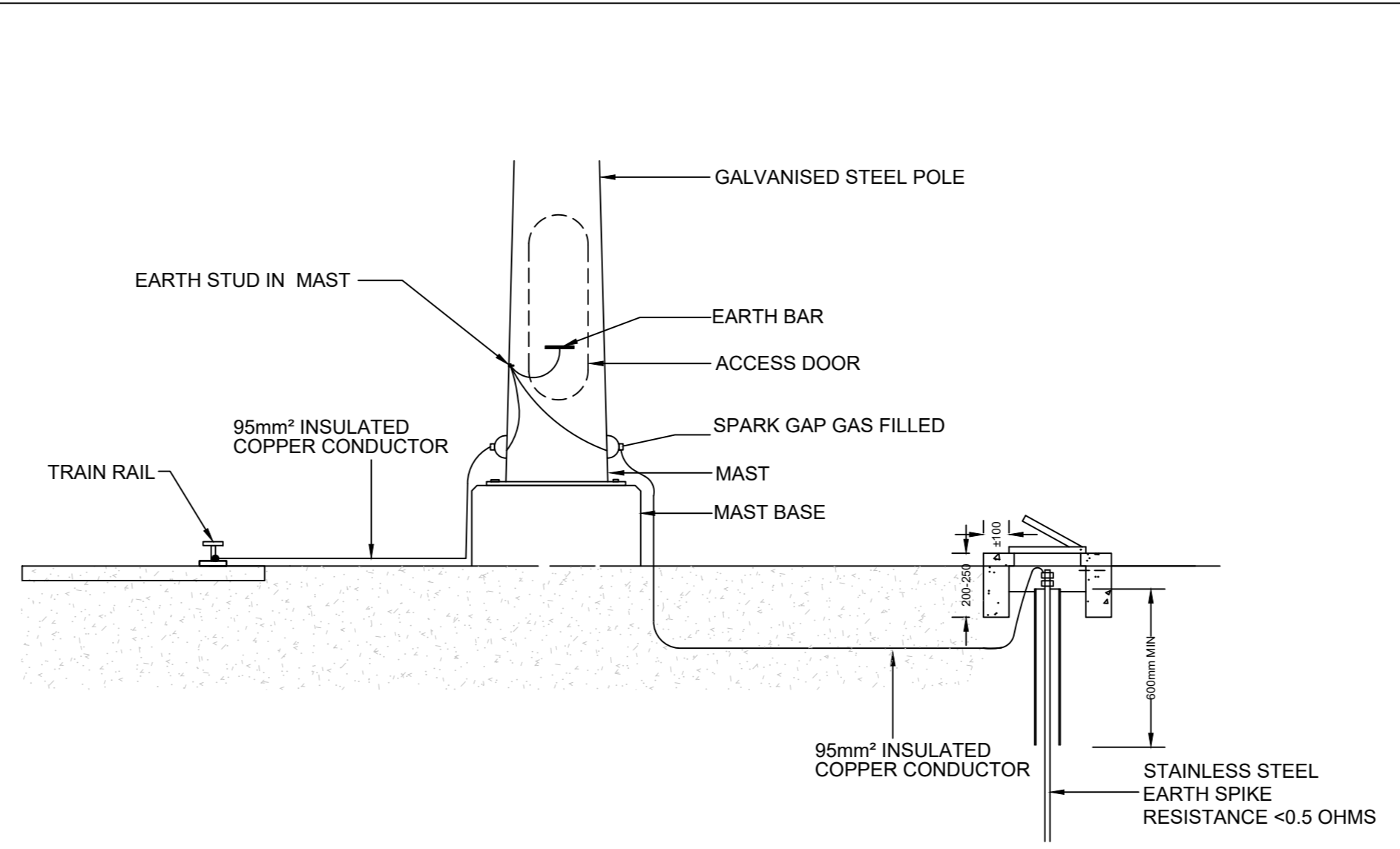
TYPICAL CABLE TRENCH DETAILS (SCALE: NTS)



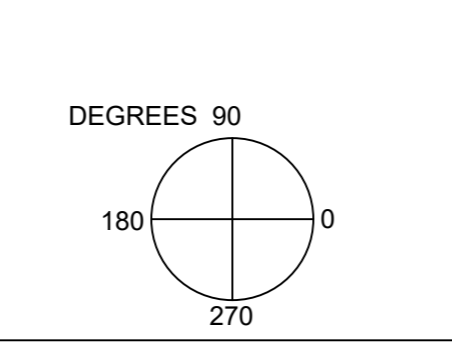
KEYPLAN (SCALE: NTS)



TYPICAL HIGH MAST POLE EARTHING DETAILS (SCALE: NTS)



LUMINAIRE ORIENTATION



DISTRIBUTION BOARD SPECIFICATION	
SPARE WAYS	30%
DISTRIBUTION BOARD TYPE	STAND MOUNTED
MATERIAL	3CR12
THICKNESS OF MATERIAL	1.6mm
PAINT TYPE	POWDER COATED (80 MICRONS)
FRAME COLOUR	ORANGE
IP RATING	65
SWITCHGEAR MAKE	EQUAL OR SIMILAR APPROVED TO ABB

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DH - HARBOUR MASTER	DATE	DH - FINANCIAL MANAGER	DATE
DH - RISK MANAGER	DATE	DH - ENVIRONMENTAL MANAGER	DATE
DH - SECURITY MANAGER	DATE	DH - PROPERTY MANAGER	DATE
DH - CORPORATE AFFAIRS MANAGER	DATE	DH - MARINE OPERATIONS MANAGER	DATE
DH - MARKETING MANAGER	DATE	DH - CHIEF FIRE OFFICER	DATE

FOR APPROVAL



PROJECT / AREA / ASSET / SUBJECT
PORT OF CAPE TOWN LIGHTING AND INFRASTRUCTURE UPGRADE

DRAWING TITLE
RAIL MARSHALLING YARD ACCESS ROAD HIGH MASTS - LIGHTING LAYOUT AND AIMING ANGLES

DATE	03/04/2023	TPNPA EDS
SCALE	AS SHOWN	REGISTRATION NUMBER: 20210177
DESIGNED BY	ZM	SIGNATURE: [Signature]
CHECKED BY	LR	SIGNATURE: [Signature]
DRAWN BY	LR	SIGNATURE: [Signature]
PAPER SIZE	A0	
PROJECT NUMBER	KCTE0025-E-LA-0015-0A-SR	



LUMINAIRE LOCATION SUMMARY						LUMINAIRE LOCATION SUMMARY					
MAST/POLE	LABEL	MAST/POLE HEIGHT	ORIENT.	TILT	PHASE	MAST/POLE	LABEL	MAST/POLE HEIGHT	ORIENT.	TILT	PHASE
P1	L1	6	220°	10°	EX	Z14	L1	6	N/A	N/A	EX
P2	L1	6	220°	10°	EX	Z15	L1	6	N/A	N/A	EX
P3	L1	6	220°	10°	EX	Z16	L1	6	N/A	N/A	EX
P4	L1	6	270°	10°	EX	Z17	L1	6	N/A	N/A	EX
P5	L1	6	270°	10°	EX						
Z1	L1	6	N/A	N/A	EX						
Z2	L1	6	N/A	N/A	EX						
Z3	L1	6	N/A	N/A	EX						
Z4	L1	6	N/A	N/A	EX						
Z5	L1	6	N/A	N/A	EX						
Z6	L1	6	N/A	N/A	EX						
Z7	L1	6	N/A	N/A	EX						
Z8	L1	6	N/A	N/A	EX						
Z9	L1	6	N/A	N/A	EX						
Z10	L1	6	N/A	N/A	EX						
Z11	L1	6	N/A	N/A	EX						
Z12	L1	6	N/A	N/A	EX						
Z13	L1	6	N/A	N/A	EX						

- EQUAL OR SIMILAR APPROVED TO BEKA LEDLUME MIDI 48 LED, 104W, 5248 OPTIC WITH BOTTOM ENTRY SPIGOT FOR ADJUSTMENT UP TO 15°, INTEGRATED PHOTOCCELL WITH NEMA 7-PIN SOCKET MOUNTED ON 6M MAST
- ⊙ EQUAL OR SIMILAR APPROVED TO BEKA ZELA LUMINAIRE, 20 LED 46W WITH SYMMETRICAL PHOTOMETRY MOUNTED ON A NEW 6M STEEL POLE WITH BUILT IN DAYLIGHT SWITCH
- ⌚ EARTHING AS PER TRANSNET NATIONAL PORTS AUTHORITY SPECIFICATION
- = ELECTRICAL KIOSK
- ELECTRICAL CABLE

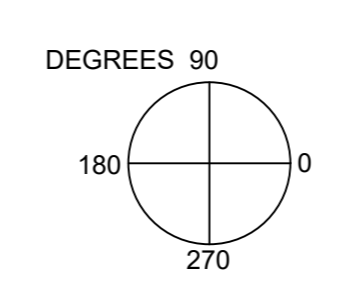
CIRCUIT AND CABLE INFORMATION

CABLE ROUTING			
CABLE PATH	CABLE TYPE	EXISTING CABLE	DIST.
TNPA KIOSK - TNPA HOUSE LC	TO BE VERIFIED	YES	TBC
V&A SUPPLY - WILLIES WHARF	TO BE VERIFIED	YES	TBC

LUMINAIRE SCHEDULE			
SYMBOL	QTY	ARRANGEMENT	TOTAL LAMP LUMENS
--	5	1 PER MAST	15157
⊙	17	1 PER MAST	5230

AREA CALCULATION SUMMARY				
AREA	CALC TYPE	UNITS	AVG	MAX
WILLIES WHARF	ILLUMINANCE	LUX	27.4	47.1
TNPA HOUSE	ILLUMINANCE	LUX	12.4	34.6

LUMINAIRE ORIENTATION



KEYPLAN (SCALE: NTS)



- NOTES:
1. THE WIDTH OF THE TRENCH FOR THE CASE OF MULTIPLE CABLES RUNNING IN THE SAME TRENCH IS AS FOLLOWS:
 - a) SPACING BETWEEN ANY TWO LV CABLES MUST BE A MINIMUM OF 300mm BETWEEN THE OUTER SHEATHING OF ANY TWO ADJACENT CABLES.
 - b) FOR TWO LV CABLES ADD 150mm TO THE WIDTH OF THE TRENCH AND FOR ADDITIONAL CABLES THERE AFTER ADD 300mm.
 - c) EACH LV CABLE SHALL HAVE ITS OWN CABLE GUARD.
 2. LV CABLES MUST NEVER CROSS EACH OTHER AND MUST BE LAID PARALLEL TO EACH OTHER IN THE HORIZONTAL PLANE.
- ELECTRICAL NOTES:
1. THIS DRAWING FOR EL&P ONLY.
 2. A CERTIFICATE OF COMPLIANCE TO BE COMPLETED BY CONTRACTOR ON COMPLETION OF WORK.
 3. ALL WORK MUST COMPLY WITH THE GENERAL REQUIREMENTS OF SANS 10142-1 (as amended), THE CONTRACTOR AND PANEL MANUFACTURER IS REFERRED SPECIFICALLY TO CLAUSE 6.6.6.5.2.6.5.3.6.5.4 AND 6.6.5.
 4. ALL SAMPLES OF LIGHTING AND FIXTURES TO BE APPROVED BY ELECTRICAL ENGINEER PRIOR TO ORDERING
 5. ALL CABLE ROUTES ARE PROVISIONAL AND SUBJECT TO CHANGE

DH - HARBOUR MASTER	DATE	SIGNATURE	DATE	DH - FINANCIAL MANAGER	DATE	SIGNATURE
DH - RISK MANAGER	DATE	SIGNATURE	DATE	DH - ENVIRONMENTAL MANAGER	DATE	SIGNATURE
DH - SECURITY MANAGER	DATE	SIGNATURE	DATE	DH - PROPERTY MANAGER	DATE	SIGNATURE
DH - CORPORATE AFFAIRS MANAGER	DATE	SIGNATURE	DATE	DH - MARINE OPERATIONS MANAGER	DATE	SIGNATURE
DH - MARKETING MANAGER	DATE	SIGNATURE	DATE	DH - CHIEF FIRE OFFICER	DATE	SIGNATURE

FOR APPROVAL

DA ISSUED FOR TENDER	05/04/2023	
No.	DESCRIPTION / REVISIONS	DATE



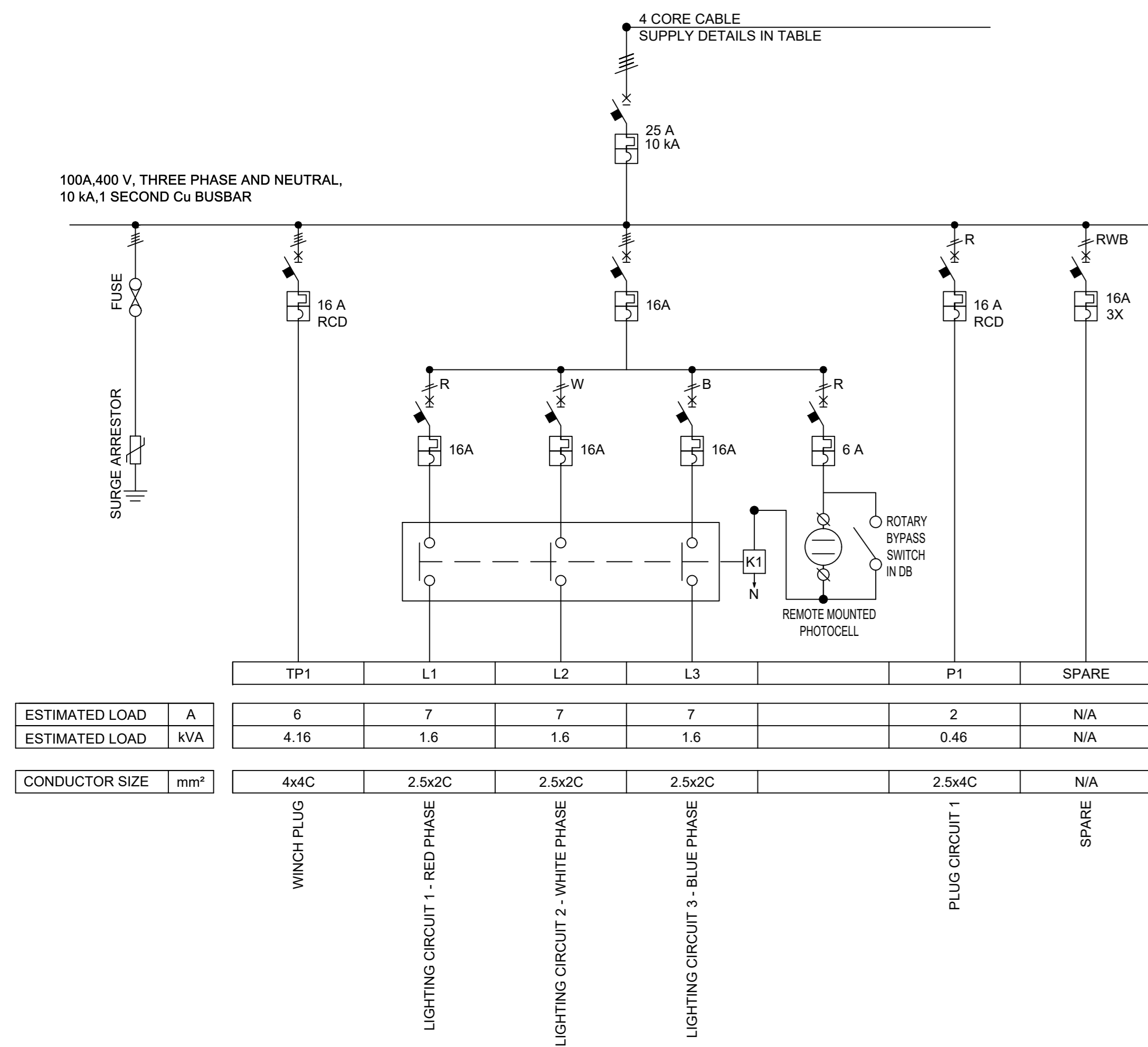
PROJECT / AREA / ASSET / SUBJECT
PORT OF CAPE TOWN LIGHTING AND INFRASTRUCTURE UPGRADE

DRAWING TITLE
WILLIES WHARF - LIGHTING LAYOUT AND AIMING ANGLES

DATE	03/04/2023	TNPA EDS
SCALE	AS SHOWN	REGISTRATION NUMBER: 25416177
DESIGNED BY		DATE:
CHECKED BY	ZM	DATE: 05/04/2023
DRAWN BY		DATE:
CHECKED BY	LR	DATE: 02/04/2023
PAPER SIZE	A0	

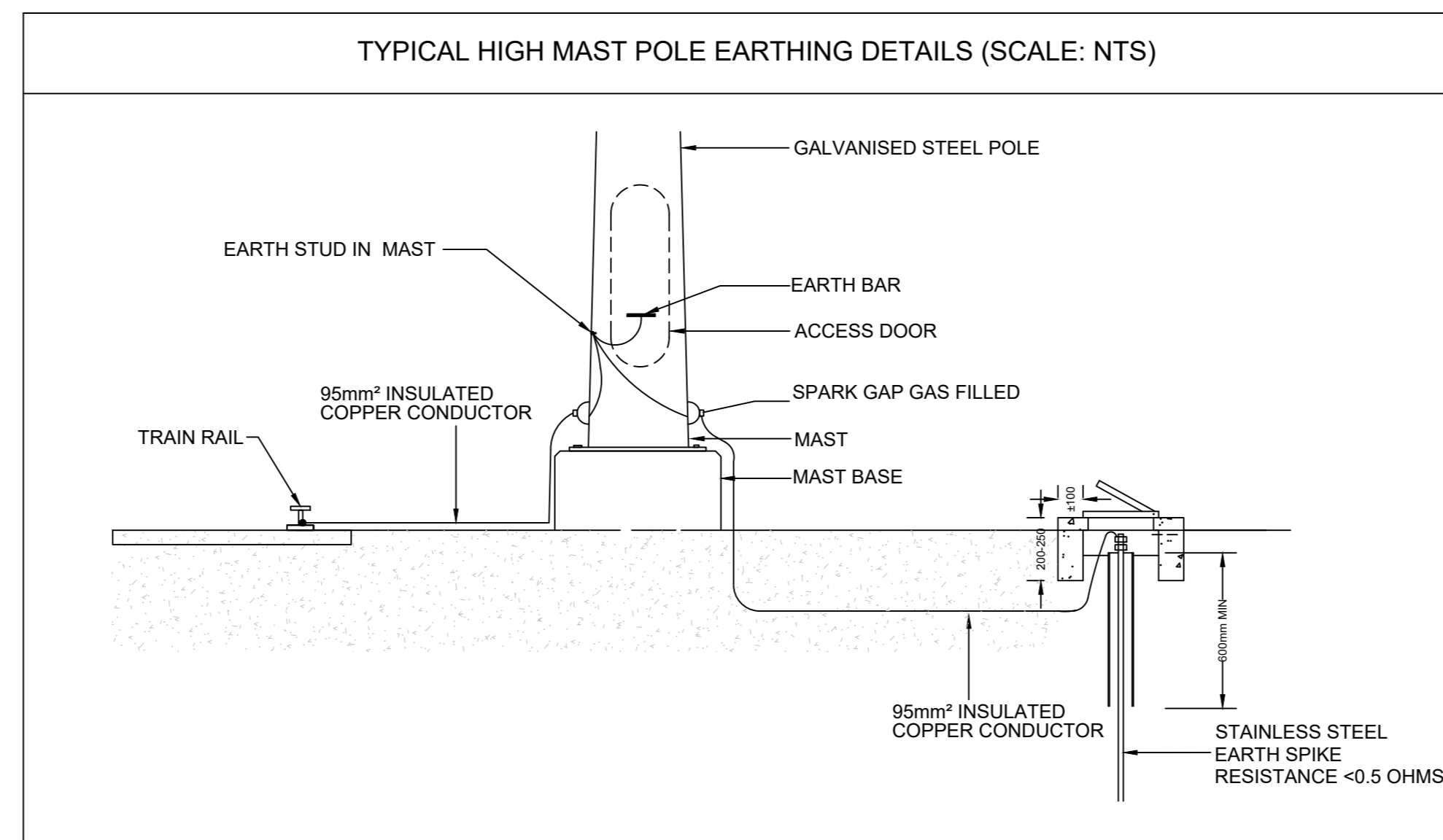
LUMINAIRE LOCATION SUMMARY						LUMINAIRE LOCATION SUMMARY					
HIGH MAST	LABEL	HIGH MAST HEIGHT	ORIENT.	TILT	PHASE	HIGH MAST	LABEL	HIGH MAST HEIGHT	ORIENT.	TILT	PHASE
HM1	L1	30	237°	65°	R	HM3	L1	30	261°	65°	R
HM1	L2	30	197°	65°	W	HM3	L2	30	221°	65°	W
HM1	L3	30	157°	65°	B	HM3	L3	30	181°	65°	B
HM1	L4	30	117°	65°	R	HM3	L4	30	141°	65°	R
HM1	L5	30	77°	65°	W	HM3	L5	30	101°	65°	W
HM1	L6	30	37°	65°	B	HM3	L6	30	61°	65°	B
HM1	L7	30	357°	65°	R	HM3	L7	30	21°	65°	R
HM1	L8	30	317°	65°	W	HM3	L8	30	341°	65°	W
HM1	L9	30	277°	65°	B	HM3	L9	30	301°	65°	B
HM1	L10	30	262°	65°	R	HM3	L10	30	262°	65°	R
HM2	L1	30	222°	65°	W	HM4	L1	30	222°	65°	W
HM2	L2	30	182°	65°	B	HM4	L2	30	182°	65°	B
HM2	L3	30	142°	65°	R	HM4	L3	30	142°	65°	R
HM2	L4	30	102°	65°	W	HM4	L4	30	102°	65°	W
HM2	L5	30	62°	65°	B	HM4	L5	30	62°	65°	B
HM2	L6	30	22°	65°	R	HM4	L6	30	22°	65°	R
HM2	L7	30	342°	65°	W	HM4	L7	30	342°	65°	W
HM2	L8	30	302°	65°	B	HM4	L8	30	302°	65°	B
HM2	L9	30	342°	65°	W	HM4	L9	30	302°	65°	R
HM2	L10	30	302°	65°	B	HM4	L10	30	302°	65°	W

TYPICAL HIGH MAST DISTRIBUTION BOARD (SCALE: NTS)

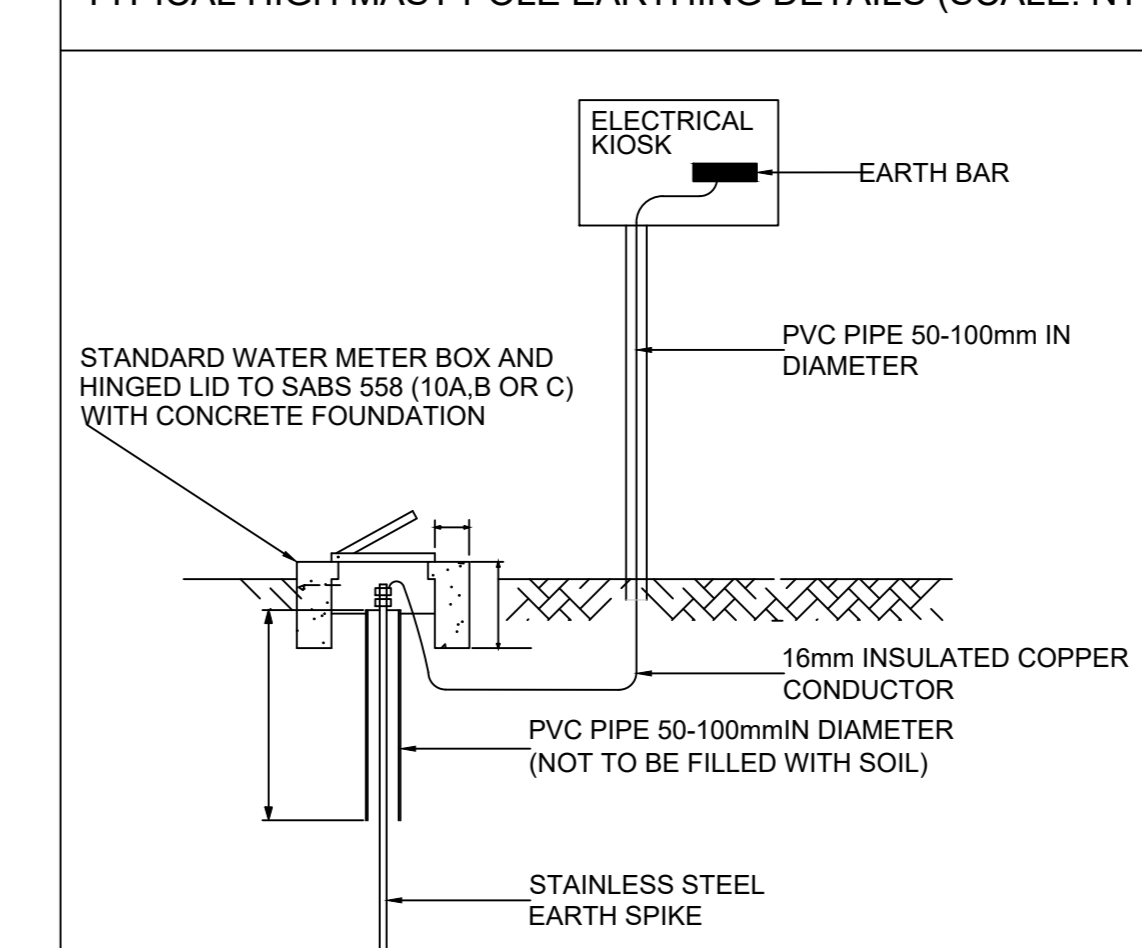


DISTRIBUTION BOARD SPECIFICATION	
SPARE WAYS	30%
DISTRIBUTION BOARD TYPE	STAND MOUNTED
MATERIAL	3CR12
THICKNESS OF MATERIAL	1.6mm
PAINT TYPE	POWDER COATED (80 MICRONS)
FRAME COLOUR	ORANGE
IP RATING	65
SWITCHEAR MAKE	EQUAL OR SIMILAR APPROVED TO ABB

TYPICAL HIGH MAST POLE EARTHING DETAILS (SCALE: NTS)



TYPICAL HIGH MAST POLE EARTHING DETAILS (SCALE: NTS)



DH - HARBOUR MASTER	DATE	SIGNATURE	DATE
DH - RISK MANAGER	DATE	SIGNATURE	DATE
DH - SECURITY MANAGER	DATE	SIGNATURE	DATE
DH - CORPORATE AFFAIRS MANAGER	DATE	SIGNATURE	DATE
DH - MARKETING MANAGER	DATE	SIGNATURE	DATE

FOR APPROVAL

DA ISSUED FOR TENDER	05/04/2023
No.	DESCRIPTION / REVISIONS



PROJECT / AREA / ASSET / SUBJECT
PORT OF CAPE TOWN LIGHTING AND INFRASTRUCTURE UPGRADE

TYPICAL DETAILS

DATE	03/04/2023	TNPA EDS
SCALE	AS SHOWN	REGISTRATION NUMBER: 20210177
DESIGNED BY		SIGNATURE:
CHECKED BY	ZM	SIGNATURE: <i>ZM</i> DATE: 03/04/2023
DRAWN BY		SIGNATURE:
CHECKED BY	LR	SIGNATURE: <i>LR</i> DATE: 02/04/2023
PAPER SIZE	A0	