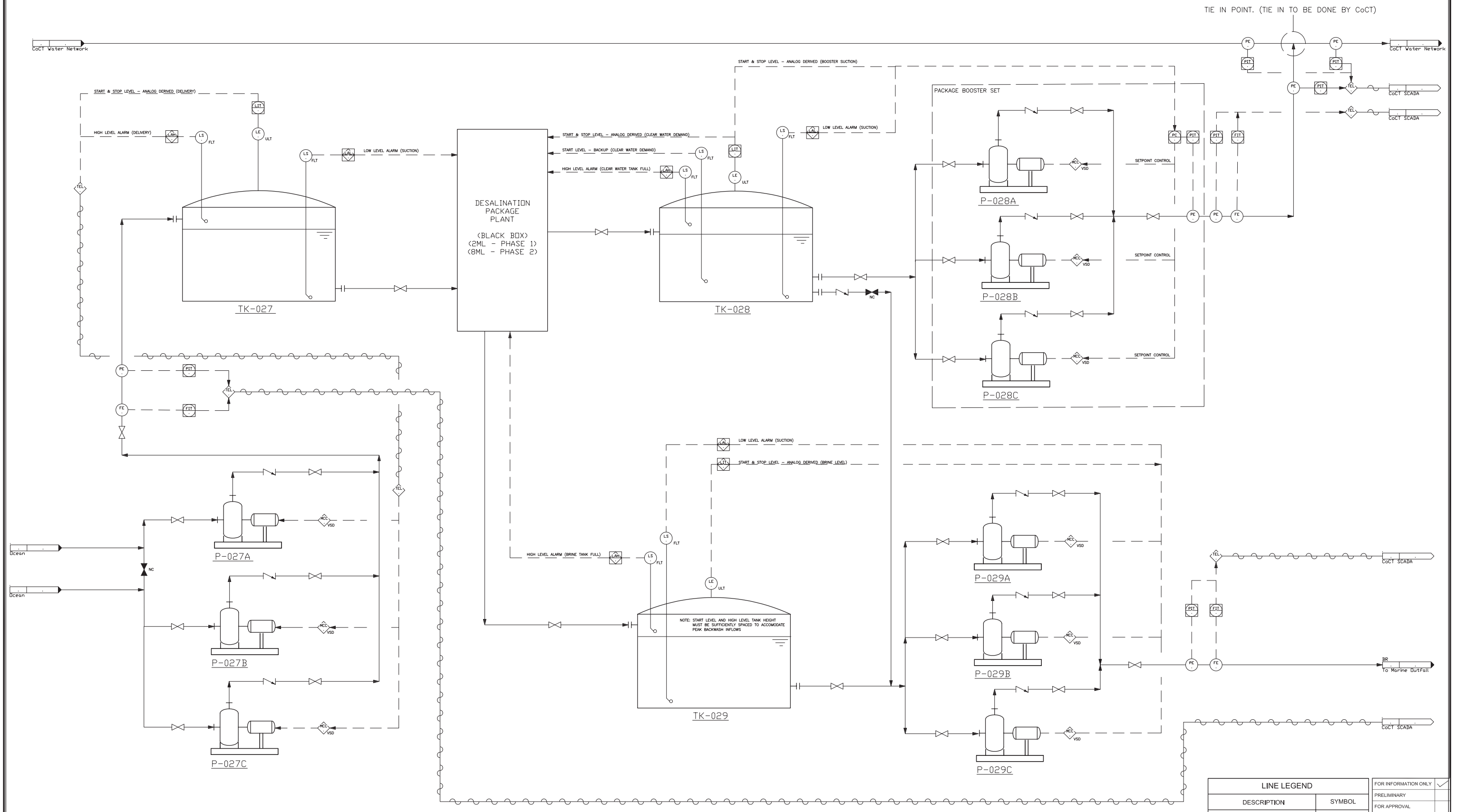


ANNEXURE 7B: Drawings – Harmony Park (Strand)

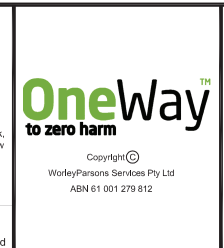
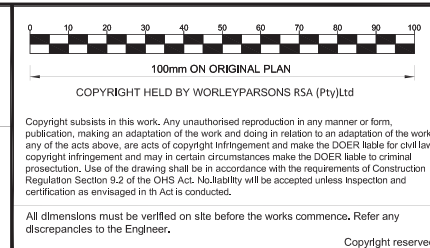
P-027B ABSTRACTION PUMP Drywell Pump 30 kW Duty
P-027C ABSTRACTION PUMP Drywell Pump 30 kW Standby
P-027A ABSTRACTION PUMP Drywell Pump 30 kW Duty
TK-027 RAW WATER BUFFER TANK 420 kL. Based on 30min retention time.
TK-028 CLEAR WATER TANK 670 kL. Based on 2h retention time.
TK-029 BRINE BUFFER TANK 250 kL. Based on 30h retention time.
P-028A POTABLE WATER PUMP Drywell Pump 55 kW Duty
P-028B POTABLE WATER PUMP Drywell Pump 55 kW Duty
P-028C POTABLE WATER PUMP Drywell Pump 55 kW Duty
P-029A BRINE DISCHARGE PUMPS Drywell Pump 9 kW Duty
P-029B BRINE DISCHARGE PUMPS Drywell Pump 9 kW Duty
P-029C BRINE DISCHARGE PUMPS Drywell Pump 9 kW Standby



Disclaimer: The values and sizes indicated on the drawings forms part of the concept design and must be confirmed by the supplier before purchasing or installation.

REV	DATE	REVISION DESCRIPTION	DRAWN	DESIGNED	REV ENGINEER
A	09/17	ISSUED FOR INFORMATION ONLY	RvdM	RvdM/AS	PJ/AS

CONSULTING ENGINEER
 DATE _____
 CLIENT
 DATE _____



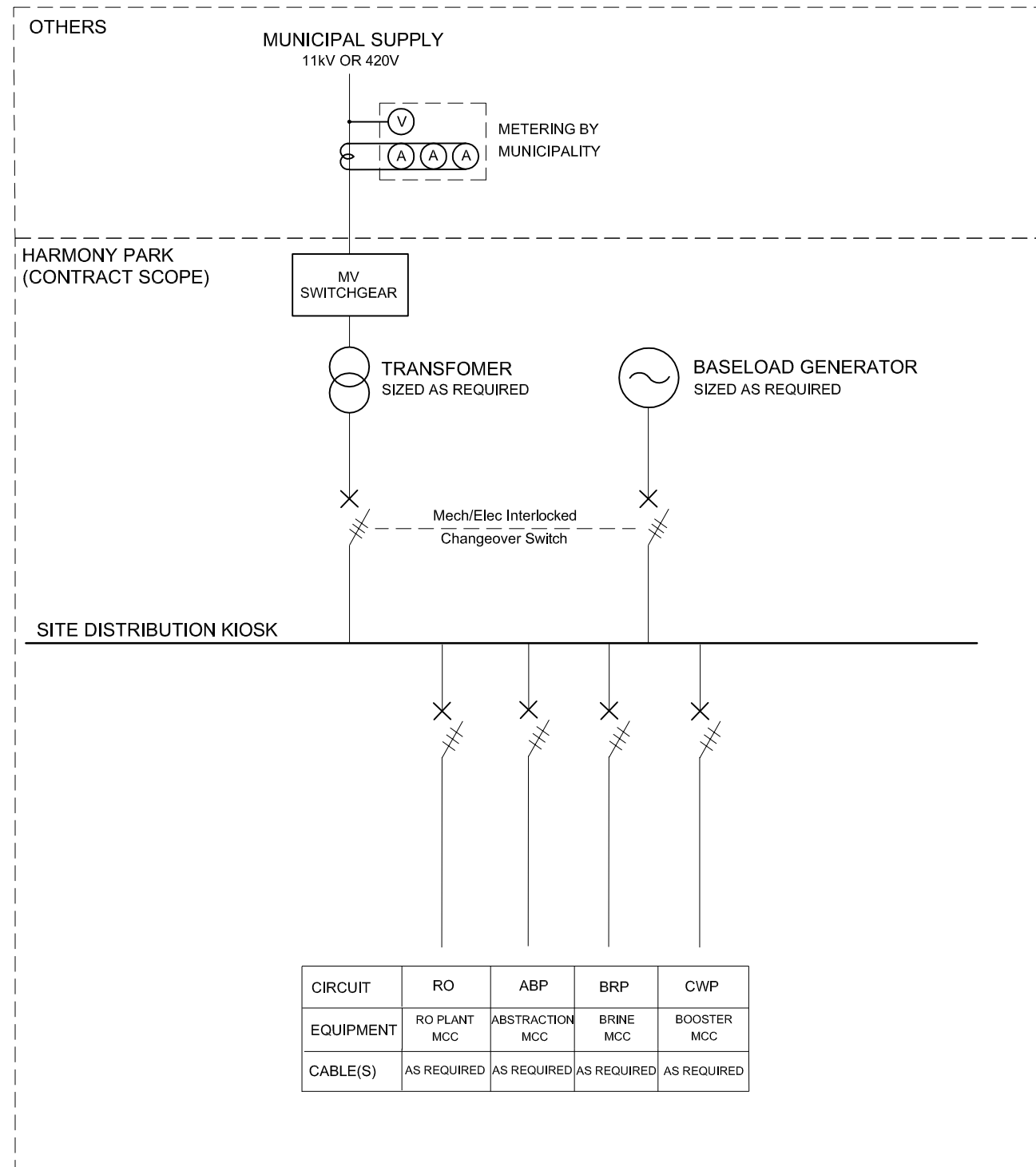
CLIENT
 PROJECT
EMERGENCY WATER RESILIENCE PROJECT

DRAWING DESCRIPTION
HARMONY PARK : P&ID TYPICAL DETAILS (PHASE 1 & 2)

LINE LEGEND		FOR INFORMATION ONLY
DESCRIPTION	SYMBOL	PRELIMINARY
PROCESS LINE		FOR APPROVAL
SIGNAL CONNECTION (ELECTRICAL)		FOR TENDER PURPOSES
WIRELESS COMMUNICATION LINK		FOR CONSTRUCTION
		AS BUILT

WorleyParsons
 resources & energy
 P.O.Box 398
 BELLVILLE 7535
 TEL:+27 21912 3000
 FAX:+27 21912 3222
 e-mail: capetown.office@worleyparsons.com

DATE	2017/09/06	SCALE: (ORIGINAL A1)	AS SHOWN
DRG NO.	C00686-0Z-EL-PID-0001-001	REV.	A



LEGEND	
DESCRIPTION	SYMBOL
TRANSFORMER	
CIRCUIT BREAKER	
ISOLATOR	
GENERATOR	
VOLTMETER	
AMPERE METER	

REV	DATE	REVISION DESCRIPTION	DRAWN	DESIGNED	REV ENGINEER	CONSULTING ENGINEER
A	09/17	ISSUED FOR INFORMATION	RvdM	AS	AS	AS

OnewayTM
to zero harm

Copyright ©
WorleyParsons Services Pty Ltd
ABN 61 001 279 812

CLIENT



CITY OF CAPE TOWN
ISIXEKO SASEKAPA
STAD KAAPSTAD

PROJECT

WATER RESILIENCE

DRAWING DESCRIPTION

HARMONY PARK : SINGLE LINE DIAGRAM TYPICAL DETAILS

"This drawing is prepared solely for the use of the contractual customer of WorleyParsons and WorleyParsons assumes no liability to any other party for any representations contained in this drawing."



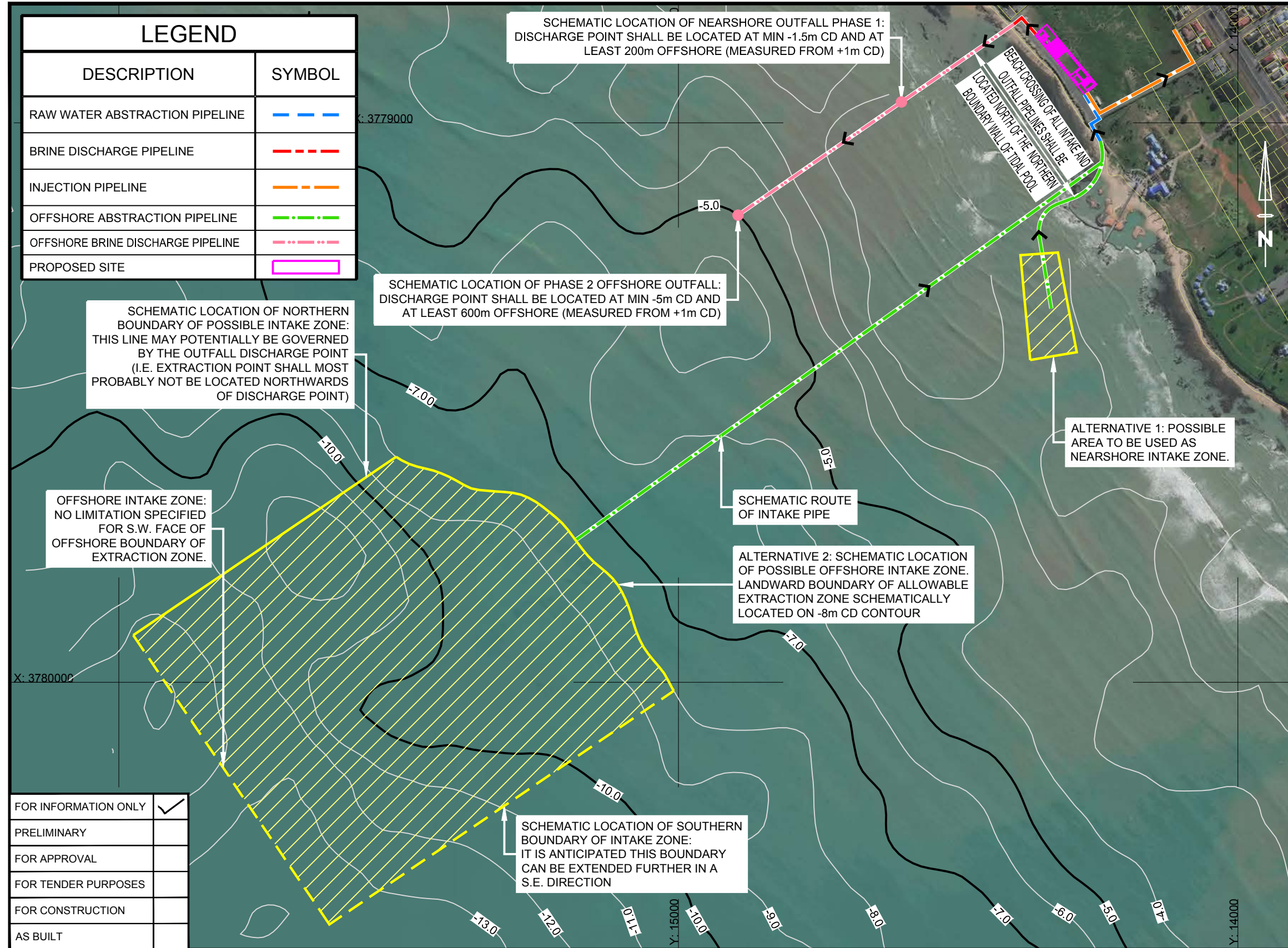
WorleyParsons
resources & energy
P.O.Box 398
BELLVILLE 7535
TEL:+27 21912 3000
FAX:+27 21912 3222
e-mail: capetown.office@worleyparsons.com

DATE	SCALE: (ORIGINAL A3)
2017/09/06	AS SHOWN
DRG No.	REV.
C00686-0Z-EL-DSL-0001-001	A

LEGEND	
DESCRIPTION	SYMBOL
RAW WATER ABSTRACTION PIPELINE	
BRINE DISCHARGE PIPELINE	
INJECTION PIPELINE	
OFFSHORE ABSTRACTION PIPELINE	
OFFSHORE BRINE DISCHARGE PIPELINE	
PROPOSED SITE	

SIMON'S TOWN (SANHO, 2017)		
TIDAL LEVELS	CHART DATUM (m CD)	LAND LEVELING DATUM (m LLD)
HAT	2.09	1.247
MHWS	1.79	0.947
MHWN	1.29	0.447
ML	1.00	0.157
MLWN	0.73	-0.113
MLWS	0.24	-0.603
LAT	0.00	-0.843

- GENERAL NOTES:**
- COORDINATE SYSTEM WGS 84 Lo.19
 - ALL DEPTHS RELATIVE TO CHART DATUM (CD)
 - BATHYMETRIC SURVEY: SURVEYED BY COUNCIL OF GEOSCIENCE, DATE 31-08-2017
 - CONTRACTOR SHALL SPECIFY EXACT ABSTRACTION LOCATIONS FOR PHASES 1 AND 2.
 - CONTRACTOR SHALL ENSURE ABSTRACTION LOCATIONS FOR BOTH PHASES 1 AND 2 SHALL POSSIBLY BE LOCATED WITHIN ALTERNATIVE 1 AND/OR ALTERNATIVE 2 INTAKE ZONES.
 - ALL MARINE WORKS ARE SCHEMATIC ONLY.
 - THE SUPPLIER TO USE THE MARINE PIPEWORK SCHEMATIC AS A GUIDE ONLY AND HE SHOULD CHOOSE POSITIONS OF INLET STRUCTURES AND OUTLET DISCHARGE POINTS BASED ON HIS OWN DESIGN TAKING COGNISANCE OF AMONGST OTHERS MIN. OUTFALL REQUIREMENTS AS INDICATED ON THESE DRAWINGS; THE WATER QUALITY REQUIRED AT THE PLANT AS WELL AS DAMAGE DUE TO ENVIRONMENTAL CONDITIONS, SUCH AS WAVE AND SHORELINE VARIATION.
 - ALL PHASE 1 WORK NOT UTILIZED IN PHASE 2 TO BE DECOMMISSIONED AFTER COMPLETION OF PHASE 2.
 - ALL PUMP STATION POSITIONS TO BE VERIFIED.
 - ALTHOUGH THE DRAWING ARE INDICATIVE ONLY THE CONTRACTOR SHALL COMPLY WITH THE FOLLOWING:
 - PHASE 1: THE SUPPLIER SHALL DISCHARGE THE BRINE AT A MINIMUM DEPTH OF -1.5m CD AND A MINIMUM DISTANCE OF 200m FROM THE COASTLINE (MEASURED FROM THE +1m CD DEPTH CONTOUR AND INDICATED ON THE DRAWINGS).
 - PHASE 2: THE DISCHARGE LOCATION OF THE BRINE OUTFALL FOR PHASE 2 SHALL BE AT A MINIMUM DEPTH CONTOUR OF -5.0 mCD AND A DISTANCE OF 600m FROM THE COASTLINE (MEASURED FROM +1m CD).
 - THE BEACH CROSSING OF ALL INTAKE AND OUTFALL PIPES SHALL BE AS INDICATED ON DRAWING NO. C00686-0Z-MA-DAL-0001-001.
 - EXACT PIPING ROUTES TO BE PROVIDED BY CONTRACTOR.



FOR INFORMATION ONLY	<input checked="" type="checkbox"/>
PRELIMINARY	<input type="checkbox"/>
FOR APPROVAL	<input type="checkbox"/>
FOR TENDER PURPOSES	<input type="checkbox"/>
FOR CONSTRUCTION	<input type="checkbox"/>
AS BUILT	<input type="checkbox"/>

REV	DATE	REVISION DESCRIPTION	DRAWN	DESIGNED	REV ENGINEER	CONSULTING ENGINEER
A	15/09/17	FOR INFORMATION ONLY	KL	MLR	MC	WPRSA

Copyright ©
WorleyParsons Services Pty Ltd
ABN 61 001 279 812

CLIENT
 CITY OF CAPE TOWN
ISIXEKO SASEKAPA
STAD KAAPSTAD

PROJECT
WATER RESILIENCE PROJECT

resources & energy
P.O.Box 398
BELLVILLE 7535
TEL:+27 21912 3000
FAX:+27 21912 3222
e-mail: capetown.office@worleyparsons.com

DRAWING DESCRIPTION

HARMONY PARK: OVERVIEW OF ABSTRACTION AND DISCHARGE LOCATIONS

"This drawing is prepared solely for the use of the contractual customer of WorleyParsons and WorleyParsons assumes no liability to any other party for any representations contained in this drawing."

DATE	SCALE: (ORIGINAL A3)
AUGUST 2017	1:7500
DRG No.	REV.
C00686-0Z-MA-DAL-0001-001	A

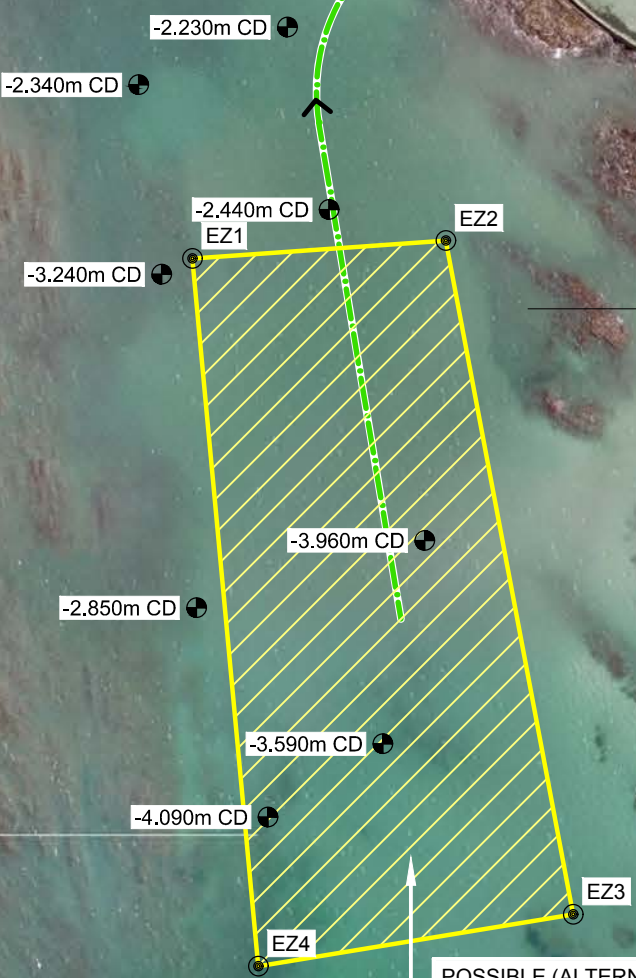
LEGEND	
DESCRIPTION	SYMBOL
OFFSHORE ABSTRACTION PIPELINE	

SIMON'S TOWN (SANHO, 2017)		
TIDAL LEVELS	CHART DATUM (m CD)	LAND LEVELING DATUM (m LLD)
HAT	2.09	1.247
MHWS	1.79	0.947
MHWN	1.29	0.447
ML	1.00	0.157
MLWN	0.73	-0.113
MLWS	0.24	-0.603
LAT	0.00	-0.843

X: 3779250

BOUNDARY COORDINATES OF POSSIBLE EXTRACTION ZONE		
POINT	Y (m)	X (m)
EZ1	14388.756	3779236.676
EZ2	14321.677	3779231.959
EZ3	14287.956	3779410.110
EZ4	14371.322	3779423.828

SCHEMATIC LOCATION OF PIPE ROUTE TO THE INTAKE. FINAL ROUTE TO BE SPECIFIED BY SUPPLIER



POSSIBLE (ALTERNATIVE 1) AREA TO BE UTILIZED FOR EXTRACTION PURPOSES. AREA SUITABLE (FROM DEPTH PERSPECTIVE) TO PLACE INTAKE AT MIN -3m CD. SUPPLIER TO VERIFY DEPTH AND WATER QUALITY AT EXACT LOCATION SHOULD HE DECIDE TO USE THIS AREA FOR EXTRACTION PURPOSES

- GENERAL NOTES:**
- COORDINATE SYSTEM WGS84 Lo.19
 - ALL DEPTHS RELATIVE TO CHART DATUM (CD)
 - SOUNDINGS: WATER DEPTHS MEASURED ON 31-08-2017 (ASSUMED +300mm ACCURACY)
 - ALL MARINE WORKS ARE SCHEMATIC ONLY.
 - THE SUPPLIER TO USE THE MARINE PIPEWORK SCHEMATIC AS A GUIDE ONLY AND HE SHOULD CHOOSE POSITIONS OF INLET STRUCTURES AND OUTLET DISCHARGE POINTS BASED ON HIS OWN DESIGN TAKING COGNISANCE OF AMONGST OTHERS MIN. OUTFALL REQUIREMENTS AS INDICATED ON THESE DRAWINGS; THE WATER QUALITY REQUIRED AT THE PLANT AS WELL AS DAMAGE DUE TO ENVIRONMENTAL CONDITIONS, SUCH AS WAVE AND SHORELINE VARIATION.
 - ALL PHASE 1 WORK NOT UTILIZED IN PHASE 2 TO BE DECOMMISSIONED AFTER COMPLETION OF PHASE 2.
 - ALL PUMP STATION POSITIONS TO BE VERIFIED.
 - ALTHOUGH THE DRAWING ARE INDICATIVE ONLY THE CONTRACTOR SHALL COMPLY WITH THE FOLLOWING:
 - PHASE 1: THE SUPPLIER SHALL DISCHARGE THE BRINE AT A MINIMUM DEPTH OF -1.5m CD AND A MINIMUM DISTANCE OF 200m FROM THE COASTLINE (MEASURED FROM THE +1m CD DEPTH CONTOUR AND INDICATED ON THE DRAWINGS).
 - PHASE 2: THE DISCHARGE LOCATION OF THE BRINE OUTFALL FOR PHASE 2 SHALL BE AT A MINIMUM DEPTH CONTOUR OF -5.0 mCD AND A DISTANCE OF 600m FROM THE COASTLINE (MEASURED FROM +1m CD).
 - THE BEACH CROSSING OF ALL INTAKE AND OUTFALL PIPES SHALL BE AS INDICATED ON DRAWING NO. C00686-OZ-MA-DAL-0001-001.
 - EXACT PIPING ROUTES TO BE PROVIDED BY CONTRACTOR.

FOR INFORMATION ONLY	✓
PRELIMINARY	
FOR APPROVAL	
FOR TENDER PURPOSES	
FOR CONSTRUCTION	
AS BUILT	

REV	DATE	REVISION DESCRIPTION	DRAWN	DESIGNED	REV ENGINEER	CONSULTING ENGINEER
A	15/09/17	FOR INFORMATION ONLY	KL	MLR	MC	WPRSA

OneWay
to zero harm

Copyright ©
WorleyParsons Services Pty Ltd
ABN 61 001 279 812

CLIENT

CITY OF CAPE TOWN
ISIXEKO SASEKAPA
STAD KAAPSTAD

PROJECT

WATER RESILIENCE PROJECT

DRAWING DESCRIPTION

HARMONY PARK: POSSIBLE NEARSHORE ABSTRACTION ZONE

"This drawing is prepared solely for the use of the contractual customer of WorleyParsons and WorleyParsons assumes no liability to any other party for any representations contained in this drawing."

resources & energy
P.O.Box 398
BELLVILLE 7535
TEL:+27 21912 3000
FAX:+27 21912 3222
e-mail: capetown.office@worleyparsons.com

DATE: AUGUST 2017

SCALE: (ORIGINAL A3) 1:2000

DRG No. C00686-OZ-MA-DAL-0002-001

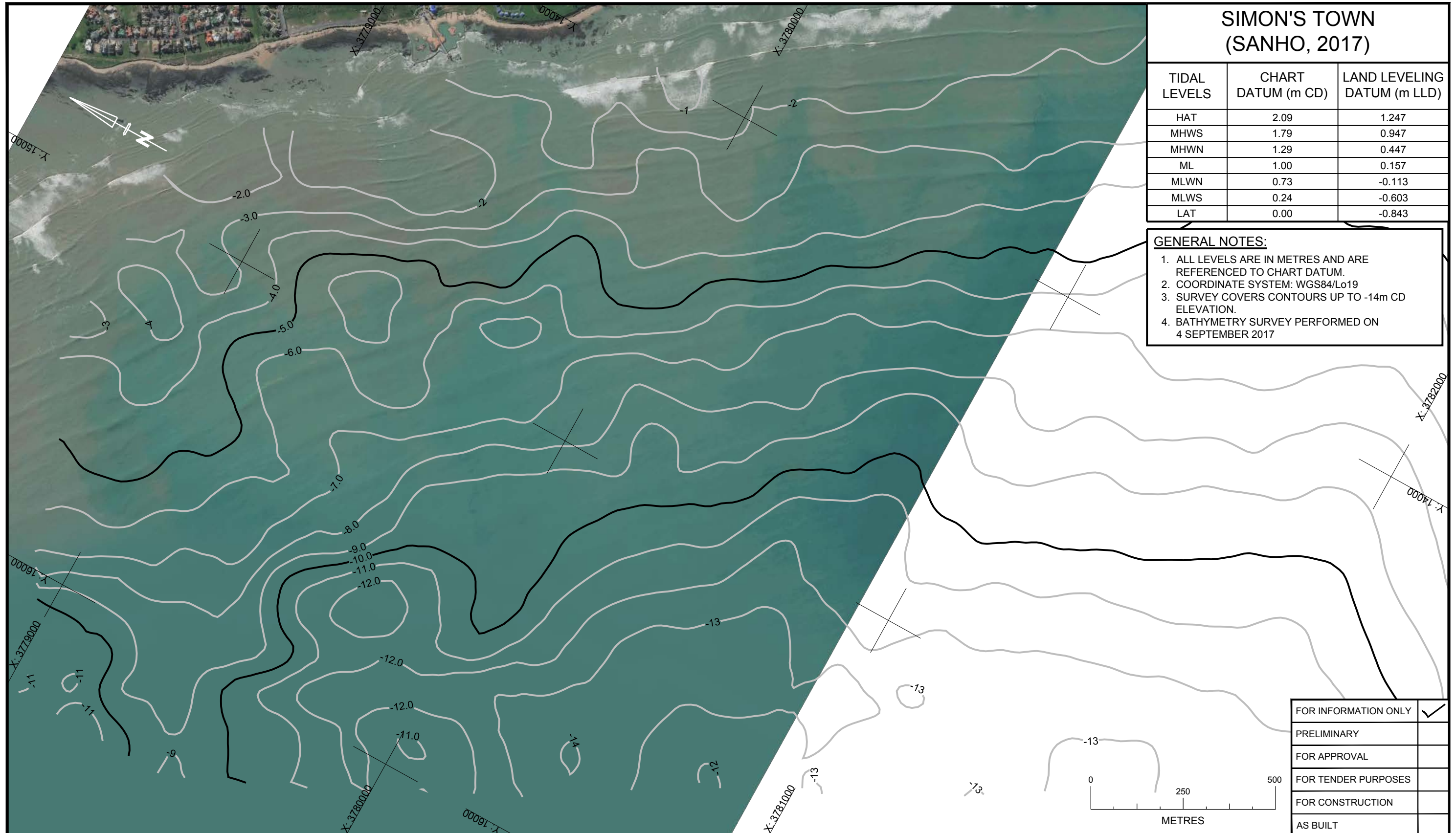
REV. A

SIMON'S TOWN (SANHO, 2017)

TIDAL LEVELS	CHART DATUM (m CD)	LAND LEVELING DATUM (m LLD)
HAT	2.09	1.247
MHWS	1.79	0.947
MHWN	1.29	0.447
ML	1.00	0.157
MLWN	0.73	-0.113
MLWS	0.24	-0.603
LAT	0.00	-0.843

GENERAL NOTES:

1. ALL LEVELS ARE IN METRES AND ARE REFERENCED TO CHART DATUM.
2. COORDINATE SYSTEM: WGS84/Lo19
3. SURVEY COVERS CONTOURS UP TO -14m CD ELEVATION.
4. BATHYMETRY SURVEY PERFORMED ON 4 SEPTEMBER 2017



FOR INFORMATION ONLY	<input checked="" type="checkbox"/>
PRELIMINARY	<input type="checkbox"/>
FOR APPROVAL	<input type="checkbox"/>
FOR TENDER PURPOSES	<input type="checkbox"/>
FOR CONSTRUCTION	<input type="checkbox"/>
AS BUILT	<input type="checkbox"/>

REV	DATE	REVISION DESCRIPTION	DRAWN	DESIGNED	REV ENGINEER	CONSULTING ENGINEER
A	15/09/17	FOR INFORMATION ONLY	KL	SR	MC	WPRSA

OneWayTM
to zero harm

Copyright ©
WorleyParsons Services Pty Ltd
ABN 61 001 279 812

CLIENT



CITY OF CAPE TOWN
ISIXEKO SASEKAPA
STAD KAAPSTAD

PROJECT

WATER RESILIENCE PROJECT



WorleyParsons
resources & energy

P.O.Box 398
BELLVILLE 7535
TEL:+27 21912 3000
FAX:+27 21912 3222
e-mail: capetown.office@worleyparsons.com

DATE	SCALE: (ORIGINAL A3)
SEPTEMBER 2017	1:10000
DRG No.	REV.
C00686-OZ-MA-DAL-0003-001	A

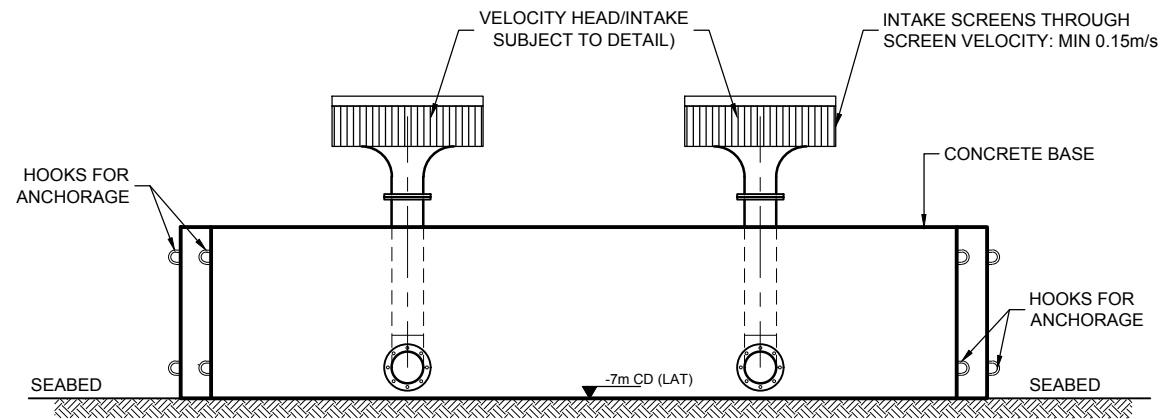
DRAWING DESCRIPTION

HARMONY PARK: BATHYMETRY LAYOUT

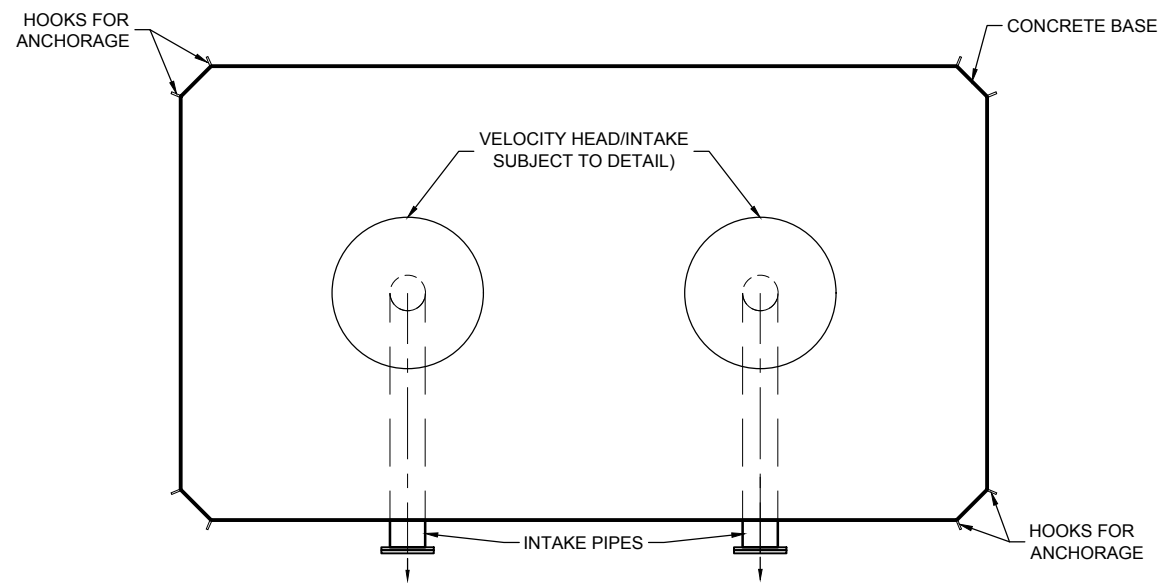
"This drawing is prepared solely for the use of the contractual customer of WorleyParsons and WorleyParsons assumes no liability to any other party for any representations contained in this drawing."

0m CD (LAT)

ALL LEVELS INDICATED ARE INDICATIVE ONLY



SIDE ELEVATION
SCALE 1:50



PLAN
SCALE 1:50

FOR INFORMATION ONLY	<input checked="" type="checkbox"/>
PRELIMINARY	<input type="checkbox"/>
FOR APPROVAL	<input type="checkbox"/>
FOR TENDER PURPOSES	<input type="checkbox"/>
FOR CONSTRUCTION	<input type="checkbox"/>
AS BUILT	<input type="checkbox"/>


REV	DATE	REVISION DESCRIPTION	DRAWN	DESIGNED	REV ENGINEER	CONSULTING ENGINEER
A	25/08/17	FOR INFORMATION	MJ	MR	MC	WPRSA

OneWay
to zero harm
Copyright ©
WorleyParsons Services Pty Ltd
ABN 61 001 279 812

CLIENT

CITY OF CAPE TOWN
 ISIXEKO SASEKAPA
 STAD KAAPSTAD

PROJECT
WATER RESILIENCE PROJECT

 **WorleyParsons**
 resources & energy
 P.O.Box 398
 BELLVILLE 7535
 TEL:+27 21912 3000
 FAX:+27 21912 3222
 e-mail: capetown.office@worleyparsons.com

DRAWING DESCRIPTION
HARMONY PARK: OFFSHORE INTAKE STRUCTURE

DATE
AUGUST 2017

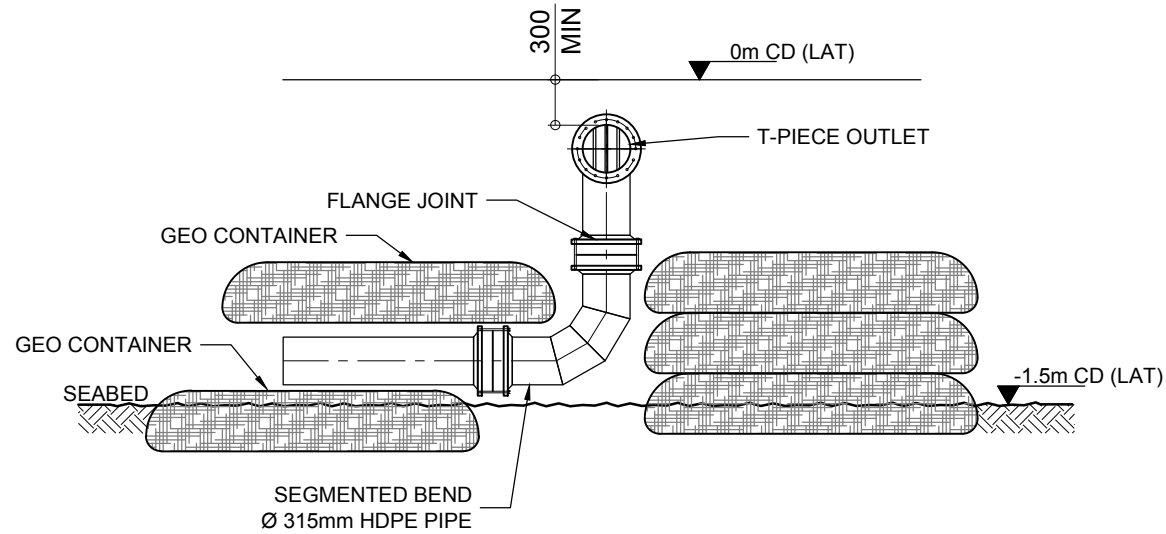
SCALE: (ORIGINAL A3)
AS SHOWN

"This drawing is prepared solely for the use of the contractual customer of WorleyParsons and WorleyParsons assumes no liability to any other party for any representations contained in this drawing."

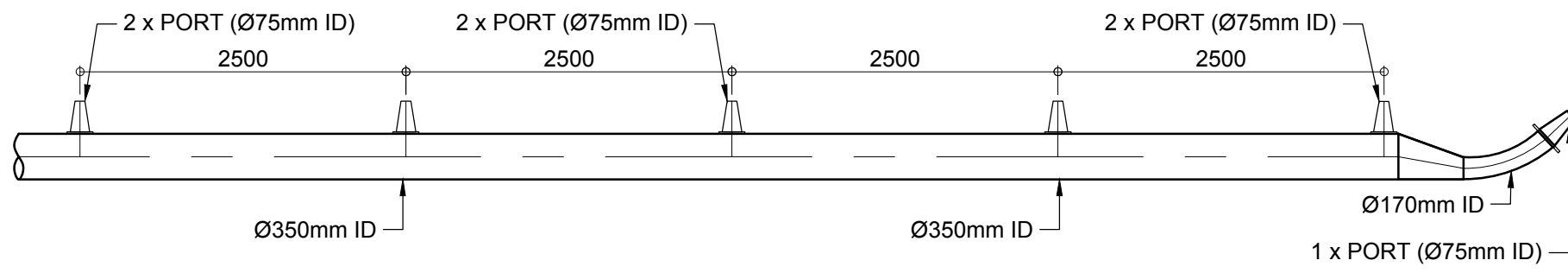
DRG No.
C00686-0Z-MA-DRD-0001-001

REV.
A

ALL LEVELS INDICATED ARE INDICATIVE ONLY



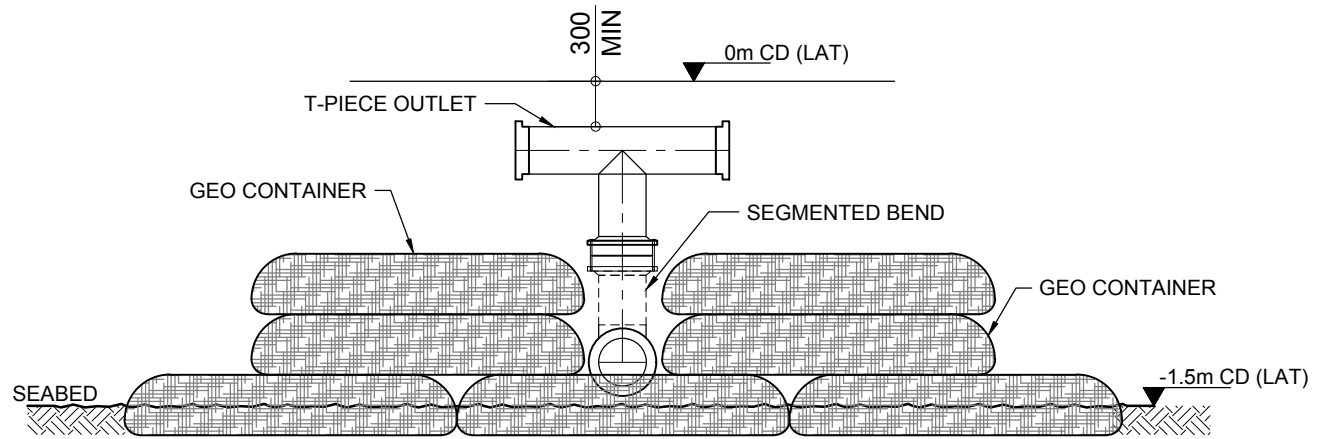
SECTION



SECTION

BRINE DIFFUSER

SCALE 1:50



SIDE ELEVATION

BRINE OUTLET: T-PIECE

SCALE 1:50

FOR INFORMATION ONLY	<input checked="" type="checkbox"/>
PRELIMINARY	<input type="checkbox"/>
FOR APPROVAL	<input type="checkbox"/>
FOR TENDER PURPOSES	<input type="checkbox"/>
FOR CONSTRUCTION	<input type="checkbox"/>
AS BUILT	<input type="checkbox"/>

REV	DATE	REVISION DESCRIPTION	DRAWN	DESIGNED	REV ENGINEER	CONSULTING ENGINEER
A	25/08/17	FOR INFORMATION	MJ	MR	MC	WPRSA

OneWay
to zero harm

Copyright ©
WorleyParsons Services Pty Ltd
ABN 61 001 279 812


CLIENT



CITY OF CAPE TOWN
ISIXEKO SASEKAPA
STAD KAAPSTAD

PROJECT

WATER RESILIENCE PROJECT



WorleyParsons
resources & energy
P.O.Box 398
BELLVILLE 7535
TEL:+27 21912 3000
FAX:+27 21912 3222
e-mail: capetown.office@worleyparsons.com

DRAWING DESCRIPTION

**HARMONY PARK: NEARSHORE BRINE OUTLET(T-PIECE)
PHASE 1/ OFFSHORE BRINE DIFFUSER PHASE 2**

DATE: AUGUST 2017

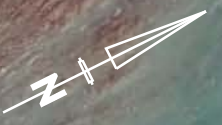
SCALE: (ORIGINAL A3)
AS SHOWN

"This drawing is prepared solely for the use of the contractual customer of WorleyParsons and WorleyParsons assumes no liability to any other party for any representations contained in this drawing."

DRG No. C00686-0Z-MA-DRD-0002-001

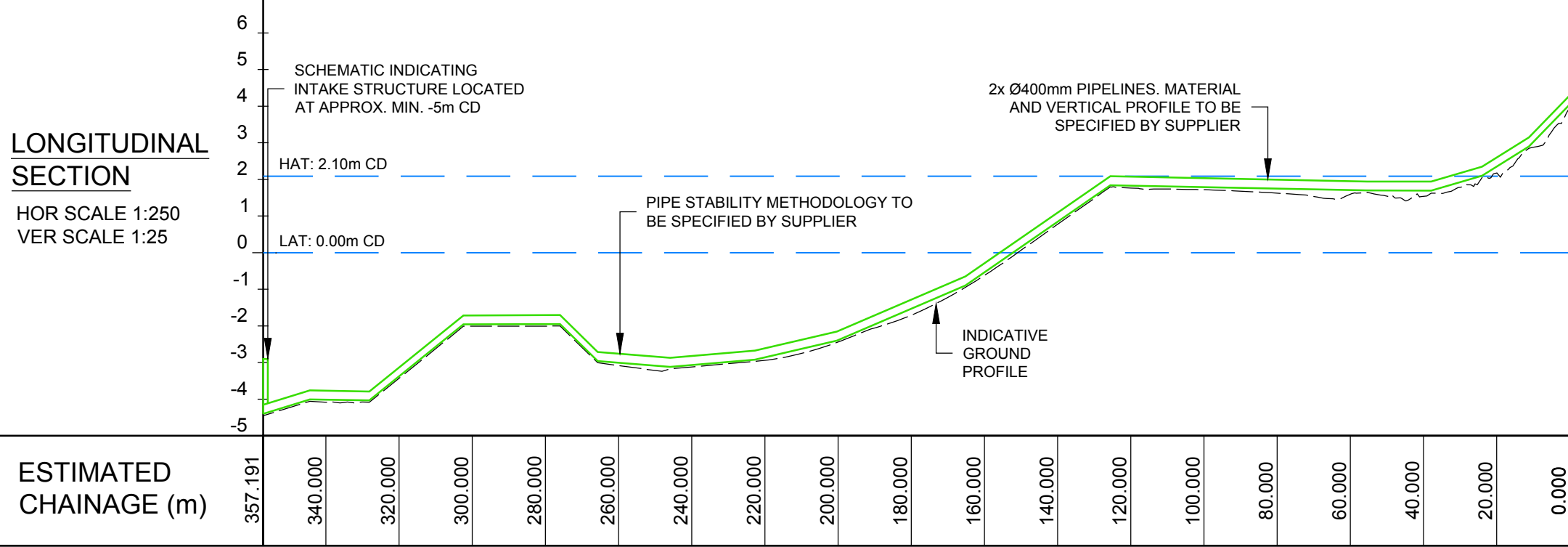
REV. A

LEGEND	
DESCRIPTION	SYMBOL
RAW WATER ABSTRACTION PIPELINE	
INJECTION PIPELINE	
OFFSHORE ABSTRACTION PIPELINE	
PROPOSED SITE	



PLAN LAYOUT
SCALE 1:1500

FOR INFORMATION ONLY	<input checked="" type="checkbox"/>
PRELIMINARY	<input type="checkbox"/>
FOR APPROVAL	<input type="checkbox"/>
FOR TENDER PURPOSES	<input type="checkbox"/>
FOR CONSTRUCTION	<input type="checkbox"/>
AS BUILT	<input type="checkbox"/>



THIS DRAWING IS PREPARED SOLELY FOR INFORMATION PURPOSES TO CONVEY TO TENDERERS A NON-VERIFIED CONCEPT ENVISAGED BY THE COCT FOR THE DESALINATION WORKS AT HARMONY PARK. SHOULD TENDERERS CHOOSE THIS OPTION THEN THEY ARE TO VERIFY THE CONCEPT PRIOR TO PERFORMING DESIGN THEREOF.

- GENERAL NOTES:**
1. ALL MARINE WORKS ARE SCHEMATIC ONLY.
 2. THE SUPPLIER TO USE THE MARINE PIPEWORK SCHEMATIC AS A GUIDE ONLY AND HE SHOULD CHOOSE POSITIONS OF INLET STRUCTURES AND OUTLET DISCHARGE POINTS BASED ON HIS OWN DESIGN TAKING COGNISANCE OF AMONGST OTHERS MIN. OUTFALL REQUIREMENTS AS INDICATED ON THESE DRAWINGS; THE WATER QUALITY REQUIRED AT THE PLANT AS WELL AS DAMAGE DUE TO ENVIRONMENTAL CONDITIONS, SUCH AS WAVE CONDITIONS.
 3. ALL PHASE 1 WORK NOT UTILIZED IN PHASE 2 TO BE DECOMMISSIONED AFTER COMPLETION OF PHASE 2.
 4. ALL PUMP STATION POSITIONS TO BE VERIFIED.
 5. EXACT PIPING ROUTES TO BE PROVIDED BY CONTRACTOR.

REV	DATE	REVISION DESCRIPTION	DRAWN	DESIGNED	REV ENGINEER	CONSULTING ENGINEER
A	15/09/17	FOR INFORMATION ONLY	KL	MLR	MC	WPRSA

Copyright ©
WorleyParsons Services Pty Ltd
ABN 61 001 279 812

CLIENT

CITY OF CAPE TOWN
ISIXEKO SASEKAPA
STAD KAAPSTAD

PROJECT

WATER RESILIENCE PROJECT

DRAWING DESCRIPTION

HARMONY PARK: PHASE 1 AND/OR 2 CONCEPTUAL NEARSHORE ZONE INTAKE PIPELINE

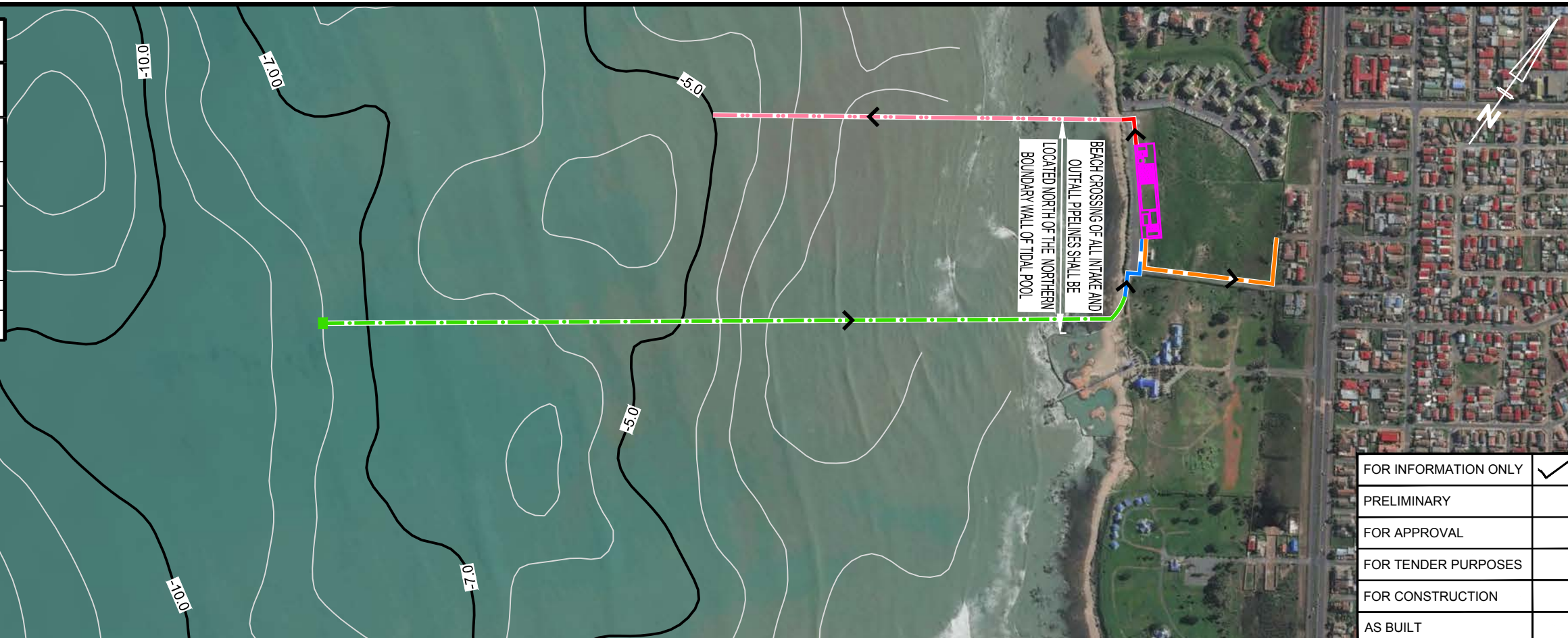
"This drawing is prepared solely for the use of the contractual customer of WorleyParsons and WorleyParsons assumes no liability to any other party for any representations contained in this drawing."

resources & energy

P.O.Box 398
BELLVILLE 7535
TEL:+27 21912 3000
FAX:+27 21912 3222
e-mail: capetown.office@worleyparsons.com

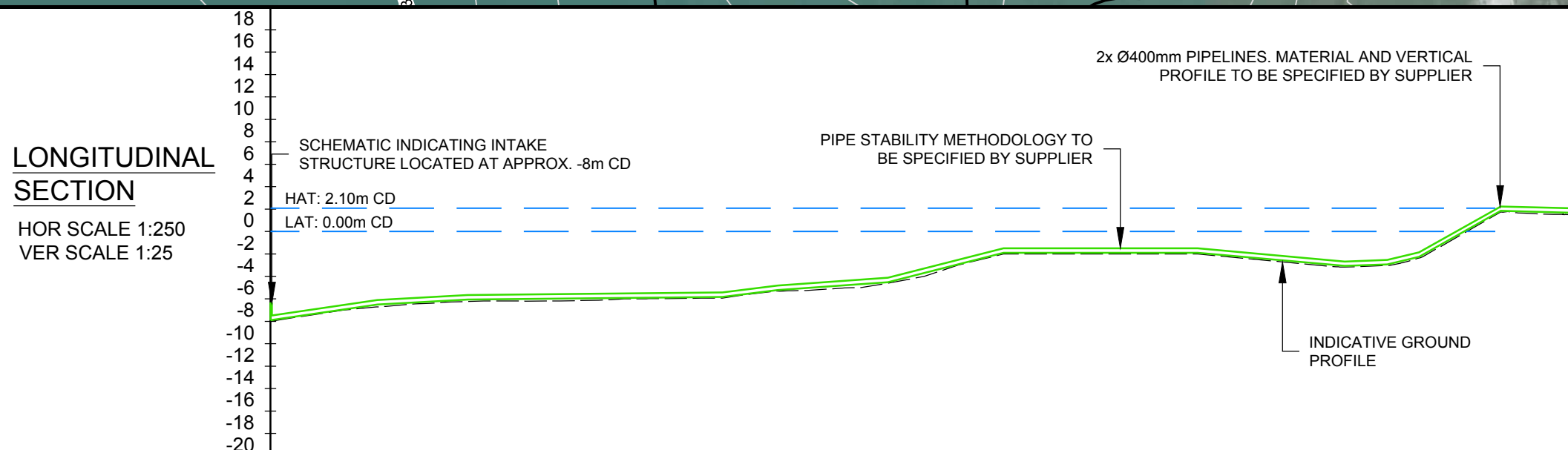
DATE	SCALE: (ORIGINAL A3)
AUGUST 2017	AS SHOWN
DRG No.	REV.
C00686-0Z-MA-DSE-0001-001	A

LEGEND	
DESCRIPTION	SYMBOL
RAW WATER ABSTRACTION PIPELINE	
BRINE DISCHARGE PIPELINE	
INJECTION PIPELINE	
OFFSHORE ABSTRACTION PIPELINE	
OFFSHORE BRINE DISCHARGE PIPELINE	
PROPOSED SITE	



PLAN LAYOUT
SCALE 1:7500

FOR INFORMATION ONLY	<input checked="" type="checkbox"/>
PRELIMINARY	<input type="checkbox"/>
FOR APPROVAL	<input type="checkbox"/>
FOR TENDER PURPOSES	<input type="checkbox"/>
FOR CONSTRUCTION	<input type="checkbox"/>
AS BUILT	<input type="checkbox"/>



LONGITUDINAL SECTION
HOR SCALE 1:250
VER SCALE 1:25

THIS DRAWING IS PREPARED SOLELY FOR INFORMATION PURPOSES TO CONVEY TO TENDERERS A NON-VERIFIED CONCEPT ENVISAGED BY THE COCT FOR THE DESALINATION WORKS AT HARMONY PARK. SHOULD TENDERERS CHOOSE THIS OPTION THEN THEY ARE TO VERIFY THE CONCEPT PRIOR TO PERFORMING DESIGN THEREOF.

- GENERAL NOTES:**
1. ALL MARINE WORKS ARE SCHEMATIC ONLY.
 2. THE SUPPLIER TO USE THE MARINE PIPEWORK SCHEMATIC AS A GUIDE ONLY AND HE SHOULD CHOOSE POSITIONS OF INLET STRUCTURES AND OUTLET DISCHARGE POINTS BASED ON HIS OWN DESIGN TAKING COGNISANCE OF AMONGST OTHERS MIN. OUTFALL REQUIREMENTS AS INDICATED ON THESE DRAWINGS; THE WATER QUALITY REQUIRED AT THE PLANT AS WELL AS DAMAGE DUE TO ENVIRONMENTAL CONDITIONS, SUCH AS WAVE CONDITIONS.
 3. ALL PHASE 1 WORK NOT UTILIZED IN PHASE 2 TO BE DECOMMISSIONED AFTER COMPLETION OF PHASE 2.
 4. ALL PUMP STATION POSITIONS TO BE VERIFIED.
 5. EXACT PIPING ROUTES TO BE PROVIDED BY CONTRACTOR.

ESTIMATED CHAINAGE (m)	1091.844	1050.000	1000.000	950.000	900.000	850.000	800.000	750.000	700.000	650.000	600.000	550.000	500.000	450.000	400.000	350.000	300.000	250.000	200.000	150.000	100.000	50.000	0.000	50.000	65.648
------------------------	----------	----------	----------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	--------	-------	--------	--------

REV	DATE	REVISION DESCRIPTION	DRAWN	DESIGNED	REV ENGINEER	CONSULTING ENGINEER
A	15/09/17	FOR INFORMATION ONLY	KL	MLR	MC	WPRSA

OneWay
to zero harm
Copyright ©
WorleyParsons Services Pty Ltd
ABN 61 001 279 812

CLIENT

CITY OF CAPE TOWN
ISIXEKO SASEKAPA
STAD KAAPSTAD

PROJECT
WATER RESILIENCE PROJECT

DRAWING DESCRIPTION
HARMONY PARK: PHASE 2 CONCEPTUAL OFFSHORE ZONE INTAKE PIPELINE

"This drawing is prepared solely for the use of the contractual customer of WorleyParsons and WorleyParsons assumes no liability to any other party for any representations contained in this drawing."

WorleyParsons
resources & energy
P.O.Box 398
BELLVILLE 7535
TEL:+27 21912 3000
FAX:+27 21912 3222
e-mail: capetown.office@worleyparsons.com

DATE	AUGUST 2017	SCALE: (ORIGINAL A3)	AS SHOWN
DRG No.	C00686-0Z-MA-DSE-0002-001	REV.	A

LEGEND

DESCRIPTION	SYMBOL
BRINE DISCHARGE PIPELINE	
OFFSHORE BRINE DISCHARGE PIPELINE	



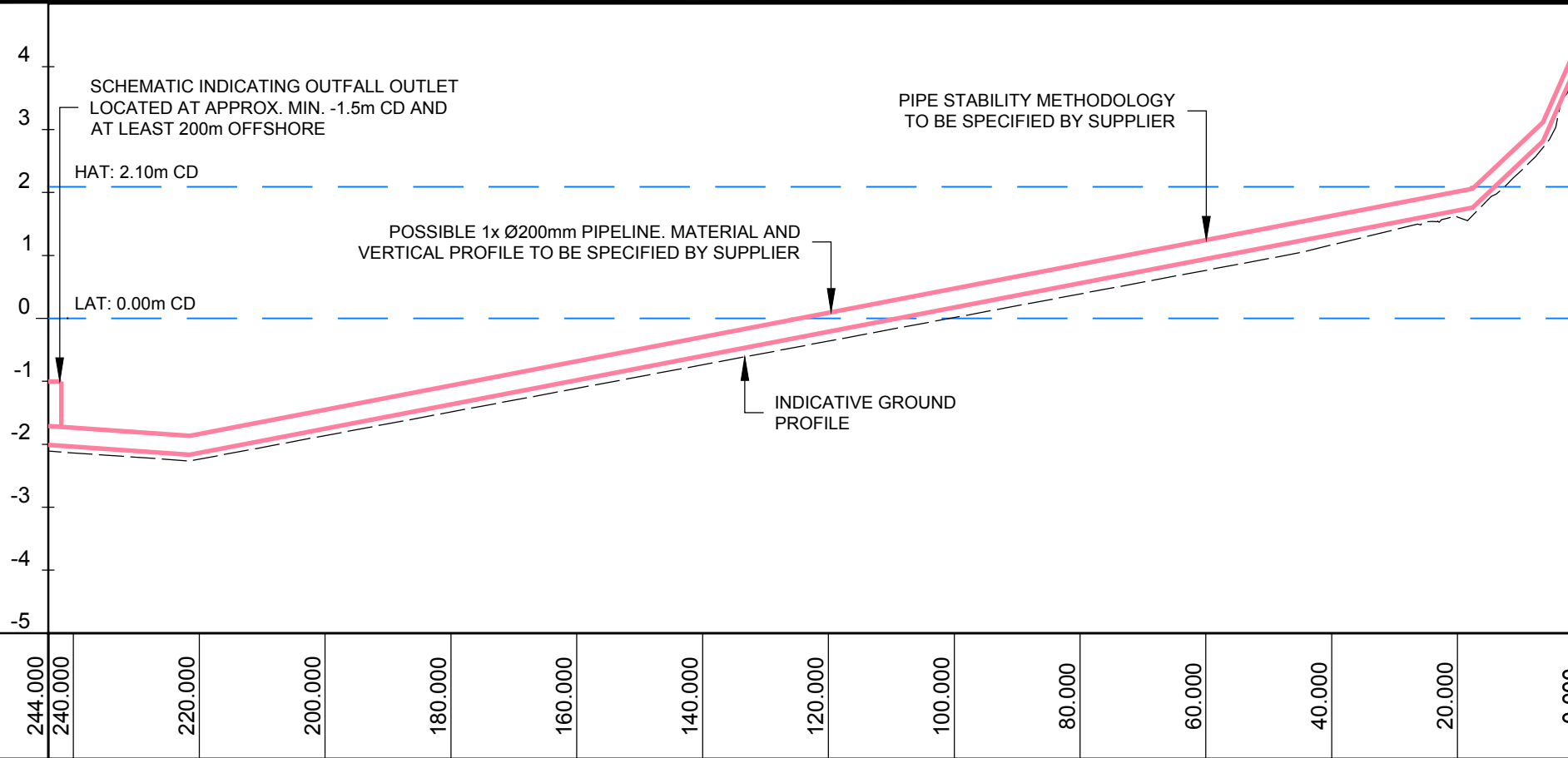
PLAN LAYOUT

SCALE 1:1000



LONGITUDINAL SECTION

HOR SCALE 1:250
VER SCALE 1:25



THIS DRAWING IS PREPARED SOLELY FOR INFORMATION PURPOSES TO CONVEY TO TENDERERS A NON-VERIFIED CONCEPT ENVISAGED BY THE COCT FOR THE DESALINATION WORKS AT HARMONY PARK. SHOULD TENDERERS CHOOSE THIS OPTION THEN THEY ARE TO VERIFY THE CONCEPT PRIOR TO PERFORMING DESIGN THEREOF.

GENERAL NOTES:

1. ALL MARINE WORKS ARE SCHEMATIC ONLY.
2. THE SUPPLIER TO USE THE MARINE PIPEWORK SCHEMATIC AS A GUIDE ONLY AND HE SHOULD CHOOSE POSITIONS OF INLET STRUCTURES AND OUTLET DISCHARGE POINTS BASED ON HIS OWN DESIGN TAKING COGNISANCE OF AMONGST OTHERS MIN. OUTFALL REQUIREMENTS AS INDICATED ON THESE DRAWINGS; THE WATER QUALITY REQUIRED AT THE PLANT AS WELL AS DAMAGE DUE TO ENVIRONMENTAL CONDITIONS, SUCH AS WAVE CONDITIONS.
3. ALL PHASE 1 WORK NOT UTILIZED IN PHASE 2 TO BE DECOMMISSIONED AFTER COMPLETION OF PHASE 2.
4. ALL PUMP STATION POSITIONS TO BE VERIFIED.
5. EXACT PIPING ROUTES TO BE PROVIDED BY CONTRACTOR.

FOR INFORMATION ONLY	<input checked="" type="checkbox"/>
PRELIMINARY	<input type="checkbox"/>
FOR APPROVAL	<input type="checkbox"/>
FOR TENDER PURPOSES	<input type="checkbox"/>
FOR CONSTRUCTION	<input type="checkbox"/>
AS BUILT	<input type="checkbox"/>

ESTIMATED CHAINAGE (m)	244.000	240.000	220.000	200.000	180.000	160.000	140.000	120.000	100.000	80.000	60.000	40.000	20.000	0.000

REV	DATE	REVISION DESCRIPTION	DRAWN	DESIGNED	REV ENGINEER	CONSULTING ENGINEER
A	15/09/17	FOR INFORMATION ONLY	KL	MLR	MC	WPRSA



CLIENT
 CITY OF CAPE TOWN
 ISIXEKO SASEKAPA
 STAD KAAPSTAD

PROJECT
WATER RESILIENCE PROJECT

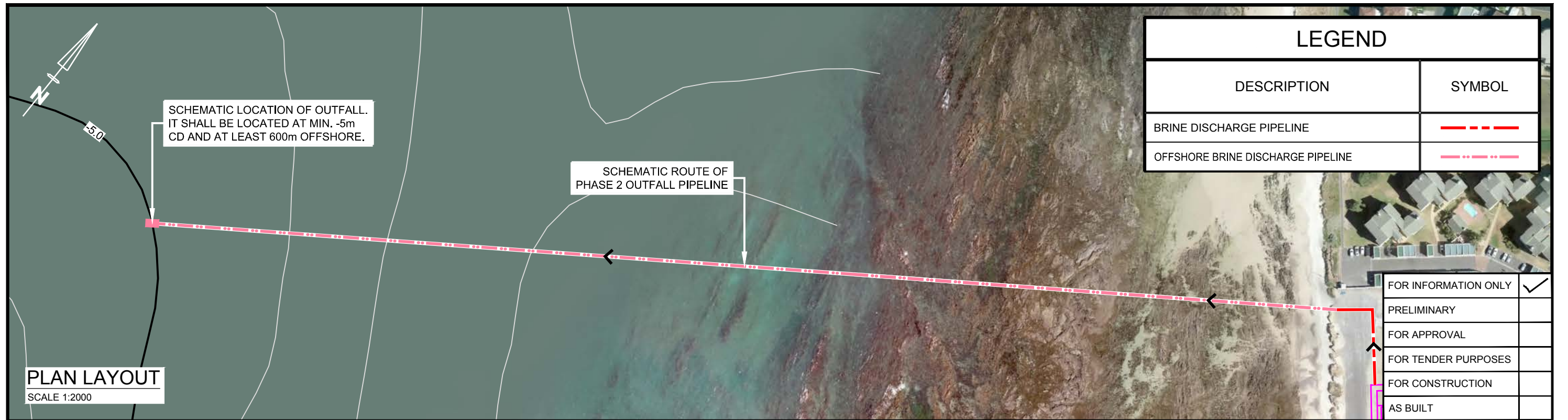
DRAWING DESCRIPTION
HARMONY PARK: PHASE 1 CONCEPTUAL NEARSHORE ZONE OUTFALL PIPELINE

"This drawing is prepared solely for the use of the contractual customer of WorleyParsons and WorleyParsons assumes no liability to any other party for any representations contained in this drawing."

WorleyParsons
 resources & energy
 P.O.Box 398
 BELLVILLE 7535
 TEL:+27 21912 3000
 FAX:+27 21912 3222
 e-mail: capetown.office@worleyparsons.com

DATE: AUGUST 2017
 SCALE: (ORIGINAL A3) AS SHOWN

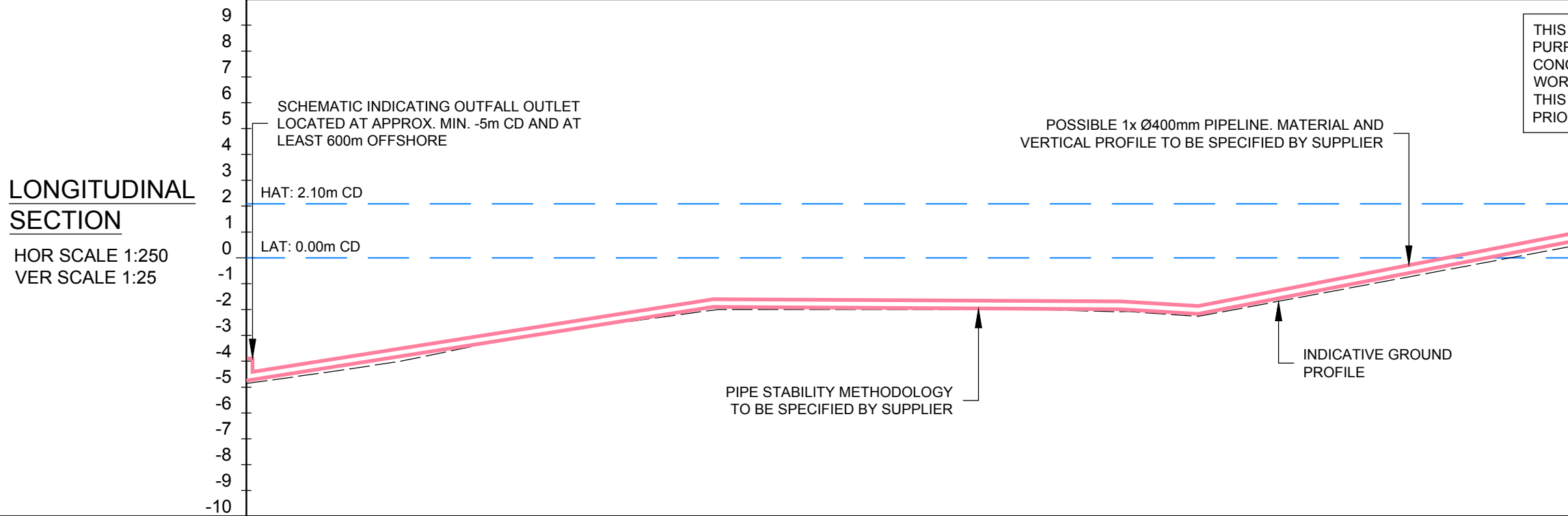
DRG No. C00686-0Z-MA-DSE-0003-001
 REV. A



LEGEND	
DESCRIPTION	SYMBOL
BRINE DISCHARGE PIPELINE	
OFFSHORE BRINE DISCHARGE PIPELINE	

FOR INFORMATION ONLY	<input checked="" type="checkbox"/>
PRELIMINARY	<input type="checkbox"/>
FOR APPROVAL	<input type="checkbox"/>
FOR TENDER PURPOSES	<input type="checkbox"/>
FOR CONSTRUCTION	<input type="checkbox"/>
AS BUILT	<input type="checkbox"/>

PLAN LAYOUT
SCALE 1:2000



THIS DRAWING IS PREPARED SOLELY FOR INFORMATION PURPOSES TO CONVEY TO TENDERERS A NON-VERIFIED CONCEPT ENVISAGED BY THE COCT FOR THE DESALINATION WORKS AT HARMONY PARK. SHOULD TENDERERS CHOOSE THIS OPTION THEN THEY ARE TO VERIFY THE CONCEPT PRIOR TO PERFORMING DESIGN THEREOF.

- GENERAL NOTES:**
1. ALL MARINE WORKS ARE SCHEMATIC ONLY.
 2. THE SUPPLIER TO USE THE MARINE PIPEWORK SCHEMATIC AS A GUIDE ONLY AND HE SHOULD CHOOSE POSITIONS OF INLET STRUCTURES AND OUTLET DISCHARGE POINTS BASED ON HIS OWN DESIGN TAKING COGNISANCE OF AMONGST OTHERS MIN. OUTFALL REQUIREMENTS AS INDICATED ON THESE DRAWINGS; THE WATER QUALITY REQUIRED AT THE PLANT AS WELL AS DAMAGE DUE TO ENVIRONMENTAL CONDITIONS, SUCH AS WAVE CONDITIONS.
 3. ALL PHASE 1 WORK NOT UTILIZED IN PHASE 2 TO BE DECOMMISSIONED AFTER COMPLETION OF PHASE 2.
 4. ALL PUMP STATION POSITIONS TO BE VERIFIED.
 5. EXACT PIPING ROUTES TO BE PROVIDED BY CONTRACTOR.

ESTIMATED CHAINAGE (m)	590.000	580.000	560.000	540.000	520.000	500.000	480.000	460.000	440.000	420.000	400.000	380.000	360.000	340.000	320.000	300.000	280.000	260.000	240.000	220.000	200.000	180.000	160.000	140.000	120.000	100.000	80.000

REV	DATE	REVISION DESCRIPTION	DRAWN	DESIGNED	REV ENGINEER	CONSULTING ENGINEER
A	15/09/17	FOR INFORMATION ONLY		MLR	MC	WPRSA

OneWay
to zero harm

Copyright ©
WorleyParsons Services Pty Ltd
ABN 61 001 279 812

CLIENT
 CITY OF CAPE TOWN
ISIXEKO SASEKAPA
STAD KAAPSTAD

PROJECT
WATER RESILIENCE PROJECT

DRAWING DESCRIPTION
HARMONY PARK: PHASE 2 CONCEPTUAL OFFSHORE ZONE OUTFALL PIPELINE

"This drawing is prepared solely for the use of the contractual customer of WorleyParsons and WorleyParsons assumes no liability to any other party for any representations contained in this drawing."

WorleyParsons
resources & energy
P.O.Box 398
BELLVILLE 7535
TEL:+27 21912 3000
FAX:+27 21912 3222
e-mail: capetown.office@worleyparsons.com

DATE
AUGUST 2017

SCALE: (ORIGINAL A3)
AS SHOWN

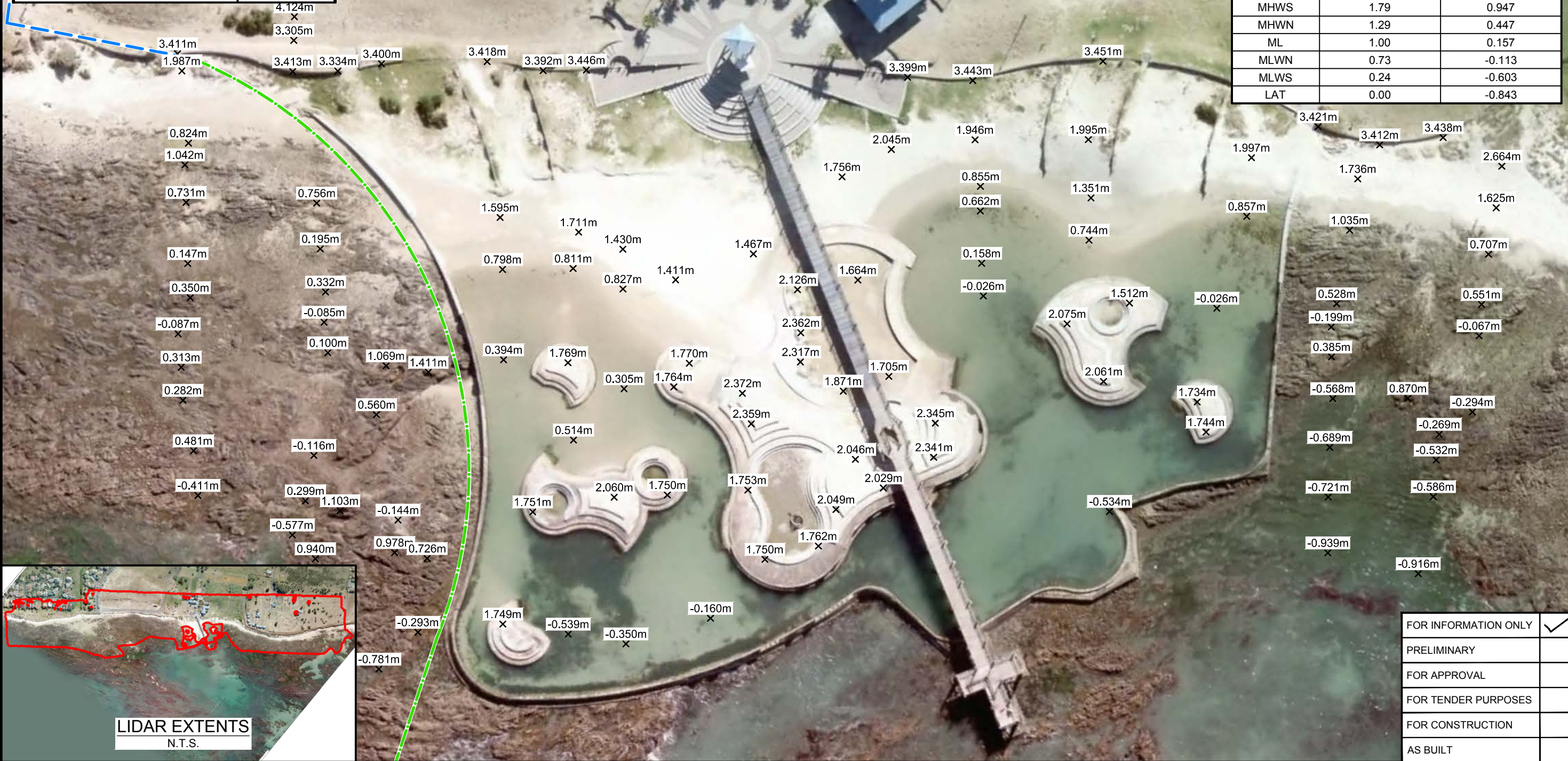
DRG No.
C00686-0Z-MA-DSE-0004-001

REV.
A

LEGEND	
DESCRIPTION	SYMBOL
HDPE PE100 PN10 RAW WATER ABSTRACTION PIPELINE	
OFFSHORE ABSTRACTION PIPELINE	

- GENERAL NOTES:**
1. ALL MARINE WORKS ARE SCHEMATIC ONLY.
 2. ALL PUMP STATION POSITIONS TO BE VERIFIED.
 3. ALL LEVELS ARE IN METRES AND ARE REFERENCED TO LAND LEVELING DATUM.
 4. COORDINATE SYSTEM: WGS84/Lo19
 5. SUPPLIER TO VERIFY LEVELS ON SITE.
 6. SPOT LEVEL SURVEY PERFORMED ON 30 AUGUST 2017 (PRISM AND TOTAL STATION).
 7. LIDAR SURVEY PERFORMED ON 6 SEPTEMBER 2017

SIMON'S TOWN (SANHO, 2017)		
TIDAL LEVELS	CHART DATUM (CD)	LAND LEVELING DATUM (LLD)
HAT	2.09	1.247
MHWS	1.79	0.947
MHWN	1.29	0.447
ML	1.00	0.157
MLWN	0.73	-0.113
MLWS	0.24	-0.603
LAT	0.00	-0.843



FOR INFORMATION ONLY	✓
PRELIMINARY	
FOR APPROVAL	
FOR TENDER PURPOSES	
FOR CONSTRUCTION	
AS BUILT	

REV	DATE	REVISION DESCRIPTION	DRAWN	DESIGNED	REV ENGINEER	CONSULTING ENGINEER
A	15/09/17	FOR INFORMATION ONLY	KL	SR	MC	WPRSA

OneWay
to zero harm

Copyright ©
WorleyParsons Services Pty Ltd
ABN 61 001 279 812

CLIENT

CITY OF CAPE TOWN
ISIXEKO SASEKAPA
STAD KAAPSTAD

PROJECT

WATER RESILIENCE PROJECT

resources & energy
P.O.Box 398
BELLVILLE 7535
TEL:+27 21912 3000
FAX:+27 21912 3222
e-mail: capetown.office@worleyparsons.com

DATE: SEPTEMBER 2017

SCALE: (ORIGINAL A3) 1:750

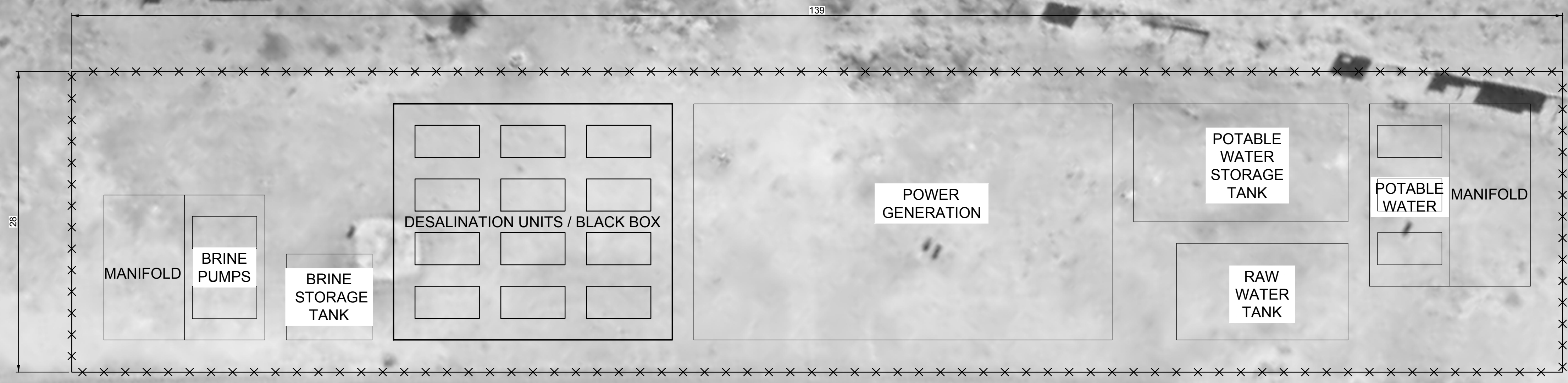
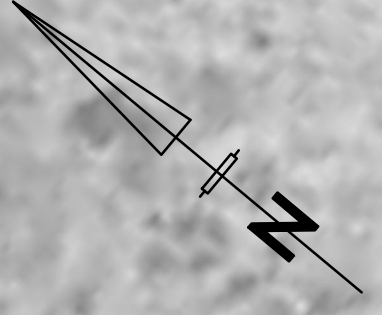
DRG No. C00686-0Z-GE-DAL-0001-001

REV. A

DRAWING DESCRIPTION

HARMONY PARK: TIDAL POOL TOPOGRAPHICAL LAYOUT

"This drawing is prepared solely for the use of the contractual customer of WorleyParsons and WorleyParsons assumes no liability to any other party for any representations contained in this drawing."



CONCEPTUAL LAYOUT OF DESALINATION PLANT
SCALE 1:250

FOR INFORMATION ONLY	<input checked="" type="checkbox"/>
PRELIMINARY	<input type="checkbox"/>
FOR APPROVAL	<input type="checkbox"/>
FOR TENDER PURPOSES	<input type="checkbox"/>
FOR CONSTRUCTION	<input type="checkbox"/>
AS BUILT	<input type="checkbox"/>

REV	DATE	REVISION DESCRIPTION	DRAWN	DESIGNED	REV ENGINEER
A	15/09/17	FOR INFORMATION	MJ	VJ	KB

CONSULTING ENGINEER
DATE _____

CLIENT
DATE _____

OneWay
to zero harm

Copyright ©
WorleyParsons Services Pty Ltd
ABN 61 001 279 812

CLIENT

CITY OF CAPE TOWN
ISIXEKO SASEKAPA
STAD KAAPSTAD

PROJECT

**WATER
RESILIENCE
PROJECT**

DRAWING DESCRIPTION

**HARMONY PARK
CONCEPTUAL PLANT
LAYOUT**

resources & energy
P.O.Box 398
BELLVILLE 7535
TEL:+27 21912 3000
FAX:+27 21912 3222
e-mail: capetown.office@worleyparsons.com

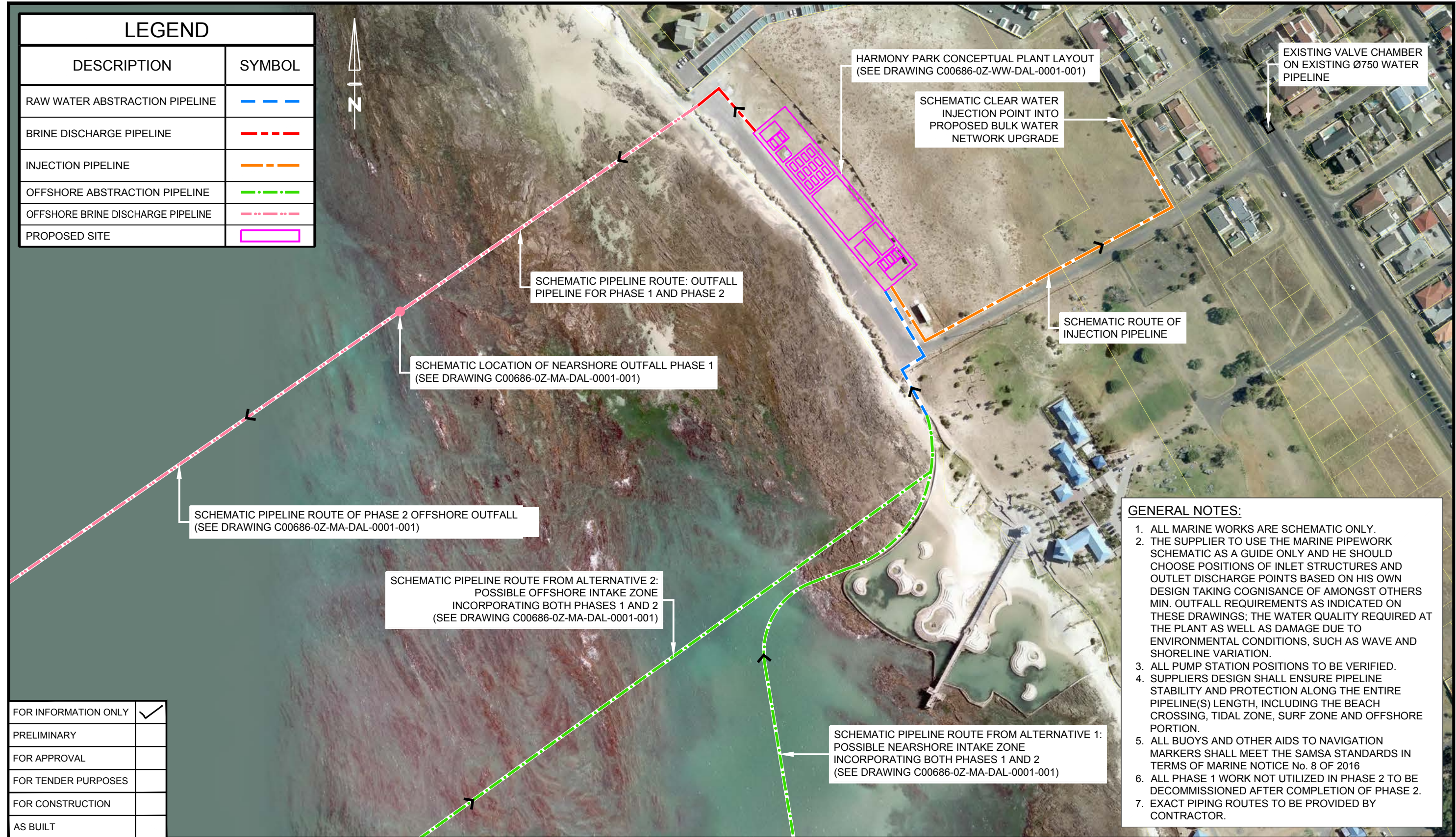
DATE: AUGUST 2017

SCALE: (ORIGINAL A1) 1:250

DRG No. C00686-OZ-WW-DAL-0001-001

REV. A

LEGEND	
DESCRIPTION	SYMBOL
RAW WATER ABSTRACTION PIPELINE	
BRINE DISCHARGE PIPELINE	
INJECTION PIPELINE	
OFFSHORE ABSTRACTION PIPELINE	
OFFSHORE BRINE DISCHARGE PIPELINE	
PROPOSED SITE	



- GENERAL NOTES:**
1. ALL MARINE WORKS ARE SCHEMATIC ONLY.
 2. THE SUPPLIER TO USE THE MARINE PIPEWORK SCHEMATIC AS A GUIDE ONLY AND HE SHOULD CHOOSE POSITIONS OF INLET STRUCTURES AND OUTLET DISCHARGE POINTS BASED ON HIS OWN DESIGN TAKING COGNISANCE OF AMONGST OTHERS MIN. OUTFALL REQUIREMENTS AS INDICATED ON THESE DRAWINGS; THE WATER QUALITY REQUIRED AT THE PLANT AS WELL AS DAMAGE DUE TO ENVIRONMENTAL CONDITIONS, SUCH AS WAVE AND SHORELINE VARIATION.
 3. ALL PUMP STATION POSITIONS TO BE VERIFIED.
 4. SUPPLIERS DESIGN SHALL ENSURE PIPELINE STABILITY AND PROTECTION ALONG THE ENTIRE PIPELINE(S) LENGTH, INCLUDING THE BEACH CROSSING, TIDAL ZONE, SURF ZONE AND OFFSHORE PORTION.
 5. ALL BUOYS AND OTHER AIDS TO NAVIGATION MARKERS SHALL MEET THE SAMSA STANDARDS IN TERMS OF MARINE NOTICE No. 8 OF 2016
 6. ALL PHASE 1 WORK NOT UTILIZED IN PHASE 2 TO BE DECOMMISSIONED AFTER COMPLETION OF PHASE 2.
 7. EXACT PIPING ROUTES TO BE PROVIDED BY CONTRACTOR.

FOR INFORMATION ONLY	<input checked="" type="checkbox"/>
PRELIMINARY	<input type="checkbox"/>
FOR APPROVAL	<input type="checkbox"/>
FOR TENDER PURPOSES	<input type="checkbox"/>
FOR CONSTRUCTION	<input type="checkbox"/>
AS BUILT	<input type="checkbox"/>

REV	DATE	REVISION DESCRIPTION	DRAWN	DESIGNED	REV ENGINEER	CONSULTING ENGINEER
A	15/09/17	FOR INFORMATION ONLY	KL	DS	VJ	WPRSA




CLIENT
 CITY OF CAPE TOWN
 ISIXEKO SASEKAPA
 STAD KAAPSTAD

PROJECT
WATER RESILIENCE PROJECT

DRAWING DESCRIPTION
HARMONY PARK CONCEPTUAL GENERAL ARRANGEMENT LAYOUT

"This drawing is prepared solely for the use of the contractual customer of WorleyParsons and WorleyParsons assumes no liability to any other party for any representations contained in this drawing."

 **WorleyParsons**
 resources & energy
 P.O.Box 398
 BELLVILLE 7535
 TEL:+27 21912 3000
 FAX:+27 21912 3222
 e-mail: capetown.office@worleyparsons.com

DATE	SCALE: (ORIGINAL A3)
AUGUST 2017	1:2500
DRG No.	REV.
C00686-OZ-WW-DGA-0001-001	A