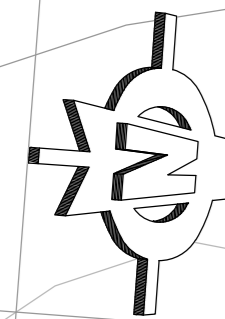
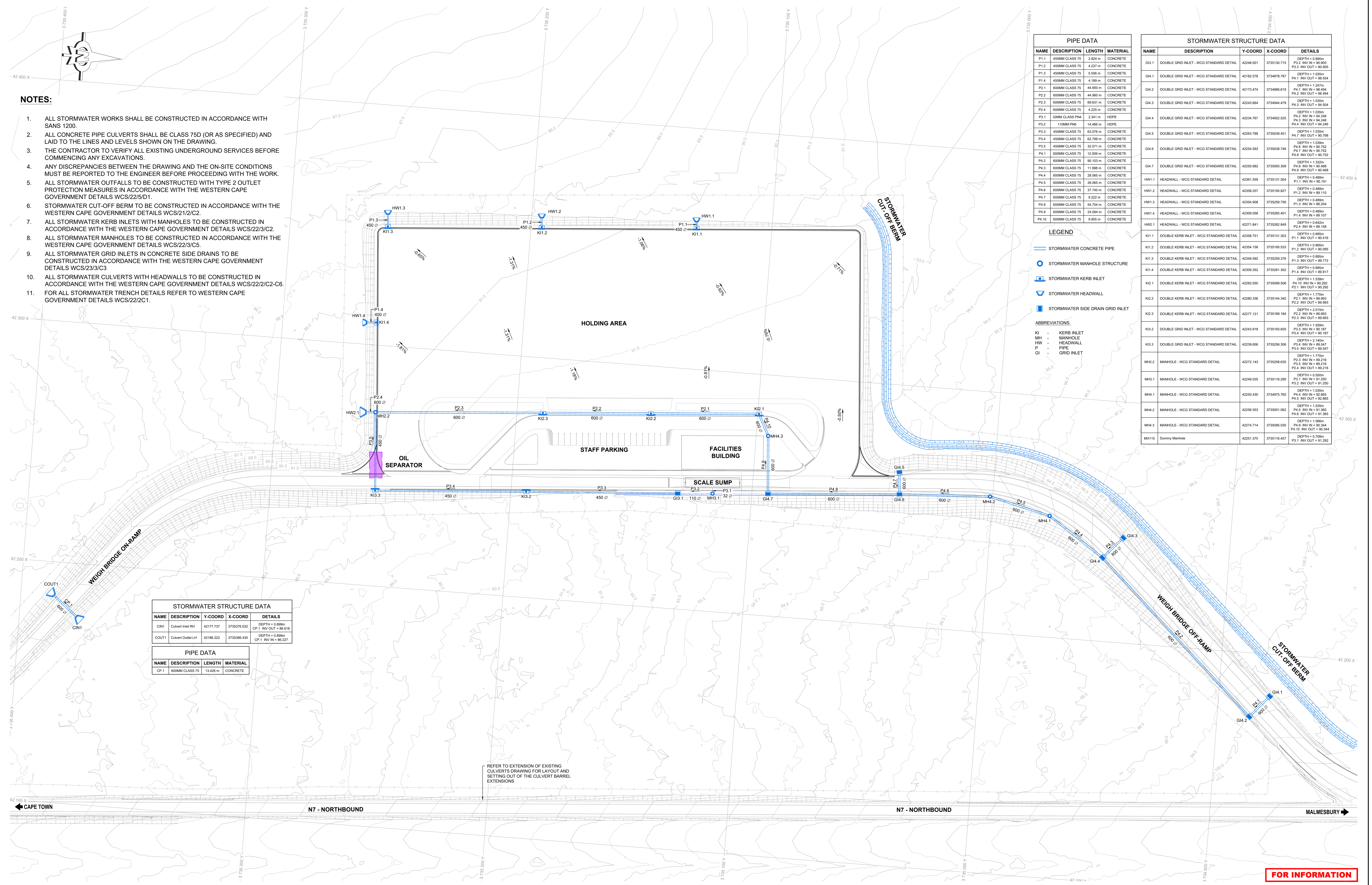


# **Stormwater Design: Alternative 6**



- NOTES:**
- ALL STORMWATER WORKS SHALL BE CONSTRUCTED IN ACCORDANCE WITH SANS 1200.
  - ALL CONCRETE PIPE CULVERTS SHALL BE CLASS 75D (OR AS SPECIFIED) AND LAID TO THE LINES AND LEVELS SHOWN ON THE DRAWING.
  - THE CONTRACTOR TO VERIFY ALL EXISTING UNDERGROUND SERVICES BEFORE COMMENCING ANY EXCAVATIONS.
  - ANY DISCREPANCIES BETWEEN THE DRAWING AND THE ON-SITE CONDITIONS MUST BE REPORTED TO THE ENGINEER BEFORE PROCEEDING WITH THE WORK.
  - ALL STORMWATER OUTFALLS TO BE CONSTRUCTED WITH TYPE 2 OUTLET PROTECTION MEASURES IN ACCORDANCE WITH THE WESTERN CAPE GOVERNMENT DETAILS WCS/22/5/D1.
  - STORMWATER CUT-OFF BERM TO BE CONSTRUCTED IN ACCORDANCE WITH THE WESTERN CAPE GOVERNMENT DETAILS WCS/21/2/C2.
  - ALL STORMWATER KERB INLETS WITH MANHOLES TO BE CONSTRUCTED IN ACCORDANCE WITH THE WESTERN CAPE GOVERNMENT DETAILS WCS/22/3/C2.
  - ALL STORMWATER MANHOLES TO BE CONSTRUCTED IN ACCORDANCE WITH THE WESTERN CAPE GOVERNMENT DETAILS WCS/22/3/C5.
  - ALL STORMWATER GRID INLETS IN CONCRETE SIDE DRAINS TO BE CONSTRUCTED IN ACCORDANCE WITH THE WESTERN CAPE GOVERNMENT DETAILS WCS/23/3/C3.
  - ALL STORMWATER CULVERTS WITH HEADWALLS TO BE CONSTRUCTED IN ACCORDANCE WITH THE WESTERN CAPE GOVERNMENT DETAILS WCS/22/2/C2-C6.
  - FOR ALL STORMWATER TRENCH DETAILS REFER TO WESTERN CAPE GOVERNMENT DETAILS WCS/22/2/C1.



PIPE DATA			
NAME	DESCRIPTION	LENGTH	MATERIAL
P1.1	450MM CLASS 75	2.824 m	CONCRETE
P1.2	450MM CLASS 75	4.227 m	CONCRETE
P1.3	450MM CLASS 75	5.556 m	CONCRETE
P1.4	450MM CLASS 75	4.189 m	CONCRETE
P2.1	600MM CLASS 75	44.969 m	CONCRETE
P2.2	600MM CLASS 75	44.969 m	CONCRETE
P2.3	600MM CLASS 75	69.631 m	CONCRETE
P2.4	600MM CLASS 75	4.226 m	CONCRETE
P3.1	300MM CLASS P94	2.341 m	HDPE
P3.2	110MM P96	14.466 m	HDPE
P3.3	450MM CLASS 75	63.076 m	CONCRETE
P3.4	450MM CLASS 75	62.799 m	CONCRETE
P3.5	450MM CLASS 75	32.571 m	CONCRETE
P4.1	600MM CLASS 75	12.009 m	CONCRETE
P4.2	600MM CLASS 75	90.103 m	CONCRETE
P4.3	600MM CLASS 75	11.988 m	CONCRETE
P4.4	600MM CLASS 75	28.065 m	CONCRETE
P4.5	600MM CLASS 75	26.065 m	CONCRETE
P4.6	600MM CLASS 75	37.740 m	CONCRETE
P4.7	600MM CLASS 75	9.222 m	CONCRETE
P4.8	600MM CLASS 75	54.704 m	CONCRETE
P4.9	600MM CLASS 75	24.094 m	CONCRETE
P4.10	600MM CLASS 75	9.965 m	CONCRETE

STORMWATER STRUCTURE DATA				
NAME	DESCRIPTION	Y-COORD	X-COORD	DETAILS
GI.1	DOUBLE GRID INLET - WCG STANDARD DETAIL	42248.001	3735130.715	DEPTH = 0.895m P2.2 INV IN = 90.905 P3.3 INV OUT = 90.905
GI.2	DOUBLE GRID INLET - WCG STANDARD DETAIL	42182.578	3734878.787	DEPTH = 1.035m P1.1 INV IN = 90.454 P2.2 INV OUT = 90.454
GI.3	DOUBLE GRID INLET - WCG STANDARD DETAIL	42243.684	3734944.479	DEPTH = 1.035m P4.3 INV IN = 94.504
GI.4	DOUBLE GRID INLET - WCG STANDARD DETAIL	42234.787	3734952.525	DEPTH = 1.035m P2.2 INV IN = 94.246 P4.3 INV IN = 94.246 P4.4 INV OUT = 94.246
GI.5	DOUBLE GRID INLET - WCG STANDARD DETAIL	42263.788	3735030.451	DEPTH = 1.035m P4.7 INV IN = 90.798
GI.6	DOUBLE GRID INLET - WCG STANDARD DETAIL	42254.593	3735038.746	DEPTH = 1.035m P4.7 INV IN = 90.752 P4.8 INV IN = 90.752 P4.9 INV OUT = 90.752
GI.7	DOUBLE GRID INLET - WCG STANDARD DETAIL	42250.682	3735093.308	DEPTH = 1.332m P4.8 INV IN = 90.468 P4.9 INV IN = 90.468
HW1.1	HEADWALL - WCG STANDARD DETAIL	42361.559	3735131.504	DEPTH = 0.489m P1.1 INV IN = 90.191
HW1.2	HEADWALL - WCG STANDARD DETAIL	42368.257	3735195.827	DEPTH = 0.489m P1.2 INV IN = 90.191
HW1.3	HEADWALL - WCG STANDARD DETAIL	42354.908	3735295.756	DEPTH = 0.489m P1.3 INV IN = 88.204
HW1.4	HEADWALL - WCG STANDARD DETAIL	42309.058	3735265.401	DEPTH = 0.489m P1.4 INV IN = 89.587
HW2.1	HEADWALL - WCG STANDARD DETAIL	42271.841	3735282.849	DEPTH = 0.424m P2.4 INV IN = 89.158
KI1.1	DOUBLE KERB INLET - WCG STANDARD DETAIL	42358.751	3735131.303	DEPTH = 0.895m P1.1 INV IN = 90.416
KI1.2	DOUBLE KERB INLET - WCG STANDARD DETAIL	42354.158	3735195.533	DEPTH = 0.895m P1.2 INV IN = 90.095
KI1.3	DOUBLE KERB INLET - WCG STANDARD DETAIL	42349.592	3735269.376	DEPTH = 0.895m P1.3 INV IN = 89.772
KI1.4	DOUBLE KERB INLET - WCG STANDARD DETAIL	42309.352	3735261.302	DEPTH = 0.895m P1.4 INV IN = 89.917
KI2.1	DOUBLE KERB INLET - WCG STANDARD DETAIL	42283.500	3735099.506	DEPTH = 1.530m P4.10 INV IN = 90.292 P2.1 INV OUT = 92.292
KI2.2	DOUBLE KERB INLET - WCG STANDARD DETAIL	42280.336	3735144.340	DEPTH = 1.770m P2.1 INV IN = 89.993 P2.2 INV IN = 89.993
KI2.3	DOUBLE KERB INLET - WCG STANDARD DETAIL	42277.121	3735189.184	DEPTH = 2.015m P2.2 INV IN = 89.693 P2.3 INV IN = 89.693
KI3.2	DOUBLE GRID INLET - WCG STANDARD DETAIL	42243.918	3735193.655	DEPTH = 1.560m P3.3 INV IN = 90.187 P3.4 INV IN = 90.187
KI3.3	DOUBLE GRID INLET - WCG STANDARD DETAIL	42239.656	3735258.306	DEPTH = 2.140m P3.4 INV IN = 89.547 P3.5 INV IN = 89.547
MH.2	MANHOLE - WCG STANDARD DETAIL	42272.143	3735268.635	DEPTH = 1.770m P2.3 INV IN = 89.216 P2.4 INV IN = 89.216
MH.3	MANHOLE - WCG STANDARD DETAIL	42249.035	3735116.290	DEPTH = 0.550m P3.1 INV IN = 91.250 P3.2 INV IN = 91.250
MH.4	MANHOLE - WCG STANDARD DETAIL	42250.430	3734975.780	DEPTH = 1.035m P4.4 INV IN = 92.665 P4.5 INV IN = 92.665
MH.4.2	MANHOLE - WCG STANDARD DETAIL	42256.553	3735001.062	DEPTH = 1.035m P4.5 INV IN = 91.365 P4.6 INV IN = 91.365
MH.4.3	MANHOLE - WCG STANDARD DETAIL	42274.714	3735096.030	DEPTH = 1.560m P4.8 INV IN = 90.344 P4.10 INV IN = 90.344
MH115	Dummy Manhole	42251.370	3735116.457	DEPTH = 0.708m P3.1 INV IN = 91.252

- LEGEND**
- STORMWATER CONCRETE PIPE
  - STORMWATER MANHOLE STRUCTURE
  - STORMWATER KERB INLET
  - STORMWATER HEADWALL
  - STORMWATER SIDE DRAIN GRID INLET

- ABBREVIATIONS:**
- KI - KERB INLET
  - MH - MANHOLE
  - HW - HEADWALL
  - P - PIPE
  - GI - GRID INLET

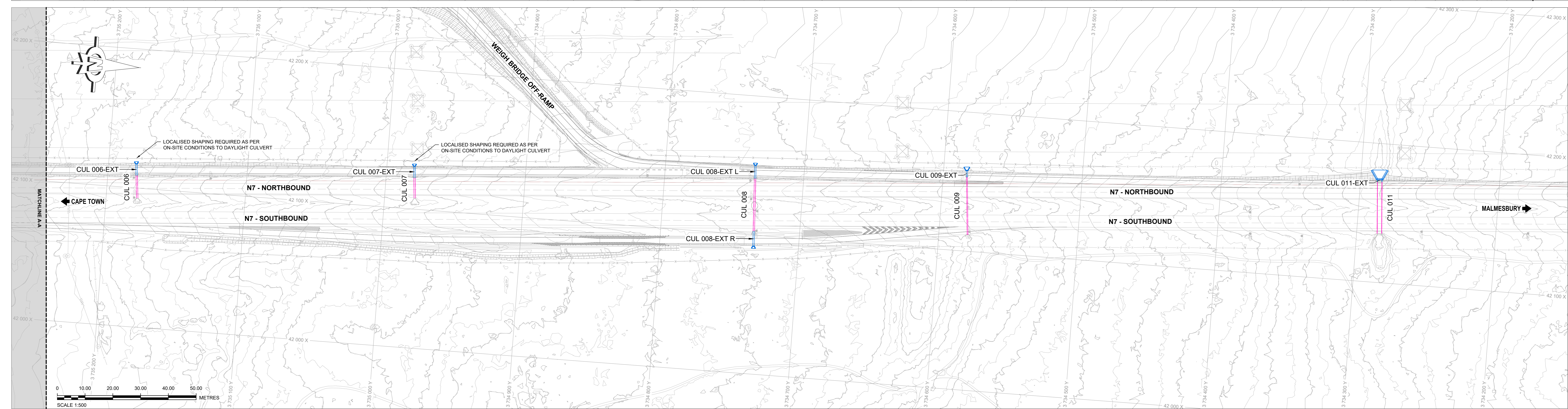
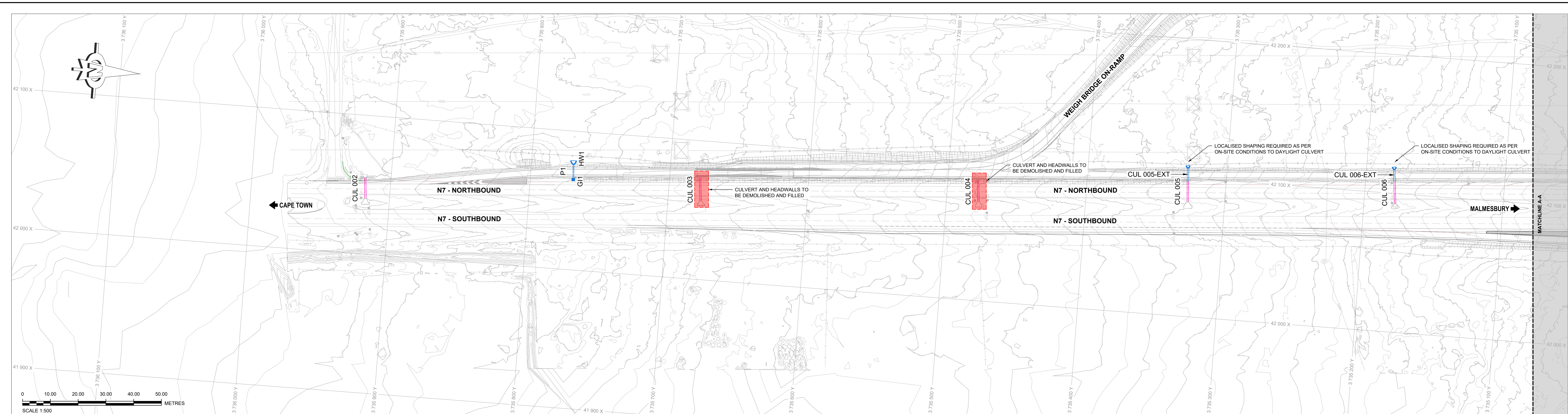
STORMWATER STRUCTURE DATA				
NAME	DESCRIPTION	Y-COORD	X-COORD	DETAILS
CIN1	Culvert Inlet RH	42177.737	3735376.032	DEPTH = 0.895m CP-1 INV OUT = 86.616
COU1	Culvert Outlet LH	42186.222	3735386.430	DEPTH = 0.895m CP-1 INV IN = 86.227

PIPE DATA			
NAME	DESCRIPTION	LENGTH	MATERIAL
CP-1	600MM CLASS 75	13.426 m	CONCRETE

REFER TO EXTENSION OF EXISTING CULVERTS DRAWING FOR LAYOUT AND SETTING OUT OF THE CULVERT BARREL EXTENSIONS

**FOR INFORMATION**

NO.	DATE	ADDITIONS, AMENDMENTS AND REVISIONS	PROVINCIAL CHIEF ENG.	CONSULT. ENG.	DESIGNED BY:	DETAILED BY:			ACCEPTANCE THIS APPROVAL IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY OF ANY KIND FROM WHATSOEVER OR HOWEVER ARISING	C1038.02 SAFETY IMPROVEMENT N7 POTSDAM - MELKBOS VAN SCHOORSDRIF I/C	P.R.E.'s FILE NO.	SCALE	ORIGINAL SHEET SIZE
					CHECKED BY:	CHECKED BY:	False Bay Building Tygerberg Park 163 Lys Krige Drive Plattekloof, 7500 +27 21 9115823 www.hatch.com	CONSULTANT'S APPROVAL SIGN: _____ NAME: _____ ECISA Pn No. _____ DATE: _____	PROVINCIAL ROADS ENGINEER DATE: _____		CONTRACT NO.	WCG STRUCTURE PLAN	
											C1038.02	WCG INDEX NO.	VER
											CONSULTANTS DWG NO.		



EXISTING CULVERT DATA				
NAME	DESCRIPTION	X-COORD	Y-COORD	INVERT LEVELS
CUL 002	H 450 X W 900 MM RECTANGULAR CULVERT	START: 42540.044 END: 42055.086	START: 3735917.242 END: 3735918.642	START: 75.306 END: 75.252
CUL 003	H 450 X W 900 MM RECTANGULAR CULVERT	START: 42085.725 END: 42073.337	START: 3735975.400 END: 3735975.156	START: 79.686 END: 79.524
CUL 004	H 450 X W 900 MM RECTANGULAR CULVERT	START: 42071.403 END: 42065.913	START: 3735478.846 END: 3735478.316	START: 84.039 END: 83.884
CUL 005	H 450 X W 900 MM RECTANGULAR CULVERT	START: 42082.200 END: 42072.666	START: 3735528.546 END: 3735327.576	START: 87.633 END: 87.473
CUL 006	H 450 X W 900 MM RECTANGULAR CULVERT	START: 42082.478 END: 42109.073	START: 3735177.551 END: 3734734.922	START: 91.442 END: 91.317
CUL 007	H 450 X W 900 MM RECTANGULAR CULVERT	START: 42107.402 END: 42122.572	START: 3734979.347 END: 3734979.523	START: 97.796 END: 97.517
CUL 008	H 450 X W 900 MM RECTANGULAR CULVERT	START: 42102.728 END: 42140.032	START: 3734732.956 END: 3734734.922	START: 101.585 END: 102.148
CUL 009	600MM CLASS 75	START: 42112.077 END: 42153.348	START: 3734579.310 END: 3734582.890	START: 104.244 END: 105.042
CUL 011	H 2 400 X W 3 000 MM RECTANGULAR CULVERT	START: 42172.369 END: 42134.829	START: 3734286.174 END: 3734283.036	START: 112.483 END: 112.368

NEW CULVERT EXTENSIONS DATA						
NAME	DESCRIPTION	X-COORD	Y-COORD	INVERT LEVELS	LENGTH	SLOPE
CUL 005-EXT	H 450 X W 900 MM RECTANGULAR CULVERT	START: 42097.688 END: 42107.345	START: 3735327.576 END: 3735328.239	START: 87.473 END: 87.370	9.76 m	1.06%
CUL 006-EXT	H 450 X W 900 MM RECTANGULAR CULVERT	START: 42108.076 END: 42117.572	START: 3735978.181 END: 3735980.016	START: 81.317 END: 81.253	8.54 m	0.70%
CUL 007-EXT	H 450 X W 900 MM RECTANGULAR CULVERT	START: 42122.572 END: 42141.082	START: 3734979.523 END: 3734980.284	START: 97.517 END: 97.360	8.54 m	1.84%
CUL 008-EXT L	H 450 X W 900 MM RECTANGULAR CULVERT	START: 42141.082 END: 42150.379	START: 3734734.922 END: 3734725.428	START: 102.148 END: 102.288	9.76 m	-1.45%
CUL 008-EXT R	600MM CLASS 50	START: 42153.348 END: 42158.210	START: 3734582.890 END: 3734583.311	START: 105.042 END: 105.195	4.88 m	-1.93%
CUL 011-EXT	H 2 400 X W 3 000 MM RECTANGULAR CULVERT	START: 42172.369 END: 42174.833	START: 3734286.174 END: 3734286.346	START: 112.483 END: 112.506	2.44 m	-0.96%

STORMWATER STRUCTURE DATA				
NAME	DESCRIPTION	X-COORD	Y-COORD	DETAILS
GI1	DOUBLE GRID INLET - WCG STANDARD DETAIL	42055.086	3735980.050	DEPTH = 1.035m P1 INV OUT = 77.874
HW1	HEADWALL - WCG STANDARD DETAIL	42076.412	3735978.734	DEPTH = 0.860m P1 INV IN = 77.817

PIPE DATA		
NAME	DESCRIPTION	MATERIAL
P1	600MM CLASS 75	CONCRETE

- LEGEND**
- STORMWATER CULVERT EXTENSIONS
  - STORMWATER EXISTING CULVERTS
  - STORMWATER HEADWALL
  - STORMWATER SIDE DRAIN GRID INLET
  - DEMOLISH CULVERT
- ABBREVIATIONS:**
- HW - HEADWALL
  - P - PIPE
  - GI - GRID INLET
  - EXT L - EXTENSION LEFT
  - EXT R - EXTENSIONS RIGHT

- NOTES:**
- ALL STORMWATER WORKS SHALL BE CONSTRUCTED IN ACCORDANCE WITH SANS 1200.
  - ALL CONCRETE PIPE CULVERTS SHALL BE CLASS 750 (OR AS SPECIFIED) AND LAID TO THE LINES AND LEVELS SHOWN ON THE DRAWING.
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  - ALL STORMWATER CULVERTS WITH HEADWALLS TO BE CONSTRUCTED IN ACCORDANCE WITH THE WESTERN CAPE GOVERNMENT DETAILS WCS/22/C2-C5.
  - FOR ALL STORMWATER TRENCH DETAILS REFER TO WESTERN CAPE GOVERNMENT DETAILS WCS/22/C1.

NO.	DATE	ADDITIONS, AMENDMENTS AND REVISIONS	PROVINCIAL CHIEF ENG.	CONSULT. ENG.	DESIGNED BY:	DETAILED BY:

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CONSULTANT'S APPROVAL

Western Cape Government  
Infrastructure  
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PROVINCIAL ROADS ENGINEER

DATE: \_\_\_\_\_

**C1038.02 SAFETY IMPROVEMENT N7 POTSDAM - MELKBOS VAN SCHOORSDRIF I/C**

P.R.E.'s FILE NO. 16/6/4/1-TR01101-C1038.02	SCALE SHEETS OF A0	CONTRACT NO. C1038.02	WCG STRUCTURE PLAN
CONSULTANTS DWG NO.	WCG INDEX NO.	VER	

**FOR INFORMATION**