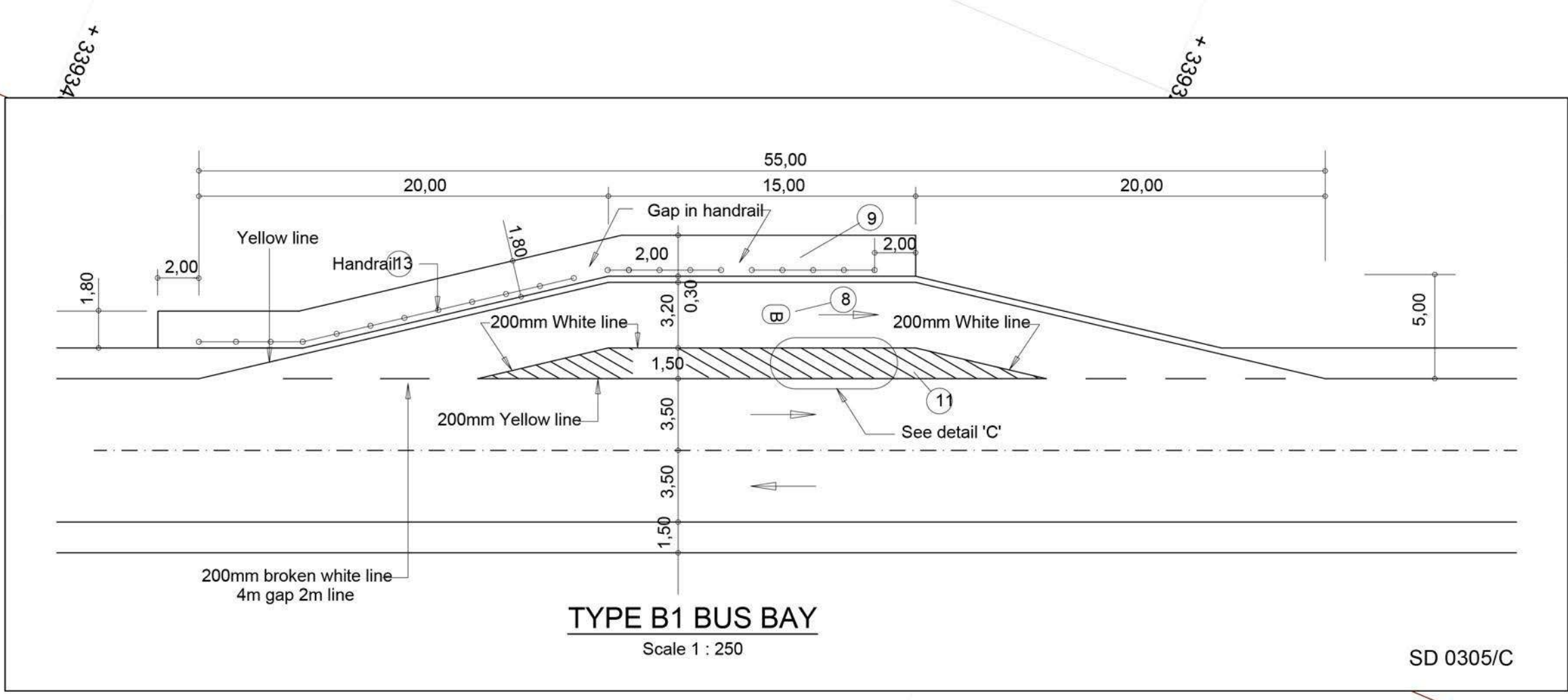
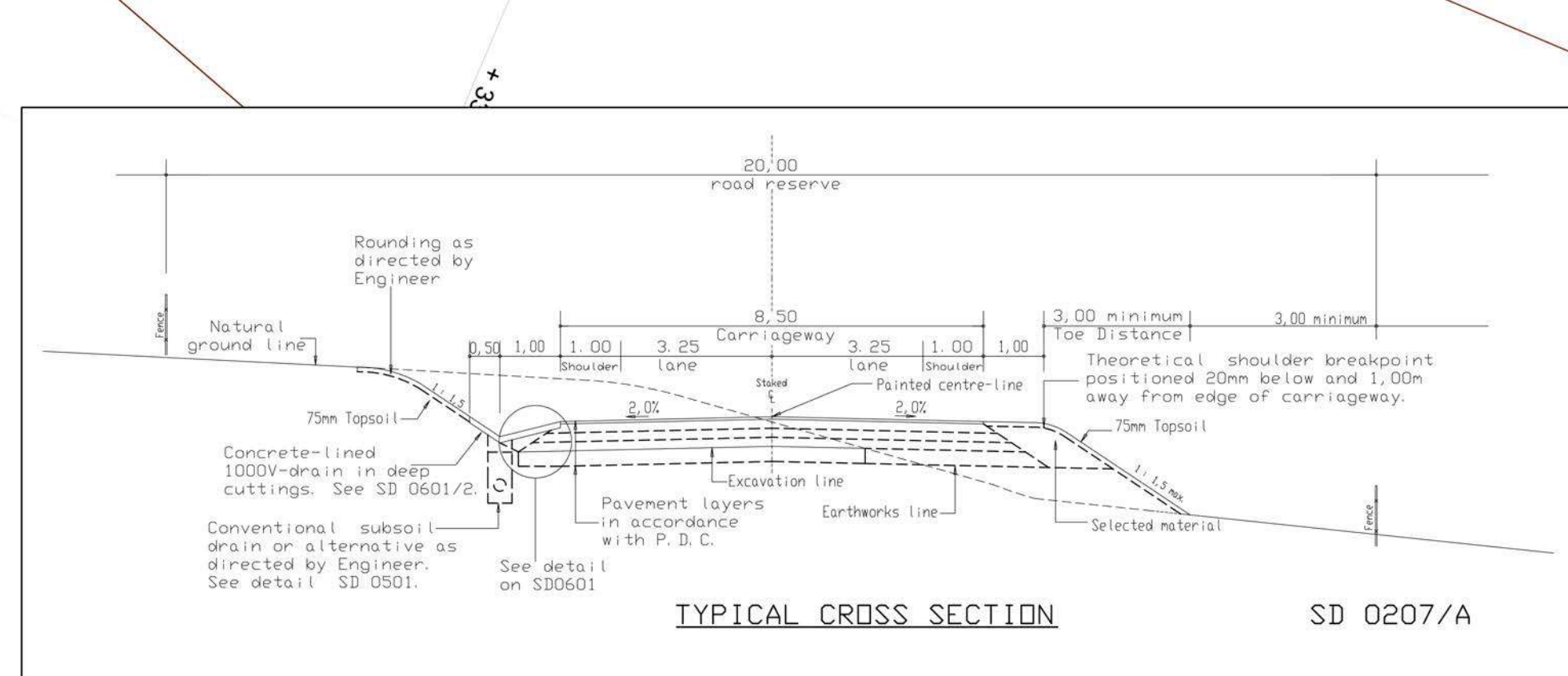


NOTATION

BCC : Beginning of circular curve
 ECC : End of circular curve
 PI : Point of intersection
 R : Radius of circular curve
 Δc : Deflection angle of circular curve
 Lc : Length of circular curve
 Tc : Length of curve tangent
 PC : Pipe Culvert
 RR : Road Reserve

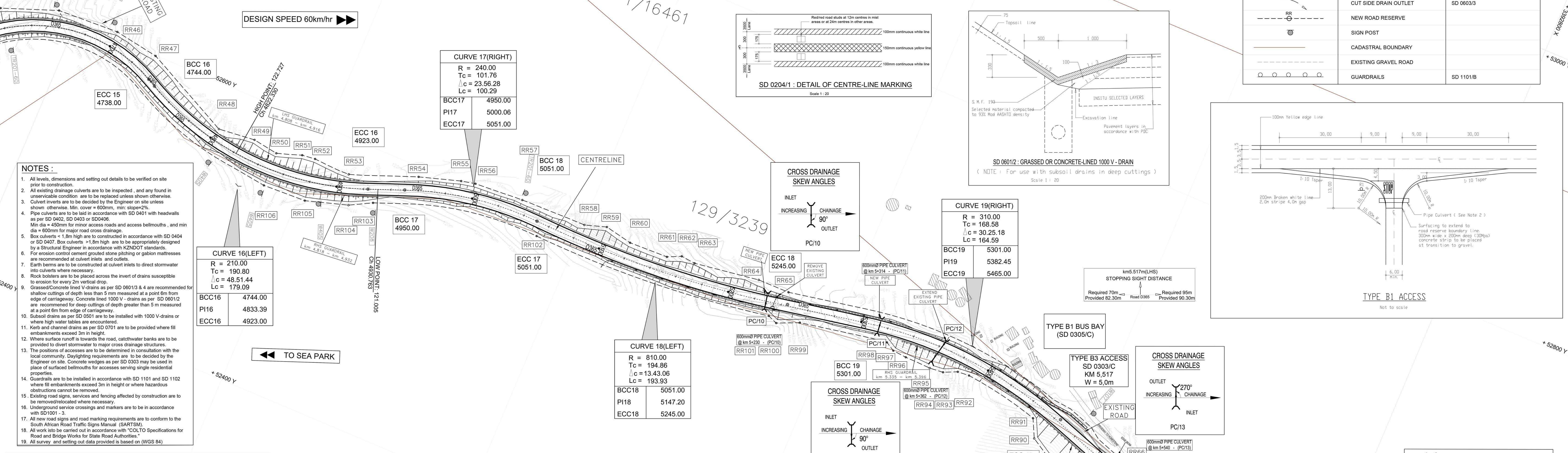
BENCHMARKS
CO-ORDINATE LIST
SYSTEM: WG 31

POINT	CO-ORDINATES		
	Y	X	Z
T360	52964,020	3395870,590	184,900
GW01	52557,350	3392796,087	181,921
GW03	51953,118	3394477,226	136,992
GW04	51940,432	3394430,937	137,711
GW05	51026,122	3395386,650	71,023
GW06	51084,382	3395417,534	69,839



LEGEND

LEGEND	DESCRIPTIONS	KZN DOT'S STANDARD DETAIL
PC01	CONCRETE PIPE CULVERT	SD 0401/B & SD 0406
	CONCRETE WALKWAY	SD 0203/A
	SIDE INLETS - KERB AND CHANNEL DRAIN	SD 0703/A
	DROP INLETS - V-DRAINS	SD 0602/B
	FIELD INLET	
	CONCRETE LINED 1000 V - DRAIN	SD 0601/2
	KERB AND CHANNEL CUT / FILL	SD 0601/5 (CUT) / SD 0701/A (FILL)
	CUT SIDE DRAIN OUTLET	SD 0603/3
	NEW ROAD RESERVE	
	SIGN POST	
	CADASTRAL BOUNDARY	
	EXISTING GRAVEL ROAD	
	GUARDRAILS	SD 1101/B



- NOTES:**
- All levels, dimensions and setting out details to be verified on site prior to construction.
 - All existing drainage culverts are to be inspected, and any found in unserviceable condition are to be replaced unless shown otherwise.
 - Culvert inverts are to be decided by the Engineer on site unless shown otherwise. Min. cover = 600mm, min. slope=2%.
 - Pipe culverts are to be laid in accordance with SD 0401 with headwalls as per SD 0402, SD 0403 or SD 0406.
 - Min. dia = 450mm for minor access roads and access culverts, and min. dia = 600mm for major road cross drainage.
 - Box culverts < 1.8m high are to be constructed in accordance with SD 0404 or SD 0407. Box culverts > 1.8m high are to be appropriately designed by a Structural Engineer in accordance with KZN DOT standards.
 - For erosion control cement grouted stone pitching or gabion mattresses are recommended at culvert inlets and outlets.
 - Earth berms are to be placed across the invert of drains susceptible to erosion for every 2m vertical drop.
 - Grassed/Concrete lined V-drains as per SD 0601/3 & 4 are recommended for shallow cuttings of depth less than 5m measured at a point 6m from edge of carriageway. Concrete lined 1000 V - drains as per SD 0601/2 are recommended for deep cuttings of depth greater than 5m measured at a point 6m from edge of carriageway.
 - Subsidiary drains as per SD 0501 are to be installed with 1000 V-drains or where high water tables are encountered.
 - Kerb and channel drains as per SD 0701 are to be provided where fill embankments exceed 3m in height.
 - Where surface runoff is towards the road, catchwater banks are to be provided to divert stormwater to major cross drainage structures.
 - The positions of accesses are to be determined in consultation with the local community. Daylighting requirements are to be decided by the Engineer on site. Concrete wedges as per SD 0303 may be used in place of surfaced beltouts for accesses serving single residential properties.
 - Guardrails are to be installed in accordance with SD 1101 and SD 1102 where fill embankments exceed 3m in height or where hazardous obstructions cannot be removed.
 - Existing road signs, services and fencing affected by construction are to be removed/relocated where necessary.
 - Underground service crossings and markers are to be in accordance with SD 1001 - 3.
 - All new road signs and road marking requirements are to conform to the South African Road Traffic Signs Manual (SARTSM).
 - All work is to be carried out in accordance with "COLTO Specifications for Road and Bridge Works for State Road Authorities".
 - All survey and setting out data provided is based on WGS 84.

CURVE 16(LEFT)

R = 210.00
 Tc = 190.80
 Δc = 48.51.44
 Lc = 179.09

BCC16	4744.00
PI16	4833.39
ECC16	4923.00

CURVE 17(RIGHT)

R = 240.00
 Tc = 101.76
 Δc = 23.56.28
 Lc = 100.29

BCC17	4950.00
PI17	5000.06
ECC17	5051.00

CURVE 18(LEFT)

R = 810.00
 Tc = 194.86
 Δc = 13.43.06
 Lc = 193.93

BCC18	5051.00
PI18	5147.20
ECC18	5245.00

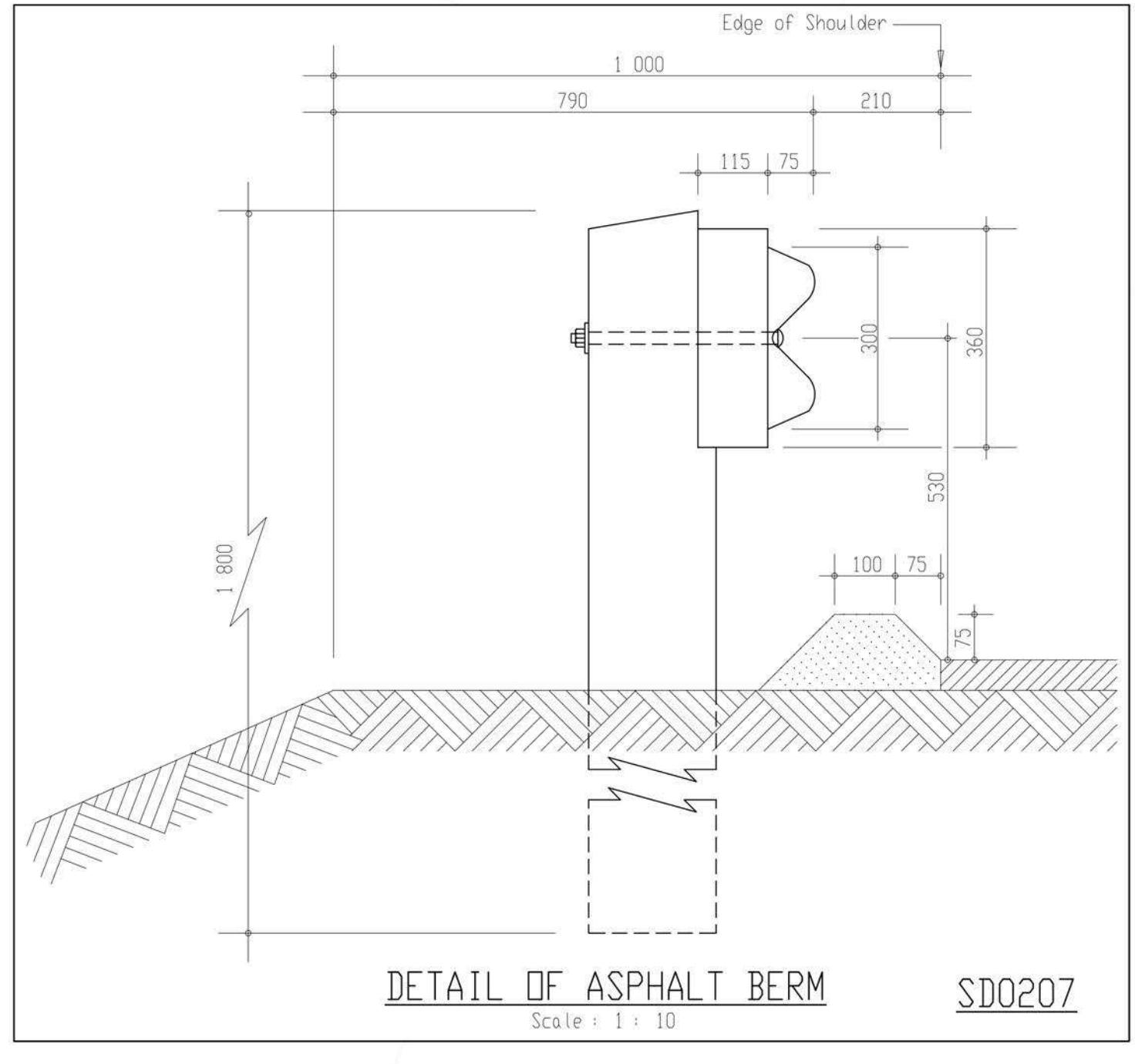
CURVE 19(RIGHT)

R = 310.00
 Tc = 168.58
 Δc = 30.25.18
 Lc = 164.59

BCC19	5301.00
PI19	5382.45
ECC19	5465.00

D365 - ROAD RESERVE OFFSET POINTS

POINT	LEFT OF CENTRE LINE	RIGHT OF CENTRE LINE			
POINT	X	Y	POINT	X	Y
RR44	3393855.061	52587.669	RR106	3393626.786	52543.213
RR45	3393814.882	52602.735	RR105	3393594.818	52544.582
RR46	3393769.433	52604.921	RR104	3393564.053	52554.006
RR47	3393736.764	52599.608	RR103	3393548.119	52562.537
RR48	3393673.210	52568.379	RR102	3393428.216	52566.514
RR49	3393646.013	52571.230	RR101	3393248.692	52598.221
RR50	3393627.571	52568.405	RR100	3393241.672	52596.480
RR51	3393609.472	52574.505	RR99	3393225.735	52603.532
RR52	3393599.741	52575.643	RR98	3393161.423	52615.084
RR53	3393572.658	52574.900	RR97	3393154.734	52611.276
RR54	3393524.730	52593.096	RR96	3393144.419	52610.403
RR55	3393494.811	52602.424	RR95	3393125.122	52609.921
RR56	3393484.446	52604.680	RR94	3393114.991	52610.896
RR57	3393448.145	52607.049	RR93	3393105.162	52615.425
RR58	3393399.034	52607.963	RR92	3393096.519	52616.118
RR59	3393363.280	52612.996	RR91	3393041.148	52605.607
RR60	3393363.162	52608.986	RR90	3393034.565	52592.307
RR61	3393334.276	52609.964	RR89	3393015.795	52581.146
RR62	3393324.454	52614.580	RR88	3392978.495	52584.792
RR63	3393313.805	52613.537	RR87	3392934.074	52569.792
RR64	3393265.713	52620.618	RR86	3392912.079	52558.721
RR65	3393242.129	52620.778	RR85	3392866.274	52543.266
RR66	3393267.373	52602.145	RR84	3392851.219	52541.814
RR67	3392926.064	52596.977	RR83	3392778.095	52517.096
RR68	3392911.371	52583.235	RR82	3392766.212	52509.827
RR69	3392833.652	52559.241	RR81	3392747.593	52501.368
RR70	3392808.677	52550.601	RR80	3392737.373	52498.992
RR71	3392744.438	52594.267	RR79	3392728.261	52496.151
RR72	3392732.960	52577.889	RR78	3392708.240	52497.457
RR73	3392781.596	52543.766	RR77	3392672.441	52493.770
RR74	3392749.510	52528.578	RR76	3392648.877	52502.079
RR75	3392653.095	52520.898			



HORIZONTAL ALIGNMENT CO-ORDINATE LIST

Position	Chainages	Y-Coord	X-Coord	Details
BCC16	4744.00	52578.93	3393728.94	R = 210.00
PI16	4833.39	52535.24	3393644.13	Tc = 190.80
ECC16	4923.00	52570.37	3393555.44	Δc = 48.51.44
BCC17	4950.00	52580.31	3393530.36	R = 240.00
PI17	5000.06	52599.05	3393483.05	Tc = 101.76
ECC17	5051.00	52596.98	3393432.21	Δc = 23.56.28
BCC18	5051.00	52598.98	3393432.17	R = 810.00
PI18	5147.20	52593.01	3393334.82	Tc = 194.86
ECC18	5245.00	52612.25	3393239.30	Δc = 13.43.06
BCC19	5301.00	52623.30	3393184.43	R = 310.00
PI19	5382.45	52639.94	3393101.80	Tc = 168.58
ECC19	5465.00	52612.45	3393022.12	Δc = 30.25.18
BCC20	5766.00	52514.51	3392738.24	R = 150.00
PI20	5805.89	52500.85	3392698.65	Tc = 83.76
ECC20	5847.00	52509.68	3392657.70	Δc = 31.12.07
END	5854.00	52511.11	3392651.07	Lc = 8169

SIGN POSTING SCHEDULE

LEFT HAND SIDE						RIGHT HAND SIDE					
KM	CODE	SIZE	SIGN	KM	CODE	SIZE	SIGN				
5+480	W107	600	▲	4+820	W405	600	▲				
0+040	R1	600	STOP	4+860	W405	600	▲				
5+000	TR201-60	600	▲	4+900	W405	600	▲				
				4+940	W208	600	▲				
				5+681	W409	2000	▲				
				5+300	TR201-60	600	▲				

PIPE AND CULVERT SCHEDULE

ITEM NO.	S.K.D.	SIZE Ø (mm)	PIPE CLASS	BEDDING TYPE	TYPE	LENGTH (m)	SKEW	INLET	OUTLET	HEADWALLS	SIDE/DROP INLET
PC/10	5+230	600	75D	CLASS C	PIPE	15.183	90°	142.900	142.053	2	0
PC/11	5+314	600	75D	CLASS C	PIPE	15.090	90°	151.350	149.811	2	0
PC/12	5+362	600	75D	CLASS C	PIPE	15.090	90°	155.149	155.149	2	0
PC/13	5+540	600	75D	CLASS C	PIPE	12.500	270°	163.267	163.000	2	0
PC/14	5+735	600	75D	CLASS C	PIPE	18.200	135°	176.288	175.535	1	1

CONCRETE LINED 1000 V-DRAIN SCHEDULE

LEFT OF CENTRE LINE			RIGHT OF CENTRE LINE		
FROM CHAINAGE	TO CHAINAGE	LENGTH (m)	FROM CHAINAGE	TO CHAINAGE	LENGTH (m)
5 230	5 340	110	5 110	5 240	130
5 400	5 445	45	5 400	5 445	45
5 540	5 660	120			
5 720	5 840	120			

GUARDRAIL SCHEDULE

LEFT OF CENTRE LINE			RIGHT OF CENTRE LINE		
FROM CHAINAGE	TO CHAINAGE	LENGTH (m)	FROM CHAINAGE	TO CHAINAGE	LENGTH (m)
4 808	4 916	108	4 818	4 932	114
			5 335	5 396	61
			5 448	5 508	60
			5 723	5 802	79

FOR TENDER PURPOSE

ROAD D365 (SEA PARK TO LOCATION NO. 5)

PORTION (KM 2+291 - KM 5+853)

UPGRADE OF ROAD D365 LAYOUT PLAN

Staked KM Distance: KM 4+620 to KM 5+853

Scale: 1 : 1000

Sheet: 3 of 3

Contract No.: ZNB00583/0000/00/HOD/INF/21/T

Plan No.: C46936

APPROVED

Supervising Engineer: _____ Date: _____

Head Transport: _____

Transportation Engineering: Chief Engineer

Designed by: KAMAWWE Development Consultants (PTY) Ltd

12 Concession Rd, Scottsville, Pietermaritzburg, 3201.

Tel No: 033 342 9507

Fax No: 033 342 9249

E-mail: sia@kamawwe.co.za

Signed Date: _____

Continued from: C46935

Continued on: _____

Cross Section No.: C46937 to C46963

Longitudinal Section No.: C46939 & C46942

Survey Plan No.: _____

Designed by: S. NKOSI

Checked by: S. NKOSI

Drawn by: L. SIKHAKHANE

Checked by: S. NKOSI

Date of approval: _____

transport Department Province of KwaZulu-Natal "prosperity through mobility"

PROVINCE OF KWAZULU-NATAL DEPARTMENT OF TRANSPORT

KAMAWWE DEVELOPMENT CONSULTANTS (PTY) LTD

sanas

C46936