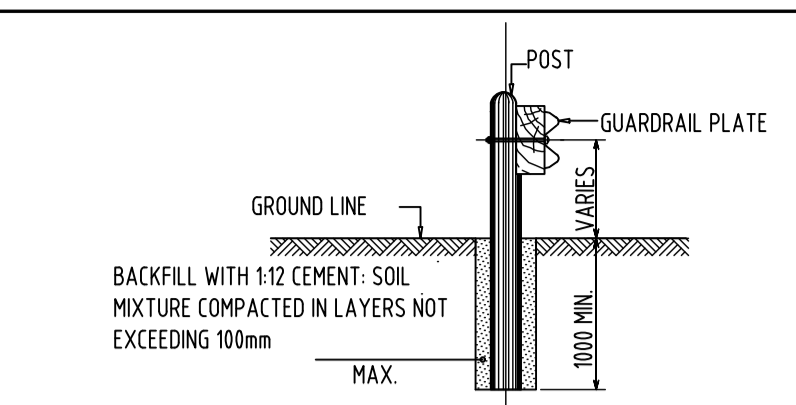
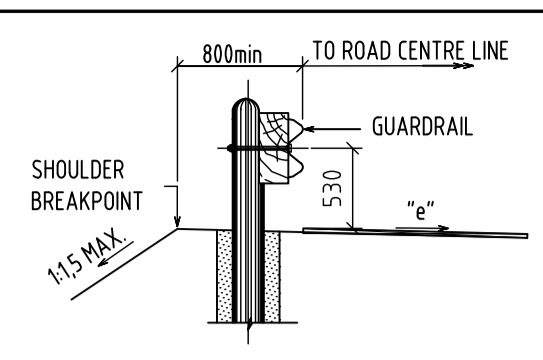


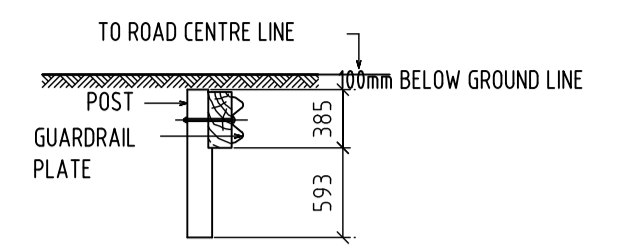
PLACING DETAILS AT BOX CULVERTS
(SCALE - SCHEMATIC)



SECTION A-A
(SCALE - 1:50)



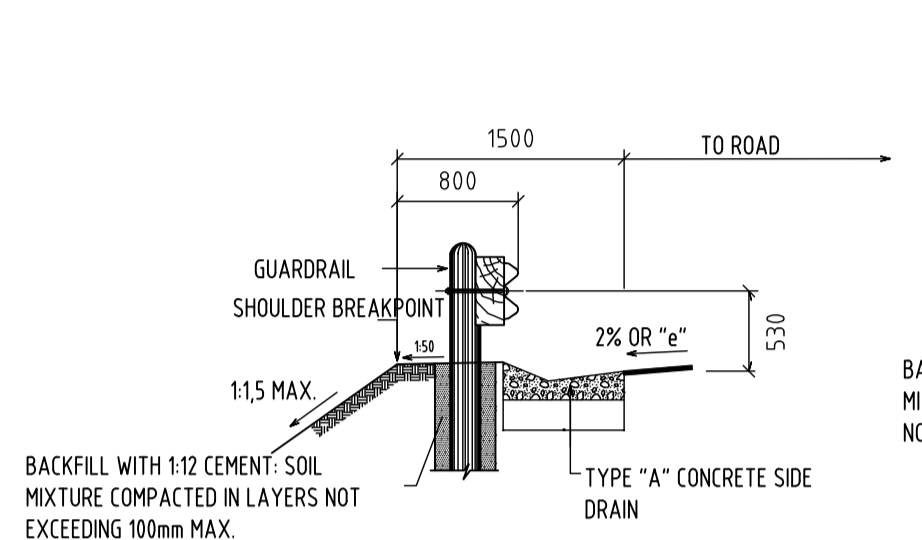
SECTION C-C WITHOUT CONCRETE SIDE DRAIN
(SCALE - 1:50)



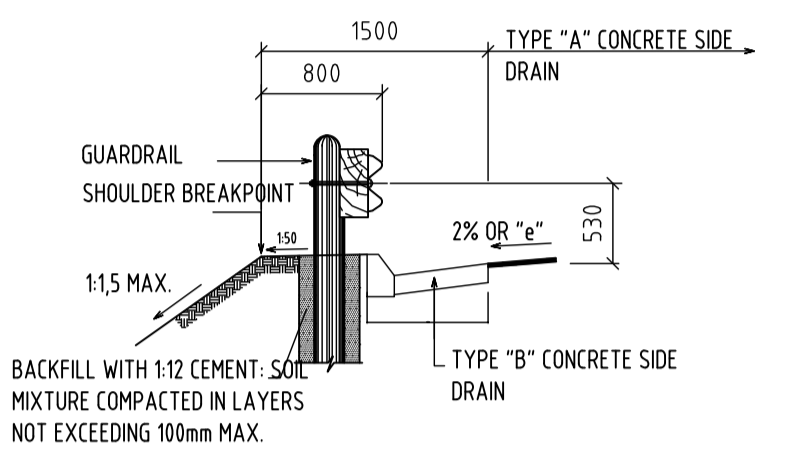
SECTION B-B
(SCALE - 1:50)

NOTE:
1 LENGTH OF GUARDRAIL = 3810

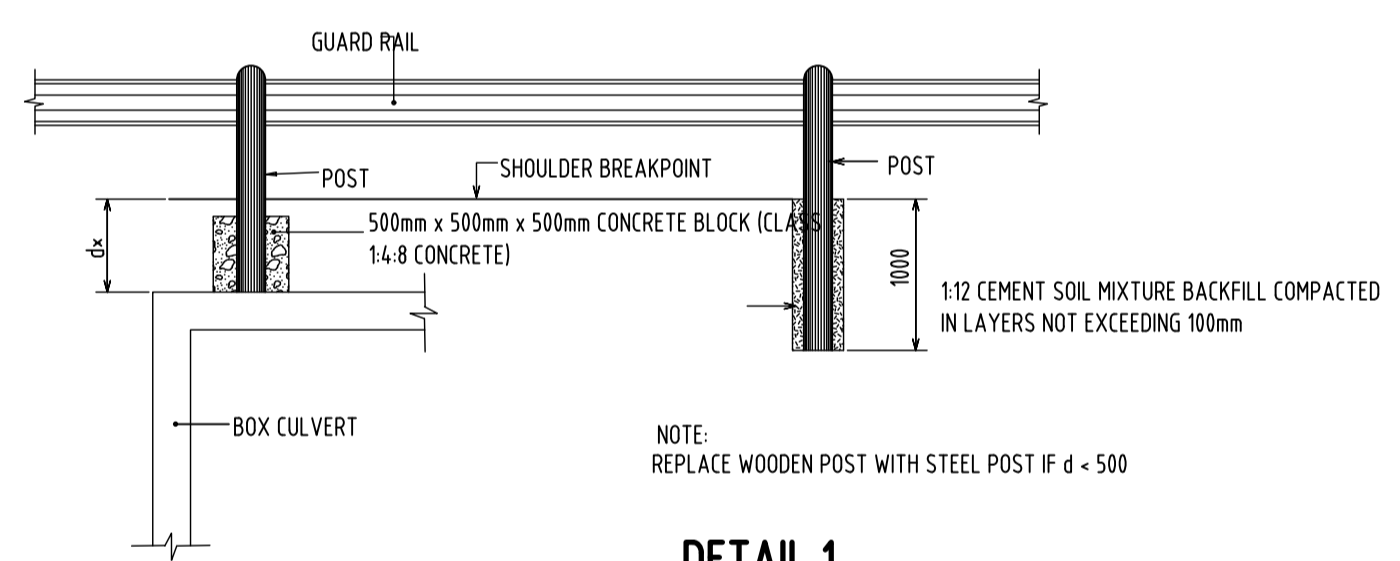
	HORIZONTAL OFF-SETS FOR PARABOLIC TERMINAL SECTIONS Y (mm)	VERTICAL OFF-SETS FOR PARABOLIC TERMINAL SECTION (MEASURED FROM TOP OF POST) X (mm)
a	100	0
b	160	33
c	220	133
d	280	299
e	340	531
f	400	835



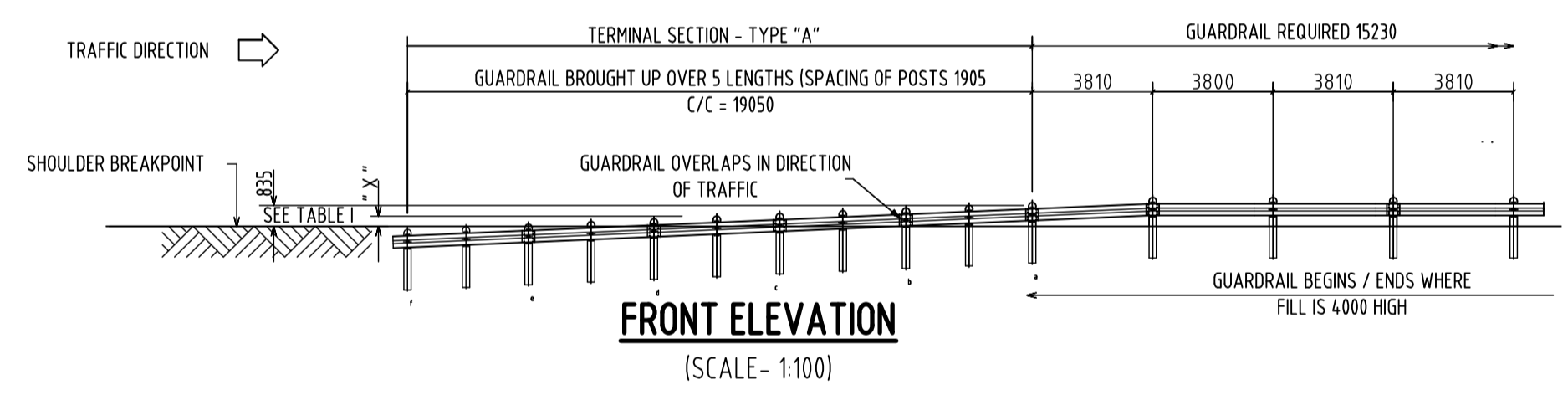
SECTION C-C WITH CONCRETE SIDE DRAIN "A"
(SCALE - 1:50)



SECTION C-C WITH CONCRETE SIDE DRAIN "B"
(SCALE - 1:50)



DETAIL 1
SCALE: 1:50



FRONT ELEVATION
(SCALE - 1:100)

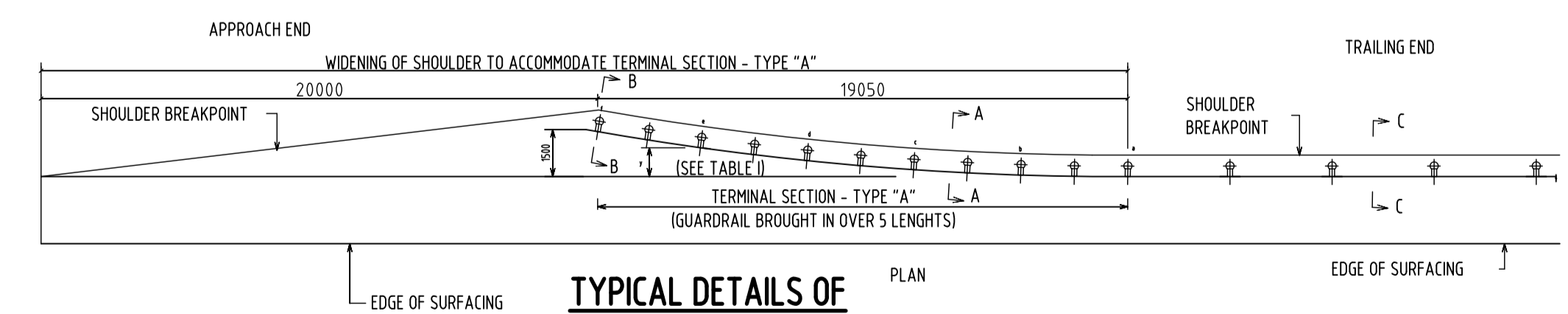
DESIGN SPEED km/h	MIN LENGTH
60	12 LENGTHS (15.7)
70	14 LENGTHS (18.3)
80	16 LENGTHS (20.9)
90	20 LENGTHS (26.2)
100	23 LENGTHS (30.0)
110	27 LENGTHS (35.1)
120	29 LENGTHS (37.4)
130	32 LENGTHS (41.6)
140	35 LENGTHS (45.1)

GUARDRAIL WARRANT:

- WHERE THE FILL IS HIGHER THAN 4.0m FOR SURFACED ROADS, AND 6.0m FOR GRAVEL ROADS.
- WHERE WATER NEXT TO THE ROAD FORMATION IS DEEPER THAN 1.5m.
- AT ALL BRIDGES WITH BALUSTRADES.
- ON THE OUTSIDE OF CURVES WITH RADIUS LESS THAN 200mm AND ONLY WHEN THE ROAD IS IN FILL.
- WHERE OBSTRUCTIONS ARE LESS THAN 1.0m FROM THE SHOULDER BREAKPOINT.
- WHERE AN OBSTRUCTION APPEARS TO BE MORE DANGEROUS THAN A GUARDRAIL WOULD BE.
- THESE RULES ARE TO BE APPLIED WITH DISCRETION AND THE POSITION OF ALL GUARDRAILS MUST BE CONFIRMED ON SITE BY THE ENGINEER PRIOR TO THE ERECTION THEREOF.

NOTES ON ERECTION DETAILS:

- THE HOLES FOR TIMBER POSTS SHALL BE OF SUFFICIENT SIZE TO PERMIT PROPER SETTING OF THE POSTS AND TO ALLOW SUFFICIENT ROOM FOR BACKFILLING.
- AT LEAST 10m OF POST SHALL BE EMBEDDED IN THE GROUND.
- HOLES FOR TIMBER POSTS SHALL BE SPACED TO SUITE THE STANDARD LENGTH OF GUARDRAIL SUPPLIED.
- HOLES SHALL BE BACKFILLED WITH 12:1 SOIL - CEMENT MIXTURE AT OPTIMUM MOISTURE CONTENT IN COMPACTED LAYERS NOT EXCEEDING 100mm.



TYPICAL DETAILS OF TERMINAL SECTIONS
(SCALE - 1:100)

No	DATE	SMN
A	15-08-2019	

FOR PRELIMINARY

DESIGNED BY	SM NUXALO (P. Technician)
CHECKED BY	LG NGCOBO (P. Technologist)
DRAWN BY	F BALOYI (Candidate Technician)
CHECKED BY	SM NUXALO (P. Technician)

Palabora Copper (Pty) Limited
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OFFICE 17
POLOKWANE
0699
TEL: (015) 297 7434
FAX: (086) 244 8999

CLIENT	DATE
CONSULTING ENGINEER	DATE

PLM 00/2019
UPGRADING OF P43/3 ROAD
Ga-SELWANA ACCESS ROAD
STANDARD DETAILS
GUARDRAIL PLACING DETAILS

For Approval	20/11
For Issue	20/11
For Drawing/Sign	20/11
CONSULTANTS DRAWING NUMBER	HCE 000/2019/001

SHEET 28 OF 37
AS SHOWN
CLIENT DRAWING NUMBER
PLM 000/2019/001