

POLE AND FOUNDATION STRENGTHS

WIND LOADS ON POLE AT TIP (N)

POLE DATA					POLE STRENGTH		FOUNDATION STRENGTH									DEFLECTION	TERRAIN CATEGORY 2				TERRAIN CATEGORY 1	
POLE TYPE (LINE)	LENGTH OF POLE	LENGTH IN GROUND	LENGTH ABOVE GROUND	MATERIAL SECTION	MAX. PERMISSIBLE (kN) FORCE AT TOP OF POLE		EQUIVALENT POLE TOP LOADING (kN) - REFER NOTES 2 & 3									DEFLECTION AT TOP OF POLE AT MAX. PERMISSIBLE LOAD STRONG DIR. (mm)	REGION A AND B 1200 Pa		REGION C 1583 Pa		REGION C 2055 Pa	
							SOIL GP 1 (GOOD)			SOIL GP 2 (MED)			SOIL GP 3 (POOR)				STRONG DIRECTION	WEAK DIRECTION	STRONG DIRECTION	WEAK DIRECTION	STRONG DIRECTION	WEAK DIRECTION
	metres	metres	metres	mm			FD D=450	FD D=610	FD D=770	FD D=450	FD D=610	FD D=770	FD D=450	FD D=610	FD D=770							
STANDARD POLES																						
9B	9.0	1.7	7.3	150 x 75 PFC	18.7	5.7	-	13.7	17.2	-	8.9	11.4	-	4.4	5.5	72	657	1018	868	1344	1125	1743
9C	9.0	1.7	7.3	200 x 75 PFC	24.3	9.7	-	13.7	17.2	-	8.9	11.4	-	4.4	5.5	73	876	1018	1156	1344	1500	1743
10.5B	10.5	1.8	8.7	150 x 75 PFC	15.8	4.7	-	13.7	17.2	-	8.9	11.4	-	4.4	5.5	103	783	1144	1034	1510	1340	1959
10.5C	10.5	1.8	8.7	200 x 75 PFC	20.7	8.1	-	13.7	17.2	-	8.9	11.4	-	4.4	5.5	105	1044	1144	1378	1510	1788	1959
12.0B	12.0	2.0	10	150 x 75 PFC	13.8	4.1	-	16.6	20.9	-	11.0	13.9	-	5.5	6.9	135	900	1272	1138	1678	1541	2178
12.0C	12.0	2.0	10	200 x 75 PFC	18.0	7.1	-	16.6	20.9	-	11.0	13.9	-	5.5	6.9	137	1200	1272	1584	1678	2055	2178
R12.5C	12.5	2.1	10.4	323ΦX4.7	10	-	21.6	29.28	36.96	14.4	19.52	24.64	7.2	9.76	12.32	260	1977	-	2608	-	3386	-
13.5B	13.5	2.1	11.4	150 x 75 PFC	12.2	3.6	-	16.9	21.5	-	11.1	14.0	-	5.5	6.9	177	1026	1407	1354	1858	1757	2409
13.5C	13.5	2.1	11.4	200 x 75 PFC	15.9	6.2	-	16.9	21.5	-	11.1	14.0	-	5.5	6.9	179	1368	1407	1806	1858	2343	2409
R14C	14	2.4	11.6	323ΦX5.4	8.5	-	20.97	28.42	35.88	13.98	18.95	23.92	6.99	9.47	11.96	325	2248	-	2966	-	3851	-
"D" POLE EQUIVALENT																						
10.5D	11.85	3.15	8.7	250 x 90 PFC	32.5	14.5	-	-	83.6	-	-	54.2	-	-	27.1	109	1305	1118	1722	1476	2235	1915
12.0D	13.15	3.15	10	250 x 90 PFC	28.6	12.6	-	-	75.2	-	-	48.8	-	-	24.4	139	1500	1281	1980	1690	2569	2194
R12.5D	12.5	3	9.5	457ΦX9.8	36	-	-	50.13	63.28	-	33.42	42.19	-	16.71	21.90	164	2605	-	3436	-	4461	-
13.5D	14.55	3.15	11.4	250 x 90 PFC	25.7	11.1	-	-	67.8	-	-	44.0	-	-	22.0	176	1710	1429	2256	1886	2928	2447
R14D	14	3	11	457ΦX9.8	34	-	-	44.63	56.34	-	29.75	37.56	-	14.87	18.78	219	3016	-	3979	-	5166	-
16.5D	16.5	3.15	13.35	250 x 90 PFC	21.6	10.1	-	-	58.1	-	-	38.7	-	-	19.3	278	2003	1869	2644	2466	3430	3200
18.5D TERMINATION POLES																						
18.5D	18.5	3.5	15	250 x 90 PFC	32.4	8.4	-	-	59.0	-	-	29.0	-	-	9.3	213	2250	2539	2970	3350	3853	4348

NO	DESCRIPTION	DRN	DATE	CKD	APPD
5	COLUMN ADDED POLE LENGTH ABOVE GROUND	C.C.	MAY'18	I.B.	B.C.
4	DRAWING TITLE AMENDED	I.B.	MAY'16	A.T.	B.C.
3	WIND LOADING UPDATED	A.T.	MAY'12	B.C.	S.C.
2	ROUND POLE DATA ADDED	C.C.	SEP'11	A.T.	S.C.
1	DRAWING SPLIT INTO TWO SHEETS	A.S.	APR'07	R.S.	S.C.
0	ISSUED FOR CONSTRUCTION	A.S.	SEPT'02	M.B.	M.B.

AMENDMENTS



DES	M. BOCK	POWER STANDARD DRAWING			
DRN	A. SCHMID	DESIGN DATA SINGLE AND TWO PIECE BOLTED POLES CROSSARM & FOUNDATION STRENGTHS			
CKD	M. BOCK				
APPD	-	A3	DRAWING NUMBER	S01-4-1-21	
SCALE	N.T.S.			sheet 1 of 2	
ISSUED	AUG'2002	DRAFTING STANDARD TO A.S.1100			
ALL DIM. IN	mm				
CAD PRODUCT - DO NOT AMEND MANUALLY		AMDT			

CROSSARM STRENGTHS AND DEFLECTION

CROSSARM DATA			CROSSARM STRENGTH	DEFLECTION
CROSSARM TYPE	STOCK CODE	MATERIAL SECTION (mm)	MAX. PERMISSIBLE FORCE AT EACH END OF CROSSARM (kN)	DEFLECTION AT MAX. FORCE (mm)
			STRONG DIRECTION	
HV - TRUNCATED DEVIATION	298513	125 x 75 x 4 RHS DURAGAL	5.5	12.4
HV - LINE	298802	125 x 75 x 4	6.3	7.2
T - OFF	298521	125 x 75 x 5 RHS DURAGAL	7.2	6.1
LV - LINE 4 WIRE	298562	125 x 65 x 4 CC DURAGAL	8.9	6.4
LV - TRUNCATED DEVIATION	298570	150 x 75 x 5 CC DURAGAL	5.5	8.1
LV - TERMINATION 4 WIRE	298588	150 x 75 x 5 CC DURAGAL	8.9	3.1
LV - TRANSPOSITION & CABLE TERMINATION	298604	150 x 75 x 5 CC DURAGAL	5.8	7.3

NOTES:

- SOIL RUPTURE INTENSITY - THE WORST EXPECTED CONDITIONS SHOULD BE USED WHEN ESTIMATING THE STRENGTH OF POLE FOOTINGS FOR SOILS WHICH ARE DEFINED AS FOLLOWS:-
 - * SOIL GROUP 1 (GOOD BEARING 300kPa/m) WELL COMPACTED ROCK SOIL, HARD CLAY AND WELL BONDED SAND AND GRAVEL WITH GOOD SURFACE WATER DRAINAGE AND FOOTING NORMALLY ABOVE WATERTABLE.
 - * SOIL GROUP 2 (MED. BEARING 200kPa/m) COMPACT MEDIUM CLAY, WELL BONDED SANDY LOAM, BONDED SAND AND GRAVEL WITH REASONABLE SURFACE WATER DRAINAGE.
 - * SOIL GROUP 3 (POOR BEARING 100kPa/m) SOFT CLAY, POOR COMPACTED SAND AND SOILS THAT TEND TO ABSORB LARGE AMOUNTS OF WATER, PROVIDED THESE DO NOT DEVELOP INTO SLUSH.
- REGION C SYNOPTIC WIND LOADING IS TO BE USED WITHIN 50km OF COASTLINE. FOR OTHER REGIONS USE REGION A AND B WIND LOADING.
- AT THE DISCRETION OF PWC'S APPROVAL, REFER DRAWING S1-4-1-17 FOR USE OF STAYS WHERE DESIGN POLE TOP LOADING EXCEEDS FOOTING OR POLE STRENGTH, AND FOR POLE WIND LOADS
- THE POLE AND FOUNDATION STRENGTH TABLE (SHEET 1 OF 2) APPLIES TO BOTH STANDARD ONE PIECE AND TWO PIECE BOLTED POLES.
- AS STATED IN THE POLE AND FOUNDATION STRENGTH TABLE (SHEET 1 OF 2) THE MAXIMUM PERMISSIBLE POLE TOP FORCE EQUALS 50% OF PERMANENT DEFORMING FORCE FOR ALL POLE TYPES. THIS PERMANENT DEFORMING FORCE DOES NOT INCLUDE WIND LOADING ON POLE.
- THE OVERALL CALCULATED FORCE SHALL NOT EXCEED THE MAXIMUM PERMISSIBLE VALUE STATED IN POLE AND FOUNDATION STRENGTH TABLE (SHEET 1 OF 2) FOR ANY POLE TYPE.
- AS PER THE DESIGN GUIDELINES, DESIGN SHALL ALSO INCORPORATE THE FOLLOWING CRITERIA TO CALCULATE TENSION, SAG AND SPAN:
 - * MAX WIND SPEED AND PRESSURE IN THE SPECIFIC WIND REGION.
 - * MAX/MIN TEMPERATURE IN THE SPECIFIC REGION.
- THE POLE SELECTION AND ITS PERFORMANCE SPECIFICATION (MAX PERMISSIBLE FORCE AT TOP OF POLE) SHALL ALWAYS EXCEED THE DESIGN CALCULATION (APPLY LIMIT STATE DESIGN AS7000).
- THE POLE FOOTING DIAMETER SHALL BE EXCAVATED LARGE ENOUGH TO ENSURE THAT A MIN OF 100mm CONCRETE IS BETWEEN ALL STEEL SURFACES AND SURROUNDING SOIL EXCEPT AT CONCRETE BISCUIT (REFER S01-4-4-01 POLE INSTALLATION PROCEDURE - CIVIL WORKS).

						DES	M. BOCK	POWER STANDARD DRAWING			
						DRN	A. SCHMID	DESIGN DATA SINGLE AND TWO PIECE BOLTED POLES CROSSARM & FOUNDATION STRENGTHS			
						CKD	M. BOCK				
						APPD	-	A3	DRAWING NUMBER	S01-4-1-21 sheet 2 of 2	AMDT
						SCALE	N.T.S.				
						ISSUED	AUG'2002				
						ALL DIM. IN	mm				
						DRAFTING STANDARD TO A.S.1100			CAD PRODUCT - DO NOT AMEND MANUALLY		
AMENDMENTS											
NO	DESCRIPTION	DRN	DATE	CKD	APPD						
4	DRAWING SHEET 1 AMENDED	C.C.	MAY'18	I.B.	B.C.						
3	DRAWING TITLE AMENDED, NOTES ADDED AND AMENDED	I.B.	MAY'16	A.T.	B.C.						
2	NOTE 4 UPDATED	A.T.	MAY'12	B.C.	S.C.						
1	DRAWING SPLIT INTO TWO SHEETS	A.S.	APR'07	R.S.	S.C.						
0	ISSUED FOR CONSTRUCTION	A.S.	SEPT'02	M.B.	M.B.						

