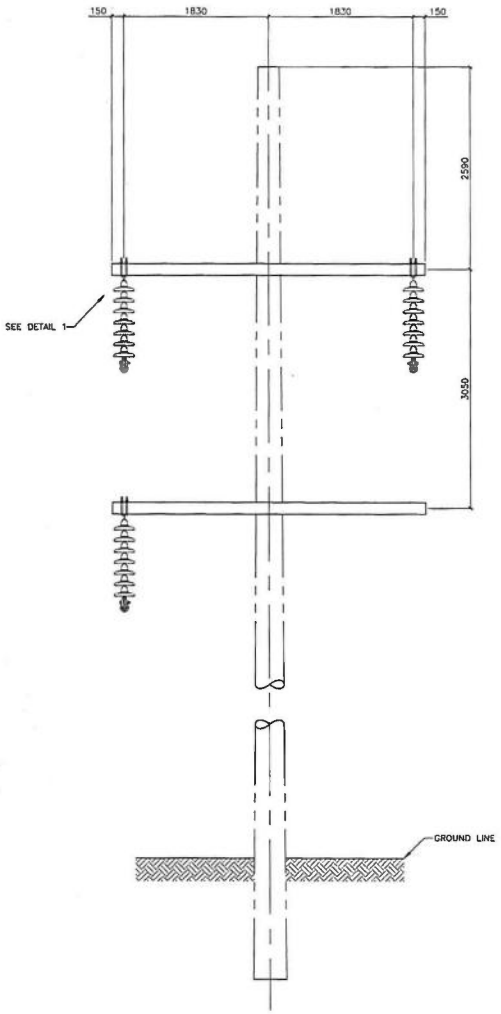
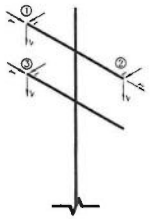


ELEVATION
SCALE 1:30

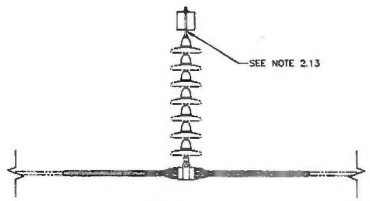
MAX LINE DEFLECTION: 5°
138kV PHASE CONDUCTOR: 1 x 477 kmcil HAWK
SHIELDWIRE: N/A
WIND SPAN: 155 m
WEIGHT SPAN: 170 m
RULING SPAN: 140 m
WIND VELOCITY: 145 km/hr

WIRE DATA	DIA.(mm)	wt(N/m)	No. OF WIRES
CONDUCTOR	21.79	9.56	1

LOAD CASE	FACTORED WIND ON POLE		POINT LOAD DIRECTION	OVERLOAD FACTORS (INCLUDED)	SPAN FACTORS (INCLUDED)	FACTORED ATTACHMENT LOADS (kN)	DESCRIPTION		ICE DENSITY (kg/m3)	WIRE TENSIONS (kN)
	DRAG FACTOR	PRESSURE (Pa)				POINTS 1,2,3				
						PHASE				PHASE
1	1	600	Vertical	1.50	1.00	8.3	CSA HEAVY LOADING	12.5 mm ice	917	43.5
			Transverse	1.50	1.00	10.0		400 Pa wind		
			Longitudinal	1.50	1.00	0.0		-20 deg C		
2	1	1440	Vertical	1.50	1.00	3.2	HIGH WIND (145km/hr)	0 mm ice	0	43.5
			Transverse	1.50	1.00	10.8		900 Pa wind		
			Longitudinal	1.50	1.00	0.0		25 deg C		
3	1	90	Vertical	2.00	1.00	17.5	CONSTRUCTION TIE DOWN slope-3:1	0 mm ice	0	21.8
			Transverse	2.00	1.00	0.2		43 Pa wind		
			Longitudinal	2.00	1.00	2.2		-30 deg C		
4	1	90	Vertical	2.00	1.00	6.9	MAINTENANCE RIGGING	0 mm ice	0	21.8
			Transverse	2.00	1.00	4.1		43 Pa wind		
			Longitudinal	2.00	1.00	0.0		-30 deg C		



LOADING DETAIL
NTS



DETAIL 1
SCALE 1:20

1. LOAD APPLICATION NOTES:

1.1. LOAD POINTS ARE AS FOLLOWS: 138 kV CONDUCTORS: 1, 2, 3.

1.2. ALL LOADS ARE SHOWN IN kN UNLESS OTHERWISE SPECIFIED.

1.3. ALL TRANSVERSE LOADS ARE REVERSIBLE. ALL LONGITUDINAL LOADS ACT IN THE SAME DIRECTION.

1.4. LOAD CASE 3 (CONSTRUCTION TIE DOWN) CONSISTS OF A "JAMMED" STRINGING LOAD SUCCESSIVELY AT EACH CABLE POSITION. A 3:1 (HORIZONTAL:VERTICAL) PULLING ANGLE IS TO BE APPLIED TO 25% OF THE CONDUCTOR UTS.

1.5. LOAD CASE 4 (MAINTENANCE RIGGING) CONDITION CONSISTS OF A POINT LOAD OF 2.7 kN ADDED SUCCESSIVELY AT EACH CONDUCTOR AND WIRE UNDER EVERYDAY LOADS

1.6. ICING ON THE STRUCTURE SHOULD NOT BE TAKEN INTO CONSIDERATION.

1.7. CROSS ARM SHALL BE ANALYZED IN NON-LINEAR MODE.

1.8. CROSS ARM DEFLECTION SHALL NOT EXCEED 5% OF UNSUPPORTED LENGTH

1.9. 490N OF 7 BELL INSULATOR WEIGHT IS INCLUDED IN CONDUCTOR POINT LOADS. WIND AND ICE ON INSULATORS ARE IGNORED.

2. GENERAL NOTES:

2.1. DRAWING IS CONCEPTUAL ONLY AND IS INCLUDED TO PROVIDE THE GENERAL DESIGN REQUIREMENTS FOR SUPPLIER TO DETERMINE ALL DETAILS.

2.2. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED.

2.3. CONDUCTOR PARAMETERS: SINGLE CONDUCTOR 477kcmil ACSR "HAWK".

2.4. CROSS ARM TO POLE CONNECTION SHALL BE NON-BRACED BOLTED TYPE. SUPPLIER TO DESIGN CONNECTION.

2.5. DESIGN CALCULATION SHALL BE INCLUDED WITH BID AND DURING DETAIL SUBMISSION FOR REVIEW BY SASKPOWER.

2.6. SUPPLIER SHALL PROVIDE PLS-POLE CRITERIA TABLE.

2.7. PROVIDE MANUFACTURING FINAL DRAWINGS SIGNED AND STAMPED BY A PROFESSIONAL ENGINEER.

2.8. CROSS ARM CONNECTIONS SHALL BE GALVANIZED STEEL.

2.9. SLIP JOINTS IN CROSS ARM ARE NOT ACCEPTABLE.

2.10. CROSS ARM WILL HAVE TO FIT CLASS 3 OR GREATER POLES.

2.11. CROSS ARMS AND CONNECTIONS SHALL HAVE THE SAME PROPERTIES, AND BE INTERCHANGEABLE.

2.12. BOLTED CONNECTION SHALL BE DESIGNED TO ENSURE CROSS ARM STAYS LEVEL WHEN ONLY ONE SIDE IS LOADED.

2.13. SUPPLIER TO PROVIDE U-BOLT, SUBJECT TO SASKPOWER'S APPROVAL.

ISSUED FOR TENDER
AutoCAD
SaskPower INTERNAL USE ONLY
ENGINEERING SEAL
DRAFTING DEPT.
DESIGN DEPT.

138kV
HORIZONTAL UNBRACED
CROSS ARM (3960mm)
DESIGN REQUIREMENT DWG

D23
001-DRD