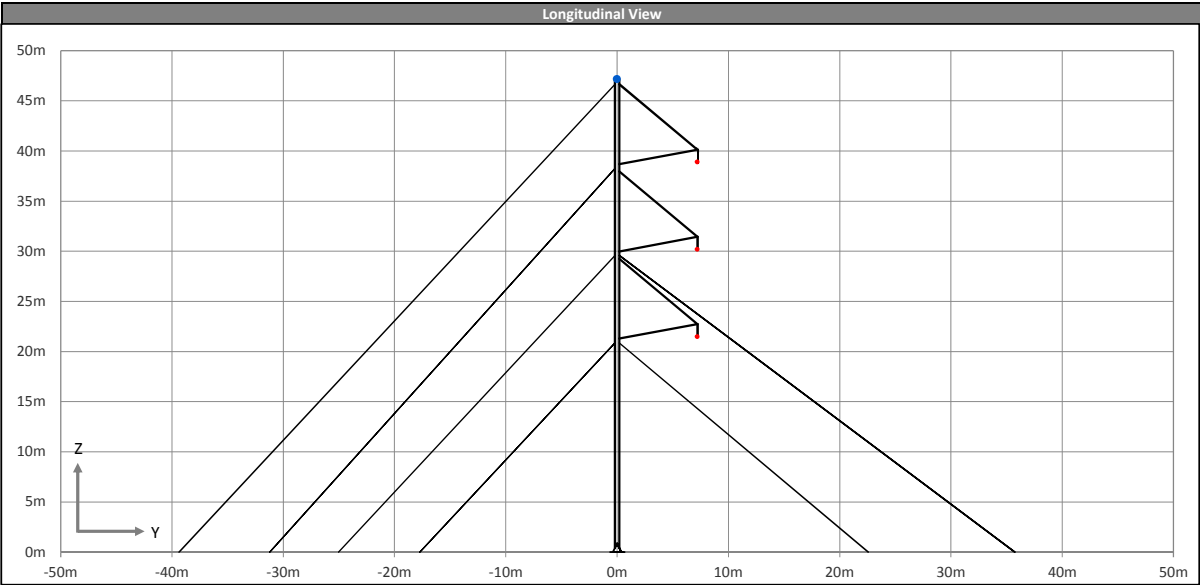
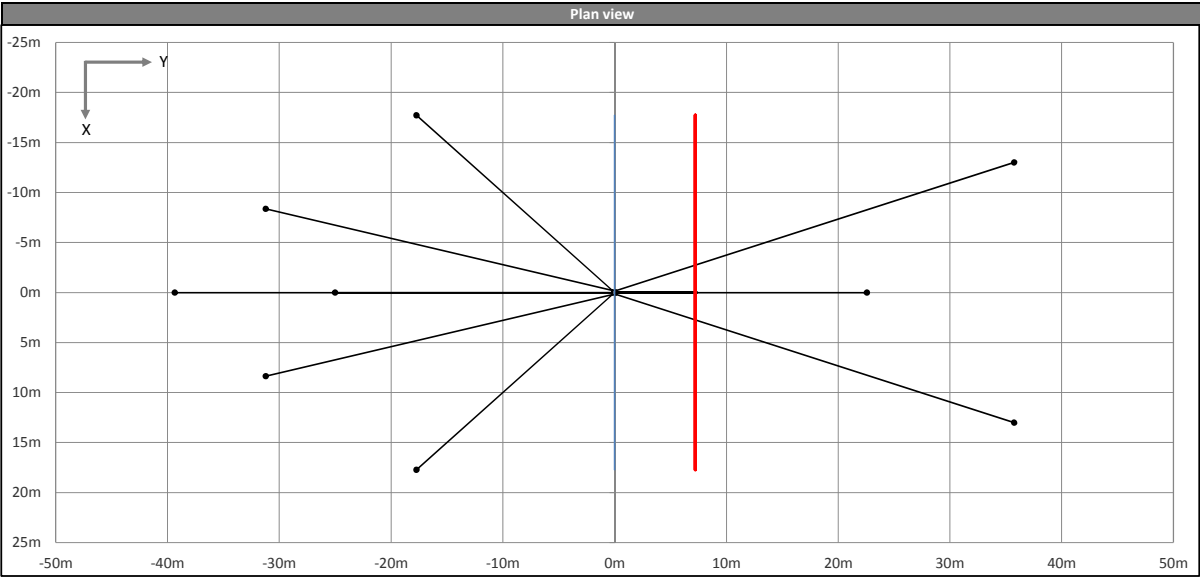


ANNEXURE A

CONFIGURATION SUMMARIES

ERS CONFIGURATION SUMMARY

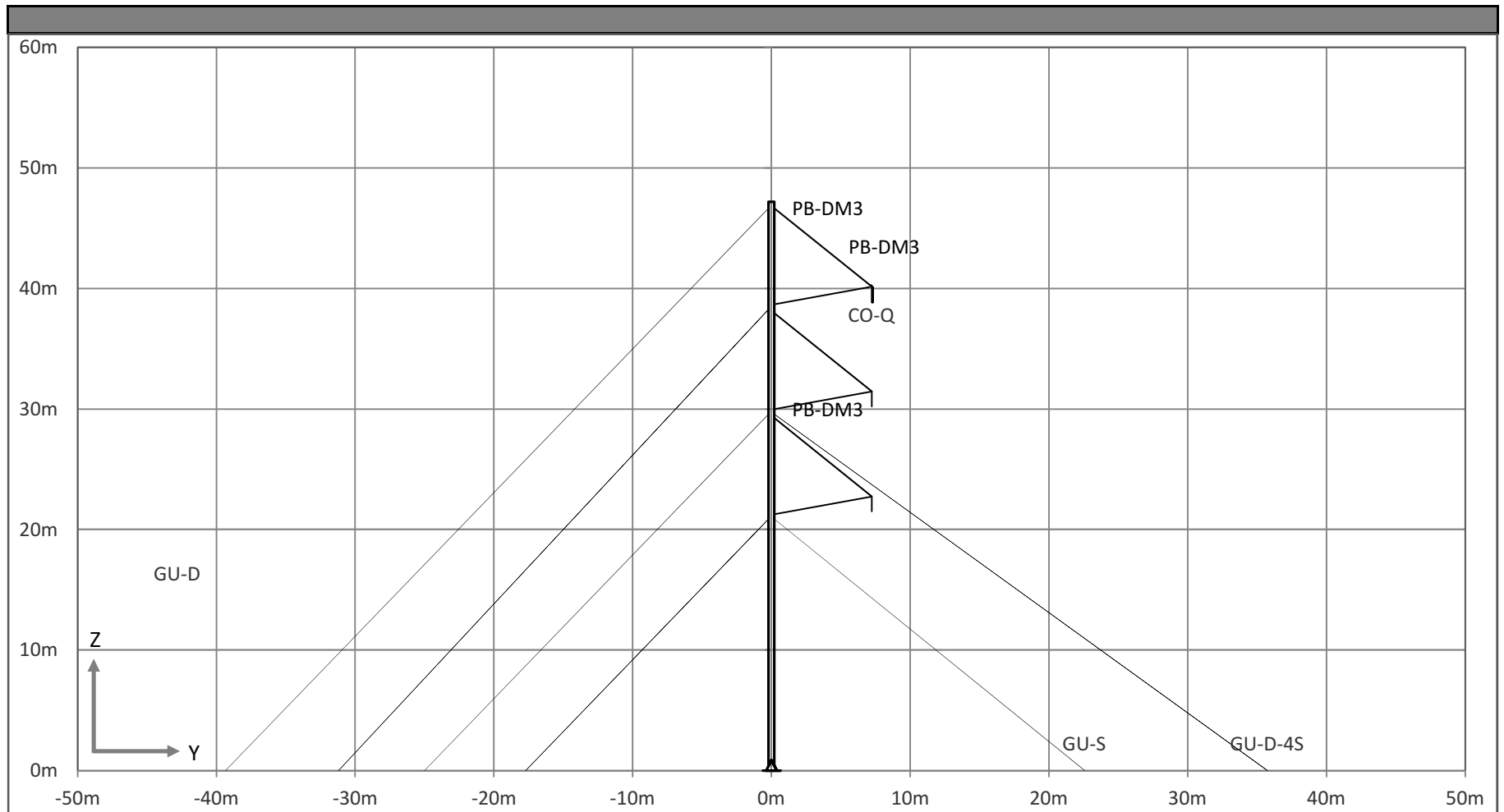
C1 - VERTICAL SUSPENSION 765KV



Line & Tower specifications			
Conductor			
Simulated with:	Zebra	Bersimis	
Qty per phase:	4	4	
Conductor diameter:	28.62 mm	35.05 mm	
Conductor MBS:	133 kN	154 kN	
Earthwire			
Simulated with:	GSW7/3.66mm		
Diameter of earthwire:	10.98 mm		
Earthwire MBS:	68.4 kN		
Line			
Horizontal Span:	220 m		
Line angle:	0° to 10°		
Loads & loading conditions			
Wind Pressure:	701 Pa		
Radial ice:	no ice		
Tension crit. 1 (cond. at EDT After Creep):	22%		
Tension crit. 2 (ground wire at EDT After Creep):	17%		
Overload Vertical:	1.0		
Overload Horizontal:	1.0		
Overload Tension:	1.0		
Struct Wind Area Factor	1.0		
GRF on conductors:	1.0		
Cond. temp. EDT:	32 °C		
Cond. temp. WIND:	32 °C		
Cond. temp. COLD:	-5 °C		
Cond. temp. HOT:	85 °C		
Simulated wind directions:	+/-90°, +/-45°, +/-0°		
Tower property			
Tower Height:	47.2 m		
Footprint (x, y):	35.4 m x 75.1 m		
Earthwire to phase cl. (at the tower):	9.0 m		
Phase to phase dist.:	8.7 m		
Phase to ground cl. (at mid-span):	15 m		
Lowest conductor elev.:	21.5 m		
Guy wire / Anchors			
Number of guys wires:	9		
Type of guys (MBS):	9/16" EHS x 19 str. (150 kN)		
Number of anchors:	9		
Insulators			
Min. creepage distance:	24780 mm		
Line post diameter	90 mm	Twin & Modular	
Suspension / strain MBS:	230 kN	Single & Modular	
Strength Factors			
Insulators (tension / comp.):	70% / 80%		
Hardware:	60%		
Guys wires:	65%	Others:	60%

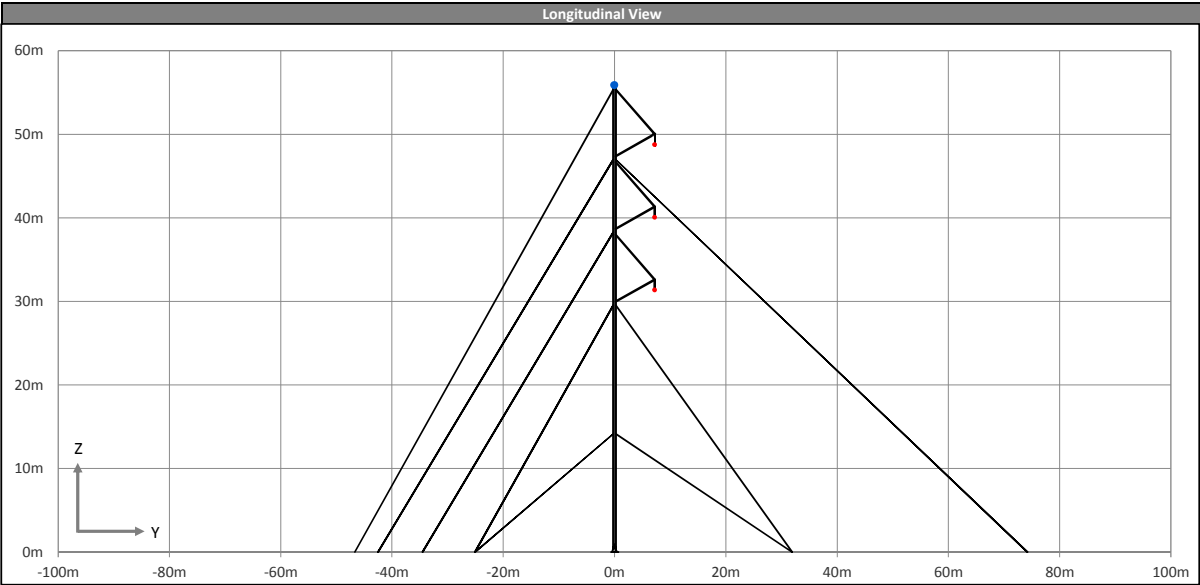
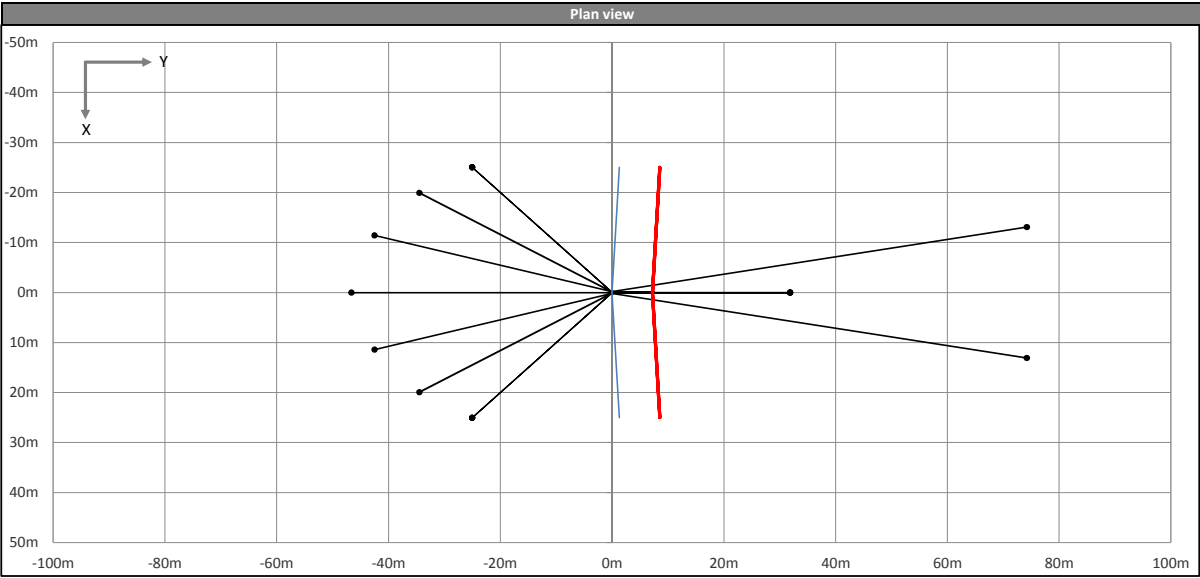
C1 - VERTICAL SUSPENSION 765KV

Reference for Tower Assemblies



ERS CONFIGURATION SUMMARY

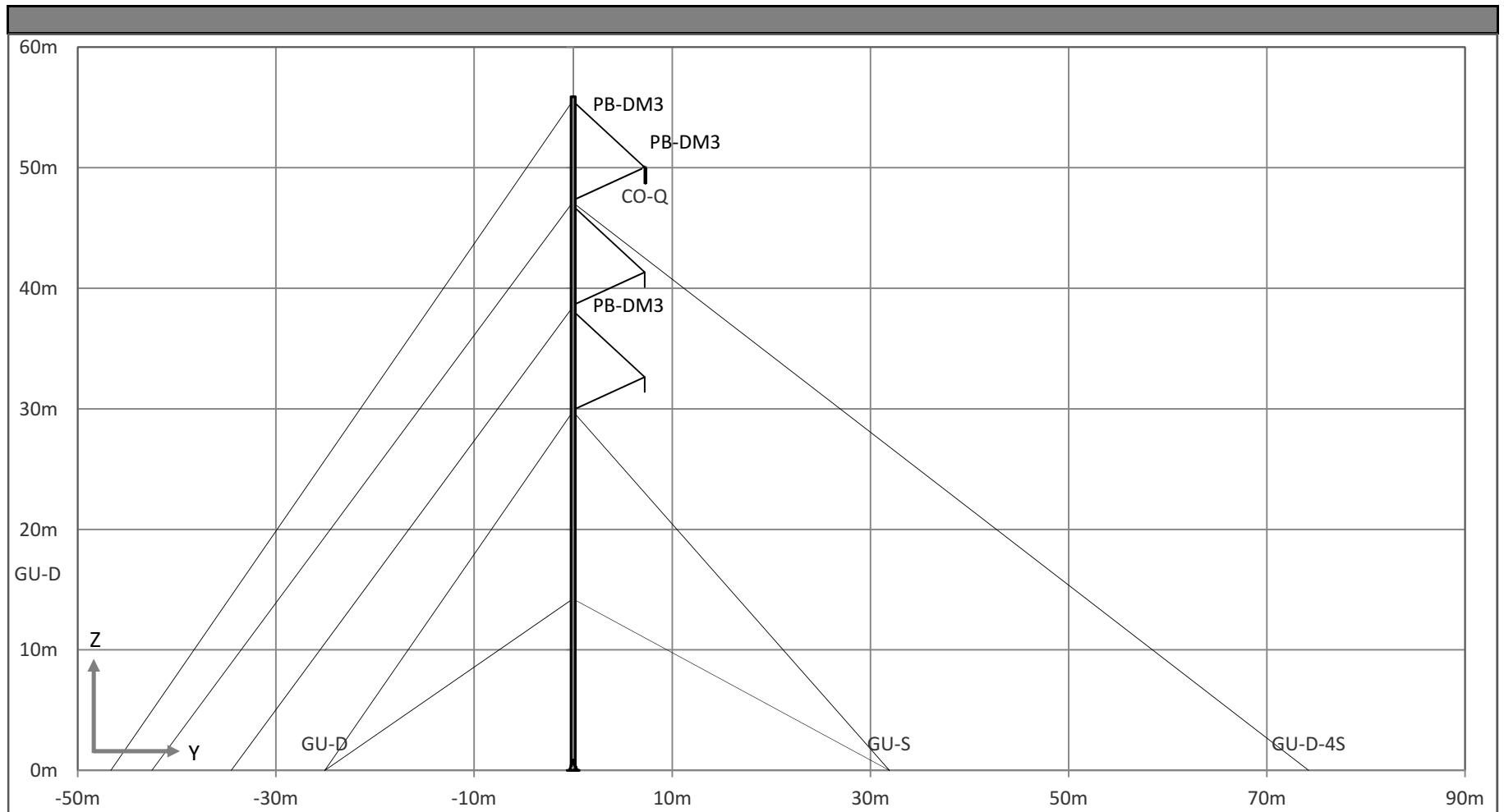
C1A - VERTICAL SUSPENSION 765KV



Line & Tower specifications			
Conductor			
Simulated with:	Zebra	Bersimis	
Qty per phase:	4	4	
Conductor diameter:	28.62 mm	35.05 mm	
Conductor MBS:	133 kN	154 kN	
Earthwire			
Simulated with:	GSW7/3.66mm		
Diameter of earthwire:	10.98 mm		
Earthwire MBS:	68.4 kN		
Line			
Horizontal Span:	400		
Line angle:	6° to 10° for Quad Bersimis (2° to 10° for Quad Zebra)		
Loads & loading conditions			
Wind Pressure:	701 Pa		
Radial ice:	no ice		
Tension crit. 1 (cond. at EDT After Creep):	22%		
Tension crit. 2 (ground wire at EDT After Creep):	17%		
Overload Vertical:	1.0		
Overload Horizontal:	1.0		
Overload Tension:	1.0		
Struct Wind Area Factor	1.0		
GRF on conductors:	1.0		
Cond. temp. EDT:	32 °C		
Cond. temp. WIND:	32 °C		
Cond. temp. COLD:	-5 °C		
Cond. temp. HOT:	85 °C		
Simulated wind directions:	+/-90°, +/-45°, +/-0°		
Tower property			
Tower Height:	55.9 m		
Footprint (x, y):	50.1 m x 120.9 m		
Earthwire to phase cl. (at mid-span):	9.0 m		
Phase to phase dist.:	8.7 m		
Phase to ground cl. (at mid-span):	15 m		
Lowest conductor elev.:	31.3 m		
Guy wire / Anchors			
Number of guys wires:	13		
Type of guys (MBS):	9/16" EHS x 19 str. (150 kN)		
Number of anchors:	10		
Insulators			
Min. creepage distance:	24780 mm		
Line post diameter	90 mm	Twin & Modular	
Suspension / strain MBS:	230 kN	Single & Modular	
Strength Factors			
Insulators (tension / comp.):	70% / 80%		
Hardware:	60%		
Guys wires:	65%	Others:	60%

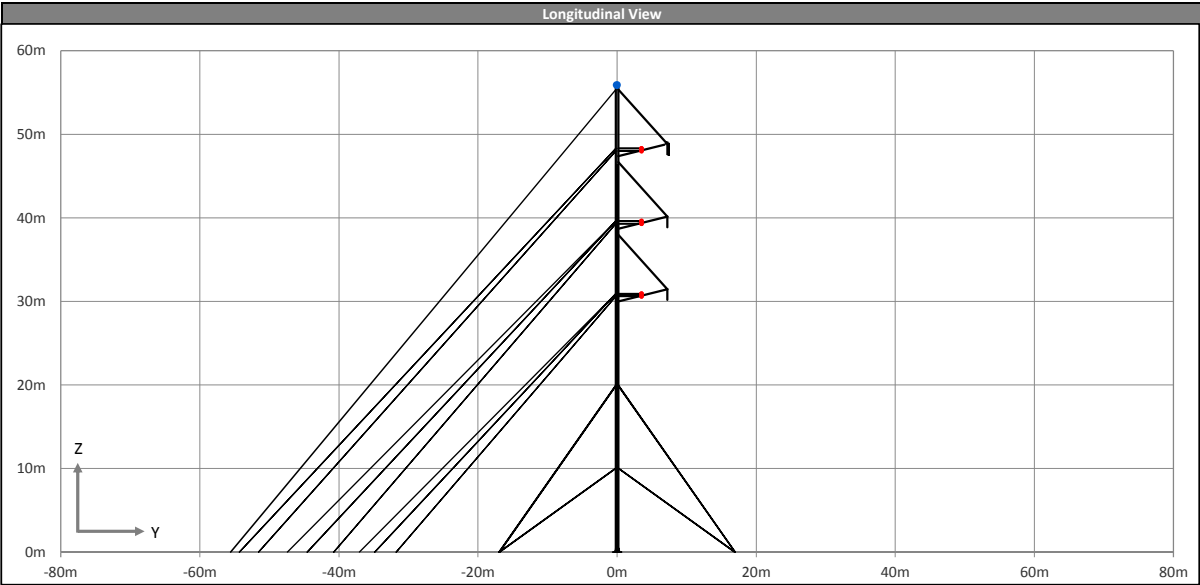
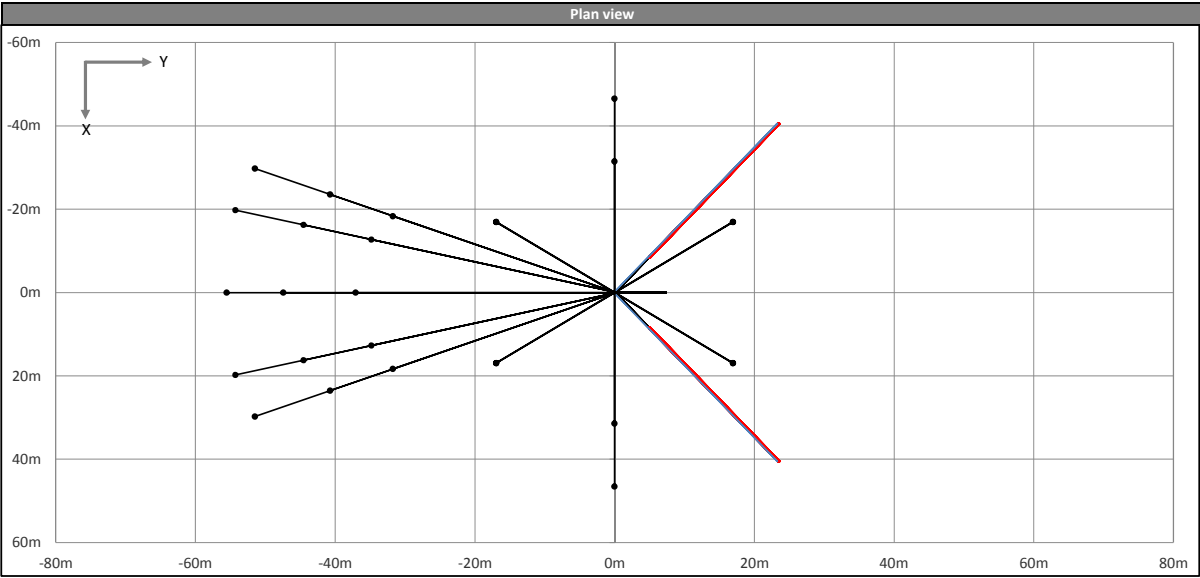
C1A - VERTICAL SUSPENSION 765KV

Reference for Tower Assemblies



ERS CONFIGURATION SUMMARY

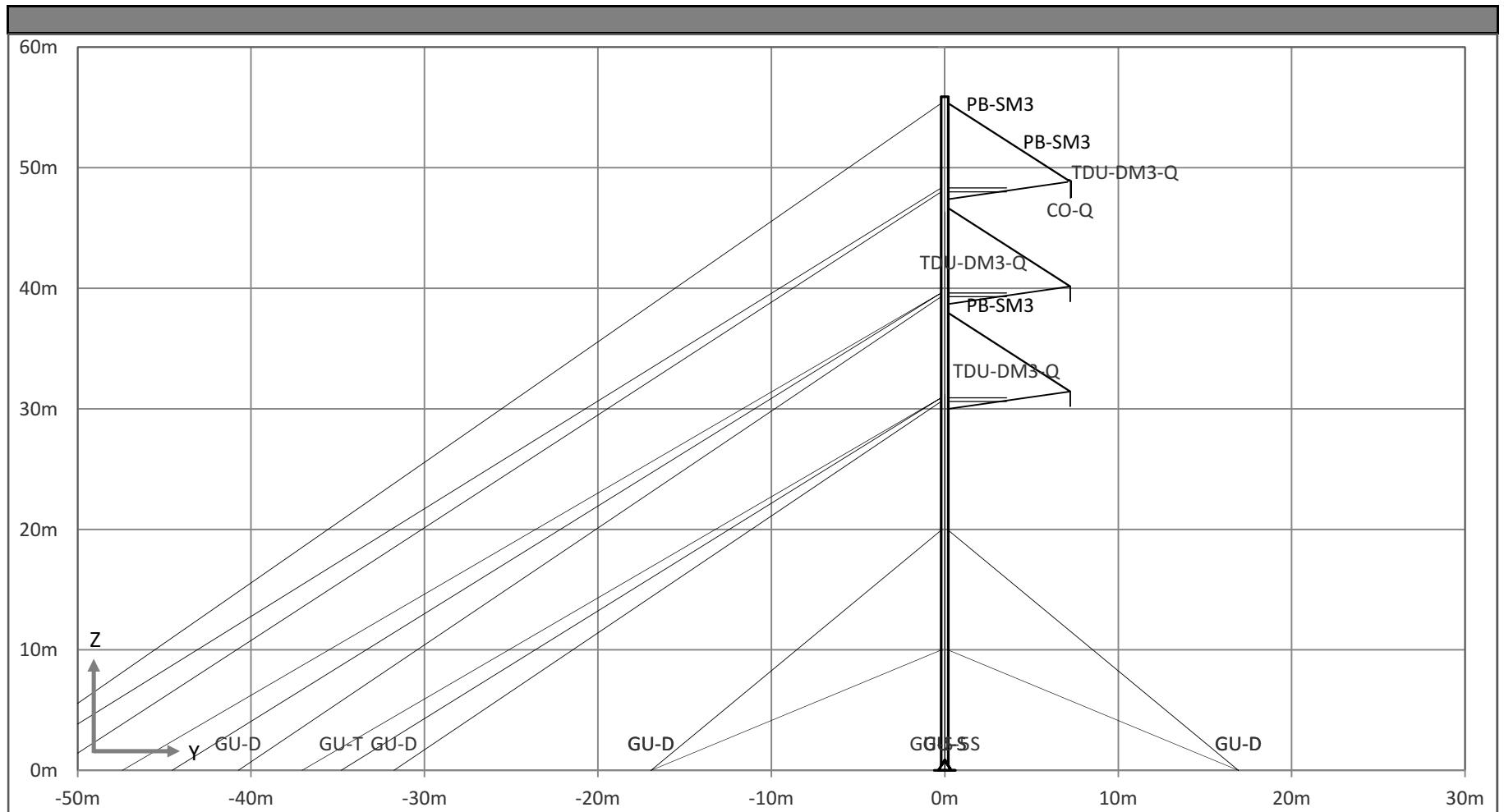
C2 - VERTICAL ANCHOR 765KV



Line & Tower specifications			
Conductor			
Simulated with:	Bersimis	Zebra	
Qty per phase:	4	4	
Conductor diameter:	35.05 mm	28.62 mm	
Conductor MBS:	154 kN	133kN	
Earthwire			
Simulated with:	GSW7/3.66mm		
Diameter of earthwire:	10.98 mm		
Earthwire MBS:	68.4 kN		
Line			
Horizontal Span:	400 m		
Line angle:	Up to 60°		
Loads & loading conditions			
Wind Pressure:	701 Pa		
Radial ice:	no ice		
Tension crit. 1 (cond. at EDT After Creep):	22%		
Tension crit. 2 (ground wire at EDT After Creep):	17%		
Overload Vertical:	1.0		
Overload Horizontal:	1.0		
Overload Tension:	1.0		
Struct Wind Area Factor	1.0		
GRF on conductors:	1.0		
Cond. temp. EDT:	32 °C		
Cond. temp. WIND:	32 °C		
Cond. temp. COLD:	-5 °C		
Cond. temp. HOT:	85 °C		
Simulated wind directions:	+/-90°, +/-45°, +/-0°		
Tower property			
Tower Height:	55.9 m		
Footprint (x, y):	93.1 m x 72.5 m		
Earthwire to phase cl. (at the tower):	9.0 m		
Phase to phase dist.:	8.7 m		
Phase to ground cl. (at mid-span):	15 m		
Lowest conductor elev.:	30.6 m		
Guy wire / Anchors			
Number of guys wires:	27		
Type of guys (MBS):	9/16" EHS x 19 str. (150 kN)		
Number of anchors:	23		
Insulators			
Min. creepage distance:	24780 mm		
Line post diameter	90 mm	Single & Modular	
Suspension / strain MBS:	230 kN	Twin & Modular	
Strength Factors			
Insulators (tension / comp.):	70% / 80%		
Hardware:	60%		
Guys wires:	65%	Others:	60%

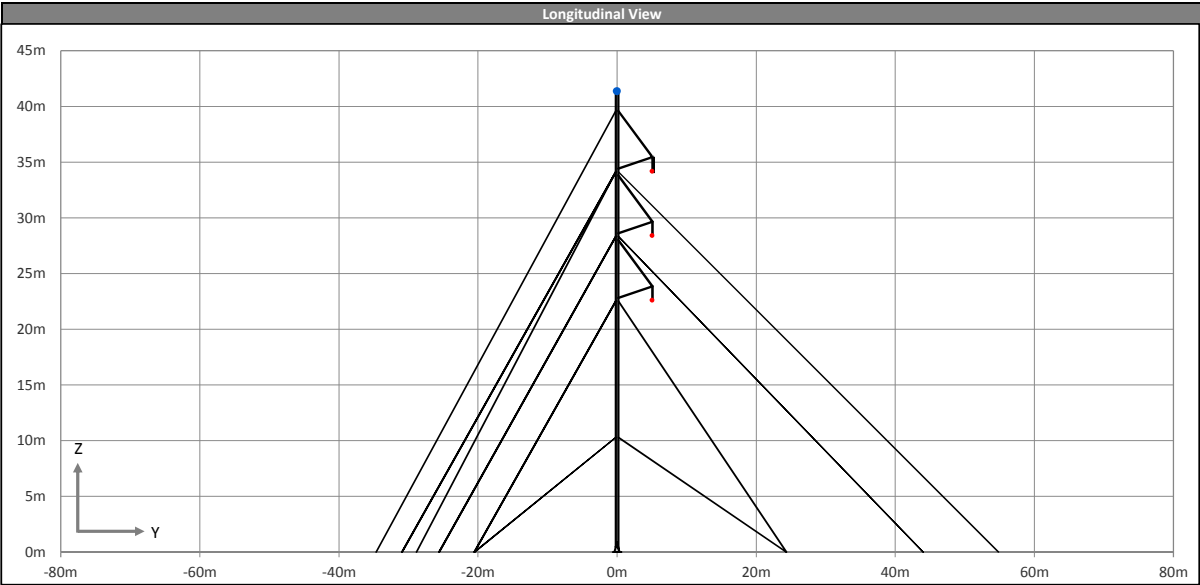
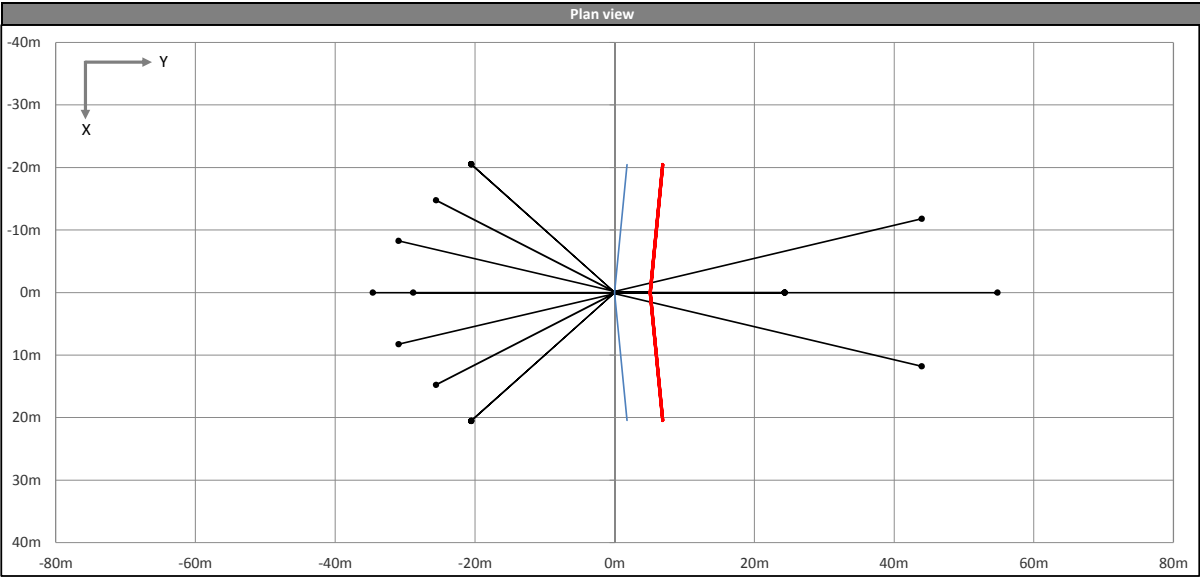
C2 - VERTICAL ANCHOR 765KV

Reference for Tower Assemblies



ERS CONFIGURATION SUMMARY

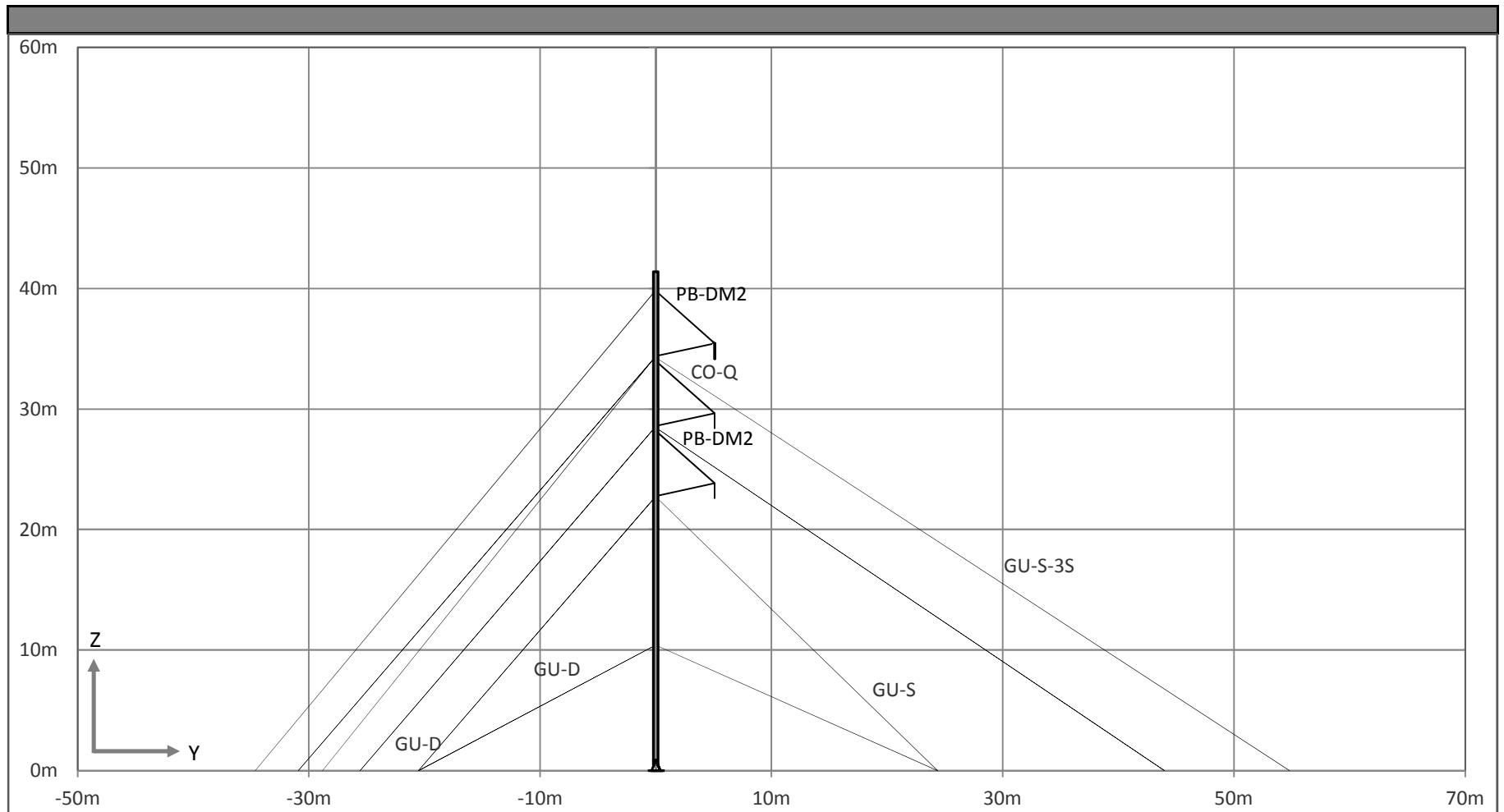
C3 - VERTICAL SUSPENSION 400KV



Line & Tower specifications			
Conductor			
Simulated with:	Moose	(or Twin Moose)	
Qty per phase:	4		
Conductor diameter:	31.77 mm		
Conductor MBS:	164.4 kN		
Earthwire			
Simulated with:	GSW7/3.66mm		
Diameter of earthwire:	10.98 mm		
Earthwire MBS:	68.4 kN		
Line			
Horizontal Span:	400 m		
Line angle:	0° to 10°	For Quad Moose	
	0° to 20°	For Twin Moose	
Loads & loading conditions			
Wind Pressure:	701 Pa		
Radial ice:	no ice		
Tension crit. 1 (cond. at EDT After Creep):	22%		
Tension crit. 2 (ground wire at EDT After Creep):	17%		
Overload Vertical:	1.0		
Overload Horizontal:	1.0		
Overload Tension:	1.0		
Struct Wind Area Factor	1.0		
GRF on conductors:	2.2089		
Cond. temp. EDT:	32 °C		
Cond. temp. WIND:	32 °C		
Cond. temp. COLD:	-5 °C		
Cond. temp. HOT:	85 °C		
Simulated wind directions:	+/-90°, +/- 45°, +/- 0°		
Tower property			
Tower Height:	41.4 m		
Footprint (x, y):	41.1 m x 89.5 m		
Earthwire to phase cl. (at mid-span):	9.0 m		
Phase to phase dist.:	5.8 m		
Phase to ground cl. (at mid-span):	8.84 m		
Lowest conductor elev.:	22.6 m		
Guy wire / Anchors			
Number of guys wires:	15		
Type of guys (MBS):	9/16" EHS x 19 str. (150 kN)		
Number of anchors:	12		
Insulators			
Min. creepage distance:	16520 mm		
Line post diameter	90 mm	Twin & Modular	
Suspension / strain MBS:	230 kN	Single & Modular	
Strength Factors			
Insulators (tension / comp.):	70% / 80%		
Hardware:	60%		
Guys wires:	65%	Others:	60%

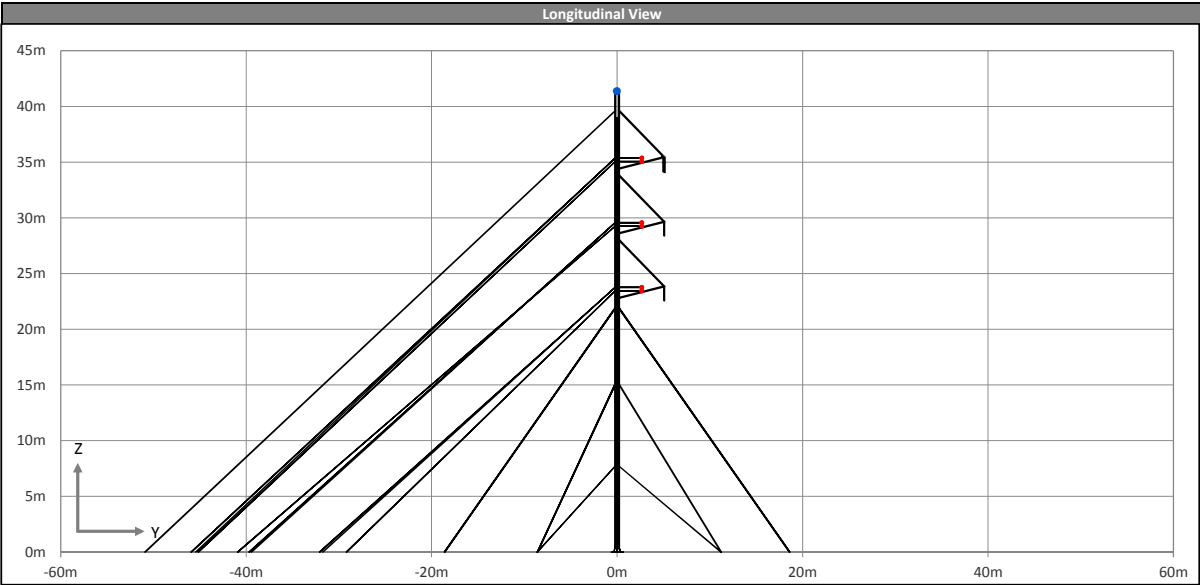
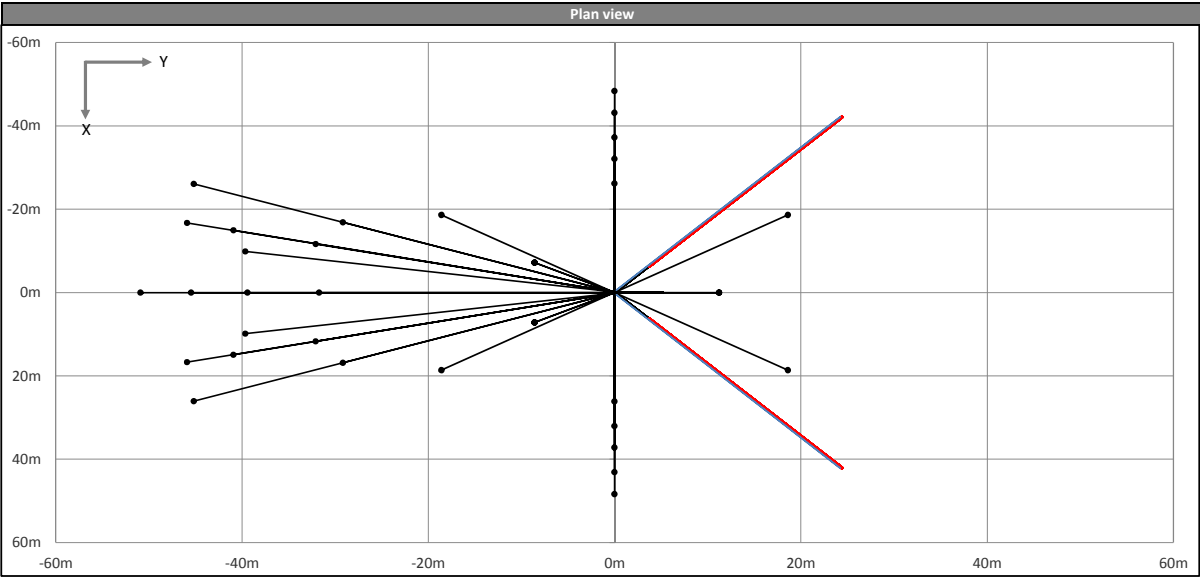
C3 - VERTICAL SUSPENSION 400KV

Reference for Tower Assemblies



ERS CONFIGURATION SUMMARY

C4 - VERTICAL ANCHOR 400KV



Line & Tower specifications			
Conductor			
Simulated with:	Moose	(or Twin Moose)	
Qty per phase:	4		
Conductor diameter:	31.77 mm		
Conductor MBS:	164.4 kN		
Earthwire			
Simulated with:	GSW7/3.66mm		
Diameter of earthwire:	10.98 mm		
Earthwire MBS:	68.4 kN		
Line			
Horizontal Span:	400 m		
Line angle:	0° to 60°		
Loads & loading conditions			
Wind Pressure:	701 Pa		
Radial ice:	no ice		
Tension crit. 1 (cond. at EDT After Creep):	22%		
Tension crit. 2 (ground wire at EDT After Creep):	17%		
Overload Vertical:	1.0		
Overload Horizontal:	1.0		
Overload Tension:	1.0		
Struct Wind Area Factor	1.0		
GRF on conductors:	2.2		
Cond. temp. EDT:	32 °C		
Cond. temp. WIND:	32 °C		
Cond. temp. COLD:	-5 °C		
Cond. temp. HOT:	85 °C		
Simulated wind directions:	+/-90°, +/- 45°, +/- 0°		
Tower property			
Tower Height:	41.4 m		
Footprint (x, y):	96.7 m x 69.5 m		
Earthwire to phase cl. (at mid-span):	9.0 m		
Phase to phase dist.:	5.8 m		
Phase to ground cl. (at mid-span):	8.84 m		
Lowest conductor elev.:	23.4 m		
Guy wire / Anchors			
Number of guys wires:	36		
Type of guys (MBS):	9/16" EHS x 19 str. (150 kN)		
Number of anchors:	33		
Insulators			
Min. creepage distance:	16520 mm		
Line post diameter	90 mm	Single & Modular	
Suspension / strain MBS:	230 kN	Twin & Modular	
Strength Factors			
Insulators (tension / comp.):	70% / 80%		
Hardware:	60%		
Guys wires:	65%	Others:	60%

C4 - VERTICAL ANCHOR 400KV

Reference for Tower Assemblies

