
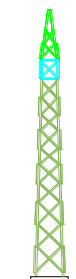

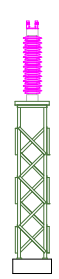
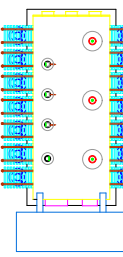
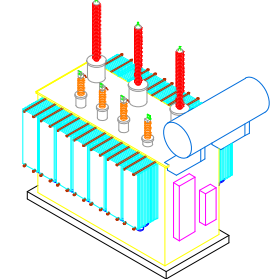


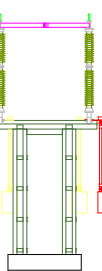


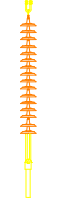
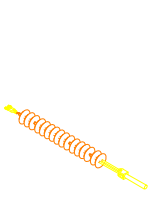


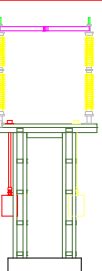

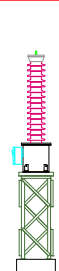
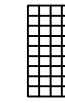


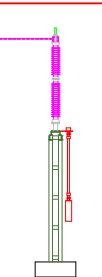

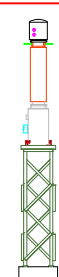

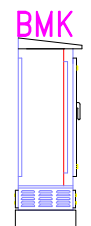

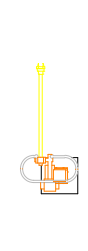
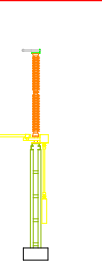
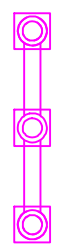
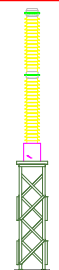



LEGEND

  <p>GANTRY TOWER</p>	  <p>POST INSULATOR</p>	  <p>POWER TRANSFORMER 132/33kV</p>	 <p>ROAD</p>
  <p>DISCONNECTING SWITCH MOTOR OPERATED WITH TWO EARTH SWITCH MOTOR OPERATED</p>	  <p>LIGHTNING ARRESTER</p>	  <p>STRING INSULATOR</p>	 <p>STRANDED CONDUCTOR</p>
  <p>DISCONNECTING SWITCH MOTOR OPERATED WITH ONE EARTH SWITCH MOTOR OPERATED</p>	  <p>CAPACITIVE VOLTAGE TRANSFORMER</p>	 <p>EARTH MAT</p>	 <p>SHIELD WIRE</p>
  <p>DISCONNECTING SWITCH MOTOR OPERATED</p>	  <p>CURRENT TRANSFORMER</p>	 <p>B.M.K</p>  <p>BMK</p> <p>BAY MARSHALLING KIOSK</p>	 <p>CHAIN-LINK FENCE</p>
  <p>EARTH SWITCH MOTOR OPERATED</p>	  <p>CIRCUIT BREAKER MOTOR OPERATED</p>	 <p>CABLE TRENCH</p>	

MINIMUM AIR CLEARANCES

MINIMUM AIR CLEARANCES	132kV
RATED LIGHTNING IMPULSE WITHSTAND VOLTAGE	650 KV
RATED SWITCHING IMPULSE WITHSTAND VOLTAGE (PHASE-EARTH)	—
RATED SWITCHING IMPULSE WITHSTAND VOLTAGE (PHASE-PHASE)	—
BASIC VALUE (NON-FLASHOVER DISTANCE, INCLUDING SAFETY-MARGIN)	1.52m +10%
MINIMUM CLEARANCE BETWEEN LOWEST LIVE PART AND GROUND (TOTAL SAFETY ZONE)	3.77m
CLEARANCE BETWEEN GROUND AND THE INSULATOR'S BASE	2.5m
VERTICAL CLEARANCE WORKING ZONE	3m
HORIZONTAL CLEARANCE WORKING ZONE	3.27m
CLEARANCE OF CONDUCTORS ABOVE THE MAIN ROADS	8.5m
PHASE SPACING OF RIGID BUSBAR (CENTER LINE TO CENTER LINE)	2.5m
PHASE SPACING OF OVERSPAN (CENTER LINE TO CENTER LINE)	3.5m
PHASE SPACING OF FLEXIBLE CONDUCTOR BETWEEN EQUIPMENT (CENTER LINE TO CENTER LINE)	3.5m
POWER FREQUENCY WITHSTAND VOLTAGE	275kV
VERTICAL CLEARANCE BETWEEN LIVE CONDUCTOR AND SHIELD	3m



ABBREVIATION

ABBR.	EQUIPMENT
CB	CIRCUIT BREAKER
CT	CURRENT TRANSFORMER
CVT	CAPACITIVE VOLTAGE TRANSFORMER
DS	DISCONNECTING SWITCH
DSE	DISCONNECTING SWITCH WITH EARTHING SWITCH
EM	EARTH MAT
ES	EARTH SWITCH
GA	GANTRY TOWER
LA	LIGHTNING ARRESTER
BMK	BAY MARSHALLING KIOSK
PI	POST INSULATOR
SC	SURGE COUNTER
SI	STRING INSULATOR
TW	TOWER

NOTE:

- 1- ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED.
- 2- 132KV SWITCHYARD LAYOUT PLAN & SECTION ARE TYPICAL REPRESENTATION & PRELIMINARY.
- 3- ALL CLEARANCES ARE AS PER IEC GUIDELINES.
- 4- LOCATION OF MARSHALLING BOX SHOWN IN DRAWING ARE TENTATIVE AND SHALL BE SUITABLY LOCATED CONSIDERING ACTUAL SITE CONDITION.
- 5- ALL THE EQUIPMENT & BUSES IN THE SOW WILL BE PROTECTED FROM LIGHTNING STRIKE BY MEANS OF SHIELD WIRE.
- 6- DISCONNECTOR SWITCH WILL HAVE MECHANICAL AND ELECTRICAL INTERLOCK WITH THE RELEVANT EARTH SWITCH.
- 7- ELECTRICAL INTERLOCK WILL BE PROVIDED BETWEEN DISCONNECTORS & CIRCUIT BREAKER SUCH THAT DISCONNECTOR WILL BE OPEN AND CLOSED WHEN RESPECTIVE CIRCUIT BREAKER IS IN OFF POSITION.
- 8- THIS IS CONCEPTUAL DRAWING FOR TENDER PURPOSE. HOWEVER IT IS MANDATORY TO FOLLOW THE REQUIREMENT OF KETRACO STANDARD.
- 9- ALL CABLE TRENCHES' SIZES AND ROUTES ARE TENTATIVE AND SUBJECTED TO CABLE TRENCH LAYOUT & DETAIL DOCUMENT AND CLIENT/ CONSULTANT'S APPROVAL.
- 10- CONTRACTOR SHALL VISIT THE SITE AND REQUIRED MODIFICATIONS/ DEMOLITIONS ARE IN THE CONTRACTOR'S RESPONSIBILITY.
- 11- CONTRACTOR SHALL VISIT THE SITE TO ENSURE THAT SUFFICIENT SPACE IS AVAILABLE FOR EXISTING CABLE TRENCHES TO IMPLEMENT NEW CABLES
- 12- ALL CLEARANCES WILL BE FINALIZED AFTER APPROVAL OF INSULATION COORDINATION DOCUMENT IN EPC DETAIL DESIGN STAGE.
- 13- CONSIDERING THE SIGNIFICANT LEVEL DIFFERENCE BETWEEN THE EDGE/ FENCE TO BE DEMOLISHED AND THE COVERING THE NEW SCOPE, THE CONTRACTOR SHALL SELF-APPRAISE ON THIS ASPECT WHICH MAY INFLUENCE DESIGN DECISION ON BUSBAR EXTENSION, EARTHWORKS AND DRAINAGE WORKS.
- 14- THE CONTRACTOR SHOULD STUDY FOUNDATION DRAWINGS/ SITE CONDITION CAREFULLY BEFORE FIRING UP ON THE FOUNDATION DESIGN CONSIDERING THE 200mm. THICK CONCRETE RAFT FOUNDATION OVER THE ENTIRE SUBSTATION SWITCHYARD.
- 15- WHEREVER THE CABLE TRENCH CROSSES THE ROAD, AN UNDER ROAD CONCRETE CABLE DUCT SHALL BE CONSIDERED IN GENERAL LAYOUT, TOGETHER WITH PROVIDING THE ELABORATE DESIGN DURING EPC DETAIL DESIGN STAGE.
- 16- THE LIGHTNING PROTECTION IS INDICATIVE ONLY AND THE CONTRACTOR SHALL PROVIDE CALCULATIONS.
- 17- THE LIGHTNING AND POWER FREQUENCY WITHSTAND VOLTAGE WILL BE GUIDED BY AN INSULATION COORDINATION STUDY IN ACCORDANCE TO IEC.

GENERAL NOTES & LEGENDS OF 132KV EQUIPMENT

REFERENCE DRAWINGS					
DRAWINGS NO.:		TITLE:			
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
APPROVED	APPROVED WITH COMMENTS	NOT APPROVED	FOR INFORMATION		
DATE:.....		SIGNATURE/STAMP:.....PROJECT CONSULTANT.....			
 <p>KENYA ELECTRICITY TRANSMISSION COMPANY LIMITED "POWER PEOPLE - 2012" "RELIABLE" "FOCUS ON CUSTOMER"</p>		KENYA ELECTRICITY TRANSMISSION COMPANY LTD			
 <p>COLENCO CONSULTING LIMITED Innovation for sustainable futures</p>		COLENCO CONSULTING LIMITED			
PROJECT:					
KENYA TRANSMISSION NETWORK IMPROVEMENT PROJECT (KTRNIP).					
PROJECT DRAWING NO.					
NAME:		DATE:		PROJECT NO.:	
PREPARED: NIL		RUMURUTI 132/33KV SUBSTATION			
DRAWN: F.J		14/05/2025		TITLE:	
CHECKED: V.JOSHI		14/05/2025		GENERAL NOTES & LEGENDS OF 132KV EQUIPMENT	
APPROVED: S.DESHMUKH		14/05/2025			
REVISIONS	NO.		NAME DATE		
SCALE: 1:600		DWG NO.		REV.:	