

Quality Handbook (RDSS)



QUALITY HANDBOOK

Sigma Rules

RDSS PROJECT

Enhance the quality of life for all stakeholders by creating a sustainable organization



Integrity



Customer
Centricty



Innovation



Team Work



Care

JAKSON INFRA

Quality Policy

We at Jakson Ltd believes that "**Enhance the Quality of life for all stakeholders by creating a sustainable organization**" through Sustainable Work Practices and **Quality at First Time Right**. Jakson Ltd is committed to meet or exceed the expectations of all stakeholders, without compromising on Quality of our products and services.

We strive to achieve and sustain excellence in our businesses by continually improving our Quality Management System by creating and leveraging strategic business partnerships to ensure optimum business performance.

To achieve these objectives, We shall: -

- ❖ Develop, implement, and maintain Quality Management System aligned with our sustainable commitments, core values and consistent with industry standards.
- ❖ Drive continuous improvement in Quality through setting objectives and targets, assessing Quality performance, using appropriate best in class Quality practices and providing appropriate training & resources to employees, contractors' workforce and associates.
- ❖ Embracing technological advances and continuously upgrading our systems and processes.
- ❖ Assign, Communicate Quality responsibilities and accountability to Employees, Contractors, Workers, associates, Suppliers and Service Providers towards fulfilling Quality Management System requirements.

We shall periodically review this policy for its appropriateness and relevance with Quality Risks and Opportunities.

Raghav Gupta
Issue 2: R1
01st July 2024
Place: Noida



Raghav Gupta
Managing Director

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1. QUALITY CONTROL & PROCESS IN POLE ERECTION

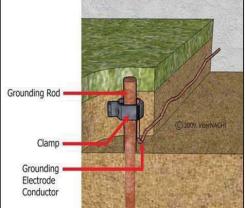
Sr. No.	Process	Ref. Photo	Description	Quality Aspect
1.	Detailed Survey		<ul style="list-style-type: none"> The Detailed survey of the route is carried out. The detailed survey consists of accurately determining the number of households, identification place for installation of DTR, details of HT line, details of LT line, Road crossing etc. 	<ul style="list-style-type: none"> Ensure all horizontal & vertical clearances throughout the route.
2.	Pit Marking		<ul style="list-style-type: none"> Location of poles shall be marked as per approved survey drawing. 	<ul style="list-style-type: none"> Required clearance to be checked from any nearby object. Water logged and seepage areas, dewatering shall be ensured.
3.	Pit Excavation		<ul style="list-style-type: none"> Pits shall 1.5 mtrs. beneath the soil having size of 0.50X0.50X1.5 mtrs or as per client's specification. 	<ul style="list-style-type: none"> Ensure the pit size as per specification.
4.	Stone Pad		<ul style="list-style-type: none"> Stone pad shall be placed on bottom of the excavated pit having size of 0.45X0.45X0.075 mtrs. or as per client's specification. 	<ul style="list-style-type: none"> Ensure the use of stone pad.
5.	Placement & Erection of Pole		<ul style="list-style-type: none"> Place the pole centring the excavation and arrange to stand firmly on the stone pad. 	<ul style="list-style-type: none"> Vertically & alignment to be ensure. Confirmed with vertically from two sides 90° apart.

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Sr. No.	Process	Ref. Photo	Description	Quality Aspect
6.	Grouting/ backfilling of pole		<ul style="list-style-type: none"> • Grouting/ backfilling to be done as per client criteria/TS. • Pole pit shall be backfilled by using 200 mm average size bolder/brick bat (60%) mixed with excavated soil (40%) or as per TS. • Concrete mixture shall be proportionate of 1:3:6 confirming M-10 grade or as per TS. • Muffing shall be 300 mm above ground level and shall be made by using form boxes of round shaped or as designed based on specification. • Muffing may be done in rectangular or round shape having size of 450 mm or as per TS. 	<ul style="list-style-type: none"> • Concreting material as per TS. • Compaction to be done as per TS.

2. QUALITY CONTROL & ASSURANCE IN EARTHING

2.1 Spike Earthing

Sr. No.	Process	Ref. Photo	Description	Quality Aspect
1.	Pit Excavation		<ul style="list-style-type: none"> • Depth for spike earthing pit shall be 2.8 mtrs. from top of the soil or as per specifications. 	<ul style="list-style-type: none"> • Depth of pit & distance from pole to be as per TS.
2.	Spike Earthing		<ul style="list-style-type: none"> • Spike Earthing shall match the ground level where SWG GI wire used to connect through bolts & nuts. 	<ul style="list-style-type: none"> • Connection using GI wire & nuts – Bolts to be checked.
3.	Spike Earthing Connection		<ul style="list-style-type: none"> • Top of the SWG shall be connected to the Structure fittings. • Bottom of SWG shall be connected to the spike earthing using Nuts-bolts size as per specification 	<ul style="list-style-type: none"> • Connection of the Earthing to be done properly from top of structure to bottom spike.

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2.2 Pipe Earthing

Sr. No.	Process	Ref. Photo	Description	Quality Aspect
1.	Marking		<ul style="list-style-type: none"> Location of Earth pit shall be marked as per approved TS. 	<ul style="list-style-type: none"> Minimum distance shall be 3.0 mtrs. from respective earthing and in a delta shape or as per TS.
2.	Excavation		<ul style="list-style-type: none"> Depth of pit shall be 3.3 Mtrs. or as per specifications from top of the soil. Earth Pipe shall be installed in the middle of excavated pits. 	<ul style="list-style-type: none"> Ensure the proper size of pit.
3.	Earthing Erection & Connections		<ul style="list-style-type: none"> Earthing shall be done using charcoal and salt as per TS. 03 nos. pipe shall be used for to earthed separately – one no. for earthing of LA using SWG wire; one no. for all structure fittings, DTR body, LTDB, CT meter box etc using SWG wire; one no. for DTR neutral using GI strip. 	<ul style="list-style-type: none"> Earthing connection should be checked. Tightness of Nuts – bolts should be proper earth resistance measurement to be done.

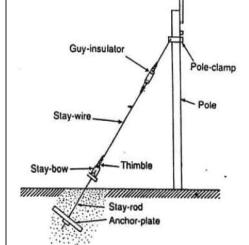
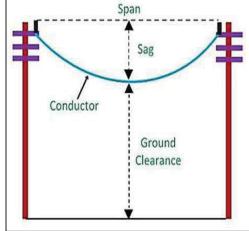
3. QUALITY CONTROL AND ASSURANCE IN DTR INSTALLATION

Sr. No.	Process	Ref. Photo	Description	Quality Aspect
1.	DTR Pole Erection		<ul style="list-style-type: none"> Distance between two poles shall be 2.6 mtrs. as per specification. 	<ul style="list-style-type: none"> Distance between two poles shall be as per TS. Pole alignment should be proper.
2.	Structure Erection		<ul style="list-style-type: none"> Fixation of LA (Lightning Arrestor) 100mm from top of the pole or as per TS. Fixation of AB switch 1.63 mtrs. from top of the pole or as per TS. Fixation of DO fuse 1.6 mtrs. from AB switch or as per TS. 	<ul style="list-style-type: none"> Structure should be fixed horizontally.
3.	DTR Installation		<ul style="list-style-type: none"> Installation of DTR 3.5 mtrs. from ground level or 2.2 mtrs. from DO fuse. 	<ul style="list-style-type: none"> Proper verticality of substation support. Fixation of DTR on structures by fixing bolts & nuts properly. IR value.

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Sr. No.	Process	Ref. Photo	Description	Quality Aspect
4.	Cable Termination		<ul style="list-style-type: none"> Connection of equipment from LA to AB switches to DO fuse to HT bushing. Cables shall be sued from LT bushing to CT meter box and CT meter box to LT Distribution box. For output from LT Distribution box to LT cable/ Supply network. 	<ul style="list-style-type: none"> Single conductor should be used from LA to AB switch. Single conductor shall be used from AB to DO and respectively. No cut bits shall be allowed for any single connectivity. Proper phase to phase and phase to ground clearances maintained on the substation jumpers.

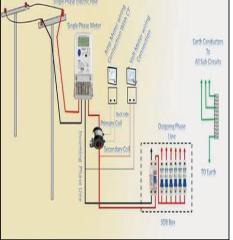
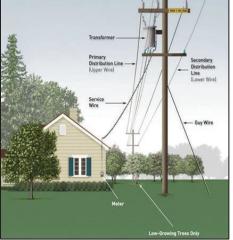
4. QUALITY CONTROL & ASSURANCE IN POLE ACCESSORIES & STRINGINING

Sr. No.	Process	Ref. Photo	Description	Quality Aspect
1.	Structure Fitting & Insulator Hoisting		<ul style="list-style-type: none"> Structure Fitting & Insulator hoisting shall be done in all poles of section string to be carried out. 	<ul style="list-style-type: none"> Structure fitted shall be tightened properly. Insulator shall be dust & crack free.
2.	LT fittings Installation		<ul style="list-style-type: none"> Fixation of clamps shall be done in all poles of section string to be carried out. 	<ul style="list-style-type: none"> Fittings and alignment to be done properly.
3.	Stay Fitting		<ul style="list-style-type: none"> Stay fitting shall be done in opposite side of stringing direction. 	<ul style="list-style-type: none"> Stay should be tightened properly. Angle of stay should be maintained between 30° to 45°
4.	Sagging of Conductor		<ul style="list-style-type: none"> Final sagging shall be done as per TS. Fixation using suspension clamps shall be done in intermediate poles. 	<ul style="list-style-type: none"> Conductor sag should be within tolerable limit as per TS.

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Sr. No.	Process	Ref. Photo	Description	Quality Aspect
5.	Jumpering & DB Box Connection		<ul style="list-style-type: none"> Pole top distribution box shall be fixed at proper height after completion of cable sagging & PTDB shall be connected to cable using piercing connector. 	<ul style="list-style-type: none"> Jumpering & wire connection in the PTDB box shall be done properly.

5.QUALITY CONTROL & ASSURANCE IN SERVICE CONNECTIONS

Sr. No.	Process	Ref. Photo	Description	Quality Aspect
1.	Installation of Meter kit		<ul style="list-style-type: none"> Identify a suitable place on wall for installation of meter on a corner place where easy outdoor traceability is possible and freed from any electrical conducting elements. 	<ul style="list-style-type: none"> Meter shall be perpendicular on wall and no inclination is allowed.
2.	Installation of 'J' pipe		<ul style="list-style-type: none"> Installation of "J" pipe shall be perpendicular. 	<ul style="list-style-type: none"> Ensure that service pass through "J" pipe only. "J" pipe connected properly with walls using clamps.
3.	Internal wiring		<ul style="list-style-type: none"> Installation of consumer kits, additional main switch along with MCB, electric bulb and copper wire of 6 mtrs. shall be required for output connection for energy meter. 	<ul style="list-style-type: none"> Ensure internal connection/ wiring properly.
4.	Connection from pole		<ul style="list-style-type: none"> Fixation of steel wire from existing poles to "J" pipe and connecting up to Earthing point of the energy meter. 	<ul style="list-style-type: none"> Ensure use of reel insulator to avoid excess sag.

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6. QUALITY CONTROL & ASSURANCE IN SUBSTATION FOUNDATION

Sr. No.	Process	Ref. Photo	Description	Quality Aspect
1.	Pit Marking		<ul style="list-style-type: none"> Layout for the excavation done as per approved structural details of foundation. 	<ul style="list-style-type: none"> Confirm the line reference peg marking. Ensure the alignment with reference to nearby foundation.
2.	Pit Excavation		<ul style="list-style-type: none"> Excavation of soil in all strata up to the depth given in the approved drawing and classification of foundation for safe transfer on the load super structure. 	<ul style="list-style-type: none"> Ensure availability of approved drawing classification of the foundation. Depth of excavation done with reference to FGL.
3.	Dewatering		<ul style="list-style-type: none"> In the water-logged locations, dewatering is required to remove the water from the pit. Use self-priming muddy water dewatering pump always to avoid delay in work. 	<ul style="list-style-type: none"> Ensure the availability of self-priming water pump with 5 to 10 HP capacity. Showing and shuttering used to avoid the collapsing of soil in the pit.
4.	PCC		<ul style="list-style-type: none"> Plain cement concrete used to provide rigid impervious bed (levelling course) to RCC foundation. 	<ul style="list-style-type: none"> Ensure the grade of concrete and thickness as per the approved drawing. Ensure the fine and coarse aggregate from the approved source.
5.	Reinforcement steel placement		<ul style="list-style-type: none"> Reinforcement steel in the concrete is used to carry the tensile forces in the foundation. 	<ul style="list-style-type: none"> Confirm the steel from the approved source. Provide the cover blocks and chair rods as per the drawing.

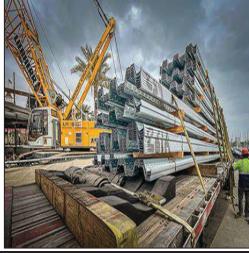
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Sr. No.	Process	Ref. Photo	Description	Quality Aspect
6.	Anchor Bolts Template setting		<ul style="list-style-type: none"> Template setting shall be done as per the approved template & foundation drawing. 	<ul style="list-style-type: none"> Frequently checking of back to back, column to column & level for bolts. Threaded portion of anchor bolts should be given adequate protection by means of greasing and plastic cover.
7.	Shuttering arrangement		<ul style="list-style-type: none"> Fabricated steel or wooden foam box, shuttering fixed with nut bolts are used to cast the concrete as per the shape given in the approved drawing. It should be sturdy and tightened to avoid buckling and leakage of slurry. 	<ul style="list-style-type: none"> Confirm the dimension of the form box as per foundation drawing. Ensure the proper cleaning/oiling/tightening of the foam box. •
8.	Concrete pouring		<ul style="list-style-type: none"> Proper arrangement of chute must be arranged before pouring the concrete. The length of chute shall be sufficient to pour the concrete. 	<ul style="list-style-type: none"> Avoid the segregation during pouring of concrete. •
9.	Curing		<ul style="list-style-type: none"> Curing must be done after completion of 24 hours for casting of concrete. This will develop the strength and durability of concrete. 	<ul style="list-style-type: none"> Ensure concrete shall be cured for 10 days curing. Gunny bags shall be used for the column concrete. •
10.	Backfilling		<ul style="list-style-type: none"> The soil platform shall be done to maintain the backfilling in level after settlement during monsoon. Depth of platform shall be depending on the nature of soil. 	<ul style="list-style-type: none"> Ensure the backfilling of soil shall not be over the bolts. Check the excess material shall be removed from the site.
11.	Soil Compaction		<ul style="list-style-type: none"> The proper consolidation of soil with water shall be done to prevent the uprooting of structure foundation. It will also provide essential support to the structure foundation. 	<ul style="list-style-type: none"> Ensure the backfilling and compaction will be done in 300 mm layer by layer.

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Sr. No.	Process	Ref. Photo	Description	Quality Aspect
12.	Bolts Grouting		<ul style="list-style-type: none"> The grouting must be done to drain out the rain water from the column and to give extra support to bolts. It shall be done with the cement concrete immediately after the structure levelling. 	<ul style="list-style-type: none"> Ensure the grouting done as per drawing. The grouting shall be done till structure base plate.

7. QUALITY CONTROL & ASSURANCE IN SUBSTATION STRUCTURE & EQUIPMENT ERECTION

Sr. No.	Process	Ref. Photo	Description	Quality Aspect
1.	Checking of B/B & diagonal		<ul style="list-style-type: none"> Checking of physical damage to the column at the site before beginning of structure erection. 	<ul style="list-style-type: none"> Check the B/B diagonal & level of the bolts & column as per the approved drawing. •
2.	Unloading of Tower material at site.		<ul style="list-style-type: none"> Unloading of structure material shall be done with chain pulley block or crane. This will help from any damage of structure material and zinc coating. 	<ul style="list-style-type: none"> Ensure the unloading of material without any damage.
3.	Stacking of material at site		<ul style="list-style-type: none"> Structure wise bundles shall be opened as per the sequence of structure erection. 	<ul style="list-style-type: none"> Check the damage structure material and replaced with new from the store.
4.	Checking of material as per BOM/ drawing		<ul style="list-style-type: none"> The Structure material shall properly with respect to the bill of material. 	<ul style="list-style-type: none"> Check the quantity of structure material as per the BOM.

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Sr. No.	Process	Ref. Photo	• Description	Quality Aspect
5.	Use of proper size nut bolts as per drawing		<ul style="list-style-type: none"> Always use proper size of nut bolts as per specified in erection drawing. The oversize nut bolts will require more washers. Under size nut bolts will sheared on the threaded portion. 	<ul style="list-style-type: none"> Check the size of nut bolts as per drawing. Check the direction of nut bolts.
6.	Erection of Structure		<ul style="list-style-type: none"> The sequence of structure erection shall be as per the SFQP. 	<ul style="list-style-type: none"> Check the size of nut bolts as per drawing. Check the direction of nut bolts. Levelling of base plate should be done as per approved drawing.
7.	Final Checking		<ul style="list-style-type: none"> Final checking will be done by the separate gang & finalized the punch list of pending work. Further rectification will be done by the separate gang. • 	<ul style="list-style-type: none"> Ensure the final checking & rectification of structure complete before starting of stringing work.
8.	Installation of Lighting Arrester (LA)		<ul style="list-style-type: none"> It is installed to protect the insulation and conductors of the system from damaging effects of lightning. 	<ul style="list-style-type: none"> Check the alignment of the assembled insulator stacks for vertical straightness. Recheck the alignment and level of the GI structure. Check the tightness of the equipment base.
9.	Installation of Current Transformer (CT)		<ul style="list-style-type: none"> It is used to reduce or multiply an alternating current (AC). 	<ul style="list-style-type: none"> Check for any oil leakages & damages to insulator before installation on to the structure. Recheck the alignment and level of the GI structure. Check the tightness of the equipment base.

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Sr. No.	Process	Ref. Photo	Description	Quality Aspect
10.	Installation of Capacitor Voltage Transformer (CVT)		<p>It is used in power systems to step down extra high voltage signals and provide a low voltage signal, for metering or operating a protective relay.</p>	<ul style="list-style-type: none"> Ensure correct tightness of volts between the stacks. Recheck the alignment and level of the GI structure. Check the tightness of the equipment base.
11.	Installation of Isolators		<p>It is mechanical switching device; the function is to make sure that a circuit is totally not triggered in order to perform the preservation.</p>	<ul style="list-style-type: none"> Ensure the structure is properly aligned and levelled. Insulators are installed and ensured for correct vertical alignment. Tandem pipe & blades are to be properly aligned.
12.	Circuit Breaker (CB)		<p>It is automatically operated electrical switch designed to protect and electrical circuit from damage caused by excess current from an overload or short circuit.</p>	<ul style="list-style-type: none"> Level centreline and verticality if structure is to be checked in all the poles. Operating device, switch cubicle, density monitors, poles, operating rod etc are to be tightened to the specified torque.

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8. QUALITY CONTROL & ASSURANCE IN STRUCTURE EARTHING

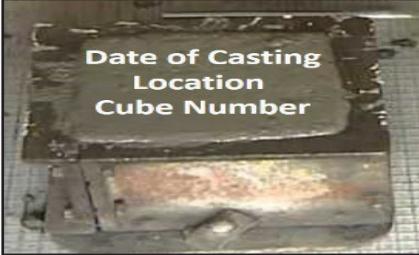
Sr. No.	Process	Ref. Photo	Description	Quality Aspect
1.	Earth Mat			
2.	Auxiliary Earth Mat		<ul style="list-style-type: none"> • Earth conductors are laid and welded, making the grid as per the spacing given in the drawing. • Earth risers are taken above the ground level and connected to equipment earth terminal. Structure, cable tray etc. • Auxiliary mat is laid below the operating handle of MOM boxes of isolators, earth switches and connected to the main mat. 	<ul style="list-style-type: none"> • All welded joints are painted with anti-corrosive paints. • Earth mat should be below ground level up to 600 mm or as per client's drawing. • Auxiliary mat should be below ground level up to 200 mm or as per client's drawing. • The TFR shall be less than 1.0 ohm after earthing.
3	Earth Riser			
4.	Earth Pit		<ul style="list-style-type: none"> • A fabricated frame made up of GI earth pipe has been installed in the excavated pit and earth is filled in the surrounding area. 	<ul style="list-style-type: none"> • Check the installation as per approved drawing. • The TFR shall be less than 1.0 ohm after earthing.

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9. CONCRETE CUBE SAMPLING AND CURING

S.N.	Steps	Reference photo	Assurance Points
1	Cube Mould size (Ref IS: 10086)		<ul style="list-style-type: none"> Size of cube module to be ensured (150x150x150) The moulds should be watertight Moulds material should be non-absorbent, not readily attacked by cement paste
2	Cube Mould Preparation		<ul style="list-style-type: none"> Tight the mould properly and ensure it should be watertight. Apply oil inside the mould
2	How to fill (Ref IS : 1199)	 	<ul style="list-style-type: none"> Correct mix ratio be ensured as per mix design. Concrete should be filled in 3 layers Each layer must be compacted with tamping rod (600mm long rounded end of 16mm Dia) by 35 strokes per layer. Where voids are left by tamping rod, sides of the mould shall be tapped to close the voids. Each layer has to be compacted sufficiently to ensure that cement slurry is seen along all 4 edges of mould as well as on the top surface of concrete. No CA particles or void must be visible. Final levelling and finishing of concrete must be done with mason's float.

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S.N.	Steps	Reference photo	Assurance Points
3	When		<ul style="list-style-type: none"> • Real time cube sampling to be done • Cube samples to be taken during the concrete pouring in the foundation / Structure. (All 3 samples should be taken from same concrete) • Number of cubes as per IS 456
4	Identification and Record		<ul style="list-style-type: none"> • All sampled cube to be identified as • Date of casting • Location / Job • Cube number • Samples to be done with embossed marking • Cube register to be maintain, which contain all above details.
5	Handling		<ul style="list-style-type: none"> • Cube to be taken out from moulds (de-mould) after 16 hours to 24 hours. • Check visually – No Cracks / Honeycomb. • Immediately after de-mould, all the cubes specimen must be submerged in clean, freshwater until the time of testing.
6	Storage	  <p>Maintaining Concrete Cube Curing Tank Temperature in Cold Climate</p>	<ul style="list-style-type: none"> • Shift the cubes from site storage to central cube storage tank as early as possible. (Set the timeline i.e., within a week from cube de-mould, the cubes should be shifted to central cube storage tank). • Store the cubes in water for curing until the time of testing (Temp 25° to 30°). Record shall be maintained. • Ensure the Storage tank shall be filled with clean water always. • Storage Tank water should be replaced every fortnightly. Record shall be maintained • Ensure all the cubes specimen shall be submerged in clean water until the time of testing. • Cube shall be tested on 7 Days & (or) 28 days of proper curing.

