

 Eskom	Standard	Technology
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Title: **QUALITY CHECKLIST FOR
DISTRIBUTION SUBSTATION
PRIMARY PLANT PRIOR TO
HANDING OVER FOR
COMMERCIAL OPERATION**

Unique Identifier: **240-87605434**

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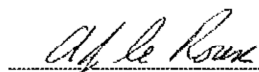
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Compiled by



Abre Le Roux

Chief Engineer Substations

Date: 30 March 2015

Approved by



Phineas Tlhatlhetji

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Date: 31/03/2015

Authorized by

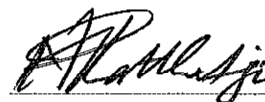


Phineas Tlhatlhetji

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Date: 31/03/2015

Supported by SCOT/SC



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Substations SC Chairman

Date: 31/03/2015

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Executive Summary

The document provides check sheets and handover sheets for the various phases of Primary Plant construction of substations. It ensures that all the activities during the period are recorded and acknowledged. It also includes Preliminary and Final handover check sheets.

The document only caters for Primary Plant. The commissioning procedure for Control Plant is catered for in the "Standard for commissioning Protection assets" (240-54615413) as well as other discipline specific documents. All documents must therefore be completed for a substation project if the project includes Primary and Control plant.

1. Introduction

Quality control is of utmost importance during the construction phase of a project. Identifying quality problems at an early stage ensures minimum project delays. The document provides Quality check sheets and Handover sheets for the various phases of Primary Plant construction.

2. Supporting clauses

2.1 Scope

This standard sets out the requirements for the various Quality Control and Handover process stages for a substation project from the inception of construction to commissioning and final handover. This standard shall be used in conjunction with all standard substation documentation and scope of works documentation that will form part of the substation project Works Information.

The document excludes check sheets for Control Plant activities.

2.1.1 Purpose

The document provides check sheets for the various phases of Primary Plant construction of substations. It ensures that all the activities during the period are recorded and acknowledged.

2.1.2 Applicability

This document shall apply to Eskom Distribution.

2.2 Normative/informative references

Parties using this document shall apply the most recent edition of the documents listed in the following paragraphs.

2.2.1 Normative

- [1] SANS 121, Hot-dip (galvanized) zinc coatings (other than on continuously zinc-coated sheet and wire).
- [2] DST 34-304: Distribution standard – Part 7: Generic substation design.
- [3] SANS 1200: Specification for civil engineering construction
- [4] SABS 10400: National building regulations
- [5] DST 34-1245: Substation Earthing
- [6] DISSCAAD3: Checklist for Large Transformers
- [7] DSP 34-1658: Corrosion Protection specification for new indoor and outdoor Distribution equipment, components, materials and structures manufactured from steel
- [8] DISASAAN0: Standard for the labeling of High Voltage Equipment

2.2.2 Informative

- [9] 240-54615413: Standard for commissioning protection assets.

2.3 Definitions

2.3.1 General

Definition	Description
Clerk Of Works	People responsible for physical quality inspections.
Contract Design Engineer	Person appointed external to Eskom responsible for the design drawings, bill of quantities and approval of Design Change Requests
Contract Project Manager	Person appointed as per the NEC contract. The Project Manager is appointed external to Eskom
Contractor	As per the NEC contract represented by an Appointed Supervisor or Responsible Person in writing. The Contractor can also be an Eskom Internal Construction team. Manufacturers of the Power Transformers and other substation equipment.
Control Plant Maintenance department	Responsible for the pre-commissioning and final commissioning of the substation project
Design Engineer (Control Plant)	Person responsible for the control plant design (protection, metering, DC, telecommunication and telecontrol).
Design Engineer (Primary Plant)	Person responsible for the primary design drawings, bill of quantities and approval of Design Change Requests
Holding Point	Activity for which arrangements have to be made for the <i>Clerk of Works</i> to be present and to witness the work procedure
Project Manager	Person appointed as per the NEC contract. The Project Manager can be someone within the Eskom Program Management Department or an external appointment in which case it will be a Contracted Project Manager.
Standards Implementation department (Substations)	Department responsible for standards

2.3.2 Disclosure classification

Controlled disclosure: controlled disclosure to external parties (either enforced by law, or discretionary).

2.4 Abbreviations

Abbreviation	Description
AD	Asset Design
CDE	Contract Design Engineer
COW	Clerk Of Works
CPM	Control Plant Maintenance department
DE	Design Engineer
PM	Project Manager

2.5 Roles and responsibilities

The Standards and Implementation manager (S&I) will ensure that the document is distributed to the relevant people for implementation. The document should be implemented by the Operational Unit Project portfolio manager as well as the Network Engineering manager

2.6 Process for monitoring

Operational Unit Project portfolio manager is to ensure that the handover document has been completed for all Primary Plant substation projects.

2.7 Related/supporting documents

The original document was published as DISASAAQ1 Rev 5 dated September 2005. The document was revised and published as 34-1238 in February 2013.

3. Requirements

The document contains all possible quality check sheets and handover forms to execute Primary Plant activities in a substation.

The document only caters for Primary Plant. The commissioning procedure for Control Plant is catered for in the "Standard for commissioning Protection assets" (240-54615413) as well as other discipline specific documents. All documents must therefore be completed for a substation project if the project includes Primary and Control plant.

A Quality Handover document is specific to a project. Only include the relevant sections and duplicating check sheets where required (e.g. In the case of two transformers two separate transformer check sheets will be required or if no capacitor bank will be installed, exclude the capacitor bank quality check sheet). This document is available on the Webb site in Excel format for ease of manipulation.

The document contains detailed check sheets. If the Project manager deems the project to be low risk, check sheets may be amended. It is however important that handover sheets are duly completed. (This should not be the norm but rather an exception because of increased risk due to lack of detailed quality control).

Stages

The process is initiated by collating all relevant detail and documentation regarding the project and stakeholders. This is catered for in tables in the General information section as per Annexure A.

The next stage is the actual execution of activities. This is catered for in Stages 1 to 12 (Annexure B1 to B12). Each stage consists of two categories of documents, namely a

Quality Control check sheet (Quality checking of actual activities) and a

Handover form (confirming that the various Quality activity checks had been executed).

The next stage is the Handover stage. Provision is made for two stages for Handover.

Firstly, a Preliminary Handover stage to ensure that all quality checks have been performed in order to switch the substation on.

The final Handover ensures that all activities relating to the project have been completed and the project is closed off and handed over for Commercial operation.

The various stages are depicted in figure 1

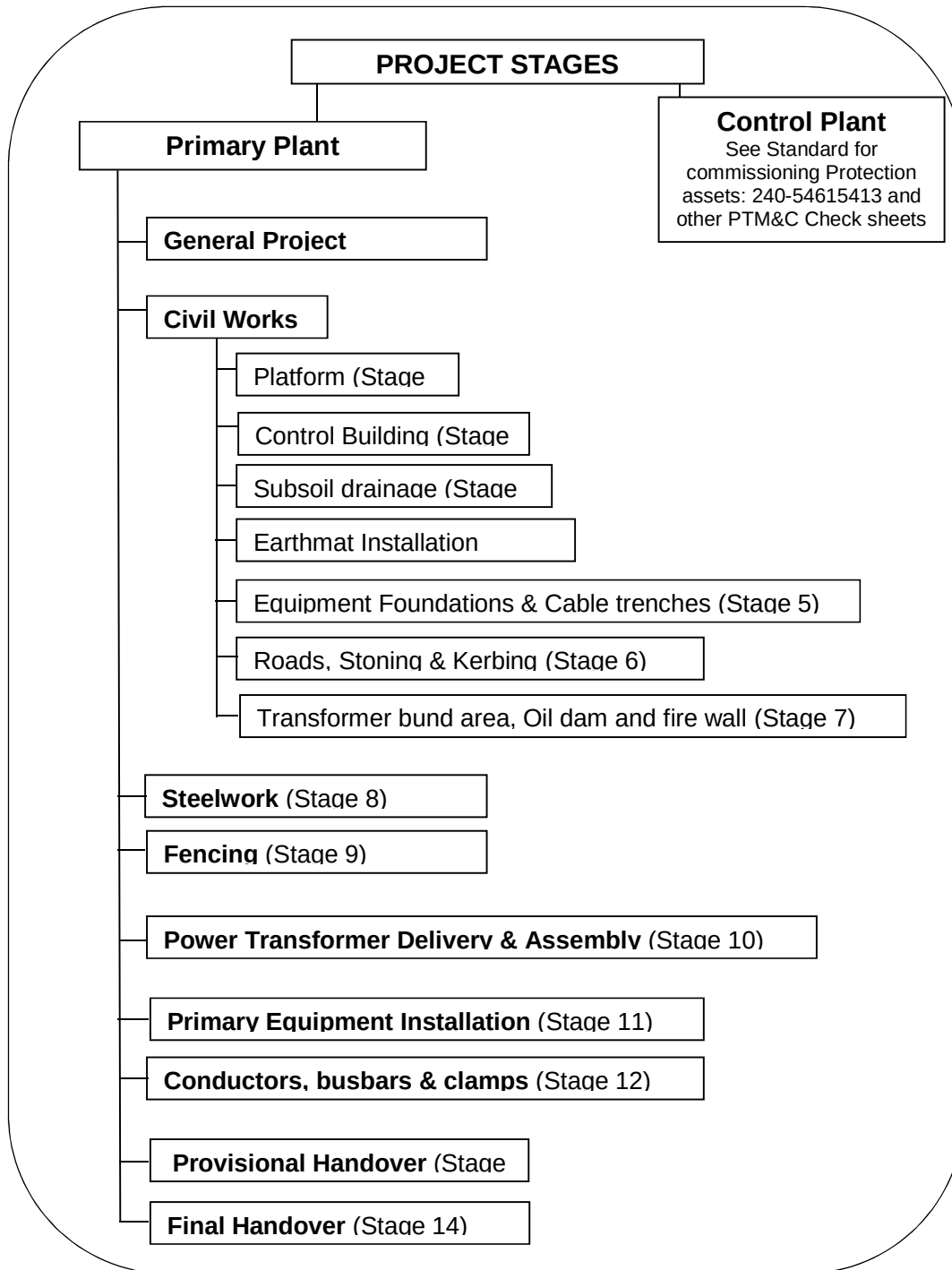


Figure 1: Quality Control handover stages

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3.1 General Project Information

The *Design Engineer* shall hand over the *Final Design Package and Drawings* to the *Project Manager*. It is the responsibility of the *Design Engineer* to ensure that the latest revisions of all documentation have been issued to the *Project Manager*.

The *Project Manager* will ensure that both the appointed *Contractor* and the appointed *Clerk of Works* receive the necessary documents and drawings for all the construction stages. All parties are to complete the **Design Package Handover Form** before commencement of construction.

Provision has been made for signatories and the recording of the relevant Drawing Numbers and Revisions at the time of issue.

Drawing revisions due to Design Changes will be recorded in the **Documentation Change Control Form**. The *Project Manager* will ensure that the *Contractor* and *Clerk of Work* receive the latest revision of the drawings.

3.2 Requirements applicable to Stages 1 to 12

The **Quality Control Checksheet** will be issued by the *Project Manager* as part of the quality assurance documentation and will be on site until the stage has been completed. The activities within the stage are to be completed and checked against the design drawings and specifications to ensure compliance.

Prior to the commencement of the construction stage, the *Clerk of Works* will confirm with the *Contractor* which activities have been identified as *Holding Points* and which activities he would like to be photographed as proof of compliance.

Each activity, once completed by the contractor, will be signed off by both the *Contractor* and *Clerk of Works*. The *Clerk of Works* will indicate whether the activity was:

Witnessed (W) – present during this activity

Verified (V) – not present but confirm compliance.

Certain Checksheets include key specifications such as soil classification, layer depth and number of layers required as per the design. This is to ensure the specification is understood by both parties and complied with.

Once all the activities for a specific stage have been completed, the **Quality Control Checksheet** shall be presented to the *Project Manager* who will confirm that all the activities have been signed off by both the *Contractor* and the *Clerk of Works*

The **Handover Checklist** is then used as a high level checklist to ensure that all Quality Control activities have been executed as per the **Quality Control Checksheet**. The Handover Checklist is the responsibility of the *Project Manager* and must be updated at least once a month during the site meeting.

The required forms must be duplicated for multiple products in a substation (e.g. for two transformers make two copies of the transformer checksheets).

3.2.1 Additional requirements applicable to Stage 5 - "Civil Works: Equipment Foundations & Cable trenches"

The checksheet for the foundations can be done as a bulk item check or a checksheet for each foundation or group of foundations. This is to be decided between the *Clerk of Works* and the *Contractor*.

3.2.2 Additional requirements applicable to Stage 9 - “Steelwork” and “Fencing”

The *Contractor* shall ensure that all manufactured steelwork is inspected at delivery and galvanizing thickness checked and verified before erection. The Contractor needs to inform the *Clerk of Works* once the steelwork is on site. The *Clerk of Works* needs to arrange an inspection date with the *Standards and Implementation Representative* for inspection and approval of steelwork.

The Checksheet for the steelwork can be done as a bulk item check or a checksheet for each item or group of items. This is to be decided between the *Clerk of Works* and the *Contractor*.

3.2.3 Additional requirements specific to Stage 10 - “Power Transformer Delivery & Assembly”

The *Project Manager* must notify the Eskom Plant and Control Plant Maintenance Departments of the projected delivery date in order for them to provide a representative to witness the Transformer delivery and acceptance activity.

During the delivery of the Power Transformer, the Clerk of Works shall verify and complete the Transformer Delivery and Assembly Check sheet as per Stage 10 (This excludes DFM 34-1901 that will be completed by the Plant representative)

Control Plant Maintenance department must witness the on-site transformer tests as executed by the manufacturer.

3.2.4 Additional requirements specific to Stage 11 - “Primary Equipment Installation”

The *Contractor* shall inspect all deliveries from *Manufacturers* in order to ensure that the equipment is in good condition before off-loading on site.

Only high level data such as equipment type and serial number is captured on the checksheets. Once the equipment is installed, the *Project Manager* will inform the Plant Department to commence data capturing as per the Eskom Data capturing requirements.

3.3 Requirements applicable to Stage 13 - “Provisional Handover”

The **Provisional Handover Document** will be completed by the *Project Manager* and presented for acceptance to the following key persons:

Network Engineering – Acceptance by the appointed Senior Design Engineer (acceptance for primary and Control Plant)

Control Plant Maintenance - Acceptance by the Control Plant Maintenance *Manager*

Network Operations – acceptance by the *Chief Engineer*

The final commissioning of the substation project can commence after the completion of the **Provisional Handover Document**.

3.4 Requirements applicable to Stage 14 - “Final Handover”

The **Final Handover Document** will be completed by the *Project Manager* and presented for acceptance to the following key persons:

Asset Design – Acceptance by the appointed Senior Design Engineer (acceptance for primary and Control Plant)

Control Plant Maintenance - acceptance by the CPM Manager

On behalf of the Zone – final acceptance by Sector Manager.

**QUALITY CHECKLIST FOR DISTRIBUTION SUBSTATION
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COMMERCIAL OPERATION**Unique Identifier: **240-87605434**Revision: **1**Page: **11 of 68****4. Authorization**

This document has been seen and accepted by:

Name and surname	Designation
Phineas Tlhatlhetji	Substations COE manager
A le Roux	Chief Engineer Substations

5. Revisions

Date	Rev	Compiler	Remarks
March 2015	1	A Le Roux	Designation name changes were required due to structure changes Change the name to reflect that the document only relates to Primary Plant Sections 13 and 14 are now documented in a separate document (DST 240-54615413: Standard for commissioning Protection assets) Remove sections 13 and 14 Remove all references to sections 13 and 14 Revise section 3 to explain the reference to the protection commissioning document
Feb 2013	1	A le Roux	Complete document revision with new stages 1 to 16 and revised handover and quality checklist documentation Document number changed to DST 34-1238.
Sept'05	5	C Clark	Document approved. All comments and new comments answered. Send for Voting 03/2005. All comments answered. Send for Voting 11/2004. Telecontrol info updated according to comments received by Western Region. Electrical Certificate info on page 9 removed.
Sept 2002	4	C Clark	Document approved
June 2002	3	C Clark	Page 75 EDNS added

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Date	Rev	Compiler	Remarks
Nov '99	2	C Clark	Document changed comments added Document changed item revised – 4.6.2 Document changed comments added – 4.6.4 , 4.6.5 Comments addressed. General typographical errors rectified. Item 4.4.2 and associated forms revised. Annex H (Stage 8) – FS added as a signatory. Annex I added to include provisional handing over certificate. Annex C (Stage 3) C13 – Fire Protection Checklist added. Annex A (Stage 1) A3 – changes/additions to checklist. General changes to all other Annexes as per comments Typographical errors rectified as per request from western region. Alignment of document to include signatories on a single sheet.
April '99	1	C Clark	Project Flow Process taken out, entire document changed.
Aug '98	0	C Clark	Project Flow Process added, entire document revised to allow for Stage takeovers.

6. Development team

The following people were involved in the development of this document

Name	Designation
A.Le Roux	Chief Engineer – Substations
N. Webber	Senior Advisor - Substations
J.Kriel	Thabile Eastern Cape – Electrical Engineers

7. Acknowledgements

The author acknowledges the original author, Craig Clark and team as well as the current development team.

Annex Contents

Quality Control & Handover Check-sheets

Annex A		General Project information Project Detail Tracking Page Design Package Handover Documentation Change Control
Annex B1	Stage 1	Civil Works: Platform
Annex B2	Stage 2	Civil Works: Control Building
Annex B3	Stage 3	Civil Works: Subsoil drainage
Annex B4	Stage 4	Civil Works: Earthmat Installation
Annex B5	Stage 5	Civil Works: Equipment Foundations & Cable trenches
Annex B6	Stage 6	Civil Works: Roads, Stoning & Kerbing
Annex B7	Stage 7	Civil Works: Transformer bund wall, oil dam and fire wall
Annex B8	Stage 8	Steelwork
Annex B9	Stage 9	Fencing
Annex B10	Stage 10	Power Transformer Delivery & Assembly
Annex B11	Stage 11	Primary Equipment Installation
Annex B12	Stage 12	Conductors, busbars & clamps
Annex B13	Stage 13	Provisional Handover
Annex B14	Stage 14	Final Handover

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Annex A – General Project Information

Project Detail

Substation Project Name:	
Project No:	
COW name:	
Design Engineer:	
Project Manager:	

Contractor Civil Platform Works:	
Contract No:	
Contractor Supervisor:	

Contractor Civil Buildings:	
Contract No:	
Contractor Supervisor:	

Contractor Primary Works:	
Contract No:	
Contractor Supervisor:	

Contractor Secondary Works:	
Contract No:	
Contractor Supervisor:	

Contractor :	
Contract No:	
Contractor Supervisor:	

Contractor:	
Contract No:	
Contractor Supervisor:	

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Project Tracking

The purpose of this page is to track the relevant stages and to record progress.

		Quality Control Checklist Completion Date	Handover Checklist Completion Date	Notes
Stage 1	Civil Works: Platform			
Stage 2	Civil Works: Control Building			
Stage 3	Civil Works: Subsoil drainage			
Stage 4	Civil Works: Earthmat Installation			
Stage 5	Civil Works: Equipment Foundations & Cable trenches			
Stage 6	Civil Works: Roads, Stoning & Kerbing			
Stage 7	Transformer bund wall, oil dam and fire wall			
Stage 8	Steelwork			
Stage 9	Fencing			
Stage 10	Power Transformer Delivery & Assemble			
Stage 11	Equipment Installation			
Stage 12	Conductors, busbars & clamps			
Stage 13	Provisional Handover Document			
Stage 14	Final Handover Document			

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Design Package Handover

1	Project name:	
2	Contract/Order No:	
3	Contractor:	

Stage	Construction Activity	Drawing Title & Reference	Rev No:	Issued by (Project Manager Name)	Date	Received by (Clerk of Works Name)	Date	Received by (Contractor Name)	Date
	Access to site documentation completed as per the NEC contract								
	Health & Safety Plan and File presented and approved before start of construction.								
1	Civil Works: Platform								
2	Civil Works: Control Building								
3	Civil Works: Subsoil drainage								
4	Civil Works: Earthmat Installation								
5	Civil Works: Equipment Foundations & Cable trenches								
6	Civil Works: Roads, Stoning & Kerbing								
7	Civil Works: Transformer bund wall, oil dam and fire wall								
8	Steelwork								
9	Fencing								
10	Power Transformer Delivery & Assembly								
11	Primary Equipment Installation								
12	Conductors, busbars & clamps								
13	Control Plant installation								

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Documentation Change Control

1	Project name:	
2	Contract/Order No:	
3	Contractor:	

Item	Drawing No:	Change	Rev No:	Issued by Project Manager Name	Date	Received by Clerk of Works Name	Date	Received by Contractor Name	Date

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Quality Control Checksheet for Civil Works: Platform							
1	Project name:						
2	Contract/Order No:						
3	Contractor:						
4	COW:						
	Item Checklist	QC items to check or supply	Holding Point Required (Y/N)	Photo Required (Y/N)	Contractor Signature	Verified (V) Witnessed (W)	COW/Civil Engineer Signature
1	Benchmark Installation	Surveyor's Name:_____					
2	Platform: Clear & grub	Depth:_____mm					
		Quantity:_____m³					
		Stockpile position:_____					
		Stockpile height:_____m					
		Disposal within site boundary:_____					
		Disposal at registered wast:_____km					
3	Platform: Cut to Fill Operation	Layer Depth:_____mm					
		No of layers:_____					
		No of Compaction & Density tests:_____					
		No of Compaction & Density tests witnessed by COW:_____					

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	Item Checklist	QC items to check or supply	Holding Point Required (Y/N)	Photo Required (Y/N)	Contractor Signature	Verified (V) Witnessed (W)	COW/Civil Engineer Signature
4	Platform: Importation, classification & compaction of materials	Soil classification: _____					
		Depth Layers : _____ mm					
		No of layers: _____					
		No of Compaction & Density tests: _____					
		No of Compaction & Density tests witnessed by COW: _____					
		Verified and signed by Civil Engineer: _____					
5	Platform: Final layer preparation / Wearing coarse	Soil classification: _____					
		Depth Layers : _____ mm					
		No of layers: _____					
		No of Compaction & Density tests: _____					
		No of Compaction & Density tests witnessed by COW: _____					
		Verified and signed by Civil Engineer: _____					
6	Access Road: Clear & grub	Depth: _____ mm					
		Quantity: _____ m ³					
		Stockpile position: _____					
		Stockpile height: _____ m					
		Disposal within site boundary: _____					
		Disposal at registered wast: _____ km					
7	Access Road: Cut to Fill Operation	Layer Depth: _____ mm					
		No of layers: _____					
		No of Compaction & Density tests: _____					
		No of Compaction & Density tests witnessed by COW: _____					

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	Item Checklist	QC items to check or supply	Holding Point Required (Y/N)	Photo Required (Y/N)	Contractor Signature	Verified (V) Witnessed (W)	COW/Civil Engineer Signature
8	Accsee Road: Importation, classification & compaction of materials	Soil classification: _____ Depth Layers : _____ mm No of layers: _____ No of Compaction & Density tests: _____ No of Compaction & Density tests witnessed by COW: _____ Verified and signed by Civil Engineer: _____					
9	Access Road: Wearing coarse / Final bed layer preparation	Soil classification: _____ Depth Layers : _____ mm No of layers: _____ No of Compaction & Density tests: _____ No of Compaction & Density tests witnessed by COW: _____ Verified and signed by Civil Engineer: _____					
10	Access Road: Pavement fill and final bed layer preparation	Soil classification: _____ Depth Layers : _____ mm No of layers: _____ No of Compaction & Density tests: _____ No of Compaction & Density tests witnessed by COW: _____ Verified and signed by Civil Engineer: _____					
11	Access Road: Finishes	Drainage & Channelling required: _____ Bell mouth: Size and bending radius: _____ Entry from Road: _____ No of Compaction & Density tests witnessed by COW: _____ Verified and signed by Civil Engineer: _____					

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	Item Checklist	QC items to check or supply	Holding Point Required (Y/N)	Photo Required (Y/N)	Contractor Signature	Verified (V) Witnessed (W)	COW/Civil Engineer Signature
12	Embankments & Soil Detainment	Embankment angles and preparation:_____					
		Seeding: _____					
		Soil Blankets: _____					
		Retaining walls - Type & size: _____					
		Verified and signed by Civil Engineer: _____					
13	Storm water drainage	Type of drain: _____					
		Drain Positions: _____					
		Drain sizes: _____					
		Concrete specification: _____					
		Concrete supplied: _____					
		Finishes: _____					
		Run-offs / Channelling: _____					
14	Boundary Fence	Type & Position: _____					
		Corner Posts: _____					
		Intermediate posts: _____					
		Fencing: _____					
		Gates: _____					

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	Item Checklist	QC items to check or supply	Holding Point Required (Y/N)	Photo Required (Y/N)	Contractor Signature	Verified (V) Witnessed (W)	COW/Civil Engineer Signature
15	Earth berm installation	Position:_____					
		Size:_____					
		Verified and signed by Civil Engineer:_____					
16	Levelling of spoiled materials	Levelling of spoiled materials.					
17	Rehabilitation	Position:_____					
		Seeding:_____					
		Verified and signed by Environmentalist:_____					

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**QUALITY CHECKLIST FOR DISTRIBUTION SUBSTATION
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Unique Identifier: **240-87605434**Revision: **1**Page: **23 of 68****Handover Checklist for Civil Works: Platform**

1	Project name:	
2	Contract/Order No:	
3	Contractor:	
4	COW:	

	Item Checklist	Contractor - Quality Assurance Check : Name	Signature	COW - Quality Assurance Check : Name	Signature
1	Benchmark Installation				
2	Platform: Clear & grub				
3	Platform: Cut to Fill Operation				
4	Platform: Importation, classification & compaction of materials				
5	Platform: Final layer preparation / Wearing coarse				
6	Access Road: Clear & grub				
7	Access Road: Cut to Fill Operation				
8	Access Road: Importation, classification & compaction of materials				
9	Access Road: Wearing coarse / Final bed layer preparation				
10	Access Road: Pavement fill and final bed layer preparation				
11	Access Road: Finishes				
12	Embankments & Soil Detainment				
13	Storm water drainage				
14	Boundary Fence				
15	Earth berm installation				
16	Levelling of spoiled materials				
17	Rehabilitation				

Accepted by *Project Manager*:_____
Name_____
Signature_____
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– Annex B2 – Stage 2: Civil Works: Control and Switch house Building

Quality Control Checksheet for Civil Works: Control and Switch house building

1	Project name:	
2	Contract/Order No:	
3	Contractor:	
4	COW:	

	Item Checklist	QC items to check or supply	Holding Point Required (Y/N)	Photo Required (Y/N)	Contractor Signature	Verified (V) Witnessed (W)	COW Signature
1	Setting out of building foundations & levels.	Building set out according to XY					
2	Foundations - excavation	Foundation correctly excavated - width & depth					
		Levels/height correct					
		Reinforcing installed correctly					
		Compaction acceptable					
		Local Municipality approval					
3	Concrete - Foundations	Concrete - mixture at correct MPa					

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	Item Checklist	QC items to check or supply	Holding Point Required (Y/N)	Photo Required (Y/N)	Contractor Signature	Verified (V) Witnessed (W)	COW Signature
4	Concrete - Floor	Concrete - mixture at correct Mpa					
		Waterproofing:					
		Shuttering:					
		Floating / Power floating: Note special requirements for indoor SG					
5	Brickwork	Brick type & colour					
		Cement mixture correct					
		Waterproofing					
		Jointing					
		Correct heights & levels					
		Plastering					
6	Roof Installation - Sheeting	Trusses delivery - visual inspection					
		Trusses designed correctly					
		Trusses positioned & lined up correctly					
		Roof sheeting type & colour					
		Roof installation					
		Roof waterproofing installation					
		Gutters & down pipes					

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	Item Checklist	QC items to check or supply	Holding Point Required (Y/N)	Photo Required (Y/N)	Contractor Signature	Verified (V) Witnessed (W)	COW Signature
7	Roof Installation - Concrete	Concrete - mixture at correct MPa					
		Reinforcing installation					
		Shuttering.					
		Waterproofing installation					
		Gutters & down pipes					
8	Ceilings	Ceiling type & colour					
		Ceiling height & level					
9	Plumbing Installation	Plumbing installation					
		Plumbing Installation approval by an accredited person					
10	Control Building - Electrical Installation	Electrical installation					
		Certificate of Compliance issued					
11	Battery room - Electrical Installation	Electrical installation					
		Electrical Installation approval a Master Electrician.					

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Item Checklist		QC items to check or supply	Holding Point Required (Y/N)	Photo Required (Y/N)	Contractor Signature	Verified (V) Witnessed (W)	COW Signature
12	Finishing	Painting					
		Steps, Ramps & hand rails					
		Doors, Security gates					
		Trench covers					
		Cable rack installations					
		Key cabinet					
		Operating Diagram board installation					
		Fire extinguishers					
		Furniture					
		Operating earths					
		Barricading nets & stands					

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Handover Checklist for Control Building

1	Project name:	
2	Contract/Order No:	
3	Contractor:	
4	COW:	

	Item Checklist	Contractor - Quality Assurance Check : Name	Signature	COW - Quality Assurance Check : Name	Signature
1	Setting out of building foundations & levels.				
2	Foundations				
3	Concrete - Foundations				
4	Concrete - Floor				
5	Brickwork				
6	Roof Installation - Sheeting				
7	Roof Installation - Concrete				
8	Ceilings				
9	Plumbing Installation				
10	Control Building - Electrical Installation				
11	Battery room - Electrical Installation				
12	Finishing				

Accepted by *Project Manager*:

Name

Signature

Date

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– Annex B3 – Stage 3: Civil Works: Subsoil Drainage**Quality Control Checksheet for Civil Works: Subsoil drainage**

1	Project name:	
2	Contract/Order No:	
3	Contractor:	
4	COW:	

	Item Checklist	QC items to check or supply	Holding Point Required (Y/N)	Photo Required (Y/N)	Contractor Signature	Verified (V) Witnessed (W)	COW Signature
1	Subsoil drainage & piping setting out	Grid lengths measured out with correct distances Grid levels to be determined to ensure enough fall is created during excavation & installation of the drainage pipes.					
2	Installation of subsoil drainage pipes, bidum and stone	Drainage pipes - size & type Bidum material Stone - size & type Trenching - width & depth					
3	Subsoil drainage backfill and compaction	Backfilling of materials Compaction					
4	Drainage outlets	Number of outlets					

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Handover Checklist for Civil Works: Subsoil drainage

1	Project name:	
2	Contract/Order No:	
3	Contractor:	
4	COW:	

	Item Checklist	Contractor - Quality Assurance Check : Name	Signature	COW - Quality Assurance Check : Name	Signature
1	Subsoil drainage setting out.				
2	Installation of subsoil drainage pipes, bidum and stone				
3	Subsoil drainage backfill and compaction				
4	Drainage outlets				

Accepted by *Project Manager*:

Name

Signature

Date

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– Annex B4 – Stage 4: Civil Works: Earthmat Installation

Quality Control Checksheet for Civil Works: Earthmat Installation

1	Project name:	
2	Contract/Order No:	
3	Contractor:	
4	COW:	

	Item Checklist	QC items to check or supply	Holding Point Required (Y/N)	Photo Required (Y/N)	Contractor Signature	Verified (V) Witnessed (W)	COW Signature
1	Earth Grid setting out	Earthmat - setting out					
2	Earth Grid Excavations	Excavations					
		Backfill of materials					
		Compaction					
3	Earth Conductor Installation & Connections	Earth Conductor - type & size					
		Earth Conductor installation					
		Earth Conductor connections					
		Sacrificial earth installation					
4	Earth Continuity test	Earth Continuity test					

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Handover Checklist for Civil Works: Earthmat Installation

1	Project name:	
2	Contract/Order No:	
3	Contractor:	
4	COW:	

	Item Checklist	Contractor - Quality Assurance Check : Name	Signature	COW - Quality Assurance Check : Name	Signature
1	Earth Grid setting out				
2	Earth Grid Excavations				
3	Earth Conductor Installation & Connections				
4	Earth Continuity test				

Accepted by *Project Manager*:

Name

Signature

Date

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1	Project name:	
2	Contract/Order No:	
3	Contractor:	
4	COW:	

Item Checklist		QC items to check or supply	Holding Point Required (Y/N)	Photo Required (Y/N)	Contractor Signature	Verified (V) Witnessed (W)	COW Signature
1	Equipment Foundation No: _____	Equipment Foundation - setting out					
		Foundation dimensions - length, width & depth					
		Foundation side walls - stable & vertical					
		Foundation compaction					
		Reinforcing					
		Steel Shuttering					
		Control cabling uPVC pipe					
		Steel Templates - installed & positioned					
		HD Bolts					
		Earthing - installed HD bolt earthing					
		Concrete - mixture at correct Mpa					

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Quality Control Checksheet for Civil Works: Cable Trenches

1	Project name:	
2	Contract/Order No:	
3	Contractor:	
4	COW:	

Item Checklist		QC items to check or supply	Holding Point Required (Y/N)	Photo Required (Y/N)	Contractor Signature	Verified (V) Witnessed (W)	COW Signature
2	Cable trenches	Cable trenches - setting out					
		Cable trench excavations & installation					
		Cable trench bedding preparation.					
		Cable trench cover support brackets					
		Cable trench (pipe) road crossings					
		Cable trench covers.					
		Cable trench entry into Control Building.					

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Handover Checklist for Civil Works: Foundations & Cable Trenches

1	Project name:	
2	Contract/Order No:	
3	Contractor:	
4	COW:	

	Item Checklist	Contractor - Quality Assurance Check : Name	Signature	COW - Quality Assurance Check : Name	Signature
1	Foundations				
2	Cable trenches				

Accepted by *Project Manager*:

Name

Signature

Date

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– Annex B6 – Stage 6: Civil Works: Roads, Stoning & Kerbing

Quality Control Checksheet for Civil Works: Roads, Stoning & Kerbing

1	Project name:	
2	Contract/Order No:	
3	Contractor:	
4	COW:	

	Item Checklist	QC items to check or supply	Holding Point Required (Y/N)	Photo Required (Y/N)	Contractor Signature	Verified (V) Witnessed (W)	COW Signature
1	Kerbing	Road kerbing installation					
		Stone kerbing installation					
2	Roads	Road stoning - size & depth.					
		Paving - preparation					
		Paving - installation					
		Gate ramp installation					
3	Stoning	Yard stoning - size & depth.					
4	Weed killer	Spraying of weed killer.					

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Handover Checklist for Civil Works: Roads, Stoning & Kerbing

1	Project name:	
2	Contract/Order No:	
3	Contractor:	
4	COW:	

	Item Checklist	Contractor - Quality Assurance Check : Name	Signature	COW - Quality Assurance Check : Name	Signature
1	Kerbing				
2	Roads				
3	Stoning				
4	Weed killer				

Accepted by *Project Manager*:

Name

Signature

Date

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1	Project name:	
2	Contract/Order No:	
3	Contractor:	
4	COW:	

Item Checklist	QC items to check or supply	Holding Point Required (Y/N)	Photo Required (Y/N)	Contractor Signature	Verified (V) Witnessed (W)	COW Signature
1	Transformer Oil Containment Area	Foundation - depth & size				
		Face Bricks - correct make				
		Walls - Quality of finish				
		Walls - Facebrick jointing				
		Walls - Height & Level				
		Sump - depth & size				
		Floor - levels (direction of flow)				
		Floor - sealing correct				
		Valve chamber - level & size				
		Drizit bags - installed				
		Outlet Valve - level				
		Drizit bag - level				
		Drainage pipe - outlet level				
		Valve Chamber cover - size				
		Flow stop - invert level				
		Oil drainage pipes levels - 300mm concrete				
		Oil drainage pipes joints sealed - 300mm concrete				
		Oil drainage pipes direction of flow - 300mm concrete				

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	Item Checklist	QC items to check or supply	Holding Point Required (Y/N)	Photo Required (Y/N)	Contractor Signature	Verified (V) Witnessed (W)	COW Signature
2	Manholes	Foundation - position depth & size					
		Face Bricks - correct make					
		Walls - Quality of finish					
		Walls - Facebrick jointing					
		Walls - Height & Level					
		Oil drainage pipes joints sealed - 300mm concrete					
		Manhole cover - installed					
3	Firetrap	Foundation - position depth & size					
		Face Bricks - correct make					
		Walls - Quality of finish					
		Walls - Facebrick jointing					
		Chamber 1 - size					
		Chamber 2 - size					
		Inlet - level					
		Outlet - level					
		Level separation wall - position					
		Oil drainage pipes joints sealed - 300mm concrete					
		Manhole cover - installed					

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Item Checklist		QC items to check or supply	Holding Point Required (Y/N)	Photo Required (Y/N)	Contractor Signature	Verified (V) Witnessed (W)	COW Signature
4	Oil dam - Type A Concrete	Foundation - position depth & size					
		Oil Dam dimensions - length, width, depth					
		Waterproofing - installed					
		Shuttering - install					
		Oil Dam floor - concrete & reinforcing.					
		Oil Dam walls - concrete & reinforcing.					
		Inlet - level					
		Outlet - level					
		Ladder - installed					
		Cover - installed					
		Earthing					

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Item Checklist	QC items to check or supply	Holding Point Required (Y/N)	Photo Required (Y/N)	Contractor Signature	Verified (V) Witnessed (W)	COW Signature
5	Oil dam - Type B Brick	Foundation - position depth & size				
		Oil Dam dimensions - length, width, depth				
		Waterproofing - installed				
		Oil Dam floor - sand bedding				
		Concrete & Reinforcing - installed.				
		Face Bricks - correct make				
		Walls - Quality of finish				
		Walls - Facebrick jointing				
		Inlet - level				
		Outlet - level				
		Oil drainage pipes joints sealed - 300mm concrete				
		Manhole cover - installed				
		Sealing				
		Side wall - river sand bedding				
		Sump - depth & size				
		Valve chamber - level & size				
		Valve chamber - Quality and facebrick				
		Drizit bags - installed				
		Outlet Valve - level				
		Drizit bag - level				
		Drainage pipe - outlet level				
		Valve Chamber cover - size				
		Flow stop installed - invert level				
		Side wall - river sand bedding installed				
		Water Pump - installed				
		Water Pump probes - installed				
		Water Pump controls & JB - installed				
		Earthing - Installed				

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	Item Checklist	QC items to check or supply	Holding Point Required (Y/N)	Photo Required (Y/N)	Contractor Signature	Verified (V) Witnessed (W)	COW Signature
6	Stainless Steel Fire Walls	Foundation - position, depth & size					
		Support - correct height					
		Module 'A' - correct position					
		Module 'B' - correct position					

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Handover Checklist for Civil Works: Transformer Bund Area, Oil Dam & Fire Wall

1	Project name:	
2	Contract/Order No:	
3	Contractor:	
4	COW:	

	Item Checklist	Contractor - Quality Assurance Check : Name	Signature	COW - Quality Assurance Check : Name	Signature
1	Transformer Oil Containment Area				
2	Manholes				
3	Firetrap				
4	Oil dam				
5	Stainless Steel Fire Wall				

Accepted by *Project Manager*:

Name

Signature

Date

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– Annex B8 – Stage 8: Steelwork

Quality Control Checksheet for Steelwork

1	Project name:	
2	Contract/Order No:	
3	Contractor:	
4	COW:	

	Item Checklist	QC items to check or supply	Holding Point Required (Y/N)	Photo Required (Y/N)	Contractor Signature	Verified (V) Witnessed (W)	COW Signature
1	Steelwork Delivery	Steelwork delivery inspection - verification of material condition & galvanising.					
2	Steelwork : _____	Assembling.					
		Installed, plumbed & levelled.					
		Bolts torqued.					
		Grouting					

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Handover Checklist for Steelwork

1	Project name:	
2	Contract/Order No:	
3	Contractor:	
4	COW:	

	Item Checklist	Contractor - Quality Assurance Check : Name	Signature	COW - Quality Assurance Check : Name	Signature
1	Steelwork Delivery				
2	Steelwork Installation				

Accepted by *Project Manager*:

Name

Signature

Date

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1	Project name:	
2	Contract/Order No:	
3	Contractor:	
4	COW:	

	Item Checklist	QC items to check or supply	Holding Point Required (Y/N)	Photo Required (Y/N)	Contractor Signature	Verified (V) Witnessed (W)	COW Signature
1	Fencing Delivery	Fencing delivery inspection - verification of material condition & galvanising.					
2	Palisade Fence	Assembling					
		Installed, plumbed & levelled					
		Bolts sheared					
		Earthing					
		Labelling					
3	Diamond Mesh Fence	Assembling					
		Installed, plumbed & levelled					
		Earthing					
		Labelling					

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	Item Checklist	QC items to check or supply	Holding Point Required (Y/N)	Photo Required (Y/N)	Contractor Signature	Verified (V) Witnessed (W)	COW Signature
4	Precast Walls	Installation					
		Labelling					
5	Gates	Installed, plumbed & levelled					
		Locks					
		Earthing					
		Labelling					
6	Boundary Fence & Gate	Installation					

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Handover Checklist for Fencing

1	Project name:	
2	Contract/Order No:	
3	Contractor:	
4	COW:	

	Item Checklist	Contractor - Quality Assurance Check : Name	Signature	COW - Quality Assurance Check : Name	Signature
1	Fencing Delivery				
2	Palisade Fence				
3	Diamond Mesh Fence				
4	Precast Walls				
5	Gates				
6	Boundary Fence & Gate				

Accepted by *Project Manager*:

Name

Signature

Date

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– Annex B10 – Stage 10: Power Transformer Delivery & Assembly

Quality Control Check sheet for Primary Equipment: Power Transformer Delivery & Assembly

1	Project name:	
2	Contract/Order No:	
3	Contractor:	
4	COW:	

	Item Checklist	QC items to check or supply	Holding Point Required (Y/N)	Photo Required (Y/N)	Contractor Signature	Verified (V) Witnessed (W)	COW Signature
1	Transformers - Delivery & Installation by Supplier	Transformer Delivery from supplier - Health & Safety Plan approved					
		Supplier accept that site is accessible for the delivery of the transformer.					
		Transformer plinth & slipway - concrete works completed and cured.					
		Transformer position indicated on the plinth.					
		Supplier tests conducted and witnessed by Control Plant Maintenance.					
		Transformer Delivery Checklist to be completed by the Plant representative. Refer to Document: DFM 34-1901					

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Handover Checklist for Primary Equipment: Power Transformer Delivery & Assembly

1	Project name:	
2	Contract/Order No:	
3	Contractor:	
4	COW:	

	Item Checklist	Contractor - Quality Assurance Check : Name	Signature	COW - Quality Assurance Check : Name	Signature
1	Transformers - Delivery & Installation by Supplier				

Accepted by *Control Plant Representative*:

_____	_____	_____
Name	Signature	Date

Accepted by *Plant Representative*:

_____	_____	_____
Name	Signature	Date

Accepted by *Project Manager*:

_____	_____	_____
Name	Signature	Date

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HANDING OVER FOR COMMERCIAL OPERATION**Unique Identifier: **240-87605434**Revision: **1**Page: **51 of 68****– Annex B11 – Stage 11: Primary Equipment Installation****Quality Control Checksheet for Primary Equipment Installation - Power Transformer**

1	Project name:	
2	Contract/Order No:	
3	Contractor:	
4	COW:	

Item Checklist	QC items to check or supply	Holding Point Required (Y/N)	Photo Required (Y/N)	Contractor Signature	Verified (V) Witnessed (W)	COW Signature
Transformer	Verify items received are in accordance with the Bill of Material, LAP List and Scope of work (correct voltages etc.)					
Drawing No: _____ Type: _____ Make: _____ Serial No: _____	Oil levels – conservator – tap-changer					
	Ensure no oil leaks. Check at sampling points, bushings and radiator couplings.					
	Bushings - Check for broken/chipped.					
	Check for acrylic covers on MV bushings (Covers to have drain holes to prevent moisture build-up)					
	Silica Gel Breather - correctly installed and correct colour.					
	Labelling					
	Earthing installation correct.					
	Oil sample tests & results					
	Overall Condition					

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1	Project name:	
2	Contract/Order No:	
3	Contractor:	
4	COW:	

Item Checklist	QC items to check or supply	Holding Point Required (Y/N)	Photo Required (Y/N)	Contractor Signature	Verified (V) Witnessed (W)	COW Signature
Auxiliary Transformer	Verify items received are in accordance with the Bill of Material, LAP List and Scope of work (correct voltages etc.)					
Drawing No: _____ Type: _____ Make: _____ Serial No: _____	Delivery from supplier - general condition.					
	Installation					
	Orientation					
	Oil levels – conservator					
	Ensure no oil leaks. Check at sampling points, bushings and radiator couplings.					
	Bushings - Check for broken/chipped.					
	Check for acrylic covers on MV bushings (Covers to have drain holes to prevent moisture build-up)					
	Silica Gel breather - correctly installed and correct colour.					
	Labelling					
	Earthing installation correct.					
	Oil sample tests & results					
	Overall Condition					

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1	Project name:	
2	Contract/Order No:	
3	Contractor:	
4	COW:	

Item Checklist	QC items to check or supply	Holding Point Required (Y/N)	Photo Required (Y/N)	Contractor Signature	Verified (V) Witnessed (W)	COW Signature
NECRT	Verify items received are in accordance with the Bill of Material, LAP List and Scope of work (correct voltages etc.)					
Drawing No: _____ Type: _____ Make: _____ Serial No: _____	Delivery from supplier - general condition.					
	Installation					
	Orientation					
	Oil levels – conservator					
	Ensure no oil leaks. Check at sampling points, bushings and radiator couplings.					
	Bushings - Check for broken/chipped.					
	Check for acrylic covers on MV bushings (Covers to have drain holes to prevent moisture build-up)					
	Silica Gel breather - correctly installed and correct colour.					
	Labelling					
	Earthing installation correct.					
	Oil sample tests & results					
	Overall Condition					

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HANDING OVER FOR COMMERCIAL OPERATION**Unique Identifier: **240-87605434**Revision: **1**Page: **54 of 68****Quality Control Checksheet for Primary Equipment Installation - Capacitor Bank**

1	Project name:	
2	Contract/Order No:	
3	Contractor:	
4	COW:	

Item Checklist	QC items to check or supply	Holding Point Required (Y/N)	Photo Required (Y/N)	Contractor Signature	Verified (V) Witnessed (W)	COW Signature
Capacitor Bank	Verify items received are in accordance with the Bill of Material, LAP List and Scope of work (correct voltages etc.)					
Drawing No: _____ Type: _____ Make: _____ Serial No: _____	Delivery from supplier - general condition.					
	Installation					
	Bushings - Check for broken/chipped.					
	Earthing correct.					
	Labelling					
	Overall Condition					

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HANDING OVER FOR COMMERCIAL OPERATION**Unique Identifier: **240-87605434**Revision: **1**Page: **55 of 68****Quality Control Checksheet for Primary Equipment Installation - Circuit Breaker (Post)**

1	Project name:	
2	Contract/Order No:	
3	Contractor:	
4	COW:	

Item Checklist	QC items to check or supply	Holding Point Required (Y/N)	Photo Required (Y/N)	Contractor Signature	Verified (V) Witnessed (W)	COW Signature
Circuit Breaker	Verify items received are in accordance with the Bill of Material, LAP List and Scope of work (correct voltages etc.)					
Drawing No: _____ Type: _____ Make: _____ Serial No: _____	Delivery from supplier - general condition.					
	Installation					
	Orientation correct.					
	Bushings - Check for broken/chipped.					
	Earthing correct.					
	Function / Pre-commissioning testing					
	Labelling					
	Overall Condition					
	Breaker filled with gas (if required)					

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HANDING OVER FOR COMMERCIAL OPERATION**Unique Identifier: **240-87605434**Revision: **1**Page: **56 of 68****Quality Control Checksheet for Primary Equipment Installation - Circuit Breaker (Indoor)**

1	Project name:	
2	Contract/Order No:	
3	Contractor:	
4	COW:	

Item Checklist	QC items to check or supply	Holding Point Required (Y/N)	Photo Required (Y/N)	Contractor Signature	Verified (V) Witnessed (W)	COW Signature
Circuit Breaker	Verify items received are in accordance with the Bill of Material, LAP List and Scope of work (correct voltages etc.)					
Drawing No: _____ Type: _____ Make: _____ Serial No: _____	Delivery from supplier - general condition.					
	Installation					
	Orientation correct.					
	Bushings - Check for broken/chipped.					
	Earthing correct.					
	Function / Pre-commissioning testing (include compliance to racking requirements)					
	Labelling					
	Overall Condition					
	Switch room floor/Trench tolerance to comply with indoor switchgear manufacturer requirements.					

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HANDING OVER FOR COMMERCIAL OPERATION**Unique Identifier: **240-87605434**Revision: **1**Page: **57 of 68****Quality Control Checksheet for Primary Equipment Installation - Current Transformer**

1	Project name:	
2	Contract/Order No:	
3	Contractor:	
4	COW:	

Item Checklist	QC items to check or supply	Holding Point Required (Y/N)	Photo Required (Y/N)	Contractor Signature	Verified (V) Witnessed (W)	COW Signature
Current Transformer	Verify items received are in accordance with the Bill of Material, LAP List and Scope of work (correct voltages etc.)					
Drawing No: _____ Type: _____ Make: _____ Serial No: _____	Delivery from supplier - general condition.					
	Installation					
	Orientation					
	Oil levels - no leaks.					
	Bushings - Check for broken/chipped.					
	Earthing correct.					
	Labelling					
	Overall Condition					

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HANDING OVER FOR COMMERCIAL OPERATION**Unique Identifier: **240-87605434**Revision: **1**Page: **58 of 68****Quality Control Checksheet for Primary Equipment Installation - Voltage Transformer**

1	Project name:	
2	Contract/Order No:	
3	Contractor:	
4	COW:	

Item Checklist	QC items to check or supply	Holding Point Required (Y/N)	Photo Required (Y/N)	Contractor Signature	Verified (V) Witnessed (W)	COW Signature
Voltage Transformer	Verify items received are in accordance with the Bill of Material, LAP List and Scope of work (correct voltages etc.)					
1 Drawing No: _____ Type: _____ Make: _____ Serial No: _____	Delivery from supplier - general condition.					
	Installation					
	Oil levels - no leaks.					
	Bushings - Check for broken/chipped.					
	Earthing correct.					
	Labelling					
	Overall Condition					

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HANDING OVER FOR COMMERCIAL OPERATION**Unique Identifier: **240-87605434**Revision: **1**Page: **59 of 68****Quality Control Checksheet for Primary Equipment Installation - Isolators**

1	Project name:	
2	Contract/Order No:	
3	Contractor:	
4	COW:	

Item Checklist	QC items to check or supply	Holding Point Required (Y/N)	Photo Required (Y/N)	Contractor Signature	Verified (V) Witnessed (W)	COW Signature
Isolator	Verify items received are in accordance with the Bill of Material, LAP List and Scope of work (correct voltages etc.)					
Drawing No: _____ Type: _____ Make: _____ Serial No: _____	Delivery from supplier - general condition.					
	Installation					
	Bushings - Check for broken/chipped porcelain.					
	Earthing correct.					
	Function / Pre-commissioning testing					
	Overall Condition					

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HANDING OVER FOR COMMERCIAL OPERATION**Unique Identifier: **240-87605434**Revision: **1**Page: **60 of 68****Quality Control Checksheet for Primary Equipment Installation - Earth Switch**

1	Project name:	
2	Contract/Order No:	
3	Contractor:	
4	COW:	

Item Checklist	QC items to check or supply	Holding Point Required (Y/N)	Photo Required (Y/N)	Contractor Signature	Verified (V) Witnessed (W)	COW Signature
Earth Switch	Verify items received are in accordance with the Bill of Material, LAP List and Scope of work (correct voltages etc.)					
Drawing No: _____ Type: _____ Make: _____ Serial No: _____	Delivery from supplier - general condition.					
	Installation					
	Orientation					
	Earthing correct.					
	Function / Pre-commissioning testing					
	Overall Condition					

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HANDING OVER FOR COMMERCIAL OPERATION**Unique Identifier: **240-87605434**Revision: **1**Page: **61 of 68****Quality Control Checksheet for Primary Equipment Installation - Surge Arrestors**

1	Project name:	
2	Contract/Order No:	
3	Contractor:	
4	COW:	

Item Checklist	QC items to check or supply	Holding Point Required (Y/N)	Photo Required (Y/N)	Contractor Signature	Verified (V) Witnessed (W)	COW Signature
Surge Arrestor	Verify items received are in accordance with the Bill of Material, LAP List and Scope of work (correct voltages etc.)					
Drawing No: _____ Type: _____ Make: _____ Serial No: _____	Delivery from supplier - general condition.					
	Installation					
	Bushings - Check for broken/chipped.					
	Earthing correct.					
	Labelling					
	Overall Condition					

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Quality Control Checksheet for Primary Equipment Installation - Post Insulators

1	Project name:	
2	Contract/Order No:	
3	Contractor:	
4	COW:	

Item Checklist	QC items to check or supply	Holding Point Required (Y/N)	Photo Required (Y/N)	Contractor Signature	Verified (V) Witnessed (W)	COW Signature
Post Insulator	Verify items received are in accordance with the Bill of Material, LAP List and Scope of work (correct voltages etc.)					
Type: _____ Make: _____	Delivery from supplier - general condition.					
	Installation					
	Bushings - Check for broken/chipped.					
	Overall Condition					

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Handover Checklist for Equipment Installation

1	Project name:	
2	Contract/Order No:	
3	Contractor:	
4	COW:	

	Item Checklist	Sub Section	Contractor - Quality Assurance Check : Name	Signature	COW - Quality Assurance Check : Name	Signature
1	Auxiliary Transformer	Installation				
		Function testing				
		Data Captured				
2	Capacitor Banks	Installation				
		Function testing				
		Data Captured				
3	Circuit-breakers - Post	Installation				
		Function testing				
		Data Captured				
4	Circuit-breakers - Indoor	Installation				
		Function testing				
		Data Captured				
5	Current transformers	Installation				
		Function testing				
		Data Captured				
6	Earth Switch	Installation				
		Function testing				
		Data Captured				
7	Isolators	Installation				
		Function testing				
		Data Captured				
8	Post Insulators	Installation				
9	Necrt's	Installation				
		Function testing				
		Data Captured				
10	Power Transformer	Installation				
		Function testing				
		Data Captured				
11	Surge arresters	Installation				
		Function testing				
		Data Captured				
12	Voltage transformers	Installation				
		Function testing				
		Data Captured				

Accepted by *Project Manager*:

Name Signature Date

Accepted by *Plant Engineering Manager (Data captured)*:

Name Signature Date

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– Annex B12 – Stage 12: Conductor, Busbars & Clamps Installation

Quality Control Checksheet for Conductor, Busbars & Clamps Installation

1	Project name:	
2	Contract/Order No:	
3	Contractor:	
4	COW:	

	Item Checklist	QC items to check or supply	Holding Point Required (Y/N)	Photo Required (Y/N)	Contractor Signature	Verified (V) Witnessed (W)	COW Signature
1	Busbars/Stringers - Conductor No: _____ Type: _____	Delivery inspection - compliance to specification					
		Installation					
		Correct strain/suspension insulators					
		Sag & Tension					
2	Busbars - Tubular No: _____ Type: _____	Delivery inspection - compliance to specification					
		Installation					
		Correct support insulators					
		Correct size & lengths					

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	Item Checklist	QC items to check or supply	Holding Point Required (Y/N)	Photo Required (Y/N)	Contractor Signature	Verified (V) Witnessed (W)	COW Signature
3	Jumpers, Clamps & Spacers Position: _____	Delivery inspection - compliance to specification					
		Installation					
		Conductor jumper size					
		Correct clamp					
		Correctly torqued/crimp					
		Clearances correct					
4	Shieldwire No: _____ Type: _____	Delivery inspection - compliance to specification					
		Installation					
		Sag & Tension					

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Handover Checklist for Civil Works: Conductor, Busbars & Clamps Installation

1	Project name:	
2	Contract/Order No:	
3	Contractor:	
4	COW:	

	Item Checklist	Contractor - Quality Assurance Check : Name	Signature	COW - Quality Assurance Check : Name	Signature
1	Busbars/Stringers - Conductor				
2	Busbars - Tubular				
3	Jumpers, Clamps & Spacers				
4	Shieldwire				
5	Data Captured				

Accepted by *Project Manager*:

Name

Signature

Date

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– Annex B13 – Stage 13: Provisional Handover

(Project Provisionally handed over for final Commissioning)

1	Project name:	
2	Contract/Order No:	
3	Project Manager:	

Stage	Activity	Handover per stage completed for switch on (Y/N)	Received by Project Manager	Date
1	Civil Works: Platform			
2	Civil Works: Control Building			
3	Civil Works: Subsoil drainage			
4	Civil Works: Earthmat Installation			
5	Civil Works: Equipment Foundations & Cable trenches			
6	Civil Works: Roads, Stoning & Kerbing			
7	Transformer bund wall, oil dam and fire wall			
8	Steelwork Erection			
9	Fencing			
10	Power Transformer Delivery & Assembly			
11	Primary Equipment Installation			
12	Conductors, busbars & clamps			

Plant and Equipment provisionally handed over in order to arrange final commissioning

Accepted by: Project Manager (Name & Signature)

Date

Accepted by: Design Engineer (Name & Signature)

Date

Accepted by: Plant Sector Engineer (Name & Signature)

Date

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– Annex B14 – Stage 14: Final Handover

1	Project name:	
2	Contract/Order No:	
3	Name of Project Manager:	

Stage	Activity	Handover per stage completed (Y/N)	Received by Project Manager	Date
1	Civil Works: Platform			
2	Civil Works: Control Building			
3	Civil Works: Subsoil drainage			
4	Civil Works: Earthmat Installation			
5	Civil Works: Equipment Foundations & Cable trenches			
6	Civil Works: Roads, Stoning & Kerbing			
7	Steelwork Erection			
8	Fencing			
9	Power Transformer Delivery & Assembly			
10	Primary Equipment Installation			
11	Conductors, busbars & clamps			
	Final Commissioning Complete			

Accepted by: Project Manager (Name & Signature)

Date

Accepted by: Design Engineer (Name & Signature)

Date

Accepted by: CNC Sector Manager (Name & Signature)

Date

Accepted by: Plant Engineering Manager (Name & Signature)

Date

Accepted by: Plant Sector Engineer (Name & Signature)

Date

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