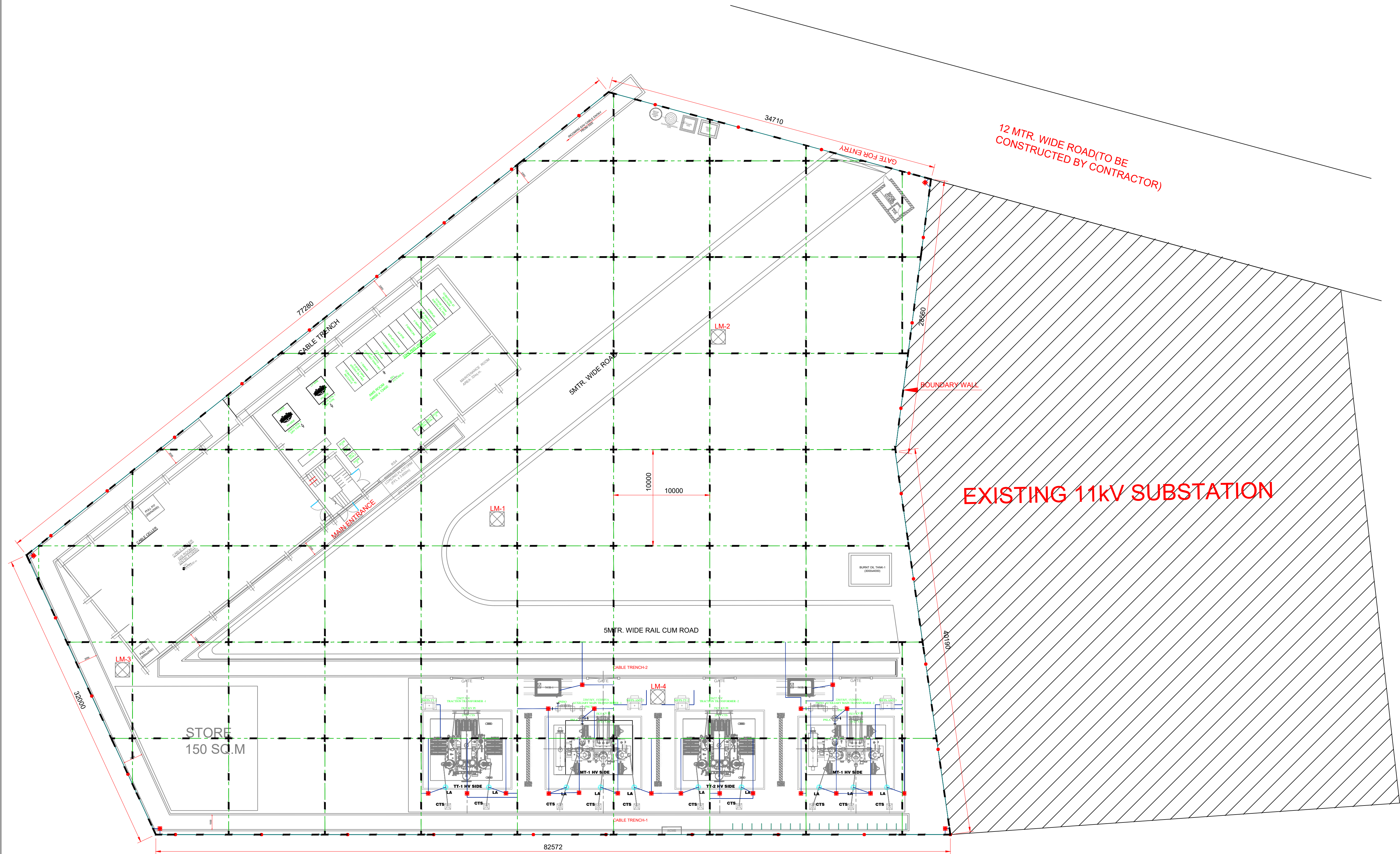




Legend:			
S.No.	Symbol	Description	QTY.
1	⬮	Earth Pit For Equipments	29 Nos.
2	●	Ø25mm Copper bonded steel Conductor, Vertical rod	59 Nos.
3	—	50x6mm Copper coated steel strip	150 Mtr.
4	—	Ø25mm Copper Bonded steel Conductor	2617 Mtr.
5	⊕	Cross Exothermic Joint	223 Nos.
6	⊥	Tee Exothermic Joint	59 Nos.
7	—	Straight Joint	523 Nos.
8	└	L Joint	7 Nos.
9	⬮	750x75x6mm Main Earth Terminal(MET)	28 Nos.
10	⊥	Tee/Earthing Risers Joint with Ø25mm earth conductor with (50x6) copper bonded steel strip	310 Nos.
11	—	50x6mm Copper coated steel strip	1144 Mtr.

- NOTE:-
1. ALL DIMENSIONS ARE IN MM.
 2. THIS DRAWING IS INDICATIVE AND FOR TENDER PURPOSE ONLY AND CONTRACTOR SHALL DEVELOP THE DRAWING FOR CLIENT APPROVAL.
 3. EARTHING SYSTEMS WILL GENERALLY BE CONSTRUCTED IN ACCORDANCE WITH IS: 3043 - CODE OF PRACTICE FOR EARTHING INSTALLATION AND IEEE80.
 4. THE LAYOUT OF EARTH GRID CONDUCTOR MAY BE SUITABLY CHANGED TO AVOID FOULING WITH COLUMNS/ FOUNDATION DURING ACTUAL CONSTRUCTION.
 5. PRESENT EARTH MAT DESIGN IS BASED ON TYPICAL SOIL RESISTIVITY OF 50 OHM-METER. HOWEVER, THE DESIGN WILL BE REVISED ON THE BASIS OF ACTUAL SOIL RESISTIVITY OF RSS SITE LATER ON.
 6. THE FAULT CURRENT HAS BEEN SELECTED FOR 40 KA FOR 1 SECONDS.

6.0 Earth Mat Conductor size calculation Copper Bonded Steel			
SN	Description	Symbol	Unit
1	Short circuit current	I	kA
2	Fault duration	t _c	sec
3	Thermal capacity factor (Table-1/IEEE 80, Page-42)	T _{cap}	J/cm ² / °C
4	Thermal coefficient for resistivity at ref. Temp. (Table-1/IEEE 80)	α _r	/°C
5	Maximum allowable temp. (Table-1/IEEE 80)	T _m	°C
6	Ambient temperature	T _a	°C
7	Reference Temperature for material constant	T _r	°C
8	Resistivity at ref. Temp. Tr (Table-1/IEEE 80)	ρ _r	μΩ-cm
9	Ko = ((1/α _r) - Tr) (Eq. 37/IEEE 80)	K ₀	
10	Earth Conductor size in sq mm (Eq. 45/IEEE 80-2013)		
11	Selected Earth Conductor Dia.	D _{sel}	mm

- NOTES:
1. ALL DIMENSIONS ARE IN METER UNLESS MENTIONED OTHERWISE.
 2. ALL DIMENSIONS ARE TO BE READ AND NOT TO BE MEASURED.
 3. ANY DISCREPANCY IN THE DRAWING MUST BE BROUGHT TO THE NOTICE OF THE DESIGNER.
 4. INTERFACE WITH OTHER DESIGN DISCIPLINE WILL BE DONE AS PER AVAILABILITY OF DETAILS.

REV	DATE	DESCRIPTION	Originator	Checked	Approved
R0	08-08-2024	FIRST SUBMISSION	K.B	V.S/R.K	SK

K RIDE

DM / ELE / KRIDE Sr. DGM / ELE / KRIDE AGM / ELE / KRIDE

Certified that this document has been designed and checked in accordance with GC Quality Assurance Plan.

egis **AECOM** wsp
EGIS-AECOM-WSP

Senior Discipline Expert Chief Discipline Expert Project Director

Certified that this document has been designed and checked in accordance with DDC Quality Assurance Plan. Detailed Design Consultant for design of Traction & Auxiliary Power Supply and Distribution for BSRP

SYSTRA

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Drawn: K. Bisht

Checked: V. Singh

Approved: R.Kannan

S. Kumar

Client:



**RAIL INFRASTRUCTURE
DEVELOPMENT COMPANY
(KARNATAKA) LIMITED**

Project Title: Bengaluru Suburban Rail Project (BSRP)
(Detailed Design Consultant for design of Traction & Auxiliary Power Supply and Distribution for BSRP)

Corridor-2 (Benniganahalli - Chikkabanavara)

Drawing Title: Equipment Earthing Layout (Plan View) - Mathikere
220/33/27.5 kV GIS Substation
Sh. 1 of 3

Project Stage:

Tender Drawing

Paper Size: A1

Discipline:

Date:

Scale:

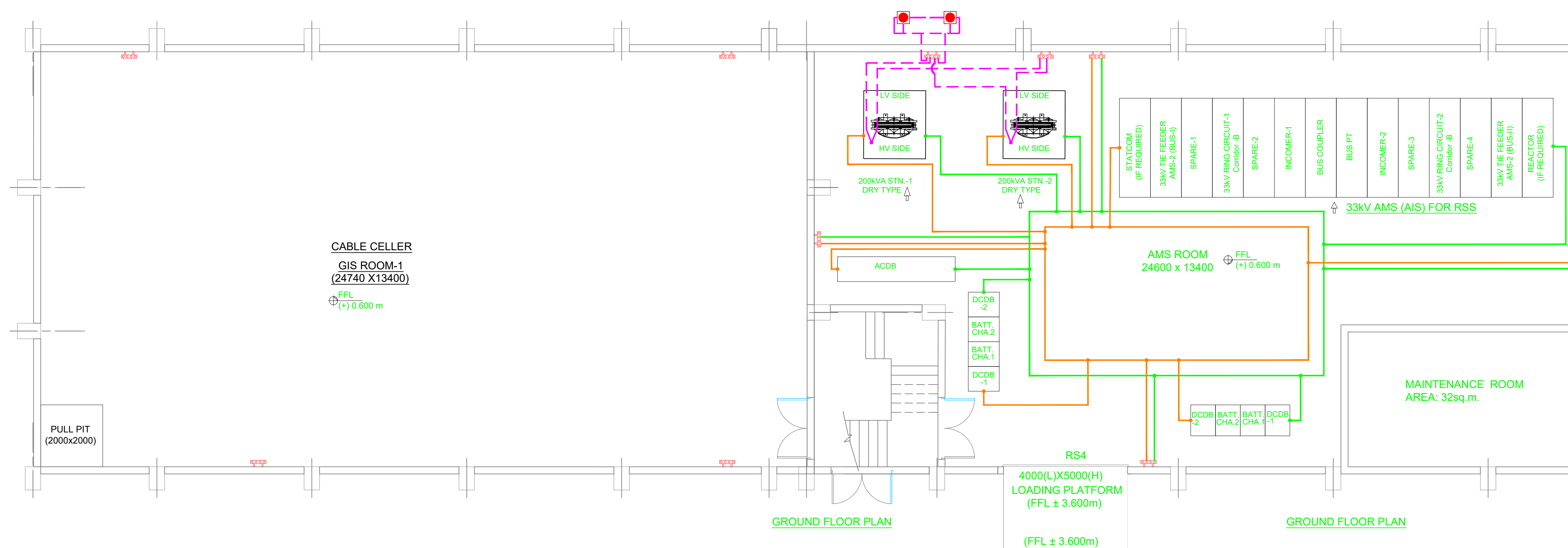
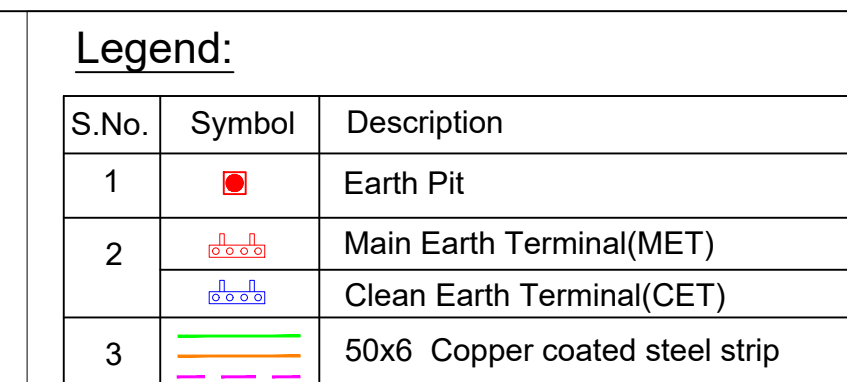
Drawing no.:

KRDD01-TDR-GEN-GEN-TPS-DWG-00018

Revision:

R0

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R0	08-08-2024	FIRST SUBMISSION	K.B	V.S/R.K	SK
REV	DATE	DESCRIPTION	Originator	Checked	Approved

K RIDE

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Senior Discipline Expert	Chief Discipline Expert	Project Director
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Detailed Design Consultant for design of Traction & Auxiliary Power Supply and Distribution for BSRP



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Drawn		Checked:		Approved:	
K. Bisht		V. Singh		S. Kumar	

an.	Client:
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RAIL INFRASTRUCTURE
DEVELOPMENT COMPANY
(KARNATAKA) LIMITED

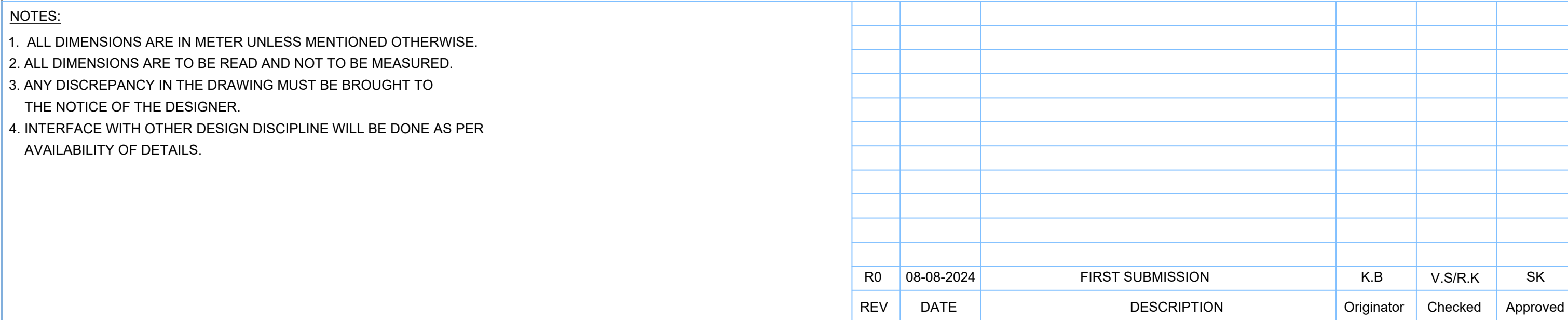
Project Title: Bengaluru Suburban Rail Project (BSRP) (Detailed Design Consultant for design of Traction & Auxiliary Power Supply and Distribution for BSRP)

Corridor-2 (Benniganahalli -Chikkabanavara)

Drawing Title:
Equipment Building Earthing Layout (Plan View) -
Mathikere 220/33/27.5 kV GIS Substation
Sh. 2 of 3

Project Stage:

Paper Size: A1		Discipline:	Date: 08/08/2024	Scale: TS/NTS
Drawing no.: KRDD01 TDR GEN GEN TRS DWG 00018				Revision: 00



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EGIS-AECOM-WSP			
Senior Discipline Expert		Chief Discipline Expert	Project Director
Certified that this document has been designed and checked in accordance with DDC Quality Assurance Plan			
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Drawn		Checked:	Approved:
K. Bisht		V. Singh	S. Kumar
		R. Kannan	
			

Client:		 RAIL INFRASTRUCTURE DEVELOPMENT COMPANY (KARNATAKA) LIMITED	
Project Title: Bengaluru Suburban Rail Project (BSRP) (Detailed Design Consultant for design of Traction & Auxiliary Power Supply and Distribution for BSRP)			
Corridor-2 (Benniganahalli -Chikkabanavara)		Project Stage:	
Drawing Title: Earth Mat Layout (Plan View) - Mathikere 220/33/27.5 kV GIS Substation Sh. 3 of 3		Tender Drawing	
Paper Size: A1	Discipline:	Date: 08/08/2024	Scale: TS/INTS
Drawing no.: KRDD01-TDR-GEN-GEN-TPS-DWG-00018			Revision: R0