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OFFICE OF THE
Chief Engineer, Elec., (P&C),
Kaveri Bhavan, P.B No. 9990

Bangalore- 560 00

No. CEE(P&C)/SEE(T)/EET/ KCO-106/34780/15-16

Date: /8/2015

4679-4704

6 AUG 2015

CIRCULAR

Sub: Revised foundation drawing for 66kV & 110kV Power Transformers upto 31.5MVA Capacity - Modifications/strengthening of the existing transformer foundation.

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In the standard foundation drawing for 66kV & 110kV Power Transformer upto 31.5MVA capacity being adopted at present, the rails are provided in one direction restricting the movement of transformer in one (longitudinal) direction. It was informed in the Major Works review meeting held at Mysuru that during replacement of failed transformer/replacement of existing transformer by higher capacity Transformers in case of augmentation works, difficulty is being experienced in erection of new transformer due to insufficient clearance between transformer & existing structures like baffle wall, equipment support structures/foundation etc. and also due to obstruction of existing baffle wall to erect the transformer at the centre of transformer foundation.

In order to mitigate this problem, it was opined to provide rail gauge in both the axes to facilitate lateral movement of the transformer to avoid obstruction of existing baffle wall/structures during replacement/augmentation works.

As such following modifications shall be adopted.

1. The foundation (block, footing & rails) shall be extended suitably in the required direction to get the required clearance from the existing structures like baffle wall, equipment support structures/foundation etc duly providing anchor rods and bonding chemicals to achieve

EE (IT)	✓
EE (MIS)	
DCA (IT)	
SEE (IT&MIS)	

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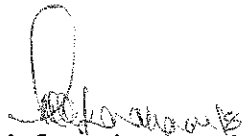
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homogeneity/bonding between old and new concrete, when rails are provided in both axes.

2. In case of foundation where rails are provided in one direction only and if it is required to move the transformer in the lateral direction, the transformer foundation is to be extended suitably in the lateral direction duly providing rails in the lateral direction also with required modifications to the foundation.
3. Re-location of High PI may be carried out as per the site requirement to avoid excessive conductor loads on HV bushings. However phase-phase clearance shall be maintained not less than 1.5Mtrs (for 66kV) & 2.0Mtrs (for 110kV).
4. A minimum of 0.6Mtrs clearance shall be maintained between the baffle wall and transformer for sufficient air circulation.

Revised drawings of transformer foundation and indicative drawing with modifications suggested for transformer foundation in existing stations for installation of over-sized transformer are enclosed. The arrangement indicated in the drawing is proposed in case of over-size transformer with baffle wall on left side of transformer when seen from LV side. Similar modification may be carried out in case of baffle wall on right side of the transformer.

The above modification may be carried out by the field officers themselves as per site requirement duly obtaining necessary approvals from the competent officers. No further approvals would be communicated from this office on the subject matter.

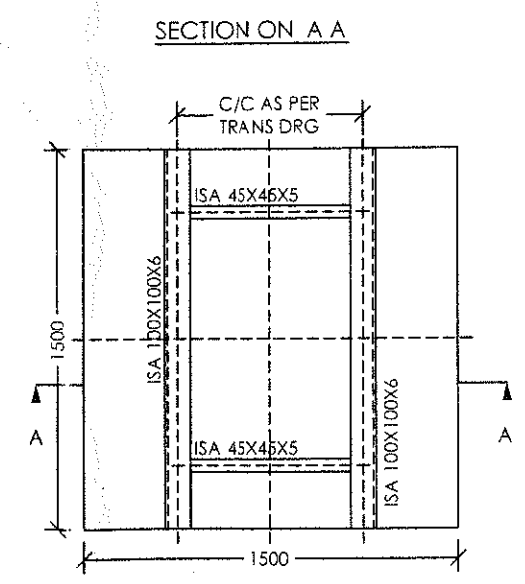
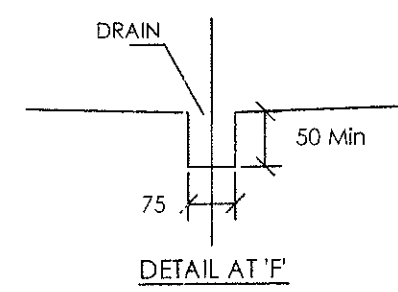
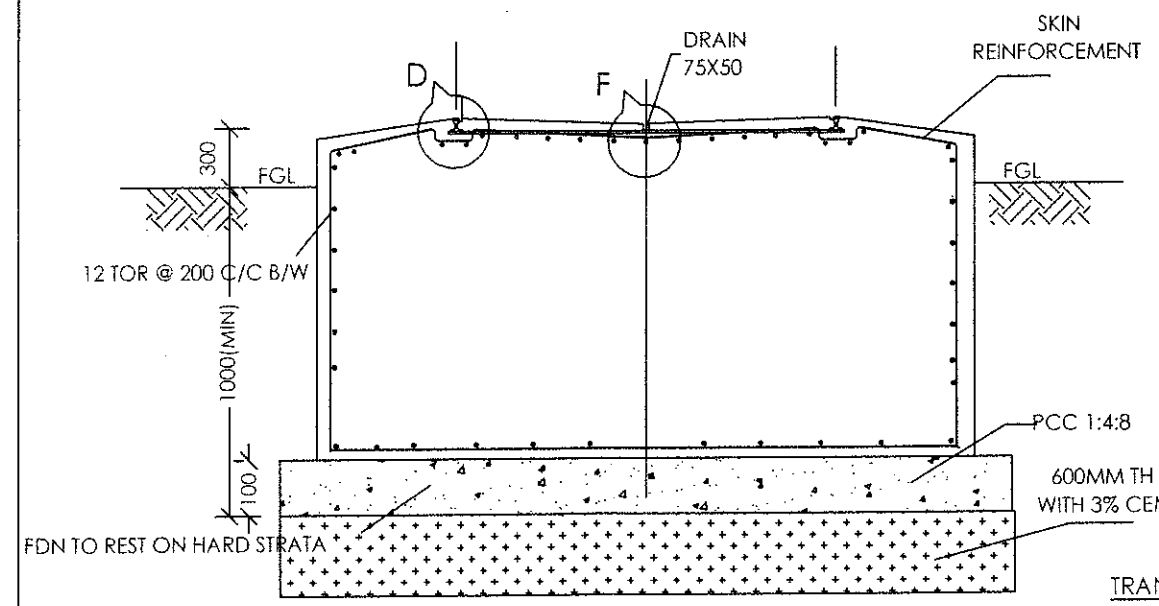
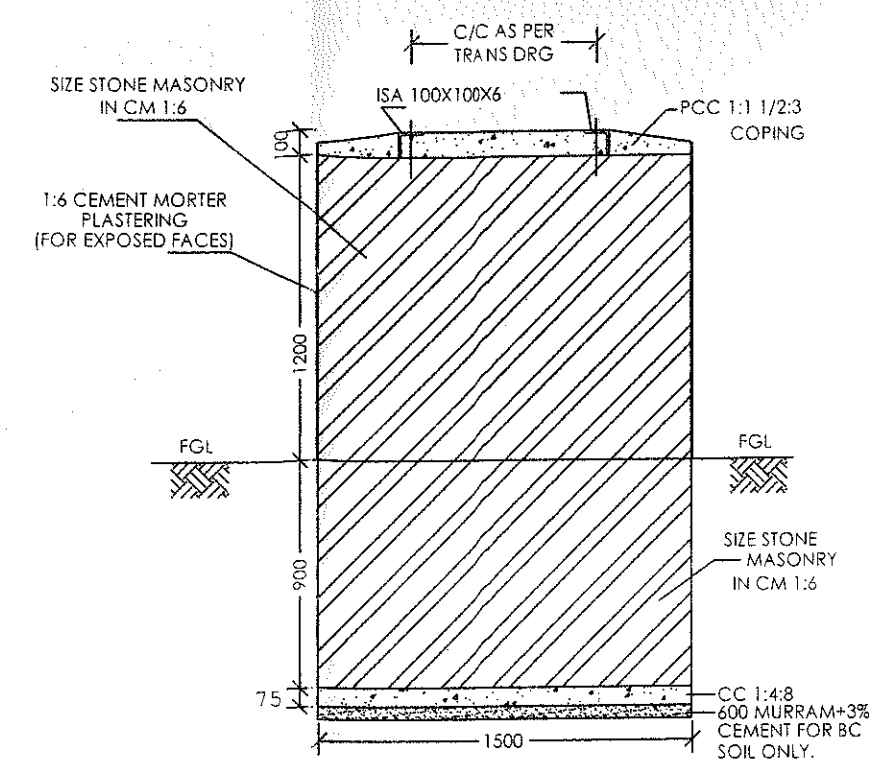
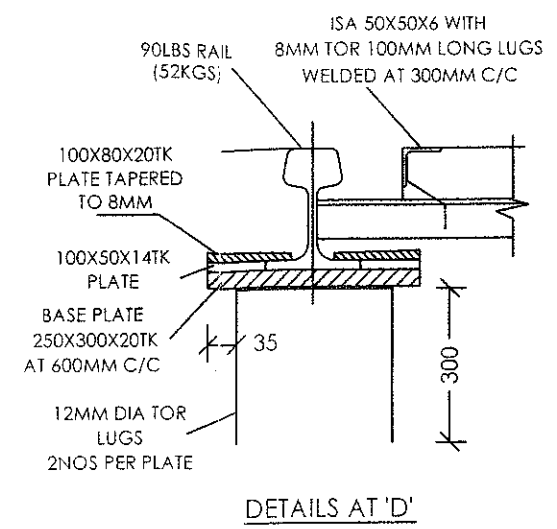
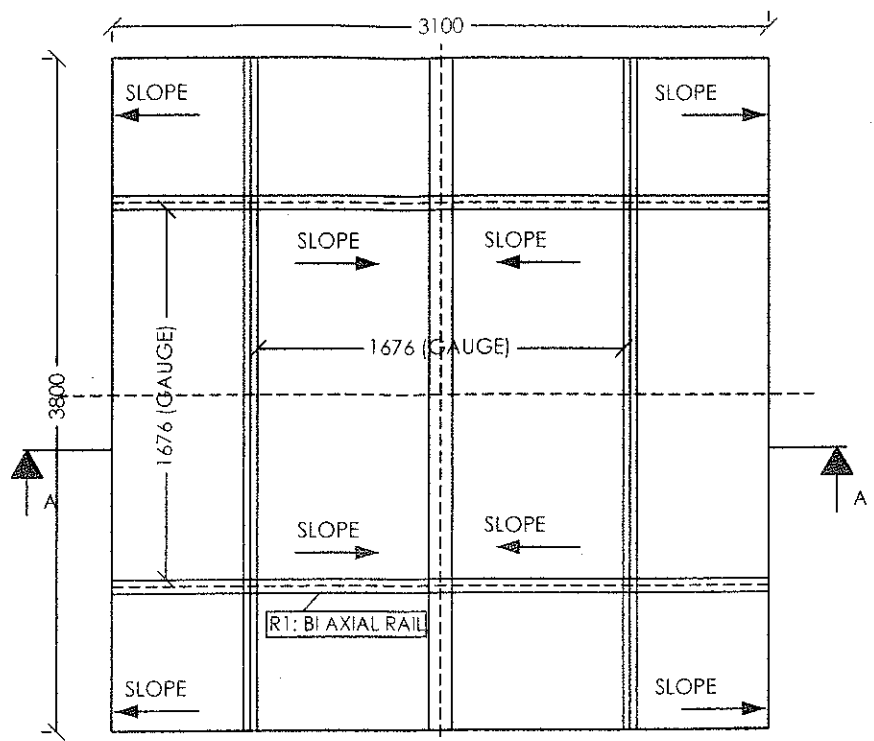

Chief Engineer, Electy.,
(Planning & Co-ordination)

To,

- 1. All Chief Engineers (Electy), Transmission Zone, KPTCL.**
- 2. All Superintending Engineers, Elecl., Transmission Works/(W&M) Circle.**
- 3. All Executive Engineers, Elecl., Major Works Divisions/ TL&SS, Divisions**

Copy to:

- 1) The Superintending Engineer, Elecl., Technical, KPTCL, Kaveri Bahvan, Bengaluru.
- 2) The Superintending Engineer, Civil, KPTCL, Kaveri Bahvan, Bengaluru
- ✓ 3) The Superintending Engineer, Elecl., IT & MIS, KPTCL, Bengaluru. To make arrangements for uploading the same on KPTCL Website.
- 4) The DGM (Tech), KPTCL, Kaveri Bahavan, Bengaluru.



SECTION AA

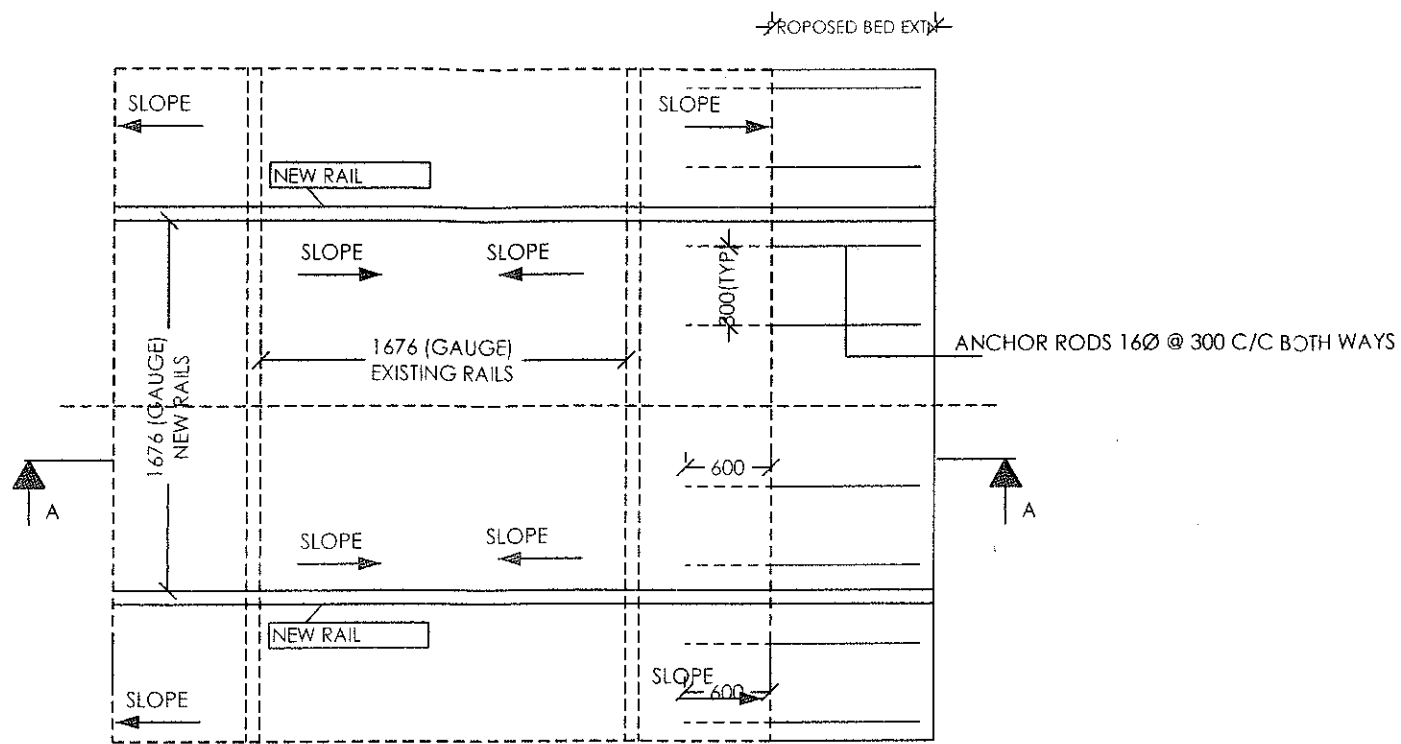
FOUNDATION DETAILS FOR TRANSFORMERS UPTO 31.5 MVA CAPACITY

PLAN FOUNDATION DETAILS FOR 250 KVA AUX TRANSFORMERS

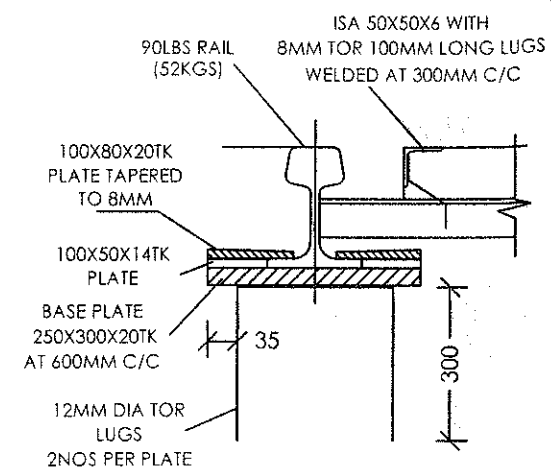
- NOTES:**
1. ALL DIMENSIONS ARE IN MMS ONLY, UNLESS OTHERWISE STATED
 2. DONOT SCALEOUT THIS DRG. FOLLOW ONLY THE WRITTEN DIMENSIONS
 3. ANCHOR BOLTS & OTHER EMBEDDED FIXTURES SHALL BE EMBEDDED DIRECTLY IN TO THE CONCRETE WITHOUT PROVIDING ANY POCKETS AS PER TRANSFORMER SUPPLIER RECOMMENDATIONS.
 4. FOR ORIENTATION OF FOUNDATION REFER FOUNDATION LAYOUT DRG
 5. LOCATION SHALL BE AS PER APPROVED S/Y PLAN & SECTION
 6. BACK FILLING SHALL BE WITH NEW/BARROWED EARTH FOR EXPANSIVE/BC SOIL LOCATIONS
 7. THE FOUNDATION TYPE: ISOLATED, RAFT OR PILING MAY BE DECIDED DEPENDING ON THE SUB SOIL STRATA
 8. FOUNDATION IN EXPANSIVE/B.C. SOIL SHALL BE SUITABLY STRENGTHENED.
 9. PROVIDE CLEAR COVER TO REINFORCEMENT AS UNDER UNLESS NOTED:
 50mm - FOR BOTTOM REINFORCEMENT OF RAFT
 50mm - FOR SIDE REINFORCEMENT OF RAFT, FACE IN CONTACT WITH EARTH
 50mm - FOR COLUMN
 10. GRADE OF CONCRETE M-20 AND STEEL Fe- 500
 11. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH THE APPD TRANSFORMER DRGS.
 12. RAILS ARE TO BE PROVIDED IN BOTH THE DIRECTIONS.

REVISION 1- BI AXIAL RAILS

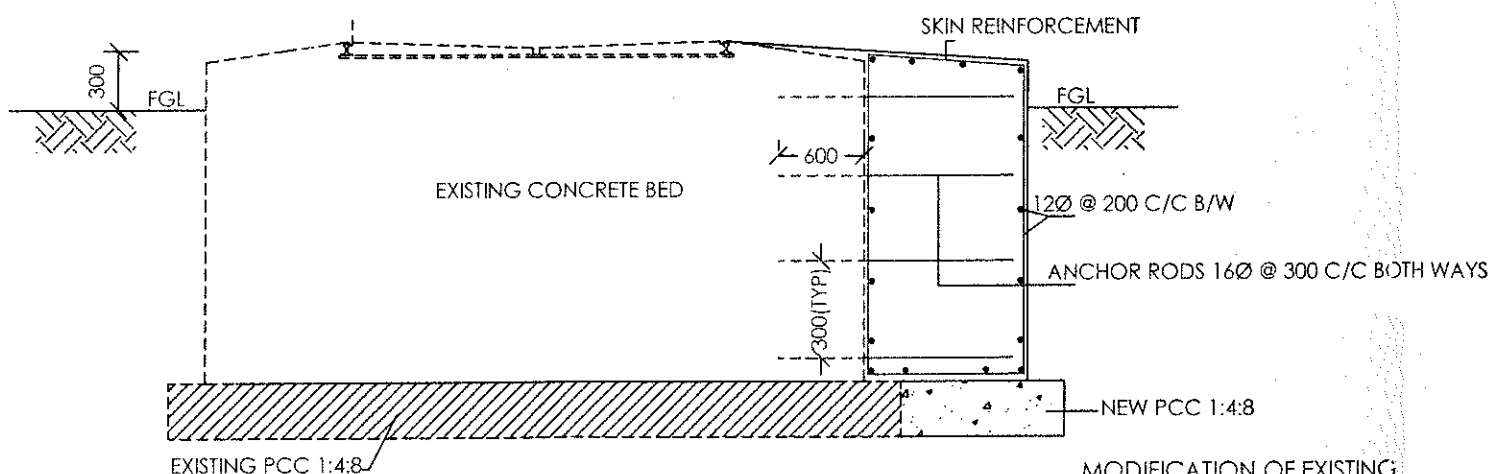
KARNATAKA POWER TRANSMISSION CORPORATION LTD.,				
TITLE		TYPICAL FOUNDATION DETAILS FOR TRANSFORMER UPTO 31.5 MVA AND 250 KVA AUXILIARY TRANSFORMER		
DRG. NO.	CEE(P&C)/SE(C)/06-17/220-110-66/016	REVISION 1	SCALE NTS	DT:07/2015
AEE (CIVIL)		SE (CIVIL)		CHIEF ENGINEER ELEC. (P&C)
SUB		REC		APPROVED



PLAN



DETAILS OF BASE PLATE



MODIFICATION OF EXISTING TRANSFORMERS FOUNDATION UPTO 31.5 MVA CAPACITY

SECTION AA

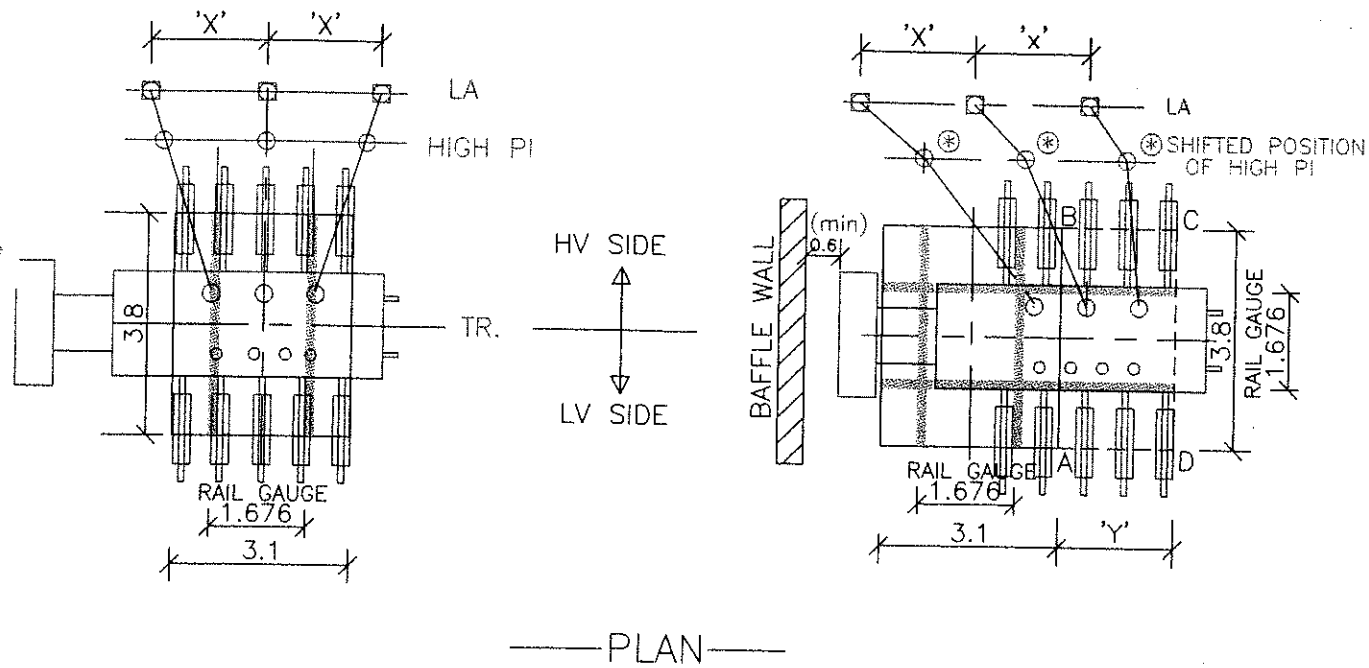
GENERAL NOTES:-

1. ALL DIMENSIONS ARE IN MILLIMETER UNLESS OTHERWISE SPECIFIED.
2. GRADE OF CONCRETE SHALL BE M-20 AND STEEL Fe-500.
3. GROUTING HOLES TO BE 20mm BIGGER THAN DIA OF GROUT BAR.
4. CEMENT SAND MIX 1:1 RATIO TO BE USED FOR GROUTING THROUGH GROUTING PUMP.
5. TO ACHIEVE HOMOGENEITY/BOND BETWEEN OLD AND NEW CONCRETE SUITABLE BONDING CHEMICALS SHALL BE USED.
6. THE SCHEME OF WORK MAY BE SUITABLY MODIFIED TO SUIT THE EXISTING SITE CONDITION/BED.
7. SUITABLE DRAINAGE SYSTEM SHALL BE PROVIDED TO DRAIN OFF RAIN WATER.
8. IF THE EXISTING BED IS PROVIDED WITH RAFT, ANCHORS SHALL ALSO BE PROVIDED FOR RAFT PORTION ALSO.
9. LENGTH OF BED EXTENSION REQUIRED SHALL BE DECIDED BASED ON SITE REQUIREMENT.
10. ECCENTRIC LOADING ON THE BED SHALL BE AVOIDED.
11. THE PROPOSED MODIFICATION MAY BE ADOPTED FOR THE FOLLOWING CASES:-
 - a) WHEN RAILS ARE PROVIDED IN ONLY ONE DIRECTION AND RAIL IN LATERAL DIRECTION IS REQUIRED TO BE PROVIDED.
 - b) WHEN RAILS ARE PROVIDED IN BOTH THE DIRECTIONS AND REQUIRING BED EXTENSION TO MOVE TRANSFORMER Laterally.
12. IN CASE OF ANY CLARIFICATIONS REQUIRED CEE (P&C) OFFICE SHALL BE CONTACTED.

KARNATAKA POWER TRANSMISSION CORPORATION LTD.,			
TITLE	TYPICAL MODIFICATION OF FOUNDATION FOR TRANSFORMER UPTO 31.5 MVA		
DRG. NO.	CEE(P&C)/SE(C)/06-07/220-110-66/016A	REVISION: 0	SCALE: NTS DT: 07/2015
AEE (CIVIL)	SE (CIVIL)	CHIEF ENGINEER ELEC. (P&C)	
SUB	REC	APPROVED	

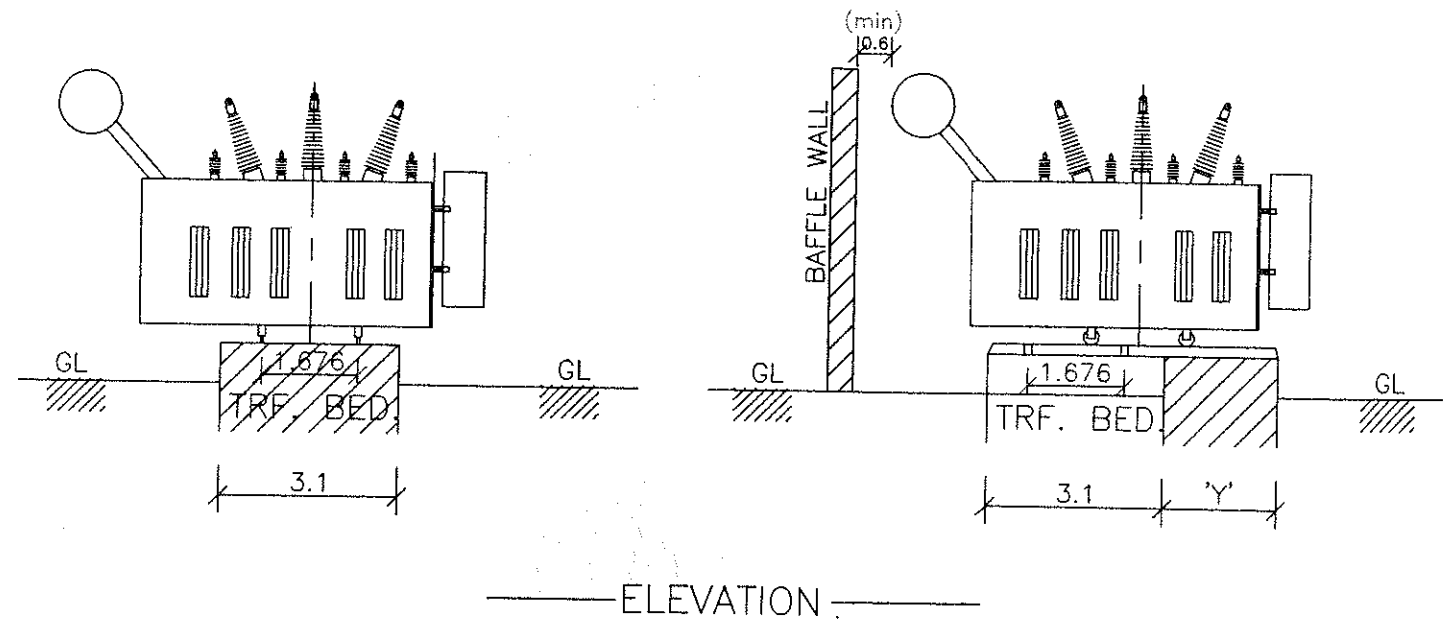
EXISTING

PROPOSED



EXISTING STANDARD ARRANGEMENT

PROPOSED ARRANGEMENT



NOTES:-

1. ALL DIMENSIONS ARE IN METERS.
2. DIMENSION 'X' SHALL BE AS BELOW.

STATIONS	'X' IN MTRS	'Y' IN MTRS
a) 66KV STATION WITH RIGID BUS/STRUNG BUS AND BAY WIDTH 7.6M	2.0M	AS PER SITE REQUIREMENT
b) 110KV STATION WITH RIGID BUS AND BAY WIDTH 8.2M	2.0M	— —
c) 110KV STATION WITH STRUNG BUS AND BAY WIDTH 10.4M	2.7M	— —

3. STANDARD TRANSFORMER FOUNDATION BED DIMENSION IS 3.1X3.8M.
4. 'ABCD' IS EXTENDED PORTION OF THE TRANSFORMER FOUNDATION BED.

5. ⊕ RE-LOCATION OF HIGH PI MAY BE CARRIED OUT AS PER SITE REQUIREMENT TO AVOID EXCESSIVE CONDUCTOR LOADS ON HV BUSHINGS. HOWEVER PH-PH DISTANCE SHALL BE MAINTAINED NOT LESS THAN 1.5M (FOR 66KV) & 2.0M (FOR 110KV).
6. THE ABOVE ARRANGEMENT IS PROPOSED IN CASE OF OVER SIZE TRANSFORMER WITH BAFFLE WALL ON LEFT SIDE TRANSFORMER WHEN SEEN FROM LV SIDE. SIMILAR MODIFICATION MAY BE CARRIED OUT IN CASE OF BAFFLE WALL ON RIGHT SIDE OF TRANSFORMER.



KARNATAKA POWER TRANSMISSION CORPORATION LIMITED

MODIFICATION SUGGESTED FOR TRANSFORMER FOUNDATIONS IN EXISTING STATIONS FOR INSTALLATION OF OVER SIZED TRANSFORMERS.

DRG.NO.KPTCL/TECH/SS/MODIFIED FOUNDATION BED DATE:20.07.2015

SCALE:- NTS

SHEET 1 OF 1

LAKSHMI DEVI.G	<i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i>
J.E	A.E.E	E.E	S.E(TECH)	CEE (P&C)
DRN	CHD	SUB	REC	APPROVED