



BHARAT HEAVY ELECTRICALS LIMITED
(A Government of India Undertaking)
P.O. BHEL Jhansi 284120

DIGITAL TRANSFORMATION GROUP(DTG)

Notice Inviting Tender (NIT)
For

Annual Maintenance Contract for the
“ Existing Factory Wide Local Area Network” for the period of One year

Tender Enquiry No.

[BHE/JS/DTG/NET/2022/01](#)

Tender due date: **22/ 11 /2022 13:15 hrs.**

Tender Opening date: **22 /11 /2022 14:00 hrs.**

We hereby accepted above (signature & seal of bidder)

Seal & Signature of BHEL contracting authority



BHARAT HEAVY ELECTRICALS LIMITED

(A Govt. of India undertaking)

DIGITAL TRANSFORMATION GROUP(DTG), JHANSI - 284120

TENDER ENQUIRY NO: BHE/JS/DTG/NET/2022/01

DATE: 12.11.2022

DETAILS OF TENDER DOCUMENT

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BHEL Jhansi is in the process of finalizing “Annual Maintenance Contract for the “Existing Factory Wide Local Area Network” for the period of One year.”

2. The tender document has been detailed as follows:

- Notice Inviting Tender (Annexure A)
- Work Specifications (Annexure B)
- Qualifying Requirements (Annexure C)
- Performa of Submitting technical bid (Annexure D).
- Price Bid format (Annexure F)
- Blank Price bid Format (Annexure E)
- General Terms & conditions
- Annexures I to XIII

The duly filled in Technical and Price / Rate bids (Annexure A, B, C, D, E and price bid (F) separately) along with General Terms and Conditions and all other attachments with the signature of the tenderer on all the pages and complete in all respects super scribed as “**Quotation for Tender No BHE/JS/DTG/NET/2022/01 dated 12.11.2022**” should reach us in a sealed cover on or before 22.11.2022 (13.15 hours) through Registered / Speed post or the same may be dropped in the tender box available at the following address:

Tender Box
Security Control Room/Office
Administrative Building
Bharat Heavy Electricals Limited
Jhansi-284 120

Note: (i) Incomplete offers are liable for rejection.

(ii) Technical bid and price bid should be submitted in separate sealed envelopes. In case the bids are found in one single envelope then the “bids” are liable to be rejected.

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-
- Annual Maintenance Contract for the “**Existing Factory Wide Local Area Network**” for the period of One year.

The tender document has been detailed as follows: -

SN	Description	Annexure No.	Page No.	No.of Pages
01.	Notice Inviting Tender	A	1-5	5
02.	Work Specification, Measurement of work and Payment	B	6-8	3
03.	Details of existing network	-	9-15	6
04.	Qualifying Requirements	C	16-17	2
05.	Performa for submitting Technical Bid	D	18-19	2
06.	General Terms & conditions of enquiry (JHS 2055C)	Copy Enclosed	20-33	14
07.	Price Bid Sheet	F	34-34	1
08.	Clubbed Annexures (V to IX) Forms	V to IX	35-43	9
09.	Certificate by CA for MSME	XI	44-44	1
10.	Blank Price Bid Sheet	-	45-45	1
	Total:-			45

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1	Scope of Work	Annual Maintenance Contract for the “Existing Factory Wide Local Area Network” for the period of One years
2	Tender evaluation criteria	As per qualifying requirements (see annexure C attached)
3	Validity of Contract	12 Months from the date of award of work order
4	Date and Time of Receipt of Tenders	Up to 13:15 hrs. on 22.11 .2022
5	Date and Time of Opening of Technical bids	14:00 hrs. on 22.11 .2022
6	Address for submitting the Tender	Tender Box, Security Control Room/Office, Administrative Building, Bharat Heavy Electricals Limited, Jhansi-284120
7	Earnest Money Deposit (EMD)	Rs. 38,500/- (Rupees Thirty Eight Thousand Five Hundred Only)
7(a)	The EMD may be accepted only in the following forms: (i) Electronic Fund Transfer credited in BHEL account (before tender opening) <i>BHEL account details: Bank Name: - SBI; A/c No.: - 10670828866; IFSC code: - SBIN0003807, A/c Holder Name: - BHARAT HEAVY ELECTRICALS LIMITED</i> (ii) Card swapping through POS machine at Cash section of BHEL Jhansi.)	
8(a)	In case of successful bidder, EMD will be converted and adjusted against the security deposit.	
8(b)	EMD will be forfeited in following cases	
(i)	After opening the tender, the bidder revokes his tender within the validity period or increases his quoted rate.	
(ii)	The bidder does not commence the work within the stipulated period as per LOI/ Contract. In case the LOI/contract is silent in this regard, then within 15 days after award of contract.	

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	For MSME bidder's submission of EMD and tender cost will be applicable as per MSME act.	
8(c)	EMD given by all unsuccessful tenderers shall be refunded normally within 15 days of acceptance of award of work by successful tenderer.	
8(d)	EMD shall not carry any interest.	
9	Validity of Offer	120 days from the date of opening of Technical Bid (Part-I)
10	Security Deposit (SD)	As per General terms & conditions
11	GST	18 % of quoted rate.
14	Address for issue of Tender	Sr.DGM(DTG), Bharat Heavy Electricals Limited Jhansi, PIN-284120

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Annexure B

WORK SPECIFICATION

1. SCOPE OF WORK OF THE VENDOR BE AS FOLLOWING:

- a. The scope of network system in BHEL Jhansi covers the network installed in BHEL Jhansi Factory premises and offices in BHEL Township (Civil/Electrical Maintenance office, Hospital, Guest House & entry/exit gates).
- b. The bidder shall be responsible for replacement (if faulty) of existing networking software & active/ passive components of network as listed in Annexure-B (page 15).
- c. Bidder shall replace and successfully install **Core and block level switches** only if BHEL decided to get the faulty switches replaced by the respective bidder. Procurement charges will be paid by BHEL after completion of installation & receipt of invoice within 15 days. The new core switch and block level switches must be of 'Make: HP' and model to be same or upgraded one and must be compatible with the entire existing network. Proper & smooth running of whole network system after replacement will be sole responsibility of the vendor during AMC period. Replacement & installation to be done within 48 hours of timespan after failure of system.
- d. Repair/Replacement of any fiber cable / UTP Cable damaged or cut due to any reason whatsoever will be done by the vendor. Any new requirement of network to users up to 20mtrs length shall be covered under AMC.
- e. Comprehensive maintenance of entire network system for the entire maintenance period of one years.
- f. The vendor shall depute a Site In-charge who on behalf of the vendor shall coordinate and be responsible for all the activities related to the execution of contract. Also one junior subordinate must be deputed with Site In-charge to assist him.
 - The Site In-charge must have Graduation in BCA/B.Tech/B.E./B.Sc. (Computer Science) and have experience of 7years in field of networking.
 - The Junior Subordinate must have Diploma (Computer Science) /ITI (Computer Science) / Graduation (any field) and have experience of 7years in field of networking.Prior information and confirmation must be taken from concerned BHEL authority before deputation to the site.
A copy of educational certificate, experience certificate, joining certificate, deputation letter/mail and Aadhar card documents to be given before deputation.



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- g. Minor civil works such as chipping / cutting of floors for making grooves, making holes/opening through walls, ceiling or floors, drilling of holes through steel structures and frames, grouting of frames, hooks on walls/ceiling etc. required for execution of work. After erection, surface shall be made good by plastering / painting to their original shape and finish. Road cutting, if any, shall also be resurfaced and brought to their original shape and finish.
- h. Any temporary make shift arrangement like shifting of switches, rerouting of Fiber and UTP, etc., which are required during migration work is in vendor's scope.

2. Service Level Agreement (SLA)

- a. Bidder shall be responsible for continuous and smooth operation of the LAN for the entire contract period.
- b. Maintenance and services shall cover services, replacements necessary to keep the hardware and software in good working condition.
- c. Bidder shall maintain sufficient spares (as mentioned in Annexure-B(page-15)) in BHEL Jhansi to ensure immediate attention in case of breakdown.
- d. The vendor shall provide comprehensive maintenance support on 24x7 hours basis.
- e. Uptime of 99.5% per month should be ensured for all the active network devices individually. Uptime is calculated on 24x7 basis. In case of downtime, Penalty as detailed at point X(4) of GTC will be applied.
- f. Non availability of an item affects availability of other items, then all such items will also be treated as down for downtime calculation.
- g. If an item has less than 95% availability continuously for 3 months, then it shall be replaced with a new item and uptime is to be ensured at more than 95%. If majority items are having availability less than 95% continuously for more than three months and not rectified, BHEL reserves the right to terminate part or entire contract.
- h. The resident engineers (Site In-charge & Subordinate):
 - Shall observe BHEL working hours and BHEL holidays. BHEL (general shift). working hours are 8AM to 4:30PM, 6 days a week. However, the engineer. shall always be available 24x7 hours on call basis in case of exigency.
 - Shall change the resident engineer only after seeking permission from BHEL and arranging for proper substitute.
 - Shall ensure network connectivity up to the desktop level.
 - Shall have their own vehicles for movements and shall have mobile phones accessible from BHEL landline/mobile phones.

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- Accommodation, boarding, transport and other logistics for the engineer is. vendor's scope.
- Penalty for absence of Resident engineer:
Alternative RE may be provided in case of more than 2 days absence of any RE. If any RE is absent continuously for more than 15 days in a quarter without alternative RE, then penalty on quarterly basis will be:
Penalty for the quarter=
$$\left[\frac{\{(\text{Total no. of absent man-days for all RE}) - (15 \times \text{no. of absent RE})\}}{(\text{Total no. of RE} \times 30 \times 3)} \right] \times \text{Quarterly AMC value} \times 0.15$$

Example: If 2 RE is deputed on site and both RE are continuously on leave for 18 and 20 days respectively in a quarter, then the quarterly penalty will be calculated as:
Assuming Quarterly AMC value as 18,00,000/-(Eighteen lakh only).
Quarterly penalty= $\left[\frac{\{(18+20) - (15 \times 2)\}}{(2 \times 30 \times 3)} \right] \times 18,00,000 \times 0.15 = 4800/-$

- i. Comprehensive maintenance shall include the following:
 - Replacement of faulty equipment
 - Site inspection & Installation charges
 - Cost of Maintenance Engineer
 - Lease tax/right to use tax / any statutory levies including service tax.
 - Keeping sufficient spares (as per annexure-B) to maintain the specified uptime.
 - Shifting and installation of equipment from one location to another within BHEL campus without any extra cost to BHEL.
- j. The vendor should fulfill all statutory and safety requirements for personnel engaged while executing the contract. If BHEL has to incur any expenditure due to noncompliance of the applicable statutory provisions, the same will be compensated by the Bidder.



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DETAILS OF EXISTING NETWORK

At BHEL Jhansi, the IT Infrastructure is mainly located at **DIGITAL TRANSFORMATION GROUP(DTG). INTEGRATED COMMUNICATION CENTRE(ICC)** and PCs, thin clients, workstations are spread across the plant.

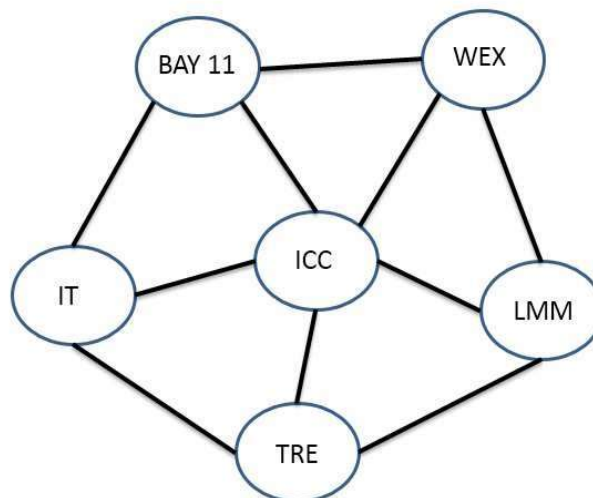
The LAN infrastructure has the capacity to interconnect around 1500 nodes. Backbone speed is **10Gbps** and **1Gbps** at desktop level. The network seamlessly interconnects business server farms, workstations, thin clients, PCs and CNC machines, CCTV Cameras, Biometric machines etc. The network provides the following features:

- Fail-Safe Operation
- Network traffic monitoring & Control
- Seamless desktop to backbone connectivity
- Comprehensive Network integrated services
- Campus wide network security
- VLAN, network segregation, network management
- Near 0% network downtime

The networking solution is based on three tier architecture as described below:

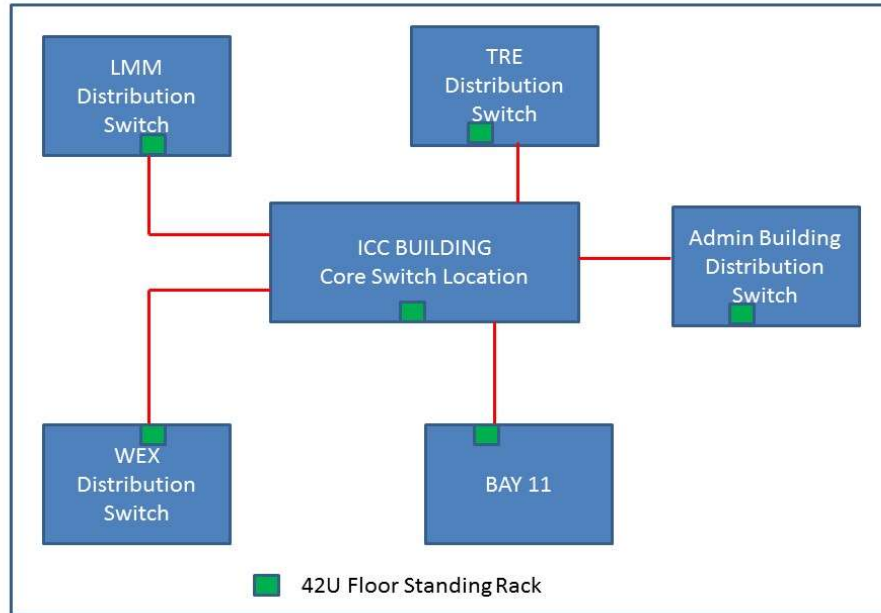
Core Layer – Core switch HP A10508 (JC612A) is located at **INTEGRATED COMMUNICATION CENTRE(ICC)** Department **Core Switch** is located at **ICC** while **Distribution Switches** (5nos.) are placed at 5 different locations namely **IT (ADM Block), BAY 11, WEX, LMM and TRE.**

Logical Ring Connectivity b/w Core and Distribution Switches



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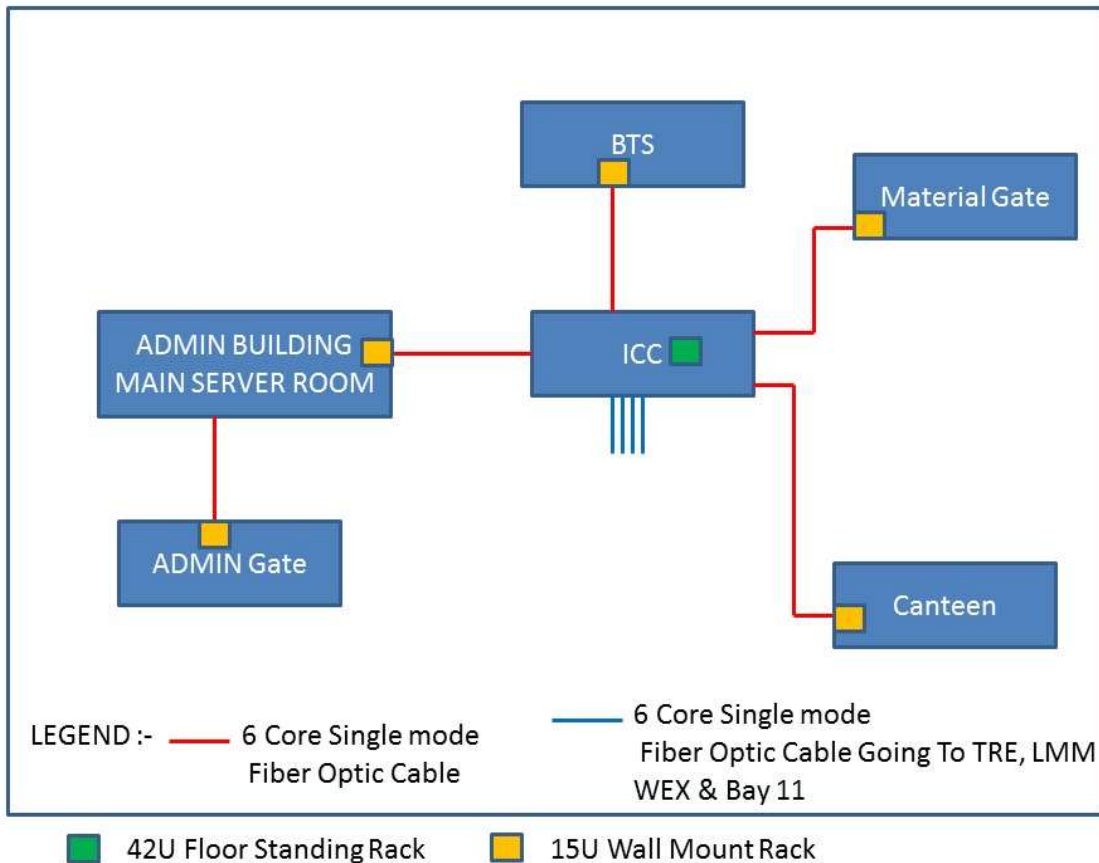
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CORE SWITCH TO DISTRIBUTION CONNECTIVITY FOR BHEL JHANSI

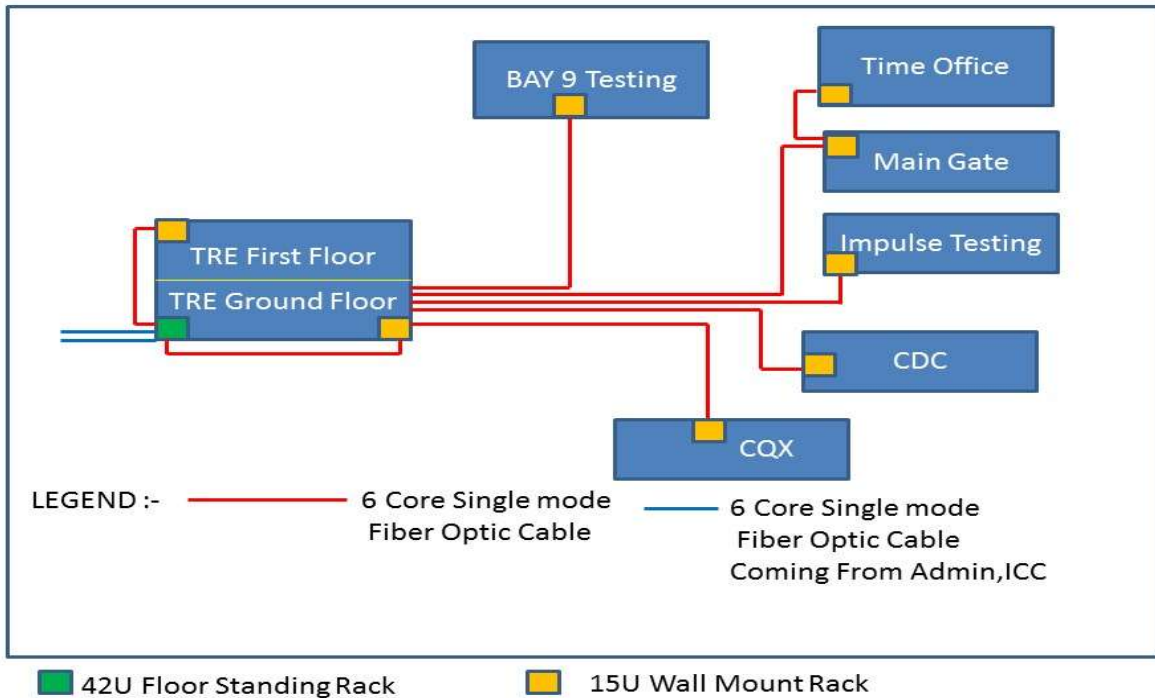
LEGEND :- — 6 Core Single mode Fiber Optic Cable

Distribution Layer (L3 Switches) – Distribution switches are of HP 5900-48XG Model.L3 Distribution switches are placed in various departments/blocks. These distribution switches are connected to core switches with 10 Gbps connectivity. This type of arrangement has been planned to provide redundant path to all distribution switches. All distribution switches are connected to core switches through optical fiber. Optical fiber is Single mode, Armored or Unarmored based on distance and speed requirement. Distribution Switch are capable to provide 10Gbps to some access switches and 1 Gbps connectivity to some Access switches in their respective departments/block through UTP cable or optic fiber cables depending upon the distance between the distribution and access switches.

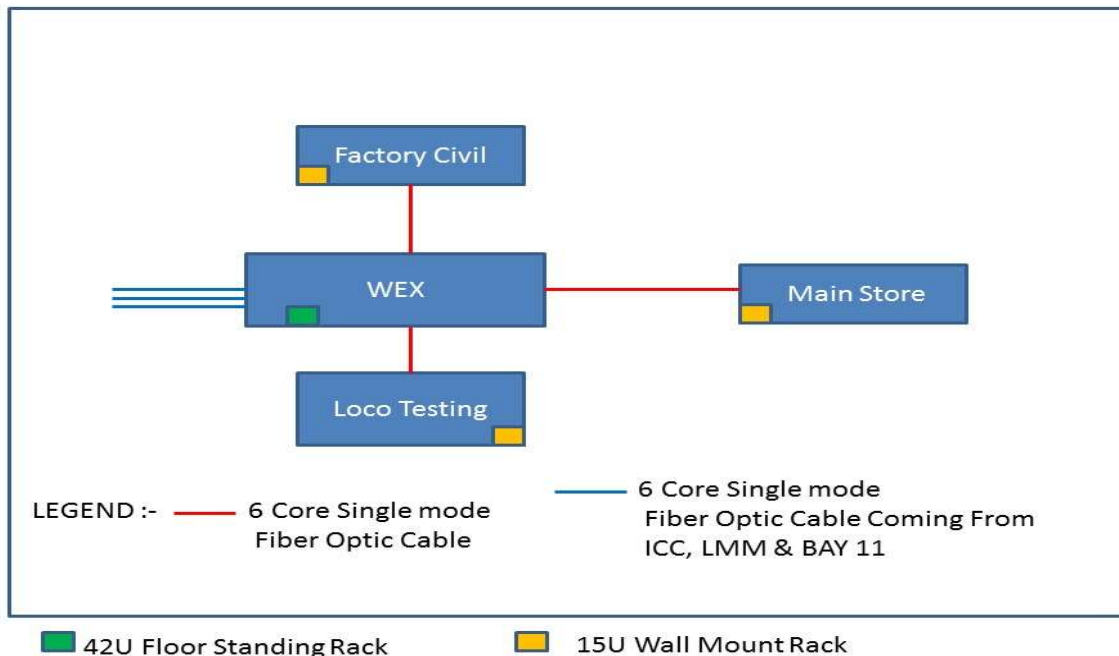
DISTRIBUTION SWITCH TO EDGE CONNECTIVITY FOR BHEL JHANSI



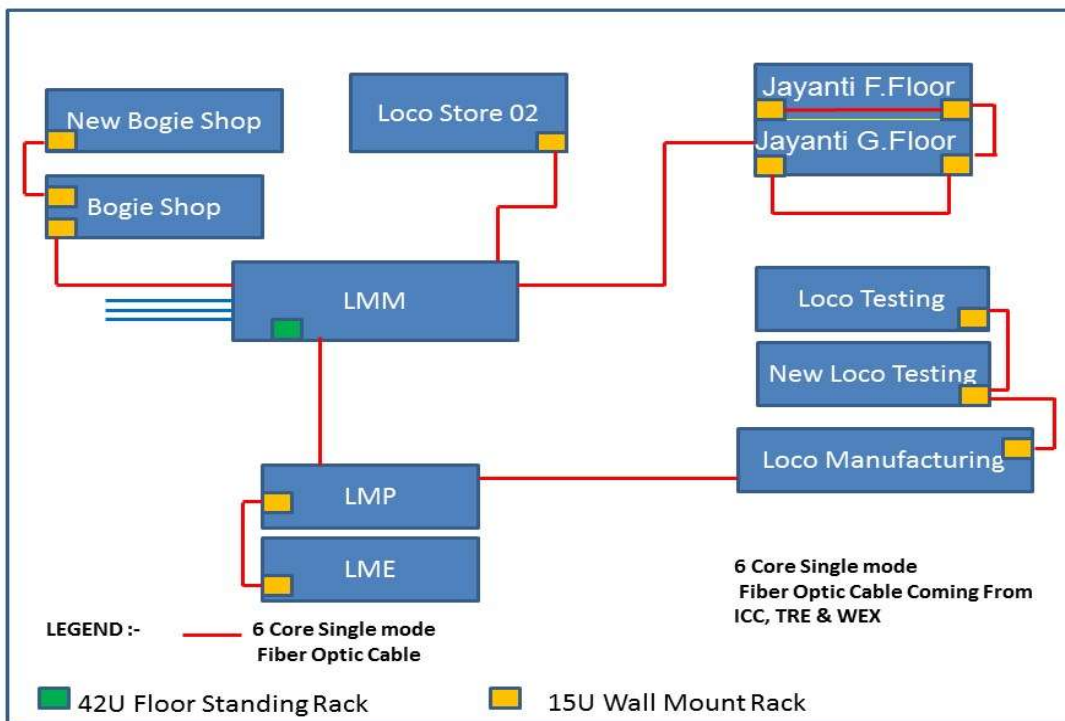
DISTRIBUTION SWITCH TO EDGE CONNECTIVITY FOR BHEL JHANSI



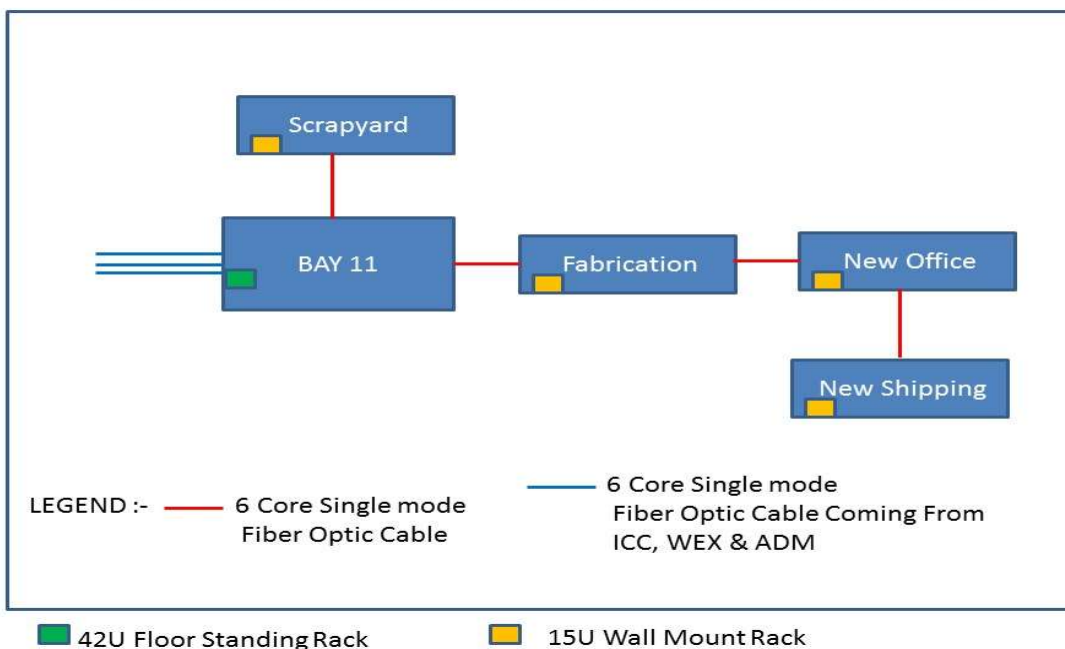
DISTRIBUTION SWITCH TO EDGE CONNECTIVITY FOR BHEL JHANSI

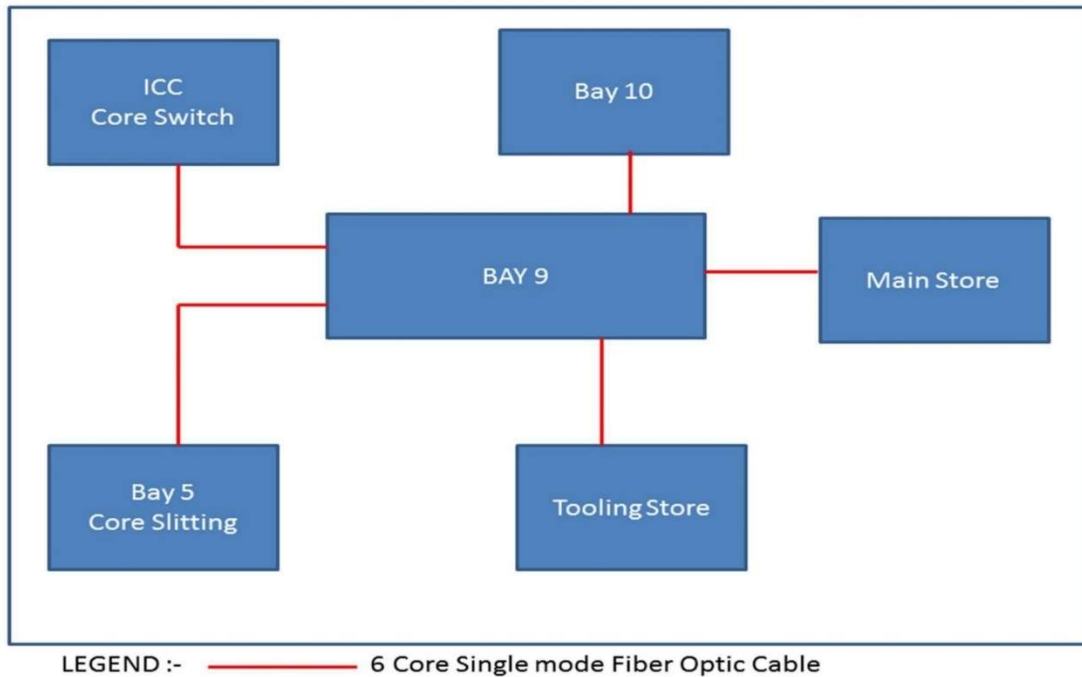


DISTRIBUTION SWITCH TO EDGE CONNECTIVITY FOR BHEL JHANSI



DISTRIBUTION SWITCH TO EDGE CONNECTIVITY FOR BHEL JHANSI





Access Layer (L2 Switches)– 63 nos. of (HP2530) switch, 15nos. of (HP A5120) switch, and 18 nos. of (CISCO C2960) switch placed at various locations across the plant/offices and connected to distribution switches with either 1 Gbps or 10Gbps speed. All switches are of 24ports/48ports. Connectivity is through UTP or Optical Fiber based on distance. No media converter is used in whole implementation and wherever fiber connectivity exists, it is terminated directly at switch having fiber transceivers. All L2 switches have **Non-PoE** based power supply. All UTP ports on access switches is 10/100/1000 Mbps. Desktops are connected to network through access switches.

Please refer to the distribution network diagrams for clarity on type and bandwidth of links between distribution and access locations.

Wi-Fi Access – WI-FI Zone is created in the area of **Jayanti Bhawan, Annexe Building & Admin Building**. Both the wireless and wired LAN Network Active Devices are seamlessly integrated and managed through the NMS(network management software). The **wireless controller (HP870 model: JG723A)** installed at ICC, through which 28 nos. access point AP (HP560 model:J9846A) is connected. 15nos. of Access point AP (CISCO model:1850i) works without controller. All the access point (AP) are PoE based power supply and access ports are **10/100/1000 mbps**.



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Following is the summary of the existing Active Networking Products: -

S. No	Item	Avl. Qty. In Nos.	Model	Requirement of Spare Items Stock Maintenance	
				Percentage(%)	Qty
1	Core Switch	1	HP A10508 (JC612A)	0	0
2	Distribution Switch (L-3)	5	HP 5900-48XG	0	0
3	Access Switch (L-2)	63	HP 2530	10	6
4	Access Switch (L-2)	14	HP-A5120	10	1
5	Access Switch (L-2)	18	CISCO-C2960	10	2
5	10 Gig LR Transceiver	24		10	2
6	1 Gig LX Transceiver	190		10	19
7	Wireless Controller	1	HP 870 (JG723A)	0	0
8	Wireless Access Point (linked to controller)	28	HP560 (J9846A)	10	4
9	Wireless Access Point (run without controller)	15	CISCO (1850i)		
10	Network Management Software for 1000 Nodes	1		0	0
11	PCMCIA cards for Wireless Connectivity to Desktop	90		10	9
12	OFC cable (6core,HDPE,SM,OS2,ECSS armoured)	22 km		20	4 km
13	4pair Cat6 UTP cable roll (305mtr) box	290 box	D-Link	10	29 box
14	RJ45 connectors	5000 approx.	D-Link	20	1000
15	4-8 port Hub/LAN Extender	20	D-Link/Digilink	20	4

Note:- Apart from above items like patch cord, pig tails, switch rack fans, and other spare items which are not mentioned here but are part of existing network system are to be covered under AMC and sufficient spare items to be maintained for hassle free network service.

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Annexure – 'C'

Qualifying Requirement

SI No	Description of Qualifying Requirement
1.	<p>Average Annual financial turnover during the last 3 years ending 31st March 2022, should be at least Rs. 5.78 Lakhs approx. The following documents to be submitted in support of turnover:</p> <ul style="list-style-type: none">i) A certificate from CA duly vetting the turnover "OR"ii) Audited balance sheet & Profit and loss statement. <p><i>Note- If T/o details of 3 years are not available then available years T/o shall be evaluated by dividing it by 3.</i></p>
2.	<p><u>Work Experience:</u> (Bidder should fulfill any one of the following):</p> <p>Experience of having successfully completed similar works* (defined below) during last 7 years of the month before the one in which applications are invited as under: -</p> <ul style="list-style-type: none">a. Three similar completed works each valuing not less than the amount equal to Rs 7.70 Lakh ORb. Two similar completed works each valuing not less than the amount equal to Rs 9.63 Lakh. ORc. One similar completed works each valuing not less than the amount equal to Rs 15.40 Lakh. <p>Note: Similar work means Networking (LAN/WAN) Services.</p> <p>Documentary proof required:</p> <ul style="list-style-type: none">1. Completion Certificate/ proof of completion,2. Work Order /Purchase Order,3. In addition to above TDS Certificate in case of experience is of Private Sector.
3.	Contractor Should have PAN number.
4.	Contractor Should have GST (PAN based)
5.	Bidders are required to submit a self-declaration on their letter head as per the Format enclosed in Annexure V.

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SI No	Description of Qualifying Requirement
6.	<p>The documents required for legal entities under whose name and style Contractor has participated in the tender are as follows:</p> <p>6.1) Partnership Firm: Partnership Deed registered at the office of Registrar of Firms.</p> <p>6.2) Company: Certified copy Memorandum of Association, Article of Association and Incorporation Certificate.</p> <p>6.3) Society: Registration certificate issued by Registrar of societies.</p> <p>6.4) Sole Proprietor-ship Firm: Undertaking on oath (On Company's letter head) that Proprietor is solely responsible for all rights and liabilities while working under the name and style of Sole Proprietorship firm namely (_).</p> <p>6.5) Limited liability partnership agreement registered under company's act.</p>

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1	Name of the firm (Essential)	
2	Address and Contact Numbers (Essential)	
3	Name of the Proprietor (Essential)	
4	Registration Number of the Firm (Essential)	
	Copy of the Certificate	Enclosed / Not Enclosed
5	PAN/TAN Number (Essential)	
6	GST Number (PAN Based) (Essential)	
7	Experience Certificate (Along with balance sheet & profit and loss account/ turnover certificate issued by CA) (Essential)	Enclosed / Not Enclosed
8	Earnest Money Deposit (Essential)	Rs. 38,500/-
	Receipt No. & Date	
	Electronic fund Transfer no. (Bank)	
9	Validity of offer	120 days from the date opening of technical bid
10	Blank Price bid 'JS-472' (Essential)	Enclosed / Not Enclosed
11	Valid E-Mail Id (Essential)	

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13	Proprietorship/ partnership deed	
14	Acceptance of General Terms & Conditions	YES / NO
15	Submission of Security Deposit after issue of LOI and before award of Work Order to contractor.	YES / NO

We will fulfill all the obligations of the contractor and abide by the Terms & Conditions mentioned in the enquiry.

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