RAILTEL CORPORATION OF INDIA LIMITED (RCIL)

Invites open e-tender for and on behalf of

RAILTEL ENTERPRISE LIMITED (REL)

and

INDIAN RAILWAYS

ELECTRONIC TENDER DOCUMENT

FOR

"Supply, Installation, Testing, Commissioning, Operation and Maintenance of IP based Video Surveillance System (VSS) at various Railway Stations of A1, A, B and C category of Indian Railways under Western Region of RailTel for and on behalf of REL and Indian Railways"

OPEN TENDER

E-निविदा संख्या RailTel/Tender/OT/CO/OP/2016-17/VSS-WR/364
E-Tender No. RailTel/Tender/OT/CO/OP/2016-17/VSS-WR/364

निविदा दस्तावेज की कीमत: रु. 11,315/- (टैक्स सहित)
Cost of Tender Document: INR. 11,315/-(Including Taxes)

खुली निविदा सूचना

ई-निविदा संख्या रेलटेल/टेंडर/ओटी/सीओ/ओपी/2016-17/वीएसएस-डब्ल्यूआर/364 दिनांक: 28.11.2016

रेलटेल कॉर्पोरेशन ऑफ इंडिया लिमिटेड (रेलटेल) द्वारा आरईएल और भारतीय रेल की ओर से रेलटेल के पश्चिम क्षेत्र के अंतर्गत भारतीय रेल के ए1, ए, बी एवं सी श्रेणी के विभिन्न रेलवे स्टेशनों पर आईपी आधारित विडियो निगरानी प्रणाली (वीएसएस) की आपूर्ति, संस्थापन, जांच, कमिशनिंग, प्रचालन एवं रखरखाव के लिए ई-निविदायें आमंत्रित की जाती हैं| इच्छुक निविदाकर्ता नीचे दिए गए कार्यक्रम के अनुसार निविदायें जमा करें :

a)	निविदा दस्तावेजों की डाउनलोडिंग	02.12.2016
b)	डाउनलोडिंग की अंतिम तिथि व समय	02.01.2017 को 14:30 बजे तक
c)	ऑनलाइन निविदा जमा करने की अंतिम तिथि व समय	02.01.2017 को 15:00 बजे तक
d)	ऑनलाइन निविदा खुलने की अंतिम तिथि व समय	02.01.2017 को 15:30 बजे तक
e)	धरोहर राशि (ई एम डी) #	रु .10 लाख *
f)	निविदा दस्तावेज की कीमत #	रु. 11,315/- (टैक्स सहित) *
* ये बैंक ड्राफ्ट द्वारा रेलटेल कॉर्पोरेशन ऑफ इंडिया लिमिटेड, नई दिल्ली के पक्ष में देय होगा		

मान्यता प्राप्त सूक्ष्म तथा लघु उद्योगों को निविदा दस्तावेज का मूल्य एवं ईएमडी जमा कराने से छूट दी जाती है, अधिक जानकारी के लिए Clause 4.A.23, Chapter-4 देखें |

नोट 1: निविदा सूचना और निविदा दस्तावेज, वेबसाइट **www.railtelindia.com** तथा E-Tendering Portal **https://www.tcil-india-electronictender.com** पर उपलब्ध रहेंगे जिसे निविदाकर्ता डाउनलोड कर सकते हैं, लेकिन निविदा केवल E-टेंडरिंग द्वारा TCIL Portal **https://www.tcil-india-electronictender.com** पर ONLINE ही स्वीकार की जायेंगी | निविदाकर्ता को E-बिड जमा कराने के लिए TCIL Website से एक अधिकृत E–दस्तावेज डाउनलोड करना आवश्यक है | Corrigen-dum/Addendum/Amendment सम्बंधित जानकारी केवल TCIL Portal पर ही उपलब्ध होंगी | निविदा दस्तावेज की छपी हुई प्रति बिक्री के लिए उपलब्ध नहीं होगी

बैंक ड्राफ्ट रेलटेल कॉर्पोरेशन ऑफ इंडिया लिमिटेड के पक्ष में नई दिल्ली में देय होना चाहिए |

निविदाकर्ता को निविदा सम्बंधित खर्च, जैसे निविदा तैयार करवाने, निविदा जमा करवाने तथा निविदा में भाग लेने जैसे सभी खर्च स्वयं वहन करने होंगे | रेलटेल इन खर्चों के लिए किसी भी दशा में देनदार नहीं होगा, भले ही निविदा का परिणाम कुछ भी हो |

यह टेंडर रेलटेल के इंटिग्रिटी पैक्ट प्रोग्राम के अंतर्गत आता है और निविदाकर्ता को इंटिग्रिटी पैक्ट Sign करके bid से पहले या bid के साथ जमा करने की आवश्यकता है |

जो टेंडर इंटिग्रिटी पैक्ट दस्तावेज की Signed कॉपी के बिना प्राप्त होंगे वे अस्वीकार किये जा सकते हैं, जैसा कि Clause 4.B.24, Chapter-4B में निर्देशित है |

महा प्रबंधक/ऑपरेशन

OPEN TENDER NOTICE

E-Tender No. RailTel/Tender/OT/CO/OP/2016-17/VSS-WR/364 Dated: 28.11.2016

RailTel Corporation of India Ltd. (RailTel) invites E-Tenders in Two Packet (Part I – Credential/ Techno commercial Bid and Part II - Price Bid) System for **"Supply, Installation, Testing, Commissioning, Operation and Maintenance of IP based Video Surveillance System (VSS) at various Railway Stations of A1, A, B and C category of Indian Railways under Western Region of RailTel for and on behalf of REL and Indian Railways"**.

The details are as under: -

a)	Start Date for downloading the Tender	02.12.2016
b)	Closing date for Submission of E-Bids	Upto 15:00 hrs of 02.01.2017 (online)
c)	Date of opening of E-Bids	Upto 15:30 hrs of 02.01.2017 (online)
d)	Earnest Money Deposit (EMD) #	Rs. 10 Lakhs *
e)	Cost of Tender Document #	Rs. 11,315/- * (Including Taxes)
* These will be payable by Bank Draft in favor of RailTel Corporation of India Limited, New Delhi.		

Eligible MSEs are exempted from cost of Tender Documents and EMD, more details are given in Clause 4.A.23, Chapter-4.

Note: Tender Notice and Tender Document are available on RailTel's website and can be downloaded from **www.railtelindia.com** or from the e-Tendering portal **https://www.tcil-india-electronictender.com**. For online bid submission the tenderer will have to necessarily download an official online copy of the tender documents from TCIL's e-portal. All future Information viz. corrigendum /addendum/ amendments etc for this Tender shall be posted on the e-Tendering Portal only. Printed copy of Tender document will not be sold from RailTel office.

The bidder shall bear all costs associated with the preparation, submission/participation in the bid. Purchaser in no way will be responsible or liable for these costs regardless of the conduct or outcome of the bidding process.
This tender is covered under Integrity Pact Program of RailTel and bidders are required to sign the Integrity Pact and submit the same to RailTel before or along with the bids.

Tender received without signed copy of the Integrity Pact document as instructed in Clause 4.B.24, Chapter-4B shall be liable to be rejected.

For RailTel Corporation of India Ltd.

(Jagdeep Singh)
General Manager/Operations

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SECTION – II

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CHAPTER-1

OFFER LETTER

RailTel Corporation of India Ltd.,
Plot No. 143, Institutional Area,
Opposite-Gold Souk,
Sector-44, Gurgaon-122003

1. I/We _____ have read the various conditions detailed in tender document attached here to and hereby agree to ABIDE BY THE SAID CONDITIONS. I/We also agree to keep this offer open for acceptance for a period of **180 days** from the date of submission and in default thereof. I/We will be liable for forfeiture of my/our Earnest Money. I/We offer to supply various equipment at the rates quoted in the attached schedules and hereby bind myself/ourselves to complete the work within **18 months in phases** from the date of issue of Purchase Order/LOA. I/We also hereby agree to abide by the Various Conditions of Contract and to carry out the supplies according to the Specifications for materials and works laid down by the RailTel.

2. A sum of **Rs. 10,00,000/- (INR. Ten Lacs) as an Account Payee Demand Draft in favour of RailTel Corporation of India Ltd. No._____ dated_____ issued by _____**is herewith forwarded as "Earnest Money". The full value of Earnest Money shall stand forfeited without prejudice to any other rights or remedies if, I/We withdraw or modify the offer within validity period or do not deposit the security deposit (Performance Bank Guarantee) within **specified days as per tender** after issue of Purchase Order/LOA.

SIGNATURE OF SUPPLIER (S)

Date:

CONTRACTOR (S) ADDRESS

SIGNATURE OF WITNESS:

1.

2.

CHAPTER- 2

SCHEDULE OF REQUIREMENT

SN.	Description of Item	Unit	Qty.	Unit Rate in Fig (in Rs.)	Total Cost in Fig. (in Rs.)	Unit Rate in words (in Rs.)	Total Cost in words (in Rs)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	SCHEDULE 'A'						
1	IP Camera						
(a)	Supply, Installation, Testing and commissioning of Full HD Fixed dome type IP colour camera with varifocal lenses along with housing and mount and all accessories required for installation purposes as defined in clause 8.1 of chapter 8.	No.	758				
(b)	Supply, Installation, Testing and commissioning of Full HD Fixed Box type IP colour camera with varifocal lenses along with housing and mount and all accessories required for installation purposes as defined in clause 8.1 of chapter 8.	No	4655				
(c)	Supply, Installation, Testing and commissioning of Full HD P/T/Z type IP colour camera with varifocal lenses along with housing and mount and all accessories required for installation purposes as defined in clause 8.1 of chapter 8.	No	811				
(d)	Supply, Installation, Testing and commissioning of 4K UHD Fixed box type IP colour camera with varifocal lenses along with housing and mount and all accessories required for installation purposes as defined in clause 8.1 of chapter 8.	No.	898				
2	VSS Hardware						
(a)	Supply, Installation, Testing and commissioning of Network Video Management Server hardware at Divisional HQ and all accessories required for installation purposes as defined in clause 8.2 of chapter 8. Note: The VMS Software proposed to be provided vide item A.3.(a) below should be able to handle efficiently minimum 128 Full HD cameras/64 4K UHD cameras or mix of both on pro-rata basis and alerts management from Video Analytics and FRS on one hardware server to be supplied against this item. In case, it is unable to do so, the extra hardware servers required for the VMS software same shall be provided by the vendor at no extra cost to the purchaser.	No	63				

(b)	Supply, Installation, Testing and commissioning of Network Video Recording Server/NVR hardware and all accessories required for installation purposes as defined in clause 8.2 of chapter 8.	No	132				
(c)	Supply, Installation, Testing and commissioning of Network Video Analytics Server hardware and all accessories required for installation purposes as defined in clause 8.2 of chapter 8.	No	53				
(d)	Supply, Installation, Testing and commissioning of Facial Recognition Server hardware and all accessories required for installation purposes as defined in clause 8.2 of chapter 8.	No.	31				
(e)	Supply, Installation, Testing and commissioning of Client Server hardware at Zonal Railways, Railway Board or other authorized location to access the application hosted at respective division and all accessories required for installation purposes as defined in clause 8.2 of chapter 8	No.	4				
3.	VSS Software						
(a)	Supply, Installation, Testing and commissioning of Network Video Management for the server hardware quoted in Item no. A.2.(a) as defined in clause 8.3 of chapter 8.	No.	7122				
(b)	Supply, Installation, Testing and commissioning of Network Video Recording Software for the server/NVR hardware quoted in Item no. A.2 (b) as defined in clause 8.3 of chapter 8.	No.	7122				
(c)	Supply, Installation, Testing and commissioning of Network Video Analytics Software for the server hardware quoted in Item no. A.2.(c) as defined in clause 8.3 of chapter 8.	No.	1424				
(d)	Supply, Installation, Testing and commissioning of Facial Recognition software for the server hardware quoted in A.2.(d) as defined in clause 8.3 of chapter 8. Note: The above mentioned software must be an independent professional algorithm and not a video analytics software feature. It should be capable of integrating with multiple VMS platform.	No.	122				
(e)	Supply, Installation, Testing and commissioning of Graphical User Interface based Client Software for workstations as quoted in Item no. A.6 along with as defined in clause 8.3 of chapter 8.	No.	217				
4.	Supply, Installation, Testing and commissioning of Storage System for recording of cameras for 30 days at divisional HQ with all accessories required for installation purposes as defined in clause 8.4 of chapter 8.						
(a)	Bhusawal	TB	420				
(b)	Mumbai (CR)	TB	3065				

(c)	Nagpur	TB	345				
(d)	Pune	TB	755				
(e)	Solapur	TB	717				
(f)	Bhopal	TB	500				
(g)	Jabalpur	TB	762				
(h)	Kota	TB	462				
(i)	Ahemdabad	TB	455				
(j)	Bhavnagar	TB	350				
(k)	Mumbai (WR)	TB	700				
(l)	Rajkot	TB	422				
(m)	Ratlam	TB	500				
(n)	Vadodara	TB	452				
5.	Supply and Installation of Digital Key-Board (joystick) and all accessories compatible with P/T/Z cameras as defined in clause 8.5 of chapter 8.	No	217				
6.	Supply, Installation, Testing and commissioning of PC Workstation as defined in clause 8.6 of chapter 8 for viewing, monitoring and system management including 24" 4K UHD LED monitor, all required licensed software, spike buster 500VA UPS, and all other required accessories	No	217				
7.	Supply and Installation of High Resolution Large Video Display units (40" or Higher) as defined in clause 8.7 of chapter 8.	No	434				
8.	Supply, Installation, Testing and commissioning of Type-I switches as defined in clause 8.8 of chapter 8. and all accessories required for their installation	No	1388				
9.	Supply, Installation, Testing and commissioning of Type-II switches as defined in clause 8.9 of chapter 8 and all accessories required for their installation	No	149				
10.	Supply, Installation, Testing and commissioning of Type-III switches and all accessories required for their installation as defined in clause 8.10 of chapter 8	No.	20				
11.	Supply, Installation, Testing and commissioning of Type-IV switches as defined in clause 8.11 of chapter 8 and all accessories required for their installation	No.	251				
12.	Supply of SFP/SFP+						
(a)	SFP-BX (10 KM) Single Fibre as defined in clause 8.12 of chapter 8	No.	4134				
(b)	SFP+ (10 KM) as defined in clause 8.13 of chapter 8	No.	57				

(c)	SFP+ (80 KM) as defined in clause 8.14 of chapter 8	No.	719				
(d)	SFP+ (350 mtrs) as defined in clause 8.15 of chapter 8	No.	700				
13.	Supply, Installation, Testing and commissioning of Enterprise Network Firewall Solution as defined in clause 8.16 of chapter 8 along with management software & hardware and all accessories required for their installation	No.	14				
14.	Supply, Installation, Testing and commissioning of Media Pair Convertor as defined in clause 8.17 of chapter 8.	No.	50				
15.	Supply of STP CAT-6 cable as defined in clause 8.22 of chapter 8 and all the accessories required for installation	Mtrs	356100				
16.	Supply of 24 Core metal strengthened outdoor unarmored Optic Fiber Cable (ITU-T G.652.D) and all the accessories required for installation as defined in clause 8.23 of chapter 8	Mtrs	222500				
17.	Supply of 12 Core metal strengthened outdoor unarmored Optic Fiber Cable (ITU-T G.652.D) and all the accessories required for installation as defined in clause 8.24 of chapter 8	Mtrs	277650				
18.	Supply of PVC insulated 3 core 6 Sqmm, 1.1 KV grade outdoor strengthened Copper Cable for UPS supply distribution (as per BIS/ISI standards)	Mtrs	138825				
19.	Supply of PVC insulated 3 core 4 Sqmm, 12 AWG , 1.1 KV grade outdoor strengthened Copper Cable for UPS supply distribution (as per BIS/ISI standards)	Mtrs	277650				
20.	Supply of 19" 42U smart racks of APW President or Rittal or 3M make as per specification defined in clause 8.28 of chapter 8 and all accessories like electrical fitting(power strip, MCB etc.), Fantray, Patch Panel etc. required for installation of the equipment	No.	39				
21.	Supply of 19" 9U racks of APW President or Rittal or 3M make as per specification defined in clause 8.27 of chapter 8 and all accessories like electrical fitting (power strip, MCB etc.), Fantray, Patch Panel etc. required for installation of the equipment	No.	1537				
22.	Supply of Online UPS system, single phase of rating 1KVA UPS suitable for 1hr back-up as per specifications defined in clause 8.20 of chapter 8 and all accessories required for installation	No.	320				
23.	Supply of Online UPS system, single phase of rating 2KVA UPS suitable for 1hr back-up as per specifications defined in clause 8.21 of chapter 8 and all accessories required for installation	No.	297				

24.	Supply of Online UPS system, single phase of rating 10KVA UPS suitable for 1hr back-up as per specifications defined in clause 8.19 of chapter 8 and all accessories required for installation	No.	10				
25.	Supply of Online UPS system, single phase of rating 30KVA UPS suitable for 1hr back-up as per specifications defined in clause 8.18 of chapter 8 and all accessories required for installation	No.	4				
26.	Supply of 12 Fibre FMS (SC-APC Type) as per specifications defined in clause 8.26 of chapter 8 and all accessories (patch panel, patch chord, pigtails etc.) required for installation	No.	1388				
27.	Supply of 24 Fibre FMS (SC-APC Type) as per specifications defined in clause 8.26 of chapter 8 and all accessories (patch panel, patch chord, pigtails etc.) required for installation	No.	400				
28.	Supply of air conditioners of capacity 2 TR X 2 (Twin type) free cooling, suitable for high ambient temperature and 24X7 working for telecom installations as per the specifications defined in clause 8.25 chapter 8 and all accessories required for installation.	No.	6				
29.	Supply of MFCE Earth complete with all accessories. (less than 1 Ohm) as per technical specifications defined in chapter 5 of Section-II (Nos. indicates the site of installation)	No.	97				
30.	Supply of GI pipes (50mm dia-3.65mm thick) as per IS- 1239, Pt.-1, medium grade, for laying of cable to the PF shelter from ground level. Entry of cables will be advised by the site in charge of the Railway and extending by suitable dia HDPE/Flexible PVC pipe on either side as required.	Mtrs	7760				
31.	Supply of ACDB for AC distribution Box with Lock and key arrangements and ISI mark MCBs of various ratings of reputed make like Hevells, Indo Asian, Hager, WiNtrip, Legrand required for installation at sites.	No.	194				
32.	Supply and fixing of furniture for each Workstation quoted under item no. A.6 i.e. one table (Model: T-105 Make: Godrej or similar), and two chairs (Model: CH-1007 Make: Godrej or similar).	No.	217				
33.	Spares @ 8% of supply against item 1(a) to 1(d) and 8 to 12 above.	Lot.					
34.	Supply of PVC Flexible pipe of 35mm (This includes all materials, clamps etc. required for laying, fixing and clamping)	Mtrs	58200				
35.	Supply of 35mm PVC Conduit pipe ISI Mark with all accessories for laying, fixing and clamping.	Mtrs	1272725				

36.	Supply of 40 mm dia. HDPE pipe with accessories on wall or structure etc. along with all accessories required for laying, fixing, clamping and cutting.	Mtrs	38800				
37.	Supply, Installation, Testing and commissioning of local recording server/NVR system for storing seven days video footage at each station as defined in clause 8.2 of chapter 8.	No.	119				
38.	Supply of NMS at Divisional Head Quarters for the operations and maintenance of Switches, UPS installed at stations and Divisional HQ under respective divisions as defined in clause 8.29 of chapter 8. This shall also include the ITSM tool for the operations and maintenance of system installed.	No.	14				
	Total Cost of Schedule – 'A'						
SN	**Description of Item**	**Unit**	**Qty.**	**Unit Rate in Fig. (in Rs.)**	**Total Cost in Fig. (in Rs.)**	**Unit Rate in words (in Rs.)**	**Total Cost in words (in Rs.)**
(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**
	SCHEDULE –'B'						
1	Installation, Testing, Commissioning and Integration of 19" 42U smart rack as supplied against item no A.20	No.	39				
2	Installation, Testing, Commissioning and Integration of 19" 9U Racks as supplied against item no A.21	No.	1537				
3	Installation, Testing, Commissioning and Integration of Online UPS system, single phase of rating 1KVA UPS as supplied against item no A.22	No.	320				
4	Installation, Testing, Commissioning and Integration of Online UPS system, single phase of rating 2KVA UPS as supplied against item no A.23	No.	297				
5	Installation, Testing, Commissioning and Integration of Online UPS system, single phase of rating 10KVA UPS suitable as supplied against item no A.24	No.	10				
6	Installation, Testing, Commissioning and Integration of Online UPS system, single phase of rating 30KVA UPS suitable as supplied against item no A.25	No.	4				
7	Installation, Testing, Commissioning of Air Conditioners as supplied against item no A.28	No.	6				
8	Blowing/Pulling/laying of STP CAT-6/optic fibre/power copper cable as supplied against item no A.15, A.16, A.17, A.18 and A.19.	Mtrs	1272725				
9	Installation of MFCE Earth complete with all accessories as supplied against item no. A.29	No.	97				

10	Installation of SC-APC type FMS Fibre, 19" rack mountable of 1U Height with patch panel as supplied against item no. A.26 & A.27	No.	1788				
11	Fixing of GI pipes (50mm dia-3.65mm thick) as supplied against A.30. Entry of cables will be advised by the site in charge of the Railway and extending by suitable dia HDPE/Flexible PVC pipe on either side as required.	Mtrs	7760				
12	Installation and Fixing of 35mm PVC Conduit Pipe as supplied against item no. A.35	Mtrs	1272725				
13	Installation and Fixing of 35mm PVC Flexible pipe of 35 mm as supplied against item no. A.34	Mtrs	58200				
14	Installation and Fixing of 40mm dia HDPE Pipe supplied as against item no. A.36	Mtrs	38800				
15	Installation of ACDB for AC distribution Box with Lock and key arrangements. (For Service Portion) as supplied against item no. A.31	No.	194				
16	Installation, Testing, Commissioning and Integration of NMS as supplied against item no A.38	No.	14				
17	Training of personnel over and above the on-site training, during the installation, maintenance and supervision period as detailed in the tender document.	Man-weeks	84				
18	Manpower Support during warranty period						
(a)	L1 support engineer in Field (@ defined per annum rate of Rs. 5,00000/-)	Man-Years	72*				
(b)	L2 support engineer at Divisional Office for Network, Server & Storage System (@ defined per annum rate of Rs. 8,00000/-)	Man-Years	28*				
19	Civil Work at each Divisional Headquarters (@50,000)	Lump-sum	14				
	Total Cost of Schedule – 'B'						
SN	**Description of Item**	**Unit**	**Qty.**	**Unit Rate in Fig. (in Rs.)**	**Total Cost in Fig. (in Rs.)**	**Unit Rate in words (in Rs.)**	**Total Cost in words (in Rs.)**
(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**
	SCHEDULE –'C'						

1	Incremental AMC charges after warranty period as percentage of overall cost (including taxes and duties) of Schedule – 'A+B' over and above 3.5%. Only incremental % cost in addition to 3.5 % mentioned in clause 4.A.3 of Chapter-4 required to fulfill Long Term Maintenance support clause. (E.g. if the annual AMC cost is proposed to be 4% the quoted % should be (+) 0.5 % per annum under column 5 & 6. For five years it should separately be shown as (+) 2.5 % under column 7 & 8. For clarity, detailed scope of AMC be read in clause 4.A.3 of Chapter-4	Years	5				
	Total Cost of Schedule – 'C'						
	Total Value of Schedule – 'A', Schedule - 'B' and Schedule – 'C'						
	Total Value of SOR in Words:						
	SCHEDULE –'D' (Optional)						
	Command Control Centre (For more details please refer to Clause 8.31 of Chapter 8)	**Lot**	**1**				

Note	
I	**a)** Before quoting please see relevant para of Chapter 8 Technical Specifications. **b)** Unit rate quoted against SOR above should be CIP destination inclusive of all duties, taxes, insurance and freight etc. (with break-up as per Performa attached as Annexure- A and B of this Chapter), Octroi will be payable extra at actual on production of proof of payment. However delivery within Octroi limits to be done only with prior approval of Executive Director of the Region. The materials as per SOR are required to be delivered within the delivery period as indicated in Bid Data Sheet (BDS, Chapter 5) to the sites as decided by the respective Regional GM/EDs. **c)** It shall be the responsibility of Bidder to transport the equipment to site for the Installation & Commissioning. Charges for the same should be included in SOR Item no. A 1 to A 38. Materials not installed / not to be installed need to be shipped to location as decided by RGM/Executive Director of the Region. **d)** The Schedule of Requirement has been divided into three parts, viz. Schedule –'A' including item nos. A1 to A38 and Schedule – 'B' including item nos. B 1 to B19 and Schedule – 'C' including item no. C1. **e)** The storage capacity at the Divisional HQ should take care of 30 days of storage with approximately following nos. of cameras deployed at respective divisions Bhusawal-312, Mumbai(CR)-2159, Nagpur-255, Pune-533, Solapur-543, Bhopal-368, Jabalpur-570, Kota-342, Ahemdabad-341, Bhavnagar-254, Mumbai(WR)-508, Rajkot-314, Ratlam-368, Vadodara- 344. These numbers are indicative only, however, bidder is required to visit sites to estimate the optimum number of cameras and storage requirement. **g)** The bidder must ensure that the capacity of storage supplied at the Divisional Head Quarter must be scalable to have 25% extra storage capacity than the capacity computed on the basis of number of cameras given above for respective division from day one. **h)** RailTel will have the right to reorganize the Servers/NVRs/Storage placed at Regional HQ to any other alternative/centralized locations depending on the Railways Operational needs.
II	In item no. C **1** of Schedule –'C', if however the bidder feels that his AMC Cost is less than 3.5% per annum, he should give suitable discount in equipment/supply item pricing. For AMC he will be paid @ 3.5% per annum only. If the vendor quotes a higher base rate for AMC he will be paid at his quoted rate per annum and five year differential cost shall be added to equipment cost for evaluation.
III	For item no. B.18 (a) and B.18 (b), if the bidder feels that the Manpower support can be given at rates lower than the rates as defined, then he should adjust the differential amount in the equipment/supply pricing, and he will be paid according to the defined rates only. However, if the bidder quotes a higher base rate than the rates as defined then he will be paid at his quoted rate and the differential shall be taken for evaluation. The bidder is supposed to quote for the manpower requirement of 2-years period of warranty period post Maintenance Supervision period, as during this period the contractor shall be responsible for proper maintenance supervision of the system free of cost for a period of twelve months from the date of provisional acceptance (for more details please refer to section 4.A.2.5)

<table>
<tr><td></td><td>* Quantities mentioned are the bare minimum requirement of the purchaser, however if bidder feels that larger manpower strength is required to maintain the installed network, then bidder is free to revisit the quantities mentioned. The bidder would also be required to deploy the same number of manpower resources during the 12 months period of maintenance supervision as quoted for the item no. B.18 (a) and B.18 (b) of SOR for the commercial bid.</td></tr>
<tr><td>IV</td><td>Since, RailTel is also implementing Wi-Fi work at railway stations, therefore, the existing available infrastructure may be utilized by the purchaser for implementation of VSS system and such items used may not be considered as a part of Supply orders.</td></tr>
<tr><td>V</td><td>Bidder should submit the soft copy (Word/Excel/PDFs format) of offer in DVDs/USB’s. Bill of Material (BOM) must be in PDF as well as Excel format. Bidder should mention Make/Model of the quoted items along with the offer. Offers without particulars of Make/Model will be liable to summarily rejected.</td></tr>
<tr><td>VI</td><td>Since the advancements in technology is taking place at very fast pace, bidder may like to provide technically superior and efficient solutions to have commercial and professional advantage. However the contractor would be responsible for ensuring the complete system is operational and meeting the requirements as mentioned in the RFP.</td></tr>
<tr><td>VII</td><td>The Bill of Material will be prepared for Schedule of Requirement against each item of SOR. This Bill of Material will be called “Bill of Material for Schedule of Requirement” and will comprised of duly filled rates of each item. And will be prepared according to Note (I) to (IV) above. The Un priced copy of the same BOM should be submitted with the technical/credential Bid for evaluation. The Bid (credential without the BOM will be summarily rejected). The Format of “Bill of Material for Schedule of Requirement” is as below:
<table>
<tr><td></td><td></td><td></td><td></td><td></td><td>SOR A 1 (a)</td><td>SOR A 1 (b)</td><td>SOR A 1 (c)</td><td>SOR A 2</td><td>----------</td><td>----------</td><td>----------</td><td>----------</td><td>----------</td><td>SOR A15</td><td>SOR B1(a)</td><td>SOR B1(b)</td><td>SOR B1(c)</td><td>SOR B2</td><td>----------</td><td>----------</td><td>----------</td><td>SOR B18</td></tr>
<tr><td>S N</td><td>Item</td><td>Unit</td><td>Unit rate</td><td>Qty</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>1</td><td>(to be provided by bidder)</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>2</td><td>(to be provided by bidder)</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
</table>
</td></tr>
</table>

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Annexure-A

Price Schedule for Indigenous Items

SN	Description	Total Qty	EX-Factory Price (Basic Unit Price exclusive of all levies and charges)	Pkg & Forwarding Charges		Excise Duty		Sales Tax		Frieght & Insurance Charges		Other Charges and Levies	Price Per Unit (all inclusive) for delivery at destination (4+6+8+10+12+13)
				%	Amt	%	Amt	%	Amt	%	Amt		
1	2	3	4	5	6	7	8	9	10	11	12	13	14

Annexure-B

Price Schedule for Imported Equipment

S N	De-scrip-tion	Total Qty	Ex-Factory Price (Basic Unit Price exclusive of all levies and charges)	Unit Price per Unit CIF	Custom Duty		Counter Vailing Duty (CVD)		Sales Tax, if applicable		Pkg & Inland Frieght		Inland Insurance		Other Charges and Levies	Price Per Unit (all inclusive) for delivery at destination (4B+6+8+10+12+14+15)
					%	Amt	%	Amt	%	Amt	%	Amt	%	Amt		
1	2	3	4A	4B	5	6	7	8	9	10	11	12	13	14	15	16

Annexure-C

Price Schedule for Service Items

SN	Item Description	Total Qty	Basic Unit Price exclusive of all levies and charges	Service Tax		Other Charges and Levies, if any	Unit price (all inclusive)
				%	Amt	Amt	(4+6+7)
1	2	3	4	5	6	7	8

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CHAPTER-3

A. TECHNICAL REQUIREMENTS, SCOPE AND ARCHITECTURE OF VIDEO SURVEILLANCE SYSTEM

3.A.1 INTRODUCTION

3.A.1.1 About RailTel

RailTel Corporation of India Limited (RailTel), an ISO-9001:2000 organization is a Government of India undertaking under the Ministry of Railways. The Corporation was formed in Sept 2000 with the objectives to create nationwide Broadband Telecom and Multimedia Network in all parts of the country, to modernize Train Control Operation and Safety System of Indian Railways and to contribute to realization of goals and objective of national telecom policy 1999. RailTel is a wholly owned subsidiary of Indian Railways.

RailTel with strong nationwide presence is committed to bring cutting edge technology and offer innovative services to the Indian Telecom market. RailTel is in the forefront in providing nationwide Broadband Telecom & Multimedia Network in all parts of the country. With its Pan India high capacity network, RailTel is working towards creating a knowledge society at various fronts.

In addition, RailTel with its rich experience in the domain of Telecom and ICT field have been selected for implementation of various mission-mode Govt. projects in the telecom field including National Optical Fibre Network (NOFN), National Knowledge Network (NKN) and NE-I & NE-II under USOF/DoT etc.

In line with its commitment to bring next generation telecommunication technologies and services to people across the length and breadth of the country, RailTel has recently partnered with Google to set-up a high speed Wi-Fi network at train stations across the country.

3.A.1.2 About REL

RailTel Enterprises Limited ('the Company') incorporated in India on 12th August 2014 is a public sector undertaking under 100% Holding of RailTel Corporation of India Limited. The company is promoted by and is in administrative control of Ministry of Railways. The Registered office of the Company is situated at 6th Floor, IIIrd Block Delhi Technology Park, Shastri Park, New Delhi-110053 and Corporate Office at Plot No 143 Sector 44, Institutional Area, Gurgaon Haryana.

Main objective of the company are:-

3.A.1.2.1 To undertake Information and Communication Technologies (ICT) infrastructure projects covering hardware & software applications and other associated sub systems in India and abroad.

3.A.1.2.2 To undertake design and development of Railway Signalling projects/systems and also for other works relating to railway electrification, power distribution systems, transmission lines etc. concerned with running of Railways in India and abroad.

3.A.1.2.3 To carry out consultation services for various customers in the field of IT, Telecom, Signalling, critical infrastructure in India and abroad.

3.A.1.2.4. To undertake Data center, Network/security operation center related infrastructure projects in India and abroad.

3.A.1.3 Project Background

Indian Railways endeavors to set up high-tech surveillance systems at selected railway stations for providing safe, secure and pleasant experience to railway passengers especially women & children. Indian railways is the lifeline of India and has an estimated daily ridership of approximately 2 crores. Approximately 25% of the total stations in India would be covered under surveillance in this project. This is therefore likely to benefit the daily as well as occasional commuters tremendously

The Government's commitment towards this vision is reflected in the meeting held in PMO on Sept'2015 in which it was proposed to provide video surveillance system at 983 stations of A1, A, B and C category at a total cost of INR 500 crores under 'Nirbhaya Fund'. Out of these 983, 279 stations are of A1 and A category spread out in 67 divisions of 16 zones. The project envisages to provide high level security vigilance and improve the ensuing action in case of an alert by adding state of art functions like motion detection, quick review and intrusion detection. This would ultimately lead to a manifold increase in the security of the passengers as compared to present situation.

The stations chosen for this RFP include some of the most prestigious stations of Indian Railways including A-1 stations on which 24X7 surveillance will help the daily commuters tremendously by reducing the incidents of pick pocketing, theft, damage to public property etc.

Indian Railways has appointed RailTel to invite interested & capable parties for providing round the clock IP based video surveillance across the stations and select the most competitive proposal for implementation.

3.A.1.4 SCOPE OF WORK

The scope of work includes Supply, Installation, Testing, Commissioning, Operation, and Maintenance of the IP based CCTV surveillance system at various Railway Stations of A1, A, B and C category of Indian Railways. The detailed scope of work includes following:

3.A.1.4.1 Planning, Design, Supply, Installation, Testing, Commissioning, Operation and Maintenance of the video surveillance system at various Railway Stations of A1, A, B and C category of Indian Railways under Western Region of RailTel (as identified in SOR and Annexure 1 of Chapter 7 in this RFP).

3.A.1.4.2 The bidder should prepare a site plan showing exact location of different type of cameras, switches, routers etc. at various locations like parking areas, entrance/exit points, platforms, yards, waiting halls, ticket counters, offices, foot over bridges, circulating areas etc. as per site requirement in consultation with RailTel after the proper site survey. The proposed site plan should have an optimum number of cameras so as to cover Railway Station from security point of view.

3.A.1.4.3 Supply, laying and fixing of electrical wiring and network cabling including OFC.

3.A.1.4.4 Supply of complete hardware components for the proposed solution (cameras, servers, NVRs, storage systems, PC workstations, LED displays, manageable switches, routers etc.) including AMC and Warranty.

3.A.1.4.5 Supply of any other equipment/infrastructure or services required for the proper installation, testing, commissioning, operation, and maintenance of the video surveillance solution as per the approved design.

3.A.1.4.6 Supply of all software/licenses for the solution including peripheral applications, middleware, environmental software or any other related software/licenses as required in the proposed solution (Including AMC and Warranty).

3.A.1.4.7 Seamless Integration of the Network Video Recording (Server/NVR), Video Analytics, Facial Recognition System, Cameras and Storage Hardware and Software.

3.A.1.4.8 Remote operation and monitoring from local/Divisional Centres/Regional NOC through the RailTel/Railways TCP/IP network. Bidder is required to plan sufficient number of VMS/NMS licenses, IT equipments to facilitate the same.

3.A.1.4.9 RailTel shall provide the interconnection facility at their POP to integrate the station network. However the bidder is expected to mention the bandwidth requirement at each station/divisional/regional level in their technical bid proposal.

3.A.1.4.10 To identify, develop and deliver the training to the Railways/Railtel staff for the VSS System to be installed and commissioned.

3.A.1.4.11 To demonstrate the functioning of all the modules of software and features of hardware component as and when required by Railways.

3.A.1.4.12 Maintenance supervision period of 12 months from the date of award of PAC of the Division.

3.A.1.4.13 Warranty period of 24 months from the date of expiry of maintenance supervision period of installed system at no cost to Railways/RailTel.

3.A.1.4.14 AMC (including repair / replacement of all consumables) for 5 years after the completion of 24 months of warranty period.

3.A.1.4.15 After the completion of contract duration, the successful bidder shall hand over all the components of the video surveillance system in working condition to Railways/Railtel.

3.A.1.4.16 Provision of maintenance free earth with earth value less than 1 Ω.

3.A.1.5. QUALITY ASSURANCE PROGRAMME AND IMPLEMENTION METHODOLOGY

The bidder with quality assurance should prepare Implementation Methodology covering:

a) Schedule of Factory Acceptance Test (FAT), supply, installation, SAT (Site Acceptance Test), trial runs, commissioning etc.
b) Allocation of manpower for different activities.
c) Submission of PERT chart indicating completion of various activities within targeted time frame.

3.A.1.6 MANUFACTURING, SUPPLY AND STORAGE OF EQUIPMENT

The bidder will be fully responsible for Manufacturing, FAT, and Supply of Equipment/cards/interfaces and all related items for installation and commissioning of the network including the following:

a) Spares required for Commissioning, maintenance supervision & warranty period shall be maintained by the Contractor at his own cost.
b) All necessary cables and connectors required.
c) The bidder shall be responsible for transportation and storage of Equipment and all other items required for Installation and Commissioning of the network to RailTel's stores/sites as advised.

3.A.1.7 SITE PREPARATION

3.A.1.7.1 Support from Indian Railways / RailTel

The Executive Director/Regional General Manager of respective Region of RailTel would be the executing Officer Head of the project. The concerned RGM/ED shall nominate an officer as a SPOC for this project. The successful bidder would be taking all instructions/approvals etc. for the project from ED/RGM or their nominated SPOC.

3.A.1.7.1 Railways shall provide AC power supply at station/cabin/panel room/mid-section buildings for carrying out the awarded work. The successful bidder will have to pay the nominal charges for the power supply as per the existing Railways Norms.

3.A.1.7.2 Railways shall provide for the space and power supply for the systems installed in the Control Rooms and other locations at stations

3.A.1.7.3 Indian Railways shall give permission to install video Surveillance related infrastructure in Railway area subject to non-interference with the existing devices and to the rail users and on payment of necessary fees as applicable.

3.A.1.7.4 Access to the Railway platform to be made available and any delay from Indian Rail way in providing the same shall be factored in the implementation time calculation.

3.A.1.7.5 If RailTel is however, satisfied that work will not be likely to get completed within given timelines except by resorting to night work, by special order, the successful bidder would be allowed to carry out the work even in night.

3.A.1.7.6 RailTel's decision in this regard in consultation with Indian Railways shall be binding on the successful bidder.

3.A.1.7.7 RailTel shall facilitate the availability of point of presence to the successful bidder to connect with the RailTel's Network at each Railway Station

3.A.1.7.8 Temporary depot for tools and equipment of any kind can only be opened within the Railway's premises after a prior permission has been granted by the authorized Railway personnel.

3.A.1.7.9 Any land required by the bidder will be made available by Railways, if available, at the lease cost as per the latest norms of Railways.

3.A.1.8 BIDDER's Responsibility

The bidder will be responsible for supply & supervision of complete work for this tender including the System design of network and integration with the existing network, wherever required. It shall be the responsibility of Supplier to transport the equipment to site for the Installation & Commissioning. List of sites/nodes will be shared by respective Regions with the successful bidder.

3.A.1.9 INSTALLATION, INTEGRATION, TESTING, TRIAL RUN AND COMMISSIONING OF NETWORK

The bidder shall be fully responsible for Quality Assurance of equipment & other network elements and supervision of following:-

a) Installation and integration of the above said equipment/ items as per System design
b) Integration with existing network
c) Testing of the Network as specified in the document
d) Trial run of the network
e) Commissioning of Network

3.A.1.10 TRAINING OF PURCHASER'S PERSONNEL AND CHANGE MANAGEMENT

For successful implementation and monitoring of the video surveillance solution, the successful bidder will need to identify training needs for Indian Railways/ RailTel. To provide professional training and development services at each stage of the project viz. installation, testing, operation and maintenance

The successful bidder shall provide hands on training with detailed course material on the installed equipment and software covering at least the following:

- Configuration and their operation of Networking Equipment, Cameras and other equipment etc. supplied under the project.
- Introduction to computers, servers, NVR, storage devices and their configuration and operations
- Introduction to Network Video Management Software etc.
- Trouble shooting and preventive maintenance
- Training on operation of CCTV system, video analysis and video feed viewing, processing, taking backups, retrieving information from stored data.

These personnel shall work with the Bidder technical team staff to gain confidence and to get expertise right from the execution stage of the project. The training content to be designed and delivered by successful bidder at successful bidder's own cost. All equipment used for training shall be identical to those quoted and supplied for site installation in hardware and software versions.

Timelines for Training and Development are as follows:

S.No.	Deliverable	Timeline in Months (M= signing date)
1.	Preparation of training material, course etc. for IT awareness training	M + 1
2.	Preparation of training material, course etc. for Role/function based training of VSS Monitoring Room operators, system technicians and supervisors, and training of trainers program	M + 3
3.	Completion of IT awareness training	M + 6
4.	Continuous training and retraining	As and when required by RailTel

Sets of training manual in two hard copies & two soft copies containing details of technical specification, installation & commissioning, troubleshooting & maintenance schedule etc. shall be supplied by the bidder.

The bidder shall update the course material of manuals in case there are any changes owing to revision/modifications in equipment/system specifications.

3.A.1.11 FINAL COMMISIONING

The VSS shall be considered to be commissioned only after successful completion of the SAT, Trial Run, successful completion of 12 months of Maintenance Supervision after issue of PAC and after issue of Final Acceptance Certificate (FAC).

Any item of bidder's goods/services not specifically mentioned, but considered essential for completion/commissioning of the work in all respects shall be deemed to be included in the scope of work. The bidder may bring out any additional re-

quirement and quote the price for the same as per the relevant SOR item, otherwise, it shall be required to be supplied by the bidder free of cost.

3.A.1.12 GENERAL SYSTEM GUIDELINES

a) Bidder shall be responsible for the successful completion of the project.
b) Purchaser/Engineer reserves the right to modify, revise, and alter the specifications of equipment system prior to acceptance of any offer.
c) If during the course of execution of the work any discrepancy or inconsistency, error or omission in any of the provisions of the contract is discovered, the same shall be referred to the Purchaser/Engineer who shall give his decision in the matter and issue instructions directing the manner in which the work is to be carried out. The decision of the Purchaser/Engineer shall be final and conclusive and the bidder shall carry out the work in accordance thereof.

3.A.1.13 TECHNICAL RESPONSE

The technical response shall be fully comprehensive and detailed and will include detailed guaranteed specifications of the equipment and systems to be supplied. Marginal performance shall not be accepted.

3.A.1.14 FEATURES AND CAPABILITIES OF EQUIPMENT

The succeeding specifications contain the necessary requirements of RailTel with regard to the features and capabilities of the equipment to be offered by the bidders. These will be carefully studied and commented upon by the bidder. These should not be treated as maximum specifications.

3.A.1.15 COMPLIANCE TO TECHNICAL REQUIREMENTS

3.A.1.15.1 CLAUSE BY CLAUSE COMPLIANCE

In the offer, the bidder shall include statement of clause by clause compliance of the tender document and sufficient documentation such that RailTel can validate the compliance statements. In the statement of compliance, the bidder shall state:

a) "FULLY COMPLIANT," if systems and functions offered fully meet the tender requirement.

b) "PARTIALLY COMPLIANT," if systems and functions offered meet the tender requirement partially. The bidder shall state the reason why the offer is partially compliant. However, if the bidder is able to fulfill the specified requirement later, the time schedule for this shall be stated. In such cases, the bidder shall clearly mention the extent to which other requirements or specifications are affected.

c) "NON COMPLIANT," if systems and functions cannot meet the requirements. The bidder shall also state the reasons for it.

d) In addition to the above mentioned compliance statements, wherever statement is given for some numerical parameter specified in tender, then bidder

shall state the actual numerical value of specification as met by the offered systems/equipment.

3.A.1.15.2 NIL OR UNCLEAR RESPONSE STATEMENTS

In case of nil or unclear statements of compliance for any specified requirement, RailTel will interpret that particular requirement as being "NON COMPLIANT."

3.A.1.15.3 VARIANCE FROM SPECIFIED REQUIREMENTS

In case of variance of the offered equipment from the specified Technical requirements, the decision of RailTel on whether the equipment offered is responsive to the bid requirements shall be final and binding upon the bidder.

3.A.1.15.4 DETAILED TECHNICAL INFORMATION

The bidder shall include in his proposal the detailed Technical information, drawings and functional descriptions of the offered equipment to support the Compliance to VSS Technical Specifications as in Chapter-8 of this tender document.

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CHAPTER-3

B. PROPOSED VIDEO SURVEILLANCE SYSTEM

Table of Contents

3.B.1 Architecture Overview

To implement video surveillance solution, each station should have robust, secure and scalable network architecture implemented which will cover all platforms and other areas such as waiting halls, ticket counters, entry, exit, refreshment area, and foot over bridge, parking area etc. of a railway station.

In addition to robust, secure and scalable network architecture on railway stations, fully secure network architecture will be required on Divisional HQs. This network will work as a platform for implementation of Video Management, Video Recording, Video Analytics and Facial Recognition System etc.

As this is a highly visible project for Indian Government, Ministry of Railways and RailTel, related to safety and security of women under "Nirbhaya Fund". Therefore, the proposed architecture must be secure end to end so that misuse of recorded video or video clips can be prevented.

This solution document describes minimum solution requirement as a guideline. Since, the advancements in technology is taking place at a very fast pace, bidder may like to provide technically superior and efficient solutions to have commercial and professional advantage. However the contractor would be responsible for ensuring the complete system in operational and meeting the requirements as mentioned in RFP.

3.B.2 Power and Fiber Distribution Design for Railway Stations

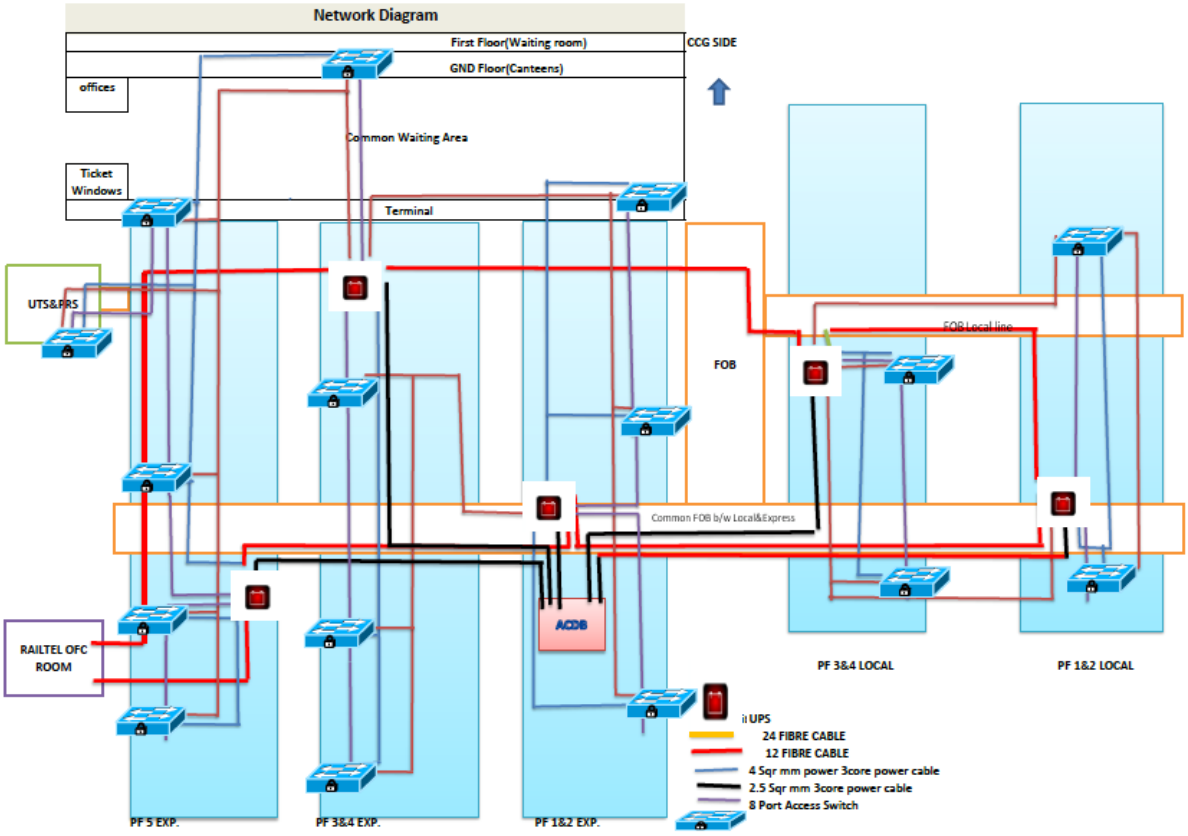
A 6 sq.mm 3 core power cable will terminated to 1 or 2 KVA UPS at each platform from ACDB. 4 sq.mm 3 core power cables will be drawn from this 1 or 2 KVA UPS to each access switch location.

A 24 core fiber cable will start from 24 port FDMS/LIU towards each platform and will terminate to another 24 port FDMS/LIU on same location after completing a physical ring of cable. First 2 cores of this 24 core fiber cable will be terminated at aggregation switch location at platform 1, another 2 core at aggregation switch location at platform 2/3 and so on.

A 12 core fiber cable will start from this termination point of 2 cores of 24 core cable at aggregation location and connect each access switch location on that platform in ring topology physically and star topology logically. 4 core of this 12 core fiber will be terminated on each access switch (Type-I Switch) location. All access switches on same platform will form a star topology with aggregation switch at each platform. Further, IP Cameras will connect on CAT-6 STP cables to these access switches to provide video service.

If there is a requirement to connect more access switches for platform extension, any other locations or any other services aggregation switch will have sufficient ports available. Also there will be sufficient fiber core available to make this connectivity possible from scalability point of view.

Typical diagram for fiber core distribution for one platform is shown below. Same topology will be followed other platforms and other station types.



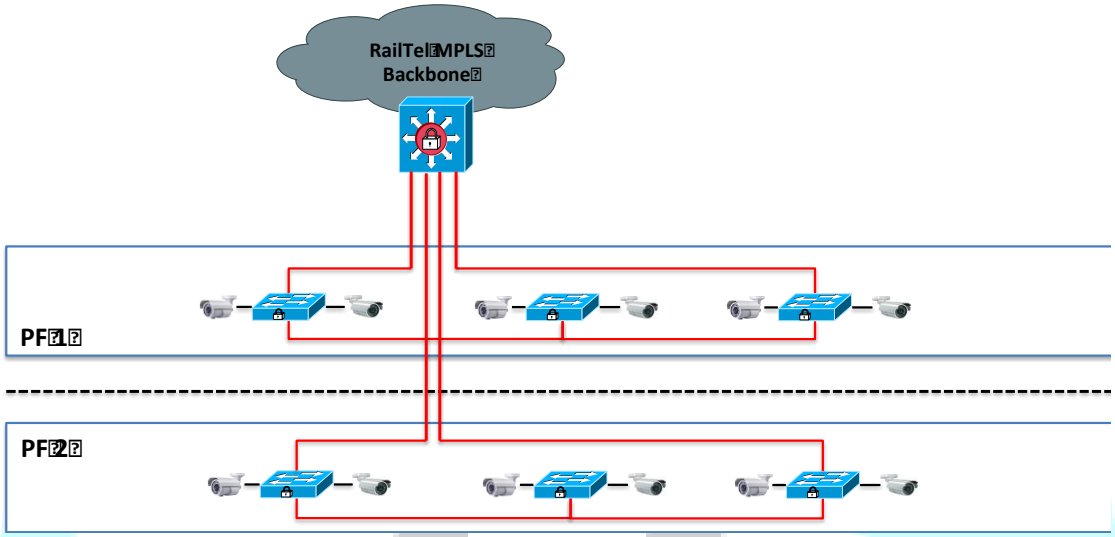
3.B.3 Network Design for Different Type of Stations

Typical Network Architecture for different stations is given as:

3.B.3.1 Network Design for C Type stations

Each C type station typically has 2 nos. of physical platforms. Each platform will be having 3 nos. of 8 port PoE access switches (Type-I Switch). These access switches on each platform will connect to MPLS aggregation switch (Type-IV Switch) in a ring topology with 12 core single mode fiber. This ring topology will provide redundant path to access switches in case of fiber cut happens incidentally. Railtel backbone network will also be terminated on same aggregation switch.

Network diagram for C type station is given as:



A separate VRF instance will be created on Type-IV Switch for different type of services (Surveillance, Wi-Fi etc). Access switches will separate these services in form of unique VLANs and maintain logical segregation between these services. This will maintain each service separately from traffic flow and QoS implementation perspective and improve network performance along with securing and isolating these services from each other.

This network architecture must have features like port security, DHCP snooping, Dynamic ARP inspection, IP Source guard, BPDU Guard and Spanning tree root guard. These features will enable network to implement first level of network security at these switches as a protection from sniffing and reconnaissance attacks.

This network architecture must have loop avoiding feature like MSTP/RSTP to implement dual homing/redundancy successfully.

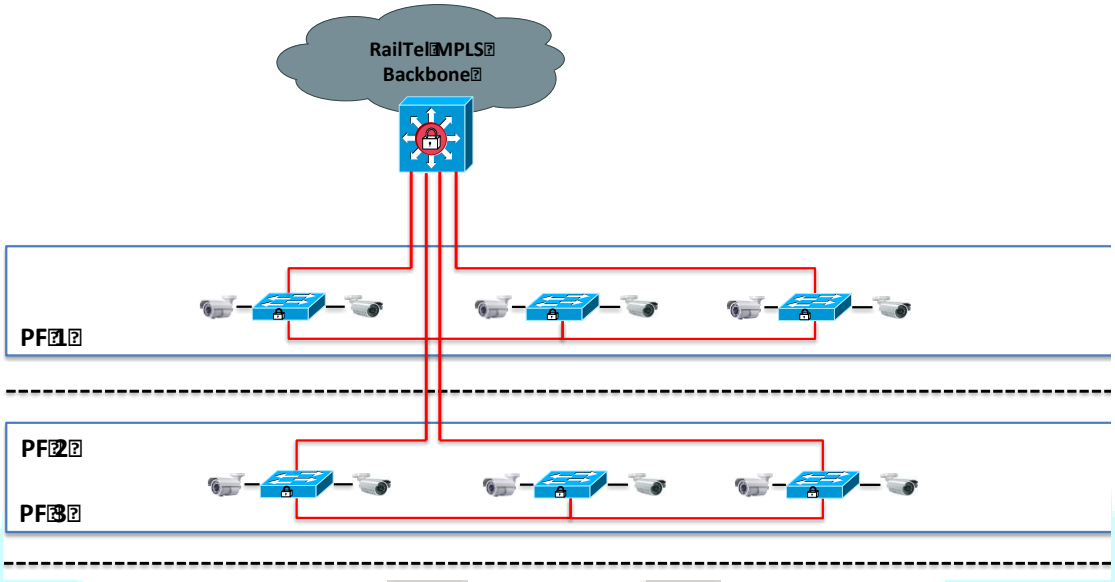
IP Video Surveillance is traffic hungry and delay sensitive service. To ensure proper functioning of this project, network architecture must have features like Multicast VLAN Registration, IP SLA, Auto-QoS, Auto Ports configuration to detect end device type connected to port and configuring QoS automatically on basis of device. Network should have IPv4 and IPv6 port and time based access list with time ranges.

This network architecture must have IPv6 certified products to ensure all features migration from IPv4 to IPv6 in future.

3.B.3.2 Network Design for B Type stations

Each B type station has typically 2 or 3 platforms. Network architecture will be same as a type C station. Same set of Type-I and Type-IV switches on platforms will cover both platforms that are adjacent to each other.

Network diagram for B type station is given as:



A separate VRF instance may be created on Type-IV switch for Railway Police Force users in addition to mentioned services in B type station. Railway Police Force users will have a secure client to for monitoring of stations through IP surveillance cameras.

3.B.3.3 Network Design for A Type stations

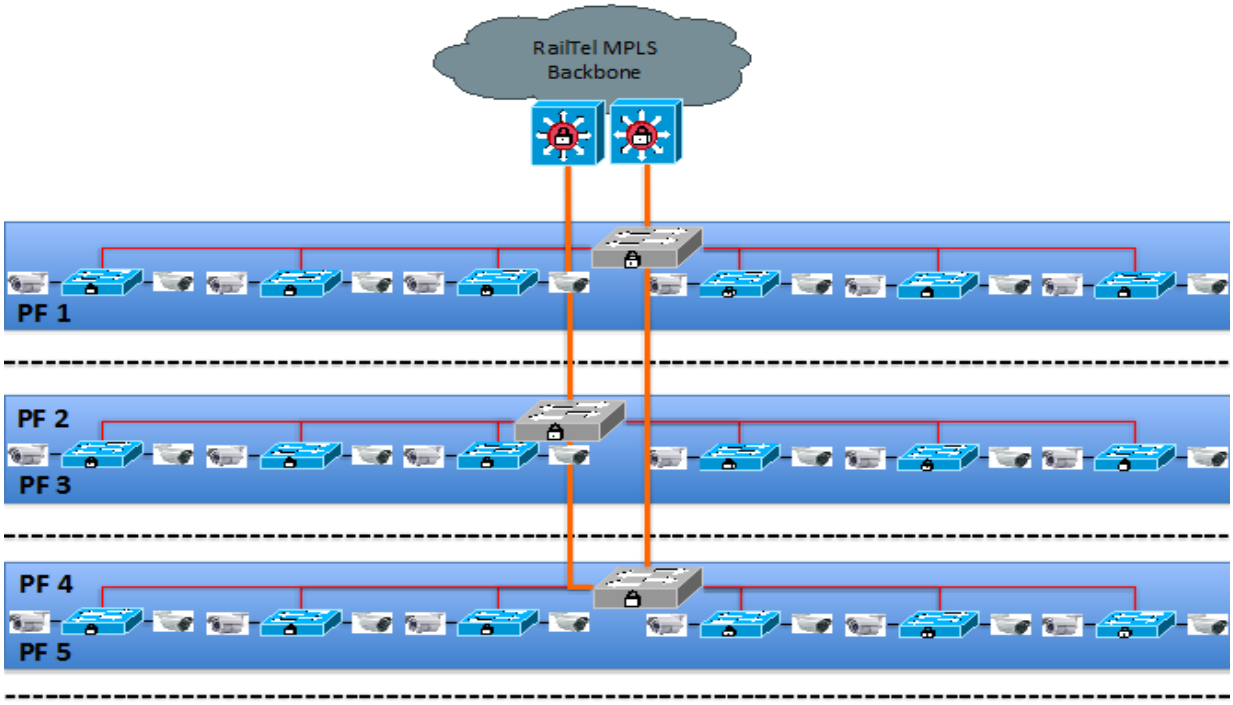
Each A type station typically has 5 nos. of physical platforms. Each platform will be having a Type-II switch as an aggregation. These aggregation switches on each platform will connect to Type-IV switch available on stations in a ring topology with 24 core single mode fiber. This ring topology will provide redundant path to aggregation switches in case of fiber cut happens incidentally.

8 port PoE access switches will be deployed on each platform to cover full length of platform. These access switches will connect to aggregation switch on each platform on 12 core single mode fiber. 4 core will be terminated at each access switch location and remaining core will spliced and lead to another access location. All access switches will form a star topology with aggregation switch on each platform. Further IP Surveillance Cameras, Wi-Fi Access Points and Information Display Units will connect on Cat5e/Cat6 UTP cables to these access switches to provide various services.

If there is requirement to connect access switches for platform extension, any other locations or any other services aggregation switches will have sufficient ports available.

Each A type station typically has 5 platforms. Network architecture will be same as a type B station with additional coverage for increased nos. of platforms. Same set of aggregation and access switches on platforms will cover both platforms that are adjacent to each other.

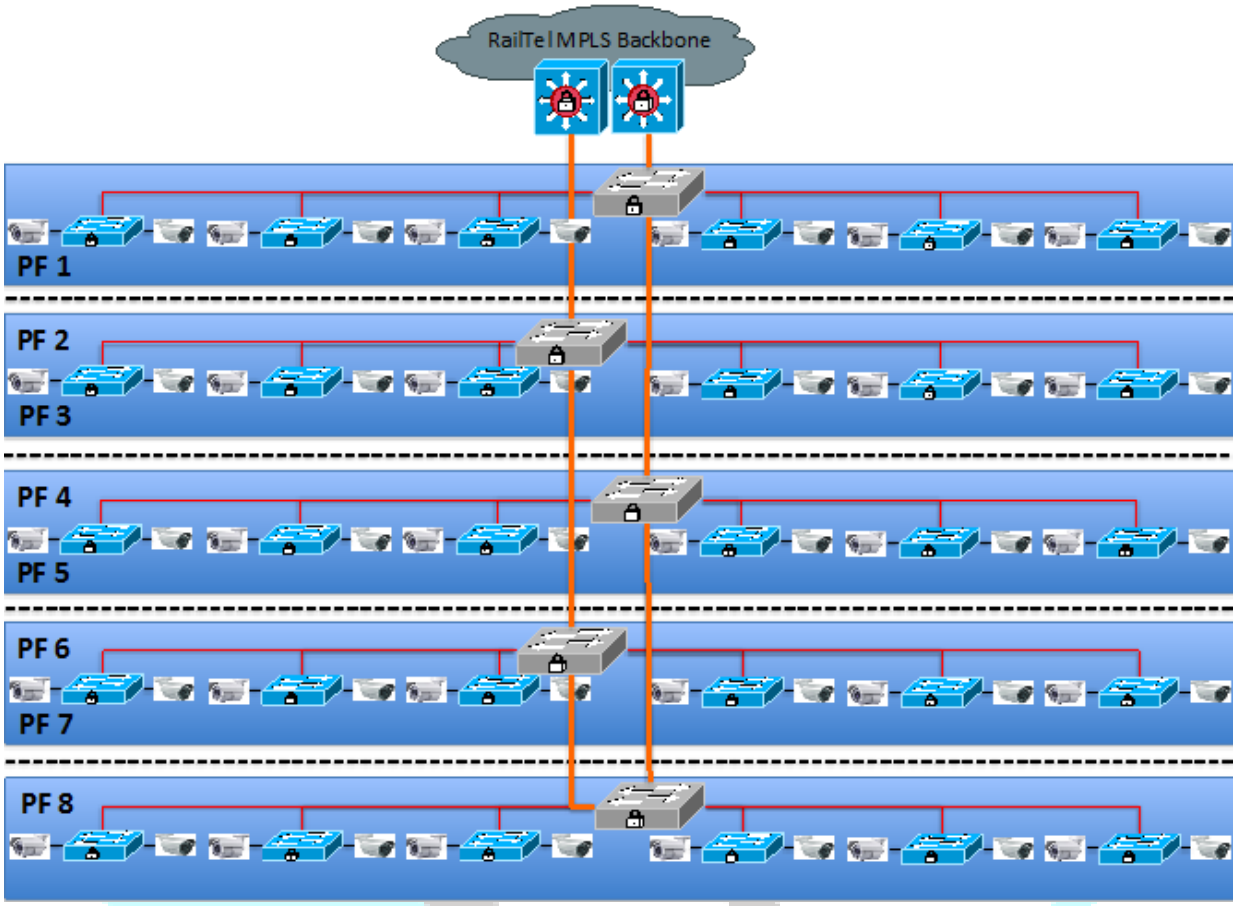
Network diagram for A type station is given as:



3.B.3.4 Network Design for A1 Type stations

Each A1 type station typically has 8 platforms. Network architecture will be same as a type A station with additional coverage for increased nos. of platforms. Same set of aggregation and access switches on platforms will cover both platforms that are adjacent to each other.

Network diagram for A1 type station is given as:



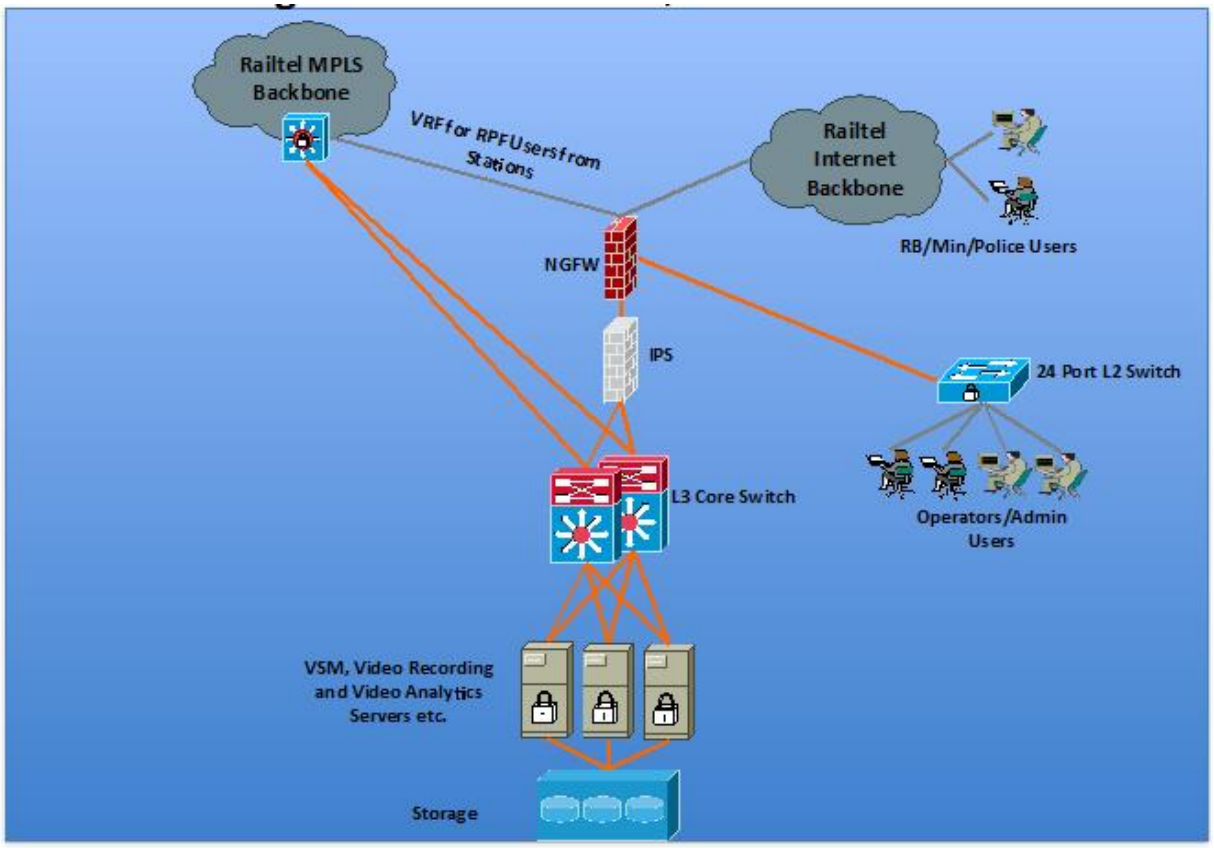
3.B.3.5 Network Design for Divisional Head Quarters

Each Divisional will have central architecture for connectivity of Video Management System, Video Recording, Video Analytics and Facial Recognition Servers etc.

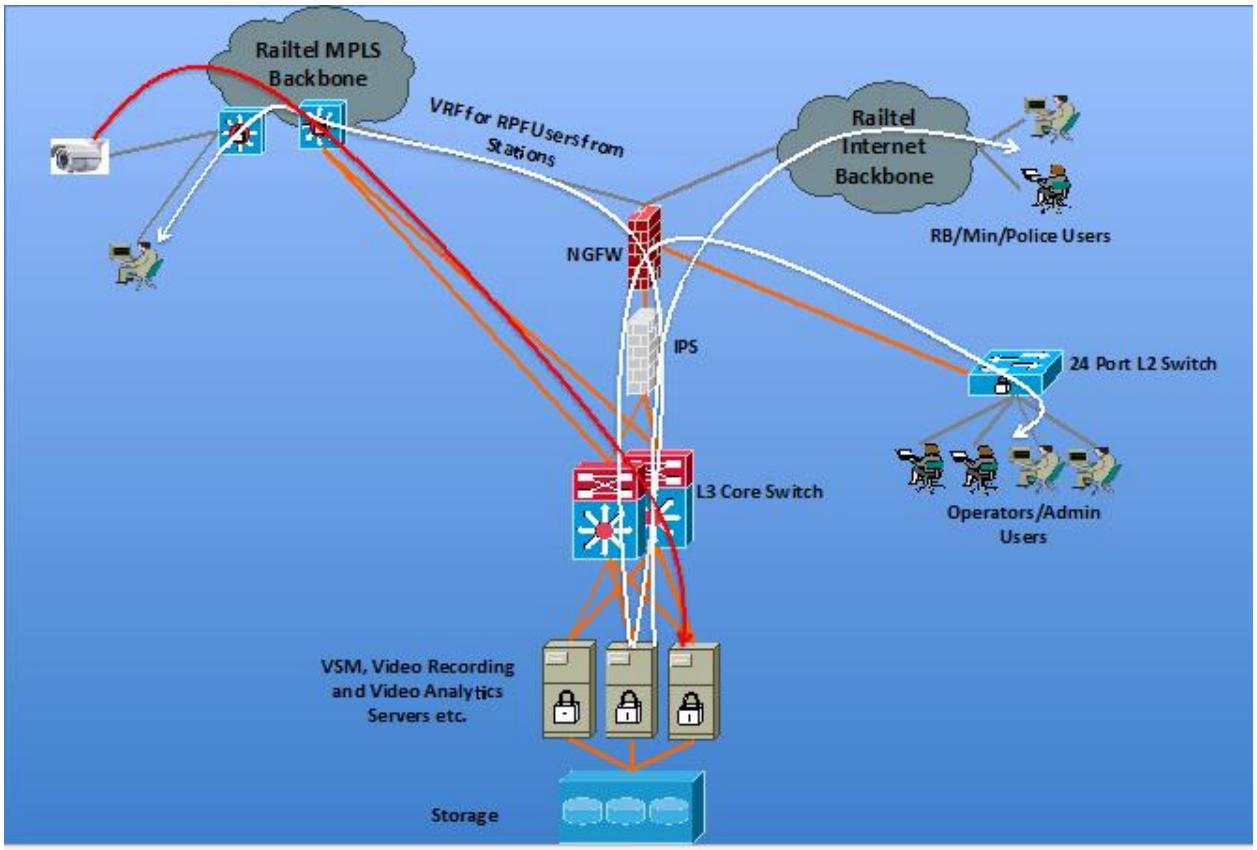
Network architecture at Divisional HQ will consist of 1:1 redundant Type-III switches. These switches must have 1:1 redundant power supply with bottleneck free stacking bandwidth. This feature will ensure that both these switches will work as a single logical unit and 1:1 redundant at same time. All Video Management Systems, Video Recording, Video Analytics and Facial recognition servers will be connected with 1:1 redundant port to each switch.

A robust security layer will be there on these locations in form of next generation firewall and IPS combination. Only main Video Stream from cameras will have access to Video Management System directly. All operators and administrative users of these systems will have restricted access through firewall and IPS for monitoring and playback stream. All RPF users will have restricted access to these systems for monitoring and playback stream through firewall and IPS. All 3rd party users who may access these systems via internet on some specific occasions on incidents will make a secure VPN connectivity to access these systems and will have time bound and restricted access to these systems.

Network diagram for Divisional HQ is given as:



On top of this restricted and policy based access to all these users, there will be an additional IPS and advance malware protection layer. This additional IPS and advance malware protection layer of security will protect these systems for malicious activity, malware attacks and contamination from already compromised end points. Typical access and video traffic flow is shown on diagram given below:



3.4 IP surveillance solution for Different Type of Stations

The main objective of the project is to implement IP surveillance solution to monitor and manage multiple Railway Stations across various divisions at Divisional HQ.

The system implemented shall act as tool to respond to situations/incidents effectively, aiding faster decision making and act as a great learning for better preparedness to meet any incident and eventualities.

The system is expected to help in following area:

a. Centrally Monitor and Control Security Systems
b. Immediate Response and Management System
c. Integration with Video Management

IP based cameras would be Dome type, PTZ Type, Fixed Box and 4K UHD Cameras. Below are major listed areas, which will be covered by various type of cameras:

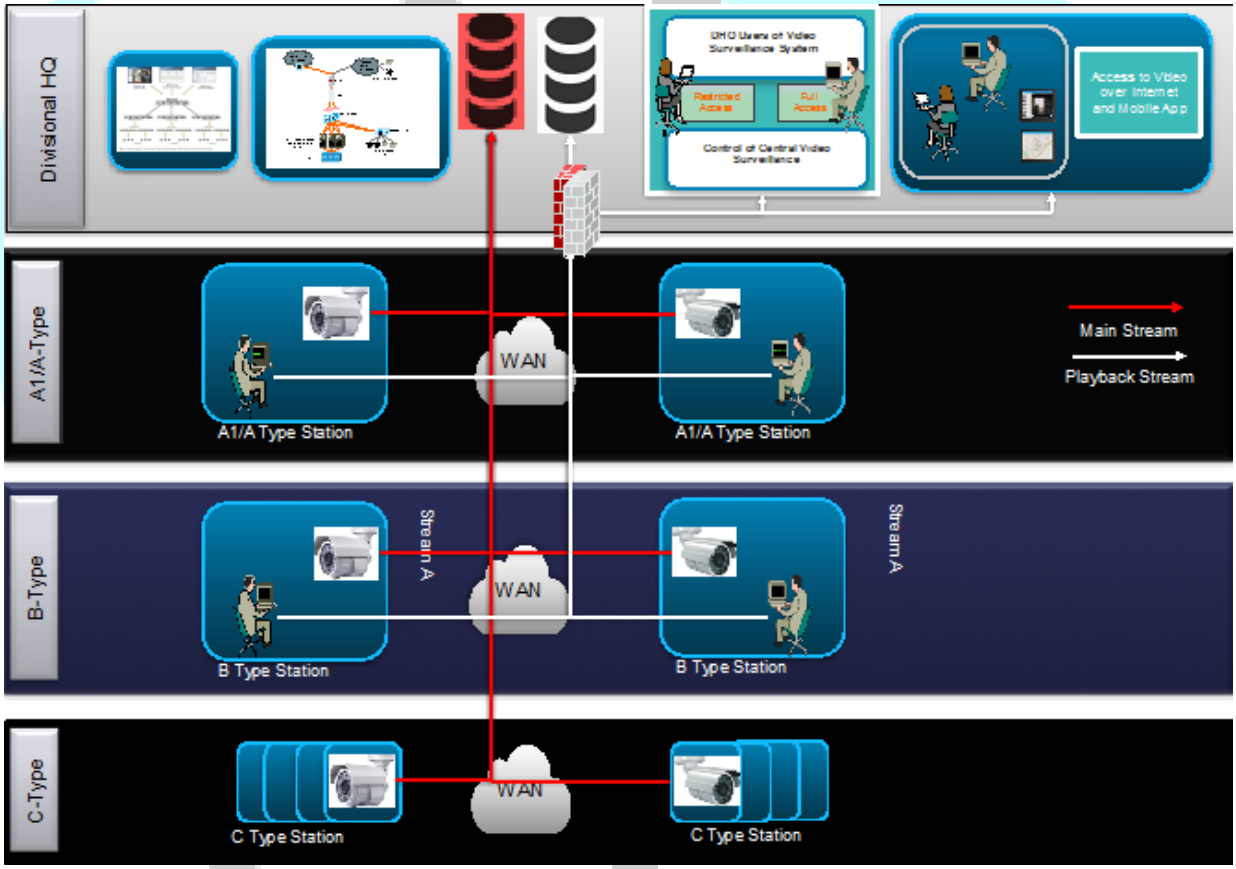
a) Platform, Foot over areas should be covered by Fixed Box cameras with vari-focal lens
b) Entry/Exit should be covered by 4K UHD cameras.
c) Ticketing Counter, Waiting, Food Plaza, Railway Refreshment Room, Low celling Entry /Exits should be covered by Dome cameras with vari-focal lens
d) PTZ should be mounted for bigger open spaces, where Pen. Zoom & Tilt functionality will be used

Approx. 20% of total selected Fixed Box, Dome Camera should be enabled with video analytics functionality. At a time one camera should be enable min one analytic functionality.

Video Analytics server infrastructure should be center location at division HQ.

3.4.1 Design Concept of Security Surveillance Project

The video surveillance system envisaged to cover identified locations of Railway Stations. The entire video feed shall be monitored and recorded centrally at Division HQ Level. This solution includes IP based cameras for surveillance cameras to capture and monitor activities.



IP video surveillance system should support for Network Time Protocol (NTP) services.

IP cameras should be attached to a switch port that supports minimum Fast Ethernet (10/100Mbps). The recommendation is a speed of 100Mbps, full duplex. If the cameras require PoE, the switch must support the IEEE 802.3af—PoE standard. The maximum cable length is 100 meters. The 100BASE-TX standard specifies a minimum of Cat6 copper cabling with two twisted pairs.

All stations IP Camera primary stream should be stored at Division level HQ and should be secure communication. All VMS servers should be located in a single network operation center (NOC) or rack at DHQ. All servers can be installed as physical or virtual machines (VMs).

IP Cameras should support on-device storage, which can be used to record video on the de-

vice. This feature is typically used if the camera is offline (such as Network failure between Camera and recording server). IP Camera restores the video data to recording system as and when network is restored.

Network communication between the browser (client) and the Management Console should be encrypting using SSL and HTTPS. Each server should include a default self-signed SSL certificate.

Video monitoring operators /Admin will access the video data from DHQ location. DHQ location should provide archive/primary video streams to respective locations and users.

Video surveillance cameras continuously stream video to their associated recording servers, even if video is not being recording or monitored. This provides on-demand video access to users, and for recordings if an event occurs.

If the network failure happens between station and DHQ recording system. Video surveillance cameras continuously stream on-demand video access to the local monitoring center over LAN.

When any network failure happens between Camera and recording system, the recording should automatically start on SD card in the IP cameras. However, when the network recovers, the data on the SD card should get automatically transferred to the VMS/NVR without any impact on the operations of the VMS/NVR.

3.B.4.2 IP surveillance solution for C Type Railway Station

C Type Railway Station will have approx. 20 to 30 IP cameras depending on size of Railway stations. IP cameras should be connecting to Division HQ level through CCTV network.
C Type Railway Station will also have a local recording facility for at least 7 days. Moreover, system design should also support random monitoring through client applications from Divisional Recording facility.

3.B.4.3 IP surveillance solution for B Type Railway Station

B Type Railway Station will have approx. 30 to 40 IP cameras depending on size of Railway stations. IP cameras should be connecting to Division level through CCTV network.

B Type Railway Station may have dedicated monitoring set-up and control room for monitoring and controlling all respective camera. Railway Police Force users will monitor this system for related area that falls under their preview.

B Type Railway Station will also have a local recording facility for at least 7 days. Moreover, system design should also support random monitoring through client applications from Divisional Recording facility.

3.B.4.4 IP surveillance solution for A1/A Type Railway Station

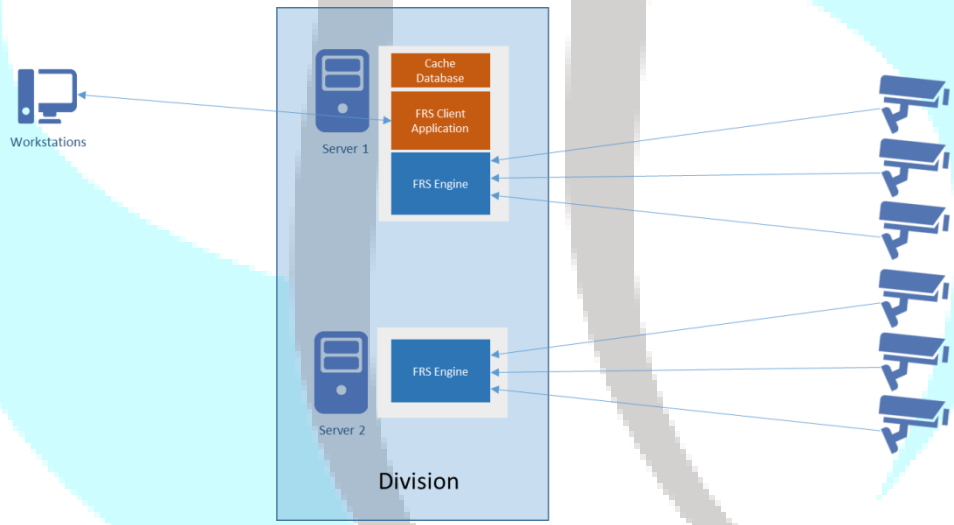
A1/A Type Railway Station will have approx. 60 to 90 IP cameras depending on size of Railway stations. IP cameras should be connecting to Division level through CCTV network.

Division level station may be same location or should connect all A Type Railway stations of that division.

A1/A Type Railway Station will also have a local recording facility for at least 7 days. Moreover, system design should also support random monitoring through client applications from Divisional Recording facility.

3.B.5 Facial Recognition System (FRS) Solution Architecture:

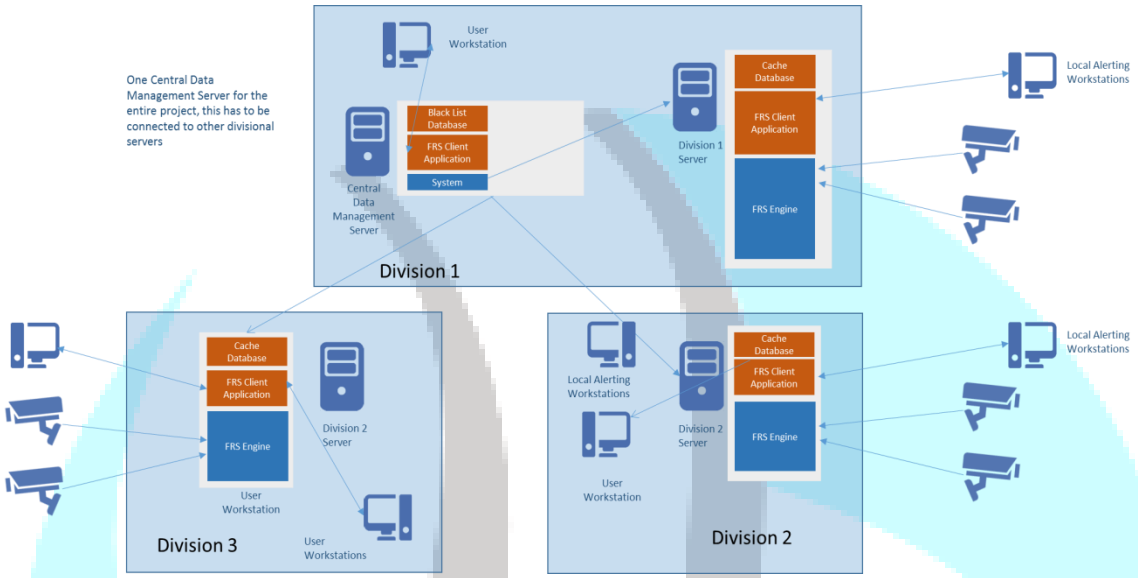
3.B.5.1 Facial Recognition System (FRS) Solution Architecture at Divisional Level:



At each divisional head quarter there would be FRS engine servers placed to run the facial recognition on the video streams coming from the 4K UHD cameras installed at the entry exit points of each A and A-1 Category stations under that particular division. Each division would be interconnected to other divisions of the region through the RailTel's MPLS Network to facilitate the license and black list database sharing.

3.B.5.2 Facial Recognition System (FRS) Solution Architecture at Regional Level:

Under each region for facial recognition system there would be one division at which one central database management server would be placed that would have any core license running on it and black list database as per RDSO specifications running on it and this division would be connected to other divisions of the regions where the FRS setup would share the required resources to run the FRS algorithm effectively and efficiently.


One Central Data Management Server for the entire project, this has to be connected to other divisional servers
User Workstation
Black List Database
FRS Client Application
System
Central Data Management Server
Division 1 Server
Cache Database
FRS Client Application
FRS Engine
Local Alerting Workstations
Division 1
Division 2 Server
Division 3
User Workstations
Division 2

Chapter-3

C. Management System for Network Switches, Routers, Firewall, IPS and UPS along with ITSM tool

Management system servers will be installed at each Divisional HQ for Network Switches, Routers, Firewall, IPS and UPS etc. Each of mentioned equipment must come with Enterprise Level Management System. Management Systems must have capability for configuration, provisioning and monitoring of Network Switches, Routers, Firewall, IPS and UPS respectively. Management System must have capability to send alerts for status change of devices like device up/down, link up/down and high utilization, dis connectivity etc. Access to Management System will be through Management Clients as given below:

1. At Divisional HQ Management Client must be with roles based full access for configuration, provisioning and monitoring of these equipment. Management Client must provide topology for equipment under that particular Division.

2. At A1, A and B Type station Management Client must be with role based operator access for monitoring only for RPF users. Management Client must provide topology of railways station under that RPF post.

3. At Regional HQ NOC Management Client must be with role based operator access for monitoring only for proactive monitoring. Management Client must provide topology of each Divisional HQ by logging in into Management System of that particular Division.

CHAPTER-3

D. INSPECTION AND SUPERVISION OF INSTALLATION, TESTING & COMMISSIONING

3.D.1. INSPECTION

(A) Inspection will be carried by RDSO for all the items for which RDSO specifications are referred. For other items the inspection will be carried out by RailTel.

(B) TEST CATEGORIES (This should be for all the items to be inspected by RailTel)

i) The following tests shall be conducted for acceptance of the equipment and the system before final acceptance of the system. Waiver of Part or whole of type tests can be considered if proof of having done the tests by independent body or PTT authority is submitted.

a) Pre-Factory Acceptance Testing
b) Factory Acceptance Testing (FAT)
c) Pre-commissioning test (after installation) for total integrated system.
d) Site Acceptance Testing (SAT)
e) Trial Run

ii) These tests shall be carried out on all equipment supplied by bidder including those supplied by sub-vendors, if any.

iii) Bidder shall arrange all necessary test instruments, manpower, test-gear, accessories etc.

iv) All technical personnel assigned by bidder shall be fully conversant with the system specifications and requirements. They shall have the specific capability to make the system operative quickly and efficiently and shall not interfere or be interfered by other concurrent testing, construction and commissioning activities in progress. They shall also have the capability to incorporate any minor modifications/suggestions put forward by purchaser /Engineer.

v) Test Plan: The Contractor shall submit to Purchaser 'Test Plans' well in advance of commencement of actual testing in each of the above mentioned test categories.

The plans shall include:

1) System/Equipment functional and performance description (in short) and Tests to be conducted and purpose of test.

2) Test procedures (including time schedule for the tests) and identification of test inputs details and desired test results

3) **Test Report:**

The observations and test results obtained during various tests conducted shall be compiled and documented to produce Test Reports by bidder. The Test Reports shall

be given for each equipment/item and system as a whole. The report shall contain the following information to a minimum:

i) Test results

ii) Comparison of test results and anticipated (as per specifications) test result as given in test plans and reasons for deviations, if any.

iii) The data furnished shall prove convincingly that

a. The system meets the Guaranteed Performance objectives
b. Mechanical and Electrical limits were not exceeded.
c. Failure profile of the equipment during the tests are well within the specified limits

vi) Failure of Equipment:

Till the system is accepted by the Purchaser, a log of each and every failure of equipment shall be maintained. It shall give the date and time of failure, description of failed equipment, circuit, module, equipment designation, effect of failure of equipment on the system/equipment, cause of failure, date and time of repair, mean time to repair etc. Repair/modification done at any point of time at one site, shall be carried out by bidder at all the sites. Detailed documentation for the same shall be submitted to Purchaser for future reference.

If the malfunction and/or failures of a unit/module/sub-system/equipment repeat during the test, the test shall be terminated and bidder shall replace the necessary equipment or module to correct the deficiency. Thereafter, the tests shall commence all over again from the start.

If after the replacement the equipment still fails to meet the specification, bidder shall replace the equipment with a new one and tests shall begin all over again. If a unit/ subsystem/module has failed during the test, the test shall be suspended and re-started all over again only after the bidder has placed the equipment back into acceptable operation. Purchaser's approval shall be obtained for any allowable logical time required to replace the failed equipment/unit/module/sub-system.

vii) **Readjustments**

No adjustments shall be made to any equipment during the acceptance tests. If satisfactory test results cannot be obtained unless readjustments are made, bidder shall carry out only those readjustment needed to ready the equipment/system for continuance of tests. A log of all such adjustments shall be kept giving date and time, equipment, module, circuit, adjustments, reasons, test result before and after adjustment etc. Fresh acceptance tests shall be conducted after the readjustments have been completed.

3.D.2. Pre Factory Acceptance Testing

The bidder on his own exactly in line with FAT shall conduct pre-factory acceptance testing and test reports for the same shall be forwarded to Purchaser/Engineer before start of FAT.

3.D.3. Factory Acceptance Testing (FAT)

Factory acceptance tests shall be carried out after review and approval of FAT procedure/documents as per bid requirements and review of Pre-Factory acceptance results & shall be conducted at the manufacturing facilities from where the respective equipment/subsystems are offered. The factory acceptance testing shall be conducted in the presence of the Purchaser/Engineer. The tests shall be carried out on random sampling of 8% lot size with minimum quantity of 4 nos. on main equipment /items and factory acceptance certificates shall be issued. The factory tests shall include but not be limited to:

A) **Equipment Testing:**

i) Mechanical checks to the equipment for dimensions, inner and outer supports, finishing, welds, hinges, terminal boards, connectors, cables, painting etc.

ii) Electrical checks including internal wiring, external connections to other equipment etc.

iii) Check for assuring compliance with standards mentioned in the specifications.

iv) Individual check on each/module/sub-assembly in accordance with the modes and diagnostics programs of the bidder.

v) Checks on power consumption and heat dissipation characteristics of various equipment

vi) Environment testing and other laid down tests in Type Tests plan of the specification of the equipment.

vii) Functional testing

viii) Any other test not included in FAT document but relevant to the project as desired by the Purchaser/Engineer at the time of factory acceptance testing.

B) **System Integration Testing:**

Functional and performance test should be conducted for the complete system concerning and connecting the equipment and all major equipment.

3.D.4. Supervision of Installation

After successful completion of factory acceptance testing, equipment shall be sent to site for installation. Equipment without factory acceptance certificates shall not be acceptable at site.

Prior to installation, all equipment shall be checked for completeness as per the specifications of equipment required for a particular station. Installation shall be carried out in accordance with the installation manuals and approved installation drawings & site plan in the best workmanship.

Bidder shall indicate the number of teams and the list of equipment for each teams to be required for installation of the Video Surveillance System in order to complete the work within the stipulated time frame.

Bidder shall bring all installation tools, accessories, special tools, test gears, spare parts etc. at his own cost as required for the successful completion of the job.

If during installation and commissioning under the supervision of the bidder any repairs are undertaken, the maintenance spares supplied with equipment shall not be used for the repair. Bidder shall arrange his own spare parts for such activities till such time the system has been finally accepted by the Purchaser. A detailed report & log of all such repairs shall be made available by the bidder to Purchaser/Engineer and shall include cause of faults and repair details, within 2 weeks of fault occurrence.

A detailed time schedule for these activities shall be submitted by bidder to Purchaser/Engineer to enable their representatives to be associated with the job.

Bidder shall supply all installation materials required for proper installation of the equipment. These shall include but not be limited to, all connectors, interbay and inter equipment cables, power supply cables and connectors, power distribution boxes, anchoring bolts, nuts, screws, washers, main distribution frames, audio distribution frames, voice frequency cables, junction boxes etc.

The installation of equipment shall be supervised by the bidder in such a manner so as to ensure neat and clean appearance in accordance with approved installation document drawings. All inter bay, power supply and other cables shall be routed through wall mounted cable trays. No cable shall be visible. All through wall openings, trenches etc. shall be properly sealed to prevent the entry of rodents, insects and foreign materials.

3.D.5. Pre-Commissioning

On completion of installation of the VSS system, the correctness and completeness of the installation as per Manufacturer's manual and approved installation documents shall be checked by the bidder on his own.
A list of Pre-Commissioning tests (same as approved by the Purchaser/Engineer for site acceptance testing) and activities shall be prepared by bidder and the test shall be carried out by the bidder on his own. After the tests have been conducted to the bidder's own satisfaction, the bidder shall provide the test results for review by Purchaser/Engineer and then offer the system for Site Acceptance Testing.

During pre-commissioning, if any fault occurs to any equipment or system, bidder shall identify the same and provide report/history of all faults to the Purchaser.

During installation and pre-commissioning of the VSS system, bidder shall have enough number of commissioning spares so that the installation is not held up because of non-availability of commissioning spares. Bidder shall ensure that the spares meant for operation and maintenance are not used during installation and commissioning.

3.D.6. Site Acceptance Testing (SAT)

On completion of Pre-commissioning, site acceptance testing shall be conducted on the system as per approved SAT procedures and its constituents by the bidder under the presence of Purchaser/Engineer.

The tests shall include, but not be limited the following:

a) Checks for proper installation as per the approved installation drawings for each equipment/item and system as a whole.
b) Guaranteed performance specifications of individual equipment/item.
c) Self diagnostics test on individual equipment
d) Tests on remote alarm transmission and reception
e) System tests on END TO END for the system, all complete.

3.D.7. PROVISIONAL ACCEPTANCE CERTIFICATE (PAC)

RailTel's respective Executive Directors or their authorized representatives of concerned region shall issue a Provisional Acceptance certificate (PAC) divisional wise for successful commissioning and testing covering all cameras and other IT infrastructure at a station within the Division and monitoring facilities extended after getting the final commissioning of Video Surveillance Network certified by Indian Railways to RailTel/REL so that trial run/field trials can be started. PAC will not be held back for want of minor deficiencies not affecting the functioning of the overall system. Deficiencies, if any, pointed at the time of issuance of PAC, will be rectified by the contractor within one month. The Provisional Acceptance Certificate shall be signed by both the parties. PAC will also not be held back for the station/s pending for Installation, Testing and Commissioning for the want of site readiness/approval or as per the decision of Executive Director of the region.

3.D.8. MAINTENANCE SPARES

3.D.8.1 Unit rates for each spares required for operation and maintenance shall be provided. Bidder shall also provide the address, contact person, fax, and telephone no. of the manufacturer of the spare parts, if different from the bidder itself. The bidder shall warrant that spare part for the system would be available for minimum of 5 years after system commissioning (taking over). After this period if the bidder discontinues the production of the spare parts, then he shall give at least 12 months notice prior to such discontinuation so that Purchaser may order the requirements of spares in one lot.

8% mandatory spares (for operation and maintenance) shall be provided against SOR item no.A1 (a) to A1(d) and A(8) to A(12) (with round off at the higher side. Spares shall be provided from the same manufacturing facilities/location from where the respective equipment, subsystems are offered.

The list of the required spares being supplied with unit cost and total cost should be attached along with the bid.

3.D.8.2. Spare part management for spare other than quoted in the SOR during the maintenance support services, warranty and AMC phase in order to meet the SLAs shall be undertaken by the successful bidder.

3.D.8.3. The list of maintenance spares, required for providing maintenance support with Uptime being asked for, shall be worked out by the SI in consultation with the OEM and submitted for RailTel's approval. These spares shall be stocked at various locations proportionately and checked by RailTel at the time of acceptance of the network (to be defined by RailTel later).

3.D.8.4. RailTel shall hold successful bidder responsible for all SLAs mentioned in the RFP and subsequently in the contract document, however, for ensuring the same, Certificates from all OEMs and/or authorized vendors/representatives (as per Forms of Chapter 6) will be produced to confirm that the life time maintenance support (three years warranty & five years AMC) by provisioning of spares.

3.D.8.5. In case the equipment offered/supplied under the contract is out of production/support or not available due to any reason, the contractor shall supply equipment with prior approval of purchaser's engineer.

3.D.9. Commissioning spares

The commissioning spare shall be arranged by the bidder to cater to the requirement during installation, commissioning, site acceptance testing, trial run and warrantee period. These spares shall be readily available with the bidder, at specified locations.

These commissioning spares are different from maintenance spares and bidder shall not use maintenance spares as commissioning spares till expiry of warranty period.

3.D.10. TRIAL RUN/FIELD TRIALS

Upon conclusion of the site acceptance testing the bidder shall keep the facilities commissioned for one month for 'TRIAL RUN/FIELD TRIALS'. During this period bidder shall provide all Support engineers & Technicians to maintain the total log, incidents and failures. However, the normal operation and maintenance of the system shall be performed by the personnel of the Purchaser trained for the purpose.

If during 'Trial run' any defect is noted in the system, the bidder shall rectify, replace the same to the satisfaction of Purchaser's/Engineer. The decision to repeat the final test or restart the 'Trial' shall be of Purchaser/Engineer depending upon the severity of the defect.

During trial run, if any fault occurs to any equipment of system, bidder shall identity and rectify the same and provide report, history of all faults to the Purchaser.

Ideally, during the 'Trial run, no shutdown of the system due to failure of equipment, power supply etc. should happen. A record of all failures shall be kept for each manned/unmanned station and the availability of the system on per hop and end to End basis shall be calculated, accordingly and results submitted to Purchaser/engineer.

If the system fails to come up to the guaranteed performance, the bidder, within a period of thirty (30) days shall take any and all corrective measures and resubmit the system for another 'Trial Run' of trial period. All modifications, changes, corrective measures, labour etc. shall be at the cost of the bidder. In case the date of completion for the second trial run exceeds the time schedule for the project, he shall be liable to pay liquidated damages. If the system fails to reach the guaranteed performance even after the second trial run, the Purchaser shall be free to take any action as he deems fit against the bidder and to bring the system to the guaranteed performance with the help of third party at the expense of the bidder.

3.D.11. FINAL ACCEPTANCE

The final acceptance of the works completed shall take effect from the date of successful completion of 12 months of Maintenance Supervision as per clause 4.A.2.5 of Chapter 4, provided in any case that the contractor has complied fully with his obligations in respect of each item under the contract. The Final Acceptance Certificate of respective Division shall be signed by authorized representative of RailTel nominated by the Executive Director of the concerned Region and the contractor and issue by Respective Region. Notwithstanding the issue of Final Acceptance Certificate the contractor and the purchaser shall remain liable for fulfillment of any obligation incurred under the provision of the contract prior to the issue of Final Acceptance Certificate which remains unperformed at the time such certificate is issued and for determining the nature and extent of such obligation the contract shall be deemed to remain in force between the parties hereto.

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CHAPTER-3

E. TRAINING, VENDOR DATA REQUIREMENT, DOCUMENTATION, AND DESIGN GUIDELINES

3.E.1 TRAINING

Bidder shall train personnel of Purchaser/engineer in all aspects of Video Surveillance System.

The training course shall be conducted at the manufacturing facilities from where the respective equipment/subsystems are manufactured/ offered or in India if the firm can arrange full-fledged training facilities in case their manufacturing facilities are located outside India.

It shall be explicitly understood, that Purchaser's/Engineer's personnel shall be fully associated during Engineering, Installation, Testing and Commissioning activities and this opportunity shall be taken by bidder to impart on the job training in addition to the above training course.

Bidder offer excludes costs of transportation, lodging and boarding of the trainees which shall be arranged by the Purchaser.

The training course to be conducted at the manufacturing facilities shall be designed to train the trainees in all aspects of System engineering, equipment operation, installation and functional details, theory of operation of equipment, trouble shooting and familiarization with the equipment at card and component level. All equipment used for training shall be identical to those quoted and supplied for site installation in hardware and software versions.

Bidder shall provide comprehensive documentation, course material, manuals, literature etc. as required for proper training of personnel at his own cost. Consolidated and comprehensive documentation shall be available to each participant. After the completion of course, all such materials shall become the property of the PURCHASER. Bidder shall update the course material of manuals in case there are any changes owing to revision/modifications in equipment/system specifications.

Bidder shall, prior to start of training, send complete training program including details of each course, duration, subject matter etc. The Purchaser/Engineer reserves their right to suggest any additions/deletions in the program, which shall be incorporated by the bidder at no additional cost.

3.E.2 VENDOR DATA REQUIREMENT AND DOCUMENTATION

One set of Documentation with hard and soft copy shall be supplied for each station.

The following documents for the complete system shall be supplied and approved by Purchaser/Engineer in order to start Factory Acceptance Testing:

A) System description, System configuration diagram & Connectivity diagram

B) Detail technical manual of each type of equipment

Equipment interconnection diagram including details of various interfaces, signaling protocols used at each stage.

Layout of equipment and space requirements for each station.

Installation manual including installation procedure and commissioning.

Supervisory configuration, alarm list, operator interface etc.

C) Maintenance manual of each type of equipment containing:

i. Preventive maintenance procedures.

ii. Trouble shooting/repairs procedures including failure analysis shall provide exhaustive information about repairs including but not limited to removal, reinsertion of components and cards, repairs, adjustments, tuning, calibration, tools required for a particular operation, test points, including turn-around time for repair and the details of the maintenance support service centre to be furnished in the bid and all other maintenance related details.

iii. Expansion possibilities of the system without causing deterioration in the system performance.

iv. Any other data, document not specifically mentioned, but required for the satisfactory testing, installation and commissioning, operation and maintenance of the system shall be provided.

v. Documents to be supplied after trial runs but before System commissioning (Acceptance of the System by Purchaser/Engineer).

3.E.3 DESIGN GUIDELINES

i) Equipment shall conform to the similar housing standards and shall preferably be integrated in one 19” rack.

ii) All venting, cooling shall be natural. However, in case of equipment with internal forced cooling, suitable dust filters may be used, if required.

iii) All equipment shall be immune to EMI; RFI interference generated by any nearby source & shall meet the latest international standards in this regard.

iv) The equipment shall be capable of functioning with minimum maintenance and shall be preferred to have no requirement of any preventive maintenance.

v) All the wiring work whether power cable, network cable or OFC cable should be wired and clamped properly on the channels and coding may be provided for the identification of the cables.

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CHAPTER 4

A. COMMERCIAL TERMS & CONDITIONS

4.A.1 Offer letter and Validity of offer

4.A.1.1 The bidder shall complete the offer letter (Chapter 1) and the Price Schedule (Chapter 2) furnished in the tender documents, indicating the goods to be supplied, description of the goods, associated technical literature, quantity and prices etc.

4.A.1.2 The offer should remain valid for a minimum period from the date of opening of tender including the date of opening as indicated in Bid Data Sheet (BDS) Chapter 5.

4.A.2 Warranty

4.A.2.1 The warranty would be valid for a period as indicated in Bid Data Sheet (BDS) Chapter 5. The supplier shall warrant that stores to be supplied shall be new and free from all defects and faults in material, workmanship and manufacture and shall be of the highest grade and consistent with the established and generally accepted standards of materials of the type ordered and shall perform in full conformity with the specifications and drawings. The supplier shall be responsible for any defects that may develop under the conditions provided by the contract and under proper use, arising from faulty materials, design or workmanship such as corrosion, inadequate quantity of material to meet equipment requirements, inadequate contact protection, deficiencies in design and/ or otherwise and shall remedy such defects at his own cost when called upon to do so by the Purchaser who shall state in writing in what respect the stores are faulty.

4.A.2.2 If it becomes necessary for the contractor to replace or renew any defective portion/portions of the supplies under this clause, the provisions of the clause shall apply to the portion/portions of the equipment so replaced or renewed or until the end of the above mentioned period or twelve months, whichever may be later. If any defect is not remedied within a reasonable time of 30 days, the Purchaser may proceed to do the work at the contractor's cost, but without prejudice to any other rights which the Purchaser may have against the contractor in respect of such defects.

4.A.2.3 Replacement under warranty clause shall be made by the contractor free of all charges at site including freight, insurance and other incidental charges.

4.A.2.4 Warranty Support

4.A.2.4.1 Material for repair during Warranty Period shall be handed over /taken over to contractors engineer at respective site or mutually agreed RailTel/REL PoP location.

Bidder shall keep L1 Support engineer in Field (one engineer/200 cameras) and one L2 Support engineer (Network, server & storage) at the Division HQ. The Field engineer will visit the total installation once in every month or earlier if the situation so warrants with the provision that monthly/quarterly reports of the failures and health of the equipment shall be prepared and submitted to the Purchaser. Addition-

al manpower, if considered necessary shall be provided by contractor to stabilize the network. The bidder shall arrange the suitable replacement in case the assigned support engineer goes on leave or is unavailable due to any other reason to ensure uninterrupted support services.

The cost for Technical Engineering support etc. may be quoted as provided for in SOR. The Contractor's Engineer shall be responsible to identify the fault and advise corrective measures. During the warranty period, the contractor shall remain responsible to arrange replacement within 7 days and for setting right at his own cost any equipment installed by him which is of defective manufacture or design or becomes unworkable due to any cause whatsoever. The decision of the RailTel/REL's representative in this regard to direct the contractor to attend to any damage or defect in work shall be final and binding on the Contractor. In case contractor fails to replace any faulty part within 7 days period, penalties will be imposed as per clause 5.0 of Annexure-II.

4.A.2.4.2 During the warranty period, the contractor shall be responsible to the extent expressed in this clause for any defects that may develop under the conditions provided for by the contract and under proper use, arising from faulty materials, design or workmanship in the plant, or from faulty execution of the plant by the contractor but not otherwise and shall remedy such defects at his own cost when called upon to do so by the Purchaser Engineer who shall state in writing in what respect the portion is faulty.

4.A.2.4.3 During the free warranty maintenance period, contractor should stabilize the working of the system. Purchaser has the right to extend the period of supervision of the maintenance free of cost till the system stabilizes and works satisfactorily for a reasonable period of time. If during the time any equipment etc. is to be added or deficiencies are to be rectified to make the system work trouble free ,the same also will have to be done by the contractor at no cost to RailTel/REL as to make good all the deficiencies.

4.A.2.5. Maintenance Supervision

4.A.2.5.1 After the proposed system is commissioned and placed in service and after provisional acceptance certificate is issued, the contractor shall be responsible for proper maintenance supervision of the system free of cost for a period of twelve months from the date of provisional acceptance. The Maintenance Supervision period would begin Divisional Railway wise after the PAC has been issued against that Division. For this purpose he shall prepare a maintenance plan and make available the services of qualified maintenance engineer stationed at the location approved by Purchaser's Engineer who will guide and supervise the RailTel maintenance staff.

Bidder shall keep L1 Support engineer in Field (one engineer/200 cameras) and one L2 Support engineer (Network, server & storage) at the Division HQ. The Field engineer will visit the total installation once in every month for checking system state of health and necessary maintenance or earlier if the situation so warrants with the provision that monthly/quarterly reports of the failures and health of the equipment shall be prepared and submitted to the Purchaser. Bidder may also require to engage additional manpower on case to case basis for proper operation & support of the system. The bidder shall arrange the suitable replacement in case

the assigned support engineer goes on leave or is unavailable due to any other reason to ensure uninterrupted support services.

Additional manpower if considered necessary shall be provided by contractor to stabilize the network.

A penalty as per clause 4.A.8 of down time of network shall be imposed on the contractor for not meeting the down time prescribed. The Contractor's Engineer shall be responsible to identify the fault and advise corrective measures and ensure that defective cards are replenished.

4.A.2.5.2 During this period of maintenance supervision if any lacuna is noticed in the functioning, as a result of any deficiency in work, the contractor will rectify the same at no cost to RailTel. During such rectification if any faulty equipment/modules need replacement or repair, they shall be provided by the contractor from the set of equipment or modules that the contractor should bring to the site of installation in addition to all the materials to be supplied against this contract. Use of spare modules covered under the Schedule of material of this tender shall not be permitted to be used during installation, commissioning and period of maintenance supervision.

4.A.2.5.3 To summarize, the total period of warranty as per BDS in Chapter-5, will comprise of first 12 months of Maintenance Supervision (after issue of PAC) extendable by RailTel for reasons as explained, as per para 2.5 above, post which FAC will stand issued. Issue of FAC will be followed by 24 months of warranty as per para 4.A.2 & 4.A.2.4 above.

4.A.3. Long Term Maintenance Support (AMC)

4.A.3.1 Bidder (OEM) shall provide maintenance support after successful completion of the warranty obligations for a minimum period of 5 years (SOR item no. C (1). The long term maintenance support shall be comprehensive and include all hardware and software of equipment, VMS, NMS etc. supplied against this contract. RailTel should be extended the benefits of software update/up-grades made by OEM on the system from time to time to improve performance. During this period the scope of work as mentioned in clause 4.A.2 above & its sub clauses will be applicable.

4.A.3.2 Bidder/OEM (through its Indian subsidiary), shall be paid @ 3.5% of contract cost Schedule (A + B) per annum towards Long Term Maintenance Support after completion of warranty period, to undertake repairs/replacements of all type of equipment/module/ card/assembly/ subassembly and update/upgrade of software released during this period and /or which may fail in the system after the warranty. Only incremental cost in % over and above this, if perceived by the OEM and bidder, may be indicated in Schedule of Requirement and shall be added towards evaluation of tender. If however the bidder feels that his AMC Cost is less than 3.5% per annum, he should give suitable discount in equipment pricing. For AMC he will be paid @ 3.5% per annum only. If the bidder quotes a higher base rate for AMC, he will be paid at his quoted rate per annum and five year differential cost shall be added to offered cost for evaluation. AMC would have to be valid for minimum period of 5 years after the warranty.

In case a bidder quotes AMC rates lower than 3.5%, no advantage will be given to him/her for evaluation purposes. In case the bidder wins the contract his cost against

supply items will be reduced by differential (w.r.t. 3.5%) of AMC rates & he will be paid accordingly against the cost of supply. AMC charges to him, however, be paid only @ 3.5% per annum.

4.A.3.3 Separate agreement for AMC after warranty period shall be entered with OEM by RailTel. A fresh Bank Guarantee for a value of 10% of the value of the AMC contract's 5 years value valid for a period of 64 months (4 months beyond the AMC period of 5 years) from the date of issue of LOA shall be required to be submitted by OEM/ bidder for due fulfillment of long term maintenance support obligation.

4.A.3.4 Bidder shall keep L1 Support engineer in Field (one engineer/200 cameras) and one L2 Support engineer (Network, server & storage) at the Division HQ. The Field engineer will visit the total installation once in every month or earlier if the situation so warrants with the provision that monthly/quarterly reports of the failures and health of the equipment shall be prepared and submitted to the Purchaser. Bidder may also require to engage additional manpower on case to case basis for proper operation & support of the system. The bidder shall arrange the suitable replacement in case the assigned support engineer goes on leave or is unavailable due to any other reason to ensure uninterrupted support services.

The bidder/contractor shall be paid additionally for manpower over and above AMC charges at the rates specified in the Schedule-B under manpower support.
Additional manpower if considered necessary shall be provided by contractor to stabilize the network.

4.A.3.5 Quarterly payment for AMC Charges would be made by RailTel/REL after successful completion of AMC Services of that quarter and on the certificate furnished by concerned RailTel/REL representative of the Executive Director of the Region.

Note: The acceptance of the above clause is mandatory and specific acceptance from OEM is required to be enclosed as per Form no.3. Any deviation /non acceptance will lead to rejection of the bid summarily.

4.A.4 Delivery/Implementation timelines

The time period for Design, Supply, Installation and Commissioning shall be 18 months from the date of award of the Contract (LOA). The above time period has been divided into four phases, and, timelines for each phase are as under:

Phase.	Completion Target	Deliverable	Timeline in Months (M= Award of LOA)
I.	1 Division	Submission of Final Design Document for each station of divisions identified under Phase-I after doing site surveys for approval and complete due diligence along with mobilization of equipment, materials etc. required	M + 1
		Completion of Installation, Testing and Commissioning of VSS at all stations of 1 Division identified under Phase –I	M + 3
II.	4 Divisions	Submission of Final Design Document for each station of divisions identified under Phase-II after doing site surveys for approval and complete due dili-	M + 4

		gence along with mobilization of equipment, materials etc. required	
		Completion of Installation, Testing and Commissioning of VSS at all stations of 5 Divisions cumulatively identified till Phase –II	M + 8
III.	4 Divisions	Submission of Final Design Document for each station of divisions identified under Phase-III after doing site surveys for approval and complete due diligence along with mobilization of equipment, materials etc. required	M + 9
		Completion of Installation, Implementation, Testing and Commissioning of VSS at all stations of 9 Divisions cumulatively identified till Phase–III	M + 13
IV.	5 Divisions	Submission of Final Design Document for each station of divisions identified under Phase-IV after doing site surveys for approval and complete due diligence along with mobilization of equipment, materials etc. required	M + 14
		Completion of Installation, Implementation, Testing and Commissioning of VSS at all stations of 14 Divisions cumulatively identified till Phase–IV	M + 18

All timeline calculations are from the date of award of contract. Bidders need to share their detailed project plan as per the schedule mentioned above

4.A.4.1 The first phase of deliverable (within 3 months) also includes a Pilot in the division of a region (division to be decided by RailTel) and only after approval from the Indian Railways/RailTel, bidder shall be allowed to implement the solution further.

4.A.4.2 In case the Pilot is declared unsuccessful, either on the basis of delay in implementation and/or on the basis on inability to adhere to the functional and operational requirements of the System as stated in this RFP, RailTel will be within its right to take measures as detailed in Terms and Conditions of the Contract.

4.A.4.3 Road permit will be facilitated by REL and shall issue necessary request letter etc.

4.A.4.4 RailTel Region's Details:

SN	Region	Head Office	Address
1	Northern Region	New Delhi	Executive Director 6th Floor,IIIrd Block,Delhi Technology Park,Shastri Park,Delhi-110053 Fax: +91-11-22185978 Tel: +91-11-22185933 Email: suresh@railtelindia.com
2	Eastern Region	Kolkata	Executive Director 3rd floor, Chatterjee International Centre, 33A, Jawaharlal Nehru Road, Kolkata - 700071 Fax: +91-33-44041499, Tel: +91-33-44041499, Email: pradeep@railtelindia.com

SN	Region	Head Office	Address
3	Secundrabad Region	Secunderabad	Regional General Manager 2nd Floor, B-Block, Rail Nilayam, Secunderabad-500071. Fax: +91-40-27820682, Tel: +91-40-27821134 Email: pvs@railtelindia.com
4	Western Region	Mumbai	Executive Director Western Railway Microwave Complex, Senapati Bapat Marg, Mahalaxmi, Mumbai-400013 Fax: +91-22-24923913, Tel: +91-22-24923907, Email: bstahim@railtelindia.com

4.A.4.5 Project Preparation

4.A.4.5.1 The successful bidder shall develop a project charter and submit it to RailTel in both hard and soft copies (2 copies of each) before the commencement of the project. The same shall be approved by RailTel.

4.A.4.5.2 The project charter must necessarily include the following components:

- Brief project description
- Approach and methodology for the optimum use of cameras and other equipments as per the scope of work.
- Detailed Project Plan with timelines
- Detailed activity description with resource requirement, roles and responsibilities of each resource
- Detailed Resource/Project Team Deployment plans
- Project milestones
- Project organization
- Risks and mitigation plans
- Dependencies

4.A.4.5.3 The Project team comprising key positions and number of people with their planned staffing on the project needs to be developed separately and the same shall be approved by RailTel.

4.A.4.5.4 The proposed Project Team shall not change any member of the Project Team during the implementation phase of the project ; Any exceptions need to be approved by RailTel.

4.A.4.5.5 Successful bidder is expected to mobilize the team and set-up the PMO within 30 days from the date of award of contract.

4.A.4.5.6 Indicative profiles and minimum requisite work-experience of all key personnel also needs to be submitted to RailTel.

4.A.4.6 Design and approval phase

4.A.4.6.1 Submission of Design Document for proposed video surveillance system indication all the components of the VSS system including cameras, servers, storage, switches, video surveillance software, routers etc. for RailTel's approval

4.A.6.2 The successful bidder shall ensure following during the design and approval phase

- Documentation of all required approvals and necessary documents

- Identification and concurrence on all support required from RailTel
- Documentation of to-be state in consultation with RailTel
- System requirement specification document

4.A.4.6.2 Successful bidder is expected to conduct workshops, give detailed presentations on the proposed solution which will include the way forward, detailed timelines and any other specific recommendation

4.A.4.7 Installation, Configuration and Customization

4.A.4.7.1 The successful bidder shall conduct a detailed study of functional and technical requirements of the Video Surveillance System work to make the required system configuration and design modifications to its solution if required in order to achieve the desired functionality. However the same must be tested, accepted and approved by RailTel/Railways

4.A.4.7.2 Installation and commissioning of software, hardware and equipment as per proposed solution

4.A.4.7.3 Carry out all the customization/configuration activities as identified during Design phase.

4.A.4.7.4 RailTel/Railways reserves the right to seek customization to meet its requirements.

4.A.4.8 Go-Live

4.A.4.8.1 System would be considered go-live for a particular division only when the whole system is operationalized and all the solution components proposed by the successful bidder are running smoothly in all the stations within a division.

4.A.4.8.2 The successful bidder is required to undertake the following before 'Go Live'

- Establishment of Command/Monitoring Centres
- Review the health, usage and performance of the system till its stabilization
- Ensure resolution/documentation of all issues raised during implementation
- Complete final configuration / integration, volume and stress testing

4.A.5. Payment Terms

4.A.5.1 Payment Terms for items supplied under Schedule - A

4.A.5.1.1 Payments will made on the divisional level for the material supplied against Schedule – A in stages for various items supplied either in partial or full quantity.75% payment of the items would be made on receipt of material by the consignee duly inspected and on submission of the following documents subject to any deductions or recovery which RailTel/REL may be entitled to make under the contract:

- Invoice
- Delivery Challan

- Excise Gate pass/Excise Invoice (wherever applicable)
- Packing list.
- Factory Test Report.
- Consignee receipt
- Warranty certificate of OEM
- Insurance certificate
- Inspection certificate
- A certificate duly signed by the firm certifying that equipment/ materials being delivered are new and conform to technical specification or RDSO inspection certificate wherever applicable.

4.A.5.1.2 In case payment is to be made in foreign currency, **75%** of the value of imported equipment/materials would be paid through irrevocable Letter of Credit (LC) on submission of the following documents:

- Bill of Lading/ Air Way Bill.
- Invoice in triplicate & should also indicate CIF value.
- Packing list.
- Factory Test Report.
- Purchaser's Inspection Certificate.
- Certificate of country of origin authenticated by the chamber of commerce.
- Insurance certificate.
- Inspection certificate
- Warranty certificate of OEM
- A certificate duly signed by the firm certifying that equipment/ materials being delivered are new and conform to technical specification.
- A certificate duly signed by the firm certifying that the equipment/ materials being delivered are complete in all respect for the concerned items for which the payment is being released.

If the payment is required through LC, Bank charges in India will be borne by RailTel, while those outside India by the bidder. All Charges at both ends for LC modifications will be borne by the party requesting the changes.

4.A.5.1.3 10% payment of the value of items of Schedule – A shall be made by RailTel/REL on installation & commissioning of station/site, 5% payment upon bringing the site on the NMS/VMS at the Divisional HQ, 5% payment on issue of Provisional Acceptance Certificate (PAC) and the last 5% payment shall be made by RailTel/REL on issue of Final Acceptance Certificate (FAC) which will be issued by respective Executive Director of the concerned region. In case of foreign currency, payment will be paid through TT/Wire Transfer (SWIFT) from Corporate Office.

(10% + 5% + 5%) payment of value % of items of Schedule – A which could not be installed for want of site readiness or as per the decision of Executive Director of the region, will be made on issue of PAC and remaining 5% on issue of FAC .

4.A.5.1.4 Accounting unit/bill passing unit for the supplies under SOR is respective Executive Director of the Region. Bills to be submitted to the Executive Director of the concerned Region for certifying receipt of material & services, for passing for payment.

4.A.5.1.5 Form "C" shall be issued for respective stations, if required, by M/s RailTel Enterprises Ltd. only.

4.A.5.1.6 The breakup of taxes has to be furnished and same should be reflected in the bills so that any CENVAT/input credit can be availed by RailTel/REL.

4.A.5.2 Payment of Services Items (Schedule – B)

4.A.5.2.1 85% payment of Schedule – B items (except those mentioned in paras below) shall be made **by respective Executive Director of the Region** on successful Installation, Testing and Commissioning of the station/site, 5% payment upon bringing the site on NMS/VMS at Divisional HQ, 5% on issue of PAC and final 5% on issue of Final Acceptance Certificate.

4.A.5.2.2 Payment of SOR item towards "Training of personnel over and above the on-site training during the installation, maintenance and supervision period as detailed in the tender document" shall be made **by respective Executive Director of the Region** on successful completion of specified trainings.

4.A.5.2.3 Payment of SOR item towards "Technical manpower support during warranty period" would be made quarterly **by respective Executive Director of the Region** after satisfactory performance of engineers and on certificate furnished by concerned RailTel's representative of the Region.

4.A.5.3 Payment of Services (Long Term Maintenance, AMC)

4.A.5.2.4 Payment of SOR item towards "AMC/Long term maintenance Support" would be paid quarterly by the concerned Region after satisfactory completion of AMC Services of that quarter and on certificate furnished by concerned RailTel/REL's representative of the Region.

4.A.5.4 All the invoices raised by the bidder will be raised in the name of M/s RailTel Enterprises Limited and corresponding payments will be made by RailTel/REL.

4.A.5.5 Since, this tender is being invited for and behalf of Indian Railways, therefore, all Payment made by M/s RailTel Enterprise Limited may be regulated on the basis of funds provided by Ministry and may be released to bidder based on progress of the work.

4.A.6 Performance Bank Guarantee (Security Deposit)

4.A.6.1 The bidder is required to submit a Performance Bank Guarantee (PBG) within 30 days of the issue of LOA as per BDS (chapter-5) for the satisfactory performance of materials covered in SOR given in Chapter 2 valid for a period of 4 months beyond warranty period. The earnest money shall be released on submission of PBG. The Proforma for PBG is given in Chapter 6 Form No. 1. If the delivery period gets extended, the PBG should also be extended appropriately.

Extension of time for submission of PBG beyond 30(thirty) days and up to 60 days from the date of issue of LOA may be given with the approval of contract signing authority. However, a penal interest of 15% per annum shall be charged for the delay beyond 30(thirty) days, i.e. 31st day after the date of issue of LOA. In case the contractor fails to submit the requisite PBG even after 60 days from the date of issue of LOA, the contract shall be terminated duly forfeiting EMD and other dues, if any payable against that contract. The failed contractor shall be debarred from participating in re-tender of the work.

4.A.6.2 The Performance Bank Guarantee (security deposit) will bear no interest.

4.A.6.3 This PBG would be released after satisfactory completion of contract including warranty period and only after submission of 10 % PBG towards AMC as per clause 3.3 of Chapter 4.

4.A.6.4 The contractor is required and sign agreement with RailTel for the project along with the submission of PBG.

4.A.7. Taxes & Duties

4.A.7.1 The price quoted in the offer should be firm, fixed indicating the breakup and inclusive of all taxes & duties like import, custom, C.V.D., Anti-Dumping duty(if any), ED & sales tax, VAT,. The offer should be inclusive of packing, forwarding, freight upto destination, insurance charges.

4.A.7.2 The Octroi / entry tax shall be paid extra as per actual on production of proof of payment / document.

4.A.7.3 Anti-Dumping duty if applicable on the equipment proposed to be supplied by OEM/Bidder as per extant instructions of Ministry of Commerce/Finance Government of India, has to be borne by the bidder and shall be deducted from the amount payable to the contractor at the time of making payment to the firm, if this duty amount is paid to Custom Authority by RailTel.

4.A.7.4 The imposition of any new and/or increase in the aforesaid taxes, duties levies (including fresh imposition of any other Tax like Goods and Service Tax-GST) is imposed by Statute, after the last stipulated date for the receipt of tender including extensions if any and the bidder thereupon necessarily and properly pays such taxes/levies/cess, the bidder shall be reimbursed the amount so paid, provided such payments, if any, is not, in the opinion of bidder attributable to delay in execution of work within the control of bidder. The bidder shall, within a period of 30 days of the imposition of any such further tax or levy or cess, give a written notice thereof to Railtel that the same is given pursuant to this condition, together with all necessary information relating thereto. In the event of non-payment/default in payment of any of the above taxes, Railtel reserves the right to with-hold the dues/payments of

bidder and make payment to local/state/Central Government authorities or to labourers as may be applicable.

4.A.7.5 After imposition of GST as explained in para 7.4 above, bidder shall issue cenvatable invoice to RailTel for availing proper credit of CGST/SGST/IGST. GST will not be reimbursed in the absence of cenvtable invoice.

4.A.7.6 In the event of decrease / relaxation and / or waiver of any of the existing / prevailing taxes), duties, levies, cess by Central /State Govt. Or any other statutory body(ies), after the last stipulated date for the receipt of tender including extension (if any), and the bidder thereupon has been paid or has raised claims of such taxes), duties, levies, cess; such sums shall be recovered / deducted (from claims raised but which has not been paid) effective from the date as reckoned in the relevant statutory order / law / ordnance etc. The bidder, shall, within a period of 30 days of any such waiver/relaxation/decrease in taes), duties, levies, cess, give a written notice thereof to Railtel stating the statutory change with documentary proof thereto. Provided always that Railtel shall have full powers to effect recovery/deduction on account of any such statutory change even if bidder has not intimated in the event when any such statutory action comes to his notice.

4.A.8 Service Level Agreement (SLA) and Penalties

4.A.8.1 The purpose of this Service Level Agreement (SLAs) is to define the level of service to be provided by the successful bidder to RailTel for the duration of this contract. The successful bidder has to comply with all SLAs defined below to ensure adherence to project timelines, quality and availability of services. Non-compliance of SLAs will lead to penalties as defined in subsequent section and the SLAs would remain valid for the entire duration of the contract.

4.A.8.2 Penalties shall not be levied on the successful bidder in the following cases:- a) Non-compliance of SLAs has been solely due to reasons (acceptable to RailTel) beyond the control of the successful bidder and b) There's a Force Majeure event affecting the SLA which is beyond the control of the successful bidder

4.A.8.3 The installed system as part of the solution is expected to remain operational for 24 hours per day.

4.A.8.4 The contractor must ensure the up-time off at least 95% for the entire system being offered as part of video surveillance solution, upto the end of the AMC period of 5 years. The up-time would be monitored and calculated on the monthly basis and no relaxation or consideration would be made for the non-availability of the back-up/stand-by system.

4.A.8.5 Down time is defined as the duration for which the system as a whole or any part of it is not available for the purpose it is installed for. Down time will be reckoned from the time contractor or his representative has been informed by the means of Telephone/mobile, fax, email or any other method at the address as specified by the contractor. The bidder shall specify the details of a) Telephone no. for calling, b) Fax no., c) Mobile no. for calling & SMS, d) e-mail id, e) postal address for correspondence. Non-availability of back-up/stand-by system shall also be counted for down-time calculation.

4.A.8.5.1 Down time will not be considered for which prior approval of RailTel/Railways authorities are taken in writing for preventive maintenance

4.A.8.6 For any specific camera location, the down time should not be more than 12 hours per day. In case the down time exceeds more than 12 hours then Rs.500 per day or part thereof would be deducted for each day for each camera until the failure is restored at the reported location.

4.A.8.6.1 This camera location downtime shall include the service disruptions caused due to reasons including but not limited to camera failures, networking device failures, UPS failures, electricity circuit breakdown (excluding AC Mains outage) or data network break down.

4.A.8.7 For any workstation unit at any monitoring center location, the down time should not be more than 12 hours per day. In case the down time exceeds more than 12 hours then Rs.500 per day or part thereof would be deducted for each day for each workstation until the failure is restored at the reported location.

4.A.8.7.1 This workstation unit location downtime shall include the service disruptions caused due to reasons including but not limited to screen failures, workstation failures, networking device failures, UPS failures, software failures or data network break down.

4.A.8.8 In case of any failure at divisional headquarter, the down time should not be more than 6 hours per day. In case the down time exceeds 6 hours then Rs.1000 per hour or part thereof would be deducted for every hour taken in excess to rectify the report failure at divisional headquarter location

4.A.8.8.1 This camera location downtime shall include the service disruptions caused due to reasons including but not limited to server failures, storage system failures, software breakdowns, networking device failures, UPS failures, electricity circuit breakdown or data network break down.

4.A.8.9 Further in order to ensure the safe and secure access to the network the contractor must ensure that for any firewall and IPS failure at divisional headquarter monthly down time for security services should not be more than 12 hours per day. In case the down time exceeds 12 hours then Rs.500 per day or part thereof would be deducted until the report failure is not rectified at divisional headquarter location

4.A.8.10 Response to an incident call will include sending a notification to the person raising the call, either through email or on phone, acknowledging the call and informing him/her of the expected resolution time for the call. Response to call tickets is calculated on respective service window and should be lesser than 60 minutes. The contractor is expected to log and respond to 98% of all the incident calls registered within the stipulated time frame. If contractor fails to maintain the above mentioned compliance ratio, then for each non- compliant response to incident call exceeding 2% margin would lead to the deduction of Rs.100.

4.A.8.11 No payment for the month would be made for the station where the station down time observed would be more than 20%. Down time for station would be defined as follows:

a) For A-1 category station, the station would be considered as down for the time when more than 15 cameras are defective or out of service

b) For A category station, the station would be considered as down for the time when more than 12 cameras are defective or out of service

c) For B category station, the station would be considered as for the time when more than 8 cameras are defective or out of service

d) For C category station, the station would be considered as down for the time when more than 5 cameras are defective or out of service

4.A.8.12 Annual Maintenance Charges shall be paid on quarterly basis at the end of the quarter, subject to the deduction for the down time mentioned above.

4.A.8.12.1 SLAs will be monitored and reported on monthly basis to RailTel by the 5th working day of each month.

4.A.8.12.2 Penalties shall be calculated and is to be deducted from the Annual Maintenance Charges on quarterly basis

4.A.9 Manpower Support

Bidder shall keep L1 Support engineer in Field (one engineer/200 cameras) and one L2 Support engineer (Network, server & storage) at the Division HQ, who will visit the total installation at least once in every month or earlier if the situation so warrants with the provision that monthly reports of the failures and health of the equipment is generated from the NMS and is made available jointly signed by contractor and RailTel Official. The bidder shall arrange the suitable replacement in case the assigned support engineer goes on leave or is unavailable due to any other reason to ensure uninterrupted support services.

4.A.9.1 Responsibility Matrix of appointed engineer:

4.A.9.1.1 L1 support engineer (Field): L1 engineers appointed in field shall perform following duties

1.	Providing hands and feet support in field for fixing reported incidents
2.	Provide Network Health surveillance and alarm reporting
3.	Coordinating with Divisional Level Engineers to ensure fault free network
4.	Ensuring completion of upgrade/change activities as required
5.	Monthly station visit with necessary tools and equipment to check all the hardware, software, peripheral instruments installed
6.	Logging incident calls and tickets from field with respective OEMs
7.	Follow up with the concerned OEM and engineer to resolve the incident
8.	Coordinate and liaise with OEM/Vendor engineers visiting site for issue rectification
9.	Monitoring installed IT infrastructure/application and alerting concerned person in case of any damage or misconduct
10.	Conducting day to day operations as per the procedures defined by RailTel

L2 support engineer (Divisional HQ): L2 engineers appointed at the Divisional Level shall perform following tasks

4.A.9.1.2 General Responsibilities

1.	Alarm monitoring at the network management platform including hardware and software alarms
2.	Filtering of alarms based upon service affecting categories and/or predefined alarm reaction lists.

3.	Advising field support Engineers for corrective action to be taken.
4.	Network Management misbehaviors and malfunctions.
5.	Support from NMS for all planned activities.
6.	Generating a Service request to respective vendor for further Activity
7.	Follow up with vendor and field engineers to resolve the network issues
8.	Escalation to respective managers for long pending network issues and opened service request with vendor.
9.	Generation of weekly report for all service requests opened/closed with vendor
10.	Diagnose and work to correct system troubles identified at RailTel's site using the resources made available by RailTel, implement and restore if appropriate and feasible.
11.	Conduct day to day operation in accordance to RailTel recommended procedures.

4.A.9.1.3 Server Management:

1.	Performing management of Servers for in-scope application/system
2.	Setting of key monitoring parameters from availability point of view i.e. System performance monitoring, tuning, server utilization, scheduling and optimizing the services running on server etc.
3.	Managing physical system elements (servers, backup devices) including configuration and maintenance tasks
4.	Managing local systems components, such as operating systems and their configurations
5.	Managing asset register for all server equipment. Record information such as serial number, asset code, warranty, AMC details etc. for in-scope applications
6.	Planning for patch release and upgrades
7.	Any other activities pertaining to server management and maintain SLA's

4.A.9.1.4 Database Management

1	Performing database maintenance
2	Defining and installing the physical database design (log files, rollback segments, table-spaces, database descriptors)
3	Creating definitions of logical data structures, tables, views, indexes, program specification blocks, stored procedures and define their relationships
5	Setting data storage parameters for storage associated with the physical elements of the database
6	Estimating and recommending storage requirements
7	Analyzing alerts
8	Any other activities pertaining to database management and maintain SLAs

4.A.9.1.5 Storage Management

1	Backup Administration - Manage and monitor backup activities

2	Handling service requests on backup (if any)
3	Generating daily/weekly/monthly report on the backup as per agreed policy
4	Any other activities pertaining to storage management and maintain SLAs

4.A.9.1.6 Change and Release Management

1	Planning and scheduling change and release request as per defined SLA norms
2	Ensuring all changes made are approved and adhere to strict Request for Change (RFC) policies
3	Maintaining and updating trusted configurations to ensure a smooth release process
4	Performing post implementation review and documented closure for all changes and tracking all changes implemented
5	Performing virus pattern updation within agreed time period of new release at the vendor site and cleaning of end user systems
6	Implementing advisory/alerts from vendors, OEM, expert/special interest groups, across in-scope hardware and software, reported.
7	Documenting complete change management/release management process as defined by RailTel
8	Any other activities pertaining to change and release management and maintain SLAs

4.A.9.1.7 Security Management

1	Managing and monitoring of system to protect from -virus, phishing and malware for managed resources. Virus should be removed or system should be isolated from the network successfully within agreed time from the time of detection of virus at that designated target system.
2	Ensuring 100% antivirus coverage with patterns not old more than period agreed on in-scope system
3	Reporting security incidents to co-ordinate for resolution
4	Performing Virus pattern updation within agreed time period of new release at the OEM site
5	Performing patch management for antivirus for in-scope system
6	Performing vulnerability scanning of all servers/devices (in-scope), which are IP Based. Vulnerability assessment report should be share with RailTel every Quarter.
7	Testing and implementation of patches and upgrades
8	Any other activities pertaining to security management and maintain SLAs

4.A.9.1.8 Application management

1	Performing vendor/OEM interaction for resolving application related issues
2	Performing performance tuning of applications
3	Performing Access Management
4	Performing periodic review of access
4	Performing patch updates and software updates for application
6	Any other activities pertaining to application management and maintain SLAs

4.A.9.1.9 Network Management

1	Ensuring availability of resource capacity by monitoring network elements
2	Correcting traffic problems in the network environment, such as traffic congestion or network corruption
3	Troubleshooting communication disruptions and working with vendors to resolve the issues
4	Reviewing logs daily of significance such as abnormal traffic, unauthorized penetration attempts, any sign of potential vulnerability, Security alerts and responses. Proactive measures in the event a problem is detected
5	Performing policy management (firewall users, rules etc.)
6	Network /device hardening procedure
7	Troubleshooting firewall/IPS hardware related issues and coordinating the replacement of hardware
8	Implementing and maintaining of security rules
9	Rapidly resolving every incident/problem and ensuring adherence to SLA
10	Ensuring availability of critical network spares
11	Performing backup of all network spares
12	Disabling/enabling service/ports
13	Performing any other day-to-day administration and support activities

4.A.9.1.10 General Terms and Conditions Applicable

i) The selection of the Engineer will be done by Contractor jointly with RailTel. RailTel will nominate their officer/s for interviewing the candidates.

ii) The Engineer must be equipped with all necessary facilities/equipments such as Laptop, mobile telephone, data card, Internet connection; conveyance accommodation etc.

iii) The prices quoted in SOR do not include any travel/boarding & lodging expenses outside of the working headquarter (decided by RailTel).

iv) In case of requirements from contractor to log in to the system remotely, RailTel would provide adequate data communications facilities, remote access, telephone and modem connections, all in accordance with RailTel's Security policies and procedures, as may be necessary for the proper performance of contractor's obligations.

v) In case of unsatisfactory service, the Engineer will be withdrawn and replaced by a suitable one with a clear notice of 15 days.

4.A.10. Insurance

4.A.10.1 The Contractor shall take out and keep in force a policy or policies of insurance from the date, the delivery of material starts (including the transit portion) against all liabilities of the Contractor or the Purchaser. The contractor shall take out and keep in force a Policy or policies of Insurance for all materials covered in schedule of requirement irrespective of whether used up in the portion of work already done or kept for the use in the balance portion of the work until such material are provisionally handed over to RailTel. The goods will be issued by purchaser to supplier and risk of goods shall remain with supplier until the issue of PAC by RailTel/REL. Insurance policy has to be kept valid by the contractor till issue of PAC by RailTel/REL.

4.A.10.2 The Contractor should insure the stores brought to site, against risks in consequence of war and invasion, as required under the Emergency Risk (Goods) Insurance Act in force from time to time.

4.A.10.3 It may be noted that the beneficiary of the insurance policy should be RailTel/REL or the policies should be pledged in favor of RailTel/REL. The contractor shall keep the policy/policies current till the equipment are installed and commissioned on the site. It may also be noted that in the event of contractor's failure to keep the policy current and alive, renewal of policy will be done by purchaser for which the cost of the premium plus 20% of premium shall be recovered from the contractor.

4.A.11. Liquidated Damages

The timely delivery is the essence of this tender. Liquidated damages will be applicable at the rate of half percent per week or part thereof for undelivered portion of SOR subject to a maximum of 10% of the cost of Purchase order/LOA for any reason whatsoever attributed to failure of bidder. RailTel will have the right to cancel the order, place order on alternative source besides levying the liquidated damages as above.

4.A.12. Transportation

The rates quoted should be CIP destination. The destination shall be defined POP / nominated office of RailTel in the proposed sections which shall be indicated by RailTel's representative.

4.A.13. Statutory Deduction

These will be made at source as per the rules prevalent in the area of work.

4.A.14. Qualification Criteria

Qualifying criteria under this clause lays down minimum acceptable qualifications in various areas to ensure that qualified bidder has necessary experience, technical expertise, equipment and financial and human resources to successfully complete the project. Bids from bidder not meeting these qualification criteria shall be summarily rejected. Bids from the consortia of tenderers and Joint Ventures meeting the below defined Qualification criteria would also be considered for award of work, for more details on the consortium bids please refer to Annexure-III of Chapter 7.

Eligibility Criteria Requirements for Bidders:

S.No	Basic Requirement	Eligibility Criteria Requirements	Supporting Document Required
1.	**Legal Entity**	The bidder should be Original Equipment Manufacturer (OEM) Camera/Server/Storage (as indicated in Bid Data Sheet (BDS) of Chapter 5) for at least past three years in the country from where the proposed	• Certificate of Incorporation / Registration • Proof of supply of equipment or • Certificate of Incorporation / Registration • MoA and Purchase Orders for

		equipment are planned to be supplied. The OEM should have proven facilities for Engineering, manufacture, assembly, integration and testing of VSS system and basic facilities with respect to space, Engineering, Personnel, Test equipment, Manufacture, Training, Logistic Supports for at least past three years in the country from where the proposed equipment are planned to be supplied. or The bidder should be a Company registered in India under the Companies Act (India) with their registered office in India should have been operating in the System Integration services for the last three years	System Integration Services for last three years i.e. 2013-14, 2014-15 and 2015-16.
2.	**Statutory Tax Compliance**	The bidder should submit valid documentary proof of Sales Tax/VAT registration number and the details of income tax registration (PAN).	• Copy of Sales Tax / VAT registration • Copy of Pan Card
3.	**Financial Capability**	The bidder should have received a minimum cumulative contract amount INR 149.69 crores from the Security/IT/Telecom business in the last three financial years plus current year.	• Audited Financial Statements for the financial year 2013-14, 2014-15, and 2015-16. • Provisional Balance Sheet duly certified by CA may be provided for the year 2015-16 in case the audited balance sheet is not available.
4.	**Financial Capability**	The bidder should have a positive average net worth* for the last 3 financial year	• Audited Financial Statements for the financial year 2013-14, 2014-15, and 2015-16. • Provisional Balance Sheet duly certified by CA may be provided for the year 2015-16 in case the audited balance sheet is not available
5.	**Experience in Video surveillance**	The bidder should have completed	• Completion certificates from the User Organizations is required to be submitted **AND**

		a.) At least one similar work[#] worth of INR 34.92 crores in last three financial years plus current year OR b.) Two similar works# worth of INR 19.95 Crores each in last three financial years plus current year OR c.) Three similar works# worth of INR 14.96 Crores each in last three financial years plus current year	• Past Experience Form as per Form No.19 of Chapter 6.
6.	**No Black listing**	The bidder should not have been black-listed currently by Central Govt./State Govt./CPSU in India. Bidder must certify to that effect and must not be involved in any litigation with RailTel and/or Indian Railways	• Self- Declaration by the Bidder on Company's letter head
7.	**Process Standardization**	The bidder should be a certified ISO 9000/9001 certified company	• Relevant Organizational Level Certificates to be provided
8.	**O&M Capabilities**	The bidder should give an undertaking for setting up a technical support centre within 3 months in every zone of respective Railways of the tender concern (Annexure-I of Chapter 7)	• An undertaking to this effect specifying the location, address and contact number of such technical support centre/Offices(s) must be submitted on bidder's letterhead within 3 months from award of tender.
9.	**Bidder Type**	The bidder should be an OEM or authorized partner of OEM for supply of licenses/commercial support and solution implementation and maintenance support under warranty/ AMC/commercial support, for the products (Camera, VMS, Network Devices, LED displays, Servers and Storages) required to implement the video	• Authorization Letter by OEM • OEM undertaking to sign MoU/Teaming Agreement with SI

		surveillance solution. The OEM should provide an authorization letter undertaking to abide by the warranty and AMC terms of the equipment supplied by the OEM. OEM should also give a certificate for giving the support for the products for this work for the entire period of contract including warranty and AMC period (8 years) in case the partner leaves the project or not in a position to give support.	

* Net Worth of the company: Net Worth of the company would be computed as on 31st March 2016 as the summation of share capital, reserves and surpluses less accumulated losses held by the company for that particular year.

Similar Work: Works entailing completion of Supply, Installation, Testing and Commissioning of a project comprising of Integrated IP based cameras including remote monitoring and centralized monitoring of multiple locations, for central government or any state government or semi/quasi-government entities or Public Sector Units or private enterprises having turnover of at least 500 crores/listed company.

Further, the OEM's (of camera/server/storage) whose products are proposed to be used in this video surveillance system deployment should meet following criteria -

S.No.	Eligibility Criteria Requirements	Supporting Document Required
1.	OEM(s) should have either direct presence in India or through their authorized registered partner in India. They should have global or Indian Technical Support Centre or should give an undertaking for setting up a Technical Support Centre in India within 3 months after award of contract.	• Certificate of Incorporation / Registration (for Indian TSC) • Copy of Sales Tax / VAT registration (for Indian TSC) • Copy of Pan Card (for Indian TSC) • Details of Address and support phone number for Global Technical Support Centre. Or • Bidder should give an undertaking for setting up a TSC in India within three months after the award of contract
2.	The OEM(s) whose products have been offered in the bid should have a minimum cumulative turnover of INR1000 crores for OEMs supplying camera & accessories and INR5000 crores for OEMs supplying IT hardware (storage	• Audited Financial Statements for the financial year 2013-14, 2014-15, and 2015-16. Provisional balance sheet duly certified by CA may be provided for year 2016-17 in case audited

	and server) in last 3 financial years (i.e. current year and three previous financial years) from the date of opening of tender	balance sheet is not available. • In case of multinational OEMs, their turnover in last three financial years shall be considered as per practice of financial year ending followed by them.
3.	The OEM(s) should be a profit making company and should have a positive average net worth* for the last 3 financial year	• Audited Financial Statements for the financial year 2013-14, 2014-15, and 2015-16. • Provisional Balance Sheet duly certified by CA may be provided for the year 2015-16 in case the audited balance sheet is not available.
4.	The OEM(s) for proposed IP cameras should have supplied for at least one project in a metro or airport worldwide in last 3 financial years	• Undertaking by the OEM to this effect

* Net Worth of the company: Net Worth of the company would be computed as on 31st March 2016 as the summation of share capital, reserves and surpluses less accumulated losses held by the company for that particular year.

Note

i) Purchase orders without relevant organization's confirmation through a credential letter will not be considered as implementation certificate from the client.

ii) For client credentials where NDA has been signed, the bidder may submit the corresponding NDA document along with a self-declaration confirming the requirements of the eligibility criteria for which the NDA is being submitted

iii) If any financial statement is submitted by the bidder in order to substantiate the pre-qualification or the evaluation criteria mentioned in the RFP, for evaluation purpose, B.C. selling Exchange rate of State Bank of India applicable on the date technical bid opening will be considered to derive the corresponding figure in INR (Indian Rupee).

iv) RailTel reserves the right:-

a) To verify, if so desired, the correctness of documentary evidence furnished by the bidder.

b) To verify the successful operation and performance of qualifying projects and bidder shall arrange permission for the same.

c) To carry out capability assessment of the bidder(s) including referral to in-house information.

d) RailTel shall not be responsible for any delay in the receipt of tenders and reserves the right to accept/reject any or all tenders without assigning any reason.

v) In the event of Foreign Original Equipment Manufacturer (OEM), Indian Subsidiary or it's 100% subsidiary fully authorized for bidding on behalf of OEM is allowed to participate with the experience and financial credential of parent company with specific authorization for doing so from the OEM. The specific authorization addressed to RailTel should be submitted by the bidder.

4.A.15. Foreign Exchange & Custom Clearance

4.A.15.1 Foreign exchange and/or import license if required, will be released/ provided to the contractor in connection with this contract. Part of Schedule (for imported items) can be quoted in any of the major foreign currencies viz USD, British Pound, EURO or Japanese YEN etc. In such a case, bidder should clearly specify the components of Foreign exchange and Indian currency for each item.

4.A.15.2 For evaluation purposes, B.C. selling Exchange rate of State Bank of India applicable on the date of technical bid opening will be considered.

4.A.15.3 Release of payments in foreign exchange for imported items to foreign companies shall be made on request of bidder along with the bill and will be governed by payment clause.

4.A.15.4 Bidder while quoting the prices shall include all expenses like custom duty, anti dumping duty etc. leviable (will indicate the current prevalent rates), custom handling charges, storage, transportation, insurance, etc. in the quoted prices.

In case, Custom duty is to be paid by RailTel directly to custom authorities, such custom duty paid by RailTel shall be deducted from the next bill of supplier/bidder. Supplier shall, however, have to undertake custom clearance on behalf of RailTel.

4.A.16. System Performance Guarantee

4.A.16.1. The bidder shall give unqualified and unconditional guarantee that when the equipment / material supplied by him is installed and commissioned at site, it shall achieve the desired objective and that in the event of performance of the system when installed not complying with the end objective or with the specifications, he shall provide further inputs to enable the RailTel to realize the end objectives with full compliance of the specifications contained in these documents. No additional payment will be made to the contractor for supply of any additional goods and service required in this regard.

4.A.16.2. This certificate in the Proforma given in Chapter 6 Form No. 2, shall accompany the final offer. Absence of this certificate which will form part of the agreement shall disqualify the bidder automatically.

4.A.17. Evaluation of Offer

4.A.17.1. In case bids are in Foreign currency, these will be converted to Indian rupees for evaluation purposes taking B.C. selling Exchange rate of State Bank of India applicable on the date of technical bid opening.

4.A.17.2. Additional features offered by the bidder, over and above the ones asked for in the tender documents, shall not be considered for evaluation of bids.

4.A.17.3. The bidder should make available the offered products, if desired during technical evaluation of offered equipment for testing and benchmarking at any testing facility approved by RailTel.

4.A.17.4. The bidders should quote for all items & the offer will be evaluated in totality. The bidders should indicate brand name, type/model number of the products offered. Optional items will not be considered for evaluation of offers. The equipment and software should be supplied as per Technical Specifications given in Chapter-8.

4.A.17.5 The LOA will be issued to the eligible L1 bidder, acceptance to which will be given by the L1 bidder within specified period, falling which the tender's EMD shall be forfeited.

4.A.17.6 It may be noted that RailTel has floated four region-wise tenders for carrying out the in scope work at 983 stations pan India. Generally one bidder will be considered for awarding work in two regions. However this shall be based on his capacity and capability for the works under consideration, the choice of the sections under consideration shall be in overall techno-commercial interest of RailTel.

4.A.18. Security Considerations & Security Agreement

4.A.18.1 While evaluating the tender, regards would be paid to National Defence and Security considerations.

4.A.18.2 The directives issued from time to time by the Department of Telecommunications (DoT), Ministry of Communications and IT or any other Ministry of Govt. of India on security considerations shall be applicable to the present tender.

4.A.19. Purchaser's Right to Vary Quantities

The purchaser shall be at liberty to enhance or reduce the quantity mentioned in the LOA as indicated in Bid Data Sheet (BDS) Chapter 5 without assigning any reasons. The bidder shall comply with such modifications unconditionally provided these are made before completion of the deliveries under the purchase order/LOA. Any such change in quantity shall have no impact on the rates mentioned in the purchase order/LOA for any such item.

4.A.20. Purchaser's Right to accept any offer / Bid and to reject any or all offer/ Bid

4.A.20.1 The Purchaser reserves the right to accept or reject any offer / bid, and to annul the bidding process and reject all offers / bids, at any time prior to award of order without assigning any reason whatsoever and without thereby incurring any liability to the affected bidder or bidders on the grounds for the Purchaser's action.

4.A.21. Annulment of Award

Failure of the successful bidder to comply with the requirement of various clauses of tender document shall constitute sufficient ground for the annulment of the award and forfeiture of EMD in which event the Purchaser may make the award to any other bidder at the discretion of the Purchaser or call for new offers/ bids.

4.A.22. Earnest Money Deposit (EMD)/ Bid Security

4.A.22.1 The bidder shall furnish a sum as given in Bid Data Sheet (BDS) Chapter 5 as Earnest Money in the form of Demand Draft from any scheduled bank in India in favour of "RailTel Corporation of India Limited" payable at New Delhi which should remain valid for 45 days beyond the bid opening date.

4.A.22.2 The EMD may be forfeited if a bidder withdraws his offer or modifies the terms and conditions of the offer during validity period and in the case of a successful bidder, if the bidder fails to accept the Purchase order/LOA and fails to furnish performance bank guarantee (security deposit) in accordance with clause 6.

4.A.22.3 Offers not accompanied with Earnest Money shall be summarily rejected.

4.A.22.4 Earnest Money of the unsuccessful bidder will be discharged / returned as promptly as possible but not later than 30 days after the expiry of the period of offer / bid validity prescribed by the Purchaser.

4.A.22.5 The successful bidder's EMD will be discharged upon the bidder's acceptance of the purchase order/LOA satisfactorily and furnishing the performance bank guarantee in accordance with clause 4.A.6.

4.A.22.6 Earnest Money will bear no interest.

4.A.23. For Micro and Small Enterprises (MSEs)

4.A.23.1 Certain benefits/preferential treatment shall be extended to the registered MSEs as per guidelines issued in the latest notification of Ministry of MSME/ Government of India.

4.A.23.2 MSEs who are interested in availing themselves of these benefits will enclose with their offer the proof of their being MSE registered with any of the agencies mentioned in the notification of Ministry of MSME.

4.A.23.3 The MSEs must also indicate the terminal validity date of their registration.

4.A.23.4 Failing 4.A.23.1 and 4.A.23.2 above, such offers will not be liable for consideration of benefits detailed in the notification of Government of India.

4.A.24. Deleted

4.A.25. Offer/ Bid Prices

4.A.25.1 The bidder shall give the prices indicating all levies and taxes, packing forwarding, freight and insurance etc. The basic unit price and all other components of the price need to be individually indicated against the goods it proposes to supply

under the tender document as per schedule given in Chapter 2. The price shall be quoted in Indian Rupees or in any major foreign currency for the imported items (FOR/CIP destination). Octroi will be payable at actual on production of proof of payment but delivery within Octroi limits must be done only with prior approval of Executive Director of the region.

4.A.25.2 The break-up of price of each item of SOR in terms of basic Unit price, Excise duty, Sales Tax, Freight, Custom Duty, Forwarding, Packing, Insurance and any other Levies/charges already paid or payable by the bidder shall be quoted in the SOR Chapter 2. Bidder has to quote all inclusive rates (with tax break-up). Even after the introduction of GST, Contract Value will be within the all-inclusive rates offered by the bidder. However if rates are reduced in the current tax structure the bidder has to pass on the benefit to RailTel.

4.A.25.3 All prices and other information like discounts etc. having a bearing on the price shall be written both in figures and in words in the prescribed offer form (SOR). In case of difference in words and figures, the amount written in words will be taken into consideration. In the event of any discrepancy between total unit cost and total cost, the value shown in total unit cost will be taken for evaluation purpose.

4.A.25.4 Fall Clause:- The bidder shall undertake that in case the bidder offers same type of material at a lower price to any purchaser including the purchaser, Central/State/ Government Organization or Public Sector Undertaking/Enterprise in India, during the validity of purchase order/LOA, the equal benefit of lower prices will be passed on to RailTel. The bidder will submit an undertaking to this effect while claiming the payment

4.A.26 Clause wise Compliance

4.A.26.1 Clause wise compliance statement of complete Tender Document including Schedule of Requirement(Chapter-2), Technical Specifications (Chapter 3), Commercial Terms & Conditions (Chapter 4), Bid Data Sheet(Chapter-5) and Technical Specifications (Chapter 8) shall be enclosed with the offer along with the technical literature of the material and other documents in support of relevant clauses.

4.A.27 Inspection

4.A.27.1 RDSO specifications are to be followed for the items for which the specifications have been defined by RDSO in the latest version available on the RDSO Website. Any change in the specifications may be noted from website and will be followed. For the items which are not in the RDSO specifications shall be inspected by RailTel as under:

4.A.27.2 Pre-shipment / pre-dispatch inspection shall be carried out at manufacturer's / bidder's works by RailTel's authorized representative. At least part of the material should be offered for inspection within 60 days of issue of confirmed Purchase Order/LOA. Traveling, lodging & boarding expenses of RailTel's representative and charges for 3rd party inspection if any shall be borne by RailTel but necessary facilities to carry out tests/witness inspection shall be provided by the manufacturer/ bidder, free of cost.

4.A.27.3 Along with inspection call, the bidder/manufacturer shall submit details of test procedures, test programme, test parameters together with permitted values, etc., and their Quality Assurance Plan.

4.A.27.4 In case material fails during inspection, the fresh lot of material shall be offered without any extra cost, by the manufacturer/bidder. In such a case, total cost of re-inspection including travel, lodging & boarding of the inspecting officials shall be to manufacturer's/ bidder's account.

4.A.28 Force Majeure

4.A.28.1 If during the Agreement, the performance in whole or in part, by either party, of any obligation under this is prevented or delayed, by reason beyond the control of the parties including war, hostility, acts of the public enemy, civic commotion, sabotage, Act of State or direction from Statutory Authority, explosion, epidemic, quarantine restriction, strikes and lockouts (as are not limited to the establishments and facilities of the parties), fire, floods, earthquakes, natural calamities or any act of GOD (hereinafter referred to as EVENTS), provided notice of happenings of any such EVENT is given by the affected party to the other, within twenty one (21) days from date of occurrence thereof, neither party shall have any such claims for damages against the other, in respect of such non-performance or delay in performance. Provided service under this Agreement shall be resumed as soon as practicable, after such EVENT comes to an end or ceases to exist.

4.A.28.2 In the event of a Force Majeure, the affected party will be excused from performance during the existence of the Force Majeure. When a Force Majeure occurs, the affected party after notifying the other party will attempt to mitigate the effect of the Force Majeure as much as possible. If such delaying cause shall continue for more than sixty (60) days from the date of the notice stated above, the party injured by the inability of the other to perform shall have the right, upon written notice of thirty (30) days to the other party, to terminate this Agreement. Neither party shall be liable for any breach, claims, damages against the other, in respect of non-performance or delay in performance as a result of Force Majeure leading to such termination.

4.A.29 Settlement of Disputes

In case of any dispute concerning this order both the bidder and RailTel/REL shall try to settle the same amicably through mutual discussion/negotiations. Any unsettled dispute shall be settled in terms of Indian Act of Arbitration and conciliation 1996 or any amendment thereof. Place of arbitration shall be New Delhi. Arbitrator shall be appointed by Chairman & Managing Director, RailTel Corporation of India Limited.

4.A.30 Governing Laws:

The LOA shall be interpreted in accordance with the laws of India. The courts at New Delhi shall have exclusive jurisdiction to entertain and try all matters arising out of this contract.

4.A.31 Termination for Default

4.A.31.1 The purchaser may, without prejudice to any other remedy for breach of contract, by written notice of default, sent to the bidder, terminate this contract in whole or in part.

a) If the bidder fails to deliver any or all of the goods within the time period(s) specified in the contract.
b) If the bidder fails to perform any other obligation(s) under the contract; and
c) If the bidder, in either of the above circumstance(s) does not remedy his failure within a period of 30 days (or such longer period as the Purchaser may authorize in writing) after receipt of the default notice from the Purchaser.

4.A.32 Risk & Cost

If the contractor fails to deliver the equipment or honour the contractual commitment within the period fixed for such delivery in the contract, the Purchaser may terminate the LOA/ contract in whole or in part, the Purchaser may proceed to purchase, upon such terms and in such manner as it deems appropriate, goods similar to those undelivered at no risk and cost to contractor. However, the security deposit of bidder shall be forfeited/ Performance Bank Guarantee shall be encashed. The failed bidder shall not be permitted to take part in the tender for balance work.

The Maximum Liability of bidder to any Loss/Damages to RailTel including Liquidity Damages and Performance Guarantee shall be limited to 100% of Value of contract.

4.A.33 Termination for Insolvency

The purchaser may at any time terminate the LOA/Contract by giving written notice to the bidder, without compensation to the bidder, if the bidder becomes bankrupt or otherwise insolvent as declared by the competent court provided that such termination will not prejudice or affect any right of action or remedy which has accrued or will accrue thereafter to the Purchaser.

4.A.34 Rates During Negotiation

The bidder may call the successful bidder for the negotiation for reducing the rates. During negotiation the bidder/s shall not increase his/their quoted rates including payment terms in case the RailTel Administration negotiates for reduction of rates. Such negotiations shall not amount to cancellation or withdrawal of the original offer and the rates originally quoted will be binding on the bidder/s.

4.A.35 Pre- Bid Conference & Clarification Requests

As per clause 4.B.22, chapter-4B of tender document.

4.A.36 Submission of Offers

4.A.36.1 All offers in the prescribed forms should be submitted before the time and date fixed for the receipt of the offers. **Bid submitted with signature by stamp shall be summarily rejected.**

4.A.36.2 In case the schedule of requirement quoted by bidder is incomplete with reference to tender document, the offer is liable to be rejected.

4.A.36.3 ATTESTATION OF ALTERATION: No scribbling is permissible in the tender documents. Bidder containing erasures and alterations in the tender documents are liable to be rejected. Any correction made by the Bidder(s) in his/their entries must be signed (not initialed) by him/them.

4.A.36.4 Not Applicable.

4.A.36.5 The offer shall be submitted in two parts, Part-I - Credential Bid (Techno-Commercial Bid) & Part-II – Price Bid as per instructions given in chapter-4B.

(a) **Part-I "CREDENTIAL BID**"; -The bid shall consist of the following:-

1) Offer Letter complete.

2) Schedule of Requirements with quantities but with prices blanked out (this will be a replica of price bid with prices blanked out) and detailed Bill of Material

3) Earnest Money in prescribed form.

4) Audited balance sheet duly attested by Notary Public.

5) Constitution of Firm and Power of Attorney.

6) Clause wise compliance to tender conditions.

7) Copies of purchase orders and other documents in support of meeting qualifying criteria.

8) Complete technical data and particulars of the equipment offered, as specified in the Tender papers together with descriptive literature, leaflets, Drawings, if any, complete with list etc.

9) Documentary proof of equipment being proven and working for more than 6 months in India or 1 year outside India along with user certificate and Contact Details of user/firm.

10) Technical proposal of bidder in conformity with system requirement of the bidder, if any.

11) System Performance Guarantee as per Chapter 6 Form no. 2

12) The manufacturer claiming to qualify under the scope of rules for PMA (Preferential Market Access) must submit the declaration of VA (Value Addition) as required under the issued notification for the specified period as detailed in BDS. Any Govt. notification on the date of bid submission will be applicable for PMA.

13) Un-priced list of all possible interfaces/ modules/ cards/ etc which the offered equipment can support / required for optimization of the network including syn-

chronization needs, if any, but not ordered by RailTel or not included in the above SOR.

14) Power of Attorney is to be submitted in original.

15) Any Other information desired to be submitted by the bidder.

Note: The Credential Bid Part-I under no circumstances should contain any rates offered. Otherwise the tender offer shall be summarily rejected.

(b) **Part-II "Price Bid"** Shall contain (i) the offer letter (ii) the price bid for "Schedule of requirements" as per part I of Chapter 2 along with "Bill of Material" for each item quoted exactly according to the proforma, as also submitted along with "Credential Bid" as in para 35.5 (a) 2 above.

4.A.37. Constitution of Firm and power of Attorney

4.A.37.1. Any individual(s) signing the tender or other documents connected therewith should specify whether he is signing:-

(a) As sole proprietor of the concern or as attorney of the sole Proprietor.

(b) As a partner or partners of the firm.

(c) As a Director, Manager or Secretary in the case of Limited Company duly authorized by a resolution passed by the Board of Directors or in pursuance of the authority conferred by Memorandum of Association.

4.A.37.2. In the case of a firm not registered under the Indian Partnership Act, all the partners or the attorney duly authorized by all of them should sign the tender and all other connected documents. The original Power of Attorney or other documents empowering the individual or individuals to sign should be furnished to the Purchaser for verification, if required.

4.A.37.3 The RailTel will not be bound by Power of Attorney granted by the bidder or by the changes in the composition of the firm made subsequent to the execution of the contract agreement.

4.A.37.4 In case where the Power of Attorney partnership deed has not been executed in English, the true and authenticated copies of the translation of the same by Advocate, authorized translators of Courts and Licensed Petition Writers should be supplied by the Contractor(s) while tendering for the work.

4.A.37.5 The duly notarized Power of Attorney shall be submitted in original or duly signed.

4.A.38 Opening of Tender

4.A.38.1 Bidder's Credential Bid (Part-I) will be opened on specified date & time as mentioned in BDS Chapter 5 of the tender in presence of such bidders/ Representatives who choose to be present.

4.A.38.2 After scrutinizing Credential Bid, "Price Bid (Part- II)" will be opened on a time and date to be informed separately in presence of those bidders who qualify in "Credential Bid (Part-I)" as per qualifying criteria laid down in Clause 12 of this Chapter and who choose to be present.

4.A.38.3 Price Bid (part-II) envelops of those bidders who are not found to meet tender conditions will not be opened.

4.A.39. Non-Transferability & Non-Refundability

The tender documents are not transferable. The cost of tender paper is not refundable.

4.A.40. Errors, Omissions & Discrepancies

The Contractor(s) shall not take any advantage of any mis-interpretation of the conditions due to typing or any other error and if in doubt, shall bring it to the notice of the purchaser without delay. In case of any contradiction only the printed rules, and books should be followed and no claim for the mis-interpretation shall be entertained.

4.A.41. Wrong Information by bidder

If the Bidder/s deliberately gives/give wrong information in his/their tender which creates/create circumstances for the acceptance of his/their tender the RailTel/REL reserves the right to reject such bidder at any stage.

4.A.42 The envelope containing any offline documents shall be addressed to the Purchaser at the following address:

General Manager/Operations
RailTel Corporation of India Ltd.
Plot No. 143, Institutional Area,
Opposite-Gold Souk,
Sector-44, Gurgaon-122003
Fax No.: +91-124-4236084

4.A.43 The envelope shall bear name of the tender, the tender no. and the words “DO NOT OPEN BEFORE” (due date).

4.A.44 In case the date of opening happens to be a holiday, the tender will be received and opened at the same time on the next working day.

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CHAPTER-4

B. INSTRUCTIONS TO THE BIDDERS

4.B.1. General

These are the Special Instructions to the Bidders for e-Tendering.

4.B.2 Submission of Bids only through online process is mandatory for this Tender

E-Tendering is a new methodology for conducting Public Procurement in a transparent and secured manner. Now, the Government of India has made e-tendering mandatory. Suppliers/ Vendors will be the biggest beneficiaries of this new system of procurement. For conducting electronic tendering, RailTel has decided to use the portal **https://www.tcil-india-electronictender.com** through TCIL, a Government of India Undertaking. This portal is based on the most 'secure' and 'user friendly' software from Electronic Tender®. **A portal built using Electronic Tender's software is also referred to as Electronic Tender System® (ETS).**

Benefits to Suppliers are outlined on the Home-page of the portal.

4.B.3 Tender Bidding Methodology:

Sealed Bid System - 'Single Stage - Two Envelope': In this, bidder has to submit each the bid (Part I –Credential/ Techno commercial Bid and Part II - Price Bid) in separate envelope "ONLINE".

4.B.4 Broad outline of activities from Bidders Perspective:

1. Procure a Digital Signing Certificate (DSC)
2. Register on Electronic Tendering System® (ETS)
3. Create Users and assign roles on ETS
4. View Notice Inviting Tender (NIT) on ETS
5. Download Official Copy of Tender Documents from ETS (Important)
6. Clarification to Tender Documents on ETS
   i. Query to RailTel (Optional)
   ii. View response to queries posted by RailTel, as addenda.
7. Bid-Submission on ETS
8. Attend Public Online Tender Opening Event (TOE) on ETS.
9. View/Post-TOE Clarification posted by RailTel on ETS (Optional), Respond to RailTel's Post-TOE queries

For participating in this tender online, the following instructions need to be read carefully. These instructions are supplemented with more detailed guidelines on the relevant screens of the ETS.

4.B.5 Digital Certificates

For integrity of data and its authenticity/ non-repudiation of electronic records, and be compliant with IT Act 2000, it is necessary for each user to have a Digital Certificate (DC) also referred to as Digital Signature Certificate (DSC), of Class 2 or above, issued by a Certifying

Authority (CA) licensed by Controller of Certifying Authorities (CCA) [refer http://www.cca.gov.in].

4.B.6 Registration

To make use of the Electronic Tender® Portal (**https://www.tcil-india-electronictender.com),** vendor needs to register on the portal (if not registered earlier). Registration of each organization is to be done by one of its senior persons who will be the main person coordinating for the e-tendering activities. In ETS terminology, this person will be referred to as the Super User (SU) of that organization. For further details, please visit the website/portal (**https://www.tcil-india-electronictender.com),** and click on the 'Supplier Organization' link under 'Registration' (on the Home Page), and follow further instructions as given on the site.

Pay Annual Registration Fee as applicable.

Note: After successful submission of Registration details and Annual Registration Fee (as applicable), please contact TCIL/ ETS Helpdesk (as given below), to get your registration accepted/activated.

TCIL Helpdesk

Contact Person/Telephone/ Mobile

Helpdesk Executives: 91-11-26202699 **(Multiple lines)**
E-mail ID: ets_support@tcil-india.com
(Mobile Nos for Emergency only): 9868393775, 9868393717, 9868393792

RailTel Contact-I (for general Information)

RailTel's Contact Person /Designation
Kumar Rahul Joshi, DGM/Project
Telephone/ Mobile: 9717644200
E-mail ID: rahul@railtelindia.com

RailTel Contact-II (for general Information)

RailTel's Contact Officer
Jagdeep Singh, GM/Operations
Telephone/ Mobile : 9779244100
E-mail ID: jagdeep@railtelindia.com

4.B.7 Bid related Information for this Tender (Sealed Bid)

The entire bid-submission would be online on ETS.

Broad outline of submissions are as follows:

1. Submission of Bid Security/ Earnest Money Deposit (EMD)
2. Submission of digitally signed copy of Tender Documents/Addenda
3. Two Packet (Part I –Credential/ Techno commercial Bid and Part II - Price Bid)

The electronic envelope consists of Main bid and Electronic Form (both mandatory) and Bid Annexures (Optional).

4. Online response to Terms & Conditions of Tender.

5. (Optional) Online Submission of modification, substitution bids for technical or financial parts, or withdrawal bid.

NOTE: Bidder must ensure that after following above, the status of bid submission must become "Complete" indicating successful submission of the online bid.

4.B.8 Offline Submissions:

The bidder is required to submit the following documents offline to RailTel Corporation of India Ltd, Institutional Area, Plot 143, Sector 44, Gurgaon, before due date & time of submission of bids specified in this tender document, in a Sealed Envelope. The envelope shall bear (the tender name), the tender number and the words 'DO NOT OPEN BEFORE' (due date & time).

a) **EMD-Bid Security** in Original, in favour of Railtel Corporation of India, Payable at New Delhi. (with Tender No., Name of Firm & Mob. No. written on back side of DD)

b) **DD/ Bankers Cheque in original against payment of tender fee** in favour of Railtel Corporation of India, Payable at New Delhi. (with Tender No., Due date of Opening of Tender, Name and contact No. of Firm written on back side of DD)

c) **Power of attorney** to be submitted in accordance with Clause-36.5, Chapter-4 of Tender Document.

d) **In case bidder happens to be an eligible MSE**, the documentary evidence for same shall be submitted (clause 22.7, chapter-4).

e) Specific authorization addressed to RailTel from the OEM (Parent Company) for Indian Subsidiary (Clause 12.3, Chapter 4 of Tender Document).

f) **System Performance Guarantee** (form no. 2, chapter-6).

g) **Acceptance for Long Term Maintenance Support** (form no. 3, chapter-6).

h) **Integrity Pact** (form no. 6, chapter-6).

i) Declaration regarding acceptance of clarification issued from DoT (Clause 17.2, Chapter 4 of Tender Document).

NOTE: The Bidder has to upload the Scanned copy of all above original documents as Bid-Annexures during Online Bid-Submission.

4.B.9 Submission of Eligibility Criteria related documents

Eligibility criteria related documents as applicable shall also be scanned and submitted ONLINE. Copy of these documents shall also be submitted in RailTel before Tender opening date & time. Bids without these off line submissions will be summarily rejected.

4.B.10 Special Note on Security of Bids

Security related functionality has been rigorously implemented in ETS in a multidimensional manner. Starting with 'Acceptance of Registration by the Service Provider', provision for security has been made at various stages in Electronic Tender's software. Security related aspects as regard Bid Submission are outlined below:

As part of the Electronic Encrypter™ functionality, the contents of both the 'Electronic Forms' and the 'Main-Bid' are securely encrypted using a Pass- Phrase created by the Bidder himself. Unlike a 'password', a Pass-Phrase can be a multi-word sentence with spaces between words (e.g. I love this World). A Pass-Phrase is easier to remember, and more difficult to break. It is recommended that a separate Pass-Phrase be created for each Bid-Part. This method of bid-encryption does not have the security and data-integrity related vulnerabilities which are inherent in e-tendering systems which use Public-Key of the specified officer of a Buyer organization for bid-encryption. Bid-encryption in ETS is such that the Bids cannot be decrypted before the Public Online Tender Opening Event (TOE), even if there is connivance between the concerned tender-opening officers of the Buyer organization and the personnel of e-tendering service provider.

Typically, 'Pass-Phrase'of the Bid-Part to be opened during a particular Public Online Tender Opening Event (TOE) is furnished online by each bidder during the TOE itself, when demanded by the concerned Tender Opening Officers who will open the bid. Else Tender Opening Officer may authorize the bidder to open his bid himself. There is an additional protection with SSL Encryption during transit from the client-end computer of a Supplier organization to the e-tendering server/ portal.

(Mandatory Additional Methods of passphrase submission):

Additionally, the bidder shall make sure that the Pass-Phrase to decrypt the relevant Bid Part is submitted to RailTel in a sealed envelope before the start date and time of the Tender Opening Event (TOE) along with other offline submissions.

4.B.11 Public Online Tender Opening Event (TOE)

ETS offers a unique facility for 'Public Online Tender Opening Event (TOE)'. Tender Opening Officers as well as authorized representatives of bidders can attend the Public Online Tender Opening Event (TOE) from the comfort of their offices. For this purpose, representatives of bidders (i.e. Supplier organizations) dully authorized are requested to carry a Laptop and Wireless Connectivity to Internet.

Every legal requirement for a transparent and secure 'Public Online Tender Opening Event (TOE)' has been implemented on ETS. As soon as a Bid is decrypted with the corresponding 'Pass-Phrase' as submitted online by the bidder himself (during the TOE itself), salient points of the Bids are simultaneously made available for downloading by all participating bidders.

ETS has a unique facility of 'Online Comparison Chart' which is dynamically updated as each online bid is opened. The format of the chart is based on inputs provided by the Buyer for each Tender. The information in the Comparison Chart is based on the data submitted by the Bidders in electronic forms. A detailed Technical and/ or Financial Comparison Chart enhances Transparency. Detailed instructions are given on relevant screens.

ETS has a unique facility of a detailed report titled 'Minutes of Online Tender Opening Event (TOE)' covering all important activities of 'Online Tender Opening Event (TOE)'. This is available to all participating bidders for 'Viewing/ Downloading'.

There are many more facilities and features on ETS. For a particular tender, the screens viewed by a Supplier will depend upon the options selected by the concerned Buyer.

NOTE: In case of internet related problem at a bidder's end, especially during 'critical events' such as - a short period before bid-submission deadline, during online public tender opening event, during e-auction, it is the bidder's responsibility to have backup internet connections.

In case there is a problem at the e-procurement/ e-auction service provider's end (in the server, leased line, etc) due to which all the bidders face a problem during critical events, and this is brought to the notice of RailTel by the bidders in time, then RailTel will promptly re-schedule the affected event(s).

4.B.12 Other Instructions

For further instructions, the vendor should visit the home-page of the portal (https://www.tcil-india-electronictender.com), and go to the User-Guidance Center.

The help information provided through 'ETS User-Guidance Center' is available in three categories - Users intending to Register / First-Time Users, Logged-in users of Buyer organizations, and Logged-in users of Supplier organizations. Various links are provided under each of the three categories.

Note: It is strongly recommended that all authorized users of Supplier organizations should thoroughly peruse the information provided under the relevant links, and take appropriate action. This will prevent hiccups, and minimize teething problems during the use of ETS.

4.B.13 The following KEY INSTRUCTIONS for BIDDERS' must be assiduously adhered to:

1. Obtain individual Digital Signing Certificate (DSC or DC) well in advance of your first tender submission deadline on ETS.

2. Register your organization on ETS well in advance of your first tender submission deadline on ETS.

3. While registering your organization on ETS Portal of TCIL, pl. make sure that the email id of Super user provided for registration and email-id on which Digital Signature Certificate of the Super user is issued are exactly the same.

4. Get your organization's concerned executives trained on ETS well in advance of your first tender submission deadline on ETS.

5. Bidder should ensure that **official copy of tender document** has been downloaded by clicking the radio button for confirmation else e-Procurement system will not permit the bidder to participate in the tendering process.

6. Submit your bids well in advance of tender submission deadline on ETS as there could be last minute problems due to internet timeout, breakdown, etc.

4.B.14. Minimum Requirements at Bidders end

i) Computer System with good configuration (Min P IV, 1 GB RAM, Windows XP).
ii) Broadband Connectivity.
iii) Microsoft Internet Explorer 6.0 or above.
iv) Digital Certificate (s) for users.

4.B.15 Vendors Training Program

One day training (10:00 to 17:00) on how to use the ETS Portal for e-Tendering would be provided. Training is optional. However, if a vendor has not already attended ETS Vendor Training earlier, it is highly recommended that the vendor attends this training positively to be able to submit the e-Tender smoothly without any problem.

Vendors are requested to carry a Laptop and Wireless Connectivity to Internet while attending the ETS Vendor Training.

Tentative Dates

Date of uploading of Tender document + 7 days

Venue:

RailTel Corporation of India Limited,
Plot No. 143, Sector-44, Opp. Gold Souk Mall,
Gurgaon -122003.

Vendors Training Charges: Rs. 2,500/-(Per Participant) per training day (plus Service Tax as applicable), i.e., Rs. 2,863/- Per Participant.

Mode of Payment of Fees: DD drawn in favour of M/s TCIL, New Delhi & payable at New Delhi.

4.B.16 ADDITIONAL INSTRUCTIONS:

PLEASE NOTE

For E-Tendering bids /information by bidders is to be submitted "Online" on TCIL's e-Procurement Portal. Any document / information pertaining to this chapter will have to be submitted by the bidder on line. The digital signature of the bidder on the e-tender form will be considered as confirmation that the bidder has read, understood and accepted all the documents, unless special deviation is quoted by the bidder in the technical & commercial deviation templates.

ALL COLUMNS SHOULD BE FILLED AND BLANK COLUMNS, IF ANY, SHOULD BE MARKED AS NIL.

PLEASE READ THE SCHEDULE OF REQUIREMENTS, INSTRUCTIONS TO THE BIDDERS, TENDER CONDITIONS INCLUDING TECHNICAL SPECIFICATIONS OF

SCHEDULE OF REQUIREMENTS BEFORE FILLING UP THE TENDER FORM CAREFULLY. PLEASE SIGN ON EACH PAGE.

THE BIDDERS MAY DOWNLOAD TENDER FORM FROM THE WEB SITE 'www.railtelindia.com' OR FROM THE E-TENDERING PORTAL '**https://www.tcil-india-electronictender.com',** AND SHOULD ENCLOSE COST OF THE TENDER FORM ALONG WITH THE OFFER IN THE FORM OF DD IN FAVOUR OF RAILTEL CORPORATION OF INDIA LTD payable at NEW-DELHI.

NOTE: For online bid submission the bidder will have to necessarily download an official online copy of the tender documents from TCIL's e-procurement portal, and this should be done well before the deadline for bid submission.

4.B.17 Instructions for Tender Document TO THE BIDDERS

The RailTel Tenders are published on **www.railtelindia.com and on e-Tendering Portal https://www.tcil-india-electronictender.com**. In addition to submitting the e Tender documents online, they should also submit a Demand Draft drawn in a scheduled bank in favour of "RailTel Corporation of India Ltd, payable at NEW-DELHI, towards the cost of the tender document.

NOTE: For online bid submission the bidder will have to necessarily download an official online copy of the tender documents from TCIL's e- procurement portal, and this should be done well before the deadline for bid-submission.

4.B.18 Submission of Offers and Filling of Tender:

This e-tender should be duly submitted online using the e-Procurement Portal **https://www.tcil-india-electronictender.com.**

a. The rates quoted should be written both in words & figures. The unit of rates should be in metric system & as per tendered specification/schedule. In case of difference between words and figures, the rate in words will prevail. If there is a discrepancy between the unit price and total price that is obtained by multiplying the unit price and quantity, the unit price shall prevail and the total price shall be corrected by the purchaser accordingly. In case discrepancy is observed between the 'Electronic Form' and the 'Main Bid file' the text and amounts etc. of the Electronic Form will prevail, as this is the information shared transparently with all participating bidders during Online Public Tender Opening Event on ETS.

b. Bidders are requested to go through the Terms & Conditions of the Tender carefully and note that, by submitting the tender documents, duly signed, they have accepted these conditions and undertake to abide by these conditions (unless specifically disagreed to clause wise).

4.B.19 Fax Quotations & Late Tenders:

Fax Tender documents and Late/Delayed tenders would not be considered.

4.B.20 Attendance of Representatives for Tender Opening:

Representatives of bidders desirous to attend the tender opening can do so on production of a proper letter of authority from the respective firm, failing which they may not be allowed to

attend the tender opening. In addition, representatives desirous of attending the Online Public Tender Opening Event can do so by getting authorized for such participation by the Super-User/ Master User of their respective organizations on ETS. Authorized representatives of those firms who have submitted the tender documents alone shall be allowed to attend the tender opening.

4.B.21 Addenda / Corrigenda:

Addenda / Corrigenda to the tender documents may be issued by RailTel prior to the date of opening of the tenders, to clarify or reflect modifications in the contract terms and conditions or in the design. Such addendum/corrigendum shall be available on TCIL's e-Procurement Portal only. Bidders who are unable or unwilling to bring their tenders to conform to the requirements of the RailTel are liable to be rejected.

4.B.22 Ambiguity/ Pre- Bid Clarification Requests:

If there is any ambiguity or doubt as to the meaning of any of the tender clauses/ conditions or if any additional information required, the matter should immediately be referred to the RailTel in writing through TCIL e-portal only. The format to be used for seeking clarification is mentioned as an Annexure in this RFP (As per Form No.13 of Chapter 6). To clarify all the queries/concerns received, a Pre-Bid Conference shall be conducted as per the schedule mentioned in Bid Data Sheet (Chapter 5)

4.B.23 Bid submission and Opening date

4.B.23.1 The bid should be submitted online along with Credential/Techno commercial & Price bid document (all documents).

4.B.23.2 EMD should be enclosed in an envelope and submitted physically to the tendering authority before the due date and time of submission of the e-Tender.

4.B.23.2.1 Power of attorney in favor of the signatory duly authorizing the signatory shall be submitted in a separate envelope to the tendering authority before the due date and time of submission of the e-Tender.

4.B.23.2.2 The bidder's bids will be opened at the time & date of opening of the tender given in the Bid Data Sheet (BDS) in the online simultaneous presence of such Bidders/ Representatives who choose to be present online. The Tenders/Representatives can also choose to be physically present in the office of RailTel for the Online Public Tender Opening Event.

4.23.3 Bids received after due date and time shall be summarily rejected and shall not be opened.

4.B.24. Integrity Pact Program

a) RailTel/REL has adopted Integrity Pact Program and for implementation thereof all tenders relating to procurement of OFC, quad cable, pre-fab shelters, electronic equipments and its installation and/or commissioning etc and other item(s) or activity/activities proposed to be carried out or required by the Company for the value exceeding Rs. 25 crores at a time including for repair and maintenance of cable/network and any other items required for special works assigned to RailTel/REL will be covered under the Integrity Pact Program and the vendors are required to sign the IP document and submit the same to RailTel/REL before or along with the bids.

b) Only those vendors who have purchased the tender document and signed the IP document can send their grievances, if any, to the Independent External Monitors (IEMNs) through the nodal officer, i.e. Chief Vigilance Officer (CVO), RailTel.

Name of IEMs and contact details:

a) Sh. Ashok Kumar Garg, New Delhi e-mail: akgarg1654@gmail.com
b) Sh. Jayanta Kumar Roy, Kolkata e-mail: jkroy.its@gmail.com

Name & contact details of Nodal Officer (IP) in RailTel:

Sh. Arun Jain, Chief Vigilance Officer
e-mail: arun@railtelindia.com

c) If the order, with total value equal to or more than the threshold value, is split to more than one vendor and even if the value of PO placed on any/each vendor(s) is less than the threshold value, IP document having been signed by the vendors at bid stage itself, the Pact shall continue to be applicable.

d) Bidder of Indian origin shall submit the Integrity Pact (in 2 copies) on a non judicial stamp paper of Rs. 100/- duly signed by the person signing the bid. If the bidder is a partnership or a consortium, the Integrity Pact shall be signed by all the partners or consortium members.

e) Bidder of foreign origin may submit the Integrity Pact on its company's letterhead, duly signed by the person signing the bid.

f) The 'Integrity Pact' shall be submitted by the Bidder duly signed in all pages along with the Bid in a separate envelope, duly superscripted with 'Integrity Pact'. Tender received without signed copy of the Integrity Pact document will be liable to be rejected. Proforma for signing the Integrity Pact is available in Chapter-6 of this tender document (Form No. 6).

g) One copy of the Integrity Pact shall be retained by RailTel/REL and the 2nd copy will be issued to the representative of the bidders during bid opening. If the Bidders representative is not present during the Bid opening, the 2nd copy shall be sent to the bidder by post/courier.

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CHAPTER- 5

BID DATA SHEET (BDS)

The section consists of provisions that are specific to various Clauses of the tender document COMMERCIAL TERMS & CONDITIONS **Chapter 4**.

Clause	Description
Clause **4.A.1**	**Validity of offer** 180 days.
Clause **4.A.2**	**Warranty** 36 months (comprising of 12 months of Maintenance Supervision vide clause 2.5, between issue of PAC and FAC, followed by 24 months of warranty support under clause 2 & 2.4) .
Clause **4.A.4**	**Delivery/Implementation Timelines** Refer Clause 4.A.4 of Chapter-4.
Clause **4.A.6**	**Performance Bank Guarantee (Security Deposit)** Refer Clause 4.A.6 of Chapter-4.
Clause **4.A.14**	**Qualification Criteria** Refer Clause 4.A.14 of Chapter-4.
Clause **4.A.19**	**Purchaser's Right to Vary Quantities** up to a maximum extent of +/- 30% of contract quantity.
Clause **4.A.22**	**Earnest Money Deposit (EMD)/ Bid Security** INR. 10,00,000/- (INR. Ten Lakh only)
Clause **4.B.22**	**Pre- Bid Conference & Clarification Requests (On Line)** Last date of Submission of Clarification Date: 16.12.2016 Pre- bid Conference date Date: 21.12.2016 Time: 11:00 hours Venue: Corporate Office RailTel

Clause	Description
Clause **4.A.36**	**Last Date of Submission of Offer (Online)** Date: 02.01.2017 Time: 15:00 hours Venue: same as above
Clause **4.A.36**	**Date of Opening of Tender (Online)** Date: 02.01.2017 Time: 15:30 hours Venue: same as above

Note: If the details given in BDS contradict with referred clause in the detailed tender document, the details in BDS will have overriding priority over the referred clause in the tender document.

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CHAPTER- 6

Form No. 1

PROFORMA FOR PERFORMANCE BANK GUARANTEE BOND

(On Stamp Paper of Rs one hundred)
(To be used by approved Scheduled Banks)

1. In consideration of the RailTel Corporation of India Limited, having its registered office at 6th Floor, IIIrd Block, Delhi Technology Park, Shastri Park, Delhi-110053 (Herein after called RailTel) having agreed to exempt ……(Hereinafter called "the said Contractor(s)") from the demand, under the terms and conditions of an Purchase Order/LOA No……dated……made between……and…….. for (hereinafter called " the said Agreement") of security deposit for the due fulfillment by the said Contractor (s) of the terms and conditions contained in the said Agreement, on production of a Bank Guarantee for Rs. ……(Rs …….. only). We …… (indicate the name of the Bank) hereinafter referred to as "the Bank") at the request of ……. ……. Contractor(s) do hereby undertake to pay the RailTel an amount not exceeding Rs. ……. against any loss or damage caused to or suffered or would be caused to or suffered by the RailTel by reason of any breach by the said Contractor(s) of any of the terms or conditions contained in the said Agreement.

2. We , …… Bank do hereby undertake to pay the amounts due and payable under this Guarantee without any demur, merely on demand from the RailTel stating that the amount is claimed is due by way of loss or damage caused to or would be caused to or suffered by the RailTel by reason of breach by the said Contractor(s) of any of terms or conditions contained in the said Agreement or by reason of the Contractor(s) failure to perform the said Agreement. Any such demand made on the Bank shall be conclusive as regards the amount due and payable by the Bank under this guarantee. However, our liability under this guarantee shall be restricted to an amount not exceeding Rs . ……

3. We, …….. bank undertake to pay to the RailTel any money so demanded notwithstanding any dispute or disputes raised by the Contractor(s) / Bidder(s) in any suit or proceedings pending before any court or Tribunal relating thereto our liability under this present being, absolute and unequivocal. The payment so made by us under this Bond shall be a valid discharge of our liability for payment there under and the Contractor(s) / Bidder(s) shall have no claim against us for making such payment.

4. We, …… Bank further agree that the Guarantee herein contained shall remain in full force and effect during the period that would be taken for the performance of the said Agreement and that it shall continue to be enforceable till all the dues of the RailTel under or by virtue of the said Agreement have been fully paid and its claims satisfied or discharged or till RailTel certifies that the terms and conditions of the said Agreement have been fully and properly carried out by the said Contractor(s) and accordingly discharges this Guarantee. Unless a demand or claim under the Guarantee is made on us in writing on or before

the ……. …… We shall be discharged from all liability under this Guarantee thereafter.

5. We,…… (indicate the name of Bank) further agree with the RailTel that the RailTel shall have the fullest liberty without our consent and without affecting in any manner our obligations hereunder to vary any of the terms and conditions of the Agreement or to extend time of to postpone for any time or from time to time any of the powers exercisable by the RailTel against the said contractor(s) and to forbear or enforce any of the terms and conditions relating to the said Agreement and we shall not be relieved from our liability by reason of any such variation, or extension to the said Contractor(s) or for any forbearance, act or omission on the part of RailTel or any indulgence by the RailTel to the said Contractor(s) or by any such matter or thing whatsoever which under the law relating to sureties would, but for this provision, have affect of so relieving us.

This Guarantee will not be discharged due to the change in the Constitution of the Bank or the Contractor(s) / Bidder(s).

(indicate the name of Bank) lastly undertake not to revoke this Guarantee during its currency except with the previous consent of the RailTel in writing.

Dated the day of 2016

for ……..
(indicate the name of the Bank)

Witness

1. Signature
   Name

2. Signature
   Name

Form No. 2

PROFORMA FOR THE SYSTEM PERFORMANCE GUARANTEE
(On Stamp Paper of Rs. One Hundred)

The Director,
RailTel Corporation of India Limited

I / We ……. hereby guarantee that the design on the basis of which we have submitted our tender no. …… has been carefully made to conform to the end objectives in the tender documents and to technical specification therein. We further guarantee that in the event of the performance of the system, when installed, not complying with the end objectives or with the specifications contained in the tender documents, we shall provide further inputs to enable the RailTel to realize the end objectives contained in these documents without any additional payment for any additional equipment which may be required in this regard. We further guarantee that all the expenses for providing the additional inputs under the System Guarantee will be borne by us. We further guarantee that these additional inputs will be provided by us to make the system workable within 1 month from the date on which this guarantee is invoked by the Purchaser. The guarantee is valid for a period of one year from the date of commissioning of the system.

(Signature of Firm's Authorized Officer)
Seal

Signature of witness:

1. ……

2. ……

Form No. 3

PROFORMA FOR THE LONG TERM MAINTENANCE SUPPORT
(To be signed by the O.E.M.)

To

The Director,
RailTel Corporation of India Limited

I / We …… hereby confirm and accept that against RailTel Tender No. …….., the requirement of Long Term Maintenance Support as per Clause 4.A.3 of Chapter-4 shall be met **by us directly or through our subsidiary in India** as per rates quoted in the Price Bid. I / We have gone through the requirement mentioned in the Tender document and shall provide services as per terms and conditions pertaining to Long Term Maintenance Support of tender document.

(Signature of Firm's Authorized Officer)
Seal

Signature of witness:

1. ……

2. ……

Form No. 4- DELETED

Form No. 5- DELETED

Form No. 6

PROFORMA FOR SIGNING THE INTEGRITY PACT

RailTel Corporation of India Limited, hereinafter referred to as "The Principal".

And

……, hereinafter referred to as "The Bidder/ Contractor"

Preamble

The Principal intends to award, under laid down organizational procedures, contract/s for ……The Principal values full compliance with all relevant laws of the land, rules, regulations, economic use of resources and of fairness/transparency in its relations with its Bidder(s) and /or Contractor(s).

In order to achieve these goals, the Principal will appoint an Independent External Monitor (IEM), who will monitor the tender process and the execution of the contract for compliance with the principles mentioned above.

Section 1- Commitments of the Principal

1. The Principal commits itself to take all measures necessary to prevent corruption and to observe the following principles:-

   a. No employee of the Principal, personally or through family members, will in connection with the tender for, or the execution of a contract, demand, take a promise for or accept, for self or third person, any material or immaterial benefit which the person is not legally entitled to.

   b. The Principal will during the tender process treat all Bidder(s) with equity and reason. The Principal will in particular, before and during the tender process, provide to all Bidder(s) the same information and will not provide to any Bidder(s) confidential/additional information through which the Bidder(s) could obtain an advantage in relation to the process or the contract execution.

   c. The Principal will exclude from the process all known prejudiced persons.

2. If the Principal obtains information on the conduct of any of its employees which is a criminal offence under the IPC/PC Act, or if there be a substantive suspicion in this regard, the Principal will inform the Chief Vigilance Officer and in addition can initiate disciplinary actions.

Section 2- Commitments of the Bidder(s) / Contractor(s)

1. The Bidder(s)/Contractor(s) commit himself to take all measures necessary to prevent corruption. He commits himself to observe the following principles during his participation in the tender process and during the contract execution.

   a. The Bidder(s)/contractor(s) will not, directly or through any other persons or firm, offer promise or give to any of the Principal's employees involved in the tender process or the execution of the contract or to any third person any material or other benefit which he/she is not legally entitled to, in order to obtain in exchange any advantage during tender process or during the execution of the contract.

   b. The Bidder(s)/Contractor(s) will not enter with other Bidders into any undisclosed agreement or understanding, whether formal or informal. This applies in particular to prices, specifications, certifications, subsidiary contracts, submission or non submission of bids or any other actions to restrict competitiveness or to introduce cartelization in the bidding process.

   c. The Bidder(s)/Contractor(s) will not commit any offence under the relevant IPC/PC Act; further the Bidder(s) /Contractors will not use improperly, for purposes of competition or personal gain, or pass on to others, any information or document provided by the Principal as part of the business relationship, regarding plans, technical proposals and business details, including information contained or transmitted electronically.

   d. The Bidder(s)/Contractor(s) of foreign origin shall disclose the name and address of the Agents/representatives in India, if any. Similarly, the bidder(s)/contractor(s) of Indian Nationality shall furnish the name and address of the foreign principals, if any. Further details as mentioned in the "Guidelines on Indian Agents of Foreign Suppliers" shall be disclosed by the Bidder(s)/Contractor(s). Further, as mentioned in the Guidelines all the payments made to the Indian agent/representative have to be in Indian Rupees only. Copy of the "Guidelines on Indian Agents of Foreign Suppliers' as annexed and marked as Annexure A.

   e. The Bidder(s)/Contractor(s) will, when presenting his bid, disclose any and all payments he has made, is committed to or intends to make to agents, brokers or any other intermediaries in connection with the award of the contract.

2. The Bidder(s)/Contractor(s) will not instigate third persons to commit offences outlined above or be an accessory to such offences.

Section 3: Disqualification from tender process and exclusion from future contracts

If the Bidder(s)/Contractor(s), before award or during execution has committed a transgression through a violation of Section 2, above or in any other form such as to put his reliability or credibility in question, the Principal is entitled to disqualify the Bidder(s)/Contractor(s) from the tender process or take action as per the procedure mentioned in the "Guidelines on Banning of business dealings". Copy of the "Guidelines on Banning of business dealings" is annexed and marked as Annex-"B".

Section 4: Compensation for Damages

1. If the Principal has disqualified the Bidder(s) from the tender process prior to the award according to Section 3, the Principal is entitled to demand and recover the damages equivalent to Earnest Money Deposit/Bid Security.

2. If the Principal has terminated the contract according to Section 3, or if the Principal is entitled to be terminated the contract according to Section 3, the Principal shall be entitled to demand and recover from the Contractor liquidated damages of the Contract value or the amount equivalent to Performance Bank Guarantee.

Section 5: Previous Transgression

1. The Bidder declares that no previous transgressions occurred in the last three years with any other company in any country conforming to the anti corruption approach or with any other public sector enterprise in India that could justify his exclusion from the tender process.

2. If the bidder makes incorrect statement on this subject, he can be disqualified from the tender process for action can be taken as per the procedure mentioned in "Guidelines on Banning of business dealings".

Section 6: Equal treatment of all Bidders / Contractors/Subcontractors.

1. The Bidder(s)/Contractor(s) undertake(s) to demand from all subcontractors a commitment in conformity with this Integrity Pact, and to submit it to the Principal before contract signing.

2. The Principal will enter into agreements with identical conditions as this one with all bidders, contractors and subcontractors.

3. The Principal will disqualify from the tender process all bidders who do not sign this Pact or violate its provisions.

Section 7: Criminal charges against violation by Bidder(s) / Contractor(s) / Sub contractor(s)

If the Principal obtains knowledge of conduct of a Bidder, Contractor or Subcontractor, or of an employee or a representative or an associate of a Bidder, Contractor or Subcontractor which constitutes corruption, or if the Principal has substantive suspicion in this regard, the Principal will inform the same to the Chief Vigilance Officer.

Section 8: Independent External Monitor / Monitors

1. The Principal appoints competent and credible Independent External Monitor for this Pact. The task of the Monitor is to review independently and objectively, whether and to what extent the parties comply with the obligations under this agreement.

2. The Monitor is not subject to instructions by the representatives of the parties and performs his functions neutrally and independently. He reports to the CMD, RailTel.

3. The Bidder(s)/Contractor(s) accepts that the Monitor has the right to access without restriction to all project documentation of the Principal including that provided by the Contractor. The Contractor will also grant the Monitor, upon his request and demonstration of

a valid interest, unrestricted and unconditional access to his project documentation. The same is applicable to Subcontractors. The Monitor is under contractual obligation to treat the information and documents of the Bidder(s)/ Contractor(s)/Subcontractor(s) with confidentiality.

4. The Principal will provide to the Monitor sufficient information about all meetings among the parties related to the Project provided such meetings could have an impact on the contractual relations between the Principal and the Contractor. The parties offer to the Monitor the option to participate in such meetings.

5. As soon as the Monitor notices, or believes to notice, a violation of this agreement, he will so inform the Management of the Principal and request the Management to discontinue or take corrective action, or to take other relevant action. The monitor can in this regard submit non-binding recommendations. Beyond this, the Monitor has no right to demand from the parties that they act in a specific manner, refrain from action or tolerate action.

6. The Monitor will submit a written report to the CMD, RailTel within 8 to 10 weeks from the date of reference or intimation to him by the Principal and, should the occasion arise, submit proposals for correcting problematic situations.

7. Monitor shall be entitled to compensation on the same terms as being extended to provided to Independent Directors on the RailTel Board.

8. If the Monitor has reported to the CMD, RailTel, a substantiated suspicion of an offence under relevant IPC/PC Act, and the CMD, RailTel has not, within the reasonable time taken visible action to proceed against such offence or reported it to the Chief Vigilance Officer, the Monitor may also transmit this information directly to the Central Vigilance Commissioner.

9. The word 'Monitor' would include both singular and plural.

Section 9: Pact Duration

This pact begins when both parties have legally signed it. It expires for the Contractor 10 months after the last payment under the contract, and for all other Bidders 6 months after the contract has been awarded.

If any claim is made / lodged by either party during this time, the same shall be binding and continue to be valid despite the lapse of this pact as specified above, unless it is discharged / determined by CMD of RailTel.

Section 10: Other Provisions

1. This agreement is subject to Indian Law, Place of performance and jurisdiction is the Registered Office of the Principal, i.e. New Delhi.

2. Changes and supplements as well as termination notices need to be made in writing.

3. If the Contractor is a partnership or a consortium, this agreement must be signed by all partners or consortium members.

4. Should one or several provisions of this agreement turn out to be invalid, the remainder of this agreement remains valid. In this case, the parties will strive to come to an agreement to their original intentions.

(For & on behalf of the Principal)
(Office Seal)

Place _____

Date _____

Witness 1:
(Name & Address)

(For & On behalf of Bidder/Contractor)
(Office Seal)

_____

_____

_____

Witness 2:
(Name & Address)

_____

_____

_____

Form No.7

PROFORMA FOR NIL DEVIATION COMPONENT COMPLIANCE UNDERTAKING LETTER

To

General Manager/Operation
RailTel Corporation of India Ltd.
Plot No. 143, Institutional Area,
Opposite-Gold Souk,
Sector-44, Gurgaon-122003
Date dd-mm-yyyy

Dear Sir,

Sub: NIL Deviation Compliance for RFP no. RailTel/Tender/OT/CO/OP/2016-17/VSS-WR/364 for Supply, Installation, Testing, Commissioning Operation and Maintenance of IP based Video Surveillance System (VSS) at various Railway Stations of A1, A, B and C category of Indian Railways under Western Region of RailTel for and on behalf of REL and Indian Railways dated 28-Nov-2016.

Over and above all our earlier conformations and submissions as per your requirements of the RFP, we confirm that,

1. All proposed in scope supplies (Cameras, Servers/NVR, Storage Solution, VMS Software, Analytics Solution, Facial Recognition Software etc.) are compliant to the technical specifications of the equipment as mentioned in the latest version of the specifications for IP-based video surveillance system issued by RDSO dated DD-Month-YYYY.

2. We hereby certify that the hardware and software mentioned in our technical solution and Bill of Material (BOM) are complete.

3. We confirm that there is no requirement of any other hardware and software to fulfill requirements as per scope against the RFP. If any additional hardware and software is required to meet in scope requirements, then it would be procured by us at no extra cost to RailTel.

4. We will also ensure our unconditional compliance of all the terms and conditions as mentioned in the Tender document and RDSO specifications

Place:
Date: Seal and signature of the bidder

(This letter should be on the letterhead of the bidder duly signed by an authorized signatory)

Form No.8

PROFORMA FOR NO MALICIOUS CODE UNDERTAKING LETTER BY OEM

To

General Manager/Operation
RailTel Corporation of India Ltd.
Plot No. 143, Institutional Area,
Opposite-Gold Souk,
Sector-44, Gurgaon-122003
Date dd-mm-yyyy

Dear Sir,

Sub: Undertaking for No Malicious Code for RFP no. RailTel/Tender/OT/CO/OP/2016-17/VSS-WR/364 for Supply, Installation, Testing, Commissioning Operation and Maintenance of IP based Video Surveillance System (VSS) at various Railway Stations of A1, A, B and C category of Indian Railways under Western Region of RailTel for and on behalf of REL and Indian Railways dated 28-Nov-2016.

Over and above all our earlier conformations and submissions as per your requirements of the RFP, we confirm that,

1. All proposed hardware and software components in scope of supplies (Cameras, Servers/NVR, Storage Solution, VMS Software, Analytics Solution, Facial Recognition Software etc.) when shipped by _____, does not contain embedded malicious code that would activate procedures to:-
    a. Inhibit the desired and designed function of the equipment.
    b. Cause physical damage to the user or equipment during the exploitation.
    c. Tap information resident or transient in the equipment/networks.

2. We, _____ will be considered to be in breach in case physical damage or malfunctioning is caused due to activation of any such malicious code in embedded software and thus be liable to repair, replace or refund the price of the infected software if reported (or, upon request, return) to the party supplying the software to Customer, if different than _____

Place:
Date: Seal and signature of the bidder

(This letter should be on the letterhead of the bidder duly signed by an authorized signatory)

Form No.9

PROFORMA FOR MANUFACTURER's AUTHORIZATION FORM

Note: This authorization letter should be printed on the letterhead of all the original equipment manufacturer (OEM) and should be signed by a competent person having the power of attorney to bind the manufacturer.

RFP Ref No. RailTel/Tender/OT/CO/OP/2016-17/VSS-WR/364 Dated dd/mm/yy

To,

General Manager/Operation
RailTel Corporation of India Ltd.
Plot No. 143, Institutional Area,
Opposite-Gold Souk,
Sector-44, Gurgaon-122003

Dear Sir,

Sub: Manufacturer's Authorization Form for RFP no. RailTel/Tender/OT/CO/OP/2016-17/VSS-WR/364 for Supply, Installation, Testing, Commissioning Operation and Maintenance of IP based Video Surveillance System (VSS) at various Railway Stations of A1, A, B and C category of Indian Railways under Western Region of RailTel for and on behalf of REL and Indian Railways dated 28-Nov-2016.

We who are established and reputable manufacturers/ producers of _____ having factories/ development facilities at _____ (address of factory/ facility) do hereby authorize M/s _____ (Name and address of the bidder) to submit a Bid, and sign the contract with you against the above Bid Invitation.

We hereby extend our full guarantee and warranty for the Solution, Products and services offered by the above firm against this Bid Invitation.

We also undertake to provide any or all of the following materials, notifications, and information pertaining to the Products manufactured or distributed by the Bidder:

1 Such Products as RailTel may opt to purchase from the Bidder, provided, that this option shall not relieve the Bidder of any warranty obligations under the Contract; and

2 In the event of termination of production of such Products:

- Advance notification to RailTel of the pending termination, in sufficient time to permit RailTel to procure needed requirements; and
- Following such termination, furnishing at no cost to RailTel, the blueprints, design documents, operations manuals, standards, source codes and specifications of the Products, if requested.

3 The OEM or authorized agency of the OEM has service and repair facility in India directly.

4 Guarantee to provide long term technical, service and maintenance support to the bidder that may be required during installation and commissioning of the equipment up to the maintenance period.

5 Guarantee to supply spares for a minimum period of eight years from the date of commissioning to entire section / works.

6 The OEM or authorized agency of the OEM should give Warranty for the minimum period of 3 years from the date of commissioning of individual stations.

7 The OEM or authorized agency of the OEM shall certify the installation of the equipment has been done correctly and installation fit for commissioning.

We duly authorize the said firm to act on our behalf in fulfilling all installations, technical support and maintenance obligations required by the contract.
We further certify that, in case the authorized distributor/ system integrator/ bidder is not able to meet its obligations as per contract during contract period, we, as the OEM, shall perform the said obligations with regard to their items through alternate & acceptable service provider.

Place:
Date: Seal and signature of the bidder

Form No.10

PROFORMA FOR UNDERTAKING TO SIGN TRIPARTITE AGREEMENT

RFP No: RailTel/Tender/OT/CO/OP/2016-17/VSS-WR/364 Dated dd/mm/2016

To,

General Manager/Operation
RailTel Corporation of India Ltd.
Plot No. 143, Institutional Area,
Opposite-Gold Souk,
Sector-44, Gurgaon-122003

Dear Sir,

Sub: Undertaking to sign tripartite agreement with reference to RFP no. RailTel/Tender/OT/CO/OP/2016-17/VSS-WR/364 for Supply, Installation, Testing, Commissioning Operation and Maintenance of IP based Video Surveillance System (VSS) at various Railway Stations of A1, A, B and C category of Indian Railways under Western Region of RailTel for and on behalf of REL and Indian Railways dated 28-Nov-2016.

We here by certify that in the event of award of contract to _____ (Lead Bidder), we would sign a tripartite agreement involving _____ (Lead Bidder) and RailTel as a part of the contract.

Place:
Date: Seal and signature of the bidder

(This letter should be on the letterhead of the bidder duly signed by an authorized signatory)

Form No.11

PROFORMA FOR BID UNDERTAKING LETTER

To

General Manager/Operation
RailTel Corporation of India Ltd.
Plot No. 143, Institutional Area,
Opposite-Gold Souk,
Sector-44, Gurgaon-122003
Date dd-mm-yyyy

Dear Sir,

Sub: RFP no. RailTel/Tender/OT/CO/OP/2016-17/VSS-WR/364 for Supply, Installation, Testing, Commissioning Operation and Maintenance of IP based Video Surveillance System (VSS) at various Railway Stations of A1, A, B and C category of Indian Railways under Western Region of RailTel for and on behalf of REL and Indian Railways dated 28-Nov-2016.

Over and above all our earlier conformations and submissions as per your requirements of the RFP, we confirm that,

1 We have quoted for all items as requested by RailTel Corporation of India Ltd. in the RFP and stand committed to deliver to the highest standards and quality as required by RailTel Corporation of India Ltd. to meet the timelines of the project. Our bid submission is in line with the requirements of RailTel Corporation of India Ltd. as stated in the RFP.
2 We confirm that we have factored in all costs and expenses for meeting the complete scope and deliverables of the RFP.
3 We are completely aware of the Service Level requirements and timelines specified by RailTel Corporation of India Ltd. and are committed to adhering to the same. We have also clearly taken note of the service level requirements of RailTel Corporation of India Ltd. and expectations from us and wish to confirm that we have taken care of every aspect to meet the same.
4 We have clearly understood RailTel Corporation of India Ltd.'s requirements and wish to confirm that we abide by the terms and conditions of the RFP issued thereafter.
5 We confirm and understand that all arithmetical totaling errors will be corrected for the purpose of evaluation only and the consideration of that error for payment would be completely according to RailTel Corporation of India Ltd.'s discretion. We also confirm and understand that for all other errors which we have made in the bid, RailTel Corporation of India Ltd. for the purpose of evaluation will take the corrected amount based on the price quoted by us in the price sheets but the payment to RailTel of such amounts would be completely according to RailTel Corporation of India Ltd.'s discretion.
6 We confirm that we will provide the best of our resources and the people proposed by us will be dedicated to RailTel Corporation of India Ltd. for the sake of resource continuity. Further, we also confirm that RailTel Corporation of India Ltd. may interview the key resources proposed by us and confirm their acceptability. In any event if a resource is found unfit by RailTel Corporation of India Ltd. we agree to change the same and provide RailTel Corporation of India Ltd. with a replacement within reasonable time so as to not af-

fect the services/project timelines.

7 We confirm and understand that RailTel Corporation of India Ltd. has an aggressive rollout schedule and we will adhere to the rollout schedule at no additional cost/burden to RailTel Corporation of India Ltd.

8 We confirm that all the proposed solution components are compatible and interoperable with each other and the solution will meet the functional and technical requirements of RailTel Corporation of India Ltd.

9 We confirm that the prices and values quoted by us encompass the complete scope of the project and we will ensure that the quality of deliverables for the project is not affected due to any pricing pressures.

10 We wish to confirm that we have back-to-back arrangements from all the OEMs for the sizing, prices and service level commitments. We would be responsible and committed to ensure that the sizing is adequate and service levels as required by RailTel Corporation of India Ltd. are met and adhered. In case the hardware sizing is found to be inadequate and does not meet the SLA then the hardware upgrades, if any, will be provided without any further additional cost or burden to RailTel Corporation of India Ltd. than what has been specified by us in our commercial bid documents.

11 We will be the single point of contact/reference to RailTel Corporation of India Ltd. RailTel Corporation of India Ltd. will enter into agreement with us only.

Place:
Date: Seal and signature of the bidder

(This letter should be on the letterhead of the bidder duly signed by an authorized signatory)

Form No.12

PROFORMA FOR COMMERCIAL COMPLIANCE CERTIFICATE

To,

General Manager/Operation
RailTel Corporation of India Ltd.
Plot No. 143, Institutional Area,
Opposite-Gold Souk,
Sector-44, Gurgaon-122003

Dear Sir,

Sub: Commercial Compliance Certificate for RFP no. RailTel/Tender/OT/CO/OP/2016-17/VSS-WR/364 for Supply, Installation, Testing, Commissioning Operation and Maintenance of IP based Video Surveillance System (VSS) at various Railway Stations of A1, A, B and C category of Indian Railways under Western Region of RailTel for and on behalf of REL and Indian Railways dated 28-Nov-2016.

Having examined the Bidding Documents the receipt of which is hereby duly acknowledged, we, the undersigned, offer to supply and work as bidder as mentioned in the RFP document & in conformity with the said bidding documents for the same.

I / We undertake that the revenues offered are in conformity with the specifications prescribed.

I / We agree to abide by this bid for a period of 180 days (One hundred eighty Days) after the date fixed for bid opening and it shall remain binding upon us and may be accepted by RailTel, any time before the expiry of this period.

Until a formal contract is prepared and executed, this bid, together with your written acceptance thereof and your notification of award shall constitute a binding Contract between us.

I / We agree to the terms & conditions mentioned in the Tender document.

Terms & Conditions:

1 We confirm that we will abide by all the terms and conditions mentioned in the Request for Proposal document.

Place:
Date: Seal & Signature of the Bidder
Note:

Form No.13

PROFORMA FOR PRE BID QUERY FORMAT

Note: Bidder's request for Clarification - to be submitted minimum of two days before pre-bid meeting

If, bidder, desiring to respond to RFP no. RailTel/Tender/OT/CO/OP/2016-17/VSS-WR/364 for Supply, Installation, Testing, Commissioning Operation and Maintenance of IP based Video Surveillance System (VSS) at various Railway Stations of A1, A, B and C category of Indian Railways under Western Region of RailTel for and on behalf of REL and Indian Railways requires any clarifications on the points mentioned in the RFP, it may communicate with RailTel Corporation of India Ltd. using the following format.

All questions received at least two days before the pre-bid meeting will be formally responded to and questions/ points of clarification and the responses will be circulated to all participating bidder if required. The source (identity) of the bidder seeking points of clarification will not be revealed. Alternatively, RailTel may at its discretion, answer all such queries in the Pre-bid meeting.

RailTel Corporation of India Limited,
Corporate Office
Plot No. 143, Sector-44, Gurgaon, Haryana - 122003
Ref: RFP no. RailTel/Tender/OT/CO/OP/2016-17/VSS-WR/364 for Supply, Installation, Test-ing, Commissioning Operation and Maintenance of IP based Video Surveillance System (VSS) at various Railway Stations of A1, A, B and C category of Indian Railways under Western Region of RailTel for and on behalf of REL and Indian Railways dated 28-Nov-2016.

BIDDER'S REQUEST FOR CLARIFICATION

Name of Organization submitting request				Name & position of person submitting request	Full formal address of the Organization including phone, fax and Tel: Fax: Email:
S.No.	Section No.	Page No.	Point No.	Content of RFP requiring Clarification	Points of clarification required
1					
2					

Name and signature of authorized person issuing this request for clarification

Signature/Date Official designation

1 In case of multiple queries, the contact details need not be repeated and only last two rows of the above format (table) are to be furnished for the subsequent queries.
2 Please indicate the preferred method and address for reply.
3 Please use email or softcopy as a preference but forward hard copy confirmations.
4 The name of the organization and the date shall appear in each page of such a document/ email in the header or footer portion.

Form No.14

PROFORMA FOR REQUIREMENT FROM INDIAN RAILWAYS/RAILTEL

Additional Infrastructure/ any other requirements from Indian Railways / RailTel should be listed in the table below and submitted along with the bid.

	Item	Description/Specification
1		
2		
3		
4		
5		
6		
7		
....		
....		
....		

Form No.15

Submission Check List

Note: Bidder is required to submit offer as per following checklist by giving page number of submitted documents:

S.No.	Item/Clause of Tender Document	Details/Remarks
1	**Sealed Envelope-1 (for bid amount submission)**	
1.1	DD for EMD	
1.2	DD for Tender Participation Fee	
2	**Sealed Envelope -1 (for confirmation of eligibility criteria)**	
2.1	Confirmation of eligibility criteria	
2.2	Documents supporting the response provided	
2.3	Any other documents deemed relevant by the bidder	
3	**Sealed Envelope -1 (Technical Bid)**	
3.1	Write up on the solution proposed by the bidder as a response to this RFP	
3.2	Certifications available with the bidder at organization level	
3.3	Functional and Technical Specifications	
3.4	Technical BOM	
3.5	Proposed Agency Profile	
3.6	Confirmation of Terms and Conditions	
3.7	Nil Deviation Components compliance undertaking	

3.8	Manufacturers Authorization Form	
3.9	Undertaking by OEM to sign Tripartite Agreement	
3.10	Tender offer Cover Letter	
3.11	Proposed Team Profile	
3.12	Performance Bank Guarantee	
3.13	Submission checklist	
3.14	Confirmation of Eligibility	
3.15	Bid Undertaking Letter	
3.16	Resource Deployment Plan during Implementation Phase	
3.17	Additional Requirements from Indian Railways / Rail-Tel	
3.18	Masked commercial bid	
3.19	Original JV Agreement on a stamp paper of appropri-ate value (if applicable)	
3.20	Past Experience Form	
3.21	OEM undertaking to provide support to quoted prod-ucts	
3.22	Power of Attorney	
3.23	Parent Company Guarantee, in case of bidder is a sub-sidiary/ authorized agent/ branch office/ affiliate of a foreign company	
3.24	Office location details from bidder(s)/members of JV	
3.25	Affidavit for the Consortium/ JV Members (if applica-	

	ble)	
3.26	Consortium Agreement (if applicable)	
3.27	JV Agreement (if applicable)	
3.28	Any other relevant document as per the requirement of the RFP	
3.29	Any other document deemed relevant by the bidder	
4	**Sealed Envelope-II (Commercial Bid)**	
4.1	Commercial Compliance Certificate	
4.2	Commercial Bid	

Form No.16

Proposed Agency Profile

Sub: Proposed Agency Profile RFP no. RailTel/Tender/OT/CO/OP/2016-17/VSS-WR/364 for Supply, Installation, Testing, Commissioning Operation and Maintenance of IP based Video Surveillance System (VSS) at various Railway Stations of A1, A, B and C category of Indian Railways under Western Region of RailTel for and on behalf of REL and Indian Railways dated 28-Nov-2016.

S. No.	Particulars	Details to be furnished by the bidders
1	Names and designations of the persons authorized to make commitments to RailTel	
2	Previous organizations where the bidder was associated for similar type of services	
3	Duration of bidder association with that organization	
4	No. of years of experience	

We hereby acknowledge that the information provided by us is true and to the Best of our Knowledge

Place:
Date: Seal and signature of the bidder

Form No.17

Proposed Team Profile

(Please include resource for both Implementation Phase and Support Phase)

Sr. No.	**Name of Proposed Project Manager/ Team leaders /Proposed Team members**	**Position proposed for** (Project Manager/Team Leader/Team Member)	**Professional qualifications and Certifications/ Accreditations**	**Total years of experience**	**Areas of experience in similar projects** (Please provide details about the projects undertaken including project scope, client name, team member's role and responsibilities on the project etc.)	**Number of years of experience in projects pertaining to video Surveillance** (Please provide details about the projects undertaken including project scope, client name, team member's role and responsibilities on the project etc.)

Team Member	**Criteria**
Project Manager	More than 7 years of experience in similar implementations. Should have implemented at least 2 similar projects as project manager.
Solution Consultant	More than 5 years of experience in similar implementations. Should have implemented at least 1 similar project as team lead and should have implemented at least 2 similar projects overall.
Technical Resource	More than 2 years of experience in similar implementation. Should have implemented at least 1 similar project.

Please enclose documentary proofs to substantiate the claims made.
Place:
Date: Seal and signature of the bidder

Form No.18

Resource Deployment Plan during Implementation and support Phase

Bidder should provide the CV of Program Manager and indicative CV of proposed resources. The Bidder also needs to fill the below Resource Deployment which it plans to deploy during the implementation phase of the project.

Resource Name	**Role**	**M 1**	**M 2**	**…. .**	**….**	**…. .**	**M 24**	**…. .**	**….**	**…. .**	**….**	**….**	**….**	**M 120**
	Project Manager	F/ P												
	Team Leader													
	….													
	….													
	….													
	….													

Note:

- F – Full Time
- P – Part Time Resource Deployment Plan

Form No.19

Past Experience Form

S.No.	Item	Details
A. General Information		
1	Customer Name	
2	Details of Contact Person	
	Name	
	Designation	
	Email	
	Mailing Address	
	Phone	
	Fax	
B. General Information		
3	Name of the Project	
4	Government/Private/PSU/Others please specify	
5	Start Date and End Date	
6	Current Status (Completed/Work in Progress)	
7	Contract Tenure	
8	Geographical Coverage (No. of locations the project covers)	
9	Effort involved in person-months in each phase with average/peak number of resources deployed in each phase	
C. Size of the Project		
	Order Value of the project (in INR Lac)	
	Capital Expenditure involved (in INR Lac)	
	Cost of services provided by the bidder (in INR Lac)	
	Cost of services provided by the partners if involved (in INR Lac)	
	Approximate number of concurrent users	
	No of Video Cameras implemented (if applicable)	
	No of Network Devices managed (if applicable)	
	Please Provide customer certificate/Work order for executed Scope	
D. Brief description of scope of Project		
	Highlights of the Key Result Areas expected and achieved	
	List of modules and sub-modules implemented	
	Narrative description of Project including technology deployed	
	Description of actual services provided by your firm	

Certification: I, the undersigned, certify that to the best of my knowledge and belief, these data correctly describe the Projects implemented by our Company.

(Signature)
(Name of Authorized Signatory)
(Designation)
(Date)
(Name and address of the bidder)
(Company Seal)

Form No.20

Parent Company Guarantee

This GUARANTEE ("Guarantee") is issued on the _____ day of _____ , ___ by _____, a Company organized and existing under the laws of _____ having its Registered Office at _____ (hereinafter referred to as "Guarantor" and/or "_____"), at the request and/or behest of _____, a Company organized and existing under the laws of _____ having its Registered Office at _____ (hereinafter referred to as "Indian arm"), in favour of RailTel Corporation Of India Ltd, Corporate Office, Plot No. 143, Sector 44, Gurgaon, Haryana -122003 (Hereinafter called " the RailTel" or "Beneficiary")

The Beneficiary floated a tender dated _____ inviting offers from Vendors for_____ (purpose). The Indian arm are submitting their response dated _____ and advised the Beneficiary that the Indian arm is the subsidiary/ authorized agent/ branch office/ affiliate* of the Guarantor. The Guarantor wishes to inform the Beneficiary that its Indian arm_____, will quote and participate in the tender in their place and desire that the contract be placed by the Beneficiary on the Indian arm. For this reason, the Guarantor is ready and willing to give a Parent Company Guarantee (PCG) inter alia for the performance of their Indian arm to the terms and conditions of the tender and on failure to assume the said obligations.

IN WITNESS WHEREOF the Guarantor has duly executed this Guarantee as at the date first above written.

For and on behalf of Guarantor,

_____

(Signature) Signature :

Witness

Name :

Designation :

Date :

* Strike off that which is not applicable and retain the correct relationship between Guarantor and Indian arm

Form No.21

List of Office Locations

S.No	Office Name and Address	State in which office is located	No. of Staff employed at location

Place:
Date:

Signature and Seal of Bidder

Form No.22

Tripartite Agreement Format

Tri-partite Memorandum of Understanding

Between

Successful bidder & OEM

And

RailTel Corporation of India Limited

Tri-partite Memorandum of Understanding

THIS Tri-partite MOU ("Tri-partite MOU") is made on the last date of signature by both parties (hereinafter referred as the "Effective Date") by and between:

RAILTEL CORPORATION OF INDIA LIMITED (a Government of India Undertaking) (CIN: U64202DL2000GOI107305), a company incorporated under the Companies Act 1956, having its registered office at 6th Floor, IIIrd Block, Delhi Technology Park, Shastri Park, Delhi-110053 and Corporate Office at Plot no.- 143, Sector 44, Institutional Area, Gurgaon-122003, Haryana, India (hereinafter referred to as "RailTel" which expression unless repugnant to the context. Or meaning thereof, be deemed to mean and include its successors or permitted assign) – PARTY OF THE FIRST PART

AND

PARTY 2 (CIN:------) a company incorporated under the Companies Act, 1956/ Companies Act, 2013 having its registered office at ADDRESS_PARTY2 and having its corporate office at YYYY India (hereinafter referred to as "SI" which expression shall unless repugnant to the context hereof be deemed to include its successors and permitted assigns) – PARTY OF THE SECOND PART

AND

PARTY 3 (CIN:-----), a Company incorporated under the Indian Companies Act 1956/ Companies Act, 2013 and having its registered office at ADDRESS_PARTY3 (herein referred to as "OEM", which expression unless repugnant to the subject or context shall mean and include all its successors and permitted assigns) – PARTY OF THE THIRD PART.

RailTel, SI and OEM are hereinafter collectively referred to as the "Parties" and individually as a "Party".

1 Definitions

1.1 Customer: RailTel Corporation of India Limited

1.2 Definitive Agreement: Contract between RailTel, SI/successful bidder and OEM
1.3 Tri-partite MoU: Memorandum of Understanding between RailTel, SI and the OEM
1.4 Effective Date: The last date of signature of this Tri-partite MoU by all three parties' Authorized Signatories
1.5 MoU: Memorandum of Understanding between JV and RailTel
1.6 RFP: Request for Proposal ("RFP") for Supply, Installation, Testing, Commissioning, Operation, and Maintenance of the IP based CCTV surveillance system at various Railway Stations of A1, A, B and C category of Indian Railways
1.7 RFP Response: Proposal submitted to RailTel in response to RFP received

2 Term

This Tri-partite MoU shall be effective from the "Effective Date" and shall continue till the completion of the work unless there is mutual disagreement among all the parties. In case SI and OEM, do not enter the Tri-partite MoU with RailTel, EMD submitted by the successful bidder (in reference to the "MoU") shall be forfeited.

3 Cost

Each Party shall individually assume its own respective costs at the agreed upon rates associated with the activities undertaken pursuant to this Tri-partite MoU. No third party cost shall be committed and incurred until RailTel approves and agrees on such expenditure.

4 Entire Understanding

This Tri-partite MoU constitutes the entire understanding of the parties related to the subject matter hereof. The Tri-partite MoU may be amended only in writing when it is signed by RailTel, SI/successful bidder and OEM.

5 Responsibilities of the OEM

1 Scope of work allocated to OEM is defined in Section 7 of RFP document
2 OEM agrees to support successful bidder throughout the entire duration of this project, starting with bid preparation process up until project implementation and maintenance of the same. The project duration comprises of 18 months of implementation, 6 months of maintenance supervision period, 2 years for warranty and 5 years for AMC. However, if the implementation phase gets extended (for whatsoever reason), OEM shall extend their support unconditionally for the same period.
3 OEM will provide its compliance to all the undertakings required as per the RFP.
4 If at any point of time during the RFP evaluation process and/or during project execution, once the work is awarded to successful bidder, the successful bidder is unable to perform its duties (for whatsoever reason) resulting in termination of the MoU or Definitive Agreement between RailTel and the successful bidder, as the case may be, RailTel will initiate discussions with OEM to find a suitable replacement Sytem Integrator(SI). RailTel will identify the SI based on mutual discussions and agreements with OEMs. However final decision for selection of the SI will lie with RailTel. In such case, the OEM is expected to initiate discussions and enter into an agreement with the SIfor the remaining duration and Scope of the project.
5 In case the contract agreement between successful bidder and the OEM is terminated (for whatsoever reason), the OEM shall identify and suggest a suitable replacement in agreement with RailTel. However the OEM shall continue to support RailTel for this project and the compliances provided will remain valid for the entire duration of the project.

6 Termination

1 This Tri-partite MoU shall come into force on the Effective Date and shall continue (unless terminated earlier) until the completion of the work.
2 This Tri-partite MoU will be terminated by giving a notice of thirty days in the event of mutual agreement between the three Parties
3 This Tri-partite MoU stands automatically terminated on occurrence of any of the following events whichever shall occur first:
- On cancellation of RFP by RailTel.
- RailTel notifies successful bidder in writing that OEM has not been or will not be approved as an OEM for the purpose of the project pursuant to the RFP.

7 General

1. Except to the extent otherwise provided herein, no liability shall result to any party from delay in performance or from non-performance caused by circumstances beyond the reasonable control of that party affected, including but not limited to act of God, file, flood, explosion, war, action or request of the Governmental authority, accident, labor trouble, but each of the hereto shall be diligent in attempting to remove such cause or causes.
2. No alterations or amendments to this Tri-partite MoU shall be effective unless in writing and signed by all the three parties.
3. In all matters relating to this Tri-partite MoU, each Party shall be acting as an independent contractor. Neither Party's employees are employees of the other party under the meaning or application of any laws or otherwise. Each Party assumes all liabilities or obligations imposed by any law with respect to its employees. Neither Party shall have any authority to assume or create any obligation, express or implied, on behalf of the other party without the prior written consent of that other Party. Neither Party shall have authority to represent itself as an agent, employee, or in any other capacity of the other Party.
4. All notices, under this Tri-partite MoU shall be given by the parties at the addresses mentioned in this Tri-partite MoU in writing by letter or by personal delivery.
5. Neither party shall be entitled to assign or sub-contract all or any of its rights, benefits and obligations under this Tri-partite MoU without the prior written consent of the other party, which consent shall not be unreasonably withheld or delayed.
6. Notwithstanding any other provisions of this Tri-partite MoU, the provisions of this Tri-partite MoU that are intended to survive shall so survive the term and termination of this Tri-partite MoU .
7. The waiver of any breach of any term, covenant, or condition, herein contained, shall not be deemed to be a waiver of such term, covenant or condition, or any subsequent breach of the same.
8. Parties shall not publicize any information pertaining to this Tri-partite MoU or to the other party without seeking the prior written consent of the other party.
9. Nothing contained in this Tri-partite MoU shall be construed as creating a consortium, partnership or employment relationship between the parties hereto, nor shall either party have the right, power or authority to create any obligation or duty, express or implied, on behalf of the other.
10. This Tri-partite MoU may be executed by the parties in separate counterparts each of which when so executed and delivered shall constitute an original, and all such counterparts together shall constitute one and the same instrument.
11. This Tri-partite MoU is signed by the authorized representatives of the Parties.

IN WITNESS WHEREOF the parties hereto have executed these presents the day and year first above written.

SIGNED AND DELIVERED BY (on behalf of RailTel)

Signature …….
Name……
Designation …….
Address……...….
……..……

In the presence of

Signature ……..
Name…….
Designation……
Address ……..……

SIGNED AND DELIVERED BY (on behalf of SI/Party 2)

Signature …….
Name……
Designation …….
Address……...….
……..……

In the presence of

Signature ……..
Name…….
Designation……
Address ……..……

SIGNED AND DELIVERED BY (on behalf of OEM/Party 3)

Signature …….
Name……
Designation …….
Address……...….
……..……

In the presence of

Signature ……..
Name…….
Designation……
Address ……..……

Form No.23

Undertaking for the compliance to AMC conditions

RFP No: RailTel/Tender/OT/CO/OP/2016-17/VSS-NR/359 Dated dd/mm/2016

To,

Group General Manager/DNM
RailTel Corporation of India Ltd.
Plot No. 143, Institutional Area,
Opposite-Gold Souk,
Sector-44, Gurgaon-122003

Dear Sir,

Sub: Undertaking for compliance to AMC conditions with reference to RFP no. RailTel/Tender/OT/CO/OP/2016-17/VSS-WR/364 for Supply, Installation, Testing, Commissioning Operation and Maintenance of IP based Video Surveillance System (VSS) at various Railway Stations of A1, A, B and C category of Indian Railways under Western Region of RailTel for and on behalf of REL and Indian Railways dated 28-Nov-2016.

I / We ……. hereby confirm and accept that against RailTel Tender No. …….., the requirement of Annual Maintenance Support as per Clause 4.A.3 shall be met by us directly or through our subsidiary in India as per rates quoted in the Price Bid. I / We have gone through the requirement mentioned in the Tender document and shall provide services as per terms and conditions pertaining to Long Term Maintenance Support of this RFP document.

Date: Seal and signature of the bidder

(This letter should be on the letterhead of the OEM duly signed by an authorized signatory)

Form No.24

Undertaking to provide for the support to quoted product

RFP No: RailTel/Tender/OT/CO/OP/2016-17/VSS-NR/359 Dated: dd/mm/2016

To,
Group General Manager/DNM
RailTel Corporation of India Ltd.
Plot No. 143, Institutional Area,
Opposite-Gold Souk,
Sector-44, Gurgaon-122003
Dear Sir,

Sub: Undertaking to provide for support to the proposed product with reference to RFP no. RailTel/Tender/OT/CO/OP/2016-17/VSS-WR/364 for Supply, Installation, Testing, Commissioning Operation and Maintenance of IP based Video Surveillance System (VSS) at various Railway Stations of A1, A, B and C category of Indian Railways under Western Region of RailTel for and on behalf of REL and Indian Railways dated 28-Nov-2016.

We hereby explicitly undertake to provide support for the quoted _____ (OEM) products in terms of provision of spares and repair/replacement of faulty equipment, software upgrade as per the terms and conditions of the support contract pre-purchased by _____(the Lead Bidder and System Integrator) for the requirements mentioned in RFP document during the entire contract period of 10 years.

Place:
Date: Seal and signature of the bidder

(This letter should be on the letterhead of the OEM duly signed by an authorized signatory)

CHAPTER-7

Annexure-I

List of Divisional Control Offices

S. No	Railway zone	Headquar-ters	Divisions Control Office	Region
1.	Central Railway	Mumbai	Mumbai, Bhusawal, Pune, Solapur, Nagpur	Western
2.	East Central Railway	Hajipur	Danapur, Dhanbad, Mughalsarai, Sa-mastipur, Sonpur	Eastern
3.	East Coast Railway	Bhubanes-war	Khurda Road, Sambalpur, Waltair	Eastern
4.	Eastern Railway	Kolkata	Howrah, Sealdah, Asansol, Malda	Eastern
5.	North Central Railway	Allahabad	Allahabad, Tundla, Agra, Jhansi	Northern
6.	North Eastern Railway	Gorakhpur	Izzatnagar, Lucknow, Varanasi	Northern
7.	North Western Railway	Jaipur	Jaipur, Ajmer, Bikaner, Jodhpur	Northern
8.	North-east Frontier Railway	Guwahati	Alipurduar, Katihar, Rangia, Lumding, Tinsukia	Eastern
9.	North-ern Railway	Delhi	Delhi, Ambala, Firozpur, Lucknow, Mora-dabad	Northern
10.	South Central	Secundera-bad	Secunderabad, Vijayawada, Hyderabad, Guntakal, Guntur, Nanded	Southern

	Railway			
11.	South East Central Railway	Bilaspur	Bilaspur, Raipur, Nagpur	Southern
12.	South Eastern Railway	Kolkata	Adra, Chakradharpur, Kharagpur, Ranchi	Southern
13.	South Western Railway	Hubli	Hubli, Bangalore, Mysore	Southern
14.	Southern Railway	Chennai	Chennai, Tiruchirappalli, Madurai, Palakkad, Salem, Thiruvananthapuram	Southern
15.	West Central Railway	Jabalpur	Jabalpur, Bhopal, Kota	Western
16.	Western Railway	Mumbai	Mumbai Central, Ratlam, Ahmedabad, Rajkot, Bhavnagar, Vadodara	Western

Tentative Station list

Region: West

Summary of Stations under Western Region:

Region	Zone	Division	Category				
			A1	A	B	C	Total
West	CR	Bhusawal	0	4	3	0	7
		Mumbai	0	2	2	70	74
		Nagpur	0	4	2	0	6
		Pune	0	1	3	14	18
		Solapur	1	7	2	0	10
	WCR	Bhopal	0	4	5	0	9
		Jabalpur	1	6	4	1	12
		Kota	0	3	5	0	8
	WR	Ahmedabad	0	5	2	0	7
		Bhavnagar	0	2	5	0	7
		Mumbai	0	4	3	7	14

		Rajkot	1	2	4	0	7
		Ratlam	0	4	5	0	9
		Vadodara	1	4	1	0	6
Total			4	52	46	92	194

Tentative Division Wise Camera Distribution For Western Region:

Division-Wise Camera Distribution			
Division	**4K-UHD**	**Full HD**	**Total**
Bhusawal	36	276	312
Mumbai-CR	302	1857	2159
Nagpur	30	225	255
Pune	74	459	533
Solapur	58	485	543
Bhopal	44	324	368
Jabalpur	64	506	570
Kota	40	302	342
Ahemdabad	38	303	341
Bhavnagar	32	222	254
Mumbai	64	444	508
Rajkot	36	278	314
Ratlam	44	324	368
Vadodara	36	308	344

List of Stations in West Region

Name of the station	**Division**	**Zone**
Lonavala	Mumbai Division	CR
Panvel	Mumbai Division	CR
Igatpuri	Mumbai Division	CR
Matheran	Mumbai Division	CR
Airoli	Mumbai Division	CR
Ambarnath	Mumbai Division	CR
Ambivili	Mumbai Division	CR
Asangaon	Mumbai Division	CR
Atgaon	Mumbai Division	CR
Badlapur	Mumbai Division	CR
Chinchpokhli	Mumbai Division	CR
Chunnabhatti	Mumbai Division	CR
Cotton Green	Mumbai Division	CR
Curry Road	Mumbai Division	CR
Diva	Mumbai Division	CR
Belapur	Mumbai Division	CR
Bhandup	Mumbai Division	CR
Bhivpuri Road	Mumbai Division	CR
Byculla	Mumbai Division	CR

Chembur	Mumbai Division	CR
Dockyard	Mumbai Division	CR
Dolavili	Mumbai Division	CR
Dombivili	Mumbai Division	CR
Ghansoli	Mumbai Division	CR
Ghatkopar	Mumbai Division	CR
Govandi	Mumbai Division	CR
Guru Teg Bahadur Na-gar	Mumbai Division	CR
Juinagar	Mumbai Division	CR
Kalva	Mumbai Division	CR
Kanjurmarg	Mumbai Division	CR
Karjat	Mumbai Division	CR
Kasara	Mumbai Division	CR
Kelavali	Mumbai Division	CR
Khadavli	Mumbai Division	CR
Khandeshwar	Mumbai Division	CR
Khardi	Mumbai Division	CR
Khargar	Mumbai Division	CR
Khopoli	Mumbai Division	CR
King's Circle	Mumbai Division	CR
Kopar	Mumbai Division	CR
Koparkhairane	Mumbai Division	CR
Lowji	Mumbai Division	CR
Mankhurd	Mumbai Division	CR
Mansarovar	Mumbai Division	CR
Masjid	Mumbai Division	CR
Matunga	Mumbai Division	CR
Muhund	Mumbai Division	CR
Mumbra	Mumbai Division	CR
Nahur	Mumbai Division	CR
Neral	Mumbai Division	CR
Nerul	Mumbai Division	CR
Palasdhari	Mumbai Division	CR
Parel	Mumbai Division	CR
Rabale	Mumbai Division	CR
Reay Road	Mumbai Division	CR
Sandhurst Road	Mumbai Division	CR
Sanpada	Mumbai Division	CR
Seawood Dharawe	Mumbai Division	CR
Sewri	Mumbai Division	CR
Shahad	Mumbai Division	CR
Sehlu	Mumbai Division	CR
Sion	Mumbai Division	CR
Thakurli	Mumbai Division	CR
Tilak Nagar	Mumbai Division	CR

Titwala	Mumbai Division	CR
Turbhe	Mumbai Division	CR
Ulhasnagar	Mumbai Division	CR
Vadala Road	Mumbai Division	CR
Vangani	Mumbai Division	CR
Vashi	Mumbai Division	CR
Vasind	Mumbai Division	CR
Vidya Vihar	Mumbai Division	CR
Vikhroli	Mumbai Division	CR
Vithalwadi	Mumbai Division	CR
Burhanpur	Bhusawal Division	CR
Khandwa	Bhusawal Division	CR
Amravati	Bhusawal Division	CR
Shegaon	Bhusawal Division	CR
Malkapur	Bhusawal Division	CR
Pachora	Bhusawal Division	CR
Devlali	Bhusawal Division	CR
Ballarshah	Nagpur Division	CR
Chandrapur	Nagpur Division	CR
Wardha	Nagpur Division	CR
Sewagram	Nagpur Division	CR
Betul	Nagpur Division	CR
Dhamangaon	Nagpur Division	CR
Kolhapur	Pune Division	CR
Karad	Pune Division	CR
Sangli	Pune Division	CR
Satara	Pune Division	CR
Akurdi	Pune Division	CR
Begdewadi/Shelarwadi	Pune Division	CR
Chinchwad	Pune Division	CR
Dapodi	Pune Division	CR
Dehuroad	Pune Division	CR
Ghorawadi	Pune Division	CR
Kamshet	Pune Division	CR
Kasarwadi	Pune Division	CR
Khadki	Pune Division	CR
Malavali	Pune Division	CR
Pimpri	Pune Division	CR
Shivajinagar	Pune Division	CR
Talegaon	Pune Division	CR
Vadgaon	Pune Division	CR
Ahmednagar	Solapur Division	CR
Daund	Solapur Division	CR
Gulbarga	Solapur Division	CR
Kopargaon	Solapur Division	CR
Kurduwadi	Solapur Division	CR

Latur	Solapur Division	CR
Solapur	Solapur Division	CR
Sainagar Shirdi	Solapur Division	CR
Pandharpur	Solapur Division	CR
Wadi	Solapur Division	CR
Swaimadhopur	Kota Division	WCR
Kota	Kota Division	WCR
Bharatpur	Kota Division	WCR
Bhawanimandi	Kota Division	WCR
Ramganjmandi	Kota Division	WCR
Hindaun	Kota Division	WCR
Bundi	Kota Division	WCR
Gangapur City	Kota Division	WCR
Jabalpur	Jabalpur Division	WCR
Pipariya	Jabalpur Division	WCR
Gadarwara	Jabalpur Division	WCR
Narsinghpur	Jabalpur Division	WCR
Katni	Jabalpur Division	WCR
Damoh	Jabalpur Division	WCR
Saugor	Jabalpur Division	WCR
Katni Murwara	Jabalpur Division	WCR
Maihar	Jabalpur Division	WCR
Rewa	Jabalpur Division	WCR
Satna	Jabalpur Division	WCR
Madanmahal	Jabalpur Division	WCR
Habibganj	Bhopal Division	WCR
Sanchi	Bhopal Division	WCR
Vidisha	Bhopal Division	WCR
Guna	Bhopal Division	WCR
Ganjbasoda	Bhopal Division	WCR
Hoshangabad	Bhopal Division	WCR
Harda	Bhopal Division	WCR
Bina	Bhopal Division	WCR
Shivpura	Bhopal Division	WCR
Vapi	Mumbai Division	WR
Vaslad	Mumbai Division	WR
Navsari	Mumbai Division	WR
Udvada	Mumbai Division	WR
Vaitarna	Mumbai Division	WR
Saphale	Mumbai Division	WR
Kelve Road	Mumbai Division	WR
Palghar	Mumbai Division	WR
Boisar	Mumbai Division	WR
Dahanu Road	Mumbai Division	WR
Bilimora	Mumbai Division	WR
Vangaon	Mumbai Division	WR

Udhna	Mumbai Division	WR
Nandurbar	Mumbai Division	WR
Vadodara	Vadodara Division	WR
Godhra	Vadodara Division	WR
Anand	Vadodara Division	WR
Bharuch	Vadodara Division	WR
Nadiad	Vadodara Division	WR
Ankleshwar	Vadodara Division	WR
Indore	Ratlam Division	WR
Dewas	Ratlam Division	WR
Mhow	Ratlam Division	WR
Ratlam	Ratlam Division	WR
Mandsor	Ratlam Division	WR
Nagda	Ratlam Division	WR
Dahod	Ratlam Division	WR
Nimach	Ratlam Division	WR
Chiottaurgarh	Ratlam Division	WR
Gandhidham	Ahmedabad Division	WR
New Bhuj	Ahmedabad Division	WR
Samakhyali	Ahmedabad Division	WR
Bhauchau	Ahmedabad Division	WR
Palanpur	Ahmedabad Division	WR
Mahesana	Ahmedabad Division	WR
Viramgam	Ahmedabad Division	WR
Wankaner	Rajkot Division	WR
Rajkot	Rajkot Division	WR
Surendra Nagar	Rajkot Division	WR
Jamnagar	Rajkot Division	WR
Hapa	Rajkot Division	WR
Dwarka	Rajkot Division	WR
Okha	Rajkot Division	WR
Bhavnagar Terminus	Bhavnagar Division	WR
Veraval	Bhavnagar Division	WR
Junagarh	Bhavnagar Division	WR
Somnath	Bhavnagar Division	WR
Gondal	Bhavnagar Division	WR
Porbander	Bhavnagar Division	WR
Botad	Bhavnagar Division	WR

Annexure-II

Detailed standard conditions applicable for the Annual Maintenance Contract (Clause 4.A.3, Chapter-4A of Tender Document)

1.0 Introduction

This document contains the standard conditions applicable for the Annual Maintenance Contract between RailTel and the Contractor. Contractor is defined as the company whose products/equipment have been deployed over the RailTel Video Surveillance Network and the warranty of these equipment has expired or going to be expire shortly. All the equipment/ cards/ modules given in SOR will be covered under this contract. This Annual Maintenance Contract will cover up the provision of remote services to be provided by the contractor for proper working of Video Surveillance Network created through the contractor's equipment. This document will also cover up the Repair and Return services for the rectification of defective equipment/modules/cards/parts etc. which are the key components used tools in use for uninterrupted traffic. It also includes the Key performance parameter which will decide the outcome of the contractor within reasonable time frame along with the provision of penalties. This Annual Maintenance Contract will cover the following services:

- **Technical Support service.**
- **Repair and Return Service.**
- **Software Updates.**

2.0 Basic Definitions and terminology Used:-

RailTel: RailTel Corporation of India Limited having its registered office at 10th floor, BoB Building, 16 Sansad Marg, New Delhi and Corporate Office at Plot No. 143, Institutional Area, Opposite-Gold Souk, Sector-44, Gurgaon-122003.

Contractor: Contractor means firm/company whom equipment are deployed over the Telecommunication Network of RailTel.

TSC: Technical Support Center created by the Contractor for 2nd level support.

TEC: Telecom Excellence Center created by the contractor for 3rd level support.

WC: Welcome Center of contractor through which the RailTel may interact with contractor.

AR: Assistance Request created by WC of contractor for a specific request of RailTel which will be used for all references until its closure and also for future correspondence.

Maintained Products: Details of equipment with location wise deployment and serial identification numbers to be incorporated in a statement jointly signed by RailTel and Contractor, which will be covered under AMC contract.

Key Performance Indicators (KPIs):

The key performance indicators (KPI) established by contractor and RailTel, are dependent on the severity level of the request as reported by RailTel to the TSC through telephone. Contractor's KPIs extend to Maintained Products running on a currently supported software version release only. These are KPIs which will decide the penalties to be imposed on contractor if he fails to achieve the fixed parameter for both remote services and Repair & Return services.

"Response Time" (also known as Specialist Call-back) means the time period from when RailTel first notifies the Contractor's welcome center of a reported problem to when an contractor's expert attempts to contact RailTel via telephone or preferred contact method as defined when submitting the request.

"Restore Time" (also known as Remote Neutralization) means a measure of the length of time from when contractor is contacted and an event is determined to be loss of service and/or functionality affecting, to the time when contractor provides the means to return a system to operational status. This will be applicable only for services impacting cases. Travel time of field's engineers or TSC engineers and spare arrangement times will be excluded in this.

Resolve Time (Also known as Final Resolution Time) means a measure of the length of time from when RailTel first notifies the contractor's welcome center to the time when a solution to address the issue is made available to RailTel. This may or may not occur simultaneously with Restore Time.

Patch Releases/Maintenance Releases:-

"Patch Release" means a software release that contains minor modifications to address a specific problem and help restore a system. A Patch Release may also be known as "Craft Release".

"Maintenance Release" means a software release that contains modifications intended to resolve problems that prevent products from performing up to the manufacturer's technical specification. Typically they are comprised of a collection of Patch Releases. Maintenance Release may also be known as an "Update Release" or a "Point Release".

3.0 Technical Support Service:-

During this AMC period, whenever needed, RailTel may contact the Contractor's Support center (WC) through a dedicated phone no. or e-mail address or Web for every issue or request. The Welcome Center of the Contractor (WC) will be available 24 hours a day and 365 days of the year. Welcome Centre creates the Assistance Request (AR) in the database and this AR will be used for all future correspondence /references and it will route to either for Repair or Return services or to Technical support center (TSCs) for remote assistance. These level 2 services provided through Technical support center may escalate to Technical Experts centre or to OEM dedicated technical support centers (for OEM support for hardware and /or software portion of the products).

The Welcome centre of contractor (WC) keeps track of the assistance request (AR) or part request until closure.

3.1 Schedule of Activity for execution of AMC:

Contractor shall login VSS in support of product related questions troubleshooting assistance, diagnostic procedures, and Patch & Maintenance Releases, as are made available, to restore and resolve network troubles. The following services will be provided:

3.1.1 Bidder shall provide AMC of complete system including spares

3.1.2 Troubleshoot hardware/software problems of the system via phone, virtual private network, or modem connection down to Maintained product component level, or sufficiently to the maintained products as the root cause.

3.1.3 Provide technical advice and guidance via telephone or email by Contractor's product specialists located in their Technical Support Centers (TSC). Upon request from RailTel, RailTel will receive information, advice and assistance for the Maintained Products.

3.1.4 Provide Patch & Maintenance Releases for Maintained Products, as provided in accordance with the applicable product software support policy. For selected products noted on Maintained Products Contractor will remotely install software fixes, patches, and updates that may be made available.

3.1.5 During the period of AMC, the contractor shall remain responsible to arrange for the replacement and setting right at his own cost the equipment/sub-system in hardware or software or any other form supplied by him which is of defective design or defective material/component or becomes unworkable due to any cause whatsoever.

3.1.6 For Severity Level Critical (Severity 1) and Major (Severity 2) will restore Maintained Products to operational status by identifying defective hardware components or providing software and/or procedural workarounds, where feasible. All software workarounds will be licensed subject to the same terms, restrictions, and limitations as contained in the licenses under which the software was acquired.

3.1.7 Fault reporting to be registered by the service provider round the clock including the holidays and Sundays on telephone/mobile or otherwise

3.1.8 Maintain the requisite inventory/ spares.

3.1.9 The contractor engineer shall fill up the history sheet containing the statistics about the health of equipment installed at the concerned site and send a report on monthly basis. Based on this history sheet the supplier shall analyze the health report of each site and if something alarming or unusual is noticed, shall advise the field staff of RailTel to take necessary actions for preventive maintenance of such equipment. The Proforma for checking the status/history sheet shall be jointly decided by the contractor and RailTel.

3.1.10 Qualified engineer of the firm shall visit every month with necessary tools and equipment to check all the hardware, software and peripheral equipment covered under the scope of AMC.

3.1.11 The comprehensive maintenance should be carried out under the supervision of competent supervisor with good workmanship to the satisfaction of the RailTel/Railways

3.1.12 All sorts of safety precautions should be taken before starting the work. The RailTel/Railways would not be responsible for any accident caused to its labor during the execution of the maintenance works

3.1.13 All checks through servicing and maintenance carried out, shall be entered against each machine/equipment in asset register. Signature of the RailTel/Railway representative/superior during the check should be obtained by the contractor concerned

3.1.14 During the period visited any breakdown requiring repairing, the engineer of the firm will also check and clean all the system relevant components and this includes disinfections of any viruses detected

3.1.15 Supply of another alternative machine/equipment free of cost during the maintenance contract has to be ensured by the contractor when the machine/equipment is taken out for repairing or overhaul over and above the duplication already provided

3.1.16 When the machine/equipment or system component is taken out of the user premises, an indemnity bond has to be executed in proper format by the firm concerned of an equivalent as per accepted rate of LOA/CA of tender

3.1.17 No extra charge shall be paid for handling of machine/equipment or system component from site to Firm's premise and back in case of any requirement. No additional payment shall be made to the contractor for attending to the maintenance /failure requirements or any other visit to installation over and above what is included in AMC

3.1.18 The necessary documentary evidences/proofs should be obtained from the authorized representative of RailTel/Railways on the successful rectification of the fault

3.1.19 If required the contract can be terminated by RailTel by giving one month notice period. No extra payment will be made during the currency of the AMC contract

3.1.20 **Software Update:** RailTel will be extended the benefits of firmware/software updates made by OEM on the installed systems on existing release from time to time to improve performance. If required to restore or rectify severe problems all the software up-gradation, re-installation will be done by contractor during the period of AMC.

4.0 Repair and Return Services

4.1 Repair

4.1.1 Contractor's Responsibility:-

- The Contractor will take-over the defective equipment/component from station/site and hand-over the repaired equipment/component at the same location. The following activities will be performed by the contractor:
- After receiving a defective part request through Welcome Centre (dedicated phone line or e-mail), the defective equipment/component will be taken over by the contractor from each of the station. All the documentation including identification number (Serial number) will be provided by RailTel.
- There will be initial one time activity of all existing faulty equipment/component being repaired by Contractor before commencement of the AMC. AMC will cover only equipment which are in working condition.
- **Delivery Period:** The received defective part will be got repaired by the contractor within 30 days from the date of receiving and will be handed over to RailTel/Railway authorized representative at station/site. The contractor will also give probable reason for repeated failure of equipment/component/ modules.

Uninterrupted Network: For smooth and uninterrupted traffic during the repair being carried out by the contractor.

1. RailTel/Railways will provide its own spares in the first instance for the defective equipment where spares have been procured as per the SOR. For remaining items contractor shall make spares available at his own cost.
2. If contractor fails to return the repaired equipment/module/card/SFP/part within stipulated time of 30 days from the date of receipt then the OK (good conditioned) equipment/cards/SFPs/parts etc. will be provided by the contractor for the subsequent time period free of cost till replacement is made with the repaired equipment/module/card/SFP/part.
3. All transportation, freight and insurance charges will be borne by the contractor.
4. Contractor will keep the record of repair on each defective equipment/part/cards/SFP/components with serial numbers (unique identification) particulars.

4.1.2 RailTel/Railways Responsibility

RailTel/Railways will hand over the equipment/defective card/SFP/Parts/etc. to the contractor's authorized representative at each of the station/site along with the following relevant information & documentation.

- Identification/serial number and location of use.
- Fault report document duly filled-in in a format as per requirements of Contractor.
- All relevant documentation including failure description, diagnostic tests results.
- Adequate packing material to protect against reasonable risk of damages.
- Provide all necessary government authorization and documentation necessary to facilitate custom clearance processing.
- Perform a physical check test on the repaired parts.

4.2 Return

If any part goes beyond repair due to Contractor at the time of repair being carried out, this is to be communicated to RailTel/Railways and after agreed upon, it will be labeled as "unworkable". If it will be required to deploy a new equipment/part on that location that will be provided by the contractor free of cost. To achieve this, contractor is required to always keep adequate spares with it during the period of AMC. However this excludes damaged, spoiled, rusted or misused equipment/parts. Any such equipment/parts will be not-repairable and no replacements shall be provided by contractor. RailTel will have to purchase fresh spares in case the equipment/cards are non-repairable due to any of these above mentioned reasons.

4.3 If the contractor fails to return the equipment/accessories within 30 days, the following penalties will be imposed:

Equipment	Duration of repair	Deduction/Penalties
All Equipment/Module and accessories	More than 30 days and upto 40 days (from the date of receipt)	10% of the cost of affected equipment/module
All Equipment/Module and accessories	More than 40 days and upto 50 days (from the date of receipt)	25% of the cost of affected equipment/module
All Equipment/Module and accessories	More than 50 days and upto 60 days (from the date of receipt)	75% of the cost of affected equipment/module
All Equipment/Module and accessories	More than 60 days (from the date of receipt)	Full cost of affected equipment/module

5.0 Service Level Agreement (SLA) and Penalties

5.1 The purpose of this Service Level Agreement (SLAs) is to define the level of service to be provided by the successful bidder to RailTel for the duration of this contract. The successful bidder has to comply with all SLAs defined below to ensure adherence to project timelines, quality and availability of services. Non-compliance of SLAs will

lead to penalties as defined in subsequent section and the SLAs would remain valid for the entire duration of the contract.

5.2 Penalties shall not be levied on the successful bidder in the following cases:- a) Non-compliance of SLAs has been solely due to reasons (acceptable to RailTel) beyond the control of the successful bidder and b) There's a Force Majeure event affecting the SLA which is beyond the control of the successful bidder

5.3 The installed system as part of the solution is expected to remain operational for 24 hours per day.

5.4 The contractor must ensure the up-time off at least 95% for the entire system being offered as part of video surveillance solution, upto the end of the AMC period of 5 years. The up-time would be monitored and calculated on the monthly basis and no relaxation or consideration would be made for the non-availability of the back-up/stand-by system.

5.5 Down time is defined as the duration for which the system as a whole or any part of it is not available for the purpose it is installed for. Down time will be reckoned from the time contractor or his representative has been informed by the means of Telephone/mobile, fax, email or any other method at the address as specified by the contractor. The bidder shall specify the details of a) Telephone no. for calling, b) Fax no., c) Mobile no. for calling & SMS, d) e-mail id, e) postal address for correspondence. Non-availability of back-up/stand-by system shall also be counted for down-time calculation.

5.5.1 Down time will not be considered for which prior approval of RailTel/Railways authorities are taken in writing for preventive maintenance

5.6 For any specific camera location, the down time should not be more than 12 hours per day. In case the down time exceeds more than 12 hours then Rs.500 per day or part thereof would be deducted for each day for each camera until the failure is restored at the reported location.

5.6.1 This camera location downtime shall include the service disruptions caused due to reasons including but not limited to camera failures, networking device failures, UPS failures, electricity circuit breakdown (excluding AC Mains outage) or data network break down.

5.7 For any workstation unit at any monitoring center location, the down time should not be more than 12 hours per day. In case the down time exceeds more than 12 hours then Rs.500 per day or part thereof would be deducted for each day for each workstation until the failure is restored at the reported location.

5.7.1 This workstation unit location downtime shall include the service disruptions caused due to reasons including but not limited to screen failures, workstation failures, networking device failures, UPS failures, software failures or data network break down.

5.8 In case of any failure at divisional headquarter, the down time should not be more than 6 hours per day. In case the down time exceeds 6 hours then Rs.1000 per hour or part thereof would be deducted for every hour taken in excess to rectify the report failure at divisional headquarter location

5.8.1 This camera location downtime shall include the service disruptions caused due to reasons including but not limited to server failures, storage system failures, software breakdowns, networking device failures, UPS failures, electricity circuit breakdown or data network break down.

5.9 Further in order to ensure the safe and secure access to the network the contractor must ensure that for any firewall and IPS failure at divisional headquarter monthly down time for security services should not be more than 12 hours per day. In case the down time exceeds 12 hours then Rs.500 per day or part thereof would be deducted until the report failure is not rectified at divisional headquarter location

5.10 Response to an incident call will include sending a notification to the person raising the call, either through email or on phone, acknowledging the call and informing him/her of the expected resolution time for the call. Response to call tickets is calculated on respective service window and should be lesser than 60 minutes. The contractor is expected to log and respond to 98% of all the incident calls registered within the stipulated time frame. If contractor fails to maintain the above mentioned compliance ratio, then for each non- compliant response to incident call exceeding 2% margin would lead to the deduction of Rs.100.

5.11 No payment for the month would be made for the station where the station down time observed would be more than 20%. Down time for station would be defined as follows:

e) For A-1 category station, the station would be considered as down for the time when more than 15 cameras are defective or out of service

f) For A category station, the station would be considered as down for the time when more than 12 cameras are defective or out of service

g) For B category station, the station would be considered as for the time when more than 8 cameras are defective or out of service

h) For C category station, the station would be considered as down for the time when more than 5 cameras are defective or out of service

5.12 Annual Maintenance Charges shall be paid on quarterly basis at the end of the quarter, subject to the deduction for the down time mentioned above.

5.12.1 SLAs will be monitored and reported on monthly basis to RailTel by the 5th working day of each month.

5.12.2 Penalties shall be calculated and is to be deducted from the Annual Maintenance Charges on quarterly basis

6.0 Manpower Support

Bidder shall keep L1 Support engineer in Field (one engineer/200 cameras) and one L2 Support engineer (Network, server & storage) at the Division HQ. The Field engineer will visit the total installation once in every month or earlier if the situation so warrants with the provision that monthly reports of the failures and health of the equipment shall be prepared and submitted to the Purchaser. Additional manpower, if considered necessary shall be provided by contractor for maintenance and support of the installed network. The bidder shall arrange the suitable replacement in case the assigned support engineer goes on leave or is unavailable due to any other reason to ensure uninterrupted support services.

6.1.1 Responsibility Matrix of appointed engineer:

L1 support engineer (Field): L1 engineers appointed in field shall perform following duties

1.	Provide hands and feet support in the field for fixing reported incidents

2.	Provide Network Health surveillance and alarm reporting
3.	Coordinate with Divisional Level Engineers to ensure fault free network
4.	Ensure completion of upgrade/change activities as required
5.	Monthly station visit with necessary tools and equipment to check all the hardware, software, peripheral instruments installed
6.	Logging incident calls and tickets from field with respective OEMs
7.	Follow up with the concerned OEM and engineer to resolve the incident
8.	Coordinate and liaise with OEM/Vendor engineers visiting site for issue rectification
9.	Monitor installed IT infrastructure/application and alert concerned person in case of any damage or misconduct
10.	Conduct day to day operations as per the procedures defined by RailTel

L2 support engineer (Divisional HQ): L2 engineers appointed at the Divisional Level shall perform following tasks

6.1.2 General Responsibilities

1.	Alarm monitoring at the network management platform including hardware and software alarms
2.	Filtering of alarms based upon service affecting categories and/or predefined alarm reaction lists.
3.	Advising field support Engineers for corrective action to be taken.
4.	To monitor Network Management misbehaviors and malfunctions.
5.	To provide support to NMS for all planned activities.
6.	Generating a Service request to respective vendor for further Activity
7.	Follow up with vendor and field engineers to resolve the network issues
8.	Escalation to respective managers for long pending network issues and open service request with vendor.
9.	Generation of weekly report for all service requests open/close with vendor
10.	Diagnose and work to correct system troubles identified at RailTel's site using the resources made available by RailTel, implement and restore if appropriate and feasible.
11.	Conduct day to day operation in accordance to RailTel recommended procedures.

6.1.3 Server Management:

1.	Performing management of Servers for in-scope application/system
2.	Setting of key monitoring parameters from availability point of view i.e. System performance monitoring, tuning, server utilization, scheduling and optimizing the services running on server etc.
3.	Managing physical system elements (servers, backup devices) including configuration and maintenance tasks
4.	Managing local systems components, such as operating systems and their configura-

	tions
5.	Managing asset register for all server equipment. Record information such as serial number, asset code, warranty, AMC details etc. for in-scope applications
6.	Planning for patch release and upgrades
7.	Any other activities pertaining to server management and maintain SLA's

6.1.4 Database Management

1	Performing database maintenance
2	Defining and installing the physical database design (log files, rollback segments, table-spaces, database descriptors)
3	Creating definitions of logical data structures, tables, views, indexes, program specification blocks, stored procedures and define their relationships
5	Setting data storage parameters for storage associated with the physical elements of the database
6	Estimating and recommending storage requirements
7	Analyzing alerts
8	Any other activities pertaining to database management and maintain SLAs

6.1.5 Storage Management

1	Backup Administration - Manage and monitor backup activities
2	Handling service requests on backup (if any)
3	Generating daily/weekly/monthly report on the backup as per agreed policy
4	Any other activities pertaining to storage management and maintain SLAs

6.1.6 Change and Release Management

1	Planning and scheduling change and release request as per defined SLA norms
2	Ensuring all changes made are approved and adhere to strict Request for Change (RFC) policies
3	Maintaining and updating trusted configurations to ensure a smooth release process
4	Performing post implementation review and documented closure for all changes and tracking all changes implemented
5	Performing virus pattern update within agreed time period of new release at the vendor site and cleaning of end user systems
6	Implementing advisory/alerts from vendors, OEM, expert/special interest groups, across in-scope hardware and software, reported.
7	Documenting complete change management/release management process as defined by RailTel
8	Any other activities pertaining to change and release management and maintain SLAs

6.1.7 Security Management

1	Managing and monitoring of system to protect from -virus, phishing and malware for managed resources. Virus should be removed or system should be isolated from the network successfully within agreed time from the time of detection of virus at that designated target system.

2	Ensuring 100% antivirus coverage with patterns not old more than period agreed on in-scope system
3	Reporting security incidents to co-ordinate for resolution
4	Performing Virus pattern update within agreed time period of new release at the OEM site
5	Performing patch management for antivirus for in-scope system
6	Performing vulnerability scanning of all servers/devices (in-scope), which are IP Based. Vulnerability assessment report should be share with RailTel every Quarter.
7	Testing and implementation of patches and upgrades
8	Any other activities pertaining to security management and maintain SLAs

6.1.8 Application management

1	Performing vendor/OEM interaction for resolving application related issues
2	Performing performance tuning of applications
3	Performing Access Management
4	Performing periodic review of access
4	Performing patch updates and software updates for application
6	Any other activities pertaining to application management and maintain SLAs

6.1.9 Network Management

1	Ensuring availability of resource capacity by monitoring network elements
2	Correcting traffic problems in the network environment, such as traffic congestion or network corruption
3	Troubleshooting communication disruptions and working with vendors to resolve the issues
4	Reviewing logs daily of significance such as abnormal traffic, unauthorized penetration attempts, any sign of potential vulnerability, Security alerts and responses. Proactive measures in the event a problem is detected
5	Performing policy management (firewall users, rules etc.)
6	Network /device hardening procedure
7	Troubleshooting firewall/IPS hardware related issues and coordinating the replacement of hardware
8	Implementing and maintaining of security rules
9	Rapidly resolving every incident/problem and ensuring adherence to SLA
10	Ensuring availability of critical network spares
11	Performing backup of all network spares
12	Disabling/enabling service/ports
13	Performing any other day-to-day administration and support activities

6.1.10 General Terms and Conditions Applicable

i) The selection of the Engineer will be done by Contractor jointly with RailTel. RailTel will nominate their officer/s for interviewing the candidates.

ii) The Engineer must be equipped with all necessary facilities/equipment such as Laptop, mobile telephone, data card, Internet connection; conveyance accommodation etc.

iii) The prices quoted in SOR do not include any travel/boarding & lodging expenses outside of the working headquarter (decided by RailTel).

iv) In case of requirements from contractor to log in to the system remotely, RailTel would provide adequate data communications facilities, remote access, telephone and modem connections, all in accordance with RailTel's Security policies and procedures, as may be necessary for the proper performance of contractor's obligations.

v) In case of unsatisfactory service, the Engineer will be withdrawn and replaced by a suitable one with a clear notice of 15 days.

7.0 General Conditions:

7.1 Period of AMC

This Annual Maintenance Contract will be valid for a period of 5 years from the date of issue of LOA for AMC. This period (i.e. 5 years) may be extended further with mutual consent of RailTel and Contractor.

7.2 Performance Bank Guarantee:-

The contractor is required to submit a Performance Bank Guarantee (PBG) within 15 days from the date of issue of LOA for AMC @ 10% of the value of the AMC contract's annual value valid for a period of 64 months (4 months beyond the AMC period of 5 years) from the date of issue of LOA. The Performa for PBG is given in Form No. 1 of Chapter 6 of this tender document. If the AMC period got extended, the PBG will also be extended accordingly.

The Performance Bank Guarantee will bear no interest.

7.3 Prices and Taxes:-

- The prices for the services shall be in INR which will be the currency of account invoicing and payment.
- If in respect of the provision of services, Contractor has to pay the additional admissible taxes, the same will be get reimbursed after receiving he documentary proof by RailTel.
- Price will not include the cost of any financing (if any).
- The Octroi/entry tax shall be paid extra as per actual on production of proof of payment/document.

7.4 Payment Terms:-

1. AMC charges shall be paid on quarterly basis by the respective Executive Director of the concerned Region after successful completion of maintenance within 30 days from the date of invoicing accompanied with Invoice, Monthly trouble ticket report, Monthly repair report subject to any deductions or recovery (which the RailTel/REL may be entitled to make under contract) through RTGS. Monthly re-

ports will be shared with RailTel/REL regularly. Format of the reports to be shared shall be mutually decided by RailTel/REL and Contractor.

2. **Form "C",** If required shall be issued by REL Only. In case, contractor is required to pay the additional tax, they have to produce the challan as evidence to entertain claim for reimbursement.

7.5 Execution of contract

The Executive Directors/Regional General Manager of respective region or any other representative nominated by them will be responsible for the execution of the contract under their respective jurisdiction. Certificate regarding proper execution of the AMC along with proposed deductions/penalties with reasons thereof shall be prepared for every billing cycle (quarterly) for arranging payment to the contractor.

7.6 Not Used

7.7 Not Used

7.8 Bidder's Address

Bidder shall state in the tender his postal address fully and clearly. Any communication sent to the bidders by post at his said address shall be deemed to have reached the bidder duly & timely, notwithstanding the fact the communication could not reach the bidder at all or in time for whatever reason. Important documents shall be sent by Registered post.

7.9 Not Used

7.10 Law governing the contract.

The contract shall be governed by the law for the time being in force in the Republic of India. Compliance to regulations and bye-laws-The contractor shall conform to the provision of any statute relating to the works and regulations and bye-laws of any local authority and of any water and lighting companies or undertakings, with whose system the work is proposed to be connected and shall before making any variation from the drawings or the specifications that may be necessitated by so confirming give to the Engineer notice specifying the variation proposed to be made and the reason for making the variation and shall not carry out such variation until he has received instructions from the Engineer in respect thereof. The Contractor shall be bound to give all notices required by statute, regulation or bye-laws as aforesaid and to pay all fees and taxes payable to any authority in respect thereof.

7.11 Force Majeure clause:-

If at any time, during the continuance of this contract, the performance, in whole or part, by either party, of any obligation under this contract shall be prevented or delayed by reason of any war, hostility, act of the public enemy, Civil Commotion, Sabotage, Fires, Floods, Earth quakes, explosions, strikes, epidemics, quarantine restrictions, lockouts, any statute, statutory rules/regulation, order of requisitions issued

by any Government Department of Competent Authority or acts of God (here-in-after referred to as event) then provided notice of the happening of any such event is given by either party to the other within twenty one days from the date of occurrence thereof, neither party shall, by reason of such event, be entitled to terminate this contract nor shall either party have any claim for damage against the other in respect of such non-performance or delay in performance, and the obligations under the contract shall be resumed as soon as practicable after such event has come to an end or ceased to exist, Provided further that if the performance in whole or part of any obligation under this contract of prevented or delayed by reason of any such event beyond a period as mutually agreed to by the RailTel and the Contractor after any event or 60 days in the absence of such an agreement whichever is more, either party may at its option to terminate the contract provided also that if the contract is so terminated under this clause the RailTel may at the time of such termination take over from the Contractor at prices as provided for in the contract, all works executed or works under execution.

7.12 Illegal Gratification

Any bribe, commission, gift or advantage given, promised or offered by or on behalf to the contractor or his partner, agent or servant or anyone on his behalf to any officer or employees of the RailTel, or to any person on his behalf in relation to obtaining or the execution of this or any other contract with the RailTel shall, in addition or any criminal liability which he may incur, subject the contractor to the rescission of the contract and all other contracts with the RailTel and to the payment of any loss or damage resulting from such decision and the RailTel shall be entitled to deduct the amounts so payable from any moneys due to the Contractor (s) under this contract or any other contracts with the RailTel.

The contractor shall not lend or borrow from or have or enter into any monitory dealings or transactions either directly or indirectly with any employee of the RailTel and if he shall do so, the RailTel shall be entitled forthwith to rescind the contract and all other contracts with the RailTel. Any question or dispute as to the commission or any shall offence or compensation payable to the RailTel under this clause shall be settled by the Regional General Manager of RailTel, in such a manner as shall consider fit and sufficient and his decision shall be final and conclusive. In the event of rescission of the contract under this clause, the contractor will not be paid any compensation whatsoever except payment for the work done up to date of rescission.

7.13 LABOUR

Wages to Labour- The contractor shall be responsible to ensure compliance with the provisions of the Minimum Wages Act, 1948 (hereinafter referred to as the "said Act") and the Rules made there-under in respect of any employees directly or through petty contractors or sub contractors employed by him on road construction or in building operations or in stone breaking or stone crushing for the purpose of carrying out this contract. If in compliance with the terms of the contract, the contractor supplied any labour to be used wholly or partly under the direct orders and control of the RailTel whether in connection with any work being executed by the contractor or otherwise for the purpose of the RailTel such labour shall, for the purpose of the clause, still be deemed to be persons employed by the contractor. If any moneys shall as a result of any claim or application made under the said Act be directed to be paid by the RailTel, such moneys shall be deemed to be moneys payable to the RailTel by the

Contractor and on failure by the contractor to repay any moneys paid by it as aforesaid with seven days after the same shall have been demanded, the RailTel shall be entitled to recover the same form any moneys due or accruing to the contractor under this or any other contractor with the RailTel.

7.13.1 Apprentices Act

The contractor shall be responsible to ensure compliance with the provisions of the Apprentices Act 1961 and the Rules and Orders issued the re-under from time to time in respect of apprentices directly through petty contractors or sub-contractors employed by him for purpose of carrying out the contract. If the Contractor directly or through petty contractor or sub-contractors fails to do so, his failure will be breach of the contract and the RailTel may, in its discretion, rescind the contract. The Contractor shall also be liable for any pecuniary liability arising on account of any violation of the provisions of the Act.

7.13.2 Provisions of Payments of Wages Act

The Contractor shall comply with the provisions of the payment of Wages Act, 1936 and the rules made there under in respect of all employees directly or through petty contractors or sub-contractors employed by him in the works. If in compliance with the terms of the contract, the contractor directly or through petty contractors or sub-contractors shall supply any labour to be used wholly or partly under the direct orders and control of the Engineer whether in connection with the works to be executed hereunder or otherwise for the purpose of the Engineer such labour shall nevertheless be deemed to comprise persons employed by the contractor, and any moneys which may be ordered to be paid by the Engineers shall be deemed to be moneys payable by the Engineer on moneys due to the contractor in terms of the contractor (whether under this contract or any other contract all moneys paid or payable by the RailTel by way of compensation of aforesaid or for costs of expenses in connection with any claim thereto and the decision of the Engineer upon any question arising out of the effect or force of this clause shall be final and binding upon the contractor.

7.13.3 Provision of Contract Labour (Regulation and Abolition) Act 1970

1. The contractor shall comply with the provision of the Contract Labour (Regulation and Abolition) Act 1970 and the Contract Labour (Regulation and Abolition) Act, Central Rules 1971 as modified from time to time, whenever applicable and shall also indemnify the RailTel from and against any claims under the aforesaid Act and the Rules.

2. The contractor shall obtain a valid license under the aforesaid Act as modified from time to time before the commencement of the work and continue to have a valid license until the completion of the work. Any failure to fulfill this requirement shall attract the penal provision of the Contract arising out of the resultant non-execution of the work.

3. The contractor shall pay to the labour employed by him directly or through sub-contractors the wages as per provisions of the aforesaid Act and the Rules wherever applicable. The Contractor shall notwithstanding the provisions of the con-

tract to the contrary, cause to be paid the wages to labour indirectly engaged on the work including any engaged by his sub contractors in connection with the said work, as if the labour had been immediately employed by him.

4. In respect of all labour directly or indirectly employed in the work for performance of the contractor's part of the contract the contractor shall comply with or cause to be complied with the provisions of the aforesaid Act and the Rules wherever applicable.

5. In every case in which, by virtue of the provisions of the aforesaid Act or the Rules, the RailTel is obliged to pay any amount of wages to a workmen employed by the contractor or his sub-contractor in execution of the work or to incur any expenditure in providing welfare and health amenities required to be provided under the aforesaid Act and the Rules or to incur any expenditure in providing welfare and health amenities required to be provided under the aforesaid Act the Rules or to incur any expenditure on account of the contingent liability of the RailTel due to contractor's failure to fulfill his statutory obligations under the aforesaid Act or the Rules the RailTel will recover from the contractor, the amount of wages so paid or the amount of expenditure so incurred, and without prejudice to the rights of the RailTel under section 20, sub section (2) and section 2 sub-section (4) of the aforesaid Act, the RailTel shall be at liberty to recover such amount or part thereof by deducting it from the security deposit and/or from any sum due by the RailTel to the contractor whether under the contract or otherwise. The RailTel shall not be bound to contest any claim made against it under sub section (1) of section 20 and sub section (4) of section 21 of the aforesaid Act except on the written request of the contractor and upon his giving to the RailTel full security for all costs for which the RailTel might become liable in contesting such claim. The decision of the RailTel regarding the amount actually recoverable from the contractor as stated above shall be final and binding on the contractor.

7.13.4 Reporting of Accidents to Labor

The contractor shall be responsible for the safety of all employees directly or through petty contractors or sub-contractors employed by him on the works and shall report serious accidents to any of them however and wherever occurring on the works to the Engineer or the Engineer's representative and shall make every arrangement to render all possible assistance.

7.13.5 Provisions of Workmen's Compensation Act

In every case, in which by virtue of the provision of section 12 sub section (1) of the Workmen's Compensation Act, 1923, RailTel is obliged to pay compensation to workman directly or through the petty contractor employed by the contractor or sub-contractor, in executing the work, RailTel will recover from the contractor the amount of the compensation so paid, and without prejudice to the right of RailTel under section 12 sub section (2) of the said Act. RailTel shall be at liberty to recover such amount or any part thereof by deducting it from the security deposit or from any sum

due by RailTel to the Contractor whether under these conditions or otherwise, RailTel shall not be bound to contest any claim made against it under Section 12, Sub Section (1) of the said Act except on the written request of the contractor and upon his giving to RailTel full security for the all costs for which RailTel might become liable in consequence of contesting such claim.

7.14 Determination of Contract

Right of RailTel to determine the contract: The RailTel shall be entitled to determine and terminate the contract at any time, should in the RailTel's opinion, the cessation of the work becomes necessary owing to paucity of funds or from any other cause whatever, in which case the value of approved materials at site and of work done to date by the Contractor will be paid for in full at the rate specified in the contract. Notice in writing from the RailTel of such determination and the reasons thereof shall be conclusive evidence thereof.

Payment on determination of contract: Should the contract be determined under sub clause (1) of this clause and the Contractor claims payment for expenditure incurred by him in the expectation of completing the whole of the work, the RailTel shall admit and consider such claims as are deemed reasonable and are supported by vouchers to the satisfactions of the Engineer. The RailTel's decision on the necessity and property of such expenditure shall be final and conclusive.

The contractor shall have no claim to any payment of compensation of otherwise, however on account of any profit or advantage which he might have derived from the execution of the work in full but which he did not derive in consequence of determination of contract.

7.15 TERMINATION OF CONTRACT OWING TO DEFAULT OF CONTRACTOR:

As per clause 4.A.31, chapter-4 of tender document.

7.16 RIGHT OF RAILTEL AFTER TERMINATION OF CONTRACT OWING TO DEFAULT OF CONTRACTOR :

a) The contractor shall have no claim to compensation for any loss sustained by him by reason of his having purchased or procured any materials or entered into any commitments or made any advances on account of or with a view to the execution of the works or the performance of the contract and contractor shall not be entitled to recover or be paid any sum for any works thereto not actually performed under the contract, unless or until the Engineer shall have certified the performance of such work and the value payable in respect thereof and the Contractor shall only be entitled to be paid the value so certified.

b) The Engineer or Engineer's Representative shall be entitled to take possession of any materials, tools, implements, machinery or buildings on the works or on the property on which these are being or ought to have been executed, and to retain the employ the same in further execution of the works without the contractor be-

ing entitled to any compensation for the use and employment thereof or for wear and tear or destruction thereof.

c) The Engineer shall, as soon as may be practicable after removal of the contractor fix and determine expert or by or after reference to the parties or after such investigation or enquiries as he may consider fit to make or institute and shall certify what amount (if any) has at the time of termination of the contract been reasonably earned by or would reasonably accrue to the Contractor in respect of the work then actually done by him under the contract what was the value of any unused or partially use materials, any constructional plants and any temporary works upon the site. The legitimate amount due to the contractor after making necessary deductions and certified by the Engineer should be released expeditiously.

7.17 SETTLEMENT OF DISPUTE AND ARBITRATION:-

- Any dispute or difference whatsoever arising between the parties out of relating to the construction, meaning, scope, operation or effect of this contract or the validity or the breach thereof shall be settled by a sole arbitrator in accordance with provisions contained in Arbitration and Conciliation Act, 1996 as amended and the award made in pursuance thereof shall be binding on the parties. The venue of such arbitration or proceedings thereof shall be New Delhi.

- All arbitration proceedings shall be conducted in English. Resources against any Arbitral award so rendered may be entered into court having jurisdiction or application may be made to such court for the order of enforcement as the case may be.

- The arbitral tribunal shall consist of the sole Arbitrator if the value of claim is upto Rs. 10 lakhs. The arbitrator will be appointed by the Managing Director of RailTel Corporation of India Ltd. If the value of claim or amount under dispute is more than Rs. 10 lakhs, the matter shall be referred to the adjudication of arbitral council. Managing Director/RailTel shall furnish a panel of three names to the contractor, out of which the contractor will recommend one name to be his nominee and then Managing Director/RailTel shall appoint out the panel, one name as RailTel's nominee and these two arbitrators with mutual consent appoint a third arbitrator who shall act as deciding. The award of sole arbitrator or Arbitral council, as the case may be, shall be final and binding on both the parties, i.e. contractor and RailTel Corporation of India Ltd.

- Each of the parties agree that no withstanding that the matter may be referred to Arbitrator as provided therein, the parties shall nevertheless pending the resolution of the controversy or disagreement continue to fulfill their obligation under this agreement so far as they are reasonably able to do so.

Annexure – III

CONSORTIUM BIDS

1.1 In view of nature of work covered in the Bid documents, it is anticipated that some of the intending tenderers will pool their resources and experience to form consortia. Consortium bids are permitted with each consortia of tenderers allowed to have at maximum three members, the consortia of tenderers must clearly define the lead bidder of the consortia along with its roles and responsibilities.

1.2 The Lead bidder should have experience of execution of turnkey similar projects/Works (Definition of similar work is as per the clause 4.A.14 of Chapter 4). In their own interest the tenderers who form such a consortia are advised to investigate capabilities, availability of resources, experienced personnel, financial soundness, past experience and concurrent engagements of constituting partners.

1.3 Consortia of tenderers, if any, must clearly define role/scope of work of each partner/member. Further the legal agreement for a consortium must accompany the bid and should clearly define the leader of such a consortium who will be the contractor and will be responsible for timely completion of work as also during execution of work, if awarded, coordinate with Purchaser on behalf of the consortium, receive payments for the works executed and be liable for due performance of the contract in all respect.

1.4 Qualification documents, details etc. must however, be provided for each member firm complete in all respects strictly in requisite proforma.

1.5 A consortium formed will not be subject to alteration with regard to change in constituting firms and/or reorientation of roles. Any changes, if proposed by consortium to take advantage of certain developments during evaluation stage will render the bid liable to be rejected. As all details are required to be furnished along with the bids and will be critically examined during evaluation of bids, it is imperative that such details should have been thoroughly examined as a safeguard against a possible disqualification of bids on these grounds.

1.6 All partners of the consortium shall be jointly and severally liable to RailTel for the execution of the entire contract in accordance with its terms.

1.7 In case of consortium bids by Indian Company with foreign Company as one of the consortium partner, Part of Payment (for imported items) can be quoted in any of the major foreign currencies viz USD, British Pound, EURO or Japanese YEN. In such a case, bidder should clearly specify the components of Foreign exchange and Indian currency for each item.

1.7.1 For evaluation purposes, Exchange rate applicable on the date of technical bid opening (B.C. selling Exchange rate of State Bank of India applicable on the date technical bid opening) will be considered.

1.7.2 Release of payments in foreign exchange for imported items to foreign companies as a consortium partner, shall be on request of lead bidder along with bill and will be governed by payment clause (as per clause no. 4.A.5 of chapter-4 Section-I Commercial Terms & Conditions of Contract).

1.8 Consortium shall not have more than three members and each consortium member shall have minimum 20% contribution in the work. A Consortium must submit a Power of Attorney by the other member of the Consortium in favor of the Lead Member. This is also to be enshrined in Memorandum of Agreement signed by the Consortium Members and submitted along with the bid. Members of consortium should sign every sheet of price bid as a token of acceptance of all quoted prices by members, failing which the offer will stand summarily rejected.

1.9 An individual bidder or a member of Consortium cannot be a member of another Consortium or a JV partner and participate in this tender.

1.10 Firms should submit the affidavit (As per Form-A) & Consortium Agreement (As per Form-C) along with the bid/offer.

1.11 Each consortium member shall make equal contribution towards the total PBG amount to be submitted along with acceptance of LOA.

1.A CONDITIONS FOR PARTICIPATION OF JOINT VENTURE FIRMS

(i) Separate identity/name shall be given to the Joint Venture firm.

(ii) Number of members in JV firm shall not be more than 3.

(iii) Members of JV firm shall not be permitted to participate either in individual capacity or as a member of another JV firm **in the same tender.**

(iv) The tender form shall be purchased and submitted only in the name of the JV firm and not in the name of any constituent member.

(v) EMD shall be submitted only in the name of the JV and not in the name of constituent member. However, in exceptional cases EMD in the name of lead partner can be accepted subject to submission of specific request letter from lead partner stating the reasons for not submitting the EMD in the name of JV and giving written confirmation from the JV partners to the effect that the EMD submitted by the lead partner may be deemed as EMD submitted by JV firm.

(vi) One of the members of the JV firm shall be the lead member of the JV firm who shall have a majority (at least 51%) share of interest in the JV firm. The other members shall have a share of not less than 20% each in case of JV firms. In case of JV firm with foreign member(s), the lead member has to be an Indian firm with a minimum share of 51%.

(vii) A copy of Memorandum of Understanding (MoU) executed by the JV members shall be submitted by the JV firm along with the tender. The complete details of the members of the JV firm, their share and responsibility in the JV firm etc. particularly with reference to financial technical and other obligations shall be furnished in the MoU. (The MoU format for this purpose shall be finalized by the RailTel in consultation with their law branch and shall be enclosed along with the tender)

(viii) Once the tender is submitted, the MoU shall not be modified/altered/terminated during the validity of the tender. In case the tenderer fails to observe/comply with this stipulation, the full Earnest Money Deposit (EMD) shall be forfeited. In case of suc-

cessful tenderer, the validity of this MoU shall be extended till the currency of the contract expires.

(ix) Approval for change of constitution of JV firm shall be at the sole discretion of RailTel. The constitution of the JV firm shall not be allowed to be modified after submission of the tender bid by the JV firm except when modification becomes inevitable due to succession laws etc. and in any case the minimum eligibility criteria should not get vitiated. In any case the Lead Member should continue to be the Lead Member of the JV firm. Failure to observe this requirement would render the offer invalid.

(x) Similarly, after the contract is awarded, the constitution of JV firm shall not be allowed to be altered during the currency of contract except when modification become inevitable due to succession laws etc. and in any case the minimum eligibility criteria should not get vitiated. Failure to observe this stipulation shall be deemed to be breach of contract with all consequential penal action as per contract conditions.

(xi) On award of contract to a JV firm, a single Performance Guarantee shall be required to be submitted by the JV firm as per tender conditions. All the Guarantee like Performance Guarantee, Bank Guarantee for Mobilization advance, machinery Advance etc. shall be accepted only in the name of the JV firm and no splitting of guarantees amongst the members of the JV firm shall be permitted.

(xii) On issue of LOA, an agreement among the members of the JV firm (to whom the work has been awarded) has to be executed and got registered before the Registrar of the Companies under Companies Act or before the Registrar/Sub-Registrar under the Registration Act, 1908. This agreement shall be submitted by the JV firm to the RailTel before signing the contract agreement for the work. (This agreement format should invariably be part of the tender condition). In case the tenderer fails to observe/comply with this stipulation, the full Earnest Money Deposit (EMD) shall be forfeited and other penal actions due shall be taken against partners of the JV and the JV.

This joint venture agreement shall have inter-alia following clauses:

a. **Joint and several liability** – The members of the JV firm to which the contract is awarded, shall be jointly and severally liable to RailTel for execution of the project in accordance with General and special conditions of the contract. The JV members shall also be liable jointly and severally for the loss, damages caused to the RailTel during the course of execution of the contract or due to non-execution of the contract or part thereof.

b. **Duration of the joint venture agreement** – It shall be valid during the entire currency of the contract including the period of extension if any and the maintenance period after the work is completed.

c. **Governing Laws** – The JV agreement shall in all respect be governed by and interpreted in accordance with Indian Laws.

d. **Authorised Member** – Joint Venture members shall authorize one of the members on behalf of the JV firm to deal with the tender, sign the agreement or enter into contract in respect of the said tender, to receive payment, to witness joint measurement of work done, to sign measurement books and similar such action in respect of the said tender/contract. All notices/correspondences with respect to the contract would be sent only to this authorized member of the JV firm.

(xiii) Not used

(xiv) No member of the JV firm shall have the right to assign or transfer the interest right or liability in the contract without the written consent of the other members and that of the employer (RailTel) in respect of the said tender/contract.

(xv) Documents to be enclosed by the JV firm along with the tender:
A. In case one or more of the members of the JV firm is/are partnership firm(s), following documents shall be submitted: -
(a) Notary certified copy of the Partnership Deed.
(b) Consent of the all the partners to enter into the Joint Venture Agreement on a stamp paper of appropriate value (in original),
(c) Power of Attorney (duly registered as per prevailing law) in favour of one of the partners to sign the MOU and JV Agreement on behalf of the partners and create liability against the firm.

B. In case one or more members is/are Proprietary Firm or HUF, the following documents shall be enclosed.
Affidavit on Stamp Paper of appropriate value declaring that his Concern is a Proprietary Concern and he is sole proprietor of the Concern or he is in position of "KARTA" of Hindu Undivided Family and he has the authority, power and consent given by other partners to act on behalf of HUF.

C. In case one or more members is/are limited companies, the following documents shall be submitted:
(a) Notary certified copy of resolutions of the Directors of the Company, permitting the company to enter into a JV agreement, authorizing MD or one of the Directors or Managers of the Company to sign MOU, JV Agreement, such other documents required to be signed on behalf of the Company and enter into liability against the company and/or do any other act on behalf of the company.
(b) Copy of Memorandum and articles of Association of the Company.
(c) Power of Attorney (duly registered as per prevailing law) by the Company authorizing the person to do/act mentioned in the para (a) above.

D. All the members of the JV shall certify that they have not been black listed or debarred by Railways/RailTel or any other Ministry/Department of the Govt. of India/State Govt. from participation in tender/contract in the past either in their individual capacity or the JV firm or partnership firm in which they were members/partners.

(xvi) Firms should submit the affidavit (As per Form-A) & Joint Venture Agreement/ Memorandum of Agreement (As per Form-B) along with the bid/offer.

FORM-A

AFFIDAVIT

(To be given separately by each Consortium/Joint Venture member of the Bidder on Stamp Paper of Rs. 10)

I, _____ S/o _____, Resident of _____, _____, the _____ [insert designation] of the [insert name of single bidder / Consortium/Joint Venture member if Consortium/Joint Venture] do solemnly affirm and state as follows:

1. I say that I am the authorized signatory of _____ [insert name of company/Consortium/Joint Venture member] (hereinafter referred to as "Bidder/Consortium/Joint Venture Member") and I am duly authorized by the Board of Directors of the Bidder/Consortium/Joint Venture Member to swear and depose this Affidavit on behalf of the Bidder/Consortium/Joint Venture Member.

2. I say that I have submitted information with respect to our eligibility for RailTel Corporation of India Ltd. (hereinafter referred to as "RCIL") **(NAME OF WORK)** (hereinafter referred to as "Project") Request for Proposal ('RFP') document and I further state that all the said information submitted by us is accurate, true and correct and is based on our records available with us.

3. I say that, we hereby also authorize and request any bank, authority, person or firm to furnish any information, which may be requested by RCIL to verify our credentials / information provided by us under this tender and as may be deemed necessary by RCIL.

4. I say that if at any point of time including the extension period, in case RCIL requests any further/additional information regarding our financial and/or technical capabilities, or any other relevant information, we shall promptly and immediately make available such information accurately and correctly to the satisfaction of RCIL.

5. I say that, we fully acknowledge and understand that furnishing of any false or misleading information by us in our RFP shall entitle us to be disqualified from the tendering process for the said Project. The costs and risks for such disqualification shall be entirely borne by us.

6. I state that all the terms and conditions of the Request for Proposal (RFP) document has been duly complied with.

DEPONENT

VERIFICATION

I, the above-named deponent, do very that the contents of paragraphs 1 to 6 of this affidavit are true and correct to my own knowledge. No part of it is false and nothing material has been concealed. Verified at _____, on this ___ day of_____, 2016.

DEPONENT

FORM-B

JOINT VENTURE AGREEMENT/MEMORANDUM OF AGREEMENT

(On Stamp Paper of Rs fifty)

This Joint Venture Agreement/Memorandum of Agreement is executed at Gurgaon on this _____ day of _____, 2016.

BETWEEN

M/s. _____, a Company incorporated under the Companies Act, 1956 and having its Registered Office at _____ acting through its Managing Director, _____ duly authorized by a resolution of the Board of Directors dated ____ (hereinafter referred to as the 'LEAD MEMBER' which expression unless excluded by or repugnant to the subject or context be deemed to mean and include its successors in interest, legal representatives, administrators, nominees and assigns) of the ONE Part;

AND

M/s. _____, a Company incorporated under the Companies Act, 1956 and having its Registered Office at _____ and Office at _____, acting through its Joint President, _____, duly authorized by a resolution of the Board of Directors dated _____ (hereinafter referred to as the ('Participant member') which expression unless excluded by or repugnant to the subject or context be deemed to mean and include its successors in interest, legal representatives, administrators, nominees and assigns) of the 'OTHER PART'

AND

M/s. _____, a Company incorporated under the Companies Act, 1956 and having its Registered Office at _____ and Office at _____, acting through its Joint President, _____, duly authorized by a resolution of the Board of Directors dated _____ (hereinafter referred to as the ('Participant member') which expression unless excluded by or repugnant to the subject or context be deemed to mean and include its successors in interest, legal representatives, administrators, nominees and assigns) of the 'OTHER PART'

Whereas RailTel Corporation of India Ltd. (hereinafter referred to as 'RCIL') has invited tenders for the **"(NAME OF WORK)**" in terms of the tender documents issued for the said purpose and the eligibility conditions required that the applicants bidding for the same should meet the conditions stipulated by RCIL for participating in the bid by the Joint Venture for handling the project for which the tender has been floated by RCIL.

AND WHEREAS in terms of the bid documents both the parties jointly satisfy the eligibility criteria laid down for a bidder for participating in the bid process by forming a Joint Venture between themselves.

AND WHEREAS both the parties hereto have discussed and agreed to form a Joint Venture for participating in the aforesaid bid and have decided to reduce the agreed terms to writing.

NOW THIS JOINT VENTURE AGREEMENT/Memorandum of Agreement hereby WITNESSES:

1. That in the premises contained herein the Lead Member and the Participant Member having decided to pool their technical know-how, working experiences and financial resources, have formed themselves into a Joint Venture to participate in the tender process for "**(NAME OF WORK)**" in terms of the tender invited by RailTel Corporation of India Ltd., (RCIL).

2. That the members of the Joint Venture have represented and assured each other that they shall abide by and be bound by the terms and conditions stipulated by RCIL for awarding the tender to the Joint Venture so that the Joint Venture may take up the aforesaid "**(NAME OF WORK)**" in case the Joint Venture turns out to be the successful bidder in the bid being invited by RCIL for the said purpose.

3. That the members of the Joint Venture have satisfied themselves that by pooling their technical know-how and technical and financial resources, the Joint Venture fulfills the prequalification/ eligibility criteria stipulated for a bidder, to participate in the bid for the said tender process for "**(NAME OF WORK)"**

4. That the Joint Venture have agreed to nominate any one of_____, _____ and _____ as the common representative who shall be authorized to represent the Joint Venture for all intents and purposes for dealing with the Government and for submitting the bid as well as doing all other acts and things necessary for submission of bid documents such as Tender Application Form etc., Mandatory Information, Financial Bid. Etc., and such other documents as may be necessary for this purpose.

5. That the share-holding of the members of the Joint Venture for this specified purpose shall be as follows:
(i) The Lead Member shall have _____ per cent (___ %) of share-holding/participation with reference to the Joint Venture for this specified project.
(ii) The Participant Member shall have _____ (___ %) of share-holding/participation with reference to the Joint Venture for this specified project.
(iii) The Participant Member shall have _____ (___ %) of share-holding/participation with reference to the Joint Venture for this specified project.

6. That in order to fulfill the requirement of the tender process and also keep an altogether separate legal entity of the Joint Venture, the Members of the Joint Venture undertake to provide their own nominees as share-holders to the extent of their respective share-holding for the purpose of formation of a Special Purpose Company (SPC) through which the Joint Venture proposes to undertake the _____ of RCIL.

7. That if any change in the membership of the Joint Venture be required to be made by the members of the Joint Venture, the same shall be done with the consent of RCIL subject to the conditions as may be stipulated by them in this regard.

8. That in case to meet the requirements of bid documents or any other stipulations of RCIL, it becomes necessary to execute and record any other documents amongst the members of the Joint Venture, they undertake to do the needful and to participate in the same for the purpose of the said project.

9. That it is clarified by and between the members of the Joint Venture that execution to this Joint Venture Agreement/Memorandum of Agreement by the members of the Joint Venture does not constitute any type of partnership for the purposes of provisions of the Indian Partnership Act and that the members of the Joint Venture shall otherwise be free to carry on their independent business or commercial activities for their own respective benefits under their own respective names and styles. This Joint Venture Agreement is limited in its operation to the specified project.

10 That the Members of the Joint Venture undertake to specify their respective roles and responsibilities for the purposes of implementation of this Joint Venture Agreement and the said project if awarded to the Joint Venture in the Memorandum & Articles of Association of the proposed Special Purpose Company to be got incorporated by the Joint Venture Members to meet the requirements and stipulations of RCIL.

IN FAITH AND TESTIMONY WHEREOF, THE PARTIES HERETO HAVE SIGNED THESE PRESENTS ON THE DATE, MONTHS AND YEAR FIRST ABOVE WRITTEN.

1. (_____)	2. (_____)	3. (_____)
Managing Director	Managing Director	Managing Director
(_____)	(_____)	(_____)
For (Name of company)	For (Name of company)	For (Name of company)

WITNESSES:
1. _____
2. _____

Enclosure:

Board resolution of each of the Joint Venture Members authorizing:
(i) Execution of the Joint Venture Agreement, and
(ii) Appointing the authorized signatory for such purpose.

FORM-C

CONSORTIUM AGREEMENT /MEMORANDUM OF AGREEMENT

(On Stamp Paper of Rs fifty)

This Consortium Agreement is executed at Gurgaon on this _____ day of _____, 2016.

BETWEEN

M/s. _____, a Company incorporated under the Companies Act, 1956 and having its Registered Office at _____ acting through its Managing Director, _____ duly authorized by a resolution of the Board of Directors dated ____ (hereinafter referred to as the 'LEAD MEMBER' which expression unless excluded by or repugnant to the subject or context be deemed to mean and include its successors in interest, legal representatives, administrators, nominees and assigns) of the ONE Part;

AND

M/s. _____, a Company having its Office at _____ and Office at _____, acting through its Joint President/ MD/..,_____, duly authorized by a resolution of the Board of Directors dated_____ (hereinafter referred to as the ('Participant member') which expression unless excluded by or repugnant to the subject or context be deemed to mean and include its successors in interest, legal representatives, administrators, nominees and assigns) of the OTHER PART'

AND

M/s. _____, a Company having its Office at _____ and Office at _____, acting through its Joint President/ MD/..,_____, duly authorized by a resolution of the Board of Directors dated_____ (hereinafter referred to as the ('Participant member') which expression unless excluded by or repugnant to the subject or context be deemed to mean and include its successors in interest, legal representatives, administrators, nominees and assigns) of the OTHER PART'

Whereas RailTel Corporation of India Ltd. (hereinafter referred to as 'RCIL') has invited tenders for the **"(NAME OF WORK)**" in terms of the tender documents issued for the said purpose and the eligibility conditions required that the applicants bidding for the same should meet the conditions stipulated by RCIL for participating in the bid by the Consortium for handling the project for which the tender has been floated by RCIL.

AND WHEREAS in terms of the bid documents the parties jointly satisfy the eligibility criteria laid down for a bidder for participating in the bid process by forming a Consortium between themselves.

AND WHEREAS the parties hereto have discussed and agreed to form a Consortium for participating in the aforesaid bid and have decided to reduce the agreed terms to writing.

NOW THIS CONSORTIUM Agreement hereby WITNESSES:

1. That in the premises contained herein the Lead Member and the Participant Member having decided to pool their technical know-how, working experiences and financial resources, have formed themselves into a Consortium to participate in the tender process for "**(NAME OF WORK)**" in terms of the tender invited by RailTel Corporation of India Ltd., (RCIL).

2. That the members of the Consortium have represented and assured each other that they shall abide by and be bound by the terms and conditions stipulated by RCIL for awarding the tender to the Consortium so that the Consortium may take up the aforesaid "**(NAME OF WORK)**" in case the Consortium turns out to be the successful bidder in the bid being invited by RCIL for the said purpose.

3. That the members of the Consortium have satisfied themselves that by pooling their technical know-how and technical and financial resources, the Consortium fulfills the prequalification/ eligibility criteria stipulated for a bidder, to participate in the bid for the said tender process for "**(NAME OF WORK)"**

4. That the Consortium have agreed to nominate any one of_____, _____ and_____ as the common representative who shall be authorized to represent the Consortium for all intents and purposes for dealing with the Government and for submitting the bid as well as doing all other acts and things necessary for submission of bid documents such as Tender Application Form etc., Mandatory Information, Financial Bid. Etc., and such other documents as may be necessary for this purpose.

5. That if any change in the membership of the Consortium be required to be made by the members of the Consortium, the same shall be done with the consent of RCIL subject to the conditions as may be stipulated by them in this regard.

6. That in case to meet the requirements of bid documents or any other stipulations of RCIL, it becomes necessary to execute and record any other documents amongst the members of the Consortium, they undertake to do the needful and to participate in the same for the purpose of the said project.

7. That it is clarified by and between the members of the Consortium that execution to this Consortium Agreement by the members of the Consortium does not constitute any type of partnership for the purposes of provisions of the Indian Partnership Act and that the members of the Consortium shall otherwise be free to carry on their independent business or commercial activities for their own respective benefits under their own respective names and styles. This Consortium Agreement is limited in its operation to the specified project.

8 That the Members of the Consortium undertake to specify their respective roles and responsibilities for the purposes of implementation of this Consortium Agreement and the said project, if awarded to the Consortium, to meet the requirements and stipulations of RCIL.

9. The consortium formed will not be subject to alteration with regard to change in constituting firms and/or reorientation of roles. Any changes, if proposed by Consortium to take advantage of certain developments during evaluation stage will render the bid liable to be rejected.

10. All partners of the consortium shall be jointly and severally liable to RailTel for the execution of the entire contract in accordance with its terms.

11. Each Consortium member has minimum 20% contribution in the work and role/scope of each member is enclosed.

12. Power of Attorney by all members of the Consortium in favor of the Lead Member is also enclosed.

IN FAITH AND TESTIMONY WHEREOF, THE PARTIES HERETO HAVE SIGNED THESE PRESENTS ON THE DATE, MONTHS AND YEAR FIRST ABOVE WRITTEN.

1. (_____)	2. (_____)	3. (_____)
Managing Director	Managing Director	Managing Director
(_____)	(_____)	(_____)
For (Name of company)	For (Name of company)	For (Name of company)

WITNESSES:

1. _____
2. _____

Enclosure:

Board resolution of each of the Consortium Members authorizing:
(i) Execution of the Consortium Agreement, and
(ii) Appointing the authorized signatory for such purpose.

*****

CHAPTER- 8

TECHNICAL REQUIREMENTS & SPECIFICATIONS

Note 1: The proposed solution must meet all technical and functional specifications mentioned in the latest Technical specification released by RDSO. However, specifications given for item 8 to 28 in this chapter shall be followed.

Note 2: It may kindly be noted that in the specification wherever support for a feature has been asked for, it will mean that the feature should be available without RailTel requiring any other hardware/software/licenses. Thus all hardware/software/licenses required for enabling the support/feature shall be included in the offer.

Note 3: All the IP cameras as quoted by the bidder against Item no A.1.(a) to A.1.(d) of Chapter-2 must be sourced from the same OEM

Note 4: It is desirable to have IOT platform in the proposed system to facilitate RailTel to carry out work with the advantageous features of IOT at a few stations.

Note 5: The bidder may propose a combined server/NVR and disk based storage as integrated solution.

a) **Recording at Station level:** Server/NVR may have an internal/external or combined storage capacity to record for 7 days. The storage capacity to be provided as per RDSO specification.

b) **Recording at Divisional Head Quarter:** Server/NVR proposed should have an equivalent amount of storage as mentioned in Schedule-A. Bidder may provide internal/external or combined storage. However the total required storage capacity may be divided amongst the Servers/NVRs if being provided internally.

Note 6: The below mentioned technical specifications for the supply items are bare minimum requirements of the purchaser, the supply items quoted by bidder must comply with these technical specifications. However, the bidder can quote the items with higher technical specifications and/or new/upgraded technology catering to the futuristic requirements of the proposed solution.

Note 7: The BOM submitted by the bidder as a part of the bid response must be vetted by respective OEMs.

8.1. IP Cameras of Fixed Box type, Fixed Dome type, P/T/Z type and 4K UHD Fixed Box type camera:

As per RDSO Specification of IP Based Video Surveillance System Specification no. RDSO/SPN/TC/65/2016 Revision 4.0 or latest with all amendments.

8.2. Server Hardware for Network Video Management Server, Network Video Recording Server/Network Video Recorder (NVR), Network Video Analytics Server and Facial Recognition Server:

As per RDSO Specification of IP Based Video Surveillance System Specification no. RDSO/SPN/TC/65/2016 Revision 4.0 or latest with all amendments.

8.3. Video Surveillance Software including Network Video Management Software, Network Video Recording Software, Network Video Analytics Software, GUI Client Software and Facial Recognition Software:

As per RDSO Specification of IP Based Video Surveillance System Specification no. RDSO/SPN/TC/65/2016 Revision 4.0 or latest with all amendments.

8.4. External Storage System:

As per RDSO Specification of IP Based Video Surveillance System Specification no. RDSO/SPN/TC/65/2016 Revision 4.0 or latest with all amendments

Or

Bidder may provide internal/external or combined storage. However the total required storage capacity may be divided amongst the Servers/NVRs if being provided internally.

8.5. Digital Keyboard with joystick compatible with P/T/Z Cameras:

As per RDSO Specification of IP Based Video Surveillance System Specification no. RDSO/SPN/TC/65/2016 Revision 4.0 or latest with all amendments

8.6. PC Workstation:

As per RDSO Specification of IP Based Video Surveillance System Specification no. RDSO/SPN/TC/65/2016 Revision 4.0 or latest with all amendments

8.7. High Resolution Large Video Display Units:

As per RDSO Specification of IP Based Video Surveillance System Specification no. RDSO/SPN/TC/65/2016 Revision 4.0 or latest with all amendments

8.8. Type-I Switch:

SN	Description
1	The Switch shall be designed for continuous operations.
2	Should have 8 ports 10/100/1000 Mbps Base T
3	Should have support for min. 2-Ports SFP Based Gigabit ports.
4	Should have at least 20 Gbps switching fabric.
5	Should Support port trunking of at least 2 GE ports.
6	Should have support for 802.3x flow control.
7	Should support 802.1D spanning tree control/RSTP support, DAI, IP source guard sflow and USB interface or equivalent.
8	Should support management features like Web-based GUI, SNMP, TFTP Client, System Log, DHCP/BootP Client and Should support Optical Transceiver Digital Diagnostic Monitoring.
9	Should support Auto MDI-II/MDI-X uplink for all the twisted pair ports.
10	Should support 802.1Q VLAN, 802.1p Priority queues.
11	Should support port mirroring.
12	Should support jumbo frame. (9216 Byte).

13	Should support console port or telnet based management.
14	Should have AC Power Supply with or without external adapter, 100 to 240 V AC with 50 to 60 Hz and equipped with 3 pin plug.
15	Should support at least 8000 entries in the MAC table.
16	Should support IGMP Snooping, IGMP v1/v2/v3 awareness Snooping, Supports 64 Groups and capable to support UDLD or equivalent, MLD Snooping v1/v2.
17	Should support Port-based VLAN, 802.1Q Tagged VLAN & Voice VLAN along with Management VLAN.
18	Should support spanning-tree root guard or similar functionality.
19	Should support spanning-tree Port Fast guard for fast convergence or similar functionality.
20	Switch should support IEEE 802.3af & IEEE 802.3at on Ethernet ports & Min 240W PoE Power Budget with the capacity to retain PoE sourcing to IP cameras during the switch restart.
21	Switch should support Surge Protection to ± 2 kV (line-earth) and ± 1 kW (line-line) on power input and Surge Protection to ± 2 kV on Ethernet ports or as per EN61000-4-5 standard..
22	Should support security features like SSL (HTTPS), Broadcast/Multicast/Unicast Storm Control, DoS Attack Prevention.
23	Should support Quality Of Service (QoS) like Priority Queue, Class of Service (CoS), Rate Limiting (Bandwidth Control), Strict Priority Queue (SPQ), Weighted Round Robin (WRR).
24	Switch shall be IPv6 Certified/Ready.
25	Switch shall be IP30 rated with Rack Mountable clams for standard 19 inch rack/DIN Rail mountable.
26	Operating Temperature of the Switch should be min -0 to 65 °C.
27	Storage Temperature of the Switch should be min -10 to 70 °C.
28	"OEM should be having valid ISO 9001 & ISO 14001 certification on the date of opening of bid" AND "OEM should have figured in latest Gartner Report in field of Ethernet Switches".
29	Switch should support LLDP or similar functionality.
30	Switch should have EMI CERTIFICATE of FCC/IC/CE.
31	Switch should have SAFETY CERTIFICATE of UL

8.9. Type-II Switch

SN	Description
1	Should have 24 x GE SFP based ports.
2	Should have 4 nos. SFP+ based 10 GE ports.
3	Should have at least 120 Gbps full duplex line rate traffic.
4	Should support port Trunking of at least 4 Nos. GE/10GE ports.
5	Should have support for 802.3x flow control.
6	Should support 802.1D spanning tree control/RSTP support and MSTP support.
7	Should support management features viz. Web-based GUI, SNMP, TFTP Client, System Log, DHCP/BootP Client along with Optical Transceiver Digital Diagnostic Monitoring.

8	Should support Auto MDI-II/MDI-X uplink for all the twisted pair ports.
9	Should support 802.1Q VLAN, 802.1p priority queues.
10	Should support port mirroring.
11	Should support jumbo frame. (9216 Byte)
12	Should support console port and telnet based management.
13	Should have AC power supply arrangement as given below in chassis with or without any external adaptors with internal redundant power supply: i.) AC power supply 100 to 240 V AC with 50 to 60 Hz.
14	Should support at least 16000 entries in the MAC table.
15	Should support following for min. 64 Groups : i.) IGMP Snooping, MLD Snooping v1/v2
16	Should support Port-based VLAN, 802.1Q Tagged VLAN & Voice VLAN along with Management VLAN
17	Should support spanning-tree root guard or similar functionality.
18	Should support spanning-tree Port Fast guard for fast convergence or similar functionality.
19	Should support ITU-T G.8032 Ethernet Ring Protection designed for loop protection and fast convergence times (sub 50 ms) in ring topologies.
20	Switch should support EN61000-4-5 standard or as below: i) Surge protection of ± 2 kV (line-earth) and ± 1 kW (line-line) on power input And ii) Surge protection of ± 2 kV on Ethernet ports.
21	Should support following security features viz.: i) SSL (HTTPS), ii) Broadcast/Multicast/Unicast Storm Control, iii) DoS Attack Prevention/ DAI and IP source guard, sflow
22	Should support Quality Of Service (QoS) features viz.: Priority Queue, Class of Service (CoS),Rate Limiting (Bandwidth Control),Strict Priority Queue (SPQ), Weighted Round Robin (WRR) or better.
23	Switch shall be IPv6 Certified/Ready.
24	Switch should comply to following Temperature performance parameters : I) Operating Temperature - min -0 to 65 °C II) Storage Temperature - min -10 to 70 °C
25	"OEM should have a : i) valid ISO 9001 & ISO 14001 certification on the date of opening of bid" AND ii) should have figured in latest Gartner Report in field of Ethernet Switches"
26	Switch should support LLDP or similar functionality.
27	Switch should have EMI CERTIFICATE of FCC/IC/CE
28	Switch should have SAFETY CERTIFICATE of UL
29	Router based solution is also acceptable.

8.10. Type – III Switch:

SN.	Description

1	Should have 24x SFP+ based ports with 240 Gbps of stacking bandwidth with dedicated stacking ports.
2	Should be upgradable to additional 2 nos. QSFP+ based 40 GE ports.
3	Should have at least 480 Gbps switching fabric.
4	Should support port trunking of at least 4 nos. GE/10GE ports.
5	Should have support for 802.3x flow control.
6	Should support 802.1D spanning tree control/RSTP support and MSTP.
7	Should support management features viz. Web-based GUI, SNMP, TFTP Client, System Log, DHCP/BootP Client & Dual Images.
8	Should support 802.1Q VLAN, 802.1p priority queues.
9	Should support port mirroring.
10	Should support jumbo frame. (9216 Byte).
11	Should support console port and telnet based management.
12	Should have internal 1:1 redundant hot swappable AC power supply arrangement as given below in chassis without any external adaptors: AC Power Supply 100 to 240 V AC with 50 to 60 Hz
13	Should support at least 32000 entries in the MAC table.
14	Should support following for min. 256 Groups: IGMP Snooping
15	Switch should support static routing, PBR, Inter VLAN routing, RIPv1/v2 and OSPF.
16	Should support Port-based VLAN, 802.1Q Tagged VLAN and Voice VLAN along with Management VLAN.
17	Should support Port security, BPDU Guard, Root Guard, DHCP Snooping, IP Source Guard and Dynamic Arp Inspection.
18	Should support STD, MSTP, RSTP, spanning-tree STP,MSTP, RSTP
19	Should support following security features viz.: SSL (HTTPS), Broadcast/Multicast/Unicast Storm Control, DoS Attack Prevention or equivalent
20	Should support Quality Of Service (QoS) features viz.: Priority Queue, Class of Service (CoS), Rate Limiting (Bandwidth Control), Strict Priority Queue (SPQ), Weighted Round Robin (WRR)
21	Switch shall be IPv6 Certified/Ready.
22	Switch should comply to following Temperature performance parameters: Operating Temperature - min -0 to 45°C Storage Temperature - min -40 to 70 °C
23	"OEM should have a : i) valid ISO 9001 & ISO 14001 certification on the date of opening of bid" AND should have figured in latest Gartner Report in field of Ethernet Switches"
24	Switch should support LLDP or similar functionality.

25	Switch shall be PCI/EAL2/NDPP/FIPS certified from common criteria organization.
26	Switch should have EMI CERTIFICATE of FCC/IC and CE
27	Switch should have SAFETY CERTIFICATE of UL

8.11. Switches Type-IV

SN	Description
1.	The switch shall be designed for continuous operations .The bidder shall furnish the MTBF (Mean Time between Failures) and MTRR (Mean Time to Restore) and predicted and observed values along with calculations by manufacturer.
2	In case of full system failure, Switches shall maintain a trace area in the NVRAM, which would be used for analysis /diagnosis of the problem.
3	Switch shall have built in power on diagnostics system to detect hardware failures.
4	Should have AC/DC power supply arrangement as given below in chassis without any external adaptors with redundant hot swappable power supply: i) AC power supply 100 to 240 V AC with 50 to 60 Hz ii) -48 V DC supply RailTel will specify the requirement of power supply arrangement on the basis of site requirement as identified during the site survey by the contractor.
5	Switches shall have suitable Visual Indicators for diagnostics and healthy /unhealthy status of ports & modules.
6	Switch shall have 8 Nos. of Gigabit SFP ports and 4 Nos. 10/100/1000 Base – TX with 2 Nos. of 10 Gigabit SFP+ ports complying to IEEE 802.3, IEEE 802.3u and 802.3ab standard , supporting half duplex mode ,full duplex mode and auto negotiation on each port of 1G to optimize bandwidth.
7	Switch shall have minimum of 30 Gbps (full duplex) forwarding bandwidth at layer 2 switching fabric.
8	Switch shall have minimum 45 million packets (64 Byte packets) per second forwarding rate.
9	Switches shall have a minimum of 16000 MAC address space.
10	Shall be temp hardened with a range of -40 to 65C and shall be 1/2 RU compliant in size.
11	It should be possible for the switches to be mounted on a 19-Inch rack. All accessories required for this mounting should be supplied.
12	Should support jumbo frame.
13	Router based solution is also acceptable.
14	Shall have the following MPLS features: i. Shall support Static IPv4 and Ipv6 routing. It shall also support OSPFv2 and OSPFv3. ii. Shall also support BGP and ISIS based routing. iii. Shall also support MPLS with RSVP and LDP signaling. It shall support MPLS FRR and L3VRF with upto 64 VRF. iv. Shall support a scale of 250 VLAN and shall support Ethernet OAM features like BFD, 802.3ah, 802.1ag and Y.1731 v. Shall support at least 1K MPLS labels.

	vi. Shall support 10K for IPv4 routes and 1K for IPv6 routes. vii. It shall support LSP ping and trace. viii. It shall support 8 hardware queues per port and shall support ingress policing and egress shaping. ix. Shall support MPLS based L3 and L2 VPN services. x. It shall also support SYNC Ethernet and SNMPv3. xi. Shall support remote telnet and SSH capabilities and it shall be possible to integrate with NMS system xii. Shall conform to UL 60950 or IEC 60950 Standards for safety requirements of IT Equipment. xiii. Shall conform to EN55022 Class A/B or CISPR22 Class A/B or CE Class A/B for EMC for (Electro Magnetic Compatibility).
15	**Shall have the following features. All software's/hardware's/License required for this must be supplied along with the switch.** i. Link Aggregation Control (LCAP) as per IEEE 802.3ad. ii. Support for IEEE 802.1Q VLAN on all ports. iii. Support for minimum 256 VLANs. iv. Support for IEEE 802.1 D spanning tree protocol. v. Support for IEEE 802.1 s MSTP. vi. Support Dynamic Host Configuration Protocol (DHCP). vii. Support Auto –MDIX (Media Dependent Interface Cross over) viii. Support Inter VLAN IP routing for full layer -3 routing. ix. Support for IPv6. x. Support Strict Priority Queuing. xi. Support Network Time Protocol (NTP) / Simple Network Time Protocol (SNTP) based. xii. RFC 1305 / 2030 for synchronization of date & time from the Central NTP Server. xiii. Support RADIUS protocol for console access restriction and authentication as per RFC 2138. xiv. Support 4 group of embedded RMON (history, static's and alarms). xv. Support multiple privilege level to provide different level of access on console port and telnet sessions xvi. Support classification and scheduling as per IEEE 802.1P on all ports. xvii. Support Port Spanning functionally for measurements using a networks analyzer. xviii. Support all the standard MIBs (MIB-I&II). xix. Support for console port Interface for configuration and diagnostics purposes. xx. Support Port Spanning functionally for measurements using a networks analyzer. xxi. ITU-T G.8032 Ethernet Ring Protection designed for loop protection and fast convergence times (sub 50 ms) in ring topologies xxii. Should support multiple Ring up to 8 ring (Main and Sub Ring) protection failover within 50 ms (up to 10 Switches in ring) or ITU-T G.8032 v2 (Confirmed roadmap within a year time is also acceptable for ITU-T G.8032 v2 with no additional cost to RailTel). xxiii. Should support Optical Transceiver Digital Diagnostic Monitoring. xxiv. Priority queues: Eight hardware-based queues per port for flexible QoS management xxv. Traffic prioritization: Flow-based QoS with internal and external (a.k.a., remarking) prioritization

	xxvi. Bandwidth management: Flow-based bandwidth management, ingress rate limiting; egress rate shaping per port. xvii. Queue management: Configurable scheduling algorithms — Strict Priority Queuing (SPQ), Weighted Round Robin(WRR) and Deficit Round Robin (DRR) or better.Rack Mountable clamps for standard 19 inch Rack for each item. xviii. The following Metro Ethernet features should support: 1. IEEE 802.1ad Provider Bridge. 2. Transparent LAN Services with Service VLAN (SVLAN) and Customer VLAN (CVLAN) concept. 3. CVLAN to SVLAN translation and mapping 4. IEEE 802.1ag Ethernet OAM: Connectivity Fault Management (Support 32 MEPs). 5. Ethernet OAM compliant with IEEE 802.3ah. 6. ITU-T G.8032 Ethernet Ring Protection designed for loop protection and fast convergence times (sub 50 ms) in ring topologies. 7. Should support Optical Transceiver Digital Diagnostic Monitoring. 8. Switch should support minimum of 4000 Ethernet flow points (EFP) or equivalent functionality. 9. L2 Protocol Tunneling.
16	**Switch shall have support of following Standards:** I. IEEE 802.1D (STP) II. IEEE 802.1p (CoS) III. IEEE 802.1Q (VLANs) IV. IEEE 802.1ag (Connectivity Fault Management) V. IEEE 802.1s (MSTP) VI. IEEE 802.3x (Flow Control) VII. IEEE 802.3z (Gigabit Ethernet) VIII. IEEE 802.3ab (1000Base-T) IX. IEEE 802.3ac (VLAN Tagging) X. IEEE 802.3ad (Link Aggregation) XI. IEEE 802.3ae (10 Gigabit Ethernet) XII. IEEE 802.3ah XIII. ITU-T G.8032/Y.1344 2010: Ethernet Ring
17	**Switch shall have the following Certifications:** i. The model of the Switches series shall have MEF-(9 & 14)/CE2.0 or higher certification from authorized agencies. ii. Switches should be NEBS certified. iii. CE / FCC. iv. Shall conform to UL 60950 or IEC 60950 Standards for safety requirements of IT Equipment. **v.** Shall Confirm to EN55022 Class A/B or CISPR22 Class A/B or CE Class A/B or CE Class A/B for EMC for (Electro Magnetic Compatibility). vi. Router should be IPv6 certified/ready
18.	OEM should have figured in latest Gartner Report in field of Ethernet Switches

8.12. SFP-BX (10 KM) Single Fiber:

SN	Description
1	Should be compatible with OEM equipment like Cisco, Juniper, D Link, Zyxel, Edge Core and Extreme
2	Should support 10 km optical distance on single fiber
3	Should have LC type connector.
4	Should provide the cost in Pair (BX U & D).
5	Should have 1 Gigabit Ethernet capacity on single mode fiber.
6	Should support DDMI feature.
7	OEM should be having valid ISO 9000 & ISO 14000 certification on the date of opening of bid.
8	Should have CE and FCC regulatory compliances.
9	Operating Temperature of the SFP Should be mini 0 to 65 °C (23 to 149 °F)

8.13. SFP+ (10 Km) :

SN	Description
1	Should be compatible with OEM equipment like Cisco, Juniper, D Link, Zyxel, Edge Core and Extreme
2	Should support 10 km optical distance (1550/1310 nm).
3	Should have LC type connector
4	Should have 10 Gigabit Ethernet capacities on single mode fiber.
5	Should support DDMI feature. Option should be available for both SFP+ and XFP
6	Should should be having valid ISO 9000 & ISO 14000 certification on the date of opening of bid.
7	Should have CE and FCC regulatory compliances.
8	Operating Temperature of the SFP Should be mini 0 to 65 °C (23 to 149 °F)

8.14. SFP+ (80 Km):

SN	Description
1	Should be compatible with OEM equipment like Cisco, Juniper, D Link, Zyxel, Edge Core and Extreme
2	Should support 80 km optical distance.
3	Should have LC type connector
4	Should have 10 Gigabit Ethernet capacities on single mode fiber.
5	Should support DDMI feature. Option should be available for both SFP+ and XFP
6	Should be having valid ISO 9000 & ISO 14000 certification on the date of opening of bid.
7	Should have CE and FCC regulatory compliances.

8	Operating Temperature of the SFP Should be mini 0 to 65 °C (23 to 149 °F)

8.15. SFP+ (350mtrs)

SN	Description
1	Should be compatible with OEM equipment like Cisco, Juniper, D Link, Zyxel, Edge Core and Extreme
2	Should support 10 km optical distance (1550/1310 nm).
3	Should have LC type connector
4	Should have 10 Gigabit Ethernet capacities on multi-mode fiber.
5	Should support DDMI feature. Option should be available for both SFP+ and XFP
6	Should be having valid ISO 9000 & ISO 14000 certification on the date of opening of bid.
7	Should have CE and FCC regulatory compliances.
8	Operating Temperature of the SFP Should be mini 0 to 65 °C (23 to 149 °F)

Note :-

1. **All SFPs must support DDMI feature.**
2. **All SFPs should be from the same OEM who are supplying switches and fully compatible with switches supplied and complaint to specifications mentioned in this RFP Document.**

8.16. Enterprise Network Firewall Specifications

SN.	Specifications
1	**Industry Certifications and Evaluations**
1.1	Firewall solution offered from OEM must be there in the latest Magic Quadrant for Enterprise Network Firewall published by Gartner
2	**Hardware Architecture**
2.1	The appliance based security platform should be capable of providing firewall, application visibility, and IPS functionality in a single appliance
2.2	The appliance should have at least 4 * 1G ports and 4 * 10 G ports from day one
2.3	The appliance hardware should be a multicore CPU architecture with a hard-ened 64 bit operating system to support higher memory
3	**Performance & Scalability**
3.1	Should support at least 5 Gbps of NGFW Real world performance (includes FW, Application Visibility & IPS) and should be scalable to 7 Gbps in future without any hardware up gradation
3.2	NG Firewall should support at least 8,000,000 concurrent sessions
3.3	NG Firewall should support at least 60,000 connections per second with Appli-cation visibility
3.4	NG Firewall should support at least 1000 VLANs

4	**High-Availability Features**
4.1	Firewall should support Active/Standby or Active/Active failover
4.2	Firewall should support ether channel functionality for the failover control & date interfaces for provide additional level of redundancy
4.3	Firewall should support redundant interfaces to provide interface level redundancy before device failover
4.4	Firewall should support 802.3ad Ether channel functionality to increase the bandwidth for a segment.
4.5	Firewall should have integrated redundant power supply
4.6	Firewall should have redundant hot-swappable FANs
5.	**Firewall Features**
5.1	Solution must be capable of passively gathering information about network hosts and their activities, such as operating system, services, open ports, client applications, and vulnerabilities, to assist with multiple activities, such as intrusion event data correlation, elimination of false positives, and policy compliance.
5.2	Firewall should support creating access-rules with IPv4 & IPv6 objects simultaneously
5.3	Firewall should support operating in routed & transparent mode
5.4	Should support Static, RIP, OSPF, OSPFv3 and BGP, BGPv6,
5.5	Firewall should support manual NAT and Auto-NAT, static NAT, dynamic NAT, dynamic pat
5.6	Firewall should support Nat66 (IPv6-to-IPv6), Nat 64 (IPv6-to-IPv4) & Nat46 (IPv4-to-IPv6) functionality
5.7	Firewall should support Multicast protocols like IGMP, PIM, etc.
5.8	Should support security policies based on security group tag in source or destination fields or both
5.9	Should support capability to receive contextual user information like username, IP address, authentication status, location and device information from 3rd party vendors
5.10	Should support capability to limit bandwidth on basis of apps / groups, Networks / Geo, Ports, etc.
5.11	Should be capable of dynamically tuning IDS/IPS sensors (e.g., selecting rules, configuring policies, updating policies, etc.) with minimal human intervention.
5.12	Should be capable of automatically providing the appropriate inspections and protections for traffic sent over non-standard communications ports.
5.13	Should be able to link Active Directory and/or LDAP usernames to IP addresses related to suspected security events.
5.14	Should be capable of detecting and blocking IPv6 attacks.
5.15	Solution should support full-featured NBA capability to detect threats emerging from inside the network. This includes the ability to establish “normal” traffic baselines through flow analysis techniques (e.g., Net Flow) and the ability to detect deviations from normal baselines.
5.16	Solution should support the capability to configure the access policy on the basis of IP Address, User ID/Group, VLAN, Network, Objects, Device type, Location, Ports, Protocols, etc.
5.17	Solution must provide IP reputation feed that comprised of several regularly updated collections of poor reparation of IP addresses determined by the proposed security vendor
5.1	Solution must support IP reputation intelligence feeds from third party and cus-

8	tom lists of IP addresses including a global blacklist.
5.19	Should support URL and DNS threat intelligence feeds to protect against threats
5.20	Should support Reputation- and category-based URL filtering offering comprehensive alerting and control over suspect web traffic.
5.21	Solution must be capable of passively gathering details unique to mobile devices traffic to identify a wide variety of mobile operating systems, mobile applications and associated mobile device hardware.
5.22	Should support more than 4000 application layer and risk-based controls that can invoke tailored intrusion prevention system (IPS) threat detection policies to optimize security effectiveness.
5.23	Should support the capability (by purchasing license) of providing network-based detection of malware by checking the disposition of unknown files in the cloud using the SHA-256 file-hash as they transit the network and capability to do dynamic analysis on premise (if required in future) on purpose built-appliance
5.24	NGFW OEM must have its own threat intelligence analysis center and should use the global footprint of security deployments for more comprehensive network protection.
5.25	The detection engine should support capability of detecting and preventing a wide variety of threats (e.g., malware, network probes/reconnaissance, VoIP attacks, buffer overflows, P2P attacks, etc.).
5.26	Should be able to identify attacks based on Geo-location and define policy to block on the basis of Geo-location
5.27	The detection engine should support the capability of detecting variants of known threats, as well as new threats
5.28	The detection engine must incorporate multiple approaches for detecting threats, including at a minimum exploit-based signatures, vulnerability-based rules, protocol anomaly detection, and behavioral anomaly detection techniques. Identify and explain each type of detection mechanism supported.
5.29	Should support Open based Application ID for access to community resources and ability to easily customize security to address new and specific threats and applications quickly
6.	**VPN features**
6.1	Firewall should support RFC 6379 based Suite-B Cryptography Suites/algorithms like AES-GCM/GMAC support (128-, 192-, and 256-bit keys), ECDH support (groups 19, 20, and 21), ECDSA support (256-, 384-, and 521-bit elliptic curves) for enhanced VPN security.
6.2	Firewall should support latest IKEv2 standards for supporting SHA-2 256, 384 & 512 bit message integrity algorithms in hardware to ensure there is no performance bottleneck & higher security.
6.3	Should support pre-shared keys & Digital Certificates for VPN peer authentication
6.4	Should support perfect forward secrecy & dead peer detection functionality
6.5	Should support Nat-T for IPsec VPN
7.	**Regulatory Compliance**
7.1	Firewall shall conform to UL 60950 or IEC 60950 or CSA 60950 or EN 60950 Standards for Safety requirements of Information Technology Equipment.
7.2	Firewall shall conform to EN 55022 Class A/B or CISPR22 Class A/B or CE Class A/B or FCC Class A/B Standards for EMC (Electro Magnetic Compatibility) requirements.

8.	**Evaluation Compliance**
8.1	Firewall/ Firewall's Operating System should be tested and certified for EAL 4/NDPP or above under Common Criteria Certification or FIPS Level 2 Certifications
8.2	Firewall/ Firewall's Operating System should be USGv6/IPv6 Certified/IPv6 logo ready
9	**Management**
9.1	The management platform must be accessible via a web-based interface and ideally with no need for additional client software
9.2	The management platform must provide a highly customizable dashboard.
9.3	The management platform must be capable of integrating third party vulnerability information into threat policy adjustment routines and automated tuning workflows
9.4	The management platform must be capable of role-based administration, enabling different sets of views and configuration capabilities for different administrators subsequent to their authentication.
9.5	Should support REST API for monitoring and config. programmability
9.6	Should support troubleshooting techniques like Ping, Trace route, etc.
9.7	The management platform must provide multiple report output types or formats, such as PDF, HTML, and CSV.
9.8	The management platform must support multiple mechanisms for issuing alerts (e.g., SNMP, e-mail, SYSLOG).
9.9	The management platform must provide robust reporting capabilities, including a selection of pre-defined reports and the ability for complete customization and generation of new reports.
9.10	The management platform should support risk reports like advanced malware, attacks and network
9.11	The management platform must include an integration mechanism, preferably in the form of open APIs and/or standard interfaces, to enable events and log data to be shared with external network and security management applications, such as Security Information and Event Managers (SIEMs), and log management tools.

8.17. Media Pair Convertors:

As per RDSO Specification of IP Based Video Surveillance System Specification no. RDSO/SPN/TC/65/2016 Revision 4.0 or latest with all amendments.

8.18. UPS 30KVA

SN.	**Specifications**	
1	Capacity	30000VA/27000 W
2	Phase	3 phase in / 1 phase out
3	**INPUT Characteristics**	
4	Power Factor	0.9
5	Voltage Range	305-470 VAC (3-phase) @ 100% load
6	Wave form	Pure Sine wave
7	Nominal Voltage	3 x 400 VAC (3Ph+N)
8	**OUTPUT Characteristics**	

9	Output Voltage Rates	208/220/230/240V(L-N)
10	Voltage Accuracy	±1%
11	Voltage Adjustability	±5V
12	Transfer Time	0
13	DC Offset	±50 mV
14	AC Mode Efficiency	>09%
15	Output Frequency @ Line mode	46 ~ 54 Hz @50Hz system
16	Output Frequency@ Battery mode	46 ~ 54 Hz @50Hz system
17	Frequency Converter Mode (CVCF)	50/60Hz
18	UPS status, Load level, Battery level, In-put/Output voltage, Discharge timer, and Fault conditions	Indication required
19	Over Load Memory	Default: Yes
20	Transient recovery	100 ms recover to 90**%** of nominal Voltage
21	Efficiency	>90% Battery Mode @100%R/RCD Load
22	UPS Type	Tower
	Monitoring software support	Battery , health of UPS, change in any critical pa-rameter
23	Programmable outlets	Yes
24	Port	USB,RS-232,RJ45
25	Battery Type	SMF preferred
26	Generator Compatible	Yes
27	Battery backup	2 Hrs. on full load
28	Acoustic Noise	<60 db
29	Operating Temperature	0-40 deg C
30	Nominal Battery Input Voltage	240V
31	Battery Low Warning	228V/232V
32	Battery Shutdown Voltage	214V
33	Battery Type	VRLA ,12V
34	**Battery Charger**	
35	Nominal Recharging current	12A (1± 10%)
36	Maximum Charge Voltage	273V
37	**Regulatory Standards**	
38	ESD	IEC/EN61000-4-2 Level 4
39	Safety	IEC/EN62040-1-1
40	Leakage Current	IEC/EN62040-1-1
41	Protection	IP20
42	Certification	CE
43	**MANAGEMENT Software**	
	Supports Windows® 2000/2003/XP/Vista/2008, Windows® 7/8, Linux, Unix	

8.19. UPS 10KVA

SN.	Specifications	
1	Capacity	10000VA/9000 W
2	Phase	3 phase in / 1 phase out
3	**INPUT Characteristics**	
4	Power Factor	0.9
5	Voltage Range	305-470 VAC (3-phase) @ 100% load
6	Wave form	Pure Sine wave
7	Nominal Voltage	3 x 400 VAC (3Ph+N)
8	**OUTPUT Characteristics**	
9	Output Voltage Rates	208/220/230/240V(L-N)
10	Voltage Accuracy	±1%
11	Voltage Adjustability	±5V
12	Transfer Time	0
13	DC Offset	±50 mV
14	Load Crest Ratio	3:1 max
15	AC Mode Efficiency	>09%
16	Output Frequency @ Line mode	46 ~ 54 Hz @50Hz system
17	Output Frequency@ Battery mode	46 ~ 54 Hz @50Hz system
18	Frequency Converter Mode (CVCF)	50/60Hz
19	UPS status, Load level, Battery level, Input /Output voltage, Discharge timer, and Fault conditions	Indication required
20	Over Load Memory	Default: Yes
21	Transient recovery	100 ms recover to 90**%** of nominal Voltage
22	Efficiency	>90% Battery Mode @100%R/RCD Load
	UPS Type	Tower
23	Monitoring software support	Battery , health of UPS, change in any critical parameter
24	Programmable outlets	Yes
25	Port	USB,RS-232,RJ45
26	Batter Type	SMF preferred
27	Generator Compatible	Yes
28	Battery backup	2 Hrs. on full load
29	Acoustic Noise	<60 db
30	Operating Temperature	0-40 deg C
31	Nominal Battery Input Voltage	240V
32	Battery Low Warning	228V/232V
33	Battery Shutdown Voltage	214V
34	Battery Type	VRLA ,12V
35	**Battery Charger**	
36	Nominal Recharging current	12A (1± 10%)

37	Maximum Charge Voltage	273V
38	**Regulatory Standards**	
39	ESD	IEC/EN61000-4-2 Level 4
40	Safety	IEC/EN62040-1-1
41	Leakage Current	IEC/EN62040-1-1
42	Protection	IP20
43	Certification	CE
44	**MANAGEMENT Software**	
	Supports Windows® 2000/2003/XP/Vista/2008, Windows® 7/8, Linux, Unix	

8.20. UPS 1 KVA

SN.	**Specification**	
1	Capacity	1KVA/800 W, better as per actual requirement
2	Technology	IGBT
3	Wave form	Pure Sine wave
4	Display	LED/LCD
5	Input power factor correction	0.99
6	Input configuration	1Ph,L-N+PE
7	Output Power factor	0.8
8	frequency (Input)	50Hz frequency
9	frequency (output)	50Hz/60Hz frequency
10	Voltage Range (Bypass)	120VAC~288VAC
11	V threshold	2%max full linear load,5% max on Nonline-ar load
12	PF	>=0.99
13	Crest factor	3.0 or batter
14	AC-AC Efficiency	90% or batter
15	Transfer time Main-Battery	0
16	Transfer time Inverter-Bypass	4 msec
17	Emergency Power off function	Yes
18	Monitoring software for	Battery , health of UPS, any critical parameter change
19	Communication	SNMP V1/V2
20	Programmable power management outlets	Ready from Day one
21	Port	USB,RS-232
22	Battery Type	SMF
23	Battery backup	1 Hrs. on full load (Single bank)
24	**Environmental Parameter**	
A	operating temperature range	0-50deg
B	Over Temperature, Load on Battery, Battery on Charge, Battery low, Mains on	Indication required
C	Tel line surge protection	inbuilt

D	Humidity	0% to 95% non-condensing
E	Noise Level	50 dBA max
F	Size	not more than 2U rack mountable
25	**Protection**	IP20
A	Mechanical Parameter	EMI
B	Safety	EN
C	Performance	IEC/EN
26	**MANAGEMENT Software**	
	Supports Windows® 2000/2003/XP/Vista/2008, Windows® 7/8, Linux, Unix	

8.21. UPS 2 KVA

SN.	**Specification**	
1	Capacity	2KVA/1600 W
2	Wave form	Pure Sine wave
3	Rectifier	IGBT based
4	Display	LED/LCD
5	Input power factor correction	0.99
6	input configuration	1Ph,L-N+PE
7	Output Power factor	0.8
8	frequency (Input)	50Hz frequency
9	frequency (output)	50Hz/60Hz frequency
10	V threshold	2%max full linear load,5% max on Nonlin-ear load
11	PF	>=0.99
12	Crest factor	3.0 or batter
13	AC-AC Efficiency	90% or batter
14	Transfer time Main-Battery	0
15	Transfer time Inverter-Bypass	4 msec
16	Emergency Power off function	Yes
17	Monitoring software for	Battery , health of UPS, any critical parameter change
18	Communication	SNMP V1/V2
19	Programmable power management outlets	Ready from Day one
20	Port	USB,RS-232
21	Battery Type	SMF
22	Battery backup	1 Hrs. with full load
23	**Environmental Parameter**	
A	Operating Temperature range	0-50 deg
B	Over Temperature, Load on Battery, Battery on Charge, Battery low, Mains on	Indication required
C	EPO function	Yes

D	Tel line surge protection	inbuilt
E	Humidity	0% to 95% non-condensing
F	Noise Level	50 dBA max
G	Size	not more than 2U rack mountable
24	**Protection**	IP20
A	Mechanical Parameter	EMI
B	Safety	EN
C	Performance	IEC/EN
25	**MANAGEMENT Software**	
	Supports Windows® 2000/2003/XP/Vista/2008, Windows® 7/8, Linux, Unix	

8.22. STP CAT-6 Cable:

As per RDSO Specification of IP Based Video Surveillance System Specification no. RDSO/SPN/TC/65/2016 Revision 4.0 or latest with all amendments

8.23. 24-Core Single mode Optic Fibre Cable:

As per TEC specification numbered as GR/OFC-17/01.JUN.2007/latest with all amendments

8.24. 12-Core Single mode Optic Fibre Cable:

As per TEC specification numbered as GR/OFC-17/01.JUN.2007/latest with all amendments

8.25. Air Conditioners of capacity 2TR x 2 (Twin Type)

SN.	Parameter	Particulars
1	Total tonnage of complete unit	4.0 TR
2	Tonnage of each unit	2.0 TR
3	Sensible Capacity	≥ 42000 BTU/HR
4	Sensible Heat ratio	≥ 0.9
5	Applicable standards confirming to	IS : 8148
6	Compressor type	Scroll
7	No. of compressors in complete unit	Two
8	MTBF	≥ 25000 working Hrs.
9	Life of Compressor	≥ Minimum 10 years
10	Continuous running time	Each unit consists of two compressors, hence with 12 hrs operation for each compressors, the unit can run for 24 hrs.
11	Refrigerant	R22 or equivalent

12	Safety control	Required
13	Protections	Required
14	Alarm display	Required
15	Memory display	Required
16	Outside mountable	Required
17	Electrical data – Supply with variation	230 V, Single phase, 50 Hz. (Nominal)
18	MTBF Compressor	≥ 25000 working hrs.
19	MTBF Fans	≥ 30000 working hrs.
20	MTBF Motor	≥ 21000 working hrs.
21	MTBF Micro Processor based Controller	≥ 20000 working hrs.
22	Motor protection	IP 55 or better
23	Intelligent switching	The unit should be capable of intelligently switching on and off compressors depending on the room temp.
24	Intelligent switching	The compressors should work alternatively to avoid Continuous working of a compressor. This change over time can be programmed and the same can be set from 0.5 Hrs. to 12 Hrs. in steps of 0.5 Hrs.

8.26. (A) FMS (12/24 Fiber)

The FMS should be confirming to TEC NO.: **GR/FDM-01/02/APR-2007 (Type-I) with latest amendment No. TEC/T/OFC-FDMS/149/2012**. However the FMS should have the following:

i) It should be mountable in standard 19" rack and of slider type.

ii) The connectors must be make of reputed OEMs 3M, Huber-Shuner, R&M, TE Connectivity/Raychem.

iii) There should be arrangement of termination of 48/24/12/6 Nos. of fibers (as per SOR).

iv) It should be supplied with 48/24/12/6 Nos. of pigtails of respective type of connector (as per SOR) of minimum 3 meter length.

v) Color coded pigtails (900 µn tight jacket) shall be provided for easy identification.

vi) The FMS should be supplied with arrangement of required Nos. of adapters (as per SOR).

vii) The adaptors shall be fixed in such a way that these shall be easily accessible protecting the eye from direct exposure to laser.

viii) There should be minimum two nos. of trays for the provision of termination of the fibers & sufficient space for routing of the fibers in the trays.

viii) Trays shall be numbered bottom to top (tray no. 1 is lower most).

ix) Pigtails shall follow tray numbering.

x) Pigtails shall be color coded similar to the fiber color coding.

xi) Adaptors shall be numbered Bottom to Top or Left to Right in ascending order.

xii) All adaptors shall be provided with dust protection caps.

xiii) Important Do's and Don'ts about the operation of the FMS shall be clearly indicated at convenient place on the FMS.

xiv) Insertion Loss: ≤ 0.2 dB

xv) Return Loss: ≥ 45 dB

xvi) The FMS shall be manufactured as per latest state of art technology.

xvii) The FMS shall be protected against the entry of dust and insects, rodents etc.

xviii) Body should be of MS steel; powder coating painting (min. 70 micrometer thickness) shall be provided with rust resistance paint.

xix) **Marking:** The marking on the system shall be indelible and following minimum information shall be provided by way of engraving or Laser printing method:

a) "RAILTEL" should be written on each FMS to be visible from front.
b) Manufacturer's name & date/ year of production.
c) Model No./Batch No./ Serial No.
d) Capacity i.e. No. of cables and the fibers.
e) Identification details/ cables/ Fiber/ labeling facility.

(B) Specifications of Patch Cords

The Patch cords should be confirming to TEC NO.: **TEC/GR/TX OFJ-01/05/NOV-09 with latest amendment No. TEC/T/OFC-OFJ/155/2013**. However the Patch cords should have the following:

i) Operating Temperature: -60ºC to +85ºC.
ii) Insertion Loss:
a) Insertion Loss of complete patch cord including adapter when tested from each direction in all conditions of operations: ≤ 0.3 dB
b) Insertion Loss of Adaptors: ≤ 0.1 dB

iii) Return Loss for each connector of patch cord:
a) Type-I FC-PC : ≥ 50 dB
b) Type-II SC-PC : ≥ 50 dB
c) Type-III SC-APC : ≥ 65 dB
d) Type-IV LC : ≥ 50 dB
e) E2K/APC : ≥ 60 dB

iv) The length and type of connector of each Patch Cord: As per SOR.

V) The connectors must be make of reputed OEMs 3M, Huber-Shuner, R&M, TE Connectivity/Raychem.

vi) Connector Body:

a) FC-PC : Ni plated brass body (Ni plating shall be as per BIS Standards)
b) SC-PC & SC-APC : Engineering thermoplastic (Glass filled PBT: Polybutylene Terephthalate)
c) LC : PEI (Polyetherimide)/ PPS (Polyphenylene Sulphide)

vii) Color of connector body:

a) FC-PC connector: Ni plated Brass
b) SC-PC connector: Blue
c) SC-APC connector: Green
d) LC connector: Blue

viii) Radius of curvature:

a) FC-PC : 10 to 25 mm
b) SC-PC : 10 to 25 mm
c) SC-APC : 5 to 12 mm
d) LC : 10 to 25 mm

ix) Minimum bending radius of the cable:

a) Loaded : 50 mm
b) Unloaded : 30 mm

Note: The bidder/OEM has to give compliance for the TEC specifications for above mentioned items, offered in this bid.

8.27. Telecom Rack (9U, 19", Wall mounted)

No.	Item	Description
1	Type	Closed Telecom Rack wall mounted.
2	Dimension	500 mm (Height) X 600 mm (Width) X 600 mm
3	Mounting	Rack should have wall mounting provision with heavy wall breakets and fastners.
4	Front door	Rack should have front door tough and transparent glass fitted on MS/CRCA sheet on sides with Lock
5	Rear side	MS/CRCA door plain having ventilation holes bottom side with dust filters.
6	Top & Bottom	Rack top and bottom should be MS/CRCA steel made with cable entry provision with glands at both
7	Fan module	Compact fan module of 90 CFM working on 230V AC 2 nos. with each rack properly fitted at top of
8	Earthing Provision	Rack Should have earthing provisions.
9	Cable manager	1 no. horizontal and 1 no. vertical cable manager with cable loops to be provided with each rack.
10	Power Distribution Unit (PDU)	PDU is of 6 Sockets of branded make such as Havells or equivalent with 6 Amp with switch.
11	Material used	Cold Rolled Carbon (CRC)/MS with Thickness varying from 1.6 mm to 2.0 mm
12.	The rack should be fitted with one modem tray 19”	
13.	The good quality powder coating light grey in colour shall be used for painting of the rack.	
14.	“RAILWAYS PROPERTY” in bold and easily recognizable fonts should be written at the	

8.28. 19" 42U Rack

19" 42U Racks shall be used at Divisional Head Quarters for housing servers, switches, Firewall and IPS

No.	Item	Description
1	Dimension	As per requirement
2	Side panels	To be provided across whole height of the rack should be openable with latching arrangement at top
3	Front door	Rack should have front door tough and transparent glass fitted on MS/CRCA sheet on sides with Lock
4	Rear side	MS/CRCA door plain having ventilation holes bottom side with dust filters.
5	Top & Bottom	Rack top and bottom should be MS/CRCA steel made with cable entry provision with glands at both
6	Fan module	Compact fan module of 90 CFM working on 48V DC 4 nos. with each rack properly fitted at top of
7	Earthing Provision	Rack Should have earthing provisions.
8	Cable manager	2 nos. horizontal and 2 nos. vertical cable manager with cable loops to be provided with each
9	Power Distribution Unit (PDU)	Adequate and Redundant power distribution units with electronically controlled circuits for surge and spike protection, isolated input to ground and output to ground.
10	Material used	Cold Rolled Carbon (CRC)/MS with Thickness varying from 1.6 mm to 2.0 mm
11	The rack should be fitted with one modem tray 19"	
12	The earthing kit consisting of copper bus bar with dimensions 20 inch length, 1.0 inch breadth & 5mm thickness (min.) having 12 holes and 3	
13	The good quality powder coating light grey in colour shall be used for painting of the rack	
14	The rack should be fitted with dual source power supply distribution board.	
15	"RAILWAYS PROPERTY" in bold and easily recognizable fonts should be written at the	

8.29 NMS Specifications:

A. For Switches

General Features

1. The Network Management System should provide a single integrated solution for comprehensive lifecycle management of the network elements (Switches Type-I,II,III and Type-IV) and should support rich visibility into end-user connectivity and application performance assurance issues.

2. The Network Management System should be licensed for asked managed switches for a regional HQ and should have flexibility to be shared among the elements of the same

OEM. Management system should have scalability to manage minimum 5000 managed switches.

3. The NMS should support an open database schema.
4. The NMS should support configuration, administration, monitoring and troubleshooting of Switches.
5. The NMS should support guided workflows based on best practices with built-in configuration templates.
6. The NMS should support the capability to view the network topology.
7. The NMS should support Layer 2 Services.
8. The NMS should support Fault Management.
9. The NMS should support Performance Management and Device Performance Management.
10. The NMS should support integration with third-party management platform and should support integration with NetView, HP OpenView etc.
11. The NMS should support Flexible web-based portal framework.
12. The NMS should support creation of user-defined views.
13. The NMS should support Lightweight HTML interface.
14. The NMS should support multiple protocols such as https, SSL, SCP, SSH, FTP, TFTP, Telnet and SNMP (v1, v2c and v3).

Inventory Management:

1. The NMS should automatically discover IP devices on the network.
2. The NMS should detect SNMP compliant network devices on the network and manage them.
3. The NMS should present graphical view of the LAN/WAN topology of the network including all stations, Div. HQ under respective divisions.
4. The NMS should detailed network inventory and management support for platforms.
5. The NMS should support equipment details - chassis, module, interface.
6. The NMS should support a single menu for discovery status, device status, user tracking, and inventory dashboards.

Monitoring and Troubleshooting:

1. The NMS should support Troubleshooting assistant with guided workflows.

2. The NMS should support Embedded-troubleshooting workflow for quick problem isolation and remediation.

3. The NMS should Quickly and proactively identify and fix network problems before they affect end users or services

4. The NMS should support centralized fault and event browser (consolidated, syslog, traps, and events and alarms).

5. The NMS should support Simple Network Management Protocol (SNMP)-based polling to identify availability and performance issues.

6. The NMS should support dashboard to provide fault and availability statistics of Video endpoints and devices and to allow for real-time performance and event monitoring.

7. The NMS should support features to help validate whether the network is ready for video and rich media applications.

Configuration Management:

1. The NMS should identify the hosts connected to specific switches or interfaces by MAC address.

2. The NMS should support configuration backup of switches.

3. The NMS should support User roles and privileges.

4. The NMS should support software image management of switches.

5. The NMS should support compliance of switches.

6. The NMS should support change management required to maintain and update network devices.

7. The NMS should support setting up auto configuration of switch ports.

Reporting:

1. The NMS should support network reporting feature for collecting data and threshold settings of Network devices (CPU Usage, Memory Usage, Port Usage etc.). The NMS should support customizable user roles to control permissions on device views, device actions, and system actions.

2. The NMS should support flexible reporting option for PSIRT (Product Security Incident Response Team).

3. The NMS should support Audit Trail reports or equivalent.

4. The NMS should support Bug Summary report or equivalent.

5. The NMS should support Change Audit report or equivalent.

6. The NMS should support Contract Connection report or equivalent.

7. The NMS should support Device Credential report or equivalent.

8. The NMS should support Syslog report or equivalent.

Installation:

1. The NMS should support an unattended install.

2. The NMS should be provided on dedicated appliance/ installed as a virtual appliance/ Intel based severs/ AMD based server.

3. The NMS should support installation on Windows/ Linux.

4. The NMS should support High Availability solution via internal or 3rd part software components if required in future.

Network Based Application Monitoring & Troubleshooting :

1. The NMS should provide comprehensive network-based visibility into application performance and end-user experience.

2. The NMS should quickly adopt and utilize embedded instrumentation.

3. The NMS should be able to resolve problems faster by examining the health of the underlying infrastructure.

4. The NMS should be able to manage multiple modules/ appliances providing network analysis functionality and traffic monitoring with application performance intelligence.

5. The NMS should provide End-to-End Performance Visibility by proactive network-based monitoring of:
   - Business Critical Applications
   - End User Experiences

B. For UPS

1. The UPS monitoring software shall be used to monitor all the UPS installed at all stations and Divisional Head Quarter under a particular Divisional Head Quarter from a central monitoring room located at that Divisional Head Quarter.

3. The Software should have the capability to monitor UPS status, battery capacity, output voltage and load level, Record and review historical UPS events, record and review UPS information by a line chart, set up countdown seconds between power loss/failure - OS shutdown / OS shutdown - UPS Off, set up e-mail notification (ex: power outages, low battery, disconnect), set up UPS features (ex: silence ,battery test , no load shutdown, outlets control), share UPS status to the other web portal for remote monitoring.

C. The tool along with the standard ITSM functionalities for operation and Maintenance of the system.

8.30 HDPE Duct

As per TEC GR No. GR/TX/CDS-008/03/March 11 with latest amendment.

8.31 Command Control Centre Requirements

At central command center, it is desired to have an integrated centralized Video Management System solution that shall allow an operator to view live/recorded video from any camera on the IP network. Not all cameras would be simultaneously viewed at command center. The application should adhere to latest standards of emergency management & operations standards for interoperability, data representation & exchange, aggregation, virtualization and flexibility. It should have the capability to seamlessly integrate with all standalone VMS system/solution spread across multiple locations/Regions and should easily manage hundreds to thousands of cameras and connected devices for centralized or highly distributed video surveillance architectures. It should provide facility to capture critical information such as location, name, status, time of the incident and be modifiable in real time by multiple authors with role associated permissions (read, write). All the Incidents should be captured in standard formats to facilitate incident correlation and reporting. The system should have the capability to provide detailed reports and summary views to multiple users. The system shall support distributed viewing of any camera in the system using Video walls or big screen displays.

The system shall provide integrated dashboard with an easy to navigate user interface for managing profiles, groups, message templates, communications, tracking receipts and compliance. It shall provide tools to assemble personalized dashboard views of information pertinent to incidents, emergencies & operations of command center. It shall also provide dashboard filtering capabilities that enable end-users to dynamically filter the data in their dashboard based upon criteria, such as region, dates, product, brands, etc. and capability to drill down to the details

It shall be able to generate historical reports, event data & activity log and covert these reports into “pdf” or “html” formats.

The proposed system should be able to leverage and integrate with existing & new CCTV cameras supporting ONVIF profile ‘S’ and video management systems either through camera level or VMS level, to provide an integrated video surveillance at the command center.

The operator at the command center shall have following access to the video feeds:

- Viewing rights to all the live camera feeds
- Viewing rights to the stored feeds,
- Access to Alerts/Exceptions/Triggers raised
- Personalized Dashboard
- Accessibility to analytics on the recorded footages
- Provide search of recorded video. Advanced search should be possible based on various filters like alarm, event, area, camera etc.

Broad Level Bill of Material required at Central Command Center is as follows:

- Video Wall
- PC Workstation as defined in clause 8.6 of chapter 8 (5 Nos)
- Adequate IT/LAN Components
- Chairs and Computer Tables (5 Nos)
- Adequate Electrical Work
- UPS (adequate capacity to cover all above IT Components with minimum 1 hour Backup).

SECTION – II

TECHNICAL REQUIREMENTS & SUPPLEMENT

INDEX

SECTION - II

CHAPTER - 1

PRECAUTIONS TO BE TAKEN IN 25 KV A.C. TRACTION AREA:

II.1.1 GENERAL

Any Telecommunication circuits in the vicinity of AC Traction running parallel to 25 KV lines are liable to be affected by AC induced voltage. Therefore precautions should be taken to eliminate the possibility of induced voltage affecting equipment and humans.

Crossing of track, if any, should be negotiated by underground cables running at right angles to the track as far as practicable.

Special protective measures (viz. provision of G.D tubes, fuses and earthing etc) are required to be taken for telecommunication lines entering 25 KV sub station /switching posts.

For the human safety considerations the safe working voltages should be 60 V under normal conditions and 150 V with special precautions and 430 V under fault conditions.

Instructions for protection of railway staff/working personals on signaling and telecommunications installations on 25 kV AC traction shall be strictly adhered to. Precautions are required to be taken on account of following,

i) Proximity of live conductor.
ii) Pressure of return current in Rails.
iii) Induction in all metallic bodies situated closed to over head equipment.

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SECTION - II

CHAPTER - 2

PREPARATION OF AS-BUILT ROUTE PLANS

II.2.0 SCOPE:

The scope of this is to prepare a final set of As-Built drawings of route plans, based on the actual cable route (which in turn shall be based on a preliminary & approved drawings of route plans, already supplied to the contractor).

II.2.1 Points to be taken care of for laying the OFC cable:

II.2.1.1 Avoid underground structures, signaling cable, power cables and pipe lines etc.

II.2.1.2 Avoid rodent/termite infested or infected side of the alignment.

II.2.1.3 Avoiding areas prone to water logging.

II.2.1.4 For the straight runs as far as possible a separation of 10 Meter should be kept from the nearest track. This is as per CCITT recommendation K.8.

As a rule a minimum distance of 5.75 M should be maintained between the OHE masts and the cable. In Yards etc. where observance of this rule may be difficult, a minimum distance of 3 Meter should be maintained. In exceptional cases where the cable trench depth is less than 0.5 M the lateral distance may be reduced to 1 M.
Make the route of OFC cable within 1 meter of Railway boundary normally.

II.2.2 As-Built Cable Route plan.

Based on above actual route, the as-built cable route plan should be prepared:

II.2.3 Preparation of Drawings

All the plans and drawings shall be neatly prepared using Computer Aided Design System & plotter etc. The drawings shall be in A3 size & suitably filed for ease of handling.
Further, a soft copy of Auto-CAD drawings in CD shall be submitted.

2.4 Information in Cable route plan:-

The cable route plan shall contain following information:-

II.2.4.1 Whether the cable route is on the **up** or **down** side of the Railway Tracks.

Exact locations and lengths where the cable is laid in RCC/DWC/G.I. pipes/ troughs and under the bed on culverts.

Location of track crossing and the number of tracks being crossed.

Location of road crossing and the no. of RCC/DWC/GI pipes provided.
Locations of Pull Chambers/Joint Pits.

II.2.7 Protective works for Cable/ Ducts:-

II.2.7.1 For building, masonry platforms, crossing of tracks and roads etc. special protection for the cables are required. Some of the methods adopted for different types of protective works are specified in the following drawings:-

For Girder bridges M.S. Troughing Drg. S&T/RE/78/2/76 Page 1 & 2 and RE/42/172. (P-160 & 163).
For cable entries to Cabins, ASM's Offices etc. through HDPE pipe Drg.No. RE/S&T/ALD/SK/161/81 (P-174).
For unconsolidated embankments Shoring for the cable trench as per Drg.No. RDSO/TC/35003. (P-168).
For laying cables over the culverts in DWC pipes Drg. No. RE/S&T/ALD/SK/160/81. (P-162).
For laying cables over arch bridges brick channeling Drg. No.RE/S&T/ALD/SK/162/81. (P-173).
For route over rocky area through chase Drg.No. RE/S&T/SK/303/85withAlteration 'A'. (P-167).
For routes under bed of culverts in DWC pipes Drg.No. RE/S&T/ALD/SK/184/81.(P-165).
For cable laying under railway track Drg. RE/S&T/ALD/SK/159/81 (P-169).
For cable laying under road drg. No. RE/S&T/ALD/SK/497/2000 (P-157)
For Stone/RCC cable route marker drg no. RCIL/NR/01 (P-172).

Note1: In non-RE area, wherever distances are reckoned with reference to overhead alignment, the distances from the nearest KM-post provided along the track, may also be mentioned.

Note 2: If any of the above-mentioned drawings are illegible or not clear, the clarifications may be sought from the office of Executive Director, RailTel.

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SECTION - II
CHAPTER - 3

TECHNICAL SPECIFICATION AND INSTRUCTIONS FOR TRENCHING AND LAYING OF OPTICAL FIBRE CABLE:

II.3.1 SCOPE:

This chapter deals with the specifications under which the various work for trenching & laying of optical fibre cable coming under the purview of the contract are to be executed by the contractor.

II.3.2 SUPPLY OF ROUTE PLAN:

Approved Cable Route plan and jointing schedule for mid section splicing of cable will be prepared and supplied by the RailTel This shall give a preliminary idea of the number & locations and the quantities and type of various equipment to be fixed, wired and commissioned.

II.3.3 LEADING OF CABLE IN MASONRY BUILDINGS

II.3.3.1 The cable will have to be led inside any masonry building such as Cable hut, ASM's room at a depth of 0.75 meters by cutting the masonry structure of the wall as per Drg.No. RE/S&T/ALD/SK/161/81 as given at Annexure- 3.12. After the cable has been led inside the masonry wall, the floor inside shall be duly repaired and plastered.

II.3.4 LAYING OF CABLE IN SPECIAL CASES:

II.3.4.1 Near Power Cable

When the proposed cable route comes across any other cable already laid, the contractor shall first report the fact to the Engineer. Should the cable be identified by the Engineer as a power cable (LT or HT), the trench shall be dug as far away from the route of the power cable as practicable.

II.3.4.2 Crossing of Optical Fibre Cable with another cable

Crossing of the Optical Fibre cable with another cable shall be avoided wherever possible. Where, however, this is not possible, the Optical Fibre cable shall be laid in cement or asbestos cement pipes. The length of the pipe to be provided on either side of the crossing shall be atleast one meter.

II.3.4.3 Laying other than optical fibre cables in the same Trench

No cable other than quad cable shall be laid in the trench made for the Optical Fibre cable. Even in such cases, both the cables are to be laid as per approved drawing. Where, however, exceptional circumstances exist, the optical fibre cable may be laid along with another cable in the same trench provided a specific permission of each such case is obtained in writing from Engineer. When optical fibre cable and L.T. power cable have to be laid in the same trench they shall be separated by placing a

layer of second class bricks between them vertically (approx. 16 bricks/meter) or laid in RCC pipe.

II.3.4.4 Laying of cable through RCC/GI/DWC pipes

The cable shall be laid through RCC/GI/DWC pipes at the locations marked on the route plan and as advised by the Engineer or his representative.

For laying the cable through pipes galvanised steel wires of a cross section not less than 10 SWG shall be used as a lead wire. Two such lengths of wires shall be laid through the pipes, so that after the cable is threaded through the pipe, one lead wire is permanently left in the pipe with a suitable overlay at two ends, to enable the cable to be pulled out at a later stage if required to do so.

On arch bridges and culvert bridges the cables will be threaded through DWC pipes etc. While threading the cable through these pipes the Contractor shall do the trenching to the required depth wherever necessary for which no extra charge will be paid.

II.3.4.5 Laying cable near feeding post:

In the vicinity of feeding posts, as far as possible the cable shall be laid on the side of the track opposite to the feeding post. Further the Optical fibre cable shall be at least one metre away from any metallic part of the O.H.E. and other equipment at the sub station which is fixed on the ground and at least one metre away from the sub - station earthing. In addition, the cable shall be laid in RCC pipes 150 mm dia (standard 2 metre length) complete or capable of being split into two half as per specn. No. ISS-458 latest for a length of 300 metres on either side of the feeding point.

II.3.4.6 Running of cables at foundations others than OHE Masts and from pipe outlets.

Damages to cable is likely to occur if care is not taken in laying cable where the bed changes from solid support such as a foundation pipe or bridge to soft support such as soft soil. The cable must not press against the edge of the solid support. The soft soil near the edge must be tamped and the cable raised slightly.

II.3.5 HANDLING OF CABLE DRUMS & PAYING OF CABLES:

II.3.5.1 While collecting OFC/HDPE from RailTel depot the contractor must ensure that the materials should be received in good condition. The drums shall be unloaded by the side of the Railway Track/Road from either a crane or any other suitable means very carefully so as not to cause any damage to the cable. The drums at site shall be protected until they are laid. The cable must be tested before and after laying.

II.3.5.2 On each drum there are two ends, A & B. The 'B' end of one cable length shall meet 'A' end of the next cable at a joint. The 'A' end shall be normally on the top unless indicated otherwise on a drum.

II.3.5.3 The drums shall always be kept upright, i.e. axle in parallel position to the base. The drums shall not be set by jerks but shall be handled slowly and with care. The walls of the drums should not be damaged while moving the drums if required for unrolling.

II.3.5.4 The drums shall normally be unrolled at the same place and the cable carried by workmen near the trench. The drums shall not be dragged in any case. But where drums of cable have to be moved, would always be rolled in the direction of the arrow, otherwise the coils tend to unwind and the cable may get battered. In case no direction arrow is marked on the drum, remove several battens and determine the direction in which the cable is coiled. The arrow should then be painted on the drum pointing in the opposite direction in which the upper cable end is coiled so that future handling of the cable drum is facilitated and then replace the battens carefully.

II.3.5.5 The drum should be properly mounted on jacks (or on a cable wheel) making sure that the spindle is large enough to carry the weight without bending and that it is laying horizontally in the bearings so as to prevent the drum creeping to one side or the other while it is rotating. Before attempting to pull off the cable, remove the end protection box attached to the flange of the drum and cut the security ropes so as to leave the cable free to move.

II.3.5.6 If a portion of the cable only is taken out from the cable drum, the battens should be immediately replaced to prevent damage to the balance of the cable. This is important.

II.3.5.7 The use of steel bars between the bolt heads to 'jump' or turn the drum around is dangerous to staff and likely to damage the drums. A better method is to use two steel plates with grease between them. By standing the drum on these greased plates, it can be easily elevated round to the desired position.

II.3.5.8 All care should be taken in handling cable drums with a view to ensure safety not only of the cables but also of the working party handling them. The man should not be allowed to brake the cable drum by standing in front but only from side.

II.3.5.9 Rewinding and Redrumming of cables.

(a) If for any reason it is found necessary to rewind a cable on a drum, cable drum with a proper barrel diameter not less than of the original drum should be chosen.

(b) The drums should be mounted on cable jacks during rewinding operations using proper size of spindles passed through the flange holes, which will not buckle under the lead. The cable should not be bent opposite to the set it is having already.

(c) In the re-drumming operations, drums should be so turned that the cable passes from the bottom of the original set with as little gap as possible.

(d) Replace all the lagging on the cable drum.

II.3.6 MINIMUM BENDING RADIUS:

Cables should always be bent (or straightened) slowly, they should never be bent to small radius while handling. The minimum safe bending radius for optical fibre cables should be 30 times the diameter of the cable but wherever possible larger radius should be used.

II.3.7 TOOLS REQUIRED FOR TRENCHING, CABLE LAYING AND FILLING.

TOOL'S NAME

Cable Jack
Cable Grip
Reopening Device
Free Hood Hook
Shackle free head hook
Grouling Hook
Pulling Bolt
Tension meter
Pulley
Anti Twist Device (swivel)
Roller
Flexible Cable
Pulling Rope
Brush
Mandrel
Chain
Measuring cord for strain gauge
Slip Winch
Wire rope
Portable VHF set
Measuring tape
Phowrah
Iron plate
Loader Backhoe for Drilling
Warning Tape
Caterpillar tractor
Fork Lifter
Vehicle Van type
Tacho- meter
Road measurer.

3.17 Blowing /Drawing of Optical Fibre Cable:

II.3.18.1 **OFC** should normally be **blown** through the ducts by standard blowing machines Only in exceptional cases drawing may be adopted in short lengths with the permission of the site engineer of RailTel.

SECTION - II

CHAPTER - 4

JOINTING AND TERMINATION OF FIBRE OPTIC CABLE

II.4.1 TECHNIQUE FOR JOINTING OF OPTICAL FIBRE CABLE

Fusion splicing shall be used for splicing fibres. This is accomplished by applying localized heating (i.e. by electric arc or flame) at the interface between two butted, pre-aligned fibre ends, causing them to soften and fuse together.

II.4.2 STRAIGHT JOINT FOR FIBRE OPTIC CABLE

II.4.2.1 There are various types of joint enclosures available in the market. The procedure for assembly of joint closure is described in the installation manual supplied with straight joint closure. This includes the following:

Material inside joint closure kit

Installation tools required

Detailed procedure for cable jointing

Procedure for re-opening the closure.

II.4.2.2 The Optic Fibre straight through joint closure shall be as per specn. TEC TO 910 G92 (latest) or a proven design approved by RCIL .The joint shall be protected in RCC Joint Pit as per drawing given in Annexure 2.14. (.The Optic Fibre straight through joint closure shall be of TVSE, R&M, Raychem, 3M make and shall be approved in advance by RailTel. The joint shall be protected in concrete chamber as approved by engineer- in-charge.)

II.4.2.3 Generally, the following steps are involved for jointing of the cable:

- Preparation of cable for jointing
- Stripping/cutting the cable
- Preparation of Cable and joint closure for splicing
- Stripping and Cleaving of Fibres
- Fibre splicing
- Organising fibres and Finishing joints
- Sealing of joint closure and
- Placing joint in the Jointing Chamber/Pit.

II.4.3 STRIPPING/CUTTING OF THE CABLE

The cables are stripped of their outer and inner sheath with each sheath staggered approximately 10mm from the one above it.

Proper care must be taken when removing the inner sheath to ensure the fibres are not scratched or cut with the stripping knife or tool. To prevent this, it is best to only score the inner sheath twice on opposite sides of the cable, rather than cut completely

through it. The two scores marking on either side of the cable are then stripped of the inner sheath by hand quite easily.

The fibres are then removed from cable one by one and each fibre is cleaned individually using Kerosene to remove the jelly.

II.4.4 STRIPPING AND CLEAVING OF FIBRE

Prior to splicing each fibre must have approximately 50mm of its primary protective U.V. cured coating removed, using fibre stripper which are manufactured to fine tolerances and only score the coating without contacting the glass fibre.

The bare fibre is then wiped with a lint free tissue doused with ethyl alcohol. Cleaving of the fibre is then performed to obtain as close as possible to a perfect 90 degree face on the fibre.

II.4.5 SPLICING OF THE FIBRES

The fusion splicing shall be used for fibre splicing. Some of the basic steps for fusion splicing are as given in 4.8 below.

II.4.6 FUSION SPLICING OF FIBRE

Some of the general steps with full automatic micro processor control splicing machine are as under

Wash hands thoroughly prior to commencing this procedure.

Dip the clean bare fibre in the beaker of ethyl alcohol of the ultrasonic cleaver. Switch on ultrasonic cleaver for 5-10 seconds (Some of the manufacturers do not prescribe the above cleaning).

Place the bare fibre inside 'V' grove of the splicing machine by opening clamp handle such that the end of fibre is app. 1 mm. over the end of the "V" groove towards the electrodes.

Repeat the same procedure for other fibre, however, first insert heat shrink splice protector.

Press the start button on the splice controller.

The machine will pre fuse, set align both in 'X' and 'Y' direction and than finally fuse the fibre.

Inspect the splice on monitor if provided on the fusion splicing machine and assure no nicking, bulging is there and cores appear to be adequately aligned. If the splice does not visually look good repeat the above procedure.

Slide the heat shrink protector over the splice and place in tube heater. Heat is complete when soft inner layer is seen to be 'oozing' out of the ends of the outer layer of the protector.

Repeat for other fibres.

II.4.7 FUSION SPLICER AND OTDR

The fusion splicer and Optical Time Domain Reflecto meter (OTDR), to be used for splicing and measurements of parameters respectively, shall be of approved design and quality. The contractor shall submit

Specification of fusion splicer and OTDR

Certificate from the users, who have used the splicer and OTDR of the make, the contractor intends to use, regarding their satisfactory performance.

The RCIL reserves the right to direct the contractor to use the same or any other proven design of fusion splicer and OTDR if in the opinion of RCIL the specification of Fusion splicer and OTDR are not suitable

II.4.8 ORGANISING FIBRE AND FINISHING JOINTS

After each fibre is spliced, the heat shrink protection sleeve must be slipped over the bare fibre before any handling of fibre takes place, as uncoated fibres are very brittle and cannot withstand small radius bends without breaking.

The fibre is then organized into its tray by coiling the fibres on each side of the protection sleeve using the full tray side to ensure the maximum radius possible for fibre coils.

The tray are placed in the position.

OTDR reading taken for all splices in this organized state and recorded on the test sheet to confirm that all fibres attenuation are within specification. This OTDR test confirms fibres were not subjected to excessive stress during the organizing process.

After this the joint can be closed with necessary sealing etc. and ready for placement in the pit.

II.4.9 TERMINATION JOINT FOR FIBRE OPTIC CABLE.

II.4.9.1 This joint is provided in the cable hut for terminating the outdoor fibre optic cable of both the sides, splicing through fibres, connecting fibres to pigtails for connection to Optical Line Terminal Equipment etc.

II.4.9.2 The OFC Cables shall be dressed up on teak wood plank/Aluminum ladder inside cable hut. The armour of the OFC Cable shall be cut before taking the cable in the equipment rack. The cables shall be terminated on FDMS and derive required pigtails.

Two pairs of fibres shall be derived from either side cable at every OFC cable hut through pigtails with FC/PC connectors. The remaining fibres shall be looped through.

II.4.9.3 The procedure for installation of termination joint box depend upon the type of joint enclosure. The installation manual supplied gives the step-by-step procedure for installation. However, the general steps are as under:-

- Marking the cable
- Stripping/cutting the cable
- Gripping cable in sheath/clamp
- Treatment of tension member
- Fibre splicing
- Enclosing fibre
- Fixing strength member
- Closing the cover
- Fixing termination box
- Fixing the cable.

II.4.10 MARKING THE CABLE

Determine the cable length up to the proposed location of termination box. It is also to be ensured that at least 10 meters of cable is coiled in the cable pit.

Determine the cutting point and mark the cable

Determine the sheath peeling point and mark the cable

II.4.11 CUTTING / STRIPPING THE CABLE

Cut the cable as per the marking
Remove the sheath from cable ends. During sheath stripping care should be taken not to damage the fibres.

The length and the steps for various sheath cutting shall be as per the instruction given in the manual.

II.4.12 GRIPPING THE CABLE

Wind PVC tape around the cable core just beside edge of the sheath.

Insert the bushing inside sheath by cutting the cable sheath for about 25mm.

Place the sheath grip (lower half and upper half) and tighten it with the help of torque wrench.

II.4.13 FIXING OF TENSION MEMBER

a) Mark the tension member for the specified length and cut it.

b) Clean the tension member thoroughly by Alcohol and cotton cloth.

c) Fix tension member holder with the help of instant adhesive at the end of tension member.

II.4.14 FIBRE SPLICING

The procedure for splicing is same as described for straight joint closure in Clause 4.7 above.

II.4.15 ENCLOSING FIBRES

a) Set the fibre cassette on the base

b) Arrange excess length of fibre to make double figure of eight.

c) Enclose the spliced fibre and its excess length carefully.

d) Repeat the procedure for other fibres.

e) After this, the box can be closed. However, a packet of silica gel may be placed inside for protection from entry of moisture.

II.4.16 MOUNTING OF TERMINATION BOX.

Termination box can be fixed either on wall or on equipment rack. Mark the fixing holes on the walls/bracket/frame

a) Place the termination box and tightened the nuts inside the base box.
b) Put the covers.

II.4.17 FIXING THE CABLE

Secure the cable on wall/frame at two places within one meter from termination box keeping in view straight entry of cable in termination box.

II.4.18 ACCEPTANCE TEST FOR FIBRE OPTIC CABLE

The Procedure for Testing of Fibre Optic Cable shall be jointly finalized by Contractor with Engineer of the RCIL. The parameters in the concerned specification shall be taken as reference. The Test shall be conducted from cable hut to cable hut, after the Splicing & termination Joints are completed. The length of cable (as per marking in cable & as measured by OTDR), loss in cable, average loss per Km., No. of Splices, Splice loss, etc. shall be recorded and jointly signed as per pro-forma given in para 4.24 below.

II.4.19 TEST PROTOCOL FOR OPTICAL FIBRE CABLE

SYSTEM TEST PROTOCOL OPTICAL FIBRE CABLE FIELD TEST

Route: ---------- Date: ----------

Station: ---------- No. of mid-section splices: ----------

Section: ---------- Measured by: ----------

Length (by OTDR): ---------- Length as per meter marking on cable sheath----------

1)
2) Optical measurements (On Line):

Measurement	**Fibre – number 1 2 3 4 ……22 23 24**	**Accepted Value**
1.1 Total attenuation at 1300/1550 nm with OTDR		
1.2 Total attenuation per Km at 1300/1550 nm:		<0.40 dB/Km at 1300 nm &<0.25 at 1550 nm
1.3 Splice Loss in dB with OTDR Location		Average splice loss
OHE Mast No./ Overhead alignment post no. A. B. C. D. E.		
Average Splice Loss		0.15 db, no splice should have loss >0.2 db

NOTE : ALSO ATTACH OTDR RESULTS |----|

2) Visual Inspection (On Line):
2.1 No. of Cable drum used in the section: ----------
2.2 S.No. of cable and length of each drum:
S.No. LENGTH

1. ---------- ----------M

2. ---------- ----------M

3. ---------- ----------M

4. ---------- ----------M

5. ---------- ----------M
2.3 Location of Isolation Sleeves: 1. 2. 3.

Contractor's Representative RCIL's Representative

II.4.25 TOOLS AND EQUIPMENTS REQUIRED FOR JOINTING AND TERMINATION OF FIBRE OPTIC CABLE.

S.No. TOOL's Name

1. Branch Joint Closure
2. Termination Box
3. Rubber end Block
4. Sheath Clamp
5. Bushing
6. Strength Member holder
7. Heat Shrinkage tube
8. Arc fusion splicer machine.
9. Power cord AC/DC
10. Walkie-Talkie 12V DC source
11. Tube heater
12. Precision cleaver
13. Cable sheath stripper
14. Fibre stripper
15. Knife for HDPE cutting
16. Hexa for strength membrane
17. Isopropyl alcohol or methanol of high specific gravity
18. Johnson Buds
19. Tweezers
20. Gun heater Blower type
21. Sleeve for splice protection
22. O.T.D.R.
23. Stickers for numbering of splicers.
24. Portable k. oil generator
25. Umbrella's 2 Nos.
26. Dust protection for splicing machine

Note:- Wherever cable has to be coiled/looped , the diameter of the coil/loop shall be greater than 30 times the diameter of the cable.

SECTION-II
CHAPTER-5

Technical Specification and Drawing for provision of Earthing Arrangement.

CHAPTER – 5: TECHNICAL SPECIFICATION OF MAINTENANCE FREE EARTHING

II.5.1. PURPOSE

Today a number of installations with electronic equipments is exponentially increasing day by day in Indian Railways and there is a need to protect these system with proper earthing. This specification of maintenance free earthing describe in detail, the components to be used and the procedure for constructing the pit. The main purpose of using this new technique is to ensure that the resistance between the earth electro and the equipment is nearly zero, consistently throughout the year.

II.5.2. Scope

The earth pit shall be of permanent and maintenance free (PMF) type. The earth pit shall include the components, such as – earth rods, compression couplers, earth enhancement material and connecting wires, earth-bus bar and all accessories. It is meant to be used for earthing for equipments

II.5.3. Earth Resistance

Acceptable earth resistance value at earth bus bar shall be less than two ohms for electrical installations and less than one ohm for telecom installations

II.5.4. Location for Earth

Low laying closed to the building or the location box is good for locating earth electrodes. The location can be closed to any existing water bodies or water points. Earthing rod should not be fixed on high bank or made of soil

II.5.5. Earth Rod

The earth rod shall have the following characteristics/specifications:-

a) 6 feet long copper bonded steel rods, especially designed for electrical grounding and shall have a minimum dia of 17 mm.
b) Shall be corrosive resistant
c) Shall be molecularly bonded with copper to high strength steel cores
d) Shall have a minimum copper bonding thickness of 250 microns (10 Mil.).
e) Shall have a minimum life span of 20 years

II.5.6. Earth Enhancement Material

Earth enhancement material shall be electrically conductive and non-soluble. It shall:

a) Have high conductivity in the electronic ground contact area and it should improve earths absorbing power and humidity retention capability
b) Have a resistivity of less than 4.7 ohm/mtr

c) Be non corrosive in nature have low water solubility (0.2% max) but high hygroscopic and will not be eliminated by continuous treatments with water
d) Be stable between -600^{O} and 600^{O} C temperature
e) Be possible to increase earth conductivity from 3 to 20 times
f) Interact with homogeneous way when applied to earth
g) Be suitable for any kind of electrode and all kinds of grounds of different sensitivity through the simple spill of proper solution to ground, which surrounds the electrode
h) Higher doses may be necessary for optimum result in high resistance soil or rocky area

II.5.7. Construction of Unit Earth

a) A hole of 4 to 6 inch dia shall be augured to a depth of about 6 to 9 feets
b) Two electrodes of 6' each shall be joined together using a compression coupler.
c) The electrode of 12' (6+6) shall be inserted in augured hole
d) It will be penetrated into soil by gently driving on the top of the rod using a sledge hammer. Here natural soil is assumed to be available after about 10' so that 2' of the electrodes shall be inserted into the soil
e) RDSO approved earth enhancing compound 10 kg. shall be filled in augured hole in slurry form and the resistance is measured. This will further deepened by adding one more earth rod if the resistance is not coming less around 3 ohms
f) Remaining portion of the hole shall be covered by the soil which is taken out during auguring

II.5.8. Construction of Ring Earth

Since it is not possible to achieve a low resistance value of less than 1 ohms with one pit, it is required to install a ring earth consisting of 2 to 4 pits depending upon the soil resistivity. Following method shall be adopted to construct the ring earth:

a) The procedure mentioned above for one pit shall be repeated for installing 2 to 4 such earth pits. It will be ensured that the distance between the two earth pit shall be more than 8 to 10 feet for effective utilization of the soil contact area
b) The number of pits required shall be decided based on the resistance achieved for the earth pits already installed as the properties of the soil plays a major role
c) These earth pits shall then be interlinked using a electrolytic grade copper strip/wire of not less than 40 sq. mm to form a ring using exothermic welding technique. The inter-connecting cable/bus bar shall be buried not less than 1' below the ground level. This interconnecting bus bar shall also be covered with earthing enhancing compound. These connections shall be made sing exothermic welding.
d) A copper bus bar of 25mm X 6mm X 150mm shall be exothermically welded to master earth electrodes for taking the final connection to the equipment room.

II.5.9. Inspection Chamber

a) A 300 X 300 X 300 mm concrete box with smooth cement plaster finish shall be provided on the top of the pit. A steel plate of 4 to 6 mm thickness hinged cover with lockable management, painted black shall be provided to cover the earth pit.
b) One padlock of Godrej/Link make with three keys shall be supplied for locking.

c) The masonry work shall be white washed inside and outside.
d) Care shall be taken regarding level of the floor surrounding the earth so that the connector is not too deep in the masonry or projecting out of it.
e) On back side of the over the date of test and average resistance value will be written with yellow paint.

II.5.10. Earth Bus bar and connection to pit:

a) The earth electrode and the copper earth bus bar will be connected by cadmium bronze wire as per RDSO specification No,. RDSO/SPN/178/2003, exothermically welded to electrode at one end and the earth bus bar at the other end.
b) The copper earth bus bar will be 300 X 25 X 6 mm size with tin coating and holes for fixing it to the wall of the equipment room with insulation studs.
c) All connection to the earth bus bar will be through tinned copper lug of Dowell or similar make of suitable size.
d) All nut and bolts will be stainless steel type.

SECTION - II
CHAPTER – 6

List of Address for Specification

1. Address from where specification copy can be purchased :

The copy of IRS, RDSO, TEC and BIS specification used in the tender documents can be purchased from following sources.

2. IRS Specification : i) Manager Publications,
Government of India
Civil Lines, New Delhi- 110054

ii) Government of India Book Depot,
8 - S.K. Roy Road, Calcutta – 700001

3. RDSO Specification :

RDSO, Manak Nagar, Lucknow

4. DOT/TEC/ITD Specification :

Khurshid Lal Bhavan, Janpath,
New Delhi- 110001

5. B.I.S. Specification :

Directorate General,
Indian Standards Institution,
9- Bahadur Shah Zafar Marg,
New Delhi -110002
F- block, Unity Building,
Narsimhraja Square,
Bangalore- 560002
534- Sardar Vallabh Bhai Patel Raod , Mumbai.
5- Choweringhee Approach, PO Princep Street, Calcutta- 700072
Ahinsa Building (1st floor) , SCO 82-83, Sector 27-C, Chandigarh- 160017
5-8-56/57, L.N. Gupta Marg, Hyderabad- 208005.
117/418-B, Sarvoday Nagar, Kanpur – 208005
C.I.T. Campus, Adyar, Madras – 600020.

6. If any specifications and drawings referred but not enclosed in the tender documents may be seen in the RCIL's office on any working day.

…END of Tender Document…