

# अग्निरोधक प्लगों, साकेटों तथा हैंडलैम्पों के लिए निरीक्षण व परीक्षण योजना

## INSPECTION AND TEST PLAN FOR FLAMEPROOF PLUGS, SOCKETS AND HAND LAMPS

3	22.05.2020	Revised and reissued	NP	RS	RKS	SKS
2	21.11.2013	Revised and reissued	MJ	RS	SCG	SC
1	29.06.2012	Revised and reissued	AB	HVJ	AKC	DM
0	01.12.2008	Issued for implementation	RB	SKD	SKP	VC
Rev. No.	Date	Purpose	Prepared by	Checked by	Standards Committee Convener	Standards Bureau Chairman
Approved by						

### Abbreviations

ATEX	: Atmosphere Explosibles	IS	: India Standard
BASEEFA	: British Approval Service for Electrical Equipment in Flammable Atmospheres	IRN	: Inspection Release Note
BIS	: Bureau of Indian Standards	MTC	: Material Test Certificates
BOM	: Bill of Material	ITP	: Inspection and Test Plan
CEIL	: Certification Engineers International Limited	Lab.	: Third Party Laboratory
CT	: Current Transformers	Mfr	: Manufacturer
CIMFR	: Central Institute of Mining & Fuel Research	MOC	: Material of Construction
DFT	: Dry Film Thickness	No.	: Number
DGMS	: Directorate General of Mines Safety	NEMA	: National Electrical Manufacturers Association
DT	: Destructive Testing	PESO	: Petroleum Explosive Safety Organization
EPC	: Engineering Procurement Construction	PO	: Purchase Order
ERTL	: Electronics Regional Test Laboratory	PR	: Purchase Requisition
FM	: Factory Mutual	PT	: Voltage Transformers
HV	: High Voltage	PVC	: Poly Vinyl Chloride
IC	: Inspection Certification	QC	: Quality Control
IEC	: International Electrotechnical Commission	TC	: Test Certificate
IECEX	: International Electrotechnical Commission Explosive	TPI or TPIA	: Third Party Inspection Agency
IP	: Ingress Protection	UL	: Under writer Laboratories
		VDR	: Vendor Data Requirement

### Inspection Standards Committee

<b>Convenor</b>	: Mr. R.K. Singh		
<b>Members</b>	: Mr. Rajesh Sinha	Mr. Himangshu Pal	Mr. Chandrashekhar
	Mr. R. Muthuramalingam	Mr. Avdhesh Agrawal	Mr. Mahendra Mittal
	Ms. Arvind NP Singh(Engg.)		

### 1.0 SCOPE

This Inspection and Test Plan covers the minimum inspection and testing requirements for Flameproof Plugs, Sockets and Hand Lamps .

### 2.0 REFERENCE DOCUMENTS

PO/PR / Standards referred there in /Job specifications / Approved documents.

### 3.0 INSPECTION AND TEST REQUIREMENTS

SL NO.	STAGE/ ACTIVITY	CHARACTERISTICS	QUANTUM OF CHECK	RECORD	SCOPE OF INSPECTION		
					SUB SUPPLIER	SUPPLIER	EIL/TPIA
1.0	Procedures	---	---	---	---	---	---
2.0	Material Inspection						
2.1	Incoming Material like casting, etc	Physical, chemical & electrical properties as applicable	100%	MTC / Lab. TC	H	H	R
3.0	In process Inspection						
3.1	Flameproof plugs Sockets and Hand Lamps assembly	<ul style="list-style-type: none"> <li>Visual Check</li> <li>Dimensional Check</li> <li>Bill of Material Verification</li> <li>Routine Press Test on Castings as per latest IS/IEC</li> </ul>	100%	Test Records	-	H	R
4.0	Final Inspection						
4.1	Final Inspection	<ul style="list-style-type: none"> <li>Visual Check</li> <li>Dimensional (flame path/gap/clearances etc.)</li> <li>Bill of Material checks.</li> <li>Compatibility of cable glands with cable sizes/cable entry .</li> <li>Verification of mechanical and electrical operation.</li> </ul>	100%	Test Records	-	H	R

SL NO.	STAGE/ ACTIVITY	CHARACTERISTICS	QUANTUM OF CHECK	RECORD	SCOPE OF INSPECTION		
					SUB SUPPLIER	SUPPLIER	EIL/TPIA
		<ul style="list-style-type: none"> <li>HV test /Insulation Resistance test before and after HV Test</li> <li>Colour of metal enclosures.</li> </ul>					
4.2	Submission of Certificates & Documents	<ul style="list-style-type: none"> <li>Type tests (if specified)</li> <li>For Electrically Hazardous Area Item:               <ol style="list-style-type: none"> <li>Indigenous : Certificates from CIMFR / ERTL / Karandikar Lab, Valid PESO and BIS License for the corresponding Gas Group and Type of Protection as specified.</li> <li>Imported: ATEX/ IECex Certification from recognized test authorities and valid PESO approval for the specified gas group and type of protection .</li> <li>For use in Projects related to Mines, DGMS approval is required.</li> </ol> </li> <li>Degree of protection certificate (IP) for Instruments housing.</li> </ul>	Proto-type from each Model	Certificates from test agencies / Statutory Bodies	-	H	R
<b>5.0</b>	<b>Painting</b>						
5.1	Painting and Packing	<ul style="list-style-type: none"> <li>Visual</li> <li>Suitable protection to prevent entry of foreign material.</li> <li>Proper packing to prevent any damage during transportation and storage.</li> </ul>	100%	Packing list / Supplier's Records	-	H	-

SL NO.	STAGE/ ACTIVITY	CHARACTERISTICS	QUANTUM OF CHECK	RECORD	SCOPE OF INSPECTION		
					SUB SUPPLIER	SUPPLIER	EIL/TPIA
6.0	Documentation						
6.1	Documentation and IC/IRN	<ul style="list-style-type: none"> <li>Review of Internal Test Reports</li> <li>Issuance of IC/IRN</li> </ul>	100%	Supplier Test Records / IC/IRN	-	H	H
6.2	Final Document submission (if applicable)	Compilation of Inspection reports , Drawings, etc as per VDR / PR	100%	Final data folder /Completeness certificate	-	H	H

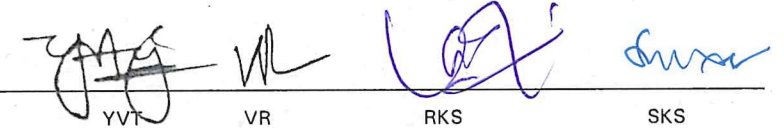
Legends: H- Hold (Do not proceed without approval, R-Review, RW-Random witness (As specified or 10 % - Samples must include min 1 No. of each type), W-Witness (Give due notice, work may proceed after scheduled date).

**NOTES :**

1. This document describes the generic test requirements. Any additional test or inspection scope if specified in contract documents shall also be applicable. (Unless otherwise agreed upon).
2. Acceptance Norms for all the activities shall be as per PO/PR/ Standards referred there in/ Job specifications /Approved documents
3. For EPC Jobs, Scope of Inspection shall be under TPIA only, unless specified otherwise.

एम.वी. वैरीएबल फ्रीक्वेन्सी ड्राइव सिस्टम  
के लिए निरीक्षण एवं परीक्षण योजना

INSPECTION AND TEST PLAN  
FOR  
MV VARIABLE FREQUENCY DRIVE SYSTEM



Rev. No.	Date	Purpose	Prepared by	Checked by	Standards Committee Convenor	Standards Bureau Chairman
3	15.05.2020	Revised and Reissued	YVT	VR	RKS	SKS
2	30.01.2014	Revised and Reissued	MJ	RS	SCG	SC
1	29.06.2012	Revised and Reissued	AB	HVJ	AKC	DM
0	08.12.2008	Issued for implementation	RB	SKD	SKP	VC

## Abbreviations

BIS/IS	:	Bureau of Indian Standards
CT	:	Current Transformer
EPC	:	Engineering Procurement Construction
HV	:	High Voltage
IC	:	Inspection Certificate
IGBT	:	Insulated-gate bipolar transistor
MV	:	Medium Voltage
PO	:	Purchase Order
PR	:	Purchase Requisition
PT	:	Potential Transformer
QC	:	Quality Control
RPO	:	Regional Procurement Office
SCR	:	Silicon controlled rectifier
TPI or TPIA	:	Third Party Inspection Agency
VDR	:	Vendor Data Requirement
VFD	:	Variable Frequency Drive

## Inspection Standards Committee

**Convenor :** Mr. R.K. Singh

**Members:**

Mr. Rajesh Sinha	Mr. Himangshu Pal	Mr. Chandrasekhar	Ms. Arvind NP Singh (Electrical)
Mr. R Muthuramalingam	Mr. Avdhesh Agrawal	Mr. Mahendra Mittal	

## 1.0 SCOPE

This Inspection and Test Plan covers the minimum testing & inspection requirements of MV Variable Frequency Drive System(VFD), Small MV Variable Frequency Drive System.

## 2.0 REFERENCE DOCUMENTS

PO/PR & Standards referred there in /Job specifications / Approved documents.

## 3.0 INSPECTION AND TEST REQUIREMENTS

SL NO.	STAGE/ ACTIVITY	CHARACTERISTICS	QUANTUM OF CHECK	RECORD	SCOPE OF INSPECTION		
					SUB SUPPLIER	SUPPLIER	EIL/TPIA
1.0	Procedures	As per applicable BIS/IEC Standards	--	--	--	--	--
2.0	Material Inspection						
2.1	Incoming Material like fabricated panels, bus bars/Power cables, IGBT/ SCRs/rectifier/ inverter/ drive unit, relays, meters, CT/PT, transducers, transformer unit, filter, etc.	Visual, dimension, chemical, mechanical properties, Material Identification, Functional/Operational checks, as applicable.	100%	Material Test Certificates / Test records/ Manufacturers Test reports	H	H	R
3.0	In process Inspection						
3.1	VFD Assembly, wiring checks	Visual, Dimensional, Bill of material Wiring Size, termination, ferruling, continuity	100%	Test Records	-	H	-

SL NO.	STAGE/ ACTIVITY	CHARACTERISTICS	QUANTUM OF CHECK	RECORD	SCOPE OF INSPECTION		
					SUB SUPPLIER	SUPPLIER	EIL/TPIA
4.0	Final Inspection						
4.1	VFD (Acceptance Tests)*	<ul style="list-style-type: none"> <li>• Visual check including paint shade, verification of enclosure design with respect to degree of protection</li> <li>• Dimensional check</li> <li>• Bill of Material check</li> <li>• Simulation check of control signals</li> <li>• Check of Speed at different frequencies under various modes, as applicable</li> <li>• Light Load and Functional test</li> <li>• Checking of Auxiliary Devices, as applicable</li> <li>• Checking the Protective Devices including emergency stop function, motor over speed, motor overload, loss of speed reference, mains under voltage, earth fault, etc. as applicable</li> <li>• Check control and functional requirements, as per control schematic</li> <li>• Functional Check on bypass feature, as applicable</li> <li>• Insulation resistance test before and after HV test.</li> <li>• High voltage test</li> <li>• Memory function check of fault diagnostics</li> <li>• Automatic restart/re-acceleration</li> <li>• Noise Level Measurement</li> <li>• Leakage and pressure test for cooling system, as applicable</li> </ul>	100% By Supplier and on Random Basis by TPIA/EIL	Supplier's Test Records / Inspection Witness Record	-	H	H

SL NO.	STAGE/ ACTIVITY	CHARACTERISTICS	QUANTUM OF CHECK	RECORD	SCOPE OF INSPECTION		
					SUB SUPPLIER	SUPPLIER	EIL/TPIA
4.2	VFD (Type Tests)	<ul style="list-style-type: none"> <li>• Load characteristics at 100%, 75%, 50%, and 25% of the nominal speed and at the required maximum load for each speed, as applicable.</li> <li>• Checking the properties of the control equipments including measurement of VFD output voltage, power factor at nominal voltage and +/- 10 % of nominal input supply voltage at rated load.</li> <li>• Efficiency</li> <li>• Temperature rise</li> <li>• Line side current distortion content</li> <li>• Power factor</li> <li>• Current limit, Overload capability</li> <li>• Capability to ride through voltage dips up to 20% of nominal input voltage</li> <li>• Noise Level Measurement</li> <li>• Capability to restart the system and resynchronize converter onto running motor after a voltage interruption.</li> </ul> <p>Unless otherwise specified in PR/Tender, above tests shall be performed on VFD combined with Job motor.</p>	One sample from each type/rating	Supplier's Test Records / Inspection Witness Record	-	H	H
4.3	Submission of Certificates/ Documents	<ul style="list-style-type: none"> <li>• Electromagnetic compatibility (EMC) test on VFD Panel for conductive and radiative emissions</li> </ul>	One sample from each type/model/ Frame	Type Test Certificates/ Report	-	H	R
<b>5.0</b>	<b>Painting</b>						
5.1	Painting of VFD Panels	Pre treatment, primer and final paint, shade, thickness	100%	Test records	-	H	R

SL NO.	STAGE/ ACTIVITY	CHARACTERISTICS	QUANTUM OF CHECK	RECORD	SCOPE OF INSPECTION		
					SUB SUPPLIER	SUPPLIER	EIL/TPIA
6.0	Documentation and IC						
6.1	Documentation and IC	<ul style="list-style-type: none"> <li>Review of Internal/Witnessed Test Reports.</li> <li>IC issuance</li> </ul>	100%	Supplier's Test Records / Inspection Certificate (IC)	-	H	H
6.2	Final Document submission	Compilation of Inspection reports/Certificates, drawings, etc., as per VDR / PR	100%	Final Documents, Final Document Completeness Certificate	-	H	H

\* All the load related acceptance tests/ Functional Checks shall be carried out either with the job motor or with Shop Motor.

Legends: H- Hold (Do not proceed without approval, R-Review, RW-Random witness (As specified or 10 % - Samples must include min 1 No of each type), W- Witness (Give due notice, work may proceed after scheduled date).

**NOTES :-**

1. This document describes the generic test requirements. Any additional test or inspection scope if specified in contract documents shall also be applicable. (Unless otherwise agreed upon).
2. Acceptance Norms for all the activities shall be as per PO/PR/ Standards referred there in/ Job specifications /Approved documents
3. Inspection Testing requirements for HV Converter transformers, Motor, Local Control Station (as applicable) shall be as per EIL Std. ITP documents 6-81-1041 (Oil type transformers), 6-81-1044 (Dry type transformers); 6-81-1032 (MV Motors), 6-81-1064 (Energy efficient MV Motors); 6-81-1006 (Flame proof control station), 6-81-1014(Industrial type control station) respectively.
4. For EPC Jobs, Scope of Inspection shall be under TPIA only, unless specified otherwise.

मध्यम एवं उच्च वोल्टेज केबल तथा सहायक सामग्री के लिए  
निरीक्षण व परीक्षण योजना

INSPECTION AND TEST PLAN  
FOR  
MEDIUM AND HIGH VOLTAGE  
CABLES & ACCESSORIES

Rev. No.	Date	Purpose	Prepared by	Checked by	Standards Committee Convenor	Standards Bureau Chairman
4	26.05.2020	Revised and Reissued	MM	RS	RKS	SKS
3	30.01.2014	Revised and Reissued	MJ	RS	SCG	SC
2	15.07.2011	Revised and Re-issued	AB	RJD	AKC	DM
1	28.09.07	Revised and Re-issued	AKG	PPM	MVKK	VC
0	30.04.02	Issued for implementation	RG	AKC	AKB	GRR

Approved by



## 1.0 SCOPE

This Inspection and Test Plan covers the minimum testing requirements of PVC/XLPE insulated cables and cable jointing/terminating accessories for high and medium voltage systems.

## 2.0 REFERENCE DOCUMENTS

PO/PR / Standards referred there in /Job specifications / Approved documents.

## 3.0 INSPECTION AND TEST REQUIREMENTS

SL NO.	STAGE/ ACTIVITY	CHARACTERISTICS	QUANTUM OF CHECK	RECORD	SCOPE OF INSPECTION		
					SUB SUPPLIER	SUPPLIER	EIL/TPIA
1.0	<b>Procedures</b>	--	--	--	--	--	--
2.0	<b>Material Inspection</b>						
2.1	Incoming raw material like Copper, Aluminum, Semi conducting compound PVC, XLPE, Galvanized Armour, Cu tape, as applicable	Purity, Dimensions, Physical and Chemical Properties, as applicable	100%	Material Test Certificates/ Test Records/ Third Party Lab certificates	H	H	R
3.0	<b>In process Inspection</b>						
3.1	Inspection during insulation, sheathing	Spark test, thickness of insulation, Conductor Resistance	100%	Test Records	--	H	R
4.0	<b>Final Inspection</b>						

SL NO.	STAGE/ ACTIVITY	CHARACTERISTICS	QUANTUM OF CHECK	RECORD	SCOPE OF INSPECTION		
					SUB SUPPLIER	SUPPLIER	EIL/TPIA
4.1	Finished Cable	Visual, Drum details, Size, Ends Capping, Marking on outer sheath (such as Incremental Length, Voltage grade, manufacturer's name), Colour coding, etc.	100% for Drum details and Sample drums for balance details	Test Records	-	H	RW/R**
4.2	Finished Cable (Routine Tests)	<ul style="list-style-type: none"> <li>Conductor Resistance.</li> <li>High Voltage</li> <li>Partial Discharge (for HT cable only)</li> </ul>	100%	Supplier's Test Records	-	H	R
4.3	Finished Cable (Acceptance tests)	<ul style="list-style-type: none"> <li>Check calibration status of all testing equipment.</li> <li>Dimension checks – overall dia, over/under armour, thickness of insulation, sheath and semi conducting screen, copper screen, dimension, etc as applicable</li> <li>Conductor Resistance</li> <li>Volume resistivity at room temperature and elevated temperature as per IS</li> <li>Thermal stability test for Insulation (for PVC only) and sheath.</li> <li>High Voltage tests</li> <li>Partial Discharge(for HT Cable)</li> <li>Hot Set (for XLPE insulation)</li> <li>Tests on Conductor as applicable</li> <li>Tests on PVC/XLPE Insulation &amp; Sheath *</li> <li>Armour Galvanization - dip test &amp; coverage</li> <li>Tensile and elongation (without ageing )</li> <li>Silicon oil and wafer boil test for insulation and screen (for HT cable).</li> </ul>	As per IS sampling plan	Inspection Test Records	-	H	H/R**

SL NO.	STAGE/ ACTIVITY	CHARACTERISTICS	QUANTUM OF CHECK	RECORD	SCOPE OF INSPECTION		
					SUB SUPPLIER	SUPPLIER	EIL/TPIA
4.4	Finished Cable (Special tests)	<ul style="list-style-type: none"> <li>Flammability test as per IS 10810 part 61 &amp; part 62 / IEC 60332 Part 1 &amp; part 3</li> <li>Smoke density test (for FRLS outer sheet)</li> <li>Acid Gas generation (for FRLS outer sheet)</li> <li>Accelerated water absorption test as per NEMA(Electrical method ) as applicable #</li> <li>Test for resistance to Ultra Violet Radiation #</li> <li>Oxygen Index and temperature index test as per ASTM D2863</li> <li>Rodent &amp; Termite repulsion check</li> <li>Test for circuit integrity for fire survival cables as per IEC</li> <li>Drum length /surface finish/color/marketing check by re-winding (1 or 2 drums)</li> </ul>	For ladder test (1 sample/order)  1 Sample/Lot	Inspection test records		H	H/R**
4.5.	Finished Cable (Type tests **)	<ul style="list-style-type: none"> <li>Dielectric Retention.</li> <li>Type tests on PVC insulation and Sheath High Voltage test (Water Immersion) for HT cable</li> <li>Dielectric power factor tests as function of voltage, temperature. (HT cables)</li> <li>Heating cycle test ( HT Cables)</li> <li>Impulse withstand test ( HT Cables)</li> <li>Short circuit test on conductor and screen ( HT Cable )</li> </ul>	On Similar type cable	Test Records		H	R

SL NO.	STAGE/ ACTIVITY	CHARACTERISTICS	QUANTUM OF CHECK	RECORD	SCOPE OF INSPECTION		
					SUB SUPPLIER	SUPPLIER	EIL/TPIA
4.6	Cable accessories	<ul style="list-style-type: none"> <li>Visual</li> <li>Dimensions</li> <li>Type tests** as per IS/IEC</li> </ul>	Sample	Test Records		H	R
5.0	Painting	--	--	--	--	--	--
6.0	Documentation and IC						
6.1	Documentation and IC	<ul style="list-style-type: none"> <li>Review of Routine, Acceptance, Type test reports.</li> <li>IC issuance</li> </ul>	100%	Supplier TC & IC	-	-	H
6.2	Final Document submission	Compilation of Inspection reports, drawings, etc. as per VDR / PR	100%	Final data folder / Completeness certificate	-	H	H

# In case TC (not older than one year) from independent test lab is available & type of compound used is same then the same may be accepted.

\* Hot deformation, Heat shock and Shrinkage tests on insulation & sheath (One sample/Lot- provided sheath material is from same compound/batch) shall be witnessed by EIL/TPIA, all other tests as per IS/IEC shall be carried out by supplier and test reports shall be reviewed by EIL/TPIA.

\*\* EIL witness for HT cables and EIL surveillance checks on MV Power cable.

Legends: H- Hold (Do not proceed without approval, R-Review, RW-Random witness (As specified or 10 % - Samples must include min 1 No of each type), W- Witness (Give due notice, work may proceed after scheduled date).

**NOTES :-**

1. This document describes the generic test requirements. Any additional test or inspection scope if specified in contract documents shall also be applicable. (Unless otherwise agreed upon).
2. Acceptance Norms for all the activities shall be as per PO/PR/ Standards referred there in/ Job specifications /Approved documents.
3. For EPC jobs, all inspection shall be carried out by TPIA, unless notified otherwise.

संचार और अग्नि चेतावनी केबल  
के लिए  
निरीक्षण व परीक्षण योजना

INSPECTION AND TEST PLAN  
FOR  
COMMUNICATION AND  
FIRE ALARM CABLES

4	26.05.2020	Revised and Reissued	MM	RS	RKS	SKS
3	30.01.2014	Revised and Reissued	MJ	RS	RKS	SC
2	29.06.2012	Revised and Reissued	RKP	RJD	AKC	SC
1	28.09.2007	Revised and Re-issued	AKG	PPM	MVKK	VC
0	30.04.2002	Issued for implementation	RG	AKC	AKB	GRR
Rev. No.	Date	Purpose	Prepared by	Checked by	Standards Committee Convenor	Standards Bureau Chairman
					Approved by	

**Abbreviations:**

BIS	:	Bureau of Indian Standard	MTC	:	Material Test Certificate
DOT	:	Department of Telecommunication	NEMA	:	National Electrical Manufacturers Association
EPC	:	Engineering Procurement & Construction	No	:	Number
ERTL	:	Electronics Regional Test Laboratory	PD	:	Partial Discharge
FM	:	Factory Mutual	PE	:	Polyethylene
ITP	:	Inspection and Test Plan	PO	:	Purchase Order
IP	:	Ingress Protection	PR	:	Purchase Requisition
IC	:	Inspection Certification	PVC	:	Poly Vinyl Chloride
IGC	:	Inter Granular Corrosion	QC	:	Quality Control
IEC	:	International Electro technical Commission	TC	:	Test Certificate
IS	:	Indian Standard	TPI or TPIA	:	Third Party Inspection Agency
JEC	:	Japanese Electro technical Committee	VDR	:	Vendor Data Requirement
Min	:	Minimum	XLPE	:	Cross Linked Poly Ethylene

**Inspection Standards Committee**

**Convenor :** Mr. R.K. Singh

**Members:** Mr. Rajesh Sinha                      Mr. Himangshu Pal                      Mr. Chandrasekhar                      Mrs. Arvind NP Singh (Electrical)  
                    Mr. R Muthuramalingam                      Mr. Avdhesh Agrawal                      Mr. Mahendra Mittal

## 1.0 SCOPE

This Inspection and Test Plan covers the minimum testing requirements of flame retardant type PVC sheathed cables for use in Plant communication, Fire Alarm systems and Jelly filled telecommunication cables.

## 2.0 REFERENCE DOCUMENTS

PO/PR/ Standards referred there in/Job specifications/Approved documents.

## 3.0 INSPECTION AND TEST REQUIREMENTS

SL NO.	STAGE/ ACTIVITY	CHARACTERISTICS	QUANTUM OF CHECK	RECORD	SCOPE OF INSPECTION		
					SUB SUPPLIER	SUPPLIER	EIL/TPIA
1.0	Procedures	--	--	--	--	--	--
2.0	Material Inspection						
2.1	Incoming raw material like Copper ,Aluminum, PVC, PE, XLPE , Jelly Compound, Armour material, etc. (as applicable)	Dimensional, Purity, Physical, Chemical Properties, Tests on jelly compound as per DOT spec.	Sample	Sub supplier TC/Supplier's Test Records/ Third party Lab	H	H	R
3.0	In process Inspection						
3.1	Manufacturing Stage	Dimensions at various stages, Spark test, Stage Inspection, pursulphate test for conductor.	100%	Supplier's Test Records	-	H	R
4.0	Final Inspection						

SL NO.	STAGE/ ACTIVITY	CHARACTERISTICS	QUANTUM OF CHECK	RECORD	SCOPE OF INSPECTION		
					SUB SUPPLIER	SUPPLIER	EIL/TPIA
4.1	Final Inspection on completed cable	Visual, Drum details, Size, Ends Capping, Drums Condition, Marking on outer sheath (such as incremental length, voltage grade, manufacturer's name and for jelly filled cables marking as per DOT spec), Color coding/Identification of cores, conductor resistance ,high voltage etc.	100%	Inspection Witness Record	-	H	RW
4.2	Final Inspection on completed Cable(Jelly Filled Cables) Acceptance Test	<ul style="list-style-type: none"> <li>• Dimension checks.</li> <li>• Test for insulation and sheath.</li> <li>• Continuity of conductors, absence of crossed pairs and absence of contact with poly-al tape</li> <li>• Continuity in poly-al tape and overlap</li> <li>• Color coding</li> <li>• Conductor Resistance, Resistance Unbalance in pair.</li> <li>• Mutual capacitance (pair/average), Capacitance Unbalance (pair to ground and pair to pair)</li> <li>• Cross talk</li> <li>• Attenuation</li> <li>• Drip test</li> <li>• Dielectric Strength/High Voltage test</li> <li>• Insulation Resistance/ Volume resistivity</li> <li>• Conductor Annealing</li> </ul>	As per IS sampling plan	Inspection Witness Record	-	H	RW

SL NO.	STAGE/ ACTIVITY	CHARACTERISTICS	QUANTUM OF CHECK	RECORD	SCOPE OF INSPECTION		
					SUB SUPPLIER	SUPPLIER	EIL/TPIA
		<ul style="list-style-type: none"> <li>• Armour Galvanization</li> <li>• Armour coverage</li> <li>• Availability of rip cord</li> <li>• Overall finish and Drum length by re-winding ( 1 or 2 drum per lot )</li> <li>• Oxygen and temperature index test (1 sample/lot)</li> <li>• Water Penetration test ( 2 sample per lot )</li> <li>• Cable bend test (1 sample per lot)</li> </ul>					
4.3	Final Inspection on completed Cable(Jelly Filled Cables) Type Tests	<ul style="list-style-type: none"> <li>• Type tests on insulated conductors, compatibility of Insulation and filling compound as per DOT spec.</li> <li>• Type tests on Composite sheath and Jacket as per DOT spec</li> </ul>	On Sample	Supplier's Test Records	-	H	R
4.4	Final Inspection on completed Cable( Non Jelly Filled Cables ) Acceptance Test	<ul style="list-style-type: none"> <li>• Dimension checks</li> <li>• Continuity of conductors</li> <li>• Color code</li> <li>• Overlap in poly-al tape and drain wire resistance (if shielding specified)</li> <li>• Conductor Resistance.</li> <li>• Drain wire resistance</li> <li>• Mutual capacitance (pair/average), Capacitance Unbalance (pair to ground and</li> </ul>	As per IS sampling plan	Inspection Witness Record	-	H	RW

SL NO.	STAGE/ ACTIVITY	CHARACTERISTICS	QUANTUM OF CHECK	RECORD	SCOPE OF INSPECTION		
					SUB SUPPLIER	SUPPLIER	EIL/TPIA
		<ul style="list-style-type: none"> <li>pair to pair) for communication cables</li> <li>• Dielectric Strength/ High Voltage test</li> <li>• Insulation Resistance</li> <li>• Tensile and Elongation (without ageing)</li> <li>• Conductor Annealing</li> <li>• Armour Galvanization &amp; coverage</li> <li>• Availability of rip cord</li> <li>• Tests on Insulation and sheath as per IS/IEC *</li> </ul>					
4.5	Final Inspection on completed Cable( Non Jelly Filled Cables ) Special Test	<ul style="list-style-type: none"> <li>• Oxygen &amp; temperature Index Test</li> <li>• Flammability test as per applicable specification (IS 10810 Part 61 &amp; Part 62, Cat AF)</li> <li>• Smoke density test</li> <li>• Acid gas generation test</li> <li>• Test for Rodent &amp; termite repulsion</li> <li>• Surface finish and drum length check by wiring( Rewinding 1 or 2 drum )</li> <li>• Test for circuit integrity for fire survival cables as per IEC (as applicable)</li> </ul>	1 Sample/Lot  For ladder test (1 sample/order)	Inspection Witness Record	-	H	RW
4.6	Final Inspection on completed Cable (Non Jelly Filled Cables ) Type Tests	<ul style="list-style-type: none"> <li>• Type test on conductor as per spec</li> <li>• Type tests on insulation and Sheath as per spec</li> <li>• Test certificate for circuit integrity as per IEC 60331-21(for fire survival cable )</li> </ul>	On Sample	Supplier's Test Records	-	H	R

SL NO.	STAGE/ ACTIVITY	CHARACTERISTICS	QUANTUM OF CHECK	RECORD	SCOPE OF INSPECTION		
					SUB SUPPLIER	SUPPLIER	EIL/TPIA
5.0	Painting						
6.0	Documentation and IC						
6.1	Documentation and IC	<ul style="list-style-type: none"> <li>Review of Internal Test Reports and MTCs.</li> <li>IC issuance</li> </ul>	-	Supplier's Test Records / Inspection Certificate (IC)	-	H	H
6.2	Final Document submission	Compilation of Inspection reports, drawings, etc as per VDR / PR	100%	Final data folder / Completeness certificate	-	H	H

\* Thermal Stability, Hot deformation, Heat shock and Shrinkage tests on insulation and sheath shall be witnessed by EIL (One Sample/Lot), all other tests as per IS-5831 shall be carried out by supplier and test reports shall be reviewed by EIL.

Legends: H- Hold (Do not proceed without approval, R-Review, RW-Random witness (As specified or 10 % - Samples must include min 1 No of each type), W- Witness (Give due notice, work may proceed after scheduled date).

NOTES :-

1. This document describes the generic test requirements. Any additional test or inspection scope if specified in contract documents shall also be applicable
2. Acceptance Norms for all the activities shall be as per PO/PR/ Standards referred there in/ Job specifications /Approved documents.
3. For EPC jobs, all inspection shall be carried out by TPIA, unless notified otherwise.

संकटमय क्षेत्रों के लिए लाइटिंग फिक्सचरों  
एवं जंक्शन बक्सों के लिए  
निरीक्षण व परीक्षण योजना

INSPECTION AND TEST PLAN  
FOR  
HAZARDOUS AREA LIGHTING FIXTURES  
AND JUNCTION BOXES

4.	20.05.2020	Revised and Reissued	JA	RS	RKS	SKS
3.	21.11.2013	Revised and Reissued	MJ	RS	SCG	SC
2	29.06.2012	Revised and Reissued	AB	HVJ	AKC	DM
1	28.09.2007	Revised and Re-issued	AKG	PPM	MVKK	VC
0	12.08.2002	Issued for implementation	RG	AKC	AKB	GRR
Rev. No.	Date	Purpose	Prepared by	Checked by	Standards Committee Convener	Standards Bureau Chairman
					Approved by	

*JA* *RS* *RKS* *SKS*  
*MJ* *RS* *SCG* *SC*  
*AB* *HVJ* *AKC* *DM*  
*AKG* *PPM* *MVKK* *VC*  
*RG* *AKC* *AKB* *GRR*

**INSPECTION AND TEST PLAN  
FOR  
HAZARDOUS AREA LIGHTING FIXTURES AND JUNCTION BOXES**

STANDARD SPECIFICATION NO.

6-81-1061 Rev. 4

Page 2 of 5

**Abbreviations**

BIS	:	Bureau of Indian Standard	MTC	:	Material Test Certificate
BOM	:	Bill Of Materials	IR	:	Insulation Resistance
CIMFR	:	Central Institute of Mining & Fuel Research	No.	:	Number.
CE	:	Carbon Equivalent	NEMA	:	National Electrical Manufacturers Association
DFT	:	Dry Film Thickness	PD	:	Partial Discharge
DIV	:	Division	PO	:	Purchase Order
DPT	:	Dye Penetrate Testing	PESO	:	Petroleum Explosive Safety Organization
ERTL	:	Electronics Regional Test Laboratory	EPC	:	Engineering Procurement Construction
FCRI	:	Fluid Control Research Institute	PR	:	Purchase Requisition
FLP	:	Flame Proof	PVC	:	Poly Vinyl Chloride
HV	:	High Voltage	IS	:	Indian Standars
ITP	:	Inspection and Test Plan	TPI or TPIA	:	Third Party Inspection Agency
IP	:	Ingress Protection	VDR	:	Vendor Data Requirement.
IC	:	Inspection Certification	UL	:	Under writer Laboratories
IEC	:	International Electrotechnical Commission			

**Inspection Standards Committee****Convenor :** Mr. R.K.Singh

**Members:** Mr. Rajesh Sinha  
 Mr. R. Muthuramalingam  
 Ms. Arvind N P Singh ( Electrical)

Mr. Himangshu Pal  
 Mr. Avdhesh Agrawal

Mr. Chandrashekhar  
 Mr. Mahendra Mittal

**INSPECTION AND TEST PLAN  
FOR  
HAZARDOUS AREA LIGHTING FIXTURES AND JUNCTION BOXES**

**1.0 SCOPE**

This Inspection and Test Plan covers the minimum testing requirements of Lighting fixtures, control gearboxes, junction boxes and accessories

**2.0 REFERENCE DOCUMENTS**

PO/PR/ Standards referred there in/Job specifications/Approved documents.

**3.0 INSPECTION AND TEST REQUIREMENTS**

SL NO.	STAGE/ ACTIVITY	CHARACTERISTICS	QUANTUM OF CHECK	RECORD	SCOPE OF INSPECTION		
					SUB SUPPLIER	SUPPLIER	EIL/TPIA
<b>1.0</b>	<b>Procedures</b>	--	--	--	--	--	--
<b>2.0</b>	<b>Material Inspection</b>						
2.1	Incoming materials like castings, terminals, Glass, Rubber gaskets, reflectors, Guards, Chokes, Capacitors, etc.	Physical & Chemical Properties, Dimensions, Surface finish, Light transmission thro' glass, tests on glass, Material Certificate, Make, IR for chokes, etc.	Samples as per relevant standard/ supplier's standard	Supplier's Test Records	H	H	R
<b>3.0</b>	<b>In process Inspection</b>						
3.1	Well glasses	Static Hydraulic test	100% by supplier and sample basis by EIL	Supplier's Test Records	-	H	R
3.2	Control gear boxes and junction Boxes	Routine Pressure test	100% by supplier and sample basis by EIL	Supplier's Test Records	-	H	R
<b>4.0</b>	<b>Final Inspection</b>						

**INSPECTION AND TEST PLAN  
FOR  
HAZARDOUS AREA LIGHTING FIXTURES AND JUNCTION BOXES**

SL NO.	STAGE/ ACTIVITY	CHARACTERISTICS	QUANTUM OF CHECK	RECORD	SCOPE OF INSPECTION		
					SUB SUPPLIER	SUPPLIER	EIL/TPIA
4.1	Final Inspection	<p>Acceptance Tests:-</p> <ul style="list-style-type: none"> <li>• Physical, Dimensional and BOM Verification</li> <li>• Flame paths, Clearances</li> <li>• Marking on each piece for suitability to area classification, Tag no. and other details as per relevant IS/IEC.</li> <li>• Marking on glass for type and other details as per IS/IEC</li> <li>• Test for restricted breathing enclosure for Div-2</li> <li>• Impact test (on samples)</li> <li>• Thermal shock test (on samples)</li> <li>• Electrical operation check</li> <li>• Power factor test on choke</li> <li>• HV test</li> <li>• IR test before &amp; after HV</li> </ul>	100%	Inspection Witness Test Records	-	H	R
4.2	Type tests:-	<ul style="list-style-type: none"> <li>• Temperature rise test</li> <li>• Test for suspension for Div 2 fittings</li> <li>• Test for enclosed Break lamp holder for Div 2 fittings.</li> <li>• Pressure Test (As Applicable)</li> </ul>	Samples	Certificates from test agencies	-	R	R

**INSPECTION AND TEST PLAN  
FOR  
HAZARDOUS AREA LIGHTING FIXTURES AND JUNCTION BOXES**

SL NO.	STAGE/ ACTIVITY	CHARACTERISTICS	QUANTUM OF CHECK	RECORD	SCOPE OF INSPECTION		
					SUB SUPPLIER	SUPPLIER	EIL/TPIA
4.3	Submission of Certificate & Documents	<ul style="list-style-type: none"> <li>Certificate of Statutory testing agency for suitability of area classification</li> <li>Certificate of Statutory approval authority like PESO</li> <li>License for Indigenous fittings from BIS</li> <li>Degree of Ingress protection certificate.</li> </ul>	Samples	Certificates from test agencies	-	H	R
<b>5.0</b>	<b>Painting</b>						
5.1	Painting and Packing	<ul style="list-style-type: none"> <li>Visual</li> <li>Suitable protection to prevent entry of foreign material.</li> <li>Proper packing to prevent any damage during transportation</li> </ul>	100%	Packing list / Supplier's Records	-	H	R
<b>6.0</b>	<b>Documentation and IC</b>						
6.1	Documentation and IC	<ul style="list-style-type: none"> <li>Review of suppliers internal test reports</li> <li>Issuance of IC</li> </ul>	100%	Internal test reports & IC	-	H	H
6.2	Final Document submission	<ul style="list-style-type: none"> <li>Compilation of Inspection reports, drawings etc as per VDR / PR</li> </ul>	100%	Final data folder /Completeness certificate	-	H	H

Legends: H- Hold (Do not proceed without approval, R-Review, RW-Random witness (As specified or 10 % - Samples must include minimum 1 No of each type), W- Witness (Give due notice, work may proceed after scheduled date).

**NOTES :-**

- This document describes the generic test requirements. Any additional test or inspection scope if specified in contract documents shall also be applicable. (Unless otherwise agreed upon).
- Acceptance Norms for all the activities shall be as per PO/PR/ Standards referred there in/ Job specifications /Approved documents.
- For EPC jobs, Scope of Inspection shall be under TPIA only, unless specified otherwise.

ऊर्जा दक्ष मध्यम वोल्टेज मोटरों  
के लिए निरीक्षण व परीक्षण योजना  
INSPECTION AND TEST PLAN FOR  
ENERGY EFFICIENT  
MEDIUM VOLTAGE MOTORS

Rev. No.	Date	Purpose	Prepared by	Checked by	Standards Committee Convenor	Standards Bureau Chairman
1	15.03.2024	Revised	MM	GS	RK	MN
0	12.11.2018	ISSUED FOR IMPLEMENTATION	MM	RS	RKS	RKT

### Abbreviations

BIS	:	Bureau of Indian Standard	MTC	:	Material Test Certificate
CIMFR	:	Central Institute of Mining & Fuel Research	NEMA	:	National Electrical Manufacturers Association
EIL	:	Engineers India Limited	PO	:	Purchase Order
FM	:	Factory Mutual	PESO	:	Petroleum Explosive Safety Organization
FLP	:	Flame Proof	PR	:	Purchase Requisition
ITP	:	Inspection and Test Plan	QC	:	Quality Control
IP	:	Ingress Protection	TC	:	Test Certificate
IC	:	Inspection Certification	TPI or TPIA	:	Third Party Inspection Agency
IEC	:	International Electro technical Commission	VDR	:	Vendor Data Requirement
JEC	:	Japanese Electro technical Committee	VFD	:	Variable Frequency Drive

### Inspection Standards Committee

Convenor : Mr. Rajeev Kumar

### Members:

Mr. G Suresh  
Mr. Mahendra Mittal

Mr. Himangshu Pal  
Mr. R Muthuramalingam  
(RPO Representative)

Mr. Chandrashekhar  
Mrs Arvind NP Singh (Electrical)

Mr. Avdhesh Agrawal  
Mr Anil Kumar

**1.0 SCOPE**

This Inspection and Test Plan covers the minimum testing & inspection requirements of three phase medium voltage energy efficient squirrel cage induction motors.

**2.0 REFERENCE DOCUMENTS**

PO/PR & Standards referred therein /Job specifications / Approved documents/ Relevant IEC/IS.

**3.0 INSPECTION AND TEST REQUIREMENTS**

SL NO.	STAGE/ ACTIVITY	CHARACTERISTICS	QUANTUM OF CHECK	RECORD	SCOPE OF INSPECTION		
					SUB SUPPLIER	SUPPLIER	EIL/TPIA
1.0	Procedures	--	--	--	--	--	--
2.0	Material Inspection						
2.1	Raw Material: Body (casting or fabrication), Rotor Shaft, Core Laminations, Copper, Insulation Material, Bearings, Cable Boxes, Cable Glands, etc.	Chemical, Physical Properties, Finish as per Relevant Standard	100%	Material Test Certificates / Test records	H	H	-

SL NO.	STAGE/ ACTIVITY	CHARACTERISTICS	QUANTUM OF CHECK	RECORD	SCOPE OF INSPECTION		
					SUB SUPPLIER	SUPPLIER	EIL/TPIA
3.0	<b>In-process Inspection</b>						
3.1	Motor Assembly	Vacuum Impregnation and Bracing of Winding, Core Assembly, Rotor Bars and End Rings Assembly, Rotor Balancing, Terminal Box Mounting and Clearances in between, Bearing Setting, etc. as per Supplier's Internal Standards	100%	Test Records	-	H	R
4.0	<b>Final Inspection</b>						
4.1	Motor (Routine Tests)	<ul style="list-style-type: none"> <li>• Visual Check (Nameplate, Terminal Box Location, Terminal Type, Clearances, Size, Entries, Space Adequacy &amp; Gland Size, Direction of Rotation etc.)</li> <li>• Dimensions Check (Including Shaft Height etc., Foundation Hole Dia and Distance, Shaft Dia.)</li> <li>• Cable Glands, Cable Lugs Size and No. of Entries in Terminal Box</li> <li>• Winding Resistance</li> <li>• Space heater resistance &amp; IR check</li> <li>• Accessories (RTD, BTM and Thermistor) Resistance measurement check (as applicable)</li> <li>• No Load Test and Measurement of Voltage, Speed, Current, Power Input</li> <li>• Reduced Voltage Starting and Running</li> <li>• Insulation Resistance before &amp; after High Voltage Test</li> <li>• High Voltage (Per Phase)</li> </ul>	100%	Inspection test records	-	H	H See Note 4 & 5

SL NO.	STAGE/ ACTIVITY	CHARACTERISTICS	QUANTUM OF CHECK	RECORD	SCOPE OF INSPECTION		
					SUB SUPPLIER	SUPPLIER	EIL/TPIA
		<ul style="list-style-type: none"> <li>Vibration at No Load</li> <li>Noise Level at No load</li> </ul>					
4.2	Motor (Type Tests)	<ul style="list-style-type: none"> <li>Full Load Test and Measurement of Voltage, Current, Power, Slip, Power Factor, Bearing Noise.</li> <li>Efficiency and Pf at 100%, 75% and 50% Load</li> <li>Temp Rise Test</li> <li>Momentary Overload Test</li> <li>Vibration before and after over speed test</li> <li>Over Speed</li> <li>Measurement of Starting Torque, Starting Current, Full Load Torque, Pull Out Torque by JEC/IEC (By Logarithmic Proportion Current Method II</li> </ul>	One Motor from each type/rating	Inspection test records	-	H	H See Note 4 & 5
5.0	Painting						
5.1	Painting and Packing	<ul style="list-style-type: none"> <li>Visual</li> <li>Suitable protection to prevent entry of foreign material.</li> <li>Proper packing with suitable plugs to prevent Ingress of Moisture and any damage during Transportation and Storage.</li> </ul>	100%	Packing list / Supplier's Records	-	H	-
6.0	Documentation and IC						
6.1	Documentation and IC	<ul style="list-style-type: none"> <li>Review of Internal Test Reports</li> <li>Test Certificate from Recognized Testing</li> </ul>	100%	Supplier's Test Records /	-	H	H

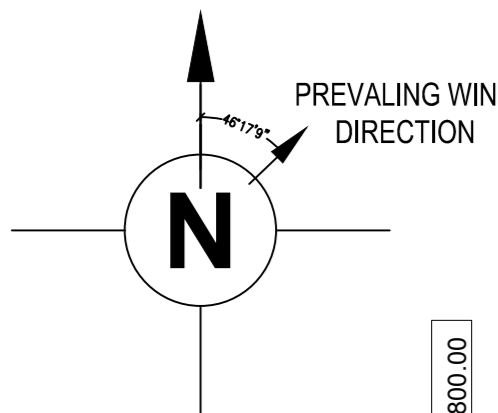
SL NO.	STAGE/ ACTIVITY	CHARACTERISTICS	QUANTUM OF CHECK	RECORD	SCOPE OF INSPECTION		
					SUB SUPPLIER	SUPPLIER	EIL/TPIA
		Laboratory for Area Classification. • BIS Certificate for FLP Motors and Accessories as applicable. • PESO approved Certificates for Motors and Accessories as applicable. • Degree of Protection of Terminal Box and Body • IC Issuance		Certificates from statutory bodies / Inspection Certificate (IC)			
6.2	Final Document submission	Compilation of Inspection Reports, Drawings, etc. as per VDR / PR	100%	Final data folder /Completeness certificate	-	H	H

Legends: H- Hold (Do not proceed without approval, R-Review, RW-Random witness (As specified or 10 % - Samples must include min 1 No of each type), W- Witness (Give due notice, work may proceed after scheduled date).

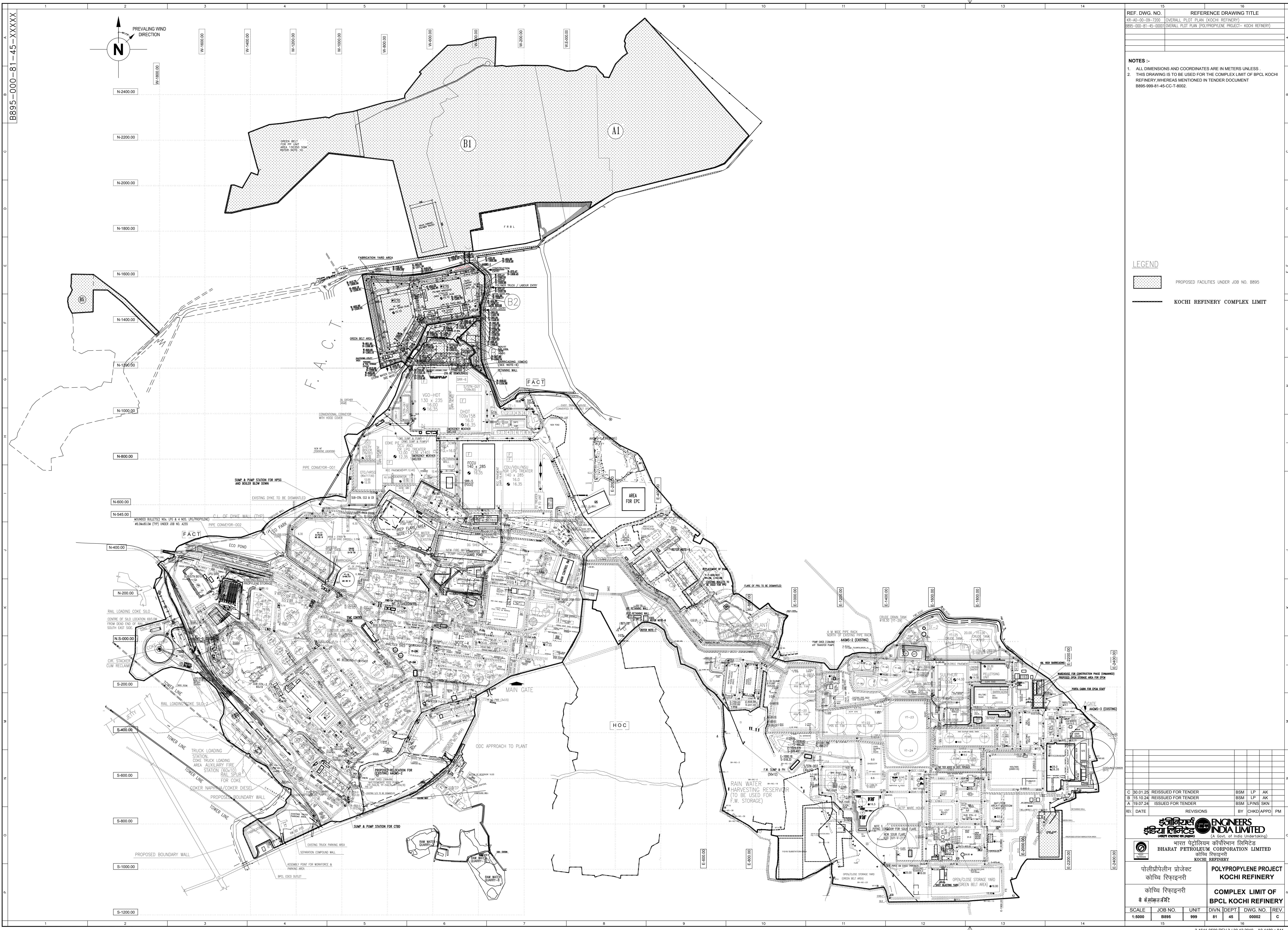
**NOTES :-**

1. For VFD application motors, separate FAT procedure to be submitted for EIL/ TPIA approval.
2. This document describes the generic test requirements. Any additional test or inspection scope if specified in contract documents shall also be applicable.
3. Acceptance Norms for all the activities shall be as per PO/PR/ Standards referred therein/ Job specifications /Approved documents.
4. Motors up to 55 KW would be accepted based on Manufacturer's test certificates. Higher rating will have witness by TPIA appointed by Main Supplier.
5. Motors ordered with integration test (VFD fed motors) requirement as per PR shall be witnessed by EIL/ TPIA (as applicable) and main supplier for integration test (irrespective of rating) at motor manufacturer's works.

B895-000-81-45-XXXX



Vertical text on the left margin: This drawing is for the proposed facilities under job no. B895. It is a technical drawing of a refinery complex. The drawing shows various units, storage tanks, and infrastructure. The drawing is a technical drawing of a refinery complex. The drawing shows various units, storage tanks, and infrastructure. The drawing is a technical drawing of a refinery complex. The drawing shows various units, storage tanks, and infrastructure.



REF. DWG. NO.	REFERENCE DRAWING TITLE
KR-40-00-7200	OVERALL PLOT PLAN (KOCHI REFINERY)
B895-000-81-45-0000	OVERALL PLOT PLAN (POLYPROPYLENE PROJECT - KOCHI REFINERY)

**NOTES :-**

- ALL DIMENSIONS AND COORDINATES ARE IN METERS UNLESS .
- THIS DRAWING IS TO BE USED FOR THE COMPLEX LIMIT OF BPCL KOCHI REFINERY WHEREAS MENTIONED IN TENDER DOCUMENT B895-999-81-45-CC-1-8002.

**LEGEND**

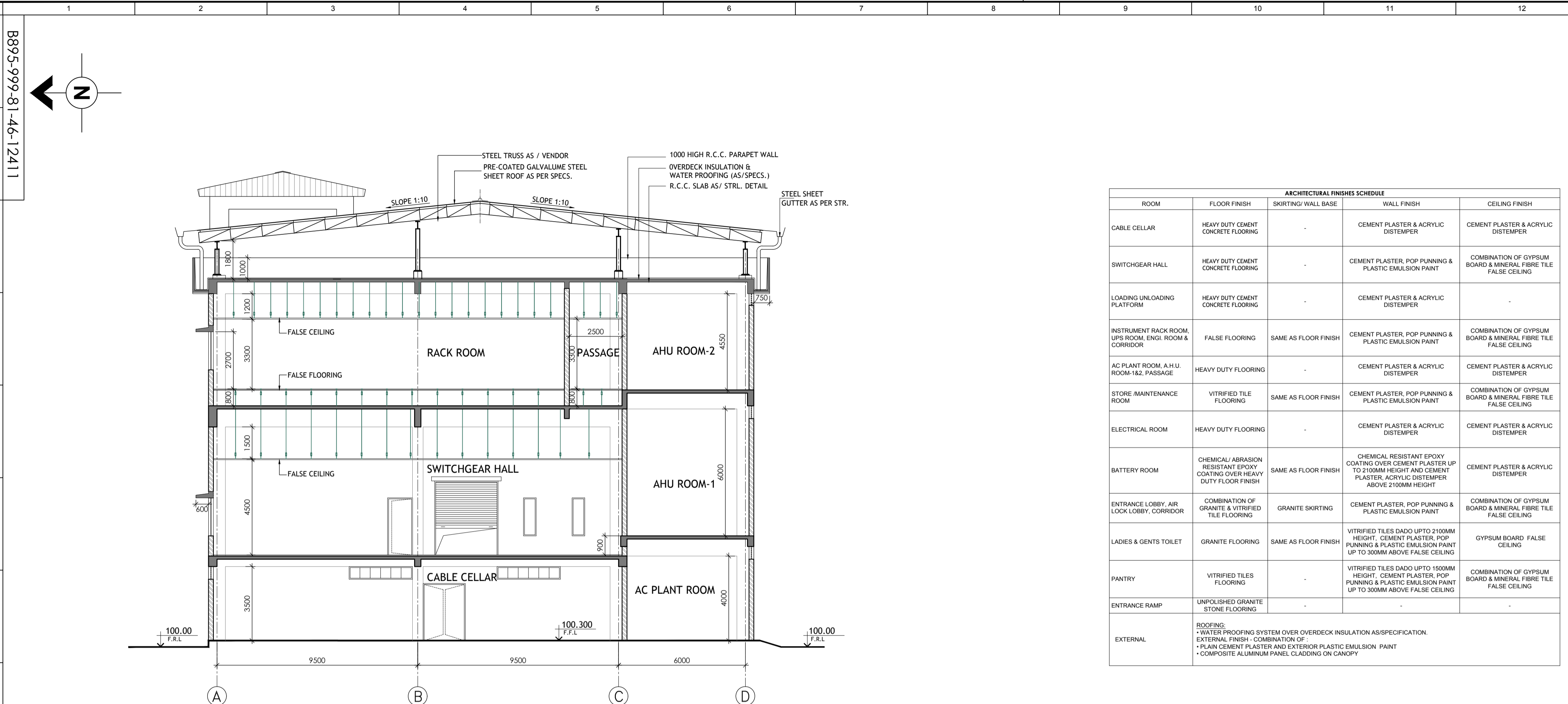
	PROPOSED FACILITIES UNDER JOB NO. B895
	KOCHI REFINERY COMPLEX LIMIT

REV.	DATE	REVISIONS	BY	CHKD	APPD	PM
C	30.01.25	REISSUED FOR TENDER		BSM	LP	AK
B	15.10.24	REISSUED FOR TENDER		BSM	LP	AK
A	19.07.24	ISSUED FOR TENDER		BSM	LP	SKN

**ENGINEERS INDIA LIMITED**  
 (A Govt. of India Undertaking)  
 भारत पेट्रोलिएम कॉर्पोरेशन लिमिटेड  
**BHARAT PETROLEUM CORPORATION LIMITED**  
 कोच्चि रिफाइनरी  
 KOCHI REFINERY

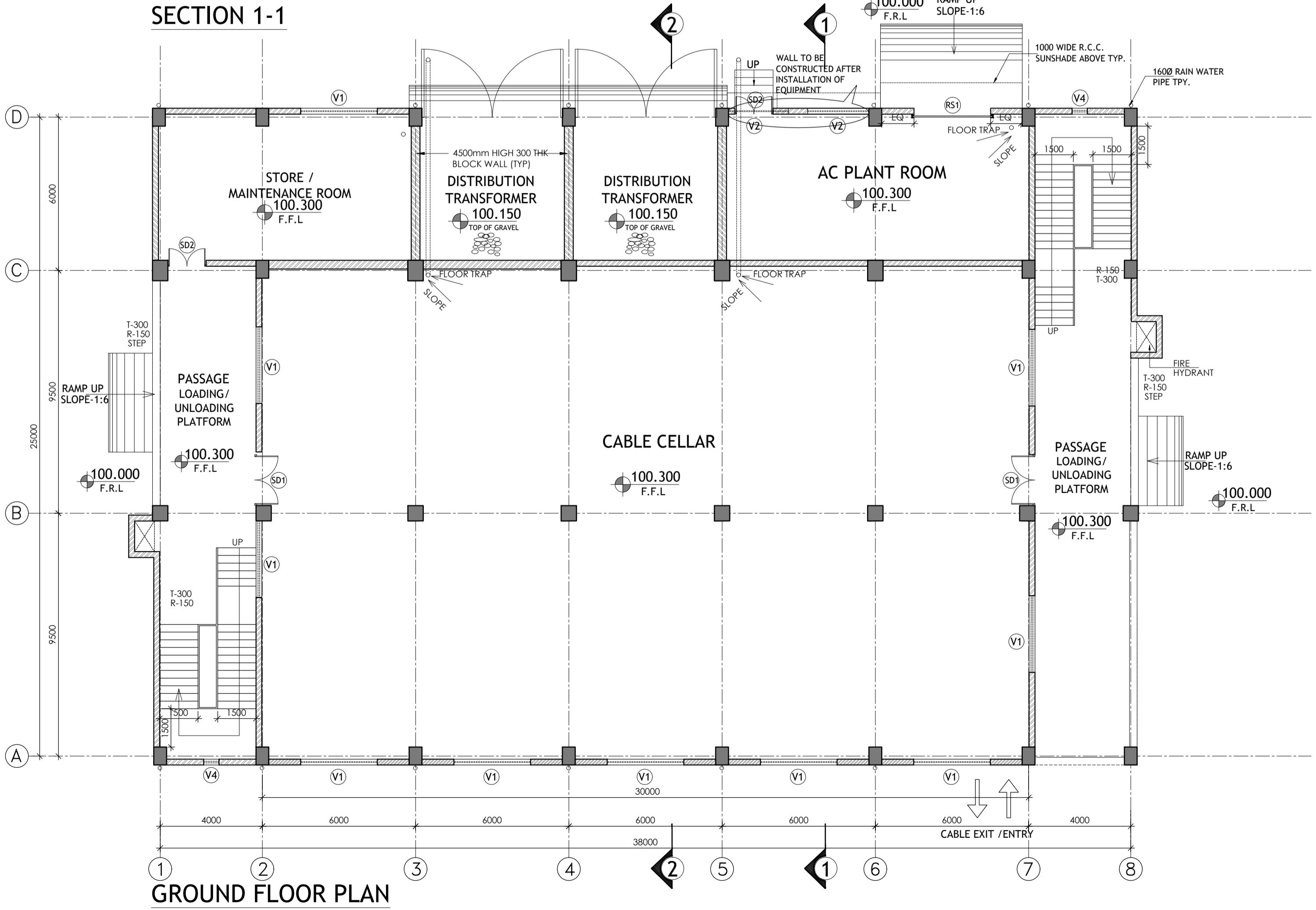
पोलीप्रोपिलीन प्रोजेक्ट	<b>POLYPROPYLENE PROJECT</b>
कोच्चि रिफाइनरी	<b>KOCHI REFINERY</b>
कोच्चि रिफाइनरी	<b>COMPLEX LIMIT OF</b>
बैंगलूर संसिटे	<b>BPCL KOCHI REFINERY</b>

SCALE	JOB NO.	UNIT	DIVN.	DEPT.	DWG. NO.	REV.
1:5000	B895	999	81	45	00002	C



ARCHITECTURAL FINISHES SCHEDULE				
ROOM	FLOOR FINISH	SKIRTING/WALL BASE	WALL FINISH	CEILING FINISH
CABLE CELLAR	HEAVY DUTY CEMENT CONCRETE FLOORING	-	CEMENT PLASTER & ACRYLIC DISTEMPER	CEMENT PLASTER & ACRYLIC DISTEMPER
SWITCHGEAR HALL	HEAVY DUTY CEMENT CONCRETE FLOORING	-	CEMENT PLASTER, POP PUNNING & PLASTIC EMULSION PAINT	COMBINATION OF GYPSUM BOARD & MINERAL FIBRE TILE FALSE CEILING
LOADING UNLOADING PLATFORM	HEAVY DUTY CEMENT CONCRETE FLOORING	-	CEMENT PLASTER & ACRYLIC DISTEMPER	-
INSTRUMENT RACK ROOM, UPS ROOM, ENGR. ROOM & CORRIDOR	FALSE FLOORING	SAME AS FLOOR FINISH	CEMENT PLASTER, POP PUNNING & PLASTIC EMULSION PAINT	COMBINATION OF GYPSUM BOARD & MINERAL FIBRE TILE FALSE CEILING
AC PLANT ROOM, A.H.U. ROOM-1&2, PASSAGE	HEAVY DUTY FLOORING	-	CEMENT PLASTER & ACRYLIC DISTEMPER	CEMENT PLASTER & ACRYLIC DISTEMPER
STORE MAINTENANCE ROOM	VITRIFIED TILE FLOORING	SAME AS FLOOR FINISH	CEMENT PLASTER, POP PUNNING & PLASTIC EMULSION PAINT	COMBINATION OF GYPSUM BOARD & MINERAL FIBRE TILE FALSE CEILING
ELECTRICAL ROOM	HEAVY DUTY FLOORING	-	CEMENT PLASTER & ACRYLIC DISTEMPER	CEMENT PLASTER & ACRYLIC DISTEMPER
BATTERY ROOM	CHEMICAL/ ABRASION RESISTANT EPOXY COATING OVER HEAVY DUTY FLOOR FINISH	SAME AS FLOOR FINISH	CHEMICAL RESISTANT EPOXY COATING OVER CEMENT PLASTER UP TO 2100MM HEIGHT AND CEMENT PLASTER ACRYLIC DISTEMPER ABOVE 2100MM HEIGHT	CEMENT PLASTER & ACRYLIC DISTEMPER
ENTRANCE LOBBY, AIR LOCK LOBBY, CORRIDOR	COMBINATION OF GRANITE & VITRIFIED TILE FLOORING	GRANITE SKIRTING	CEMENT PLASTER, POP PUNNING & PLASTIC EMULSION PAINT	COMBINATION OF GYPSUM BOARD & MINERAL FIBRE TILE FALSE CEILING
LADIES & GENTS TOILET	GRANITE FLOORING	SAME AS FLOOR FINISH	VITRIFIED TILES DADO UP TO 2100MM HEIGHT, CEMENT PLASTER, POP PUNNING & PLASTIC EMULSION PAINT UP TO 300MM ABOVE FALSE CEILING	GYPSUM BOARD FALSE CEILING
PANTRY	VITRIFIED TILES FLOORING	-	VITRIFIED TILES DADO UP TO 1500MM HEIGHT, CEMENT PLASTER, POP PUNNING & PLASTIC EMULSION PAINT UP TO 300MM ABOVE FALSE CEILING	COMBINATION OF GYPSUM BOARD & MINERAL FIBRE TILE FALSE CEILING
ENTRANCE RAMP	UNPOLISHED GRANITE STONE FLOORING	-	-	-
EXTERNAL	ROOFING: * WATER PROOFING SYSTEM OVER OVERDECK INSULATION AS SPECIFICATION. EXTERNAL FINISH: COMBINATION OF * PLAIN CEMENT PLASTER AND EXTERIOR PLASTIC EMULSION PAINT * COMPOSITE ALUMINUM PANEL CLADDING ON CANOPY			

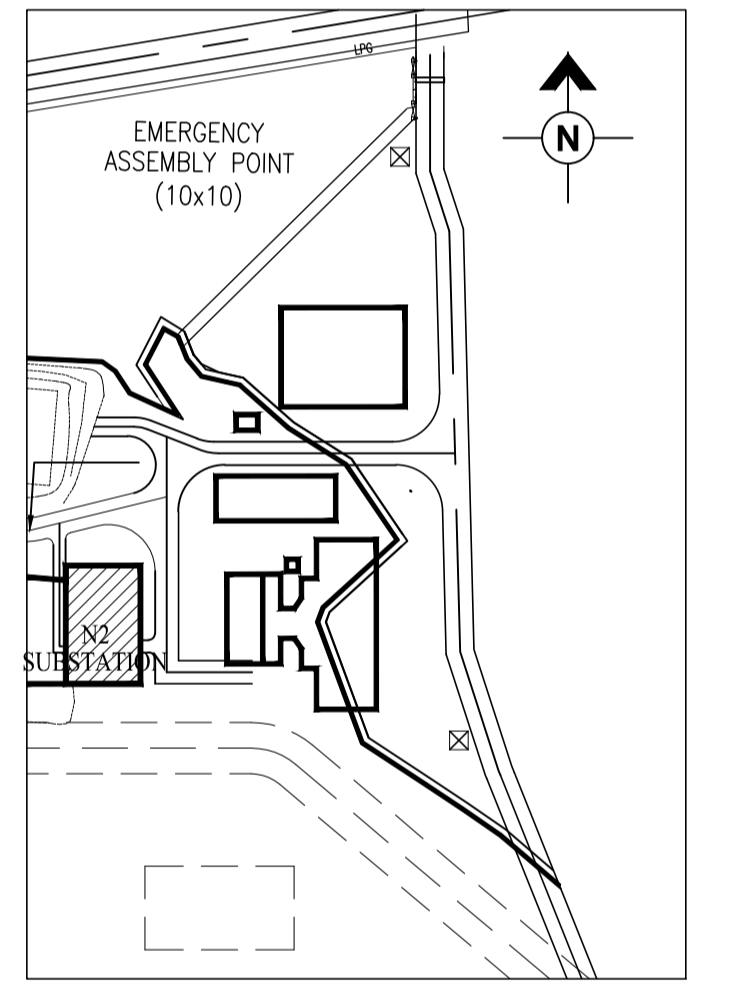
SECTION 1-1



GROUND FLOOR PLAN

SCHEDULE OF DOORS AND WINDOWS

TYPE	OPENING SIZE	FRAME SIZE	LINTEL LEVEL	DESCRIPTION	NOS.
RS1	3000 x 3500	-	3500	STD. STEEL ROLLING SHUTTER (ELECTRICALLY OPERATED)	03
FD1	2000 x 2500	1980 x 2490	2500	2-HR FIRE RATED, DOUBLE SHUTTER GLAZED DOOR AS/ SPECIFICATIONS.	05
FD2	1200 x 2500	1180 x 2490	2500	2-HR FIRE RATED, SINGLE SHUTTER GLAZED DOOR AS/ SPECIFICATIONS.	11
AL1	1200 x 2700	1180 x 2690	2700	POWDER COATED ALMN. GLAZED DOOR WITH 6mm THK TOUGHENED GLASS, SINGLE LEAF	01
SD1	2000 x 2500	1980 x 2490	2500	PRESSED STEEL DOOR WITH PRESSED STEEL FRAME, DOUBLE SHUTTER	03
SD2	1500 x 2500	1480 x 2490	2500	PRESSED STEEL DOOR WITH PRESSED STEEL FRAME, DOUBLE SHUTTER	06
SD3	1000 x 2100	0980 x 2090	2100	PRESSED STEEL DOOR WITH PRESSED STEEL FRAME, SINGLE SHUTTER	02
D1	1100 x 2100	1080 x 2090	2100	FRP DOOR AS/SPECIFICATION	04
D2	0800 x 2100	0780 x 2090	2100	FRP DOOR AS/SPECIFICATION	04
W1	1500 x 1800	1480 x 1780	2700	POWDER COATED ALMN. GLAZED WINDOW WITH 6 mm THK TOUGHENED GLASS DGU, PARTLY FIXED PARTLY OPENABLE TYPE.	22
W2	0600 x 1800	0580 x 1780	2700	POWDER COATED ALMN. GLAZED WINDOW WITH 6 mm THK TOUGHENED GLASS DGU, PARTLY FIXED TYPE.	02
V1	3000 x 750	2980 x 0730	BEAM /BOTTOM	POWDER COATED ALMN. GLAZED VENTILATOR WITH 6 mm THK TOUGHENED GLASS, PARTLY FIXED/ OPENABLE TYPE WITH EXHAUST FAN	16
V2	1800 x 750	1780 x 0730	BEAM /BOTTOM	POWDER COATED ALMN. GLAZED VENTILATOR WITH 6 mm THK TOUGHENED GLASS, PARTLY FIXED/ OPENABLE TYPE WITH EXHAUST FAN	06
V3	1200 x 750	1180 x 0730	2700	POWDER COATED ALMN. GLAZED VENTILATOR WITH 6 mm THK TOUGHENED GLASS, PARTLY FIXED/ OPENABLE TYPE WITH EXHAUST FAN	02
V4	0750 x 0750	0730 x 0730	AS/ELE.	POWDER COATED ALMN. GLAZED VENTILATOR WITH 6 mm THK TOUGHENED GLASS, FIXED TYPE.	10



KEY PLAN (NTS)

LEGEND :-

F.R.L. - FINISHED ROAD LEVEL  
 F.F.L. - FINISHED FLOOR LEVEL

AC FC AC = AIR CONDITIONED  
 FC = FALSE CEILING  
 FF OD FF = FALSE FLOORING  
 OD = OVERDECK INSULATION

300 THK BLOCK CONCRETE MASONRY WALL  
 200 THK BLOCK CONCRETE MASONRY WALL

REV.	DATE	DESCRIPTION	BY	CHKD	APPD	PM
D	01.04.25	ISSUED FOR ENGINEERING	NK	SS	GJK	
C	28.02.25	RE-ISSUED FOR TENDER	NK	SS	GJK	
B	13.02.25	ISSUED FOR TENDER	NK	SS	GJK	
A	31.01.25	ISSUED FOR COMMENTS	NK	SS	GJK	

**इंजीनियर्स इंडिया लिमिटेड**  
**ENGINEERS INDIA LIMITED**  
 (भारत सरकार का उद्योग) (A Govt. of India Undertaking)

भारत पेट्रोलियम कॉर्पोरेशन लिमिटेड  
**BHARAT PETROLEUM CORPORATION LIMITED**  
 कोच्चि रिफाइनरी  
**KOCHI REFINERY**

पोलीप्रोपिलीन प्रोजेक्ट  
 कोच्चि रिफाइनरी

**POLYPROPYLENE PROJECT  
 KOCHI REFINERY**

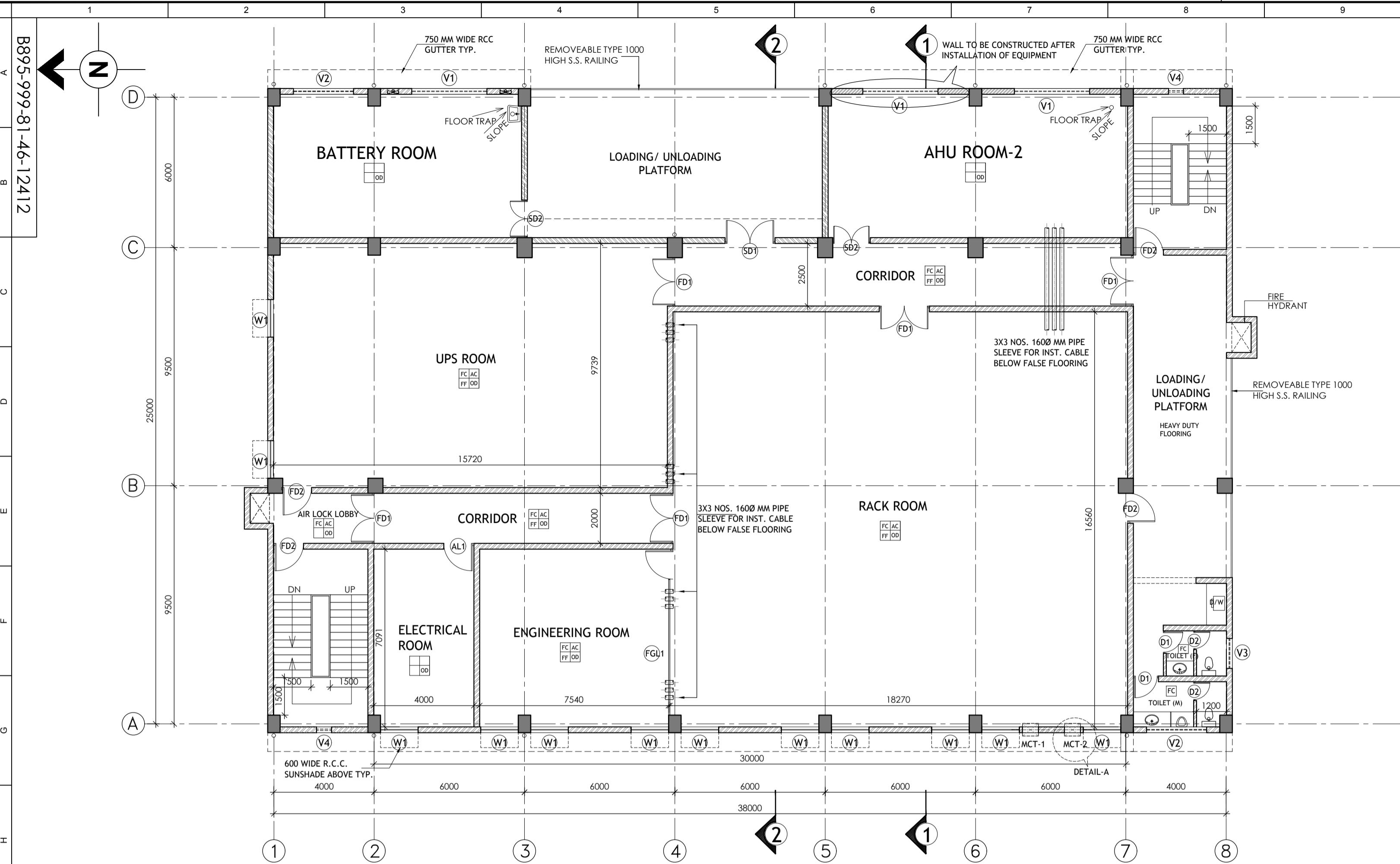
एन.2 प्लान्ट, एयर पैकेज सब स्टेशन  
 जेचू.1 एवं एस आर आर .12  
 भूतल का प्लान एवं काट

**N2 PLANT/AIR PACKAGE  
 SUBSTATION JU-1& SRR-12  
 GROUND FLOOR & SECTION**

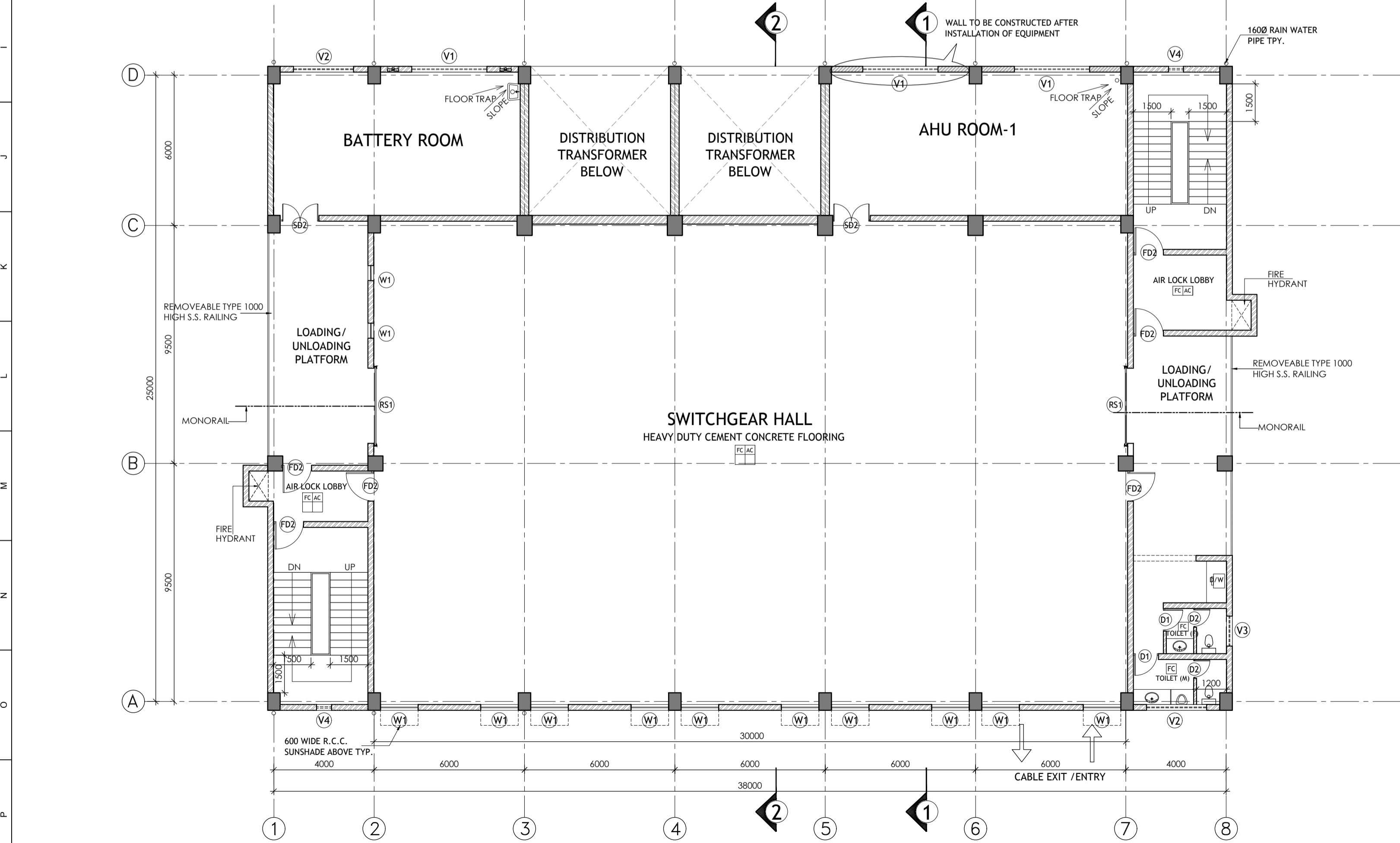
SCALE	JOB NO.	UNIT	DIVN.	DEPT.	DWG. NO.	REV.
1:125	B895	999	81	46	12411	D

प्रस्तुत आंकड़ों एवं इसमें विहित डिजाइन इंजीनियरिंग को संदर्भित है। ये मात्र उधार दिए गए हैं और उधारकर्ता ने यह स्पष्ट समझना चाहिए कि न तो उन्हें पुनः प्रेषित किया जाएगा, न संकलन की जाएगी, न प्रकाशित किया जाएगा, न प्रतिलिपि बनाई जाएगी और न ही सीमित और निजी प्रयोग के अलावा इनका कोई अन्य प्रयोग होगा और यह प्रयोग इनका कोई अधिकार नहीं है।  
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प्रस्तुत आरेख एवं इसमें विहित विवरण इंजीनियरिंग डिजाइन लिमिटेड की संपत्ति है। ये मात्र उधार दिए गए हैं और उधारकर्ता ने यह स्पष्ट समझना कि यह है कि न तो उन्हें पुनः प्रिंट किया जाएगा, न मकल की जाएगी, न कृपया इसे प्रकाशित किया जाएगी, न प्रतिलिपि बनाई जाएगी और न ही सीमित और निजी प्रयोग के अलावा इसका कोई अन्य प्रयोग होगा। यह प्रस्ताव द्वारा उधारकर्ता को विनिर्दिष्ट रूप से दो वर्षों की अवधि के लिए है।  
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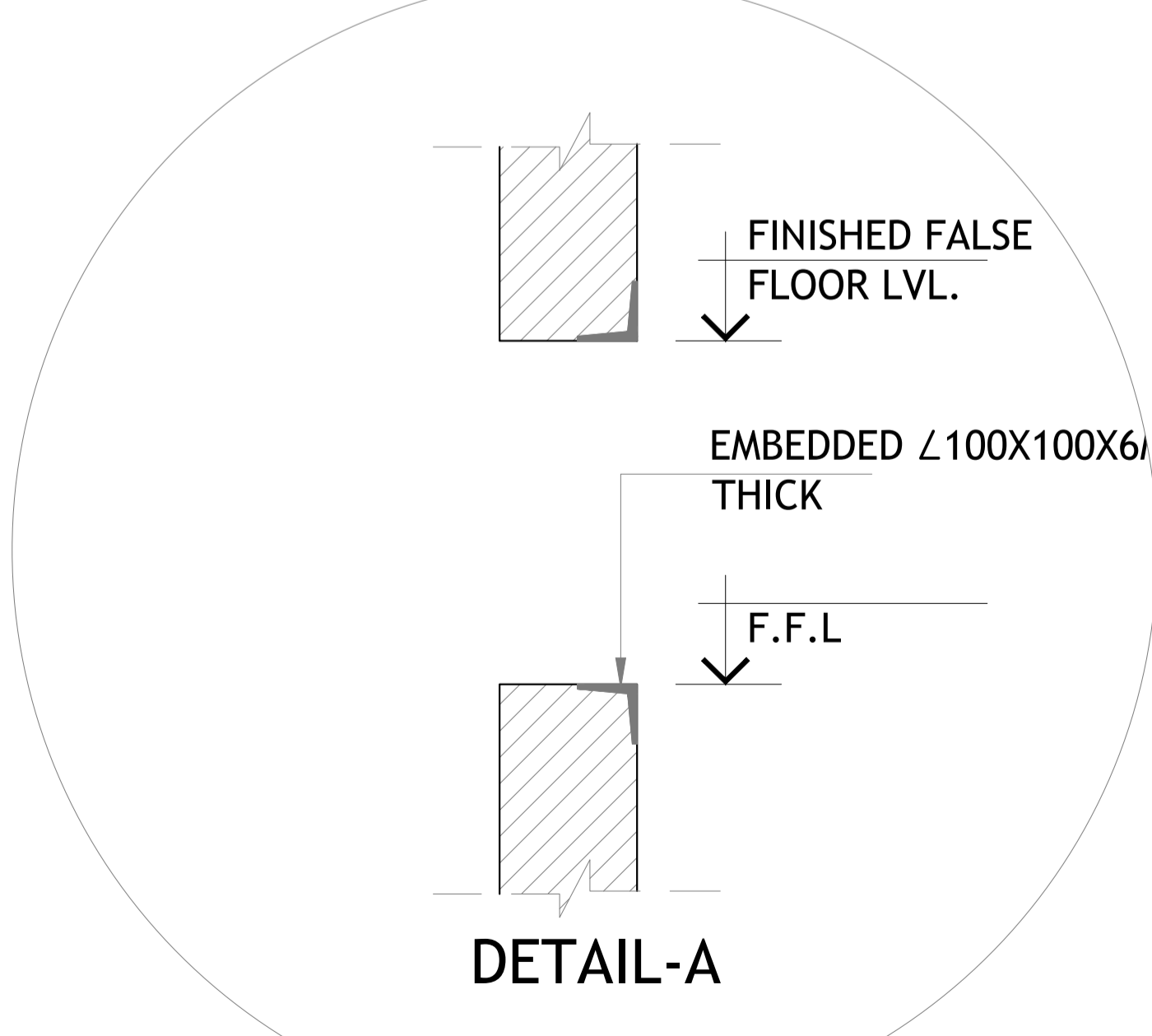
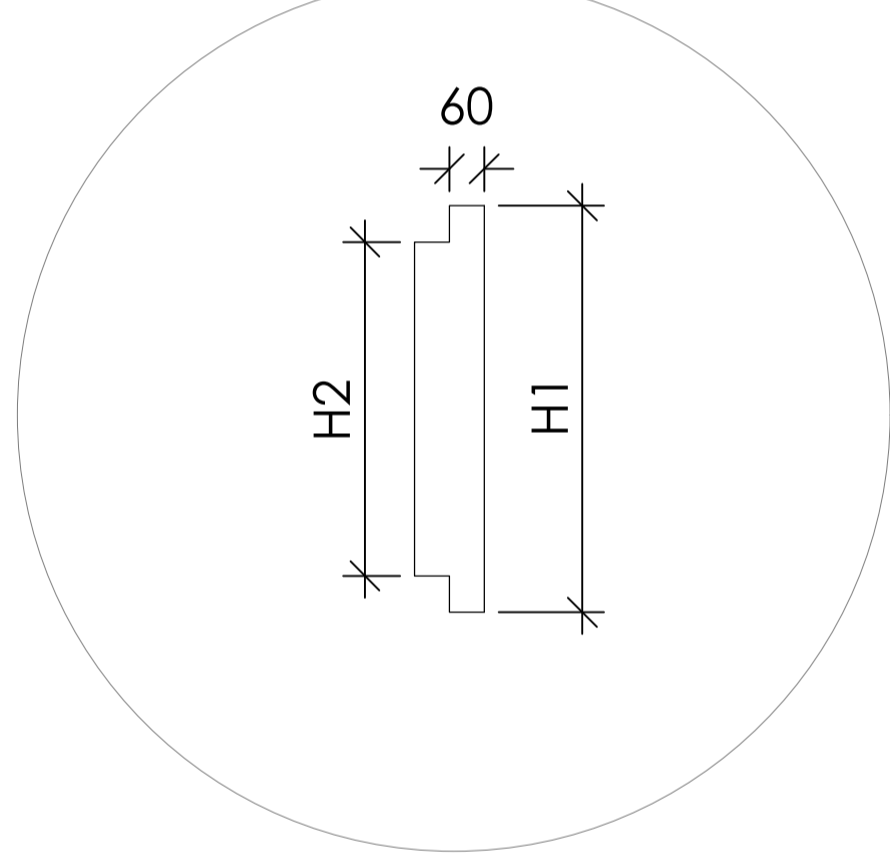
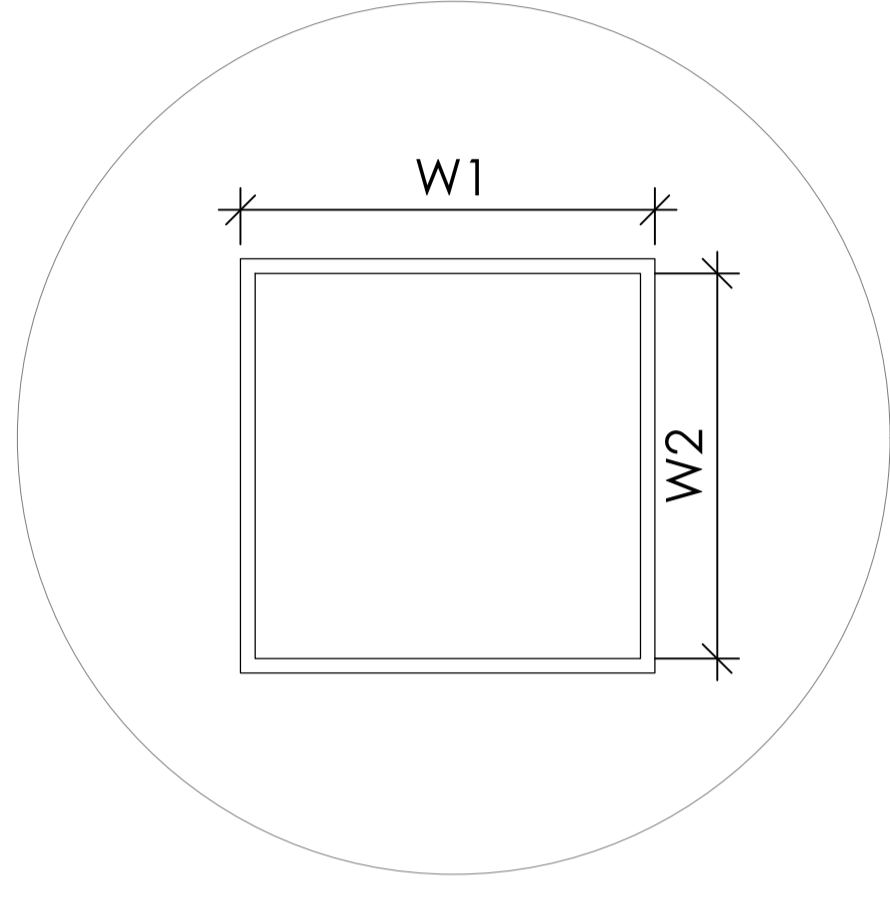


**SECOND FLOOR PLAN**



**FIRST FLOOR PLAN**

INSTRUMENTATION MCT CUTOUT DETAILS					
MCT NO.	FRAME	FRAME SIZE		CUT OUT SIZE	
		W1	H1	W2	H2
MCT-1	MCT- 8x8X10	1427	700	1307	575
MCT-2	MCT- 8x8X10	1427	700	1307	575



**DETAIL-A**

REF. DWG. NO.		REFERENCE DRAWING TITLE			
B895-999-81-46-12411		GROUND FLOOR PLAN & SECTION			
B895-999-81-46-12413		LOWER TERRACE & ELEVATION			
B895-999-81-46-12414		UPPER TERRACE & ELEVATION			
B895-999-81-46-12415		ELEVATION			

**NOTES:**  
 1. DIMENSIONS, CO-ORDINATES, LEVELS  
 A. ALL DIMENSIONS ARE IN MILLIMETRES  
 B. DRAWING IS NOT TO BE SCALED FOR ANY MISSING DIMENSION.  
 C. ALL LEVELS & CO-ORDINATES ARE IN METRES.

**LEGEND :-**  
 F.R.L. - FINISHED ROAD LEVEL  
 F.F.L. - FINISHED FLOOR LEVEL  
 AC FC - AIR CONDITIONED  
 FC - FALSE CEILING  
 OD - OVERDECK INSULATION  
 FF - FALSE FLOORING  
 [Hatched] = 300 THK BLOCK CONCRETE MASONRY WALL  
 [Dotted] = 200 THK BLOCK CONCRETE MASONRY WALL

REV.	DATE	DESCRIPTION	BY	CHKD	APPD	PM
C	01.04.25	ISSUED FOR ENGINEERING	NK	SS	GJK	
B	28.02.25	ISSUED FOR TENDER	NK	SS	GJK	
A	31.01.25	ISSUED FOR COMMENTS	NK	SS	GJK	

**ENGINEERS INDIA LIMITED**  
 (भारत सरकार का उपक्रम) (A Govt. of India Undertaking)  
 भारत पेट्रोलियम कॉर्पोरेशन लिमिटेड  
**BHARAT PETROLEUM CORPORATION LIMITED**  
 कोच्चि रिफाइनरी  
**KOCHI REFINERY**

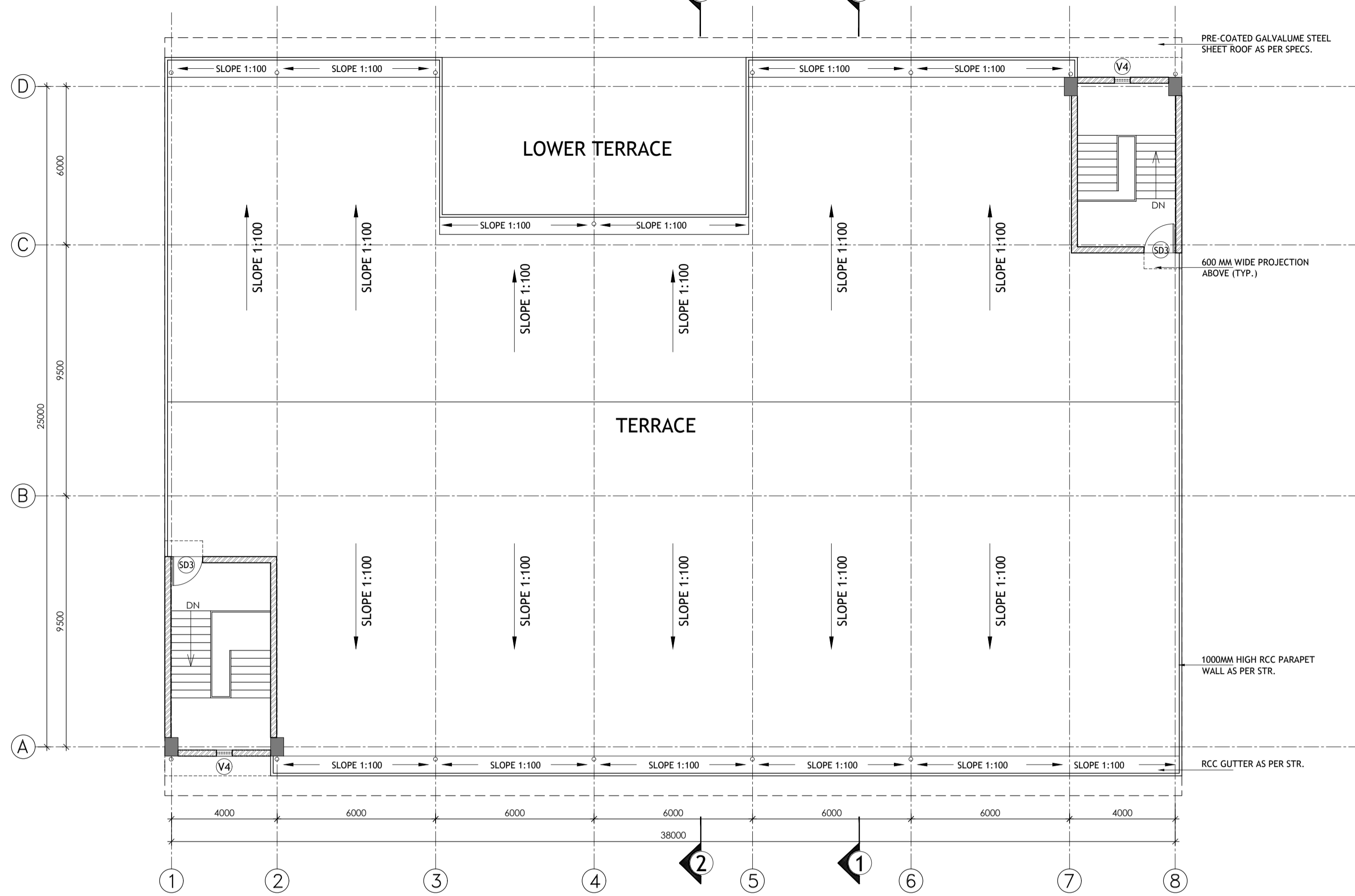
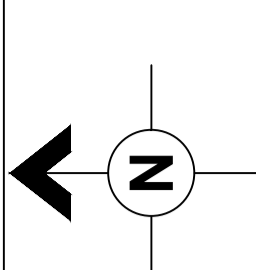
SCALE	JOB NO.	UNIT	DIVN.	DEPT.	DWG. NO.	REV.
1:125	B895	999	81	46	12412	C

पोलीप्रोपिलीन प्रोजेक्ट कोच्चि रिफाइनरी  
**POLYPROPYLENE PROJECT KOCHI REFINERY**

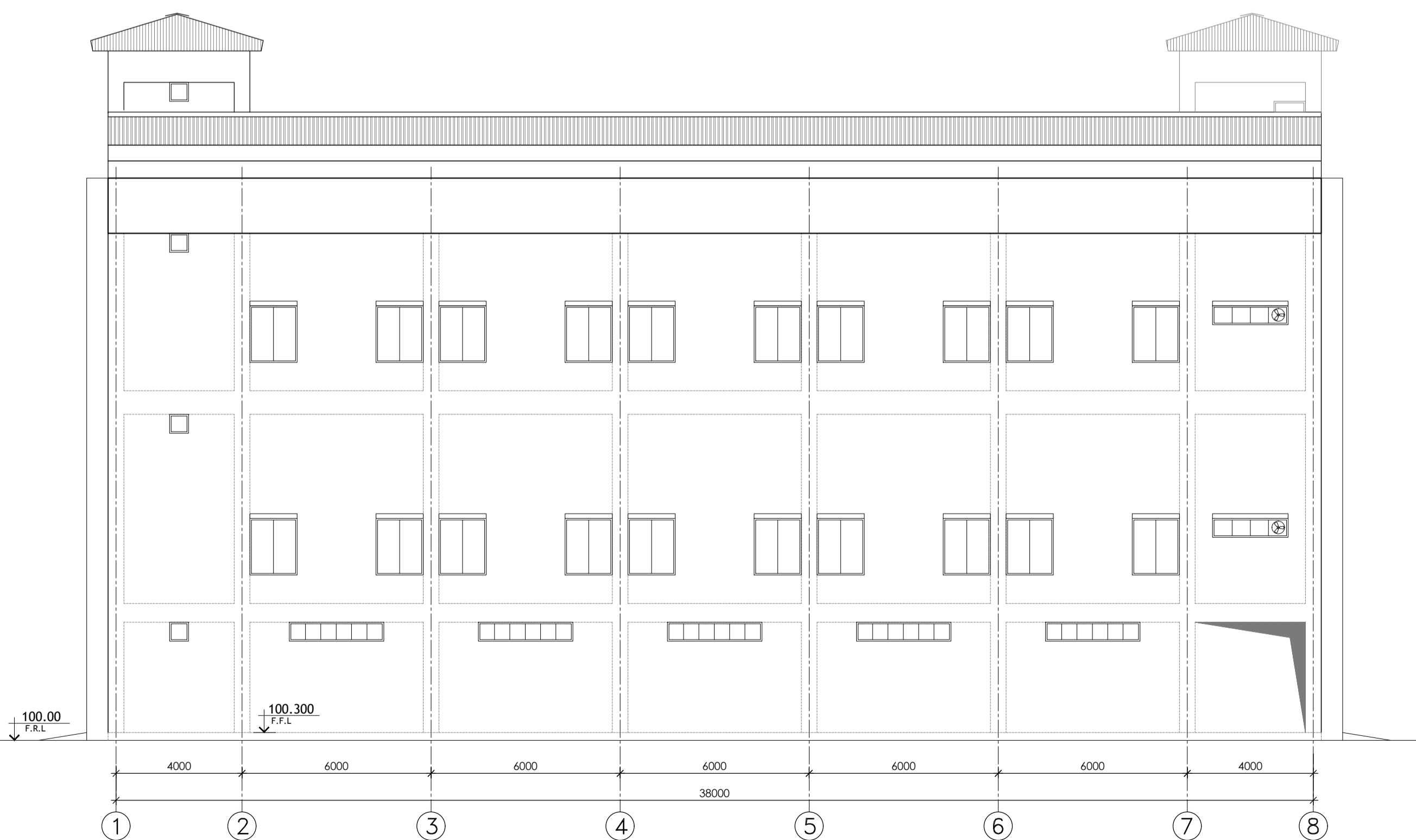
एन.2 प्लांट, एयर पैकेज सब स्टेशन जेयू.1 एवं एस आर आर .12 प्रथम व द्वितीय तल का प्लान  
**N2 PLANT/AIR PACKAGE SUBSTATION JU-1& SRR-12 FIRST & SECOND FLOOR PLAN**

3-1641-0501 REV.4 / 06.03.2024 A1-841x594

B895-999-81-46-12413



LOWER TERRACE PLAN



WEST ELEVATION

REF. DWG. NO.	REFERENCE DRAWING TITLE
B895-999-81-46-12411	GROUND FLOOR PLAN & SECTION
B895-999-81-46-12412	FIRST FLOOR & SECOND FLOOR PLAN
B895-999-81-46-12414	UPPER TERRACE PLAN
B895-999-81-46-12415	ELEVATION

NOTES:  
 1. DIMENSIONS, CO-ORDINATES, LEVELS  
 A. ALL DIMENSIONS ARE IN MILLIMETRES  
 B. DRAWING IS NOT TO BE SCALED FOR ANY MISSING DIMENSION.  
 C. ALL LEVELS & CO-ORDINATES ARE IN METRES.

**LEGEND :-**

F.R.L.	- FINISHED ROAD LEVEL
F.F.L.	- FINISHED FLOOR LEVEL
AC FC	AC = AIR CONDITIONED
FC	FC = FALSE CEILING
FF OD	OD = OVERDECK INSULATION
FF	FF = FALSE FLOORING
[Pattern]	= 300 THK BLOCK CONCRETE MASONRY WALL
[Pattern]	= 200 THK BLOCK CONCRETE MASONRY WALL

B	01.04.25	ISSUED FOR ENGINEERING	NK	SS	GJK	
A	28.02.25	ISSUED FOR TENDER	NK	SS	GJK	
REV.	DATE	DESCRIPTION	BY	CHKD	APPD	PM

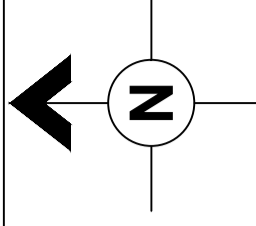
**ENGINEERS INDIA LIMITED**  
 (भारत सरकार का उपक्रम) (A Govt. of India Undertaking)  
 भारत पेट्रोलिएम कॉर्पोरेशन लिमिटेड  
**BHARAT PETROLEUM CORPORATION LIMITED**  
 कोच्चि रिफाइनरी  
**KOCHI REFINERY**

पोलीप्रोपैलीन प्रोजेक्ट कोच्चि रिफाइनरी	<b>POLYPROPYLENE PROJECT KOCHI REFINERY</b>
एन.2 प्लॉट, एयर पैकेज सब स्टेशन जेयू.1 एवं एस आर आर .12 निचली छत का प्लान व दृश्य	<b>N2 PLANT/AIR PACKAGE SUBSTATION JU-1&amp; SRR-12 LOWER TERRACE PLAN &amp; ELEVATION</b>

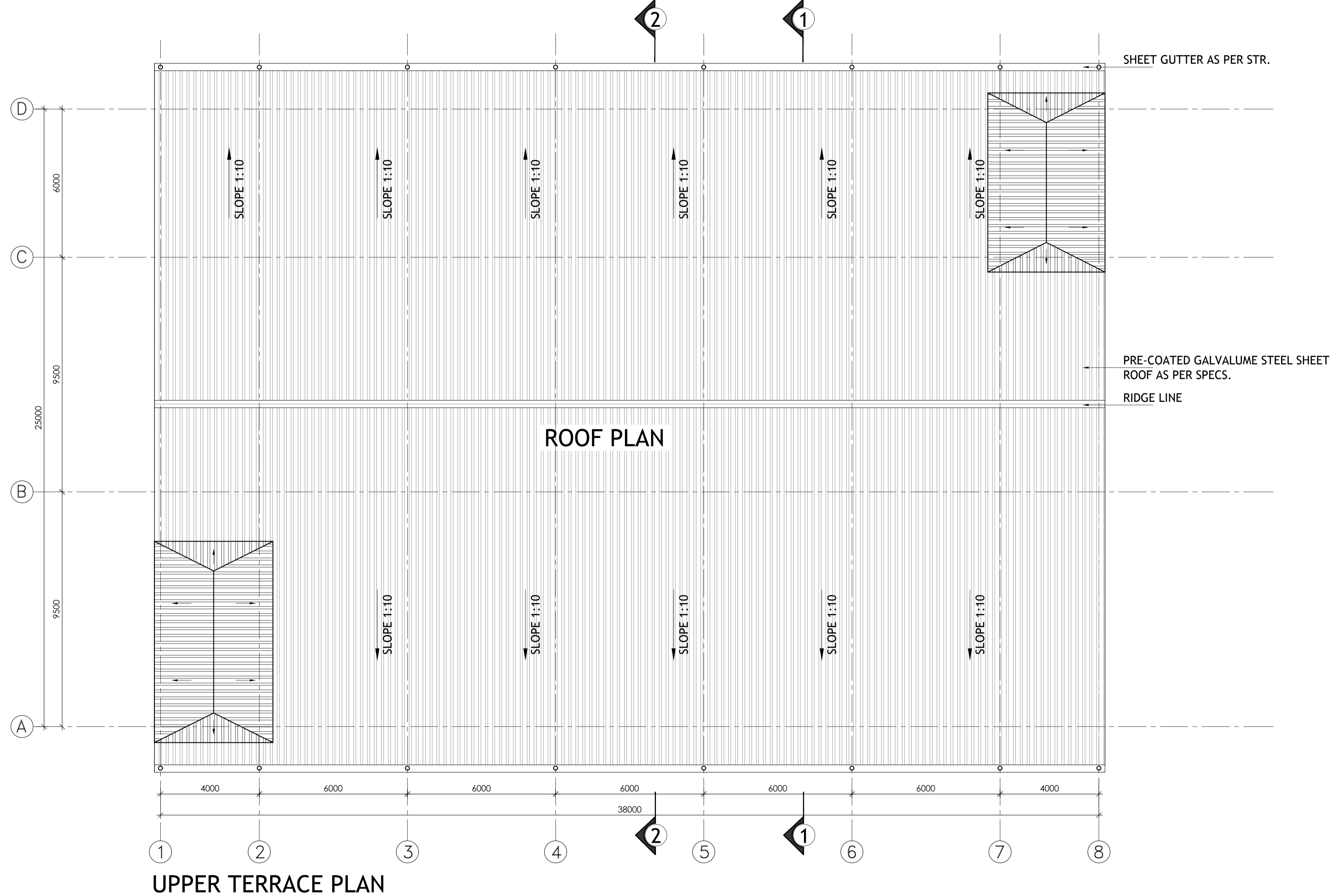
SCALE	JOB NO.	UNIT	DIVN.	DEPT.	DWG. NO.	REV.
1:125	B895	999	81	46	12413	B

प्रस्तुत आरेख एवं इसमें विहित डिजाइन इंजीनियरिंग लिमिटेड की संश्लेषण है। ये आरेख उधार दिए गए हैं और उधारकर्ता ने यह स्पष्ट समझौता किया है कि ये आरेख पुनः प्रेषित किए जा सकते हैं, न कि कलक की जाएंगे, न कपियां की जाएंगे, न प्रतिलिपि किए जाएंगे और न ही सीमित और निजी प्रयोग के अलावा इनका कोई अन्य प्रयोग होगा और यह प्रयोग उधार देने वाले द्वारा उधारकर्ता को लिखित रूप में दो वर्ष तक की शर्तों से होगा।  
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B895-999-81-46-12414



प्रस्तुत आरेख एवं इसके विहित डिजाइन इंजीनियरिंग स्टैंडर्ड को संदर्भित है। ये मात्र उधार दिए गए हैं और उधारकर्ता ने यह स्पष्ट समझौता किया है कि न तो उन्हें पुनः प्रेषित किया जाएगा, न कलक की जाएगी, न उधार दिए जाएंगे, न प्रतिलिपि किए जाएंगे और न ही सीमित और पिनी प्रयोग के अलावा इनका कोई अन्य प्रयोग होगा और यह प्रयोग उधार देने वाले द्वारा उधारकर्ता को लिखित रूप से दोष सहित सौंपा है।  
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REF. DWG. NO.	REFERENCE DRAWING TITLE
B895-999-81-46-12411	GROUND FLOOR PLAN & SECTION
B895-999-81-46-12412	FIRST FLOOR & SECOND FLOOR PLAN
B895-999-81-46-12413	LOWER TERRACE & ELEVATION
B895-999-81-46-12415	ELEVATION

NOTES:  
 1. DIMENSIONS, CO-ORDINATES, LEVELS  
 A. ALL DIMENSIONS ARE IN MILLIMETRES  
 B. DRAWING IS NOT TO BE SCALED FOR ANY MISSING DIMENSION.  
 C. ALL LEVELS & CO-ORDINATES ARE IN METRES.

**LEGEND :-**

F.R.L.	- FINISHED ROAD LEVEL
F.F.L.	- FINISHED FLOOR LEVEL
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FC	FC = FALSE CEILING
FF OD	OD = OVERDECK INSULATION
FF	FF = FALSE FLOORING
[Pattern]	= 300 THK BLOCK CONCRETE MASONRY WALL
[Pattern]	= 200 THK BLOCK CONCRETE MASONRY WALL

REV.	DATE	DESCRIPTION	BY	CHKD	APPD	PM
B	01.04.25	ISSUED FOR ENGINEERING	NK	SS	GJK	
A	28.02.25	ISSUED FOR TENDER	NK	SS	GJK	

**इंजीनियर्स इंडिया लिमिटेड** **ENGINEERS INDIA LIMITED**  
 (भारत सरकार का उद्योग) (A Govt. of India Undertaking)  
 भारत पेट्रोलिएम कॉर्पोरेशन लिमिटेड  
**BHARAT PETROLEUM CORPORATION LIMITED**  
 कोच्चि रिफाइनरी  
**KOCHI REFINERY**

पोलीप्रोपिलीन प्रोजेक्ट  
 कोच्चि रिफाइनरी

**POLYPROPYLENE PROJECT  
 KOCHI REFINERY**

एन.2 प्लान्ट, एयर पैकेज सब स्टेशन  
 जेयू.1 एवं आर आर .12  
 अपर छत का प्लान

**N2 PLANT/AIR PACKAGE  
 SUBSTATION JU-1 & SRR-12  
 UPPER TERRACE PLAN**

SCALE	JOB NO.	UNIT	DIVN.	DEPT.	DWG. NO.	REV.
1:100	B895	999	81	46	12414	B



# VENDOR LIST FOR ARCHITECTURAL PRODUCTS

**TENDER NO. B895-999-81-46-CF-T-8202**

**PROJECT:** PROJECT MANAGEMENT CONSULTANCY  
(PMC) AND ENGINEERING, PROCUREMENT &  
CONSTRUCTION MANAGEMENT (EPCM)  
SERVICES FOR POLYPROPYLENE PROJECT  
OF BPCL, KOCHI REFINERY

**OWNER:** BHARAT PETROLEUM CORPORATION LTD.

**CONSULTANT:** M/s ENGINEERS INDIA LIMITED

**JOB NO:** B895

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Rev. No	Date	Purpose	Prepared by	Checked by	Approved by
0	12.03.26	ISSUED FOR TENDER	BR	SS	GJK

Sr No	Supplier Name	City	Phone	E-Mail	Remarks
<b>Department : ARCHITECTURE</b>					
<b>Area of Experience: Other</b>					
<b>Item : 1.1 FLOOR FINISHING - CERAMIC TILES</b>					
1	APARNA ENTERPRISES LIMITED	Hyderabad	,, NA	NA	BRAND NAME-VITERO
2	ASIAN GRANITO INDIA LIMITED	MATHURA	,,		BRAND NAME-ASIAN
3	CERA SANITARYWARE LTD.	NEW DELHI	,,	NA	BRAND NAME- CERA
4	H&R JOHNSON LIMITED	MUMBAI	,,		BRAND NAME-JOHNSON
5	KAJARIA CERAMICS LIMITED	DELHI	,,		BRAND NAME-KAJARIA
6	MURUDESHWAR CERAMICS LIMITED	HUBLI	,,	"	BRAND NAME-NAVEEN
7	NITCO LIMITED	Mumbai	" ,,	"	BRAND NAME-NITCO
8	ORIENT BELL CERAMICS & INDUSTRIES LTD.	DELHI	,,		BRAND NAME-ORIENT
9	REGENCY CERAMICS LIMITED	HYDERABAD	,,		BRAND NAME-REGENCY
10	SPL LIMITED	DELHI	,,		BRAND NAME-SOMANY
11	VARMORA GRANITO PVT. LTD.	MUMBAI	,,		BRAND NAME-VARMORA
<b>Item : 1.2 FLOOR FINISHING - VITRIFIED TILES</b>					
1	APARNA ENTERPRISES LIMITED	Hyderabad	066048048051 NA	NA	BRAND NAME-VITERO
2	ASIAN GRANITO INDIA LIMITED	MATHURA	,,		BRAND NAME-ASIAN
3	CERA SANITARYWARE LTD.	NEW DELHI	,,	NA	BRAND NAME- CERA
4	EURO CERAMICS LIMITED	MUMBAI	,,		BRAND NAME-EURO
5	H&R JOHNSON(I) LIMITED	MUMBAI	,,		BRAND NAME-JOHNSON
6	KAJARIA CERAMICS LIMITED	DELHI	,,		BRAND NAME-KERROGRES
7	MURUDESHWAR CERAMICS LTD.	HUBLI	,,		BRAND NAME-NAVEEN
8	NITCO LIMITED	Mumbai	" ,,	"	BRAND NAME--NITCO
9	ORIENT BELL CERAMICS & INDUSTRIES LTD.	DELHI	,,		BRAND NAME-ORIENT
10	PAVIT CERAMICS PVT LTD	AHMEDABAD	,,	NA	BRAND NAME- PAVIT
11	RAK CERAMICS INDIA PVT. LTD.	MUMBAI	,,		
12	REGENCY CERAMICS LIMITED	HYDERABAD	,,		BRAND NAME-REGENCY
13	REGENT GRANITO INDIA LTD.	GUJARAT	,,		BRAND NAME-REGENT
14	SPL LIMITED	DELHI	,,		BRAND NAME-SOMANY
15	VARMORA GRANITO PVT. LTD.	MUMBAI	,,		BRAND NAME-VARMORA
<b>Item : 1.3 FLOOR FINISHING - ACID RESISTANT TILES</b>					
1	H & R JOHNSON(I) LTD.	MUMBAI	,,		BRAND NAME-ENDURA
2	REGENCY CERAMICS LIMITED	HYDERABAD	,,		BRAND NAME-REGENCY
<b>Item : 1.4 FLOOR FINISHING - PVC TILES/ROLLS</b>					

Sr No	Supplier Name	City	Phone	E-Mail	Remarks
1	ALL MANUFACTURE'S LISTED BY BIS UNDER IS 3462		,,		
<b>Item : 1.5 FLOOR FINISHING - PVC TILES/ROLLS(ANTI STATIC)</b>					
1	ARMSTRONG WORLD INDUSTRIES INDIA (P) LTD	MUMBAI	,,		BRAND NAME-SOLIDLG1
2	PREMIER POLYFILM LTD.	DELHI	,,		BRAND NAME-ANSTAT
<b>Item : 1.6 FLOOR FINISHING - EPOXY COATING</b>					
1	APURVA INDIA LIMITED	MUMBAI	,,		
2	BASF CONSTRUCTION CHEMICALS (I) PVT.LIMITED	DELHI	,,		BRAND NAME-MASTERTOP-1200 SERIES
3	BUILDTECH PRODUCTS(I) PVT LIMITED	DELHI	,,		BRAND NAME-BUILDPOXY-SL
4	CICO TECHNOLOGIES	DELHI	,,		BRAND NAME-CICO POXY TC 200
5	CIPY POLYURETHANES PVT.LIMITED	PUNE	,,		BRAND NAME-CIPOXY SL 1000
6	FOSROC CHEMICALS (INDIA) PVT LTD	BANGALORE	+91 8042521900, ,	enquiry.india@fosroc.com	BRAND NAME-NITOFLOOR SL 2000/1000
7	LEADING EDGE INDUSTRIAL CORPORATION	NAGPUR	,, 066048048051	NA	BRAND NAME: 1. COROGUARD-KRAYON MAKE 2. KRAYON
8	PIDILITE INDUSTRIES LIMITED	New Delhi	,,	NA	BRAND NAME-DR. FIXIT PIDIPOXY ESL
9	SIKA	KOLKATA	,,		BRAND NAME-SIKA FLOOR
10	STP LIMITED	NEW DELHI	,,		
11	SUNANDA SPECIALITY COATING PVT LTD	MUMBAI	,,		BRAND NAME- SUNEPOXY-SL (Epoxy Coating)
12	SYNORGANIC PAINTS PVT LTD	Bhilai	,,		BRAND NAME-INDUSCOAT EP COVER 100
<b>Item : 1.7 FLOOR FINISHING - FLOOR HARDENER</b>					
1	CHOKSEY CHEMICALS	MUMBAI	,,		BRAND NAME-TECHFLOOR HT-200
2	CICO TECHNOLOGIES LTD.	DELHI	,,		BRAND NAME-CICO SURFACE HARDENER
3	SAMROCK CHEMICALS (I) LTD.	AHMEDABAD	,,		BRAND NAME-SAMHARD STD
4	STP LIMITED	NEW DELHI	,,		
<b>Item : 2.1 WOODWORK - BLOCK BOARD/FLUSH DOOR</b>					
1	ALL MANUFACTURER'S LISTED BY BIS UNDER IS:2202		,,		
<b>Item : 2.2 WOODWORK - PLYWOOD</b>					

Sr No	Supplier Name	City	Phone	E-Mail	Remarks
1	ALL MANUFACTURER'S LISTED BY BIS UNDER IS:303	--	,,		
<b>Item : 2.3 WOODWORK - LAMINATES</b>					
1	ALL MANUFACTURER'S LISTED BY BIS UNDER IS:2046		,,		
<b>Item : 2.4 WOODWORK - MDF BOARDS</b>					
1	ALL MANUFACTURER'S LISTED BY BIS UNDER IS:12406	--	,,		
<b>Item : 2.5 WOODWORK - PARTICLE BOARD (Plain / Veneered / Pre-Laminated)</b>					
1	ALL MANUFACTURER'S LISTED BY BIS UNDER IS:3087,IS:3097 & IS:12823(GRADE 1& 2)	--	,,		
<b>Item : 3.1 DOORS/ WINDOWS/ VENTILATORS - PRESSED STEEL</b>					
1	DHIMAN STEEL	DELHI	,,		
2	PAULSON INDUSTRIES	ERNAKULAM	,,	NA	BRAND NAME- PAULSON INDUSTRIES
3	SHAKTI HORMANN PVT. LTD.	MEDCHAL MALKAGIRI	,,	NA	BRAND NAME- SHAKTI HORMANN
4	SKS STEEL IND.	DELHI	066048048051		
5	SUPER STEEL WINDOWS CO.	DELHI	,,		
6	SUPREME METWOOD PVT LTD	Faridabad	,,	NA	BRAND NAME-SUPREME METWOOD
<b>Item : 3.2 ALUMINIUM EXTRUSION PROFILES FOR DOORS, WINDOWS AND VENTILATORS</b>					
1	HINDALCO	MUMBAI	,,		
2	JINDAL ALUMINIUM LTD.	BANGALORE	,,		
3	OMALCO EXTRUSION (P) LTD	NEW DELHI	,,	NA	BRAND NAME- OMALCO
<b>Item : 3.3 DOORS/ WINDOWS/ VENTILATORS - FIRE RATED</b>					
1	BHAWANI FIRE PROTECTION PRIVATE LIMITED	GHAZIABAD	,,	NA	BRAND NAME- BHAWANI FIRE
2	GALAXY FIRE PROTECTION COMPANY	DELHI	,,	"	BRAND NAME-FIRE CHECK
3	MPP TECHNOLOGIES PVT. LTD.	BANGALORE	,,		
4	NAVAIR INTERNATIONAL LTD.	DELHI	,,		
5	PACIFIC FIRE CONTROLS PRIVATE LIMITED	New Delhi	,,	NA	BRAND NAME-PACIFIC
6	PAULSON INDUSTRIES	ERNAKULAM	,,	NA	BRAND NAME- PAULSON INDUSTRIES
7	SHAKTI HORMANN PVT. LTD.	MEDCHAL MALKAGIRI	,,	NA	BRAND NAME- SHAKTI HORMANN

Sr No	Supplier Name	City	Phone	E-Mail	Remarks
8	SUPER STEEL WINDOWS CO.	DELHI	,,		
9	SUPREME METWOOD PVT LTD	Faridabad	,,	NA	BRAND NAME-SUPREME METWOOD
<b>Item : 4.1 DOORS / WINDOWS FITTINGS - MORTICE LOCKS WITH HANDLES</b>					
1	EVERITE AGENCIES (P) LTD.	DELHI	,,		BRAND NAME-EVERITE
2	GODREJ & BOYCE	INDIA	,,		BRAND NAME-GODREJ
3	GOLDEN INDUSTRIES	DELHI	,,		BRAND NAME-GOLDEN
<b>Item : 4.2 DOORS / WINDOWS FITTINGS - HYDRAULIC DOOR CLOSER ( Overhead / Floor Mounted )</b>					
1	ALL MANUFACTURER'S LISTED BY BIS UNDER IS:3564 FOR OVERHEAD TYPE & IS:6315 FOR FLOOR MOUNTED TYPE	--	,,		
<b>Item : 4.3 DOORS/ WINDOWS FITTINGS - MISC. DOOR FITTINGS e.g. Hinges, Tower Bolts, Latches, Stoppers etc</b>					
1	ALL MANUFACTURER'S LISTED BY BIS UNDER IS:204 FOR TOWER BOLTS, IS 2681 FOR ALDROP,IS:1823 FOR STOPPE		,,		
<b>Item : 5.1 ROOF TREATMENT &amp; WATERPROOFING - P.U. BASED (ONE COMPONENT)</b>					
1	ASIAN PAINTS LIMITED	MUMBAI	,,	NA	BRAND NAME-ASIAN PAINTS SMARTCARE PU MAGNUM
2	BASF CONSTRUCTION CHEMICAL (I) PVT. LTD.	DELHI	,,		BRAND NAME-SONOSHIELD/ MASTERSEAL HLM 5000R
3	BERGER PAINTS INDIA LIMITED	New Delhi	,,	NA	BRAND NAME-HOMESHIELD ELASTOSEAL NON UV 1K
4	CHRYSO INDIA PRIVATE LIMITED	NAVI MUMBAI	022 2768 5991, ,	info.india@chryso.com	BRAND NAME-CHRYSO ELASTOTHANE
5	CICO TECHNOLOGIES LTD.	DELHI	,,		BRAND NAME-CORCHEM 2061
6	FOSROC CHEMICALS (INDIA) PVT LTD	BANGALORE	+91 8042521900, ,	enquiry.india@fosroc.com	BRAND NAME-NITOPROOF 600 PF
7	LLOYD INSULATIONS (I) LTD.	DELHI	,,		BRAND NAME-ISOTHANE EMA
8	MAPEI CONSTRUCTION PRODUCTS INDIA PVT LTD	BANGALORE	,,	"	BRAND NAME- PURTOP ONE IN
9	MYK ARMENT PVT LTD	HYDERABAD	,,	"	BRAND NAME-AQUAARM SPU-SPL
10	PIDILITE INDUSTRIES LIMITED	New Delhi	,,	NA	BRAND NAME- DR. FIXIT FLEXI PU 270 (I)
11	STP LIMITED	NEW DELHI	,,		

Sr No	Supplier Name	City	Phone	E-Mail	Remarks
12	SUNANDA SPECIALITY COATING PVT LTD	MUMBAI	,,		BRAND NAME- FLEXIROOF PU/ SUNROOF PU - One component PU based waterproofing
13	SUPREME BITUCHEM INDIA PVT.LTD	NAGAPUR	,,		
14	TECHNONICOL INDIA PVT LTD	MUMBAI	,,	"	BRAND NAME-TECHNONICOL ULTRATHANE
<b>Item : 5.2 ROOF TREATMENT &amp; WATERPROOFING - P.U. BASED (TWO COMPONENT)</b>					
1	BUILDTECH PRODUCTS INDIA PVT. LTD.	DELHI	,,		BRAND NAME-BUILDTHENE IC
2	FOSROC CHEMICALS (INDIA) PVT LTD	BANGALORE	+91 8042521900, ,	enquiry.india@fosroc.com	BRAND NAME-BRUSHBOND
3	INDUSTRIAL PRODUCT MFG. CO.	PUNE	,,		BRAND NAME-EZECOAT
4	SHIVALIK AGRO POLY PRODUCTS LTD.	DELHI	,,		BRAND NAME-SHIVABOND 903
5	SIKA	KOLKATA	,,		BRAND NAME-SIKALASTIC 450H
6	STP LIMITED	NEW DELHI	,,		
<b>Item : 5.3 ROOF TREATMENT &amp; WATERPROOFING - APP MEMBRANE</b>					
1	A.R. Industries	Vadodara	,, 066048048051	-	BRAND NAME- BITUSEAL (APP Waterproofing Membrane)
2	ALEX EXTRUSIONS LTD	KOLKATTA	,,		
3	ASIAN PAINTS LIMITED	MUMBAI	,,	NA	BRAND NAME-SMARTCARE
4	BERGER PAINTS INDIA LIMITED	New Delhi	,,	NA	BRAND NAME-PROSHIELD P
5	BUILDTECH PRODUCTS PVT. (I) LTD.	DELHI	,,		BRAND NAME-BUILDWRAP P
6	CHOKSEY CHEMICALS	MUMBAI	,,		BRAND NAME-POLYMOD
7	CHRYSO INDIA PRIVATE LIMITED	NAVI MUMBAI	022 2768 5991, ,	info.india@chryso.com	BRAND NAME-CHRYSO ARMOURSHIELD
8	CICO TECHNOLOGIES LTD.	DELHI	,,		BRAND NAME-CICO SHIELD
9	DELHI BUILDER'S STORES	DELHI	,,		BRAND NAME-DERMABIT APP
10	FAIRMATE CHEMICALS PVT. LTD.	GUJARAT	,,		BRAND NAME-WATERGAURD MEMBRANE APP G
11	FOSROC CHEMICALS (INDIA) PVT LTD	BANGALORE	+91 8042521900, ,	enquiry.india@fosroc.com	BRAND NAME-PROOFEX TORCHSEAL
12	IWL INDIA LTD.	CHENNAI	,,		BRAND NAME-HYPERPLAS
13	LLOYD INSULATIONS (I) LTD.	DELHI	,,		BRAND NAME-LLOYD PLASTOLAY
14	PIDILITE INDUSTRIES LTD.	MUMBAI	,,		BRAND NAME-DR. FIXIT TORCHSHEILD P 4160
15	PURE LEATHERS PVT. LTD.	DELHI	,,		BRAND NAME-ROOFSEAL

Sr No	Supplier Name	City	Phone	E-Mail	Remarks
16	SHIVAM TAR PRODUCTS	KARNAL	,,	NA	BRAND NAME- SUPERIOR MULTIPOLYPLAS-SHIVAM
17	SIKA	KOLKATA	,,		BRAND NAME-SIKA WP SHIELD
18	STP LTD.	DELHI	,,	NA	SUPER THERMOLAY
19	SUPREME BITUCHEM INDIA PVT. LTD.	NAGPUR	,,		
20	TECHNONICOL INDIA PVT LTD	MUMBAI	,,	"	BRAND NAME- ULTRAPLAST
21	TEXSA INDIA LTD.	GURUGRAM	,,	"	BRAND NAME-MOPLY
22	TIKI TAR DANOSA (INDIA) PVT LTD	Vadodara	,,	NA	BRAND NAME-HYDROSTOP
<b>Item : 6.1 PAINTING WORKS - PLASTIC/ ACRYLIC EMULSION (INTERNAL AND EXTERNAL), DISTEMPER ETC</b>					
1	ACROPAINTS LTD.	DELHI	,,		
2	ASIAN PAINTS LIMITED	MUMBAI	,,	NA	
3	BERGER PAINTS	KOLKATA	,,		
4	GODAVARI PAINTS PVT. LTD.	MUMBAI	,,		
5	ICI PAINTS/ICI INDIA LTD.	KOLKATA	,,		
6	KAMDHENU ISPAT LTD.	GURUGRAM	,,	"	
7	N.E. PAINT UDYOG	SIVASAGAR(ASSA M)	,,		
8	NEROLAC PAINTS	MUMBAI	,,		
9	SHALIMAR PAINTS	MUMBAI	,,		
<b>Item : 6.2 PAINTING WORKS - SYNTHETIC ENAMEL (FOR BUILDING WORKS)</b>					
1	ASIAN PAINTS LIMITED	MUMBAI	,,	NA	
2	BERGER PAINTS	KOLKATA	,,		
3	BERGER PAINTS INDIA LIMITED, BRITISH PAINT DIVISION	NEW DELHI	,,	NA	BRAND NAME- GLO HI-GLOSS ENAMEL
4	GODAVARI PAINTS PVT.LIMITED	MUMBAI	,,		
5	ICI PAINTS/ICI INDIA LIMITED	KOLKATA	,,		
6	KAMDHENU ISPAT LIMITED	GURUGRAM	,,	"	
7	N.E PAINT UDYOG	SIVANAGAR(ASSA M)	,,		
8	NEROLAC PAINTS	MUMBAI	,,		
9	SHALIMAR PAINTS	MUMBAI	,,		
<b>Item : 6.3 PAINTING WORKS - WATERPROOF CEMENT</b>					
1	ACRO PAINTS LTD.	DELHI	,,		BRAND NAME-ACROCEM
2	GODAVARI PAINTS PVT. LTD.	MUMBAI	,,		BRAND NAME-SUPEREMCEM
3	KAMDHENU ISPAT LTD.	GURUGRAM	,,	"	BRAND NAME-DREAMZ COLOR
4	KILLICK NIXON LTD.	MUMBAI	,,		BRAND NAME-SNOWCEM

Sr No	Supplier Name	City	Phone	E-Mail	Remarks
5	RAJDOOT PAINTS	DELHI	,,		BRAND NAME-XTRACEM 76 SUPERIOR CEMENT PAINT
6	SNOW WHITE INDUSTRIAL CORP.	CHENNAI	,,		BRAND NAME-SUPERCEM
<b>Item : 6.4 PAINTING WORKS - DECORATIVE TEXTURED COATING</b>					
1	ACRO PAINTS LTD.	DELHI	,,		BRAND NAME-ACROTEXTURES
2	BAKELITE HYLAM LTD	SECUNDRABAD	,,		BRAND NAME-HARITAGE
3	KAMDHENU ISPAT LTD.	GURUGRAM	,,	"	BRAND NAME-DREAMZ COLOR
4	LUXTURE SURFACE COATINGS PVT. LTD.	AJMER	,,		BRAND NAME-LUXTURE
5	NCL ALLTEK AND SECCOLOR LTD	HYDERABAD	,,		BRAND NAME-ALLTEK
6	SPECTRUM PAINTS	DELHI	,,		BRAND NAME-SPECTRUM
7	UNITILE	DELHI	,,		BRAND NAME-UNITILE
<b>Item : 6.5 PAINTING WORKS - POLISHING (for Woodwork )</b>					
1	ASIAN PAINTS LIMITED	MUMBAI	,,	NA	
2	SHALIMAR PAINTS	MUMBAI	,,		
<b>Item : 6.6 PAINTING WORKS - WALL PUTTY</b>					
1	BIRLA WHITE	DELHI	,,		BRAND NAME-WALL CARE
2	JK CEMENT LTD	DELHI	,,		BRAND NAME-JK WALL PUTYY
3	MANCHANDA ENTERPRISES	FARIDABAD	,,		BRAND NAME-SARA
4	MYK LATRICRETE	LATA FINISH	,,		BRAND NAME-LATA FINISH
5	NCL ALTEK & SECCOLOR LTD.	HYDERABAD	,,		BRAND NAME-NCL SKIM COAT 1127
<b>Item : 10 FALSE FLOORING</b>					
1	AET FLEXIBLESPACE (I) PVT LTD	Mumbai	,,	"	BRAND NAME-FLEXI
2	EVEREST INDUSTRIES LTD	NOIDA	,,	"	BRAND NAME-EVEREST ACCESS FLOOR
3	LLOYD INSULATION (I) LTD	DELHI	,,		
4	MULTI FLOORS	DELHI	,,		
5	THE ELEMENTS	NEW DELHI	,,	"	BRAND NAME-HI FLOOR
6	UNITED ACCESS FLOORS PVT LTD	MUMBAI	,,		BRAND NAME- UNITILE
7	UNIVERSAL BUILDING PRODUCTS	DELHI	,,		BRAND NAME-UNIFLOOR FS1500
<b>Item : 11.1 INSULATION - UNDERDECK INSULATION</b>					
1	BAKELITE HYLAM LTD	SECUNDRABAD	,,		BRAND NAME-PHENOTHERM
2	LLOYD INSULATIONS (I) LTD	DELHI	,,		BRAND NAME-ISOLLOYD NILFLAME
3	ROCKWOOL INDIA PVT LTD	HYDERABAD	,,	"	BRAND NAME-ROCKINSUL
4	UP TWIGA FIBRE GLASS LTD	DELHI	,,		BRAND NAME-TWIGA
<b>Item : 11.2 INSULATION - OVERDECK INSULATION</b>					

Sr No	Supplier Name	City	Phone	E-Mail	Remarks
1	BASF CONSTRUCTION CHEMICALS (I) PVT LTD	DELHI	,,		BRAND NAME-ELASTOSPRAY
2	BEST PLASTRONICS LTD	DELHI	,,		BRAND NAME-BESTPLASTRONICS
3	LLOYD INSULATION (I) LTD	DELHI	,,		BRAND NAME-LLOYD SPRAY FOAM
<b>Item : 7.1 ROOFING SHEETS &amp; ACCESSORIES - PRECOATED PROFILED G.I./ GALVALUME/ ZINCALUME SHEETS</b>					
1	BDS PROJECTS	Rohtak	,,	NA	BRAND NAME-BDS
2	COLOUR ROOF INDIA LTD.	MUMBAI	,,		BRAND NAME-HISPAN
3	ERA BUILDING SYSTEMS LTD	DELHI	,,		BRAND NAME-ERA
4	INGENIUM INFRASTRUCTURE PRIVATE LIMITED	GURUGRAM	,,	NA	BRAND NAME-INGENIUM
5	INTERARCH BUILDING PRODUCTS (P) LTD	NOIDA	,,	NA	BRAND NAME-TRACDEK
6	JAPAN METAL BUILDING SYTEMS PVT LTD	BANGALORE	,,		BRAND NAME-JMBS
7	LLOYD INSULATION (I) LTD	DELHI	,,		BRAND NAME-LLOYDECK
8	METCO ROOF PVT LTD	CHENNAI	,,	"	BRAND NAME-TOP GUARD
9	METECNO (INDIA) PVT LTD	CHENNAI	066048048051		BRAND NAME-G6
10	MULTI COLOR STEEL (I0 PVT LTD	CHENNAI	,,		BRAND NAME-MULTI CLAD
11	PHENIX CONSTRUCTION TECHNOLOGIES	AHMEDABAD	,,	"	BRAND NAME-PHENIX
12	ROOFCLAD INFRA PVT LTD	PALWAL	,,	NA	BRAND NAME- ROOFCLAD
13	SHIV SHAKTI FIBRE UDYOG	DELHI	,,		
14	SHREE PRE FAB STEELS (P) LTD	AHEMDABAD	,,	NA	BRAND NAME- PRIMEDEK 1015
15	SHREE PRECOATED STEELS LTD	MUMBAI	,,		BRAND NAME-METACOLOUR
16	SUPERTECH (INDIA) PVT LTD	NOIDA	,,	NA	BRAND NAME- SUPERTECH HI-RIB
17	TATA BLUESCOPE STEEL LTD	PUNE	,,		BRAND NAME-TRIMDECK
<b>Item : 12.1 MISCELLANEOUS ITEMS - INTEGRAL WATER PROOFING COMPOUND (IN PLASTER)</b>					
1	CHOKSEY CHEMICALS	MUMBAI	,,		BRAND NAME-MASTERPROOF IWP-1/ IWP-2
2	CICO TECHNOLOGIES LIMITED	DELHI	,,		BRAND NAME-CICO NO 1
3	FAIRMATE CHEMICALS PRIVATE LIMITED	VADODARA	, , 9879613004	nandan@fairmate.net	BRAND NAME-FAIRPLAST IP
4	PIDILITE INDUSTRIES	MUMBAI	,,		BRAND NAME-PIDIPROOF LW
5	SAMROCK MUREXIN CHEMICAL (I) LIMITED	GUJARAT	,,		BRAND NAME-SAMPLAST LW 150/PW
6	STP LIMITED	NEW DELHI	,,		

Sr No	Supplier Name	City	Phone	E-Mail	Remarks
<b>Item : 13.1 CONSTRUCTION SEALANTS - POLYSULPHIDE SEALANT</b>					
1	CHOWKSEY CHEMICALS PVT LTD	MUMBAI	, ,		BRAND NAME-TECHSEAL 940/941
2	CICO TECHNOLOGIES LTD	DELHI	, ,		BRAND NAME-CICOSEALANT T680
3	FOSROC CHEMICALS (INDIA) PVT LTD	BANGALURU	+91 8042521900, ,	enquiry.india@fosroc.com	BRAND NAME-THIOFLEX 600
4	PIDILITE INDUSTRIES LTD (DR. FIXIT)	MUMBAI	, ,	NA	BRAND NAME-PIDISEAL PS41G/ PIDISEAL PS42P
5	STP LIMITED	NEW DELHI	, ,		
<b>Item : 13.2 CONSTRUCTION SEALANTS - SILICON SEALANTS</b>					
1	PIDILITE INDUSTRIES LTD (DR. FIXIT)	MUMBAI	, ,	NA	BRAND NAME-DR. FIXIT SILICON SEALANT WX
<b>Item : 14.1 PRE ENGINEERED BUILDINGS (PEB)</b>					
1	BALARKA FABRICON PRIVATE LIMITED	JHAJJAR	, ,	"	
2	BDS PROJECTS	Rohtak	, ,	NA	BRAND NAME-BDS
3	ECO TURNKEY SOLUTIONS PVT LTD	FARIDABAD	, ,	NA	BRAND NAME- ecopeb
4	EVEREST INDUSTRIES LTD	NOIDA	, ,	"	
5	INTERARCH BUILDING PRODUCTS (P) LTD	NOIDA	066048048051, ,	NA	
6	JINDAL MECTEC PVT LTD	GURUGRAM	, ,	"	
7	KAIZEN STEEL BUILDING SOLUTIONS PVT LTD	Delhi	, ,	NA	BRAND NAME-KAIZEN
8	KIRBY BUILDING SYSTEMS	NEW DELHI	, ,	"	
9	LLOYD INSULATION (I) LTD	DELHI	, ,	"	
10	METCO ROOF PVT LTD	CHENNAI	, ,	"	
11	MGI INFRA PRIVATE LIMITED	NEW DELHI	, ,	"	
12	MOONWALK INFRAPROJECTS PVT. LTD.	NOIDA	, ,	NA	BRAND NAME- MOONWALK
13	MPIL STEEL STRUCTURES LIMITED	MUMBAI	, ,	"	
14	PENNA ENGINEERED BUILDING SYSTEM LTD	HYDERABAD	, ,	"	
15	PHENIX CONSTRUCTION TECHNOLOGIES	AHMEDABAD	, ,	"	
16	PKM METAL BUILDINGS COMPANY PRIVATE LIMITED	CHENNAI	, , "	"	
17	RISHIKESH STRUCTURAL SOLUTIONS LLP	VADODARA	, ,	NOT AVAILABLE	
18	SAXENA MARINE TECH (P) LTD	NOIDA	, ,	"	

Sr No	Supplier Name	City	Phone	E-Mail	Remarks
19	SHIV SHAKTI FIBER UDYOG	FARIDABAD	,,		BRAND NAME- SHIV SHAKTI FIBER UDYOG
20	SHREE PRE FAB STEELS (P) LTD	AHEMDABAD	,,	NA	
21	SUPER DISCO ISPAT PVT LTD	New Delhi	,,	NA	
22	SUPERTECH (INDIA) PVT LTD	NOIDA	,,	NA	
23	UNISTAR METALS PVT. LTD.	KOLKATA	,,	NA	BRAND NAME- UNISTAR
24	ZAMIL STEEL BUILDINGS INDIA PVT LTD	PUNE	,,	NA	
<b>Item : 15.1 ALUMINIUM COMPOSITE PANEL</b>					
1	3A COMPOSITES INDIA PVT LTD	Mumbai	,,	-	BRAND NAME- ALUCOBOND
2	4MANN INDUSTRIES PVT LTD	MUMBAI	,,	NA	BRAND NAME-4MANN
3	ALSTONE INTERNATIONAL	New Delhi	,,	NA	BRAND NAME-ALSTONE
4	ALUBOND DACS INDIA PVT LTD	Mumbai	,,	NA	BRAND NAME- ALUBOND
5	ALUDECOR LAMINATION PVT LTD	New Delhi	,,	NOT AVAILABLE	BRAND NAME- ALUDECOR
6	ALUTECH INDUSTRIES	New Delhi	,,	NA	BRAND NAME-ALUTECH
7	EURO PANEL PRODUCTS PVT LTD	Mumbai	,,	-	BRAND NAME- EUROBOND
8	PIONEER PANELS	MUMBAI	,,	NA	BRAND NAME-PIONEER
9	REYNOBOND INDIA	NEW DELHI	066048048051		BRAND NAME-REYNOARCH FR (PLUS)
10	SONIA PLASTICS PVT LTD	NEW DELHI	,,	"	BRAND NAME-HYNADECOR
11	VIRGO LAMINATES LIMITED	New Delhi	,,	NA	BRAND NAME-VIRGO
12	VIVA COMPOSITES PANEL PVT LTD	MUMBAI	,,	-	BRAND NAME- VIVA
<b>Item : 7.2 ROOFING SHEETS &amp; ACCESSORIES - C.G.I. SHEET</b>					
1	ISPAT INDUSTRIES LTD	DELHI	,,		BRAND NAME-EVEREST
2	STEEL AUTHORITY OF INDIA LTD	--	,,		BRAND NAME-SAIL
3	TATA STEEL	--	,,		BRAND NAME-TISCO
<b>Item : 16.1 TOILET CUBICLE/ TOILET PARTITION</b>					
1	GREENLAM INDUSTRIES LTD	TINSUKIA	,,	"	BRAND NAME- GREENLAM
2	INNER SPACE	MUMBAI	,,	"	BRAND NAME- T-LINE
3	MERINO PANEL PRODUCTS LTD	NEW DELHI	,,	"	BRAND NAME- MERINO
<b>Item : 7.3 ROOFING SHEETS &amp; ACCESSORIES - ALUMINIUM SHEET</b>					
1	HINDALCO	MUMBAI	,,		
2	JINDAL ALUMINIUM LTD	BANGALORE	,,		
<b>Item : 7.4 ROOFING SHEETS &amp; ACCESSORIES - FIBER GLASS SHEET &amp; PANELS</b>					
1	ROOFCLAD INFRA PVT LTD	PALWAL	,,	NA	BRAND NAME- ROOFCLAD
2	SHIV SHAKTI FIBER UDYOG	FARIDABAD	,,		BRAND NAME-FRP SHEET
3	SIMBA FRP (P) LTD	DELHI	,,		BRAND NAME-SIMCRYL
<b>Item : 7.5 ROOFING SHEETS &amp; ACCESSORIES - POLYCARBONATE ROOFING SHEET</b>					

Sr No	Supplier Name	City	Phone	E-Mail	Remarks
1	ROOFCLAD INFRA PVT LTD	PALWAL	,,	NA	BRAND NAME- ROOFCLAD
2	SARASWATI PLASTOTECH INDIA PVT. LTD.	JAMMU	,,	NA	BRAND NAME- ULTRALITE
3	SHIV SHAKTI FIBRE UDYOG	DELHI	,,		BRAND NAME-SHIV SHAKTI
4	UNITED STEEL & STRUCTURES PVT LTD	CHENNAI	,,		TUFLIFE
<b>Item : 8.1 SANITARY, PLUMBING FITTINGS &amp; FIXTURES - SANITARY FITTINGS</b>					
1	ALL MANUFACTURER'S LISTED BY BIS UNDER IS:2556	--	,,		
<b>Item : 8.2 SANITARY, PLUMBING FITTINGS &amp; FIXTURES - PLUMBING FITTINGS AND FIXTURES</b>					
1	CERA SANITARYWARE LTD.	NEW DELHI	,,	NA	BRAND NAME- CERA
2	GEM INTERNATIONAL	FARIDABAD	,,		BRAND NAME-GEM
3	H&R JOHNSON INDIA	DELHI	,,		BRAND NAME-JOHNSON
4	JAQUAR & COMPANY LTD	DELHI	,,		BRAND NAME-JAQUAR
5	JUPITER AQUA LINES LTD	MOHALI	,,		BRAND NAME-JUPITOR
6	ORIENT CERAMICS	DELHI	,,		BRAND NAME-ORIENT
7	OTHELLO FAUCETS PVT LTD	DELHI	,,		BRAND NAME-MAYUR
8	PARKASH BRASSWARE INDUSTRIES	DELHI	,,		BRAND NAME-PARKO
9	PLASTOCRAFT SANITARY INDIA PVT LTD	DELHI	,,		BRAND NAME-KINGSTON
10	PRAYAG POLYMERS (P) LTD	DELHI	,,		BRAND NAME-H2O
<b>Item : 8.3 SANITARY, PLUMBING FITTINGS &amp; FIXTURES - MIRROR / GLASS</b>					
1	ATUL GLASS	DELHI	,,		BRAND NAME-ATUL
2	CERA SANITARYWARE LTD.	NEW DELHI	,,	NA	BRAND NAME- CERA
3	CONTINENTAL FLOAT GLASS	DELHI	,,		BRAND NAME-CONTINENTAL
4	GUJARAT GUARDIAN LTD	DELHI	,,		BRAND NAME-MODIGUARD
5	HINDUSTAN SAFETY GLASS	KOLKATA	,,		BRAND NAME-HINDUSTAN
6	TRIVENI GLASS	KOLKATA	,,		BRAND NAME-TRIVENI
<b>Item : 9.1 FALSE CEILING - ALUMINIUM STRIP/ TRAY TYPE</b>					
1	AURA SYNERGY INDIA PVT LTD	NEW DELHI	,,	NA	BRAND NAME- GRID SQUARE
2	COMPLETE INFRA STRUCTURE PVT LTD	NEW DELHI	,,	NA	BRAND NAME- BOLLARD
3	HUNTER DOUGLAS	DELHI	,,		BRAND NAME-LUXALON
4	INTERARCH BUILDING PRODUCTS (P) LTD	NOIDA	,,		BRAND NAME-TRAC
5	LLOYD INSULATION (I) LTD	DELHI	,,		BRAND NAME-LLOYD LINEAL CEILINGS

Sr No	Supplier Name	City	Phone	E-Mail	Remarks
6	MANRAJ CEILING PRODUCTS PVT LTD	Ghaziabad	,,	NA	BRAND NAME- ROYAL KRAFT
7	MASCOT OVERSEAS	DELHI	,,		BRAND NAME-METALIC/ TRULON
8	P. R. PRODUCTS	DELHI	,,	"	BRAND NAME-Hi-Steel
9	P.R. CEILING PRODUCTS	AGRA	,,	"	BRAND NAME- MCRA
<b>Item : 9.2 FALSE CEILING - GYPSUM BOARD</b>					
1	SAINT GOBAIN GYPROC INDIA LTD	MUMBAI	,,		BRAND NAME-GYPBOARD
2	USG BORAL BUILDING (INDIA) PRIVATE LIMITED	GURUGRAM	,,	"	BRAND NAME-LaGyp
<b>Item : 9.3 FALSE CEILING SYSTEM- MINERAL FIBER</b>					
1	ARMSTRONG WORLD INDUSTRIES INDIA (P) LTD	MUMBAI	,,		
2	COMPLETE INFRA STRUCTURE PVT LTD	NEW DELHI	,,	NA	BRAND NAME- BOLLARD
3	USG BORAL BUILDING (INDIA) PRIVATE LIMITED	GURUGRAM	,,	"	
<b>Item : 17.1 SPRAYED PU FOAM INSULATION (FOR OVERDECK ROOF INSULATION CUM WATER PROOFING SYSTEM)</b>					
1	ASIAN PAINTS LIMITED	MUMBAI	066048048051 ,,	NA	BRAND NAME-ASIAN PAINTS (AP) SMART CARE (SC) PU INSULATOR
2	BERGER PAINTS INDIA LIMITED	New Delhi	,,	NA	BRAND NAME-PU SPRAY PUF
3	CHRYSO INDIA PRIVATE LIMITED	NAVI MUMBAI	022 2768 5991, ,	info.india@chryso.com	BRAND NAME-CHRYSO ELASTOTHANE SF
4	MAPEI CONSTRUCTION PRODUCTS INDIA PVT LTD	BANGALORE	,,	"	BRAND NAME-PURTOP FOAM 45 HFC
5	MYK ARMENT PVT LTD	HYDERABAD	,,	"	BRAND NAME-AQUAARM INSUSPRAY PUF B2
6	PIDILITE INDUSTRIES LIMITED	New Delhi	,,	NA	BRAND NAME-DR. FIXIT FOAM SHIELD
7	STP LIMITED	NEW DELHI	,,		BRAND NAME-SHALI PUF SA
8	TECHNONICOL INDIA PVT LTD	MUMBAI	,,	"	BRAND NAME-TECHNONICOL LOGICFOAM SPF
<b>Item : 18.1 ABRASION RESISTANT EPOXY FLOOR COATING SYSTEM</b>					
1	BERGER PAINTS INDIA LIMITED	New Delhi	,,	NA	BRAND NAME- PRO SHIELD HS (PRIMER) + PRO EPISHIELD (FLOOR SCREED) + PRO EPISHIELD SL (COATING)

Sr No	Supplier Name	City	Phone	E-Mail	Remarks
2	PIDILITE INDUSTRIES LIMITED	New Delhi	,,	NA	BRAND NAME- DR. CIPY CIPOXY 17 (PRIMER, SCREED/ SCRATCH COAT) & DR. CIPY FLOORTOP 2000 (TOP COAT)
3	SYNORGANIC PAINTS PVT LTD	Bhilai	,,		INDUSCOAT EP BOND 250 (PRIMER) & INDUSCOAT EP COVER 100 (SCREED/ SCRATCH COAT) & INDUSCOAT EP COVER 100 (SCREED) & INDUSCOAT EP COVER 100 (TOP COAT)
<b>Item : 19.1 ABRASION &amp; IMPACT RESISTANT POLYURETHANE FLOORING SYSTEM</b>					
1	BERGER PAINTS INDIA LIMITED	New Delhi	,,	NA	BRAND NAME-PRO EPISHIELD WB (PRIMER) + PRO POLYSHIELD CONCRETE (SCREED/SCRATCH COAT) + PRO POLYSHIELD CONCRETE (COATING)
2	PIDILITE INDUSTRIES LIMITED	New Delhi	,, 066048048051	NA	BRAND NAME- DR. CIPY AQUOXY 50 (PRIMER) & DR. CIPY DURACRETE MD (SCREED/ SCRATCH COAT & TOP COAT)
3	SYNORGANIC PAINTS PVT LTD	Bhilai	,,		INDUSCOAT EP WB (PRIMER) & INDUSCOAT PU SHIELD 100 (SCREED/ SCRATCH COAT) & INDUSCOAT EP TOPCRETE 300 (TOP COAT)
<b>Area of Experience:</b>					
<b>Item : 13.1 CONSTRUCTION SEALANTS - POLYSULPHIDE SEALANT</b>					
1	SIKA INDIA PVT LTD	KOLKATA	,,		



**APPROVED VENDOR LIST  
(STRUCTURAL)**

**FOR**

**MISCELLANEOUS BUILDING WORKS FOR PP PROJECT  
(TENDER No. B895-999-81-46-CF-T-8202)**

**PROJECT : POLYPROPLENE PROJECT OF BPCL KOCHI REFINERY**

**OWNER : M/S BHARAT PETROLEUM CORPORATION LIMITED  
(BPCL)**

**PMC / EPCM : ENGINEERS INDIA LIMITED (EIL)**

**JOB NO. : B895**

Rev. No	Date	Purpose	Prepared by	Checked by	Approved by
A	24.02.2026	ISSUED FOR BIDS	HKV	AS/RM	RM

Sr No	Supplier Name	City	Phone	E-Mail	Remarks
<b>Department : STRUCTURE - LIST OF APPROVED PRODUCTS</b>					
<b>Area of Experience: Other</b>					
<b>Item : A. INTEGRAL WATER-PROOFING COMPOUNDS FOR CONCRETE (AS PER IS:2645)</b>					
1	Refer Remark	INDIA	, ,	NA	All Integral Waterproofing Compounds for Concrete which carry "ISI" certification mark of BIS along with standard number "IS 2645" and the license number "CM/L**...*)" and listed at BIS website "https://www.bis.gov.in".
<b>Item : B. CONCRETE ADMIXTURES -(AS PER IS:9103)</b>					
1	Refer Remark	INDIA	, , 067054053050	NA	All Accelerating, Retarding, Water-reducing, Air-entraining & Super-plastizing Admixtures for Concrete which carry "ISI" certification mark of BIS along with standard number "IS 9103" and the license number "CM/L**...*)" and listed at BIS website "https://www.bis.gov.in".
<b>Item : C. BI-POLAR CONCRETE PENETRATING CORROSION INHIBITING ADMIXTURE (AS PER EIL STD SPEC NO 6-68-0017)</b>					
1	APPLE CHEMIE INDIA PVT LTD	NAGPUR	+91 9607001014, ,	www.applechemie.com	PRODUCT NAME-AC CORROGUARD-BP
2	BUILDPRO TECHNOLOGIES	HUBLI, KARNATAKA	+91 7045000315, +91 9324924396,	projects.buildprotechnologies@gmail.com	PRODUCT NAME-CEBRICORR BP
3	CHRYSO INDIA PRIVATE LIMITED	NAVI MUMBAI	022 2768 5991, ,	info.india@chryso.com	BRAND NAME-CHRYSO CORROCRETE
4	CLEAN COATS PVT LTD	THANE	, ,		PRODUCT NAME-CONPROOF IA (DOSAGE 1% W/W OF CEMENT)
5	FAIRMATE CHEMICALS PRIVATE LIMITED	VADODARA	, , 9879613004	nandan@fairmate.net	PRODUCT NAME- FAIRCURETE C
6	FOSROC CHEMICALS (INDIA) PVT L-TD	BENGALURU	+91 8042521900, ,	enquiry.india@fosroc.com	BRAND NAME-AURAMIX BCI
7	HINDCON CHEMICALS LTD	KOLKATA	, ,	NA	BRAND NAME- HIND CORROGUARD
8	KRISHNA CONCHEM PRODUCTS PVT L-TD	NAVI MUMBAI	, ,		PRODUCT NAME-EPCO KP-200 (DOSAGE 1% W/W OF CEMENT)
9	MASTER BUILDERS SOLUTIONS INDIA PVT LTD	NAVI MUMBAI	, ,	NA	PRODUCT NAME- MASTERLIFE CI 220 (DOSAGE 1% W/W OF CEMENT)

**Departmental List**

Sr No	Supplier Name	City	Phone	E-Mail	Remarks
10	NORMET INDIA PVT LTD	NOIDA, U.P.	+91 120 4504800,,	india.info@normet.com	PRODUCT NAME-TamCem BPCI
11	REDWOP CHEMICALS PVT. LTD.	RAJKOT, GUJARAT	0281 2576664,,	ravi.ramani@redwop.net	PRODUCT NAME-PLASTICONE BPO
12	SP CONCARE PVT. LTD.	SANGLI	,,	NA	BRAND NAME:ADDMIX 109 PCCI
13	STP LTD.	DELHI	,,	NA	PRODUCT NAME-SHALIPLAST MCI (DOSAGE 1% W/W OF CEMENT)
14	SUNANDA SPECIALITY COATING PVT LTD	MUMBAI	,,		PRODUCT NAME-POLYALK CP 293 (DOSAGE 1% W/W OF CEMENT)
<b>Item : D. POLYSULPHIDE SEALANTS (TWO PART, AS PER IS:12118)</b>					
1	APPLE CHEMIE INDIA PVT LTD	NAGPUR	+91 9607001014,,	www.applechemie.com	PRODUCT NAME-AC POLYSEAL (PG)
2	CHOWKSEY CHEMICALS PVT LTD	MUMBAI	,,		PRODUCT NAME-TECHSEAL 940/941
3	CICO TECHNOLOGIES LIMITED	DELHI	,,		PRODUCT NAME-CICO SEAL T680
4	DON CONSTRUCTION CHEMICALS INDIA LTD	CHENNAI	,,	NA	BRAND NAME- 1. FLEXSEAL PS660 (GUN GRADE) 2. FLEXSEAL PS660 (POUR GRADE)
5	DURA BUILD CARE PVT LTD	DELHI	,,	NA	PRODUCT NAME- DURASIL PPS (POURING GRADE)
6	FOSROC CHEMICALS (INDIA) PVT LTD	BENGALURU	+91 8042521900,,	enquiry.india@fosroc.com	PRODUCT NAME-THIOFLEX 600
7	HINDCON CHEMICALS LTD	KOLKATA	,,	NA	BRAND NAME- 1. HIND SEALANT PS (POUR GRADE); 2. HIND SEALANT PS (GUN GRADE)
8	JAY CHEMICAL INDUSTRIES PVT LTD	AHMEDABAD	,,	NA	PRODUCT NAME- K2 POLYSEAL 22P (POUR GRADE)
9	KANSAL NEROLAC PAINTS LIMITED	MUMBAI	9999100064,,	preetirohatgi@nerolac.com	PRODUCT NAME- 1. PERMA POLYSEAL (GUN GRADE) 2. PERMA POLYSEAL (POUR GRADE)
10	PIDILITE INDUSTRIES LTD (DR. FIXIT)	MUMBAI	,,	NA	PRODUCT NAME-1. PIDISEAL PS41G, 2. PIDISEAL PS42P
11	SIKA INDIA PVT LTD	KOLKATA	,,		BRAND NAME- 1. SIKA POLYSULPHIDE (SIKALASTIC) 2. SIKAFLEX CONSTRUCTION 3. IGAS Ih
12	STP LIMITED	NEW DELHI	,,		PRODUCT NAME- SHALISEAL PS

Sr No	Supplier Name	City	Phone	E-Mail	Remarks
13	ZZ-Refer Remarks (ZZ inserted to maintain the alphabetic chronology)	INDIA	,,	NA	All other Polysulphide Sealants (Two Parts) which carry "ISI" certification mark of BIS along with standard number "IS 12118" and the license number "CM/L**...*)" and listed at BIS website "https://www.bis.gov.in".
<b>Item : E. ANCHOR FASTENERS - CHEMICAL TYPE (EOTA / DIBT/ FM/ ICBO-ES APPROVED). Note- Design of post-installed Anchors and Rebars shall be provided/ verified by the approved manufacturer with installation instructions and execution shall be done by an applicator trained by the approved manufacturer (preferably in the presence of manufacturer for critical applications/ structures).</b>					
1	FISCHER FIXING SYSTEMS(MICO) LTD	BENGALURU	,,		BRAND NAME-FISCHER ANCHORS
2	FOSROC CHEMICALS (INDIA) PVT LTD	BENGALURU	+91 8042521900, ,	enquiry.india@fosroc.com	CHEMICAL ANCHORING OF REBAR, BRANDS NAMES- LOKFIX E55, LOKFIX E77 & LOKFIX E45T
3	HILTI INDIA PVT LTD	DELHI	,,		BRAND NAME-HILTI ANCHORS
4	INDO SPARK CONSTRUCTION SERVICES	KOLHAPUR	,, 067054053050	NA	BRAND NAME-ICFS CM VESF, CM VESF TROPICAL, CM SH, CM SH TROPICAL, CM 585 PE PRO, CM 385 PE PRO, CM 400 PE, CM 650 PE
5	MASTER BUILDERS SOLUTIONS INDIA PVT LTD	NAVI MUMBAI	,,	NA	BRAND NAMES-MASTERFLOW 916 AN, 918 AN, 920 AN, 932 AN, 936 AN
6	MUNGO FIXINGS INDIA PVT LTD	BENGALURU	,,	NA	BRAND NAME-MIT 700 RE, MIT SE PLUS, MIT TROPICAL, MIT SP & MVA CAPSULE
7	POWERS FASTENERS(THROUGH M/S KRAFT SALES & SERVICES (I) LTD.)	PUNE	,,	NA	BRAND NAME-POWERS FASTENERS
8	UIP SYSTEMS (INDIA) PVT LTD	MUMBAI	,,	NA	UIP FASTENERS
9	WUERTH INDIA PVT LTD	DELHI	,,	NA	BRAND NAME-WUERTH ANCHORS
<b>Item : F. ANCHOR FASTENERS - MECHANICAL TYPE (EOTA / DIBT/ FM/ ICBO-ES APPROVED). Note- Design of post-installed Anchors and Rebars shall be provided/ verified by the approved manufacturer with installation instructions and execution shall be done by an applicator trained by the approved manufacturer (preferably in the presence of manufacturer for critical applications/ structures).</b>					
1	FISCHER FIXING SYSTEMS(MICO) LTD	BENGALURU	,,		BRAND NAME-FISCHER ANCHORS
2	HILTI INDIA PVT LTD	DELHI	,,		BRAND NAME-HILTI ANCHORS

**Departmental List**

Sr No	Supplier Name	City	Phone	E-Mail	Remarks
3	INDO SPARK CONSTRUCTION SERVICES	KOLHAPUR	,,	NA	BRAND NAME: (ICFS) INDO WEDGE ANCHOR IWA, IWA-A2, IWA-A4
4	MUNGO FIXINGS INDIA PVT LTD	BENGALURU	,,	NA	BRAND NAME-MI POWER GRIP, MIr POWER GRIP, MIT, M2, M2r, MCS, MEA
5	POWERS FASTENERS(THROUGH M/S KRAFT SALES & SERVICES (I) LTD.)	PUNE	,,	NA	BRAND NAME-POWERS FASTENERS
6	UIP SYSTEMS (INDIA) PVT LTD	MUMBAI	,,	NA	UIP FASTENERS
7	WUERTH INDIA PVT LTD	DELHI	,,	NA	PRODUCT NAME- WUERTH ANCHORS
<b>Item : G. ELECTRO-FORGED GALVANISED GRATINGS (AS PER EIL STD 7-68-0697, BS:4592)</b>					
1	ABHYANT EFG & ENGINEERING PVT. LTD	RAIPUR	,,	NA	TYPE-I & TYPE-II
2	ANKIT ELECTROGRATING	RAIPUR	,,	NA	TYPE-I & TYPE-II
3	BHOLA RAM STEEL PVT LTD	PATNA	,,		BRAND NAME-BHOLARAM GRATINGS
4	CELL COM TELESERVICES PVT LTD	SIKANDRABAD	,, 067054053050	NA	BRAND NAME-CELLCOM GRATINGS
5	FERROTECH STRUCTURALS (INDIA) PVT LTD	KANCHIPURAM & PUNE	+91 9840308880,,	www.ferrotechindia.net	TYPE-I & TYPE-II
6	GREATWELD ENGINEERING PVT. LTD.	PUNE	+91 7350304304,,	sumit.rungta@greatweld.com	BRAND NAME-GREATWELD GRATINGS, TYPE-I & TYPE-II
7	INDIANA GRATING PVT.LTD	MUMBAI	,,		BRAND NAME-INDIANA GRATINGS
8	IRONWELD ENGINEERING PVT LTD	PUNE	,,	NA	TYPE-I & TYPE-II
9	JACINTH ENGINEERING PVT LTD	MUMBAI	,,	NA	BRAND NAME-JACINTH GRATINGS
10	KANADE ANAND UDYOG PVT LTD	MUMBAI	,,		BRAND NAME-KANADE GRATINGS
11	LANCER VINIMAY PVT. LTD.	DURGAPUR, WB	+91 9331391910,,	lancervinimay@gmail.com	TYPE-I & TYPE-II
12	LIONWELD MEISER LLC	DUBAI	,,	NA	TYPE-I & TYPE-II
13	MEET ENGINEERING	VADODARA	,,	NA	TYPE-I & TYPE-II
14	METALIC INDUSTRIES	VADODRA, GUJARAT	,, 9909255335	admin@metallic-industries.com	TYPE-I & TYPE-II
15	MKSD INDUSTRIES PVT. LTD.	NAVI MUMBAI	9930131143/44,, 9930131143	mksworks@gmail.com	BRAND NAME- MKSD GRATINGS TYPE-I & TYPE-II
16	OASIS METAL MANUFACTURING LLC	DUBAI, UAE	00971504531142,,	info@oasismetal.com	TYPE-I & TYPE-II

**Departmental List**

Sr No	Supplier Name	City	Phone	E-Mail	Remarks
17	OMKAR GRATINGS PVT LTD	MUMBAI	..		BRAND NAME-OMKAR GRATINGS (FOR EIL TYPE-II GRATING ONLY)
18	PARCO ENGINEERS (MUMBAI) PVT LTD	Mumbai	9819278530, 9819278530	info@parcoengineers.com	TYPE-I & TYPE-II
19	PINAX STEEL INDUSTRIES PVT LTD	KOLKATA	..		BRAND NAME-PINAX GRATINGS
20	PREMIER POWER PRODUCTS PVT LTD	KOLKATA	..		BRAND NAME-PREMIER GRATINGS
21	RATAN PROJECTS & ENGINEERING CO.PVT LTD.	KOLKATA	..	sales@ratans.com	BRAND NAME- RATAN GRATINGS
22	SIGMA GALVANIZING PVT LTD	NAVI MUMBAI	..	NA	TYPE-I & TYPE-II
23	TECH-FAB INDUSTRIES	AMBERNATH (E) MAHARASHTRA	+91 7738995869, , 7738995869	sales@techfabind.com	BRAND NAME- TECH-FAB GRATINGS TYPE-I & TYPE-II
24	VINFAB GRATINGS	MUMBAI	..		BRAND NAME-VINFAB GRATINGS
25	WHEELS INDIA LTD	CHENNAI	..	NA	PRODUCT NAME-WHEELS GRATINGS
<b>Item : H. INTEGRAL CRYSTALLINE ADMIXTURE FOR WATERPROOFING TREATMENT TO CONCRETE (AS PER CPWD SPECIFICATION 2019, CLAUSE 22.14)</b>					
1	APPLE CHEMIE INDIA PVT LTD	NAGPUR	+919607004014,3050	www.applechemie.com	PRODUCT NAME-AC CRSYTACRETE
2	CHRYSO INDIA PRIVATE LIMITED	NAVI MUMBAI	022 2768 5991, ,	info.india@chryso.com	PRODUCT NAME-CHRYSO CWA10
3	FOSROC CHEMICALS (INDIA) PVT LTD	BENGALURU	+91 8042521900, ,	enquiry.india@fosroc.com	PRODUCT NAME-CONPLAST CRYSTALLINE
4	KRYTON BUILDMAT CO PVT LTD	GURUGRAM	0124 4381 140, ,	info@kryton.in	PRODUCT NAME-KRYSTOL INTERNAL MEMBRANE "KIM"
5	PENETRON INFRA PRODUCTS PVT LTD	NAVI MUMBAI	+91 7738444041, ,	inquiry@penetron.co.in	PRODUCT NAME-PENETRON ADMIX
6	SHALIMAR SEAL & TAR PRODUCTS PVT LTD	JAIPUR	+91 9829065184, ,	ocrd@shalimartar.com	PRODUCT NAME-KAVASSU CRYSTALLOMIX-PG
7	XYPEX	GAUTAM BUIDH NAGAR	0120-4090900, ,	info@xypex.in	PRODUCT NAME-XYPEX ADMIX C-2000 NF

# GENERAL CIVIL SUB-VENDOR LIST

**PROJECT : PMC & EPCM SERVICES FOR POLYPROPYLENE  
PROJECT OF BPCL KOCHI REFINERY**

**OWNER : M/S BHARAT PETROLEUM CORPORATION LIMITED**

**JOB NO. : B895**

A	28.02.2025	ISSUED FOR TENDER	BSM	LP	AK
<b>Rev. No</b>	<b>Date</b>	<b>Purpose</b>	<b>Prepared by</b>	<b>Checked by</b>	<b>Approved by</b>

## GENERAL

- 1.1. CONTRACTOR shall necessarily procure all the material / equipment forming permanent part of the unit / plant from OWNER / PMC approved vendors only. This shall include sub-ordered items / components also. The "Approved Vendors" shall be item specific.
- 1.2. OWNER / PMC approved vendor list for the various items is enclosed in this section.
- 1.3. CONTRACTOR may procure material from any of OWNER / PMC approved vendors. However, current validity, holiday status and range of approval as per EIL enlistment letter, workload, stability and solvency need to be verified by the CONTRACTOR with vendor before placement of order. CONTRACTOR is also required to ensure that equipment qualification criteria, specified elsewhere in the bid document, are also simultaneously met.
- 1.4. Vendors on OWNER / PMC holiday list shall not be considered for ordering. CONTRACTOR shall comply with this requirement without any time or cost implication to the OWNER. If a vendor is put on OWNER / PMC's holiday list subsequent to CONTRACTOR placing an order, it shall be CONTRACTOR's responsibility to ensure quality work and timely supply from the vendor.
- 1.5. CONTRACTOR shall make an independent assessment of capability of all the vendors for timely deliveries of material / equipment. Any delays in deliveries by vendor(s) shall not be a cause of schedule and cost implication.
- 1.6. At any stage of the project, if it comes to the notice of OWNER / PMC that CONTRACTOR has procured material / equipment, intentionally or unintentionally whatsoever, from an unapproved vendor and / or items not falling in approved range of vendor(s), the same shall be rejected fort with and CONTRACTOR shall be liable to replace such material / plant / machinery without any schedule and cost implication to the OWNER.
- 1.7. List of vendors appearing anywhere else in the contract document in case of duplication of the items at two or more places shall not be considered by CONTRACTOR and shall be superseded by the vendor list enclosed herewith. And if in this vendor list also, items seem to be duplicated / repeated then CONTRACTOR shall get clarified the issue by OWNER / PMC before proceeding ahead for procurement activity.
- 1.8. It is understood that should the name of vendor be changed due to change in their company or corporate shareholding, OWNER may accept such vendors under its new name with prior approval.

It is understood that should the name of vendor be changed due to change in their company or corporate shareholding, OWNER may accept such vendors under its new name with prior approval.

## 2. GENERAL CIVIL:

For General Civil item supplier List refer Annexure: A (Attached)

Sr No	Supplier Code	Supplier Name	Country	Holiday Description
<b>Item Code : 05AA</b>		<b>Description : FIRE EXTINGUISHERS</b>		
<b>Approved Suppliers</b>				
1	S060	SAFEX FIRE SERVICES LTD.	INDIA	
2	I205	INTIME FIRE APPLIANCES PVT LTD	INDIA	
3	I212	INTEGRATED FIRE PROTECTION PVT. LTD.	INDIA	
4	V072	VIMAL FIRE CONTROLS PVT LTD	INDIA	
5	3785	ASKA EQUIPMENTS PRIVATE LIMITED	INDIA	
6	S081	SUPREMEX EQUIPMENTS	INDIA	
7	F202	FIRE SAFETY DEVICES PVT. LIMITED	INDIA	
8	U185	UNITED FIRE EQUIPMENTS PVT. LTD.	INDIA	
9	K181	KANEX FIRE SOLUTIONS LIMITED	INDIA	
10	B033	BHARAT ENGG. WORKS	INDIA	
11	27521	NATIONAL FIRE FIGHTING MANUFACTURING FZCO (NAFFCO FZCO)	UNITED ARAB EMIRATES	
12	M719	MINIMAX GmbH & Co.KG	GERMANY	

067050051050

Sr No	Supplier Code	Supplier Name	Country	Holiday Description
<b>Item Code : 05AB</b>		<b>Description : SAFETY SHOWER &amp; EYE WASHER</b>		
<b>Approved Suppliers</b>				
1	4063	SAFETY SERVICES	INDIA	
2	F005	FRANCIS LESLIE & CO.	INDIA	
3	U019	UNICARE EMERGENCY EQPT	INDIA	
4	C215	CREATIVE ENGINEERS	INDIA	



067050051050

Sr No	Supplier Code	Supplier Name	Country	Holiday Description
Item Code : 05AF		Description : FIRE HOSE		
<b>Approved Suppliers</b>				
1	3651	INDUSTRIAL COMMERCIAL CORPORATION	INDIA	
2	3646	SUKAN EQUIPMENTS PVT. LTD.	INDIA	
3	N214	NEWAGE FIREFIGHTING CO,LTD.	INDIA	
4	N215	NEWAGE FIRE PROTECTION INDUSTRIES P LTD	INDIA	
5	D144	DEWAS HYDROQUIP PVT LTD	INDIA	



067050051050

Sr No	Supplier Code	Supplier Name	Country	Holiday Description
<b>Item Code : 05AG</b>		<b>Description : FIRE HOSE ACCESSORIES</b>		
<b>Approved Suppliers</b>				
1	A077	ASCO STRUMECH PVT.LTD.	INDIA	
2	S081	SUPREMEX EQUIPMENTS	INDIA	
3	U185	UNITED FIRE EQUIPMENTS PVT. LTD.	INDIA	
4	V072	VIMAL FIRE CONTROLS PVT LTD	INDIA	
5	S313	SHAH BHOGILAL JETHALAL & BROTHERS	INDIA	
6	N214	NEWAGE FIREFIGHTING CO,LTD.	INDIA	
7	N215	NEWAGE FIRE PROTECTION INDUSTRIES P LTD	INDIA	
8	3646	SUKAN EQUIPMENTS PVT. LTD.	INDIA	



067050051050

Sr No	Supplier Code	Supplier Name	Country	Holiday Description
Item Code : 05AK		Description : UNIVERSAL BRANCH PIPE		
<b>Approved Suppliers</b>				
1	S081	SUPREMEX EQUIPMENTS	INDIA	
2	V072	VIMAL FIRE CONTROLS PVT LTD	INDIA	
3	N214	NEWAGE FIREFIGHTING CO,LTD.	INDIA	
4	3646	SUKAN EQUIPMENTS PVT. LTD.	INDIA	
5	S313	SHAH BHOGILAL JETHALAL & BROTHERS	INDIA	
6	N215	NEWAGE FIRE PROTECTION INDUSTRIES P LTD	INDIA	
7	U185	UNITED FIRE EQUIPMENTS PVT. LTD.	INDIA	



067050051050

Sr No	Supplier Code	Supplier Name	Country	Holiday Description
<b>Item Code : 05AQ</b>		<b>Description : LANDING VALVES</b>		
<b>Approved Suppliers</b>				
1	U185	UNITED FIRE EQUIPMENTS PVT. LTD.	INDIA	
2	A077	ASCO STRUMECH PVT.LTD.	INDIA	
3	N214	NEWAGE FIREFIGHTING CO,LTD.	INDIA	
4	3646	SUKAN EQUIPMENTS PVT. LTD.	INDIA	
5	N215	NEWAGE FIRE PROTECTION INDUSTRIES P LTD	INDIA	
6	S313	SHAH BHOGILAL JETHALAL & BROTHERS	INDIA	



067050051050

**SUB VENDOR LIST**  
**STATIC & MACHINERY EQUIPMENT**  
**(PACKAGED EQUIPMENT)**

**FOR**  
**MISCELLANEOUS BUILDING WORKS FOR PP**  
**PROJECT**

**TENDER No. B895-999-81-46-CF-T-8202**

<b>PROJECT</b>	<b>:</b>	<b>PMC AND EPCM SERVICES FOR POLYPROPYLENE PROJECT AT BPCL KOCHI REFINERY</b>
<b>OWNER</b>	<b>:</b>	<b>BHARAT PETROLEUM CORPORATION LIMITED</b>
<b>PMC/EPCM</b>	<b>:</b>	<b>ENGINEERS INDIA LIMITED</b>
<b>EIL JOB No.</b>	<b>:</b>	<b>B895</b>

0	05.03.2026	ISSUED WITH TENDER	NJ	DV	SPC
<b>Rev. No</b>	<b>Date</b>	<b>Purpose</b>	<b>Prepared by</b>	<b>Checked by</b>	<b>Approved by</b>

### GENERAL NOTES

- 1.0 VENDOR shall procure all the material / equipment forming permanent part of the package from OWNER / PMC approved vendors. This shall include sub- ordered items / components also. The "Approved Vendors" shall be item specific.
- 2.0 OWNER / PMC approved vendor list for the various items is enclosed in this section.
- 3.0 VENDOR to procure material from any of OWNER / PMC approved vendors. However, current validity, holiday status and range of approval as per EIL enlistment letter need to be verified by the VENDOR with vendor before placement of order.
  - i. VENDOR shall also verify the work load, stability and solvency status of the vendor prior to placement of order.
  - ii. Vendors on OWNER/PMC holiday list shall not be considered for ordering, which need to be verified by the VENDOR prior to placement of order. VENDOR shall comply with this requirement without any time or cost implication to Owner.
  - iii. In case any vendor is registered with EIL as an approved vendor subsequent to release of this vendor list, the same may also be considered by the VENDOR with prior intimation to OWNER/PMC and obtain their concurrence prior to placement of order.
  - iv. Wherever job specification calls for requisite proven track record, the same shall be complied and necessary documents to be submitted for EIL approval prior to ordering.

VENDOR shall comply with this requirement without any time or cost implication to the OWNER. If a vendor is put on OWNER / PMC's holiday list subsequent to VENDOR placing an order, it shall be VENDOR's responsibility to ensure quality work and timely supply from the vendor.
- 4.0 For items not covered in the above list, the vendor list shall be approved by OWNER/ PMC prior to placement of order by VENDOR. VENDOR shall list down the proposed suppliers/vendors for such items and submit the same for OWNER/PMC's review / approval along with necessary documents/credentials. Non-acceptance of a particular proposed vendor due to any reasons whatsoever shall not be a cause of schedule and cost implication.
- 5.0 VENDOR shall make an independent assessment of capability of all the vendors for timely deliveries of material / equipment. Any delays in deliveries by vendor(s) shall not be a cause of schedule and cost implication.
- 6.0 At any stage of the project, if it comes to the notice of OWNER / PMC that VENDOR has procured material / equipment, intentionally or unintentionally whatsoever, from an unapproved vendor and/or items not falling in approved range of vendor(s), the same shall be rejected forthwith and VENDOR shall be liable to replace such material / plant/ without any schedule and cost implication to the OWNER.
- 7.0 In case the VENDOR is not able to source the equipment from the supplier list specified in this document, due to some valid reasons /constraints, then, they may suggest the make of equipment other than specified in the requisition during order

execution. The alternate make of Equipment will be evaluated post order, based on the satisfactory track record to be furnished by the Package Vendor. However, Owner/ PMC reserves the right to accept / reject the alternate vendor. For mechanical equipment/packages, the sub vendor shall have supplied minimum Two (2) nos. of equipment in similar service during last Ten (10) years which shall be in satisfactory operation for minimum one (1) year. However, owner/PMC reserves the right to accept/reject the alternate vendor.

- 8.0 It is understood that name of the Vendor should be changed due to change in their Company or Corporate shareholding, OWNER may accept such Vendors under its new name with prior approval.

Any such approval shall however, not absolve the VENDOR from any of his obligations under the contract; neither shall any such approval signify nominations or instruction to use such a vendor. All approved vendors are deemed to have been freely chosen by the VENDOR at his own risk.

**Annexure-1**

Sub Vendor list for the execution of the entire work of design, engineering, equipment selection, installation, commissioning and performance testing of equipment/ HVAC systems

**Item Code : 06AA**

Sr No	Supplier Code	Supplier Name	Country	Holiday Description
<b>Item Code : 06AA</b>		<b>Description : HVAC SYSTEM- CENTRAL AIR CONDITIONING</b>		
<b>Approved Suppliers</b>				
1	S461	S K SYSTEMS PVT LTD	INDIA	
2	3678	ROOTS COOLING SYSTEMS PVT. LTD.	INDIA	
3	E178	VERTIV ENERGY PRIVATE LIMITED	INDIA	
4	B029	BLUE STAR LTD	INDIA	
5	4180	AIR PERFECTION	INDIA	
6	3886	PURVI ENGINEERS INDIA PVT LTD	INDIA	
7	3962	ANEMO PROJECTS PVT LTD	INDIA	
8	4355	TAP ENGINEERING	INDIA	

**Annexure-2A**

Sub vendor list for sub components / equipment part of HVAC system

SI No.	Item	Supplier Name	Remarks
1			
i	CHILLER PACKAGE/ CONDENSING UNIT	Blue Star	
ii		Carrier	
iii		Daikin	
iv		Hitachi	
v		JCI (York)	
vi		Kirloskar	
vii		LG	
viii		Trane	
ix		Voltas	
2			
i	PACKAGED UNIT	Blue Star	
ii		Carrier	
iii		Trane	
iv		Vertiv (Emerson)	
v		Voltas	
3			
i	PRECISION PACKAGED UNIT	Schneider	
ii		Stulz	
iii		Vertiv (Emerson)	
4			
i	VRF/VRV UNIT	Blue Star	
ii		Carrier	
iii		Daikin	
iv		Hitachi	
v		LG	
vi		Mitsubishi Electric	
vii		Samsung	
viii		Toshiba	
ix		Voltas	
5			
i	SPLIT/ WINDOW AIR-CONDITIONER	Blue Star	
ii		Carrier	
iii		Daikin	
iv		Haier	
v		Hitachi	
vi		LG	
vii		Llyods	
viii		Mitshubishi	
ix		O-General	

x		Panasonic	
xi		Samsung	
xii		Sharp	
xiii		Videocon	
xiv		Voltas	
6			
i	CENTRIFUGAL FAN FOR AHU & CHEMICAL FILTER UNIT	Air Control & Chemical Engg. Co. Ltd.	
ii		Batliboi Environmental Engg. Limited	
iii		FlaktGroup India Pvt. Ltd.	
iv		Greenheck	
v		Kruger	
vi		Marathon Electric Motors (India) Ltd.	
vii		Nicotra	
viii		Patels Airflow Ltd.	
ix		Rosenberg	
x		ZIEHL-ABEGG India Pvt Ltd.	
7			
i	PRE & FINE FILTER	American Air Filter (AAF)	
ii		Airtech	
iii		Anfilco	
iv		Dyna	
v		Fine Airsys	
vi		Puromatic Filter	
vii		Tenacity	
viii		Thermadyne	
8			
i	DIFFUSER/ GRILL/ VOLUME CONTROL DAMPER	Air Master	
ii		Caryaire	
iii		Dynacraft	
iv		Systemair (Ravistar)	
9			
i	COMBINED FIRE AND SMOKE DAMPER	Caryaire	
ii		Greenheck	
iii		Ruskinititus	
iv		TSC Instruments	
10			
i	DAMPER ACTUATOR	Belimo	
ii		Danfoss	
iii		Honeywell	
iv		Johnson Controls	
v		Siemens	
11			
i	2-WAY/ 3-WAY MODULATING VALVE	Belimo	
ii		Danfoss	
iii		Honeywell	

iv		Johnson Controls	
v		Siemens	
12			
i	MODULATING MOTOR WITH PROP. THERMOSTAT	Belimo	
ii		Danfoss	
iii		Honeywell	
iv		Johnson Controls	
v		Siemens	
13			
i	HUMIDISTAT	Honeywell	
ii		Johnson Controls	
iii		Rapid Cool	
iv		Sauter	
v		Siemens	
vi		Sushma & Co. (Electricals)	
14			
i	CHEMICAL FILTER UNIT ASSEMBLER	American Air Filter (AAF)	
ii		Bry Air	
iii		Camfil	
iv		Purafil	
v		Rehoboth Enviro Systems Pvt Ltd. (Caryaire, Flaktwood)	
15			
i	CHEMICAL FILTER MEDIA	Camfil	
ii		Freudenberg	
iii		Purafil	
iv		SAAF (AAF)	
16			
i	EXHAUST FAN (for Plant Room Ventilation)	Advance Ventilation	
ii		Caryaire	
iii		Crompton	
iv		GEC	
v		Kruger	
vi		Marathon	
vii		Nicotra	
viii		S K System	
ix		Systemair	
17			
i	INLINE FAN	Caryaire	
ii		Greenheck	
iii		Humidin	
iv		Kruger	
v		Nicotra	
vi		Systemair	
vii		Wolter	

18			
i	CENTRIFUGAL FAN FOR VEN. & PR. SYSTEM AND AIR WASHER	Advance Ventilation	
ii		Air Control & Chemical Engg. Co. Ltd.	
iii		Batliboi Environmental Engg. Limited	
iv		FlaktGroup India Pvt. Ltd.	
v		Greenheck	
vi		Kruger	
vii		Marathon Electric Motors (India) Ltd.	
viii		Nicotra	
ix		Patels Airflow Ltd.	
x		S. K. System	
19			
i	AIR WASHER	Carrier	
ii		Citizen	
iii		Edgetech	
iv		FlaktGroup India Pvt. Ltd.	
v		Humidin	
vi		Systemair	
vii		Trane	
viii		Zeco	
20			
i	GI SHEET & GI Pipe and MS Pipe	Jindal	
ii		SAIL	
iii		Tata	
21			
i	BEARING & PLUMMER BLOCK	FAG	
ii		NBC	
iii		NTN	
iv		SKF	
v		Timken	
22			
i	PRESSURE RELIEF DAMPERS	Airflow Engineers	
ii		Caryaire	
iii		Cosmos	
iv		Systemair	
v		Trox	

For list of Sub Vendors of Centrifugal Pumps (Horizontal GWS), AHU & Fan Coil Unit, Gate Valve (Cast), Gate Valve (Forged), Check Valve (Cast), Check Valve (Forged), Ball Valve (Non-Fire Safe CCS), Butterfly Valve (Double Offset and Concentric), **Refer Annexure-2B to Sub Vendor List (Doc No. B895-999-80-42-VL-8202) attached with this document**

Sr No	Supplier Code	Supplier Name	Country	Holiday Description
Item Code : 04AC		Description : PUMP-CENT.HOR(GWS)		
<b>Approved Suppliers</b>				
1	T535	FLOWSERVE(THOMPSONS KELLY&LEWIS PTY LTD)	AUSTRALIA	
2	F635	FLOWSERVE CORPORATION (FORMERLY I571)	UNITED STATES	
3	S014	SU MOTORS PVT LTD	INDIA	
4	3629	RUHRPUMPEN INDIA PRIVATE LIMITED	INDIA	
5	3767	KSB LIMITED	INDIA	
6	K018	KSB LIMITED	INDIA	
7	3804	FLOWMORE LIMITED	INDIA	
8	3760	C.R.I. PUMPS PRIVATE LIMITED	INDIA	
9	3739	KSB LIMITED	INDIA	
10	R611	RUHRPUMPEN GMBH(FORMERLY THYSSENT509)	GERMANY	
11	S744	SULZER PUMPS (US) INC	UNITED STATES	
12	G510	GOULDS PUMPS INC	UNITED STATES	
13	4272	RUHRPUMPEN INDIA PRIVATE LIMITED	INDIA	
14	M013	WILO MATHER AND PLATT PUMPS PVT. LTD.	INDIA	
15	K003	KIRLOSKAR BROTHERS LTD	INDIA	
16	4128	SULZER PUMPS INDIA PRIVATE LIMITED	INDIA	
17	F127	FLOWMORE LIMITED	INDIA	
18	4260	VARAT PUMP & MACHINERY PVT. LTD.	INDIA	
19	F156	FLOWSERVE INDIA CONTROLS PVT LTD	INDIA	
20	I198	ITT CORPORATION INDIA PVT LTD	INDIA	
21	3863	WILO MATHER AND PLATT PUMPS PVT. LTD.	INDIA	
22	S401	SULZER PUMPS INDIA PRIVATE LIMITED	INDIA	
23	W012	WPIL LTD	INDIA	
24	S065	SAM TURBO INDUSTRYPVT. LTD(ENQ-ACE MKTG)	INDIA	
25	T756	TMP S.P.A TERMOMECCANICA POMPE	ITALY	
26	S684	SHIN NIPPON MACHINERY CO LTD	JAPAN	
27	D501	DMW CORPORATION	JAPAN	
28	E501	EBARA CORPORATION (JAPAN)	JAPAN	
29	27455	HYOSUNG GOODSPRINGS INC.	KOREA, PEOPLE'S DEMOCRATIC REPUBLIC OF	
30	27505	RUHRPUMPEN S.A DE C.V	MEXICO	
31	C725	CLYDE UNION LIMITED (FRMLY T722 & W518)	UNITED KINGDOM	

Sr No	Supplier Code	Supplier Name	Country	Holiday Description
<b>Item Code : 06AF</b>		<b>Description : AIR HANDLING &amp; FAN COIL UNIT</b>		
<b>Approved Suppliers</b>				
1	E230	EDGETECH AIR SYSTEMS PVT LTD	INDIA	
2	3678	ROOTS COOLING SYSTEMS PVT. LTD.	INDIA	
3	4015	ZECO AIRCON LTD	INDIA	



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Sr No	Supplier Code	Supplier Name	Country	Holiday Description
<b>Item Code : 50AA</b>		<b>Description : VALVE GATE CAST</b>		
<b>Approved Suppliers</b>				
1	4119	SAP INDUSTRIES LTD	INDIA	
2	H108	HAWA ENGINEERS LTD	INDIA	
3	P514	PETROL VALVES SPA	ITALY	
4	K620A	KITZ CORPORATION	JAPAN	
5	A715	AMPO, S.COOP	SPAIN	
6	J555	JC FABRICA DE VALVULAS S.A.	SPAIN	
7	27468	CAMTECH MANUFACTURING FZCO	UNITED ARAB EMIRATES	
8	F636A	FLOWSERVE PTE(MFR. EDWARD)	UNITED STATES	
9	27530	SUFA TECHNOLOGY INDUSTRY CO.,LTD.CNNC	CHINA	
10	S850	SHENJIANG VALVE CO LTD	CHINA	
11	H656	HANGZHOU NEW TIME VALVE CO. LTD.	CHINA	
12	N626	NEWAY VALVE (SUZHOU) CO LTD	CHINA	
13	27523	SNY VALVE (YANCHENG) CO., LTD.	CHINA	
14	B725	BOTELI VALVE GROUP CO.	CHINA	
15	S822	SUZHOU VIZA VALVE CO.,LTD	CHINA	
16	M678	MSA A.S.	CZECH REPUBLIC	
17	B680	BOUVIER DARLING	FRANCE	
18	S751	STRACK-MASCHINENBAU GMBH 067049051055	GERMANY	
19	T747	TH. JANSEN-ARMATUREN GMBH (FRMLY F604)	GERMANY	
20	Z507	Z & J TECHNOLOGIES GMBH	GERMANY	
21	4006	FLOWJET VALVES PVT LTD	INDIA	
22	4003	DL VALVE PRIVATE LIMITED	INDIA	
23	F138	FORWARD ALLOYS & CASTINGS	INDIA	
24	4326	CESARE BONETTI INTERNATIONAL PVT. LTD.	INDIA	
25	3933	LEADER VALVES LTD	INDIA	
26	S315	SHALIMAR VALVES PVT LTD	INDIA	
27	3636	STEEL STRONG VALVES INDIA PVT LTD	INDIA	
28	A018	AV VALVES LIMITED	INDIA	
29	4132	AEGIS VALVES INDUSTRIES PRIVATE LIMITED	INDIA	
30	L001	L & T VALVES LIMITED	INDIA	
31	F065	FLUIDLINE VALVES CO.PVT LTD	INDIA	
32	E211	EXPERT VALVE AND EQUIPMENT PRIVATE LIMITED	INDIA	
33	4031	ZED VALVES CO. PVT. LTD	INDIA	
34	N016	NITON VALVE INDUSTRIES PRIVATE LTD .	INDIA	
35	4365	VALTECH INDUSTRIES	INDIA	
36	4065	LIBRA VALVES INDIA PRIVATE LIMITED	INDIA	
37	3764	VITON ENGINEERS PRIVATE LIMITED	INDIA	
38	O035	OSWAL INDUSTRIES LTD	INDIA	
39	4348	PERITUS CONTROL EQUIPMENTS PVT. LTD.	INDIA	

Sr No	Supplier Code	Supplier Name	Country	Holiday Description
<b>Item Code : 50AA</b>		<b>Description : VALVE GATE CAST</b>		
40	3616	DEMBLA VALVES LIMITED	INDIA	
41	4285	JAYANT ENGINEERING & MARKETING PVT. LTD	INDIA	
42	H175	HAWA VALVES (INDIA) PVT LTD	INDIA	
43	B193	BELGAUM AQUA VALVES PVT. LTD.	INDIA	
44	4255	OCEAN VALVES MANUFACTURING COMPANY	INDIA	
45	P199	PANCHVATI VALVES & FLANGES PVT LTD	INDIA	
46	S070	SAKHI ENGINEERS PVT. LTD.	INDIA	
47	3593	Velan Valves India Pvt Ltd	INDIA	
48	M227	MH VALVES PVT LTD.	INDIA	
49	3640	FLOTEK INDUSTRIES	INDIA	
50	N061	NSSL PVT. LTD. (NECO SCHUBERT & SALZER)	INDIA	
51	S360	STEEL STRONG VALVES INDIA PVT LTD	INDIA	
52	3817	HI TECH BUTTERFLY VALVES INDIA PVT LTD	INDIA	
53	4009	NITON VALVE INDUSTRIES PRIVATE LTD .	INDIA	
54	3991	REGENT FLOWCHEM EQUIPMENTS PVT LTD	INDIA	
55	G186	GM ENGINEERING PVT. LTD.	INDIA	
56	4295	VALVE TECH INDUSTRIES	INDIA	
57	T238	TS FLOW CONTROLS PRIVATE LIMITED	INDIA	
58	3721	M/S. VALVINOX S.R.L. INDIA PVT. LTD.	INDIA	
59	3982	INTEGRAL PROCESS CONTROLS INDIA PVT. LTD.	INDIA	
60	3705	NUTECH CONTROLS	INDIA	
61	B015	BHARAT HEAVY ELECTRICALS LIMITED-TIRUCHIRAPALLI	INDIA	
62	4346	VIBA FLUID CONTROL	INDIA	
63	4106	PANCHVATI VALVES & FLANGES PVT LTD	INDIA	
64	4042	2L ENGINEERS	INDIA	
65	4200	SHALIMAR VALVES PVT LTD	INDIA	
66	3889	NORFLOW CONTROLS	INDIA	
67	M295	MICON ENGINEERS (HUBLI) PVT LTD	INDIA	
68	3623	NILON VALVES PRIVATE LIMITED	INDIA	
69	W092	BDK VALVE PRIVATE LIMITED	INDIA	
70	K088	KSB LIMITED	INDIA	
71	4201	INTEGRAL PROCESS CONTROLS INDIA PVT LTD	INDIA	
72	A389	AMPO VALVES INDIA PVT LTD	INDIA	

Sr No	Supplier Code	Supplier Name	Country	Holiday Description
<b>Item Code : 50AD</b>		<b>Description : VALVE GATE FORGED</b>		
<b>Approved Suppliers</b>				
1	B725	BOTELI VALVE GROUP CO.	CHINA	
2	S315	SHALIMAR VALVES PVT LTD	INDIA	
3	3889	NORFLOW CONTROLS	INDIA	
4	4295	VALVE TECH INDUSTRIES	INDIA	
5	B015	BHARAT HEAVY ELECTRICALS LIMITED-TIRUCHIRAPALLI	INDIA	
6	3616	DEMBLA VALVES LIMITED	INDIA	
7	M227	MH VALVES PVT LTD.	INDIA	
8	3957	KUMARS FORGE AND VALVES PVT. LTD.	INDIA	
9	H108	HAWA ENGINEERS LTD	INDIA	
10	4346	VIBA FLUID CONTROL	INDIA	
11	O035	OSWAL INDUSTRIES LTD	INDIA	
12	3709	JMD ENGINEERING	INDIA	
13	3623	NILON VALVES PRIVATE LIMITED	INDIA	
14	4009	NITON VALVE INDUSTRIES PRIVATE LTD .	INDIA	
15	4065	LIBRA VALVES INDIA PRIVATE LIMITED	INDIA	
16	A018	AV VALVES LIMITED	INDIA	
17	A288	ASSOCIATED TOOLINGS INDIA PVT LTD	INDIA	
18	4106	PANCHVATI VALVES & FLANGES PVT LTD	INDIA	
19	3749	G M VALVE PRIVATE LIMITED	INDIA	
20	B193	BELGAUM AQUA VALVES PVT. LTD.	INDIA	
21	L004	LEADER VALVES LTD	INDIA	
22	3640	FLOTEK INDUSTRIES	INDIA	
23	4003	DL VALVE PRIVATE LIMITED	INDIA	
24	K088	KSB LIMITED	INDIA	
25	S360	STEEL STRONG VALVES INDIA PVT LTD	INDIA	
26	4200	SHALIMAR VALVES PVT LTD	INDIA	
27	P199	PANCHVATI VALVES & FLANGES PVT LTD	INDIA	
28	3636	STEEL STRONG VALVES INDIA PVT LTD	INDIA	
29	V213	VEE TECH VALVES PRIVATE LIMITED	INDIA	
30	F065	FLUIDLINE VALVES CO.PVT LTD	INDIA	
31	L001	L & T VALVES LIMITED	INDIA	
32	N016	NITON VALVE INDUSTRIES PRIVATE LTD .	INDIA	
33	4365	VALTECH INDUSTRIES	INDIA	
34	3982	INTEGRAL PROCESS CONTROLS INDIA PVT. LTD.	INDIA	
35	M295	MICON ENGINEERS (HUBLI) PVT LTD	INDIA	
36	3705	NUTECH CONTROLS	INDIA	
37	3593	Velan Valves India Pvt Ltd	INDIA	
38	W092	BDK VALVE PRIVATE LIMITED	INDIA	
39	D679	DOUGLAS CHERO SPA	ITALY	
40	B690	BFE SRL	ITALY	

Sr No	Supplier Code	Supplier Name	Country	Holiday Description
<b>Item Code : 50AD</b>		<b>Description : VALVE GATE FORGED</b>		
41	O531	OMB VALVES	ITALY	
42	J555	JC FABRICA DE VALVULAS S.A.	SPAIN	



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Sr No	Supplier Code	Supplier Name	Country	Holiday Description
<b>Item Code : 50CA</b>		<b>Description : VALVE CHECK CAST</b>		
<b>Approved Suppliers</b>				
1	4119	SAP INDUSTRIES LTD	INDIA	
2	N061	NSSL PVT. LTD. (NECO SCHUBERT & SALZER)	INDIA	
3	L001	L & T VALVES LIMITED	INDIA	
4	A018	AV VALVES LIMITED	INDIA	
5	S315	SHALIMAR VALVES PVT LTD	INDIA	
6	3616	DEMBLA VALVES LIMITED	INDIA	
7	3933	LEADER VALVES LTD	INDIA	
8	M227	MH VALVES PVT LTD.	INDIA	
9	F065	FLUIDLINE VALVES CO.PVT LTD	INDIA	
10	4200	SHALIMAR VALVES PVT LTD	INDIA	
11	4255	OCEAN VALVES MANUFACTURING COMPANY	INDIA	
12	4009	NITON VALVE INDUSTRIES PRIVATE LTD .	INDIA	
13	4042	2L ENGINEERS	INDIA	
14	4006	FLOWJET VALVES PVT LTD	INDIA	
15	B193	BELGAUM AQUA VALVES PVT. LTD.	INDIA	
16	4031	ZED VALVES CO. PVT. LTD	INDIA	
17	3817	HI TECH BUTTERFLY VALVES INDIA PVT LTD	INDIA	
18	H108	HAWA ENGINEERS LTD	INDIA	
19	4346	VIBA FLUID CONTROL	INDIA	
20	P514	PETROL VALVES SPA	ITALY	
21	A715	AMPO, S.COOP	SPAIN	
22	J555	JC FABRICA DE VALVULAS S.A.	SPAIN	
23	27468	CAMTECH MANUFACTURING FZCO	UNITED ARAB EMIRATES	
24	S850	SHENJIANG VALVE CO LTD	CHINA	
25	B725	BOTELI VALVE GROUP CO.	CHINA	
26	N626	NEWAY VALVE (SUZHOU) CO LTD	CHINA	
27	27530	SUFA TECHNOLOGY INDUSTRY CO.,LTD.CNNC	CHINA	
28	27523	SNY VALVE (YANCHENG) CO., LTD.	CHINA	
29	S822	SUZHOU VIZA VALVE CO.,LTD	CHINA	
30	H656	HANGZHOU NEW TIME VALVE CO. LTD.	CHINA	
31	M678	MSA A.S.	CZECH REPUBLIC	
32	G186	GM ENGINEERING PVT. LTD.	INDIA	
33	3889	NORFLOW CONTROLS	INDIA	
34	H175	HAWA VALVES (INDIA) PVT LTD	INDIA	
35	3764	VITON ENGINEERS PRIVATE LIMITED	INDIA	
36	4365	VALTECH INDUSTRIES	INDIA	
37	3640	FLOTEK INDUSTRIES	INDIA	
38	S070	SAKHI ENGINEERS PVT. LTD.	INDIA	
39	4106	PANCHVATI VALVES & FLANGES PVT LTD	INDIA	
40	S360	STEEL STRONG VALVES INDIA PVT LTD	INDIA	

Sr No	Supplier Code	Supplier Name	Country	Holiday Description
<b>Item Code : 50CA</b>		<b>Description : VALVE CHECK CAST</b>		
41	M295	MICON ENGINEERS (HUBLI) PVT LTD	INDIA	
42	4285	JAYANT ENGINEERING & MARKETING PVT. LTD	INDIA	
43	4348	PERITUS CONTROL EQUIPMENTS PVT. LTD.	INDIA	
44	A389	AMPO VALVES INDIA PVT LTD	INDIA	
45	N016	NITON VALVE INDUSTRIES PRIVATE LTD .	INDIA	
46	3721	M/S. VALVINOX S.R.L. INDIA PVT. LTD.	INDIA	
47	T238	TS FLOW CONTROLS PRIVATE LIMITED	INDIA	
48	3593	Velan Valves India Pvt Ltd	INDIA	
49	4295	VALVE TECH INDUSTRIES	INDIA	
50	3705	NUTECH CONTROLS	INDIA	
51	4132	AEGIS VALVES INDUSTRIES PRIVATE LIMITED	INDIA	
52	O035	OSWAL INDUSTRIES LTD	INDIA	
53	K088	KSB LIMITED	INDIA	
54	3982	INTEGRAL PROCESS CONTROLS INDIA PVT. LTD.	INDIA	
55	4065	LIBRA VALVES INDIA PRIVATE LIMITED	INDIA	
56	F138	FORWARD ALLOYS & CASTINGS	INDIA	
57	3636	STEEL STRONG VALVES INDIA PVT LTD	INDIA	
58	P199	PANCHVATI VALVES & FLANGES PVT LTD	INDIA	
59	B015	BHARAT HEAVY ELECTRICALS LIMITED-TIRUCHIRAPALLI	INDIA	
60	F106	FLOW CHEM INDUSTRIES	INDIA	
61	3623	NILON VALVES PRIVATE LIMITED	INDIA	
62	W092	BDK VALVE PRIVATE LIMITED	INDIA	

Sr No	Supplier Code	Supplier Name	Country	Holiday Description
<b>Item Code : 50CD</b>		<b>Description : VALVE CHECK FORGED</b>		
<b>Approved Suppliers</b>				
1	3593	Velan Valves India Pvt Ltd	INDIA	
2	4295	VALVE TECH INDUSTRIES	INDIA	
3	3616	DEMBLA VALVES LIMITED	INDIA	
4	L004	LEADER VALVES LTD	INDIA	
5	O035	OSWAL INDUSTRIES LTD	INDIA	
6	A288	ASSOCIATED TOOLINGS INDIA PVT LTD	INDIA	
7	S315	SHALIMAR VALVES PVT LTD	INDIA	
8	B193	BELGAUM AQUA VALVES PVT. LTD.	INDIA	
9	3957	KUMARS FORGE AND VALVES PVT. LTD.	INDIA	
10	B015	BHARAT HEAVY ELECTRICALS LIMITED-TIRUCHIRAPALLI	INDIA	
11	3705	NUTECH CONTROLS	INDIA	
12	3749	G M VALVE PRIVATE LIMITED	INDIA	
13	F178	FLOVEL VALVES PVT.LTD.	INDIA	
14	D679	DOUGLAS CHERO SPA	ITALY	
15	B690	BFE SRL	ITALY	
16	O531	OMB VALVES	ITALY	
17	J555	JC FABRICA DE VALVULAS S.A.	SPAIN	
18	F636A	FLOWSERVE PTE(MFR. EDWARD) 067049051055	UNITED STATES	
19	B725	BOTELI VALVE GROUP CO.	CHINA	
20	M227	MH VALVES PVT LTD.	INDIA	
21	M295	MICON ENGINEERS (HUBLI) PVT LTD	INDIA	
22	N016	NITON VALVE INDUSTRIES PRIVATE LTD .	INDIA	
23	4106	PANCHVATI VALVES & FLANGES PVT LTD	INDIA	
24	V213	VEE TECH VALVES PRIVATE LIMITED	INDIA	
25	H108	HAWA ENGINEERS LTD	INDIA	
26	3889	NORFLOW CONTROLS	INDIA	
27	P199	PANCHVATI VALVES & FLANGES PVT LTD	INDIA	
28	3982	INTEGRAL PROCESS CONTROLS INDIA PVT. LTD.	INDIA	
29	F065	FLUIDLINE VALVES CO.PVT LTD	INDIA	
30	4365	VALTECH INDUSTRIES	INDIA	
31	L001	L & T VALVES LIMITED	INDIA	
32	S360	STEEL STRONG VALVES INDIA PVT LTD	INDIA	
33	3623	NILON VALVES PRIVATE LIMITED	INDIA	
34	3636	STEEL STRONG VALVES INDIA PVT LTD	INDIA	
35	4003	DL VALVE PRIVATE LIMITED	INDIA	
36	3709	JMD ENGINEERING	INDIA	
37	W092	BDK VALVE PRIVATE LIMITED	INDIA	
38	4346	VIBA FLUID CONTROL	INDIA	
39	K088	KSB LIMITED	INDIA	
40	4200	SHALIMAR VALVES PVT LTD	INDIA	

Sr No	Supplier Code	Supplier Name	Country	Holiday Description
<b>Item Code : 50CD</b>		<b>Description : VALVE CHECK FORGED</b>		
41	A018	AV VALVES LIMITED	INDIA	
42	3640	FLOTEK INDUSTRIES	INDIA	
43	4009	NITON VALVE INDUSTRIES PRIVATE LTD .	INDIA	



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Sr No	Supplier Code	Supplier Name	Country	Holiday Description
<b>Item Code : 50DB</b>		<b>Description : VALVE BALL NON FIRE SAFE-CCS</b>		
<b>Approved Suppliers</b>				
1	B725	BOTELI VALVE GROUP CO.	CHINA	
2	A715	AMPO, S.COOP	SPAIN	
3	S850	SHENJIANG VALVE CO LTD	CHINA	
4	N626	NEWAY VALVE (SUZHOU) CO LTD	CHINA	
5	M576	MECA FRANCE S.A.	FRANCE	
6	F627	FRANZ SCHUCK GMBH (FORMERLY BORSIG-B506)	GERMANY	
7	4042	2L ENGINEERS	INDIA	
8	R199	VALMET FLOW CONTROL PRIVATE LIMITED	INDIA	
9	L004	LEADER VALVES LTD	INDIA	
10	G186	GM ENGINEERING PVT. LTD.	INDIA	
11	4348	PERITUS CONTROL EQUIPMENTS PVT. LTD.	INDIA	
12	D037	DEMBLA VALVES LTD.	INDIA	
13	B193	BELGAUM AQUA VALVES PVT. LTD.	INDIA	
14	4031	ZED VALVES CO. PVT. LTD	INDIA	
15	M295	MICON ENGINEERS (HUBLI) PVT LTD	INDIA	
16	R153	REYNOLD VALVES LTD	INDIA	
17	V213	VEE TECH VALVES PRIVATE LIMITED	INDIA	
18	H108	HAWA ENGINEERS LTD	INDIA	
19	O035	OSWAL INDUSTRIES LTD	INDIA	
20	3605	Petro Valves Pvt Ltd	INDIA	
21	3889	NORFLOW CONTROLS	INDIA	
22	M094	MICROFINISH VALVES PVT LIMITED	INDIA	
23	F106	FLOW CHEM INDUSTRIES	INDIA	
24	D146	DELVAL FLOW CONTROLS PRIVATE LIMITED	INDIA	
25	M219	MEVADA ENGG.WORKS PVT LTD	INDIA	
26	3840	AIRA EURO AUTOMATION PVT LTD	INDIA	
27	4212	STAR ENGINEERS	INDIA	
28	3616	DEMBLA VALVES LIMITED	INDIA	
29	3933	LEADER VALVES LTD	INDIA	
30	L001	L & T VALVES LIMITED	INDIA	
31	N016	NITON VALVE INDUSTRIES PRIVATE LTD .	INDIA	
32	W092	BDK VALVE PRIVATE LIMITED	INDIA	
33	3636	STEEL STRONG VALVES INDIA PVT LTD	INDIA	
34	F065	FLUIDLINE VALVES CO.PVT LTD	INDIA	
35	4009	NITON VALVE INDUSTRIES PRIVATE LTD .	INDIA	
36	3623	NILON VALVES PRIVATE LIMITED	INDIA	
37	V604	VALBART SRL (A FLOWSERVE COMPANY)	ITALY	
38	V608	VALVITALIA SPA	ITALY	
39	L581	LCM ITALIA SPA	ITALY	
40	C718	CAMERON ITALY SRL (FORM. D659)	ITALY	

Sr No	Supplier Code	Supplier Name	Country	Holiday Description
<b>Item Code : 50DB</b>		<b>Description : VALVE BALL NON FIRE SAFE-CCS</b>		
41	27428	FLUITEK ORSENIGO VALVES S.P.A.	ITALY	
42	Z594	ZA.VE.RO. SRL	ITALY	
43	N633	NSSL ITALIA	ITALY	
44	27446	GALPERTI ENGINEERING AND FLOW CONTROL SPA	ITALY	
45	K620A	KITZ CORPORATION	JAPAN	
46	K649	KUMKANG VALVE MFG CO.LTD	KOREA, REPUBLIC OF	
47	M724	MIR VALVE SDN.BHD.	MALAYSIA	
48	27491	VALVULAS FEVISA S.A.U	SPAIN	
49	J555	JC FABRICA DE VALVULAS S.A.	SPAIN	
50	S822	SUZHOU VIZA VALVE CO.,LTD	CHINA	



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Sr No	Supplier Code	Supplier Name	Country	Holiday Description
<b>Item Code : 50EB</b>		<b>Description : VALVE BUTTERFLY (DOUBLE OFFSET &amp; CONCENTRIC)</b>		
<b>Approved Suppliers</b>				
1	N626	NEWAY VALVE (SUZHOU) CO LTD	CHINA	
2	B729	BRAY CONTROLS	UNITED STATES	
3	L001	L & T VALVES LIMITED	INDIA	
4	C186	CRANE PROCESS FLOW TECHNOLOGIES(INDIA) PRIVATE LTD.	INDIA	
5	V088	EMERSON PROCESS MANAGEMENT (INDIA) PRIVATE LIMITED	INDIA	
6	D037	DEMBLA VALVES LTD.	INDIA	
7	H108	HAWA ENGINEERS LTD	INDIA	
8	3817	HI TECH BUTTERFLY VALVES INDIA PVT LTD	INDIA	
9	3616	DEMBLA VALVES LIMITED	INDIA	
10	F065	FLUIDLINE VALVES CO.PVT LTD	INDIA	
11	3826	ADVANCE VALVES PVT LTD	INDIA	
12	A315	ADVANCE VALVES PVT LTD.	INDIA	
13	F193	FLOWSERVE INDIA CONTROLS PVT LTD.	INDIA	
14	I125	INTERVALVE POONAWALLA PRIVATE LIMITED	INDIA	
15	3640	FLOTEK INDUSTRIES	INDIA	
16	G186	GM ENGINEERING PVT. LTD.	INDIA	
17	4006	FLOWJET VALVES PVT LTD	INDIA	
18	F030	FOURESS ENGINEERING (INDIA) PRIVATE LIMITED	INDIA	
19	4042	2L ENGINEERS	INDIA	
20	3840	AIRA EURO AUTOMATION PVT LTD	INDIA	
21	M015	MASCOT VALVES PVT LIMITED (FMLY VALFLO)	INDIA	
22	3613	BRAY CONTROLS INDIA PVT LTD	INDIA	
23	4031	ZED VALVES CO. PVT. LTD	INDIA	
24	4065	LIBRA VALVES INDIA PRIVATE LIMITED	INDIA	
25	L004	LEADER VALVES LTD	INDIA	
26	W092	BDK VALVE PRIVATE LIMITED	INDIA	
27	D146	DELVAL FLOW CONTROLS PRIVATE LIMITED	INDIA	
28	O538	ORTON S.R.L	ITALY	
29	27468	CAMTECH MANUFACTURING FZCO	UNITED ARAB EMIRATES	
30	S487	STAFFORD CONTROLS PRIVATE LIMITED	INDIA	

**CLIENT : M/s BPCL**

**UNIT : 999**

**PROJECT : PPU & REVAMP OF PFCCU, BPCL-KOCHI**

**EIL JOB NO. : B895**

**DISCIPLINE : ELECTRICAL**

**TENDER NO. : B895-999-81-46-CF-T-8202**

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A	02.04.2026	ISSUED WITH TENDER	NNB	AS	VK
REV. NO	DATE	PURPOSE	PREPARED BY	REVIEWER	APPROVER

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### **PREAMBLE TO VENDOR LIST**

1. OWNER/EIL approved vendor list for Electrical items is enclosed in this section. VENDOR shall necessarily procure all the material/equipment forming permanent part of the unit/plant from OWNER/EIL approved vendor only. This shall include sub ordered items/components also. The "Approved Vendors" shall be item specific.
2. VENDOR may procure material from any of OWNER/EIL approved vendors. However current validity of vendor approval & their approved product range and the conditions imposed while according vendor approval as per EIL enlistment letter shall be verified by the VENDOR before placement of order.
  - VENDOR shall also verify the work load, stability and solvency status of the vendor prior to placement of order.
  - Vendors on OWNER/EIL holiday list shall not be considered for ordering, which need to be verified by the VENDOR prior to placement of order. VENDOR shall comply with this requirement without any time or cost implication to OWNER.
  - In case any vendor is registered with EIL as an approved vendor subsequent to release of this vendor list, the same may also be considered by the VENDOR with prior intimation to OWNER/EIL and obtain their concurrence prior to placement of order.
  - Wherever job specification calls for requisite proven track record, the same shall be complied and necessary documents to be submitted for EIL/Client/Licensor approval prior to ordering.
  - Vendors on OWNER/ PMC holiday list shall not be considered for ordering.

VENDOR shall comply with this requirement without any time or cost implication to the OWNER. If a vendor is put on OWNER/ PMC's holiday list subsequent to VENDOR placing an order, it shall be VENDOR's responsibility to ensure quality work and timely supply from the vendor.
3. Compliance to procurement of material from approved vendors is mandatory and shall be fully complied. No deviation to approved vendor list shall generally be acceptable.
4. For items not covered in the below list, the vendor list shall be approved by OWNER/EIL prior to placement of order by VENDOR. VENDOR shall list down the proposed suppliers/vendors for such items and submit the same for OWNER/EIL's review/approval along with necessary documents/credentials. Non-acceptance of a particular proposed vendor due to any reasons whatsoever shall not be a cause of schedule and cost implication.
5. VENDOR shall have an independent assessment of capability of all the vendors for timely deliveries of material/equipment. Any delays in deliveries by vendor(s) shall not be a cause of schedule and cost implication.
6. At any stage of the project, if it comes to the notice of OWNER/EIL that VENDOR has procured material/equipment, intentionally or unintentionally whatsoever, from an unapproved vendor and/or items not falling in approved product range of vendor(s), then the same shall be rejected forthwith and VENDOR shall be liable to replace such material/plant/machinery within the contract price and without any time/schedule implication.
7. Make of equipment/component of foreign origin other than listed below shall be subject to EIL/BPCL review during detail engineering based on PTR to be submitted by vendor.

Sr No	Supplier Code	Supplier Name	Country	Holiday Description
<b>Item Code : 13BF</b>		<b>Description : LV SWITCHBOARD FIXED TYPE FOR PACKAGE EQUIPMENT</b>		
<b>Approved Suppliers</b>				
1	3780	POSITRONICS PVT LTD	INDIA	
2	3837	MILESTONES SWITCHGEARS PVT LTD	INDIA	
3	Z011	ZENITH ENGINEERING CORP.	INDIA	
4	V124	VIDHYUT CONTROL (INDIA) PVT LTD	INDIA	
5	T114	TRICOLITE ELECTRICAL INDUSTRIES PVT LTD	INDIA	
6	P289	POPULAR SWITCHGEARS PVT LTD	INDIA	
7	N148	NITYA ELECTROCONTROLS PRIVATE LIMITED	INDIA	
8	M264	MAKTEL SYSTEMS	INDIA	
9	E209	ELECTRO ALLIED PRODUCTS	INDIA	
10	A212	ACCUSONIC CONTROLS PVT LTD	INDIA	
11	M138	M.K. ENGINEERS & CONTROLS PVT. LTD.	INDIA	
12	4203	ENGINEERS AND ENGINEERS (ELECTRICALS) PRIVATE LIMITED	INDIA	
13	4007	INTRELEC	INDIA	

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Sr No	Supplier Code	Supplier Name	Country	Holiday Description
<b>Item Code : 13GA</b>		<b>Description : CONTROL STATIONS- WEATHERPROOF</b>		
<b>Approved Suppliers</b>				
1	3706	PHOENIX MECANO INDIA PVT. LTD.	INDIA	
2	3681	FCG POWER INDUSTRIES PVT LTD	INDIA	
3	F024	FLEXPRO ELECTRICALS PVT LTD	INDIA	
4	S158	SUDHIR SWITCHGEARS PVT LTD	INDIA	
5	E024	EX-PROTECTA	INDIA	
6	E111	ELECTRICAL EQUIPMENT CORPORATION	INDIA	
7	T166	TEKNIC ELECTRIC (I) PVT. LTD.	INDIA	
8	B002	BCH ELECTRIC LTD	INDIA	
9	B024	BALIGA LIGHTING EQUIPMENTS (P) LIMITED	INDIA	
10	F036	FLAMEPROOF EQUIPMENTS PVT.LTD	INDIA	
11	4012	TEKMEC SWITCHGEAR & CONTROLS	INDIA	
12	4245	FCG HI-TECH PRIVATE LIMITED	INDIA	
13	G159	PEPPERL & FUCHS MANUFACTURING (INDIA) PRIVATE LIMITED	INDIA	

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Sr No	Supplier Code	Supplier Name	Country	Holiday Description
<b>Item Code : 13JD</b>		<b>Description : MOTOR INDUCTION-MV (INDUSTRIAL TYPE SAFE AREA)</b>		
<b>Approved Suppliers</b>				
1	4157	ROTOMOTIVE POWERDRIVES INDIA LIMITED	INDIA	
2	3668	CG POWER & INDUSTRIAL SOLUTIONS LTD.	INDIA	
3	M282	MARATHON ELECTRIC MOTORS (INDIA) LTD.	INDIA	
4	B048	BHARAT BIJLEE LIMITED	INDIA	
5	4199	MARATHON ELECTRIC MOTORS (INDIA) LTD.	INDIA	
6	L065	LAXMI HYDRAULICS PVT LTD	INDIA	
7	3986	HAVELLS INDIA LTD	INDIA	
8	3940	HEM INDUSTRIES	INDIA	
9	4352	ABB INDIA LIMITED	INDIA	
10	A310	ABB INDIA LTD-FARIDABAD	INDIA	



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Sr No	Supplier Code	Supplier Name	Country	Holiday Description
<b>Item Code : 13JF</b>		<b>Description : MOTOR-INDUCTION-M.V (FLAME PROOF)</b>		
<b>Approved Suppliers</b>				
1	L065	LAXMI HYDRAULICS PVT LTD	INDIA	
2	M282	MARATHON ELECTRIC MOTORS (INDIA) LTD.	INDIA	
3	B048	BHARAT BIJLEE LIMITED	INDIA	
4	A310	ABB INDIA LTD-FARIDABAD	INDIA	
5	3940	HEM INDUSTRIES	INDIA	
6	3668	CG POWER & INDUSTRIAL SOLUTIONS LTD.	INDIA	



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Sr No	Supplier Code	Supplier Name	Country	Holiday Description
<b>Item Code : 13JK</b>		<b>Description : MOTORS - IMPORTED</b>		
<b>Approved Suppliers</b>				
1	W598A	WEGEURO - INDUSTRIA ELECTRICA S.A.	PORTUGAL	
2	G632	GENERAL ELECTRIC CANADA	CANADA	
3	27420	TMEIC CORPORATION	JAPAN	
4	C736	CEMP SRL	ITALY	
5	A661	ASEA BROWN BOVERY LTD (ABB LTD)	SWITZERLAND	
6	T597	TOSHIBA CORPORATION	JAPAN	
7	H510	HITACHI LTD	JAPAN	
8	W598	WEG EQUIPAMENTOS ELETRICOS S.A.	BRAZIL	
9	A717	NIDEC ASI SPA	ITALY	
10	C730	GE ENERGY POWER CONVERSION FRANCE SAS	FRANCE	
11	L603	LLOYD DYNAMOWERKE GMBH & CO. KG	GERMANY	
12	L575	LOHER GMBH	GERMANY	
13	J511	JEUMONT SA / FRAMATONE ANP	FRANCE	
14	H641	HD HYUNDAI ELECTRIC CO. LTD.	KOREA, REPUBLIC OF	

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Sr No	Supplier Code	Supplier Name	Country	Holiday Description
<b>Item Code : 13LA</b>		<b>Description : LIGHTING FIXTURE &amp; ACCESSORIES-HAZARDOUS</b>		
<b>Approved Suppliers</b>				
1	4245	FCG HI-TECH PRIVATE LIMITED	INDIA	
2	3681	FCG POWER INDUSTRIES PVT LTD	INDIA	
3	S158	SUDHIR SWITCHGEARS PVT LTD	INDIA	
4	F036	FLAMEPROOF EQUIPMENTS PVT.LTD	INDIA	
5	K173	KAYSONS TECHNO EQUIPMENTS PVT. LTD.	INDIA	
6	3990	SHREYA EX-TECH PRIVATE LIMITED	INDIA	
7	B024	BALIGA LIGHTING EQUIPMENTS (P) LIMITED	INDIA	
8	F024	FLEXPRO ELECTRICALS PVT LTD	INDIA	



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Sr No	Supplier Code	Supplier Name	Country	Holiday Description
<b>Item Code : 13LC</b>		<b>Description : FLP ELECTRICAL FITTINGS (IMPORTED)</b>		
<b>Approved Suppliers</b>				
1	V548	VICTOR PRODUCTS PLC	UNITED KINGDOM	
2	R506	R STAHL SCHALTGERATE GMBH	GERMANY	



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Sr No	Supplier Code	Supplier Name	Country	Holiday Description
<b>Item Code : 13MA</b>		<b>Description : JUNCTION BOXES (FLAME PROOF)</b>		
<b>Approved Suppliers</b>				
1	4364	SAI INDUSTRIES	INDIA	
2	K173	KAYSONS TECHNO EQUIPMENTS PVT. LTD.	INDIA	
3	3706	PHOENIX MECANO INDIA PVT. LTD.	INDIA	
4	G159	PEPPERL & FUCHS MANUFACTURING (INDIA) PRIVATE LIMITED	INDIA	
5	F024	FLEXPRO ELECTRICALS PVT LTD	INDIA	
6	F036	FLAMEPROOF EQUIPMENTS PVT.LTD	INDIA	
7	4245	FCG HI-TECH PRIVATE LIMITED	INDIA	
8	S158	SUDHIR SWITCHGEARS PVT LTD	INDIA	
9	B024	BALIGA LIGHTING EQUIPMENTS (P) LIMITED	INDIA	
10	R175	R STAHL PVT LTD	INDIA	
11	3681	FCG POWER INDUSTRIES PVT LTD	INDIA	



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Sr No	Supplier Code	Supplier Name	Country	Holiday Description
<b>Item Code : 13MB</b>		<b>Description : LIGHTING &amp; POWER PANELS (FLP)</b>		
<b>Approved Suppliers</b>				
1	K173	KAYSONS TECHNO EQUIPMENTS PVT. LTD.	INDIA	
2	F036	FLAMEPROOF EQUIPMENTS PVT.LTD	INDIA	
3	B024	BALIGA LIGHTING EQUIPMENTS (P) LIMITED	INDIA	
4	F024	FLEXPRO ELECTRICALS PVT LTD	INDIA	
5	3681	FCG POWER INDUSTRIES PVT LTD	INDIA	
6	3706	PHOENIX MECANO INDIA PVT. LTD.	INDIA	
7	3990	SHREYA EX-TECH PRIVATE LIMITED	INDIA	
8	4364	SAI INDUSTRIES	INDIA	
9	4245	FCG HI-TECH PRIVATE LIMITED	INDIA	
10	S158	SUDHIR SWITCHGEARS PVT LTD	INDIA	



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Sr No	Supplier Code	Supplier Name	Country	Holiday Description
<b>Item Code : 13MC</b>		<b>Description : PLUGS/SOCKETS/HANGLAMPS (FLAME PROOF)</b>		
<b>Approved Suppliers</b>				
1	F024	FLEXPRO ELECTRICALS PVT LTD	INDIA	
2	S158	SUDHIR SWITCHGEARS PVT LTD	INDIA	
3	3815	VICTORY LUMINAIRES	INDIA	
4	F036	FLAMEPROOF EQUIPMENTS PVT.LTD	INDIA	
5	B024	BALIGA LIGHTING EQUIPMENTS (P) LIMITED	INDIA	
6	3681	FCG POWER INDUSTRIES PVT LTD	INDIA	
7	K173	KAYSONS TECHNO EQUIPMENTS PVT. LTD.	INDIA	



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Sr No	Supplier Code	Supplier Name	Country	Holiday Description
Item Code : 130C		Description : CABLES-MEDIUM VOLTAGE-POWER-XLPE		
<b>Approved Suppliers</b>				
1	K190A	KEC ASIAN CABLES LIMITED	INDIA	
2	4299	POLYVION CABLES PRIVATE LIMITED	INDIA	
3	4261	TORTEK INDIA PRIVATE LIMITED	INDIA	
4	4262	K C POWERTRACKS	INDIA	
5	4263	TIRUPATI PLASTOMATICS PRIVATE LIMITED	INDIA	
6	4264	SURAJ CABLES (INDIA) PRIVATE LIMITED	INDIA	
7	4265	SVARN INFRATEL PRIVATE LIMITED	INDIA	
8	D012	DELTON CABLES LIMITED	INDIA	
9	4234	LASER POWER & INFRA PRIVATE LIMITED	INDIA	
10	3669	KEI INDUSTRIES LIMITED	INDIA	
11	3814	RR KABEL LIMITED	INDIA	
12	4298	SHRIRAM TELELINK	INDIA	
13	3602	Special Cables Pvt. Ltd.	INDIA	
14	K082	KEI INDUSTRIES LIMITED	INDIA	
15	U003	UNIVERSAL CABLES LTD	INDIA	
16	T124	TORRENT ELECTRICALS LIMITED	INDIA	
17	A132	ASSOCIATED FLEXIBLES & WIRES [P] LTD	INDIA	
18	C145	CORDS CABLE INDUSTRIES LTD	INDIA	
19	S025	SRIRAM CABLES PVT LTD	INDIA	
20	3731	POLYCAB INDIA LIMITED	INDIA	
21	3732	POLYCAB INDIA LIMITED	INDIA	
22	3722	POLYCAB INDIA LIMITED	INDIA	
23	G156	GEMSCAB INDUSTRIES LTD	INDIA	
24	H060	HAVELLS INDIA LTD	INDIA	
25	R179	RAVIN CABLES LTD	INDIA	
26	R203	LKB ENGINEERING PRIVATE LIMITED	INDIA	
27	3969	SHIVPRIYA CABLES PRIVATE LIMITED	INDIA	
28	3854	CHANDRESH CABLES LIMITED	INDIA	
29	S304	SUYOG ELECTRICALS LTD	INDIA	
30	U085	APAR INDUSTRIES LTD	INDIA	
31	4137	INSUCON CABLES AND CONDUCTORS PRIVATE LIMITED	INDIA	
32	4351	UNIVERSAL CABLE MANUFACTURING COMPANY	INDIA	
33	4281	SBEE CABLES INDIA LIMITED	INDIA	
34	4104	ZENIUM CABLES LIMITED	INDIA	
35	4105	ULTRACAB (INDIA) LIMITED	INDIA	
36	3781	POLYCAB INDIA LIMITED	INDIA	
37	3783	POLYCAB INDIA LIMITED	INDIA	
38	3796	PARAMOUNT COMMUNICATIONS LTD	INDIA	
39	4055	DYNAMIC CABLES LIMITED	INDIA	
40	3765	THERMO CABLES LTD.	INDIA	

Sr No	Supplier Code	Supplier Name	Country	Holiday Description
<b>Item Code : 130C</b>		<b>Description : CABLES-MEDIUM VOLTAGE-POWER-XLPE</b>		
41	4001	RAVI INDUSTRIES	INDIA	
42	4163	KLJ PARAFLEX INDIA LIMITED	INDIA	



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Sr No	Supplier Code	Supplier Name	Country	Holiday Description
<b>Item Code : 13OE</b>		<b>Description : CABLES-FIRE ALARM, COMMUNICATION AND CONTROL PAIRED</b>		
<b>Approved Suppliers</b>				
1	E063	ELKAY TELELINKS LTD.-	INDIA	
2	3669	KEI INDUSTRIES LIMITED	INDIA	
3	D012	DELTON CABLES LIMITED	INDIA	
4	S304	SUYOG ELECTRICALS LTD	INDIA	
5	3724	CORDS CABLE INDUSTRIESLTD.	INDIA	
6	C145	CORDS CABLE INDUSTRIES LTD	INDIA	
7	T212	THERMO CABLES LTD (FORM. T-150)	INDIA	



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Sr No	Supplier Code	Supplier Name	Country	Holiday Description
<b>Item Code : 13WB</b>		<b>Description : A.C. VARIABLE SPEED DRIVE - MV (UPTO 690 V O/P)</b>		
<b>Approved Suppliers</b>				
1	27425	NIDEC ASI SPA	ITALY	
2	4033	ABB INDIA LIMITED	INDIA	
3	T597	TOSHIBA CORPORATION	JAPAN	
4	D137	DANFOSS INDUSTRIES PVT LTD	INDIA	
5	V593	VACON OYJ	FINLAND	
6	B727	BALDOR ELECTRIC COMPANY (FORMLY. R564)	UNITED STATES	
7	M593	MEIDENSHA CORP	JAPAN	
8	A661	ASEA BROWN BOVERY LTD (ABB LTD)	SWITZERLAND	
9	E140	EUROTHERM DEL INDIA LIMITED	INDIA	
10	H010A	HITACHI HI-REL POWER ELECTRONICS PRIVATE LIMITED	INDIA	
11	L001A	SCHNEIDER ELECTRIC INDIA PVT LTD	INDIA	
12	K636	KARL E BRINKMANN GMBH	GERMANY	
13	3849	AMTECH ELECTRONICS (INDIA) LIMITED	INDIA	
14	3869	YASKAWA INDIA PRIVATE LIMITED	INDIA	
15	3672	CG POWER AND INDUSTRIAL SOLUTIONS LIMITED	INDIA	

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Sr No	Supplier Code	Supplier Name	Country	Holiday Description
<b>Item Code : 14AA</b>		<b>Description : AIR CIRCUIT BREAKER</b>		
<b>Approved Suppliers</b>				
1	G147	GE INDIA INDUSTRIAL PVT LTD	INDIA	
2	S450A	SCHNEIDER ELECTRIC INDIA P LTD-HYDERABAD	INDIA	
3	4312	SIEMENS LIMITED	INDIA	
4	A200B	ABB INDIA LTD	INDIA	



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Sr No	Supplier Code	Supplier Name	Country	Holiday Description
<b>Item Code : 14AB</b>		<b>Description : AUXILIARY RELAYS</b>		
<b>Approved Suppliers</b>				
1	4339	C & S ELECTRIC LTD	INDIA	
2	A392	GE VERNOVA T&D INDIA LIMITED	INDIA	
3	3642	M/S JVS ELECTRONICS PVT LTD	INDIA	
4	3860	HITACHI ENERGY INDIA LIMITED	INDIA	



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Sr No	Supplier Code	Supplier Name	Country	Holiday Description
<b>Item Code : 14BA</b>		<b>Description : BIMETAL RELAYS</b>		
<b>Approved Suppliers</b>				
1	S450A	SCHNEIDER ELECTRIC INDIA P LTD-HYDERABAD	INDIA	
2	G147	GE INDIA INDUSTRIAL PVT LTD	INDIA	
3	L103	SCHNEIDER ELECTRIC INDIA PRIVATE LIMITED	INDIA	
4	3791	C & S ELECTRIC LTD	INDIA	
5	B002	BCH ELECTRIC LTD	INDIA	
6	A200B	ABB INDIA LTD	INDIA	
7	4312	SIEMENS LIMITED	INDIA	



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Sr No	Supplier Code	Supplier Name	Country	Holiday Description
<b>Item Code : 14CA</b>		<b>Description : CABLE GLANDS (HAZARDOUS AREA)</b>		
<b>Approved Suppliers</b>				
1	3681	FCG POWER INDUSTRIES PVT LTD	INDIA	
2	4244	METALMECH ENGINEERING	INDIA	
3	27421	CMP PRODUCTS LIMITED	UNITED KINGDOM	
4	3704	METAL CRAFT INDUSTRIES	INDIA	
5	3890	AKSHAR BRASS INDUSTRIES	INDIA	
6	F036	FLAMEPROOF EQUIPMENTS PVT.LTD	INDIA	
7	4364	SAI INDUSTRIES	INDIA	
8	4360	CLEON OPTOBIZ PRIVATE LIMITED	INDIA	
9	F024	FLEXPRO ELECTRICALS PVT LTD	INDIA	
10	4245	FCG HI-TECH PRIVATE LIMITED	INDIA	
11	C195	COMET BRASS PRODUCTS	INDIA	
12	4187	SIGMA INDUSTRIES	INDIA	
13	K173	KAYSONS TECHNO EQUIPMENTS PVT. LTD.	INDIA	
14	C205	COMET INDUSTRIES	INDIA	
15	B024	BALIGA LIGHTING EQUIPMENTS (P) LIMITED	INDIA	
16	S375	STANDARD METAL INDUSTRIES	INDIA	
17	S158	SUDHIR SWITCHGEARS PVT LTD	INDIA	

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Sr No	Supplier Code	Supplier Name	Country	Holiday Description
<b>Item Code : 14CD</b>		<b>Description : CONTACTORS</b>		
<b>Approved Suppliers</b>				
1	G147	GE INDIA INDUSTRIAL PVT LTD	INDIA	
2	B002	BCH ELECTRIC LTD	INDIA	
3	L103	SCHNEIDER ELECTRIC INDIA PRIVATE LIMITED	INDIA	
4	S450A	SCHNEIDER ELECTRIC INDIA P LTD-HYDERABAD	INDIA	
5	A200B	ABB INDIA LTD	INDIA	
6	4312	SIEMENS LIMITED	INDIA	
7	3791	C & S ELECTRIC LTD	INDIA	



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Sr No	Supplier Code	Supplier Name	Country	Holiday Description
<b>Item Code : 14CF</b>		<b>Description : CONTROL SWITCHES / SELECTOR SWITCHES</b>		
<b>Approved Suppliers</b>				
1	S373	SWITRON DEVICES	INDIA	
2	4012	TEKMEC SWITCHGEAR & CONTROLS	INDIA	
3	4312	SIEMENS LIMITED	INDIA	
4	4002	P.P. INDUSTRIES	INDIA	
5	K143	KAYCEE INDUSTRIES LTD.	INDIA	
6	L103	SCHNEIDER ELECTRIC INDIA PRIVATE LIMITED	INDIA	
7	H142	HOTLINE SWITCHGEAR & CONTROLS	INDIA	
8	R159	RELIABLE ELECTRONIC COMPONENTS PVT LTD	INDIA	



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Sr No	Supplier Code	Supplier Name	Country	Holiday Description
<b>Item Code : 14FA</b>		<b>Description : FUSES</b>		
<b>Approved Suppliers</b>				
1	4312	SIEMENS LIMITED	INDIA	
2	3790	C & S ELECTRIC LTD	INDIA	
3	L103	SCHNEIDER ELECTRIC INDIA PRIVATE LIMITED	INDIA	
4	G147	GE INDIA INDUSTRIAL PVT LTD	INDIA	
5	I013	NOVATEUR ELECTRICAL & DIGITAL SYSTEMS P	INDIA	
6	C194	EATON POWER QUALITY PRIVATE LIMITED	INDIA	



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Sr No	Supplier Code	Supplier Name	Country	Holiday Description
<b>Item Code : 14IA</b>		<b>Description : INSTRUMENT TRANSFORMERS CT &amp; PT (MV)</b>		
<b>Approved Suppliers</b>				
1	K149	KALPA ELEKTRIKAL PVT LTD	INDIA	
2	N119	NARAYAN POWERTECH PVT LTD	INDIA	
3	P228	PRAGATI ELECTRICALS PVT LTD	INDIA	
4	P237	PRECISE ELECTRICALS	INDIA	
5	G135	GILBERT & MAXWELL ELECTRICALS PVT LTD	INDIA	
6	3789	PRAGATI ELECTRICALS PVT LTD	INDIA	
7	3901	NEWTEK ELECTRICALS	INDIA	
8	4160	RECO TRANSFORMERS PRIVATE LIMITED	INDIA	
9	S372	SILKAANS ELECTRICALS MFG.CO.PVT.LTD	INDIA	



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Sr No	Supplier Code	Supplier Name	Country	Holiday Description
<b>Item Code : 14LB</b>		<b>Description : LIGHTING FIXTURE &amp; ACCESSORIES-NON HAZARDOUS</b>		
<b>Approved Suppliers</b>				
1	4036	HALONIX TECHNOLOGIES PRIVATE LIMITED	INDIA	
2	3834	BAJAJ ELECTRICALS LTD	INDIA	
3	4370	LEDURE LIGHTINGS LTD	INDIA	
4	3993	LIGHTING TECHNOLOGIES INDIA PRIVATE LIMITED	INDIA	
5	3986	HAVELLS INDIA LTD	INDIA	
6	4211	SURYA ROSHNI LTD	INDIA	
7	4214	CROMPTON GREAVES CONSUMER ELECTRICALS LIMITED	INDIA	
8	3833	BAJAJ ELECTRICALS LTD	INDIA	
9	3687	PYROTECH TECHNOLOGIES PRIVATE LIMITED	INDIA	
10	4043	ORIENT ELECTRIC LIMITED	INDIA	
11	4245	FCG HI-TECH PRIVATE LIMITED	INDIA	
12	4068	FORTUNEART LED LIGHTING PVT LTD	INDIA	

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Sr No	Supplier Code	Supplier Name	Country	Holiday Description
<b>Item Code : 14LC</b>		<b>Description : LIGHTING &amp; POWER PANELS (SAFE AREA)</b>		
<b>Approved Suppliers</b>				
1	C007	C & S ELECTRIC LTD	INDIA	
2	A372	ABB INDIA LTD	INDIA	
3	I013	NOVATEUR ELECTRICAL & DIGITAL SYSTEMS P	INDIA	
4	3825	HAVELLS INDIA LIMITED	INDIA	



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Sr No	Supplier Code	Supplier Name	Country	Holiday Description
<b>Item Code : 14MA</b>		<b>Description : MCB</b>		
<b>Approved Suppliers</b>				
1	I168	INDIANA CURRENT CONTROL LTD	INDIA	
2	S450	SCHNEIDER ELECTRIC INDIA PVT LTD	INDIA	
3	L071	LEGRAND (INDIA) PVT. LTD (FORM. M-006)	INDIA	
4	A372	ABB INDIA LTD	INDIA	
5	3888	POLYCAB INDIA LIMITED	INDIA	
6	3726	NOVATEUR ELECTRICAL & DIGITAL SYSTEMS PVT. LTD.	INDIA	
7	4312	SIEMENS LIMITED	INDIA	
8	3824	HAVELLS INDIA LIMITED	INDIA	
9	3793	C & S ELECTRIC LTD	INDIA	
10	S393	STANDARD ELECTRICALS LTD	INDIA	



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Sr No	Supplier Code	Supplier Name	Country	Holiday Description
<b>Item Code : 14MB</b>		<b>Description : MCCB</b>		
<b>Approved Suppliers</b>				
1	A200B	ABB INDIA LTD	INDIA	
2	4312	SIEMENS LIMITED	INDIA	
3	G147	GE INDIA INDUSTRIAL PVT LTD	INDIA	
4	S450A	SCHNEIDER ELECTRIC INDIA P LTD-HYDERABAD	INDIA	



065051051051

Sr No	Supplier Code	Supplier Name	Country	Holiday Description
<b>Item Code : 14MC</b>		<b>Description : METERS</b>		
<b>Approved Suppliers</b>				
1	N130	NIPPEN ELECTRICAL INSTRUMENTS CO.	INDIA	
2	S141	SECURE METERS LIMITED	INDIA	
3	4233	ELMEASURE INDIA PRIVATE LIMITED	INDIA	
4	3901	NEWTEK ELECTRICALS	INDIA	
5	R042	RISHABH INSTRUMENTS LIMITED	INDIA	
6	A028A	AUTOMATIC ELECTRIC LTD.	INDIA	
7	M239	MECO INSTRUMENTS PVT LTD	INDIA	



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Sr No	Supplier Code	Supplier Name	Country	Holiday Description
<b>Item Code : 14PB</b>		<b>Description : PUSH BUTTON AND INDICATING LAMPS</b>		
<b>Approved Suppliers</b>				
1	4012	TEKMEC SWITCHGEAR & CONTROLS	INDIA	
2	4312	SIEMENS LIMITED	INDIA	
3	3791	C & S ELECTRIC LTD	INDIA	
4	4002	P.P. INDUSTRIES	INDIA	
5	H142	HOTLINE SWITCHGEAR & CONTROLS	INDIA	
6	T166	TEKNIC ELECTRIC (I) PVT. LTD.	INDIA	
7	E173	ESSEN DEINKI	INDIA	
8	P291	PRECIFINE PRODUCTS PVT. LTD.	INDIA	
9	B002	BCH ELECTRIC LTD	INDIA	
10	S450A	SCHNEIDER ELECTRIC INDIA P LTD-HYDERABAD	INDIA	
11	S365	SHRI TULSI SWITCHGEARS PVT LTD	INDIA	



065051051051

Sr No	Supplier Code	Supplier Name	Country	Holiday Description
<b>Item Code : 14SA</b>		<b>Description : FUSE SWITCH COMBINATION</b>		
<b>Approved Suppliers</b>				
1	4312	SIEMENS LIMITED	INDIA	
2	3790	C & S ELECTRIC LTD	INDIA	
3	3825	HAVELLS INDIA LIMITED	INDIA	
4	S393	STANDARD ELECTRICALS LTD	INDIA	
5	I013	NOVATEUR ELECTRICAL & DIGITAL SYSTEMS P	INDIA	
6	L103	SCHNEIDER ELECTRIC INDIA PRIVATE LIMITED	INDIA	
7	G147	GE INDIA INDUSTRIAL PVT LTD	INDIA	



065051051051

Sr No	Supplier Code	Supplier Name	Country	Holiday Description
<b>Item Code : 14TA</b>		<b>Description : TIMERS</b>		
<b>Approved Suppliers</b>				
1	4312	SIEMENS LIMITED	INDIA	
2	E151	ELECTRONIC AUTOMATION PVT LTD	INDIA	
3	B002	BCH ELECTRIC LTD	INDIA	



065051051051



Sr No	Supplier Code	Supplier Name	Country	Holiday Description
Item Code : 13DD		Description : SOLID STATE DECOUPLER		
<b>Approved Suppliers</b>				
1	3939	KRISTRON CONTROLS & SYSTEMS PRIVATE LIMITED	INDIA	



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Sr No	Supplier Code	Supplier Name	Country	Holiday Description
<b>Item Code : 13EA</b>		<b>Description : ANODES FOR C P SYSTEM</b>		
<b>Approved Suppliers</b>				
1	4148	SHAKTIANODES PRIVATE LIMITED	INDIA	
2	4102	VIJAY CORROSION TECHNOLOGY	INDIA	
3	3899	CONTROL PLUS OIL AND GAS SOLUTIONS PVT	INDIA	
4	27584	SEAL FOR LIFE INDUSTRIES MEXICO S. DE R. L. DE C.V.	MEXICO	
5	S245	SCIENTIFIC METAL ENGINEERS (P) LTD	INDIA	
6	E100	ELECTRO PROTECTION SERVICES INDIA P LTD	INDIA	
7	C133	CATHODIC CONTROL CO PVT. LTD.	INDIA	
8	E629	EMIRATES TECHNO CASTING LLC	UNITED ARAB EMIRATES	
9	D142	DE NORA INDIA LTD-FORMLY T-168	INDIA	



068054049049

Sr No	Supplier Code	Supplier Name	Country	Holiday Description
<b>Item Code : 13KE</b>		<b>Description : TRANSFORMER-RECTIFIER UNIT FOR C.P.S.</b>		
<b>Approved Suppliers</b>				
1	K182	KRISTRON SYSTEMS	INDIA	
2	27519	BIN SARI SPECIALIZED TECHNOLOGIES	UNITED ARAB EMIRATES	
3	4179	RECTIFIERS AND CONTROL ELECTRONICS TECHNOLOGIES PRIVATE LIMITED	INDIA	
4	3939	KRISTRON CONTROLS & SYSTEMS PRIVATE LIMITED	INDIA	
5	C133	CATHODIC CONTROL CO PVT. LTD.	INDIA	



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Sr No	Supplier Code	Supplier Name	Country	Holiday Description
Item Code : 13KF		Description : CATHODIC PROTECTION POWER SUPPLY MODULE		
<b>Approved Suppliers</b>				
1	3939	KRISTRON CONTROLS & SYSTEMS PRIVATE LIMITED	INDIA	
2	K182	KRISTRON SYSTEMS	INDIA	



068054049049

Sr No	Supplier Code	Supplier Name	Country	Holiday Description
<b>Item Code : 13MA</b>		<b>Description : JUNCTION BOXES (FLAME PROOF)</b>		
<b>Approved Suppliers</b>				
1	3681	FCG POWER INDUSTRIES PVT LTD	INDIA	
2	R175	R STAHL PVT LTD	INDIA	
3	3706	PHOENIX MECANO INDIA PVT. LTD.	INDIA	
4	F036	FLAMEPROOF EQUIPMENTS PVT.LTD	INDIA	
5	S158	SUDHIR SWITCHGEARS PVT LTD	INDIA	
6	B024	BALIGA LIGHTING EQUIPMENTS (P) LIMITED	INDIA	
7	G159	PEPPERL & FUCHS MANUFACTURING (INDIA) PRIVATE LIMITED	INDIA	
8	F024	FLEXPRO ELECTRICALS PVT LTD	INDIA	
9	4364	SAI INDUSTRIES	INDIA	
10	4245	FCG HI-TECH PRIVATE LIMITED	INDIA	
11	K173	KAYSONS TECHNO EQUIPMENTS PVT. LTD.	INDIA	

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Sr No	Supplier Code	Supplier Name	Country	Holiday Description
<b>Item Code : 130C</b>		<b>Description : CABLES-MEDIUM VOLTAGE-POWER-XLPE</b>		
<b>Approved Suppliers</b>				
1	K190A	KEC ASIAN CABLES LIMITED	INDIA	
2	4163	KLJ PARAFLEX INDIA LIMITED	INDIA	
3	4261	TORTEK INDIA PRIVATE LIMITED	INDIA	
4	4262	K C POWERTRACKS	INDIA	
5	4263	TIRUPATI PLASTOMATICS PRIVATE LIMITED	INDIA	
6	4264	SURAJ CABLES (INDIA) PRIVATE LIMITED	INDIA	
7	4265	SVARN INFRATEL PRIVATE LIMITED	INDIA	
8	D012	DELTON CABLES LIMITED	INDIA	
9	4234	LASER POWER & INFRA PRIVATE LIMITED	INDIA	
10	3669	KEI INDUSTRIES LIMITED	INDIA	
11	3814	RR KABEL LIMITED	INDIA	
12	4298	SHRIRAM TELELINK	INDIA	
13	3602	Special Cables Pvt. Ltd.	INDIA	
14	K082	KEI INDUSTRIES LIMITED	INDIA	
15	U003	UNIVERSAL CABLES LTD	INDIA	
16	T124	TORRENT ELECTRICALS LIMITED	INDIA	
17	A132	ASSOCIATED FLEXIBLES & WIRES [P] LTD	INDIA	
18	C145	CORDS CABLE INDUSTRIES LTD	INDIA	
19	S025	SRIRAM CABLES PVT LTD	INDIA	
20	3731	POLYCAB INDIA LIMITED	INDIA	
21	3732	POLYCAB INDIA LIMITED	INDIA	
22	3722	POLYCAB INDIA LIMITED	INDIA	
23	G156	GEMSCAB INDUSTRIES LTD	INDIA	
24	H060	HAVELLS INDIA LTD	INDIA	
25	R179	RAVIN CABLES LTD	INDIA	
26	R203	LKB ENGINEERING PRIVATE LIMITED	INDIA	
27	3969	SHIVPRIYA CABLES PRIVATE LIMITED	INDIA	
28	3854	CHANDRESH CABLES LIMITED	INDIA	
29	S304	SUYOG ELECTRICALS LTD	INDIA	
30	U085	APAR INDUSTRIES LTD	INDIA	
31	4137	INSUCON CABLES AND CONDUCTORS PRIVATE LIMITED	INDIA	
32	4351	UNIVERSAL CABLE MANUFACTURING COMPANY	INDIA	
33	4281	SBEE CABLES INDIA LIMITED	INDIA	
34	4104	ZENIUM CABLES LIMITED	INDIA	
35	4105	ULTRACAB (INDIA) LIMITED	INDIA	
36	3781	POLYCAB INDIA LIMITED	INDIA	
37	3783	POLYCAB INDIA LIMITED	INDIA	
38	3796	PARAMOUNT COMMUNICATIONS LTD	INDIA	
39	4055	DYNAMIC CABLES LIMITED	INDIA	
40	3765	THERMO CABLES LTD.	INDIA	

Sr No	Supplier Code	Supplier Name	Country	Holiday Description
<b>Item Code : 130C</b>		<b>Description : CABLES-MEDIUM VOLTAGE-POWER-XLPE</b>		
41	4001	RAVI INDUSTRIES	INDIA	
42	4299	POLYVION CABLES PRIVATE LIMITED	INDIA	



068054049049

Sr No	Supplier Code	Supplier Name	Country	Holiday Description
<b>Item Code : 130D</b>		<b>Description : CABLES-CONTROL (UNPAIRED)-XLPE</b>		
<b>Approved Suppliers</b>				
1	K190A	KEC ASIAN CABLES LIMITED	INDIA	
2	4299	POLYVION CABLES PRIVATE LIMITED	INDIA	
3	3752	APAR INDUSTRIES LTD	INDIA	
4	4261	TORTEK INDIA PRIVATE LIMITED	INDIA	
5	4262	K C POWERTRACKS	INDIA	
6	4264	SURAJ CABLES (INDIA) PRIVATE LIMITED	INDIA	
7	4265	SVARN INFRATEL PRIVATE LIMITED	INDIA	
8	4221	BONTON CABLES (INDIA) PRIVATE LIMITED	INDIA	
9	4234	LASER POWER & INFRA PRIVATE LIMITED	INDIA	
10	3669	KEI INDUSTRIES LIMITED	INDIA	
11	4297	GOYOLENE FIBRES (INDIA) PRIVATE LIMITED	INDIA	
12	4298	SHRIRAM TELELINK	INDIA	
13	3602	Special Cables Pvt. Ltd.	INDIA	
14	3814	RR KABEL LIMITED	INDIA	
15	3724	CORDS CABLE INDUSTRIESLTD.	INDIA	
16	C145	CORDS CABLE INDUSTRIES LTD	INDIA	
17	U003	UNIVERSAL CABLES LTD	INDIA	
18	R179	RAVIN CABLES LTD	INDIA	
19	S304	SUYOG ELECTRICALS LTD	INDIA	
20	R203	LKB ENGINEERING PRIVATE LIMITED	INDIA	
21	A132	ASSOCIATED FLEXIBLES & WIRES [P] LTD	INDIA	
22	E063	ELKAY TELELINKS LTD.-	INDIA	
23	D012	DELTON CABLES LIMITED	INDIA	
24	3722	POLYCAB INDIA LIMITED	INDIA	
25	G156	GEMSCAB INDUSTRIES LTD	INDIA	
26	H060	HAVELLS INDIA LTD	INDIA	
27	S025	SRIRAM CABLES PVT LTD	INDIA	
28	T124	TORRENT ELECTRICALS LIMITED	INDIA	
29	A034	ASSOCIATED CABLES PVT LTD	INDIA	
30	E169	ECKO CABLES PVT LTD	INDIA	
31	T212	THERMO CABLES LTD (FORM. T-150)	INDIA	
32	3854	CHANDRESH CABLES LIMITED	INDIA	
33	4137	INSUCON CABLES AND CONDUCTORS PRIVATE LIMITED	INDIA	
34	4351	UNIVERSAL CABLE MANUFACTURING COMPANY	INDIA	
35	4281	SBEE CABLES INDIA LIMITED	INDIA	
36	4105	ULTRACAB (INDIA) LIMITED	INDIA	
37	3783	POLYCAB INDIA LIMITED	INDIA	
38	3784	POLYCAB INDIA LIMITED	INDIA	
39	3796	PARAMOUNT COMMUNICATIONS LTD	INDIA	
40	3765	THERMO CABLES LTD.	INDIA	

Sr No	Supplier Code	Supplier Name	Country	Holiday Description
<b>Item Code : 13OD</b>		<b>Description : CABLES-CONTROL (UNPAIRED)-XLPE</b>		
41	4001	RAVI INDUSTRIES	INDIA	
42	4163	KLJ PARAFLEX INDIA LIMITED	INDIA	



068054049049

Client : BPCL	Dept./Sect : 16/43
Project : POLY PROPLENE UNIT	
Location : KOCHI, KERALA	Piping Class : A1A

PIPE CLASS : **A1A**  
RATING : 150  
BASE MATERIAL : CARBON STEEL  
CORROSION ALLOWANCE : 1.50 MM  
SPECIAL REQUIREMENT :

**TEMPERATURE(Deg.C) AND PRESSURE(Kg/Sq.cm g) RATINGS**

TEMP.	-29	38	93	149	204	260	316	343	371
PRESS	20.03	20.03	18.28	16.17	14.06	11.95	9.84	8.78	7.73

**SERVICE**

NON CORROSIVE/ FLAMMABLE / NON FLAMMABLE/ NON LETHAL -PROCESS & HYDROCARBONS;  
FUEL GAS, HYDROCARBON FLARE ; LUBE OIL BEFORE FILTER; AMMONIA, STEAM &

**NOTES**

- 5 FOR PERMANENT 'T' TYPE BW STRAINERS, REFER EIL/STD 7-44-0303 & 7-44-0304; AND FOR TEMPORARY STRAINERS, REFER EIL/STD 7-44-0300; FOR SPACER AND BLIND REFER EIL/STD 7-44-0162.
- 7 FOR RESTRICTION ON USE OF BALL, PLUG & BUTTERFLY VALVES, REFER GENERAL NOTES.
- 36 THIS IS A PRESSURE BALANCED PLUG VALVES WHICH SHALL BE USED ONLY IF SPECIFIED IN P&ID.
- 92 GATE VALVES OF SIZE 26" AND ABOVE SHALL BE IN ACCORDANCE WITH B-16.34 AND FLANGE ENDS SHALL BE IN ACCORDANCE WITH ASME B16.47 SERIES B.
- 101 NDT REQUIREMENTS AS PER EIL STANDARD SPECIFICATION B895-6-44-0016.
- 954 VALVE TO BE USED FOR VENT AND DRAIN PURPOSE ONLY, IF MENTIONED IN PROCESS DESIGN PACKAGE OR P&ID.
- 961 FOR LICENSOR SPECIFICATION LGP04 IN PPU, FOR SIZE RANGE 0.75" TO 1.5": STR-361 & FOR 2" TO 8"-STR-351 IS TO BE FOLLOWED FOR STRAINERS. SEE LPPF-8 INCLUDED IN THE SUPPLEMENT TO PROCESS PARTS, VOLUME 2, SECTION IX-2 FOR STRAINER SPECIFICATIONS.
- 962 FOR LICENSOR SPECIFICATIONS LGP06 & LGP07 IN PPU, FOR SIZE RANGE 0.75" TO 1.5": STR-366 & FOR 2" TO 12"-STR-351 IS TO BE FOLLOWED FOR STRAINERS. SEE LPPF-8 INCLUDED IN THE SUPPLEMENT TO PROCESS PARTS, VOLUME 2, SECTION IX-2 FOR STRAINER SPECIFICATIONS.
- 967 FOR PPU UNIT-THIS SPECIFICATION IS RATED FOR NON-CRITICAL VACUUM CONDITIONS. BUT VALVES ARE NOT VACUUM PREPARED OR SUITABLE BY DESIGN FOR CRITICAL VACUUM AND MAY ALLOW LEAKAGE INTO THE SYSTEM.
- 968 FOR PPU UNIT, LINE CONDITIONS SHALL BE CHECKED FOR VACUUM. IF VACUUM CONDITIONS ARE APPLICABLE, STIFFENER RINGS, IF NEEDED, SHALL BE PROVIDED AS PER ASME SEC. VIII, DIV. 1.
- 969 FOR PPU UNIT, LINE CONDITIONS SHALL BE CHECKED FOR VACUUM. IF VACUUM CONDITIONS ARE APPLICABLE, VALVE TO BE TESTED FOR VACUUM AS PER ASME V, SUBSECTION-A, ARTICLE 10 (HOOD METHOD) APPENDIX IX TO CHECK SUITABILITY FOR VACUUM SERVICE.

<b>Client</b> : BPCL	<b>Dept./Sect</b> : 16/43
<b>Project</b> : POLY PROPLENE UNIT	
<b>Location</b> : KOCHI, KERALA	<b>Piping Class</b> : A1A

**SPECIAL NOTES**

ITEM	SIZE	DESCRIPTION	A.CODE
MAINTAINENCE JOINTS	ALL	FLANGED, TO BE KEPT MINIMUM	
PIPE JOINTS	1.5" & BELOW	SW COUPLING	
	2.0" & ABOVE	BUTTWELDED	
DRAINS	ON LINES <= 1.5"	REFER EILSTD 7-44-0350, DF3	
	ON LINES >= 2.0"	AS PER P&ID OR 0.75". REFER EIL STD. 7-44-0351, D4	
VENTS	ON LINES <= 1.5"	REFER EIL STD. 7-44-0350, VF3	
	ON LINES >= 2.0"	AS PER P&ID OR 0.75". REFER EIL STD 7-44-0351, V4	
TEMP.CONN	1.5"	FLANGED. REFER EIL STD 7-44-0353	
PRESS.CONN	0.75"	SW NIPPLE WITH VALVE TO SPEC AS PER EIL STD 7-44-0354	



Client : BPCL	Dept./Sect : 16/43
Project : POLY PROPLENE UNIT	
Location : KOCHI, KERALA	Piping Class : A1A

Input Id.	Item Type	Lower Size (Inch)	Upper Size (Inch)	Sch/Thk (mm)	Dmn.STD	Material	Description	Commodity Code	Note No
<b>Pipe Group</b>									
PIP	PIPE	0.50	0.75	S160	B-36.10	ASTM A 106 GR.B	PE, SEAMLESS	PI21977Z0	
PIP	PIPE	1.00	1.50	XS	B-36.10	ASTM A 106 GR.B	PE, SEAMLESS	PI21977Z0	
PIP	PIPE	2.00	2.00	XS	B-36.10	ASTM A 106 GR.B	BE, SEAMLESS	PI21917Z0	
PIP	PIPE	3.00	14.00	STD	B-36.10	ASTM A 106 GR.B	BE, SEAMLESS	PI21917Z0	
PIP	PIPE	16.00	36.00	STD	B-36.10	ASTM A 672 GR.B60 CL.12	BE, E.FS.W	PI2A813Z0	
PIP	PIPE	40.00	48.00	XS	B-36.10	ASTM A 672 GR.B60 CL.12	BE, E.FS.W	PI2A813Z0	
NIP	NIPPLE	0.50	0.75	M	B-36.10	ASTM A 106 GR.B	PBE, SEAMLESS	PN21967Z0	
NIP	NIPPLE	1.00	1.50	M	B-36.10	ASTM A 106 GR.B	PBE, SEAMLESS	PN21967Z0	
<b>Flange Group</b>									
FLG/300	FLNG.SW	0.50	1.50	M	B-16.5	ASTM A 105	300, RF/125AARH	FSC0147Z0	
FLG	FLNG.WN	0.50	24.00	M	B-16.5	ASTM A 105	150, RF/125AARH	FWC0127Z0	
FLG	FLNG.WN	26.00	48.00	M	B-16.47-B	ASTM A 105	150, RF/125AARH	FWB0127Z0	
FLG/300	FLNG.WN	26.00	48.00	M	B-16.47-B	ASTM A 105	300, RF/125AARH	FWB0147Z0	
FLG/300	FLNG.WN	2.00	24.00	M	B-16.5	ASTM A 105	300, RF/125AARH	FWC0147Z0	
FLB	FLNG.BLIND	0.50	24.00		B-16.5	ASTM A 105	150, RF/125AARH	FBC0127Z0	
FLB	FLNG.BLIND	26.00	48.00		B-16.47-B	ASTM A 105	150, RF/125AARH	FBB0127Z0	
FEF	FLNG.FIG.8	0.50	8.00		ASME-B16.48	ASTM A 105	150, FF/125AARH	FGK0121Z0	
FEF	SPCR&BLND	10.00	24.00		ASME-B16.48	ASTM A 105	150, FF/125AARH	FCK0121Z0	
FEF	SPCR&BLND	26.00	48.00		ASME B16.47B/EIL/ST D	ASTM A 516 GR.70	150, FF/125AARH	FCU6321Z0	
<b>Fitting Group</b>									
ELB90	ELBOW.90	0.50	0.75		B-16.11	ASTM A 105	SW, 6000	WA602D3Z0	
ELB90	ELBOW.90	1.00	1.50		B-16.11	ASTM A 105	SW, 3000	WA602D2Z0	
ELB90	ELBOW.90	2.00	14.00	M	B-16.9	ASTM A 234 GR.WPB	BW, 1.5D	WAG684Z10	
ELB90	ELBOW.90	16.00	48.00	M	B-16.9	ASTM A 234 GR.WPB-W	BW, 1.5D	WAG754Z10	

Client : BPCL	Dept./Sect : 16/43
Project : POLY PROPLENE UNIT	
Location : KOCHI, KERALA	Piping Class : A1A

Input Id.	Item Type	Lower Size (Inch)	Upper Size (Inch)	Sch/Thk (mm)	Dmn.STD	Material	Description	Commodity Code	Note No
<b>Fitting Group</b>									
ELB45	ELBOW.45	0.50	0.75		B-16.11	ASTM A 105	SW, 6000	WB602D3Z0	
ELB45	ELBOW.45	1.00	1.50		B-16.11	ASTM A 105	SW, 3000	WB602D2Z0	
ELB45	ELBOW.45	2.00	14.00	M	B-16.9	ASTM A 234 GR.WPB	BW, 1.5D	WBG684Z10	
ELB45	ELBOW.45	16.00	48.00	M	B-16.9	ASTM A 234 GR.WPB-W	BW, 1.5D	WBG754Z10	
TEQ	T.EQUAL	0.50	0.75		B-16.11	ASTM A 105	SW, 6000	WE602D3Z0	
TEQ	T.EQUAL	1.00	1.50		B-16.11	ASTM A 105	SW, 3000	WE602D2Z0	
TEQ	T.EQUAL	2.00	14.00	M	B-16.9	ASTM A 234 GR.WPB	BW	WEG684ZZ0	
TEQ	T.EQUAL	16.00	48.00	M	B-16.9	ASTM A 234 GR.WPB-W	BW	WEG754ZZ0	
TRED	T.RED	0.50	0.75		B-16.11	ASTM A 105	SW, 6000	WR602D3Z0	
TRED	T.RED	1.00	1.50		B-16.11	ASTM A 105	SW, 3000	WR602D2Z0	
TRED	T.RED	2.00	14.00	M, M	B-16.9	ASTM A 234 GR.WPB	BW	WRG684ZZ0	
TRED	T.RED	16.00	48.00	M, M	B-16.9	ASTM A 234 GR.WPB-W	BW	WRG754ZZ0	
REDC	REDUC.CONC	2.00	14.00	M, M	B-16.9	ASTM A 234 GR.WPB	BW	WUG684ZZ0	
REDC	REDUC.CONC	16.00	48.00	M, M	B-16.9	ASTM A 234 GR.WPB-W	BW	WUG754ZZ0	
REDE	REDUC.ECC	2.00	14.00	M, M	B-16.9	ASTM A 234 GR.WPB	BW	WVG684ZZ0	
REDE	REDUC.ECC	16.00	48.00	M, M	B-16.9	ASTM A 234 GR.WPB-W	BW	WVG754ZZ0	
SWGC	SWAGE.CONC	0.50	3.00	M, M	BS-3799	ASTM A 105	PBE	WNH026ZZ0	
SWGE	SWAGE.ECC	0.50	3.00	M, M	BS-3799	ASTM A 105	PBE	WPH026ZZ0	
CAP	CAP	2.00	48.00	M	B-16.9	ASTM A 234 GR.WPB	BW	WFG684ZZ0	
CPLF	CPLNG.FULL	0.50	0.75		B-16.11	ASTM A 105	SW, 6000	WJ602D3Z0	
CPLF	CPLNG.FULL	1.00	1.50		B-16.11	ASTM A 105	SW, 3000	WJ602D2Z0	
CPLH	CPLNG.HALF	0.50	0.75		B-16.11	ASTM A 105	SW, 6000	WK602D3Z0	
CPLH	CPLNG.HALF	1.00	1.50		B-16.11	ASTM A 105	SW, 3000	WK602D2Z0	

Client : BPCL	Dept./Sect : 16/43
Project : POLY PROPLENE UNIT	
Location : KOCHI, KERALA	Piping Class : A1A

Input Id.	Item Type	Lower Size (Inch)	Upper Size (Inch)	Sch/Thk (mm)	Dmn.STD	Material	Description	Commodity Code	Note No
<b>Fitting Group</b>									
CPLL	CPLNG.LH	0.50	0.75		B-16.11	ASTM A 105	SW, 6000	WL602D3Z0	
CPLL	CPLNG.LH	1.00	1.50		B-16.11	ASTM A 105	SW, 3000	WL602D2Z0	
CPLR	CPLNG.RED	0.50	0.75		B-16.11	ASTM A 105	SW, 6000	WM602D3Z0	
CPLR	CPLNG.RED	1.00	1.50		B-16.11	ASTM A 105	SW, 3000	WM602D2Z0	
<b>Valves Group</b>									
GAV	VLV.GATE	0.25	1.50		API 602/ ISO 15761	BODY-ASTM A 105, TRIM-STELLITED,ST EM-13%CR.STEEL	SW, 800, 3000, B-16.11, SHT NO.-51001	51001ZZZ0	
GAV	VLV.GATE	2.00	42.00		API 600/ ISO 10434	BODY-ASTM A 216 GR.WCB, TRIM-13%CR.STEEL, SEATS-STELLITED	FLGD, 150, B-16.5, RF/125AARH, SHT NO. -51301	51301ZZZ0	92
GLV	VLV.GLOBE	0.25	1.50		API 602/ ISO 15761	BODY-ASTM A 105, TRIM-STELLITED,ST EM-13%CR STEEL	SW, 800, 3000, B-16.11, SHT NO.-52001	52001ZZZ0	
GLV	VLV.GLOBE	2.00	16.00		BS-1873	BODY-ASTM A 216 GR.WCB, TRIM-13%CR.STEEL, SEATS-STELLITED	FLGD, 150, B-16.5, RF/125AARH, SHT NO. -52301	52301ZZZ0	
CHV	VLV.CHECK	0.25	1.50		API 602/ ISO 15761	BODY-ASTM A 105, TRIM-STELLITED	SW, 800, 3000, B-16.11, SHT NO.-53001	53001ZZZ0	
CHV	VLV.CHECK	2.00	24.00		BS 1868	BODY-ASTM A 216 GR.WCB, TRIM-13%CR.STEEL, SEATS-STELLITED	FLGD, 150, B-16.5, RF/125AARH, SHT NO. -53301	53301ZZZ0	
BLV	VLV.BALL	0.50	16.00		BS EN ISO 17292	BODY-ASTM A 105 / A 216GR.WCB, TRIM-BODY SEAT-RPTFE	FLGD, 150, B-16.5, RF/125AARH, SHT NO. -54301	54301ZZZ0	
PLV	VLV.PLUG	0.50	24.00		BS-5353	BODY-ASTM A 105 / A 216GR.WCB, TRIM-PLUG-HARDE NED	FLGD, 150, B-16.5, RF/125AARH, SHT NO. -55301	55301ZZZ0	
PLV/1	VLV.PLUG	0.50	36.00		BS-5353	BODY-ASTM A 105 / A 216GR.WCB, TRIM-PLUG-HARDE NED	FLGD, 150, B-16.5, RF/125AARH, SHT NO. -55315	55315ZZZ0	36
BFV	VLV.BTRFLY	3.00	24.00		BS EN 593	BODY-ASTM A 216 GR.WCB, TRIM-13% CR.STEEL	WAFI, 150, B-16.5, WAF/125AARH, SHT NO.-56301	56301ZZZ0	

Client : BPCL	Dept./Sect : 16/43
Project : POLY PROPLENE UNIT	
Location : KOCHI, KERALA	Piping Class : A1A

Input Id.	Item Type	Lower Size (Inch)	Upper Size (Inch)	Sch/Thk (mm)	Dmn.STD	Material	Description	Commodity Code	Note No
<b>Valves Group</b>									
BFV	VLV.BTRFLY	26.00	48.00		BS EN 593	BODY-ASTM A 216 GR.WCB, TRIM-13% CR.STEEL	FLGD, 150, B-16.47 B, RF/125AARH, SHT NO. -56315	56315ZZZ0	
<b>Bolt Group</b>									
BOS	BOLT.STUD	0.50	48.00		B-18.2	BOLT:A193 GR.B7, NUT:A194 GR.2H		BS40404Z0	
<b>Gasket Group</b>									
GAS	GASKET	0.50	24.00		B-16.20-ANSI B16.5	SP.WND SS316+GRAFIL+ I RING	SPIRAL, 150	GK66272Z0	
GAS	GASKET	26.00	48.00		B-16.20-ANSI B16.47B	SP.WND SS316+GRAFIL+ I RING	SPIRAL, 150	GK56272Z0	
GAS/300	GASKET	26.00	48.00		B-16.20-ANSI B16.47B	SP.WND SS316+GRAFIL+ I RING	SPIRAL, 300	GK56274Z0	
GAS/300	GASKET	0.50	24.00		B-16.20-ANSI B16.5	SP.WND SS316+GRAFIL+ I RING	SPIRAL, 300	GK66274Z0	
<b>Trap/Strainer Group</b>									
TRP	TRAP.STEAM	0.50	1.50		MNF'STD	B:A105;T:13%CR;S:SS 304	FLGD, THRMDNMC, 150,RF/125AARH	TR3065530	
TSR	STRNR.TEMP	1.50	24.00		EIL'STD	B:A516GR.70;INT:SS3 04	CONETYPE, 150,FF/125AARH	ST16831Z0	
PSR	STRNR.PERM	0.50	1.50		MNF'STD	B:A105;INT:SS304	SW, Y-TYPE, 800	SP303D510	
PSR	STRNR.PERM	2.00	14.00	M	EIL'STD	B:A234GR.WPB;INT:S S304	BW, T-TYPE	SP13344Z0	
PSR	STRNR.PERM	16.00	24.00	M	EIL'STD	B:A234GR.WPBW;IN T:SS304	BW, T-TYPE	SP13644Z0	

Client : BPCL	Dept./Sect : 16/43
Project : POLY PROPLENE UNIT	
Location : KOCHI, KERALA	Piping Class : A3K

PIPE CLASS : **A3K**  
RATING : 150  
BASE MATERIAL : SS 304  
CORROSION ALLOWANCE : 0.00 MM  
SPECIAL REQUIREMENT :

**TEMPERATURE(Deg.C) AND PRESSURE(Kg/Sq.cm g) RATINGS**

TEMP.	0	38	93	149	186
PRESS	10.55	10.55	10.55	10.55	10.55

**SERVICE**

DEMINERALISED WATER (OUTSIDE DM PLANT BATTERY LIMITS), POLISHED WATER, POLISHED CONDENSATE, NITROGEN, INSTRUMENT AIR(WITHIN UNITS & OFFSITE PACKAGES) - CATEGORY

**NOTES**

- 5 FOR PERMANENT 'T' TYPE BW STRAINERS,REFER EIL/STD 7-44-0303 & 7-44-0304; AND FOR TEMPORARY STRAINERS,REFER EIL/STD 7-44-0300; FOR SPACER AND BLIND REFER EIL/STD 7-44-0162.
- 7 FOR RESTRICTION ON USE OF BALL,PLUG & BUTTERFLY VALVES,REFER GENERAL NOTES.
- 101 NDT REQUIREMENTS AS PER EIL STANDARD SPECIFICATION B895-6-44-0016.

**SPECIAL NOTES**

ITEM	SIZE	DESCRIPTION	A.CODE
MAINTAINENCE JOINTS	ALL	FLANGED, TO BE KEPT MINIMUM	
PIPE JOINTS	1.5" & BELOW	SW COUPLING	
	2.0" & ABOVE	BUTTWELDED	
DRAINS	ON LINES <= 1.5"	REFER EILSTD 7-44-0350, DC3	
	ON LINES >= 2.0"	AS PER P&ID. OR 0.75". REFER EIL STD. 7-44-0351, D3	
VENTS	ON LINES <= 1.5"	REFER EIL STD. 7-44-0350, VC1	
	ON LINES >= 2.0"	AS PER P&ID. OR 0.75". REFER EIL STD 7-44-0351, V1	
TEMP.CONN	1.5"	FLANGED. REFER EIL STD 7-44-0353	
PRESS.CONN	0.75"	SW NIPPLE WITH VALVE TO SPEC AS PER EIL STD 7-44-0354	



Client : BPCL	Dept./Sect : 16/43
Project : POLY PROPLENE UNIT	
Location : KOCHI, KERALA	Piping Class : A3K

Input Id.	Item Type	Lower Size (Inch)	Upper Size (Inch)	Sch/Thk (mm)	Dmn.STD	Material	Description	Commodity Code	Note No
<b>Pipe Group</b>									
PIP	PIPE	0.50	0.75	80S	B-36.19	ASTM A 312 TP304	PE, SEAMLESS	PI33577Z0	
PIP	PIPE	1.00	1.50	40S	B-36.19	ASTM A 312 TP304	PE, SEAMLESS	PI33577Z0	
PIP	PIPE	2.00	2.00	40S	B-36.19	ASTM A 312 TP304	BE, SEAMLESS	PI33517Z0	
PIP	PIPE	3.00	8.00	10S	B-36.19	ASTM A 312 TP304	BE, SEAMLESS	PI33517Z0	
PIP	PIPE	10.00	14.00	10S	B-36.19	ASTM A 358 TP304 CL.1	BE, E.FS.W	PI35513Z0	
NIP	NIPPLE	0.50	0.75	M	B-36.19	ASTM A 312 TP304	PBE, SEAMLESS	PN33567Z0	
NIP	NIPPLE	1.00	1.50	M	B-36.19	ASTM A 312 TP304	PBE, SEAMLESS	PN33567Z0	
<b>Flange Group</b>									
FLG/300	FLNG.SW	0.50	1.50	M	B-16.5	ASTM A 182 GR.F304	300, RF/125AARH	FSC4147Z0	
FLG	FLNG.WN	0.50	14.00	M	B-16.5	ASTM A 182 GR.F304	150, RF/125AARH	FWC4127Z0	
FLG/300	FLNG.WN	2.00	14.00	M	B-16.5	ASTM A 182 GR.F304	300, RF/125AARH	FWC4147Z0	
FLB	FLNG.BLIND	0.50	14.00		B-16.5	ASTM A 182 GR.F304	150, RF/125AARH	FBC4127Z0	
FEF	FLNG.FIG.8	0.50	8.00		ASME-B16.48	ASTM A 182 GR.F304	150, FF/125AARH	FGK4121Z0	
FEF	SPCR&BLND	10.00	14.00		ASME-B16.48	ASTM A 182 GR.F304	150, FF/125AARH	FCK4121Z0	
<b>Fitting Group</b>									
ELB90	ELBOW.90	0.50	1.50		B-16.11	ASTM A 182 GR.F304	SW, 3000	WA642D2Z0	
ELB90	ELBOW.90	2.00	8.00	M	B-16.9	ASTM A 403 GR.WP304-S	BW, 1.5D	WAG874Z10	
ELB90	ELBOW.90	10.00	14.00	M	B-16.9	ASTM A 403 GR.WP304-WX	BW, 1.5D	WAG894Z10	
ELB45	ELBOW.45	0.50	1.50		B-16.11	ASTM A 182 GR.F304	SW, 3000	WB642D2Z0	
ELB45	ELBOW.45	2.00	8.00	M	B-16.9	ASTM A 403 GR.WP304-S	BW, 1.5D	WBG874Z10	
ELB45	ELBOW.45	10.00	14.00	M	B-16.9	ASTM A 403 GR.WP304-WX	BW, 1.5D	WBG894Z10	
TEQ	T.EQUAL	0.50	1.50		B-16.11	ASTM A 182 GR.F304	SW, 3000	WE642D2Z0	
TEQ	T.EQUAL	2.00	8.00	M	B-16.9	ASTM A 403 GR.WP304-S	BW	WEG874Z0	
TEQ	T.EQUAL	10.00	14.00	M	B-16.9	ASTM A 403 GR.WP304-WX	BW	WEG894Z0	

Client : BPCL	Dept./Sect : 16/43
Project : POLY PROPLENE UNIT	
Location : KOCHI, KERALA	Piping Class : A3K

Input Id.	Item Type	Lower Size (Inch)	Upper Size (Inch)	Sch/Thk (mm)	Dmn.STD	Material	Description	Commodity Code	Note No
<b>Fitting Group</b>									
TRED	T.RED	0.50	1.50		B-16.11	ASTM A 182 GR.F304	SW, 3000	WR642D2Z0	
TRED	T.RED	2.00	8.00	M, M	B-16.9	ASTM A 403 GR.WP304-S	BW	WRG874ZZ0	
TRED	T.RED	10.00	14.00	M, M	B-16.9	ASTM A 403 GR.WP304-WX	BW	WRG894ZZ0	
REDC	REDUC.CONC	2.00	8.00	M, M	B-16.9	ASTM A 403 GR.WP304-S	BW	WUG874ZZ0	
REDC	REDUC.CONC	10.00	14.00	M, M	B-16.9	ASTM A 403 GR.WP304-WX	BW	WUG894ZZ0	
REDE	REDUC.ECC	2.00	8.00	M, M	B-16.9	ASTM A 403 GR.WP304-S	BW	WVG874ZZ0	
REDE	REDUC.ECC	10.00	14.00	M, M	B-16.9	ASTM A 403 GR.WP304-WX	BW	WVG894ZZ0	
SWGC	SWAGE.CONC	0.50	3.00	M, M	BS-3799	ASTM A 182 GR.F304	PBE	WNH426ZZ0	
SWGE	SWAGE.ECC	0.50	3.00	M, M	BS-3799	ASTM A 182 GR.F304	PBE	WPH426ZZ0	
CAP	CAP	0.50	1.50		B-16.11	ASTM A 182 GR.F304	SCRF, 3000	WF6428Z20	
CAP	CAP	2.00	14.00	M	B-16.9	ASTM A 403 GR.WP304-S	BW	WFG874ZZ0	
CPLF	CPLNG.FULL	0.50	1.50		B-16.11	ASTM A 182 GR.F304	SW, 3000	WJ642D2Z0	
CPLH	CPLNG.HALF	0.50	1.50		B-16.11	ASTM A 182 GR.F304	SW, 3000	WK642D2Z0	
CPLL	CPLNG.LH	0.50	1.50		B-16.11	ASTM A 182 GR.F304	SW, 3000	WL642D2Z0	
CPLR	CPLNG.RED	0.50	1.50		B-16.11	ASTM A 182 GR.F304	SW, 3000	WM642D2Z0	
<b>Valves Group</b>									
GAV	VLV.GATE	0.50	1.50		API 602/ ISO 15761	BODY-ASTM A 182 GR.F316, TRIM-STELLITED,STEM-SS 316	SW, 800, 3000, B-16.11, SHT NO.-51061	51061ZZZ0	
GAV	VLV.GATE	2.00	24.00		API 600/ ISO 10434	BODY-ASTM A 351 GR.CF8M, TRIM-SS 316	FLGD, 150, B-16.5, RF/125AARH, SHT NO.-51361	51361ZZZ0	
GLV	VLV.GLOBE	0.50	1.50		API 602/ ISO 15761	BODY-ASTM A 182 GR.F316, TRIM-STELLITED,STEM-SS 316	SW, 800, 3000, B-16.11, SHT NO.-52061	52061ZZZ0	
GLV	VLV.GLOBE	2.00	16.00		BS-1873	BODY-ASTM A 351 GR.CF8M, TRIM-SS 316	FLGD, 150, B-16.5, RF/125AARH, SHT NO.-52361	52361ZZZ0	

Client : BPCL	Dept./Sect : 16/43
Project : POLY PROPLENE UNIT	
Location : KOCHI, KERALA	Piping Class : A3K

Input Id.	Item Type	Lower Size (Inch)	Upper Size (Inch)	Sch/Thk (mm)	Dmn.STD	Material	Description	Commodity Code	Note No
<b>Valves Group</b>									
CHV	VLV.CHECK	0.50	1.50		API 602/ ISO 15761	BODY-ASTM A 182 GR.F316, TRIM-STELLITED	SW, 800, 3000, B-16.11, SHT NO.-53061	53061ZZZ0	
CHV	VLV.CHECK	2.00	24.00		BS-1868	BODY-ASTM A 351 GR.CF8M, TRIM-SS 316	FLGD, 150, B-16.5, RF/125AARH, SHT NO. -53361	53361ZZZ0	
<b>Bolt Group</b>									
BOS	BOLT.STUD	0.50	14.00		B-18.2	BOLT:A193 GR.B7(GALV), NUT:A194 2H(GALV)		BS40513Z0	
<b>Gasket Group</b>									
GAS	GASKET	0.50	14.00		B-16.21-ANSI B16.5	NONASBESTOS BS7531 GR X	RING, 150, 2 MM	GKBAX52Z0	
GAS/300	GASKET	0.50	14.00		B-16.21-ANSI B16.5	NONASBESTOS BS7531 GR X	RING, 300, 2 MM	GKBAX54Z0	
<b>Trap/Strainer Group</b>									
TSR	STRNR.TEMP	1.50	14.00		EIL'STD	B:A240TP304;INT:SS304	CONETYPE , 150,FF/125AARH	ST14131Z0	
PSR	STRNR.PERM	0.50	1.50		MNF'STD	B:A182GR.F304;INT:S S304	SW, Y-TYPE, 800	SP307D510	
PSR	STRNR.PERM	2.00	8.00	M	EIL'STD	B:A403GR.WP304-S;I NT:SS304	BW, T-TYPE	SP15344Z0	
PSR	STRNR.PERM	10.00	14.00	M	EIL'STD	B:A403GR.WP304-WX ;INT:SS304	BW, T-TYPE	SP15444Z0	

Client : BPCL	Dept./Sect : 16/43
Project : POLY PROPLENE UNIT	
Location : KOCHI, KERALA	Piping Class : A91A

PIPE CLASS : **A91A**  
RATING : 150  
BASE MATERIAL : CARBON STEEL  
CORROSION ALLOWANCE : 1.50 MM  
SPECIAL REQUIREMENT :

**TEMPERATURE(Deg.C) AND PRESSURE(Kg/Sq.cm g) RATINGS**

TEMP.	0	38	50	65	100	150	186
PRESS	10.55	10.55	10.55	10.55	10.55	10.55	10.55

**SERVICE**

COOLING WATER FOR CAT D ( A/G & U/G)

**NOTES**

- 18 FOR SIZES ABOVE 30", TEMPERATURE AND PRESSURE RATINGS SHALL BE 70 DEG.C & 10KG/CM2G RESPECTIVELY.
- 31 USE BUTTERFLY VALVES INSTEAD OF GATE VALVES FROM 10" ONWARDS IN WATER SERVICE AND UPTO 70 DEG C. DESIGN PRESSURE FOR BUTTERFLY VALVES IS LIMITED UPTO 10 BAR.
- 65 FORGINGS ARE ACCEPTABLE IN LIEU OF PLATE MATERIAL FOR BLIND FLANGES AND SPACER & BLINDS.
- 76 FOR PERMANENT BW STRAINERS,REFER EIL'STD 7-44-0303 & 7-44-0304; AND FOR TEMPORARY STRAINERS,REFER EIL'STD 7-44-0300.
- 77 FOR SIZES > 24", SPACER & BLIND SHALL BE AS PER EIL'STD 7-44-0164.
- 79 BLIND FLANGES SPECIFIED TO MANUFACTURER'S STANDARD AND CAPS TO ASME SEC VIII SHALL BE DESIGNED FOR 70 DEG.C AND 10.0 KG/CM2G. BLIND FLANGES TO SUIT 150#, FF, 125AARH, AWWA C207 CL.D FLANGES.
- 86 BUTTERFLY VALVES FOR THE SPEC ARE PN10 RATED WITH A MAXIMUM PRESSURE OF 10.2 KG/CM2G.
- 101 NDT REQUIREMENTS AS PER EIL STANDARD SPECIFICATION B895-6-44-0016.
- 106 FOR FABRICATED REDUCERS,REFER EIL'STD 7-44-0485 & 7-44-0487.
- 107 FOR UNDERGROUND PIPING, PIPE WALL THICKNESS ARE CALCULATED BASED ON SOIL PARAMETERS AND BURIAL DEPTH UP TO 1500 MM
- 108 THE MINIMUM SOIL COVER SHALL BE 600MM (<36"), 800MM (36"-48"),
- 109 FOR U/G SERVICE, PIPES SHALL BE EXTERNALLY WRAPPED AND COATED AS PER SPECIFICATION B895-000-06-41-PLS-01.

<b>Client</b> : BPCL	<b>Dept./Sect</b> : 16/43
<b>Project</b> : POLY PROPLENE UNIT	
<b>Location</b> : KOCHI, KERALA	<b>Piping Class</b> : A91A

**SPECIAL NOTES**

ITEM	SIZE	DESCRIPTION	A.CODE
MAINTAINENCE JOINTS	ALL	FLANGED, TO BE KEPT MINIMUM	
PIPE JOINTS	1.5" & BELOW	SW COUPLING 3000 LBS.	
	2.0" & ABOVE	BUTTWELDED	
DRAINS	ON LINES <= 1.5"	REFER EILSTD 7-44-350, DF3	
	ON LINES >= 2.0"	0.75" OR AS PER P&ID. REFER EIL STD. 7-44-351, D4	
VENTS	ON LINES <= 1.5"	REFER EIL STD. 7-44-350, VC1	
	ON LINES >= 2.0"	0.75" OR AS PER P&ID. REFER EIL STD 7-44-351, V1	
TEMP.CONN	1.5"	FLANGED. REFER EIL STD 7-44-353	
PRESS.CONN	0.75"	SW, SH HVY NIPPLE WITH GATE VALVE TO SPEC AS PER EIL STD 7-44-354	



Client : BPCL	Dept./Sect : 16/43
Project : POLY PROPLENE UNIT	
Location : KOCHI, KERALA	Piping Class : A91A

Input Id.	Item Type	Lower Size (Inch)	Upper Size (Inch)	Sch/Thk (mm)	Dmn.STD	Material	Description	Commodity Code	Note No
<b>Pipe Group</b>									
PIP	PIPE	0.50	0.75	S160	B-36.10	ASTM A 106 GR.B	PE, SEAMLESS	PI21977Z0	
PIP	PIPE	1.00	1.50	XS	B-36.10	ASTM A 106 GR.B	PE, SEAMLESS	PI21977Z0	
PIP	PIPE	2.00	2.00	XS	B-36.10	ASTM A 106 GR.B	BE, SEAMLESS	PI21917Z0	
PIP	PIPE	3.00	14.00	STD	B-36.10	ASTM A 106 GR.B	BE, SEAMLESS	PI21917Z0	
PIP	PIPE	16.00	20.00	8.0	IS-3589	IS-3589 GR.410	BE, SAW	PI7E316Z0	
PIP	PIPE	24.00	36.00	10.0	IS-3589	IS-3589 GR.410	BE, SAW	PI7E316Z0	
PIP	PIPE	38.00	44.00	12.0	IS-3589	IS-3589 GR.410	BE, SAW	PI7E316Z0	
PIP	PIPE	46.00	48.00	14.0	IS-3589	IS-3589 GR.410	BE, SAW	PI7E316Z0	
NIP	NIPPLE	0.50	0.75	M	B-36.10	ASTM A 106 GR.B	PBE, SEAMLESS	PN21967Z0	
NIP	NIPPLE	1.00	1.50	M	B-36.10	ASTM A 106 GR.B	PBE, SEAMLESS	PN21967Z0	
<b>Flange Group</b>									
FLG	FLNG.SW	0.50	1.50	M	B-16.5	ASTM A 105	150, RF/125AARH	FSC0127Z0	
FLG	FLNG.SO	2.00	24.00		B-16.5	ASTM A 105	150, RF/125AARH	FNC0127Z0	
FLG	FLNG.SO	26.00	48.00		AWWA-C207 CL.D	ASTM A 516 GR.70	150, FF/125AARH	FN46321Z0	
FLB	FLNG.BLIND	0.50	24.00		B-16.5	ASTM A 105	150, RF/125AARH	FBC0127Z0	
FLB	FLNG.BLIND	26.00	48.00		AWWA-C207 CL.D	ASTM A 516 GR.70	150, FF/125AARH	FB46321Z0	
FEF	FLNG.FIG.8	0.50	8.00		ASME-B16.48	ASTM A 105	150, FF/125AARH	FGK0121Z0	
FEF	SPCR&BLND	10.00	24.00		ASME-B16.48	ASTM A 105	150, FF/125AARH	FCK0121Z0	
FEF	SPCR&BLND	26.00	48.00		AWWA C207D/EIL/ST D	ASTM A 516 GR.70	150, FF/125AARH	FCT6321Z0	
<b>Fitting Group</b>									
ELB90	ELBOW.90	0.50	0.75		B-16.11	ASTM A 105	SW, 6000	WA602D3Z0	
ELB90	ELBOW.90	1.00	1.50		B-16.11	ASTM A 105	SW, 3000	WA602D2Z0	
ELB90	ELBOW.90	2.00	14.00	M	B-16.9	ASTM A 234 GR.WPB	BW, 1.5D	WAG684Z10	
ELB90	ELBOW.90	16.00	48.00	M	B-16.9	ASTM A 234 GR.WPB-W	BW, 1.5D	WAG754Z10	

Client : BPCL	Dept./Sect : 16/43
Project : POLY PROPLENE UNIT	
Location : KOCHI, KERALA	Piping Class : A91A

Input Id.	Item Type	Lower Size (Inch)	Upper Size (Inch)	Sch/Thk (mm)	Dmn.STD	Material	Description	Commodity Code	Note No
<b>Fitting Group</b>									
ELB45	ELBOW.45	0.50	0.75		B-16.11	ASTM A 105	SW, 6000	WB602D3Z0	
ELB45	ELBOW.45	1.00	1.50		B-16.11	ASTM A 105	SW, 3000	WB602D2Z0	
ELB45	ELBOW.45	2.00	14.00	M	B-16.9	ASTM A 234 GR.WPB	BW, 1.5D	WBG684Z10	
ELB45	ELBOW.45	16.00	48.00	M	B-16.9	ASTM A 234 GR.WPB-W	BW, 1.5D	WBG754Z10	
TEQ	T.EQUAL	0.50	0.75		B-16.11	ASTM A 105	SW, 6000	WE602D3Z0	
TEQ	T.EQUAL	1.00	1.50		B-16.11	ASTM A 105	SW, 3000	WE602D2Z0	
TEQ	T.EQUAL	2.00	14.00	M	B-16.9	ASTM A 234 GR.WPB	BW	WEG684ZZ0	
TEQ	T.EQUAL	16.00	48.00	M	B-16.9	ASTM A 234 GR.WPB-W	BW	WEG754ZZ0	
TRED	T.RED	0.50	0.75		B-16.11	ASTM A 105	SW, 6000	WR602D3Z0	
TRED	T.RED	1.00	1.50		B-16.11	ASTM A 105	SW, 3000	WR602D2Z0	
TRED	T.RED	2.00	14.00	M, M	B-16.9	ASTM A 234 GR.WPB	BW	WRG684ZZ0	
TRED	T.RED	16.00	48.00	M, M	B-16.9	ASTM A 234 GR.WPB-W	BW	WRG754ZZ0	
REDC	REDUC.CONC	2.00	14.00	M, M	B-16.9	ASTM A 234 GR.WPB	BW	WUG684ZZ0	
REDC	REDUC.CONC	16.00	48.00	M, M	B-16.9	ASTM A 234 GR.WPB-W	BW	WUG754ZZ0	
REDE	REDUC.ECC	2.00	14.00	M, M	B-16.9	ASTM A 234 GR.WPB	BW	WVG684ZZ0	
REDE	REDUC.ECC	16.00	48.00	M, M	B-16.9	ASTM A 234 GR.WPB-W	BW	WVG754ZZ0	
SWGC	SWAGE.CONC	0.50	3.00	M, M	BS-3799	ASTM A 105	PBE	WNH026ZZ0	
SWGE	SWAGE.ECC	0.50	3.00	M, M	BS-3799	ASTM A 105	PBE	WPH026ZZ0	
CAP	CAP	0.50	1.50		B-16.11	ASTM A 105	SCRF, 3000	WF60282Z0	
CAP	CAP	2.00	48.00	M	B-16.9	ASTM A 234 GR.WPB	BW	WFG684ZZ0	
CPLF	CPLNG.FULL	0.50	0.75		B-16.11	ASTM A 105	SW, 6000	WJ602D3Z0	
CPLF	CPLNG.FULL	1.00	1.50		B-16.11	ASTM A 105	SW, 3000	WJ602D2Z0	
CPLH	CPLNG.HALF	0.50	0.75		B-16.11	ASTM A 105	SW, 6000	WK602D3Z0	

<b>Client</b> : BPCL	<b>Dept./Sect</b> : 16/43
<b>Project</b> : POLY PROPLENE UNIT	
<b>Location</b> : KOCHI, KERALA	<b>Piping Class</b> : A91A

Input Id.	Item Type	Lower Size (Inch)	Upper Size (Inch)	Sch/Thk (mm)	Dmn.STD	Material	Description	Commodity Code	Note No
<b>Fitting Group</b>									
CPLH	CPLNG.HALF	1.00	1.50		B-16.11	ASTM A 105	SW, 3000	WK602D2Z0	
CPLL	CPLNG.LH	0.50	0.75		B-16.11	ASTM A 105	SW, 6000	WL602D3Z0	
CPLL	CPLNG.LH	1.00	1.50		B-16.11	ASTM A 105	SW, 3000	WL602D2Z0	
CPLR	CPLNG.RED	0.50	0.75		B-16.11	ASTM A 105	SW, 6000	WM602D3Z0	
CPLR	CPLNG.RED	1.00	1.50		B-16.11	ASTM A 105	SW, 3000	WM602D2Z0	
UNN	UNION	0.50	0.75		BS-3799	ASTM A 105	SW, 6000	WQH02D3Z0	
UNN	UNION	1.00	1.50		B-16.11	ASTM A 105	SW, 3000	WQ602D2Z0	
<b>Valves Group</b>									
GAV	VLV.GATE	0.25	1.50		API 602/ ISO 15761	BODY-ASTM A 105, TRIM-STELLITED,STEM-13%CR.STEEL	SW, 800, 3000, B-16.11, SHT NO.-51001	51001ZZZ0	
GAV	VLV.GATE	2.00	24.00		API 600/ ISO 10434	BODY-ASTM A 216 GR.WCB, TRIM-13%CR.STEEL, SEATS-STELLITED	FLGD, 150, B-16.5, RF/125AARH, SHT NO. -51321	51321ZZZ0	
GLV	VLV.GLOBE	0.25	1.50		API 602/ ISO 15761	BODY-ASTM A 105, TRIM-STELLITED,STEM-13%CR STEEL	SW, 800, 3000, B-16.11, SHT NO.-52001	52001ZZZ0	
GLV	VLV.GLOBE	2.00	16.00		BS-1873	BODY-ASTM A 216 GR.WCB, TRIM-13%CR.STEEL, SEATS-STELLITED	FLGD, 150, B-16.5, RF/125AARH, SHT NO. -52321	52321ZZZ0	
CHV	VLV.CHECK	0.25	1.50		API 602/ ISO 15761	BODY-ASTM A 105, TRIM-STELLITED	SW, 800, 3000, B-16.11, SHT NO.-53001	53001ZZZ0	
CHV	VLV.CHECK	2.00	24.00		BS 1868	BODY-ASTM A 216 GR.WCB, TRIM-13%CR.STEEL, SEATS-STELLITED	FLGD, 150, B-16.5, RF/125AARH, SHT NO. -53321	53321ZZZ0	
CHV	VLV.CHECK	26.00	48.00		API-594	BODY-ASTM A 105 / A 216GR.WCB, TRIM-13%CR.STEEL, SEATS-STELLITED	FLGD, 150, AWWAC207, FF/125AARH, SHT NO. -53316	53316ZZZ0	
BLV	VLV.BALL	0.50	16.00		BS EN ISO 17292	BODY-ASTM A 105 / A 216GR.WCB, TRIM-BODY SEAT-RPTFE	FLGD, 150, B-16.5, RF/125AARH, SHT NO. -54321	54321ZZZ0	

Client : BPCL	Dept./Sect : 16/43
Project : POLY PROPLENE UNIT	
Location : KOCHI, KERALA	Piping Class : A91A

Input Id.	Item Type	Lower Size (Inch)	Upper Size (Inch)	Sch/Thk (mm)	Dmn.STD	Material	Description	Commodity Code	Note No
<b>Valves Group</b>									
BFV	VLV.BTRFLY	3.00	24.00		BS EN 593	BODY-ASTM A 216 GR.WCB, TRIM-13% CR.STEEL	WAF, 150, B-16.5, WAF/125AARH, SHT NO.-56321	56321ZZZ0	
BFV	VLV.BTRFLY	26.00	48.00		BS EN 593	BODY-ASTM A 216 GR.WCB, TRIM-13% CR.STEEL	FLGD, 150, AWWAC207, FF/125AARH, SHT NO. -56316	56316ZZZ0	
<b>Bolt Group</b>									
BOS	BOLT.STUD	18.00	48.00		B-18.2	BOLT:A193 GR.B7, NUT:A194 GR.2H		BS40404Z0	
BOM	BOLT.M/C	0.50	16.00		B-18.2	BOLT:A307 GR.B, NUT:A563 GR.B		BM41418Z0	
<b>Gasket Group</b>									
GAS	GASKET	0.50	24.00		B-16.21-ANSI B16.5	NONASBESTOS BS7531 GR X	RING, 150, 2 MM	GKBAX52Z0	
GAS	GASKET	26.00	80.00		AWWA-C207 CL.D	NONASBESTOS BS7531 GR X	FULLFACE, 150, 2 MM	GK2AX22Z0	
<b>Trap/Strainer Group</b>									
TSR	STRNR.TEMP	1.50	24.00		EIL'STD	B:A285GR.C;INT:SS304	CONETYPE, 150,FF/125AARH	ST14431Z0	
PSR	STRNR.PERM	0.50	1.50		MNF'STD	B:A105;INT:SS304	SW, Y-TYPE, 800	SP303D510	
PSR	STRNR.PERM	2.00	6.00	M	EIL'STD	B:A234GR.WPB;INT:SS304	BW, T-TYPE	SP13344Z0	
PSR	STRNR.PERM	8.00	24.00	M	EIL'STD	B:A234GR.WPBW;INT:SS304	BW, T-TYPE	SP13644Z0	

**MANDATORY SPARES LIST  
STATIC & MACHINERY EQUIPMENT  
(PACKAGED EQUIPMENT)**

**FOR  
MISCELLANEOUS BUILDING WORKS FOR PP  
PROJECT**

**TENDER No. B895-999-81-46-CF-T-8202**

<b>PROJECT</b>	<b>:</b>	<b>PMC AND EPCM SERVICES FOR POLYPROPYLENE PROJECT AT BPCL KOCHI REFINERY</b>
<b>OWNER</b>	<b>:</b>	<b>BHARAT PETROLEUM CORPORATION LIMITED</b>
<b>PMC/EPCM</b>	<b>:</b>	<b>ENGINEERS INDIA LIMITED</b>
<b>EIL JOB No.</b>	<b>:</b>	<b>B895</b>

Rev. No.	Date	Purpose	Prepared by	Checked by	Approved by
0	06.03.2026	ISSUED AS TENDER INPUT	NJ	DV	SPC

Contractor shall supply Mandatory spares for following Mechanical Equipment / Packages as per philosophy mentioned in table below.

**Mandatory Spares for Each HVAC System**

Name of Equipment	Description of Mechanical Spares	Quantity
VCR based Air Conditioning System (Condensing units/ Chillers/ Package Unit) except Split AC Units	Refrigerant	Full charge along with storage cylinders for one unit of each AC system (Building wise).
Chilled Water Pump, Cooling Water Pump Centrifugal Pumps (Horizontal) One/two Stage	Refer below Table	Refer below Table

**Mandatory Spares for Centrifugal Pump (General Water Service)**

Item Description	Description of Mandatory Spares	Quantity (Qty per Item Tag No.) (i.e. Total qty for working and standby)
Centrifugal Pump for General Water Service	Shaft & Impellers	1 Set
	Mechanical Seals (if applicable)	1 Set

**NOTE:**

- The quantity one Set means the quantity required for full replacement of that part in one machine.**
- Spare part shall be identical in all respect to the part fitted on the main equipment including dimension, material of construction and heat treatment**

Mandatory spares required for electrical and instrumentation items as applicable for the packages shall be provided as per respective department mandatory spare philosophy attached in this Tender elsewhere.

# TECHNICAL CONFIRMATION LIST STATIC & MACHINERY EQUIPMENT (PACKAGED EQUIPMENT)

## FOR MISCELLANEOUS BUILDING WORKS FOR PP PROJECT

**TENDER No. B895-999-81-46-CF-T-8202**

PROJECT	:	PMC AND EPCM SERVICES FOR POLYPROPYLENE PROJECT AT BPCL KOCHI REFINERY
OWNER	:	BHARAT PETROLEUM CORPORATION LIMITED
PMC/EPCM	:	ENGINEERS INDIA LIMITED
EIL JOB No.	:	B895

Rev. No.	Date	Purpose	Prepared by	Checked by	Approved by
0	06.03.2026	ISSUED AS TENDER INPUT	NJ	DV	SPC

**Bidder shall furnish duly filled and signed technical confirmation list and deviation list, if any, alongwith bid which will form the basis for technical evaluation of bid.**

Bidder is required to give categorical reply to each point of this technical confirmation list so that bidder's offer could accordingly be evaluated.

Bidder's reply "Not Confirmed" is not warranted and may lead to technical rejection of their bid. However, Bidder may provide certain clarification, incase absolutely necessary, without deviating to bid requirement.

Sl. No.	Description	BIDDER'S ANSWER (Confirmed / Not Confirmed)
1.	<p>The scope of work and battery limits shall be in compliance with the tender document (Refer Doc No. B895-999-80-42-SOW-8202 for Static &amp; Machinery Equipment Scope of Work and other related documents).</p> <p>All other equipment, materials and work not explicitly mentioned but nevertheless required to fulfil the system and functional requirements shall be deemed to have been included in the scope of Bidder with no additional cost and time implication to the Owner.</p> <p>Please Confirm.</p>	
2.	<p>Bidder to note that no deviations are allowed from the tender specifications. However, if it is inevitable, clause-wise deviation, against the tender specifications shall be duly consolidated at one place, under Exceptions / Deviations List in the format enclosed with the tender and shall be submitted with the bid.</p> <p>In case, no exception / deviation list is furnished, it will be presumed that all requirements of tender are fully complied with. Any exceptions /deviations made by the Bidder elsewhere in their offer shall not be taken cognizance of and all such exceptions / deviations shall be deemed as null and void.</p> <p>Confirm compliance.</p>	
3.	<p>Technical Amendments, if any, on the Tender Specifications shall be considered part of Tender Specifications itself and shall be strictly adhered to by the Bidder.</p> <p>Confirm compliance.</p>	

Sl. No.	Description	BIDDER'S ANSWER (Confirmed / Not Confirmed)
4.	<p>Bidder to note that data sheets, drawings and other technical details are not required with offer and the same, if submitted with bid, shall be treated as preliminary and retained for records only.</p> <p>Vendor's documents/ drawings shall be reviewed as per the "Vendor Data Requirements (Doc No. B895-999-80-42-VDR-8202)" during post order stage for checking/ ensuring compliance with Tender specifications / Contract requirements. Owner/EIL comments shall be binding on Contractor without any commercial implication to the Owner.</p> <p>Confirm compliance.</p>	
5.	<p>Bidder to confirm that in the event of order, all drawings, documents and data shall be furnished in accordance with Vendor Data Requirements (Doc. No. B895-999-80-42-VDR-8202).</p>	
6.	<p>Bidder to confirm that all the documents/drawings shall be duly checked and approved by Contractor before submission of the same for OWNER/ EIL review/approval.</p>	
7.	<p>Bidder to confirm that the complete design, engineering, equipment selection, installation, commissioning and performance testing of central HVAC system shall be carried out by an approved vendor from the Project Vendor list for HVAC SYSTEM- CENTRAL AIR CONDITIONING (item code 06AA) (Refer Annexure-1 of Sub Vendor List Doc. No. B895-999-80-42-VL-8202) attached with the tender.</p>	
8.	<p>Bidder to confirm that makes of all equipment / components of HVAC System shall be as per approved Vendor List (Refer Annexure-2A &amp; 2B of Sub Vendor List Doc. No. B895-999-80-42-VL-8202) attached with the tender documents.</p> <p>For any item, where no vendor list is provided in the tender document, the vendor proposed by Contractor shall have sufficient Proven Track Record (PTR) and shall be subject to Owner / EIL approval during detailed engineering without any</p>	

Sl. No.	Description	BIDDER'S ANSWER (Confirmed / Not Confirmed)
	commercial implication to Owner/EIL.	
9.	Bidder to confirm that the material of construction of equipment/ components shall be same or superior to those specified in the Tender Documents.	
10.	Bidder to confirm categorically that following have been included by them in their quoted price. <ul style="list-style-type: none"> <li>a. Commissioning spares, as required, for all equipment</li> <li>b. Special tools and tackles for all equipment, as required.</li> </ul>	
11.	Bidder to confirm that the supply of initial charge all consumables, lubricants, refrigerants, etc. and replenishment of any loss of these during commissioning have been included for all equipment/ packages as per Scope of Work (Doc No. B895-999-80-42-SOW-8202).	
12.	Bidder to confirm that the list of recommended spares for two (2) years of normal operation & maintenance (as recommended by the Original Equipment Manufacturer) shall be furnished for all equipment/ packages. Owner shall order these spares separately, as required.	
13.	Bidder to confirm that Mandatory Spares as mentioned in Tender Doc. No. B895-999-80-42-SL-8202 shall be supplied.	
14.	Bidder to confirm that the Inspection & Testing requirements as specified in the tender shall be complied. All necessary equipment as required for carrying out Inspection and Testing as stipulated in Tender documents shall be in the scope of the Bidder.	
15.	Bidder to confirm that the Performance Guarantee requirements as specified in the tender Specifications shall be complied.	

**Bidder's Seal with date**

**Signature of Authorised Representative**

## PROCEDURE FOR SMART INTEGRATED ENGINEERING & DIGITAL HANDOVER FOR DRAWINGS / DOCUMENTS / TRACKING

**PROJECT :** PMC AND EPCM SERVICES FOR POLYPROPLENE PROJECT  
OF BPCL KOCHI REFINERY

**OWNER :** BHARAT PETROLEUM CORPORATION LIMITED (BPCL)

**PMC/EPCM :** ENGINEERS INDIA LIMITED (EIL)

**JOB NO. :** B895

Rev. No	Date	Purpose	Prepared by	Checked by	Approved by
0	05.12.2024	ISSUED FOR TENDER	VSY	MK	SV

## 1. GENERAL

This chapter details the requirements pertaining to various drawings and documents to be generated at various stages during the course of execution of the project by the BIDDER for activities associated with Smart Integrated Engineering. These stipulations are supplementary to following specifications (enclosed elsewhere in the Tender):

S. No.	Spec. No.	Specification detail
1.	6-78-0001	Specification for quality management system requirements from bidders
2.	6-78-0002	Specification for documentation requirements from contractors
3.	6-78-0003	Specification for documentation requirements from suppliers

The BIDDER shall recognize that efficient handling of drawings and documents to be prepared by him under the contract is the key to the timely completion of the plant.

The BIDDER shall undertake to ensure that all drawings and documents to be submitted by him to the OWNER/CONSULTANT shall be of professional quality and conforming to the contractual requirements.

The BIDDER shall submit the drawings through the consultant's VENDOR document management system for review by OWNER /CONSULTANT, and shall maintain a record of drawings submitted till date at all times.

**BIDDER shall provide COMOS Software platform and submit all the drawings and documents in COMOS System for the project. Bidder scope also includes conversion of documents of LLI vendors in COMOS.**

**Compliance of this chapter on drawings and documents is mandatory and is non-negotiable.**

Computer aided design and drafting shall only be used. Standard, approved and well-established PC based computer programs/software packages, available in market shall only be used by the BIDDER / Vendors / sub-Vendors etc.

All documents, before forwarding to OWNER / CONSULTANT shall be vetted in detail by BIDDER. Documents received without vetting will be returned without review. Also, any inaccuracies / mistakes found will not only be rectified by the BIDDER but the CONTRACTOR shall remain liable for bearing charges towards efforts spent by OWNER/CONSULTANT for discussing the same. Delay owing to these shall be to the account of BIDDER.

Review of the drawings/documents by OWNER/CONSULTANT would be only limited to the review of compatibility with basic designs and concepts. The review by the OWNER/CONSULTANT shall not be construed by the BIDDER as limiting any of his responsibilities and liabilities for mistakes and deviations from the requirements, specified under these specifications and drawings.

**All drawings, datasheets, specification & model etc. shall be generated by use of authoring tools specified elsewhere in the contract document. The digital handover shall be in soft native files along with associated database.**

**BIDDER shall furnish 3D model (with complete details with respect to equipment, Piping, Civil, Structure, Electrical & Instrumentation (AS APPLICABLE) in line with scope of work**

for 3D modeling) for the process unit with dynamic walk-through facility to check any interference, requirement of safety, operation and maintenance for getting approval from OWNER/CONSULTANT with input data. Associated data base files along with library shall also be furnished at 30%, 60% and 90% model reviews.

Each drawing submitted by the BIDDER shall be clearly marked with the name of the Owner, the unit designation, the specifications, title, the specification number and the name of the Project with revision No. and date. If standard catalogue pages are submitted the applicable items shall be indicated therein. All titles, noting, markings and writings on the drawings shall be in English. The template shall be approved by the consultant/client. All documents shall be prepared on the approved template.

All the Engineering design and specifications shall be normally prepared in MKS system except for Civil / Structural, wherein the SI system is in vogue based on applicable design codes. Upon receiving comments on Drawings/Documents, the BIDDER shall provide compliance report, separately on each of the comments, document-wise, along with the subsequent submission. Comments given by OWNER/CONSULTANT shall be discussed, if required, and finalized within the agreed schedule.

The schedule of submission of Drawings/Documents shall be in accordance with project plans only. The detailed list under different category, document-wise, shall be prepared by BIDDER for review/records of OWNER/CONSULTANT.

The BIDDER shall maintain up-to-date record of drawings & document status and make regular issue of drawing/documents index **discipline wise, on monthly basis, with copies to OWNER / CONSULTANT Site &, H.O.** indicating schedule date of submission, submission date of various revisions and date of review with code of review/ approval.

## 2. Category of Documents and Cycle Time

The handling-over of documents to OWNER / CONSULTANT by BIDDER shall be as follows:

### 2.1 OWNER /CONSULTANT's Review/Records

A detailed document list clearly identifying review / records category against each document shall be developed. Following may please be noted for all the documents engineered by the BIDDER:

#### a) Review

BIDDER can proceed if OWNER / CONSULTANT's comments are not received within 15 working days of its receipt by OWNER / CONSULTANT. However, if major deviation to contract specification for any design deficiency is detected in the course of review after stipulated period, it shall be the responsibility of the contractor / BIDDER to see that such deviations and deficiencies are corrected to ensure compliance to contract without any cost and time implication to Owner.

#### b) Records

BIDDER shall submit documents for OWNER/CONSULTANT's information and proceed with the work. OWNER/CONSULTANT comments, if any, which relates any cost and/or time implication to the owner due to inadequacies/inaccuracies may be brought to the attention of BIDDER at any stage for incorporation without any cost or time impact to owner.

The documents falling under review category shall in general, except for drawings requiring multi-

disciplinary review, be returned with comments within 10 working days.

Documents submitted without meeting pre-requisite requirements will be returned without review.

However, documents like equipment layout etc. where multi-disciplinary activity is involved, the BIDDER, after submission for OWNER/CONSULTANT's review, shall visit OWNER/CONSULTANT for discussion for expeditious review of documents.

In absence of visit of BIDDER'S engineering team at OWNER/CONSULTANT office, review time shall be 15 working days. The information category document will be retained for records only. It is BIDDER'S responsibility to correct the deviation, if any, to the stipulation in the bid document, without any cost or time implication to Owner.

## **2.2 BIDDER Review**

BIDDER shall furnish compliance statement to OWNER /CONSULTANT's comments while submitting the next revision within 10 days from the date of release of drawings and documents by OWNER/CONSULTANT.

## **2.3 Control and Monitoring of documents review and submission**

Drawing schedule shall indicate the following:

- Schedule/Actual submission date to owner
- Category of submission
- Receipt of comments from Owner
- Category of return status from Owner
- Issue date for Construction

This updated schedule shall be issued on fortnightly/monthly basis, as agreed, and compared with Owner's log.

Detailed listing of documents (discipline wise) which are scheduled to be submitted or re-submitted incorporating OWNER/CONSULTANT's comments shall be provided by CONTRACTOR / BIDDER in the weekly meetings. Contractor / BIDDER shall ensure that drawings / documents are submitted as per the agreed schedule only. Bunching of documents/out of sequence submissions and consequential delay of documents and its review thereof shall be exclusively attributable to BIDDER.

## **2.4 Pre-Requisites from Contractor**

- 2.4.1** At the kick-off meeting, the BIDDER must submit discipline wise list of documents and drawings index.
- 2.4.2** The Drawing Index (discipline wise) shall include description of drawings/ documents, category of drawings, scheduled date of submission, actual date of submission, review code received with dates. This shall be updated fortnightly/monthly, as agreed by BIDDER and copies issued to OWNER / CONSULTANT site and H.O. as well as Owner. Drawings submitted before finalization of drawing index shall be rejected.
- 2.4.3** BIDDER shall separately submit list of drawings/documents involving multi-disciplinary reviews, considering the OWNER / CONSULTANT departmental activities (furnished in the contract) during the kick off meeting itself. They are also highlighted in the discipline- wise document list.

- 2.4.4** Critical and typical drawings / documents having impact on schedule and quality should only be identified for such timely reviews in Document Control Index. This shall be adopted after receipt of drawings / documents indexes from the BIDDER at the kick-off meeting with mutual understanding of the CONTRACTOR / concerned specialist / Owner.
- 2.4.5** Any deviation on Record category drawings / documents and on review category drawings observed later or in execution at site during site visit/technical review by OWNER/CONSULTANT shall be taken seriously. Contractor shall rectify the same at his own cost and time.
- 2.4.6** BIDDER shall plan submission progressively so that no bunching takes place in any discipline.
- 2.4.7** Review period shall be reckoned from the “Date of Receipt” of documents/drawings at OWNER / CONSULTANT to the “Date of Receiving” the reviewed documents by the BIDDER from OWNER /CONSULTANT office. BIDDER shall monitor submission and receipt.
- 2.4.8** Documents/drawings received prior to holiday / week end shall be accounted as received on the following working day and the review period committed shall include only working days.
- 2.4.9** Quality of drawings/documents is the essence for a timely review. If major comments/deviations to the contract document are noticed, the drawing shall be returned in Code-3.
- 2.4.10** Sequence of submission of drawings is essential for proper review of documents and timely completion of the project and the same is to be adhered to. In case sequence is not maintained, the documents submitted shall not be reviewed by OWNER/CONSULTANT and the responsibility of timely execution of the plant shall remain with BIDDER.
- 2.4.11** Piping/Instrument & other engineering drawings/documents shall be issued only after the corresponding P&IDs & Process documents coming under review category are first reviewed by the concerned department in code-2 as a minimum.
- 2.4.12** In principle, BIDDER is not expected to revise drawings/documents already reviewed in Code-1.
- a) If it is of utmost necessity to revise or add some minor details in Code-1 drawings, BIDDER shall highlight such revisions by marking “CLOUD” to such additions/alterations. BIDDER is also needed to provide a “BLOCK” in the drawing indicating reasons of such changes and to insert another “Review Block”. OWNER / CONSULTANT shall put relevant code for such revisions only. Code marking given by OWNER / CONSULTANT on such revisions shall not change the category of drawing.
- b) Any major change in Code-1 drawing shall call for preparation of new drawing.
- 2.4.13** Based on the confidence gained on BIDDER’S quality of drawings/documents already submitted, “Review Category” drawings could be retained as Information/Records and vice versa at the discretion of OWNER/CONSULTANT. This however, does not change the category of drawings.
- 2.4.14** Once a document is already reviewed in Code-2, subsequent submission due to non-incorporation of comments shall not be accounted for any contractual commitment of review period from OWNER / CONSULTANT. BIDDER is expected to comply with OWNER / CONSULTANT’S comments in the next revision after Code-2 and is required to submit a compliance report accordingly.
- 2.4.15** Deviation permit, submitted for seeking deviation in BIDDER document management system,

shall be separately identified and shall not be considered as a document for timely approval/review.

**2.4.16** When OWNER/CONSULTANT deploys engineers at the BIDDER'S work center following shall be satisfied:

- Review is limited to identified long delivery/schedule critical items only.
- Readiness of documents/drawings shall be ensured by the BIDDER.
- Presence of lead engineers of all disciplines of the BIDDER.

**2.4.17** If OWNER / CONSULTANT highlights any necessary rectifications required in the construction at the time of Technical Review/Audit, construction executed based on record category drawings not complying with Bid requirement, BIDDER shall rectify without any impact of time and cost to Owner.

**2.4.18** BIDDER shall submit designs drawings for review only after the corresponding GA / Equipment datasheets etc. have been coordinated in his office and reviewed by OWNER / CONSULTANT engineers at least in Code-2. Such OWNER / CONSULTANT reviewed drawings shall be furnished along with drawings/designs for timely review.

**2.4.19** BIDDER shall open an engineering office in India (applicable for foreign bidder) for speedy document submission and to help faster review of the drawings & documents.

## **2.5 Approved for Manufacturing / Construction Drawings:**

Drawings reviewed under Code-1 & Code-2 required for execution at site shall be decided by BIDDER and copies need to be sent to OWNER / CONSULTANT.

- **"Approved for Manufacturing / Construction"** stamped/sticker drawings shall be issued by BIDDER for manufacturing and execution
- **"Approved for Construction"** stamped/sticker shall be done separately on the reviewed print and not on the Title block.
- Copies of only reviewed or final documents like design calculations, design basis etc. shall be sent to OWNER /CONSULTANT site for records.
- Copy of such transmittal shall be sent to OWNER / CONSULTANT (HO) for records.

**2.6** Critical Drawing / documents shall be reviewed by Licensor during the course of Project execution, list of Licensor mandatory review document is enclosed elsewhere in the contract.

## **2.7 Mandatory compliance to the smart engineering activities at Contractor's / BIDDER's end**

**2.7.1** All P&IDs need to be smartly developed in Smart P&ID. All the constituents of P&ID need to be mapped with database/database driven. There shall not be any graphics/symbols/texts in the P&ID. There shall not be any dummy graphics/symbols/texts in main body of the P&ID.

**2.7.2** 3D Modeling for Piping, Equipment, Instruments & Electrical need to be database driven. Dummy graphics need to be avoided. Quality check & data connectivity shall be ensured at Contractor's / BIDDER's end before submitting the data files/documents/3D Model to the Consultant.

- 2.7.3 All the applicable deliverables shall be extracted from 3D model without any manual rework done thereafter. This is to maintain the consistency between 3D model and extracted deliverables.
- 2.7.4 Deliverables from 3D model shall be extracted only on conforming the alignment of interfaces with client model and clash free design.

## 2.8 Digital handover of Engineering Information

- 2.8.1 Smart Integrated engineering shall be utilized to carry out engineering activities. Intelligent Systems shall be used for the management of P&ID, Equipment layout, 3D Model, Piping, Electrical and Instrumentation design & deliverables including P&IDs, Reports, MTO, procurement etc.

The data in each such intelligent system, including the 3D Model, Intelligent P&ID's, Electrical and Instrumentation documents to be submitted by the Contractor in a predefined Software version/format, as tabulated below. The same shall be submitted by the respective BIDDER / Equipment suppliers strictly without any deviation.

All documents shall be submitted online (in Owner / Consultant Documentation Portal) for review and approval by Owner / Consultant.

**All project documentation shall be as per BPCL specification for handover of Engineering Information- document No. 03/DE/TR/EIS/HDVR (attached as Annexure-I).**

**All the documents developed and submitted by BIDDER / Suppliers shall be in software as defined in Table-1 below.**

### Software versions / Format Requirements

The definition is in general terms containing (native (N), image (I), portable document format (D)) the formats in which Contractor shall provide electronic versions of Documents. Acceptable applications for each format type are listed in the table below.

**TABLE-1**

Data/Document Types	Authoring Software*	Version
2D CAD	E3D, AutoCAD	2019/2018
Intelligent P&IDs	Smart PID	V11
Instrument Index, Datasheet etc.	Smart Instrumentation (SI)	2018
Electrical Load List / Interconnection details / Cable Schedule	Smart Electrical (SE)	V10
3D Model	E3D	2019

Text Documents/Reports	MS Word as agreed with Company	
Datasheets/Lists	MS Excel or Adobe Acrobat as agreed with Company	
Email	Rich Text Format	
Schedules	Primavera	
Organization Charts/diagrams	Visio, Microsoft power point or as agreed with Company	
Portable Document Format Files	PDF files shall always be directly generated to PDF from the authoring application. Scanned documents/Images which are converted to Adobe Acrobat format do not qualify as Portable Document Format files and shall be treated as image files for the purpose of format compliance.	

\*In case documentation submitted is of authoring software mentioned below, the data has to be submitted comprehensively including databases, catalogs etc., as detailed here.

E3D	Project DBs along with Reference project for Catalogues, Standards, customization develop for the job etc.
INTERGRAPH SMART P&ID	SPID Project Backup along with deliverables extracted from SPID (P&ID, PDS, Line list)
AUTOCAD	DWG/DXF files
SMART Instrumentation	SPI Project Backup (DWG + Datasheets + Tags & Attributes in excel format)
SMART Electrical	SE Project Backup (DWG + Tags & Attributes in excel format)

## 2.8.2 Documentation in COMOS

**All documents shall be handed over to OWNER / CONSULTANTS in COMOS Documentation Software platform**

### Process

Preliminary following to be ensured by Bidder while converting the smart P&ID in COMOS P&IDs.

- 1) All data of P&ID should be transferred to COMOS.
- 2) There should not be any loss/ Change in data/symbols while converting.
- 3) All attribute of smart P&ID should be transferred to COMOS with all details.
- 4) Reports should be extractable in editable form with all details filled as in smart P&ID.
- 5) Integration of COMOS software P&ID along with Vendor P&ID, EPC/EPCM P&IDs etc.

## Electrical

Inputs of various electrical equipment shall be provided in Autocad/Excel/PDF/Word format. Scope shall also include documentation in COMOS software.

## Instrumentation

Inputs of various Instrumentation documents shall be provided in Autocad/Excel/PDF/Word format/ SPI. Scope shall also include documentation in COMOS software.

## 2.8.3 DELIVERABLES

### Process

- a) The P&IDs, PFDs and Interactive Operating manual, shall be created in COMOS format.
- b) P&ID and PFD in AutoCad and COMOS with Database & attributes also.
- c) Line List, Equipment List, and Instrument List etc extractable from COMOS based on database.

### Electrical

Following Electrical documents shall be created in COMOS format under “Issued for Engineering”

- a) Intelligent single line and circuit diagrams
- b) Load Analysis
- c) Motor list
- d) LCS List
- e) Switchboard feeder list
- f) Transformer sizing

Following Electrical documents shall be created in COMOS format under “Issued for Construction”

- g) Interconnection & Cable Schedule

### Instrumentation

Following Instrumentation Documents shall be provided in COMOS

- a. Index
- b. Instrument Data Sheets
- c. Point Data base
- d. Instrument Loop diagram
- e. Instrument Hookup diagrams
- f. Cable Schedules

**Bidder shall consider the documentation license for COMOS software considering all the deliverables for all engineering disciplines.**

### **3.0 Real Time Tracking of Major Shipments for BPCL-KR PP Project and Data Sharing for Use on Project Control Tower (PCT)**

#### **3.1 General Requirements**

The Bidder / Vendor (directly and/or through their transport agency) shall provide real-time tracking information for all consignments as per the following:

Tracking information of all shipments through all modes of transport vs. Air, Land and Sea  
GPS tracking for all shipments. EIL/BPCL reserves the right to exempt shipments of small value from GPS Tracking.

Electronic sharing of GPS tracking data (as applicable) and consignment tracking data (through Transport Agency's Transport Management System) via REST API and on web portal of Bidder / Vendor or transport agency, including depiction of location of consignments on map where GPS tracking is applicable  
Tracking details for both international and domestic shipments.

For International Shipments mandatory vessel tracking through AIS (Automatic Identification System)

#### **3.2 Mandatory Tracking Information**

The Bidder / Vendor must provide the following information for each consignment:

Unique consignment identifier

Real-time GPS coordinates for in-transit shipments

Scheduled, Estimated and actual departure times from point of origin

Scheduled, Estimated and actual arrival times at destination

Current location and status updates on a daily basis (GPS Status updates shall be live)

Total Distance, Cumulative Actual Distance Travelled, Daily Distance Travelled to be updated on Daily basis.

Any deviation from planned route or schedule

Detailed consignment route details with GPS coordinates for key touchpoints like ports, terminals and warehouses.

#### **3.3 Data Sharing Protocol**

The Bidder / Vendor shall:

Provide access credentials for their tracking platform as applicable

Share tracking data in real-time for GPS tracking and daily basis

Provide notification of any tracking system failures/ downtime or data gaps

#### **3.4 Security and Confidentiality**

All tracking data shall be treated as confidential information

Data transmission must use secure protocols

Bidder / Vendor shall comply with relevant data protection regulations

**TECHNICAL SPECIFICATION FOR HANDOVER OF ENGINEERING INFORMATION****1. INTRODUCTION****1.1 SCOPE**

This Specifications covers the requirements against which Designers, Manufacturers, and Suppliers shall deliver information to enable project handover and reduce the need to reclassify, reformat and rework the documents and data at handover points during the project life-cycle. This specification addresses the requirements for document and data handover from the Contractor / PMC to the owner who will commission, operate and maintain the plant. All documents and data required by the Project's scope of work shall be handed over in accordance with this specification.

**1.2 DEFINITIONS**

The **Contractor** is the party which carries out all or part of the design, engineering, procurement, construction, commissioning or management of a project or facility. This term shall also include consultants and Process licensors.

The **Manufacturer/Supplier** is the party which manufactures or supplies equipment and services to perform the duties specified by the Contractor.

The **Owner** is the party which initiates the project and ultimately pays for its design and construction. The Owner will generally specify the technical requirements. The Owner may also include an agent or consultant, authorised to act for, and on behalf of, the Owner. NOTE: In some places the Owner is also referred to as the "Company" or as "BPCL-KR"

The word "**Structured data**" means that the data can be accessed and manipulated directly by computer programs without human intervention. In this form, information adheres to a well-defined model. Structured information may be quantitative (such as structural analysis data), descriptive (such as finishes or coatings) or graphical (such as schematic diagrams, scaled drawings or 3D CAD models). This information form allows for automated—and therefore cost effective—editing, search, retrieval and update, while maintaining the intelligent information content.

The information may be database information (such as equipment data or line information) or graphical information such as intelligent schematic diagrams or 3D CAD models.

All structured data shall be delivered in a structured data format such as spreadsheet, database or XML format. In this specification, S/D is an abbreviation for Structured Data.

**Native File** is the form in which the electronic file is created by specific software application that was used to edit or author the document, such as AutoCAD .DWG file, CAESAR .C2 file or Microsoft Word .DOC file. If the information has any structure then it will only be interpretable by the original application that created it (or other software that can translate it). The details about the characteristics of information to be handed over in this form is specified elsewhere in this document.

The word **shall** indicates a requirement. The word **should** indicates a recommendation.

## 2. GENERAL

### 2.1 PURPOSE OF AN ENGINEERING INFORMATION SPECIFICATION

Accurate and appropriate asset information is crucial for the efficient and safe operation of a facility. During the project development phase of a facility a vast amount of asset information is generated, normally with the express purpose of enabling the facility to be built. Traditionally, little attention is paid to developing the information in line with the requirements for the operational and maintenance stage of the plant life-cycle.

The purpose of this specification is to define, the information required to manage the effective execution of the project and also to Operate and maintain the facility after handover to the owner.

There are broadly two groups of information: Documents and Asset Information. Asset information is data which goes into operational applications (e.g. maintenance management systems and engineering systems). Document information is documents and their Meta data, which typically go into an electronic data management system (EDMS).

#### 2.1.1 Delivery Schedule

All Pre-Project documents like Feasibility reports, scouting documents, study reports, Statutory approvals, licenses etc. shall be handed over within 2 weeks of receipt by the Project executing agency.

All drawings, documents and data related to equipments supplied by Vendors/manufacturers shall be handed over, within 2 weeks from delivery at site or erection on foundation, whichever is earlier.

All documents required for pre-commissioning activities shall be delivered within a week of Mechanical completion.

All "As built" documents and data shall be handed over by the contractor after Mechanical completion and before startup of the Facility, but not later than 2 months from the date of Mechanical completion.

#### 2.1.2 Media

Unless otherwise specified, information shall be provided as hard copy and soft copy on DVD-ROM, CD-ROM or flash disk and shall be labeled with a Transmittal Record. The number of hard copies shall be Three unless specified otherwise.

#### 2.1.3 Deliverable packages

Different sets of information shall be delivered in separate packages. Documents and drawings related to different Tag numbers shall not be clubbed together into a single package.

#### 2.1.4 Delivery format

Unless otherwise specified, data shall be delivered in the format defined in this specification. The order in which information appears in the tables is also the order in which the information shall be delivered. For example, if data is delivered in a spreadsheet, CSV file, or database, the column arrangement should be in the same

order as specified in the definition tables. Formats shall not be changed unless agreed by Owner.

### **3. DOCUMENTS**

Documents are to be stored in an electronic document management system of the Owner, for which purpose pre-defined meta-data is also required, enabling effective storage, searching, and retrieval.

All document metadata and relations shall be delivered in a structured data format such as spreadsheet, database, text file or XML format as defined by the Owner and as specified in this specification.

#### **3.1 META DATA AND STRUCTURE**

Meta data is required for each document or drawing submitted, and shall be as per table A

##### **3.1.1 Document number**

The following rules shall apply to Document numbers:

1. The document number shall be unique.
2. If the number itself implies additional information it shall be based on Tag numbers, document attributes or relations.
3. If the number itself implies additional information it shall be based on information that will not change during the entire life-cycle, and shall be meaningful beyond the project phase.

#### **3.2 DOCUMENT AND FILE REQUIREMENTS**

##### **3.2.1 Sheets**

A drawing is a Document and all Document rules shall apply to it. Multiple drawings in a series shall not be clubbed as a single file.

##### **3.2.2 Document Types**

The Document Type classification is applied to ensure the nature of the document content is understood before the document is opened, and unexpected content is not contained within the document (e.g. a Document classified as an Operating Manual shall not contain drawings such as GA or cross sectional drawings. If necessary, they may be referenced instead).

##### **3.2.3 File requirements**

Each Document shall reference an electronic file containing an image, and/or the source information. The following shall apply:

- Each rendition of a Document shall be delivered in a single electronic file.
- Only drawings shall have multiple Sheets, and each Sheet shall be a separate document. Therefore, each sheet shall be created as a single electronic file. Multiple renditions of the same Sheet may be delivered as multiple files.
- As far as possible, page sizes shall be consistent across similar types of

documents.

- Any design or maintenance document that refers to a single item of Equipment, Tag or Model shall be delivered as a single file (e.g. 2 data sheets for 2 pumps shall not be delivered in a single file).
- Each electronic file shall be self-contained. It shall not require, or call in, any other electronic files for viewing or updating (e.g. X-Ref, shape files, fonts, MS Word template).
- The maximum file size for a document is 2 Mega-bytes unless otherwise agreed by the Owner.
- Electronic files shall accurately represent the information on the equivalent paper deliverable. The completeness of electronic files shall be the same as that of paper deliverables. Electronic native files need not contain the sign-off signatures for the current issue.

The following rules shall apply to file names:

- The file name shall be unique to the project.
- The file name shall end with the application file extension.
- The file name should include the Document Number and Revision.
- The file name shall only contain alphabetic, numeric, and underscore characters (no special characters are allowed).
- The file name of documents of tagged equipments shall begin with the tag number.
- The file name shall not contain or imply any relevance. It shall be possible to rename the file without affecting the viewing or editing of that file or any other file.
- File naming philosophy shall be agreed between the contractor and owner at the start of the project.

#### 3.2.4 Electronic Files to be delivered

Unless otherwise specified final documentation shall be delivered as native electronic files. Additionally, a PDF rendition of all documents shall be delivered if specified by the Owner. In this case, PDF files shall be rendered directly from the authoring application to preserve image quality and embedded text.

Unless otherwise specified non-final documentation shall be delivered in PDF files.

Paper or Hardcopy is required for some legally binding agreements and for certificates carrying original signatures or marks that authenticate a document. These hard copy formats shall be deemed to be the original native format.

#### 3.2.5 Information to be provided along with all documents as document Index.

The following information (metadata) shown in **Table-A** shall be provided for all Documents (including drawings), in Microsoft Excel format whenever they are submitted to the owner. The format of the columns shall not be changed.

<b>Table - A</b>		
<b>COLUMNS</b>	<b>DESCRIPTION</b>	<b>EXAMPLE</b>
SL NO	Serial Number (running number of rows)	98
UNIT	Process Unit in the Plant breakdown hierarchy	CDU
SUB UNIT	Process Sub Unit	IC
EQPT TAG NO	Tag Number of equipment	IC-P-106
EQUIPMENT NAME	Description of Equipment	NAPHTHA PUMP
EQUIPMENT TYPE	Type of Equipment from BPCL type list mentioned in separate table	PUMP
DOCUMENT TYPE	Document Type Folder, mentioned in separate table	GA
DRAWING NO	Drawing Number as per BPCL/EPCM nomenclature	IC-P-106-BH-P-6417
SHEETS	Sheet Number that the drawing / document represents	1 OF 8
REVISION	Revision number of the document	5
TITLE	Document Title	GENERAL ASSEMBLY & DETAILS FOR NAPHTHA PUMP: IC-P-106
VENDOR NAME	Name of Vendor supplying the equipment	BHEL
P.O NO	Purchase Order Number for the Equipment	4504018162
FILE NAME	Filename and path of the location where the document is stored	D:\Pumps\IC-P-106_GA_01_R05.pdf
CONSULTANT	EPC / Engineered by	EIL
DOC STATUS CODE	Document status code (mentioned in separate table)	AS-BUILT
PAGE SIZE	Page size (A0, A1, A2, A3 or A4 / other)	A1
PLANT CODE	Plant code	CDU
AREA CODE	Area code	IC
MANUFACT NAME	Manufacturer's name	FLOWSERVE
MODEL NO. / TYPE	Manufacturer's generic identifier of an item	FSP-196-AHX
REQ NO	Purchase requisition number	A307-IC-PR-4550
AUTHOR	Document Author	BHEL -HYDERABAD

### 3.2.6 Image quality for scanned documents

No documents shall be accepted as electronic images except statutory / legal documents containing a wet signature and/or official stamp(s). These documents will be accepted as scanned / image files. Scanned documents shall comply with the following rules:

- Documents shall be scanned at their original size directly from the original hard copy.
- Images shall be scanned in an orientation that allows viewing without rotation.
- The minimum scan resolution shall be 300 dpi for A4 and A3 size documents. For scans of handwritten documents the minimum scan resolution shall be 600 dpi for A4 and A3 size documents.

### 3.2.7 Hyperlinks

Hyperlinks may be made between information within the same document. Hyperlinks shall not be made between different documents.

### 3.2.8 Special characters

Special characters shall not be used in file names, attributes, text or data. .

### 3.2.9 Date format

The date format for all information shall be DD-MM-YYYY (e.g. 18-08-2003).

## 4.0 Structured Data Requirements

Structured Engineering Data of the entire facility may be in the form a single database or multiple databases. The structured data / information will typically appear on data sheets created by the Licensor/EPC/Vendor/Contractor during design stage (with input on actual values from equipment suppliers). The information to be handed over at the completion of the contract should typically include *all* of the information found on Contractor's or supplier's *standard* data sheets. If Contractor's standard data sheet does not include a particular piece of information specified in this specification, then that piece of information should be supplied as part of the Structured Engineering Data.

This database will form the backbone of a shared repository of accurate project engineering information, which is utilized and populated during the various stages of the project design, construction and commissioning. This database shall be handed over to BPCL upon completion of the project.

The Structured Engineering Data must include not only the necessary information but also the necessary associations to ensure that lists can be generated from the Structured Engineering Data.

The information stored in the Structured Engineering Data will contain the necessary information and associations to enable suitable query tools to extract the following lists. The lists shall be generated in Microsoft Excel format unless otherwise specified.

### 4.1 Master Equipment List

The following is data required for all plants and equipment. This data will form the Master Equipment List which is required for the control and issue of tag numbers for

future projects.

<b>Information</b>	<b>Description</b>
Tag Number	Location and functional identifier of item / equipment.
Service	Duty of item currently associated with equipment.
Description	General description of equipment.
Parent Tag	Associated main or major item currently associated with the equipment.
Location	Area location.
Systems	Identifier of the process utility or other system of which the equipment forms part.
Serial Number	Manufacturer's unique identification Number
Vendor	Person/source upon whom order is placed.
Order Number	Number of purchase order placed on vendor.
Type/Model	Manufacturer's generic identifier of an item currently associated with equipment.
Original Equipment Manufacturer (OEM)	Name of Manufacturer who manufactured the equipment.

#### 4.2 Cable Schedule Information

The Cable Schedule is a list of all cables used in the construction of an operating plant. Each cable in the plant, whether for power, communications, or other purposes, must be included in the schedule. This listing is used during both start-up and commissioning and as a troubleshooting and maintenance tool. Refer to the Electrical and Telecommunications discipline sections for descriptions of specific data items.

<b>Information</b>
Cable Number
Number of Cores
Cross Sectional Area
Estimated Length
Location
From Tag
From Location
From Gland
From Termination Drawing
To Tag
To Location
To Gland
To Termination Drawing
Intrinsically Safe (Y/N)
Type of signal carried
System that cable is part of

#### 4.3 Line Schedule Information

The Line Schedule is a list of each "line" in an operating plant. All process and utility lines shall be included in the list. This list is used to plan construction, start-up, commissioning, and maintenance work and includes at a minimum the following:

<b>Line Schedule Information</b>
Line Number
Size
Service
Spec
From
To
Design Pressure
Design Temperature
Operating Pressure
Operating Temperature
Test Pressure
Test Medium
Insulation Thickness
Insulation Specification
Trace Heating (Min Temp)
P&ID Drawing Number
Critical line (Y/N)
Stress Analysis Required (Y/N)
Designed for steam out (Y/N)

#### 4.4 Control System I/O List

The Control System I/O list referenced in this document is a list of input and output signals for the plant process control system and relevant control system configuration information stored in the database (the Control System I/O list with full system data will be available from the Control System itself). Each tagged instrument item which interfaces with the control system, whether a physical item or a software function used in control system configuration, must be included in the Control System I/O list.

#### 4.5 Instruments

Each “tagged” instrument item, whether a physical item or a software function used in control system configuration, must be included in the Instrument database table. The instrument data is used in conjunction with other documentation during start-up and commissioning, and is also necessary for plant maintenance and operation.

<b>Information</b>	<b>Description</b>
Tag Number	Functional identifier of the instrument.
Equipment/ Line Number	The tag number of the equipment or pipe line number that the instrument tag is associated with or installed upon.
Mechanical Connections	The type of connection associated with the instrument.
Gasket Type	The type of gasket required for sealing the mechanical connections of the instrument.
Calibrated Span	The calibrated operating range (including minimum and maximum settings) for the instrument.
Output Range	The output range for the instrument.
Trip Category	The trip category as defined in design basis

Set Point High	The trip or alarm high setting.
Set Point Low	The trip or alarm low setting.
Proportional Band/Gain	The details of a controller setting.
Integral Action/Reset	The details of a controller setting.
Derivative Action	The details of a controller setting.
ANSI Leak Class	The leakage class for control valves for sealing/shut off requirements.
Maximum Leakage Rate (Valves)	The maximum valve leakage to determine seating/shut off requirements.
Maximum Test Pressure (Valves)	The maximum test pressure to determine seating shut off requirements.
Bench Setting	The valve stroke and related information for setting up a control valve.
Operating Time To Open	The time a control or ESD valve takes to open.
Operating Time To Close	The time a control or ESD valve takes to close.
Valve Travel	The total length of the valve stem travel. Valve Action on Failure
Valve Action On Failure	The final position of the control or ESD valve on loss of input signal.
Hazardous Area Classification	The certification, gas grouping and temperature rating for hazardous area equipment.
Certifying Authority	The Certifying Authority for hazardous area equipment.
Certifying Number	The number of certificate as issued by certifying authority.
Reference Document Number	The document number for reference information.

#### 4.6 Electrical

<b>Information</b>	<b>Description</b>
Overload Rating and Type	The type and setting of overload device for motors.
Contactors Rating and Type	The type and setting for contactor.
Lubrication Details	The lubrication requirement for rotating equipment and actuators.
Bearing Details (Drive and Non Drive End)	The bearing type, size details for rotating equipment.
Fuse Type/Rating	The fuse type and current rating for equipment.
Actuator Detail	The type and size of valve actuator.
Torque Setting	The torque setting for actuators.
Voltage Rating	The maximum and minimum voltage rating for equipment.
kW Rating	The kW power rating for the equipment.
KVA Rating	The voltage ampere rating for the equipment.
Phase	The voltage/current relationship for the equipment.
Frequency	The operating frequency of the equipment.
Speed	The normal operating rotational speed of the equipment.

AH Rating	Capacity rating of a battery.
Voltage/Cell and Total	The voltage per cell and total voltage for a battery.
Full Load Current	The full load current for the equipment.
Anti-Condensation Heater Detail	The type and make of heater.
Weight Dry/Empty	The weight of an item when dry and empty.
Transformer Ratios	The input/output ratio for a transformer.
Frame Size	The class and frame size for motors.
Switchgear Protection Rating	The load protection level on the system equipment.
Ingress Protection Rating	Rating for protection against ingress of foreign bodies for safety and hazardous equipment.
Hazardous Area Classification	The certification, gas grouping and temperature rating for hazardous area equipment.
Certifying Authority	The Certifying Authority for hazardous area equipment.
Certificate Number	The number of certificate as issued by certifying authority.
Reference Document Number	The document number for reference information.

#### 4.7 Mechanical Equipment

Information	Description
Design Code	The industry standard to which the equipment complies.
Design Pressure	The pressure to which the equipment has been designed.
Design Temperature	The temperature to which the equipment has been designed.
Hydrostatic Test Pressure	The pressure to which the equipment is to be hydraulically tested.
Shell Test Pressure	The pressure to which a heat exchanger shall be tested.
Tube Test Pressure	The pressure to which a heat exchanger tube bundle is to be tested.
SWL	The safe working load.
Test Load	The load to be used in proof load testing an item.
Test Requirements	Defines the description of test parameters for an item i.e. SWL X 1.5.
Certification Requirements	The test or certifying authority for an item.
Weight Dry/Empty	The weight of an item when dry and empty
Tube Bundle Weight	The weight of a heat exchanger tube bundle.
Material	The physical composition of material for an item.
Operating Pressure	The normal operating pressure for the equipment.
Operating Temperature	The normal operating temperature for the equipment.
Connection Size and Rating	The dimensions, type and pressure rating of mechanical connections.

Gasket Type	The gasket details for mechanical connections.
Bursting Pressure	The design pressure at which a bursting disc will rupture.
Cold Set Pressure	The pressure to which a pressure relief valve is set up on a test bed.
Design setting	Design set point for Pressure relief devices
Back Pressure	The normal process pressure condition into which a relief valve vents.
Speed	The normal operating rotational speed for equipment.
Rotation	The direction of rotation as viewed from the NDE or DE (specify which).
Peak Load	The maximum working load/output power of the equipment.
Capacity	The volume of fluid/medium held or capable of being moved in a given time.
Number of Stages	The number of pressure stages in the equipment.
Seal Details	The manufacturer, type and size of seal.
Driver Details	The prime mover description.
Coupling Detail	The manufacturer, type and size of the coupling.
Certification Date	The certification test date (load test, pressure test etc.) for lifting equipment, vessels and PSV's.
Filter Element Detail	The manufacturer, type and size for filter elements.

#### 4.8 Piping

Information	Description
Tag No.	Identifier of the valve / Relief valve
Type	The valve type
Valve Datasheet Number	Datasheet /specification number as detailed in valve specification.
Line Number	The identifier of line in which the valve is located.
Size - Inlet	Valve Inlet connection and bore size.
Size - Outlet	Valve Outlet connection and bore size.

#### 5.0 As Built 3D Model

- 5.1 PDMS software version 12.1 SP4 (fix 28 or later versions), or AVEVA E3D, shall only be used for 3D modeling.

The objective of this 3D modeling is to deliver to OWNER i.e. M/s BPCL a complete 3D model which shall be utilized for all future detailed engineering related to maintenance, operation, revamping and any debottlenecking of the plant.

#### 5.2 DELIVERABLES & DRAWING EXTRACTION

All reports and deliverables for various disciplines like Piping, Static and rotary equipment, General Civil, Structures, Electrical and Instrumentation shall be extracted from the system so that correct and coherent information and data flows across the project.

Complete 3D model along with as built GAD's, Isometrics, MTO reports extracted and 3D models for all disciplines, with any other document generated from 3D model and naming conventions with as-built updates along with complete reference databases, component catalogues for all the size range shall be handed over to owner. Apart from the 3D Model, all drawings like GADs, Isometrics etc. extracted from the model shall also be submitted by the Contractor in Electronic form. 3D model along with complete Project databases shall be submitted at each model review stage and as final as-built. The contractor shall also submit all the configuration files, customization files, templates and all referenced databases

3D Models shall be installed on one workstation at OWNER'S office/location by the Contractor to ensure availability of the updated 3D model at site throughout the execution period of the project and shall be continuously updated either through dedicated ISDN Link or broad band connection, or through CD's etc. (updates once a fortnight for the first 3 months and once a week thereafter). Updating of Model by any other means shall only be permitted if the specified means are not available.

Smooth handover of the deliverables with detailed index of all the models GADs, ISOs any other document/drawing to BPCL personnel shall be performed by the Contractor along with some minor modification works which might be required as per BPCL's requirements at the time of final handing over/commissioning the "As-Built" 3D model at BPCL.

#### a) GAD Extraction

Piping General Arrangement Drawings (GAD's) are to be extracted from the 3D Model on A0 Size with a scale of 1:33 1/3. Separate plans shall be made for each level. Dimensions shall be in millimetres while levels and coordinates in meters. Vital installations and Battery limits shall be marked with coordinates. All locating dimensions like spacing for Equipments, Structural columns, pipe to pipe, etc. shall be marked on the GAD's. Equipment Tag numbers, Line numbers, Instrument and Specialty Item Tag numbers shall be marked on the GAD's.

Electrical/Instrument ducts shall be marked and labelled. Access ways, Maintenance corridors, Drop out areas, bundle removal areas shall be marked on the GAD's. The Contractor shall show section / elevation view where the details are not clear from Plan View.

#### b) Isometric Extraction

Isometrics shall be extracted from 3D model using PDMS software along with Bill of Material and logical pipe supports.

- 5.3 If the Contractor uses any earlier versions of PDMS, the models shall be upgraded to PDMS 12.1 SP4 Fix 28 or later versions suitable for use with AVEVA E3D already installed at BPCL.

The PDMS/E3D database Administrator username and password for each project shall be provided along with the editable 3D model. The contractor shall provide XSL file containing PDMS project structure such as team, Database, MDB, etc. Any other database locks/encryption should be unlocked/decrypted and made read-write accessible before handover to BPCL.

There shall be no expiry date for any of the databases used in the project. The reference databases from all package contractors shall also be handed over to BPCL.

The configurations, templates, customizations, reports etc., carried out for the project shall have read/write access and BPCL should be able to extract the reports or modify them without any additional configuration efforts. Any pre-activity to be performed for generation of drawings / reports / model export / design / drawing etc. should be informed to BPCL during final handover of the “As-built” 3D model. An Administrator reference document clearly documenting the above requirements for the entire project shall be part of the final documentation.

## 6.0 Handover Information, Information Quality and Handover Plan

- 6.1 The content, structure and format of structured data and documents shall be defined during the project kick off stage. It is the responsibility of the contractor to get the same approved by the Owner during the project initiation stage. Trial handover of structured data and documents shall be done at start of the project, before significant amount of information is created, so as to avoid reworking of large quantities of data at a later stage. Trail handover shall be done not later than one month of placement of purchase order.
- 6.2 The contractor shall submit the data quality assurance plan for BPCL review and approval to ensure integrity, completeness, consistency and quality of information to be handed over. All data and documents will be validated against set standards. Data and documents that do not meet the specified requirements will be rejected and returned for further rework.
- 6.3 Handover Plan: The procedure and time frame for continuous handover of documents and data at various stages of the project including rules and trigger points for handover of data to BPCL shall be defined at the start of the project.
- 6.4 The following tables lists the minimum information that are to be handed over to the owner (BPCL-KR). The list is not exhaustive and is to be used as a guide to identify the most common information types to be handed over to the owner.

In the following tables, reference is also made to information to be handed over in structured data form and as Native files.

### Contract Management documents

	Information	Description	Hard copies	Soft Format
	Contract Document / Agreement	Schedule of information to be supplied	1	Scanned Copy
	Certificates of Insurance	Certificates of insurance for policies required by the law of the land and by the contract	1	Scanned Copy
	Insurance Policies and Guarantees	Insurance policies and guarantees required by the law of the land and by the contract	1	Scanned Copy

### Material Management

	Information	Description	Hard copies	Format
	Project Procurement Procedures	Plan and procedure for the purchase of bulk materials, equipment and services	1	Native
	Vendor / Supplier List	List of proposed suppliers for bulk materials, equipment and services	1	Native
	Purchase Requisition	Copies of Purchase requisition for materials and equipment	1	Native

	Purchase Order	Copies of orders for materials and equipment	1	Native
	Procurement Inspection – Surveillance Plan	Plan for the inspection of delivered materials and equipment	1	Native

## Construction Management

	Information	Description	Hard copies	Format
	Construction Permits/License/Legal docs.	Permits and licenses issued to allow construction to take place	1	Scanned Copy
	Transportation Program / Erection plans	Program showing transport of major equipment to site (including Video and Pictures - Road Conditions, Before and After), ODC movement etc., and erection plans of all heavy equipments.	1	Native

## QA /QC certification

	Information	Description	Hard copies	Format
	Quality Plan	Plan for the management of quality through the project	3	Native
	Construction Inspection & Test Plan	Inspection and test plan for all construction work	3	Native

## Health / Safety / Environment

	Information	Description	Hard copies	Format
	Safety/Health Program	Program to ensure health and safety	3	Native
	Quantitative Risk assessment report	Quantitative risk assessment report of the project	3	Native
	Waste Material Management Plan	Plan for management and safe disposal of all waste	3	Native
	Environmental Management Plan	Plan for management of environmental issue	3	Native
	Site Evacuation Plan	Evacuation Plan for the Site in case of Fire / emergency.	3	Native
	HAZOP Review and Report	Review and report for all project HAZOP studies	2	Native

## Process

	Information	Description	Hard copies	Format
	Facility Block Diagram	Schematic representation of main systems	2	S/D
	Process Flow Diagrams	Details major items of equipment, primary lines and valves, operating temperatures, pressures and mass flows.	2	S/D
	Utility Flow Diagrams	Details major items of equipment, primary lines and valves, operating temperatures, pressures and mass flows.	2	S/D
	Process and Instrument Diagrams	Showing in schematic form the equipment, piping, valves, tagged instruments, piping specification (& breaks) and line numbering for the process, utilities and loss control systems.	2	S/D
	Equipment List	List of major process equipment items	2	S/D
	Power and Utility Summary	List of power and utility loads and requirement	2	S/D
	All Project Philosophies	Self-explanatory	3	Native
	All Project Studies (Generated in the EPC phase and later)	Self-explanatory	3	Native
	Cause and Effect Charts	Process cause and effort charts	2	S/D
	Process Calculations	Design calculations for all process conditions and process equipment selection	2	Native
	System Design Basis Reports	Document outlining the basis for the design of the facility and comprising all process design philosophies i.e. environmental philosophy, drainage philosophy, ventilation philosophy, spading/isolation philosophy, plant availability/down time assessment and relief/blowdown philosophy etc. The philosophies detail the reasoning and assumptions made in plant design and are required as reference documents for the optimisation/modification of plant.	2	Native
	Supervisory Level Operating Procedures for all Process/Utility System(s). (Shall include Steady State, Start-Up, Shutdown & transient Operations)	Comprises operating information and procedures needed for the safe and efficient operation of the process plant and utilities	2	Native

	Mass Balance	Chart summarising mass flow rates at key points within the process and utility systems	2	Native
	Fluid and substance data	Details the composition/makeup of process and produced fluids.	2	Native
	Relief & blowdown data	Sizing data for the relief and blowdown systems	2	Native
	Surge and dynamic analysis data	Details and results of any analysis carried out to verify design of process plant.	2	Native
	Process simulation model	Computer based process flow model used in the design	2	Native
	Criticality Resume	Assumptions and reasoning behind the allocation of criticality ratings to plant and equipment. Needed for reference to support modifications	2	Native
	Process Safeguarding drawings	Diagrams showing pressure and temperature trips, blow down, pressure relief, isolation, emergency shutdown valves and HP/LP interfaces	2	Native
	Process Data Sheets	Describe the operating parameters (temperatures, pressure, service conditions and operating fluid characteristics) of the equipment in the form of sketches and tables and are the basis of the performance specification for the equipment.	2	S/D

## Instrumentation

	Information	Description	Hard copies	Format
	Instrument Data	All relevant data on a specific piece of equipment	2	S/D
	Instrument and Design Specifications	Design specifications of Control valves, Shut Off Valves, & MOV's etc.	2	Native
	Installation and Mounting Standards	Standard drawings and specification for mounting instruments	3	Native
	Loop Drawings	Details the interconnection and relationships between all elements of a control loop, from sensing element through to controlling element, and cabling and wiring details for the associated instruments. Includes junction box, marshalling cabinet and control panel terminations and power supply details. The drawing enables maintenance persons to function test, maintain and find instrument loops without needing to refer to numerous related wiring diagrams.	2	S/D
	Room Layout	Layout of all field equipment rooms and control rooms showing position of equipment in relation to building details	2	Native
	Interface Drawings	Diagrams showing Interface terminations and hook ups between Contractors	2	S/D
	Termination Drawings	For equipment, panels, junction boxes, etc. identifies all connections and cable terminations at input/output rails. Required for removal/hook up purposes and modifications. To include vendor interfaces.	2	S/D
	Hook-up drawings	Shows the instrument impulse, pneumatic and electronic connections and pipework including valves, fittings, flanges and support details with associated material take-off list. Used for removal/hook up purposes and modifications.	2	S/D
	Instrument sizing calculations	Control Valves, Shut Off Valves, ESD, flowmeter sizing etc.	2	Native
	Fiscal Metering Design Calculations	These are calculations to demonstrate the conformity of the fiscal metering station to the relevant standards.	2	Native
	Cause and Effect Diagrams	The logic of alarm and trip systems shown in matrix form detailing the relationships between input variations on the output. Required for an understanding of the alarm and protection systems and for fault finding and modifications.	2	S/D
	Interlock logic and trip settings	Interlock logic and trip setting values	2	S/D
	Shutdown Logic Drawings	Provides an overview in graphic form of the "and", "or" and other logic functions of the shutdown systems and the sequence in which initiation events occur. Required for trip testing, system fault finding, maintenance testing and modifications	2	Native
	Instrument/Control System Power Distribution, Grounding Interconnects Drawing	Schematic diagram of instrument power supplies and earthing arrangements	2	Native
	Alarm/Trip Schedule	Schedule of all alarms and trip settings including those in vendor packages	2	S/D
	JB/ Cable Schedule	All relevant data on a specific piece of equipment	2	S/D
	Cable /OFC/duct Routing Drawings	Details the routing of cables, OFC and ducts throughout the facility between the plant and equipment, modules etc. including transit locations.	2	Native

Testing and Commissioning Procedures	Includes procedures for each type of equipment to be tested and commissioned	3	Native
Overall Control System Block Diagrams, I/O Loading & Cabinet Layouts	Self-explanatory	2	S/D
Detailed Procedures for Control and Shutdown System FAT	Self-explanatory	3	Native
Failure Modes Effects Analysis for Shutdown Systems	Self-explanatory	2	Native
Standard Instrument Details	Dimensioned drawings of instruments and supplier technical and installation details	3	Native
Instrument location drawing	Shows the physical location of all equipment	2	Native
General arrangement drawings	Shows general arrangement and locations of instrumentation and associated items on skids and within panels and cabinets. Annunciator panel GA's shall include front fascia details along with full alarm text and tag numbering	2	Native
Control schematic	Gives a pictorial representation of the main elements and functions of a control circuit/system with input/output sources (switches, relays etc.) and their relationships. Details logic functions of the circuit/system	2	Native
SCADA/PLC/DCS Details	This documents the SCADA/PLC/DCS implementation philosophy including configuration details of inputs, outputs, logic and screen graphics, and software revision status. This will include hard copy software documentation where the software system is not self documenting.	2	Native
Control room panel and field panel wiring diagrams	Self-explanatory	2	Native
Interlock Check reports, SAT,FAT reports	Self-explanatory	3	Native
OEM Maintenance Manual	Self-explanatory	2	Native
Master details for SAP upload	Equipment master details in Excel format for upload into SAP system of Owner.	2	Native
Spares list and AMC offer	Self-explanatory	3	Native

## Fire and Gas

	Information	Description	Hard copies	Format
	F&G equipment Data	All relevant data on a specific piece of equipment	2	S/D
	Installation and Mounting Standards		3	Native
	Loop Drawings	Details the interconnection and relationships between all elements of a control loop, from sensing element through to controlling element, and cabling and wiring details for the associated instruments. Includes junction box, marshalling cabinet and control panel terminations and power supply details. The drawing enables maintenance persons to maintain and fault find instrument loops without needing to refer to numerous related wiring diagrams.	2	S/D
	Interface Drawings	Diagrams showing Interface terminations and hook ups between Contractors	2	S/D
	Termination Drawings	For equipment, panels, junction boxes, etc. identifies all connections and cable terminations at input/output rails. Required for removal/hook up purposes and modifications.	2	S/D
	Hook-up drawings	Shows the instrument impulse, pneumatic and electronic connections and pipework including valves, fittings, flanges and support details with associated material take-off list. Used for removal/hook up purposes and modifications.	2	S/D
	Cause and Effect Diagrams	The logic of alarm and trip systems shown in matrix form detailing the relationships between input variations on the output. Required for an understanding of the alarm and protection systems and for fault finding and modifications .	2	S/D
	F&G Logic Drawings	Provides an overview in graphic form of the " and" , " or" and other logic functions of the shutdown systems and the sequence in which initiation events occur. Required for system fault finding, maintenance testing and modifications	2	S/D

	F&G System Power Distribution, Grounding Interconnects Drawing	Schematic diagram of instrument power supplies and earthing arrangements	2	S/D
	Cable Schedule	All relevant data on a specific piece of equipment	2	S/D
	Cable Routing Drawings	Details the routing of cables throughout the facility between the plant and equipment, modules etc. including transit locations.	2	Native
	Testing and Commissioning Procedures	Includes procedures for each type of equipment to be tested and commissioned	3	Native
	Overall F&G System Block Diagrams, I/O Loading & Cabinet Layouts	Self-explanatory	2	S/D
	Detailed Procedures for F&G System FAT	Self-explanatory	3	Native
	Failure Modes Effects Analysis for F&G Systems	Self-explanatory	2	Native
	Standard Fire/Gas Details	Dimensioned drawings of instruments and supplier technical and installation details	3	Native
	F&G location drawing	Shows the physical location of all equipment. Shows the exact position of detectors/alarms and for detectors, shows their orientation and fire area covered.	2	Native
	General arrangement drawings (instruments, field mounting arrangements, panels)	Shows general arrangement and locations of instrumentation and associated items on skids and within panels and cabinets. Annunciator panel GA's shall include from fascia details along with full alarm text and tag numbering.	2	Native
	F&G schematic	Gives a pictorial representation of the main elements and functions of a control circuit/system with input/output sources (switches, relays etc.) and their relationships	2	S/D

## Telecommunication

	Information	Description	Hard copies	Format
	Telecommunications equipment data	All relevant data on a specific piece of equipment	2	S/D
	Loudspeaker Loop Drawings	Details the loudspeaker connection and information on the designated loop. Required for automated PA interrogation system fault finding.	2	S/D
	Cable Schedule	All relevant data on a specific piece of equipment	2	S/D
	Cable Routing Drawings	Details the routing of cables throughout the facility between the plant and equipment, modules etc. including transit locations.	2	Native
	Testing and Commissioning Procedures		3	Native
	Overall System Block Diagrams, I/O Loading & Cabinet Layouts		2	S/D
	System drawings	Details the telecommunications system and how it interconnects into the overall communications network	2	S/D
	Single Line diagram	Details how equipment is connected into a system to include comprehensive data thread and telephone trunk records.	2	S/D
	Block and Level Drawing	Details transmission levels within systems and through networks	2	S/D
	Termination drawing	For equipment, panels, junction boxes, etc. identifies all connections and cable terminations at input/output rails. Required for removal/hook up purposes and modifications	2	S/D
	Wiring Diagrams	Details all points of interconnecting wiring showing cable numbers, core colours and termination points.	2	S/D
	Telemetry ID listing	Database model listing input and output points of plant instrumentation interconnections to telemetry systems.	2	S/D
	IDF Records	Details intermediate distribution frame connections in tabular form to show the origin and destination of individual system channels i.e. cable head and jumpering terminations.	2	S/D
	Radio license	Statutory requirement for radio operation for display on facility.	1	Scanned Copy

## Architectural

	Information	Description	Hard copies	Format
	General Arrangement for Buildings and Structures	To include layouts of all rooms including equipment and accommodation details, external layouts and elevations	3	Native

	Completion Stage Architectural Drawings	General drawings for construction details of buildings (final)	3	Native
	Completion Stage Architectural Specification	Contains Contractor detail design based on initial specifications	3	Native
	Technical Interfaces	Drawings and documents describing interfaces between architectural and other Contractor scopes	3	Native
	Statutory Approvals	Statutory approvals from Govt. / Local authorities for Buildings / facilities	1	Scanned copy

## Electrical

	Information	Description	Hard copies	Format
	Electrical equipment data	All relevant data on a specific piece of equipment	2	S/D
	Electrical System Studies	Includes load flows, transient and dynamic stability	2	Native
	Power System and load transfer philosophy	Power system operation and the philosophy of load transfer	2	
	Short Circuit Studies	Self-explanatory	2	Native
	Protective Device Co-ordination	To include protective device settings with calculations for entire distribution system	2	Native
	Cable Size Calculations	Self-explanatory	3	Native
	Single Line Diagrams	Detail the main equipment items (switchboards, transformers etc.) and their relationships within the platform electrical distribution system including details of fault levels and current and voltage ratings.	2	S/D
	Block diagrams	Similar to the SLD above but detailing the relationships in single line form between items of equipment, control panels, distribution boards.	2	S/D
	Schematic Diagrams	Gives a pictorial representation of the main elements and functions of a control circuit for electrical equipment with input/output sources (switches, relays etc.) and their relationships. Details logic functions of the circuit	2	S/D
	Wiring Diagrams	Details electrical wiring on all plant, equipment, boards, boxes and panels including interconnection/termination details for interface and hook up	2	S/D
	Electrical Interconnection Diagrams	Details of cable numbers and terminations between vendor packages, equipment and particularly at Contractor interfaces	2	S/D
	Electrical Equipment Arrangement Layouts	GA's of main electrical equipment, including switchboards, transformers, large loads, etc.	2	Native
	Lighting and Grounding Layouts	Layout of lighting and grounding on facility	2	Native
	Cable Tray Layouts	Layout of main cable tray routes on facility	2	Native
	Power Layouts	Layout of main power distribution on facility	2	Native
	Electrical Layouts	Layout of main electrical loads on facility	2	Native
	Building Electrical Layouts	Layout of electrical equipment and lighting within buildings	2	Native
	Schedules and Lists	All relevant data on a specific piece of equipment	2	S/D
	Lighting Fixture Schedule	Self-explanatory	2	S/D
	Panel Schedule	Self-explanatory	2	S/D
	Conduit Schedule	Self-explanatory	2	S/D
	Cable Schedule	All relevant data on a specific piece of equipment	2	S/D
	Load List	Tabulation of electrical loads which the electrical system must accommodate including detail of individual distribution board loads.	2	S/D
	Legends and Symbol Lists	As used in all drawings	3	S/D
	Standard Power Details	Typical installation details	3	Native
	Standard Lighting Details	Typical installation details	3	Native
	Standard Ground Details	Typical installation details	3	Native
	Standard Cable Tray Details	Typical installation details	3	Native
	Cable Routing	Details the routing of cables throughout the facility between plant and equipment, modules etc. including transit locations.	2	Native
	Grounding Drawings	Detail grounding connections for plant and equipment and between modules and dissimilar structural elements	2	Native
	Statutory Approvals / Licenses	Statutory approvals from Govt. / Local authorities / CEA etc.	1	Scanned copy

## Mechanical

	Information	Description	Hard copies	Format
	Plot Plans	Plan view of a area showing exact location of main items of equipment.	2	Native
	Equipment Location Plan	Showing next level of detail from plot plan	2	Native
	General Arrangement	Dimensional drawing indicating overall extremities of plant or equipment in plan, elevation or sectional view.	2	Native

Equipment Detail Drawing	Sectional or exploded view drawing detailing main fabrication/assembly information - design parameters (pressures, temperatures, manufacturing code etc.), materials, wall thicknesses, lining, internal fittings, test details of major process and utility vessels.	2	Native
Equipment Design Calculations	Prepared in order to prove that the item of equipment or system selected meets the design criteria.	2	Native
Critical Weld Procedures	Required for critical plant and equipment where non standard (exotic) materials and methods are used i.e. vessel lining, sour service. The procedures may not be industry standard or readily available thus resulting in significant costs (for procedure development/qualification and production loss) if repairs etc. required at short notice.	2	Native
Standard weld procedure	Weld procedures not covered by the above	3	Native
Performance Curves	These are charts detailing the design performance envelope and limits for major rotating machinery - turbines, crane/auxiliary diesels, compressors, transfer, fire and WI pump sets.	2	Native
Alignment Specifications	Manufacturers recommended alignment readings and tolerances needed for re-coupling of major rotating machinery following overhaul.	2	Native
Start-up Logs for M/c's	Running logs taken on first start up/commissioning of major rotating machinery. Of particular importance are running hours for scheduling over speed tests and initial oil changes.	3	Native
Condition Monitoring Baselines	Set of vibration and SPL readings and oil/grease analysis results for first operation/run up of rotating machinery.	2	Native
Lubrication Schedule	Details the lubrication requirements (oil, grease etc.) for all plant and machinery including detail of the lubricants (manufacturer's and BPCL equivalent), quantities used and recommended change frequency. The schedule will be a rationalisation of lubricant grades/types so as to minimise offshore stockholdings.	2	Native
Access Manuals	Document detailing the methods and procedures for all mechanical handling activities that will take place during Operations. Details procedures for removing plant and equipment for maintenance purposes, lifting/handling equipment to used, load paths and laydown areas.	2	Native
Pressure Vessel Certificate / IBR certificate	Certificate issued by Certifying Authority is specific to pressure vessels and lists the salient data - manufacturer, type of construction, test pressure rating etc.	3	Scanned Copy
PSV Test Certificate	Records details of inspection of PSV and required to demonstrate they are fit for purpose	3	Scanned Copy
Lifting Equipment Certificate	Issued by competent third party inspector covering all portable and fixed lifting gear.	3	Scanned Copy
Statutory Approvals	Statutory Approvals from Govt. / Local / PESO/ F&B etc.	1	Scanned copy

## Rotary Equipments

	Information	Description	Hard copies	Format
	P&ID relevant to the equipment	Showing in schematic form the equipment and all connected piping, valves, tagged instruments etc.	2	Native
	Datasheet	Filled in Datasheet of the equipment	2	Native
	GA (General Arrangement) Drawings	Self explanatory	2	Native
	Layout Drawings	Self explanatory	2	Native
	Foundation drawing	Self explanatory	2	Native
	Cross Section Drawings with Bill of Materials	Self explanatory	2	Native
	Seal and Cooling piping	Self explanatory	2	Native
	Mechanical Seal Drawing with Bill of Materials	Self explanatory	2	Native
	Coupling Drawings with Bill of Materials	Self explanatory	2	Native
	Exploded view of parts	Self explanatory	3	Native

O&M Parts List with part number	Self explanatory	2	Native
Operation and Maintenance Manuals	Self explanatory	2	Native
Performance Curves	Self explanatory	2	Native
Performance Test Reports	Self explanatory	3	Native
Torque values if applicable	Self explanatory	2	Native
Start up & Shutdown procedures	Self explanatory	2	Native
Lube Oil Skid details if available.	Self explanatory	3	Native
Special tools list if supplied along with the equipment	Self explanatory	3	Native
Assembly disassembly procedure	Self explanatory	2	Native
SAP Equipment Master data & Characteristic data as per BPCL KR formats	Self explanatory	2	S/D
Details and spare parts list of auxiliary equipments like lube oil ,filter skid	Self explanatory	2	Native
Gearbox and clutch details if applicable	Self explanatory	2	Native
Wet gas seal / dry gas seal and cooling piping isometrics for Compressors	Applicable for compressors	2	Native
Air / Seal gas/ lube oil filter details	Self explanatory	2	Native
Protocol readings	Self explanatory	2	Native
Torque values for casing bolts	Torque values for casing bolts for steam turbines	2	Native

## Cross country pipelines

	Information	Description	Hard copies	Format
	Water Analysis - Cert. Test Report	For pressure testing	3	Native
	Pressure Test Records	Showing test equipment calibration reports, test reports and results	3	Native
	General Arrangement	Of pipeline equipment e.g. valves, pig launchers	2	Native
	Alignment sheets	Showing pipeline routes, road crossings, elevations	2	Native
	As built data	Based on actual field installation and survey	2	Native
	Cathodic Protection drawing	Showing locations of cathodic protection and schematic diagrams	2	S/D
	Design, Fabrication & Installation Specifications	Self-explanatory	2	Native
	Design Calculations	Self-explanatory	2	Native
	Fabrication Records	For pre-fabricated sections, including test reports	3	Native
	Installation Procedures	Including safety compliance	3	Native
	Compliance Documents	Test records, reports, etc.	3	Native
	Emergency P/L Valve Certificate	Self-explanatory	3	Scanned Copy
	Surge analysis reports	Report and calculations of surge analysis of cross country pipelines.	3	Native

## Plant Piping

	Information	Description	Hard copies	Format
	Pipe and piping equipment data	All relevant data on a specific piece of equipment	2	S/D
	Line schedule data	All relevant data on a specific piece of equipment	2	S/D
	Piping Support Standards	Self-explanatory	2	Native
	Pipe Support Details	Self-explanatory	2	Native
	Pipe Support Schedule and Spring Schedule	Tables defining special/critical support type (static, pre-loaded, spring hangers etc.) and tag number.	2	S/D

Piping GA Drawings	Drawings which provide plan and/or sectional views, highlighting the routing of dimensioned pipework. To include general arrangements of special pipe supports.	2	Native
Fabrication Isometric Drawing	Isometric view of pipe run detailing configuration, orientation and necessary details (dimensions, material requirements) for manufacture and assembly.	2	Native
Piping Specification	Provides piping materials definition, design pressures and temperatures, pipe nominal bores and wall thicknesses, fitting types and applications and material test criteria.	3	S/D
Piping Special Items Specifications	Definition as per the piping specification but for non standard items not included in piping specification.	2	Native
Design Calculations	Prepared in order to prove that the item of equipment or system selected meets the design criteria. For special pipe support will include details of load settings.	2	Native
Pipe Stress Analysis results and Caesar2 input files	Reports containing pipe stress evaluation results and recommendations (including input files .c2, configuration files and unit files, calculations, stress isometrics, support type and acceptable load criteria) for specific critical piping configurations.	2	Native
Valve Specification	Provides valve type, material definitions design pressures and temperatures, operating service conditions actuation type, end connection and dimensional details.	3	S/D
Insulation Specification	Provides equipment application information (pipe, vessel etc.) material type, thickness requirements, services conditions, personnel protection and fireproofing.	3	Native
Critical Line List	List of critical lines	3	S/D

## Corrosion control / Painting

Information	Description	Hard copies	Format
Cathodic Protection Field Testing Reports	Including test methodology and results	3	Native
Coatings Test Reports	Including test methodology and results	3	Native
Material Selection Drawings	Schematics showing material selection on process	2	Native
Material Selection Philosophy	Details reasons and assumptions made in the choice of materials for construction of structure, plant and equipment. Essential reference document should modifications be necessary due to change in process conditions (increased H2O etc.).	3	Native
Corrosion Control Philosophy	Forecast of plant condition based on hazards, operability and corrosion effects. Must be in place before start up and is basis for corrosion monitoring programme.	3	Native
Painting Specifications	Details protective coatings/paint systems, application methods (including preparation) and where applied. Required to support fabric maintenance programme	3	Native
Baseline Corrosion Readings	Required for critical process pipework and vessels and are base readings for corrosion monitoring records	3	Native

## HVAC

Information	Description	Hard copies	Format
Equipment data	All relevant data on a specific piece of equipment	2	S/D
Cooling, Heating, Ventilation Load Calculations	Report on studies done to verify and demonstrate the adequacy of ventilation. Required for modifications to HVAC systems.	2	Native
HVAC Duct and Instrument Diagrams	Single line drawings providing an overview of the HVAC system including all main components and instruments and duct sizes, flowrates, velocities	2	S/D
Drawings (GA, Equipment, Ductwork, Piping & Accessories)	Drawings including plans and sections, giving details required for installation of HVAC ducts, dampers and screens etc.	2	Native
Equipment Schedule with Capacities	Self-explanatory	2	S/D
Control Logic Diagrams	Self-explanatory	2	S/D
Control Schematic Diagrams	Self-explanatory	2	S/D
Control Termination Diagrams	Self-explanatory	2	S/D
All HVAC Related Construction Specifications	Self-explanatory	3	Native

All Certified Equipment and Accessories Drawings	Self-explanatory	2	Native
Ductwork – Material Specification	Self-explanatory	3	Native
Grilles, Registers and Diffuser Performance Data	Self-explanatory	3	Native
Insulation Details	Self-explanatory	3	Native
Filters and Retainer Frames Data	Self-explanatory	2	S/D
Piping System Valves, Fittings & Accessories Drawing Details	Self-explanatory	2	Native
Performance Data and Operational Curves	Self-explanatory	2	Native
Test Procedures	Self-explanatory	3	Native

## Loss control and Safety

Information	Description	Hard copies	Format
Equipment data	All relevant data on a specific piece of equipment	2	S/D
Hazardous Area Classification	Self explanatory	2	Native
Register of Safety Devices	Listing and detailed description of integrity protection devices including relevant basis and design information and service conditions. All items on this register must be flagged in the Master Equipment List and on P & IDs.	2	S/D
HAZOP Report and Project Response	Report on the findings of Hazard and Operability Studies for all hydrocarbon and main utilities system including Hazop team worksheets. Required as reference documents when modifying/optimising plant performance to support operations Safety Case submissions.	3	Native
Fire Fighting Systems P&ID's	Details in schematic form the active fire fighting systems, equipment (fire pumps, deluge, monitor and halon skids) piping, valves, tagged instruments and their relationships.	2	S/D
Fire Fighting Equip Layout Drawings	Drawing detailing the location of all portable/semi portable firefighting equipment (fire extinguishers, crash kits, hydrants & equipment, hoses, breathing apparatus).	2	Native
Lifesaving Equip & Escape Route Drawing	Drawing detailing access routes and means of escape in emergency and the location of all lifesaving equipment (escape sets, first aid boxes, showers etc.).	2	Native
Hazardous Source Data	Details all individual point sources for emissions, discharge inventories and corresponding zone classifications.	2	Native
Fire Protection Philosophy	Philosophy summarising the means of fire protection both passive (firewalls) and active (manual, foam, monitor, deluge/sprinkler systems etc.)	2	Native
Active Fire Protection System Data	Design data and information that forms the basis of the performance specification for the active fire fighting systems (manual, foam, monitor, deluge/sprinkler systems etc.).	2	Native
Equipment Failure Information	Details of the design life, failure modes and causes for critical items of equipment within the hydrocarbon, main utilities and safety systems. Used in predicting plant availability and identifying critical equipment for maintenance monitoring purposes.	2	S/D
Hazardous Substance Data Sheets	As defined by Statutory and International Regulations.	2	Native
Emergency Procedures Manual	As defined for Facilities Operations and for Pipeline Operations.	2	Native
HIPS dossier	Reliability, availability and design dossier for all identified High Integrity Protection Systems	2	S/D
Test Procedures	Test Procedures for safety equipments	3	Native

## Civil Structural

Information	Description	Hard copies	Format
Site Survey (Data & Information Report)	Self-explanatory	3	Native
Underground Piping Layouts	Self-explanatory	2	Native
Road and Drainage Layouts	Self-explanatory	2	Native
Concrete and Structural Specifications	Self-explanatory	3	Native
Building Plans	to include external and internal layouts and elevations	3	Native
Concrete Mix Design	Self-explanatory	3	Native

	Geotechnical & Geophysical Investigation reports	Self-explanatory	3	Native
	Structural Steel Calculations	Self-explanatory	3	Native
	Topographic Drawing of Site	Self-explanatory	3	Native
	Fabrication Drawings	Fabrication drawings covering all welds and association fabrication details for the structures.	3	Native
	Fireproofing specification	Details all passive fire protection systems, application methods and where applied.	3	Native
	Design integrity documents	The final set of documentation - drawings, sketches, calculations - that demonstrates the design and structural integrity. Required for reference for carrying out structural repairs/modifications. Documentation relating to temporary fabrication and installation conditions are not required.	3	Native
	Foundation details	Self-explanatory	3	Native
	Structural steel drawings	Self-explanatory	2	Native

## Fabrication Control requirements

	Information	Description	Hard copies	Format
	Welding Procedure Specifications (WPS)	Self-explanatory	3	Native
	Welding Procedure Qualification Records (PQR's)	Self-explanatory	3	Native
	Welder Qualification Program & Records	Self-explanatory	3	Native
	Pressure Testing Procedures	Self-explanatory	3	Native
	Material Traceability Report/Records	Self-explanatory	3	Native
	NDE Procedures	Self-explanatory	3	Native
	Radiographic Qualification Procedures	Self-explanatory	3	Native
	Weld Maps (Location/Type/NDE Req.)	Self-explanatory	3	Native
	NDE Test Reports	Self-explanatory	3	Native
	Weld Repair Procedures	Self-explanatory	3	Native

## General Engineering

	Information	Description	Hard copies	Format
	Drafting Standards	Standards to be adopted for all drawings, including symbol library	3	Native
	Supplier Data Dossiers	Vendor information for all purchased equipment, including specifications, diagrams, drawings, maintenance procedures, etc.	2	Native or S/D
	Engineering Reports & Calculation Packages	Independent consultant reports and calculations for critical plant and equipment	2	Native
	Design Change Control Procedures	Self-explanatory	3	Native
	Maintenance and Preservation Procedures	During project phase to include programme	3	Native
	Change control records	Audit trail summarising status and outstanding actions associated with all change to originally agreed design/statement of requirements. Will be referenced for completion of outstanding works post handover.	3	Native
	Design deviation reports	Audit report on variances from design found at the as built/post construction stage of the Project along with their justification and reasons for acceptance. Document to be referenced when modifications carried out.	3	Native
	Maintenance Information	Comprises equipment manufacturer's information necessary to specify and support maintenance (planned and breakdown) and inspection activities. To include manufacturer's recommendations for maintenance and inspection, fault finding guidance, drawings, procedures, parts lists, lubrication details, adjustments, settings and tolerances. Certain of this information may already be specified separately	2	Native
	Operating Information	Information in the form of instructions, procedures, drawings, tables, etc. for the operation stop, start, and the emergency shutdown of the equipment including details of operational limits, function testing, possible interruptions, corrective actions and potential hazards and corrective measures to be taken.	2	Native

	Spares Listings	<p>Recommended holding of operating and insurance spares. The operating spares recommendation is a listing of spare parts required to support the day to day operation and maintenance of the equipment for a period of two years.</p> <p>Insurance spares are parts/complete units not normally required on a day to day basis but needing to be held as an insurance against breakdown/outage of critical utility and process plant. To be provided with relevant supporting documentation (equipment details, drawings, parts list etc.) to permit full evaluation of the recommendation.</p>	2	Native
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