SECTION – C3

COMPLIANCE TO TENDER TERMS & CONDITIONS

Sl No	DESCRIPTION	ACCEPTANCE/COMPLIANCE YES/NO
a)	Submission of Signed & stamped RFP as a token of acceptance	
b)	Submission of copies of PAN GST, Firm Registrations	
c)	Details of manufacturing facility available (with supporting documents)	
d)	Details of machinery available	
e)	Details of load testing facility available	
f)	Acceptance of offer validity of 120 days	
g)	All available technical literature, catalogues and other data in support of the specifications and details of the items should be furnished along with the offer	
1)	**BID QUALIFICATION CRITERIA**	
	OEM a) Bidder shall be an OEM of Modular Hydraulic Suspension Trailers and shall have facility to manufacture, test in India (Documentary proof to be submitted)	
	Field of experience b) Bidder shall have minimum 3 years' experience in the field of manufacturing Modular Hydraulic Suspension Trailers and manufacturing of Hydraulic goose necks, period ending tender due date. (Document proof for the manufacturing /supply to be attached).	
	c) Bidder shall have Type approval certificate for Modular Hydraulic Trailers from any of the test agencies approved for this purpose as per CMVR.	

	(Copy shall be submitted)	
	d) Bidder shall have designed, manufactured and supplied at least Three numbers of minimum 4 axle line Modular Hydraulic Suspension Trailers and Hydraulic live goose neck during last 3 years period ending tender due date. (Document proof to be attached).	
	e) During the last three years ending , party shall have executed Single order of value Rs 150 Lakhs, (or) Two orders each of value Rs 115 Lakhs.	
	Annual Turnover f) Average annual Financial Turnover of Rs 200.00 Lakhs for last three years ending 31.03.2024. (Documentary evidence to be uploaded)	
1)	**DOCUMENTS SUPPORTING FOR ABOVE PQC** a) Certificate of OEM, GST, PAN, Incorporation certificates b) Documents supporting each point of Prequalification criteria as above are to be enclosed. c) Documentary evidence in the form of certified audited balance sheets or a certificate from the Chartered accountant /cost accountant indicating the turnover details for the relevant period shall be uploaded for 2021-22,2022-23,2023-24. d) Brochure /Technical details/GA drawing of Trailer and documents requested in Section of technical specifications. e) Buyer reserves the right to inspect trailers/live gooseneck already delivered to clients for satisfactory performance for evaluation.	
2)	**PAYMENT TERMS** **OPTION 1** In general, our payment terms will be 100% within 30 days after receipt, commissioning and acceptance.	**Please select** **Option 1 (or) Option2**
	OPTION 2 However, if Vendors/Suppliers are requesting for advance payment, department may	

	consider as given below, **After placement of confirmed Purchase Order:** 30% of supply cost as advance against submission of bank guarantee for an equal amount from a nationalized/scheduled bank and shall be valid till Contract completion period plus 60 days. Format of Bank guarantee shall be obtained from Department after award of contract. **After receipt of items and acceptance at SDSC SHAR, Sriharikota:** 70% of supply cost of the Purchase order against receipt of materials at SDSC SHAR & testing at Purchasers / Department site along with GST (including for advance portion) and acceptance by Department and submission of Performance bank guarantee of equal amount valid till warranty period plus 60 days. **Advance Payment** Wherever advance payment is requested, Bank Guarantee from any Nationalized Bank/Scheduled Bank should be furnished. In case of advance payments, if the vendor/supplier is not supplying the material within the delivery schedule, the advance amount will be recovered and interest will be levied as per the Marginal Cost of Lending Rate (MCLR) of SBI plus 2% penal interest. Further wherever advance payments are requested, Interest will be loaded for advance payments/stage payments as per the MCLR of SBI and will be added to the landed cost for comparison purpose while arriving at L1. In case of different milestone payments submitted by the parties, a standard and transparent methodology like NPV will be adopted for evaluating the offers. **MODE OF PAYMENT**: Bidders can submit the banker details and payments can be made through NEFT/RTGS/ECS through PFMS.	

3)	**Delivery period** Trailers shall be supplied and commissioned **within 6 months** from the date of receipt of firm purchase order. Supplier has to intimate 2 weeks in advance for inspection.		
	Mile Stone	**Expected date of completion**	
	Purchase order date	T	
	Submission of GA drawings. Loading diagrams for different pay loads (for example 20t, 30t, 40t, 50t, 60t, 70t & 200t combinations) & at different load centers showing axle load, 5^{th} wheel load (king pin load). Structural and hydraulic stability calculations & diagrams showing geometric tilting limit and overload limit for different loads in lateral and longitudinal directions. Drawing of loading platform & gooseneck. Quality assurance plan for manufacture and testing of trailer.	T+ 3 weeks	
	Date of clearance of Fabrication drawing.	T + 4 Weeks	
	Inspection of the trailer at bidder site by the purchaser's representative. (Intimation for Pre-delivery inspection shall be TWO weeks in advance prior to the readiness of the trailer at bidder site)	T + 5 months	
	Delivery of trailer to SDSC SHAR, Sriharikota	T + 5 ½ months	

	Completion of Final Inspection , Testing of the trailer at SDSC SHAR, Sriharikota	T + 6 months	
4)	**Taxes and Duties**: As per the Notification No. 6/2018-Central Tax (Rate) and Notification No.7/2018-Integrated Tax (Rate) dt:25.01.2018 A(ix) S.No.243A as amended by Notification No.25/2018-Integrated Tax (Rate) Dt: 31.12.2018 b(viii) S.No.243B issued by Ministry of Finance (Dept. of Revenue), SDSC SHAR is eligible to avail IGST @5% for the procurements related to Scientific and technical instruments, apparatus, equipment, accessories, parts, components, spares, tools, mock ups and modules, raw material and consumables required for launch vehicles and satellites and payloads. End User Certificate shall be issued for claiming IGST@5%. **INCOME TAX** Income tax at the prevailing rate as applicable and if applicable from time to time shall be deducted from the supplier's bills as per Income Tax Act and a certificate issued (TDS Certificate).		
5)	**Warranty** **Warranty for one year** to be given for the satisfactory performance for the entire work from commissioning date against faulty design, faulty fabrication, faulty workmanship and defective materials. The warranty shall start only after successful completion of all the trials on site and rendering of work completion certificate by buyer. During, warranty period any break down call to be attended to within 48 Hours of intimation over telephone / e mail and to be rectified within 48 hrs. Any further delay in attending to / rectification of defect and breakdown beyond 5 days is liable to extend the warranty period. Any component/ unit/ sub unit gone defective is to be replaced with a new component/ unit / sub unit by the supplier at his own expenses under warranty period.		

6)	**Liquidated Damages** In the event of the Bidder failing to complete the work within the delivery period specified in the contract agreement or any extension agreed thereto, the Purchaser shall reserve the right to recover from the Bidder as liquidated damages, a sum of 0.5 percentages per week of the total contract price of equipment or work. The Total Liquidated damages shall not exceed the 10.00 percentage of total contract price.	
7)	**Performance Bank Guarantee (PBG):-** Seller have to submit a PBG from a Nationalised / Scheduled Bank for 3% of the order value at the time of supply valid till the completion of warranty period plus 60 days towards claim period. [The said percentage reconsideration shall be based on guidelines issued by Govt. of India, from time to time] **Performance Security (SD**):- 3% value of the order shall be deposited with SDSC within 10 days from the date of the Purchase Order towards security deposit in the form of Bank Guarantee towards performance of the Contract valid till completion of the contract period plus sixty days towards claim period. (This will be returned by SDSC immediately on execution of the order satisfactorily as per order terms. If not, the amount will be forfeited). NOT REQUIRED FOR LANDED COST BELOW RS.5 LAKHS. [The said percentage reconsideration shall be based on guidelines issued by Govt. of India, from time to time] **(OR)** **Combined Security Deposit & PBG** In case, if parties are unable to provide two separate BGs, i.e., one for SD & one for PBG, they can submit a combined BG for SD & PBG for 3% of the Order value valid till the completion of total contractual obligation (i.e., Supply period plus warranty period plus 60 days). Please confirm. [The said percentage reconsideration shall be based on guidelines issued by Govt. of India, from time to time.	

PRICE BID FORMAT (UNPRICED)

SL NO	DECSRIPTION	QTY	UNIT PRICE	TOTAL
1	Supply of Modular Hydraulic Suspension Trailer of 4 axle line as per specifications enclosed	3		
2	GST		%	
3	Total Price			

Note:

1. **Prices are not to be filled other than percentage of GST and enclosed along with technical bid.**
2. **Prices are to be filled in online only & Write only " QUOTED " in above page.**

COMPLIANCE TO TECHNICAL SPECSIFICATIONS		**Acceptance & Offered specs of all bought out items & make of all components & sizes to be mentioned in the table.**
1)	**SCOPE OF SUPPLY**	
a)	Supply of 4 Axle line Modular Hydraulic Suspension Trailer of minimum 70 t payload capacity as per specifications and configurations mentioned below.	
b)	**Quantity::** 3 No's	
c)	• Trailers will be used as 4 axle line single module (or) combination of two modules (or) three modules. • With various load & module combinations mentioned in Sl No. 2 below	

d)	Two No's of 4 axle line module trailer shall consist of detachable Live gooseneck, power pack, platform spacer.		
e)	One No of 4 axle line module trailer shall consist of detachable draw bar with swivelling header, power pack without platform spacer.		
f)	With all wheel hydro mechanical steering, hydraulic suspension axles.		
g)	Pre delivery Inspection, Testing at supplier site, Transportation, delivery and Final inspection & commissioning of trailer and training at Buyer site		
h)	Supply of tools, accessories, spares as per list		
i)	Warranty for one year.		
j)	RTA Temporary registration & support for Permanent registration of trailers.		
k)	Being the trailers are to be used as combination for 200t, total value wise evaluation is the method for arriving L1.		
2)	**TRAILER COMBINATIONS & LOADING CONFIGURATION:**		
a)	Single module -4 axle line (minimum 70t payload)	1. Without Platform spacer & with Gooseneck – Drawing no - 1 2. With platform spacer & with Gooseneck – Drawing no - 2	
b)	Two module - 8 axle line (minimum 140t payload)	3. With platform spacer & with Gooseneck – Drawing no – 3 4. Without Platform spacer & with Gooseneck – Drawing no - 4	

c)	Three module - 12 axle line (minimum 200t payload)	5. With platform spacer & with Gooseneck – Drawing no – 5 6. Without Platform spacer & with Gooseneck – Drawing no – 6 7. With platform spacer & with Gooseneck &Draw bar in Rear – Drawing no – 6a 8. With platform spacer in middle & with Gooseneck in front &Draw bar in Rear- Drawing no – 6b 9. With platform spacer in middle & Draw bar on both ends - Drawing no – 7 & 8 10. With platform spacer & with Gooseneck in front &Draw bar in Rear- Drawing no – 9 11. With platform spacer in middle & with Gooseneck in front &Draw bar in Rear- Drawing no – 10	
3)	**DIMENSIONS OF THE TRAILERS**		
a)	Platform spacer (Removable type)	3.0 m Length & 3.0 m width	
b)	4 axle line without spacer	6.0 m Length & 3.0 m width	
c)	4 axle line with spacer	9.0 m Length & 3.0 m width	
d)	8 axle line combination with spacer	15.0 m Length & 3.0 m width	
e)	12 axle line combination with spacer	21.0 m Length & 3.0 m width	
f)	Wheel track	~1800 mm	
g)	Wheel track of single axle	~ 750 mm	
h)	Platform top height Driving position (Laden)	~1100 to 1200 mm	

i)	Axle lines spacing (Wheel base)	~1500 mm	
4)	**TECHNICAL PAY LOAD CAPACITY (minimum)**		
a)	Single module 4 axle line	70 t @ 25kmph	
b)	Two module 8 axle line	140 t @ 10kmph	
c)	Three module 12 axle line	200 t @10kmph	
5)	**DESIGNED PAY LOAD RATING FOR DIFFERENT SPEEDS FOR SINGLE MODULE**		
a)	@1kmph	To be specified	
b)	@ 5km/h	To be specified	
c)	@ 10km/h	To be specified	
d)	@ 25km/h	To be specified	
6)	**UNLADEN WEIGHT**		
a)	Weight of 4 axle line trailer (Unladen)	~14 t (to be specified)	
b)	Weight of Goose neck (Unladen)	(to be specified)	
7)	**MAX LADEN WEIGHT AS PER CENTRAL MOTOR VEHICLE RULES**		
a)	Max permissible weight of independent single module	72000 kg (18000 kg per axle line)	
8)	Single module unladen speed in kmph:	~40 kmph	
9)	Operating temperature	Up to 45 deg C	
10)	**AXLE REQUIREMENTS**		
a)	Type of axle	Pendulum axle with Hydraulic suspension with dual mounted tyres.	
b)	No of axle lines	4 axle lines for each module (Total : 12 axle lines)	
c)	No of wheel bogies per module – Total/braked	8/8	

d)	Tyres	8 No's Pneumatic Tube less Radial tyres per axle line with suitable speed/load rating, Indigenous make, preferably of 215/75 R 17.5 /135/133J with RIB Pattern, meeting IS 15636:2005; Max trailer load shall not exceed tyre load limits	
e)	Wheel Rims	Wheel rims shall meet max load ratings of trailer as per IS: 9438	
f)	Technical Admissible load per axle Line	Min 36ton @1kmph	
g)	Axle compensation (Hydraulic axle lift cylinder stroke)	around ± 300 mm from driving height	
h)	Axle line capacities chart for 1, 5, 10, 20, 40 kmph shall be provided with axle manufacturer certificate.		
i)	Selection of all axle ratings standard and calculation has to be provided.		
j)	Axle with drum brake of minimum 300 mm dia.		
k)	Compact wheel bearings with long life and extended maintenance period.		
l)	Axle Lifting provision for each bogie with locking pin.		
m)	Maintenance free bearing housing for pendulum axle and rocker arm. Details are to be provided.		
n)	Swivelling arrangement with Slewing ring of approx. OD 700 mm, similar to Rother erde fitted on machined surface (or) robust high strength heavy press fit Pin type with extra heavy duty taper roller bearings with lesser maintenance, without any rubber bush etc. Construction arrangement and component details are to be provided.		
11)	**HYDRAULIC SUSPENSION SYSTEM:**		
a)	Type: Hydro-pneumatic suspension.		

b)	Hydraulic oil volume around 150 l	To be indicated	
c)	Hydraulic working pressure ~ 345 bar	To be indicated	
d)	Trailer shall be provided with full hydraulic suspension system to equalize axle loads on wheels with axle load compensation.		
e)	A minimum of stroke of around ± 300 mm from driving height with respect to ground level should be possible.		
f)	Trailer Rear Left side, Rear Right side and Goose neck shall be lowered/raised independently.		
g)	Left and right hydraulic circuits of trailer should be connected by on/off valve for equalizing the trailer platform in unladen condition.		
h)	Hydraulic cylinders shall be provided with on/off valves for wheel replacement works.		
i)	Wheel bogies of trailer shall be provided with lifting mechanism for isolating the bogie and moving trailer uninterrupted during tyre failure and also to retract when driven empty with less number of wheels.		
j)	Hydraulic quick couplings (Mini mess) shall be provided in-between modules for easy moduling / coupling of modules.		
k)	Pressure gauges shall be provided for indicating actual hydraulic pressures in pressure lines for each module.		
l)	Suspension system shall take care of the shock loads due to road conditions and speed of the vehicle as the payload is sensitive to vibrations, with load and without load.		
m)	Minimess couplers/connectors shall be provided in different circuits near power pack, trailer, gooseneck control panel, etc. for periodic checking of hydraulic pressure.		
n)	All hydraulic suspension cylinders shall be fitted with fall prevention valves, preferably on the suspension cylinders for safety against hose rupture.		

o)	Total Trailer with rated payload shall be raised or lowered using hydraulic suspension to unload or load payload in single module (or) combinations using control panel. (Self-loading & unloading)		
p)	Each trailer have sufficient no of accumulator for better suspension.		
q)	Gas accumulators in the hydraulic circuit for vibration damping in laden and unladen condition for maximum speed of trailers with on/off valves.		
12)	**LIVE GOOSENECK REQUIREMENTS**		
a)	Qty 2Nos		
b)	Width	~2,500 mm	
c)	Swing clearance	~2,800 mm	
d)	Coupling length (bolt coupling)	~3,225 mm	
e)	Length	~4000 mm	
f)	Goose neck Fifth wheel loading capacity	~35t	
g)	Weight	~5,500 kg	
h)	King Pin size	3 ½ inch (pref.make : Jost/York/Rockinger/Ringfeder)	
i)	Fifth wheel height	Suitable to FM 460 VOLVO Tractor	
j)	Hydraulically operated, compensating type, Live gooseneck with 5th wheel supported on skid plate over ball bearing slewing ring and with Counter steering system & adjustable steering wedge.		
k)	VOLVO hauler FM 460 6x4 tractor with 5th wheel coupler (3.5 inch dia pin) will be used for connecting to trailer.		
l)	Gooseneck structure shall be made up of rigid welded construction.		
m)	Integrated hydro –mechanical steering for activating the steering system with hydraulic steering cylinders..		

n)	Two hydraulic cylinders for gooseneck lifting/lowering, hydraulic compensation.	
o)	Two support cylinders for gooseneck on the ground, during moduling / de-mating of goose neck from prime mover.	
p)	Gooseneck is to be fitted with 2 no's of hydraulically operated propping jacks to support the gooseneck on the tractor frame when the tractor is detached.	
q)	Steering command with steering angle limitation with one multiple valve block	
r)	Gooseneck should have proportionate valve to increase or decrease the load on 5^{th} wheel.	
s)	Gooseneck has to adjust to different horizontal road levels between the tractor and trailer.	
t)	Skid plate nominal height from ground level has to match conforming to ISO:1726 suitable to use along with VOLVO FM 460 6X4 Tractor	
u)	Fall prevention valves for safety against hose failure/rupture for Gooseneck hydraulic cylinders	
v)	Easily accessible Lubricating greasing points.	
w)	Pressure gauges at gooseneck control panel for pressure monitoring of all left, right and goose neck circuit pressures.	
x)	Control panel with all the operating levers / switches for operating trailer platform lowering/lifting, steering and coupling / de-coupling.	
y)	Goose neck operating panel at approachable height and left side with Foldable protection cover with locking provision for Control panel	
z)	3½" king pin of suitable capacity meeting ECE/AIS standards with wedge plate, preferably 45^0 throat angles shall be provided.	
aa)	Hydraulic coupling provisions in the gooseneck for easy assembly or disassembly with either of modules with or without loading spacer, even when the modules are loaded.	

bb)	Hydraulic system shall be designed for combination of all three trailers.	
cc)	Gooseneck shall be provided with hydraulic steering cylinders and the steering mechanism shall operate the steering cylinders at gooseneck, which in turn operates the steering cylinders at module and operates other axles through track rods.	
dd)	Positioning of Power pack for all the hydraulic system is on the gooseneck.	
ee)	Gooseneck top platform size shall be approximate 3000 mm (L) and 2500mm (W) covered with removable strong chequered plate.	
ff)	It shall be possible to carry transportation material, ladders, Spare tyres etc.	
gg)	Fixed front wall and detachable & hinged rear and side walls; completely removable additional loading area on gooseneck.	
hh)	Hydraulic, Brake, Electrical connection to the prime mover	
ii)	Swing clearance radius of 2500 mm to 2800mm as required.	
jj)	Detachable ladder	
kk)	1 Pair of lashing rings in the rear of LC 20t ; 2 Pairs of LC 1 T; 4 Pairs of threaded bushings M 30 on the loading area for screw in lashing rings for LC 10 t	
13)	**DRAW BAR -1No**	
a)	One trailer is to be configured with Draw bar of 3 m long and min 50 mm dia pin suitable to standard puller hitches (VOLVO FH520/FM500).	
b)	Draw bar shall be capable of pulling/pushing Combination of Three modules with rated payload.	
c)	Suitable steering swivelling, hydraulic power pack of same size of other module, Control panel, Hydraulic tank, Trailer brake valve etc. are to be provided.	
d)	Support wheel for draw bar.	
e)	Draw bar shall be designed with enough safety margins as per regulations. Detailed specifications and drawing to be submitted.	

f)	Draw bar shall have steering swivel header arrangement without any manual intervention for steering ; Also, it shall have flexibility to convert into Gooseneck configuration without much time.			
g)	When coupled with Three module combination, it should be possible to remove and connect the draw bar on both longitudinal ends.			
14)	**STEERING SYSTEM**			
a)	Hydro-Mechanical all wheel power steering of pendulum axles integrated into the chassis, actuated from gooseneck/draw bar.			
b)	Counter steering shall be provided with all wheel bogies steering with Ackerman geometry			
c)	Four double acting steering cylinders, frame integrated.			
d)	Steering valve block with safety valve is to be provided to protect steering system against over pressure.			
e)	Easily accessible track rods from top side with cover plates.			
f)	Steering angles of swing axles shall be indicated for single module, two module and three module trailers separately.			
g)	Manual steering provision shall be provided to steer by power pack from control panel in case of requirement			
h)	Steering angle in all driving heights is ~ 55 degrees or more			
i)	TURNING RADIUS OUTER & INNER (PRIME MOVER & TRAILER)			
j)	Tractor with Single module w/Spacer	Inner:	Outer:	
k)	Tractor with Two modules w/Spacer	Inner:	Outer:	
l)	Tractor with Three modules w/Spacer	Inner:	Outer:	
m)	Required to reverse the trailer with full load in straight or desired curved path.			

n)	Inner and outer turning radius for all combinations &configurations as per Sl No2 shall be submitted with drawings.	
15)	**FACTOR OF SAFETY FOR TRAILER FRAME**	
a)	Factor of safety in design of frame shall be as per standards/regulation, generally adopted for heavy transport trailers.	
b)	Factor of safety on yield stress for the trailer shall be indicated.	
16)	**WEIGHT, COG AND STABILITY OF TRAILER**	
a)	Tare weight of each configuration shall be indicated along with individual weights of all sub-assemblies like platform spacer, gooseneck, trailer modules etc.	
b)	COG distances in longitudinal, lateral & vertical direction shall be submitted for unladen trailer of each configuration along with offer.	
c)	Lateral and longitudinal stability graphs for various loading configurations given in schematics shall be submitted along with offer.	
d)	Stability area shall be indicated for 3-point and 4-point suspension along with COG location for all the loading conditions shall be submitted along with offer.	
e)	Calculations for various selections of loads are to be submitted.	
f)	Software for stability calculations for various selection of loads is to be supplied with trailers.	
17)	**TRAILER CHASSIS STRUCTURE**	
a)	Trailer module with spacer shall be of platform type, anywhere loading conditions & closed chassis outer zones.	
b)	Supplier shall indicate longitudinal/lateral load carrying members for loading scheme of payload with detailed drawing.	
c)	The individual trailer module has to be designed for max speed with rated load with highest bending moment and higher torsional resistance & suitable axle rating.	

d)	Trailer frame shall be welded construction in single piece, made of high tensile fine grained steel, consisting of longitudinal spine & lateral beams for Higher torsional stiffness and bending moment. Main Spine & Main Cross members: S690 QL High Yield Structural Steel Grade as per EN 10025 or better. Rest of the Frame: E450 grade steel as per IS : 2062 or better.	
e)	Trailer platform top shall be flat without any projections or unevenness.	
f)	Platform shall be completely covered with adequate size and thick cut-outs plates wherever opening provision is available.	
g)	Trailer platform shall be provided with minimum 04 no's of lashing brackets on each side.	
h)	Additional 4 nos. of lashing brackets, anchoring points shall be provided on four corners of distance piece and gooseneck.	
i)	For fixing of transportation frames / fixtures, suitable holes /interface plates fixing provision is required on the sides of each trailer.	
j)	The complete trailer with full load is likely to be parked stationary (if required) for long duration. During this period, it is desirable to relieve the load from the tyres by supporting the trailer frame. For this purpose, Suitable locations on trailer frame shall be strengthened and marked on trailer frame for supporting (or) an inbuilt support system may be provided.	
k)	The whole trailer in single (or) combination modules requires lowering or lifting with rated payload uniformly for the available suspension stroke for offloading or loading the payload at certain platforms. Hence, the system and trailer frames shall be designed accordingly and will be tested.	
l)	Chassis shall be designed for Combinable modules in longitudinal and lateral directions.	
m)	Provision for routing all external connections of hydraulic/ air/ electric lines.	
n)	Bolted ear coupling for longitudinal coupling for front and rear.	

o)	Box shaped centre frame with integrated hydraulic tanks.	
p)	The platforms shall be coupled using Hydraulic coupling cylinder, controlled hydraulically to assemble and disassemble.	
q)	Coupling head plates should be made of single piece/forged plates.	
18)	**CUT OUTS ON TRAILER PLATFORM**	
a)	Cut-outs shall be provided on trailer platform at required places for easy accessibility of steering track rods and trailer components.	
b)	All cut-outs shall be covered with strong, non-skid, steel sheets of adequate thickness.	
c)	Cut-out cover sheets shall be securely fastened to the platform with ease of locking /unlocking	
d)	Cut-out cover sheets after fitment shall be in level to the main platform. There shall not be any level difference between frame and covering plates.	
19)	**FULL WIDTH PLATFORM SPACER (intermediate deck) – Qty 2 No's**	
a)	Designed as an additional loading platform between modules and gooseneck.	
b)	Dimensions of the platform spacer shall be 3 m length and width of 3 m.	
c)	Plat form spacer shall be capable of equally sharing the payload of the trailer.	
d)	Provided with 4 no's of mechanical telescopic landing legs of suitable capacity to carry gooseneck and spacer when trailer is detached from prime mover in full load condition.	
e)	Maximum payload capacity of platform spacer shall be indicated.	
f)	Lashing ear couplings in front and rear for connection between modules.	
g)	Box shaped center frame with cross beams and outer beams similar to module chassis as strong as trailer module frame with same ground clearance.	
h)	Welded structure made of similar material like trailer main frame.	
i)	Integrated supply lines for hydraulics, brake and electrics with connection couplings.	
j)	Lashing brackets and D shackles similar to trailer	
k)	Locking cylinder –Hydraulic/Mechanical coupling shaft	

20)	**HYDRAULIC POWER PACK**	
a)	Diesel operated, air cooled preferred, electric starter, power pack unit of suitable capacity (~23kW) with suitable hydraulic pump capacity shall be provided on the Gooseneck for Hydraulic system. Power pack shall be of reputed manufacturers like Deutz, Hatz etc., meeting relevant emission standards.	
b)	Self-starting type engine with battery cut-off switch shall be provided with proper closer.	
c)	Power pack shall be fitted with spark arrester at the exit of exhaust. Certificate for spark arrester shall be submitted along with the trailer.	
d)	Power pack engine on gooseneck shall be protected from all weather conditions by covering with suitable high quality, light weight, metallic weather proof covers.	
21)	**BRAKING SYSTEM**	
a)	Dual line Fail safe full air brake system meeting relevant AIS standards for MHT, actuated through Puller Tractor.	
b)	All axles shall be fitted with sufficient size brake chambers meeting service brake and parking brake efficiency.	
c)	Braking system shall be provided with sufficient capacity Air reservoirs for multiple number of brake application, Air pressure regulator, Pressure gauges, Non return valve, Relay Emergency Valve, Parking cum Service brake chambers, Graduated hand control parking brake valve, Palm couplings, Coil hoses with standard colour coding for hauler air connection of suitable length, Quick release valve and relay valves, suitable diameter maintenance free pipe lines, all reputed indigenous brands like ZF Wabco.	
d)	In case of accidental detachment of trailer from hauler, all the wheels shall automatically apply brake and trailer shall be stopped safely.	
e)	When the brake system not coupled/failed, the trailer shall be able to tow with tractor i.e. without air pressure in trailer by releasing actuators.	

f)	Trailer service brake and parking brake shall be applied from driver cabin controls.	
g)	Parking Brake shall be air operated and should also be operated from trailer end easily accessible from outside.	
22)	**ELECTRICAL SYSTEM**	
a)	Double pole wiring for electrical connection being the trailer works in hazardous environment.	
b)	7 Pin electric sockets at all four corners, supply harness taped from Volvo FM 460 6X 4 Tractor with 24 V DC system.	
c)	LED Indicator Lights for Direction, Brake, Reverse, Regn Plate, Parking, Side marker at necessary locations as per AIS standards for MHT.	
d)	Metal conduits pipes for All electrical cables routing and Junctions shall be provided for inspection and maintenance.	
e)	Sockets for Inspection lamps on right and left hand side and 2 No's inspection lamps with extension wire 10m –(Total 3 sets)	
f)	Necessary male and female connections with power cables shall be provided to draw power from prime mover.	
23)	**SAFETY & OTHER FEATURES:**	
a)	Complete fourfold piping for module combinations.	
b)	Double pole wiring for electrical system.	
c)	Bidder shall mention clearly all the safety features, protective devices/instruments available in trailer.	
d)	Fall prevention (Hose rupture) safety valve system for hydraulic circuit on all wheel sets.	
e)	All hydraulic pipes lines and valves shall be seamless type of reputed make like M/s VOSS, PARKER, EATON etc. & material of construction is alloy steel.	

f)	Trailer is operating near sea shore hence all the tubes and tube fittings shall be protected against corrosion. The corrosion protective coating shall be indicated in quotation. As far as possible all the hydraulic fluid lines / pneumatic lines shall be of Zinc nickel coated metallic steel tubes and use of rubber hoses shall be minimized. Hoses shall be used only for flexible joints or moving connections and protected against rupture with suitable sleeves.		
g)	The pneumatic and hydraulic shall be routed and clamped properly.		
24)	**PAINTING**		
a)	Exterior & Under chassis :	Two coats of 88% Epoxy Zinc primer, intermediate and final coat of PU paint with surface sand blasting, best suitable for saline atmosphere. RED (RAL 3020) or Buyer choice.	
b)	Wheel Rims:	PU Silver colour	
c)	Painting scheme and thickness shall be indicated in the offer.		
d)	Trailer details such as payload, capacity, unladen weight, axle rating shall be marked legibly on a name plate for each configuration of trailer.		
e)	Separate colour codes for Air, hydraulic and independent operating circuits shall be followed.		
f)	All valves open/close position and valve number as per circuit diagram shall be punch marked legibly and shall be colour coded.		
g)	Top of Platform, an anti-skid coat is to be applied.		
h)	All-round Marking on trailer as per CMVR and logo marking as required by Buyer.		
25)	**ACCESSORIES TO BE PROVIDED IN THE TRAILER**		
a)	Live goose neck (for 2 Trailers)		
b)	3 m Long Draw bar with steering swivel header –(for 1 Trailer)		

c)	3m Long Platform spacer- (for 2 Trailers)	
d)	Rear bumper with integrated Tail lights	
e)	Electric, pneumatic and hydraulic connection lines between Tractor & Trailers	
f)	Lashing brackets with D shackles.	
g)	Telescopic supporting legs for Platform spacer.	
h)	Hyd Locking cylinder –Hydraulic/mechanical coupling shaft. For module combinations.	
i)	Platform covers for cut outs on trailer	
j)	Prime mover to trailer electrical assembly 3m	
k)	Longitudinal locking bolt & nuts for moduling.	
l)	Reflectors, Reflective tapes, Lamps as per CMVR/AIS	
m)	Trailer to trailer (T-T) connection set for longitudinal/lateral connection of 3 module combination which contains all hydraulic, pneumatic hoses, electrical, bolt sets, shim plates, camber plates.	
26)	**TOOLS TO BE SUPPLIED (One lot of the following is for Total Order)**	
a)	Hub removal / Fitment spanner- 2 no	
b)	Hydraulic Suspension cylinder removal / fitment spanner – 02 no	
c)	Hydraulic Steering cylinder removal / fitment spanner - 02 no	
d)	5 Rack tools trolley with maintenance tools , consisting DE, Ring ,Socket spanners, All pliers, Screw drivers set, Hammers, Allen keys required for maintenance of trailer - 02 set	
e)	Tools for quick coupler removal / fitment – 02 no	
f)	Spanner/Allen key for track rod fitment / removal – 02 no	
g)	Snap on Torque wrench with socket for track rods tightening with socket - 01 no	
h)	Snap-on Torque wrench with socket for wheel nut tightening - 01 no.	
i)	Spanner for Module & spacer connecting bolts – 02 no’s	
j)	Wheel nut spanner with rod and lever-2 No’s	
k)	Hydraulic bottle jack 20 t capacity with lever-2 No’s	

l)	Supplier can add if any additional tools are required.	
27)	**SPARES LIST (One lot of the following is for Total Order)**	
a)	Spare tyre with wheel rim – Total 3 No's	
b)	Wheel bolts & nuts – 10 No's	
c)	Filter kit consisting Air/Hydraulic/ Fuel/Engine oil filter for power pack -3 Sets	
d)	Hydraulic suspension cylinder – 2 No's	
e)	Module Locking bolts - 1 set	
f)	One set of all Hydraulic hoses for steering, suspension	
g)	2 sets of Hydraulic seal kit for all suspension, steering, gooseneck cylinders	
h)	Module hydraulic with accessories locking cylinder -1Nos	
i)	Two No's of Brake slack adjuster.	
j)	Service brake & parking brake actuators -1 each	
k)	Supplier can add if any essential spares are required.	
28)	**INTERFACE WITH PRIME MOVER**	
	Trailer manufacturer has to verify the interfaces with Tractor Model VOLVO FM 460 - 6 X 4 and confirm suitability of following.	
a)	Trailer forward clearance zone and trailer gooseneck clearance with Tractor	
b)	Height of fifth wheel from ground: ~1425 mm unladen and as per ISO 1726.	
c)	Wheel Base: 4085 mm (From CL of Front Axle to CL of Bogie)	
d)	Max Rear axle Bogie technical loading capacity of tractor is 32 t.	
e)	5th wheel coupler (3.5 inch dia pin) of VOLVO hauler FM 460 6x4 tractor.	
f)	Maximum Permissible load on 5th wheel coupler of tractor approx. 28t (Volvo FM 460 6X4)	
g)	Air brakes & Electrical outlet connections: 7 pin connector	

29)	**INSPECTION , TESTING AND TRAINING:**		
a)	*Inspection Plan at* ***Supplier site***	1. Raw material, bought out material inspection	
		2. Fabrication stage	
		3. PDI, functional and load testing before dispatch.	
b)	*Final acceptance Plan at SDSC* ***SDSC SHAR***	1. All items Receipt at buyers site	
		2. Commissioning by supplier	
		3. Final inspection as per PO specs	
		4. Load & road testing for applicable & possible configurations	
c)	*Load and Road testing of Trailer* ***Supplier Site***	1. 4 axle line module functional and load testing with Goose neck for 2 trailers (and) draw bar for one trailer.	
		2. 8 axles and 12 axles line combination inside the plant for unladen functional testing.	
		3. All load and equipment under supplier's scope.	
d)	*Load and Road testing of Trailer* ***SDSC SHAR***	1. The above tests will be repeated at SDSC SHAR.	
		2. 8 axles and 12 axles line combination inside the plant – laden at rated speed.	
		3. All load and equipment under buyer's scope	
		4. Supplier shall be present during testing.	
e)	Supplier shall provide the relevant test certificates for materials and bought out components during first stage inspection.		

f)	Inspection plan, test plan, and QAP shall be provided along with inspection call.	
g)	Overload test shall be conducted for each trailer and it shall be equal to 1.1 times payload capacity of trailer.	
h)	Supplier shall intimate the purchaser at least 4 weeks in advance the readiness of trailer for each stage of inspection and testing.	
i)	Demonstration of fall prevention valve safety mechanism shall be conducted with full load condition.	
j)	Trailer shall be dispatched only after the clearance of representative of the purchaser.	
k)	Training for operation and maintenance shall be provided to inspection team at manufacturer works and buyers site at free of cost.	
30)	**TESTING & COMMISSIONING AT PURCHASER'S SITE:**	
a)	Supplier shall depute his representative and man power to assemble & testing trailer at Sriharikota.	
b)	Supplier shall provide operation & maintenance training to purchaser staff at free of cost at Purchaser site. Audio /video presentation shall be provided during training. Training material shall be supplied during training.	
c)	Trailer shall be coupled to SDSC SHAR prime mover for testing at SHAR. If any minor modifications required during testing/assembling / commissioning at our site the same shall be carried out at free of cost.	
d)	Test loads, instruments, testing support etc. will be provided on free of cost at the buyer site.	
e)	For unloading of trailer at buyer's site, material handling equipment/crane will be provided free of cost, but, has to be guided and overseen by supplier representative while unloading.	

31)	**THE DOCUMENTS / INFORMATION TO BE SUBMITTED ALONG WITH OFFER**	
a)	Compliance to Technical specifications and terms & conditions duly signed and stamped as a token of acceptance	
b)	Technical specifications of Trailer offered.	
c)	Technical specifications of Goose neck offered.	
d)	Trailer type approval and homologation as per CMVR standards.	
e)	General arrangement drawing of trailer showing dimensions & turning circle radii;	
f)	Drawing showing structural members of trailer structure with dimensions, member sizes.	
g)	Bill of materials with make of sub systems & components	
h)	Technical specifications & Brochures of all bought out components like Axles, Suspension, all Hydraulic cylinders, Bearings, Power pack, Hydraulic valves, Hoses, Brake system components, Steering slewing rings etc.	
i)	Description, Technical details and schematic sketch of counter steering mechanism.	
j)	Details of Safety system including fall prevention valves.	
k)	Details with confirmation regarding loading conditions, maximum lateral and longitudinal tilt angles, overload limit and loading chart with respect to Tender specifications	
l)	Axle capacities at different speeds and axle loads for transportation of payloads.	
m)	Load distribution i.e. Trailer Axle load, 5th wheel coupler load & hauler axles load calculations for each configurations shall be submitted.	
n)	List of tools at free cost including listed in tender that will be supplied along with trailer shall be given.	
o)	Complete details and specifications of Live goose neck with circuit diagram and components.	
p)	Circuit diagram of Hydraulics, Pneumatic, Electrical	

32)	**DOCUMENTS/INFORMATION TO BE PROVIDED AFTER THE RECEIPT OF PURCHASE ORDER BEFORE FABRICATION.**	
a)	Quality assurance plan for manufacture and testing of trailer	
b)	Detailed drawing of trailer to scale, showing the various systems of Trailer, Gooseneck, and structural members and final dimensions.	
c)	Loading diagrams for different pay loads as per the configurations & at different load centre showing axle load, 5^{th} wheel load (king pin load)	
d)	Structural, hydraulic stability calculations & diagrams showing geometric tilting limit and overload limit for different loads in lateral and longitudinal directions.	
e)	Bending movement diagram for each configuration of trailer shall be submitted	
f)	Detailed drawing of loading platform structure & gooseneck	
g)	Detailed specifications & capacities of final bought out items & components with OEM data.	
h)	Description and sketches of safety systems in trailer	
33)	**DOCUMENTS TO BE SUPPLIED ALONG WITH SUPPLY OF TRAILER.**	
	Hard bound 2 copies and soft copy in USB of the following are to be issued.	
a)	Operation manual and instructions for trailer	
b)	Configuration procedure for various trailer combination and loads	
c)	Maintenance manuals with trouble shootings and testing & calibration methods, removal and fitment procedure for major systems like axles, cylinders, valves, power pack.	
d)	Spare parts catalogue containing assembly and subassembly drawings with exploded views of each subassembly and spare parts.	
e)	Circuit diagrams/schematics of complete hydraulic system (for lifting and steering functions), Pneumatic Brake s, Electrical system.	

f)	Technical catalogues of bought out items like engine/power pack, axles, cylinders, valves, braking system.	
g)	Test certificates of individual systems / components and inspection reports/calibration reports.	
h)	Maintenance and test procedure for hydraulic system including fall prevention valve.	
i)	User Software for configuring - loading of various payloads and configurations	
j)	Schematic sketch of accumulator's arrangement for no-load and full load conditions.	
k)	Natural frequency of unladen trailer shall be submitted.	
34)	**RTA REGISTRATION**	
a)	1. All the trailers are to be delivered with temporary registration. 2. Necessary documentary support regarding trailer documents shall be provided by seller during permanent registration process which will be done by Buyer.	