

वैज्ञानिक तथा औद्योगिक अनुसंधान परिषद्
Council of Scientific & Industrial Research
राष्ट्रीय वांतरिक्ष प्रयोगशालाएं
National Aerospace Laboratories



CSIR - NAL Estd. 1959
ISO 9001 : 2015
Certified Organization

INVITATION FOR TENDERS

Tender No. NAL/PUR/ACD/048/22-Y

Dated: 31/05/2022

CSIR - National Aerospace Laboratories (NAL), Bengaluru, Republic of India, is one of the premier research laboratories under aegis of Council of Scientific and Industrial Research (CSIR), an autonomous body under the Department of Scientific and Industrial Research, Government of India, New Delhi. CSIR-NAL is a Science and Knowledge based Research, Development and Consulting Organisation. It is internationally known for its excellence in Scientific Research in Aerospace Engineering.

The Director, CSIR-NAL invites online quotation for procurement of the following item(s) for day to day research work.

Sl. No.	Description of Item(s)	Unit	Quantity
1	Fabrication and Supply of Composite Tool for Vertical Tail of the HANSA NG Aircraft (Master Model LH & RH T2H – 27100M, Mould LH & RH T2N – 27100T, Backup Structure LH & RH T2N – 27100F) (Please refer annexure for detailed scope of work & drawings)	Set	1

Single / Double Bid	Single	Tender Type	Open
Bid Security (EMD) (in INR)	Bid Security Declaration should be enclosed with quotation	Bid submission end date	20-Jun-2022 10.00 Hrs
Performance Security	Nil	Bid opening date	21-Jun-2022 11.00 Hrs

01. Tender Documents may be downloaded from Central Public Procurement Portal <https://www.etenders.gov.in>. Aspiring Bidders' who have not registered in e- procurement can register free of cost before participating through the website <https://www.etenders.gov.in>. Bidders are advised to go through instructions provided at 'Instructions for Online Bid Submission'.
02. Tenderers can access tender documents on the website (for searching in the NIC site <https://www.etenders.gov.in>, kindly go to Tender Search option, select tender type and select 'Council of Scientific and Industrial Research', in organisation tab and select NAL-Bengaluru-CSIR in department type. Thereafter, Click on "Search" button to view all CSIR-NAL, Bengaluru tenders). Select the appropriate tender and fill them with all relevant information and submit the completed tender document online on the website <https://www.etenders.gov.in> as per the schedule given in the next page.

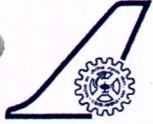
पी बी सं. 1779, एचएएल एयरपोर्ट रोड , कोडिहल्ली, बेंगलुरु - 560 017, भारत,
P B No 1779, HAL Airport Road, Kodihalli, Bengaluru - 560 017, INDIA
फोन / Phone : (का./ Off) : +91 - 80 - 2508 6040 - 45, फैक्स / FAX : +91-80-2526 9611



<http://www.nal.res.in>



purchasek@nal.res.in



CSIR-National Aerospace Laboratories, Bengaluru-560 017, INDIA

03. a. Global Tender Enquiry: Either the Indian Agent on behalf of the Foreign principal or the Foreign principal can bid directly in a tender but **not** both. However, the offer of the Indian Agent should also accompany the authorisation letter from their principal. To maintain sanctity of tendering system, one Indian Agent **cannot** represent two different Foreign principals in one tender
- b. Open Tender enquiry: Only Local suppliers with prescribed local content as detailed in DIPPT Order No. P-45021/2/2017-PP (BE-II) dated 16th Sep, 2020 and subsequent orders issued by Ministry of Finance (GoI) from time to time, are eligible for bidding. Bidders must enclose the certificate declaring the local content of supplies as per our standard form.

(Note: Kindly refer to the first page (NIT) for tender type (i.e. Open Tender Enquiry / Global Tender Enquiry) and submit your bid accordingly.

04. Unsolicited / conditional / unsigned Quotations/Quotations received after the due date and time shall be summarily rejected. The Bidder shall comply the terms and conditions of the tender, failing which, the offer shall be liable for rejection.
05. The bids' failing to comply with the following clauses will be summarily rejected.
- a. The Bidders' proposing to supply finished products directly/indirectly from vendors' of countries sharing the land border with India should submit a copy of registration done with DPIIT.
- b. If the products supplied are not from vendors of countries sharing land border with India, the Bidders' have to enclose a declaration to that effect.
06. As per Govt. of India procurement policies,
- a. The purchaser intends to give purchase preference to local supplies (Preference to Make in India) in case the cost of procurement is up to Rs. 50.00 lakhs.
- b. The procuring entity intends to give purchase preference to products/goods manufactured by micro, small and medium enterprises.
07. Kindly, note CSIR-NAL **GST No. 29AAATC2716R1ZB**. And the bidders' are requested to furnish their GST No. in their invoice failing which we will **not** be able to make timely payment.
08. The prospective bidders' are requested to refer to the Standard Terms and Conditions available on NAL Internet (www.nal.res.in) under the icon Tender-Purchase before formulating and submitting their bids'.
09. The Director, CSIR- National Aerospace Laboratories, Bengaluru reserves the right to accept any or all the tenders either in part or in full or to split the order without assigning any reasons there for.

Thanking you,

Yours faithfully

Stores & Purchase Officer
For and on behalf of CSIR-NAL

Fabrication of HANSA NG Aircraft Composite Tool for Vertical Tail

Scope of work for Fabrication of Composite tool (LH and RH):

1. CNC machining of the Master Models as per CAD model/drawing provided.
2. Mark Part boundary and reference lines (width 0.5 mm and depth 0.5mm) on the Master Mould as specified in the drawing.
3. Material for the Master Model: Plain **MDF** Densified Water Resistant Boards, (IS 12406-2003 DWR –(Grade I))
4. Provide thin surface coat with resin system SW419+HY2404 to the Master Model Contour/ Tooling surface.
5. The process adopted for mould/tool generation can be wet lay-up with Glass CSM of 300GSM, CSM of 600GSM, Fabric (woven mat) of 300 GSM of suitable number of layers to obtain the mould skin thickness as per Drawing.
6. Refer details in the drawing for Mould construction and Material details refer Detail-B1, Material Stainless steel 304 for Item Nos.10, 11 and 12.
7. Use plywood of 12mm thick with one layer of Glass CSM on both sides, for backup transverse ribs and longitudinal ribs for moulds LH and RH, attach to the mould as specified in the drawing.
8. The reference flanges must be as per the drawing for vacuum bagging activity in the Moulds.
9. Locate and fasten Item No. 10, Item No. 11 and Item No. 12 as specified in the drawing.
10. Mark part boundary and reference lines (width 0.5 mm and depth 0.5mm) as specified in the drawing.
11. Fabricate and attach M.S. Backup structure for the moulds with levelling arrangement as per the drawing.
12. The resin system for fabrication of mould is LY 556+HY 951 as per Drawing.
13. Assemble the Mould with the corresponding Backup structure as per drawing.
14. Grout and level the composite tool with Steel structure at CSIR-NAL before the final inspection.
15. Arrange necessary hand tools for levelling composite tool contour surface to achieve accuracy within ± 1.5 mm.
16. Mould outer surface shall be coated with black epoxy paint and the steel backup structure with yellow metal primer and grey enamel paint.

Note:

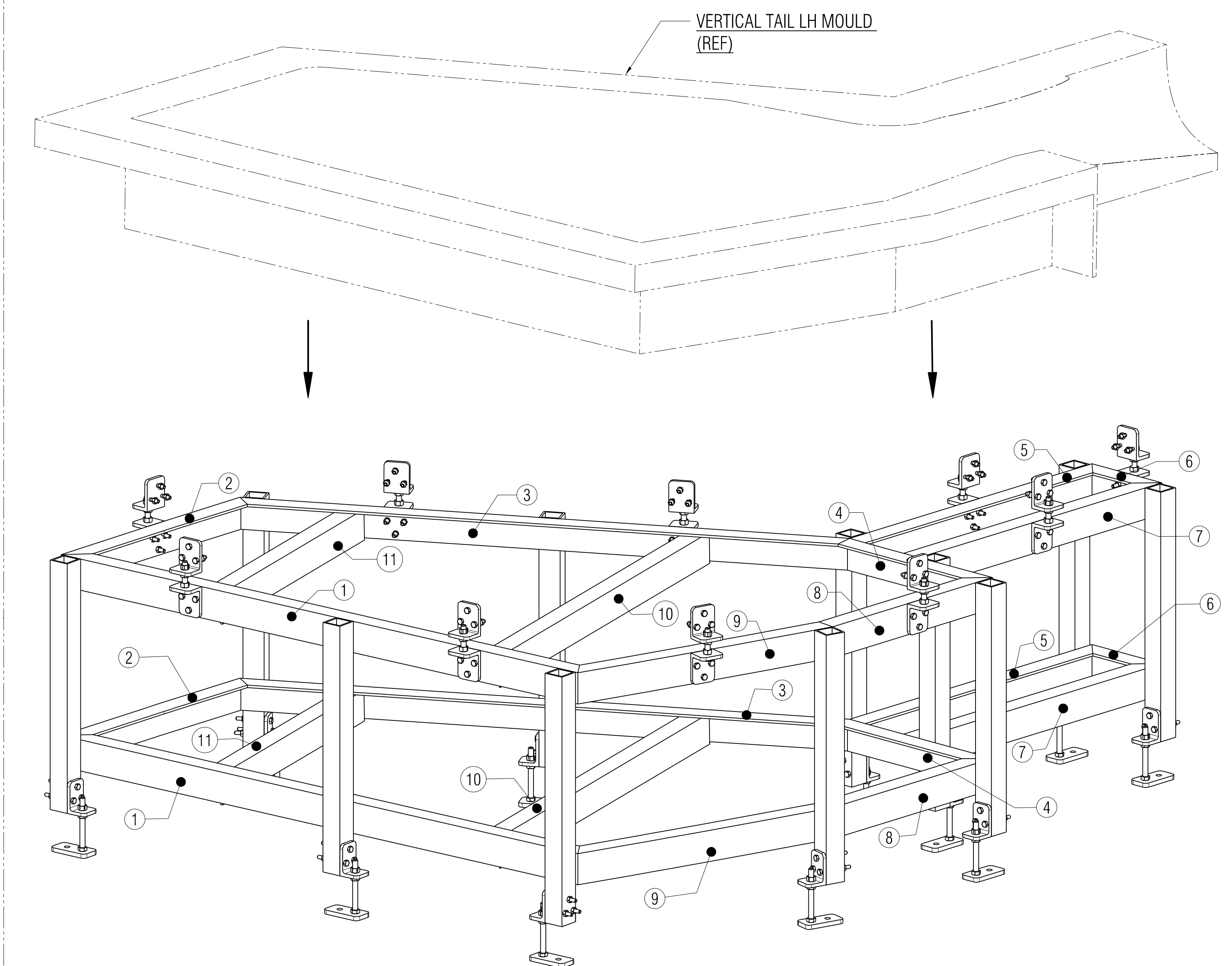
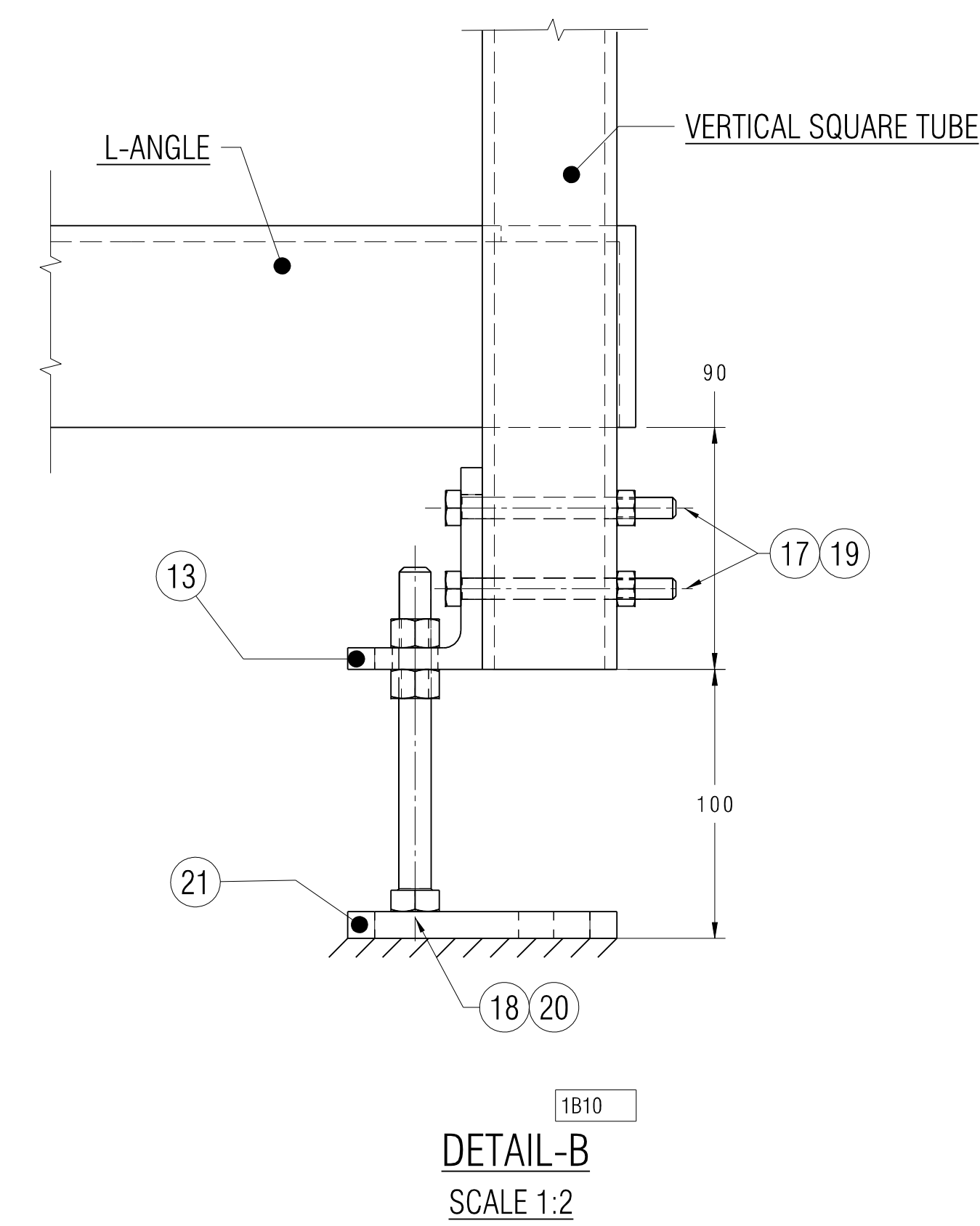
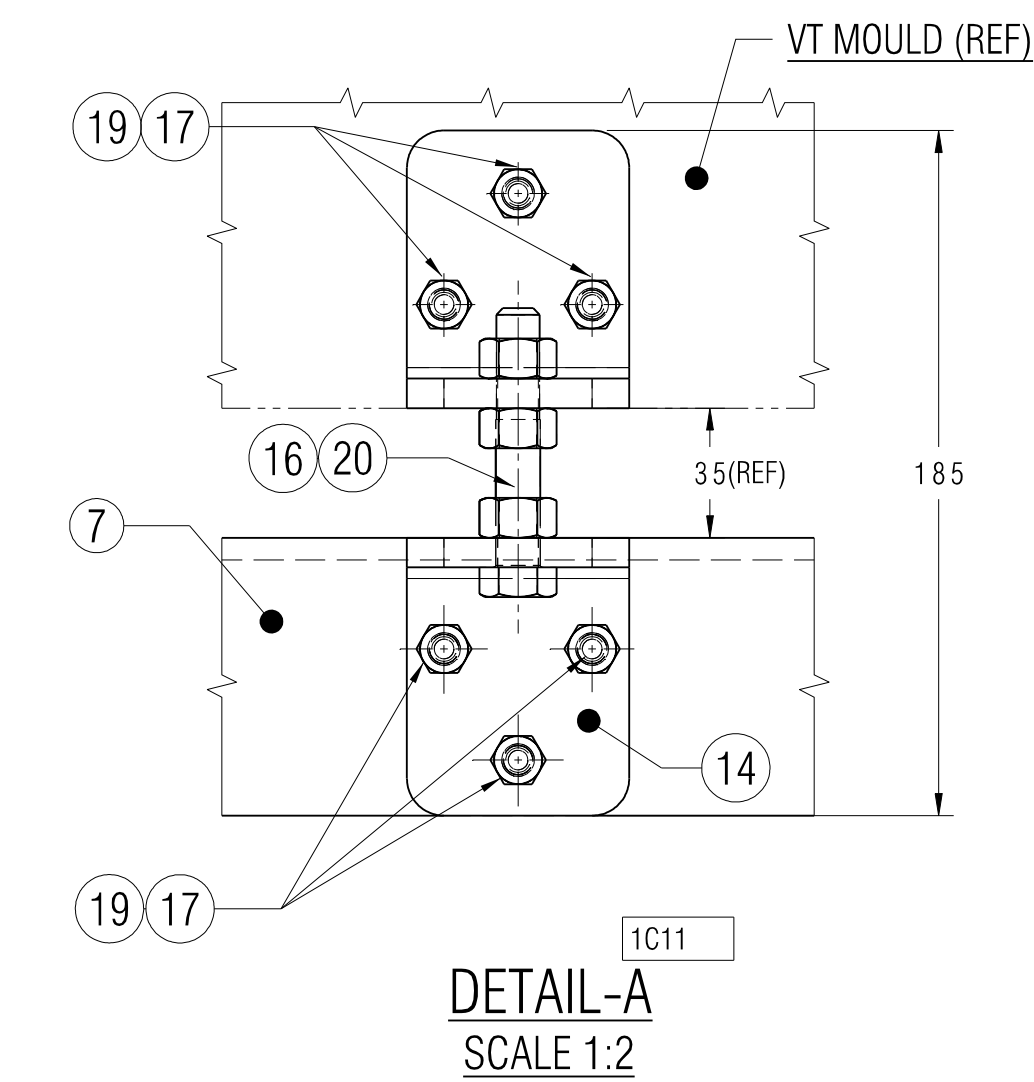
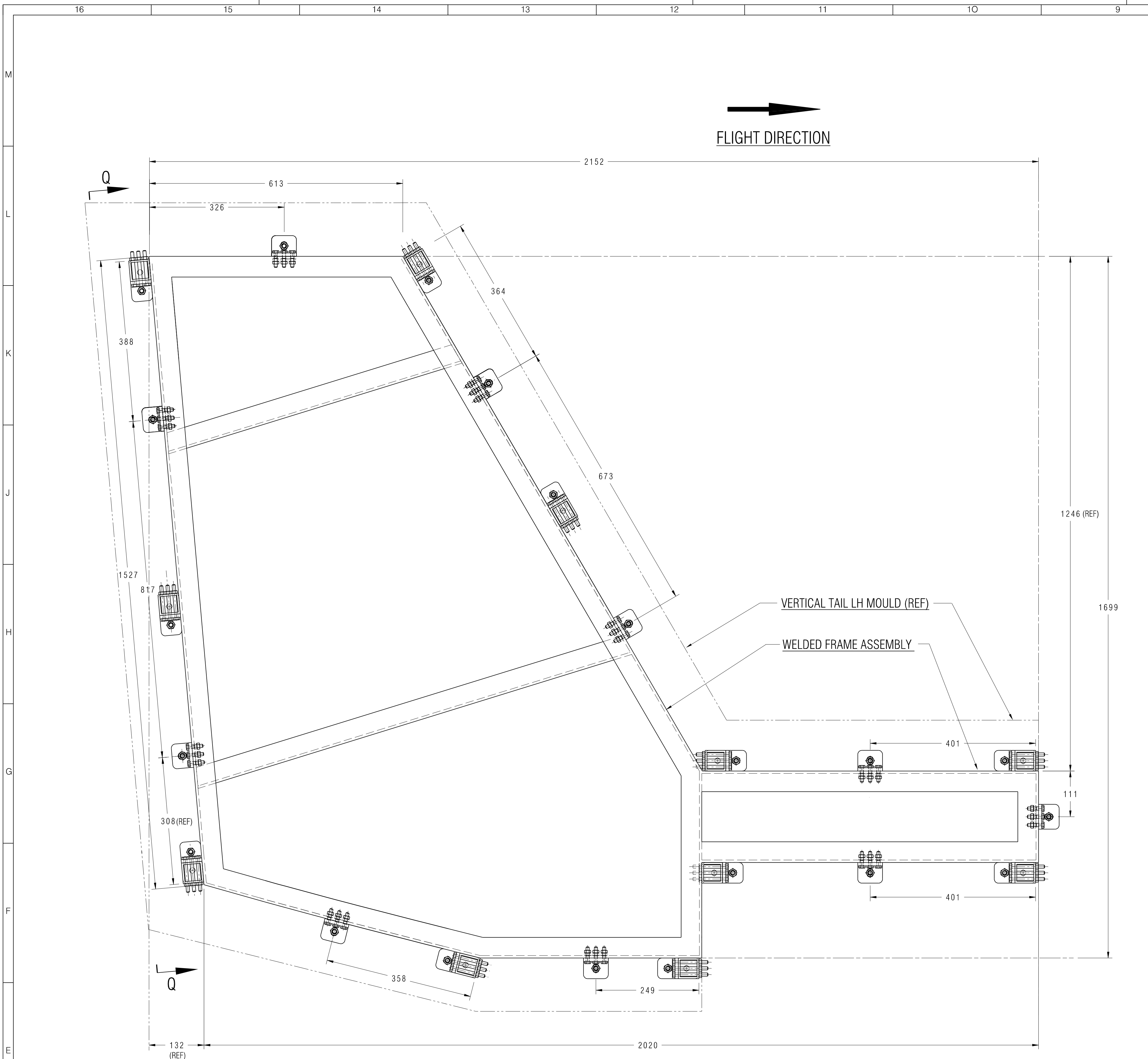
1. After fabrication of the Master Model, the Vendor must invite CSIR-NAL for inspection and obtain clearance for fabrication of the mould.
2. The NMG/ soft copy of the CAD model will be provided to the qualified Vendor for fabrication along with the Purchase order.
3. **Drawings enclosed only LH Master Model, LH Mould and LH Metal Frame, RH drawing are mirror image of the LH Drawings.**
4. Approved drawings and CAD model will be provided along with the PO for fabrication of the items to the Qualified Vendor.
5. Delivery to NAL Stores, Kodihalli, Bangalore - 560017.

Deliverables:

1. A set of Master Model of Hansa Vertical Tail LH and RH
2. A set of Composite moulds of the Hansa Vertical Tail LH and RH with M.S. backup structure.

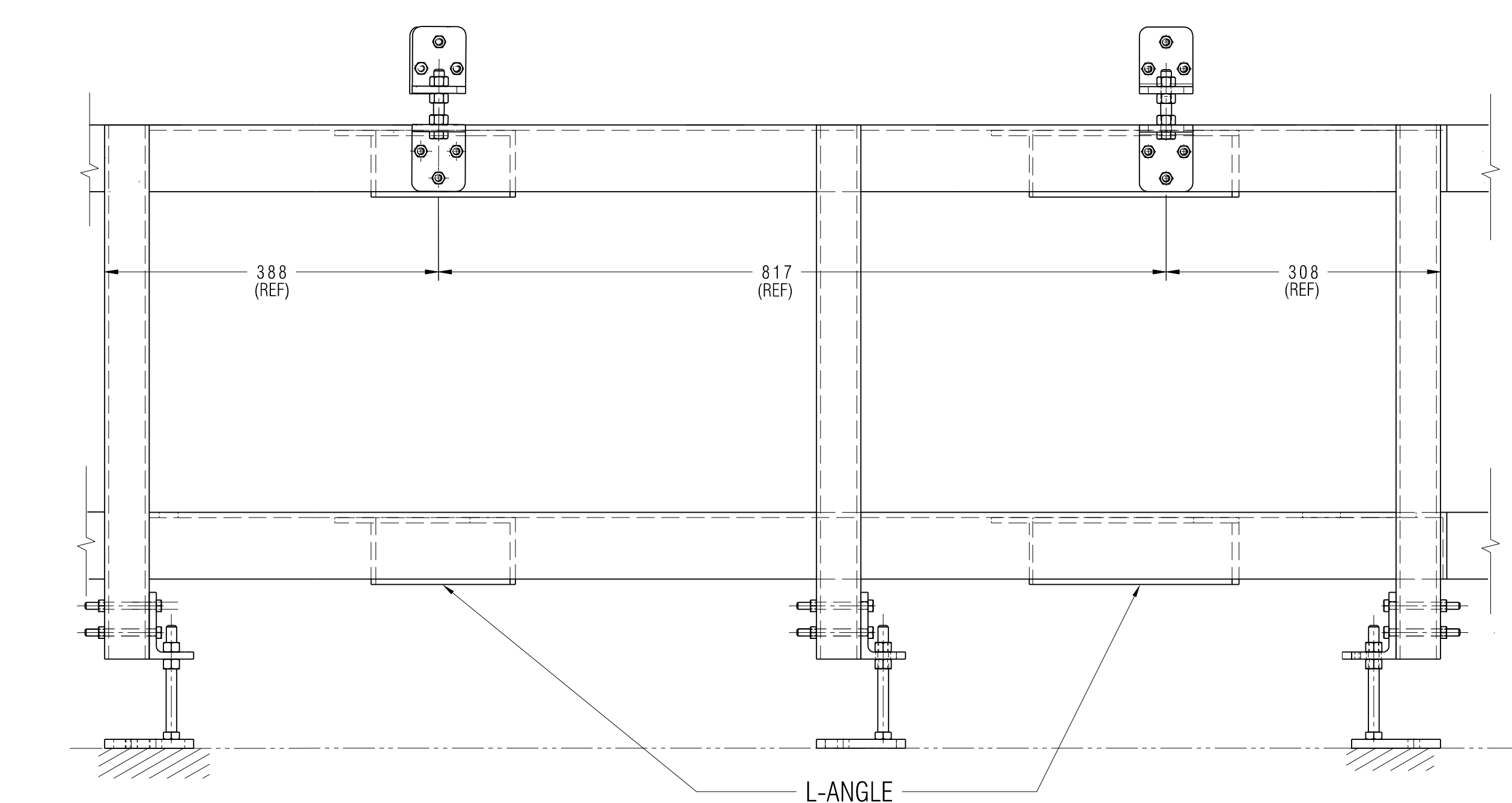
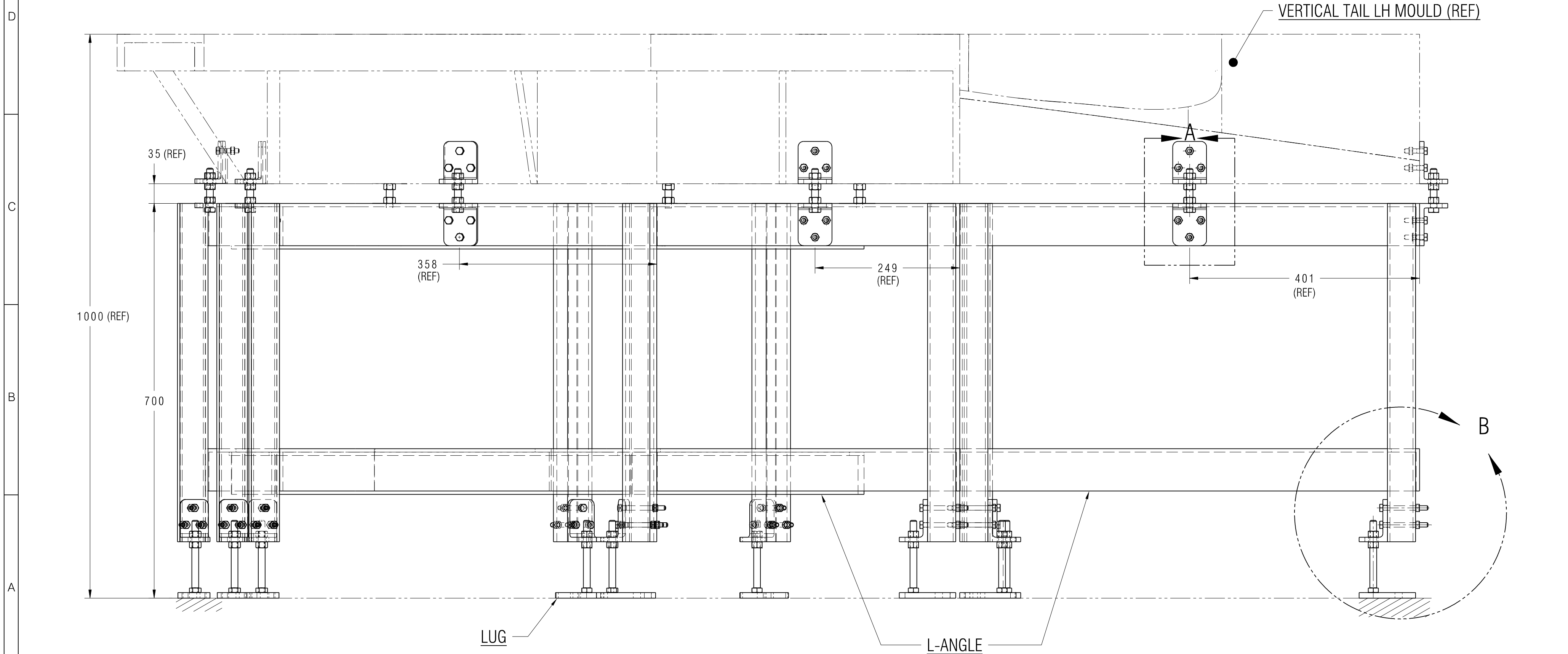
Acceptance Test Procedure (ATP):

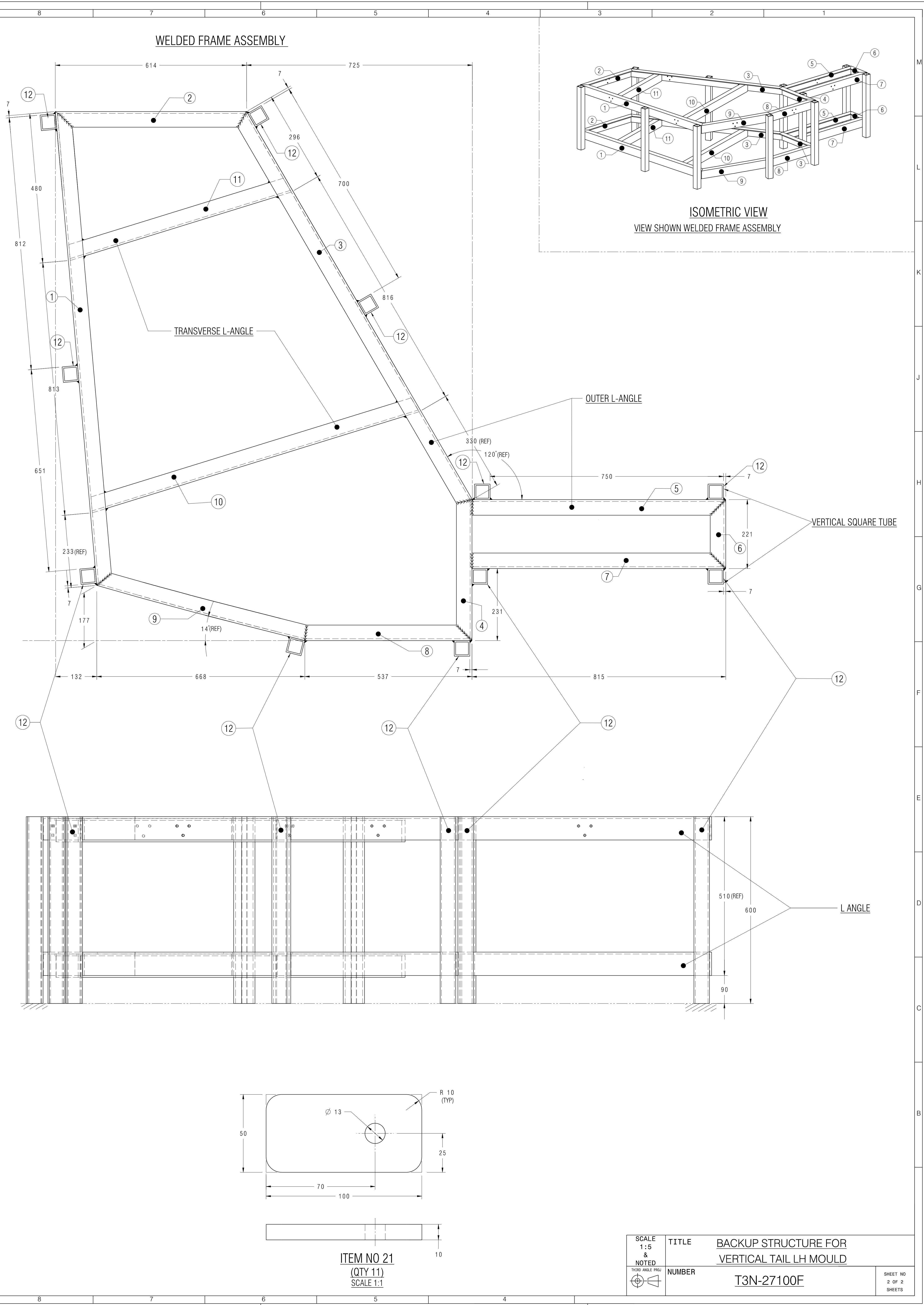
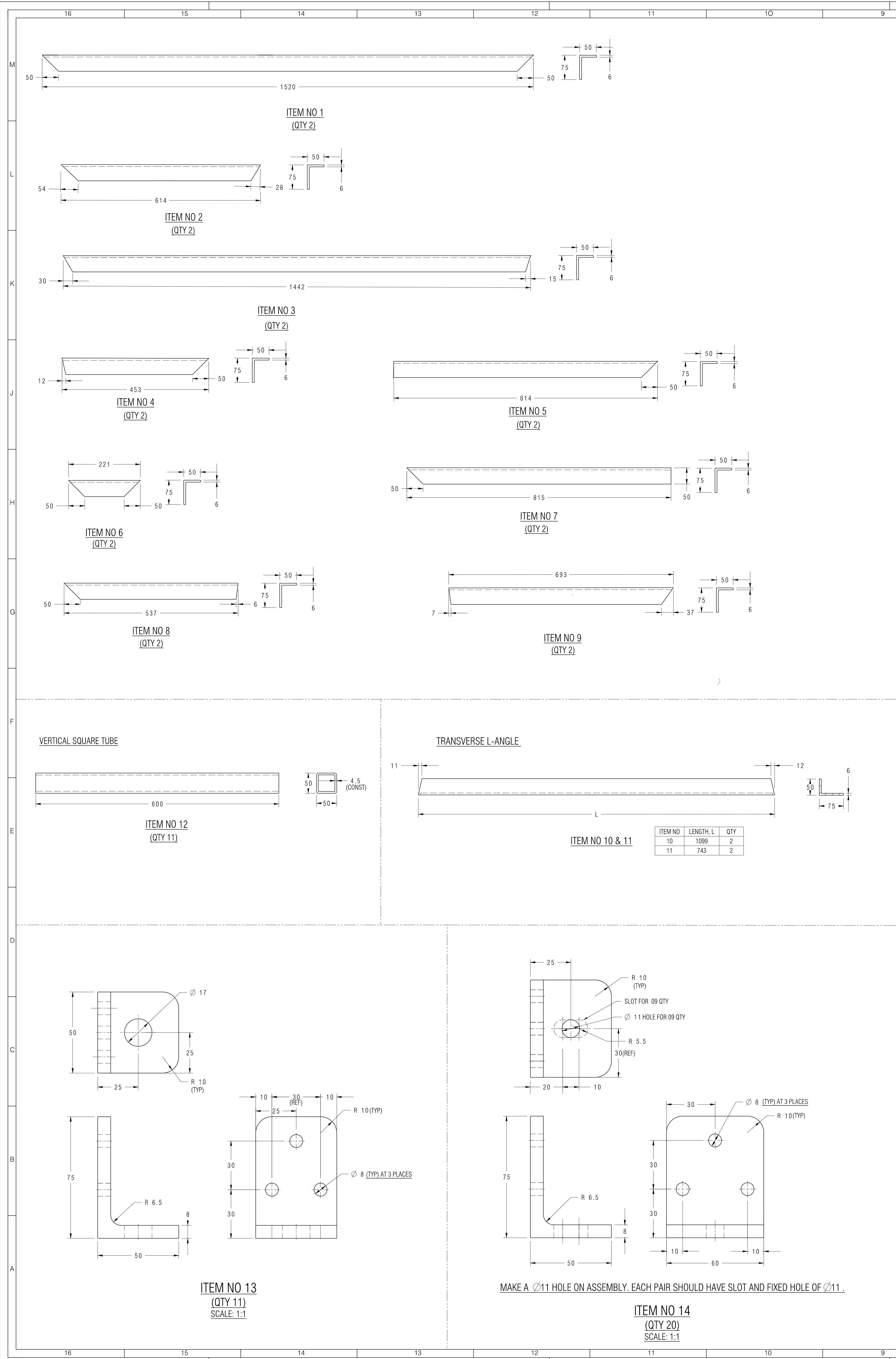
1. Master Model contour and dimensional inspection by CSIR- NAL at vendor's place.
2. Tool/mould contour and dimensional inspection by CSIR- NAL
3. Surface waviness /smoothness will be checked by visual inspection
4. Checking the Master Model contour with Laser tracker, the tolerance of contour shall be within $\pm 1.0\text{mm}$
5. Final acceptance after checking the Mould contour with Laser tracker at CSIR-NAL, the tolerance of Mould contour shall be within $\pm 1.5\text{mm}$.

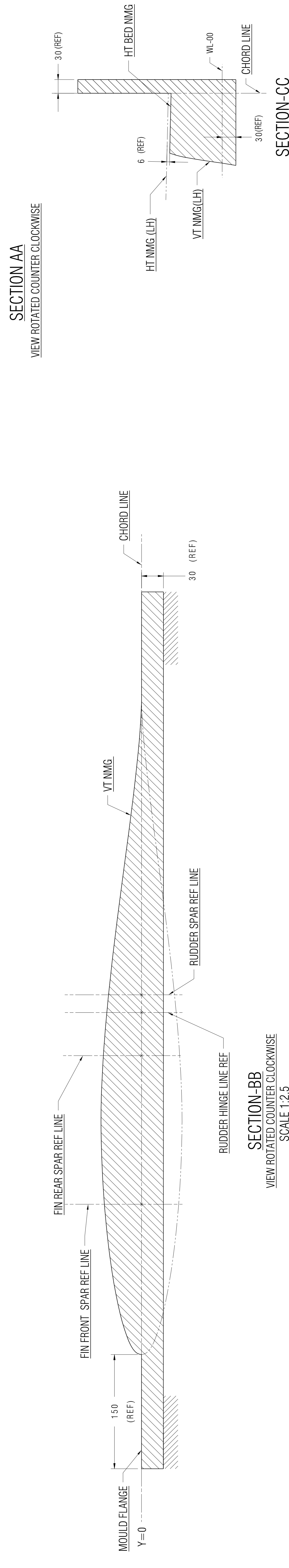
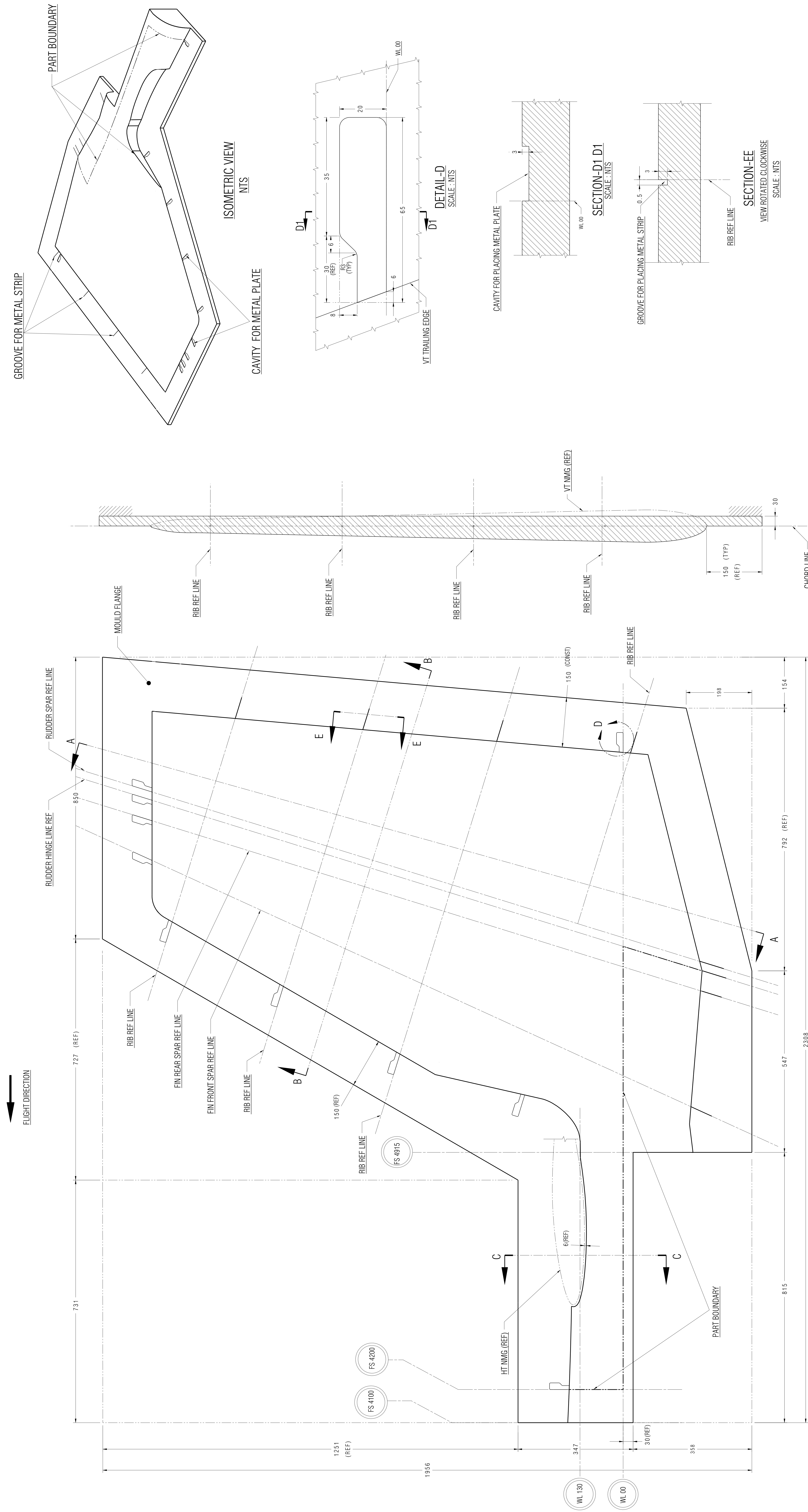


21	11	PLATE	100X50X10 T	2B5
20	52	M12 NUT	STD	-
19	93	M8 NUT	STD	-
18	11	M12 BOLT X 120 L	STD	-
17	33	M8 BOLT X 80 L	STD	-
16	10	M 12 BOLT X 70 L	STD	-
15	60	M8 BOLT X 35 L	STD	-
14	20	TOTAL RUNNING LENGTH = 1300 L-ANGLE		ISA 7550 , T=8 2B11
13	11	TOTAL RUNNING LENGTH = 650 L-ANGLE		ISA 7550 , T=8 2B15
12	11	TOTAL RUNNING LENGTH=7100 VERTICAL SQUARE TUBE		50X50X4.5 T 2E16
11	2	TOTAL RUNNING LENGTH = 1600 L-ANGLE CROSS CHANNEL		ISA 7550 , T=6 2E12
10	2	TOTAL RUNNING LENGTH = 2300 L-ANGLE CROSS CHANNEL		ISA 7550 , T=6 2E12
9	2	TOTAL RUNNING LENGTH=14800 L-ANGLE		ISA 7550 , T=6 2G12
8	2	L-ANGLE		ISA 7550 , T=6 2G16
7	2	L-ANGLE		ISA 7550 , T=6 2H12
6	2	L-ANGLE		ISA 7550 , T=6 2H16
5	2	L-ANGLE		ISA 7550 , T=6 2J12
4	2	L-ANGLE		ISA 7550 , T=6 2J15
3	2	L-ANGLE		ISA 7550 , T=6 2K14
2	2	L-ANGLE		ISA 7550 , T=6 2L15
1	2	L-ANGLE		ISA 7550 , T=6 2M14
ITEM NO	REQD QTY	DESCRIPTION	MATERIAL SPEC	ZONE

NOTE :
1. THIS IS A BACKUP STRUCTURE TO SUPPORT VERTICAL TAIL LH MOULD.
2. MATERIAL : MS.
3. USE OUTER L- ANGLES TO CONNECT THE MOULD WITH BACKUP STRUCTURE.
4. LEVEL THE MOULD USING THE LUG. REFER DETAIL-B.
5. TOTAL RUNNING LENGTH CONSIDERED FOR SIMILAR ITEMS.
6. MAKE Ø11 HOLE ON ITEM 14 DURING ASSEMBLY
EACH PAIR SHOULD HAVE SLOT AND FIXED HOLE OF Ø11.
7. LH SHOWN T3N-27100F, RH OPPOSITE T3N-27100F-1.







NOTE:-

1. FOR THEORETICAL CONTOUR REFER FTM WING NO. N3N-0100-5. ISSUE A AND RUDDER WING N3N-01000-6. ISSUE A.
2. MASTER MODEL MATERIAL: REN SHAPE BM5460 OR WOOD(2500X2000X300).
3. MACHINE THE MASTER MODEL AS PER THE CAD MODEL.
4. ENGRAVE (WIDTH 0.5MM AND DEPTH 0.5 MM) THE BOUNDARY ON SURFACE OF THE MASTER MODEL.
5. MAKE THE CAVITY ON MASTER MODEL FLANGE (AT SPAR AND RIB STATIONS) FOR PLACING THE REFERENCE PLATE AND STRIP ON MOULD FLANGE DURING MOULD FABRICATION.
6. REFER SECTION-D1D1 AND SECTION-EE RESPECTIVELY
7. INSPECT THE MASTER MODEL USING CMM/LASER TRACKER.
7. TOLERANCE ON MASTER MODEL OUTLINE CONTOUR IS ±0.5MM AND LINEAR DIMENSIONS REFER HANSA TOLERANCE DOCUMENT NO. VOL-09-1B-07. ISSUE-1. DATED FEB-2020.
8. LH SHOWN 13M-27100M. RH OPPOSITE (13N-27100M-1)

SCALE 1/4	TITLE VERTICAL TAIL MASTER MODEL	SHEET NO 1 OF 1 SHEETS
NOTED	NUMBER T3N-27100M	
		

BID-SECURING DECLARATION FORM

Date: _____

Bid No. _____

To (insert complete name and address of the purchaser)

I/We. The undersigned, declare that:

I/We understand that, according to your conditions, bids must be supported by a Bid Securing Declaration.

I/We accept that I/We may be disqualified from bidding for any contract with you for a period of one year from the date of notification if I am /We are in a breach of any obligation under the bid conditions, because I/We

(a)	have withdrawn/modified/amended, impairs or derogates from the tender, my/our Bid during the period of bid validity specified in the form of Bid; or
(b)	having been notified of the acceptance of our Bid by the purchaser during the period of bid validity
	(i) fail or refuse to execute the contract, if required, or
	(ii) fail or refuse to furnish the Performance Security, in accordance with the Instructions to Bidders.

I/We understand this Bid Securing Declaration shall cease to be valid if I am/we are not the successful Bidder, upon the earlier of (i) the receipt of your notification of the name of the successful Bidder; or (ii) thirty days after the expiration of the validity of my/our Bid.

Signed: (insert signature of person whose name and capacity are shown)
in the capacity of (insert legal capacity of person signing the Bid Securing Declaration).

Name: (insert complete name of person signing the Bid Securing Declaration)

Duly authorized to sign the bid for an on behalf of: (insert complete name of Bidder)

Dated on _____ day of _____ (insert date of signing)

Corporate Seal (where appropriate)

Note:

1. In case of a Joint Venture, the Bid Securing Declaration must be in the name of all partners to the Joint Venture that submits the bid.
2. Bid Security declaration must be signed in by the Proprietor/CEO/MD or equivalent level of Officer of the company.