

TECHNICAL SPECIFICATIONS

NFL Nangal Case Ref. No.					SPX/2023/367
Quotation No. & Date					
Name of Bidder:					
Vendor's Complete Address :					
Vendor's Contact Details: Vendor may furnish E-Mail Id, Telephone / Mobile No. etc. alongwith complete Name & Address details of the firm for Clarifications / Placement of Order.					
Sr. No.	NFL Requirement				Vendors Comment (Agreed / If not Agreed, Please Comment)
1	Sr. No.	Material Code	Description of Material	UOM	Qty. Required
	i.	7240101	Manufacturing, Testing and Supply of Complete Ammonia Condenser with Shell Assembly including Shell, Tube Sheet, Tubes, Baffles, Tie Rods, Flanges, Pipes, End Covers/Domes etc. for Ammonia Condenser E 2401A/B of Storage Section as per Drawing No. NG-10897.	No.	2.000
	NOTE:		<p>1. Party shall submit Certificates from Third Party Inspection agency (TPIA) along with the supply of materials, in line with requirement given in Annexure-I</p> <p>2. Complete material including Shell, Tube Sheets, Tubes, Baffles, Tie Rods etc. Shall be in party scope.</p> <p>3. All the dimensions shall be maintained strictly as per drawing.</p> <p>4. Party has to submit Manufacturing Drawing of Tube Bundle for approval of NFL and Bar Chart for manufacturing of Ammonia Condenser within 15th days of receipt of order.</p> <p>5. Party shall submit Guarantee Certificate as per NFL terms and Conditions.</p>		
	Eligibility Criteria	Bidders shall agree to the Eligibility Criteria (Attached for the Tender and shall upload necessary documents (duly numbered) mentioned in it. Any offer which not meeting the Eligibility Criteria shall be rejected during Technical Evaluation.			

S. No.	Eligibility Criteria	Supporting Documents required
1	<p>The bidder should have successfully executed PO/WO for "Similar item" with performance and completion certificate, during the last seven years ending last day of previous month in which NIT has been issued. Definition of "SIMILAR ITEM"</p> <p>Similar item means: Manufacturing & Supply of heat exchanger under third party inspection (i.e M/s LRA/BVIS/TUV/PDIL/EIL) with below mentioned minimum specifications: Tube sheet thickness: 25 mm (Minimum) Length of the tube bundle: 4000 mm (Minimum) Material of construction of the tubes: Carbon Steel or higher</p>	<p>The bidder shall submit a copy of Purchase/ Work Orders + Performance/Completion for at least one of the following Three similar completed works each costing not less than Rs. 7 Laes including taxes OR Two similar completed works each costing not less than Rs. 8.75 Laes including taxes. OR One similar completed work costing not less than Rs. 14.0 Laes including taxes.</p> <p>Copies of Work orders/PO in support of the above with full technical scope of work & commercial details including work order/PO value along with the completion certificate from the concern organization indicating the executed value and date of completion. In case performance/completion certificate from concerned or end user is not available, Bidder can submit the same on their letter head mentioning name & address of the organization, completion date, contact person name& contact detail including email etc.</p>

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2	The bidder should be a manufacturer or authorized dealer of the Manufacturer	Self-certification on letter head is to be submitted by the bidder, whether manufacturer or the authorized dealer. If the bidder is authorized dealer of any manufacturer, authorization certificate from the manufacturer is to be submitted.
3	Average Annual financial turnover of the bidder during the last 3 years ending 31st March of the previous financial year should be at least Rs 10.50 lacs. .	Bidder shall submit self-attested copies of Audited Balance Sheet and Profit & Loss A/c for the last three financial years ending on 31st March of the Previous financial year. (i.e., FY2020-21, 2021-22 & 2022-23) In case the bidder does not fall under the ambit of statutory audit, and do not have audited annual reports / audited Balance Sheets and Profit & Loss Statements, shall submit a statement certified by Statutory Auditor / practicing Chartered Accountant (having UDIN) as documentary Evidence in support thereof.

Manufacturing, Testing and Supply of Ammonia Condenser of storage section (E-2401A/B) in Ammonia Plant.

Terms and Condition

1) SCOPE OF Work

- I. Manufacture testing and supply of complete Ammonia Condenser including shell and end cover.
- II. Before manufacturing the heat exchanger, party shall develop their manufacturing drawing based upon drawing of NFL i.e. DRG. No: NG10897, get the same approved by NFL.
- III. Hydro test and pneumatic test on tube side in line with the value of pressure given in drawing.
- IV. Tube to tube sheet joint shall undergo expansion and seal welding.

2) MOC of all component shall be as per drawing No NG10897, alternate material shall not be accepted.

3) i) Third party Inspection(TPI): Manufacturing of Heat Exchanger shall be done under stage wise inspection of M/s LRA/TUV/BV/EIL/PDIL, in line with the inspection testing plan prepared by party and duly approved by NFL.

ii) TPI SCOPE:

- a) Verify chemical composition and witness physical properties of tube sheet forging.
- b) Verification of material test certificate for chemical composition of material of baffles, tie rods, impingement plate and other components.
- c) Witness of hydrotest on tube side of tube bundle assembly.
- d) Any other test as given on ITP approved by NFL.

4) i) Tubes shall be manufactured under stage wise inspection from 3rd party inspection agency M/s LRA/TUV/BV/EIL/PDIL. Certificate for tubes shall accompany the other documents to be furnished by the heat exchanger manufacturer along with supply.

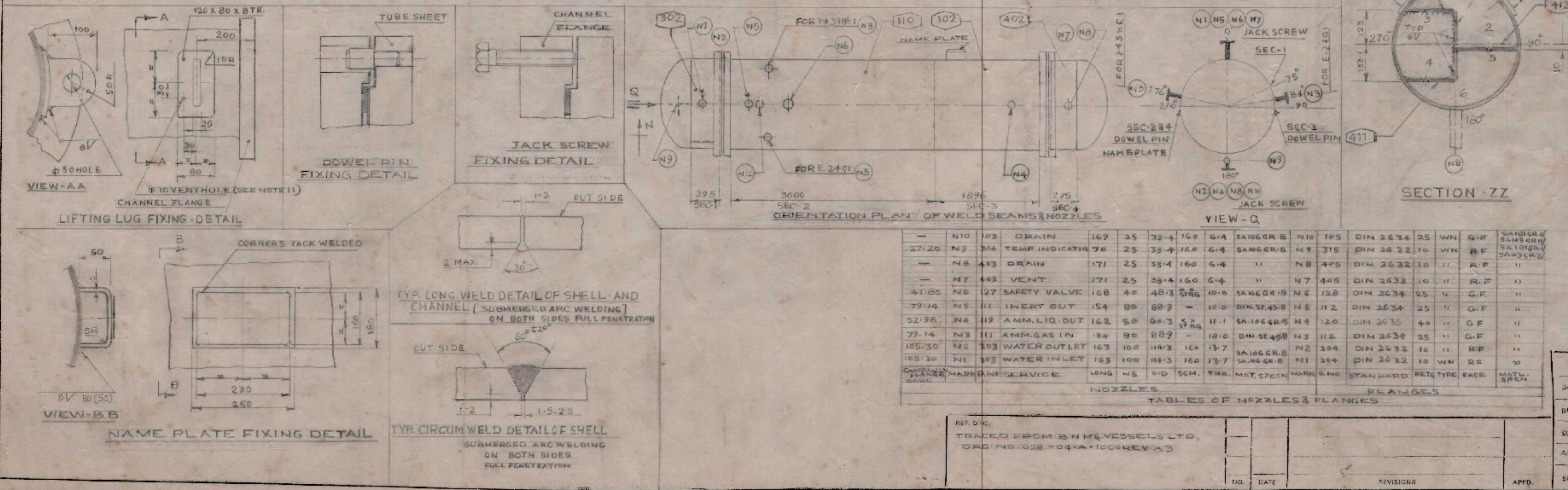
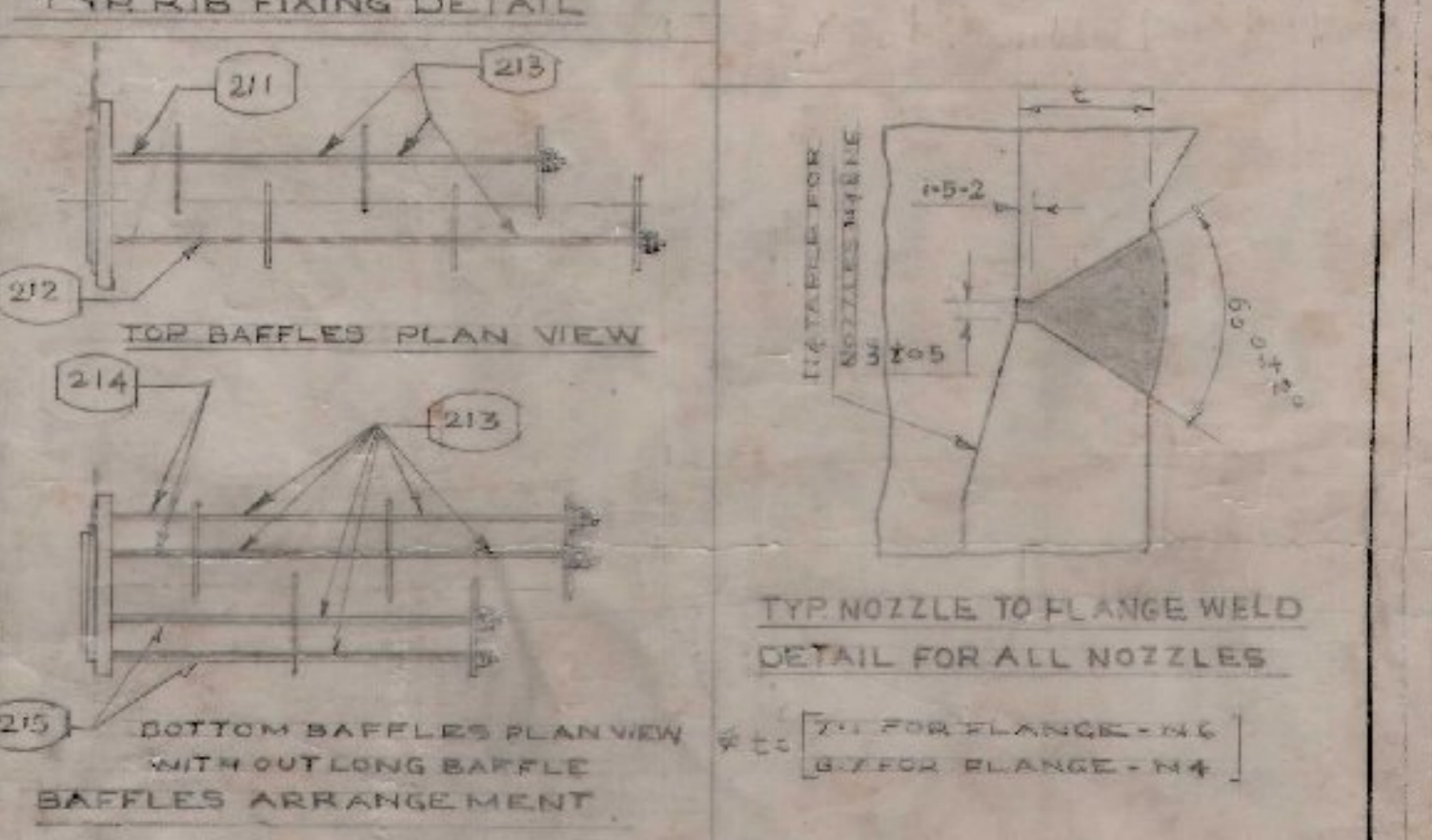
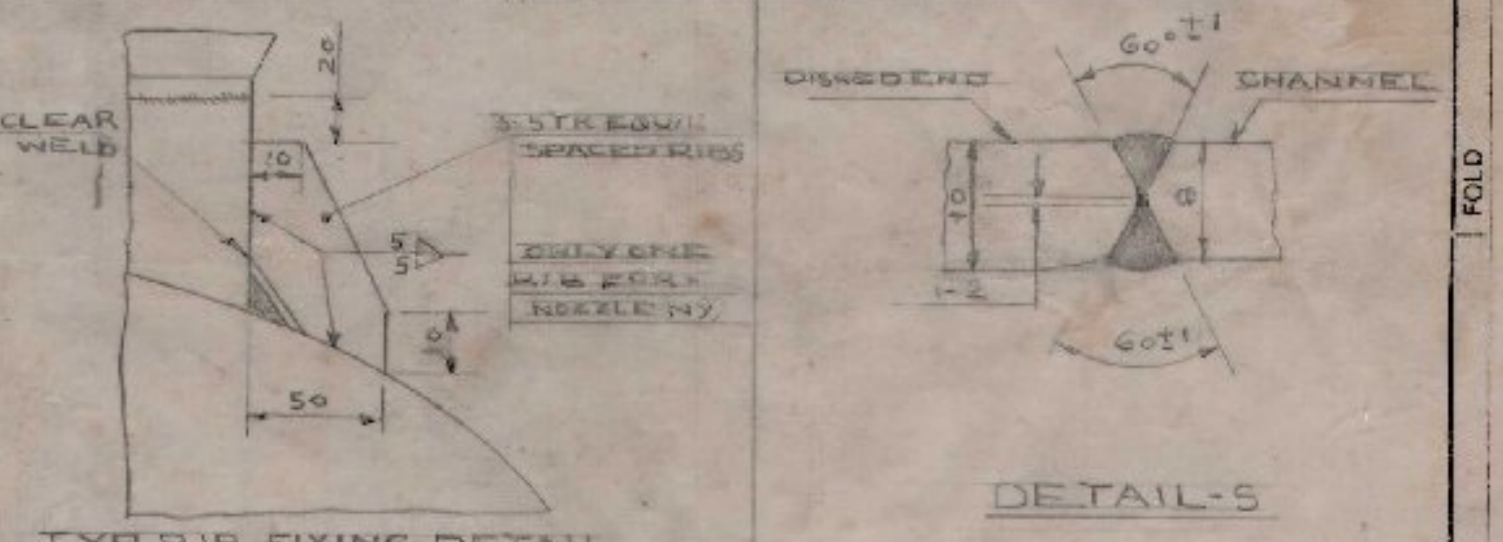
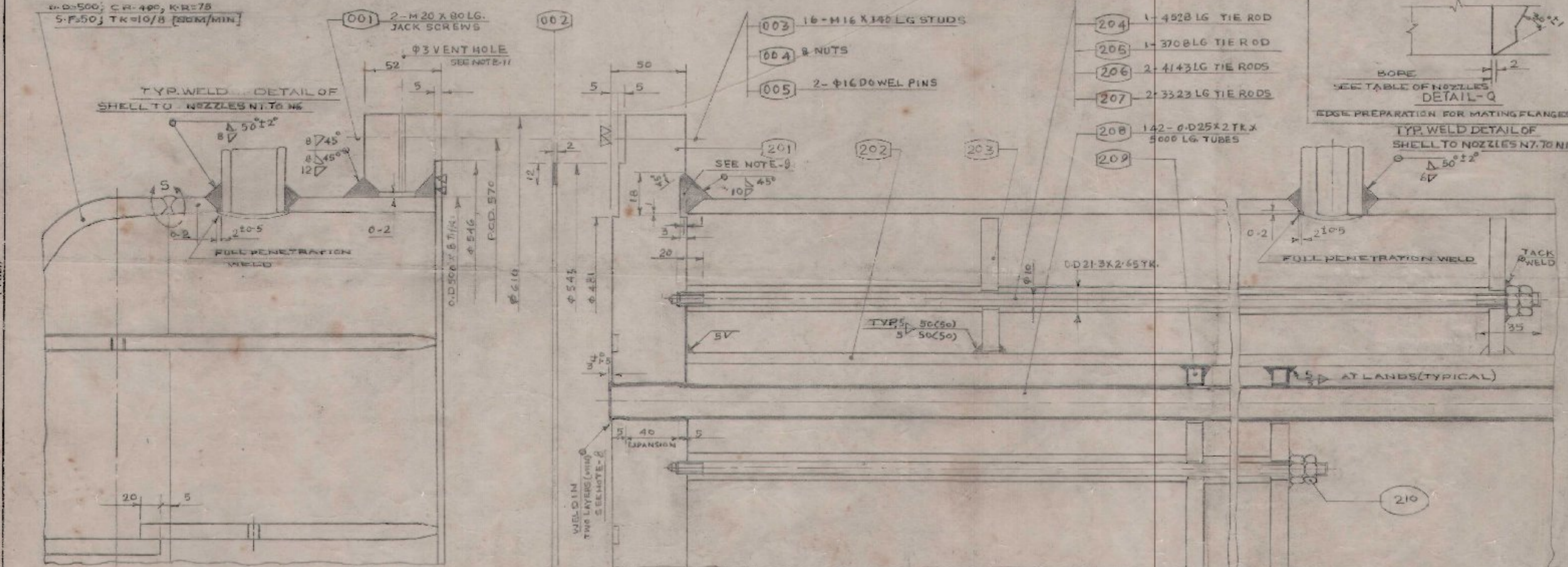
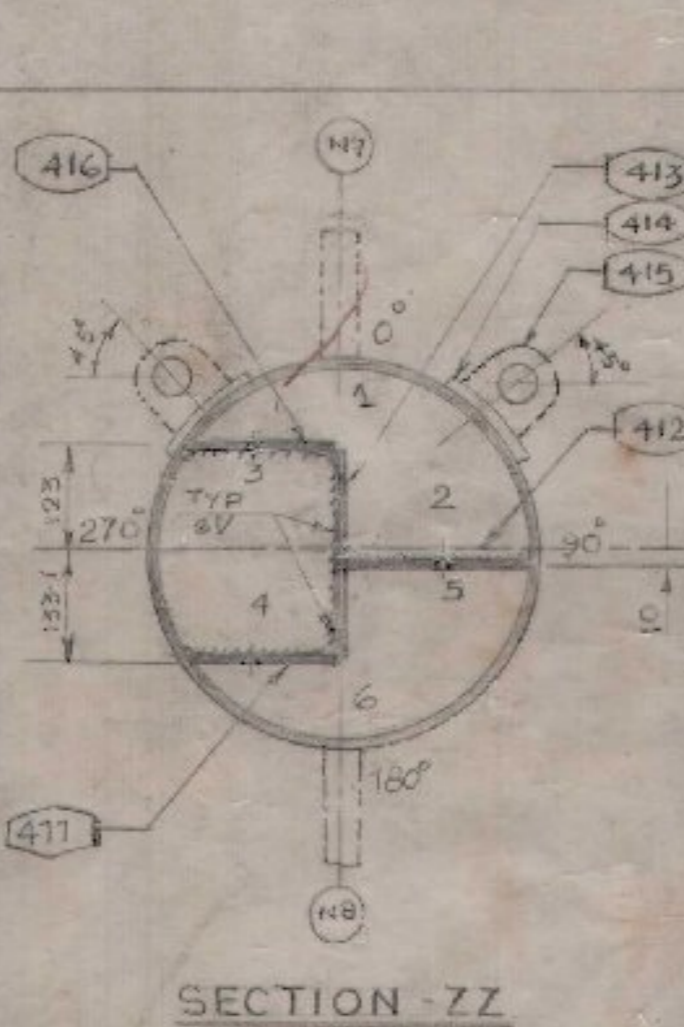
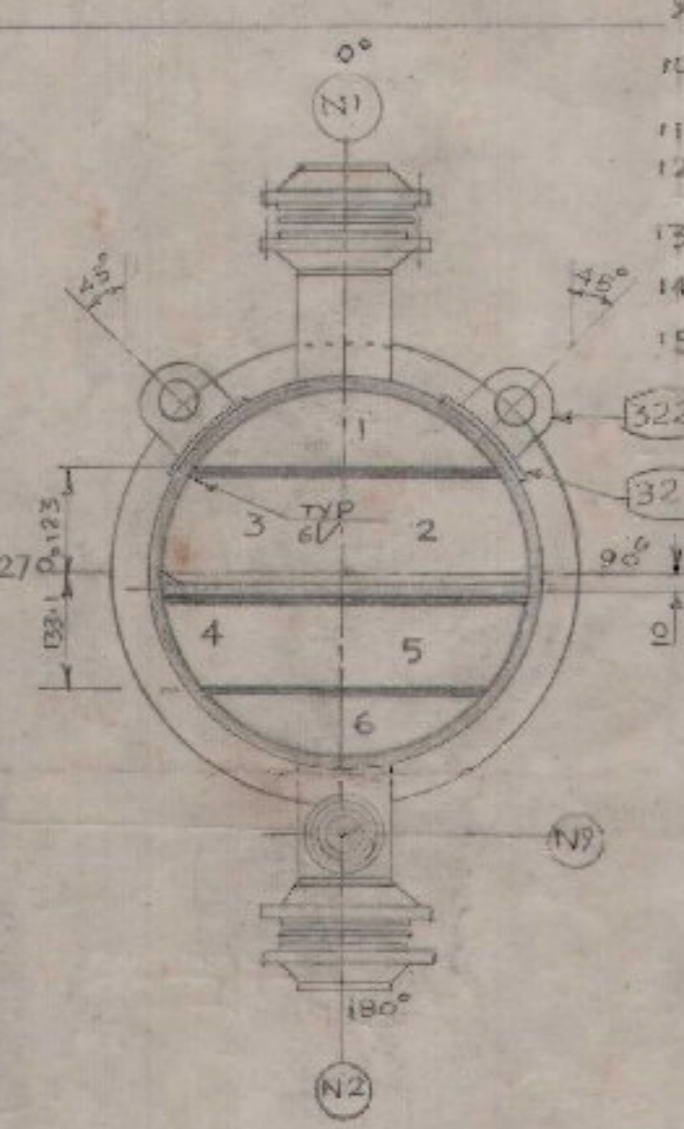
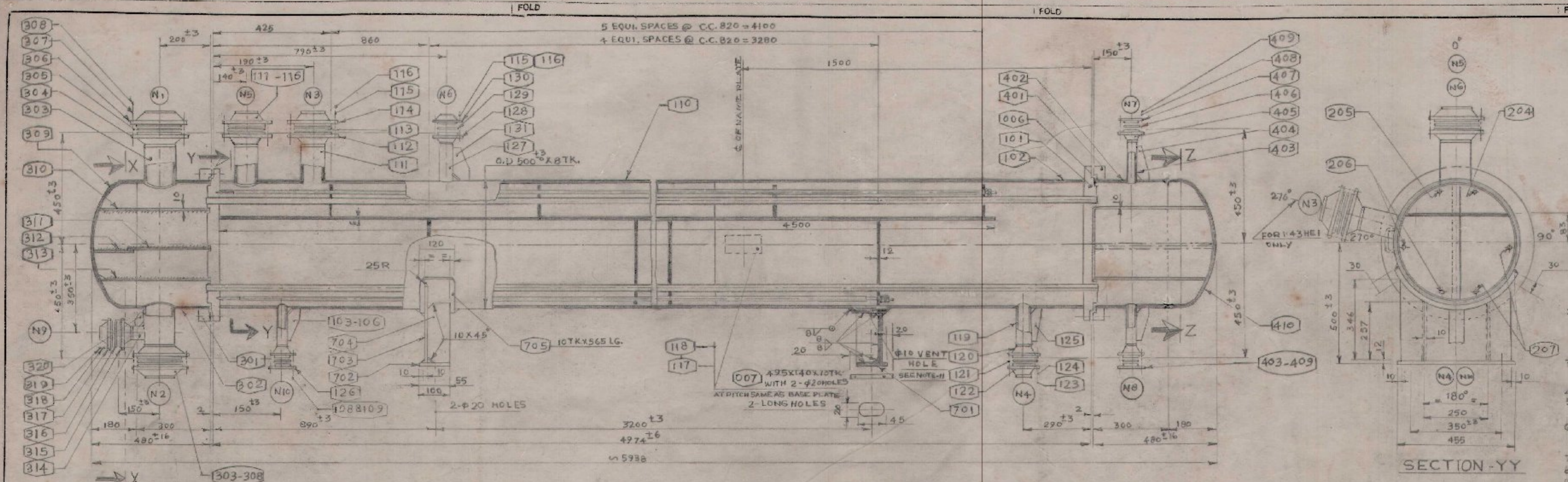
ii) TPI SCOPE:

- A. Witness test for chemical composition and physical proprietary.
- B. Witness mechanical test as per ASTM A179
- C. Witness 10% hydro test of tubes (10% random)
- D. Any other test as mentioned in ITP approved by NFL.

DESIGN DATA

FLUID HANDLED	WATER
WORKING PRESSURE KG/CM ² (a)	16.2
DESIGN PRESSURE KG/CM ² (a)	20.0
TEST PRESSURE H.Y.D. KG/CM ² (a)	30.0
WORKING TEMPERATURE °C	33
DESIGN TEMP.	50°C
COMMON ALL GRADE DIM.	110
GRADE	IS 2063 CLASS-B
VESEL SPECIFICATION	3 201 8 25 3200 1 TEST WEIGHT KG 2210
JOINT EFFICIENCY	0.85
RADIOGRAPHY	100%
HEAT TREATMENT	NO
INSULATION	NO
LINING	NO
NO OF PASSES	NO
HEAT TRANSFER AREA	55 M ²
INSPECTION BY	M/S LLOYDS & M/S F.C.I. LTD

- NOTES
- ALL FLANGE BOLT HOLES TO STRADDLE CENTAL LINE UNLESS OTHERWISE SPECIFIED.
 - PROTECT ALL MACHINED SURFACES AND THREADED CONNECTIONS WITH RUST PREVENTIVE IMMEDIATELY AFTER MACHINING. INSTALL WOOD OR STEEL PROTECTORS FOR FITTING IMMEDIATELY AFTER TESTING.
 - GASKET SEATING SURFACES OF TUBE SHEET AND ALL FLANGES SHALL BE MACHINED AFTER WELDING/HEAT TREATMENT IF ANY.
 - CHAMFERED ENDS SHALL BE IN SINGLE PIECE CONSTRUCTION. PAINTING SNEGOT OF RED LEAD PRIMER ON ALL EXTERNAL SURFACES SHALL BE PROVIDED AFTER SAND BLASTING.
 - CONCENTRIC 90° GROOVES OF 6.4 WIDE AT 0.8 RITCH SHALL BE PROVIDED ON THE RISE FACE OF WELD NECK FLANGES AFTER GASKET FACE MACHINING.
 - ALL SHARP CORNERS SHALL BE ROUNDED OFF.
 - THE TUBE TO TUBE SHEET WELDS SHALL BE DYE CHECKED.
 - THIS WELD MATERIAL MAY BE POSITED BEFORE COMPLETING THE JOINT THE WELD JOINT SHALL BE DYE CHECKED.
 - ALL VENT HOLES SHALL BE SEALED WITH GREASE.
 - ALL NOZZLE FLANGES SHALL BE BORED TO 5% I.D. OF THE NOZZLES. SHELL SHALL BE HYDRAULICALLY TESTED SEPARATELY WITH 50% THE CHANNEL HEADS.
 - EDGE PREPARATION FOR ALL MATING FLANGES SHALL BE DONE AS PER DETAIL S.
 - BHPV VESSEL NO FOR E 2401 IS 7258 AND FOR I.A. 2401 IS 7372.
 - 200% GASKETS AND 20% BOLTS & NUTS SHALL BE SUPPLIED AS SPARES.



TABLES OF NOZZLES & FLANGES

NO.	NO.	NO.	NO.	NO.	NO.	NO.	NO.	NO.	NO.	NO.	NO.	NO.	NO.	NO.	NO.	NO.	NO.	NO.	NO.	NO.																																																																																																			
101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220

201-705	SUPPORT ASSEMBLY	2	SEE DETAIL SPEC SHEET
401-416	CHANNEL ASSEMBLY	1	"
501-522	CHANNEL ASSEMBLY	1	"
201-215	TUBE BUNDLE ASSEMBLY	1	"
101-131	SHALL ASSEMBLY	1	"
001-007	ASSEMBLY PARTS	SEE DETAIL SPEC SHEET	"
SINO	DRG NO	QTY	MATL. SOL. WEIGHT

SHEET OF

NATIONAL FERTILIZERS LIMITED NANGAL UNIT EXPANSION

AMMONIA STORAGE

GENERAL ARRANGEMENT

AMMONIA CONDENSER

E 2401 143 HE 1

DGN. NO. 1110

DR. NO. 1110

APPD. DATE 14-9-85

REV. NO. 5/100/24/D-01

NG-10897