

TABLE-01
 (PRELOAD & BOLT TORQUE FOR GENERAL PURPOSE BOLTING FOR FASTENER CLASS 10.9)
 (SEE NOTE 10)

BOLT SIZE	PRELOAD	TORQUE
M20	12250	3675
M30	28950	12623
M36	40850	22039

NOTES:

1. ALL DIMENSIONS STATED IN THIS DRAWING ARE IN MM.
2. ALL ELEVATIONS INDICATED IN THIS DRAWING CORRESPOND TO THE CONDITION OF MLP RESTING ON ANCHOR LEGS.
3. ALL ELEVATIONS STATED IN THIS DRAWING ARE WITH RESPECT TO ZERO ELEVATION BEING CONSIDERED FOR MLP RAIL TOP SURFACE AT LAUNCH PAD.
4. ALL OPERATIONS INSIDE MLP STRUCTURE ARE SHOWN IN SECTION AS SHOWN IN THIS DRAWING AND ARE DESIGNATED AS 'C'.
5. FOR MANUFACTURING STANDARD & TOLERANCES, SURFACE SPECIFICATION NO. TCE.113604-DE-697-00-001.
6. THE LINING OF REFRACTORY CONCRETE WHICH IS TO BE APPLIED ON SURFACES OF S200 & L110 CIRCUITS, INSIDE & OUTSIDE IS NOT SHOWN IN THESE DRAWINGS.
7. THE MLP TO BE ASSEMBLED WITH THE BOOSE WHICH IS ALREADY DESIGNING AT SITE.
8. THE TESTS TO BE CARRIED OUT AT VENDOR'S SHOP AND AT PURCHASER'S SITE SHALL BE AS PER APPROVED QUALITY ASSURANCE PLAN.
9. REFER DWG NO. TCE.113604-DE-697-00-022 FOR DETAILS OF INTERCONNECTION OF MODULES OF MLP.
10. IT CAN BE NOTED THAT THE TORQUE AND PRELOAD VALUES MENTIONED IN TABLE 01 BELOW ARE FOR BOLTS AND NOT THE HOLES AND ARE NOT APPLICABLE FOR BOLTS ENCASED IN TAPERED TUBES.
11. TOTAL WEIGHT OF MLP : 760 TONS (WHEN SUPPORTED ON ANCHOR LEGS AND WITHOUT REFRACTORY CONCRETE)

FOR ISSUE ONLY

NO.	DATE	ISSUE	REVISIONS
1	17-05-2020	ISSUE	

REVISIONS

NO.	DATE	ISSUE	REVISIONS
1	17-05-2020	ISSUE	

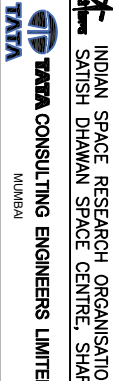
REVISIONS

NO.	DATE	ISSUE	REVISIONS
1	17-05-2020	ISSUE	

REVISIONS

NO.	DATE	ISSUE	REVISIONS
1	17-05-2020	ISSUE	

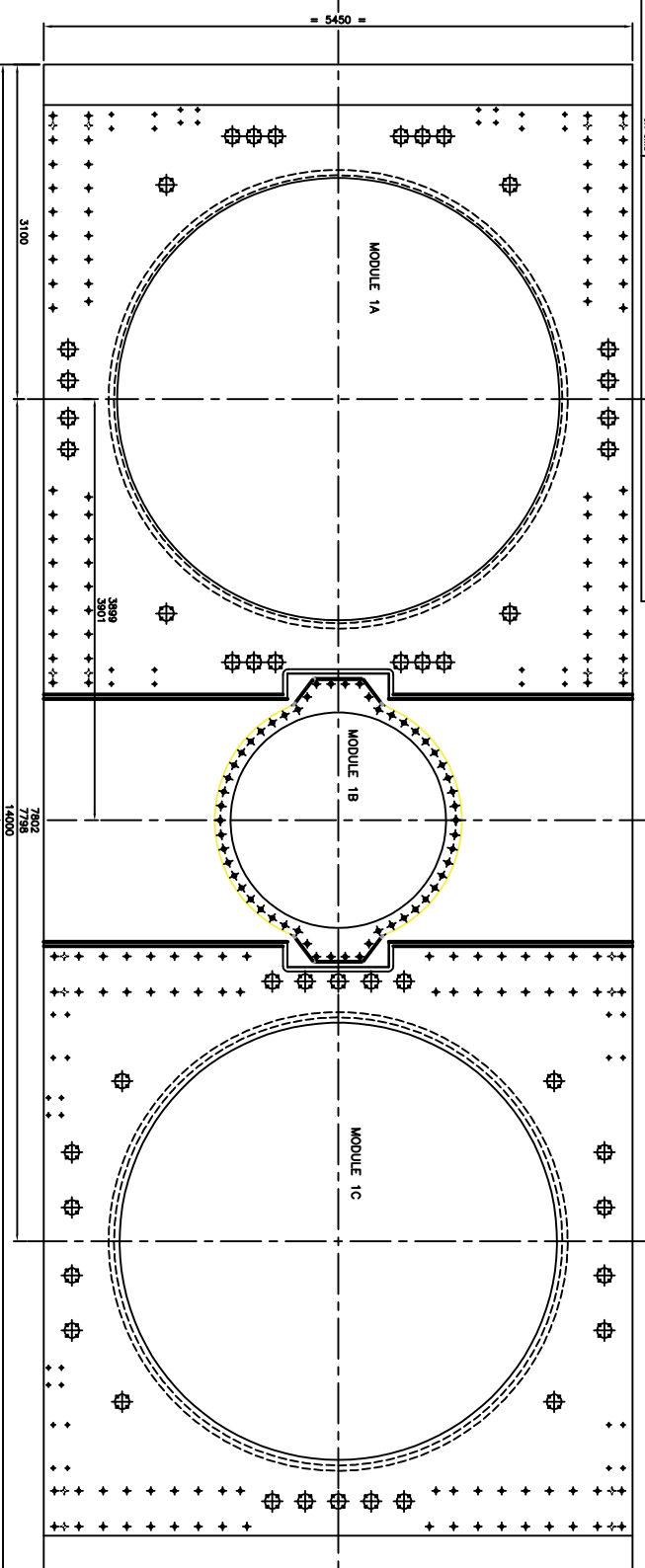
PROJECT AUGMENTATION OF SECOND LAUNCH PAD (ASLP)



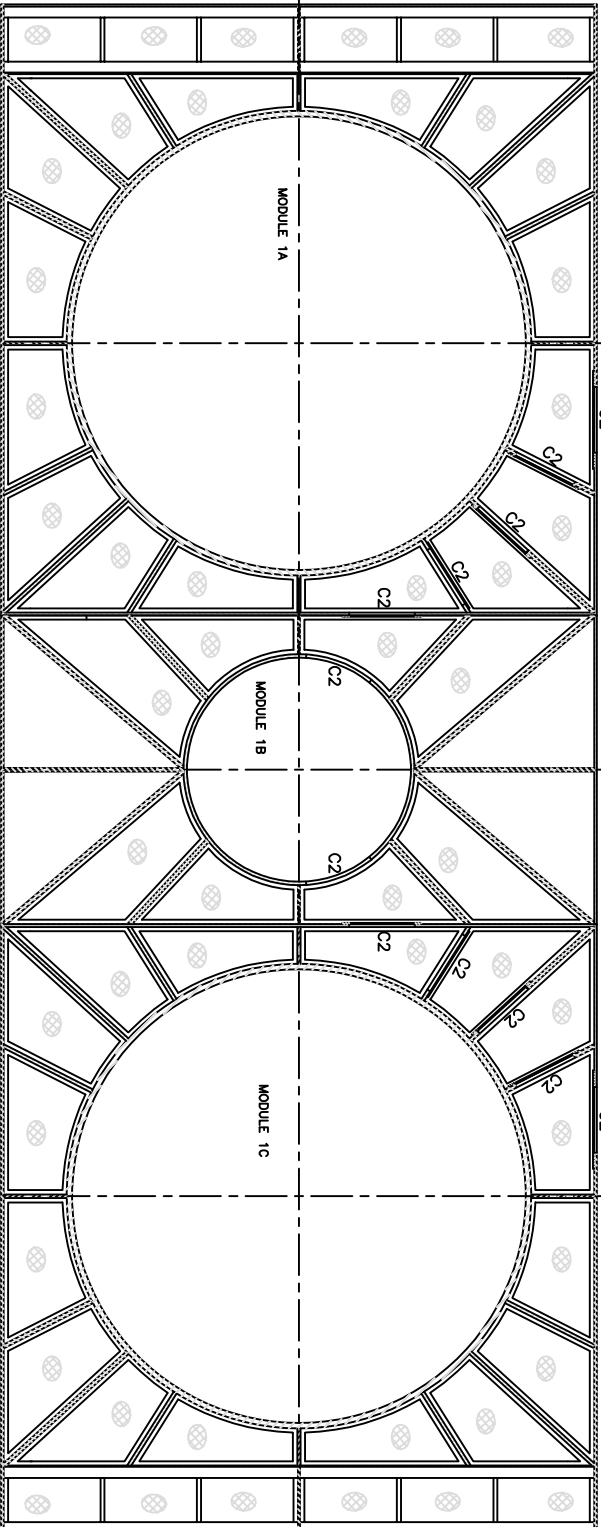
INDIAN SPACE RESEARCH ORGANISATION
 SATISH DHAWAN SPACE CENTRE, SHARDA PRAKASHAN

DO NOT SCALE

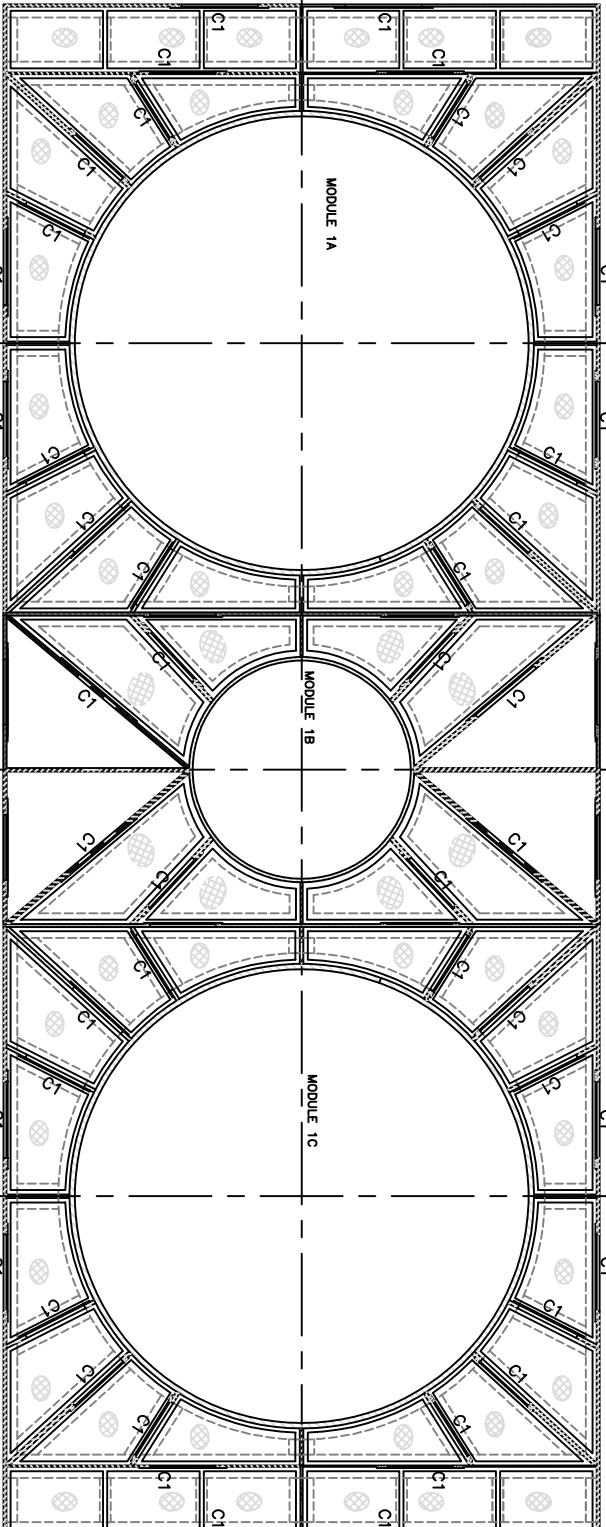
PART NO.	DESCRIPTION	MATERIAL	QTY.	REQD.
1	MODULE 1		1	0002
2	MODULE 2A & 2D		2	0003
3	MODULE 2B & 2C		2	0004
4	MODULE 3A		1	0005
5	MODULE 3B		1	0006
6	STRAP ON SUPPORT RING (P+)		1	0007
7	STRAP ON SUPPORT RING (P-)		1	0008
8	ANCHOR LEGS		4	0013
9	MODULE INTERCONNECTION DETAILS		1	0022
10	BEARING PLATE HANDLING		4	0012
11	BEARING PLATE (CS THK)		4	0011
12	BEARING PLATE (CS THK)		4	0011
13	BASE PLATE		8	0028
14	LINEAR BEARING WITH RAIL		10	
15	MECHANICAL STOP		8	0028
16	ADJUSTABLE SPACER SUBASSEMBLY		46	0021
17	HYDRAULIC CYLINDER		6	
18	WORKING PRESSURE : 250 BAR (FOR ALL CIRCLES TO BE SUPPLIED WITH ROO CLEAN WORKING FLUID AS PER VIEW 7 AND SECTION S506 OF THIS DWG)		6	
19	COVER FOR L110 W/VAULT		1	0020
20	COVER FOR S120 W/VAULT		1	0018
21	COVER FOR S120 W/VAULT		1	0019
22	ADAPTOR PLATE FOR SSR P+		4	0028
23	ENCLOSURE FOR CRD PRESS		1	0028
24	ENCLOSURE FOR CRD PRESS		1	0029
25	INTERFACE RING TYPE-1		1	0024
26	INTERFACE RING TYPE-2		1	0025
27	DOOR SUBASSEMBLY		2	0014
28	HANDRAILS ON PEDESTAL DECK		4	0023
29	HANDRAILS ON PEDESTAL DECK		1	0015
30	STAINLESS STEEL RAILS		1	0016
31	STAINLESS STEEL RAILS		1	0017
32	HEX. SEC. HEAD CAP SCREW M24 X 300 - GRADE 10.9 (22000 TORQUE) (SEE NOTE 10)		136	0000
33	WASHED WASHER 25 B2016 (PART-2)		168	0000
34	HANDLED CYLINDRICAL PIN 24 X 350 IS6889		16	0000
35	HEX. SEC. HEAD CAP SCREW M20 X 100 - GRADE 10.9		192	0000
36	HEX. HEAD SCREW M24 X 90 - GRADE 10.9 (PART 2)		32	0000
37	HEX. SEC. HEAD CAP SCREW M24 X 300 - GRADE 10.9		72	0000
38	HEX. SEC. HEAD CAP SCREW M24 X 300 - GRADE 10.9		144	0000
39	WASHED WASHER 31 B2016 (PART-2)		144	0000
40	HEX. HEAD BOLT M42 X 430 - GRADE 10.9 (PART 1)		24	0000
41	HEX. HEAD BOLT M42 X 430 - GRADE 10.9 (PART 1)		22	0000
42	WASHED WASHER 45 B2016 (PART-2)		46	0000



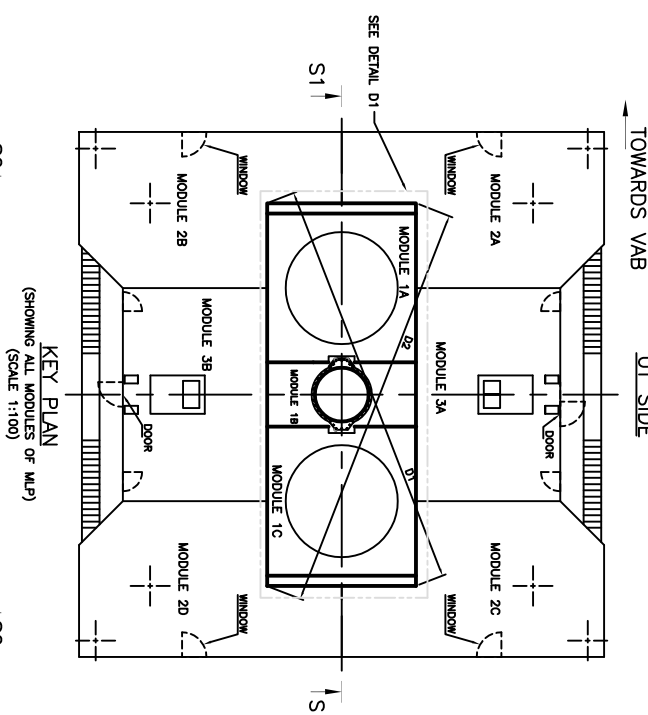
DETAIL D1 (MODULE 1A, 1B & 1C SHOWN IN ASSEMBLED CONDITION BEFORE WELDING TO INDICATE ALL THE CUTOUS AND PASSAGES DESIGNATED AS C1 & C2 IN THE MODULE)



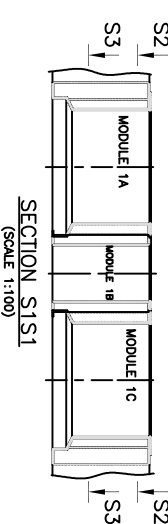
SECTION S2S2 (MODULE 1A, 1B & 1C SHOWN IN ASSEMBLED CONDITION BEFORE WELDING TO INDICATE ALL THE CUTOUS AND PASSAGES DESIGNATED AS C1 & C2 IN THE MODULE)



SECTION S3S3 (MODULE 1A, 1B & 1C SHOWN IN ASSEMBLED CONDITION BEFORE WELDING TO INDICATE ALL THE CUTOUS AND PASSAGES DESIGNATED AS C1 & C2 IN THE MODULE)



KEY PLAN (SHOWING ALL MODULES OR MLP)



SECTION S1S1 (SCALE 1:100)

7. FOR EACH OF WELDING, MODULE 1 IS SPLIT INTO 3 MODULES: MODULE 1A, MODULE 1B AND MODULE 1C AS SHOWN IN SHEET 282 OF THIS DRAWING.
8. OVERALL SIZES OF TIGAS ARE INDICATED IN THE BILL OF MATERIAL. SHEDS BE FABRICATED FROM INDIVIDUAL PLATES WELDED TOGETHER. HOWEVER FULL PENETRATION BUTT WELDS WITH 100% ULTRASONIC TESTING IS TO BE APPROVED BY THE PURCHASER FOR THE CONSTRUCTION AND LOCATION OF ALL SUCH ADDITIONAL BUTT WELDED JOINTS THAT ARE PROPOSED TO BE CARVED OUT BY THEM.
9. UNLESS OTHERWISE SPECIFIED, ALL BUTT WELDS SHALL BE FULL PENETRATION TYPE WITH 100% ULTRASONIC TESTING SHALL BE CARRIED OUT.
10. REFER Dwg NO. TCE-113804-857-00-0002 FOR THE MODULE INTERCONNECTION DETAILS. THE DETAILS OF BOLTING OF THE MODULES AND SUSPENSION SHALL BE PROVIDED BY THE VENDOR FOR HANGING THE MODULES AT SITE. THE LUGS SHALL BE REMOVED WITHOUT DAMAGING OF THE MODULES SURFACES AFTER COMPLETION OF THE WELDING OF THE MODULES AND SHALL BE REPAINTED ON ROUND SURFACE DURING ON SITE TO BE GROUND SMOOTH AND FINISHED.
11. LIFTING LUGS ARE TO BE PROVIDED BY THE VENDOR FOR HANGING THE MODULES AT SITE. THE LUGS SHALL BE REMOVED WITHOUT DAMAGING OF THE MODULES SURFACES AFTER COMPLETION OF THE WELDING OF THE MODULES AND SHALL BE REPAINTED ON ROUND SURFACE DURING ON SITE TO BE GROUND SMOOTH AND FINISHED.
12. TAPPED HOLES ON SURFACES:
 - 12.1. DIMENSIONS INDICATED IN THIS DRAWING FOR ALL THE TAPPED HOLES LOCATED ON SURFACES, (INTERNAL AND EXTERNAL) OF MODULE 1 ARE FOR S3R (P+) AND S3R (P-) ALONG WITH ALL COMPONENTS REQUIRED FOR THE TAPPING OPERATION. THE LOCATION FOR THE TAPPED HOLES FOR ALL THE COMPONENTS SHALL BE AS SHOWN IN THIS DRAWING. THE HOLE DIAMETERS SHALL BE AS INDICATED AND SHALL BE DRILLED AND TAPPED.
 - 12.2. USE TEMPLATES FOR MARKING AND DRILLING ALL THE HOLES ON TOP SURFACES AND BOTTOM SURFACES OF MODULE 1. THE SAME TEMPLATES ARE TO BE USED FOR DRILLING HOLES IN ALL WELDING COMPONENTS.
 - 12.3. THE GAP/BETWEEN DIMENSIONS D1-02 (AS INDICATED IN KEY PLAN) SHALL BE LESS THAN 4 mm.
 - 12.4. THE DIMENSIONS L1&L2 AND L3&L4 IN ITEM NO. 6 OF MODULE 1B ARE TO BE AS INDICATED IN THIS DRAWING. THE DIMENSIONS OF THE HOLES OF MODULE 1C AND MODULE 1A RESPECTIVELY SHALL BE AS INDICATED IN THIS DRAWING.
 - 12.5. INNER DIAMETER OF 4100 DIAMETER OF TOP PLATE SHALL BE MATCHED.
 - 12.6. IN ORDER TO ENSURE SMOOTH MOVEMENT OF S3R ON LINEAR BEARINGS, THE BASE PLATES ARE TO BE LOCATED ON MLP SUCH THAT THE RAILS WHICH ARE MOUNTED ON BASE PLATES ARE SPACED WITH 0.05 MM GAP BETWEEN THEM. THE RAILS SHALL BE FINISHED WITH 0.05 MM FINISH. THE DIMENSIONS SHALL BE AS SHOWN IN THIS DRAWING. THE CARVENING OUT OF THE ALIGNMENT OF RAILS AND AFTER DESIGNING THE SMOOTH MOVEMENT OF S3R.
 - 12.7. ITEM NOS. 28, 41, 42, 43, 48 & 49 ARE TO BE SUPPLIED AS LOOSE ITEMS ALONG WITH THE MODULE. THESE ITEMS ARE TO BE WELDED ONLY AFTER THE COMPLETION OF THE WELDING OF MODULES AT SITE.
 - 12.8. BILL OF MATERIAL SHOWS THE FINISHED SIZES OF PLATES, BARS AND OTHER ITEMS. FOR MATERIAL PROCUREMENT, NECESSARY FABRICATION ALLOWANCE SHALL BE ADDED AS PER EXISTING SHOP PRACTICES.
 - 12.9. DRILLING OF TAPPED HOLES ON MODULE TO BE DONE AFTER MATCH MARKING ONLY.
 - 12.10. ALL CHECKERED PLATES ARE TO BE SCREWED USING M12 SCREW AND NUT TO STIFFENER AVAILABLE BELOW THE CHECKERED PLATE. ALL CHECKERED PLATES ARE TO BE WELDED TO STIFFENER. THE LOCATION FOR THE TAPPED HOLES FOR ALL THE COMPONENTS SHALL BE AS SHOWN IN THIS DRAWING. IT IS SUPPLIER'S RESPONSIBILITY TO REMOVE THE CHECKERED PLATE AND SCREW MACHINING IT SELF.
 - 12.11. ALL ANGLES CLEAR MARKING IS TO BE CARRIED ON EACH MODULES DURING MACHINING IT SELF.
 - 12.12. TOTAL WEIGHT OF FINISHED COMPONENTS:
 - MODULE 1A: 67000 Kg
 - MODULE 1B: 27000 Kg
 - MODULE 1C: 67000 Kg

FOR NO ISSUE ONLY		ISSUE		REVISIONS		CLEARED		APPRO DATE ISSUE		REVISIONS		CLEARED		APPRO DATE		REVISIONS		CLEARED		APPRO DATE		REVISIONS		CLEARED		APPRO DATE		REVISIONS	
DRW	CHIED CIVIL	ELEC	MACH	MECH	DRN	CHIED CIVIL	ELEC	MACH	MECH	DRN	CHIED CIVIL	ELEC	MACH	MECH	DRN	CHIED CIVIL	ELEC	MACH	MECH	DRN	CHIED CIVIL	ELEC	MACH	MECH	DRN	CHIED CIVIL	ELEC	MACH	MECH

BILL OF MATERIAL				
RATE	DESCRIPTION	MATERIAL	QTY.	REMARKS
1	PLATE 20 THK X 5400 X 3476	GRADE: SS308, QUANTITY: 888	2	CUT TO SHAPE
2	PLATE 25 THK X 5588 X 3476	GRADE: SS308, QUANTITY: 888	2	CUT TO SHAPE
3	PLATE 25 THK X 5588 X 3476	GRADE: SS308, QUANTITY: 888	2	CUT TO SHAPE
4	PLATE 32 THK X 3138 X 5400	GRADE: SS308, QUANTITY: 888	2	CUT TO SHAPE
5	PLATE 32 THK X 5588 X 5400	GRADE: SS308, QUANTITY: 888	2	CUT TO SHAPE
6	PLATE 32 THK X 5400 X 3476	GRADE: SS308, QUANTITY: 888	2	CUT TO SHAPE
7	PLATE 32 THK X 5400 X 3476	GRADE: SS308, QUANTITY: 888	2	CUT TO SHAPE
8	PLATE 32 THK X 5400 X 3476	GRADE: SS308, QUANTITY: 888	2	CUT TO SHAPE
9	PLATE 32 THK X 5400 X 3476	GRADE: SS308, QUANTITY: 888	2	CUT TO SHAPE
10	PLATE 32 THK X 5400 X 3476	GRADE: SS308, QUANTITY: 888	2	CUT TO SHAPE
11	PLATE 32 THK X 5400 X 3476	GRADE: SS308, QUANTITY: 888	2	CUT TO SHAPE
12	PLATE 32 THK X 5400 X 3476	GRADE: SS308, QUANTITY: 888	2	CUT TO SHAPE
13	PLATE 32 THK X 5400 X 3476	GRADE: SS308, QUANTITY: 888	2	CUT TO SHAPE
14	PLATE 32 THK X 5400 X 3476	GRADE: SS308, QUANTITY: 888	2	CUT TO SHAPE
15	PLATE 32 THK X 5400 X 3476	GRADE: SS308, QUANTITY: 888	2	CUT TO SHAPE
16	PLATE 32 THK X 5400 X 3476	GRADE: SS308, QUANTITY: 888	2	CUT TO SHAPE
17	PLATE 32 THK X 5400 X 3476	GRADE: SS308, QUANTITY: 888	2	CUT TO SHAPE
18	PLATE 32 THK X 5400 X 3476	GRADE: SS308, QUANTITY: 888	2	CUT TO SHAPE
19	PLATE 32 THK X 5400 X 3476	GRADE: SS308, QUANTITY: 888	2	CUT TO SHAPE
20	PLATE 32 THK X 5400 X 3476	GRADE: SS308, QUANTITY: 888	2	CUT TO SHAPE
21	PLATE 32 THK X 5400 X 3476	GRADE: SS308, QUANTITY: 888	2	CUT TO SHAPE
22	PLATE 32 THK X 5400 X 3476	GRADE: SS308, QUANTITY: 888	2	CUT TO SHAPE
23	PLATE 32 THK X 5400 X 3476	GRADE: SS308, QUANTITY: 888	2	CUT TO SHAPE
24	PLATE 32 THK X 5400 X 3476	GRADE: SS308, QUANTITY: 888	2	CUT TO SHAPE
25	PLATE 32 THK X 5400 X 3476	GRADE: SS308, QUANTITY: 888	2	CUT TO SHAPE
26	PLATE 32 THK X 5400 X 3476	GRADE: SS308, QUANTITY: 888	2	CUT TO SHAPE
27	PLATE 32 THK X 5400 X 3476	GRADE: SS308, QUANTITY: 888	2	CUT TO SHAPE
28	PLATE 32 THK X 5400 X 3476	GRADE: SS308, QUANTITY: 888	2	CUT TO SHAPE
29	PLATE 32 THK X 5400 X 3476	GRADE: SS308, QUANTITY: 888	2	CUT TO SHAPE
30	PLATE 32 THK X 5400 X 3476	GRADE: SS308, QUANTITY: 888	2	CUT TO SHAPE
31	PLATE 32 THK X 5400 X 3476	GRADE: SS308, QUANTITY: 888	2	CUT TO SHAPE
32	PLATE 32 THK X 5400 X 3476	GRADE: SS308, QUANTITY: 888	2	CUT TO SHAPE
33	PLATE 32 THK X 5400 X 3476	GRADE: SS308, QUANTITY: 888	2	CUT TO SHAPE
34	PLATE 32 THK X 5400 X 3476	GRADE: SS308, QUANTITY: 888	2	CUT TO SHAPE
35	PLATE 32 THK X 5400 X 3476	GRADE: SS308, QUANTITY: 888	2	CUT TO SHAPE
36	PLATE 32 THK X 5400 X 3476	GRADE: SS308, QUANTITY: 888	2	CUT TO SHAPE
37	PLATE 32 THK X 5400 X 3476	GRADE: SS308, QUANTITY: 888	2	CUT TO SHAPE
38	PLATE 32 THK X 5400 X 3476	GRADE: SS308, QUANTITY: 888	2	CUT TO SHAPE
39	PLATE 32 THK X 5400 X 3476	GRADE: SS308, QUANTITY: 888	2	CUT TO SHAPE
40	PLATE 32 THK X 5400 X 3476	GRADE: SS308, QUANTITY: 888	2	CUT TO SHAPE
41	PLATE 32 THK X 5400 X 3476	GRADE: SS308, QUANTITY: 888	2	CUT TO SHAPE
42	PLATE 32 THK X 5400 X 3476	GRADE: SS308, QUANTITY: 888	2	CUT TO SHAPE
43	PLATE 32 THK X 5400 X 3476	GRADE: SS308, QUANTITY: 888	2	CUT TO SHAPE
44	PLATE 32 THK X 5400 X 3476	GRADE: SS308, QUANTITY: 888	2	CUT TO SHAPE
45	PLATE 32 THK X 5400 X 3476	GRADE: SS308, QUANTITY: 888	2	CUT TO SHAPE
46	PLATE 32 THK X 5400 X 3476	GRADE: SS308, QUANTITY: 888	2	CUT TO SHAPE
47	PLATE 32 THK X 5400 X 3476	GRADE: SS308, QUANTITY: 888	2	CUT TO SHAPE
48	PLATE 32 THK X 5400 X 3476	GRADE: SS308, QUANTITY: 888	2	CUT TO SHAPE
49	PLATE 32 THK X 5400 X 3476	GRADE: SS308, QUANTITY: 888	2	CUT TO SHAPE
50	PLATE 32 THK X 5400 X 3476	GRADE: SS308, QUANTITY: 888	2	CUT TO SHAPE
51	PLATE 32 THK X 5400 X 3476	GRADE: SS308, QUANTITY: 888	2	CUT TO SHAPE
52	PLATE 32 THK X 5400 X 3476	GRADE: SS308, QUANTITY: 888	2	CUT TO SHAPE

NOTES:-

1. QUANTITY REQUIRED: 1 (FOR ONE MLP)
2. FOR MANUFACTURING STANDARDS & TOLERANCES, SURFACE PREPARATION & FINISHES, REFER SPECIFICATION DOCUMENT NO. TCE-113804-857-00-0100
3. STRESS RELIEVING IS TO BE CARRIED OUT AFTER COMPLETION OF ALL WELDING AND BEFORE MACHINING.
4. ALL SCALLOPS SHALL BE 18R UNLESS OTHERWISE SPECIFIED.
5. UNLESS OTHERWISE SPECIFIED, ALL WELDING SHALL BE CARRIED OUT AS PER SHOP PRACTICES.
6. UNLESS OTHERWISE SPECIFIED, ALL WELDING SHALL BE SUBJECTED TO 100% UT.
7. THE FOLLOWING FINISHES SHALL BE CARRIED OUT AFTER WELDING:
 - 8.1. 100% UT FOR GROOVE WELDS AFTER ROOT PASS AND FILL PASS.
 - 8.2. 100% UT FOR GROOVE WELDS AFTER ROOT PASS AND FILL PASS.
 - 8.3. 100% UT FOR GROOVE WELDS AFTER FILL PASS.

DO NOT SCALE

INDIAN SPACE RESEARCH ORGANISATION
SATISH DHAWAN SPACE CENTRE, SHAR

TVA CONSULTING ENGINEERS LIMITED
MUMBAI

AUGMENTATION OF SECOND LAUNCH PAD (ASLP)

DETAILS OF MODULE 1

DATE: 09-12-2018
SHEET: RO

(9402HS)2000-00-458-2M-V59611.301
 1. 3700MM ØØ STAYERS
 (Ø IN PLAN AND THROUGHT VIEW) MINIMUM
 TYPICAL

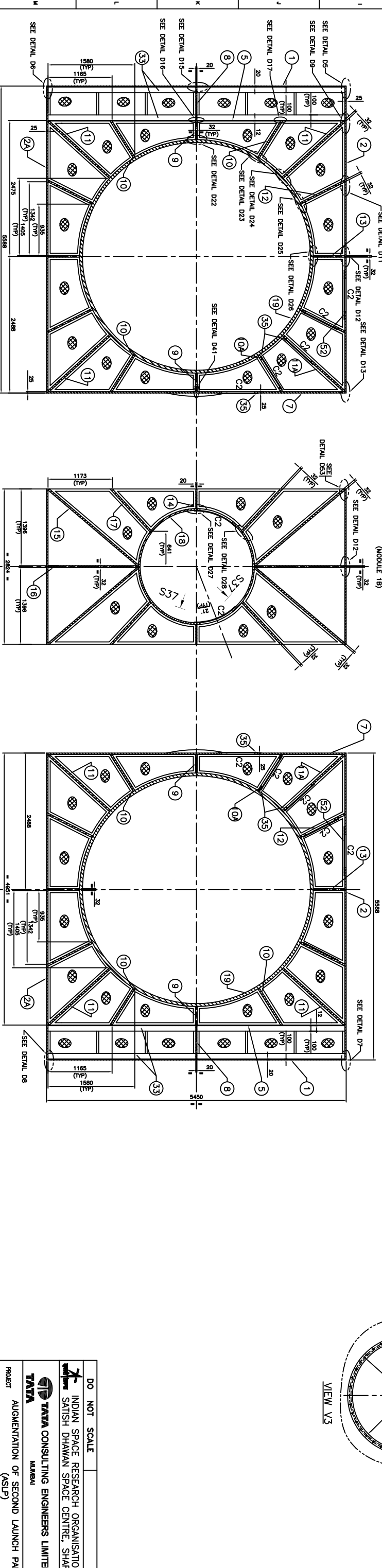
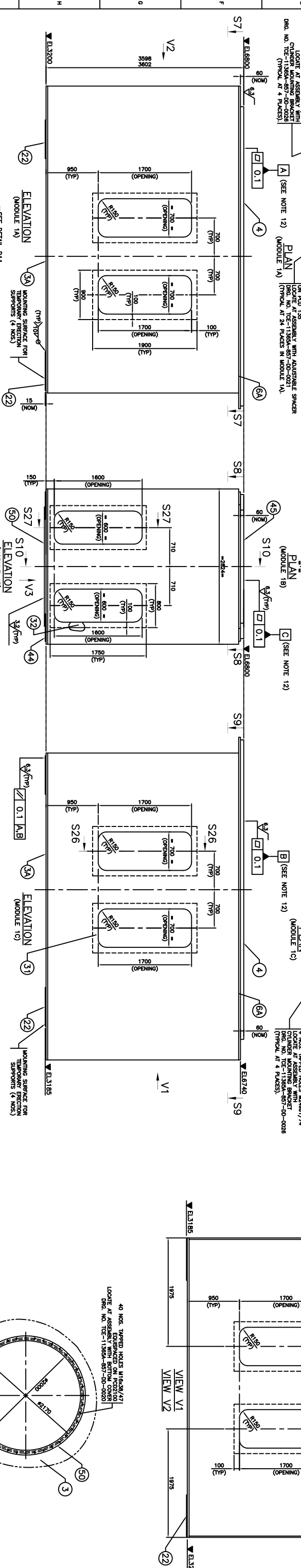
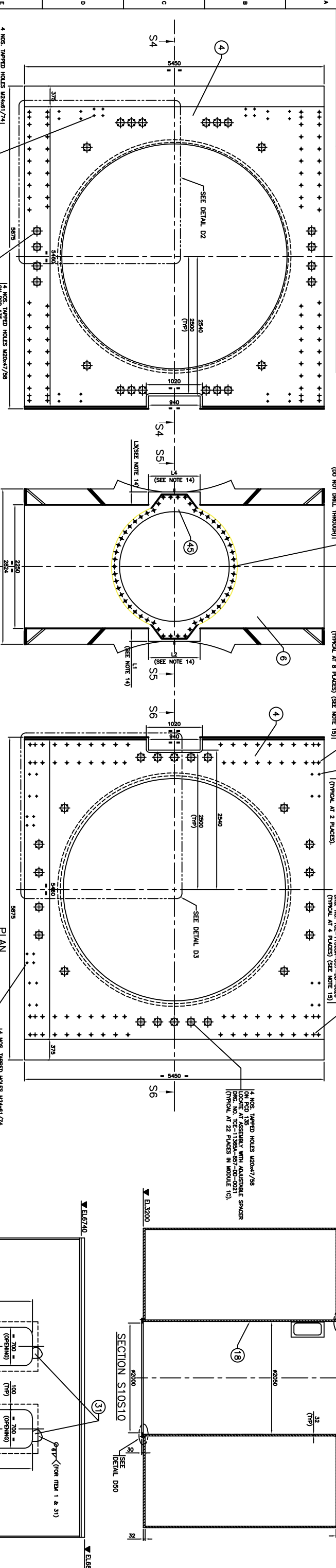
54 NOS. TAPPED HOLES M20x6/77
 LOCATE AT ASSEMBLY WITH
 MECHANICAL STOP MOUNTING BRACKET
 (ØØ NOT DRILL THROUGH)
 Dwg. No. TCE-113604-87-00-0018
 (TYPICAL AT 8 PLACES) (SEE NOTE 13)

18 NOS. TAPPED HOLES M20x6/74
 LOCATE AT ASSEMBLY WITH
 MECHANICAL STOP MOUNTING BRACKET
 (ØØ NOT DRILL THROUGH)
 Dwg. No. TCE-113604-87-00-0016
 (TYPICAL AT 2 PLACES) (SEE NOTE 13)

2 NOS. Ø24.000 HOLES, DEEP 55
 DRILL AND 2 NOS. Ø24.000 HOLES, DEEP 55
 LOCATE AT ASSEMBLY WITH
 MECHANICAL STOP MOUNTING BRACKET
 (ØØ NOT DRILL THROUGH)
 Dwg. No. TCE-113604-87-00-0016
 (TYPICAL AT 4 PLACES) (SEE NOTE 13)

4 NOS. TAPPED HOLES M20x6/74
 LOCATE AT ASSEMBLY WITH
 MECHANICAL STOP MOUNTING BRACKET
 (ØØ NOT DRILL THROUGH)
 Dwg. No. TCE-113604-87-00-0016
 (TYPICAL AT 4 PLACES)

4 NOS. TAPPED HOLES M20x6/78
 LOCATE AT ASSEMBLY WITH
 MECHANICAL STOP MOUNTING BRACKET
 (ØØ NOT DRILL THROUGH)
 Dwg. No. TCE-113604-87-00-0016
 (TYPICAL AT 22 PLACES IN MODULE 10)



NO.	DATE	ISSUE	ISSUED BY	REVISIONS	APPROVED	DATE	ISSUE	ISSUED BY	REVISIONS	APPROVED	DATE	ISSUE	ISSUED BY	REVISIONS	APPROVED	DATE	ISSUE	ISSUED BY
1	05-12-2019	ISSUE	NSR		NSR	05-12-2019	ISSUE	NSR		NSR	05-12-2019	ISSUE	NSR		NSR	05-12-2019	ISSUE	NSR
2																		
3																		
4																		
5																		
6																		
7																		
8																		
9																		
10																		
11																		
12																		
13																		
14																		
15																		
16																		
17																		
18																		
19																		

DO NOT SCALE

INDIAN SPACE RESEARCH ORGANISATION
 SATISH DHAWAN SPACE CENTRE, SHAR

TATA CONSULTING ENGINEERS LIMITED
 AUGMENTATION OF SECOND LAUNCH PAD (ASLP)

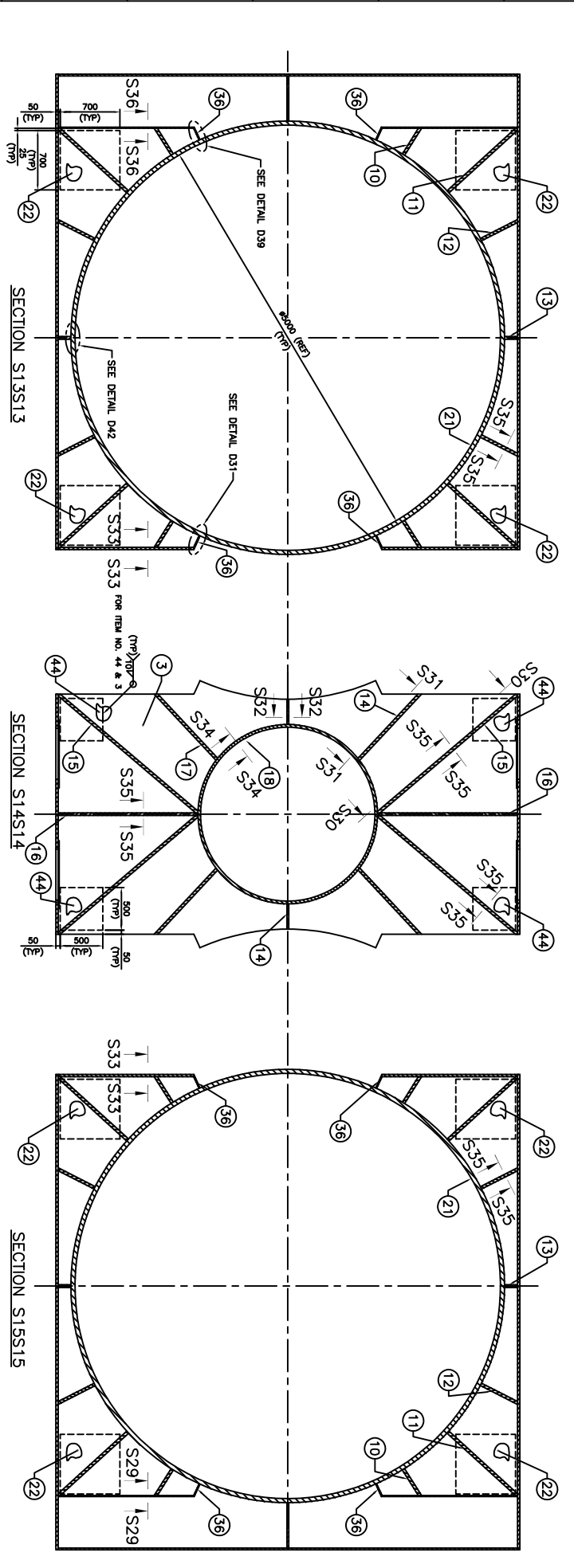
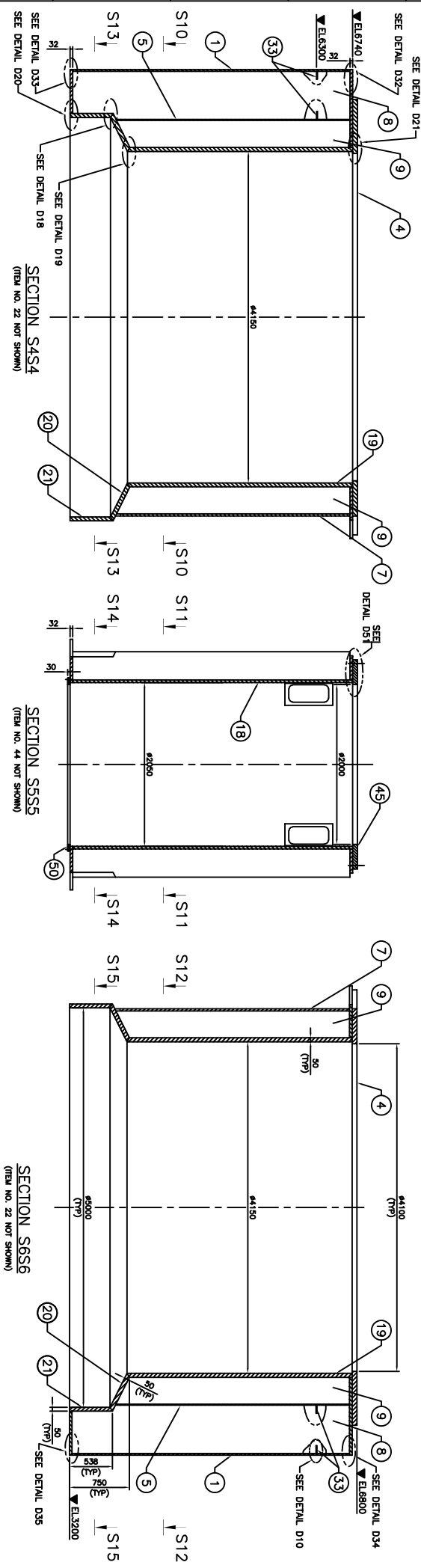
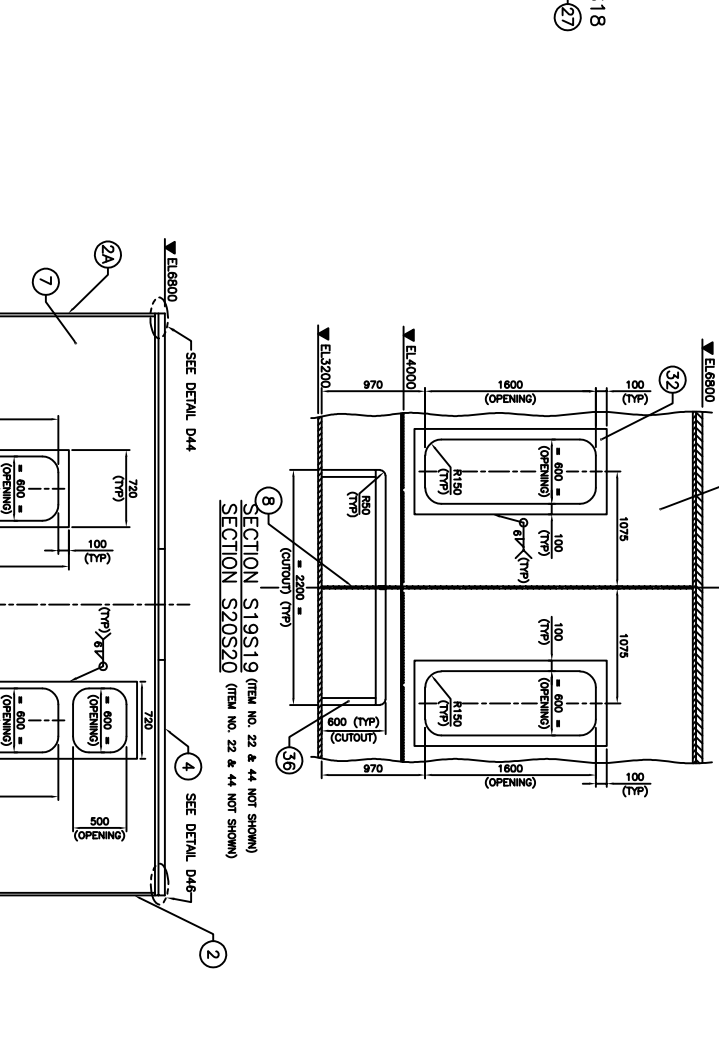
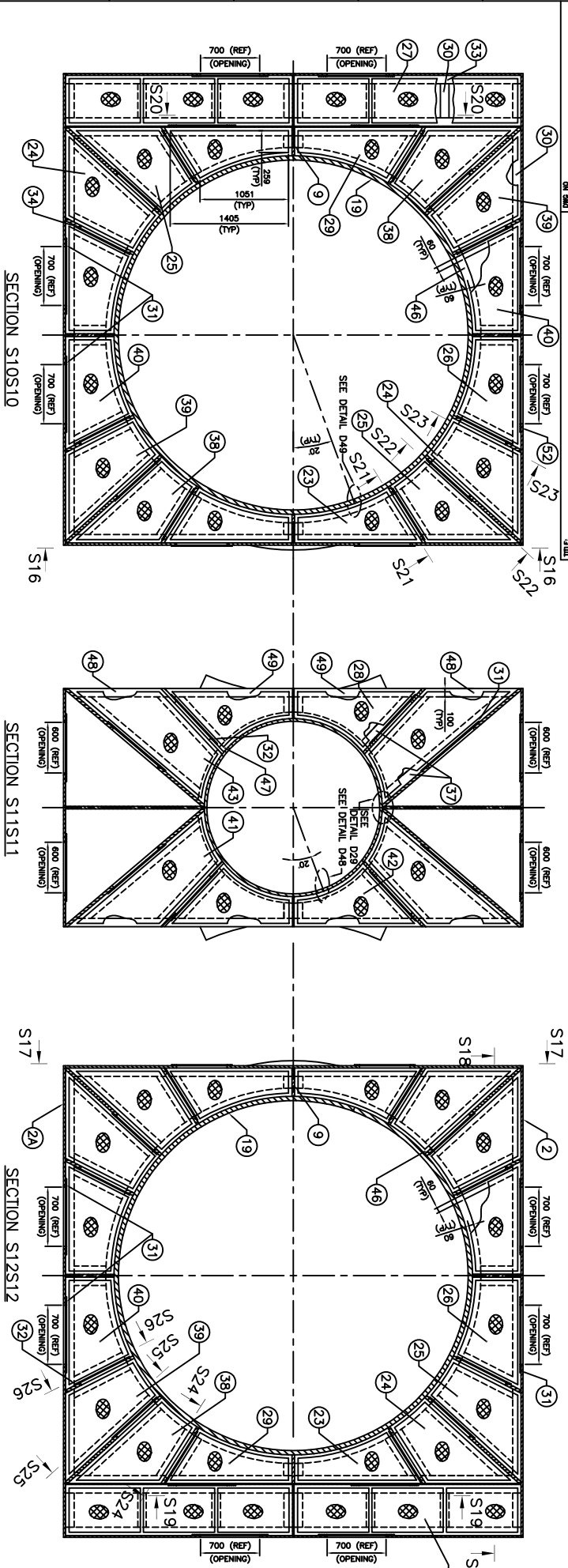
TITLE: DETAILS OF MODULE 1

SCALE: 1:25

DATE: 05-12-2019

ISSUED BY: NSR

APPROVED BY: NSR



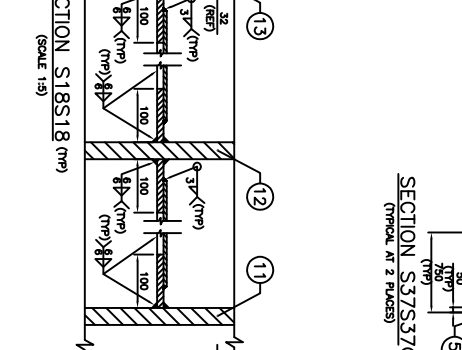
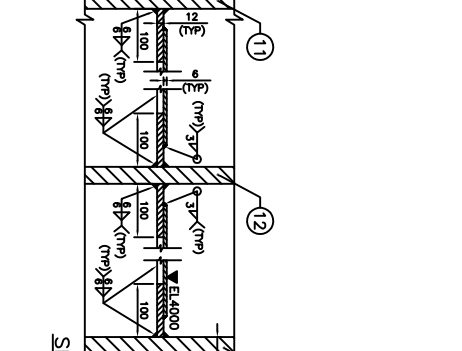
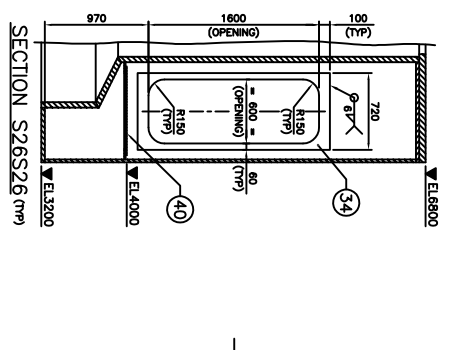
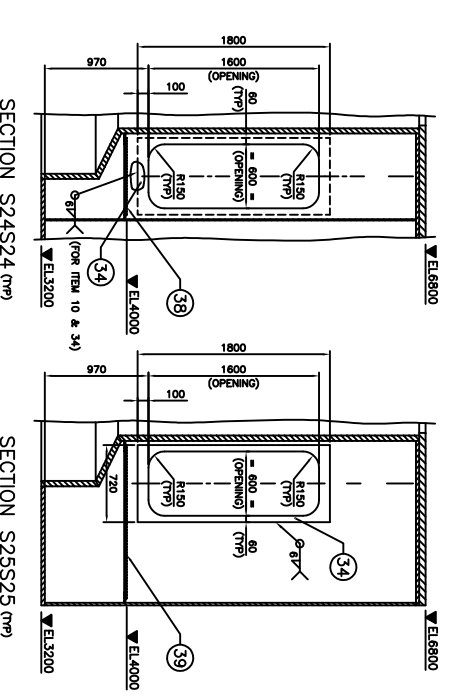
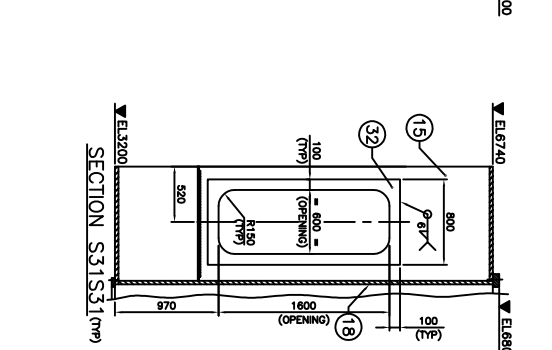
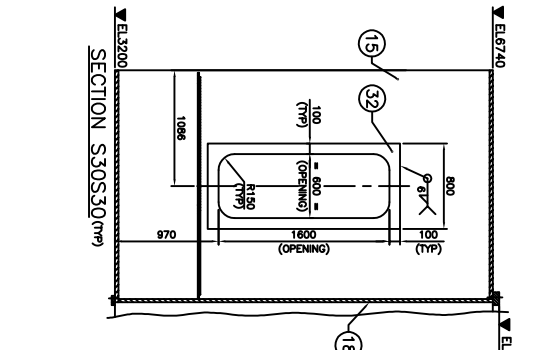
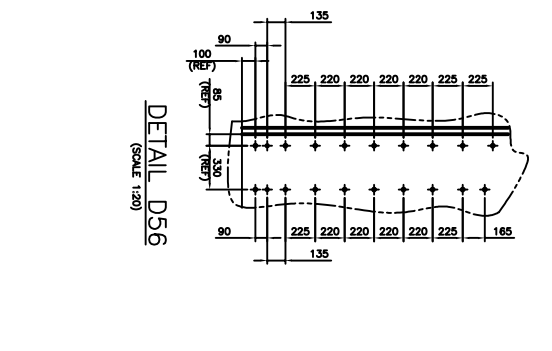
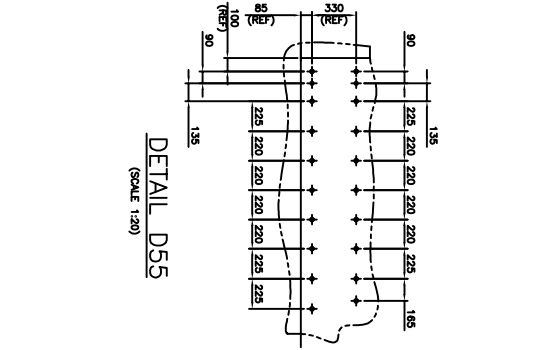
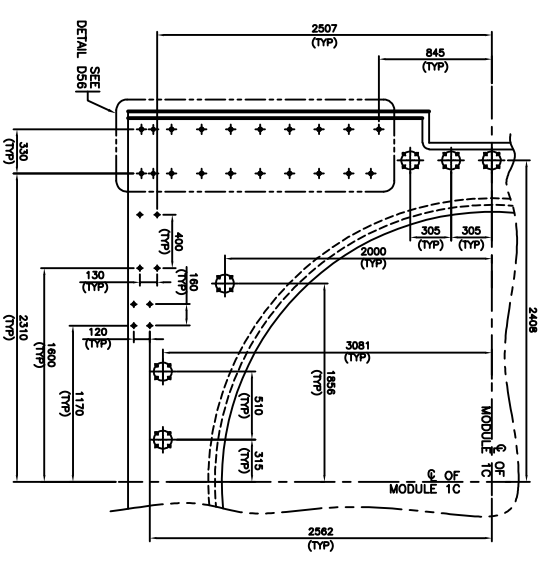
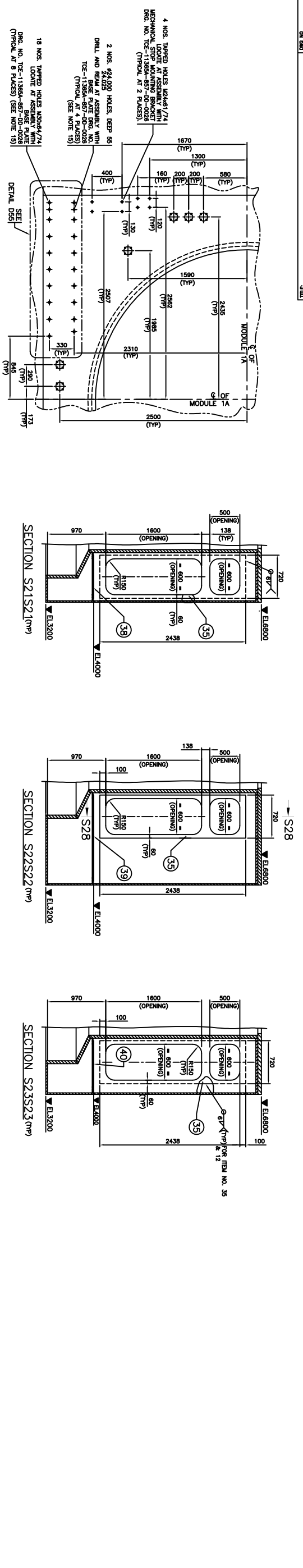
FOR NO. ISSUE ONLY	ISSUE	REVISIONS	CLEARED	APPRO. DATE	ISSUE	REVISIONS	CLEARED	APPRO. DATE	ISSUE	REVISIONS	CLEARED	APPRO. DATE	ISSUE	REVISIONS	CLEARED	APPRO. DATE	ISSUE	REVISIONS	CLEARED	APPRO. DATE	

DO NOT SCALE	TITLE	SCALE	DATE	ISSUE	REVISIONS	CLEARED	APPRO. DATE	ISSUE	REVISIONS	CLEARED	APPRO. DATE	ISSUE	REVISIONS	CLEARED	APPRO. DATE	ISSUE	REVISIONS	CLEARED	APPRO. DATE	
	DETAILS OF MODULE 1	1:25	05-12-2019																	

TATA CONSULTING ENGINEERS LIMITED
 MUMBAI

INDIAN SPACE RESEARCH ORGANISATION
 SATISH DHAWAN SPACE CENTRE, SHAR

PROJECT
 AUGMENTATION OF SECOND LAUNCH PAD (ASLP)

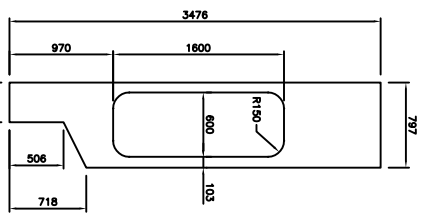


FOR REVISION ONLY		ISSUE		REVISIONS		CLEARED		DATE		ISSUE		REVISIONS		DATE		ISSUE	
NO	DESCRIPTION	NO	DESCRIPTION	NO	DESCRIPTION	NO	DESCRIPTION	NO	DESCRIPTION	NO	DESCRIPTION	NO	DESCRIPTION	NO	DESCRIPTION	NO	DESCRIPTION
1	ISSUE FOR REVISION																
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	
11																	
12																	
13																	
14																	
15																	
16																	
17																	
18																	
19																	

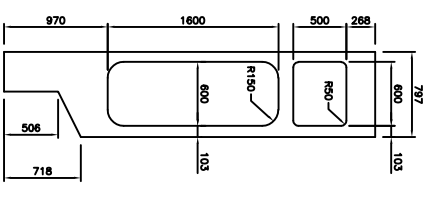
DO NOT SCALE

INDIAN SPACE RESEARCH ORGANISATION
 SATISH DHAWAN SPACE CENTRE, SHAR
 TATA CONSULTING ENGINEERS LIMITED
 AUGMENTATION OF SECOND LAUNCH PAD (ASLP)
 MUMBAI

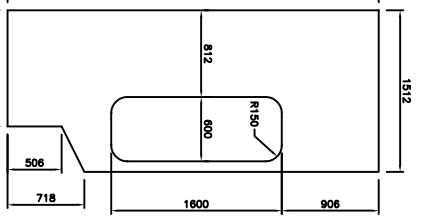
TITLE: DETAILS OF MODULE 1
 SCALE: 1:25
 DATE: 09-03-2020
 DESIGNED: [Name]
 CHECKED: [Name]
 APPROVED: [Name]



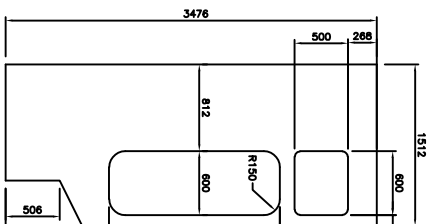
DETAILS OF ITEM NO.10 (SCALE 1:25)



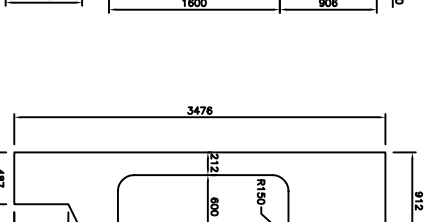
DETAILS OF ITEM NO.10A (SCALE 1:25)



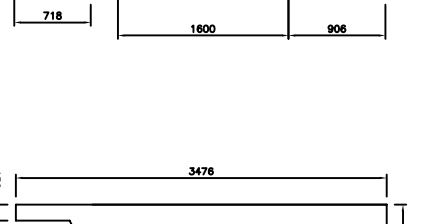
DETAILS OF ITEM NO.11 (SCALE 1:25)



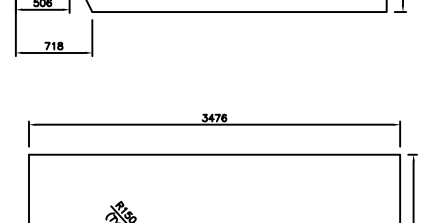
DETAILS OF ITEM NO.11A (SCALE 1:25)



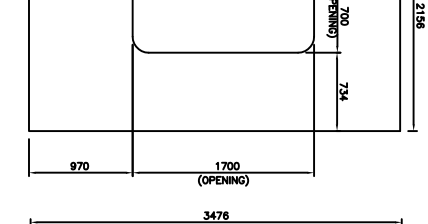
DETAILS OF ITEM NO.12 (SCALE 1:25)



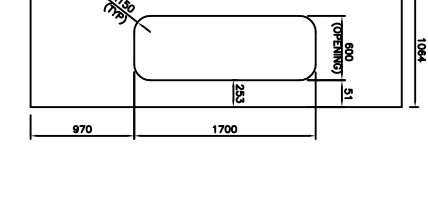
DETAILS OF ITEM NO.13 (SCALE 1:25)



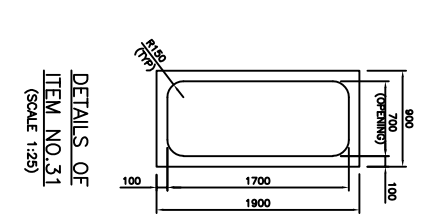
DETAILS OF ITEM NO.15 (SCALE 1:25)



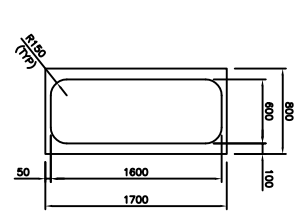
DETAILS OF ITEM NO.17 (SCALE 1:25)



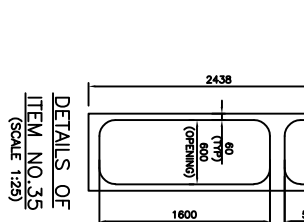
DETAILS OF ITEM NO.2A (SCALE 1:25)



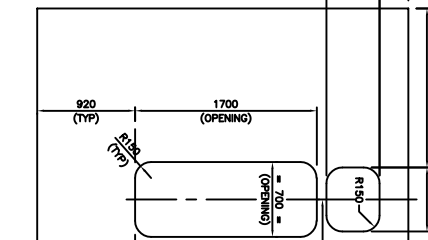
DETAILS OF ITEM NO.31 (SCALE 1:25)



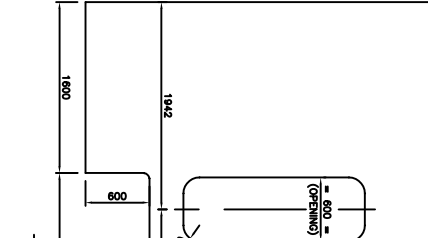
DETAILS OF ITEM NO.32 (SCALE 1:25)



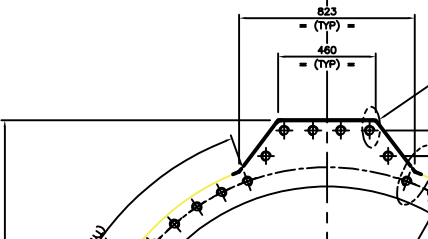
DETAILS OF ITEM NO.35 (SCALE 1:25)



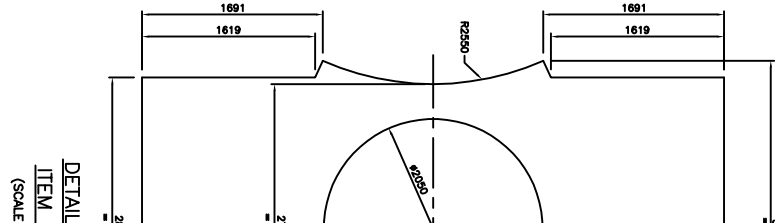
DETAILS OF ITEM NO.2 (SCALE 1:25)



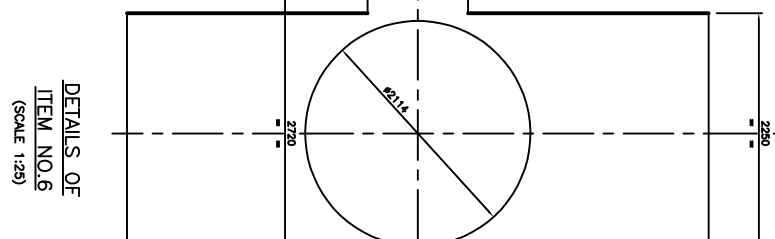
DETAILS OF ITEM NO.7 (SCALE 1:25)



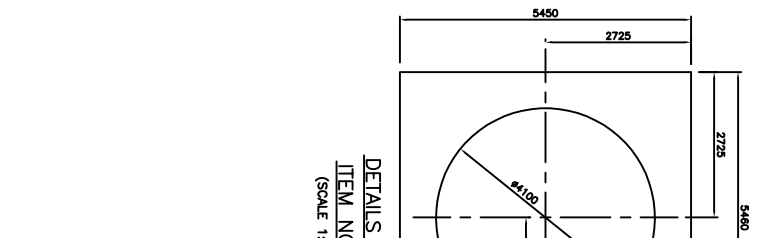
DETAILS OF ITEM NO.45 (SCALE 1:25)



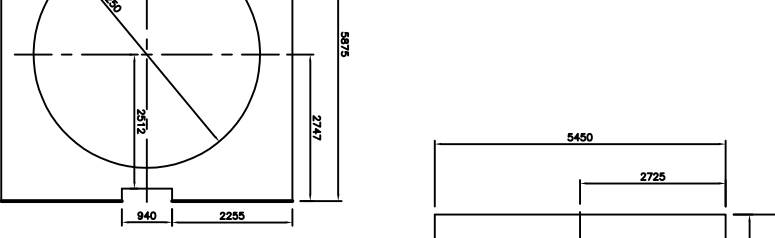
DETAILS OF ITEM NO.3 (SCALE 1:25)



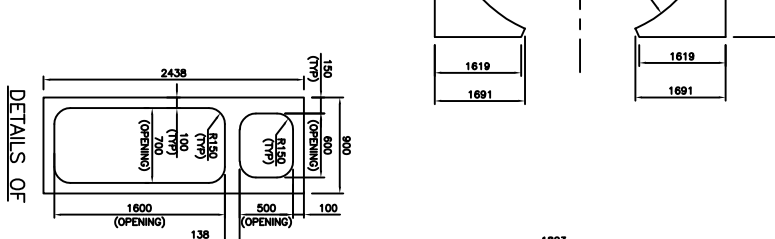
DETAILS OF ITEM NO.6 (SCALE 1:25)



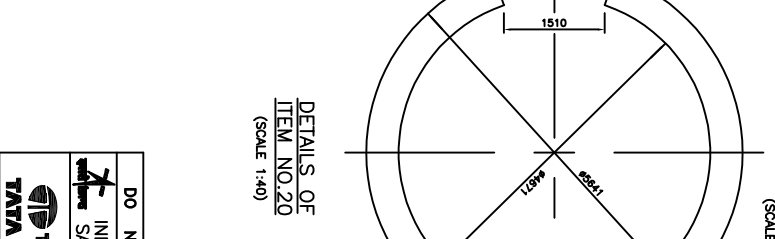
DETAILS OF ITEM NO.4 (SCALE 1:50)



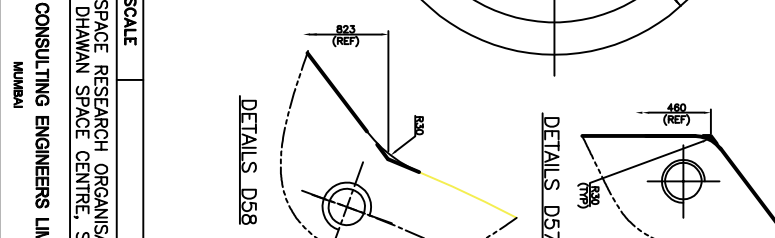
DETAILS OF ITEM NO.3A (SCALE 1:50)



DETAILS OF ITEM NO.52 (SCALE 1:25)



DETAILS OF ITEM NO.20 (SCALE 1:40)



DETAILS D58

FOR REV. ISSUES ONLY			REVISIONS			CLEARED			REVISIONS			CLEARED			REVISIONS			CLEARED			REVISIONS											
REV	DATE	ISSUE	NO	NO FOR IDENTIFICATION	DRN	CHEM	CIVIL	ELECT	MACH	APPD	DATE	ISSUE	NO	NO FOR IDENTIFICATION	DRN	CHEM	CIVIL	ELECT	MACH	APPD	DATE	ISSUE	NO	NO FOR IDENTIFICATION	DRN	CHEM	CIVIL	ELECT	MACH	APPD	DATE	ISSUE
1	13-04-2020	1	1		1								2											3								

TATA CONSULTING ENGINEERS LIMITED
MUMBAI

INDIAN SPACE RESEARCH ORGANISATION
SATISH DHAWAN SPACE CENTRE, SHAR

AUGMENTATION OF SECOND LAUNCH PAD (ASLP)

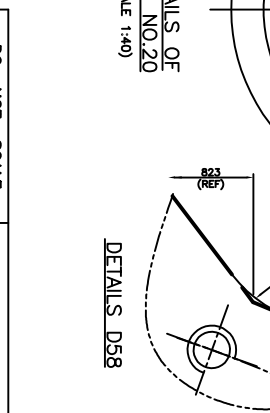
DO NOT SCALE

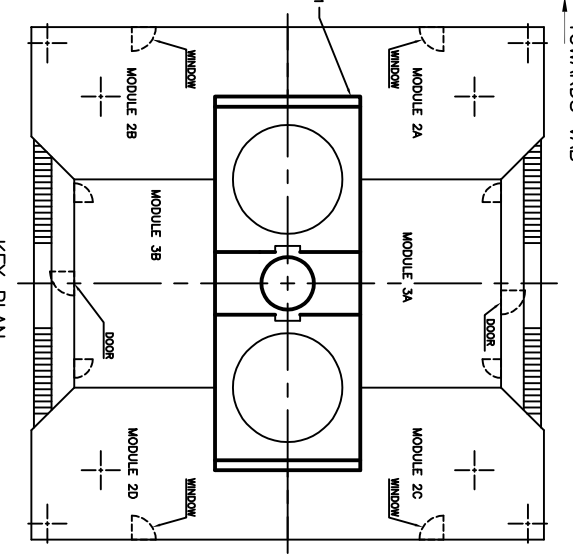
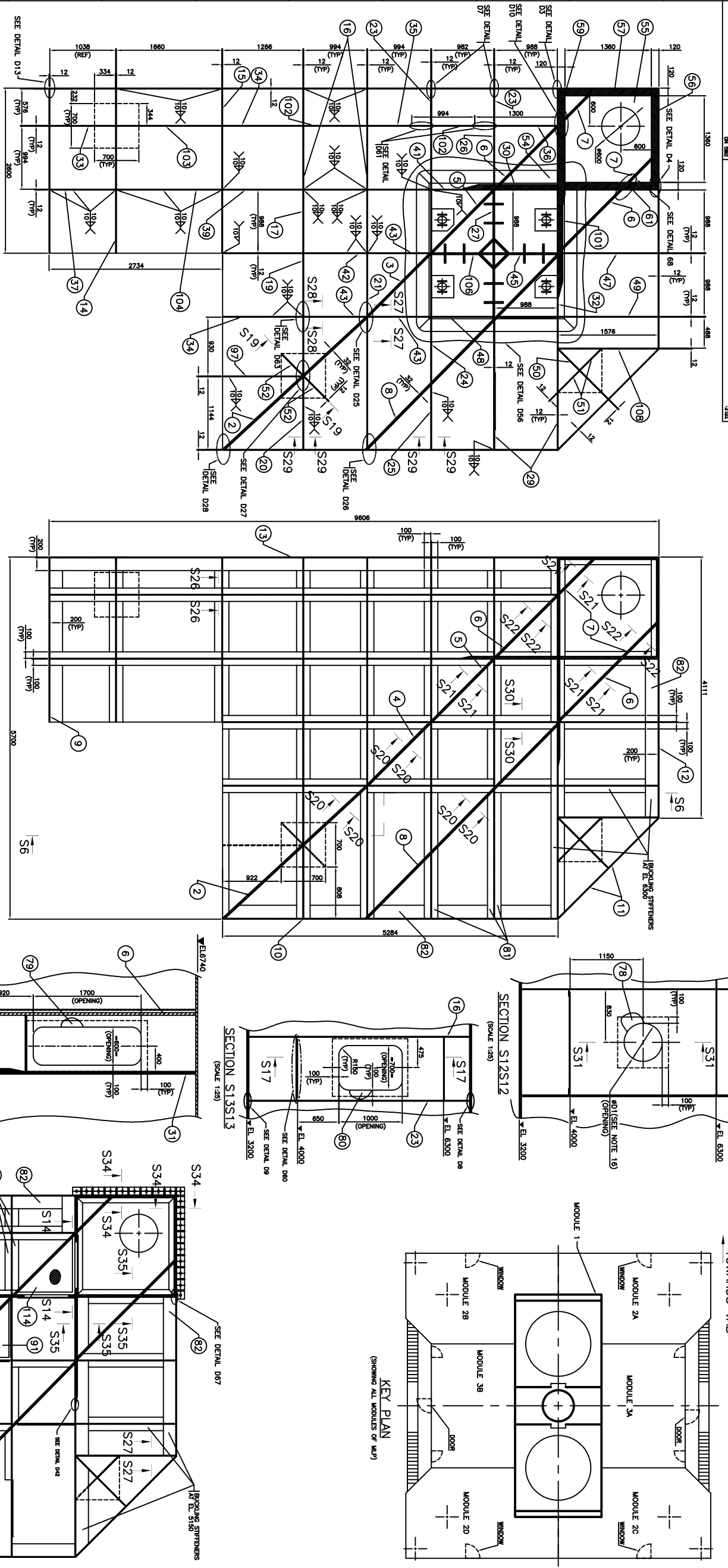
TITLE: DETAILS OF MODULE 1

SCALE: 1:5

DATE: 13-04-2020

ISSUE: RO





BILL OF MATERIAL		
PART NO.	DESCRIPTION	QTY
1	PLATE 32 THK X 800 X 5700	1
2	PLATE 32 THK X 3478 X 3000	1
3	PLATE 32 THK X 1401 X 408	1
4	PLATE 32 THK X 3478 X 1423	1
5	PLATE 32 THK X 3478 X 1423	1
6	PLATE 32 THK X 3478 X 1136	1
7	PLATE 32 THK X 3478 X 853	1
8	PLATE 12 THK X 3478 X 2800	1
9	PLATE 12 THK X 3478 X 2800	1
10	PLATE 12 THK X 5247 X 3478	1
11	PLATE 12 THK X 3478 X 1117	1
12	PLATE 12 THK X 3478 X 2505	1
13	PLATE 12 THK X 3478 X 2505	1
14	PLATE 12 THK X 3478 X 2588	1
15	PLATE 12 THK X 3478 X 2588	1
16	PLATE 12 THK X 3478 X 1582	1
17	PLATE 12 THK X 888 X 758	1
18	PLATE 12 THK X 888 X 408	1
19	PLATE 12 THK X 3478 X 1108	1
20	PLATE 12 THK X 3478 X 1144	1
21	PLATE 12 THK X 4047 X 408	1
22	PLATE 12 THK X 4047 X 408	1
23	PLATE 12 THK X 3478 X 578	1
24	PLATE 12 THK X 4038 X 3478	1
25	PLATE 12 THK X 3478 X 1018	1
26	PLATE 25 THK X 888 X 408	1
27	PLATE 25 THK X 2008 X 608	1
28	PLATE 12 THK X 3478 X 2028	1
29	PLATE 12 THK X 3478 X 2028	1
30	PLATE 40 THK X 1518 X 720	1
31	PLATE 40 THK X 1518 X 270	1
32	PLATE 12 THK X 3478 X 297	1
33	PLATE 12 THK X 3478 X 1108	1
34	PLATE 12 THK X 3478 X 1108	1
35	PLATE 12 THK X 3478 X 758	1
36	PLATE 12 THK X 3478 X 1300	1
37	PLATE 12 THK X 1038 X 758	1
38	PLATE 12 THK X 1038 X 408	1
39	PLATE 12 THK X 3278 X 758	1
40	PLATE 12 THK X 3278 X 408	1
41	PLATE 12 THK X 3478 X 448	1
42	PLATE 12 THK X 3478 X 2272	1
43	PLATE 12 THK X 994 X 782	1
44	PLATE 12 THK X 994 X 408	1
45	PLATE 25 THK X 888 X 708	1
46	PLATE 12 THK X 2708 X 888	1
47	PLATE 12 THK X 3478 X 1578	1
48	PLATE 12 THK X 3478 X 888	1
49	PLATE 12 THK X 3478 X 2222	1
50	PLATE 12 THK X 3478 X 1127	1
51	PLATE 12 THK X 740 X 480	1
52	PLATE 12 THK X 740 X 480	1
53	PLATE 20 THK X 740 X 700	1
54	PLATE 100 THK X 2550 X 2550	1
55	PLATE 100 THK X 1500 X 1500	1
56	PLATE 120 THK X 1650 X 1650	1
57	PLATE 120 THK X 1650 X 1520	1
58	PLATE 40 THK X 2708 X 1520	1
59	PLATE 120 THK X 1778 X 800	1
60	PLATE 40 THK X 3351 X 2708	1
61	PLATE 120 THK X 1520 X 800	1
62	PLATE 120 THK X 1600 X 797	1
63	PLATE 120 THK X 1200 X 324	1
64	PLATE 120 THK X 1300 X 277	1
65	PLATE 120 THK X 880 X 234	1
66	PLATE 16 THK X 150 X 100	1
67	PLATE 16 THK X 150 X 100	1
68	PLATE 36 THK X 1200 X 1100	1
69	PLATE 36 THK X 900 X 960	1
70	PLATE 25 THK X 708 X 288	1
71	PLATE 25 THK X 708 X 150	1
72	PLATE 25 THK X 520 X 350	1
73	PLATE 16 THK X 145 X 50	1
74	PLATE 16 THK X 300 X 300	1
75	PLATE 25 THK X 1982 X 200	1
76	PLATE 25 THK X 1982 X 200	1
77	PLATE 12 THK X 1800 X 800	1
78	PLATE 12 THK X 1800 X 800	1
79	PLATE 12 THK X 1500 X 800	1
80	PLATE 12 THK X 1200 X 900	1
81	PLATE 12 THK X 1100 X 215000	1
82	PLATE 12 THK X 200 X 10500	1
83	PLATE 12 THK X 100 X 1660	1
84	CHECKERED PLATE	1
85	CHEQUERED PLATE	1
86	CHEQUERED PLATE	1
87	CHEQUERED PLATE	1
88	CHEQUERED PLATE	1
89	CHEQUERED PLATE	1
90	CHEQUERED PLATE	1
91	CHEQUERED PLATE	1
92	CHEQUERED PLATE	1
93	CHEQUERED PLATE	1
94	CHEQUERED PLATE	1
95	CHEQUERED PLATE	1
96	CHEQUERED PLATE	1
97	CHEQUERED PLATE	1
98	CHEQUERED PLATE	1
99	CHEQUERED PLATE	1
100	CHEQUERED PLATE	1

FOR NO. ISSUE ONLY

ISSUE NO.	ISSUE DATE	ISSUE DESCRIPTION

REVISIONS

NO.	DATE	DESCRIPTION

DO NOT SCALE

TATA CONSULTING ENGINEERS LIMITED

INDIAN SPACE RESEARCH ORGANISATION

SATISH DHAWAN SPACE CENTRE, SHAR

MUMBAI

AUGMENTATION OF SECOND LAUNCH PAD (ASLP)

MODULE LAUNCH PAD (MLP) OF MODULE 2A AND 2D OF MLP

SCALE: 1:25

DWG NO: TCE-113684-ME-07-00-0013H1(07-1)

ISSUE NO: 01

ISSUE DATE: 09-03-2020