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JUN 10 1966

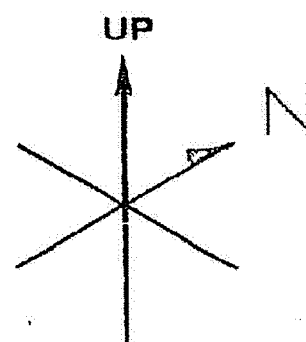
CONSTRUCTION AND
POWER

NAVCO	MS-
MK #	MS-
M.A.W.P.-PSI	2600
MAX TEMP.-°F	1005
SERIAL #	2496
19 74	

FIELD NOTE!
INSTALL TEMPORARY RESTRAINT
AT & WYE IN N-S DIRECTION
WHEN MAKING INTERMEDIATE
CLOSURE COLD PULL.

INTERMEDIATE CLOSURE
CUT SHORT

FINAL CLOSURE CUT SHORT



LEGEND

- SHOPWELD
- FIELDWELD
- PIECE MARK NUMBER
- HANGER MARK NUMBER
- HANGER LOCATION
- GAMMA-RAY HOLE & PLUG
- WELD IDENTIFICATION (SHOP)
- WELD IDENTIFICATION (FIELD)
- CUT SHORT

SPECIFICATIONS

DESIGN SPEC. 70225-021
DESIGN PRESS. 2600 PSI (SEE NOTE)
DESIGN TEMP. 1005°F
BACK RINGS NONE (SHOP)
N ONE (FIELD)
PREHEAT 400°F (MIN)
STRESS REL 1300°F

GENERAL NOTES

ORD NO. NAVCO 5463 - CUST.
SYSTEM CODE
FC. MKS. (MS) THRU (MS)
FAB. SHITS F-1 THRU
LOOSE MATL. SHITS LM 1 THRU
HGR. MKS. THRU
HGR. SHITS H

REFER DWGS 70225-0491C,
70225-0491H & 70225-0491J
REMARKS PIPE: SA 335 P22, 1/2" & 3/4" 22403
22403 3/4" 22403 22403 22403 22403 22403
BOLE TO BE USED 10000-2538 MW
WELDING: TIG EXCEPT AS NOTED

011316
NATIONAL VALVE AND
MANUFACTURING CO.
PITTSBURGH, PA.

DRAWN BY SK DATE 1/1/66
CHECKED BY JR NO. A 1114

NOTE: DESIGN PRESSURE
AT TURBINE IS 2500 PSI

FIELD NOTE:
1. ALL ELEVATIONS & DIMS
FROM COLUMN ROWS ARE
DESIGN DIMS UNLESS NOTED
2. WELDS @ TURB CONNECTIONS
MUST BE BUILT UP TO MAINTAIN
t_m OF 2.271
3. ELECTION ELEV. & DIMS ARE
PRIDE TO COLD PULL

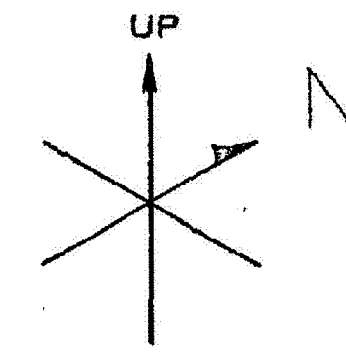
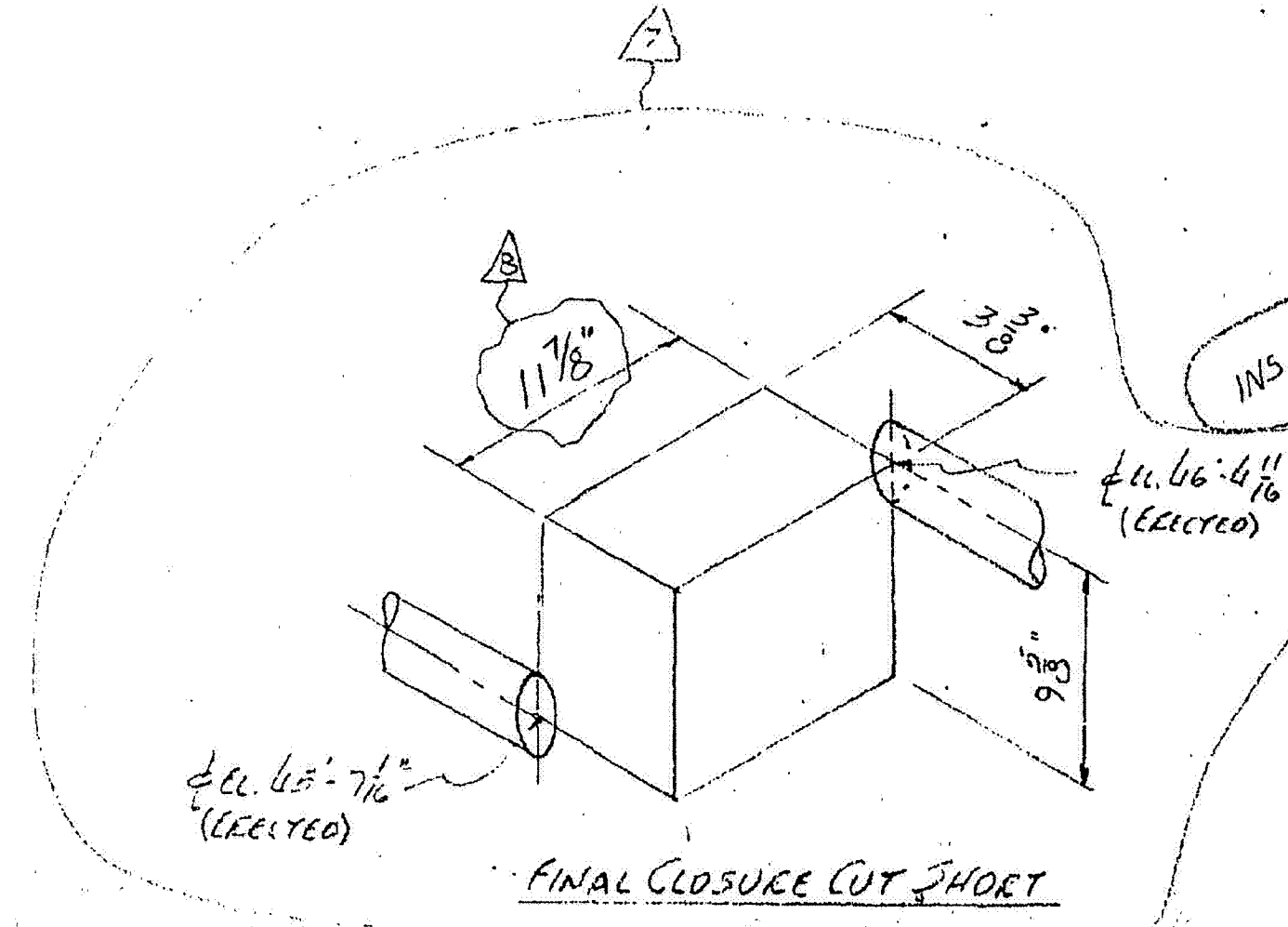
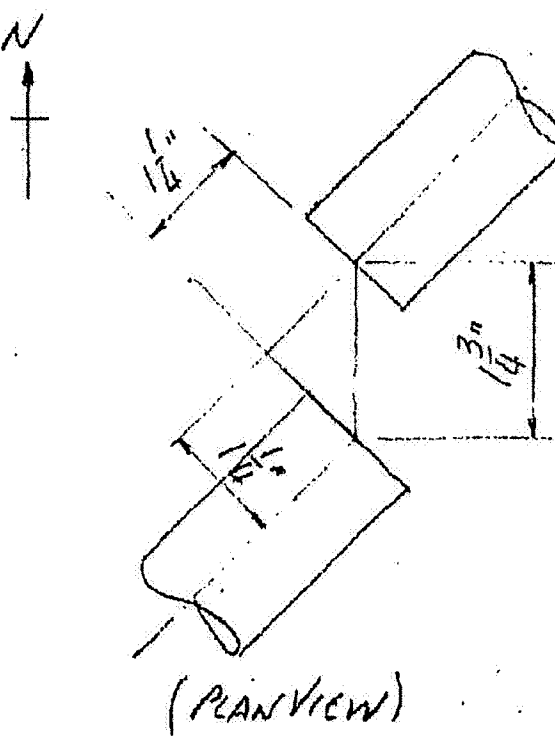
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6	6-12-75	Rev. I. 1.0	Rev. K. 1.0	Rev. L. 1.0
5	2-4-75	Rev. M. 1.0	Rev. N. 1.0	Rev. O. 1.0
4	1-15-75	Rev. P. 1.0	Rev. Q. 1.0	Rev. R. 1.0
3	12-4-74	Rev. S. 1.0	Rev. T. 1.0	Rev. U. 1.0
2	6-18-74	Rev. V. 1.0	Rev. W. 1.0	Rev. X. 1.0
1	5-6-74	Rev. Y. 1.0	Rev. Z. 1.0	Rev. AA. 1.0

FIELD NOTE!
ELECT NORTH TURB. LEAD FROM
& WYE TO TURB. INLET PRIOR
TO INTERMEDIATE CLOSURE
COLD PULL.

RECEIVED
JUN 30 1976

CONSTRUCTION MGR.
POWER

FIELD NOTE!
INSTALL TEMPORARY RESTRAINT
AT 4 WYE IN N-S DIRECTION
WHEN MAKING INTERMEDIATE
CLOSURE COLO PULL.



LEGEND	
	SHOPWELD
	FIELDWELD
	PIECE MARK NUMBER
	HANGER MARK NUMBER
	HANGER LOCATION
	GAMMA-RAY HOLE & PLUG
	WELD IDENTIFICATION (SHOP)
	WELD IDENTIFICATION (FIELD)
	CUT SHORT

SPECIFICATIONS	
DESIGN SPEC.	70225-025
DESIGN PRESS.	AS NOTED
DESIGN TEMP.	AS NOTED
BACK RINGS	NONE (SHOP)
PREHEAT	400° (MIN.)
STRESS REL.	1300-23

GENERAL NOTES	
ORD. NO. NAVCO	5463 CUST.
SYSTEM CODE	2
PC. MKS.	HR 1 THRU HR 8
FAB. SHTS F.	2-1 THRU F-2-8
LOOSE MATL. SHTS. LM.	2-1 THRU
HGR. MKS.	THRU
HGR. SHTS. H	
REFER DWGS.	70225-D441 70225-D442
REMARKS	NAVCO SHOP TO BUILD UP I.D. OF 24" O.D. PIPE TO ACHIEVE 2" DIM. OF 21.827

SPECIFICATIONS	
PIPE:	R-335 P22
30 O.D. x 1.242 MW x 1.150 MW	
ECC. BORE	
24 O.D. x .90 MW	
WELDING: TIG	
BEVEL: 5K. 22405 EXCEPT AS NOTED	

BIR TO WYE	DES. PRESS. 1005°	DES. TEMP. 1005°
WYE TO TURB.	DES. PRESS. 1000°	DES. TEMP. 1000°

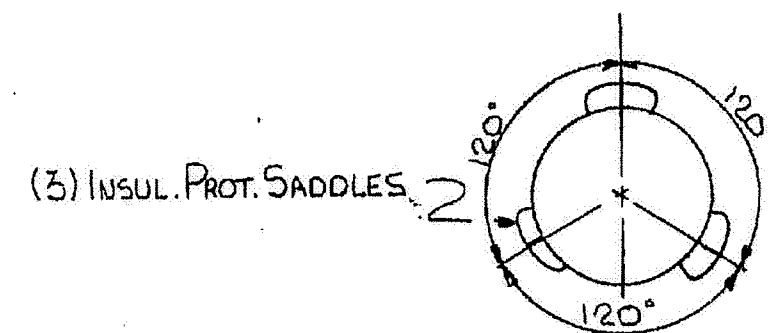
BATCH NO.	003
SCH. NO.	5315
REV. NO.	

FIELD NOTES:	
1	ALL ELEVATIONS & DIMS. FROM COLUMN ROWS ARE DESIGN DIMS. UNLESS NOTED OTHERWISE
2	ERECTION ELEV. & DIMS. ARE FIELD TO COLO PULL
3	ALL DIMS. TO BE REVERSED
4	REV. LOCATION OF LUGS ON HR-1
5	REV. DIM. OF WYE FITTING
6	PER CUST. REV.
7	PER CUST. REV.
8	PER CUST. REV.
9	PER CUST. REV.
10	PER CUST. REV.

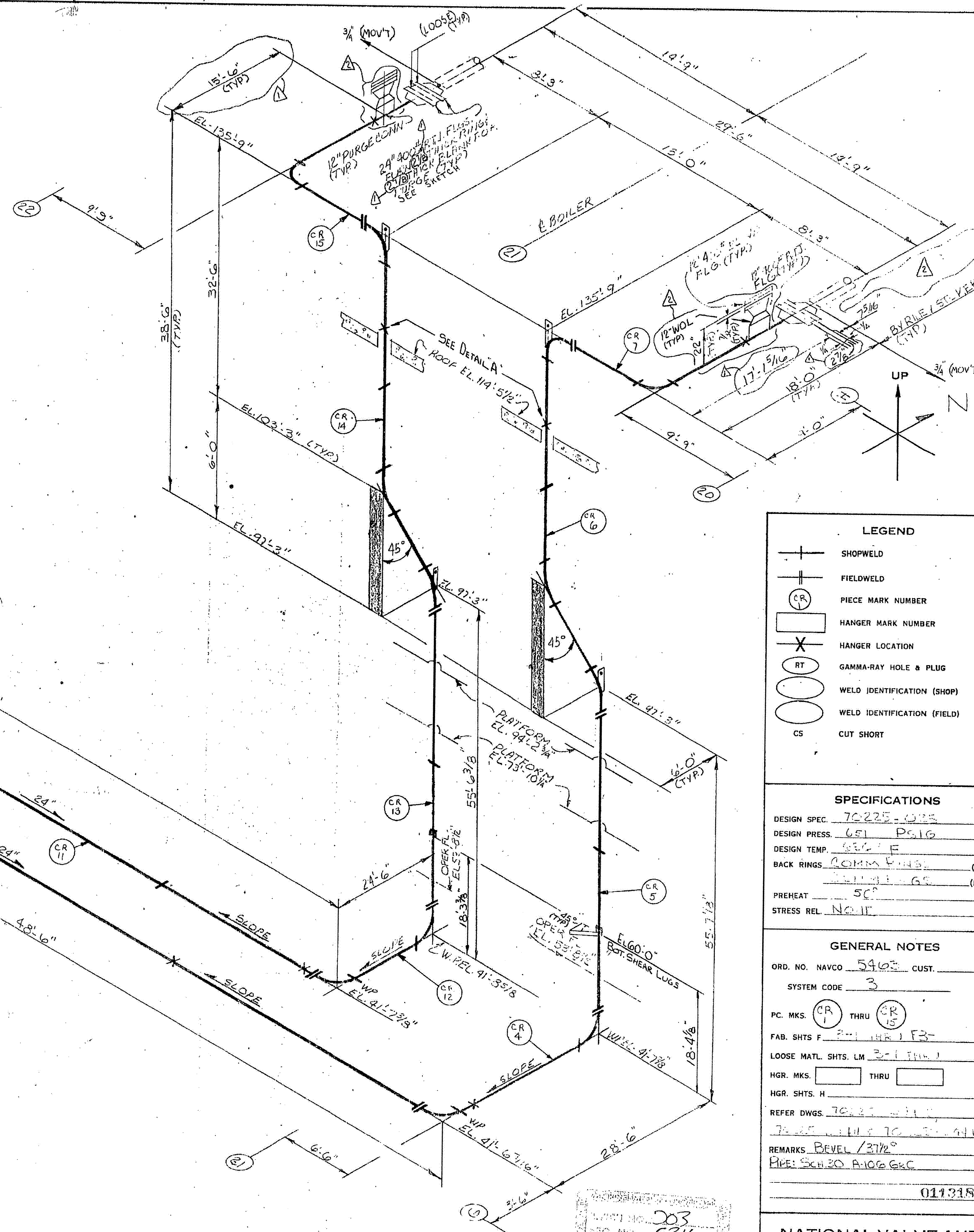
NATIONAL VALVE AND MANUFACTURING CO.	
PITTSBURGH, PA.	
JACKSONVILLE, FLORIDA	
NORTH SIDE GEN. STATION UNIT 3	
REYNOLDS, SMITH & HILL, INC.	
SYSTEM 3 HOT BURNER	
SCALE	1/4" = 1'-0"
DRAWN BY	Sh
CHECKED BY	JR
DATE	2-5-74
NO. A	7915

JUN 30 1976

CONSTRUCTION MGR.
POWER



DETAIL "A"



LEGEND

	SHOP WELD
	FIELD WELD
	PIECE MARK NUMBER
	HANGER MARK NUMBER
	HANGER LOCATION
	GAMMA-RAY HOLE & PLUG
	WELD IDENTIFICATION (SHOP)
	WELD IDENTIFICATION (FIELD)
	CUT SHORT
CS	

SPECIFICATIONS

DESIGN SPEC. 70225-025
DESIGN PRESS. 651 PSIG
DESIGN TEMP. 530 °F
BACK RINGS COMMON RINGS (SHOP)
 21111-65 (FIELD)
PREHEAT 500
STRESS REL. NOUR

GENERAL NOTES

ORD. NO. NAVCO 5403 CUST. _____

SYSTEM CODE 3

PC. MKS. CR THRU CR

FAB. SHTS F 2-1 THRU 13

LOOSE MATL. SHTS. LM 2-1 THRU

HGR. MKS. THRU

HGR. SHTS. H

REFER DWGS. 70-25-148-10-2-14

70-25-148-10-2-14

REMARKS BEVEL / 37 1/2

REF: SCH 30 A106 GR C

011318

NATIONAL VALVE AND
MANUFACTURING CO.
PITTSBURGH, PA.

JACOBSON, YIP, FLORENT
 JACOBSON, YIP, FLORENT
 NGUYEN, GUY, FLORENT
 NGUYEN, GUY, FLORENT
 NGUYEN, GUY, FLORENT

SCALE NONE

DRAWN BY OK DATE 2/1/77
CHECKED BY JR NO. A 7916

QCS-ELLIOTT, INC., PHIL. PA., REORDER 1011

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ATTACHMENT 1

Piping Material Stress Analysis Inputs

Pipe material, size and thickness are modeled as listed below.

Main Steam Model

- Material
 - Header Piping: P22 (Ref.4)
 - SRV Valves: P11 (Ref.10)
 - SRV Discharge: A106 Gr.B (Assumed)
- BOP Header Piping
 - OD: 22" (Ref.4)
 - Thickness: 3.35" (Ref. 3)
 - Design thickness 3.125" MW (Ref.4)
 - Code allowable variation: +16% by mass, +15/-12.5% Thickness (for nominal), +/-1% OD
 - UT reading in SWEC report (Ref.3) is 3.35" at bottom of riser bend.
 - Average UT reading in Teledyne report (Ref.12) is 3.39" (Ref.12 provided for Revision 0, confirms thickness used is accurate)
- BOP Branch Piping
 - OD: 16.5" (Ref.4)
 - Thickness: 2.58"
 - Design thickness 2.35" MW (Ref.4)
 - Average UT reading in Teledyne report (Ref.12) is 2.64" (Ref.12 provided for Revision 0, confirms thickness used is accurate)
 - Used thickness corresponding to 8% increase in mass above minimum wall (half of 16% allowed per code A999).
- Superheater Header
 - OD: 23.25" (Ref.1)
 - Thickness: 5.5" (Ref.2)
 - Design thickness: 4.375" min wall (Ref.1)
 - The average thickness reading from APTECH's 1993 UT results were modeled in lieu of the design minimum wall thickness due to the large discrepancy.
- Riley External Piping
 - OD: 22.75" (Ref. 5)
 - Thickness: 3.75" (Ref.3)
 - Design thickness is 3.815" per Teledyne report (Ref.12)
 - UT reading in SWEC report (Ref.3) is 3.75".
 - Average UT readings in Teledyne report (Ref.12) is 3.78" (Ref.12 provided for Revision 0, confirms thickness used is accurate)
- Turbine Lead Piping
 - OD: 7.625" (Ref.7)

- Thickness: 1.125" MW (Ref.7)
- Steam Chest
 - OD: 24"
 - Thickness: 4.0"
 - No legible information for the steam chest was provided. The OD was estimated by scaling of Westinghouse drawings (Ref.7). 4" thick P22 pipe was assumed based on minimum wall thickness code calculation, however this is not confirmed and stress analysis results on the steam chest may not be meaningful.

Hot Reheat Model

- Material
 - Header Piping: P22 (Ref. 4)
 - SRV Discharge: A106 Gr.B (Assumed)
- BOP Header Piping
 - OD: 30.0" (Ref.4)
 - Thickness: 1.25"
 - Design thickness=1.150" MW (Ref.4)
 - Used thickness corresponding to 8% increase in mass above minimum wall (half of 16% allowed per code A999).
 - Average UT readings in Teledyne report (Ref.12) is 1.3" (Ref.12 provided for Revision 0, confirms thickness used is accurate)
- BOP Branch Piping
 - OD: 24.0" (Ref.4)
 - Thickness: 0.98"
 - Design thickness = 0.90" MW (Ref.4)
 - Used thickness corresponding to 8% increase in mass above minimum wall (half of 16% allowed per code A999).
 - Average UT readings in Teledyne report (Ref.12) is 0.98" (Ref.12 provided for Revision 0, confirms thickness used is accurate)
- Boiler Reheat Outlet Header A
 - OD: 30.0" (Ref.1)
 - Thickness: 3.3" (Ref.2)
 - Design thickness: 2.125" min wall (Ref.1)
 - The average thickness reading from APTECH's 1993 UT results were modeled in lieu of the design minimum wall thickness due to the large discrepancy.
- Boiler Reheat Outlet Header B
 - OD: 31.75" (Ref.1)
 - Thickness: 4.0" (Ref.2)
 - Design thickness: 3.50" min wall (Ref.1)

- The average thickness reading from APTECH's 1993 UT results were modeled in lieu of the design minimum wall thickness due to the large discrepancy.
- Riley External Piping
 - OD: 29.25" (Ref.5)
 - Thickness: 2.0"
 - S&W NDE report (Ref.3) references a design thickness of 1.94".
 - Average UT readings in Teledyne report (Ref.12) is 2.03" (Ref.12 provided for Revision 0, confirms thickness used is accurate)
- Turbine Lead Piping
 - OD: 16"
 - Thickness: 1.0" (Ref.9)
 - The pipe OD and thicknesses were not provided and area assumed based on previous stress analyses by S&W.

Cold Reheat Model

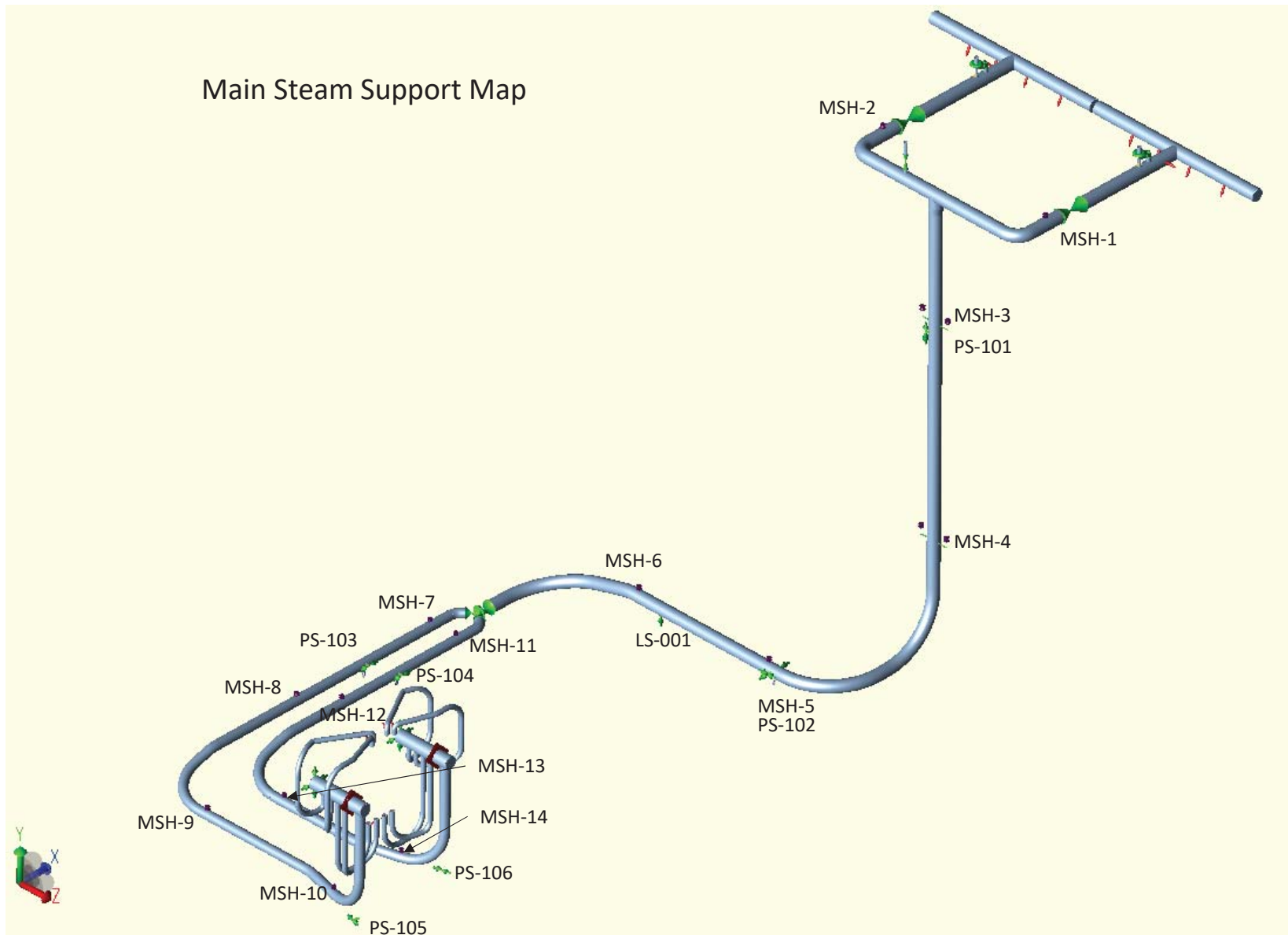
- Material
 - Header Piping: A106 Gr.C (Ref.4)
 - SRV Discharge: A106 Gr.B (Assumed)
- BOP Header Piping
 - OD: 24.0" (Ref.4)
 - Thickness: Schedule 30 (0.562" Nominal) (Ref.4)
 - Actual thickness readings match design (Ref.8)
 - Note the wall thickness is very near the minimum allowed per ASME B31.1, and doesn't appear to consider corrosion.
- BOP Header Elbows
 - OD: 24.0" (Ref.4)
 - Thickness: 0.812 (Ref.8)
 - Design thickness provided in Reference 8. Actual thickness readings match design.
- Boiler Reheat Inlet Header
 - OD: 24.0" (Ref.1)
 - Thickness: 1.56" min wall (Ref.3)
 - Design thickness: 1.375" min wall (Ref.1) (Nominal thickness is approximately equal to thickness chosen)
 - SWEC UT reading at the eastern boiler header to branch outlet connection is 1.57" (Ref.3)
 - Assumed header is the same pipe thickness as Riley External Piping (see below)
- Riley External Piping
 - OD: 24.0" (Ref.5)
 - Thickness: 1.56" (Ref.12)

- Design thickness is 1.56" per hand written note on the piping arrangement drawings (Ref.13), provided for Rev.0.
- Average UT reading in Teledyne report (Ref.12) at one location is 1.806" (Insufficient data to assume piping is consistently thicker than design)

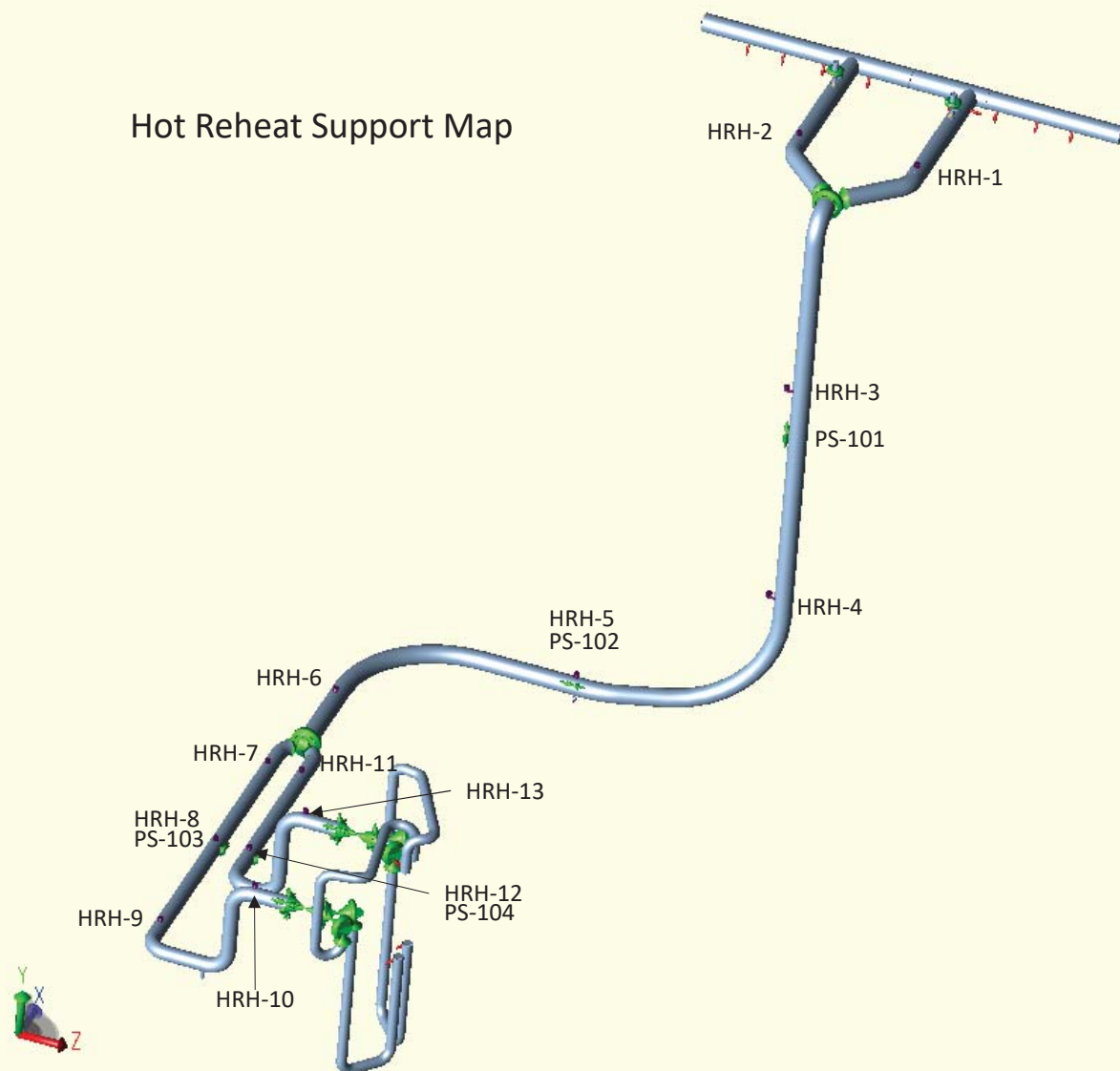
Extraction Steam Model

- Material
 - All: A106 Gr.A (Ref.9)
- OD and Thickness (Ref.9)
 - Turbine Outlet: 20" S-STD
 - Deaerator: 16" S-20
 - Deaerator Take-off: 6" S-STD
 - BFWP Header: 12" S-20
 - BFWP Branches: 10" S-20
 - BFWP Connections: 12" S-40

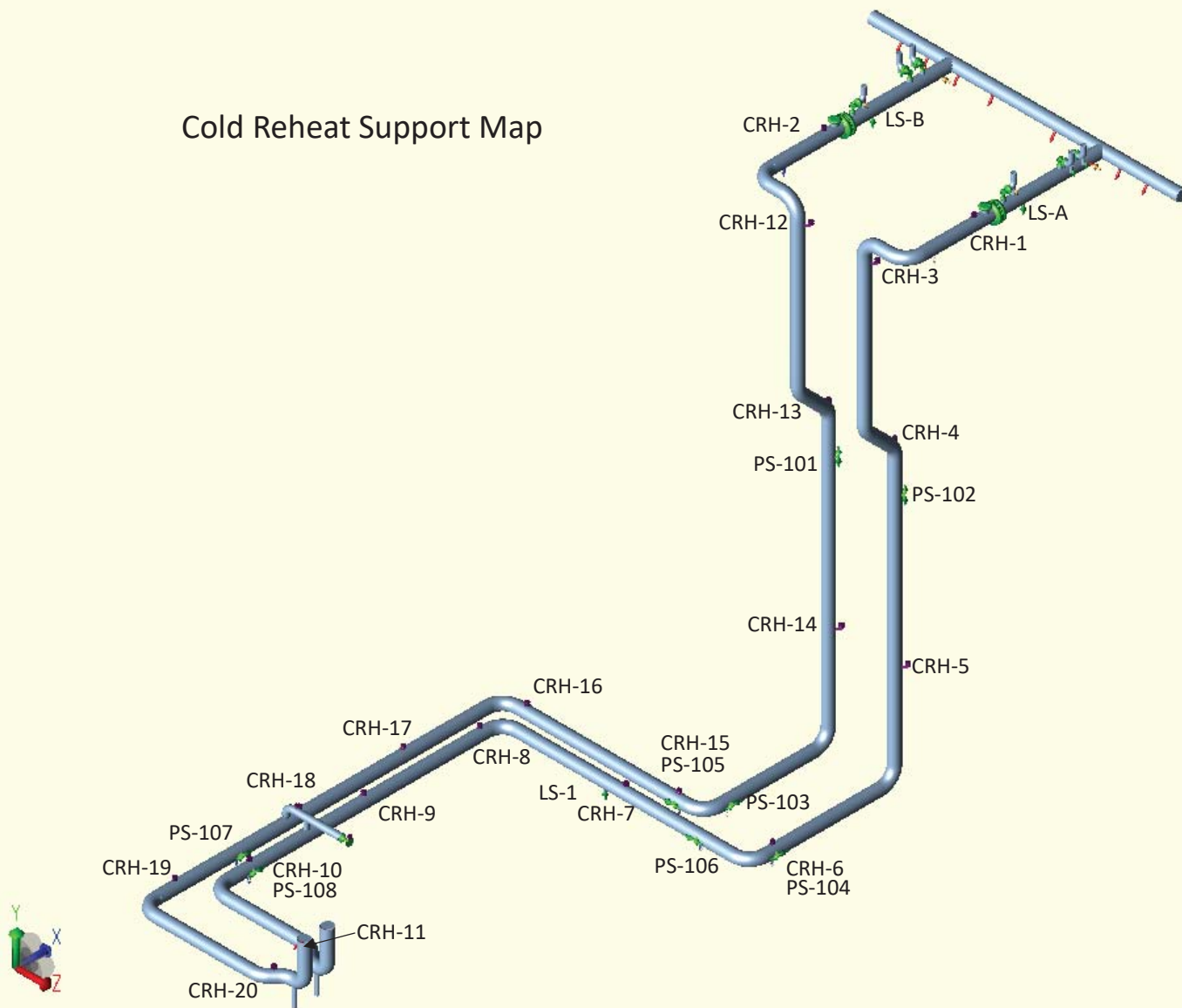
Main Steam Support Map



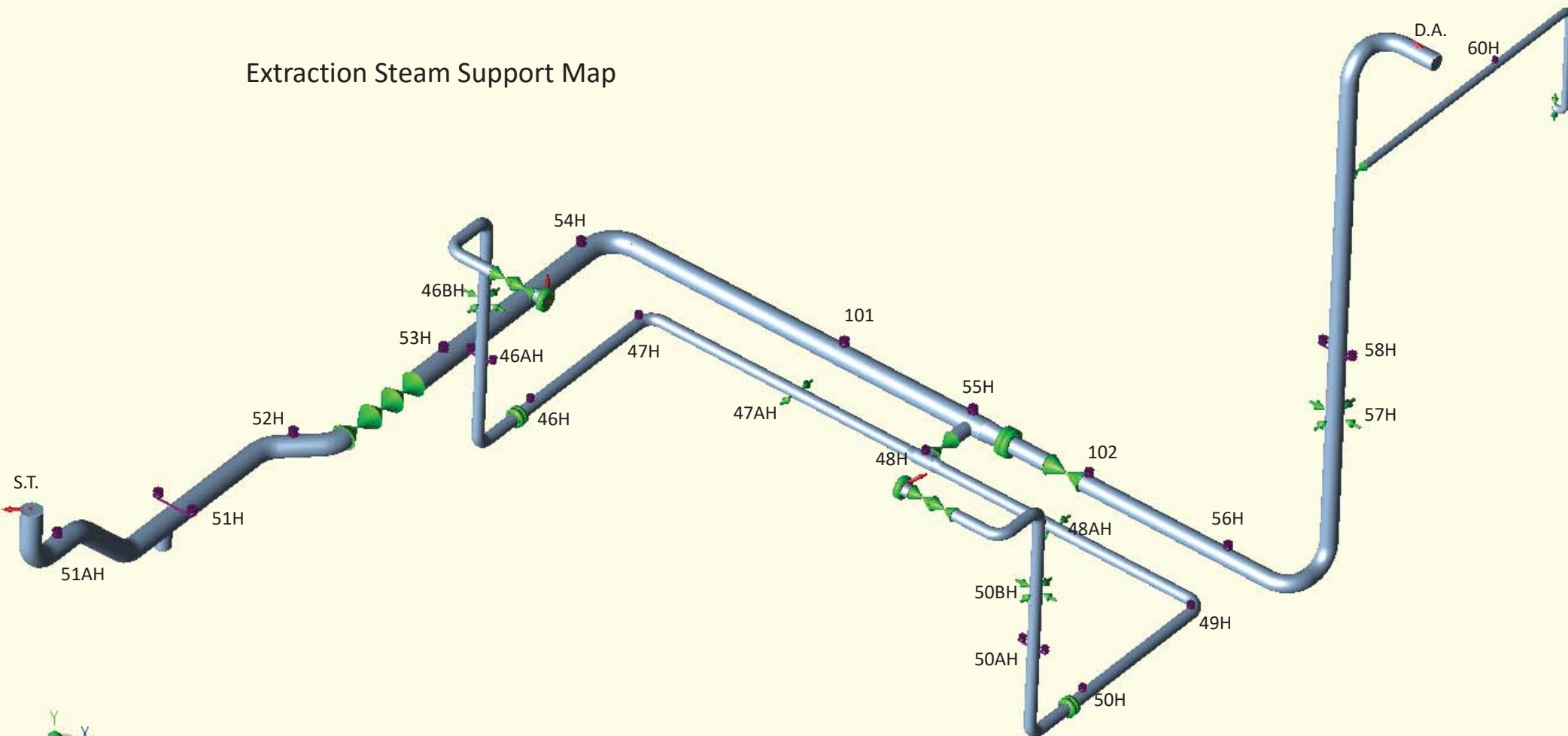
Hot Reheat Support Map

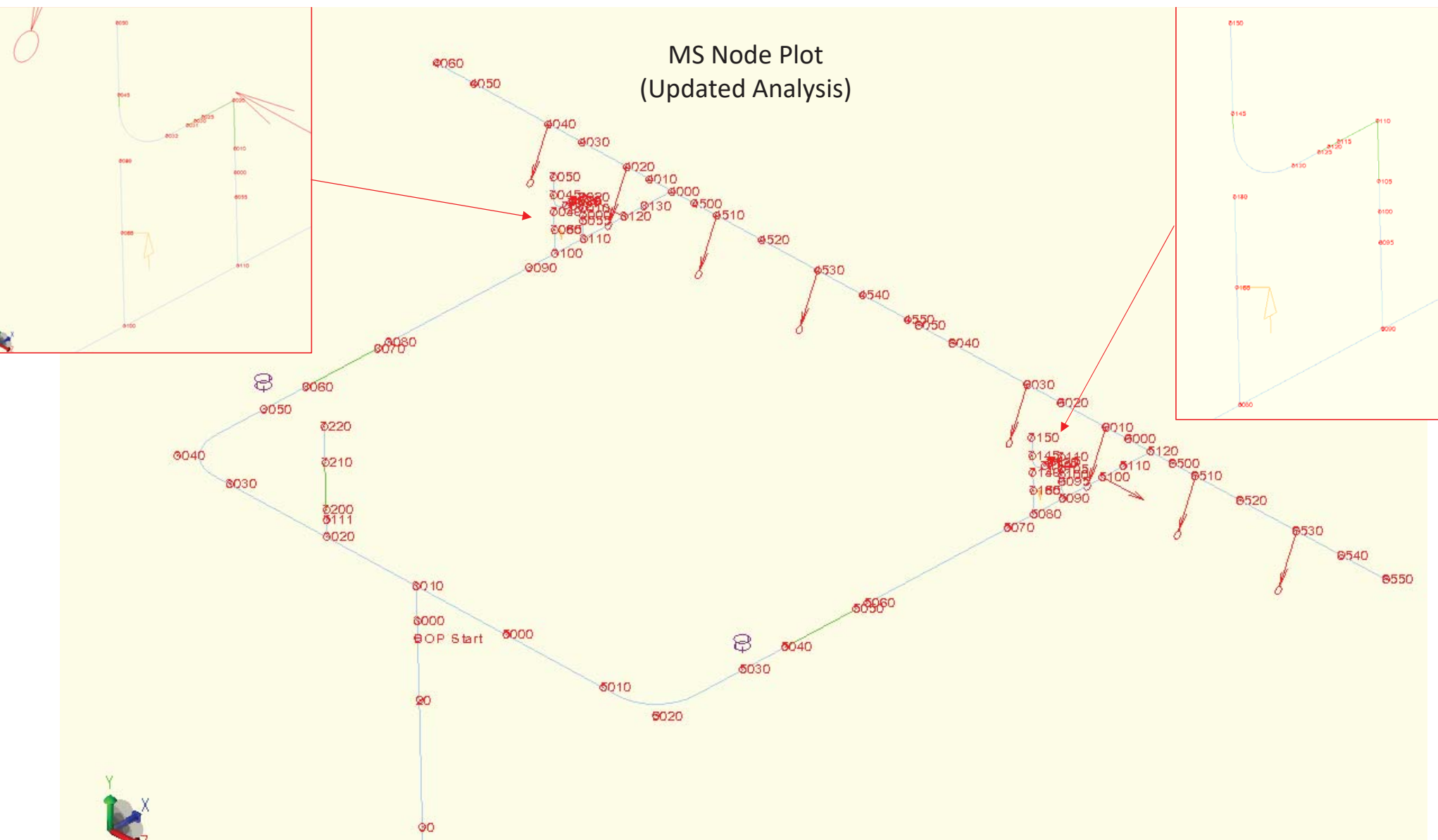


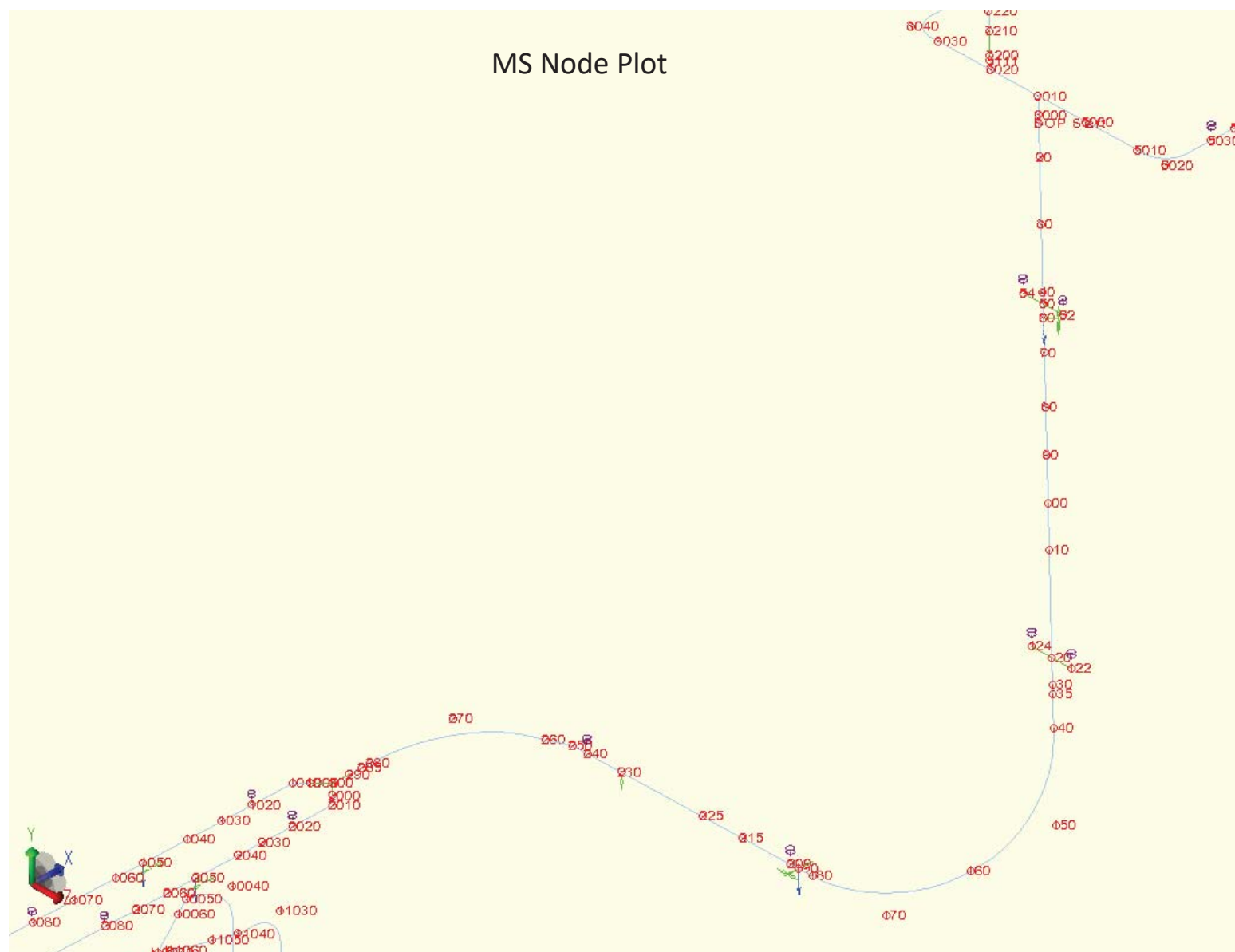
Cold Reheat Support Map



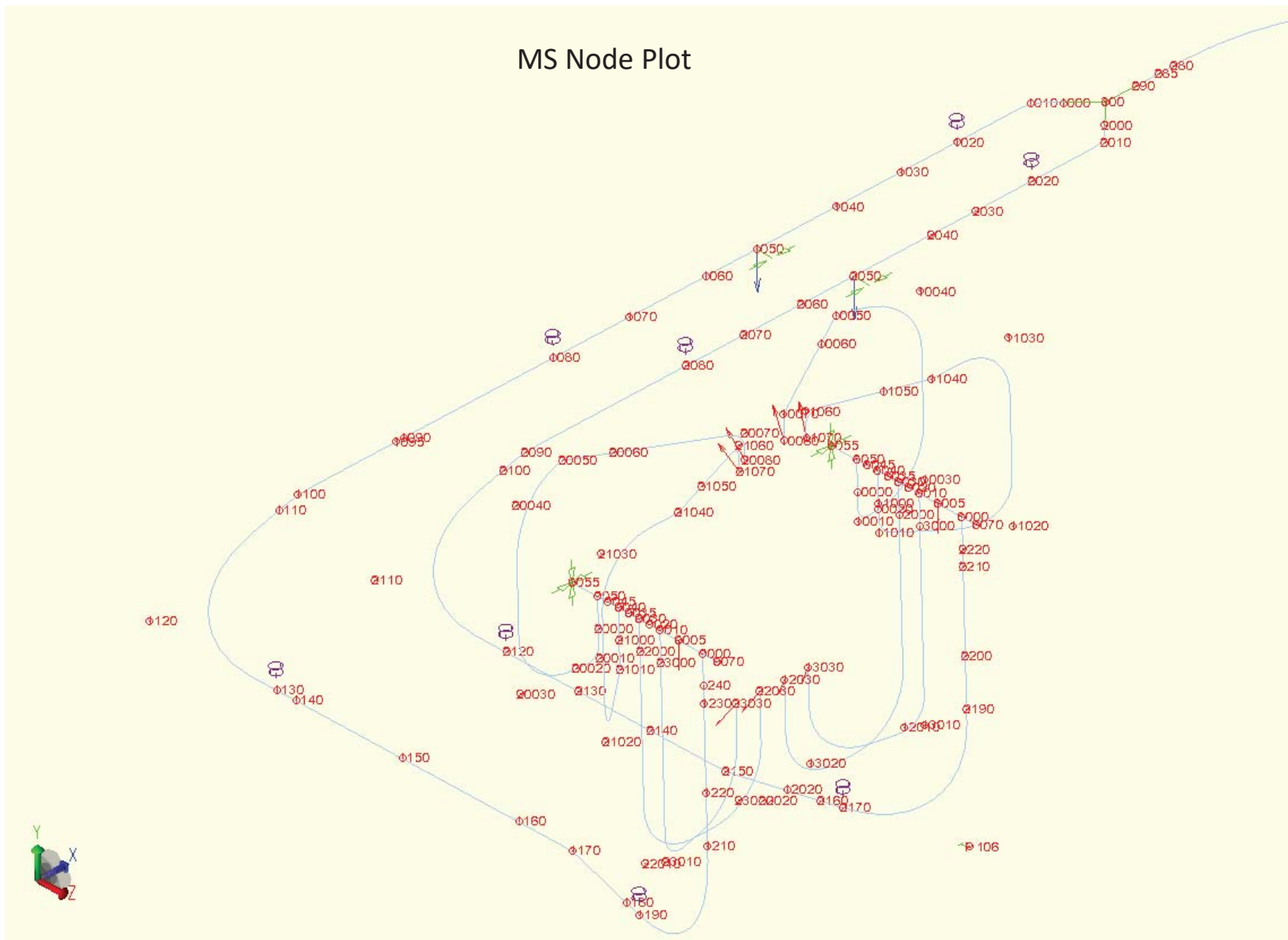
Extraction Steam Support Map

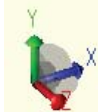




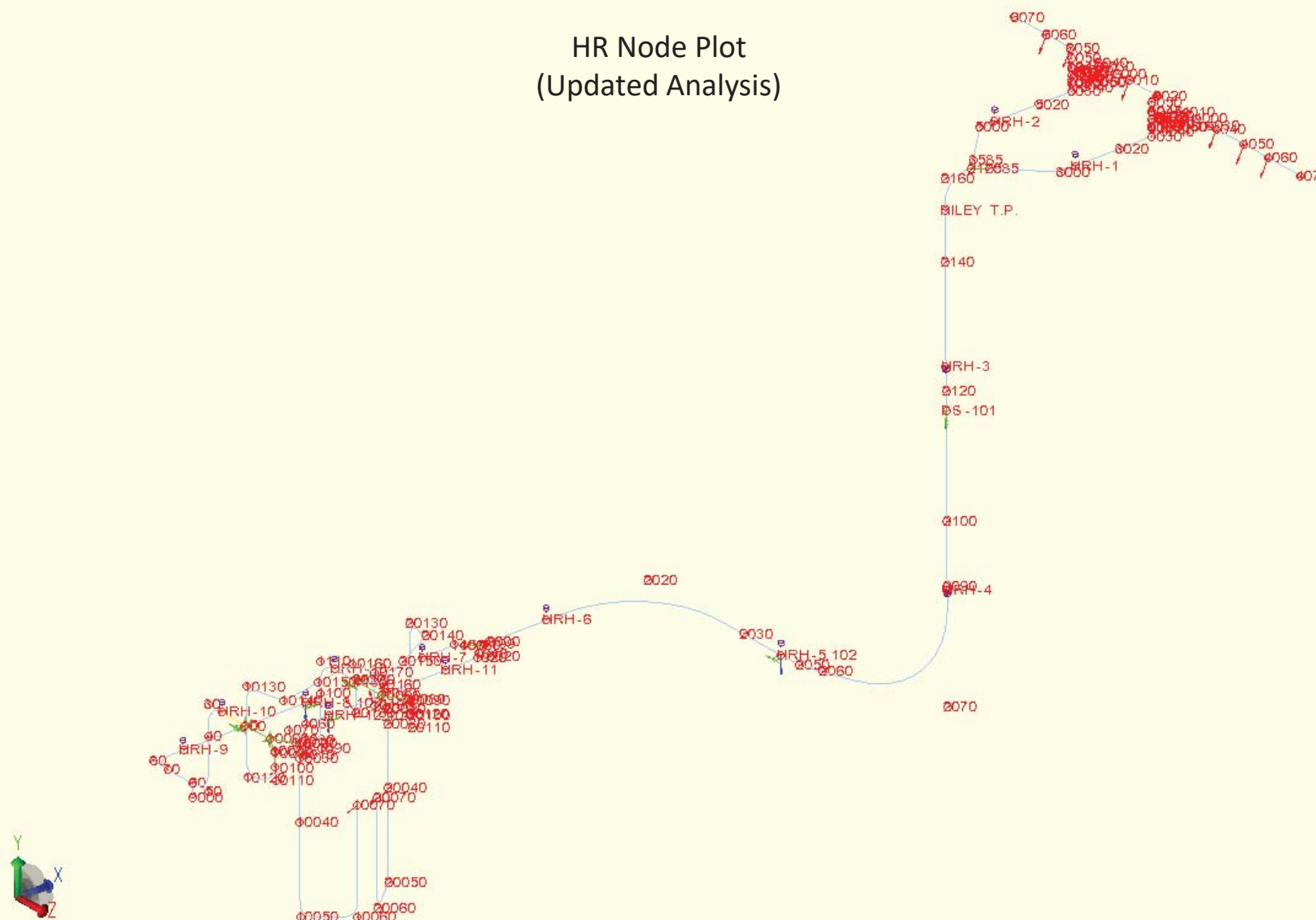


MS Node Plot

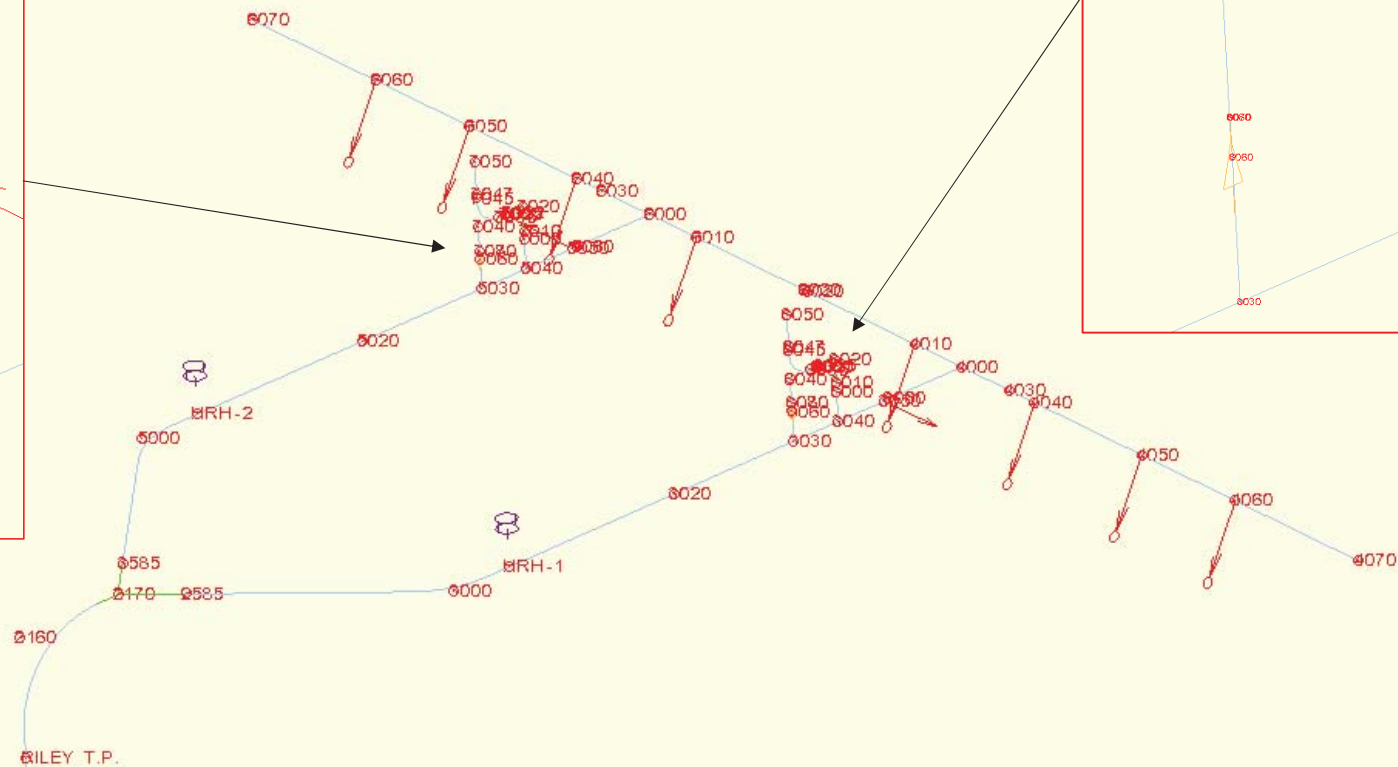
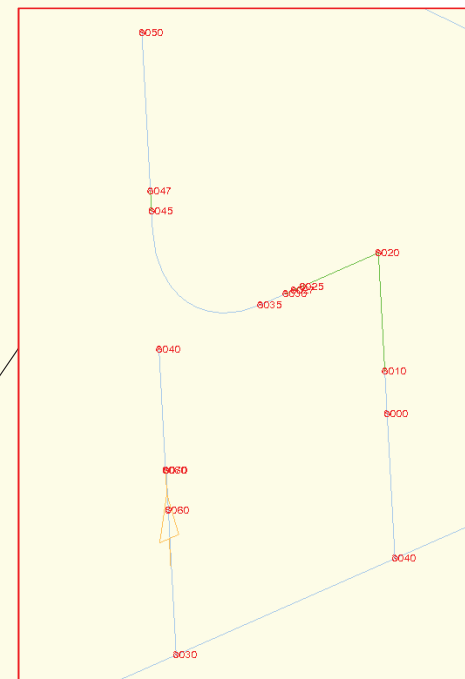
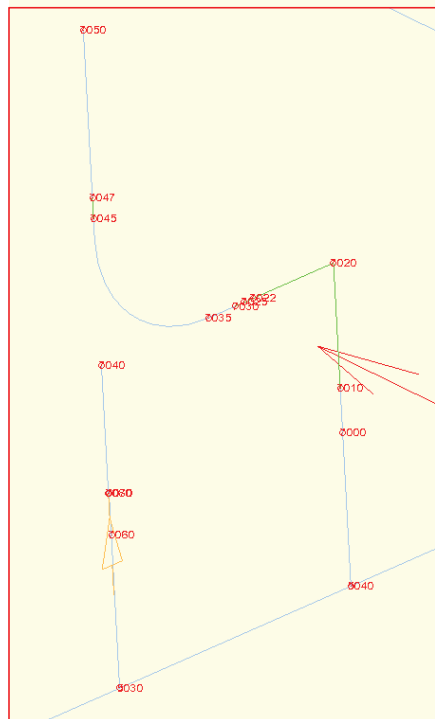


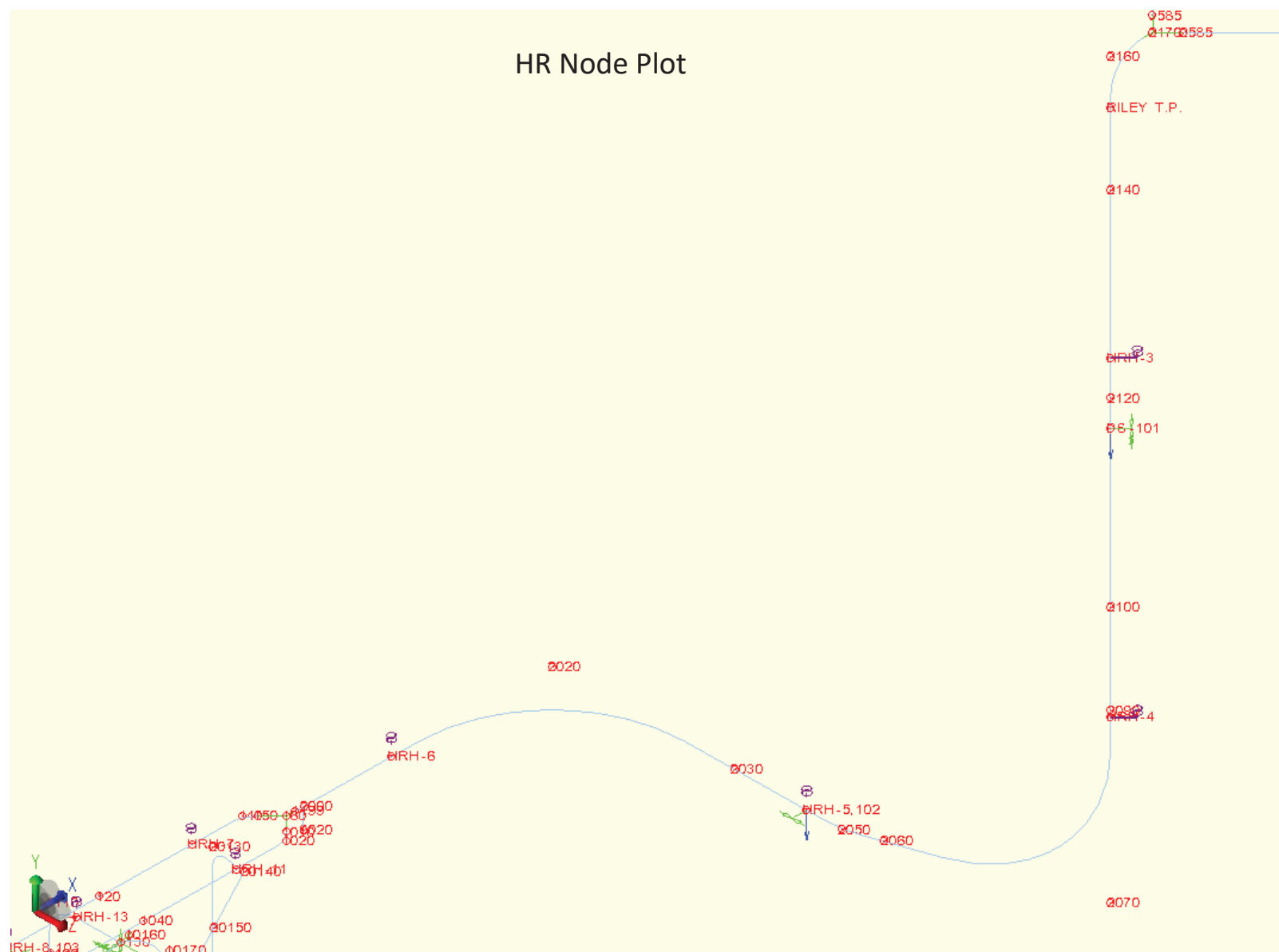


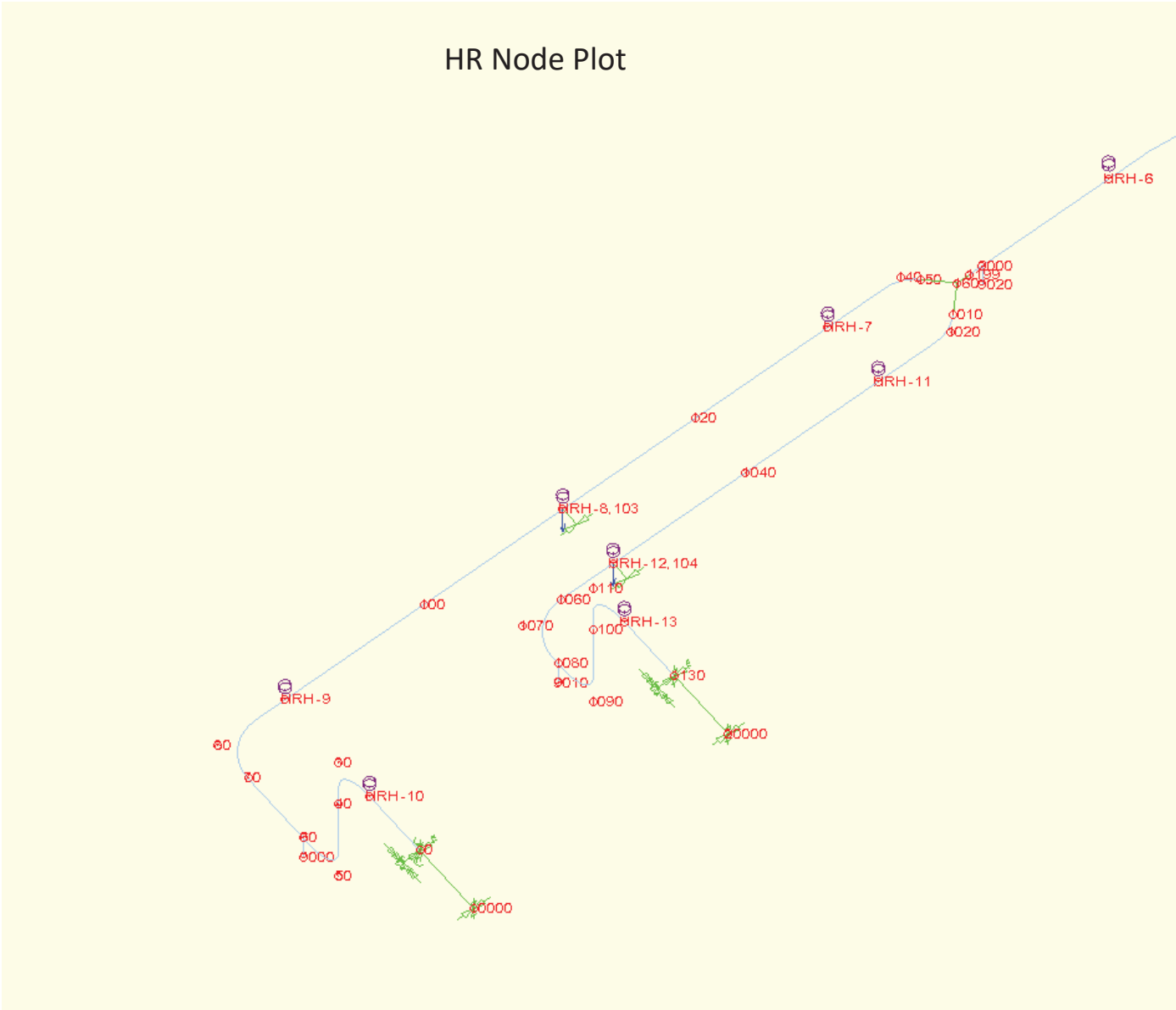
HR Node Plot (Updated Analysis)

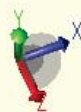


HR Node Plot

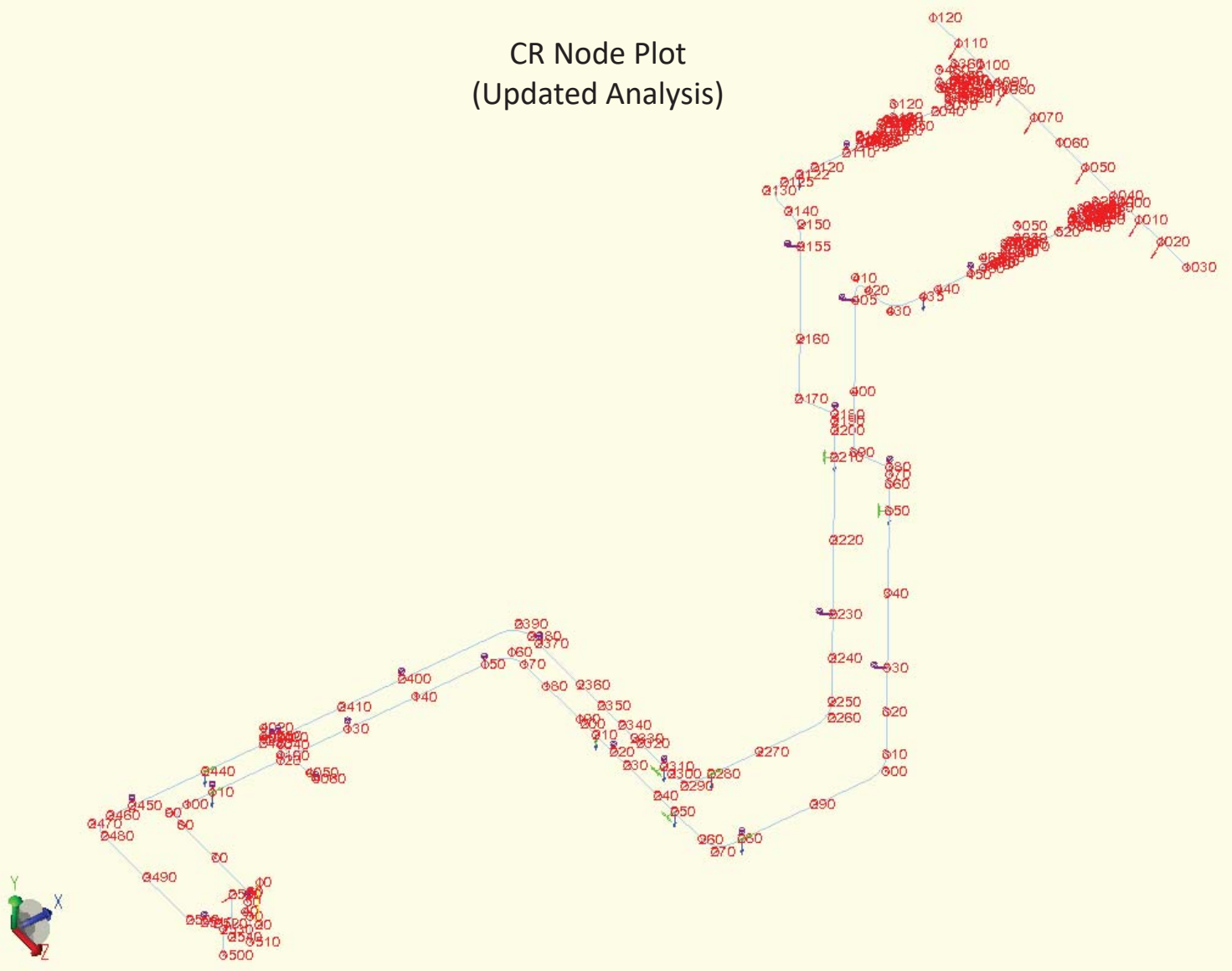


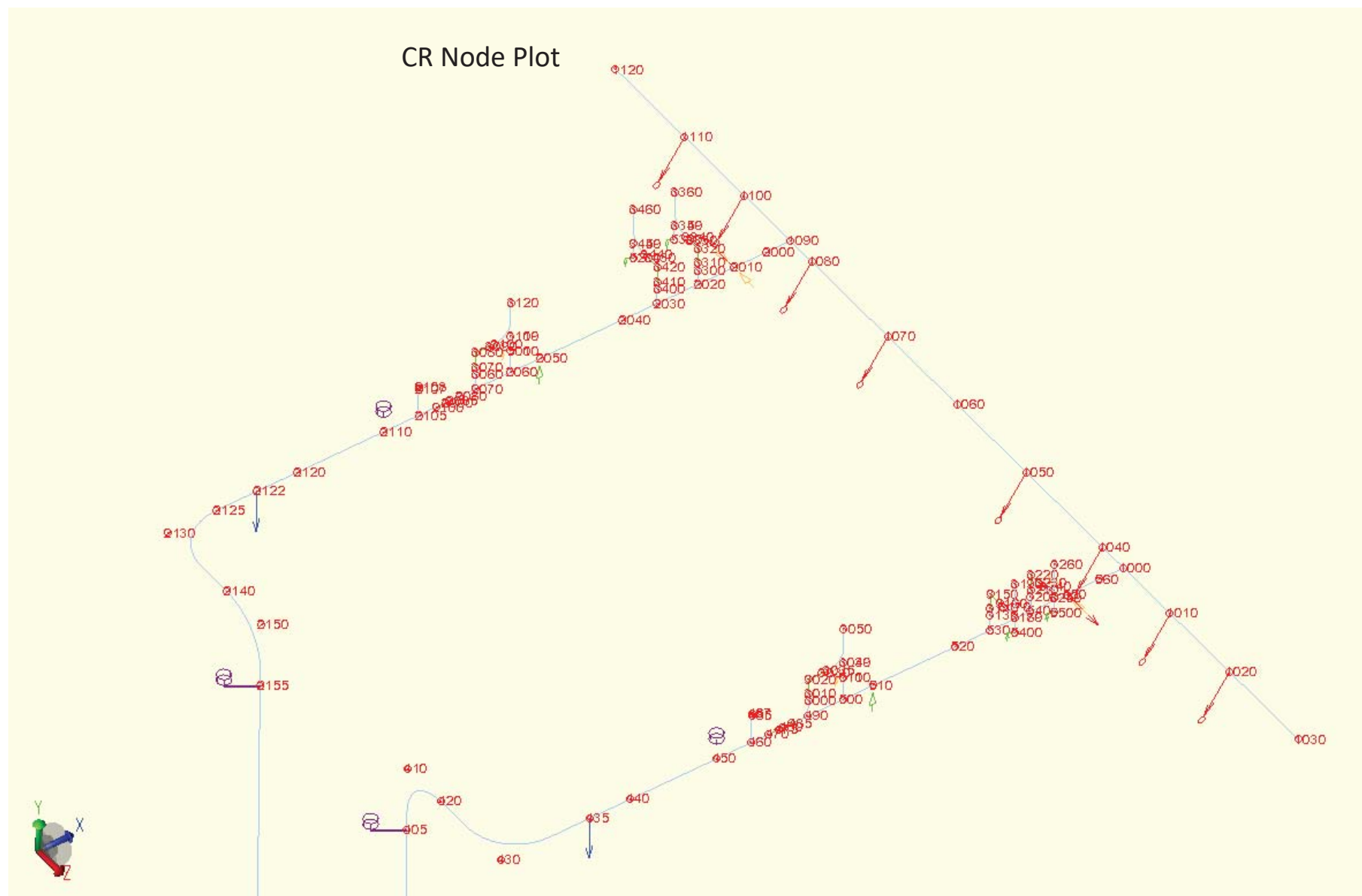


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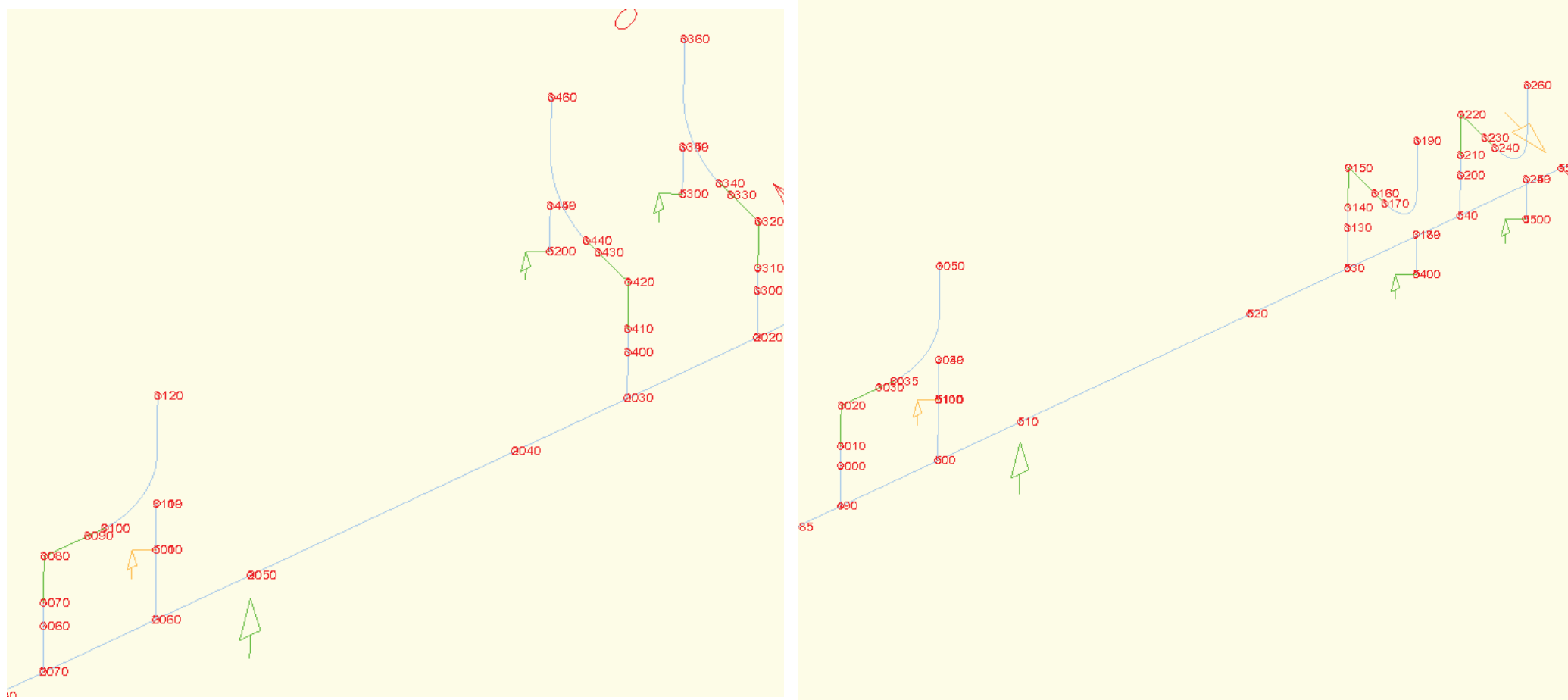


CR Node Plot (Updated Analysis)

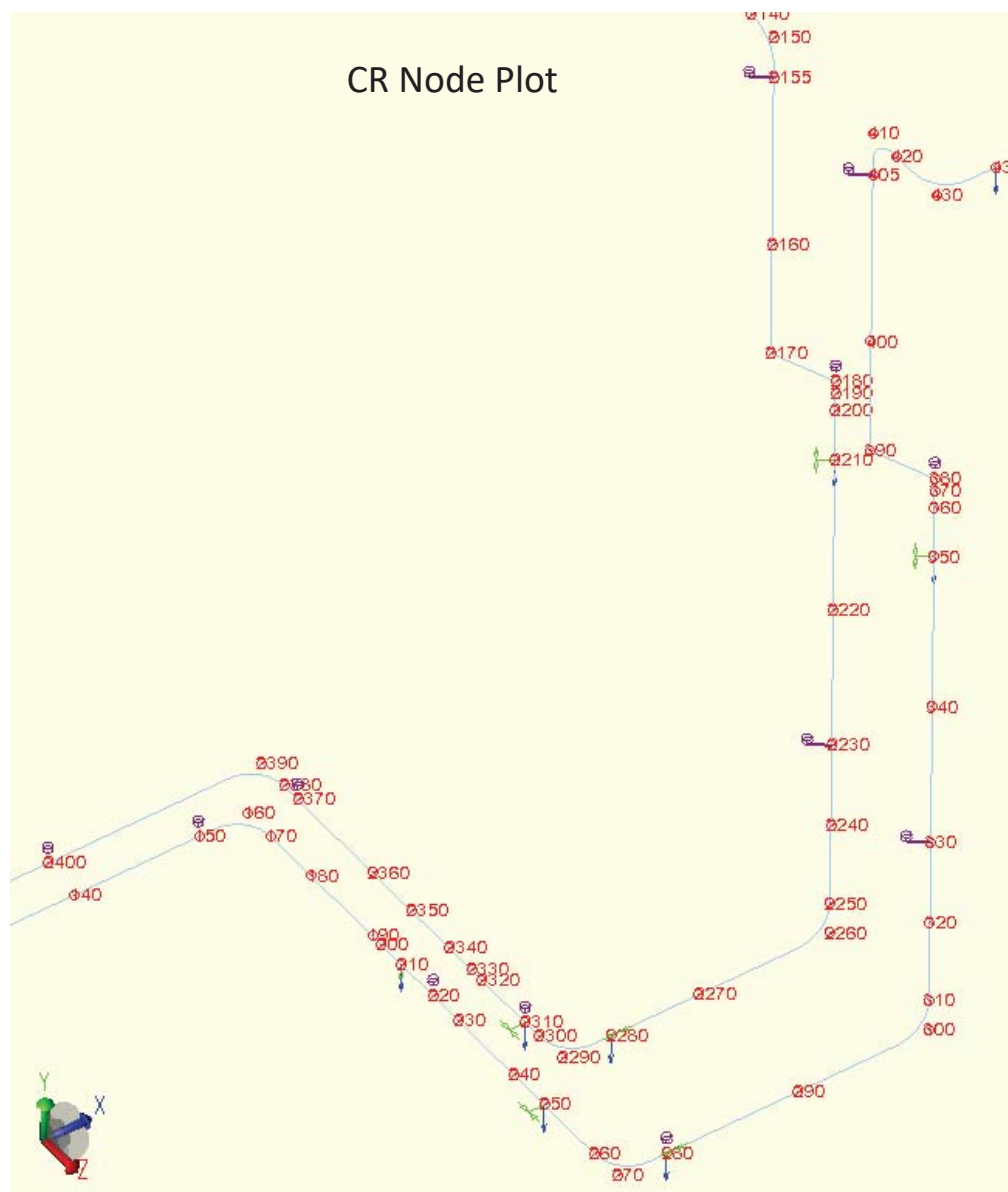




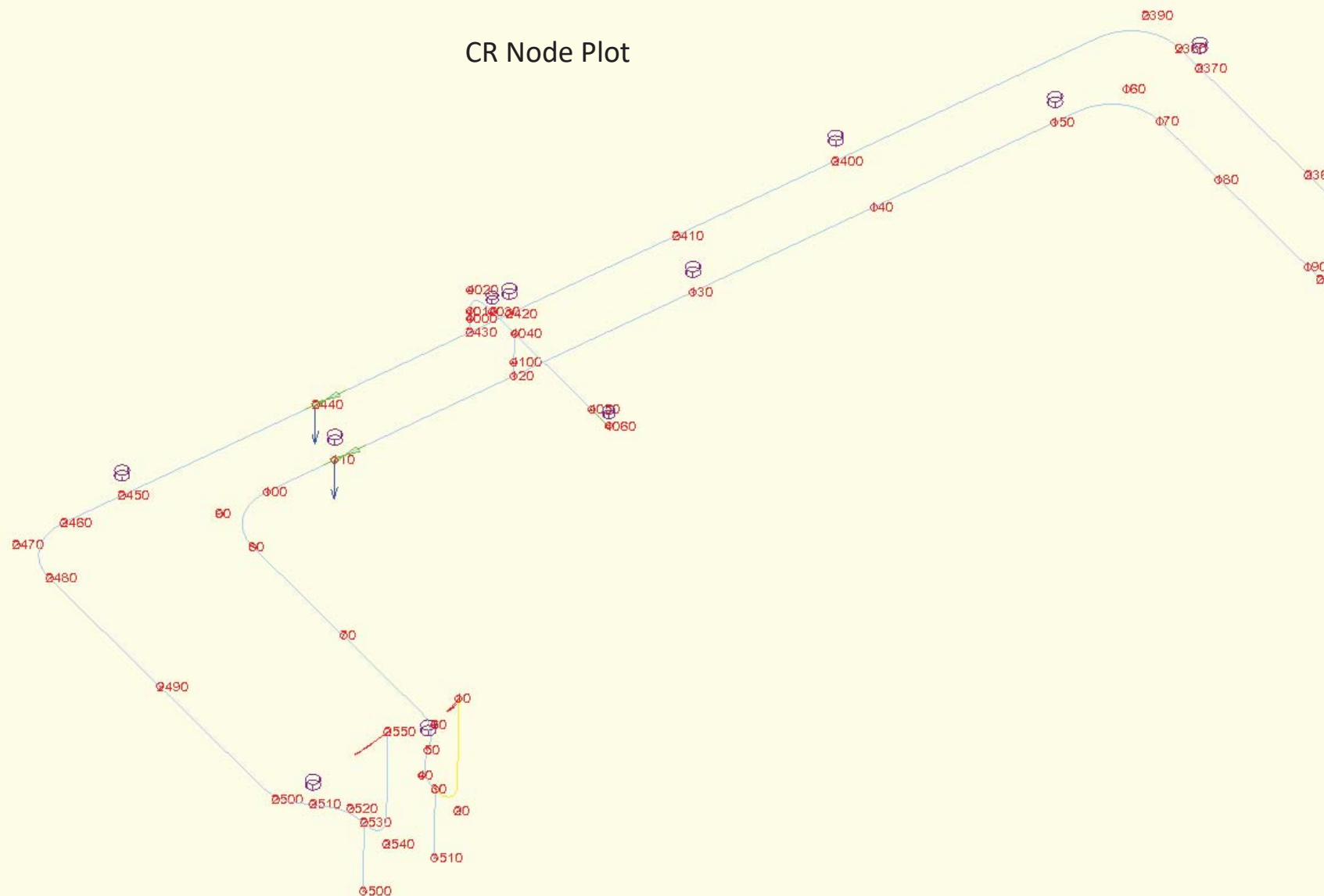
CR Node Plot



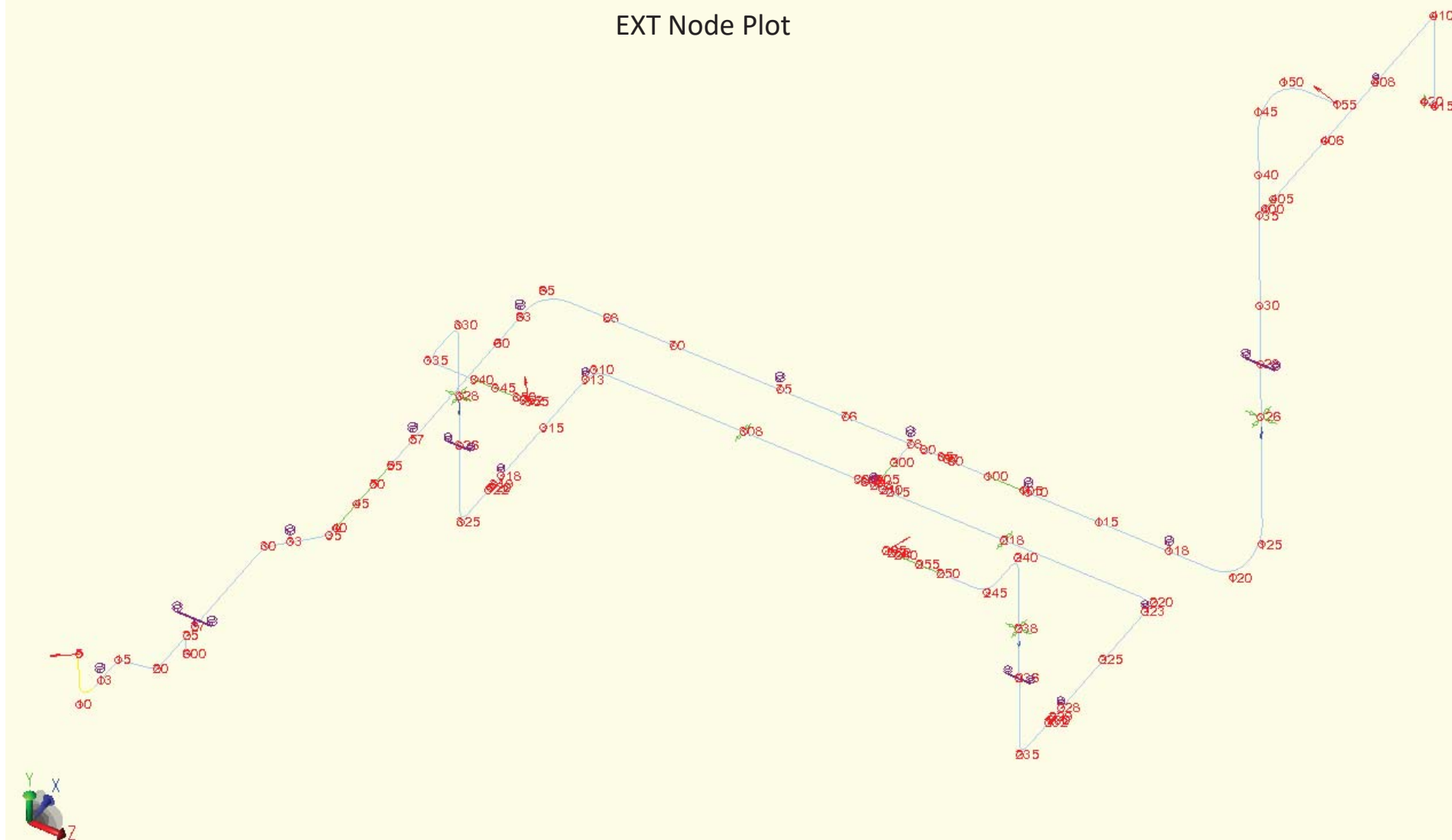
NOTE SRV DISCHARGE RESTRAINTS ARE ELIMINATED IN REV.0



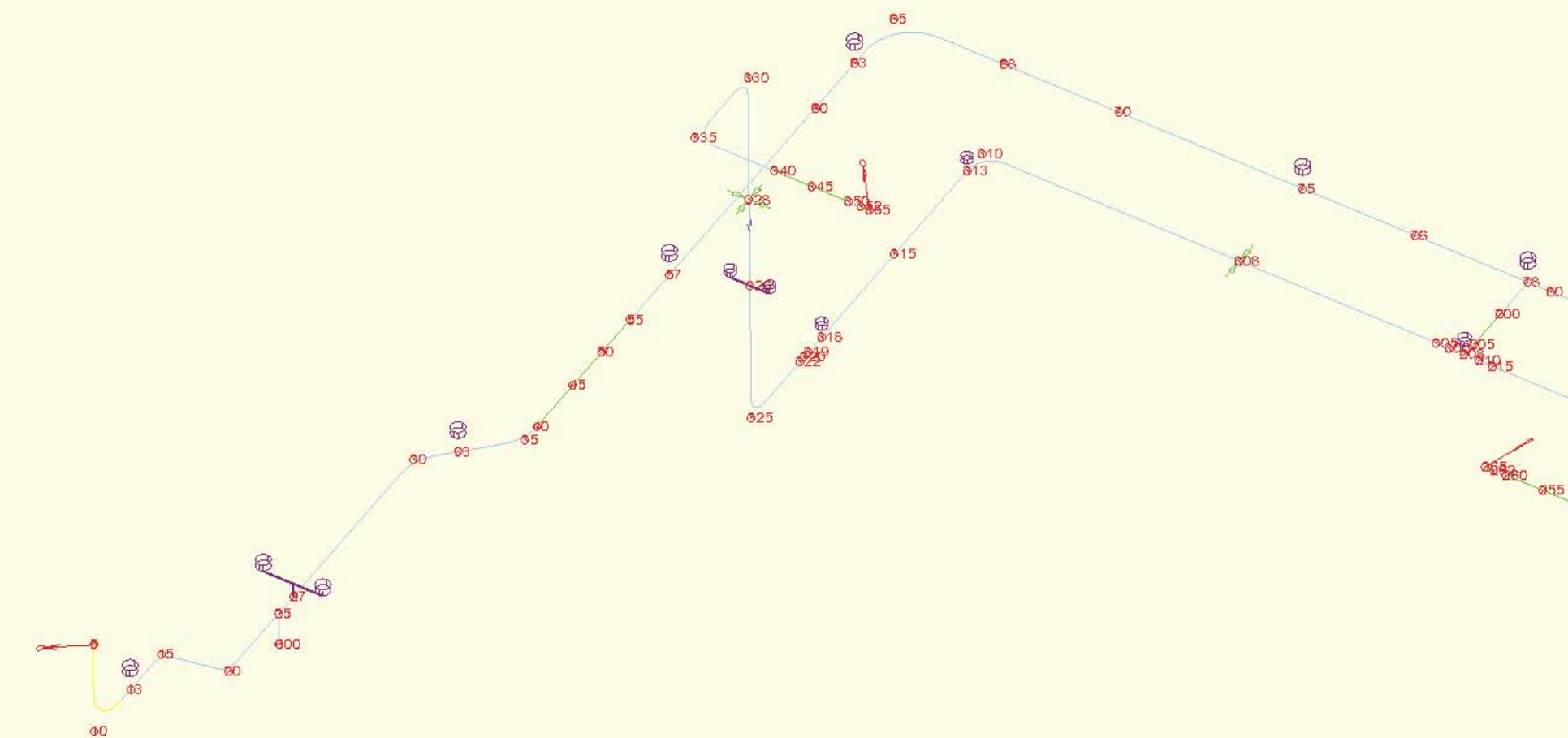
CR Node Plot

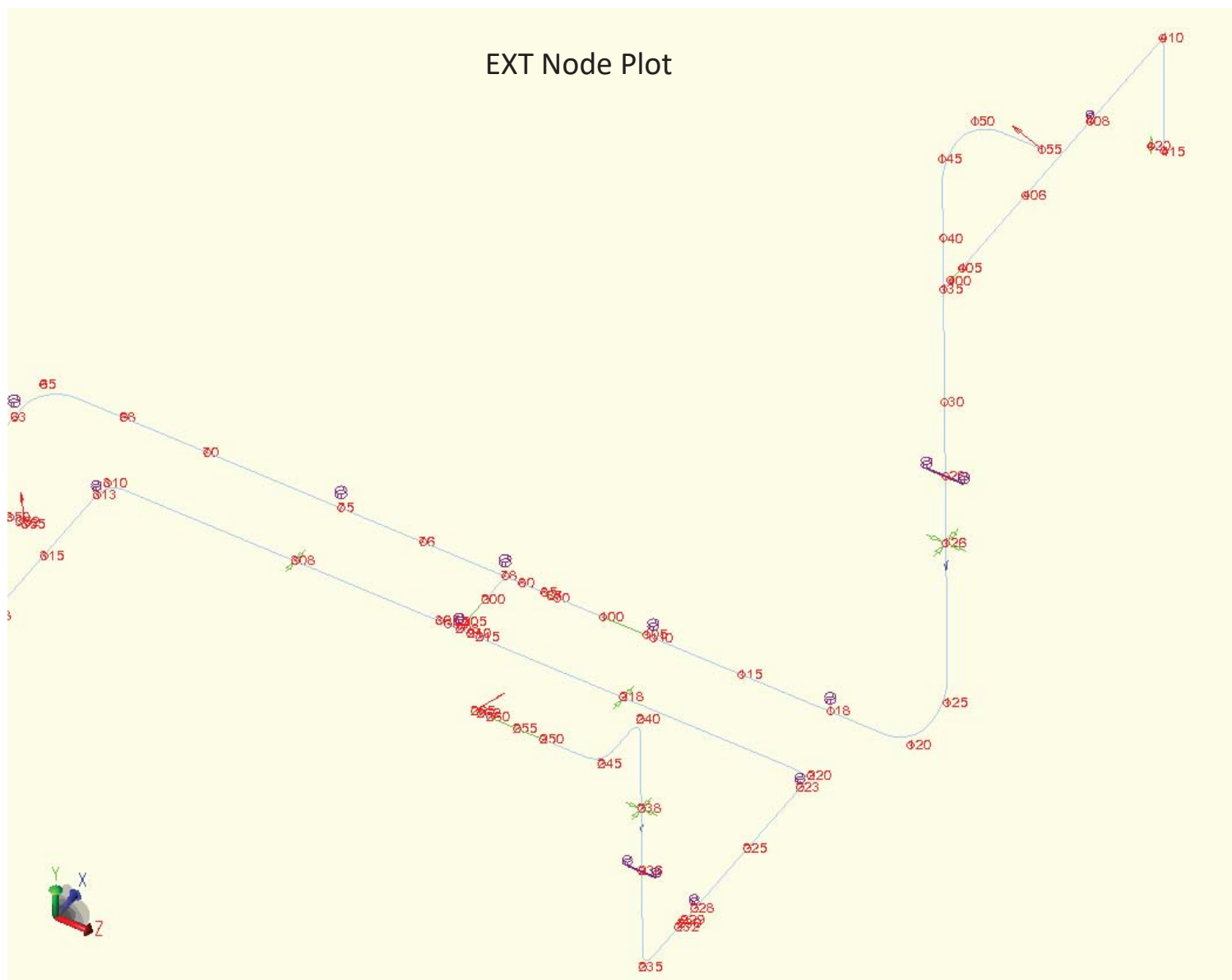


EXT Node Plot



EXT Node Plot





NDT RECOMMENDATIONS LIST
MAIN STEAM

Item No.	SA Node	Description	V	MT	UT	T	R	Priority	S&W Stress/NDE Ref. Node	Notes
1	5055	SRV West - Branch Connection and Valve Weld	X	X	X	X	X	1	A5	Include dimensional checks and thickness to verify design.
2	6095	SRV East - Branch Connection and Valve Weld	X	X	X	X	X	1	A55	Include dimensional checks and thickness to verify design.
3	3130	West Superheater to External Piping Tee	X	X	X		X	1	A3	Field Weld
4	5110	East Superheater to External Piping Tee	X	X	X	X	X	1	A60	Field Weld
5	3040	Elbow, US	X	X	X	X	X	1	A15	Replication noted isolated creep cavities in 1994. US end at 3 o'clock
6	50	Shear Lugs at MSH-3	X	X				1	M53	Replication performed in 1994
7	120	Shear Lugs at MSH-4	X	X				1	M54	
8	160	Bend, DS Weld	X	X	X	X	X	1	B45	Field Weld
9	215	Circ Weld	X	X	X			1	B53	Cut-Short Location, Field Weld
10	290	Wye Block, US Side	X	X			X	1	B80	Replication performed in 1994
11	2000	Wye Block, DS E Side	X	X			X	1	D1	Replication performed in 1994
12	1160	Circ Weld	X	X	X		X	1	C40	Field Weld
13	9010	Steam Chest Lead Pipe Take-off, S	X	X	X	X		1	N5	Include steam chest diameter and thickness to verify design.
14	9030	Steam Chest Lead Pipe Take-off, S	X	X	X			1	M5	
15	8010	Steam Chest Lead Pipe Take-off, N	X	X	X			1	U5	
16	8030	Steam Chest Lead Pipe Take-off, N	X	X	X			1	T5	
17	12030	Steam Turbine Lead Tie-Pt, Below	X	X	X			1	T25	Indication noted in 1994.
18	3010	Tee weld, East Side	X	X	X		X	2	A32	Replication performed 1994
19	10	Reducer, BOP to Bir Pipe Tie-Point	X	X	X			2	B5	Field Weld
20	140	Bend, US Weld	X	X	X			2	B35	
21	1000	Wye Block, DS W Side	X	X				2	B90	
22	1110	Circ Weld	X	X	X			2		Field Weld, Cold pull location
23	2100	Circ Weld	X	X	X			2		Field Weld
24	1180	Drip Pot	X	X	X			2	C50	
25	2160	Drip Pot	X	X	X			2	D50	
26	1240	ST Tie-Point S	X	X	X			2	D100	Field Weld
27	2220	ST Tie-Point N	X	X	X			2	C100	Field Weld

V: Visual, MT: Magnetic Particle, UT: Ultrasonic Shear, T: Ultrasonic Thickness, R: Replication

Note: Boiler internal piping is not included in the scope. POWER recommends internal inspections including moment restraints adjacent to the external piping tie-points.

NDT RECOMMENDATIONS LIST
HOT REHEAT

Item No.	SA Node	Description	V	MT	UT	T	R	Priority	S&W Stress/NDE Ref. Node	Notes
1	7000	SRV West - Branch Connection and Outlet Welds	X	X	X	X	X	1	415	Include dimensional checks and thickness to verify design.
2	8000	SRV East - Branch Connection and Outlet Welds	X	X	X	X	X	1	295	Include dimensional checks and thickness to verify design.
3	3060	West Superheater to External Piping Tee	X	X	X		X	1	420	Field Weld
4	5060	East Superheater to External Piping Tee	X	X	X		X	1	300	Field Weld
5	2160	Wye Outlet	X	X	X		X	1	275	High AF Exp Stress
6	2150	Bend, BOP to Blr Pipe Tie-Point	X	X	X		X	1	270	Field Weld. Replication performed in 1994
7	2130	Shear Lugs at HRH-3	X	X				1	HRH3	
8	2090	Circ Weld	X	X	X			1	240	Field Weld. High AF Sus Stress
9	2080	Shear Lugs at HRH-4	X	X				1	HRH4	
10	2060	Bend, DS Side	X	X	X			1	220	Field Weld. Cut Short Location. High AF Sus Stress
11	1199	Wye Inlet	X	X	X		X	1	80	
12	75	Wye Outlet, West	X	X	X			1	75	
13	100	Wye Outlet, East	X	X	X		X	1	100	Field Weld. Cut Short Location. High AF Sus Stress
14	70	Bend, DS Side	X	X	X			1	35	Replication noted isolated creep cavities in 1994
15	20	Bend, DS Side	X	X	X			1	15	Field Weld. High AF Sus Stress
16	10	Valve Tie-Point	X	X	X		X	1	5	High AF Exp Stress
17	1070	Horizontal Bend, US Side	X	X	X			1	125	Indication found and replication recommended in 1994
18	1080	Vertical Bend, US Side / Drip Pot	X	X	X		X	1	135/140	Field Weld. High AF Sus Stress
19	1090	Vertical Bend, DS Side	X	X	X		X	1	140	High AF Sus Stress. Replication performed in 1994
20	1130	Valve Tie-Point	X	X	X		X	1	160	Indication found and replication recommended in 1994
21	10030	South Valve Outlet	X	X	X			1	715	
22	20030	North Valve Outlet	X	X	X			1	865	
23	20070	ST Tie-Point, Below	X	X	X			1	880	
24	5000	Elbow, DS Side	X	X	X		X	2	400	Replication performed in 1994
25	3585	Wye, West Inlet	X	X	X		X	2	275	Replication performed in 1994
26	1110	Bend, DS Side	X	X	X		X	2	150	Replication performed in 1994
27	60	Drip Pot	X	X	X			2	30	
28	10100	South Valve Outlet	X	X	X			2	760	
29	20100	North Valve Outlet	X	X	X			2	910	
30	10070	ST Tie-Point, Below	X	X	X			2	730	

V: Visual, MT: Magnetic Particle, UT: Ultrasonic Shear, T: Ultrasonic Thickness, R: Replication

Note: Boiler internal piping is not included in the scope. POWER recommends internal inspections including moment restraints adjacent to the external piping tie-points.

NDT RECOMMENDATIONS LIST
COLD REHEAT

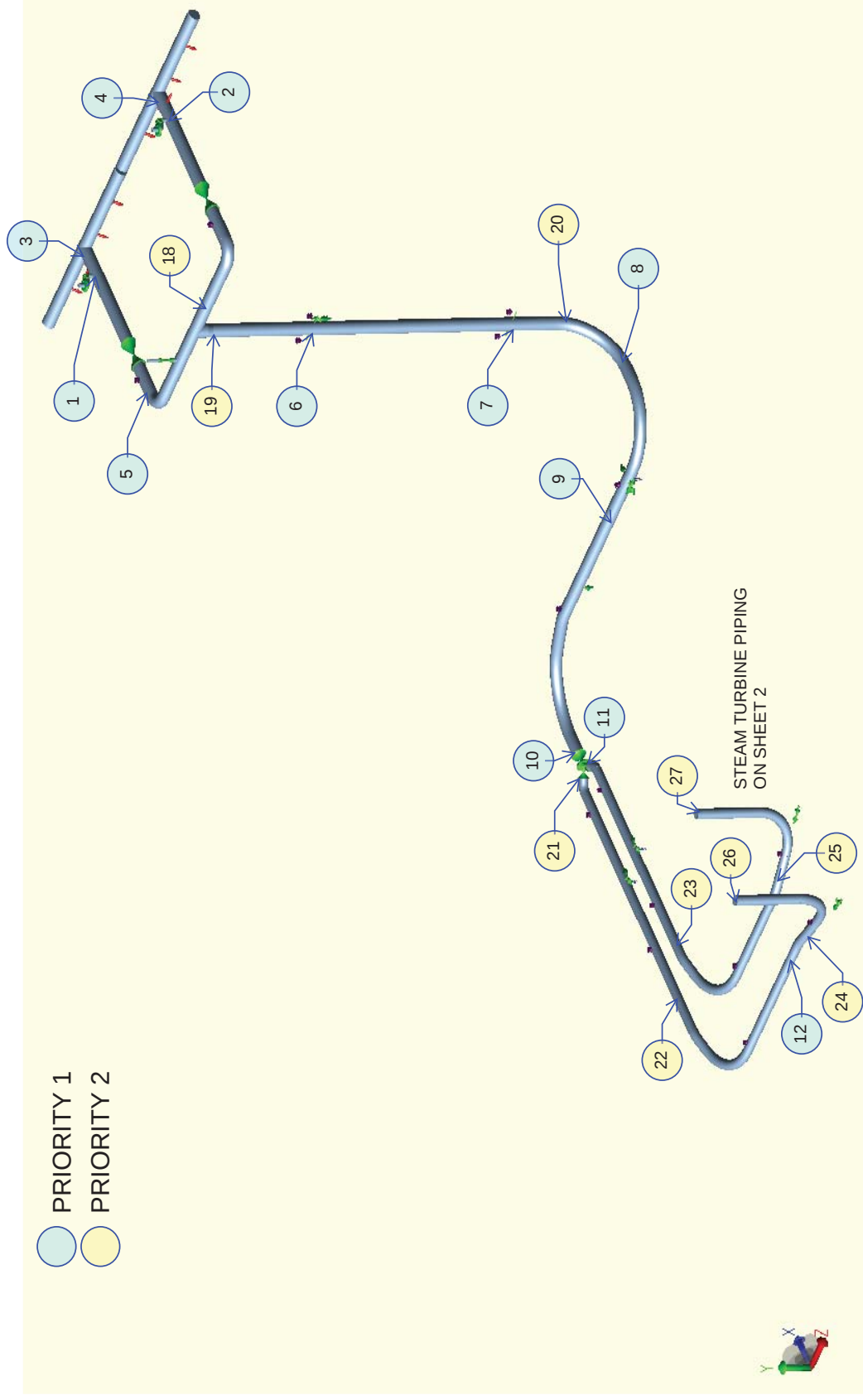
Item No.	SA Node	Description	V	MT	UT	T	R	Priority	S&W Stress/NDE Ref. Node	Notes
1	2020	4" SRV West - Branch Connection	X	X	X	X		1	610	Include dimensional checks
2	3300	4" SRV West - Branch Outlet	X	X	X	X		1	615	Include dimensional checks
3	540	4" SRV East - Branch Connection	X	X	X	X		1	270	Include dimensional checks
4	3200	4" SRV East - Branch Outlet	X	X	X	X		1	275	Include dimensional checks
5	2000	West Superheater to External Piping Tee	X	X	X	X		1	640	Field Weld. Verify pipe thickness on US side
6	560	East Superheater to External Piping Tee	X	X	X	X		1	300	Field Weld. Verify pipe thickness on US side
7	2120	Attemperator DS Weld, West	X	X	X			1	-	
8	440	Attemperator DS Weld, East	X	X	X			1	-	
9	2180	Elbow Lug at CRH-13	X	X				1	CR13	
10	380	Elbow Lug at CRH-4	X	X				1	CR4	
11	300	Bend, bottom of east riser, US side	X	X	X			1	115	Field Weld. High AF stress. Restricted expansion.
12	2030	6" SRV West A - Branch Connection	X	X	X	X		2	580	Include dimensional checks
13	3400	6" SRV West A - Branch Outlet	X	X	X	X		2	585	Include dimensional checks
14	2070	6" SRV West B - Branch Connection	X	X	X	X		2	545	Include dimensional checks
15	3060	6" SRV West B - Branch Outlet	X	X	X	X		2	550	Include dimensional checks
16	530	6" SRV East A - Branch Connection	X	X	X	X		2	240	Include dimensional checks
17	3130	6" SRV East A - Branch Outlet	X	X	X	X		2	245	Include dimensional checks
18	490	6" SRV East B - Branch Connection	X	X	X	X		2	205	Include dimensional checks
19	3000	6" SRV East B - Branch Outlet	X	X	X	X		2	210	Include dimensional checks
20	4000	Extraction Weldolet, West Branch	X	X	X			2	380	
21	4100	Extraction Weldolet, East Branch	X	X	X			2	50	
22	4040	Extraction Tee	X	X	X			2	1020	

V: Visual, MT: Magnetic Particle, UT: Ultrasonic Shear, T: Ultrasonic Thickness, R: Replication

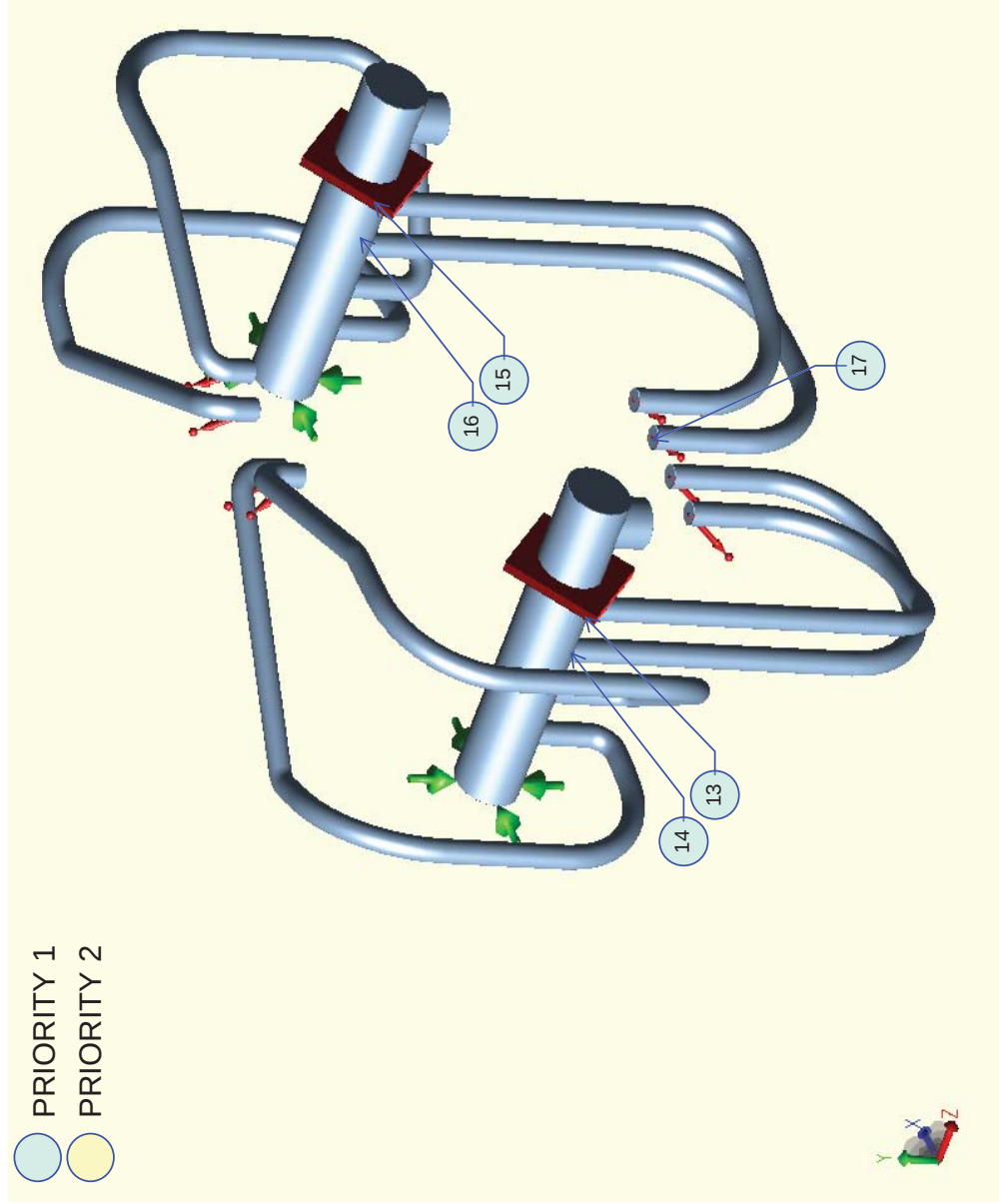
Note: Boiler internal piping is not included in the scope. POWER recommends internal inspections including moment restraints adjacent to the external piping tie-points.

Item No.	SA Node	Description	V	MT	UT	T	R	Priority	S&W Stress/NDE Ref. Node	Notes
1	10	Bend, US side	X	X	X			1	10	
2	25	Drip Pot	X	X	X			1	25	
3	78	Tee, branch weld	X	X	X			1	55H	
4	120	Bend, US side	X	X	X			1	120	
5	120	Bend, DS side	X	X	X			1	120	
6	135	Branch w/ Repad	X	X	X			1	135	Confirm branch design
7	205	Tee, US side	X	X	X			1	205	
8	305	Reducer, DS side	X	X	X			1	305	
9	325	Bend, US side	X	X	X			1	325	

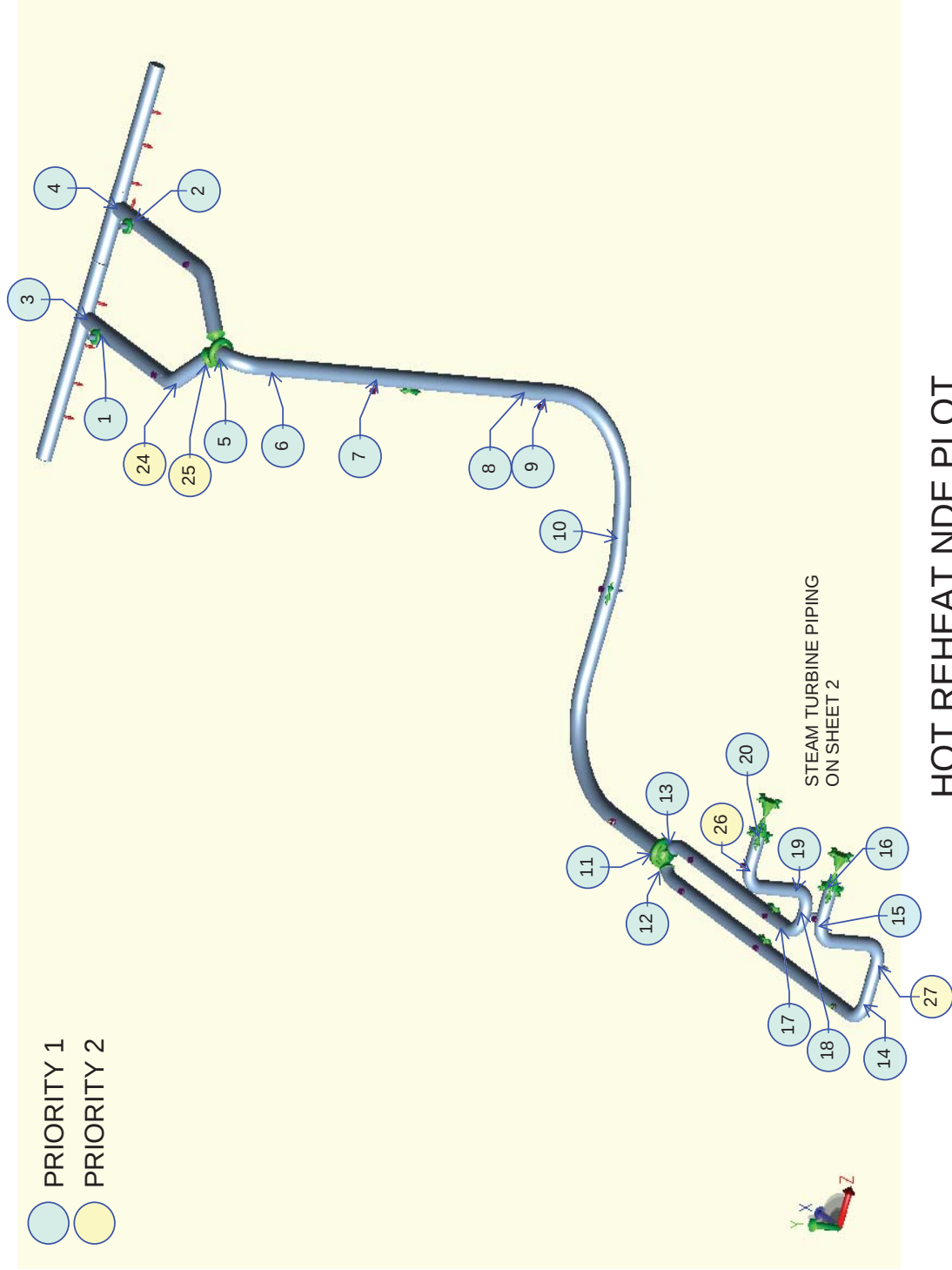
V: Visual, MT: Magnetic Particle, UT: Ultrasonic Shear, T: Ultrasonic Thickness, R: Replication



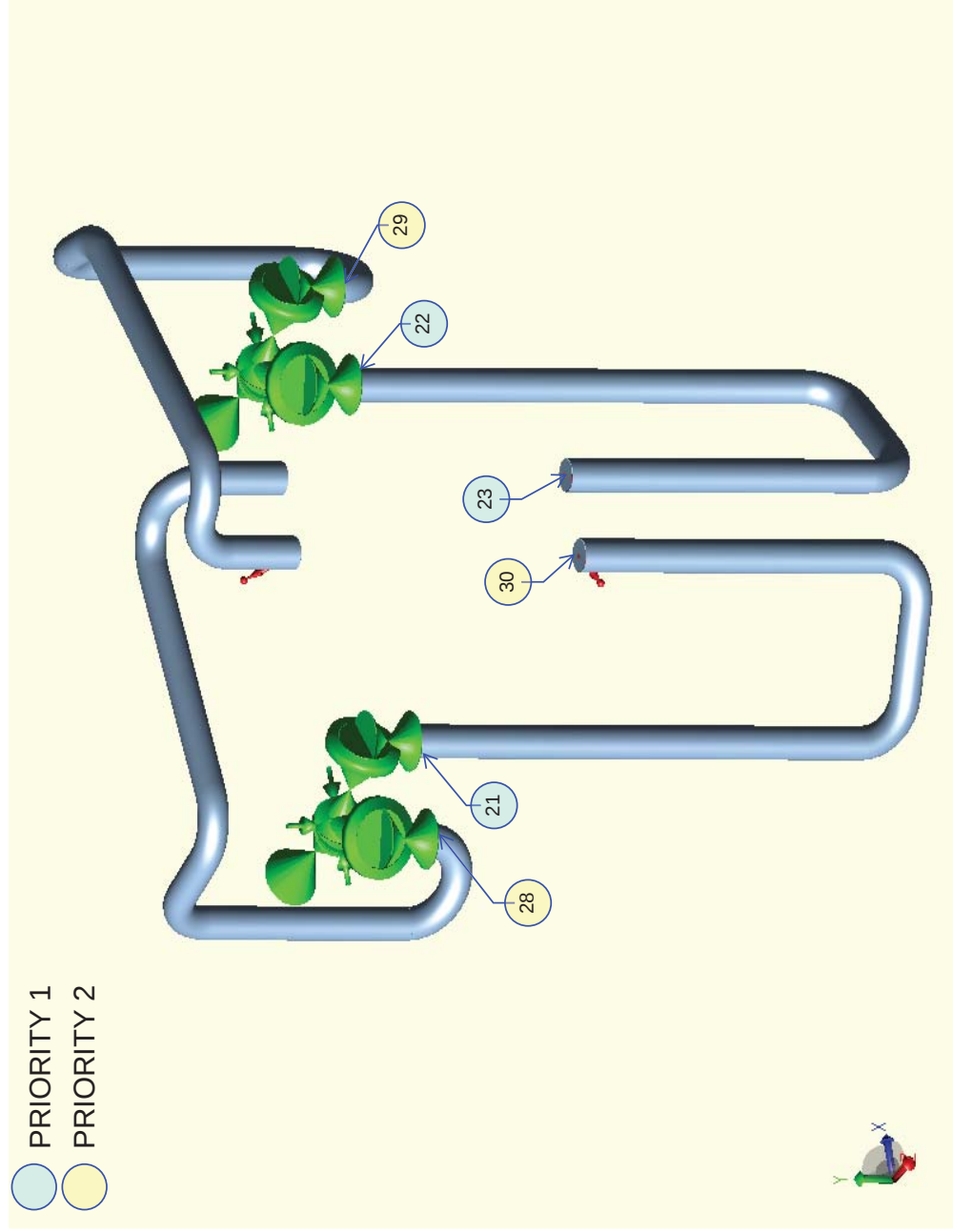
MAIN STEAM NDE PLOT SHEET 1



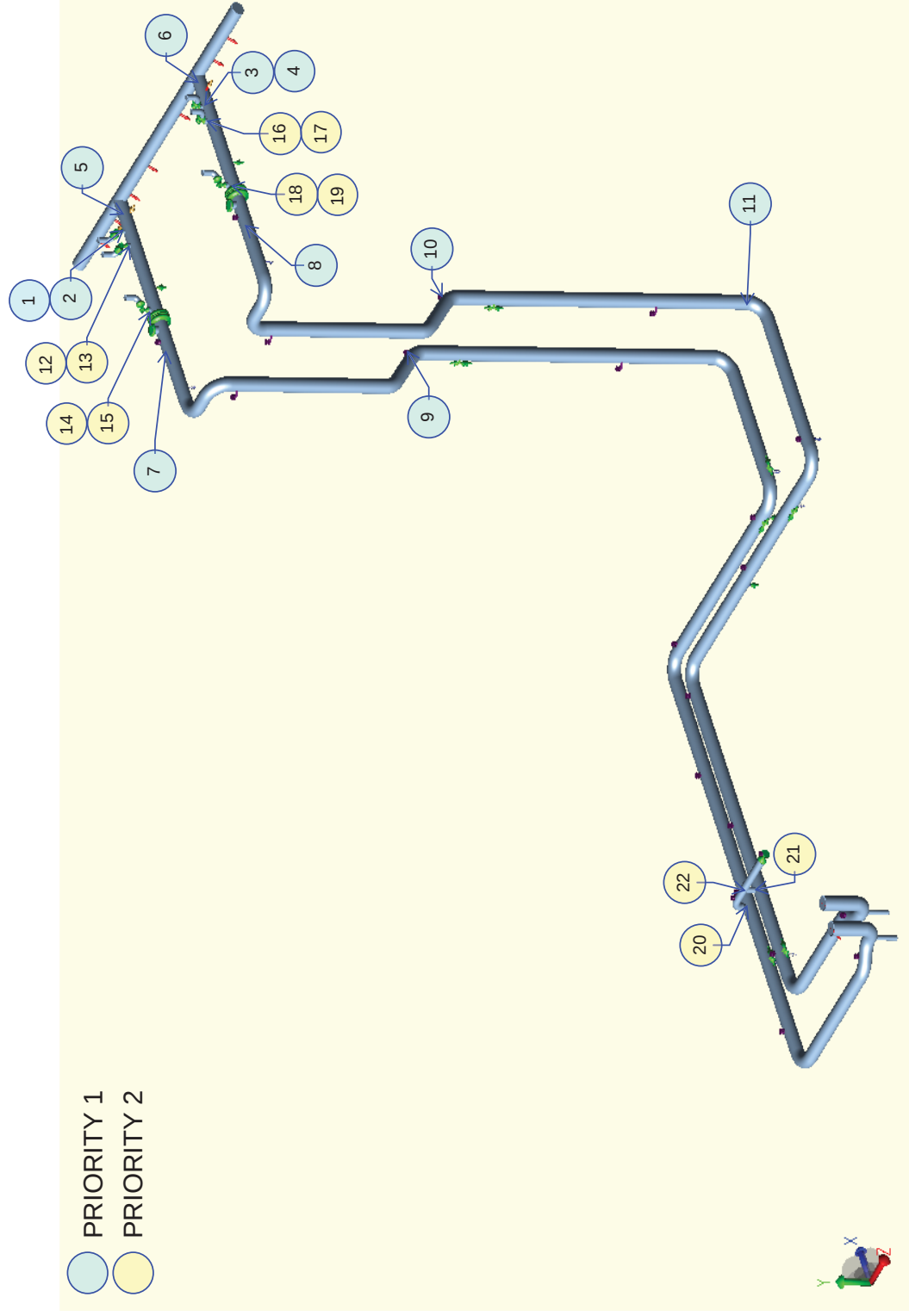
MAIN STEAM NDE PLOT
SHEET 2



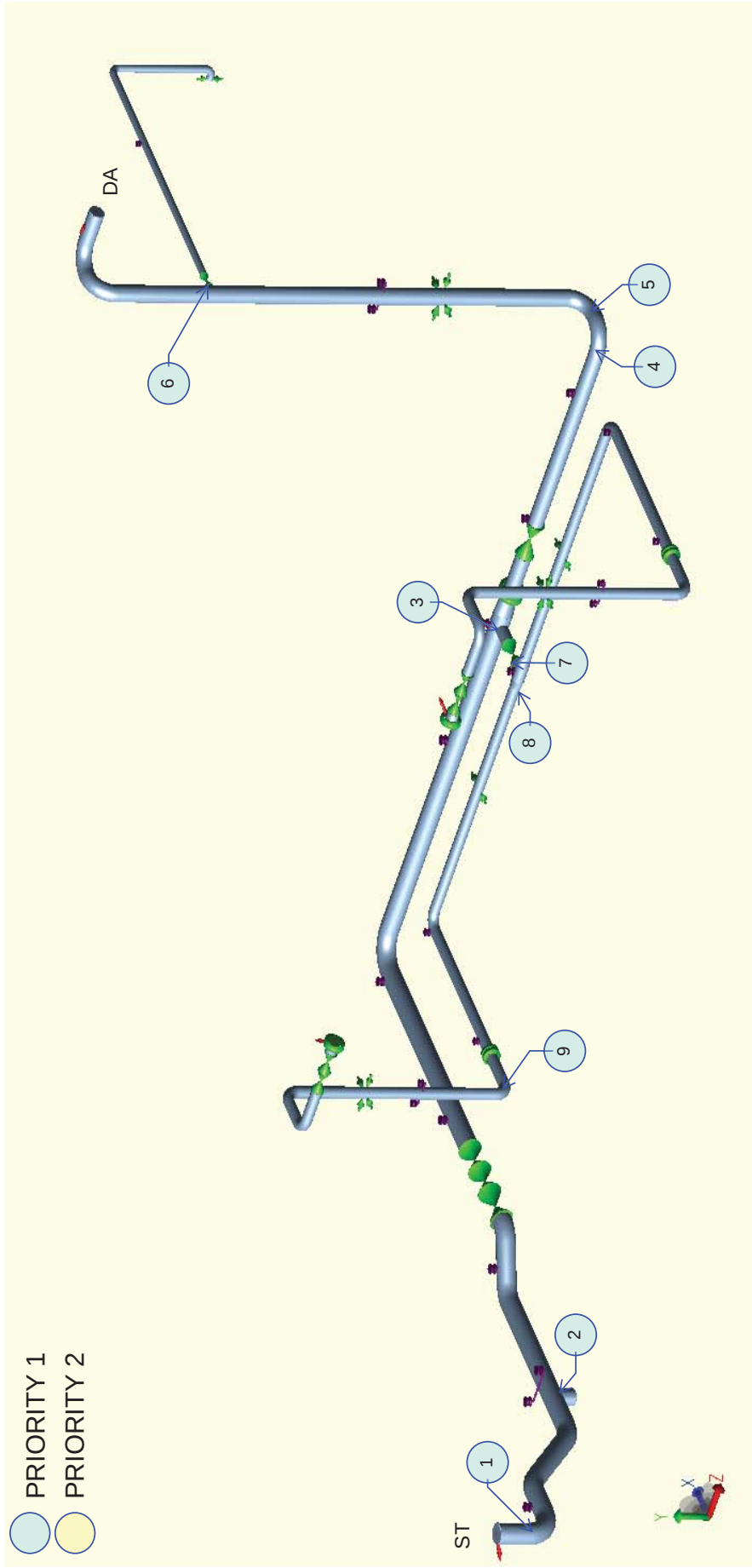
HOT REHEAT NDE PLOT
SHEET 1



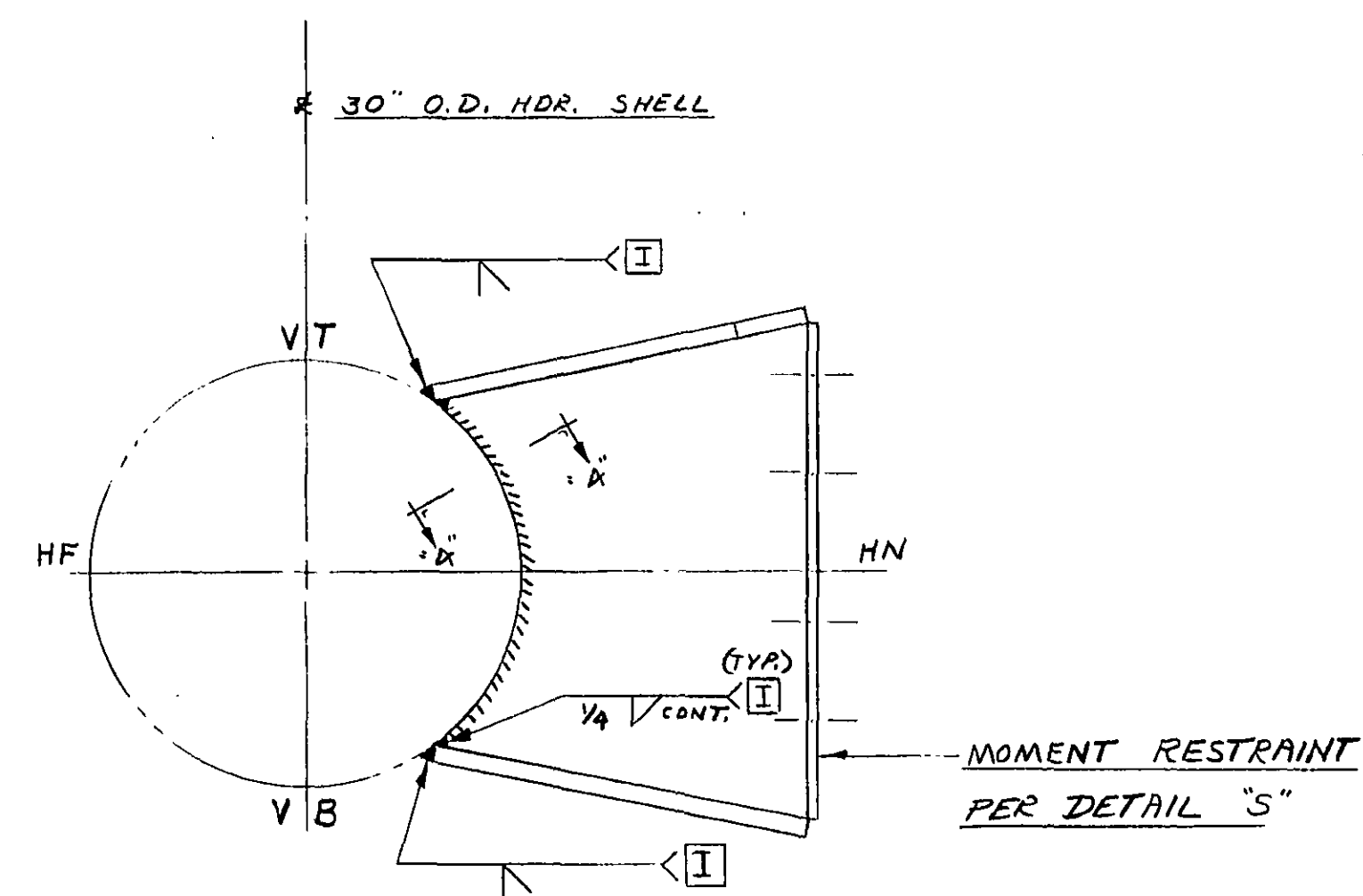
HOT REHEAT NDE PLOT
SHEET 2



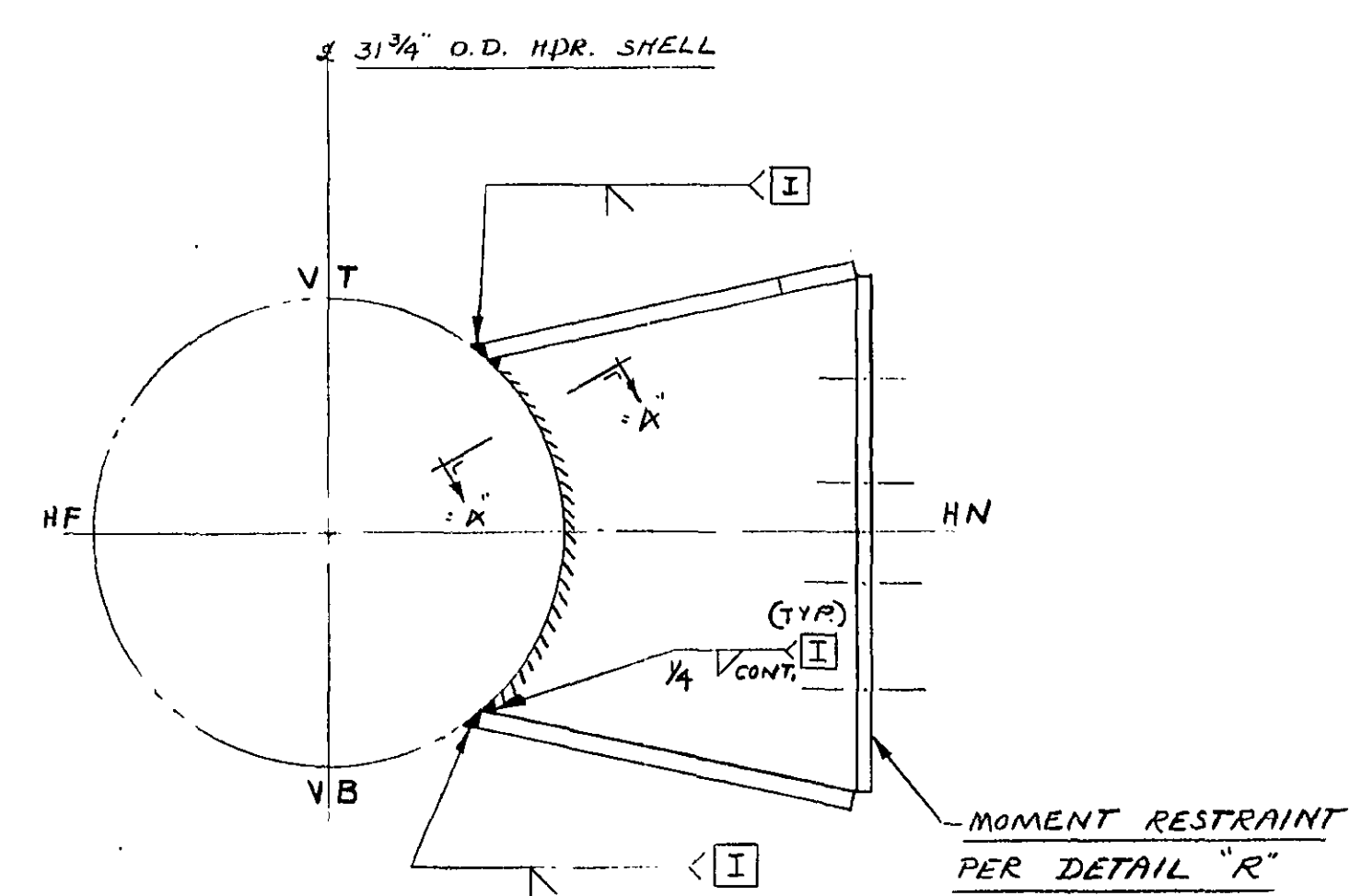
COLD REHEAT NDE PLOT



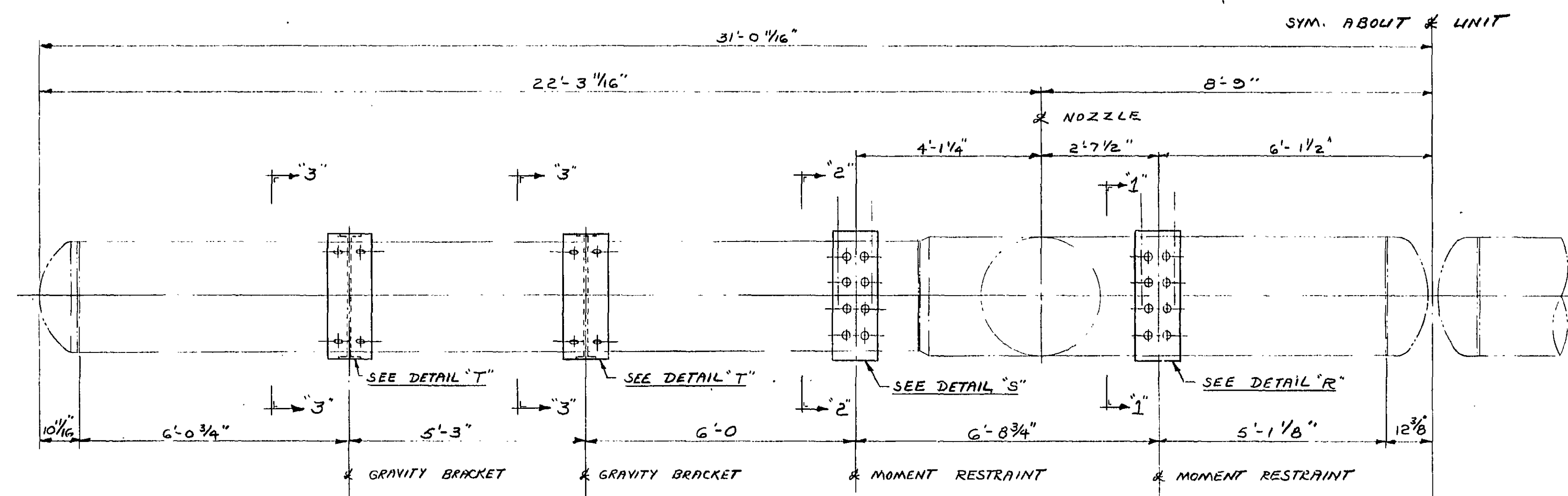
EXTRACTION STEAM NDE PLOT



ENLARGED SECTION "2-2"

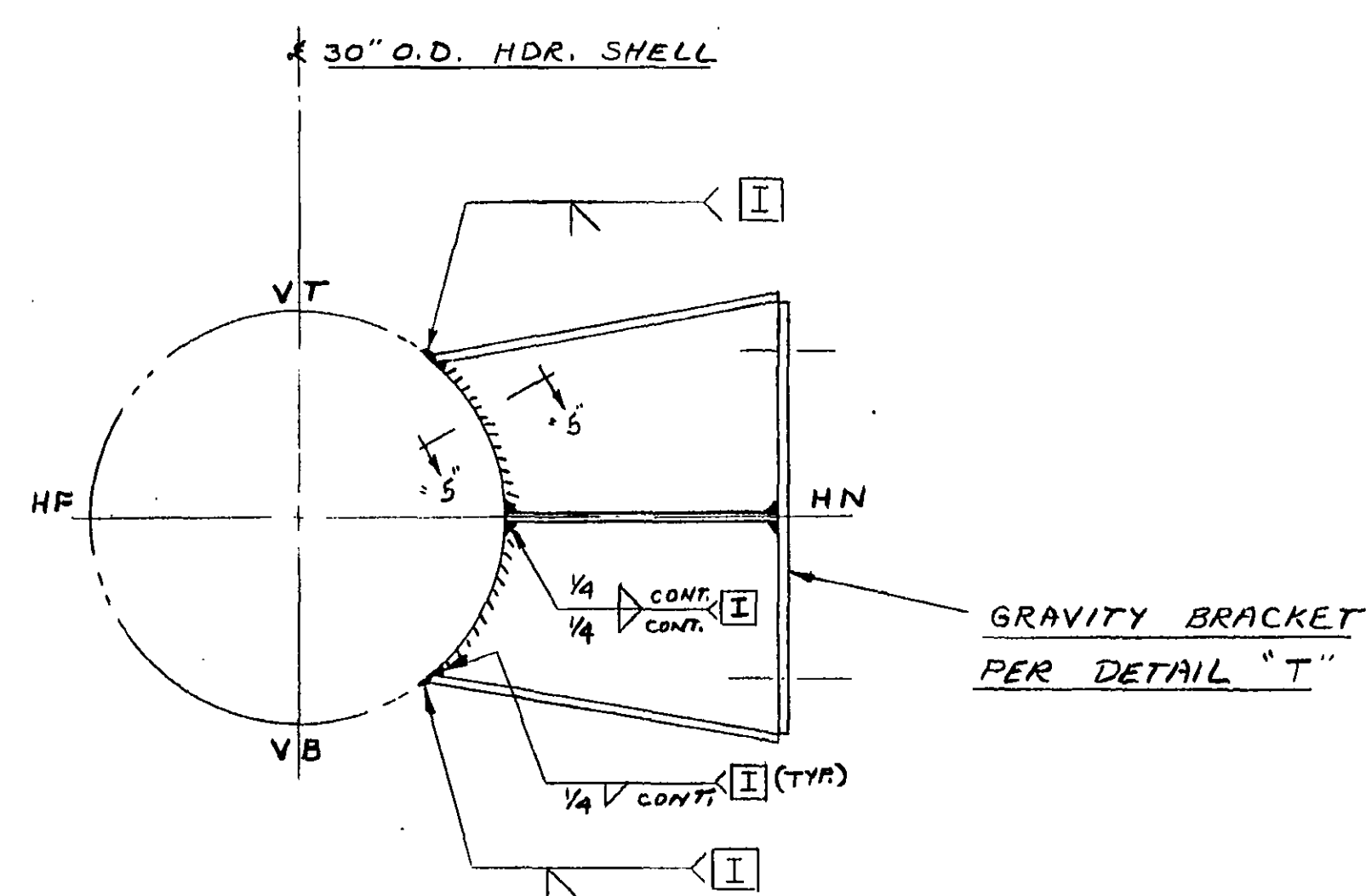


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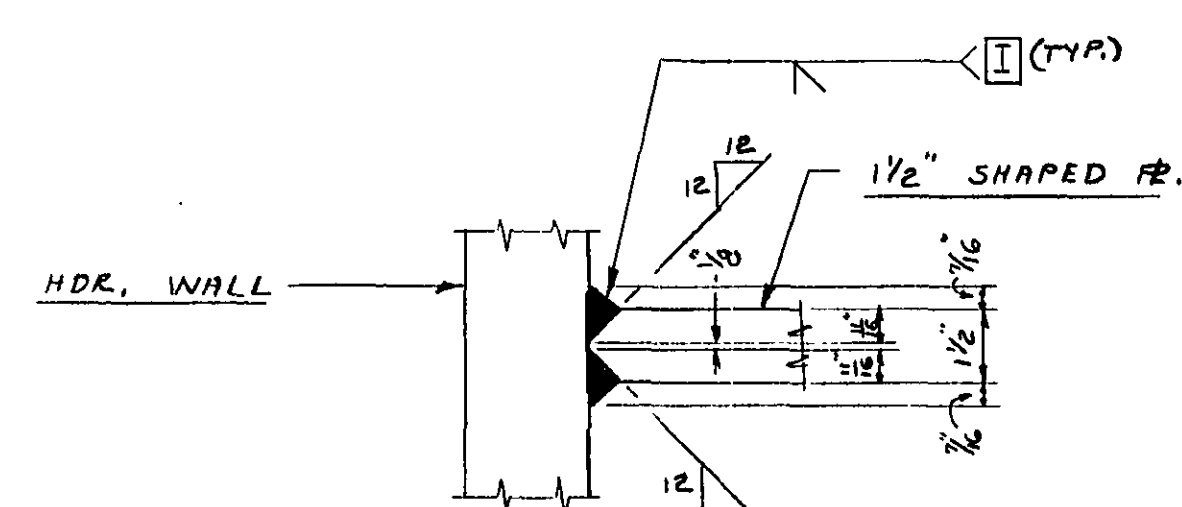
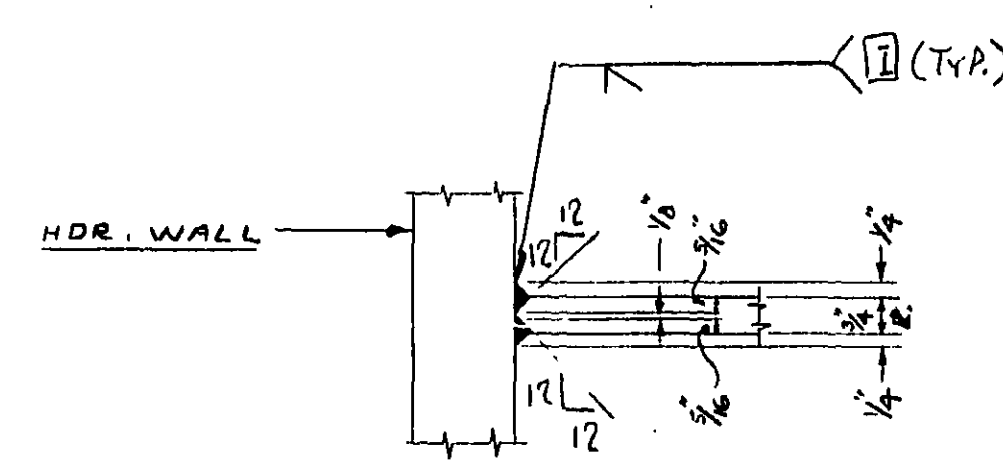
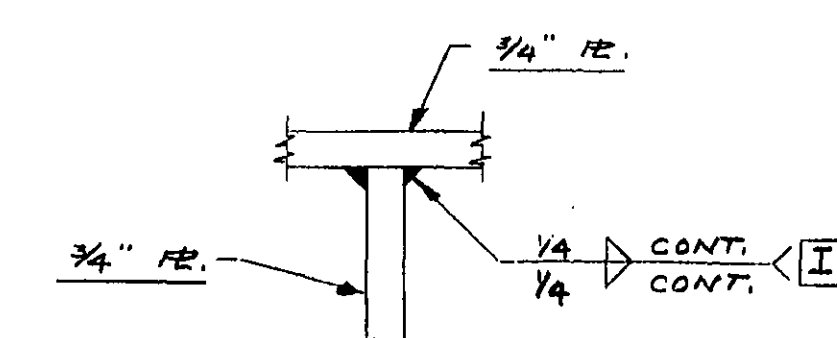
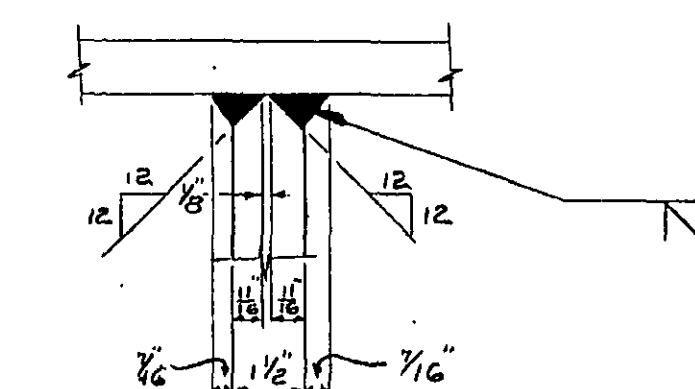
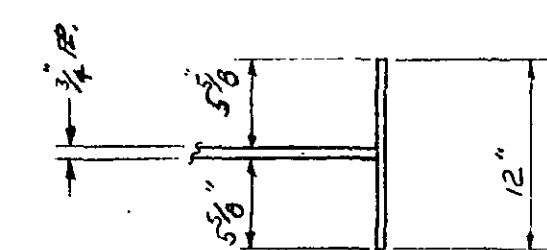


HALF FRONT VIEW

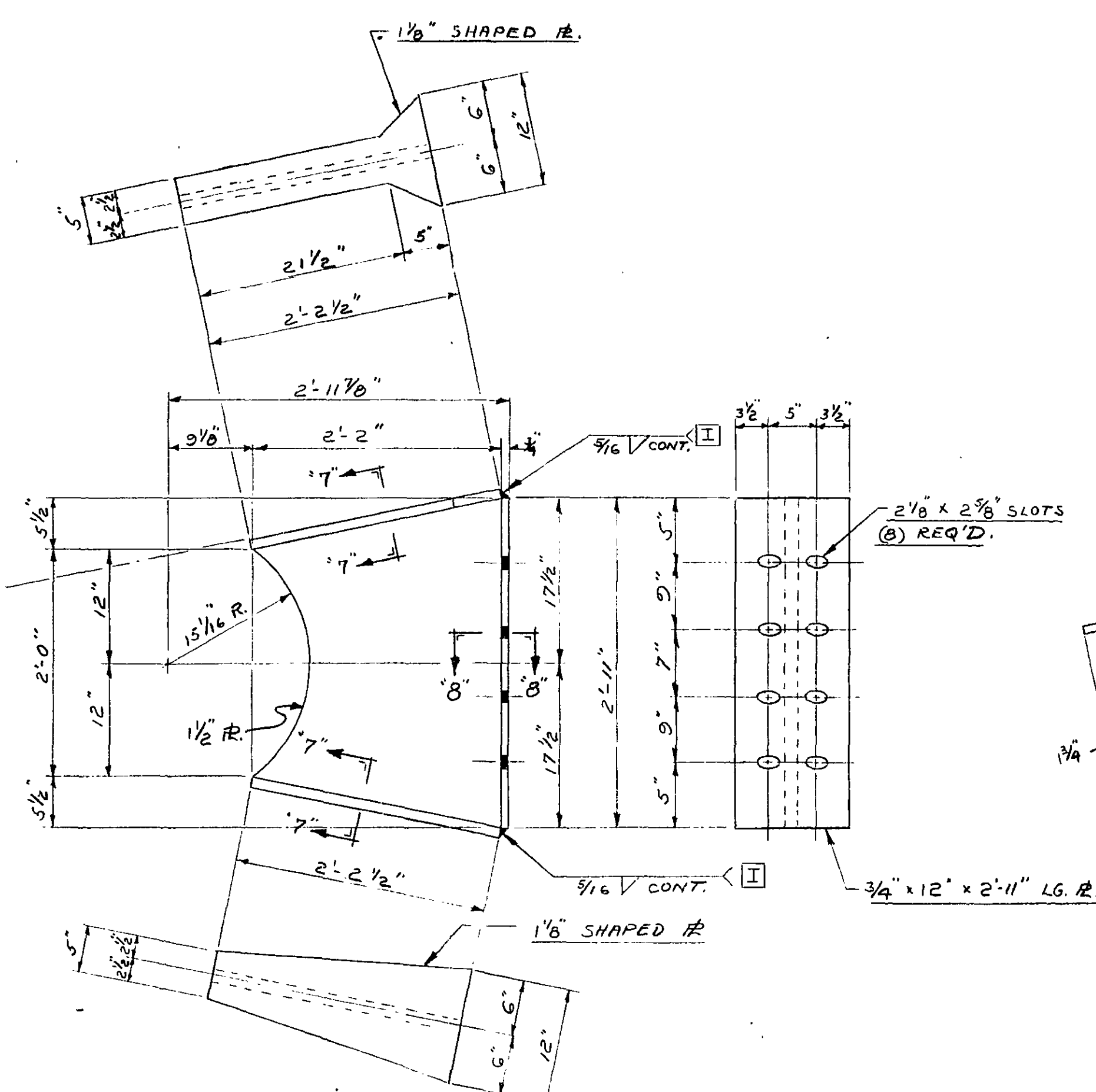
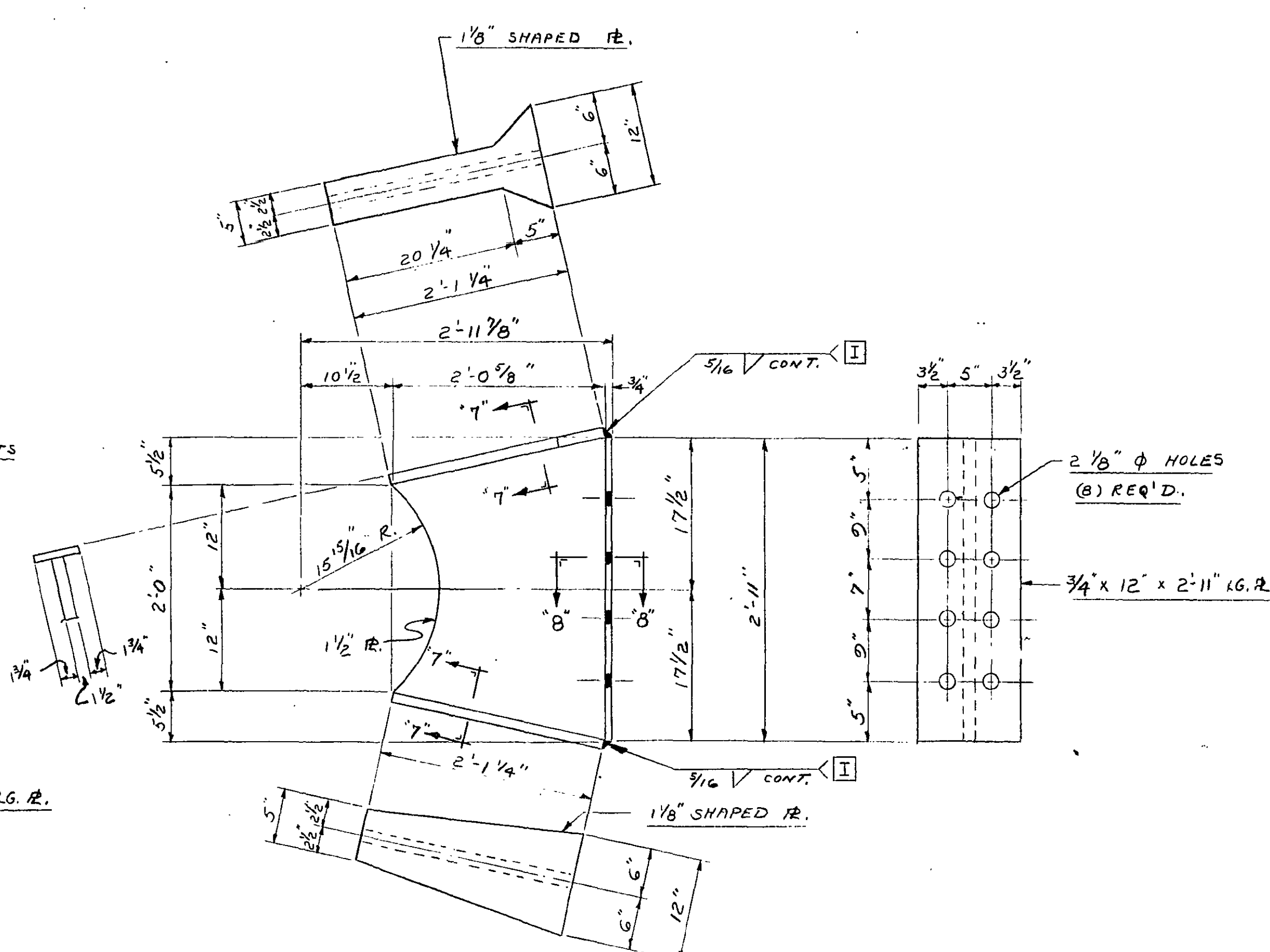
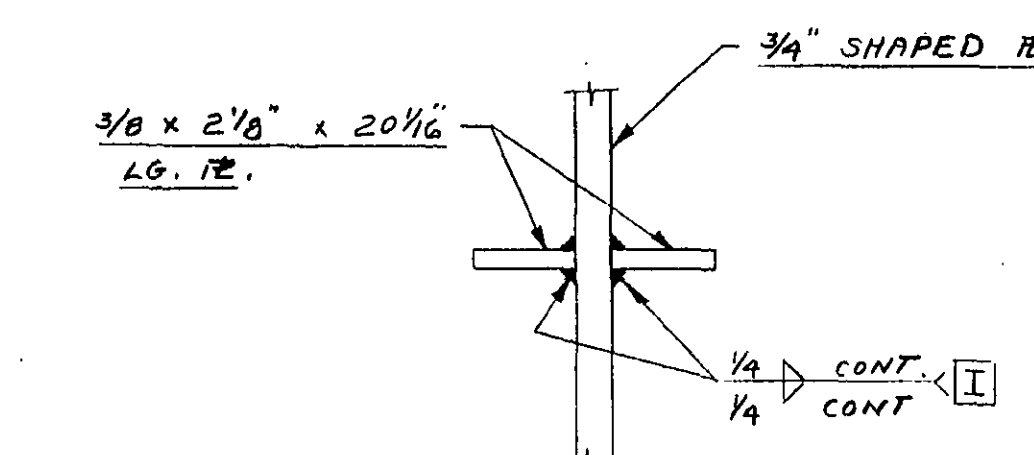
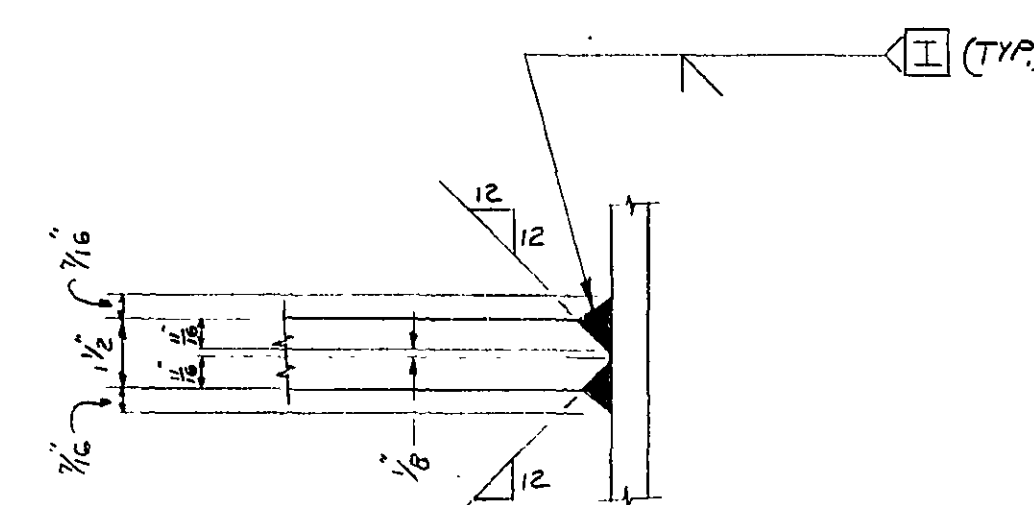
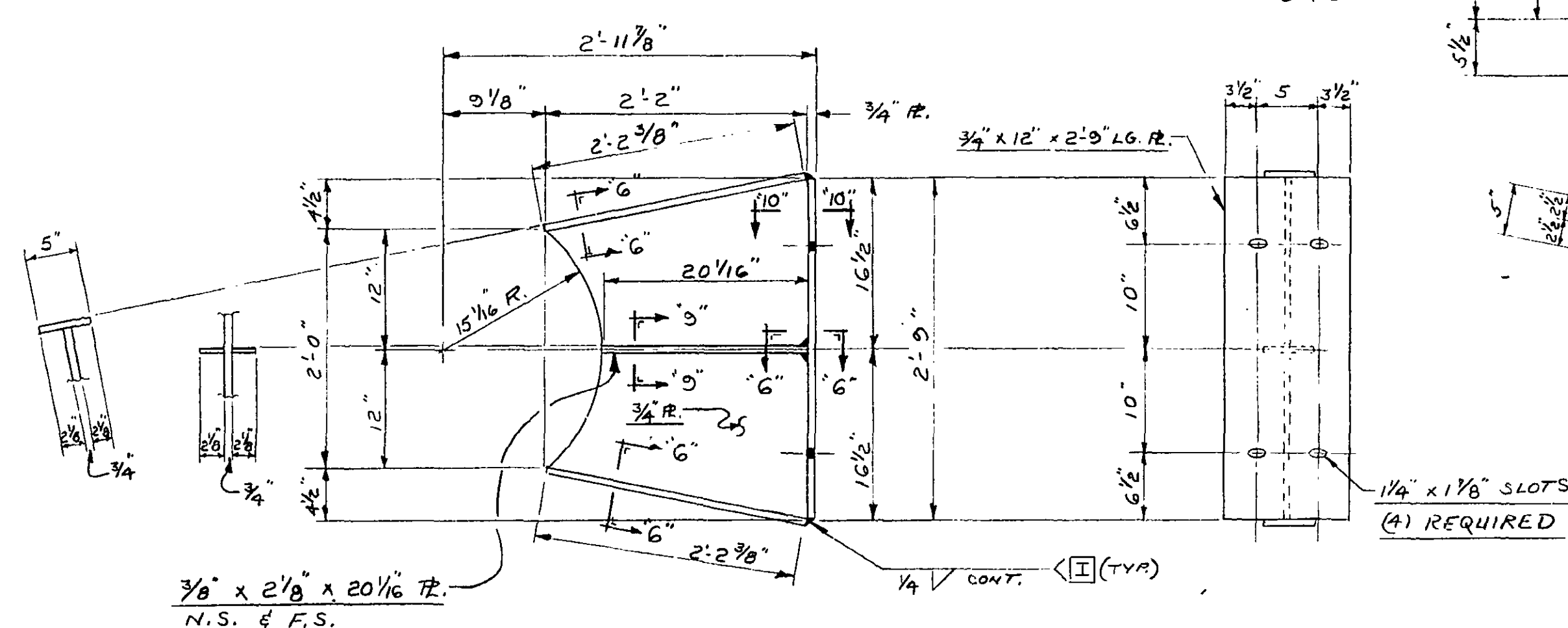
30" & 3 1/4" O.D. REHEAT OUTLET HEADER PER DWG. #71016-4-1603-10



ENLARGED SECTION "3-3"

SECTION "4-4"
SHOP WELD 1/8" RE. TO HDR.SECTION "5-5"
SHOP WELD 3/4" RE. TO HDR.SECTION "6-6"
SHOP WELD 3/4" RE. TO 3/4" RE.SECTION "7-7"
SHOP WELD 1/2" RE. TO 1/2" RE.

SECTION "10-10"

DETAIL "S"
MOMENT RESTRAINT FOR 30" O.D. HDR.
(2) REQUIRED AS SHOWN
MAT'L. SPEC'S. SA-387 GR. DDETAIL "R"
MOMENT RESTRAINT FOR 3 1/4" O.D. HDR.
(2) REQUIRED AS SHOWN
MAT'L. SPEC'S. SA-387 GR. DSECTION "9-9"
SHOP WELD 3/4" RE. TO 3/4" RE.SECTION "8-8"
SHOP WELD 1/2" RE. TO 3/4" RE.DETAIL "T"
GRAVITY BRACKET FOR 30" O.D. HDR.
(A) REQUIRED AS SHOWN
MAT'L. SPEC'S. SA-387 GR. D

NOTE: FOR ADDED REINFORCEMENT
PLATE WORK ON MOMENT RESTRAINTS
REFER TO DRAWING 71016-4-1603-12

WORK THIS DWG. WITH DWG. #71016-4-1603-10
B.O.M. FOR MOMENT RESTRAINTS & GRAVITY BRACKETS
LOCATED ON DWG. #71016-4-1603-10

THIS PRINT IS THE PROPERTY OF RILEY STOKER CORPORATION AND IS NOT TO BE USED IN ANY WAY INJURIOUS TO ITS INTERESTS AND IS TO BE RETURNED UPON REQUEST.				10	DRAWN	BLISS	RILEY STOKER CORP. WORCESTER, MASS.	
WE ARE NOT RESPONSIBLE FOR ANY INJURY OR DAMAGE DUE TO THE USE OF DESIGN OR THIS DRAWING OF ANYTHING NOT ACTUALLY FURNISHED BY US. WHETHER SO SPECIFICALLY INDICATED OR NOT AND WE ARE ALSO NOT RESPONSIBLE FOR THE DESIGN, INSTALLATION OR OPERATION OF ANY PART OF FOUNDATION OR SETTING OR ACCESSORY EQUIPMENT NOT ACTUALLY FURNISHED BY US.				11	CHECKED	7-10-5	MOMENT REST & GRAVITY BRACKETS FOR REHEAT	
"N" MATERIAL NOT FURNISHED BY CONSTRUCTION UNLESS IT CONTAINS DATE AND SIGNATURE OF APPROVAL				12	DATE	4-6-13	JACKSONVILLE ELECTRIC, INC.	
DO NOT USE THIS DRAWING FOR FIRST USED ON CONTRACT NO. BLR-75 APPROVED BY [Signature]				13	APP'D		NORTHSIDE GENERATING STATION	
RILEY STOKER CORPORATION				14	DATE		JACKSONVILLE, FLORIDA	
ALTERATION				15	DO NOT SCALE		SCALE: 1/8" = 1'-0"	
NO. DATE APP'D				16	USE DIMENSIONS ONLY		DWG. NO. 71016-4-1603	

REHEAT OUTLET HEADERS

Replicas - 20 TOTAL

TUBE to HEADER REPS

Mis-LABELLED

A-43 #8 does NOT exist
it is #7

A-31, 40, 41, 49

ARE ON
TUBE #4

(R42) Top of
END WELD W6

(R43) Tube-to-header
Element 50, tube 5

(R49) Tube-to-header
Element 56, tube 5

(R48) Top of
WELD W9

(R45) Top of
SADDLE WELD W7

(R50) SOUTH SIDE - NOT
OF WELD W9 COMPLETED

(R47) EAST SIDE
OF WELD W8 NOT
COMPLETED

(R46) Top of
WELD W8

(R39) Top of
END WELD W5

(R38) Tube-to-header
Element 35, tube 5

(R34) Top of
Saddle weld W3

(R41) Tube-to-header
Element 41, tube 5

(R44) Top / west of
Saddle weld W7

(R40) Tube-to-header
Element 40, tube 5

(R37) Top / EAST OF
SADDLE WELD W3

(R32) Top of
WELD W2

(R31) Tube-to-header
Element 25, tube 5

(R35) Top of
WELD W4

(R33) South side
OF WELD W2
NOT COMPLETED

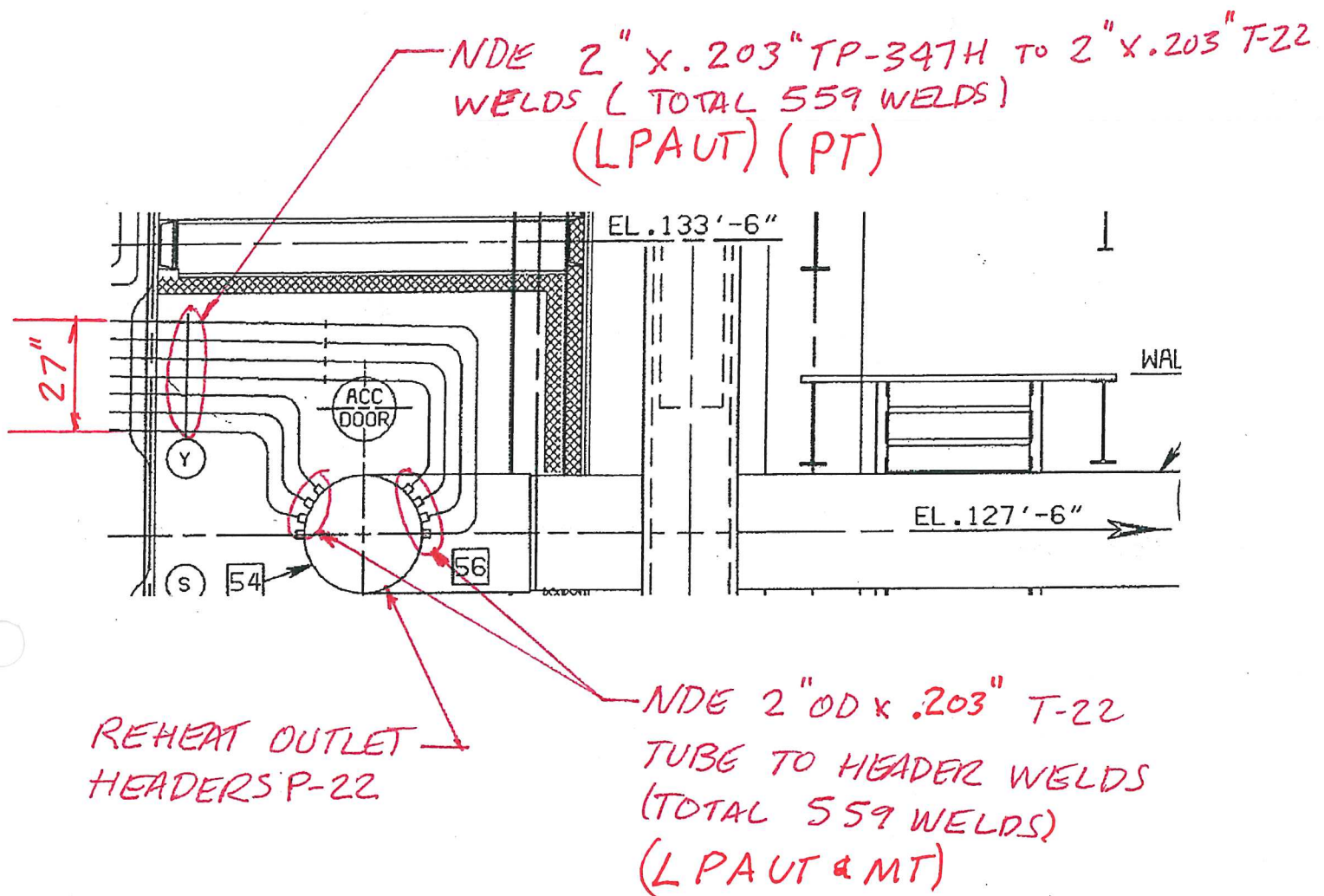
(R36) WEST SIDE - NOT
OF WELD W4 COMPLETED

A-38
New Location
Element 31
TUBE # 5

EAST

~~33, 34~~
~~47, 50~~

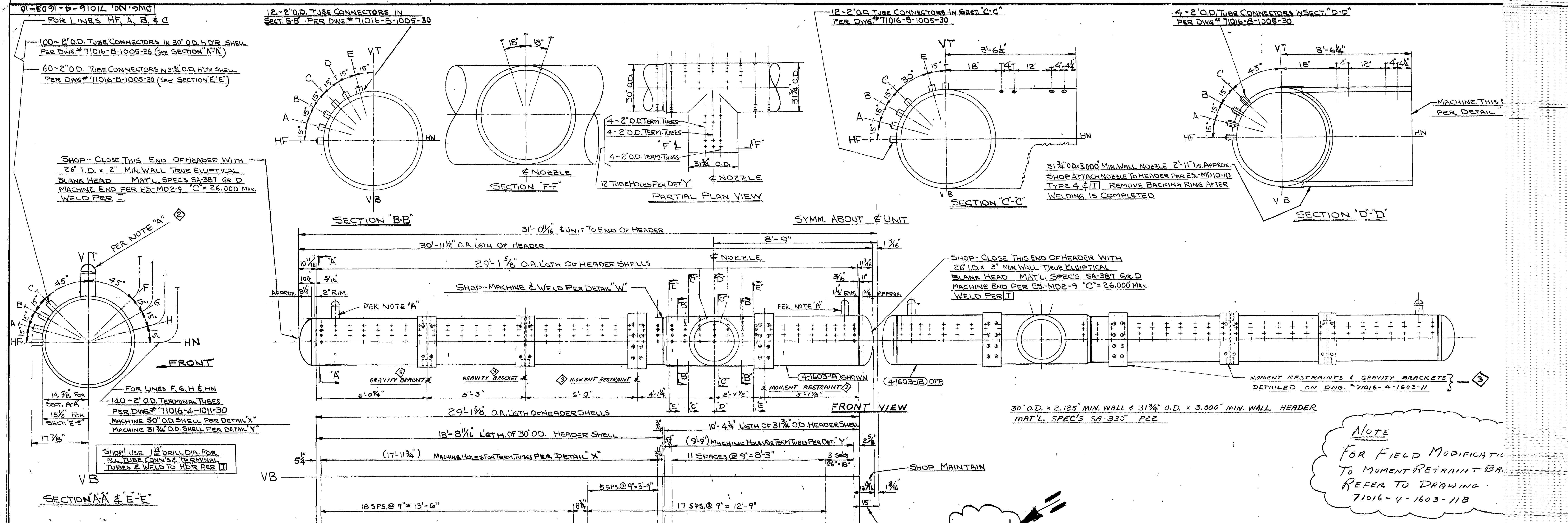
— Reheat Outlet Header Replica Locations.



ATTACHMENT NO. 9.

NS-3 REHEAT OUTLET HEADER
TUBE WELD NDE LOCATIONS





PIECE NO.	DESCRIPTION	MAT.	NUMBER REQ.	UNIT	AMOUNT
4-1603-1A	HEADER COMPLETE WITH:				
1	30" O.D. x 2.125" MIN. WALL	SA-335			
1	HEADER SHELL 18'-8 1/4" LG.	P22			
1	31 3/4" O.D. x 3.000" MIN. WALL	SA-335			
1	HEADER SHELL 10'-4 3/4" LG.	P22			
1	BACKING RING FOR DETAIL W	SA-335			
1	PER ES-MD2-9 "P" = 25.704	P22			
1	31 3/4" O.D. x 3.000" MIN. WALL	SA-335			
1	NOZZLE 2'-11" LG. APPROX.	P22			
1	BACKING RING TO SUIT NOZZLE & HEADER PER ES-MD10-10 TYPE 4	P22			
1	26" I.D. x 2" MIN. WALL TRUE ELLIPTICAL BLANK HEAD WITH 2" RIM	SA-387 GR. D			
1	26" I.D. x 3" MIN. WALL TRUE ELLIPTICAL BLANK HEAD WITH 1 1/2" RIM	SA-387 GR. D			
2	BACKING RINGS FOR BLANK HEADS PER ES-MD2-9 O.D. TO SUIT	SA-335 P22			
100	2" O.D. TUBE CONNECTORS PER DWG. #71016-8-1005-26	SA-213 T22			
68	2" O.D. TUBE CONNECTORS PER DWG. #71016-8-1005-30	SA-213 T22			
152	2" O.D. TERMINAL TUBES PER DWG. #71016-4-1011-30	SA-213 T22			
2	ACCESS HOLE CLOSURE ASSY PER E.S. WC18C-4 ASSY #B "L-G" COMPLETE	SA-335 P22			
1	MOMENT RESTRAINT (PER DET. R) CONSISTING OF THE FOLLOWING:	SA-387 GR. D			
1	1 1/2" x 2'-0 1/8" x 2'-11" LG. SHAPED R.	"			
2	1 1/2" x 12" x 20 3/4" LG. SHAPED R.	"			
1	3/4" x 12" x 2'-11" LG. R.	"			
8	2" AMER. STD. HEX. BOLTS 4" LG. WITH NUTS & WASHERS	SA-193 8.5			
1	MOMENT RESTRAINT (PER DET. S) CONSISTING OF THE FOLLOWING:	SA-387 GR. D			
1	1 1/2" x 2'-2" x 2'-11" LG. SHAPED R.	"			
2	1 1/2" x 12" x 2'-2 1/2" LG. SHAPED R.	"			
1	3/4" x 12" x 2'-11" LG. R.	"			
8	2" AMER. STD. HEX. BOLTS 4" LG. WITH NUTS & WASHERS	SA-193 8.5			
2	GRAVITY BRACKET (PER DET. T) CONSISTING OF THE FOLLOWING:	SA-387 GR. D			
1	1 1/2" x 2'-2" x 2'-11" LG. SHAPED R.	"			
1	3/4" x 12" x 2'-9" LG. R.	"			
2	3/4" x 5" x 2'-2 1/2" LG. R.	"			
4	1 1/2" AMER. STD. HEX. BOLTS 4" LG. WITH NUTS & WASHERS	SA-193 8.5			
4-1603-1B	HEADER OPPOSITE HAND TO 4-1603-1A				

ALL MATERIAL BY R.S.W. EXCEPT AS NOTED "W"

ERECTOR! MAINTAIN

NOTE
FOR FIELD MODIFICATION TO MOMENT RESTRAINT BRACKET REFER TO DRAWING 71016-4-1603-11B

NOTE 'A'
ACCESS HOLE CLOSURE ASSY PER E.S. WC18C-4 ASSY #B. SHOP WELD PER I ERECTOR! AFTER INSPECTION WELD CAP PER III

PROVISIONS MADE FOR THE REMOVAL OF (15) REHEATER TUBE ELEMENTS
PER DWG. 77003-4-1211-4-0 CO 4810

WORK THIS DWG. WITH DWG. #71016-4-11

HEADER MAT'L. ASME. SPEC'S. SA-335 P22 MIN. WALL. ASME. SPEC'S. SA-387 GR. D MIN. WALL. 1185" IN. 2. HEADERS BUILT IN ACCORDANCE WITH ASME BOILER SPEC'S. & E.S.-MD8-5. LOWEST FACTOR OF SAFETY = 4. RADIOGRAPHING IS REQ'D.

SHOP PERFORM ALL STAMPING PRIOR TO SHIP

SHIPPING WEIGHT OF EACH HEADER =

YEAR BUILT WAS 1972 ON STAMP	4	RECEIVED	THIS PRINT IS THE PROPERTY OF RILEY STOKER CORPORATION AND IS NOT TO BE USED IN ANY WAY INJURIOUS TO ITS INTERESTS AND IS TO BE RETURNED UPON REQUEST.
ADDED (2) GRAVITY BRACKETS	3	DATE 2/1/72	WE ARE NOT RESPONSIBLE FOR ANY INJURY OR DAMAGE DUE TO THE USE OF THIS DRAWING IF ANYTHING NOT ACTUALLY FURNISHED BY US.
ADDED (2) MOMENT RESTRAINTS	2	DATE 2/1/72	WE ARE NOT RESPONSIBLE FOR THE DESIGN, INSTALLATION OR OPERATION OF ANY PART OF FOUNDATION OR SETTING OR ACCESSORY EQUIPMENT NOT ACTUALLY FURNISHED BY US.
REVISED NOTE "A" WAS WC18C-4 B.O.M. PER WC18C WAS WC28K & DWG. WAS CORNIELLS	1	DATE 1/15/72	"N" MATERIAL NOT FURNISHED BY "F" MATERIAL FURNISHED BY
ADDED INSPECTION OPNGS. PER NOTE "A" OMITTED WELD PROCEDURE MASS-1	1	DATE 1/15/72	DO NOT USE THIS DRAWING FOR CONSTRUCTION UNLESS IT CONTAINS DATE AND SIGNATURE OF APPROVING
ALTERATION	NO.	DATE	FIRST USED ON CONTRACT NO. BLR- FUEL-
			DO NOT SCALE
			USE DIMENSIONS ONLY

DRAWN RSB	DATE 2/1/72	RILEY STOKER CORP. WORCESTER, MASS.
CHECKED	DATE 2/1/72	REHEAT OUTLET HEAD
DATE 2/1/72		JACKSONVILLE ELECTRIC AUTH.
		NORTHSIDE GENERATING STATION
		JACKSONVILLE, FLORIDA
		DWG. NO. 71016-4-16