

BROWN & ROOT, INC. CPSES JOB 35-1195	PROCEDURE NUMBER	ARMS INDEXED REVISION DATE	EFFECTIVE DATE	PAGE
	CCP-22	3	3/4/82	1 of 11
TITLE: STRUCTURAL STEEL ERECTION	ORIGINATOR:	<i>CE Hooton</i>		3-2-82 DATE
	REVIEWED BY:	<i>N/A [Signature] 3/2/82</i>		DATE
		<i>[Signature] TUGCO QA</i>		3-3-82 DATE
	APPROVED BY	<i>DC [Signature]</i> CONSTRUCTION PROJECT MANAGER		3-4-82 DATE

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1.0 INTRODUCTION

1.1 PURPOSE

1.1.1 The purpose of this document is to establish methods and procedures for the correct and safe erection of structural steel.

DCN #1
DCN #2
REV #3
#4
#5
#6

Weld

FOIA-85-59 6/3/12

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	REVIEWED BY: <u>**see original signature sheet**</u> _____ Date <div style="text-align: center;">B&R QA</div>			
	<u>**see original signature sheet**</u> _____ Date <div style="text-align: center;">TUGCO QA</div>			
	APPROVED BY: <u>**see original signature sheet**</u> _____ Date <div style="text-align: center;">CONSTRUCTION PROJECT MGR</div>			

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1.0 INTRODUCTION

1.1 PURPOSE

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JOB 35-1195

COMANCHE PEAK STEAM ELECTRIC STATION

Construction Procedure
DOCUMENT CHANGE NOTICE NUMBER 6

Notice applicable to Construction Procedure No. 35-1195- CCP-22 Rev. 3

This change will be incorporated in the next revision of the procedure.

Change the procedure as follows:

Replace sheet 1 of 11 and sheet 9 of 11
with the attached.

Reviewed by:

[Signature] 1-18-84
Originator Date

[Signature] 2/1/84
Brown & Root Quality Assurance Date

Approved by:

[Signature] 2/2/84
TUGCO Quality Assurance Date

Jay P. Turner 2/3/84
Construction Project Manager Date

2/3/84
Effective Date



JOB 35-1195

COMANCHE PEAK STEAM ELECTRIC STATION

Construction Procedure
DOCUMENT CHANGE NOTICE NUMBER 5

Notice applicable to Construction Procedure No. 35-1195- CCP-22 Rev. 3

This change will be incorporated in the next revision of the procedure.

Change the procedure as follows:

Please replace the following pages with the attached:

PAGE 6 of 11

PAGE 7 of 11

Reviewed by:

[Signature] 12-28-85
Originator Date

A/B PC 12-28-85
Brown & Root Quality Assurance Date

Approved by:

[Signature] 1/9/84
C.T.O. 1/6/84
TUGCO Quality Assurance Date

[Signature] 1-11-84
Construction Project Manager Date

1/11/84
Effective Date



JOB 35-1195

COMANCHE PEAK STEAM ELECTRIC STATION

Construction Procedure
DOCUMENT CHANGE NOTICE NUMBER 4

Notice applicable to Construction Procedure No. 35-1195- CCP-22 Rev. 3

This change will be incorporated in the next revision of the procedure.

Change the procedure as follows:

Please replace the following pages with the attached:

Page 6 of 11

Page 11 of 11: Attachment 2

Reviewed by:

CR Horton 10-13-83
Originator Date

N/A Teresa Lamata 10/17/83
Brown & Root Quality Assurance Date

Approved by:

[Signature] 10/18/83
TUGCO Quality Assurance Date

D.C. [Signature] 10/20/83
Construction Project Manager Date

October 20, 1983
Effective Date



JOB 35-1195
Comanche Peak Steam Electric Station

Construction Procedure
DOCUMENT CHANGE NOTICE NUMBER 3

This notice applies to Construction Procedure No. 35-1195-CCP-22 Revision 3.

This change will be incorporated in the next revision of the procedure.

Change the procedure as follows:

Replace page 6 of 11 with the attached.

Reviewed by:

[Signature] 3-29-83
Originator Date

N/L [Signature] 3-29-83
Brown & Root Quality Assurance Date

Reviewed by: *[Signature]* 3/29/83
TUGCO Quality Assurance Date

Approved by:

DC. Frankum 3-31-83
Construction Project Manager Date

April 5, 1983
Effective Date



JOB 35-1195
Comanche Peak Steam Electric Station

Sheet 1 of 2

Construction Procedure
DOCUMENT CHANGE NOTICE NUMBER 2

This notice applies to Construction Procedure No. 35-1195- CCP-22 Revision 3.

This change will be incorporated in the next revision of the procedure.

Change the procedure as follows:

Replace the following page with the attached:

Page 5 of 11

Reason for change: Additional requirements.

Reviewed by:

J. ... 8-24-82
Originator Date

N/A JOC 8/25/82
Brown & Root Quality Assurance Date

Approved by:

Reviewed by: *C.T. ...* 8/30/82
TUGCO Quality Assurance Date

Charles ... 8-30-82
Construction Project Manager Date

8/30/82
Effective Date



JOB 35-1195
Comanche Peak Steam Electric Station

Sheet 1 of 2

Construction Procedure
DOCUMENT CHANGE NOTICE NUMBER 1

This notice applies to Construction Procedure No. 35-1195-CCP-22 Revision 3.

This change will be incorporated in the next revision of the procedure.

Change the procedure as follows:

Replace the following page with the attached:

Page 5 of 11

Reason for change: Change in requirements

Reviewed by:

W.H. Crowe 6-2-82
Originator Date

HA [Signature] 6/2/82
Brown & Root Quality Assurance Date

Approved by:

Reviewed by: [Signature] 6/8/82
TUGCO Quality Assurance Date

D.C. Frankum 6-9-82
Construction Project Manager Date

6/9/82
Effective Date



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1.2 SCOPE

1.2.1 The scope of this procedure covers all Category I erection, inspection, and material storage of structural steel at CPSES. This procedure does not cover the safety aspects of erecting structural steel; however, all persons involved in the erection of structural steel need to take all necessary precautions for personal protection and safety.

1.3 GENERAL DISCUSSION

1.3.1 This procedure was established for the erection of structural steel in Category I structures. This procedure may also be used in whole or in part on non-category I structures as directed by the B&R Project Manager.

1.3.2 This procedure identifies pertinent and necessary criteria for safe and correct erection of structural steel. The reader should also read all referenced material and comply with its contents where applicable.

1.3.3 The only exception to the above is ANSI 45.2.5 - 1974 which was used only as a guide and is not a specified requirement for this project.

2.0 DEFINITION OF TERMS, ABBREVIATIONS AND SYMBOLS

2.1 TERMS

2.1.1 Structural Steel - shall be as described in Gibbs and Hill specification 2323-SS-16B - (Category I) or 2323-SS-16A - (Non-Category I) as noted on applicable structural drawings.

3.0 SPECIAL ITEMS AND OPERATIONS

3.1 AIR TOOLS

3.1.1 All pneumatic hand tools shall be disconnected from the power source and line pressure released prior to any tool adjustment or repair.

3.1.2 Air lines shall be tied together at line joints except when automatic cut-off couplers are used.



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3.2 PLUMBING UP

3.2.1 Guy lines shall be placed so that welders and bolters can get at the connection points.

3.2.2 Guy lines shall not be removed without first getting permission from the B&R Rigging Superintendent.

3.3 CONNECTING

3.3.1 When connectors are working in pairs, one end of the piece should be bolted with not less than two bolts (one bolt may be used but placed in the top hole and pulled tight) before one of the connectors goes out to connect the other end.

3.3.2 Whenever possible, an employee should straddle the beam instead of walking along the top.

3.3.3 When setting columns, before lifting falls are unhitched, either the nuts on the anchor bolts shall be drawn down tight or temporary guys attached.

3.3.4 A piece shall never be cut loose (load lines disconnected) until the required minimum number of bolts have been installed. Pins or wrenches in a hole shall not be relied on.

3.4 MATERIAL STORAGE REQUIREMENTS

3.4.1 Structural material, either plain or fabricated, shall be stored on the site above the ground upon platforms or skids.

3.4.2 All material shall be kept free from dirt, grease, and other foreign matter.

3.4.3 Material subject to extended exposure (over one year) shall be protected from corrosion by covering the material with weather-proof tarps or plastic sheets as directed by the B&R Rigging Superintendent or Project Civil Engineer.



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4.0 ERECTION PROCEDURE

4.1 GENERAL REQUIREMENTS

- 4.1.1 All rigging shall be in accordance with Construction Procedure 35-1195-CCP-24.
- 4.1.2 All structural steel framing shall have its structural integrity protected promptly upon erection by adequate bracing to resist horizontal forces, as directed by the B&R Rigging Superintendent or Project Civil Engineer.
- 4.1.3 No load-bearing structural member shall be weakened by cutting, drilling, or any other means without approval of the design engineer, or as shown on the approved shop drawings.
- 4.1.4 Joists hoisted in groups shall not exceed the number for one bay.
- 4.1.5 Tag lines shall be placed at either each end or just one end of a member to prevent swinging and to guide the member during erection and dismounting.
- 4.1.6 Lugs, gussets, and connecting angles shall be examined before sending up the members to see that connections are not bent or twisted.
- 4.1.7 Fitting-up bolts, drift pins, peaking, shimming and wedging shall not be used or executed to bring improperly fabricated members and parts into place.
- 4.1.8 All improperly fabricated members shall be brought to the attention of the Project Civil Engineer in writing by the B&R Rigging Superintendent or his representative.
- 4.1.9 Drift pins shall not be driven with such force as to injure adjacent metal.
- 4.1.10 All shop drawings shall be approved, or approved except as noted, by G&H engineering before erection proceeds.



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4.2 BOLTED CONNECTIONS

- 4.2.1 All field connections shall be made with high strength steel bolts, nuts, and washers (bearing type connections with threads excluded from the shear planes) unless otherwise noted on the engineering drawings.
- 4.2.2 Bolt heads and nuts shall rest squarely against the metal or washer.
- 4.2.3 Where bolts are used on leveled surfaces having slopes greater than 1-in-20 with a plane normal to the bolt axis, beveled washers shall be provided to give full bearing to the head or nut.
- 4.2.4 Threaded bolts on friction-type connections shall be tightened with properly calibrated wrenches or by turn-of-the-nut method. Threaded bolts on bearing-type connections shall be tightened snug tight, as a minimum, to prevent the nuts from loosening and falling off accidentally. These requirements shall prevail unless otherwise noted on Engineering drawings.
- 4.2.5 When "Turn-of-nut" method is used for bolt tightening, the impact wrench or other pneumatic device does not require calibration. However, the device shall be of adequate capacity and sufficiently supplied with air to perform the required tightening of each bolt in approximately ten seconds. When this method is used, the following steps will be followed:
1. All bolts in each joint shall first be brought to a "snug tight" condition (snug tight is defined as the tightness attained by a few impacts on an impact wrench or the full effort of a man using an ordinary spud wrench).
 2. All the nuts shall then be match-marked using an approved industrial marker, i.e., Nissen; which has certified contents.
 3. All the bolts in the joint shall then be tightened by the applicable amount of nut rotation specified in Attachment 1.
 4. Tightening shall progress systematically from the most rigid part of the joint to its freest edges.
 5. There shall be no rotation during tightening of the part not turned by the wrench.
 6. The end of all bolts shall be marked with the industrial marker when required nut rotation has been attained.



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4.2.6 When using a torque wrench for tightening ASTM A-325 and A-490 bolts, the below listed steps shall be followed:

- 1) All bolts in each joint shall be brought to a "snug tight" condition (snug tight is defined as the tightness attained by a few impacts on an impact wrench or the full effort of a man using an ordinary spud wrench).
- 2) All bolts in the joint shall be tightened to the applicable value as specified in Attachment 2. Tightening shall progress systematically from the most rigid part of the joint to its free edges.
- 3) Only calibrated torque wrenches obtained from the Calibration Lab may be used for this operation.

4.3 FIELD WELDED CONNECTIONS

4.3.1 No welded connections shall be made unless they are shown on the approved shop drawings or approved on a case by case basis by the Project Civil Engineer.

4.3.2 All welded construction shall conform to AISC specification for Design, Fabrication, and Erection of Structural Steel for Buildings and AWS D1.1.

4.4 BASE PLATES

4.4.1 Base plates and bearing plates shall be grouted in conformance with G&H specification 2323-SS-9, "Concrete".

4.4.2 Base plates shall be grouted only after structural steel is erected and placed with all anchor bolts tightened as released by the B&R Rigging Superintendent.

4.4.3 The grouting of base plates shall be in accordance with Construction procedure 35-1195-CCP-16.

4.5 TOLERANCES

4.5.1 In general, all steel shall be plumb and level within the tolerance of 1:500.



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4.5.2 Erection Tolerances for Structural Steel Platforms

1. Elevation location: Elevation for all components of the platform shall be within 3/4 inch of design.
2. Levelness: Horizontal members shall not have an elevation difference from end to end greater than 1/4 inch.
3. Plumbness: Plumbness 1/500.
4. Plan Location: Platform location in plan, measured from gridline to work point, shall be within 1 inch.
5. Assembly: All spacing from work point to work point on the platform shall be within 1/8 inch of design.
6. All requirements given above are generic and are typical unless otherwise noted on the platform drawing.

4.6 ATTACHMENTS TO BUILDING STRUCTURE

4.6.1 Hilti Kwik Bolts

Hilti Kwik bolts shall be installed in accordance with Civil Engineering Instruction CEI-20, "Field Installation of Hilti Bolts".

4.6.2 Richmond Inserts

ASTM A325, A490, or A449 bolts (suitable washers optional) shall be used for Richmond Insert bolt connections. Thread engagement into the Richmond Insert shall be at least 2 X bolt diameter plus 1/8 inch. Bolts shall be installed snug tight.

4.6.3 Embedded Anchor Bolts

Nuts on embedded anchor bolts shall be installed snug tight.

4.6.4 Welding to Embedded Plate

Attachment to embedded strip plate or large steel plates shall be in accordance with Construction procedure CCP-45. Attachment to miscellaneous embedded steel plate shall be in accordance with detail drawings and applicable welding procedures.



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4.7 FIELD FABRICATED ITEMS

4.7.1 Structural steel may be field fabricated as necessary to support construction activities. Fabrication shall be in accordance with appropriate approved drawings, DCA's and/or CMC's.

4.7.2 Material

4.7.2.1 Material shall be requisitioned from the Structural Steel Fabrication Shop bulk stock inventory.

4.7.2.2 Before material is subdivided, either through cutting or disassembly, the item's identification, i.e., heat number, code, or unique item number, shall be transferred. Throughout the fabrication and installation process, the identification markings shall be maintained.

4.7.2.3 Catalog items such as bolts, nuts, etc., shall be traceable to purchase order number or heat/lot number while in storage.

4.7.3 Welding

4.7.3.1 Welding shall be performed in accordance with AWS D1.1, B&R welding specification WES-029 and applicable approved welding procedures.

4.7.4 Tolerances

4.7.4.1 Fabrication work shall be performed in accordance with the tolerances listed below, unless otherwise noted on the approved shop drawings.

4.7.4.2 The following fabrication tolerances are to be used for steel items to be embedded in concrete. These tolerances will be used only where drawings do not specify otherwise:

1. General Linear Dimensions $\pm 1/8"$
2. Weld Stud Spacing $\pm 3/8"$
3. Weld Stud Design Position Deviation ± 5 Degrees
4. Anchor Bolt Dimensions (After Bending) $\pm 1/2"$

4.7.4.3 The following tolerances are to be used for the fabrication of structural steel unless otherwise noted on the drawings.

1. General Linear Dimensions -
 - a. Overall, when member has both ends finished for contact bearing $\pm 1/32"$
 - b. All other conditions
 - (1) For members up to 30-feet long $\pm 1/16"$
 - (2) For members longer than 30-feet $\pm 1/8"$



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4.7.4.4 Holes

All holes in structural steel fabricated under Specifications 2323-SS-16A and 2323-SS-16B shall be punched or drilled. No holes in this steel shall be made or enlarged by burning without authorization of Site Engineering.

4.7.4.5 Substitutions

When material called for on the detail drawing is unavailable for fabrication, craft personnel must receive the written approval of Civil Engineering prior to proceeding with substitutions.

5.0 DOCUMENTATION

Safety-related installation activities performed in accordance with this procedure shall be documented on an Operation Traveler in accordance with CPM 6.3.

6.0 SUPPORTING INFORMATION

6.1 REFERENCES

1. Ansi 45.2.5 - 1974 Supplementary Quality Assurance Requirements for Installation, Inspection and Testing of Structural Steel During the Construction Phase of Nuclear Power Plants.
2. Gibbs and Hill Specification 2323-SS-16A, "Non-Category I Structural Steel" and 2323-SS-16B, "Category I Structural Steel".
3. Construction Procedure 35-1195-CCP-24, "Rigging"
4. AISC Manual of Steel Construction - Seventh Edition
5. AWS D1.1
6. G&H Specification 2323-SS-9, "Concrete"
7. B&R Welding Engineering Department Procedure WES-029

6.2 ATTACHMENTS

1. Nut Rotation from Snug Tight Condition
2. Minimum Fastener Tension



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ATTACHMENT 1

NUT ROTATION^a FROM SNUG TIGHT CONDITION

Disposition of Outer Faces of Bolted Parts

Both faces normal to bolt axis, or one face normal to axis and other face sloped not more than 1:20 (bevel washer not used)		Both faces sloped not more than 1:20 from normal to bolt axis (bevel washers not used)
Bolt length ^b not exceeding 8 diameters or 8 inches	Bolt length ^b exceeding 8 diameters or 8 inches	For all length of bolts
1/2 turn	2/3 turn	3/4 turn

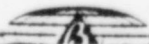
- a. Nut rotation is rotation relative to bolt regardless of the element (nut or bolt) being turned. Tolerance on rotation: 30o over or under. For coarse thread heavy hex structural bolts of all sizes and length and heavy hex semi-finished nuts.
- b. Bolt length is measured from underside of head to extreme end of point.



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ATTACHMENT 2
MINIMUM FASTENER TENSION

<u>BOLT TYPE</u>	<u>BOLT SIZE (INCHES)</u>	<u>TORQUE (FT.-LBS.)</u>
ASTM A-325	1/2	93
	5/8	228
	3/4	387
	7/8	518
	1	725
ASTM A-490	3/4	500
	7/8	650
	1	1320
	1 1/4	2620
	1 1/2	4565



COMANCHE PEAK STEAM ELECTRIC STATION
NONCONFORMANCE REPORT (NCR)

NCR No.
M-82-00216

27 exp

UNIT	STRUCTURE/SYSTEM	ITEM/COMPONENT	TAG/ID NUMBER	LOCATION OR ELEVATION	RIR NO.
1	Pipe Whip Restraint	1" A-490 Bolts	DET #2 SI-597	822' RB #1	N/A

NONCONFORMING CONDITION

REPORTING PERSONNEL

CCP-22, para. 4.2.6 requires in part "... all field connections shall be made with high-strength, steel bolts, nuts and washers unless noted by engineering, on the drawing. . .".

During torquing operations, using the Calibrated Wrench method, with Hydra-torque #MTE-3248, one (1) 1", A-490 bolt broke when torque value was @ 1000-1100 FT/LBS. MTE-3248 was checked and found the wrench was within calibration.

No set torque values have been established for torquing these bolts. Reinspection of remaining (5) bolts at this connection found an excessive reduction in cross-section area due to necking. Remaining (5) bolts had been torqued to 1250 ft/lbs.

Hold tag applied.

**INFORMATION
COPY
PPRV**

REFERENCE DOCUMENT: CCP-22/CD81-116-500 REV 3 PARA 4.2/4.2.6

REPORTED BY: Charles Atchison DATE: 3/29/82

QE REVIEW/APPROVAL: *[Signature]* DATE: 3/3/82

O

ACTION ADDRESSEE: J. T. Merritt/Kissinger DEPARTMENT: Engineering

DISPOSITION: REWORK _____ REPAIR _____ USE AS IS _____ SCRAP XXX

ACTION ADDRESSEE

Subject bolts will be scrapped. New bolts will be tensioned by turn of the nut method of tightening. Samples of the CB&I furnished bolts from the same supplier are being taken to be independently tested to verify material quality. A field test will be performed to establish torque values for ASTM A-490 bolts for inspection purposes only.

QA RECORD I

ARMS INDEXED

RTN.	QA REVIEW
L	08-12-18-82
FILE NO.	15.1
SUBFILE NO.	ACR-AC.

ENG. REVIEW/APPROVAL: *[Signature]* DATE: 5/10/82

QE

QE REVIEW APPROVAL: *[Signature]* DATE: 5/10/83

DISPOSITION VERIFICATION & CLOSURE: *[Signature]* DATE: 12/15/82

COMMENTS:

FOIA-85-59

4/313

SOUTHWESTERN LABORATORIES

REPORT OF TESTS ON METAL SPECIMENS

FILE NO.

Houston TEXAS August 9, 1982

TO: Texas Utilities Services, Inc.

REPORT NO. 35266

PROJECT Mechanical Test of Metal Specimen

ORDER NO. CPF-1708-S

MATERIAL 1" Dia. Bolts

IDENTIFICATION .505" dia. tension test

SPEC. REFERENCE ASTM A490

min 14%
min 40%
min 311
like 352

Specimen	Size	Sq. In. Area	Yield, p.s.i.*	Ultimate Strength, lbs.	Tensile Strength, p.s.i.	% El. 2"	% R.A.	Brinell Hardness
REQUIRED:			<i>min 130ksi</i>	<i>min 150ksi</i>				
1	.504	.1995	156,000	34,900	174,900	14	54	341
2	.503	.1987	154,100	33,100	166,600	14	55	341
3	.5015	.1975	153,200	32,300	163,500	13	53	341
4	.5025	.1983	154,400	33,200	167,400	13	53	341
5	.503	.1987	152,400	32,300	162,600	13	55	341
6	.500	.1963	154,700	32,450	165,300	14	53	341
7	.504	.1995	152,900	32,300	161,900	15	56	341
8	.5045	.1999	154,500	33,450	167,300	13	53	341

INFORMATION
COPY
PPRV

TECHNICIAN: Glenn Maxwell

COPIES TO: 3 - Texas Utilities Services, Inc.

SOUTHWESTERN LABORATORIES
FOIA-85-59 L314
Robert French

bm

- * 1. Verify all bolt-heads have been stamped with the letter N/A. This indicates the bolt is made from SA-540, B23 OR B24, CLASS 2. The minimum and maximum torque values for these bolts at this joint are 200 ft-lbs min. and 400 ft-lbs max.
- 2. Wire brush bolt and nut threads, bolt and nut washer faces, and washer to remove all loose rust and contamination.
- 3. Visually inspect bolt, nut and washer for imperfections and damage, and repair as needed to provide good threads and smooth, flat surfaces.
- 4. Apply N-5000 FEL-PRO to threads, washer-faces and washers, and assemble bolt, nut and washer at joint. Hand tighten.
- 5. Tighten bolts so that "reasonable contact" is obtained between the plates of the joint. "Reasonable contact" is defined as 80% contact as determined by visual inspection.
Note: Follow Step 7 below with torque wrench and be sure max. torque is not exceeded. When 80% contact can not be obtained under some bolts, engineering & W shall be contacted for resolution.
- 6. Torque bolts in two increments, ie., tighten all bolts in a joint to half the specified value then repeat the operation to the full torque value. An attempt should be made to reach the max. values; however if not possible because of joint configuration, etc., the minimum value is acceptable.
- 7. Tighten bolts systematically from the most rigid part of the joint to its freest edge.
- 8. When several bolts are installed in a single joint, the wrench shall be returned to "touch-up" bolts previously tightened to assure that any bolts which may have been loosened by the tightening of subsequential bolts are tightened to the prescribed amount.
- * In some situations, "bolts" may be anchor studs and therefore not stamped. Subsequent references to bolts shall mean studs, and Step 5 is not applicable.

Torque Wrench CT-1068
Due Date 31 Aug 82

INFORMATION
COPY
PPRV

FOIA-85-59

L315

HYTORC - SUPERLITE
PRESSURE/TORQUE CONVERSION CHART

Style 4/1
6.41

<u>PRESSURE</u> (PSI)	<u>HY-1SL</u> <u>TORQUE</u> (ft.lbs.)	<u>HY-3SL</u> <u>TORQUE</u> (ft.lbs.)	<u>HY-5SL</u> <u>TORQUE</u> (ft.lbs.)	<u>HY-10SL</u> <u>TORQUE</u> (ft.lbs.)	<u>HY-25SL</u> <u>TORQUE</u> (ft.lbs.)
1,000	145	310	555	1,195	2,740
1,200	180	370	665	1,440	3,300
1,400	210	435	780	1,675	3,850
1,600	240	495	885	1,920	4,390
1,800	265	560	995	2,155	4,950
2,000	300	620	1,110	2,395	5,500
2,200	330	680	1,220	2,635	6,050
2,400	360	745	1,325	2,875	6,615
2,600	385	800	1,440	3,115	7,155
2,800	420	865	1,555	3,355	7,700
3,000	455	930	1,660	3,595	8,245
3,200	480	990	1,775	3,830	8,800
3,400	510	1,050	1,890	4,070	9,350
3,600	535	1,115	1,990	4,315	9,895
3,800	570	1,145	2,110	4,550	10,455
4,000	600	1,240	2,220	4,790	11,100
4,200	625	1,300	2,325	5,030	11,555
4,400	665	1,360	2,435	5,270	12,105
4,600	690	1,420	2,550	5,510	12,650
4,800	720	1,480	2,660	5,760	13,200
5,000	745	1,545	2,775	5,995	13,750
5,200	780	1,610	2,880	6,230	14,290
5,400	805	1,670	2,995	6,470	14,845
5,600	840	1,730	3,105	6,710	15,400
5,800	870	1,795	3,215	6,950	15,965
6,000	900	1,850	3,325	7,190	16,455
6,200	930	1,915	3,435	7,430	17,050
6,400	965	1,975	3,550	7,670	17,605
6,600	990	2,040	3,655	7,910	18,150
6,800	1,020	2,100	3,770	8,145	18,675
7,000	1,045	2,165	3,880	8,385	19,250
7,200	1,075	2,225	3,995	8,625	19,800
7,400	1,110	2,290	4,105	8,865	20,350
7,600	1,140	2,350	4,215	9,100	20,885
7,800	1,165	2,410	4,325	9,345	21,450
8,000	1,195	2,475	4,435	9,585	22,055
8,200	1,230	2,535	4,545	9,825	22,550
8,400	1,260	2,595	4,660	10,065	23,200
8,600	1,290	2,660	4,770	10,300	23,650
8,800	1,320	2,720	4,885	10,545	24,200
9,000	1,350	2,780	4,990	10,790	24,750
9,200	1,380	2,845	5,100	11,090	25,300
9,400	1,415	2,905	5,210	11,270	25,845
9,600	1,440	2,965	5,320	11,525	26,400
9,800	1,475	3,025	5,430	11,750	26,950
10,000	1,505	3,090	5,545	12,010	27,500

HYTORC-SUPERLITE
PRESSURE/TORQUE CONVERSION CHART

<u>PRESSURE</u> (PSI)	<u>AB-6SL</u> <u>TORQUE</u> (ft.lbs.)	<u>AB-12SL</u> <u>TORQUE</u> (ft.lbs.)
1,000	595	1,155
1,200	720	1,385
1,400	840	1,610
1,600	960	1,845
1,800	1,080	2,075
2,000	1,195	2,305
2,200	1,315	2,535
2,400	1,440	2,765
2,600	1,555	2,995
2,800	1,675	3,225
3,000	1,795	3,455
3,200	1,920	3,685
3,400	2,035	3,920
3,600	2,155	4,150
3,800	2,280	4,380
4,000	2,395	4,610
4,200	2,515	4,835
4,400	2,635	5,070
4,600	2,750	5,300
4,800	2,870	5,530
5,000	2,995	5,760
5,200	3,115	5,990
5,400	3,230	6,220
5,600	3,350	6,450
5,800	3,475	6,680
6,000	3,590	6,915
6,200	3,715	7,140
6,400	3,835	7,370
6,600	3,950	7,605
6,800	4,070	7,835
7,000	4,190	8,065
7,200	4,315	8,295
7,400	4,430	8,525
7,600	4,550	8,755
7,800	4,665	8,990
8,000	4,790	9,215
8,200	4,910	9,445
8,400	5,030	9,675
8,600	5,155	9,910
8,800	5,270	10,135
9,000	5,390	10,365
9,200	5,510	10,600
9,400	5,630	10,830
9,600	5,745	11,060
9,800	5,875	11,290
10,000	6,010	11,520

COMANCHE PEAK STEAM ELECTRIC STATION
DESIGN CHANGE AUTHORIZATION

CHANGE INDEX: OEI _____
: II XX
: III _____

(WILL) ~~BE~~ BE INCORPORATED IN DESIGN DOCUMENT DCA NO. 15,028 Rev. 1

1. SAFETY RELATED DOCUMENT: XX YES _____ NO

2. ORIGINATOR: CPPE XX ORIGINAL DESIGNER _____

A490

3. DESCRIPTION:

A. APPLICABLE ~~SPEC/DWG/DOCUMENT~~ _____
2323-CSDS-04
2323-SS-16B REV. 1
0

B. DETAILS THIS REVISION VOIDS AND SUPERSEDES DCA-15,028 Rev. 0.

When field connections are to be made by use of ASTM A490 bolts and tightened or inspected with a calibrated torque wrench, a hardened flat washer shall be used under the element turned in tightening and the turned element shall be tightened as follows:

ASTM A490

Bolt Size (inches)	Torque (ft-lbs)
3/4	500
7/8	650
1	1320
1 1/4	2620
1 1/2	4565

FOR OFFICE AND
ENGINEERING USE ONLY

4. SUPPORTING DOCUMENTATION:

CPPA-24736 GTT-9232

5. APPROVAL SIGNATURES: WHC/sgf

12-1-82

A. ORIGINATOR: William H Crowe

DATE 12-1-82

B. DESIGN REPRESENTATIVE: CR Houston

DATE 12-1-82

6. VENDOR TRANSMITTAL REQUIRED: YES

NO XX
JOB NO. 35-1195

7. STANDARD DISTRIBUTION:

- ARMS (Original) (1)
- Quality Engineering (1)
- TS for Orig. Design (1)
- Westinghouse-Site (1)
- Civil Engineering (1)

RECEIVED
DEC 01 1982
RECEIVED

DCA FORM 11-80
Admin. Rev 7-82

FOIA-85-59
2314

643621

17"

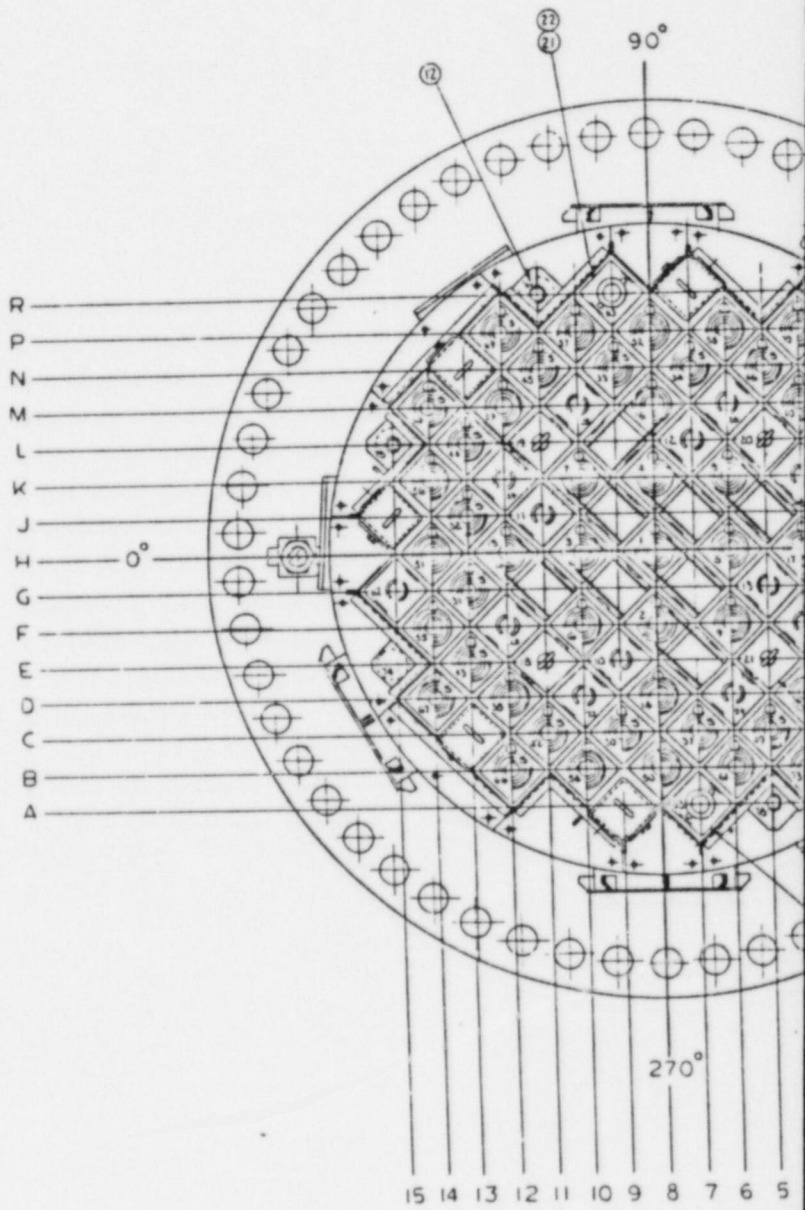
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8.5"

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11"

17"



SECTION

15
 14
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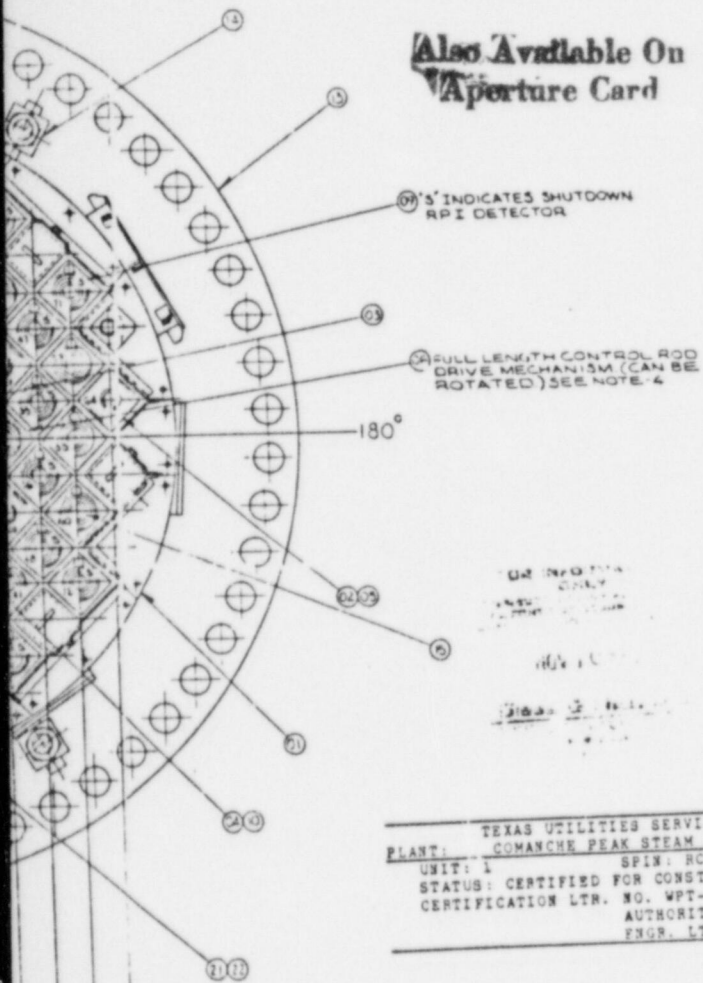
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SECTION

TI APERTURE CARD

Also Available On
Aperture Card



TEXAS UTILITIES SERVICES INC.
PLANT: COMANCHE PEAK STEAM ELECTRIC STATION
UNIT: 1
STATUS: CERTIFIED FOR CONSTRUCTION
CERTIFICATION LTR. NO. WPT-6448
AUTHORITY: A. T. PARKER
ENGR. LTR. NO. EP/SA-61662

FOR OFFICE AND
ENGINEERING USE ONLY

NO.	DESCRIPTION	QTY	UNIT	REVISION
1	ASSEMBLY	1		
2	ASSEMBLY TYPE I	1		
3	ASSEMBLY TYPE II	1		
4	ASSEMBLY TYPE III	1		
5	HEAD ADAPTER	1		
6	CONTROL ROD MECHANISM	1		
7	CONTROL ROD GUIDE	1		
8	DETECTOR ASSY	1		
9	SHUTDOWN	1		
10	LATCH	1		
11	GUIDE	1		
12	FLANGE	1		
13	CLOSURE HEAD ASSEMBLY	1		
14	LEFTING RIG ASSEMBLY	1		
15	DETECTOR ASSY (RPI)	1		
16	SUPPORT PLATFORM (SIZE 3' X 3')	1		
17	THERMAL SLEEVE	1		
18	NEOLUBE	1		
19	DOWEL PIN	1		
20	NEOLUBE	1		
21	WELVMS FLANGE ASSEMBLY	1		
22	MODIFIED DUMMY CAN TYPE I (LATER)	1		
23	BELL MOUTH SLEEVE (LATER)	1		

Y-W EMO (CHESWICK) DRAWING (FULL LENGTH DRIVE ROD NOT TO BE INSTALLED ON THIS DWG.)
N- DRAWING BY COMBUSTION ENGINEERING INC. (WITH HARDWARE)
Z-W NICO (BALTIMORE, MD) DRAWING.

- NOTES**
- ALL DIMENSIONS ARE REFERENCE UNLESS OTHERWISE SPECIFIED.
 - WELD PER WPS 292613-1. VISUAL INSPECT WITH 10X MAGNIFICATION. NO CRACKS PERMITTED.
 - USE NEOLUBE (ITEM 20) ON ALL EXTERNAL THREADS.
 - INSTALL PER W EMO INSTRUCTION BOOK NUMBER (LATER)
 - USE P5821272J OR P5821272L OR P582175K FOR REFERENCE PARAMETERS FOR QUALITY APPROPRIATE MANUAL WELD PROCEDURE. LIQUID PENETRANT TO BE PERFORMED AFTER WELDING.

RECEIVED
AUG 19 1963
CIBEX & M.I.L. Co.

WE STRONGLY RECOMMEND THAT YOU OBTAIN A COPY OF THE FOLLOWING PUBLICATIONS FROM THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME) 345 E. 57th St., New York, N.Y. 10022

ASME B31.1 - CODE FOR UNIFORMED STEEL PIPE AND HANGARS
ASME B31.3 - CODE FOR PIPE, PIPE HANGARS, BOILER EXHAUSTERS, AND PROCESS PIPING
ASME B31.4 - CODE FOR PIPE, PIPE HANGARS, BOILER EXHAUSTERS, AND PROCESS PIPING

WE PREPARE SPECIFICATION NO. C-100-101 FOR SUPPLEMENTARY INFORMATION

NO.	DESCRIPTION	QTY	UNIT
1	CLOSURE HEAD (8X) OF GENERAL ASSEMBLY	1	
2	1219E49		

8606040295-01

11
14
85
27A
85"
11"
17"

1219E49

526.41

241

104.41

11"

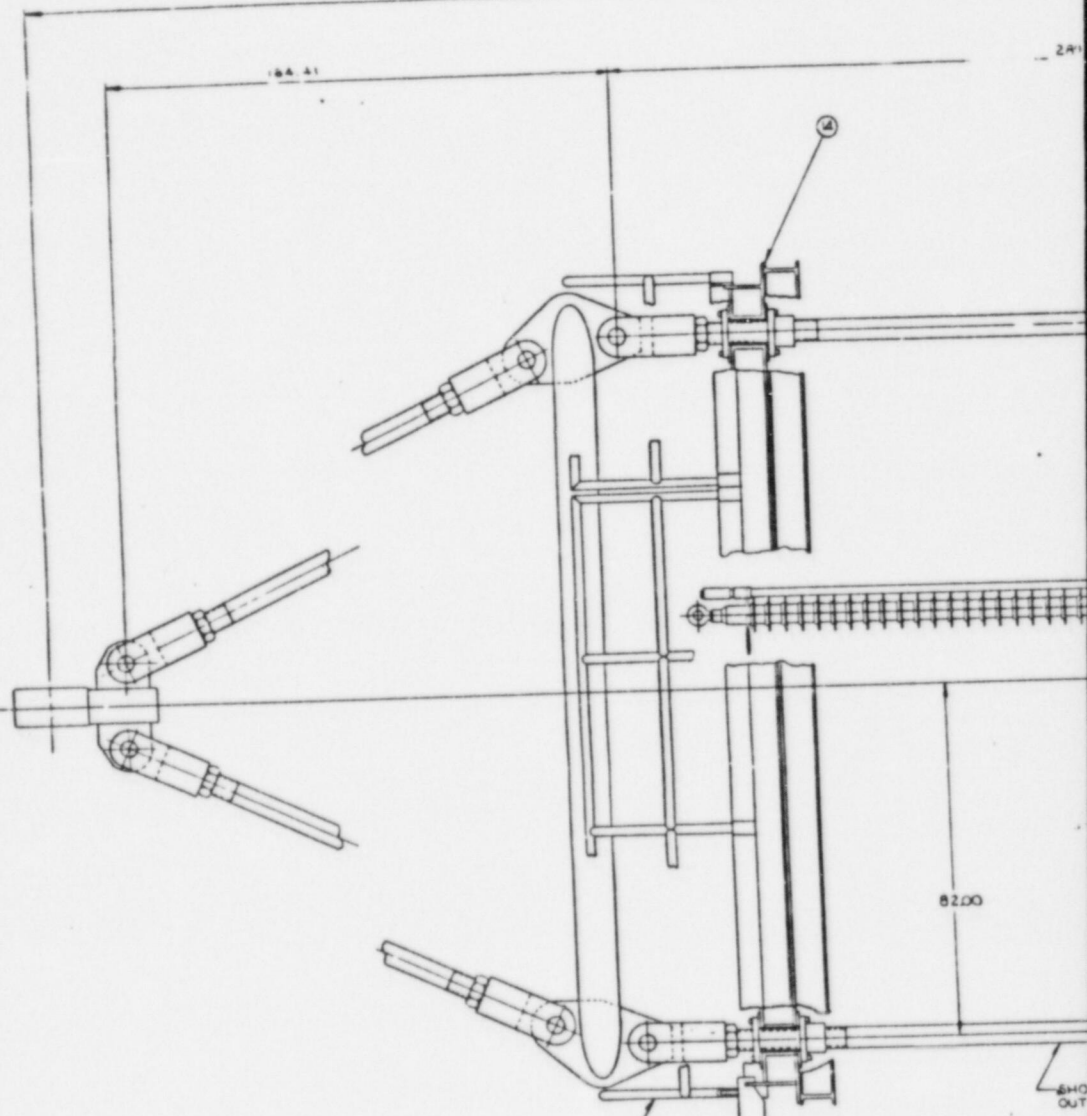
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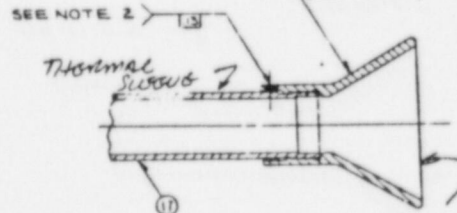
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11"

17"

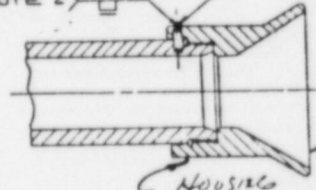


SEE NOTE 2
 TORQUE TO 50 FT LBS. MIN.
 (SEE NOTE 3)



DETAIL - B
 SCALE 1:2
 TYPICAL 57 PLACES

SEE NOTE 2
 USING 3/8" PILOT BOT HOLE 1/4"



DETAIL - C
 SCALE 1:2
 TYPICAL 4 PLACES
 HEAD LOCATIONS 75, 76, 77 & 78

14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
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next to Room 68 -
K. Gibson

Room 68 -
Room 192 -

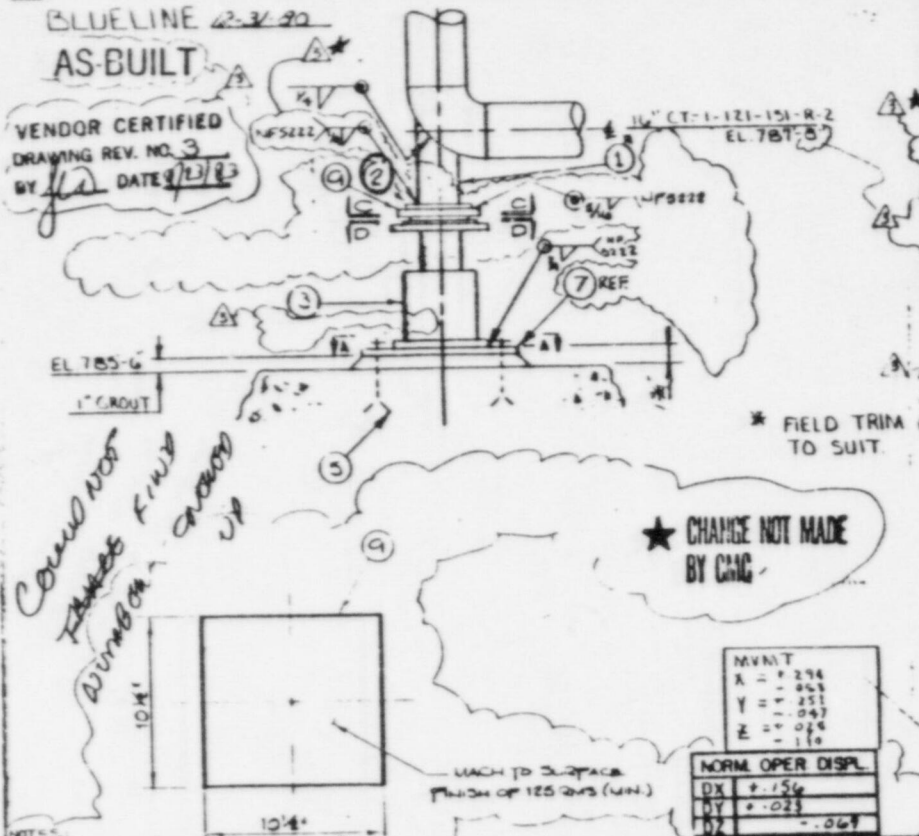
CASS 819
JOE Reynolds #

32

FOIA 85-59
319

BLUELINE 2-27-90
AS-BUILT

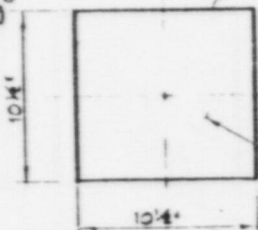
VENDOR CERTIFIED
DRAWING REV. NO. 3
BY *[Signature]* DATE 7/1/88



*Could not
find
dimension
shown*

* FIELD TRIM
TO SUIT

* CHANGE NOT MADE
BY CMC



WASH TO SURFACE
FINISH OF 125 DWS (MIN.)

MOUNT	
X	= +294
Y	= -251
Z	= -047
NORM OPER DISPL	
DX	= +.156
DY	= +.023
DZ	= -.068

NOTES:
LOCKING DEVICES FOR
HIGH STRENGTH BOLTS
ARE NOT REQUIRED
PER DCA 7008

SECTION 'C-C'

TC# 4502



SCALE: 1/8\"/>

THIRD PARTY INSPECTION YES NO
CODE CLASS: ASME III-2

ITEM NO.	MATERIALS & OPERATIONS	QUAN	SHIP	PES	L	Q55
	SEISMIC PIPE SUPPORT CONSISTING OF					
	MATERIAL EXISTS IN FIELD					
1	2\"/>					
2	W/LOAD FLANGE & TRAVEL STOP					
3	COLD LOAD					
4	CONCRETE ANCHORS					
5	SEISMIC ASSEMBLY SKETCH AND ENGINEERING					
6	BUNDLE AND TAG					
7	MARK # CT-1-121-001-5225					
8	FOR OFFICE AND ENGINEERING USE ONLY					
9	APPLY TO SURFACE					
10	TO BE COATED					
11	TO BE COATED					
	Apply one coat of Seal-Prime to					
	surface of pipe and hanger steel					
	to be coated w/ a rust preventative.					
	REV DATE DESIGNED BY APPR					
	DESCRIPTION					
	REV'D AS NOTED - REF FIELD					
	MODIFIED HANGER SKETCH & ITR					
	DELETED NOTES 1-3 & 4 FROM THIS					
	ADDED SHEET (E)					
	REVAS SPEC FOR ALL STEELS, WEL-					
	DJUSTMENT) AS BUILT.					
	VENDOR CERTIFICATION REF					
	WITH CHECK					
	FOR MATERIALS AND OPERATIONS SEE SKETCH NO.					
	SHEET OF					

Brown & Root, Inc.		CONDITIONS	Fx	Fy	Fz	Mx	My	Mz
REF DRAWING NUMBERS		DESIGN		2224				
PIPE: 316-0216 W/WH ELECT: 316-0216		NORMAL UPLEY						
STEEL: 316-0216 REV 15 HV A C: 316-0216		EMERGENCY						
		FAULTED						
REV DATE DESIGNED BY APPR	DESCRIPTION	CUSTOMER TEXAS UTILITIES SERVICE INC.						
		ORDER OR CONT NO. CP-0046						
		JOB NAME COMANCHER PEAR 1 & 2						
		MARK NO CT-1-121-001-5225						
		SKETCH NO.						
		SHEET 1 OF 2 REV. 3						

33

UNIT	STRUCTURE/SYSTEM	ITEM/COMPONENT	TAG/ID NUMBER	LOCATION OR ELEVATION	RIR NO.
1	Pipe Whip Restraint	1" A-490 Bolts	DET #2 SI-597	822' RB#1	N/A

REPORTING PERSONNEL

NONCONFORMING CONDITION

CCP-22, para. 4.2.6 requires in part ". . .all field connections shall be made with high-strength, steel bolts, nuts and washers unless noted by engineering, on the drawing. . ."

During torquing operations, using the Calibrated Wrench method, with Hydra-torque #MTE-3248, one (1) 1", A-490 bolt broke when torque value was @ 1000-1100 FT/LBS. MTE-3248 was checked and found the wrench was within calibration.

No set torque values have been established for torquing these bolts. Reinspection of remaining (5) bolts at this connection found an excessive reduction in cross-section area due to necking. Remaining (5) bolts had been torqued to 1250 ft/lbs.

Hold tag applied.

QA RECORD I

RTN.	QA REVIEW
2	cm 10-5-83
FILE NO.	15.1

ARMS
INDEXED

REFERENCE DOCUMENT: CCP-22/CD81-116-5500

SUBFILE NO.

REV. DATE: 3

PARA 4.2/4.2.6

REPORTED BY:

C. Atchison

DATE:

3 / 29 / 82

QE REVIEW/APPROVAL:

COPY

DATE: 9/30/83

ACTION ADDRESSEE

Merritt/Kissinger

DEPARTMENT

Engineering

DISPOSITION:

REWORK _____ REPAIR _____ USE AS IS _____ SCRAP XXX

Subject bolts will be scrapped. New bolts will be tensioned by turn of the nut method of tightening. Samples of the CB&I furnished bolts from the same supplier are being taken to be independently tested to verify material quality. A field test will be performed to establish torque values for ASTM A-490 bolts for inspection purposes only.

FINAL DISPOSITION

Based on the attached test results from Southwestern Laboratories, report no. 35266, 8-9-82, CB&I furnished bolts are acceptable. Specimens 1-8 meet the minimum required yield strength. Specimens 2-8 meet the minimum and maximum tensile strength. Specimen 1 showed a tensile strength of 2.9% higher than the maximum tensile requirement. This is not deemed cause for rejection based on the other tests. Review of the % Elongation, combined with review of the Brinell Hardness and yield strength, indicates

OE

ACTION ADDRESSEE

ENG. REVIEW/APPROVAL

[Signature]

DATE:

10/3/83

QE REVIEW APPROVAL:

[Signature]

DATE:

10/5/83

DISPOSITION VERIFICATION & CLOSURE

[Signature]

DATE:

10/28/83

COMMENTS: R-1 issued to reopen NCR to give final test results

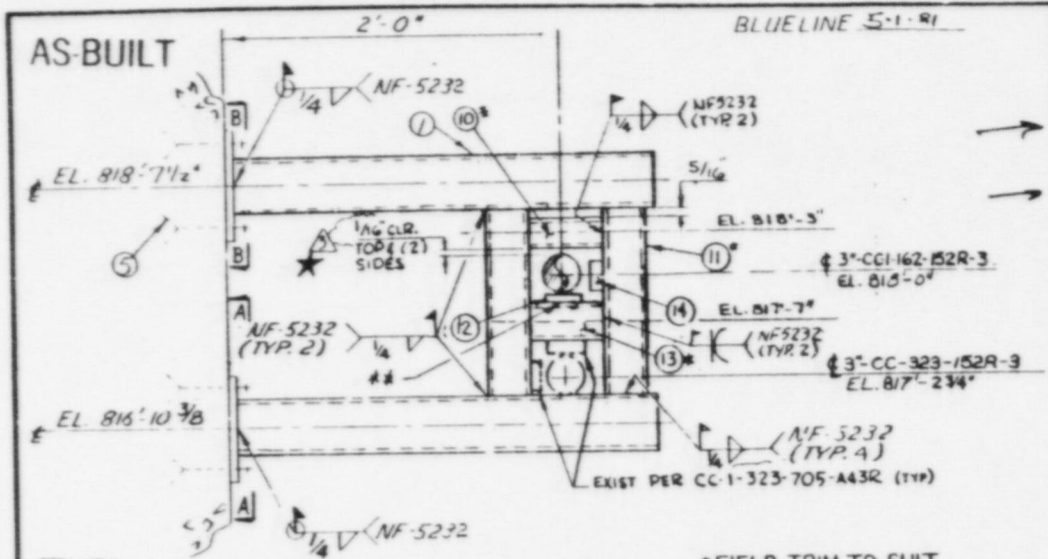
FOIA-85-59

L 320

that the materials tested are marginal in ductility; however, would be considered within an acceptable limit. Violation of minimum % Elongation does not constitute rejection of the material but only requires a retest. This test report indicates the materials as tested meet the requirements of Table 5 ASTM A 490 and are acceptable.

INFORMATION
COPY
PPRV

NOT on file's DWG 31



ITEM NO	QTY	MATERIAL	DESCRIPTION	PBS	LES	PHM	PK	AISC
1	2	T.S. 5x5x1/2x2-6"	A-500 GR B	X	X	X		
2	1	T.S. 3x3x1/2x0-2 1/4"	A-500 GR B	X	X	X		
3	2	T.S. 3x3x1/2x0-2 1/4"	A-500 GR B	X	X	X		
4	1	C.S.R. 3/4"x11 5/16"x12 5/16"	PER SECT. A-A (CAST IN PLACE)	X	X	X		
5	8	3/4"x10" HILTI-KWIK CONCRETE ANCHOR	(8" MIN. EMB.)	X	X	X		
6	1	C.S.R. 3/4"x12 1/16"x15 1/16"	PER SECT. B-B	X	X	X		
7	2	T.S. 5x5x1/2x2-6"	A-500 GR B	X	X	X		
8	1	T.S. 3x3x1/2x0-2 1/4"	A-500 GR B	X	X	X		
9	1	T.S. 3x3x1/2x0-2 1/4"	A-500 GR B	X	X	X		
10	1	T.S. 3x3x1/2x0-2 1/4"	A-500 GR B	X	X	X		
11	2	T.S. 4x4x1/2x1-6"	A-500 GR B	X	X	X		
12	1	R. 1"x3"x5"	(SA-36)	X	X	X		
13	1	T.S. 4x4x1/2x1-6"	A-500 GR B	X	X	X		
14	1	R. 3/8"x3"x5"	(SA-36) SHIM	X	X	X		

REV	DESCRIPTION	DATE	OWN	CHKD	APPVD
1	QTYD AS NOTED REF. CMC 5276281, 64190R1	1/1/91	SW	RD	STP
2	DATE NOT SHOWN IN 'AS-BUILT'				
3	REVISIONS TO BE TREATED WITH A RUST PREVENTATIVE	1/1/91	SW	RD	STP

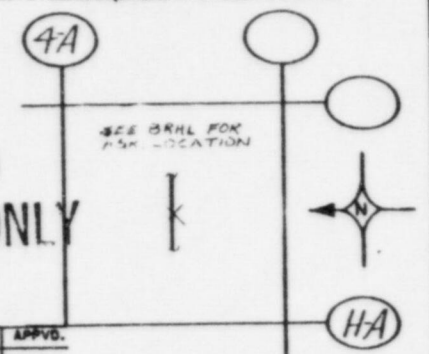
VENDOR CERTIFIED
DRAWING REV. NO. 3
BY DATE 10/6/93

ELEVATION LOOKING EAST

*FIELD TRIM TO SUIT
**WELD AS PER PROCEDURE -
*CP-CPM-9.10

ASME CODE EDITION: 1974
ADDENDA: WINTER
DESIGN SPEC: MS-46A

FOR OFFICE AND
ENGINEERING USE ONLY



NOTES:
1) Locking devices for high strength bolts are not required per DCA 7607

CHANGE BY
3/1 12/1
11/3/8



DATA PT	SUPPORT	LOADS (LBS)	PIPE
72	DESIGN	STAY	INCHES
VERT			
H-S			
E-W			

REF	NO	REV	DESCRIPTION	REV	NO	REV	DESCRIPTION
ISO	1		MECHANICAL	13	MI-0101-01	5	
FAB	1		STRUCTURAL	3	MI-0753	7	

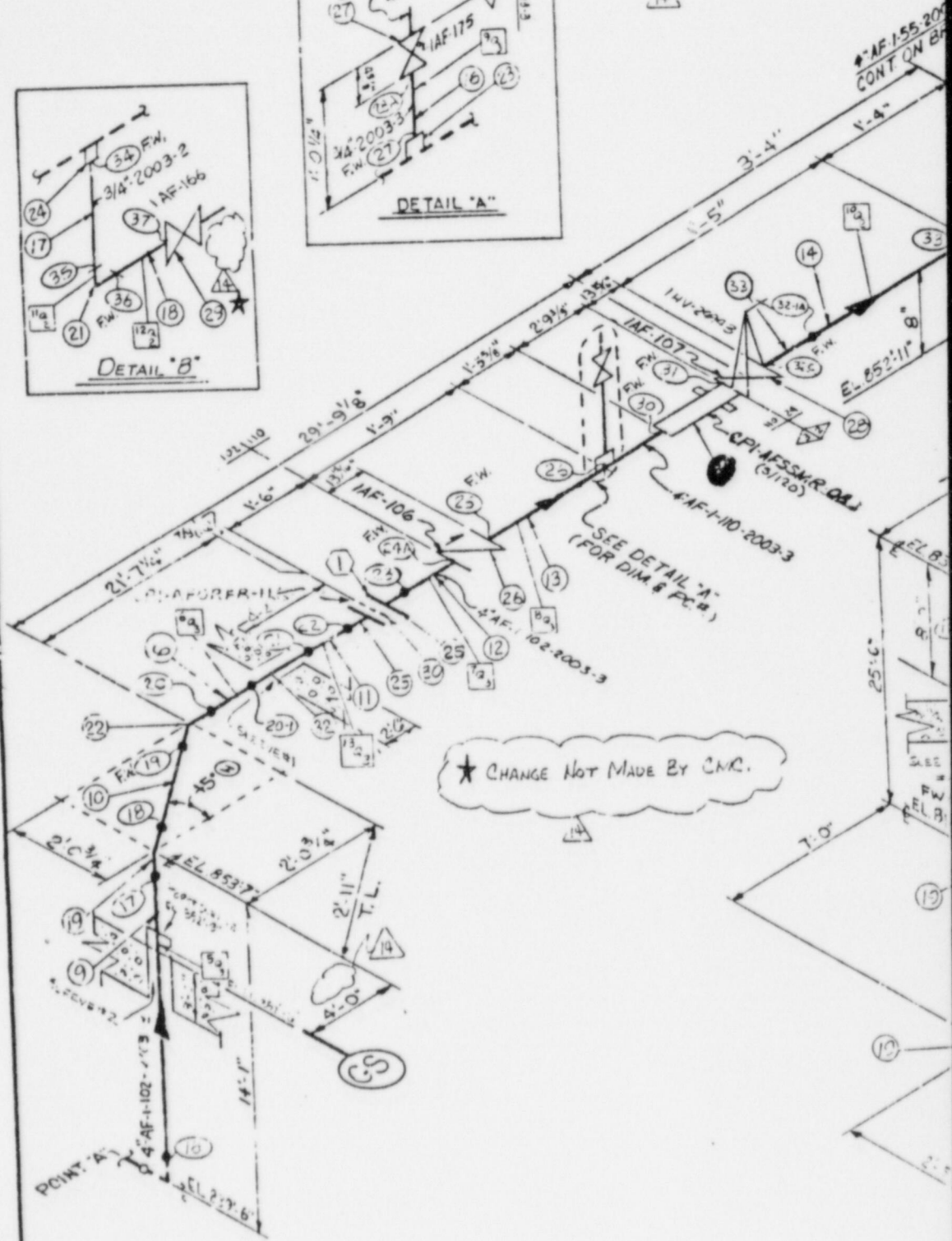
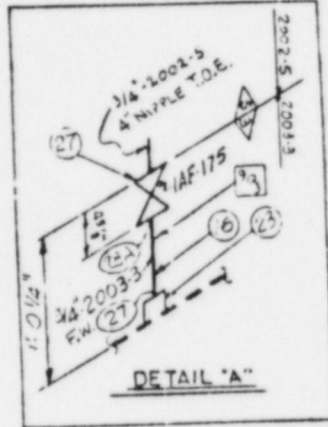
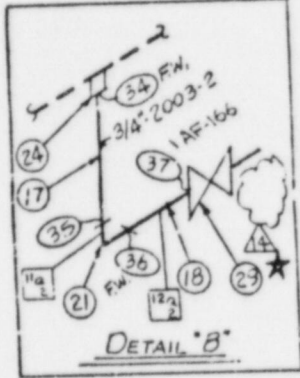
REV	DESCRIPTION	DATE	OWN	CHKD	APPVD
1	ISSUED FOR CONSTRUCTION	5-1-91	SW	RD	STP
2	REF. IN SET				
3	CONT. ABOVE				

Brown & Root, Inc.
ENGINEERS AND CONSTRUCTORS
HOUSTON, TEXAS

CLIENT: T.U.S.I.
PLANT: COMANCHE PEAK
JOB NO: 2323

SUPPORT NO: CC-1-162-723-A43R
SHEET 1 OF 2 REV. 3

FOIA-85-59

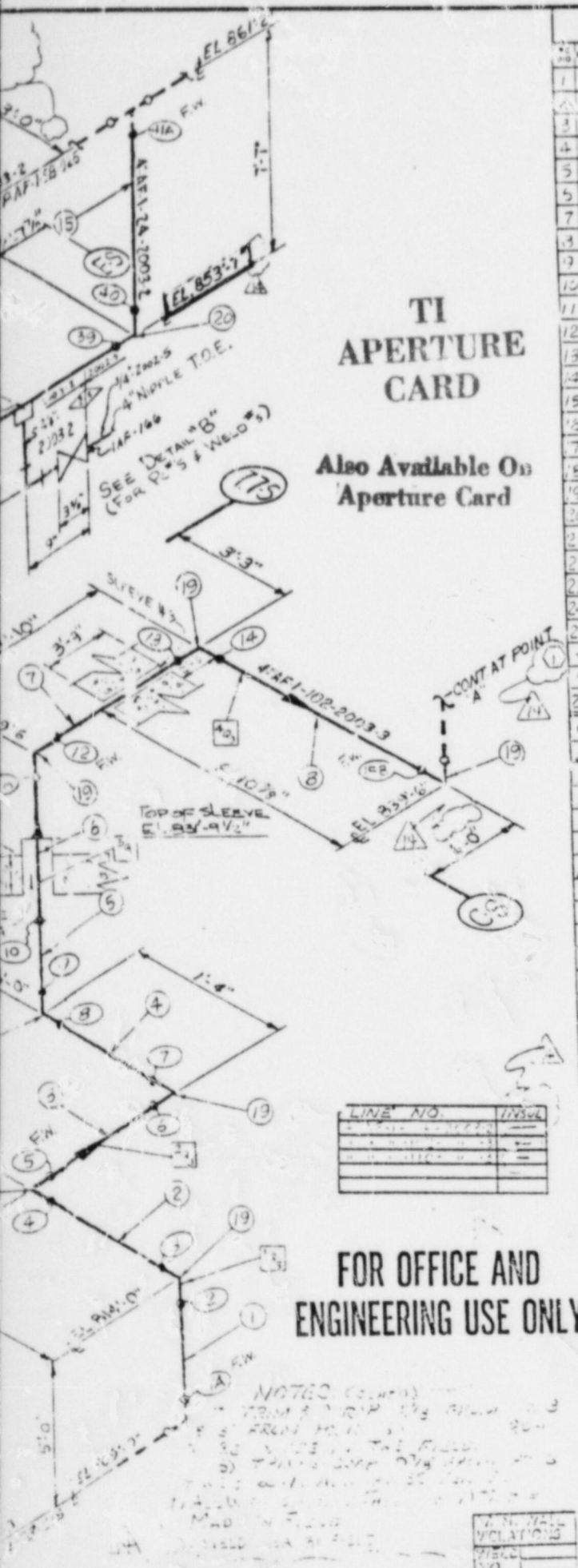


★ CHANGE NOT MADE BY CMC.

NO.	QTY	DESCRIPTION	UNIT	REMARKS
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4	1	4\"/>		
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BILL OF MATERIAL

NO	REV	QTY	SIZE	DESCRIPTION	UNIT	GRADE	COLOR
1	1	3	4"	5/120 PIPE	LF		
2	1	4	4"	1-5'			
3	1	4	4"	6-0'			
4	1	2	4"	0-4'			
5	1	2	4"	4-6' EST			
5	2	4	4"	SVL 20'0 EST			
7	1	4	4"	6-10'			
8	1	4	4"	7-10 1/4'			
9	1	4	4"	13-1'			
10	1	4	4"	2'-2 1/2'			
11	1	4	4"	0-7 3/4' EST			
12	1	4	4"	1'-1 7/8"			
13	1	3	4"	2'-2 1/16"			
14	1	2	4"	1'-7 3/8"			
15	1	2	4"	5/120			
16	1	3	3/4"	5/160			
17	1	2	3/4"	do			
18	1	2	3/4"	5/160 ADE			
19	1	3	4"	5/120 BW 30' ELL.			
20	1	2	4"	5/120 BW 30' do			
21	1	2	3/4"	6000# SW 90' ELL.			
22	1	3	4"	5/120 SW 45' ELL.			
23	1	3	3/4"	6000# SOL.			
24	1	2	3/4"	6000# SOL.			
25	2	3	4"	1500# RF/WV FLG 5/120			
-	1	1	1 1/2"	x 9 1/2" LG STUDS W/CHS WTS			
-	2	1	4"	x 1/2" THK 150# FIBR STUR CG			
26	1	3	4	CB 308 BM CP-208.1 WFZ			

REV	DATE	DESCRIPTION	BY	CHK	APPD
1		W/ I.F.C. WELDS 1-1" PER T.W. 101.8 1/16 1/16 1/16			
2		I.F.C. WELDS 1-1" PER T.W. 101.8 1/16 1/16 1/16			
3		REVISED PER LMC 5767			
4		REVISED AS NOTED PER PDN 775			
5		I.F.C. WELDS 2-1" PER T.W. 101.8 1/16 1/16 1/16			
6		REV. AS NOTED REF. CMC # 3712, R-2			
7		REV. AS NOTED REF. CMC 33712, R-2			
8		REV. AS BUILT AS NOTED PER CMC # 42220			
9		REV. AS BUILT AS NOTED PER CMC # 3712, R-2			
10		REV. AS BUILT AS NOTED PER CMC # 3712, R-2			
11		REV. AS BUILT AS NOTED PER CMC # 3712, R-2			
12		REV. AS BUILT AS NOTED PER CMC # 3712, R-2			
13		REV. AS BUILT AS NOTED PER CMC # 3712, R-2			
14		REV. AS BUILT AS NOTED PER CMC # 3712, R-2			
15		REV. AS BUILT AS NOTED PER CMC # 3712, R-2			
16		REV. AS BUILT AS NOTED PER CMC # 3712, R-2			
17		REV. AS BUILT AS NOTED PER CMC # 3712, R-2			
18		REV. AS BUILT AS NOTED PER CMC # 3712, R-2			
19		REV. AS BUILT AS NOTED PER CMC # 3712, R-2			
20		REV. AS BUILT AS NOTED PER CMC # 3712, R-2			
21		REV. AS BUILT AS NOTED PER CMC # 3712, R-2			
22		REV. AS BUILT AS NOTED PER CMC # 3712, R-2			
23		REV. AS BUILT AS NOTED PER CMC # 3712, R-2			
24		REV. AS BUILT AS NOTED PER CMC # 3712, R-2			
25		REV. AS BUILT AS NOTED PER CMC # 3712, R-2			
26		REV. AS BUILT AS NOTED PER CMC # 3712, R-2			

SPOOLS: 1-13 BY BR

COST CODE	N/A	PART OF CPM-101	INSTR.	CL	THRU
FLOW DIA	MI-0206	COMPOSITE	SEC 36.19 SVS 3	SEE TAB	

MI-601, R.5; MI-601-01, R.6; MI-602, R.11; MI-603, R.12; MI-604, R.4; MI-610, R.7.

3) INTERIOR COATING REMOVAL REQD. / CP-CRM-101 SEC. 3.1.11
 5) WELD E.S. REPR / CP-CRM-101 SEC. 3.5.9.

TEXAS UTILITIES SERVICES INC
 C P S E S GLEN ROSE, TEXAS

Brown & Root, Inc.
 ENGINEERS AND CONSTRUCTORS
 HOUSTON, TEXAS

AUXILIARY FEEDWATER

PROJECT NO. 8606040295-03

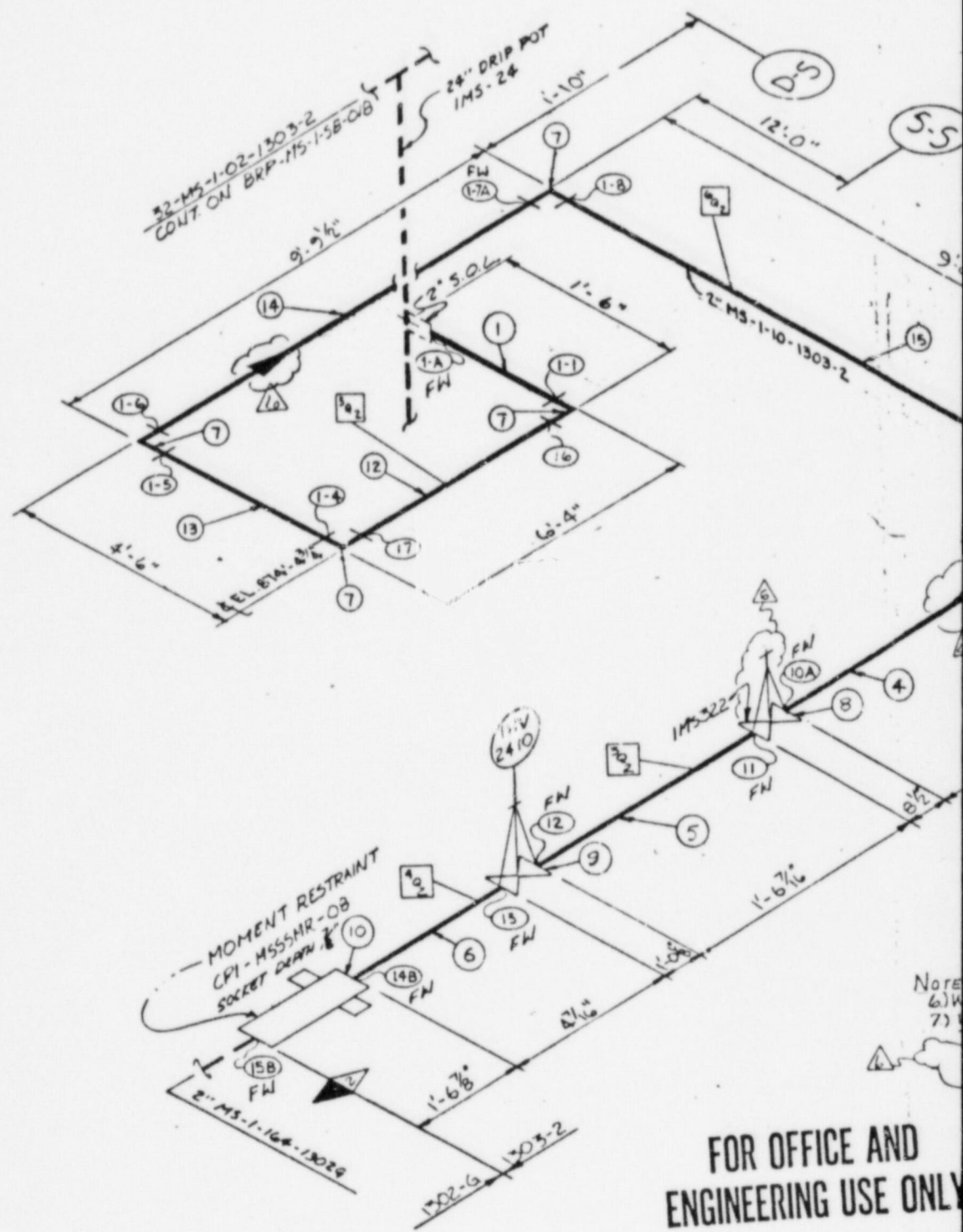
ISSUE

85"

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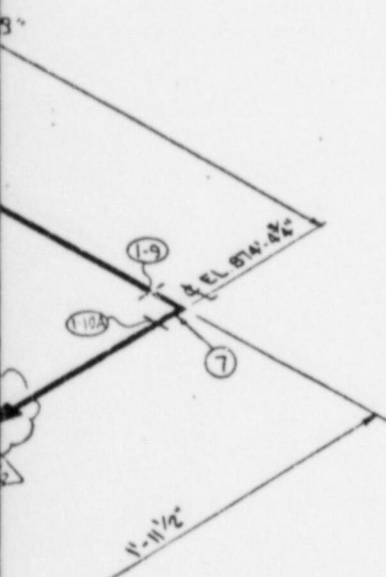


FOR OFFICE AND ENGINEERING USE ONLY

Note 6) W 7) Y

TI APERTURE CARD

Also Available On Aperture Card



3: (CONT'D)
 WELDS 16 & 17 TO BE MADE IN FIELD
 FC WELDS 16 & 17 REF: CMC'S G2388R-4,
 2579R-2, 75286

BILL OF MATERIAL

QTY	CLASS CODE	DESCRIPTION	SIZE	GRADE	COLOR CODE
1	2	2" 3/80 PIPE 0-3 3/8" EST. LG.	SA 333	6	GR/
4	1	2" 3/80 PIPE 1'-10 1/2" EST. LG.	SA 333	6	GR/
5	1	2" do do 1'-7 1/4" do do do do	SA 333	6	GR/
6	1	2" 3/80 PIPE 0-5 3/8" EST. LG.	SA 333	6	GR/
7	5	2" 3000" S.W. 90° FILL	SA 333	LFZ	GR/
8	1	2" TB 309 50MA CP20A1 NT. 2	SA 333	---	---
9	1	2" INV-2410 CP 600	SA 333	LCB	---
10	1	2" MOVING RESTRAINT CP14451MR 03 CP 095	SA 333	LF1	---
12	1	2" 3/80 PIPE 6'-0 3/8" EST. LG.	SA 333	6	GR/
13	1	2" 3/80 PIPE 4'-2 1/2" EST. LG.	SA 333	6	GR/
14	1	2" 3/80 PIPE 3'-5 3/8" EST. LG.	SA 333	6	GR/
15	1	2" 3/80 PIPE 9'-4 1/8" EST. LG.	SA 333	6	GR/

VOID

REV	DATE	DESCRIPTION	DRW	CHKD	APPR
1	1/17/83	IFC WELDS 1-15	JR	MM	W
2	1/17/83	REV AS NOTED, AS BUILT CMC 38041	WES	MM	W
3	1/17/83	REV. TO "AS BUILT" AS NOTED SEE NT. 4.	WES	MM	W
4	1/17/83	AS BUILT VERIFIED FOR STRESS PROB. SEE NT. 7	WES	MM	W
5	1/17/83	REV AS NOTED, CMC 48409	WES	MM	W
6	1/17/83	FROZEN ISSUE SEE NT. 8	WES	MM	W
7	1/17/83	REV AS LTD; N-5 ISSUE	VM	MM	W

WELD NO.	MT	LP	UT

< POOLS 3-6 BY PER
 COST CODE: 1/A
 PAINT: CP-CPH 8-4
 INHIB: SEE TAB. CL. THICK.
 FLOW DIA: MI-0202
 COMPOSITE: MI-0600 R-5
 SPECIFY: 100
 DETAIL: CAT / CL.
 1303-2

1) MANUFACTURER'S INTERNAL COATING REMOVAL REQD.
 PER CP-CPH 69 SEC 3-B-1.
 2) REF DCA-3848 FOR PIPING CONFIGURATION.
 3) WELDS 3A, 3-1, 3-2, & 3A BY FIELD.
 4) DELETE WELDS 2-8. REF: CMC'S 48409R-6 & G2388.
 5) ALL WELDS MADE REV. 2 TO BE MADE BY FIELD.

TEXAS UTILITIES SERVICES INC. GLEN ROSE, TEXAS
 C. P. S. E. S.

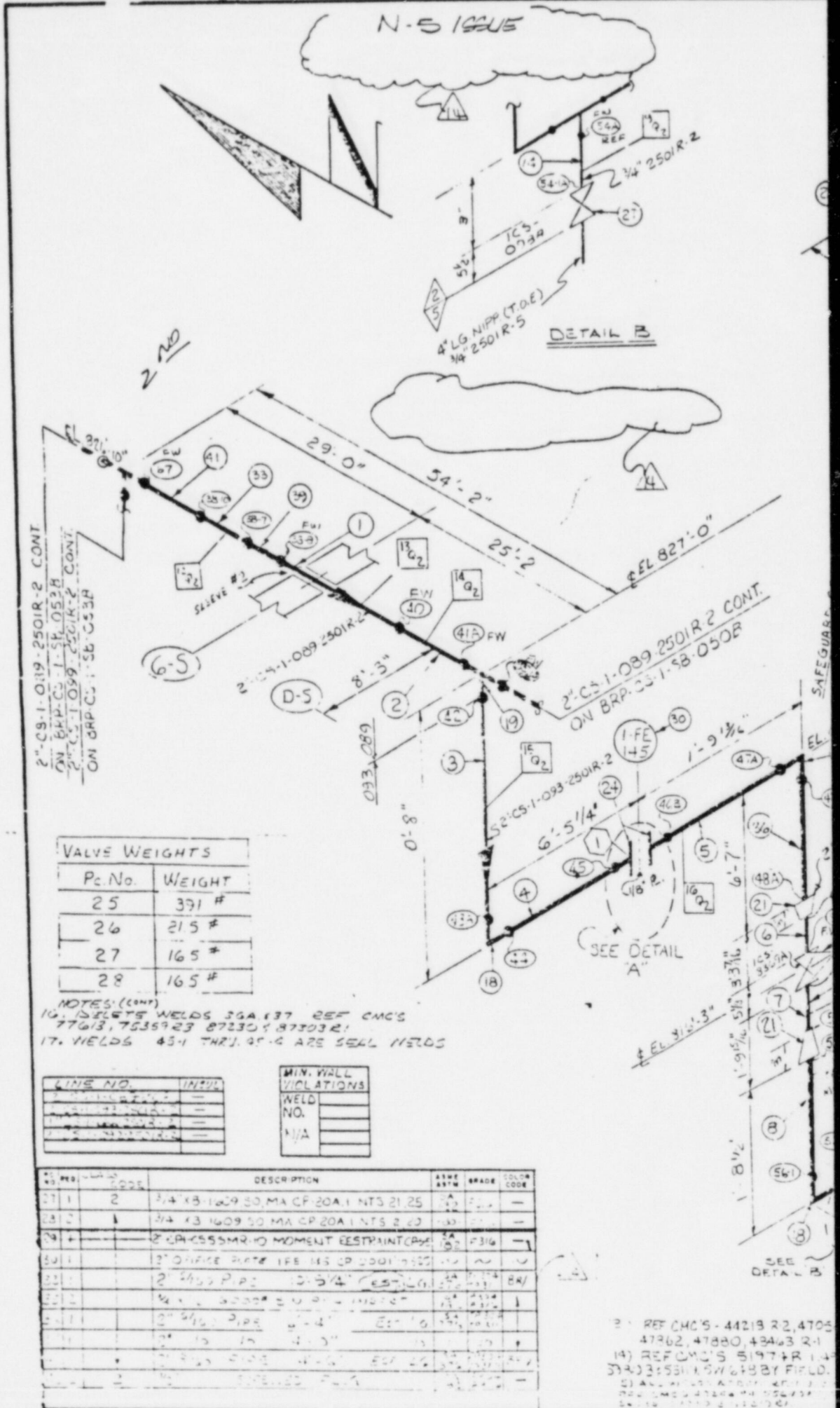


DRAWING TITLE
MAIN STEAM REHEAT AND STEAM DUMP

WELD NO.	WELD	MT	LP	UT
16	17	16	17	16
17	16	17	16	17
18	16	17	16	17

REVISION NO.	DATE	BY	CHKD
1	1/17/83	MM	W

8606040295-04



VALVE WEIGHTS	
Pc.No.	WEIGHT
25	391 #
26	215 #
27	165 #
28	165 #

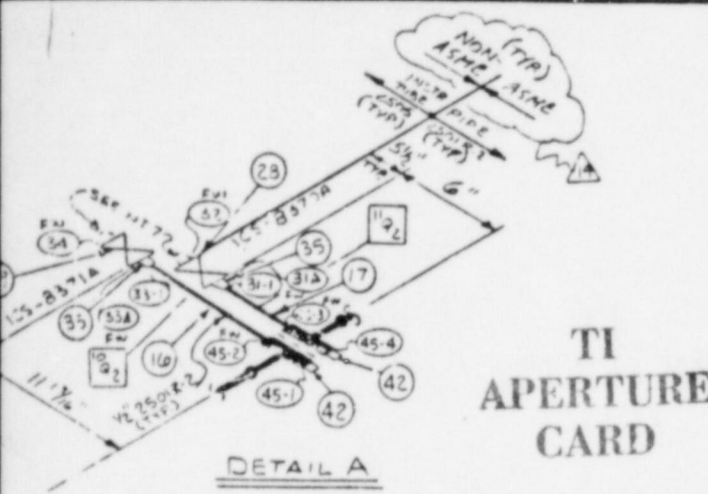
NOTES: (CONT)
 16. DELETE WELDS 36A 137 REF CMC'S
 77613, 7535923 87230 187303R1
 17. WELDS 45-1 THRU 45-6 ARE SELL WELDS

LINE NO.	INSTR.

MIN. WALL VIOLATIONS
WELD NO.

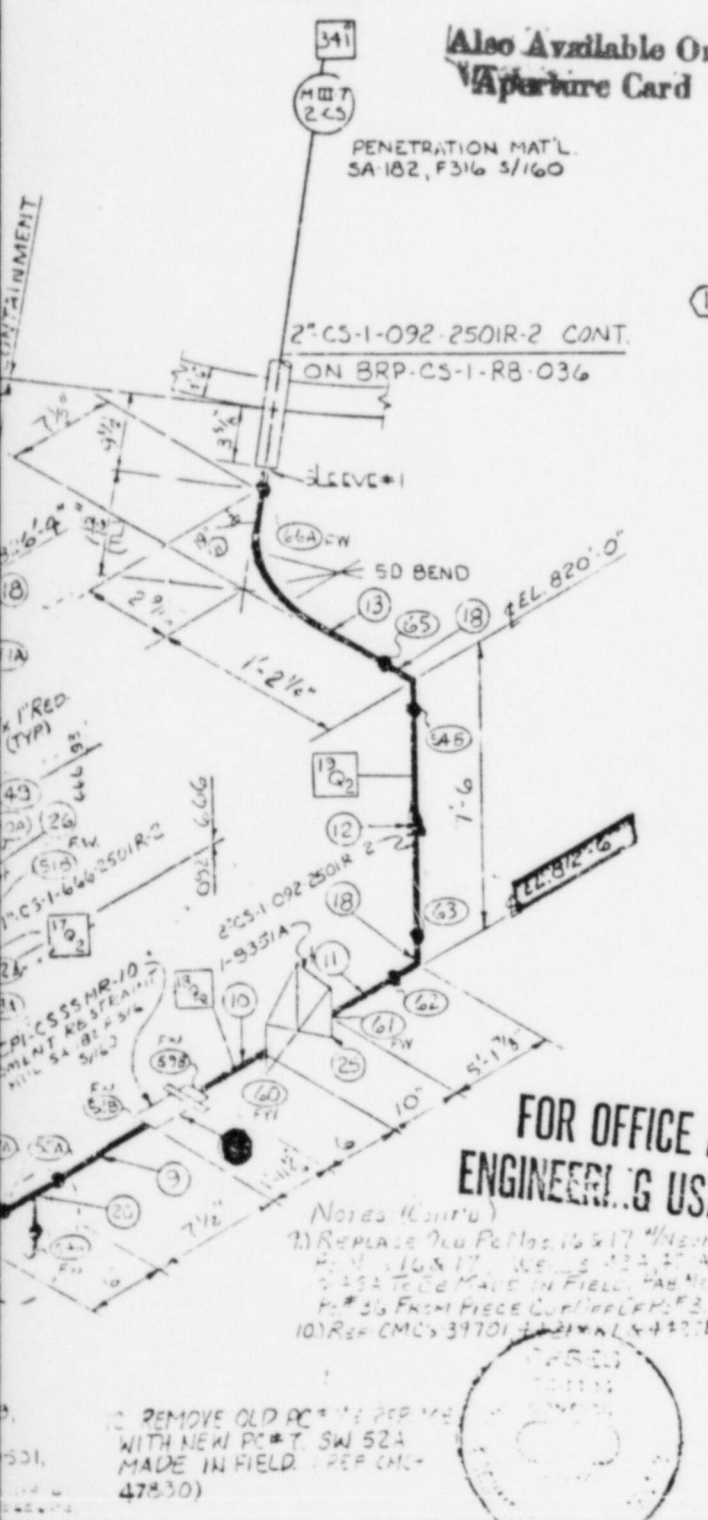
NO.	REQ.	QTY	DESCRIPTION	ASME	GRADE	COLOR CODE
21	1	2	3/4" X 3-1609 50 MA CP 20A 1 NTS 21 25	A		
22	1	1	3/4" X 3-1609 50 MA CP 20A 1 NTS 2 20	A		
23	1	1	2" CRCS55MR 10 MOMENT RESTRAINT (CRS)	A	F316	
24	1	1	2" ORIFICE RATE 1FE 145 CP 2001 1502	A		
25	1	2	2" 250 PIP 2-5/4" RESTRA	A		BR
26	1	1	2" 250 PIP 2-5/4" RESTRA	A		
27	1	1	2" 250 PIP 2-5/4" RESTRA	A		
28	1	1	2" 250 PIP 2-5/4" RESTRA	A		
29	1	1	2" 250 PIP 2-5/4" RESTRA	A		
30	1	1	2" 250 PIP 2-5/4" RESTRA	A		

3. REF CMC'S - 44213 R2, 4705
 47862, 47880, 43463 R-1
 14) REF CMC'S 51974 R-1
 37433, 53145, 61828 BY FIELD
 5) ALL WELDS TO BE DONE BY
 22. CMC'S 47862, 47880, 43463 R-1
 24. 15 113 2 113 2 113 2



TI APERTURE CARD

Also Available On Aperture Card



BILL OF MATERIAL									
NO	REQ	CLASS CODE	DESCRIPTION			AT 15	GRADE	COLOR CODE	
						276	FP 304	FP 316	BRV
1	1	2	2"	5/160 PIPE	16'-10 1/2" EST. LG.	SA 376	FP 304	FP 316	BRV
2	1	2	2"		17'-11 1/2"				
3	1	2	2"		0'-2 1/2"				
4	1	2	2"		5'-10 1/16"				
5	1	2	2"		1'-7 1/16"				
6	1	1	1"		3'-1"				
7	1	1	1"		1'-7 1/2"				
8	1	2	2"		1'-5 1/2"				
9	1	2	2"		0'-5"				
10	1	2	2"		0'-6 7/16"				
11	1	2	2"		5'-4 7/16"				
12	1	2	2"		7'-0"				
13	1	2	2"		1'-7 1/16"				
14	1	2	3/4"	5/160 PIPE	0' 3 3/8" EST. LG.	SA 376	FP 304	FP 316	BRV
16	1	2	1/2"	5/160 PIPE (T.O.E)	0'-7 7/8" EST. LG.	SA 376	FP 304	FP 316	BRV
17	1	2	1/2"	PIPE (T.O.E)	0'-1 7/8" EST. LG.	SA 376	FP 304	FP 316	BRV
18	5	2	2"	BW 90° ELL		SA 403	FP 304	FP 316	BRV
19	1	2	2"	TEE					
20	1	2	2"x1"	RED TEE					
21	2	2	2"x1"	3W CONC. RED.		SA 403	FP 304	FP 316	BRV
24	2	2	2"	1500° RF/WI ORIFICE FLG.	5/160	SA 182	F304	F316	BRV
-8	1	2	7/8"	5 3/4" LG STUDS 1/2 HEX NUTS EA		SA 304	SA 304	SA 304	PR
-2	1	2	2 1/8"	THK 1500° FLEX STYLE CG TYPE 304 GASK					BRV
25	1	2	2"	TM 78 FN, CP-001	3/0 220	SA 182	F316		
26	1	2	1"	TB 1609, SO, MA, CP-20A	1, NTS 2, 21	SA 182	F316		

REV	DATE	DESCRIPTION	DWR.	CHKD.	APPD.
1		IFC WELDS 1-37	RCH	MA	
2		REV'D AS NOTED REF FOR 743 E... 7183	JW	TS	
3		REVISED AS NOTED	FT	TS	
4		REVISED AS NOTED	FT	TS	
5		REVISED AS NOTED. I.F.C. WELDS 38-66	LS		
6		REV AS NOTED	JHF		
7		REV AS NOTED REF: CMC'S 34885, 402-2-1, 422-2-1 (CONT 2 @ NT 10)	EMT		
8		REV TO "AS BUILT" SEE NT 13	JHD		
9		REV AS BUILT AS NOTED SEE NT 14	WES		
10		DELETE WELDS 38-11 THRU 38-5, 38-59 REV AS BUILT AS NOTED SEE NT 15			
11		AS BUILT VERIFIED FOR STRESS PROB 1-524			
12		AS BUILT VERIFIED FOR STRESS PROB 1-524			
13		AS BUILT VERIFIED FOR STRESS PROB 1-524			
14		FROZEN ISSUE: SEE NOTE 10			
15		REV. AS USED; U-S ISSUE	JC		

SPOLS 9-19 BY BROWN & ROOT

COST CODE N/A	PAINT N/A	INTL. SEE TAB	CL	THRES
FLOW DIAG MI-0253	COMPOSITE MI-G612 R-12	SPEC MS-100 DESIGN CAT/CL MS-43B	2501R-2	

NOTES:
 3) LINE #2 "CS-1-083-2501R-2, 2"CS-1-092-2501R-2, 2"CS-1-093-2501R-2, 1"CS-1-666-2501R-2 TO HAVE BUTT WELDED FITTING IN ACCORD WITH NOTE 10, DWG MI-G612 & NOTE 1 OF PIPE SPEC 2501
 4) FIELD TO USE SALVAGED MATERIAL.
 5) CUT AND DELETE WELDS 1-30 & 35
 6) DELETE SPOOLS 1Q 2 TO BQ 2.
 7) DWAGELDK 3" MPW x 3" QD TUBE CONNECTOR ASME SA 403. TYPE WP 316 CAT. NO. 55-600-1-12-MPW. WELDS 311, 331 & 331 TO BE MADE IN FIELD

TEXAS UTILITIES SERVICES INC.
 GLEN ROSE, TEXAS

Brown & Root, Inc.
 ENGINEERS AND CONSTRUCTORS
 HOUSTON, TEXAS

ISSUE TITLE
 CHEMICAL AND VOLUME CONTROL

REV 14

FOR OFFICE AND ENGINEERING USE ONLY

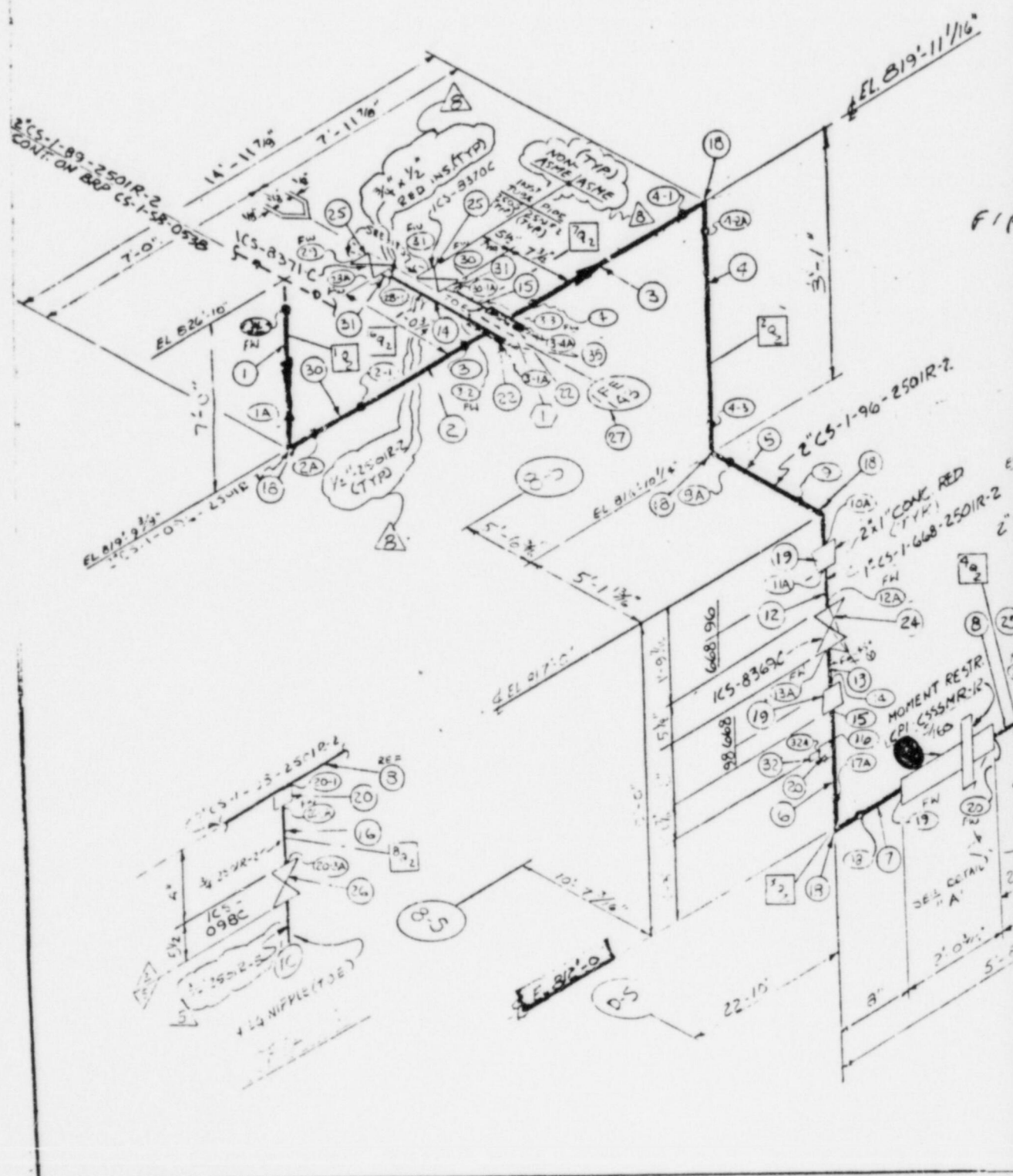
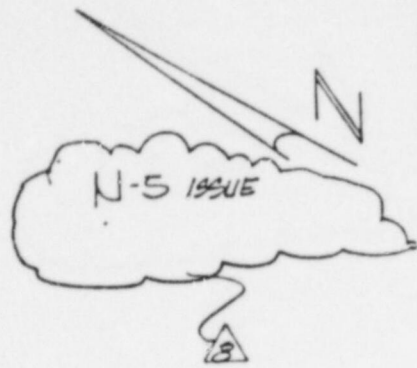
Notes (Cont'd)
 2) REPLACE OLD PELL 16 & 17 WITH PELL 16 & 17. WELDS 32 & 33 TO BE MADE IN FIELD. PELL 16 PELL 17 FROM PIECE CUT OFF PELL 3. 10) REF CMC'S 37701 & 37701 & 37701



REMOVE OLD PC* T. SW 52A WITH NEW PC* T. SW 52A MADE IN FIELD. REF CMC-47830

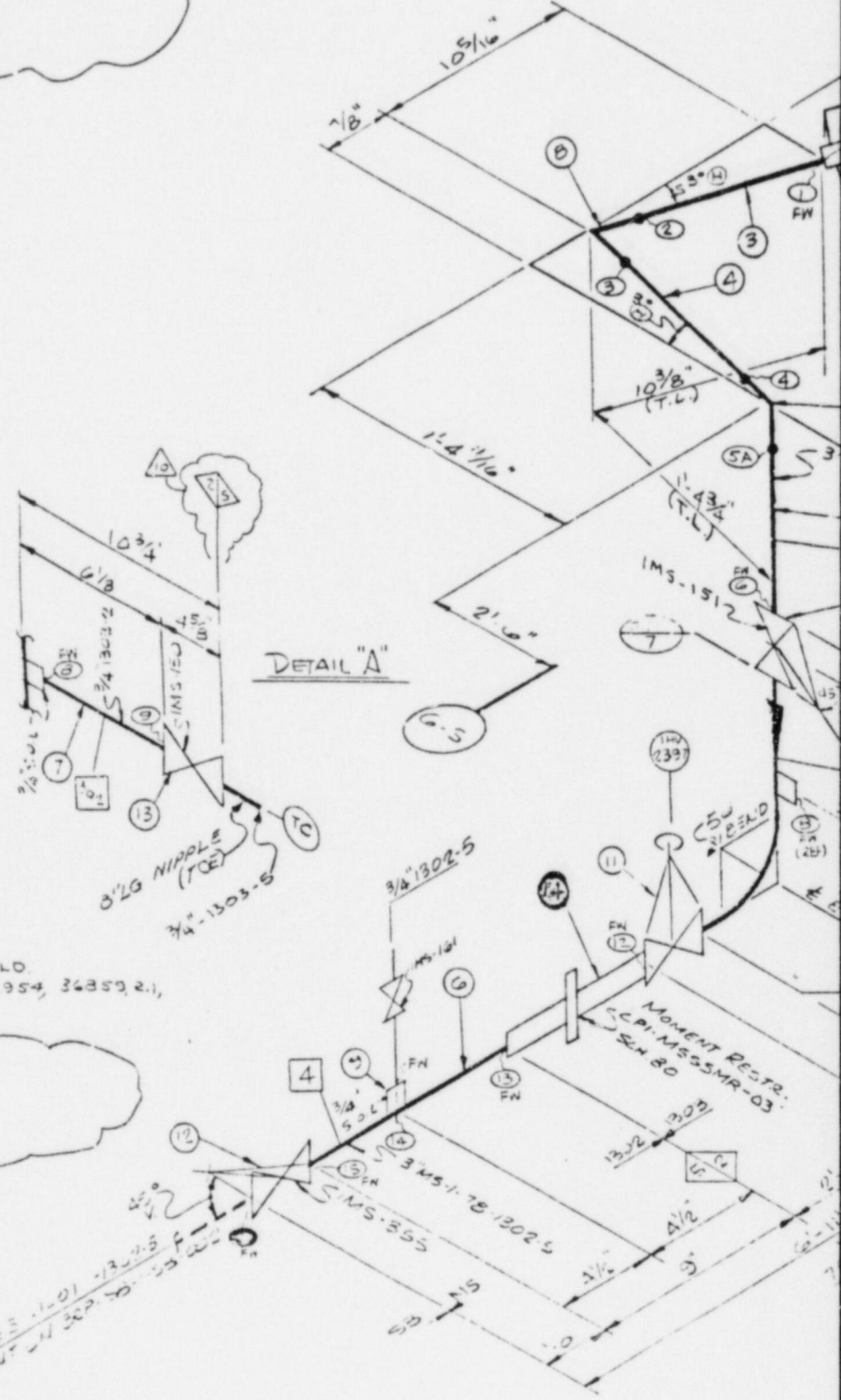
BILL OF MATERIAL

PC NO	QTY	CLASS CODE	DESCRIPTION	ASME ASTM	GRADE	COLOR CODE
27	1	2	2" IFE-143 CP 0001	-	-	-
29	1	1	2" CPI-0339MR-12 CP 0095	7A	1B2	-
30	1		2" 3/16" PIPE 0'-6" EST LG.	SA 370	TP 304	BR/
31	2		3/4" x 1/2" 6000# SW. RED INSERT	SA 192	F 316	↑
32	1		2" 6000# PIPE PLUG	1B2	G 316	↑
34	1	2	2" 3/16" PIPE 1'-2 3/16" EST LG.	SA 376	TP 304	BR/
35	2	2	1/2" SCR'D PLUG	1B2	F 316	-



U-S ISSUE

3rd



NOTES: CONT

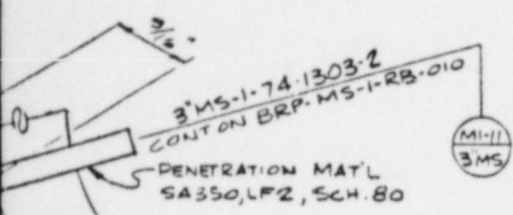
5) WELD SA BY FIELD.
 REF CHCS 52675, R1, 36954, 36359, 21,
 140175

[Empty cloud shape]

3/8" MS-1-75 1302-5
 CONT W/ 3/8" 1302-5

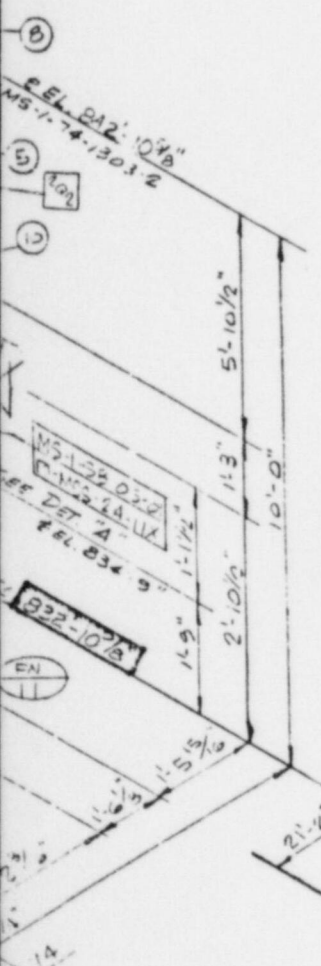
BILL OF MATERIAL

ITEM	QUANTITY	DESCRIPTION	ORDER NO.	NET CHG.		
1	3'-10"	3" SCH 80 C.S. SMLS PIPE TO ASME SA-333 GR-6 ⁽¹⁾	PI-40			
2	1	3" 3/4" 3000# C.S. FORGED S.O.L. TO ASME SA-350 GR-LF2	PI-3164			
QC NO	REQ	CLASS CODE	DESCRIPTION	ASME SPEC	SPAW	WELD
3	1	2	3" 3/80 PIPE 0'-5 7/8"	LG SA 333	6	OR/
4	1	do	3" 0'-7 3/4"	do do	do	do
5	1	2	3" 0'-6"	SA 333	6	OR/
6	1	5	3" 0'-9"	SA 106	8	OR/
7	1	2	3/4" PIPE 0'-4 1/4" EST. LO	SA 333	6	OR/
8	2	2	3" 3/80 B.W. 90° ELL	SA 420	6	OR/
9	1	5	3/4" 3000# S.O.L.	SA 105	-	OR/
10	1	2	3" TB-308 BJGO CP20B 2 NTS 228	SA 216	WCB	-
11	1	2	3" HV-2397 CP-0600	SA 352	LCB	-
12	1	5	3" TE-308 BJMA CP21D.1	SA 216	WCB	-
13	1	2	3/4" TB-309 30MA CP20A.1 NT.2	SA 105	-	-

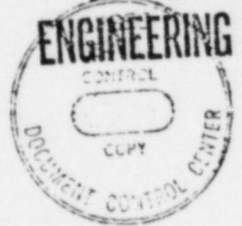


TI APERTURE CARD

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REV	DATE	DESCRIPTION	DWR	CHKD	APPR
1	7/7	1.F.C. WELDS 1-15	CALL	E	SEE
2	7/14	REVISED AS NOTED	EMT	SEE	SEE
3	7/14	REVISED AS NOTED REF PDN 945	EMT	SEE	SEE
4	7/14	REV. AS NOTED, SEE NTS	EMT	SEE	SEE
5	7/14	REV. AS NOTED, REF: PDN-1085.	EMT	SEE	SEE
6	7/14	REV. AS NOTED, AS BUILT, ECMC 57LSB	EMT	SEE	SEE
7	7/14	AS BUILT VERIFIED FOR STRESS PROB. 1-079A	EMT	SEE	SEE
8	7/14	AS BUILT VERIFIED; STRESS PROB. 1-079E	EMT	SEE	SEE
9	7/14	FROZEN ISSUE, SEE NT 9	EMT	SEE	SEE
10	7/14	REV. AS NOTED; U-S ISSUE, DELETED WELD	EMT	SEE	SEE
11	7/14	REV. AS NOTED; N-S ISSUE	EMT	SEE	SEE

SPool 1 BY ITT, SPOOLS 2-4 BY B&R
 COST CODE N/A PAINT CP-CPM-6.9 INSL. SEE TAB CL. THRS.
 SYS 3.2.9 SYS 3
 FLOW DIAG MI-0202 COMPOSITE SEE NT. 1 SPEC. NO. 100 MS-41A/B MS-44B DESIGN CAT./CL. 1303-2, 1302-5

- NOTES
- 1.) MI-0608: R-10, MI-0609: R-0
 - 2.) INTERIOR COATING REMOVAL REQD FOR CP-CPM 6.9 SEC 3.6.1
 - 3.) REF. DCA # 1648 FOR ADDITION OF MOMENT RESTRAINT
 - 4.) RELOCATE ITT 3000# #1 CODE PLATE TO AVOID INTERFERENCE WITH RW 7

TEXAS UTILITIES SERVICES INC.
C. P. S. E. S. GLEN ROSE, TEXAS

Brown & Root, Inc.
ENGINEERS AND CONSTRUCTORS
HOUSTON, TEXAS

DRAWING TITLE
MAIN STEAM, REHEAT & STEAM DUMP

REF MS-1-53-005

UNIT	STRUCTURE/SYSTEM	ITEM/COMPONENT	TAG/ID NUMBER	LOCATION OR ELEVATION	RIR NO
1	REACTOR BLDG 1	PIPE WHIP RESTRAINT SLD	DET 2 SI-597	RB 1 ELEV 322 PRESSURIZER ROOM	N/A

NONCONFORMING CONDITION

TRAVELER # CD 81-116-5500 OPERATION IS STEP 2 STATES "INSPECT FILL WELD VT/MT PRIOR TO RE-DRILLING". REVIEW OF THE TRAVELER INDICATES A PT WAS PERFORMED. ATTEMPTS AT RE-VERIFICATION PER CURRENT PROCEDURES WERE UNSUCCESSFUL DUE TO INACCESSIBILITY CAUSED BY THE COMPLETION OF THE ASSEMBLY.

INFORMATION
COPY

ONE HOLD TAG APPLIED

REFERENCE DOCUMENT: CD 81-116-5500

REV _____ PARA _____

REPORTED BY:

[Signature]

PPRV

DATE:

1/20/84

QE REVIEW/APPROVAL:

[Signature]

DATE:

1/20/84

ACTION ADDRESSEE

[Signature] / Tolson

DEPARTMENT

Eng. / QA

DISPOSITION:

REWORK

REPAIR _____

USE AS IS

SCRAP _____

PT would detect the same surface defects that MT would have. MT the accessible portion of the weld. If acceptable, use as is. If defects located, contact Welding Engineering for a repair process sheet.

The inspector of record, Charles Atchison, is no longer employed at Comanche Peak, so consequently, no further corrective action is possible. Reference this NCR on original traveler.

Acid Tags Removed

ENG. REVIEW/APPROVAL:

[Signature]

1/26/84

FOIA-85-59

QE REVIEW APPROVAL:

[Signature]

[Signature]

1/25/84

DISPOSITION VERIFICATION & CLOSURE:

1/26/84 MS-1-0016575

DATE:

1/1

COMMENTS:

L327

REPORTING PERSONNEL

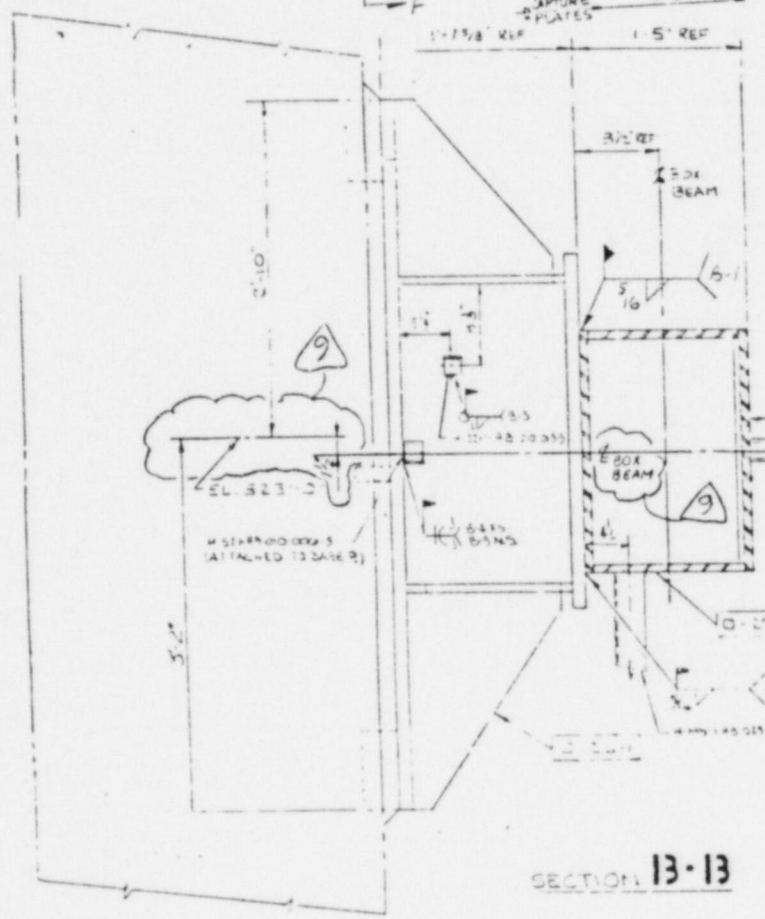
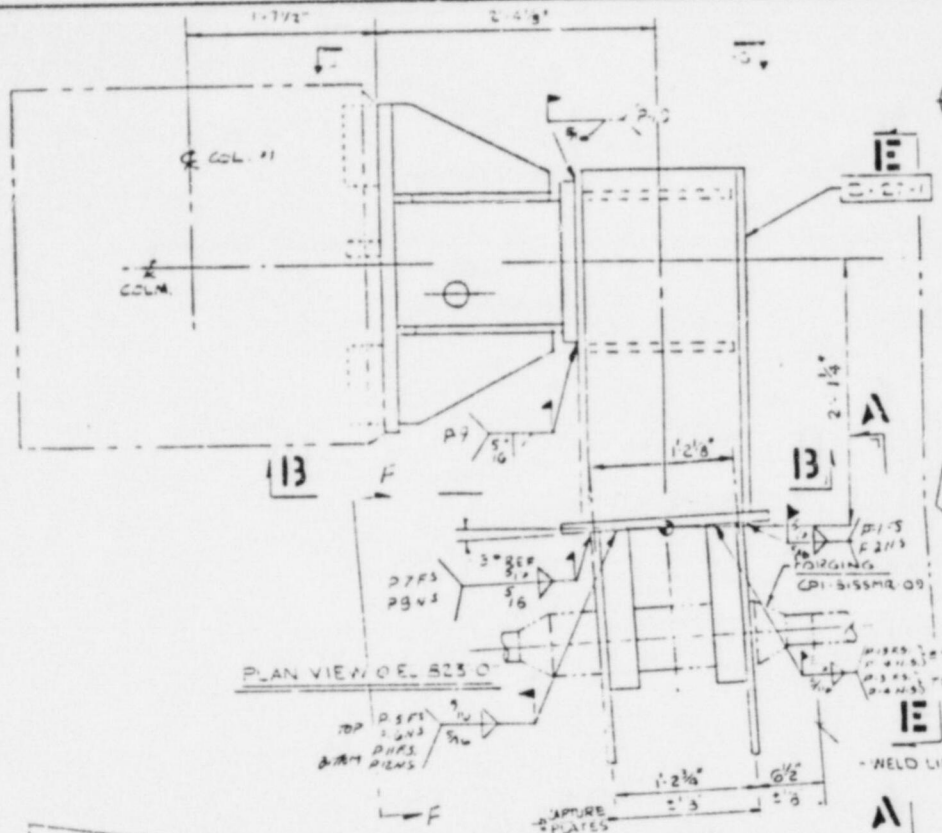
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ACTION ADDRESSEE

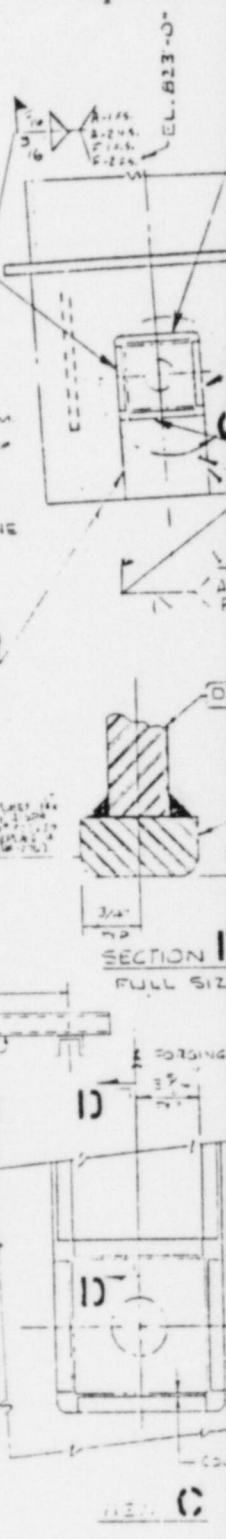
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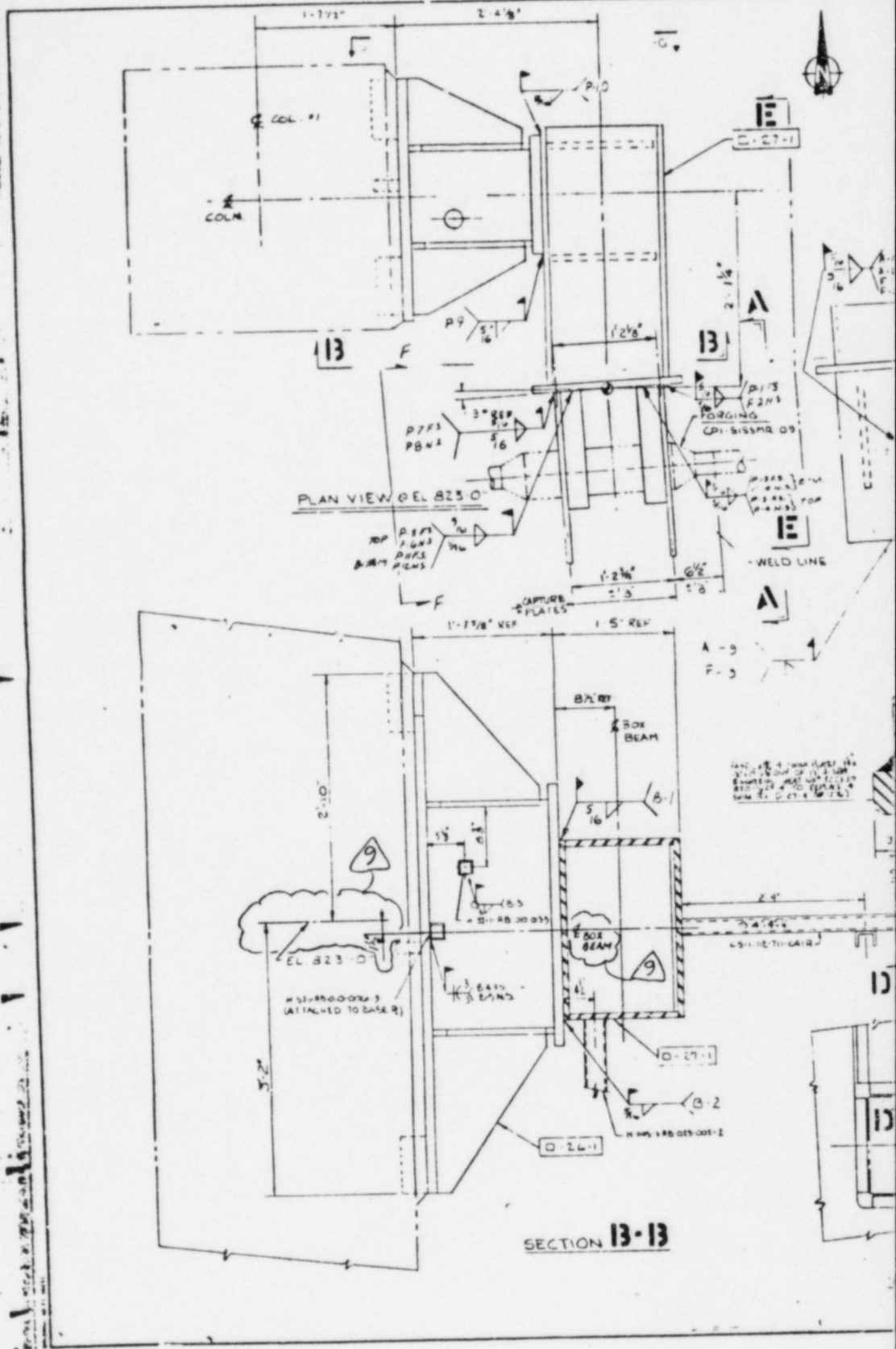
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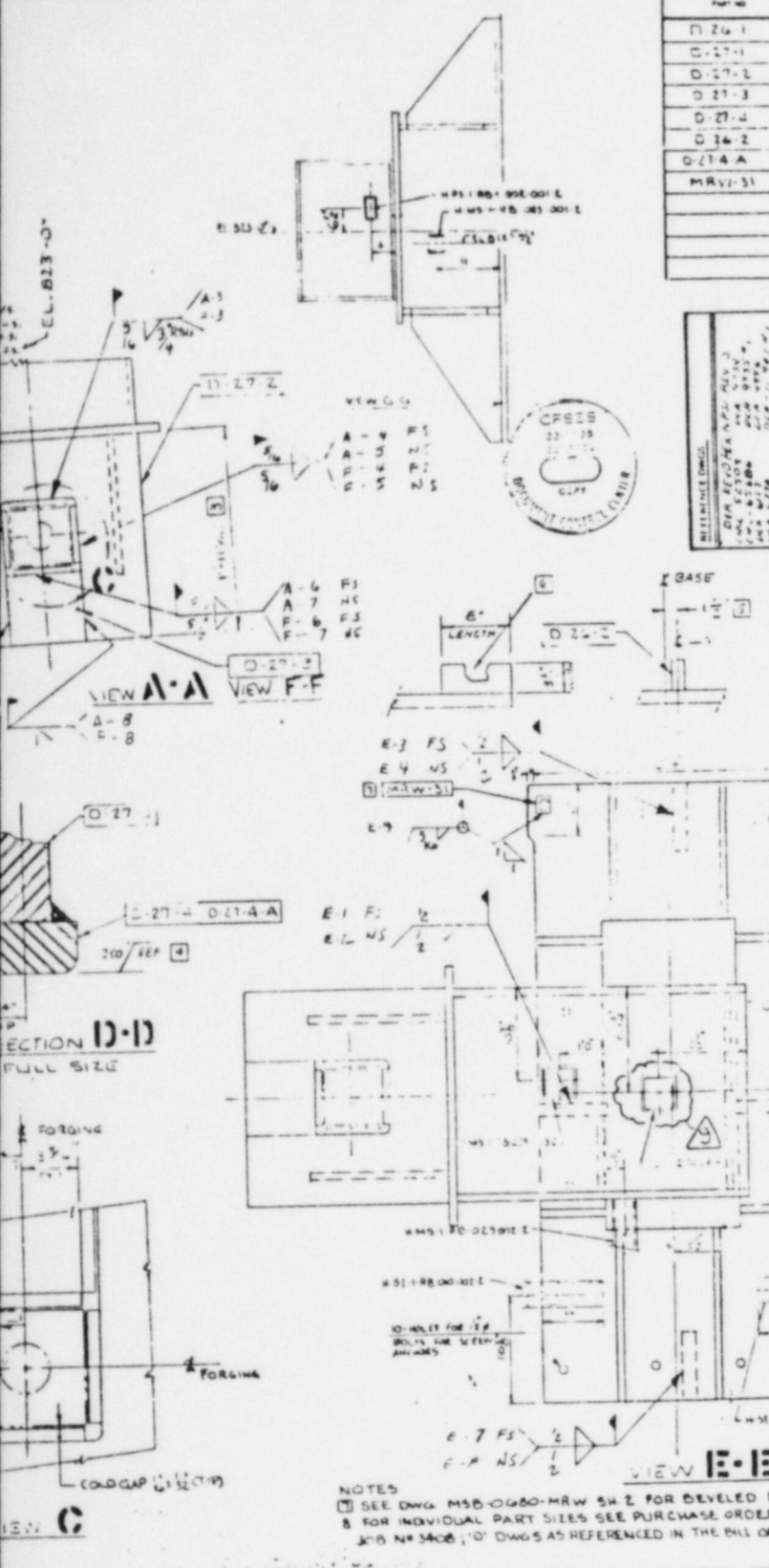
Also Available On
Aperture Card

PART NO	QTY	DESCRIPTION	REV	DATE	BY
D-26-1	1	BASE ASSY	D-26	1765	
D-27-1	1	COX BEAM ASSY	D-27	810	
D-27-2	2	CAPTURE PLATE ASSY	D-27	150	
D-27-3	2	WELD PLATE	D-27	15	
D-27-4	4	SHIM	D-27	13	
D-26-2	4	LUG	D-26	49	
D-27-4A	4	REPAIR LUGS MILL TO NEAR ORIGINAL DIMENSIONS			
MRV-31	1	SEE DWG. 14587-20-NHW			

FOR OFFICE AND ENGINEERING USE ONLY
 TEXAS UTILITIES SERVICES, INC.
 DRAWN BY: O.A. GILL (10/68)

NOTE:
 1. ALL DIMENSIONS UNLESS OTHERWISE SPECIFIED ARE IN INCHES AND DECIMALS THEREOF.
 2. ALL DIMENSIONS ARE TO UNLESS OTHERWISE SPECIFIED.
 3. ALL DIMENSIONS ARE TO UNLESS OTHERWISE SPECIFIED.
 4. ALL DIMENSIONS ARE TO UNLESS OTHERWISE SPECIFIED.
 5. ALL DIMENSIONS ARE TO UNLESS OTHERWISE SPECIFIED.
 6. ALL DIMENSIONS ARE TO UNLESS OTHERWISE SPECIFIED.

- NOTES:
- FOR MATERIAL SPECIFICATION AND FABRICATION REQUIREMENTS SEE DETAIL DRAWING.
 - ALL MATERIAL SUPPLIED IN ACCORDANCE WITH TUSTI SPEC 1323 CS05-4.
 - THIS LENGTH HAS BEEN SUPPLIED LONGER THAN DIMENSION INDICATED. ACTUAL LENGTH TO BE DETERMINED BY FIELD MEASUREMENT.
 - SHIM BARS ARE SUPPLIED IN NOMINAL THICKNESS OF 1/8" AND THICKNESS TO BE DETERMINED AND ACHIEVED BY FIELD.
 - LOCATION OF LUG MAY BE SHIFTED ± 2" TO CLEAR REPAIRS.
 - WITH THE LENGTH OF THE LUG (IF ANY REPAIR COMES IN THE WAY) THE LUG SHALL BE NOTCHED TO CLEAR THE REPAIR. WHEN NOTCHING IS DONE A MINIMUM AREA OF 1.5 SQ. IN. OF LUG FACE (LARGEST SURFACE) MUST REMAIN.



NOTES:
 1. SEE DWG. MSB-0680-MRW SH 2 FOR BEVELED 2 WASHERS
 2. FOR INDIVIDUAL PART SIZES SEE PURCHASE ORDER NO. CPO-0324
 JOB NO. 3408. '01 DWGS AS REFERENCED IN THE BILL OF MATL. ABOVE.

DATE	BY	DESCRIPTION
1/15/68	O.A. GILL	REV AS NOTED
1/22/68	O.A. GILL	REV AS NOTED
1/29/68	O.A. GILL	REV AS NOTED (FINAL REVIEW DWGS)
2/5/68	O.A. GILL	REV AS NOTED
2/12/68	O.A. GILL	REV AS NOTED
2/19/68	O.A. GILL	REV AS NOTED

DESIGN AND DRAWING DEPARTMENT
 PROJECT NO. 81-014
 SHEET NO. E-29
TEXAS UTILITIES SERVICES, INC.
 C.P.S.E. GLEN ROSE, TEXAS

Same as 014
 Ngs at 823

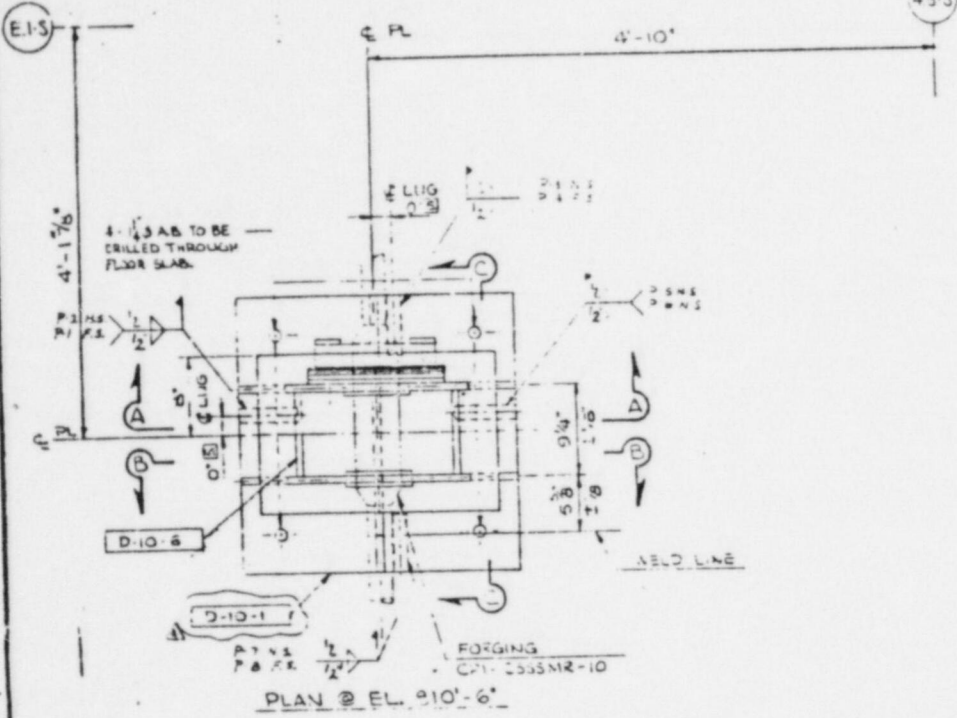
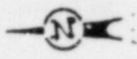
8606040295-09

Col 1
 TO Col 16

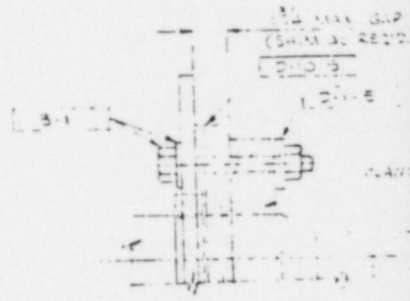
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COL 1

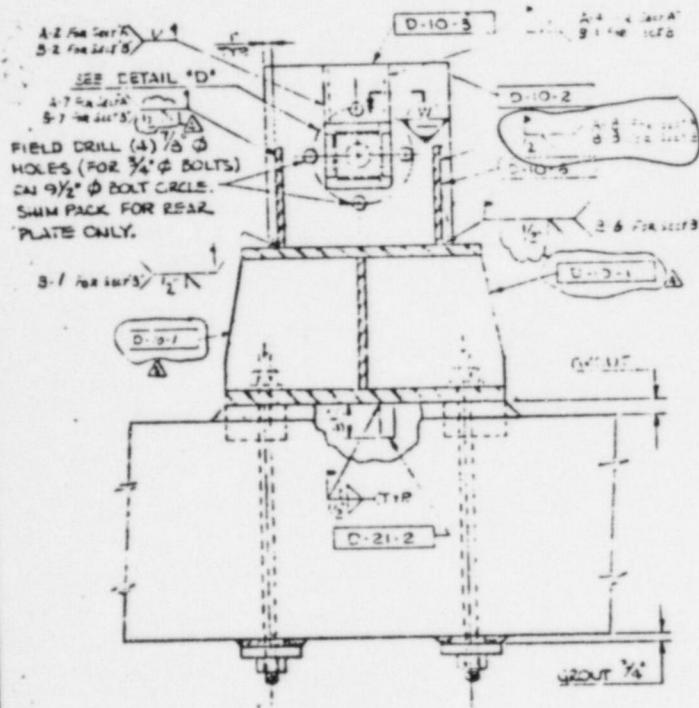
EOV 823
 SAGBY MT BROWN



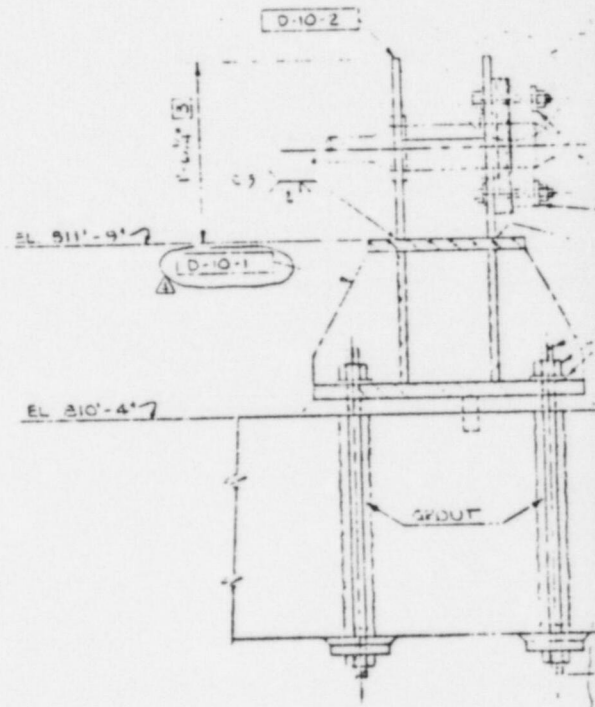
PLAN @ EL. 910'-6"



DETAIL 'E'



SECTION 'A-A' (AS NOTED)
SECTION 'B-B' (OPP HAND)



SECTION 'C-C'

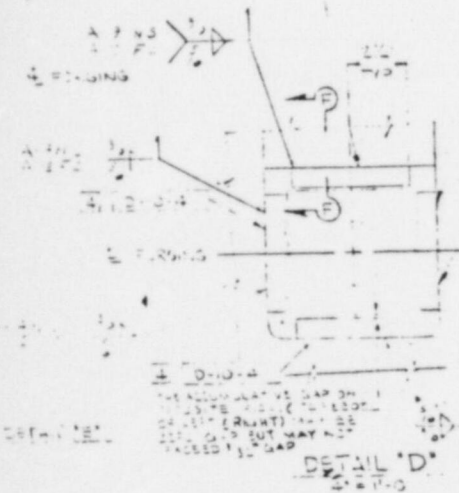
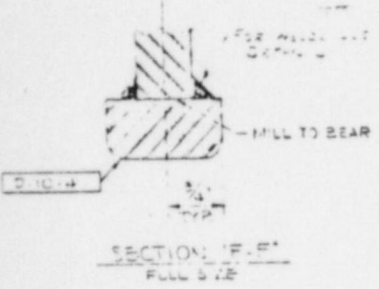
(X-X) ANCHOR BOLTS SHALL BE OF A 3/4\"/>

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QTY	DESCRIPTION	QTY	QTY	QTY
	SUPPORT STRUCTURE			930
D-10-1	BASE ASBY	D-10		143
D-10-2	WELDED PLATE			129
D-10-3	WELD R			14
D-10-4	SHIM			16
D-10-5	SHIM PLATE			11
D-10-6	STIFFENER			27
D-1-5	WASHER 3	D-11		3
B-1	WASHER 2			6
D-21-2	LUG	D-21		36
TOTAL = 930				

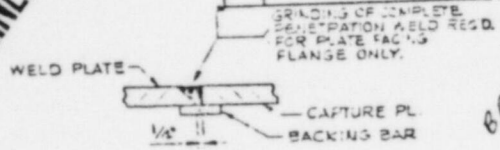


- NOTES:**
1. FOR MATERIAL SPECIFICATION AND FABRICATION REQUIREMENTS SEE 2000-2-1000
 2. ALL MATERIAL SUPPLIED IN ACCORDANCE WITH T.S. SPEC. NO. 2023-0505-4.
 3. THIS LENGTH HAS BEEN SUPPLIED 21 LONGER THAN DIMENSION INDICATED. ACTUAL LENGTH TO BE DETERMINED BY FIELD MEASUREMENT.
 4. ALL WELDS ARE SUPPLIED IN A NOMINAL THICKNESS OF 1/8". FINAL THICKNESS TO BE DETERMINED BY FIELD MEASUREMENT.
 5. LOCATION OF LUGS MAY BE SHIFTED 1/2" TO CLEAR REBAR WITH A LENGTH OF LUGS IF ANY REBAR COMES IN THE WAY. THE LUG SHALL BE NOTCHED TO CLEAR THE REBAR WHEN THE LUG IS TO BE A MINIMUM AREA OF 19 SQ. IN. OF LUG FACE. LARGEST SURFACE, MUST REMAIN.
 6. FOR INDIVIDUAL PART SIZES SEE PURCHASE ORDER NA CPO-0324 JOB NA 3400; OR DWG 3 AS REFERENCED IN THE BILL MATL ABOVE.

TJSD DWG 2023-01-0000-01

REVISION	DATE	BY	CHKD	REFERENCE DWG
1	01/02/01	JSD	(initials)	212 PLATE 2023-01-0000-01
2	01/02/01	JSD	(initials)	212 PLATE 2023-01-0000-01
3	01/02/01	JSD	(initials)	212 PLATE 2023-01-0000-01
4	01/02/01	JSD	(initials)	212 PLATE 2023-01-0000-01
5	01/02/01	JSD	(initials)	212 PLATE 2023-01-0000-01

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Brown & Root, Inc.

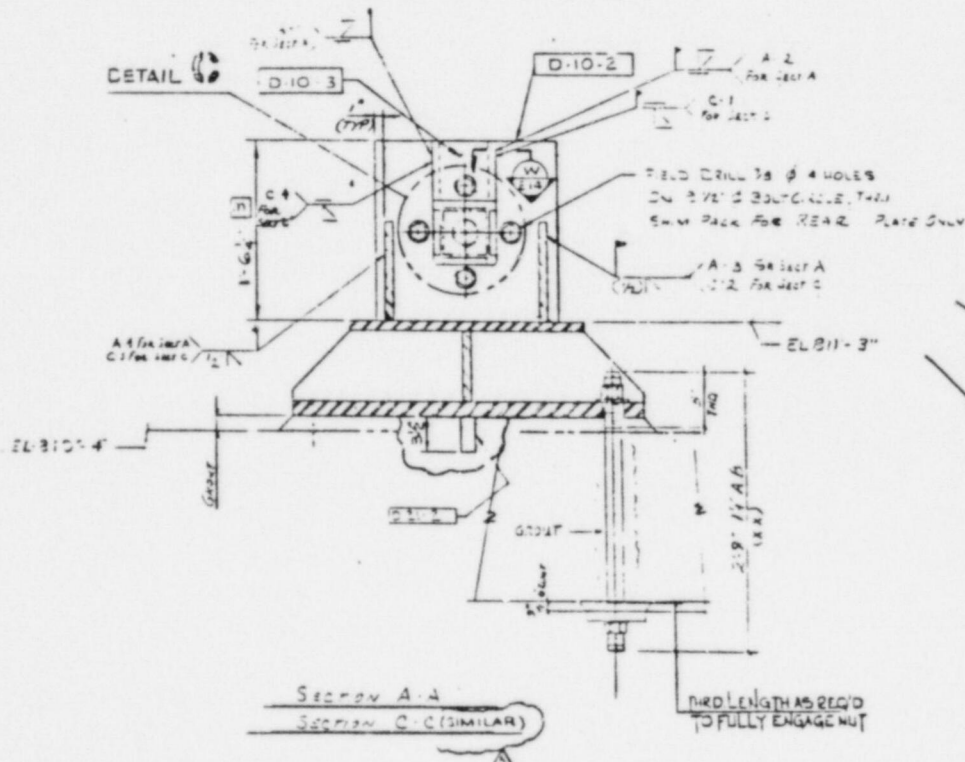
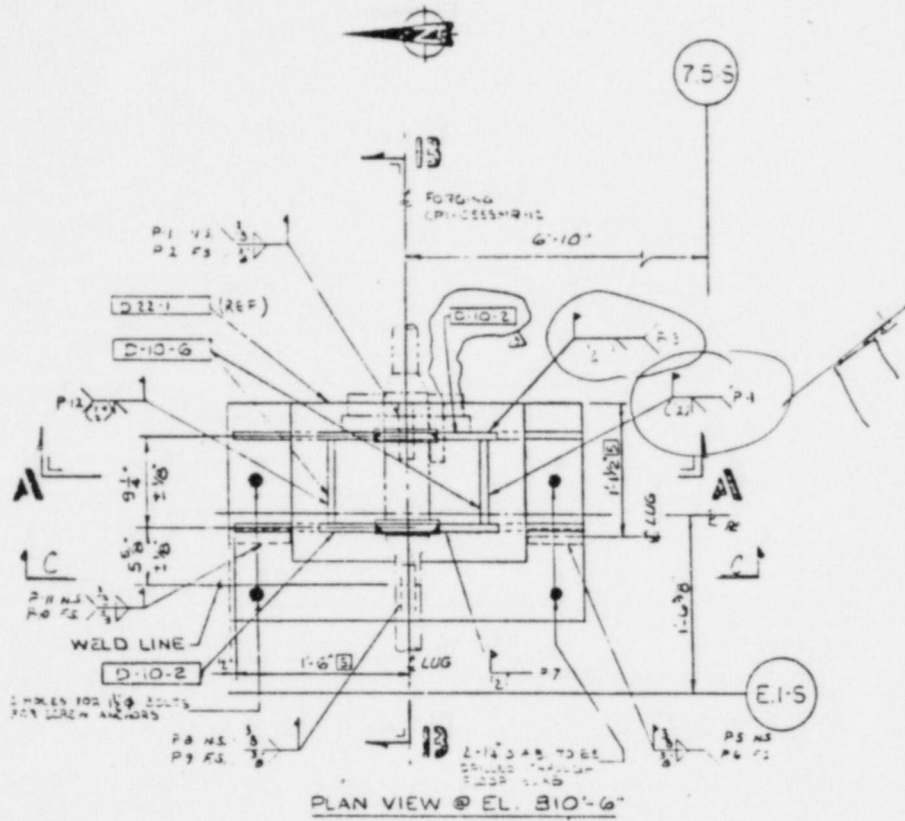


TRAVEL 81-034-4900
ISO SZ

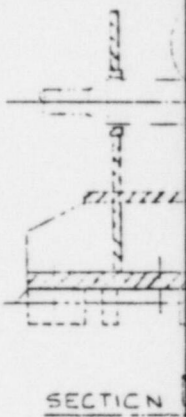
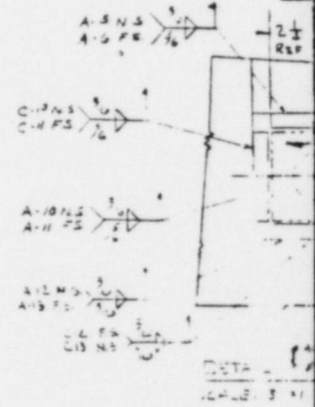
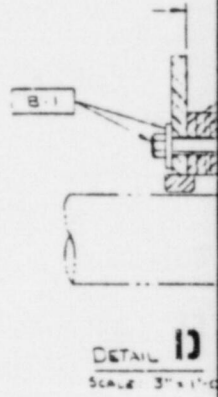
APPROVED BY: [Signature]	DRAWN BY: [Signature]	TITLE OF DRAWING: SAFEGUARD ELECTRIC TOWER LINING COMPONENT
NOTES: CLASS 2 LINEAR TYPE SUPPORT WELDS SHALL BE EXAMINED IN ACCORDANCE WITH NF-5222. IN ADDITION ALL CLASS 2 SUPPORT WELDS AND ADJACENT BASE METAL FOR AT LEAST 8" ON EACH SIDE OF THE JOINT SHALL BE EXAMINED BY EITHER MAGNETIC PARTICLE OR LIQUID PENETRANT METHOD. USE OF NF-5222 IS REQUIRED.		DATE OF PROJECT: 01-02-01
NAME OF OWNER: TEXAS UTILITIES SERVICES, INC.	LOCATION OF PROJECT: C.P.S.S. GLEN ROSE, TEXAS	DRAWING NO. M33-0085-001
SHEET 2/4		

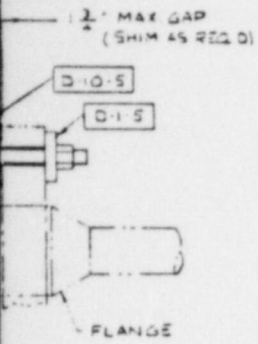
8606040295-10

ONE



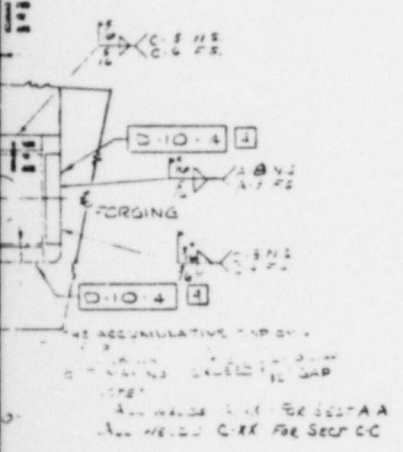
(1) ANCHOR BOLTS SHALL BE OF A-325 OR L43 OR L7
 NUTS SHALL BE OF A-194 GR. 4 OR 7
 WASHERS SHALL BE OF A-325 (PLS. N HARDENED)
 ANCHOR PLATE SHALL BE A177-A 500
 ITEMS SHALL BE PER JIN SPEC NO 1323-JS-168





PART NO	QTY	DESCRIPTION	REV NO	QTY	WEIGHT
		SUPPORT STRUCTURE			360
D-22-1	1	BASE ASSY	D-22		904
D-10-2	2	CAPTURE R	D-10		129
D-10-3	2	WELD R			14
D-10-4	8	SHIM			10
D-10-5	1	SHIM PACK			57
D-10-6	2	STIRRER			37
D-21-2	4	LUG	D-21		30
B-1	4	WASHER R	D-1		6
D-1-5	4	WASHER R	D-1		3

- NOTES:
- FOR MATERIAL SPECIFICATIONS AND FABRICATION REQUIREMENTS SEE 2023-01-030
 - ALL MATERIAL SUPPLIED IN ACCORDANCE WITH TUBI SPEC NO 2023-0208-4
 - THIS LENGTH HAS BEEN SUPPLIED 2 LONGER THAN DIMENSION INDICATED. ACTUAL LENGTH TO BE DETERMINED BY FIELD MEASUREMENT.
 - SHIM BARS ARE SUPPLIED IN A NOMINAL THICKNESS OF 1". FINAL THICKNESS TO BE DETERMINED AND ACHIEVED BY FIELD (3/4" MINIMUM)
 - LUGS MAY BE SHIFTED TO CLEAR REDAYS
 - WITHIN THE LENGTH OF THE LUG IF ANY REDAY COMES IN THE WAY THE LUG SHALL BE NOTCHED TO CLEAR THE REDAY WHEN NOTCHING IS DONE A MINIMUM AREA OF 14 SQ IN. OF LUG FACE LARGEST SURFACES MUST REMAIN
- FOR INDIVIDUAL PART SIZES SEE PURCHASE ORDER NO CPD-0324, JOB NO 3408; 'D' DIMS AS REFERENCED IN THE BILL OF MATL ABOVE.



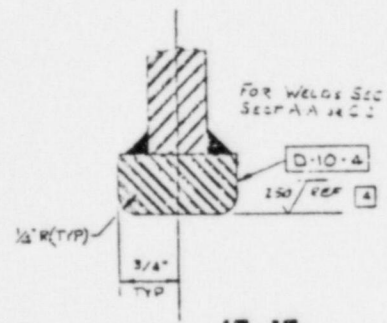
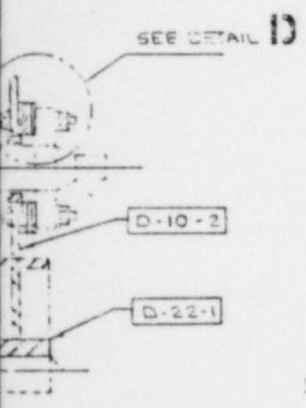
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TRAVELER
81-036-4900

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REVISIONS	DATE	BY	CHKD
0	10/28/02	TR	(S)
1	REV WELDS AS NOTED	TR	(S)
2	REV AS NOTED	TR	(S)
3	REV AS NOTED	TR	(S)
4	REV AS NOTED	TR	(S)
5	REV AS NOTED (FINAL REVIEW DWG)	TR	(S)

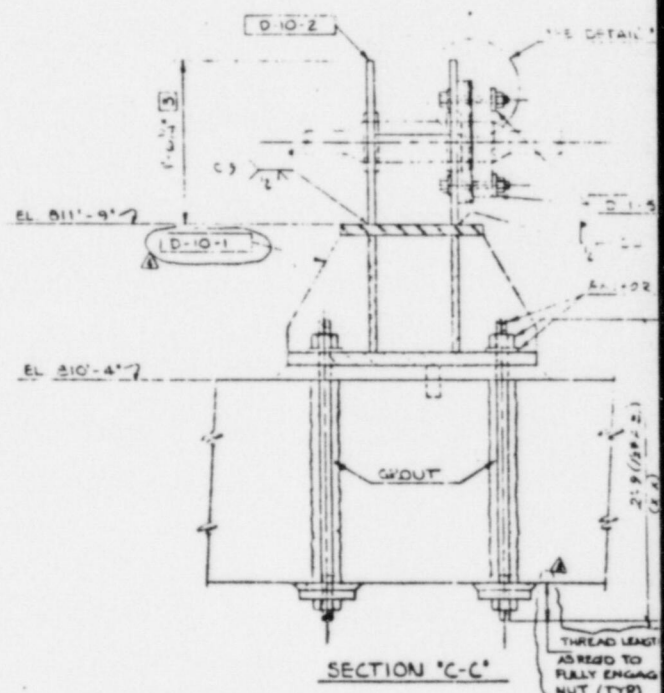
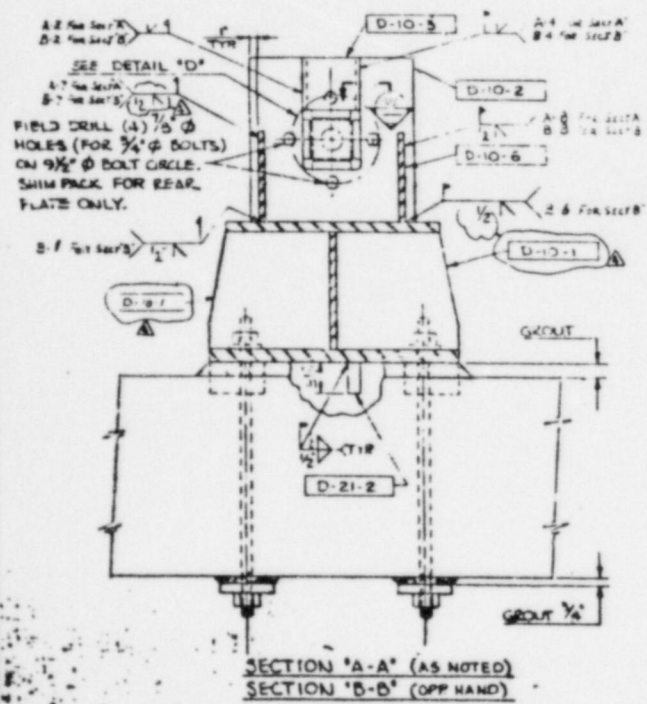
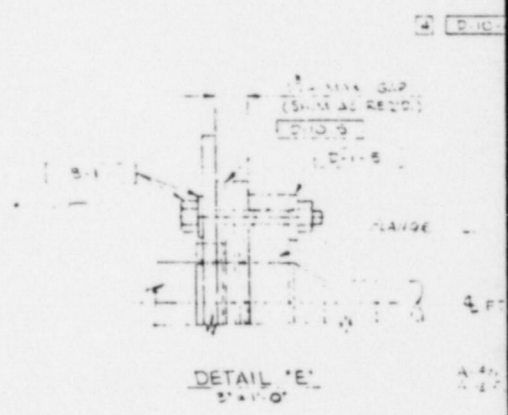
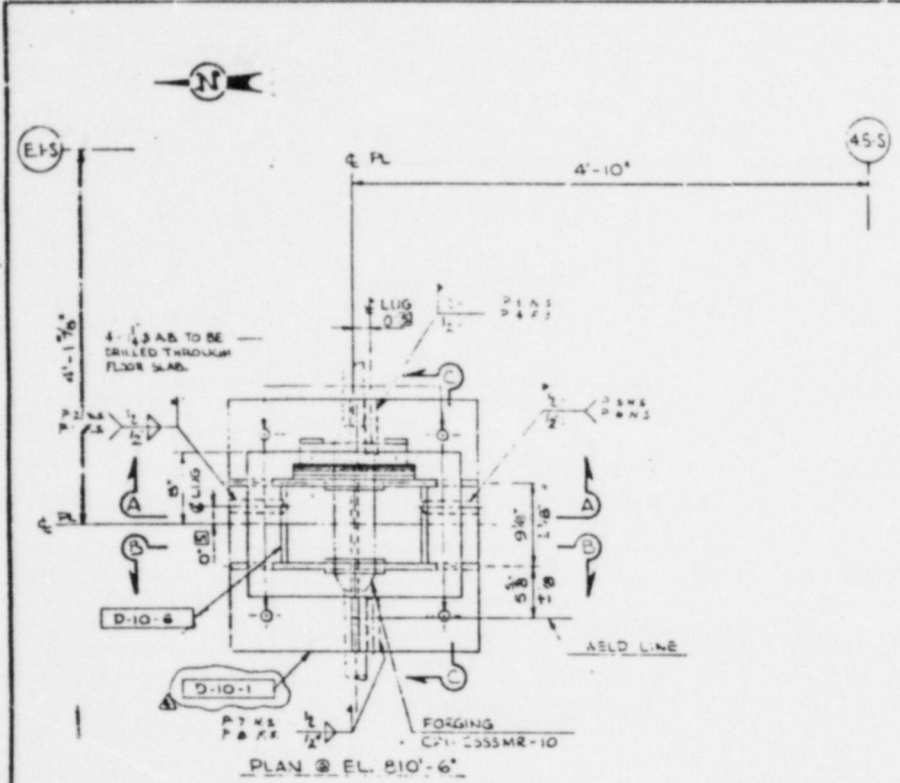
SECTION 1:1
FULL SIZE
BRP-CS-1-SB-054

NOTES:
CLASS 2 LINEAR TYPE SURFACE WELDS SHALL BE EXAMINED IN ACCORDANCE WITH NP 2222 IN ADDITION ALL CLASS 2 SURFACE WELDS AND ADJACENT BASE METAL FOR AT LEAST 1/2" ON EACH SIDE OF THE JOINT SHALL BE EXAMINED BY EITHER MAGNETIC PARTICLES OR LIQUID PENETRANT METHOD.
REF G/H 31-068B 03, AND 3/R 43-1101/1012

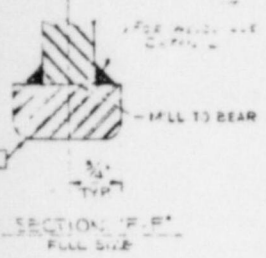
APPROVED BY: [Signature]	DRAWN BY: [Signature]	TITLE OF DRAWING: Support Structure - 81-036-4900
NAME OF OWNER: TEXAS UTILITIES SERVICES, INC.		DRAWING NO: MSB-0323-003
LOCATION OF PROJECT: C.P.S.E.S. GLEN ROSE, TEXAS		SHEET: 5/13

8606040295-11 1ST Dwg

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(X-X) ANCHOR BOLTS SHALL BE OF A-320, GR L45 - 17
 NUTS SHALL BE OF A-191, GR 4 - 2
 WASHER SHALL BE OF A-325 (PLAIN HARDENED)
 ANCHOR PLATE SHALL BE ASTM A-588
 ITEMS SHALL BE PER GYM SPEC NO 3323-55-168

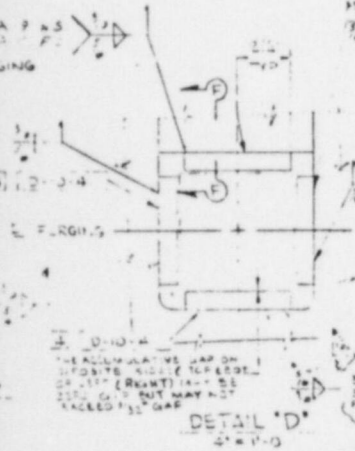


ITEM NO	QTY	DESCRIPTION	LOC	DRWG	WT (LBS)	WT (%)
SUPPORT STRUCTURE						
D-10-1	1	BASE ASSY		D-C	642	
D-10-2	2	CAPTURE PL			125	
D-10-3	2	WELD PL			14	
E-10-4	8	SHIM			16	
D-10-5	7	SHIM PACK			57	
D-10-6	2	STIFFENER			37	
D-1-5	4	WASHER PL		O-1	3	
B-1	4	WASHER PL			4	
D-2-2	4	LUG		D-21	36	
FOR OFFICE AND ENGINEERING USE ONLY					TOTAL = 926	

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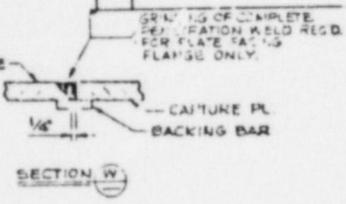
NOTES:

1. FOR MATERIAL SPECIFICATION AND FABRICATION REQUIREMENTS SEE 2523-CSDS-1.
2. ALL MATERIAL SUPPLIED IN ACCORDANCE WITH T.E. SPEC. NO. 2523-CSDS-4.
3. THIS LENGTH HAS BEEN SUPPLIED 2" LONGER THAN DIMENSION INDICATED. ACTUAL LENGTH TO BE DETERMINED BY FIELD MEASUREMENT.
4. SHIMS ARE SUPPLIED IN A NOMINAL THICKNESS OF 1". FINAL THICKNESS TO BE DETERMINED AND ADHESIVE BY FIELD. (MINIMUM)
5. LOCATION OF LUG MAY BE SHIFTED 1/8" TO CLEAR REBAR WITHIN THE LENGTH OF LUG IF ANY REBAR COMES IN THE WAY. THE LUG SHALL BE NOTCHED TO CLEAR THE REBAR WHEN NOTCHING IS DONE A MINIMUM AREA OF 15 SQ. INS OF LUG FACE (LARGEST SURFACE) MUST REMAIN.
6. FOR INDIVIDUAL PART SIZES SEE PURCHASE ORDER NR CPO-0324, JOB # 3406; '0' DWGS AS REFERENCED IN THE BILL MATL ABOVE.



TUSI DWG
2523-01-0000-01

NO.	REVISION	DATE	BY	CHKD	REFERENCE DWG
1	ISSUE FOR ASSEMBLY (DRAFTED)	12/17/73	J.P.	J.P.	SIR 2523-01-0000 Rev 3
2	REV. AS NOTED	12/17/73	J.P.	J.P.	2523-01-0000
3	REV. AS NOTED	12/17/73	J.P.	J.P.	DCA 4435 2/1
4	REV. AS NOTED (FINAL REVIEW DWG)	12/17/73	J.P.	J.P.	DCA 4437 DCA 50249 CMC-76926



APP'D BY: J.P.	DRAWN BY: J.P.	TITLE OF DRAWING: SAFEGUARD Bldg #1 - MOMENT LIMITING COMPONENT
NOTES:		SUPPORT STRUCTURE SEL-810-6
CLASS 2 LINEAR TYPE SUPPORT WELDS SHALL BE EXAMINED IN ACCORDANCE WITH NF 6332. IN ADDITION ALL CLASS 2 SUPPORT WELDS AND ADJACENT BASE MATL FOR AT LEAST 1/4" ON EACH SIDE OF THE JOINT SHALL BE EXAMINED BY EITHER MAGNETIC PARTICLE OR LIQUID PENETRANT METHOD.		NAME OF OWNER: TEXAS UTILITIES SERVICES, INC.
USE CIR WPS: 12070, 12072. REF: 614 31-0488-01		LOCATION OF PROJECT: CPSES, GLEN ROSE, TEXAS
		DRAWING NO.: MSB-0688-001
		SHEET: 514

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CE-81-034-4900

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NOTES FOR MOMENT LIMITING COMPONENT SUPPORTS

- 1.- FOR DRAWING LIST, GENERAL NOTES AND LIST "F" REFERENCES SEE 6 & 8 ON 2323-51-0500.
- 2.- MATERIAL FOR PLATES AND SHAPES:
UNLESS OTHERWISE NOTED, MATERIAL SHALL BE ASTM A588, GRADE A OR B AND SHALL CONFORM TO THE REQUIREMENTS OF ASME SECTION III, SUBSECTION NF. THE SULPHUR CONTENT OF THIS STEEL IS TO BE LIMITED TO 0.010 PERCENT MAXIMUM. IN ADDITION, FOR PLATES GREATER THAN 1" THICK, INCLUSIONS SHALL BE SHAPE CONTROLLED TO GIVE A REDUCTION IN AREA IN THE Z DIRECTION (THROUGH THICKNESS) OF 25 PERCENT MINIMUM AT ULTIMATE STRAIN.
- 3.- FOR AS BUILT LOCATION OF ANCHOR BOLTS, SLEEVES AND INSERTS EMBEDDED IN CONCRETE SEE THE FIELD SURVEY.
- 4.- ALL STEEL WELDED JOINTS SHALL BE COMPLETE PENETRATION WELDED UNLESS NOTED OR SHOWN OTHERWISE. FOR ADDITIONAL WELDING INFORMATION SEE WELDING NOTES.
- 5.- SURFACES OF PLATES IN CONTACT WITH CONCRETE OR GROUT SHALL NOT BE PAINTED.
- 6.- ALL BOLTS FOR RICHMOND SCREW ANCHORS SHALL BE ASTM A325 (BEARING TYPE-TYPE EXCLUDED) WITH HARDENED WASHERS UNLESS OTHERWISE NOTED ON THE DRAWINGS AND SHALL COMPLETELY ENCASE THE THREADED PORTION OF THE ANCHOR.
- 7.- HOLES IN THE STRUCTURAL STEEL FOR BOLTS EMBEDDED IN CONCRETE, RICHMOND SCREW ANCHOR BOLTS AND EXPANSION BOLTS SHALL BE CLASSIFIED AS STANDARD OR ELONGATED.

7.1- STANDARD HOLES

- a) FOR BOLTS UP TO AND INCLUDING 1 1/4" DIA. THE HOLE IN PLATE WILL BE DRILLED 3/16" GREATER IN DIAMETER THAN THE BOLT DIAMETER.
- b) FOR BOLTS GREATER THAN 1 1/4" DIA THE HOLE IN THE PLATE WILL BE DRILLED 5/16" GREATER IN DIAMETER THAN THE BOLT DIAMETER.

7.2- ELONGATED HOLES

- a) AN ELONGATED HOLE IS DEFINED AS A HOLE WHICH IN THE SHORT DIRECTION MEETS THE REQUIREMENTS OF PARAGRAPH 7.1 BUT REQUIRES A GREATER DIMENSION IN THE TRANSVERSE SLOTTED DIRECTION DUE TO MISALIGNMENT IN THE EMBEDDED BOLT.

7.3- A BEVELED PLATE WASHER WILL BE REQUIRED FOR ALL BOLTS THAT USE ELONGATED HOLES. THE BEVELED PLATE WASHER IS FURTHER DESCRIBED AS FOLLOWS:

- a) THE MATERIAL SHALL BE ASTM A588 GRADE A.
- b) THE HOLE IN THE BEVELED PLATE WASHER SHALL BE A "STANDARD HOLE".
- c) THE MINIMUM THICKNESS SHALL BE 3/8".
- d) THE SURFACE OF THE BEVELED PLATE WASHER IN CONTACT WITH THE NUT SHALL NOT HAVE A SLOPE OF MORE THAN 1:20 WITH RESPECT TO A PLANE NORMAL TO THE BOLT AXIS.
- e) THE BEVELED PLATE WASHER SHALL BE SQUARE OR RECTANGULAR AS REQUIRED. THE SIZE OF THE PLATE WASHER SHALL BE A MINIMUM OF 2 BOLT DIAMETERS IN EACH DIRECTION OR SHALL EXTEND 1/2" FURTHER THAN ANY EDGE OF THE ELONGATED HOLE, WHICHEVER IS THE GREATER.
- f) THE BEVELED PLATE WASHER WILL BE FIELD WELDED (5/16" FILLET WELD ALL AROUND THE PLATE) TO THE STEEL BASE PLATE.
- g) FOR FURTHER DESCRIPTION OF BEVELED PLATE WASHER ASSEMBLY SEE DETAIL "A".

B.- SHIMMING (BETWEEN STRUCTURAL STEEL COMPONENTS):

B.1- SHIMS FOR JOINTS INVOLVING FRICTION TYPE BOLTS.

- B.1.1- ALL SHIMS SHALL BE ASME SA36, OR ASTM A588, GRADE A OR B. SHIMS SHALL BE LOOSE, REGARDLESS OF THE GAP TO BE SHIMMED AND SHALL COVER 100 PERCENT OF THE MATED PARTS. NO FIELD WELDING OF SHIMS IS REQUIRED FOR JOINTS USING FRICTION BOLTING.
- B.1.2- SHIM MATERIAL ASTM A-606 MAY BE SUBSTITUTED IN LIEU OF ASME SA36, OR ASTM A588, GRADE A OR B, FOR SHIMS WITH THICKNESSES OF 1/16" AND 1/8".

B.2- SHIMS FOR JOINTS INVOLVING BEARING TYPE BOLTS - THREADS EXCLUDED OR NOT.

- B.2.1- SHIMS NOT EXCEEDING 1/4".
ALL SHIMS SHALL BE ASME SA 36, OR ASTM A588, GRADE A OR B. SHIMS SHALL BE LOOSE, WHENEVER THE GAP IS 1/4" OR LESS AND SHALL COVER 100 PERCENT OF THE MATED PARTS. AS AN ALTERNATE TO THE SPECIFIED MATERIALS, IT IS ACCEPTABLE TO SUBSTITUTE ASTM A-572, GRADE 50 AND ASTM A-570, GRADE 40 WHEN USING 10 GAUGE SHIM MATERIAL.
- B.2.2- SHIMS EXCEEDING 1/4".
ALL SHIM SUPPORTS SHALL BE FIELD WELDED INTO ONE PIECE. SHIM PLATE MATERIAL UP TO BUT NOT INCLUDING 1/2" THICK SHALL BE ASTM A572, GRADE 50. SHIM PLATE MATERIAL 1/2" THROUGH 3/4" THICK SHALL BE ASTM A588, GRADE A. THE FIELD WELDED SHIM SHALL BE FILLET WELDED ALL AROUND TO ONE OF THE INTERFACED PLATES. THIS FILLET WELD SHALL BE 1/16" SMALLER IN SIZE THAN THE SMALLER PLATE SO JOINED AND SHALL COVER 100 PERCENT OF THE MATED PARTS.

- B.2.3- GRINDING IN LIEU OF MILLING IS ACCEPTABLE TO OBTAIN THE REQUIRED SHIM GAP, PROVIDED FULL BEARING OF THE SHIM AGAINST THE CAPTURE PLATE IS ACHIEVED.
- B.2.4- IT IS ACCEPTABLE FOR TACK WELDS WHICH HAVE BEEN USED TO HOLD BEARING SHIMS IN PLACE WHILE FINAL WELDING OF THE SHIMS TO THE CAPTURE PLATE IS PERFORMED TO REMAIN IN PLACE WITHOUT REMOVAL. ON VISUAL INSPECTION OF THESE TACK WELDS IS REQUIRED. NO WELD IDENTIFICATION NUMBERS WILL BE ASSIGNED TO THESE NON-STRUCTURAL TACK WELDS.

B.3- ONE PIECE SHIMS BETWEEN CAPTURE PLATE AND FORGING FLANGE MAY BE CUT DIAGONALLY TO FACILITATE INSTALLATION.

B.3- ONE PIECE SHIMS BETWEEN CAPTURE PLATE AND FORGING FLANGE MAY BE CUT DIAGONALLY TO FACILITATE INSTALLATION.

- 9.- IMPACT TEST REQUIREMENTS FOR MATERIALS:
IMPACT TESTING IN ADDITION TO THAT CALLED FOR IN MATERIAL SPECIFICATION IS NOT REQUIRED.

- 10.- CLEANING, SHOP PAINTING AND STORAGE OF MATERIAL
CLEANING, SHOP PAINTING AND STORAGE OF MATERIALS SHALL BE IN ACCORDANCE WITH 6888 & HILL SPECIFICATION NO. 2323-55-168 EXCEPT THAT STORAGE OF WELDING MATERIAL SHALL BE IN ACCORDANCE WITH ASME SECTION III, SUBSECTION NF.

- 11.- TOLERANCES FOR INSTALLATION OF MOMENT LIMITING COMPONENTS SHALL BE AS FOLLOWS:
 - a) DESIGN ELEVATION/LOCATION: ± 1/8"
 - b) LEVEL AND PLUMB: ± 1/4" PER FOOT TOTAL PIECE DIMENSION.
 - c) INTENT OF TOLERANCES IS TO MAINTAIN AND TO ENSURE CAPTURE PLATES ARE FOR ILLUSTRATION SEE DETAIL "D".
- 12.- INSTRUMENTATION BRACKETS MAY BE ATTACHED GUIDELINES SHOWN IN DETAILS "E" AND "F".

WELDING

- 1.- PROCEDURE AND PERFORMANCE QUALIFICATIONS
WELDING PROCEDURES AND TECHNIQUES SHALL BE IN ACCORDANCE WITH ASME SECTION III, SUBSECTION NF.
- 2.- FILLER MATERIAL:
THE FILLER MATERIAL USED FOR ALL WELDING SHALL BE IN ACCORDANCE WITH ASME SECTION III, SUBSECTION NF. WHEN WELDING WITH HYDROGEN ELECTRODES SHALL BE USED.
- 3.- SURFACE PREPARATION:
ALL SURFACES TO BE WELDED SHALL BE PREPARED IN ACCORDANCE WITH ASME SECTION III, SUBSECTION NF.
- 4.- STRESS RELIEF:
ALL COMPLETE PENETRATION WELDS GREATER THAN 1" SHALL BE POST WELDED HEAT TREATED IN ACCORDANCE WITH TABLE NF-4622.1-1 AND TABLE NF-4622.1-2.
- 5.- REPAIRS:
MAJOR DEFECTS IN ASSEMBLED STRUCTURES SHALL BE REPAIRED BY ENGINEER OR HIS REPRESENTATIVE. REPAIRED WELD SHALL BE 100 PERCENT REWORK OF THE ORIGINAL DEFECT.
- 6.- FABRICATION:
FABRICATION SHALL BE IN ACCORDANCE WITH ASME SECTION III, SUBSECTION NF-4000.
- 7.- EXAMINATION:
EXAMINATION SHALL BE IN ACCORDANCE WITH ASME SECTION III, SUBSECTION NF-5000, UNLESS OTHERWISE NOTED.
 - 7.1- EXAMINATION OF CLASS 1 LINEAR WELDS
CLASS 1 LINEAR TYPE SUPPORT WELDS SHALL BE EXAMINED IN ACCORDANCE WITH ASME SECTION III, SUBSECTION NF-5000.
 - 7.2- EXAMINATION OF CLASS 2 LINEAR WELDS
CLASS 2 LINEAR TYPE SUPPORT WELDS SHALL BE EXAMINED IN ADDITION ALL CLASS 2 SUPPORT WELDS SHALL BE EXAMINED ON EACH SIDE OF THE JOINT OR LIQUID PENETRANT METHOD.
 - 8.- ULTRASONIC EXAMINATION OF CLASS 2 SUPPORT WELDS
ALL COMPLETE PENETRATION WELDS GREATER THAN 3/4" (AS MEASURED) SHALL BE ULTRASONICALLY TESTED. UNLESS OTHERWISE NOTED, 75 PERCENT OF EACH LENGTH OF AFFECTED ZONE (WHICH IS BOUND BY THE WELDED JOINT) SHALL BE EXAMINED. DOCUMENTATION OF EXAMINATION SHALL BE IN ACCORDANCE WITH ASME SECTION III, SUBSECTION NF-5000.
 - 8.1- 100 PERCENT ULTRASONIC EXAMINATION OF CLASS 2 SUPPORT WELDS SHALL BE CALLED FOR SEPARATELY ON THE DRAWINGS AND 100 PERCENT DOCUMENTATION OF EXAMINATION SHALL BE IN ACCORDANCE WITH ASME SECTION III, SUBSECTION NF-5000.
 - 8.2- NO ULTRASONIC TESTING IS REQUIRED FOR CLASS 2 SUPPORT WELDS.

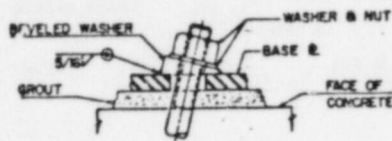
BOLT

- 1.- ALL STRUCTURAL BOLTS USING FRICTION TYPE BOLTING SHALL HAVE A MINIMUM PRETENSION OF 70 PERCENT OF TENSILE STRENGTH.
- 2.- BOLTING MATERIALS FOR CONNECTING STRUCTURAL STEEL SHALL BE ASME SA-320 GRADE L43 OR L7 OR A-490 OR SA-194 GRADE 4 OR 7. WASHERS SHALL BE SA-325 PLAIN HARDENED STEEL.
- 3.- ALL BOLTS INDICATED TO BE HARDENED SHALL BE PREVENTED FROM LOOSENING.

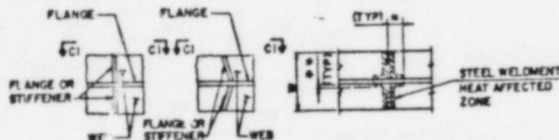
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DETAIL - "A" (N.T.S.)

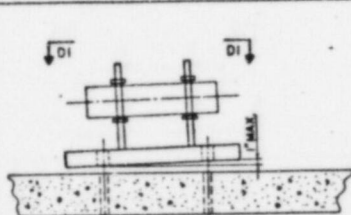


DETAIL - "C" (N.T.S.) SECT. C1-C1 (N.T.S.)
(USE THIS DETAIL WITH WELDING NOTE 9.1)

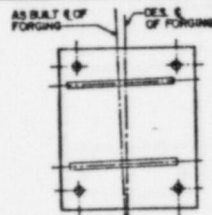
NOTES:

* FOR ALL STIFFENER SYSTEMS EXTEND THE ULTRASONIC TEST TO A MINIMUM OF 1/2" OUTSIDE THE LAST STIFFENER.

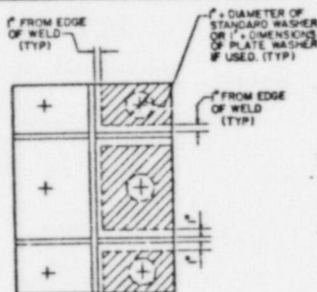
** THE ULTRASONIC TEST AREA IS EXTENDED TO A DISTANCE OF TWO TIMES THE THICKEST MEMBER JOINED, MEASURED FROM THE TOE OF THE WELD.



DETAIL "D" (N.T.S.)
(USE THIS DETAIL WITH NOTE 11)

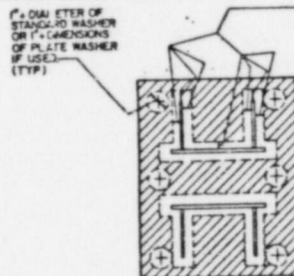


SECT. D1-D1 (N.T.S.)



DETAIL "E" (N.T.S.)

TYPICAL BASE PLATE FOR MOMENT RESTRAINT WITH STIFFENERS WELDED TO BASE PLATE ONLY
(USE THIS DETAIL WITH NOTE 12)

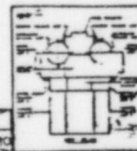


DETAIL "F" (N.T.S.)

TYPICAL BASE PLATE FOR MOMENT RESTRAINT WITH CAPTURE PLATES AND STIFFENERS WELDED TO BASE PLATE
(USE THIS DETAIL WITH NOTE 12)

FOR OFFICE AND ENGINEERING USE ONLY

THIS DOCUMENT AFFECTED BY DESIGN CHANGES

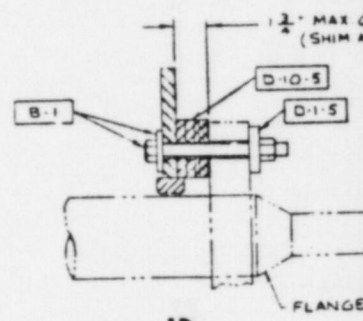
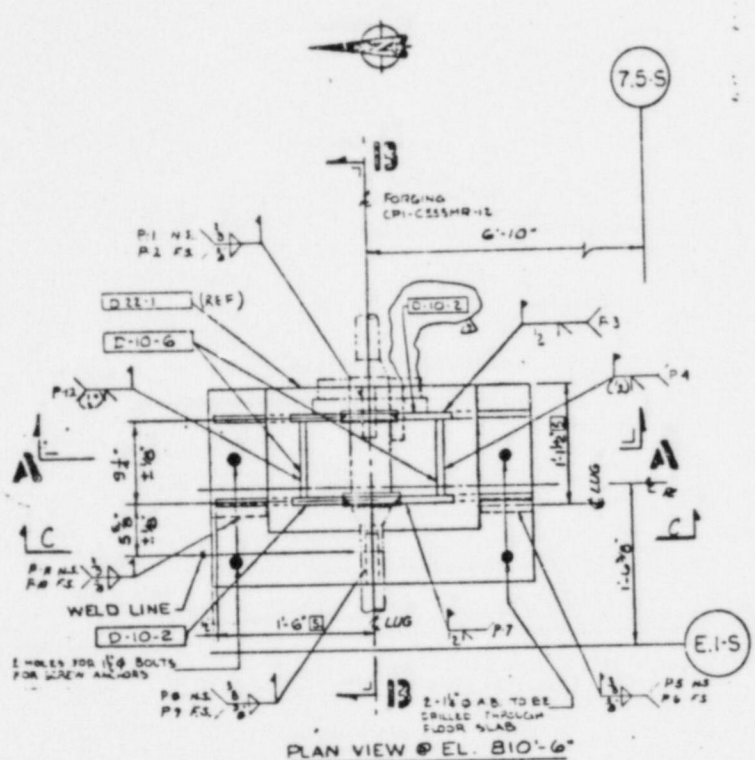


REV	DATE	BY	DESCRIPTION
1	11/18/80	JUL	REVISED TO SHOW TYPICAL WELDING DETAILS
2	11/18/80	JUL	REVISED TO SHOW TYPICAL WELDING DETAILS
3	11/18/80	JUL	REVISED TO SHOW TYPICAL WELDING DETAILS
4	11/18/80	JUL	REVISED TO SHOW TYPICAL WELDING DETAILS

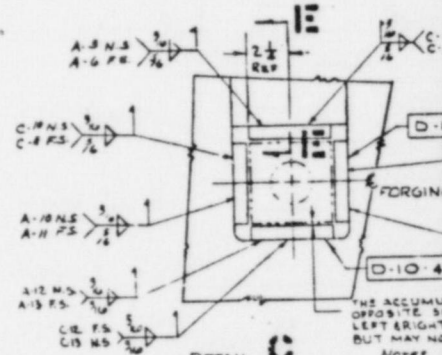
TEXAS UTILITIES GENERATING CO.
MOMENT LIMITING COMPONENT SUPPORT STRUCTURES SH-1
NOTES
2323-SI-0580

CLASS I
NUCLEAR SAFETY RELATED
SAFETY CLASS 1
SAFETY CLASS 2
SAFETY CLASS 3

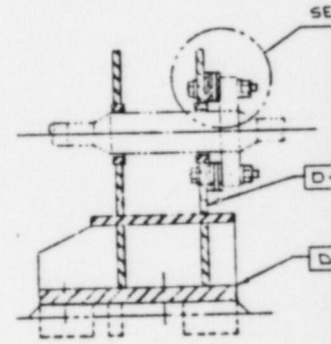
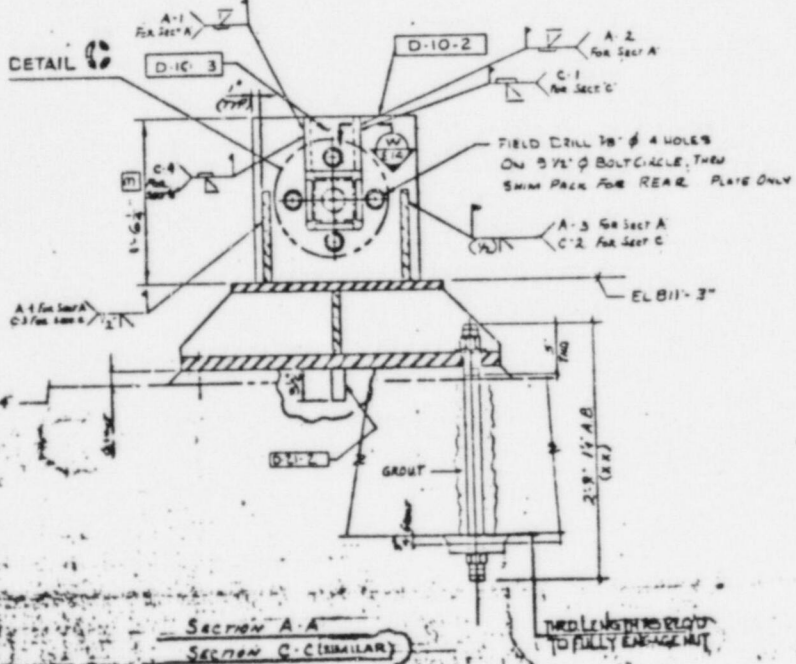
8606040295-13



DETAIL D
SCALE: 3"=1'-0"



DETAIL C
SCALE: 3"=1'-0"



ANCHOR BOLTS SHALL BE OF A-320 OR L45 OR L7
NUTS SHALL BE OF A-194 OR L9 OR L7
WASHERS SHALL BE OF A-315 (PLAIN HARDENED)
ANCHOR PLATE SHALL BE A317M A 400
ITEMS SHALL BE PER AISC SPEC. NO. 323-33-198

Brown & Root Inc.



Registered Trademark

PART NO	QTY	DESCRIPTION	REV NO	REV DATE	REV BY	REV REASON
		SUPPORT STRUCTURE				860
D-22-F	1	BASE ASSY		D-22		964
D-10-2	2	CAPTURE R		D-10		129
D-10-3	2	WELD R				18
D-10-4	8	SHIM				16
D-10-5	1	SHIM PACE				57
D-10-6	2	STIRRER				37
D-21-2	4	LUG		D-21		50
D-1	4	WASHER R		D-1		6
D-1-3	4	WASHER R		D-1		5

NOTES:

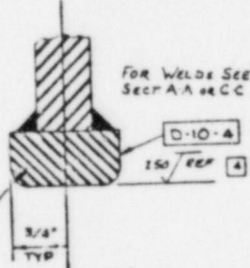
- FOR MATERIAL SPECIFICATIONS AND FABRICATION REQUIREMENTS SEE 2323-SI-2680
- ALL MATERIAL SUPPLY IN ACCORDANCE WITH TUSA SPEC NO 2323-C003-9
- THIS LENGTH HAS BEEN SUPPLIED 1' LONGER THAN DIMENSION INDICATED. ACTUAL LENGTH TO BE DETERMINED BY FIELD MEASUREMENT.
- SHIM BARS ARE SUPPLIED IN A NOMINAL THICKNESS OF 1". FINAL THICKNESS TO BE DETERMINED AND ACHIEVED BY FIELD (2" MINIMUM)
- LUGS MAY BE SHIFTED TO CLEAR REDATA
- WITHIN THE LENGTH OF THE LUG IF ANY REBAR COMES IN THE WAY THE LUG SHALL BE NOTICED TO CLEAR THE REBAR WHEN HOISTING IS DONE A MINIMUM AREA OF 14 SQ IN. OF LUG FACE (LARGEST SURFACE) MUST REMAIN

FOR INDIVIDUAL PART SIZES SEE PURCHASE ORDER NO CPD-0524, JOB NO 3408; 'D' DWGS AS REFERENCED IN THE BILL OF MAT'L ABOVE.

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REVISION	DATE	BY	CHKD
0	Issue For Assembly (W-CL-8002)	5/16	T.P.
1	REV WELDS AS NOTED	7/16	T.P.
2	REV AS NOTED	7/16	T.P.
3	REV AS NOTED	8/16	MRC
4	REV AS NOTED	8/16	MRC
5	REV AS NOTED (FINAL REVIEW: DMG)	8/16	DMG

SECTION E-E
FULL SIZE

TITLE OF DRAWING: SAFETY-8002 1/2" Moment Limiting Component

SUPPORT STRUCTURE 860-8106

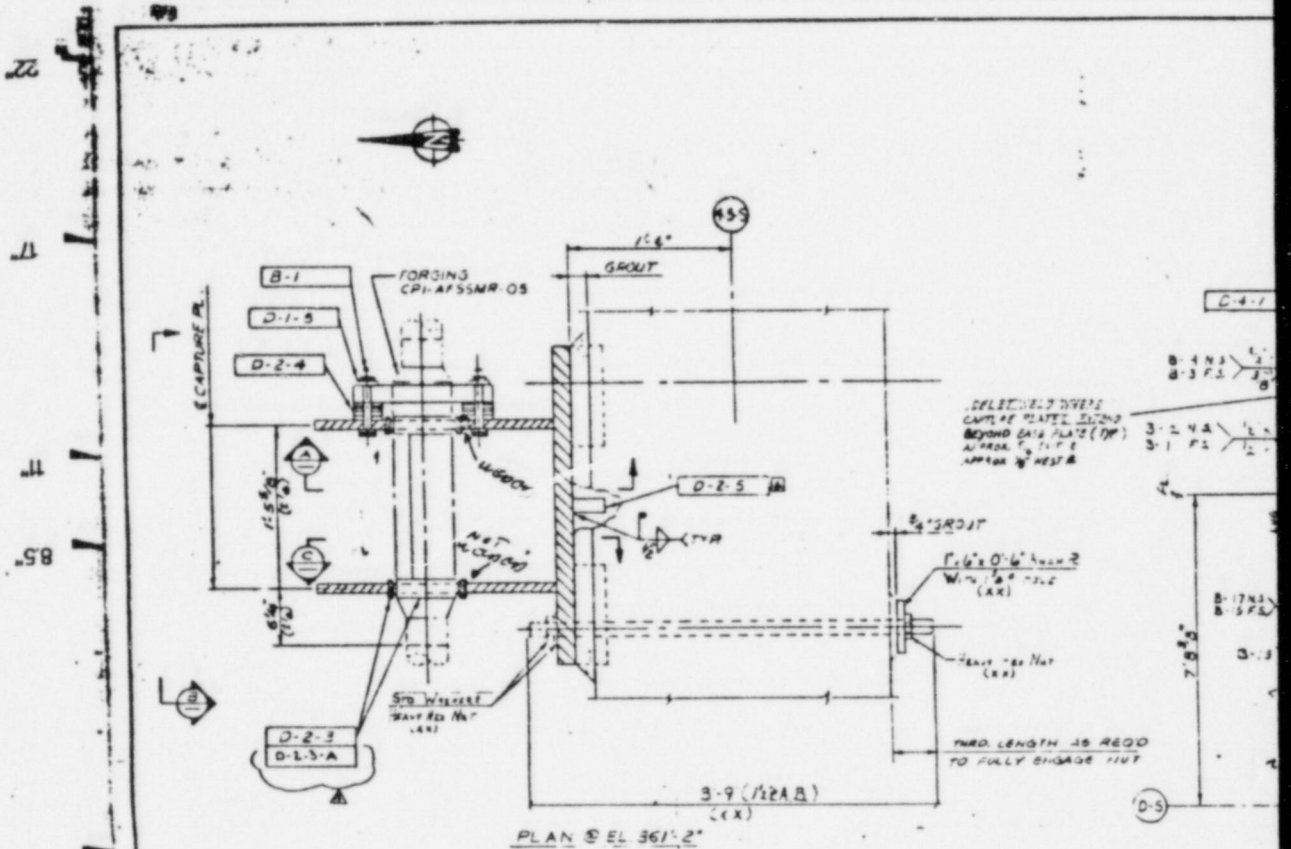
NAME OF COMPANY: TEXAS UTILITIES SERVICES, INC.

LOCATION OF PROJECT: CPSES - GLENN ROSE, TEXAS

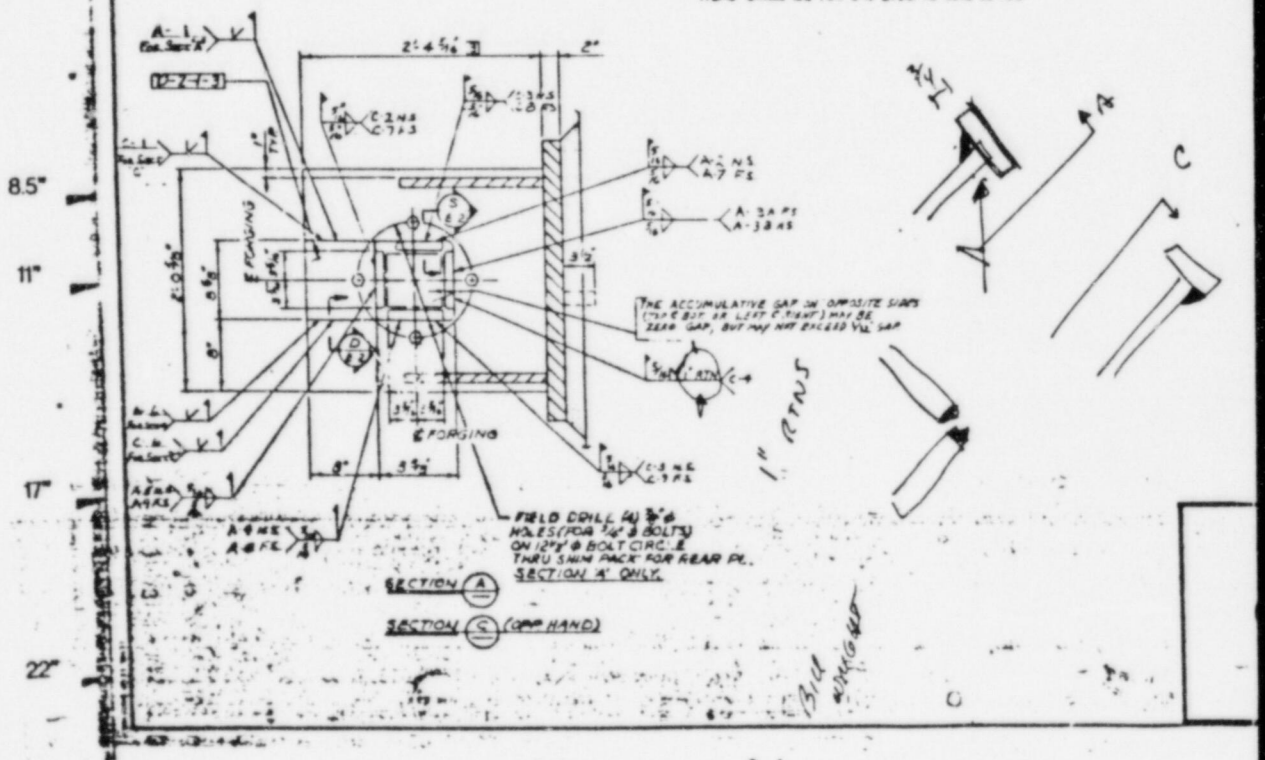
DRAWING NO.: MSB-0608-003

SHEET: 23

8606040295-14



(XX) ANCHOR BOLTS SHALL BE 4-320, SA L43, RL7
 NUTS SHALL BE A-174, UN-4X7
 WASHERS SHALL BE A-325 (PLAIN HARDENED)
 ANCHOR PLATE SHALL BE A577-A580
 ITEMS SHALL BE FOR SIX SPEC NO 2322 SS-108



PART NO.	QTY	DESCRIPTION	REV NO	REV DATE	REV BY	REV REASON
		SUPPORT STRUCTURE				1363
D-4-5	4	WASHER PLATE		D-1		3
D-4-1	1	PLATE ASSY		D-4		364
D-4-1-2	1	PLATE		D-4		171
D-1-8	1	PLATE		D-1		609
D-2-3	1	SHIM		D-2		32
D-2-4	1	SHIM PACK				83
D-2-5	4	LUG				664
D-2-3-A	1	1/2" X 1/2" X 1/2" HOLE TO BEAR				2574156 G.A.
B-1	1	1/2" X 1/2" X 1/2" HOLE TO BEAR				5
D-2-1-3	2	WELD PLATE		D-2		37
TOTAL						1363

NOTE:
FOR INDIVIDUAL PART SIZES SEE PURCHASE ORDER NO CPD-0526, JOB
NO 3408, '0' DWGS AS REFERENCED IN THE BILL OF MATL. ABOVE

FOR NOTES SEE DWG M5B 0688 010 SHEET

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NO.	REVISIONS	DATE	BY	CHK'D	REFERENCE DWG.
0	ISSUE FOR ASSEMBLY (5-28-68)	5/28/68	WV	WV	3 1/2" REV D PER NPS 221.2 CNC-658495, CNC-65871
1	REVISED AS NOTED	7/1/68	WV	WV	CNC-658495, CNC-65871
2	REV AS NOTED	7/1/68	WV	WV	SCA-65871, SCA-6779, DCA-9035
3	Rev As Noted	7/1/68	WV	WV	SCA-9996 DCA-20249
4	Rev As Noted (FINAL REVIEW DWG)	7/1/68	WV	WV	

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APP'D BY: _____ DRAWN BY: _____

NOTES:
CLASS 2 LINEAR TYPE SUPPORT WELDS SHALL
BE EXAMINED IN ACCORDANCE WITH NF-332X.
IN ADDITION ALL CLASS 2 SUPPORT WELDS
AND ADJACENT BASE MATL FOR AT LEAST
1/2" ON EACH SIDE OF JOINT SHALL BE
EXAMINED BY EITHER MAGNETIC PARTICLE
OR LIQUID PENETRANT METHOD.
REF. SIX 32068 H, SIX SIX WAF 420X400

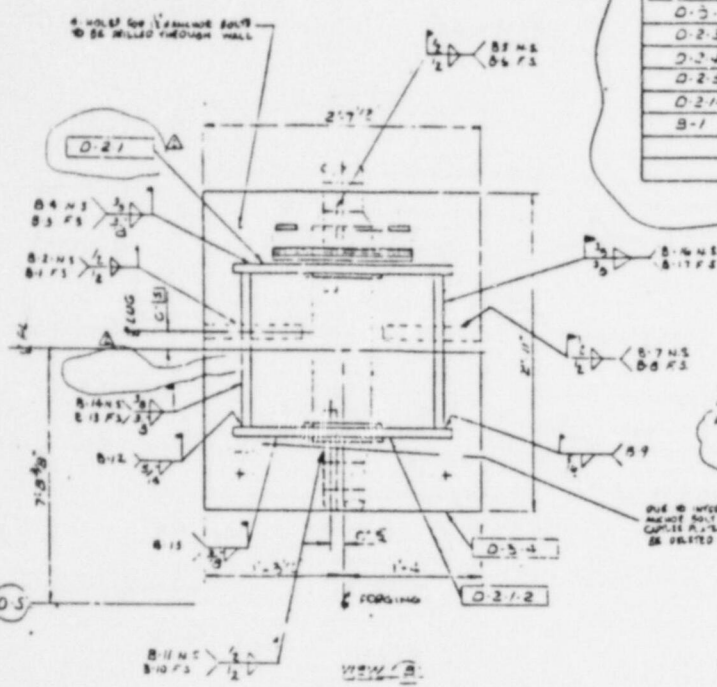
TITLE OF DRAWING: SUPERNOVA BOG #1- MOMENT LIMITING COMPONENT

SUPPORT STRUCTURE @ EL-861.2

NAME OF OWNER: TEXAS UTILITIES SERVICES, INC.
LOCATION OF PROJECT: CPSES, GLEN ROSE, TEXAS
DRAWING NO.: M5B 0688-014
SHEET: 5-6

8606040295-15

ITEM NO	QTY	DESCRIPTION	UNIT	PRICE	TOTAL
SUPPORT STRUCTURE					
0-1-3	4	WASHER PLATE	0-1		1225
0-2-1	1	PLATE ASSY	0-2		100
0-2-1-2	1	PLATE	0-2		100
0-3-4	1	PLATE	0-3		100
0-2-3	8	SHIM	0-2		20
0-2-4	1	SHIM PICK			20
0-2-5	4	LUG			40
0-2-1-3	2	WELD PLATE			37
B-1	4	FASTENERS FOR FASTENERS AND FASTENERS FOR FASTENERS AND FASTENERS			5
TOTAL					1825



FOR NOTES SEE DWG. MSB-0688-010 SHEET 2
 1 FOR INDIVIDUAL PART SIZES SEE PURCHASE ORDER NO. CPD-0324
 JOB NO. 3416; '0' DWGS AS REFERENCED IN THE BILL OF MATERIAL
 ABOVE.

DUE TO INTERFERENCE BETWEEN THE
 MOMENT BOLT AND THE FRONT OF THE
 CAPSULE PLATE, THE FRONT END SHALL
 BE DRILLED BEHIND THE POINT OF INTERFERENCE.

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NO.	REVISION	DATE	BY	REASON
0	ISSUE FOR ASSEMBLY (SHEETS 0-1, 0-2, 0-3, 0-4, 0-5)	10/1/54	W. J. W.	2-APR 1954 PER VPS REF 2
1	REV. IS NOTED	10/1/54	W. J. W.	2-APR 1954 PER VPS REF 2
2	Rev. As Noted (FINAL REVIEW DWG)	10/1/54	W. J. W.	2-APR 1954 PER VPS REF 2 DCA-1954G DCA-20249

Brown & Root, Inc.

Engineering - Fabrication

APPROVED BY: _____
 DRAWN BY: TJP

NOTES:
 CLASS 2 LINEAR PIPE SUPPORT WELDS SHALL
 BE EXAMINED IN ACCORDANCE WITH THE TABLE
 IN ADDITION ALL CLASS 2 SUPPORT WELDS
 AND ADJACENT BASE METAL FOR AT LEAST
 1/2" ON EACH SIDE OF THE JOINT SHALL BE
 EXAMINED BY EITHER PARTICULATE
 OR LIQUID PENETRANT METHOD.
 Ref. GEN. 0688-02, REV. 04/19/54

PROJECT: SAFEGUARD BLOC #1 - MOMENT LIMITING COMPONENT
 SUPPORTS STRUCTURE 9 EL. 05/1

CLIENT: TEXAS UTILITIES SERVICES, INC.
 LOCATION: CPSES, GLEN ROSE, TEXAS

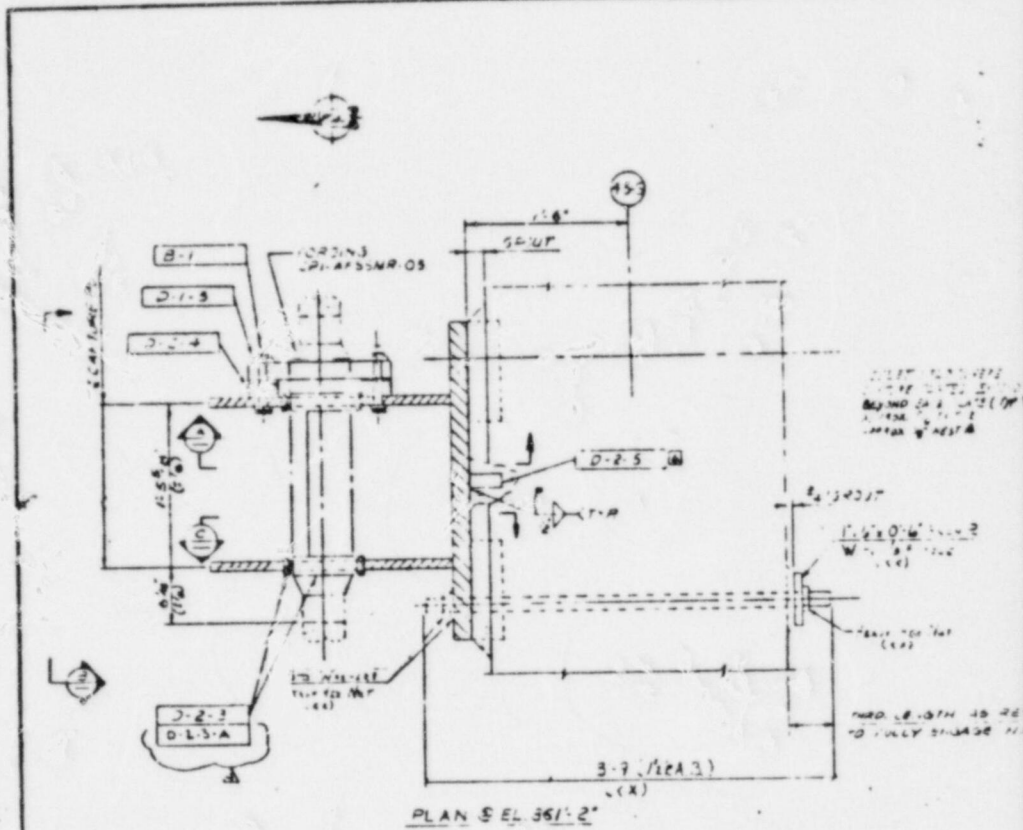
DRAWING NO.: MSB-0688-010
 SHEET: 4

8606040295-16

22

11

85



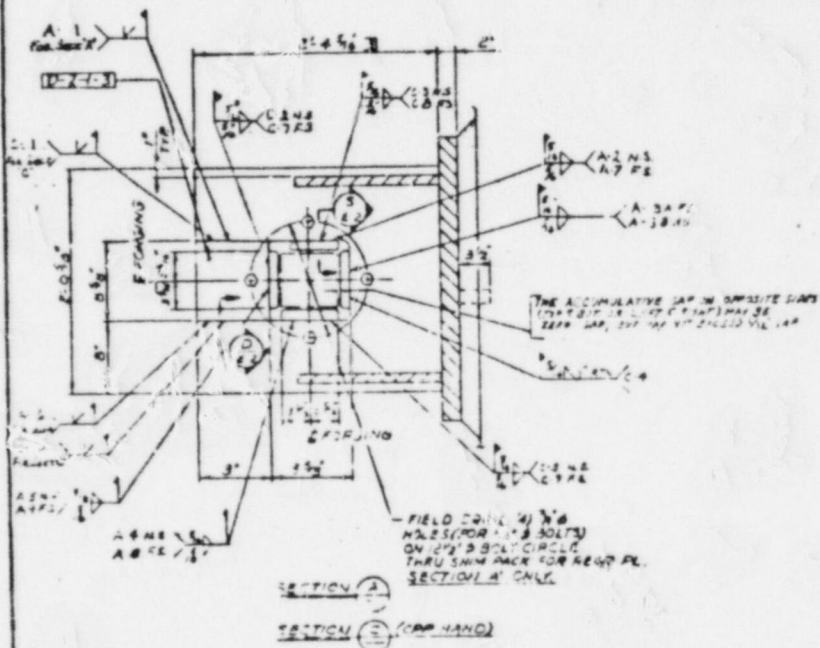
(AX) Axial Run Shall Be 4.225 ± 0.0017
 Hole Shall Be 4.174 ± 0.0017
 Width Shall Be 4.225 ± 0.0017
 Axial Run Shall Be 4.174 ± 0.0017
 Hole Shall Be 4.174 ± 0.0017

85

11

17

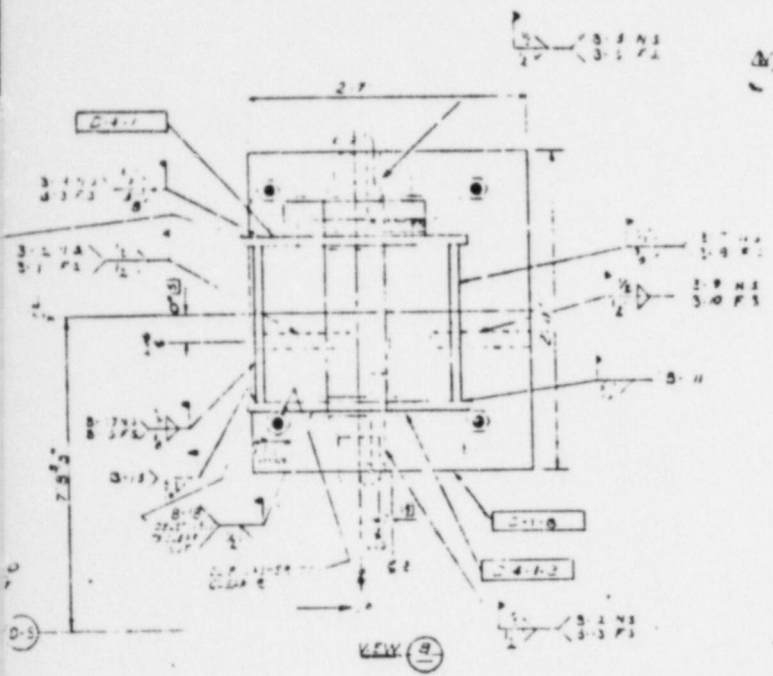
22



QTY	DESCRIPTION	UNIT	QTY
	SUPPORT STRUCTURE		1
0-1-5	WASHER PLATE	0-1	5
0-1-6	PLATE	0-1	5
0-1-7	PLATE	0-1	5
0-2-3	PLATE	0-2	12
0-2-4	PLATE	0-2	12
0-2-5	LUG	0-2	12
0-2-3-A	WELD PLATE	0-2	12
0-2-1-5	WELD PLATE	0-2	12

NOTE:
FOR INDIVIDUAL PART SIZES SEE PURCHASE ORDER NO. 38-11-25, I-8
NO. 3405, 'D' DWGS. AS REFERENCED IN THE BILL OF MATERIAL ABOVE.

FOR NOTES SEE DWG THIS SUB-ASSEMBLY



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NO.	REVISION	DATE	BY	REVISION NO.
1	ISSUE FOR ASSEMBLY	11-18-55		
2	REVISED AS SHOWN			
3	REV. AS NOTED			
4	REV. AS NOTED (FINAL GIVEN DWG)			

Brown & Root, Inc.

NOTES:
1. ALL S & L BEAR TYPE SUPPORT WELDS SHALL
BE EXAMINED IN ACCORDANCE WITH NF-1224
2. ALL JOINTS SHALL BE EXAMINED WITH
AND ADJACENT BASE METAL FOR AT LEAST
1/4" ON EACH SIDE OF JOINT. SHALL BE
EXAMINED BY EITHER MAGNETIC PARTICLE
OR LIQUID PENETRANT METHOD.
R.F. DWG 310588 4, 416 010-11-25-20-20

TITLE OF DRAWING: SUPPORT STRUCTURE FOR TI MONITOR SYSTEM COMPONENT

DATE OF ISSUE: 11-18-55

DESIGNED BY: GLEN ROSE, TEXAS

CHECKED BY: GLEN ROSE, TEXAS

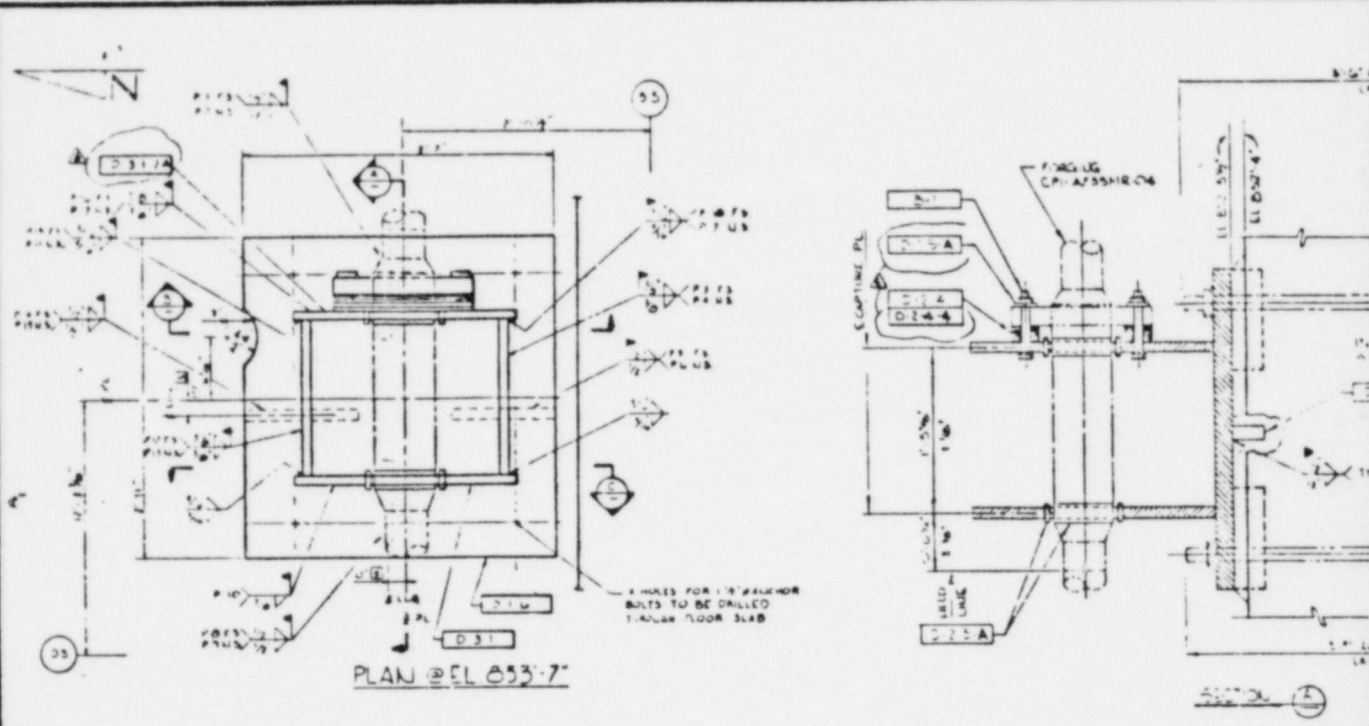
8606040295-17

22

14

14

8.5



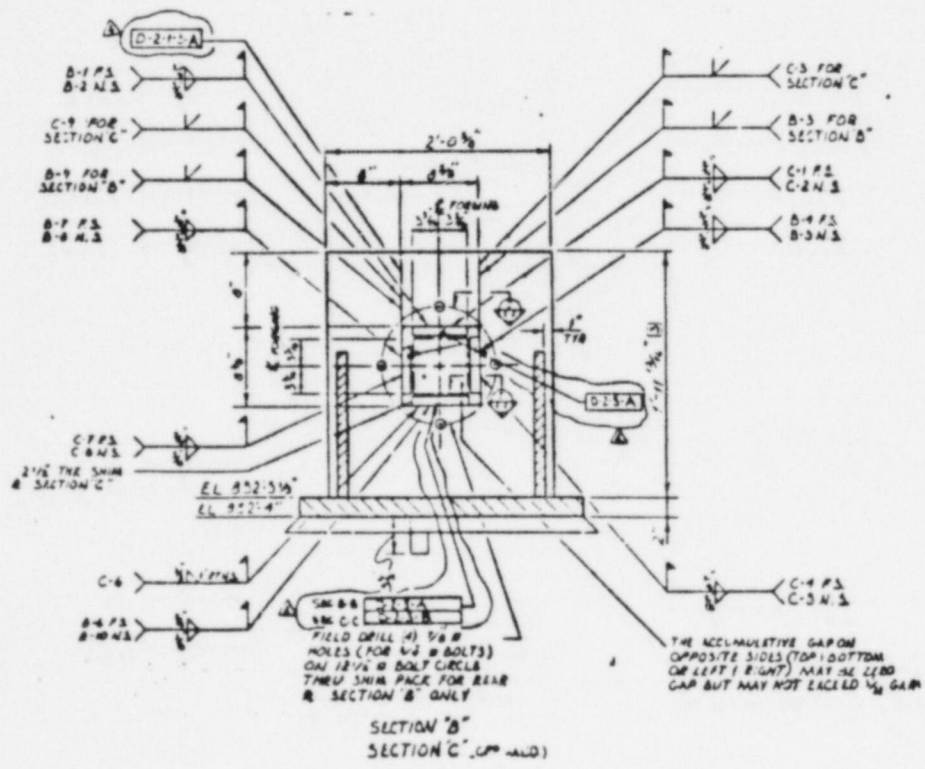
PLAN @ EL 853.7

8.5

11

17

22

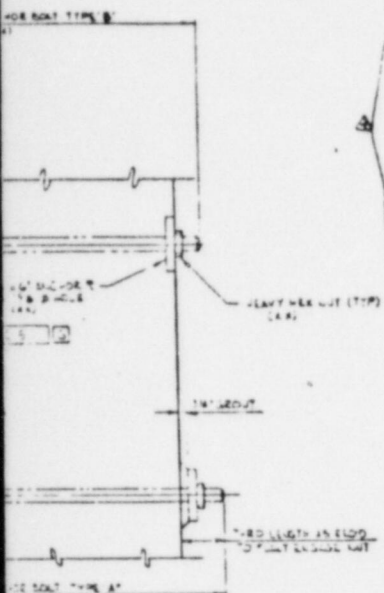


THE ACCUMULATIVE GAP ON OPPOSITE SIDES (TOP + BOTTOM OR LEFT + RIGHT) MAY BE ZERO GAP BUT MAY NOT EXCEED 1/8\"/>

Brown & Root, Inc.



Page 1 of 1



PART NO	QTY	DESCRIPTION	UOM	ANG NO	QTY	WEIGHT
		SUPPORT STRUCTURE				
D-115-A	4	BRACKET		1570-115B		3
D-116	1	PLATE		D-116		1.28
D-213-A	7	BRACKET MOUNT TO BAR		1570-213B		1.1
D-214	1	PLATE		D-214		2
D-215	4	BRACKET		1570-215B		1.1
D-215-A	2	BRACKET		1570-215B		1.1
D-211	1	PLATE - 1557		D-211		1.75
D-212-A	1	BRACKET MOUNT TO BAR		1570-212B		1.1
D-214	1	PLATE		D-214		2
D-215-B	1	BRACKET MOUNT TO BAR		1570-215B		1.1
TOTAL						12.80

FOR NOTES SEE DWG NS-B-0688-010 SHT 2
 1) FOR INDIVIDUAL PART SIZES SEE PURCHASE ORDER NO CPO-0324,
 JOB NO 3A05, 'D' DWGS AS REFERENCED IN THE BILL OF MATL ABOVE.

TUSI-DWG 2323-51-0688-13

TI APERTURE CARD

Also Available On
Aperture Card

FOR OFFICE AND
ENGINEERING USE ONLY

REV	DESCRIPTION	DATE	BY	CHKD	APPROVED
2	Issue for Assembly	02/28/83	J.P.	J.P.	J.P.
1	Rev. W. 1150				
7	Rev. W. 1150				
3	Rev. As Noted				
4	Rev. As Noted (FINAL REVIEW DWG)				

NOTES:
 MAX 3/8" WPS 1400/1402
 CLASS 2 LINER TYPE SUPPORT WELDS SHALL
 BE EXAMINED IN ACCORDANCE WITH NF3222
 IN ADDITION ALL CLASS 2 SUPPORT WELDS
 AND ANCHORS SHALL BE AT LEAST 2"
 ON EACH SIDE OF JOINT SHALL BE EXAMINED
 BY EITHER MANUAL PARTICLE OR LIQUID
 PENETRANT METHOD

NAME OF COMPANY: TEXAS UTILITIES SERVICES, INC.
 LOCATION OF PROJECT: CPSES, GLEN ROSE, TEXAS

8606040295-18

TI APERTURE CARD

FIELD DRILL 7/8" Ø 4 HOLES
ON 9" Ø DIA. BOLT CIRCLE
THRU SHIM PACK FOR REAR PL.
SECTION 'A' ONLY.

Also Available On
Aperture Card

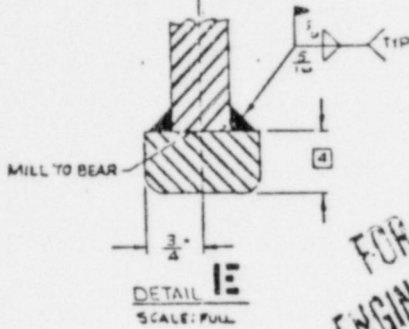
PART NO.	QTY REQD.	DESCRIPTION	SEC NO.	DWG NO.	REV. SYMBOL	REVISION
		SUPPORT STRUCTURE				
D-23-1	2	CAPTURE PLATE ASSY				11 1/2"
D-23-2	2	WELD PLATE				12"
D-23-14	1	BASE PLATE				5 1/2"
D-23-4	1	LUG BAR				87"
D-10-4	8	SHIM BARS				16"
D-10-5	7	SHIM PLATES				57"
D-1-5	4	WASHER PLATES				3"
B-1	4	SPACERS (SEE LUG BAR FOR DIMS. - 41" LONG) (SEE WASHER PLATE FOR DIMS. - 1 1/2" DIA. HOLES)				6"
D-23-15	4	LUG				76"
D-23-16	1	LUG				2"
D-23-17	1	LUG				10"

TOTAL = 296

FOR INDIVIDUAL PART SEE PURCHASE ORDER NO CPD-032A,
JOB NO 44-408; DRAWINGS AS REFERENCED IN THE BILL OF MATERIAL ABOVE.

RELATIVE GAP ON
SIDES (TOP & BOT) OR
IT MAY BE 1/32" GAP
AT EXCESS 1/32" GAP

GAP
AS REQD;



FOR OFFICE AND
ENGINEERING USE ONLY

NOTES:
1. FOR MATERIAL SPECIFICATION AND FABRICATION
REQUIREMENTS SEE 2323-SI-0680

2. ALL MATERIAL SUPPLIED IN ACCORDANCE
WITH TUSI SPEC. 2323-CSDS-4.

3. THIS LENGTH HAS BEEN SUPPLIED 2"
LONGER THAN DIMENSION INDICATED.
ACTUAL LENGTH TO BE DETERMINED
BY FIELD MEASUREMENT.

4. SHIM BARS ARE SUPPLIED IN A NOMINAL
THICKNESS OF 1". FINAL THICKNESS
TO BE DETERMINED AND ACHIEVED
BY FIELD.

5. LOCATION OF LUG MAY BE SHIFTED ±2"
TO CLEAR REBARS.

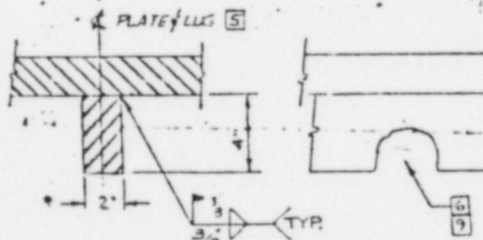
6. WITHIN THE LENGTH OF THE LUG IF ANY
REBAR COMES IN THE WAY, THE LUG SHALL
BE NOTCHED TO CLEAR THE REBAR. WHEN
NOTCHING IS DONE A MINIMUM AREA
OF 133 SQ. IN. OF LUG FACE (LARGEST
SURFACE) MUST REMAIN.

7. THESE PARTS HAVE BEEN SUPPLIED AS
SINGLE PIECES TO BE FIELD CUT TO
LENGTHS REQUIRED AFTER LOCATION OF
LUG BAR HAS BEEN ESTABLISHED.

8. IT IS ACCEPTABLE TO NOTCH THE 3/4" X 1/2" SHEAR LUG
TO RESULT IN AN ALLOWABLE AREA REDUCTION FROM
133 SQ. IN. TO 120 SQ. IN.
TUSI DWG. 2323-SI-0688-00

FLANGE BY OTHERS

Full
3/10



Thru on
81-039-3400
150
11

15/16" Ø HOLE TO BE ADDED IN
APPROXIMATE LOCATIONS AS SHOWN
LOCATIONS ARE NOT CRITICAL BUT
SHOULD BE PLACED AS CLOSE AS
PRACTICAL TO CORNERS WHERE THE
INTERSECTING FIELDS

DETAIL I
SCALE: 1/4" = 1"

APP'D BY: D. J. ASH, JR. DRAWN BY: TD

NOTES:
1. SEE DWG. WPS-1200-1202
2. ALL 2" LONGER TYPE SUPPORT NEEDS SHALL
BE EXAMINED IN ACCORDANCE WITH NPS-112
BY SECTION ALL CORNERS & SUPPORT WELDS AND
10. ALL JOINTS MADE FOR AT LEAST 1/2" ON
EACH SIDE OF THE JOINT SHALL BE EXAMINED
BY OTHER MAGNETIC PARTICLE OR LIQUID
PENETRANT METHOD

TITLE OF
DRAWING: SAFEGUARD 3.00" DIAMETER LIMITS

COMPONENT: SUPPORT STRUCTURE SEC. BY 44-408

NAME OF
OWNER: TEXAS UTILITIES SERVICES, INC.

LOCATION
PROJECT: CPSES, GLEN ROSE, TEXAS

DRAWING NO.
MIS 2323-009
SHEET
F-20

13-13

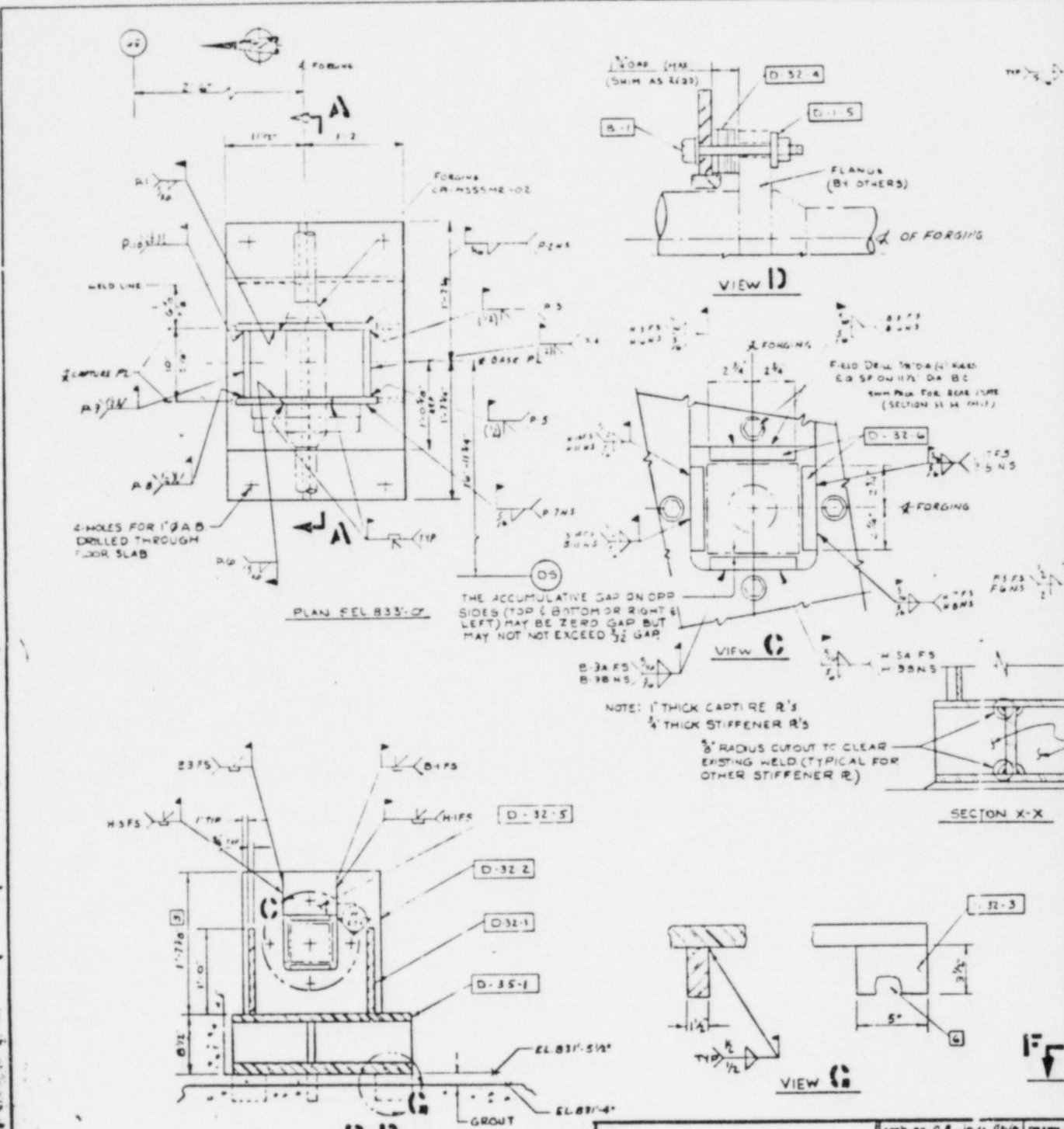
Root, Inc.



8606040295-19

6100-113
515-011

22
11
58
85
11
17
22



PLAN EEL 833-07

VIEW D

VIEW C

SECTION 13-13
SECTION 11-11

SECTION X-X

VIEW C

Brown & Root, Inc.

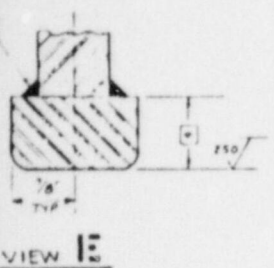
Engineers & Welders

APP'D BY C.B. [Signature] DRAWN BY [Signature]

NOTES:

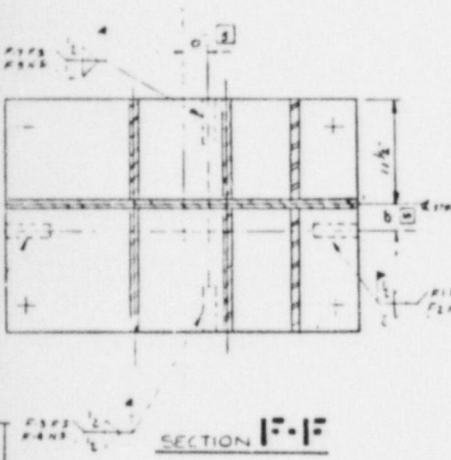
USE BIR WPS 11101 & 1012
CLASS 2 TYP. SUPPORT WELDS
EXAMINED IN ACCORDANCE W/
ADDITION ALL CLASS 2 SUPP
AND ADJACENT BASE METAL
1/2" ON EACH SIDE OF THE JOI
EXAMINED BY EITHER MAN
OR LIQUID PENETRANT METH

Room 82
Elev 8



PART NO.	QTY	DESCRIPTION	REV NO.	QTY	REV NO.
D-35-1	1	BASE PLATE ASSY		D-35	706
D-32-2	2	CAPTURE PLATE		D-32	188
D-32-1	2	STIFFENER PLATE			46
D-32-5	2	WELD PLATE			23
D-32-4	1	SHIM PACK			81
D-32-6	3	SHIM BARS			12
D-11-5	4	WASHER PLATE		D-11	3
D-32-3	4	LUG		D-32	30
B-1	4	REBAR			6
(2)	2	STIFFENER PLATES		A-TM-A	

TOTAL 110P



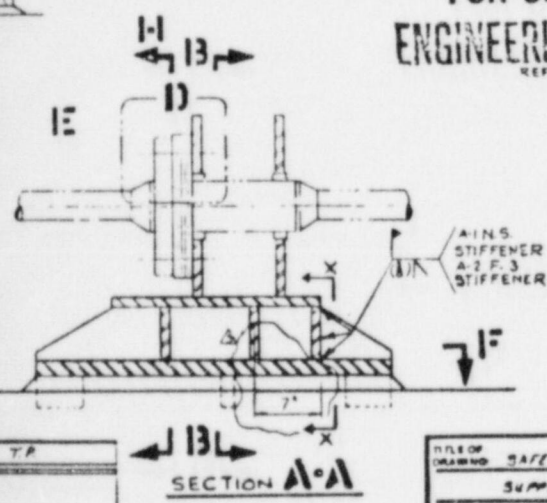
NOTES:

- FOR MATERIAL SPECIFICATION AND FABRICATION REQUIREMENTS SEE DETAIL DRAWINGS.
- ALL MATERIAL SUPPLIED IN ACCORDANCE WITH TUSI SPEC. 2523-CSDS-4.
- THIS LENGTH HAS BEEN SUPPLIED 2" LONGER THAN DIMENSIONS INDICATED. ACTUAL LENGTH TO BE DETERMINED AND ACHIEVED BY FIELD.
- SHIM BARS ARE SUPPLIED IN A NOMINAL THICKNESS OF 1/4". FINAL THICKNESS TO BE DETERMINED AND ACHIEVED BY FIELD.
- LOCATION OF LUGS MAY BE SHIFTED ±3" TO CLEAR REBAR.
- WITHIN THE LENGTH OF THE LUGS, IF ANY REBAR COMES IN THE WAY THE LUGS SHALL BE NOTCHED TO CLEAR THE REBAR, A MINIMUM AREA OF 15 SQ. INCHES OF LUG FACE (LARGEST SURFACE) MUST REMAIN.
- FOR INDIVIDUAL PART SIZES SEE PURCHASE ORDER NO CPD-0524 JOB NO 8408 10'D DWGS AS REFERENCED IN THE BILL OF MAT'L ABOVE. (U.N.O.)

FOR OFFICE AND ENGINEERING USE ONLY
REF. DWG TUSI 2523-SI-068824

REFERENCE DWGS

BIR REV'D PER NPN REV 8
CNC 96354, CNC 96364;
CNC 61773, CNC 64810 8/1
DCA 2935, DCA 6774
DCA 4448, DCA 10660
DCA 1221, CNC 50961
DCA 2229
DCA 20248



REV	REVISION	DATE	BY	CHKD
0	ISSUE FOR ASSEMBLY (SI-068824)	7/76	TP	
1	REV AS NOTED	7/76		
2	Rev As Noted	7/76		
3	Rev As Noted (Final Review Dwg.)	7/76		

TITLE OF DRAWING: SAFEGUARD NO. 81 - MOMENT LIMITING COMPONENT
SUPPORT STRUCTURE # EL-B 1810

NAME OF OWNER: TEXAS UTILITIES SERVICES, INC.
LOCATION OF PROJECT: C.P.S.S. - GLEN ROSE, TEXAS

DRAWING NO.: MSB-2488-029
SHEET: E-48

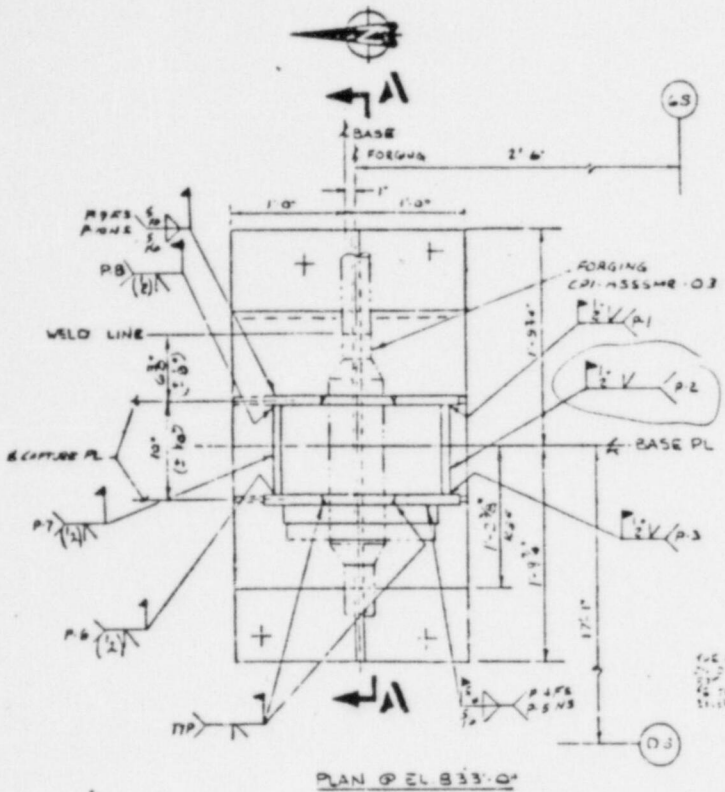
TI APERTURE CARD

Also Available On Aperture Card

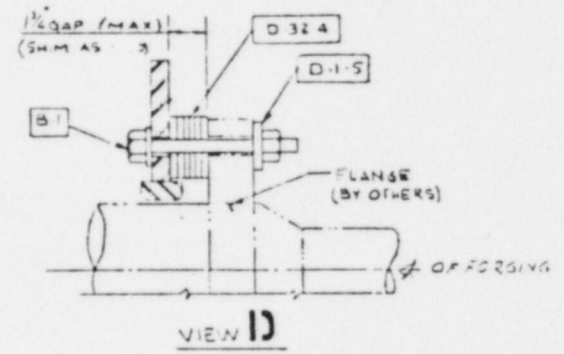
SAFEGUARD DWG 1
31-6

8606040295-20

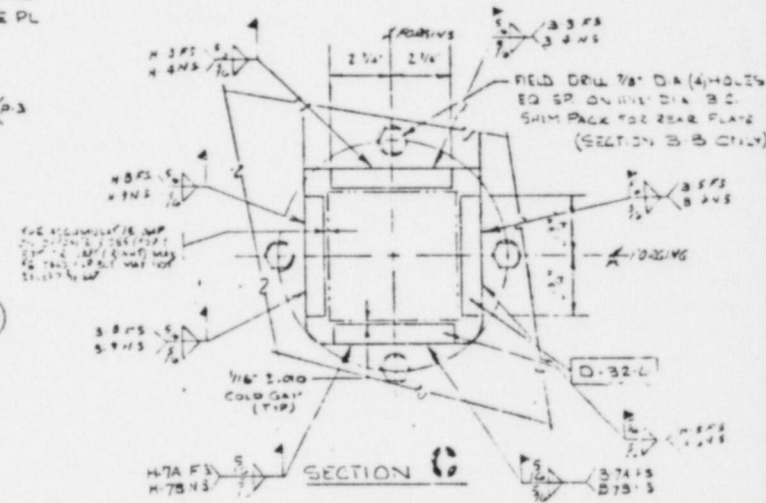
SAFEGUARD
CE-81-050-340
2'-6" 50 of 65
17'6" of 0-3 @ 6L 833



PLAN @ EL 833.0

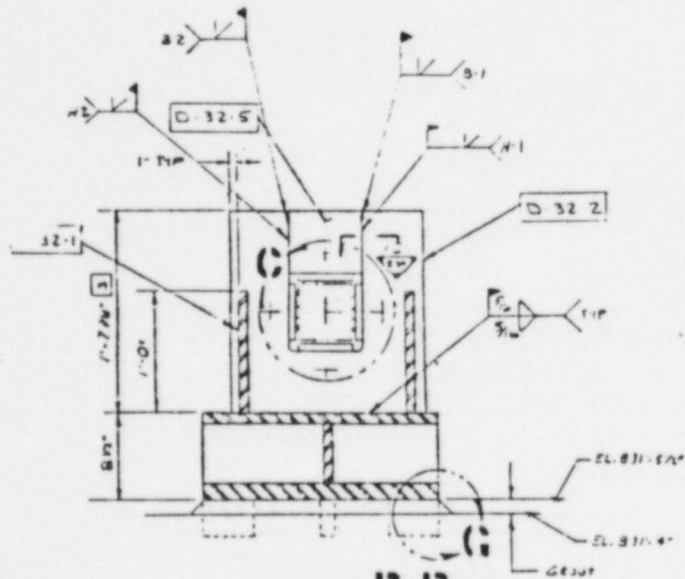


VIEW D



SECTION C

NOTE: 1 THICK OFFICE R'S
3/4" THICK STIFFENER R'S



SECTION B-B
SECTION H-H



VIEW G

FOR OFFICE AND
ENGINEERING USE

REV	REVISIONS	DATE	BY	CHECK
0	ISSUE FOR ASSEMBLY	7/24	JA	JA
1	Rev As Noted	7/25	JA	JA
2	Rev As Noted	7/26	JA	JA
3	Rev As Noted (Final Rev Cwg)	7/26	JA	JA

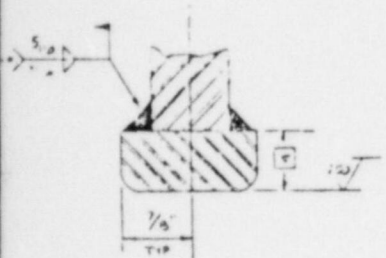
REFERENCE DWGS:
 D14 PC10 FOR VSI P222
 CMC 56364, CMC 56355
 CMC 54812, DCA 5935 RA
 DCA 0774, DCA 9990
 DCA 10460 RA, CMC 56361

Brown & Root

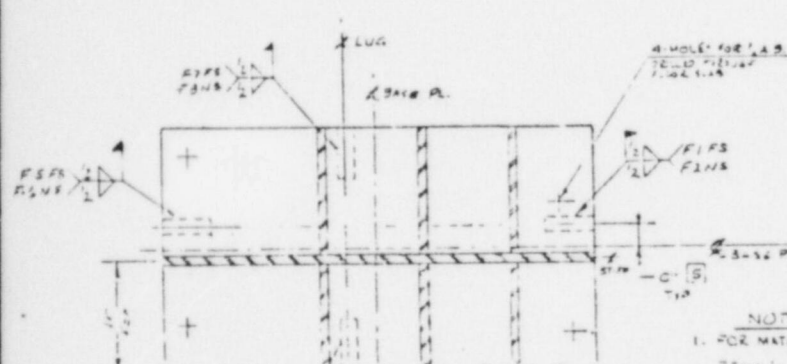


PART NO	QTY	DESCRIPTION	WGT	WGT	WGT	WGT
D-35-2	1	BASE PLATE ASSY		D 35		741
D-32-2	2	CAPTURE PLATE		D 32		85
D-32-1	2	STIFFENER PLATE				40
D-32-2	2	WELD PLATE				25
D-32-4	1	SHIM PLATE				82
D-32-6	4	SHIM BARS				22
D-11-5	2	HANGER PLATE		D 11		2
D-12-3	4	WIG		D 12		70
B-1	2	1/2" DIA. HANGER PLATE				10
(A)	2	STIFFENER PLATES				

TOTAL 1143"



SECTION I-E



SECTION I-F-I-F

TRANSCON
81-051-3400

150
105

NOTES:

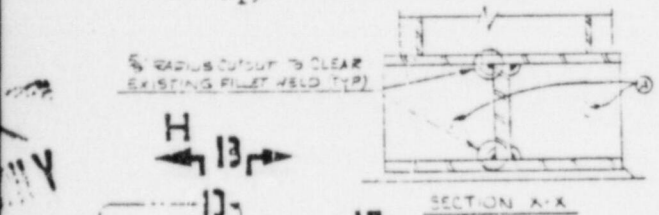
- FOR MATERIAL SPECIFICATION AND FABRICATION REQUIREMENTS SEE TUSI 223-0507
- ALL MATERIAL SUPPLIED IN ACCORDANCE WITH TUSI SPEC 223-C505-A
- THIS LENGTH HAS BEEN SUPPLIED 2" LONGER THAN DIMENSION INDICATED ACTUAL LENGTH TO BE DETERMINED BY FIELD MEASUREMENT
- SHIM BARS ARE SUPPLIED IN A NOMINAL THICKNESS OF 1" FINAL THICKNESS TO BE DETERMINED AND ACHIEVED BY FIELD.
- LOCATION OF LUG MAY BE SHIFTED 25" TO CLEAR REDAR.
- WITHIN THE LENGTH OF THE LUG IF ANY REDAR COMES IN THE WAY, THE LUG SHALL BE NOTCHED TO CLEAR REDAR, WHEN NOTHING IS DONE A MINIMUM AREA OF 15 SQ INCHES OF LUG FACE (LARGEST SURFACE) MUST REMAIN.

REF. DWG TUSI 223-54-0658-25

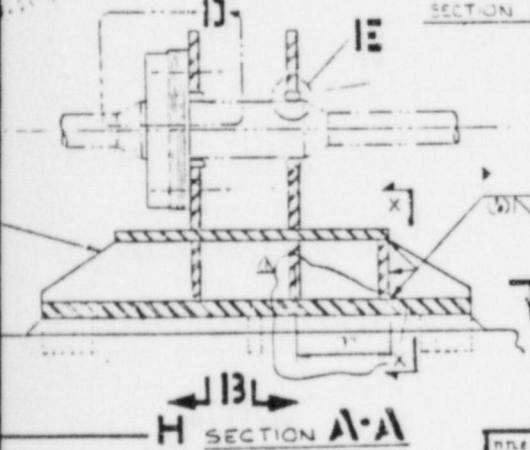
- FOR INDIVIDUAL PART SIZES SEE PURCHASE ORDER NO. LPO-0324, JOB NO. 3408, 10' DWGS AS REFERENCED IN THE BILL OF MATERIALS ABOVE (UNO)

APP'D BY: _____ DRAWN BY: _____

NOTES:
USE BIR WPS: 1201/1202
CLASS 2 LINEAR TYPE SUPPORT WELDS SHALL BE EXAMINED IN ACCORDANCE WITH NP 1212
IN ADDITION ALL CLASS 2 SUPPORT WELDS AND ADJACENT BASE METL FOR AT LEAST 1' ON EACH SIDE OF THE JOINT SHALL BE EXAMINED BY EITHER MAGNETIC PARTICLE OR LIQUID PENETRANT METHOD



SECTION A-A



SECTION A-A

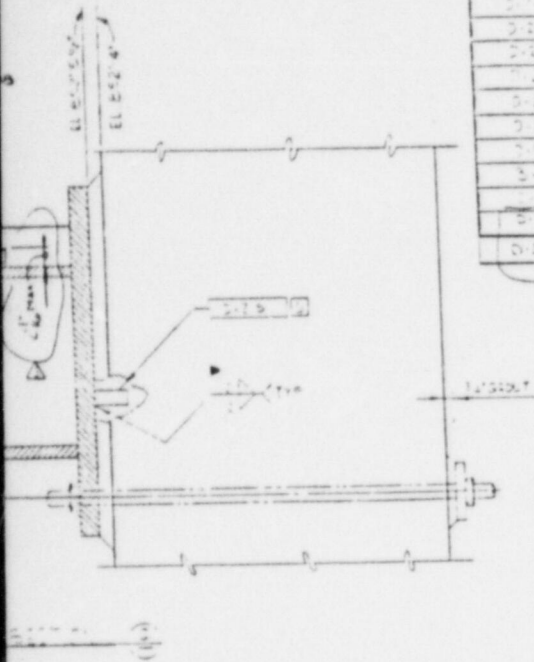
TITLE OF DRAWING	SUPPORT STRUCTURE FOR APERTURE CARD		
NAME OF OWNER	TEXAS UTILITIES SERVICES, INC.		
LOCATION OF PROJECT	C.P.S.E. GLEN ROSE, TEXAS		
DRAWING NO.	MSB-2624-015		
SHEET	2 of 1		

TI
APERTURE
CARD

Also Available On
Aperture Card

8606040295-2/3th Date

PART NO	QTY	DESCRIPTION	UNIT	QTY	WEIGHT
		APERTURE CARD			1.85
D-115	4	WASHER PLATE	D-11	5	
D-117	1	PLATE	D-11	5.17	
D-118	3	WASHER	D-12	32	
D-114	1	WASHER	1	42	
D-115	4	WASHER	1	37	
D-115	2	WASHER	D-15	3.0	
D-117	1	WASHER	D-15	5.1	
D-118	3	WASHER	D-15	5	
D-119	4	WASHER	D-14		
D-120	4	WASHER	D-14		
D-121	1	WASHER	D-14		



FOR LOTS SEE DWS VAB 0288 DD 947 20

FOR OFFICE AND
ENGINEERING USE ONLY

TI
APERTURE
CARD

Also Available On
Aperture Card

T.S. 2-6
2123-51 0288-7

TRAVELER
81-018-3700

150 - 23

BRD-AF-1-SB-023

NO.	REVISION	DATE	BY	REASON	REFERENCE DATE
0	Issue For Assembly	12-15-57	J.P.	Final	12-15-57
1	Added Washers to Plates	1-15-58	J.P.	Final	1-15-58
2	Rev As Noted	2-15-58	J.P.	Final	2-15-58
3	Rev As Noted (Final Review Done)	3-15-58	J.P.	Final	3-15-58

APPROVED BY: G.B. JEFFREY
DRAWN BY: J.P. JEFFREY

NOTES:
1. Use 2 1/2\"/>

TITLE OF DRAWING: SAFEGUARD Bldg #7 MCHEN- LINDING - WIREWAY
SUBJECT: SAFEGUARD Bldg #7 - 801-953-7

NAME OF OWNER: TEXAS UTILITIES SERVICES, INC.
LOCATION OF PROJECT: C.P.S.E., GLEN ROSE, TEXAS

DATE: 12-15-57
SHEET: 2 OF 2

8606040295-22

150 - 23

22"

17"

11"

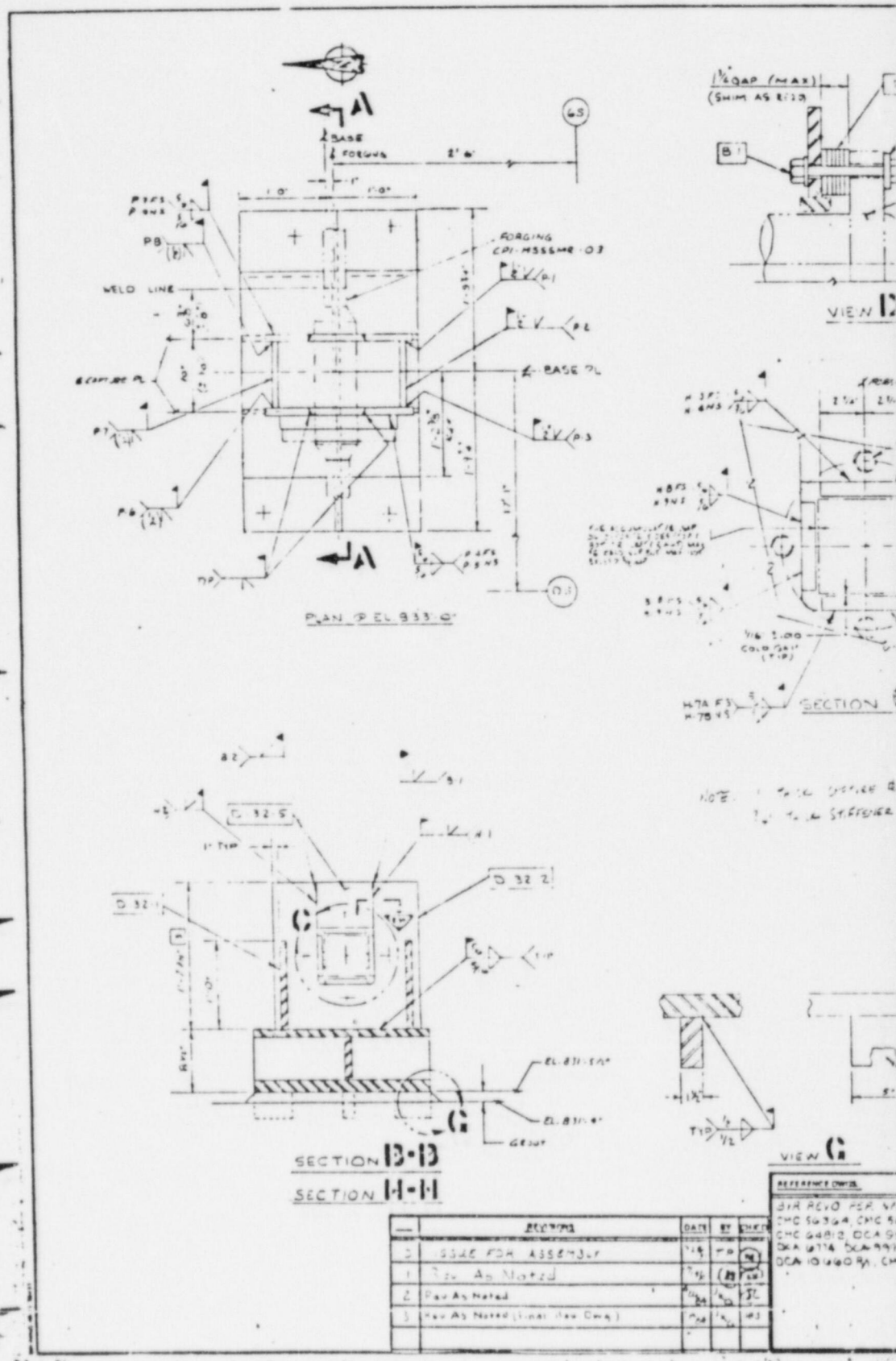
85"

85"

11"

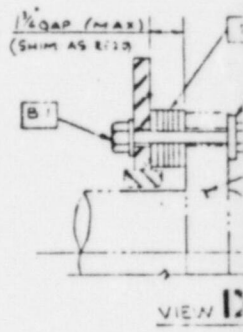
17"

22"

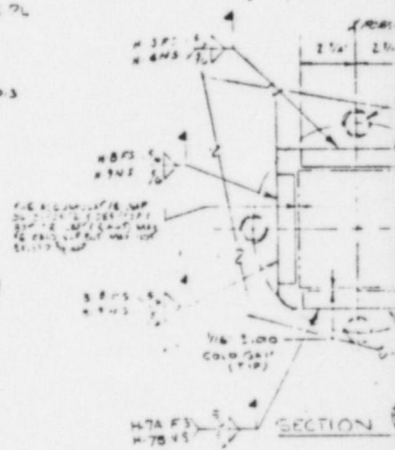


PLAN DEL 333 C

SECTION B-B
SECTION H-H

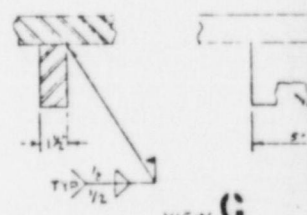


VIEW D



SECTION

NOTE: 1. TO THE CENTER
2. TO THE STAFFORER



VIEW G

REV	REVISIONS	DATE	BY	CHECK
2	ISSUE FOR ASSEMBLY	7/15	MD	MD
1	Rev As Noted	7/15	MD	MD
2	Rev As Noted	7/24	MD	MD
3	Rev As Noted (Final Rev Chg)	7/24	MD	MD

REFERENCE DWGS.
DWG REV'D PER 475
CHC 50304, CHC 50
CHC 54810, DCA 90
DCA 9174, DCA 9910
DCA 10140, DCA 10

Room 88
Elev 831

PART NO	QTY	DESCRIPTION	REV	QTY REQ	MATL SPEC	REQ STA
D-35-1	1	BASE PLATE ASSY		D-35		7.41
D-32-1	2	CAPTURE PLATE		D-32		1.68
D-32-1	2	STIFFENER PLATE				4.0
D-32-5	2	WELD PLATE				1.5
D-31-4	1	SHIM PLATE				8.2
D-31-6	9	SHIM BARS				2.2
D-11-5	4	WASHER PLATE		D-11		2
D-12-3	4	LUG		D-12		7.0
S-1	4	STIFFENER PLATE				5
(W)	2	STIFFENER PLATE				
TOTAL 1145						

**FOR OFFICE AND
ENGINEERING USE ONLY**

TI APERTURE CARD

Also Available On
Aperture Card

- NOTES:
1. FOR MATERIAL SPECIFICATION AND FABRICATION REQUIREMENTS SEE 1123 H 0180
 2. ALL MATERIAL SUPPLIED IN ACCORDANCE WITH TUSI SPEC 1123-C505-4
 3. THIS LENGTH HAS BEEN SUPPLIED 1" LONGER THAN DIMENSION INDICATED ACTUAL LENGTH TO BE DETERMINED BY FIELD MEASUREMENT
 4. SHIM BARS ARE SUPPLIED IN A NOMINAL THICKNESS OF 1" FINAL THICKNESS TO BE DETERMINED AND ACHIEVED BY FIELD
 5. LOCATION OF LUG MAY BE SHIFTED 15" TO CLEAR REDAR.
 6. WITHIN THE LENGTH OF THE LUG IF ANY REDAR EDGES IN THE WAY, THE LUG SHALL BE NOTCHED TO CLEAR REDAR, WHEN NOTCHING IS DONE A MINIMUM REAR OF 18 3/8 INCHES OF LUG FACE (CLEAREST SURFACE) MUST REMAIN.

REF. Dwg TU 51 1123-5-0688-25
 FOR INDIVIDUAL PART SIZES SEE PURCHASE ORDER NO. 120-1124 JOB NO. 3408; Dwg NO. AS REFERENCED IN THE BILL OF MATL ABOVE (UNO)

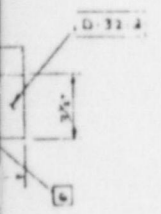
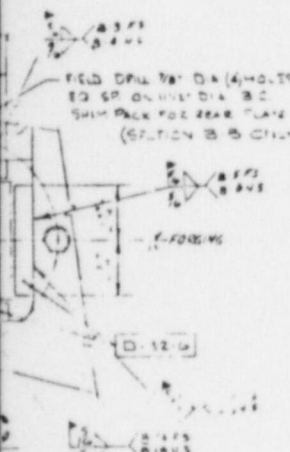
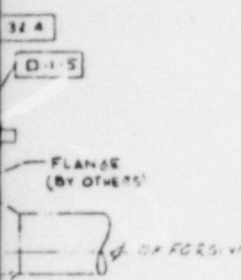
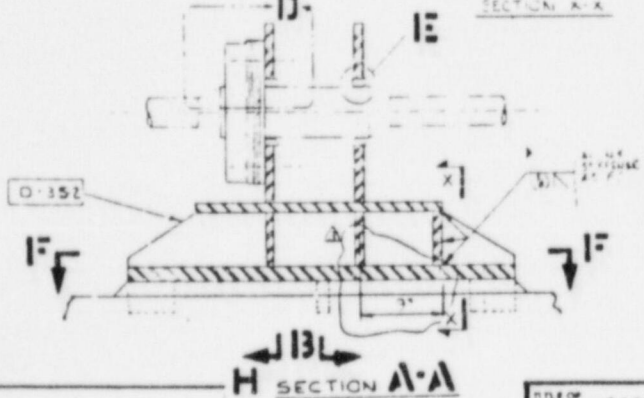
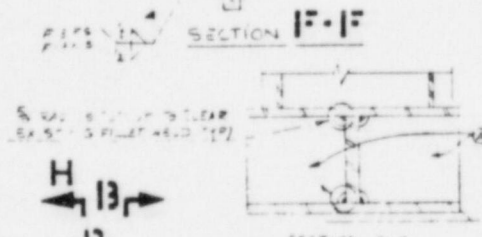
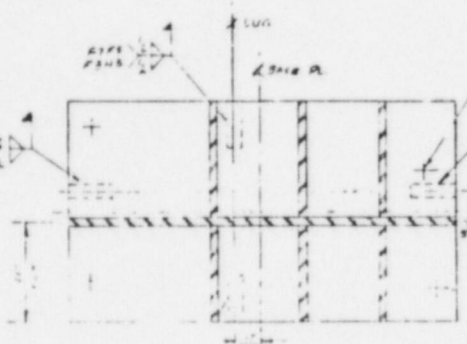
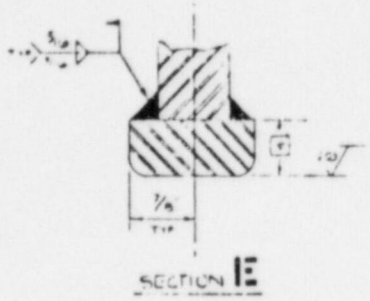
APPRO BY: _____ DRAWN BY: _____

NOTE:
 USE BIR WPS 11201/1202
 CLASS 2 LINER TYPE SUPPORT WELDS SHALL BE EXAMINED IN ACCORDANCE WITH NF 1121 IN ADDITION ALL CLASS 2 SUPPORT WELDS AND ADJACENT BASE MATL FOR AT LEAST "A" ON EACH SIDE OF THE JOINT SHALL BE EXAMINED BY EITHER MAGNETIC PARTICLE OR LIQUID PENETRANT METHOD

FILE OF DRAWING: 1123-5-0688-25 - MINIMUM LIMITING COMPONENT
 SUPPORT STRUCTURE SEE 8110

NAME OF WORK: TEXAS UTILITIES SERVICES, INC.
 LOCATION OF PROJECT: CPSES - GLEN ROSE, TEXAS

DRAWING NO.: MSB-0688-048
 SHEET: 2 OF 2



SAFEGUARD BLDG #1

8606040295-23

SAFEGUARD
 CE-81-051-3400
 2'-6" W of G-5 & 17'E
 17" D-5 @ 835'

ITEM NO.	QTY	DESCRIPTION	UNIT	PRICE	TOTAL	REMARKS
		SUPPORT STRUCTURE			2723	
D-28-1	1	BOX ASSY			1567	
D-28-2	2	PLATE ASSY			290	
D-28-3	4	STIFFENER			183	
D-28-4	4	STIFFENER			173	
D-28-5	2	WELD PLATE			24	
D-28-6	1	BASE PLATE			459	
D-28-7	4	LUG			60	
D-27-4	8	SWIM BAR	D-27		22	
TOTAL					3769	

FOR INDIVIDUAL PART SIZES SEE PURCHASE ORDER NO CPD-0314
JOB NO 1405, 3 DWG'S AS REFERENCED IN THE BILL OF MATL ABOVE.

NOTE:
FOR NOTES SEE DWG MIB 048807 SHEET 1

2) WITHIN THE LENGTH OF THE LUG IF ANY REBAR COMES IN THE WAY THE LUG SHALL BE NOTICED TO CLEAR THE REBAR WHEN NOTCHING IS DONE A MIN AREA OF 26 SQ IN OF LUG FACE (LARGEST SURFACE) MUST REMAIN.

FOR OFFICE AND
ENGINEERING USE ONLY

TI
APERTURE
CARD

Also Available On
Aperture Card



TUSI DWG
2223-51-0538-14

REV	DESCRIPTION	DATE	BY	CHKD	REFERENCE DWG
0	ISSUE FOR APERTURE CARD	11/16/51	J. S.	J. S.	CPD-0314
1	REV AS NOTED	11/16/51	J. S.	J. S.	CPD-0314
2	REV AS NOTED	11/16/51	J. S.	J. S.	CPD-0314
3	REV AS NOTED	11/16/51	J. S.	J. S.	CPD-0314
4	REV AS NOTED	11/16/51	J. S.	J. S.	CPD-0314
5	REV AS NOTED	11/16/51	J. S.	J. S.	CPD-0314
6	REV AS NOTED (Final Review Sheet)	11/16/51	J. S.	J. S.	CPD-0314

Brown & Root, Inc.

APPROVED BY: [Signature] DATE: 11/16/51 DRAWN BY: [Signature]

NOTES:
USE 2-R WPS 12010-12012
CLASS 2 LINEAR TYPE SUPPORT WELDS SHALL BE EXAMINED IN ACCORDANCE WITH WP 5112 IN ADDITION ALL CLASS 2 SUPPORT WELDS AND JOINT BASE WELDS FOR AT LEAST 2" ON EACH SIDE OF THE JOINT SHALL BE EXAMINED BY EITHER MAGNETIC PARTICLE OR LIQUID PENETRANT METHOD.

TITLE OF DRAWING: REACTOR BLDG "1" - MOMENT - LIMITING COMPONENT
SUPPORT STRUCTURE

NAME OF OWNER: TEXAS UTILITIES SERVICES, INC
LOCATION OF PROJECT: CPSE - GLEN ROSE, TEXAS

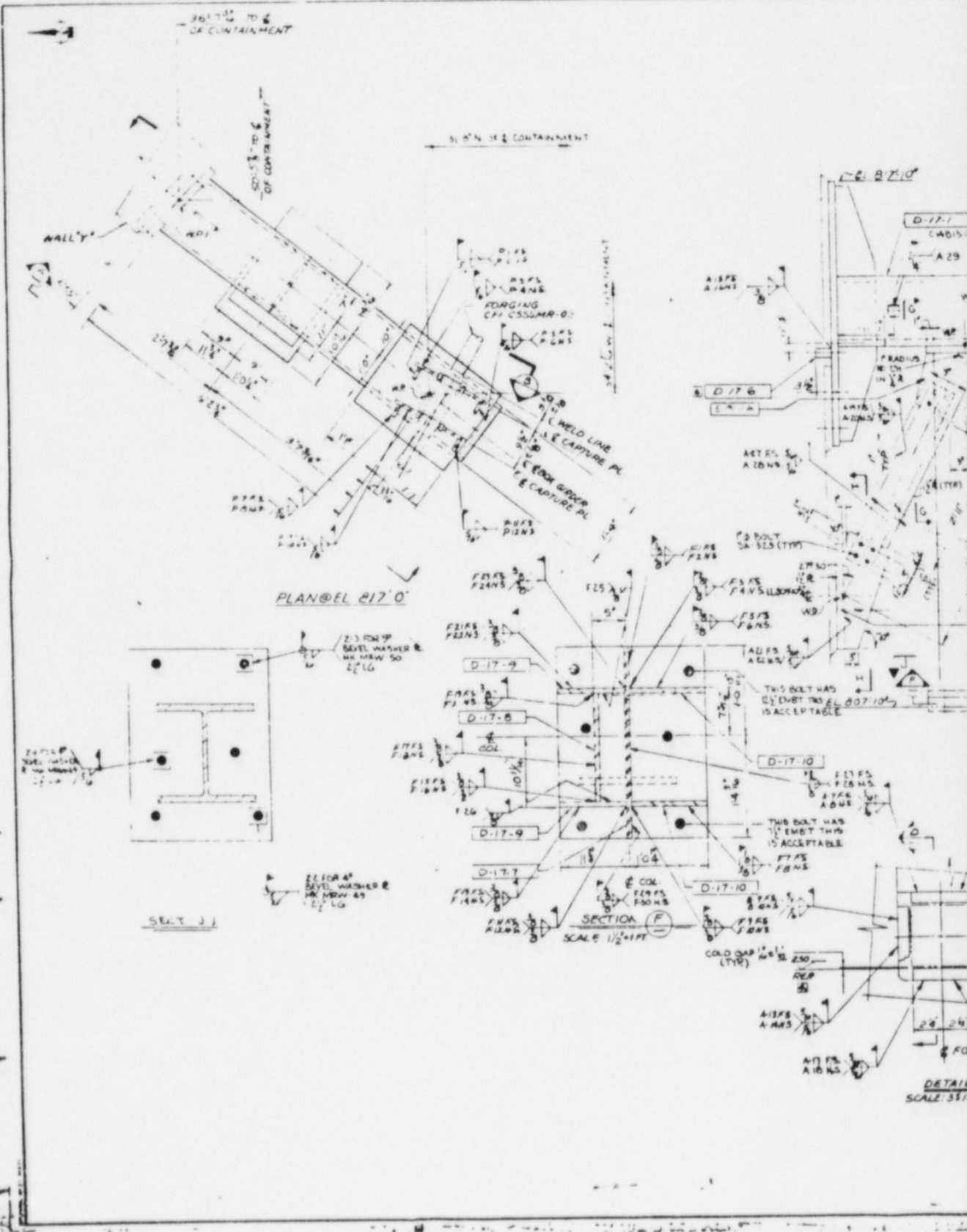
DRAWING NO: MRB 022A 018
SHEET: 2-30

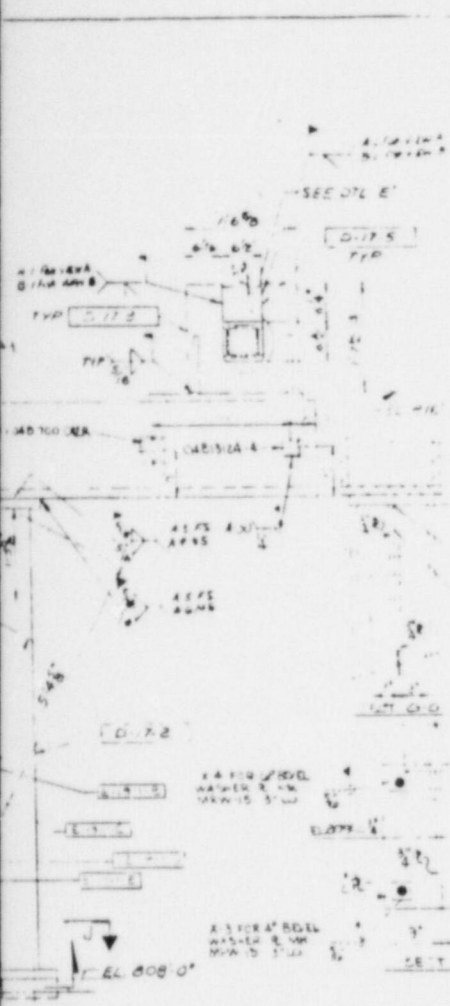
52 INTO CONTRIBUTION @ 931-6
DOWN STAIRS TO 808 -
Ngr. at 812-10

8606040295-24

160000
CE 01-022-4900
COL 16 2L 817-10
CHEMICAL & VOLUME
CONTROL SYSTEM -

22"
11"
8.5"
8.5"
11"
17"
22"





NO.	DESCRIPTION	QTY.	UNIT
D-17.1	PLATE	1	EA
D-17.2	PLATE	1	EA
D-17.3	PLATE	1	EA
D-17.4	PLATE	1	EA
D-17.5	PLATE	1	EA
D-17.6	PLATE	1	EA
D-17.7	PLATE	1	EA
D-17.8	PLATE	1	EA
D-17.9	PLATE	1	EA
D-17.10	PLATE	1	EA
D-17.11	PLATE	1	EA
D-17.12	PLATE	1	EA
D-17.13	PLATE	1	EA
D-17.14	PLATE	1	EA
D-17.15	PLATE	1	EA
D-17.16	PLATE	1	EA
D-17.17	PLATE	1	EA
D-17.18	PLATE	1	EA
D-17.19	PLATE	1	EA
D-17.20	PLATE	1	EA
D-17.21	PLATE	1	EA
D-17.22	PLATE	1	EA
D-17.23	PLATE	1	EA
D-17.24	PLATE	1	EA
D-17.25	PLATE	1	EA
D-17.26	PLATE	1	EA
D-17.27	PLATE	1	EA
D-17.28	PLATE	1	EA
D-17.29	PLATE	1	EA
D-17.30	PLATE	1	EA
D-17.31	PLATE	1	EA
D-17.32	PLATE	1	EA
D-17.33	PLATE	1	EA
D-17.34	PLATE	1	EA
D-17.35	PLATE	1	EA
D-17.36	PLATE	1	EA
D-17.37	PLATE	1	EA
D-17.38	PLATE	1	EA
D-17.39	PLATE	1	EA
D-17.40	PLATE	1	EA
D-17.41	PLATE	1	EA
D-17.42	PLATE	1	EA
D-17.43	PLATE	1	EA
D-17.44	PLATE	1	EA
D-17.45	PLATE	1	EA
D-17.46	PLATE	1	EA
D-17.47	PLATE	1	EA
D-17.48	PLATE	1	EA
D-17.49	PLATE	1	EA
D-17.50	PLATE	1	EA

NOTE:
 FOR NOTES SEE ENGS. REF. D-17.1 TO D-17.50
 WITHIN THE LENGTH OF THE LUG, IF ANY REBAR COMES IN THE WAY, THE LUG SHALL BE NOTCHED TO CLEAR THE REBAR. WHEN NOTHING IS CLEAR A MIN. AREA OF 50 SQ. IN. OF LUG FACE (LARGEST SURFACE) MUST REMAIN.
 A 25NS
 A 25FS
 A 25GS
 A 25HS
 A 25IS
 A 25JS
 A 25KS
 A 25LS
 A 25MS
 A 25NS
 A 25OS
 A 25PS
 A 25QS
 A 25RS
 A 25TS
 A 25US
 A 25VS
 A 25WS
 A 25XS
 A 25YS
 A 25ZS
 FOR INDIVIDUAL PART TYPES, CONTACT ORDER NO. 050-0154 OR NO. 050-1011 FOR AS REFERENCED IN THE BILL OF MATERIALS ABOVE.
 FOR BEVEL WASHER MATERIAL SPECIFICATIONS AND FABRICATION REQUIREMENTS SEE BAR DRAWING NO. MCB 050-0111R.W.

FOR OFFICE AND
 ENGINEERING USE ONLY

NO.	REVISIONS	DATE	BY	CHKD.	DESCRIPTION
7	REV AS NOTED	7/24/54	W.P.M.		REV REV'D PER NPS REV'S
8	REV AS NOTED (FINAL REVIEW ENG.)	7/25/54	W.P.M.		REV REV'D PER NPS REV'S
9	REV AS NOTED	7/26/54	W.P.M.		REV REV'D PER NPS REV'S
10	REV AS NOTED	7/27/54	W.P.M.		REV REV'D PER NPS REV'S

Brown & Root Inc.

NOTES

USE BAR WPS: 050-0110Z

CLASS 2 LINEAR TYPE SUPPORT WELDS SHALL BE EXAMINED IN ACCORDANCE WITH NP-5322. IN ADDITION ALL CLASS 2 SUPPORT WELDS AND ADJACENT BASE METL FOR AT LEAST 2" ON EACH SIDE OF THE JOINT SHALL BE EXAMINED BY EITHER MAGNETIC PARTICLE OR LIQUID PENETRANT METHOD.

TITLE OF DRAWING: REACTOR ALDO #1 - MOMENT LIMITING COMPONENT
 SUPPORT STRUCTURE 8 EL. B TO C

NAME OF COMPANY: TEXAS UTILITIES SERVICES, INC.
 LOCATION OF PROJECT: C.P.S.E. GLEN ROSE, TEXAS

DRAWING NO.: MPB 050-007
 SHEET: E-19

8606040295-25

TI
 APERTURE
 CARD

Also Available On
 Aperture Card

CONT. FROM SHT. 2, SHOP BILL

ASSEM NO	PC NO	NO REQ	SHAPE	WIDTH		HOLE SIZE	REMARKS MAT SPECS *
				FT	INS		
MRW41			R	0	3"	1 ³ / ₁₆ "	15° BEVEL
MRW42			R	0	3"	1 ³ / ₁₆ "	22° BEVEL
MRW43			R	0	3"	1 ³ / ₁₆ "	14° BEVEL
MRW46			R	0	3"	1 ⁷ / ₁₆ "	0° BEVEL
MRW47			R	0	3"	1 ⁷ / ₁₆ "	5° BEVEL
MRW48			R	0	3"	1 ⁷ / ₁₆ "	6° BEVEL
MRW49			R	0	2 ¹ / ₂ "	1 ⁷ / ₁₆ "	4° BEVEL
MRW50			R	0	2 ¹ / ₂ "	1 ⁷ / ₁₆ "	5° BEVEL
MRW51A			R	0	3"	1 ³ / ₁₆ "	7° BEVEL
MRW51A			R	0	3"	1 ³ / ₁₆ "	21° BEVEL

NOTES / DESIGN SPECS. / PAINT
FOR MATERIAL SPECIFICATIONS AND FABRICATION REQUIREMENTS SEE SHEET 2.

NO	DATE	REVISION	BY	CHKD
0	10-27-84	CMC'S INCORP PER O.C. (FINAL REVIEW DWG)	HLP	JVG

SAFETY RELATED NNS

Brown & Root Inc. HOUSTON TEXAS 
 TITLE TYPICAL MOMENT RESTRAINT WASHER
 OWNER TEXAS UTILITIES SERVICES, INC.
 LOCATION OF PROJECT C.P.S.E.S. GLEN ROSE, TEXAS

DRAWN BY HLP CHECKED JKGANDY APPROVED _____ DATE 6-27-84

JOB NO. 35-1195	DRAWING NO. MSB-0680-MRW	SHEET 3 OF
--------------------	-----------------------------	------------------

REFERENCE :
 CMC-69156
 CMC-58412
 CMC-59563
 CMC-71303
 CMC-77881
 CMC-61761

FOR OFFICE AND
 ENGINEERING USE ONLY

8.5"

8.5"

11"

11"

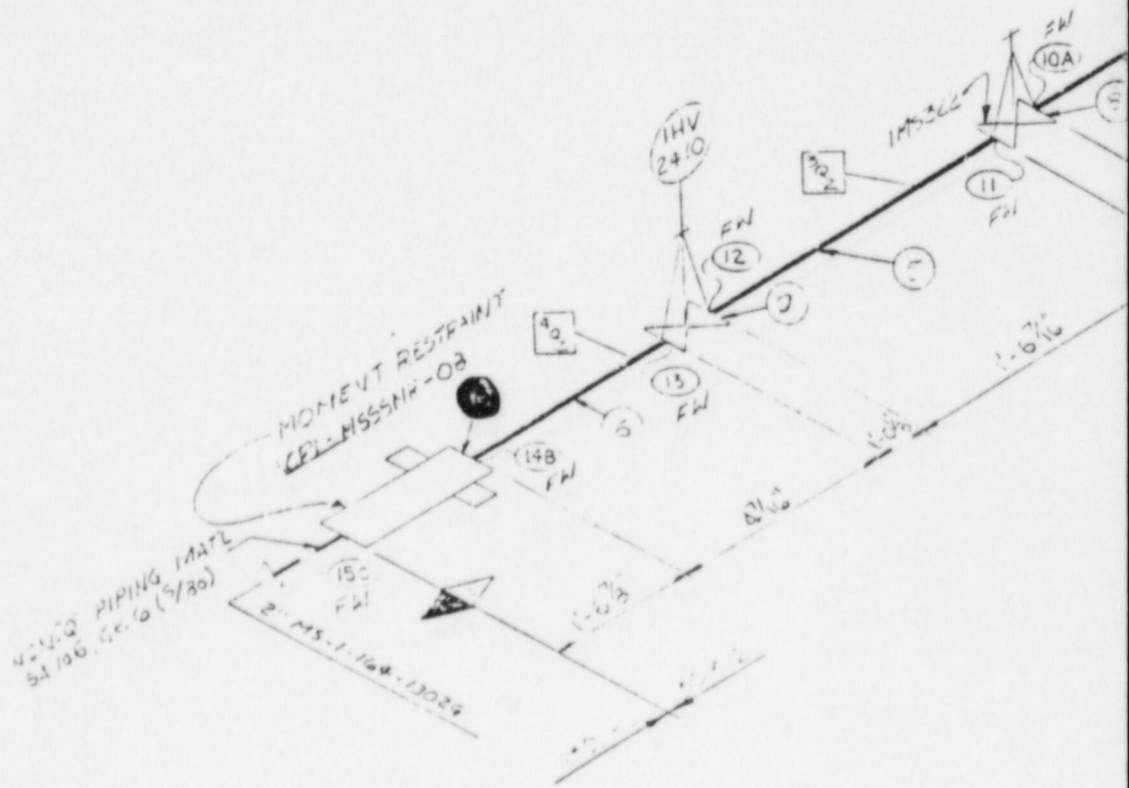
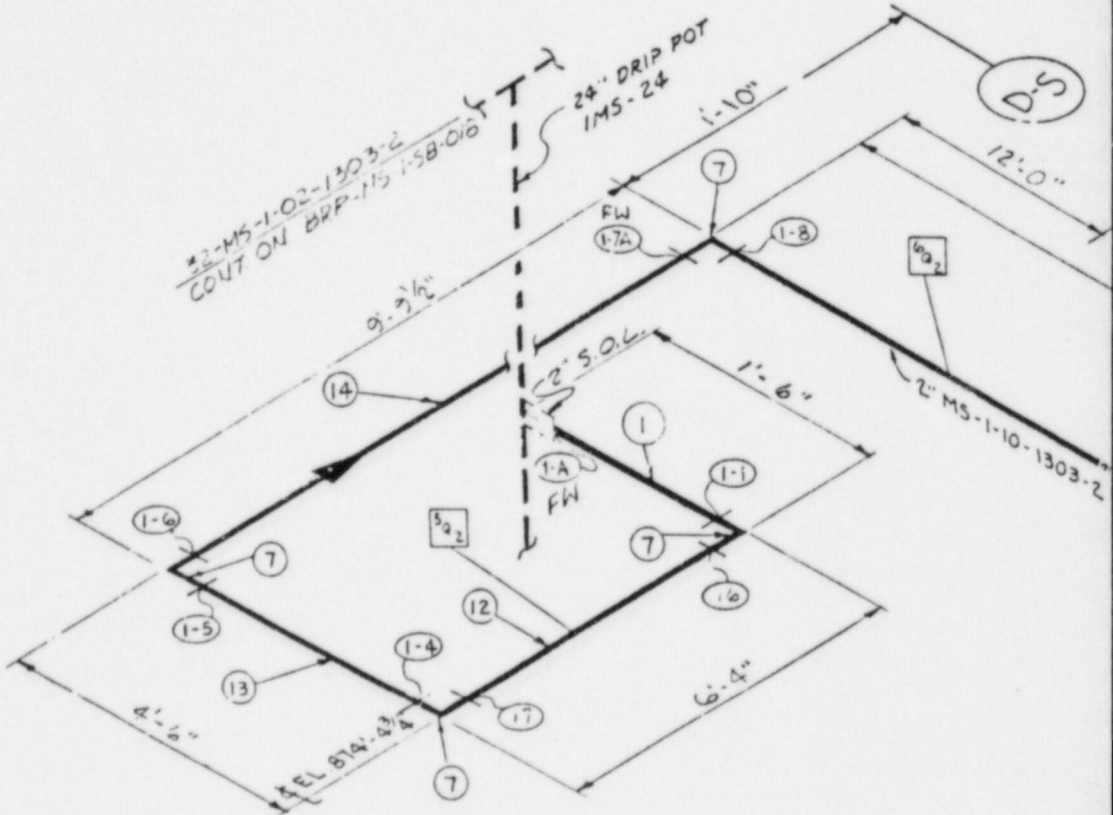
8.5"

8.5"

11"



N-S ISSUE

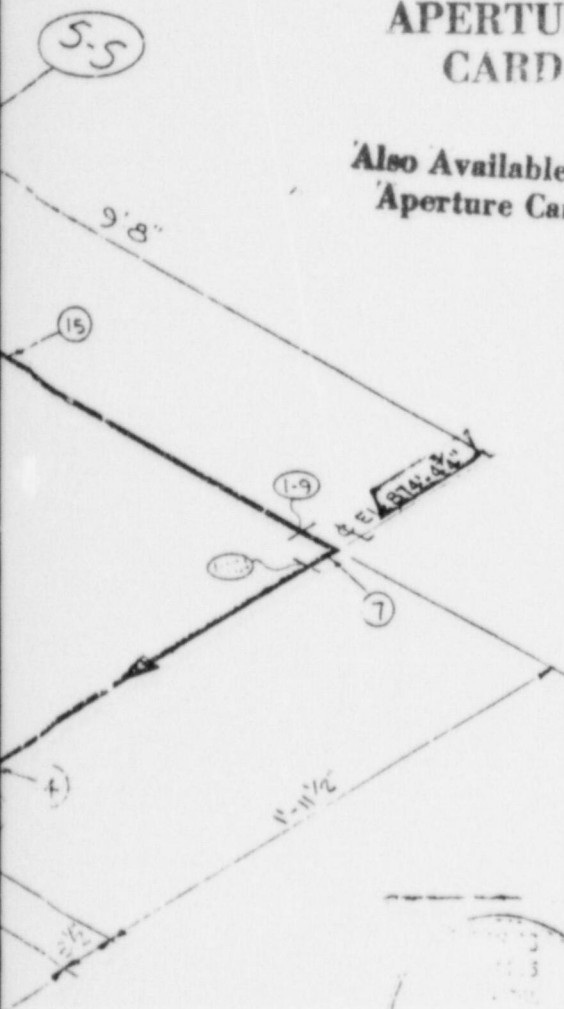


BILL OF MATERIAL

PC NO	REV	QTY	DESCRIPTION	ASMT	GRADE	COLOR CODE
1	2	2	2" 5/80 PIPE 0'-2 1/8" EST LG	SA 333	6	OR GR
4	1	2	2" 5/80 PIPE 1'-0" EST LG	SA 333	6	OR GR
5	1	1	2" do do 7' do do do do do			
6	1	2	2" 5/80 PIPE 0'-5 1/8" EST LG	SA 333	6	OR GR
7	5	1	2" 5/80 PIPE 0'-5 1/8" EST LG	SA 333	6	OR GR
8	1	1	2" 5/80 PIPE 0'-5 1/8" EST LG	SA 333	6	OR GR
9	1	1	2" 5/80 PIPE 0'-5 1/8" EST LG	SA 333	6	OR GR
10	1	2	2" 5/80 PIPE 0'-5 1/8" EST LG	SA 333	6	OR GR
12	1	2	2" 5/80 PIPE 2'-0 1/8" EST LG	SA 333	6	OR GR
13	1	1	2" 5/80 PIPE 4'-2 1/8" EST LG	SA 333	6	OR GR
14	1	1	2" 5/80 PIPE 7'-5 1/8" EST LG	SA 333	6	OR GR
15	1	2	2" 5/80 PIPE 9'-1 1/8" EST LG	SA 333	6	OR GR

TI APERTURE CARD

Also Available On Aperture Card



REV	DATE	DESCRIPTION	OWN	CHKD	APPD
1		2" 5/80 WELDS 1-15			
1		WELDS REV AS NOTED, AS BUILT (CML 3804)			
2		WELDS REV TO "AS BUILT" AS NOTED SEE INT 4			
3		WELDS AS BUILT VERIFIED FOR STRENGTH FROM 1-09-68			
4		WELDS REV AS NOTED, CML 48403 AS BUILT			
5		WELDS FROZEN ISSUE, SEE INT 8			
6		WELDS REV AS NOTED, N.E. ISSUE			
7		WELDS REV AS NOTED, REF 208 1256, SEE INT 9			
8		WELDS REV AS NOTED			
9		WELDS REV AS NOTED 1-5 68			

FOR OFFICE AND ENGINEERING USE ONLY

COST CODE	PART - CPM 5-1	REF. SEE TAB. CL	TRANS
FLOOR 240	COMPOSITE	SPEC. 11-1	DESIGN CAT. 101

- NOTES
- 1) WELDS TO BE REMOVED, WELDS TO BE REMOVED REQD.
 - 2) WELDS TO BE REMOVED, WELDS TO BE REMOVED REQD.
 - 3) WELDS TO BE REMOVED, WELDS TO BE REMOVED REQD.
 - 4) DELETE WELDS 2-8, REF. CMC'S 48409R-6 & G2388
 - 5) ALL WELDS MADE REV. 2 TO BE MADE BY FIELD

TEXAS UTILITIES SERVICES INC
GLEN ROSE, TEXAS

Brown & Root, Inc.
ENGINEERS AND CONSTRUCTORS
HOUSTON, TEXAS

STEAM PIPING AND STEAM DUMP

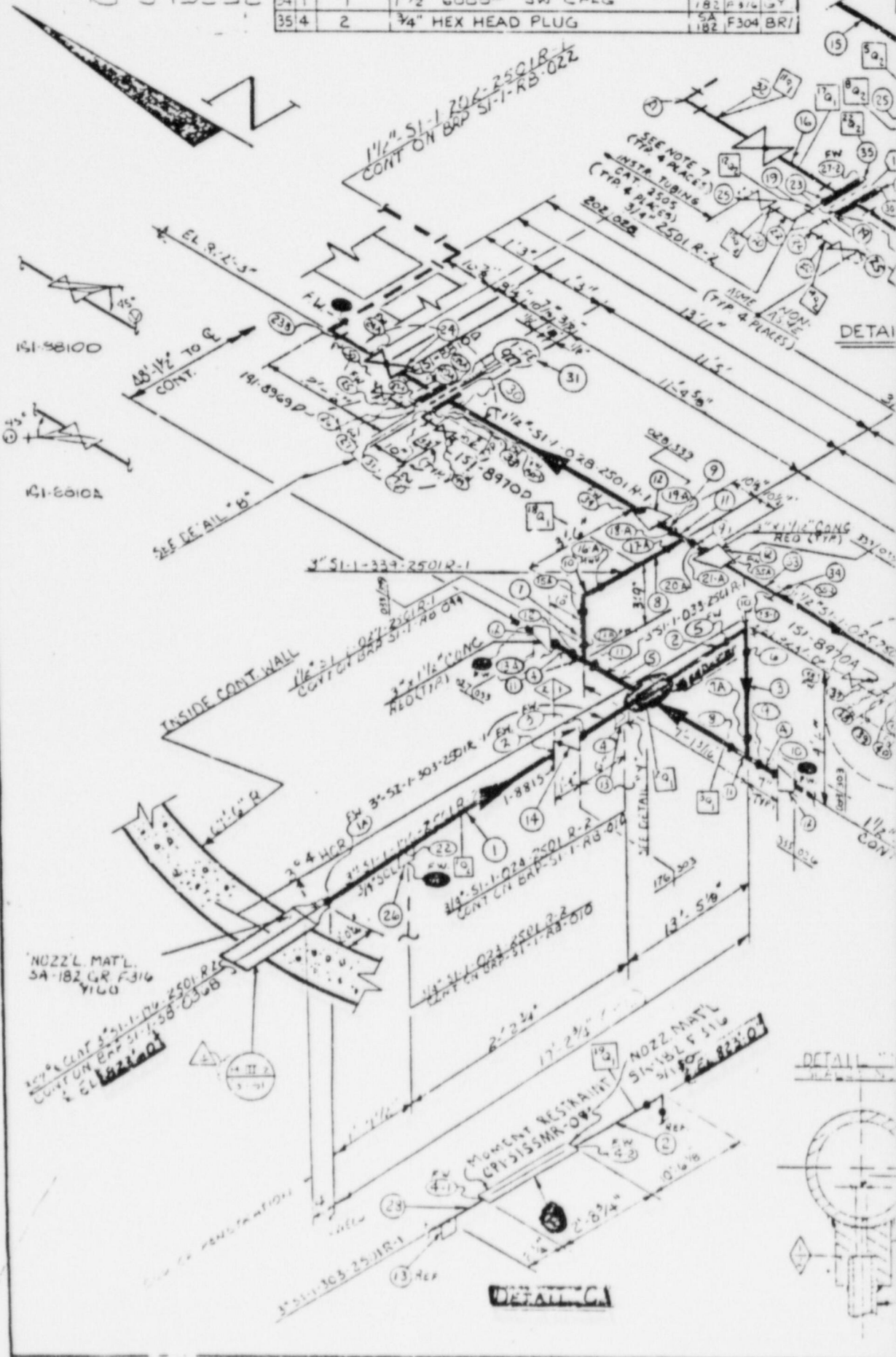
Notes (Cont'd)
6. NELS 16 & 17 To Be Made In Field
7) F. INBLD 16 17 REF. CMC'S 4838 1-4, 7257 1-2, 75086

LINE NO.	QTY	DESCRIPTION

8606040295-26

28	1	3" 3/4" PIPE	0'-8 1/4"	LG	SA	F316	BR
29	1	3" CPI-3155MR-09	MOMENT RESTRAINT CP-001		SA	F316	BR
30	1	1FE-924	CP-001	3/8 325			
31	1	1FE-927	CP-001	3/8 325			
32	1	1 1/2" 3/16" PIPE	0'-9 3/4"	LG	SA	F316	GY
33	1	1 1/2" 3/16" PIPE	1'-0" 1/16"	LG	SA	F316	DO
34	1	1 1/2" 6000# SW CPLG			SA	F316	GY
35	4	3/4" HEX HEAD PLUG			SA	F304	BR

U-5 1331E



DETAIL

DETAIL

DETAIL

Draft 2 - 8/6/84

Deficiencies from Allegor/CP3

LIST OF DEFICIENCIES FROM ALLEGER

CI 1053417662R NPSI o

NF1106

DCA 12042 **X**

Moment Restart 808 Compt 264 S1-0538-04 ~~~~~~~~

CE 81-027-570?

CD 81-116-5500 SI 579 & 98 ✓

NF 1236

CE 81-32-4900

+ S1-0538-07

MR #130204 ✓

~~~~~~~~~

CD 81-139-2800 855 RB1?

CE-81-021-5700

CMC 61771 ~~---~~

DCA 12265 210598 **X**

CE 81-015-3700

CE 81-018-3700

CE 81-017-3700

CE 81-34-4900

MR 117188 ✓

+ S1-0688-03

✓

HT #812P30840-~~1629-3~~ NF-1629-4

CP-2-S155mR-08

CE-81-143-5700

RB-1-855-SS-16B

~~~~~~~~~

~~~~~~~~~

MR 183572 ✓

+ S1 597 & 98

Z-350 CPI 4 FATCS-01a *FORNIG NO?*

CE 81-51-3400 833' S1-0688-251

#4G3151 HT#

862' RB1 688-10 Bolt Torque

TBXCSApch-02 Torque

854' South Bridge Pc D-23-2

CE-81-39-3400

+ S1-0688-06 Main Steam

+ S1 0589-01

+ S1-0667 G-H 845' RB1

**FOIA-85-59**

L 349



MR 130200 ✓

CD 81-113-5700

CD 81-114-5700

CD 81-126-5700

CD 81-111-5700

CD 81-115-5700

Drawing 2326017

2326D17 CMC61777

MSB-0688-012

Traveler CE 81-14-3700

+ S1-0688-12

2323-CSD5-4

+ S1-0688-01-810'RB'

852 RB1 Traveler Z-320

IAF-106 Valve 44563

Safeguard Building Aux. Feedwater

+ 2323-S1-0589 860' RB1

+ 828' RB1 2323-S1-0597

CE-81-36-4900 810' Safeguard

Valve #337-Z-329

1-D0-052-051

RPS 696818

CD 82105 Dwg 343 Rev. 1

CD 81-102-2800

~~CD 80-050-2802~~

~~CD-46-5500 Det. 1~~

+ S1 597 & 98 Tank 474-52

+ S1-0688-24 E41

South Bridge D-122-478

D-125, D175-1

S: 671-01-2325 SS-16B

DCA 8875 X

People to Question

Bud Bishop - (Whip restraint coverup)

Greg Benntegn - (Coverup management)

George Willis - (Drugs & coverup) intimidation

Jack Henline - (& Sons Drugs) - SR - instrumentation & tubing shuffle procedure

Weld Eng files have hidden CMC all over

QC Documentation Review (Hidden Doc in station)

Bill Cromens - Documentation harrassment & sexual favors from employee)

Richard Wheeler - Turnover and former doc. review ask about Cromens

Larry Hite - Protection need from CT Brandt

Indian Harbor - Granbury)

Check original CAR 41 v/s coverup CAR 41 final (paper shuffle)

Steve Dodd of Richland, Washington area now coverup hassassment

Mail check of termanted QC record in QC & vaults comparison

See or find Rose Klimest former QC manager coverup of NPSI CB&I Whip and  
moment restraint

John T. B. Maxwell had photo of defects know and shown to myself,

B. D. Beddingfield, John Hawkins, Tolson Klimist, taken by Maxwell @ CBI

CE-1-053-417- 62R

CI 1053417662R NPSI

\* NFI106 *Heat's are in PPRV*

DCA 12042

Moment Restart 808 Compt 2&4 SI-0538-04

✓ CE 81-027-570?

✓ CD 81-116-5500 SI 579 & 98

\* NF 1236

- CE 81-32-4900

156 SI-0538-07

MR #130204

✓ ME 81 1627-4900

✓ CD 81-139-2800 855 RBl

✓ CE-81-021-5700

CMC 61771

DCA 12265 210598

✓ CE 81-015-3700

✓ CE 81-018-3700

✓ CE 81-017-3700

✓ CE 81-34-4900

MR 117188

✓ SI-0688-03

\* HT #812P30840-1629-3 NF-1629-4

? CP-2-S155mR-08 *CP2-SISSMR-08*

✓ CE-81-143-5700

? RB-1-855-SS-16B

- ME 81-2184-5500

✓ ME 80-201G-4000

MR 183572

SI 597 & 98

✓ Z-350 CP1 & FATCS-01 *FATCS* CP1 - FATCS-01

✓ CE 81-51-3400 833' SI-0688-251

\* #4G3151 HT#

862' RBl 688-10 Bolt Torque

✓ TBXCSApch-02 Torque TBX-CSAPCH-02

854 South Bridge P D-23-2

✓ CE-81-39-3400

SI-0688-06 Main Steam

SI 0589-01

SI-0667 G-H 845' RBl