



**OIL & GAS DEVELOPMENT COMPANY LIMITED**  
**PROCUREMENT DEPARTMENT (LOCAL), ISLAMABAD**  
**SCHEDULE OF REQUIREMENT**

Material : **DESIGN, MANUFACTURING, TESTING & PAINTING OF PIG LAUNCHERS & RECEIVERS**

**Due Date:**

Tender Enquiry No: **PROC/LF/PT/18326/21**

Bid Bond Value : **EACH ITEM WISE**

Attachment(if any) : **YES**

**EVALUATION WILL BE CARRIED OUT ON ITEM WISE**

Sr No	Description	Quantity	Make/Brand offered	Unit	Unit Price (PKR) Inclusive Of All Taxes Except GST	Unit Price (PKR) Inclusive of GST	Total Price (PKR) Inclusive of GST	Delivery Period Offered	deviation from Tender Spec. If Any
1	PIG LAUNCHER AND RECIEVER UNIT, SKID MOUNTED, SIZE 8" 900#, AS PER SPECIFICATIONS (ANNEXURE "A") & DRAWINGS(ANNEXURE "A3")	1		Number					
2	PIG LAUNCHER AND RECIEVER UNIT, SKID MOUNTED, SIZE 8" 900#, AS PER SPECIFICATIONS (ANNEXURE "A") & DRAWINGS(ANNEXURE "A5")	1		Number					
3	PIG LAUNCHER & RECEIVER UNIT SIZE 8" 900#, AS PER SPECIFICATIONS(ANNEXURE "A") & DRAWINGS(ANNEXURE "A1")	1		Number					
4	PIG LAUNCHER & RECEIVER UNIT, SIZE 8" 900#, AS PER SPECIFICATIONS(ANNEXURE "A") & DRAWINGS(ANNEXURE "A2")	1		Number					

**Special Note:** The prospective bidders also download the master set of Tender Document

- The prospective bidders may keep in touch with OGDCL web site for downloading the clarifications/amendments (if any) issued by OGDCL.
- **BID VALIDITY 120 DAYS FROM TECHNICAL BID OPENING. BID BOND ITEM #1=RS.396,000/-, ITEM #2=RS.396,000/-, ITEM #3=RS.360,000/-, ITEM #4=RS.360,000/-.** PAYMENT AFTER DELIVERY WITH PART DELIVERY PART PAYMENT. DELIVERY OF ITEM#1&2 AT QADIRPUR & ITEM #3&4 AT SINJHORO IN 180 DAYS FROM LPO ISSUE DATE.



**OIL & GAS DEVELOPMENT COMPANY LIMITED**  
**PROCUREMENT DEPARTMENT (LOCAL), ISLAMABAD**  
**SCHEDULE OF REQUIREMENT**

**Mandatory Checklist**

Please confirm the compliance of the following mandatory information along with the bid(s) (failing which bids(s) will not be accepted)

Documents	To be Attached with the Technical/Financial Bids	Compliance	
		Yes <input type="checkbox"/>	No <input type="checkbox"/>
Original Bid Bond	Technical Bid	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Copy of NTN Certificate	Technical Bid	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Copy of GST Certificate	Technical Bid	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Confirmation that the Firm is appearing on FBR's Active Taxpayer List	Technical Bid	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Duly signed and stamped <b>Annexure-A (Un-priced)</b>	Technical Bid	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Duly filled, signed and stamped <b>Annexure-B</b>	Technical Bid	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Duly filled, signed and stamped <b>Annexure-D</b>	Technical Bid	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Duly filled, signed and stamped <b>Annexure-L</b> on Company's Letterhead	Technical Bid	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Duly signed and stamped <b>Annexure-M</b> on Company's Letterhead	Technical Bid	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Duly signed and stamped <b>Annexure-N</b> on Non-Judicial Stamp Paper duly attested by Notary Public	Technical Bid	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Duly filled, signed and stamped <b>Annexure-A (Priced)</b>	Financial Bid	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Duly filled, signed and stamped <b>Annexure-C</b>	Financial Bid	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Duly filled, signed and stamped <b>Annexure-E</b>	Financial Bid	Yes <input type="checkbox"/>	No <input type="checkbox"/>

**OIL & GAS DEVELOPMENT COMPANY LIMITED  
 PROCUREMENT DEPARTMENT (LOCAL), ISLAMABAD  
 SCHEDULE OF REQUIREMENT**



For the Vendors/Contractors who opt to submit Bank Draft/Call Deposit/Pay order against Bid Bond/Performance Bond, our Accounts Department has finalized an arrangement for online payment to such Vendors/Contractors, which will be processed through (IBFT & LFT) for which following information is required:

i.	IBAN No. (International Bank Account Number 24 Digits)	
ii.	Vendor Name as per Title of their Bank Account	
iii.	Contact No. of Company's CEO/ Owner (Mobile & Landline)	
iv.	Bank Name.	
v.	Bank Branch Name and Code	

Name, Sign and Stamp of the authorized official of the Bidder(s) \_\_\_\_\_

**TECHNICAL EVALUATION CRITERIA**

Bidder must meet the following technical requirements to qualify:

1. The Manufacturer/ Bidder must have at least Five (05) years' experience of Fabrication of Pig Launchers Receivers/ Pressure Vessels (Class 600 & above) for Oil & Gas/ Petro Chemical Processing Plants. Supply record to be submitted, supported by Copies of Purchase Orders.
2. The Manufacturer/ Bidder should have experience of successful completion/ supply of minimum 01 Nos Pig Launcher / Receiver of same specs. Copy of Purchase Orders to be submitted.
3. Manufacturing facility should have current valid U-Stamp Certificate.
4. Manufacturing facility should have at least Five (05) year's U-Stamp Certificate, from the Date of tender opening.
5. The Bidder is required to adhere to the maximum Delivery Period of Six (06) months on FOR, from the date of LPO (Local Purchase Order).
6. The Pig Launcher/ Receiver to be supplied under the Contract must be brand new (Certificate to be provided by Bidder).

ANNEXURE "A"	
Spec. No. <b>4620-126-VA-</b>	
Page <b>1</b> of <b>17</b>	Rev. <b>1</b>

# SPECIFICATION FOR PIG LAUNCHER / RECEIVER SOUR SERVICE

Project: **THAL & BITRISM FIELD DEVELOPMENT**

Client: **Oil & Gas Development Company Limited**

Prepared by: **AS**  
 Checked by: **AB**  
 Approved by: **FA**

0	Issued for Bidding		
<b>Rev.</b>	<b>Description of Revision</b>	<b>Date</b>	<b>Revised Page Nos.</b>

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## **1.0 GENERAL**

### **1.1 Scope**

This specification covers the criteria for design, manufacture, testing, inspection, and painting of launching and receiving scraper traps for Thal & Bitrism Field Development and Sour service application. Delivery period for these items is 180 days at Sinjhoru (Chabaro & Gundanwari) & Qadirpur Gas Field (Thal West/East) &

### **1.2 Definitions**

Company means Oil & Gas Development Company Limited and Contractor mean Supplier/ Manufacturer/Sub-Contractor. This definition shall apply throughout this specification.

### **1.3 Errors or Omissions**

1.3.1 The review and comment by the Company of any contractor's or its manufacturer's drawings, procedures or documents shall only indicate acceptance of general requirements and shall not relieve the Contractor of its obligations to comply with the requirements of this specification and other related parts of the contract documents.

1.3.2 Any errors or omissions noted by the Contractor in this Specification shall be immediately brought to the attention of the Company prior bid submission.

### **1.4 Conflicting Requirements**

In the event of conflict, inconsistency or ambiguity between the contract scope of work, this Specification, National Codes & Standards referenced in this Specification or any other documents, the Contractor shall refer to the Company whose decision shall prevail.

### **1.5 Reporting Procedure**

1.6.1 A reporting and documentation system shall be agreed between the Company and the contractor for the status of procurement, design, manufacturing, inspection, testing and shipment of the equipment/material to be supplied under this specification. Contractor's manufacturer shall provide reports and summaries for production performance and testing operations in conformance with a manufacturing schedule approved by Company.

Daily, weekly, monthly and run summaries of all major aspects of the production process shall be provided as reports to the Company.

**1.7 Third Party inspection**

In addition to the inspection and witnessing of tests by the inspectors to be appointed by the Contractor during the manufacturing and shipment of the Equipment Material, Company may appoint a third party or its own inspector for witnessing of the inspection and tests to be carried out at manufacturer's facility under this specification. Inspection can be divided into following three stages.

- Material Inspection.
- Hydrostatic Test.
- Final Inspection.



## **2.0 CODES, STANDARDS AND SPECIFICATION**

The scraper launching and receiving traps shall conform to the following:

- ANSI B31.3                      Chemical Plant & Petroleum Refinery Piping
- ANSI B31.8                      Gas Transmission and Distribution Piping Systems
- ASME VIII                      Boiler and pressure vessel code.
- API Spec. 5L                      Specification for Line Pipe
- API Spec. 6D                      Specification for Pipeline Valves (Gate, Plug, Ball  
& Check valves)
- API Spec.1104                      Standard for welding pipelines and related facilities.
- ASME Section IX                      Welding & Brazing Qualification
- ISO 15156                      Materials for use in H<sub>2</sub>S-containing environments in oil  
and gas production

Other Project Specifications

- Project Specifications as applicable

### **3.0 GENERAL CHARACTERISTICS**

#### **3.1 Scope of Supply**

Contractor shall supply all necessary items shown in Pig Launcher & Receiver drawings.

The Contractor shall prepare detailed fabrication drawings and get the same approved from Company before taking up the fabrication.

The general data for a launcher/receiver will be according to its drawings.

Additional items to be provided with Each Package.(Item Wise)

Kindly Note that these items are in addition to material as per drawings and have to be provided Separately.

• PSV (Pressure Safety Valve)	02 Nos
• Pressure Gauges	02 Nos
• O Ring/ Seal of Closure Gates	02 Nos
• 8 Inch Steel Mandrel Pigs loaded with Cups/ Discs	04 Nos
• 8 -Inch De-Watering dual cups Pigs	04 Nos
• 8/ -Inch Foam Pigs	04 Nos
• Pig Detector/Signaler	02 Nos

#### **3.2 Rating**

The ANSI rating corresponding to working pressures for each installation are defined in the data sheet.

#### **3.3 Maximum Pressures**

The maximum pressure value to be applied is indicated in the data sheet/drawing.

#### **3.4 Design**

The scraper traps shall be designed in the light of specs and drawings. The material shall be NACE MR-0175 Compliance.

##### **3.4.1 Body**

NA

##### **3.4.2 Closure**

Scraper traps will be delivered fitted with a quick opening closure device provided with a locking and safety system precluding all opening of the door in case of a residual pressure remaining in the trap.

The door shall be hand operated. Its operation shall have to be easy, simple and shall not require excessive effort.

Closures of scraper traps shall be of steel ASTM A-105. They shall be of the welded end type. The ring joint shall be made of “Viton” or in any other synthetic material resistant to hydrocarbons (Sour Service).

Closures shall be of a well-trying type and shall be performed by manufacturers specialized in this kind of production

Screwed-type closures are strictly forbidden.

#### **3.4.3** Supports

As the scraper traps shall be installed on metallic cradles fixed in anchoring blocks, steel wear plates of minimum 12 mm in thickness shall be welded on the body and on the sleeve. Not applicable in case of skid mounted Pig launcher & receiver.

#### **3.4.4** Welded Ends

The dimensions of the welded end shall conform to the requirements of ANSI B 16.25 furthermore, their ovalization shall not exceed  $\pm 0,5$  %.

#### **3.4.5** Piping

NA

#### **3.4.6** Pressure Safety Valve

Vendor to Provide Safety relief valves for Scrapper launcher and receiver safety relief.

#### **3.4.7** Flow Recorder

NA

## **4.0 PROCESS OF MANUFACTURE AND MATERIALS**

### **4.1 Mechanical & Chemical Characteristics**

The mechanical and chemical characteristics of the materials shall be in accordance with the relevant ASTM sections.

The materials of construction of a trap as a minimum shall be as follows and in compliance to sour service & ISO 15156:

- |                       |                              |
|-----------------------|------------------------------|
| • Flanges             | ASTM A-694 Gr.F-52           |
| • Nuts                | ASTM A-194 Gr. 2H            |
| • Bolts               | ASTM A-193 Gr. B7            |
| • Fittings            | ASTM A-694 Gr.F-52           |
| • Pipe                | API 5L (X 52) PSL II Annex X |
| • Structural supports | ASTM A-283 Gr. C             |

Pressure containing parts shall have a carbon equivalent (CE) not greater than 0.36% on check analysis. CE shall be calculated with the formula:

$$CE = \frac{Mn}{6} + \frac{Cr + Mo + V}{5} + \frac{Ni + Cu}{15}$$

In any case, the codes, texts and standards defining them are included in the general specification. The Contractor's obligations concerning the certificates of conformity which must be provided as supports to material acceptance formalities are included in the general specification.

The resilience of the steels used shall be measured according to standards:

- ASTM A370 standard methods and definitions for mechanical testing of steel products.
- And
- Supplement V notches on significance of notched-bar impact testing.

It shall meet the requirements, specified for Linepipe. In his bid, the Contractor shall specify the reference standards, the grades of steel proposed as well as their physical characteristics and chemical composition.

**4.2 Welding Qualifications**

The procedures and performances of welding used in the manufacture of the equipment covered by this specification shall conform to the requirements of the ASME code relating to boilers and pressure vessels – section IX 2 welder’s qualifications.

Welding shall be carried out according to the operating methods proposed by the manufacturer; it shall necessarily be done by welders qualified for each type of weld.

The Contractor shall supply the Company with qualification certificates in respect of welding process and welder qualifications.

**4.3 Method of Manufacture**

The equipment shall be made of forged or welded steel parts, assembled by welding. All welding operations shall be carried out according to the operating methods devised and proposed by the manufacturer for each type of welding.

Repairs shall be subject to the same conditions.

After all component parts have been welded together, the equipment shall be such that no dangerous residual stress due to welding remains, and the welds and neighboring transition zones (H.A.Z.) contain no harmful metallurgical heterogeneity or defect likely to cause a break.

The whole scraper trap, except the closure head, shall undergo heat treatment for stress relief in accordance with the relevant sections of ASME boiler and pressure vessel code, latest edition.

The Contractor shall undertake a radiographic inspection on all welds.

## **5.0 INSPECTION & TESTING**

Inspection will mainly include:

- A dimensional check.
- A 100% radiographic examination.
- Maneuverability of quick opening closure.
- Mechanical operability of door safety system, scraper detector (receiving traps).

The results of all inspections and tests must be agreed as satisfactory by the Company /inspector, prior to dispatch of equipment.

### **5.1 Checking of Materials**

Material shall be checked in each factory or workshop when the manufacturer undertakes the construction of the equipment in different factories. The manufacturer shall carry out the following checks:

#### **5.1.1 Forged Steel**

A certificate shall be supplied with forged steel parts indicating the results of the chemical analyses and mechanical tests (tensile test).

#### **5.1.2 Welded Steel**

Conformity Certificates for the quality and weldability of the steels used shall be submitted prior to commencement of the manufacturing. Failing this, chemical analyses and tensile tests of the sheet steel used shall be undertaken.

All welds shall be checked by radiography. Macrography of welds may be requested. Rapid hardness tests (BRINELL, ROCKWELL, VICKERS) shall be requested on high tensile steel parts or on steel parts that have undergone surface hardening treatment.

### **5.2 Hydrostatic test**

The Contractor shall have at his disposal all the necessary equipment, machines and apparatus to undertake hydrostatic tests in his own workshops.

Pressure and temperature shall be recorded throughout the test. Recorder strips shall clearly indicate in respect of each test:

- The date
- The type of test
- The duration
- The name and signature of the person responsible
- The name and signature of the representative of test responsible department or official organization previously approved by the Company.

This resistance test shall take place in the presence of the Company's representative and under the direction of an expert appointed by test responsible department or official organism previously approved by the Company who shall affix his stamp to apparatus which will be successfully tested.

The body of the vessel shall pass the water test successfully at 1½ times the design pressure.

The outer wall of the body of the apparatus shall be bare during the test. The pressure shall be maintained for at least 4 hours as long as it is necessary for this wall to be examined and the expert appointed by test responsible department or official organism previously approved by the Company, may require it to be maintained as long as he considers appropriate to enable him to detect any defect he may suspect.

If a defect is detected, the manufacturer shall determine its gravity by grinding or chiseling. The defect must be repaired or the part rejected must be replaced as the case may be.

### **5.3 Tests on Operation of Closing Devices of the Traps**

The aim of these tests will be to check in the factory, that each locking device of traps works properly.

#### **5.3.1 Tests**

The door shall be opened and closed several times.

The check shall cover:

- Ease of manual operation.

Effectiveness of the locking and safety device.

**6.0 PIG / SCRAPER LOADING AND RETRIEVAL SYSTEM**

N/A



## **7.0 MARKING**

Every item of equipment shall bear a stainless steel identification plate with cast or stamped letters indicating:

- Name of the Contractor or trade name
- Type
- Serial number
- Class of pressure
- Test pressure
- Date of the test and pressure
- Maximum service pressure
- Stamp of test responsible department or official organism previously approved by the Company.
- Stamp of the Company
- Nominal diameter of the body
- Indication concerning the material for the trap.

## **8.0 PAINING**

The scraper traps and retrieval system shall be painted after successful execution of pressure tests and clearance from the Company's Representative or his nominee. Surface cleaning and painting shall be performed according to Project Specification for Painting.

## **9.0 SHIPMENT**

Before shipment, the machined parts shall be painted with an antirust paint easy to remove.

Flanges or ends shall be plugged with pieces of wood suitable located to preclude the penetration of foreign mater in the body or damage to moving parts and sealed joints, and to afford effective protection to the machined surfaces of flanges or ends.

Fragile accessories shall be dismantled and packed separately, in duly marked boxes.

All parts shall be carefully plugged.

Packages shall be marked on the outside so that the contents can be identified without opening them.

The details of packing and shipment shall be as specified in the Project Specification for General Specification for Packing & Protection of Material & Equipment.

## **10.0 DOCUMENTS**

### **10.1 Preliminary Documents**

With the bid, the bidder shall submit:

The general arrangement drawings / sketches showing dimension of the equipment proposed.

- Material Specifications.
- A brief description of the system.

### **10.2 Design Documents**

Before the commencement of the manufacturing, the Contractor shall submit detailed design drawings, material specifications and design calculations for Company's approval.

- All documents listed above, updated if necessary.
- Operating manual
- Instructions for maintenance and dismantling
- List of spare parts for two years operation, after a guarantee period fixed to one year.

### **10.3 Material and Test Certificate**

The Contractor shall supply with the equipment, material certificates and records of all test and inspections performed on the equipment during its manufacturing and testing at the factory.

### **10.4 As Built Drawings and QA / QC Dossier:**

As built drawings and QA / QC dossier shall be provided with the equipment (Soft/Hard formats).

## **11.0 VENDOR CRITERIA.**

The Vendors for material should meet following criteria.

- Supply record to International E&P companies (Copies of five purchases Order).
- Manufacturing facility should have five years experience after obtaining relevant certifications like API 6D for valves, API 5L for Pipes.
- Supply record of last five years. Quality & HSE Certifications.
- Financial Information (Audited Statements for last three years).
- Manufacturer of Pig trap closure, Pigs, Pig signaler/ tracker & Pig signal should be member of PPSA (PIGGING PRODUCTS & SERVICES ASSOCIATION)

## **12.0 WARRANTY**

The duration of warranty shall be 12 months from the date of shipment.

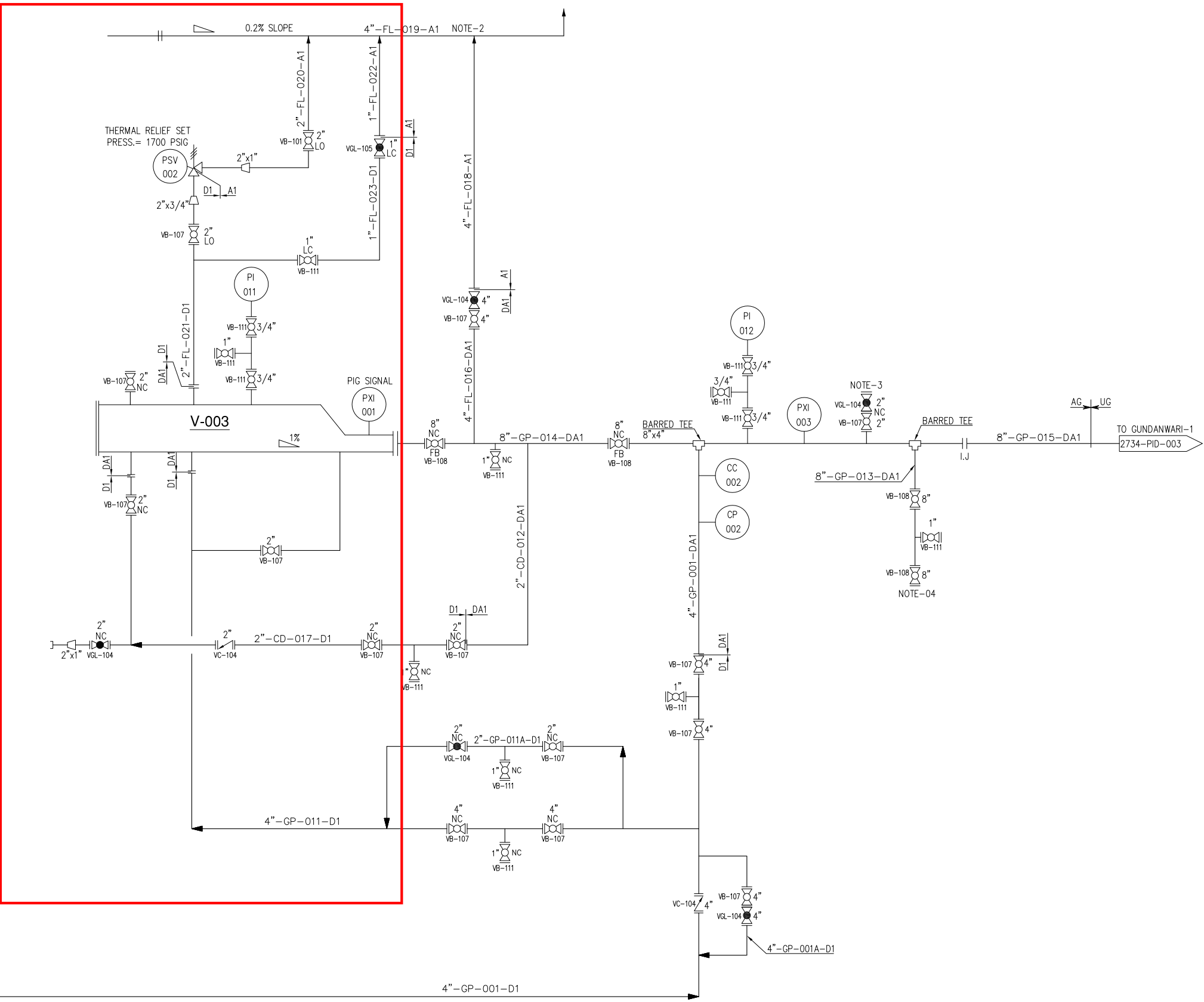
**PIG LAUNCHER/ RECEIVER UNIT FOR CHABARO  
SIZE 8" 900#**

**ANNEXURE-A1**

**V-003  
PIG LAUNCHER**

DESIGN PRESSURE/TEMPERATURE: 1700 PSIG / 170 °F  
 OPERATING PRESSURE/TEMPERATURE: 1000-1620 PSIG / 100-150 °F

Note-5



**NOTES**

1. FOR GENERAL NOTES, SYMBOLS & LEGEND REFER DWG# 2734-PID-000.
2. VENT AT SAFE LOCATION AT LEAST 3.0 M FROM THE HIGHEST POINT OF STRUCTURE/PLATFORM.
3. PROVISION FOR FLOWLINE PURGING AND DEPRESSURIZING.
4. PROVISION FOR FUTURE CONNECTION.

**5. Bidder Scope of Work**

0	06/07/17	ISSUED FOR REVIEW	M.J	ASK
REV.	DATE	DESCRIPTION OF REVISION	PREP'D:	CHECK
			APPR.	

**PG PETROCHEMICAL ENGINEERING CONSULTANTS**  
 C-2, BLOCK NO. 17, GULSHAN-E-IOBAL, NEAR NATIONAL STADIUM, KARACHI-75300. PAKISTAN.  
 TEL: +92 (21) 34827780, 34961088, FAX: +92 21 34961089, E-Mail: contact@pcec.com.pk web site: www.pcec.com.pk

CLIENT : **OIL & GAS DEVELOPMENT COMPANY LIMITED**

PROJECT : **DEVELOPMENT OF CHABARO-1 WELLHEAD**

TITLE : **PIPING & INSTRUMENTATION DIAGRAM FOR PIG LAUNCHER**

JOB NO	DRAWING NO	SHEET NO	SCALE	SHEET SIZE	REV
2734	2734-PID-002	1 OF 1	N.T.S.	A3	0

THIS DRAWING AND DESIGN IS THE PROPERTY OF PETROCHEMICAL AND MUST NOT BE COPIED OR PASSED TO ANY THIRD PARTY WITHOUT WRITTEN CONSENT FROM THE PETROCHEMICAL ENGINEERING CONSULTANTS

**V-004  
PIG RECEIVER**

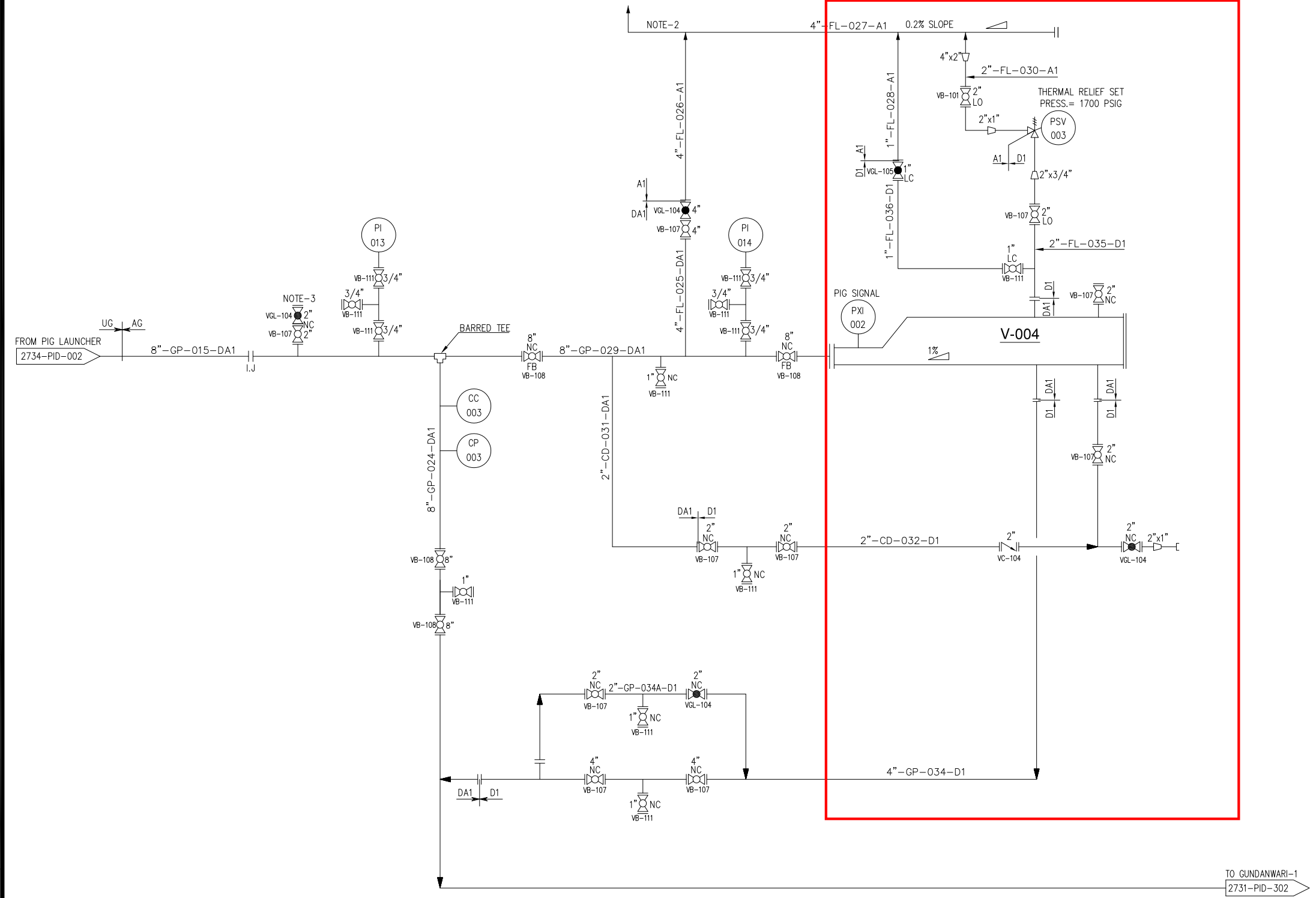
DESIGN PRESSURE/TEMPERATURE: 1700 PSIG / 170°F  
 OPERATING PRESSURE/TEMPERATURE: 1000-1620 PSIG/ 100-150 °F

**NOTES**

- FOR GENERAL NOTES, SYMBOLS & LEGEND REFER DWG# 2734-PID-000.
- VENT AT SAFE LOCATION AT LEAST 3.0 M FROM THE HIGHEST POINT OF STRUCTURE/PLATFORM.
- PROVISION FOR FLOWLINE PURGING AND DEPRESSURIZING.

**4. Bidder Scope of Work**

**Note-4**



1	12/09/2017	ISSUED FOR REVIEW	SN	ASK	
0	06/07/2017	ISSUED FOR REVIEW	M.J	ASK	
REV.	DATE	DESCRIPTION OF REVISION	PREP'D:	CHECK	APPR.

**PE PETROCHEMICAL ENGINEERING CONSULTANTS**  
 C-2, BLOCK NO. 17, GULSHAN-E-IOBAL, NEAR NATIONAL STADIUM, KARACHI-75300. PAKISTAN.  
 TEL: +92 (21) 34827780, 34961088, FAX: +92 21 34961089, E-Mail: contact@pcec.com.pk web site: www.pcec.com.pk

CLIENT : **OIL & GAS DEVELOPMENT COMPANY LIMITED**

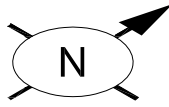
PROJECT : **DEVELOPMENT OF CHABARO-1 WELLHEAD**

TITLE : **PIPING & INSTRUMENTATION DIAGRAM FOR PIG RECEIVER**

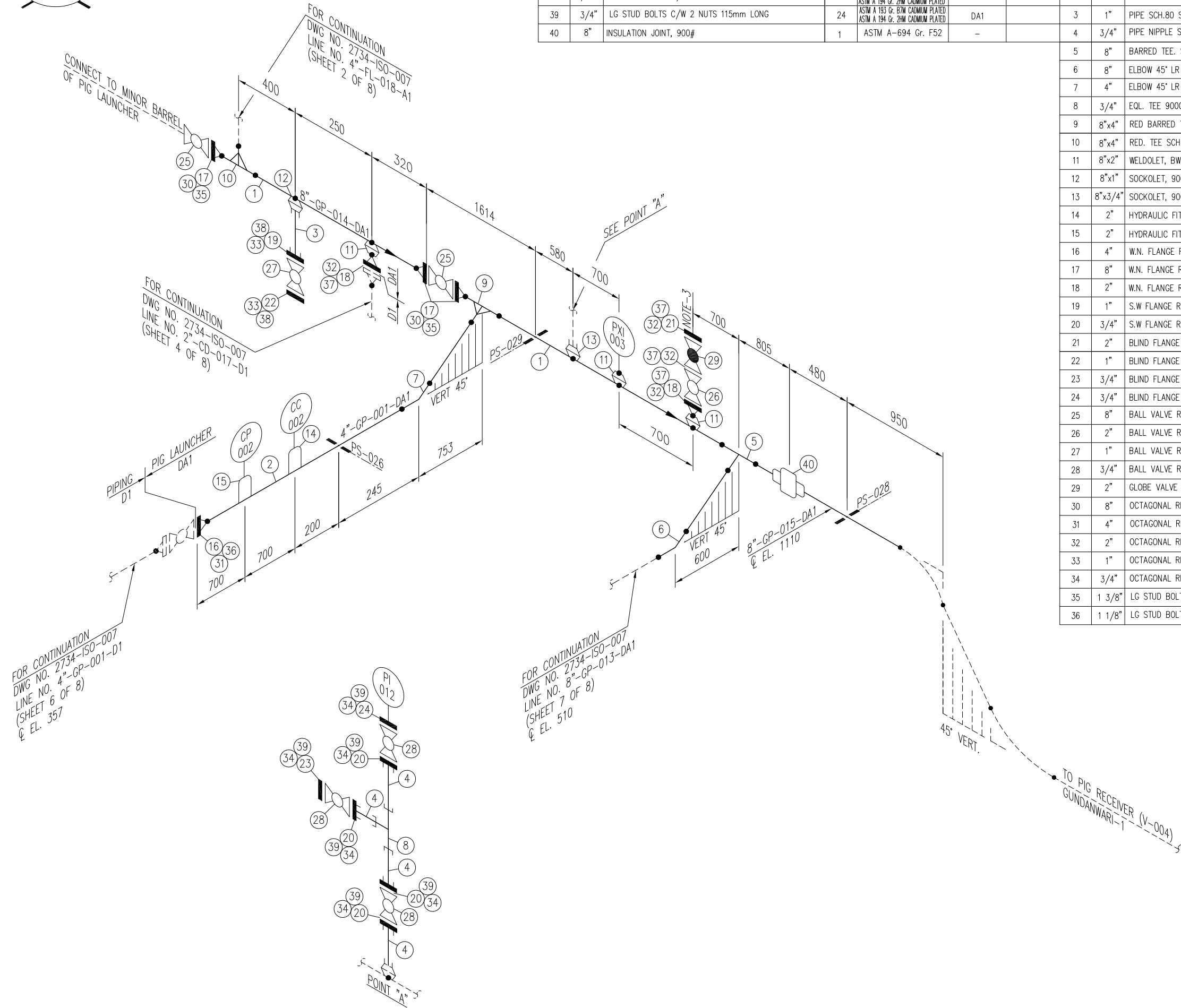
JOB NO	DRAWING NO	SHEET NO	SCALE	SHEET SIZE	REV
2734	2734-PID-003	1 OF 1	N.T.S.	A3	1

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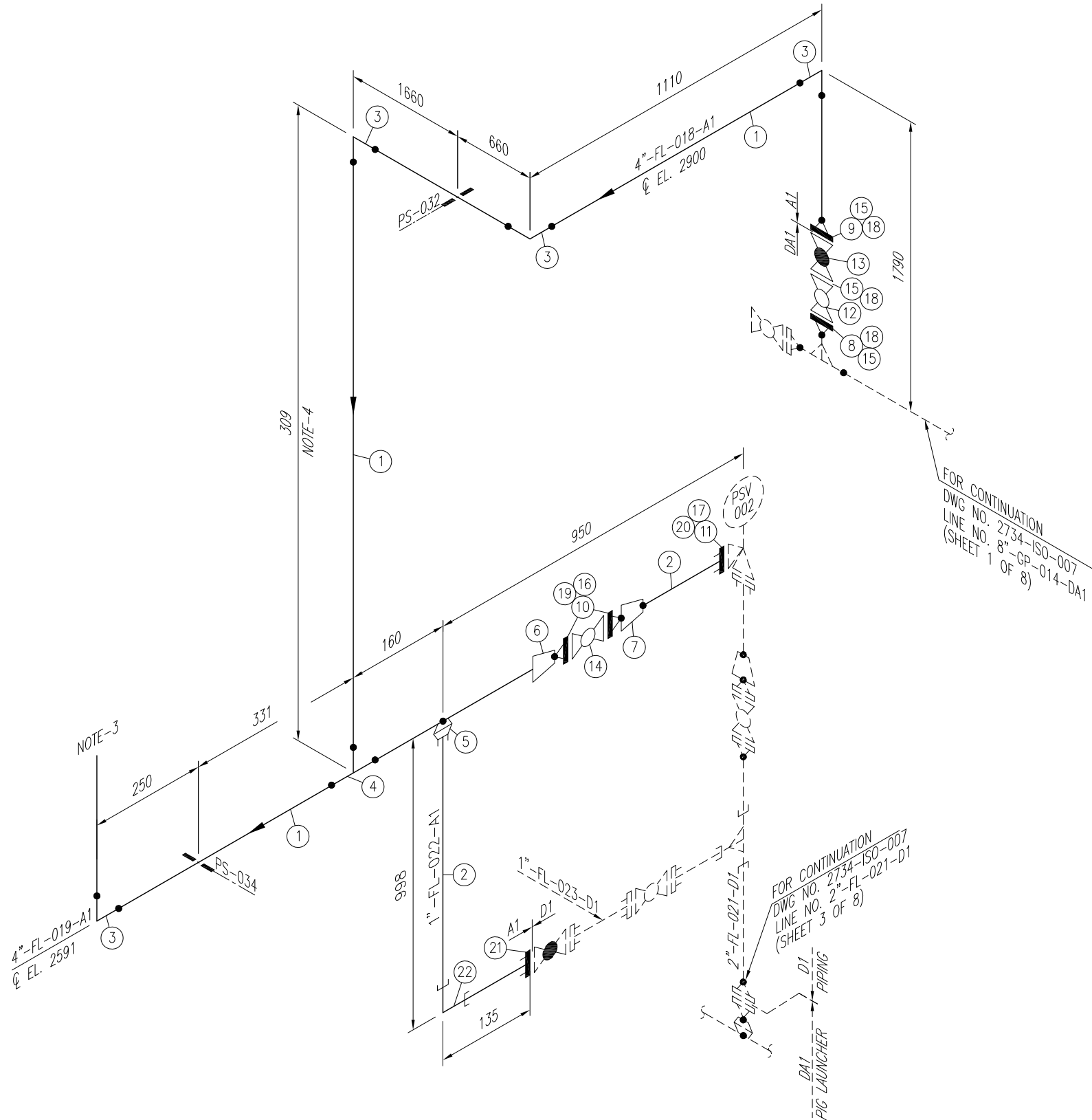
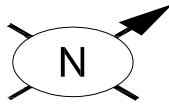
Sr. NO.	SIZE	DESCRIPTION	QTY.	MATERIAL	(MAT. SPEC)	REMARKS	Sr. NO.	SIZE	DESCRIPTION	QTY.	MATERIAL	(MAT. SPEC)	REMARKS
37	7/8"	LG STUD BOLTS C/W 2 NUTS 145mm LONG	32	ASTM A 193 Gr. B7M CADMIUM PLATED ASTM A 194 Gr. 2HM CADMIUM PLATED	DA1		1	8"	PIPE SCH.80 BE SMLS	6.5M	API 5L GR.X52	DA1	
38	7/8"	LG STUD BOLTS C/W 2 NUTS 125mm LONG	8	ASTM A 193 Gr. B7M CADMIUM PLATED ASTM A 194 Gr. 2HM CADMIUM PLATED			2	4"	PIPE SCH.40 BE SMLS	2.5M	API 5L GR.X52	DA1	
39	3/4"	LG STUD BOLTS C/W 2 NUTS 115mm LONG	24	ASTM A 193 Gr. B7M CADMIUM PLATED ASTM A 194 Gr. 2HM CADMIUM PLATED	DA1		3	1"	PIPE SCH.80 SMLS P.E	0.1M	API 5L GR.X52	DA1	
40	8"	INSULATION JOINT, 900#	1	ASTM A-694 Gr. F52	-		4	3/4"	PIPE NIPPLE SCH.80 100mm LONG PE SMLS	4	API 5L GR.X52	DA1	



5	8"	BARRED TEE, SCH.80 BW	1	MSS SP-75 Gr.WPHY 52	DA1	
6	8"	ELBOW 45° LR SCH.80 BW	1	MSS SP-75 Gr.WPHY 52	DA1	
7	4"	ELBOW 45° LR SCH.40 BW	1	MSS SP-75 Gr.WPHY 52	DA1	
8	3/4"	EQL. TEE 9000# S.W	1	ASTM A-694 Gr. F52	D1	
9	8"x4"	RED BARRED TEE, SCH.80 X SCH.40 BW	1	MSS SP-75 Gr.WPHY 52	DA1	
10	8"x4"	RED. TEE SCH.80x40 BW	1	MSS SP-75 Gr.WPHY 52	DA1	
11	8"x2"	WELDOLET, BW SCH.80	3	ASTM A-694 Gr. F52	DA1	
12	8"x1"	SOCKOLET, 9000# SW	1	ASTM A-694 Gr. F52	DA1	
13	8"x3/4"	SOCKOLET, 9000# SW	1	ASTM A-694 Gr. F52	DA1	
14	2"	HYDRAULIC FITTING (CORROSION COUPON)	1	ASTM A-694 Gr. F52	-	
15	2"	HYDRAULIC FITTING (CORROSION PROBE)	1	ASTM A-694 Gr. F52	-	
16	4"	W.N. FLANGE RTJ. 900#. SCH.40 BW	1	ASTM A-694 Gr. F52	DA1	
17	8"	W.N. FLANGE RTJ. SCH.80 BW 900#.	3	ASTM A-694 Gr. F52	DA1	
18	2"	W.N. FLANGE RTJ. SCH.80 BW 900#.	2	ASTM A-694 Gr. F52	DA1	
19	1"	S.W FLANGE RTJ. 1500#.	1	ASTM A-694 Gr. F52	DA1	
20	3/4"	S.W FLANGE RTJ. 1500#.	4	ASTM A-694 Gr. F52	DA1	
21	2"	BLIND FLANGE RTJ. 900#.	1	ASTM A-694 Gr. F52	DA1	
22	1"	BLIND FLANGE RTJ. 1500#.	1	ASTM A-694 Gr. F52	DA1	
23	3/4"	BLIND FLANGE RTJ. 1500#.	1	ASTM A-694 Gr. F52	DA1	
24	3/4"	BLIND FLANGE RTJ. 1500#, WITH 1/2" NPT TAPPING BORE	1	ASTM A-694 Gr. F52	-	
25	8"	BALL VALVE RTJ. 900#	2	SEE TAG NO. VB-108	DA1	
26	2"	BALL VALVE RTJ. 900#	1	SEE TAG NO. VB-107	DA1	
27	1"	BALL VALVE RTJ. 1500#	1	SEE TAG NO. VB-111	DA1	
28	3/4"	BALL VALVE RTJ. 1500#	3	SEE TAG NO. VB-111	DA1	
29	2"	GLOBE VALVE RTJ. 900#	1	SEE TAG NO. VGL-104	DA1	
30	8"	OCTAGONAL RING, 900# R-49	3	316L S.S.	DA1	
31	4"	OCTAGONAL RING, 900# R-37	1	316L S.S.	DA1	
32	2"	OCTAGONAL RING, 900# R-24	4	316L S.S.	DA1	
33	1"	OCTAGONAL RING, 1500# R-16	2	316L S.S.	DA1	
34	3/4"	OCTAGONAL RING, 1500# R-14	6	316L S.S.	DA1	
35	1 3/8"	LG STUD BOLTS C/W 2 NUTS 220mm LONG	36	ASTM A 193 Gr. B7M CADMIUM PLATED ASTM A 194 Gr. 2HM CADMIUM PLATED	DA1	
36	1 1/8"	LG STUD BOLTS C/W 2 NUTS 170mm LONG	8	ASTM A 193 Gr. B7M CADMIUM PLATED ASTM A 194 Gr. 2HM CADMIUM PLATED	DA1	

- NOTES:**
1. ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED.
  2. ALL DIMENSIONS, ELEVATIONS AND ORIENTATIONS TO BE VERIFIED BY THE CONTRACTOR BEFORE UNDERTAKING ANY KIND OF FABRICATION, CONSTRUCTION AND INSTALLATION
  3. PROVISION FOR FLOWLINE PURGING & DEPRESSURIZING.

0	08-12-17	ISSUED FOR REVIEW	AHK	SHAH		
REV.	DATE	DESCRIPTION	DRAWN	CHK'D	APP'VD	APP'VD
			CONSULTANT		CLIENT	
<b>PEC PETROCHEMICAL ENGINEERING CONSULTANTS</b> C-2, BLOCK NO. 17, GULSHAN-E-IGBAL, NEAR NATIONAL STADIUM, KARACHI-75300, PAKISTAN. TEL. +92 (21) 34827780, 34961088, FAX: +92 21 34961089, E-Mail: contact@pec.com.pk web site: www.pec.com.pk						
CLIENT: <b>OIL &amp; GAS DEVELOPMENT COMPANY LTD.</b>						
PROJECT: <b>DEVELOPMENT OF CHABARO-1 WELLHEAD</b>						
TITLE: <b>PIPING ISOMETRIC PIG LAUNCHER (V-003)</b> <b>LINE No.8"-GP-014-DA1,8"-GP-015-DA1, 4"-GP-001-DA1</b>						
DRAWING NO.			SHEET	SCALE	REV.	
<b>2734-ISO-007</b>			NO. OF	N.T.S.	0	
			1	8	A3	



Sr. NO.	SIZE	DESCRIPTION	QTY.	MATERIAL	(MAT. SPEC)	REMARKS
1	4"	PIPE SCH.40 BE SMLS	6.5M	ASTM A-106 Gr.B	A1	
2	1"	PIPE SCH.40 SMLS, BE	1.1M	ASTM A-106 Gr.B	A1	
3	4"	ELBOW 90° LR B.W SCH.40 BE	4	ASTM A-234 Gr. WPB	A1	
4	4"	EQUAL TEE SCH.40 BW	1	ASTM A-234 Gr. WPB	A1	
5	4"x1"	SOCKOLET 3000# S.W	1	ASTM A-105	A1	
6	4"x2"	CONC. RED. SCH.40 BW.	1	ASTM A-234 Gr. WPB	A1	
7	2"x1"	CONC. RED. SCH.40 BW.	1	ASTM A-234 Gr. WPB	A1	
8	4"	W.N. FLANGE RTJ. SCH.40 BW 900#.	1	ASTM A-694 Gr. F52	-	
9	4"	W.N. FLANGE RTJ. SCH.40 BW 900#.	1	ASTM A-105	-	
10	2"	W.N. FLANGE RF. 150#, SCH.40 BW	2	ASTM A-105	A1	
11	1"	S.W FLANGE RTJ. 300#.	1	ASTM A-105	-	
12	4"	BALL VALVE RTJ. 900#	1	SEE TAG NO. VB-107	-	
13	4"	GLOBE VALVE RTJ. 900#	1	SEE TAG NO. VGL-104	-	
14	2"	BALL VALVE RF. 150#	1	SEE TAG NO. VB-101	A1	
15	4"	OCTAGONAL RING, 900# R-37	3	316L S.S.	-	
16	2"	GASKET 150# 3mm THICK COMPRESSED GRAPHITE FILLED, SPIRAL WOUND 304 SS CENTRAL RING AS PER ASME B-16.20	2	304 S.S.	A1	
17	1"	OCTAGONAL RING, 300# R-16	1	316L S.S.	A1	
18	1 1/8"	LG STUD BOLTS C/W 2 NUTS 170mm LONG	24	ASTM A 193 Gr. B7M CADMIUM PLATED ASTM A 194 Gr. 2HM CADMIUM PLATED	-	
19	5/8"	LG STUD BOLTS C/W 2 NUTS 85mm LONG	8	ASTM A 193 Gr. B7M CADMIUM PLATED ASTM A 194 Gr. 2HM CADMIUM PLATED	A1	
20	5/8"	LG STUD BOLTS C/W 2 NUTS 90mm LONG	4	ASTM A 193 Gr. B7M CADMIUM PLATED ASTM A 194 Gr. 2HM CADMIUM PLATED	-	
21	1"	S.W FLANGE RTJ. 1500#	1	ASTM A-105	-	
22	1"	ELBOW 90° 3000# S.W	1	ASTM A-105	A1	

**NOTES:**

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2. ALL DIMENSIONS, ELEVATIONS AND ORIENTATIONS TO BE VERIFIED BY THE CONTRACTOR BEFORE UNDERTAKING ANY KIND OF FABRICATION, CONSTRUCTION AND INSTALLATION WORK AT SITE.
3. VENT SHOULD BE AT LEAST 3m FROM THE HIGHEST POINT OF STRUCTURE/PLAT FORM.
4. ELEVATION TO BE ADJUSTED AS PER SITE REQUIREMENT.

0	08-12-17	ISSUED FOR REVIEW	AHK	SHAH		
REV.	DATE	DESCRIPTION	DRAWN	CHK'D	APP'VD	APP'VD
			CONSULTANT		CLIENT	

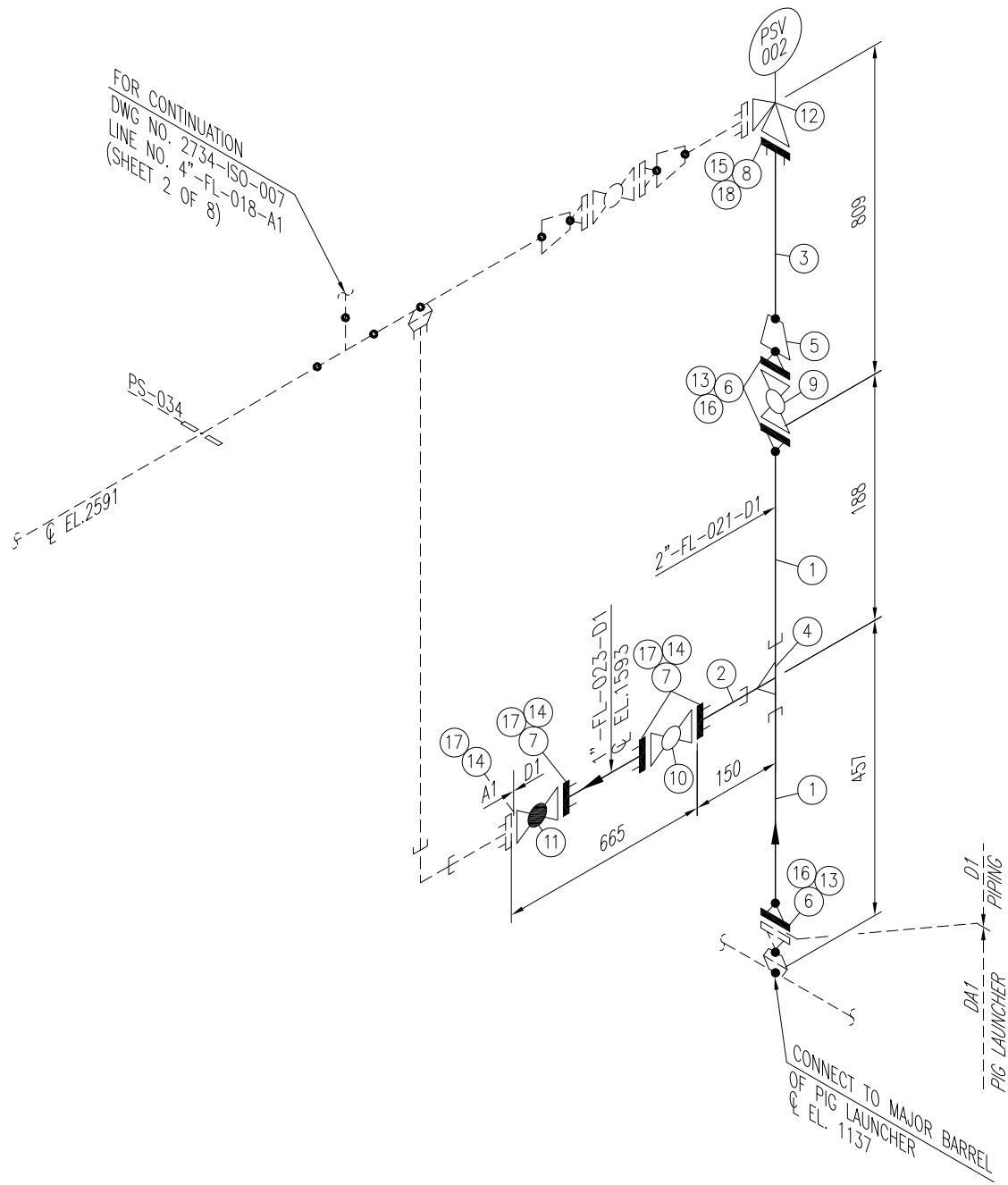
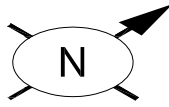
**PC PETROCHEMICAL ENGINEERING CONSULTANTS**  
 C-2, BLOCK NO. 17, GULSHAN-E-IQBAL, NEAR NATIONAL STADIUM, KARACHI-75300, PAKISTAN.  
 TEL: +92 (21) 34827780, 34961088, FAX: +92 21 34961089, E-Mail: contact@pcec.com.pk web site: www.pcec.com.pk

CLIENT: **OIL & GAS DEVELOPMENT COMPANY LTD.**

PROJECT: **DEVELOPMENT OF CHABARO-1 WELLHEAD**

TITLE: **PIPING ISOMETRIC PIG LAUNCHER (V-003)  
 LINE No. 4"-FL-018-A1, 4"-FL-019-A1, 1"-FL-022-A1**

DRAWING NO.	SHEET	SCALE	REV.
<b>2734-ISO-007</b>	NO. OF	N.T.S.	0
	2	8	A3

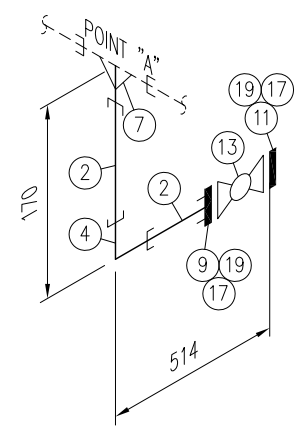
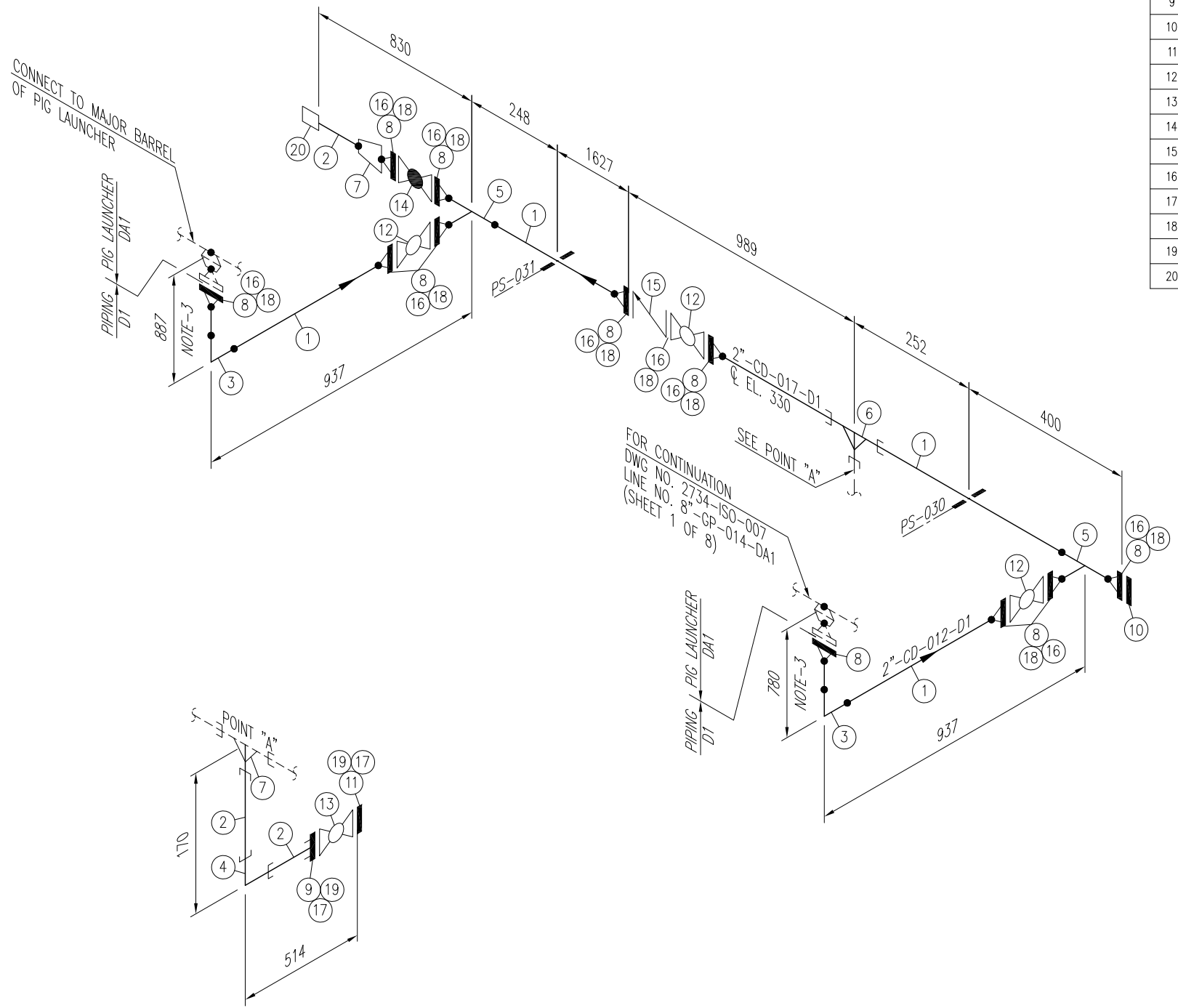
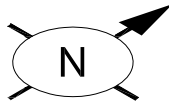


Sr. NO.	SIZE	DESCRIPTION	QTY.	MATERIAL	(MAT. SPEC)	REMARKS
1	2"	PIPE SCH.160 BE SMLS	0.3M	ASTM A-106 GR.B	D1	
2	1"	PIPE SCH.160 SMLS, PE	0.1M	ASTM A-106 GR.B	D1	
3	3/4"	PIPE SCH.160 SMLS, PE	0.5M	ASTM A-106 GR.B	D1	
4	2"x1"	RED. TEE 9000# S.W	1	ASTM A-105	D1	
5	2"x3/4"	CONC. RED. SCH.160 BW.	1	ASTM A-234 Gr. WPB	D1	
6	2"	W.N. FLANGE RTJ. SCH.160 BW 900#.	3	ASTM A-105	D1	
7	1"	S.W FLANGE RTJ. 1500#.	3	ASTM A-105	D1	
8	3/4"	S.W FLANGE RTJ. 900#.	1	ASTM A-105	D1	
9	2"	BALL VALVE RTJ. 900#	1	SEE TAG NO. VB-107	D1	
10	1"	BALL VALVE RTJ. 1500#	1	SEE TAG NO. VB-111	D1	
11	1"	GLOBE VALVE RTJ. 1500#.	1	SEE TAG NO. VGL-105	D1	
12	1"x3/4"	PSV, RTJ. 900# X 300#	1	SEE DATA SHEET	-	
13	2"	OCTAGONAL RING, 900# R-24	3	316L S.S.	D1	
14	1"	OCTAGONAL RING, 1500# R-16	4	316L S.S.	D1	
15	3/4"	OCTAGONAL RING, 900#	1	316L S.S.	-	
16	7/8"	LG STUD BOLTS C/W 2 NUTS 145mm LONG	24	ASTM A 193 Gr. B7M CADMIUM PLATED ASTM A 194 Gr. 2HM CADMIUM PLATED	-	
17	7/8"	LG STUD BOLTS C/W 2 NUTS 125mm LONG	16	ASTM A 193 Gr. B7M CADMIUM PLATED ASTM A 194 Gr. 2HM CADMIUM PLATED	D1	
18	3/4"	LG STUD BOLTS C/W 2 NUTS 115mm LONG	4	ASTM A 193 Gr. B7M CADMIUM PLATED ASTM A 194 Gr. 2HM CADMIUM PLATED	-	

**NOTES:**

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2. ALL DIMENSIONS, ELEVATIONS AND ORIENTATIONS TO BE VERIFIED BY THE CONTRACTOR BEFORE UNDERTAKING ANY KIND OF FABRICATION, CONSTRUCTION AND INSTALLATION WORK AT SITE.

0	08-12-17	ISSUED FOR REVIEW	AHK	SHAH		
REV.	DATE	DESCRIPTION	DRAWN	CHK'D	APP'VD	APP'VD
			CONSULTANT		CLIENT	
<b>PEC PETROCHEMICAL ENGINEERING CONSULTANTS</b> C-2, BLOCK NO. 17, GULSHAN-E-IOBAL, NEAR NATIONAL STADIUM, KARACHI-75300, PAKISTAN. TEL. +92 (21) 34827780, 34961088, FAX: +92 21 34961089, E-Mail: contact@pec.com.pk web site: www.pec.com.pk						
CLIENT <b>OIL &amp; GAS DEVELOPMENT COMPANY LTD.</b>						
PROJECT : <b>DEVELOPMENT OF CHABARO-1 WELLHEAD</b>						
TITLE : <b>PIPING ISOMETRIC PIG LAUNCHER (V-003) LINE No.2"-FL-021-D1,1"-FL-023-D1</b>						
DRAWING NO.			SHEET	SCALE	REV.	
<b>2734-ISO-007</b>			NO. OF	N.T.S.	0	
			3	8	A3	



Sr. NO.	SIZE	DESCRIPTION	QTY.	MATERIAL	(MAT. SPEC)	REMARKS
1	2"	PIPE SCH.160 BE SMLS	4.3M	ASTM A-106 GR.B	D1	
2	1"	PIPE SCH.160 PE SMLS	0.3M	ASTM A-106 GR.B	D1	
3	2"	ELBOW 90° LR SCH.160 BW	2	ASTM A-234 Gr. WPB	D1	
4	1"	ELBOW 90° 9000# S.W	1	ASTM A-105	D1	
5	2"	EQL. TEE SCH.160 BW	2	ASTM A-234 Gr. WPB	D1	
6	2"x1"	RED. TEE 9000# SW	1	ASTM A-105	D1	
7	2"x1"	CONC. RED. SCH.160 BW.	1	ASTM A-234 Gr. WPB	D1	
8	2"	W.N. FLANGE RTJ. SCH.160 BW 900#.	11	ASTM A-105	D1	
9	1"	S.W FLANGE RTJ. 1500#.	1	ASTM A-105	D1	
10	2"	BLIND FLANGE RTJ. 900#.	1	ASTM A-105	D1	
11	1"	BLIND FLANGE RTJ. 1500#.	1	ASTM A-105	D1	
12	2"	BALL VALVE RTJ. 900#.	3	SEE TAG NO. VB-107	D1	
13	1"	BALL VALVE RTJ. 1500#.	1	SEE TAG NO. VB-111	D1	
14	2"	GLOBE VALVE RTJ. 900#.	1	SEE TAG NO. VGL-104	D1	
15	2"	CHECK VALVE RTJ. 900#.	1	SEE TAG NO. VC-104	D1	
16	2"	OCTAGONAL RING, 900# R-24	11	316L S.S.	D1	
17	1"	OCTAGONAL RING, 1500# R-16	2	316L S.S.	D1	
18	7/8"	LG STUD BOLTS C/W 2 NUTS 145mm LONG	88	ASTM A 193 Gr. B7M CADMIUM PLATED ASTM A 194 Gr. 2HM CADMIUM PLATED	D1	
19	7/8"	LG STUD BOLTS C/W 2 NUTS 125mm LONG	8	ASTM A 193 Gr. B7M CADMIUM PLATED ASTM A 194 Gr. 2HM CADMIUM PLATED	D1	
20	1"	HOSE COUPLING 9000#	1	ASTM A-105	D1	

**NOTES:**

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3. ELEVATION TO BE ADJUSTED AS PER SITE REQUIREMENT.

0	08-12-17	ISSUED FOR REVIEW	AHK	SHAH		
REV.	DATE	DESCRIPTION	DRAWN	CHK'D	APP'VD	APP'VD
			CONSULTANT		CLIENT	

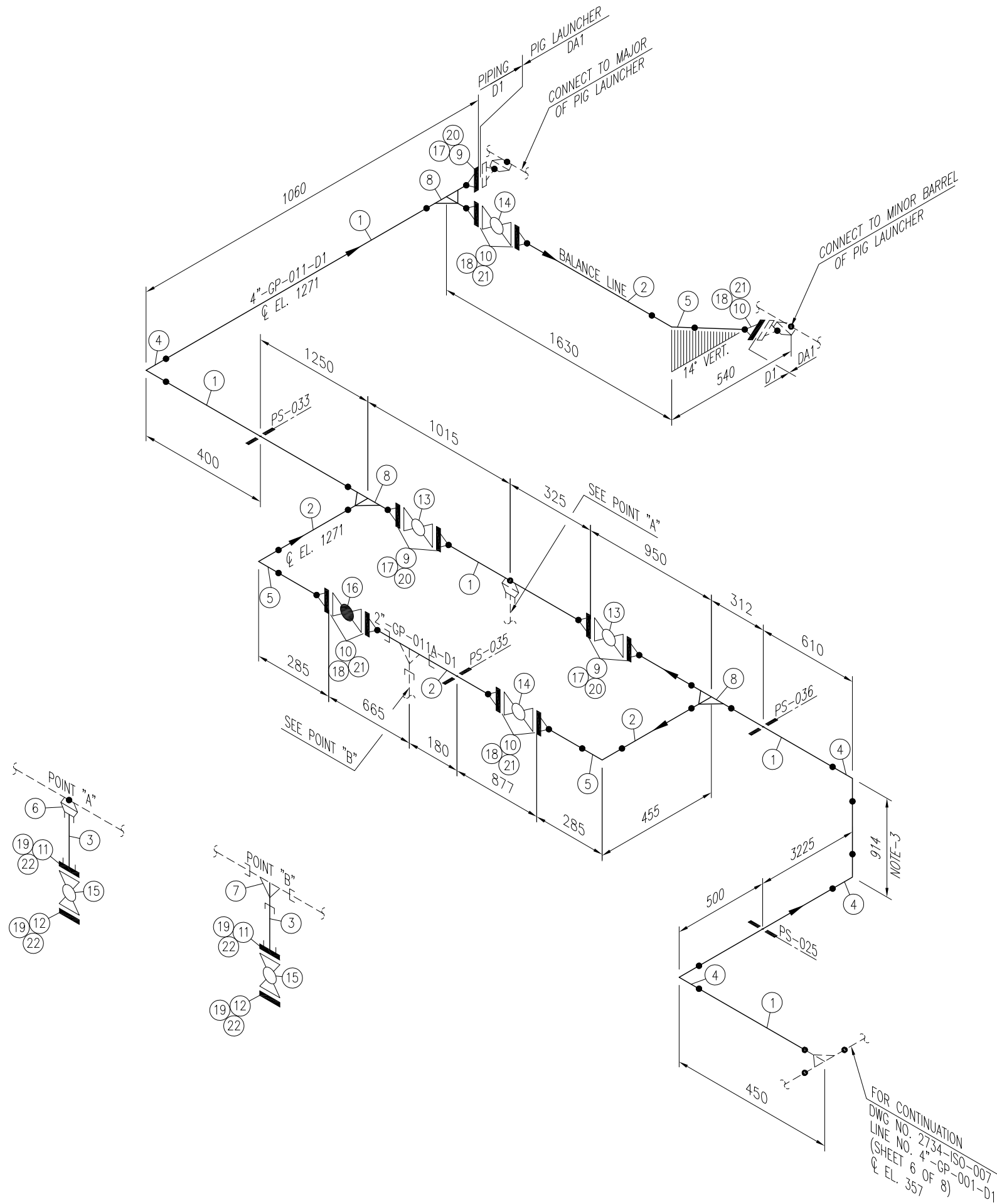
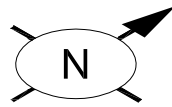
**PC PETROCHEMICAL ENGINEERING CONSULTANTS**  
 C-2, BLOCK NO. 17, GULSHAN-E-IQBAL, NEAR NATIONAL STADIUM, KARACHI-75300, PAKISTAN.  
 TEL: +92 (21) 34827780, 34961088, FAX: +92 21 34961089, E-Mail: contact@pcec.com.pk web site: www.pcec.com.pk

CLIENT: **OIL & GAS DEVELOPMENT COMPANY LTD.**

PROJECT: **DEVELOPMENT OF CHABARO-1 WELLHEAD**

TITLE: **PIPING ISOMETRIC PIG LAUNCHER (V-003) LINE No. 2"-CD-017-D1, 2"-CD-012-D1**

DRAWING NO.	SHEET	SCALE	REV.
<b>2734-ISO-007</b>	NO. OF	N.T.S.	0
	4	8 A3	

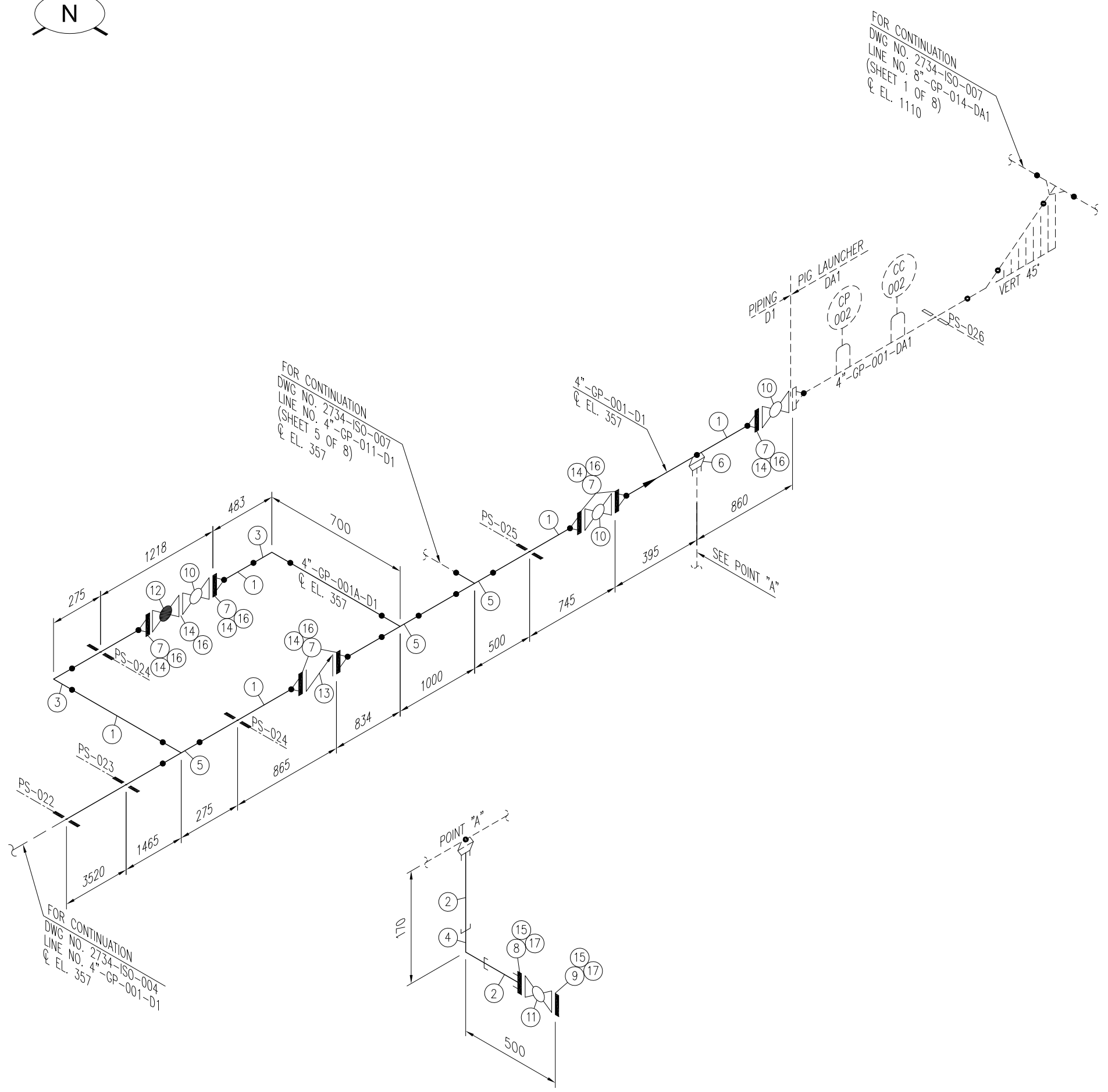
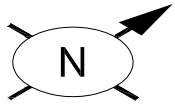


Sr. NO.	SIZE	DESCRIPTION	QTY.	MATERIAL	(MAT. SPEC)	REMARKS
1	4"	PIPE SCH.120 BE SMLS	9.0M	ASTM A-106 GR.B	D1	
2	2"	PIPE SCH.160 BE SMLS	4.3M	ASTM A-106 GR.B	D1	
3	1"	PIPE SCH.160 PE SMLS	0.2M	ASTM A-106 GR.B	D1	
4	4"	ELBOW 90° LR SCH.120 BW	4	ASTM A-234 Gr. WPB	D1	
5	2"	ELBOW 90° LR SCH.160 BW	3	ASTM A-234 Gr. WPB	D1	
6	4"x1"	SOCKET, 9000# SW	1	ASTM A-105	D1	
7	2"x1"	RED. TEE 9000# SW	1	ASTM A-105	D1	
8	4"x2"	RED. TEE SCH.120x160 BW	3	ASTM A-234 Gr. WPB	D1	
9	4"	W.N. FLANGE RTJ. SCH.120 BW 900#.	5	ASTM A-105	D1	
10	2"	W.N. FLANGE RTJ. SCH.160 BW 900#.	7	ASTM A-105	D1	
11	1"	S.W FLANGE RTJ. 1500#.	2	ASTM A-105	D1	
12	1"	BLIND FLANGE RTJ. 1500#.	2	ASTM A-105	D1	
13	4"	BALL VALVE RTJ. 900#.	2	SEE TAG NO. VB-107	D1	
14	2"	BALL VALVE RTJ. 900#.	2	SEE TAG NO. VB-107	D1	
15	1"	BALL VALVE RTJ. 1500#.	2	SEE TAG NO. VB-111	D1	
16	2"	GLOBE VALVE RTJ. 900#.	1	SEE TAG NO. VGL-104	D1	
17	4"	OCTAGONAL RING, 900# R-37	5	316L S.S.	D1	
18	2"	OCTAGONAL RING, 900# R-24	7	316L S.S.	D1	
19	1"	OCTAGONAL RING, 1500# R-16	4	316L S.S.	D1	
20	1 1/8"	LG STUD BOLTS C/W 2 NUTS 170mm LONG	40	ASTM A 193 Gr. B7M CADMIUM PLATED ASTM A 194 Gr. 2HM CADMIUM PLATED	D1	
21	7/8"	LG STUD BOLTS C/W 2 NUTS 145mm LONG	56	ASTM A 193 Gr. B7M CADMIUM PLATED ASTM A 194 Gr. 2HM CADMIUM PLATED	D1	
22	7/8"	LG STUD BOLTS C/W 2 NUTS 125mm LONG	16	ASTM A 193 Gr. B7M CADMIUM PLATED ASTM A 194 Gr. 2HM CADMIUM PLATED	D1	

- NOTES:**
1. ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED.
  2. ALL DIMENSIONS, ELEVATIONS AND ORIENTATIONS TO BE VERIFIED BY THE CONTRACTOR BEFORE UNDERTAKING ANY KIND OF FABRICATION, CONSTRUCTION AND INSTALLATION WORK AT SITE.
  3. ELEVATION TO BE ADJUSTED AS PER SITE REQUIREMENT.

0	08-12-17	ISSUED FOR REVIEW	AHK	SHAH		
REV.	DATE	DESCRIPTION	DRAWN	CHK'D	APP'VD	APP'VD
			CONSULTANT		CLIENT	
<b>PEC PETROCHEMICAL ENGINEERING CONSULTANTS</b> C-2, BLOCK NO. 17, GULSHAN-E-IQBAL, NEAR NATIONAL STADIUM, KARACHI-75300, PAKISTAN. TEL: +92 (21) 34827780, 34961088, FAX: +92 21 34961089, E-Mail: contact@pec.com.pk web site: www.pec.com.pk						
CLIENT: <b>OIL &amp; GAS DEVELOPMENT COMPANY LTD.</b>						
PROJECT: <b>DEVELOPMENT OF CHABARO-1 WELLHEAD</b>						
TITLE: <b>PIPING ISOMETRIC PIG LAUNCHER (V-003) LINE No. 4"-GP-011-D1, 2"-GP-011A-D1</b>						
DRAWING NO.			SHEET	SCALE	REV.	
<b>2734-ISO-007</b>			NO. OF	N.T.S.	0	
			5	8	A3	

FOR CONTINUATION  
 DWG NO. 2734-ISO-007  
 LINE NO. 4"-GP-001-D1  
 (SHEET 6 OF 8)  
 & EL. 357



Sr. NO.	SIZE	DESCRIPTION	QTY.	MATERIAL	(MAT. SPEC)	REMARKS
1	4"	PIPE SCH.120 BE SMLS	7.1M	ASTM A-106 GR.B	D1	
2	1"	PIPE SCH.160 PE SMLS	0.2M	ASTM A-106 GR.B	D1	
3	4"	ELBOW 90° LR SCH.100 BW	2	ASTM A-234 Gr. WPB	D1	
4	1"	ELBOW 90° 9000# S.W	1	ASTM A-105	D1	
5	4"	EQL. TEE SCH.120 BW	3	ASTM A-234 Gr. WPB	D1	
6	4"x1"	SOCKOLET, 9000# SW	1	ASTM A-105	D1	
7	4"	W.N. FLANGE RTJ. SCH.120 BW 900#.	7	ASTM A-105	D1	
8	1"	S.W FLANGE RTJ. 1500#.	1	ASTM A-105	D1	
9	1"	BLIND FLANGE RTJ. 1500#.	1	ASTM A-105	D1	
10	4"	BALL VALVE RTJ. 900#.	3	SEE TAG NO. VB-107	D1	
11	1"	BALL VALVE RTJ. 1500#.	1	SEE TAG NO. VB-111	D1	
12	4"	GLOBE VALVE RTJ. 900#.	1	SEE TAG NO. VGL-104	D1	
13	4"	CHECK VALVE RTJ. 900#.	1	SEE TAG NO. VC-104	D1	
14	4"	OCTAGONAL RING, 900# R-37	8	316L S.S.	D1	
15	1"	OCTAGONAL RING, 1500# R-16	2	316L S.S.	D1	
16	1 1/8"	LG STUD BOLTS C/W 2 NUTS 170mm LONG	64	ASTM A 193 Gr. B7M CADMIUM PLATED ASTM A 194 Gr. 2HM CADMIUM PLATED	D1	
17	7/8"	LG STUD BOLTS C/W 2 NUTS 125mm LONG	8	ASTM A 193 Gr. B7M CADMIUM PLATED ASTM A 194 Gr. 2HM CADMIUM PLATED	D1	

**NOTES:**

1. ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED.
2. ALL DIMENSIONS, ELEVATIONS AND ORIENTATIONS TO BE VERIFIED BY THE CONTRACTOR BEFORE UNDERTAKING ANY KIND OF FABRICATION, CONSTRUCTION AND INSTALLATION WORK AT SITE.

0	08-12-17	ISSUED FOR REVIEW	AHK	SHAH		
REV.	DATE	DESCRIPTION	DRAWN	CHK'D	APP'VD	APP'VD
			CONSULTANT		CLIENT	

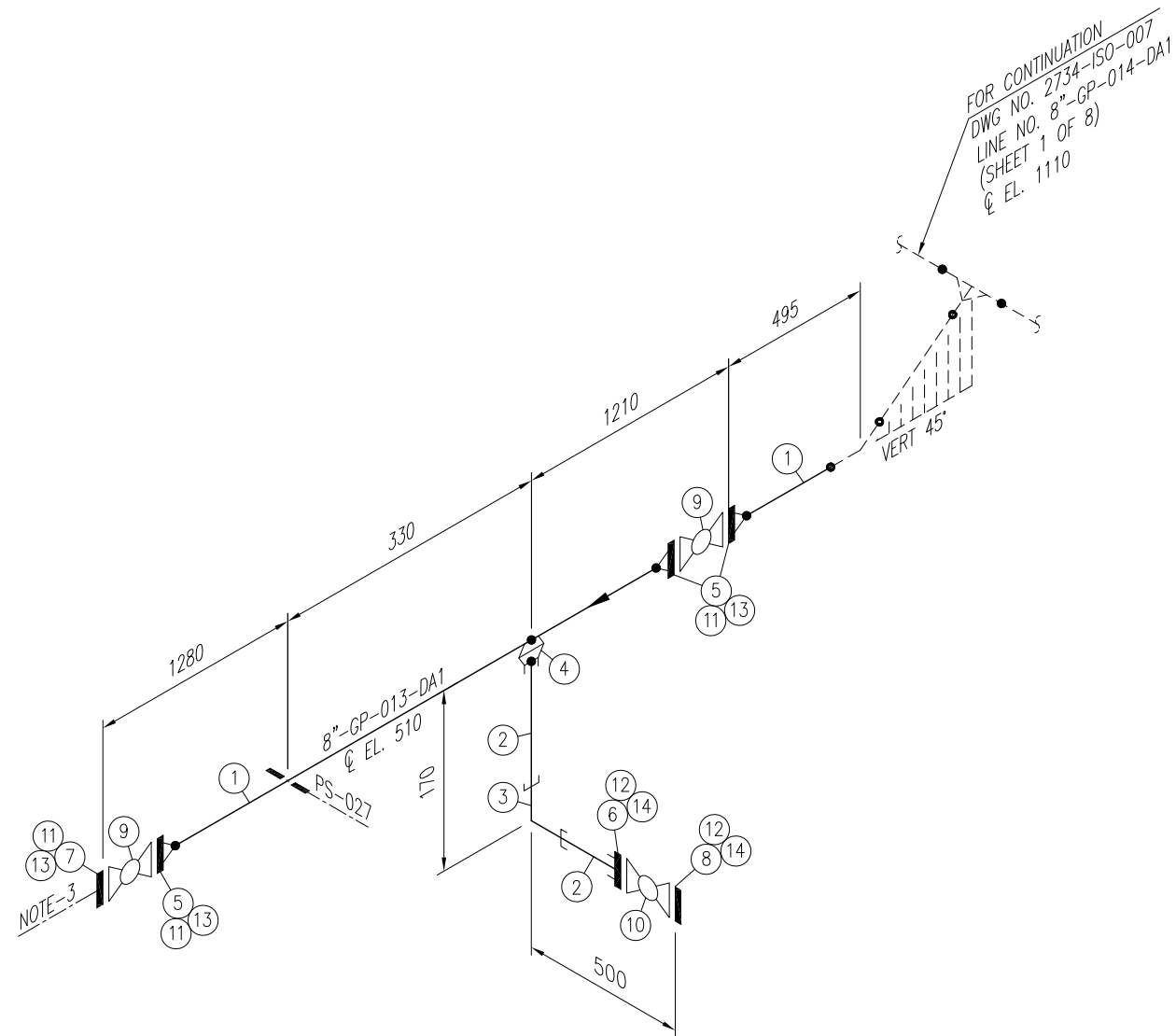
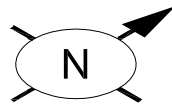
**PC PETROCHEMICAL ENGINEERING CONSULTANTS**  
 C-2, BLOCK NO. 17, GULSHAN-E-IQBAL, NEAR NATIONAL STADIUM, KARACHI-75300, PAKISTAN.  
 TEL: +92 (21) 34827780, 34961088, FAX: +92 21 34961089, E-Mail: contact@pcec.com.pk web site: www.pcec.com.pk

CLIENT: **OIL & GAS DEVELOPMENT COMPANY LTD.**

PROJECT: **DEVELOPMENT OF CHABARO-1 WELLHEAD**

TITLE: **PIPING ISOMETRIC PIG LAUNCHER (V-003) LINE No. 4"-GP-001-D1, 4"-GP-001A-D1**

DRAWING NO.	SHEET	SCALE	REV.
<b>2734-ISO-007</b>	NO. OF	N.T.S.	0
	6	8	A3



Sr. NO.	SIZE	DESCRIPTION	QTY.	MATERIAL	(MAT. SPEC)	REMARKS
1	8"	PIPE SCH.80 BE SMLS	2.8M	API 5L GR.X52	DA1	
2	1"	PIPE SCH.80 PE SMLS	0.2M	API 5L GR.X52	DA1	
3	1"	ELBOW 90° 9000# S.W	1	ASTM A-694 Gr. F52	DA1	
4	8"x1"	SOCKOLET, 9000# SW	1	ASTM A-694 Gr. F52	DA1	
5	8"	W.N. FLANGE RTJ. 900#. SCH.80 BW	3	ASTM A-694 Gr. F52	DA1	
6	1"	S.W FLANGE RTJ. 1500#.	1	ASTM A-694 Gr. F52	DA1	
7	8"	BLIND FLANGE RTJ. 900#.	1	ASTM A-694 Gr. F52	DA1	
8	1"	BLIND FLANGE RTJ. 1500#.	1	ASTM A-694 Gr. F52	DA1	
9	8"	BALL VALVE RTJ. 900#.	2	SEE TAG NO. VB-108	DA1	
10	1"	BALL VALVE RTJ. 1500#.	1	SEE TAG NO. VB-111	DA1	
11	8"	OCTAGONAL RING, 900# R-49	4	316L S.S.	DA1	
12	1"	OCTAGONAL RING, 1500# R-16	2	316L S.S.	DA1	
13	1 3/8"	LG STUD BOLTS C/W 2 NUTS 220mm LONG	48	ASTM A 193 Gr. B7M CADMIUM PLATED ASTM A 194 Gr. 2HM CADMIUM PLATED	DA1	
14	7/8"	LG STUD BOLTS C/W 2 NUTS 125mm LONG	8	ASTM A 193 Gr. B7M CADMIUM PLATED ASTM A 194 Gr. 2HM CADMIUM PLATED	DA1	

**NOTES:**

1. ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED.
2. ALL DIMENSIONS, ELEVATIONS AND ORIENTATIONS TO BE VERIFIED BY THE CONTRACTOR BEFORE UNDERTAKING ANY KIND OF FABRICATION, CONSTRUCTION AND INSTALLATION WORK AT SITE.
3. PROVISION FOR FUTURE CONNECTION.

0	08-12-17	ISSUED FOR REVIEW	AHK	SHAH		
REV.	DATE	DESCRIPTION	DRAWN	CHK'D	APP'VD	APP'VD
			CONSULTANT		CLIENT	

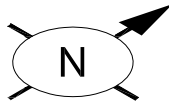
**PG PETROCHEMICAL ENGINEERING CONSULTANTS**  
 C-2, BLOCK NO. 17, GULSHAN-E-IQBAL, NEAR NATIONAL STADIUM, KARACHI-75300, PAKISTAN.  
 TEL. +92 (21) 34827780, 34961088, FAX: +92 21 34961089, E-Mail: contact@ppec.com.pk web site: www.ppec.com.pk

CLIENT: **OIL & GAS DEVELOPMENT COMPANY LTD.**

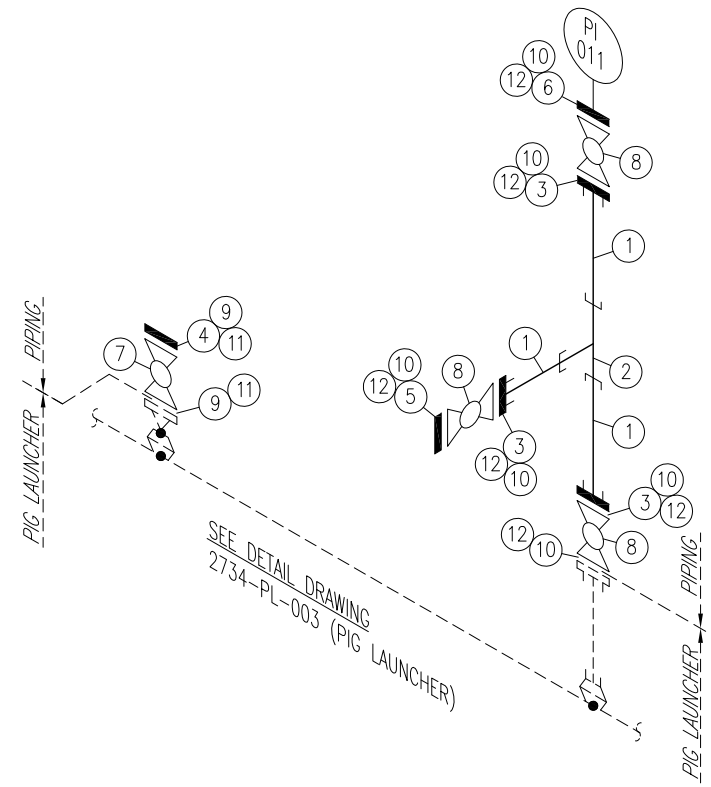
PROJECT: **DEVELOPMENT OF CHABARO-1 WELLHEAD**

TITLE: **PIPING ISOMETRIC PIG LAUNCHER (V-003) LINE No. 8"-GP-013-DA1**

DRAWING NO.	SHEET	SCALE	REV.
<b>2734-ISO-007</b>	NO. OF	N.T.S.	0
	7	8	A3



Sr. NO.	SIZE	DESCRIPTION	QTY.	MATERIAL	(MAT. SPEC)	REMARKS
1	3/4"	PIPE NIPPLE SCH.80 100mm LONG PE SMLS	3	API 5L GR.X52	DA1	
2	3/4"	EQL. TEE 9000# S.W	1	ASTM A-694 Gr. F52	DA1	
3	3/4"	S.W FLANGE RTJ. 1500#.	3	ASTM A-694 Gr. F52	DA1	
4	2"	BLIND FLANGE RTJ. 900#.	1	ASTM A-694 Gr. F52	DA1	
5	3/4"	BLIND FLANGE RTJ. 1500#.	1	ASTM A-694 Gr. F52	DA1	
6	3/4"	BLIND FLANGE RTJ. 1500#, WITH 1/2" NPT TAPPING BORE	1	ASTM A-694 Gr. F52	DA1	
7	2"	BALL VALVE RTJ. 900#.	1	SEE TAG NO. VB-107	DA1	
8	3/4"	BALL VALVE RTJ. 1500#.	3	SEE TAG NO. VB-111	DA1	
9	2"	OCTAGONAL RING, 900# R-24	2	316L S.S.	DA1	
10	3/4"	OCTAGONAL RING, 1500# R-14	6	316L S.S.	DA1	
11	7/8"	LG STUD BOLTS C/W 2 NUTS 145mm LONG	16	ASTM A 193 Gr. B7M CADMIUM PLATED ASTM A 194 Gr. 2HM CADMIUM PLATED	DA1	
12	3/4"	LG STUD BOLTS C/W 2 NUTS 115mm LONG	24	ASTM A 193 Gr. B7M CADMIUM PLATED ASTM A 194 Gr. 2HM CADMIUM PLATED	-	



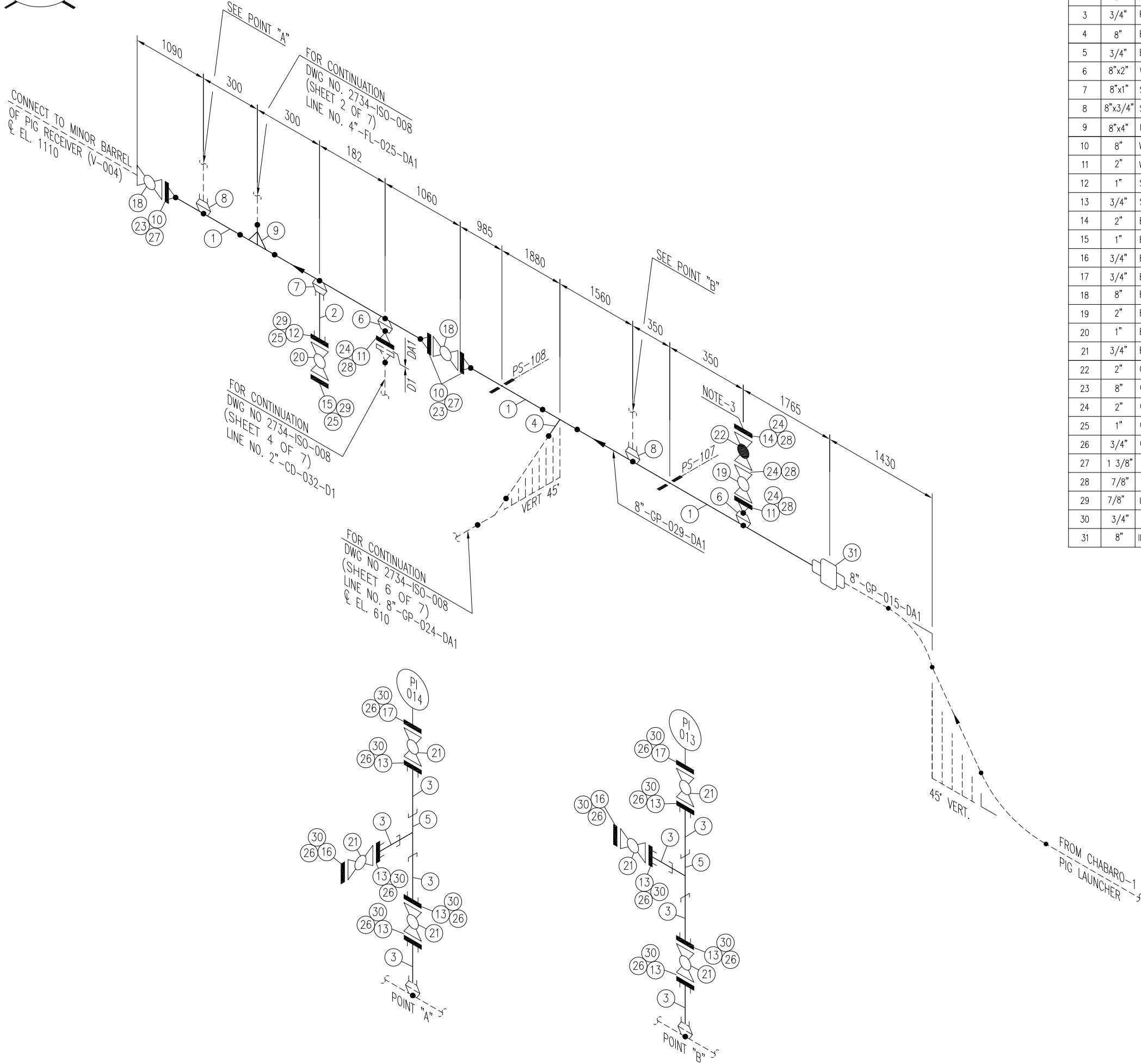
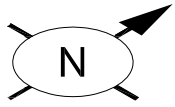
**NOTES:**

1. ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED.
2. ALL DIMENSIONS, ELEVATIONS AND ORIENTATIONS TO BE VERIFIED BY THE CONTRACTOR BEFORE UNDERTAKING ANY KIND OF FABRICATION, CONSTRUCTION AND INSTALLATION WORK AT SITE.

0	08-12-17	ISSUED FOR REVIEW	AHK	SHAH		
REV.	DATE	DESCRIPTION	DRAWN	CHK'D	APP'VD	APP'VD
			CONSULTANT		CLIENT	
<b>PEC PETROCHEMICAL ENGINEERING CONSULTANTS</b> C-2, BLOCK NO. 17, GULSHAN-E-IQBAL, NEAR NATIONAL STADIUM, KARACHI-75300, PAKISTAN. TEL. +92 (21) 34827780, 34961088, FAX: +92 21 34961089, E-Mail: contact@pec.com.pk web site: www.pec.com.pk						
CLIENT <b>OIL &amp; GAS DEVELOPMENT COMPANY LTD.</b>						
PROJECT : <b>DEVELOPMENT OF CHABARO-1 WELLHEAD</b>						
TITLE : <b>PIPING ISOMETRIC PIG LAUNCHER (V-003) PI-011 &amp; 2" CONNECTION</b>						
DRAWING NO.			SHEET	SCALE	REV.	
<b>2734-ISO-007</b>			NO. OF	N.T.S.	0	
			8	8	A3	



# **ISOMETRICS OF PIG RECEIVER OF CHABARO-1 (V-004) AT GUNDANWARI-1**



Sr. NO.	SIZE	DESCRIPTION	QTY.	MATERIAL	(MAT. SPEC)	REMARKS
1	8"	PIPE SCH.80 BE SMLS	6.5M	API 5L GR.X52	DA1	
2	1"	PIPE SCH.80 SMLS P.E	0.1M	API 5L GR.X52	DA1	
3	3/4"	PIPE NIPPLE SCH.80 100mm LONG PE SMLS	8	API 5L GR.X52	DA1	
4	8"	BARRED TEE. SCH.80 BW	1	MSS SP-75 Gr.WPHY 52	DA1	
5	3/4"	EQL. TEE 9000# S.W	2	ASTM A-694 Gr. F52	DA1	
6	8"x2"	WELDOLET, BW SCH.80	2	ASTM A-694 Gr. F52	DA1	
7	8"x1"	SOCKOLET, 9000# SW	1	ASTM A-694 Gr. F52	DA1	
8	8"x3/4"	SOCKOLET, 9000# SW	2	ASTM A-694 Gr. F52	DA1	
9	8"x4"	RED BARRED TEE. SCH.80 X SCH.40 BW	1	MSS SP-75 Gr.WPHY 52	DA1	
10	8"	W.N. FLANGE RTJ. SCH.80 BW 900#.	3	ASTM A-694 Gr. F52	DA1	
11	2"	W.N. FLANGE RTJ. SCH.80 BW 900#.	2	ASTM A-694 Gr. F52	DA1	
12	1"	S.W FLANGE RTJ. 1500#.	1	ASTM A-694 Gr. F52	DA1	
13	3/4"	S.W FLANGE RTJ. 1500#.	4	ASTM A-694 Gr. F52	DA1	
14	2"	BLIND FLANGE RTJ. 900#.	1	ASTM A-694 Gr. F52	DA1	
15	1"	BLIND FLANGE RTJ. 1500#.	1	ASTM A-694 Gr. F52	DA1	
16	3/4"	BLIND FLANGE RTJ. 1500#.	2	ASTM A-694 Gr. F52	DA1	
17	3/4"	BLIND FLANGE RTJ. 1500#, WITH 1/2" NPT TAPPING BORE	2	ASTM A-694 Gr. F52	-	
18	8"	BALL VALVE RTJ. 900#	2	SEE TAG NO. VB-108	DA1	
19	2"	BALL VALVE RTJ. 900#	1	SEE TAG NO. VB-107	DA1	
20	1"	BALL VALVE RTJ. 1500#	1	SEE TAG NO. VB-111	DA1	
21	3/4"	BALL VALVE RTJ. 1500#	6	SEE TAG NO. VB-111	DA1	
22	2"	GLOBE VALVE RTJ. 900#	1	SEE TAG NO. VGL-104	DA1	
23	8"	OCTAGONAL RING, 900# R-49	3	316L S.S.	DA1	
24	2"	OCTAGONAL RING, 900# R-24	4	316L S.S.	DA1	
25	1"	OCTAGONAL RING, 1500# R-16	2	316L S.S.	DA1	
26	3/4"	OCTAGONAL RING, 1500# R-14	12	316L S.S.	DA1	
27	1 3/8"	LG STUD BOLTS C/W 2 NUTS 220mm LONG	36	ASTM A 193 Gr. B7M CADMIUM PLATED ASTM A 194 Gr. 2HM CADMIUM PLATED	DA1	
28	7/8"	LG STUD BOLTS C/W 2 NUTS 145mm LONG	32	ASTM A 193 Gr. B7M CADMIUM PLATED ASTM A 194 Gr. 2HM CADMIUM PLATED	DA1	
29	7/8"	LG STUD BOLTS C/W 2 NUTS 125mm LONG	8	ASTM A 193 Gr. B7M CADMIUM PLATED ASTM A 194 Gr. 2HM CADMIUM PLATED	DA1	
30	3/4"	LG STUD BOLTS C/W 2 NUTS 115mm LONG	48	ASTM A 193 Gr. B7M CADMIUM PLATED ASTM A 194 Gr. 2HM CADMIUM PLATED	DA1	
31	8"	INSULATION JOINT, 900#	1	ASTM A-694 Gr. F52	-	

**NOTES:**

1. ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED.
2. ALL DIMENSIONS, ELEVATIONS AND ORIENTATIONS TO BE VERIFIED BY THE CONTRACTOR BEFORE UNDERTAKING ANY KIND OF FABRICATION, CONSTRUCTION AND INSTALLATION
3. PROVISION FOR FLOWLINE PURGING AND DEPRESSURIZING.

0	09-12-17	ISSUED FOR REVIEW	AHK	SHAH		
REV.	DATE	DESCRIPTION	DRAWN	CHK'D	APP'VD	APP'VD
			CONSULTANT		CLIENT	

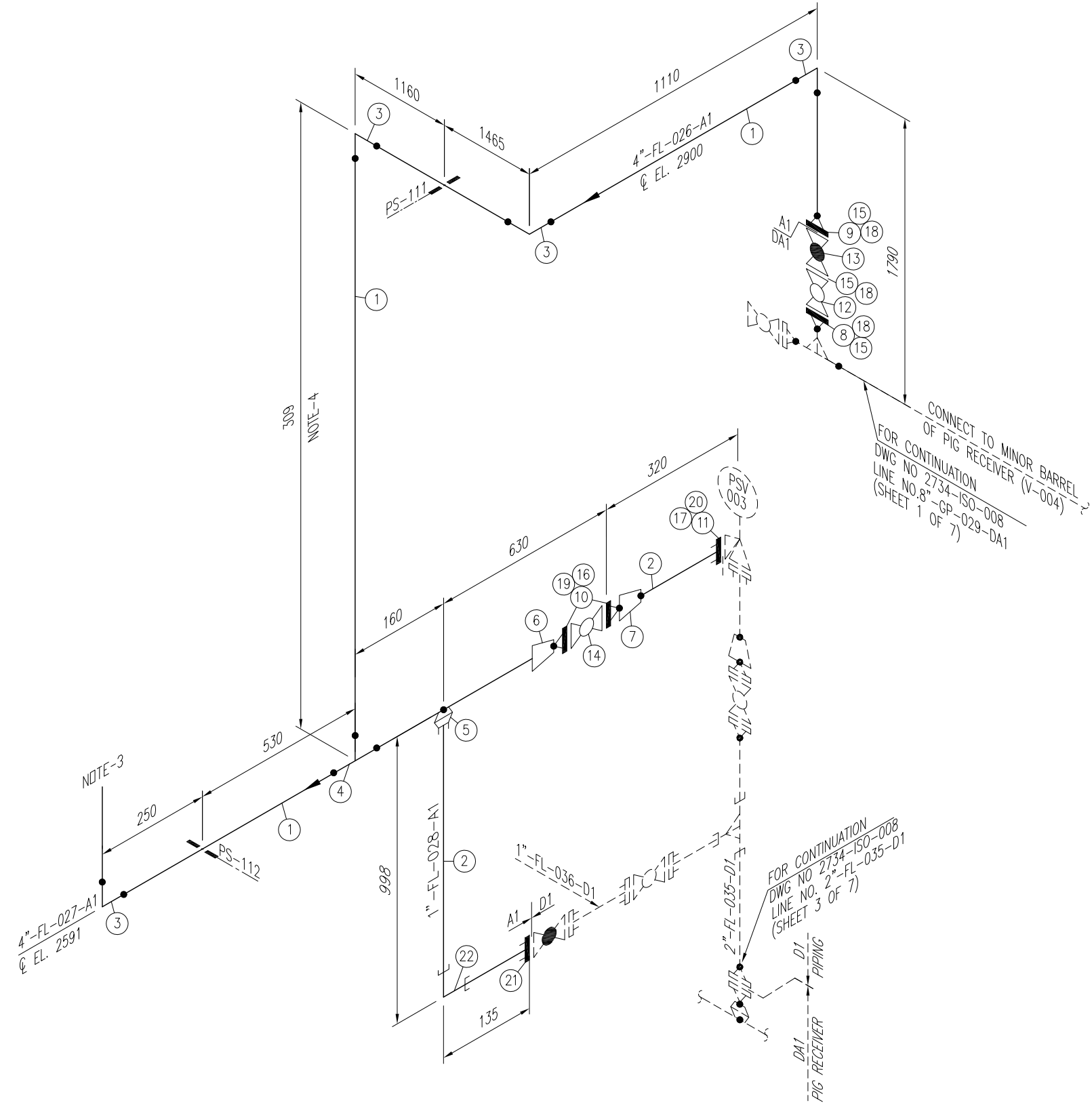
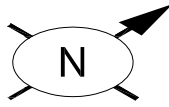
**PG PETROCHEMICAL ENGINEERING CONSULTANTS**  
 C-2, BLOCK NO. 17, GULSHAN-E-IQBAL, NEAR NATIONAL STADIUM, KARACHI-75300, PAKISTAN.  
 TEL. +92 (21) 34827780, 34961088, FAX: +92 21 34961089, E-Mail: contact@ppec.com.pk web site: www.ppec.com.pk

CLIENT: **OIL & GAS DEVELOPMENT COMPANY LTD.**

PROJECT: **DEVELOPMENT OF CHABARO-1 WELLHEAD**

TITLE: **PIPING ISOMETRIC PIG RECEIVER (V-004) AT GUNDANWARI-1 LINE No. 8"-GP-029-DA1**

DRAWING NO.	SHEET	SCALE	REV.
<b>2734-ISO-008</b>	NO. OF	N.T.S.	0
	1	7	A3

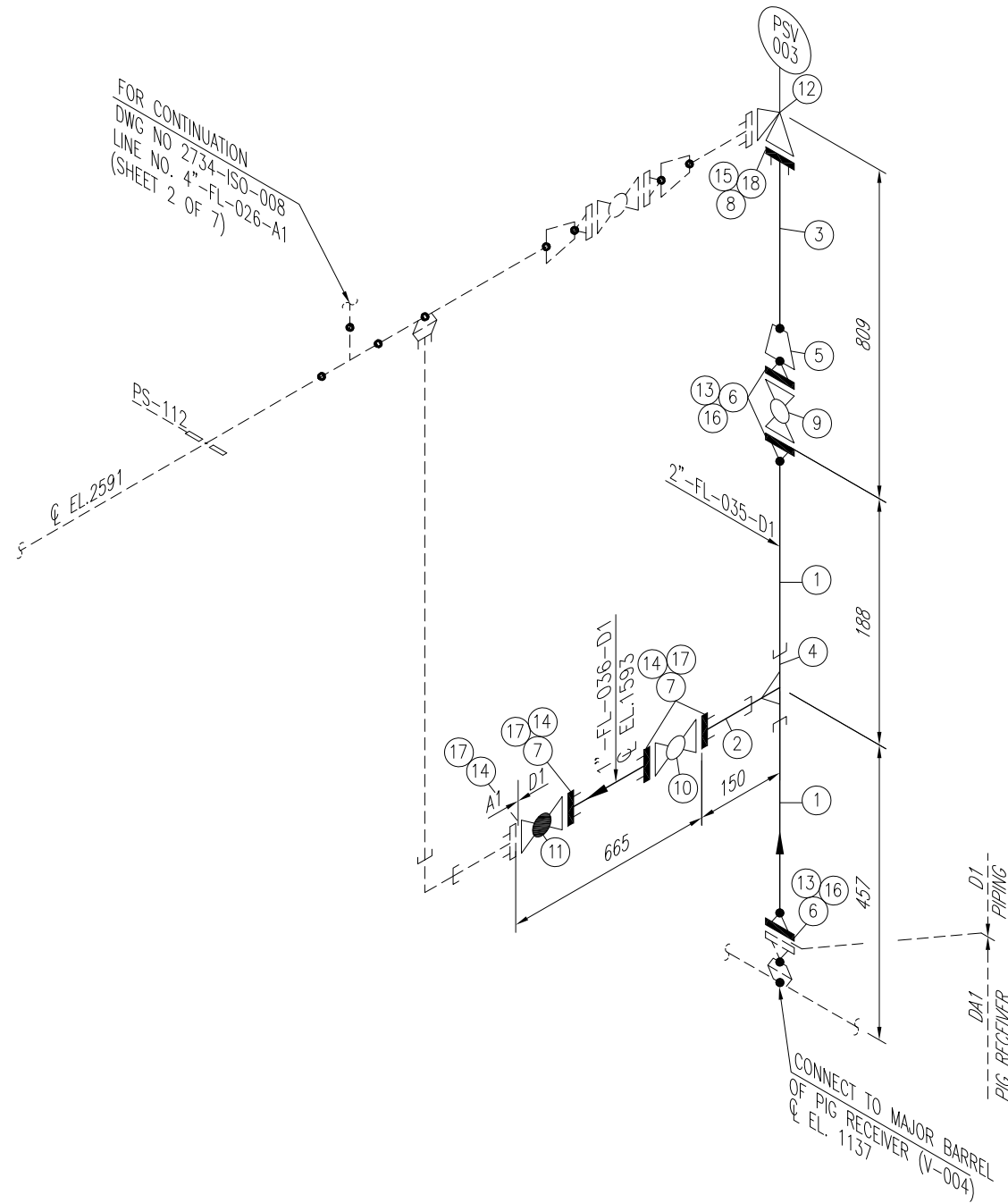
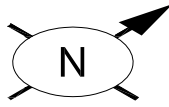


Sr. NO.	SIZE	DESCRIPTION	QTY.	MATERIAL	(MAT. SPEC)	REMARKS
1	4"	PIPE SCH.40 BE SMLS	5.5M	ASTM A-106 Gr.B	A1	
2	1"	PIPE SCH.40 SMLS, BE	1.4M	ASTM A-106 Gr.B	A1	
3	4"	ELBOW 90° LR B.W SCH.40 BE	4	ASTM A-234 Gr. WPB	A1	
4	4"	EQUAL TEE SCH.40 BW	1	ASTM A-234 Gr. WPB	A1	
5	4"x1"	SOCKOLET 3000# S.W	1	ASTM A-105	A1	
6	4"x2"	CONC. RED. SCH.40 BW.	1	ASTM A-234 Gr. WPB	A1	
7	2"x1"	CONC. RED. SCH.40 BW.	1	ASTM A-234 Gr. WPB	A1	
8	4"	W.N. FLANGE RTJ. SCH.40 BW 900#.	1	ASTM A-694 Gr. F52	DA1	
9	4"	W.N. FLANGE RTJ. SCH.40 BW 900#.	1	ASTM A-105	-	
10	2"	W.N FLANGE RF. 150#, SCH.40 BW	2	ASTM A-105	A1	
11	1"	S.W FLANGE RTJ. 300#.	1	ASTM A-105	-	
12	4"	BALL VALVE RTJ. 900#	1	SEE TAG NO. VB-107	DA1	
13	4"	GLOBE VALVE RTJ. 900#	1	SEE TAG NO. VGL-104	DA1	
14	2"	BALL VALVE RF. 150#	1	SEE TAG NO. VB-101	A1	
15	4"	OCTAGONAL RING, 900# R-37	3	316L S.S.	-	
16	2"	GASKET 150# 3mm THICK COMPRESSED GRAPHITE FILLED, SPIRAL WOUND 304 SS CENTRAL RING AS PER ASME B-16.20	2	304 S.S.	A1	
17	1"	OCTAGONAL RING, 300# R-16	1	316L S.S.	-	
18	1 1/8"	LG STUD BOLTS C/W 2 NUTS 170mm LONG	24	ASTM A 193 Gr. B7M CADMIUM PLATED ASTM A 194 Gr. 2HM CADMIUM PLATED	-	
19	5/8"	LG STUD BOLTS C/W 2 NUTS 85mm LONG	8	ASTM A 193 Gr. B7M CADMIUM PLATED ASTM A 194 Gr. 2HM CADMIUM PLATED	A1	
20	5/8"	LG STUD BOLTS C/W 2 NUTS 90mm LONG	4	ASTM A 193 Gr. B7M CADMIUM PLATED ASTM A 194 Gr. 2HM CADMIUM PLATED	-	
21	1"	S.W FLANGE RTJ, 1500#	1	ASTM A-105	-	
22	1"	ELBOW. 90° 3000# S.W	1	ASTM A-105	A1	

**NOTES:**

1. ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED.
2. ALL DIMENSIONS, ELEVATIONS AND ORIENTATIONS TO BE VERIFIED BY THE CONTRACTOR BEFORE UNDERTAKING ANY KIND OF FABRICATION, CONSTRUCTION AND INSTALLATION
3. VENT AT SAFE LOCATION ATLEAST 3.0 M FROM THE HIGHEST POINT OF STRUCTURE / PLATFORM.
4. ELEVATION TO BE ADJUSTED AS PER SITE REQUIREMENT.

0	09-12-17	ISSUED FOR REVIEW	AHK	SHAH		
REV.	DATE	DESCRIPTION	DRAWN	CHK'D	APP'VD	APP'VD
			CONSULTANT		CLIENT	
<b>PEC PETROCHEMICAL ENGINEERING CONSULTANTS</b> C-2, BLOCK NO. 17, GULSHAN-E-IQBAL, NEAR NATIONAL STADIUM, KARACHI-75300, PAKISTAN. TEL. +92 (21) 34827780, 34961088, FAX: +92 21 34961089, E-Mail: contact@pec.com.pk web site: www.pec.com.pk						
CLIENT <b>OIL &amp; GAS DEVELOPMENT COMPANY LTD.</b>						
PROJECT : <b>DEVELOPMENT OF CHABARO-1 WELLHEAD</b>						
TITLE : <b>PIPING ISOMETRIC PIG RECEIVER (V-004) AT GUNDANWARI-1</b> <b>LINE No. 4"-FL-026-A1, 4"-FL-027-A1, 1"-FL-028-A1</b>						
DRAWING NO.			SHEET	SCALE	REV.	
<b>2734-ISO-008</b>			NO. OF	N.T.S.	0	
			2	7	A3	



Sr. NO.	SIZE	DESCRIPTION	QTY.	MATERIAL	(MAT. SPEC)	REMARKS
1	2"	PIPE SCH.160 BE SMLS	0.3M	ASTM A-106 GR.B	D1	
2	1"	PIPE SCH.160 SMLS, PE	0.2M	ASTM A-106 GR.B	D1	
3	3/4"	PIPE SCH.160 SMLS, PE	0.2M	ASTM A-106 GR.B	D1	
4	2"x1"	RED. TEE 9000# S.W	1	ASTM A-105	D1	
5	2"x3/4"	CONG. RED. SCH.160 BW.	1	ASTM A-234 Gr. WPB	D1	
6	2"	W.N. FLANGE RTJ. SCH.160 BW 900#.	3	ASTM A-105	D1	
7	1"	S.W FLANGE RTJ. 1500#.	3	ASTM A-105	D1	
8	3/4"	S.W FLANGE RTJ. 900#.	1	ASTM A-105	-	
9	2"	BALL VALVE RTJ. 900#	1	SEE TAG NO. VB-107	D1	
10	1"	BALL VALVE RTJ. 1500#	1	SEE TAG NO. VB-111	D1	
11	1"	GLOBE VALVE RTJ. 1500#.	1	SEE TAG NO. VGL-105	D1	
12	3/4"x1"	PSV, RTJ. 900# X 300#	1	SEE DATA SHEET	-	
13	2"	OCTAGONAL RING, 900# R-24	3	316L S.S.	D1	
14	1"	OCTAGONAL RING, 1500# R-16	4	316L S.S.	-	
15	3/4"	OCTAGONAL RING, 900#, R-14	1	316L S.S.	D1	
16	7/8"	LG STUD BOLTS C/W 2 NUTS 145mm LONG	24	ASTM A 193 Gr. B7M CADMIUM PLATED ASTM A 194 Gr. 2HM CADMIUM PLATED	D1	
17	7/8"	LG STUD BOLTS C/W 2 NUTS 125mm LONG	16	ASTM A 193 Gr. B7M CADMIUM PLATED ASTM A 194 Gr. 2HM CADMIUM PLATED	D1	
18	3/4"	LG STUD BOLTS C/W 2 NUTS 115mm LONG	4	ASTM A 193 Gr. B7M CADMIUM PLATED ASTM A 194 Gr. 2HM CADMIUM PLATED	-	

**NOTES:**

1. ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED.
2. ALL DIMENSIONS, ELEVATIONS AND ORIENTATIONS TO BE VERIFIED BY THE CONTRACTOR BEFORE UNDERTAKING ANY KIND OF FABRICATION, CONSTRUCTION AND INSTALLATION

0	09-12-17	ISSUED FOR REVIEW	AHK	SHAH		
REV.	DATE	DESCRIPTION	DRAWN	CHK'D	APP'VD	APP'VD
			CONSULTANT		CLIENT	

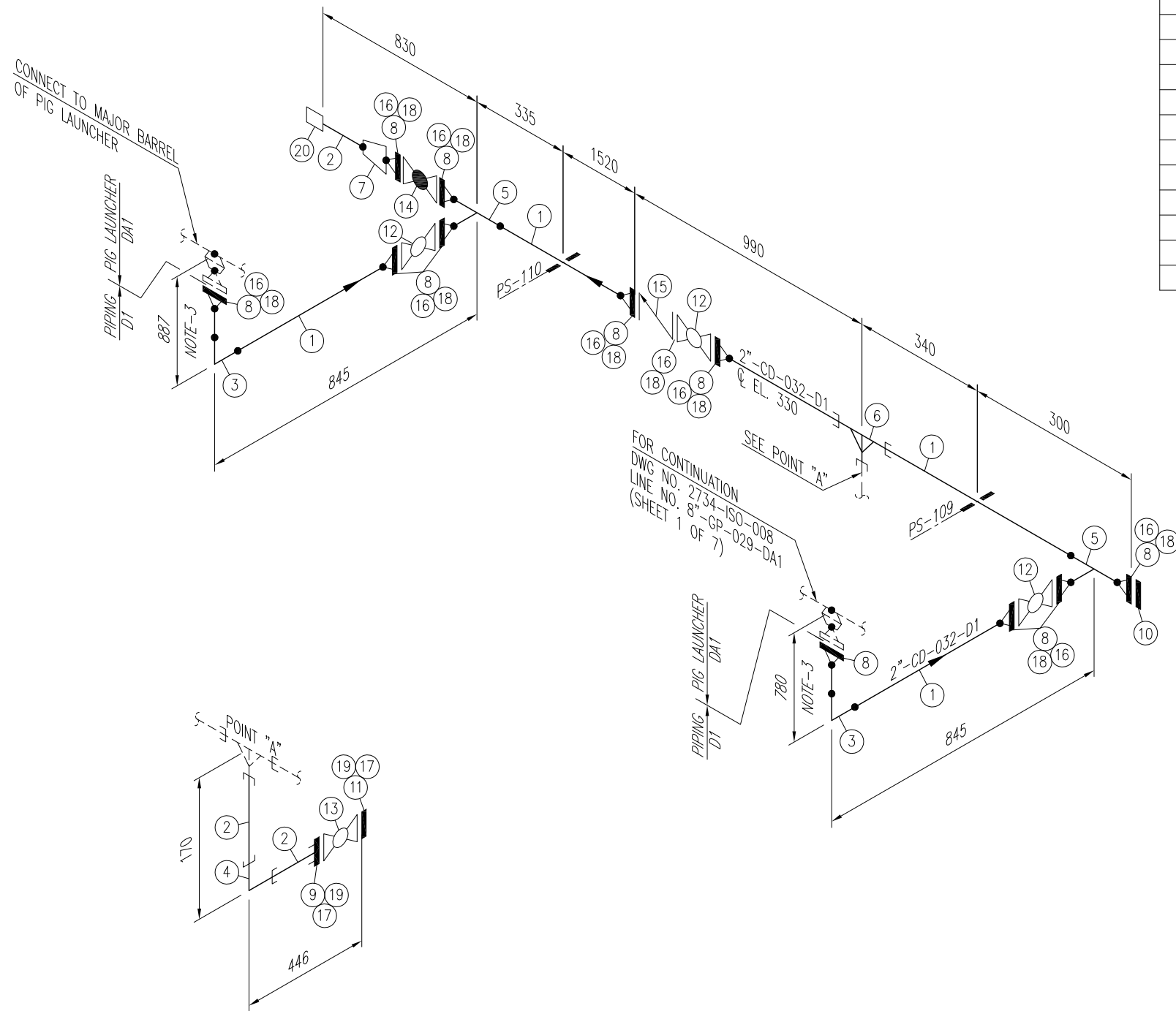
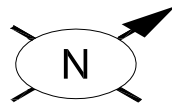
**PC PETROCHEMICAL ENGINEERING CONSULTANTS**  
 C-2, BLOCK NO. 17, GULSHAN-E-IQBAL, NEAR NATIONAL STADIUM, KARACHI-75300, PAKISTAN.  
 TEL. +92 (21) 34827780, 34961088, FAX: +92 21 34961089, E-Mail: contact@pcec.com.pk web site: www.pcec.com.pk

CLIENT: **OIL & GAS DEVELOPMENT COMPANY LTD.**

PROJECT: **DEVELOPMENT OF CHABARO-1 WELLHEAD**

TITLE: **PIPING ISOMETRIC  
 PIG RECEIVER (V-004) AT GUNDANWARI-1  
 LINE No. 2"-FL-035-D1, 1"-FL-036-D1**

DRAWING NO.	SHEET	SCALE	REV.
<b>2734-ISO-008</b>	NO. OF	N.T.S.	0
	3	7 A3	



Sr. NO.	SIZE	DESCRIPTION	QTY.	MATERIAL	(MAT. SPEC)	REMARKS
1	2"	PIPE SCH.160 BE SMLS	4.3M	ASTM A-106 GR.B	D1	
2	1"	PIPE SCH.160 PE SMLS	0.3M	ASTM A-106 GR.B	D1	
3	2"	ELBOW 90° LR SCH.160 BW	2	ASTM A-234 Gr. WPB	D1	
4	1"	ELBOW 90° 9000# S.W	1	ASTM A-105	D1	
5	2"	EQL. TEE SCH.160 BW	2	ASTM A-234 Gr. WPB	D1	
6	2"x1"	RED. TEE 9000# SW	1	ASTM A-105	D1	
7	2"x1"	CONC. RED. SCH.160 BW.	1	ASTM A-234 Gr. WPB	D1	
8	2"	W.N. FLANGE RTJ. SCH.160 BW 900#.	11	ASTM A-105	D1	
9	1"	S.W FLANGE RTJ. 1500#.	1	ASTM A-105	D1	
10	2"	BLIND FLANGE RTJ. 900#.	1	ASTM A-105	D1	
11	1"	BLIND FLANGE RTJ. 1500#.	1	ASTM A-105	D1	
12	2"	BALL VALVE RTJ. 900#.	3	SEE TAG NO. VB-107	D1	
13	1"	BALL VALVE RTJ. 1500#.	1	SEE TAG NO. VB-111	D1	
14	2"	GLOBE VALVE RTJ. 900#.	1	SEE TAG NO. VGL-104	D1	
15	2"	CHECK VALVE RTJ. 900#.	1	SEE TAG NO. VC-104	D1	
16	2"	OCTAGONAL RING, 900# R-24	11	316L S.S.	D1	
17	1"	OCTAGONAL RING, 1500# R-16	2	316L S.S.	D1	
18	7/8"	LG STUD BOLTS C/W 2 NUTS 145mm LONG	88	ASTM A 193 Gr. B7M CADMIUM PLATED ASTM A 194 Gr. 2HM CADMIUM PLATED	D1	
19	7/8"	LG STUD BOLTS C/W 2 NUTS 125mm LONG	8	ASTM A 193 Gr. B7M CADMIUM PLATED ASTM A 194 Gr. 2HM CADMIUM PLATED	D1	
20	1"	HOSE COUPLING 9000#	1	ASTM A-105	D1	

**NOTES:**

1. ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED.
2. ALL DIMENSIONS, ELEVATIONS AND ORIENTATIONS TO BE VERIFIED BY THE CONTRACTOR BEFORE UNDERTAKING ANY KIND OF FABRICATION, CONSTRUCTION AND INSTALLATION
3. ELEVATION TO BE ADJUSTED AS PER SITE REQUIREMENT.

0	09-12-17	ISSUED FOR REVIEW	AHK	SHAH		
REV.	DATE	DESCRIPTION	DRAWN	CHK'D	APP'VD	APP'VD
			CONSULTANT		CLIENT	

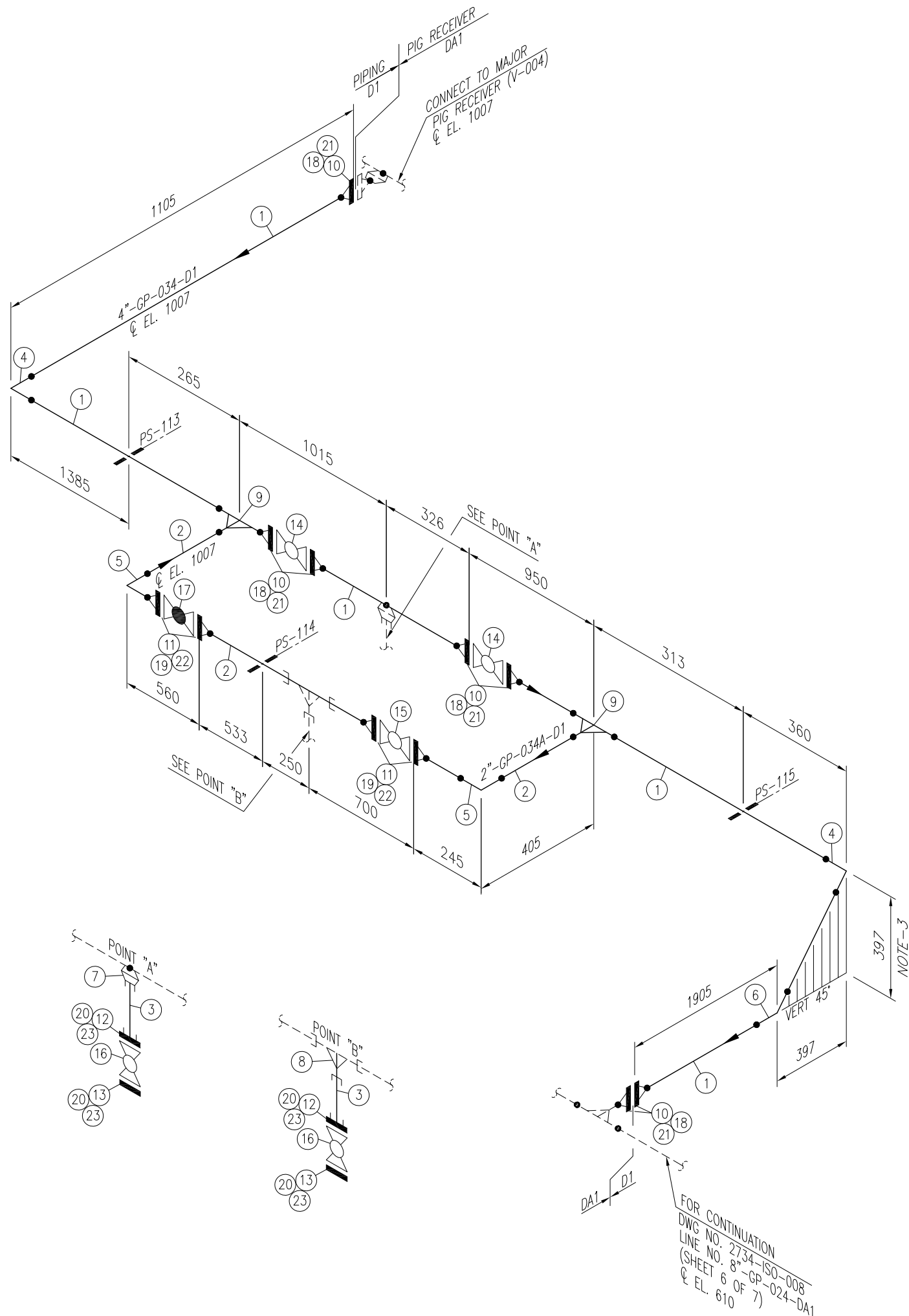
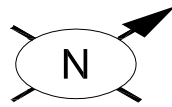
**PG PETROCHEMICAL ENGINEERING CONSULTANTS**  
 C-2, BLOCK NO. 17, GULSHAN-E-IQBAL, NEAR NATIONAL STADIUM, KARACHI-75300, PAKISTAN.  
 TEL: +92 (21) 34827780, 34961088, FAX: +92 21 34961089, E-Mail: contact@ppec.com.pk web site: www.ppec.com.pk

CLIENT: **OIL & GAS DEVELOPMENT COMPANY LTD.**

PROJECT: **DEVELOPMENT OF CHABARO-1 WELLHEAD**

TITLE: **PIPING ISOMETRIC  
 PIG RECEIVER (V-004) AT GUNDANWARI-1  
 LINE No. 2"-CD-032-D1**

DRAWING NO.	SHEET	SCALE	REV.
<b>2734-ISO-008</b>	NO. OF	N.T.S.	0
	4	7	A3

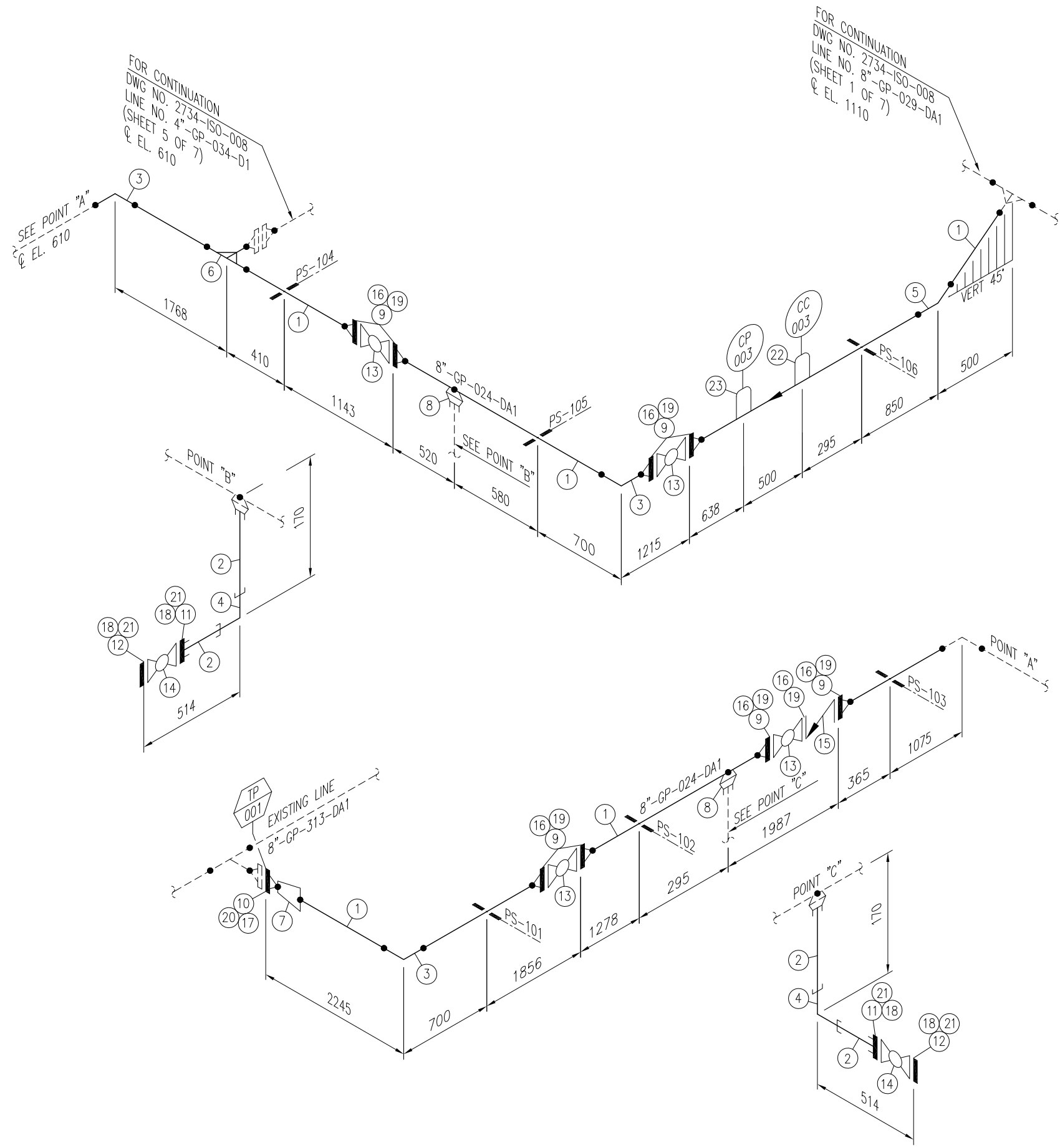
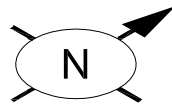


Sr. NO.	SIZE	DESCRIPTION	QTY.	MATERIAL	(MAT. SPEC)	REMARKS
1	4"	PIPE SCH.120 BE SMLS	7.9M	ASTM A-106 GR.B	D1	
2	2"	PIPE SCH.160 BE SMLS	1.5M	ASTM A-106 GR.B	D1	
3	1"	PIPE SCH.160 PE SMLS	0.2M	ASTM A-106 GR.B	D1	
4	4"	ELBOW 90° LR SCH.120 BW	2	ASTM A-234 Gr. WPB	D1	
5	2"	ELBOW 90° LR SCH.160 BW	2	ASTM A-234 Gr. WPB	D1	
6	4"	ELBOW 45° LR SCH.120 BW	1	ASTM A-234 Gr. WPB	D1	
7	4"x1"	SOCKOLET, 9000# SW	1	ASTM A-105	D1	
8	2"x1"	RED. TEE 9000# SW	1	ASTM A-105	D1	
9	4"x2"	RED. TEE SCH.120x160 BW	2	ASTM A-234 Gr. WPB	D1	
10	4"	W.N. FLANGE RTJ. SCH.120 BW 900#.	7	ASTM A-105	D1	
11	2"	W.N. FLANGE RTJ. SCH.160 BW 900#.	4	ASTM A-105	D1	
12	1"	S.W FLANGE RTJ. 1500#.	2	ASTM A-105	D1	
13	1"	BLIND FLANGE RTJ. 1500#.	2	ASTM A-105	D1	
14	4"	BALL VALVE RTJ. 900#.	2	SEE TAG NO. VB-107	D1	
15	2"	BALL VALVE RTJ. 900#.	1	SEE TAG NO. VB-107	D1	
16	1"	BALL VALVE RTJ. 1500#.	2	SEE TAG NO. VB-111	D1	
17	2"	GLOBE VALVE RTJ. 900#.	1	SEE TAG NO. VGL-104	D1	
18	4"	OCTAGONAL RING, 900# R-37	6	316L S.S.	D1	
19	2"	OCTAGONAL RING, 900# R-24	4	316L S.S.	D1	
20	1"	OCTAGONAL RING, 1500# R-16	4	316L S.S.	D1	
21	1 1/8"	LG STUD BOLTS C/W 2 NUTS 170mm LONG	32	ASTM A 193 Gr. B7M CADMIUM PLATED ASTM A 194 Gr. 2HM CADMIUM PLATED	D1	
22	7/8"	LG STUD BOLTS C/W 2 NUTS 145mm LONG	32	ASTM A 193 Gr. B7M CADMIUM PLATED ASTM A 194 Gr. 2HM CADMIUM PLATED	D1	
23	7/8"	LG STUD BOLTS C/W 2 NUTS 125mm LONG	16	ASTM A 193 Gr. B7M CADMIUM PLATED ASTM A 194 Gr. 2HM CADMIUM PLATED	D1	

**NOTES:**

1. ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED.
2. ALL DIMENSIONS, ELEVATIONS AND ORIENTATIONS TO BE VERIFIED BY THE CONTRACTOR BEFORE UNDERTAKING ANY KIND OF FABRICATION, CONSTRUCTION AND INSTALLATION
3. ELEVATION TO BE ADJUSTED AS PER SITE REQUIREMENT.

0	09-12-17	ISSUED FOR REVIEW	AHK	SHAH		
REV.	DATE	DESCRIPTION	DRAWN	CHK'D	APP'VD	APP'VD
			CONSULTANT		CLIENT	
<b>PEC PETROCHEMICAL ENGINEERING CONSULTANTS</b> C-2, BLOCK NO. 17, GULSHAN-E-IQBAL, NEAR NATIONAL STADIUM, KARACHI-75300, PAKISTAN. TEL. +92 (21) 34827780, 34961088, FAX: +92 21 34961089, E-Mail: contact@pec.com.pk web site: www.pec.com.pk						
CLIENT <b>OIL &amp; GAS DEVELOPMENT COMPANY LTD.</b>						
PROJECT : <b>DEVELOPMENT OF CHABARO-1 WELLHEAD</b>						
TITLE : <b>PIPING ISOMETRIC PIG RECEIVER (V-004) AT GUNDANWARI-1 LINE No. 4"-GP-034-D1, 2"-GP-034A-D1</b>						
DRAWING NO.			SHEET	SCALE	REV.	
<b>2734-ISO-008</b>			NO. OF	N.T.S.	0	
			5	7	A3	

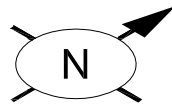


Sr. NO.	SIZE	DESCRIPTION	QTY.	MATERIAL	(MAT. SPEC)	REMARKS
1	8"	PIPE SCH.80 BE SMLS	10.8M	API 5L GR.X52	DA1	
2	1"	PIPE SCH.80 PE SMLS	0.2M	API 5L GR.X52	DA1	
3	8"	ELBOW 90° LR SCH.80 BW	3	MSS SP-75 Gr.WPHY 52	DA1	
4	1"	ELBOW 90° 9000# S.W	2	ASTM A-694 Gr. F52	DA1	
5	8"	ELBOW 45° LR SCH.80 BW	1	MSS SP-75 Gr.WPHY 52	DA1	
6	8"x4"	RED. TEE SCH.80x40 BW	1	MSS SP-75 Gr.WPHY 52	DA1	
7	8"x6"	CON REDUCER. SCH.80 BW	1	MSS SP-75 Gr.WPHY 52	DA1	
8	8"x1"	SOCKOLET, 9000# SW	2	ASTM A-694 Gr. F52	DA1	
9	8"	W.N. FLANGE RTJ. 900#. SCH.80 BW	8	ASTM A-694 Gr. F52	DA1	
10	6"	W.N. FLANGE RTJ. 900#. SCH.80 BW	1	ASTM A-694 Gr. F52	DA1	
11	1"	S.W FLANGE RTJ. 1500#.	2	ASTM A-694 Gr. F52	DA1	
12	1"	BLIND FLANGE RTJ. 1500#.	2	ASTM A-694 Gr. F52	DA1	
13	8"	BALL VALVE RTJ. 900#.	4	SEE TAG NO. VB-108	DA1	
14	1"	BALL VALVE RTJ. 1500#.	2	SEE TAG NO. VB-111	DA1	
15	8"	CHECK VALVE RTJ. 900#.	1	SEE TAG NO. VC-104	DA1	
16	8"	OCTAGONAL RING, 900# R-49	9	316L S.S.	DA1	
17	6"	OCTAGONAL RING, 900# R-45	1	316L S.S.	DA1	
18	1"	OCTAGONAL RING, 1500# R-16	4	316L S.S.	DA1	
19	1 3/8"	LG STUD BOLTS C/W 2 NUTS 220mm LONG	108	ASTM A 193 Gr. B7M CADMIUM PLATED ASTM A 194 Gr. 2HM CADMIUM PLATED	DA1	
20	1 1/8"	LG STUD BOLTS C/W 2 NUTS 195mm LONG	12	ASTM A 193 Gr. B7M CADMIUM PLATED ASTM A 194 Gr. 2HM CADMIUM PLATED	DA1	
21	7/8"	LG STUD BOLTS C/W 2 NUTS 125mm LONG	16	ASTM A 193 Gr. B7M CADMIUM PLATED ASTM A 194 Gr. 2HM CADMIUM PLATED	DA1	
22	2"	HYDRAULIC FITTING (CORROSION COUPON)	1	ASTM A-694 Gr. F52	-	
23	2"	HYDRAULIC FITTING (CORROSION PROBE)	1	ASTM A-694 Gr. F52	-	

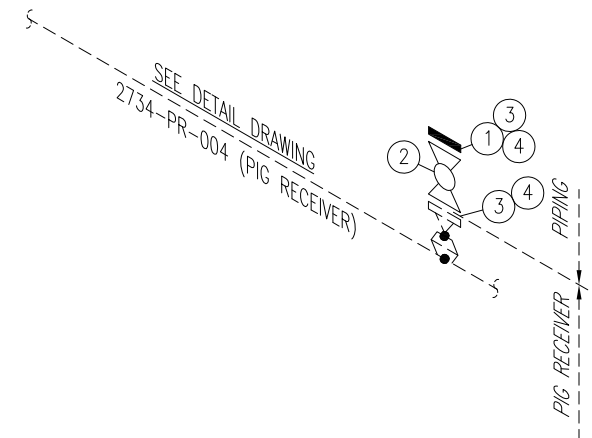
**NOTES:**

1. ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED.
2. ALL DIMENSIONS, ELEVATIONS AND ORIENTATIONS TO BE VERIFIED BY THE CONTRACTOR BEFORE UNDERTAKING ANY KIND OF FABRICATION, CONSTRUCTION AND INSTALLATION

0	09-12-17	ISSUED FOR REVIEW	AHK	SHAH		
REV.	DATE	DESCRIPTION	DRAWN	CHK'D	APP'VD	APP'VD
			CONSULTANT		CLIENT	
<b>PETROCHEMICAL ENGINEERING CONSULTANTS</b> C-2, BLOCK NO. 17, GULSHAN-E-IQBAL, NEAR NATIONAL STADIUM, KARACHI-75300, PAKISTAN. TEL: +92 (21) 34827780, 34961088, FAX: +92 21 34961089, E-Mail: contact@pec.com.pk web site: www.pec.com.pk						
CLIENT <b>OIL &amp; GAS DEVELOPMENT COMPANY LTD.</b>						
PROJECT : <b>DEVELOPMENT OF CHABARO-1 WELLHEAD</b>						
TITLE : <b>PIPING ISOMETRIC PIG RECEIVER (V-004) AT GUNDANWARI-1 LINE No. 8"-GP-024-DA1</b>						
DRAWING NO.			SHEET	SCALE	REV.	
<b>2734-ISO-008</b>			NO. OF	N.T.S.	0	
			6	7	A3	



Sr. NO.	SIZE	DESCRIPTION	QTY.	MATERIAL	(MAT. SPEC)	REMARKS
1	2"	BLIND FLANGE RTJ. 900#,	1	ASTM A-694 Gr. F52	DA1	
2	2"	BALL VALVE RTJ. 900#,	1	SEE TAG NO. VB-107	DA1	
3	2"	OCTAGONAL RING, 900# R-24	2	316L S.S.	DA1	
4	7/8"	LG STUD BOLTS C/W 2 NUTS 145mm LONG	16	ASTM A 193 Gr. B7M CADMIUM PLATED ASTM A 194 Gr. 2HM CADMIUM PLATED	DA1	



**NOTES:**

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0	09-12-17	ISSUED FOR REVIEW	AHK	SHAH		
REV.	DATE	DESCRIPTION	DRAWN	CHK'D	APP'VD	APP'VD
			CONSULTANT		CLIENT	
<b>PETROCHEMICAL ENGINEERING CONSULTANTS</b> <small>C-2, BLOCK NO. 17, GULSHAN-E-IQBAL, NEAR NATIONAL STADIUM, KARACHI-75300, PAKISTAN.          TEL: +92 (21) 34827780, 34961088, FAX: +92 21 34961089, E-Mail: contact@pec.com.pk web site: www.pec.com.pk</small>						
CLIENT <b>OIL &amp; GAS DEVELOPMENT COMPANY LTD.</b>						
PROJECT : <b>DEVELOPMENT OF CHABARO-1 WELLHEAD</b>						
TITLE : <b>PIPING ISOMETRIC PIG RECEIVER (V-004) AT GUNDANWARI-1 2" CONNECTION</b>						
DRAWING NO.			SHEET	SCALE	REV.	
<b>2734-ISO-008</b>			NO. OF	N.T.S.	0	
			7	7	A3	

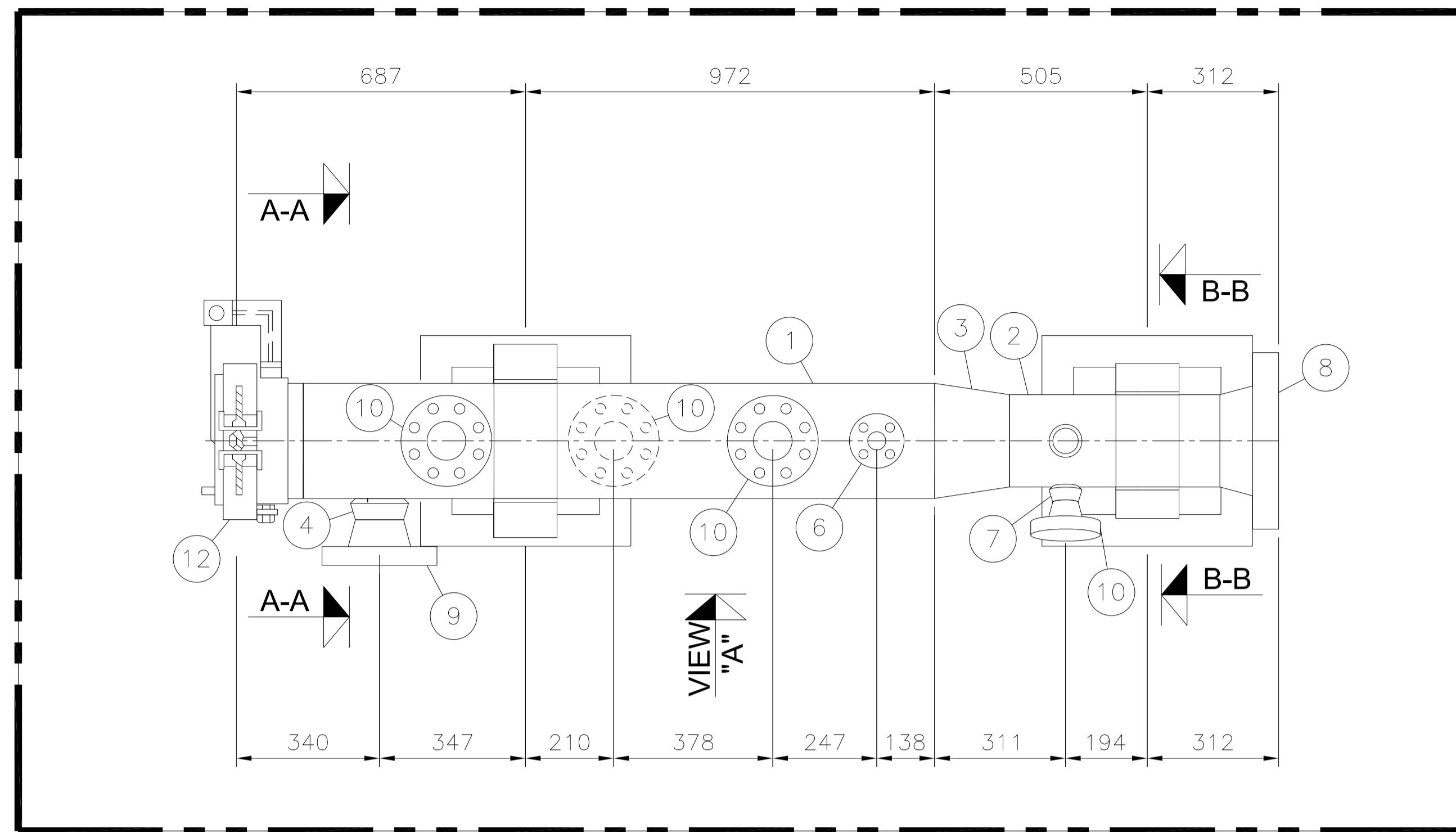




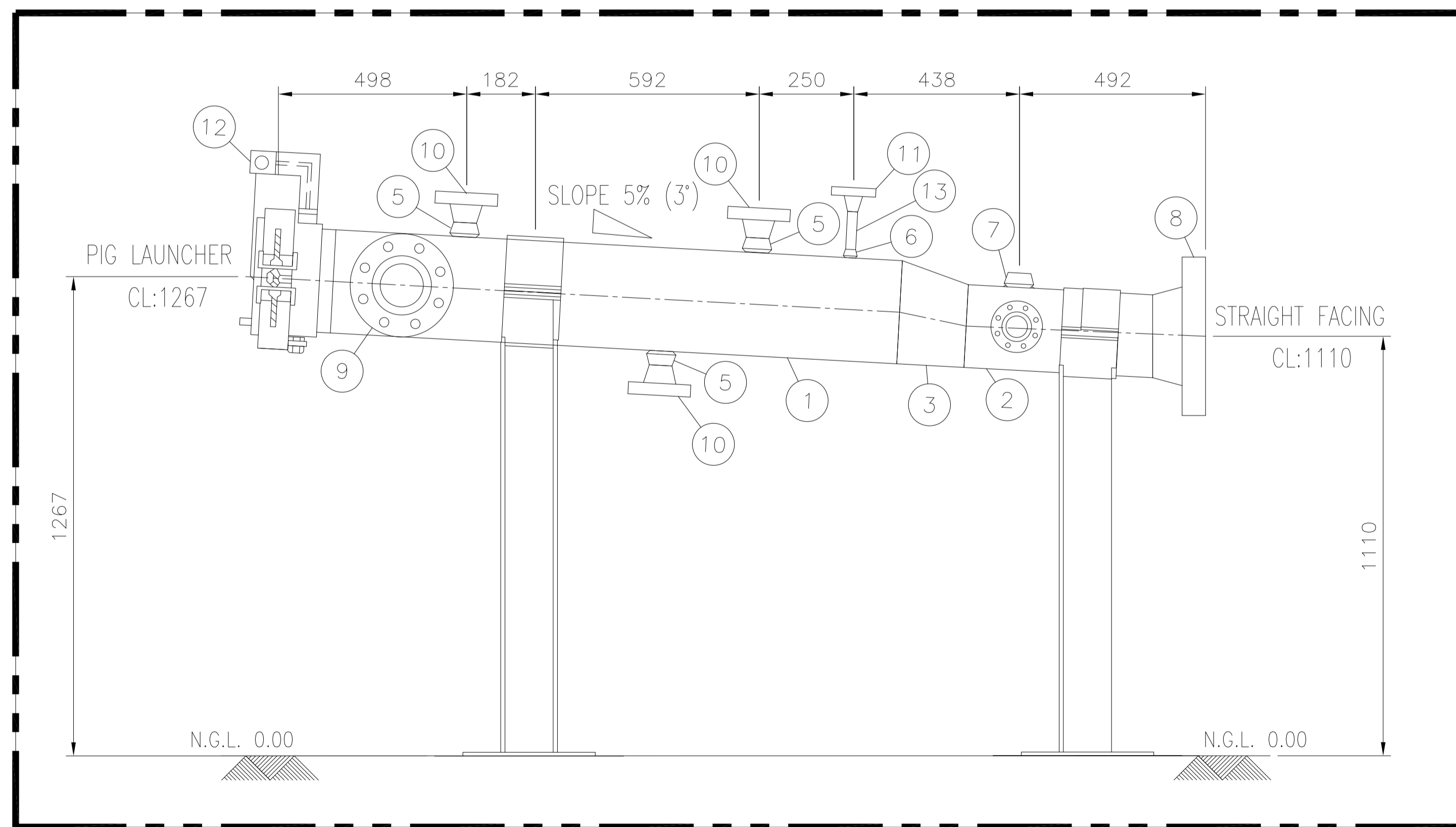
# **DETAIL DRAWING OF CHABARO-1 PIG LAUNCHER (V-003)**

### BILL OF MATERIAL

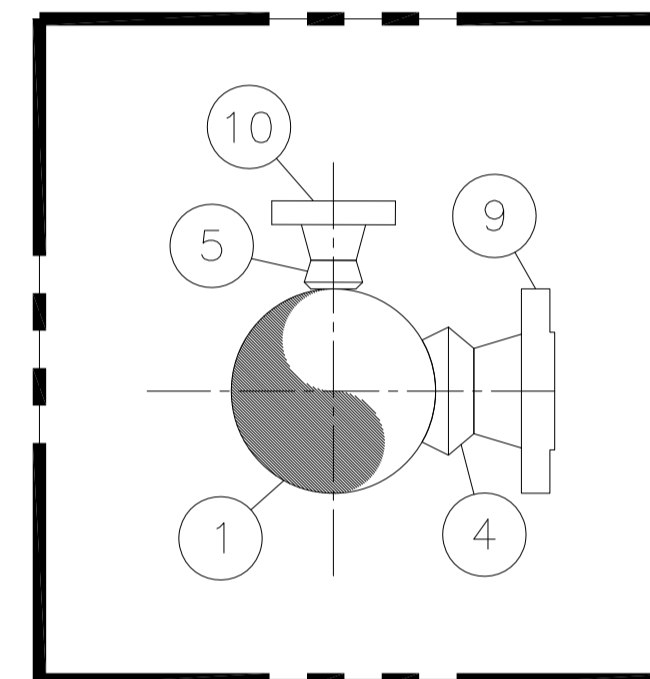
Sr.NO.	SIZE	DESCRIPTION	QTY.	(MAT. SPEC)	UNIT WEIGHT kg/piece	TOTAL WEIGHT kg
1	10"	PIPE SMLS, SCH. 80, API-5L GR.X52 BE	1.5M	-		
2	8"	PIPE SMLS, SCH. 80, API-5L GR.X52 BE	0.5M	DA1		
3	10"x8"	REDUCER, ECC. SCH. 80, BW. MSS SP-75 Gr.WPHY 52	1	-		
4	10"x4"	WELDOLET, BW SCH. 80x40, ASTM A-694 Gr-F52	1	-		
5	10"x2"	WELDOLET, BW SCH.80, ASTM A-694 Gr-F52	3	-		
6	10"x3/4"	SOCKOLET, SW 9000# ASTM A-694-Gr.F52	1	-		
7	8"x2"	WELDOLET, BW SCH.80, ASTM A-694 Gr-F52	2	DA1		
8	8"	FLG, WN 900# RTJ, SCH.80 ASTM A-694 Gr-F52	1	DA1		
9	4"	FLG, WN 900# RTJ, SCH. 40 ASTM A-694 Gr-F52	1	DA1		
10	2"	FLG, WN 900# RTJ, SCH. 80 ASTM A-694 Gr-F52	4	DA1		
11	3/4"	FLG, SW 1500# RTJ, ASTM A-694 Gr-F52	1	DA1		
12	10"	QUICK CLOSURE	1	-		
13	3/4"	PIPE NIPPLE SCH.80 100mm LONG PE SMLS, API 5L GR.X52	1	DA1		



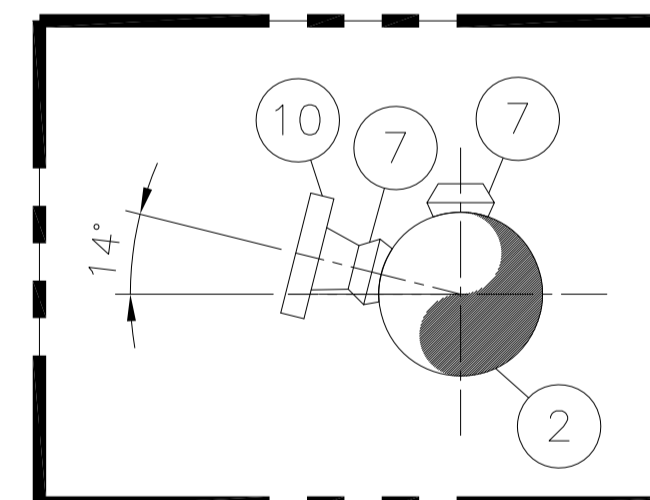
**PLAN VIEW OF BARREL**  
SCALE 1:20



**VIEW "A"**  
SCALE 1:20



**SECTION A-A**  
SCALE 1:20



**SECTION B-B**  
SCALE 1:20

**NOTE:-**

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2. ALL DIMENSIONS, ELEVATIONS AND ORIENTATIONS TO BE VERIFIED BY THE CONTRACTOR BEFORE UNDERTAKING ANY KIND OF FABRICATION, CONSTRUCTION AND INSTALLATION WORK AT SITE.

0	08-12-2017	ISSUED FOR REVIEW	AHK	SHAH
REV.	DATE	DESCRIPTION OF REVISION	PREP'D:	CHECK APPR.

**PC PETROCHEMICAL ENGINEERING CONSULTANTS**  
C-2, BLOCK NO. 17, GULSHAN-E-IOBAL, NEAR NATIONAL STADIUM, KARACHI-75300, PAKISTAN.  
TEL: +92 (21) 34827780, 34961088, FAX: +92 21 34961089, E-Mail: contact@pcec.com.pk web site: www.pcec.com.pk

CLIENT : **OIL & GAS DEVELOPMENT COMPANY LTD.**

PROJECT : **DEVELOPMENT OF CHABARO-1 WELLHEAD**

TITLE : **GENERAL ARRANGEMENT Ø8" PIG LAUNCHER 900# (V-003)**

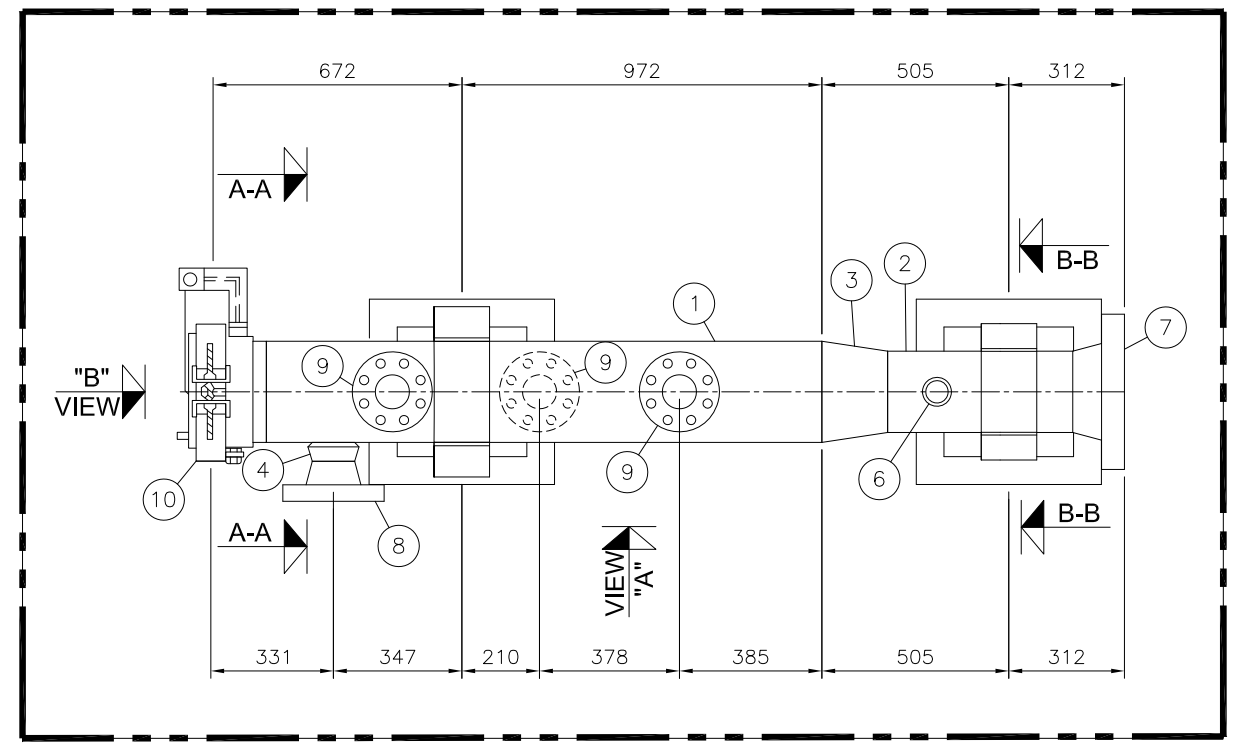
JOB NO	DRAWING NO	SHEET NO	SCALE	SHEET SIZE	REV
2734	2734-PL-002	1 OF 1	1:20	A3	0

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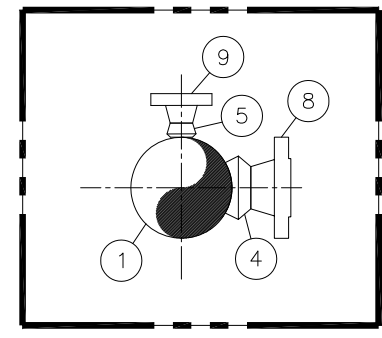
# **DETAIL DRAWING OF CHABARO-1 PIG RECEIVER (V-004) AT GUNDANWARI-1**

BILL OF MATERIAL

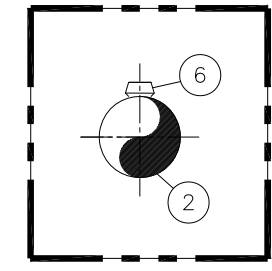
Sr.NO.	SIZE	DESCRIPTION	QTY.	(MAT. SPEC)	UNIT WEIGHT kg/piece	TOTAL WEIGHT kg
1	10"	PIPE SMLS, SCH. 80, API-5L GR.X52 BE	1.5M	-		
2	8"	PIPE SMLS, SCH. 80, API-5L GR.X52 BE	0.5M	DA1		
3	10"x8"	REDUCER, CONC. SCH. 80, BW. MSS SP-75 GR.WPHY 52	1	-		
4	10"x4"	WELDOLET, BW SCH. 80x40, ASTM A-694-Gr.F52	1	DA1		
5	10"x2"	WELDOLET, BW SCH.80, ASTM A-694-Gr.F52	3	DA1		
6	8"x2"	WELDOLET, BW SCH.80, ASTM A-694-Gr.F52	1	DA1		
7	8"	FLG, WN 900# RTJ, SCH.80 ASTM A-694 Gr-F52	1	DA1		
8	4"	FLG, WN 900# RTJ, SCH.40 ASTM A-694 Gr-F52	1	DA1		
9	2"	FLG, WN 900# RTJ, SCH.80 ASTM A-694 Gr-F52	3	DA1		
10	10"	QUICK CLOSURE	1	-		



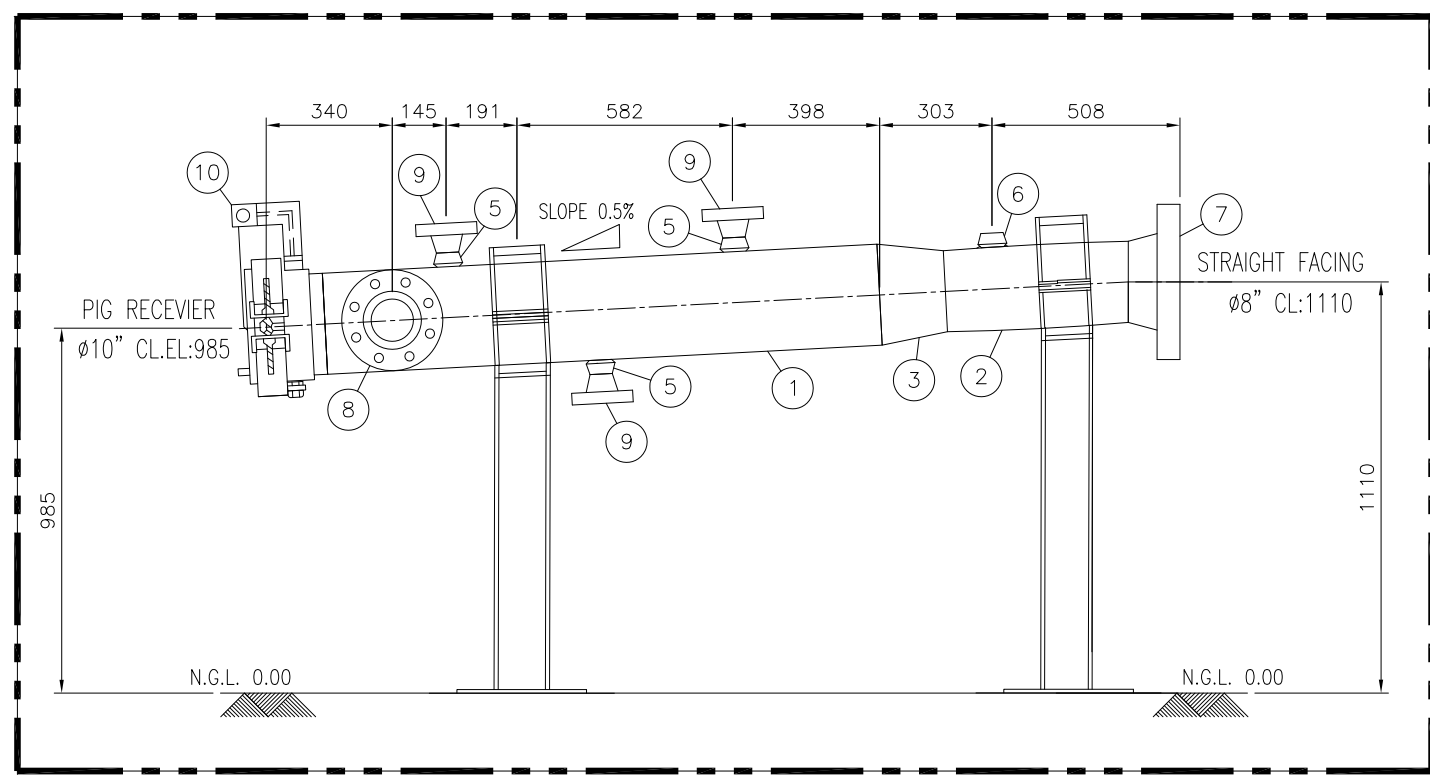
PLAN VIEW OF BARREL  
SCALE 1:20



SECTION A-A  
SCALE 1:20



SECTION B-B  
SCALE 1:20



VIEW "A"  
SCALE 1:20

NOTE:

1. ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED.
2. ALL DIMENSIONS, ELEVATIONS AND ORIENTATIONS TO BE VERIFIED BY THE CONTRACTOR BEFORE UNDERTAKING ANY KIND OF FABRICATION, CONSTRUCTION AND INSTALLATION WORK AT SITE.

0	09-12-2017	ISSUED FOR REVIEW	AHK	SHAH	
REV.	DATE	DESCRIPTION OF REVISION	PREP'D:	CHECK	APPR.

**PC PETROCHEMICAL ENGINEERING CONSULTANTS**  
C-2, BLOCK NO. 17, GULSHAN-E-IOBAL, NEAR NATIONAL STADIUM, KARACHI-75300. PAKISTAN.  
TEL: +92 (21) 34827780, 34961088, FAX: +92 21 34961089, E-Mail: contact@pcec.com.pk web site: www.pcec.com.pk

CLIENT : **OIL & GAS DEVELOPMENT COMPANY LTD.**

PROJECT : **DEVELOPMENT OF CHABARO-1 WELLHEAD**

TITLE : **GENERAL ARRANGEMENT  
Ø8" PIG RECEIVER 900# (V-004)  
(TIE IN AT WELLHEAD GUNDANWARI-1)**

JOB NO	DRAWING NO	SHEET NO	SCALE	SHEET SIZE	REV
2734	2734-PR-004	1 OF 1	1:20	A3	0

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# PIPING SPECIFICATION



**OIL & GAS DEVELOPMENT COMPANY LIMITED**



**PIPING SPECIFICATION  
A1 (Plant Piping)**

<b>SPEC. NO. :</b> 2734-01-SP-001	<b>DATE :</b> 12/6/2017	<b>Revision :</b> B	<b>Prep. By. :</b> SAR
<b>SERVICE</b> PROCESS GAS	<b>RATING</b> ASME CLASS 150	<b>CORROSION ALLOWANCE</b> 3 mm	<b>DESIGN CODE</b> ASME B31.3

PIPES			FITTINGS	
SIZE	DESIGNATION	DESCRIPTION	SIZE	DESCRIPTION
2" & 8"	Sch. 40	ASTM A106 Gr. B / API 5L Gr. B (SMLS) B.E. AS PER ASME B36.10	2" to 8"	BW, A-234 Gr. WPB AS PER ASME B16.9
1" & 1 1/2"	Sch. 40	ASTM A106 Gr. B / API 5L Gr. B (SMLS) B.E. AS PER ASME B36.10	≤ 1 1/2"	SW, A-105 AS PER ASME B16.11 6, 3000#
1/2" & 3/4"	Sch. 80	ASTM A106 Gr. B / API 5L Gr. B (SMLS) P.E. AS PER ASME B36.10		

FLANGES			BOLTS & GASKETS	
SIZE	CLASS	DESCRIPTION		
2" to 8"	150#	WN, RF, ASME B16.5, ASTM A-105	Stud Bolts	ASTM A-193 B7M, Cadmium Plated
≤ 1 1/2"	150#	SW, RF, ASME B16.5, ASTM A-105 (Note-3)	Nuts	ASTM A-194 2HM, Cadmium Plated
			Gaskets	3mm Thick Compressed Graphite Filled, Spiral Wound 304 S.S. Central Ring Per ASME B 16.20

VALVES							
	GATE	SIZE	DESCRIPTION	BALL	SIZE	DESCRIPTION	OTHERS
		≤ 1 1/2"	VG-100		≤ 1 1/2"	VB-100	
		2" to 8"	VG-101		2" to 8"	VB-101	
	CHECK	SIZE	DESCRIPTION	GLOBE	SIZE	DESCRIPTION	OTHERS
		≤ 1 1/2"	VC-100		≤ 1 1/2"	VGL-100	
		2" to 8"	VC-101		2" to 8"	VGL-101	

PRESSURE - TEMPERATURE RATING-ASME B16.5, MATERIAL GROUP 1.1									
TEMPERATURE °F		-20 to 100	212	302	392	482	572	617	662
MAX. PRESSURE Psig		284.2	256.7	229.1	200.1	175.45	147.9	134.85	121.8

<b>DESIGN CONDITIONS</b>	256.7 psig @ 212 °F	<b>HYDROSTATIC TEST PRESSURE</b>	384 psig
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BRANCH CONNECTIONS																						
BRANCH SIZE (INCH)	RUN SIZE (INCH)																					
	32	30	28	26	24	22	20	18	16	14	12	10	8	6	4	3	2	1½	1	¾	½	
½					S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
¾					S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
1					S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
1½					S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
2					W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W
3					W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W
4					W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W
6					W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W
8					W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W
10					W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W
12					W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W
14					W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W
16					W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W
18					W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W
20					W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W
22					W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W
24					W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W

- NOTES:**
- Reduced fitting thickness shall match heavier pipe wall thickness, taper to match thinner pipe wall.
  - Instrument connections shall be screwed beyond the first block valve of process piping.
  - Bore to match pipe I.D. for Welding Neck flanges.
  - All materials shall comply with NACE MR-0175 & ISO 15156.
  - Under ground piping should be coated with Zinc-Rich or Zinc Silicate primer, & apply 3 Layer Polyethylene Coted.

- LEGENDS:**
- ET = Equal Tee, Butt Welding
  - RT = Reducing Tee, Butt Welding
  - Ts = Reducing Tee, Socket Welding
  - W = Weldolet
  - S = Sockolet 3000#



**OIL & GAS DEVELOPMENT COMPANY LIMITED**

**PIPING SPECIFICATION  
D1 (Plant Piping)**



<b>SPEC. NO. :</b> 2734-01-SP-004	<b>DATE :</b> 12/6/2017	<b>Revision :</b> A	<b>Prep. By. :</b> SAR
<b>SERVICE</b> PROCESS GAS	<b>RATING</b> ASME CLASS 900	<b>CORROSION ALLOWANCE</b> 3 mm	<b>DESIGN CODE</b> ASME B31.3

PIPES			FITTINGS	
SIZE	DESIGNATION	DESCRIPTION	SIZE	DESCRIPTION
4" & 6"	Sch. 120	ASTM A106 Gr. B / API 5L Gr. B (SMLS) B.E. AS PER ASME B36.10	2" to 8"	BW, A-234 Gr. WPB AS PER ASME B16.9
3"	Sch. 80	ASTM A106 Gr. B / API 5L Gr. B (SMLS) B.E. AS PER ASME B36.10	≤ 1 1/2"	SW, A-105 AS PER ASME B16.11, 9000#
2"	Sch. 160	ASTM A106 Gr. B / API 5L Gr. B (SMLS) B.E. AS PER ASME B36.10		
≤ 1 1/2"	Sch. 160	ASTM A106 Gr. B / API 5L Gr. B (SMLS) P.E. AS PER ASME B36.10		

FLANGES			BOLTS & GASKETS	
SIZE	CLASS	DESCRIPTION		
2" to 8"	900#	WN, RTJ, ASME B16.5, ASTM A-105	Stud Bolts	ASTM A-193 B7M, Cadmium Plated
≤ 1 1/2"	1500#	SW, RTJ, ASME B16.5, ASTM A-105 (Note-3)	Nuts	ASTM A-194 2HM, Cadmium Plated
			Gaskets	Octagonal Ring, Type 316L S.S.

VALVES								
	SIZE	DESCRIPTION		SIZE	DESCRIPTION		SIZE	DESCRIPTION
GATE			BALL	≤ 1 1/2"	VB-111	OTHERS		
				6" to 8"	VB-108			
				2" to 4"	VB-107 (Note-5)			
CHECK	2" to 8"	VC-104	GLOBE	≤ 1 1/2"	VGL-105	OTHERS		
				2" to 8"	VGL-104			

PRESSURE - TEMPERATURE RATING-ASME B16.5, MATERIAL GROUP 1.1								
TEMPERATURE °F	212	302	392	482	572	662		
MAX. PRESSURE Psig	2027	1960	1905.3	1824	1733	1634		

<b>DESIGN CONDITIONS</b>	2027 psig @ 212°F	<b>HYDROSTATIC TEST PRESSURE</b>	3040 psig
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BRANCH CONNECTIONS		RUN SIZE (INCH)																				
BRANCH SIZE (INCH)		32	30	28	26	24	22	20	18	16	14	12	10	8	6	4	3	2	1½	1	¾	½
	½						S	S	S	S	S	S	S	S	S	S	S	S	Ts	Ts	Ts	Ts
¾						S	S	S	S	S	S	S	S	S	S	S	S	Ts	Ts	Ts	Ts	Ts
1						S	S	S	S	S	S	S	S	S	S	S	S	Ts	Ts	Ts		
1½						S	S	S	S	S	S	S	S	S	S	S	S	Ts	Ts			
2						W	W	W	W	W	W	W	W	W	W	W	W	RT	RT	ET		
3						W	W	W	W	W	W	W	W	W	W	W	W	RT	RT	ET		
4						W	W	W	W	W	W	W	W	W	W	W	W	RT	RT	ET		
6						W	W	W	W	W	W	W	W	W	W	W	W	RT	RT	ET		
8						W	W	W	W	W	W	W	W	W	W	W	W	RT	RT	ET		
10						W	W	W	W	W	W	W	W	W	W	W	W	RT	RT	ET		
12						W	W	W	W	W	W	W	W	W	W	W	W	RT	RT	ET		
14						W	W	W	W	W	W	W	W	W	W	W	W	RT	RT	ET		
16						W	W	W	W	W	W	W	W	W	W	W	W	RT	RT	ET		
18						W	W	W	W	W	W	W	W	W	W	W	W	RT	RT	ET		
20						W	W	W	W	W	W	W	W	W	W	W	W	RT	RT	ET		
22						W	W	W	W	W	W	W	W	W	W	W	W	RT	RT	ET		
24						W	W	W	W	W	W	W	W	W	W	W	W	RT	RT	ET		

- NOTES:**
- Reduced fitting thickness shall match heavier pipe wall thickness, taper to match thinner pipe wall.
  - Instrument connections shall be screwed beyond the first block valve of process piping.
  - Bore to match pipe I.D. for Welding Neck flanges.
  - All materials shall comply with NACE MR-0175 & ISO 15156.
  - Ball valve body seat shall be selected with respect to service / with PTFE seat is allowed from -50 Deg F use metal seats beyond this temperature range.
  - 100% Radiography required.

- LEGENDS:**
- ET = Equal Tee, Butt Welding
  - RT = Reducing Tee, Butt Welding
  - Ts = Reducing Tee, Socket Welding
  - W = Weldolet
  - S = Sockolet 9000#



**OIL & GAS DEVELOPMENT COMPANY LIMITED**



**PIPING SPECIFICATION  
DA1 (Plant Piping)**

<b>SPEC. NO. :</b> 2734-01-SP-005	<b>DATE :</b> 12/6/2017	<b>Revision :</b> A	<b>Prep. By. :</b> SAR
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<b>SERVICE</b> PROCESS GAS	<b>RATING</b> ASME CLASS 900	<b>CORROSION ALLOWANCE</b> 3 mm	<b>DESIGN CODE</b> ASME B31.8
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PIPES			FITTINGS	
SIZE	DESIGNATION	DESCRIPTION	SIZE	DESCRIPTION
6" & 8"	Sch. 80	API 5L Gr. X52 (SMLS) B.E.	2" to 8"	BW, MSS SP-75 Gr.WPHY 52, AS PER ASME B16.9 SW, ASTM A-694 Gr.F52 AS PER ASME B16.11, 9000#
3" & 4"	Sch. 40	API 5L Gr. X52 (SMLS) B.E.	≤ 1 1/2"	
2"	Sch. 80	API 5L Gr. X52 (SMLS) B.E.		
≤ 1 1/2"	Sch. 80	API 5L Gr. X52 (SMLS) P.E.		

FLANGES			BOLTS & GASKETS	
SIZE	CLASS	DESCRIPTION		
2" to 8"	900#	WN, RTJ, ASME B16.5, ASTM A-694 Gr.F52	Stud Bolts	ASTM A-193 B7M, Cadmium Plated
≤ 1 1/2"	1500#	SW, RTJ, ASME B16.5, ASTM A-694 Gr.F52 (Note-3)	Nuts	ASTM A-194 2HM, Cadmium Plated
			Gaskets	Octagonal Ring, Type 316L S.S.

VALVES								
	SIZE	DESCRIPTION		SIZE	DESCRIPTION		SIZE	DESCRIPTION
<b>GATE</b>			<b>BALL</b>	≤ 1 1/2"	VB-111	<b>OTHERS</b>		
				6" to 8"	VB-108			
				2" to 4"	VB-107 (Note-5)			
<b>CHECK</b>	2" to 8"	VC-104	<b>GLOBE</b>	2" to 8"	VGL-104	<b>OTHERS</b>		

PRESSURE - TEMPERATURE RATING-ASME B16.5, MATERIAL GROUP 1.1								
TEMPERATURE °F		212	302	392	482	572	662	
MAX. PRESSURE Psig		2027	1960	1905.3	1824	1733	1634	

<b>DESIGN CONDITIONS</b>	1800 psig @ 212°F	<b>HYDROSTATIC TEST PRESSURE</b>	2250 psig
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BRANCH CONNECTIONS		RUN SIZE (INCH)																					
BRANCH SIZE (INCH)		32	30	28	26	24	22	20	18	16	14	12	10	8	6	4	3	2	1½	1	¾	½	
		½						S	S	S	S	S	S	S	S	S	S	S	S	S	S	Ts	Ts
¾						S	S	S	S	S	S	S	S	S	S	S	S	S	S	Ts	Ts	Ts	Ts
1						S	S	S	S	S	S	S	S	S	S	S	S	S	S	Ts	Ts	Ts	
1½						S	S	S	S	S	S	S	S	S	S	S	S	S	S	Ts	Ts		
2						W	W	W	W	W	W	W	W	W	W	W	W	W	W	RT	RT	ET	
3						W	W	W	W	W	W	W	W	W	W	W	W	W	W	RT	RT	ET	
4						W	W	W	W	W	W	W	W	W	W	W	W	W	W	RT	RT	ET	
6						W	W	W	W	W	W	W	W	W	W	W	W	W	W	RT	RT	ET	
8						W	W	W	W	W	W	W	W	W	W	W	W	W	W	RT	RT	ET	
10						W	W	W	W	W	W	W	W	W	W	W	W	W	W	RT	RT	ET	
12						W	W	W	W	W	W	W	W	W	W	W	W	W	W	RT	RT	ET	
14						RT	RT	RT	RT	RT	RT	RT	RT	RT	RT	RT	RT	RT	RT	RT	ET		
16						RT	RT	RT	RT	RT	RT	RT	RT	RT	RT	RT	RT	RT	RT	RT	ET		
18						RT	RT	RT	RT	ET													
20						RT	RT	ET															
22						RT	ET																
24						ET																	

- NOTES:**
- Reduced fitting thickness shall match heavier pipe wall thickness, taper to match thinner pipe wall.
  - Instrument connections shall be screwed beyond the first block valve of process piping.
  - Bore to match pipe I.D. for Welding Neck flanges.
  - All materials shall comply with NACE MR-0175 & ISO 15156.
  - Ball valve body seat shall be selected with respect to service / with PTFE seat is allowed from -50 Deg F use metal seats beyond this temperature range.
  - Under ground piping should be coated with Zinc-Rich or Zinc Silicate primer, & apply 3 Layer Polyethylene Coted.

- LEGENDS:**
- ET = Equal Tee, Butt Welding
  - RT = Reducing Tee, Butt Welding
  - Ts = Reducing Tee, Socket Welding
  - W = Weldolet
  - S = Sockolet 9000#





**OIL & GAS DEVELOPMENT COMPANY LIMITED**

**PIPING SPECIFICATION**

**C1 (Plant Piping)**



**SPEC. NO. :** 2734-01-SP-006      **DATE :** 12/6/2017      **Revision :** A      **Prep. By. :** SAR

<b>SERVICE</b> PROCESS GAS	<b>RATING</b> ASME CLASS 600#	<b>CORROSION ALLOWANCE</b> 3 mm	<b>DESIGN CODE</b> ASME B31.3
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PIPES			FITTINGS	
SIZE	DESIGNATION	DESCRIPTION	SIZE	DESCRIPTION
3" to 8"	Sch. 80	ASTM A106 Gr. B / API 5L Gr. B (SMLS) B.E.AS PER ASME B36.10	2" to 6"	BW, A-234 Gr. WPB AS PER ASME B16.9
2"	Sch. 80	ASTM A106 Gr. B / API 5L Gr. B (SMLS) B.E.AS PER ASME B36.10	≤ 1 1/2"	SW, A-105 AS PER ASME B16.11, 3000#
≤ 1 1/2"	Sch. 80	ASTM A106 Gr. B / API 5L Gr. B (SMLS) P.E.AS PER ASME B36.10		

FLANGES			BOLTS & GASKETS	
SIZE	CLASS	DESCRIPTION	Stud Bolts	ASTM A-193 B7M, Cadmium Plated
2" to 8"	600#	WN, RTJ, ASME B16.5, ASTM A-105	Nuts	ASTM A-194 2HM, Cadmium Plated
≤ 1 1/2"	600#	SW, RTJ, ASME B16.5, ASTM A-105	Gaskets	Octagonal Ring, Type 316L S.S.
(Note-3)				

VALVES								
GATE	SIZE	DESCRIPTION	BALL	SIZE	DESCRIPTION	OTHERS	SIZE	DESCRIPTION
	≤ 1 1/2"	VG-100			≤ 1 1/2"		VB-104	
2" to 8"	VG-103		2" to 4"	VB-105				
			6" to 8"	VB-106				
CHECK	SIZE	DESCRIPTION	GLOBE	SIZE	DESCRIPTION	OTHERS	SIZE	DESCRIPTION
	≤ 1 1/2"	VC-100			≤ 1 1/2"		VGL-100	
2" to 8"	VC-103		2" to 8"	VGL-103				

PRESSURE - TEMPERATURE RATING-ASME B16.5, MATERIAL GROUP 1.1									
TEMPERATURE °F	-20 to 100	122	212	302	392	482	572	617	
MAX. PRESSURE Psig	1480	1452	1351	1308	1270	1216	1154	1122	

**DESIGN CONDITIONS** 1300 psig @ 212 °F      **HYDROSTATIC TEST PRESSURE** 1950 psig

		RUN SIZE (INCH)																							
		32	30	28	26	24	22	20	18	16	14	12	10	8	6	4	3	2	1½	1	¾	½			
BRANCH SIZE (INCH)	½					S	S	S	S	S	S	S	S	S	S	S	S	S	S	RT	RT	RT	ET		
	¾					S	S	S	S	S	S	S	S	S	S	S	S	S	S	RT	RT	ET			
	1					S	S	S	S	S	S	S	S	S	S	S	S	S	S	RT	ET				
	1½					S	S	S	S	S	S	S	S	S	S	S	S	S	S	RT	ET				
	2					W	W	W	W	W	W	W	W	W	W	W	W	W	W	RT	RT	ET			
	3					W	W	W	W	W	W	W	W	W	W	W	W	W	W	RT	RT	ET			
	4					W	W	W	W	W	W	W	W	W	W	W	W	W	W	RT	RT	ET			
	6					W	W	W	W	W	W	W	W	W	W	W	W	W	W	RT	RT	ET			
	8					W	W	W	W	W	W	W	W	W	W	W	W	W	W	RT	RT	ET			
	10					RT	RT	RT	RT	RT	RT	RT	RT	RT	RT	RT	RT	RT	RT	RT	ET				
	12					RT	RT	RT	RT	RT	RT	RT	RT	RT	RT	RT	RT	RT	RT	RT	ET				
	14					RT	RT	RT	RT	RT	RT	RT	RT	RT	RT	RT	RT	RT	RT	RT	ET				
16					RT	RT	RT	RT	RT	RT	RT	RT	RT	RT	RT	RT	RT	RT	RT	ET					
18					RT	RT	RT	RT	RT	RT	RT	RT	RT	RT	RT	RT	RT	RT	RT	ET					
20					RT	RT	RT	RT	RT	RT	RT	RT	RT	RT	RT	RT	RT	RT	RT	ET					
22					RT	RT	RT	RT	RT	RT	RT	RT	RT	RT	RT	RT	RT	RT	RT	ET					
24					ET																				

- NOTES:**
- Reduced fitting thickness shall match heavier pipe wall thickness, taper to match thinner pipe wall.
  - Instrument connections shall be screwed beyond the first block valve of process piping.
  - Bore to match pipe I.D. for Welding Neck flanges.
  - All materials shall comply with NACE MR-0175
  - Ball valve body seat shall be selected with respect to service / with PTFE seat is allowed from -50 Deg F use metal seats beyond this temperature range.
  - Under ground piping should be coated with Zinc-Rich or Zinc Silicate primer, & apply 3 Layer Polyethylene Coted.

- LEGENDS:**
- ET = Equal Tee
  - RT = Reducing Tee
  - W = Weldolet
  - S = Sockolet 3000#



**OIL & GAS DEVELOPMENT COMPANY LIMITED**

**VALVE SPECIFICATION  
FOR GATE VALVES**



DOC. NO. : 2734-01-VS-001

DATE : - 12-06-2017

REV. : A

PREP. BY

SAR

VALVE	SIZE	RATING (lb)	ENDS	STYLE	OPERATOR	DESIGN & TEST	MATERIAL	
							BODY	TRIM
VG-100	≤ 1 1/2"	800	NPT	OS&Y, BOLTED BONNET & GLAND, SOLID WEDGE & RENEWABLE SEATS	HANDWHEEL	API 602	A-105	316 S.STEEL
VG-101	2" - 8"	150	RF (ASME B16.5)	OS&Y, BOLTED BONNET & GLAND, SOLID WEDGE & RENEWABLE SEATS	HANDWHEEL	API 600	A-216 GR. WCB	316 S.STEEL
VG-102	2" - 6"	300	RTJ (ASME B16.5)	OS&Y, BOLTED BONNET & GLAND, SOLID WEDGE & RENEWABLE SEATS	HANDWHEEL	API 600	A-216 GR. WCB	316 S.STEEL
VG-103	2" - 8"	600	RTJ (ASME B16.5)	OS&Y, BOLTED BONNET & GLAND, SOLID WEDGE & RENEWABLE SEATS	HANDWHEEL	API 600	A-216 GR. WCB	316 S.STEEL



**OIL & GAS DEVELOPMENT COMPANY LIMITED**

**VALVE SPECIFICATION  
FOR BALL VALVES**



DOC. NO. : 2734-01-VS-002

DATE : - 12-06-2017

REV. : A

PREP. BY

SAR

VALVE	SIZE	RATING (lb)	ENDS	STYLE	OPERATOR	DESIGN & TEST	MATERIAL		
							BODY	STEM/BALL	SEAL
VB-100	≤ 1 1/2"	150	RF (ASME B16.5)	BOLTED BODY, REPLACEABLE BALL & SEATS, FULL PORT, FLOATING BALL	LEVER	BS 5351 & BS 5146 / API 607 (FIRE SAFE)	A-105	A 351-CF8M	PTFE
VB-101	2" - 8"	150	RF (ASME B16.5)	BOLTED BODY, REPLACEABLE BALL & SEATS, REDUCED PORT, FLOATING BALL	LEVER	API 6D, FIRESAFE, ANTISTATIC	A-216 Gr. WCB	A 351-CF8M	PTFE
VB-102	≤ 1 1/2"	300	RTJ (ASME B16.5)	BOLTED BODY, REPLACEABLE BALL & SEATS, REDUCED PORT, FLOATING BALL	LEVER	BS 5351 & BS 5146 / API 607 (FIRE SAFE)	A-105	A 351-CF8M	PTFE
VB-103	2" - 4"	300	RTJ (ASME B16.5)	BOLTED BODY, REPLACEABLE BALL & SEATS, FULL PORT, TRUNION MOUNTED BALL OVER 4"	LEVER	API 6D, FIRESAFE, ANTISTATIC	A-216 Gr. WCB	A 351-CF8M	PTFE
VB-104	≤ 1 1/2"	600	RTJ (ASME B16.5)	BOLTED BODY, REPLACEABLE BALL & SEATS, REDUCED PORT, FLOATING BALL	LEVER	BS 5351 & BS 5146 / API 607 (FIRE SAFE)	A-105	A 351-CF8M	PTFE
VB-105	2" - 4"	600	RTJ (ASME B16.5)	BOLTED BODY, REPLACEABLE BALL & SEATS, REDUCED PORT, FLOATING BALL	LEVER	API 6D, FIRESAFE, ANTISTATIC	ASTM A216 WCB	A 351-CF8M	PTFE
VB-106	6" - 8"	600	RTJ (ASME B16.5)	BOLTED BODY, REPLACEABLE BALL & SEATS, FULL PORT, TRUNION MOUNTED	GEAR	API 6D, FIRESAFE, ANTISTATIC	ASTM A216 WCB	A 351-CF8M	PTFE
VB-107	2" - 4"	900	RTJ (ASME B16.5)	BOLTED BODY, REPLACEABLE BALL & SEATS, REDUCED PORT, FLOATING BALL	LEVER	API 6D, FIRESAFE, ANTISTATIC	ASTM A216 WCB	A 351-CF8M	PTFE
VB-108	6" - 8"	900	RTJ (ASME B16.5)	BOLTED BODY, REPLACEABLE BALL & SEATS, FULL PORT, TRUNION MOUNTED	GEAR	API 6D, FIRESAFE, ANTISTATIC	ASTM A216 WCB	A 351-CF8M	PTFE
VB-111	≤ 1 1/2"	1500	RTJ (ASME B16.5)	BOLTED BODY, REPLACEABLE BALL & SEATS, REDUCED PORT, FLOATING BALL	LEVER	API 6D, FIRESAFE, ANTISTATIC	A-216 Gr. WCB	A 351-CF8M	PTFE



**OIL & GAS DEVELOPMENT COMPANY LIMITED**

**VALVE SPECIFICATION  
FOR CHECK VALVES**



DOC. NO. : 2734-01-VS-003

DATE : - 12-06-2017

REV. : A

PREP. BY

SAR

VALVE	SIZE	RATING (lb)	ENDS	STYLE	OPERATOR	DESIGN & TEST	MATERIAL	
							BODY	TRIM
VC-100	≤ 1 1/2"	800	SW	BOLTED BONNET, PISTON TYPE & RENEWABLE SEATS	-	ASME B 16.34	A-105	316 S.STEEL
VC-101	2" to 8"	150	RF (ASME B16.5)	BOLTED BONNET, SWING TYPE & RENEWABLE SEATS	-	ASME B 16.34	A-216 GR. WCB	316 S.STEEL
VC-102	2" - 4"	300	RTJ (ASME B16.5)	BOLTED BONNET, SWING TYPE & RENEWABLE SEATS	-	ASME B 16.34	A-216 GR. WCB	316 S.STEEL
VC-103	2" - 8"	600	RTJ (ASME B16.5)	WAFFER TYPE, METAL TO METAL SEAT, DUAL PLATE	-	ASME B 16.34 API 594	A 352-LCC	316 S.STEEL
VC-104	2" - 8"	900	RTJ (ASME B16.5)	BOLTED BONNET, SWING TYPE & RENEWABLE SEATS	-	ASME B 16.34	A-216 GR. WCB	316 S.STEEL



**OIL & GAS DEVELOPMENT COMPANY LIMITED**

**VALVE SPECIFICATION  
FOR GLOBE VALVES**



DOC. NO. : 2734-01-VS-004


DATE : -12-06-2017

REV. : A

PREP. BY SAR

VALVE	SIZE	RATING (lb)	ENDS	STYLE	OPERATOR	DESIGN & TEST	MATERIAL	
							BODY	TRIM
VGL-100	≤1 1/2"	800	SW	OS&Y, BOLTED BONNET & GLAND & RENEWABLE SEATS	HANDWHEEL	ASME B 16.34	A-105	316 S.STEEL
VGL-101	2" - 8"	150	RF (ASME B16.5)	OS&Y, BOLTED BONNET & GLAND & RENEWABLE SEATS	HANDWHEEL	ASME B 16.34	A-216 GR. WCB	316 S.STEEL
VGL-102	2" - 8"	300	RTJ (ASME B16.5)	OS&Y, BOLTED BONNET & GLAND & RENEWABLE SEATS	HANDWHEEL	ASME B 16.34	A-216 GR. WCB	316 S.STEEL
VGL-103	2" - 8"	600	RTJ (ASME B16.5)	OS&Y, BOLTED BONNET & GLAND & RENEWABLE SEATS	HANDWHEEL	ASME B 16.34	A-216 GR. WCB	316 S.STEEL
VGL-104	2" to 8"	900	RTJ (ASME B16.5),	OS&Y, BOLTED BONNET & GLAND & RENEWABLE SEATS	HANDWHEEL	ASME B 16.34	A-216 GR. WCB	316 S.STEEL
VGL-105	≤1 1/2"	1500	RTJ (ASME B16.5),	OS&Y, BOLTED BONNET & GLAND & RENEWABLE SEATS	HANDWHEEL	ASME B 16.34	A-216 GR. WCB	316 S.STEEL

# DATA SHEETS

<b>CLIENT</b>		<b>DEVELOPMENT OF CHABARO-1 WELLHEAD</b>				<b>CONSULTANT</b>	
						<b>DOC. TITLE</b>	
		<b>DOC. NO.</b>		<b>2734- PDS-007</b>		<b>REV. 0</b>	




S.No.	DESCRIPTION		PSV-002			
1	SERVICE		HYDROCARBON			
2	LINE NO. / VESSEL NO.		V - 003			
3	FULL NOZZLE / SEMI NOZZLE		FULL			
4	SAFETY OR RELIEF		THERMAL - RELIEF			
5	CONV. / BELLOWS / PILOT OP.		CONVENTIONAL			
6	BONNET TYPE		CLOSED			
7	SIZE: INLET	OUTLET	3/4"	1"		
8	FLANGE RATING		900 X 300			
9	TYPE OF FACING		RTJ x RTJ			
10	BODY AND BONNET		ASME SA,216,GR,WCB.CARBON STEEL			
11	NOZZLE AND DISC		SS316L			
12	GUIDE AND RINGS		SS316L			
13	SPRING		ALUMINISED C.S			
14	LIFTING GEAR-TYPE		REQUIRED			
15	TEST GAG		REQUIRED			
16	CAP: SCREWED OR BOLTED		SCREWED			
17	TEST CONNECTION		YES-CARBON STEEL			
18	MANUAL BLOWDOWN		YES-CARBON STEEL			
19	BACK FLOW PREVENTER		NO			
20	CODE		ASME SEC VIII / API RP-520-521			
21	LEAKAGE CODE		ANSI / API 527			
22	SIZING BASIS		THERMAL RELIEF			
23	FLUID		HYDROCARBON			
24	FLUID STATE		MIX			
25	SPECIFIC GRAVITY		0.7 - 0.8			
26	OPER. PRESS. (psig)	SET PRES. (psig)	1000-1620	1700		
27	OPER. TEMP. (°F)	MAX TEMP. (°F)	100-150	170		
28	COLD BENCH TEST PRESSURE		VTS			
29	% ALLOWABLE OVERPRESSURE		10%			
30	OVERPRESSURE FACTOR		N/A			
31	COMPRESSIBILITY FACTOR		-			
32	FLOW MAX		-			
33	RATIO OF SPECIFIC HEATS		-			
34	BACK PRESSURE		ATMOSPHERIC			
35	DISCHARGE COEF kd		0.65			
36	CHANGE OF STATE COEF. C		VTS			
37	P&ID NO.		2734- PID-002			
38	CALC. AREA SQ. IN.		VTS			
39	SELECTED AREA SQ. IN.		VTS			
40	ORIFICE DESIGNATION		D			
41	MANUFACTURER		-			
42	MODEL NUMBER		VTS			

NOTES:

- VENDOR TO CONFIRM THE SUITABILITY OF THIS MODEL FOR THE REQUIRED SERVICE.
- VTS-VENDOR TO SPECIFY OR CONFIRM

0	6/7/2017	Issued For Review	RK	NWS	AJ
Rev.	Date	Description	Prepared	Checked	Approved

<b>CLIENT</b>		<b>DEVELOPMENT OF CHABARO-1 WELLHEAD</b>				<b>CONSULTANT</b>	
						<b>DOC. TITLE</b>	
		<b>DOC. NO.</b>		<b>2734- PDS-008</b>		<b>REV. 0</b>	





S.No.	DESCRIPTION		PSV-003			
1	SERVICE		HYDROCARBON			
2	LINE NO. / VESSEL NO.		V - 004			
3	FULL NOZZLE / SEMI NOZZLE		FULL			
4	SAFETY OR RELIEF		THERMAL - RELIEF			
5	CONV. / BELLOWS / PILOT OP.		CONVENTIONAL			
6	BONNET TYPE		CLOSED			
7	SIZE: INLET	OUTLET	3/4"	1"		
8	FLANGE RATING		900 X 300			
9	TYPE OF FACING		RTJ x RTJ			
10	BODY AND BONNET		ASME SA,216,GR,WCB.CARBON STEEL			
11	NOZZLE AND DISC		SS316L			
12	GUIDE AND RINGS		SS316L			
13	SPRING		ALUMINISED C.S			
14	LIFTING GEAR-TYPE		REQUIRED			
15	TEST GAG		REQUIRED			
16	CAP: SCREWED OR BOLTED		SCREWED			
17	TEST CONNECTION		YES-CARBON STEEL			
18	MANUAL BLOWDOWN		YES-CARBON STEEL			
19	BACK FLOW PREVENTER		NO			
20	CODE		ASME SEC VIII / API RP-520-521			
21	LEAKAGE CODE		ANSI / API 527			
22	SIZING BASIS		THERMAL RELIEF			
23	FLUID		HYDROCARBON			
24	FLUID STATE		MIX			
25	SPECIFIC GRAVITY		0.7 - 0.8			
26	OPER. PRESS. (psig)	SET PRES. (psig)	1000-1620	1700		
27	OPER. TEMP. (°F)	MAX TEMP. (°F)	100-150	170		
28	COLD BENCH TEST PRESSURE		VTS			
29	% ALLOWABLE OVERPRESSURE		10%			
30	OVERPRESSURE FACTOR		N/A			
31	COMPRESSIBILITY FACTOR		-			
32	FLOW MAX		-			
33	RATIO OF SPECIFIC HEATS		-			
34	BACK PRESSURE		ATMOSPHERIC			
35	DISCHARGE COEF kd		0.65			
36	CHANGE OF STATE COEF. C		VTS			
37	P&ID NO.		2734- PID-003			
38	CALC. AREA SQ. IN.		VTS			
39	SELECTED AREA SQ. IN.		VTS			
40	ORIFICE DESIGNATION		D			
41	MANUFACTURER		-			
42	MODEL NUMBER		VTS			



**NOTES:**

1. VENDOR TO CONFIRM THE SUITABILITY OF THIS MODEL FOR THE REQUIRED SERVICE.
2. VTS-VENDOR TO SPECIFY OR CONFIRM

0	6/7/2017	Issued For Review	RK	NWS	AJ
Rev.	Date	Description	Prepared	Checked	Approved



CONSULTANT		DEVELOPMENT OF CHABARO-1 WELLHEAD				DOCUMENT NO.				
 <b>PETROCHEMICAL ENGINEERING CONSULTANTS</b>						2734-IDS-007				
CLIENT		INSTRUMENT DATA SHEET				REV.	DATE.			
 <b>OIL &amp; GAS DEVELOPMENT COMPANY Ltd.</b>		PRESSURE GAUGE				0	22/12/2017			
		2734-PID-002				BY	APPR.			
						ZUA	SAG			
						SHEET	1 OF 1			
GENERAL	1	Tag Number		PI-011						
	2	Service		At Pig Launcher (V-003)						
	3	Line Size		-						
	4	P & ID Drawing Number		2734-PID-002						
	5									
PROCESS CONDITION	6	Fluid		Gas						
	7	Max. Pressure	Max. Temperature	1700	psi-g	170	°F			
	8	Min. Pressure	Oper. Temperature	800	psi-g	100-150	°F			
	9	Pulsation	Vibration	NO		NO				
	10									
	11									
GAUGE	12	Type		INDICATOR						
	13	Calibration Range	Min	Max	0	psi	-g	2500	psi	-g
	14	Figure Interval		Manufacturer Standard						
	15	Minor Graduation		Yes						
	16	Mounting		Direct Mounted						
	17	Dial Size		160 mm						
	18	Dial Color		White Aluminium with Black Numerals						
	19	Case Material		304 St. Stl						
	20	Ring Construction	Ring Material	Bayonet		St. Stl				
	21	Blow-Out Protection		Yes						
	22	Lens Material		Solid Front Full Safety Pattern With Laminated Safety Glass						
	23	Pressure Element Type		Bourden Tube						
	24	Pressure Element Material		316 St. Stl						
	25	Socket Material		316 St. Stl						
	26	Connection Size		1/2" NPT-μ						
	27	Connection Location		Bottom						
	28	Movement Material		St. Stl. Rack & Pinion						
29	Nominal Accuracy		+/- 1%							
30	Micrometer Material		Yes							
31	Ingress Protection		IP 65							
DIAPHRAGM SEAL	32	Type		N/A						
	33	Process Connection		N/A						
	34	Diaphragm Material		N/A						
	35	Bottom Housing Material		N/A						
	36	Fill Fluid		N/A						
	37	Capillary Length		N/A						
	38	Capillary Material		N/A						
	39	Flushing Connection		No						
	40	Top Housing Material		N/A						
	41	Connection to Instrument		N/A						
OPTIONS	42									
	43	Syphon :	Type	Material	N/A		N/A			
	44	Syphon :	Type	Material	N/A		N/A			
	45	Movement Damping		N/A						
	46									
	47									
PURCHASE	48									
	49	Manufacturer								
	50	Model								
	51	Purchase Order Number								
	52	Price	Item Number				N/A			
53	Serial Number		N/A							
<b>NOTES :</b>										
1										
2										
3										
4										

CONSULTANT		<b>DEVELOPMENT OF CHABARO-1 WELLHEAD</b>				DOCUMENT NO.		
	PETROCHEMICAL ENGINEERING CONSULTANTS					2734-IDS-008		
						REV.	DATE.	
CLIENT		INSTRUMENT DATA SHEET				BY	APPR.	
	OIL & GAS DEVELOPMENT COMPANY Ltd.	PIG DETECTOR				ZUA	SAG	
		P&ID NO. 2734-PID-002				SHEET	1 OF 1	
GENERAL	1	Tag Number		PXI-001				
	2	Service		PIG LAUNCHER				
	3	Line Size		-				
	4	P & ID Drawing Number		2731-PID-002				
	5	Area Classification		ZONE - 1, IIA, IIB ( AS PER IEC ), Temp. Class - T3				
DETECTOR	6	Mechanical Flag		REQD				
	7	Isolation Valve						
	8	MOC		SS316				
	9	NUTS & BOLTS		SS316				
	10	Trigger Assembly Components		Shaft & Plug Assembly with O-ring				
	11	Plug Assembly Type		Uni-directional				
OPERATING CONDITION	12							
	13	Fluid State		GAS / LIQUID				
	14	Process Connection		2"				
	15	Pressure psig Design	Min.	Operating	Max.	800	1000-1600	1700
	16	Temperature °F Design	Min.	Operating	Max.	100	120-150	170
ELECTRICAL	17	Signal Output		Load Resist		N/A		
	18	Power Supply		Electrical Connection		N/A		
	19	Local Indication		Response Time		N/A		
	20	Local Raiser		N/A				
	21	Enclosure Protection		N/A				
	22	Cable Entry		N/A				
	23							
ACCESSORIES	24							
	25							
OTHER	26	Model No.						
	27	Certification						
PURCHASE	28	Manufacturer						
	1	Model						
	2	Purchase Order Number						
	3	Price		Item Number				
	4	Serial Number						
<b>NOTES :</b>								
1	Vendor/Contractor shall provide the piping nozzle standoff length during detail engineering.							
2								
3								
4								

<b>CONSULTANT</b>		<b>DEVELOPMENT OF CHABARO-1 WELLHEAD</b>				<b>DOCUMENT NO.</b>			
	PETROCHEMICAL ENGINEERING CONSULTANTS					2734-IDS-014			
						<b>REV.</b>	<b>DATE.</b>		
		0	22/12/2017						
<b>CLIENT</b>		INSTRUMENT DATA SHEET				<b>BY</b>	<b>APPR.</b>		
	OIL & GAS DEVELOPMENT COMPANY Ltd.	<b>PIG DETECTOR</b>				ZUA	SAG		
		<b>P&amp;ID NO. 2734-PID-003</b>				<b>SHEET</b>	1 OF 1		
<b>GENERAL</b>	1	Tag Number		PXI-002					
	2	Service		PIG RECEIVER (V-004)					
	3	Line Size		-					
	4	P & ID Drawing Number		2734-PID-003					
	5	Area Classification		ZONE - 1, IIA, IIB ( AS PER IEC ), Temp. Class - T3					
<b>DETECTOR</b>	6	Mechanical Flag		REQD					
	7	Isolation Valve							
	8	MOC		SS316					
	9	NUTS & BOLTS		SS316					
	10	Trigger Assembly Components		Shaft & Plug Assembly with O-ring					
	11	Plug Assembly Type		Uni-directional					
<b>OPERATING CONDITION</b>	12								
	13	Fluid State		GAS / LIQUID					
	14	Process Connection		2"					
	15	Pressure Design	psig	Min.	Operating	Max.	800	1000-1620	1700
	16	Temperature Design	°F	Min.	Operating	Max.	100	120-150	170
<b>ELECTRICAL</b>	17	Signal Output		Load Resist		N/A			
	18	Power Supply		Electrical Connection		N/A			
	19	Local Indication		Response Time		N/A			
	20	Local Raiser		N/A					
	21	Enclosure Protection		N/A					
	22	Cable Entry		N/A					
	23								
<b>ACCESSORIES</b>	24								
	25								
<b>OTHER</b>	26	Model No.							
	27	Certification							
<b>PURCHASE</b>	28	Manufacturer							
	1	Model							
	2	Purchase Order Number							
	3	Price		Item Number					
	4	Serial Number							
<b>NOTES :</b>									
1	Vendor/Contractor shall provide the piping nozzle stand out length during detail engineering.								
2									
3									
4									

**PIG LAUNCHER/ RECEIVER UNIT FOR GUNDANWARI**

**SIZE 8" 900#**

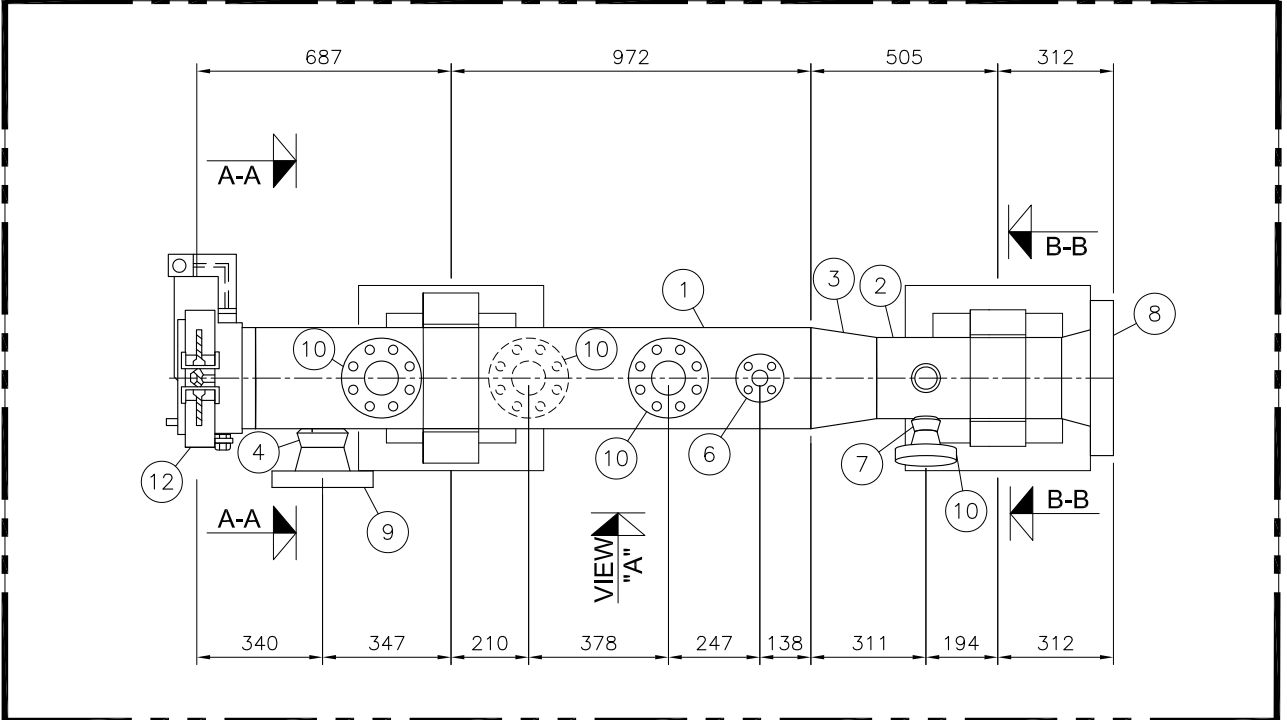
**ANNEXURE-A2**



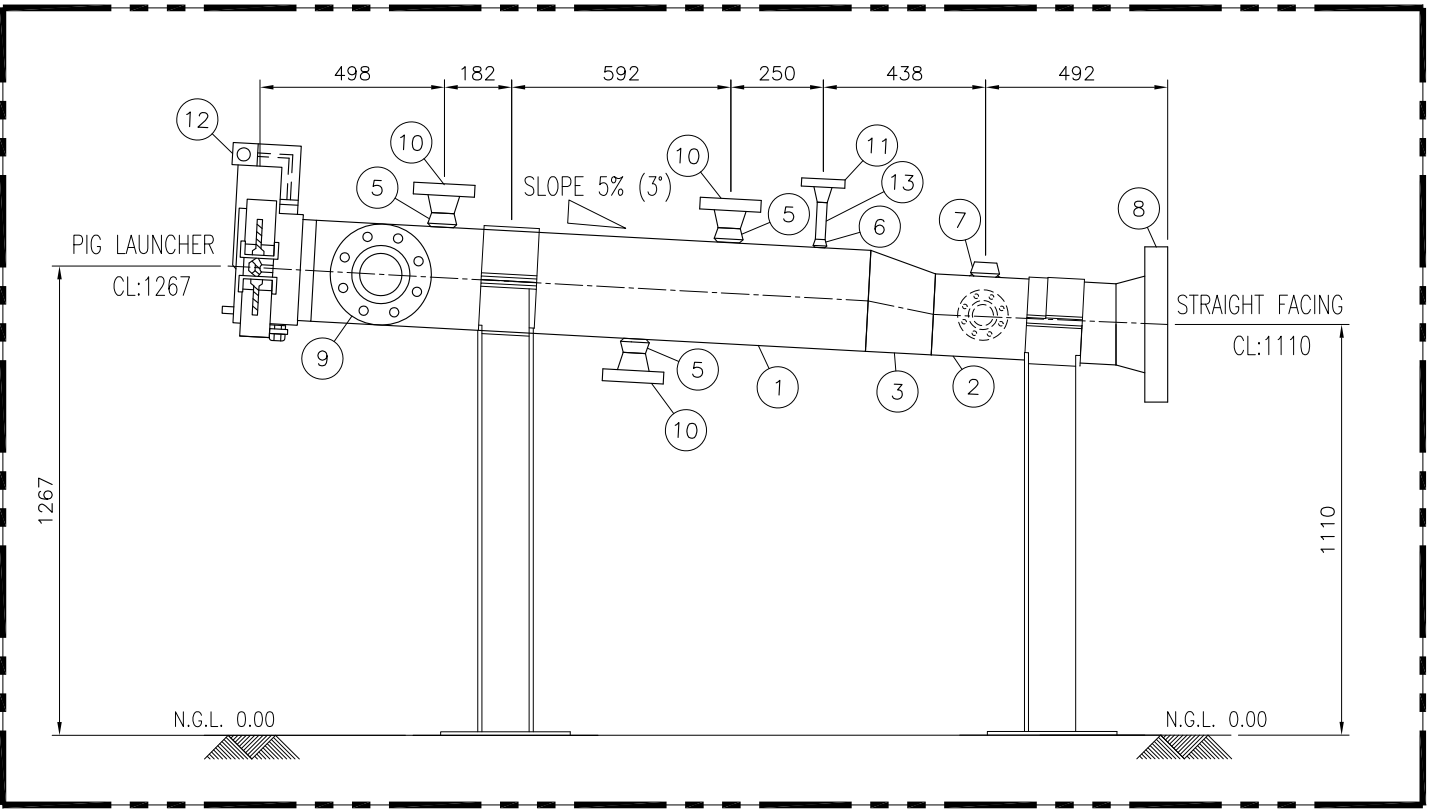
**DETAIL DRAWING  
OF GUNDANWARI-01  
(PIG LAUNCHER V-303)**

BILL OF MATERIAL

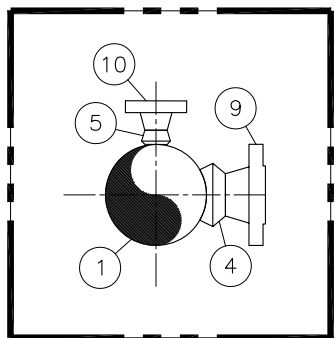
Sr.NO.	SIZE	DESCRIPTION	QTY.	(MAT. SPEC)	UNIT WEIGHT kg/piece	TOTAL WEIGHT kg
1	10"	PIPE SMLS, SCH. 80, API-5L GR.X52 BE	1.5M	-		
2	8"	PIPE SMLS, SCH. 80, API-5L GR.X52 BE	0.5M	DA1		
3	10"x8"	REDUCER, ECC. SCH. 80, BW. MSS SP-75 Gr.WPHY 52	1	-		
4	10"x4"	WELDOLET, BW SCH. 80x40, ASTM A-694 Gr-F52	1	-		
5	10"x2"	WELDOLET, BW SCH.80, ASTM A-694 Gr-F52	3	-		
6	10"x3/4"	SOCKOLET, SW 900# ASTM A-694-Gr.F52	1	-		
7	8"x2"	WELDOLET, BW SCH.80, ASTM A-694 Gr-F52	2	DA1		
8	8"	FLG, WN 900# RTJ, SCH.80 ASTM A-694 Gr-F52	1	DA1		
9	4"	FLG, WN 900# RTJ, SCH. 40 ASTM A-694 Gr-F52	1	DA1		
10	2"	FLG, WN 900# RTJ, SCH. 80 ASTM A-694 Gr-F52	4	DA1		
11	3/4"	FLG, SW 1500# RTJ, ASTM A-694 Gr-F52	1	DA1		
12	10"	QUICK CLOSURE	1	-		
13	3/4"	PIPE NIPPLE SCH.80 100mm LONG PE SMLS, API 5L GR.X52	1	DA1		



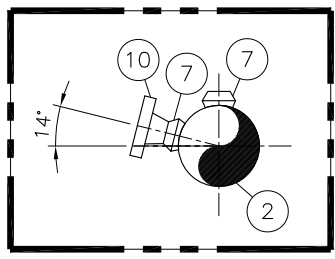
PLAN VIEW OF BARREL  
SCALE 1:20



VIEW "A"  
SCALE 1:20



SECTION A-A  
SCALE 1:20



SECTION B-B  
SCALE 1:20

NOTE:-

1. ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED.
2. ALL DIMENSIONS, ELEVATIONS AND ORIENTATIONS TO BE VERIFIED BY THE CONTRACTOR BEFORE UNDERTAKING ANY KIND OF FABRICATION, CONSTRUCTION AND INSTALLATION WORK AT SITE.

REV.	DATE	DESCRIPTION OF REVISION	PREP'D:	CHECK	APPR.
0	17-06-2017	ISSUED FOR REVIEW	SN	SHAH	

**PE** PETROCHEMICAL ENGINEERING CONSULTANTS  
 C-2, BLOCK NO. 17, GULSHAN-E-IOBAL, NEAR NATIONAL STADIUM, KARACHI-75300. PAKISTAN.  
 TEL: +92 (21) 34827780, 34961088, FAX: +92 21 34961089, E-Mail: contact@pcec.com.pk web site: www.pcec.com.pk

CLIENT : OIL & GAS DEVELOPMENT COMPANY LTD.

PROJECT : DEVELOPMENT OF GUNDANWARI-1 WELLHEAD

TITLE : GENERAL ARRANGEMENT Ø8" PIG LAUNCHER 900# (V-303)

JOB NO	DRAWING NO	SHEET NO	SCALE	SHEET SIZE	REV
2731	2731-PL-303	1 OF 1	1:20	A3	0

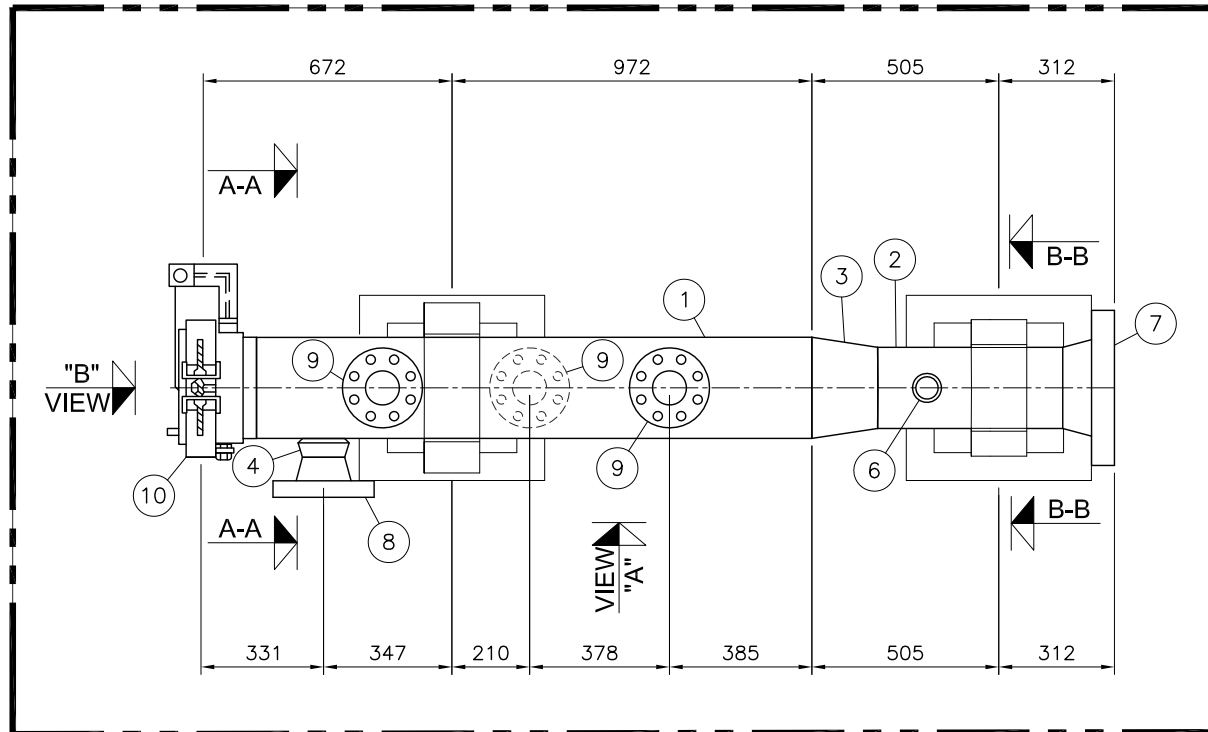
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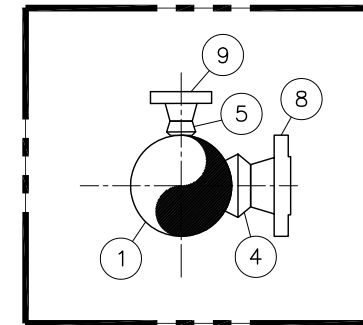
**DETAIL DRAWING  
OF GUNDANWARI-01  
PIG RECEIVER V-304)  
AT BITRISUM WEST-01**

BILL OF MATERIAL

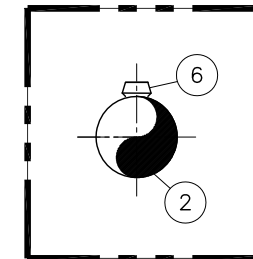
Sr.NO.	SIZE	DESCRIPTION	QTY.	(MAT. SPEC)	UNIT WEIGHT kg/piece	TOTAL WEIGHT kg
1	10"	PIPE SMLS, SCH. 80, API-5L GR.X52 BE	1.5M	-		
2	8"	PIPE SMLS, SCH. 80, API-5L GR.X52 BE	0.5M	DA1		
3	10"x8"	REDUCER, CONC. SCH. 80, BW. MSS SP-75 GR.WPHY 52	1	-		
4	10"x4"	WELDOLET, BW SCH. 80x40, ASTM A-694-Gr.F52	1	DA1		
5	10"x2"	WELDOLET, BW SCH.80, ASTM A-694-Gr.F52	3	DA1		
6	8"x2"	WELDOLET, BW SCH.80, ASTM A-694-Gr.F52	1	DA1		
7	8"	FLG, WN 900# RTJ, SCH.80 ASTM A-694 Gr-F52	1	DA1		
8	4"	FLG, WN 900# RTJ, SCH.40 ASTM A-694 Gr-F52	1	DA1		
9	2"	FLG, WN 900# RTJ, SCH.80 ASTM A-694 Gr-F52	3	DA1		
10	10"	QUICK CLOSURE	1	-		



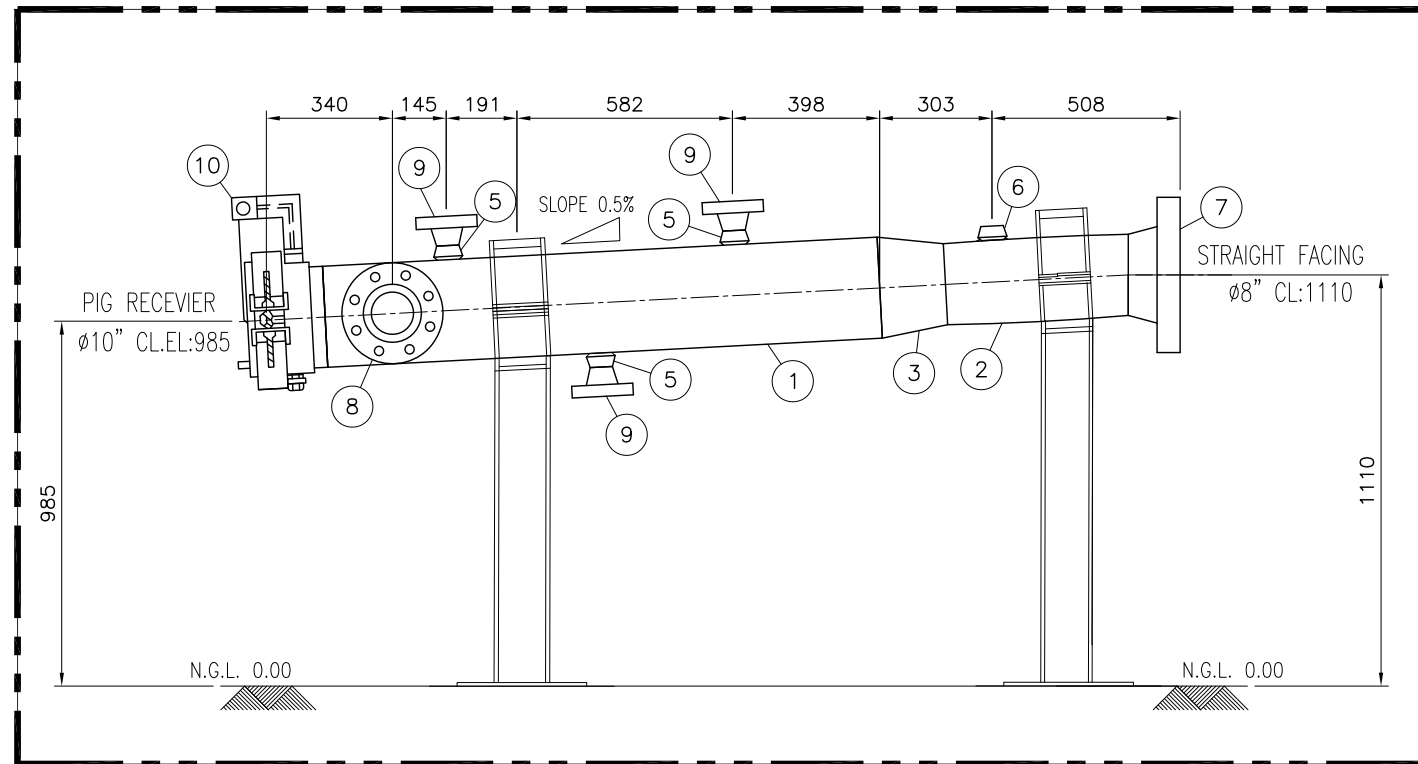
PLAN VIEW OF BARREL  
SCALE 1:20



SECTION A-A  
SCALE 1:20



SECTION B-B  
SCALE 1:20



VIEW "A"  
SCALE 1:20

NOTE:

1. ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED.
2. ALL DIMENSIONS, ELEVATIONS AND ORIENTATIONS TO BE VERIFIED BY THE CONTRACTOR BEFORE UNDERTAKING ANY KIND OF FABRICATION, CONSTRUCTION AND INSTALLATION WORK AT SITE.

REV.	DATE	DESCRIPTION OF REVISION	PREP'D:	CHECK	APPR.
0	17-06-2017	ISSUED FOR REVIEW	SN	SHAH	

**PE** PETROCHEMICAL ENGINEERING CONSULTANTS  
C-2, BLOCK NO. 17, GULSHAN-E-IOBAL, NEAR NATIONAL STADIUM, KARACHI-75300. PAKISTAN.  
TEL: +92 (21) 34827780, 34961088, FAX: +92 21 34961089, E-Mail: contact@pcec.com.pk web site: www.pcec.com.pk

CLIENT : OIL & GAS DEVELOPMENT COMPANY LTD.

PROJECT : DEVELOPMENT OF GUNDANWARI-1 WELLHEAD

TITLE : GENERAL ARRANGEMENT  
Ø8" PIG RECEIVER 900# (V-304)  
(TIE IN AT WELLHEAD BITRISM WEST 1A)

JOB NO	DRAWING NO	SHEET NO	SCALE	SHEET SIZE	REV
2731	2731-PR-304	1 OF 1	1:20	A3	0

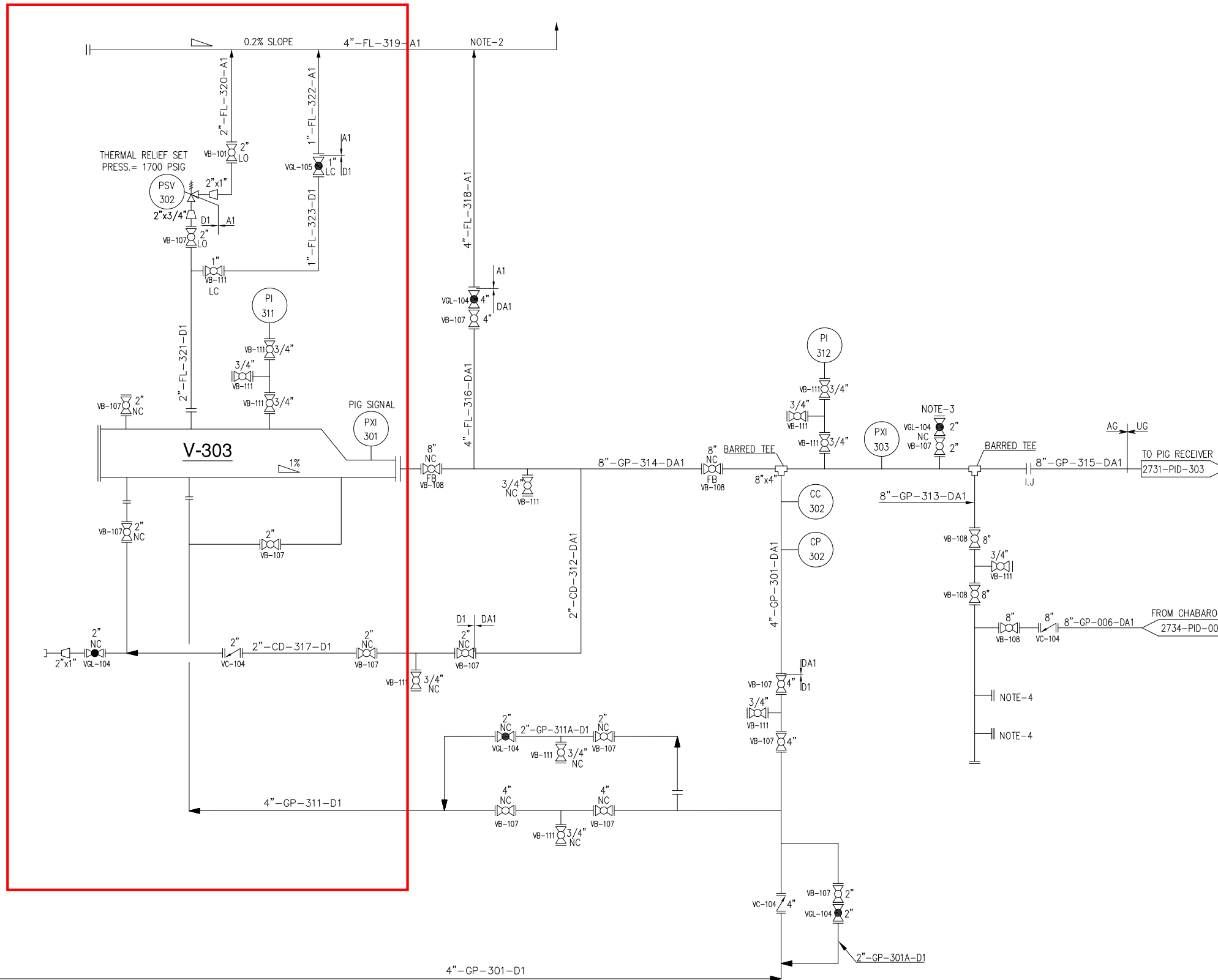
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# V-303 PIG LAUNCHER

DESIGN PRESSURE/TEMPERATURE: 1700 PSIG/170 °F  
 OPERATING PRESSURE/TEMPERATURE: 1000-1600 PSIG /100-150 °F

Note-5



## NOTES

1. FOR GENERAL NOTES, SYMBOLS & LEGEND REFER DWG# 2731-PID-300.
2. VENT AT SAFE LOCATION AT LEAST 3.0 M FROM THE HIGHEST POINT OF STRUCTURE/PLATFORM.
3. PROVISION FOR FLOWLINE PURGING AND DEPRESSURIZING.
4. PROVISION FOR FUTURE CONNECTION.
5. Bidder Scope of Work

REV.	DATE	ISSUED FOR REVIEW	M.J.	ASK
0	29/05/2017	ISSUED FOR REVIEW		
		DESCRIPTION OF REVISION	PREP'D:	CHECK
			APPR.	

**PC PETROCHEMICAL ENGINEERING CONSULTANTS**  
 C-2, BLOCK NO. 17, GULSHAN-E-IOBAL, NEAR NATIONAL STADIUM, KARACHI-75300, PAKISTAN.  
 TEL: +92 (21) 34827780, 34961088, FAX: +92 21 34961089, E-Mail: contact@pcec.com.pk web site: www.pcec.com.pk

CLIENT : **OIL & GAS DEVELOPMENT COMPANY LIMITED**

PROJECT : **DEVELOPMENT OF GUNDANWARI-1 WELLHEAD**

TITLE : **PIPING & INSTRUMENTATION DIAGRAM FOR PIG LAUNCHER**

JOB NO	DRAWING NO	SHEET NO	SCALE	SHEET SIZE	REV
2731	2731-PID-302	1 OF 1	N.T.S.	A3	0

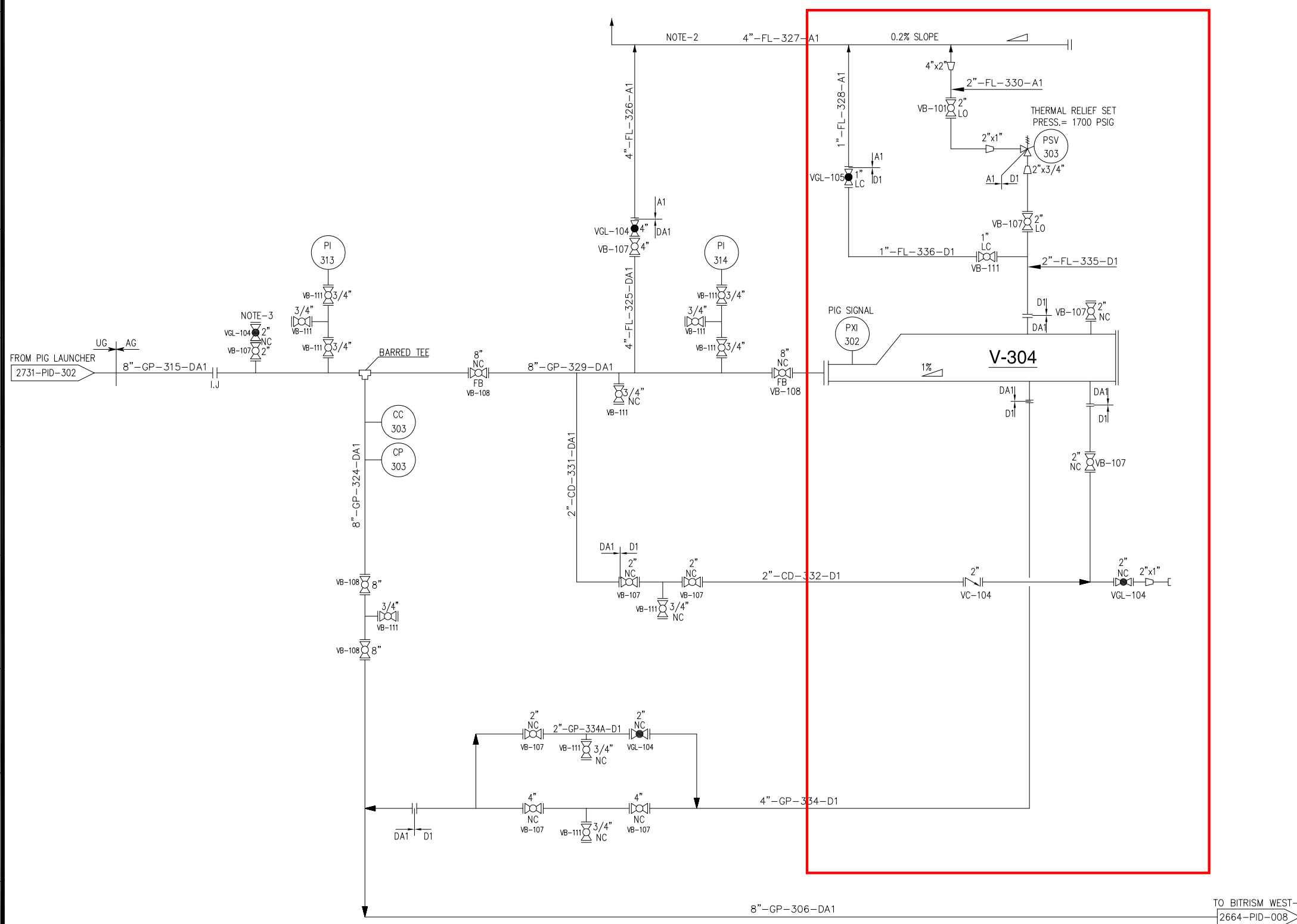
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### V-304 PIG RECEIVER

DESIGN PRESSURE/TEMPERATURE: 1700 PSIG/170 °F  
 OPERATING PRESSURE/TEMPERATURE: 1000-1600 PSIG /100-150 °F

#### NOTES

- FOR GENERAL NOTES, SYMBOLS & LEGEND REFER DWG# 2731-PID-300.
- VENT AT SAFE LOCATION AT LEAST 3.0 M FROM THE HIGHEST POINT OF STRUCTURE/PLATFORM.
- PROVISION FOR FLOWLINE PURGING AND DEPRESSURIZING.
- Bidder Scope of Work**



Note-4

REV.	DATE	DESCRIPTION OF REVISION	PREP'D:	CHECK	APPR.
0	29/05/2017	ISSUED FOR REVIEW	M.J	ASK	

**PE** PETROCHEMICAL ENGINEERING CONSULTANTS  
 C-2, BLOCK NO. 17, GULSHAN-E-IOBAL, NEAR NATIONAL STADIUM, KARACHI-75300, PAKISTAN.  
 TEL. +92 (21) 34827780, 34961088, FAX: +92 21 34961089, E-Mail: contact@pcec.com.pk web site: www.pcec.com.pk

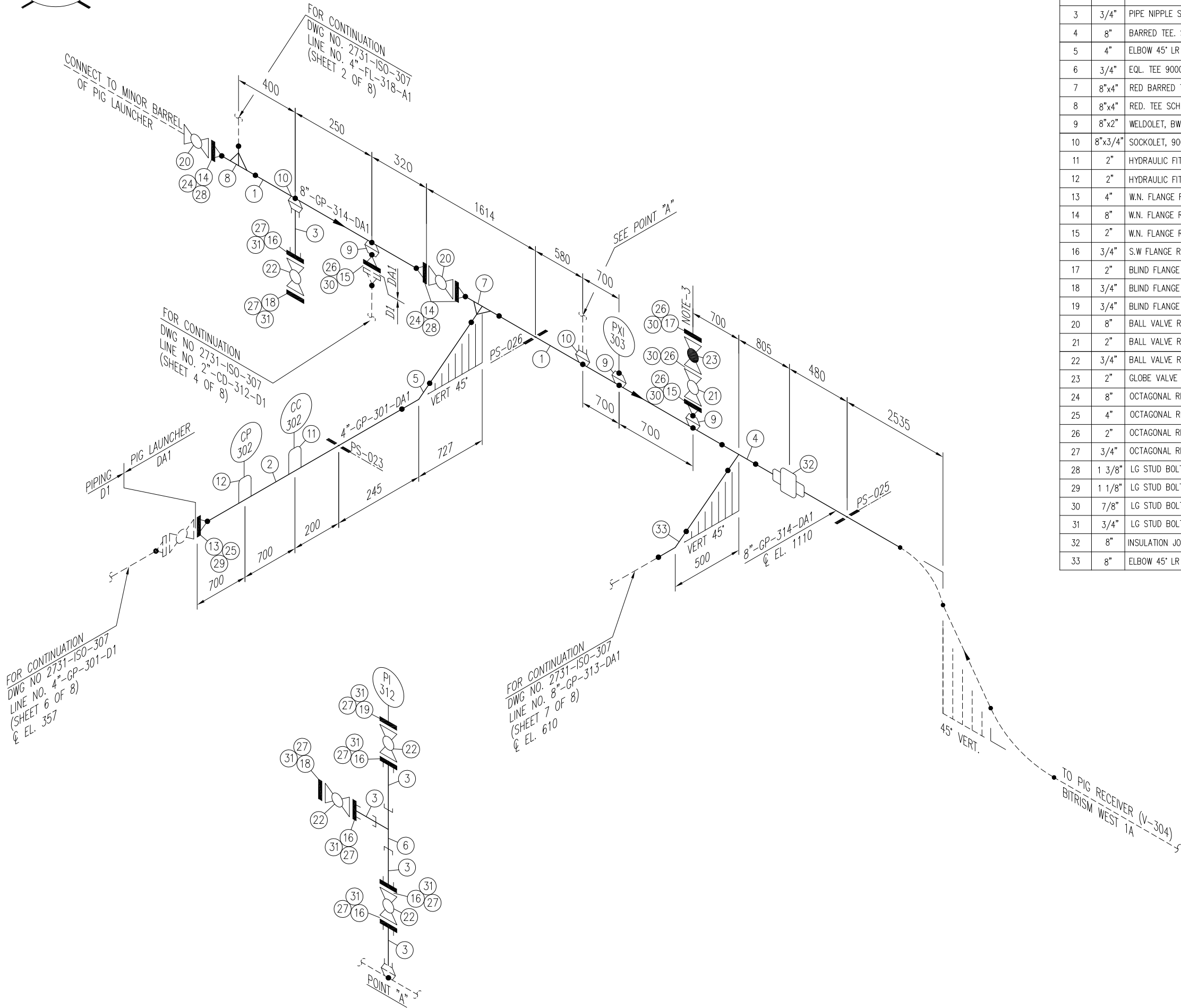
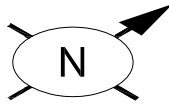
CLIENT : **OIL & GAS DEVELOPMENT COMPANY LIMITED**

PROJECT : **DEVELOPMENT OF GUNDANWARI-1 WELLHEAD**

TITLE : **PIPING & INSTRUMENTATION DIAGRAM FOR PIG RECEIVER**

JOB NO	DRAWING NO	SHEET NO	SCALE	SHEET SIZE	REV
2731	2731-PID-303	1 OF 1	N.T.S.	A3	0

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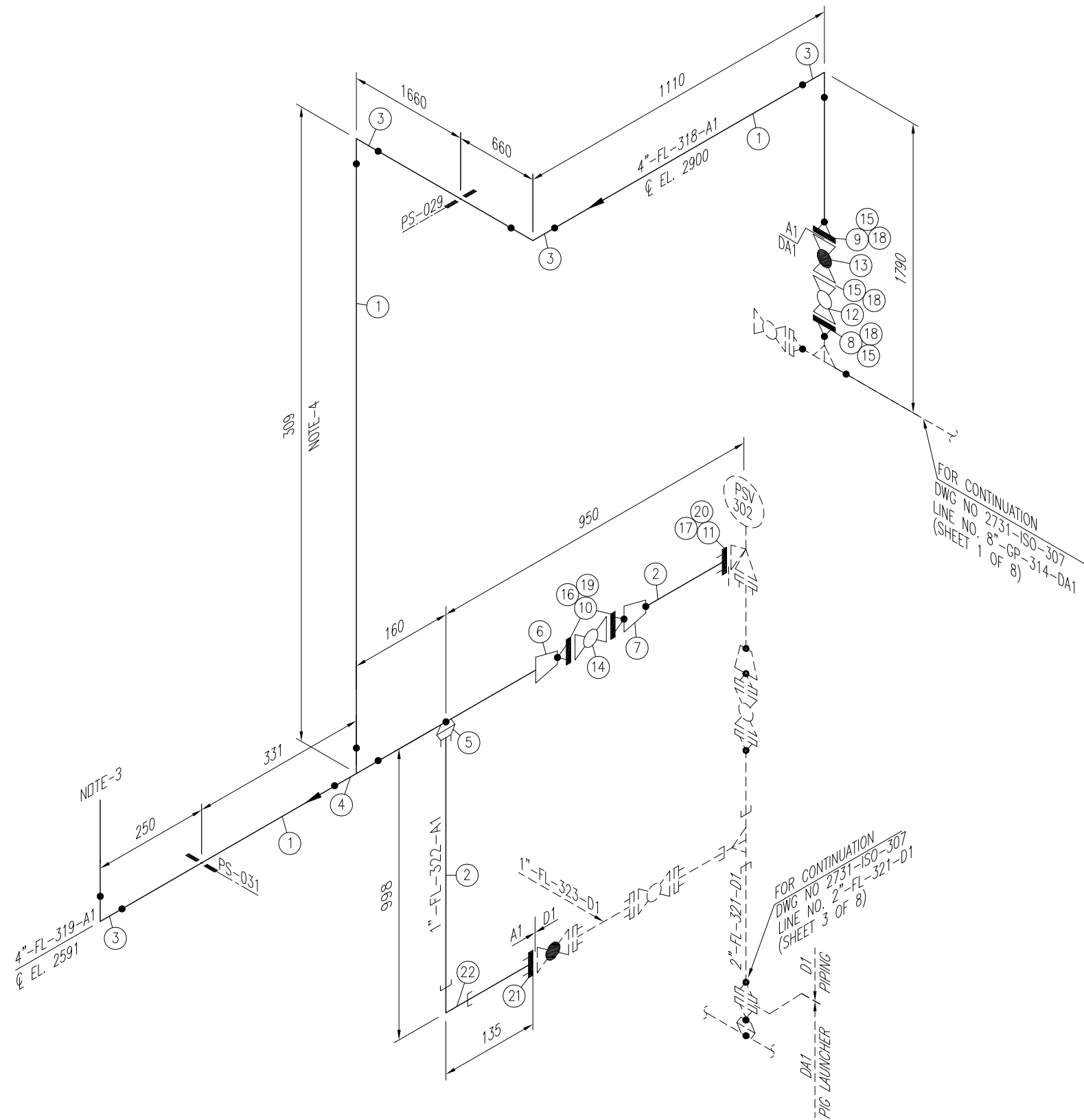
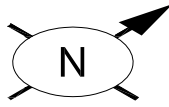


Sr. NO.	SIZE	DESCRIPTION	QTY.	MATERIAL	(MAT. SPEC)	REMARKS
1	8"	PIPE SCH.80 BE SMLS	6.5M	API 5L GR.X52	DA1	
2	4"	PIPE SCH.40 BE SMLS	2.5M	API 5L GR.X52	DA1	
3	3/4"	PIPE NIPPLE SCH.80 100mm LONG PE SMLS	5	API 5L GR.X52	DA1	
4	8"	BARRED TEE. SCH.80 BW	1	MSS SP-75 Gr.WPHY 52	DA1	
5	4"	ELBOW 45° LR SCH.40 BW	1	MSS SP-75 Gr.WPHY 52	DA1	
6	3/4"	EQL. TEE 9000# S.W	1	ASTM A-694 Gr. F52	D1	
7	8"x4"	RED BARRED TEE. SCH.80 X SCH.40 BW	1	MSS SP-75 Gr.WPHY 52	DA1	
8	8"x4"	RED. TEE SCH.80x40 BW	1	MSS SP-75 Gr.WPHY 52	DA1	
9	8"x2"	WELDOLET, BW SCH.80	3	ASTM A-694 Gr. F52	DA1	
10	8"x3/4"	SOCKOLET, 9000# SW	2	ASTM A-694 Gr. F52	DA1	
11	2"	HYDRAULIC FITTING (CORROSION COUPON)	1	ASTM A-694 Gr. F52	-	
12	2"	HYDRAULIC FITTING (CORROSION PROBE)	1	ASTM A-694 Gr. F52	-	
13	4"	W.N. FLANGE RTJ. 900#. SCH.40 BW	1	ASTM A-694 Gr. F52	DA1	
14	8"	W.N. FLANGE RTJ. SCH.80 BW 900#.	3	ASTM A-694 Gr. F52	DA1	
15	2"	W.N. FLANGE RTJ. SCH.80 BW 900#.	2	ASTM A-694 Gr. F52	DA1	
16	3/4"	S.W FLANGE RTJ. 1500#.	5	ASTM A-694 Gr. F52	DA1	
17	2"	BLIND FLANGE RTJ. 900#.	1	ASTM A-694 Gr. F52	DA1	
18	3/4"	BLIND FLANGE RTJ. 1500#.	2	ASTM A-694 Gr. F52	DA1	
19	3/4"	BLIND FLANGE RTJ. 1500#, WITH 1/2" NPT TAPPING BORE	1	ASTM A-694 Gr. F52	-	
20	8"	BALL VALVE RTJ. 900#	2	SEE TAG NO. VB-108	DA1	
21	2"	BALL VALVE RTJ. 900#	1	SEE TAG NO. VB-107	DA1	
22	3/4"	BALL VALVE RTJ. 1500#	4	SEE TAG NO. VB-111	DA1	
23	2"	GLOBE VALVE RTJ. 900#	1	SEE TAG NO. VGL-104	DA1	
24	8"	OCTAGONAL RING, 900# R-49	3	316L S.S.	DA1	
25	4"	OCTAGONAL RING, 900# R-37	1	316L S.S.	DA1	
26	2"	OCTAGONAL RING, 900# R-24	4	316L S.S.	DA1	
27	3/4"	OCTAGONAL RING, 1500# R-14	8	316L S.S.	DA1	
28	1 3/8"	LG STUD BOLTS C/W 2 NUTS 220mm LONG	36	ASTM A 193 Gr. B7M CADMIUM PLATED ASTM A 194 Gr. 2HM CADMIUM PLATED	DA1	
29	1 1/8"	LG STUD BOLTS C/W 2 NUTS 170mm LONG	8	ASTM A 193 Gr. B7M CADMIUM PLATED ASTM A 194 Gr. 2HM CADMIUM PLATED	DA1	
30	7/8"	LG STUD BOLTS C/W 2 NUTS 145mm LONG	32	ASTM A 193 Gr. B7M CADMIUM PLATED ASTM A 194 Gr. 2HM CADMIUM PLATED	DA1	
31	3/4"	LG STUD BOLTS C/W 2 NUTS 115mm LONG	32	ASTM A 193 Gr. B7M CADMIUM PLATED ASTM A 194 Gr. 2HM CADMIUM PLATED	DA1	
32	8"	INSULATION JOINT, 900#	1	ASTM A-694 Gr. F52	-	
33	8"	ELBOW 45° LR SCH.80 BW	1	MSS SP-75 Gr.WPHY 52	DA1	

**NOTES:**

1. ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED.
2. ALL DIMENSIONS, ELEVATIONS AND ORIENTATIONS TO BE VERIFIED BY THE CONTRACTOR BEFORE UNDERTAKING ANY KIND OF FABRICATION, CONSTRUCTION AND INSTALLATION.
3. PROVISION FOR FLOWLINE PURGING & DEPRESSURIZING.

0	22-06-17	ISSUED FOR REVIEW	N.U	SHAH		
REV.	DATE	DESCRIPTION	DRAWN	CHK'D	APP'VD	APP'VD
			CONSULTANT		CLIENT	
<b>PEC PETROCHEMICAL ENGINEERING CONSULTANTS</b> C-2, BLOCK NO. 17, GULSHAN-E-IOBAL, NEAR NATIONAL STADIUM, KARACHI-75300, PAKISTAN. TEL. +92 (21) 34827780, 34961088, FAX: +92 21 34961089, E-Mail: contact@pec.com.pk web site: www.pec.com.pk						
CLIENT <b>OIL &amp; GAS DEVELOPMENT COMPANY LTD.</b>						
PROJECT : <b>DEVELOPMENT OF GUNDANWARI-1 WELLHEAD</b>						
TITLE : <b>PIPING ISOMETRIC PIG LAUNCHER (V-303) LINE No.8"-GP-314-DA1,8"-GP-315-DA1, 4"-GP-301-DA1</b>						
DRAWING NO.			SHEET	SCALE	REV.	
<b>2731-ISO-307</b>			NO. OF	N.T.S.	0	
			1	8	A3	



Sr. NO.	SIZE	DESCRIPTION	QTY.	MATERIAL	(MAT. SPEC)	REMARKS
1	4"	PIPE SCH.40 BE SMLS	6.5M	ASTM A-106 Gr.B	A1	
2	1"	PIPE SCH.40 SMLS, BE	1.1M	ASTM A-106 Gr.B	A1	
3	4"	ELBOW 90° LR B.W SCH.40 BE	4	ASTM A-234 Gr. WPB	A1	
4	4"	EQUAL TEE SCH.40 BW	1	ASTM A-234 Gr. WPB	A1	
5	4"x1"	SOCKOLET 3000# S.W	1	ASTM A-105	A1	
6	4"x2"	CONC. RED. SCH.40 BW.	1	ASTM A-234 Gr. WPB	A1	
7	2"x1"	CONC. RED. SCH.40 BW.	1	ASTM A-234 Gr. WPB	A1	
8	4"	W.N. FLANGE RTJ. SCH.40 BW 900#.	1	ASTM A-694 Gr. F52	DA1	
9	4"	W.N. FLANGE RTJ. SCH.40 BW 900#.	1	ASTM A-105	DA1	
10	2"	W.N. FLANGE RF. 150#, SCH.40 BW	2	ASTM A-105	A1	
11	1"	S.W FLANGE RTJ. 300#.	1	ASTM A-105	-	
12	4"	BALL VALVE RTJ. 900#	1	SEE TAG NO. VB-107	DA1	
13	4"	GLOBE VALVE RTJ. 900#	1	SEE TAG NO. VGL-104	DA1	
14	2"	BALL VALVE RF. 150#	1	SEE TAG NO. VB-101	A1	
15	4"	OCTAGONAL RING, 900# R-37	3	316L S.S.	-	
16	2"	GASKET 150# 3mm THICK COMPRESSED GRAPHITE FILLED, SPIRAL WOUND 304 SS CENTRAL RING AS PER ASME B-16.20	2	304 S.S.	A1	
17	1"	OCTAGONAL RING, 300# R-16	1	316L S.S.	A1	
18	1 1/8"	LG STUD BOLTS C/W 2 NUTS 170mm LONG	24	ASTM A 193 Gr. B7M CADMIUM PLATED ASTM A 194 Gr. 2HM CADMIUM PLATED	-	
19	5/8"	LG STUD BOLTS C/W 2 NUTS 85mm LONG	8	ASTM A 193 Gr. B7M CADMIUM PLATED ASTM A 194 Gr. 2HM CADMIUM PLATED	A1	
20	5/8"	LG STUD BOLTS C/W 2 NUTS 90mm LONG	4	ASTM A 193 Gr. B7M CADMIUM PLATED ASTM A 194 Gr. 2HM CADMIUM PLATED	-	
21	1"	S.W FLANGE RTJ. 1500#	1	ASTM A-105	-	
22	1"	ELBOW 90° 3000# S.W	1	ASTM A-105	A1	

**NOTES:**

1. ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED.
2. ALL DIMENSIONS, ELEVATIONS AND ORIENTATIONS TO BE VERIFIED BY THE CONTRACTOR BEFORE UNDERTAKING ANY KIND OF FABRICATION, CONSTRUCTION AND INSTALLATION WORK AT SITE.
3. VENT SHOULD BE AT LEAST 3m FROM THE HIGHEST POINT OF STRUCTURE/PLAT FORM.
4. ELEVATION TO BE ADJUSTED AS PER SITE REQUIREMENT.

0	22-06-17	ISSUED FOR REVIEW	N.U	SHAH		
REV.	DATE	DESCRIPTION	DRAWN	CHK'D	APP'VD	APP'VD
			CONSULTANT		CLIENT	

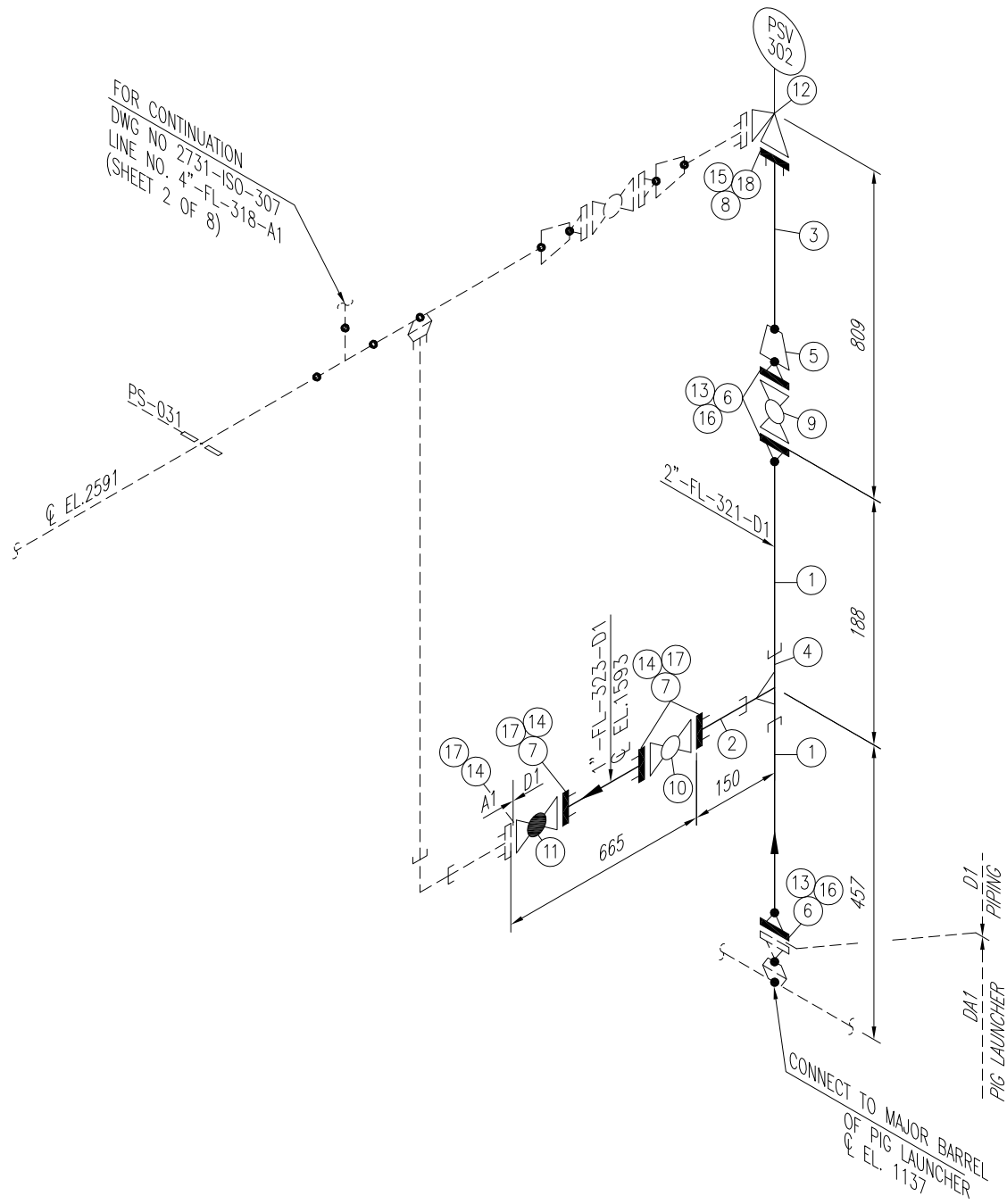
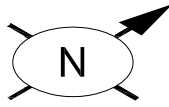
**PC PETROCHEMICAL ENGINEERING CONSULTANTS**  
 C-2, BLOCK NO. 17, GULSHAN-E-IQBAL, NEAR NATIONAL STADIUM, KARACHI-75300, PAKISTAN.  
 TEL: +92 (21) 34827780, 34961088, FAX: +92 21 34961089, E-Mail: contact@pcec.com.pk web site: www.pcec.com.pk

CLIENT: **OIL & GAS DEVELOPMENT COMPANY LTD.**

PROJECT: **DEVELOPMENT OF GUNDANWARI-1 WELLHEAD**

TITLE: **PIPING ISOMETRIC PIG LAUNCHER (V-303)  
 LINE No. 4"-FL-318-A1, 4"-FL-319-A1, 1"-FL-322-A1**

DRAWING NO.	SHEET	SCALE	REV.
<b>2731-ISO-307</b>	NO. OF	N.T.S.	0
	2	8	A3



FOR CONTINUATION  
 DWG NO 2731-ISO-307  
 LINE NO. 4\"/>

Sr. NO.	SIZE	DESCRIPTION	QTY.	MATERIAL	(MAT. SPEC)	REMARKS
1	2"	PIPE SCH.160 BE SMLS	0.3M	ASTM A-106 GR.B	D1	
2	1"	PIPE SCH.160 SMLS, PE	0.1M	ASTM A-106 GR.B	D1	
3	3/4"	PIPE SCH.160 SMLS, PE	0.5M	ASTM A-106 GR.B	D1	
4	2"x1"	RED. TEE 9000# S.W	1	ASTM A-105	D1	
5	2"x3/4"	CONC. RED. SCH.160 BW.	1	ASTM A-234 Gr. WPB	D1	
6	2"	W.N. FLANGE RTJ. SCH.160 BW 900#.	3	ASTM A-105	-	
7	1"	S.W FLANGE RTJ. 1500#.	3	ASTM A-105	D1	
8	3/4"	S.W FLANGE RTJ. 900#.	1	ASTM A-105	D1	
9	2"	BALL VALVE RTJ. 900#	1	SEE TAG NO. VB-107	-	
10	1"	BALL VALVE RTJ. 1500#	1	SEE TAG NO. VB-111	D1	
11	1"	GLOBE VALVE RTJ. 1500#.	1	SEE TAG NO. VGL-105	D1	
12	3/4"x1"	PSV, RTJ. 900# X 300#	1	SEE DATA SHEET	-	
13	2"	OCTAGONAL RING, 900# R-24	3	316L S.S.	D1	
14	1"	OCTAGONAL RING, 1500# R-16	4	316L S.S.	D1	
15	3/4"	OCTAGONAL RING, 900#	1	316L S.S.	-	
16	7/8"	LG STUD BOLTS C/W 2 NUTS 145mm LONG	24	ASTM A 193 Gr. B7M CADMIUM PLATED ASTM A 194 Gr. 2HM CADMIUM PLATED	-	
17	7/8"	LG STUD BOLTS C/W 2 NUTS 125mm LONG	16	ASTM A 193 Gr. B7M CADMIUM PLATED ASTM A 194 Gr. 2HM CADMIUM PLATED	D1	
18	3/4"	LG STUD BOLTS C/W 2 NUTS 115mm LONG	4	ASTM A 193 Gr. B7M CADMIUM PLATED ASTM A 194 Gr. 2HM CADMIUM PLATED	-	

**NOTES:**

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2. ALL DIMENSIONS, ELEVATIONS AND ORIENTATIONS TO BE VERIFIED BY THE CONTRACTOR BEFORE UNDERTAKING ANY KIND OF FABRICATION, CONSTRUCTION AND INSTALLATION WORK AT SITE.
2. ALL DIMENSIONS, ELEVATIONS AND ORIENTATIONS TO BE

0	22-06-17	ISSUED FOR REVIEW	N.U	SHAH		
REV.	DATE	DESCRIPTION	DRAWN	CHK'D	APP'VD	APP'VD
			CONSULTANT		CLIENT	

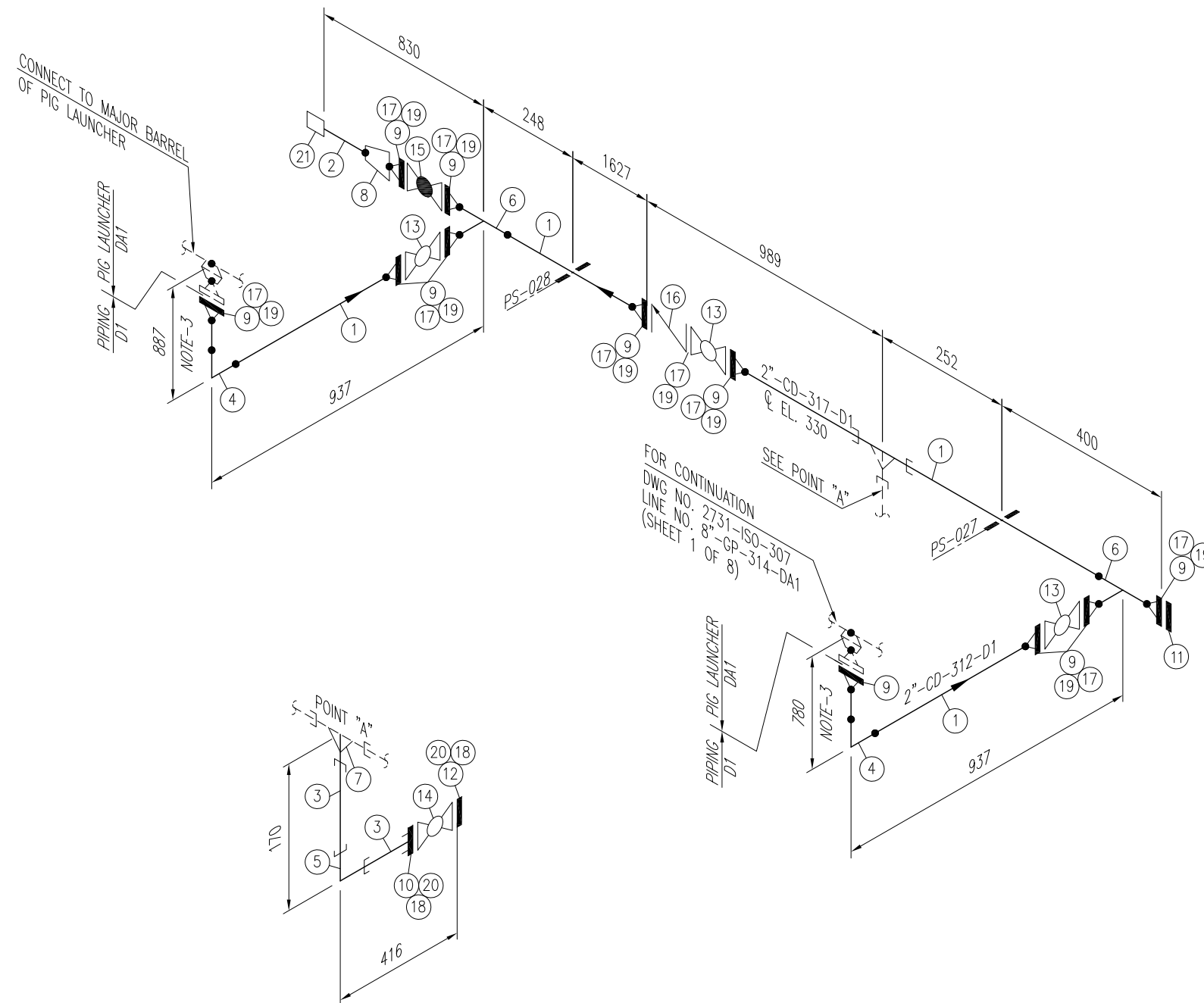
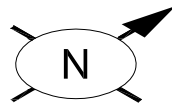
**PC PETROCHEMICAL ENGINEERING CONSULTANTS**  
 C-2, BLOCK NO. 17, GULSHAN-E-IOBAL, NEAR NATIONAL STADIUM, KARACHI-75300, PAKISTAN.  
 TEL. +92 (21) 34827780, 34961088, FAX: +92 21 34961089, E-Mail: contact@pcec.com.pk web site: www.pcec.com.pk

CLIENT: **OIL & GAS DEVELOPMENT COMPANY LTD.**

PROJECT: **DEVELOPMENT OF GUNDANWARI-1 WELLHEAD**

TITLE: **PIPING ISOMETRIC  
 PIG LAUNCHER (V-303)  
 LINE No.2"-FL-321-D1,1"-FL-323-D1**

DRAWING NO.	SHEET	SCALE	REV.
<b>2731-ISO-307</b>	NO. OF	N.T.S.	0
	3	8 A3	



Sr. NO.	SIZE	DESCRIPTION	QTY.	MATERIAL	(MAT. SPEC)	REMARKS
1	2"	PIPE SCH.160 BE SMLS	4.3M	ASTM A-106 GR.B	D1	
2	1"	PIPE SCH.160 PE SMLS	0.1M	ASTM A-106 GR.B	D1	
3	3/4"	PIPE NIPPLE SCH.160 100mm LONG PE SMLS	2	ASTM A-106 GR.B	D1	
4	2"	ELBOW 90° LR SCH.160 BW	2	ASTM A-234 Gr. WPB	D1	
5	3/4"	ELBOW 90° 9000# S.W	1	ASTM A-105	D1	
6	2"	EQL. TEE SCH.160 BW	2	ASTM A-234 Gr. WPB	D1	
7	2"x3/4"	RED. TEE 9000# SW	1	ASTM A-105	D1	
8	2"x1"	CONC. RED. SCH.160 BW.	1	ASTM A-234 Gr. WPB	D1	
9	2"	W.N. FLANGE RTJ. SCH.160 BW 900#.	11	ASTM A-105	D1	
10	3/4"	S.W FLANGE RTJ. 1500#.	1	ASTM A-105	D1	
11	2"	BLIND FLANGE RTJ. 900#.	1	ASTM A-105	D1	
12	3/4"	BLIND FLANGE RTJ. 1500#.	1	ASTM A-105	D1	
13	2"	BALL VALVE RTJ. 900#.	3	SEE TAG NO. VB-107	D1	
14	3/4"	BALL VALVE RTJ. 1500#.	1	SEE TAG NO. VB-111	D1	
15	2"	GLOBE VALVE RTJ. 900#.	1	SEE TAG NO. VGL-104	D1	
16	2"	CHECK VALVE RTJ. 900#.	1	SEE TAG NO. VC-104	D1	
17	2"	OCTAGONAL RING, 900# R-24	11	316L S.S.	D1	
18	3/4"	OCTAGONAL RING, 1500# R-14	2	316L S.S.	D1	
19	7/8"	LG STUD BOLTS C/W 2 NUTS 145mm LONG	88	ASTM A 193 Gr. B7M CADMIUM PLATED ASTM A 194 Gr. 2HM CADMIUM PLATED	D1	
20	3/4"	LG STUD BOLTS C/W 2 NUTS 115mm LONG	8	ASTM A 193 Gr. B7M CADMIUM PLATED ASTM A 194 Gr. 2HM CADMIUM PLATED	D1	
21	1"	HOSE COUPLING 9000#	1	ASTM A-105	D1	

**NOTES:**

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3. ELEVATION TO BE ADJUSTED AS PER SITE REQUIREMENT.

REV.	DATE	DESCRIPTION	DRAWN	CHK'D	APP'VD	APP'VD
					CONSULTANT	CLIENT
0	22-06-17	ISSUED FOR REVIEW	N.U	SHAH		

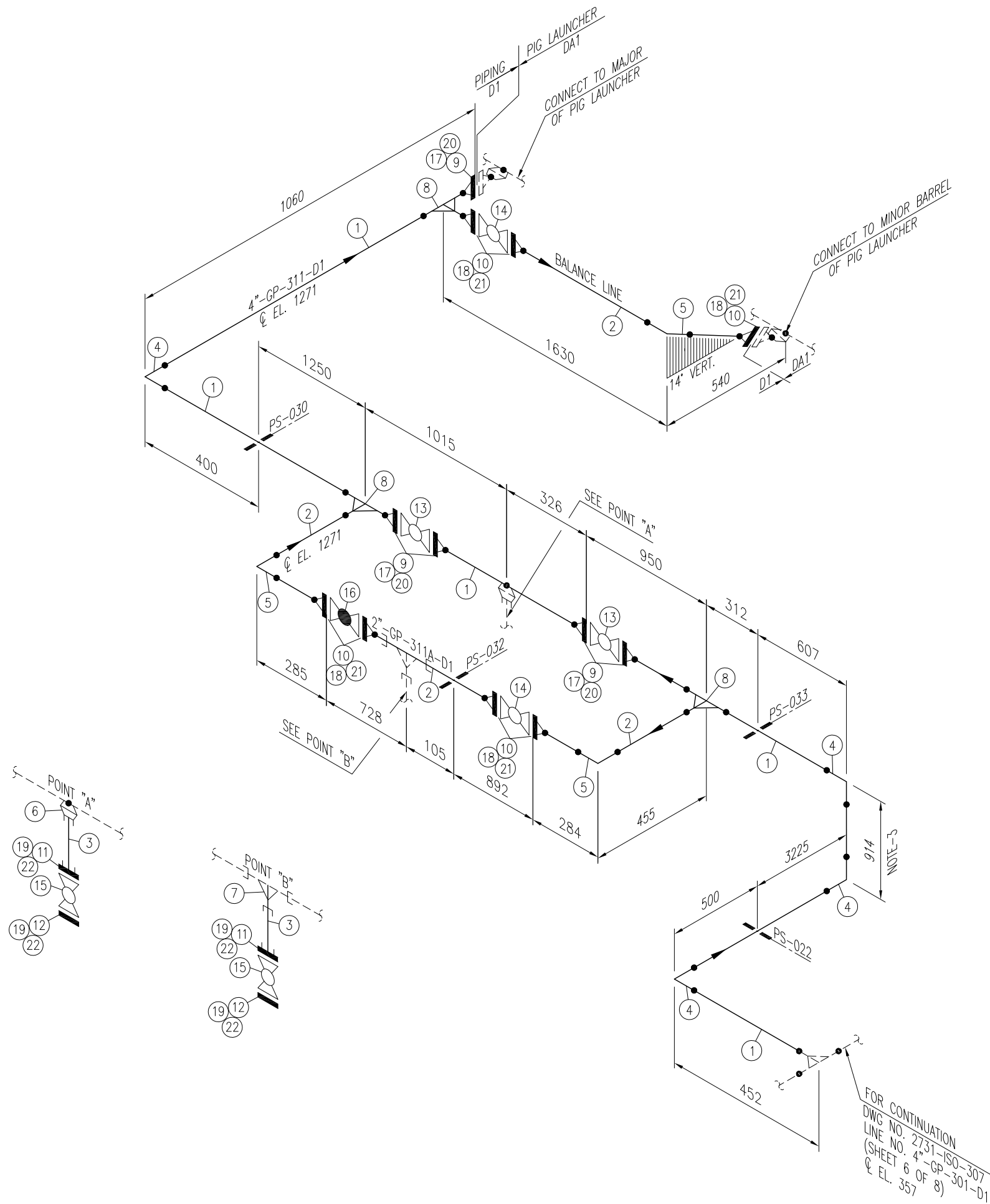
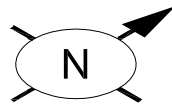
**PC PETROCHEMICAL ENGINEERING CONSULTANTS**  
 C-2, BLOCK NO. 17, GULSHAN-E-IQBAL, NEAR NATIONAL STADIUM, KARACHI-75300, PAKISTAN.  
 TEL: +92 (21) 34827780, 34961088, FAX: +92 21 34961089, E-Mail: contact@pcec.com.pk web site: www.pcec.com.pk

CLIENT: **OIL & GAS DEVELOPMENT COMPANY LTD.**

PROJECT: **DEVELOPMENT OF GUNDANWARI-1 WELLHEAD**

TITLE: **PIPING ISOMETRIC PIG LAUNCHER (V-303)  
 LINE No. 2"-CD-317-D1, 2"-CD-312-D1**

DRAWING NO.	SHEET	SCALE	REV.
<b>2731-ISO-307</b>	NO. OF	N.T.S.	0
	4 8	A3	

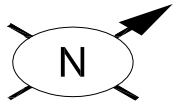


Sr. NO.	SIZE	DESCRIPTION	QTY.	MATERIAL	(MAT. SPEC)	REMARKS
1	4"	PIPE SCH.120 BE SMLS	9.0M	ASTM A-106 GR.B	D1	
2	2"	PIPE SCH.160 BE SMLS	3.5M	ASTM A-106 GR.B	D1	
3	3/4"	PIPE NIPPLE SCH.160 100mm LONG PE SMLS	2	ASTM A-106 GR.B	D1	
4	4"	ELBOW 90° LR SCH.120 BW	4	ASTM A-234 Gr. WPB	D1	
5	2"	ELBOW 90° LR SCH.160 BW	3	ASTM A-234 Gr. WPB	D1	
6	4"x3/4"	SOCKET, 9000# SW	1	ASTM A-105	D1	
7	2"x3/4"	RED. TEE 9000# SW	1	ASTM A-105	D1	
8	4"x2"	RED. TEE SCH.120x160 BW	3	ASTM A-234 Gr. WPB	D1	
9	4"	W.N. FLANGE RTJ. SCH.120 BW 900#.	5	ASTM A-105	D1	
10	2"	W.N. FLANGE RTJ. SCH.160 BW 900#.	7	ASTM A-105	D1	
11	3/4"	S.W FLANGE RTJ. 1500#.	2	ASTM A-105	D1	
12	3/4"	BLIND FLANGE RTJ. 1500#.	2	ASTM A-105	D1	
13	4"	BALL VALVE RTJ. 900#.	2	SEE TAG NO. VB-107	D1	
14	2"	BALL VALVE RTJ. 900#.	2	SEE TAG NO. VB-107	D1	
15	3/4"	BALL VALVE RTJ. 1500#.	2	SEE TAG NO. VB-111	D1	
16	2"	GLOBE VALVE RTJ. 900#.	1	SEE TAG NO. VGL-104	D1	
17	4"	OCTAGONAL RING, 900# R-37	5	316L S.S.	D1	
18	2"	OCTAGONAL RING, 900# R-24	7	316L S.S.	D1	
19	3/4"	OCTAGONAL RING, 1500# R-14	4	316L S.S.	D1	
20	1 1/8"	LG STUD BOLTS C/W 2 NUTS 170mm LONG	40	ASTM A 193 Gr. B7M CADMIUM PLATED ASTM A 194 Gr. 2HM CADMIUM PLATED	D1	
21	7/8"	LG STUD BOLTS C/W 2 NUTS 145mm LONG	56	ASTM A 193 Gr. B7M CADMIUM PLATED ASTM A 194 Gr. 2HM CADMIUM PLATED	D1	
22	3/4"	LG STUD BOLTS C/W 2 NUTS 115mm LONG	16	ASTM A 193 Gr. B7M CADMIUM PLATED ASTM A 194 Gr. 2HM CADMIUM PLATED	D1	

**NOTES:**

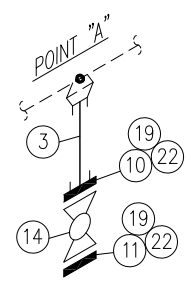
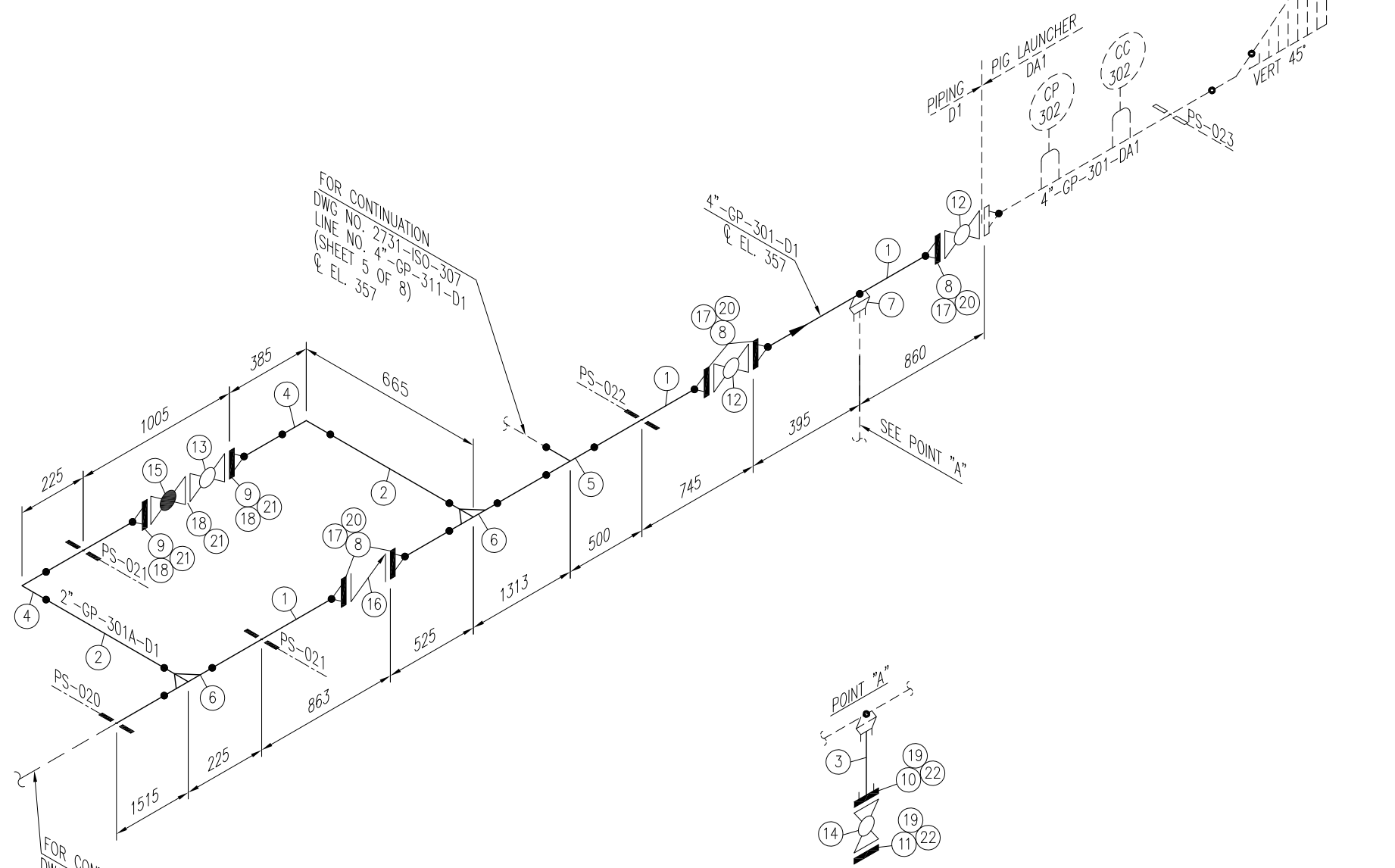
1. ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED.
2. ALL DIMENSIONS, ELEVATIONS AND ORIENTATIONS TO BE VERIFIED BY THE CONTRACTOR BEFORE UNDERTAKING ANY KIND OF FABRICATION, CONSTRUCTION AND INSTALLATION WORK AT SITE.
3. ELEVATION TO BE ADJUSTED AS PER SITE REQUIREMENT.

0	22-06-17	ISSUED FOR REVIEW	N.U	SHAH		
REV.	DATE	DESCRIPTION	DRAWN	CHK'D	APP'VD	APP'VD
			CONSULTANT		CLIENT	
<b>PETROCHEMICAL ENGINEERING CONSULTANTS</b> C-2, BLOCK NO. 17, GULSHAN-E-IQBAL, NEAR NATIONAL STADIUM, KARACHI-75300, PAKISTAN. TEL: +92 (21) 34827780, 34961088, FAX: +92 21 34961089, E-Mail: contact@pec.com.pk web site: www.pec.com.pk						
CLIENT <b>OIL &amp; GAS DEVELOPMENT COMPANY LTD.</b>						
PROJECT : <b>DEVELOPMENT OF GUNDANWARI-1 WELLHEAD</b>						
TITLE : <b>PIPING ISOMETRIC PIG LAUNCHER (V-303) LINE No. 4"-GP-311-D1, 2"-GP-311A-D1</b>						
DRAWING NO.			SHEET	SCALE	REV.	
<b>2731-ISO-307</b>			NO. OF	N.T.S.	0	
			5	8	A3	



FOR CONTINUATION  
 DWG NO. 2731-ISO-307  
 LINE NO. 8"-GP-314-DA1  
 (SHEET 1 OF 8)  
 & EL. 1110

FOR CONTINUATION  
 DWG NO. 2731-ISO-307  
 LINE NO. 4"-GP-311-D1  
 (SHEET 5 OF 8)  
 & EL. 357



Sr. NO.	SIZE	DESCRIPTION	QTY.	MATERIAL	(MAT. SPEC)	REMARKS
1	4"	PIPE SCH.120 BE SMLS	5.7M	ASTM A-106 GR.B	D1	
2	2"	PIPE SCH.160 BE SMLS	2.1M	ASTM A-106 GR.B	D1	
3	3/4"	PIPE NIPPLE SCH.160 100mm LONG PE SMLS	1	ASTM A-106 GR.B	D1	
4	2"	ELBOW 90° LR SCH.160 BW	2	ASTM A-234 Gr. WPB	D1	
5	4"	EQL. TEE SCH.120 BW	1	ASTM A-234 Gr. WPB	D1	
6	4"x2"	RED. TEE SCH.120 X SCH.160 BW	2	ASTM A-234 Gr. WPB	D1	
7	4"x3/4"	SOCKOLET, 9000# SW	1	ASTM A-105	D1	
8	4"	W.N. FLANGE RTJ. SCH.120 BW 900#.	5	ASTM A-105	D1	
9	2"	W.N. FLANGE RTJ. SCH.160 BW 900#.	2	ASTM A-105	D1	
10	3/4"	S.W FLANGE RTJ. 1500#.	1	ASTM A-105	D1	
11	3/4"	BLIND FLANGE RTJ. 1500#.	1	ASTM A-105	D1	
12	4"	BALL VALVE RTJ. 900#.	2	SEE TAG NO. VB-107	D1	
13	2"	BALL VALVE RTJ. 900#.	1	SEE TAG NO. VB-107	D1	
14	3/4"	BALL VALVE RTJ. 1500#.	1	SEE TAG NO. VB-111	D1	
15	2"	GLOBE VALVE RTJ. 900#.	1	SEE TAG NO. VGL-104	D1	
16	4"	CHECK VALVE RTJ. 900#.	1	SEE TAG NO. VC-104	D1	
17	4"	OCTAGONAL RING, 900# R-37	5	316L S.S.	D1	
18	2"	OCTAGONAL RING, 900# R-24	3	316L S.S.	D1	
19	3/4"	OCTAGONAL RING, 1500# R-14	2	316L S.S.	D1	
20	1 1/8"	LG STUD BOLTS C/W 2 NUTS 170mm LONG	40	ASTM A 193 Gr. B7M CADMIUM PLATED ASTM A 194 Gr. 2HM CADMIUM PLATED	D1	
21	7/8"	LG STUD BOLTS C/W 2 NUTS 145mm LONG	24	ASTM A 193 Gr. B7M CADMIUM PLATED ASTM A 194 Gr. 2HM CADMIUM PLATED	D1	
22	3/4"	LG STUD BOLTS C/W 2 NUTS 115mm LONG	12	ASTM A 193 Gr. B7M CADMIUM PLATED ASTM A 194 Gr. 2HM CADMIUM PLATED	D1	

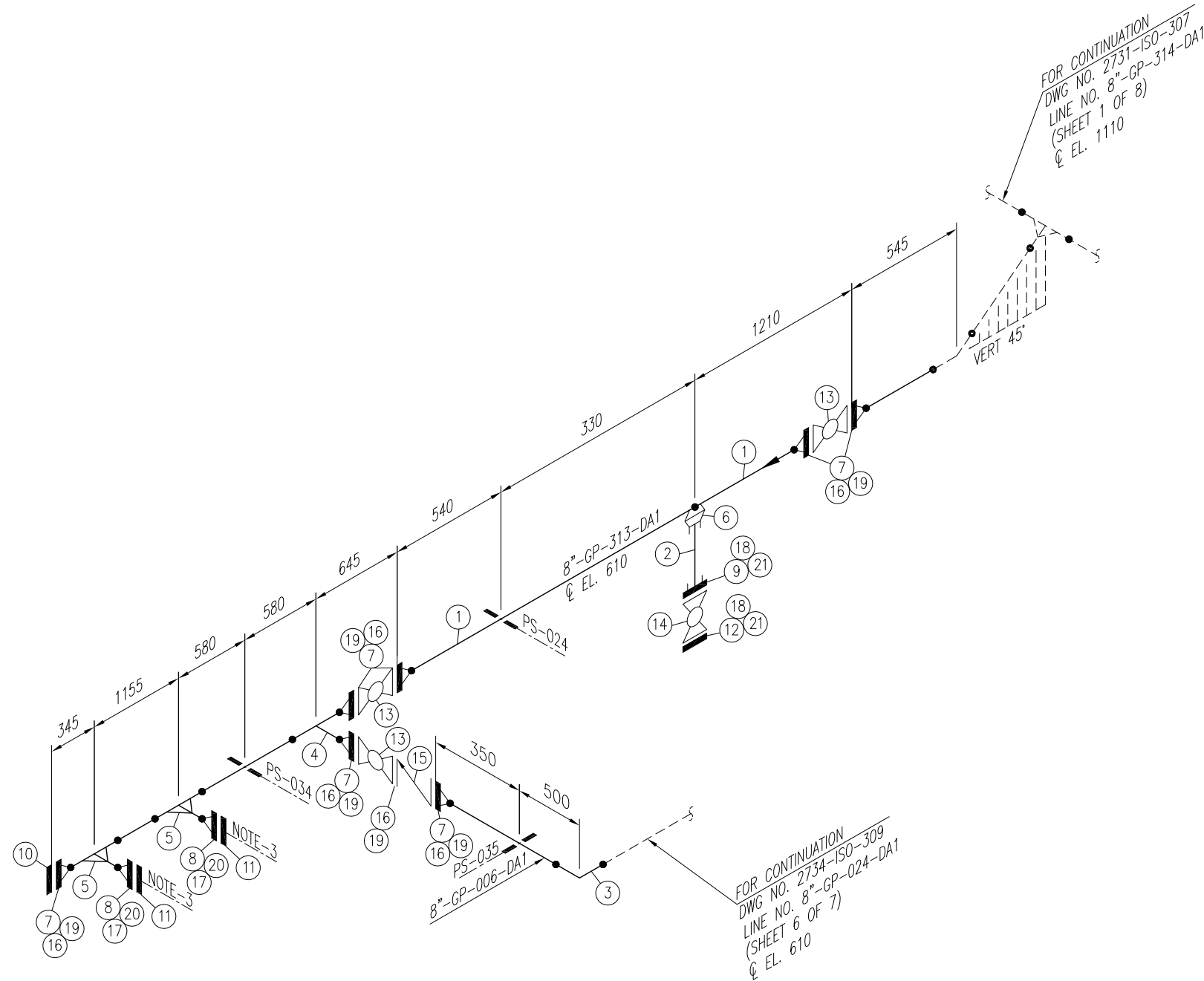
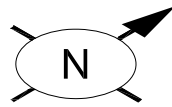
**NOTES:**

1. ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED.
2. ALL DIMENSIONS, ELEVATIONS AND ORIENTATIONS TO BE VERIFIED BY THE CONTRACTOR BEFORE UNDERTAKING ANY KIND OF FABRICATION, CONSTRUCTION AND INSTALLATION WORK AT SITE.

FOR CONTINUATION  
 DWG NO. 2731-ISO-304  
 LINE NO. 4"-GP-301-D1  
 & EL. 357

0	22-06-17	ISSUED FOR REVIEW	N.U	SHAH		
REV.	DATE	DESCRIPTION	DRAWN	CHK'D	APP'VD	APP'VD
			CONSULTANT		CLIENT	
<b>PETROCHEMICAL ENGINEERING CONSULTANTS</b> C-2, BLOCK NO. 17, GULSHAN-E-IQBAL, NEAR NATIONAL STADIUM, KARACHI-75300, PAKISTAN. TEL: +92 (21) 34827780, 34961088, FAX: +92 21 34961089, E-Mail: contact@pec.com.pk web site: www.pec.com.pk						
CLIENT <b>OIL &amp; GAS DEVELOPMENT COMPANY LTD.</b>						
PROJECT : <b>DEVELOPMENT OF GUNDANWARI-1 WELLHEAD</b>						
TITLE : <b>PIPING ISOMETRIC PIG LAUNCHER (V-303)          LINE No. 4"-GP-301-D1, 2"-GP-301A-D1</b>						
DRAWING NO.			SHEET	SCALE	REV.	
<b>2731-ISO-307</b>			NO. OF	N.T.S.	0	
			6	8	A3	





Sr. NO.	SIZE	DESCRIPTION	QTY.	MATERIAL	(MAT. SPEC)	REMARKS
1	8"	PIPE SCH.80 BE SMLS	5.9M	API 5L GR.X52	DA1	
2	3/4"	PIPE SCH.80 PE SMLS	0.1M	API 5L GR.X52	DA1	
3	8"	ELBOW 90° LR SCH.80 BW	1	MSS SP-75 Gr.WPHY 52	DA1	
4	8"	EQL. TEE SCH.80 BW	1	MSS SP-75 Gr.WPHY 52	DA1	
5	8"x4"	RED. TEE SCH.80 X SCH.40 BW	2	MSS SP-75 Gr.WPHY 52	DA1	
6	8"x3/4"	SOCKOLET, 9000# SW	1	ASTM A-694 Gr. F52	DA1	
7	8"	W.N. FLANGE RTJ. 900# SCH.80 BW	7	ASTM A-694 Gr. F52	DA1	
8	4"	W.N. FLANGE RTJ. 900# SCH.40 BW	2	ASTM A-694 Gr. F52	DA1	
9	3/4"	S.W FLANGE RTJ. 1500#.	1	ASTM A-694 Gr. F52	DA1	
10	8"	BLIND FLANGE RTJ. 900#.	1	ASTM A-694 Gr. F52	DA1	
11	4"	BLIND FLANGE RTJ. 900#.	2	ASTM A-694 Gr. F52	DA1	
12	3/4"	BLIND FLANGE RTJ. 1500#.	1	ASTM A-694 Gr. F52	DA1	
13	8"	BALL VALVE RTJ. 900#.	3	SEE TAG NO. VB-108	DA1	
14	3/4"	BALL VALVE RTJ. 1500#.	1	SEE TAG NO. VB-111	DA1	
15	8"	CHECK VALVE RTJ. 900#.	1	SEE TAG NO. VC-104	DA1	
16	8"	OCTAGONAL RING, 900# R-49	8	316L S.S.	DA1	
17	4"	OCTAGONAL RING, 900# R-37	2	316L S.S.	DA1	
18	3/4"	OCTAGONAL RING, 1500# R-14	2	316L S.S.	DA1	
19	1 3/8"	LG STUD BOLTS C/W 2 NUTS 220mm LONG	96	ASTM A 193 Gr. B7M CADMIUM PLATED ASTM A 194 Gr. 2HM CADMIUM PLATED	DA1	
20	1 1/8"	LG STUD BOLTS C/W 2 NUTS 170mm LONG	16	ASTM A 193 Gr. B7M CADMIUM PLATED ASTM A 194 Gr. 2HM CADMIUM PLATED	DA1	
21	3/4"	LG STUD BOLTS C/W 2 NUTS 115mm LONG	8	ASTM A 193 Gr. B7M CADMIUM PLATED ASTM A 194 Gr. 2HM CADMIUM PLATED	DA1	

**NOTES:**

1. ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED.
2. ALL DIMENSIONS, ELEVATIONS AND ORIENTATIONS TO BE VERIFIED BY THE CONTRACTOR BEFORE UNDERTAKING ANY KIND OF FABRICATION, CONSTRUCTION AND INSTALLATION WORK AT SITE.
3. PROVISION FOR FUTURE CONNECTION.

0	22-06-17	ISSUED FOR REVIEW	N.U	SHAH		
REV.	DATE	DESCRIPTION	DRAWN	CHK'D	APP'VD	APP'VD
			CONSULTANT		CLIENT	

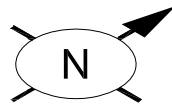
**PC PETROCHEMICAL ENGINEERING CONSULTANTS**  
 C-2, BLOCK NO. 17, GULSHAN-E-IQBAL, NEAR NATIONAL STADIUM, KARACHI-75300, PAKISTAN.  
 TEL. +92 (21) 34827780, 34961088, FAX: +92 21 34961089, E-Mail: contact@pcec.com.pk web site: www.pcec.com.pk

CLIENT: **OIL & GAS DEVELOPMENT COMPANY LTD.**

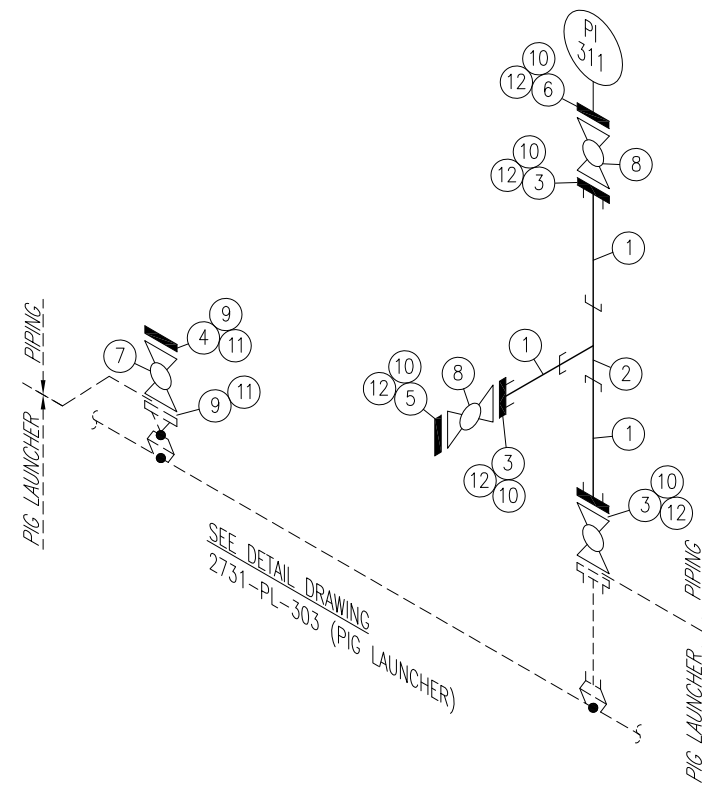
PROJECT: **DEVELOPMENT OF GUNDANWARI-1 WELLHEAD**

TITLE: **PIPING ISOMETRIC PIG LAUNCHER (V-303) LINE No. 8"-GP-313-DA1, 8"-GP-006-DA1**

DRAWING NO.	SHEET	SCALE	REV.
<b>2731-ISO-307</b>	NO. OF	N.T.S.	0
	7 8	A3	



Sr. NO.	SIZE	DESCRIPTION	QTY.	MATERIAL	(MAT. SPEC)	REMARKS
1	3/4"	PIPE NIPPLE SCH.80 100mm LONG PE SMLS	3	API 5L GR.X52	DA1	
2	3/4"	EQL. TEE 9000# S.W	1	ASTM A-694 Gr. F52	DA1	
3	3/4"	S.W FLANGE RTJ. 1500#.	3	ASTM A-694 Gr. F52	DA1	
4	2"	BLIND FLANGE RTJ. 900#.	1	ASTM A-694 Gr. F52	DA1	
5	3/4"	BLIND FLANGE RTJ. 1500#.	1	ASTM A-694 Gr. F52	DA1	
6	3/4"	BLIND FLANGE RTJ. 1500#, WITH 1/2" NPT TAPPING BORE	1	ASTM A-694 Gr. F52	DA1	
7	2"	BALL VALVE RTJ. 900#.	1	SEE TAG NO. VB-107	DA1	
8	3/4"	BALL VALVE RTJ. 1500#.	3	SEE TAG NO. VB-111	DA1	
9	2"	OCTAGONAL RING, 900# R-24	2	316L S.S.	DA1	
10	3/4"	OCTAGONAL RING, 1500# R-14	6	316L S.S.	DA1	
11	7/8"	LG STUD BOLTS C/W 2 NUTS 145mm LONG	16	ASTM A 193 Gr. B7M CADMIUM PLATED ASTM A 194 Gr. 2HM CADMIUM PLATED	DA1	
12	3/4"	LG STUD BOLTS C/W 2 NUTS 115mm LONG	24	ASTM A 193 Gr. B7M CADMIUM PLATED ASTM A 194 Gr. 2HM CADMIUM PLATED	-	



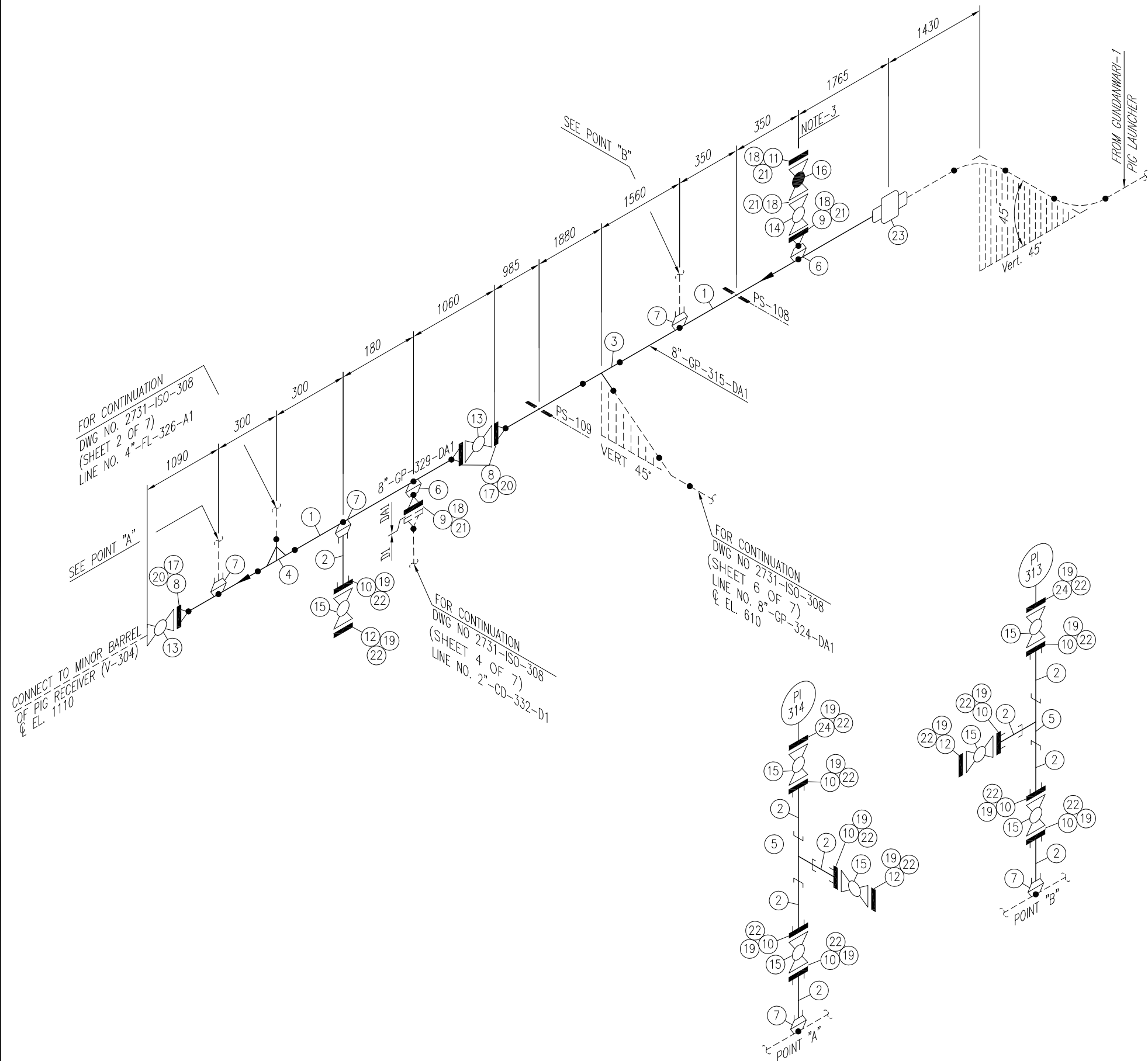
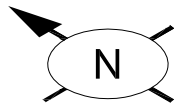
**NOTES:**

1. ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED.
2. ALL DIMENSIONS, ELEVATIONS AND ORIENTATIONS TO BE VERIFIED BY THE CONTRACTOR BEFORE UNDERTAKING ANY KIND OF FABRICATION, CONSTRUCTION AND INSTALLATION WORK AT SITE.
3. PROVISION OF FUTURE CONNECTION.

0	04-07-17	ISSUED FOR REVIEW	SN	SHAH		
REV.	DATE	DESCRIPTION	DRAWN	CHK'D	APP'VD	APP'VD
			CONSULTANT		CLIENT	
<b>PETROCHEMICAL ENGINEERING CONSULTANTS</b> C-2, BLOCK NO. 17, GULSHAN-E-IQBAL, NEAR NATIONAL STADIUM, KARACHI-75300, PAKISTAN. TEL. +92 (21) 34827780, 34961088, FAX: +92 21 34961089, E-Mail: contact@pec.com.pk web site: www.pec.com.pk						
CLIENT <b>OIL &amp; GAS DEVELOPMENT COMPANY LTD.</b>						
PROJECT : <b>DEVELOPMENT OF MITHRI-1 WELLHEAD</b>						
TITLE : <b>PIPING ISOMETRIC PIG LAUNCHER (V-303) PI-311 &amp; 2" CONNECTION</b>						
DRAWING NO.			SHEET	SCALE	REV.	
<b>2732-ISO-307</b>			NO. OF	N.T.S.	0	
			8	8	A3	



# **ISOMETRICS OF GUNADANWARI WELL & RECEIVER AT BITRISUM WEST-1 (V-304)**

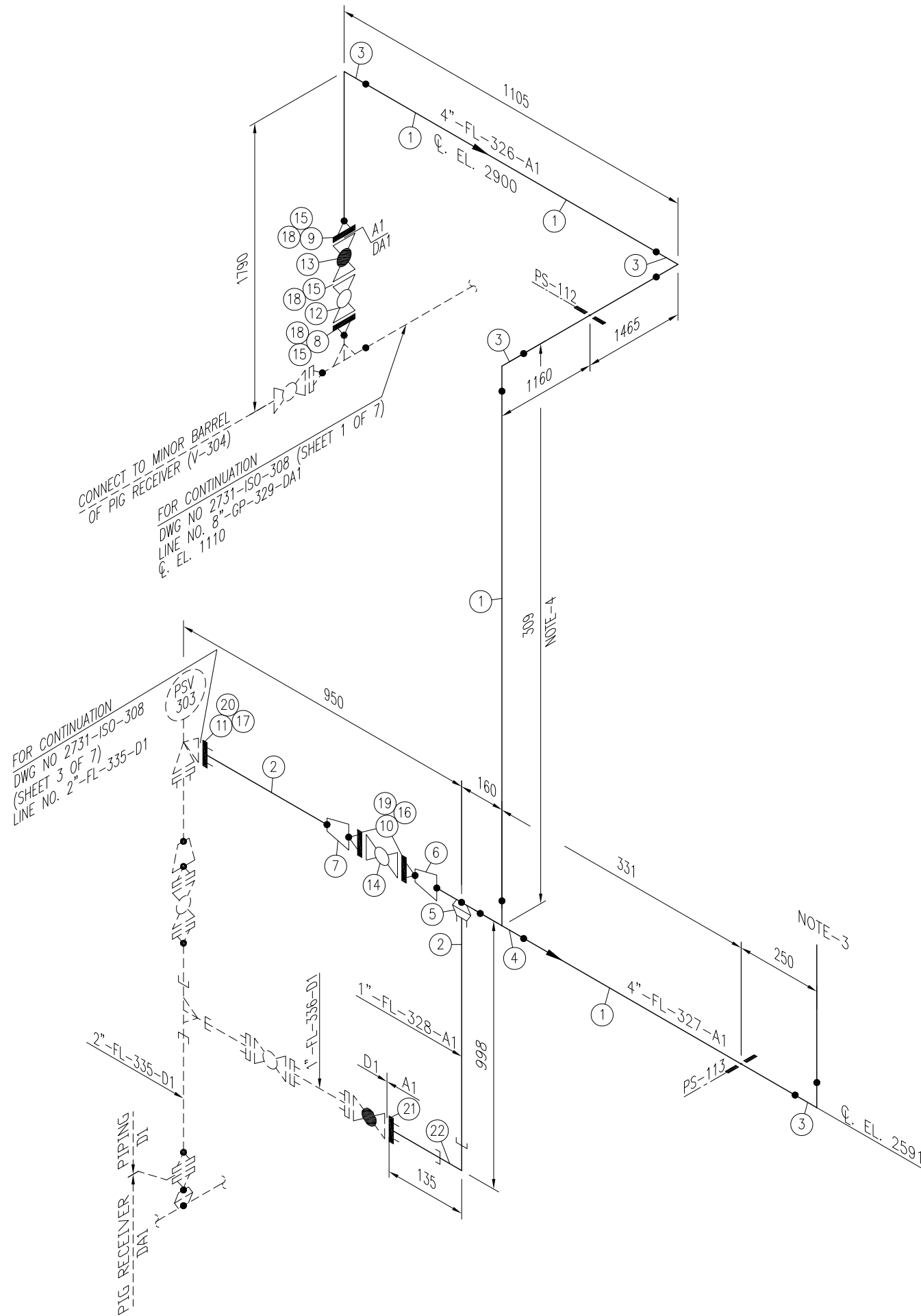
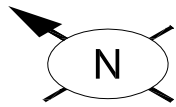


Sr. NO.	SIZE	DESCRIPTION	QTY.	MATERIAL	(MAT. SPEC)	REMARKS
1	8"	PIPE SCH.80 BE SMLS	7.4M	API 5L GR.X52	DA1	
2	3/4"	PIPE NIPPLE SCH.80 100mm LONG PE SMLS	9	API 5L GR.X52	DA1	
3	8"	BARRED TEE. SCH.80 BW	1	MSS SP-75 Gr.WPHY 52	DA1	
4	8"x4"	RED. BARRED TEE SCH.80x40 BW	1	MSS SP-75 Gr.WPHY 52	DA1	
5	3/4"	EQL. TEE 9000# S.W	2	ASTM A-694 Gr. F52	D1	
6	8"x2"	WELDOLET, BW SCH.80x80	2	ASTM A-694 Gr. F52	DA1	
7	8"x3/4"	SOCKOLET, 9000# SW	3	ASTM A-694 Gr. F52	DA1	
8	8"	W.N. FLANGE RTJ. SCH.80 BW 900#.	3	ASTM A-694 Gr. F52	DA1	
9	2"	W.N. FLANGE RTJ. SCH.80 BW 900#.	2	ASTM A-694 Gr. F52	DA1	
10	3/4"	S.W FLANGE RTJ. 1500#	9	ASTM A-694 Gr. F52	DA1	
11	2"	BLIND FLANGE RTJ. 900#	1	ASTM A-694 Gr. F52	DA1	
12	3/4"	BLIND FLANGE RTJ. 1500#	3	ASTM A-694 Gr. F52	DA1	
13	8"	BALL VALVE RTJ. 900#	2	SEE TAG NO. VB-108	DA1	
14	2"	BALL VALVE RTJ. 900#	1	SEE TAG NO. VB-107	DA1	
15	3/4"	BALL VALVE RTJ. 1500#	7	SEE TAG NO. VB-111	DA1	
16	2"	GLOBE VALVE RTJ. 900#	1	SEE TAG NO. VGL-104	DA1	
17	8"	OCTAGONAL RING, 900# R-49	3	316L S.S.	DA1	
18	2"	OCTAGONAL RING, 900# R-24	4	316L S.S.	DA1	
19	3/4"	OCTAGONAL RING, 1500# R-14	14	316L S.S.	DA1	
20	1 3/8"	LG STUD BOLTS C/W 2 NUTS 220mm LONG	36	ASTM A 193 Gr. B7M CADMIUM PLATED ASTM A 194 Gr. 2HM CADMIUM PLATED	DA1	
21	7/8"	LG STUD BOLTS C/W 2 NUTS 145mm LONG	32	ASTM A 193 Gr. B7M CADMIUM PLATED ASTM A 194 Gr. 2HM CADMIUM PLATED	DA1	
22	3/4"	LG STUD BOLTS C/W 2 NUTS 115mm LONG	56	ASTM A 193 Gr. B7M CADMIUM PLATED ASTM A 194 Gr. 2HM CADMIUM PLATED	DA1	
23	8"	INSULATION JOINT, 900#	1	ASTM A-694 Gr. F52	-	
24	3/4"	BLIND FLANGE WITH 1/2 NPT, 1500#	2	ASTM A-694 Gr. F52	DA1	

**NOTES:**

1. ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED.
2. ALL DIMENSIONS, ELEVATIONS AND ORIENTATIONS TO BE VERIFIED BY THE CONTRACTOR BEFORE UNDERTAKING ANY KIND OF FABRICATION, CONSTRUCTION AND INSTALLATION
3. PROVISION FOR FLOWLINE PURGING AND DEPRESSURIZING.

0	22-06-17	ISSUED FOR REVIEW	SN	SHAH		
REV.	DATE	DESCRIPTION	DRAWN	CHK'D	APP'VD	APP'VD
			CONSULTANT		CLIENT	
<b>PEC PETROCHEMICAL ENGINEERING CONSULTANTS</b> C-2, BLOCK NO. 17, GULSHAN-E-IQBAL, NEAR NATIONAL STADIUM, KARACHI-75300, PAKISTAN. TEL: +92 (21) 34827780, 34961088, FAX: +92 21 34961089, E-Mail: contact@pec.com.pk web site: www.pec.com.pk						
CLIENT <b>OIL &amp; GAS DEVELOPMENT COMPANY LTD.</b>						
PROJECT : <b>DEVELOPMENT OF GUNDANWARI-1 WELLHEAD</b>						
TITLE : <b>PIPING ISOMETRIC PIG RECEIVER (V-304) AT BITRISM WEST 1A LINE No. 8"-GP-329-DA1, 8"-GP-315-DA1</b>						
DRAWING NO.			SHEET	SCALE	REV.	
<b>2731-ISO-308</b>			NO. OF	N.T.S.	0	
			1	7	A3	

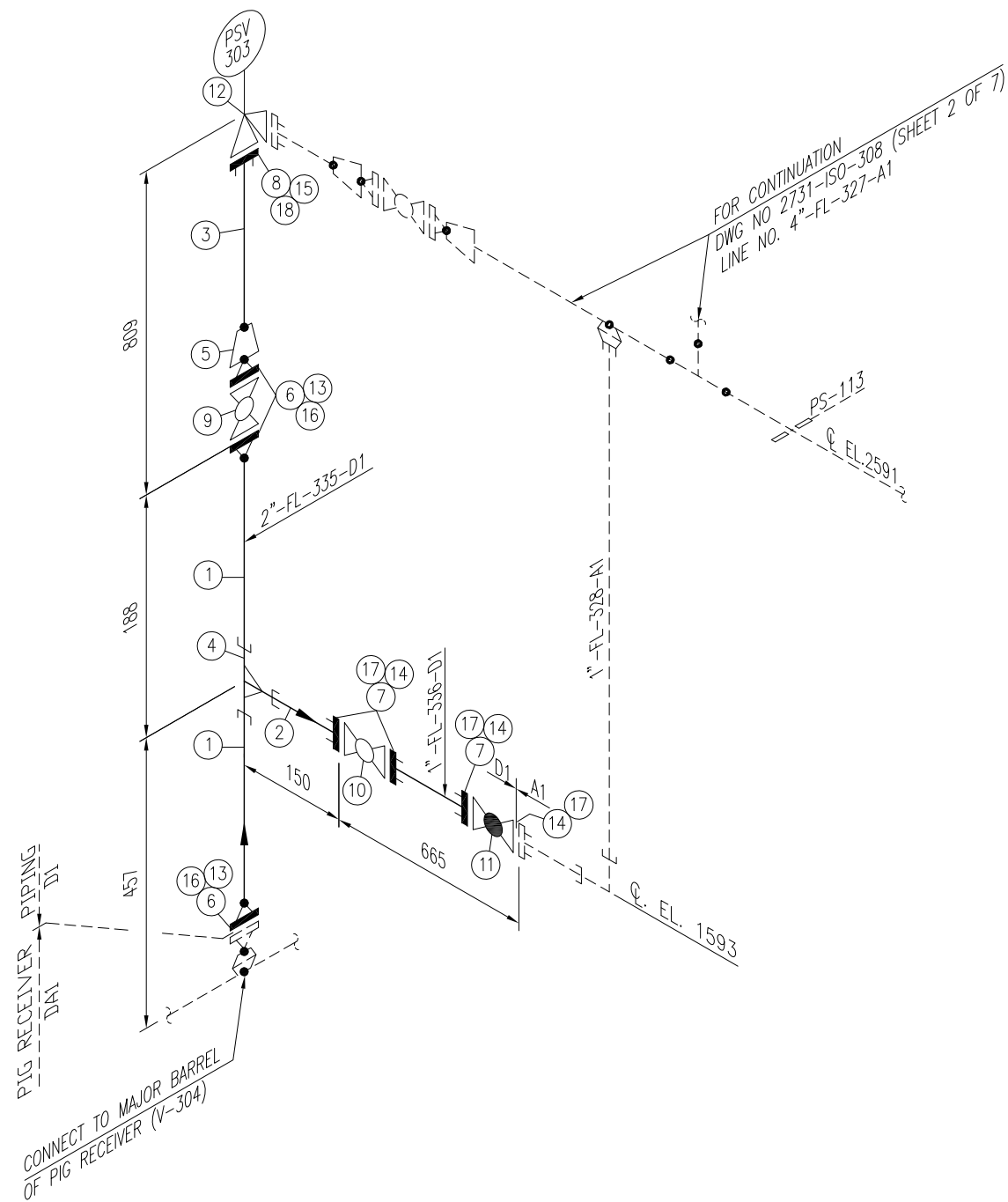
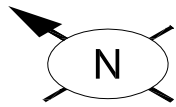


Sr. NO	SIZE	DESCRIPTION	QTY.	MATERIAL	(MAT. SPEC)	REMARKS
1	4"	PIPE SCH.40 BE SMLS	6.5M	ASTM A-106 Gr.B	A1	
2	1"	PIPE SCH.40 SMLS, BE	1.5M	ASTM A-106 Gr.B	A1	
3	4"	ELBOW 90° LR B.W SCH.40 BE	4	ASTM A-234 Gr. WPB	A1	
4	4"	EQUAL TEE SCH.40 BW	1	ASTM A-234 Gr. WPB	A1	
5	4"x1"	SOCKOLET 3000# S.W	1	ASTM A-105	A1	
6	4"x2"	CONC. RED. SCH.40 BW.	1	ASTM A-234 Gr. WPB	A1	
7	2"x1"	CONC. RED. SCH.40 BW.	1	ASTM A-234 Gr. WPB	A1	
8	4"	W.N. FLANGE RTJ. SCH.40 BW 900#.	1	ASTM A-694 Gr. F52	DA1	
9	4"	W.N. FLANGE RTJ. SCH.40 BW 900#.	1	ASTM A-105	-	
10	2"	W.N. FLANGE RF. 150#, SCH.40 BW	2	ASTM A-105	A1	
11	1"	S.W FLANGE RTJ. 300#.	1	ASTM A-105	-	
12	4"	BALL VALVE RTJ. 900#	1	SEE TAG NO. VB-107	DA1	
13	4"	GLOBE VALVE RTJ. 900#	1	SEE TAG NO. VGL-104	DA1	
14	2"	BALL VALVE RF. 150#	1	SEE TAG NO. VB-101	A1	
15	4"	OCTAGONAL RING, 900# R-37	3	316L S.S.	-	
16	2"	GASKET 150# 3mm THICK COMPRESSED GRAPHITE FILLED, SPIRAL WOUND 304 SS CENTRAL RING AS PER ASME B-16.20	2	304 S.S.	A1	
17	1"	OCTAGONAL RING, 300# R-16	1	316L S.S.	-	
18	1 1/8"	LG STUD BOLTS C/W 2 NUTS 170mm LONG	24	ASTM A 193 Gr. B7M CADMIUM PLATED ASTM A 194 Gr. 2HM CADMIUM PLATED	-	
19	5/8"	LG STUD BOLTS C/W 2 NUTS 85mm LONG	8	ASTM A 193 Gr. B7M CADMIUM PLATED ASTM A 194 Gr. 2HM CADMIUM PLATED	A1	
20	5/8"	LG STUD BOLTS C/W 2 NUTS 90mm LONG	4	ASTM A 193 Gr. B7M CADMIUM PLATED ASTM A 194 Gr. 2HM CADMIUM PLATED	-	
21	1"	S.W FLANGE RTJ, 1500#	1	ASTM A-105	-	
22	1"	ELBOW. 90° 3000# S.W	1	ASTM A-105	A1	

**NOTES:**

1. ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED.
2. ALL DIMENSIONS, ELEVATIONS AND ORIENTATIONS TO BE VERIFIED BY THE CONTRACTOR BEFORE UNDERTAKING ANY KIND OF FABRICATION, CONSTRUCTION AND INSTALLATION
3. VENT AT SAFE LOCATION ATLEAST 3.0 M FROM THE HIGHEST POINT OF STRUCTURE / PLATFORM.
4. ELEVATION TO BE ADJUSTED AS PER SITE REQUIREMENT.

0	22-06-17	ISSUED FOR REVIEW	SN	SHAH		
REV.	DATE	DESCRIPTION	DRAWN	CHK'D	APP'VD	APP'VD
			CONSULTANT		CLIENT	
<b>PETROCHEMICAL ENGINEERING CONSULTANTS</b> C-2, BLOCK NO. 17, GULSHAN-E-IQBAL, NEAR NATIONAL STADIUM, KARACHI-75300, PAKISTAN. TEL: +92 (21) 34827780, 34961088, FAX: +92 21 34961089, E-Mail: contact@pec.com.pk web site: www.pec.com.pk						
CLIENT <b>OIL &amp; GAS DEVELOPMENT COMPANY LTD.</b>						
PROJECT : <b>DEVELOPMENT OF GUNDANWARI-1 WELLHEAD</b>						
TITLE : <b>PIPING ISOMETRIC PIG RECEIVER (V-304) AT BITRISM WEST 1A LINE No. 4"-FL-326-A1, 4"-FL-327-A1, 1"-FL-328-A1</b>						
DRAWING NO.			SHEET	SCALE	REV.	
<b>2731-ISO-308</b>			NO. OF	N.T.S.	0	
			2	7	A3	



Sr. NO.	SIZE	DESCRIPTION	QTY.	MATERIAL	(MAT. SPEC)	REMARKS
1	2"	PIPE SCH.160 BE SMLS	0.4M	ASTM A-106 GR.B	D1	
2	1"	PIPE SCH.160 SMLS, PE	0.2M	ASTM A-106 GR.B	D1	
3	3/4"	PIPE SCH.160 SMLS, PE	0.1M	ASTM A-106 GR.B	D1	
4	2"x1"	RED. TEE 9000# S.W	1	ASTM A-105	D1	
5	2"x3/4"	CONC. RED. SCH.160 BW.	1	ASTM A-234 Gr. WPB	D1	
6	2"	W.N. FLANGE RTJ. SCH.160 BW 900#.	3	ASTM A-105	D1	
7	1"	S.W FLANGE RTJ. 1500#.	3	ASTM A-105	D1	
8	3/4"	S.W FLANGE RTJ. 900#.	1	ASTM A-105	-	
9	2"	BALL VALVE RTJ. 900#	1	SEE TAG NO. VB-107	D1	
10	1"	BALL VALVE RTJ. 1500#	1	SEE TAG NO. VB-111	D1	
11	1"	GLOBE VALVE RTJ. 1500#.	1	SEE TAG NO. VGL-105	D1	
12	3/4"x1"	PSV, RTJ. 900# X 300#	1	SEE DATA SHEET	-	
13	2"	OCTAGONAL RING, 900# R-24	3	316L S.S.	D1	
14	1"	OCTAGONAL RING, 1500# R-16	4	316L S.S.	D1	
15	3/4"	OCTAGONAL RING, 900#	1	316L S.S.	-	
16	7/8"	LG STUD BOLTS C/W 2 NUTS 145mm LONG	24	ASTM A 193 Gr. B7M CADMIUM PLATED ASTM A 194 Gr. 2HM CADMIUM PLATED	D1	
17	7/8"	LG STUD BOLTS C/W 2 NUTS 125mm LONG	16	ASTM A 193 Gr. B7M CADMIUM PLATED ASTM A 194 Gr. 2HM CADMIUM PLATED	D1	
18	3/4"	LG STUD BOLTS C/W 2 NUTS 115mm LONG	4	ASTM A 193 Gr. B7M CADMIUM PLATED ASTM A 194 Gr. 2HM CADMIUM PLATED	-	

**NOTES:**

1. ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED.
2. ALL DIMENSIONS, ELEVATIONS AND ORIENTATIONS TO BE VERIFIED BY THE CONTRACTOR BEFORE UNDERTAKING ANY KIND OF FABRICATION, CONSTRUCTION AND INSTALLATION

0	22-06-17	ISSUED FOR REVIEW	SN	SHAH		
REV.	DATE	DESCRIPTION	DRAWN	CHK'D	APP'VD	APP'VD
			CONSULTANT			CLIENT

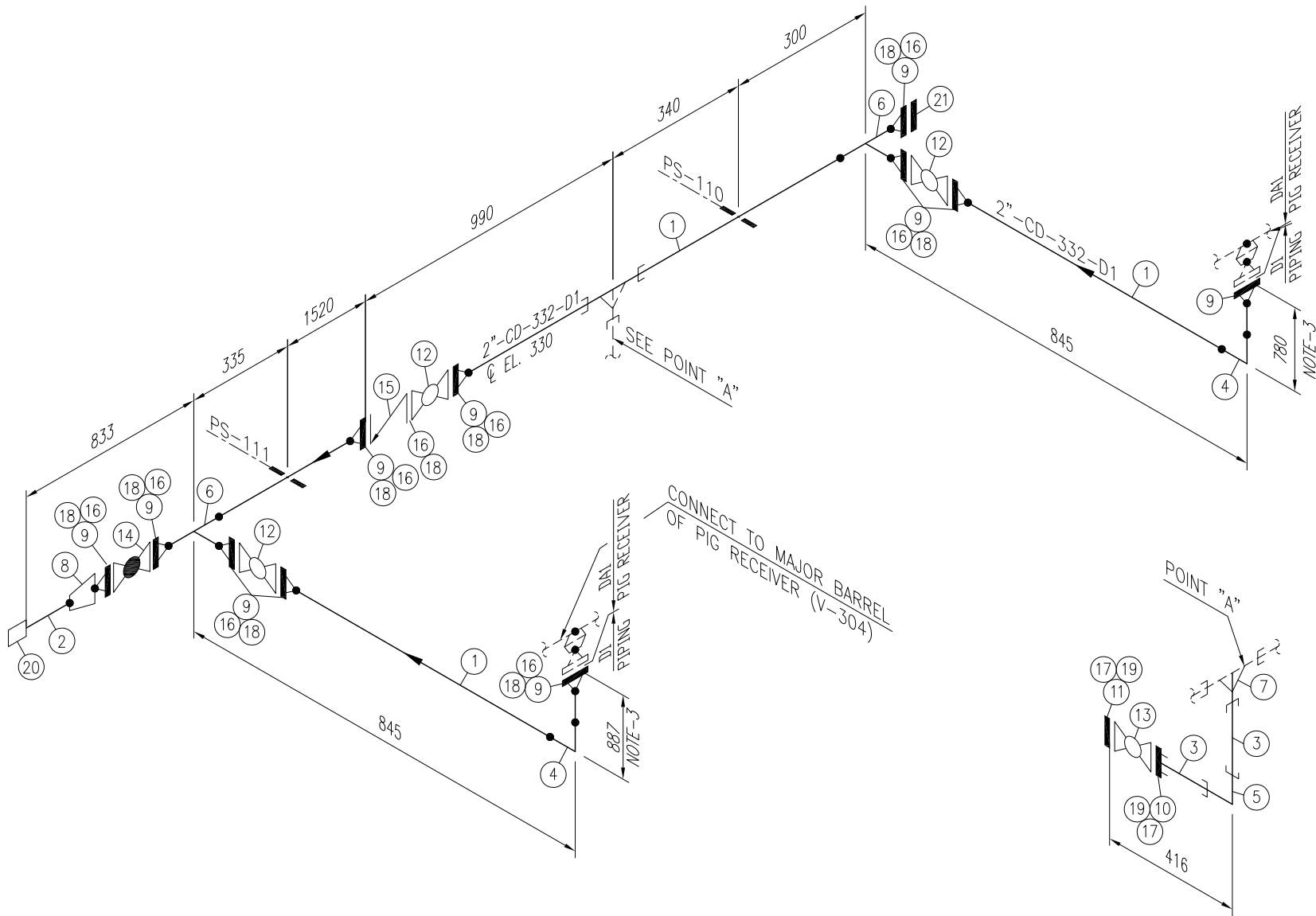
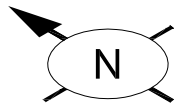
**PC PETROCHEMICAL ENGINEERING CONSULTANTS**  
 C-2, BLOCK NO. 17, GULSHAN-E-IOBAL, NEAR NATIONAL STADIUM, KARACHI-75300, PAKISTAN.  
 TEL. +92 (21) 34827780, 34961088, FAX: +92 21 34961089, E-Mail: contact@pcec.com.pk web site: www.pcec.com.pk

CLIENT: **OIL & GAS DEVELOPMENT COMPANY LTD.**

PROJECT: **DEVELOPMENT OF GUNDANWARI-1 WELLHEAD**

TITLE: **PIPING ISOMETRIC PIG RECEIVER (V-304) AT BITRISM WEST 1A LINE No. 2"-FL-335-D1, 1"-FL-336-D1**

DRAWING NO.	SHEET	SCALE	REV.
<b>2731-ISO-308</b>	NO. OF	N.T.S.	0
	3	7	A3



FOR CONTINUATION  
 DWG NO. 2731-ISO-308 (SHEET 1 OF 7)  
 LINE NO. 8"-GP-329-DA1

Sr. NO.	SIZE	DESCRIPTION	QTY.	MATERIAL	(MAT. SPEC)	REMARKS
1	2"	PIPE SCH.160 BE SMLS	4.4M	ASTM A-106 GR.B	D1	
2	1"	PIPE SCH.160 PE SMLS	0.1M	ASTM A-106 GR.B	D1	
3	3/4"	PIPE NIPPLE SCH.160 100mm LONG PE SMLS	2	ASTM A-106 GR.B	D1	
4	2"	ELBOW 90° LR SCH.160 BW	2	ASTM A-234 Gr. WPB	D1	
5	3/4"	ELBOW 90° 9000# S.W	1	ASTM A-105	D1	
6	2"	EQL. TEE SCH.160 BW	2	ASTM A-234 Gr. WPB	D1	
7	2"x3/4"	RED. TEE, 9000# SW	1	ASTM A-105	D1	
8	2"x1"	CONC. RED. SCH.160 BW.	1	ASTM A-234 Gr. WPB	D1	
9	2"	W.N. FLANGE RTJ. SCH.160 BW 900#.	11	ASTM A-105	D1	
10	3/4"	S.W FLANGE RTJ. 1500#.	1	ASTM A-105	D1	
11	3/4"	BLIND FLANGE RTJ. 1500#.	1	ASTM A-105	D1	
12	2"	BALL VALVE RTJ. 900#.	3	SEE TAG NO. VB-107	D1	
13	3/4"	BALL VALVE RTJ. 1500#.	1	SEE TAG NO. VB-111	D1	
14	2"	GLOBE VALVE RTJ. 900#.	1	SEE TAG NO. VGL-104	D1	
15	2"	CHECK VALVE RTJ. 900#.	1	SEE TAG NO. VC-104	D1	
16	2"	OCTAGONAL RING, 900# R-24	11	316L S.S.	D1	
17	3/4"	OCTAGONAL RING, 1500# R-14	2	316L S.S.	D1	
18	7/8"	LG STUD BOLTS C/W 2 NUTS 145mm LONG	88	ASTM A 193 Gr. B7M CADMIUM PLATED ASTM A 194 Gr. 2HM CADMIUM PLATED	D1	
19	3/4"	LG STUD BOLTS C/W 2 NUTS 115mm LONG	8	ASTM A 193 Gr. B7M CADMIUM PLATED ASTM A 194 Gr. 2HM CADMIUM PLATED	D1	
20	1"	HOSE COUPLING 9000#	1	ASTM A-105	D1	
21	2"	BLIND FLANGE RTJ. 900#.	1	ASTM A-105	D1	

**NOTES:**

1. ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED.
2. ALL DIMENSIONS, ELEVATIONS AND ORIENTATIONS TO BE VERIFIED BY THE CONTRACTOR BEFORE UNDERTAKING ANY KIND OF FABRICATION, CONSTRUCTION AND INSTALLATION
3. ELEVATION TO BE ADJUSTED AS PER SITE REQUIREMENT.

0	22-06-17	ISSUED FOR REVIEW	SN	SHAH		
REV.	DATE	DESCRIPTION	DRAWN	CHK'D	APP'VD	APP'VD
			CONSULTANT		CLIENT	

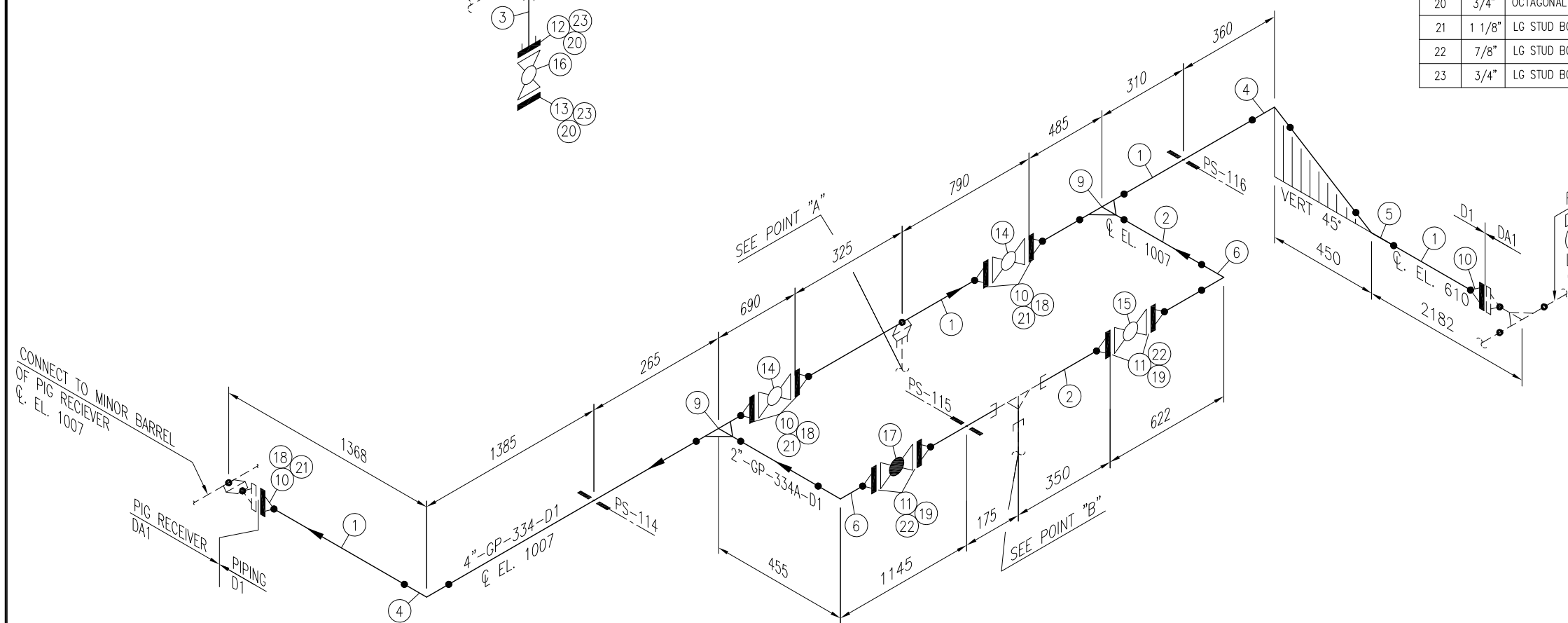
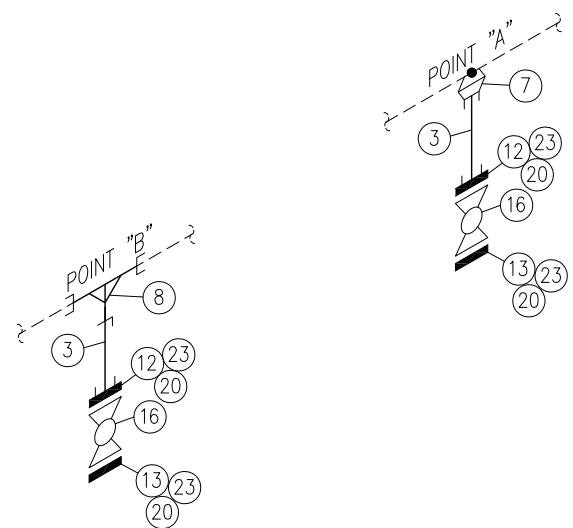
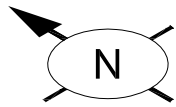
**PC PETROCHEMICAL ENGINEERING CONSULTANTS**  
 C-2, BLOCK NO. 17, GULSHAN-E-IOBAL, NEAR NATIONAL STADIUM, KARACHI-75300, PAKISTAN.  
 TEL: +92 (21) 3482780, 34961088, FAX: +92 21 34961089, E-Mail: contact@pcec.com.pk web site: www.pcec.com.pk

CLIENT: **OIL & GAS DEVELOPMENT COMPANY LTD.**

PROJECT: **DEVELOPMENT OF GUNDANWARI-1 WELLHEAD**

TITLE: **PIPING ISOMETRIC PIG RECEIVER (V-304) AT BITRISM WEST 1A LINE No. 2"-CD-332-D1**

DRAWING NO.	SHEET	SCALE	REV.
<b>2731-ISO-308</b>	NO. OF	N.T.S.	0
	4	7	A3



Sr. NO.	SIZE	DESCRIPTION	QTY.	MATERIAL	(MAT. SPEC)	REMARKS
1	4"	PIPE SCH.120 BE SMLS	6.5M	ASTM A-106 GR.B	D1	
2	2"	PIPE SCH.160 BE SMLS	2.0M	ASTM A-106 GR.B	D1	
3	3/4"	PIPE NIPPLE SCH.160 100mm LONG PE SMLS	2	ASTM A-106 GR.B	D1	
4	4"	ELBOW 90° LR SCH.120 BW	2	ASTM A-234 Gr. WPB	D1	
5	4"	ELBOW 45° LR SCH.120 BW	1	ASTM A-234 Gr. WPB	D1	
6	2"	ELBOW 90° LR SCH.160 BW	2	ASTM A-234 Gr. WPB	D1	
7	4"x3/4"	SOCKOLET, 9000# SW	1	ASTM A-105	D1	
8	2"x3/4"	REDUCING TEE, 9000# SW	1	ASTM A-105	D1	
9	4"x2"	RED. TEE SCH.120x160 BW	2	ASTM A-234 Gr. WPB	D1	
10	4"	W.N. FLANGE RTJ. SCH.120 BW 900#.	6	ASTM A-105	D1	
11	2"	W.N. FLANGE RTJ. SCH.160 BW 900#.	4	ASTM A-105	D1	
12	3/4"	S.W FLANGE RTJ. 1500#.	2	ASTM A-105	D1	
13	3/4"	BLIND FLANGE RTJ. 1500#.	2	ASTM A-105	D1	
14	4"	BALL VALVE RTJ. 900#	2	SEE TAG NO. VB-107	D1	
15	2"	BALL VALVE RTJ. 900#	1	SEE TAG NO. VB-107	D1	
16	3/4"	BALL VALVE RTJ. 1500#	2	SEE TAG NO. VB-111	D1	
17	2"	GLOBE VALVE RTJ. 900#.	1	SEE TAG NO. VGL-104	D1	
18	4"	OCTAGONAL RING, 900# R-37	5	316L S.S.	D1	
19	2"	OCTAGONAL RING, 900# R-24	4	316L S.S.	D1	
20	3/4"	OCTAGONAL RING, 1500# R-14	4	316L S.S.	D1	
21	1 1/8"	LG STUD BOLTS C/W 2 NUTS 170mm LONG	40	ASTM A 193 Gr. B7M CADMIUM PLATED ASTM A 194 Gr. 2HM CADMIUM PLATED	D1	
22	7/8"	LG STUD BOLTS C/W 2 NUTS 145mm LONG	32	ASTM A 193 Gr. B7M CADMIUM PLATED ASTM A 194 Gr. 2HM CADMIUM PLATED	D1	
23	3/4"	LG STUD BOLTS C/W 2 NUTS 115mm LONG	16	ASTM A 193 Gr. B7M CADMIUM PLATED ASTM A 194 Gr. 2HM CADMIUM PLATED	D1	

FOR CONTINUATION  
 DWG NO. 2731-ISO-308  
 (SHEET 6 OF 7)  
 LINE NO. 8"-GP-306-D1  
 Q. EL. 610

**NOTES:**

1. ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED.
2. ALL DIMENSIONS, ELEVATIONS AND ORIENTATIONS TO BE VERIFIED BY THE CONTRACTOR BEFORE UNDERTAKING ANY KIND OF FABRICATION, CONSTRUCTION AND INSTALLATION

0	22-06-17	ISSUED FOR REVIEW	SN	SHAH		
REV.	DATE	DESCRIPTION	DRAWN	CHK'D	APP'VD	APP'VD
			CONSULTANT			CLIENT

**PG PETROCHEMICAL ENGINEERING CONSULTANTS**  
 C-2, BLOCK NO. 17, GULSHAN-E-IQBAL, NEAR NATIONAL STADIUM, KARACHI-75300, PAKISTAN.  
 TEL. +92 (21) 3482780, 34961088, FAX: +92 21 34961089, E-Mail: contact@ppec.com.pk web site: www.ppec.com.pk

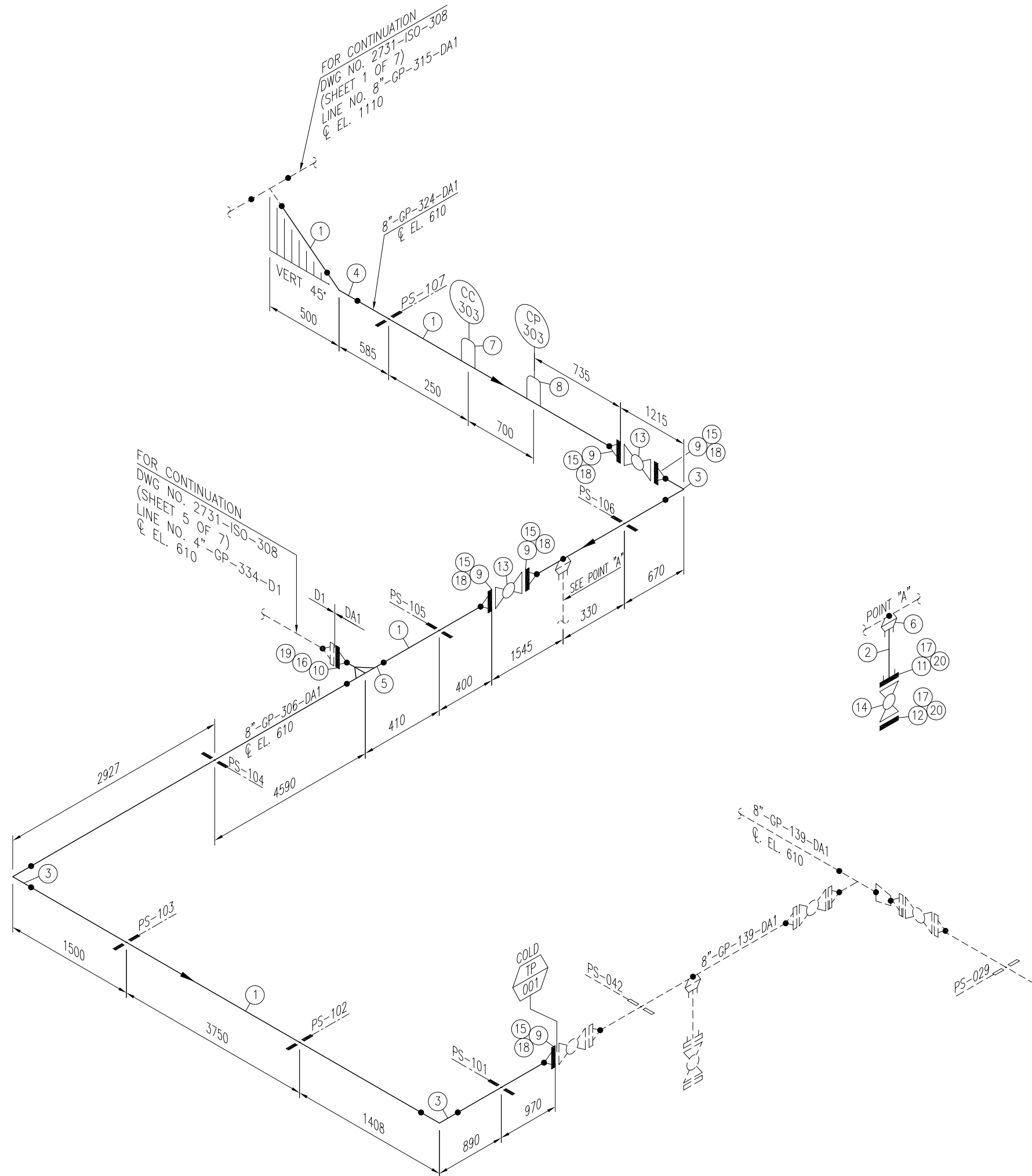
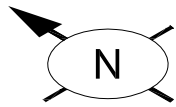
CLIENT: **OIL & GAS DEVELOPMENT COMPANY LTD.**

PROJECT: **DEVELOPMENT OF GUNDANWARI-1 WELLHEAD**

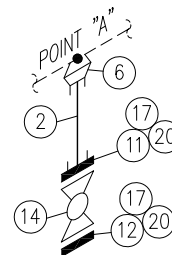
TITLE: **PIPING ISOMETRIC PIG RECEIVER (V-304) AT BITRISM WEST 1A LINE No. 4"-GP-334-D1, 2"-GP-334A-D1**

DRAWING NO.	SHEET	SCALE	REV.
<b>2731-ISO-308</b>	NO. OF	N.T.S.	0
	5	7	A3





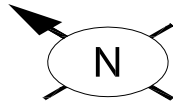
Sr. NO.	SIZE	DESCRIPTION	QTY.	MATERIAL	(MAT. SPEC)	REMARKS
1	8"	PIPE SCH.80 BE SMLS	19.5M	API 5L GR.X52	DA1	
2	3/4"	PIPE NIPPLE SCH.80 100mm LONG PE SMLS	1	API 5L GR.X52	DA1	
3	8"	ELBOW 90° LR SCH.80 BW	3	MSS SP-75 Gr.WPHY 52	DA1	
4	8"	ELBOW 45° LR SCH.80 BW	1	MSS SP-75 Gr.WPHY 52	DA1	
5	8"x4"	REDUCING TEE SCH.80x40 BW	1	MSS SP-75 Gr.WPHY 52	DA1	
6	8"x3/4"	SOCKOLET, 9000# SW	1	ASTM A-694 Gr. F52	DA1	
7	2"	HYDRAULIC FITTING (CORROSION COUPON)	1	ASTM A-694 Gr. F52	-	
8	2"	HYDRAULIC FITTING (CORROSION PROBE)	1	ASTM A-694 Gr. F52	-	
9	8"	W.N. FLANGE RTJ. 900#. SCH.80 BW	5	ASTM A-694 Gr. F52	DA1	
10	4"	W.N. FLANGE RTJ. 900#. SCH.40 BW	1	ASTM A-694 Gr. F52	DA1	
11	3/4"	S.W FLANGE RTJ. 1500#.	1	ASTM A-694 Gr. F52	DA1	
12	3/4"	BLIND FLANGE RTJ. 1500#.	1	ASTM A-694 Gr. F52	DA1	
13	8"	BALL VALVE RTJ. 900#	2	SEE TAG NO. VB-108	DA1	
14	3/4"	BALL VALVE RTJ. 1500#, S.W	1	SEE TAG NO. VB-111	DA1	
15	8"	OCTAGONAL RING, 900# R-49	5	316L S.S.	DA1	
16	4"	OCTAGONAL RING, 900# R-37	1	316L S.S.	DA1	
17	3/4"	OCTAGONAL RING, 1500# R-14	2	316L S.S.	DA1	
18	1 3/8"	LG STUD BOLTS C/W 2 NUTS 220mm LONG	60	ASTM A 193 Gr. B7M CADMIUM PLATED ASTM A 194 Gr. 2HM CADMIUM PLATED	DA1	
19	1 1/8"	LG STUD BOLTS C/W 2 NUTS 170mm LONG	8	ASTM A 193 Gr. B7M CADMIUM PLATED ASTM A 194 Gr. 2HM CADMIUM PLATED	DA1	
20	3/4"	LG STUD BOLTS C/W 2 NUTS 115mm LONG	8	ASTM A 193 Gr. B7M CADMIUM PLATED ASTM A 194 Gr. 2HM CADMIUM PLATED	DA1	



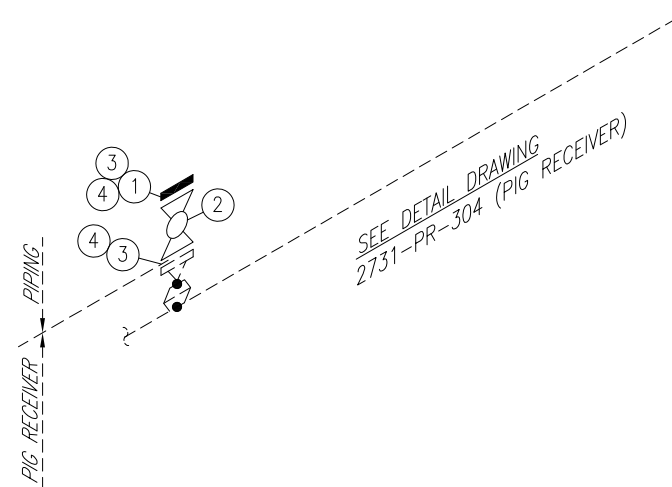
**NOTES:**

1. ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED.
2. ALL DIMENSIONS, ELEVATIONS AND ORIENTATIONS TO BE VERIFIED BY THE CONTRACTOR BEFORE UNDERTAKING ANY KIND OF FABRICATION, CONSTRUCTION AND INSTALLATION

0	22-06-17	ISSUED FOR REVIEW	SN	SHAH		
REV.	DATE	DESCRIPTION	DRAWN	CHK'D	APP'VD	APP'VD
			CONSULTANT		CLIENT	
<b>PETROCHEMICAL ENGINEERING CONSULTANTS</b> C-2, BLOCK NO. 17, GULSHAN-E-IQBAL, NEAR NATIONAL STADIUM, KARACHI-75300, PAKISTAN. TEL. +92 (21) 34827780, 34961088, FAX: +92 21 34961089, E-Mail: contact@pec.com.pk web site: www.pec.com.pk						
CLIENT <b>OIL &amp; GAS DEVELOPMENT COMPANY LTD.</b>						
PROJECT : <b>DEVELOPMENT OF GUNDANWARI-1 WELLHEAD</b>						
TITLE : <b>PIPING ISOMETRIC PIG RECEIVER (V-304) AT BITRISM WEST 1A LINE No. 8"-GP-324-DA1, 8"-GP-306-DA1</b>						
DRAWING NO.			SHEET	SCALE	REV.	
<b>2731-ISO-308</b>			NO. OF	N.T.S.	0	
			6	7	A3	



Sr. NO.	SIZE	DESCRIPTION	QTY.	MATERIAL	(MAT. SPEC)	REMARKS
1	2"	BLIND FLANGE RTJ. 900#,	1	ASTM A-694 Gr. F52	DA1	
2	2"	BALL VALVE RTJ. 900#,	1	SEE TAG NO. VB-107	DA1	
3	2"	OCTAGONAL RING, 900# R-24	2	316L S.S.	DA1	
4	7/8"	LG STUD BOLTS C/W 2 NUTS 145mm LONG	16	ASTM A 193 Gr. B7M CADMIUM PLATED ASTM A 194 Gr. 2HM CADMIUM PLATED	DA1	



**NOTES:**

1. ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED.
2. ALL DIMENSIONS, ELEVATIONS AND ORIENTATIONS TO BE VERIFIED BY THE CONTRACTOR BEFORE UNDERTAKING ANY KIND OF FABRICATION, CONSTRUCTION AND INSTALLATION WORK AT SITE.
3. PROVISION OF FUTURE CONNECTION.

REV.	DATE	DESCRIPTION	DRAWN	CHK'D	APP'VD	APP'VD
			CONSULTANT			CLIENT
0	04-07-17	ISSUED FOR REVIEW	SN	SHAH		

**PC PETROCHEMICAL ENGINEERING CONSULTANTS**  
 C-2, BLOCK NO. 17, GULSHAN-E-IQBAL, NEAR NATIONAL STADIUM, KARACHI-75300, PAKISTAN.  
 TEL: +92 (21) 34827780, 34961088, FAX: +92 21 34961089, E-Mail: contact@pcec.com.pk web site: www.pcec.com.pk

CLIENT: **OIL & GAS DEVELOPMENT COMPANY LTD.**

PROJECT : **DEVELOPMENT OF MITHRI-1 WELLHEAD**

TITLE : **PIPING ISOMETRIC  
PIG RECEIVER (V-304) AT BITRISM WEST 1A  
2" CONNECTION**

DRAWING NO.	SHEET NO.	SCALE	REV.
<b>2731-ISO-308</b>	7 OF 7	N.T.S. A3	0



# PIPING SPECIFICATION



**OIL & GAS DEVELOPMENT COMPANY LIMITED**



**PIPING SPECIFICATION  
A1 (Plant Piping)**

<b>SPEC. NO. :</b> 2731-01-SP-001	<b>DATE :</b> 12/6/2017	<b>Revision :</b> B	<b>Prep. By. :</b> SAR
<b>SERVICE</b> PROCESS GAS	<b>RATING</b> ASME CLASS 150	<b>CORROSION ALLOWANCE</b> 3 mm	<b>DESIGN CODE</b> ASME B31.3

PIPES			FITTINGS	
SIZE	DESIGNATION	DESCRIPTION	SIZE	DESCRIPTION
2" & 8"	Sch. 40	ASTM A106 Gr. B / API 5L Gr. B (SMLS) B.E. AS PER ASME B36.10	2" to 8"	BW, A-234 Gr. WPB AS PER ASME B16.9
1" & 1 1/2"	Sch. 40	ASTM A106 Gr. B / API 5L Gr. B (SMLS) B.E. AS PER ASME B36.10	≤ 1 1/2"	SW, A-105 AS PER ASME B16.11 6, 3000#
1/2" & 3/4"	Sch. 80	ASTM A106 Gr. B / API 5L Gr. B (SMLS) P.E. AS PER ASME B36.10		

FLANGES			BOLTS & GASKETS	
SIZE	CLASS	DESCRIPTION		
2" to 8"	150#	WN, RF, ASME B16.5, ASTM A-105	Stud Bolts	ASTM A-193 B7M, Cadmium Plated
≤ 1 1/2"	150#	SW, RF, ASME B16.5, ASTM A-105 (Note-3)	Nuts	ASTM A-194 2HM, Cadmium Plated
			Gaskets	3mm Thick Compressed Graphite Filled, Spiral Wound 304 S.S. Central Ring Per ASME B 16.20

VALVES							
GATE	SIZE	DESCRIPTION	BALL	SIZE	DESCRIPTION	OTHERS	DESCRIPTION
	≤ 1 1/2"	VG-100			≤ 1 1/2"		VB-100
2" to 8"	VG-101		2" to 8"	VB-101			
CHECK	≤ 1 1/2"	VC-100	GLOBE	≤ 1 1/2"	VGL-100	OTHERS	
	2" to 8"	VC-101		2" to 8"	VGL-101		

PRESSURE - TEMPERATURE RATING-ASME B16.5, MATERIAL GROUP 1.1									
TEMPERATURE °F		-20 to 100	212	302	392	482	572	617	662
MAX. PRESSURE Psig		284.2	256.7	229.1	200.1	175.45	147.9	134.85	121.8

<b>DESIGN CONDITIONS</b>	256.7 psig @ 212 °F	<b>HYDROSTATIC TEST PRESSURE</b>	384 psig
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BRANCH CONNECTIONS																						
BRANCH SIZE (INCH)	RUN SIZE (INCH)																					
	32	30	28	26	24	22	20	18	16	14	12	10	8	6	4	3	2	1½	1	¾	½	
½					S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
¾					S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
1					S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
1½					S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
2					W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W
3					W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W
4					W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W
6					W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W
8					W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W
10					W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W
12					W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W
14					RT	RT	RT	RT	RT	RT	RT	RT	RT	RT	RT	RT	RT	RT	RT	RT	RT	RT
16					RT	RT	RT	RT	RT	RT	RT	RT	RT	RT	RT	RT	RT	RT	RT	RT	RT	RT
18					RT	RT	RT	RT	RT	RT	RT	RT	RT	RT	RT	RT	RT	RT	RT	RT	RT	RT
20					RT	RT	RT	RT	RT	RT	RT	RT	RT	RT	RT	RT	RT	RT	RT	RT	RT	RT
22					RT	RT	RT	RT	RT	RT	RT	RT	RT	RT	RT	RT	RT	RT	RT	RT	RT	RT
24					ET	ET	ET	ET	ET	ET	ET	ET	ET	ET	ET	ET	ET	ET	ET	ET	ET	ET

- NOTES:**
- Reduced fitting thickness shall match heavier pipe wall thickness, taper to match thinner pipe wall.
  - Instrument connections shall be screwed beyond the first block valve of process piping.
  - Bore to match pipe I.D. for Welding Neck flanges.
  - All materials shall comply with NACE MR-0175 & ISO 15156.
  - Under ground piping should be coated with Zinc-Rich or Zinc Silicate primer, & apply 3 Layer Polyethylene Coted.

- LEGENDS:**
- ET = Equal Tee, Butt Welding
  - RT = Reducing Tee, Butt Welding
  - Ts = Reducing Tee, Socket Welding
  - W = Weldolet
  - S = Sockolet 3000#



**OIL & GAS DEVELOPMENT COMPANY LIMITED**

**PIPING SPECIFICATION  
D1 (Plant Piping)**



<b>SPEC. NO. :</b> 2731-01-SP-004	<b>DATE :</b> 12/6/2017	<b>Revision :</b> A	<b>Prep. By. :</b> SAR
<b>SERVICE</b> PROCESS GAS	<b>RATING</b> ASME CLASS 900	<b>CORROSION ALLOWANCE</b> 3 mm	<b>DESIGN CODE</b> ASME B31.3

PIPES			FITTINGS	
SIZE	DESIGNATION	DESCRIPTION	SIZE	DESCRIPTION
4" & 6"	Sch. 120	ASTM A106 Gr. B / API 5L Gr. B (SMLS) B.E. AS PER ASME B36.10	2" to 8"	BW, A-234 Gr. WPB AS PER ASME B16.9
3"	Sch. 80	ASTM A106 Gr. B / API 5L Gr. B (SMLS) B.E. AS PER ASME B36.10	≤ 1 1/2"	SW, A-105 AS PER ASME B16.11, 9000#
2"	Sch. 160	ASTM A106 Gr. B / API 5L Gr. B (SMLS) B.E. AS PER ASME B36.10		
≤ 1 1/2"	Sch. 160	ASTM A106 Gr. B / API 5L Gr. B (SMLS) P.E. AS PER ASME B36.10		

FLANGES			BOLTS & GASKETS	
SIZE	CLASS	DESCRIPTION		
2" to 8"	900#	WN, RTJ, ASME B16.5, ASTM A-105	Stud Bolts	ASTM A-193 B7M, Cadmium Plated
≤ 1 1/2"	1500#	SW, RTJ, ASME B16.5, ASTM A-105 (Note-3)	Nuts	ASTM A-194 2HM, Cadmium Plated
			Gaskets	Octagonal Ring, Type 316L S.S.

VALVES								
	SIZE	DESCRIPTION		SIZE	DESCRIPTION		SIZE	DESCRIPTION
GATE			BALL	≤ 1 1/2"	VB-111	OTHERS		
				6" to 8"	VB-108			
				2" to 4"	VB-107 (Note-5)			
CHECK	2" to 8"	VC-104	GLOBE	≤ 1 1/2"	VGL-105	OTHERS		
				2" to 8"	VGL-104			

**PRESSURE - TEMPERATURE RATING-ASME B16.5, MATERIAL GROUP 1.1**

<b>TEMPERATURE °F</b>	212	302	392	482	572	662		
<b>MAX. PRESSURE Psig</b>	2027	1960	1905.3	1824	1733	1634		

<b>DESIGN CONDITIONS</b>	2027 psig @ 212°F	<b>HYDROSTATIC TEST PRESSURE</b>	3040 psig
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**BRANCH CONNECTIONS**

BRANCH SIZE (INCH)	RUN SIZE (INCH)																				
	32	30	28	26	24	22	20	18	16	14	12	10	8	6	4	3	2	1½	1	¾	½
½					S	S	S	S	S	S	S	S	S	S	S	S	Ts	Ts	Ts	Ts	Ts
¾					S	S	S	S	S	S	S	S	S	S	S	S	Ts	Ts	Ts	Ts	Ts
1					S	S	S	S	S	S	S	S	S	S	S	S	Ts	Ts	Ts		
1½					S	S	S	S	S	S	S	S	S	S	S	S	Ts	Ts			
2					W	W	W	W	W	W	W	W	W	W	W	W	RT	RT	ET		
3					W	W	W	W	W	W	W	W	W	W	W	W	RT	RT	ET		
4					W	W	W	W	W	W	W	W	W	W	W	W	RT	RT	ET		
6					W	W	W	W	W	W	W	W	W	W	W	W	RT	RT	ET		
8					W	W	W	W	W	W	W	W	W	W	W	W	RT	RT	ET		
10					W	W	W	W	W	W	W	W	W	W	W	W	RT	RT	ET		
12					W	W	W	W	W	W	W	W	W	W	W	W	RT	RT	ET		
14					RT	RT	RT	RT	RT	ET											
16					RT	RT	RT	RT	ET												
18					RT	RT	RT	ET													
20					RT	RT	ET														
22					RT	ET															
24					ET																

**NOTES:**

1. Reduced fitting thickness shall match heavier pipe wall thickness, taper to match thinner pipe wall.
2. Instrument connections shall be screwed beyond the first block valve of process piping.
3. Bore to match pipe I.D. for Welding Neck flanges.
4. All materials shall comply with NACE MR-0175 & ISO 15156.
5. Ball valve body seat shall be selected with respect to service / with PTFE seat is allowed from -50 Deg F use metal seats beyond this temperature range.
6. 100% Radiography required.

**LEGENDS:**

- ET = Equal Tee, Butt Welding
- RT = Reducing Tee, Butt Welding
- Ts = Reducing Tee, Socket Welding
- W = Weldolet
- S = Sockolet 9000#



**OIL & GAS DEVELOPMENT COMPANY LIMITED**



**PIPING SPECIFICATION  
DA1 (Plant Piping)**

<b>SPEC. NO. :</b> 2731-01-SP-005	<b>DATE :</b> 12/6/2017	<b>Revision :</b> A	<b>Prep. By. :</b> SAR
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<b>SERVICE</b> PROCESS GAS	<b>RATING</b> ASME CLASS 900	<b>CORROSION ALLOWANCE</b> 3 mm	<b>DESIGN CODE</b> ASME B31.8
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PIPES			FITTINGS	
SIZE	DESIGNATION	DESCRIPTION	SIZE	DESCRIPTION
6" & 8"	Sch. 80	API 5L Gr. X52 (SMLS) B.E.	2" to 8"	BW, MSS SP-75 Gr.WPHY 52, AS PER ASME B16.9 SW, ASTM A-694 Gr.F52 AS PER ASME B16.11, 9000#
3" & 4"	Sch. 40	API 5L Gr. X52 (SMLS) B.E.	≤ 1 1/2"	
2"	Sch. 80	API 5L Gr. X52 (SMLS) B.E.		
≤ 1 1/2"	Sch. 80	API 5L Gr. X52 (SMLS) P.E.		

FLANGES			BOLTS & GASKETS	
SIZE	CLASS	DESCRIPTION	Stud Bolts	ASTM A-193 B7M, Cadmium Plated
2" to 8"	900#	WN, RTJ, ASME B16.5, ASTM A-694 Gr.F52	Nuts	ASTM A-194 2HM, Cadmium Plated
≤ 1 1/2"	1500#	SW, RTJ, ASME B16.5, ASTM A-694 Gr.F52  (Note-3)	Gaskets	Octagonal Ring, Type 316L S.S.

VALVES								
GATE	SIZE	DESCRIPTION	BALL	SIZE	DESCRIPTION	OTHERS	SIZE	DESCRIPTION
							≤ 1 1/2"	VB-111
				6" to 8"	VB-108			
				2" to 4"	VB-107 (Note-5)			
CHECK	2" to 8"	VC-104	GLOBE	2" to 8"	VGL-104	OTHERS		

PRESSURE - TEMPERATURE RATING-ASME B16.5, MATERIAL GROUP 1.1								
TEMPERATURE °F	212	302	392	482	572	662		
MAX. PRESSURE Psig	2027	1960	1905.3	1824	1733	1634		

<b>DESIGN CONDITIONS</b>	1800 psig @ 212°F	<b>HYDROSTATIC TEST PRESSURE</b>	2250 psig
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BRANCH CONNECTIONS		RUN SIZE (INCH)																				
BRANCH SIZE (INCH)		32	30	28	26	24	22	20	18	16	14	12	10	8	6	4	3	2	1 1/2	1	3/4	1/2
		1/2						S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
3/4						S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
1						S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
1 1/2						S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
2						W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W
3						W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W
4						W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W
6						W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W
8						W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W
10						W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W
12						W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W
14						W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W
16						W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W
18						W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W
20						W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W
22						W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W
24						W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W

- NOTES:**
- Reduced fitting thickness shall match heavier pipe wall thickness, taper to match thinner pipe wall.
  - Instrument connections shall be screwed beyond the first block valve of process piping.
  - Bore to match pipe I.D. for Welding Neck flanges.
  - All materials shall comply with NACE MR-0175 & ISO 15156.
  - Ball valve body seat shall be selected with respect to service / with PTFE seat is allowed from -50 Deg F use metal seats beyond this temperature range.
  - Under ground piping should be coated with Zinc-Rich or Zinc Silicate primer, & apply 3 Layer Polyethylene Coted.

- LEGENDS:**
- ET = Equal Tee, Butt Welding
  - RT = Reducing Tee, Butt Welding
  - Ts = Reducing Tee, Socket Welding
  - W = Weldolet
  - S = Sockolet 9000#



**OIL & GAS DEVELOPMENT COMPANY LIMITED**

**PIPING SPECIFICATION**

**C1 (Plant Piping)**



**SPEC. NO. :** 2731-01-SP-006      **DATE :** 12/6/2017      **Revision :** A      **Prep. By. :** SAR

<b>SERVICE</b> PROCESS GAS	<b>RATING</b> ASME CLASS 600#	<b>CORROSION ALLOWANCE</b> 3 mm	<b>DESIGN CODE</b> ASME B31.3
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PIPES			FITTINGS	
SIZE	DESIGNATION	DESCRIPTION	SIZE	DESCRIPTION
3" to 8"	Sch. 80	ASTM A106 Gr. B / API 5L Gr. B (SMLS) B.E.AS PER ASME B36.10	2" to 6"	BW, A-234 Gr. WPB AS PER ASME B16.9
2"	Sch. 80	ASTM A106 Gr. B / API 5L Gr. B (SMLS) B.E.AS PER ASME B36.10	≤ 1 1/2"	SW, A-105 AS PER ASME B16.11, 3000#
≤ 1 1/2"	Sch. 80	ASTM A106 Gr. B / API 5L Gr. B (SMLS) P.E.AS PER ASME B36.10		

FLANGES			BOLTS & GASKETS	
SIZE	CLASS	DESCRIPTION	Stud Bolts	ASTM A-193 B7M, Cadmium Plated
2" to 8"	600#	WN, RTJ, ASME B16.5, ASTM A-105	Nuts	ASTM A-194 2HM, Cadmium Plated
≤ 1 1/2"	600#	SW, RTJ, ASME B16.5, ASTM A-105	Gaskets	Octagonal Ring, Type 316L S.S.
(Note-3)				

VALVES								
GATE	SIZE	DESCRIPTION	BALL	SIZE	DESCRIPTION	OTHERS	SIZE	DESCRIPTION
	≤ 1 1/2"	VG-100			≤ 1 1/2"		VB-104	
2" to 8"	VG-103		2" to 4"	VB-105				
			6" to 8"	VB-106				
CHECK	≤ 1 1/2"	VC-100	GLOBE	≤ 1 1/2"	VGL-100	OTHERS		
	2" to 8"	VC-103		2" to 8"	VGL-103			

**PRESSURE - TEMPERATURE RATING-ASME B16.5, MATERIAL GROUP 1.1**

<b>TEMPERATURE °F</b>	-20 to 100	122	212	302	392	482	572	617
<b>MAX. PRESSURE Psig</b>	1480	1452	1351	1308	1270	1216	1154	1122

**DESIGN CONDITIONS** 1300 psig @ 212 °F      **HYDROSTATIC TEST PRESSURE** 1950 psig

**BRANCH CONNECTIONS**

BRANCH SIZE (INCH)	RUN SIZE (INCH)																					
	32	30	28	26	24	22	20	18	16	14	12	10	8	6	4	3	2	1½	1	¾	½	
½					S	S	S	S	S	S	S	S	S	S	S	S	S	S	RT	RT	RT	ET
¾					S	S	S	S	S	S	S	S	S	S	S	S	S	S	RT	RT	ET	
1					S	S	S	S	S	S	S	S	S	S	S	S	S	S	RT	ET		
1½					S	S	S	S	S	S	S	S	S	S	S	S	S	S	RT	ET		
2					W	W	W	W	W	W	W	W	W	W	W	RT	RT	ET				
3					W	W	W	W	W	W	W	W	W	W	RT	RT	ET					
4					W	W	W	W	W	W	W	W	W	W	RT	RT	ET					
6					W	W	W	W	RT	RT	RT	RT	RT	ET								
8					W	W	RT	RT	RT	RT	RT	RT	ET									
10					RT	RT	RT	RT	RT	RT	ET											
12					RT	RT	RT	RT	RT	ET												
14					RT	RT	RT	RT	ET													
16					RT	RT	RT	ET														
18					RT	RT	ET															
20					RT	ET																
22					RT	ET																
24					ET																	

**LEGENDS:**  
 ET = Equal Tee  
 RT = Reducing Tee  
 W = Weldolet  
 S = Sockolet 3000#

- NOTES:**
1. Reduced fitting thickness shall match heavier pipe wall thickness, taper to match thinner pipe wall.
  2. Instrument connections shall be screwed beyond the first block valve of process piping.
  3. Bore to match pipe I.D. for Welding Neck flanges.
  4. All materials shall comply with NACE MR-0175
  5. Ball valve body seat shall be selected with respect to service / with PTFE seat is allowed from -50 Deg F use metal seats beyond this temperature range.
  6. Under ground piping should be coated with Zinc-Rich or Zinc Silicate primer, & apply 3 Layer Polyethylene Coted.



**OIL & GAS DEVELOPMENT COMPANY LIMITED**

**VALVE SPECIFICATION  
FOR GATE VALVES**



DOC. NO. : 2731-01-VS-001

DATE : - 12-06-2017

REV. : A

PREP. BY SAR

VALVE	SIZE	RATING (lb)	ENDS	STYLE	OPERATOR	DESIGN & TEST	MATERIAL	
							BODY	TRIM
VG-100	≤ 1 1/2"	800	NPT	OS&Y, BOLTED BONNET & GLAND, SOLID WEDGE & RENEWABLE SEATS	HANDWHEEL	API 602	A-105	316 S.STEEL
VG-101	2" - 8"	150	RF (ASME B16.5)	OS&Y, BOLTED BONNET & GLAND, SOLID WEDGE & RENEWABLE SEATS	HANDWHEEL	API 600	A-216 GR. WCB	316 S.STEEL
VG-102	2" - 6"	300	RTJ (ASME B16.5)	OS&Y, BOLTED BONNET & GLAND, SOLID WEDGE & RENEWABLE SEATS	HANDWHEEL	API 600	A-216 GR. WCB	316 S.STEEL
VG-103	2" - 8"	600	RTJ (ASME B16.5)	OS&Y, BOLTED BONNET & GLAND, SOLID WEDGE & RENEWABLE SEATS	HANDWHEEL	API 600	A-216 GR. WCB	316 S.STEEL





**OIL & GAS DEVELOPMENT COMPANY LIMITED**

**VALVE SPECIFICATION  
FOR BALL VALVES**



DOC. NO. : 2731-01-VS-002

DATE : - 12-06-2017

REV. : A

PREP. BY

SAR

VALVE	SIZE	RATING (lb)	ENDS	STYLE	OPERATOR	DESIGN & TEST	MATERIAL		
							BODY	STEM/BALL	SEAL
VB-100	≤ 1 1/2"	150	RF (ASME B16.5)	BOLTED BODY, REPLACEABLE BALL & SEATS, FULL PORT, FLOATING BALL	LEVER	BS 5351 & BS 5146 / API 607 (FIRE SAFE)	A-105	A 351-CF8M	PTFE
VB-101	2" - 8"	150	RF (ASME B16.5)	BOLTED BODY, REPLACEABLE BALL & SEATS, REDUCED PORT, FLOATING BALL	LEVER	API 6D, FIRESAFE, ANTISTATIC	A-216 Gr. WCB	A 351-CF8M	PTFE
VB-102	≤ 1 1/2"	300	RTJ (ASME B16.5)	BOLTED BODY, REPLACEABLE BALL & SEATS, REDUCED PORT, FLOATING BALL	LEVER	BS 5351 & BS 5146 / API 607 (FIRE SAFE)	A-105	A 351-CF8M	PTFE
VB-103	2" - 4"	300	RTJ (ASME B16.5)	BOLTED BODY, REPLACEABLE BALL & SEATS, FULL PORT, TRUNION MOUNTED BALL OVER 4"	LEVER	API 6D, FIRESAFE, ANTISTATIC	A-216 Gr. WCB	A 351-CF8M	PTFE
VB-104	≤ 1 1/2"	600	RTJ (ASME B16.5)	BOLTED BODY, REPLACEABLE BALL & SEATS, REDUCED PORT, FLOATING BALL	LEVER	BS 5351 & BS 5146 / API 607 (FIRE SAFE)	A-105	A 351-CF8M	PTFE
VB-105	2" - 4"	600	RTJ (ASME B16.5)	BOLTED BODY, REPLACEABLE BALL & SEATS, REDUCED PORT, FLOATING BALL	LEVER	API 6D, FIRESAFE, ANTISTATIC	ASTM A216 WCB	A 351-CF8M	PTFE
VB-106	6" - 8"	600	RTJ (ASME B16.5)	BOLTED BODY, REPLACEABLE BALL & SEATS, FULL PORT, TRUNION MOUNTED	GEAR	API 6D, FIRESAFE, ANTISTATIC	ASTM A216 WCB	A 351-CF8M	PTFE
VB-107	2" - 4"	900	RTJ (ASME B16.5)	BOLTED BODY, REPLACEABLE BALL & SEATS, REDUCED PORT, FLOATING BALL	LEVER	API 6D, FIRESAFE, ANTISTATIC	ASTM A216 WCB	A 351-CF8M	PTFE
VB-108	6" - 8"	900	RTJ (ASME B16.5)	BOLTED BODY, REPLACEABLE BALL & SEATS, FULL PORT, TRUNION MOUNTED	GEAR	API 6D, FIRESAFE, ANTISTATIC	ASTM A216 WCB	A 351-CF8M	PTFE
VB-111	≤ 1 1/2"	1500	RTJ (ASME B16.5)	BOLTED BODY, REPLACEABLE BALL & SEATS, REDUCED PORT, FLOATING BALL	LEVER	API 6D, FIRESAFE, ANTISTATIC	A-216 Gr. WCB	A 351-CF8M	PTFE



**OIL & GAS DEVELOPMENT COMPANY LIMITED**

**VALVE SPECIFICATION  
FOR CHECK VALVES**



DOC. NO. : 2731-01-VS-003

DATE : - 12-06-2017

REV. : A

PREP. BY

SAR

VALVE	SIZE	RATING (lb)	ENDS	STYLE	OPERATOR	DESIGN & TEST	MATERIAL	
							BODY	TRIM
VC-100	≤ 1 1/2"	800	SW	BOLTED BONNET, PISTON TYPE & RENEWABLE SEATS	-	ASME B 16.34	A-105	316 S.STEEL
VC-101	2" to 8"	150	RF (ASME B16.5)	BOLTED BONNET, SWING TYPE & RENEWABLE SEATS	-	ASME B 16.34	A-216 GR. WCB	316 S.STEEL
VC-102	2" - 4"	300	RTJ (ASME B16.5)	BOLTED BONNET, SWING TYPE & RENEWABLE SEATS	-	ASME B 16.34	A-216 GR. WCB	316 S.STEEL
VC-103	2" - 8"	600	RTJ (ASME B16.5)	WAFER TYPE, METAL TO METAL SEAT, DUAL PLATE	-	ASME B 16.34 API 594	A 352-LCC	316 S.STEEL
VC-104	2" - 8"	900	RTJ (ASME B16.5)	BOLTED BONNET, SWING TYPE & RENEWABLE SEATS	-	ASME B 16.34	A-216 GR. WCB	316 S.STEEL



**OIL & GAS DEVELOPMENT COMPANY LIMITED**

**VALVE SPECIFICATION  
FOR GLOBE VALVES**



DOC. NO. : 2731-01-VS-004


DATE : -12-06-2017

REV. : A

PREP. BY SAR

VALVE	SIZE	RATING (lb)	ENDS	STYLE	OPERATOR	DESIGN & TEST	MATERIAL	
							BODY	TRIM
VGL-100	≤1 1/2"	800	SW	OS&Y, BOLTED BONNET & GLAND & RENEWABLE SEATS	HANDWHEEL	ASME B 16.34	A-105	316 S.STEEL
VGL-101	2" - 8"	150	RF (ASME B16.5)	OS&Y, BOLTED BONNET & GLAND & RENEWABLE SEATS	HANDWHEEL	ASME B 16.34	A-216 GR. WCB	316 S.STEEL
VGL-102	2" - 8"	300	RTJ (ASME B16.5)	OS&Y, BOLTED BONNET & GLAND & RENEWABLE SEATS	HANDWHEEL	ASME B 16.34	A-216 GR. WCB	316 S.STEEL
VGL-103	2" - 8"	600	RTJ (ASME B16.5)	OS&Y, BOLTED BONNET & GLAND & RENEWABLE SEATS	HANDWHEEL	ASME B 16.34	A-216 GR. WCB	316 S.STEEL
VGL-104	2" to 8"	900	RTJ (ASME B16.5),	OS&Y, BOLTED BONNET & GLAND & RENEWABLE SEATS	HANDWHEEL	ASME B 16.34	A-216 GR. WCB	316 S.STEEL
VGL-105	≤1 1/2"	1500	RTJ (ASME B16.5),	OS&Y, BOLTED BONNET & GLAND & RENEWABLE SEATS	HANDWHEEL	ASME B 16.34	A-216 GR. WCB	316 S.STEEL

# DATA SHEETS

<b>CLIENT</b>		<b>DEVELOPMENT OF GUNDANWARI-1 WELLHEAD</b>				<b>CONSULTANT</b>	
						<b>DOC. TITLE</b>	
		<b>DOC. NO.</b>		<b>2731- PDS-307</b>		<b>REV. 0</b>	







S.No.	DESCRIPTION		PSV-302		PSV-303	
1	SERVICE		HYDROCARBON		HYDROCARBON	
2	LINE NO. / VESSEL NO.		V - 303		V - 304	
3	FULL NOZZLE / SEMI NOZZLE		FULL		FULL	
4	SAFETY OR RELIEF		THERMAL - RELIEF		THERMAL - RELIEF	
5	CONV. / BELLOWS / PILOT OP.		CONVENTIONAL		CONVENTIONAL	
6	BONNET TYPE		CLOSED		CLOSED	
7	SIZE: INLET	OUTLET	3/4"	1"	3/4"	1"
8	FLANGE RATING		900 X 300		900 X 300	
9	TYPE OF FACING		RTJ x RTJ		RTJ x RTJ	
10	BODY AND BONNET		ASME SA,216,GR,WCB,CARBON STEEL		ASME SA,216,GR,WCB,CARBON STEEL	
11	NOZZLE AND DISC		SS316L		SS316L	
12	GUIDE AND RINGS		SS316L		SS316L	
13	SPRING		ALUMINISED C.S		ALUMINISED C.S	
14	LIFTING GEAR-TYPE		REQUIRED		REQUIRED	
15	TEST GAG		REQUIRED		REQUIRED	
16	CAP: SCREWED OR BOLTED		SCREWED		SCREWED	
17	TEST CONNECTION		YES-CARBON STEEL		YES-CARBON STEEL	
18	MANUAL BLOWDOWN		YES-CARBON STEEL		YES-CARBON STEEL	
19	BACK FLOW PREVENTER		NO		NO	
20	CODE		ASME SEC VIII / API RP-520-521		ASME SEC VIII / API RP-520-521	
21	LEAKAGE CODE		ANSI / API 527		ANSI / API 527	
22	SIZING BASIS		THERMAL RELIEF		THERMAL RELIEF	
23	FLUID		HYDROCARBON		HYDROCARBON	
24	FLUID STATE		MIX		MIX	
25	SPECIFIC GRAVITY		0.7 - 0.8		0.7 - 0.8	
26	OPER. PRESS. (psig)	SET PRES. (psig)	1000-1600	1700	1000-1600	1700
27	OPER. TEMP. (°F)	MAX TEMP. (°F)	100-150	170	100-150	170
28	COLD BENCH TEST PRESSURE		VTS		VTS	
29	% ALLOWABLE OVERPRESSURE		10%		10%	
30	OVERPRESSURE FACTOR		N/A		N/A	
31	COMPRESSIBILITY FACTOR		-		-	
32	FLOW MAX		-		-	
33	RATIO OF SPECIFIC HEATS		-		-	
34	BACK PRESSURE		ATMOSPHERIC		ATMOSPHERIC	
35	DISCHARGE COEF kd		0.65		0.65	
36	CHANGE OF STATE COEF. C		VTS		VTS	
37	P&ID NO.		2731- PID-302		2731- PID-303	
38	CALC. AREA SQ. IN.		VTS		VTS	
39	SELECTED AREA SQ. IN.		VTS		VTS	
40	ORIFICE DESIGNATION		D		D	
41	MANUFACTURER		-		-	
42	MODEL NUMBER		VTS		VTS	



**NOTES:**

1. VENDOR TO CONFIRM THE SUITABILITY OF THIS MODEL FOR THE REQUIRED SERVICE.
2. VTS-VENDOR TO SPECIFY OR CONFIRM

0	8/6/2017	Issued For Review	ASK	NWS	AJ
Rev.	Date	Description	Prepared	Checked	Approved

CONSULTANT		<b>DEVELOPMENT OF GUNDANWARI-1 WELLHEAD</b>				DOCUMENT NO.		
 <b>PETROCHEMICAL ENGINEERING CONSULTANTS</b>	 <b>OIL &amp; GAS DEVELOPMENT COMPANY Ltd.</b>					2731-IDS-308		
						REV.	DATE.	
CLIENT		INSTRUMENT DATA SHEET				BY	APPR.	
		<b>PIG DETECTOR</b>				ZUA	SAG	
		<b>P&amp;ID NO. 2731-PID-302</b>				SHEET	1 OF 1	
<b>GENERAL</b>	1	Tag Number		PXI-301				
	2	Service		PIG LAUNCHER				
	3	Line Size		-				
	4	P & ID Drawing Number		2731-PID-302				
	5	Area Classification		ZONE - 1, IIA, IIB ( AS PER IEC ), Temp. Class - T3				
<b>DETECTOR</b>	6	Mechanical Flag		REQD				
	7	Isolation Valve						
	8	MOC		SS316				
	9	NUTS & BOLTS		SS316				
	10	Trigger Assembly Components		Shaft & Plug Assembly with O-ring				
	11	Plug Assembly Type		Uni-directional				
<b>OPERATING CONDITION</b>	12							
	13	Fluid State		GAS / LIQUID				
	14	Process Connection		2"				
	15	Pressure psig Design	Min.	Operating	Max.	800	1000-1600	1700
	16	Temperature °F Design	Min.	Operating	Max.	100	120-150	170
<b>ELECTRICAL</b>	17	Signal Output		Load Resist		N/A		
	18	Power Supply		Electrical Connection		N/A		
	19	Local Indication		Response Time		N/A		
	20	Local Raiser		N/A				
	21	Enclosure Protection		N/A				
	22	Cable Entry		N/A				
	23							
<b>ACCESSORIES</b>	24							
	25							
<b>OTHER</b>	26	Model No.						
	27	Certification						
<b>PURCHASE</b>	28	Manufacturer						
	1	Model						
	2	Purchase Order Number						
	3	Price	Item Number					
	4	Serial Number						
<b>NOTES :</b>								
1	Vendor/Contractor shall provide the piping nozzle stand out length during detail engineering.							
2								
3								
4								

CONSULTANT				DEVELOPMENT OF GUNDANWARI-1 WELLHEAD				DOCUMENT NO.		
 <b>PETROCHEMICAL ENGINEERING CONSULTANTS</b>						2731-IDS-309				
						REV.	DATE.			
 <b>OIL &amp; GAS DEVELOPMENT COMPANY Ltd.</b>		INSTRUMENT DATA SHEET				BY	APPR.			
		PRESSURE GAUGE				ZUA	SAG			
		2731-PID-302				SHEET	1 OF 1			
GENERAL	1	Tag Number		PI-312						
	2	Service		Flowine to Pig Receiver Pressure						
	3	Line Size		8"						
	4	P & ID Drawing Number		2731-PID-302						
	5									
PROCESS CONDITION	6	Fluid		Gas						
	7	Max. Pressure	Max. Temperature		1700	psi-g	170	°F		
	8	Min. Pressure	Oper. Temperature		800	psi-g	100-150	°F		
	9	Pulsation	Vibration		NO		NO			
	10									
	11									
GAUGE	12	Type		INDICATOR						
	13	Calibration Range	Min	Max	0	psi	-g	2500	psi	-g
	14	Figure Interval		Manufacturer Standard						
	15	Minor Graduation		Yes						
	16	Mounting		Direct Mounted						
	17	Dial Size		160	mm					
	18	Dial Color		White Aluminium with Black Numerals						
	19	Case Material		304 St. Stl						
	20	Ring Construction	Ring Material		Bayonet		St. Stl			
	21	Blow-Out Protection		Yes						
	22	Lens Material		Solid Front Full Safety Pattern With Laminated Safety Glass						
	23	Pressure Eelement Type		Bourden Tube						
	24	Pressure Eelement Material		316 St. Stl						
	25	Socket Material		316 St. Stl						
	26	Connection Size		1/2" NPT-μ						
	27	Connection Location		Bottom						
	28	Movement Material		St. Stl. Rack & Pinion						
	29	Nominal Accuracy		+/- 1%						
	30	Micrometer Material		Yes						
	31	Ingress Protection		IP 65						
DIAPHRAGM SEAL	32	Type		N/A						
	33	Process Connection		N/A						
	34	Diaphragm Material		N/A						
	35	Bottom Housing Material		N/A						
	36	Fill Fluid		N/A						
	37	Capillary Length		N/A						
	38	Capillary Material		N/A						
	39	Flushing Connection		No						
	40	Top Housing Material		N/A						
	41	Connection to Instrument		N/A						
	42									
	OPTIONS	43	Syphon :	Type	Material	N/A	N/A			
44		Syphon :	Type	Material	N/A	N/A				
45		Movement Damping		N/A						
46										
47										
48										
PURCHASE	49	Manufacturer								
	50	Model								
	51	Purchase Order Number								
	52	Price	Item Number				N/A			
	53	Serial Number		N/A						
NOTES :										
1										
2										
3										
4										

<b>CONSULTANT</b>		<b>DEVELOPMENT OF GUNDANWARI-1 WELLHEAD</b>				<b>DOCUMENT NO.</b>		
	<b>PETROCHEMICAL ENGINEERING CONSULTANTS</b>					2731-IDS-314		
						<b>REV.</b>	<b>DATE.</b>	
						0	22/06/2017	
<b>CLIENT</b>		<b>INSTRUMENT DATA SHEET</b>				<b>BY</b>	<b>APPR.</b>	
	<b>OIL &amp; GAS DEVELOPMENT COMPANY Ltd.</b>	<b>PIG DETECTOR</b>				ZUA	SAG	
		<b>P&amp;ID NO. 2731-PID-303</b>				<b>SHEET</b>	1 OF 1	
<b>GENERAL</b>	1	Tag Number		PXI-302				
	2	Service		PIG RECEIVER				
	3	Line Size		-				
	4	P & ID Drawing Number		2731-PID-303				
	5	Area Classification		ZONE - 1, IIA, IIB ( AS PER IEC ), Temp. Class - T3				
<b>DETECTOR</b>	6	Mechanical Flag		REQD				
	7	Isolation Valve						
	8	MOC		SS316				
	9	NUTS & BOLTS		SS316				
	10	Trigger Assembly Components		Shaft & Plug Assembly with O-ring				
	11	Plug Assembly Type		Uni-directional				
<b>OPERATING CONDITION</b>	12							
	13	Fluid State		GAS / LIQUID				
	14	Process Connection		2"				
	15	Pressure psig Design	Min.	Operating	Max.	800	1000-1600	1700
	16	Temperature °F Design	Min.	Operating	Max.	100	120-150	170
	<b>ELECTRICAL</b>	17	Signal Output		Load Resist		N/A	
18		Power Supply		Electrical Connection		N/A		
19		Local Indication		Response Time		N/A		
20		Local Raiser				N/A		
21		Enclosure Protection				N/A		
22		Cable Entry				N/A		
23								
<b>ACCESSORIES</b>	24							
	25							
<b>OTHER</b>	26	Model No.						
	27	Certification						
<b>PURCHASE</b>	28	Manufacturer						
	1	Model						
	2	Purchase Order Number						
	3	Price		Item Number				
	4	Serial Number						
<b>NOTES :</b>								
	1	Vendor/Contractor shall provide the piping nozzle standout length during detail engineering.						
	2							
	3							
	4							



**PIG LAUNCHER/ RECEIVER SKID MOUNTED UNIT  
FOR THAL EAST**

**SIZE 8" 900#**

**ANNEXURE-A3**



# OIL & GAS DEVELOPMENT COMPANY LIMITED

## 3279– DEVELOPMENT OF BHAMBRA AND THALWELLHEADS

(Ø8" PIG LAUNCHER)  
AT THAL EAST

### CONSULTANTS:



## **Petrochemical Engineering Consultants**

C-2, Block No. 17, Gulshan-E-Iqbal, Karachi-75300, Pakistan.  
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E-Mail: [contact@pcec.com.pk](mailto:contact@pcec.com.pk) web: [www.pcec.com.pk](http://www.pcec.com.pk)

FEBUARY 2020



# DRAWING LIST

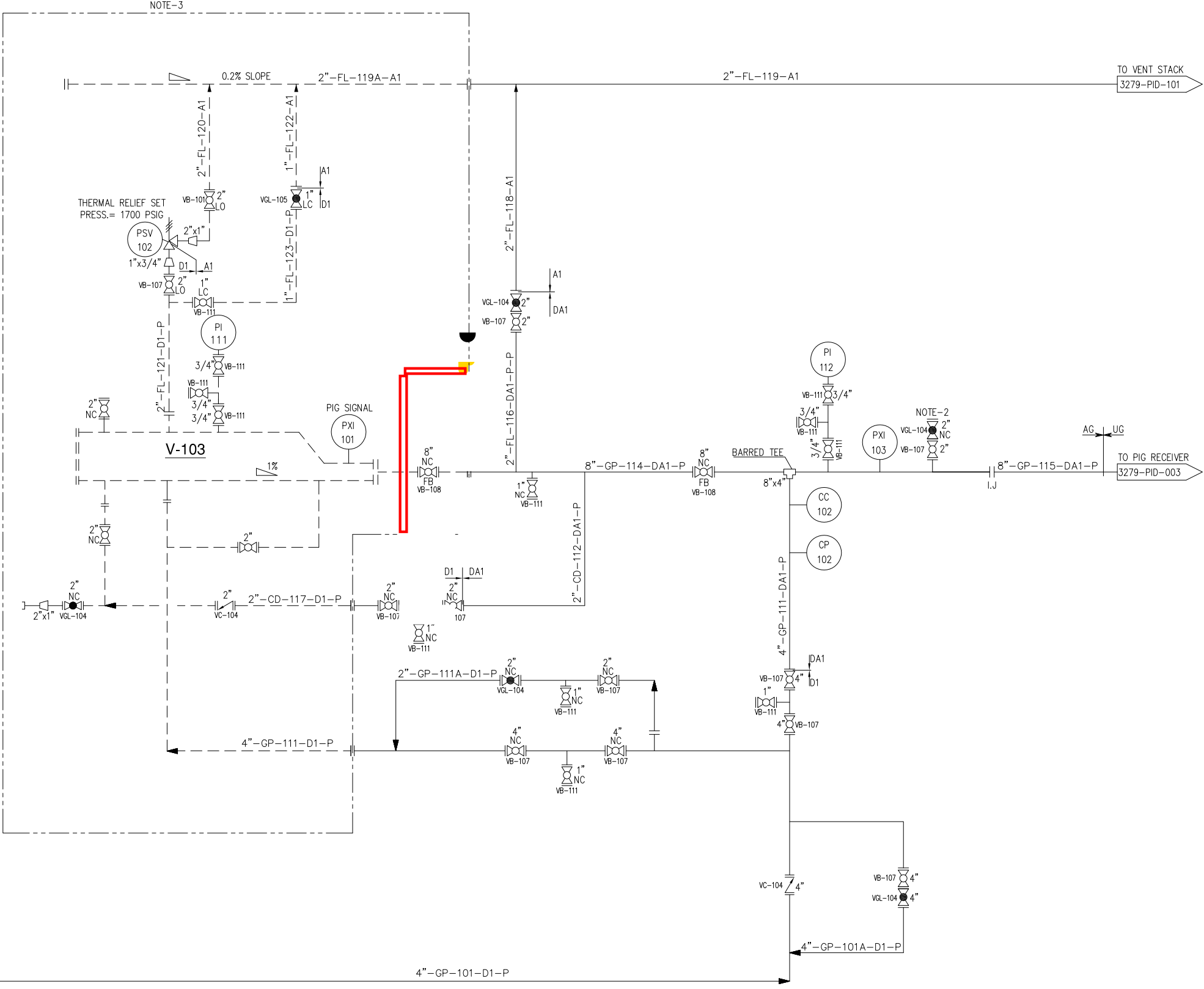




# **PIPING AND INSTRUMENTATION DIAGRAM**

**V-103  
PIG LAUNCHER**

DESIGN PRESSURE/TEMPERATURE: 1700 PSIG/ 200 °F  
 OPERATING PRESSURE/TEMPERATURE: 1342 PSIG / 150 °F



**NOTES**

- FOR GENERAL NOTES, SYMBOLS & LEGEND REFER DWG# 3279-PID-100.
- PROVISION FOR FLOWLINE PURGING AND DEPRESSURIZING.
- PORTABLE PIG LAUNCHER SKID. **Bidder Scope of Work.**

REV.	DATE	ISSUED FOR REVIEW	M.HM	RK
0	01/06/2018	ISSUED FOR REVIEW		
		DESCRIPTION OF REVISION	PREP'D:	CHECK
			APPR.	

**PE PETROCHEMICAL ENGINEERING CONSULTANTS**  
 C-2, BLOCK NO. 17, GULSHAN-E-IOBAL, NEAR NATIONAL STADIUM, KARACHI-75300. PAKISTAN.  
 TEL: +92 (21) 34827780, 34961088, FAX: +92 21 34961089, E-Mail: contact@pcec.com.pk web site: www.pcec.com.pk

CLIENT : **OIL & GAS DEVELOPMENT COMPANY LIMITED**

PROJECT : **DEVELOPMENT OF BHAMBRA AND THAL WELLHEADS**

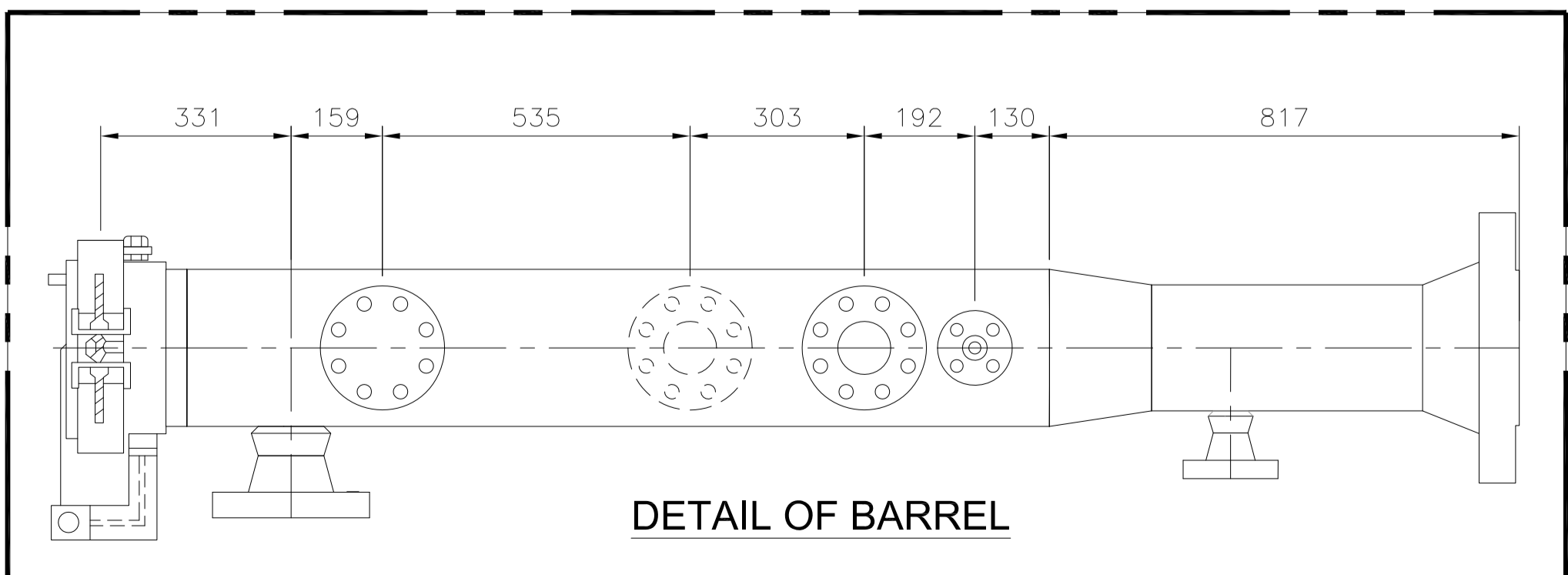
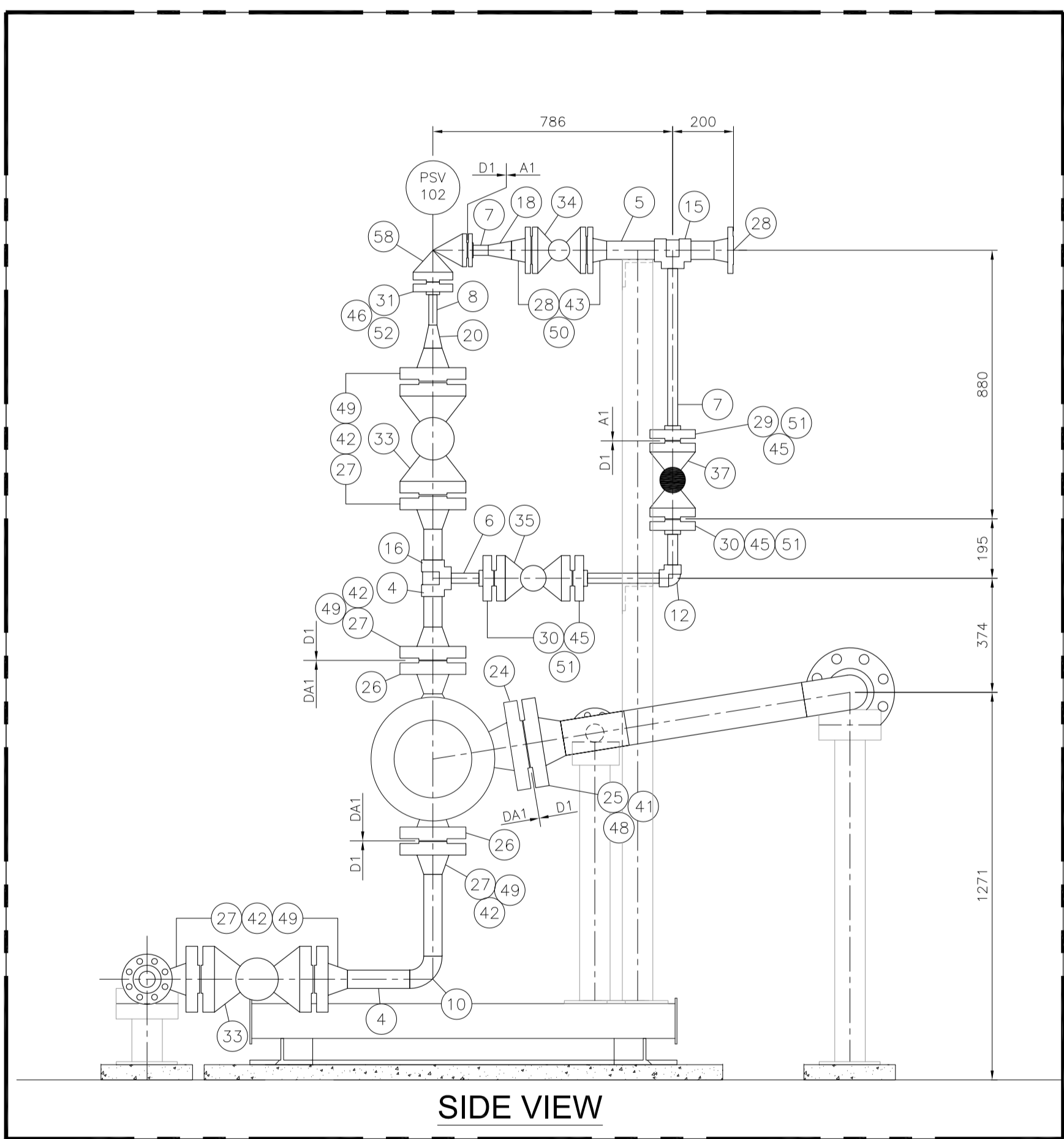
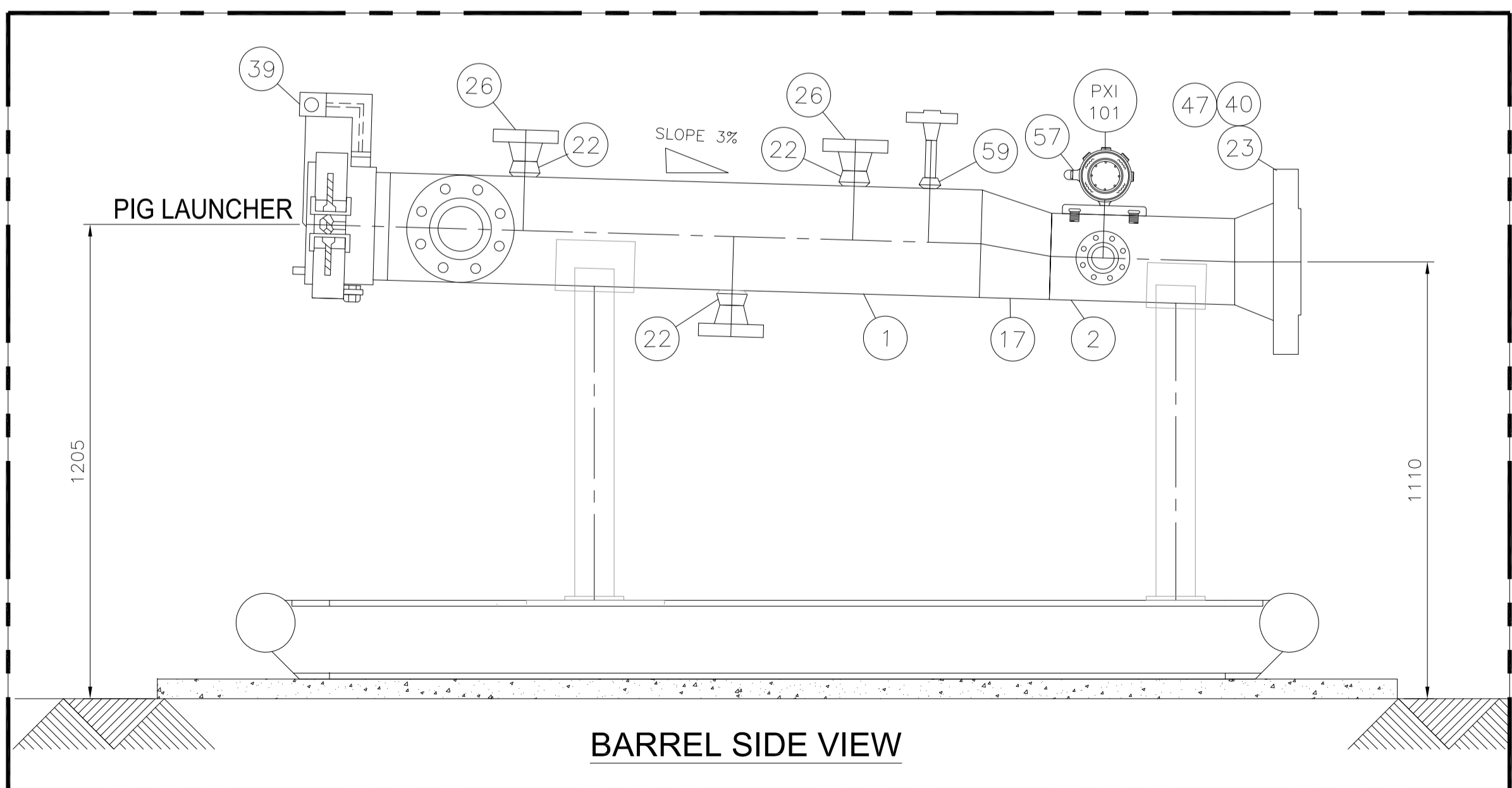
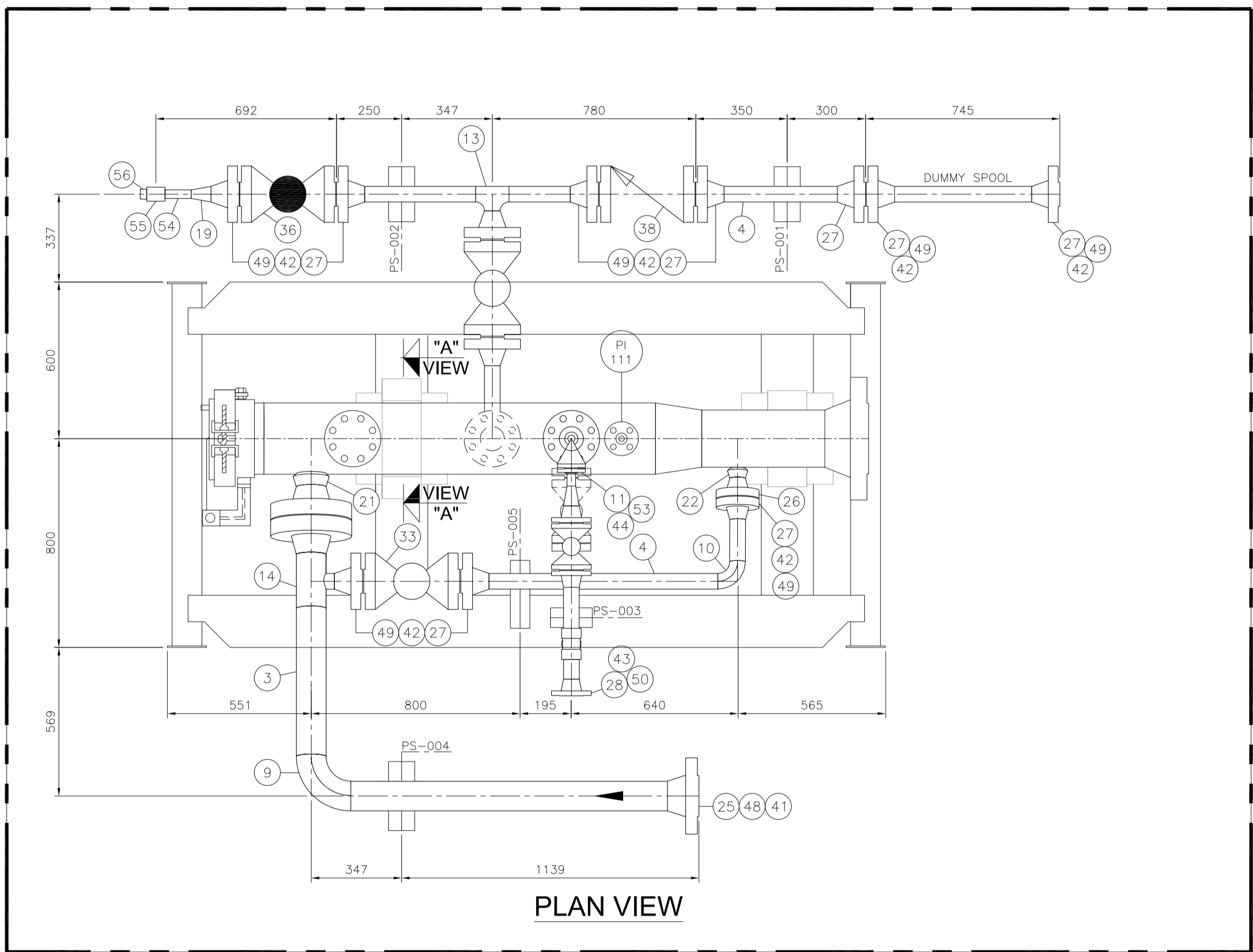
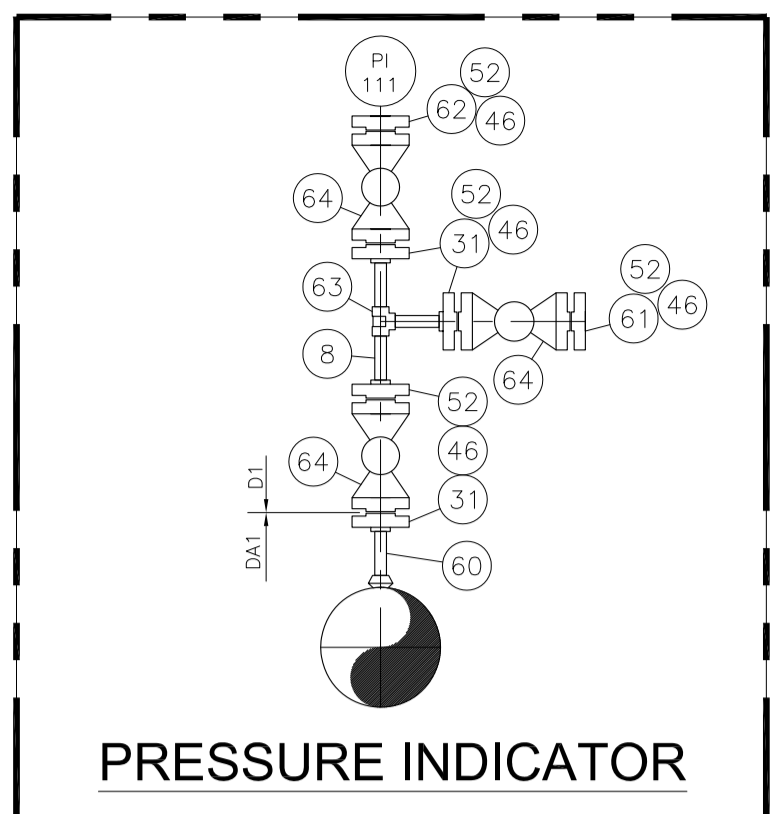
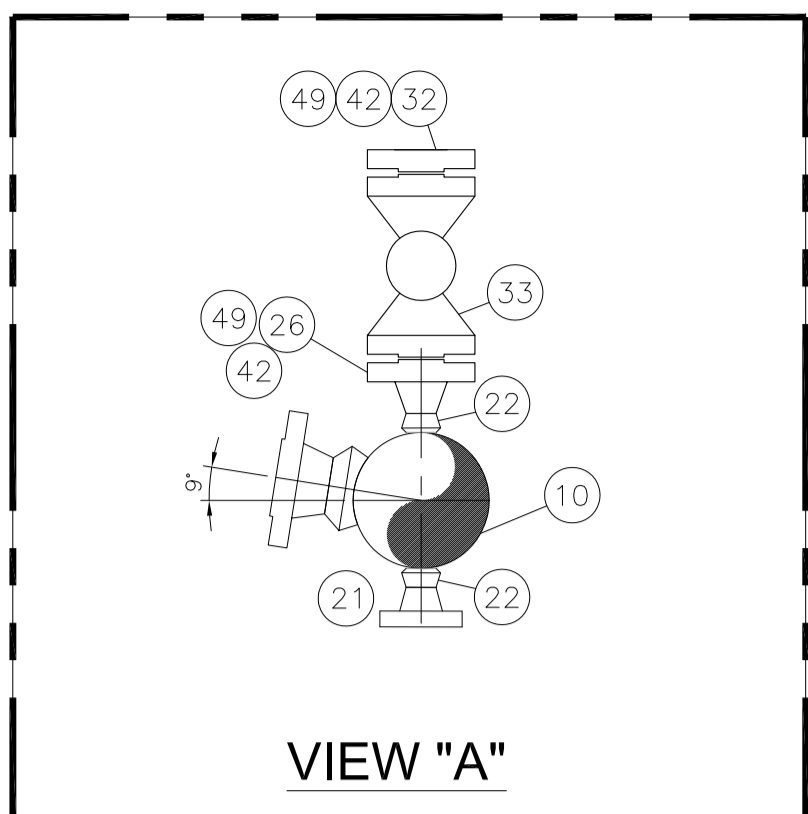
TITLE : **PIPING & INSTRUMENTATION DIAGRAM FOR THAL EAST PIG LAUNCHER**

JOB NO	DRAWING NO	SHEET NO	SCALE	SHEET SIZE	REV
3279	3279-PID-102	1 OF 1	N.T.S.	A3	1

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# PIG LAUNCHER SKID



BILL OF MATERIAL						BILL OF MATERIAL					
Sr.NO.	SIZE	DESCRIPTION	QTY.	(MAT. SPEC)	REMARKS	Sr.NO.	SIZE	DESCRIPTION	QTY.	(MAT. SPEC)	REMARKS
49	7/8"	LG STUD BOLTS C/W 2 NUTS 145mm LONG ASTM A 193 Gr. B7M CADMIUM PLATED ASTM A-194 Gr. 2HM CADMIUM PLATED	136	-		1	10"	PIPE SMLS, SCH. 80, API-5L GR.X52 BE	1.6M	DA1	
50	5/8"	LG STUD BOLTS C/W 2 NUTS 89mm LONG ASTM A 193 Gr. B7M CADMIUM PLATED ASTM A-194 Gr. 2HM CADMIUM PLATED	12	-		2	8"	PIPE SMLS, SCH. 80, API-5L GR.X52 BE	2.5M	DA1	
51	7/8"	LG STUD BOLTS C/W 2 NUTS 125mm LONG ASTM A 193 Gr. B7M CADMIUM PLATED ASTM A-194 Gr. 2HM CADMIUM PLATED	16	-		3	4"	PIPE SMLS, SCH. 120, ASTM A-106 GR.B BE	0.1M	D1	
52	3/4"	LG STUD BOLTS C/W 2 NUTS 115mm LONG ASTM A 193 Gr. B7M CADMIUM PLATED ASTM A-194 Gr. 2HM CADMIUM PLATED	28	-		4	2"	PIPE SMLS, SCH. 160, ASTM A-106 GR.B PE	3.6M	D1	
53	1/2"	LG STUD BOLTS C/W 2 NUTS 65mm LONG ASTM A 193 Gr. B7M CADMIUM PLATED ASTM A-194 Gr. 2HM CADMIUM PLATED	4	-		5	2"	PIPE SMLS, SCH. 80, ASTM A-106 GR.B PE	0.5M	A1	
54	1"	PIPE NIPPLE, SCH.160, ASTM A-106 GR.X52 PE-NPT	0.1M	-		6	1"	PIPE SMLS, SCH. 160, ASTM A-106 GR.B PE	0.1M	D1	
55	1"	COUPLING 9000# ASTM A-105 NPT	1	-		7	1"	PIPE SMLS, SCH. 80, ASTM A-106 GR.B PE	1.2M	A1	
56	1"	HEX HEAD PLUG ASTM A-105 NPT	1	-		8	3/4"	PIPE SMLS, SCH. 160, ASTM A-106 GR.B PE	0.4M	D1	
57	-	PIG SIGNALER NON-INTRUSIVE TYPE (VENDER)	1	-		9	4"	ELBOW 90° LR SCH. 120, ASTM A-234 GR.WPB BW	1	D1	
58	3/4"x1"	PSV 1500x150# RTJ&RF	1	-	SEE DATA SHEET	10	2"	ELBOW 90° LR SCH. 160, ASTM A-234 GR.WPB BW	2	D1	
59	10"x3/4"	SOCKOLET 9000#	1	DA1		11	1"	FLG, SW 150# RF, ASTM A-105	1	A1	
60	3/4"	PIPE SMLS, SCH. 160, API-5L GR.X52 PE	0.1M	DA1		12	1"	ELBOW 90° 3000#, ASTM A-105 S.W	1	D1	
61	3/4"	BLIND FLANGE 1500# RTJ,	1	DA1		13	2"	EQUAL TEE SCH. 160, ASTM A-234 GR.WPB BW	1	D1	
62	3/4"	BLIND FLANGE 1500# RTJ, WITH 1/2" NPT TAPPING BORE	1	-		14	4"x2"	RED. TEE SCH. 120x160, ASTM A-234 GR.WPB BW	1	D1	
63	3/4"	EQUAL TEE 9000#, ASTM A-105 S.W	1	D1		15	2"x1"	RED. TEE 3000#, ASTM A-105 S.W	1	A1	
64	3/4"	BALL VALVE RTJ. 1500#, SEE TAG NO. VB-111	3	D1		16	2"x1"	RED. TEE 9000#, ASTM A-105 S.W	1	D1	
						17	10"x8"	REDUCER, ECC. SCH. 80, BW. MSS SP-75 GR.WPHY 52	1	DA1	
						18	2"x1"	REDUCER, CONC. SCH. 80, BW. ASTM A-234 GR.WPB BW	1	A1	
						19	2"x1"	REDUCER, CONC. SCH. 160, BW. ASTM A-234 GR.WPB BW	1	D1	
						20	2"x3/4"	REDUCER, CONC. SCH. 160, BW. ASTM A-234 GR.WPB BW	1	D1	
						21	10"x4"	WELDOLET, BW SCH. 80, ASTM A-694 Gr-F52	1	DA1	
						22	10"x2"	WELDOLET, BW SCH. 80x160, ASTM A-694 Gr-F52	4	DA1	
						23	8"	FLG, WN 900# RTJ, SCH.80 ASTM A-694 Gr-F52	1	DA1	
						24	4"	FLG, WN 900# RTJ, SCH.80 ASTM A-694 Gr-F52	1	DA1	
						25	4"	FLG, WN 900# RTJ, SCH.120 ASTM A-105	2	D1	
						26	2"	FLG, WN 900# RTJ, SCH.160 ASTM A-694 Gr-F52	4	DA1	
						27	2"	FLG, WN 900# RTJ, SCH.160 ASTM A-105	16	D1	
						28	2"	FLG, WN 150# RF, SCH.80 ASTM A-105	3	A1	
						29	1"	FLG, SW 1500# RTJ, ASTM A-105	1	-	
						30	1"	FLG, SW 1500# RTJ, ASTM A-105	3	D1	
						31	3/4"	FLG, SW 1500# RTJ, ASTM A-105	5	D1	
						32	2"	BLIND FLANGE 900# RTJ, ASTM A-694 Gr-F52	1	DA1	
						33	2"	BALL VALVE RTJ. 900#, SEE TAG NO. VB-107	4	-	
						34	2"	BALL VALVE RF. 150#, SEE TAG NO. VB-101	1	A1	
						35	1"	BALL VALVE RTJ. 1500#, SEE TAG NO. VB-111	1	D1	
						36	2"	GLOBE VALVE RTJ. 900#, SEE TAG NO. VGL-104	1	D1	
						37	1"	GLOBE VALVE RTJ. 1500#, SEE TAG NO. VGL-105	1	D1	
						38	2"	CHECK VALVE RTJ. 900#, SEE TAG NO. VC-104	1	D1	
						39	10"	QUICK CLOSURE	1	-	
						40	8"	OCTAGONAL RING, 900# R-49 316L S.S.	1	DA1	
						41	4"	OCTAGONAL RING, 900# R-37 316L S.S.	2	-	
						42	2"	OCTAGONAL RING, 900# R-24 316L S.S.	17	-	
						43	2"	GASKET 150# 3mm THICK COMPRESSED GRAPHITE FILLED, SPIRAL WOUND 304 SS CENTRAL RING AS PER ASME B-16.20	3	A1	
						44	1"	GASKET 150# 3mm THICK COMPRESSED GRAPHITE FILLED, SPIRAL WOUND 304 SS CENTRAL RING AS PER ASME B-16.20	1	A1	
						45	1"	OCTAGONAL RING, 1500# R-16 316L S.S.	4	D1	
						46	3/4"	OCTAGONAL RING, 1500# R-14 316L S.S.	7	D1	
						47	1 3/8"	LG STUD BOLTS C/W 2 NUTS 220mm LONG ASTM A 193 Gr. B7M CADMIUM PLATED ASTM A-194 Gr. 2HM CADMIUM PLATED	12	-	
						48	1 1/8"	LG STUD BOLTS C/W 2 NUTS 170mm LONG ASTM A 193 Gr. B7M CADMIUM PLATED ASTM A-194 Gr. 2HM CADMIUM PLATED	16	-	

- NOTES**
- ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED.
  - ALL DIMENSIONS, ELEVATIONS AND ORIENTATIONS TO BE VERIFIED BY THE CONTRACTOR BEFORE UNDERTAKING ANY KIND OF FABRICATION, CONSTRUCTION AND INSTALLATION WORK AT SITE.
  - PSV-202 LENGTH TO BE ADJUST AS PER SITE REQUIREMENT.

REV.	DATE	DESCRIPTION	DRAWN	CHK'D	APP'VD	APP'VD
			CONSULTANT			CLIENT
1	17/02/20	RE-ISSUED FOR REVIEW	MK	SAR		
0	25/02/19	ISSUED FOR REVIEW	MK	SAR		

**PC PETROCHEMICAL ENGINEERING CONSULTANTS**  
 C-2, BLOCK NO. 17, GULSHAN-E-IOBAL, NEAR NATIONAL STADIUM, KARACHI-75300, PAKISTAN.  
 TEL: +92 (21) 34827780, 34961088, FAX: +92 21 34961089, E-Mail: contact@pcec.com.pk web site: www.pcec.com.pk

CLIENT: **OIL & GAS DEVELOPMENT COMPANY LTD.**

PROJECT: **DEVELOPMENT OF BHAMBRA & THAL WELLHEADS**

TITLE: **Ø8" PIG LAUNCHER (SKID) AT THAL EAST**

DRAWING NO.	SHEET	SCALE	REV.
<b>3279-ST-501</b>	NO. OF	-	
	1	3	A1
			1





# OIL & GAS DEVELOPMENT COMPANY LIMITED

## 0504226– THAL WEST COMPRESSION

(Ø8" PIG RECEIVER)  
AT THAL WEST-1

CONSULTANTS:



**Petrochemical Engineering Consultants**

C-2, Block No. 17, Gulshan-E-Iqbal, Karachi-75300, Pakistan.  
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E-Mail: [contact@pcec.com.pk](mailto:contact@pcec.com.pk) web: [www.pcec.com.pk](http://www.pcec.com.pk)

FEBUARY 2020



# DRAWING LIST

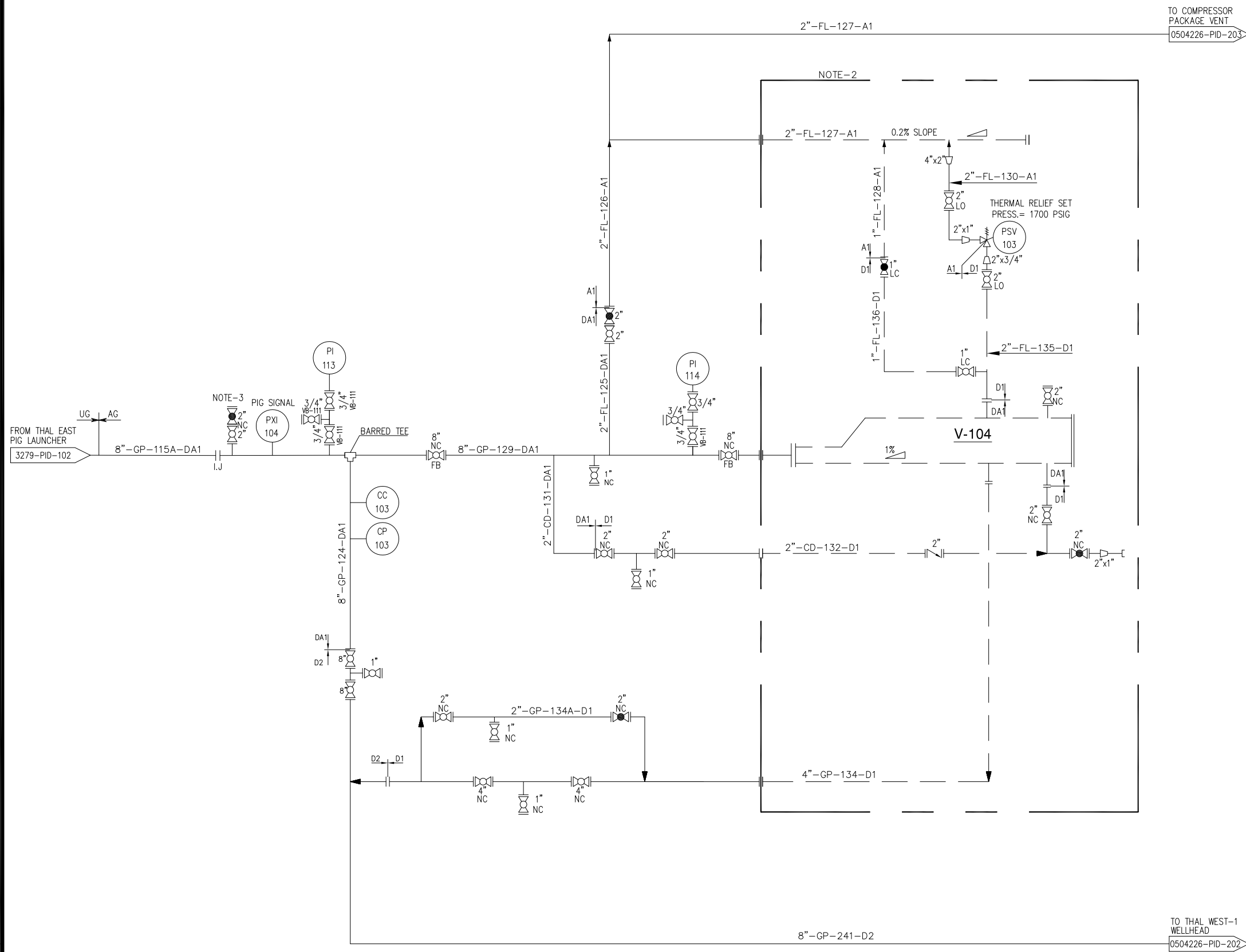




# **PIPING AND INSTRUMENTATION DIAGRAM**

V-204  
PIG RECEIVER

DESIGN CONDITIONS 1700 PSIG / 200°F  
OPERATING CONDITIONS 1166 PSIG / 140 F



NOTES

- FOR GENERAL NOTES, SYMBOLS & LEGEND REFER DWG# 0504226-PID-200
- PORTABLE PIG LAUNCHER SKID. **Bidder Scope of Work.**
- PROVISION FOR FLOWLINE PURGING AND DEPRESSURIZING.

REV.	DATE	DESCRIPTION OF REVISION	PREP'D:	CHECK	APPR.
1	23/01/2020	RE-ISSUED FOR REVIEW	M.J	SMR	
0	10/01/2020	ISSUED FOR REVIEW	M.J	SMR	

**PE PETROCHEMICAL ENGINEERING CONSULTANTS**  
C-2, BLOCK NO. 17, GULSHAN-E-IOBAL, NEAR NATIONAL STADIUM, KARACHI-75300. PAKISTAN.  
TEL: +92 (21) 34827780, 34961088, FAX: +92 21 34961089, E-Mail: contact@pcec.com.pk web site: www.pcec.com.pk

CLIENT :  **OIL & GAS DEVELOPMENT COMPANY LIMITED**

PROJECT : **THAL WEST COMPRESSION**

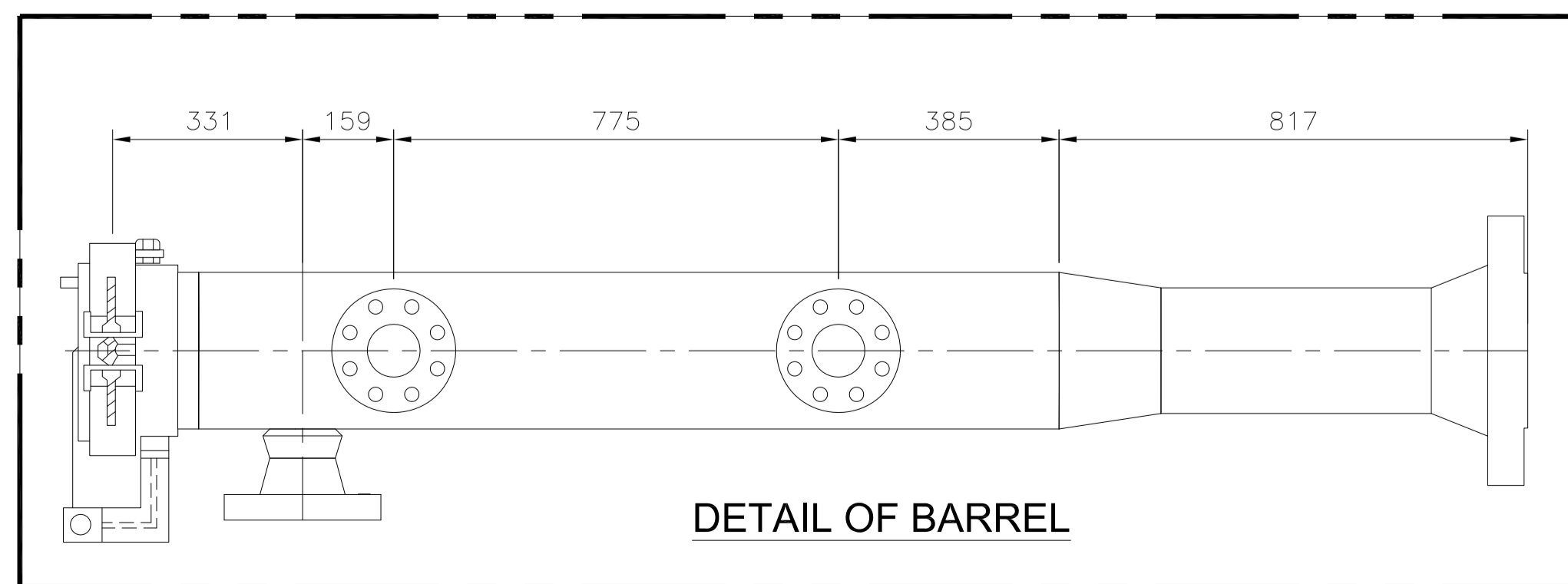
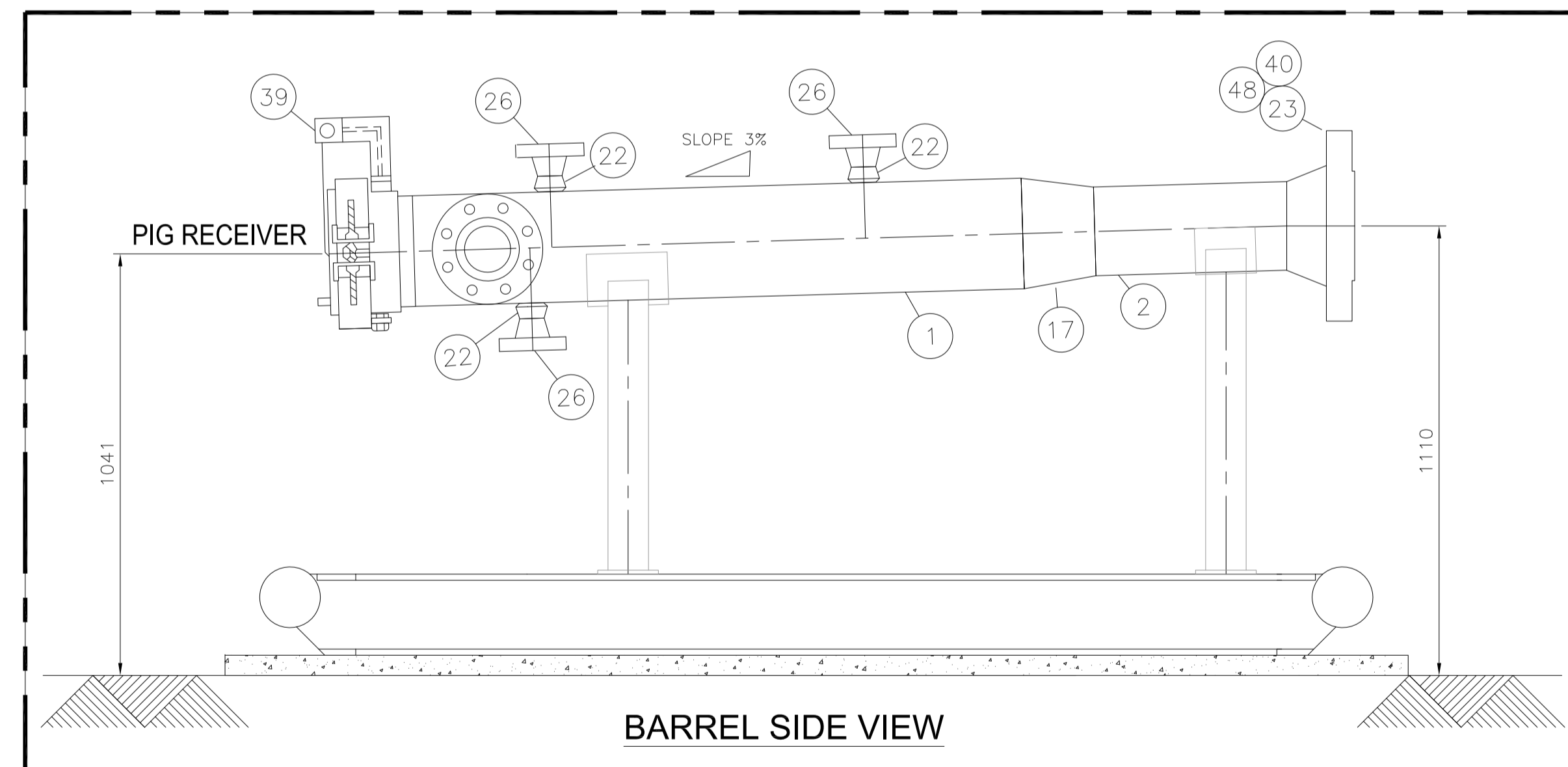
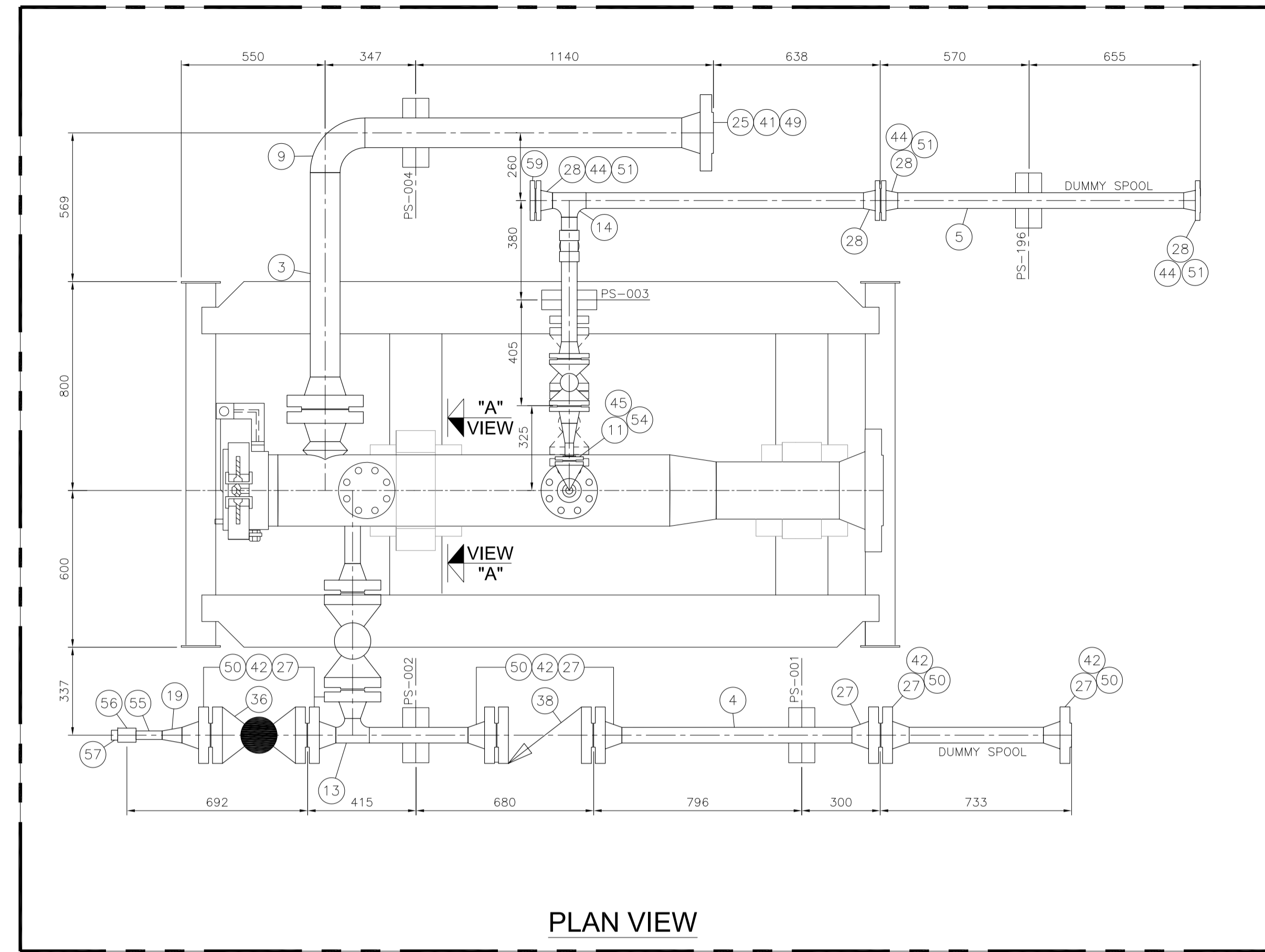
TITLE : **PIPING & INSTRUMENTATION DIAGRAM FOR THAL EAST PIG RECEIVER**

JOB NO	DRAWING NO	SHEET NO	SCALE	SHEET SIZE	REV
0504226	0504226-PID-204	1 OF 1	N.T.S.	A3	1

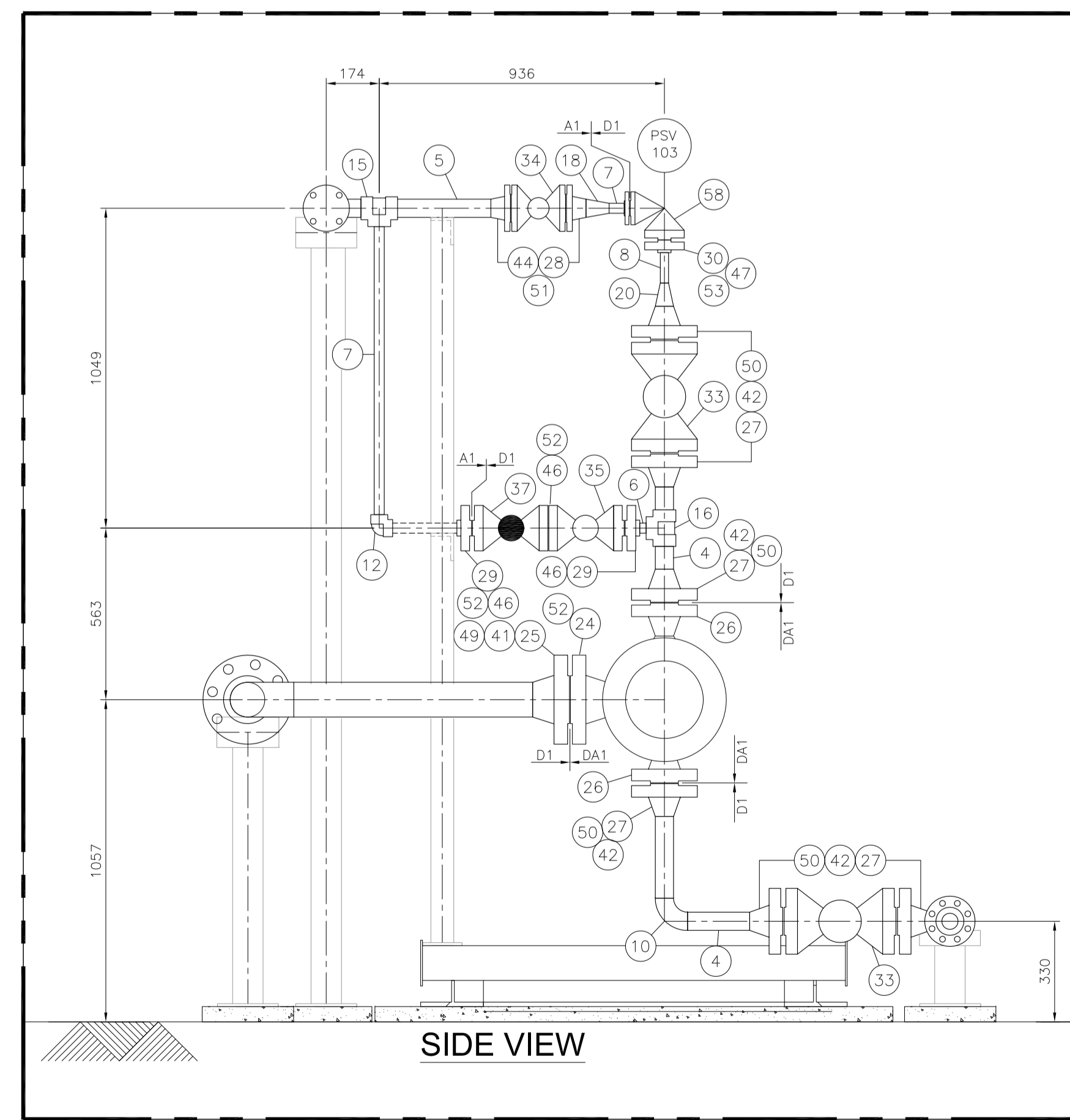
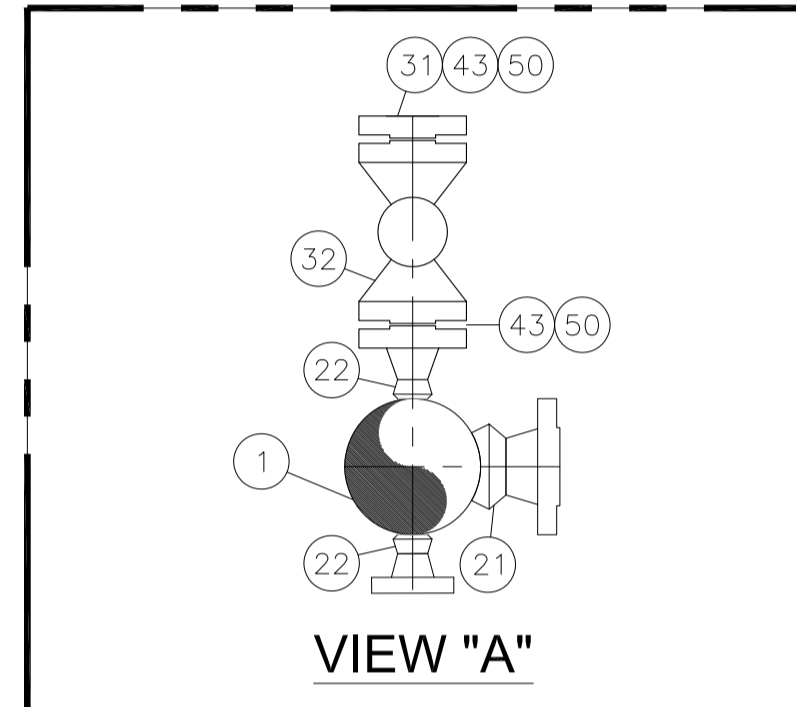
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# **PIG RECEIVER SKID**



BILL OF MATERIAL						BILL OF MATERIAL					
Sr.NO.	SIZE	DESCRIPTION	QTY.	(MAT. SPEC)	REMARKS	Sr.NO.	SIZE	DESCRIPTION	QTY.	(MAT. SPEC)	REMARKS
49	1 1/8"	LG STUD BOLTS C/W 2 NUTS 170mm LONG ASTM A 193 Gr. B7M CADMIUM PLATED ASTM A-194 Gr. 2HM CADMIUM PLATED	16	-		1	10"	PIPE SMLS, SCH. 80, API-5L GR.X52 BE	1.6M	DA1	
50	7/8"	LG STUD BOLTS C/W 2 NUTS 145mm LONG ASTM A 193 Gr. B7M CADMIUM PLATED ASTM A-194 Gr. 2HM CADMIUM PLATED	112	-		2	8"	PIPE SMLS, SCH. 80, API-5L GR.X52 BE	0.5M	DA1	
51	5/8"	LG STUD BOLTS C/W 2 NUTS 85mm LONG ASTM A 193 Gr. B7M CADMIUM PLATED ASTM A-194 Gr. 2HM CADMIUM PLATED	20	-		3	4"	PIPE SMLS, SCH. 120, ASTM A-106 GR.B BE	2.1M	D1	
52	7/8"	LG STUD BOLTS C/W 2 NUTS 125mm LONG ASTM A 193 Gr. B7M CADMIUM PLATED ASTM A-194 Gr. 2HM CADMIUM PLATED	12	-		4	2"	PIPE SMLS, SCH. 160, ASTM A-106 GR.B PE	2.4M	D1	
53	3/4"	LG STUD BOLTS C/W 2 NUTS 115mm LONG ASTM A 193 Gr. B7M CADMIUM PLATED ASTM A-194 Gr. 2HM CADMIUM PLATED	4	-		5	2"	PIPE SMLS, SCH. 80, ASTM A-106 GR.B PE	2.5M	A1	
54	1/2"	LG STUD BOLTS C/W 2 NUTS 65mm LONG ASTM A 193 Gr. B7M CADMIUM PLATED ASTM A-194 Gr. 2HM CADMIUM PLATED	4	-		6	1"	PIPE SMLS, SCH. 160, ASTM A-106 GR.B PE	0.1M	D1	
55	1"	PIPE NIPPLE, SCH.160, ASTM A-106 GR.X52 PE-NPT	0.1M	-		7	1"	PIPE SMLS, SCH. 80, ASTM A-106 GR.B PE	1.2M	A1	
56	1"	COUPLING 9000# ASTM A-105 NPT	1	-		8	3/4"	PIPE SMLS, SCH. 160, ASTM A-106 GR.B PE	0.1M	D1	
57	1"	HEX HEAD PLUG ASTM A-105 NPT	1	-		9	4"	ELBOW 90° LR SCH. 120, ASTM A-234 GR.WPB BW	1	D1	
58	3/4"x1"	PSV 1500x150# RTJ&RF	1	-	SEE DATA SHEET	10	2"	ELBOW 90° LR SCH. 160, ASTM A-234 GR.WPB BW	1	D1	
59	2"	BLIND FLANGE 150# RF, ASTM A-105	1	A1		11	1"	FLG, SW 150# RF, ASTM A-105	1	A1	
						12	1"	ELBOW 90° 3000#, ASTM A-105 S.W	1	A1	
						13	2"	EQUAL TEE SCH. 160, ASTM A-234 GR.WPB BW	1	D1	
						14	2"	EQUAL TEE SCH. 80, ASTM A-234 GR.WPB BW	1	A1	
						15	2"x1"	RED. TEE 3000#, ASTM A-105 S.W	1	A1	
						16	2"x1"	RED. TEE 9000#, ASTM A-105 S.W	1	D1	
						17	10"x8"	REDUCER, CONC. SCH. 80, BW. MSS SP-75 Gr.WPHY 52	1	DA1	
						18	2"x1"	REDUCER, CONC. SCH. 80, BW. ASTM A-234 GR.WPB BW	1	A1	
						19	2"x1"	REDUCER, CONC. SCH. 160, BW. ASTM A-234 GR.WPB BW	1	D1	
						20	2"x3/4"	REDUCER, CONC. SCH. 160, BW. ASTM A-234 GR.WPB BW	1	D1	
						21	10"x4"	WELDOLET, BW SCH. 80, ASTM A-694 Gr-F52	1	DA1	
						22	10"x2"	WELDOLET, BW SCH. 80x160, ASTM A-694 Gr-F52	3	DA1	
						23	8"	FLG, WN 900# RTJ, SCH.80 ASTM A-694 Gr-F52	1	DA1	
						24	4"	FLG, WN 900# RTJ, SCH.80 ASTM A-694 Gr-F52	1	DA1	
						25	4"	FLG, WN 900# RTJ, SCH.120 ASTM A-105	2	D1	
						26	2"	FLG, WN 900# RTJ, SCH.160 ASTM A-694 Gr-F52	3	DA1	
						27	2"	FLG, WN 900# RTJ, SCH.160 ASTM A-105	13	D1	
						28	2"	FLG, WN 150# RF, SCH.80 ASTM A-105	6	A1	
						29	1"	FLG, SW 1500# RTJ, ASTM A-105	2	D1	
						30	3/4"	FLG, SW 1500# RTJ, ASTM A-105	1	D1	
						31	2"	BLIND FLANGE 900# RTJ, ASTM A-694 Gr-F52	1	DA1	
						32	2"	BALL VALVE RTJ. 900#, SEE TAG NO. VB-107	1	DA1	
						33	2"	BALL VALVE RTJ. 900#, SEE TAG NO. VB-107	2	D1	
						34	2"	BALL VALVE RF. 150#, SEE TAG NO. VB-101	1	A1	
						35	1"	BALL VALVE RTJ. 1500#, SEE TAG NO. VB-111	1	D1	
						36	2"	GLOBE VALVE RTJ. 900#, SEE TAG NO. VGL-104	1	D1	
						37	1"	GLOBE VALVE RTJ. 1500#, SEE TAG NO. VGL-105	1	D1	
						38	2"	CHECK VALVE RTJ. 900#, SEE TAG NO. VC-104	1	D1	
						39	10"	QUICK CLOSURE	1	-	
						40	8"	OCTAGONAL RING, 900# R-49 316L S.S.	1	DA1	
						41	4"	OCTAGONAL RING, 900# R-37 316L S.S.	2	D1	
						42	2"	OCTAGONAL RING, 900# R-24 316L S.S.	12	D1	
						43	2"	OCTAGONAL RING, 900# R-24 316L S.S.	2	DA1	
						44	2"	GASKET 150# 3mm THICK COMPRESSED GRAPHITE FILLED SPIRAL WOUND 304 SS CENTRAL RING AS PER ASME B-16.20	5	A1	
						45	1"	GASKET 150# 3mm THICK COMPRESSED GRAPHITE FILLED SPIRAL WOUND 304 SS CENTRAL RING AS PER ASME B-16.20	1	A1	
						46	1"	OCTAGONAL RING, 1500# R-16 316L S.S.	3	D1	
						47	3/4"	OCTAGONAL RING, 1500# R-14 316L S.S.	1	D1	
						48	1 3/8"	LG STUD BOLTS C/W 2 NUTS 220mm LONG ASTM A 193 Gr. B7M CADMIUM PLATED ASTM A-194 Gr. 2HM CADMIUM PLATED	12	-	







- NOTES**
- ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED.
  - ALL DIMENSIONS, ELEVATIONS AND ORIENTATIONS TO BE VERIFIED BY THE CONTRACTOR BEFORE UNDERTAKING ANY KIND OF FABRICATION, CONSTRUCTION AND INSTALLATION WORK AT SITE.
  - PSV-103 LENGTH TO BE ADJUST AS PER SITE REQUIREMENT.
  - DURING TRANSPORTATION PIPING SPOOL TO BE DISMANTLE.

0	17/02/20	ISSUED FOR REVIEW	SS	SAR	
REV.	DATE	DESCRIPTION	DRAWN	CHK'D	APP'VD
			CONSULTANT		CLIENT
<p><b>PETROCHEMICAL ENGINEERING CONSULTANTS</b>          C-2, BLOCK NO. 17, GULSHAN-E-IOBAL, NEAR NATIONAL STADIUM, KARACHI-75300, PAKISTAN.          TEL: +92 (21) 34827780, 34961088, FAX: +92 21 34961089, E-Mail: contact@pec.com.pk web site: www.pec.com.pk</p>					
<p>CLIENT</p> <p><b>OIL &amp; GAS DEVELOPMENT COMPANY LTD.</b></p>					
<p>PROJECT</p> <p><b>THAL WEST COMPRESSION</b></p>					
<p>TITLE</p> <p><b>Ø8" PIG RECEIVER (SKID) AT THAL WEST-1</b></p>					
DRAWING NO.			SHEET	SCALE	REV.
<b>0504226-ST-201</b>			NO. OF	-	0
			1	A1	

# DATA SHEETS



CONSULTANT				DEVELOPMENT OF BAMBHRA AND THAL WELLHEADS				DOCUMENT NO.		
 <b>PETROCHEMICAL ENGINEERING CONSULTANTS</b>						3279-IDS-107				
						REV.	DATE.			
 <b>OIL &amp; GAS DEVELOPMENT COMPANY Ltd.</b>		<b>INSTRUMENT DATA SHEET</b> <b>PRESSURE GAUGE</b> <b>3279-PID-102</b>				0	06/06/2018			
						BY	APPR.			
						ZUA	SAG			
						SHEET	1 OF 1			
GENERAL	1	Tag Number		PI-111						
	2	Service		At Pig Launcher (V-103)						
	3	Line Size		-						
	4	P & ID Drawing Number		3279-PID-102						
	5									
PROCESS CONDITION	6	Fluid		Gas+Water						
	7	Max. Pressure	Max. Temperature	4500	psi-g	200	°F			
	8	Min. Pressure	Oper. Temperature	1000	psi-g	130-180	°F			
	9	Pulsation	Vibration	NO			1			
	10									
GAUGE	12	Type		INDICATOR						
	13	Calibration Range	Min	Max	0	psi	-g	5000	psi	-g
	14	Figure Interval		Manufacturer Standard						
	15	Minor Graduation		Yes						
	16	Mounting		Direct Mounted						
	17	Dial Size			160	mm				
	18	Dial Color		White Aluminium with Black Numerals						
	19	Case Material		304 St. Stl						
	20	Ring Construction	Ring Material	Bayonet		St. Stl				
	21	Blow-Out Protection		Yes						
	22	Lens Material		Solid Front Full Safety Pattern With Laminated Safety Glass						
	23	Pressure Element Type		Bourden Tube						
	24	Pressure Element Material		316 St. Stl						
	25	Socket Material		316 St. Stl						
	26	Connection Size		1/2" NPT-μ						
	27	Connection Location		Bottom						
	28	Movement Material		St. Stl. Rack & Pinion						
	29	Nominal Accuracy		+/- 1%						
	30	Micrometer Material		Yes						
	31	Ingress Protection		IP 65						
	DIAPHRAGM SEAL	32	Type		N/A					
33		Process Connection		N/A						
34		Diaphragm Material		N/A						
35		Bottom Housing Material		N/A						
36		Fill Fluid		N/A						
37		Capillary Length		N/A						
38		Capillary Material		N/A						
39		Flushing Connection		No						
40		Top Housing Material		N/A						
41		Connection to Instrument		N/A						
42										
OPTIONS		43	Syphon :	Type	Material	N/A			N/A	
	44	Syphon :	Type	Material	N/A			N/A		
	45	Movement Damping		N/A						
	46									
	47									
	48									
PURCHASE	49	Manufacturer								
	50	Model								
	51	Purchase Order Number								
	52	Price	Item Number					N/A		
	53	Serial Number		N/A						
<b>NOTES :</b>										
1										
2										

CONSULTANT		DEVELOPMENT OF BAMBHRA AND THAL WELLHEADS				DOCUMENT NO.		
	PETROCHEMICAL ENGINEERING CONSULTANTS					3279-IDS-108		
		REV. DATE.						
		0		06/06/2018				
CLIENT		INSTRUMENT DATA SHEET				BY	APPR.	
	OIL & GAS DEVELOPMENT COMPANY Ltd.	<b>PIG DETECTOR</b> (For Pig Launcher & Receiver Both)				ZUA	SAG	
		P&ID NO. 3279-PID-102				SHEET	1 OF 1	
GENERAL	1	Tag Number		PXI-101 & PXI-202				
	2	Service		PIG LAUNCHER AND RECEIVER				
	3	Line Size		-				
	4	P & ID Drawing Number		3279-PID-102				
	5	Area Classification		ZONE - 1, IIA, IIB ( AS PER IEC ), Temp. Class - T3				
DETECTOR	6	Mechanical Flag		REQD				
	7	Isolation Valve						
	8	MOC		SS316				
	9	NUTS & BOLTS		SS316				
	10	Trigger Assembly Components		Shaft & Plug Assembly with O-ring				
	11	Plug Assembly Type		Uni-directional				
OPERATING CONDITION	12							
	13	Fluid State		GAS / LIQUID				
	14	Process Connection		2"				
	15	Pressure psig Design	Min.	Operating	Max.	600	1342	1700
	16	Temperature °F Design	Min.	Operating	Max.	100	150	200
ELECTRICAL	17	Signal Output		Load Resist		N/A		
	18	Power Supply		Electrical Connection	N/A			
	19	Local Indication		Response Time	N/A			
	20	Local Raiser		N/A				
	21	Enclosure Protection		N/A				
	22	Cable Entry		N/A				
	23							
ACCESSORIES	24							
	25							
OTHER	26	Model No.						
	27	Certification						
PURCHASE	28	Manufacturer						
	29	Model						
	30	Purchase Order Number						
	31	Price	Item Number					
	32	Serial Number						
<b>NOTES :</b>								
1	Vendor/Contractor shall provide the piping nozzle stand out length during detail engineering.							
2								
3								
4								

CLIENT		DEVELOPMENT OF BHAMBRA AND THAL WELLHEADS				CONSULTANT		
		DOC. TITLE		PRESSURE SAFETY VALVE				
		DOC. NO.		3279-PDS-107	REV. 0			
		S.No.	DESCRIPTION	PSV-102				
1	SERVICE	HYDROCARBON						
2	LINE NO. / VESSEL NO.	V-103						
3	FULL NOZZLE / SEMI NOZZLE	FULL						
4	SAFETY OR RELIEF	SAFETY - RELIEF						
5	CONV. / BELLOWS / PILOT OP.	CONVENTIONAL						
6	BONNET TYPE	CLOSED						
7	SIZE: INLET	OUTLET	3/4"	1"				
8	FLANGE RATING	1500 X 150						
9	TYPE OF FACING	RTJ X RF						
10	BODY AND BONNET	ASME SA,216,GR,WCB,CARBON STEEL						
11	NOZZLE AND DISC	SS316L						
12	GUIDE AND RINGS	SS316L						
13	SPRING	ALUMINISED C.S						
14	LIFTING GEAR-TYPE	REQUIRED						
15	TEST GAG	REQUIRED						
16	CAP: SCREWED OR BOLTED	SCREWED						
17	TEST CONNECTION	YES-CARBON STEEL						
18	MANUAL BLOWDOWN	YES-CARBON STEEL						
19	BACK FLOW PREVENTER	NO						
20	CODE	ASME SEC VIII / API RP-520-521						
21	LEAKAGE CODE	ANSI / API 527						
22	SIZING BASIS	BLOCK DISCHARGE						
23	FLUID	HYDROCARBON						
24	FLUID STATE	MIX						
25	SPECIFIC GRAVITY	0.78						
26	OPER. PRESS. (psig)	SET PRES. (psig)	1342	1700				
27	OPER. TEMP. (°F)	MAX TEMP. (°F)	150	200				
28	COLD BENCH TEST PRESSURE	VTS						
29	% ALLOWABLE OVERPRESSURE	10%						
30	OVERPRESSURE FACTOR	N/A						
31	COMPRESSIBILITY FACTOR	0.8091						
32	FLOW MAX	-						
33	RATIO OF SPECIFIC HEATS	1.469						
34	BACK PRESSURE	ATM						
35	DISCHARGE COEF kd	0.85						
36	CHANGE OF STATE COEF. C	VTS						
37	P&ID NO.	3279-PID-101						
38	CALC. AREA SQ. IN.	VTS						
39	SELECTED AREA SQ. IN.	VTS						
40	ORIFICE DESIGNATION	D						
41	MANUFACTURER	-						
42	MODEL NUMBER	VTS						
NOTES:								
1. VENDOR TO CONFIRM THE SUITABILITY OF THIS MODEL FOR THE REQUIRED SERVICE.								
2. VTS-VENDOR TO SPECIFY OR CONFIRM								
0	25/5/2018	Issued For Review			SOA	RK	AJ	
Rev.	Date	Description			Prepared	CHECKED	Approved	

CLIENT		DEVELOPMENT OF BHAMBRA AND THAL WELLHEADS				CONSULTANT		
		DOC. TITLE		PRESSURE SAFETY VALVE				
		DOC. NO.		3279-PDS-108	REV. 0			
		S.No.	DESCRIPTION	PSV-103 / 203				
1	SERVICE	HYDROCARBON						
2	LINE NO. / VESSEL NO.	V-104						
3	FULL NOZZLE / SEMI NOZZLE	FULL						
4	SAFETY OR RELIEF	SAFETY - RELIEF						
5	CONV. / BELLOWS / PILOT OP.	CONVENTIONAL						
6	BONNET TYPE	CLOSED						
7	SIZE: INLET	OUTLET	3/4"	1"				
8	FLANGE RATING	1500 X 150						
9	TYPE OF FACING	RTJ X RF						
10	BODY AND BONNET	ASME SA,216,GR,WCB,CARBON STEEL						
11	NOZZLE AND DISC	SS316L						
12	GUIDE AND RINGS	SS316L						
13	SPRING	ALUMINISED C.S						
14	LIFTING GEAR-TYPE	REQUIRED						
15	TEST GAG	REQUIRED						
16	CAP: SCREWED OR BOLTED	SCREWED						
17	TEST CONNECTION	YES-CARBON STEEL						
18	MANUAL BLOWDOWN	YES-CARBON STEEL						
19	BACK FLOW PREVENTER	NO						
20	CODE	ASME SEC VIII / API RP-520-521						
21	LEAKAGE CODE	ANSI / API 527						
22	SIZING BASIS	BLOCK DISCHARGE						
23	FLUID	HYDROCARBON						
24	FLUID STATE	MIX						
25	SPECIFIC GRAVITY	0.78						
26	OPER. PRESS. (psig)	SET PRES. (psig)	116	1700				
27	OPER. TEMP. (°F)	MAX TEMP. (°F)	60	150				
28	COLD BENCH TEST PRESSURE	VTS						
29	% ALLOWABLE OVERPRESSURE	10%						
30	OVERPRESSURE FACTOR	N/A						
31	COMPRESSIBILITY FACTOR	0.8091						
32	FLOW MAX	-						
33	RATIO OF SPECIFIC HEATS	1.469						
34	BACK PRESSURE	ATM						
35	DISCHARGE COEF kd	0.85						
36	CHANGE OF STATE COEF. C	VTS						
37	P&ID NO.	3279-PID-201						
38	CALC. AREA SQ. IN.	VTS						
39	SELECTED AREA SQ. IN.	VTS						
40	ORIFICE DESIGNATION	D						
41	MANUFACTURER	-						
42	MODEL NUMBER	VTS						
NOTES:								
1. VENDOR TO CONFIRM THE SUITABILITY OF THIS MODEL FOR THE REQUIRED SERVICE.								
2. VTS-VENDOR TO SPECIFY OR CONFIRM								
0	25/5/2018	Issued For Review			SOA	RK	AJ	
Rev.	Date	Description			Prepared	-	Approved	

**PIG LAUNCHER/ RECEIVER SKID MOUNTED UNIT  
FOR THAL WEST**

**SIZE 8" 900#**

**ANNEXURE-A5**



# OIL & GAS DEVELOPMENT COMPANY LIMITED

## 0504226– THAL WEST COMPRESSION

(Ø8" PIG LAUNCHER)  
AT THAL WEST-1 TIE-IN FACILITY

CONSULTANTS:



**Petrochemical Engineering Consultants**

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Telephones: +92 (21) 34827780, 34961088, Fax: +92 (21) 34961089

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FEBUARY 2020



# DRAWING LIST



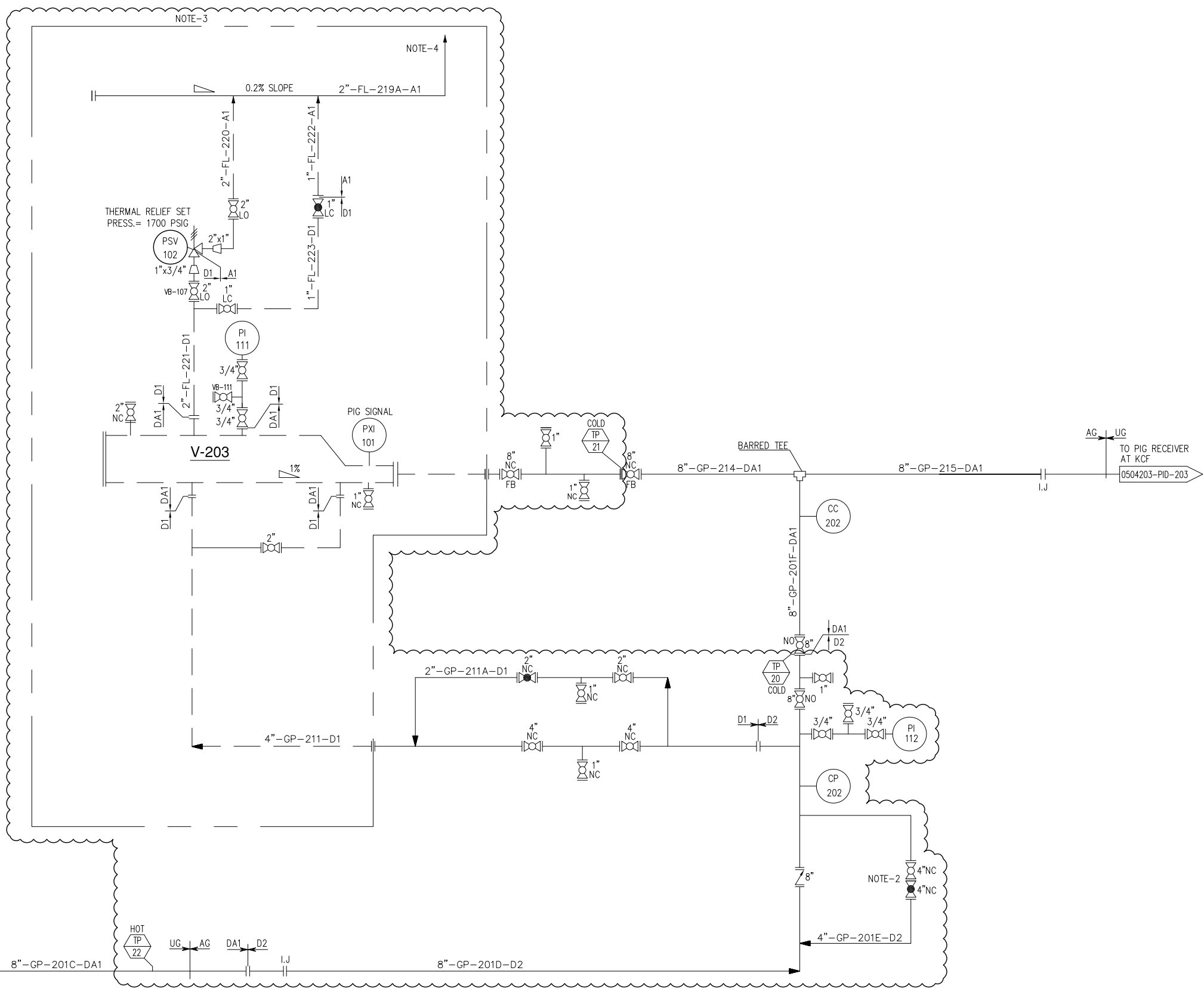




# **PIPING AND INSTRUMENTATION DIAGRAM**

V-203  
PIG LAUNCHER

DESIGN PRESSURE/TEMPERATURE: 1700 PSIG / 200 °F  
OPERATING PRESSURE/TEMPERATURE: 1342 PSIG / 150 °F



NOTES

- FOR GENERAL NOTES, SYMBOLS & LEGEND REFER DWG# 0504226-PID-200
- FLOWLINE SHALL BE DEPRESSURISED VIA OPENING FLOWLINE NRV BY-PASS VALVES AND THROUGH PSV-001 MANUAL BLOWDOWN VALVES.
- PORTABLE PIG LAUNCHER SKID. **Bidder Scope of Work.**
- VENT SHALL BE ATLEAST 3M ABOVE THE HIGHEST STRUCTURE.

REV.	DATE	DESCRIPTION OF REVISION	PREP'D:	CHECK	APPR.
3	23/01/2020	RE-ISSUED FOR REVIEW	M.J	SMR	
2	15/01/2020	RE-ISSUED FOR REVIEW	M.J	SMR	
1	10/01/2020	ISSUED FOR REVIEW	M.J	SMR	
0	07/11/2019	AS-BUILT	M.J	SMR	

**PC PETROCHEMICAL ENGINEERING CONSULTANTS**  
C-2, BLOCK NO. 17, GULSHAN-E-IOBAL, NEAR NATIONAL STADIUM, KARACHI-75300, PAKISTAN.  
TEL: +92 (21) 34827780, 34961088, FAX: +92 21 34961089, E-Mail: contact@pcec.com.pk web site: www.pcec.com.pk

CLIENT : **OIL & GAS DEVELOPMENT COMPANY LIMITED**

PROJECT : **THAL WEST COMPRESSION**

TITLE : **PIPING & INSTRUMENTATION DIAGRAM FOR THAL WEST-1 TIE-IN FACILITY**

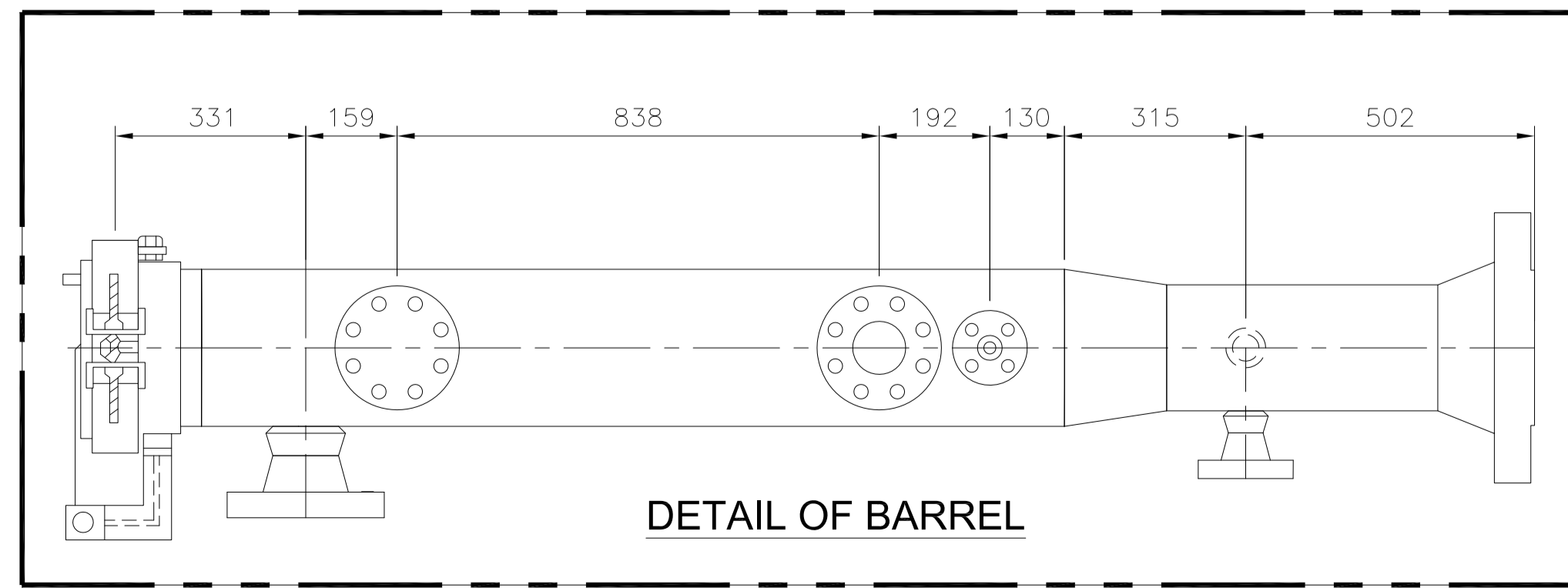
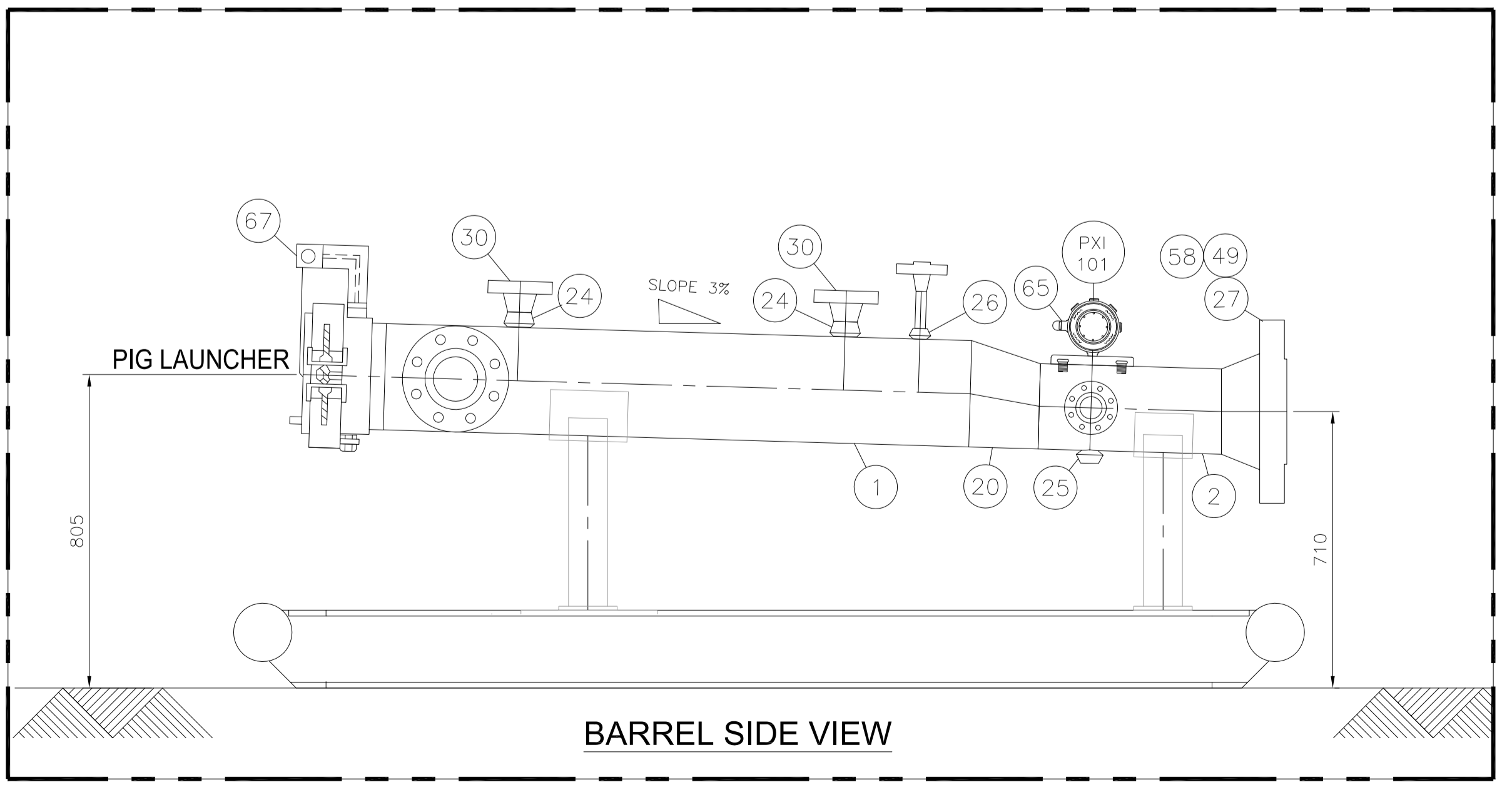
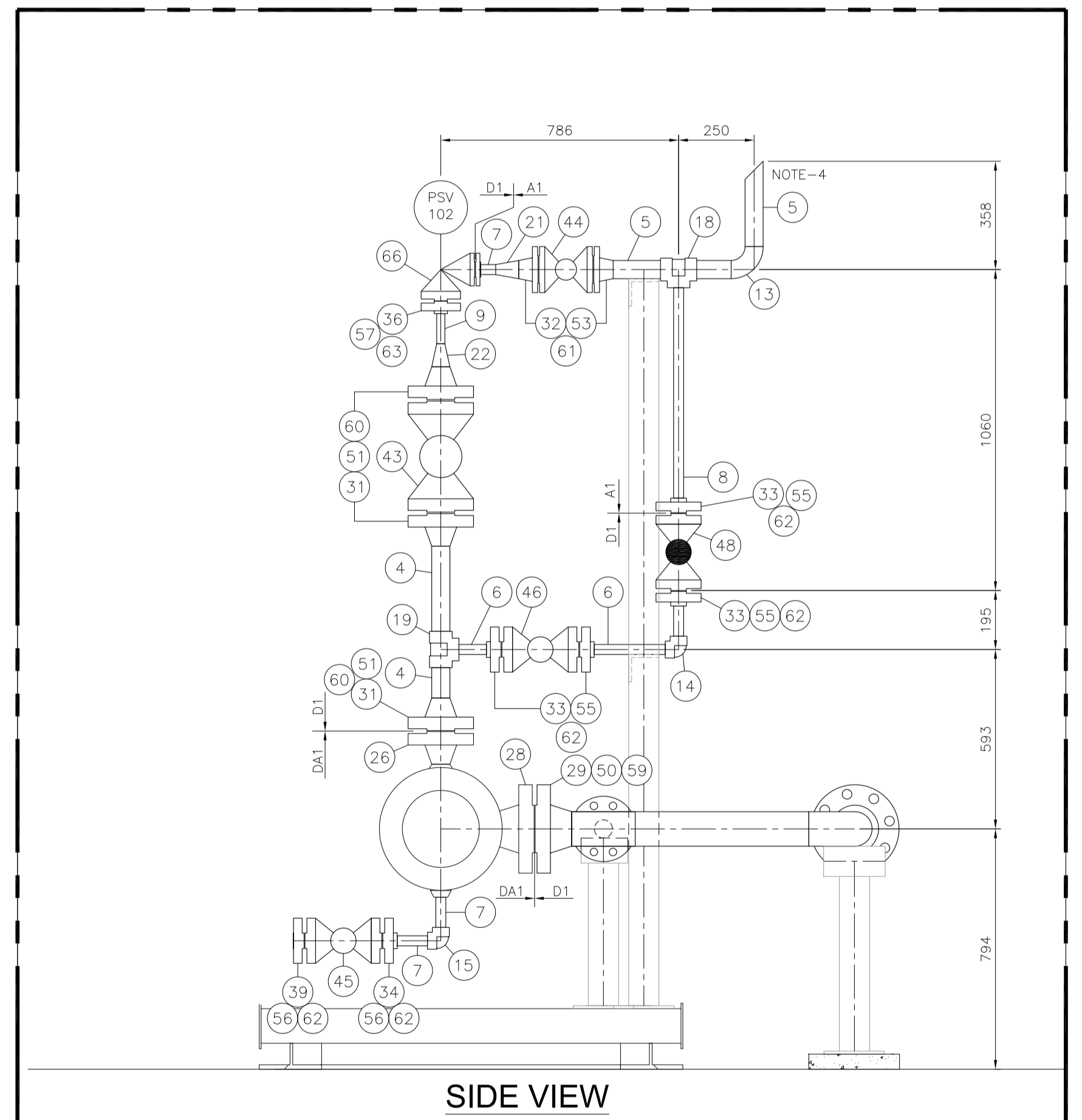
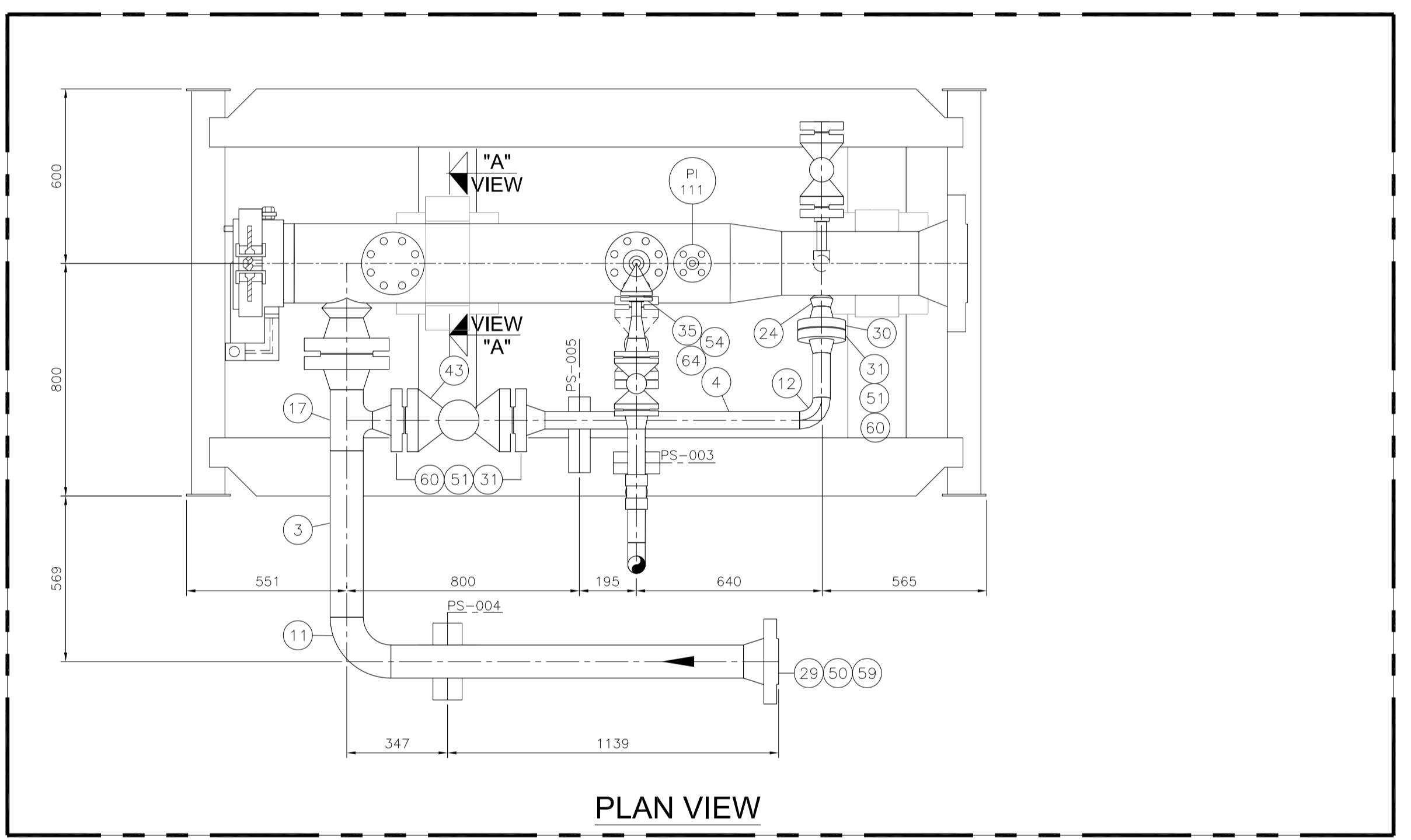
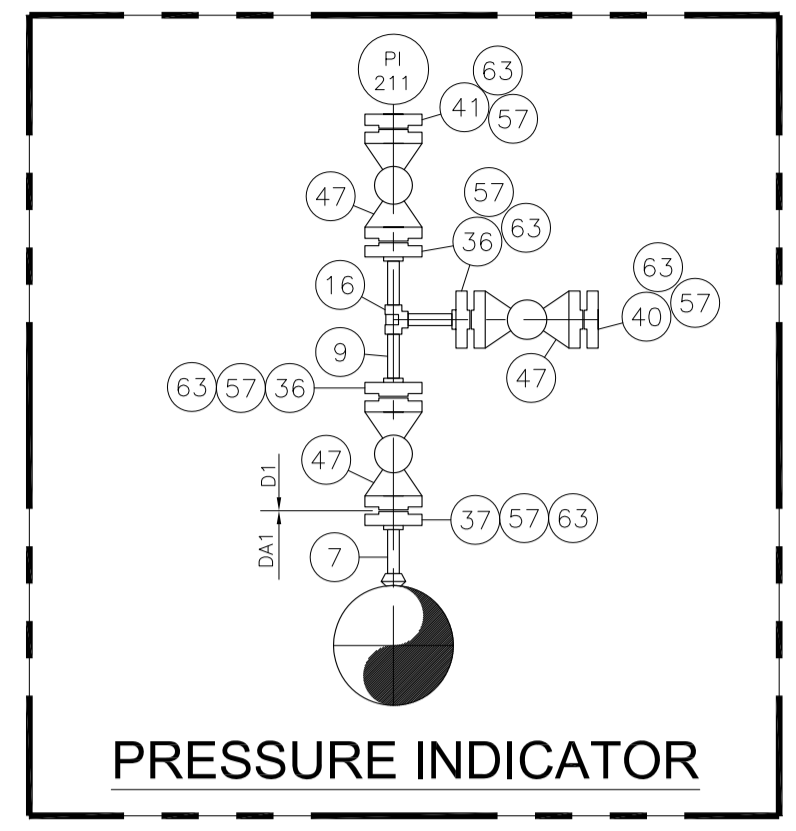
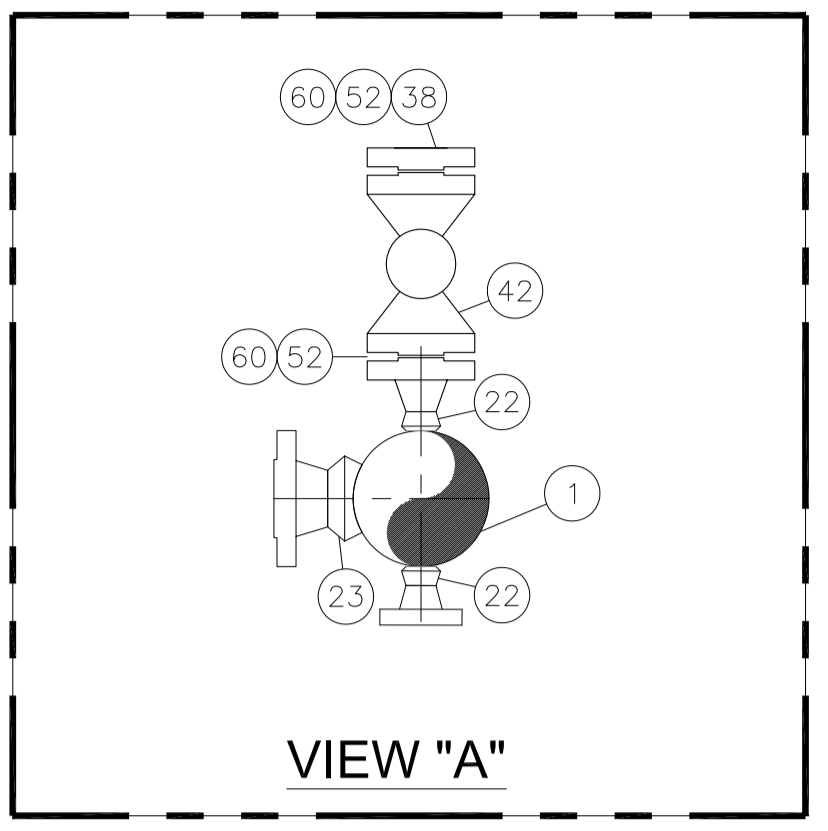
JOB NO	DRAWING NO	SHEET NO	SCALE	SHEET SIZE	REV
0504226	0504226-PID-205	1 OF 1	N.T.S.	A3	3

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# **PIG LAUNCHER SKID**

BILL OF MATERIAL							BILL OF MATERIAL						
Sr.NO.	SIZE	DESCRIPTION	QTY.	(MAT. SPEC)	REMARKS	Sr.NO.	SIZE	DESCRIPTION	QTY.	(MAT. SPEC)	REMARKS		
49	8"	OCTAGONAL RING, 900# R-49 316L S.S.	1	DA1		1	10"	PIPE SMLS, SCH. 80, API-5L GR.X52 BE	1.6M	DA1			
50	4"	OCTAGONAL RING, 900# R-37 316L S.S.	2	D1		2	8"	PIPE SMLS, SCH. 80, API-5L GR.X52 BE	0.5M	DA1			
51	2"	OCTAGONAL RING, 900# R-24 316L S.S.	6	D1		3	4"	PIPE SMLS, SCH. 120, ASTM A-106 GR.B BE	1.8M	D1			
52	2"	OCTAGONAL RING, 900# R-24 316L S.S.	2	DA1		4	2"	PIPE SMLS, SCH. 160, ASTM A-106 GR.B BE	1.5M	D1			
53	2"	GASKET 150# 3mm THICK COMPRESSED GRAPHITE FILLED SPIRAL WOUND 304 SS CENTRAL RING AS PER ASME B-16.20	2	A1		5	2"	PIPE SMLS, SCH. 80, ASTM A-106 GR.B PE	0.6M	A1			
54	1"	GASKET 150# 3mm THICK COMPRESSED GRAPHITE FILLED SPIRAL WOUND 304 SS CENTRAL RING AS PER ASME B-16.20	1	A1		6	1"	PIPE SMLS, SCH. 160, ASTM A-106 GR.B PE	0.5M	D1			
55	1"	OCTAGONAL RING, 1500# R-16 316L S.S.	4	D1		7	1"	PIPE SMLS, SCH. 160, API-5L GR.X52 PE	0.3M	DA1			
56	1"	OCTAGONAL RING, 1500# R-16 316L S.S.	2	DA1		8	1"	PIPE SMLS, SCH. 80, ASTM A-106 GR.B PE	0.8M	A1			
57	3/4"	OCTAGONAL RING, 1500# R-14 316L S.S.	7	D1		9	3/4"	PIPE SMLS, SCH. 160, ASTM A-106 GR.B PE	0.4M	D1			
58	1 3/8"	LG STUD BOLTS C/W 2 NUTS 220mm LONG ASTM A 193 Gr. B7M CADMIUM PLATED ASTM A-194 Gr. 2HM CADMIUM PLATED	12	-		10	3/4"	PIPE SMLS, SCH. 160, API-5L GR.X52 PE	0.1M	DA1			
59	1 1/8"	LG STUD BOLTS C/W 2 NUTS 170mm LONG ASTM A 193 Gr. B7M CADMIUM PLATED ASTM A-194 Gr. 2HM CADMIUM PLATED	16	-		11	4"	ELBOW 90° LR SCH. 120, ASTM A-234 GR.WPB BW	1	D1			
60	7/8"	LG STUD BOLTS C/W 2 NUTS 145mm LONG ASTM A 193 Gr. B7M CADMIUM PLATED ASTM A-194 Gr. 2HM CADMIUM PLATED	64	-		12	2"	ELBOW 90° LR SCH. 160, ASTM A-234 GR.WPB BW	1	D1			
61	5/8"	LG STUD BOLTS C/W 2 NUTS 85mm LONG ASTM A 193 Gr. B7M CADMIUM PLATED ASTM A-194 Gr. 2HM CADMIUM PLATED	8	-		13	2"	ELBOW 90° LR SCH. 80, ASTM A-234 GR.WPB BW	1	A1			
62	7/8"	LG STUD BOLTS C/W 2 NUTS 125mm LONG ASTM A 193 Gr. B7M CADMIUM PLATED ASTM A-194 Gr. 2HM CADMIUM PLATED	24	-		14	1"	ELBOW 90° 9000#, ASTM A-105 S.W	1	D1			
63	3/4"	LG STUD BOLTS C/W 2 NUTS 115mm LONG ASTM A 193 Gr. B7M CADMIUM PLATED ASTM A-194 Gr. 2HM CADMIUM PLATED	28	-		15	1"	ELBOW 90° 9000#, ASTM A-694 Gr-F52	1	DA1			
64	1/2"	LG STUD BOLTS C/W 2 NUTS 65mm LONG ASTM A 193 Gr. B7M CADMIUM PLATED ASTM A-194 Gr. 2HM CADMIUM PLATED	4	-		16	3/4"	EQUAL. TEE 9000#, ASTM A-105 S.W	1	D1			
65	-	PIG SIGNALER NON-INTRUSIVE TYPE (VENDER)	1	-		17	4"x2"	RED. TEE SCH.120x160 BW. ASTM A-234 GR.WPB	1	D1			
66	3/4"x1"	PSV 1500x150# RTJRF	1	-	SEE DATA SHEET	18	2"x1"	RED. TEE 3000#, ASTM A-105 S.W	1	A1			
67	10"	QUICK CLOSURE	1	-		19	2"x1"	RED. TEE 9000#, ASTM A-105 S.W	1	D1			
20	10"x8"	REDUCER, ECC. SCH. 80, BW. MSS SP-75 GR.WPHY 52	1	DA1		20	10"x8"	REDUCER, ECC. SCH. 80, BW. MSS SP-75 GR.WPHY 52	1	DA1			
21	2"x1"	REDUCER, CONC. SCH. 80, BW. ASTM A-234 GR.WPB BW	1	A1		21	2"x1"	REDUCER, CONC. SCH. 80, BW. ASTM A-234 GR.WPB BW	1	A1			
22	2"x3/4"	REDUCER, CONC. SCH. 160, BW. ASTM A-234 GR.WPB BW	1	D1		22	2"x3/4"	REDUCER, CONC. SCH. 160, BW. ASTM A-234 GR.WPB BW	1	D1			
23	10"x4"	WELDOLET, BW SCH. 80, ASTM A-694 Gr-F52	1	DA1		23	10"x4"	WELDOLET, BW SCH. 80, ASTM A-694 Gr-F52	1	DA1			
24	10"x2"	WELDOLET, BW SCH. 80x160, ASTM A-694 Gr-F52	3	DA1		24	10"x2"	WELDOLET, BW SCH. 80x160, ASTM A-694 Gr-F52	3	DA1			
25	10"x1"	SOCKOLET 9000#	1	DA1		25	10"x1"	SOCKOLET 9000#	1	DA1			
26	10"x3/4"	SOCKOLET 9000#	1	DA1		26	10"x3/4"	SOCKOLET 9000#	1	DA1			
27	8"	FLG, WN 900# RTJ, SCH.80 ASTM A-694 Gr-F52	1	DA1		27	8"	FLG, WN 900# RTJ, SCH.80 ASTM A-694 Gr-F52	1	DA1			
28	4"	FLG, WN 900# RTJ, SCH.80 ASTM A-694 Gr-F52	1	DA1		28	4"	FLG, WN 900# RTJ, SCH.80 ASTM A-694 Gr-F52	1	DA1			
29	4"	FLG, WN 900# RTJ, SCH.120 ASTM A-105	2	D1		29	4"	FLG, WN 900# RTJ, SCH.120 ASTM A-105	2	D1			
30	2"	FLG, WN 900# RTJ, SCH.160 ASTM A-694 Gr-F52	3	DA1		30	2"	FLG, WN 900# RTJ, SCH.160 ASTM A-694 Gr-F52	3	DA1			
31	2"	FLG, WN 900# RTJ, SCH.160 ASTM A-105	6	D1		31	2"	FLG, WN 900# RTJ, SCH.160 ASTM A-105	6	D1			
32	2"	FLG, WN 150# RF, SCH.80 ASTM A-105	2	A1		32	2"	FLG, WN 150# RF, SCH.80 ASTM A-105	2	A1			
33	1"	FLG, SW 1500# RTJ, ASTM A-105	4	D1		33	1"	FLG, SW 1500# RTJ, ASTM A-105	4	D1			
34	1"	FLG, SW 1500# RTJ, ASTM A-694 Gr-F52	1	DA1		34	1"	FLG, SW 1500# RTJ, ASTM A-694 Gr-F52	1	DA1			
35	1"	FLG, SW 150# RF, ASTM A-105	1	A1		35	1"	FLG, SW 150# RF, ASTM A-105	1	A1			
36	3/4"	FLG, SW 1500# RTJ, ASTM A-105	4	D1		36	3/4"	FLG, SW 1500# RTJ, ASTM A-105	4	D1			
37	3/4"	FLG, SW 1500# RTJ, ASTM A-694 Gr-F52	1	DA1		37	3/4"	FLG, SW 1500# RTJ, ASTM A-694 Gr-F52	1	DA1			
38	2"	BLIND FLANGE 900# RTJ, ASTM A-694 Gr-F52	1	DA1		38	2"	BLIND FLANGE 900# RTJ, ASTM A-694 Gr-F52	1	DA1			
39	1"	BLIND FLANGE 1500# RTJ, ASTM A-694 Gr-F52	1	DA1		39	1"	BLIND FLANGE 1500# RTJ, ASTM A-694 Gr-F52	1	DA1			
40	3/4"	BLIND FLANGE 1500# RTJ, ASTM A-105	1	D1		40	3/4"	BLIND FLANGE 1500# RTJ, ASTM A-105	1	D1			
41	3/4"	BLIND FLANGE 1500# RTJ, WITH 1/2" NPT TAPPING BORE	1	-		41	3/4"	BLIND FLANGE 1500# RTJ, WITH 1/2" NPT TAPPING BORE	1	-			
42	2"	BALL VALVE RTJ. 900#, SEE TAG NO. VB-107	1	DA1		42	2"	BALL VALVE RTJ. 900#, SEE TAG NO. VB-107	1	DA1			
43	2"	BALL VALVE RTJ. 900#, SEE TAG NO. VB-107	2	D1		43	2"	BALL VALVE RTJ. 900#, SEE TAG NO. VB-107	2	D1			
44	2"	BALL VALVE RF. 150#, SEE TAG NO. VB-101	1	A1		44	2"	BALL VALVE RF. 150#, SEE TAG NO. VB-101	1	A1			
45	1"	BALL VALVE RTJ. 1500#, SEE TAG NO. VB-111	1	DA1		45	1"	BALL VALVE RTJ. 1500#, SEE TAG NO. VB-111	1	DA1			
46	1"	BALL VALVE RTJ. 1500#, SEE TAG NO. VB-111	1	D1		46	1"	BALL VALVE RTJ. 1500#, SEE TAG NO. VB-111	1	D1			
47	3/4"	BALL VALVE RTJ. 1500#, SEE TAG NO. VB-111	3	D1		47	3/4"	BALL VALVE RTJ. 1500#, SEE TAG NO. VB-111	3	D1			
48	1"	GLOBE VALVE RTJ. 1500#, SEE TAG NO. VGL-105	1	D1		48	1"	GLOBE VALVE RTJ. 1500#, SEE TAG NO. VGL-105	1	D1			



**NOTES**

- ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED.
- ALL DIMENSIONS, ELEVATIONS AND ORIENTATIONS TO BE VERIFIED BY THE CONTRACTOR BEFORE UNDERTAKING ANY KIND OF FABRICATION, CONSTRUCTION AND INSTALLATION WORK AT SITE.
- PSV-102 LENGTH TO BE ADJUST AS PER SITE REQUIREMENT.
- VENT SHALL BE ATLEAST 3M ABOVE THE HIGHEST STRUCTURE.
- DURING TRANSPORTATION PIPING 'POOL TO BE DISMANTLE.

REV.	DATE	DESCRIPTION	DRAWN	CHK'D	APP'VD	APP'VD
	0 24/01/20	ISSUED FOR REVIEW	MK	SAR		
			CONSULTANT			CLIENT

**PC PETROCHEMICAL ENGINEERING CONSULTANTS**  
 C-2, BLOCK NO. 17, GULSHAN-E-IOBAL, NEAR NATIONAL STADIUM, KARACHI-75300, PAKISTAN.  
 TEL: +92 (21) 34827780, 34961088, FAX: +92 21 34961089, E-Mail: contact@pcec.com.pk web site: www.pcec.com.pk

**CLIENT**  
**OIL & GAS DEVELOPMENT COMPANY LTD.**

**PROJECT**  
**THAL WEST COMPRESSION**

**TITLE**  
**Ø8" PIG LAUNCHER (SKID)  
 AT THAL WEST TIE-IN FACILITY**

DRAWING NO.	SHEET	SCALE	REV.
<b>0504226-ST-202</b>	NO. OF	-	0
	1	A1	



# OIL & GAS DEVELOPMENT COMPANY LIMITED

## 0504226– THAL WEST COMPRESSION

(Ø8" PIG RECEIVER)  
AT KCF

CONSULTANTS:



**Petrochemical Engineering Consultants**

C-2, Block No. 17, Gulshan-E-Iqbal, Karachi-75300, Pakistan.

Telephones: +92 (21) 34827780, 34961088, Fax: +92 (21) 34961089

E-Mail: [contact@pcec.com.pk](mailto:contact@pcec.com.pk) web: [www.pcec.com.pk](http://www.pcec.com.pk)

FEBUARY 2020



# DRAWING LIST



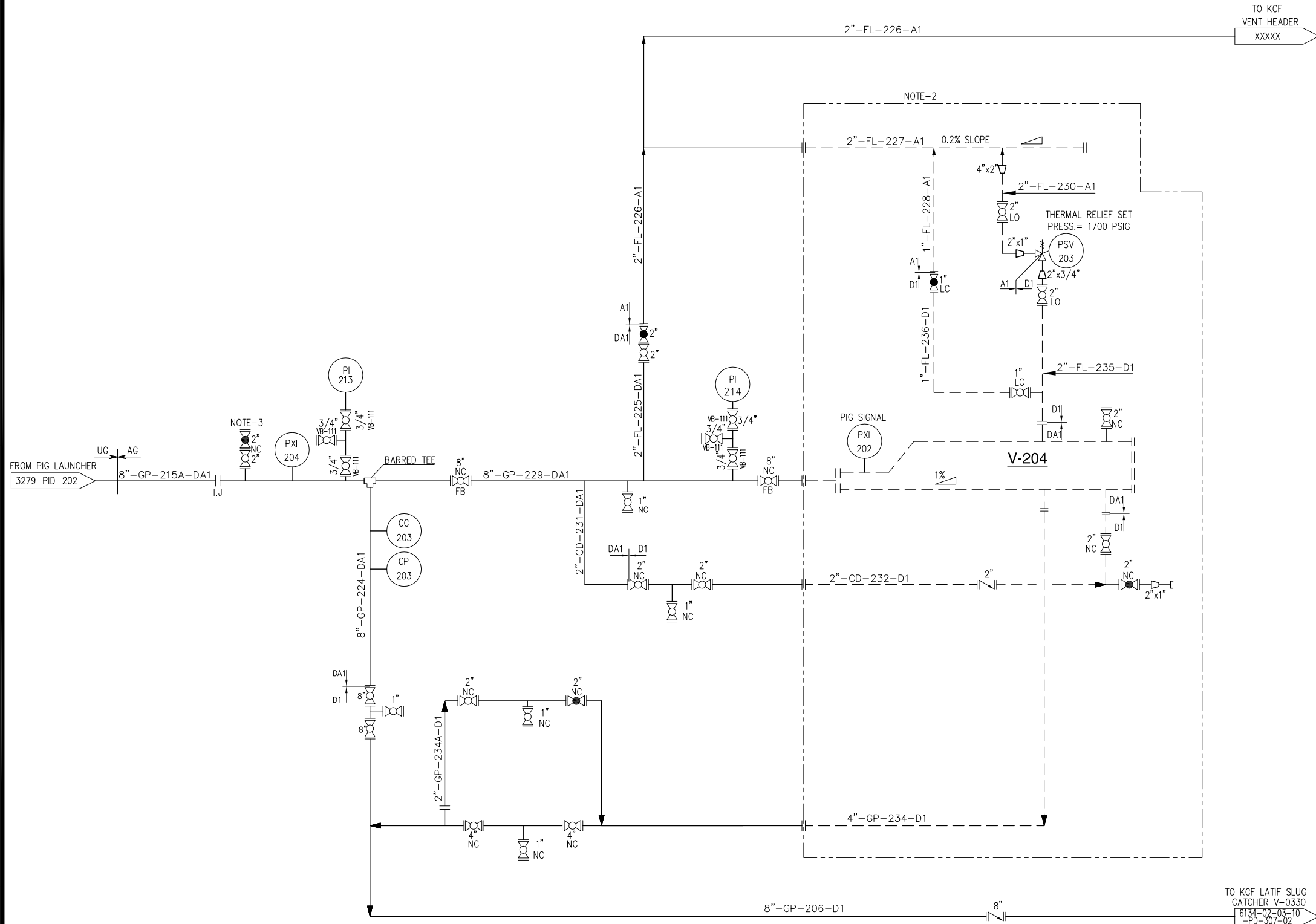


# **PIPING AND INSTRUMENTATION DIAGRAM**



**V-204  
PIG RECEIVER**

DESIGN CONDITIONS 1700 PSIG / 150 °F  
OPERATING CONDITIONS 1000 PSIG/ 80-120 °F



**NOTES**

- FOR GENERAL NOTES, SYMBOLS & LEGEND REFER DWG# 3279-PID-200.
- PORTABLE PIG RECIEVER SKID. **Bidder Scope of Work.**
- PROVISION FOR FLOWLINE PURGING AND DEPRESSURIZING.

REV.	DATE	DESCRIPTION OF REVISION	PREP'D:	CHECK	APPR.
0	01/06/2018	ISSUED FOR REVIEW	M.AH	RK	

**PE PETROCHEMICAL ENGINEERING CONSULTANTS**  
C-2, BLOCK NO. 17, GULSHAN-E-IOBAL, NEAR NATIONAL STADIUM, KARACHI-75300. PAKISTAN.  
TEL: +92 (21) 34827780, 34961088, FAX: +92 21 34961089, E-Mail: contact@pcec.com.pk web site: www.pcec.com.pk

CLIENT : **OIL & GAS DEVELOPMENT COMPANY LIMITED**

PROJECT : **DEVELOPMENT OF BHAMBRA AND THAL WELLHEADS**

TITLE : **PIPING & INSTRUMENTATION DIAGRAM FOR PIG RECEIVER**

JOB NO	DRAWING NO	SHEET NO	SCALE	SHEET SIZE	REV
3279	3279-PID-203	1 OF 1	N.T.S.	A3	1

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TO KCF LATIF SLUG CATCHER V-0330  
6134-02-03-10  
-PD-307-02





# **PIG RECEIVER SKID**



# DATA SHEETS

CONSULTANT				DEVELOPMENT OF BAMBHRA AND THAL WELLHEADS				DOCUMENT NO.		
 <b>PETROCHEMICAL ENGINEERING CONSULTANTS</b>						3279-IDS-107				
						REV.	DATE.			
 <b>OIL &amp; GAS DEVELOPMENT COMPANY Ltd.</b>		<b>INSTRUMENT DATA SHEET</b> <b>PRESSURE GAUGE</b> <b>3279-PID-102</b>				BY	APPR.			
							ZUA		SAG	
						SHEET	1 OF 1			
GENERAL	1	Tag Number		PI-111						
	2	Service		At Pig Launcher (V-103)						
	3	Line Size		-						
	4	P & ID Drawing Number		3279-PID-102						
	5									
PROCESS CONDITION	6	Fluid		Gas+Water						
	7	Max. Pressure	Max. Temperature	4500	psi-g	200	°F			
	8	Min. Pressure	Oper. Temperature	1000	psi-g	130-180	°F			
	9	Pulsation	Vibration	NO			1			
	10									
GAUGE	12	Type		INDICATOR						
	13	Calibration Range	Min	Max	0	psi	-g	5000	psi	-g
	14	Figure Interval		Manufacturer Standard						
	15	Minor Graduation		Yes						
	16	Mounting		Direct Mounted						
	17	Dial Size			160	mm				
	18	Dial Color		White Aluminium with Black Numerals						
	19	Case Material		304 St. Stl						
	20	Ring Construction	Ring Material	Bayonet		St. Stl				
	21	Blow-Out Protection		Yes						
	22	Lens Material		Solid Front Full Safety Pattern With Laminated Safety Glass						
	23	Pressure Element Type		Bourden Tube						
	24	Pressure Element Material		316 St. Stl						
	25	Socket Material		316 St. Stl						
	26	Connection Size		1/2" NPT-μ						
	27	Connection Location		Bottom						
	28	Movement Material		St. Stl. Rack & Pinion						
	29	Nominal Accuracy		+/- 1%						
	30	Micrometer Material		Yes						
	31	Ingress Protection		IP 65						
	DIAPHRAGM SEAL	32	Type		N/A					
33		Process Connection		N/A						
34		Diaphragm Material		N/A						
35		Bottom Housing Material		N/A						
36		Fill Fluid		N/A						
37		Capillary Length		N/A						
38		Capillary Material		N/A						
39		Flushing Connection		No						
40		Top Housing Material		N/A						
41		Connection to Instrument		N/A						
42										
OPTIONS	43	Syphon :	Type	Material	N/A			N/A		
	44	Syphon :	Type	Material	N/A			N/A		
	45	Movement Damping		N/A						
	46									
	47									
	48									
PURCHASE	49	Manufacturer								
	50	Model								
	51	Purchase Order Number								
	52	Price	Item Number					N/A		
	53	Serial Number		N/A						
NOTES :										
1										
2										

CONSULTANT		DEVELOPMENT OF BAMBHRA AND THAL WELLHEADS				DOCUMENT NO.		
	PETROCHEMICAL ENGINEERING CONSULTANTS					3279-IDS-108		
		REV. DATE.						
		0		06/06/2018				
CLIENT		INSTRUMENT DATA SHEET				BY	APPR.	
	OIL & GAS DEVELOPMENT COMPANY Ltd.	<b>PIG DETECTOR</b> (For Pig Launcher & Receiver Both)				ZUA	SAG	
		P&ID NO. 3279-PID-102				SHEET	1 OF 1	
GENERAL	1	Tag Number		PXI-101 & PXI-202				
	2	Service		PIG LAUNCHER AND RECEIVER				
	3	Line Size		-				
	4	P & ID Drawing Number		3279-PID-102				
	5	Area Classification		ZONE - 1, IIA, IIB ( AS PER IEC ), Temp. Class - T3				
DETECTOR	6	Mechanical Flag		REQD				
	7	Isolation Valve						
	8	MOC		SS316				
	9	NUTS & BOLTS		SS316				
	10	Trigger Assembly Components		Shaft & Plug Assembly with O-ring				
	11	Plug Assembly Type		Uni-directional				
OPERATING CONDITION	12							
	13	Fluid State		GAS / LIQUID				
	14	Process Connection		2"				
	15	Pressure psig Design	Min.	Operating	Max.	600	1342	1700
	16	Temperature °F Design	Min.	Operating	Max.	100	150	200
ELECTRICAL	17	Signal Output		Load Resist		N/A		
	18	Power Supply		Electrical Connection		N/A		
	19	Local Indication		Response Time		N/A		
	20	Local Raiser		N/A				
	21	Enclosure Protection		N/A				
	22	Cable Entry		N/A				
	23							
ACCESSORIES	24							
	25							
OTHER	26	Model No.						
	27	Certification						
PURCHASE	28	Manufacturer						
	29	Model						
	30	Purchase Order Number						
	31	Price		Item Number				
	32	Serial Number						
NOTES :								
1	Vendor/Contractor shall provide the piping nozzle stand out length during detail engineering.							
2								
3								
4								

CLIENT		DEVELOPMENT OF BHAMBRA AND THAL WELLHEADS				CONSULTANT		
		DOC. TITLE		PRESSURE SAFETY VALVE				
		DOC. NO.		3279-PDS-107	REV. 0			
		S.No.	DESCRIPTION	PSV-102				
1	SERVICE	HYDROCARBON						
2	LINE NO. / VESSEL NO.	V-103						
3	FULL NOZZLE / SEMI NOZZLE	FULL						
4	SAFETY OR RELIEF	SAFETY - RELIEF						
5	CONV. / BELLOWS / PILOT OP.	CONVENTIONAL						
6	BONNET TYPE	CLOSED						
7	SIZE: INLET	OUTLET	3/4"	1"				
8	FLANGE RATING	1500 X 150						
9	TYPE OF FACING	RTJ X RF						
10	BODY AND BONNET	ASME SA,216,GR,WCB,CARBON STEEL						
11	NOZZLE AND DISC	SS316L						
12	GUIDE AND RINGS	SS316L						
13	SPRING	ALUMINISED C.S						
14	LIFTING GEAR-TYPE	REQUIRED						
15	TEST GAG	REQUIRED						
16	CAP: SCREWED OR BOLTED	SCREWED						
17	TEST CONNECTION	YES-CARBON STEEL						
18	MANUAL BLOWDOWN	YES-CARBON STEEL						
19	BACK FLOW PREVENTER	NO						
20	CODE	ASME SEC VIII / API RP-520-521						
21	LEAKAGE CODE	ANSI / API 527						
22	SIZING BASIS	BLOCK DISCHARGE						
23	FLUID	HYDROCARBON						
24	FLUID STATE	MIX						
25	SPECIFIC GRAVITY	0.78						
26	OPER. PRESS. (psig)	SET PRES. (psig)	1342	1700				
27	OPER. TEMP. (°F)	MAX TEMP. (°F)	150	200				
28	COLD BENCH TEST PRESSURE	VTS						
29	% ALLOWABLE OVERPRESSURE	10%						
30	OVERPRESSURE FACTOR	N/A						
31	COMPRESSIBILITY FACTOR	0.8091						
32	FLOW MAX	-						
33	RATIO OF SPECIFIC HEATS	1.469						
34	BACK PRESSURE	ATM						
35	DISCHARGE COEF kd	0.85						
36	CHANGE OF STATE COEF. C	VTS						
37	P&ID NO.	3279-PID-101						
38	CALC. AREA SQ. IN.	VTS						
39	SELECTED AREA SQ. IN.	VTS						
40	ORIFICE DESIGNATION	D						
41	MANUFACTURER	-						
42	MODEL NUMBER	VTS						
NOTES:								
1. VENDOR TO CONFIRM THE SUITABILITY OF THIS MODEL FOR THE REQUIRED SERVICE.								
2. VTS-VENDOR TO SPECIFY OR CONFIRM								
0	25/5/2018	Issued For Review			SOA	RK	AJ	
Rev.	Date	Description			Prepared	CHECKED	Approved	

CLIENT		DEVELOPMENT OF BHAMBRA AND THAL WELLHEADS				CONSULTANT		
		DOC. TITLE		PRESSURE SAFETY VALVE				
		DOC. NO.		3279-PDS-108	REV. 0			
		S.No.	DESCRIPTION	PSV-103 / 203				
1	SERVICE	HYDROCARBON						
2	LINE NO. / VESSEL NO.	V-104						
3	FULL NOZZLE / SEMI NOZZLE	FULL						
4	SAFETY OR RELIEF	SAFETY - RELIEF						
5	CONV. / BELLOWS / PILOT OP.	CONVENTIONAL						
6	BONNET TYPE	CLOSED						
7	SIZE: INLET	OUTLET	3/4"	1"				
8	FLANGE RATING	1500 X 150						
9	TYPE OF FACING	RTJ X RF						
10	BODY AND BONNET	ASME SA,216,GR,WCB,CARBON STEEL						
11	NOZZLE AND DISC	SS316L						
12	GUIDE AND RINGS	SS316L						
13	SPRING	ALUMINISED C.S						
14	LIFTING GEAR-TYPE	REQUIRED						
15	TEST GAG	REQUIRED						
16	CAP: SCREWED OR BOLTED	SCREWED						
17	TEST CONNECTION	YES-CARBON STEEL						
18	MANUAL BLOWDOWN	YES-CARBON STEEL						
19	BACK FLOW PREVENTER	NO						
20	CODE	ASME SEC VIII / API RP-520-521						
21	LEAKAGE CODE	ANSI / API 527						
22	SIZING BASIS	BLOCK DISCHARGE						
23	FLUID	HYDROCARBON						
24	FLUID STATE	MIX						
25	SPECIFIC GRAVITY	0.78						
26	OPER. PRESS. (psig)	SET PRES. (psig)	116	1700				
27	OPER. TEMP. (°F)	MAX TEMP. (°F)	60	150				
28	COLD BENCH TEST PRESSURE	VTS						
29	% ALLOWABLE OVERPRESSURE	10%						
30	OVERPRESSURE FACTOR	N/A						
31	COMPRESSIBILITY FACTOR	0.8091						
32	FLOW MAX	-						
33	RATIO OF SPECIFIC HEATS	1.469						
34	BACK PRESSURE	ATM						
35	DISCHARGE COEF kd	0.85						
36	CHANGE OF STATE COEF. C	VTS						
37	P&ID NO.	3279-PID-201						
38	CALC. AREA SQ. IN.	VTS						
39	SELECTED AREA SQ. IN.	VTS						
40	ORIFICE DESIGNATION	D						
41	MANUFACTURER	-						
42	MODEL NUMBER	VTS						
NOTES:								
1. VENDOR TO CONFIRM THE SUITABILITY OF THIS MODEL FOR THE REQUIRED SERVICE.								
2. VTS-VENDOR TO SPECIFY OR CONFIRM								
0	25/5/2018	Issued For Review			SOA	RK	AJ	
Rev.	Date	Description			Prepared	-	Approved	