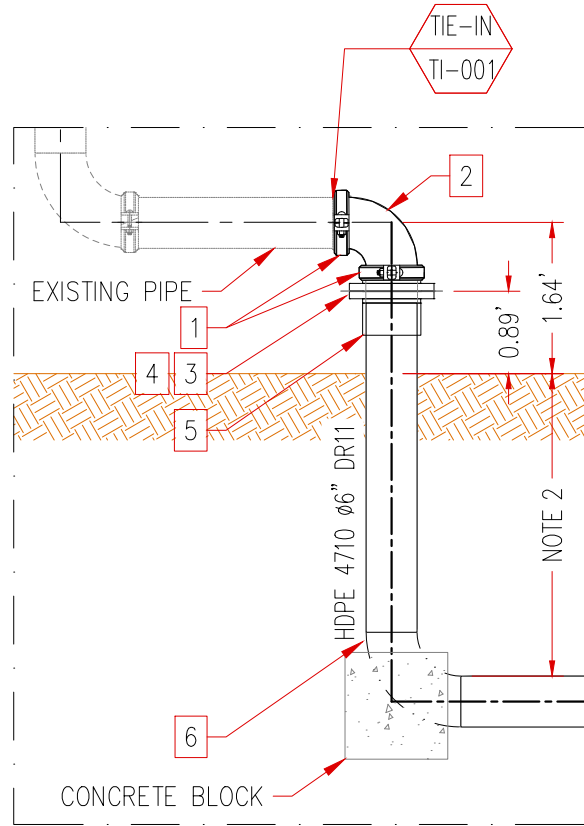


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ESTE DOCUMENTO ES CONFIDENCIAL Y PROPIEDAD INTELECTUAL DE FIRENO Y SU CLIENTE; EXCEPTO PERMISO ESCRITO, NO SERA REPRODUCIDO, COPIADO, PRESTADO O USADO DIRECTA O INDIRECTAMENTE PARA EL CUAL FUE ESPECIFICAMENTE PREPARADO. TODOS LOS DERECHOS RESERVADOS



TIE-IN 1 - DETAIL
1:25

ITEM	DESCRIPTION	Ø (in)	QTY
1	RIGID COUPLING GROOVED	6	2
2	ELBOW 90° GROOVED, SR	6	1
3	GROOVED FLANGE ADAPTER 300 PSI	6	1
4	BACK UP RING-DUCTILE IRON, DR 11-AWWA C207	6	1
4.1	BOLT L: 4" ASTM A307 Gr. B AND NUT	3/4	8
5	FLANGE ADAPTER HDPE DR11 (200psi)	6	1
6	90° ELBOW MOLDED DR 11	6	1

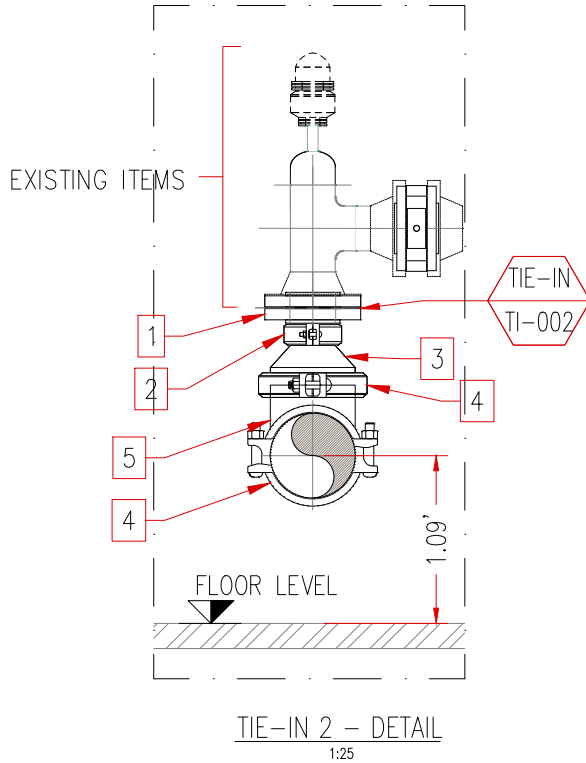
NOTE

1. DIMENSIONS SHOWN IN FT, UNLESS OTHERWISE INDICATED.
2. THE DEPTH FOR THE INSTALLATION OF HDPE PIPES WITH TRUCK PASSAGES WILL BE AT LEAST 3.28 FT OF B.O.P.

REVISION	DESCRIPTION	DREW	DESIGNED	REVIEWED	APPROVED	DATE
0	FOR CONSTRUCTION	D.F.	D.F.	F.D.C.	F.D.C.	08/2024
B	EMITTED FOR APPROBATION	D.F.	D.F.	F.D.C.	F.D.C.	08/2024
A	FOR INTERNAL REVISION	D.F.	D.F.	F.D.C.	F.D.C.	08/2024



PROJECT:						1/10 ENGINEERING SERVICES FOR INTEGRATION A NEW PUMP SYSTEM AT SARAMACCA PLANT					
TITLE:						DETAILS OF PIPING					
DREW BY:		REVIEWED BY:		FORMAT:		FLAT CODE:					
D.F.		F.D.C.		A4		FRN-ZIJIN-HI-DWG-02					
DESIGNED BY:		APPROVED BY:		DATE		SHEET:		ESCALE:		REVISION:	
D.F.		F.D.C.		08/2024		1/10		INDICATED		0	



ITEM	DESCRIPTION	∅ (in)	QTY
1	GROOVED FLANGE ADAPTER	3	1
1.1	BOLT L: 4" ASTM A307 Gr. B AND NUT	5/8	4
1.2	PIPE GASKETS ANSI 150	3	1
2	RIGID COUPLING GROOVED	3	1
3	GROOVED CONCENTRIC REDUCER	6x3	1
4	RIGID COUPLING GROOVED	6	3
5	GROOVED TEE	6	1

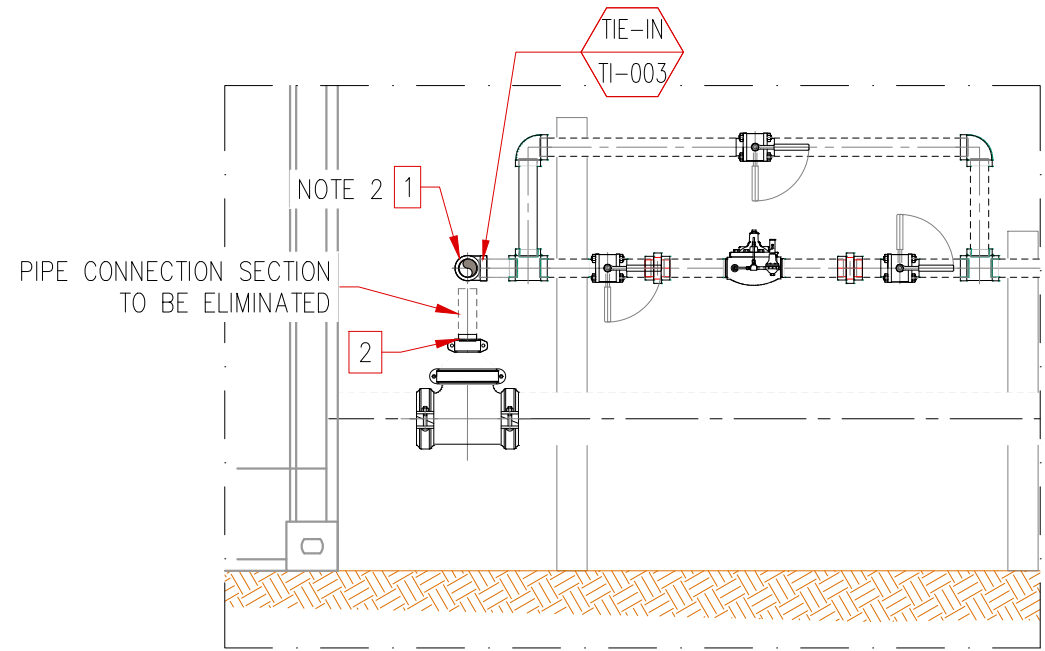
NOTE

1. DIMENSIONS SHOWN IN FT, UNLESS OTHERWISE INDICATED.

REVISION	DESCRIPTION	DREW	DESIGNED	REVIEWED	APPROVED	DATE
0	FOR CONSTRUCTION	D.F.	D.F.	F.D.C.	F.D.C.	08/2024
B	EMITTED FOR APPROBATION	D.F.	D.F.	F.D.C.	F.D.C.	08/2024
A	FOR INTERNAL REVISION	D.F.	D.F.	F.D.C.	F.D.C.	08/2024



PROJECT:						ZIJIN S.A. ENGINEERING SERVICES FOR INTEGRATION A NEW PUMP SYSTEM AT SARAMACCA PLANT					
TITLE:						DETAILS OF PIPING					
DREW BY:		REVIEWED BY:		FORMAT:		FLAT CODE:					
D.F.		F.D.C.		A4		FRN-ZIJIN-HI-DWG-02					
DESIGNED BY:		APPROVED BY:		DATE		SHEET:		ESCALE:		REVISION:	
D.F.		F.D.C.		08/2024		2/10		INDICATED		0	



TIE-IN 3- DETAIL
1:25

ITEM	DESCRIPTION	Ø (in)	QTY
1	90 DEGREE ELBOW, NPT THREADS, CLASS 300, DUCTILE IRON	2	1
2	GROOVED END CAP	2	1

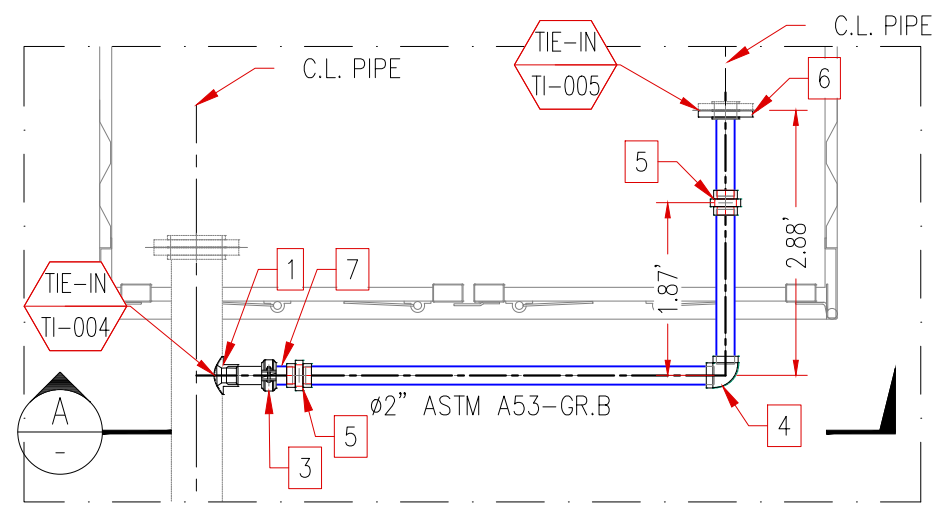
NOTE

1. DIMENSIONS SHOWN IN FT, UNLESS OTHERWISE INDICATED.
2. THE EXISTING ELBOW CAN BE REUSED BY CHANGING THE DIRECTION ANGLE.
3. BOTH PIPES AND METAL ACCESSORIES SHOULD BE PROTECTED WITH EPOXY COATING

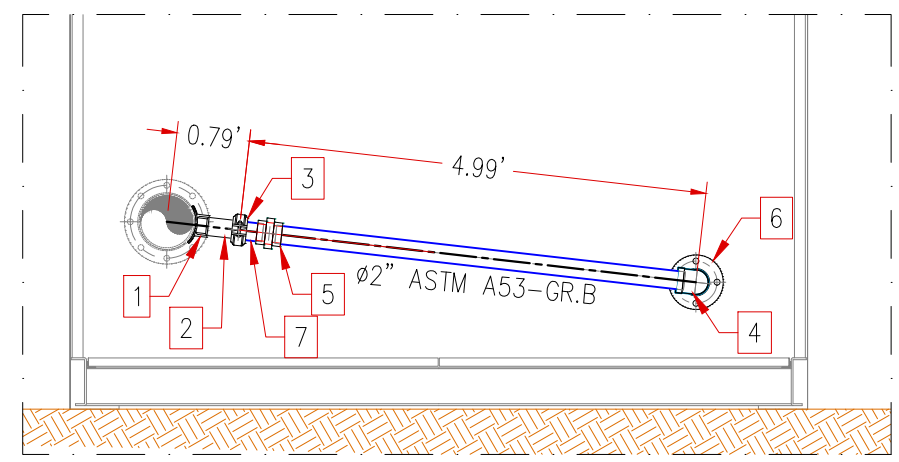
REVISION	DESCRIPTION	DREW	DESIGNED	REVIEWED	APPROVED	DATE
0	FOR CONSTRUCTION	D.F.	D.F.	F.D.C.	F.D.C.	08/2024
B	EMITTED FOR APPROBATION	D.F.	D.F.	F.D.C.	F.D.C.	08/2024
A	FOR INTERNAL REVISION	D.F.	D.F.	F.D.C.	F.D.C.	08/2024



PROJECT:						ZIJIN S.A. ENGINEERING SERVICES FOR INTEGRATION A NEW PUMP SYSTEM AT SARAMACCA PLANT					
TITLE:						DETAILS OF PIPING					
DREW BY:		REVIEWED BY:		FORMAT:		FLAT CODE:					
D.F.		F.D.C.		A4		FRN-ZIJIN-HI-DWG-02					
DESIGNED BY:		APPROVED BY:		DATE		SHEET:		ESCALE:		REVISION:	
D.F.		F.D.C.		08/2024		3/10		INDICATED		0	



TOP VIEW



SECTION A

TIE-IN 4 AND 5 – DETAILS

1:25

ITEM	DESCRIPTION	Ø (in)	QTY
1	BRANCH SADDLE DR11	6 x 2	1
2	NIPPLE HDPE 4710 DR11 LENGTH: 4"	2	1
3	HDPE-TO-STEEL TRANSITION COUPLING	2	1
4	90 DEGREE ELBOW, NPT THREADS, CLASS 300, DUCTILE IRON	2	1
5	UNION FORGED STEEL ASTM A105 CLASS 300 NPT	2	2
6	THREADED FLANGE FEMALE NPT, ASME B16.5, #150 LB.	2	1

6.1	BOLT L: 3.25" ASTM A307 Gr. B AND NUT	5/8	4
6.2	PIPE GASKETS ANSI 150	2	1
7	NIPPLE ASTM A-53 LENGTH: 4"	2	1

NOTE

1. DIMENSIONS SHOWN IN FT, UNLESS OTHERWISE INDICATED.
2. THE DIMENSIONS SHOWN ARE REFERENTIAL, THEY MUST BE VERIFIED IN THE FIELD.
3. BOTH PIPES AND METAL ACCESSORIES SHOULD BE PROTECTED WITH EPOXY COATING

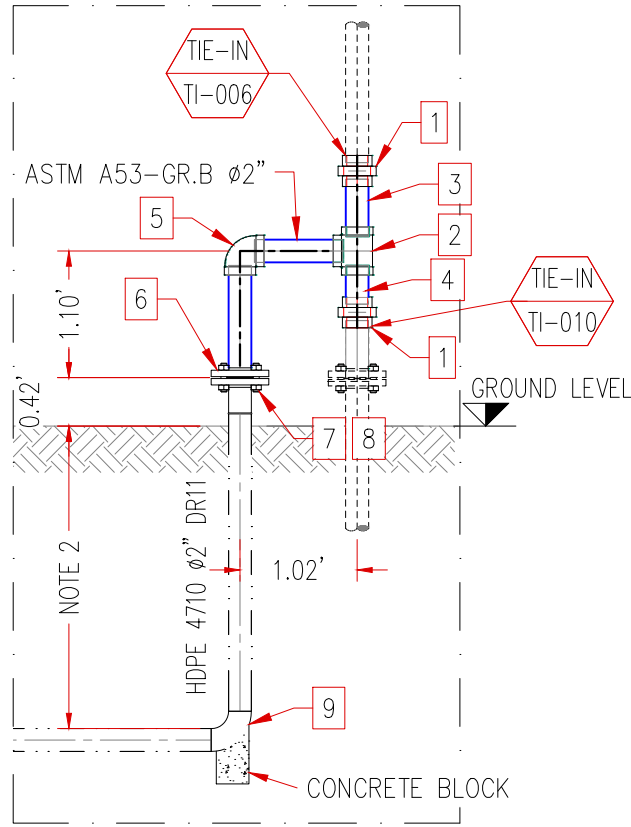
REVISION	DESCRIPTION	DREW	DESIGNED	REVIEWED	APPROVED	DATE
O	FOR CONSTRUCTION	D.F.	D.F.	F.D.C.	F.D.C.	08/2024
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A	FOR INTERNAL REVISION	D.F.	D.F.	F.D.C.	F.D.C.	08/2024



PROJECT:						ZIJIN S.A. ENGINEERING SERVICES FOR INTEGRATION A NEW PUMP SYSTEM AT SARAMACCA PLANT					
TITLE:						DETAILS OF PIPING					
DREW BY:		REVIEWED BY:		FORMAT:		FLAT CODE:					
D.F.		F.D.C.		A4		FRN-ZIJIN-HI-DWG-02					
DESIGNED BY:		APPROVED BY:		DATE		SHEET:		ESCALE:		REVISION:	
D.F.		F.D.C.		08/2024		4/10		INDICATED		0	

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TIE-IN 6 AND 10 - DETAIL
1:20

ITEM	DESCRIPTION	Ø (in)	QTY
1	UNION FORGED STEEL ASTM A105 CLASS 300 NPT	2	2
2	TEE NPT THREADED - 300#, IRON GALVANIZED	2	1
3	NIPPLE ASTM A-53 LENGTH: 6"	2	1
4	NIPPLE ASTM A-53 LENGTH: 4"	2	1
5	90 DEGREE ELBOW, NPT THREADS, CLASS 300, DUCTILE IRON	2	1
6	THREADED FLANGE FEMALE NPT, ASME B16.5, #150 LB.	2	1
6.1	BOLT L: 3.25" ASTM A307 Gr. B AND NUT	5/8	4
7	BACK UP RING-DUCTILE IRON, DR 11-AWWA C207	2	1
8	FLANGE ADAPTER HDPE DR11 (200psi)	2	1
9	90° ELBOW MOLDED DR 11	2	1

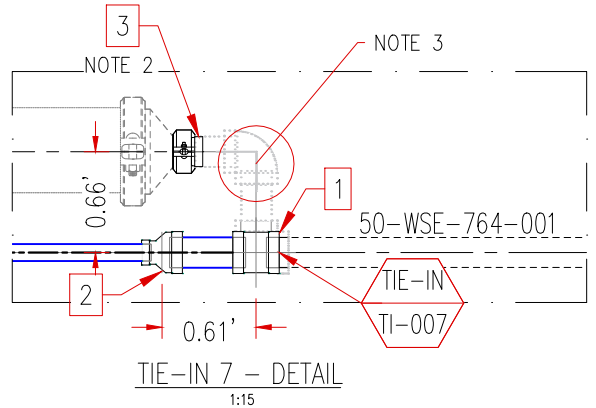
NOTE

1. DIMENSIONS SHOWN IN FT, UNLESS OTHERWISE INDICATED.
2. THE DEPTH FOR THE INSTALLATION OF HDPE PIPES WITH TRUCK PASSAGES WILL BE AT LEAST 3.28 FT OF B.O.P.
3. BOTH PIPES AND METAL ACCESSORIES SHOULD BE PROTECTED WITH EPOXY COATING.

REVISION	DESCRIPTION	DREW	DESIGNED	REVIEWED	APPROVED	DATE
0	FOR CONSTRUCTION	D.F.	D.F.	F.D.C.	F.D.C.	08/2024
B	EMITTED FOR APPROBATION	D.F.	D.F.	F.D.C.	F.D.C.	08/2024
A	FOR INTERNAL REVISION	D.F.	D.F.	F.D.C.	F.D.C.	08/2024



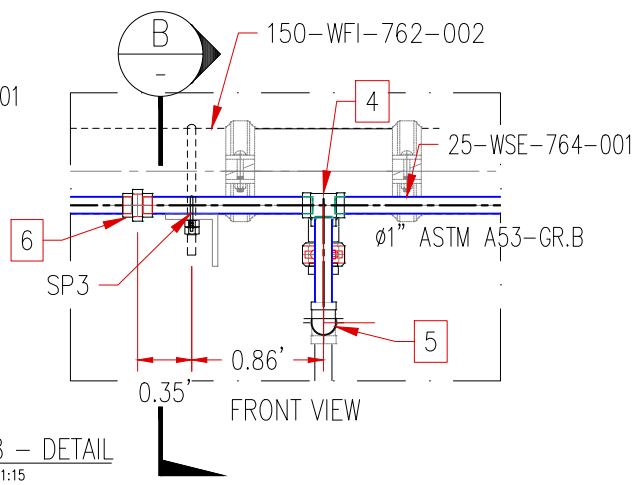
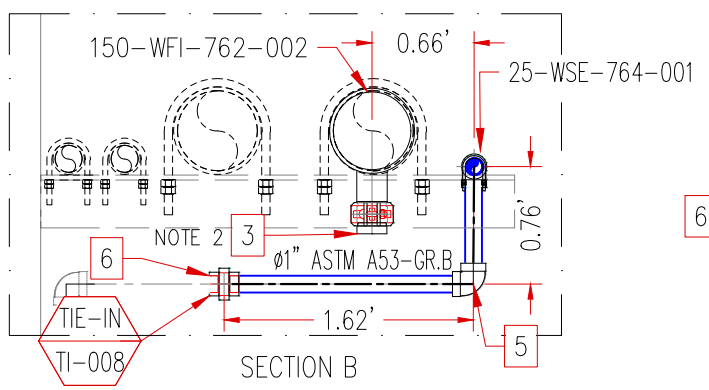
PROJECT: ZIJIN S.A. ENGINEERING SERVICES FOR INTEGRATION A NEW PUMP SYSTEM AT SARAMACCA PLANT					
TITLE: DETAILS OF PIPING					
DREW BY: D.F.	REVIEWED BY: F.D.C.	FORMAT: A4	FLAT CODE: FRN-ZIJIN-HI-DWG-02		
DESIGNED BY: D.F.	APPROVED BY: F.D.C.	DATE: 08/2024	SHEET: 5/10	ESCALE: INDICATED	REVISION: 0



NOTE

1. DIMENSIONS SHOWN IN FT, UNLESS OTHERWISE INDICATED.
2. THE EXISTING GROOVED COUPLING CAN BE REUSED.
3. PIPE CONNECTION SECTION TO BE ELIMINATED.
4. THE DIMENSIONS SHOWN ARE REFERENTIAL, THEY MUST BE VERIFIED IN THE FIELD.
5. BOTH PIPES AND METAL ACCESSORIES SHOULD BE PROTECTED WITH EPOXY COATING.

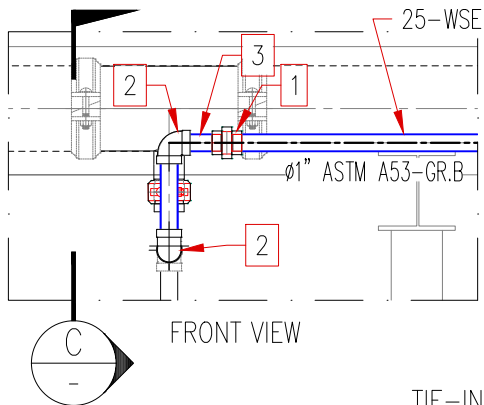
ITEM	DESCRIPTION	Ø (in)	QTY
1	COUPLING FORGED STEEL ASTM A105 CLASS 300 NPT	2	1
2	TREADED ECCENTRIC REDUCER 3/4 in. x 1/2 in. NPT - IRON GALVANIZED 300 LBS.	2x1	1
3	GROOVED END CAP	2	1
4	TEE NPT THREADED - 300#, IRON GALVANIZED	1	1
5	90 DEGREE ELBOW, NPT THREADS, CLASS 300, DUCTILE IRON	1	1
6	UNION FORGED STEEL ASTM A105 CLASS 300 NPT	2	2



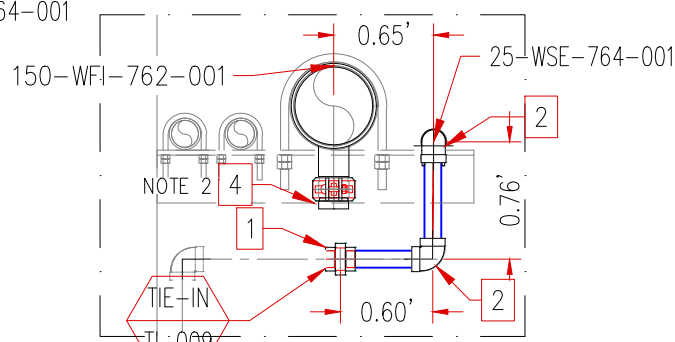
REVISION	DESCRIPTION	DREW	DESIGNED	REVIEWED	APPROVED	DATE
0	FOR CONSTRUCTION	D.F.	D.F.	F.D.C.	F.D.C.	08/2024
B	EMITTED FOR APPROBATION	D.F.	D.F.	F.D.C.	F.D.C.	08/2024
A	FOR INTERNAL REVISION	D.F.	D.F.	F.D.C.	F.D.C.	08/2024



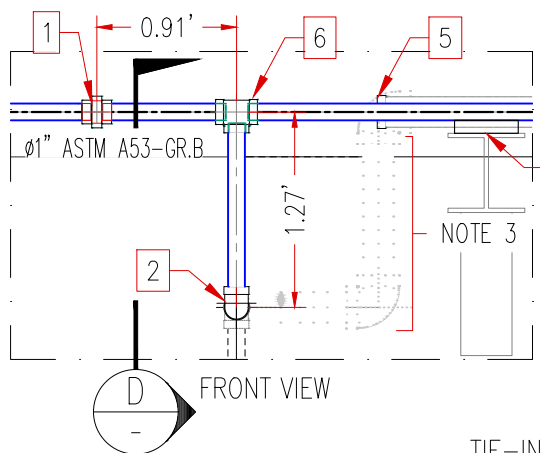
PROJECT: ZIJIN S.A. ENGINEERING SERVICES FOR INTEGRATION A NEW PUMP SYSTEM AT SARAMACCA PLANT					
TITLE: DETAILS OF PIPING					
DREW BY: D.F.	REVIEWED BY: F.D.C.	FORMAT: A4	FLAT CODE: FRN-ZIJIN-HI-DWG-02		
DESIGNED BY: D.F.	APPROVED BY: F.D.C.	DATE: 08/2024	SHEET: 6/10	ESCALE: INDICATED	REVISION: 0



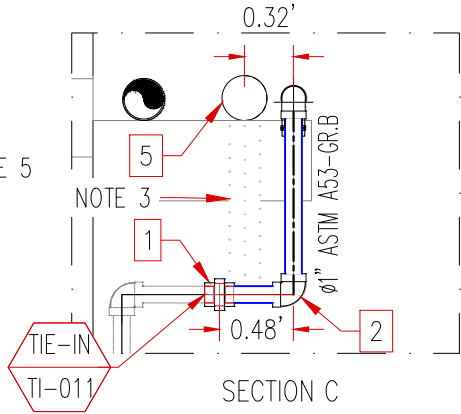
TIE-IN 9 - DETAIL
1:15



SECTION C



TIE-IN 11 - DETAIL
1:15



SECTION C

ITEM	DESCRIPTION	∅ (in)	QTY
1	UNION FORGED STEEL ASTM A105 CLASS 300 NPT	1	4
2	90 DEGREE ELBOW, NPT THREADS, CLASS 300, DUCTILE IRON	1	4
3	NIPPLE ASTM A-53 LENGTH: 3"	1	1
4	GROOVED END CAP	1	1
5	END CAP, NPT THREADS, CLASS 300, DUCTILE IRON	2	1
6	TEE NPT THREADED - 300#, IRON GALVANIZED	1	1

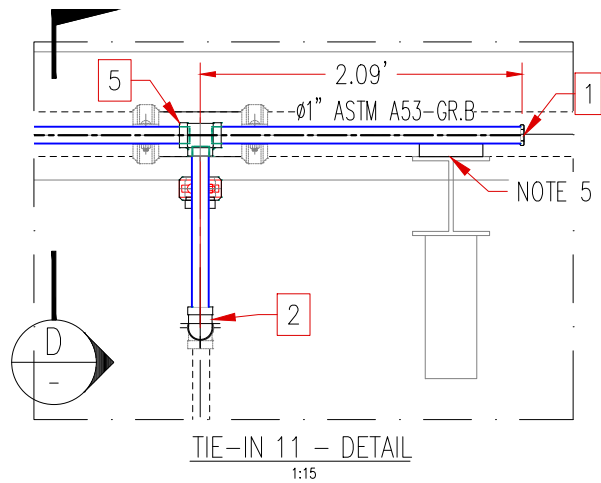
NOTE

1. DIMENSIONS SHOWN IN FT, UNLESS OTHERWISE INDICATED.
2. THE EXISTING GROOVED COUPLING CAN BE REUSED.
3. PIPE CONNECTION SECTION TO BE ELIMINATED.
4. THE DIMENSIONS SHOWN ARE REFERENTIAL, THEY MUST BE VERIFIED IN THE FIELD.
5. PLACE 1" THICK STEEL SHEET(S) BELOW THE NEW PIPE.
6. BOTH PIPES AND METAL ACCESSORIES SHOULD BE PROTECTED WITH EPOXY COATING.

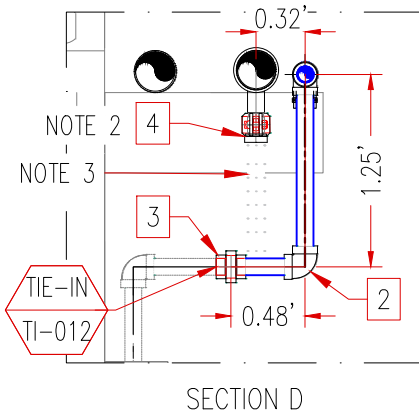
REVISION	DESCRIPTION	DREW	DESIGNED	REVIEWED	APPROVED	DATE
0	FOR CONSTRUCTION	D.F.	D.F.	F.D.C.	F.D.C.	08/2024
B	EMITTED FOR APPROBATION	D.F.	D.F.	F.D.C.	F.D.C.	08/2024
A	FOR INTERNAL REVISION	D.F.	D.F.	F.D.C.	F.D.C.	08/2024



PROJECT: ZIJIN S.A. ENGINEERING SERVICES FOR INTEGRATION A NEW PUMP SYSTEM AT SARAMACCA PLANT					
TITLE: DETAILS OF PIPING					
DREW BY: D.F.	REVIEWED BY: F.D.C.	FORMAT: A4	FLAT CODE: FRN-ZIJIN-HI-DWG-02		
DESIGNED BY: D.F.	APPROVED BY: F.D.C.	DATE: 08/2024	SHEET: 7/10	ESCALE: INDICATED	REVISION: 0



ITEM	DESCRIPTION	∅ (in)	QTY
1	END CAP, FEMALE NPT THREADS, CLASS 300, DUCTILE IRON	1	1
2	90 DEGREE ELBOW, NPT THREADS, CLASS 300, DUCTILE IRON	1	1
3	UNION FORGED STEEL ASTM A105 CLASS 300 NPT	1	1
4	GROOVED END CAP	1	1
5	TEE NPT THREADED - 300#, IRON GALVANIZED	1	1



NOTE

1. DIMENSIONS SHOWN IN FT, UNLESS OTHERWISE INDICATED.
2. THE EXISTING GROOVED COUPLING CAN BE REUSED.
3. PIPE CONNECTION SECTION TO BE ELIMINATED.
4. THE DIMENSIONS SHOWN ARE REFERENTIAL, THEY MUST BE VERIFIED IN THE FIELD.
5. PLACE 1" THICK STEEL SHEET(S) BELOW THE NEW PIPE.
6. BOTH PIPES AND METAL ACCESSORIES SHOULD BE PROTECTED WITH EPOXY COATING.

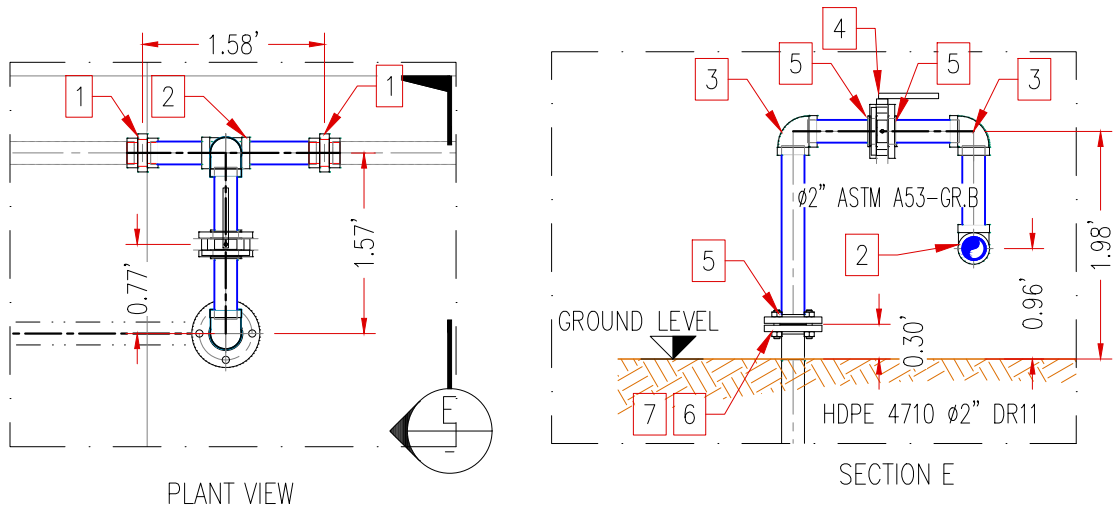
REVISION	DESCRIPTION	DREW	DESIGNED	REVIEWED	APPROVED	DATE
0	FOR CONSTRUCTION	D.F.	D.F.	F.D.C.	F.D.C.	08/2024
B	EMITTED FOR APPROBATION	D.F.	D.F.	F.D.C.	F.D.C.	08/2024
A	FOR INTERNAL REVISION	D.F.	D.F.	F.D.C.	F.D.C.	08/2024



PROJECT: ZIJIN S.A. ENGINEERING SERVICES FOR INTEGRATION A NEW PUMP SYSTEM AT SARAMACCA PLANT					
TITLE: DETAILS OF PIPING					
DREW BY: D.F.	REVIEWED BY: F.D.C.	FORMAT: A4	FLAT CODE: FRN-ZIJIN-HI-DWG-02		
DESIGNED BY: D.F.	APPROVED BY: F.D.C.	DATE: 08/2024	SHEET: 8/10	ESCALE: INDICATED	REVISION: 0

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TIE-IN 13 AND 14 - DETAIL
1:20

NOTE

1. DIMENSIONS SHOWN IN FT, UNLESS OTHERWISE INDICATED.
2. THE DIMENSIONS SHOWN ARE REFERENTIAL, THEY MUST BE VERIFIED IN THE FIELD.
3. BOTH PIPES AND METAL ACCESSORIES SHOULD BE PROTECTED WITH EPOXY COATING.

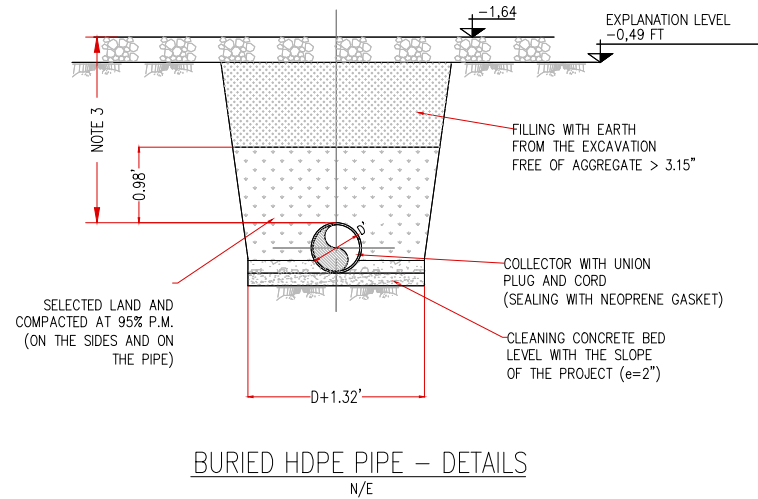
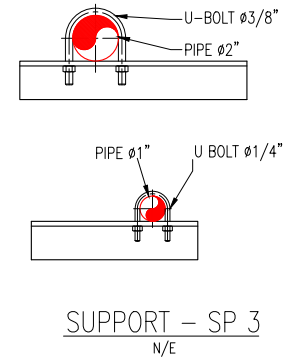
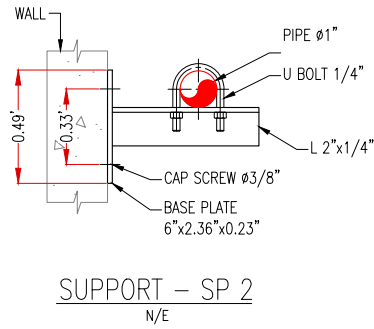
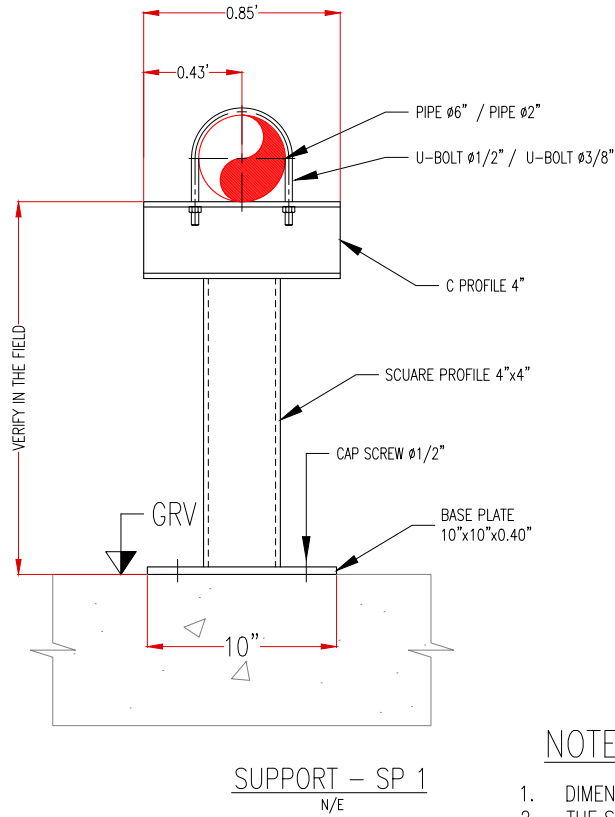
ITEM	DESCRIPTION	∅ (in)	QTY
1	UNION FORGED STEEL ASTM A105 CLASS 300 NPT	2	2
2	TEE NPT THREADED - 300#, IRON GALVANIZED	2	1
3	90 DEGREE ELBOW, NPT THREADS, CLASS 300, DUCTILE IRON	2	2
4	BUTTERFLY WAFER VALVE #150LBS.	2	1
5	THREADED FLANGE FEMALE NPT, ASME B16.5, #150 LB.	2	3
5.1	BOLT L: 3.25" ASTM A307 Gr. B AND NUT	5/8	8
5.2	PIPE GASKETS ANSI 150	2	3
6	FLANGE ADAPTER HDPE DR11 (200psi)	2	1
7	BACK UP RING-DUCTILE IRON, DR 11-AWWA C207	2	1
8	90° ELBOW MOLDED DR 11	2	1

REVISION	DESCRIPTION	DREW	DESIGNED	REVIEWED	APPROVED	DATE
0	FOR CONSTRUCTION	D.F.	D.F.	F.D.C.	F.D.C.	08/2024
B	EMITTED FOR APPROBATION	D.F.	D.F.	F.D.C.	F.D.C.	08/2024
A	FOR INTERNAL REVISION	D.F.	D.F.	F.D.C.	F.D.C.	08/2024
REVISION						



PROJECT:						ZIJIN S.A. ENGINEERING SERVICES FOR INTEGRATION A NEW PUMP SYSTEM AT SARAMACCA PLANT					
TITLE:						DETAILS OF PIPING					
DREW BY:		REVIEWED BY:		FORMAT:		FLAT CODE:					
D.F.		F.D.C.		A4		FRN-ZIJIN-HI-DWG-02					
DESIGNED BY:		APPROVED BY:		DATE		SHEET:		ESCALE:		REVISION:	
D.F.		F.D.C.		08/2024		9/10		INDICATED		0	

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NOTE

1. DIMENSIONS SHOWN IN FT, UNLESS OTHERWISE INDICATED.
2. THE SUPPORTS MUST BE PROTECTED WITH EPOXY COATING. TO PREVENT ITS ACCELERATED OXIDATION.
3. THE DEPTH FOR THE INSTALLATION OF HDPE PIPES WITH TRUCK PASSAGES WILL BE AT LEAST 3.28 FT OF B.O.P.

REVISION	DESCRIPTION	DREW	DESIGNED	REVIEWED	APPROVED	DATE
O	FOR CONSTRUCTION	D.F.	D.F.	F.D.C.	F.D.C.	08/2024
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A	FOR INTERNAL REVISION	D.F.	D.F.	F.D.C.	F.D.C.	08/2024
REVISION						



PROJECT: ZIJIN S.A. ENGINEERING SERVICES FOR INTEGRATION A NEW PUMP SYSTEM AT SARAMACCA PLANT					
TITLE: DETAILS OF PIPING					
DREW BY: D.F.	REVIEWED BY: F.D.C.	FORMAT: A4	FLAT CODE: FRN-ZIJIN-HI-DWG-02		
DESIGNED BY: D.F.	APPROVED BY: F.D.C.	DATE: 08/2024	SHEET: 10/10	SCALE: INDICATED	REVISION: 0