

VALSAD NAGARPALIKA

Providing, Laying, Jointing, Testing of Rising mains from Abhrama Headwork to Kalyanbaug Sump and from Kalyanbaug Sump to ESR at Tithal Road including connection pipeline from Tithal Road ESR to existing network. Designing, Constructing, Testing & Commissioning of Elevated Service Reservoir (ESR). Design, Supply, Installation, Testing and Commissioning of Instrumentation & SCADA system for all the head works and House Service Connections for Valsad including all allied works complete and post completion operation & maintenance for five years

PROJECT FUNDED UNDER AMRUT SCHEME

VOLUME – V

DRAWINGS

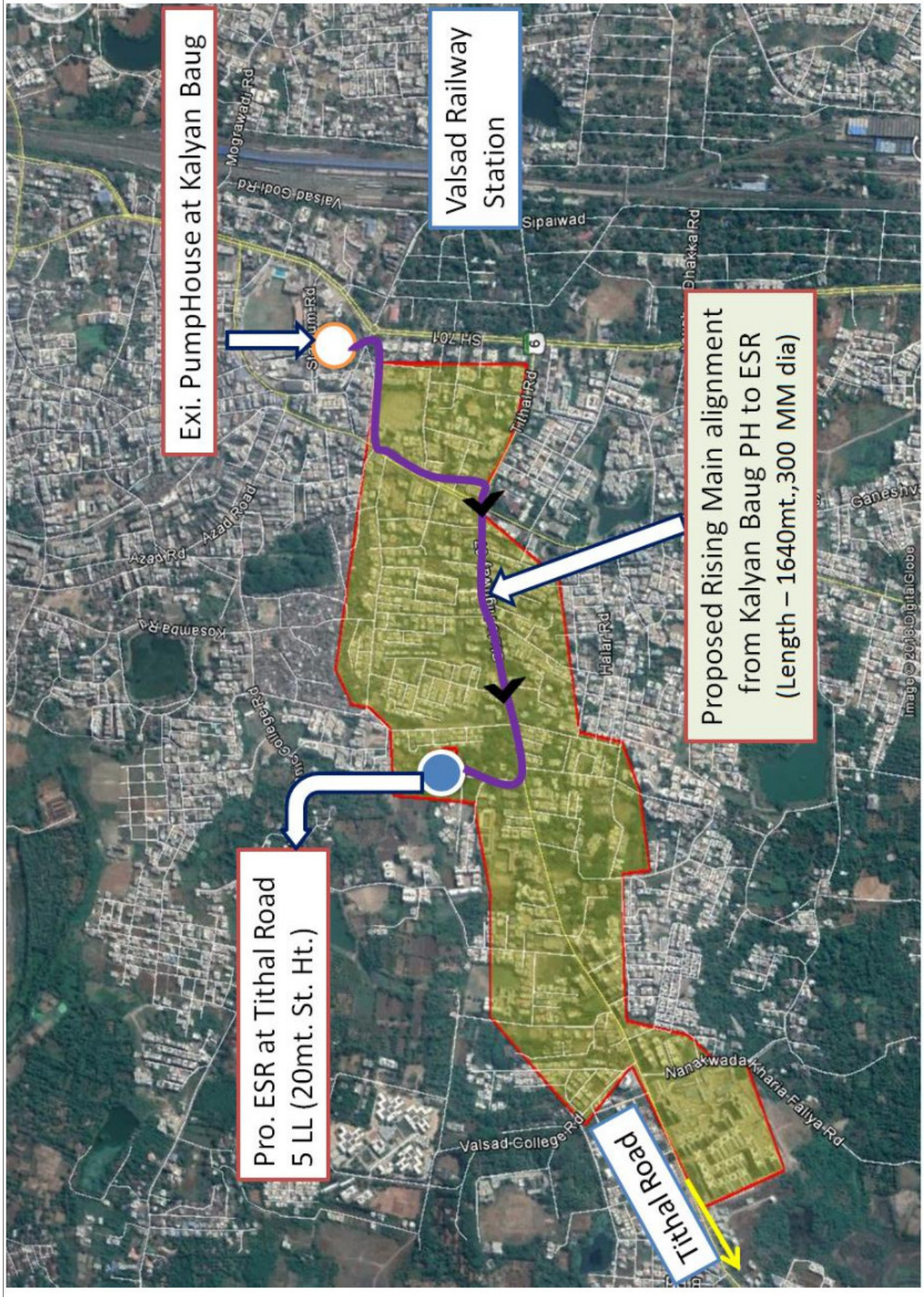
Milestone Dates	
Online Downloading of Technical Bid & Price Bid	AS Per Volume I
Pre – Bid Conference	AS Per Volume I
Last Date of Online Submission of Technical Bid & Price Bid	AS Per Volume I
Last Date for Physical Submission of Tender Fee, EMD and other Documents	AS Per Volume I
Online Opening of the Technical Bid	AS Per Volume I

CONSULTANT:

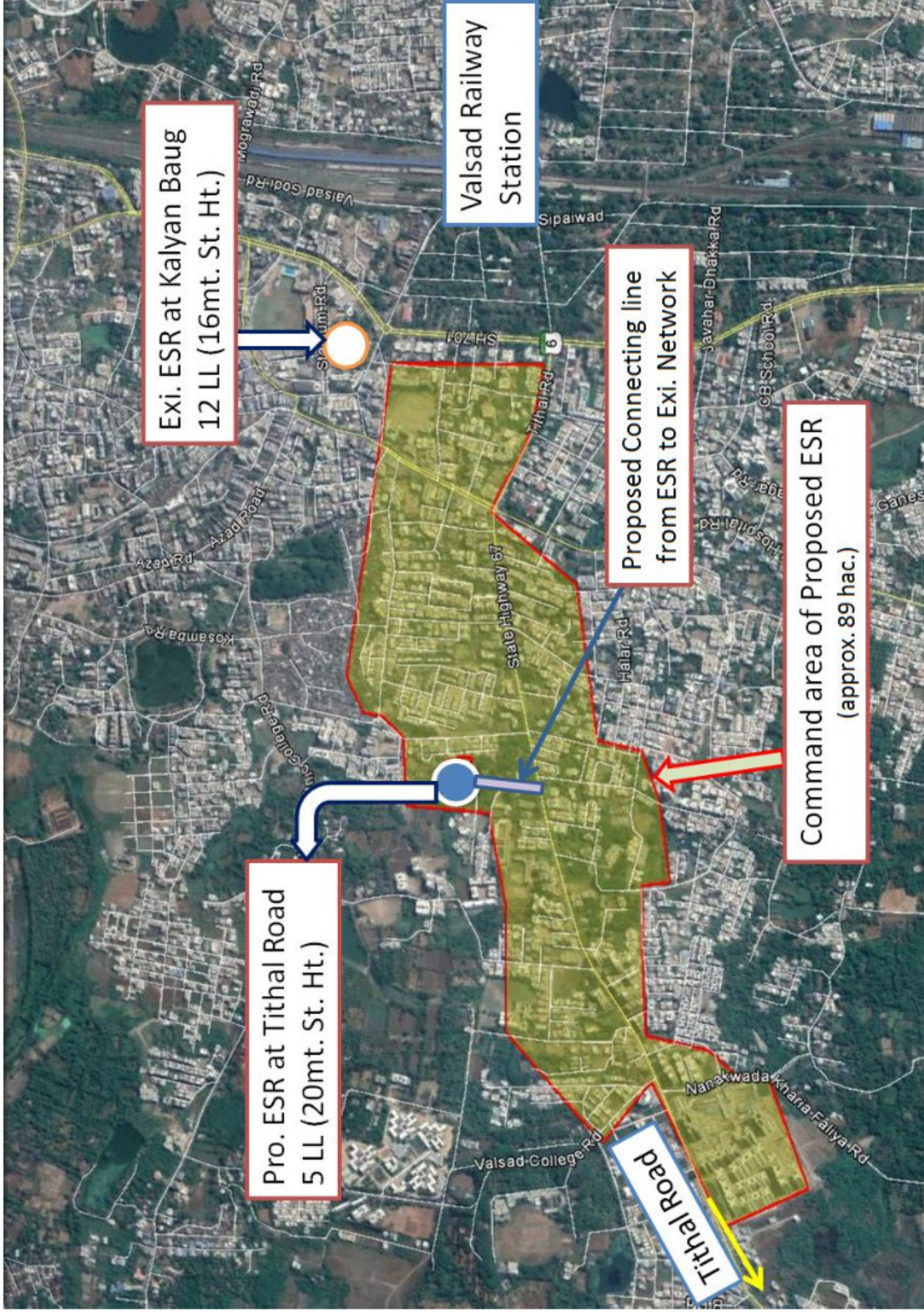
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Details for Proposed Rising Main from Kalyan Baug Sump to ESR at Tithal Road - For Tender reference only



**Exi. ESR at Kalyan Baug
12 LL (16mt. St. Ht.)**

**Valsad Railway
Station**

**Proposed Connecting line
from ESR to Exi. Network**

**Command area of Proposed ESR
(approx. 89 hac.)**

**Pro. ESR at Tithal Road
5 LL (20mt. St. Ht.)**

Tithal Road

Details for Proposed ESR at Tithal Road and Connection Pipeline from ESR to Existing Network - For Tender reference only

LEGEND

- THK --- TYPICAL
- UN --- UNLESS NOTED
- THICK
- PLAIN CEMENT CONCRETE
- PCC --- PRECAST/PRESTRESS CONCRETE
- D --- INTERNAL DIAMETER
 --- INTERIOR DIAMETER OF PIPE

- CC --- CEMENT CONCRETE
- DI --- DUCTILE IRON

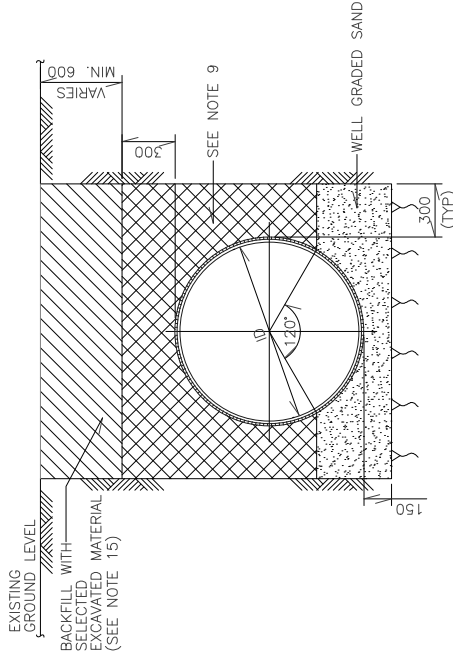
NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES AND LEVELS IN METRES UNLESS NOTED.
2. CONCRETE GRADE SHALL BE M15 WITH 20mm DOWNGRADED AGGREGATES FOR CLASS A BEDDING.
3. STEEL FOR REINFORCEMENT SHALL BE HIGH YIELD STRENGTH DEFORMED BARS OF GRADE Fe415 CONFORMING TO IS:1786.
4. REINFORCEMENT WHERE SPICED SHALL HAVE A MINIMUM LAP OF 50 X BAR DIAMETER. LAPS SHALL BE STAGGERED.
5. CLEAR COVER TO REINFORCEMENT FOR CLASS A BEDDING SHALL BE 50mm.
6. CLASS N BEDDING SHALL ONLY BE PROVIDED WHERE THE PIPE TRENCH IS FOUNDED IN HARD ROCK OR OTHERWISE AS DIRECTED BY THE ENGINEER.
7. CLASS A BEDDING SHALL BE PROVIDED AT ROAD/NALLA CROSSINGS FOR A DISTANCE OF 5 METRES ON EITHER SIDE OF THE ROAD/NALLA OR AS DIRECTED BY THE ENGINEER.
8. PLAIN CEMENT CONCRETE UNDER FOUNDATION SHALL BE OF GRADE M10 CONFORMING TO IS 456.
9. BACKFILL AROUND PIPE AND 300mm ABOVE PIPE SHALL BE WITH SOFT SOIL. BACKFILLING SHALL BE DONE AS PER SPECIFICATIONS.
10. SAND USED FOR BEDDING SHALL BE NATURAL SAND WITH GRADED FROM FINE TO COURSE. ALL MATERIAL SHALL PASS THROUGH A 2mm SIEVE & NOT MORE THAN 95% REMAIN ON 0.63MM 'IS' SIEVE.
11. GRADED HARD CRUSHED BROKEN STONE OR GRAVEL 100% PASSING THROUGH 20mm IS SIEVE 20 TO 50% PASSING THROUGH 10mm IS SIEVE AND 100% RETAINED ON 6mm IS SIEVE.
12. GOOD QUALITY OF MURUM SHALL BE USED FOR BEDDING (PARTICLE SIZE 0.2mm TO 3.0mm) FREE FROM SILT AND CLAY CAN BE USED AS AN ALTERNATE OPTION TO GRANULAR/SAND BEDDING FOR DI PIPELINES.
13. UP TO DEPTH OF 2M, TRENCH WIDTH SHALL BE KEPT AS Bc+400. FOR DEPTH ABOVE 2M, TRENCH WIDTH SHALL Bc+600.
14. BACKFILLING (LAYER B) WITH APPROVED SELECTED EXCAVATED MATERIAL AND COMPACTION SHALL BE DONE BY HAND OR APPROVED MECHANICAL METHODS IN LAYERS OF 150mm WITH SPECIAL CARE TO AVOID DAMAGE TO THE PIPE.
15. BACKFILLING (LAYER C) SHALL BE DONE WITH EXCAVATED MATERIAL BY HAND OR APPROVED MECHANICAL METHODS IN LAYER NOT EXCEEDING 15 CM THICKNESS AFTER COMPACTING WETTED AND COMPACTED TO A DENSITY OF NOT LESS THAN 95% OF MAXIMUM DRY DENSITY AT OPTIMUM MOISTURE CONTENT OF THE SURROUNDING MATERIAL.
16. LAYER A COMPACTED GRANULAR MATERIAL
17. LAYER B CAREFULLY COMPACTED BACKFILL
18. LAYER C COMPACTED TO 95% MDD BACKFILL MATERIAL

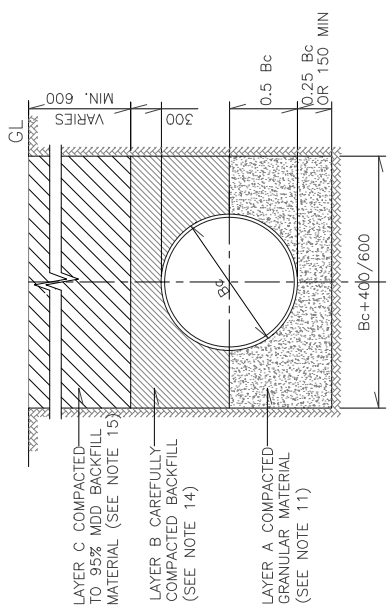
CONSTRUCTION REFERENCE DWGS
NIL

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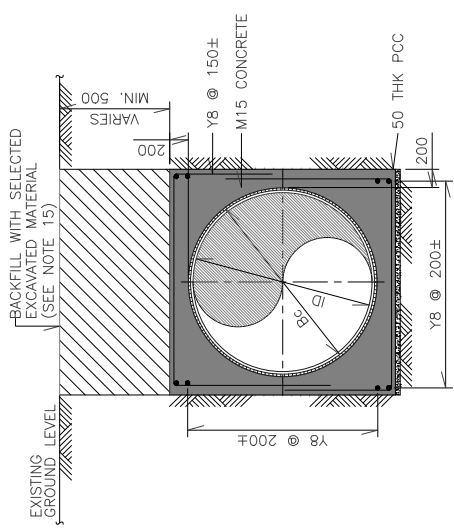
DO NOT SCALE		TYPICAL DETAILS OF BEDDING FOR DI PIPES IN TRENCHES	
SCALE: NTS	APPROVED: ASG	DATE (RO ISSUE): 24-03-2015	ISSUE: RO
DISCREPANCY: MUM-CV	SLL	DATE (CURRENT ISSUE): 24-03-2015	RO
DRN: MMS	DWG: NO	TCE-M2-CV-RC-F-119	
CHR: AC			



BEDDING IN HARD ROCK
(CLASS N BEDDING-NO WHEEL LOAD)

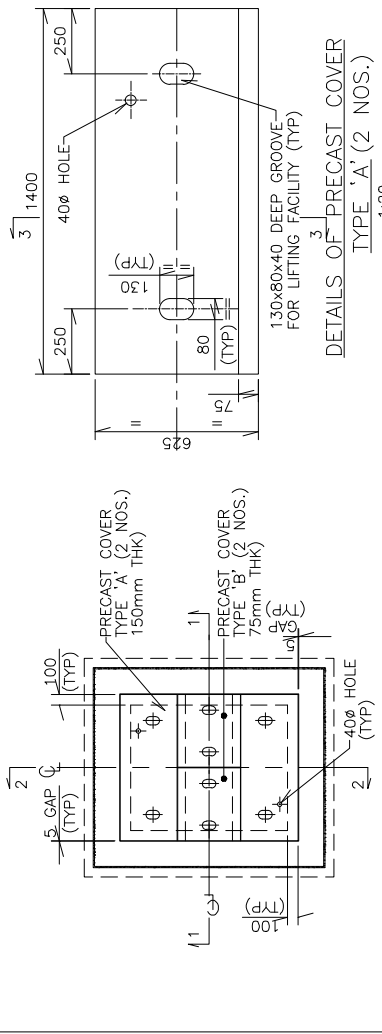


GRANULAR BEDDING

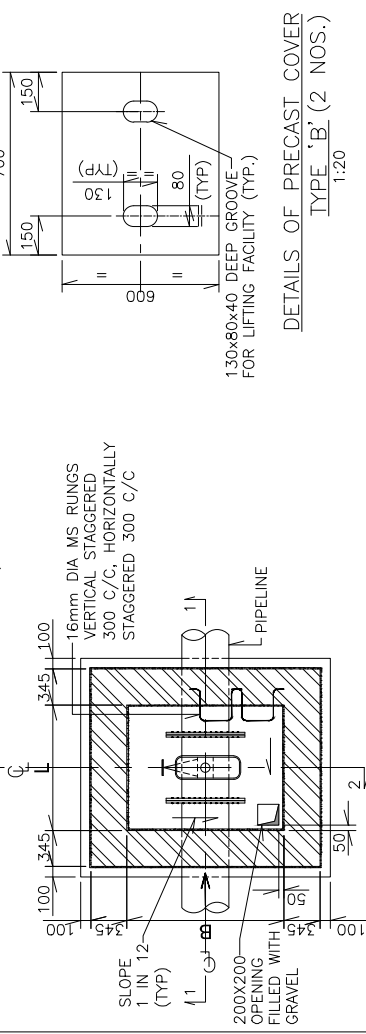


BEDDING WITH CONCRETE ENCASEMENT
(CLASS A BEDDING)

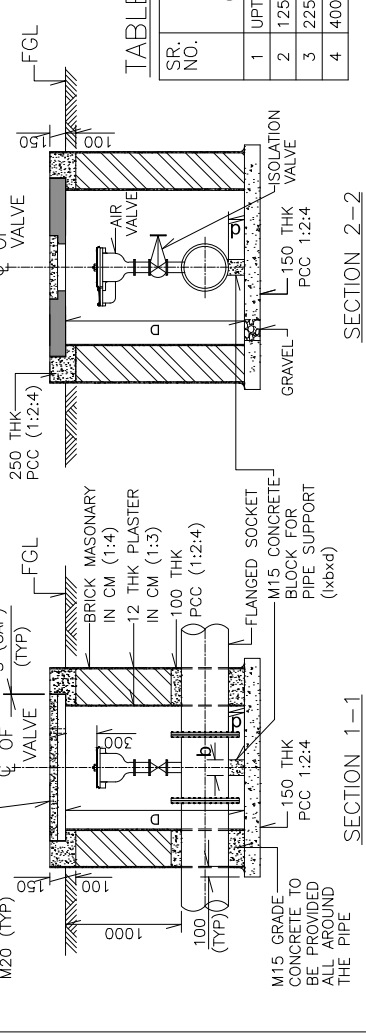
FOR	RO	ISSUE ONLY	ISSUE	REVISIONS	FILE NAME: M2CVRCF-119	TATA CONSULTING ENGINEERS LIMITED MUMBAI
DISC.		CLEAR			APPD DATE	
CIVIL		SIGNATURE				
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					CIVIL/ELEC I&C/MECH	
					DRN	
					CLIENT :	
					PROJECT :	
					FILE NAME: M2CVRCF-119	
					IF ANY DISCREPANCY IS FOUND IN THE DRAWING, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAME. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CORRECTION OF THE SAME. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COST OF THE CORRECTION.	



SECTIONAL PLAN (WIDTH OF PRECAST COVERS TO BE SELECTED BASED ON ACTUAL SIZE OF CHAMBER)

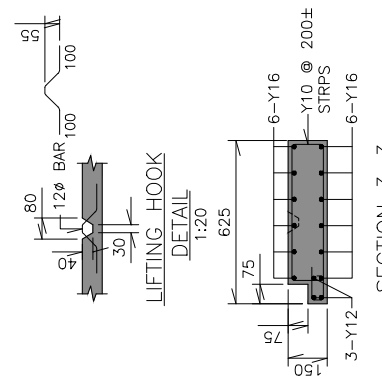


DETAILS OF PRECAST COVER TYPE 'A' (2 NOS.)

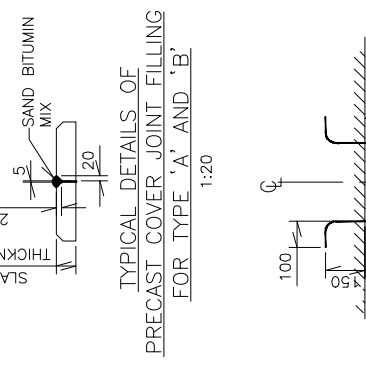


SECTIONAL PLAN (WIDTH OF PRECAST COVERS TO BE SELECTED BASED ON ACTUAL SIZE OF CHAMBER)

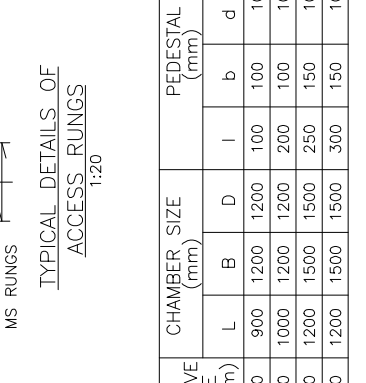
SECTIONAL ELEVATION (2 NOS.)



DETAILS OF PRECAST COVER TYPE 'A' (2 NOS.)

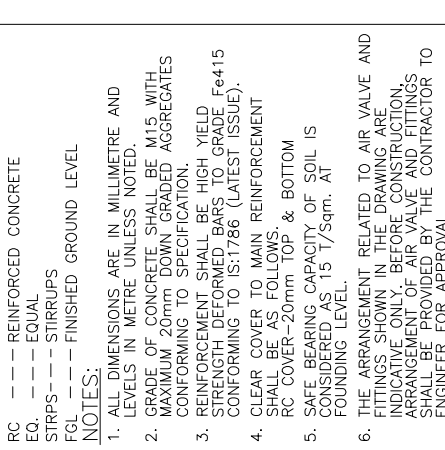
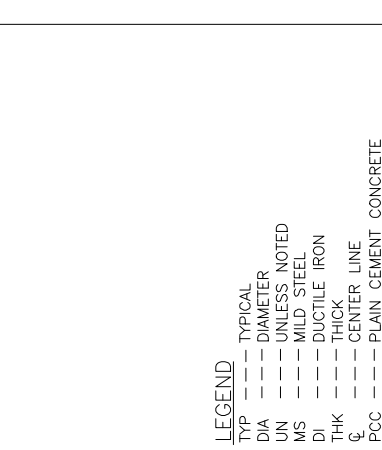


DETAILS OF PRECAST COVER TYPE 'B' (2 NOS.)

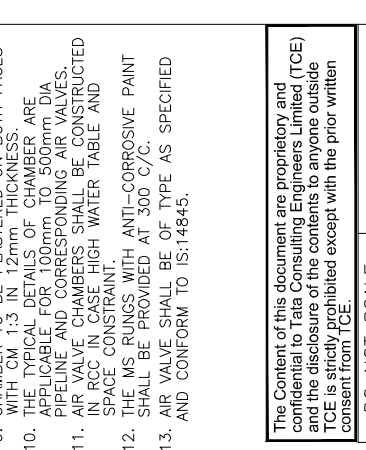


SECTIONAL PLAN (WIDTH OF PRECAST COVERS TO BE SELECTED BASED ON ACTUAL SIZE OF CHAMBER)

SECTIONAL ELEVATION (2 NOS.)



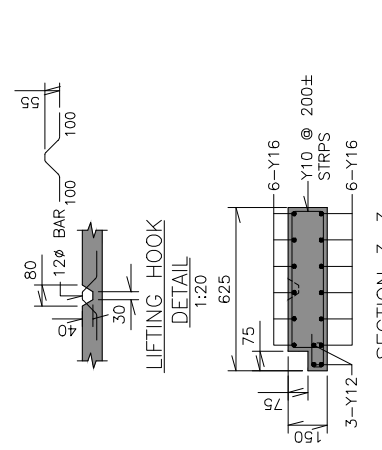
TYPICAL DETAILS OF PRECAST COVER JOINT FILLING FOR TYPE 'A' AND 'B'



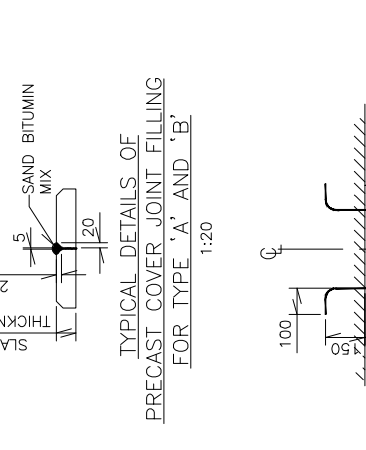
TYPICAL DETAILS OF ACCESS RUNGS

SR. NO.	DIA. OF PIPE (mm)	AIR VALVE SIZE (mm)	CHAMBER SIZE (mm)				PEDESTAL (mm)
			L	B	D	d (Min)	
1	UPTO 100	40	900	1200	100	100	
2	125 TO 200	50	1000	1200	200	100	
3	225 TO 350	80	1200	1500	250	100	
4	400 TO 500	100	1200	1500	300	100	

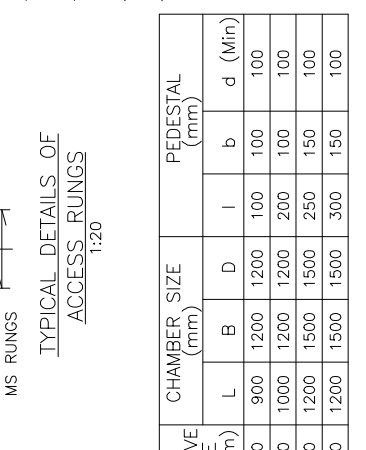
TABLE:



LIFTING HOOK DETAIL



SECTION 3-3



SECTION 2-2

SECTION 1-1

LEGEND
 TYP --- TYPICAL
 DIA --- DIAMETER
 UN --- UNLESS NOTED
 MS --- MILD STEEL
 DI --- DUCTILE IRON
 THK --- THICK
 CL --- CENTER LINE
 PCC --- PLAIN CEMENT CONCRETE
 RC --- REINFORCED CONCRETE
 STRPS --- STIRRUPS
 FGL --- FINISHED GROUND LEVEL

NOTES:
 1. ALL DIMENSIONS ARE IN MILLIMETRE AND LEVELS IN METRE UNLESS NOTED.
 2. GRADE OF CONCRETE SHALL BE M15 WITH MAXIMUM 20mm DOWN GRADED AGGREGATES CONFORMING TO SPECIFICATION.
 3. REINFORCEMENT SHALL BE HIGH YIELD STRENGTH DEFORMED BARS TO GRADE Fe415 CONFORMING TO IS:1786 (LATEST ISSUE).
 4. CLEAR COVER TO MAIN REINFORCEMENT RC COVER - 20mm TOP & BOTTOM CONSIDERED AS 15 T/Sq. M. AT FOUNDING LEVEL.
 5. THE ARRANGEMENT RELATED TO AIR VALVE AND FITTINGS SHOWN IN THE DRAWING ARE INDICATIVE ONLY. BEFORE CONSTRUCTION, ARRANGEMENT OF AIR VALVE AND FITTINGS SHALL BE PROVIDED BY THE CONTRACTOR TO ENGINEER FOR APPROVAL.
 6. BRICK MASONRY SHALL BE IN CM (1:4).
 7. BRICKS SHALL BE OF MINIMUM 75 Kg/cm2 COMPRESSIVE STRENGTH.
 8. CHAMBER TO BE PLASTERED ON BOTH FACES WITH CM 1:3 IN 12mm THICKNESS.
 9. THE TYPICAL DETAILS OF CHAMBER ARE APPLICABLE FOR 100mm TO 500mm DIA PIPELINE AND CORRESPONDING AIR VALVES.
 10. AIR VALVE CHAMBERS SHALL BE CONSTRUCTED IN RCC IN CASE HIGH WATER TABLE AND SPACE CONSTRAINT.
 11. THE MS RUNGS WITH ANTI-CORROSION PAINT SHALL BE PROVIDED AT 300 C/C.
 12. AIR VALVE SHALL BE OF TYPE AS SPECIFIED AND CONFORM TO IS:14845.
 13. AND CONFORM TO IS:14845.

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TYPICAL DETAILS OF AIR VALVE CHAMBER

SCALE: 1:50 UN APPROVED ASG DATE (NO. ISSUE) 07-08-2015
 DEL. CENTRE - CV-MUM SLL (NO. OF REV. ISSUE) 07-08-2015
 DRN: MMS DWG TCE.M2-CV-RC-F-127 RO
 CHB: AC NO TCE.M2-CV-RC-F-127 RO

TATA CONSULTING ENGINEERS LIMITED MUMBAI

CLIENT :

PROJECT :

FOR RO ISSUE ONLY

DISC.	CLEAR	SIGNATURE	DATE
CIVIL			
ELEC			
MECH			

REVISIONS

DRN	EXHIBIT	NO	DESCRIPTION

APPD DATE

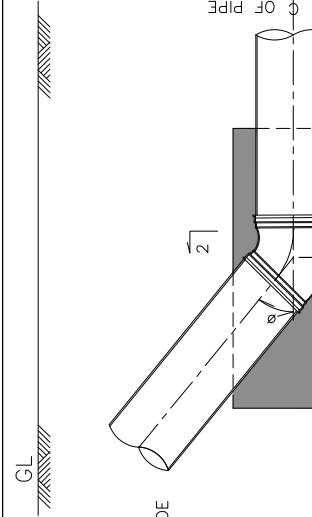
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SECTION 1-1

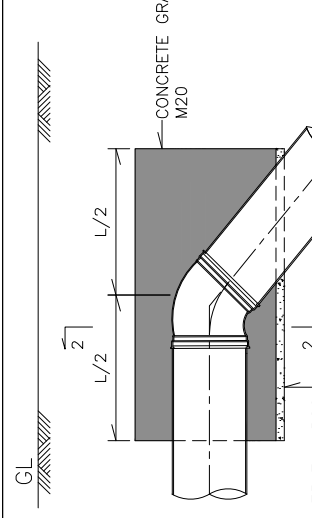
SECTION 2-2

SECTION 3-3

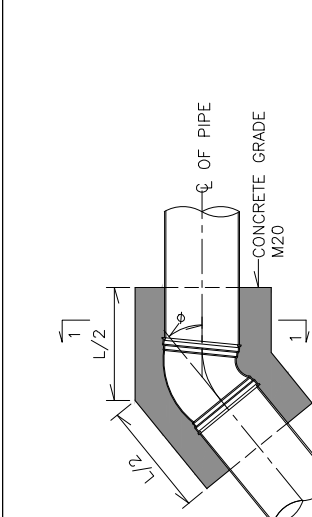
- LEGEND**
- TYP --- TYPICAL
 - DI --- DUCTILE IRON
 - LS --- LONGITUDINAL SECTION
 - THK --- THICK
 - PCC --- PLAIN CEMENT CONCRETE
 - GL --- GROUND LEVEL



TYPICAL DETAIL OF HORIZONTAL BEND IN PLAN
(REFER TABLE 1 FOR THRUST BLOCK DIMENSIONS)
1:50



TYPICAL DETAIL OF VERTICAL UPWARD BEND
(REFER TABLE 2 FOR THRUST BLOCK DIMENSIONS)
1:50



TYPICAL DETAIL OF VERTICAL DOWNWARD BEND
(REFER TABLE 3 FOR THRUST BLOCK DIMENSIONS)
1:50

- NOTES:**
- ALL DIMENSIONS ARE IN MILLIMETRES.
 - INVERT LEVEL OF PIPES SHALL BE AS PER RELEVANT L-SECTION DRAWINGS.
 - ALL DI PIPES AND FITTINGS SHALL BE INTERNALLY LINED WITH CEMENT MORTAR AND EXTERNALLY COATED IN ACCORDANCE WITH SPECIFICATION.
 - NO CONCRETE SHALL BE PLACED AROUND JOINTS OF PIPELINE, UNTIL THAT LENGTH HAS PASSED SECTIONAL HYDRAULIC TEST.
 - STEEL FOR REINFORCEMENT SHALL BE HIGH YIELD STRENGTH DEFORMED BARS CONFORMING TO IS:1786 AS PER SPECIFICATION.
 - CLEAR COVER TO REINFORCEMENT BOTTOM, TOP AND SIDES - 50mm.
 - REINFORCEMENT LAP LENGTHS SHALL BE 50 X DIAMETER OF SMALLER BAR, LAPS SHALL BE STAGGERED.
 - CONCRETE TO BE USED SHALL BE OF GRADE M20 WITH 40mm DOWNGRADED AGGREGATES CONFORMING TO SPECIFICATIONS.
 - PLAIN CEMENT CONCRETE UNDER FOUNDATION SHALL BE OF GRADE M10 CONFORMING TO SPECIFICATION.
 - PIPEWORK SURROUNDED BY CONCRETE SHALL BE WRAPPED WITH ATLEAST TWO LAYERS OF 0.3mm THICKNESS WATER PROOF POLYTHENE SECURELY FIXED IN PLACE WITH WATERPROOF TAPE.
 - THE DIMENSIONS OF THRUST BLOCK GIVEN IN TABLE 1, 2 AND 3 ARE TYPICAL DIMENSIONS FOR DIAMETERS MENTIONED. THE SIZE OF THRUST BLOCKS FOR VARIOUS DIAMETERS SHALL BE AS PER STRUCTURAL DESIGN BASED ON SUBSOIL CONDITION AND MAXIMUM OPERATING PRESSURE IN THE PIPELINE.
 - IN CASE OF HIGH GROUND WATER TABLE AND / TRICKY SUBSOIL, CONTRACTOR SHALL IMMEDIATELY INFORM ENGINEER FOR ANY MODIFICATION IN THRUST BLOCKS DESIGN.

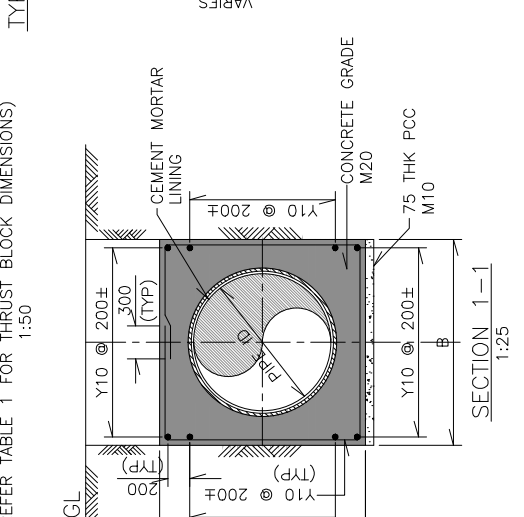
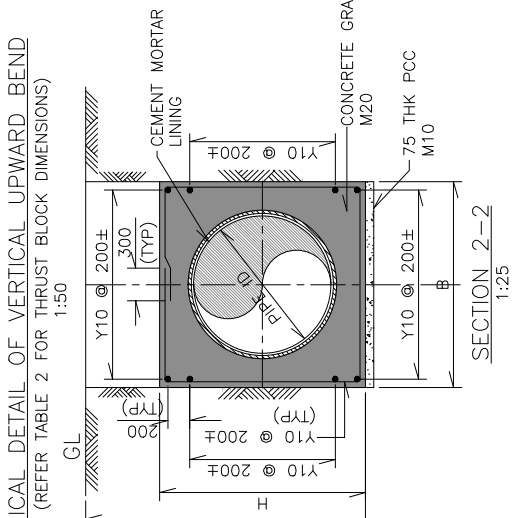
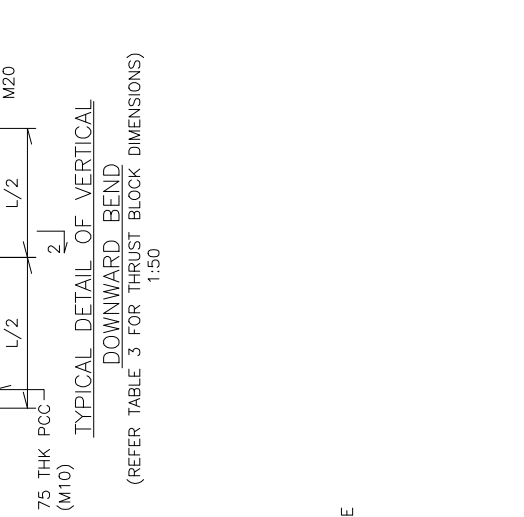


TABLE 1: DIMENSIONAL DETAILS OF THRUST BLOCK FOR HORIZONTAL BENDS

SL. NO.	NOMINAL DIA. OF PIPE	ANGLE OF BEND, φ	THRUST BLOCK DETAILS		
			BREADTH (B)	DEPTH (H)	LENGTH (L)
1	200	11° 15'	750	750	750
		22° 30'	750	750	1000
		45°	900	750	2000
2	300	90°	900	900	2500
		11° 15'	900	900	900
		22° 30'	900	900	1200
3	350	45°	900	900	2300
		90°	1250	1250	2750
		11° 15'	950	950	950
4	450	22° 30'	950	950	1500
		45°	1250	1250	2000
		90°	1500	1500	3000
5	600	11° 15'	1200	1200	1300
		22° 30'	1200	1200	2500
		45°	1750	1750	5250
6	800	90°	1300	1300	1500
		11° 15'	1300	1300	2000
		22° 30'	1300	1300	2250

TABLE 2: DIMENSIONAL DETAILS OF THRUST BLOCK FOR VERTICAL UPWARD BENDS

SL. NO.	NOMINAL DIA. OF PIPE	ANGLE OF BEND, φ	THRUST BLOCK DETAILS		
			BREADTH (B)	DEPTH (H)	LENGTH (L)
1	200	11° 15'	750	750	750
		22° 30'	750	750	1500
		45°	900	750	2000
2	300	90°	900	900	2000
		11° 15'	900	900	900
		22° 30'	900	900	1200
3	350	45°	900	900	1750
		90°	1250	1250	2750
		11° 15'	950	950	950
4	450	22° 30'	950	950	1500
		45°	1250	1250	2000
		90°	1500	1500	2800
5	600	11° 15'	1200	1200	1200
		22° 30'	1200	1200	2500
		45°	1750	1750	5250
6	800	90°	1300	1300	1750
		11° 15'	1300	1300	2000
		22° 30'	1300	1300	2250

TABLE 3: DIMENSIONAL DETAILS OF THRUST BLOCK FOR VERTICAL DOWNWARD BENDS

SL. NO.	NOMINAL DIA. OF PIPE	ANGLE OF BEND, φ	THRUST BLOCK DETAILS		
			BREADTH (B)	DEPTH (H)	LENGTH (L)
1	200	11° 15'	750	750	750
		22° 30'	750	750	1000
		45°	900	1000	1000
2	300	90°	900	900	900
		11° 15'	900	900	900
		22° 30'	900	900	900
3	350	45°	900	900	900
		90°	1250	1250	2750
		11° 15'	950	950	950
4	450	22° 30'	950	950	1500
		45°	1250	1250	2000
		90°	1500	1500	2750
5	600	11° 15'	1200	1200	1300
		22° 30'	1200	1200	2250
		45°	1750	1750	5250
6	800	90°	1300	1300	1300
		11° 15'	1300	1300	1500
		22° 30'	1300	1300	1600

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DO NOT SCALE

TYPICAL DETAILS OF THRUST BLOCKS FOR DI PIPES

SCALE: AS NOTED APPROVED ASG DATE (RO ISSUE) 20-01-2016
 DRAWN: CV-MUM SLL DATE (CURRENT ISSUE) 20-01-2016
 DESIGNED: MMS DWG NO TCE-M2-CV-D-142 ISSUE NO 1
 CHECKED: PGJ NO TCE-M2-CV-D-142 ISSUE NO 1

FOR RO ISSUE ONLY
 CLEAR DATE
 SIGNATURE DATE
 CIVIL
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REVISIONS

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 APPD DATE
 FILE NAME: TCE-043-Rev-R5.dwg

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