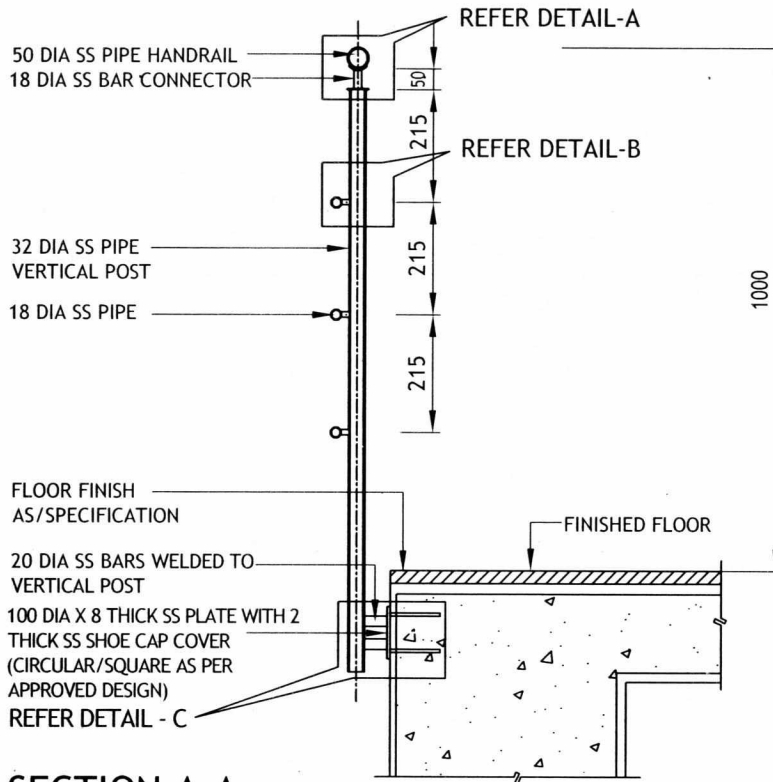
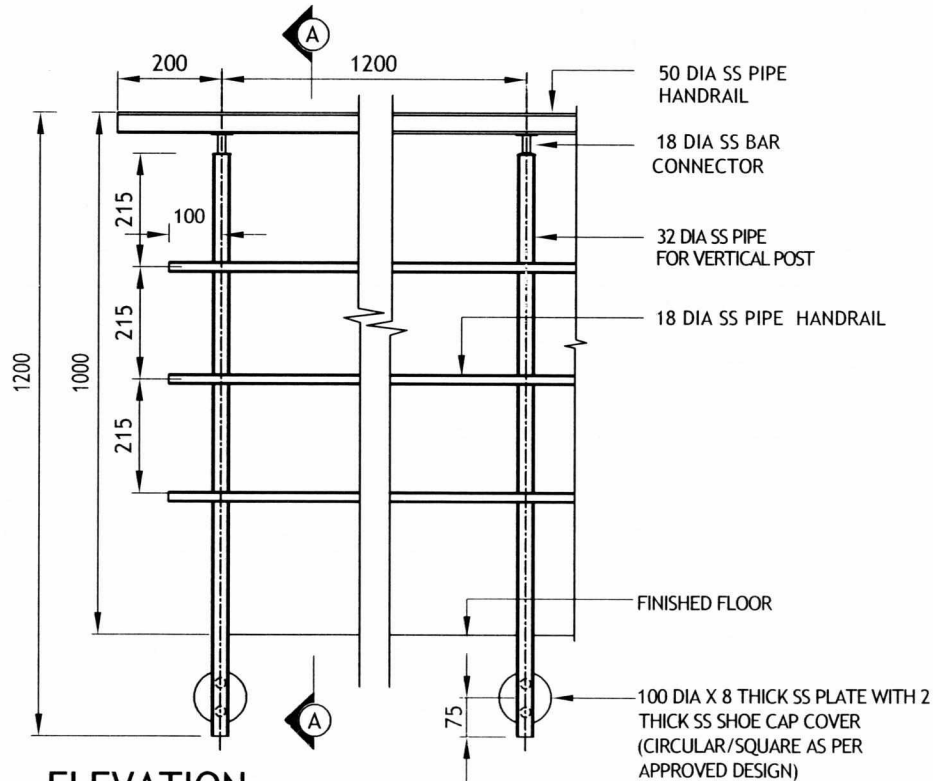




SECTION A-A

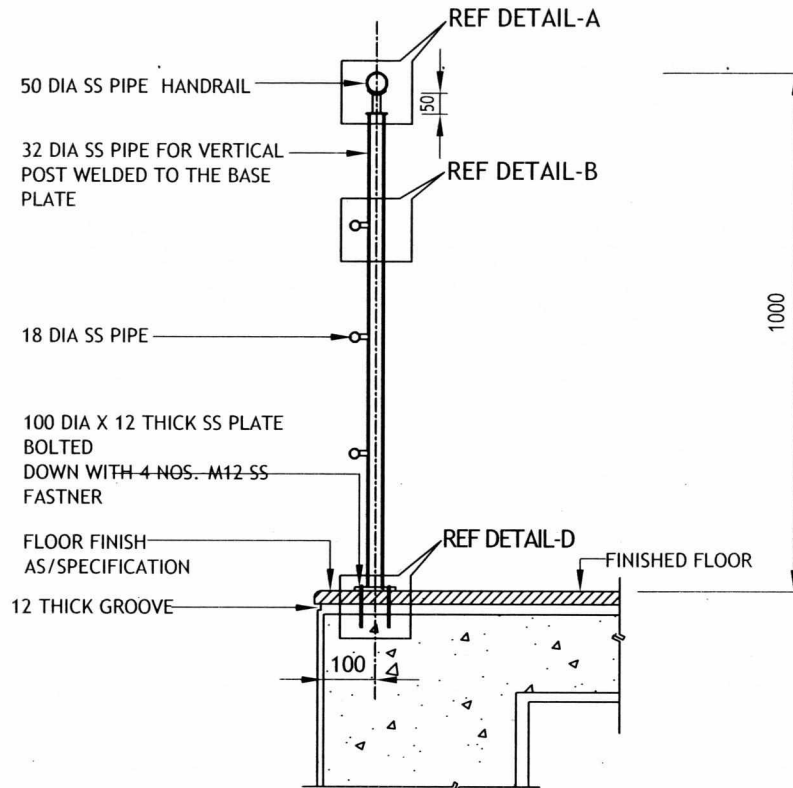


ELEVATION

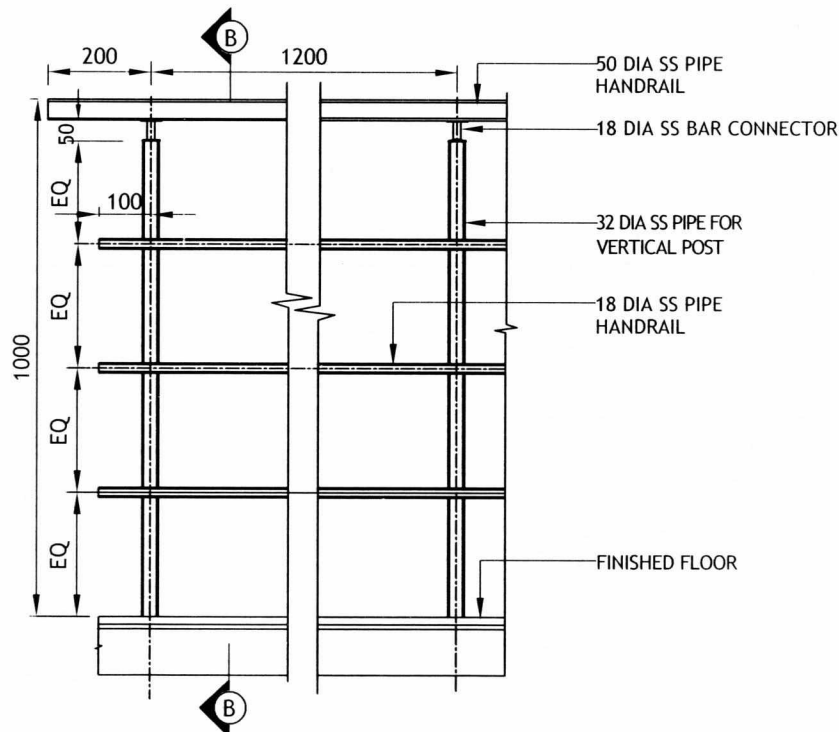
STAINLESS STEEL HANDRAIL FIXED ON SIDE OF SLAB & STAIRS (TYPE-A)

- NOTE: 1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. 50 & 32 DIA (OUTER) PIPES SHALL BE OF 16 GAUGE. ALL OTHER MEMBERS SHALL BE OF 18 GAUGE/ APPLICABLE.
3. GRADE OF STEEL IS S/S 304 (SATIN FINISH).

2	16.10.23	REVISED & ISSUED AS STANDARD	M L THAKUR	SANDEEP	SAMIR DAS	SANJAY MAZUMDAR
1	30.03.21	REAFFIRMED & ISSUED AS STANDARD	M L THAKUR	SAMIR DAS	ANURAG SINHA	SANJAY MAZUMDAR
Rev. No.	Date	Purpose	Prepared by	Checked by	Stds. Committee Convenor	Stds. Bureau Chairman



SECTION B-B

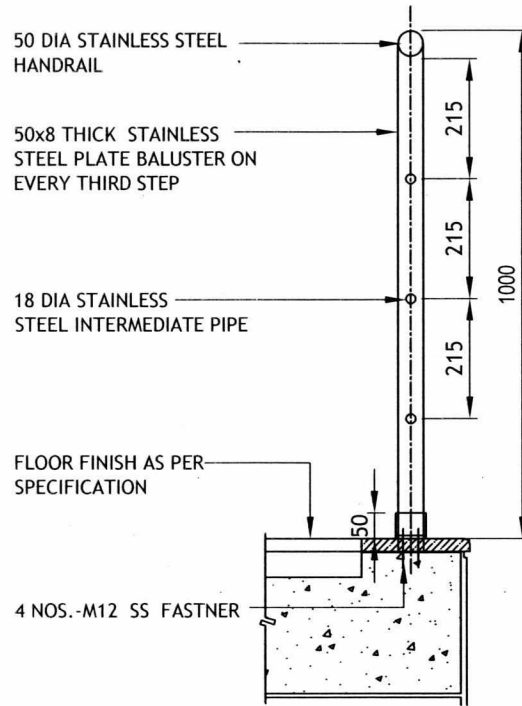


ELEVATION

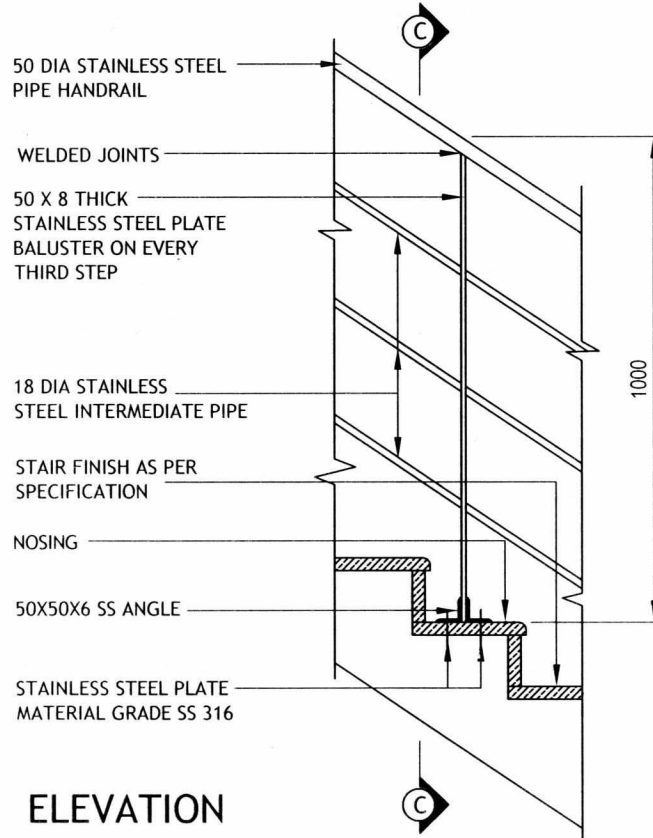
STAINLESS STEEL HANDRAIL FIXED OVER THE SLAB & STAIRS (TYPE-B)

NOTE: 1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. GRADE OF STEEL IS S/S 304 (SATIN FINISH).

2	16.10.23	REVISED & ISSUED AS STANDARD	M L THAKUR	SANDEEP	SAMIR DAS	SANJAY MAZUMDAR
1*	30.03.21	REAFFIRMED & ISSUED AS STANDARD	M L THAKUR	SAMIR DAS	ANURAG SINHA	SANJAY MAZUMDAR
Rev. No.	Date	Purpose	Prepared by	Checked by	Stds. Committee Convenor	Stds. Bureau Chairman



SECTION C-C

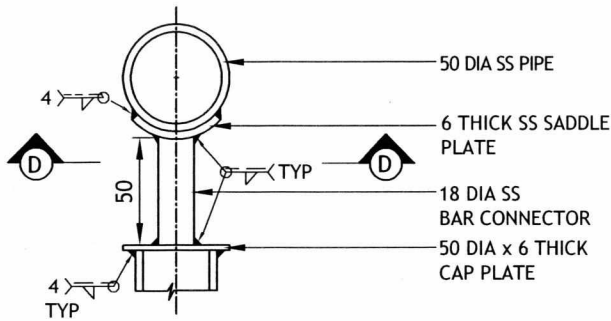


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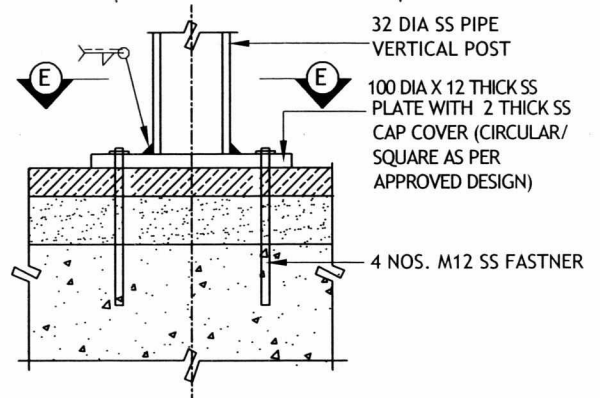
STAINLESS STEEL HANDRAIL FOR SLAB & STAIRS (TYPE-C)

NOTE: 1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. GRADE OF STEEL IS S/S 304 (SATIN FINISH).

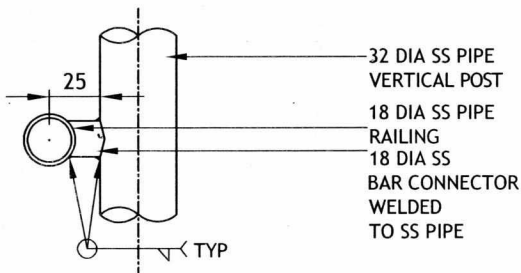
2	16.10.23	REVISED & ISSUED AS STANDARD	M L THAKUR	SANDEEP	SAMIR DAS	SANJAY MAZUMDAR
1	30.03.21	REAFFIRMED & ISSUED AS STANDARD	M L THAKUR	SAMIR DAS	ANURAG-SINHA	SANJAY MAZUMDAR
Rev. No.	Date	Purpose	Prepared by	Checked by	Std. Committee Convenor	Std. Bureau Chairman
Approved by						



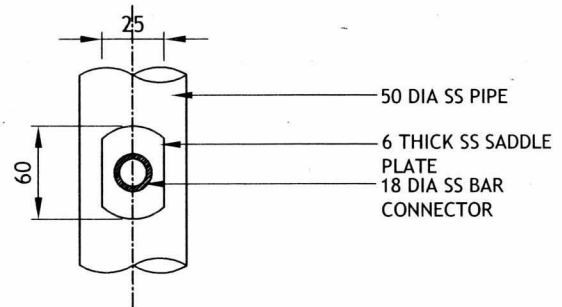
DETAIL A



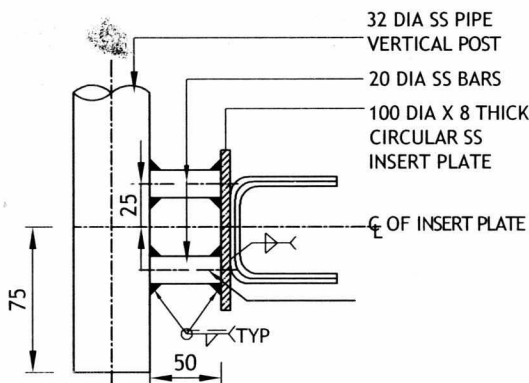
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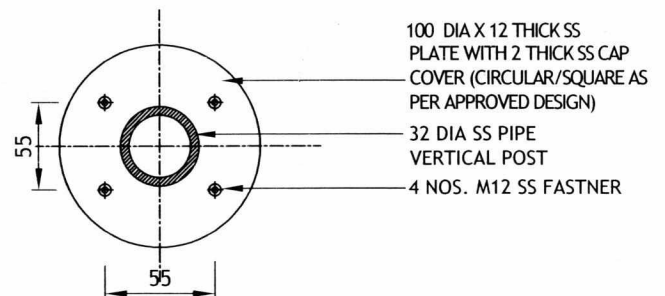
DETAIL B



SECTION D-D



DETAIL C
(TYPICAL DETAILS)



SECTION E-E

NOTE: 1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. GRADE OF STEEL IS S/S 304 (SATIN FINISH).

2	16.10.23	REVISED & ISSUED AS STANDARD	M L THAKUR	SANDEEP	SAMIR DAS	SANJAY MAZUMDAR
1	30.03.21	REAFFIRMED & ISSUED AS STANDARD	M L THAKUR	SAMIR DAS	ANURAG SINHA	SANJAY MAZUMDAR
Rev. No.	Date	Purpose	Prepared by	Checked by	Std. Committee Convenor	Std. Bureau Chairman

ABBREVIATIONS

ABD	AMINE BLOW DOWN	HP	HORSE POWER
A/G	ABOVE GROUND	HS	HOSE STATION
API	AMERICAN PETROLEUM INSTITUTE	HPP	HIGH POINT OF PAVEMENT
ANSI	AMERICAN NATIONAL STANDARD INSTITUTE	ID	INSIDE DIAMETER
AWWA	AMERICAN WATER WORKS ASSOCIATION	INST	INSTRUMENT
BC	BOX CULVERT	INV	INVERT
BCR	BEARING COOLING RETURN	IRC	INSTRUMENT CABLE ROAD CROSSING
BE	BEVEL END	MDS	MECHANICAL DATA SHEET
BF	BLIND FLANGE	MK	MARK
BL	BED LEVEL	MR	MATERIAL REQUISITION
BOP	BOTTOM OF PIPE	MTO	MATERIAL TAKE OFF
BOTT.EL	BOTTOM ELEVATION(CABLE DUCT ETC)	MS	MILD STEEL
CBD	CLOSE BLOW DOWN	MH	MANHOLE
CI	CAST IRON	NGL	NATURAL GROUND LEVEL
C/C	CENTRE TO CENTRE	OD	OUTSIDE DIAMETER
¢	CENTRE LINE	OHT	OVERHEAD TANK
CONC.RED	CONCENTRIC REDUCER	OWS	OILY WATER SEWER
CONC	CONCRETE	PC	PIPE CULVERT
CPLG	COUPLING	PDS	PROCESS DATA SHEET
CS	CARBON STEEL	PE	PLAIN END
CONN	CONNECTION	PR	PURCHASE REQUISITION
CONT	CONTINUATION	PWS	PROCESS WASTE SEWER
CRWS	CONTAMINATED RAIN WATER SEWER	PWB	PIPE WAY BRIDGE
CW	CONSTRUCTION WATER/CARRIAGE WAY	RCC	REINFORCED CEMENT CONCRETE
CWPH	COOLING WATER PUMP HOUSE	R	RADIUS
CWS	CAUSTIC WASTE SEWER	RF	RAISED FACE
COL	COLUMN	REF	REFERENCE
DIA	DIAMETER	RW	ROAD WAY
DWG	DRAWING	SO	SLIP ON
DISCH.	DISCHARGE	SOR	SCHEDULE OF RATES
ETP	EFFLUENT TREATMENT PLANT	SS	STORM SEWER
ECC	ECCENTRIC	STD	STANDARD
EL	ELEVATION	SCRC	STREET CABLE ROAD CROSSING
ERC	ELECTRIC CABLE ROAD CROSSING	STN	STATION
EWSS	EYE WASH & SAFETY SHOWER	SWS	SANITARY WASTE SEWER
FCR	FOR CONTINUATION REFER	TEMP	TEMPERATURE
FF	FLAT FACE	TOS	TOP OF SLEEPER
FGL	FINISHED GROUND LEVEL	TYP	TYPICAL
F TO F	FACE TO FACE	TWDK	TEMPORARY DRINKING WATER
FFL	FINISHED FLOOR LEVEL	U/G	UNDER GROUND
FLGD.	FLANGED	WCS	COOLING WATER SUPPLY
FDN	FOUNDATION	WCR	COOLING WATER RETURN
GLV	GALVANISED	WDK	DRINKING WATER
GT	GALVANISED BLACK STEEL TUBE	WF	FIRE WATER
GR	GROUND/GRADE	WR	RAW WATER
HC	HOSE COUPLING	WH	HORTICULTURE WATER
		WT	TREATED WATER
		WF	FILTERED WATER
		WWS	WASTE WATER SYSTEM

5 14.03.2024 REVISED & ISSUED AS STANDARD

MK

Checked by

SKN

MN

Rev. No. Date Purpose

Prepared by

Checked by

Stds. Committee Convenor

Stds. Bureau Chairman

Approved by

LEGENDS

	NATURAL GROUND LEVEL		BOX CULVERT REPRESENTATION ON AREA DRAWING
	FINISHED GROUND LEVEL		
	ROAD TOP LEVEL/ PAVEMENT TOP LEVEL		
	FINISHED FLOOR LEVEL OF BUILDING		
	CENTRE LINE		ERC-ELELCTRIC CABLE PxQ ROAD CROSSING NO.OF PIPE IN EACH LAYER NO. OF LAYERS
	LAND ACQUISITION LIMIT		
	COMPOUND WALL		
	BATTERY LIMIT		R.C.C. CABLE TRENCH
	MATCHING LINE		
	ROAD-A REPRESENTATION ON LAYOUTS (A=COORDINATE OF ROAD CL)		BURIED CABLE TRENCH D=DEPTH W=WIDTH
	ROAD-A REPRESENTATION IN AREA DRAWINGS (A=COORDINATE OF ROAD CL)		
	SIDE SLOPE		PIPEWAY BRIDGE
	TRAPEZOIDAL DITCH REPRESENTATION ON AREA DRAWING		
	RECTANGULAR DITCH REPRESENTATION ON AREA DRAWING		
	TRAPEZOIDAL DITCH REPRESENTATION ON LAYOUT DRAWING		
	RECTANGULAR DITCH REPRESENTATION ON LAYOUT DRG.		PIPE SLEEVES
	PIPE CULVERT BOX CULVERT REPRESENTATION ON LAYOUT DRG.		
	PIPE CULVERT REPRESENTATION ON AREA DRAWING		CONSTRUCTION WATER PIPE LINE
			TREATED WATER PIPE LINE
			TEMPORARY DRINKING WATER PIPE LINE
			DRINKING WATER PIPE LINE

5 14.03.2024 REVISED & ISSUED AS STANDARD

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by

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by

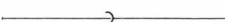
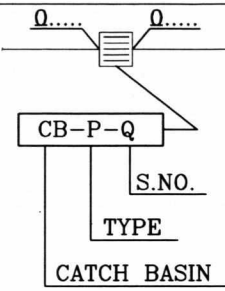
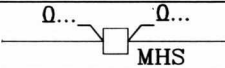
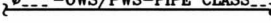
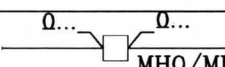
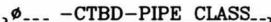
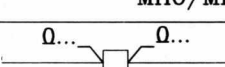
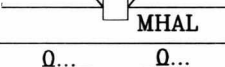
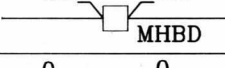
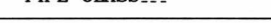
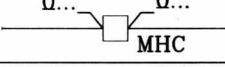
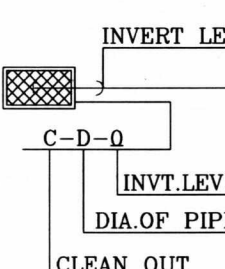
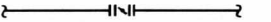
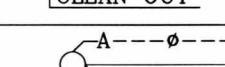
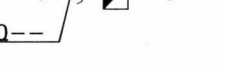
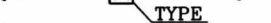
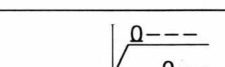
Stds. Committee
Convenor

Stds. Bureau
Chairman

Approved by

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Format No 8-00-0001-F4 Rev.0

	COOLING WATER SUPPLY PIPE		45° BEND (TURNED DOWN)
	COOLING WATER RETURN PIPE		CATCH BASIN
	FIRE WATER PIPE LINE		
	HORTICULTURE WATER PIPE LINE		
	SERVICE WATER PIPE LINE		
	STORM SEWER		
	SANITARY WATER SEWER		PIPE INVERT LEVEL
	OILY WASTE SEWER/ PROCESS WASTE SEWER		SANITARY SEWER MANHOLE
	COOLING TOWER BLOW DOWN		OILY/PROCESS SEWER MANHOLE
	ACIDIC SEWER		ACIDIC SEWER MANHOLE
	ALKALI SEWER		ALKALI SEWER MANHOLE
	CTBD SEWER		CTBD SEWER MANHOLE
	SANITARY PUMPING MAIN		CHEMICAL SEWER MANHOLE
	GATE VALVE		CIRCULAR MANHOLE
	GLOBE VALVE		CLEAN OUT
	BUTTERFLY VALVE		
	CHECK VALVE		
	FLOAT VALVE		
	PIPE WITH FLANGED END		FUNNEL FOR STORAGE TANK DRAIN
	BLIND FLANGED END		RECTANGULAR SEALED MANHOLE (SINGLE COMPARTMENT)
	VALVE PIT IN PIPE LINE		
	90° BEND (TURNED UP)		RECTANGULAR SEALED MANHOLE (DOUBLE COMPARTMENT)
	90° BEND (TURNED DOWN)		
	45° BEND (TURNED UP)		SAND TRAP

5 14.03.2024 REVISED & ISSUED AS STANDARD

MK

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Prepared
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Convenor

Stds. Bureau
Chairman

Approved by

	SEALED MANHOLE (CIRCULAR)		WATER MONITOR FOR FOR FIRE WATER SYST.
			FOAM MONITOR FOR FOR FIRE WATER SYST.
	THREE WAY VALVE PIT (VALVE PITS OUTSIDE TANKFARM AREA FOR DRAINAGE)		DOUBLE HEADED FIRE HYDRANT AWAY FROM HEADER
	SEPTIC TANK		FIRE HOSE COUPLING
			EARTHEN DYKE
	SOAK PIT		RAILWAY TRACK REPRESENTATION ON LAYOUT
			RAILWAY TRACK REPRESENTATION ON AREA DWG.
	GULLY TRAP		PIPE RACK
	GATE		PIPE WAY
	BARBED WIRE FENCING	EQPT. SYMBOLS	
	CHAIN LINK FENCING		HOSE CABINET
	R.C.C. PAVEMENT		HOSE REEL
	FOOTPATH W=WIDTH OF FOOTPATH		DELUGE VALVE ASSEMBLY
	SLIDING SLEEPER		PUMP (HORIZONTAL)
	ANCHOR SLEEPER		PUMP VERTICAL a) ELECT. DRIVE b) DEISEL DRIVE
	GUIDE SLEEPER		
	JUMP OVER SLEEPER		
	FIRE HYDRANT SINGLE HEADED		WATER CUM FOAM MONITOR
	FIRE HYDRANT DOUBLE HEADED		

5 14.03.2024 REVISED & ISSUED AS STANDARD

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Chairman

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Format No. 8-00-0001-F4 Rev.0

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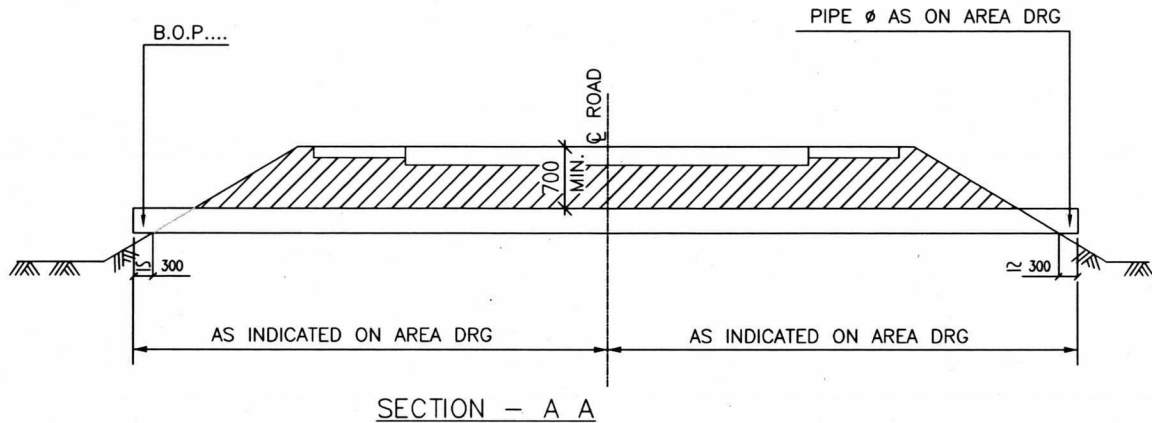
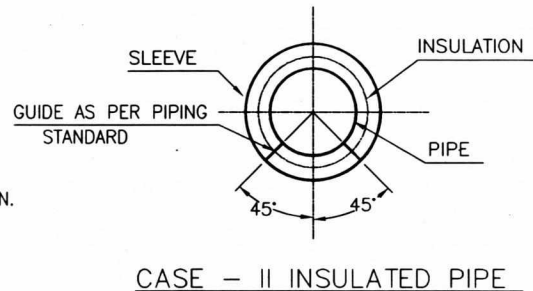
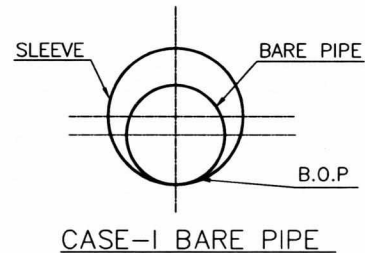
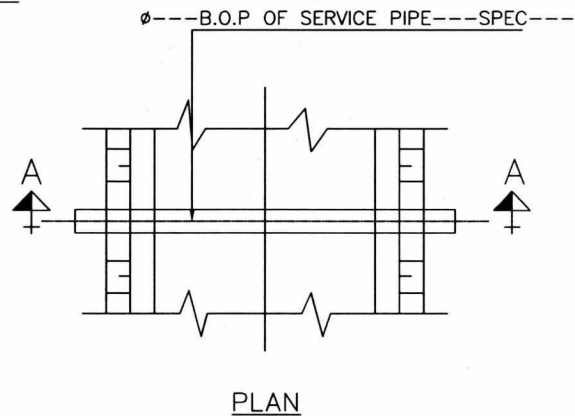


TABLE OF SLEEVE

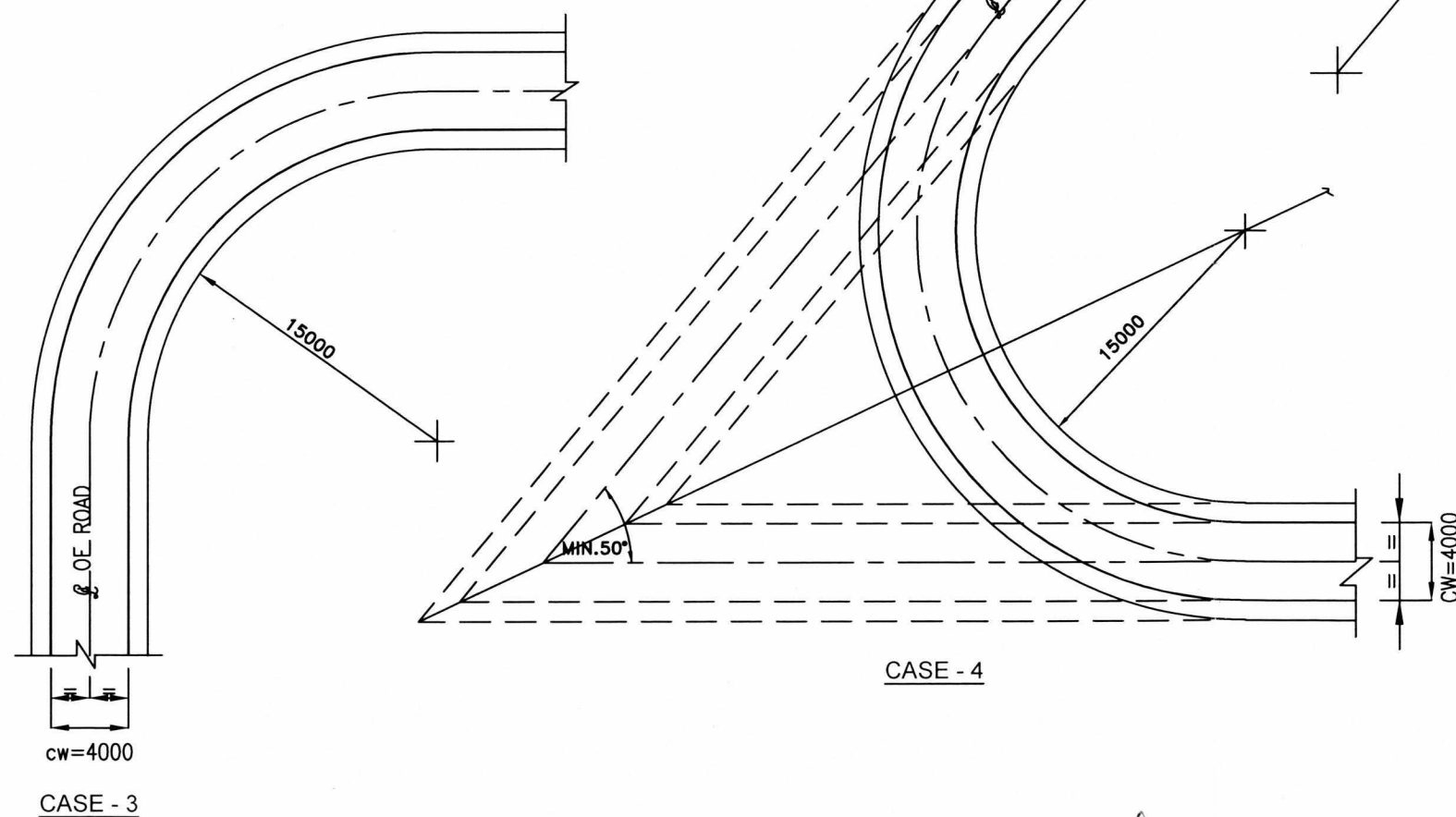
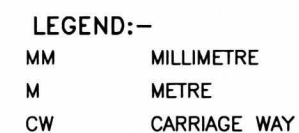
BARE PIPE SIZE OR OUTER Ø OF INSULATION IN CASE OF INSULATED PIPE	SLEEVE PIPE SIZE
1 1/2"	4"
2"	4"
3"	6"
4"	6"
6"	10"
8"	10"
10"	14"
12"	14"
14"	16"
16"	20"
18"	20"
20"	24"
22"	24"
24"	30"



NOTES: -

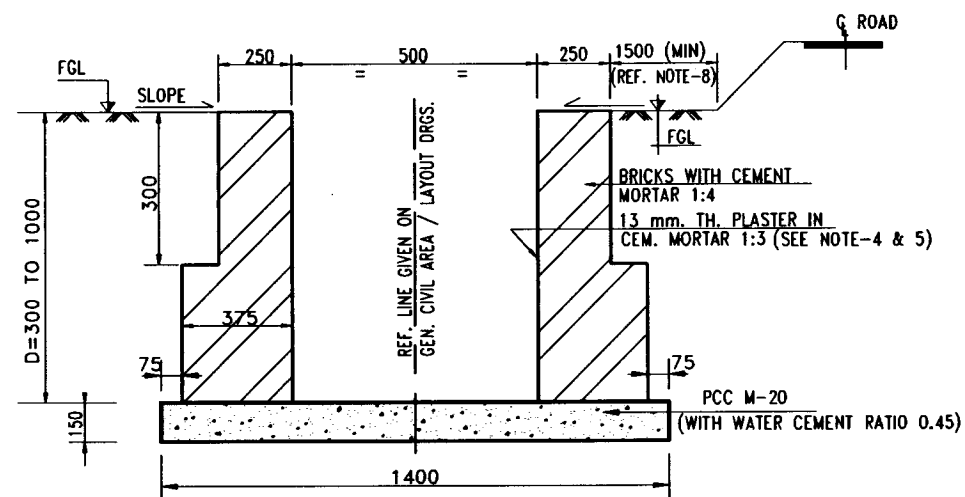
1. ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE SPECIFIED.
2. MOC FOR PIPE SLEEVES SHALL BE AS PER APPROVED DESIGN BASIS.
3. C.S. PIPE SLEEVES SHALL BE PROVIDED WITH CORROSION PROTECTION COATING AS PER JOB SPECIFICATION.
4. PIPE SLEEVES WITH INADEQUATE CLEAR COVER SHALL BE ENCASED AS PER EIL STD. NO. 7-65-0213.
5. ENDS OF THE PIPE SLEEVES SHALL BE PLUGGED WITH BITUMEN IMPREGNATED MINERAL WOOL.
6. FOR CASE-II (INSULATED PIPE) THE OUTER DIAMETER OF THE SERVICE PIPE TO BE CONSIDERED AS OUTER DIAMETER OF INSULATION

5	14.03.24	REVISED & ISSUED AS STANDARD	MK	AK	SKN	MN
4	08.06.18	REAFFIRMED & ISSUED AS STANDARD	Anil	HV/AK	RS	RKT
Rev. No.	Date	Purpose	Prepared by	Checked by	Stds. Committee Convenor	Stds. Bureau Chairman

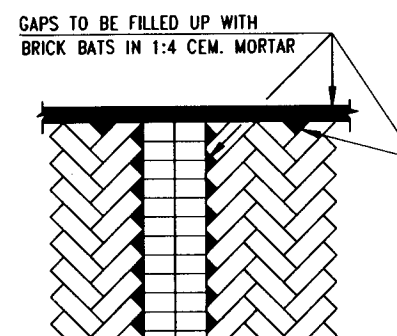


- NOTES:-**
1. ALL DIMENSIONS ARE IN MM UNLESS STATED OTHER WISE.
 2. GENERALLY THE RADII OF CURVES AT CROSSING SHALL BE AS GIVEN IN THIS DRAWING AS EXPLAINED BELOW.
 3. RADII OF CURVES FOR APPROACH ROADS TO BUILDINGS AND OTHERS AREAS MAY BE REDUCED AS PER SERVICE REQUIREMENTS.
 4. FOR ROADS CURVES WITH ACUTE ANGLE TURNING, ANGLE SHOULD NOT BE LESS THAN 50°.
 5. RADII OF CURVES AND CROSSING WHEN DIFFERENT FROM THOSE GIVEN IN THIS STANDARD TO MEET ANY SPECIAL REQUIREMENT SHALL BE SO MARKED IN THE AREA DRAWINGS.
 6. THIS ROAD CURVES & CROSSING STANDARD IS APPLICABLE WITHIN INDUSTRIAL PLANT ONLY.
 7. REFERENCE CODE- IRC-86
 8. 5% SUPER ELEVATION (e) TO BE PROVIDED.

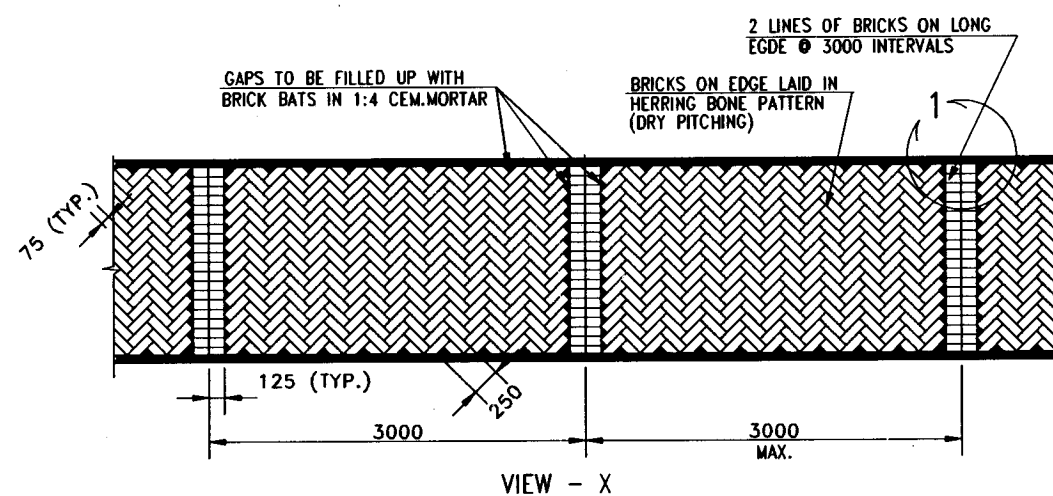
			<i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i>
6	14.03.2024	REVISED AND REISSUED AS STANDARD	MK	AK	SKN	MN
Rev. No.	Date	Purpose	Prepared by	Checked by	Stds. Committee Convenor	Stds. Bureau Chairman
					Approved by	



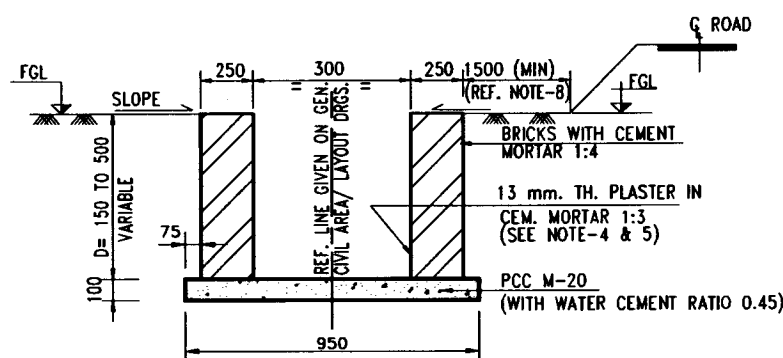
RECTANGULAR DRAIN
TYPE-2
(DEPTH ABOVE 300 TO 1000)



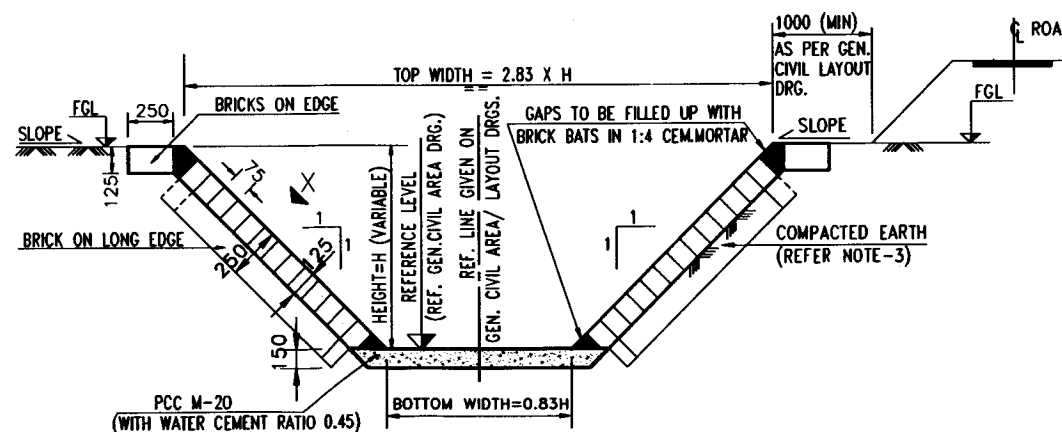
DETAIL - 1
(TYP)



VIEW - X



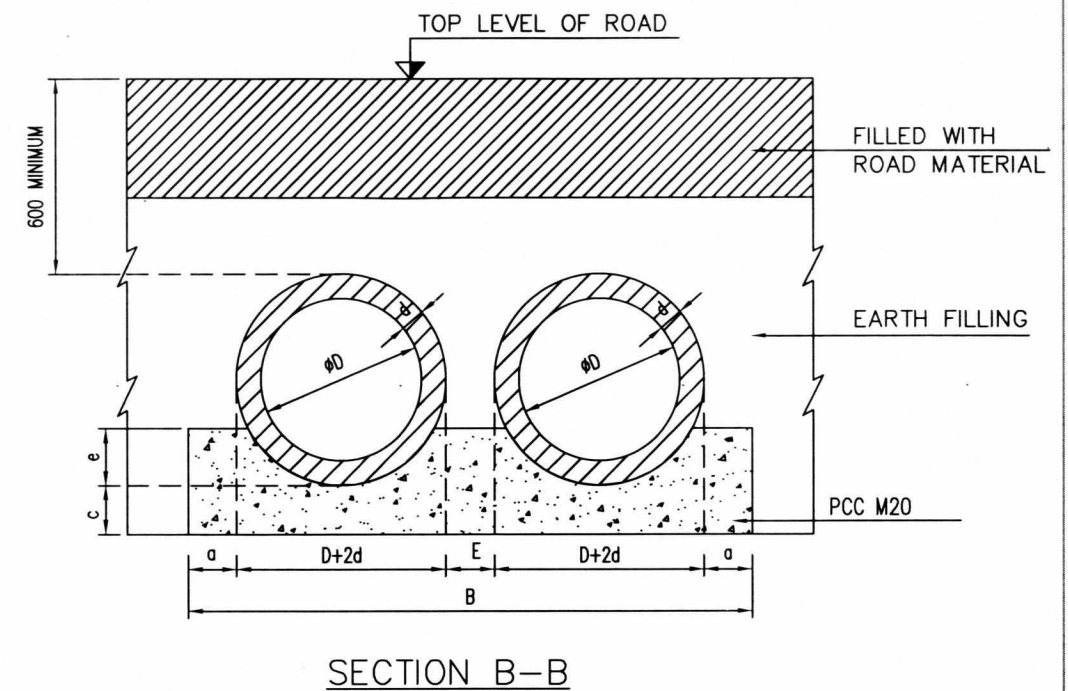
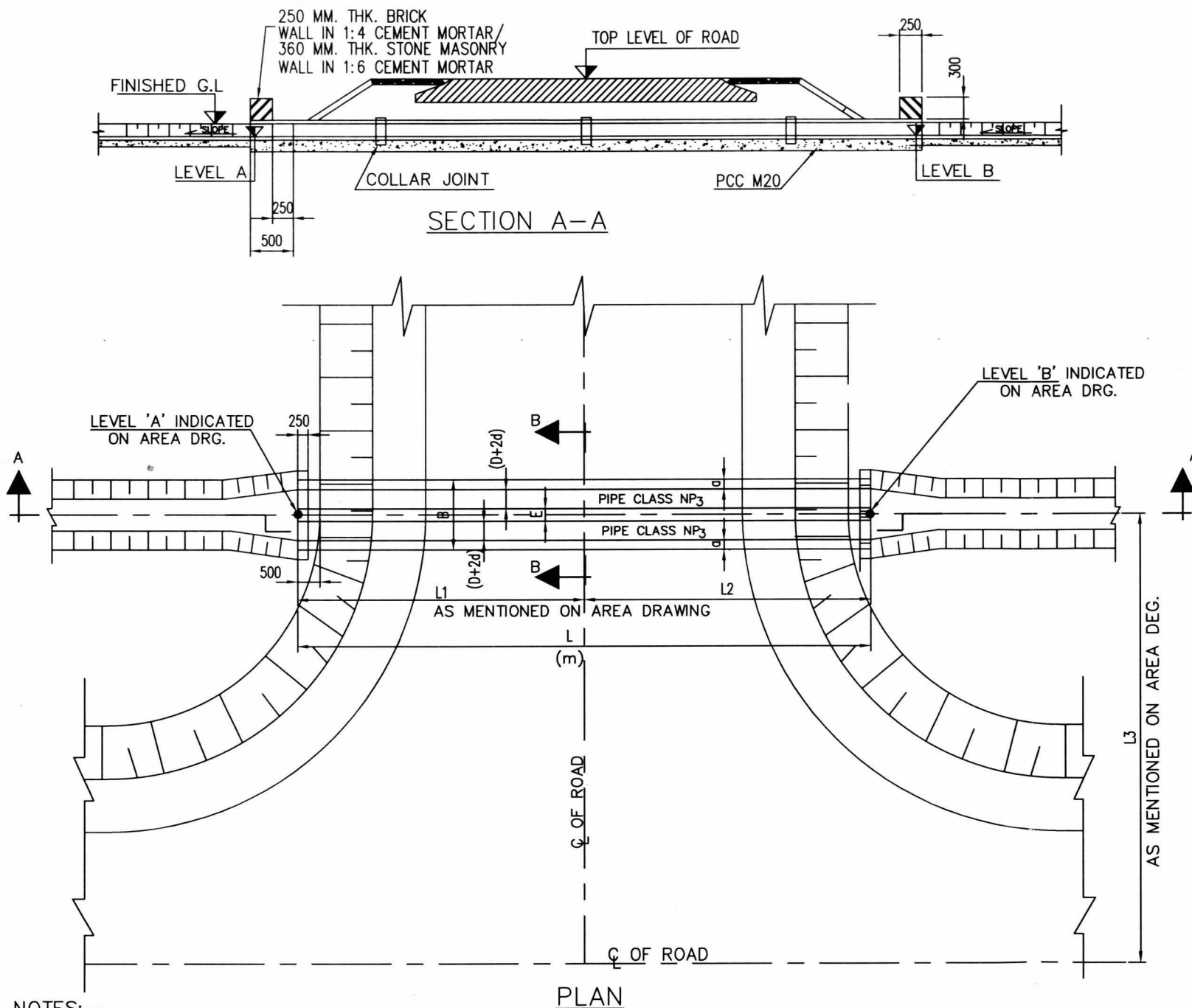
RECTANGULAR DRAIN
TYPE-1
(UPTO 500 DEPTH)



TRAPEZOIDAL DRAIN
TYPE-3
(FOR H = 300 TO 2000)

NOTES:-

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS NOTED OTHERWISE.
2. (a) THIS STD. IS APPLICABLE FOR OFFSITE AREAS ONLY.
(b) WHEREVER TYPE 1 & 2 DRAINS ARE LAID IN EXPANSIVE SOIL, A LAYER OF MINIMUM 250mm THICK SAND SHALL BE PROVIDED BELOW AND AROUND THE SIDES OF DRAIN.
(c) TRAPEZOIDAL DRAIN (TYPE-3) IS NOT SUITABLE FOR AREAS WITH EXPANSIVE SOIL AND SANDY SOIL.
3. BRICK PITCHING SHALL BE DONE ONLY AFTER THE SIDES OF DRAIN ARE CUT, COMPACTED TO 90% OF MAX. LABORATORY DRY DENSITY AND DRESSED TO THE REQUIRED SLOPE.
4. 13 mm. THK. PLASTER IN CEM. MORTAR 1:3 SHALL BE PROVIDED ON BENDS UP TO A DISTANCE OF 1.5M ON EITHER SIDE OF THE BEND FOR ALL DRAINS. FLUSH CEMENT POINTING IN CEMENT MORTAR 1:3 SHALL BE DONE AT OTHER PLACES.
5. INTERNAL PLASTER OF SAME SPECIFICATION AS SHOWN IN NOTE-4 IN RECTANGULAR DRAIN TYPE-1 & 2 SHALL BE DONE ONLY FOR THE PORTION OF DRAIN LOCATED NEAR BUILDING.
6. EXACT THICKNESS OF BRICK MASONRY WORK SHALL BE ACCORDING TO THE SIZE OF LOCALLY AVAILABLE BRICK. HERE BRICK SIZE IS CONSIDERED AS 250X125X75.
7. THIS STANDARD ORG. SHALL BE VALID WHERE WATER TABLE IS UPTO FGL.
8. 1500 mm (MIN) HAS BEEN KEPT TO AVOID THE IMPACT OF SURCHARGE PRESSURE OF ROAD EMBANKMENT ON THE WALL OF THE DRAIN.

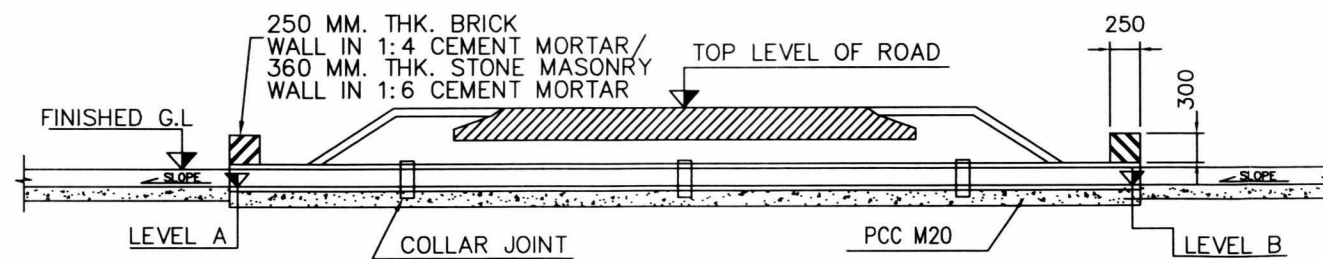


PIPE DIA IN MM (D)	PIPE WALL THICKNESS IN MM (d)	PIPE OUTER DIA IN MM	a (MM)	E (MM)	B (MM)	c (MM)	e (MM)
500	75	650	150	350	1950	200	175
600	85	770	150	350	2190	200	175
700	85	870	200	400	2540	275	200
800	95	990	200	400	2780	275	200

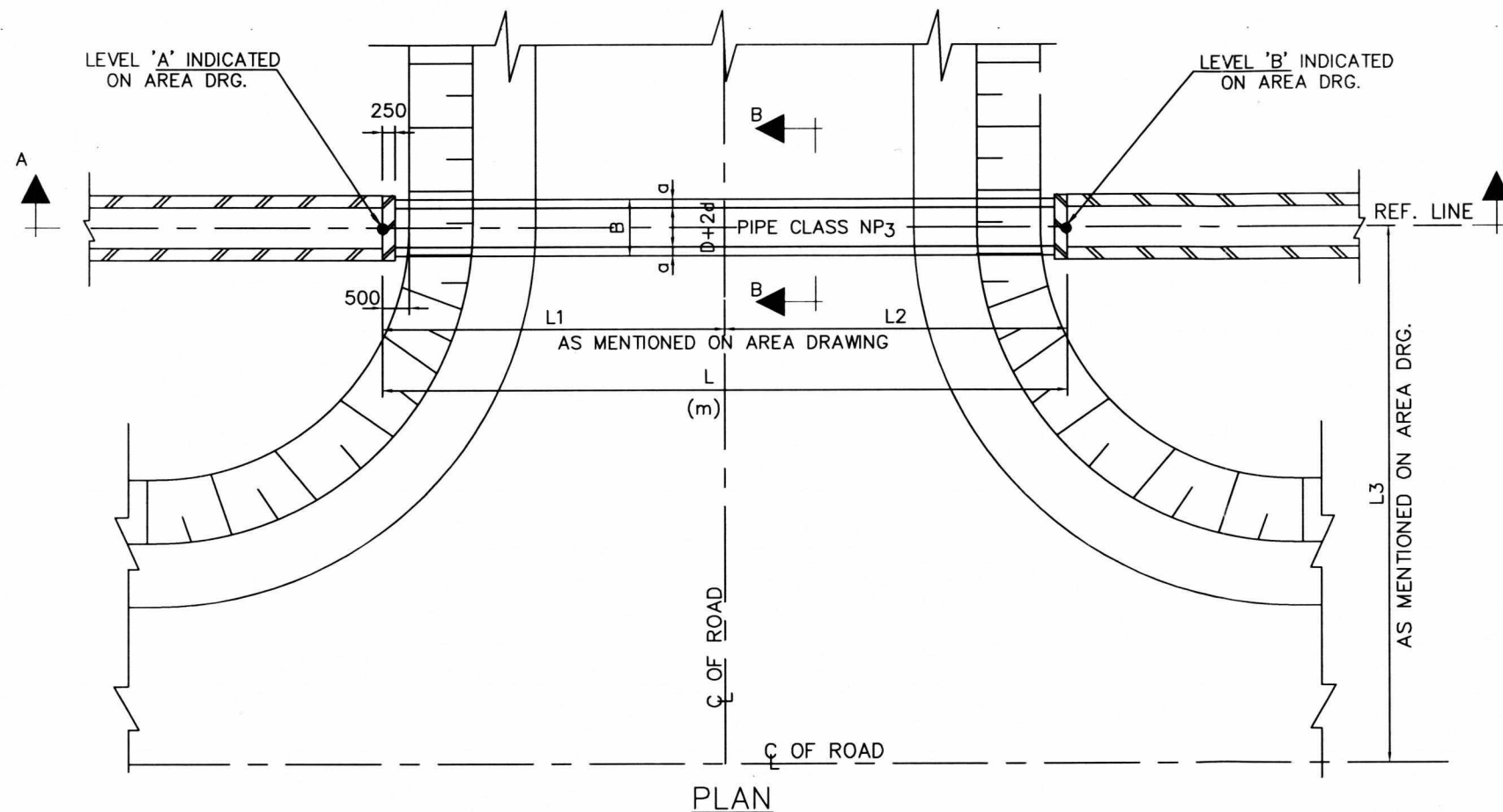
NOTES: -

1. ALL DIMENSIONS ARE IN MM UNLESS SPECIFIED OTHERWISE.
2. THIS STANDARD SHALL BE READ ALONG WITH STANDARD NO. 7-65-0213.
3. THIS STANDARD IS NOT APPLICABLE FOR BLACK COTTON SOIL/POOR SOIL ($N < 4$).
4. JOINTS IN PIPE SHALL BE EXTERNAL FLUSH JOINTS FOR PIPES OF INTERNAL DIA UPTO 700mm AND SHALL BE INTERNAL FLUSH JOINTS FOR PIPES OF DIA MORE THAN 700mm (REFERENCE CLAUSE 6.3 OF IS:458).
5. PIPES / SPIGOT JOINTS SHALL BE ENCASED AS PER EIL STD. 7-65-0213, WHEREVER ADEQUATE CLEAR COVER OVER PIPE IS NOT AVAILABLE.
6. REGULAR LINED DRAIN ALONG WITH WING WALLS UPTO A DISTANCE OF 5.0M ON EITHER SIDE OF PIPE CULVERT SHALL BE MADE BEFORE PUTTING THE CULVERT IN USE.
7. THE CONCRETE PIPE SHALL CONFORM TO IS: 458.

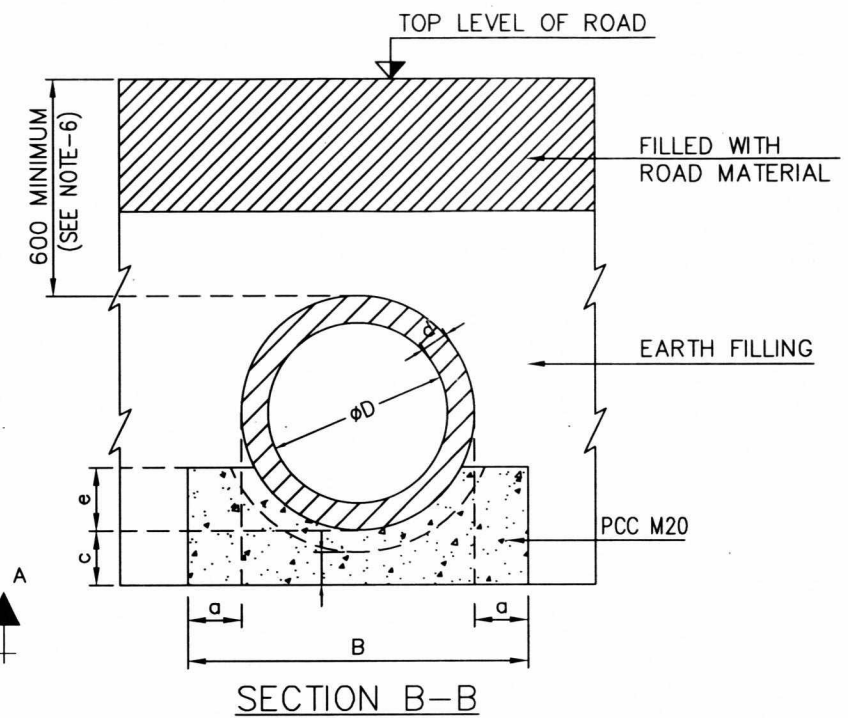
VALID FOR DIA 500 TO 800



SECTION A-A



PLAN



SECTION B-B

NOTES: —

- FOR NOTES, REFER PAGE 1 OF 2.

PIPE DIA IN MM (D)	BARREL WALL THICKNESS IN MM (d)	PIPE OUTER DIA IN MM	a (MM)	B (MM)	c (MM)	e (MM)
350	75	500	150	800	200	125
500	75	650	150	950	200	175
600	85	770	150	1070	200	175
700	85	870	200	1270	275	200
800	95	990	200	1390	275	200

VALID FOR DIA 350 TO 800

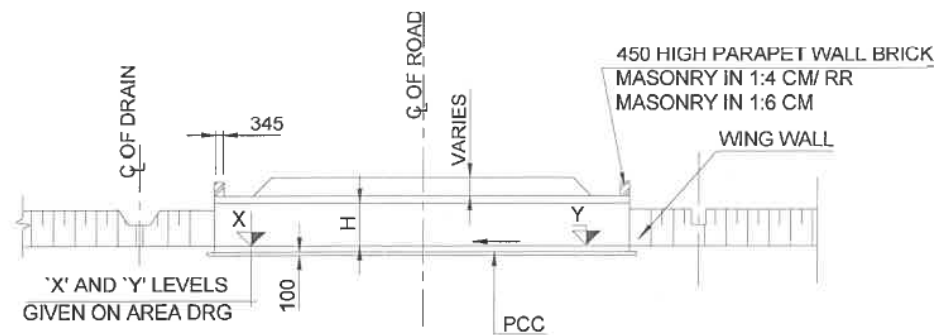
इंजीनियर्स इंडिया लिमिटेड
(भारत सरकार का उपक्रम)
ENGINEERS INDIA LIMITED
(A Govt. of India Undertaking)

5	14.03.24	REVISED AND ISSUED AS STD.	MK	AK	SKN	MN
Rev. No.	Date	Purpose	Prepared by	Checked by	Stds. Committee Convenor	Stds. Bureau Chairman
					Approved by	

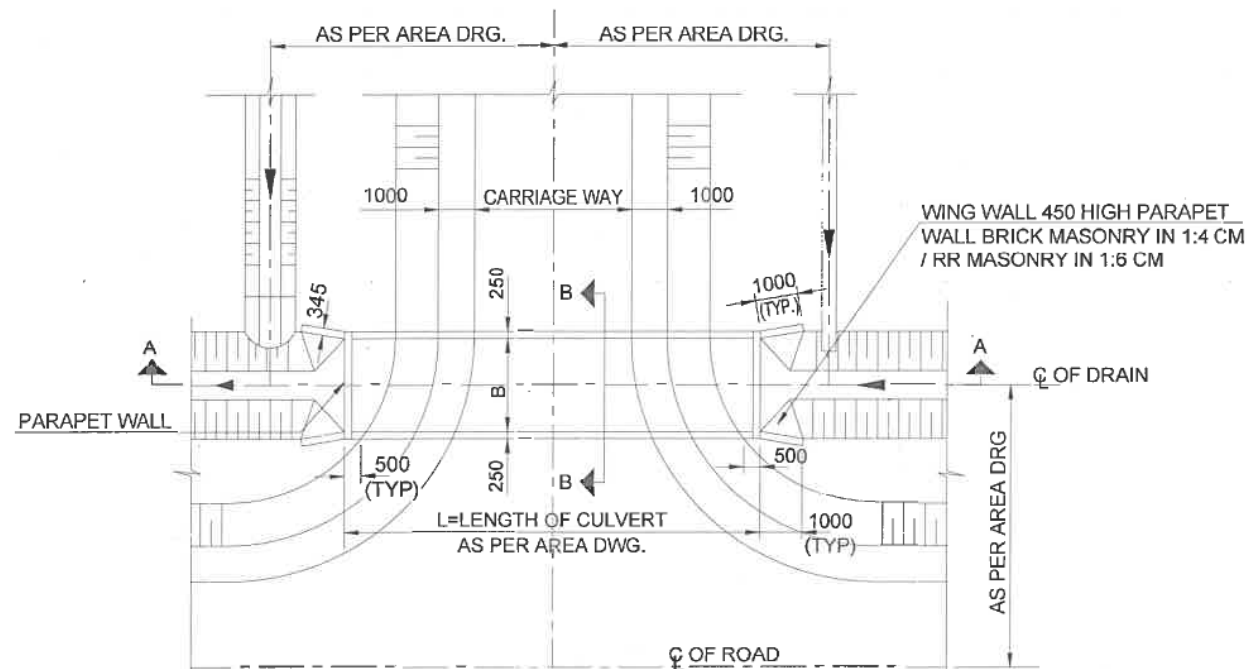
PIPE CULVERT
FOR STORM
WATER DRAINAGE

STANDARD No.
7-65-0103 Rev. 5

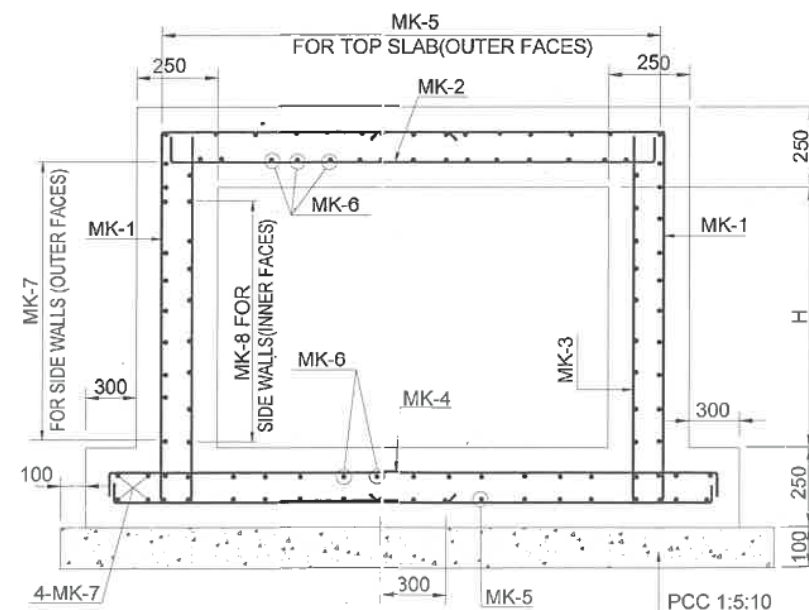
Page 2 of 2



SECTION A-A



PLAN



SECTION B-B

NOTES:-

- ALL DIMENSIONS ARE IN MM EXCEPT LEVELS WHICH ARE IN METERS.
- BOX CULVERTS ARE DESIGNED FOR CLASS 'A' & CLASS 'AA' LOADING AS PER IRC-6 AND FOR TRACKED CRANE LOAD INTENSITY UPTO 10 T/M2.
- REFER STRUCTURAL GENERAL NOTES OF THE PROJECT FOR REINFORCED CONCRETE STRUCTURES FOR FOLLOWING :
 - GRADE OF CONCRETE
 - GRADE AND TYPE OF CEMENT
 - REINFORCEMENT STEEL BARS
 - CLEAR COVER IN R.C.C. WORKS
- BAR BENDING SHALL CONFORM TO IS:2502.
- ALL BRICK WORK SHALL BE IN 1:4 CEMENT MORTAR AS PER IS:2212.
- RR MASONRY WORK SHALL BE IN 1:6 CEMENT MORTAR AS PER IS:1597.
- OVERLAP FOR BARS SHALL BE 50D AND SHALL BE STAGGERED.
- REGULAR LINED DRAIN ALONG WITH WING WALLS UPTO A DISTANCE OF 5.0M ON EITHER SIDE OF BOX CULVERT SHALL BE MADE BEFORE PUTTING THE CULVERT IN USE.

REINFORCEMENT BENDING SCHEDULE					
MARK	TYPE	DIA & SPACING	A	B	C
MK-1	I	16 @ 150 C/C	1260	1205	1205
	II	16 @ 125 C/C	1410	1355	1355
	III	16 @ 100 C/C	1510	1455	1455
	IV	16 @ 100 C/C	1710	1655	1655
MK-2	I	16 @ 150 C/C	2110	160	160
	II	16 @ 125 C/C	2410	160	160
	III	16 @ 100 C/C	2610	160	160
	IV	16 @ 100 C/C	3010	160	160
MK-3	I	10 @ 200 C/C	1260	460	160
	II	10 @ 200 C/C	1410	460	160
	III	10 @ 200 C/C	1510	460	160
	IV	10 @ 200 C/C	1710	460	160
MK-4	I	12 @ 200 C/C	2710	160	160
	II	12 @ 150 C/C	3010	160	160
	III	12 @ 125 C/C	3210	160	160
	IV	12 @ 125 C/C	3610	160	160
MK-5&6	I	10 @ 200 C/C	BARS OF VARYING LENGTH		
	II	10 @ 200 C/C			
	III	10 @ 200 C/C			
	IV	10 @ 200 C/C			
MK-7&8	I	10 @ 200 C/C	BARS OF VARYING LENGTH		
	II	10 @ 200 C/C			
	III	10 @ 200 C/C			
	IV	10 @ 200 C/C			
MARK 1	B	C	MARK 3	B	C
MARK 2 & 4	A	C	MARK 5, 6, 7 & 8	A	C

SCHEDULE OF CULVERTS			
TYPE	WIDTH & DEPTH (BXH)	SLOPE	*FLOW (M3/Hr.)
I	1700 X 850	1:1200	4500
II	2000 X 1000	1:1200	7100
III	2200 X 1100	1:1200	9300
IV	2600 X 1300	1:2000	11450

(*ESTIMATED SAFE FLOW CONSIDERING 100MM FREE BOARD)
AND MANNING'S COEFF. 0.016)

ADP AMITABH SKN M NANDI
ADP AMITABH SKN M NANDI
Prepared by Checked by Stds. Committee Stds. Bureau
Convenor Chairman
Approved by

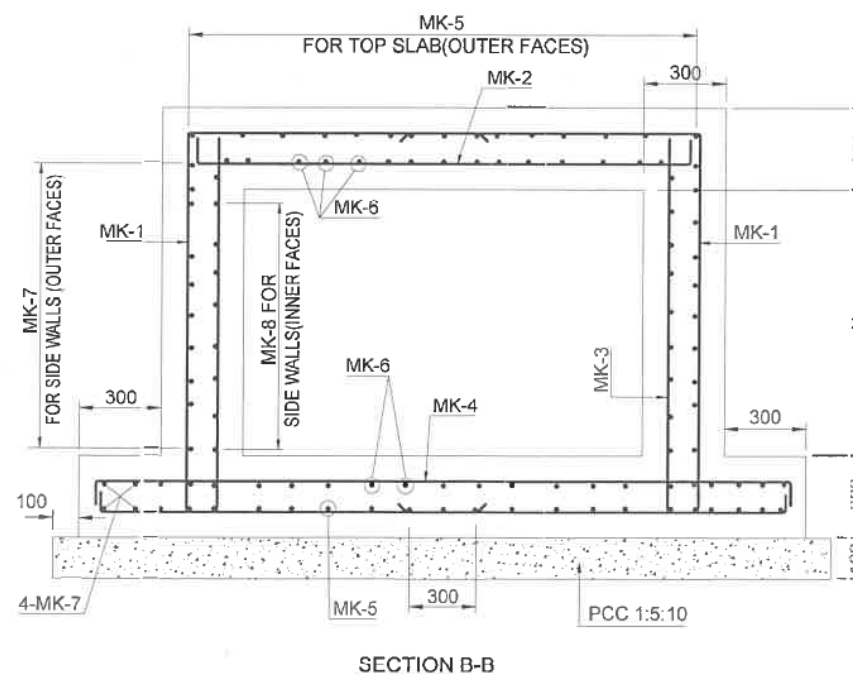
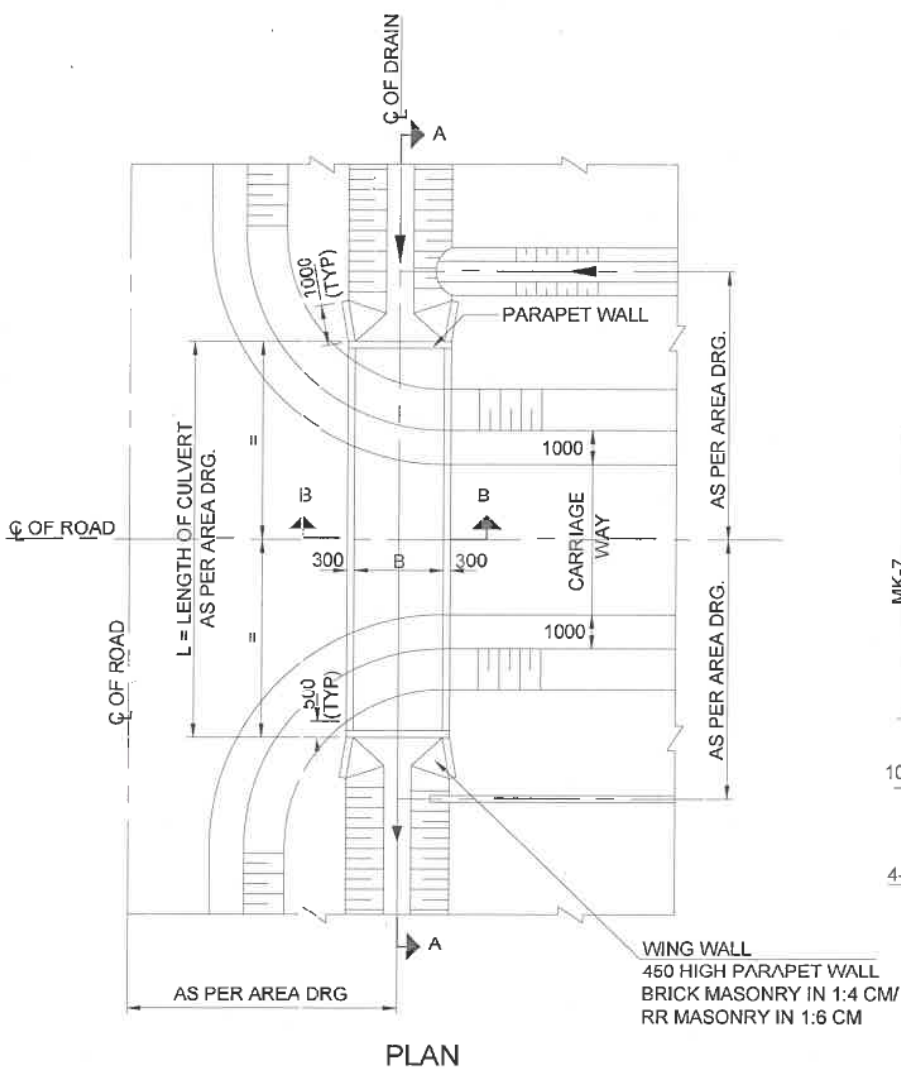
CAST IN SITU BOX CULVERT
TYPE-I,II,III AND IV

STANDARD No.

7-65-0104 Rev. 7

Page 1 of 1

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1. ALL DIMENSIONS ARE IN MM EXCEPT LEVELS WHICH ARE IN METERS.
2. BOX CULVERT ARE DESIGNED FOR I.R.C CLASS 'A' & CLASS 'AA' LOADING . AND FOR TRACKED CRANE LOAD INTENSITY UPTO 10 T/M².
3. REFER STRUCTURAL GENERAL NOTES OF THE PROJECT FOR REINFORCED CONCRETE STRUCTURES FOR FOLLOWING
 - a. GRADE OF CONCRETE
 - b. GRADE AND TYPE OF CEMENT
 - c. REINFORCEMENT STEEL BARS
 - d. CLEAR COVER IN R.C.C. WORKS
4. BAR BENDING SHALL CONFORM TO IS:2502
5. ALL BRICK WORK SHALL BE IN 1:4 CEMENT MORTAR AS PER IS : 2212
6. RR MASONRY WORK SHALL BE IN 1:6 CEMENT MORTAR AS PER IS:1597.
7. OVERLAP FOR BARS SHALL BE 50D AND SHALL BE STAGGERED.
8. REGULAR LINED DITCH ALONG WITH WING WALLS UP TO A DISTANCE OF 5.0M ON EITHER SIDE OF BOX CULVERT SHALL BE MADE BEFORE PUTTING THE CULVERT IN USE.

SCHEDULE OF CULVERTS			
TYPE	WIDTH & DEPTH (BXH)	SLOPE	*FLOW (m ³ /hr.)
V	3000 X 1500	1:2500	15200
VI	3600 X 1800	1:2500	25000

(*ESTIMATED SAFE FLOW CONSIDERING 100MM FREE BOARD
AND MANNING'S COEFF. 0.016)

REINFORCEMENT BENDING SCHEDULE					
MARK	TYPE	DIA & SPACING	A	B	C
MK-1	V	ϕ 16 @ 150 C/C	2010	1905	1905
	VI	ϕ 20 @ 150 C/C	2310	2205	2205
MK-2	V	ϕ 16 @ 150 C/C	3510	210	210
	VI	ϕ 20 @ 150 C/C	4110	210	210
MK-3	V	ϕ 10 @ 200 C/C	2010	510	210
	VI	ϕ 10 @ 200 C/C	2310	510	210
MK-4	V	ϕ 12 @ 150 C/C	4110	210	210
	VI	ϕ 12 @ 125 C/C	4710	210	210
MK-5&6	V	ϕ 10 @ 200 C/C	BARS OF VARYING LENGTH		
	VI	ϕ 10 @ 200 C/C			
MK-7&8	V	ϕ 10 @ 200 C/C			
	VI	ϕ 10 @ 200 C/C			



MARK 1



MARK 3



MARK 2 & 4

7	08.07.25	REVISED AND ISSUED A3 STANDARD	ADP	AMITABH	SKN	M NANDI
6	01.05.24	REVISED AND ISSUED A3 STANDARD	ADP	AMITABH	SKN	M NANDI
Rev. No.	Date	Purpose	Prepared by	Checked by	Stds. Committee Convener	Stds. Bureau Chairman
					Approved by	

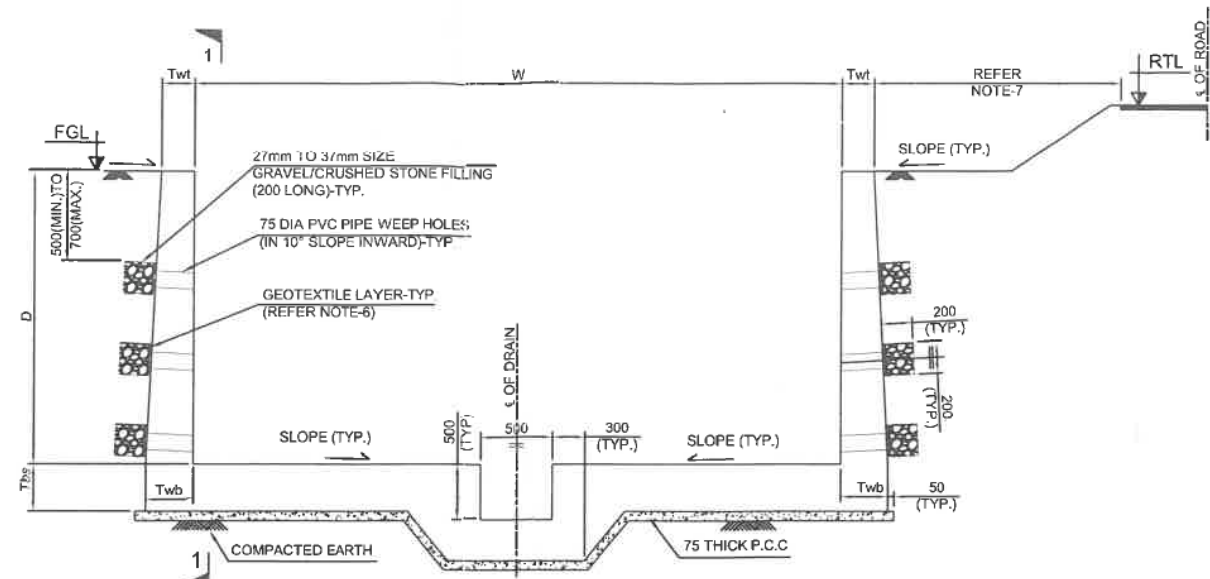
CAST IN SITU BOX CULVERT
TYPE-V & VI

STANDARD No.

7-65-0106 Rev. 7

Page 1 of 1

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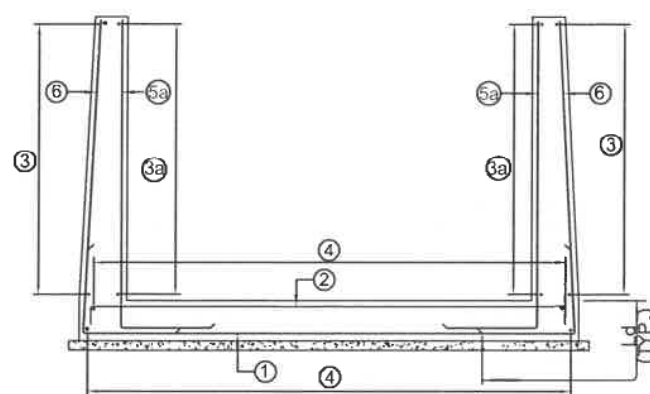


TYP. CROSS SECTION (FOR DRAIN WIDTH $W > 8000$)
(SHOWING GENERAL ARRANGEMENT)

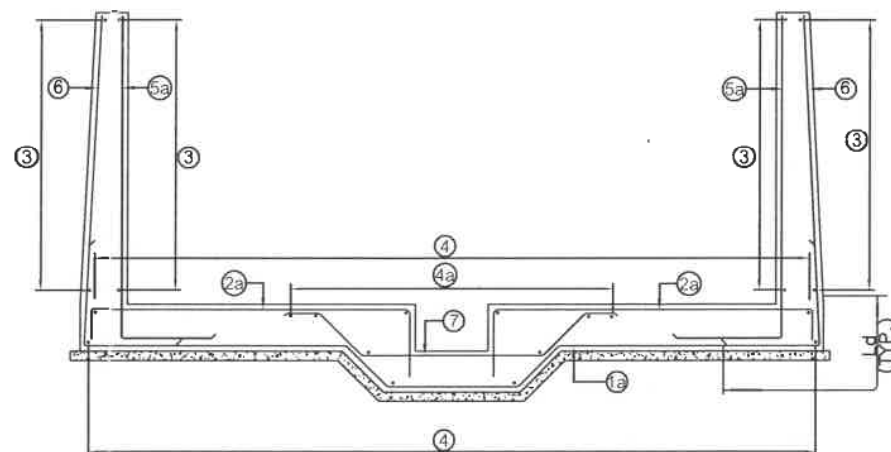
1. ALL DIMENSIONS ARE IN MM UNLESS NOTED OTHERWISE.
2. THIS STANDARD IS APPLICABLE FOR OFFSITE AREAS ONLY.
3. REFER STRUCTURAL GENERAL NOTES OF THE PROJECT FOR REINFORCED CONCRETE WORKS FOR FOLLOWINGS:
 - a. GRADE OF CONCRETE.
 - b. GRADE AND TYPE OF CEMENT.
 - c. REINFORCEMENT STEEL BARS.
 - d. GRADE OF PCC.
4. BAR BENDING SHALL CONFIRM TO IS:2502.
5. LOCATION, EXTENT, FGL/HPP, ORIENTATION AND SIZE OF DRAIN SHALL BE AS PER CIVIL AREA DRAWINGS.
6. PROPERTIES OF GEOTEXTILE LAYER SHALL CONFORM TO THE FOLLOWING.

a. TENSILE STRENGTH	= 8 KN/m
b. ELONGATION	= 50 %
c. CBR PUNCTURE RESISTANCE	= 1500N
d. CONE DROP	= 38 mm
e. PERMEABILITY (H50)	= 100 L/M ² S
f. OPENING SIZE (O ₉₀)	= 150 Microns
7. 3000mm (MIN.) TO EDGE OF CARRIAGEWAY SHALL BE PROVIDED TO AVOID IMPACT OF SURCHARGE PRESSURE OF ROAD EMBANKMENT/VEHICLE ON THE WALL OF DRAIN.
8. SOIL TREATMENT BELOW THE BOTTOM SLAB SHALL BE AS PER GEOTECHNICAL RECOMMENDATIONS.
9. CLEAR COVER TO THE REINFORCEMENT SHALL BE CONSIDERED AS FOLLOWS-

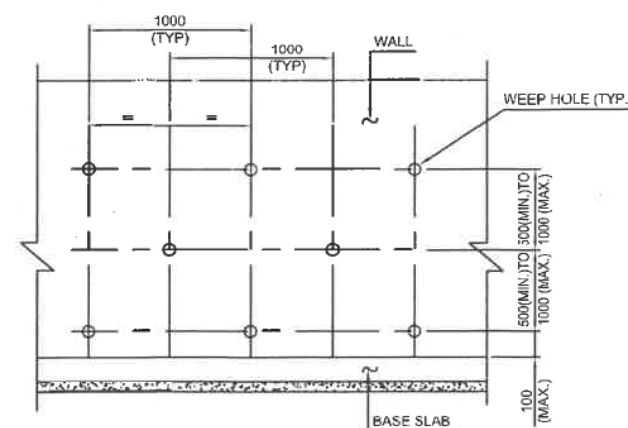
- IN CASE CLEAR COVER IS MORE FOR THE PROJECT, RCC ELEMENT THK. SHALL BE INCREASED ACCORDINGLY.



TYP. CROSS SECTION (FOR DRAIN WIDTH $1000 < W \leq 8000$)
(SHOWING R/F DETAILS)
(WEEP HOLES NOT SHOWN FOR CLARITY)



TYP. CROSS SECTION (FOR DRAIN WIDTH $W > 8000$)
(SHOWING R/F DETAILS)
(WEEP HOLES NOT SHOWN FOR CLARITY)



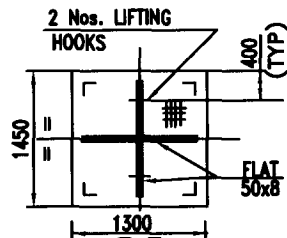
VIEW 1-1

TABLE-1: DETAIL OF DRAIN

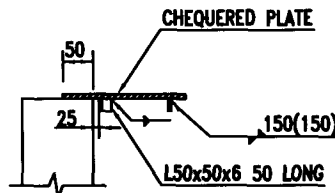
S. NO.	DEPTH OF DRAIN D (mm)	WIDTH OF DRAIN - W (mm)																		R/F DETAIL													
		500≤W≤1000			1000<W≤2000			2000<W≤4000			4000<W≤6000			6000<W≤8000			8000<W≤12000			BAR MARK (REFER CROSS SECTION)													
		WALL THK. AT TOP	WALL THK. AT BASE	BASE SLAB THK.	WALL THK. AT TOP	WALL THK. AT BASE	BASE SLAB THK.	WALL THK. AT TOP	WALL THK. AT BASE	BASE SLAB THK.	WALL THK. AT TOP	WALL THK. AT BASE	BASE SLAB THK.	WALL THK. AT TOP	WALL THK. AT BASE	BASE SLAB THK.	WALL THK. AT TOP	WALL THK. AT BASE	BASE SLAB THK.														
		Twt (mm)	Twb (mm)	Tbs (mm)	Twt (mm)	Twb (mm)	Tbs (mm)	Twt (mm)	Twb (mm)	Tbs (mm)	Twt (mm)	Twb (mm)	Tbs (mm)	Twt (mm)	Twb (mm)	Tbs (mm)	Twt (mm)	Twb (mm)	Tbs (mm)	①	①a	②	②a	③	③a	④	④a	⑤	⑤a	⑥	⑦		
1.	500≤D≤1000	150	150	150	200	200	200	X	X	X	X	X	X	X	X	X	X	X	X	10ϕ@125c/c	10ϕ@125c/c	10ϕ@125c/c	X	10ϕ@150c/c	8ϕ@200c/c	8ϕ@200c/c	X	10ϕ@200c/c	10ϕ@125c/c	10ϕ@125c/c	X		
2.	1000<D≤1500	200	200	200	200	200	200	200	200	200	X	X	X	X	X	X	X	X	X	10ϕ@125c/c	10ϕ@125c/c	10ϕ@125c/c	X	10ϕ@150c/c	8ϕ@200c/c	8ϕ@200c/c	X	10ϕ@200c/c	10ϕ@125c/c	10ϕ@125c/c	X		
3.	1500<D≤2000	X	X	X	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	10ϕ@125c/c	10ϕ@125c/c	10ϕ@125c/c	10ϕ@125c/c	10ϕ@150c/c	8ϕ@200c/c	8ϕ@200c/c	X	X	10ϕ@125c/c	10ϕ@125c/c	10ϕ@150c/c		
4.	2000<D≤2500	X	X	X	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	12ϕ@125c/c	12ϕ@125c/c	12ϕ@125c/c	12ϕ@125c/c	10ϕ@150c/c	8ϕ@200c/c	8ϕ@150c/c	8ϕ@150c/c	X	12ϕ@125c/c	12ϕ@125c/c	10ϕ@150c/c		
5.	2500<D≤3000	X	X	X	200	300	300	200	300	300	200	300	300	200	300	300	200	300	300	16ϕ@175c/c	16ϕ@175c/c	16ϕ@175c/c	16ϕ@175c/c	10ϕ@150c/c	8ϕ@200c/c	8ϕ@150c/c	8ϕ@150c/c	X	16ϕ@175c/c	16ϕ@175c/c	10ϕ@150c/c		

NOTE:

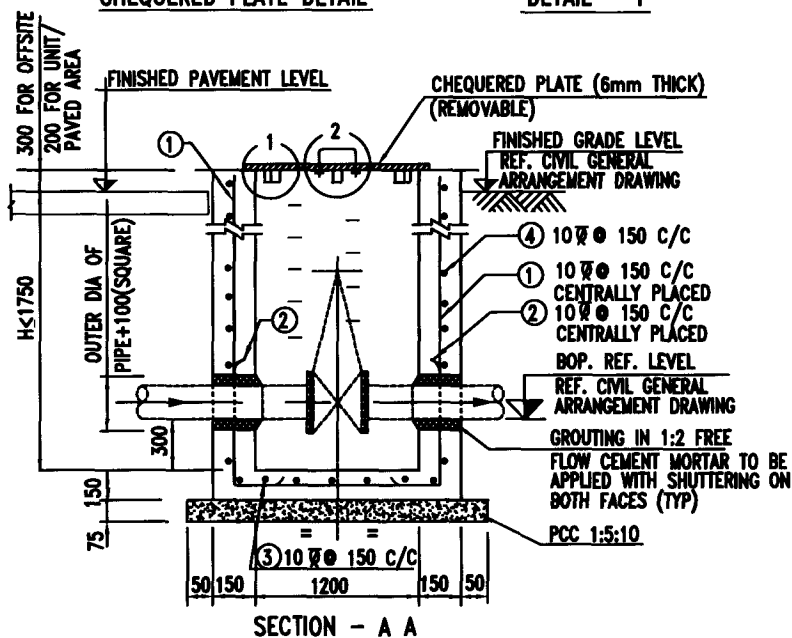
1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS NOTED OTHERWISE.
2. REFER STRUCTURAL GENERAL NOTES OF THE PROJECT FOR REINFORCED CONCRETE STRUCTURES FOR FOLLOWING:
 - a) GRADE OF CONCRETE
 - b) GRADE AND TYPE OF CEMENT
 - c) REINFORCEMENT STEEL BARS
 - d) CLEAR COVER IN R.C.C. WORKS
3. THIS STD. IS APPLICABLE FOR UNIT AREA, OFFSITE AREA AND AREA WHERE GROUND WATER TABLE IS UPTO FGL.



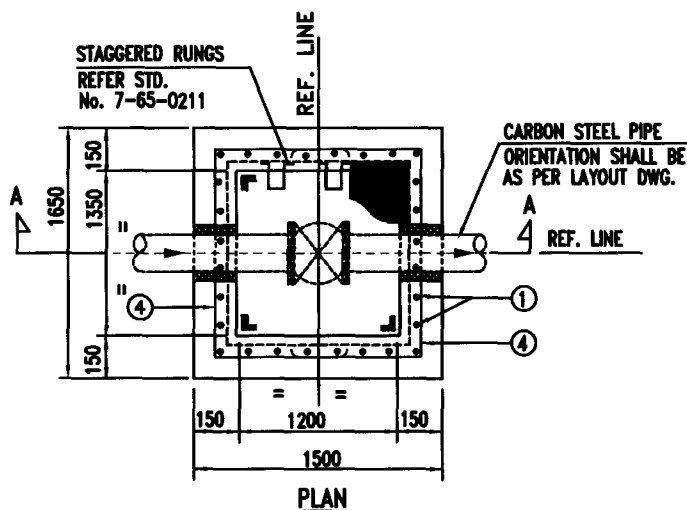
CHEQUERED PLATE DETAIL



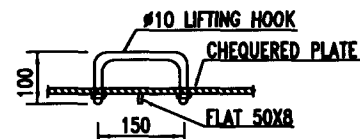
DETAIL - 1



SECTION - A A



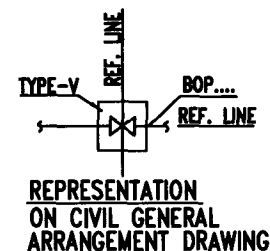
PLAN



DETAIL - 2

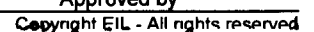
BAR BENDING SCHEDULE:

BAR MARK	DIA	BAR SHAPE
①	10 Ø	10Ø 150 C/C
②	10 Ø	10Ø 150 C/C CENTRALLY PLACED
③	10 Ø	10Ø 150 C/C CENTRALLY PLACED BOP. REF. LEVEL
④	10 Ø	10Ø 150 C/C



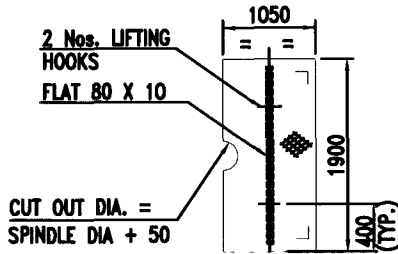
REPRESENTATION ON CIVIL GENERAL ARRANGEMENT DRAWING

4	28 02 2020	UPDATED & ISSUED AS STANDARD	SP	RKS	RS	RKT
3	05 06 14	UPDATED & ISSUED AS STD.	JKU	RKS	RBB	SC
Rev No	Date	Purpose	Prepared by	Checked by	Stds Committee Convenor	Stds Bureau Chairman

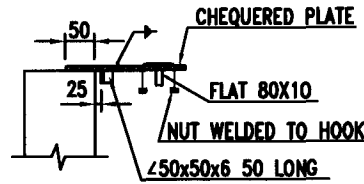


NOTE:

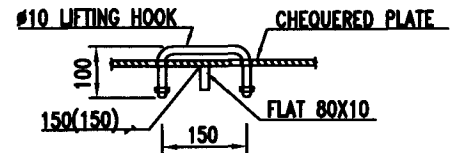
- ALL DIMENSIONS ARE IN MILLIMETERS UNLESS NOTED OTHERWISE.
- REFER STRUCTURAL GENERAL NOTES OF THE PROJECT FOR REINFORCED CONCRETE STRUCTURES FOR FOLLOWING:
 - GRADE OF CONCRETE
 - GRADE AND TYPE OF CEMENT
 - REINFORCEMENT STEEL BARS
 - CLEAR COVER IN R.C.C. WORKS
- THIS STD. IS APPLICABLE FOR UNIT AREA, OFFSITE AREA AND AREA WHERE GROUND WATER TABLE IS UPTO FGL.



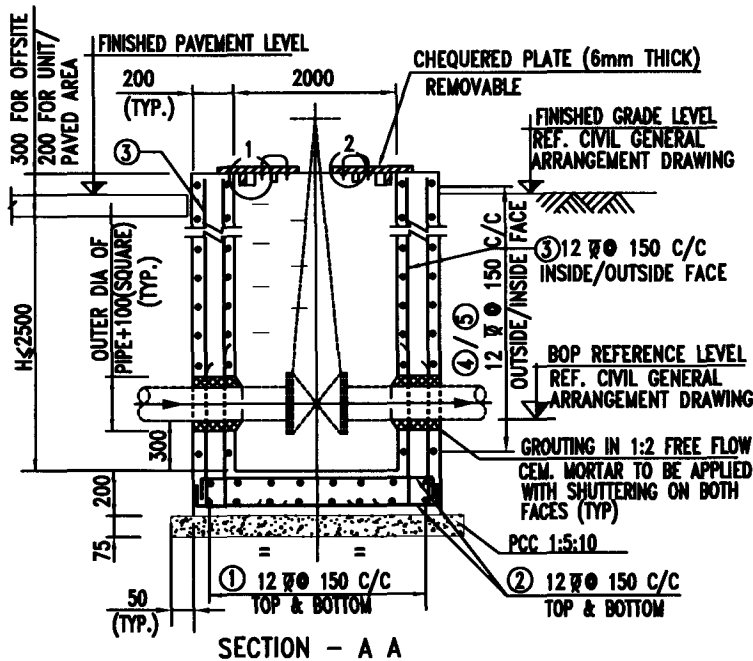
**CHEQUERED PLATE DETAIL
(2.NOS PER VALVE PIT)**



DETAIL - 1



DETAIL - 2

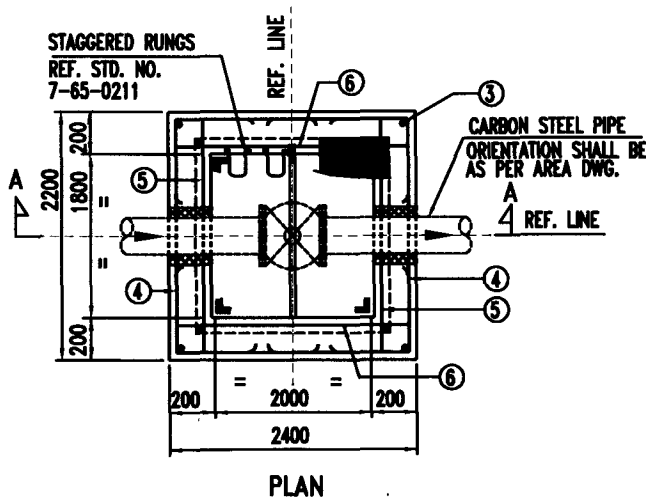


SECTION - A A

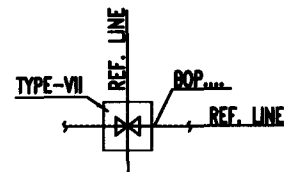
BAR BENDING SCHEDULE:

BAR MARK	DIA	TYPE	A	B	REMARKS
①	12 Ø	II	2090	110	
②	12 Ø	II	2290	110	
③	12 Ø	I	H+410(OFFSITE) H+310(UNIT)	450	
④	12 Ø	II	2090	1450	
⑤	12 Ø	II	2090	450	
⑥	12 Ø	II	2290	450	

TYPE	BAR SHAPE
I	
II	

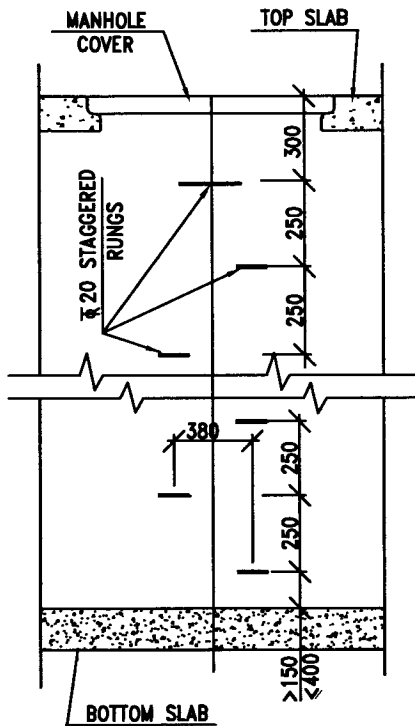


PLAN

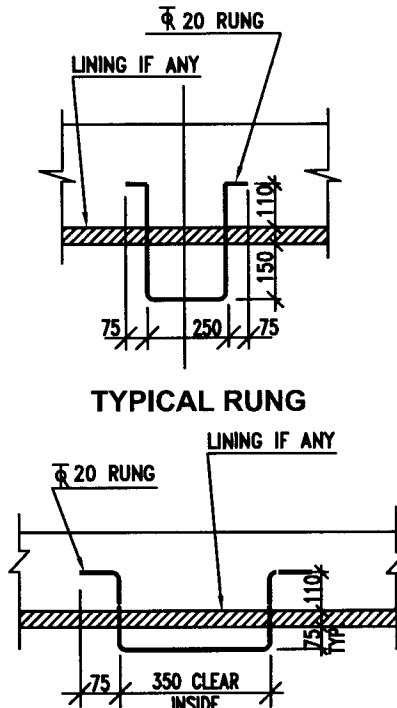


**REPRESENTATION ON CIVIL
GENERAL ARRANGEMENT DRAWING**

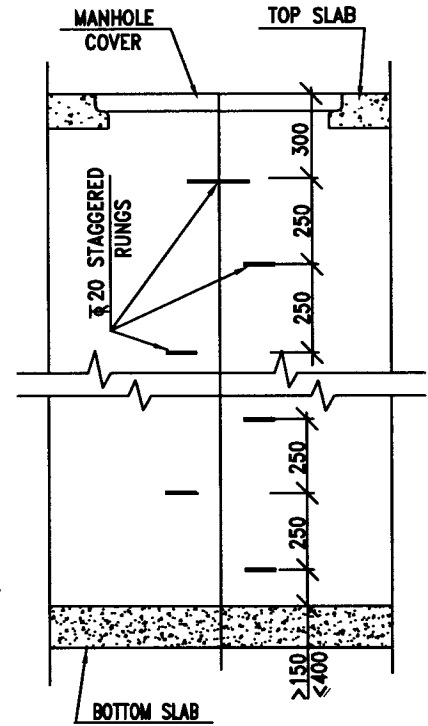
4	28.02.2020	UPDATED & ISSUED AS STANDARD	SP	RKS	RS	RKT
3	23.07.14	UPDATED & ISSUED AS STANDARD	KC	RKS	RBB	SC
Rev No.	Date	Purpose	Prepared by	Checked by	Stds Committee Convenor	Stds. Bureau Chairman



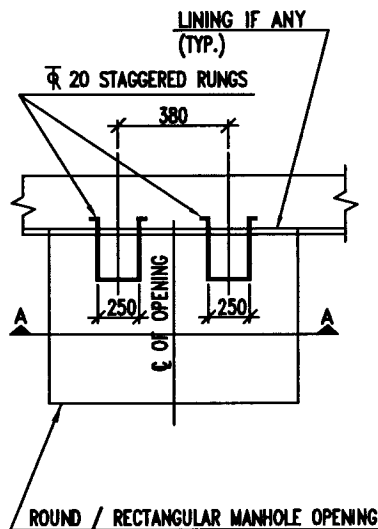
VIEW. A-A
(TYP.)



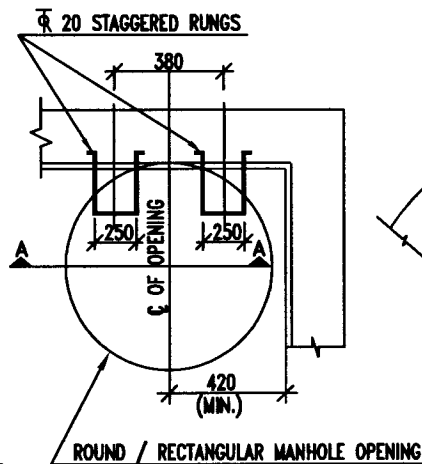
DETAIL OF TOP RUNG



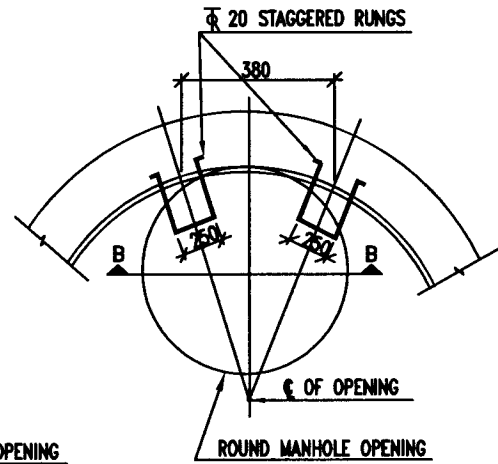
VIEW. B-B



CASE - 1



CASE - 2

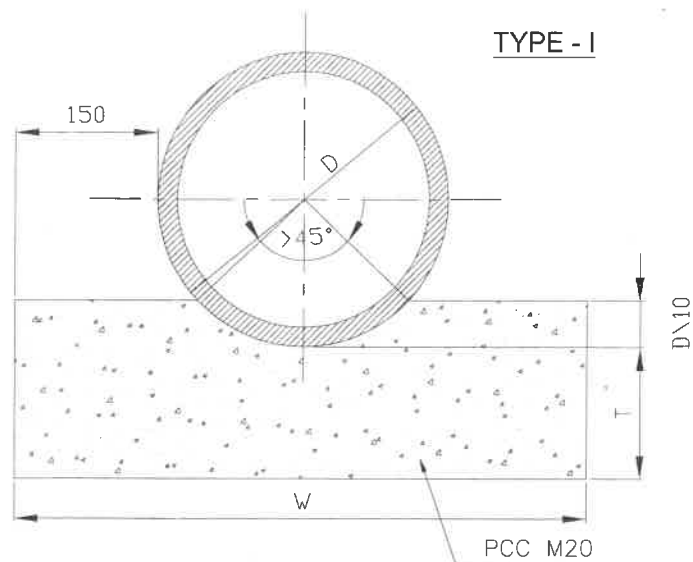


CASE - 3

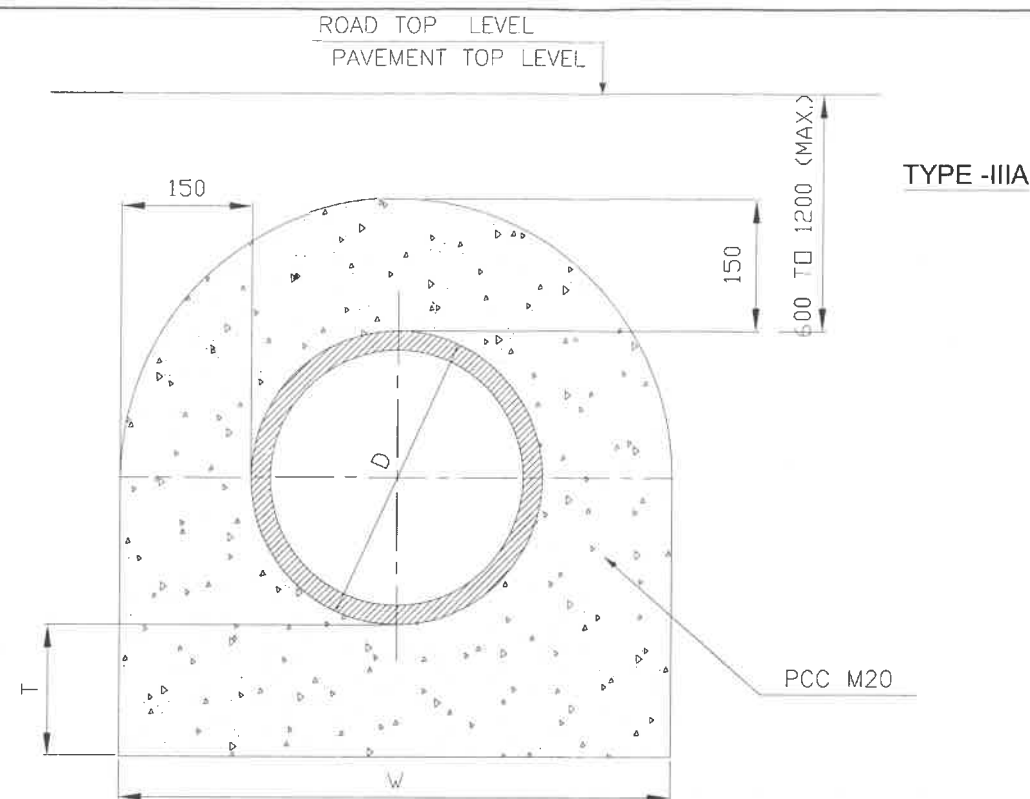
NOTE:-

1. ALL DIMENSIONS ARE IN MILLIMETER UNLESS SPECIFIED.
2. RUNGS SHALL BE EPOXY COATED OR PAINTED AS PER RELEVANT SPECIFICATION.
3. REFER STRUCTURAL GENERAL NOTES OF THE PROJECT FOR REINFORCED CONCRETE STRUCTURES FOR FOLLOWING:
 - a) GRADE OF CONCRETE
 - b) GRADE AND TYPE OF CEMENT
 - c) REINFORCEMENT STEEL BARS
 - d) CLEAR COVER IN R.C.C. WORKS

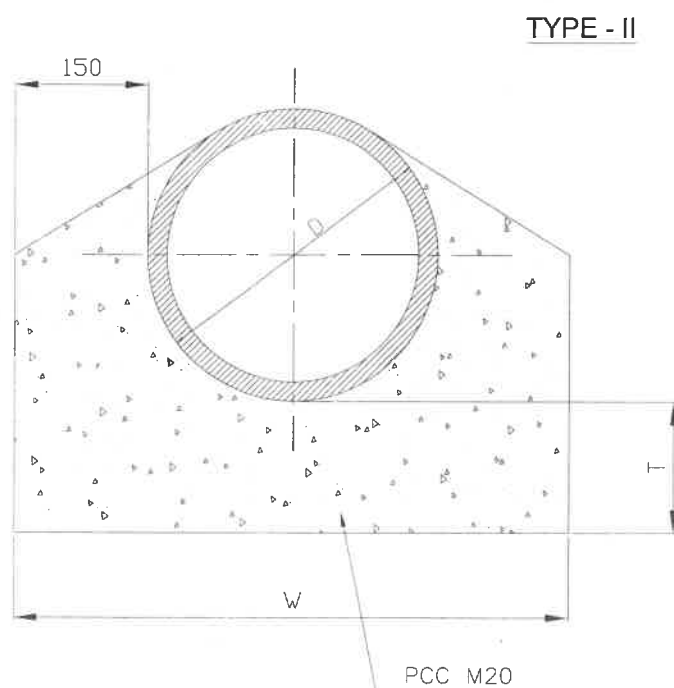
5	30.12.19	REVISED & ISSUED AS STANDARD	YR	DCB	R SRIVASTAVA	RK TRIVEDI
4	05.06.14	REVISED & ISSUED AS STANDARD	JKU	RKS	RBB	SC
Rev. No.	Date	Purpose	Prepared by	Checked by	Std. Committee Convenor	Std. Bureau Chairman



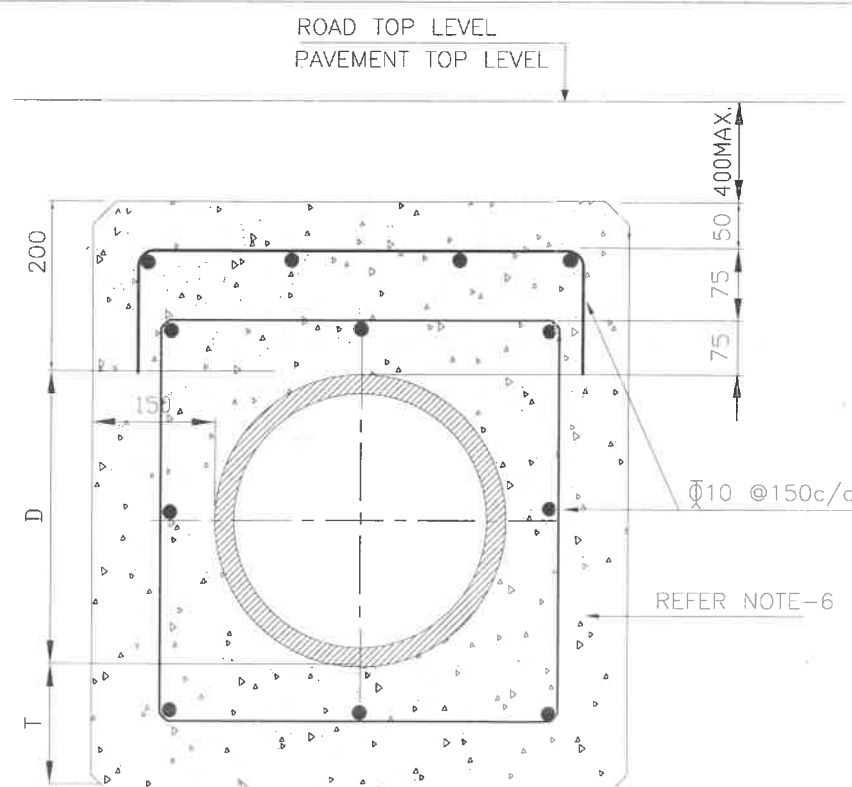
SECTIONAL ELEVATION BEDDING
(FOR C.S PIPE SEWER WHERE SUPPORT IS REQUIRED)



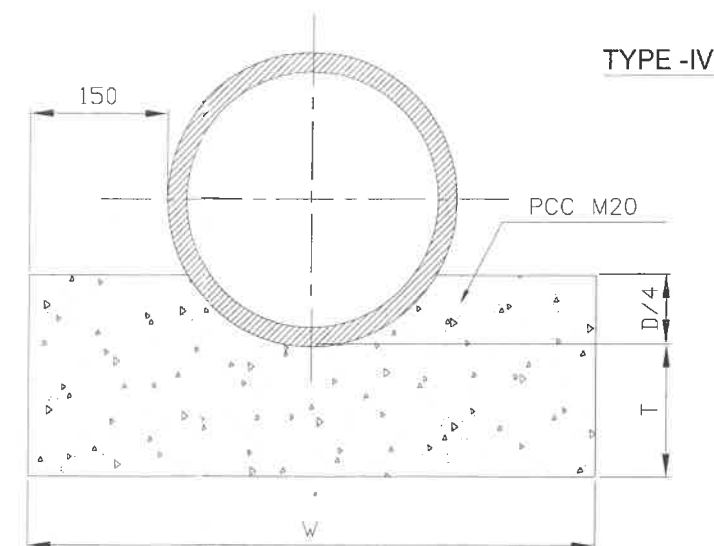
SECTIONAL ELEVATION SURROUND OR ENCASING
(FOR SEWERS UNDER ROADS)
FOR COVER ≥ 600



SECTIONAL ELEVATION HAUNCHING
(FOR HDPE PIPE SEWERS)



SECTIONAL ELEVATION SURROUND OR ENCASING
(FOR SLEEVES/PIPES CULVERTS UNDER ROADS FOR COVER < 600 MM)



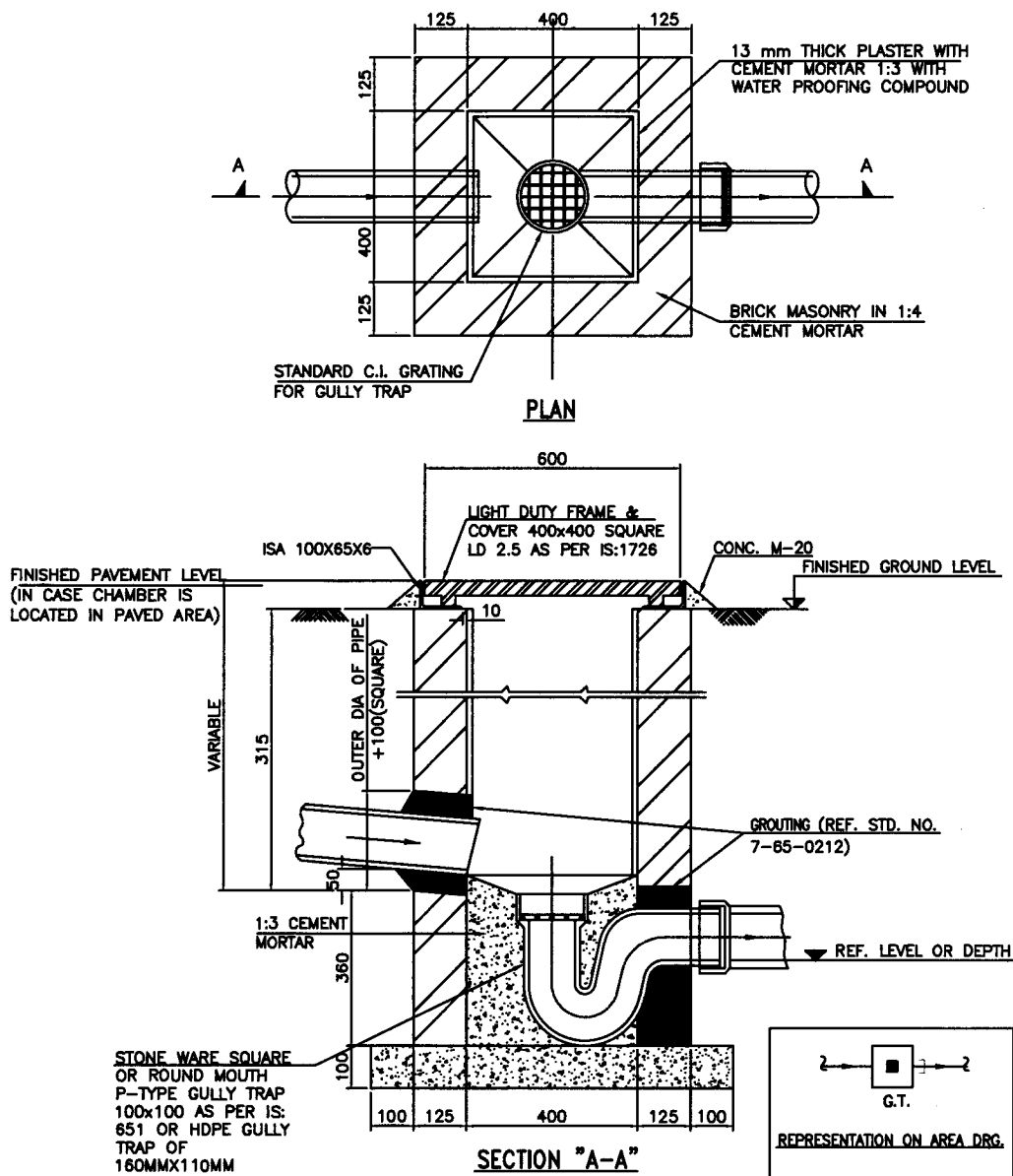
**SECTIONAL ELEVATION
CONCRETE CRADLE BEDDING**
(FOR SEWERS - CONC. PIPE)

DIMENSIONS

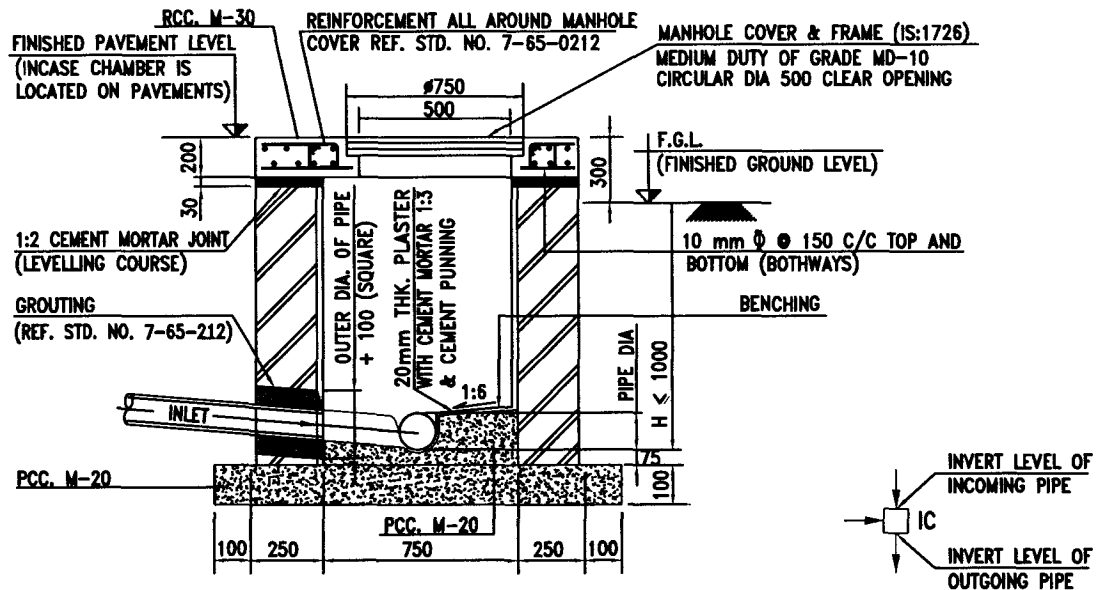
W = D+300 WHERE D IS EXTERNAL DIA OF PIPE.
T = { 100 FOR PIPES UNDER 150 (OR 6") NOMINAL ϕ
T = { 150 FOR PIPES OF 150 (OR 6") NOMINAL ϕ AND OVER

NOTES:-

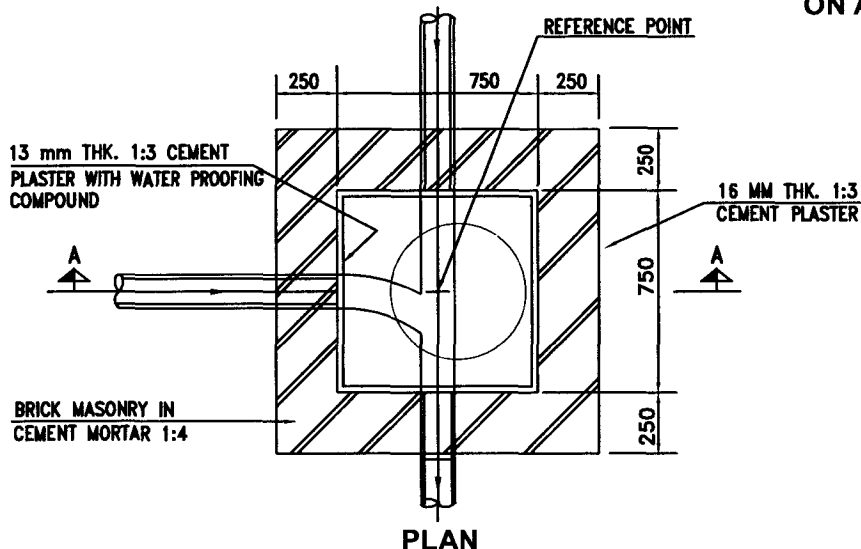
- BEDDING:- WHERE BEDDING IS USED, THE CONCRETE SHALL BE BROUGHT UP TO ATLEAST TO THE INVERT LEVEL OF THE PIPE TO FORM A CRADLE & TO AVOID LINE CONTACT BETWEEN THE PIPE AND BED.
- HAUNCHING:- THE FULL WIDTH OF THE BED SHALL BE CARRIED TO THE LEVEL OF THE HORIZONTAL DIAMETER OF THE PIPE AND SPLAYS FROM THIS LEVEL CARRIED ON BOTH SIDES OF THE PIPE TO MEET THE PIPE BARREL TANGENTIALLY
- SURROUND OR ENCASING TYPE-III A:- THE SURROUND OR ENCASING SHALL BE SIMILAR TO HAUNCHING UP TO THE HORIZONTAL DIA OF THE PIPE & THE PORTION OVER THIS SHALL BE FINISHED IN A SEMI-CIRCULAR FORM TO GIVE A UNIFORM ENCASING FOR THE TOP HALF OF THE PIPE.
TYPE IIIB:- IT IS SIMILAR TO TYPE IIIA ABOVE EXCEPT THAT THE TOP PORTION OVER THIS SHALL BE FINISHED RECTANGULAR AS SHOWN AND THE SECTION PROVIDED WITH REINFORCEMENT AS PER REQUIREMENTS.
- CONCRETE CRADLE BEDDING:- IS THE METHOD OF BEDDING PIPES IN WHICH THE LOWER PART OF THE PIPE EXTERIOR IS BEDDED IN A CRADLE CONSTRUCTION OF CONCRETE WITH DIMENSION AS SHOWN.
- CONCRETE WORK SHALL BE CONFORM TO IS:456
- REFER STRUCTURAL GENERAL NOTES OF THE PROJECT FOR CONCRETE STRUCTURES FOR FOLLOWING :
a) GRADE OF CONCRETE
b) GRADE AND TYPE OF CEMENT
c) REINFORCEMENT STEEL BARS



7	16.08.21	REVISED & ISSUED AS STANDARD	ADP	GYAS	A.SINHA	S.MAZUMDAR
6	30.12.19	REAFFIRMED & ISSUED AS STANDARD	YR	DCB	R SRIVASTAVA	RK TRIVEDI
5	05.06.14	REAFFIRMED & ISSUED AS STANDARD	GAURAV	RKS	RBB	SC
Rev. No.	Date	Purpose	Prepared by	Checked by	Stds. Committee Convenor	Stds. Bureau Chairman



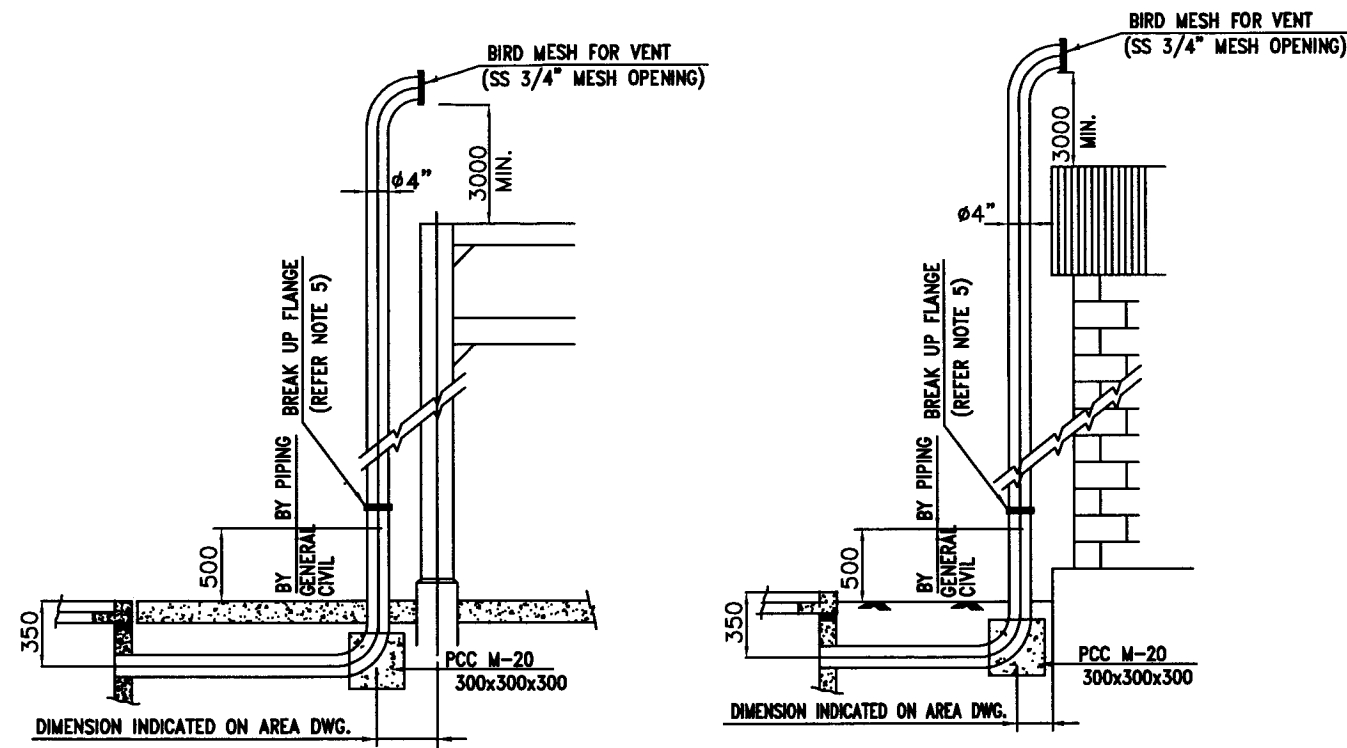
REPRESENTATION
ON AREA DRAWING



NOTE:

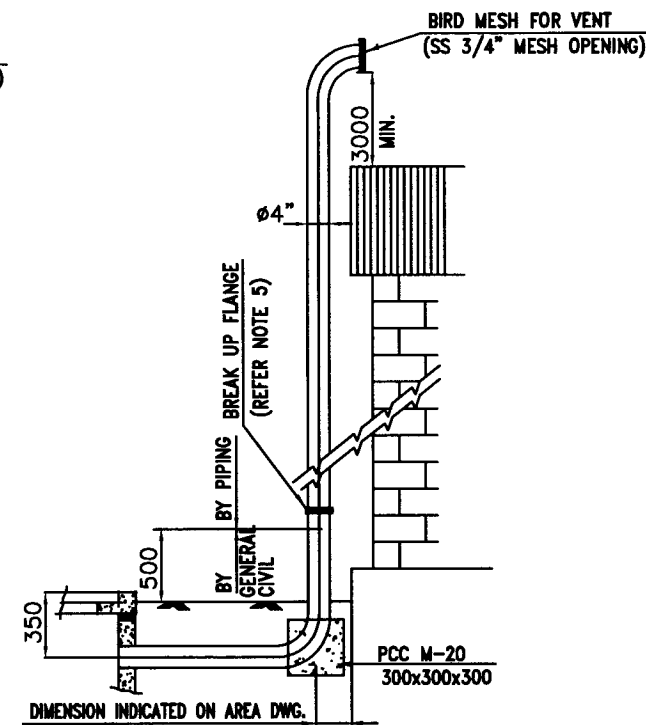
1. ALL DIMENSIONS ARE IN MILLIMETER UNLESS NOTED OTHERWISE.
2. REFER STRUCTURAL GENERAL NOTES OF THE PROJECT FOR REINFORCED CONCRETE STRUCTURES FOR FOLLOWING
 - a. GRADE OF CONCRETE
 - b. GRADE AND TYPE OF CEMENT
 - c. REINFORCEMENT STEEL BARS
 - d. CLEAR COVER IN RCC WORKS
3. BAR BENDING SHALL CONFORM TO IS: 2502.
4. TOP SLAB SHALL BE CAST-IN-SITU AND REINFORCEMENT ON WALL SIDE OF MANHOLE OPENING SHALL BE ADJUSTED AT SITE.
5. THE BRICKS SHALL CONFORM TO IS: 1077 (CLASS 5.0 MINIMUM).
6. EXACT THICKNESS OF BRICK MASONRY WALL SHALL BE AS PER LOCALLY AVAILABLE BRICKS (HERE WALL THICKNESS HAS BEEN GIVEN AS PER BRICK SIZE OF 250 X 125 X 75).

5	30.12.19	REAFFIRMED & ISSUED AS STANDARD	YR	DCB	R SRIVASTAVA	RK TRIVEDI
4	05.06.14	REVISED & REISSUED AS STANDARD	GAURAV	RKS	RBB	SC
Rev. No.	Date	Purpose	Prepared by	Checked by	Stds. Committee Convenor	Stds. Bureau Chairman
Approved by						

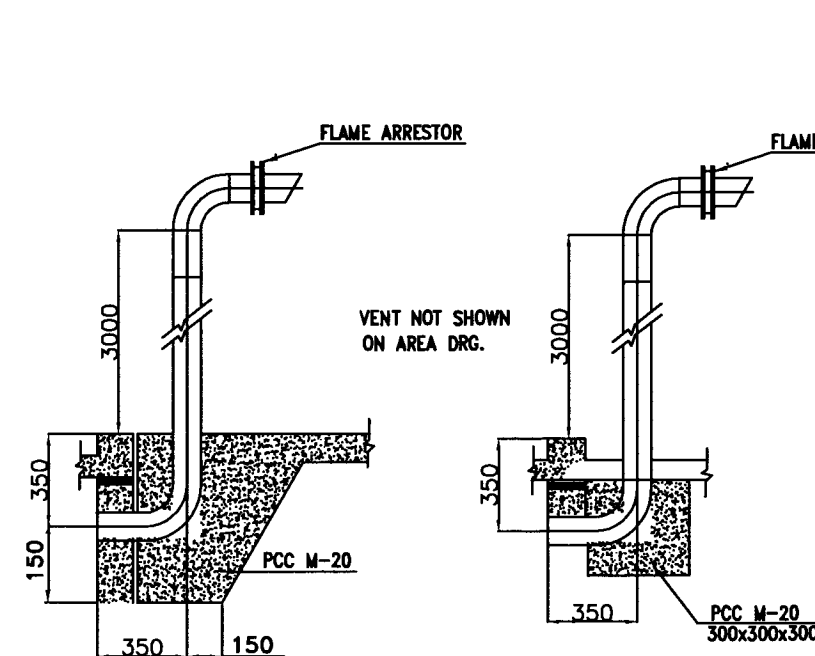


PAVED AREA

VENTS IN UNIT AREA



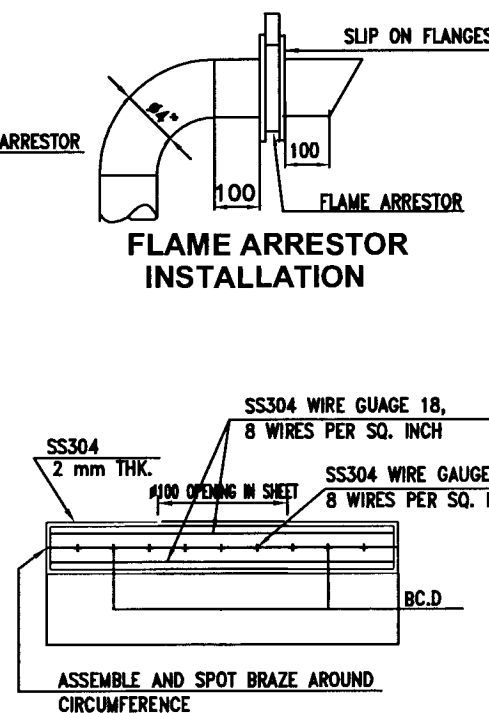
UNPAVED AREA



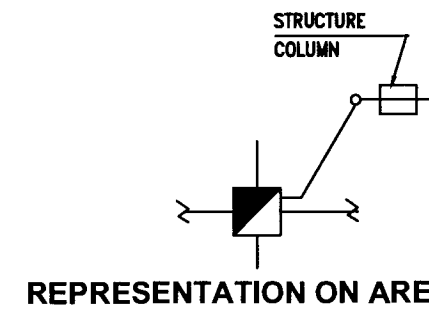
PAVED AREA

UNPAVED AREA

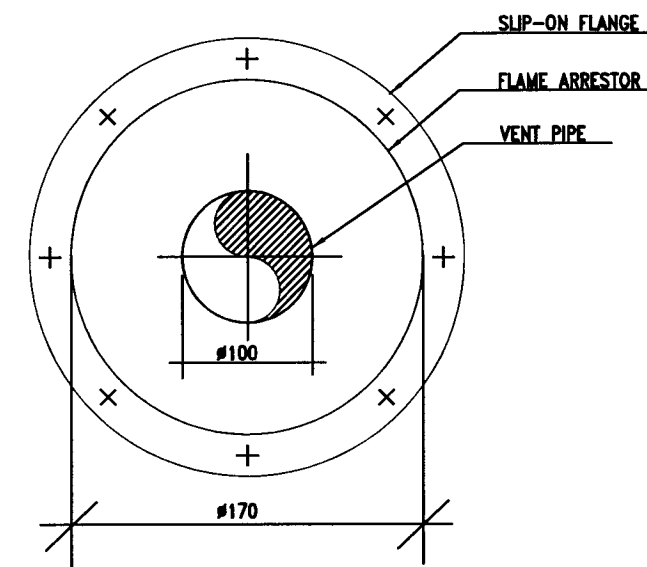
VENTS IN OFFSITE AREA (ISOLATED MAN HOLES)



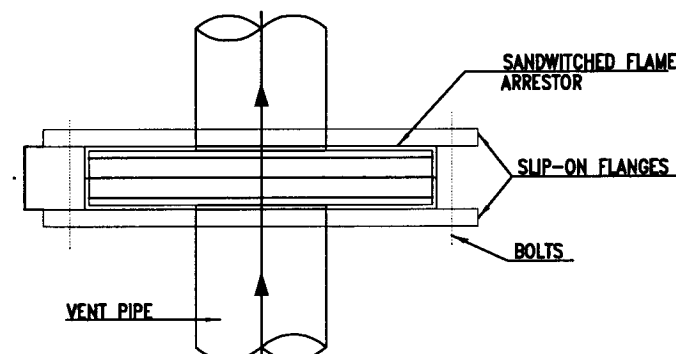
FLAME ARRESTOR DETAIL



REPRESENTATION ON AREA DRG.



ELEVATION



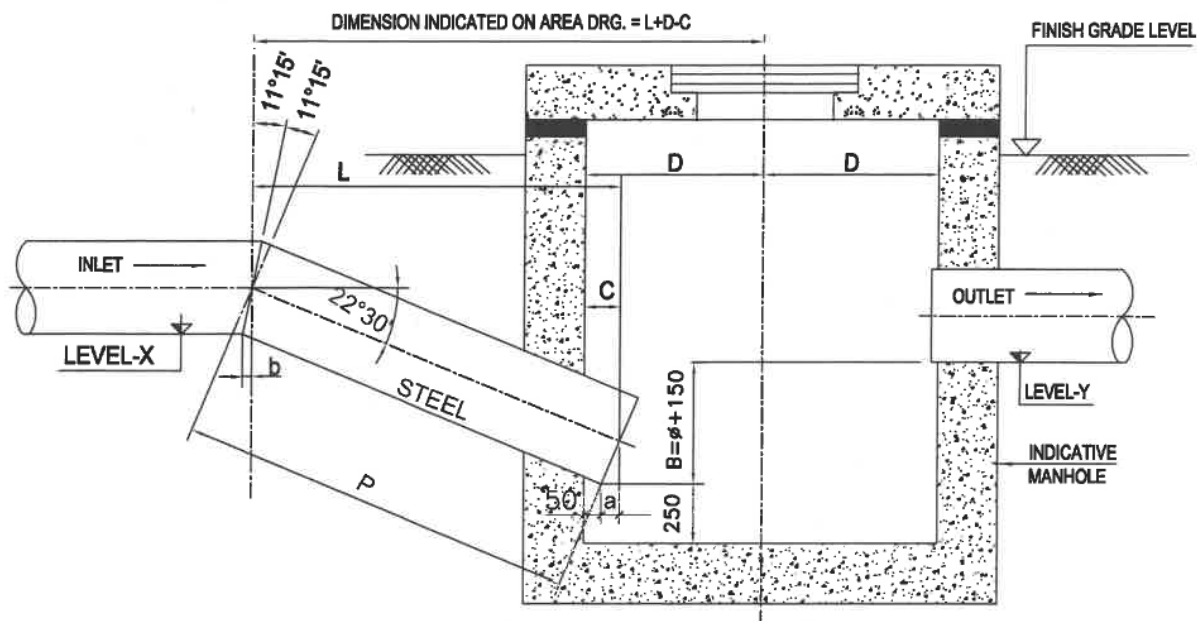
PLAN

FIXING ARRANGEMENT OF FLAME ARRESTOR

NOTES:-

1. ALL DIMENSIONS ARE IN MILLIMETERS.
2. MIN. SAFETY DISTANCES SHALL BE MAINTAINED AS BELOW.
 - (i) INSIDE BATTERY LIMIT :- ATLEAST 15 M FROM FURNACE OR NAKED FLAME
 - (ii) OFFSITES :- IF VENTS ARE LESS THAN 15 M FROM NAKED FLAME OR EDGE OF FREE CIRCULATION ROADS, THEY SHALL BE FITTED WITH FLAME ARRESTORS AND LOCATED ATLEAST 4 M FROM EDGE OF ROAD.
3. FOR VENTS IN UNIT AREA : VENT PIPE SHALL BE TAKEN 3M ABOVE THE TOP TIER OF THE PIPE RACK, PLATFORM OR BUILDING PARAPET.
4. FOR VENTS IN OFFSITE AREA : VENT PIPE SHALL BE TAKEN 3M ABOVE THE TOP TIER OF THE PIPE RACK OR BUILDING PARAPET (WITHIN 15M RADIUS). FOR OTHER CASES, THE VENT SHALL BE LOCATED 3M ABOVE THE MANHOLE.
5. BREAK UP FLANGES SHALL BE PROVIDED IN THE RISER (A/G PORTION) OF VENT PIPE AT OPERABLE HEIGHT.
6. MOC OF VENT PIPE SHALL BE AS PER RELEVANT PMS (PIPING MATERIAL SPECIFICATION)

इंजीनियर्स इंडिया लिमिटेड (भारत सरकार का उपक्रम) ENGINEERS INDIA LIMITED (A Govt. of India Undertaking)	5	30.12.19	REVISED AND ISSUED AS STANDARD	YR	DCB	RS	RK TRIVEDI	VENT FOR MANHOLES	STANDARD No.
	4	05.06.14	REVISED AND ISSUED AS STANDARD	Gaurav	RKS	RBB	SC		7-65-0219 Rev. 5
	Rev. No.	Date	Purpose	Prepared by	Checked by	Stds. Committee Convenor	Stds. Bureau Chairman		Page 1 of 1
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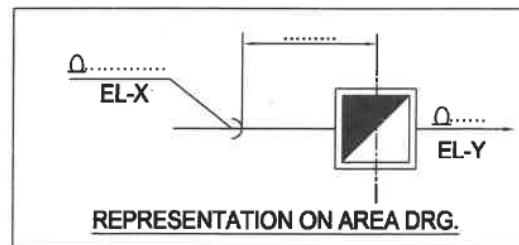


ACCORDING TO PIPE Ø		VALUES OF (a-b), B AND C		
Ø DIAMETER		(a-b)	B	C
STEEL	CAST IRON			
4"	100	10	250	70
6"	150	15	310	80
8"	200	20	360	90
10"	250	25	410	100
12"	300	30	460	110
14"	350	30	500	115
16"	400	35	550	125

ALL DIMENSIONS IN THIS TABLE ARE GIVEN AS ROUND NUMBERS FOR SIMPLIFICATION AND TO ALLOW FOR SIZE VARIATION IN THE SAME DIAMETER BETWEEN STEEL AND CAST IRON PIPES.

NOTE:

1. ALL DIMENSIONS ARE IN MM UNLESS SPECIFIED OTHERWISE.
2. THE WELD JOINT AT BEND SHALL BE PIPE TO PIPE JOINT.
3. THE JOINT ANGLE AT BEND SHALL NOT BE MODIFIED.



DETERMINATION OF P & L

$$P = 1.08 L$$

FOR INLET BEND PIPE:

$$L = 2.414 [(LEVEL X - LEVEL Y) + B] + (a-b)$$

WHEN THERE ARE SEVERAL BEND PIPES IN THE SAME MANHOLE, USE VALUE B CORRESPONDING TO LARGEST DIAMETER LEVEL DIFFERENCE DIMENSION "L" CALCULATION OF EACH PIPE.

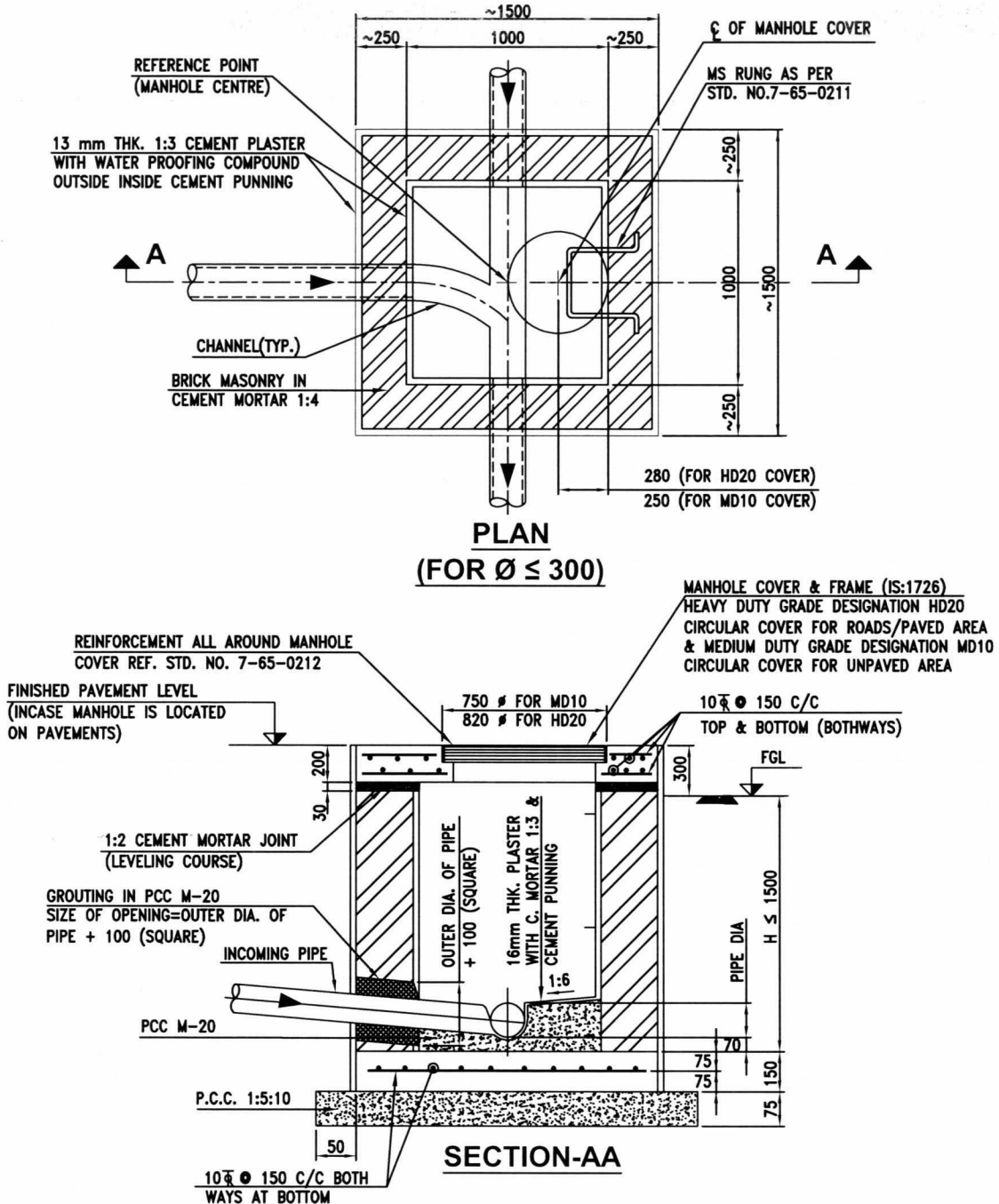
5	01.10.24	REVISED AND ISSUED AS STANDARD	SAH	PDB	SKN	MN
4	06.06.18	REAFFIRMED AND ISSUED AS STANDARD	CS	AVM	RS	RKT
Rev. No.	Date	Purpose	Prepared by	Checked by	Stds. Committee Convenor	Stds. Bureau Chairman

MANHOLE TYPE-1
(SANITARY WASTE SYSTEM)
FOR DEPTH $\leq 1.5\text{M}$ ($\phi < 300$)

STANDARD No.

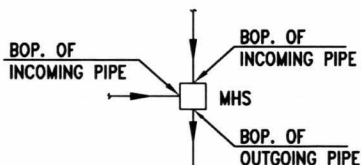
7-65-0251 Rev. 7

Page 1 of 1



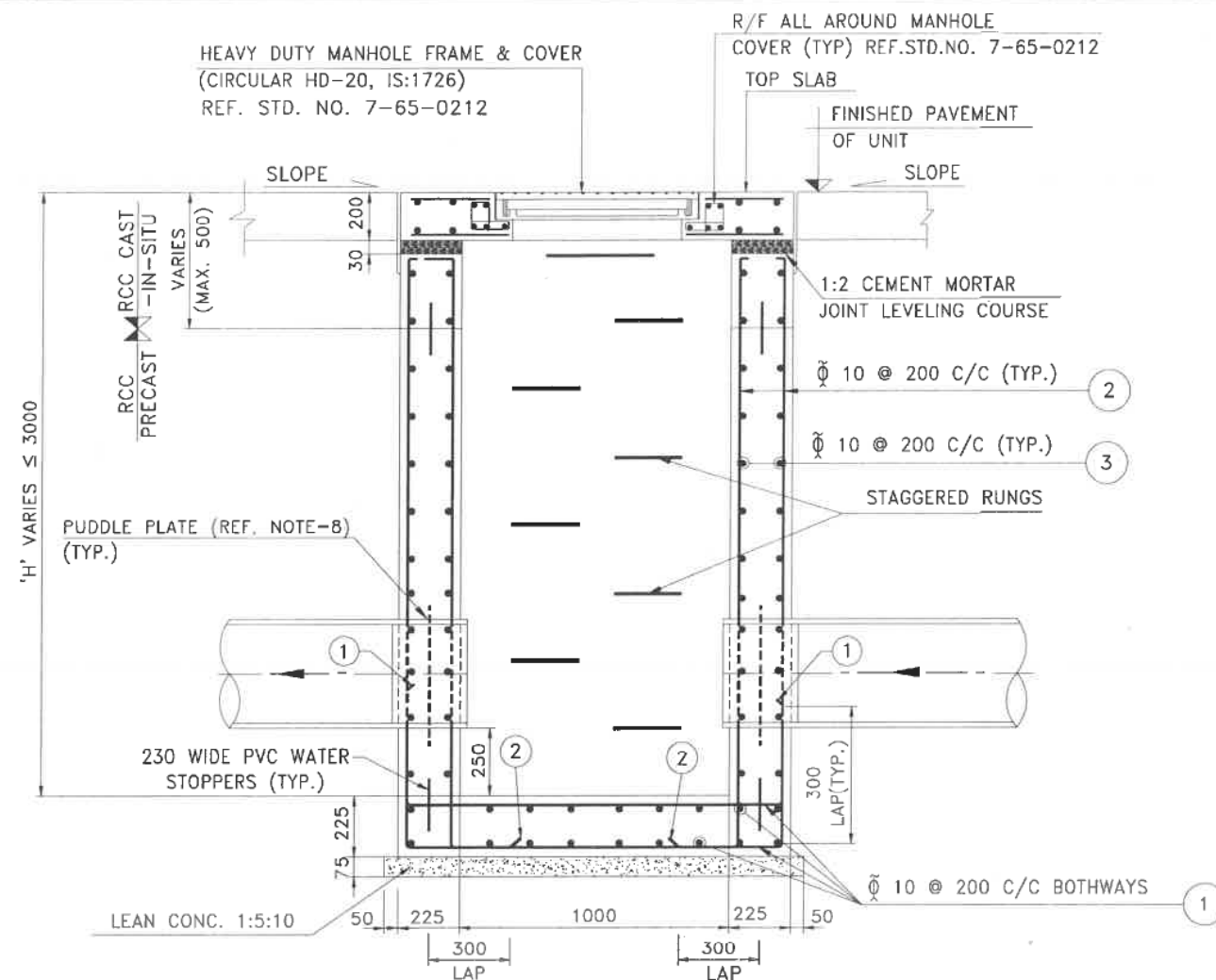
NOTES:

- ALL DIMENSIONS ARE IN MM UNLESS NOTED OTHERWISE.
- REFER STRUCTURAL GENERAL NOTES OF THE PROJECT FOR CONCRETE AND STRUCTURAL STEEL WORKS FOR THE FOLLOWING:
 - GRADE OF CONCRETE (MIN. M30)
 - GRADE AND TYPE OF CEMENT
 - REINFORCEMENT STEEL BARS (MIN. Fe500D)
 - CLEAR COVER IN RCC WORKS
 - GRADE OF STRUCTURAL STEEL
 - CLASS OF BRICKS (MIN 5.0)
 - ADMIXTURES IN CONCRETE.
- EXACT THICKNESS OF BRICK MASONRY WALL SHALL BE AS PER LOCALLY AVAILABLE BRICKS (HERE WALL THICKNESS HAS BEEN GIVEN AS PER BRICKS SIZE 250x125x75).
- THIS STANDARD SHALL BE READ ALONG WITH STD. NO. 7-65-0212.
- REFER GEOTECHNICAL RECOMMENDATIONS OF THE PROJECT FOR SOIL IMPROVEMENTS, IF ANY & FOR PROTECTIVE COATING FOR CONCRETE & R/F, IF ANY.

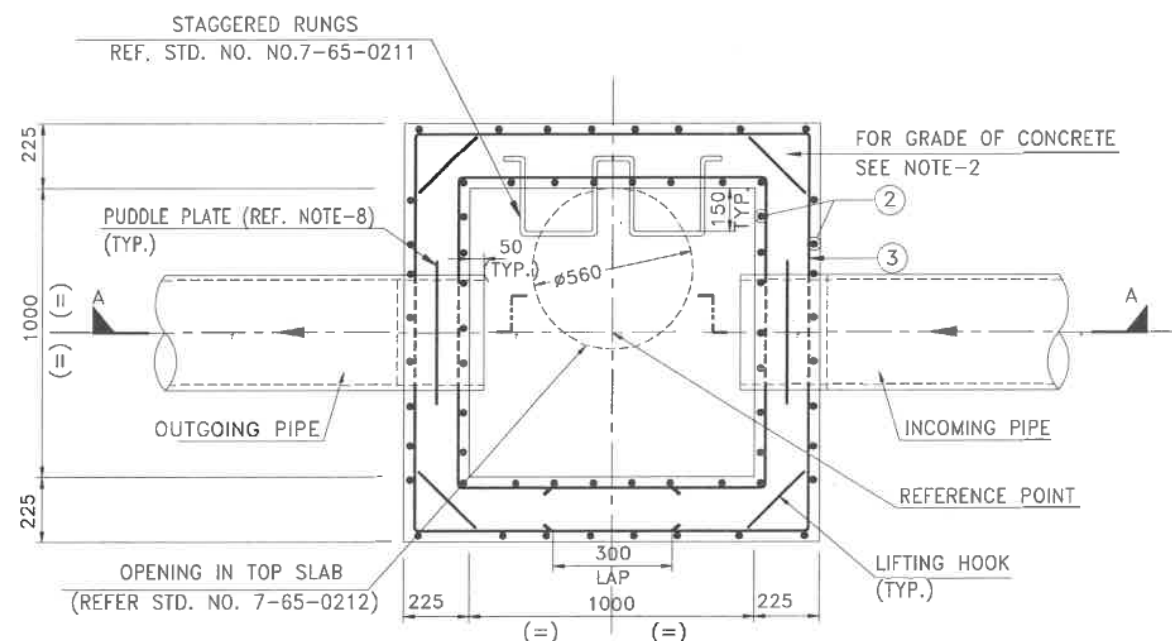


**REPRESENTATION IN
GC AREA DRG.**

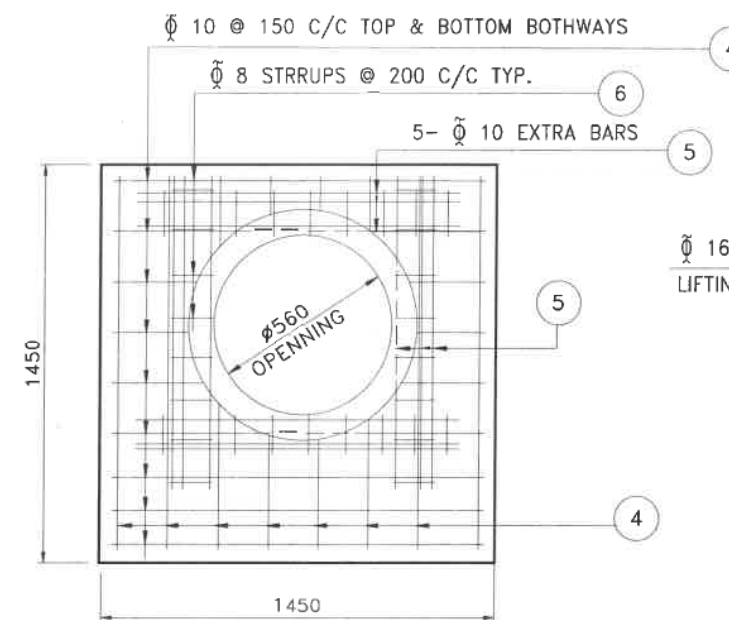
7	08.03.24	REVISED & ISSUED AS STANDARD	TP	GYAS	SKN	M.NANDI
6	06.06.18	REAFFIRMED & ISSUED AS STANDARD	CS	AVM	RS	RKT
Rev. No.	Date	Purpose	Prepared by	Checked by	Stds. Committee Convenor	Stds. Bureau Chairman



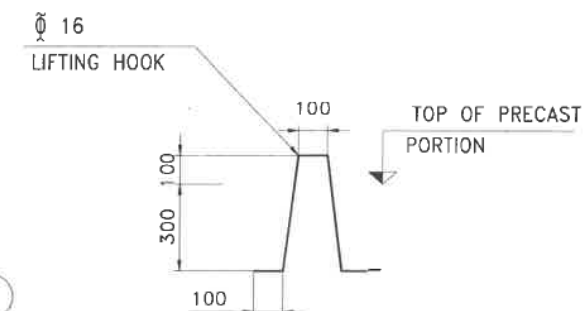
SECTION A-A



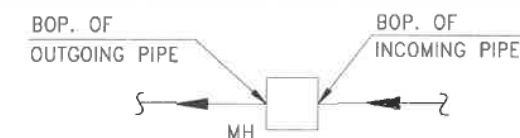
PLAN



PLAN OF TOP SLAB REINFORCEMENT



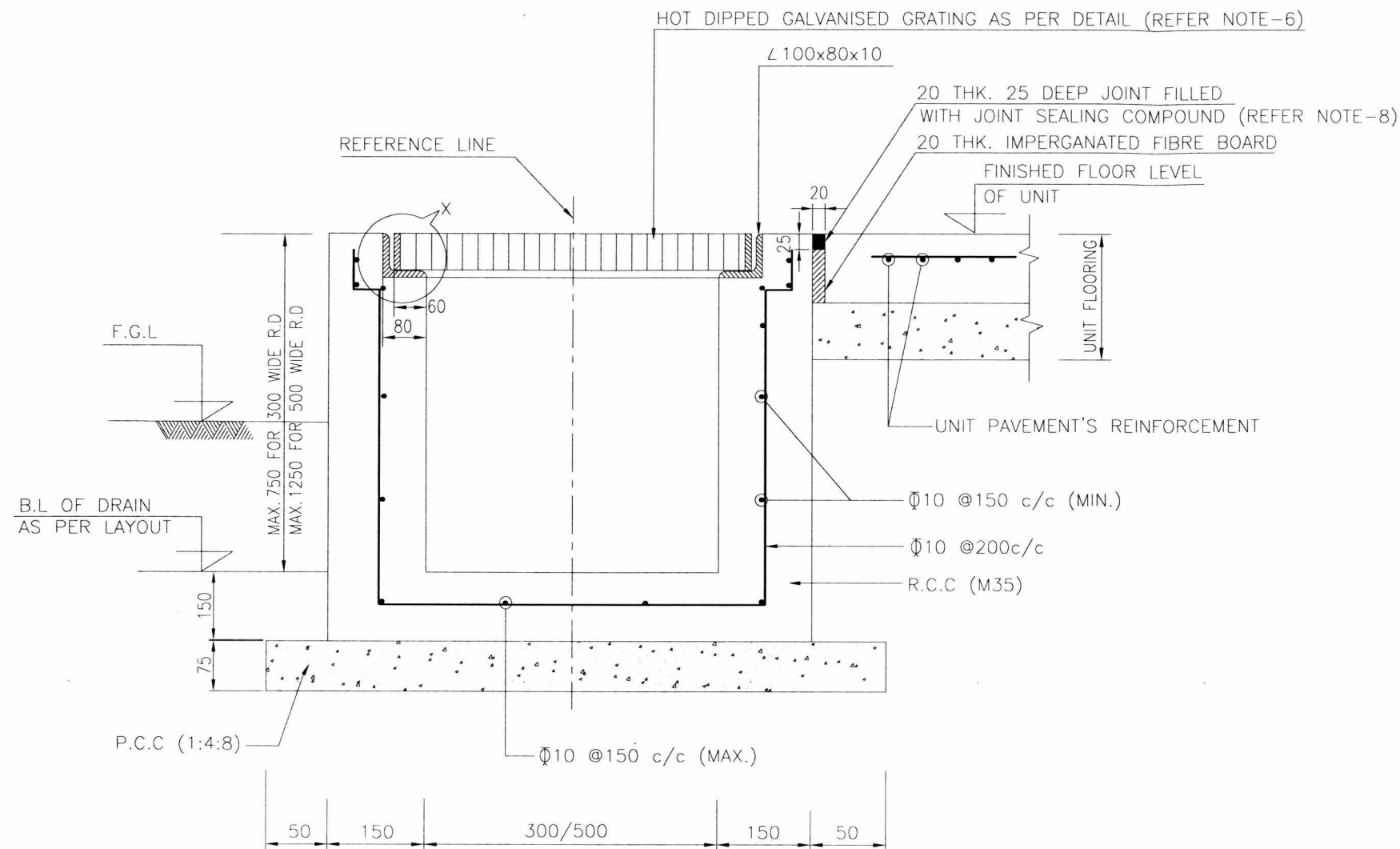
DETAILS OF LIFTING HOOK



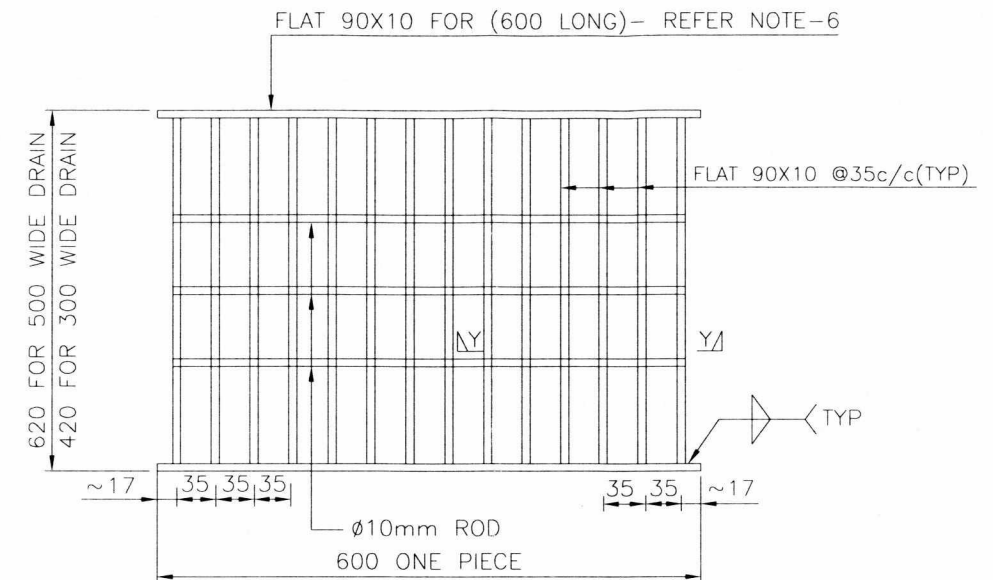
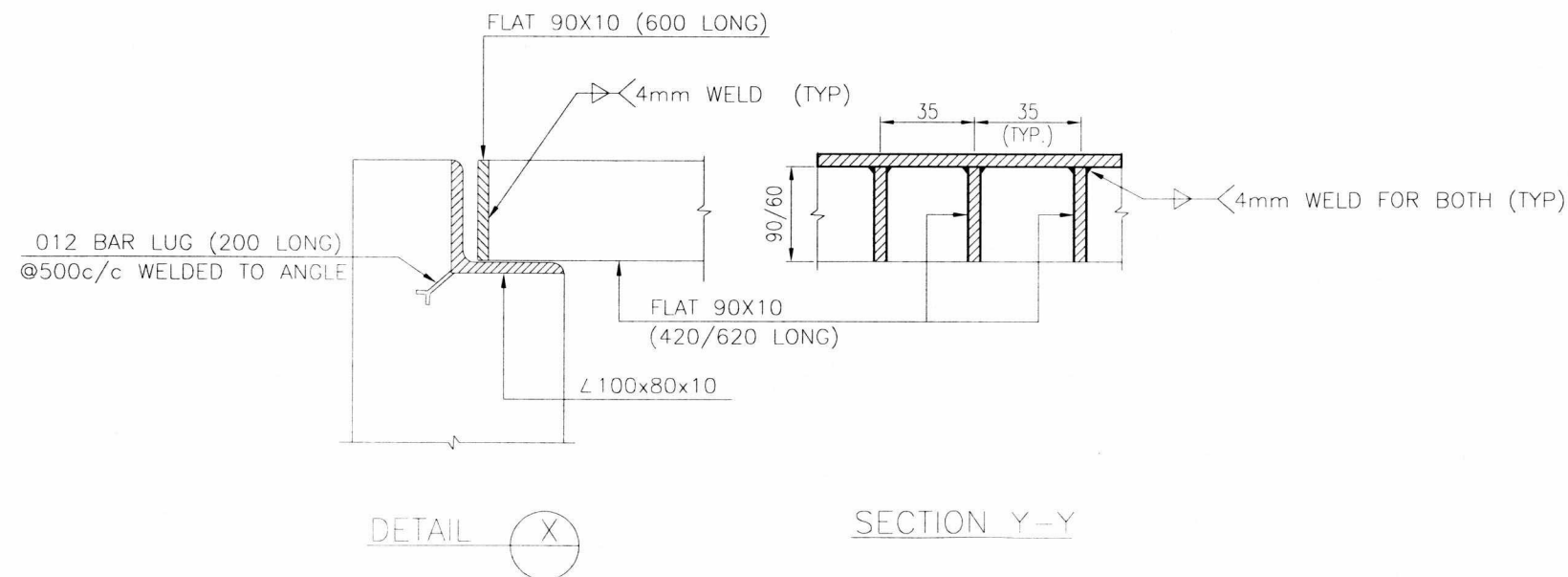
REPRESENTATION ON AREA DRG.

NOTES:-

- ALL DIMENSIONS ARE IN MM UNLESS NOTED OTHERWISE.
- REFER STRUCTURAL GENERAL NOTES OF THE PROJECT REINFORCED CONCRETE STRUCTURES FOR THE FOR FOLLOWING :
 - GRADE OF CONCRETE (MINIMUM M30 GRADE)
 - GRADE AND TYPE OF CEMENT
 - REINFORCEMENT STEEL BARS
 - CLEAR COVER IN R.C.C. WORKS.
 - ADMIXTURES IN CONCRETE.
- BAR BENDING SHALL CONFORM TO IS:2502.
- THIS STANDARD SHALL BE READ ALONG WITH STD. NOS.7-65-0211, 7-65-0212, 7-65-0230 & 7-68-0630.
- TOP SLAB SHALL BE CAST IN SITU AND REINFORCEMENT ON SIDES OF MANHOLES SHALL BE SUITABLY ADJUSTED AT SITE.
- CONSTRUCTION OF MANHOLE SHALL BE LEAK RESISTANT AS PER IS:3370 PART-2 (TIGHTNESS CLASS-2)
- PVC WATER STOPPERS SHALL ALSO BE PROVIDED IN THE CONSTRUCTION JOINTS IN WALLS, IF ANY.
- REFER STD. NO. 7-68-0630 FOR DETAIL OF PUDDLE PLATE.
- PRE-CAST MANHOLE SHALL BE CAST IN HEIGHT 1.0 M, 1.5M, 2.0M & 2.5M AND BALANCE WALL HEIGHT (IF ANY) SHALL BE CAST-IN-SITU CONSTRUCTION. THE LIFTING HOOKS SHALL BE CUT BEFORE PLACEMENT OF COVER SLAB IN CASE IF THE COMPLETE HEIGHT OF THE MANHOLE IS PRECAST.
- REINFORCEMENT DOWEL SHALL BE LEFT IN UPPER PART OF PRECAST PORTION FOR CONTINUITY IN CAST-IN-SITU PORTION.
- MINIMUM 4 NOS. OF LIFTING HOOK FOR LIFTING/ERECTION PURPOSE OF PRECAST PORTION SHALL BE PROVIDED. HOWEVER LOCATION & DETAILS OF SUCH LIFTING HOOK SHALL BE FINALIZED SHALL CONTRACTOR WITH RESPECT TO CASTING/ LIFTING/ ERECTION SCHEME ADOPTED BY HIM.
- REFER GEOTECHNICAL RECOMMENDATIONS OF THE PROJECT FOR SOIL IMPROVEMENTS, IF ANY & FOR PROTECTIVE COATING FOR CONCRETE & R/F, IF ANY.



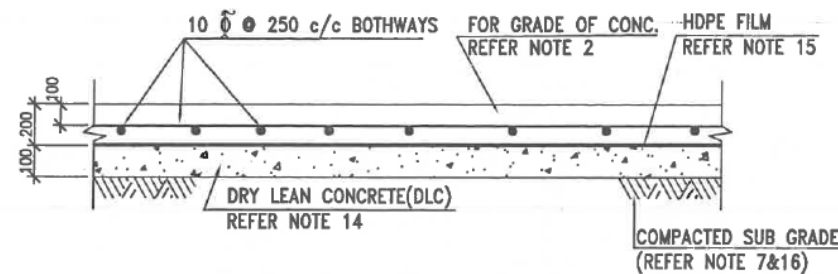
CROSS SECTION OF DRAIN.



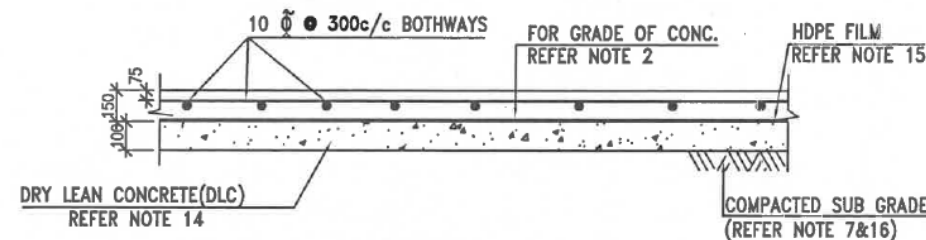
DETAIL PLAN OF GRATING

NOTES: -

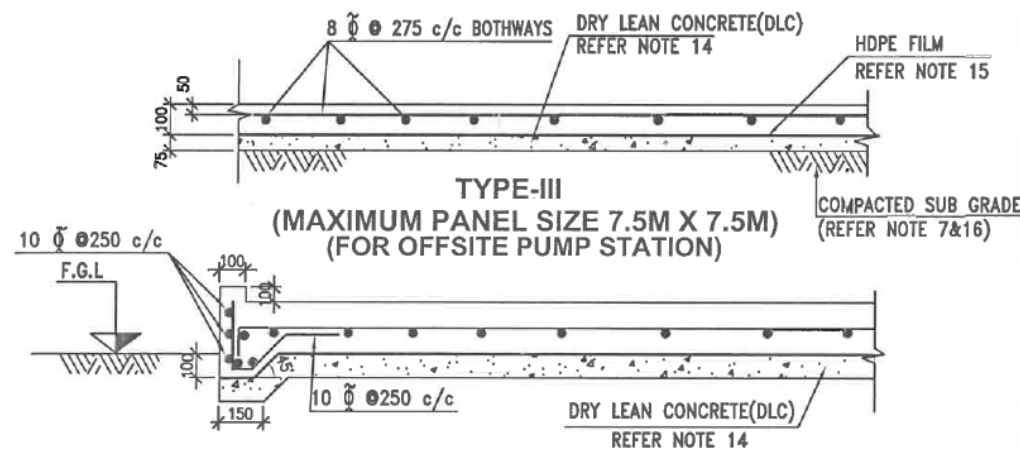
- ALL DIMENSIONS ARE IN MM UNLESS NOTED OTHERWISE.
- REFER STRUCTURAL GENERAL NOTES OF THE PROJECT FOR CONCRETE WORKS FOR THE FOLLOWING :
 - GRADE OF CONCRETE
 - GRADE AND TYPE OF CEMENT
 - REINFORCEMENT STEEL BARS
 - CLEAR COVER IN R.C.C. WORKS.
- BAR BENDING SHALL CONFORM TO IS:2502.
- ISA AND FLAT SHALL CONFORM TO IS:2062, GRADE-A.
- EXPOSED STEEL SURFACES SHALL BE PROVIDED WITH PAINTING AS PER EIL STD.SPECIFICATION 6-79-0020 (OR AS PER JOB SPECIFICATION WHEREVER APPLICABLE.)
- MATERIAL FOR GRATING (PAINTED BARS/MS FLAT) SHALL BE OF E250 SUBGRADE A/BR/BO CONFIRMING TO IS 2062. BEARING FLATS AND END FLATS SHALL BE AS PER IS 1730.
- GRATING SHALL BE HOT DIP GALVANIZED IN ACCORDANCE WITH IS 2629 AND TESTED AS PER IS 2633 AND IS 6745. QUANTITY OF ZINC COATING SHALL BE MINIMUM 900 GM/SQM OF SURFACE AREA (0.12MM UNIFORM THICKNESS) SHALL BE AS PER APPROVED MANUFACTURER RECOMMENDATION.
- JOINT SEALING COMPOUND SHALL BE APPROVED POLYSULPHIDE SEALANT (COLD SUITABLE PRIMER AS RECOMMENDED BY SEALANT MANUFACTURER, SHALL BE APPLIED IN ACCORDANCE WITH IRC:57.
- BIPOLAR CONCRETE PENETRATING CORROSION INHIBITING ADMIXTURE OF APPROVED MAKE SHALL BE ADDED TO CONCRETE (SUB-STRUCTURE & SUPER-STRUCTURE) AS PER MANUFACTURER'S SPECIFICATIONS & EIL SPECIFICATION 6-68-0017 FOR PROTECTION OF REINFORCEMENT AGAINST CORROSION.
- IF GRATING IS SUBJECTED ACID CONTACT THEN 30mm THICK FRP GRATING & FRP SUPPORT SHALL BE PROVIDED(FOR NON-VEHICULAR MOVEMENT AREA ONLY). DETAILING SHALL BE AS PER APPROVED MANUFACTURER RECOMMENDATION.
- THE BAR SHALL BE PLACED AFTER CUTTING GROOVE IN THE FLAT SUCH THAT THE PROJECTION OF BAR ABOVE THE FLAT TOP IS NOT IN MORE THAN 5 MM.



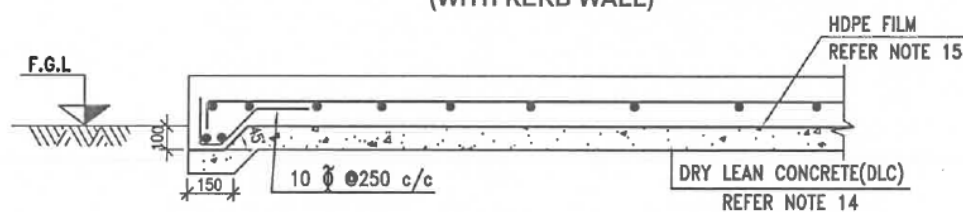
TYPE-I
(MAXIMUM PANEL SIZE 14M X 14M)
(FOR VEHICULAR MOVEMENT AREA)



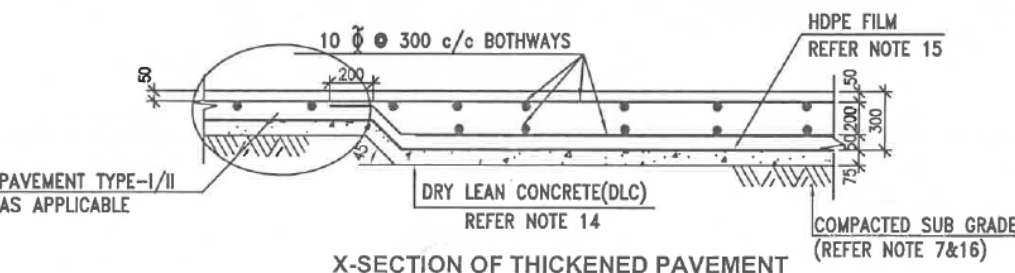
TYPE-II
(MAXIMUM PANEL SIZE 13M X 13M)
(FOR UNIT PAVEMENT)



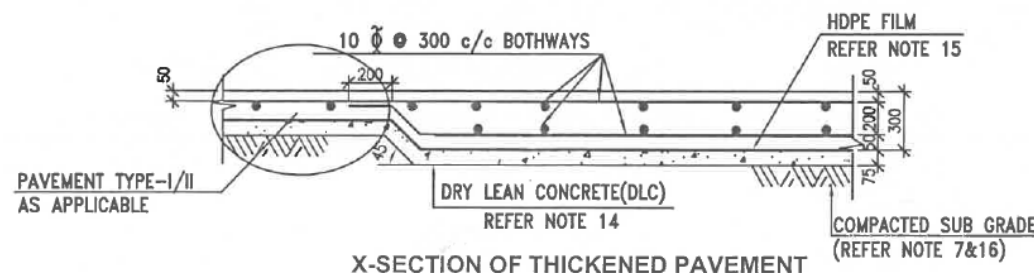
TYPE-III
(MAXIMUM PANEL SIZE 7.5M X 7.5M)
(FOR OFFSITE PUMP STATION)



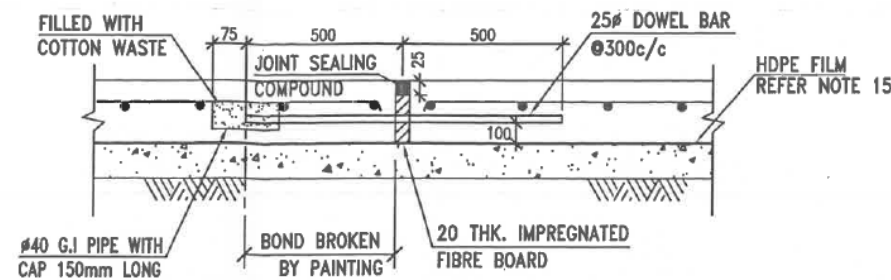
TYP. EDGE DETAIL DEPENDING ON TYPE OF PAVEMENT
(WITH KERB WALL)



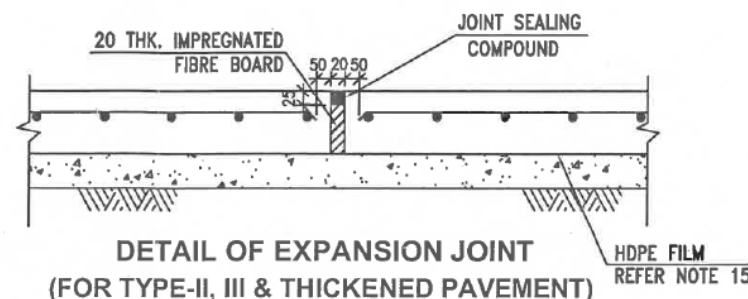
TYP. EDGE DETAIL DEPENDING ON TYPE OF PAVEMENT
(WITHOUT KERB WALL)



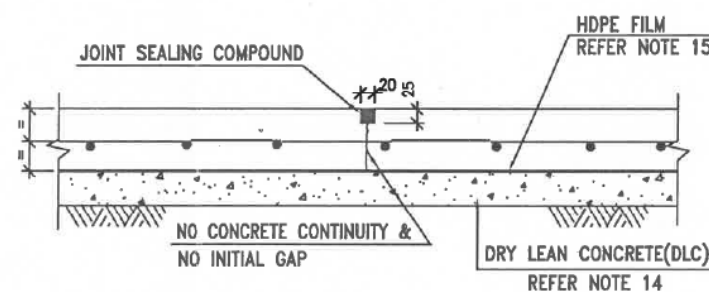
X-SECTION OF THICKENED PAVEMENT



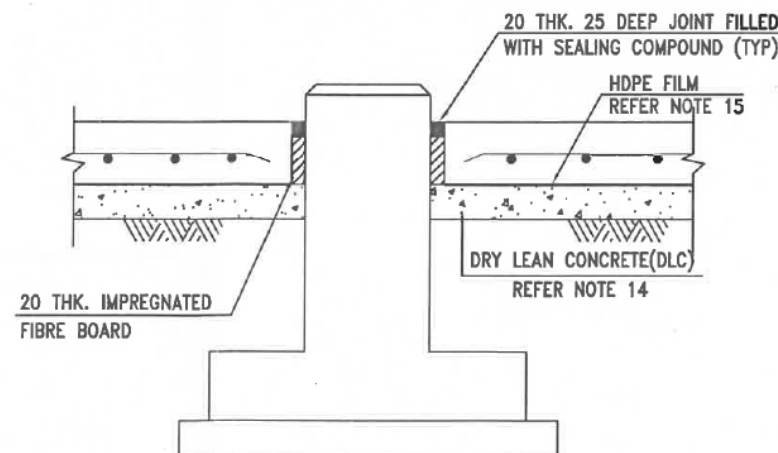
DETAIL OF EXPANSION JOINT
(FOR TYPE-I PAVEMENT)
(REFER NOTE-8 & 9)



DETAIL OF EXPANSION JOINT
(FOR TYPE-II, III & THICKENED PAVEMENT)



DETAIL OF CONSTRUCTION JOINT
(SEE NOTE-9 & 12)



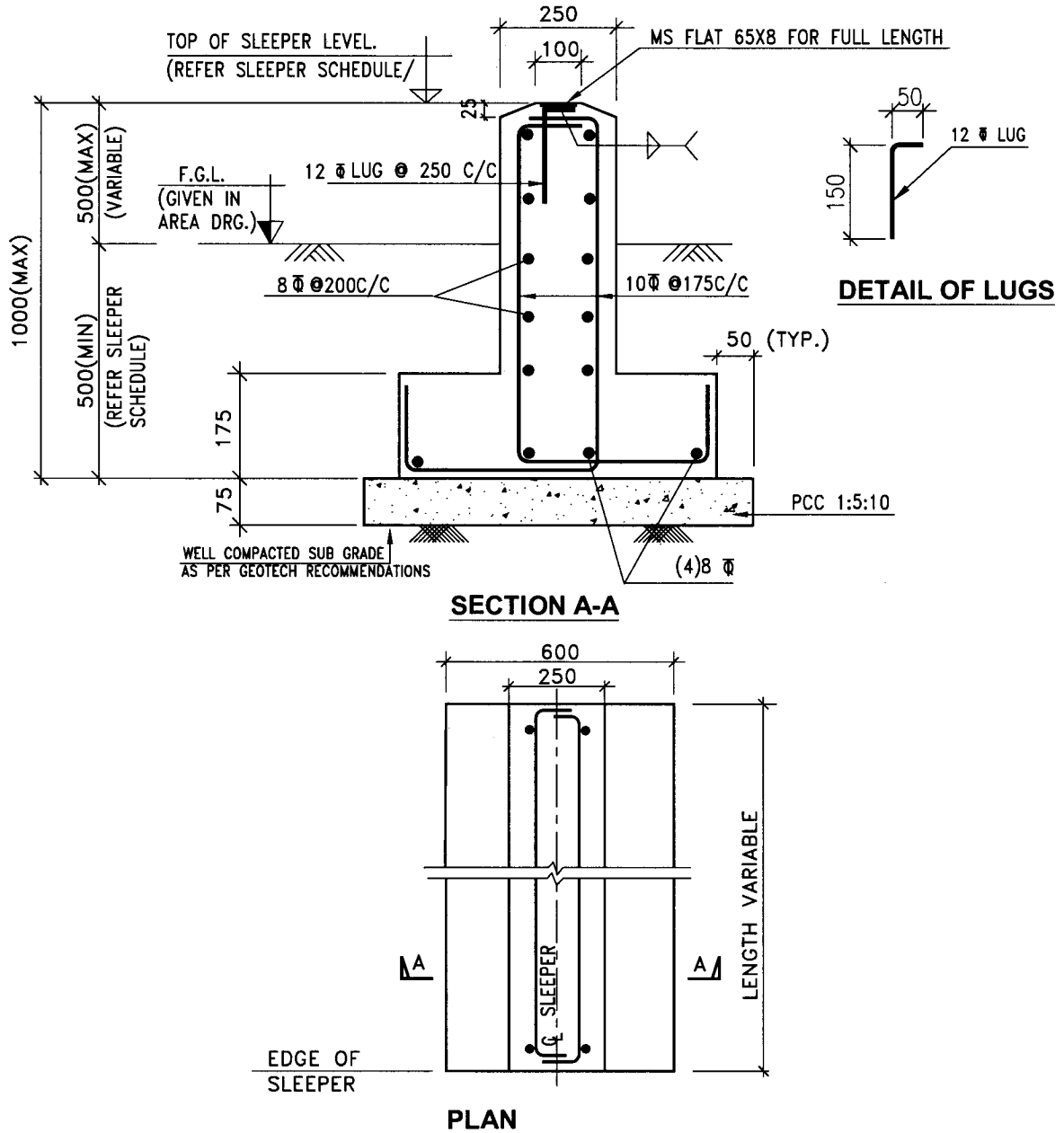
TYP. DETAIL OF JOINT SEALING
AROUND FOUNDATION

NOTES:-

- ALL DIMENSIONS ARE IN MILLIMETRES UNLESS STATED OTHERWISE.
- THE GRADE OF CONCRETE SHALL BE AS PER ENGINEERING DESIGN BASIS (MIN. GRADE OF CONCRETE SHALL BE M30).
- Ø DENOTES HIGH YIELD DEFORMED BARS OF GRADE Fe-500D CONFORMING TO IS:1786 UNLESS OTHERWISE SPECIFIED. THE DOWEL BAR SHALL CONFORM TO IS:432 GRADE-1.
- JOINT SEALING COMPOUND SHALL BE POLYSULPHIDE BASE JOINT SEALANT (COLD POURED) OF APPROVED MAKE CONFIRMING TO BS: 5212. SUITABLE PRIMER AS RECOMMENDED BY SEALANT MANUFACTURER, SHALL BE APPLIED IN ACCORDANCE WITH IRC 57.
- EXPANSION AND SEALING JOINT FILLER MATERIAL SHALL BE PERFORMED FILLERS OF BITUMEN IMPREGNATED FIBRE BOARD, CONFORMING TO IS:1838, PART-1.
- CONC. PAVING SHALL BE SLOPED STEEPEST TO 1:100 UNLESS OTHERWISE SHOWN IN DETAIL ENGINEERING DRAWING. SLOPE OF THE SUB GRADE SHALL BE PREPARED TO MATCH WITH THE SLOPE OF PAVEMENT.
- SUB GRADE BELOW PAVEMENT SHALL BE THOROUGHLY COMPACTED TO 95% OF LAB DRY DENSITY AS PER IS:2720, PART VIII OR 85% RELATIVE DENSITY AS PER AS PER IS:2720, PART XIV.
- EXPANSION JOINTS SHALL BE SPACED AT 14.0M (MAX.) FOR TYPE-I PAVEMENTS & 13M C/C (MAX.) FOR TYPE-II PAVEMENTS.
- EXPANSION JOINTS SHALL BE SPACED AT 15 M C/C & CONSTRUCTION JOINTS SHALL BE SPACED AT 7.5M C/C (MAXIMUM) FOR TYPE-III PAVEMENTS.
- THIS STANDARD IS NOT VALID FOR CAUSTIC HANDLING AREAS.
- LIMITATION OF SINGLE AXLE LOAD ON RCC PAVEMENT:
FOR TYPE-I PAVEMENT : MAX. UPTO 12.0 TONNE
FOR TYPE-II PAVEMENT : MAX. UPTO 6.0 TONNE (FOR SMALL VEHICLES LIKE FORK LIFT)
- CONSTRUCTION JOINTS MAY BE PROVIDED IN CASE PANEL SIZE IS LESS THAN THE REQUIREMENT OF ELASTIC JOINT, TO SUIT SITE REQUIREMENTS.
- THICKENED PAVEMENT AS SHOWN IS SUITABLE FOR SINGLE POINT LOAD UPTO 5 TON. PIPE SUPPORT DETAILS COMING IN THICKENED PAVEMENT AREA REFER RELEVANT PIPING GAD / PIPING STANDARDS.
- DRY LEAN CONCRETE (DLC) FOR SUB-BASE SHALL HAVE 7 DAYS COMPRESSIVE STRENGTH OF 10MPa.
- 150 MICRON THICK HM HDPE (GRADE-I) FILM CONFORMING TO IS 10889 SHALL BE PROVIDED AS SEPARATION LAYER BETWEEN DLC AND RCC.
- THIS STANDARD IS APPLICABLE FOR SUB GRADE WITH SOAKED CBR OF 4.0% AND ABOVE.

SUBGRADE

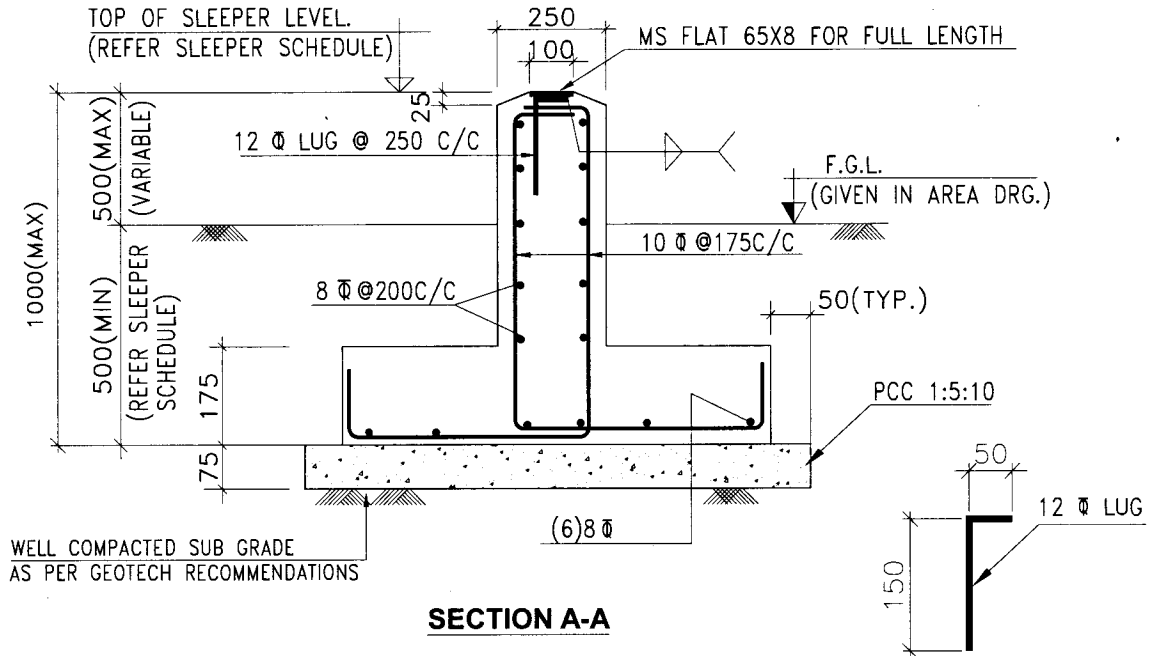
- GEOTECHNICAL RECOMMENDATION SHALL BE FOLLOWED FOR SUBGRADE PREPARATION BELOW PAVEMENTS.
- SPECIAL CARE AS PER GEOTECH RECOMMENDATION SHALL BE TAKEN IN CASE OF BLACK COTTON SOIL.



NOTES:-

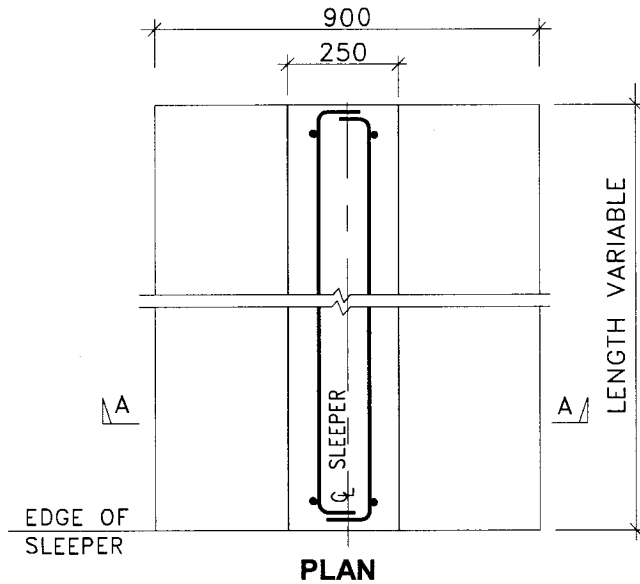
- ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.
- REFER STRUCTURAL GENERAL NOTES OF THE PROJECT FOR CONCRETE AND STRUCTURAL STEEL WORKS FOR THE FOLLOWING:-
 - GRADE OF CONCRETE (MIN. M30).
 - GRADE AND TYPE OF CEMENT
 - REINFORCEMENT STEEL BARS (MIN. Fe500D).
 - CLEAR COVER IN RCC WORKS.
 - GRADE OF STRUCTURAL STEEL
- ALL LUGS SHALL BE WELDED WITH 6mm FILLET WELD WITH THE MS FLAT LOCATED AT TOP OF THE SLEEPER LEVEL.
- LOCATION, LENGTH AND TOP OF SLEEPER LEVEL SHALL BE AS PER RELEVANT PIPING GAD.
- THIS STANDARD IS APPLICABLE FOR THE NET BEARING CAPACITY OF SOIL 5.0T/M² OR MORE. IN CASE NET BEARING CAPACITY OF SOIL IS LESS THAN 5.0T/M², GEO. TECH RECOMMENDATIONS SHALL BE OBTAINED AND JOB DRAWING SHALL BE APPLICABLE.

7	17.08.2021	REVISED & ISSUED AS STANDARD	MSR	KG/RKS	A.SINHA	S.MAZUMDAR
6	08.06.18	REAFFIRMED & ISSUED AS STANDARD	Anil	HV/AK	RS	RKT
Rev. No.	Date	Purpose	Prepared by	Checked by	Stds. Committee Convenor	Stds. Bureau Chairman



SECTION A-A

DETAIL OF LUGS

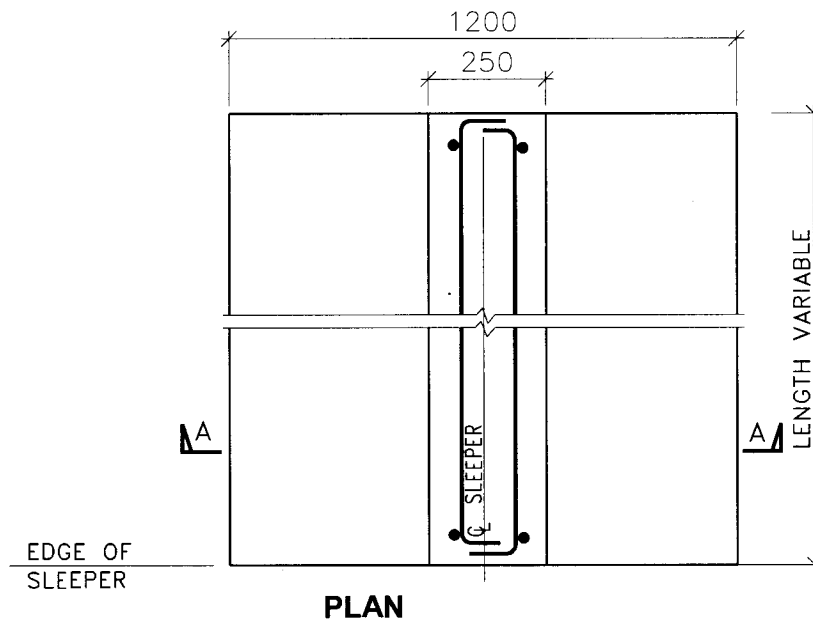
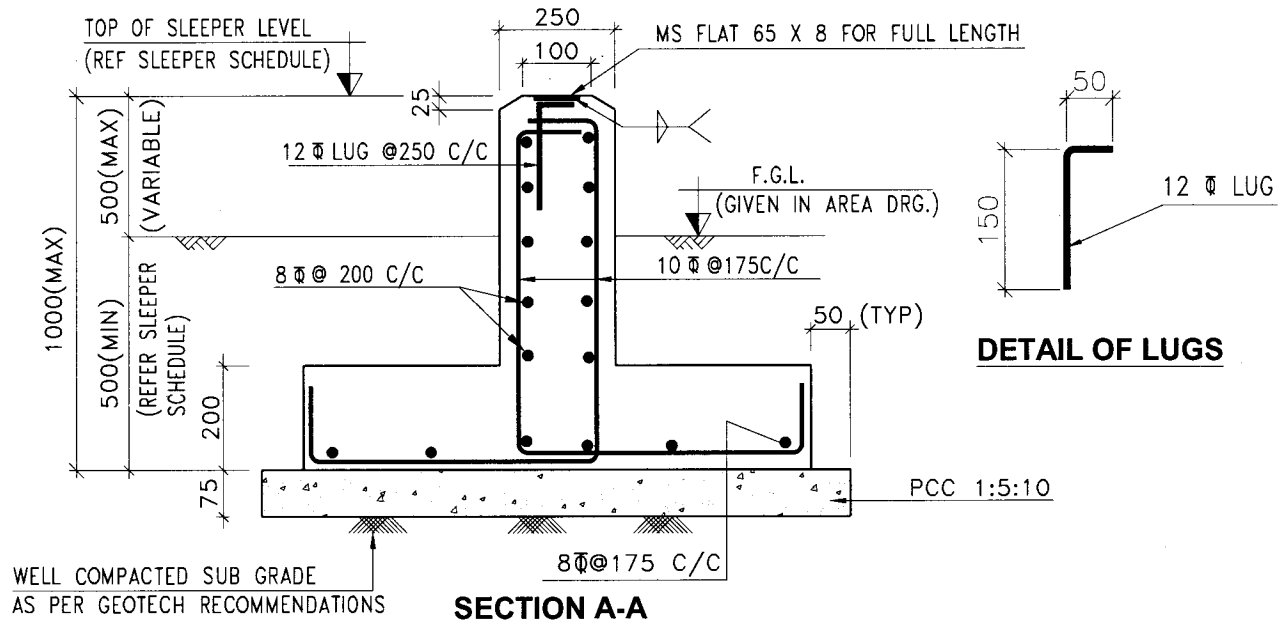


PLAN

NOTES:-

- ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.
- REFER STRUCTURAL GENERAL NOTES OF THE PROJECT FOR CONCRETE AND STRUCTURAL STEEL WORKS FOR THE FOLLOWING:-
 - GRADE OF CONCRETE (MIN. M30).
 - GRADE AND TYPE OF CEMENT
 - REINFORCEMENT STEEL BARS (MIN. Fe500D)
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- THIS STANDARD IS APPLICABLE FOR THE NET BEARING CAPACITY OF SOIL 5.0T/M² OR MORE. IN CASE NET BEARING CAPACITY OF SOIL IS LESS THAN 5.0T/M², GEO. TECH RECOMMENDATIONS SHALL BE OBTAINED AND JOB DRAWING SHALL BE APPLICABLE.

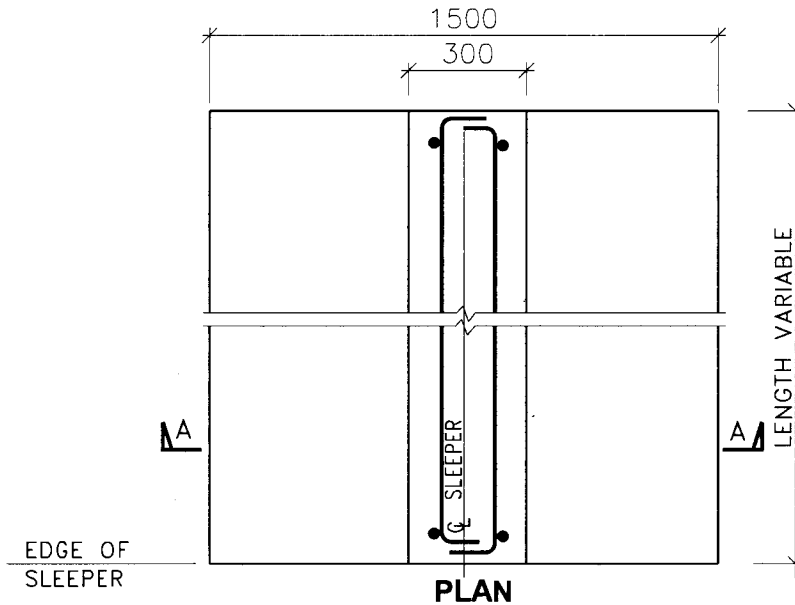
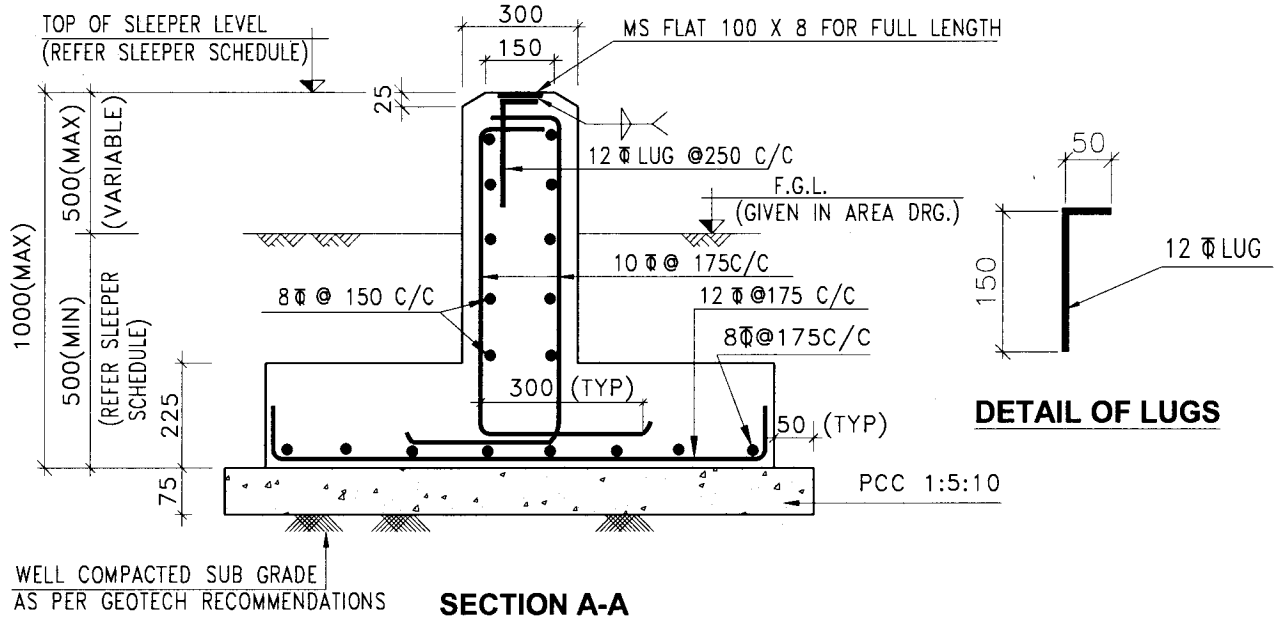
8	17.08.2021	REVISED & ISSUED AS STANDARD	MSR	KG/RKS	A.SINHA	S.MAZUMDAR
7	08.06.18	REAFFIRMED & ISSUED AS STANDARD	Anil	HV/AK	RS	RKT
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						Approved by



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 - GRADE OF CONCRETE (MIN. M30).
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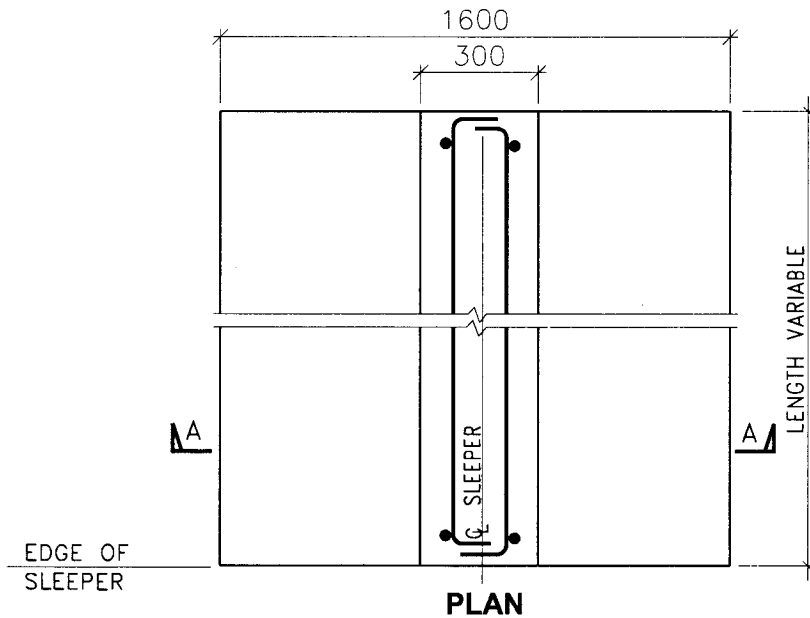
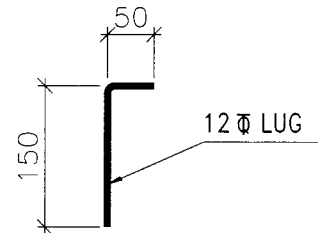
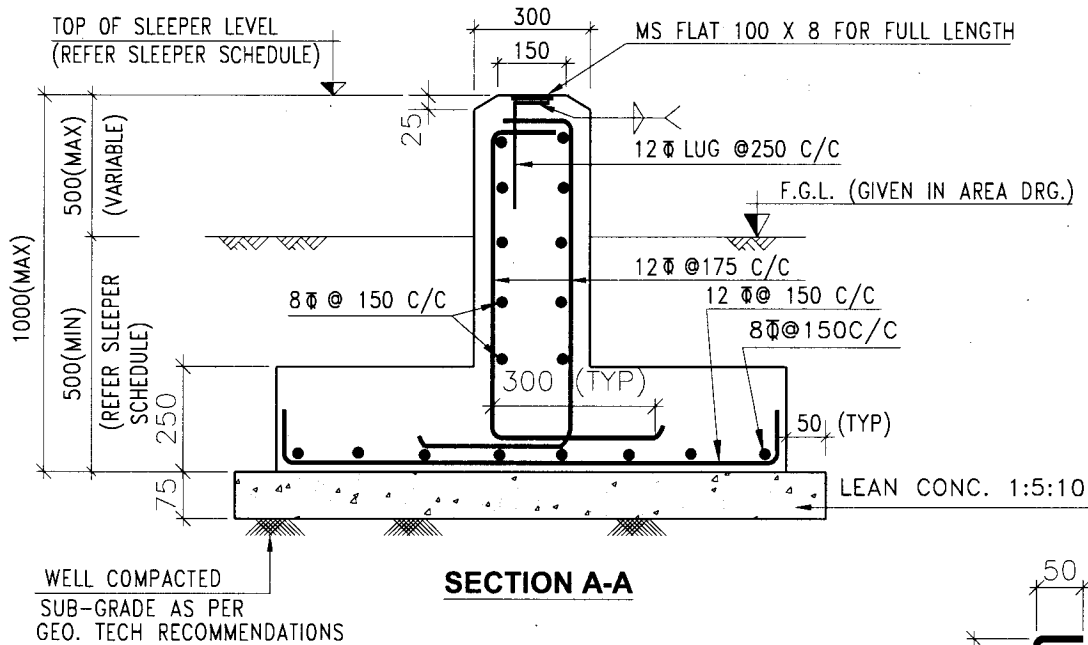
8	17.08.2021	REVISED & ISSUED AS STANDARD	MSR	KG/RKS	A.SINHA	S.MAZUMDAR
7	08.06.18	REAFFIRMED & ISSUED AS STANDARD	Anil	HV/AK	RS	RKT
Rev. No.	Date	Purpose	Prepared by	Checked by	Stds. Committee Convenor	Stds. Bureau Chairman
Approved by						



NOTES:-

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 - GRADE OF CONCRETE (MIN. M30).
 - GRADE AND TYPE OF CEMENT
 - REINFORCEMENT STEEL BARS (MIN. Fe500D)
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8	17.08.2021	REVISED & ISSUED AS STANDARD	MSR	KG/RKS	A.SINHA	S.MAZUMDAR
7	08.06.18	REAFFIRMED & ISSUED AS STANDARD	Anil	HV/AK	RS	RKT
Rev. No.	Date	Purpose	Prepared by	Checked by	Stds. Committee Convenor	Stds. Bureau Chairman



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6	08.06.18	REAFFIRMED & ISSUED AS STANDARD	Anil	HV/AK	RS	RKT
Rev. No.	Date	Purpose	Prepared by	Checked by	Stds. Committee Convenor	Stds. Bureau Chairman
Approved by						

VENDOR DATA REQUIREMENTS FOR COOLING TOWER PACKAGE (GENERAL CIVIL WORKS)

A	04-SEP-2025	ISSUED FOR BIDS	SJ	VMF	GYAS
Rev. No.	Date	Purpose	Prepared by	Checked by	Approved by

VENDOR DATA REQUIREMENTS

The following drawings/documents marked "✓" shall be furnished by the bidder.

S. N. O.	DESCRIPTION	WITH BID	POST ORDER			REMARKS
			FOR REVIEW	FOR RECORD	WITH DATA BOOK (FINAL)	
1.	Drawing & document schedule for Contractor generated documents and Sub-Vendor Documents for all disciplines		✓			Refer Note 3
2.	Design calculations - Cooling Tower Technical data sheet	✓		✓		
3.	Design calculations - Cooling tower thermal design and Power consumption calculations	✓		✓		
4.	Design calculations - Basin Holdup capacity calculation		✓			
5.	Design calculations - The manufacturer's design performance curves as per ATC 105 of CTI for 90%, 100%, 110% water flow rate and range of 40 deg F, 36 deg F, 32 deg F			✓		
6.	Hydraulic calculation of Basin, channel and sump	✓	✓			
7.	Basic drawings and design data - GA drawing of cooling tower, basin, channel, access stairway, escape ladder- plan and section	✓	✓			
8.	Basic drawings and design data - GA of end wall and partition wall			✓		
9.	GA drawing of cooling water pump house piping		✓			
10.	Basic drawings and design data - GA drawing of sump		✓			
11.	Basic drawings and design data - GA of CWTP and Dosing area		✓			
12.	Basic drawings and design data - Fill support details			✓		
13.	Basic drawings and design data - Mechanical equipment removal details, motor removal details			✓		
14.	Detailed drawings of Underground pits (valve pit, instrumentation pits, etc.)		✓			
15.	Basic drawings and design data - Fan access door, installation & other details			✓		
16.	All calculation files in native software format			✓		
17.	Basic drawings and design data - Hot water manifold and distribution details			✓		
18.	Underground piping layout of cooling water supply and return header		✓			
19.	Data sheets and final Vendor Drg. for Portable fire extinguishers and sluice gates			✓		
20.	As-Built Drawings and documents			✓	✓	
21.	Manufacturer Catalogues, Brochures, Performance Data of items etc.			✓		

**VENDOR DATA REQUIREMENTS
FOR
COOLING TOWER PACKAGE (GENERAL
CIVIL WORKS)**

S. N O.	DESCRIPTION	WITH BID	POST ORDER			REMARKS
			FOR REVIEW	FOR RECORD	WITH DATA BOOK (FINAL)	
22.	Test, Calibration and Inspection reports and certificates for all items / equipment			✓		
23.	Detail of special test equipment / tool requirement for maintenance			✓		
24.	Layouts of Approach Road, Pavement & Drain Layout		✓			
25.	List of Mandatory Spares		✓			
26.	Battery Limit /interface Drawing/Document		✓			
27.	Parts List			✓		
28.	Installation, operation and maintenance manuals			✓		
29.	Recommended spares for two years of normal operation and maintenance	✓				

Notes :

1. "TICK" denotes applicability.
2. Post order, drawing / document review shall commence only after approval of Document Control Index (DCI).
3. All post order documents shall be submitted / approved through EIL eDMS portal.
4. Final documentation shall be submitted in hard copy (Six prints) and soft (two CDs/DVDs) in addition to submission through EIL eDMS.
5. Refer - 6-78-0001: Specification for quality management system from Bidders.
6. Refer - 6-78-0002: Specification for documentation requirements from Contractors.
7. Refer - 6-78-0003: Specification for documentation requirement from Suppliers.
8. All drawings & documents shall be submitted in A4 or A3 paper sizes. Documents in higher paper size shall be submitted in exceptional circumstances or as indicated in the MR/Tender.
9. Post order- The schedule of drawing / data submission shall be mutually agreed between EIL & the bidder / contractor / supplier during finalization of Document Control Index (DCI).
10. "@" indicates submission of documents to Inspection Agency.
11. Bill of Material shall form part of the respective drawing.
12. The categorization (Review / Records) is given as guidance only. The exact categorization shall be decided during review of drawing / document schedule of the contractor / vendor.
13. The list given above is indicative only. Contractor shall generate all other drawings & documents required for completion of the job as required by Owner / PMC.
14. Contractor to submit DCI and get it approved before submitting doc./ drg. for review. In no case, Docs. / Drgs. shall be uploaded on the eDMS without getting DCI approved. Any submission of documents before approval of DCI shall stand Null & Void.
15. Schedule of submission of drawings & documents shall be decided during detailed engineering stage.
16. All vendor documents shall be reviewed & signed by the package contractor before forwarding the same to Owner / PMC for review / Records.
17. All revisions of drawings/ documents shall have revisions clearly marked/ clouded. Further Bidder shall submit a Revision Summary sheet listing the sheets where revision/ changes are made, type of changes/ revision (e.g. Model number changed, Body material changed, Size changed, Measuring range changed, Type

**VENDOR DATA REQUIREMENTS
FOR
COOLING TOWER PACKAGE (GENERAL
CIVIL WORKS)**

of enclosure protection changed, Type of ingress protection changed, Type of signal changed, etc.), and reason for changes. In case bidder makes some changes in the drawing/ document on his own (i.e. not as per EIL/ owners comment), bidder must state those in revision summary sheet with reasons while submitting the revised drawing/ document.

18. It is mandatory for the bidder to furnish AS BUILT revision of all drawings/ documents listed above.

19. CONTRACTOR shall note that all documents shall be submitted sequentially, viz. design calculations followed by engineering drawings/fabrication drawings.

20. Design calculation shall be submitted in detail i.e. giving complete break- up of calculation/ indicating formula & reference etc. Contractors software shall be validated by any reputed third party and validation report/ certificate & name of validation agency shall be furnished along with the design calculations

21. Submission of typical review category documents shall be taken up prior to record category documents. In case PMC/ OWNER comments on review category documents require any modifications on other drawings/ documents in record category, it will be LSTK Contractors responsibility to incorporate the same before issuing drawings for construction.

22. All re-submissions by LSTK Contractor (on account of incorporation of comments/ observations of PMC/ OWNER) shall be accompanied with a confirmation statement (document stating point-wise compliance to all PMC/ OWNER comments on previous submissions) until all such comments/ observations are incorporated/ resolved.

VENDOR DATA REQUIREMENTS FOR COOLING TOWER PACKAGE

0	27-AUG-2025	ISSUED WITH TENDER	RP	VMG	TK
Rev. No.	Date	Purpose	Prepared by	Checked by	Approved by

VENDOR DATA REQUIREMENTS

The following drawings/documents marked "✓" shall be furnished by the bidder.

S. N O.	DESCRIPTION	WITH BID	POST ORDER			REMARKS
			FOR REVIEW	FOR RECORD	WITH DATA BOOK (FINAL)	
1.	Duly filled-in Technical Confirmation List (SME)	✓				
2.	Document Control Index (DCI) or Drawing & Documentation Schedule (This shall be the first document to be submitted by the Bidder immediately after order)		✓			<i>The detailed requirement of drawings/documents shall be finalized in the DCI.</i>
3.	Final Vendor Selection Data (FVSD) document containing: a) Duly filled in Equipment data sheets and Performance Curves along with final approved respective Process Datasheets. b) Duly filled in Experience Record Proforma c) Equipment Manufacturers Latest Catalogue & General Reference List for the proposed model d) Vendor specific deviations (only technically infeasible) to specified standards & codes (if any) as well as EIL Standard Specifications. Note: Only after firm and final approval of FVSD (without any HOLDS/Open points), PR shall be submitted to Owner/PMC for review.		✓		✓	

**VENDOR DATA REQUIREMENTS
FOR
COOLING TOWER PACKAGE**

S. N O.	DESCRIPTION	WITH BID	POST ORDER			REMARKS
			FOR REVIEW	FOR RECORD	WITH DATA BOOK (FINAL)	
4.	PURCHASE REQUISITIONS Purchase Requisitions containing following documents, as a minimum: a) Process Data Sheet/ P&IDs (approved copy). b) Duly filled in equipment data sheets (approved copy) & Performance curves (approved copy), for all cases. c) Filled in Experience record format (approved copy) d) Equipment manufacturer's general reference list & manufacturer's catalogue. e) List of Agreed Deviations (approved copy) f) Scope of supply / work, List of Mandatory spares, List of Commissioning spares, List of 2 years O&M Spares and List of Special tools / tackles g) Site & Utility Data / Specifications h) Applicable EDB, data sheets, job specifications, PMS/VMS, etc. of respective departments i) Utility data sheets j) Applicable Vendor list k) Applicable Painting Specifications, Site Spectra, etc. l) Detailed Vendor Data Requirements (i.e. GA drawing; C/S drawing; Layout drawing, P&ID etc.) of all equipment & components supplied by vendor. m) Applicable Owner/ PMC documents n) Applicable Standards & Specifications o) Applicable Inspection Test Plan (@) Note: Only after firm and final approval of PR (without any HOLDs/Open points), applicable vendor documents (after review and final approval by contractor) shall be submitted to Owner/PMC for review.			✓	✓	
5.	Overall General Arrangement Drawing showing the driver, driven equipment and other auxiliary equipment (like sealing system, lube oil system, panels etc.) along with interface/ terminal points, location, maintenance space, erection & maintenance weights, capacity & hook height for maintenance etc.			✓	✓	
6.	P & I Diagram with bill of material for process, lube oil system, seal system, nitrogen, instrument air, cooling water, steam systems etc. for the complete package			✓	✓	
7.	Utility consumption list (start up, normal operation & shutdown), consumables / Lubricants / Chemical consumption lists			✓	✓	
8.	Shop test procedures including mechanical running test, performance test, complete unit test, site test etc. as applicable					@

**VENDOR DATA REQUIREMENTS
FOR
COOLING TOWER PACKAGE**

S. N. O.	DESCRIPTION	WITH BID	POST ORDER			REMARKS
			FOR REVIEW	FOR RECORD	WITH DATA BOOK (FINAL)	
9.	Final vendor documentation/data-book covering all contractor reviewed/approved documents including all PR/PO, data sheet, curves, GAD/PID, plot plan, cross sectional drawing, bill of material, utility data, spares list (mandatory, commissioning spares, 2 years O&M), list of special tools and tackles, lubrication schedule, Lateral analysis reports, Train torsional analysis reports, dynamic balancing reports, Residual Unbalance check / Damped unbalance response Analysis, simulation & study reports, test procedures, Mech Run Test Procedure, Performance Test Procedure, Hydro Test Procedure, Site Test Procedure, NPSH Test Procedure, catalog, installation manual, O&M manual, inspection and test records, etc for all equipment/component including auxiliaries and ancillaries.				✓	

CENTRIFUGAL PUMPS HORIZONTAL

S. N. O.	DESCRIPTION	WITH BID	POST ORDER			REMARKS
			FOR REVIEW	FOR RECORD	WITH DATA BOOK (FINAL)	
1.	Cross Sectional Drawings (with Bill of Materials & Part Nos.) for Pump			✓	✓	
2.	Precommissioning & commissioning procedures for the complete pump package			✓	✓	
3.	Performance curves - parallel operation (performance curve superimposed over system resistance curve) / steam consumption / engine performance		✓		✓	
4.	GAD - Sealing system - Seal plan			✓	✓	
5.	Cross Sectional Drawings (with Bill of Materials & Part Nos.) - Gear Box/Couplings/Fluid Couplings			✓	✓	
6.	Cross Sectional Drawings (with Bill of Materials & Part Nos.) - Sealing system - Mechanical seal		✓		✓	
7.	Test Procedure(s) : MRT, Performance test, NPSH test, Complete unit test		✓		✓	

**VENDOR DATA REQUIREMENTS
FOR
COOLING TOWER PACKAGE**

S. N. O.	DESCRIPTION	WITH BID	POST ORDER			REMARKS
			FOR REVIEW	FOR RECORD	WITH DATA BOOK (FINAL)	
8.	General Arrangement & Foundation drawing showing main as well as all associated equipment / skids (driven equipment, drive transmission devices, driver (turbine / motor / engine), lube oil system, Fuel oil system, local guage board, local control panel, etc.) with interface connection, maintenance space, cable trays, table of termination points and details of foundation bolts, their location, foundation bolt pocket dimensions, foundation load data (static & dynamic), estimated quantity & detai		✓		✓	
9.	Data Sheets for Couplings		✓		✓	
10.	List of Mandatory Spares (indicating exact name of the part, part no. and material of construction)		✓		✓	
11.	Quotation for recommended spare parts for two years of normal operation (indicating exact name of the part, part no. and material of construction)			✓		
12.	List of recommended commissioning spares (indicating exact name of the part, part no. and material of construction)			✓	✓	
13.	List of recommended Special Tools & Tackles (indicating exact name of the part and part no.)			✓	✓	
14.	List of Deviations to specifications/datasheets/standards of MR			✓		
15.	Filled in experience record proforma for main equipment and its driver			✓		
16.	Duly filled-in check list scope of supply (as applicable)			✓		
17.	Tabulation of Utility consumption data including electric load data, schedule of lubricants, chemicals & consumables with specifications			✓	✓	
18.	List of loose supply items in vendor's scope, to be installed in purchaser's piping			✓	✓	
19.	GAD for Gear box /Couplings (as applicable)		✓		✓	
20.	Test Procedure(s) : Witness tests as specified in data sheets / other specs enclosed in the inquiry / MR or as required by approved ITP/QAP			✓	✓	
21.	Curve for pump power-shaft speed v/s torque			✓	✓	
22.	Installation, Operation & Maintenance manuals - Pump			✓	✓	
23.	Data Sheets alongwith performance curves - Pump		✓		✓	

CHEMICAL DOSING PACKAGE-SKID MOUNTED

**VENDOR DATA REQUIREMENTS
FOR
COOLING TOWER PACKAGE**

S. N O.	DESCRIPTION	WITH BID	POST ORDER			REMARKS
			FOR REVIEW	FOR RECORD	WITH DATA BOOK (FINAL)	
1.	Document Control Index (DCI) or Supplier / Vendor Drawing & Documentation Schedule (This shall be the first document to be submitted by vendor immediately after FOI)		✓			
2.	List of Mandatory Spares (indicating exact name of the part, part no. and material of construction)	✓	✓			
3.	Quotation for recommended spare parts for two years of normal operation (indicating exact name of the part, part no. and material of construction)	✓				
4.	List of recommended commissioning spares (indicating exact name of the part, part no. and material of construction)	✓		✓		
5.	List of recommended Special Tools & Tackles (indicating exact name of the part and part no.)			✓		
6.	List of Deviations to specifications/datasheets/standards of MR					
7.	Datasheets for Pump		✓			
8.	Filled in experience record proforma for Pumps and Filled in experience record proforma for Packaging of Chemical Dosing Skids	✓				
9.	Duly filled-in check list scope of supply (as applicable)	✓				
10.	General Arrangement & Foundation drawing showing arrangement of main equipment skid as well as all associated equipment (dosing tank, pump, motor, pulsation dampeners, calibration pot, PSV, etc.) along with interface connections, maintenance space, table of termination points etc. as well as details of foundation bolts, their location, foundation bolt pocket dimensions, foundation load data (static & dynamic), recommended grout thickness		✓			
11.	Tabulation of Utility consumption data including electric load data, schedule of lubricants, chemicals & consumables with specifications			✓		
12.	List of loose supply items in vendor's scope, to be installed in purchaser's piping	✓		✓		
13.	Calculation for Acceleration head / NPSHA-NPSHR		✓			
14.	Data Sheets for drum pump			✓		
15.	Data Sheets & Sizing Calculations for Pulsation dampener and calibration pot sizing calculations			✓		
16.	General Arrangement Drawings for Pump			✓		
17.	Cross Sectional Drawings (with Bill of Materials & Part Nos.) for Pump			✓		
18.	Cross Sectional Drawings (with Bill of Materials & Part Nos.) for Accessories - Pulsation Dampener, Calibration pot etc.			✓		
19.	P&ID for each dosing skid system clearly indicating the battery limits of each skid package	✓	✓			

**VENDOR DATA REQUIREMENTS
FOR
COOLING TOWER PACKAGE**

S. N. O.	DESCRIPTION	WITH BID	POST ORDER			REMARKS
			FOR REVIEW	FOR RECORD	WITH DATA BOOK (FINAL)	
20.	Test Procedure(s) : Witness tests as specified in data sheets / other specs enclosed in the inquiry / MR or as required by approved ITP/QAP			✓		
21.	Installation, Operation & Maintenance manuals for complete dosing package					
22.	Manufacture's Catalogue for the offered Pump Models					
23.	Precommissioning & commissioning procedure for complete dosing package					

VESSELS

S. N. O.	DESCRIPTION	WITH BID	POST ORDER			REMARKS
			FOR REVIEW	FOR RECORD	WITH DATA BOOK (FINAL)	
1.	GENERAL ARRANGEMENT DRAWING INDICATING DESIGN DATA FABRICATED EQUIPMENT WEIGHT, GENERAL NOTES, NOZZLE SCHEDULE, DETAIL OF SHELL, HEADS, SUPPORTING ARRANGEMENT, MAIN WELD SEAMS, NOZZLE ORIENTATION PLAN, CUTTING LAYOUT ETC.		✓		✓	
2.	DETAIL OF NOZZLES, MANHOLES, ACCESSORIES ETC			✓	✓	
3.	DETAIL OF INTERNALS			✓	✓	
4.	DETAILS OF DEMISTER.			✓	✓	
5.	DETAILS OF PACKING SUPPORT, DEMISTER SUPPORTS, GRATINGS, AND GRATING SUPPORTS.			✓	✓	
6.	COMPLETE DESIGN CALCULATION			✓	✓	
7.	DETAIL OF EXTERNAL CLIPS SUCH AS LADDER, PLATFORM, PIPE SUPPORT.			✓	✓	
8.	DETAIL OF INSULATION, FIRE PROOFING			✓	✓	
9.	DETAIL OF PIPE DAVIT			✓	✓	
10.	DETAIL OF LIFTING LUG, TRUNION AND TAILING LUG ETC.			✓	✓	
11.	SHELL DEVELOPMENT DRAWINGS INCORPORATING ALL ATTACHMENTS AND WELD SEAMS			✓	✓	
12.	CERTIFIED 'AS BUILT' DRAWINGS INCORPORATING ACTUAL DIMENSIONS AND MATERIAL USED, DULY CERTIFIED BY THE INSPECTOR@				✓	
13.	DATA FOLDER AS PER SPECIFICATION@				✓	
14.	INSPECTION AND TESTING PLAN @				✓	

**VENDOR DATA REQUIREMENTS
FOR
COOLING TOWER PACKAGE**

S. N O.	DESCRIPTION	WITH BID	POST ORDER			REMARKS
			FOR REVIEW	FOR RECORD	WITH DATA BOOK (FINAL)	
15.	WELDING PROCEDURES AND QUALIFICATION TEST REPORTS @				✓	
16.	DESTRUCTIVE AND NON-DESTRUCTIVE TEST REPORTS @				✓	
17.	MATERIAL TEST CERTIFICATES @				✓	
18.	RADIOGRAPHIC EXAMINATION REPORTS WITH FILMS @				✓	
19.	HEAT TREATMENT PROCEDURE AND TIME TEMPERATURE CHARTS @				✓	
20.	CODE CERTIFICATES (INCLUDING INSPECTION CERTIFICATE, HYDROSTATIC TEST CERTIFICATE, LOCAL CODE REQUIREMENTS, RUBBING OF CODE STAMP AND NAME PLATE ETC.) @				✓	
21.	PACKING AND FORWARDING INSTRUCTIONS @				✓	
22.	AGITATOR GA DWG, DETAIL DRGS CATALOGUE ETC.				✓	
23.	Duly filled-in Technical Confirmation List (S&ME-Static)	✓				

STORAGE TANKS

S. N O.	DESCRIPTION	WITH BID	POST ORDER			REMARKS
			FOR REVIEW	FOR RECORD	WITH DATA BOOK (FINAL)	
1.	DEVIATION LIST				✓	
2.	BQC/REFERENCE LIST	✓		✓		
3.	TECHNICAL MEMORANDUM DULY FILED IN, SIGNED & STAMPED	✓		✓		
4.	GENERAL ARRANGEMENT DRAWINGS OF TANKS		✓		✓	
5.	BOTTOM AND ANNULAR RING LAYOUT & WELD DETAILS.		✓		✓	
6.	DETAIL OF SUMP FOR DRAIN NOZZLES		✓		✓	
7.	SHELL PLATE LAYOUT (SHOWING LOCATION OF NOZZLES & MANHOLES)			✓	✓	
8.	DETAILS OF WIND GIRDERS		✓		✓	
9.	SPIRAL STAIRWAYS, INTERMEDIATE & TOP PLATFORMS			✓	✓	
10.	ROOF PLATE LAYOUT & WELD DETAILS.		✓		✓	
11.	ROOF STRUCTURE DETAILS			✓	✓	
12.	DETAILS OF NOZZLES ON SHELL		✓		✓	
13.	DETAILS OF NOZZLES ON ROOF		✓		✓	

**VENDOR DATA REQUIREMENTS
FOR
COOLING TOWER PACKAGE**

S. N. O.	DESCRIPTION	WITH BID	POST ORDER			REMARKS
			FOR REVIEW	FOR RECORD	WITH DATA BOOK (FINAL)	
14.	DETAIL OF INTERNALS LIKE GUIDE ROLLERS, ROOF STOPPERS, STILL WELLS, DIP PIPE, HEATING COIL, FOAM SEAL (PRIMARY & SECONDARY) ETC.			✓	✓	
15.	DESIGN CALCULATIONS FOR FLOATING ROOF FOR BUOYANCY, STABILITY, TILTING, LEG SUPPORTS, BLEEDER VENTS, ROOF DRAIN, RIM VENT, EMERGENCY DRAIN ETC			✓	✓	
16.	FLOATING ROOF DETAILS			✓	✓	
17.	DETAILS OF FOAM & COOLING SYSTEM		✓		✓	
18.	INFORMATION ON ALL BOUGHT OUT COMPONENTS I.E VENDORS, SIZE, MODEL NO., CATALOGUES, INSTALLATION & OPERATING MANUAL, DRAWINGS AND CALCULATIONS AS APPLICABLE			✓	✓	
19.	INSPECTION AND TESTING PLAN @				✓	
20.	WELDING PROCEDURES AND QUALIFICATION TEST REPORTS @				✓	
21.	DESTRUCTIVE AND NON-DESTRUCTIVE TEST REPORTS @				✓	
22.	MATERIAL TEST CERTIFICATES @				✓	
23.	RADIOGRAPHIC EXAMINATION REPORTS WITH FILMS @				✓	
24.	HEAT TREATMENT PROCEDURE AND TIME TEMPERATURE CHARTS @				✓	
25.	COMPLETION CERTIFICATES (INCLUDING INSPECTION CERTIFICATE, HYDROSTATIC TEST CERTIFICATE, LOCAL CODE REQUIREMENTS)				✓	

HOT CRANE, ELECTRIC HOIST, CHAIN PULLEY BLOCK AND SPLIT AC

S. N. O.	DESCRIPTION	WITH BID	POST ORDER			REMARKS
			FOR REVIEW	FOR RECORD	WITH DATA BOOK (FINAL)	
1.	Document Control Index		✓		✓	To be Listed in VDMS
2.	Technical Confirmation list-Packaged equipment (Annexure-B)	✓				
3.	Equipment G.A drawings including battery limit details and load data		✓		✓	
4.	Technical literature / brochure of the offered equipment models			✓	✓	
5.	Utility Consumption figures			✓	✓	
6.	Heat Load Calculation for HVAC			✓	✓	
7.	QAP and ITP for individual equipment				✓	@

**VENDOR DATA REQUIREMENTS
FOR
COOLING TOWER PACKAGE**

S. N O.	DESCRIPTION	WITH BID	POST ORDER			REMARKS
			FOR REVIEW	FOR RECORD	WITH DATA BOOK (FINAL)	
8.	Installation, operation & maintenance manuals containing all certified drawings & documents			✓	✓	
9.	List of Recommended spares for 2 years for Normal Operation & Maintenance (with itemized price)			✓	✓	
10.	List of commissioning spares and list of Special Tools & Tackles, if any			✓	✓	

RECIPROCATING PUMPS (CONTROLLED VOLUME)- API 675

S. N O.	DESCRIPTION	WITH BID	POST ORDER			REMARKS
			FOR REVIEW	FOR RECORD	WITH DATA BOOK (FINAL)	
1.	Document Control Index (DCI) or Supplier / Vendor Drawing & Documentation Schedule (This shall be the first document to be submitted by vendor immediately after FOI)		✓			
2.	General Arrangement - Pump along with installation dimensions		✓		✓	
3.	Cross Sectional Drawings (with Bill of Materials & Part No's) for Accessories - Pulsation Dampener, Calibration pot etc.		✓		✓	
4.	List of Mandatory Spares (indicating exact name of the part, part no. and material of construction)		✓		✓	
5.	Quotation for recommended spare parts for two years of normal operation (indicating exact name of the part, part no. and material of construction)	✓		✓		
6.	List of recommended commissioning spares (indicating exact name of the part, part no. and material of construction)	✓		✓	✓	
7.	List of recommended Special Tools & Tackles (indicating exact name of the part and part no.)	✓		✓	✓	
8.	List of Deviations to specifications/datasheets/standards of MR			✓	✓	
9.	Filled in experience record proforma for main equipment and its driver			✓	✓	
10.	Duly filled-in check list scope of supply (as applicable)			✓	✓	
11.	Tabulation of Utility consumption data including electric load data, schedule of lubricants, chemicals & consumables with specifications			✓	✓	
12.	List of loose supply items in vendor's scope, to be installed in purchaser's piping			✓	✓	
13.	Datasheets and Sizing calculation for Pump	✓		✓	✓	
14.	Datasheets and Sizing calculation for Acceleration head / NPSHA-NPSHR calculations	✓		✓	✓	

**VENDOR DATA REQUIREMENTS
FOR
COOLING TOWER PACKAGE**

S. N. O.	DESCRIPTION	WITH BID	POST ORDER			REMARKS
			FOR REVIEW	FOR RECORD	WITH DATA BOOK (FINAL)	
15.	Datasheets and Sizing calculation for Pulsation dampener sizing		✓		✓	
16.	Test Procedure(s) : Witness tests as specified in data sheets / other specs enclosed in the inquiry / MR or as required by approved ITP/QAP		✓		✓	
17.	Installation, Operation & Maintenance manuals - Pump			✓	✓	
18.	Precommissioning & commissioning procedures for the complete pump package			✓	✓	
19.	General Arrangement & Foundation drawing showing arrangement of main equipment skid as well as all associated equipment (pump, motor, pulsation dampeners, calibration pot, PSV etc.) along with interface connections, maintenance space, table of termination points etc. as well as details of foundation bolts, their location, foundation bolt pocket dimensions, foundation load data (static & dynamic), recommended grout thickness		✓		✓	
20.	Cross Sectional Drawings (with Bill of Materials & Part Nos.) for Pump		✓		✓	
21.			✓			

Notes :

1. "TICK" denotes applicability.
2. Post order, drawing / document review shall commence only after approval of Document Control Index (DCI).
3. All post order documents shall be submitted / approved through EIL eDMS portal.
4. Final documentation shall be submitted in hard copy (Six prints) and soft (two CDs/DVDs) in addition to submission through EIL eDMS.
5. Refer - 6-78-0001: Specification for quality management system from Bidders.
6. Refer - 6-78-0002: Specification for documentation requirements from Contractors.
7. Refer - 6-78-0003: Specification for documentation requirement from Suppliers.
8. All drawings & documents shall be submitted in A4 or A3 paper sizes. Documents in higher paper size shall be submitted in exceptional circumstances or as indicated in the MR/Tender.
9. Post order- The schedule of drawing / data submission shall be mutually agreed between EIL & the bidder / contractor / supplier during finalization of Document Control Index (DCI).
10. "@" indicates submission of documents to Inspection Agency.
11. Bill of Material shall form part of the respective drawing.
12. EIL approval in Code-1/Code-R/Code-2 of vendor's / contractor's drawing & document shall not relieve the vendor/contractor from responsibility to supply equipment/services as per requisition/ITB/RFQ.
13. Successful bidder to submit DCI (DOCUMENT CONTROL INDEX) and all the contractor data through vendor portal (<http://edocx.eil.co.in/vportal>) only. The detail guidelines for Uploading the document on vendor portal are available on the site itself. Successful bidder to submit the entire document as scheduled document only. All post order documents shall be submitted / approved through EIL eDMS portal.

DCI shall be prepared by the contractor based on the VDR and submitted within 15 days from the date of FOA. Post order, drawing / document review shall commence only after approval of Document Control Index (DCI). The schedule of drawing / data submission shall be mutually agreed between EIL & the bidder / contractor / supplier during finalization of Document Control Index (DCI).

14. All drawings shall be thoroughly checked and duly signed by contractor. Unchecked drawings and drawings without revisions clearly marked shall be returned without review. Successive review of the same drawing shall apply only to latest data sheet/comments on the previous revision. Drawings and documents returned to contractor for revision shall be resubmitted preferably within 10 days of receipt.

15. Contractor shall note that the vendor drawing for the following standard components (as applicable) shall not

be reviewed by EIL. It shall be solely vendor's responsibility to ensure the correctness of these drawings as per EIL / LICENSOR Standards and Drawings. If any discrepancy/mistake is found at a later date the vendor shall rectify the same at his time and cost.

16. All fabrication drawings submitted by contractor to EIL shall be retained for information only. Submission of documents to EIL for information shall not be a HOLD point for fabrication. Contractor can proceed with fabrication

based on requirements of requisition. Any clarification required from EIL shall be obtained prior to proceeding with fabrication of the equipment. However, it is EILs prerogative to review fabrication drawings at its discretion and EIL comments in line with requirements of requisition shall be incorporated by contractor without any cost and

delivery implications.

VENDOR DATA REQUIREMENTS FOR COOLING TOWER PACKAGE

B	28-AUG-2025	ISSUED FOR BIDS	VP	RD	VKG
A	20-AUG-2025	ISSUED FOR BIDS	VP	RD	VKG
Rev. No.	Date	Purpose	Prepared by	Checked by	Approved by

VENDOR DATA REQUIREMENTS

The following drawings/documents marked "✓" shall be furnished by the bidder.

S. N O.	DESCRIPTION	WITH BID	POST ORDER			REMARKS
			FOR REVIEW	FOR RECORD	WITH DATA BOOK (FINAL)	
1.	Structural Design Philosophy		✓		✓	
2.	Vendor drawing/documents submission schedule		✓		✓	
3.	Design calculation document for Cooling Water sump, channels & Basin			✓	✓	Documents/ Drawings to be submitted only after approval of Equipment Layout in code-2(min). These documents shall also include staadPro input & output. One typical stretch shall be reviewed. Remaining shall be kept in record category.
4.	Structural drawings (RCC) for Cooling Water sump, channels & Basin		✓		✓	Documents/ Drawings to be submitted only after approval of Equipment Layout in code-2(min). These documents shall also include staadPro input & output. One typical stretch shall be reviewed. Remaining shall be kept in record category.
5.	Design calculation document for CWTP building			✓	✓	Documents/ Drawings to be submitted only after approval of Equipment Layout in code-2(min). These documents shall also include staadPro input & output. One typical stretch shall be reviewed. Remaining shall be kept in record category.
6.	Structural drawings for CWTP building		✓		✓	Documents/ Drawings to be submitted only after approval of Equipment Layout in code-2(min). These documents shall also include staadPro input & output. One typical stretch shall be reviewed. Remaining shall be kept in record category.

**VENDOR DATA REQUIREMENTS
FOR
COOLING TOWER PACKAGE**

S. N O.	DESCRIPTION	WITH BID	POST ORDER			REMARKS
			FOR REVIEW	FOR RECORD	WITH DATA BOOK (FINAL)	
7.	Design calculation document of Foundation and superstructure for Chemical Storage shed			✓	✓	Documents/ Drawings to be submitted only after approval of Equipment Layout in code-2(min). These documents shall also include staadPro input & output. One typical stretch shall be reviewed. Remaining shall be kept in record category.
8.	Structural drawings of Foundation and superstructure for Chemical Storage shed			✓	✓	Documents/ Drawings to be submitted only after approval of Equipment Layout in code-2(min). These documents shall also include staadPro input & output. One typical stretch shall be reviewed. Remaining shall be kept in record category.
9.	Design calculation document of Foundation and superstructure for Cooling Water Pump Shed/house.			✓	✓	Documents/ Drawings to be submitted only after approval of Equipment Layout in code-2(min). These documents shall also include staadPro input & output. One typical stretch shall be reviewed. Remaining shall be kept in record category.
10.	Structural drawings of Foundation and superstructure for Cooling Water Pump Shed/house.		✓		✓	Documents/ Drawings to be submitted only after approval of Equipment Layout in code-2(min). These documents shall also include staadPro input & output. One typical stretch shall be reviewed. Remaining shall be kept in record category.
11.	Design calculation document of Foundation for Pumps, Tanks, Equipments			✓	✓	One typical of each type shall be reviewed. Remaining shall be kept in record category
12.	Structural drawings of Foundation for Pumps, Tanks, Equipments		✓		✓	One typical of each type shall be reviewed. Remaining shall be kept in record category
13.	Design calculation document for Backwash pit, etc.			✓	✓	Documents/ Drawings to be submitted only after approval of Equipment Layout in code-2(min). These documents shall also include staadPro input & output. One typical stretch shall be reviewed. Remaining shall be kept in record category.

**VENDOR DATA REQUIREMENTS
FOR
COOLING TOWER PACKAGE**

S. N. O.	DESCRIPTION	WITH BID	POST ORDER			REMARKS
			FOR REVIEW	FOR RECORD	WITH DATA BOOK (FINAL)	
14.	Structural drawings for Backwash pit etc.			✓	✓	Documents/ Drawings to be submitted only after approval of Equipment Layout in code-2(min). These documents shall also include staadPro input & output. One typical stretch shall be reviewed. Remaining shall be kept in record category.
15.	Design calculation for foundation and superstructure for any other Structure not covered above.			✓	✓	
16.	Drawing for foundation and super structure for any other Structure not covered above.			✓	✓	
17.	RCC Trenches, Drains, Pits, (including lining) etc. as required with plant battery limit.			✓	✓	Documents/ Drawings to be submitted only after approval of Civil GADs in code-2 (min).
18.	Fabrication drawings for structural steel.			✓	✓	
19.	Monthly updated status of BOQs of major items (i.e. Concrete, Rebar & Structural steel).			✓	✓	
20.	All calculation & staad files in native software format i.e., *.xls, *.std etc.,		✓		✓	
21.	As built drawings			✓	✓	

Notes :

- "TICK" denotes applicability.
- Post order, drawing / document review shall commence only after approval of Document Control Index (DCI).
- All post order documents shall be submitted / approved through EIL eDMS portal.
- Final documentation shall be submitted in hard copy (Six prints) and soft (two CDs/DVDs) in addition to submission through EIL eDMS.
- Refer - 6-78-0001: Specification for quality management system from Bidders.
- Refer - 6-78-0002: Specification for documentation requirements from Contractors.
- Refer - 6-78-0003: Specification for documentation requirement from Suppliers.
- All drawings & documents shall be submitted in A4 or A3 paper sizes. Documents in higher paper size shall be submitted in exceptional circumstances or as indicated in the MR/Tender.
- Post order- The schedule of drawing / data submission shall be mutually agreed between EIL & the bidder / contractor / supplier during finalization of Document Control Index (DCI).
- "@" indicates submission of documents to Inspection Agency.
- Bill of Material shall form part of the respective drawing.
- Also refer other department's VDR :-
- Electrical
- Instrumentation
- Rotating Equipment
- Environment, Water and Safety

VENDOR DATA REQUIREMENTS FOR COOLING TOWER PACKAGE

A	13-AUG-2025	ISSUED FOR BIDS	KT	SS	GJK
Rev. No.	Date	Purpose	Prepared by	Checked by	Approved by

VENDOR DATA REQUIREMENTS

The following drawings/documents marked "✓" shall be furnished by the bidder.

S. N O.	DESCRIPTION	WITH BID	POST ORDER			REMARKS
			FOR REVIEW	FOR RECORD	WITH DATA BOOK (FINAL)	
1.	Vendor drawing/ documents submission schedule		✓		✓	
2.	Construction drawings of CWTP Building. Construction Drawings shall contain the followings. These drawings shall be prepared incorporating comments etc. on the preliminary Drawings. 1. Plan of all levels, Terrace Plan, Key Plan. 2. Sections as required for complete understanding of the Design & Construction 3. Elevations of all sides. 4. Schedule of Finishes 5. Any other detail as required for complete understanding of the Design & Construction.		✓		✓	
3.	Construction drawings of Chemical Storage shed . Construction Drawings shall contain the followings. These drawings shall be prepared incorporating comments etc. on the preliminary Drawings. 1. Plan of all levels, Terrace Plan, Key Plan. 2. Sections as required for complete understanding of the Design & Construction 3. Elevations of all sides. 4. Schedule of Finishes 5. Any other detail as required for complete understanding of the Design & Construction. 6. Fixing Details, flashing details, rain water pipes & gutter details etc.		✓		✓	
4.	Construction drawings of Cooling Water Pump House Shed . Construction Drawings shall contain the followings. These drawings shall be prepared incorporating comments etc. on the preliminary Drawings. 1. Plan of all levels, Terrace Plan, Key Plan. 2. Sections as required for complete understanding of the Design & Construction 3. Elevations of all sides. 4. Schedule of Finishes 5. Any other detail as required for complete understanding of the Design & Construction. 6. Fixing Details, flashing details, rain water pipes & gutter details etc.		✓		✓	

**VENDOR DATA REQUIREMENTS
FOR
COOLING TOWER PACKAGE**

S. N O.	DESCRIPTION	WITH BID	POST ORDER			REMARKS
			FOR REVIEW	FOR RECORD	WITH DATA BOOK (FINAL)	
5.	Construction drawings of any other building / shed . Construction Drawings shall contain the followings. These drawings shall be prepared incorporating comments etc. on the preliminary Drawings. 1. Plan of all levels, Terrace Plan, Key Plan. 2. Sections as required for complete understanding of the Design & Construction 3. Elevations of all sides. 4. Schedule of Finishes 5. Any other detail as required for complete understanding of the Design & Construction. 6. Fixing Details, flashing details, rain water pipes & gutter details etc.		✓		✓	
6.	Architectural schemes for finalized buildings supported by 3-D model and rendered perspective (exterior and interior)		✓		✓	
7.	As built drawings for all buildings/ Sheds.			✓	✓	

S. N O.	DESCRIPTION	WITH BID	POST ORDER			REMARKS
			FOR REVIEW	FOR RECORD	WITH DATA BOOK (FINAL)	
1.	Documents/ Drawings for Statutory approval in accordance with the statutory requirement for all buildings.			✓	✓	
2.	Miscellaneous documents/ drawings other than the above.		✓		✓	
3.	Detail drawings and related documents for fire check doors and windows.		✓		✓	
4.	Dossier for approval of Factory Inspector.			✓	✓	
5.	COA Registration of Architect.			✓	✓	
6.	Documents/ certificates in support of Architect possessing experience of similar works.			✓	✓	

Notes :

1. Post order, drawing / document review shall commence only after approval of Document Control Index (DCI).
2. "TICK" denotes applicability.
3. All post order documents shall be submitted / approved through EIL eDMS portal.
4. Refer - 6-78-0001: Specification for quality management system from Bidders.
5. Refer - 6-78-0002: Specification for documentation requirements from Contractors.
6. Refer - 6-78-0003: Specification for documentation requirement from Suppliers.
7. Post order- The schedule of drawing / data submission shall be mutually agreed between EIL & the bidder /

contractor / supplier during finalization of Document Control Index (DCI).

8. "@" indicates submission of documents to Inspection Agency.

9. Bill of Material shall form part of the respective drawing.

10. Native files of all post order documents shall be uploaded in EIL eDMS portal

11. Computer software input and output also to be included with these document.

12. Final documentation shall be submitted in hard copy and editable soft in addition to submission through EIL eDMS.

13. Also refer other department's VDR :-

14. Instrumentation

15. Electrical

16. Equipment Division

17. Piping

18. EWS

19. Packaged Equipment

20. General Civil

21. Structures

22. Architecture

VENDOR DATA REQUIREMENTS FOR COOLING TOWER PACKAGE (ELECTRICAL)

A	11-AUG-2025	ISSUED WITH TENDER	MS	AKG	VK
Rev. No.	Date	Purpose	Prepared by	Checked by	Approved by

**VENDOR DATA REQUIREMENTS
FOR
COOLING TOWER PACKAGE
(ELECTRICAL)**

VENDOR DATA REQUIREMENTS

The following drawings/documents marked "✓" shall be furnished by the bidder.

S. N O.	DESCRIPTION	WITH BID	POST ORDER			REMARKS
			FOR REVIEW	FOR RECORD	WITH DATA BOOK (FINAL)	
1.	Schedule of Vendor Documents		✓			
2.	Single line diagram		✓		✓	
3.	Electrical load data			✓	✓	
4.	Emergency power requirement			✓	✓	
5.	Control supply requirement			✓	✓	
6.	GA drawings of switchgear			✓		
7.	Equipment layout/Substation layout		✓		✓	
8.	Cable layout			✓	✓	
9.	Earthing & Lightning Protection Layout			✓	✓	
10.	Lighting layout			✓		
11.	Sizing calculation-lighting, cabling, earthing			✓	✓	
12.	Cable schedule			✓	✓	
13.	Interconnection diagram			✓	✓	
14.	Electrical interface with owner		✓		✓	
15.	Technical details/Data sheets for major equipment		✓		✓	
16.	Purchase reqn. for major equip.			✓		
17.	Schematic/Logic diagrams			✓	✓	
18.	Interconnection/Wiring diagrams			✓	✓	
19.	Bill Of Material			✓	✓	
20.	List of Mandatory Spares		✓		✓	
21.	List of recommended maintenance spares			✓	✓	
22.	Type Test certificates			✓	✓	
23.	Inspection & Test Plan (ITP) -For review by Inspection Dept.		✓		✓	
24.	Catalogues and brochures			✓	✓	
25.	Installation manual			✓	✓	
26.	Operation/maintenance manual			✓	✓	
27.	Motor - Data Sheet & GA Drawing		✓		✓	
28.	Performance Curves for Motors - Speed Torque, Speed-Current/Time, Thermal Withstand (Hot & Cold), p.f. & Efficiency Curves			✓	✓	

**VENDOR DATA REQUIREMENTS
FOR
COOLING TOWER PACKAGE
(ELECTRICAL)**

S. N. O.	DESCRIPTION	WITH BID	POST ORDER			REMARKS
			FOR REVIEW	FOR RECORD	WITH DATA BOOK (FINAL)	
29.	Electrical items (PDB, Panels, LCS, Lighting Fixtures, etc.) - GA Drawings, Cross-sectional view, Installation and mounting details, Wiring Diagram And Terminal Details			✓	✓	
30.	Cable Datasheets			✓	✓	

Notes :

- "TICK" denotes applicability.
- Post order, drawing / document review shall commence only after approval of Document Control Index (DCI).
- All post order documents shall be submitted / approved through EIL eDMS portal.
- Final documentation shall be submitted in hard copy (Six prints) and soft (two CDs/DVDs) in addition to submission through EIL eDMS.
- Refer - 6-78-0001: Specification for quality management system from Bidders.
- Refer - 6-78-0002: Specification for documentation requirements from Contractors.
- All drawings & documents shall be submitted in A4 or A3 paper sizes. Documents in higher paper size shall be submitted in exceptional circumstances or as indicated in the MR/Tender.
- Post order- The schedule of drawing / data submission shall be mutually agreed between EIL & the bidder / contractor / supplier during finalization of Document Control Index (DCI).
- "@" indicates submission of documents to Inspection Agency.
- Bill of Material shall form part of the respective drawing.
- "*" indicates the following:
 - Equipments whose ITP is attached with Contract -ITP for respective equipment shall be followed. Therefore, no ITP is to be furnished for review for those equipments.
 - Equipments whose ITP is not attached with Contract-Manufacturer's ITP shall be submitted by Packager/ Vendor/Contractor to respective Regional Procurement Office (RPO) near to manufacturer's works for approval by EIL Inspection.
- All technical details and documents furnished with bids shall be treated as data for engineering. These shall however be subject to Purchasers review after order placement and bidder shall comply to MR/Tender requirements without any cost & time implication to EIL/Owner.

VENDOR DATA REQUIREMENTS FOR COOLING TOWER PACKAGE

A	12-AUG-2025	Issued for MR	SS	RK	NK
Rev. No.	Date	Purpose	Prepared by	Checked by	Approved by

VENDOR DATA REQUIREMENTS

The following drawings/documents marked "✓" shall be furnished by the bidder.

S. N O.	DESCRIPTION	WITH BID	POST ORDER			REMARKS
			FOR REVIEW	FOR RECORD	WITH DATA BOOK (FINAL)	
1.	Documents / drawings list with schedule of submission		✓		✓	
2.	Sub-vendor list for instruments and accessories		✓		✓	
3.	Instrument Index			✓	✓	
4.	Purchase requisitions (PRs) with Instrument datasheets tech. catalogs for all Instrumentation Items, valves, analyzers and system oriented items (e.g Package PLC).		✓		✓	Review category for critical items like PLC, Control valve, On-Off Valve, special instruments.
5.	Utility requirements (UPS and non-UPS power supply, instrument air, plant air, nitrogen, cooling water, service water, steam, etc.)	✓		✓	✓	
6.	Instrument sizing calculations (like all control valves, pressure relief and safety valves, desuperheaters / PRDS, all flow instruments, etc), power cable sizing calculations, thermowell wake frequency calculations.			✓	✓	
7.	Functional loop schematics for Package PLC system			✓	✓	
8.	Filled in Format for technical confirmation list (Instrumentation)	✓		✓	✓	
9.	Logic Diagrams (in ISA format) & logic write-up (as applicable) to be implemented		✓		✓	
10.	Point database (separately for DCS & ESD) for bidder's package including all configuration details like ranges, alarm / trip set points for all tags (as applicable)			✓	✓	
11.	Instrument loop wiring drawings for Package PLC			✓	✓	
12.	Power supply distribution and Wiring diagram for Package PLC			✓	✓	
13.	Package PLC Panels /cabinet front / GA arrangement, channel base frame drawings, wiring drawings, Cabinets grounding details.			✓	✓	
14.	Graphics Display drawings including overview graphics, group views, assignments etc including logging, trending and MIS printout for DCS & Interlock graphics for Package PLC			✓	✓	
15.	I/O Summary Format for Package PLC			✓	✓	
16.	Logistics support certificates for system oriented items (e.g Package PLC).			✓	✓	
17.	Overall System architecture / configuration drawing for Package PLC System		✓		✓	
18.	Logic description / operation & control narrative			✓	✓	

**VENDOR DATA REQUIREMENTS
FOR
COOLING TOWER PACKAGE**

S. N. O.	DESCRIPTION	WITH BID	POST ORDER			REMARKS
			FOR REVIEW	FOR RECORD	WITH DATA BOOK (FINAL)	
19.	Panels / cabinets GA and channel base frame drawings, wiring drawings, Cabinets grounding details.			✓	✓	
20.	Local Panels GA, Power distribution, Wiring arrangements			✓	✓	
21.	Instrument Cable Schedule			✓	✓	
22.	Electrical / instrumentation interface details			✓	✓	
23.	Responsibility Definition Matrix for system oriented instrumentation (eg. Package PLC)			✓	✓	
24.	Instrument cable tray routing layout on vendor supplied pre-wired equipment / pre-wired Skid, clearly indicating tie in points for connection to Instrument cable ducts.			✓	✓	
25.	Instrument Location and JB / LCP location drawings			✓	✓	
26.	Instrument Air supply distribution drawings			✓	✓	
27.	Nozzle elevations for level instruments (Level Sketches)			✓	✓	
28.	Bill of material for all installation items			✓	✓	
29.	Instrument Installation Standards (Hook-ups) with Bill of materials			✓	✓	
30.	Software licenses & keys/ password			✓	✓	
31.	Serial interface & MODBUS mapping details for interfacing IS display unit, Package PLC			✓	✓	
32.	Site Acceptance Test (SAT) procedure for Package PLC.		✓		✓	
33.	Mandatory spares parts list with make , model number , part number , Exact Detailed Description		✓		✓	
34.	Instrumentation Commissioning & consumable spares list			✓	✓	
35.	Special test equipment/ tool requirement for maintenance			✓	✓	
36.	Information pertaining to SMART field devices			✓	✓	
37.	List of 2 years spares for operation & maintenance	✓		✓	✓	
38.	Certificates (statutory/ test/ calibration/ inspection)			✓	✓	
39.	Complete catalogues with part list for all vendor supplied instruments			✓	✓	
40.	Installation, operation, Programming and maintenance manuals.			✓	✓	
41.	As-built drawings/ documents in soft copy			✓	✓	
42.	Instrument datasheets , Instrument index , cable schedule & instrument loop diagrams including JB wiring in Intergraph Smart Plant Instrumentation (SPI) software v13.1			✓	✓	
43.	Factory Testing and Acceptance (FAT) procedure for Package PLC.		✓		✓	

**VENDOR DATA REQUIREMENTS
FOR
COOLING TOWER PACKAGE**

S. N O.	DESCRIPTION	WITH BID	POST ORDER			REMARKS
			FOR REVIEW	FOR RECORD	WITH DATA BOOK (FINAL)	
44.	Consoles GA and wiring for PCs at Dosing Control Room			✓		

Notes :

- "TICK" denotes applicability.
- Post order, drawing / document review shall commence only after approval of Document Control Index (DCI).
- All post order documents shall be submitted / approved through EIL eDMS portal.
- All drawings & documents shall be submitted in A4 or A3 paper sizes. Documents in higher paper size shall be submitted in exceptional circumstances or as indicated in the MR/Tender.
- Post order- The schedule of drawing / data submission shall be mutually agreed between EIL & the bidder / contractor / supplier during finalization of Document Control Index (DCI).
- Bidder shall furnish the soft copies of the all the engineering drawings/documents in their scope including sub packages in the formats which shall be given during detail engineering. The specifications of all field instruments like transmitters, orifices, control valves, Temperature elements etc. in MS Office/Excel and all drawings in ACAD.
- Bidder shall clearly indicate the sequence of submission of all the drawings/ documents after award of contract. This sequence shall be adhered to during entire execution period. Bidder shall also ensure that drawing/ documents, which are based on other drawings/ documents, are submitted only after the basis document has been reviewed/ approved in minimum Code 2. Submissions not following this sequence will be treated as redundant and may not be reviewed / approved by owner.
- Functional schematics and point database shall be submitted for all I/Os in required formats. Sample format shall be given to the successful bidder after placement of order. Bidder to note that system engineering documents are required for further engineering and site work. These documents shall be positively provided as per mutually agreed schedule after order.
- All post-order instrument documents/ drawings shall be submitted after issue of P&IDs. The submission of document / drawing is sequenced in such a way that submitted document/ drawing is neither dependant nor changed due to drawing / document yet to be submitted. Document/ drawing submission schedule shall be made accordingly.
- Review and Records as marked has to be strictly followed.
- a) Purchase requisition for all critical items like analysers, special instruments shall be submitted for review. Purchase requisition for all other items shall be submitted for record.
- b) Only critical documents as identified by EIL from bidders drawing schedule shall be reviewed.
- c) Documents other than those identified by EIL shall be submitted for record.
- Document shall be submitted within two weeks of placement of LOI/FOI
- Bidder shall note that the documents listed above are the minimum requirements and any additional document required as per bidder's experience should also be furnished. Bidder is required to furnish a revised drawing/ document schedule incorporating additional drawings as required for purchaser's review after award of contract.
- In addition to documentation pertaining to the Instruments and accessories supplied by the bidder, bidder shall also furnish all engineering deliverables as listed above required for detailed engineering of Control systems and field activities. These engineering deliverables shall be submitted as per the schedule agreed after

award of contract. Bidder shall ensure that this schedule is strictly adhered to.

15. All revisions of drawings/ documents shall have revisions clearly marked/ clouded. Further Bidder shall submit a Revision Summary sheet listing the sheets where revision/ changes are made, type of changes/ revision (e.g. `Model number changed`, `Body material changed`, `Size changed`, `Measuring Range changed`, `Type of enclosure protection changed`, `Type of ingress protection changed`, `Type of signal changed`, etc.), and reason for changes. In case bidder makes some changes in the drawing/ document on his own (i.e. not as per Purchaser's comment), bidder must state those in revision summary sheet with reasons while submitting the revised drawing/ document.

16. It is mandatory for the bidder to furnish `AS BUILT` revision of all drawings/ documents listed below. Bidder shall prepare & submit the as built drawings / documents after commissioning. All the drawings/ documents listed shall be converted into `As Built` after commissioning of Project. `As Built` shall include documents generated by bidder & documents generated/ submitted by various Sub-vendors.

17. Refer - 6-78-0001: Specification for quality management system from Bidders.

18. Refer - 6-78-0002: Specification for documentation requirements from Contractors.

19. Refer - 6-78-0003: Specification for documentation requirement from Suppliers.

20. Final documentation shall be submitted to site in-charge in hard copy (Three prints) and soft (two CDs/DVDs)

in addition to submission through EIL eDMS.

21. Instrument datasheets , Instrument index , cable schedule & instrument loop diagrams including JB wiring shall be prepared in Intergraph Smart Plant Instrumentation (SPI) software and native file to be submitted in as built.

VENDOR DATA REQUIREMENTS FOR HSE SCOPE OF WORK & SUPPLY (COOLING TOWER PACKAGE OF PPU)

A	04-SEP-2025	ISSUED FOR TENDER	IA	JKU	DK
Rev. No.	Date	Purpose	Prepared by	Checked by	Approved by

VENDOR DATA REQUIREMENTS

The following drawings/documents marked "✓" shall be furnished by the bidder.

S. N O.	DESCRIPTION	WITH BID	POST ORDER			REMARKS
			FOR REVIEW	FOR RECORD	WITH DATA BOOK (FINAL)	
1.	HAZOP Study Closeout Report		✓		✓	
2.	SIL Classification Study Closeout Report (If Applicable)		✓		✓	
3.	QRA Study Closeout Report (If Applicable)		✓		✓	
4.	Hazardous Area Classification Drawing (including Hazardous Source List)		✓		✓	
5.	F&G Detector Layout		✓		✓	
6.	F&G Detector Datasheet		✓		✓	
7.	Firefighting Equipment List and Datasheet		✓		✓	
8.	Operating Manual of Portable Fire Extinguishers			✓	✓	
9.	Eyewash & Safety Shower Layout (including datasheet of EW&SS)		✓		✓	
10.	As Built Drawings (Editable & PDF)			✓	✓	

Notes :

1. "TICK" denotes applicability.
2. Post order, drawing / document review shall commence only after approval of Document Control Index (DCI).
3. All drawings & documents shall be submitted in A4 or A3 paper sizes. Documents in higher paper size shall be submitted in exceptional circumstances or as indicated in the MR/Tender.
4. All post order documents shall be submitted / approved through EIL eDMS portal.
5. Refer - 6-78-0001: Specification for quality management system from Bidders.
6. Refer - 6-78-0002: Specification for documentation requirements from Contractors.
7. Refer - 6-78-0003: Specification for documentation requirement from Suppliers.
8. Post order- The schedule of drawing / data submission shall be mutually agreed between EIL & the bidder / contractor / supplier during finalization of Document Control Index (DCI).

VENDOR DATA REQUIREMENTS FOR COOLING TOWER PACKAGE

A	14-AUG-2025	ISSUED FOR MR	AV	AV	LSJ
Rev. No.	Date	Purpose	Prepared by	Checked by	Approved by

VENDOR DATA REQUIREMENTS

The following drawings/documents marked "✓" shall be furnished by the bidder.

S. N. O.	DESCRIPTION	WITH BID	POST ORDER			REMARKS
			FOR REVIEW	FOR RECORD	WITH DATA BOOK (FINAL)	
1.	Document Control Index		✓		✓	
2.	Drawings - Battery Limit Interface with valving arrangement		✓		✓	
3.	Flexibility Analysis line index		✓		✓	
4.	Flexibility Analysis Reports with stress isometrics marked with computer nodal points and support type			✓	✓	
5.	Piping Supports Standards including special supports			✓	✓	
6.	IBR Package			✓	✓	
7.	3D MODEL REVIEW - 30% Stage		✓			
8.	3D MODEL REVIEW - 60% Stage		✓			3D Models with Tag points resolution for 30% model review shall be provided.
9.	3D MODEL REVIEW - 90% Stage		✓			3D Models with Tag points resolution for 30% & 60% model reviews shall be provided.
10.	3D MODEL FINAL		✓		✓	3D Models with Tag points resolution for 30%, 60% & 90% model reviews shall be provided.
11.	Support marked Isometrics with BOM			✓	✓	
12.	General Arrangement Drawings			✓	✓	
13.	As-Built Isometrics			✓	✓	
14.	As-Built GAD			✓	✓	
15.	3D Model with complete editable data base.			✓	✓	As-Built
16.	Vendor Drawings			✓	✓	
17.	Piping Material: Test Certificates, Drawings/ Documents etc. and Compliance Report			✓	✓	

Notes :

- "TICK" denotes applicability.
- Post order, drawing / document review shall commence only after approval of Document Control Index (DCI).
- All post order documents shall be submitted / approved through EIL eDMS portal.
- Final documentation shall be submitted in hard copy (Six prints) and soft (two CDs/DVDs) in addition to

submission through EIL eDMS.

5. Refer - 6-78-0001: Specification for quality management system from Bidders.
6. Refer - 6-78-0002: Specification for documentation requirements from Contractors.
7. Refer - 6-78-0003: Specification for documentation requirement from Suppliers.
8. All drawings & documents shall be submitted in A4 or A3 paper sizes. Documents in higher paper size shall be submitted in exceptional circumstances or as indicated in the MR/Tender.
9. Post order- The schedule of drawing / data submission shall be mutually agreed between EIL & the bidder / contractor / supplier during finalization of Document Control Index (DCI).
10. Bill of Material shall form part of the respective drawing.
11. The document category can be changed from Record to Review or vice-versa at any stage by Owner/ EIL. Package vendor shall incorporate comments on such documents also without any time and cost implication.

VENDOR DATA REQUIREMENTS FOR COOLING TOWER PACKAGE (COST CONTROL)

A	09-JAN-2026	ISSUED FOR TENDER	-JK-	-SKK-	-AC-
Rev. No.	Date	Purpose	Prepared by	Checked by	Approved by

VENDOR DATA REQUIREMENTS

The following drawings/documents marked "✓" shall be furnished by the bidder.

COST CONTROL

S. N O.	DESCRIPTION	WITH BID	POST ORDER			REMARKS
			FOR REVIEW	FOR RECORD	WITH DATA BOOK (FINAL)	
1.	Assesment of Quantum of Work	✓				
2.	As Built Quantities			✓		

Notes :

1. "TICK" denotes applicability.
2. All post order documents shall be submitted / approved through EIL eDMS portal.
3. All vendor documents shall be reviewed & signed by the package contractor before forwarding the same to Owner/PMC for records.
4. Final documentation shall be submitted in hard copy (Two prints) and soft in addition to submission through EIL eDMS.
5. The list/ formats given are indicative only. Contractor shall modify the format for new items/applicable items required for completion of the job.
6. Refer Annexure-1 of the COST CONTROL Document No:C050-86-41- CT-06 for the formats to be used for Assesment of Quantum of Work and As Built Quantities.

Signature Not Verified

Digitally signed by MD MAZHER ALI
Date: 2026.04.09 18:14:19 IST
Location: eProcure-EPROC