

**GENERAL NOTE FOR PRECAST ARCH BRIDGE****DRG.NO.TP/DC-BR/ARCH-PC/2018-62-1/1**

1. ALL DIMENSIONS ARE IN METER AND LEVELS ARE IN METER UNLESS OTHERWISE SPECIFIED.
2. DIMENSIONS SHALL NOT BE SCALED OFF FROM THE DRAWING ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
3. THE BRIDGE IS DESIGNED FOR LOADING ACCORDING TO IRC : 6 - 2017.
4. THE PRECAST PCC ARCH BRIDGE IS DESIGNED FOR HIGH LEVEL AND SUBMERSIBLE CONDITIONS.
5. FOR ADDITIONAL VENT AREA MAXIMUM POSSIBLE OPENING IN SPANDREL CAN BE PROVIDED WITH 2% SLOPE, CONSIDERING MINIMUM 500MM AS A CUSHION FROM ALL SIDES OF PIPE.
6. TO DETERMINE SIZE OF SPANDREL OPENING TO BE PROVIDED IF REQUIRED, DETAIL HYDRAULIC CALCULATIONS SHALL BE CARRIED OUT.
7. FILLING OVER THE ARCH RING (HAUNCH FILL) SHALL BE PROVIDED WITH PLUM CONCRETE (60% PLUM / 40% CONCRETE OF M10 GRADE).
8. HAUNCH FILLING SHALL BE TOPPED BY 150MM THICK PCC M15 CONCRETE.
9. SPANDREL CLADDING FOR RETAINING HAUNCH FILLING SHALL BE IN PCC M15 CONCRETE BLOCK.
10. OUTER FACE OF THE SPANDREL CLADDING SHALL BE FLUSHED WITH OUTSIDE FACE OF ARCH.
11. SEISMIC FORCES ARE NOT CONSIDERED FOR DESIGN OF PRECAST PCC ARCHES.
12. CONCRETE GRADE FOR PCC ARCH RING AND SOCKET IS M30.
13. DESIGN OF SUB STRUCTURE AND FOUNDATIONS IS TO BE OBTAINED FROM DESIGN CIRCLE / COMPETENT AUTHORITY.
14. TO DRAIN OFF RAIN WATER FALLING ON DECK SURFACE OF ARCH BRIDGE IN CASE OF HIGH LEVEL BRIDGE, THE GAP OF 150MM IS TO BE PROVIDED AT EVERY 5M.
15. SCHEDULE OF QUANTITIES ARE FOR PURPOSES OF ESTIMATION AND DESIGN SUBJECT TO SITE CHECK.
16. STRUCTURE SHALL BE CHECK FOR STABILITY AGAINST OVERTURNING AND SLIDING FOR WATER LEVEL AT ROAD TOP LEVEL.
17. FOR HIGH LEVEL ARCH BRIDGE, CRASH BARRIER AS PER DRG.NO. TP / DC - BR / MISC / 2018-59-1/1 SHALL BE PROVIDED.
18. FOR SUBMERSIBLE ARCH BRIDGE, CONVENTIONAL PIPE RAILING SHALL BE PROVIDED WITH INTERMITTENT KERBS.
19. FOR ROB AND FLYOVER APPROACH ROADS, PREFERENCE SHALL BE GIVEN FOR OPENING WITH THE HELP OF PCC PRECAST ARCH STRUCTURES.
20. PRECAST PCC ARCH BRIDGES ARE PREFERRED WHERE REGULAR MAINTENANCE OF STRUCTURE IS NOT POSSIBLE, IN COASTAL AREAS WHERE CORROSION OF REINFORCEMENT IS TO BE AVOIDED, REQUIRES FAST CONSTRUCTION AND AESTHETIC IS PRIMARY REQUIREMENT.
21. COMBINATIONS OF DIVERSE PRECAST BLOCKS CAN BE USED TO ACHIEVE REQUIRED GEOMETRY.
22. PERMISSIBLE STRESSES IN CONCRETE AND STABILITY PARAMETERS CONFORMING TO IRC:112 - 2011 AND IRC: 78 -2014.
23. TMT FE 500 REINFORCING STEEL SHALL BE AS PER IRC: 78 - 2014.
24. FILLING BEHIND ABUTMENTS SHALL BE AS PER IRC: 78 - 2014.
25. PROTECTION WORK IS PROVIDED AS PER IRC: 69 SECTION 2500 OF MORTH & SPECIFICATION.
26. WEARING COURSE IS AS PER CLAUSE 2702 OF MORTH & SPECIFICATION.
27. BEFORE EXECUTING WORK, ROCK LEVEL SHOULD BE CLEARLY IDENTIFIED.
28. THE TYPE DESIGN MAY BE USED FOR SKEW BRIDGE WITH SKEW ANGLE LESS THAN 20°. THE PIERS AND ABUTMENTS SHOULD BE ORIENTED PARALLEL TO FLOW DIRECTION AT SITE.
29. BEFORE COMMENCEMENT OF EXECUTION OF WORK CROSS SECTION AT THE SITE SHALL BE TAKEN BY PRECISION SURVEY, ABUTMENT AND PIER POSITION SHOWN IN THE TECHNICALLY SANCTIONED DRAWING SHALL BE VERIFIED ON THE SITE IN CASE OF ANY DISCREPANCY OR DOUBT CLARIFICATION SHALL BE OBTAINED FROM COMPETENT AUTHORITY BEFORE HAND.
30. WORK SHALL BE CARRIED OUT AS PER RELEVANT CLAUSE IRC: 13: 2004 MORTH & SPECIFICATION / METHODOLOGY.
31. FOR MAINTAINING THE GEOMETRIC STANDARDS OF THE ROAD, STRUCTURE SHOULD BE CONSTRUCTED SIMULTANEOUSLY WITH THE EARTH WORK AS PER IRC: SP: 13 - 2004.
32. RIVER TRAINING TO BE CARRIED OUT UP-TILL LENGTH OF THE BRIDGE OR 100 M WHICHEVER IS MORE ALONG THE RIVER BED.
33. SURFACE REINFORCEMENT TO BE PROVIDED ACCORDING TO IRC: 5 (MIN 5KG/SQM).
34. STOPPER SHALL BE PROVIDED ON U/S & D/S SIDE.
35. THE FINISHED CAMBER IN THE WEARING SURFACE SHALL BE 1 IN 40.
36. PRESSURE RELIEF PIPE OF 100 MM DIA. @ 1NO. PER 10 SQ.M OF RAFT AREA OR MIN. 5 NO. PER SPAN SHALL BE PROVIDED.
37. ADEQUATE AND NECESSARY PROTECTION WORKS FOR BED AND BANKS SHALL BE PROVIDED.
38. GENERALLY HEIGHT OF THE PIER SHALL NOT BE GREATER THAN SPAN OF THE ARCH, HOWEVER UNAVOIDABLE SITUATION SHALL CONSULT WITH COMPETENT AUTHORITY.
39. THE SAFE BEARING CAPACITY BEARING OF FOUNDING STRATA BELOW OPEN FOUNDATION IS ASSUMED AS 80 T/SQ.M AND FOR RAFT FOUNDATION 15 T/SQ.M. IF SBC FOUND BELOW THAN ABOVE MENTION VALUES SEPARATE DESIGN SHALL BE OBTAINED FROM COMPETENT AUTHORITY / CONSULTANT.
40. DEPTH OF THE FOUNDATION SHALL BE IN ACCORDANCE WITH CLAUSE 705 OF IRC 7 8-2014.
41. DESIGN OF ARCHES ARE IN ACCORDANCE WITH IRC:SP-13:2004.
42. LOAD CARRYING CAPACITY OF ARCH BRIDGES CAN BE PERFORMED ACCORDING TO IRC:SP-37:2010.
43. FILLING ABOVE THE ARCHES SHALL BE SYMMETRICAL ON BOTH SIDES OF ARCHES AND MAXIMUM HEIGHT UP-TO 1M AT EACH POURING CYCLE.
44. 100 DIA. WEEP HOLES SHALL BE PROVIDED IN ABUTMENT / RETURNS ABOVE LOW WATER OR NATURAL GROUND LEVEL AT 1.0 M C/C HORIZONTALLY AND 1.0 M VERTICALLY, WELL STAGGERED AS PER CLAUSE 206 OF MORTH & SPECIFICATIONS.
45. DEPENDING ON SOIL STRATA AVAILABLE AT SITE SUITABLE TYPE OF RETURN SHALL BE PROVIDED.
46. GAD (GENERAL ARRANGEMENT DRAWING) OF MULTI SPAN ARCH BRIDGES ARE APPLICABLE FOR TWO OR MORE SPANS.

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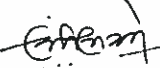

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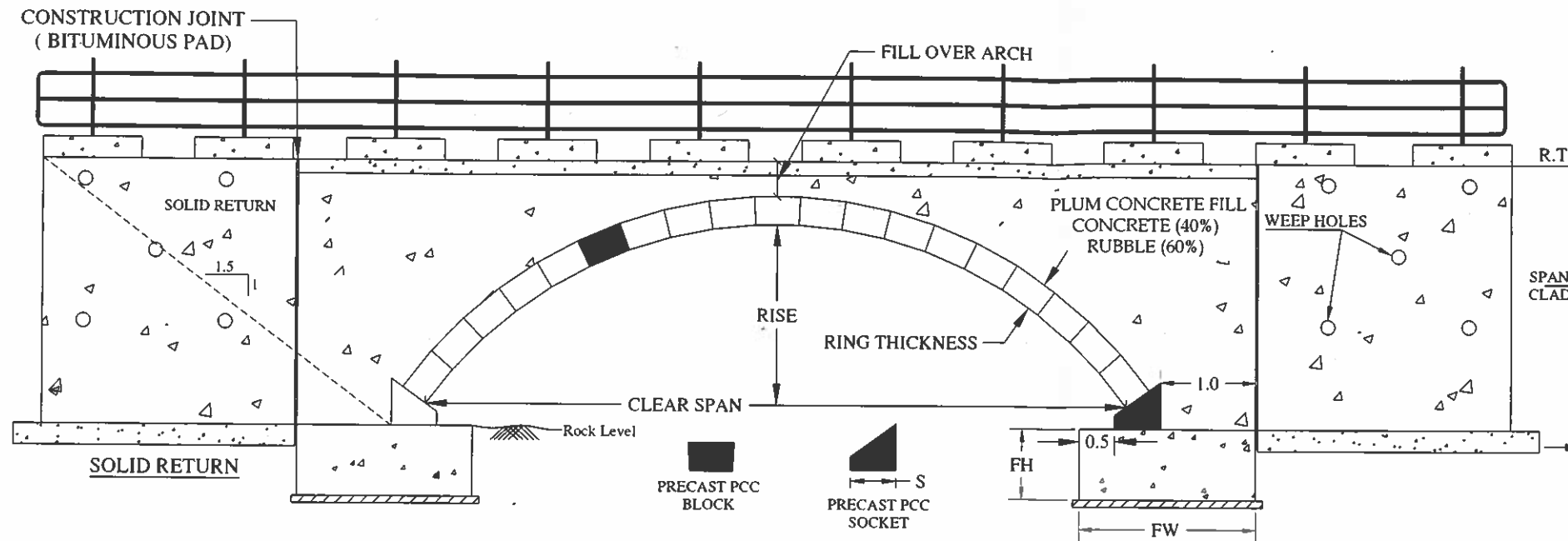
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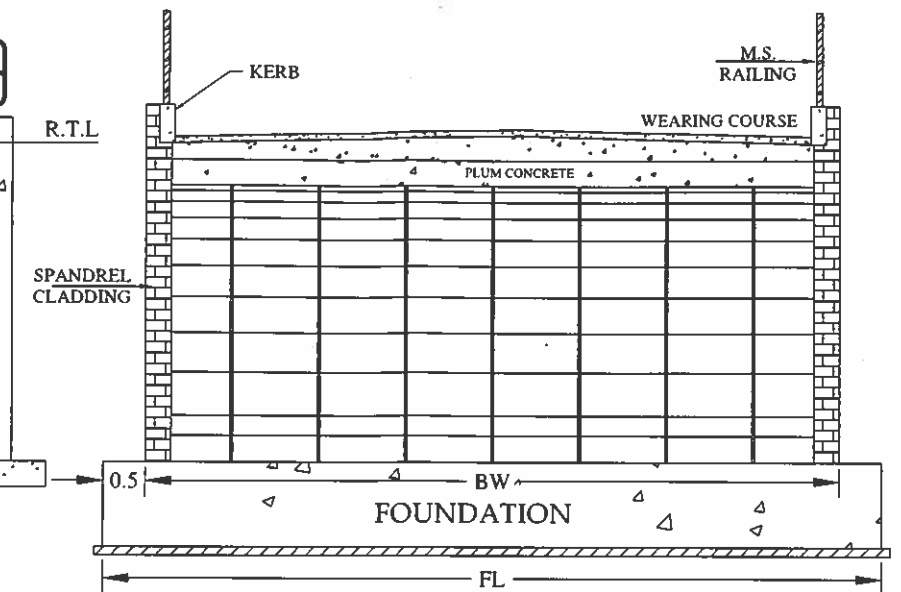
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DESIGNS CIRCLE, P.W.D.  
4th FLOOR, KONKAN BHAVAN, NAVI MUMBAI-400614

**TYPE PLAN FOR PCC PRECAST ARCH BRIDGE  
FOR CARRIAGE WAY 7.5M, 11M, 11.55M  
FOR SUBMERSIBLE AND HIGH LEVEL BRIDGES.  
(GENERAL NOTES)**

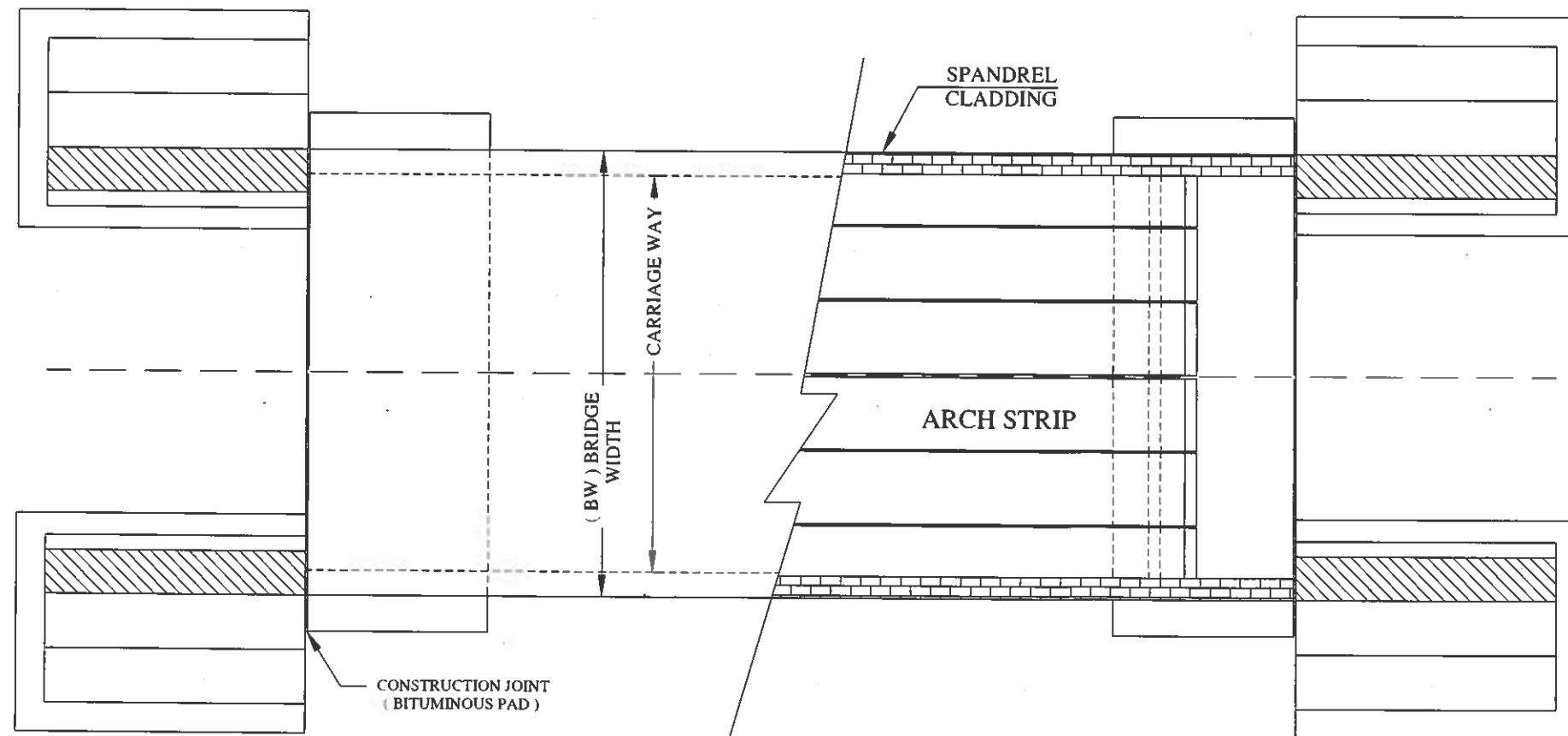
 (M. I. SHAIKH) ASSTT. ENGINEER. (GR.-I)	 (S. S. SAHUTRE) EXECUTIVE ENGINEER	 (S. S. BRONGGE) SUPERINTENDING ENGINEER
SCALE :- NOT TO SCALE	DRAWN BY - SHOEB HAMEED KHAN (SEC. ENGINEER)	



LONGITUDINAL SECTION OF ARCH BRIDGE



ARCH SECTION DETAILS



HALF PLAN AT FOUNDATION TOP LEVEL

HALF PLAN AT ARCH TOP LEVEL

NOTES:

- 1) THESE GEOMETRIES OF PRECAST PCC ARCH BRIDGES ARE APPLICABLE FOR SUBMERSIBLE AND HIGH LEVEL CONDITIONS.
- 2) GRADE OF CONCRETE FOR PRECAST PCC ARCH RING AND SOCKET IS M30.
- 3) THIS DRAWING SHALL BE USED WITH THE CONJUNCTION WITH THE FOLLOWING DRAWINGS

- A) TP/DC-BR/ARCH-PC/2018-62-1/1
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- G) TP/DC-BR/ARCH-PC/2018-69-1/3
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- I) TP/DC-BR/ARCH-PC/2018-69-3/3

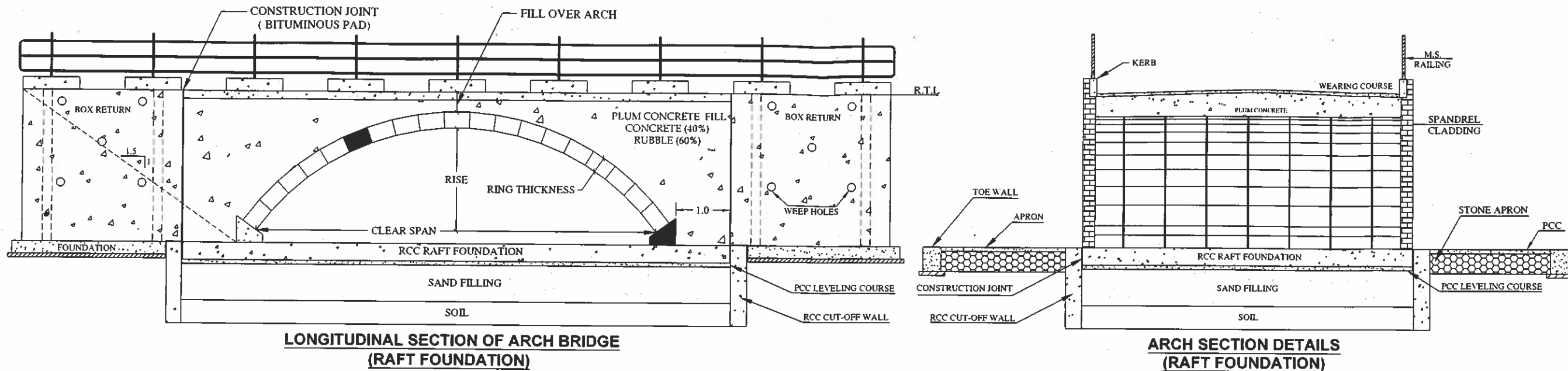
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S = ARCH SOCKET WIDTH [ REF. : NOTES (3G), (3H), (3I) ]  
 FH = HEIGHT OF FOUNDATION BLOCK = 1.0 M  
 FW = FOUNDATION BLOCK WIDTH = S + 1.5  
 BW = BRIDGE WIDTH  
 FL = FOUNDATION BLOCK LENGTH = BW+1

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**TYPE PLAN FOR PCC PRECAST ARCH BRIDGE**  
**FOR CARRIAGE WAY 7.5M, 11M, 11.55M**  
**FOR SUBMERSIBLE AND HIGH LEVEL BRIDGES.**  
**(GAD FOR SINGLE SPAN ON OPEN FOUNDATION)**

 (M. I. SHAIKH) ASSTT. ENGINEER. (GR.-I)	 (S. S. SAHUTRE) EXECUTIVE ENGINEER	 (S. S. BRONGE) SUPERINTENDING ENGINEER
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## CONSTRUCTION METHODOLOGY

- LITHELY ARCH IS A MODULAR, PRECAST ARCH BRIDGE SYSTEM.
- THIS SYSTEM IS BASED ON THE SAME PRINCIPLE AS TRADITIONAL STONE ARCH BRIDGES DATING FROM ROMAN TIMES WITHOUT THE STONE MASON.
- INDIVIDUAL CONCRETE TAPERED BLOCKS PRECAST WITH CORRECT TAPER FOR GIVEN SPAN AND RISE ARE CAST ON CASTING YARD.
- CONCRETE BLOCKS ARE PRE-CAST IN HEAVY MACHINED STEEL MOULDS TO ACHIEVE MAXIMUM ACCURACY IN DIMENSIONS.
- IN SCREED CONCRETING PROCESS INDIVIDUAL TAPERED BLOCKS WILL THEN BE CONNECTED BY FLEXIBLE MEMBER WHICH ALLOWS ARCH FORM DESIRED SHAPE.
- COMBINATION OF HIGH TENSILE STRENGTH WIRE ROPES WITH ALUMINUM FERRULES IS USED AS FLEXIBLE MEMBRANE, THIS FLEXIBLE MEMBRANE IS SANDWICHED BETWEEN BOTTOM CONCRETE BLOCKS AND 60 MM SCREED CONCRETE OVER THE BLOCKS.
- PRECAST PCC SOCKET ARE ALSO CAST IN PRECIOUSLY DESIGNED STEEL MOULDS.
- EVERY PRECAST ELEMENT HAS ITS LIFTING HOOKS ARRANGEMENT EMBEDDED INSIDE THE CONCRETE.
- EACH ARCH STRIP IS MADE IN 1M WIDTH, AND DESIRED LENGTH.
- THESE PRECAST ARCH STRIPS ARE THEN TRANSPORTED TO BRIDGE SITE LOCATION ON TRUCK TRAILER.
- WITH THE HELP OF LIFTING CRANE (CRANE CAPACITY SHOULD BE MINIMUM 2.5 TIMES THE WEIGHT OF STRIP, HOWEVER CAPACITY OF THE CRANE, SHALL BE DECIDED BY THE FIELD ENGINEER CONSIDERING RADIUS OF THE LIFT, POSITION OF TURNING TABLE AND DISTANCE BETWEEN SOCKET AND CRANE) THESE LITHELY ARCH STRIPS ARE THEN PLACED ON PRECAST SOCKET UNITS.
- THE SPANDREL CLADDING GIVES OUTSIDE FINISH TO THE BRIDGE. THEY DO NOT CARRY ANY TRAFFIC LOADS HOWEVER THEY ACT AS A PERMANENT SHUTTERING FOR THE PORED PLUM CONCRETE INFILL WHICH TAKE THE ARCH FROM THE FOUNDATIONS TO ROAD TO LEVEL.
- LITHELY ARCH REQUIRES NO INTERNAL STEEL REINFORCEMENT, AS A COMPRESSION STRUCTURE. IT IS SELF-SUPPORTING BY VIRTUE OF ITS OWN WEIGHT WITHOUT AID OF MORTAR. WITHOUT STEEL REBAR CONTENT, THE POSSIBILITIES FOR INTERNAL CORROSION, REBAR EXPANSION, AND RESULTANT CONCRETE CRACKING ARE ELIMINATED.
- AFTER SUITABLE WEARING COURSE, RETURNS AND PARAPET / RAILING WORK, BRIDGE CAN BE OPEN FOR VEHICULAR TRAFFIC.
- BRIDGE SITES WHERE CRANE AND TRAILERS CAN NOT BE REACHED, SAME PRECAST PCC ARCH BRIDGES CAN BE CONSTRUCTED BY PLACING INDIVIDUAL BLOCKS OVER THE CENTERING WITH THE HELP OF MECHANIZED LIFTING ARRANGEMENT.
- PRECAST CONCRETE BLOCKS SHALL BE DE-MOULDED ONLY AFTER INITIAL SETTING TIME IS OVER, VISUAL INSPECTION IS RECOMMENDED AFTER EVERY DE-MOLDING.
- PERIODICALLY DIMENSIONS OF THE MOULDS SHALL BE INSPECTED AND DAMAGED MOULDS SHALL BE REPLACED / REPAIRED.

### NOTES:

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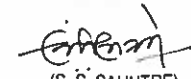



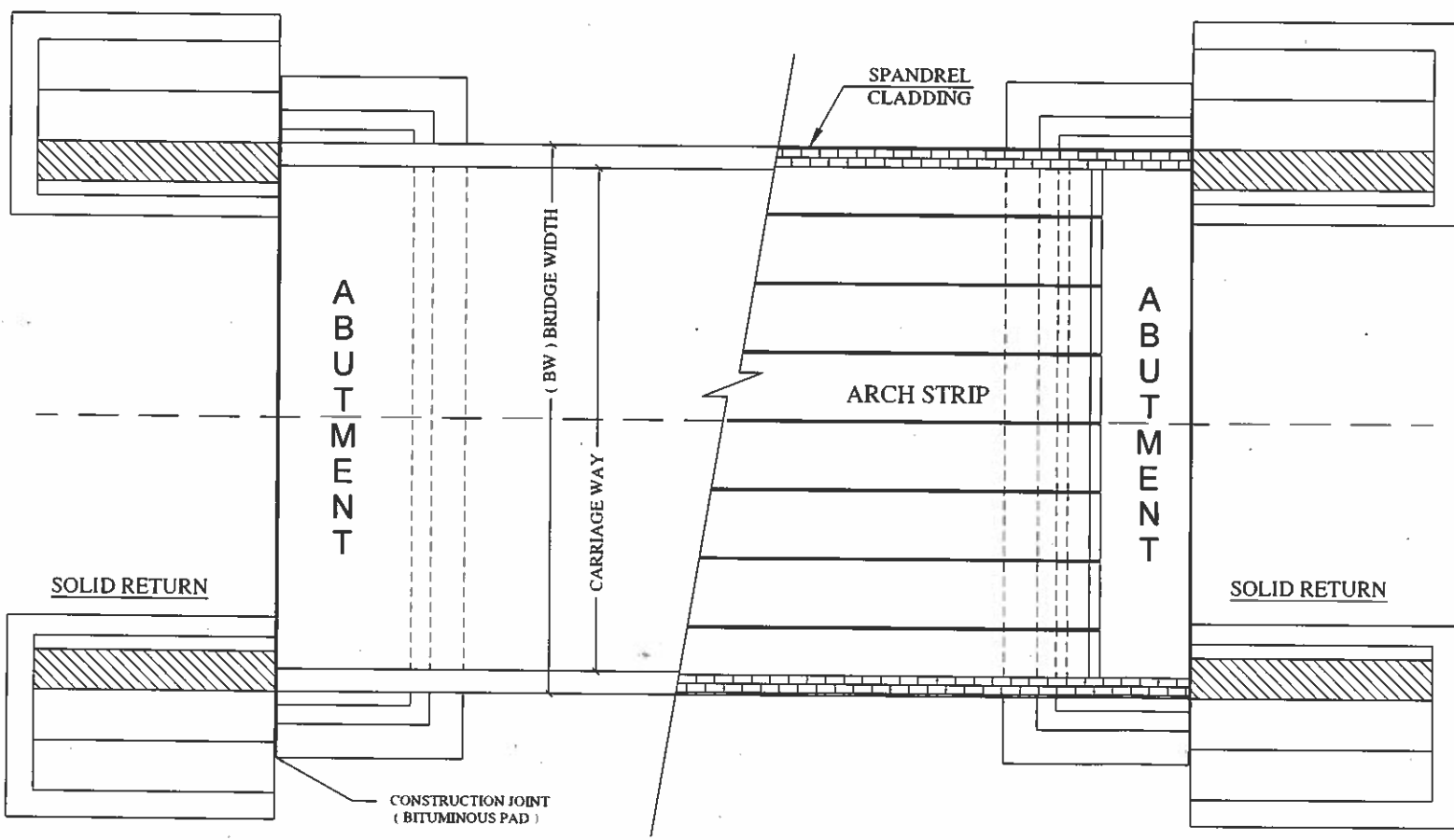
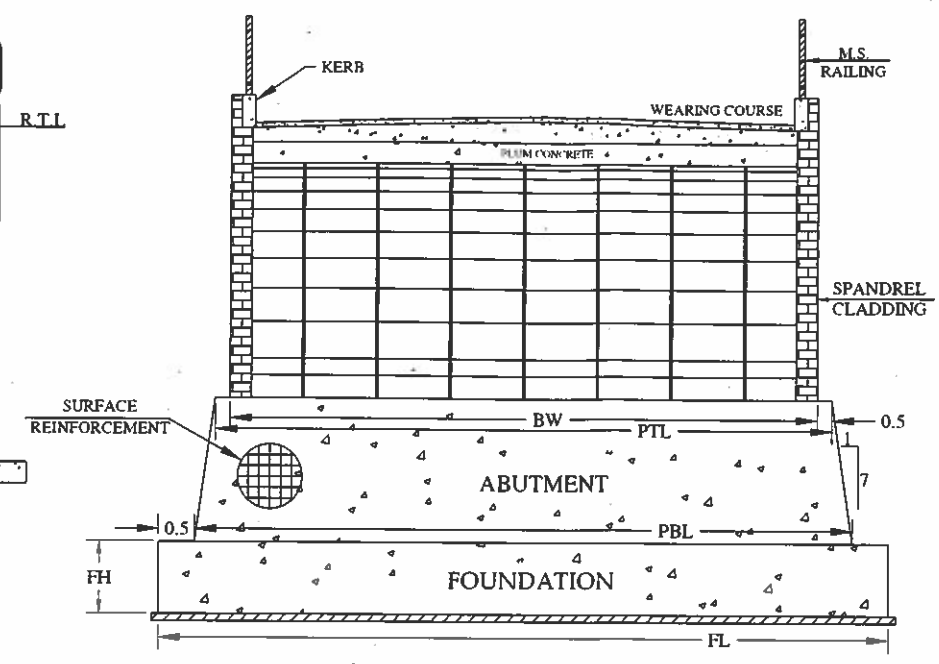
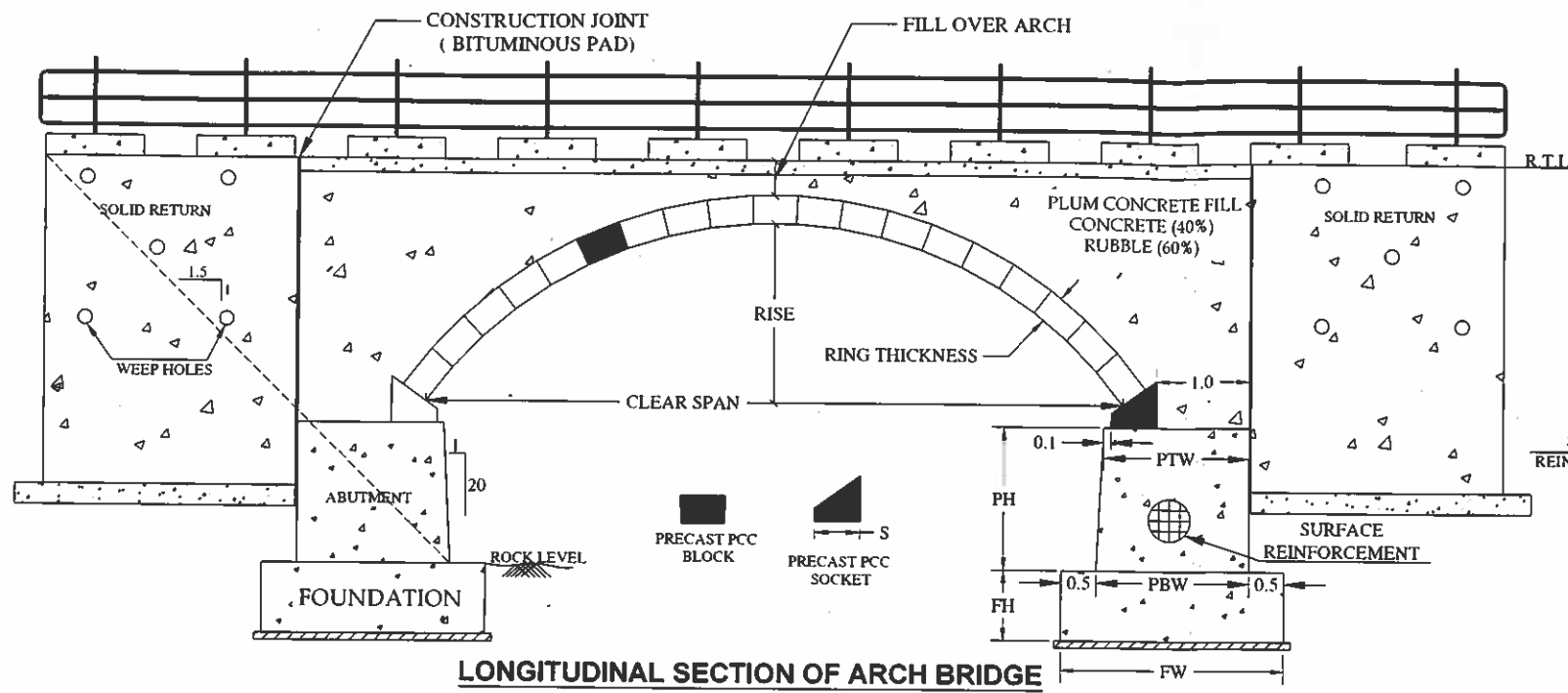
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**TYPE PLAN FOR PCC PRECAST ARCH BRIDGE  
FOR CARRIAGE WAY 7.5M, 11M, 11.55M  
FOR SUBMERSIBLE AND HIGH LEVEL BRIDGES.  
(GAD FOR SINGLE SPAN ON RAFT FOUNDATION)**

 (M. I. SHAIKH) ASSTT. ENGINEER. (GR.-I)	 (S. S. SAHUTRE) EXECUTIVE ENGINEER	 (S. S. BHONGE) SUPERINTENDING ENGINEER
SCALE :- NOT TO SCALE		DRAWN BY:- SHOEB HAMEED KHAN (SEC.ENGINEER)



ARCH SECTION DETAILS

HALF PLAN AT ABUTMENT TOP LEVEL

HALF PLAN AT ARCH TOP LEVEL



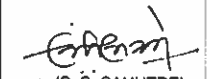

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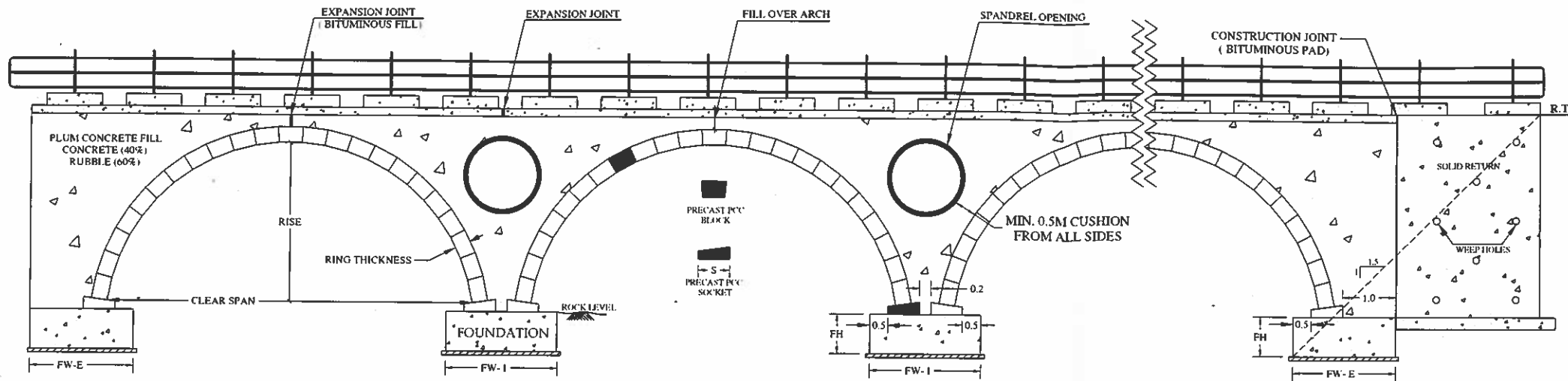
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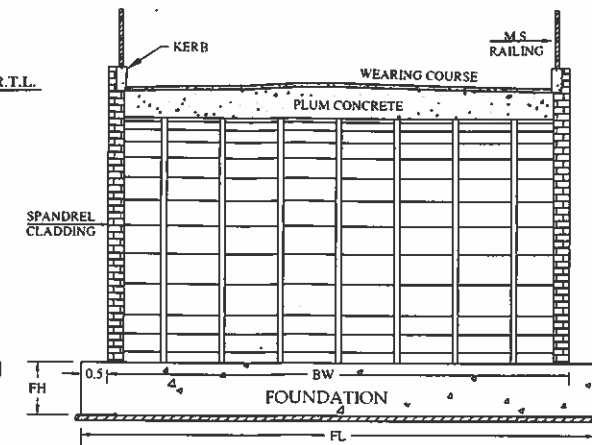
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 PTW = PIER TOP WIDTH, = S + 1.1 M  
 PH = PIER HEIGHT  
 PBW = PIER BOTTOM WIDTH = PTW + ( PH / 20 )  
 FW = FOUNDATION BLOCK WIDTH = PBW + 1.0

FH = FOUNDATION HEIGHT = 1.0 M  
 BW = BRIDGE WIDTH  
 PTL = PIER TOP LENGTH = BW + 1.0M  
 PBL = PIER BOTTOM LENGTH = PTL + ( 2 PH / 7 )  
 FL = FOUNDATION BLOCK LENGTH = PBL + 1.0M

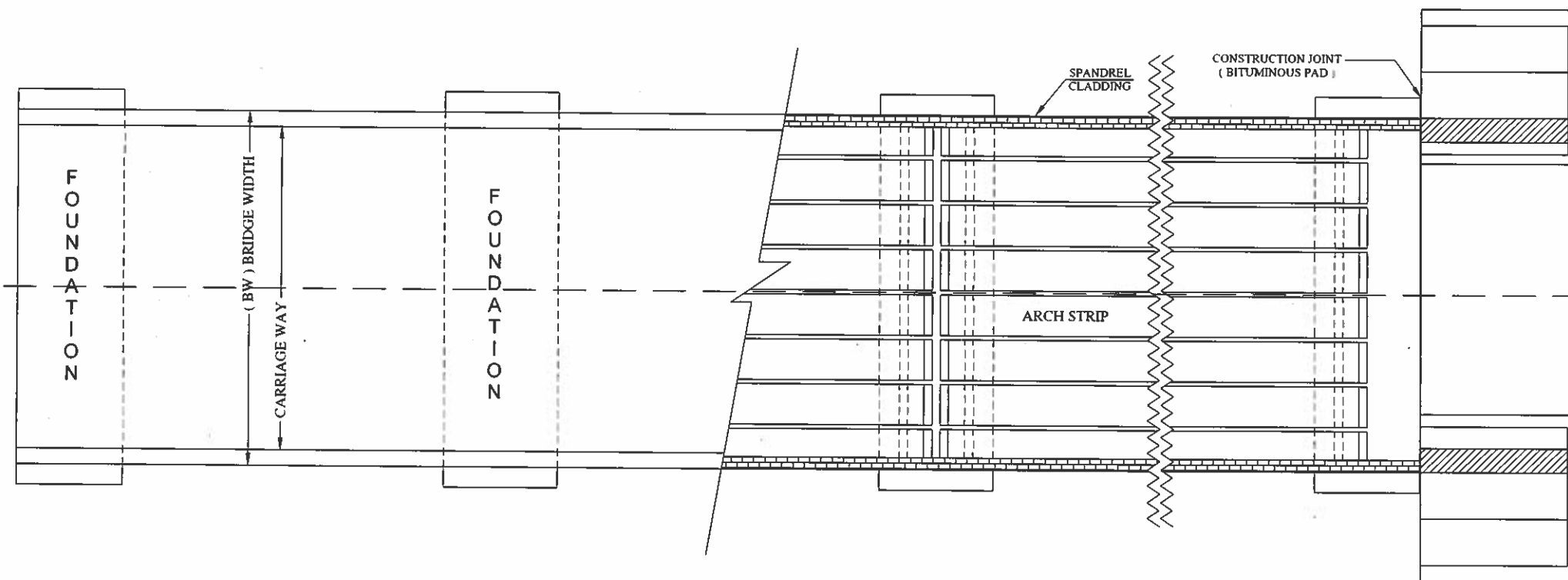
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LONGITUDINAL SECTION OF MULTI SPAN ARCH BRIDGE



ARCH SECTION DETAILS



HALF PLAN AT FOUNDATION TOP LEVEL

HALF PLAN AT ARCH TOP LEVEL

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S = ARCH SOCKET WIDTH [ REF. : NOTES (3G), (3H), (3I) ]

FH = HEIGHT OF FOUNDATION BLOCK = 1.0 M

BW = BRIDGE WIDTH

FL = FOUNDATION BLOCK LENGTH = BW + 1.0 M

FW - E = END FOUNDATION BLOCK WIDTH = S + 1.5 M

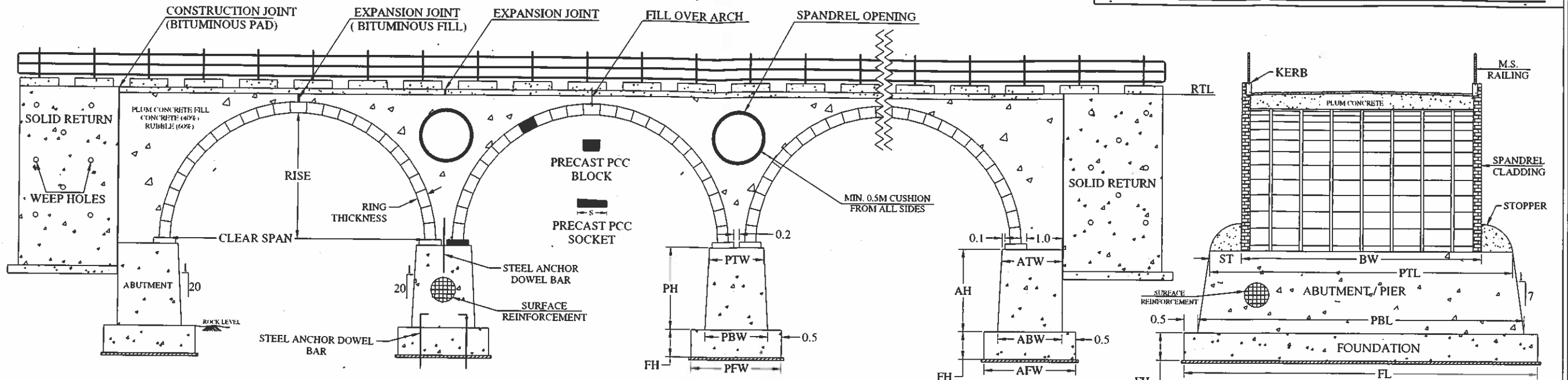
FW - I = INTERMEDIATE FOUNDATION BLOCK WIDTH = ( 2 x S ) + 1.2 M



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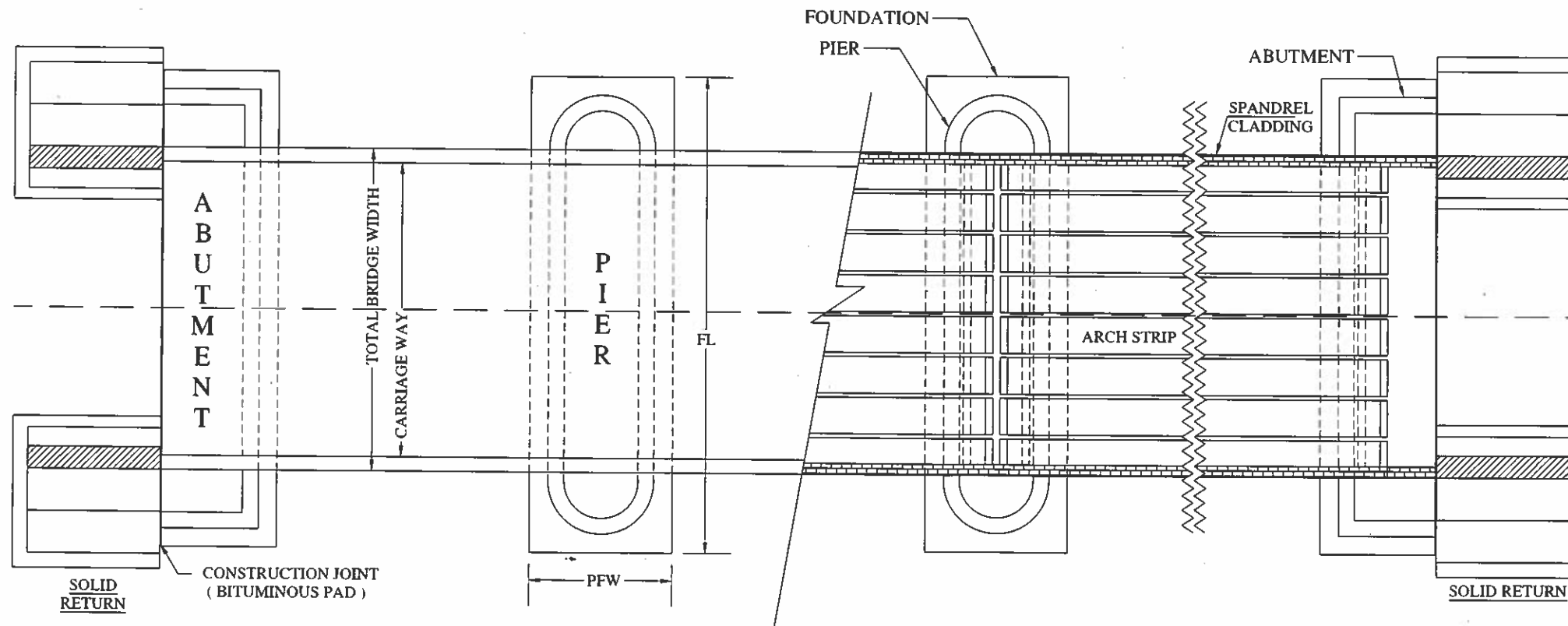
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LONGITUDINAL SECTION OF MULTI SPAN ARCH BRIDGE

ARCH SECTION DETAILS



HALF PLAN AT ABUTMENT / PIER TOP LEVEL

HALF PLAN AT ARCH TOP LEVEL

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 FH = HEIGHT OF FOUNDATION BLOCK = 1.0 M  
 PH = PIER HEIGHT  
 AH = ABUTMENT HEIGHT  
 BW = BRIDGE WIDTH  
 PTW = PIER TOP WIDTH = ( 2 x S ) + 0.4 M  
 PBW = PIER BOTTOM WIDTH = PTW + ( PH / 10 )  
 ATW = ABUTMENT TOP WIDTH = S + 1.1 M

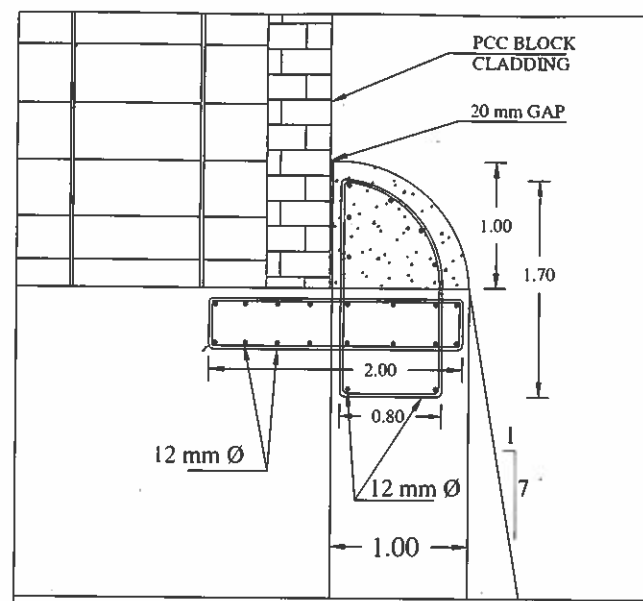
ABW = ABUTMENT BOTTOM WIDTH = ATW + ( AH / 20 )  
 ST = STOPPER LENGTH = PTW / 2  
 AFW = ABUTMENT FOUNDATION BLOCK WIDTH = ABW + 1.0 M  
 PFW = PIER FOUNDATION BLOCK WIDTH = PBW + 1.0 M  
 PTL = PIER TOP LENGTH = BW + ( 2 x ST )  
 PBL = PIER BOTTOM LENGTH = PTL + ( PH / 3.5 )  
 FL = FOUNDATION BLOCK LENGTH = PBL + 1.0 M

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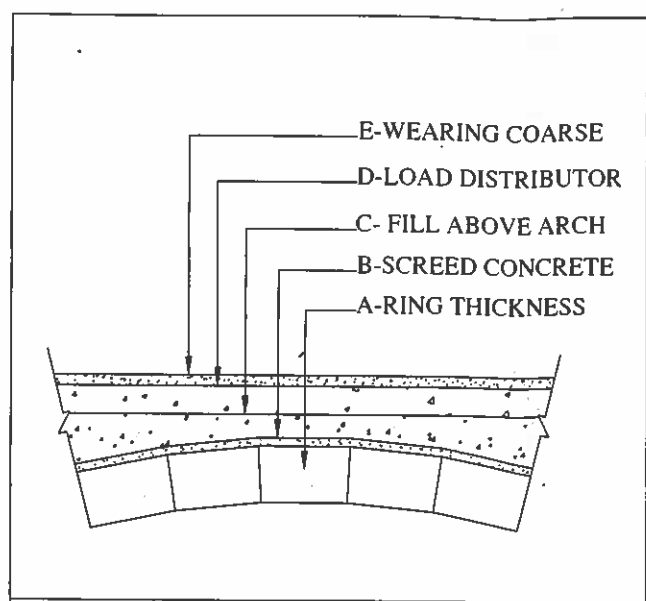
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**TYPE PLAN FOR PCC PRECAST ARCH BRIDGE FOR CARRIAGE WAY 7.5M, 11M, 11.55M FOR SUBMERSIBLE AND HIGH LEVEL BRIDGES. (GAD FOR MULTI SPAN ELEVATED ARCH)**

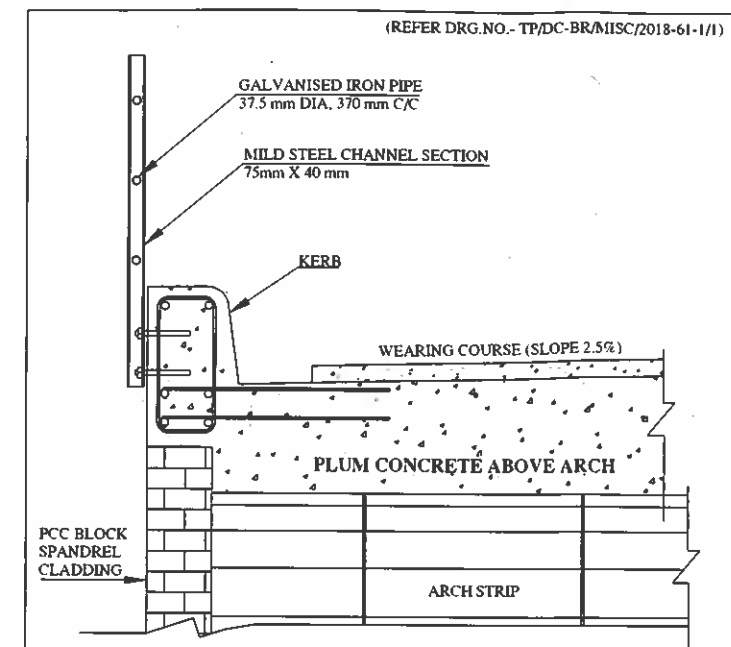
 (M. I. SHAIKH) ASST. ENGINEER. (GR.-I)	 (S. S. SAHUTRE) EXECUTIVE ENGINEER	 (S. S. BHONGE) SUPERINTENDING ENGINEER
SCALE : NOT TO SCALE		DRAWN BY:- SHOEB HAMEED KHAN (SEC. ENGINEER)



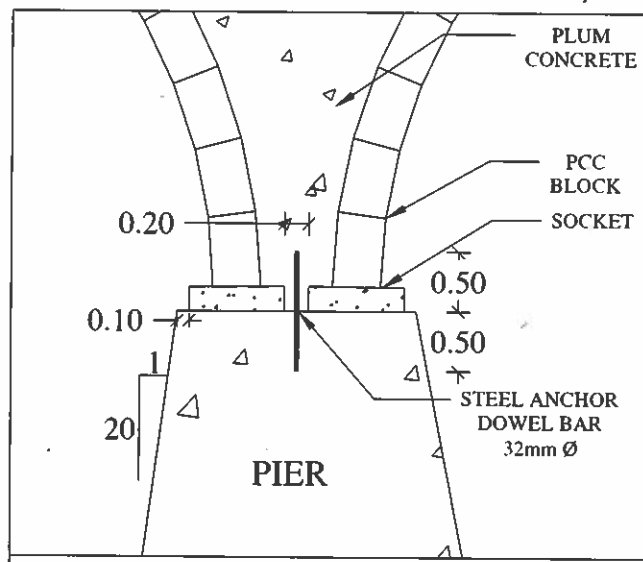
DETAILS OF STOPPER



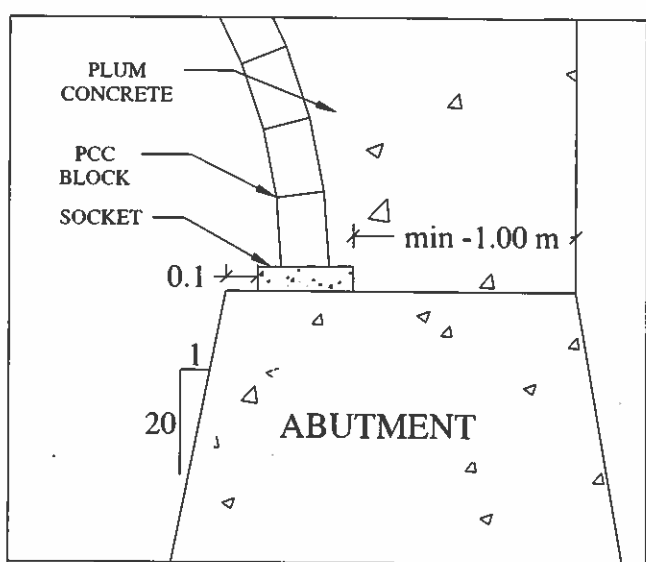
DETAILS OF FILLING ABOVE ARCH



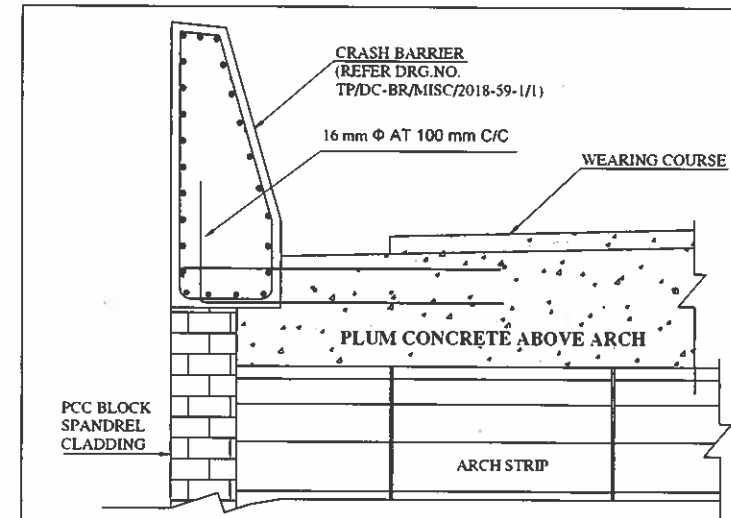
MILD STEEL RAILING DETAILS



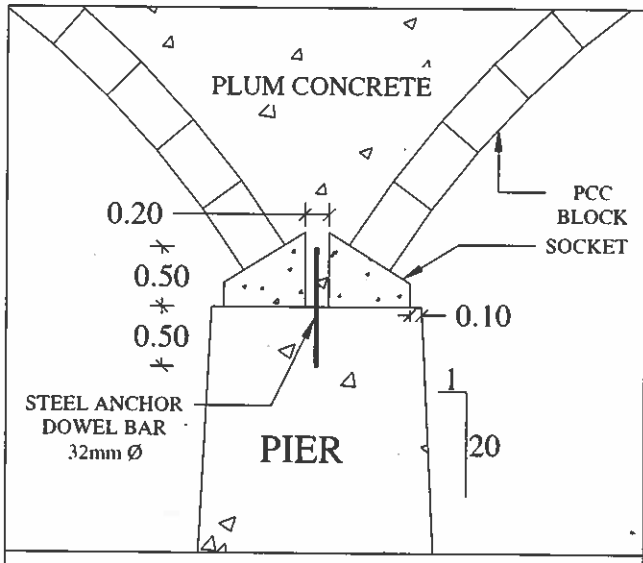
PIER DETAILS (SEMI-CIRCULAR ARCH)



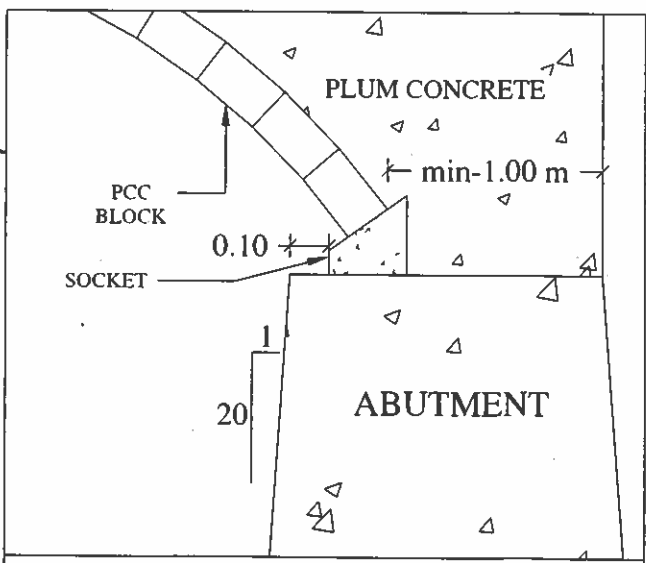
ABUTMENT DETAILS (SEMI-CIRCULAR ARCH)



CRASH BARRIER ARRANGEMENT



PIER DETAILS (SEGMENTAL ARCH)



ABUTMENT DETAILS (SEGMENTAL ARCH)



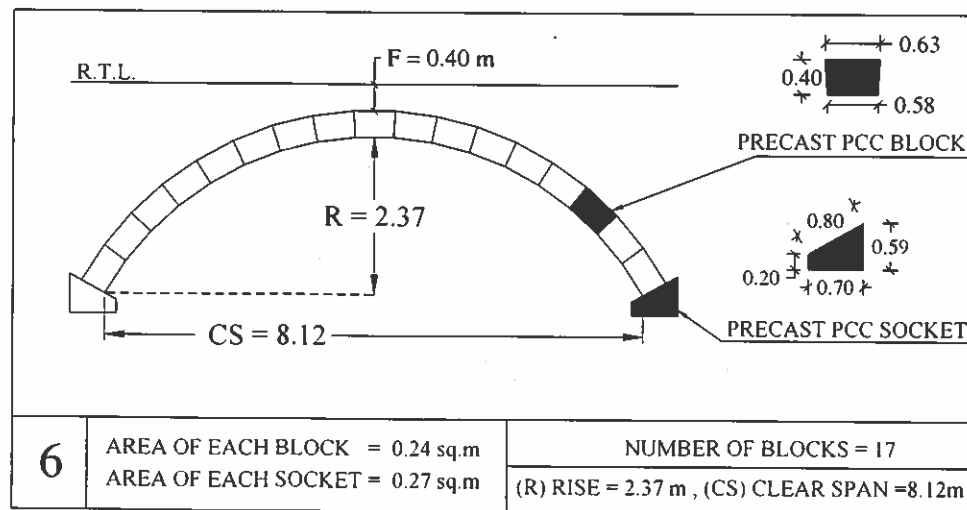
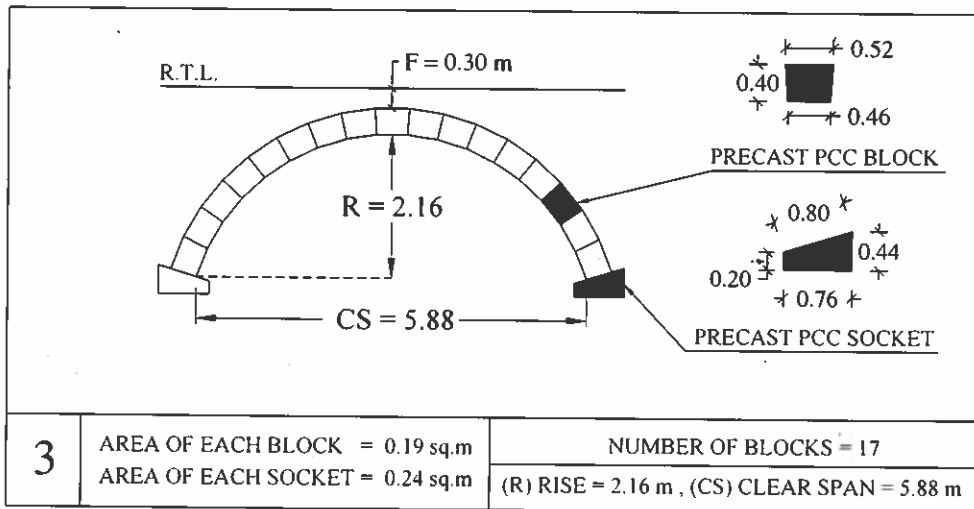
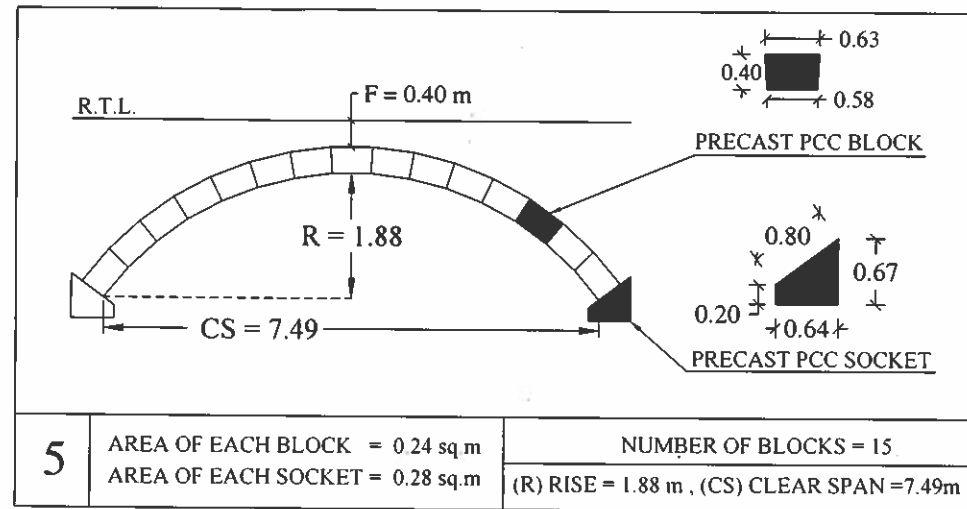
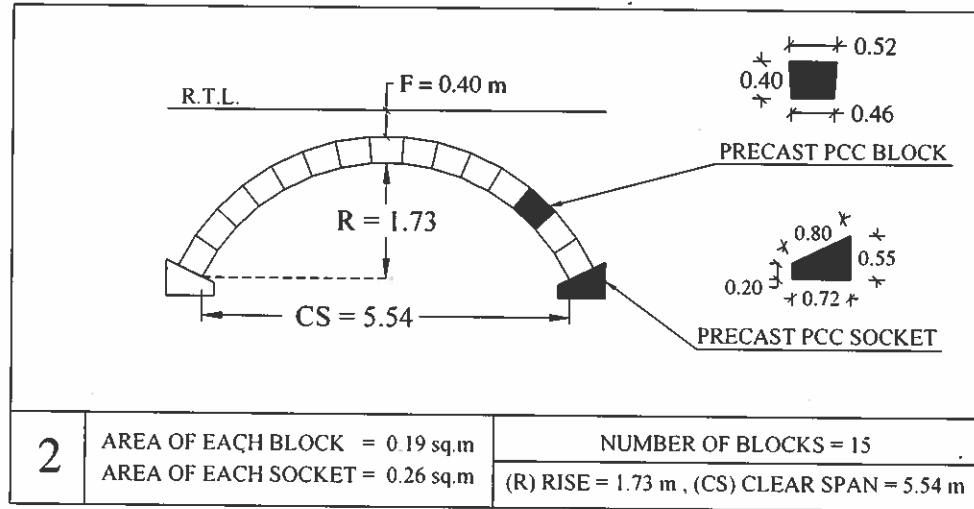
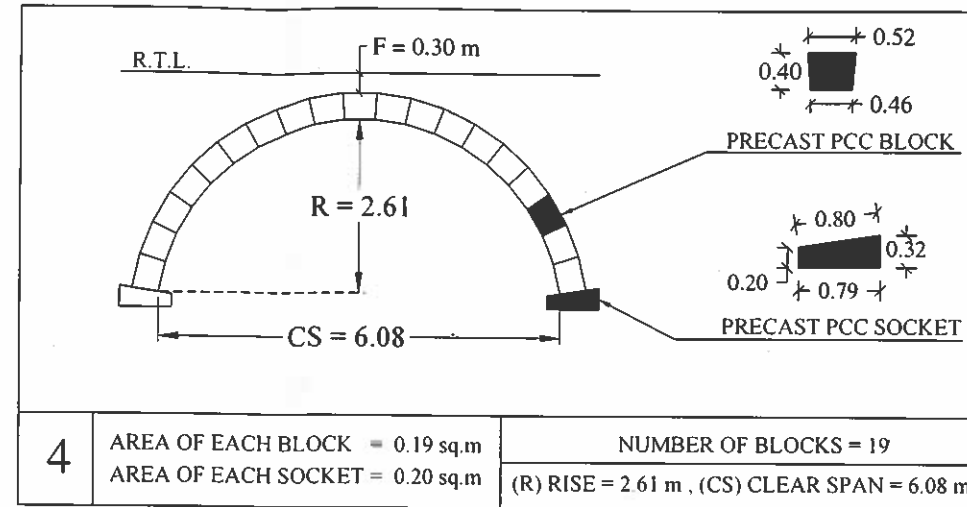
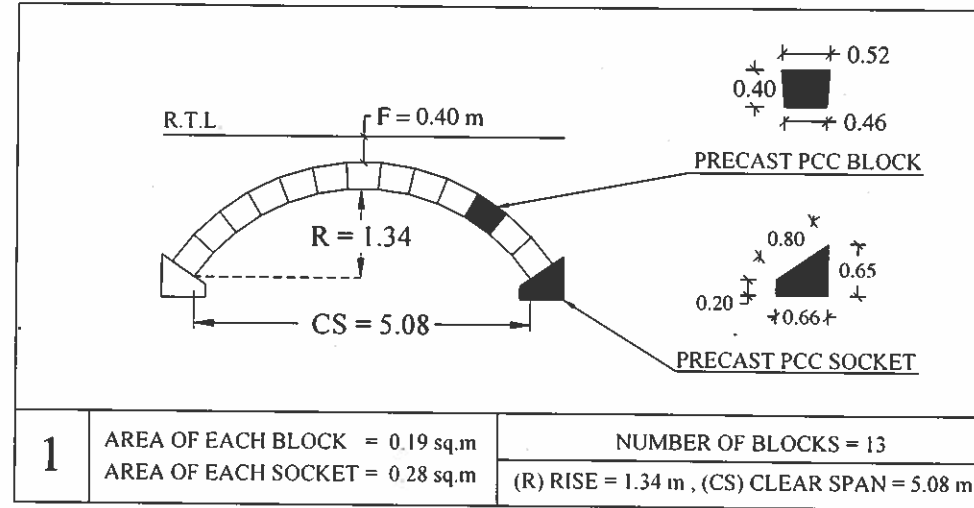
GOVT. OF MAHARASHTRA  
DESIGNS CIRCLE, P.W.D.  
4th FLOOR, KONKAN BHAVAN, NAVI MUMBAI-400614

**TYPE PLAN FOR PCC PRECAST ARCH BRIDGE FOR  
CARRIAGE WAY 7.5M, 11M, 11.55M FOR  
SUBMERSIBLE AND HIGH LEVEL BRIDGES.  
(TYPICAL STRUCTURAL DETAILS)**

 (M.I. SHAIKH) ASSTT. ENGINEER. (GR.-I)	 (S. S. SAHUTRE) EXECUTIVE ENGINEER	 (S. S. BHONGE) SUPERINTENDING ENGINEER
SCALE :- NOT TO SCALE		DRAWN BY:- SHOEB HAMEED KHAN (SEC.ENGINEER)

QUANTITIES (PER SPAN PER METER CARRIAGE WAY)

SR. NO	CLEAR SPAN (m)	C/C SPAN (m)	RISE (m)	QUANTITY OF ARCH RING (Cu.m)	QUANTITY OF FILL (Cu.m)
1)	5.08	6.28	1.34	3.03	6.47
2)	5.54	6.83	1.73	3.37	7.95
3)	5.88	7.23	2.16	3.71	8.59
4)	6.08	7.47	2.61	4.01	9.69
5)	7.49	8.65	1.88	4.16	10.22
6)	8.12	9.36	2.37	4.62	12.51

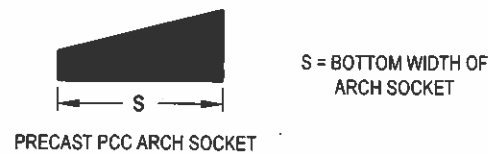


NOTES:

- 1) ALL DIMENSIONS ARE IN METER, UNLESS OTHERWISE SPECIFIED.
- 2) THESE GEOMETRIES OF PRECAST PCC ARCH BRIDGES ARE APPLICABLE FOR SUBMERSIBLE AND HIGH LEVEL CONDITIONS.
- 3) THESE GEOMETRIES ARE DESIGN FOR LIVE LOAD OF CLASS A / CLASS 70 R AS PER IRC-6 WHICHEVER PRODUCES WORST EFFECT.
- 4) GRADE OF CONCRETE FOR PRECAST PCC ARCH RING AND SOCKET IS M30.
- 5) THIS DRAWING SHALL BE USED WITH THE CONJUNCTION WITH THE FOLLOWING DRAWINGS

- A) TP/DC-BR/ARCH-PC/2018-62-1/1
- B) TP/DC-BR/ARCH-PC/2018-63-1/1
- C) TP/DC-BR/ARCH-PC/2018-64-1/1
- D) TP/DC-BR/ARCH-PC/2018-65-1/1
- E) TP/DC-BR/ARCH-PC/2018-66-1/1
- F) TP/DC-BR/ARCH-PC/2018-67-1/1
- G) TP/DC-BR/ARCH-PC/2018-68-1/1
- H) TP/DC-BR/ARCH-PC/2018-69-2/3
- I) TP/DC-BR/ARCH-PC/2018-69-3/3

DESIGN SUPPORT BY:  
 CHETAN T. PAWAR  
 MODERN ARCH INFRASTRUCTURE PVT. LTD.  
 www.modernarchinfra.com  
 Contact : 09767430981



GOVT. OF MAHARASHTRA  
 DESIGNS CIRCLE, P.W.D.  
 4th FLOOR, KONKAN BHAVAN, NAVI MUMBAI-400614.

**TYPE PLAN FOR PCC PRECAST ARCH BRIDGE FOR CARRIAGE WAY 7.5M, 11M, 11.55M FOR SUBMERSIBLE AND HIGH LEVEL BRIDGES. (SPAN AND RISE DIMENSION DETAILS 5M TO 8M)**

 (M. I. SHAIKH) ASSTT. ENGINEER. (GR.-I)	 (S. S. SAHUTRE) EXECUTIVE ENGINEER	 (S. S. BRONGRE) SUPERINTENDING ENGINEER
SCALE :- NOT TO SCALE		DRAWN BY:- SHOEB HAMEED KHAN (SEC.ENGINEER)



QUANTITIES (PER SPAN PER METER CARRIAGE WAY)

Sr. NO	CLEAR SPAN (m)	C/C SPAN (m)	RISE (m)	QUANTITY OF ARCH RING (Cu.m)	QUANTITY OF FILL (Cu.m)
7)	8.62	9.93	2.89	5.06	13.75
8)	8.99	10.35	3.44	5.50	15.74
9)	9.21	10.60	4.01	5.92	17.33
10)	9.93	11.11	2.54	5.31	16.40
11)	10.59	11.83	3.06	5.79	19.32
12)	11.14	12.44	3.60	6.27	22.20

NOTES:

- 1) ALL DIMENSIONS ARE IN METER, UNLESS OTHERWISE SPECIFIED.
- 2) THESE GEOMETRIES OF PRECAST PCC ARCH BRIDGES ARE APPLICABLE FOR SUBMERSIBLE AND HIGH LEVEL CONDITIONS.
- 3) THESE GEOMETRIES ARE DESIGN FOR LIVE LOAD OF CLASS A / CLASS 70 R AS PER IRC-6 WHICHEVER PRODUCES WORST EFFECT.
- 4) GRADE OF CONCRETE FOR PRECAST PCC ARCH RING AND SOCKET IS M30.
- 5) THIS DRAWING SHALL BE USED WITH THE CONJUNCTION WITH THE FOLLOWING DRAWINGS

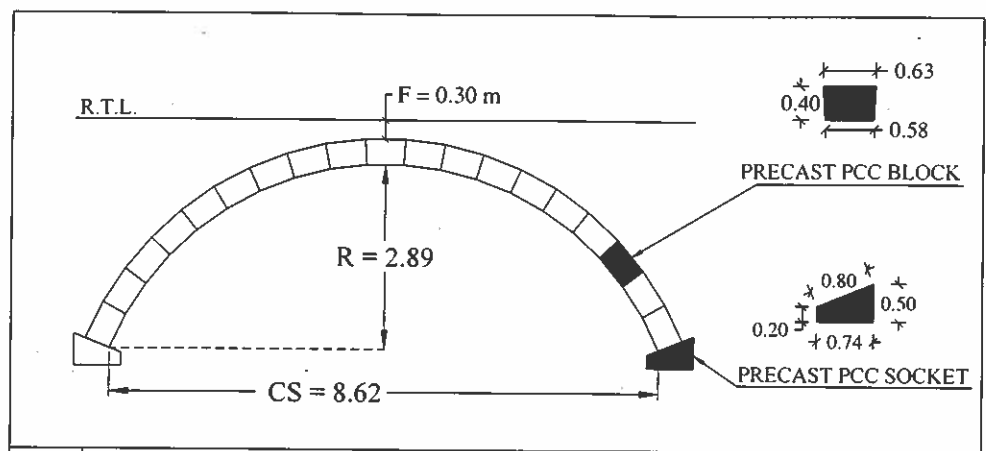
- A) TP/DC-BR/ARCH-PC/2018-62-1/1
- B) TP/DC-BR/ARCH-PC/2018-63-1/1
- C) TP/DC-BR/ARCH-PC/2018-64-1/1
- D) TP/DC-BR/ARCH-PC/2018-65-1/1
- E) TP/DC-BR/ARCH-PC/2018-66-1/1
- F) TP/DC-BR/ARCH-PC/2018-67-1/1
- G) TP/DC-BR/ARCH-PC/2018-68-1/1
- H) TP/DC-BR/ARCH-PC/2018-69-1/3
- I) TP/DC-BR/ARCH-PC/2018-69-3/3

GOVT. OF MAHARASHTRA  
DESIGNS CIRCLE, P. W. D.  
4th FLOOR, KONKAN BHAVAN, NAVI MUMBAI-400614

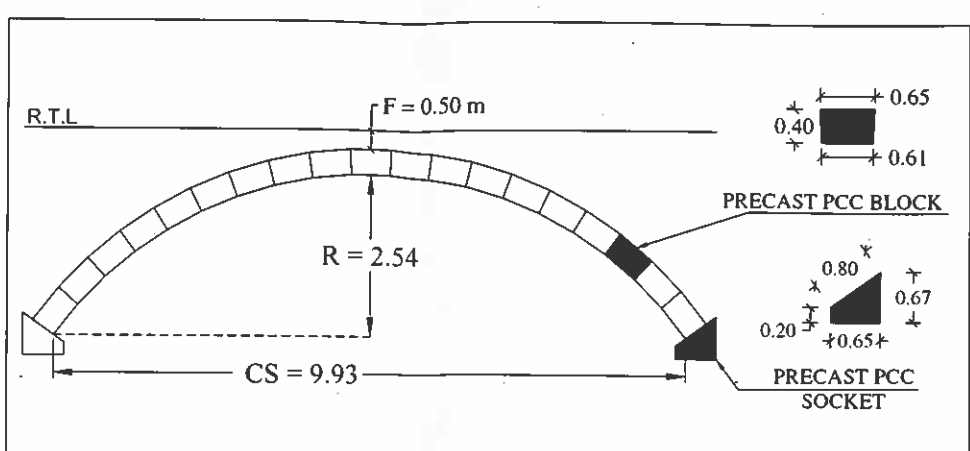
**TYPE PLAN FOR PCC PRECAST ARCH BRIDGE FOR CARRIAGE WAY 7.5M, 11M, 11.55M FOR SUBMERSIBLE AND HIGH LEVEL BRIDGES. (SPAN AND RISE DIMENSION DETAILS 8M TO 11M)**

SCALE :- NOT TO SCALE  
DRAWN BY:- SHOEB HAMEED KHAN (SEC. ENGINEER)

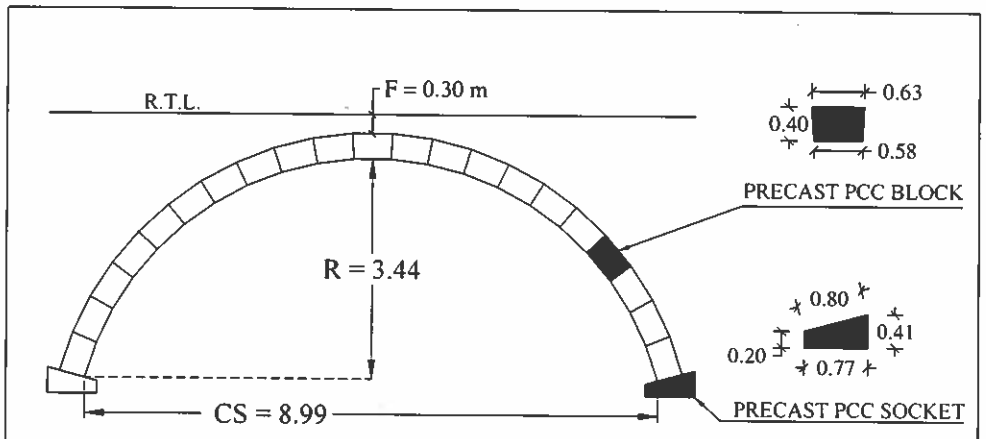
(M. I. SHAIKH) ASST. ENGINEER. (GR.-I)  
(S. S. SAHUTRE) EXECUTIVE ENGINEER  
(S. S. BHONGE) SUPERINTENDING ENGINEER



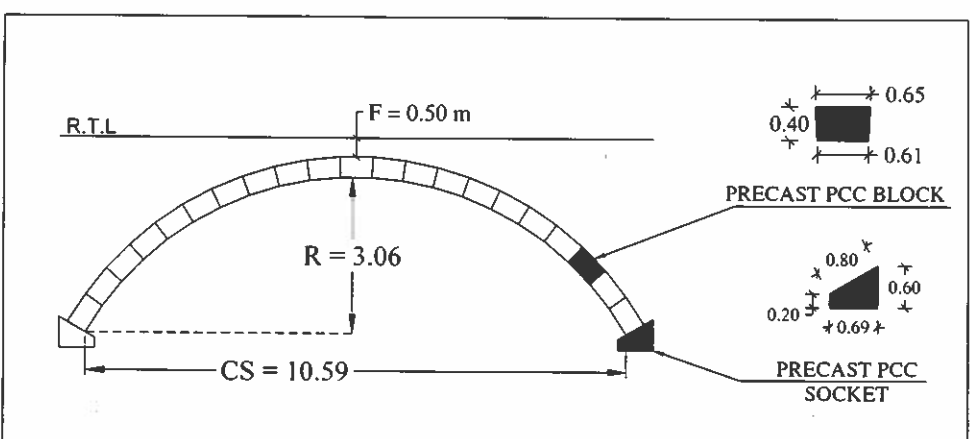
7	AREA OF EACH BLOCK = 0.24 sq.m	NUMBER OF BLOCKS = 19
	AREA OF EACH SOCKET = 0.25 sq.m	(R) RISE = 2.89 m, (CS) CLEAR SPAN = 8.62 m



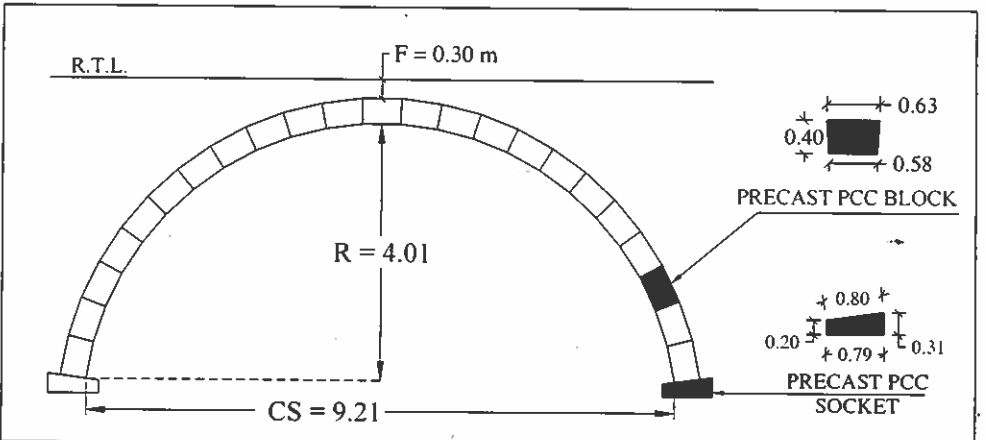
10	AREA OF EACH BLOCK = 0.25 sq.m	NUMBER OF BLOCKS = 19
	AREA OF EACH SOCKET = 0.28 sq.m	(R) RISE = 2.54 m, (CS) CLEAR SPAN = 9.93 m



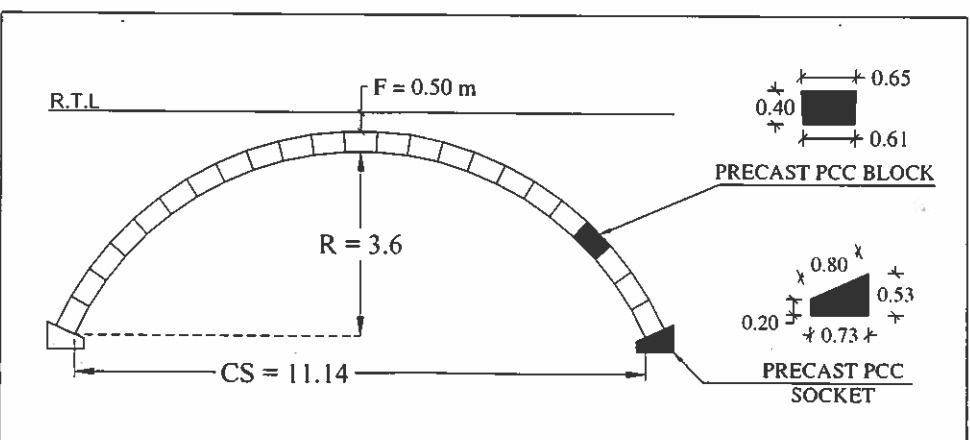
8	AREA OF EACH BLOCK = 0.24 sq.m	NUMBER OF BLOCKS = 21
	AREA OF EACH SOCKET = 0.23 sq.m	(R) RISE = 3.44 m, (CS) CLEAR SPAN = 8.99 m



11	AREA OF EACH BLOCK = 0.25 sq.m	NUMBER OF BLOCKS = 21
	AREA OF EACH SOCKET = 0.27 sq.m	(R) RISE = 3.06 m, (CS) CLEAR SPAN = 10.59 m

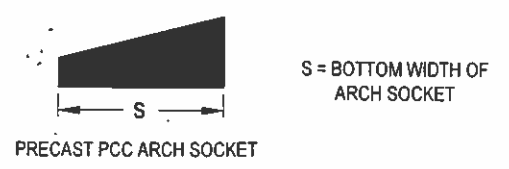


9	AREA OF EACH BLOCK = 0.24 sq.m	NUMBER OF BLOCKS = 29
	AREA OF EACH SOCKET = 0.20 sq.m	(R) RISE = 4.01 m, (CS) CLEAR SPAN = 9.21 m

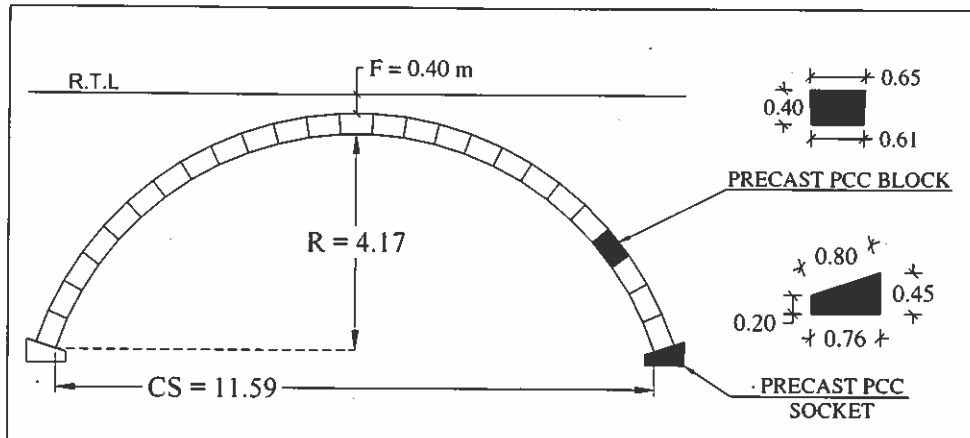


12	AREA OF EACH BLOCK = 0.25 sq.m	NUMBER OF BLOCKS = 23
	AREA OF EACH SOCKET = 0.26 sq.m	(R) RISE = 3.60 m, (CS) CLEAR SPAN = 11.14 m

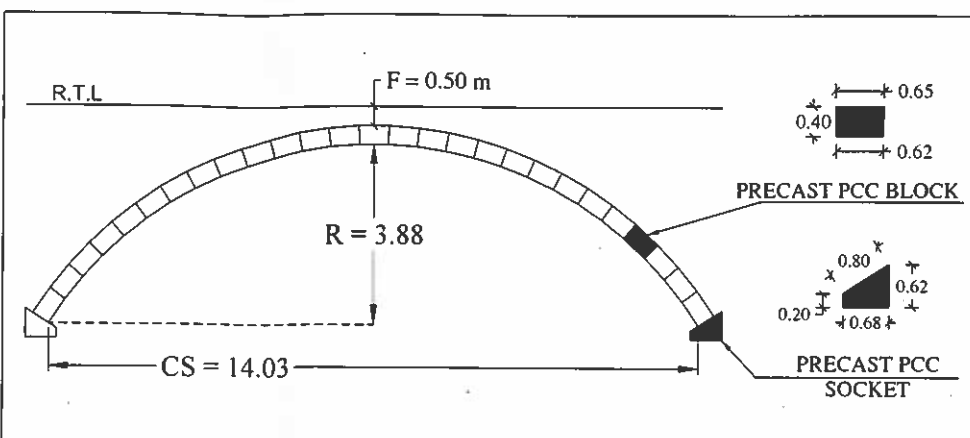
DESIGN SUPPORT BY:  
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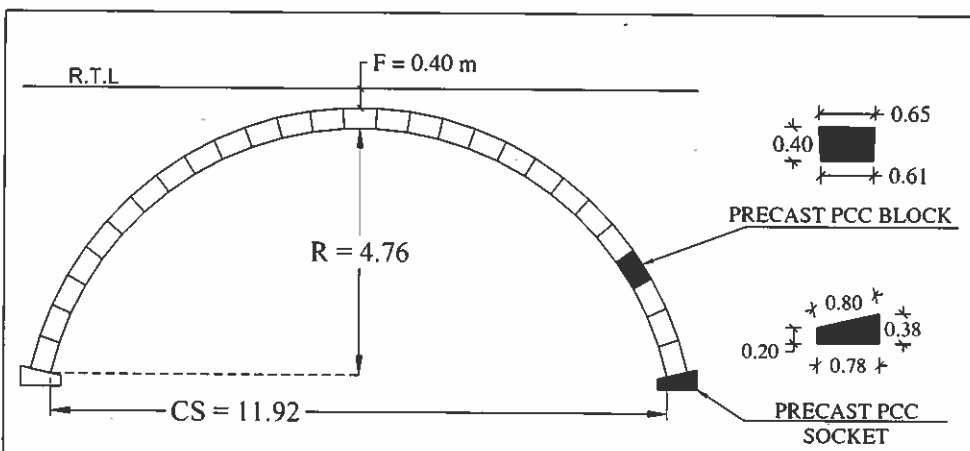
**DRG.NO.TP/DC-BR/ARCH-PC/2018-69-3/3**



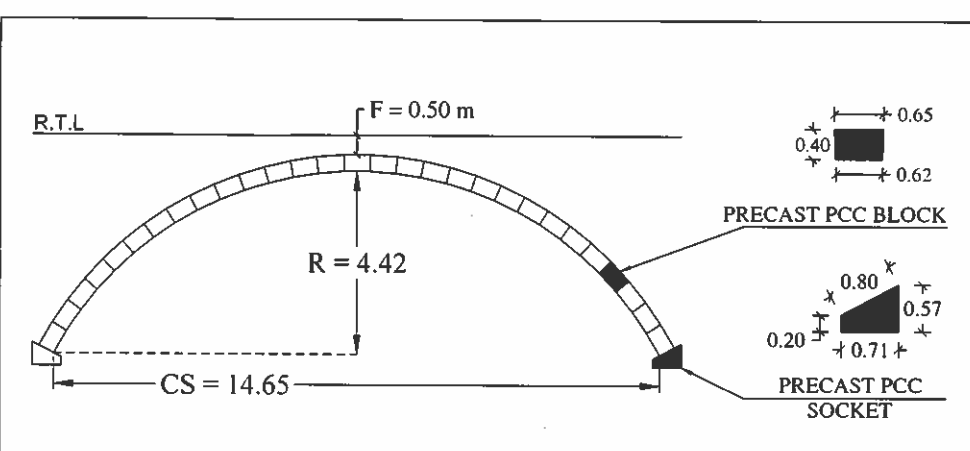
13	AREA OF EACH BLOCK = 0.25 sq.m	NUMBER OF BLOCKS = 25
	AREA OF EACH SOCKET = 0.24 sq.m	(R) RISE = 4.17 m , (CS) CLEAR SPAN = 11.59 m



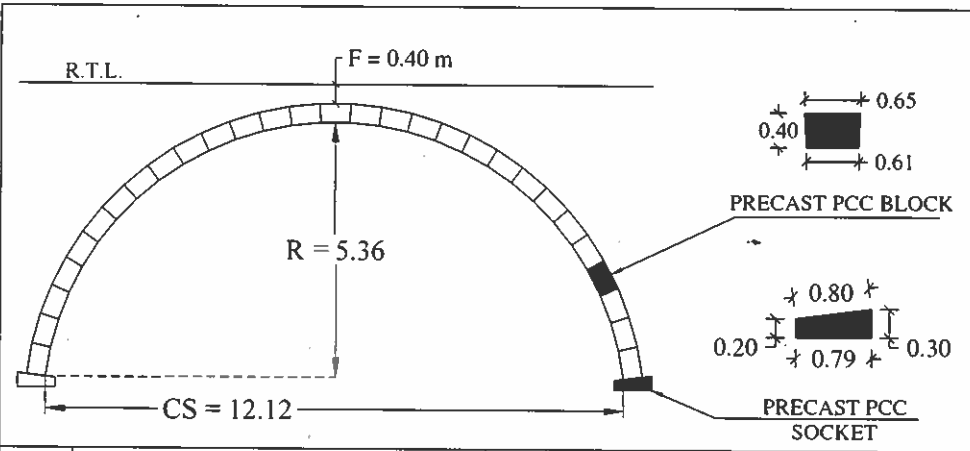
16	AREA OF EACH BLOCK = 0.25 sq.m	NUMBER OF BLOCKS = 27
	AREA OF EACH SOCKET = 0.27 sq.m	(R) RISE = 3.88 m , (CS) CLEAR SPAN = 14.03 m



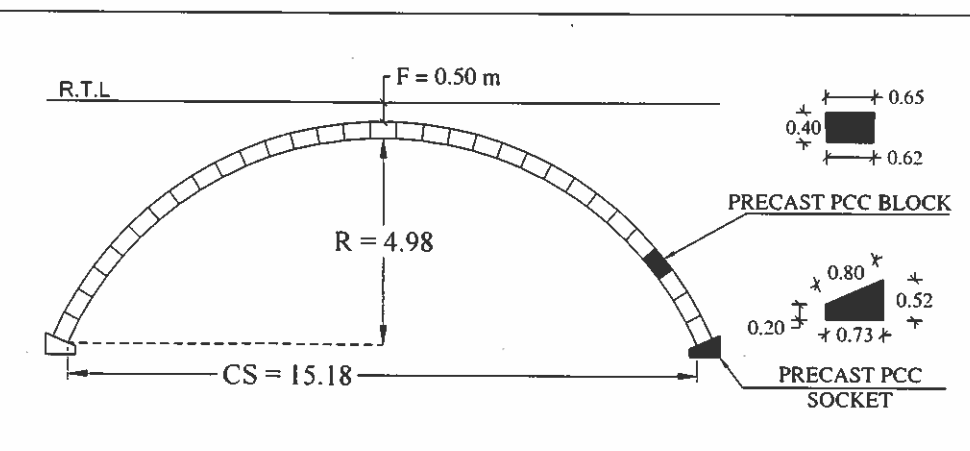
14	AREA OF EACH BLOCK = 0.25 sq.m	NUMBER OF BLOCKS = 27
	AREA OF EACH SOCKET = 0.22 sq.m	(R) RISE = 4.76 m , (CS) CLEAR SPAN = 11.92 m



17	AREA OF EACH BLOCK = 0.25 sq.m	NUMBER OF BLOCKS = 29
	AREA OF EACH SOCKET = 0.27 sq.m	(R) RISE = 4.42 m , (CS) CLEAR SPAN = 14.65 m



15	AREA OF EACH BLOCK = 0.25 sq.m	NUMBER OF BLOCKS = 29
	AREA OF EACH SOCKET = 0.19 sq.m	(R) RISE = 5.36 m , (CS) CLEAR SPAN = 12.12 m



18	AREA OF EACH BLOCK = 0.25 sq.m	NUMBER OF BLOCKS = 31
	AREA OF EACH SOCKET = 0.26 sq.m	(R) RISE = 4.98 m , (CS) CLEAR SPAN = 15.18 m

**QUANTITIES (PER SPAN PER METER CARRIAGE WAY)**

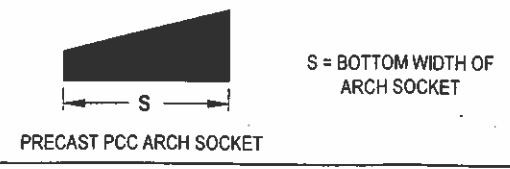
SR. NO	CLEAR SPAN (m)	C / C SPAN (m)	RISE (m)	QUANTITY OF ARCH RING (Cu.m)	QUANTITY OF FILL (Cu.m)
13)	11.59	12.93	4.17	6.73	23.59
14)	11.92	13.29	4.76	7.19	25.92
15)	12.12	13.52	5.36	7.63	27.73
16)	14.03	15.25	3.88	7.29	28.52
17)	14.65	15.91	4.42	7.79	32.14
18)	15.18	16.48	4.98	8.27	35.68

**NOTES:**

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- E) TP/DC-BR/ARCH-PC/2018-66-1/1
- F) TP/DC-BR/ARCH-PC/2018-67-1/1
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- I) TP/DC-BR/ARCH-PC/2018-69-2/3

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**GOVT. OF MAHARASHTRA**  
 DESIGNS CIRCLE, P.W.D.  
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**TYPE PLAN FOR PCC PRECAST ARCH BRIDGE FOR CARRIAGE WAY 7.5M, 11M, 11.55M FOR SUBMERSIBLE AND HIGH LEVEL BRIDGES. (SPAN AND RISE DIMENSION DETAILS 11M TO 15M)**

 (M. I. SHAIKH) ASSTT. ENGINEER. (GR.-I)	 (S. S. SAHUTRE) EXECUTIVE ENGINEER	 (S. S. BHONGE) SUPERINTENDING ENGINEER
SCALE - NOT TO SCALE		DRAWN BY:- SHOEB HAMEED KHAN (SEC.ENGINEER)