General :

1. The Notes in this drawing shall be read in conjunction with all relevant drawings pertaining to bridge.
2. The Contractor shall verify all Chainages, Reduced Levels, Co–ordinates and Dimensions before work starts. In case of any discrepancy, the matter shall be brought to the notice of the Engineer–in–Charge.
3. All the bridges are designed to carry worst effects of the following Road Live Loads as per IRC 6:2000
4. Safe bearing capacity considered in designing foundations for pier/abutments resting on rock/soil is to be verified at site by the Contractor before execution in consultation with the Engineer–in–Charge.
5. In case any localised soft soil deposit is noted at the founding level for foundations resting on rock, the same shall be excavated and replaced by M15 grade concrete.
6. In case of foundations resting on rock, the annular space around the footing shall be filled back with concrete of M15 Grade mix upto the top of rock.
7. Wearing coat shall comprise of 50mm DBM,50mm BC with water proofing membrane (chemical compound)
8. Moderate conditions of exposure have been considered in the design of these bridges/flyovers.
9. All dimensions are in millimetres and levels are in metres unless otherwise specified. Only written dimensions shall be followed . No drawing shall be scaled.

Concrete :

1. Concrete grade for varies elements shall be design mix and shall have minimum 28 days characteristics strength on 150mm cubes as follows:

(a)	Box type super structure PSC Precast Pretensioned I girders	M45
(b)	Voided slab	M45
(c)	Parapet/edge/kerb	M30
(d)	Pedestal of bearings	M45
(e)	Sub structure main flyover pier/pier cap	M30
(f)	Foundation main flyover Pile/pile cap	M35
(g)	Foundation ramp portion Pile/pile cap	M35
(h)	Abutments and substrucutre ramp portion	M30
(i)	Median	M30
(j)	Sub structure ROB portion pier/pier cap	M35

2. High Strength Ordinary Portland Cement conforming to IS : 12269 and IS : 8112 or Ordinary Portland Cement conforming to IS:269 capable of achieving the required design concrete strength shall only be used.
3. To improve workability of concrete, admixtures conforming to IS:6925 and IS:9103 may be permitted subject to satisfactory proven use. Admixtures generating hydrogen, nitrogen should not be used.
4. Minimum cement content & maximum water cement ratio in concrete shall be as per Table 4 of IRC:21–2000 (Latest edition) for "Moderate Conditions of Exposure".
5. Nominal maximum size of coarse aggregates to be used for all RCC works shall be 20mm.

Reinforcement :

1. All reinforcing steel shall be of High Yield Strength Deformed bars (Grade Designation Fe 415) conforming to IS:1786 (except for mesh reinforcement which shall be MS Bars Grade Designation S 240 conforming to IS:432 Part 1 Mild Steel).
2. Bending of reinforcement bars shall be as per IS:2502.
3. Laps in reinforcement bars shall be avoided as far as possible. Laps may be provided, if unavoidable. However, in such cases :
   (a) minimum lap length of reinforcement shall be as per clause 304.6.6 of IRC: 21–2000.
   (b) not more than 50% of reinforcement bars shall be laped at any one section.
   (c) for closely spaced bars lapping may be avoided by providing suitable type of mechanical splicing after approval from Engineer.
4. Minimum bond length for reinforced bars shall be as per clause 304.6.2 of IRC 21–2000.
5. Clear cover to any reinforcing steel closest to concrete face shall be 40mm in case of superstructures and 50mm in case of substructures. Clear cover shall be 75mm in case of foundations.
6. Welding of reinforcement bars shall not be permitted.
7. Supporting chairs of 12mm diameter shall be provided at suitable intervals as per IS:2502.
8. Full cover shall be maintained at grooves and otherwise architectural finishes to the concrete surface.
9. Type of reinforcement is denoted by the following symbols in the drawings :
   $\tilde{\Phi}$ High yield Strength Deformed Bars
   ø Mild Steel Bars
10. Spacing given for all reinforcement is perpendicular to bars unless otherwise shown on drawings.

Water :

Water to be used in concreting and curing shall conform to clause 302.4 of IRC:21–2000

Material Specifications :

Material specifications and workmanship shall be in accordance with MORTH Specifications for Road & Bridge Works –2001 and Technical Specifications as spelt out in the Tender Documents.

1Workmanship / Detailing

2. All sharp edges of concrete shall be chamfered (10mmx10mm)

Form work details shall be submitted by the Contractor for the approval and shall be tested in accordance with the specifications.

3. Construction joint

(i) The locations and provision of construction joints shall be approved by the Engineer–in–Charge. The concreting operation shall be carried out continuously up to the construction joint.

(ii) The preparation of construction joint shall conform to Appendix 1700/I of MOST's specifications for Road & Bridge Works Fourth Revision–2001,(Rerint: September2002).

4. Expansion joints

(i) The strip seal type expansions joints shall be procured only from approved manufacturers as per the stipulations of the tender document.

(ii) The working drawings for expansions joints shall be submitted by the Contractor / Manufacturer for approval prior to procurement.

(iii) Manufacturer's representatives shall be available at site at the time of, positioning of the embedded parts and installation of expansion joints.

Abbreviations :

RL	– Reduced Level	EF	– Earth Face
RC	– Reinforced Concrete	BF	– Both Faces
CH	– Chainage	NF	– Near Face
SE	– Super Elevation	EGL	– Existing Ground Level
BP	– Bearing Pad	FRL	– Finished Road Level
T	– Top	LV	– Length Varies
HFL	– High Flood Level	B	– Bottom
LBL	– Lowest Bed Level	LWL	– Low Water Level
Exp jt.	– Expansion Joint		

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REV	DATE	DESCRIPTION OF REVISIONS	INITIALS		
R–3	21.11.08	MODIFIED AS PER CHANGES SUGGESTED BY RLYS AND NHAI			
R–2	21.12.07	MODIFIED AS PER CHANGES SUGGESTED BY RLYS AND NHAI			
R–1	17.10.07	MODIFIED AS PER CHANGES SUGGESTED BY RLYS AND NHAI			
R–0	10.07.07	FOR TENDER PURPOSE	A	B	C

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PROJECT:
DESIGN AND CONSTRUCTION OF FLYOVER AND ROB AT NASHIK PHATA ON OLD MUMBAI PUNE NH-4 INCLUDING BRIDGE ON RIVER PAWANA.

TITLE:
GENERAL NOTES

DRG.NO. 2005191/NOTES -07

REVISION NO: R0		DATE:10–07–07		
DRAWN BY(A)	DESIGN(B)	CHECKED (C)	APPROVED (D)	PURPOSE
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