1. Structural concrete strengths and types used in this project shall be as follows:

- Standard concrete 5000 Normal Weight
- Lightweight concrete 4000 Lightweight

2. Concrete forms shall be laid out and constructed to provide the specified camber indicated on the structural drawings, and shall comply with requirements of ACI 318.

3. Concrete forms shall be demolished and the surfaces shall be cleaned and left as required.

4. Coring openings in groused masonry is not permitted. No pipes or electrical conduits shall pass through masonry linoleum and/or reinforced, groused masonry according to typical detail.

5. All cells and bond beams with reinforcing shall be filled solid with grout.

6. Welded wire fabric shall conform to ASTM A185. Use only flat sheets.

7. All electrical conduit runs, boxes, outlets in walls and slabs, shall be provided by the contractor.

8. Coring openings in groused masonry is not permitted. No pipes or electrical conduits shall pass through masonry linoleum and/or reinforced, groused masonry according to typical detail.

9. Welded wire fabric shall be used for reinforcing where concrete is in contact with soil, the type of reinforcing shall determine the concrete type.

10. All rebar shall be fully developed in tension, unless otherwise shown on drawings.

11. Structural steel shall be provided as follows:

   - Channels A36 36
   - Angles A36 36
   - Rolled shapes A992 50
   - HSS (round) A500 Grade B 42
   - Plate A360 45
   - Tee A202 45
   - Bar A615
   - Stud A611
   - Bolt A490
   - Stud A535
   - Washer A156
   - Nut A194

12. Structural steel shall comply with all requirements of the building code and the ACI 318 "Building Code Requirements for Reinforced Concrete and Commentary".

13. Masonry materials and types used in this project shall be as follows:

   - Masonry Block:
     - Standard Concrete 5000 Normal Weight
   - Mortar:
     - Type I
   - Grout:
     - Type I

14. Architectural drawings shall be provided by the architect.

15. Structural steel shall be fabricated in accordance with AWS D1.1. Welding materials shall conform to AWS D1.1. Electrodes shall have a minimum yield strength of 70 KSI and be low-hydrogen type.

16. All welds shall be made with high-strength bolts. Conforming to ASTM A 490 or ASTM A 325, all connections shall be full-penetration welds or adjacent notations on drawings. Full-penetration welds are preferred.

17. All rebar shall be continuous, reinforcing bars shall be continuous and no bar splices shall be performed, unless otherwise noted.

18. Minimum lap of welded wire fabric shall be six inches or one full mesh, whichever is greater.

19. Masonry shall be installed in conformance with the requirements of the building code and the ACI 318 "Building Code Requirements for Reinforced Concrete and Commentary".

20. All reinforcement bars marked "continuous" shall be tension spliced, unless otherwise noted.

21. All structural drawings are subject to change, information only to dimension for detailing, no additional dimensions shall be obtained by scaling from the drawings.

22. In the event that concrete stress over the construction are not full, labor or noted on drawings, there shall be a type of mix for similar conditions that are shown or noted on the drawings.

23. Contractor shall be responsible for the fabrication of all reinforcing, including the fabrication of splices.

24. Details shall be prepared by the engineer for the shop and shall be submitted to the contractor for the shop to prepare the shop drawings.

25. Shop drawings shall be submitted for review and approval by the engineer.

26. All shop drawings shall be accepted by the engineer, unless otherwise noted.

27. All work shall be conformed to the requirements of international building code.

28. All work shall be conformed to the requirements of national electrical code.

29. All work shall be conformed to the requirements of national plumbing code.

30. All work shall be conformed to the requirements of national fire protection code.

31. No pipes or electrical conduits shall pass through masonry linoleum and/or reinforced, groused masonry according to typical detail.

32. See architectural drawings for non-load bearing walls, dimensions and locations.

33. Provide lateral support at the top of non-load bearing masonry walls, according to typical detail.

34. All steel members shall not be cut or spliced according to architectural drawings.

35. Structural steel shall not be provided by the architect.

36. All steel members shall be cut and spliced in accordance with the architect's instructions.
1. **2L Transverse Bracing**
   - At each hanger
   - 1" Dia Galvanized Threaded Rod Hanger, Grade 50 at 5.0m OC (Typ)

2. **Rock Chamber Spring Line**
   - W21x93 Monorail Crane Support Beam; 3 per chamber (Typ chambers 1-4)
   - 0'-4" (0.10m) Shotcrete Chamber Lining
   - Bent Pl Hanger Conn
   - Shotcrete Chamber Lining

3. **Typical Monorail Crane Beam Support**
   - 2L Bracing Each Side of Hanger
   - 1" Dia Galvanized Threaded Rod Hanger SR 30 at 5.5m OC, (Typ)
   - Bent Pl Hanger Conn
   - W21X93 Monorail Crane Support Beam
   - W21X93 Central Monorail Beam

4. **Typical Longitudinal Bracing Detail**
   - W21X93 Monorail Crane Support Beam; 2 per chamber (Typ chambers 1-4)

5. **Chambers 1-4 Typical Monorail Plan**
   - Scale: 1/2" = 1'-0" (Typ)

6. **Chambers 1-4 Longitudinal Section**
   - Scale: 1" = 20'-0"
   - Drift Opening Beyond
   - Chamber Spring Line
   - Drift Opening Beyond Longitudinal Beam Bracing (Typ 3 per beam)

7. **Central Monorail Crane Beam Support**
   - Scale: 1/2" = 1'-0"
   - W21X93 Monorail Crane Support Beam
   - Rock Bolts

8. **Note:**
   - All Monorail Beam Splices Shall Be Fully Welded CJP.