SECCION 742
PRECAST MANHOLE

742.1 GENERAL:

This specification covers the requirements for precast manhole sections for gravity sanitary sewer and storm drain
manholes. When noted on the plans or in the special provisions precast manhole shall be constructed according to
this specification. All precast manhole manufacturers shall be NPCA (National Precast Association) certified and
shall provide all NPCA certifications upon request. Loading criteria for the precast manholes shall meet or exceed the
AASHTO H20 loading requirements. All precast manhole risers shall be monolithically cast to ensure water tightness
and have a certified structural design and the manhole shall be cast in a fashion to achieve water tightness. This
shall include a monolithic cast manhole or a multi section cast manhole which also shall have a certified structural
design.

742.2 MATERIALS:

742.2.1 Concrete Materials: Concrete materials shall conform to the requirements of Section 725 and Table 725-1
for Class AA.

742.2.2 Precast Sections: Precast sections shall conform to ASTM C478, AASHTO M199. The design shall be in
accordance with ACI 318 and ASTM C890 using traffic load A-16 (H20-44).

742.2.3 Joints and Connections: Joints and connections shall conform to ASTM C425, C990 and C923, or C425
as applicable.

742.3 MANHOLE PENETRATIONS:

Manhole penetrations may be formed or cut out. Cut outs of the precast base shall be done using a mechanical hole
saw. The location of the holes shall be determined by the plans and specifications. After the core is removed from the
casting the manufacturer shall coat all reinforcing with a corrosion inhibiting epoxy suitable for end use application.
The thickness of the epoxy shall be per the manufacturer recommendation suitable for the end use application.
Knock outs shall be formed in the location noted on the plans or specifications.

742.4 REINFORCING

Reinforcing for the basesteel shall meet the following specifications:

- Wire Bars ASTM A615 or A706
- Wire and wire fabric A1064

Design of the reinforcing shall be in accordance with ACI 318 and ASTM C890

742.5 GASKETS

A flexible pipe to manhole connector shall be used whenever a pipe penetrates into a precast concrete manhole or
structure.
The design of the connector shall provide a flexible, watertight seal between the pipe and the concrete. The
connector shall assure that a seal is made between the structure wall and the pipe by:

- Casting the connector integrally with the structure wall during the manufacturing process in a manner
  that will not pull out during pipe coupling.
• compressing the connector against the inside circumference of the structure by means of wedge or toggle style connection, expansion ring or other means approved by the engineer.

The connector shall be made of from materials that conform to the physical and chemical requirements outlined in the ASTM C923, and or C425 as applicable.

The connector shall be sized specifically for the type of pipe being used and shall be installed in accordance with the recommendations of the manufacturer.

The connection hardware shall be constructed of a [316 stainless steel] meeting ASTM A480. The hardware shall ensure a water tight connection between the concrete and the pipe material and shall provide an adequate seal enough to withstand the negative air pressure test per ASTM C-1244.

742.6 LIFTING POINTS

Lifting points shall be designed and evaluated by a registered professional engineer and have a minimum safety factor of 4. There shall be a minimum of 2 lifting points on every precast section-manhole base. After base installation, the lifting holes shall be thoroughly packed with a pre-packaged non-shrink grout. Bent reinforcing steel bars shall not be used as lifting devices. [Through lifting holes will not be allowed]

742.7 IMPERFECTIONS

742.7.1 Imperfections: Any imperfections which in the opinion of the engineer may adversely affect the performance of the precast base-section shall be cause for rejection.

-End of Section –