


Conduit and Cable

1. GENERAL

1. All concrete shall be manufactured per Section 501: Portland Cement Concrete, of the current edition of the "Uniform Standard Specifications for Public Works Construction, Off –Site Construction" for the Clark County, Nevada area.
2. The mixes are designed to provide low thermal resistivity concrete (low rho, low void ratio, high density) for transferring heat away from electrical cables.
3. All Portland Cement used shall be high sulfate resistant, Type V.
4. All fly ash used shall be Class "F" per ASTM C618.
5. The course aggregate, sand and fly ash shall be weighted separately when the batch is one cubic yard or more. For jobs requiring less than one cubic yard of concrete, these materials may be measured by either weight or volume. When proportioned by volume, measuring boxes of known capacity shall be furnished and used to measure each size of material.
6. All concrete shall be manufactured in plants that are certified by the National Ready Mix Concrete Association's Plant Certification Program. Approved certificates shall be posted prominently in the plant and shall be available upon request.
7. The numbered mix design from the concrete supplier shall be approved by NVE prior to the start of construction. The mix design with stamped review by a registered professional engineer experienced with concrete mix design shall be mailed (or faxed) to:

NV Energy, T & D Standards Department
 P.O. Box 98910, MS 19
 Las Vegas, NV. 89151-0001
 Phone: (702) 402-6541
 Fax: (702) 402-6575
8. Each load of concrete shall be accompanied by a delivery certificate that clearly shows actual weights and measures of individual components accomplished through the use of certified scales and metering devices.
9. Concrete furnished by ready mix trucks shall have a manufacturer's mix design number which will be shown on the delivery ticket. The delivery ticket will be shown to the NVE inspector at the job site. If requested by the NVE Inspector, a copy of the delivery ticket will be given to the inspector.

Mix Designation	Hi-Strength Thermal Backfill	Low-Strength Thermal Backfill	Low-Strength Thermal Backfill (alternate)
Compressive Strength at 28 days	2,000 psi – min	150 psi	150 PSI
Compressive Strength at 56 days	3,000 psi – min	300 psi	300 PSI

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Component Material Weights	lbs/cu yd	lbs/cu yd	lbs/cu yd
Course aggregate: size #8 (3/8" nom, 1/2" max)	1620 +/- (54% of aggregates)	1620 +/- (54% of aggregates)	-
Fine aggregate: #4 sieve (3/16" nom, 3/8" max)	1380 +/- (46% of aggregates)	1380 +/- (46% of aggregates)	-
Chat	-	-	3,228 +/-
Cement: Portland – Type V	376 (4.0 Sacks)	As Required	As Required
Fly Ash: Class "F"	150 (1.33 Sacks Equiv)	150 (1.33 Sacks Equiv)	150 (1.33 Sacks Equiv)
Water: (see Note 1)	335 +/-	416 +/-	416 +/-
Slump (see Note 1)	5" +/- 1	5" +/- 1	5" +/- 1
Air Entraining Agents	None	None	None

NOTES:

1. If the mix is too wet, it will be rejected. The mix may be ordered slightly drier than required (4"± slump for "spot loading" on the conduits) with additional water added at the job site. If water is added at the site, the mixer drum shall be revolved not less than thirty (30) revolutions at mixing speed before discharge is commenced (Ref: Section 501.03.06 (c) of Clark County Specifications).

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