NOTES:

Design Poles (Concrete and Strain Poles) in accordance with the 1994 edition of the AASHTO "Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals" and Supplement thereto. For allowable unit stresses, meet the requirements of Section 6.

Manufacturers seeking approval of a prestressed concrete pole for inclusion on the Qualified Products List must submit a QPL Products Evaluation Application along with design documentation and drawings showing the product meets all specified requirements of this Index.

Place the prestressing symmetrically. Supply a sufficient amount of prestressing to provide a calculated compressive stress of 2.2 ksi for Type N-II and 3 ksi for Type N-III at the top of pole after all losses.

Concrete Strength shall be 6 ksi minimum at 28 days and 4 ksi minimum at transfer of the Prestressing force.

Reinforcing steel shall be A615 Grade 60. Provide a minimum area of non-prestressed reinforcement equal to 0.33% of the concrete area.

Prestressed Strands shall be A416 Grade 270 stress relieved or low relaxation.

One turn required for spiral splices and two turns required at the top and bottom of poles. Spiral shall be manufactured from cold-drawn steel wire meeting the requirements of ASTM A82.

Attach span wire assemblies (consisting of the catenary wire, the messenger wire, and the tether wire) to the concrete poles in accordance with Section 634.

If a two point attachment is required by the plans, provide an eye bolt hole for the messenger wire, or field drill one at the location indicated in the plans. Field drill the eyebolt hole for the tether wire, when required, prior to installation.

Use cover plates made of non-corrosive materials and attached to the pole using lead anchors or threaded inserts embedded in the pole and round head chrome plated screws.

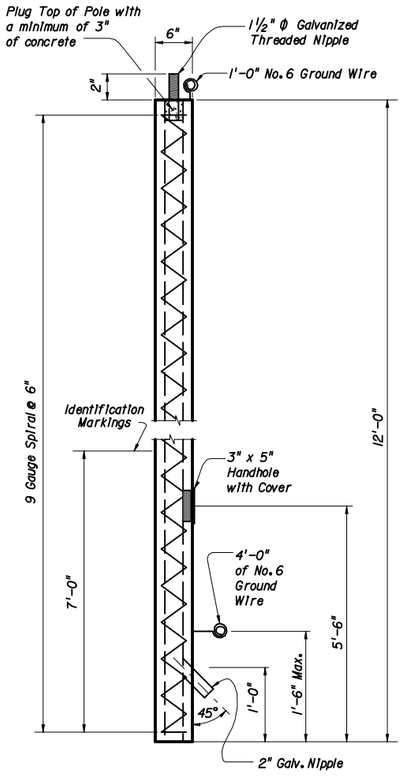
Attach ground wires to the reinforcing steel in the pole as necessary to prevent the ground wire from being displaced during concreting operations.

Identify concrete poles as to pole manufacturer, Department's pole type, length and Qualified Product List qualification number by inset numerals 1" in height inscribed on the same face of the pole as the handhole and ground wire.

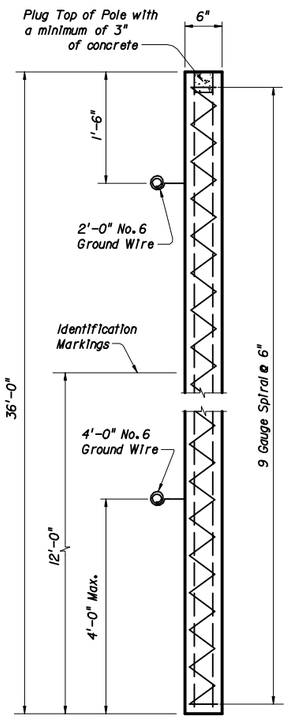
Provide a Class 3 Surface Finish as Specified in 400-15.2.4.

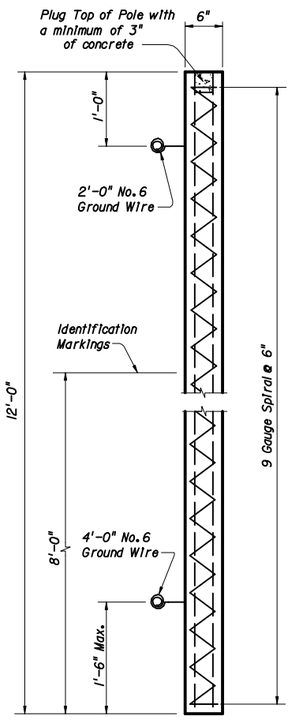
Provide a minimum cover of 1".

Provide all poles with total taper of 0.052 IN/FT.



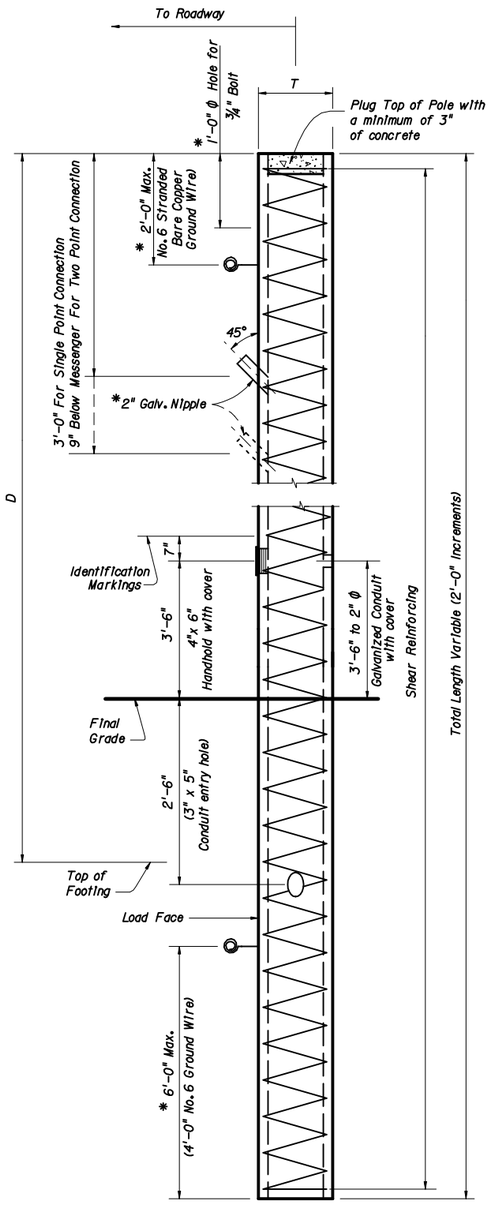
TYPE N-II POLE ON CONCRETE PEDESTAL





SERVICE POLES - TYPE N-II

(For Installation, refer to Roadway and Traffic Design Standard, Index No. 17504)



POLE TYPES N-III THROUGH N-VIII

* Do not apply these items to Type N-III Establish bolt hole locations, ground wire location and conduit location as shown in the plans.

Ref. Index 17900 and Sec. 744 for modifications to Type N-III poles used at traffic monitoring sites.

**MINIMUM REQUIRED MOMENT CAPACITY					
D (feet)	TYPE OF POLE				
	N-IV (k-ft)	N-V (k-ft)	N-VI (k-ft)	N-VII (k-ft)	N-VIII (k-ft)
20	33	106	152	210	266
22	37	111	159	218	275
24	41	116	163	226	284
26	44	121	172	234	293
28	48	127	179	242	302
30	52	132	185	250	311
32	56	137	192	258	320
34	60	142	199	266	329
36	63	148	205	274	338
38	67	153	212	282	346
40	71	158	219	290	355
42	75	163	225	298	364
44	79	168	232	306	373
46	82	173	239	314	382
48	86	177	245	322	391
50	90	180	252	330	400

** Service Conditions: Design poles to carry the "Minimum Required Moment Capacity." These moments are based on a dead load plus wind load combinations, therefore obtain the allowable stresses by multiplying those for normal exposure conditions given in Section 6 by the applicable factor from Section 2 of the AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals.

The ultimate moment capacity of each pole shall be a minimum of 1.3 times the "Minimum Required Moment Capacity."

TYPE OF POLE	CONCRETE POLE	
	SIZE AT TOP (T)	SHEAR REINFORCING
Type II	6" x 6"	9 Gauge Spiral @ 6"
Type III	6" x 6"	6 Gauge Spiral @ 6"
Type IV	8" x 8"	5 Gauge Spiral @ 6"
Type V	10" x 10"	5 Gauge Spiral @ 6"
Type VI	12" x 12"	5 Gauge Spiral @ 6"
Type VII	14" x 14"	5 Gauge Spiral @ 6"
Type VIII	16" x 16"	5 Gauge Spiral @ 6"