

SECTION 3 STAKING REQUIREMENTS

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3.02 PURPOSE

The purpose of this Standard is to provide guidelines for the inspector to determine the correct location of utility installations, in single-family, multiple resident, and commercial areas. (The type and location of survey stakes is ultimately the responsibility of the developer, contractor and surveyor to determine). It is the responsibility of the construction contractor to build improvements in the correct horizontal and vertical location relative to the approved plan. As-built surveys can be performed to insure the improvements are in the correct plan locations.

3.03 GENERAL

Utility staking is contingent upon the completion of the following by the developer:

- A. Clearing and cutting streets, sidewalks, and utility easements (if in public R/W), to sub-grade. Subgrade for street construction may be staked along the centerline of the proposed road. Cut-Fill grades on the stakes are usually given to subgrade and written as “SG” on the lath above the stake. Centerline is abbreviated “CL”. The detail for the road section (elevation difference from subgrade to finished grade “FG” may be determined by looking at the civil detail for the road.
- B. Establishment of lot corners or an offset for protection and finished street, curb, and sidewalk grades where required. A preliminary wooden stake is typically placed at the lot corners so the contractor will be able to accurately place utility boxes and stub-outs. The lath above the stake will usually be written with the adjoining lot number such as “LOTS 35/36”

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3.04 STAKING PROCEDURE

The developer is to provide and maintain the staking in the following order.

3.04.01 Sub-grade Stakes

These indicate the offset and grade cut or fill at the following locations as appropriate:

- A. Property corners (none on apartments and townhouses).
- B. Lot pad corners (none on apartments and townhouses).
- C. Building corners (none on lot sale developments).
- D. Other locations as required.

Sub-grade stakes are generally correct to within 0.2' which is sufficient precision to stake sub-grade. However, care must be exercised when staking a utility location in that a greater degree of precision may be necessary.

3.04.02 Finish Grade Stakes

It is the developer's responsibility to see that finish grade is staked, in all areas back of sidewalk, where there will be utility installations. If the finish grade is not provided, the minimum depth of cover over any pipe shall be sixty (60) inches. Trench depth in the unstaked area will take into account the minimum pipe bedding in details 10L-6 and 10L-7 in addition to the minimum pipe cover described above.

3.04.03 Curb and Gutter Stakes

The proposed road and sidewalks as well as the curb and gutter are typically defined by these stakes. These stakes are usually set on five to ten foot offsets behind the face of curb. These stakes indicate the offset and grade cut or fill, normally to top of curb. They are set with greater precision and are generally correct to within 0.02'. The writing on the lath (3' to 4' stake above the stake in the ground) will usually have a number at the top indicating the offset from the stake to the proposed feature and the letters "TFC" which mean Top Face of Curb. Curb and Gutter stakes may also be set to Flowline (FL) of the gutter or Top Back of Curb (TBC). The location of the street right of way line can usually be determined from the curb and gutter stakes by use of the road improvement standards of the Cities of Reno and Sparks and Washoe County as shown in the table below. For instance with a 60 foot wide right of way within the City of Reno it is 4.5 feet from the back edge of the sidewalk to the right of way line. If the curb and gutter stakes

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area to the top face of curb it will be nine feet from the face of curb to the right of way (4 foot wide sidewalk plus 6 inch wide curb plus the 4.5 foot per the City Standard previously mentioned). To take this one step further if the survey stake is set on a ten foot offset to top face of curb the right of way line will be one foot (toward the curb) from the survey stake. Of course the Public Utility Easement line can be determined by measuring it's width from the right of way line after it has been located. Curb and Gutter stakes are usually set at stations no more than 50 feet apart along tangents and 25 foot intervals along curves. At curb returns (the intersection of curbs from two streets) the BC or PC (Begin Curve or Point of Curvature) and EC or PT (End Curve or Point of Tangency) stake is set along with at least one stake for a point along the curb return such as the ½ Delta (midpoint) of the curve.

3.04.04 Final Lot Corners

These are not normally staked until all construction is complete and are of little use in determining the location of underground utilities.

3.05 TMWA / DEVELOPER COORDINATION

When approaching the task of providing utilities for a proposed development, the following is normally required.

- A. TMWA personnel reviews information with the developer.
- B. Developer reviews plans with TMWA designer at pre-construction meeting.
- C. The developer provides the staking and grading necessary for utility installation.
- D. TMWA personnel and developer agents review plans at the project site.
- E. Check standard street improvements and compare with project plans.
- F. Before staking, the developer shall confirm the location of property corners to ensure that they conform to the proper established street R/W widths.

3.06 WATER STAKING DETAILS

3.06.01 Offset Distance

An offset distance, from C/L of trench, shall be selected which will ensure the protection of stakes during trenching. The stakes are typically placed at a minimum offset of 10 feet from any valve, tee or change in direction of the pipe. , normally,

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are placed adjacent to the developer's curb and gutter stakes which provides an adequate offset.

3.06.02 Interval

Stakes will be placed at or near the property corners or at 50' intervals. However, the interval may have to be decreased to 25' or less on curves or where the site conditions otherwise dictate.

3.06.03 Stake Lettering

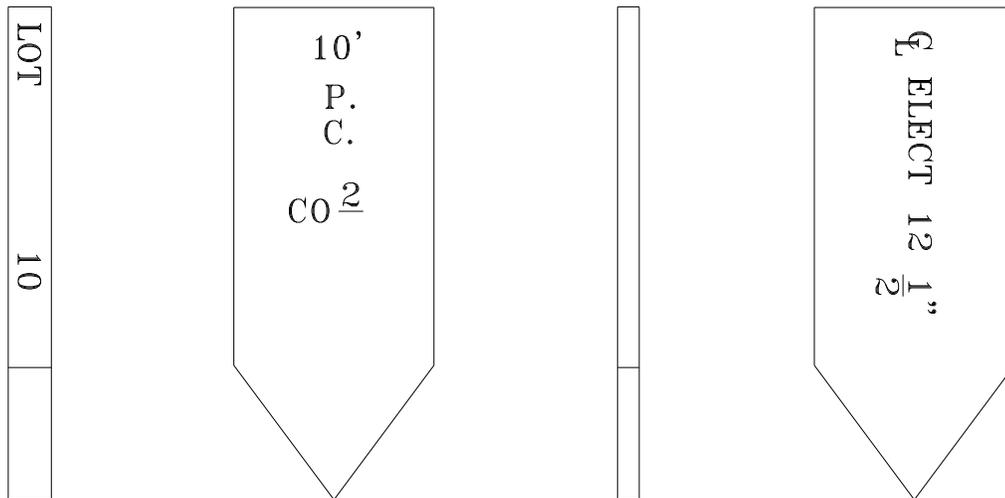
Given below are some examples of typical stake information necessary for utility installation.

- A. Distance to centerline of gas trench "C/L Gas 10" or 10 with a circle around it and CL GAS
- B. Distance to centerline of water trench "C/L Wtr. 10" or 10 with a circle around it and CL WATER. Note: Cut/Fill grades to waterlines are sometimes given to the TOP of the proposed pipe.

3.07 DEVELOPER RESPONSIBILITIES

3.07.01 Maintenance and Adjustments: The developer is responsible for maintenance of all stakes and adjustments, if necessary, of all boxes and pads to proper grade.

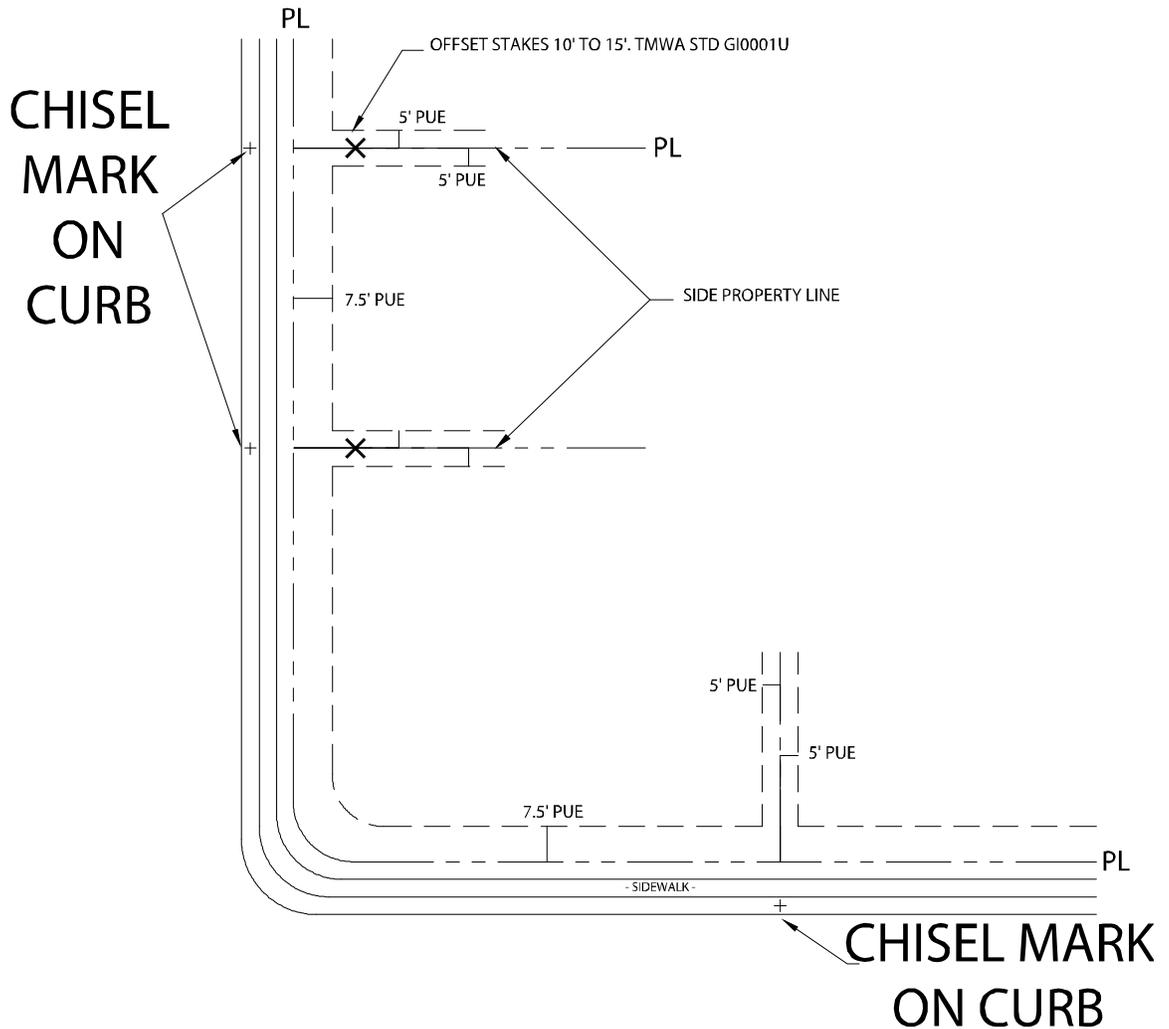
3.07.02 EXAMPLES OF STAKE LETTERING



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3.07.03 SUBDIVISION PUBLIC UTILITY EASEMENT STAKING

The location and geometry of the street Right of Way, Public Utility Easements and Lot corners can be seen on the Subdivision Final Map. These are recorded maps that can be downloaded from the Washoe County Assessor's Web site by going to Mapping and then selecting Tract Maps. You will need to know the Tract Map Number for the Subdivision which may be shown on the Subdivision Improvement Plans.



- A. Applicant to furnish property line chisel mark on curb
- B. Front PUE to be 7.5', side lot PUE to be 5' and others as required
- C. Offset stakes 10' to 15' by Applicant

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