

**CLARK COUNTY SUPPLEMENT
TO UNIFORM STANDARD DRAWINGS AND
SPECIFICATIONS**

Department of Public Works
Clark County, Nevada
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CLARK COUNTY BOARD OF COMMISSIONERS

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**CLARK COUNTY SUPPLEMENT TO UNIFORM STANDARD
DRAWINGS AND SPECIFICATIONS**

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Chapter 1

COUNTY STREET SYSTEM

1. Functional Classification

CLASS Minimum right of way	PURPOSES	DESIGN VOLUME (when fully developed)	ACCESS CONTROL
Residential, One-Way 39'	To provide access to abutting single family residential properties.	Less than 200 vehicles per day.	Directional flow restriction.
Residential, Two-Way, Local, (Option A) and Hammerhead - 48'	To provide access to abutting single-family residential properties.	Less than 1,500 vehicles per day.	None.
Residential, Two-Way, Local (Option B) and Cul-De-Sac - 48'	To provide access to abutting residential properties.	Less than 1,500 vehicles per day.	None.
Non-Residential, Local 48'	To provide access to industrial and commercial lands with their attendant special design vehicles and quality of traffic.	Less than 1,500 vehicles per day.	None.
Minor, Residential Collector - 60'	To convey traffic from local residential streets to major collector or arterial streets while affording abutting properties access.	1,500 to 3,500 vehicles per day.	None.
Major Collector - 80' and Arterial* - 100'	To convey traffic from residential streets while affording abutting properties access.	3,500 and greater vehicles per day.	Partial control by means of limitations on driveway locations.

* Classification of proposed streets as major collector or arterials shall be determined upon discussion with the County Engineer.

2. IMPROVEMENT REQUIREMENTS

All improvements shall be constructed in accordance with the "Uniform Standard Drawings for Public Works Construction - Off-site Improvements" except as noted below and in Appendix C of this supplement.

A. Median Islands

Median islands will generally be required on arterial streets in business or commercially zoned areas. Breaks in these medians will generally be permitted at distances of one-

fourth (¼) mile (1320 feet) but in no case less than six hundred and sixty feet (660'). Driveways that generate major traffic volumes should be aligned with these breaks. On arterial streets where adjacent land use is residential, two-way left-turn (marked) lane may be permitted.

B. Valley Gutters

No valley gutter shall be allowed across major collector or arterial streets.

C. Minimum Access

Every subdivision and commercial development shall have at least one (1) paved all-weather access road of sufficient width to carry the generated traffic, but no less than twenty-four feet (24') wide or as required in an approved traffic impact analysis, to a street dedicated to the County for public use.

3. TECHNICAL DESIGN REQUIREMENTS

A. Horizontal Alignment and Intersection

- (1) Street patterns should be planned for the most advantageous development and drainage of the subdivision as well as adjoining areas and should conform as nearly as possible to the natural contour of the land to minimize cuts and fills.
- (2) Proposed streets should align with existing or recorded streets with which they are to connect. All intersections of the streets not in alignment shall be offset a minimum of one hundred twenty-five (125) feet.
- (3) All street intersections shall be as near to ninety degrees (90°) as practicable.
- (4) Intersections between arterial streets and major collectors shall be spaced a minimum of one-half (½) mile. Street intersections with a major collector or arterial street will generally be permitted at distances no less than six hundred sixty feet (660').
- (5) No single-family residential subdivision lot shall have direct access to a major collector or arterial street, unless specifically approved by the County Engineer.
- (6) Minimum horizontal alignment design shall utilize criteria recommended by the American Association of State Highway and Transportation Officials.
- (7) Clear intersection sight distance for non-signalized intersections shall be designed to meet the design speed for the approach street.

B. Vertical Alignment

- (1) Vertical curves shall be provided in all changes in grade where the algebraic difference is one percent (1%) or greater.
- (2) Longitudinal street grades shall not be less than four-tenths of a percent (.4%) unless adequate alternative street drainage is provided, nor more than six percent (6%), unless specifically approved by the County Engineer.

- (3) Vertical curve stopping sight distance design shall utilize criteria recommended by the American Association of State Highway and Transportation Officials.
- (4) Minimum cross slope from street crown shall be two percent (2%), unless specifically approved by the County Engineer.

C. Streetlighting

- (1) Spacing of streetlights shall be in accordance with the design value shown in Table 2. If a conflict would arise between the location of a proposed streetlight and a proposed driveway, fire hydrant, etc., then the streetlight location may be adjusted within the range established by the "minimum" and "maximum" spacing values shown in Table 2.

TABLE 2

STREET RIGHT-OF-WAY	STREETLIGHT SPACING				
	MAXIMUM - DESIGN - MINIMUM - WATTS				DESIGN LAYOUT
48 feet	250 feet	240 feet	230 feet	100	on the side without sidewalk
51 to 60 feet	250 feet	240 feet	230 feet	100	one side of street
80 feet	190 feet	180 feet	170 feet	250	alternate both sides of street
100 feet	130 feet	120 feet	110 feet	250	opposite both sides of street (Traffic volumes or projected volumes may require 12 foot mast arms.)
150 feet					varies (Determined by design footcandles at 1.2 and 3:1 uniformity ratio)

- (2) Different spacing and wattage may be approved by the County Engineer if supported by a lighting study.
- (3) All streetlights shall use a high pressure sodium luminaire. All one hundred (100) watt luminaires shall be IES Type II medium cutoff. All other luminaires shall be IES Type III medium cut-off unless specified otherwise. All luminaires shall conform with the 1984 edition of the Standard Specification for Off-Site Construction, Clark County, Nevada. The luminaire housing and optical assemblies for 200 watt and 250 watt fixtures shall be the same size as is normally standard usage by the manufacturer for 400 watt fixtures. The slipfitter shall be capable of adapting to 1¼ inches (32 millimeters) through two inches (50 millimeters) pipe bracket without rearrangement of parts and be adjustable ± 5 degrees from horizontal.

- (4) For single family residential developments, the design engineer may propose a lighting system designed to meet an illumination level of 0.2 footcandles at a uniformity ratio of 6:1 using equipment already commercially available. Design calculation and equipment supply information shall be provided to the County Engineer prior to approval.
- (5) Each sheet of streetlighting plans submitted to the County Engineer shall show the location of each streetlight standard by centerline stationing, type and gauge of standards, number of streetlights, type of wiring, and the location of streetlighting circuits.
- (6) When sidewalks and lighting are temporarily waived, but driveways are constructed, a one-and-a-quarter (1¼) inch diameter, P.V.C., Schedule 40 conduit shall be installed under the driveway for future electrical lighting or signal use.
- (7) The streetlight power source shall be designated by the serving utility company and located as near to the center of the circuit as possible.
- (8) If the power source as designated originates or crosses private property, the developer shall install conduit, wire, pull-box, etc. According to the serving utility instructions, to a point of right-of-way acceptable by the serving utility and Clark County. Clark County's power source will begin at that point of right-of-way and will extend to the metered power point of service.
- (9) All streetlighting circuits shall have a permanent power source, and shall be ready for use before acceptance for maintenance.
- (10) Should there be an overhead or underground conflict that interferes with the erection of the streetlight poles and their appurtenances, it shall be the developer's responsibility to resolve the conflict to the satisfaction of all involved parties at no expense to the County.
- (11) All work, including trenching, installation of conduit and wire, splicing, wire makeup, etc., shall be done by a qualified electrical contractor or under his supervision, and it shall be the responsibility of the developer and the electrical contractor to ensure adherence of the electrical work to approved plans and established standard specifications and ordinances.
- (12) Any structure, such as block walls, chain-link fences, retaining walls, etc., shall have a minimum clearance of fifteen (15) inches to the center of the pole and shall not encroach into the County right-of-way. Fire hydrants and driveways shall have a horizontal clearance of at least six (6) feet.
- (13) The streetlighting service shall be multiple, 120/240 volts, 3-wire single phase (the standard service shall be one hundred (100) amps unless specified otherwise) and shall be housed in a County-approved "service enclosure." Wire shall be three (3) No. 2-THW stranded copper, two (2) each colored and one (1) each white.
- (14) The standard loading circuit shall be fused with a sixty (60) amp, two (2) pole circuit breaker (maximum RMS symmetrical amps, ten thousand (10,000), wired to a multiple lighting contractor rated at sixty (60) amps continuous. Wire shall be

two (2), No. 4-THW colored, one (1) No. 8-THW colored, one (1) No. 8-THW green for one hundred (100) amp circuit. All wire to be copper. A photo-control relay shall be installed on the luminaire receptacle or contractor assembly at the first lighting standard nearest the service enclosure. A pair of wires, two (2) each, No. 12-THW stranded copper, shall be installed from the service pedestal to the photo-control relay. County forces will connect. The contractor shall supply a Fisher No. 5 toggle switch (or approved equal) for the photo-control relay by-pass circuit.

- (15) All streetlight standards shall be placed fifteen (15) inches from the right-of-way to center of pole. No foundation may extend beyond the right-of-way unless approved permanent easement is provided.

4. GEOTECHNICAL STUDY GUIDELINES

The construction of off-site improvements is subject to the approval of a soils investigation report. The soils report may be submitted by the developer at the same time off-site improvement plans are submitted to the County Engineer. The findings contained in the soils report may be used by the developer's engineer as the basis for the design and construction of the off-site improvements.

The soils investigation shall be conducted by an approved testing laboratory under the direction and control of a Nevada registered professional engineer. The report shall be sufficiently comprehensive to determine the location and nature of all soils within the off-site construction area.

A. Use of In-Place Native Material

Where in-place native materials are suitable for use in lieu of Type I aggregate base and the developer desires to use the in-place native materials, the following documents shall be required prior to such use:

- (1) A request in writing from the developer to the County Engineer to use in-place native materials.
- (2) A soils investigation report signed by a registered professional engineer in the State of Nevada. The soils report shall contain the information shown in the "Soils Report Guidelines" for items 1 through 5, except that item 5, R-value tests may be omitted if the native soils fall within the gradation of P.I. tolerances for Type I or Type II aggregate base, or are classified as GP or GW based on the Unified Soils Classifications System. The soils report shall also contain a recommendation by the Engineer on the use of the native soils in lieu of Type II aggregate base.

Approval to use in-place native soils in lieu of Type I aggregate base does not constitute acceptance of the material. All construction materials are subject to inspection and/or testing by the County Engineer, and any material that does not conform to the engineering characteristics of those materials approved for use shall be removed and replaced with acceptable material.

Materials used in lieu of Type I aggregate base shall not contain rock larger than three (3) inches, and shall be processed, compacted and constructed in accordance with the *Uniform Standard Specifications for Public Works Construction Off-Site Improvements, Clark County Area*.

- B. Existing Pavement: Structural Integrity Test
Normally, off-site construction requires asphalt concrete paving to the right-of-way centerline. When asphalt pavement is existing, the developer's engineer may submit to the County Engineer, sufficient information prepared by a materials engineer to indicate the condition and the structural adequacy of the existing pavement. The County Engineer will determine the need for either improving or replacing the existing pavement for a match line with the new pavement.
- C. Existing Pavement: Alignment and Continuity
Normally, off-site construction requires asphalt concrete paving to the right-of-way centerline. When asphalt pavement is existing, the developer's engineer may submit to the County Engineer, sufficient information prepared by a civil engineer to indicate vertical and horizontal alignment is maintained and adequate drainage is provided for. The developer may be required to replace all or any portion of existing roadway in a manner that two-way traffic can be maintained without the use of potentially hazardous alignment transition (vertical or horizontal) and in a manner to ensure adequate drainage is provided for.

Chapter 2

DRAINAGE AND FLOOD CONTROL

1. GENERAL REQUIREMENTS

- A. Filling, excavation or grading of a property shall not cause a natural drainage water course, or an existing drainage facility or easement, whether public or private, to be filled in, obstructed or diverted.

When modification to a natural drainage water course is proposed within the development, such changes shall be addressed in the drainage study and shown on the improvement plans, and the developer will be required to dedicate rights-of-way or record drainage easements for structures and/or improvements needed to carry storm runoff.

- B. Any building or dwelling constructed within a designated special flood hazard area shall have the lowest habitable floor elevation at least eighteen (18) inches above the one hundred (100) year storm flood elevation. In addition, all habitable finished floor elevations must be at least eighteen (18) inches above the street centerline or top-of-curb or twice the depth of flow up to eighteen inches, whichever is higher, whether constructed within a special flood hazard area or not. Information regarding flood hazard areas is available at the Office of the County Engineer.
- C. The subdivider or developer shall provide the necessary means to assure drainage within the property being developed by making use of existing drainage facilities or natural drainage water courses.
- D. In the event that part or all of a proposed development is traversed by a natural drainage wash, the subdivider or developer shall dedicate adequate easements for drainage and maintenance purposes.

Easements which cover the outlet structure, storm drain alignment, detention area, berms, and other parts of the storm drainage system shall be recorded. These easements are for operation and repair, to ensure proper maintenance of the drainage system.

All developments encumbered with drainage easements shall provide covenants running with the land, stating that no buildings, fills, excavations, structures, fences, or other alterations shall be constructed within the easement without the expressed written consent of the County Engineer.

2. TECHNICAL DESIGN REQUIREMENTS

Technical design requirements shall be in conformance with the "Uniform Regulations for the Control of Drainage" and "Hydrologic Criteria and Drainage Design Manual" current edition except as noted below or on Appendix C.

- A. On-site Retention
On-site retention of storm water may be approved in the design of single-family residential developments within Clark County, provided the following conditions are met:

- (1) Submittal of a soils engineering report obtained from surface, subsurface and geological investigations necessary to establish validity of the proposed project to

a depth of five (5) feet below the finished floor elevations. The report shall include, but not be limited to, pertinent data as applicable to the proposed project:

- (a) The nature, distribution, and soil type with percolation limits of the existing soils and rock formations. The minimum allowable percolation value imposed herein will be three-tenths of one inch (0.30) per hour.
 - (b) Geologic factors affecting stability and safety, including certification that foundations will not be detrimentally affected by on-site retention.
 - (c) Conclusions and recommendations for grading requirements, including the correction of weak and/or unstable soil conditions.
 - (d) Opinions and recommendations covering the adequacy of sites to be developed by the proposed grading operations.
- (2) Where possible, the on-site retention may be supplied by shallow ponding areas such as dished or bermed yards and/or open areas, including landscaped areas, etc. Ponding water shall not exceed a depth of eight (8) inches.
 - (3) The spillway elevation for on-site retention within yards shall be no less than six inches below the finished floor elevation or the static head at the spillway shall have a minimum positive gradient to any property line of one-half of one percent (0.50%).

B. Public Drainage Easement Policy

- (1) Subdivisions to be designed to minimize the need for drainage easements.
- (2) Easements must be a minimum of 15 feet wide.
- (3) Easements must be fully concrete lined, with a low flow area constructed to a minimum grade of 1% in 50 feet or less or .5% for lengths greater than 50 feet.
- (4) Block walls or combination of block wall and wrought iron to meet zoning's wall height requirements. Walls to be located outside of easement.
- (5) At a minimum, galvanized removable bollards must be placed at each end of the easement. In easements 50 feet long or less, a single galvanized gate may be installed at approximately the mid point. In the easements greater than 50 feet, two galvanized gates may be installed but they must be recessed at least 10 feet or at the front yard set backs as determined by zoning, whichever is greater, from the public right of way. Gates are to be hinged to allow 180 degree movement.
- (6) Where existing storm drainage facilities exist, to provide an outlet, underground storm drains will be used through an underground easement with overflow section.

CHAPTER 3

TRAFFIC

1. GENERAL REQUIREMENTS

A. Traffic Engineering Policy No. 1 - School District Responsibility for New School Crossings/School Zone Signals.

When any private, public or parochial school system selects a new school location, or changes attendance boundaries for an existing school where the new site or boundary change necessitates the design and construction of school crossing zones and appurtenant equipment within two (2) years of building permit approval at the school or redistricting action, the school district shall be responsible for all costs of construction of said school crossings and equipment. Use permits or new schools will not be approved until the school system conforms to this policy.

B. Traffic Engineering Policy No. 2 - Developer Responsibility for New School Zone Signals.

When a developer is required to install off-site improvements on a roadway that will have a school crossing signal system within two (2) years of the date of building permit approval of the development, the developer shall be required to install all school crossing signal improvements, to include conduits across the roadway, pullboxes, a foundation with pole and mast arm and controls on his side of the roadway. This policy shall not apply if the school district is responsible for signal implementation as outlined in Traffic Engineering Policy No. 1.

C. Traffic Engineering Policy No. 3 - Pedestrian Crossing Improvements.

When the developer is required to install off-site improvements on a roadway which requires a school crossing signal system, the developer shall be required to install all school crossing signal improvements, to include conduits across the roadway, pullboxes, a foundation with pole and mast arm, and controls on his side of the roadway.

D. Traffic Engineering Policy No. 4 - Improvements to Existing School Signal System/Pedestrian Crossings.

When a developer is required to install off-site improvements on a roadway that has an existing school crossing, school crossing signal system, or pedestrian crossings, the developer will be required to reconstruct the existing school or pedestrian crossing, or the school crossing signal system, so that each is fully functional after construction of the developer's off-site improvements.

E. Traffic Engineering Policy No. 5 - New Traffic Engineering Improvements at an Intersection to be Signalized in the Future.

When a developer is required to install off-site improvements at an intersection that warrants a traffic signal, or is at an intersection of any combination of section line and

center section line roads, the developer will be required to install traffic signal improvements, to include conduits across the roadway, pullboxes, a foundation with pole and streetlight mast arm and luminaire, for the future signal within the limits of his development only.

F. Traffic Engineering Policy No. 6 - New Traffic Engineering Improvements Required as a Result of New Development.

When a developer, because of the impact of his development on existing traffic, causes an intersection that is not any combination of section line and center section line roads to warrant a traffic signal, the developer shall be required to pay for one hundred percent (100%) of the signal. An intersection shall also include a driveway and/or street-type entrance where such entrance did not exist.

G. Traffic Engineering Policy No. 7 - Unusual Roadway Conditions Caused by New Development.

When a developer is required to install off-site improvements on a roadway, and such improvements require a change of elevation so that the existing paved roadway is rendered unusable for traffic, the developer shall replace all existing pavement in a manner that two-way traffic can be maintained without the use of potentially hazardous alignment transitions.

H. Traffic Engineering Policy No. 8 - Alignment Transitions, Acceleration, Deceleration and Turn Lanes Required by New Development.

When a proposed development necessitates alignment transitions, acceleration lanes, deceleration lanes, a continuous two-way center left turn lane, or other exclusive turn lanes, the developer shall be required to construct said transitions and/or lanes and provide all markings and safety devices necessary to minimize any hazard created by said transition.

2. ACCESS CONTROL

The design, number and location of access points must be approved by the County. The number of access points shall be kept to a minimum. The following information is presented as general guidelines for the location of access points to the public street system:

A. Access Points. Direct access will not be approved for parking or loading areas that require vehicular backing maneuvers in a public street right-of-way, except for single family or duplex residential uses on local streets.

B. Provision of Access. If a property has frontage on more than one (1) street, access will be permitted only on those street frontages where standards contained in these and other County Standards can be met. If a property cannot be served by any access point meeting these standards, the County will designate access point(s) based on traffic

safety, operational needs and conformance to as many of the requirements of these guidelines as possible.

- C. Restriction of Turning Movements. Where necessary for the safe and efficient movement of traffic, the County may require access points to provide for only limited turning movements, such as right turns only. The restriction of turning movements shall not affect the number and location of access points as specified elsewhere.

3. TRAFFIC IMPACT ANALYSIS GUIDELINES

A. Responsibilities for Traffic Impact Analysis

- (1) Traffic impact analysis may be required by the County in order to adequately assess the impact of a proposed development on the existing and/or planned street system. The primary responsibility for assessing the traffic impacts associated with a proposed development will rest with the developer, with the County's Traffic Management Division and other impacted governmental agencies serving in a review and approval capacity.
- (2) A written professional traffic impact analysis meeting these guidelines may be required for any development proposal.
- (3) When required, a Traffic impact analysis shall be the responsibility of the applicant and must be prepared and sealed by a Nevada Registered Professional Engineer with appropriate experience in traffic engineering. Upon submission of a traffic impact analysis, the County's Traffic Management Division will review the assumptions, procedures, sources, methods, and findings, and will provide comments in written form. The developer and his engineer will then have an opportunity to submit an addendum to incorporate necessary revisions.
- (4) Any first submittal traffic impact analysis having no regional impacts will be reviewed in a timely manner. Developments that will create regional transportation impacts shall be submitted by the applicant to the Regional Transportation Commission (RTC), the Nevada Department of Transportation (NDOT) and, if applicable, other local government agencies, concurrently with submission to the County. Longer review periods should be anticipated if NDOT or multiple jurisdictions are involved. NDOT must review any traffic impact analysis for which the development in question proposes an access to a street or road under NDOT's jurisdiction.
- (5) All previous traffic impact analyses relating to the development that are more than one year old at the time of the start of construction of the development may require updating, unless the County determines conditions have not changed significantly.

- (6) Traffic impact analyses may be required for the following submittals:
- (a) For a rezoning application.
 - (b) For a tentative subdivision map, if the property has been previously zoned for the proposed use and no traffic impact analysis was required at the time of the zoning.
 - (c) Prior to the issuance of a building permit, if the property has already been zoned or subdivided and no previous traffic impact analysis less than one (1) year old exists.
 - (d) The applicant may be required to submit a new traffic impact analysis if, after submitting the original analysis, the land use intensity or traffic generation are increased.

Where access points are not defined or a site plan is not available at the time the traffic impact analysis is prepared, additional traffic analysis may be required when a site plan becomes available or the access points are defined.

- (7) If insufficient information is available, but the property appears to involve a sufficiently intensive land use, the applicant will be informed that a traffic impact analysis is required. The applicant is urged to contact the County's Traffic Management Division at the preplanning stage to determine if a traffic impact analysis will be required.

B. Suggested Format for a Traffic Impact Analysis

Traffic Engineering consultants are required to discuss projects with the County's Traffic Management Division prior to commencing the analysis. Topics for possible discussion at this meeting might include directional distribution of traffic, definition of the analysis area, intersections requiring level of service analysis, methods for projecting buildout volumes, and agencies that will review the analysis. This should provide a firm base of cooperation and communication between the County, owner, developer and his consultants in developing realistic traffic characteristics, which is in the best interest of the total community. Projects creating regional impacts should be discussed with NDOT and RTC. Specific requirements will vary depending on the site location. However, all traffic impact analyses shall contain, as a minimum, the following information:

- (1) Executive Summary.
This section will contain a brief project overview, conclusions of the analysis and recommendations as an executive summary to guide the Planning Commission and Board of County Commissioners.
- (2) Introduction
 - (a) Site and Analysis Area Boundaries
A brief description of the size of the land parcel, general terrain features,

and the location within the County should be included in this section. Also, the roadways that afford access to the site, and are included in the analysis area, should be identified.

The exact limits of the analysis area should be based on engineering judgment, and an understanding of existing traffic conditions at the site. In all instances, however, the analysis area limits shall be mutually agreed to by the developer, his engineer and the County's Traffic Management Division. These limits will result from initial discussion with the County's Traffic Management Division. A vicinity map that shows the site in relation to the surrounding transportation system should be included.

- (b) Existing and Proposed Uses in Vicinity of Site
A complete description of the existing land uses in the vicinity of the site, as well as their current zoning use, should be included. The applicant should also state the proposed uses of vacant adjacent land in order that any proposed transition in uses is identified. This latter item is especially important where large tracts of underdeveloped land are in the vicinity of the site and within the prescribed study area.
 - (c) Existing and Proposed Roadways and Intersections
Within the analysis area, the applicant must describe existing roadways and intersections (geometrics and type of traffic control) as well as improvements planned by government agencies. This would include the nature of the improvement project, its extent, implementation schedule, and the agency or funding source responsible.
- (3) Trip Generation
The future motor vehicle trips generated by the developed site shall be calculated in a manner consistent with the latest edition of the Institute of Transportation Engineers' (ITE) transferable data collection report, Trip Generation, as amended. The County may require trip generation rates to be used that differ from the ITE values when the results of local studies differ from the national values. For land use categories for which no national or regional trip generation rates are available, the County will require documentation at one or more similar sites to support the rates used in the analysis.
 - (4) Trip Distribution
The directions of approach and departure for site generated traffic will be presented in this section. The technical analysis procedures, basic methods, and assumptions used must be clearly stated.
 - (5) Trip Assignment
This section will describe the utilization of analysis area roadways by site generated traffic. The anticipated site traffic volumes must be combined with existing and projected area traffic volumes from Section 6, to describe through

and turning movement volumes for future conditions with the site developed as proposed. Internal trips in excess of ten percent (10%) will require analytical support to determine how the higher figures were derived. Passerby traffic reduction volumes may be considered if applicable.

Network models must be approved by the County Engineer before being used.

(6) Existing and Projected Traffic Volumes

- (a) Existing A.M. and P.M. peak hour traffic (in and out) including turning movements.
- (b) For each development phase, the estimated A.M. and P.M. peak hour site traffic (in and out) including turning movements.
- (c) For each development phase, the estimated A.M. and P.M. peak hour background traffic (in and out) including turning movements.
- (d) For each development phase, the estimated A.M. and P.M. peak hour site plus background traffic (in and out) including turning movements. All raw traffic count data (including hourly, average daily traffic (ADT) and peak hour turning movements) and analysis worksheets shall be provided in the appendices. Computer techniques and the associated printouts may be used as part of the report.

Development phasing should be determined in conjunction with the developer and the County.

Buildout projections shall include major vacant properties in the vicinity of the proposed development that may be identified by the County. Volume projections for the background traffic growth may be provided by the County or a method for determining their volume will be recommended by the County. All ADT's shall be actual twenty-four (24) hour machine counts and not based on factored peak hour sampling. Latest available machine counts from NDOT, the County, the cities of Las Vegas, Henderson and North Las Vegas or other agencies may be acceptable if not more than two (2) years old. Where sufficient local information is available related to the traffic characteristics, traffic counts should be expanded for day-of-week and seasonal variations.

(7) Traffic Signals

The need for new traffic signals shall be determined using the warrants in the most current edition of the Manual on Uniform Traffic Control Devices. Traffic progression is of paramount importance. Generally, a spacing of one-half (½) mile for all signalized intersections should be maintained. This spacing is usually desirable to achieve acceptable speed, capacity and optimum signal progression.

To provide flexibility for existing conditions and ensure optimum two-way signal progression, the traffic engineering analysis should properly locate all proposed connecting access approaches that may require signalization. An optimum two-way progression pattern should be established for the section of the arterial or network in which the intersection is located.

In areas located within the Las Vegas Area Computer Traffic System (LVACTS), all progression and coordination calculations must be verified with the manager of the LVACTS Traffic Management Center (TMC) prior to inclusion in the report. The County will facilitate communications between the consultant and the LVACTS-TMC operator. Coordination sections will be determined by the County's Traffic Management Division staff based on the latest configuration established by the LVACTS System Manager.

(8) Traffic Capacity

The capacity and level of service of each intersection and road section affected by the development project and located within the analysis area boundaries shall be determined in accordance with the latest edition of the Highway Capacity Manual (HCM) as amended. Unless otherwise authorized by the County's Traffic Management Division, the operational method shall be used.

The analysis performed and reported should include:

- (a) Existing A.M. and P.M. peak hour traffic.
- (b) For each development phase, the estimated A.M. and P.M. peak hour background traffic.
- (c) For each development phase, the estimated A.M. and P.M. peak hour site plus background traffic.

Level of Service (LOS) "D" will be the design objective for non-residential local, major collector and arterial streets. LOS "C" shall be the design objective for all residential streets. The design year shall be the buildout year of the development's final phase.

Capacity and LOS determinations shall be based upon the peak hour conditions and not a daily volume projection.

(9) Traffic Accidents

Traffic accident data for a minimum period of three (3) years for existing street corridors shall be incorporated in the analysis. Estimates of increased or decreased accident potential due to the development shall be evaluated. If applicable, mitigation measures are to be recommended.

- (10) Traffic Demand Management (TDM) and Transportation System Management (TSM) Traffic Demand Management (TDM) and Transportation System Management plans maybe required. If TSM and TDM plans are included as part of a traffic impact analysis, a follow up study must be performed within one year of the project's opening to determine the effectiveness of the recommended measures.
- (11) An analysis of the development's impacts on air quality may be required.
- (12) **Conclusions and Recommendations**
In the event that unsatisfactory levels of service on analysis area roadways are anticipated, a description of proposed improvements to mitigate the impacts of the proposed development shall be included. In general, the recommendation section should include:
- (a) **Recommended Improvements**
- This section shall describe the location, nature and extent of proposed improvements to ensure sufficient roadway capacity. Preliminary cost estimates (engineering, right-of-way and construction), source of funding, timing and likelihood of implementation may be required for each recommended improvement.
- (b) **Level of Service Analysis at Critical Points**
- A second iteration of the LOS analysis should be performed, which demonstrates the anticipated results of making these improvements.
- (13) **Study Checklist**
The Traffic Engineering Consultant will complete the checklist for analysis requirements and sign and seal the checklist. In so doing, the Traffic Engineering Consultant will be acknowledging that all of the minimum requirements of these guidelines are met.
- (14) **Revisions to Traffic Impact Analysis**
Revisions to the traffic impact analysis must be provided as required by the County's Traffic Management Division. The need for revisions will be based on the completeness of the traffic impact analysis, the thoroughness of the impact evaluation and the compatibility of the analysis with the proposed access and development plan.

CHAPTER 4

SURVEY MONUMENTATION STANDARDS

1. General Requirements

A complete and accurate survey of the land to be divided, developed, or improved, by a parcel map, final map, improvement or other plans, shall be made by a Nevada professional land surveyor in accordance with the standard practices and principles of land surveying as defined by NRS 625. Where survey monuments are to be set, or are subject to disturbance and replacement, only a professional land surveyor, duly registered by the State of Nevada, shall be authorized to determine or establish the exact location for a survey monument and only such registered professional land surveyor shall be authorized to perpetuate and reference existing survey monuments located within the limits of public rights of way, streets and easements.

2. Monuments

A. General

- (1) Monuments shall be set in conformance with the standard detail drawings and applicable parcel maps or final maps recorded under the authority of NRS Chapter 278; or those maps or plans approved and on file with the department of public works. Such monuments shall be set within or directly adjacent to the project at:

- (a) All street centerline intersections.
- (b) All angles of tangency and points of curvature in street centerlines.
- (c) All intersections of street centerlines with survey boundary.
- (d) All section corners, quarter section corners and sixteenth section corners.

All the above established points which fall within the limits of public rights-of-way streets and easements shall be referenced to four firmly established ties within a radius of twenty (20) feet to one hundred (100) feet. The angle from tie to tie shall be as near ninety degrees (90°) as possible, radiating from the established intersection or control monument.

- (2) All monuments set within the limits of public rights of way streets and easements shall have a nonferrous metal cap securely attached to the top of the monument permanently marking the exact center. The professional land surveyor's registration or license number shall be stamped on the nonferrous metal cap preceded by the letters: "P.L.S."

- (3) Monuments may be set after approval of the map or plan, but must be set prior to the final acceptance of the improvements. If the monuments are to be set after recordation of an applicable parcel map or final map or prior to the final acceptance of the improvement or other plans, a cash deposit or bond in an amount set by the County Surveyor shall be filed with the county in accordance with Title 27, Chapter 27.90 of the Clark County Code guaranteeing such work.
- (4) All monuments shall conform to the county specifications and standards. Prior approval of alternate survey monuments is recommended prior to a request for the acceptance of final improvements. All alternate types of survey monuments must equal or surpass the County standards regarding quality, durability and conformance with applicable laws and/or ordinances.
- (5) Where hard rock or other physical obstructions are encountered, monument length sufficient to resist removal may vary within reasonable limits.
- (6) All monuments shall be set in such a manner that the accuracy of their relative positions is not less than the requirements of the "Standards of Practice for Professional Land Surveyors" as enumerated by Nevada Administrative Code, (NAC) 625.650 through 625.900 inclusive.
- (7) A reproducible original of a survey monumentation plan, clearly identifying all monument locations including reference monuments, is to be prepared and certified by a Nevada professional land surveyor. This plan is to be filed with County Surveyor prior to the release of the improvement bond and shall certify that the monuments are of the character and occupy the positions shown.
 - (a) The following documents shall constitute a survey monumentation plan providing they are in accordance with the requirements of a monumentation plan as provided for in this chapter, and are delivered as a formal document to the county surveyor for approval.
 - 1. Record of survey in accordance with NRS 625.340;
 - 2. Corner record in accordance with NRS 329.
 - (b) The following certificate prepared and certified by the professional land surveyor is required on all monumentation plans:
 I _____, a registered professional land surveyor in the State of Nevada, do hereby certify that the monuments have been set and the tie distances established as shown hereon.
 This survey was completed on _____.

B. Types of Monuments

- (1) Type I. This monument shall be installed as a section corner of 1/4 section corner surface monument in a public right of way street or easement which is paved with Portland Cement Concrete or Asphaltic Concrete. For construction, see Standard Drawing No. 408.
- (2) Type II. This monument shall be installed as a surface monument at 1/16 section corner points within a street or road section which is paved with Portland Cement Concrete or Asphaltic Concrete. Type II monuments may also be used as subsurface section corner and 1/4 section corner monuments in an unpaved street or road section where maintenance would preclude the use of surface monuments. For construction, see Standard Drawing No. 409.
- (3) Type III. This monument shall be installed at all other survey control points located in paved or unpaved streets, roads or other public rights of way shown on the plans. Such locations may include secondary street intersections, center or hammerhead turnarounds or circular cul-de-sacs, points of curvature and/or tangency, points of intersection and points of reverse and/or compound curvature. For construction, see Standard Drawing No. 410.
- (4) Type IV. This monument is a reference monument to be placed in accordance with Standard Drawing No. 412 and with a tie to tie angle as near to 90 degrees as possible. For construction, see Standard Drawing No. 411. If monuments are to be set in a concrete curb, they must be placed in a tangent section of curb, approximately two feet from the end of the return.

C. Nevada State Plane Coordinates

- (1) Where sufficient geodetic control exists within one mile of the site, Nevada State Plane Coordinates shall be established in accordance with NRS 327 for monuments located within the limits of public or private rights of way which are coincident with section corners, quarter section corners or sixteenth section corners, as the case may be, and shown on the monumentation plan.
 - (a) The professional land surveyor shall consult with the county surveyor with regard to the availability of sufficient survey controls.
- (2) In situations where street center lines are obstructed by median islands, plantings, streetlights or other structures, consideration should be given to placing clearly identified monuments on an off-set line.
- (3) Monumentation at a point of intersection, which falls in the limits of the public rights of way, will be preferred over setting monuments at P.C.'s or P.T.'s unless the P. I. falls outside the paved area.
- (4) In places where the placement of monuments as outlined above is impossible or

Chapter 5

WAIVERS

In accordance with Chapter 27.130 of Title 27 of the Clark County Code, the County Engineer may waive design standards and specifications provided that an alternative design is shown to be equally serviceable in a particular instance and if the health, safety or welfare of the public is not adversely affected, as follows:

1. Driveway design exceptions shall not affect more than one driveway per one hundred linear feet of street frontage, and the driveway design exception shall not cause the backing of vehicles onto a street of eighty feet or more in right-of-way width.
2. Valley gutters may be allowed across rights of way eighty feet or greater in width when an underground storm drain system is not technically feasible due to topographic or existing improvement conditions.
3. For any issue of finished floor elevation not in a flood hazard area, providing that the engineer demonstrates that any floor below the required elevation is adequately protected from potential floods, and subject to the conditions imposed by the Director of Public Works.

APPENDIX A

SANITARY SEWER SYSTEMS AND WATER SYSTEMS REQUIREMENTS

Sanitary sewer systems and water systems shall conform with standards and specifications adopted by the Clark County Sanitation District and Las Vegas Valley Water District.

For information regarding the design of sanitary sewer systems, you may contact the Sanitation District Office at 5857 East Flamingo Road, Las Vegas, Nevada 89122, (702) 434-6601.

For information regarding the design of water system, you may contact the Las Vegas Valley Water District at 3700 West Charleston Boulevard, Las Vegas, Nevada 89153, (702) 258-3166.

APPENDIX B

GLOSSARY

Acceleration Lane: The portion of the roadway adjoining the traveled way for the purpose of enabling a vehicle entering a roadway to increase its speed to a rate at which it can more safely merge with through traffic.

Access: The way or means to approach, enter and leave a parcel, tract of land or lot from a public right-of-way.

Access Point: The connection of a driveway or private street at the right-of-way line to the public roadway.

C.B.R. Value: California Bearing Ratio, a value used to evaluate bases, subbases and subgrade material for pavement thickness design.

Channel: A natural or artificial water course with definite bed and bank to confine and conduct flowing water.

Deceleration Lane: The portion of the roadway adjoining the traveled way for the purpose of enabling a vehicle that is to make an exit turn from a roadway to slow to the safe speed on the curve ahead after it has left the mainstream of faster moving traffic.

Design: The term "design" shall mean the alignment, grades and width of streets; location and width of easements and rights-of-way and alleys, widths, depth and arrangement of lots; the suitability of land for subdivision and the relationship of land uses as well as the layout.

Design Storm: The return frequency storm which is established for the type of drainage facility to be designed.

Detention: Short term storage of runoff, released at a controlled rate.

Drainage Easement: An area where the County has the right to maintain water flow.

Drainage Improvement: Any one of a number of types of construction which is built to control water flow, i.e., ditches, channels, pipes, bridges, etc.

Flow Line: The lowest grade line in a drainage course.

Footcandle: The illumination on a surface one (1) square foot in area on which there is a uniformly distributed flux of one (1) lumen, or the illumination produced on a surface all points of which are at a distance of one (1) foot from a directionally uniform point source of one (1) candle.

Grade Lines: A series of elevations which increase or decrease at specified increments to create downhill or uphill flow.

Level of Service: A qualitative measure of the effect of a number of factors which include speed and travel time, traffic interruptions, freedom to maneuver, safety, driving comfort and convenience, and operating costs.

Lining: A protective covering constructed on all or part of an open channel section to resist erosion.

Open Channel: A channel whose surface is not enclosed.

Peak Discharge: The maximum storm runoff flow rate arriving at the location under consideration.

Peak Hour Traffic: The highest number of vehicles found to be passing over a section of a lane or roadway during any sixty (60) consecutive minutes.

P.E.: Professional Engineer. These initials indicated that the engineer is licensed and registered in the State.

"R" Value: Resistance value (a value used to evaluate bases, subbases and subgrade materials for pavement thickness design).

Special Flood Hazard Area: An area as having special flood hazards as shown by maps furnished by the Federal Emergency Management Agency or defined as such by the County.

Stopping Sight Distance: The distance required by a driver of a vehicle, traveling at a given speed, to bring his vehicle to a stop after an object on the roadway becomes visible.

Storm Runoff: That portion of storm precipitation which is not intercepted by vegetation, absorbed by the land surface or evaporated and thus flows overland as sheet flow or within channels.

Uniformity Ratio: The ratio between the average illumination of a roadway design area between two (2) adjacent luminaries and the lowest value at any point in the design area (average to minimum).

APPENDIX C

Modifications to RTC Uniform Standard Drawings

SERIES 200 STREET IMPROVEMENTS

202	Arterial Urban Area Street Sections - except Clark County (superceded by 202.1)
202.1	Arterial Urban Area Street Sections - Clark County only - see attached
204	Collector Urban Area Street Sections - except Clark County (superceded by 205)
205	Collector Urban Area Street Sections - add Clark County
208	Half Street Construction - except Clark County (superceded by 208.1)
208.1	Half Street Construction - Clark County only - see attached
211	Knuckle - except Clark County (superceded by 211.1)
211.1	Knuckle - Clark County only see attached
217	Roll Type Curb and Gutter - deleted
217A	30" Roll Curb - add for Clark County
222	Residential Driveway Geometrics - except Clark County (superceded by 222.1)
222.1	Residential Driveway Geometrics - see attached
244A	Typical Lane Line Delineation - Type 4 Lane Line (Undivided Road - Clark County Only) - except Clark County
244A.1	Typical Lane Line Delineation - Type 5 Lane Line (Undivided Road - Clark County Only) - see attached
254	Crosswalk Markings - except Clark County (superceded by 254.1)
254.1	Crosswalk Markings - see attached

SERIES 300 STREET LIGHTING

300	Streetlight Location General Notes - except Clark County (superceded by 300.1)
300.1	Streetlight Location General Notes - see attached
301	Streetlight Locations at Intersections 100' or Greater/100' or Greater Right-of-Way - except Clark County (superceded by 301.1a)
301.1a	Streetlight Locations at Intersections 100' or Greater/100' or Greater Right-of-Way - see attached
302	Streetlight Locations at Intersections 100' or Greater/80' Right-of-Way - except Clark County (superceded by 302.1)
302.1	Streetlight Locations at Intersections 100' or Greater/80' Right-of-Way - see attached
303	Streetlight Locations at Intersections 100' or Greater/60' Right-of-Way - except Clark County (superceded by 303.1)
303.1	Streetlight Locations at Intersections 100' or Greater/60' Right-of-Way - see attached
304	Streetlight Locations at Intersections 100' or Greater/51' or Less Right-of-Way - except Clark County (superceded by 304.1)
304.1	Streetlight Locations at Intersections 100' or Greater/51' or Less Right-of-Way - see attached
311	Streetlight Standards Maximum Spacing (80' or Greater Right of Way) - except Clark County (superceded by 311.1)
311.1	Streetlight Standards Maximum Spacing (80' or Greater Right of Way) - see attached
324	Bypass Switch Bracket for Pole Mounted Streetlighting Service - except Clark County and City of Henderson

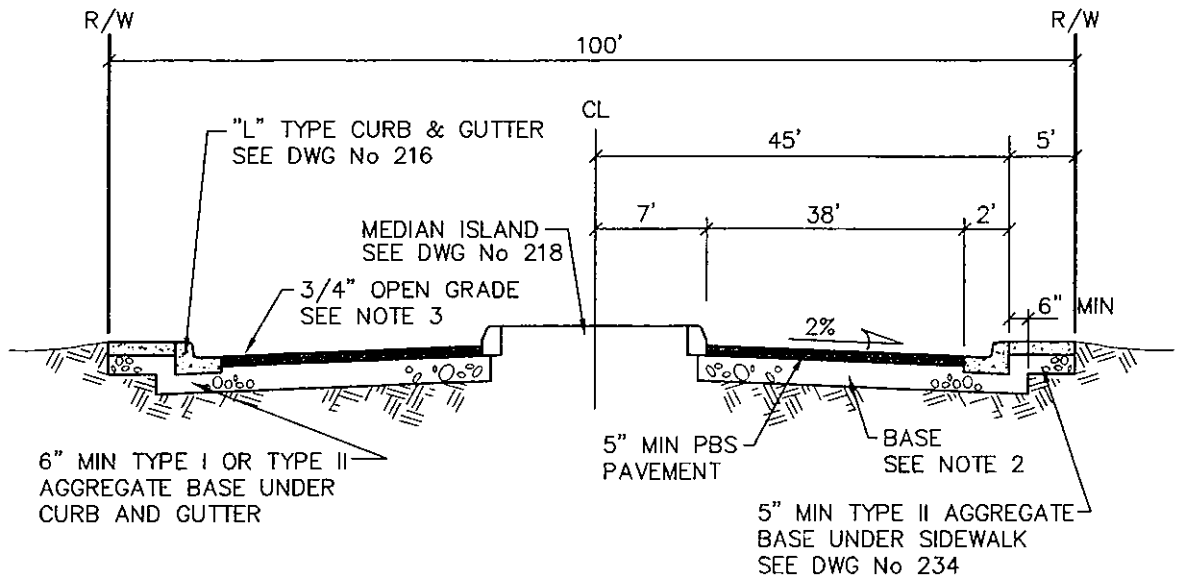
- 332 Service Pedestal Foundation - except Clark County (superceded by 332.1)
- 332.1 Service Pedestal Foundation - see attached
- 333 Streetlighting Service Point Located on Streetlight Standard - except Clark County
- 334 120/140 VAC Service on Wood Pole, Overhead Service - except Clark County (superceded by 334.1)
- 334.1 120/240 VAC Service on Wood Pole, Overhead Service - see attached
- 335 Streetlight Circuit, One Line Diagram - except Clark County (superceded by 335.1)
- 335.1 Streetlight Circuit, One Line Diagram - see attached
- 337 System Grounding Plan with Pole Mounted Service - Except in Clark County

SERIES 400 DRAINAGE IMPROVEMENTS

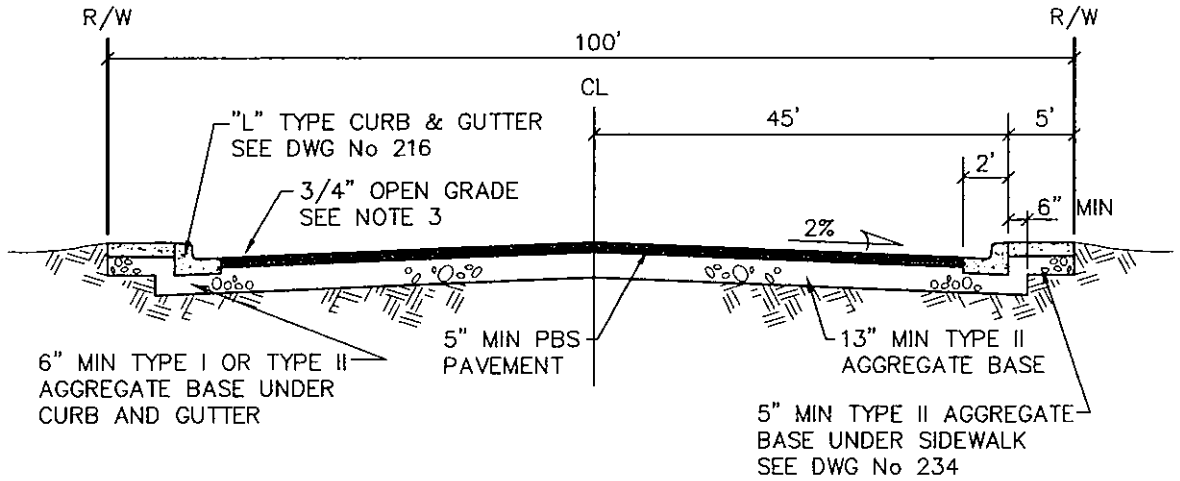
- 402 Storm Drain Manholes General Notes - except Clark County (superceded by 402.1)
- 402.1 Storm Drain Manholes General Notes - manhole spacing maximum of 500 feet - see attached

SERIES 500 UTILITIES AND MISCELLANEOUS IMPROVEMENTS

- 504 Trench Backfill with Flowable Backfill Trench Backfill with Flowable Backfill - except Clark County
- 504.1 Trench Backfill with Flowable Backfill Trench Backfill with Flowable Backfill - see attached



ARTERIAL WITH
MEDIAN ISLAND

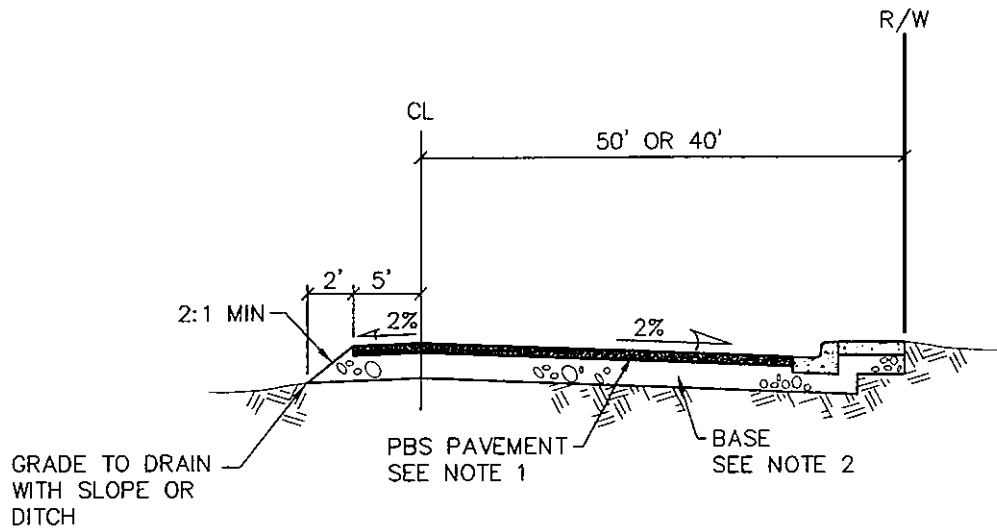


ARTERIAL WITHOUT
MEDIAN ISLAND

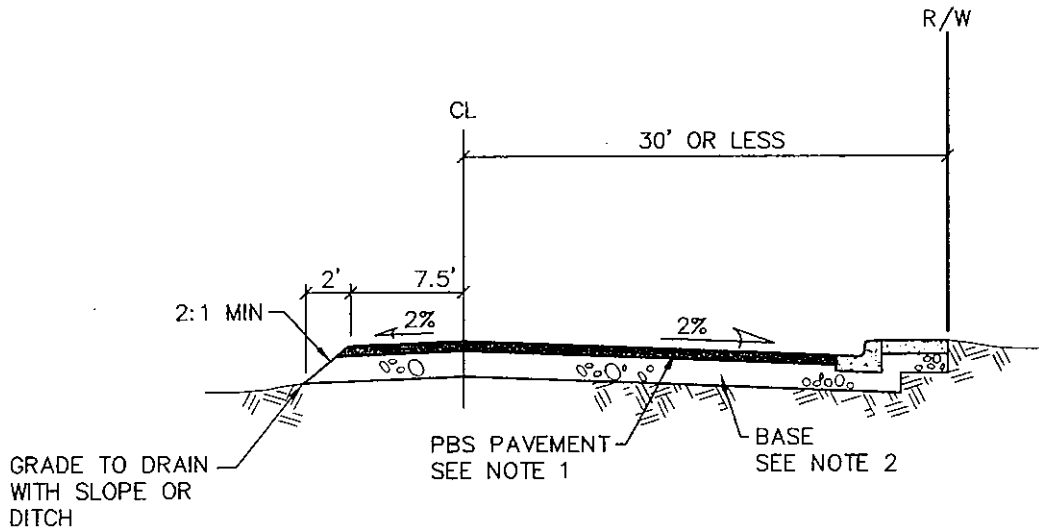
NOTES

1. FINAL PBS PAVEMENT SURFACE (INCLUDING OPEN GRADE) SHALL BE 1/2" MAXIMUM ABOVE LIP OF GUTTER.
2. STRUCTURAL SECTION TO BE DETERMINED BY ENGINEERING ANALYSIS BASED ON A SUBGRADE "R" OR "CBR" VALUE DETERMINED BY SOIL TESTING. IN NO CASE SHALL THE PBS THICKNESS BE LESS THAN THAT SHOWN, NOR SHALL THE BASE BE LESS THAN 3" (ALTERNATE PAVEMENT SURFACE MAY BE ALLOWED).
3. A 3/4" OPEN GRADE MAY BE REQUIRED AS DETERMINED BY THE ENGINEER, OR IF WAIVED, SUBSTITUTED WITH DENSE GRADE PBS.

SPECIFICATION REFERENCE		UNIFORM STANDARD DRAWINGS CLARK COUNTY AREA		
302	AGGREGATE BASE	CLARK COUNTY ONLY		
401	BITUMINOUS PAVEMENT			
403	OPEN GRADE			
501	CONCRETE			
		ARTERIAL URBAN AREA STREET SECTIONS		
		DATE	DWG No 202.1	PAGE No



ARTERIAL OR MAJOR COLLECTOR

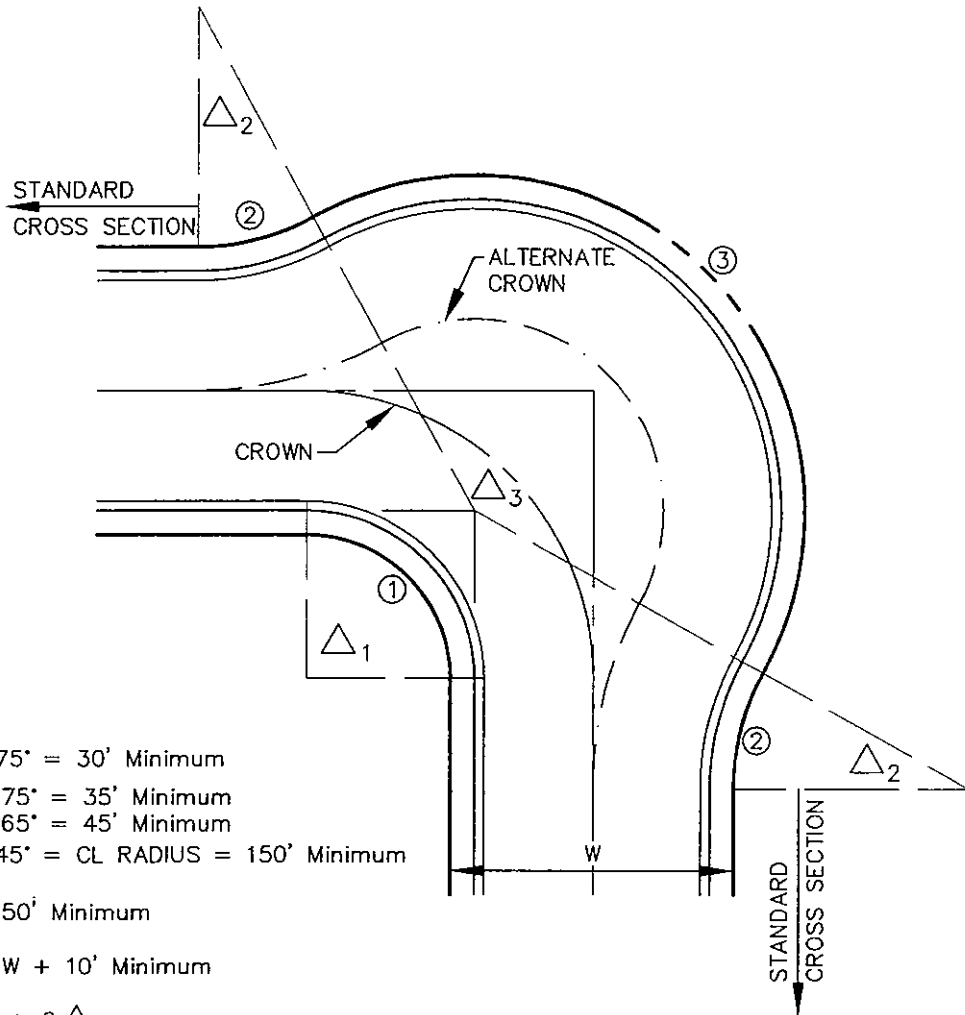


COMMERCIAL/INDUSTRIAL LOCAL OR MINOR RESIDENTIAL COLLECTOR OR LOCAL RESIDENTIAL

NOTES

1. PBS PAVEMENT AND BASE THICKNESS SHALL BE IN ACCORDANCE TO STANDARD DRAWINGS NUMBER 202 THROUGH 207, WHICHEVER IS APPLICABLE.
2. GREATER WIDTHS MAY BE REQUIRED IF TRAFFIC WARRANTS, AS DETERMINED BY THE ENGINEER.

SPECIFICATION REFERENCE		UNIFORM STANDARD DRAWINGS CLARK COUNTY AREA	
302	AGGREGATE BASE	CLARK COUNTY ONLY HALF STREET CONSTRUCTION SECTIONS	
401	BITUMINOUS PAVEMENT		
406	PRIME COAT		
407	FOG SEAL		
501	CONCRETE		
		DATE	DWG No 208.1
		PAGE No	

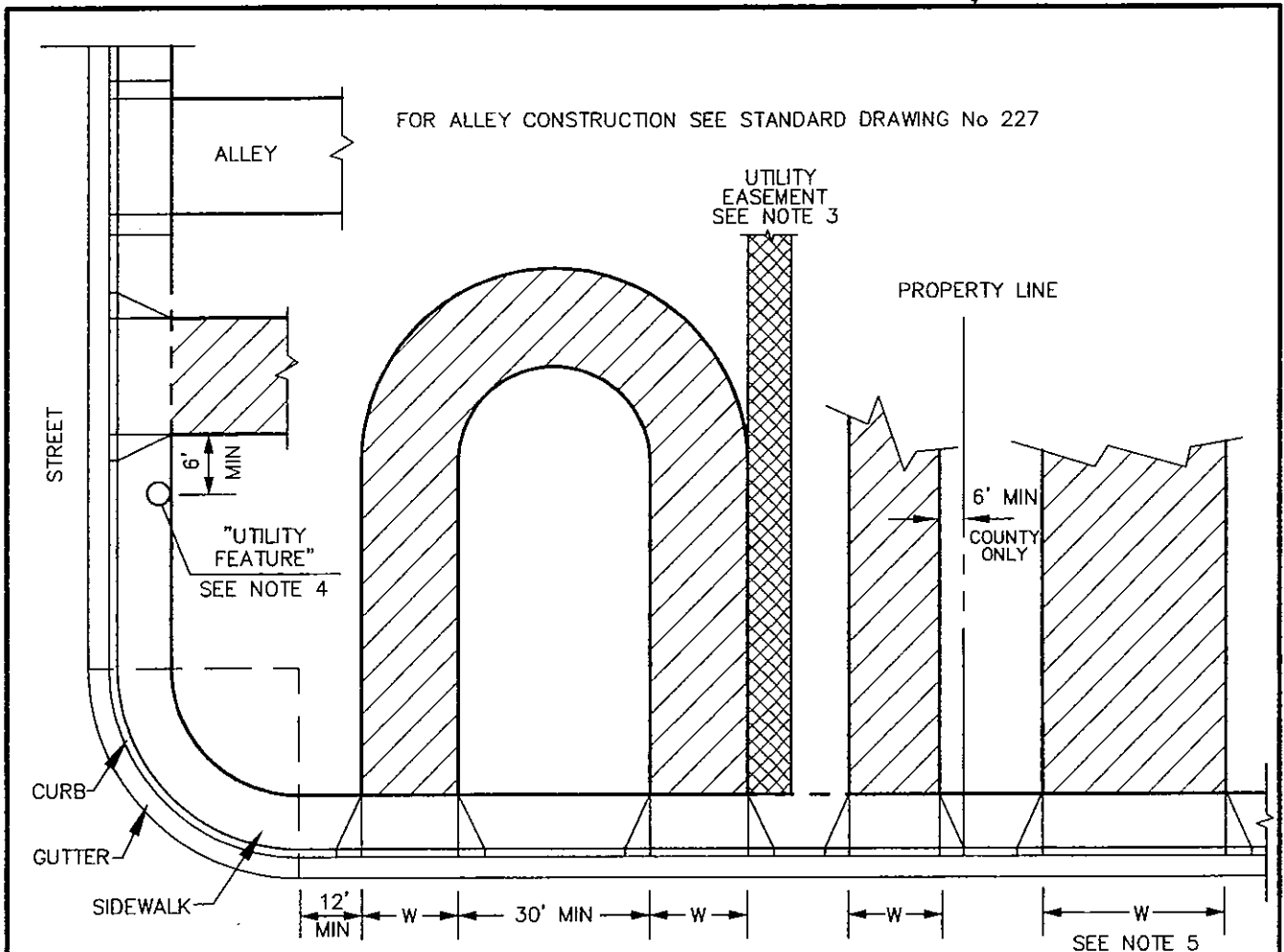


- ① BCR
 $\Delta_1 > 75^\circ = 30'$ Minimum
 $65^\circ \text{ TO } 75^\circ = 35'$ Minimum
 $45^\circ \text{ TO } 65^\circ = 45'$ Minimum
 $\Delta_1 < 45^\circ = \text{CL RADIUS} = 150'$ Minimum
- ② BCR = 50' Minimum
- ③ BCR = W + 10' Minimum
- $\Delta_3 = \Delta_1 + 2\Delta_2$

NOTES:

1. USE 2% SLOPE FROM INNER CURB TO CROWN LINE.
2. FROM CROWN LINE TO OUTER CURB, THE STANDARD SLOPE IS 0.90% (MIN).
3. ELEVATIONS REQUIRED ALONG CURBS (3) AND CROWN EVERY 1/4 (MIN).
4. KNUCKLES ARE ALLOWED ON RESIDENTIAL STREETS ONLY.
5. MINIMUM SLOPE ALONG THE BACK OF CURB OF CURVES (2) AND (3) SHALL BE 0.60% (MIN).
6. SPECIAL KNUCKLE DESIGNS INCLUDING LANDSCAPED MEDIAN ISLAND MAY BE PERMITTED, IF APPROVED BY THE COUNTY ENGINEER.

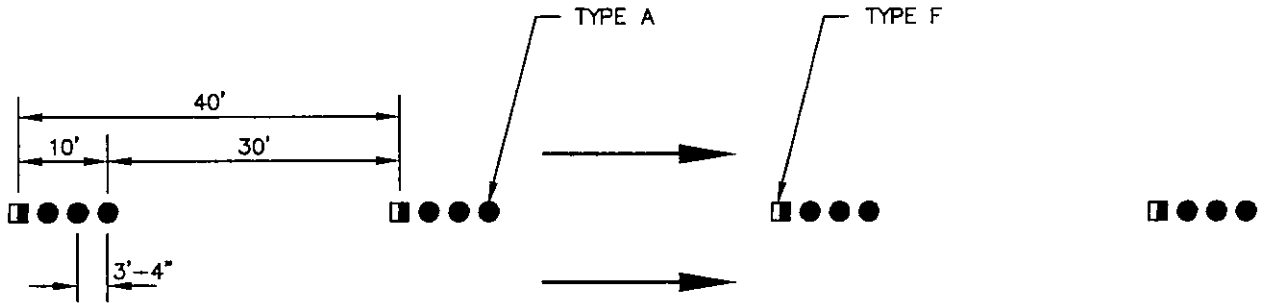
SPECIFICATION REFERENCE	UNIFORM STANDARD DRAWINGS CLARK COUNTY AREA		
	CLARK COUNTY ONLY		
	KNUCKLE - TYPE I		
	DATE	DWG No 211.1	PAGE No



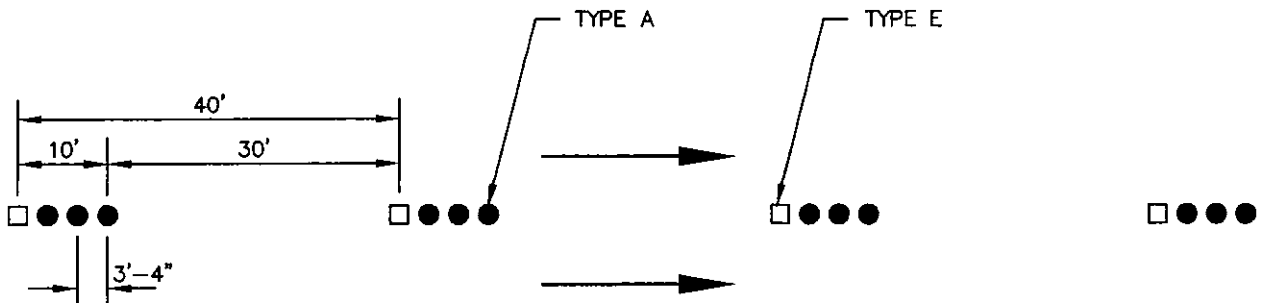
W = WIDTH OF DRIVEWAY = 12' MIN,
 16' MAX FOR 1 OR 2 CAR GARAGE, OR
 28' MAX FOR 3+ GARAGE

1. ALL RESIDENTIAL PROPERTIES MAY HAVE ONLY ONE CURB CUT EXCEPT CIRCULAR DRIVEWAYS AS SHOWN.
2. LOCAL ORDINANCES MAY APPLY AND SHALL HAVE PREFERENCE.
3. NO DRIVEWAY SHALL BE LOCATED WHOLLY OR PARTIALLY ON OR OVER A UTILITY EASEMENT WHICH RUNS PERPENDICULAR TO THE CURB LINE
4. NO DRIVEWAY SHALL BE LOCATED WITHIN 6 FEET OF A LIGHT POLE, FIRE HYDRANT, MAIL BOX, ABOVE-GROUND ELECTRICAL TRANSFER BOX, BLOCK WALL HIGHER THAN 2 FEET
5. GEOMETRICS APPLY TO NEW CONSTRUCTION ONLY, AND MAY VARY IN EXISTING SUBDIVISIONS SUBJECT TO APPROVAL OF THE ENGINEER.
6. MULTI-FAMILY RESIDENTIAL AND ALL NON-RESIDENTIAL DRIVEWAYS SHALL CONFORM TO THE COMMERCIAL DRIVEWAY STANDARDS.
7. ALL DRIVEWAY LOCATIONS SHALL BE SUBJECT TO REVIEW AND APPROVAL BY THE ENGINEER.
8. FOR CURB DEPRESSION AND DRIVEWAY APRON DETAIL, SEE CC STD DWG No 223.

SPECIFICATION REFERENCE	UNIFORM STANDARD DRAWINGS CLARK COUNTY AREA		
	CLARK COUNTY ONLY		
	RESIDENTIAL DRIVEWAY GEOMETRICS		
	DATE	DWG No 222.1	PAGE No

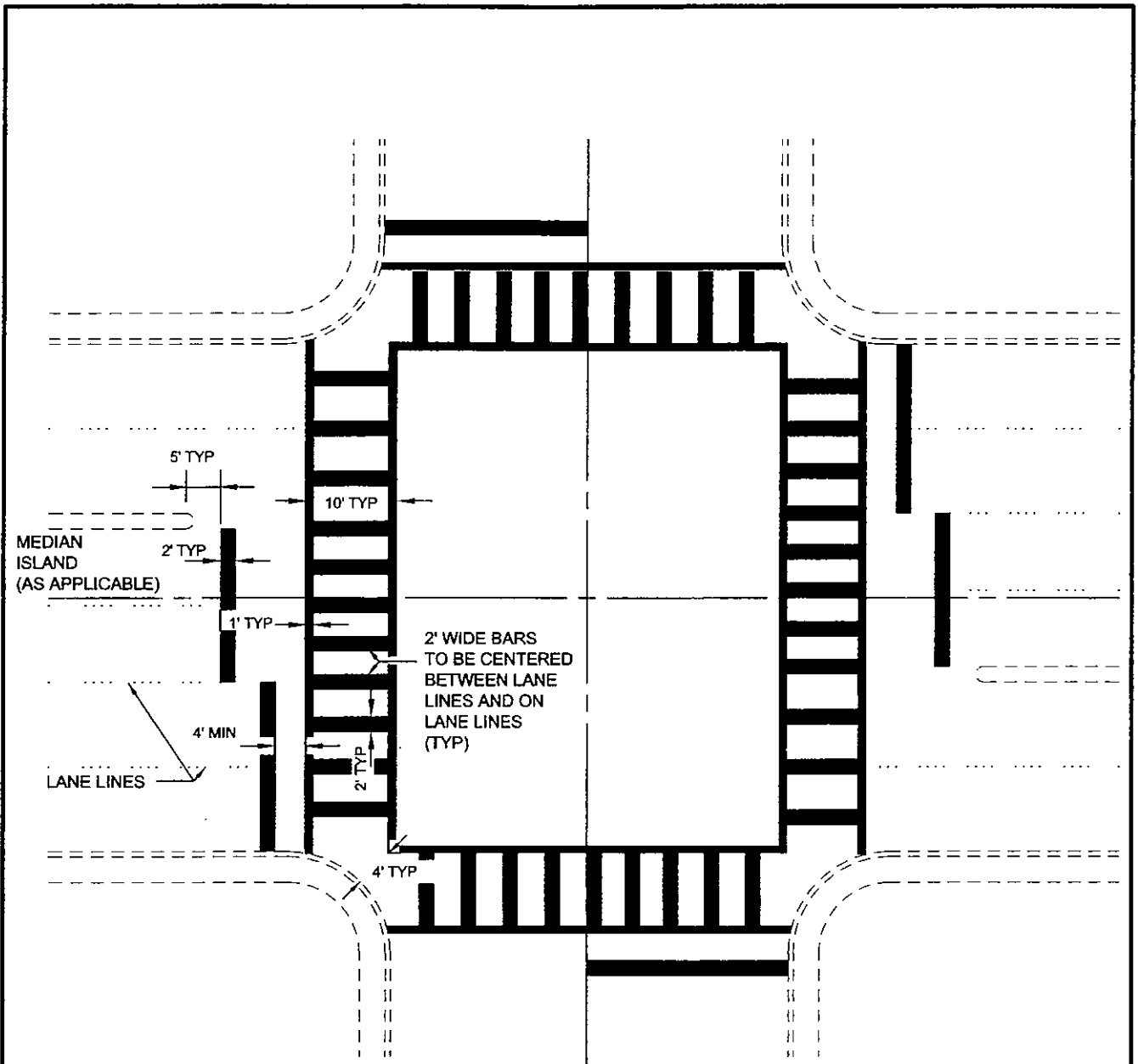


TYPE 4 LANE LINE
 (DIVIDED OR ONE-WAY ROADWAY)
 (UNDIVIDED ROADWAY) CLARK COUNTY



TYPE 5 LANE LINE
 (UNDIVIDED ROADWAY)

SPECIFICATION REFERENCE		UNIFORM STANDARD DRAWINGS CLARK COUNTY AREA		
633	PAVEMENT MARKERS			
		CLARK COUNTY ONLY		
		TYPICAL LANE LINE DELINEATION		
		DATE	DWG No 244A.1	PAGE No



**TYPICAL CROSSWALK
STRIPING DETAIL**

SPECIFICATION REFERENCE		UNIFORM STANDARD DRAWINGS CLARK COUNTY AREA	
		CROSSWALK MARKINGS	
		DATE	DWG No 254.1
			PAGE No

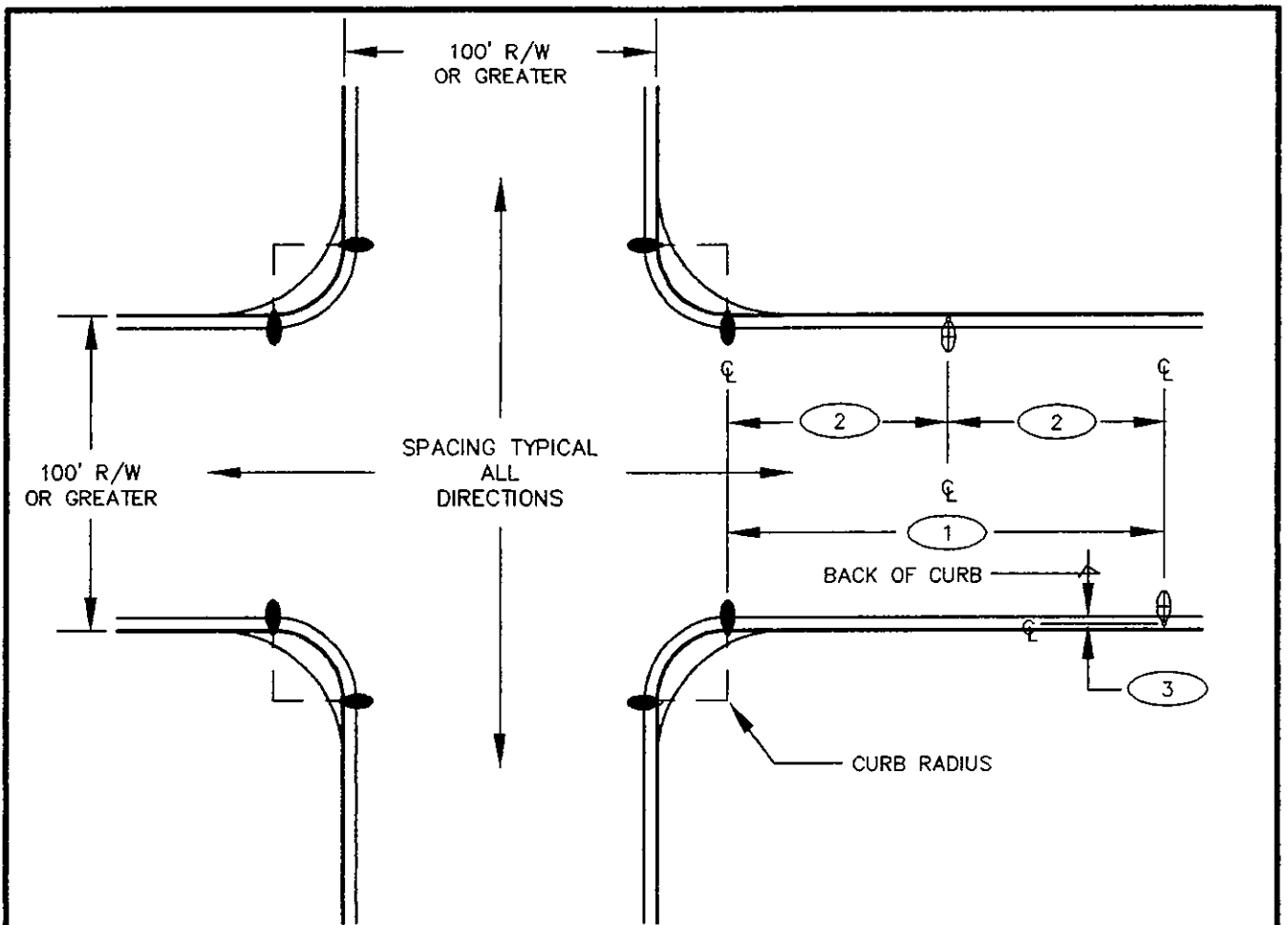
1. INSTALL STREETLIGHT STANDARDS AT INTERSECTIONS INCLUDING "L" AND "T" TYPES, PER STANDARD DRAWINGS 301 THROUGH 310 IN ACCORDANCE WITH THE APPROPRIATE RIGHT-OF-WAY.
2. STREET CLASSIFICATION AND STREETLIGHT STANDARD APPLICATION SHALL BE AS LISTED IN TABLE 1 BELOW. ACTUAL LUMINAIRE WATTAGE AND/OR STREETLIGHT STANDARD SPACING MAY BE VARIED BY THE ENGINEER, WHEN SUPPORTED BY AN APPROVED LIGHTING STUDY IN ACCORDANCE WITH THE IES RECOMMENDED PRACTICE FOR ROADWAY LIGHTING IN ORDER TO MEET CURRENT AND FUTURE TRAFFIC CONTROL NEEDS AND APPROVED BY THE RESPECTIVE AGENCY. AVERAGE LEVELS ARE MAINTAINED LEVELS AT A 0.8 MAINTENANCE FACTOR IN FOOTCANDLES MEASURED HORIZONTALLY AT THE SURFACE.

TABLE 1

<u>CLASSIFICATION</u>	<u>R/W</u>	<u>DWG</u>	<u>LUMINAIRE</u>	<u>AVERAGE IES LIGHTING LEVEL</u>	<u>UNIFORMITY AVG./MIN</u>
MAJOR ARTERIAL	100' OR MORE	----	250W HPS	1.58 FC	3:1
INTERMEDIATE COLLECTOR	80'	----	150W HPS 250W HPS (CLARK COUNTY)	0.84 FC	4:1
LOCAL	60'	----	250W HPS 100W HPS (CLARK COUNTY)	0.38 FC	6:1
RESIDENTIAL	51' OR LESS	----	100W HPS	0.38 FC	6:1

3. NEW STREETLIGHT STANDARD INSTALLED ADJACENT TO OR OPPOSITE FROM EXISTING STREETLIGHTS SHALL MATCH THE EXISTING LOCATION, SPACING, POLE AND LUMINAIRE TYPES UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
4. STREETLIGHT STANDARDS INSTALLED ON 60' OR LESS RIGHT-OF-WAYS MAY BE INSTALLED ON EITHER SIDE OF ROADWAY AS DIRECTED BY THE ENGINEER.
5. TRAFFIC SIGNAL FOUNDATIONS AND ADAPTER PLATES MAY BE REQUIRED AT INTERSECTIONS AS DIRECTED BY THE ENGINEER.
6. AT LEAST ONE STREETLIGHT SHALL BE REQUIRED IN THE BULB SECTION OF A CUL-DE-SAC OR HAMMERHEAD. LOCATION SHALL BE AS REQUIRED BY THE ENGINEER.

SPECIFICATION REFERENCE		UNIFORM STANDARD DRAWINGS CLARK COUNTY AREA		
623	TRAFFIC SIGNALS & STREETLIGHTING	STREETLIGHT LOCATION GENERAL NOTES		
		DATE	DWG No 300.1	PAGE No

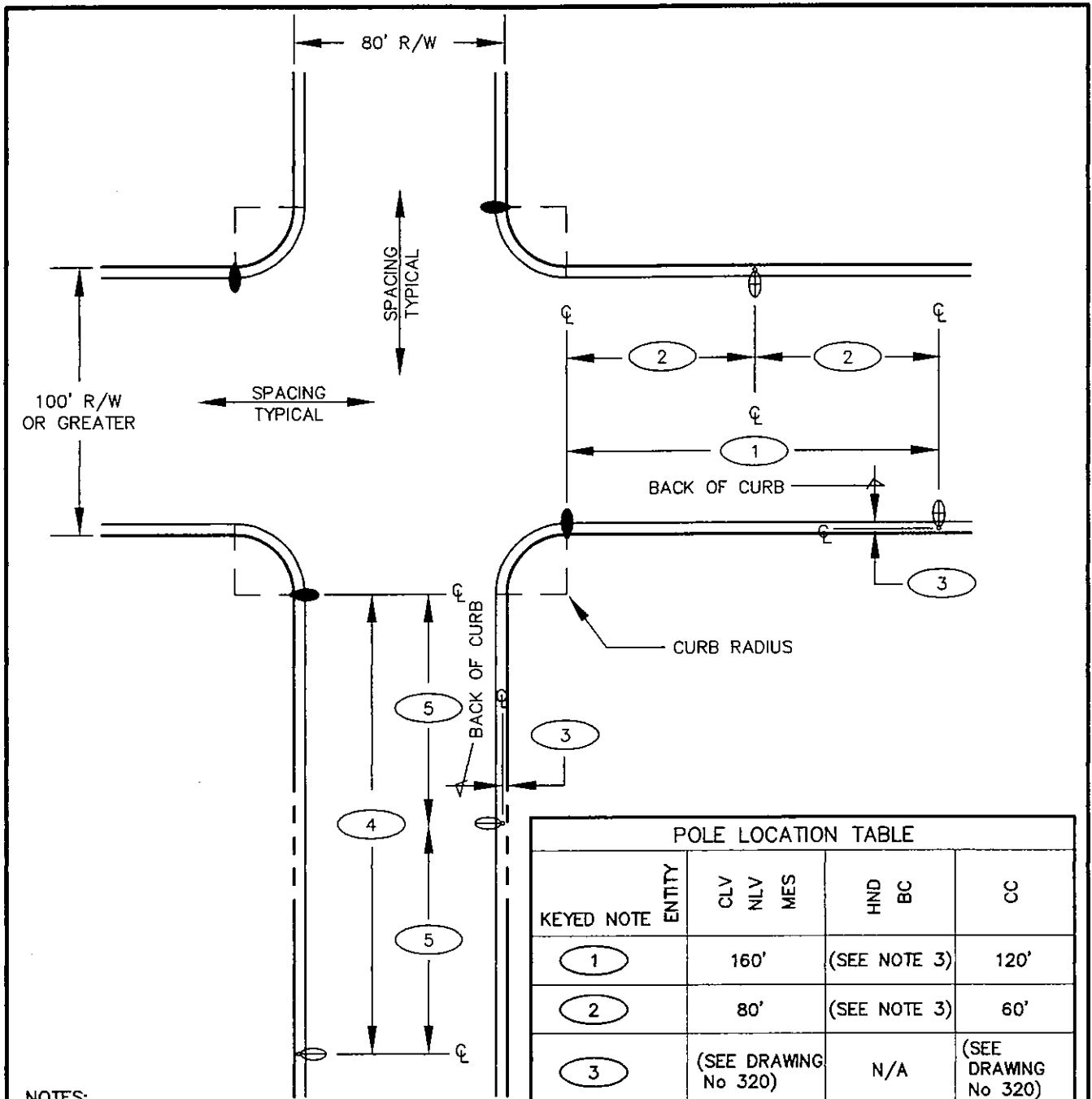


NOTES:

1. SEE GENERAL NOTES STANDARD DRAWING No 300.
2. AN APPROVED LIGHTING STUDY PER NOTE 2, STANDARD DRAWING No 300, IS REQUIRED FOR RIGHT-OF-WAY GREATER THAN 100 FEET.

POLE LOCATION TABLE	
KEYED NOTE	ENTITY
(1)	∞
(2)	120'
(3)	60'
	(SEE DRAWING No 320)

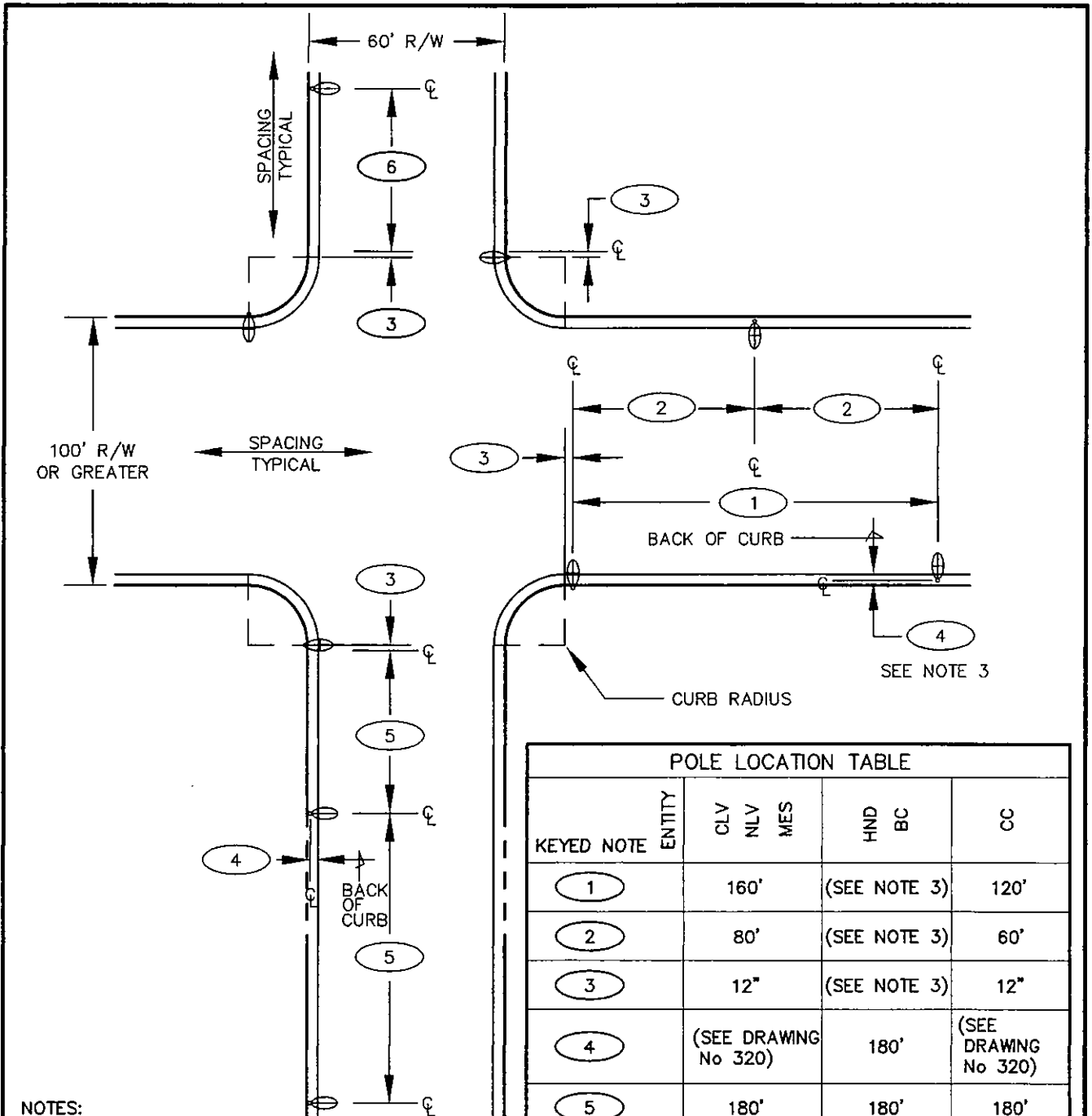
SPECIFICATION REFERENCE		UNIFORM STANDARD DRAWINGS CLARK COUNTY AREA	
623	TRAFFIC SIGNALS & STREETLIGHTING	CLARK COUNTY AREA	
		STREETLIGHT LOCATIONS AT INTERSECTIONS 100' OR GREATER/100' OR GREATER RIGHT-OF-WAY	
		DATE	DWG No 301.1a PAGE No



NOTES:

1. SEE GENERAL NOTES STANDARD DRAWING No 300.
2. AN APPROVED LIGHTING STUDY PER NOTE 2, STANDARD DRAWING No 300, IS REQUIRED FOR RIGHT-OF-WAY GREATER THAN 100 FEET.
3. CITY OF HENDERSON AND BOULDER CITY REQUIRE STREETLIGHTING IN THE MEDIAN FOR RIGHTS-OF-WAY 100 FEET OR GREATER. SEE STANDARD DRAWING No 312. IN THE ABSENCE OF A MEDIAN, STREETLIGHT LOCATION SHALL BE THE SAME AS THE OTHER ENTITIES.

SPECIFICATION REFERENCE		UNIFORM STANDARD DRAWINGS CLARK COUNTY AREA	
623	TRAFFIC SIGNALS & STREETLIGHTING	STREETLIGHT LOCATIONS AT INTERSECTIONS 100' OR GREATER/80' RIGHT-OF-WAY	
DATE		DWG No 302.1	PAGE No

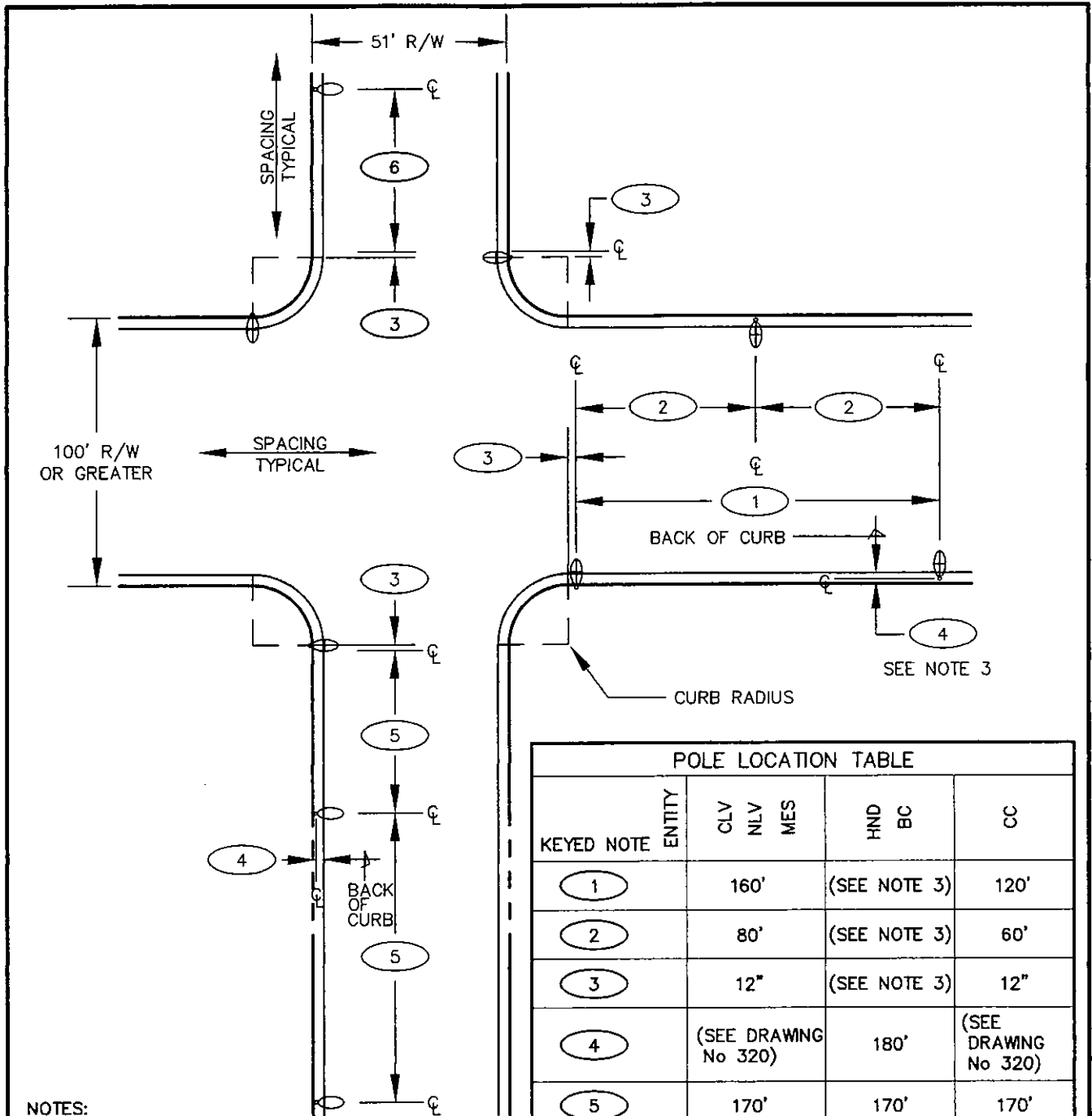


POLE LOCATION TABLE						
KEYED NOTE	ENTITY	CLV	NLV	MES	HND BC	CC
1		160'			(SEE NOTE 3)	120'
2		80'			(SEE NOTE 3)	60'
3		12"			(SEE NOTE 3)	12"
4		(SEE DRAWING No 320)			180'	(SEE DRAWING No 320)
5		180'			180'	180'
6		90'			90'	90'

NOTES:

1. SEE GENERAL NOTES STANDARD DRAWING No 300.
2. AN APPROVED LIGHTING STUDY PER NOTE 2, STANDARD DRAWING No 300, IS REQUIRED FOR RIGHT-OF-WAY GREATER THAN 100 FEET.
3. CITY OF HENDERSON AND BOULDER CITY REQUIRE STREETLIGHTING IN THE MEDIAN FOR RIGHTS-OF-WAY 100 FEET OR GREATER. SEE STANDARD DRAWING No 312. IN THE ABSENCE OF A MEDIAN, STREETLIGHT LOCATION SHALL BE THE SAME AS THE OTHER ENTITIES.

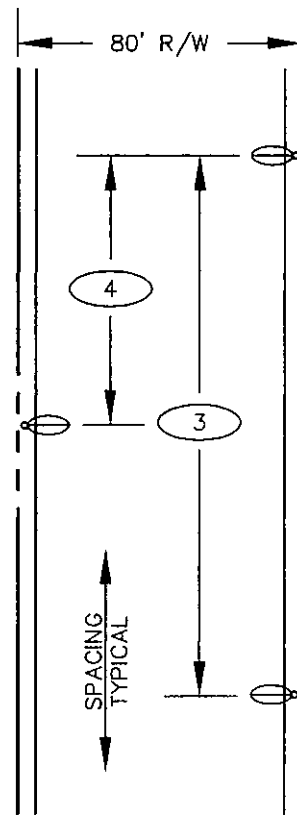
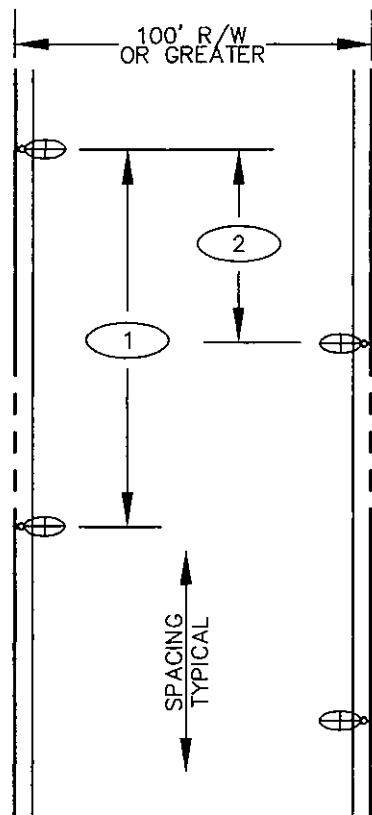
SPECIFICATION REFERENCE		UNIFORM STANDARD DRAWINGS CLARK COUNTY AREA	
623	TRAFFIC SIGNALS & STREETLIGHTING		
		STREETLIGHT LOCATIONS AT INTERSECTIONS 100' OR GREATER / 60' RIGHT-OF-WAY	
DATE		DWG No 303.1	PAGE No



NOTES:

- SEE GENERAL NOTES STANDARD DRAWING No 300.
- AN APPROVED LIGHTING STUDY PER NOTE 2, STANDARD DRAWING No 300, IS REQUIRED FOR RIGHT-OF-WAY GREATER THAN 100 FEET.
- CITY OF HENDERSON AND BOULDER CITY REQUIRE STREETLIGHTING IN THE MEDIAN FOR RIGHTS-OF-WAY 100 FEET OR GREATER. SEE STANDARD DRAWING No 312. IN THE ABSENCE OF A MEDIAN, STREETLIGHT LOCATION SHALL BE THE SAME AS THE OTHER ENTITIES.

SPECIFICATION REFERENCE		UNIFORM STANDARD DRAWINGS CLARK COUNTY AREA		
623	TRAFFIC SIGNALS & STREETLIGHTING	STREETLIGHT LOCATIONS AT INTERSECTIONS 100' OR GREATER / 51' OR LESS RIGHT-OF-WAY		
		DATE	DWG No 304.1	PAGE No

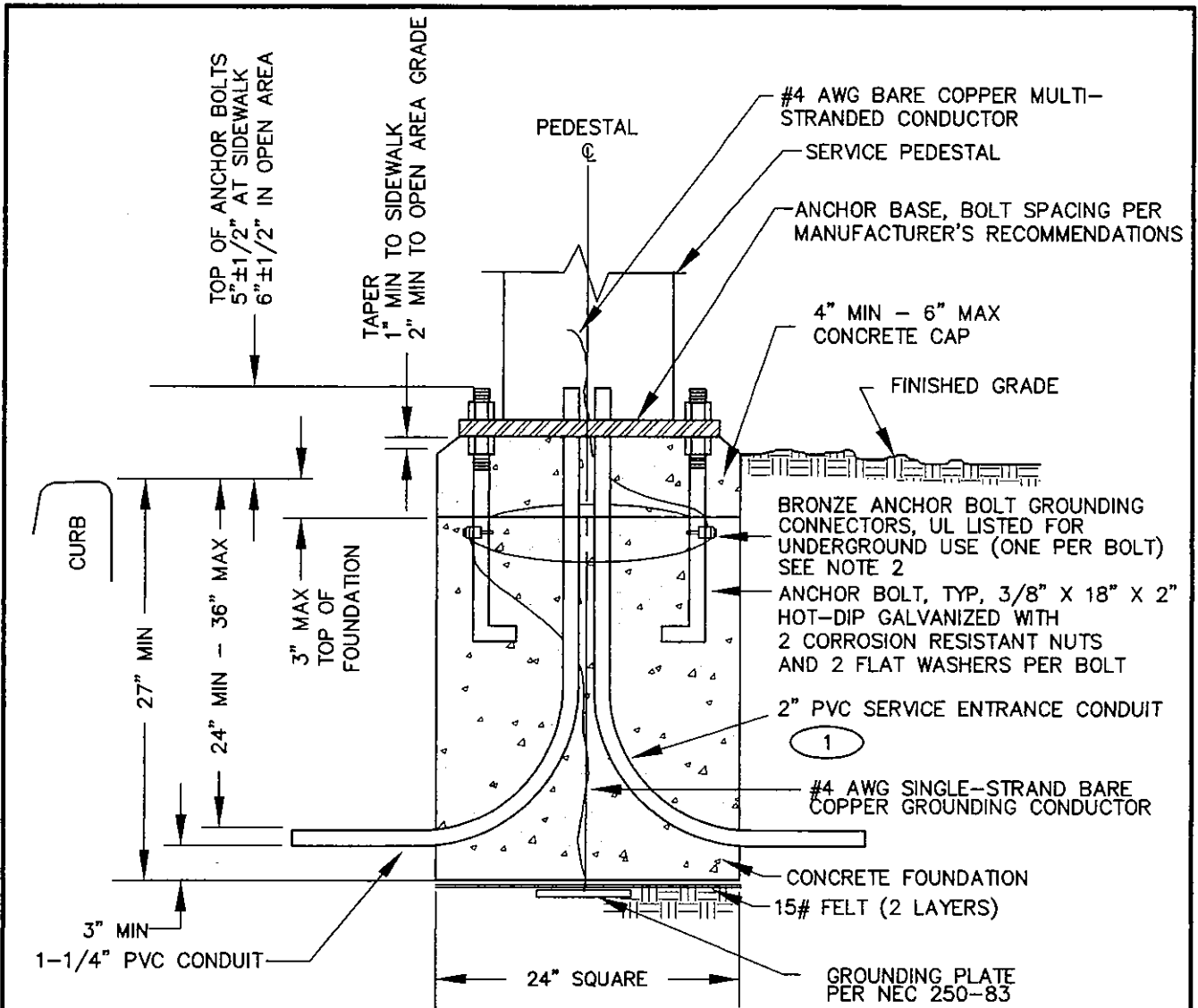


NOTES:

1. SEE GENERAL NOTES STANDARD DRAWING No 300.
2. AN APPROVED LIGHTING STUDY PER NOTE 2, STANDARD DRAWING No 300 IS REQUIRED FOR RIGHT-OF-WAY GREATER THAN 100 FEET.

POLE LOCATION TABLE			
KEYED NOTE	ENTITY	ALL ENTITIES EXCEPT CC	CC
1		160'	120'
2		80'	60'
3		170'	170'
4		85'	85'

SPECIFICATION REFERENCE		UNIFORM STANDARD DRAWINGS CLARK COUNTY AREA		
623	TRAFFIC SIGNALS & STREETLIGHTING	STREETLIGHT STANDARDS MAXIMUM SPACING (80' OR GREATER RIGHT-OF-WAY)		
DATE		DWG No	311.1	PAGE No

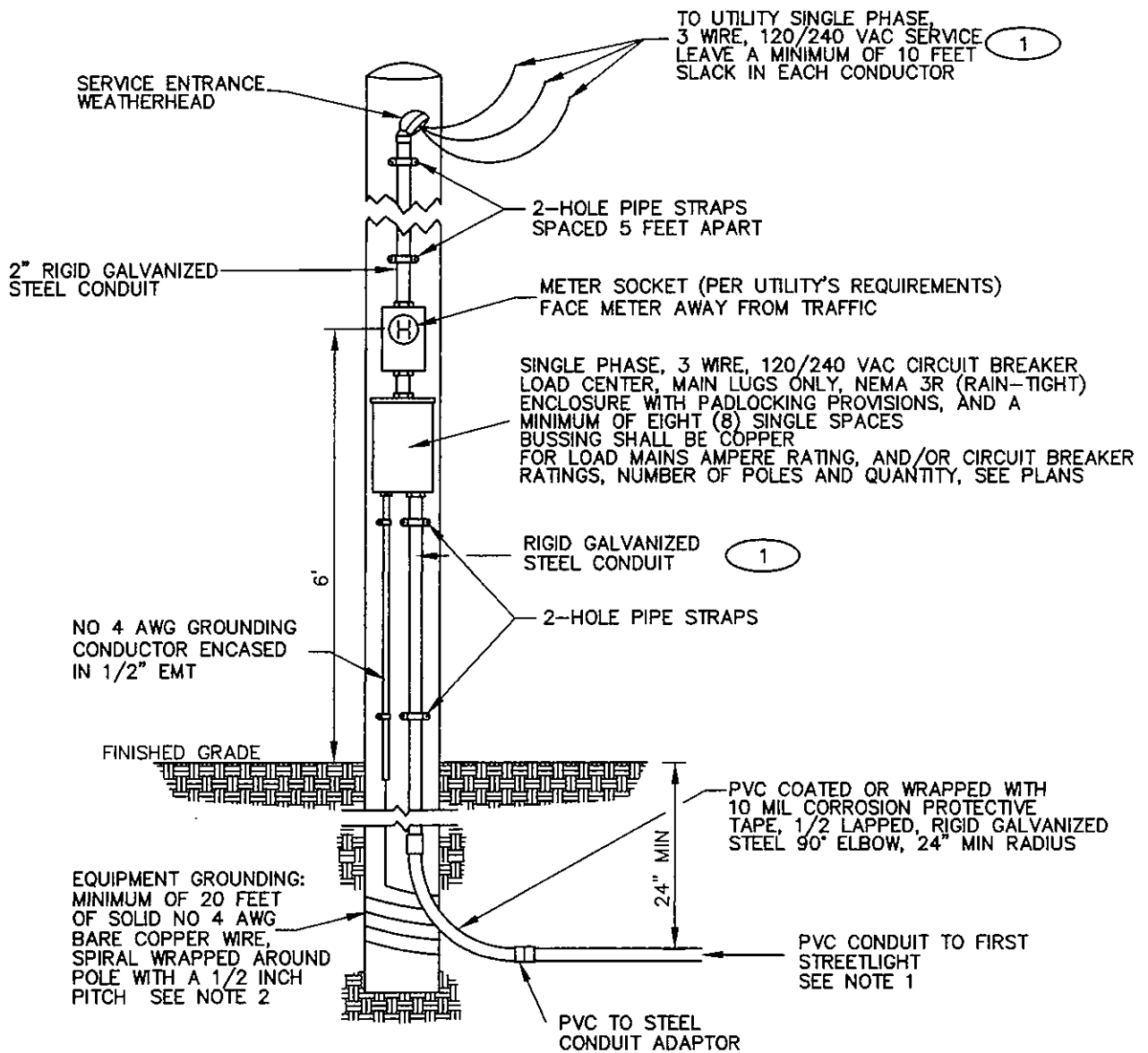


- 1 100 AMP SERVICE: 2" CONDUIT, 2 #2 THW AND 1 #2 WHITE THW
- 125 AMP SERVICE: 2" CONDUIT, 2 #1/0 THW AND 1 #1/0 WHITE THW
- 200 AMP SERVICE: 2" CONDUIT, 2 #4/0 THW AND 1 #4/0 WHITE THW

NOTES:

1. SEE STANDARD DRAWING No 336 FOR ELECTRICAL REQUIREMENTS.
2. BARE COPPER GROUNDING CONDUCTOR SHALL BE LOOPED AROUND ANCHOR BOLTS ONE TIME AND CONNECTED TO EACH ANCHOR BOLT BEFORE CONTINUING DOWN TO THE GROUNDING PLATE.
3. CABINET COVERS SHALL BE PARALLEL WITH CURB.
4. IN AREAS WHERE R/W PERMITS, THE CONCRETE BASE SHALL BE PLACED AT THE BACK EDGE OF THE SIDEWALK.
5. CABINET COVERS SHALL OPEN TOWARD THE STREET WHEN CABINETS ARE LOCATED AT THE BACK OF WALK. CABINET COVERS SHALL OPEN PARALLEL TO THE SIDEWALK FACING THE DIRECTION OF TRAFFIC WHEN LOCATED WITHIN THE SIDEWALK.
6. WIRE SIZES ARE BASED ON UNDERGROUND FEED.
7. WIRE SIZES SHALL BE INCREASED FOR VOLTAGE DROP LIMITATION WHEN RUN IS LONG.

SPECIFICATION REFERENCE		UNIFORM STANDARD DRAWINGS CLARK COUNTY AREA	
501	PORTLAND CEMENT CONCRETE	SERVICE PEDESTAL FOUNDATION	
623	TRAFFIC SIGNALS & STREET LIGHTING		
		DATE	DWG No 332.1
			PAGE No

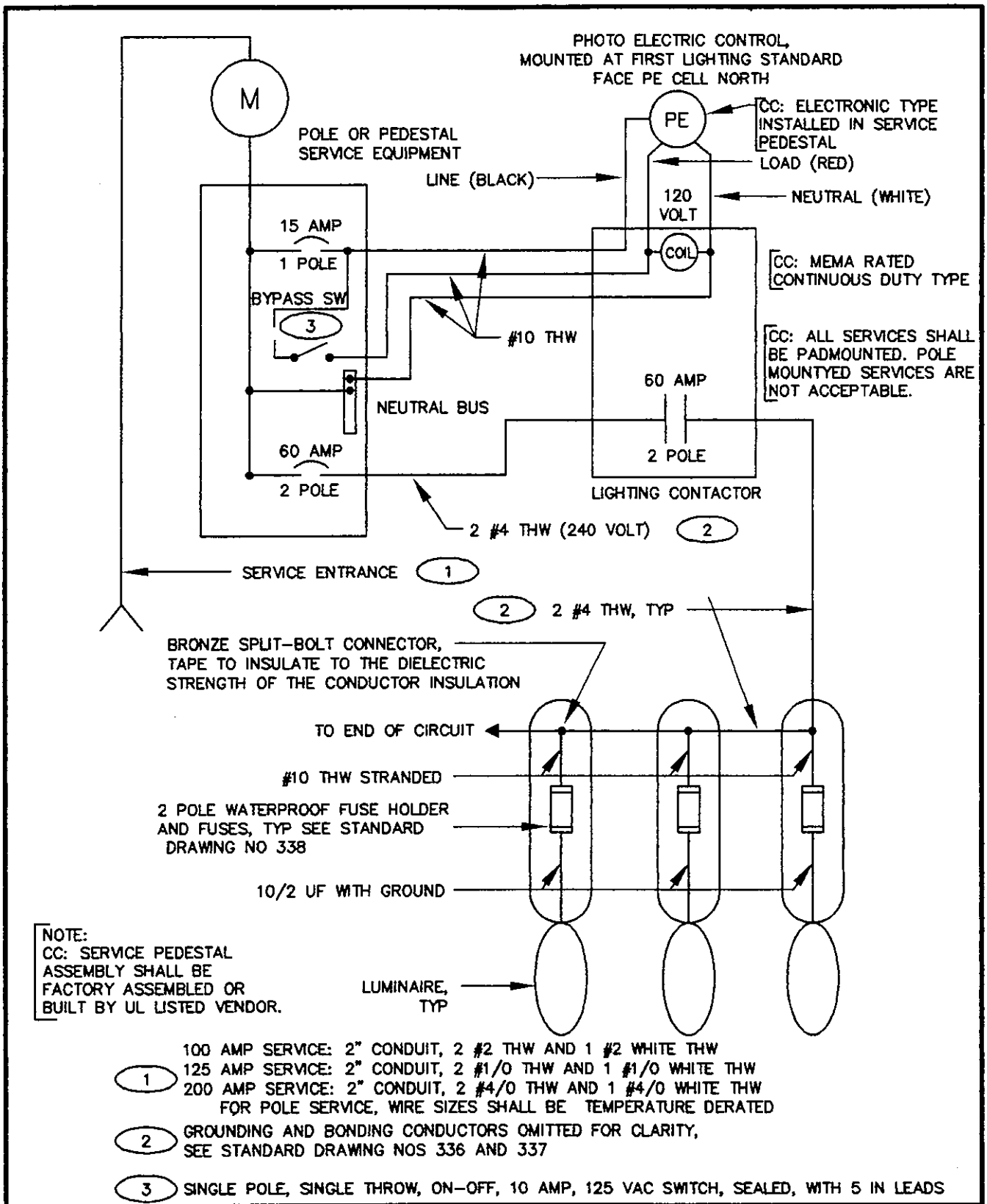


- (1)
- 100 AMP SERVICE: 2" CONDUIT, 2 #1 THW AND 1 #4 WHITE THW
 - 125 AMP SERVICE: 2" CONDUIT, 2 #1/0 THW AND 1 #4 WHITE THW
 - 200 AMP SERVICE: 2" CONDUIT, 2 250 KCML THW AND 1 #1/0 WHITE THW
(082 DERATE HAS BEEN APPLIED FOR AMBIENT TEMPERATURE)

NOTES:

1. ALL WIRES TO BE COPPER; SEE PLANS FOR QUANTITY AND GAGES.
2. WITH ENGINEER'S APPROVAL, AN 8 FT BY 5/8 IN COPPER-CLAD GROUNDING ROD MAY BE USED.
3. ALL CONDUIT FITTINGS TO BE WATER-TIGHT.

SPECIFICATION REFERENCE	UNIFORM STANDARD DRAWINGS CLARK COUNTY AREA		
	120/240 VAC SERVICE ON WOOD POLE OVERHEAD SERVICE		
	DATE	DWG No 334.1	PAGE No



SPECIFICATION REFERENCE		UNIFORM STANDARD DRAWINGS CLARK COUNTY AREA	
623	TRAFFIC SIGNALS & STREETLIGHTING		
		STREETLIGHT CIRCUIT ONE LINE DIAGRAM	
		DATE	DWG No 335.1 PAGE No

TYPE III

Tangent

Sixty (60) inch size

- a. Thirty-nine (39) inch through sixty (60) inch pipe on tangent line and grade with no change in pipe size.

Angle Point

Sixty (60) inch size

- a. Thirty (30) inch through sixty (60) in pipe at angle point in line.

- 8. Precast manhole components shall conform to ASTM C-478
- 9. Distance between the top of manhole and the first step shall be a maximum of sixteen (16) inches.
- 10. Distance between manholes shall be a maximum of four hundred (400) feet.

SPECIFICATION REFERENCE		UNIFORM STANDARD DRAWINGS CLARK COUNTY AREA		
		STORM DRAIN MANHOLES GENERAL NOTES		
		DATE	DWG No 402.1	PAGE No

12' MIN OR LANE WIDTH FOR TRENCHES
LONGITUDINAL WITH STREET
MINIMUM EIGHT (8) FOOT TRANSVERSE
(SEE NOTE 3)

DEPTH TO MATCH CONTIGUOUS PAVEMENT,
BUT NOT LESS THAN 4 INCHES

EXISTING PAVEMENT
SURFACE

9"
MIN

FOG SEAL

PRIME COAT

24" MIN
OR TO PIPE ZONE

SAWCUT STRAIGHT LINES
PARALLEL OR PERPENDICULAR
TO THE TRENCH AND APPLY
TACK COAT

FLOWABLE BACKFILL

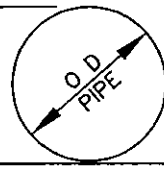
VARIES

90% MIN COMPACTION
GRANULAR BACKFILL OR
SELECT BACKFILL OR
FLOWABLE BACKFILL (SEE NOTE 1)

12" (24" IF VCP) (6" IF
PIPE 2" OR LESS DIAM)

90% MIN COMPACTION IN PIPE
ZONE, TYPE II AGGREGATE
BASE, SAND BACKFILL, OR
CRUSHED ROCK, OR
FLOWABLE BACKFILL (SEE NOTE 4)

BEDDING PER STANDARD
DRAWING No 505



NOTES:

1. NO STONES OR LUMPS GREATER THAN 3" PERMITTED IN TRENCH 2' OR LESS IN WIDTH.
2. IF SAWCUT IS WITHIN THREE FEET OF EDGE OF EXISTING ASPHALT CONCRETE SURFACE OR OTHER PATCH, REMOVE EXISTING PAVEMENT TO THAT EDGE AND REPLACE ENTIRE SECTION.
3. WHEN SAWCUT EDGES FOR LONGITUDINAL TRENCHES FALL WITHIN TRAVEL LANE, THE SAWCUT SHALL BE MADE AT THE EDGE OF THE TRAVEL LANE. NO LONGITUDINAL SAWCUT LINES SHALL FALL WITHIN THE TRAVEL LANE.
4. TRENCH WIDTH, BEDDING, AND PIPE ZONE REQUIREMENTS FOR UTILITY INSTALLATIONS SHALL CONFORM TO THE RESPECTIVE AGENCY REQUIREMENTS.

SPECIFICATION REFERENCE		UNIFORM STANDARD DRAWINGS CLARK COUNTY AREA		
207	BACKFILL	CLARK COUNTY ONLY TRENCH BACKFILL WITH FLOWABLE BACKFILL PAVED AREAS (STREETS GREATER THAN 60' R/W)		
208	TRENCH EXCAVATION & BACKFILL			
302	AGGREGATE BASE COURSES			
401	BITUMINOUS PAVEMENT			
406	PRIME COAT			
407	FOG SEAL	DATE	DWG No 504.1	PAGE No