



CRAFTSMAN

Low-pitched gable roofs, occasionally hipped with wide projecting eaves and exposed rafter tails; decorative beams or braces also added under the gables; broad windows and doors and walls of brick siding, stucco, or stone.

Tapered columns



Broad Front Porches



Exposed rafter tail and braces



Windows with Multi-pane upper sash and single pane below



Horizontal emphasis of building forms

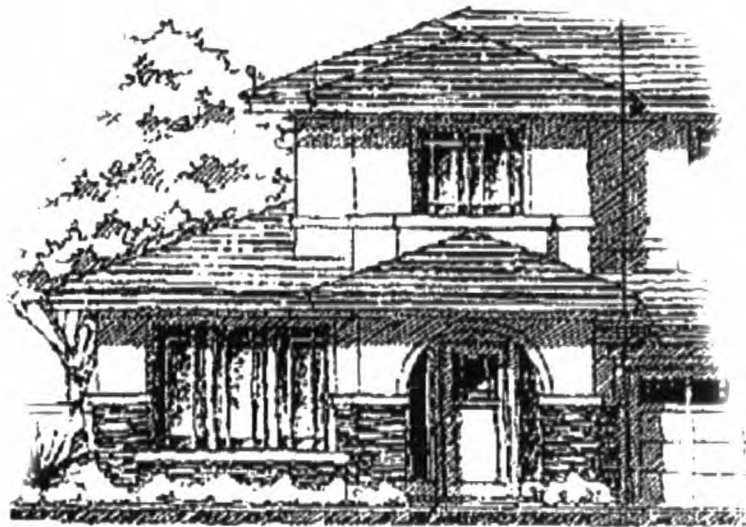


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4.5.2 PRAIRIE RANCH

IDENTIFYING CHARACTERISTICS

- Lower pitched roofs with wide overhanging eaves
- Detailing emphasizing horizontal lines
- Horizontal massing
- Stone horizontal base
- Ganged articulated windows with breaks



• 4.5.2 PRAIRIE RANCH

BUILDING FORM

A horizontal character achieved through the use of single-story elements and plate lines, along with low roof pitches

ROOFS

Roof Form: Primary roof form shall be hipped to emphasize the horizontality of the building. Low-pitched gable roofs may be used as secondary elements only

Roof Material: Flat concrete or metal tile

Roof pitch: 4:12 Preferred 3:12 to 5:12 Permitted

Minimum Overhang:

Estate Lots:	24
Standard Lots	18"
Compact Lots	18"

WALLS

Stucco and / or stone are the primary wall materials.

Stone, when used, may be applied to an entire wall surface or as a wainscot to emphasize horizontality.

Stucco, when used, shall be as follows

Primary Walls: Light lace or smoother

Trim, Stucco Eaves, Etc.: Sand or smoother

• WINDOWS

Windows arranged as horizontal bands immediately below the eave line

Trim used to unify window bands

Window boxes or plant shelves

Muntins shall be used consistently with the style

ENTRIES

An articulated entry is typical of the style, and may be achieved in many ways, such as with a portico element, front porch, or arch element.

The entry should be covered and incorporate the veneer base if applicable

DOORS

Decorative geometric door windows or other ornamentation should be used.

DETAIL ELEMENTS

Contrasting wall materials or trim emphasizing horizontality.

COLORS

Natural colors with contrasting colors on eaves and trim



PRAIRIE RANCH

Lower pitched roofs with wide overhanging eaves and detailing emphasizing horizontal lines creates distinct angle for this style. Horizontal massing with stone bases are further detailed with grouped articulated multi-paned windows

Hip Roof Forms



Broad Overhangs

Horizontal Banding of Windows



Generous use of Stone



4.5.3 AMERICAN TRADITIONAL

IDENTIFYING CHARACTERISTICS

- Flat roof tiles
- Predominant front porch or entry
- Traditional columns or posts
- Generous use of siding or brick
- Decorative Elements, such as window boxes and oculi.



4.5.3 AMERICAN TRADITIONAL

BUILDING FORM

Formal box-like massing

ROOFS

Roof Form: Predominantly gable framed front to back. Front facing cross-gables permitted

Roof Material: Flat concrete or metal tiles

Minimum Overhangs: 12" or greater

Roof Slope: 4:12 to 6:12

WALLS

The predominant material on front elevations shall be cementitious siding or brick. If stucco is used, it shall not comprise more than 50% of the front elevation wall surface

Stucco Walls: Light lace or smoother

Trim, Eaves, Etc.: Stucco; sand or smoother
Wood; painted or stained

WINDOWS

At least one principal window with a minimum recess or surround of 6".

Principal window treatment to feature traditionally detailed trim element

All other windows on front and visible side and rear elevations to have trim surrounds, or headers and sills

DOORS

Entry door shall be a raised panel design or other traditionally detailed door

Entry shall be formal with traditional detailing

DETAIL ELEMENTS

The following elements in the next column describe typical elements characteristic of American Traditional architecture. Elevations will be designed using combinations of these elements as indicated. Other elements (combination of elements), meeting the intent of the style may be used subject to approval by the Master Developer.

Three or more of these elements are required on front elevations:

- ✓ Color blocking on front elevation
- ✓ Dash or sand finish on stucco surfaces
- ✓ Entry door with a minimum recess or surround of 12"
- ✓ Use of sidelights
- ✓ Traditionally detailed square columns or posts on front elevation
- ✓ Traditionally detailed headers in conjunction with 12" projecting window boxes
- ✓ Picket fence elements connected to/close relation to the front elevation of home
- ✓ At least 2 segmented arch elements
- ✓ Panel or louver shutters proportional in size to window opening.
- ✓ Traditional detail elements such as oculi, gable end vents, etc.

Two or more of these elements are required on front elevations:

- ✓ Over scaled front porch supported by traditionally detailed square posts or columns (2 story porch heights permitted)
- ✓ Over scaled entry featuring classical detailing
- ✓ Pediment columns
- ✓ Window dormers on the roof or breaking the eave line
- ✓ Exposed rafter tails
- ✓ Wall plane offset of at least 2' vertical or horizontal
- ✓ Entry door of upgraded detail and design consistent with the architectural style
- ✓ Garage door of upgraded detail and design consistent with the architectural style
- ✓ Smooth steel trowel finish on stucco surfaces
- ✓ Additional use of upgraded stone on front elevation, 25% minimum
- ✓ Substantially enhanced front landscaping, submitted with elevations, to be approved by the Master Developer



AMERICAN TRADITIONAL

Asymmetrical massing with wood porches and classical square railings. Simplified cornice trim at gable ends and louvered shutters. Wall are siding and stucco.

Front Porches and Accentuated Entries

Windows



Classical
Detailing



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4.5.4 SPANISH COLONIAL

IDENTIFYING CHARACTERISTICS

- Red Barrel Tile Roofs
- Fully Rounded Arch Elements
- Entry Courtyards with Gates
- Arcades
- Deep Recessed Windows/Doors
- Decorative Elements, including Wrought Iron, Clay Vents, Ceramic Tiles, Etc.



4.5.4 SPANISH COLONIAL

BUILDING FORM

Asymmetrical 1 and/or 2 story building forms

ROOFS

Roof Form: Primarily gable with at least one intersecting gable or hip element

Roof Material: Clay or Concrete Barrel or "S" tiles only

Minimum Overhangs	<u>Rakes</u>	<u>Eaves</u>
Estate Lots	12"	18"
Standard Lots	12"	12"
Compact Lots	12"	12"
Roof Slope:	4:12 Preferred. 5:12 Maximum	

WALLS

Primary Walls: Light lace or smoother
Trim, Stucco Eaves, Etc.: Sand or smoother

WINDOWS

At least one principal window with a minimum recess or surround of 12"
All other windows on front and visible side and rear elevations to have header, sill, or trim surrounds
Generally, windows on front elevations should have a tall, narrow appearance
Grid or horizontal mullion patterns appropriate

ENTRIES

Entry should be articulated through the use of a porch, tower element, courtyard, arch or other similar element to accentuate the sense of arrival

DOORS

If entry is not covered, the front door should have a minimum recess or surround of 12"

DETAIL ELEMENTS

The front elevation shall feature fully rounded arch element in conjunction with the entry door, porch element, principal window, or garage. Minimum requirements are as follows:

Estate Lots	At least 3 arch elements
Standard Lots	At least 2 arch elements
Compact Lots	At least 1 arch element

An arcade of arches is encouraged in conjunction with a porch or courtyard
The use of shutters is required as described below. All shutters shall be plank, consistent with this architectural style

Estate Lots	At least 3 pairs
Standard Lots	At least 2 pairs
Compact Lots	At least 1 pair

Decorative iron shall be used on front elevations and may include wrought iron railing or decorative iron grille-work. Railings shall have simple straight or curved vertical pickets, consistent with Spanish Colonial architecture
Front elevations shall feature decorative clay vents at gable ends or decorative grid design (recessed or projecting) on wall planes.

COLORS

Light stucco body colors with contrasting trim and accent colors.



SPANISH COLONIAL

This style is defined by fully round arch elements, red barrel tile roofs and entry courtyards with gate. Details the facade include colonnaded arcades, deep recessed primary windows or doors as well as wrought iron, clay vents and ceramic tiles.



Wrought
Iron Railing



Plank &
Panel Shutters



Rounded
Arch
Elements



Decorative
Detail
Elements



4.5.5 COUNTRY EUROPEAN

IDENTIFYING CHARACTERISTICS

- Informal arrangement of building forms
- Predominantly flat tile roof
- Mostly hip roofs, with cross gables
- Rural character through use of fieldstone and rustic materials
- Rich earthy color tones
-



4.5.5 COUNTRY EUROPEAN

BUILDING FORM

Asymmetrical 1 and 2 story massing with both vertical and horizontal breaks

ROOFS

Roof Form: main roof hip or gable with intersecting hip or gable secondary roofs.

Rooflines sloping down from second story to first story at front elevation are typical

Roof Material: Flat concrete roof tiles

Roof Slope: Varies from 5:12 to 12:12

A minimum 6:12 roof slope required on a portion of the elevation. This may occur on the entire roof form, or on a significant portion of the roof visible from the street, such as at an entry element, projecting wing, etc.

Minimum Overhangs	<u>Rakes*</u>	<u>Eaves</u>
Estate Lots	12" +	24"
Standard Lots	12" +	18"
Compact Lots	8" +	12"

*Tight rakes are allowed as long as they are compatible with the design of the building; otherwise 8" or 12" as described above.

WALLS

Stucco, when used, shall be as follows

Primary Walls: Light lace or smoother

Trim, Stucco Eaves, Etc: Sand or smoother

A portion of the front wall plane shall consist of stone or brick as follows:

Estate Lots	30% of the front wall plane*
Standard Lots	20% of the front wall plane*
Compact Lots	10% of the front wall plane*

*Excludes the area devoted to windows and doors

WINDOWS

At least one principal window with a minimum recess or surround of 12"

All other windows on front and visible side and rear elevations to have header, sill, or trim surrounds

Segmented arches at special openings

Bay window as a feature element

ENTRIES

Entry should be sufficiently articulated to accentuate the sense of arrival.

DOORS

If entry is not covered, the front door should have a minimum recess or surround of 12"

DETAIL ELEMENTS

Soft arch elements in conjunction with the front entry door, porch, or feature window

Quoins and keystones are typically used

Reverse arch shutters

Decorative wrought iron balcony railings

Window boxes or plant ledges projecting at least 12" from the wall plane.

Wrought iron or wooden window boxes

Chimneys, when used, with simple tapered lines

Use of turrets and dormer windows

COLORS

Light body colors with contrasting trim.



Bay Windows & Dormers

COUNTRY EUROPEAN

Informal arrangement of building forms and the use of fieldstone and other rustic materials creates a rural character for this style. Mainly hipped roofs with steep slanting cross gables are topped with predominantly flat tile roofs on homes with rich earthy color tones.

Steeper Roof Pitches on all or Portions of Roof



Segmented Arches



Accentuated Openings



Turret or Tower Element



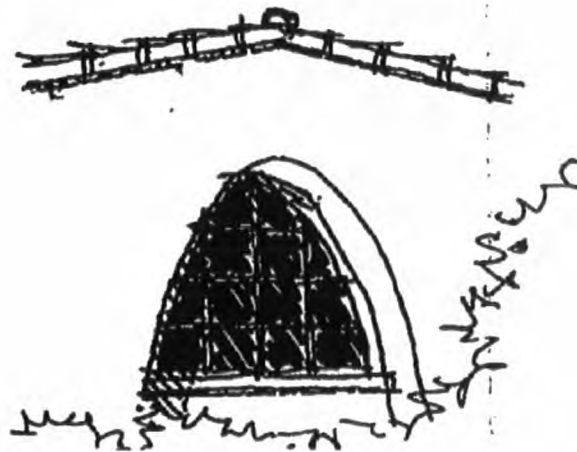
Reverse Arch Shutters



4.5.6 Andalusian

IDENTIFYING CHARACTERISTICS

- Asymmetrical building masses
- Entry forecourts or courtyards
- Ogee shaped trim elements
- Abundant use of colorful tile accents



4.5.6 ANDALUSIAN

BUILDING FORM

Asymmetrical building forms; occasional 2nd floor cantilevered elements

ROOFS

Roof Form: Hip, gable or a combination of both

Roof Material: Clay or Concrete Barrel or "S" tiles only

Minimum Overhangs

Rakes 0" or 6"

Eaves 6" or greater

Roof Slope: 4:12 to 5½:12

WALLS

Primary Walls: Stucco; light lace or smoother

Trim, Eaves, Etc.: Stucco; sand or smoother

Wood; painted or stained

WINDOWS

At least one feature window with a minimum recess or surround of 6", or as described in Section 3.1.3

All visible side and rear elevations shall have trim surrounds, or headers and sills

DETAIL ELEMENTS

The following elements below and in the next column describe typical elements characteristic of Andalusian architecture. Elevations will be designed using combinations of these elements as indicated. Other elements (combination of elements), meeting the intent of the style may be used subject to approval by the Master Developer.

Three or more of these (A category) elements are required on front elevations:

- ✓ Use of a parabolic shaped feature window
- ✓ The use of an ogee-shaped surround or comparably ornate element on an entry, door opening, feature window, or etc.
- ✓ Use of colorful decorative tile in such elements as trims and decorative recesses
- ✓ Fully round or segmented arch elements, required in conjunction with porch or second story windows

- ✓ Use of round and arched stacked tile accents, especially as wall accents or at gabled ends
- ✓ Over scaled stucco trim surround for emphasis, particularly on feature windows, minimum surround width 8"
- ✓ Dash or sand finish on stucco surfaces
- ✓ Color blocking on front elevation

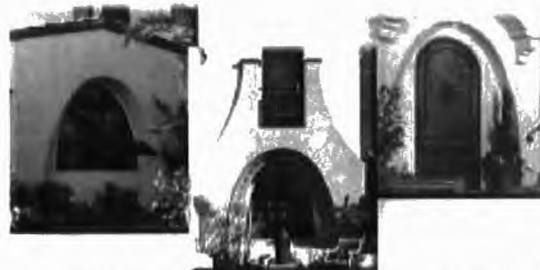
Two or more of these elements are required on front elevations:

- ✓ Projecting balcony supported on large corbels or brackets
- ✓ Use of square columns on balcony or porch elements, minimum 18" square stucco columns
- ✓ Balustrades with an "X" motif of clay tiles used on balcony or porch rails and repeated as decorative ornamentation on other elements or wall surfaces as appropriate
- ✓ Exterior staircase with "stepped" balustrades
- ✓ A small "Mirador" or covered 2nd outdoor room set in a square tower form
- ✓ Entry door of upgraded detail and design or fully round arched entry door
- ✓ Entry articulated as a focal element through the use of a courtyard, portico, tower element, or other element to accentuate the sense of arrival
- ✓ Wall plane offset of at least 2' vertical or horizontal
- ✓ Over scaled precast trim surround for emphasis, particularly on feature windows, minimum surround width 8"
- ✓ Courtyard space defined by low courtyard walls consistent with architectural style
- ✓ Decorative tile on exterior stair risers
- ✓ Awnings with decorative/substantial supports and brackets.
- ✓ Entry door of upgraded detail and design consistent with the architectural style
- ✓ Garage door of upgraded detail and design consistent with the architectural style
- ✓ Smooth steel trowel finish on stucco surfaces
- ✓ Substantially enhanced front landscaping, submitted with elevations, to be approved by the Master Developer



ANDALUSIAN

Asymmetrical one and two story buildings are the basis for this style. Entries are monumental by forecourts or courtyard with shaped trim elements. Abundant use of colorful tile accents nicely details the style.



Parabolic Accented Windows & Doors

Large Corbels or Brackets



Tile Accents and
Patterned Balustrades



Stepped Balustrades
on Staircase



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4.5.7 Tuscan

IDENTIFYING CHARACTERISTICS

- Informal arrangement of building forms
- Mostly hip roofs with occasional gable or cross gables
- Predominantly barrel tile roofs
- Rural character through the use of fieldstone or other rustic materials
- Rich earthy color tones



4.5.7 TUSCAN

BUILDING FORM

Informal, asymmetrical arrangement of one and two story building forms.

ROOFS

Roof Form: Primarily hipped with secondary cross gables or hips

Roof Material: Clay or Concrete barrel or "S" tiles

Minimum Overhang: Rake or Eave

Estate: 18"

Standard: 12"

Small: 12"

Roof Slope: 4:12 to 5:12

WALLS

Use of fieldstone is required on 25% of the front elevation

Primary Walls: Stucco; light lace or smoother

Trim, Eaves, Etc.: Stucco; sand or smoother
Wood; painted or stained

WINDOWS

At least one feature window with a minimum recess or surround of 12" or as described in Section 3.1.3

All other windows on front and visible side and rear elevations shall have trim surround or header and sill

Window mullions, if used, shall be grid pattern

DETAIL ELEMENTS

The following elements below and in the next column describe typical elements characteristic of Tuscan architecture. Elevations will be designed using combinations of these elements as indicated. Other elements (combination of elements), meeting the intent of the style may be used subject to approval by the Master Developer.

Three or more of these (A category) elements are required on front elevations:

- ✓ Fully rounded or segmented arch elements on front elevation
- ✓ "Lacy" wrought iron grille work
- ✓ Entry door with a minimum recess or surround of 24"

- ✓ Plank shutters
- ✓ Two or more exaggerated vertical windows, 1:2½ proportion (width/height)
- ✓ Enhanced stucco trim element
- ✓ Decorative column detail at window, door, porch, or garage door
- ✓ Enhanced stucco trim elements
- ✓ Dash or sand finish on stucco surfaces
- ✓ Color blocking on front elevation

ONE or more of these (B category) elements are required on front elevations:

- ✓ Bermuda style shutters
- ✓ Entry articulated as a focal element through the use of a porch, courtyard, tower element, arch, strong surround, or other element to accentuate the sense of arrival
- ✓ Header or sill in conjunction with a 2" recess on all front elevation windows
- ✓ Precast stone or concrete trim element
- ✓ Additional use of upgraded stone on front elevation, 50% minimum
- ✓ Entry door of upgraded detail and design consistent with the architectural style
- ✓ Garage door of upgraded detail and design consistent with the architectural style
- ✓ Smooth steel trowel finish on stucco surfaces
- ✓ Substantially enhanced front landscaping, submitted with elevations, to be approved by the Master Developer
- ✓ Wall plane offset of at least 2' vertical or horizontal
- ✓ Juliet or false balconies on second story windows with ornamental iron work



TUSCAN

Informal arrangement of building forms with mostly hipped roof, accented by the occasional gable or cross-gable. Red tile roofs above tall narrow windows with or without shutters. Use of fieldstone or other rustic material completes the rural appearance of this style.



Use of
Field Stone



Decorative Wrought
Iron Railing



Emphasized
Entrys



Detail
Elements



WIGHTHOUSE

4.5.8 MEDITERRANEAN

IDENTIFYING CHARACTERISTICS

- Asymmetrical building masses
- Refined use of details and materials
- Low pitched red tile roofs
- Use of arch elements at doors or feature windows



4.5.8 MEDITERRANEAN

BUILDING FORM

Asymmetrical building forms

Often "L" or "U" shape to form an entry courtyard

Height of 1st floor plate should be proportionately taller than the 2nd floor plate

Characteristically features a turret or tower element with separate roof

ROOFS

Roof Form: Combination of hip and gable roofs

Roof Material: Clay or Concrete Barrel or "S" tiles only

Minimum Overhangs

Rakes 0" or 12"

Eaves 12" or greater

Roof Slope: 4:12 to 5:12

WALLS

Primary Walls: Stucco; light lace or smoother

Trim, Eaves, Etc.: Stucco; sand or smoother
Wood; painted or stained

WINDOWS

At least one feature window with a minimum recess or surround of 12".

Windows on front elevations shall have a tall, narrow appearance

Windows should be grouped to achieve a classic rhythm. Window groupings should be connected with implied columns and strong, continuous sills

DETAIL ELEMENTS

The following elements below and in the next column describe typical elements characteristic of Mediterranean architecture. Elevations will be designed using combinations of these elements as indicated. Other elements (combination of elements), meeting the intent of the style may be used subject to approval by the Master Developer.

Three or more of these (A category) elements are required on front elevations:

- ✓ Entry door with a minimum recess or surround of 24"
- ✓ Decorative wrought iron railing or decorative grille-work. (Standard tubular steel is not considered decorative.)

- ✓
- ✓ Use of colorful decorative tile in such elements as trims and decorative recesses
- ✓ Over scaled stucco trim surround for emphasis, particularly on feature windows, minimum surround width 8"
- ✓ Fully round or segmented arch windows on second floor
- ✓ Front facing gable ends detailed with elements such as decorative clay vents, recessed or projecting stucco grid, ceramic tiles, etc.
- ✓ Panel or plank shutters
- ✓ Dash or sand finish on stucco surfaces
- ✓ Color blocking on front elevation

Two or more of these (B category) elements are required on front elevations:

- ✓ A significantly scaled wood or iron balcony, minimum depth 2'
- ✓ Fully round arch elements in conjunction with the entry door, porch element, principal window.
- ✓ Decorative tile on exterior stair risers
- ✓ Over scaled precast trim surround for emphasis, particularly on feature windows, minimum surround width 8"
- ✓ Entry articulated as a focal element through the use of a porch, courtyard, tower (round or square) element, arch, strong surround, or other element to accentuate the sense of arrival
- ✓ Bermuda shutters or awnings with decorative/substantial supports and brackets
- ✓ Header or sill in conjunction with a 2" recess or surround on all front or visible front elevation windows
- ✓ Entry door of upgraded detail and design consistent with the architectural style
- ✓ Garage door of upgraded detail and design consistent with the architectural style
- ✓ Smooth steel trowel finish on stucco surfaces
- ✓ Substantially enhanced front landscaping, submitted with elevations, to be approved by the Master Developer
- ✓ Wall plane offset of at least 2' vertical or horizontal
- ✓ Juliet or false balconies on second story windows



MEDITERANEAN

Asymmetrical combination of 1 and 2 story building masses articulated with tower elements or arcades. Low pitched gable roof forms are predominant with occasional hips done in red tile. Use of arch elements at doors or featured windows and abundant use of decorative elements such as patterned tiles, grille work and shutters.



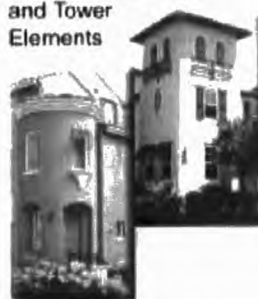
Entry Courtyard



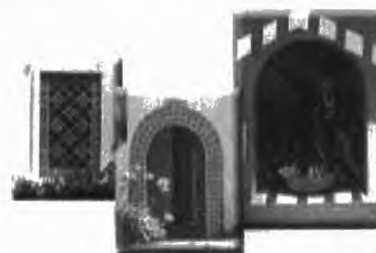
Vertically Proportional
& Rounded Windows



Accentuated Entry
and Tower
Elements



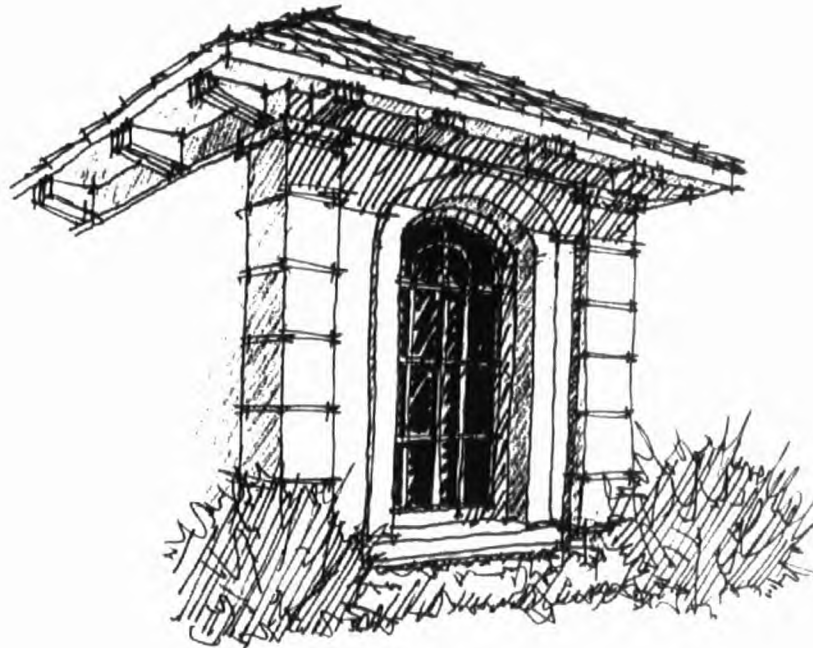
Decorative Tile



4.5.9 Southern Italian

IDENTIFYING CHARACTERISTICS

- Formal box-like massing
- Low-pitched hipped roofs with barrel shaped or flat tiles
- Wide overhangs w/ decorative brackets
- Arched windows & doors common on 1st floor
- Entry columns accentuated with classic



4.5.9 SOUTHERN ITALIAN

BUILDING FORM

Formal, symmetrical nature to front facade

ROOFS

Roof Form: Primarily hipped

Roof Material: Clay or concrete barrel or "S" tiles or flat tiles

Minimum Overhang	<u>Rake or Eave</u>
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Estate Lots:	18"
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Standard Lots	12"
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Compact Lots:	12"
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Roof Slope:	4:12 to 5:12
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WALLS

Primary Walls: Stucco; light lace or smoother

Trim, Eaves, Etc. Stucco; sand or smoother
Wood; painted or stained

WINDOWS

At least one feature window with a minimum recess or surround of 12" or as described in Section 3.1.3

All other windows on front and visible side and rear elevations shall have trim surround or header and sill

Windows shall be tall and narrow in proportion

DETAIL ELEMENTS

The following elements below and in the next column describe typical elements characteristic of Southern Italian architecture. Elevations will be designed using combinations of these elements as indicated. Other elements (combination of elements), meeting the intent of the style may be used subject to approval by the Master Developer.

Three or more of these elements are required on front elevations:

- ✓ Recessed or projecting round stucco accents in conjunction with windows or doors
- ✓ Entry door with a minimum recess or surround of 12"

- ✓ Grouping of windows (2 or 3) with strong horizontal projecting sills
- ✓ Quoins Enhanced horizontal banding at first and second story plate height, cast concrete appearance
- ✓ Two or more exaggerated vertical windows, 1: 2½ proportion (width/height)
- ✓ Palladian windows
- ✓ Use of shutters
- ✓ Arched windows, fully round or segmented
- ✓ Decorative column detail at window, door, porch, or garage door
- ✓ Dash or sand finish on stucco surfaces
- ✓ Color blocking on front elevation

Two or more of these elements are required on front elevations:

- ✓ Stucco soffits with paired eave brackets or dentil detailing
- ✓ Entry articulated as a focal element through the use of a courtyard, portico, tower element, or other element to accentuate the sense of arrival
- ✓ Header or sill in conjunction with a 2" recess on all front elevation windows
- ✓ Entry door of upgraded detail and design consistent with the architectural style
- ✓ Garage door of upgraded detail and design consistent with the architectural style
- ✓ Smooth steel trowel finish on stucco surfaces
- ✓ Substantially enhanced front landscaping, submitted with elevations, to be approved by the Master Developer
- ✓ Wall plane offset of at least 2' vertical or horizontal

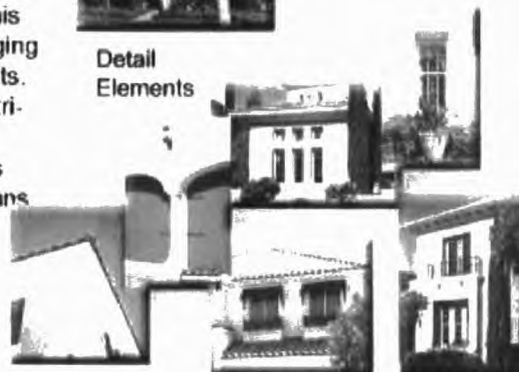


SOUTHERN ITALIAN

This style begins with formal box-like massing topped with low-pitched hip roof with barrel shaped or flat roof tiles. This roof line spills over with wide overhanging eaves supported by decorative brackets. Facade treatment is generally symmetrical with arched windows and doors common on the first floor. The entry is often accentuated with classical columns.



Detail
Elements



Accentuated Entry



Rounded Arch Elements



EDGE 2000

4.5.10 Brownstone

IDENTIFYING CHARACTERISTICS

- Streetscape vista as important as individual house
- Simple building forms enhanced with bold elements
- Recessed entry doors
- Projecting stoops/ stairs
- Elaborate cornice



BUILDING FORM

- Symmetrical building forms up to 3 stories
- Architectural massing and building elements should create a sense of symmetry and rhythm to the streetscene
- Main living floor plate height should be at least 1' greater in height than upper floors

ROOFS

- Roof Form: Generally low pitch or flat roofs with parapets on front elevation
- Hip roof with tight eaves strong detailing of cornice permitted
- Boldly protruding cornice, supported by brackets. Minimal change in cornice elevation from house to house (site grades permitting).
- Clay or concrete barrel or "S" tiles or flat tiles on pitched roofs
(Low Profile "S" tiles permitted on Village and Garden Homes only)

Walls

- Primary wall material shall be dark colored brick or stone. (Stone should have an appearance of cut stone. Fieldstone is not permitted).
- Stucco, if used shall be light lace or smoother
- Trim, Eaves, Etc.:
 - Stucco; sand or smoother
 - Wood; painted or stained
 - Pre-cast veneer
 - Cut-stone veneer

DETAIL ELEMENTS

The next column describe typical elements characteristic of Brownstone architecture. Elevations will be designed using combinations of these elements as indicated. Other elements (combination of elements), meeting the intent of the style may be used subject to approval by the Design Review Committee.

Three or more of these (A category) elements are required on front elevations:

- Belt course of stone or brick between 2nd and 3rd floor on 3 story buildings
- Two or more exaggerated vertical windows, 1: 2½ proportion (width/height)
- Entry featuring transom or fanlight over door
- Front doorway recessed from the adjacent wall plane a minimum of 24"
- Stoop at raised entry, where feasible
- Segmented arch elements
- Panel shutters
- Header and window box on upper floors
- Enhanced flat work (brick or paving) at entry walk
- Dash or sand finish on stucco surfaces
- Color blocking on front elevation

Two or more of these (B category) elements are required on front elevations:

- Vertically proportioned bay windows contributing to the overall symmetry of the streetscene
- Entry elaborately detailed with a door hood or pediment supported by corbels
- Traditionally detailed columns on front elevation
- Stoop railing of decorative iron or concrete balustrade
- Elaborate cornices
- Exposed rafter tails
- Added stone or brick braces under cantilevered balcony
- Interior window coverings on front elevations; 2" wood blinds, plantation shutters or equivalent
- Entry door of upgraded detail and design consistent with the architectural style
- Garage door of upgraded detail and design consistent with the architectural style
- Smooth steel trowel finish on stucco surfaces
- Substantially enhanced front landscaping, submitted with elevations, to be approved by the Design Review Committee
- Wall plane offset of at least 2' vertical or horizontal



BROWNSTONE

This style relies on a streetscape vista that is as important as the individual house. Simple building forms are enhanced with bold elements and recessed entry doors. Stoops and stairs project in a symmetrical repeating pattern. Elaborate cornices top off the details.



3.2.11 Contemporary

IDENTIFYING CHARACTERISTICS

- A contemporary adaptation of traditional vernaculars, executed with a fresh, contemporary approach
- Exploration of modern architectural vocabulary that best embodies a unique urban character



BUILDING FORM

- Asymmetrical arrangement of multiple story building forms

ROOFS

- Roof Form: Strong use of the roof as a design statement, including shed roof forms, flat roofs, parapets, along with over-scaled gable or hip roof forms.
- Roof Material: Clay or concrete flat or "S" tiles, metal seam
- Minimum Overhangs: 0" at rake or eave. Broad overhangs encouraged to highlight unique building form or design element (30" or more) with stylized external supports if necessary.
- Roof Slope: Varies from flat with parapet to 12:12

Walls

A mix of materials is encouraged on each residence or building, including but not limited to:

- Stucco
- Brick
- Stone
- Metal
- Cementitious Siding
- Concrete

Windows

- Contemporary architecture features generous use of glazing
- At least one window or window grouping should be significantly larger than the other windows on the elevation
- Commercial grade window and door systems are encouraged
- Windows shall be recessed a minimum of 2" have or have a trim element with a minimum 2" reveal
- Large scale window panes with minimal use of mullions

DETAIL ELEMENTS

The next column describe typical elements characteristic of Contemporary architecture. Elevations will be designed using combinations of these elements as indicated. Other elements (combination of elements), meeting the intent of the style may be used subject to approval by the Design Review Committee.

Three or more of these (A category) elements are required on front elevations.

- Metal rails, and/or screens on porch or balconies
- Cable rails
- Metal rails with mesh infill
- Other metal rails or infill panels with contemporary flavor
- Metal awnings-cable or brace supported
- Creative solutions for shading glazed surfaces
- Bold use of color to accentuate building forms and elements (subject to Material and Color Palette Schedule)
- Use of reveals or riglets on wall surfaces

Two or more of these (B category) elements are required on front elevations.

- Unique composition of multiple building forms
- Finished floor elevation of the first raised 30" minimum above finish grade or sidewalk to create a raised stoop at the entry
- Seam metal roof on at least 25% of the visible roof
- Over-scaled roof overhangs on all or significant portion of the building
- Operable windows that are other than standard sliders or single/double hung
- Use of commercial grade window and door system



CONTEMPORARY

A contemporary adaptation of traditional vernaculars, executed with a fresh, contemporary approach.

Contemporary architecture is an exploration of modern architectural vocabulary that best embodies a unique urban character.



Bold Building Form, Wall Materials, & Color



Metal Railing and Window Shade Structures



KTCY GROUP, INC.
CHICAGO, ILLINOIS

SECTION 5

Landscape Guidelines

INTRODUCTION

The landscape guidelines consist of three zones, each with its own palette of desert adaptive plant materials:

- Residential Streetscapes
- Residential Neighborhoods
- Multi-Family Developments

All landscaping materials used in Kyle Canyon will be selected from a list of plants that are drought-tolerant or adapted to the desert climate (See Master Plant Palette, Section 5.7.10). The landscaping of all public areas will be designed to minimize the use of precious water resources.

All landscaping improvements in Kyle Canyon will comply with the Southern Nevada Water Authority's Water Smart Home Standards.

All landscaping in Kyle will be installed and maintained to comply with City of Las Vegas street visibility standards described in Section 6.

5.1. RESIDENTIAL STREETSCAPES CRITERIA

All Neighborhood Streets shall include a landscape area with five -foot sidewalk. The area from back of curb to sidewalk is referred to here as the "Residential Streetscape". The width of the Residential Streetscape varies as shown in the Street Sections described in Section 6 below. The maximum slope in the Residential Streetscape is 4:1.

Builders will develop a master street tree program for the Residential Streetscapes using the Master Plant Palette. The Residential Streetscapes are to be designed and installed as one system that will be maintained by the Master HOA. The trees will be placed at regular

intervals of not more than 30'-0" on center, centered in the Residential Streetscape between curb and sidewalk. Tree spacing in excess of 30' on center will only be allowed when hardscape structures and or utility services impede the maximum tree spacing interval. In no case shall any tree be installed closer than 15' on center.

Builders will be responsible for the procurement and installation of the Residential Streetscapes including the necessary irrigation systems. The Master HOA will accept and maintain all Residential Streetscapes.

The palette of shrub species on any block face of a Neighborhood Street will be limited to twelve different species in order to encourage plant massings and well-designed simplicity. Special attention should be paid to layering of differing heights and textures of plants to create an interesting composition. Turf will not be allowed in any form (artificial or real) in the Residential Streetscapes.

Builders will be required to submit planting plans to the Master Developer for approval based on the attached exhibits and plant palettes. Calculations showing the proper density must be provided on the plans.

Shrubs may not be planted closer than one foot (1') from adjacent concrete sidewalk or back of curb.

The following are the minimum requirements for Residential Streetscapes:

Street Trees	24" box, 30'-0" o.c. (centered between back of curb and sidewalk)
Shrub density	1 plant per 15 square feet 5-gallon (75%) 1-gallon (25%)
Concrete Sidewalk	5'-0" min
Turf	Not allowed
Mulch	Full coverage of granite mulch, pavers, stamped concrete or other suitable materials per drainage requirements

5.2 RESIDENTIAL LOT CRITERIA

5.2.1 ARCHITECTURAL COMPATIBILITY

The planting associated with individual home lots is to be dictated by the architectural forms and by the surrounding parks and streetscapes.

5.2.2 PLANTING DESIGN

The front yards are intended to be an extension of the houses. Outdoor living environments should be created to enhance this experience. The use of smaller, pedestrian friendly plantings and limited hardscapes are encouraged.

While there are several approaches to take with the residential planting, the main principle is to reinforce the urban feel of the community with the use of complementary plantings that define the neighborhoods.

Trees should be spaced at least 15 feet apart. If trees need to be spaced more closely, they should be of the same small tree species. Trees must be set back a minimum of three feet on center from hardscape structures such as sidewalks, curbs, driveways, fences and walls.

Flower beds or planting beds requiring overhead sprays shall be limited to rear yards only or in pots on drip irrigation systems.

Informal plantings are appropriate in typical front yards; however, plant selections should be based on massing and layering. Species should be selected to provide layers of structure and accents with densities that are consistent with the neighboring parks and residences.

5.2.3 MASSING/LAYERING

The massing of planting is encouraged to create more structure within the yards. The landscape designs should incorporate grouping of similar plant materials and layering shrubs and accents based on heights, color and texture to create sweeping forms and plant hierarchy.

A combination of planting techniques should be utilized in the planting designs. Screen planting incorporates hedges and espaliers to provide relief to large expanses of hardscape, as well as to provide separation or privacy from neighboring uses. Mass planting of one species is used to create fields of color or texture. Planting will be required to screen the areas of the house just above the finished grade as well as large expanses of wall.

5.2.4 TURF

Natural turf is limited to rear yards only and will meet the Water Smart standards of the SNWA. The minimum dimensions for back yard natural turf areas are six feet width and ten feet length. Natural turf shall be kept at least three feet (3') from a building face or wall, including side yard retaining walls.

Only artificial turf will be allowed in the front yards. SynLawn products or an alternate equal will be submitted to the Master Developer for review.

All turf, natural or artificial, must be bordered with a product that ties into the architectural detailing. This border should be a minimum four inches of either concrete, grouted stone, masonry product or steel edging that is flush to grade.

5.2.5 BOULDERS/COBBLE

Boulders and cobble can provide interesting accents to a desert landscape. They are to be used in natural patterns and clusters to accent grade changes and land patterns. Boulders shall be set two-thirds of their height in the ground to appear as natural as possible. The use of manufactured or faux boulders is not allowed in the front yards.

Boulders and river/cobble beds will not be allowed in the multi-family zones or along Connector Streets as they are not consistent with the formal garden character that is being emphasized in these locations as well as the limited planting areas.

5.2.6 INERT MATERIALS

The minimum width of an entry walk and the minimum separation from a building is defined in Sections 5.2.14 through 5.2.17. Entry walks must be separated from a building wall by a planting strip that is fully planted unless geotechnical analysis prohibits irrigation. In such case, the separation will be treated with pavers or stamped concrete in a contrasting color from the walkway.

All planting areas must have a decomposed granite cover of 2" minimum. The Master Developer will establish the allowable granite colors. Granite colors are to maintain consistency between lots and neighborhoods. If an adjacent property has an existing granite color, this color must be maintained until there is a natural transition formed by a hardscape feature such as a street or sidewalk. Concrete headers are not allowed to separate granite colors from lot to lot. Rear yard granite colors may vary. River rock beds are discouraged; using alternates such as natural granite cobble is encouraged.

5.2.7 LANDSCAPE GRADING

Drainage patterns established by the engineering requirements, shall be maintained, but shaped into natural forms when possible. Lots located within urban areas will need to follow a more simplistic grading approach with flat levels and architectural grade changes and subsurface drainage where appropriate. The maximum allowable slope on a residential lot is 2:1.

Treatment of the area where the landscapes of two lots abut should be similar; to create a unified and more expansive landscape feeling. Hard edges (i.e. mow strips, edging, walls, etc.) between lots will not be allowed except where needed for grading conditions.

Where drainage swales are required along the side yards of adjacent lots, the two swales should be joined into a single swale that is less noticeable. Planting or hardscape shall not impede drainage patterns. Cross lot drainage is permitted subject to a reciprocal use easement (see Section 3.5).

5.2.8 POTS AND PLANT CONTAINERS

Pots and planters provide a good location for color and accents as well as structure in the landscape. All pots and plant containers shall be selected in colors and materials that complement the architecture and hardscape forms. Irrigation must be provided to pot locations with the use of drip irrigation.

5.2.9 LANDSCAPE INSTALLATION AND MAINTENANCE

All landscaping shall be installed according to sound nursery practices in a manner designed to encourage vigorous growth. All visible landscape material and irrigation improvements shall be in place prior to issuance of the final certificate of occupancy.

Either the Master HOA or the homeowner, based on the ownership of the property, will be required to do regular maintenance of all landscaping and irrigation improvements. Regular maintenance includes: weeding, watering, fertilizing, pruning, mowing, edging, mulching, and keeping the landscape areas free from disease, pests, and weeds.

Any vegetation in conflict with traffic control signs or accessibility shall be corrected within 3 days of notice from the City.

5.2.10 CORNER LOTS

Corner lots shall be landscaped as an extension of the front yard zone. Consistent plant species and densities should be used including the extension of artificial turf, where used, to wrap the corner. All exposed walls must be screen planted to break up expanses of the wall.

5.2.11 ALLEY ZONE

For purposes of this section, an "Alley" is any road that meets the cross section definition of an Alley in Section 6 and the "Alley Zone" is the landscapeable common area (excludes garage aprons and areas required for utility boxes and equipment) adjacent to the alley curbs. All areas between a product and Alley shall be planted using a palette consistent with the parcel theme, and using plants shown in the Alley Zone on the Master Plant Palette (Section 5.7.10). Screen planting shall be used whenever possible to hide expanses of walls with hedging and espaliers.

The lot owner or a homeowners' association must maintain landscape areas between walls and edge of pavement. This planting area must be irrigated by the individual lot irrigation system. All landscape in the Alley Zone must be designed and installed on each lot prior to close of escrow.

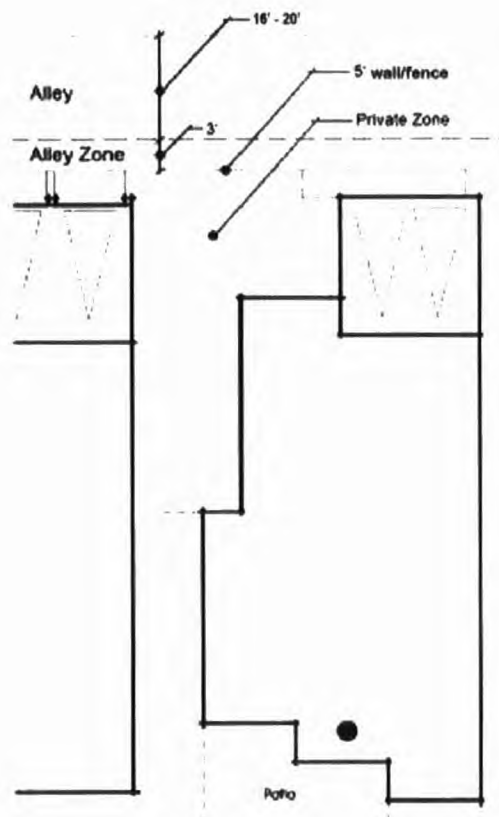
Minimum requirements for the Alley Zone are as follows, subject to the requirements of a builder's geotechnical report and recommendations:

- Shrub Density: 1 plant per 20 square feet. 5-gallon (25%). 1-gallon (75%).
- Lawn: Not allowed
- 8" Maximum height groundcovers in first three feet adjacent to alley curbs
- Full coverage of granite mulch, paver or stamped concrete

5.2.12 PRIVATE ZONE

The Private Zone is a private use area of an individual dwelling enclosed by a 5' minimum wall that is not visible from public areas, and is for the private use and enjoyment of occupant(s). Private zone planting is encouraged, but not required, to follow the approved Master Plant Palette. Areas with view fencing are not included in private zones, and must follow the same criteria for front yards. Any plants in the private zones that will grow to a height of six feet at maturity shall be selected from the Typical Front Yard palette.

Turf areas located in rear yards must be setback from adjacent walls by a minimum of five feet in order to minimize damage to neighbor walls. The aggregate size of the turf area and surface area of swimming pools may not exceed 40% of the rear yard area or 1,000 square feet, whichever is less. Trees must be set back a minimum of three feet from sidewalks, curbs, driveways, fences and walls.



5.2.13 FRONT YARD LANDSCAPING

To ensure similar coverage of plant materials and smooth transitions between streetscapes and adjacent lots, planting densities are based on landscapable areas, not including artificial turf areas. In order to

achieve this effect, the palette of plant species is limited to no less than five and no more than ten.

5.2.14 FRONT YARD- ESTATE LOTS

- 24" Large Tree:
 - 2 per lot
- Shrub Density:
 - 1-5 gallon plant per 40 square feet.
 - 1-1 gallon plant per 40 square feet.
 - 1-1 gallon accent plant per 125 square feet
- Entry Walk:
 - 4'-0" min with 5'-0" max. Minimum 2'-0" off set from house.
- Lawn:
 - Artificial turf only in areas that are 250 s.f. minimum
- Full coverage of granite mulch.
- Maintain access to rear yards at side yards.
- Trees must be set back a minimum of 3 feet from sidewalks, curbs, driveways, fences and walls

5.2.15 FRONT YARD- STANDARD LOTS, COMPACT LOTS, CLUSTER HOMES

- 24" Large Tree:
 - 1 per lot.
- 15 gallon Small Tree:
 - 1 per lot + 1 per lot on corner lots.
- Shrub Density:
 - 1-5 gallon plant per 100 square feet.
 - 1-1 gallon plant per 75 square feet.
 - 1-1 gallon accent plant per 170 square feet.
- Entry Walk:
 - 3'-0" min with 5'-0" max. Minimum 2'-0" off set from house.
- Lawn:
 - Artificial turf only in areas that are 250 s.f. minimum.

- Full coverage of granite mulch.
- Maintain access to rear yards at side yards.
- Plantings to be clustered in public spaces. Areas between units can be left open if edges are screened with plantings.
- Trees must be set back a minimum of 3 feet from sidewalks, curbs, driveways, fences and walls.

5.2.16 GARDEN COURT

- 24" Large Tree:
 - 24" box: 0 per lot
- 15 gallon Small Tree:
 - 2 per lot + 1 per lot on corner lots
- Shrub Density (lot):
 - 5 gallon plant: 1 per 100 square feet.
 - 1 gallon plant: 1 per 75 square feet.
 - 1 gallon accent: 1 per 170 square feet.
- Shrub/Tree Density (common area):
 - 24" box tree: 1 per 750 square feet.
 - 15 gallon tree: 1 per 750 square feet.
 - 5 gallon plant : 1 per 125 square feet.
 - 1 gallon plant: 1 per 100 square feet.
 - 1 gallon accent: 1 per 175 square feet.
- Entry Walk:
 - 3'-0" min with 5'-0" max. Minimum 2'-0" off set from house.
- Lawn:
 - Artificial turf only in areas that are 250 s.f. minimum.
- Full coverage of granite mulch.
- Maintain access to rear yards at side yards.
- Plantings to be clustered in public spaces. Areas between units can be left open if edges are screened with plantings
- All utilities and irrigation equipment must be screened
- Trees must be set back a minimum of 3 feet from sidewalks, curbs, driveways, fences and walls

5.2.17 MANSION HOMES

- Large Tree:
 - 36" box: 1 per 1,000 square feet.
 - (Alley Loaded) 24" box: 1 per 650 square feet
- Small Tree:
 - 15 gallon: 1 per 250 square feet.
 - (Alley Loaded): 24" box: 1 per 500 square feet
- Shrub Density:
 - 5 gallon plant: 1 per 100 square feet
 - 1 gallon plant : 1 per 75 square feet
 - 1 gallon accent: 1 per 170 square feet
- Entry Walk:
 - 4'-0" min with 5'-0" max
 - Minimum 2'-0" off set from house
- Lawn:
 - Artificial turf only in areas that are 250 s.f. minimum
- Full coverage of granite mulch.
- Maintain access to rear yards at side yards, where accessible.
- Trees must be set back a minimum of 3 feet from sidewalks, curbs, driveways, fences and walls

5.2.18 FRONT YARD- TOWNHOME

- Large Tree:
 - 24" box: 0 per lot
- Small Tree;
 - 15 gallon: 1 per lot (small patio type tree)
- Shrub Density:
 - 5 gallon plant: 1 per 60 square feet
 - 1 gallon plant: 1 per 17 square feet.
- Lawn;
 - None allowed
- Full coverage of granite mulch.
- Maintain access to rear yards at side yards.
- Trees must be set back a minimum of 3 feet from sidewalks, curbs, driveways, fences and walls. Trees may be planted in paving areas with tree grates.

5.3 NEIGHBORHOOD LANDSCAPING REQUIREMENTS

5.3.1 OPEN SPACE LANDSCAPE

Any interior areas within individual builder parcels will need to be landscaped and tied to a main Master HOA irrigation system. These areas should follow the streetscape and front yard characteristics. They may also allow for pocket parks that include items such as shade ramadas, tot lots, open turf play areas, benches, barbeques, and other similar amenities. Planting selections should follow those of the Residential Streetscape Palette. These areas will need to be designed and submitted for review by the Master Developer with the following standards:

- Shade Trees:
 - 1-24" box tree per 650 square feet.
- Shrub Density:
 - 1 plant per 20 square feet.
 - 5-gallon (50%).
 - 1-gallon (50%).
- Lawn:
 - Common area turf is allowed only in functional recreational areas that are at least 50' wide
 - Sprinkler system must meet a distribution uniformity standard of 65%
 - No turf within five feet of a building face or wall
 - No turf within eighteen inches of back of curb.
 - Full coverage of granite mulch.
- Streetscape section must remain consistent across open space frontage
- Trees must be set back a minimum of three feet from sidewalks, curbs, fences and walls.
- An automatic irrigation system with an irrigation meter, power source and controller

5.3.2 MODEL COMPLEXES

Model home landscape areas shall be consistent with the parcel theme and must follow the restrictions and intent of the residential guidelines. Builders are encouraged to maximize landscape quantity and size in a manner that doesn't distract from the model's architecture. This criteria applies to both single family and multi-family developments.

5.3.3 SWIMMING POOLS

Back yard swimming pools are subject to the following requirements:

- An enclosed sewer cleanout must be provided with convenient access and clearly marked as the appropriate location for pool drainage.
- The combined pool and spa surface area will be deducted from the maximum back yard turf area
- Pools may not feature decorative water features that drop or propel water more than 24-inches above the main water surface

5.3.4 ROCK MULCH

Rock and granite mulch will be at least 2-inches (2") deep and in one of the approved colors selected by the Master Developer. Different sizes of the same rock color are encouraged. In general, sizes ranging from 3/8 inch to 3/4 inch are most appropriate. All landscape areas will contain either vegetative cover or granite mulch; no bare dirt is allowed.

5.4 MULTI-FAMILY PARCELS

5.4.1 PARKING LOTS

Parking lots within multi-family parcels shall be landscaped to reduce their visual impact. Landscape in and around parking lots shall consist of two categories:

A. Perimeter landscape that surrounds the interior parking lots to an average depth of ten feet (10') and a minimum depth of two feet (2'), including walks. A minimum of one 24-inch box tree shall be planted for every 400 s.f. of landscape area and no less than 30' O.C.

B. Interior landscape within parking lots that reduces the paving mass of a parking lot and provides shade. A minimum of one 24-inch box tree shall be planted for every six parking spaces in a manner that accomplishes this goal either in landscape islands or in a planter extending the length of the parking row. Interior parking lot trees will be canopy trees that provide maximum shade and not accent trees. Each parking island shall be planted with one 24" box tree and 50% minimum vegetative cover at the ground plane and rock mulch.

All non-paved areas within the perimeter and interior of parking lots shall be landscaped with a combination of plant materials and rock mulch. These plant materials shall be selected from the palette applicable to the zone they are planted in. Turf will not be allowed in parking lots.

Parking lot tree requirements must be met even when covered shade structures are used. Accent trees may be substituted for canopy trees next to covered shade structures.

Parking Adjacent to and Visible from a Public Place shall be screened with a combination of berms, low walls or landscape areas. Low walls and berms shall be a maximum height of three feet from the top of curb of the parking area. The wall style and color are subject to approval of the Master Developer.

5.4.2 AMENITY AND OPEN SPACE LANDSCAPING

Recreation areas shall be landscaped to the following minimum requirements:

- One 24" box tree for every 600 square feet of total landscape area.
- 50% minimum vegetative cover for all non-paved areas
- Turf, when used, may not exceed 40% of the total landscape area and is allowed only in functional recreational areas that are at least 50' wide and the sprinkler system must meet a distribution uniformity standard of 65%
- Swimming pools may not exceed 20 square feet per dwelling unit (or a minimum of 1000 square feet if less than 50 dwelling units)

Open space areas other than parking lots, street frontage areas and recreation areas shall be landscaped to the following minimum standards:

- One 24" box tree for every 750 square feet of total landscape area
- 50% minimum vegetative cover for all non-paved areas
- Turf is not allowed except as provided above for recreation areas
- Decorative fountains are not permitted

5.5 COMMUNITY LIGHTING, TELECOMMUNICATION FACILITIES, AND PUBLIC UTILITIES

5.5.1 COMMUNITY LIGHTING

Lighting shall be designed to provide functional illumination in an aesthetically pleasing and visually unobtrusive manner. Lighting in HOA common areas shall be maintained by the HOA.

Light fixtures with cutoff or concealed light sources are preferred. This type of fixture may include wall sconces, recessed lighting, soffit lighting, and directional lighting. Lighting which produces excessive glare or shines on an adjacent lot will not be allowed.

Every light fixture over seven feet from grade to its highest point (either on a light pole or attached to a structure), shall be designed to reduce illumination spilling beyond sidewalk and road areas and to protect the view of the night sky.

5.5.1.1 STREET LIGHTING

Lighting systems shall be designed and installed in a manner that promotes the convenience of pedestrian and vehicular movement. Area illumination must be provided for alley, parking areas, entry areas, walkways, and other people gathering areas. Lighting on HOA common areas shall be maintained by the HOA.

Street pole fixtures will be selected to compliment the community theme. These fixtures will be used on all Residential Streetscapes and within the individual builder parcels. Any fixture, other than the standard styles selected by the Master Developer, must be approved by the Master Developer. See Section 6 for requirements for street lights on public streets dedicated to the City.

5.5.1.2 LANDSCAPE LIGHTING

The use of landscape lighting is encouraged. Lighting that will cause glare or discomfort, or disrupts the visual environment of neighboring units or adjacent parcels, is not permitted. Floodlights are also prohibited.

Fixtures shall be constructed and mounted to withstand and discourage abuse. Above-ground plastic housings and connections are prohibited.

5.5.2 TELECOMMUNICATION TOWERS AND ANTENNAS

Free-standing telecommunication towers and antennas are discouraged. Rather such facilities shall be designed in conjunction with project architectural elements such as:

- Building architecture, i.e., worship site steeples, etc.
- Project monumentation or signage elements
- Landscape elements

If used as a landscape element, the tower should be designed as part of an overall landscape plan, using trees of the same species and relative height of the tower and antenna.

Ground equipment related to the telecommunication facility must be screened from view with walls that are compatible in design and materials with the architecture of the surrounding area. Such walls shall be of sufficient height to completely screen the equipment from view. Walls in excess of 6' in height shall be landscaped with shrub plantings.

5.5.3 PUBLIC UTILITIES

The following requirements apply to every utility box and above-ground utility structure, other than utility poles, exceeding 27 cubic feet in volume ("Utility Structure"). Utility Structures abutting public right of way or common element areas adjacent to Neighborhood Streets and Village Streets are subject to the following requirements:

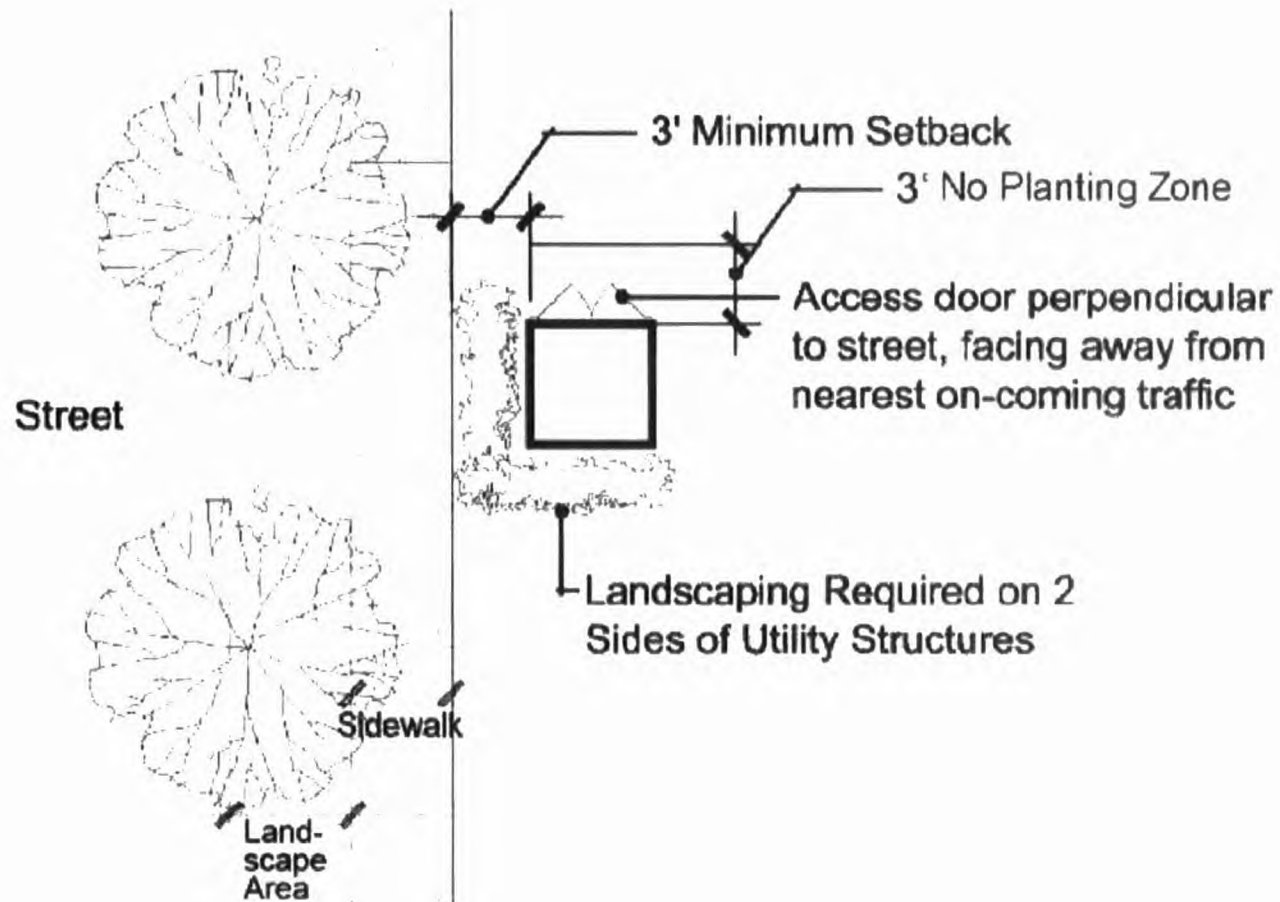
1. A landscape area not less than three feet (3') in width shall be provided between any sidewalk or trail and the Utility Structure.
2. A second landscape area not less than three feet (3') in width shall be provided along the side of the Utility Structure facing toward the nearest on-coming traffic on the street.

3. The side of the Utility Structure facing away from the nearest on-coming traffic on the street shall be available for access by the utility companies. Access doors shall be placed on this side of the Utility Structure with the doors installed perpendicular to the street. No landscape plantings (trees or shrubs) are permitted within three feet (3') of the Utility Structure access doors. One species of the shrub selected from the shrub palette listed below must be used to screen the Utility Structure on two sides. Upon completion of planting installation, 75% of the area of the two sides of the Utility Structure must be screened from view from the street. Within one year of installation, 100% of the area of the two sides of the Utility Structure shall be screened from view from the street.

The following plants constitute the approved shrub palette for Utility Structure screening

Botanical Name	Common Name
• <i>Dodonaea viscosa</i>	Hopseed Brush
• <i>Nerium oleander</i> 'Petite Pink'	Dwarf Oleander 'Pink'
• <i>Rosmarinus officinalis</i> 'Tuscan Blue'	Rosemary
• <i>Senna nemophila</i>	Desert Cassia
• <i>Simmondsia chinensis</i>	Jojoba
• <i>Vaquelinia californica</i>	Arizona Rosewood

UTILITY STRUCTURE SCREENING



5.6 KYLE WALL STANDARDS

5.6.1 VILLAGE WALLS

Village Walls are the walls abutting common areas adjacent to any of the Village Streets, as shown on Figure 6-1. Village Walls are subject to the following requirements:

1. The minimum landscape area from back of curb is 5'
2. The maximum slope within the landscape areas, including planter areas and the landscape area adjacent to on-street parking is 4:1. (Refer to Figures 5-1 and 5-2).
3. The solid block portion of a Village Wall shall not exceed an exposed height of seven feet, four inches (7'4"), of which six feet (6') maximum is screen wall or two feet (2') maximum is retaining wall. (Refer to Figure 5-1)
4. In the event that the elevation difference from back of sidewalk to the finished pad elevation of the adjacent parcel is such that more than two feet (2') of retaining is required, a planter wall that may not exceed five feet (5') in height may be used to take up grade. If more than seven feet (7') of retaining is required in addition to the grade that can be made up in the landscaping area between the sidewalk and planter wall (at 4:1 slope), then all or a portion of the 7'4" exposed Village Wall may be used as retaining wall and a wrought iron view fence may be placed on top of the Village Wall. The wrought iron view fence must be 5'4" tall when abutting residential parcels and may be a maximum of 5'4" tall (or shorter) when abutting non-residential parcels. Wherever a wrought iron view fence is placed on top of a Village Wall, the Village Wall shall extend not more than eighteen inches (18") higher than the finished pad elevation. (Refer to Figure 5-2).
5. Additional grade may be taken up with planter walls that may not exceed five feet (5') in height.
6. Planter walls must be offset a minimum of four feet (4') from the front face of the planter wall to the front face of the Village Wall. (Refer to Figure 5-2). Planter walls may be used in tandem to take up additional grade subject to the same limitations on height and offset between walls.

7. Village Walls and planter walls must be separated from public sidewalks by at least five feet (5'). (Refer to Figure 5-2).
8. If a planter wall is used to take up grade, the first (lowest) planter wall and planter area between walls may be constructed in the Master HOA common area. All other planter walls and planter areas between walls will be located within the boundaries of a Development Parcel. (Refer to Figure 5-2).
9. In all circumstances, pilasters may exceed the maximum wall or wrought iron view fence height by up to two feet (2') and may encroach up to 18" into the set back areas described above in 5.6.1.6 and 7. (Refer to Figure 5-3).
10. One or more Wall Palettes, including pilaster design and spacing, will be approved by the Master Developer to achieve and maintain a complimentary design throughout the Community.

5.6.2 PRODUCT WALLS

Product Walls are all of the walls in the project other than the Village Walls, including common walls between subdivisions, all walls interior to a subdivision, walls between home lots, side yard return walls, walls adjacent to public facilities and walls between subdivisions, pods and/or parcels. One or more Wall Palettes will be approved by the Master Developer to achieve and maintain a complementary design throughout the Community, while allowing for individuality of certain districts, villages or Development Parcels. Wall Palettes will specify pilaster spacing and design. Product Walls are subject to the following requirements:

1. Except as noted below where alternate standards apply, the exposed solid portion of a Product Wall shall not exceed fourteen feet (14'), of which six feet (6') maximum may be solid block screen wall and eight feet (8') maximum may be retaining wall. (Refer to Figure 5-4). Alternatively, a Product Wall may consist of a five foot four inch (5'4") wrought iron view fence and a maximum of ten feet (10') of retaining wall (Refer to Figure 5-5). Under particular circumstances described in subsections 5.6.2.2B and 2C below, additional grade may be taken up with planter walls.
2. In the following circumstances Product Walls will be subject to the following alternate standards:

- A) Where Adjacent to and Facing a Public Place, the height of side yard return walls and the side yard walls of corner lots shall not exceed ten (10) feet, of which five feet four inches (5'4") maximum is solid block screen wall and four feet eight inches (4'8") maximum is retaining wall. (Refer to Figure 5-6).
- B) With respect only to Product Walls that separate two Development Parcels, the exposed solid portion of the Product Wall may be up to eighteen feet (18'), of which six feet (6') maximum is solid block screen wall and twelve feet (12') maximum is retaining wall. (Refer to Figure 5-7). Planter Walls and/or a 2:1 slope may be used in addition to the eighteen foot Product Wall, provided the Planter Walls are subject to subsection 5.6.2.3 below.
- C) With respect only to Product Walls that separate two adjacent rear yards of home lots, the exposed solid portion of the Product Wall may be up to fourteen feet (14'), of which six feet (6') maximum is solid block screen wall and eight feet (8') maximum is retaining wall. (Refer to Figure 5-8). This subsection 2C does not, however, apply to Product Walls that separate two Development Parcels as described in subsection 2B above. Planter Walls and/or a 2:1 slope may be used in addition to the fourteen foot Product Wall, provided the Planter Walls are subject to subsection 5.6.2.3 below.
- D) Except as set forth in subsections 2B and 2C above, where a Product Wall and/or a 2:1 slope is constructed between two adjacent home lots the maximum height of the retaining portion of such Product Wall shall vary in relation to the width (or the maximum width in the case of an irregularly shaped lot) of the home lot at the lower elevation of two adjacent home lots (i.e., the lot to which the retaining portion of the wall is visible) as follows:

Width of Lower Lot (in feet)		Max Retaining (in feet)
at least	up to	
---	30	2.00
30	45	3.00
45	60	4.00
60	80	5.00
80	---	6.00

The maximum solid block screen wall between two adjacent home lots is six (6) feet on top of the retaining wall. The foregoing restriction does not apply to the side yard wall of a home lot that abuts the back yard wall of an adjacent home lot, the maximum height of which will be as described in subsections 2B or 2C above, as the case may be.

- E) On a common boundary between Development Parcels any retaining wall exceeding three feet must be approved by the owner of the adjacent parcel prior to design acceptance by the Master Developer. This requirement does not apply if the owner of the adjacent parcel is a public, governmental or quasi-governmental agency or a public utility.
3. Additional grade may be taken up with planter walls that may not exceed five (5) feet in height and a minimum of four (4) feet from front face of planter wall to front face of Product Walls. (Refer to Figure 5-9)
 4. Planter walls may be used in tandem to take up additional grade subject to the same limitations on height and offset between walls.
 5. The maximum slope within the landscape area between a planter wall and a Product Wall is 3:1
 6. In all circumstances, pilasters may exceed the maximum wall or wrought iron view fence height by up to two (2) feet) and may encroach up to 18" into the set back areas described herein.

5.6.3. FRONT YARD WALLS

The following three alternate treatments are acceptable for walls located in or abutting the front yards of residences shall be subject to the following requirements:

1. A wall not exceeding thirty- inches (30") in height may be constructed to abut the back of sidewalk. All of the 30" height may be used as retaining. (Refer to Figure 5-10).
2. A wall not exceeding five feet, four inches (5'4") in height may be constructed at least three feet (3') from the back of sidewalk. In such case the wall may consist of a solid block wall up to 30" used for retaining and the balance of the wall may be a balustrade or railing. The slope between the retaining wall and the sidewalk may not exceed 3:1. (Refer to Figure 5-11).

3. A wall not exceeding five feet, four inches (5'4") in height may be constructed at least 5 feet behind the back of sidewalk, in which case all of the wall may be used for retaining. The slope between the retaining wall and the sidewalk may not exceed 3:1. When the retaining wall exceeds thirty inches (30") in height a wrought iron view fence forty-two inches (42") in height must be placed on top of the retaining wall (Refer to Figure 5-12).
4. Front yard walls shall not impair access to or typical use of a driveway. Where a front wall exists across an entire lot, a front driveway is not allowed.

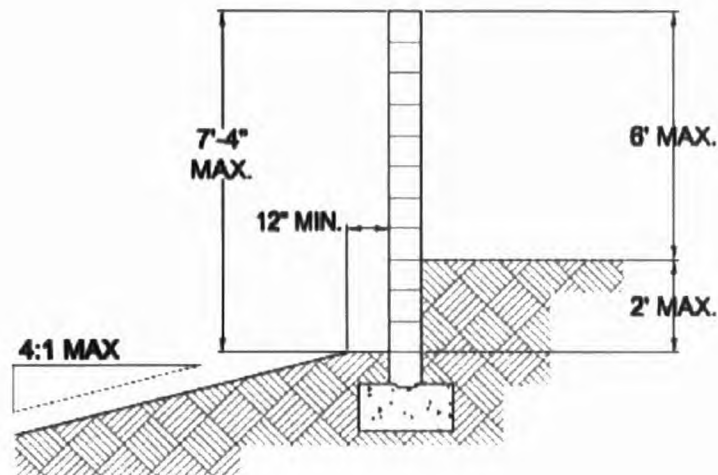


FIGURE 5-1 VILLAGE WALLS

N.T.S.

FOOTING DESIGNS AND DIMENSIONS ARE CONCEPTUAL AND DO NOT NECESSARILY ACCURATELY DEPICT ACTUAL CONSTRUCTION. ALL DIMENSIONS AND NOTES ARE REQUIREMENTS.

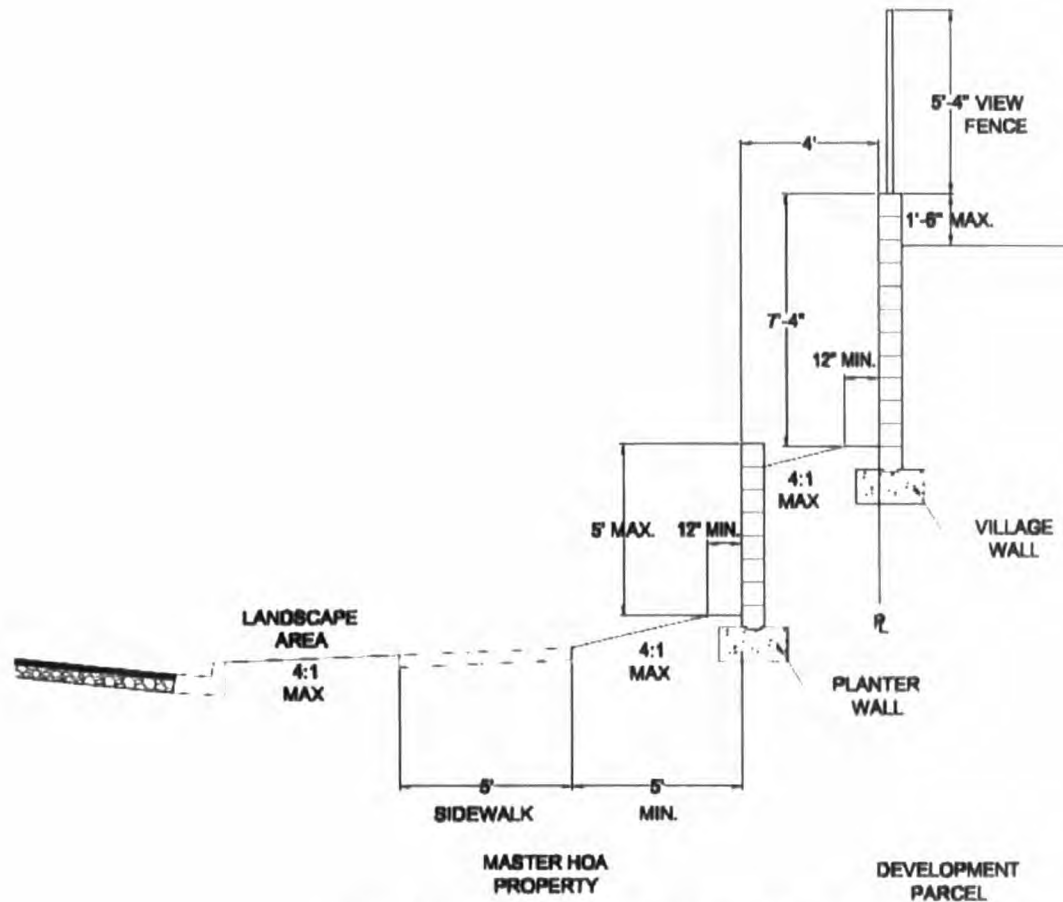


FIGURE 5-2 VILLAGE WALLS

N.T.S.

FOOTING DESIGNS AND DIMENSIONS ARE CONCEPTUAL AND DO NOT NECESSARILY ACCURATELY DEPICT ACTUAL CONSTRUCTION. ALL DIMENSIONS AND NOTES ARE REQUIREMENTS.

IF MORE THAN 2'-6" OF WALL IS USED FOR RETAINING, THEN TOP OF WALL OR TOP OF VIEW FENCE MUST BE AT LEAST 3'-6" ABOVE THE FINISHED PAD ELEVATION

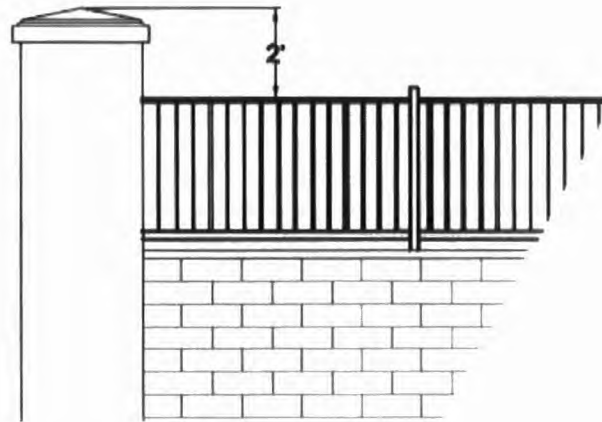


FIGURE 5-3 VILLAGE WALLS

N.T.S.

**FOOTING DESIGNS AND DIMENSIONS ARE CONCEPTUAL AND DO NOT
NECESSARILY ACCURATELY DEPICT ACTUAL CONSTRUCTION. ALL
DIMENSIONS AND NOTES ARE REQUIREMENTS.**

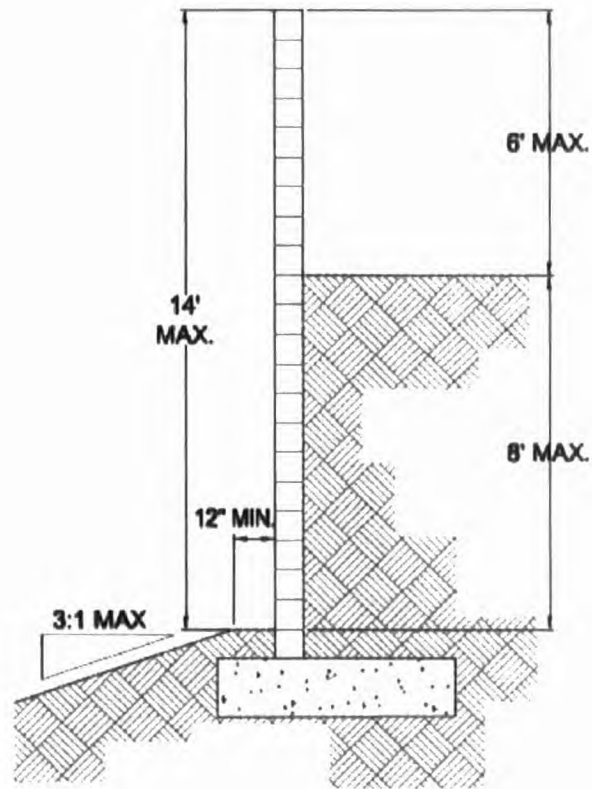


FIGURE 5-4 STANDARD PRODUCT WALLS

N.T.S.

FOOTING DESIGNS AND DIMENSIONS ARE CONCEPTUAL AND DO NOT NECESSARILY ACCURATELY DEPICT ACTUAL CONSTRUCTION. ALL DIMENSIONS AND NOTES ARE REQUIREMENTS.

IF MORE THAN 2'-6" OF WALL IS USED FOR RETAINING, THEN TOP OF WALL MUST BE AT LEAST 3'-6" ABOVE THE FINISHED PAD ELEVATION

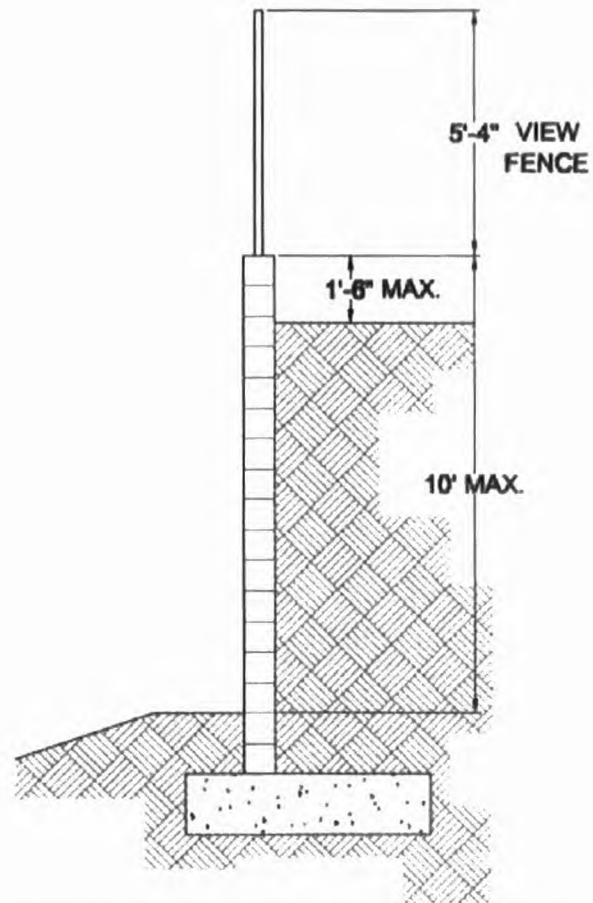
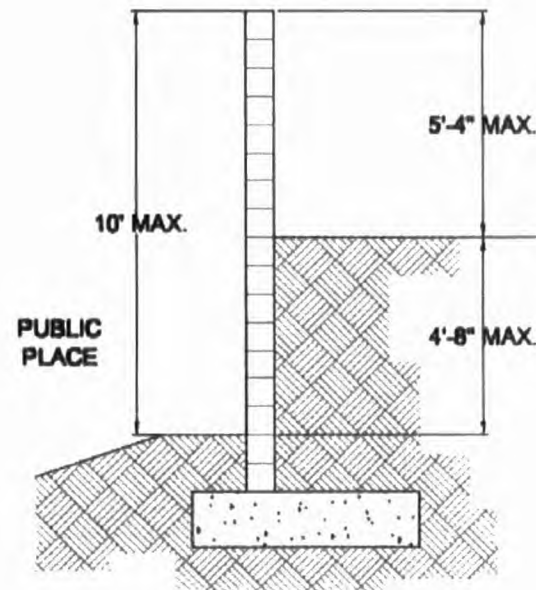


FIGURE 5-5 PRODUCT WALLS

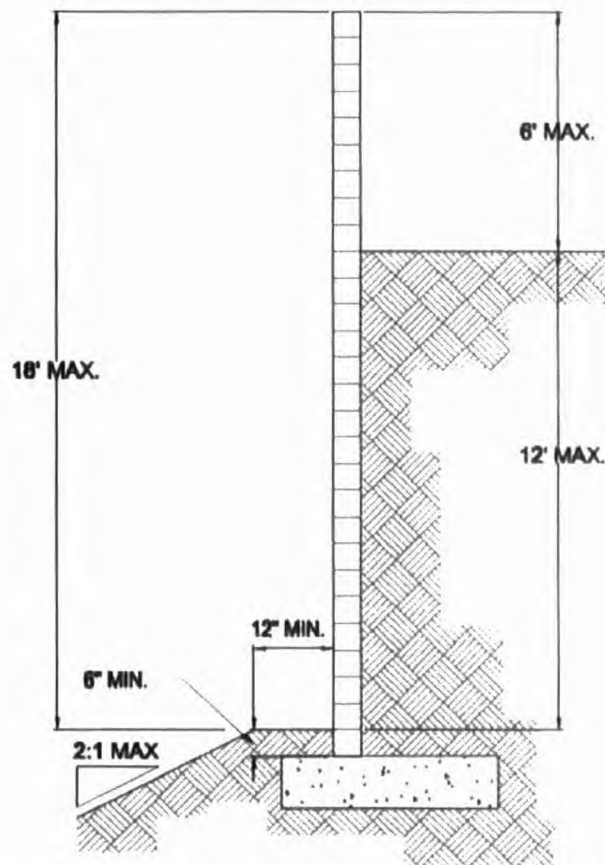
N.T.S.

FOOTING DESIGNS AND DIMENSIONS ARE CONCEPTUAL AND DO NOT NECESSARILY ACCURATELY DEPICT ACTUAL CONSTRUCTION. ALL DIMENSIONS AND NOTES ARE REQUIREMENTS.



**FIGURE 5-6 PRODUCT WALLS ADJACENT TO AND
FACING A PUBLIC PLACE** N.T.S.

FOOTING DESIGNS AND DIMENSIONS ARE CONCEPTUAL AND DO NOT NECESSARILY ACCURATELY DEPICT ACTUAL CONSTRUCTION. ALL DIMENSIONS AND NOTES ARE REQUIREMENTS.
IF MORE THAN 2'-6" OF WALL IS USED FOR RETAINING, THEN TOP OF WALL MUST BE AT LEAST 3'-6" ABOVE THE FINISHED PAD ELEVATION

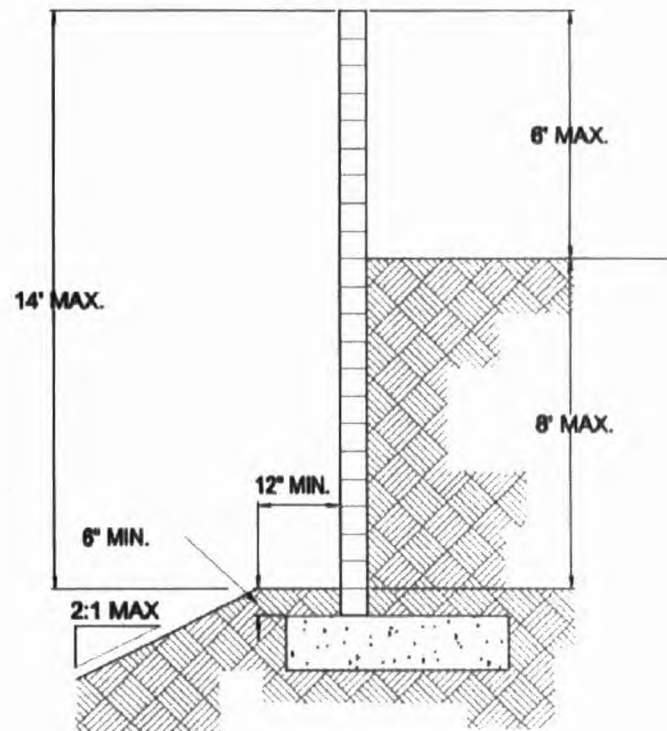


**FIGURE 5-7 PRODUCT WALLS BETWEEN
TWO DEVELOPMENT PARCELS**

N.T.S.

FOOTING DESIGNS AND DIMENSIONS ARE CONCEPTUAL AND DO NOT NECESSARILY ACCURATELY DEPICT ACTUAL CONSTRUCTION. ALL DIMENSIONS AND NOTES ARE REQUIREMENTS.

IF MORE THAN 2'-6" OF WALL IS USED FOR RETAINING, THEN TOP OF WALL MUST BE AT LEAST 3'-6" ABOVE THE FINISHED PAD ELEVATION



**FIGURE 5-8 PRODUCT WALLS BETWEEN
TWO ADJACENT BACK YARDS**

N.T.S.

FOOTING DESIGNS AND DIMENSIONS ARE CONCEPTUAL AND DO NOT NECESSARILY ACCURATELY DEPICT ACTUAL CONSTRUCTION. ALL DIMENSIONS AND NOTES ARE REQUIREMENTS. IF MORE THAN 2'-6" OF WALL IS USED FOR RETAINING, THEN TOP OF WALL MUST BE AT LEAST 3'-6" ABOVE THE FINISHED PAD ELEVATION

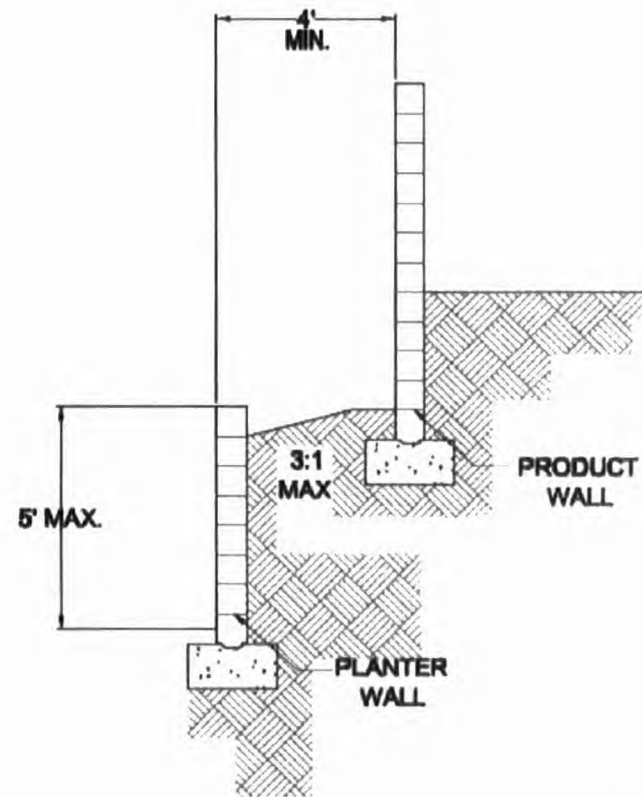


FIGURE 5-9 PLANTER WALLS

N.T.S.

FOOTING DESIGNS AND DIMENSIONS ARE CONCEPTUAL AND DO NOT NECESSARILY ACCURATELY DEPICT ACTUAL CONSTRUCTION. ALL DIMENSIONS AND NOTES ARE REQUIREMENTS.

IF MORE THAN 2'-6" OF WALL IS USED FOR RETAINING, THEN TOP OF WALL MUST BE AT LEAST 3'-6" ABOVE THE FINISHED PAD ELEVATION



FIGURE 5-10 FRONT YARD WALLS

N.T.S.

FOOTING DESIGNS AND DIMENSIONS ARE CONCEPTUAL AND DO NOT NECESSARILY ACCURATELY DEPICT ACTUAL CONSTRUCTION. ALL DIMENSIONS AND NOTES ARE REQUIREMENTS.

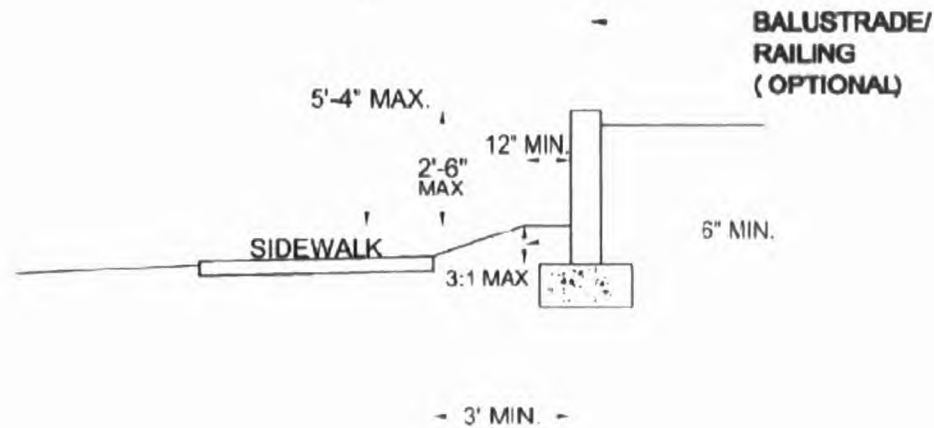


FIGURE 5-11 FRONT YARD WALLS

N.T.S.

FOOTING DESIGNS AND DIMENSIONS ARE
CONCEPTUAL AND DO NOT NECESSARILY
ACCURATELY DEPICT ACTUAL CONSTRUCTION.
ALL DIMENSIONS AND NOTES ARE
REQUIREMENTS.

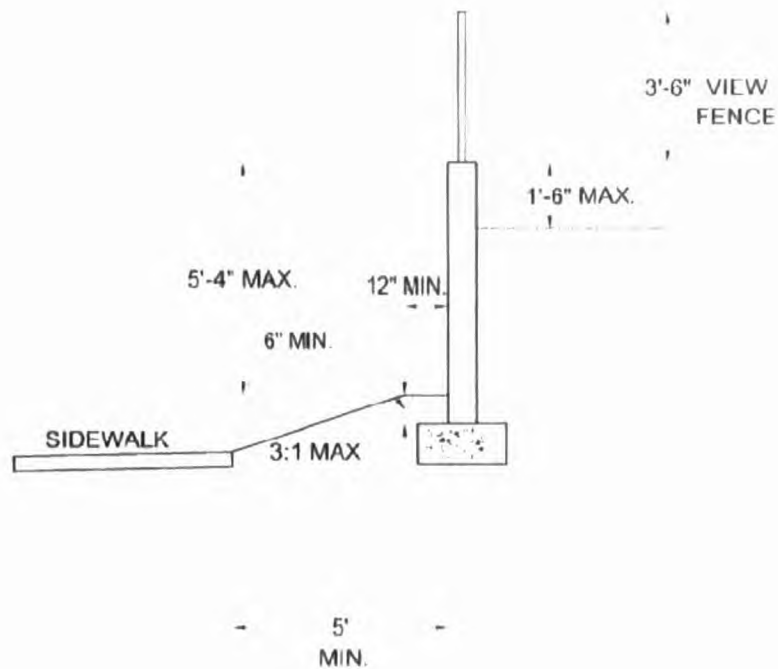


FIGURE 5-12 FRONT YARD WALLS

N.T.S.

FOOTING DESIGNS AND DIMENSIONS ARE CONCEPTUAL AND DO NOT NECESSARILY ACCURATELY DEPICT ACTUAL CONSTRUCTION. ALL DIMENSIONS AND NOTES ARE REQUIREMENTS.

5.6.3 MATERIALS

The exterior face of Product Walls shall be of a type specified in the Wall Palette. Wrought iron view fencing will be allowed on Community and Product Walls subject to the standards herein.

5.6.4 PRODUCT WALL HEIGHTS AND STEPS

In all cases, wall heights and wrought iron view fences are measured from finished grade on the lowest (most exposed) side of the fence or wall to the top of the fence or wall.

The maximum step along the top of walls is sixteen inches with a minimum of thirty-two inches horizontal area between steps.

5.6.5 PRODUCT WALL TO VILLAGE WALL CONNECTIONS

Where a Product Wall meets a Village Wall, the Product Wall must meet the elevation of the Village Wall at the point of connection or be lower than the Village Wall. Taller Product Walls shall be held at the Village Wall elevation for at least eight feet back from the Village Wall before stepping up to the Product Wall elevation.

5.6.8 WATERPROOFING

All retaining walls must be designed to minimize the transition of water through the walls. Walls must also be adequately drained on the surcharge side in accordance with the written recommendations of a geotechnical or structural engineer.

5.6.9 ACCEPTABLE MATERIALS

All Product Walls that front and are adjacent to roadways and/or common elements must be designed and built with materials and colors that complement the architecture of the homes. Both faces of a Product Wall must be of one of the following materials or finishes:

- integral color split faced block
- integral color smooth faced block
- stone or faux stone
- painted or integral color stucco
- wrought iron view fencing as described below in Section 5.6.11.

5.6.10 PROHIBITED MATERIALS

Unfinished or painted concrete block, wood, vinyl and chain link fence are not permitted.

5.6.11 VIEW FENCES

All view fences will be constructed of wrought iron in a color and finish approved by the Master Developer. All wrought iron view fencing abutting residential parcels will be 5'4" in height except for Front Yard Walls where the view fence is 3'6" in height. Where abutting a non-residential parcel, the view fence may be any height up to but not exceeding 5'4". Where a Product Wall meets a Village Wall that consists of wrought iron view fencing, the Product Wall must also consist of wrought iron view fencing at the same height as the Village Wall for a distance of at least five feet from the junction of the two walls.

5.7 COMMUNITY IRRIGATION STANDARDS

The main principle behind the landscape and irrigation of the Kyle Canyon Master Plan is to incorporate principals based on water conservation and water harvesting techniques. Therefore, a highly efficient automatic irrigation system will be required for all planting areas. Spray irrigation may only be used on natural turf areas, where permitted; however, subsurface irrigation is preferred.

5.7.1 WATER DEMAND

Peak flow demands shall be based on applying peak weekly irrigation requirements in six hours (12:00am-6:00am). Design shall be based on available static pressure minus 10% for fluctuations.

5.7.2 WATER APPLICATION

Natural turf will only be allowed in the rear yards of residential lots and in highly usable common areas associated with parks and playing fields. Usable turf areas should be at least 50' in width.

Front yards will have drought tolerant plantings. Artificial turf will be allowed as a substitute for natural turf in front yards.

Annual plantings must be placed in potted planters and small-contained areas. Drip or underground irrigation shall be used for these areas.

Overhead and drip irrigation systems must be zoned for exposure (south and west exposures together, north and east exposures together), topography, and varying water requirements of the plant material. Trees, shrubs and potted planters shall be on separate valves.

Overhead sprays are to be used interior to parcels in pocket park areas or residential rear yard lots on natural turf only.

5.7.3 OVERHEAD IRRIGATION

Spray heads on natural turf next to roadways and walkways must have low angle (10%) nozzles. Pop-up heads must be a minimum of 4". Spray heads may not throw water directly onto any roadway, walkway or paved surface. Large radius rotor heads (twenty-five foot radius or greater) are not allowed abutting roadway or walkway edges.

All spray heads (fifteen foot radius or less) shall be spaced no further than 40% of the spray diameter to account for area wind conditions. Spacing for large radius rotors (twenty-five foot radius or greater) shall not exceed 60% of the spray diameter.

- Common area
- Spray irrigation is allowed only in functional recreational turf areas that are at least 50' wide and in which the sprinkler system meets a distribution uniformity standard of 65%

Overhead irrigation heads may not throw water directly onto any roadway, walkway, or paved surface.

5.7.4 DRIP IRRIGATION

Drip irrigation shall be used in all tree, shrub and groundcover areas except as noted above. The minimum quantity of emitters per plant

should be in accordance with the following table. Some variation may occur due to differences in water demand between plant materials.

Plant Size	Emitter Volume	Quantity
1 gallon material	1 GPH	1 each
5 gallon material	½-1 GPH	2 each
15 gallon material	2 GPH	3-4 ea
24" box material	2 GPH	4-5 ea
36" box material	2 GPH	6-7 ea
48" box material	2 GPH	7-8 ea
54" box material	2 GPH	9-12 ea
60" box material	2 GPH	12-16 ea

5.7.5 ZONING

Irrigation systems must be zoned for exposure (south and west exposures together, north and east exposures together), topography and varying water requirements of plant material. Turf, flower beds, shrubs, trees and decorative pots must be on separate valves.

5.7.8 SUBTERRANEAN IRRIGATION

Subterranean irrigation is encouraged in all turf areas in lieu of overhead irrigation.

5.7.9 IRRIGATION CONTROL EQUIPMENT

Irrigation controllers shall use a system based on evapo-transpiration rates or weather systems in order to respond to the climate and environmental factors. These controllers shall have the following minimum capabilities:

- three independent operating programs

- four start times per program.
- Station run times of 0-99 minutes in one-minute increments.
- Watering schedules that are selectable per program for any day of the week from daily to every fourteen days.
- Non-volatile memory for program data (no battery required to maintain the program).

5.7.10 Community Plant Materials

The following list represents the different amenity areas and neighborhood zones within the Kyle Canyon Master Plan. The trees on this list are the only allowable species to be used in any public or private area. The Master Developer must approve any variations. The shrubs on this list are the only allowable species to be used in public areas. Private areas may have variations, but only if the variations are approved by the Master Developer.

PROHIBITED PLANT MATERIALS LIST

Baccharis sarothroides/Desert Broom

Olea europea/Olive (fruit producing)

Pennisetum setaceum/Fountain Grass (green variety)

Morus alba/Fruiting Mulberry

Tamrix spp./Tamarisk

Palm Trees (all species)

Master Plant Palette		Resid. Street-scapes	Front Yard	Alleys
BOTANICAL NAME	COMMON NAME			
Trees				
Acacia aneura	Mulga Tree	X	X	X
Acacia jenerae	Coonivitta Wattle	X	X	X
Acacia pendula	Weeping Acacia	X	X	X
Acacia salicina	Willow Acacia	X	X	X
Acacia schaffneri	Twisted Acacia	X	X	X
Acacia smallii (farnesiana)	Sweet Acacia	X	X	X
Acacia stenophylla	Shoestring Acacia	X	X	X
Arbotes onedo	Strawberry Tree	X	X	
Bauhinia congesta	Orchid Tree	X	X	
Cercidium floridum	Blue Palo Verde	X	X	X
Cercidium hybrid	Palo Verde Hybrid	X	X	X
Cercidium microphyllum	Foothills Palo Verde	X	X	X
Cercidium parkinsonian	Desert Museum Palo Verde	X	X	X
Cercidium praecox	Palo Brea	X	X	X
Chilopsis linearis	Desert Willow	X	X	X
Chilopsis linearis	'Lucretia Hamilton'	X	X	X
Chitalpa tashkentosis	Chitalpa	X	X	X
Cordia boissieri	Texas Olive	X	X	X
Cupressus glabra	Smooth Arizona Cypress	X	X	
Eleocarpus decipens	Japanese Blueberry	X	X	
Feijoa sellowiana	Pineapple Guava	X	X	
Fraxinus oxycarpa 'Raywood	Raywood Ash	X	X	
Fraxinus velutina 'Rio Grande'	Fan-Tex Ash	X	X	
Fraxinus velutina 'Fan West	Fan-West Ash	X	X	
Olea 'Swan Hill' or 'Wilsonii'	Fruitless Olive	X	X	
Pinus eldarica	Mondel Pine	X	X	X
Pinus halepensis	Aleppo Pine	X	X	X

Master Plant Palette		Resid. Street- scapes	Front Yard	Alleys
Pinus pinea	Stone Pine	X	X	X
Pinus roxburghii	Chir Pine	X	X	X
Pistacia chinensis	Chinese Pistache	X	X	
Pithecellobium flexicaule	Texas Ebony	X	X	X
Pithecellobium mexicanum	Mexican Ebony	X	X	X
Platanus racemosa	California Sycamore	X	X	X
Prosopis alba	Argentine Mesquite	X	X	X
Prosopis alba	Colorado Mesquite	X	X	X
Prosopis chilensis	Thornless Chilean Mesquite	X	X	X
Prosopis glandulosa	Texas Honey Mesquite	X	X	X
Prosopis glandulosa	Western Honey Mesquite	X	X	X
Prosopis hybrid	Mesquite hybrids	X	X	X
Prosopis pubescens	Screwbean Mesquite	X	X	X
Prosopis velutina	Velvet Mesquite	X	X	X
Prunus caroliniana	Carolina Cherry Laurel	X	X	
Prunus cerasifera	Cherry Plum	X	X	
Prunus cerasifera 'Atropurpurea'	Purple Leaf Plum	X	X	
Pyrus kawakamii 'Bradford'	Bradford Pear	X	X	
Quercus ilex	Holly Oak	X	X	
Quercus muhlenbergia	Chinquapin Oak	X	X	X
Quercus texana	Texas Red oak	X	X	
Quercus virginiana	Southern Live Oak	X	X	X
Rhus lancea	African Sumac	X	X	X
Sophora secundiflora	Texas Mountain Laurel	X	X	X
Ulmus parvifolia	Evergreen Elm	X	X	
Vitex agnus-castus	Monks Pepper	X	X	X
Shrubs				
Acacia greggii	Cat-Claw Acacia			
Alyogyne huegelii	Blue Hibiscus	X	X	X

Master Plant Palette		Resid. Street- scapes	Front Yard	Alleys
Ambrosia deltoidea	Triangle Leaf Bursage			X
Anisacanthus quadrifidus-wrightii	Mexican Flame	X	X	X
Aristida purpurea	Purple Three Awn	X	X	X
Atriplex canescens	Four Wing Saltbush			
Buddleia marrubifolia	Wooly Butterfly Bush			X
Caesalpinia cacalaco	Cascalote			X
Caesalpinia gilliesii	Yellow Bird of Paradise	X	X	X
Caesalpinia mexicana	Mexican Bird of Paradise	X	X	X
Caesalpinia pulcherrima	Red Bird of Paradise	X	X	X
Calliandra californica	Baja Fairy Duster			X
Calliandra eriophylla	Native Fairy Duster			X
Calylopus hartwegii	Sierra Sundrop	X	X	X
Celtis pallida	Desert Hackberry			
Chrysothamnus nauseosus	Golden Rabbit Brush			
Cordia boissieri	Texas Olive	X	X	X
Cordia parvifolia	Little Leaf Cordia	X	X	X
Cottoneaster lacteus	Red Clusterberry	X	X	
Dalea bicolor	Silver Dalea	X	X	X
Dalea frutescens	Black Dalea	X	X	X
Dalea pulchra	Indigo Bush			
Dietes bicolor	Fortnight Lily	X	X	
Dodonea viscosa	Purple Hopseed Bush	X	X	X
Elaeagnus ebbingei	Ebbings's Silverberry	X	X	X
Encelia farinosa	Brittlebush	X	X	X
Ephedra nevadensis	Morman Tea			X
Eremophila species	'Summertime Blue'	X	X	X
Eremophila species	Valentine	X	X	X
Ericameria laricifolia	Turpentine Bush	X	X	X
Eupatorium greggii	'Boothill' Eupatorium			X

Master Plant Palette		Resid. Street- scapes	Front Yard	Alleys
Fraxinus greggii	Gregg Ash	X	X	X
Gaura lindheimeri	Gaura	X	X	X
Hemerocallis	Daylily	X	X	X
Justicia californica	Chuparosa			
Justicia spicigera	Mexican Honeysuckle	X	X	X
Larrea tridentata	Creosote			
Leucophyllum candidum	Sierra Boquet	X	X	X
Leucophyllum candidum	Silver Cloud	X	X	X
Leucophyllum frutescens 'Compacta'	Compact Texas Ranger	X	X	X
Leucophyllum frutescens 'Green Cloud'	Green Cloud Sage	X	X	X
Leucophyllum laevigatum	Chihuahuan Sage	X	X	X
Leucophyllum langmaniae 'Rio Bravo'	Rio Bravo Ranger	X	X	X
Leucophyllum pruniosum 'Sierra Bouquet'	Sierra Boquet	X	X	X
Leucophyllum revolutum 'Sierra Magic'	Sierra Magic Mix	X	X	X
Leucophyllum x Heavenly Cloud	Heavenly Cloud Sage	X	X	X
Leucophyllum zygophyllum	Blue Ranger	X	X	X
Leucophyllum zygophyllum 'Cimarron'	Cimarron	X	X	X
Myrtus communis 'Boetica'	Twisted Myrtle	X	X	X
Myrtus communis 'Compacta'	Compact Myrtle	X	X	X
Nandina domestica	Heavenly Bamboo	X	X	
Nandina domestica 'Nana'	Dwarf Heavenly Bamboo	X	X	X
Nerium oleander 'Petite Pink'	Dwarf Oleander 'Pink'	X	X	X
Pittosporum tobira varieties	Mock Orange	X	X	X

<i>Rhus microphylla</i>	Little Leaf Sumac	X	X	X
<i>Rhus trilobata</i>	Squaw Bush	X	X	X
<i>Rosmarinus officinalis</i> 'Tuscan Blue'	Tuscan Blue Rosemary	X	X	X
<i>Ruellia brittonia</i>	Ruellia	X	X	X
<i>Salvia clevelandii</i>	Chaparral Sage	X	X	X
<i>Salvia coccinea</i>	Scarlet Sage	X	X	X
<i>Salvia greggii</i>	Autumn Sage	X	X	X
<i>Senna artemisioides</i>	Feathery Cassia	X	X	X
<i>Senna nemophila</i>	Desert Cassia	X	X	X
<i>Senna phyllodenea</i>	Silver leaf Cassia	X	X	X
<i>Tecoma Stans</i>	'Gold Star' Yellowbells	X	X	X
<i>Tecoma</i> x 'Sunrise'	Tecoma x Sunrise	X	X	X
<i>Vauquelinia californica</i>	Arizona Rosewood	X	X	X
<i>Viquiera deltoidea</i>	Goldeneye	X	X	X
<i>Zauschneria californica</i>	Hummingbird Flower	X	X	X
<i>Zinnia grandiflora</i>	Prarie Zinnia	X	X	X
Groundcovers				
<i>Acacia redolens</i> 'Desert Carpet'	Desert Carpet Acacia	X	X	X
<i>Baccharis</i> 'Centennial'	Centennial Coyote Bush	X	X	X
<i>Baileya multiradiata</i>	Desert Marigold	X	X	X
<i>Chrysactinia mexicana</i>	Damianita	X	X	
<i>Convolvulus cneorum</i>	Bush Morning Glory	X	X	X
<i>Dalea capitata</i> 'Sierra Gold'	Sierra Gold Dalea	X	X	X
<i>Dalea greggii</i>	Prostrate Indigo Dalea			X
<i>Dyssodia pentachaeta</i>	Golden Dyssodia	X	X	X
<i>Gazania rigins</i>	Gazania	X	X	X
<i>Hymenoxys acaulis</i>	Angelita Daisy	X	X	X
<i>Lantana montevidensis</i>	Trailing Lantana	X	X	X
<i>Lantana</i> sp 'New Gold'	New Gold Lantana	X	X	X
<i>Liriope muscari</i>	Liriope	X	X	
<i>Lonicera japonica</i> 'Halliana'	Hall's Honeysuckle	X	X	X
<i>Melampodium leucanthum</i>	Blackfoot Daisy	X	X	X

<i>Oenothera berlandieri</i>	Mexican Evening Primrose	X	X	X
<i>Oenothera caespitosa</i>	White Evening Primrose	X	X	X
<i>Penstemon baccharifolius</i>	Del Rio Penstemon (Red)	X	X	X
<i>Penstemon cobaea</i>	Foxglove (White)	X	X	X
<i>Penstemon eatonii</i>	Firecracker (Red)	X	X	X
<i>Penstemon palmeri</i>	Scented (Light Pink)	X	X	X
<i>Penstemon parryi</i>	Parry Penstemon (Pink)	X	X	X
<i>Penstemon pseudospectabilis</i>	Canyon (Rose)	X	X	X
<i>Penstemon strictus</i>	Rocky Mountain (Blue)	X	X	X
<i>Psilostrophe cooperi</i>	Paper Flower	X	X	X
<i>Pyracantha koidsumii</i> 'Santa Cruz'	Santa Cruz Pyracantha	X	X	X
<i>Rosa banksiae</i>	Lady Bank's Rose	X	X	X
<i>Rosmarinus officinalis</i> 'Prostratus'	Trailing Rosemary	X	X	X
<i>Ruellia brittonia</i> 'Katie'	Dwarf Ruellia	X	X	X
<i>Teucrium chamaedrys</i>	Germander	X	X	X
<i>Verbena gooddingii</i>	Gooddingii Verbena	X	X	X
<i>Verbena rigida</i>	Sandpaper Verbena	X	X	X
Accents				
<i>Agave Americana</i>	Century Plant	X	X	X
<i>Agave colorata</i>	Mexcal Ceniza	X	X	X
<i>Agave geminiflora</i>	Twin Flowered Agave	X	X	X
<i>Agave murpheyi</i>	Murphy's Agave	X	X	X
<i>Agave parryi-huachucensis</i>	Parry's Agave	X	X	X
<i>Agave vilmoriniana</i>	Octopus Agave	X	X	X
<i>Agave weberi</i>	Weber's Agave	X	X	X
<i>Dasyliiron acrotriche</i>	Green Desert Spoon	X	X	X
<i>Dasyliiron longissimum</i>	Mexican Grass Tree	X	X	X
<i>Dasyliiron wheeleri</i>	Desert Spoon	X	X	X
<i>Euphorbia rigida</i> (biglandulosa)	Gopher Plant	X	X	X
<i>Ferocactus acanthodes</i>	Compass Barrell			X
<i>Ferocactus wislizenii</i>	Fishhook Barrell			X
<i>Fouqueria splendens</i>	Ocotillo			

<i>Hesperaloe parviflora</i>	Red Yucca	X	X	X
<i>Hesperaloe parviflora</i>	Yellow Yucca	X	X	X
<i>Muhlenbergia capillaris</i>	Regal Mist Deer Grass	X	X	X
<i>Muhlenbergia lindheimeri</i>	Autumn Glow Deer Grass	X	X	X
<i>Muhlenbergia rigens</i>	Deer Grass	X	X	X
<i>Nolina microcarpa</i>	Bear Grass	X	X	X
<i>Opuntia basilaris</i>	Beavertail Prickly Pear			
<i>Opuntia microdasys</i>	Bunny Ears Prickly Pear	X	X	
<i>Opuntia violacea</i> 'santa rita'	Purple Pancake	X	X	
<i>Pedilanthus macrocarpus</i>	Slipper Plant	X	X	X
<i>Yucca baccatta</i>	Banana Yucca			
<i>Yucca brevifolia</i>	Joshua Tree			
<i>Yucca elata</i>	Soaptree Yucca			
<i>Yucca rigida</i>	Blue Yucca			
<i>Yucca schidigera</i>	Mojave Yucca			
<i>Yucca schottii</i>	Yucca			
<i>Yucca rostrata</i>	Beaked Yucca			
Vines				
<i>Antigonon leptopus</i>	Queen's Wreath	X	X	
<i>Campsis radicans</i>	Common Trumpet Creeper	X	X	X
<i>Feijoa sellowiana</i>	Pineapple Guava	X	X	X
<i>Gelsemium sempervirens</i>	Carolina Jasmine	X	X	X
<i>Hardenbergia violacea</i>	Lilac Vine	X	X	X
<i>Jasminum mesnyi</i>	Primrose Jasmine	X	X	X
<i>Lonicera japonica</i> 'Halliana'	Hall's Honeysuckle	X	X	X
<i>Macfadyena unguis-cati</i>	Cat's Claw	X	X	X
<i>Pyracantha coccinea</i>	Firethorn	X	X	X
<i>Pyracantha graberii</i>	Pyracantha	X	X	X
<i>Rosa banksiae</i>	Lady Bank's Rose	X	X	X
<i>Solanum jasminoides</i>	Potato Vine	X	X	X
<i>Trachelosperum jasminoides</i>	Star Jasmine	X	X	X

Section 6 – STREET SYSTEM, DRAINAGE & INFRASTRUCTURE DEVELOPMENT

The network of walkable streets at Kyle Canyon will form the connective tissue of the community's public realm. Consequently, there will be no "back-on" streets in Kyle Canyon except as shown on Figure 3-15. Typical streets will have sidewalks, planting strips, on-street parking, and buildings with front doors, windows and porches that face onto the street. All these features help to create an environment that encourages walking and bicycling for short local trips as well as recreation.

A **hierarchy** of streets of different characters will ensure efficient circulation that balances the needs of all modes of travel - auto, pedestrian, bicycle and transit. The "Village Streets" consist of Boulevard Arterials, Arterial Streets and Frontage Roads, Boulevards, and Connectors (Figure 6-1). The following pages contain descriptions of the street classifications, specifications of the street dimensions, and illustration of typical street landscaping concepts.

6.1 ROADWAY CLASSIFICATIONS

Boulevard Arterials are major regional arterials and will have a boulevard treatment. Horse Drive and Hualapai Way will have two travel lanes in each direction and will be separated by a landscaped median. The median width will also provide for future expansion of the roadway to accommodate potential increase in traffic. Residential buildings will face onto Horse and Hualapai with windows and front entries facing the street. Parking for these residences will be accessed from side streets or rear alleys, since curb cuts will be minimized. On-street parking, landscaping and sidewalks will contribute to the pedestrian-friendly environment by

buffering pedestrians from moving cars and providing guest parking and walking access to residences. (Refer to Figure 6-2)

Arterial Streets and Frontage Roads will form the perimeter streets of the Community. These roadways four or six travel lanes with a 14' shared outside travel lane to accommodate bicycles. Shoulders 10' wide are provided on Fort Apache and an equestrian trail will be constructed on the north side of Grand Teton. Landscape areas and a sidewalk or multi-use trail will provide a buffer between these high volume streets and residential areas. (Refer to Figure 6-3).

Boulevards will form important connections between activity centers and open spaces at Kyle Canyon. These community roadways will include single or multiple travel lanes and a landscaped median. Landscaping and sidewalks will contribute to the pedestrian-friendly environment by providing walking access to residences. (Refer to Figure 6-4)

Connector Streets relieve the arterials of local trips. Connector streets have two travel lanes and on-street parking. Where they run alongside the arroyos or other open space, connector streets will have homes facing or siding onto them on one side of the street, with a detached sidewalk, landscaping, and on-street parking. On the opposite side, pedestrian and bicycle paths will run through the open space. This configuration provides a premium location for homes facing onto the open space and also allows access to open space for all residents. In other areas where the Connector is not adjacent to the arroyos or open space, homes can face the road on both sides of the street with a detached sidewalk, landscaping, and on-street parking. (Refer to Figure 6-5).

Neighborhood Streets within the Neighborhood Residential Districts are planned with sidewalks on both sides, landscaping and pedestrian-scaled street lighting.

Alongside parks and open spaces, Neighborhoods Streets will have front doors facing onto them on one side of the street, with a detached sidewalk, landscaping and on-street parking. On the opposite side, pedestrian and bicycle paths will run through the open space. This configuration provides a premium location for homes facing onto the open space and also allows views of the open space for all residents as they travel through the community. (Refer to Figure 6-6).

Alleys shall be provided in conformance with the standards set forth in the design guidelines. All alleys and other forms of lot access that do not meet public street standards shall be private. All private alleys shall be mapped as a common element and privately maintained. Alleys will have 16' to 20' of drivable surface (including drivable curbs) and 3' landscape buffers adjacent to both curbs. Garages will be set back an additional 4' (minimum) on each side to permit landscaping as required by Section 5.2.11. (Refer to Figure 6-7). Alignment of garages on opposite sides of alleys is encouraged. Alleys shall be posted to prohibit parking.

Access Road configuration adjacent to the Mountain Edge Parkway Right of Way, west of Fort Apache will be provided. This access road will provide circulation for the proposed school site.

6.2 TRAFFIC STUDY

A Master Traffic Study has been completed which evaluated the adequacy of the proposed street system and the surrounding streets. This analysis established criteria, for roadway and intersection geometrics, traffic control, and parcel entrances. The Master Traffic Study identified the necessary roadway alignments and cross-sections for the infrastructure streets. Individual neighborhood street networks, land uses, and final pod densities have not been specifically identified. Updates to the Master Traffic Study may be required, based on individual site plans and land use information submitted as the development progresses.

The need for a site specific traffic study shall be determined by the City. Where pod development is determined to be in conformance with the recommendation and assumptions in the Master Traffic Study no additional site specific traffic study is required. If the builder's density is significantly greater than what was assumed, or access to the Village Streets significantly deviates from the Master Study, then that builder may be responsible for a site specific traffic study which shall be processed and approved by the City of Las Vegas.

6.3 STREET OFF-SETS

Neighborhood streets shall not have centerline intersection offsets of less than 125' unless approved by the City.

6.4 DRAINAGE

A Master Drainage Study has been completed which evaluates the required storm drain infrastructure based on a proposed street network and development plan. The Master Drainage Study identifies drainage flows that impact the Community and how those flows should be routed through and around the site in accordance with local design criteria. Technical Drainage Studies will be completed

per phase, utilizing the Master Drainage Study as a basis to refine the drainage infrastructure requirements.

Builders will be required to submit site specific Technical Drainage Studies for review and approval through the City of Las Vegas. The builder will reference the Master Technical Drainage Study as a basis of design. Updates to the Master Technical Drainage Study shall be required if the builder substantially deviates from the assumptions that are approved within the Master Technical Study. Technical Drainage Studies or updates shall be processed through the City of Las Vegas for approval.

Drainage Facilities shall be designed to meet criteria as outlined in the "Clark County Regional Flood Control District Hydrologic Criteria and Drainage Design Manual", unless otherwise detailed in the design guidelines. Facilities shall also be in accordance with the Kyle Master Drainage Study and all addendums.

6.4.1 VALLEY GUTTERS

Valley gutters with a minimum width of 6 feet shall be constructed across street intersections where required by drainage requirements. Valley gutters will not be allowed to cross roadways shown on the City's Master Streets and Highways Plan and/or Boulevards, Arterials, Frontage Roads, or Boulevard Arterials. In addition, no valley gutter will be allowed to cross a Connector or lesser street at an intersection with a major street where drainage facilities exist in the major street. In addition, valley gutters will typically not be allowed to occur in absence of stop control and thus, proper planning and design is necessary to insure that valley gutters occur in conjunction with stop controlled intersections. For private alleys

and commercial driveways, valley gutters with a minimum width of 4 feet are allowed. The construction shall comply with the area standards and the details included in the design guidelines with exception of noted widths.

6.4.2 DRAINAGE EASEMENTS

Public drainage easements ten feet (10') wide are permitted for flows of less than 20 cfs, if privately maintained.

6.4.3 FINISHED FLOOR ELEVATION

Finished Floor elevations of buildings in non special flood hazard zones shall be set a minimum of 6 inches above the highest adjacent top of curb for which lots front or twice the depth of flow in the gutter for the 100 yr storm event, whichever is greater to a maximum of 18 inches above the water surface.

6.5 ENGINEERED DRAWINGS

The Engineered Drawings included in this Section have been developed to fulfill the needs and conditions unique to this Community. Unless otherwise allowed by the design guidelines and where practical, the Uniform Standards Drawings for Public Works; Construction, Off-Site Improvements, Clark County Area, Nevada, Volumes I and II, Uniform Designs and Construction Standards for Potable Water Systems (2003), Design and Construction Standards for Wastewater Collection System (1997), and Nevada Department of Transportation (NDOT) Standard Plans (2003) will be used

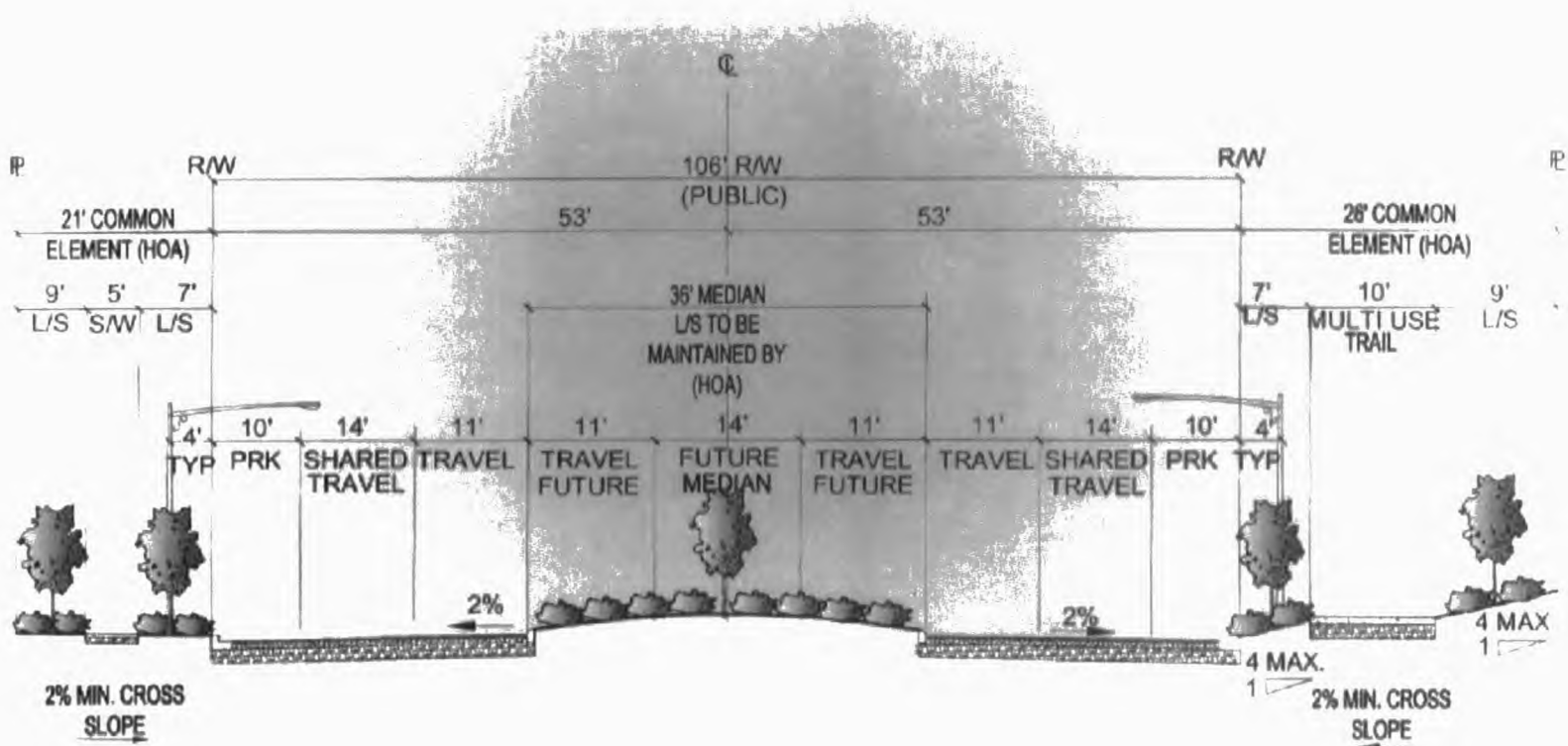


FIGURE 6-2
BOULEVARD ARTERIALS

Boulevard Arterials are major regional arterials and will have a boulevard treatment. Horse Drive and Hualapai Way will have two travel lanes in each direction and will be separated by a landscaped median. The median width will also provide for future expansion of the roadway to accommodate potential increase in traffic. Residential buildings will face onto Horse and Hualapai with windows and front entries facing the street. Parking for these residences will be accessed from side streets or rear alleys, since curb cuts will be minimized. On-street parking landscaping and sidewalks will contribute to the pedestrian-friendly environment by buffering pedestrians from moving cars and providing guest parking and walking access to residences.

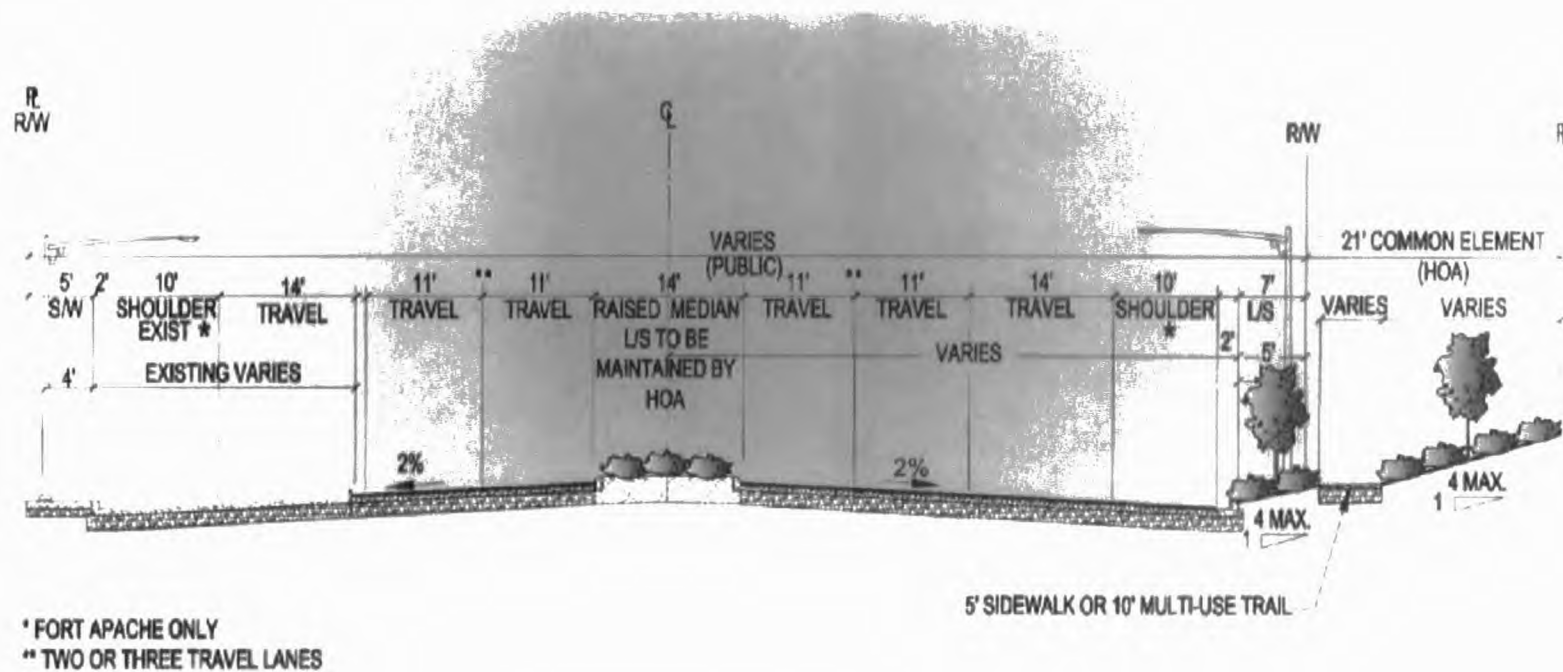


FIGURE 6-3
ARTERIAL STREETS AND
FRONTAGE ROADS

Arterial Streets and Frontage Roads will form the perimeter streets of the Community. These roadways four or six travel lanes with a 14' shared outside travel lane to accommodate bicycles. Shoulders 10' wide are provided on Fort Apache and an equestrian trail will be constructed on the north side of Grand Teton. Landscape areas and a sidewalk or multi-use trail will provide a buffer between these high volume streets and residential areas.

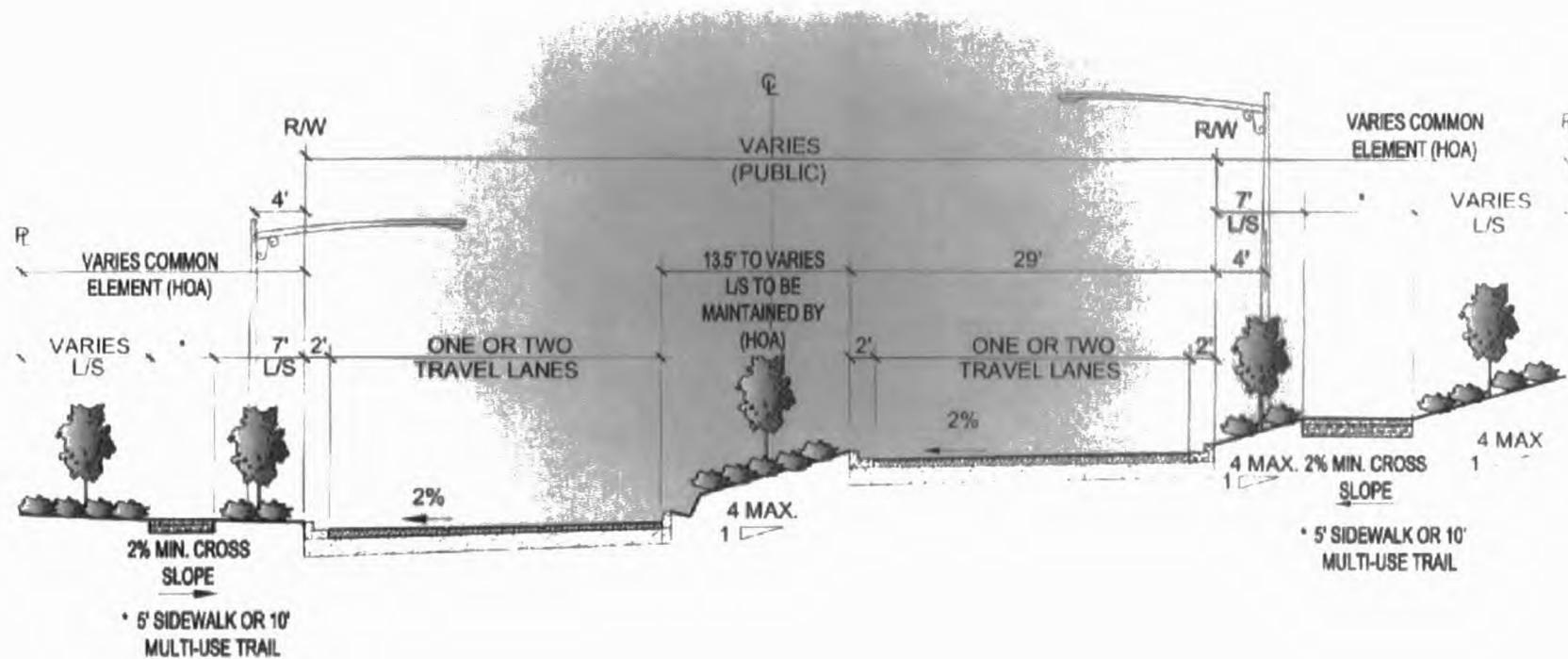


FIGURE 6-4
BOULEVARDS

Boulevards will form important connections between activity centers and open spaces at Kyle Canyon. These community roadways will include single or multiple travel lanes and a landscaped median. Landscaping and sidewalks will contribute to the pedestrian-friendly environment by providing walking access to residences.

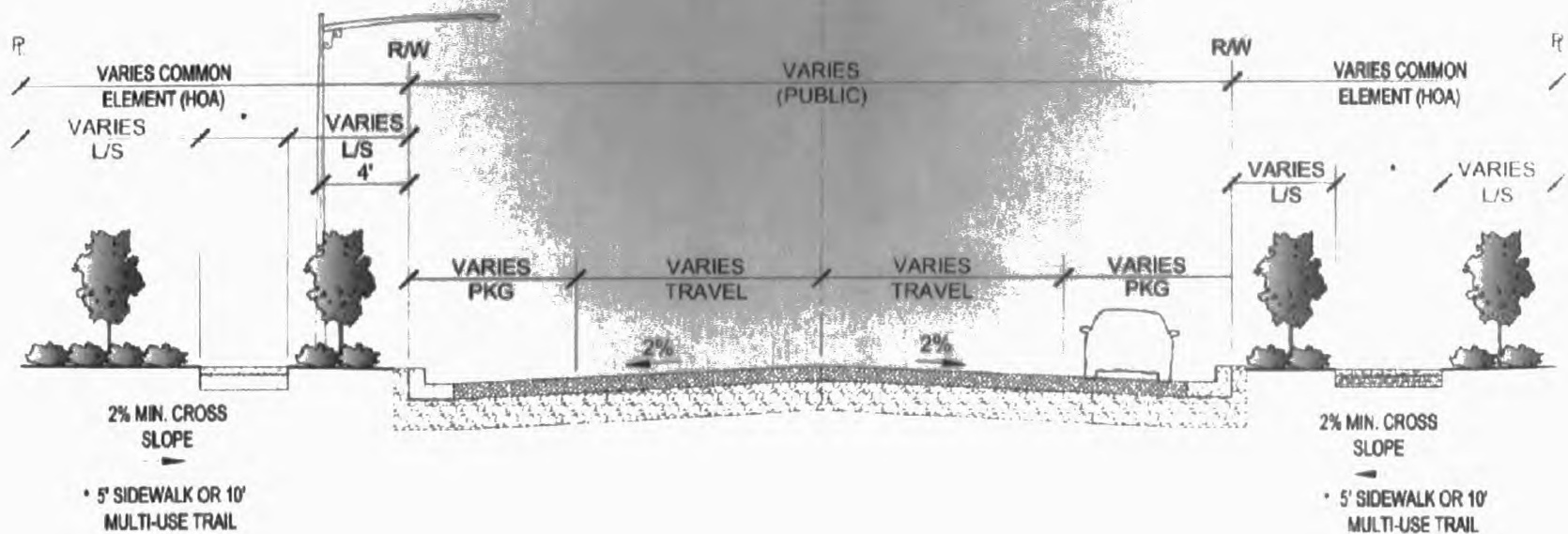


FIGURE 6-5
CONNECTOR STREETS

Connector Streets relieve the arterials of local trips. Connector streets have two travel lanes and on-street parking. Where they run alongside the arroyos or other open space, connector streets will have homes facing or siding onto them on one side of the street, with a detached sidewalk, landscaping, and on-street parking. On the opposite side, pedestrian and bicycle paths will run through the open space. This configuration provides a premium location for homes facing onto the open space and also allows access to open space for all residents. In other areas where the Connector is not adjacent to the arroyos or open space, homes can face the road on both sides of the street with a detached sidewalk, landscaping, and on-street parking.

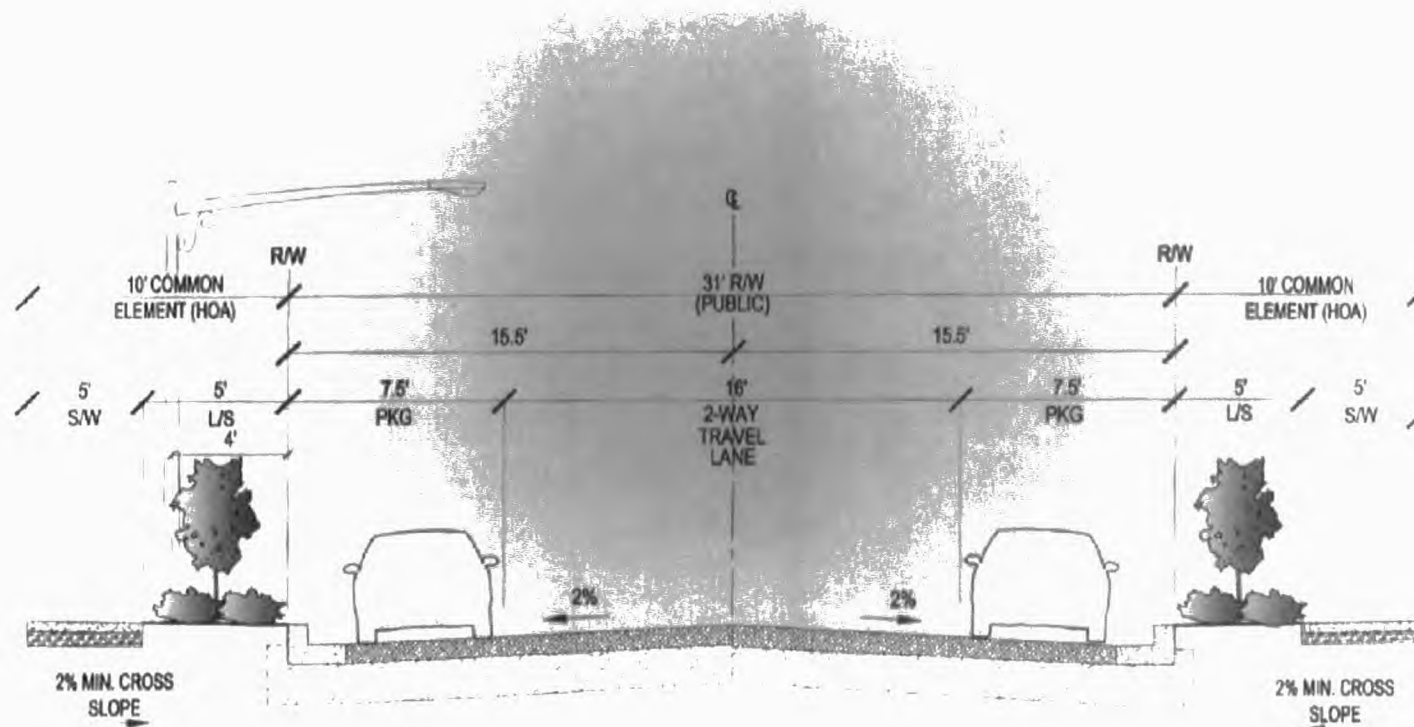


FIGURE 6-6
NEIGHBORHOOD STREETS

Neighborhood Streets within the Neighborhood Residential Districts are planned with sidewalks on both sides, landscaping and pedestrian-scaled street lighting.

Alongside parks and open spaces, Neighborhood Streets will have front doors facing onto them on one side of the street, with a detached sidewalk, landscaping and on-street parking. On the opposite side, pedestrian and bicycle paths will run through the open space. This configuration provides a premium location for homes facing onto the open space and also allows views of the open space for all residents as they travel through the community.

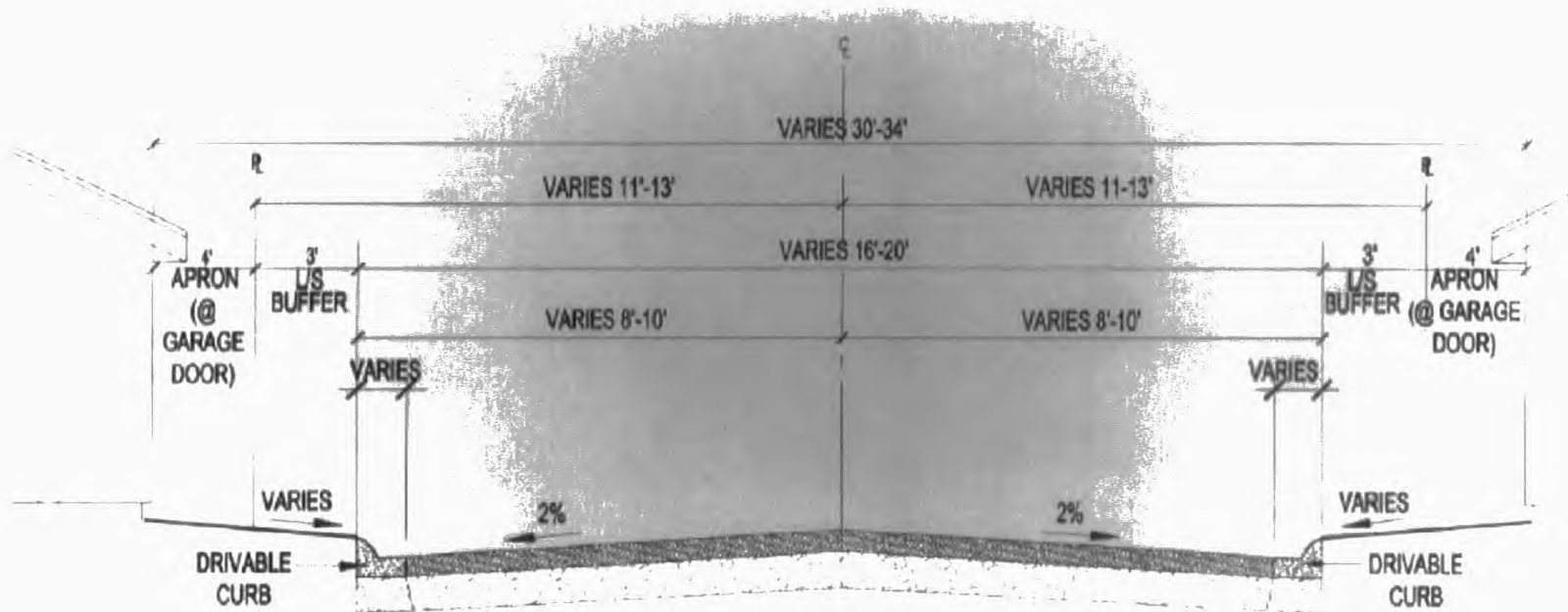


FIGURE 6-7
ALLEYS

Alleys shall be provided in conformance with the standards set forth in the design guidelines. All alleys and other forms of lot access that do not meet public street standards shall be private. All private alleys shall be mapped as a common element and privately maintained. Alleys will have 16' to 20' of drivable surface (including drivable curbs) and 3' landscape buffers adjacent to both curbs. Garages will be set back an additional 4' (minimum) on each side to permit landscaping as required by Section 5.2.11. Alignment of garages on opposite sides of alleys is encouraged. Alleys shall be posted to prohibit parking.

**KYLE CANYON GATEWAY
Standard Drawings**

NUMBER

DG-1

DG-2

DG-3

DG-4

DG-5

DG-6

DG-7

INTERSECTION GEOMETRICS

Minimum Back of Curb Radius

"T" Intersection w/Parking on Mainline

"T" Intersection w/No Parking

"T" Intersection w/Parking on both Legs

4 – Way Intersection w/Parking all Legs

4 – Way Intersection w/Parking on 3 Legs

"T" Intersection w/Parking on Leg

NUMBER

DG-8

DG-8.1

DG-8.2

DG-9

DG-10

DG-11

DG-12

DG-13

DG-14

DG-15

DG-16

DG-17

DG-17.1

DG-18.1

DG-18.2

DG-19.2

DG-19.3

DG-20

DG-20.1

DG-21

DG-22

DG-23

DG-24

DG-25

DG-25.1

DG-25.2

DG-25.3

DG-25.4

DG-26

MISCELLANEOUS

Sidewalk Ramp at Returns

Sidewalk Trail Connection – Option A

Sidewalk Trail Connection – Option B

Sidewalk Ramp at Mid Block

Parkway/Landscape Sidewalk Underdrain

30" Wedge Curb and Gutter

Parking Tree Well

Dry Utility Trench Location

Utility Pad Location (Residential Subdivision)

Landscape Irrigation Sleeving

Fire Hydrant Location (At Intersection)

Fire Hydrant Location (Along Roadway)

Street Light Location (Along Roadway)

Driveway Approach – Residential (Option "A")

Driveway Approach – Residential (Option "B")

Driveway Approach – Commercial (Option "B")

Driveway Approach – Alley

Traffic Signal Equipment – (Located at Intersection)

Traffic Signal Pole Size

Neighborhood Street-Bulb Out Detail

RTC Bus Turnout Adjacent to Parking Areas

Neighborhood Street – Cul-De-Sac

Neighborhood Loop Street – Knuckle

Typical Street Light

Streetlight Location

Streetlight Location at Intersections * 1, 4/2 Right of Way

Streetlight Location at Intersections *1, 3/3 Right of Way

Streetlight Location at Intersections * 2/3 Right of Way

Typical Builder Entry

KYLE CANYON GATEWAY
Standard Drawings

NUMBER

STREET SECTIONS

DG-S-A1	Horse Drive – 106' Section (Public) Hualapai to Grand Canyon
DG-S-A2	Hualapai Way – 107.5' Section (Public) Grand Teton to Horse
DG-S-A3	Hualapai Way – 85.5' Section (Public) Legato to Iron Mountain
DG-S-A3A	Hualapai Way – 85.5' Section (Public) Acapella to Legato
DG-S-A3B	Hualapai Way – 85.5' Section (Public) Horse to Acapella
DS-S-A3C	Hualapai Way – 75' Section (Public) Iron Mountain to Oso Blanca
DG-S-B1	Shaumber Road – 62' Section (Public)
DG-S-B3	Egan Crest Way – 69.5' Section (Public) Grand Teton to Adagio
DG-S-B3A	Egan Crest Way – 69.5' Section (Public) Adagio to Da Capo
DG-S-B3B	Egan Crest Way – 69.5' Section (Public) Acapella to Iron Mountain
DG-S-B3C	Egan Crest Way – 69.5' Section (Public) De Capo to Acapella
DG-S-B4	Boulevard Tee Pee – 55' Section (Public) Iron Mountain to Sonatina-Brent to Sky Point
DG-S-B4A	Kylegate – 68' Section (Public) Tee Pee to Sky Pointe
DG-S-B4B	Boulevard Kylegate Street 68' Section (Public) US-95 to Sky Pointe
DG-S-B5	Connector Street – 70' Section (Public) Paseo to Libretto
DG-S-B5A	Connector Street – 70' Section (Public) Hualapai to Paseo
DG-S-C1	Connector Street – 38' Section (Public)
DG-S-C2	Connector Street – 38' Section (Public)
DG-S-C3	Connector Street – 53' Section (Public) Adjacent to Arroyo
DG-S-C4	Connector Street – 53' Section (Public) W/2-Way Left Turn
DG-S-C4A	Connector Street – 53' Section (Public) At Substation
DG-S-C4D	Connector Street – 41' Section (Public) At Substation
DG-S-C6	Connector Street – 80' Section (Public) Libretto
DG-S-D1	Neighborhood Street – 31' Section (Public)
DG-S-D2	Loop Street – 28' Section (Public) At Arroyos/Internal Parks
DG-S-D3	Court Street – 32' Section (Private)
DG-S-D4	Motor Court Street – 24' Section (Private)
DS-S-D5	Neighborhood Streets – 37' Section (Public)
DG-S-E1	Alley – (Private)
DG-S-E2	Alley – (Private)
DG-S-E3	Alley – (Private)
DG-S-P1	Grand Teton Drive – 95' Section (Public) Mountain Edge to Hualapai
DG-S-P1A	Grand Teton Drive – 95' Section (Public) Hualapai to Grand Canyon
DG-S-P2	Iron Mountain Road – 90' Section (Public) East of Hualapai
DG-S-P3	Iron Mountain Road – 95' Section (Public) West of Hualapai
DG-S-P4	Grand Canyon Drive – 75' Section (Public) Grand Teton to Horse
DG-S-P5	Grand Canyon Drive – 75' Section (Public) Horse to Libretto
DG-S-P6	Iron Mountain Road – 75' Section (Public) Fort Apache to Tee Pee
DG-S-P7	Brent Lane – 58' Section (Public) Adjacent to Existing Elementary School
DG-S-P7A	Tee Pee Lane – 60' Section (Public) Iron Mountain to Brent
DG-S-P8	Fort Apache Road – 120' Section (Public) South of Iron Mountain
DG-S-P8A	Fort Apache Road – 120' Section (Public) Iron Mountain to Log Cabin
DG-S-P9	Fort Apache Road – 120' Section (Public) North of Log Cabin
DG-S-P10	Frontage Road (Oso Blanca) – 75' Section (Public)
DG-S-P10A	Frontage Road (Sky Pointe) – 80' Section (Public) North of Iron Mountain (extended)
DG-S-P10B	Frontage Road (Sky Pointe) – 80' Section (Public) Tee Pee to Fort Apache
DG-S-P10C	Frontage Road (Sky Pointe) – 80' Section (Public) Iron Mountain to Tee Pee
DG-S-T1	Trail Section – Mountain Edge Parkway
DG-S-T2	Paseo Trail Section
DG-S-T3	Multi-Use Trail
DS-S-T4	Arroyo Trail
DG-S-MEP-A	Mountain Edge Parkway Access Road (Public) (Alt. A)

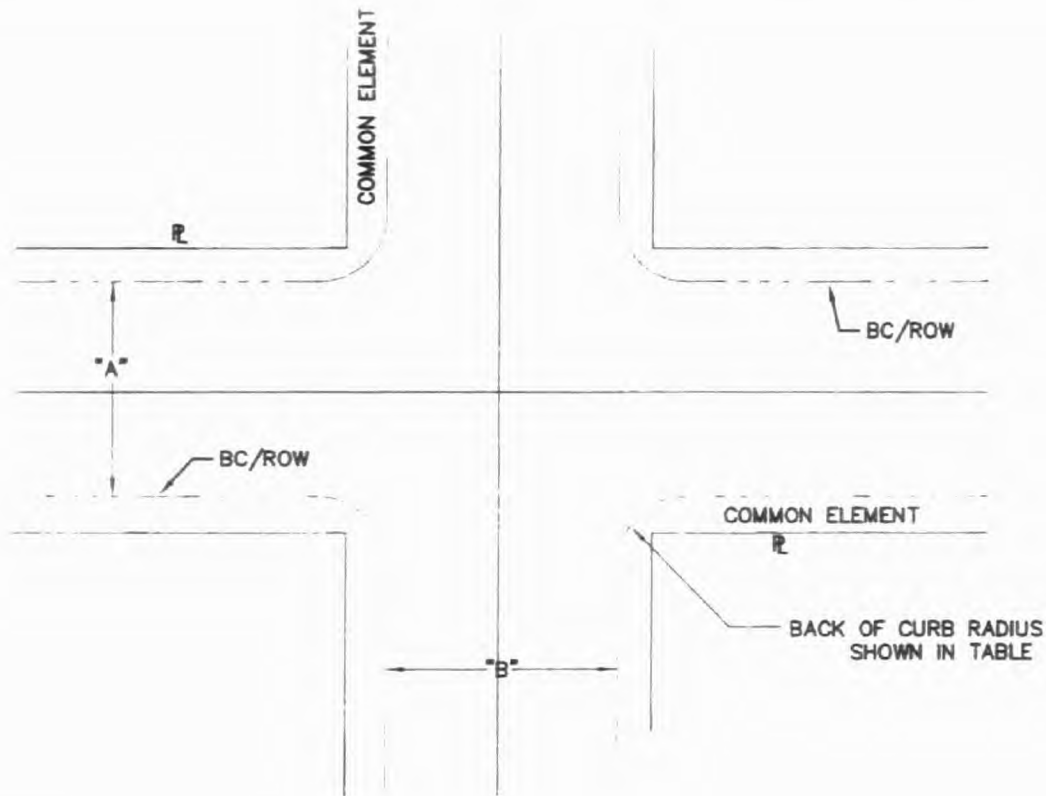
PREFACE

The intent of this document is for the design and construction of improvements within the Kyle Canyon Gateway Development. These standards should be used as a guideline for the design and preparation of engineering drawings for roadways, drainage facilities, utilities, and other related improvements within the planned community.

Where practical, the *Uniform Standard Drawings for Public Works; Construction, Off-Site Improvements, Clark County Area, Nevada, Volumes I and II, Uniform Design and Construction Standards for Potable Water Systems (2003)*, *Design and Construction Standards for Wastewater Collection Systems (1997)*, Clark County Regional Flood Control District's *Hydrologic Criteria and Drainage Design Manual (1999)* and Nevada Department of Transportation (NDOT) Standard Plans (2003) will be used. Standards that have been modified to fulfill the needs of the planned community have been reviewed and approved.

Although it is not possible to anticipate all circumstances and conflicts that may occur while implementing these standards, acceptable engineering practice has been used to resolve all known issues. If it should become necessary to modify these standards, they may be modified or amended through future submittals to the City of Las Vegas.

Note: These Exhibits are not to scale.



STREET CLASSIFICATION

1. MULTI-LANE BOULEVARD
2. MULTI-LANE BOULEVARD
3. MULTI-LANE BOULEVARD
4. TWO LANE BOULEVARD
5. MULTI-LANE BOULEVARD
6. MULTI-LANE COLLECTOR
7. TWO LANE CONNECTOR
8. THREE LANE CONNECTOR
9. CONNECTOR STREET AT SUBSTATION
10. CONNECTOR STREET
11. NEIGHBORHOOD STREET
12. NEIGHBORHOOD STREET AT PARKS
13. ARTERIAL AND FRONTAGE ROADS

STREET SECTIONS

- HORSE DRIVE (A1)
 NORTH HUALAPAI WAY (A2)
 HUALAPAI WAY (A3)(A3A)(A3B)
 TEE PEE LANE (P7A)(B4)
 SHAUMBER ROAD (B1)
 BRENT LANE (P7)
 IRON MOUNTAIN (P6)
 EGAN CREST (B3)(B3A)(B3B)
 KYLEGATE (B4)(B4B)
 (B5)(B5A)(A3C)
 NORTH TEE PEE LANE (C1)
 VIBRATO (C2)
 (C3)(C4)
 O'HARE (C4)
 LOG CABIN DRIVE (C4)
 (C4D)
 (C6)
 WITHIN NEIGHBORHOODS (D1)
 WITHIN NEIGHBORHOODS (D2)
 GRAND TETON (P1)(P1A)
 IRON MOUNTAIN (P2)(P3)
 GRAND CANYON (P4)(P5)
 FORT APACHE (P8)(P8A)(P9)
 OSO BLANCA (P10)
 SKY POINTE (P10A)(P10B)(P10C)

		STREET CLASSIFICATION		
STREET CLASSIFICATION	"B"	7, 8, 9, 11, 12	2, 3, 4, 5, 6, 10	1, 13
	"A"	7, 8, 9, 11, 12	2, 3, 4, 5, 6, 10	1, 13
	7, 8, 9, 11, 12	20'	25'	30'
	2, 3, 4, 5, 6, 10	25'	30'	30'
	1, 13	30'	30'	30'

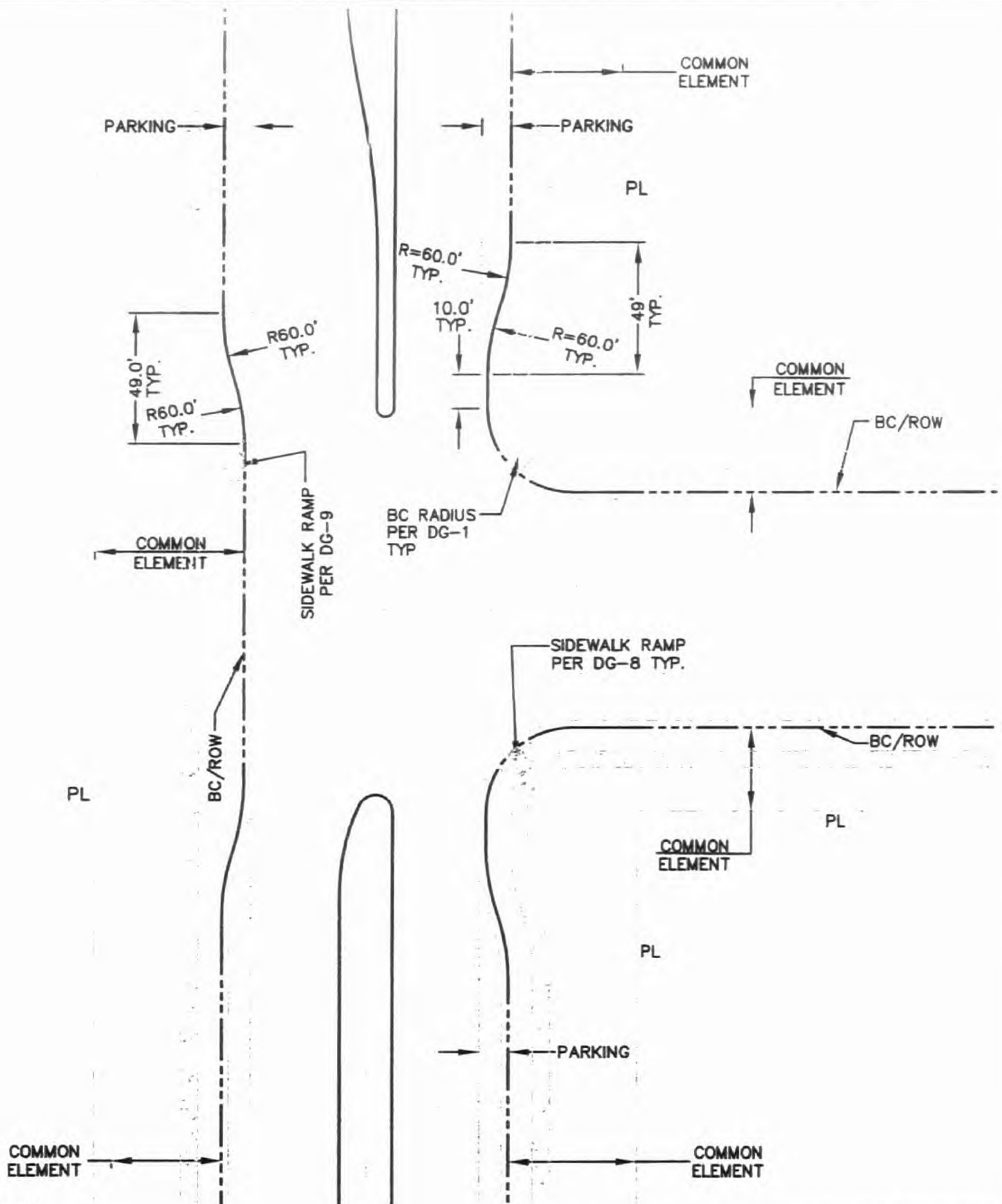
KYLE CANYON GATEWAY

STANDARD
DRAWINGS

MINIMUM BACK OF CURB RADIUS

DATE: 05-08-07

DWG NO. DG-1



NOTES:

1. BULB-OUTS REQUIRE APPROVAL OF CITY TRAFFIC ENGINEER
2. INTERSECTION DOES NOT REPRESENT ADDITIONAL WIDTH AS REQUIRED BY USD 201.1, MODIFICATIONS MAY BE REQUIRED.
3. WHERE SIGNAL IS REQUIRED, PARKING BULB-OUTS SHALL BE MODIFIED PER MASTER TRAFFIC STUDY.

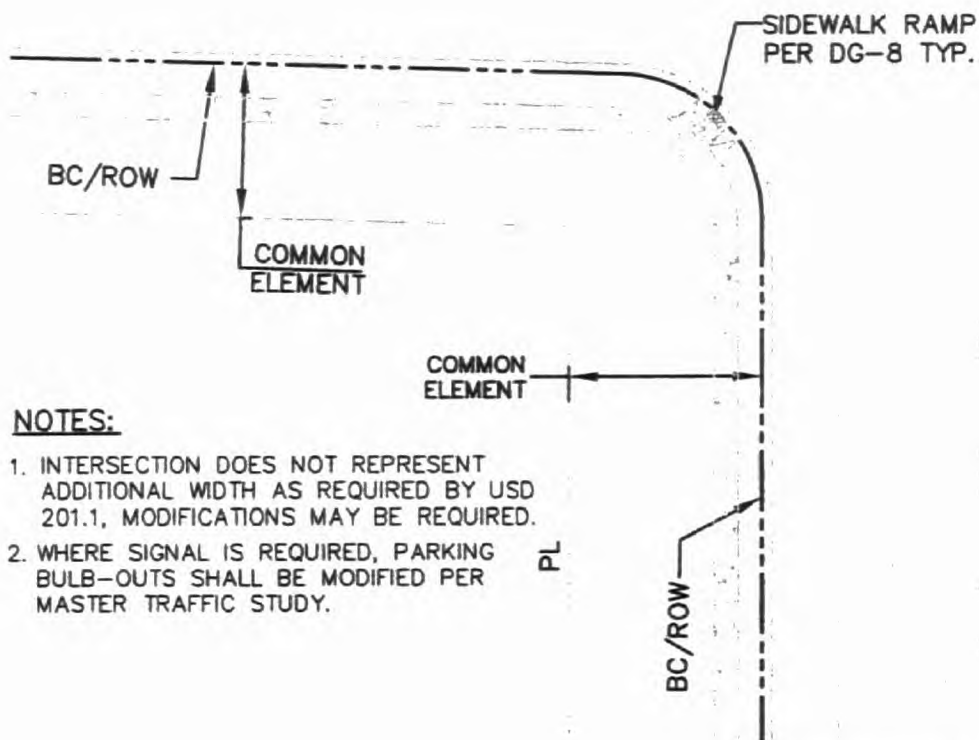
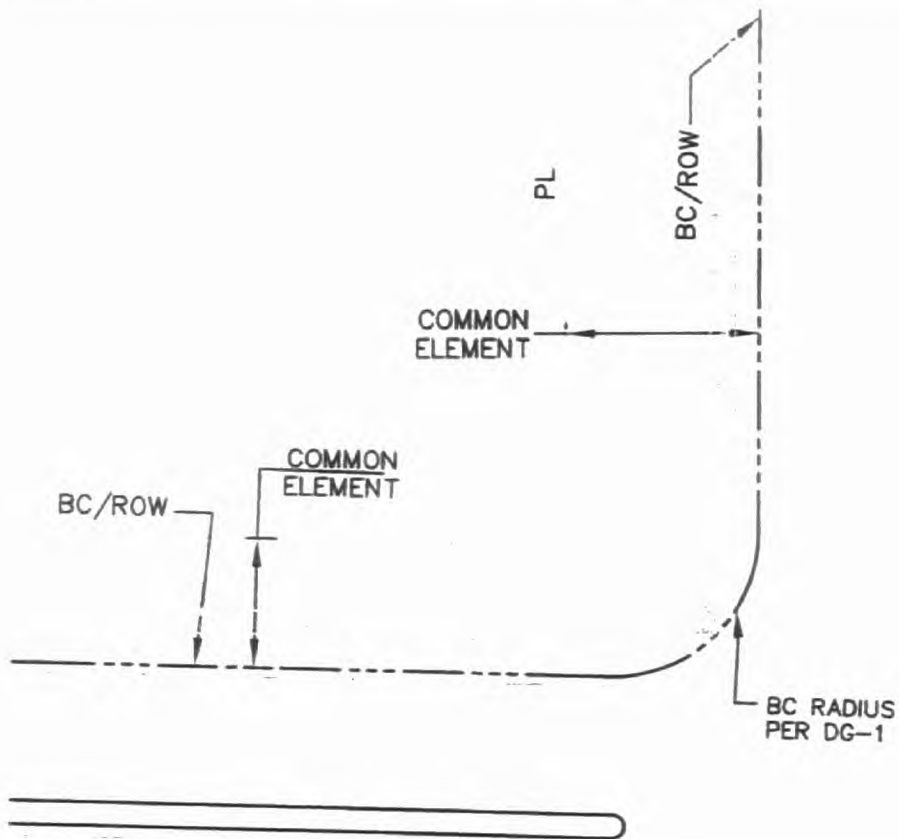
KYLE CANYON GATEWAY

STANDARD
DRAWINGS

INTERSECTION GEOMETRICS
"T" INTERSECTION W/
PARKING ON MAINLINE

DATE: 05-08-07

DWG NO. DG-2



NOTES:

1. INTERSECTION DOES NOT REPRESENT ADDITIONAL WIDTH AS REQUIRED BY USD 201.1, MODIFICATIONS MAY BE REQUIRED.
2. WHERE SIGNAL IS REQUIRED, PARKING BULB-OUTS SHALL BE MODIFIED PER MASTER TRAFFIC STUDY.

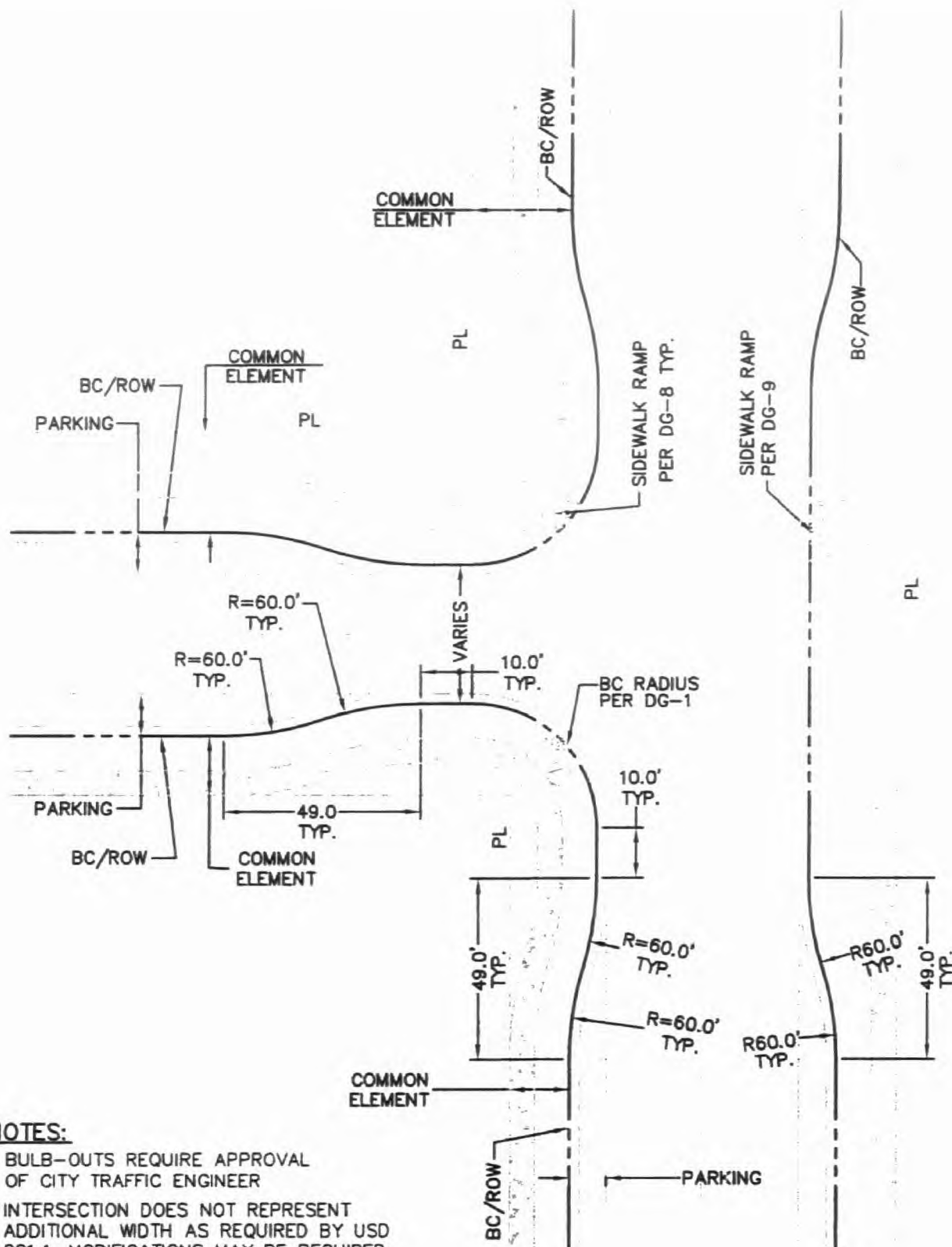
KYLE CANYON GATEWAY

STANDARD
DRAWINGS

INTERSECTION GEOMETRICS
"T" INTERSECTION W/
NO PARKING

DATE: 05-08-07

DWG NO. DG-3



NOTES:

1. BULB-OUTS REQUIRE APPROVAL OF CITY TRAFFIC ENGINEER
2. INTERSECTION DOES NOT REPRESENT ADDITIONAL WIDTH AS REQUIRED BY USD 201.1, MODIFICATIONS MAY BE REQUIRED.
3. WHERE SIGNAL IS REQUIRED, PARKING BULB-OUTS SHALL BE MODIFIED PER MASTER TRAFFIC STUDY.

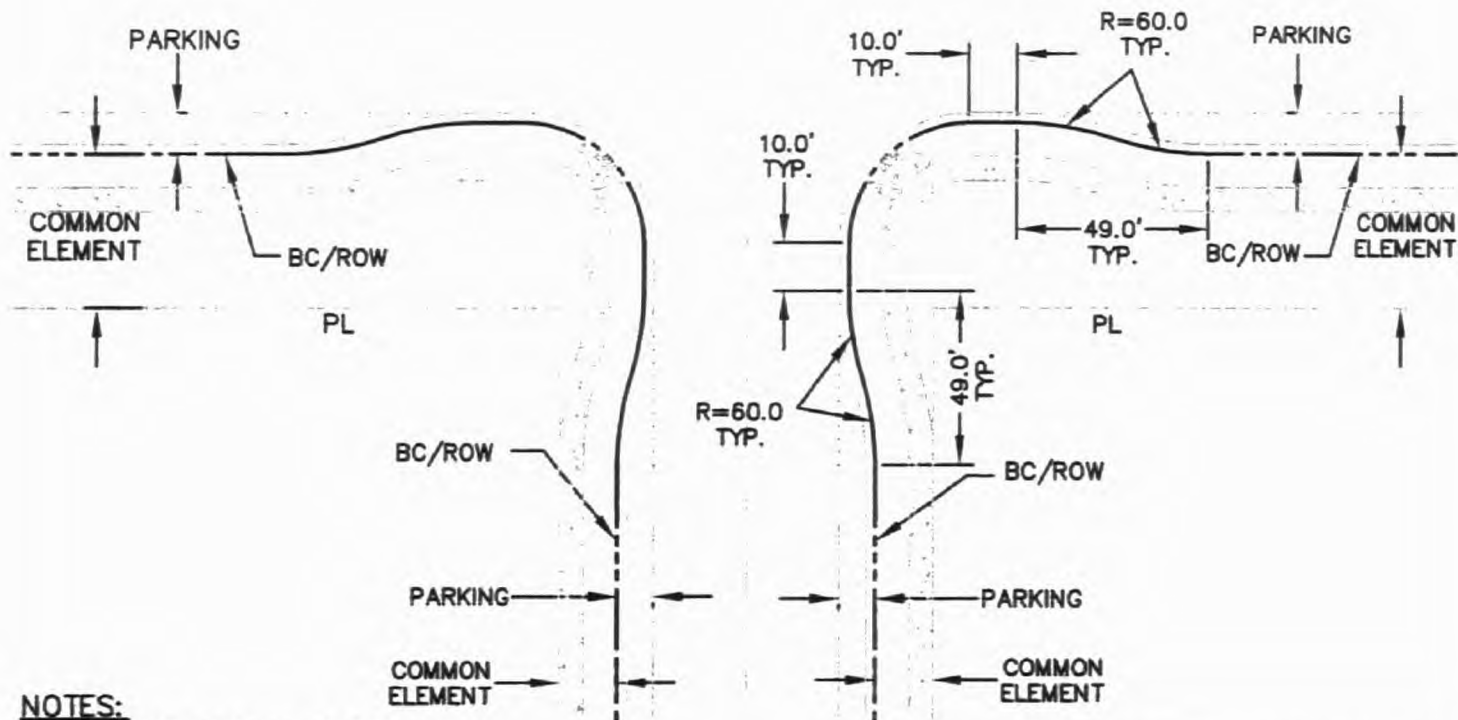
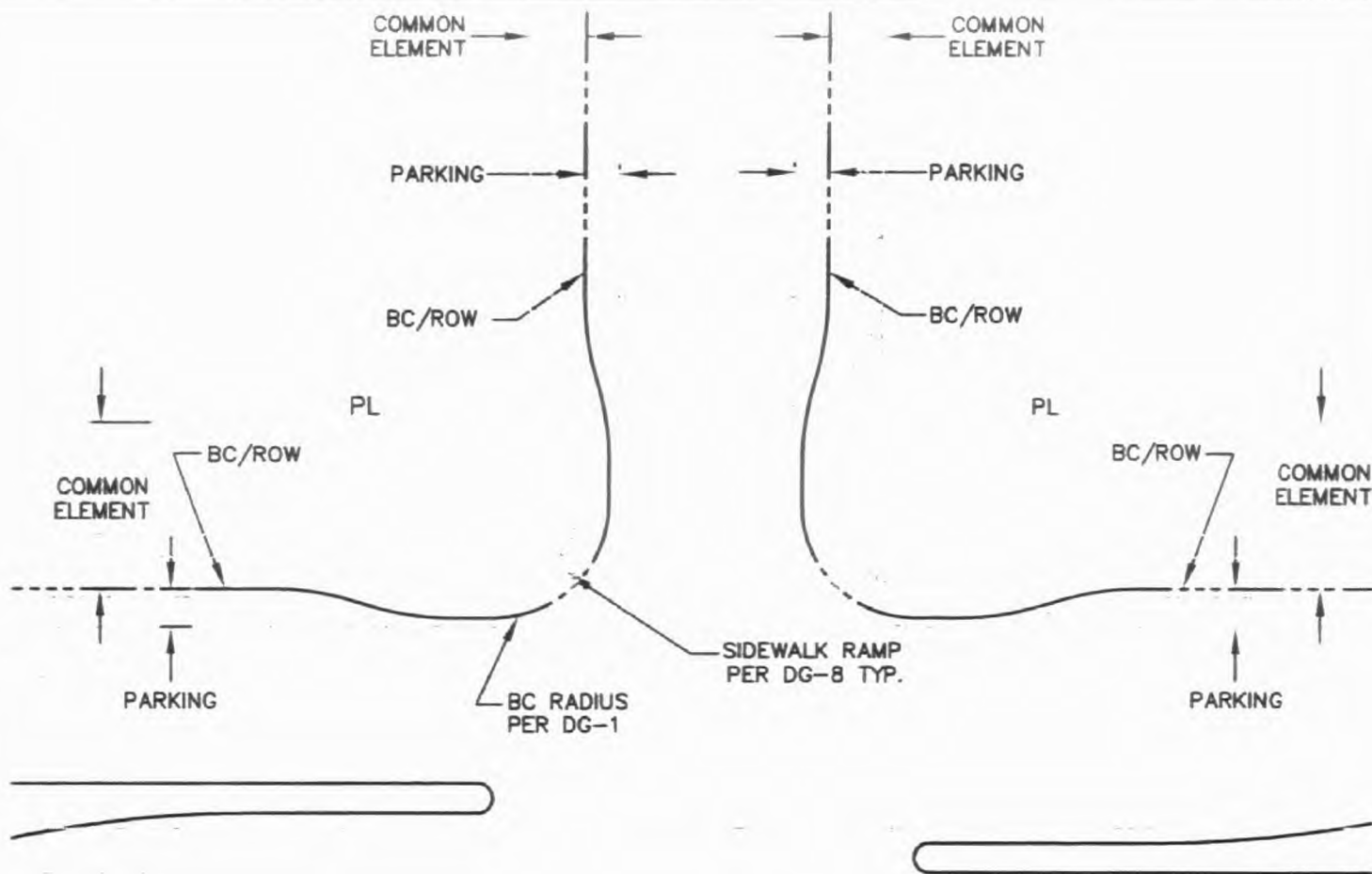
KYLE CANYON GATEWAY

STANDARD
DRAWINGS

INTERSECTION GEOMETRICS
"T" INTERSECTION W/
PARKING ON BOTH LEGS

DATE: 05-08-07

DWG NO. DG-4



NOTES:

1. BULB-OUTS REQUIRE APPROVAL OF CITY TRAFFIC ENGINEER
2. INTERSECTION DOES NOT REPRESENT ADDITIONAL WIDTH AS REQUIRED BY USD 201.1, MODIFICATIONS MAY BE REQUIRED.
3. WHERE SIGNAL IS REQUIRED, PARKING BULB-OUTS SHALL BE MODIFIED PER MASTER TRAFFIC STUDY.

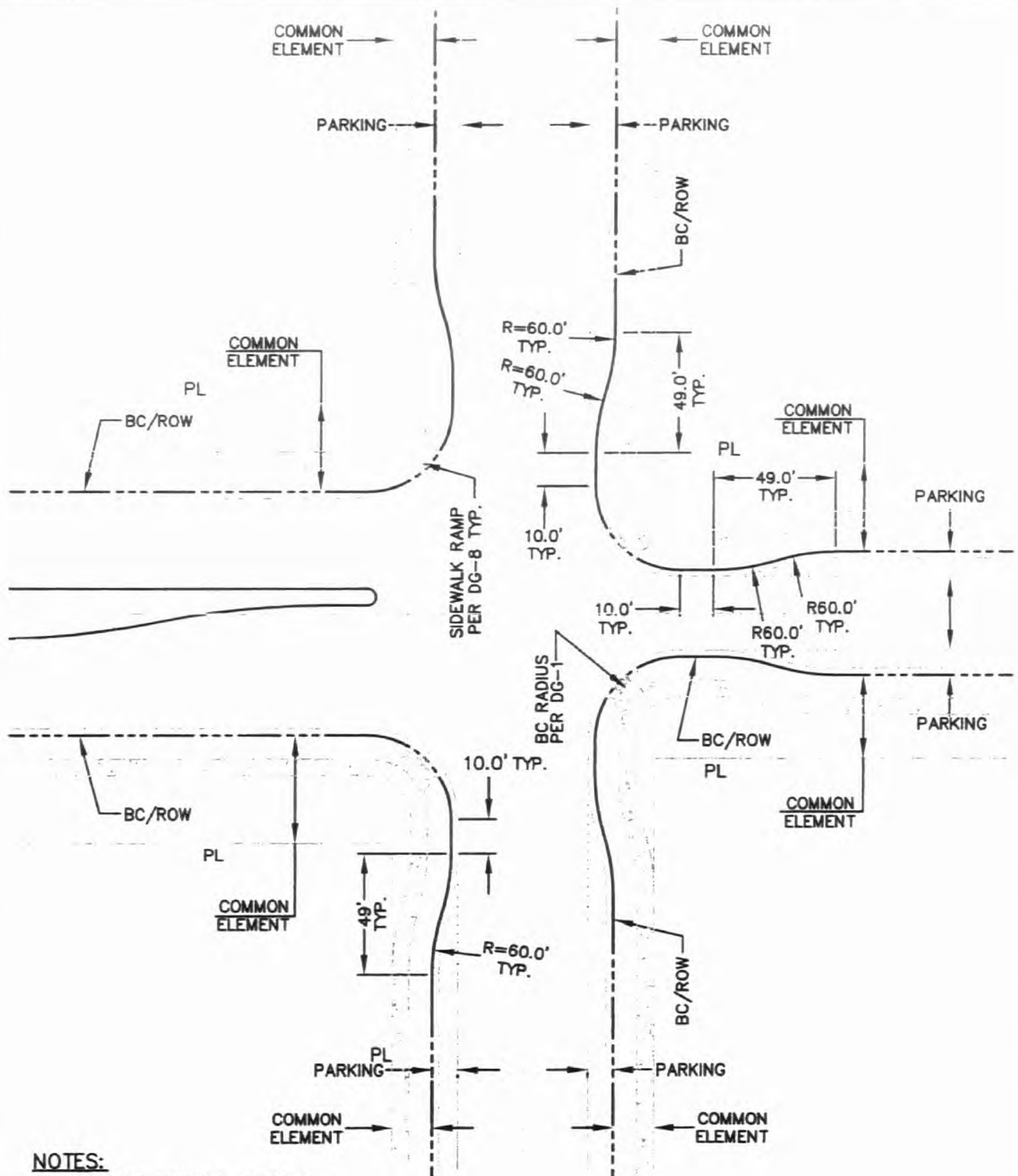
KYLE CANYON GATEWAY

STANDARD
DRAWINGS

INTERSECTION GEOMETRICS
4-WAY INTERSECTION W/
PARKING ALL LEGS

DATE: 05-08-07

DWG NO. DG-5



NOTES:

1. BULB-OUTS REQUIRE APPROVAL OF CITY TRAFFIC ENGINEER
2. INTERSECTION DOES NOT REPRESENT ADDITIONAL WIDTH AS REQUIRED BY USD 201.1, MODIFICATIONS MAY BE REQUIRED.
3. WHERE SIGNAL IS REQUIRED, PARKING BULB-OUTS SHALL BE MODIFIED PER MASTER TRAFFIC STUDY.

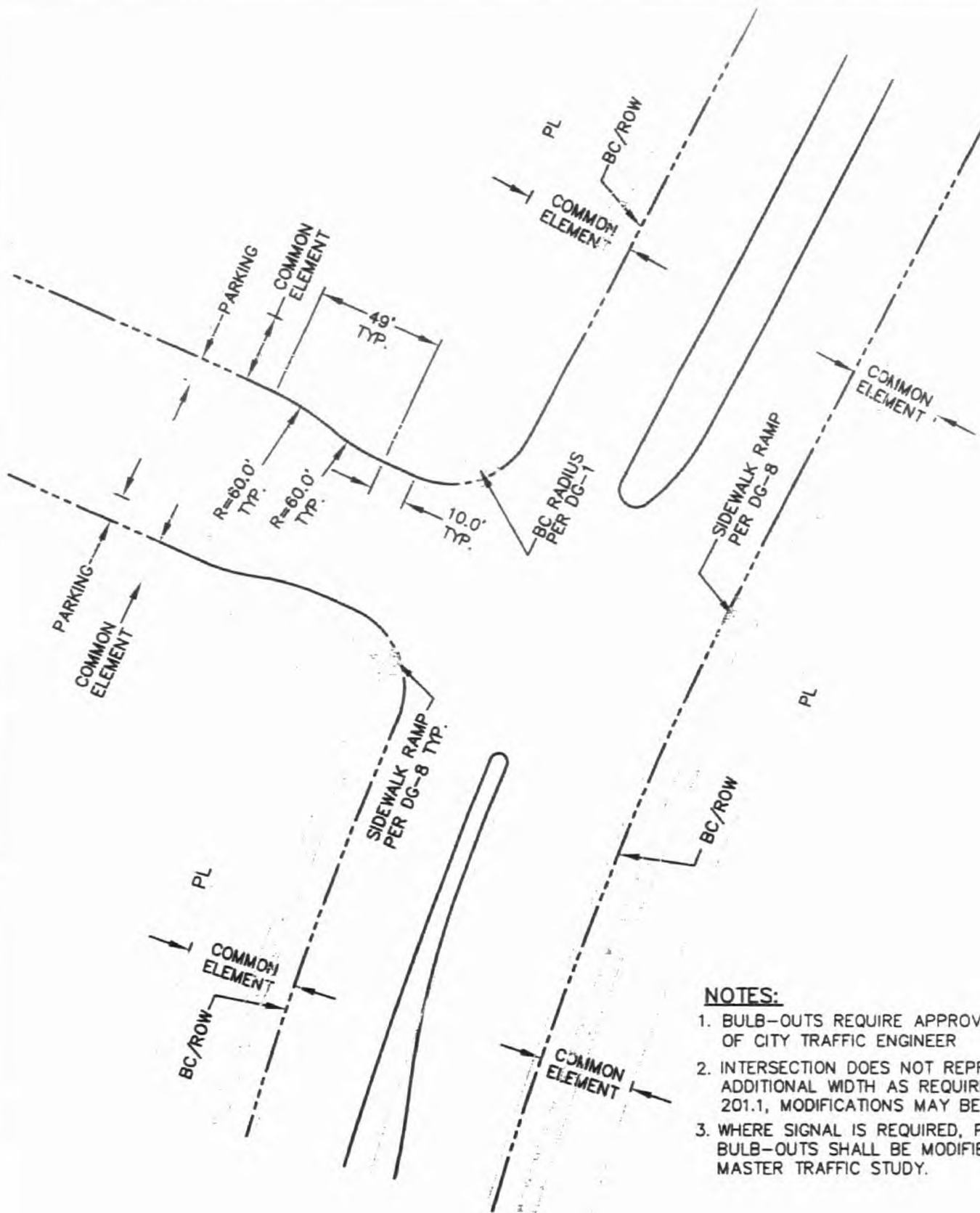
KYLE CANYON GATEWAY

STANDARD
DRAWINGS

INTERSECTION GEOMETRICS
4-WAY INTERSECTION W/
PARKING ON 3 LEGS

DATE: 05-08-07

DWG NO. DG-6



NOTES:

1. BULB-OUTS REQUIRE APPROVAL OF CITY TRAFFIC ENGINEER
2. INTERSECTION DOES NOT REPRESENT ADDITIONAL WIDTH AS REQUIRED BY USD 201.1, MODIFICATIONS MAY BE REQUIRED.
3. WHERE SIGNAL IS REQUIRED, PARKING BULB-OUTS SHALL BE MODIFIED PER MASTER TRAFFIC STUDY.

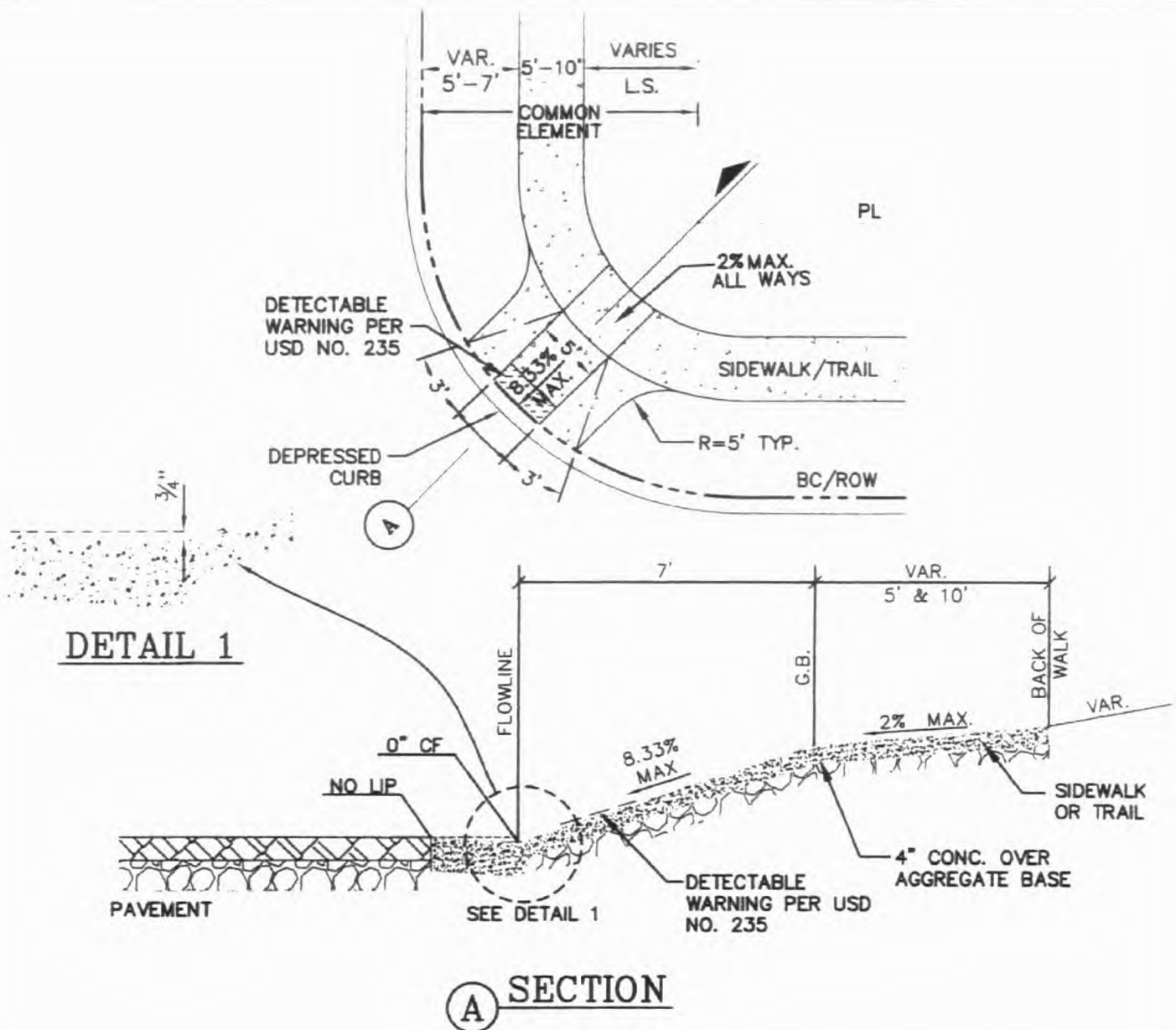
KYLE CANYON GATEWAY

**STANDARD
DRAWINGS**

**INTERSECTION GEOMETRICS
"T" INTERSECTION W/
PARKING ON LEG**

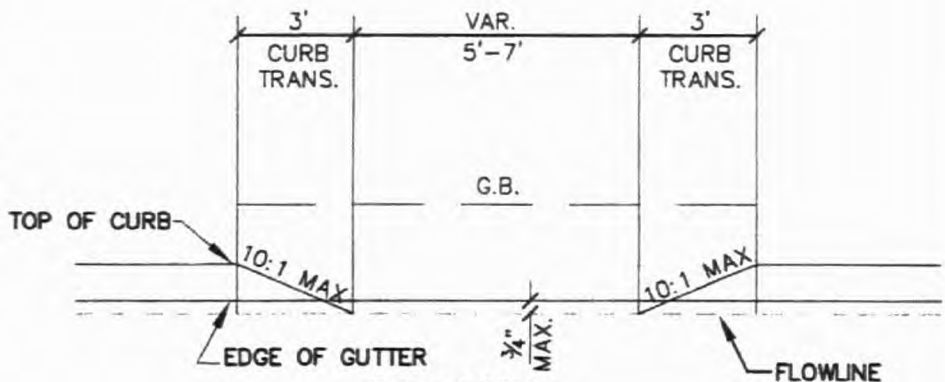
DATE: 05-08-07

DWG NO. DG-7



NOTES:

1. SIDEWALK RAMP WITHIN CURB RETURN SHALL BE LOCATED AT THE MIDPOINT OF CURB RETURN UNLESS OTHERWISE APPROVED.
2. SIDEWALK RAMP OUTSIDE OF THE CURB RETURN SHALL BE LOCATED ADJACENT TO THE RETURN UNLESS OTHERWISE APPROVED.
3. RAMP SHALL BE CONSTRUCTED WITH A ROUGH BROOM FINISH TRANSVERSE TO THE SLOPE OF THE RAMP.
4. WHEN CONSTRUCTING RAMP WHERE CURB AND GUTTER EXISTS, COMPLETELY REMOVE INTERFERING PORTIONS OF EXISTING CURB AND GUTTER.
5. DETECTABLE WARNING CONSISTING OF RAISED TRUNCATED DOMES WITH A DIAMETER OF NOMINAL CENTER 0.9 IN., A HEIGHT OF NOMINAL CENTER-TO-CENTER SPACING OF NOMINAL 2.35 IN. AND CONTRASTING VISUALLY WITH ADJOINING SURFACES MAY BE PLACED ON RAMP EXTENDING THE FULL WIDTH AND DEPTH OF THE RAMP.



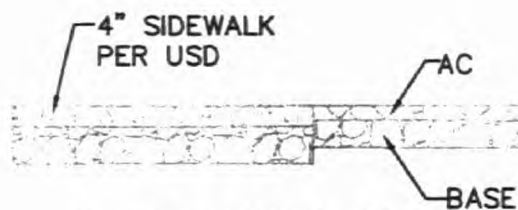
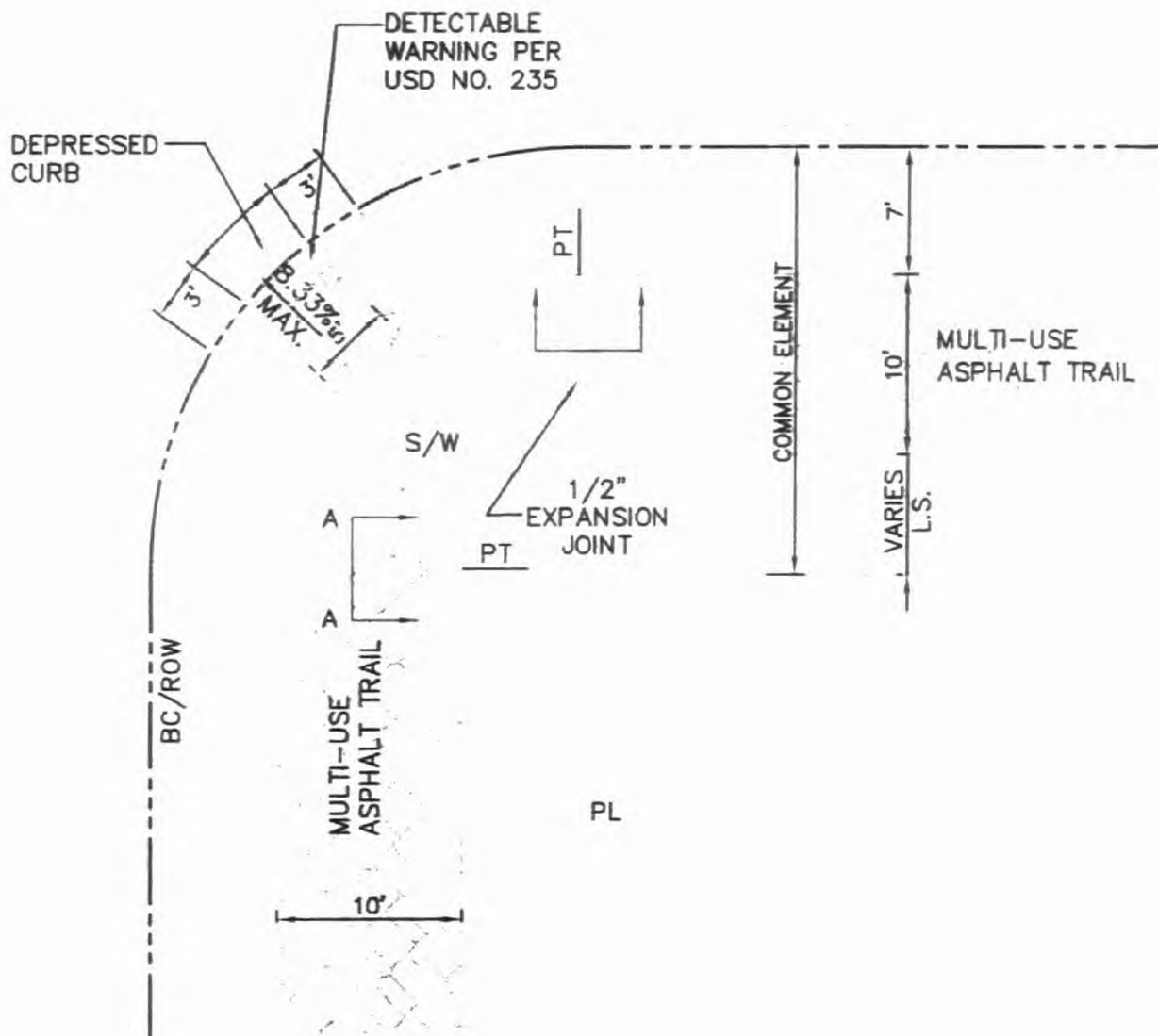
KYLE CANYON GATEWAY

STANDARD
DRAWINGS

SIDEWALK RAMP
AT RETURNS

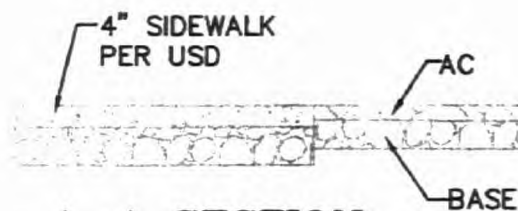
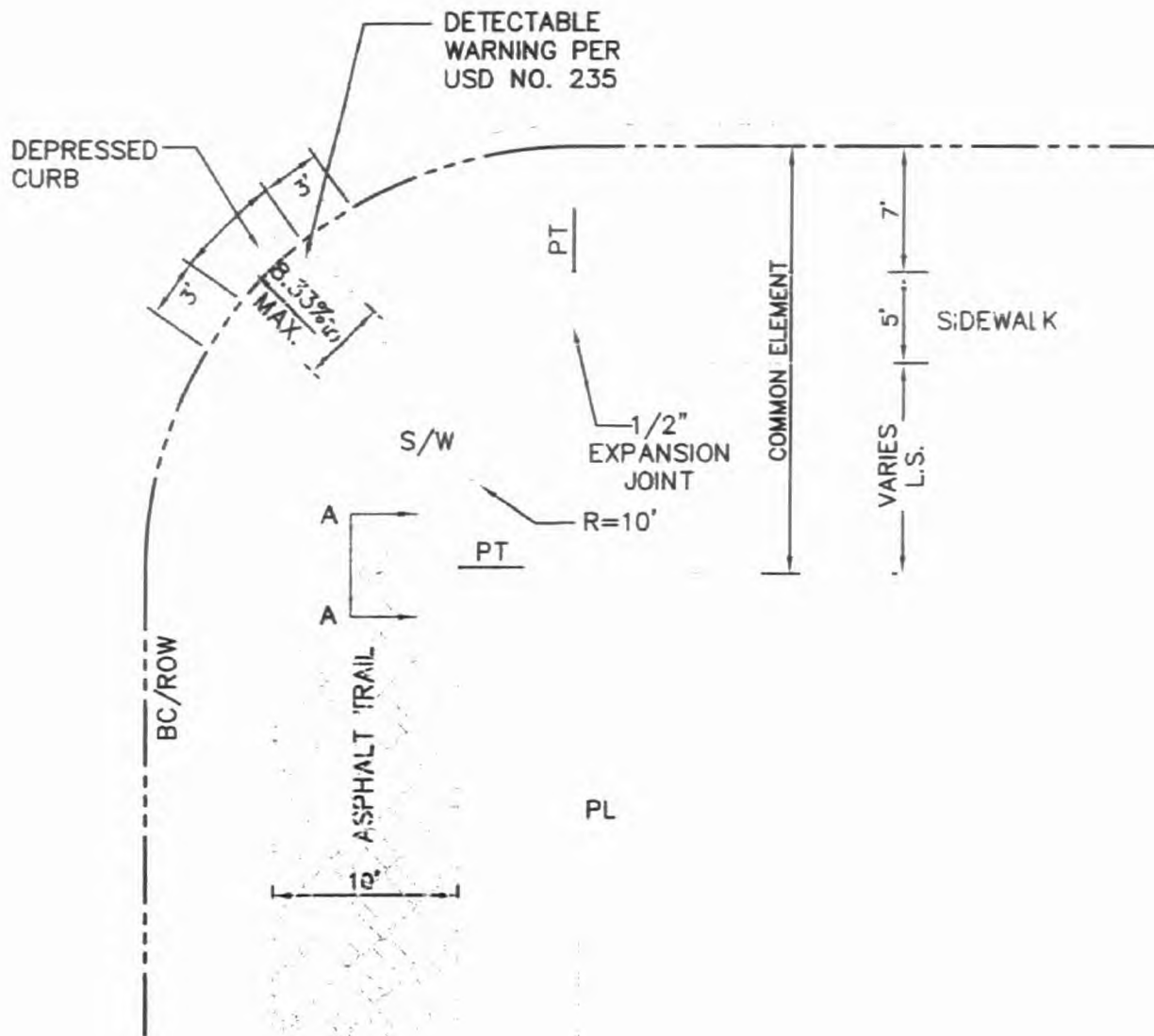
DATE: 05-08-07

DWG NO. DG-8



A-A SECTION

KYLE CANYON GATEWAY	STANDARD DRAWINGS
SIDEWALK/TRAIL CONNECTION OPTION A	
DATE: 05-08-07	DWG NO. DG-8.1



A-A SECTION

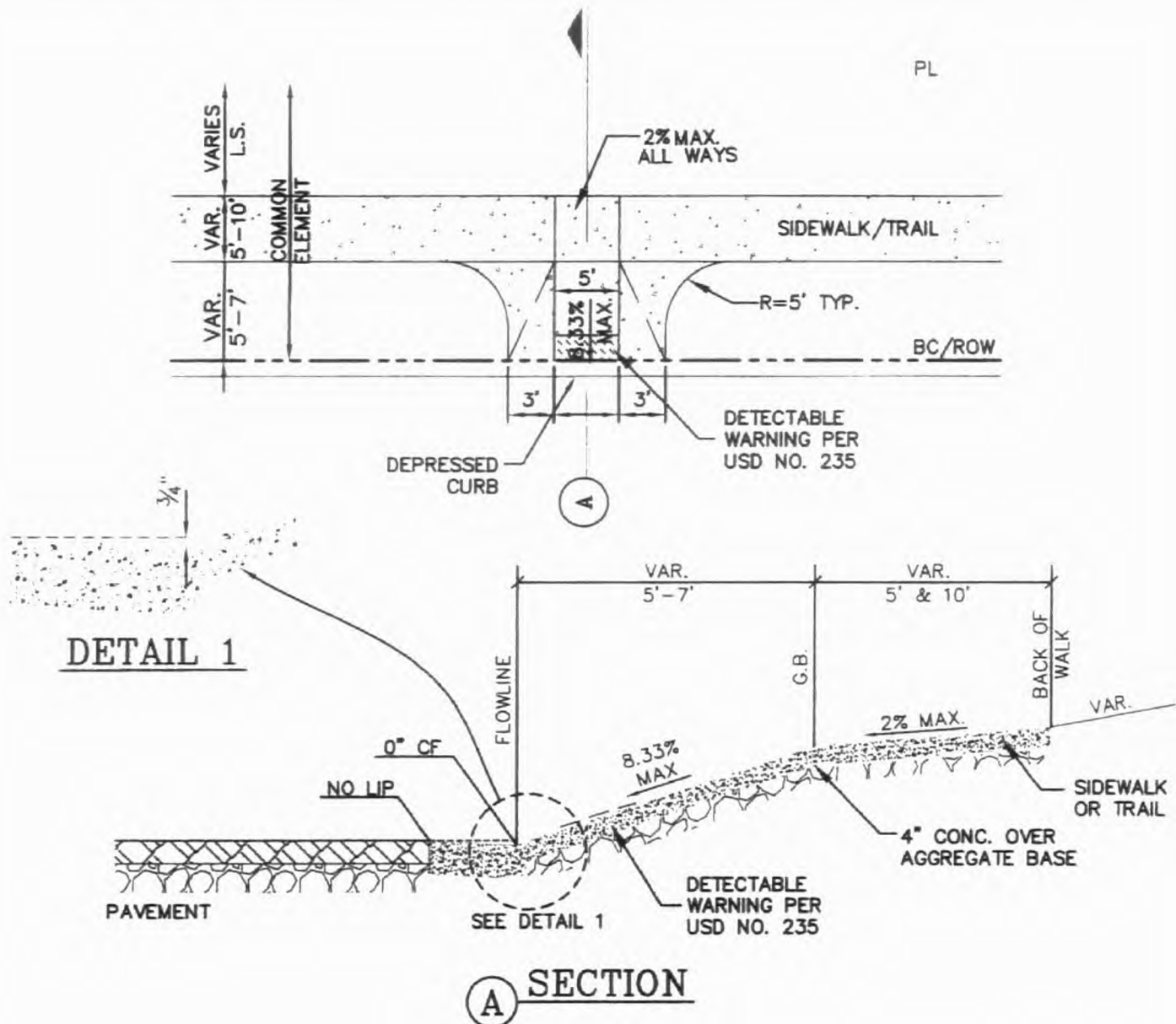
KYLE CANYON GATEWAY

STANDARD
DRAWINGS

SIDEWALK TRAIL CONNECTION
OPTION B

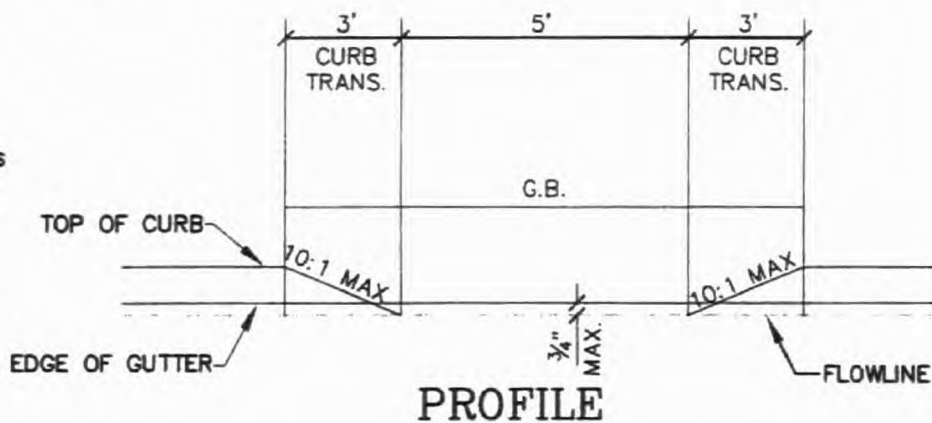
DATE: 05-08-07

DWG NO. DG-8.2



NOTES:

1. SIDEWALK RAMP WITHIN CURB RETURN SHALL BE LOCATED AT THE MIDPOINT OF CURB RETURN UNLESS OTHERWISE APPROVED.
2. SIDEWALK RAMPS OUTSIDE OF THE CURB RETURN SHALL BE LOCATED ADJACENT TO THE RETURN UNLESS OTHERWISE APPROVED.
3. RAMPS SHALL BE CONSTRUCTED WITH A ROUGH BROOM FINISH TRANSVERSE TO THE SLOPE OF THE RAMP.
4. WHEN CONSTRUCTING RAMP WHERE CURB AND GUTTER EXISTS, COMPLETELY REMOVE INTERFERING PORTIONS OF EXISTING CURB AND GUTTER.
5. DETECTABLE WARNING CONSISTING OF RAISED TRUNCATED DOMES WITH A DIAMETER OF NOMINAL 0.9 IN., A HEIGHT OF NOMINAL CENTER-TO-CENTER SPACING OF NOMINAL 2.35 IN. AND CONTRASTING VISUALLY WITH ADJOINING SURFACES MAY BE PLACED ON RAMP EXTENDING THE FULL WIDTH AND DEPTH OF THE RAMP.



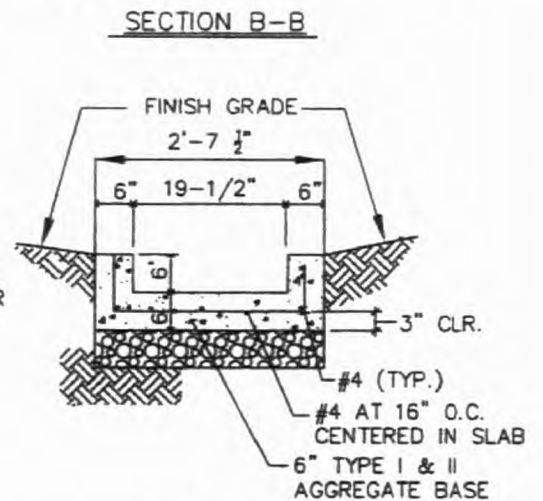
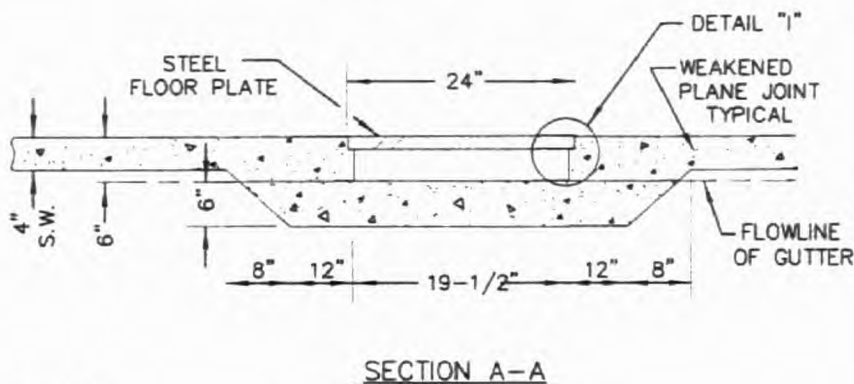
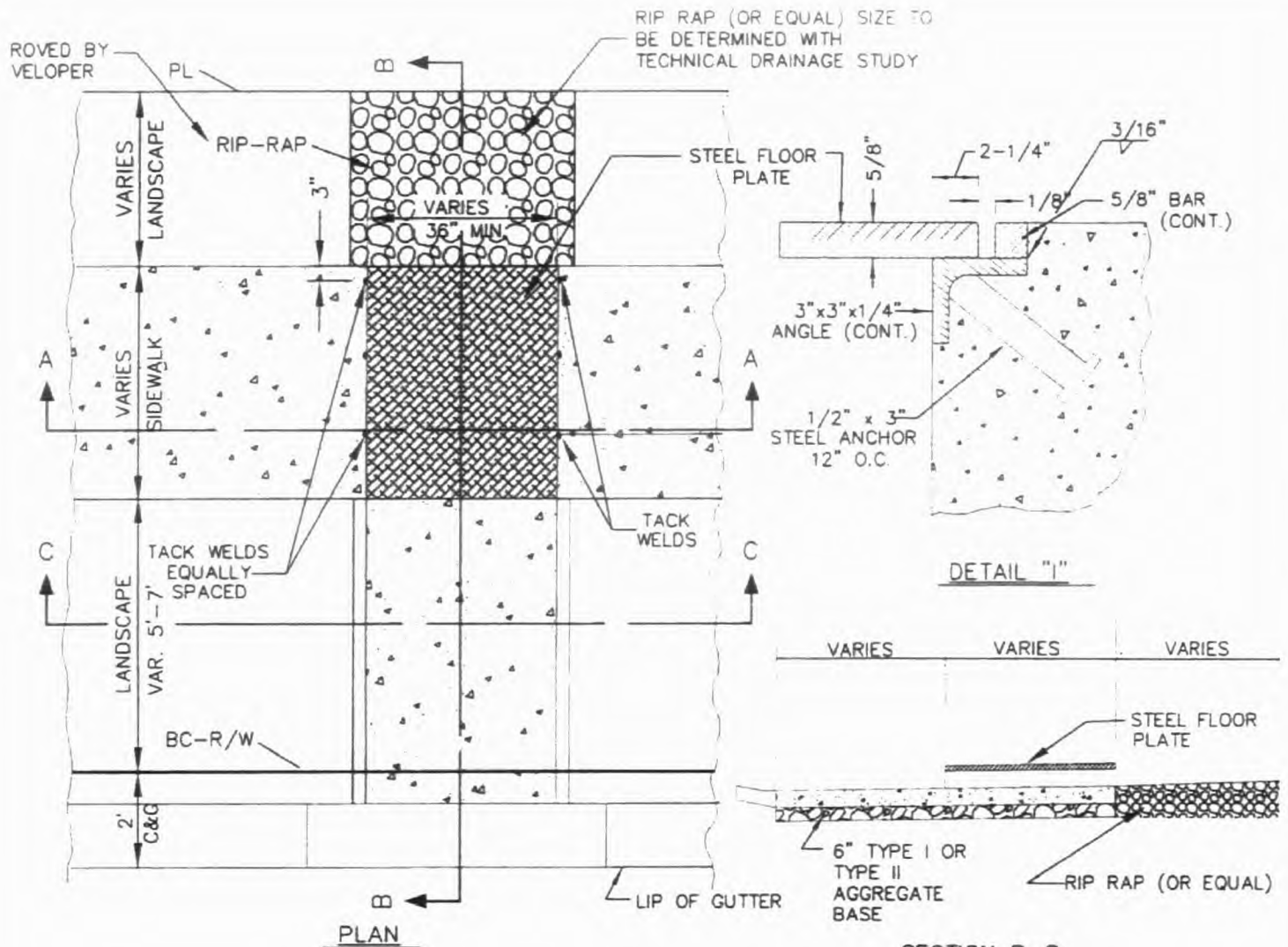
KYLE CANYON GATEWAY

STANDARD
DRAWINGS

SIDEWALK RAMP
AT MID BLOCK

DATE: 05-08-07

DWG NO. DG-9



NOTES:

1. MULTIPLE UNDERDRAINS MAY BE REQUIRED DEPENDING ON DRAINAGE REQUIREMENTS.
2. ALL EXPOSED METAL PARTS SHALL BE GALVANIZED AND ALL GALVANIZING DAMAGED BY FABRICATION OR INSTALLATION SHALL RECEIVE TWO COATS OF ALUMINUM PAINT (GALVONOX OR EQUAL).

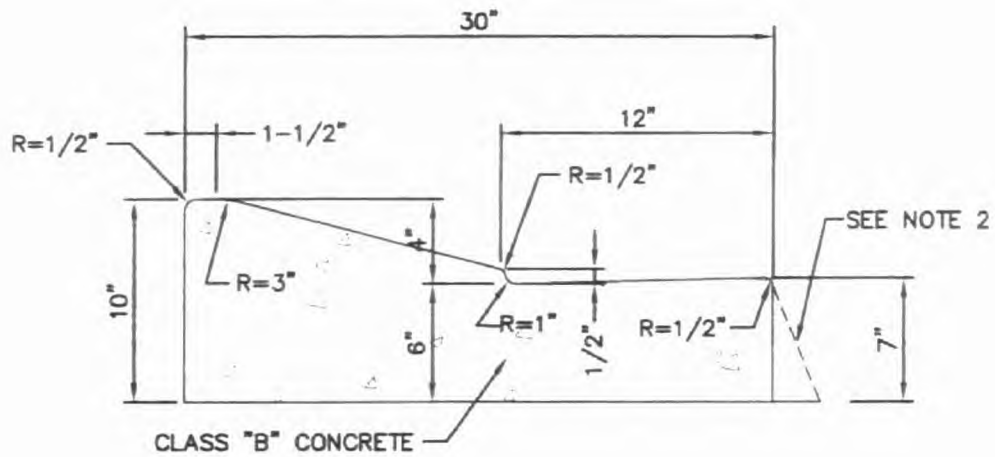
KYLE CANYON GATEWAY

STANDARD
DRAWINGS

PARKWAY/LANDSCAPE
SIDEWALK UNDERDRAIN

DATE: 05-08-07

DWG NO. DG-10



NOTES:

1. CONSTRUCT 1/2" EXPANSION JOINT AT ALL COLD JOINTS, AT BEGINNING AND END OF CURB RETURNS, AND AT 300 FT. MAX. INTERVALS FOR FORMED CURB. FOR JOINT DETAILS, SEE USD DWG. NO. 234.
2. ONE INCH BATTER AT CURB FACE IS OPTIONAL.
3. INSTALL 6" TYPE II AGGREGATE BASE UNDER CURB AND GUTTER, TYP.

KYLE CANYON GATEWAY

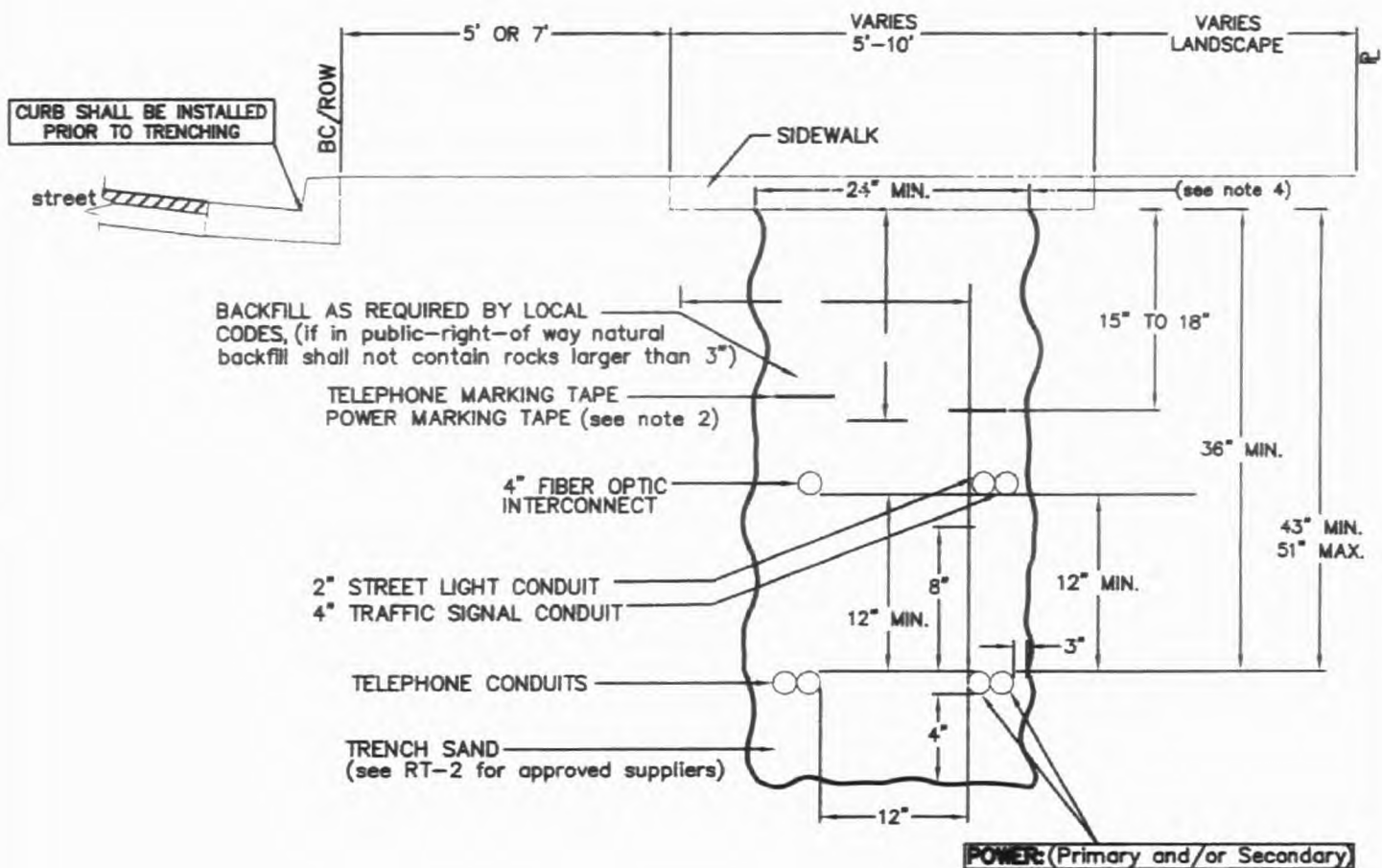
STANDARD
DRAWINGS

30" WEDGE CURB
AND GUTTER

DATE: 05-08-07

DWG NO. DG-11

KYLE CANYON GATEWAY		STANDARD DRAWINGS
PARKING TREE WELL		
DATE: 05-08-07	DWG NO. DG-12	



NOTES:

1. See RT-G for general requirements.
2. Vinyl marking tape is provided as supplemental protection because NPC cannot control the final grade elevation due to possible future surface grade changes by the developer or owner.
3. Excavated material shall be placed a minimum of two feet from both edges of the trench to prevent material from falling into the open trench.
4. Edges of trench shall be a minimum of 36" from edge of Water, Gas or Sewer pipes.
5. Refer to Nevada Power RT-7

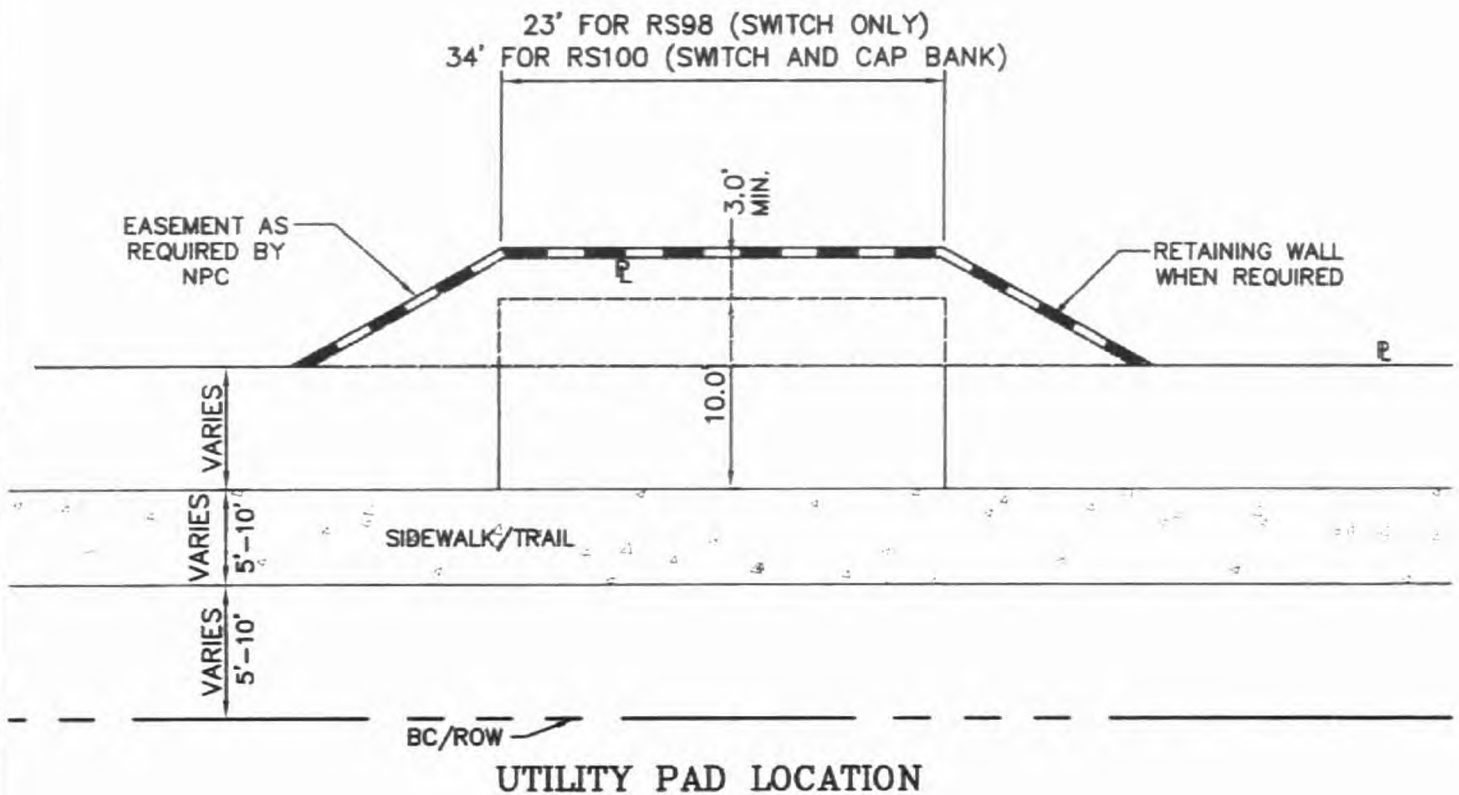
KYLE CANYON GATEWAY

STANDARD
DRAWINGS

DRY UTILITY TRENCH LOCATION

DATE: 05-08-07

DWG NO. DG-13



KYLE CANYON GATEWAY

STANDARD
DRAWINGS

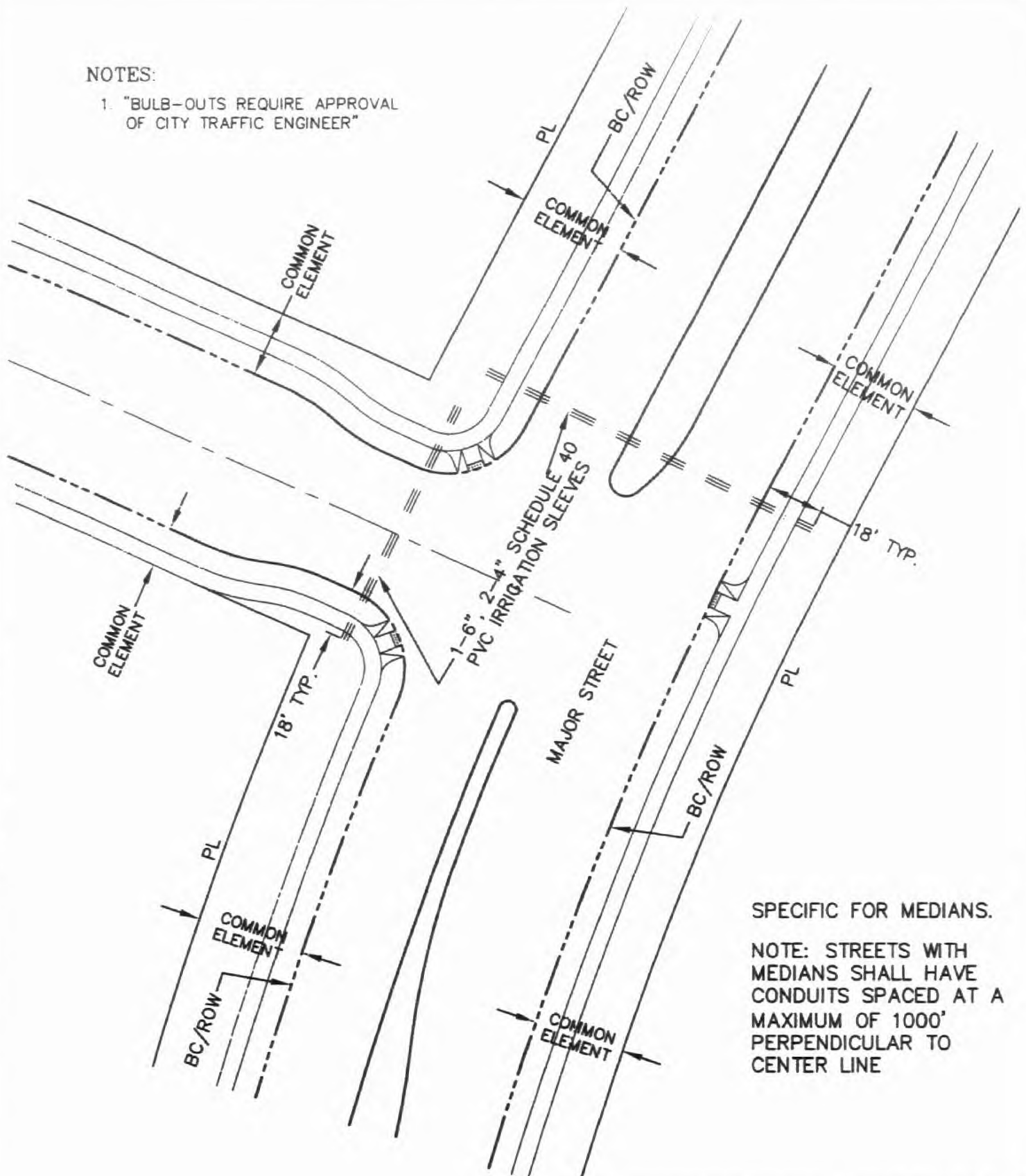
UTILITY PAD LOCATION
(RESIDENTIAL SUBDIVISION)

DATE: 05-08-07

DWG NO. DG-14

NOTES:

1. "BULB-OUTS REQUIRE APPROVAL OF CITY TRAFFIC ENGINEER"



SPECIFIC FOR MEDIANS.

NOTE: STREETS WITH MEDIANS SHALL HAVE CONDUITS SPACED AT A MAXIMUM OF 1000' PERPENDICULAR TO CENTER LINE

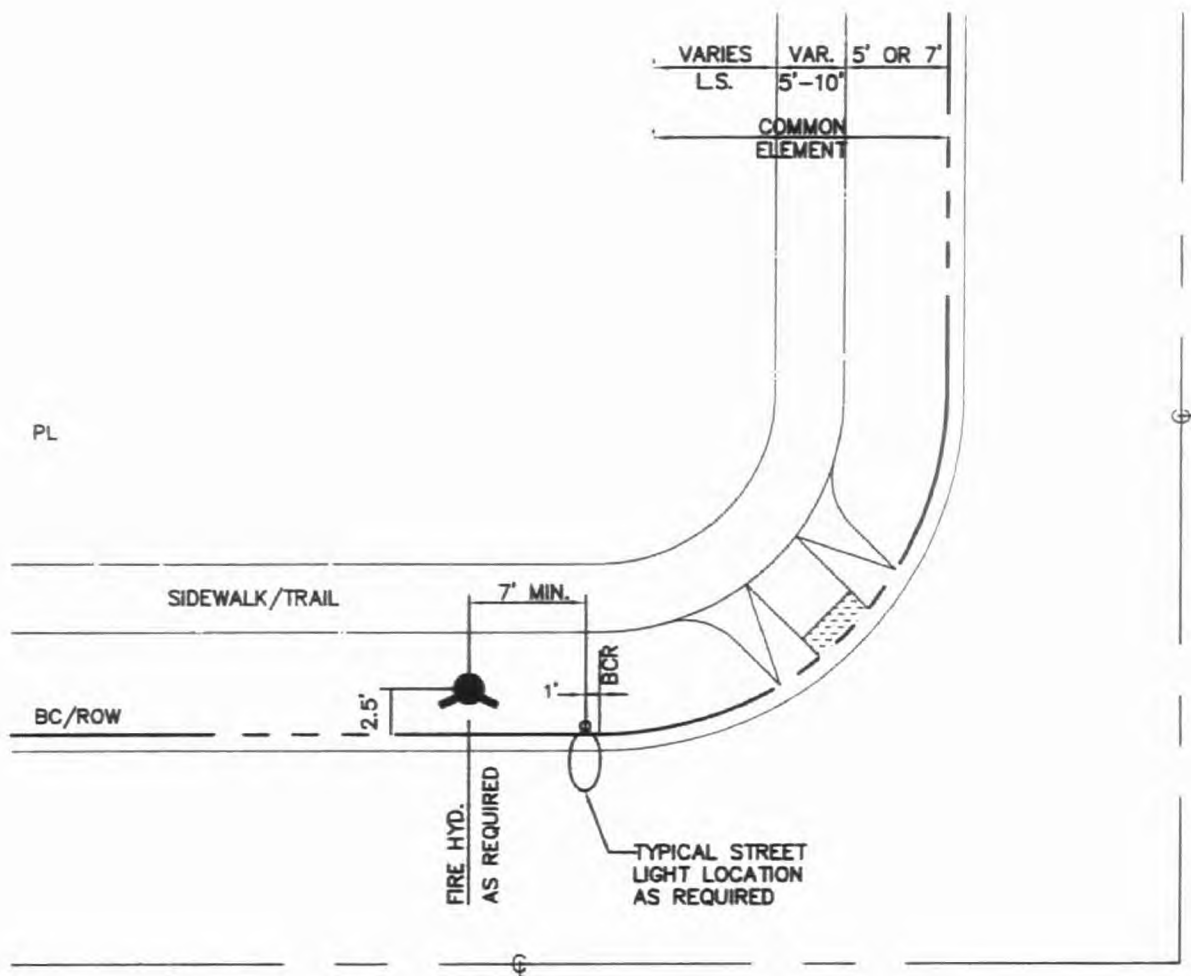
KYLE CANYON GATEWAY

STANDARD
DRAWINGS

LANDSCAPE IRRIGATION SLEEVING

DATE: 05-08-07

DWG NO. DG-15



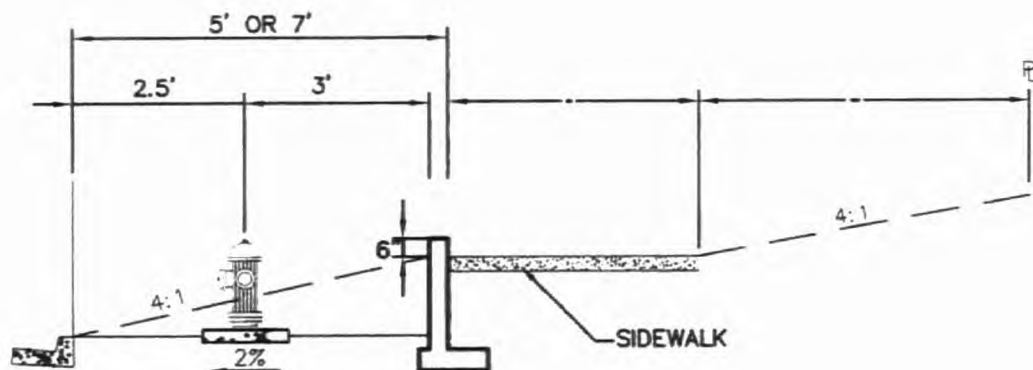
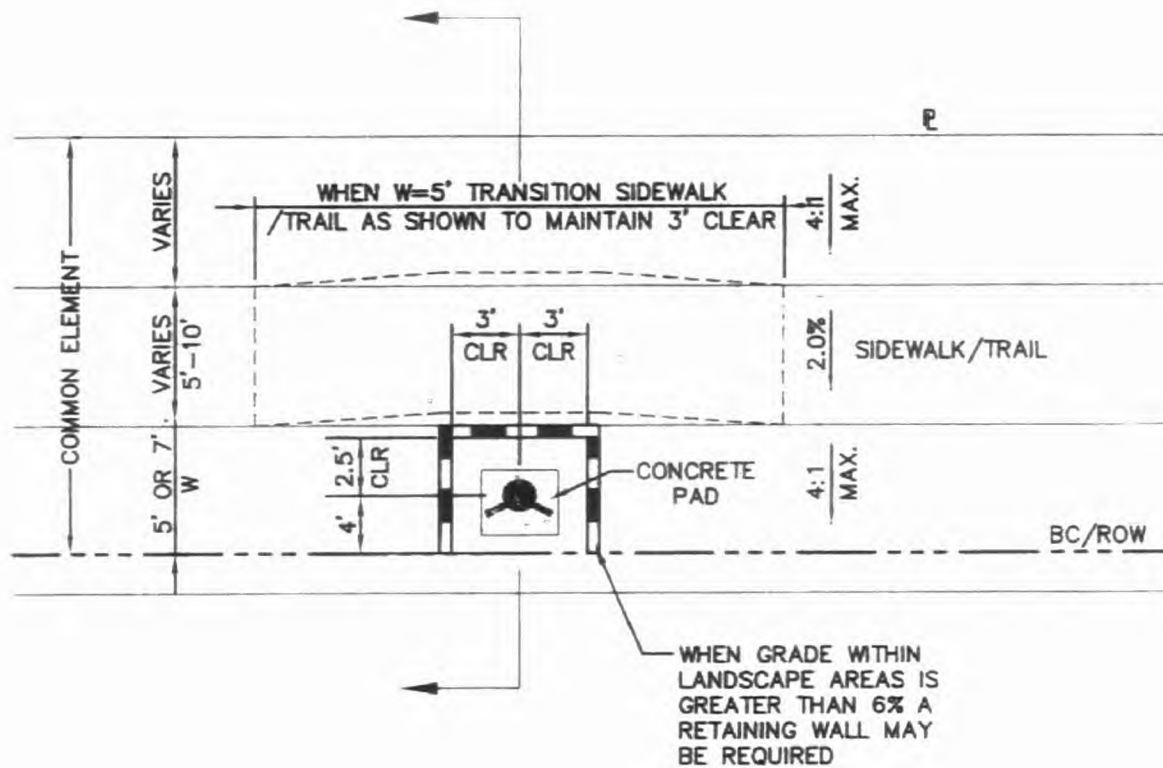
KYLE CANYON GATEWAY

STANDARD
DRAWINGS

FIRE HYDRANT LOCATION (AT
INTERSECTION)

DATE: 05-08-07

DWG NO. DG-16



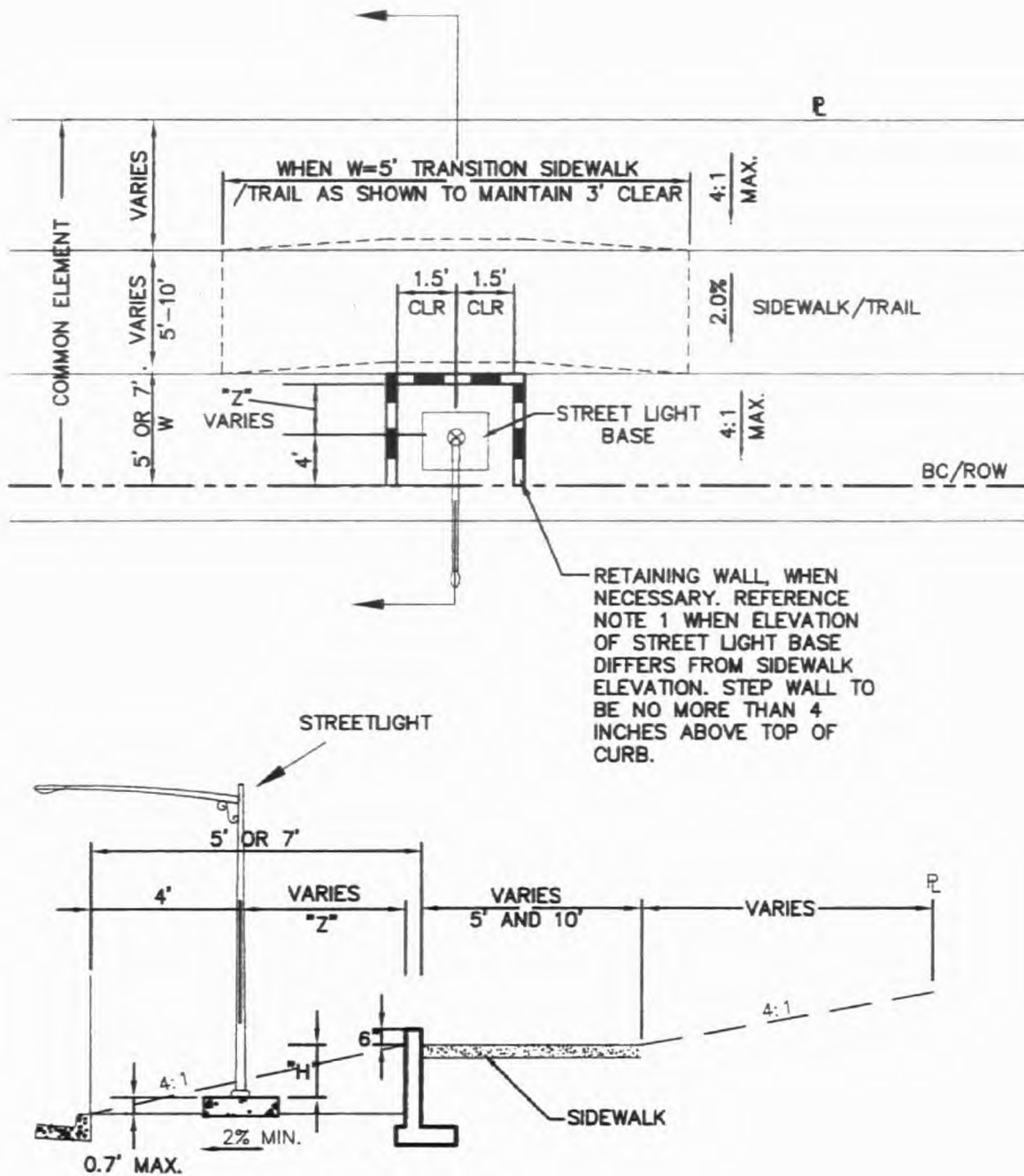
KYLE CANYON GATEWAY

STANDARD
DRAWINGS

FIRE HYDRANT LOCATION
(ALONG ROADWAY)

DATE: 05-08-07

DWG NO. DG-17



NOTES:

1. RETAINING WALL IS REQUIRED, AS SHOWN UNDER THE FOLLOWING CONDITIONS:
A-"Z" IS 1.0 FOOT OR LESS AND "H" IS GREATER THAN 2.0 INCHES.
B-"Z" IS GREATER THAN 1.0 FOOT AND SLOPE BETWEEN STREETLIGHT BASE AND TOP OF SIDEWALK EXCEEDS 4:1.
WHERE SIGNAL IS REQUIRED, PARKING BULB-OUTS SHALL BE MODIFIED PER MASTER TRAFFIC STUDY.

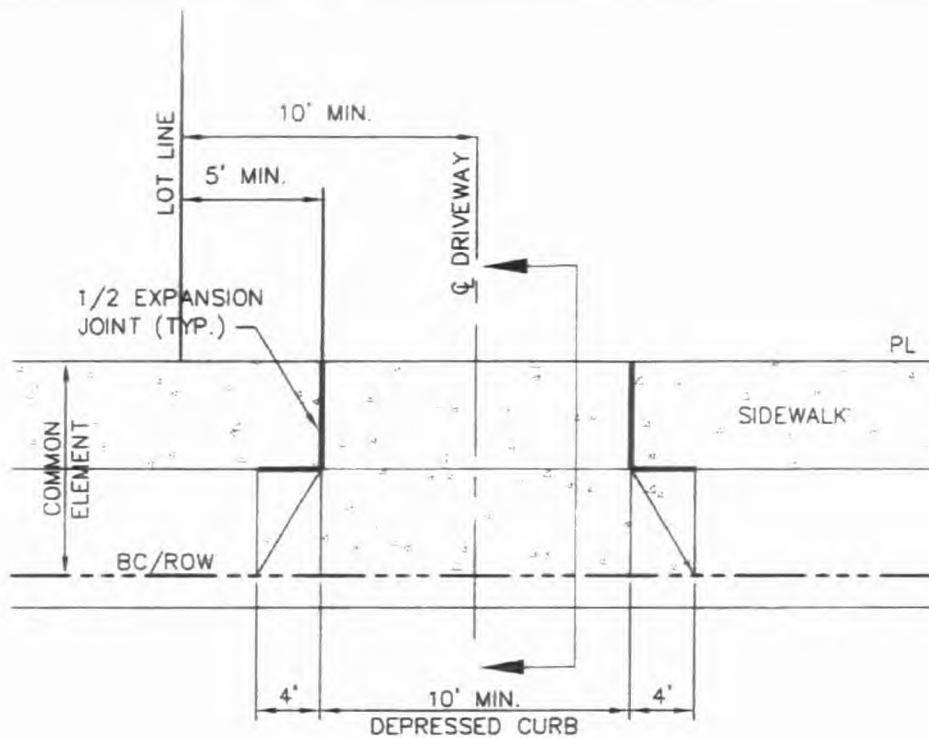
KYLE CANYON GATEWAY

STANDARD
DRAWINGS

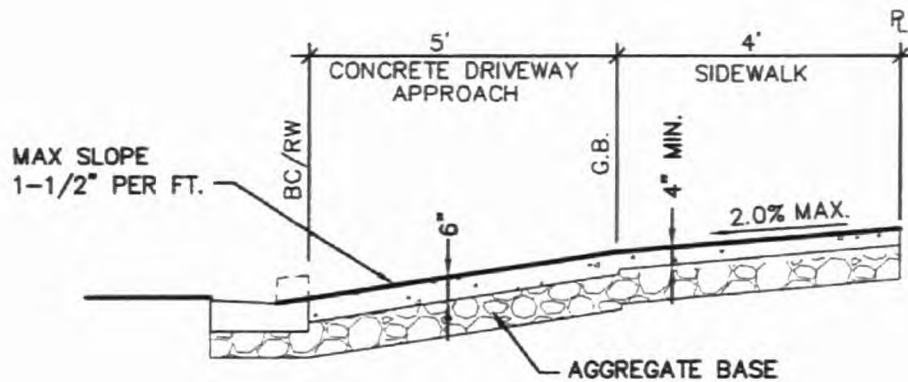
STREETLIGHT LOCATION
(ALONG ROADWAY)

DATE: 05-08-07

DWG NO. DG-17.1



PLAN



SECTION

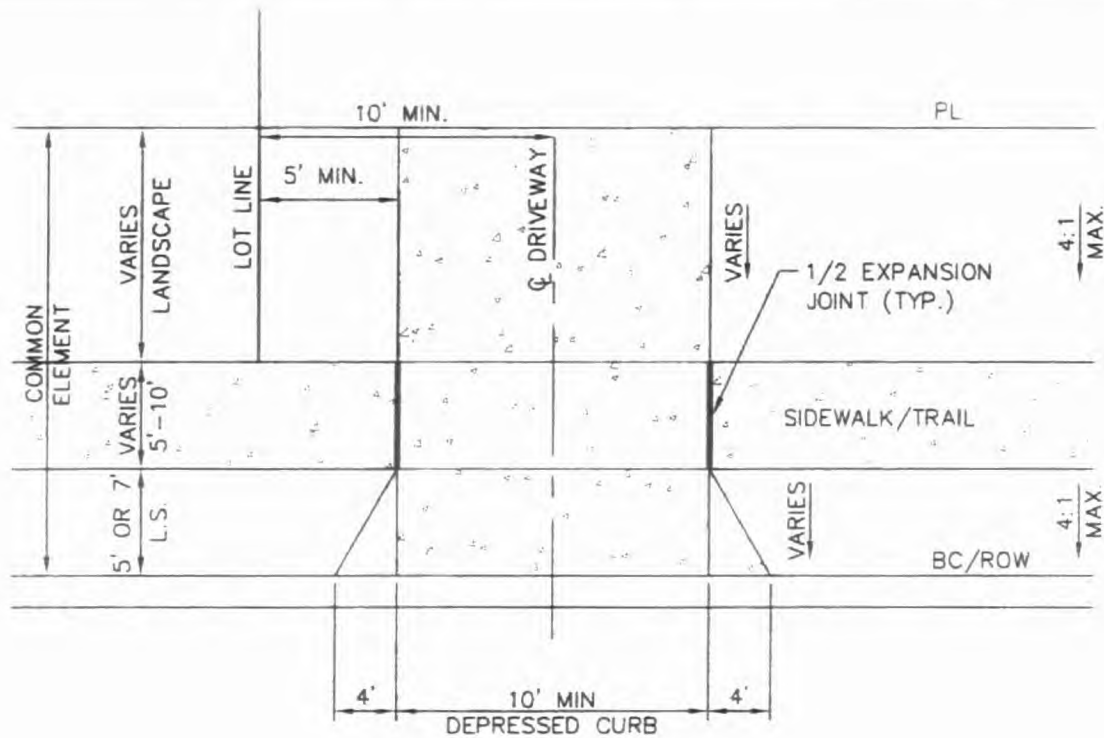
KYLE CANYON GATEWAY

STANDARD
DRAWINGS

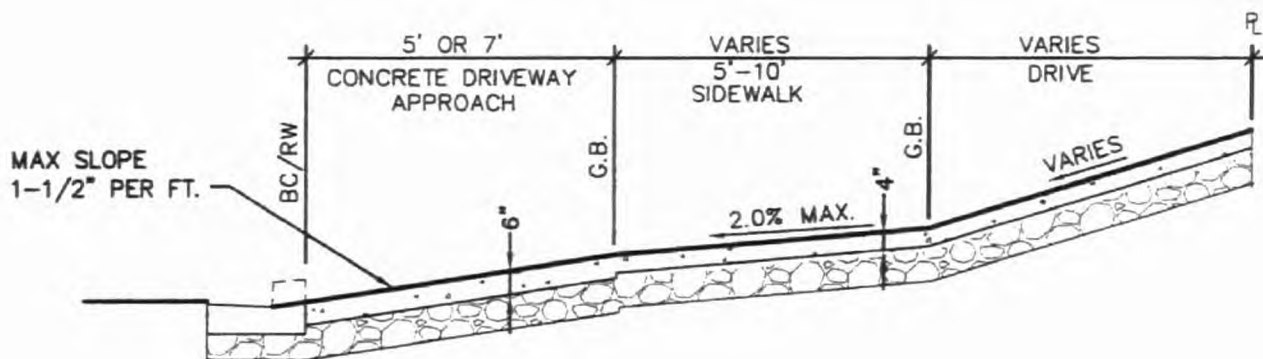
DRIVEWAY APPROACH - RESIDENTIAL
(OPTION "A")
(REFER TO USD #223)

DATE: 05-08-07

DWG NO. DG-18.1



PLAN



SECTION

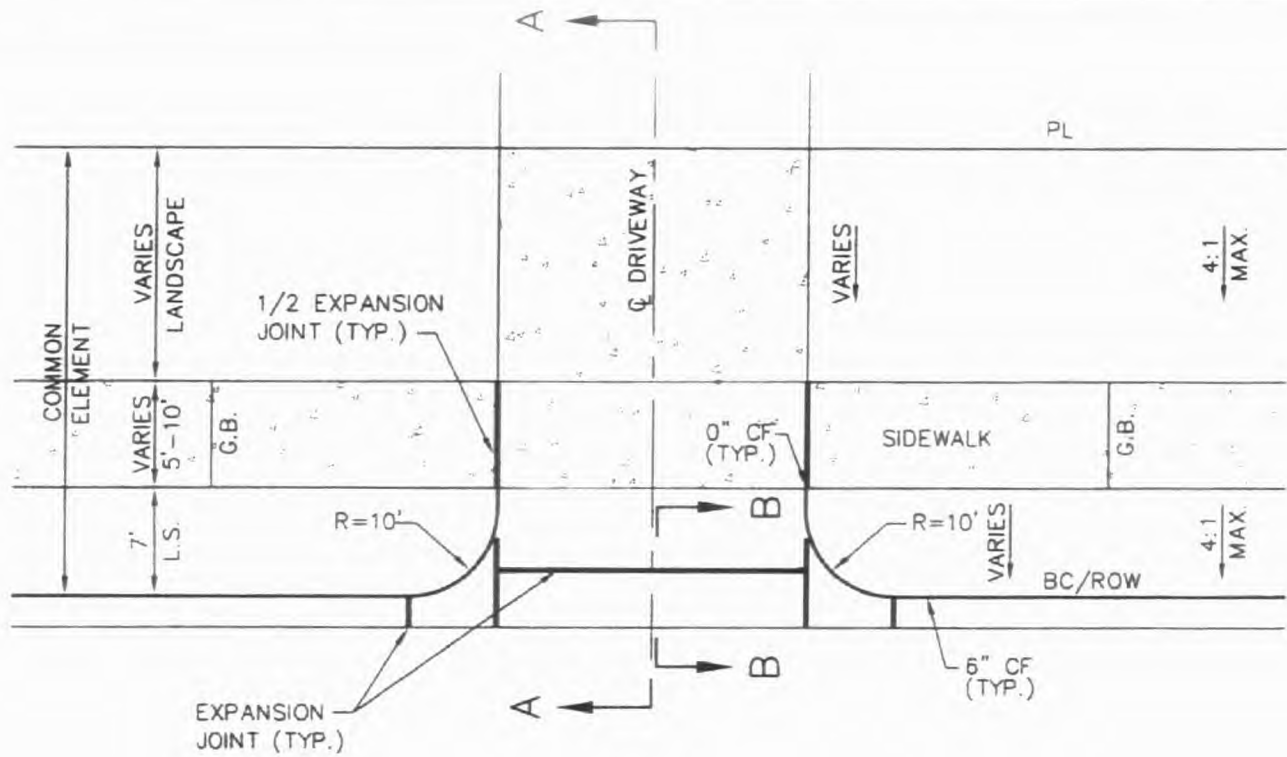
KYLE CANYON GATEWAY

STANDARD
DRAWINGS

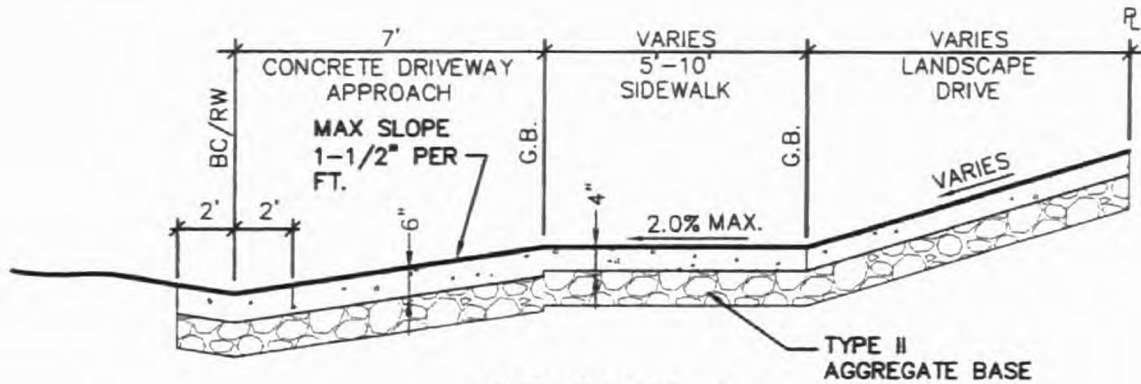
DRIVEWAY APPROACH - RESIDENTIAL
(OPTION "B")
(REFER TO USD #223)

DATE: 05-08-07

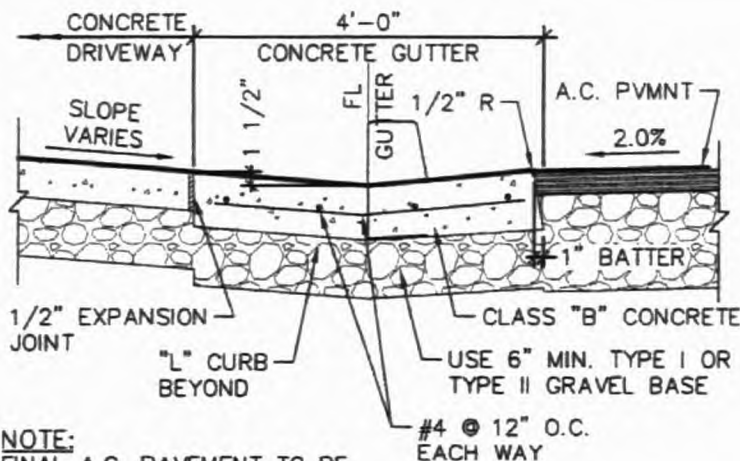
DWG NO. DG-18.2



PLAN



SECTION A



NOTE:
FINAL A.C. PAVEMENT TO BE
FLUSH WITH LIP OF GUTTER
AFTER COMPACTION

SECTION B

NOTES:

1. 32' MINIMUM DRIVEWAY WIDTH AND 25' MIN. CURB RADIUS PER CCAUSD #222A WIDTH IS REQUIRED IF DRIVEWAY SERVES MORE THAN 77 PARKING STALLS.

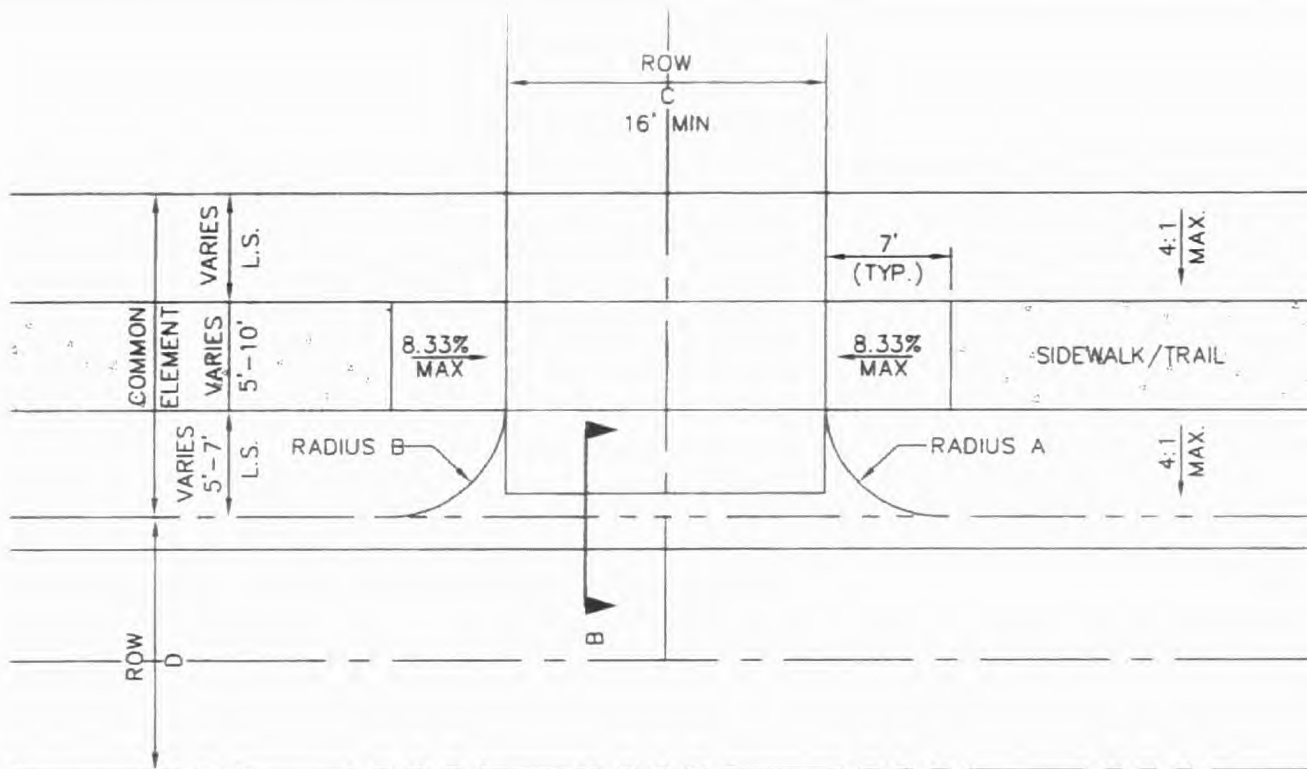
KYLE CANYON GATEWAY

STANDARD
DRAWINGS

DRIVEWAY APPROACH - COMMERCIAL
(OPTION "B")

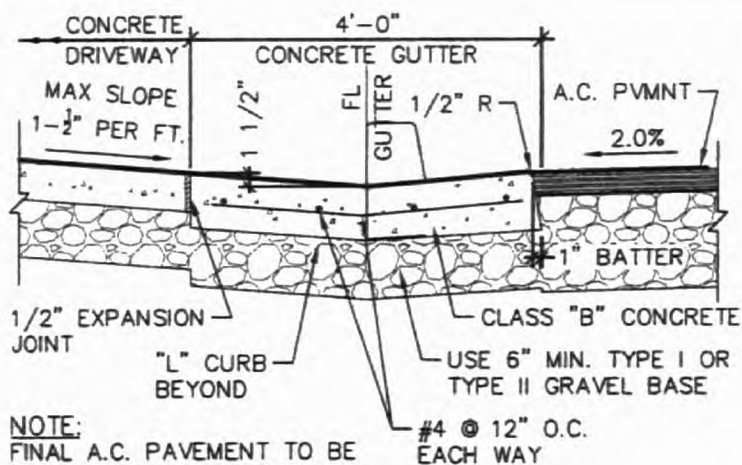
DATE: 05-08-07

DWG NO. DG-19.2



NOTES:

1. GRADE BREAK MUST BE LOCATED AT POINT OF CURVATURE OF RETURN. GRADE CHANGES TO COMPLY WITH CURRENT TRB ACCESS MANAGEMENT MANUAL.



NOTE:
FINAL A.C. PAVEMENT TO BE FLUSH WITH LIP OF GUTTER AFTER COMPACTION

SECTION B

*INDICATES UPSTREAM FLOW

**INDICATES DOWNSTREAM FLOW

ROW		RADIUS	
C	D	*A	**B
20' ALLEY	37' STREET	15'	15'
20' ALLEY	31' STREET	15'	15'
16' ALLEY	37' STREET	15'	15'
16' ALLEY	31' STREET	20'	15'
20' ALLEY	20' ALLEY	15'	15'
16' ALLEY	16' ALLEY	25'	25'

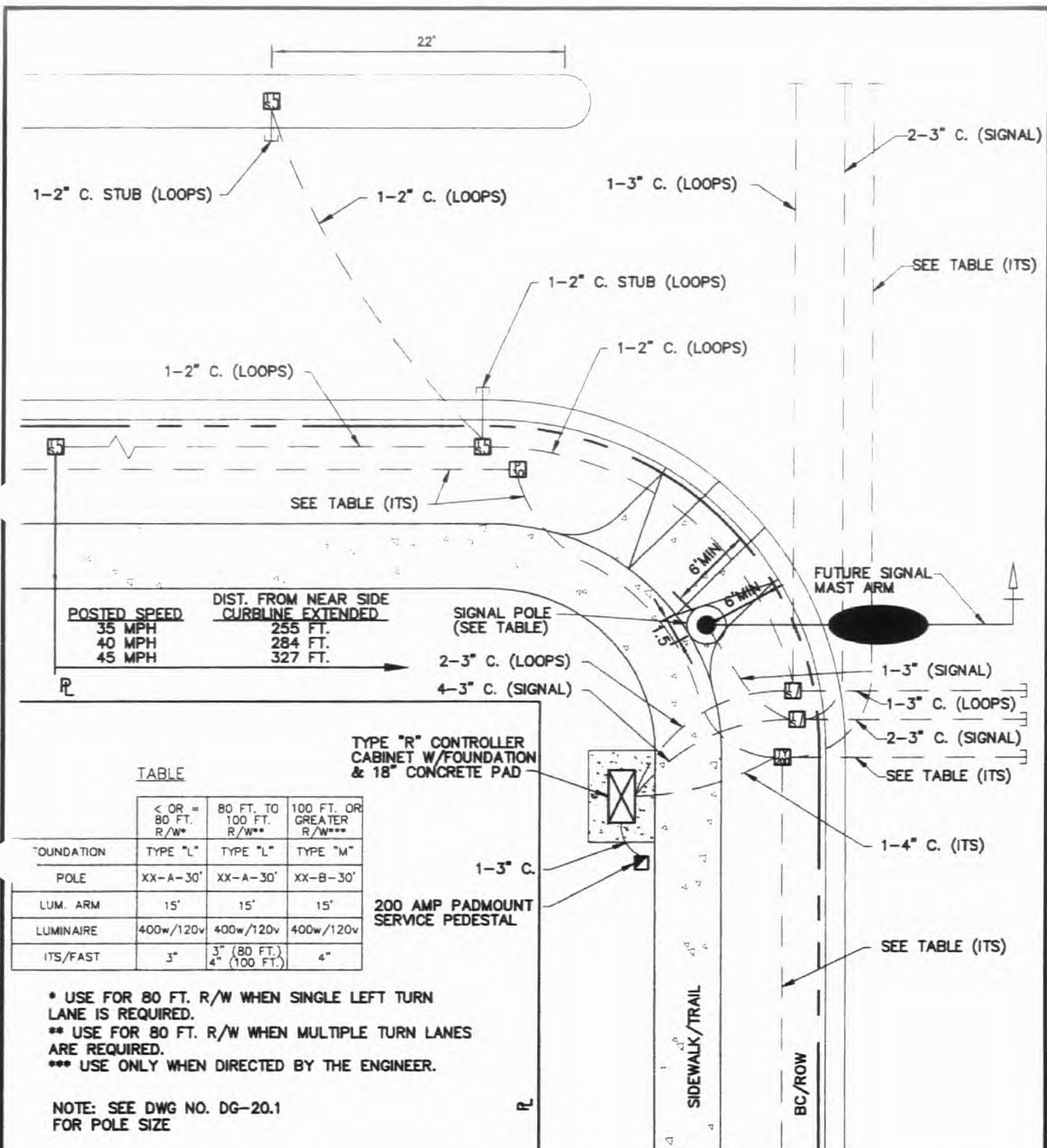
KYLE CANYON GATEWAY

STANDARD DRAWINGS

DRIVEWAY APPROACH
ALLEY

DATE: 05-08-07

DWG NO. DG-19.3



TABLE

	< OR = 80 FT. R/W*	80 FT. TO 100 FT. R/W**	100 FT. OR GREATER R/W***
FOUNDATION	TYPE "L"	TYPE "L"	TYPE "M"
POLE	XX-A-30'	XX-A-30'	XX-B-30'
LUM. ARM	15'	15'	15'
LUMINAIRE	400w/120v	400w/120v	400w/120v
ITS/FAST	3"	3" (80 FT.) 4" (100 FT.)	4"

- * USE FOR 80 FT. R/W WHEN SINGLE LEFT TURN LANE IS REQUIRED.
- ** USE FOR 80 FT. R/W WHEN MULTIPLE TURN LANES ARE REQUIRED.
- *** USE ONLY WHEN DIRECTED BY THE ENGINEER.

NOTE: SEE DWG NO. DG-20.1
FOR POLE SIZE

KYLE CANYON GATEWAY

STANDARD
DRAWINGS

TRAFFIC SIGNAL EQUIPMENT
LOCATION AT INTERSECTION
(REFER TO USD 404.1306)

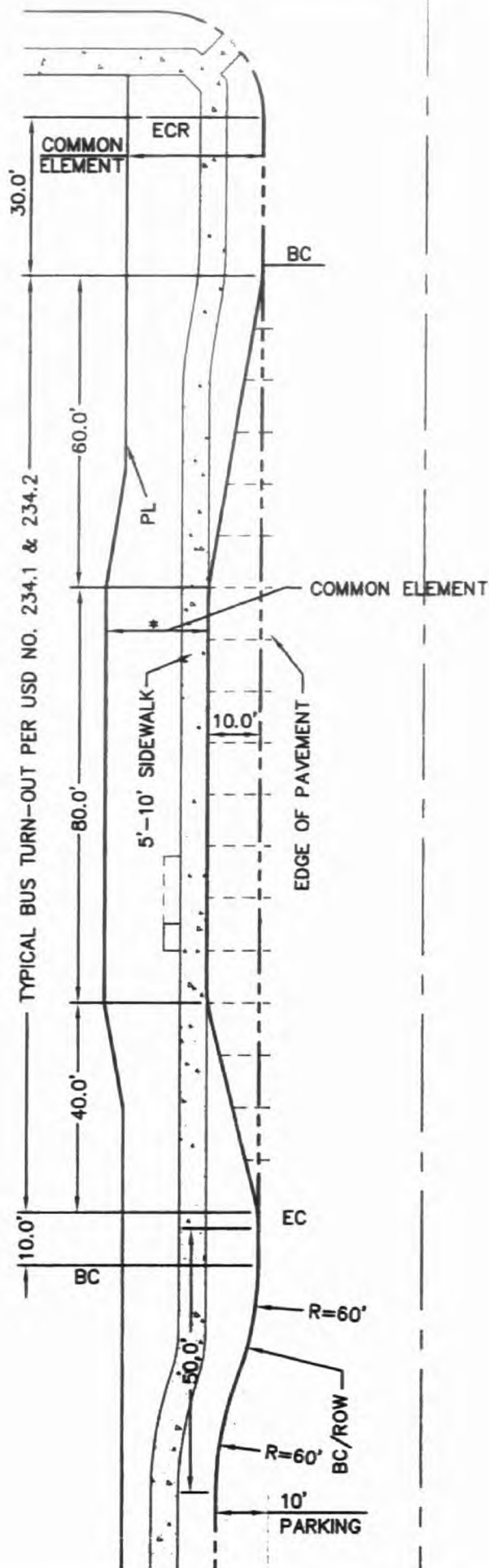
DATE: 05-08-07

DWG NO. DG-20

POLE SIZE TO BE DETERMINED
DETERMINED BY THE TRAFFIC
STUDY AND INTERSECTION
REQUIREMENTS

KYLE CANYON GATEWAY	STANDARD DRAWINGS
TRAFFIC SIGNAL POLE SIZE	
DATE: 05-08-07	DWG NO. DG-20.1

DWG NO. DG-21



*COMMON ELEMENT BEHIND BUS
TURNOUT SAME WIDTH AS ADJACENT
COMMON ELEMENTS.

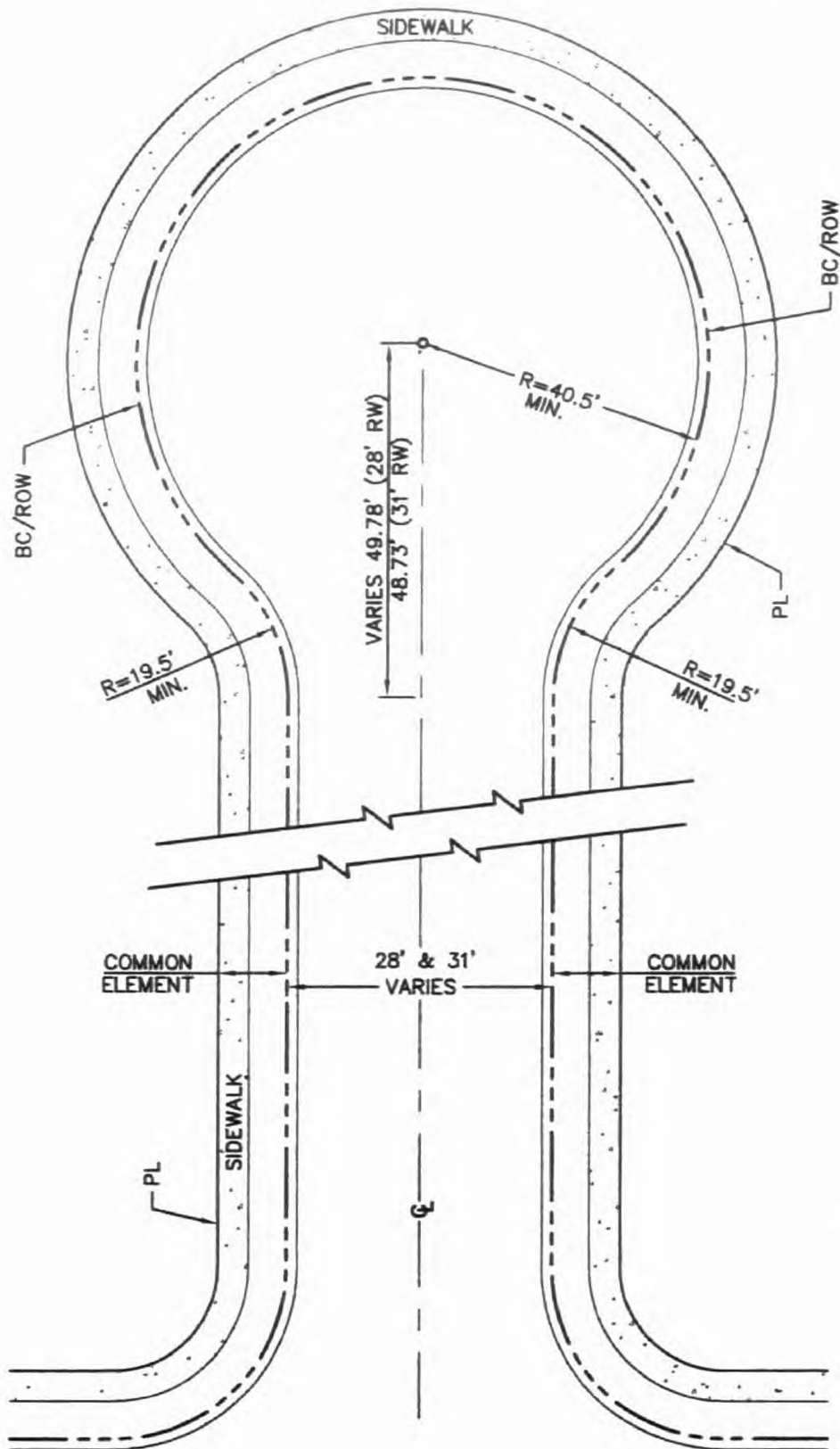
KYLE CANYON GATEWAY

STANDARD
DRAWINGS

RTC BUS TURNOUT ADJACENT TO
PARKING AREAS
(REFER TO USD #234.1)

DATE: 05-08-07

DWG NO. DG-22



DRAFT

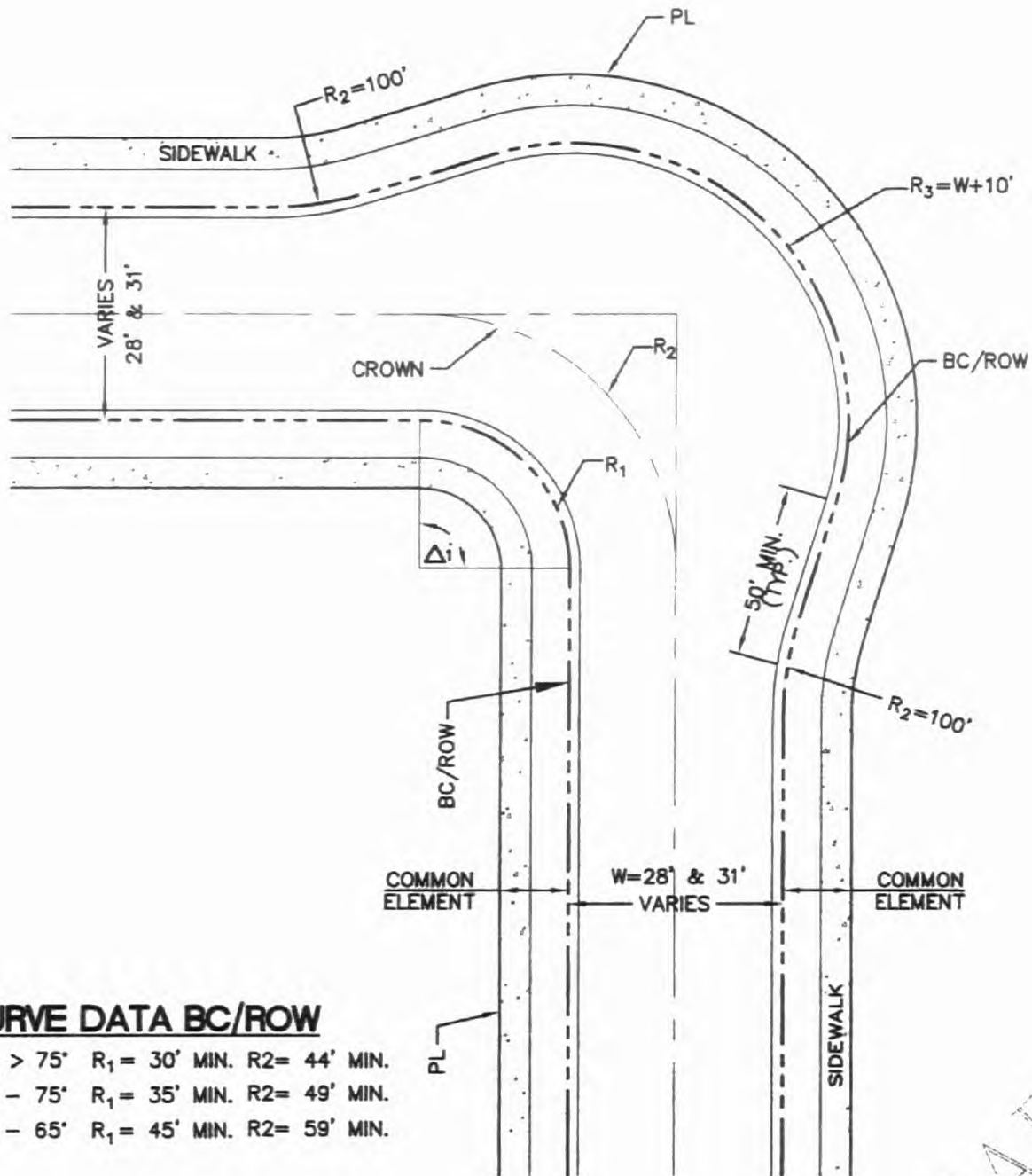
KYLE CANYON GATEWAY

STANDARD
DRAWINGS

NEIGHBORHOOD STREET CUL-DE-SAC

DATE: 05-08-07

DWG NO. DG-23



CURVE DATA BC/ROW

$\Delta_1 > 75^\circ$ $R_1 = 30'$ MIN. $R_2 = 44'$ MIN.
 $65^\circ - 75^\circ$ $R_1 = 35'$ MIN. $R_2 = 49'$ MIN.
 $55^\circ - 65^\circ$ $R_1 = 45'$ MIN. $R_2 = 59'$ MIN.

DRAFT

KYLE CANYON GATEWAY

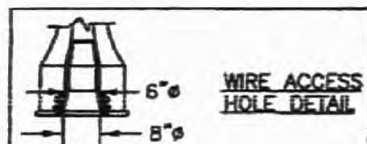
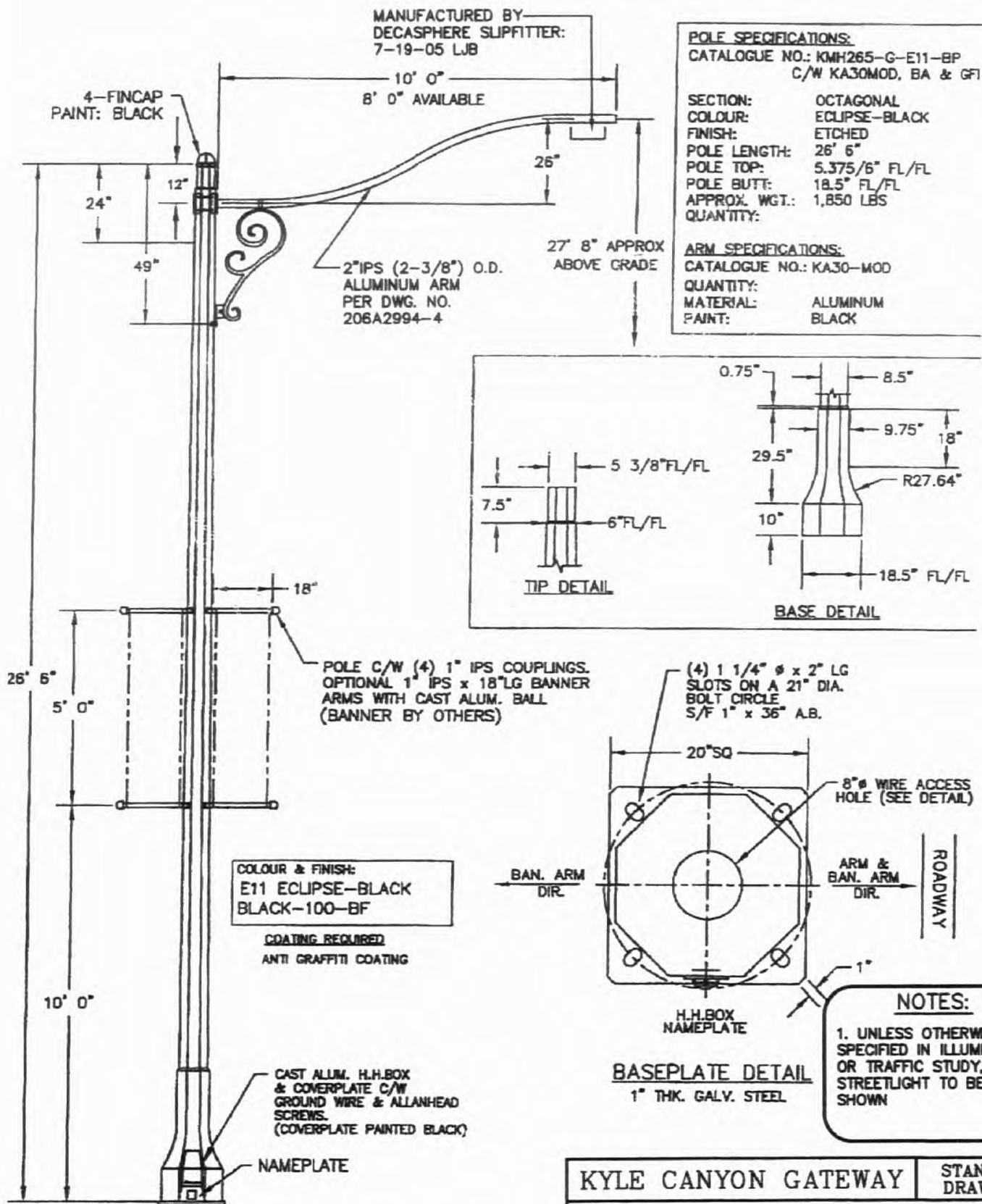
STANDARD
DRAWINGS

NEIGHBORHOOD/LOOP STREET
KNUCKLE

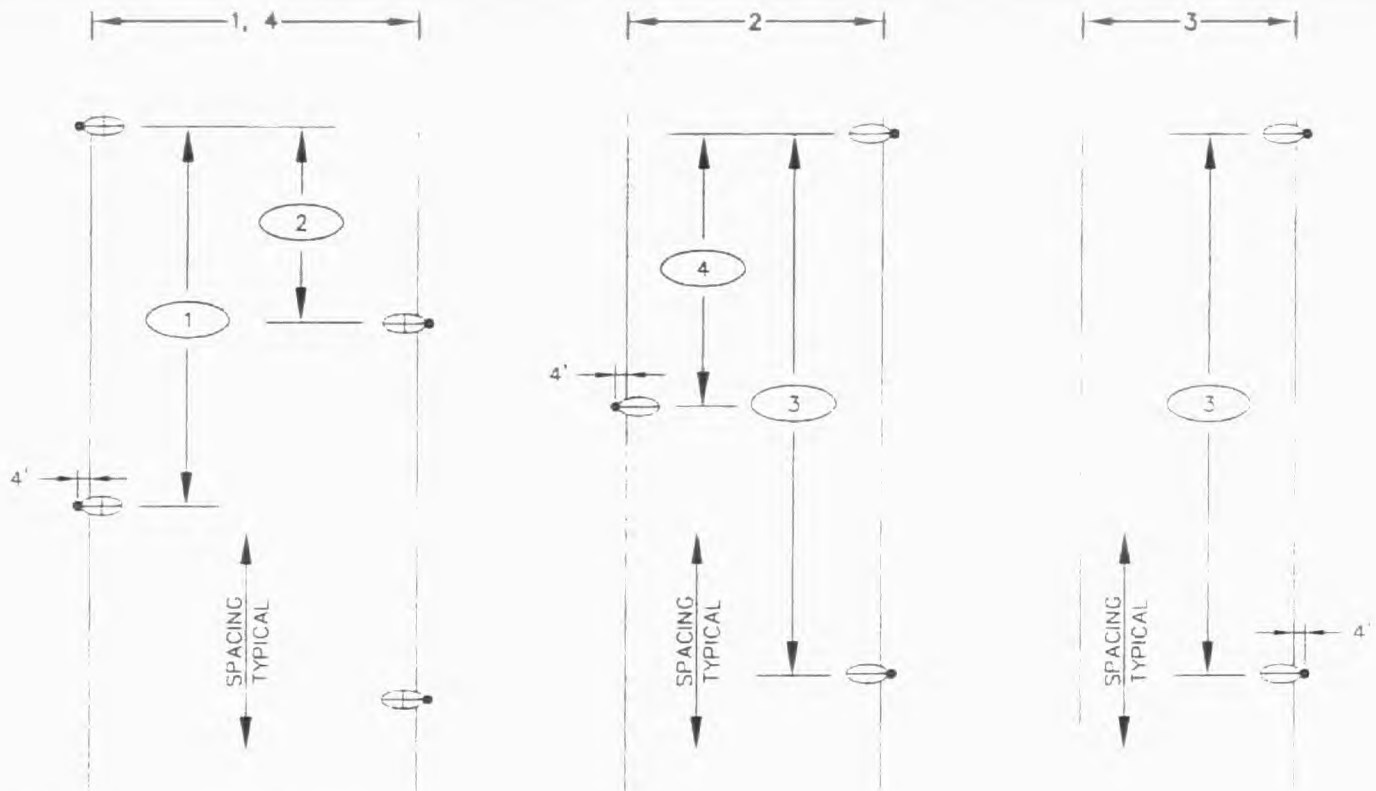
DATE: 05-08-07

DWG NO. DG-24

REV.	ALTERATION	DATE	BY
A	DEPLEX REMOVED RACEWAY FROM GRADE TO H.H.BOX ADDED	8/9/05	G.R.



KYLE CANYON GATEWAY	STANDARD DRAWINGS
TYPICAL STREET LIGHT	
DATE: 05-08-07	DWG NO. DG-25



STREET CLASSIFICATION

	STREET SECTION	ROW WIDTH	CLASSIFICATION
1	HORSE DRIVE (A1)	106'	BOULEVARD ARTERIAL
	HUALAPAI WAY (A2)	107.5'	BOULEVARD ARTERIAL
2	SHAUMBER ROAD (B1)	62'	BOULEVARD
	EGAN CREST WAY (B3) (B3A) (B3B)	69.5'	BOULEVARD
	HUALAPAI WAY (A3) (A3A) (A3B)	85.5'	BOULEVARD
	TEE PEE LANE (B4)	55'	BOULEVARD
	KYLEGATE (B4A)	68'	BOULEVARD
	IRON MOUNTAIN ROAD (P6)	75'	CONNECTOR
	(P10B)	80'	FRONTAGE
	(C6)	80'	CONNECTOR
3	(C2) (C3) (C4A) (C4D)	38', 53', 41'	CONNECTOR
	BRENT LANE (P7)	58'	CONNECTOR
	(B5) (B5A)	70'	CONNECTOR
	TEE PEE LANE (C1) (P7A)	38', 60'	CONNECTOR
	OHARE AVENUE (C4)	53'	CONNECTOR
	LOG CABIN WAY (C4)	53'	CONNECTOR
	(D1) (D2)	31', 28'	NEIGHBORHOOD
4	GRAND TETON DRIVE (P1) (P1A)	95'	ARTERIAL
	IRON MOUNTAIN ROAD (P2) (P3)	90', 95'	ARTERIAL
	GRAND CANYON ROAD (P4) (P5)	75'	ARTERIAL
	FORT APACHE ROAD (P8) (P8A) (P9)	120'	ARTERIAL

POLE LOCATION TABLE	
KEYED NOTE	
1	160'
2	80'
3	170'
4	85'

NOTES:

1. SEE GENERAL NOTES STANDARD DRAWING NO. 300.
2. AN APPROVED ILLUMINATION STUDY PER NOTE 2, STANDARD DRAWING NO. 300, IS REQUIRED FOR RIGHT-OF-WAY GREATER THAN 100 FEET.
3. SPACING TO BE AS SHOWN UNLESS OTHERWISE SPECIFIED IN ILLUMINATION OR TRAFFIC STUDY

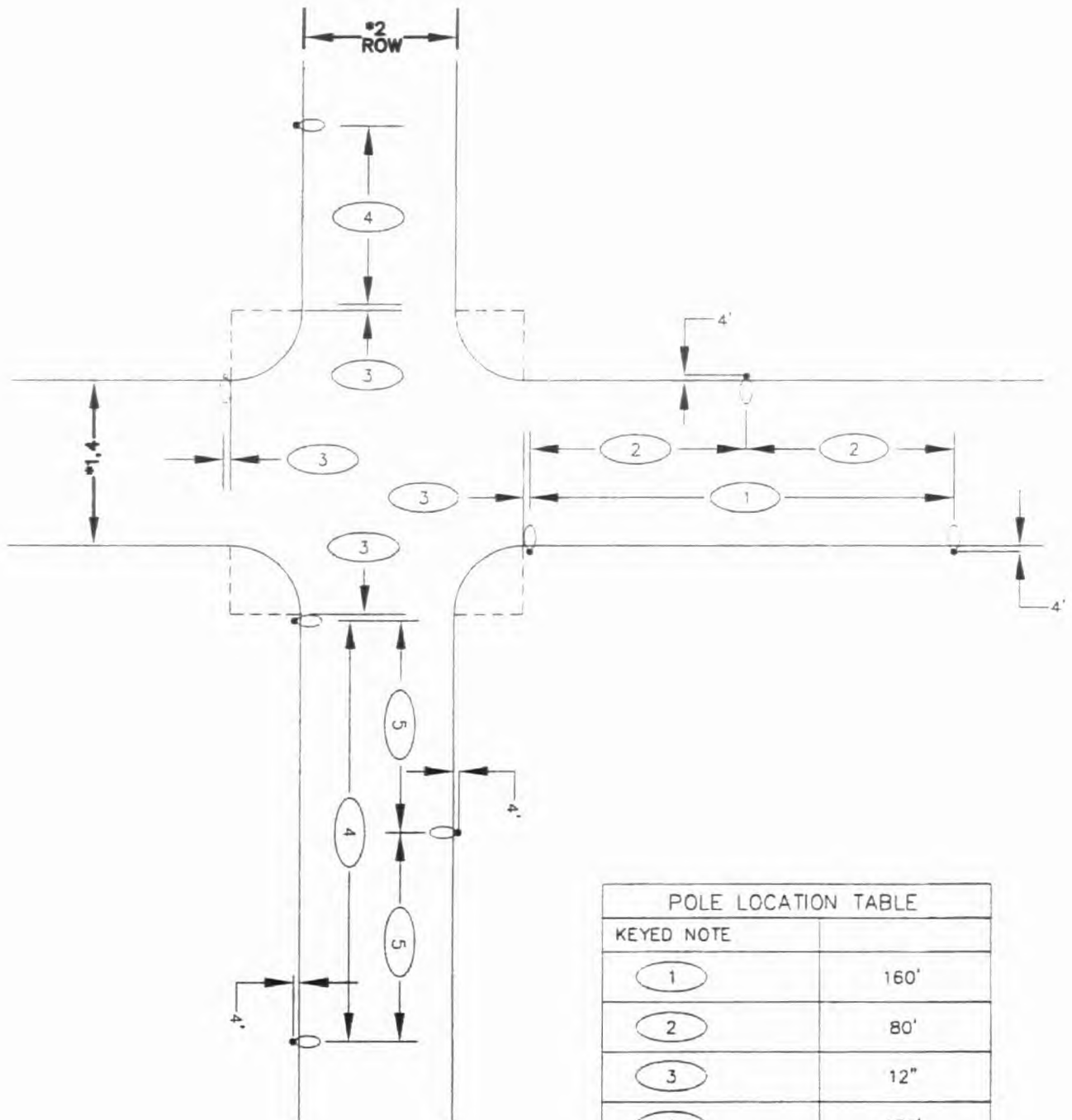
KYLE CANYON GATEWAY

STANDARD
DRAWINGS

STREETLIGHT LOCATION MAXIMUM SPACING

DATE: 05-08-07

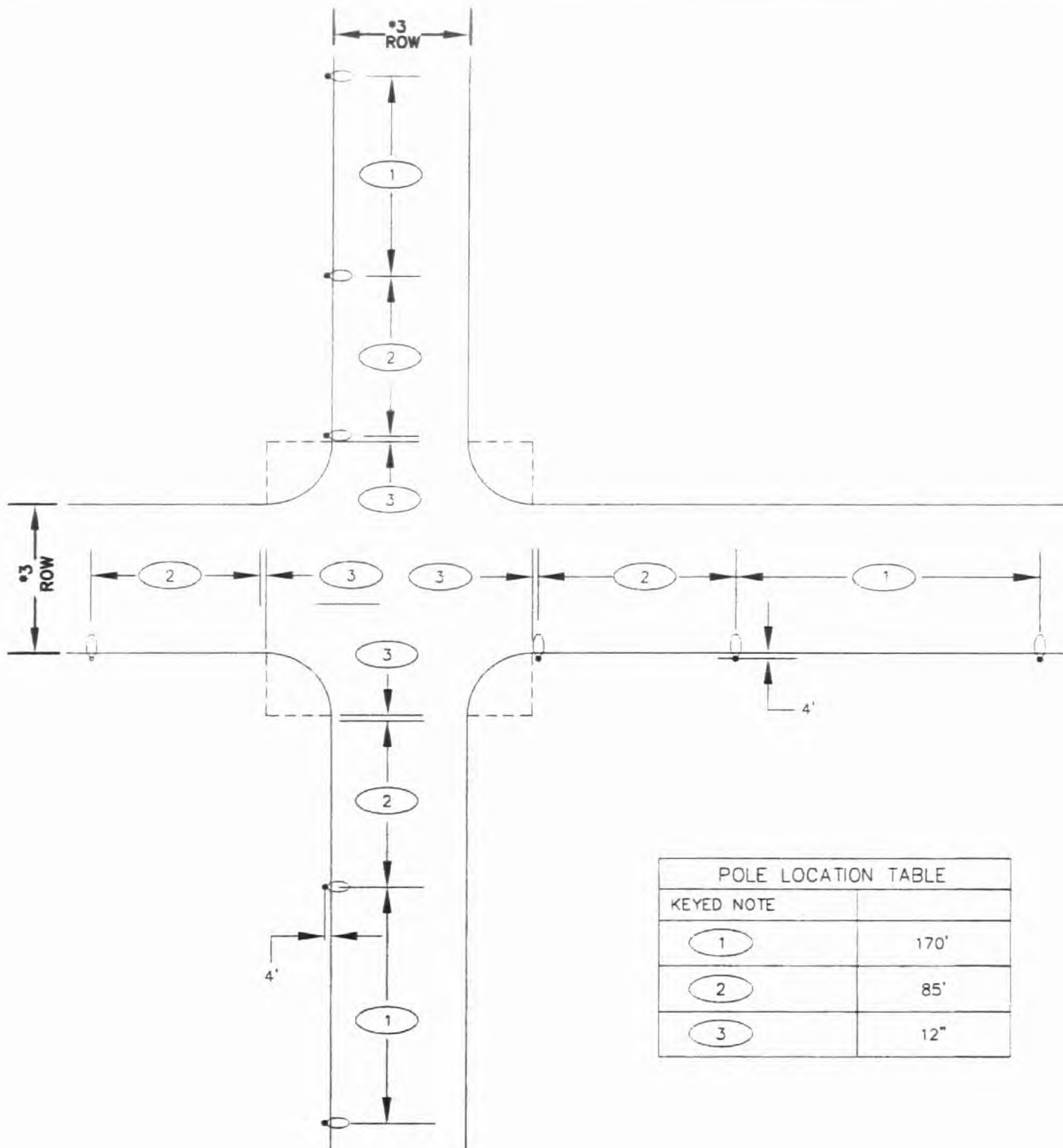
DWG NO. DG-25.1



NOTES:

1. SEE GENERAL NOTES STANDARD DRAWING NO. 300.
2. AN APPROVED ILLUMINATION STUDY PER NOTE 2, STANDARD DRAWING NO. 300, IS REQUIRED FOR RIGHT-OF-WAY GREATER THAN 100 FEET.
3. *SEE DG-25.1 FOR STREET CLASSIFICATION
4. SPACING TO BE AS SHOWN UNLESS OTHERWISE SPECIFIED IN ILLUMINATION OR TRAFFIC STUDY

KYLE CANYON GATEWAY	STANDARD DRAWINGS
STREETLIGHT LOCATION AT INTERSECTIONS *1,4/2 RIGHT OF WAY	
DATE: 05-08-07	DWG NO. DG-25.2

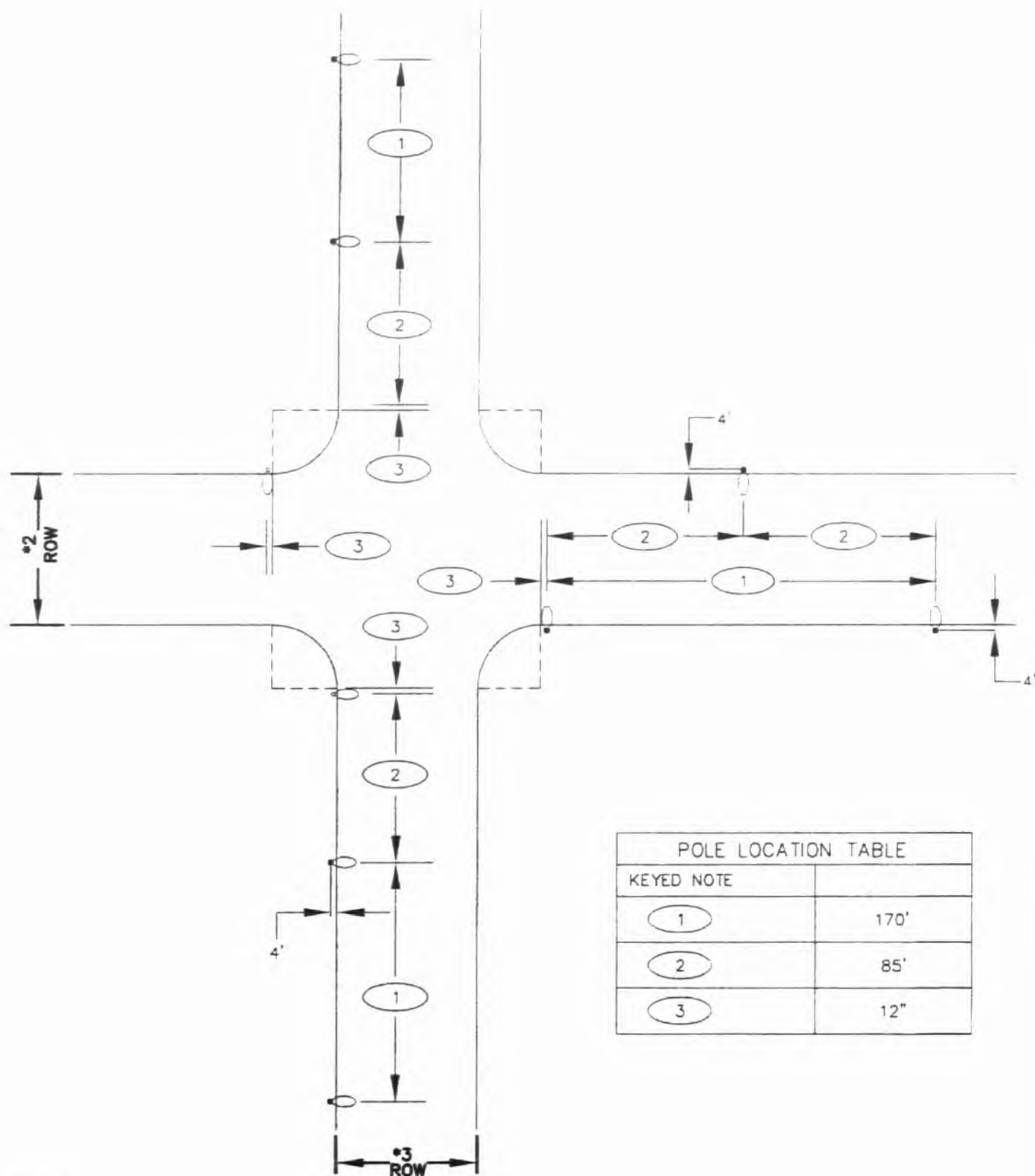


POLE LOCATION TABLE	
KEYED NOTE	
1	170'
2	85'
3	12"

NOTES:

1. SEE GENERAL NOTES STANDARD DRAWING NO. 300.
2. AN APPROVED ILLUMINATION STUDY PER NOTE 2, STANDARD DRAWING NO. 300, IS REQUIRED FOR RIGHT-OF-WAY GREATER THAN 100 FEET.
3. *SEE DG-25.1 FOR STREET CLASSIFICATION
4. SPACING TO BE AS SHOWN UNLESS OTHERWISE SPECIFIED IN ILLUMINATION OR TRAFFIC STUDY

KYLE CANYON GATEWAY	STANDARD DRAWINGS
STREETLIGHT LOCATION AT INTERSECTIONS *3/3 RIGHT OF WAY	
DATE: 05-08-07	DWG NO. DG-25.3



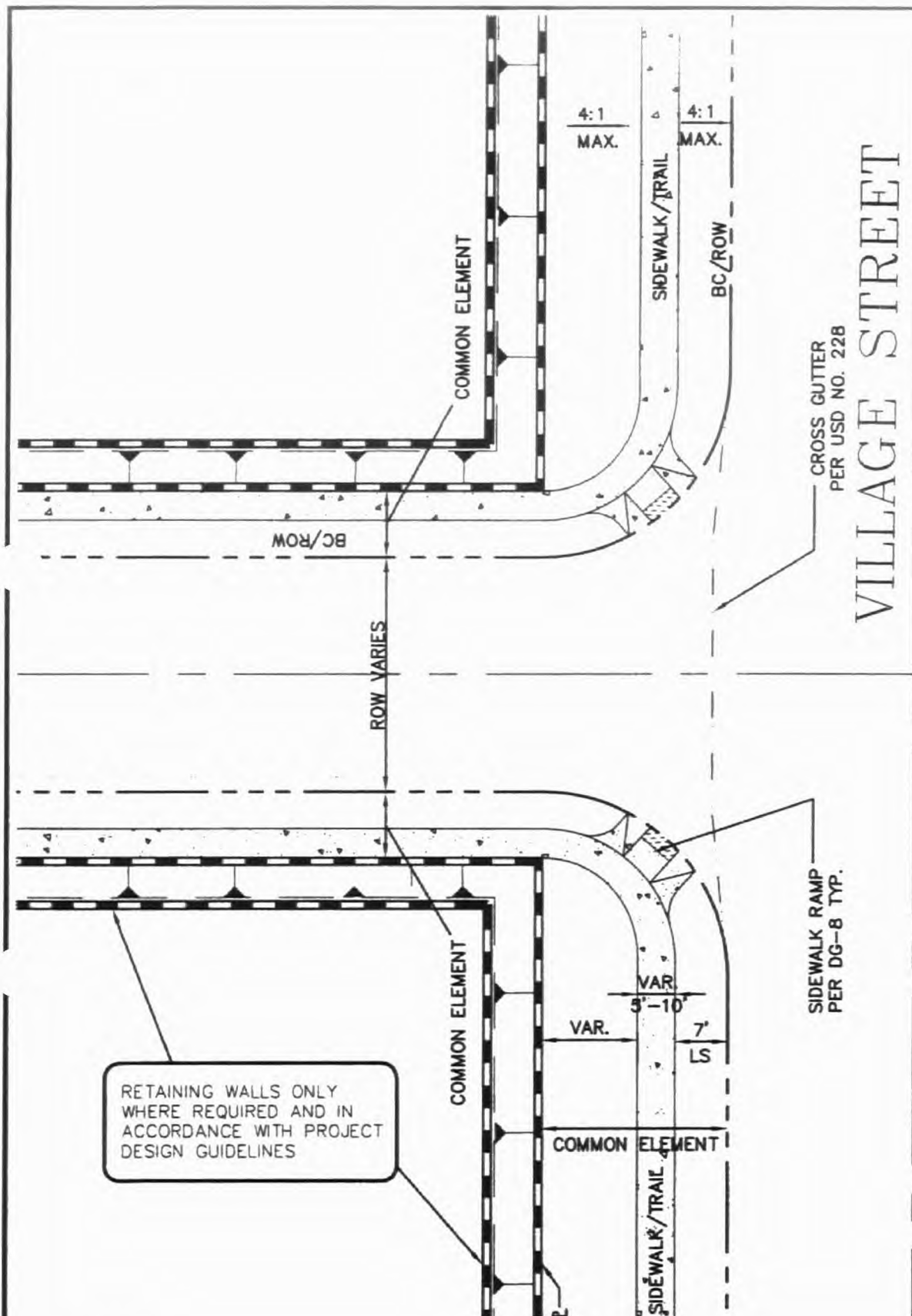
NOTES:

1. SEE GENERAL NOTES STANDARD DRAWING NO. 300.
2. AN APPROVED ILLUMINATION STUDY PER NOTE 2, STANDARD DRAWING NO. 300, IS REQUIRED FOR RIGHT-OF-WAY GREATER THAN 100 FEET.
3. *SEE DG-25.1 FOR STREET CLASSIFICATION
4. SPACING TO BE AS SHOWN UNLESS OTHERWISE SPECIFIED IN ILLUMINATION OR TRAFFIC STUDY

KYLE CANYON GATEWAY **STANDARD DRAWINGS**

STREETLIGHT LOCATION AT INTERSECTIONS *2/3 RIGHT OF WAY

DATE: 05-08-07 **DWG NO. DG-25.4**



VILLAGE STREET

NOTES:

1. IF ENTRY IS GATED, IT SHALL COMPLY WITH SECTION 3.3 OF DESIGN GUIDELINES.

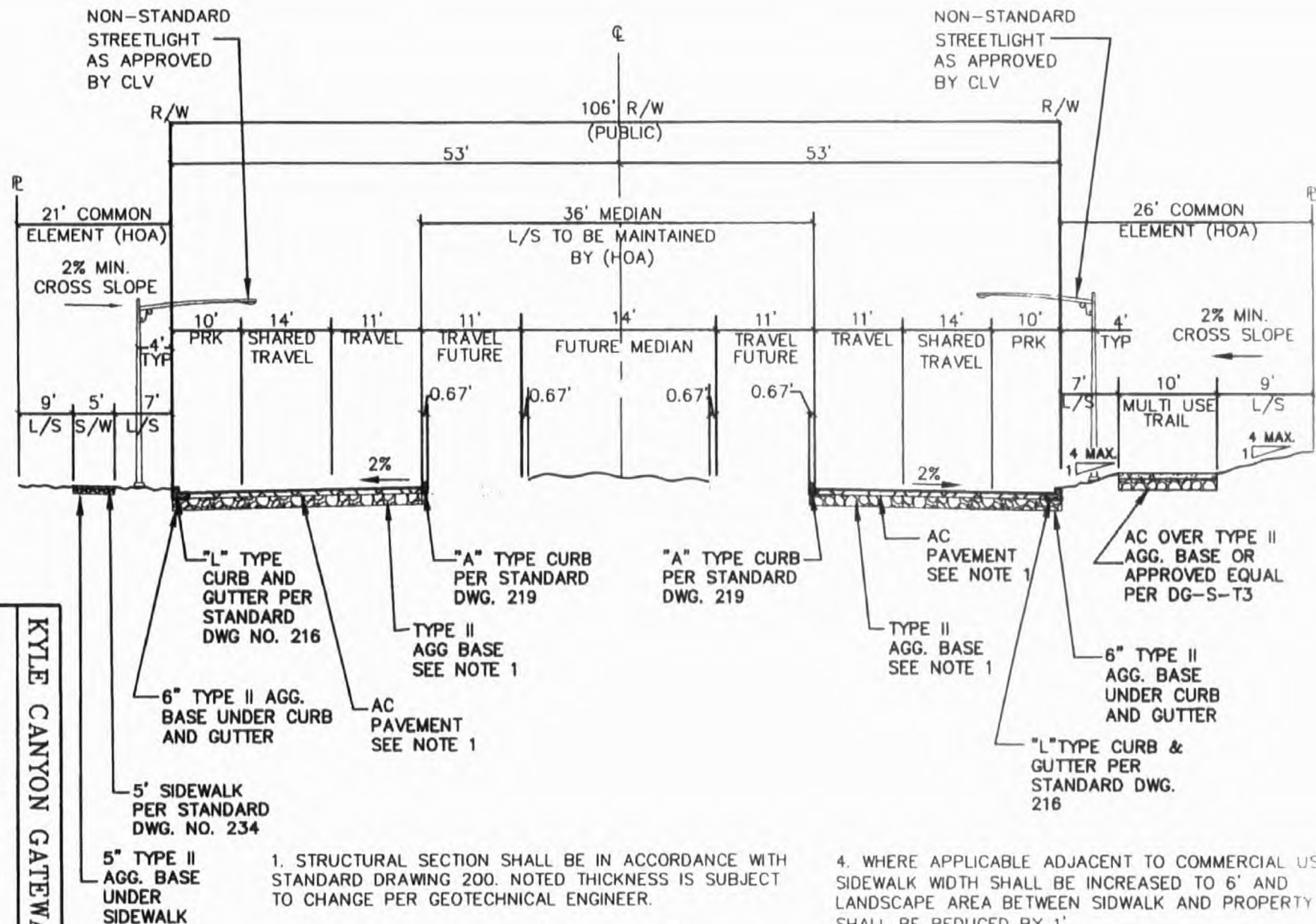
KYLE CANYON GATEWAY

STANDARD
DRAWINGS

TYPICAL BUILDER ENTRY

DATE: 05-08-07

DWG NO. DG-26



1. STRUCTURAL SECTION SHALL BE IN ACCORDANCE WITH STANDARD DRAWING 200. NOTED THICKNESS IS SUBJECT TO CHANGE PER GEOTECHNICAL ENGINEER.

2. PARKING IS RESTRICTED WITHIN 250' OF ANY SIGNALIZED INTERSECTION, MEASURED FROM CURB EXTENDED.

3. WHERE APPLICABLE WITHIN MIXED USE DISTRICT, AND ONLY IN AREAS WITH 0' BUILDING SET BACK, THE COMMON ELEMENT AMENITIES SHALL BE CONTROLLED BY FIGURE 3-21 OF THE DESIGN GUIDELINES.

4. WHERE APPLICABLE ADJACENT TO COMMERCIAL USES SIDEWALK WIDTH SHALL BE INCREASED TO 6' AND LANDSCAPE AREA BETWEEN SIDEWALK AND PROPERTY LINE SHALL BE REDUCED BY 1'.

5. DESIGN SPEED IS 40 MPH. SPEED LIMIT TO BE POSTED AT 35 MPH. CLV MAY INCREASE SPEED LIMIT TO 40 MPH UPON COMPLETION OF 5TH AND 6TH TRAVEL LANES.

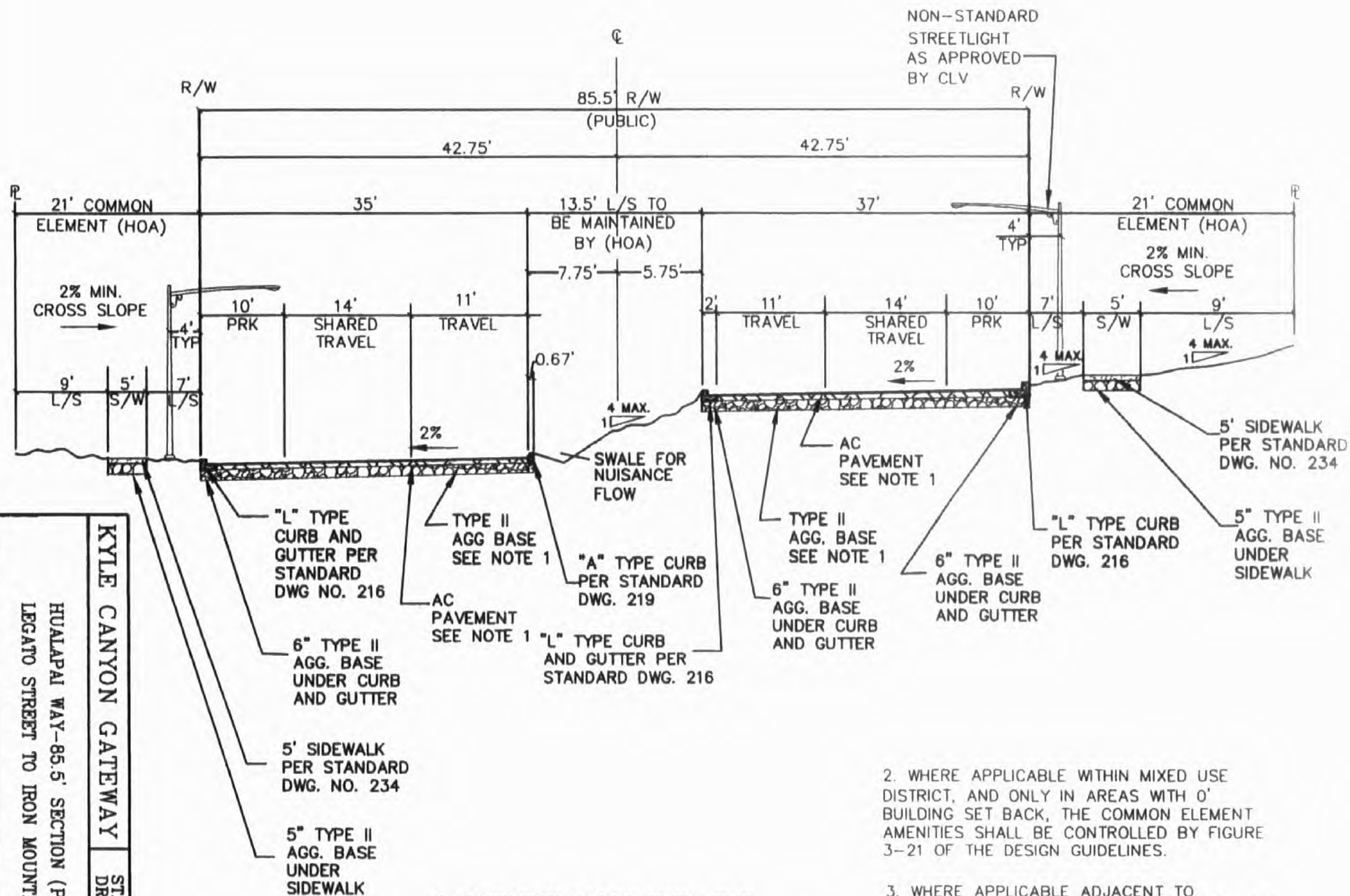
DATE: 05-08-07

DWG NO. DG-S-A1

HORSE DRIVE-106' SECTION (PUBLIC)
HUALAPAI TO GRAND CANYON

KYLE CANYON GATEWAY

STANDARD DRAWINGS



1. STRUCTURAL SECTION SHALL BE IN ACCORDANCE WITH STANDARD DRAWING 200. NOTED THICKNESS IS SUBJECT TO CHANGE PER GEOTECHNICAL ENGINEER.

2. WHERE APPLICABLE WITHIN MIXED USE DISTRICT, AND ONLY IN AREAS WITH 0' BUILDING SET BACK, THE COMMON ELEMENT AMENITIES SHALL BE CONTROLLED BY FIGURE 3-21 OF THE DESIGN GUIDELINES.

3. WHERE APPLICABLE ADJACENT TO COMMERCIAL USES SIDEWALK WIDTH SHALL BE INCREASED TO 6' AND LANDSCAPE AREA BETWEEN SIDEWALK AND PROPERTY LINE SHALL BE REDUCED BY 1'.

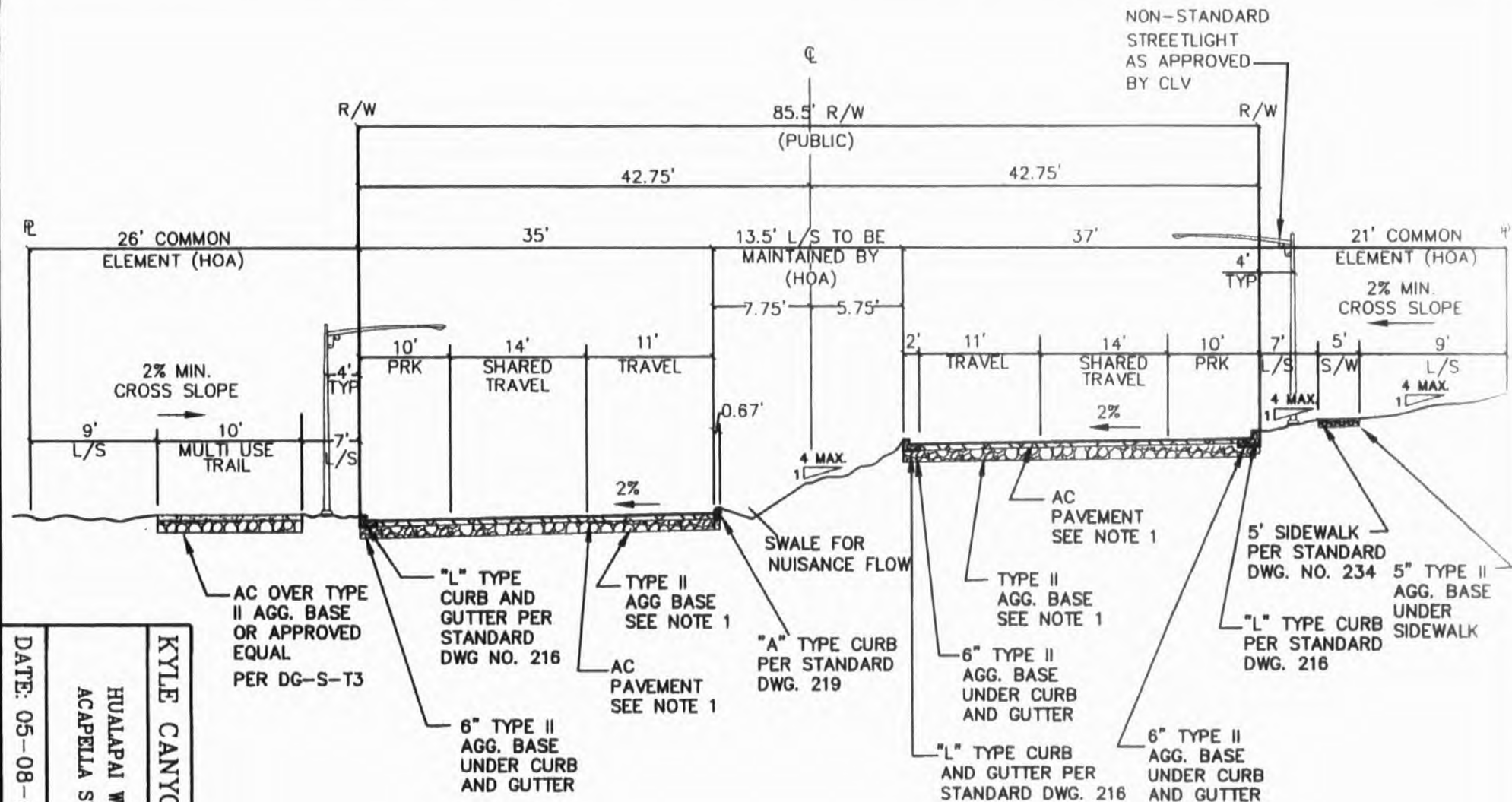
DATE: 05-08-07

DWG NO. DG-S-A3

KYLE CANYON GATEWAY

STANDARD DRAWINGS

HUALAPAI WAY-85.5' SECTION (PUBLIC)
LEGATO STREET TO IRON MOUNTAIN



1. STRUCTURAL SECTION SHALL BE IN ACCORDANCE WITH STANDARD DRAWING 200. NOTED THICKNESS IS SUBJECT TO CHANGE PER GEOTECHNICAL ENGINEER.

2. WHERE APPLICABLE WITHIN MIXED USE DISTRICT, AND ONLY IN AREAS WITH 0' BUILDING SET BACK, THE COMMON ELEMENT AMENITIES SHALL BE CONTROLLED BY FIGURE 3-21 OF THE DESIGN GUIDELINES.

3. WHERE APPLICABLE ADJACENT TO COMMERCIAL USES SIDEWALK WIDTH SHALL BE INCREASED TO 6' AND LANDSCAPE AREA BETWEEN SIDEWALK AND PROPERTY LINE SHALL BE REDUCED BY 1'.

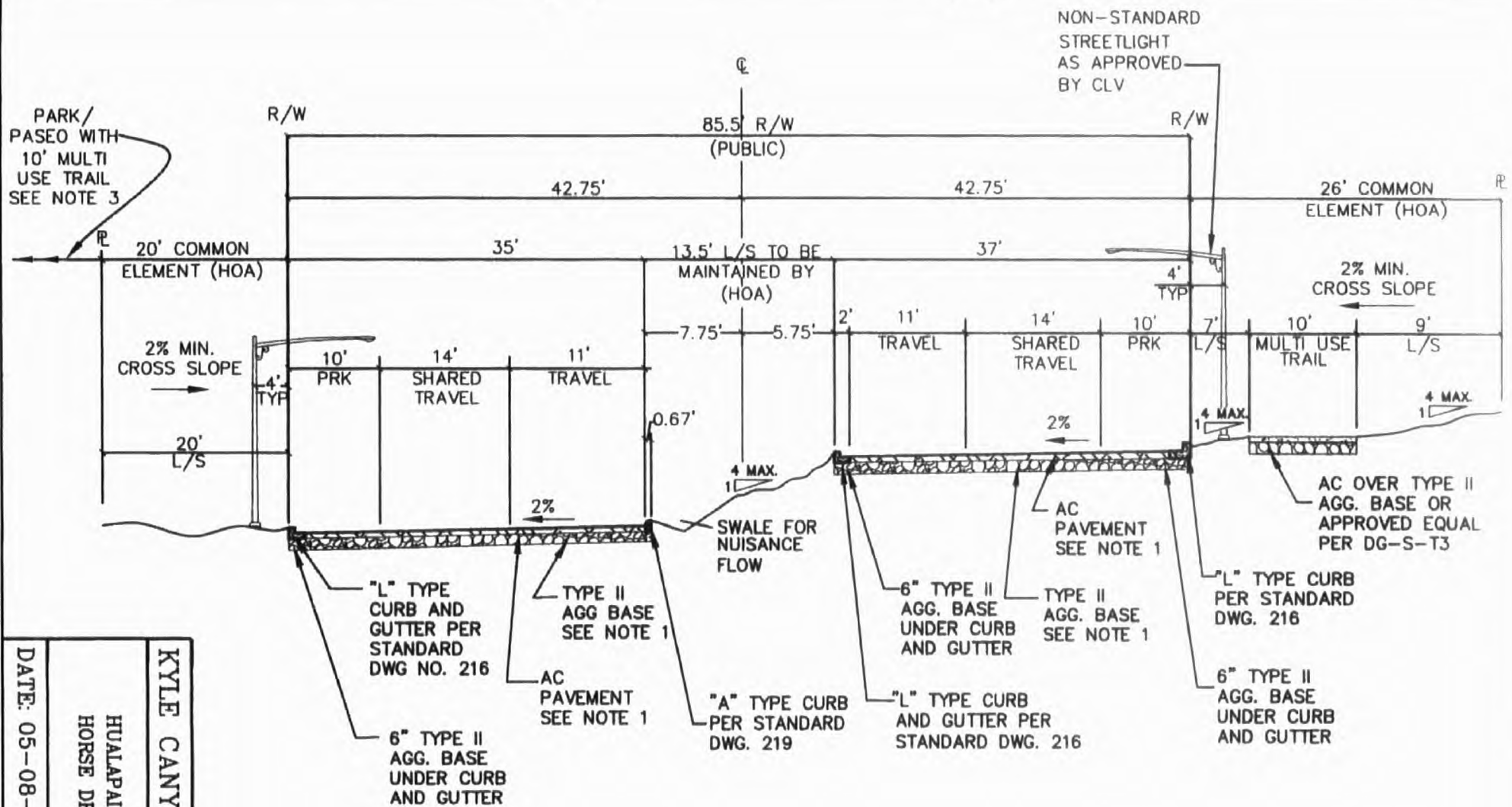
DATE: 05-08-07

DWG NO. DG-S-A3A

KYLE CANYON GATEWAY

STANDARD DRAWINGS

HUALAPAI WAY-85.5' SECTION (PUBLIC)
ACAPELLA STREET TO LEGATO STREET



1. STRUCTURAL SECTION SHALL BE IN ACCORDANCE WITH STANDARD DRAWING 200. NOTED THICKNESS IS SUBJECT TO CHANGE PER GEOTECHNICAL ENGINEER.

2. WHERE APPLICABLE WITHIN MIXED USE DISTRICT, AND ONLY IN AREAS WITH 0' BUILDING SET BACK, THE COMMON ELEMENT AMENITIES SHALL BE CONTROLLED BY FIGURE 3-21 OF THE DESIGN GUIDELINES.

3. SUBSTITUTE FOR SIDEWALK. APPROPRIATE CONNECTIONS TO SIDEWALK TO BE PROVIDED.

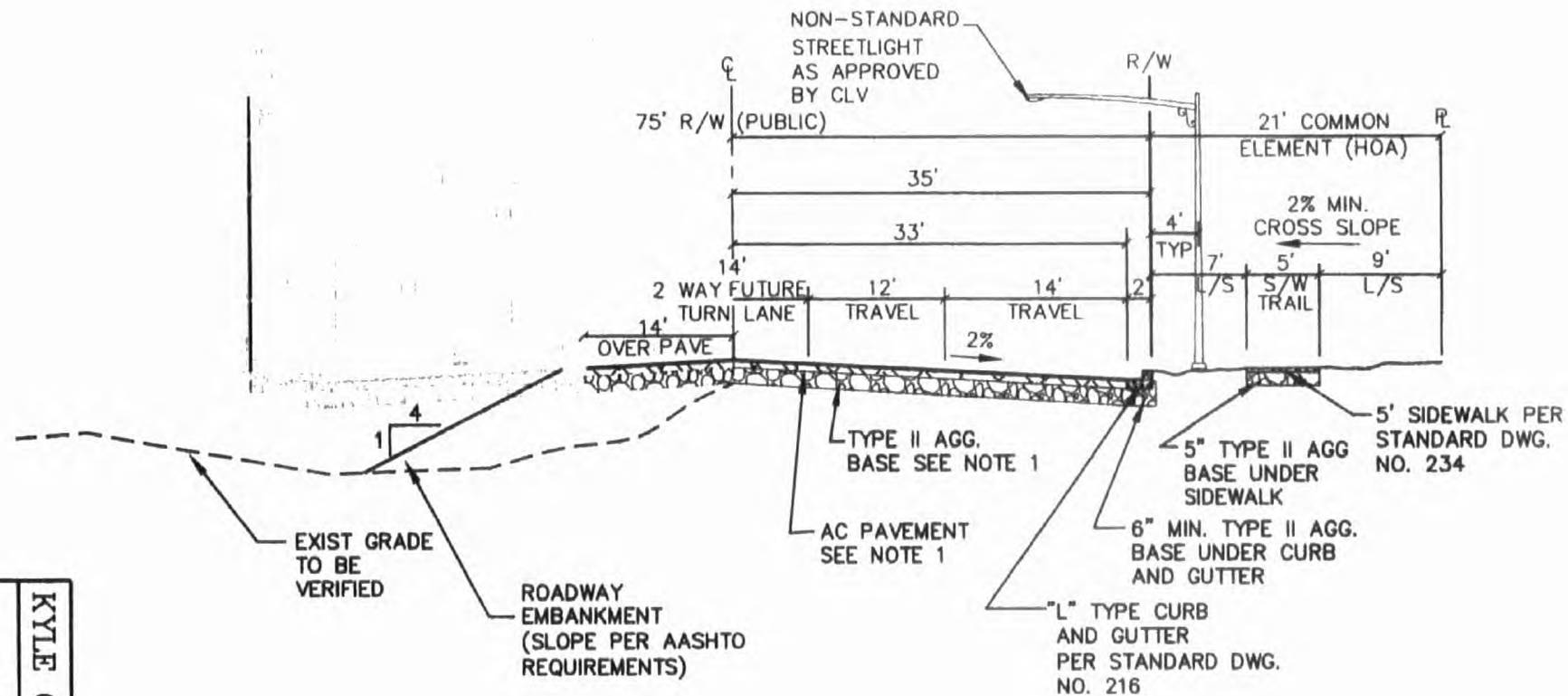
KYLE CANYON GATEWAY

STANDARD
DRAWINGS

HUALAPAI WAY 85.5' SECTION (PUBLIC)
HORSE DRIVE TO ACAPELLA STREET

DATE: 05-08-07

DWG NO. DG-S-A3B

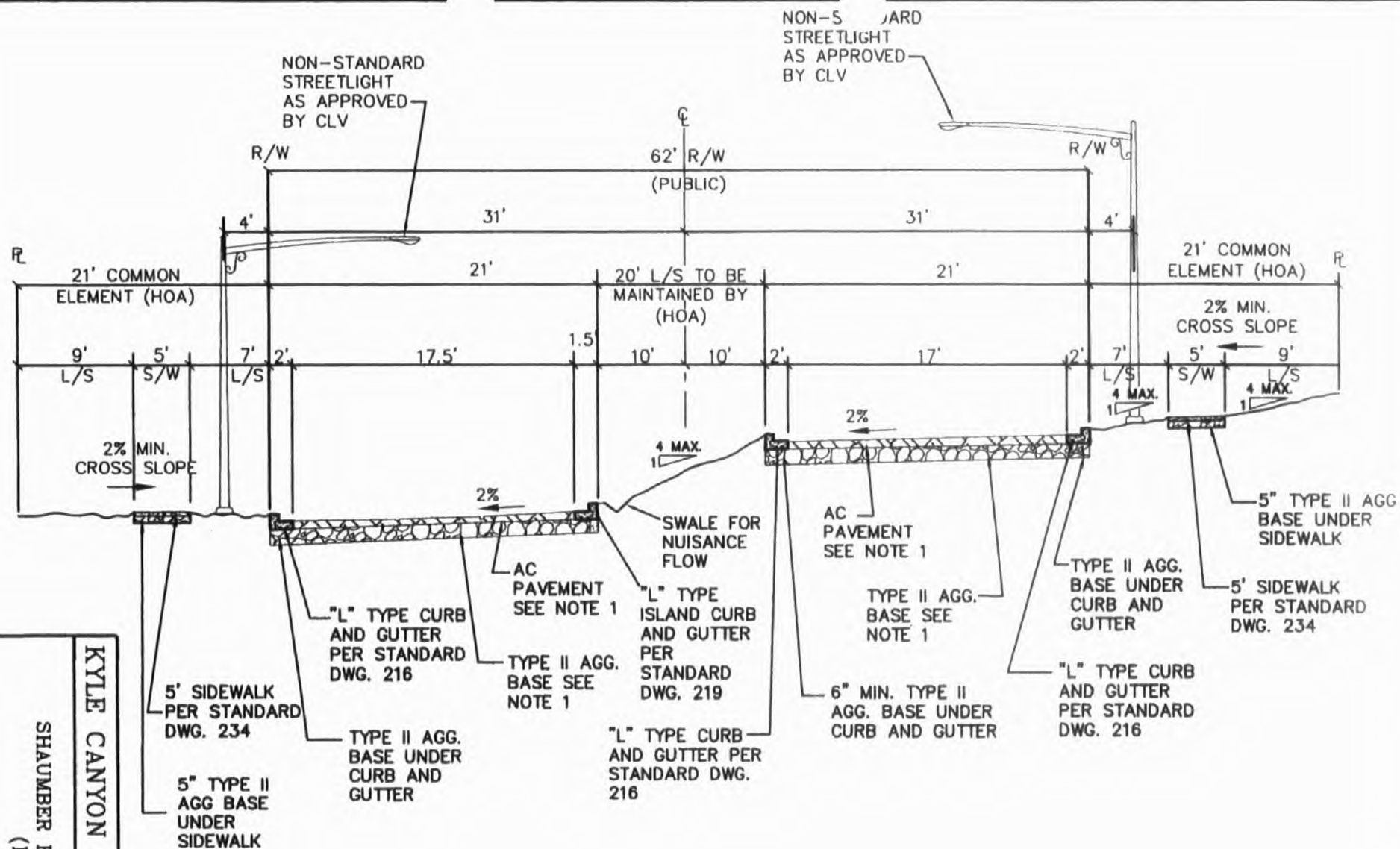


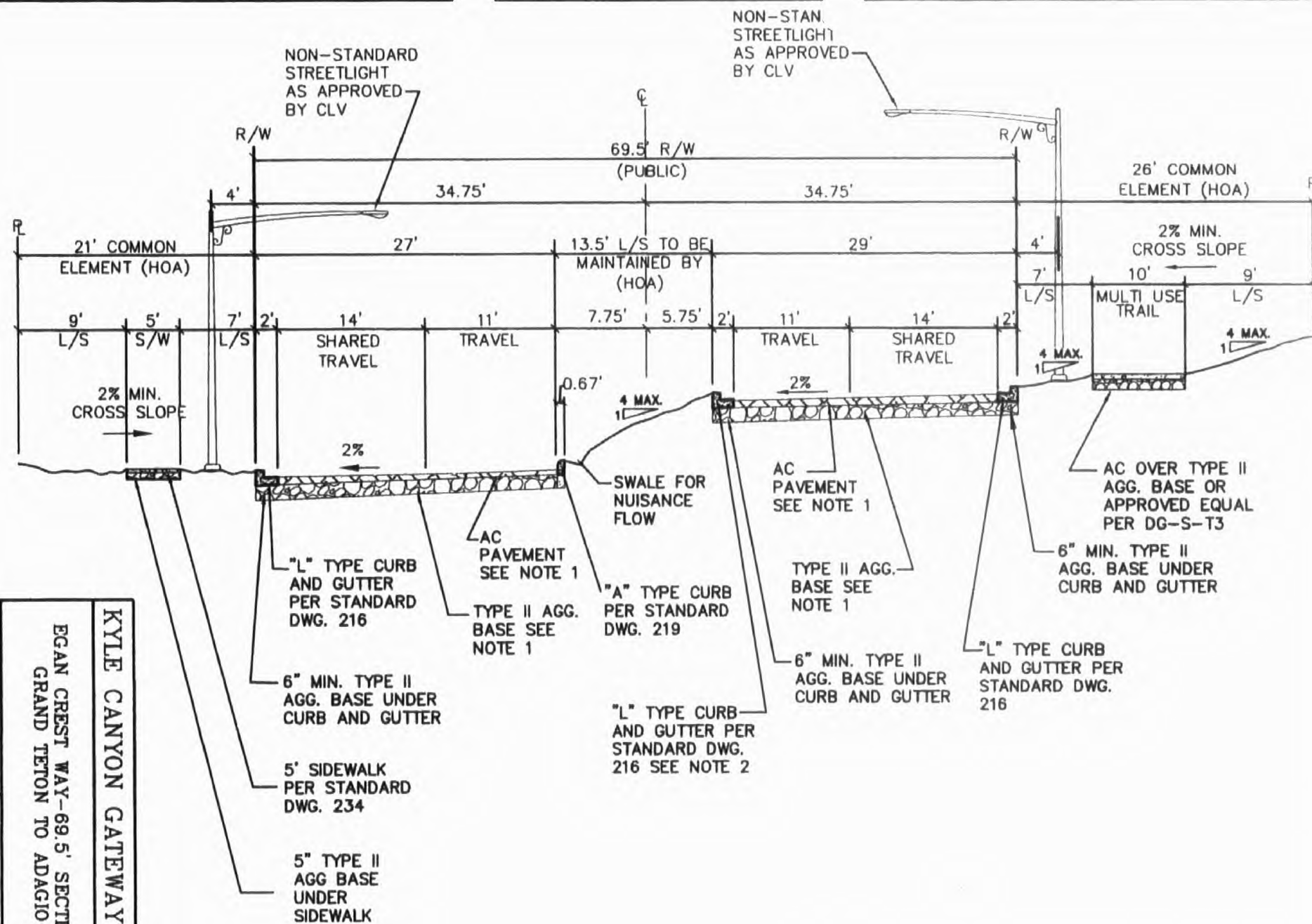
NOTE:

1. STRUCTURAL SECTION SHALL BE IN ACCORDANCE WITH STANDARD DRAWING 200. NOTED THICKNESS IS SUBJECT TO CHANGE PER GEOTECHNICAL ENGINEER.

2. WHERE APPLICABLE ADJACENT TO COMMERCIAL USES SIDEWALK WIDTH SHALL BE INCREASED TO 6' AND LANDSCAPE AREA BETWEEN SIDEWALK AND PROPERTY LINE SHALL BE REDUCED BY 1'.

DATE: 05-08-07	DWG NO. DG-S-A3C
KYLE CANYON GATEWAY	STANDARD DRAWINGS
HUALAPAI WAY-75' SECTION (PUBLIC)	
IRON MOUNTAIN TO OSO BLANCA	





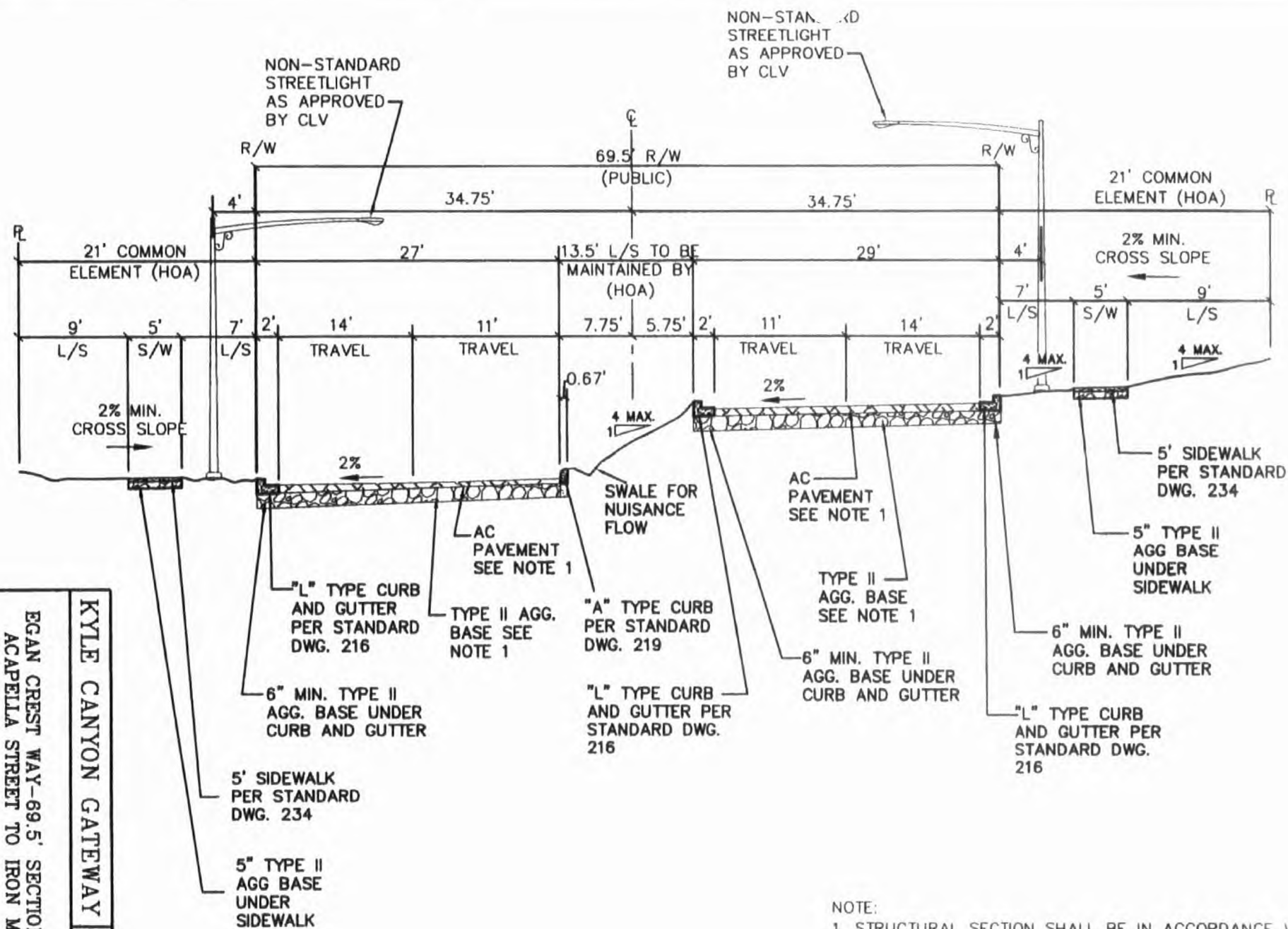
NOTE:
1. STRUCTURAL SECTION SHALL BE IN ACCORDANCE WITH STANDARD DRAWING 200. NOTED THICKNESS IS SUBJECT TO CHANGE PER GEOTECHNICAL ENGINEER.

KYLE CANYON GATEWAY
STANDARD DRAWINGS

EGAN CREST WAY-69.5' SECTION (PUBLIC)
GRAND TETON TO ADAGIO STREET

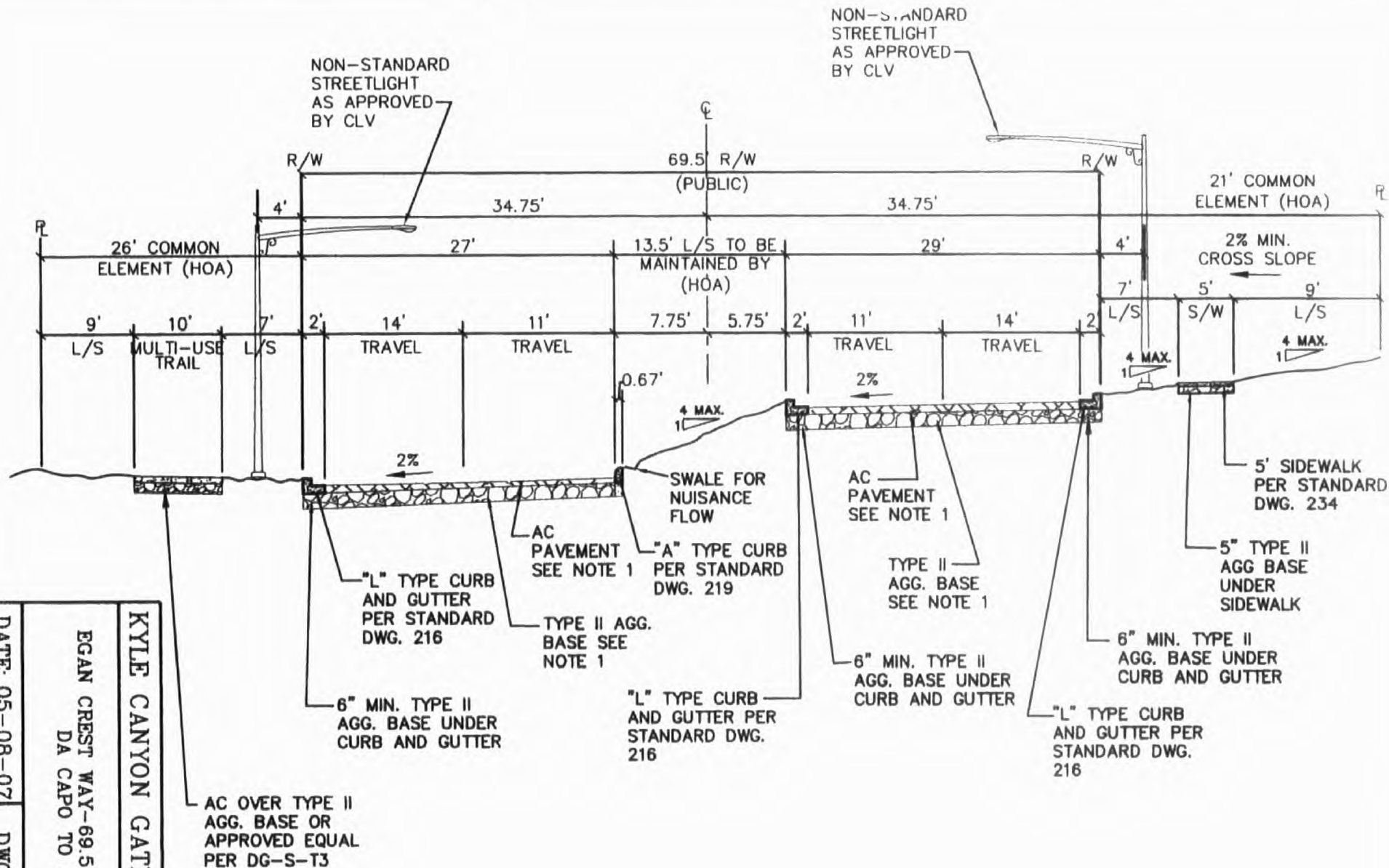
DATE: 05-08-07

DWG NO. DG-S-B3



DATE: 05-08-07

EGAN CREST WAY-69.5' SECTION (PUBLIC)
ACAPELLA STREET TO IRON MOUNTAIN



NOTE:

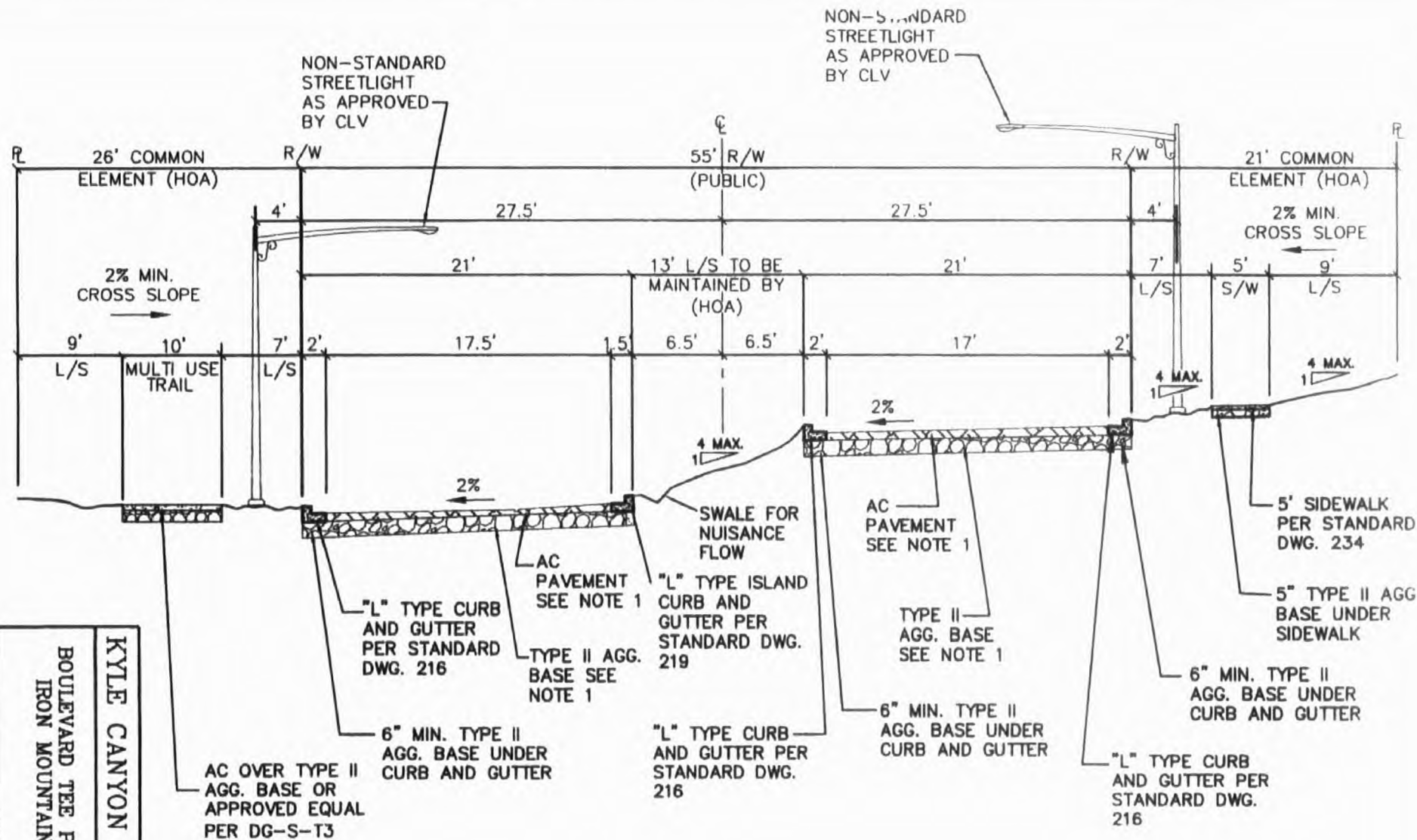
1. STRUCTURAL SECTION SHALL BE IN ACCORDANCE WITH STANDARD DRAWING 200. NOTED THICKNESS IS SUBJECT TO CHANGE PER GEOTECHNICAL ENGINEER.

DATE: 05-08-07

DWG. NO. DG-S-B3C

KYLE CANYON GATEWAY
EGAN CREST WAY-69.5' SECTION (PUBLIC)
DA CAPO TO ACAPELLA

STANDARD DRAWINGS



NOTE:

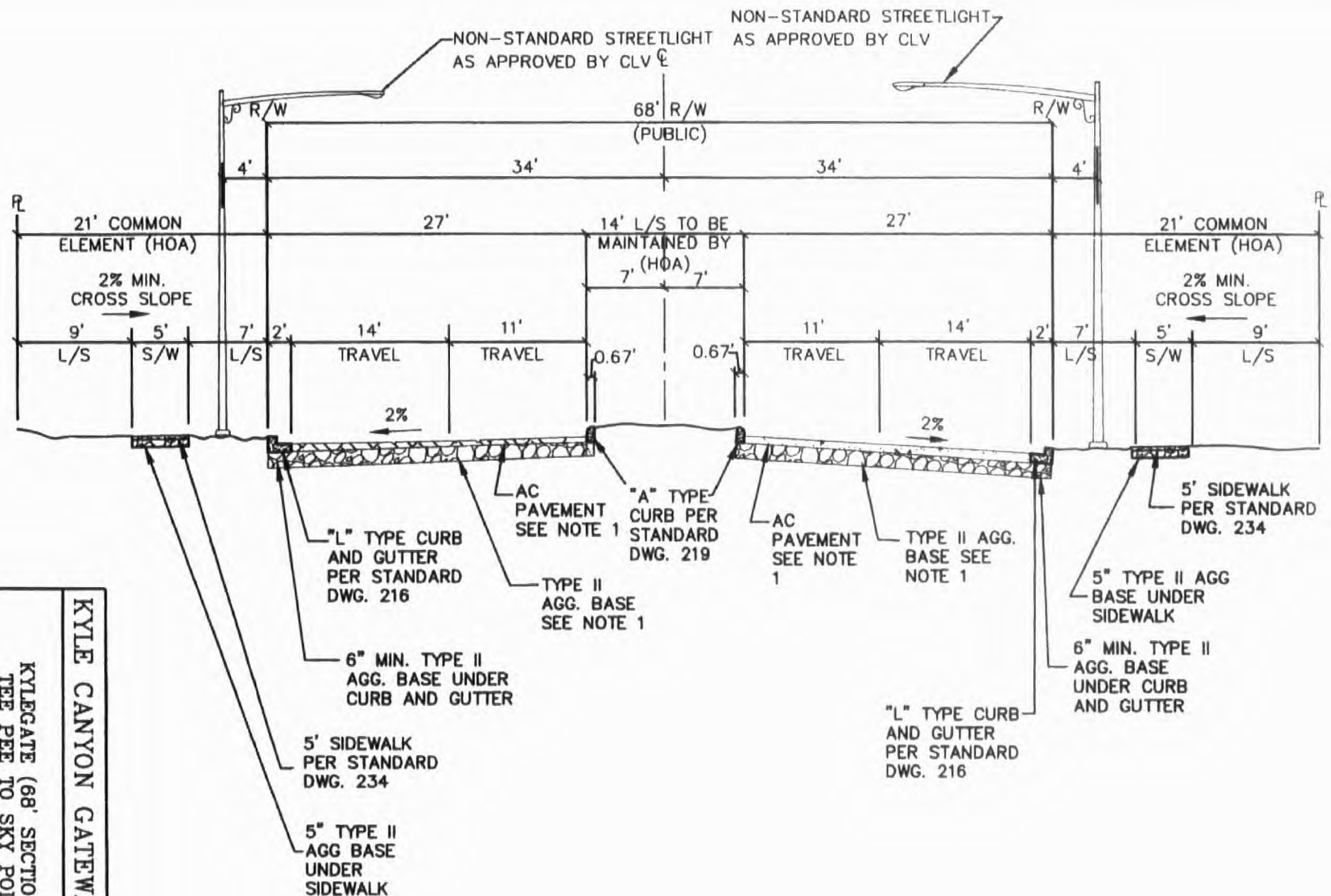
1. STRUCTURAL SECTION SHALL BE IN ACCORDANCE WITH STANDARD DRAWING 200. NOTED THICKNESS IS SUBJECT TO CHANGE PER GEOTECHNICAL ENGINEER.

DATE: 05-08-07

DWG NO. DG-S-B4

KYLE CANYON GATEWAY
BOULEVARD TEE PEE-55' SECTION (PUBLIC)
IRON MOUNTAIN TO SONATINA STREET

STANDARD
DRAWINGS



NOTE.

1. STRUCTURAL SECTION SHALL BE IN ACCORDANCE WITH STANDARD DRAWING 200. NOTED THICKNESS IS SUBJECT TO CHANGE PER GEOTECHNICAL ENGINEER.

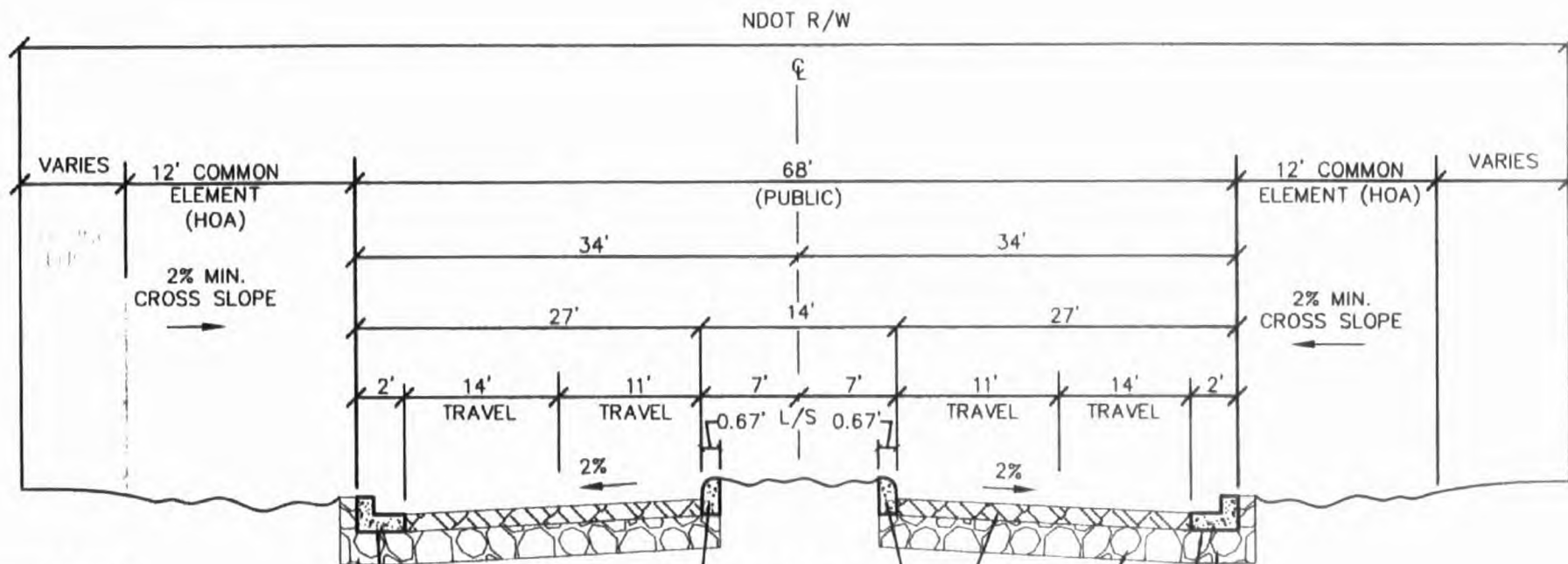
KYLE CANYON GATEWAY

STANDARD DRAWINGS

KYLEGATE (68' SECTION) (PUBLIC)
TEE PEE TO SKY POINTE DRIVE

DATE: 05-08-07

DWG NO. DG-S-B4A



TYPE "B" CURB AND GUTTER PER NDOT STANDARD DWG. NO. 3-5.1.1

6" MIN. TYPE II AGG. BASE UNDER CURB AND GUTTER

TYPE "2" CURB PER NDOT STANDARD DWG. NO 3-5.1.1

AC PAVEMENT SEE NOTE 1

TYPE II AGG. BASE SEE NOTE 1

TYPE "B" CURB AND GUTTER PER NDOT STANDARD DWG. NO. 3-5.1.1

6" MIN. TYPE II AGG. BASE UNDER CURB AND GUTTER

NOTE:
1. STRUCTURAL SECTION SHALL BE IN ACCORDANCE WITH NDOT STANDARDS. NOTED THICKNESS IS SUBJECT TO CHANGE PER GEOTECHNICAL ENGINEER.

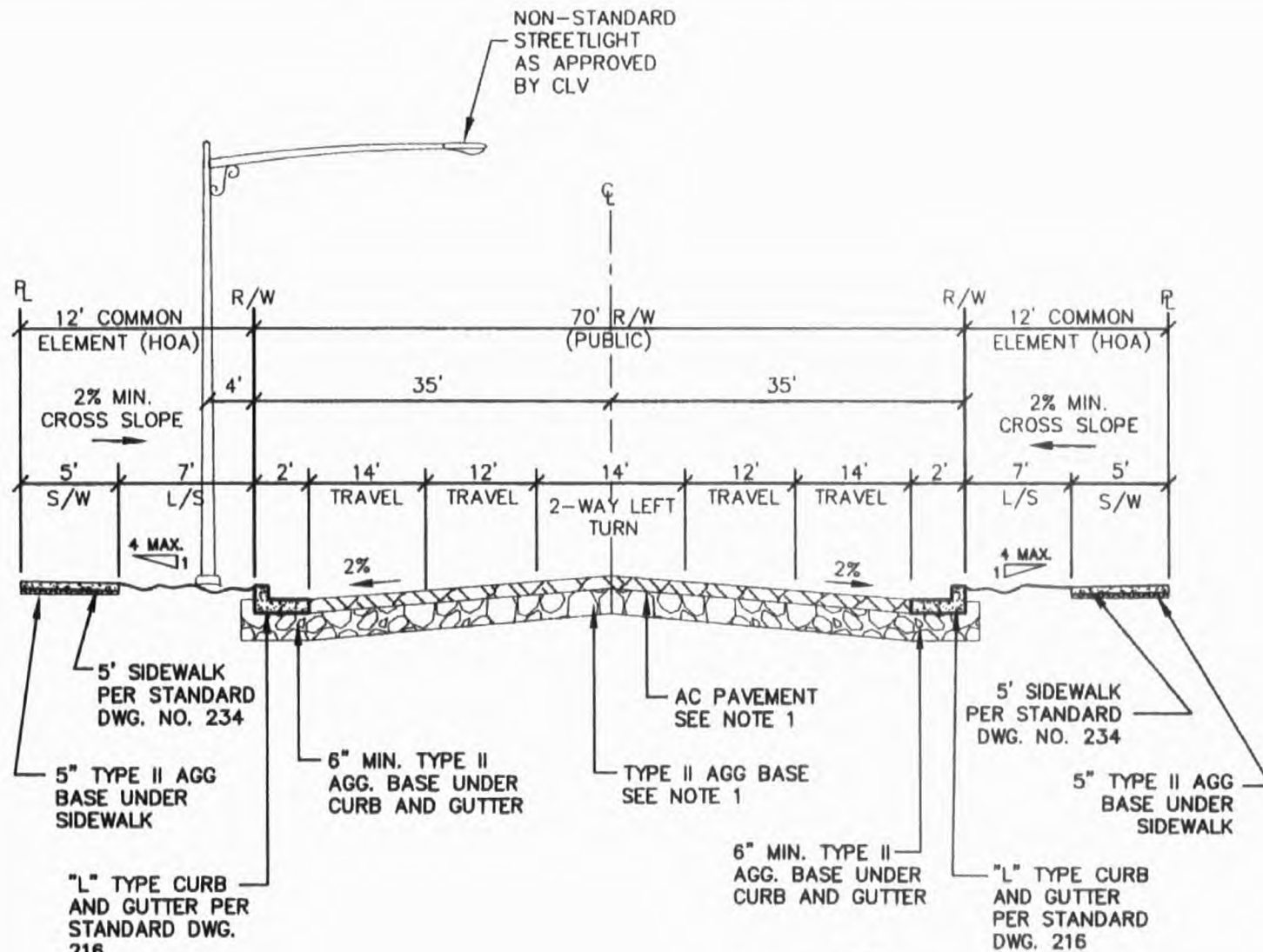
DATE: 05-08-07

DWG NO. DG-S-B4B

KYLE CANYON GATEWAY

STANDARD DRAWINGS

BOULEVARD KYLEGATE STREET-68'
SECTION (PUBLIC) US 95 TO
SKY POINTE DRIVE



NOTE:

1. STRUCTURAL SECTION SHALL BE IN ACCORDANCE WITH STANDARD DRAWING 200. NOTED THICKNESS IS SUBJECT TO CHANGE PER GEOTECHNICAL ENGINEER.
2. WHERE APPLICABLE WITHIN MIXED USE DISTRICT, AND ONLY IN AREAS WITH 0' BUILDING SET BACK, THE COMMON ELEMENT AMENITIES SHALL BE CONTROLLED BY FIGURE 3-21 OF THE DESIGN GUIDELINES.
3. WHERE APPLICABLE ADJACENT TO COMMERCIAL USES SIDEWALK WIDTH SHALL BE INCREASED TO 6' AND LANDSCAPE AREA SHALL BE REDUCED TO 6'.

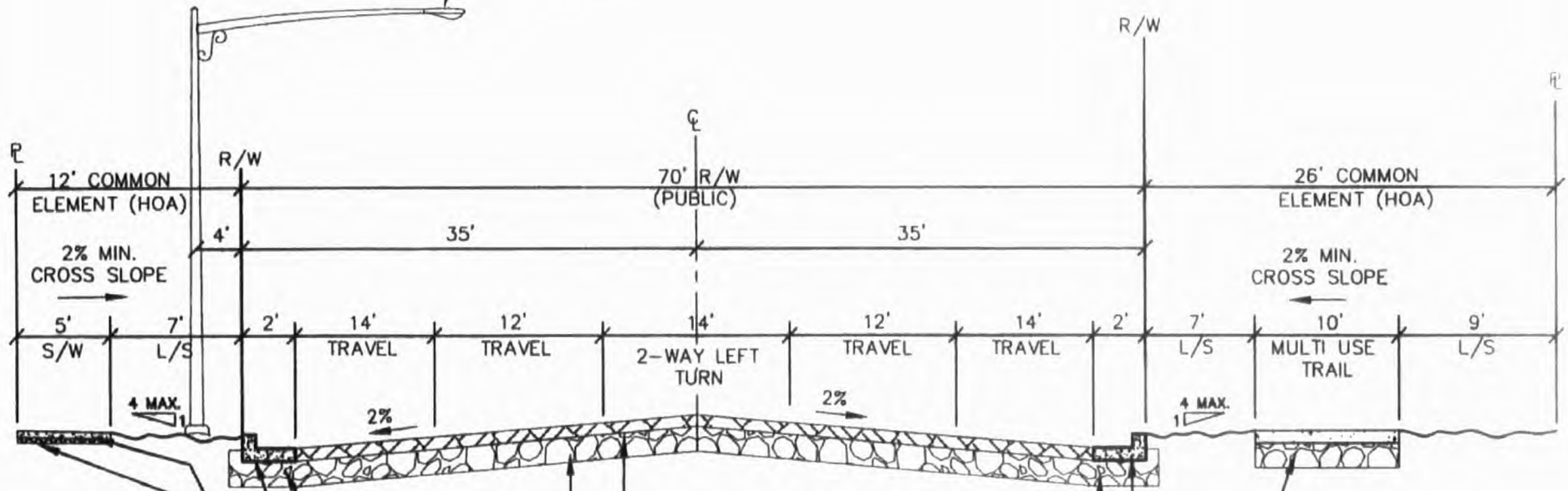
KYLE CANYON GATEWAY STANDARD DRAWINGS

CONNECTOR STREET-70' SECTION (PUBLIC) 80' EQUIVALENT SECTION TOWN CENTER PASO TO LIBRETTO STREET

DATE: 05-08-07

DWG NO. DG-S-B5

NON-STANDARD
STREETLIGHT
AS APPROVED
BY CLV

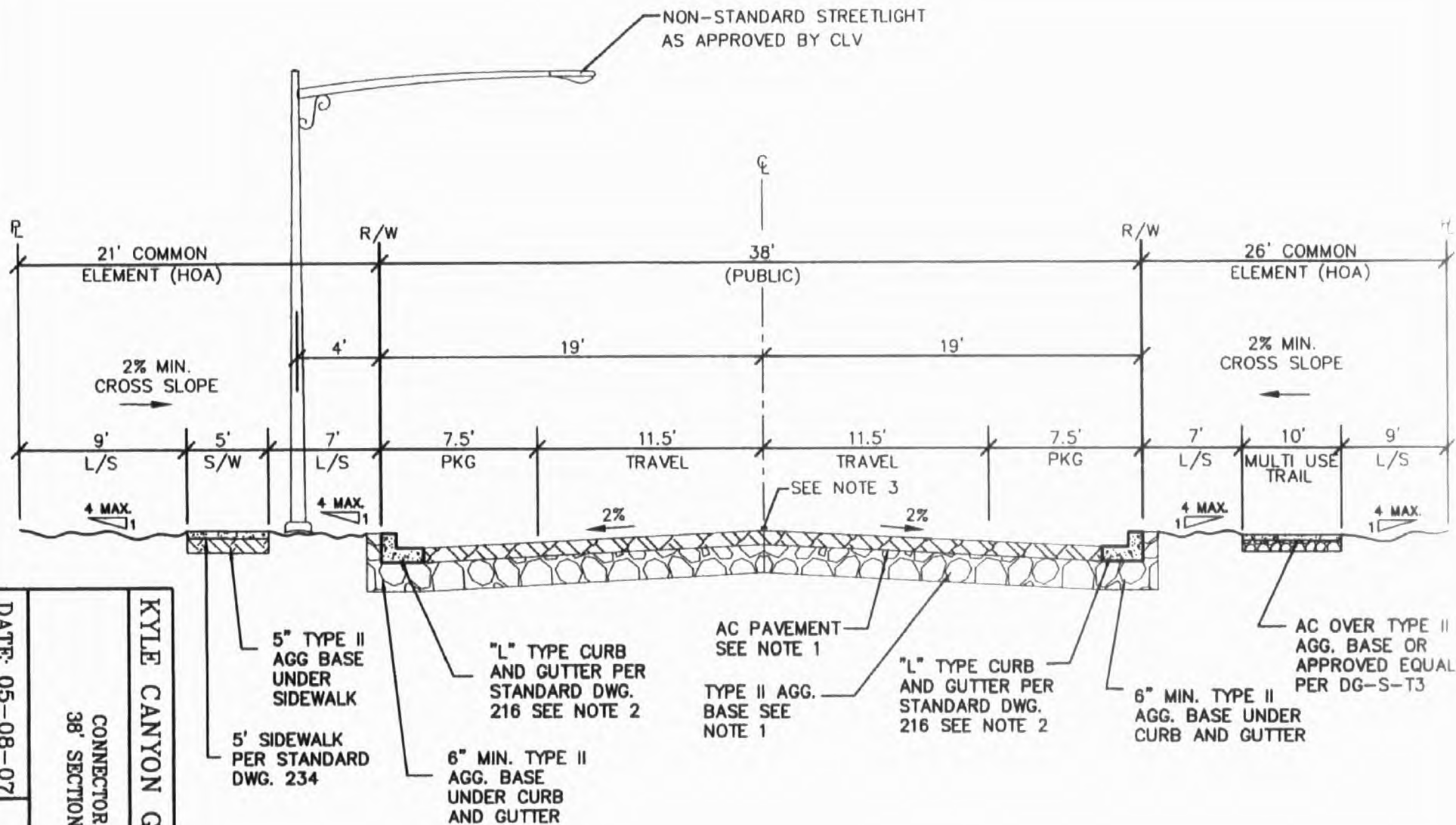


KYLE CANYON GATEWAY
CONNECTOR STREET-70' SECTION (PUBLIC)
80' EQUIVALENT SECTION
HUALAPAI TO TOWN CENTER PASEO

DATE: 05-08-07
DWG NO. DG-S-B5A

6" MIN. TYPE II AGG. BASE UNDER CURB AND GUTTER
"L" TYPE CURB AND GUTTER PER STANDARD DWG. 216
5' SIDEWALK PER STANDARD DWG. NO. 234
5" TYPE II AGG. BASE UNDER SIDEWALK
AC PAVEMENT SEE NOTE 1
TYPE II AGG. BASE SEE NOTE 1
6" MIN. TYPE II AGG. BASE UNDER CURB AND GUTTER
"L" TYPE CURB AND GUTTER PER STANDARD DWG. 216
AC OVER TYPE II AGG. BASE OR APPROVED EQUAL PER DG-S-T3

- NOTE:
1. STRUCTURAL SECTION SHALL BE IN ACCORDANCE WITH STANDARD DRAWING 200. NOTED THICKNESS IS SUBJECT TO CHANGE PER GEOTECHNICAL ENGINEER.
 2. WHERE APPLICABLE WITHIN MIXED USE DISTRICT, AND ONLY IN AREAS WITH 0' BUILDING SET BACK, THE COMMON ELEMENT AMENITIES SHALL BE CONTROLLED BY FIGURE 3-21 OF THE DESIGN GUIDELINES.
 3. WHERE APPLICABLE ADJACENT TO COMMERCIAL USES, SIDEWALK WIDTH SHALL BE INCREASED TO 6' AND LANDSCAPE AREA SHALL BE REDUCED TO 6'.



NOTE:

1. STRUCTURAL SECTION SHALL BE IN ACCORDANCE WITH STANDARD DRAWING 200. NOTED THICKNESS IS SUBJECT TO CHANGE PER GEOTECHNICAL ENGINEER.
2. 30" ROLL CURB (USD 217A), IS ALLOWED WHERE DRAINAGE CONDITIONS PERMIT. INCREASED ROADWAY WIDTHS MAY BE ACCOMODATED BY REDUCING COMMON ELEMENT.
3. RAISED PAVEMENT MARKERS ADJACENT TO SCHOOLS ONLY

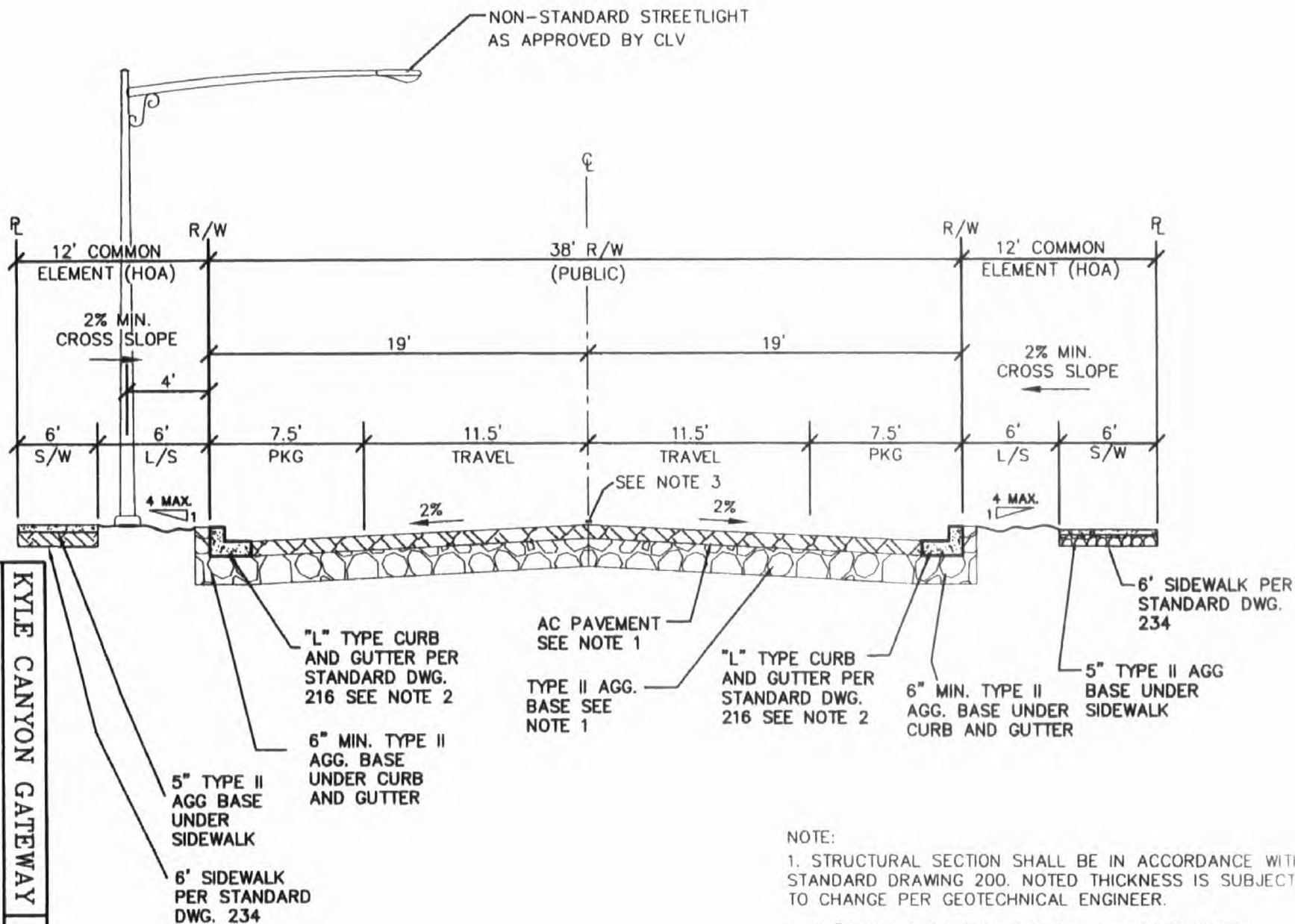
DATE: 05-08-07

DWG. NO. DG-S-C1

CONNECTOR STREET-
38' SECTION (PUBLIC)

KYLE CANYON GATEWAY

STANDARD
DRAWINGS



NOTE:

1. STRUCTURAL SECTION SHALL BE IN ACCORDANCE WITH STANDARD DRAWING 200. NOTED THICKNESS IS SUBJECT TO CHANGE PER GEOTECHNICAL ENGINEER.
2. 30" ROLL CURB (USD 217A), IS ALLOWED WHERE DRAINAGE CONDITIONS PERMIT. INCREASED ROADWAY WIDTHS MAY BE ACCOMODATED BY REDUCING COMMON ELEMENT.
3. RAISED PAVEMENT MARKERS ADJACENT TO SCHOOLS ONLY

DATE: 05-08-07

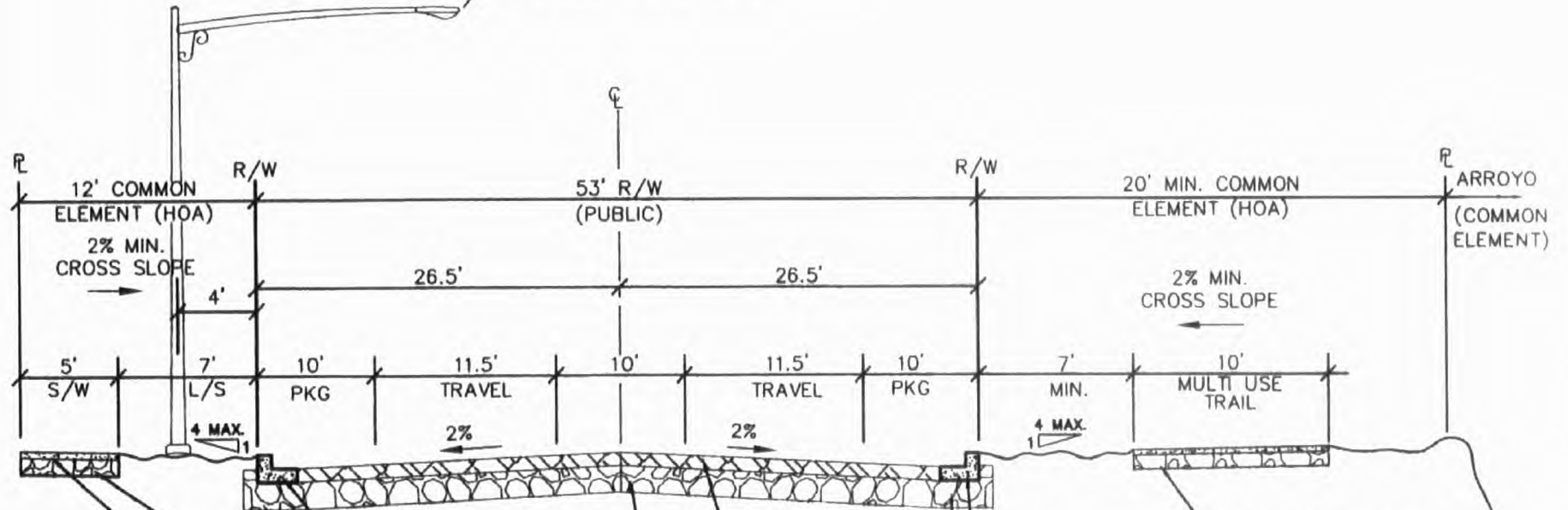
DWG NO. DG-S-C2

CONNECTOR STREET-
38' SECTION (PUBLIC)

KYLE CANYON GATEWAY

STANDARD
DRAWINGS

NON-STANDARD STREETLIGHT
AS APPROVED BY CLV



"L" TYPE CURB AND
GUTTER PER
STANDARD DWG. 216
SEE NOTE 2

6" MIN. TYPE II
AGG. BASE UNDER
CURB AND GUTTER

5" TYPE II AGG
BASE UNDER
SIDEWALK

5' SIDEWALK PER
STANDARD DWG. 234

TYPE II AGG.
BASE SEE
NOTE 1

AC PAVEMENT
SEE NOTE 1

"L" TYPE CURB AND
GUTTER PER
STANDARD DWG. 216
SEE NOTE 2

6" MIN. TYPE II
AGG. BASE UNDER
CURB AND GUTTER

AC OVER TYPE II
AGG. BASE OR
APPROVED EQUAL
PER DG-S-T3

NOTE:

1. STRUCTURAL SECTION SHALL BE IN ACCORDANCE WITH
STANDARD DRAWING 200. NOTED THICKNESS IS SUBJECT
TO CHANGE PER GEOTECHNICAL ENGINEER.

2. 30" ROLL CURB (USD 217A), IS ALLOWED WHERE
DRAINAGE CONDITIONS PERMIT. INCREASED ROADWAY
WIDTHS MAY BE ACCOMODATED BY
REDUCING COMMON ELEMENT.

3. ADJACENT TO SCHOOL SITE SIDEWALK SHALL BE
INCREASED TO 6' AND LANDSCAPE AREA SHALL BE
REDUCED TO 6'

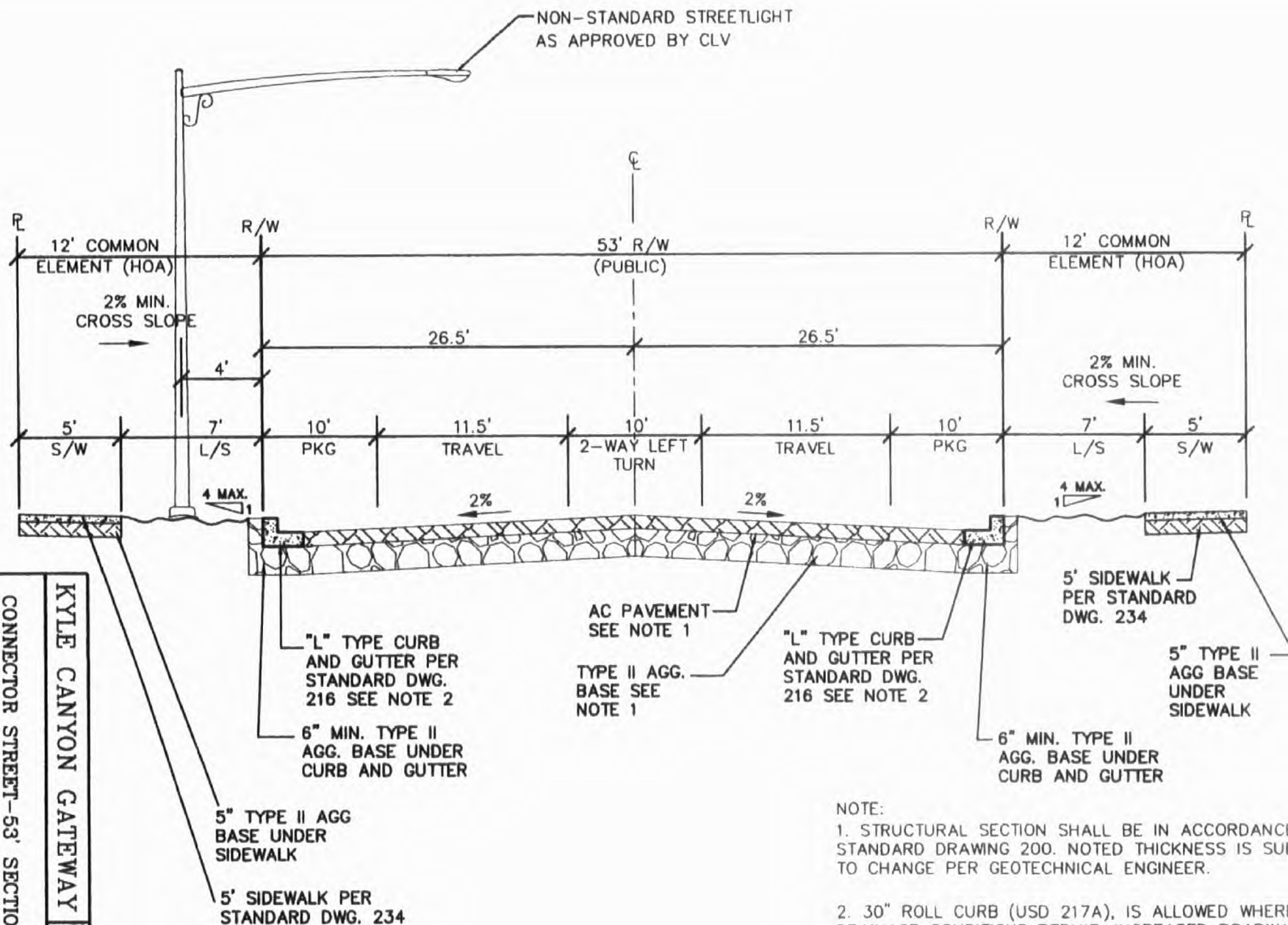
DATE: 05-08-07

DWG NO. DG-S-C3

CONNECTOR STREET-53' SECTION
(PUBLIC) ADJACENT TO ARROYO

KYLE CANYON GATEWAY

STANDARD
DRAWINGS



NOTE:

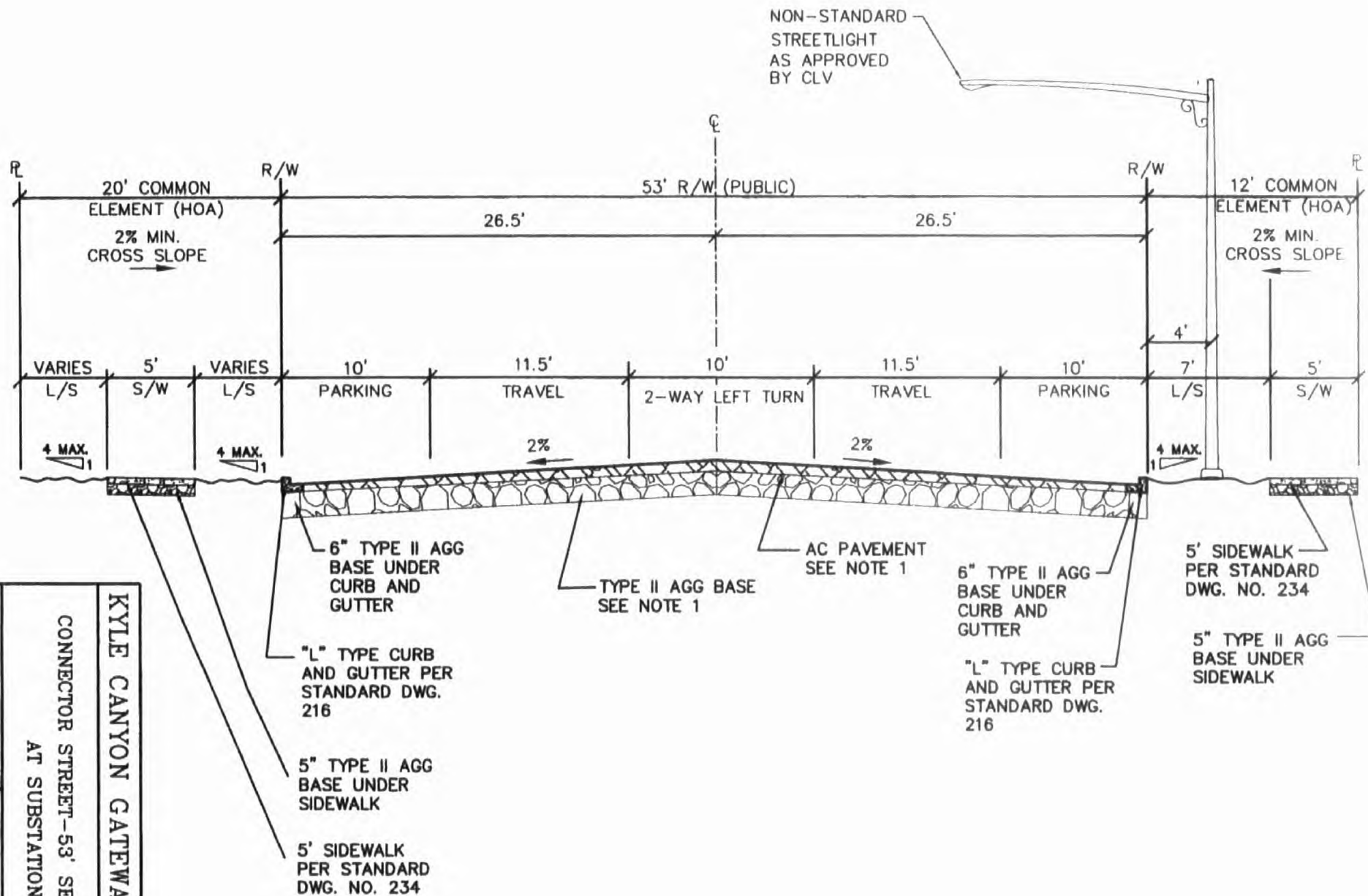
1. STRUCTURAL SECTION SHALL BE IN ACCORDANCE WITH STANDARD DRAWING 200. NOTED THICKNESS IS SUBJECT TO CHANGE PER GEOTECHNICAL ENGINEER.
2. 30" ROLL CURB (USD 217A), IS ALLOWED WHERE DRAINAGE CONDITIONS PERMIT. INCREASED ROADWAY WIDTHS MAY BE ACCOMMODATED BY REDUCING COMMON ELEMENT.
3. WHERE APPLICABLE WITHIN MIXED USE DISTRICT, 0' BUILDING SET BACK COMMON ELEMENT SHALL BE CONTROLLED BY FIGURE 3-3 OF DESIGN GUIDELINES.

DATE: 05-08-07

DWG NO. DG-S-C4

KYLE CANYON GATEWAY
CONNECTOR STREET-53' SECTION (PUBLIC)
W/2-WAY LEFT TURN (PUBLIC)

STANDARD
DRAWINGS



DATE: 05-08-07

DWG NO. DG-S-C4A

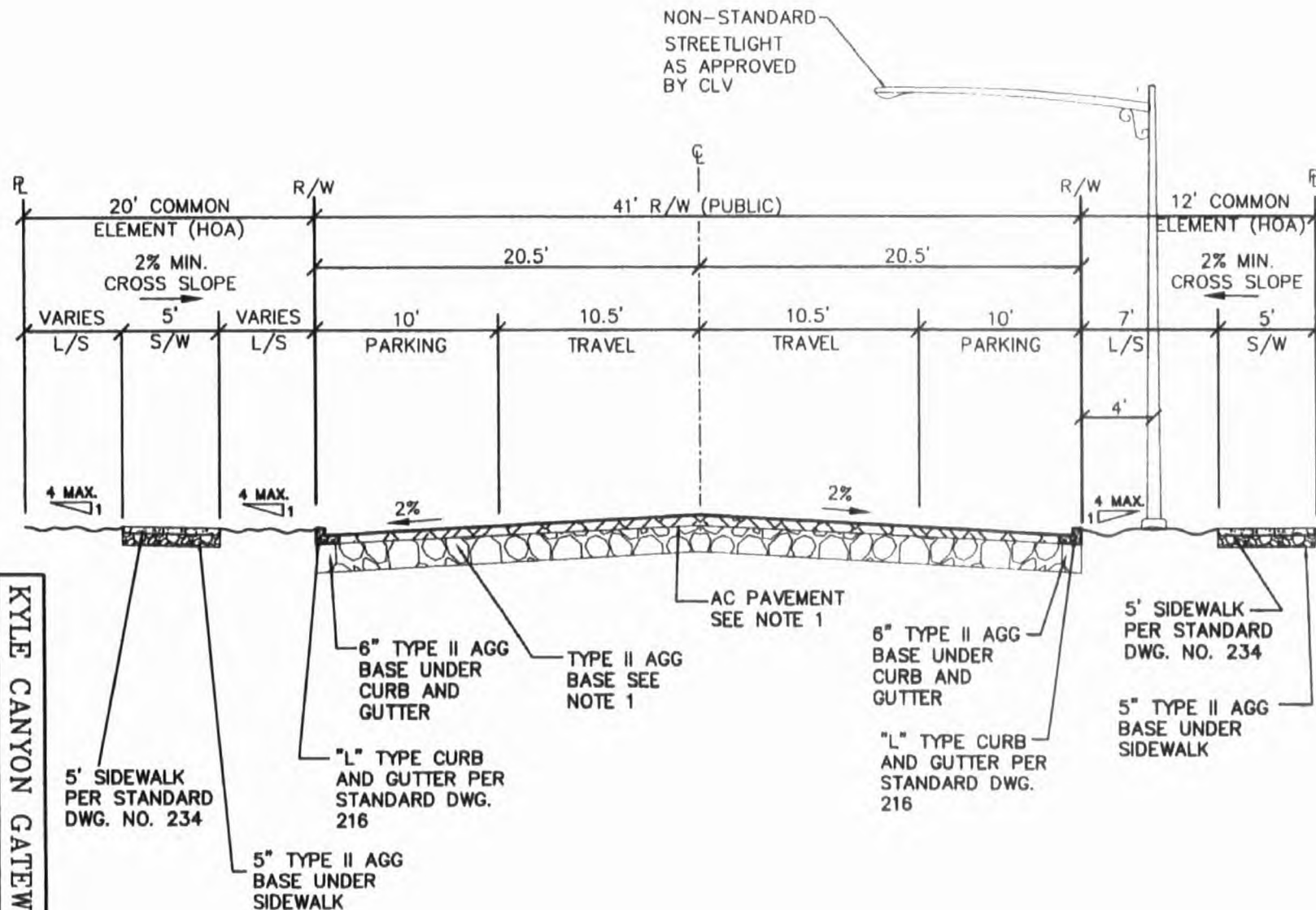
CONNECTOR STREET-53' SECTION (PUBLIC)
AT SUBSTATION

KYLE CANYON GATEWAY

STANDARD
DRAWINGS

NOTE:

1. STRUCTURAL SECTION SHALL BE IN ACCORDANCE WITH STANDARD DRAWING 200. NOTED THICKNESS IS SUBJECT TO CHANGE PER GEOTECHNICAL ENGINEER.



NOTE:

1. STRUCTURAL SECTION SHALL BE IN ACCORDANCE WITH STANDARD DRAWING 200. NOTED THICKNESS IS SUBJECT TO CHANGE PER GEOTECHNICAL ENGINEER.

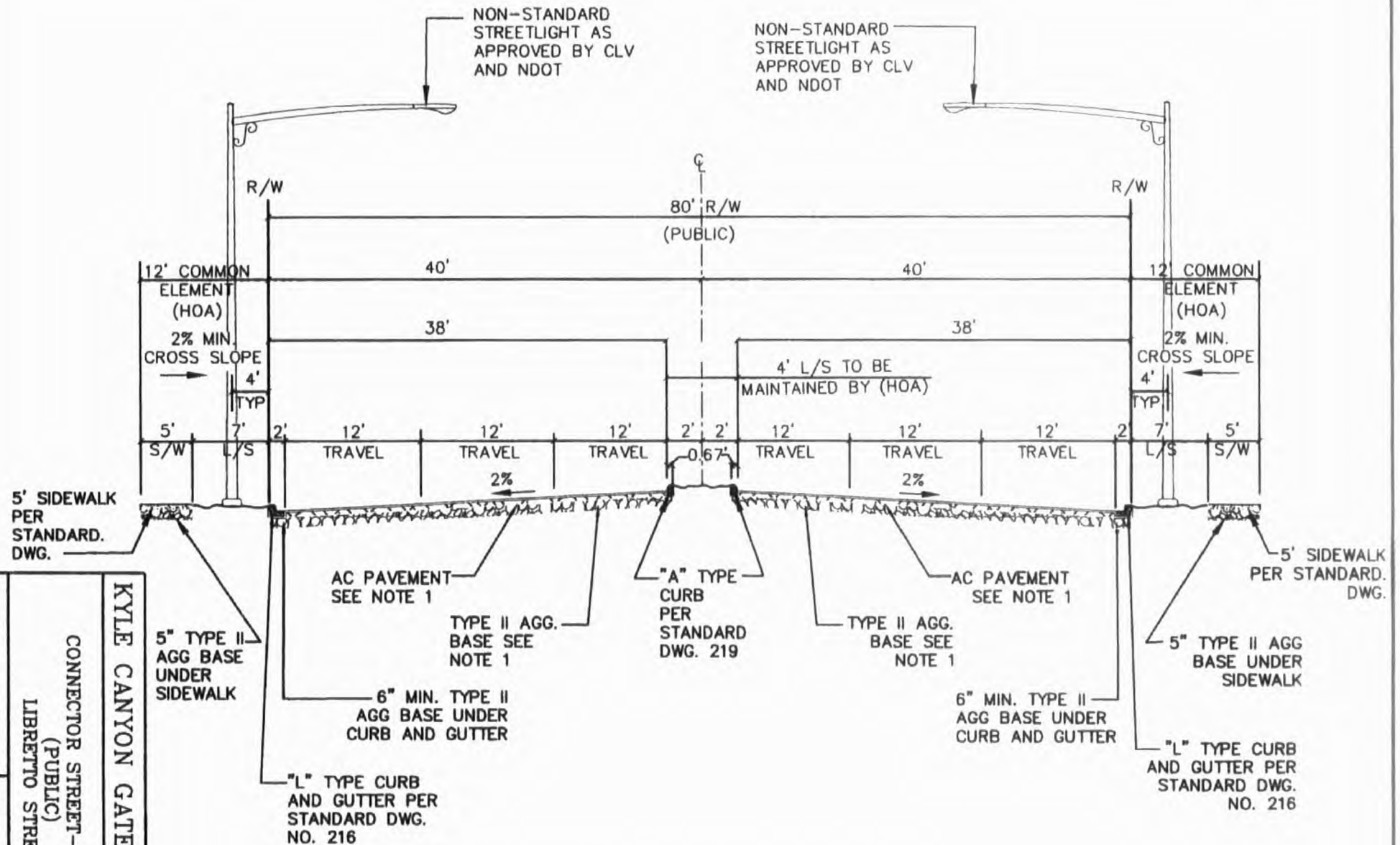
DATE: 05-08-07

DWG NO. DG-S-C4D

CONNECTOR STREET-41' SECTION (PUBLIC)
SUBSTATION (48' EQUIVALENT SECTION)
(PUBLIC)

KYLE CANYON GATEWAY

STANDARD
DRAWINGS



NOTE:

1. STRUCTURAL SECTION SHALL BE IN ACCORDANCE WITH STANDARD DRAWING 200. NOTED THICKNESS IS SUBJECT TO CHANGE PER GEOTECHNICAL ENGINEER.

2. REPLACE "L" TYPE CURB WITH 30" ROLL CURB PER STANDARD DWG. 217A, WHERE HOMES FRONT ON STREETS AND DRAINAGE CONDITIONS PERMIT

DATE: 05-08-07

DWG NO. DG-S-C6

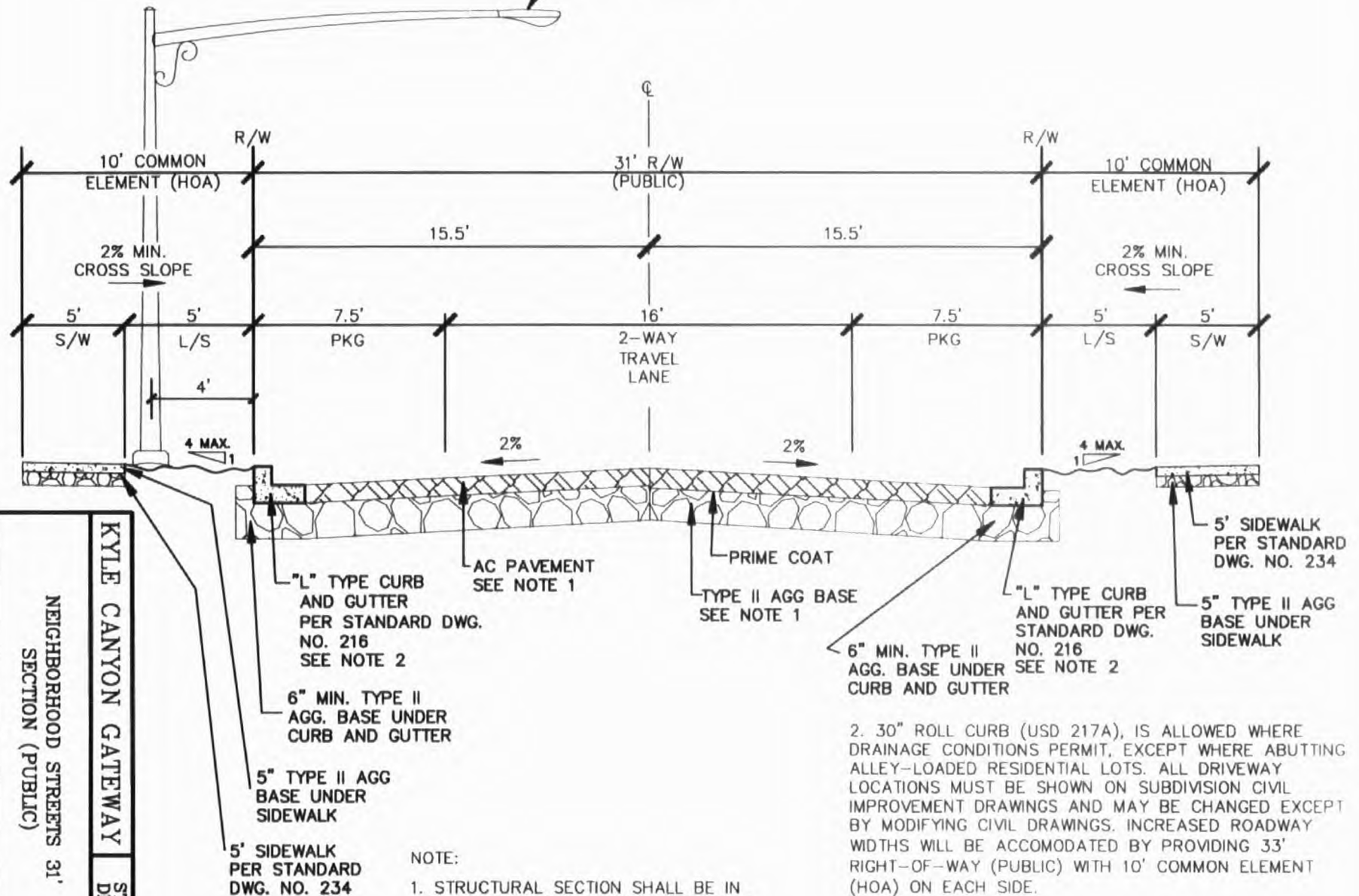
LIBRETTO STREET

CONNECTOR STREET-80' SECTION
(PUBLIC)

KYLE CANYON GATEWAY

STANDARD DRAWINGS

NON-STANDARD
STREETLIGHT AS
APPROVED BY CLV



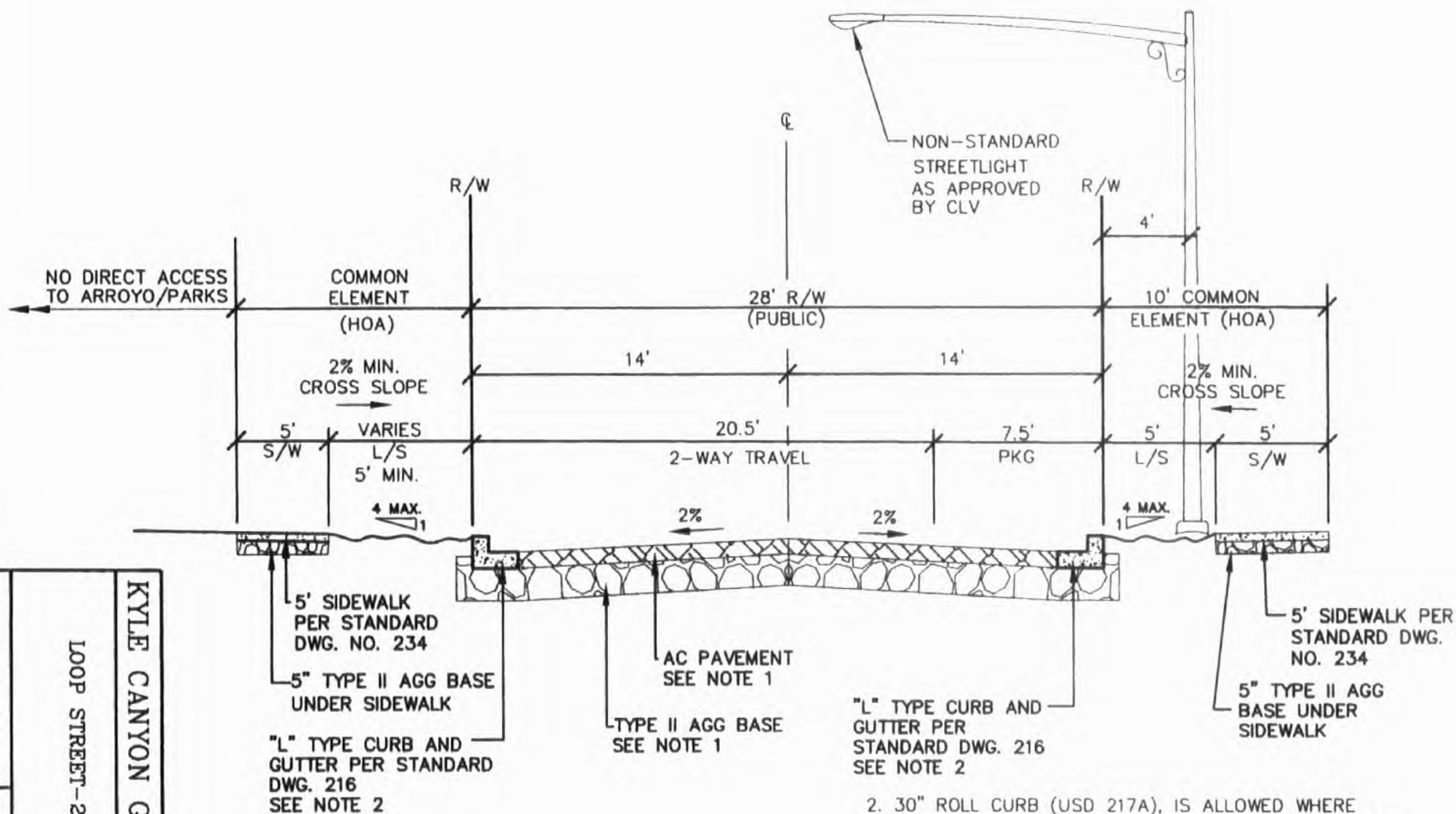
DATE: 05-08-07

DWG NO. DG-S-D1

NEIGHBORHOOD STREETS 31'
SECTION (PUBLIC)

KYLE CANYON GATEWAY

STANDARD
DRAWINGS



NOTE:

1. STRUCTURAL SECTION SHALL BE IN ACCORDANCE WITH STANDARD DRAWING 200. NOTED THICKNESS IS SUBJECT TO CHANGE PER GEOTECHNICAL ENGINEER.

"L" TYPE CURB AND GUTTER PER STANDARD DWG. 216 SEE NOTE 2

2. 30" ROLL CURB (USD 217A), IS ALLOWED WHERE DRAINAGE CONDITIONS PERMIT, EXCEPT WHERE ABUTTING ALLEY-LOADED RESIDENTIAL LOTS. ALL DRIVEWAY LOCATIONS MUST BE SHOWN ON SUBDIVISION CIVIL IMPROVEMENT DRAWINGS AND MAY BE CHANGED EXCEPT BY MODIFYING CIVIL DRAWINGS. INCREASED ROADWAY WIDTHS WILL BE ACCOMODATED BY PROVIDING 30' RIGHT-OF-WAY (PUBLIC) WITH 10' COMMON ELEMENT (HOA) ON EACH SIDE.

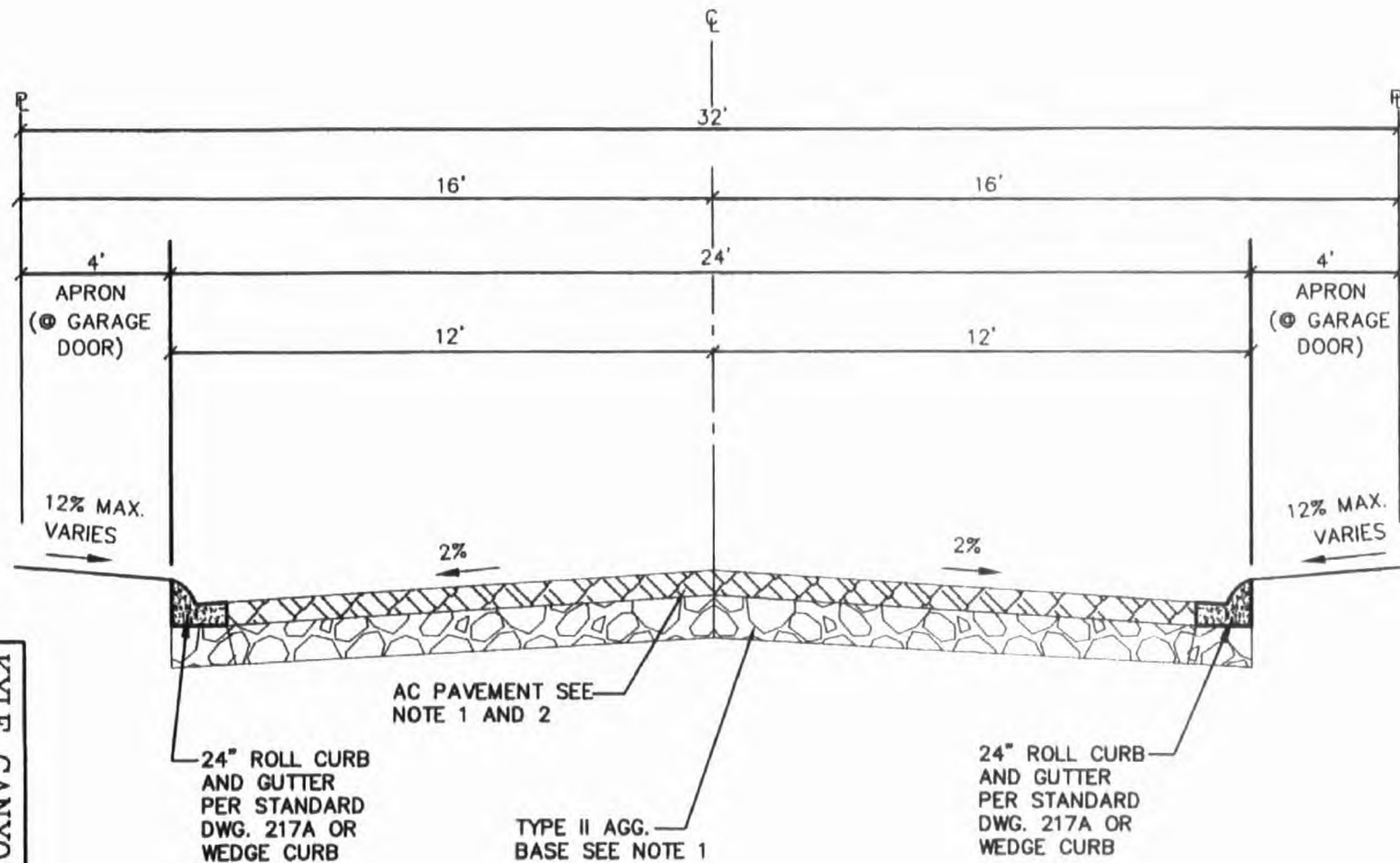
3. THIS STREET SECTION IS LIMITED TO A MAXIMUM AVERAGE DAILY TRAFFIC OF 1000 OR 120 RESIDENTIAL UNITS (WHICHEVER IS GREATER) AND A MAXIMUM RESIDENTIAL DENSITY OF 10 DU/AC.

DATE: 05-08-07

DWG NO. DG-S-D2

LOOP STREET-28' SECTION (PUBLIC)

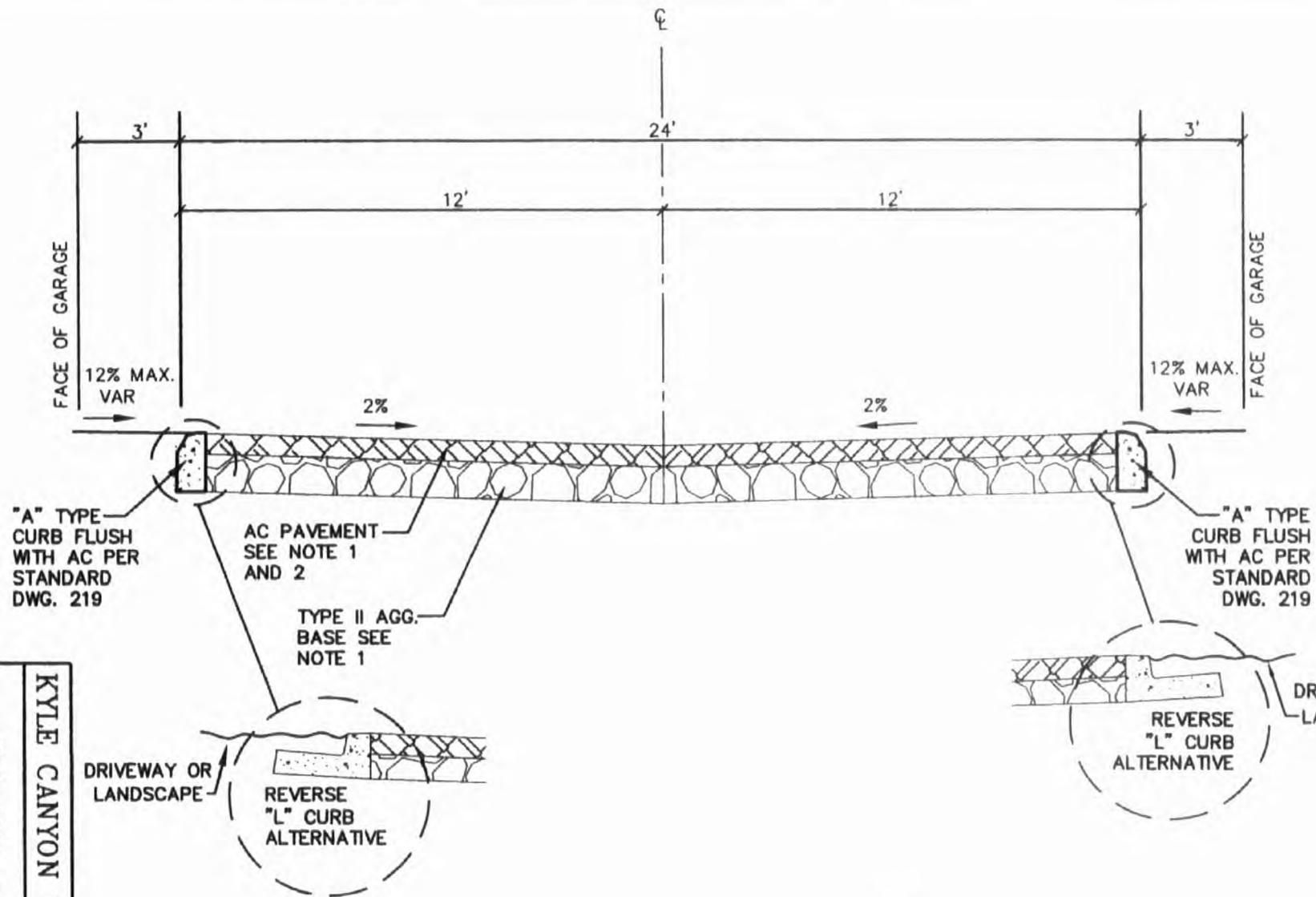
KYLE CANYON GATEWAY STANDARD DRAWINGS



NOTE:

1. STRUCTURAL SECTION SHALL BE IN ACCORDANCE WITH STANDARD DRAWING 200. NOTED THICKNESS IS SUBJECT TO CHANGE PER GEOTECHNICAL ENGINEER.
2. ASPHALT MAY BE REPLACED WITH EQUIVALENT CONCRETE BLOCK SECTION
3. "L" CURB AND GUTTER ALLOWED, PER STANDARD DWG. 216.

DATE: 05-08-07	KYLE CANYON GATEWAY COURT STREET-32' SECTION (PRIVATE) STANDARD DRAWINGS
DWG NO. DG-S-D3	



NOTE:

1. STRUCTURAL SECTION SHALL BE IN ACCORDANCE WITH STANDARD DRAWING 200. NOTED THICKNESS IS SUBJECT TO CHANGE PER GEOTECHNICAL ENGINEER.
2. ASPHALT MAY BE REPLACED WITH EQUIVALENT CONCRETE BLOCK SECTION
3. 34' MINIMUM CLEAR DISTANCE BETWEEN OPPOSING GARAGE FACES REQUIRED WHERE COURT STREET CONTAINS PUBLIC WATER MAINS.

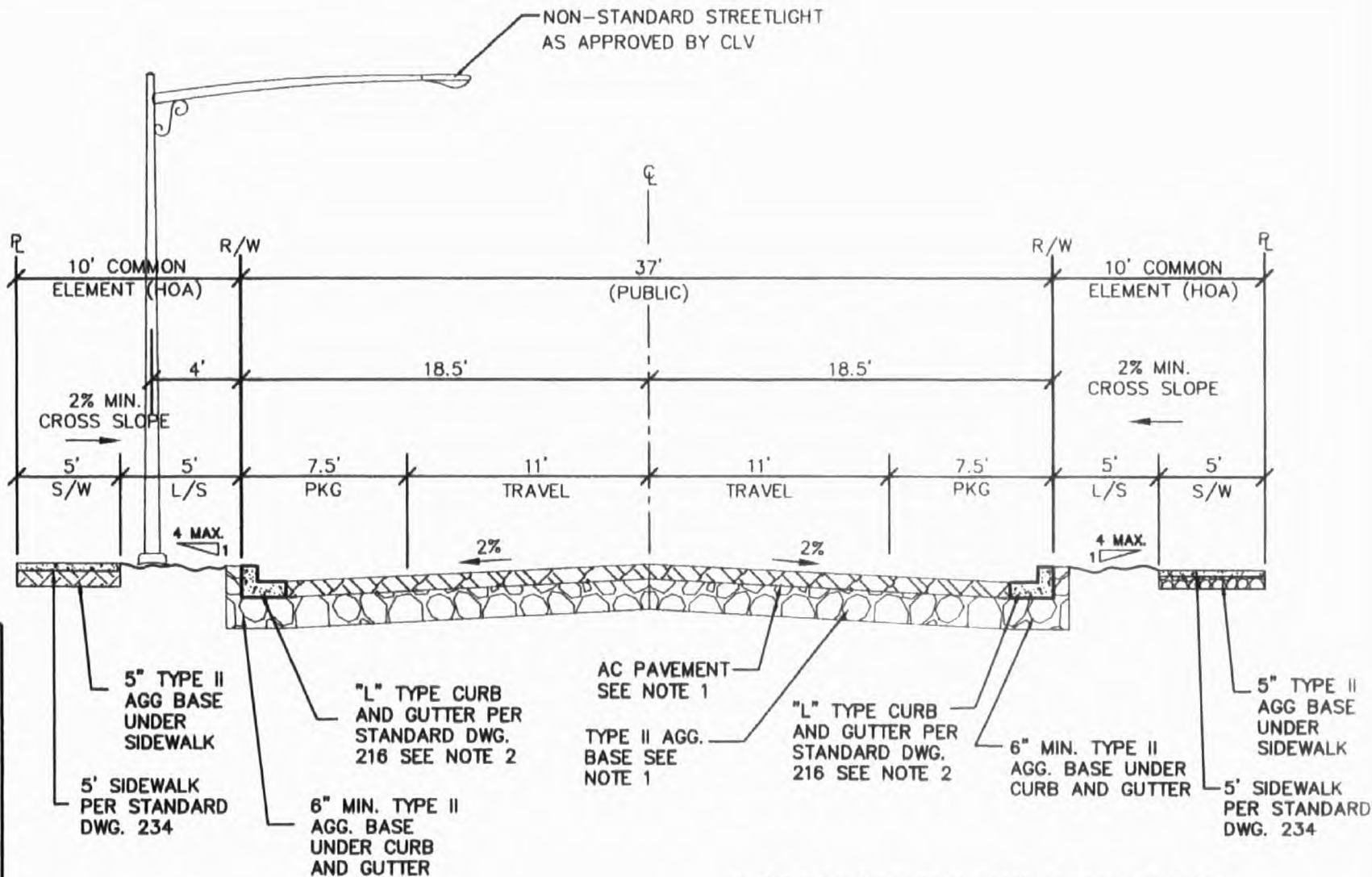
DATE: 05-08-07

DWG NO. DG-S-D4

KYLE CANYON GATEWAY

STANDARD DRAWINGS

MOTOR COURT STREET-24' SECTION
(PRIVATE)



NOTE:

1. STRUCTURAL SECTION SHALL BE IN ACCORDANCE WITH STANDARD DRAWING 200. NOTED THICKNESS IS SUBJECT TO CHANGE PER GEOTECHNICAL ENGINEER.

2. 30" ROLL CURB (USD 217A), IS ALLOWED WHERE DRAINAGE CONDITIONS PERMIT, EXCEPT WHERE ABUTTING ALLEY-LOADED RESIDENTIAL LOTS. ALL DRIVEWAY LOCATIONS MUST BE SHOWN ON SUBDIVISION CIVIL IMPROVEMENT DRAWINGS AND MAY BE CHANGED EXCEPT BY MODIFYING CIVIL DRAWINGS. INCREASED ROADWAY WIDTHS WILL BE ACCOMODATED BY PROVIDING 39' RIGHT-OF-WAY (PUBLIC) WITH 10' COMMON ELEMENT (HOA) ON EACH SIDE.

3. THIS STREET SECTION LIMITED TO A MAXIMUM AVERAGE DAILY TRAFFIC OF 3000.

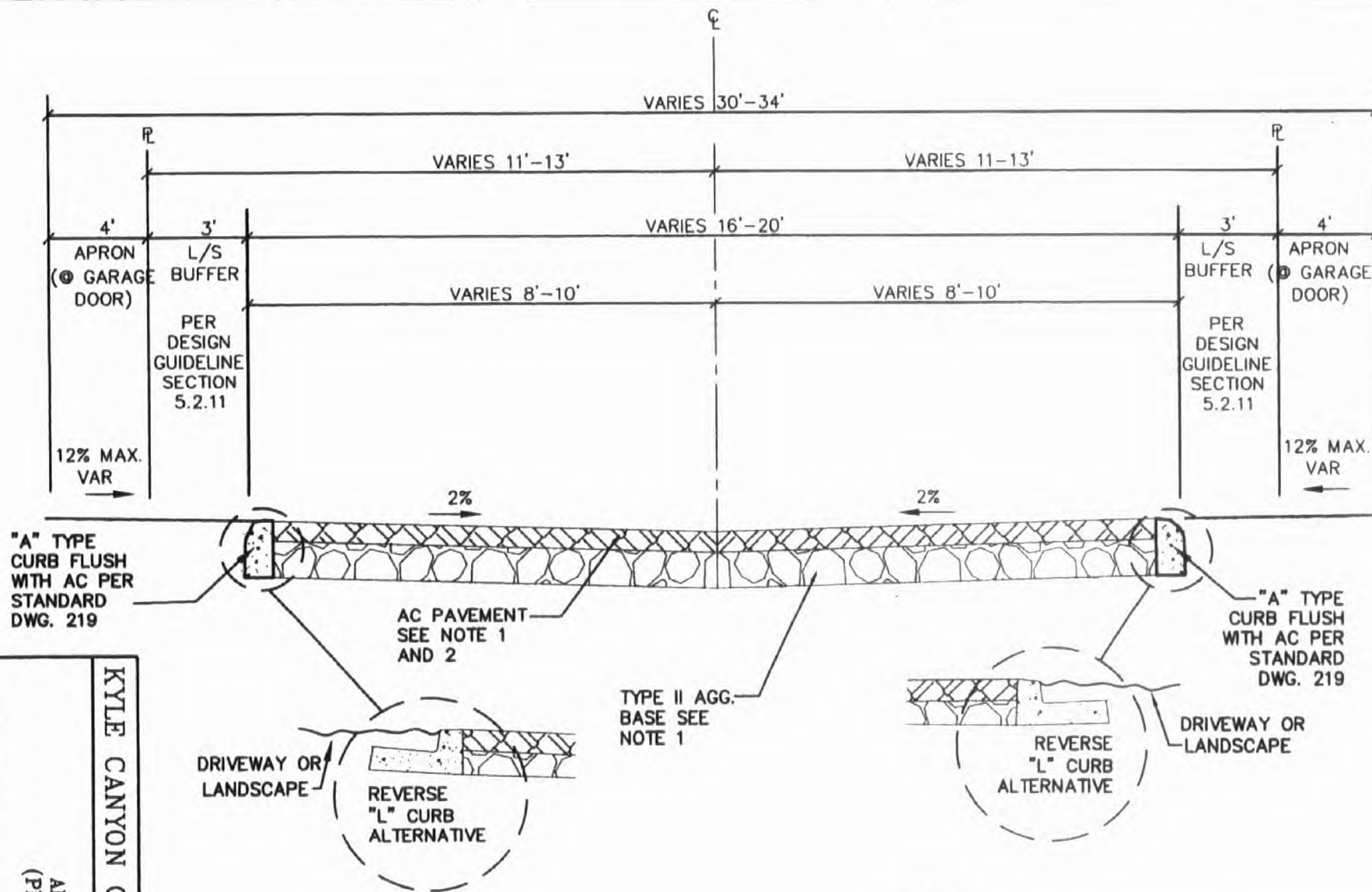
DATE: 05-08-07

DWG NO. DG-S-D5

KYLE CANYON GATEWAY

STANDARD DRAWINGS

NEIGHBORHOOD STREETS
37' SECTION (PUBLIC)



NOTE:

1. STRUCTURAL SECTION SHALL BE IN ACCORDANCE WITH STANDARD DRAWING 200. NOTED THICKNESS IS SUBJECT TO CHANGE PER GEOTECHNICAL ENGINEER.
2. ASPHALT MAY BE REPLACED WITH EQUIVALENT CONCRETE BLOCK SECTION
3. 34' MINIMUM CLEAR DISTANCE BETWEEN OPPOSING GARAGE FACES REQUIRED WHERE ALLEY CONTAINS PUBLIC WATER MAINS.

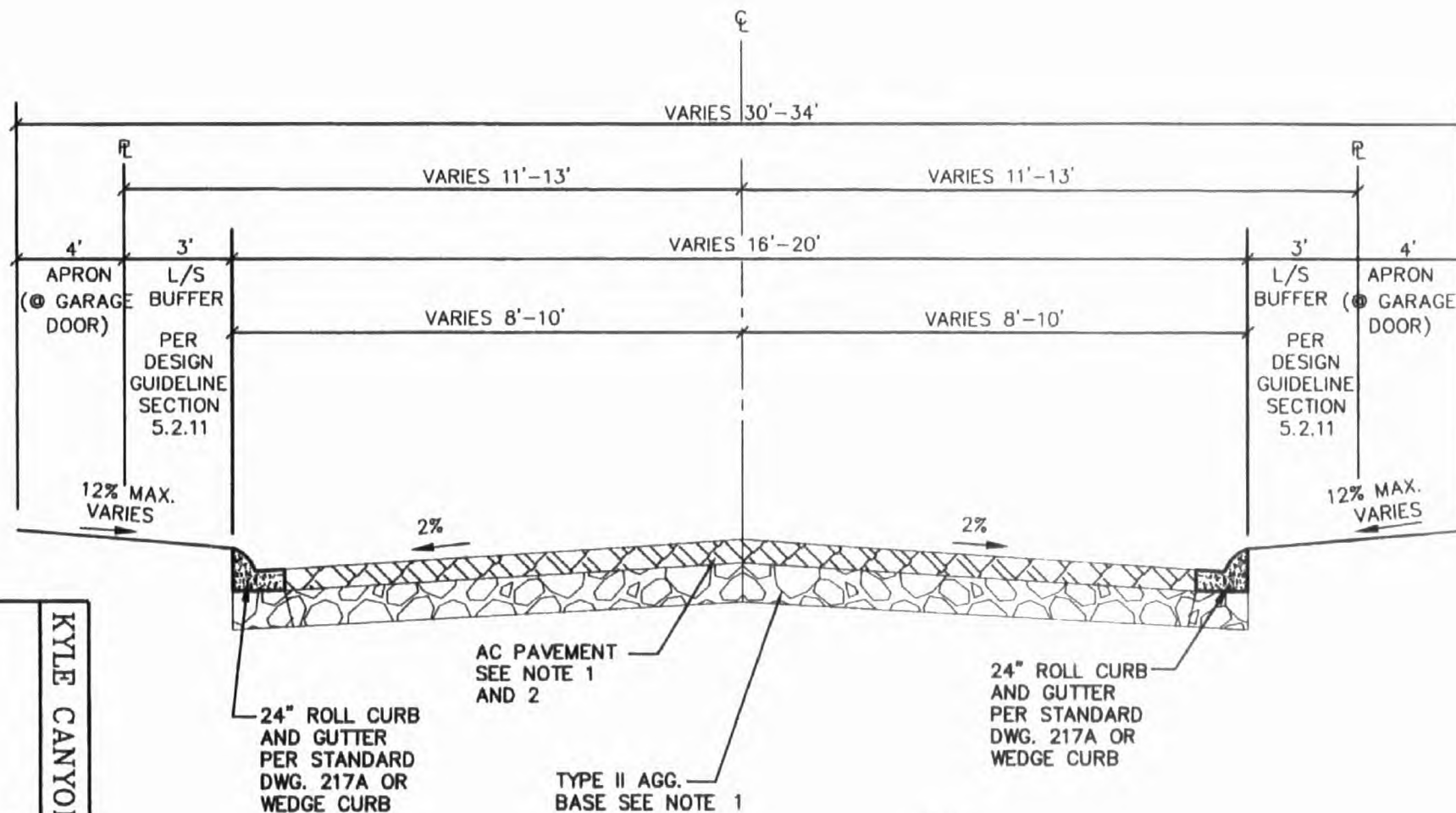
DATE: 05-08-07

DWG NO. DG-S-E1

KYLE CANYON GATEWAY

STANDARD DRAWINGS

ALLEY-1
(PRIVATE)



NOTE:

1. STRUCTURAL SECTION SHALL BE IN ACCORDANCE WITH STANDARD DRAWING 200. NOTED THICKNESS IS SUBJECT TO CHANGE PER GEOTECHNICAL ENGINEER.
2. ASPHALT MAY BE REPLACED WITH EQUIVALENT CONCRETE BLOCK SECTION
3. 34' MINIMUM CLEAR DISTANCE BETWEEN OPPOSING GARAGE FACES REQUIRED WHERE ALLEY CONTAINS PUBLIC WATER MAINS.

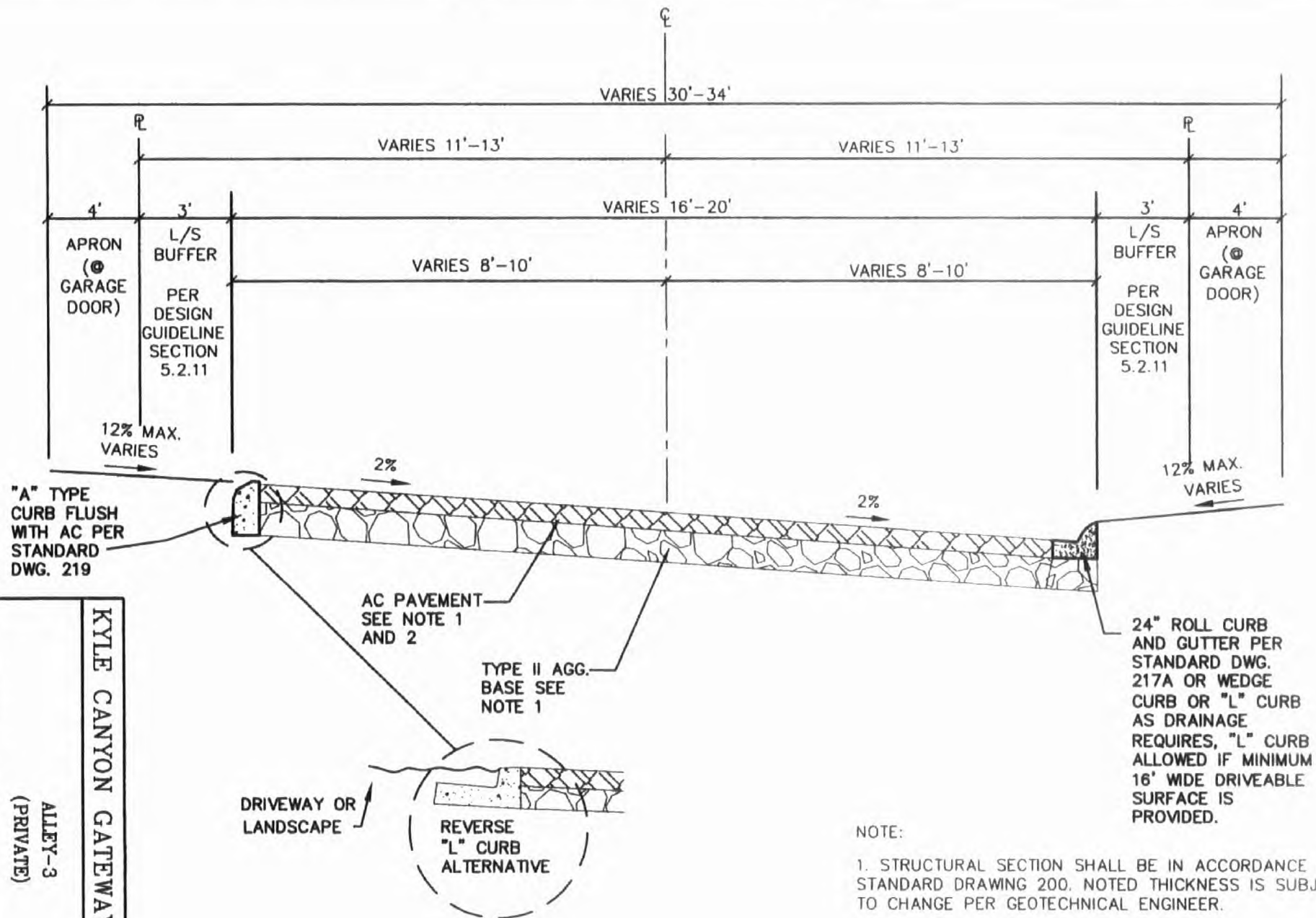
KYLE CANYON GATEWAY

STANDARD
DRAWINGS

ALLEY-2
(PRIVATE)

DATE: 05-08-07

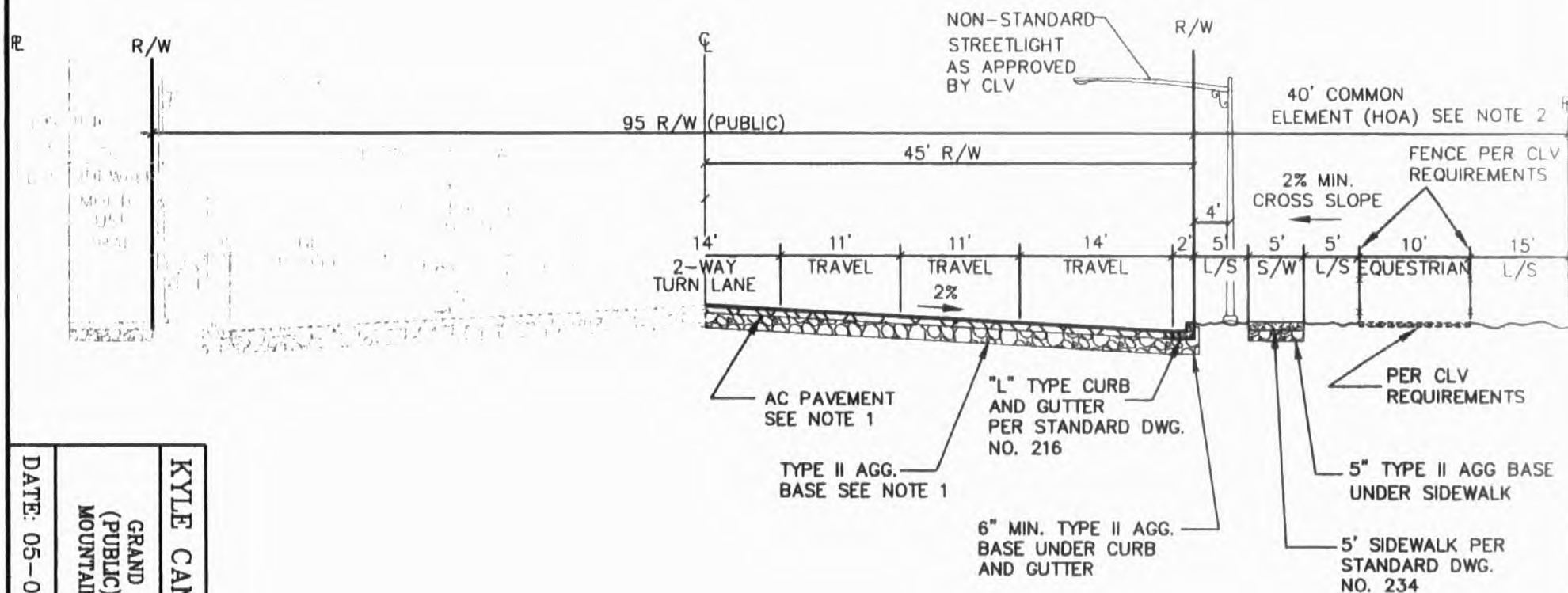
DWG NO. DG-S-E2



NOTE:

1. STRUCTURAL SECTION SHALL BE IN ACCORDANCE WITH STANDARD DRAWING 200. NOTED THICKNESS IS SUBJECT TO CHANGE PER GEOTECHNICAL ENGINEER.
2. ASPHALT MAY BE REPLACED WITH EQUIVALENT CONCRETE BLOCK SECTION
3. 34' MINIMUM CLEAR DISTANCE BETWEEN OPPOSING GARAGE FACES REQUIRED WHERE ALLEY CONTAINS PUBLIC WATER MAINS.

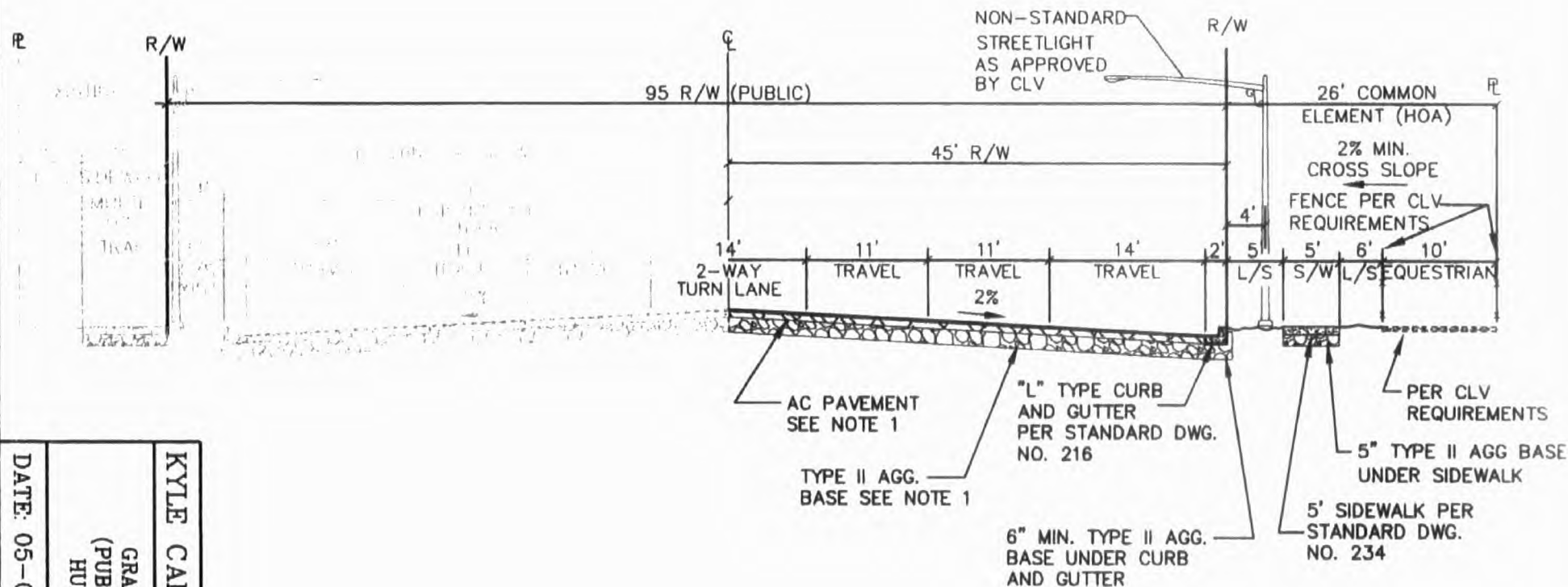
DATE: 05-08-07	KYLE CANYON GATEWAY	STANDARD DRAWINGS
DWG NO. DG-S-E3	ALLEY-3 (PRIVATE)	



NOTE:

1. STRUCTURAL SECTION SHALL BE IN ACCORDANCE WITH STANDARD DRAWING 200. NOTED THICKNESS IS SUBJECT TO CHANGE PER GEOTECHNICAL ENGINEER.
2. DIMENSIONS WITHIN COMMON ELEMENT WILL VARY TO ACCOMMODATE NPC POWER POLES.

DATE: 05-08-07	DWG NO. DG-S-P1
KYLE CANYON GATEWAY GRAND TETON DRIVE-95' SECTION (PUBLIC) 100' EQUIVALENT SECTION MOUNTAIN EDGE PKWY TO HUALAPAI	
STANDARD DRAWINGS	

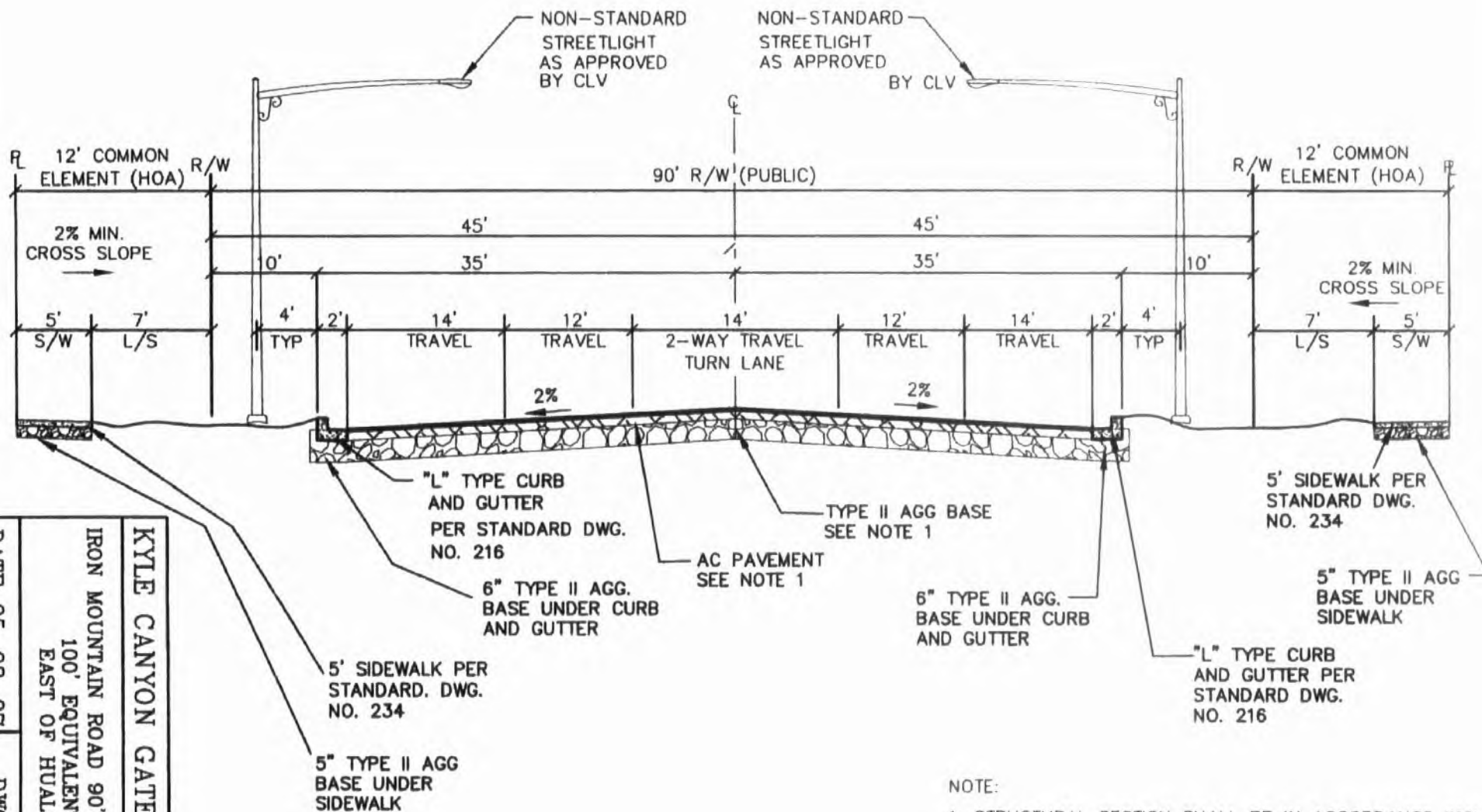


NOTE:

1. STRUCTURAL SECTION SHALL BE IN ACCORDANCE WITH STANDARD DRAWING 200. NOTED THICKNESS IS SUBJECT TO CHANGE PER GEOTECHNICAL ENGINEER.

2. WHERE APPLICABLE ADJACENT TO COMMERCIAL USES SIDEWALK WIDTH SHALL BE INCREASED TO 6' AND LANDSCAPE AREA BETWEEN SIDEWALK AND EQUESTRIAN TRAIL SHALL BE REDUCED BY 1'.

DATE: 05-08-07	DWG NO. DG-S-P1A
KYLE CANYON GATEWAY	
STANDARD DRAWINGS	
GRAND TETON DRIVE-95' SECTION (PUBLIC) 100' EQUIVALENT SECTION HUALAPAI TO GRAND CANYON	



NOTE:

1. STRUCTURAL SECTION SHALL BE IN ACCORDANCE WITH STANDARD DRAWING 200. NOTED THICKNESS IS SUBJECT TO CHANGE PER GEOTECHNICAL ENGINEER.

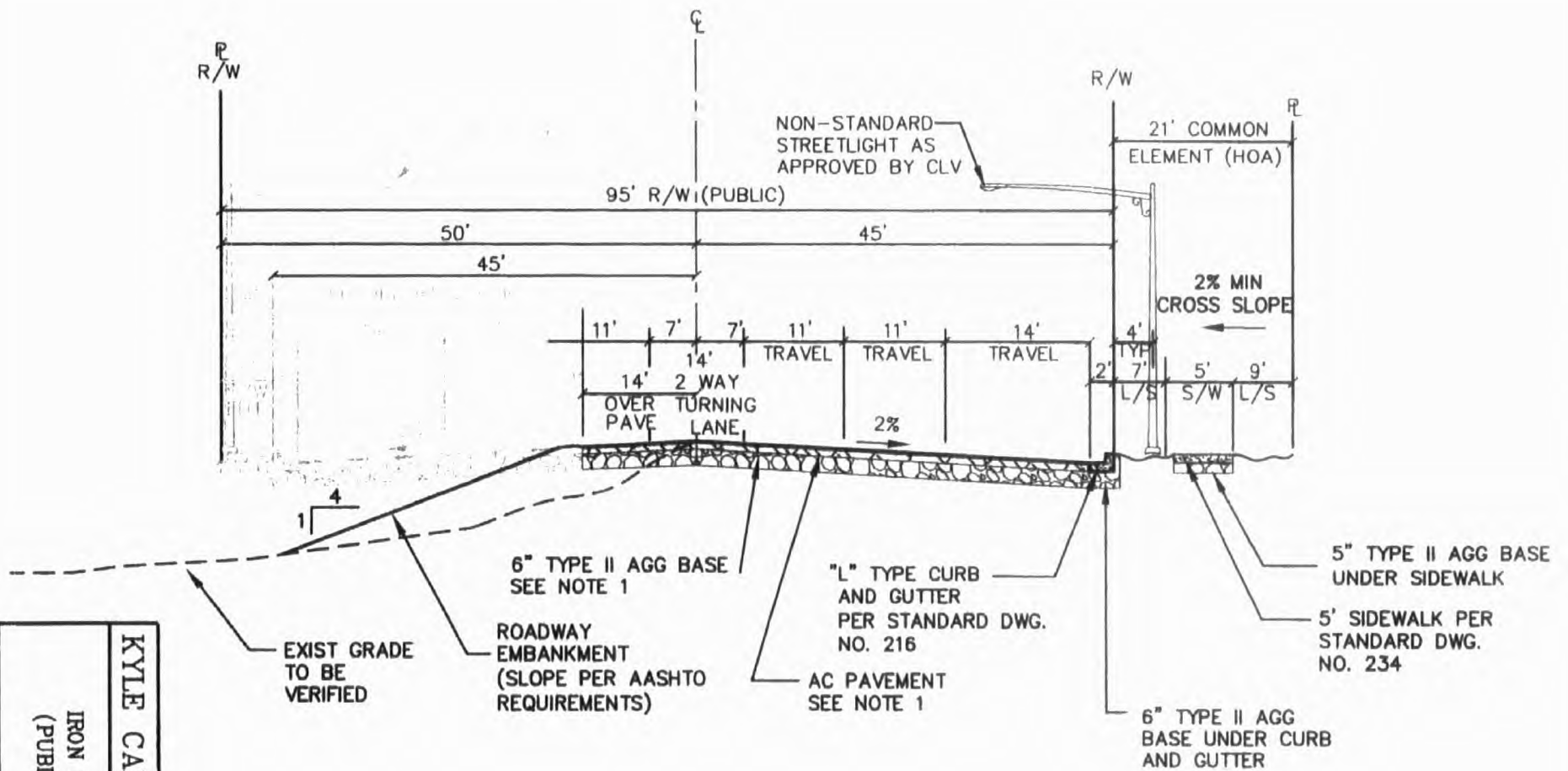
2. WHERE APPLICABLE ADJACENT TO COMMERCIAL USES SIDEWALK WIDTH SHALL BE INCREASED TO 6' AND THE LANDSCAPE AREA SHALL BE REDUCED TO 6'.

DATE: 05-08-07

DWG NO. DG-S-P2

IRON MOUNTAIN ROAD 90'-SECTION (PUBLIC)
100' EQUIVALENT SECTION
EAST OF HUALAPAI WAY

KYLE CANYON GATEWAY
STANDARD DRAWINGS



NOTE:

1. STRUCTURAL SECTION SHALL BE IN ACCORDANCE WITH STANDARD DRAWING 200. NOTED THICKNESS IS SUBJECT TO CHANGE PER GEOTECHNICAL ENGINEER.

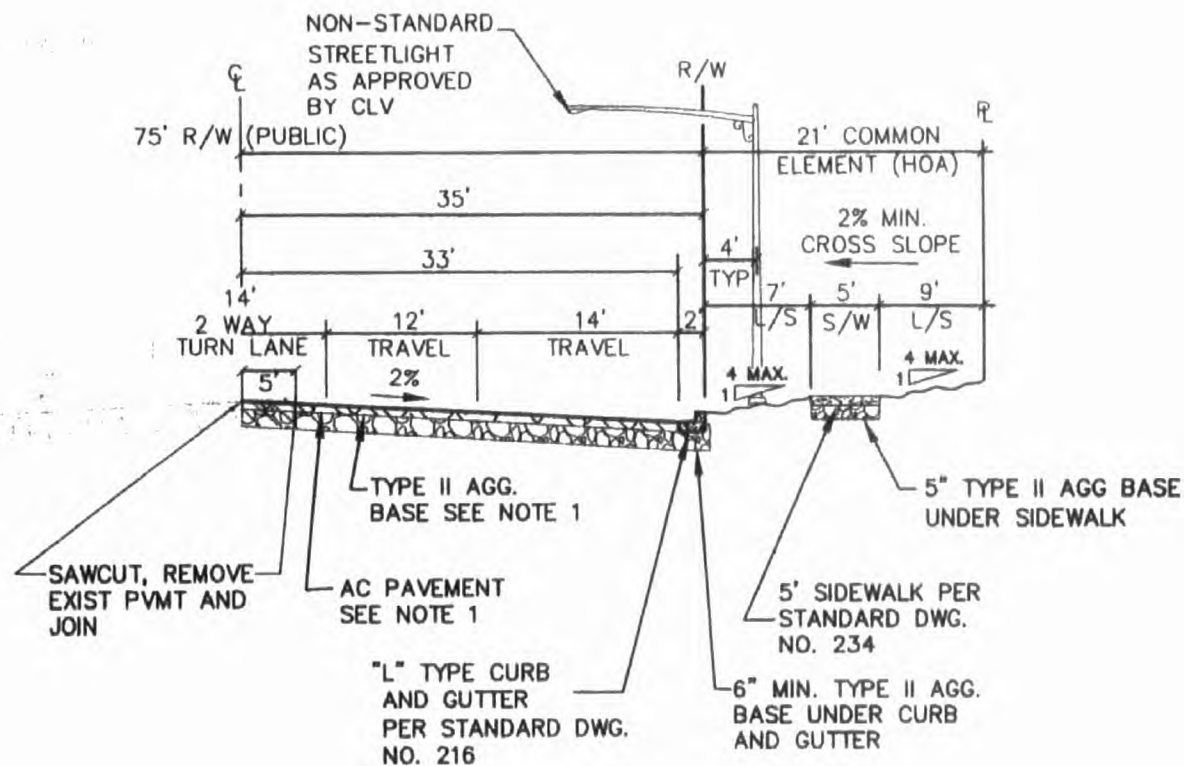
DATE: 05-08-07

DWG NO. DG-S-P3

KYLE CANYON GATEWAY

STANDARD DRAWINGS

IRON MOUNTAIN ROAD 95'-SECTION
(PUBLIC) WEST OF HUAPAI WAY



NOTE:

1. STRUCTURAL SECTION SHALL BE IN ACCORDANCE WITH STANDARD DRAWING 200. NOTED THICKNESS IS SUBJECT TO CHANGE PER GEOTECHNICAL ENGINEER.

2. WHERE APPLICABLE ADJACENT TO COMMERCIAL USES, SIDEWALK WIDTH SHALL BE INCREASED TO 6' AND LANDSCAPE AREA BETWEEN SIDEWALK AND PROPERTY LINE SHALL BE REDUCED BY 1'.

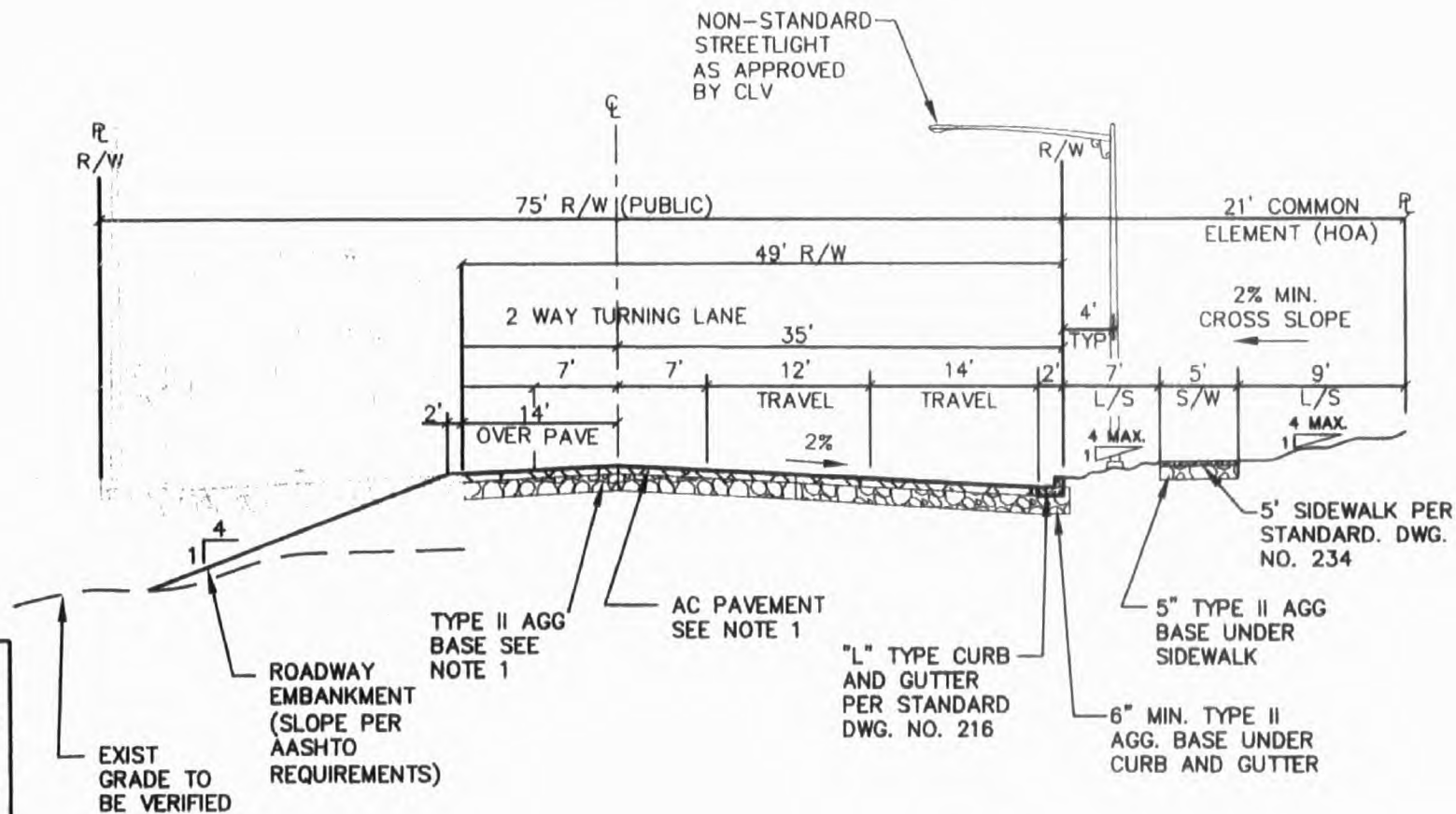
DATE: 05-08-07

DWG NO. DG-S-P4

KYLE CANYON GATEWAY

STANDARD DRAWINGS

GRAND CANYON DRIVE-75' SECTION
(PUBLIC) 80' EQUIVALENT SECTION
GRAND TETON DRIVE TO HORSE DRIVE



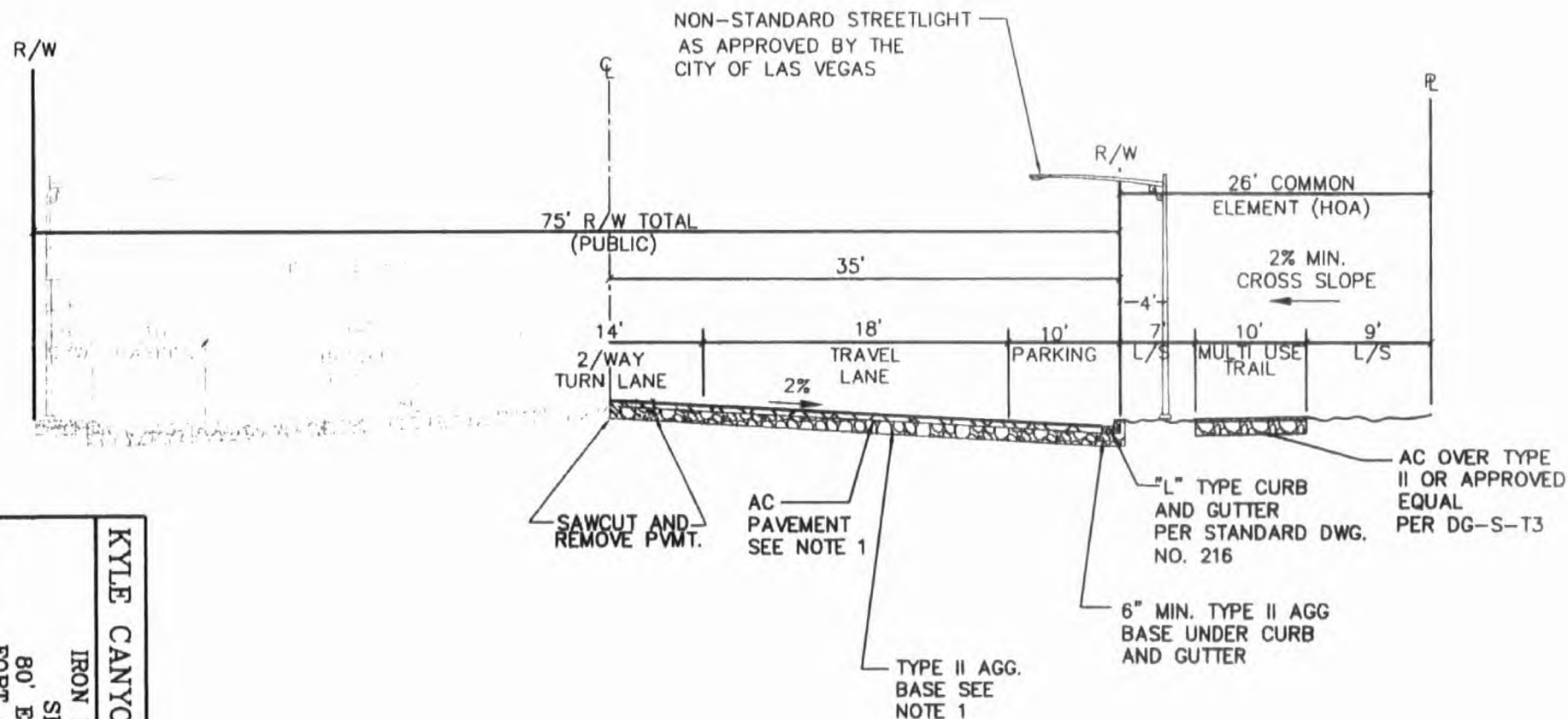
NOTE:

1. STRUCTURAL SECTION SHALL BE IN ACCORDANCE WITH STANDARD DRAWING 200. NOTED THICKNESS IS SUBJECT TO CHANGE PER GEOTECHNICAL ENGINEER.
2. WHERE APPLICABLE WITHIN MIXED USE DISTRICT, AND ONLY IN AREAS WITH 0' BUILDING SET BACK, THE COMMON ELEMENT AMENITIES SHALL BE CONTROLLED BY FIGURE 3-21 OF THE DESIGN GUIDELINES.
3. WHERE APPLICABLE ADJACENT TO COMMERCIAL USES SIDEWALK WIDTH SHALL BE INCREASED TO 6' AND LANDSCAPE AREA BETWEEN SIDEWALK AND PROPERTY LINE SHALL BE REDUCED BY 1'.

KYLE CANYON GATEWAY STANDARD DRAWINGS

GRAND CANYON DRIVE-75' SECTION (PUBLIC)
80' EQUIVALENT SECTION HORSE DRIVE
TO LIBRETTO STREET

DATE: 05-08-07 DWG NO. DG-S-P5



NOTE:

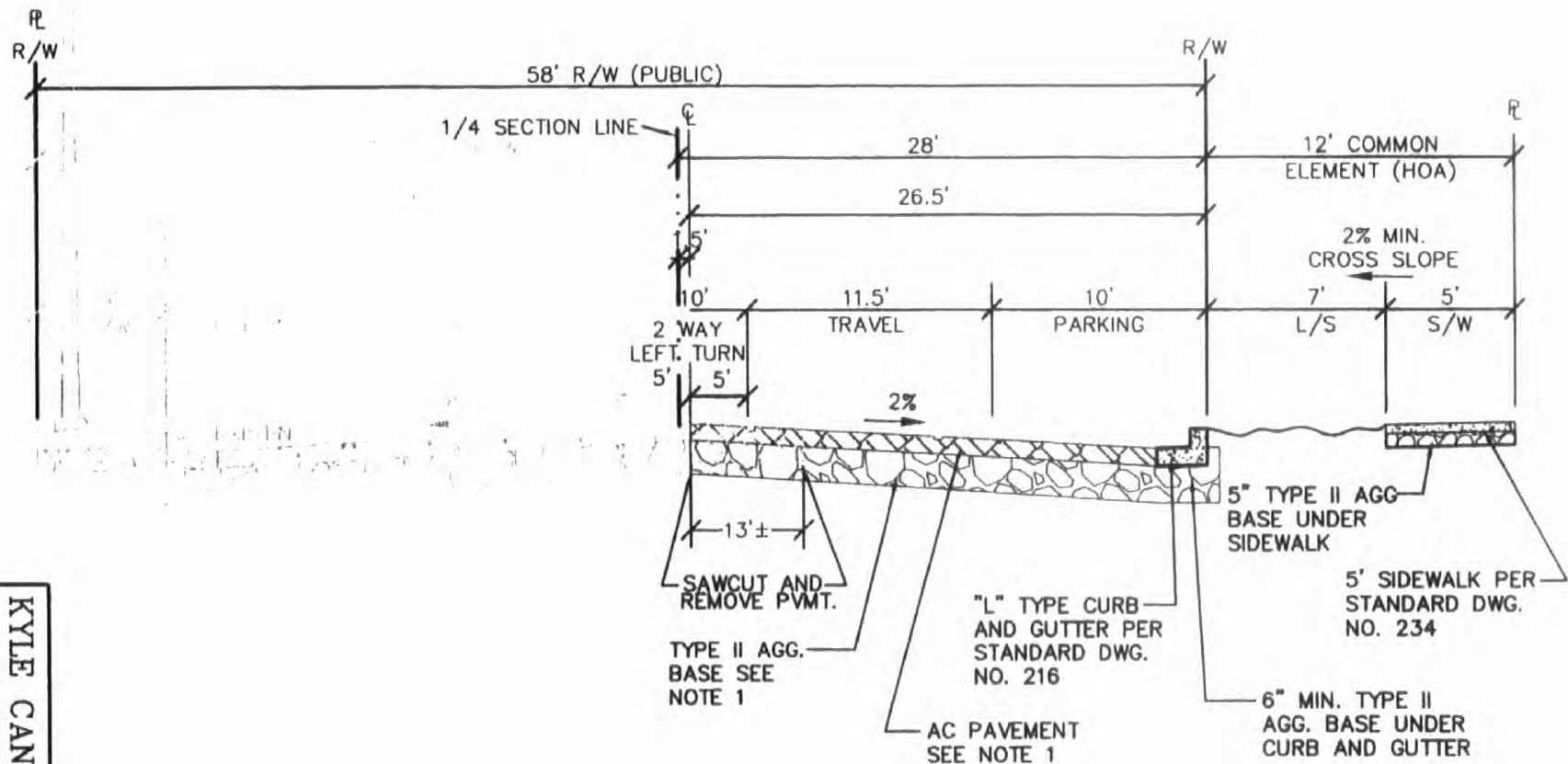
1. STRUCTURAL SECTION SHALL BE IN ACCORDANCE WITH
STANDARD DRAWING 200. NOTED THICKNESS IS SUBJECT
TO CHANGE PER GEOTECHNICAL ENGINEER.

KYLE CANYON GATEWAY

STANDARD
DRAWINGS

IRON MOUNTAIN ROAD-75'
SECTION (PUBLIC)
80' EQUIVALENT SECTION
FORT APACHE TO TEE PEE

DATE: 05-08-07 DWG NO. DG-S-P6



NOTE:

1. STRUCTURAL SECTION SHALL BE IN ACCORDANCE WITH STANDARD DRAWING 200. NOTED THICKNESS IS SUBJECT TO CHANGE PER GEOTECHNICAL ENGINEER.

KYLE CANYON GATEWAY

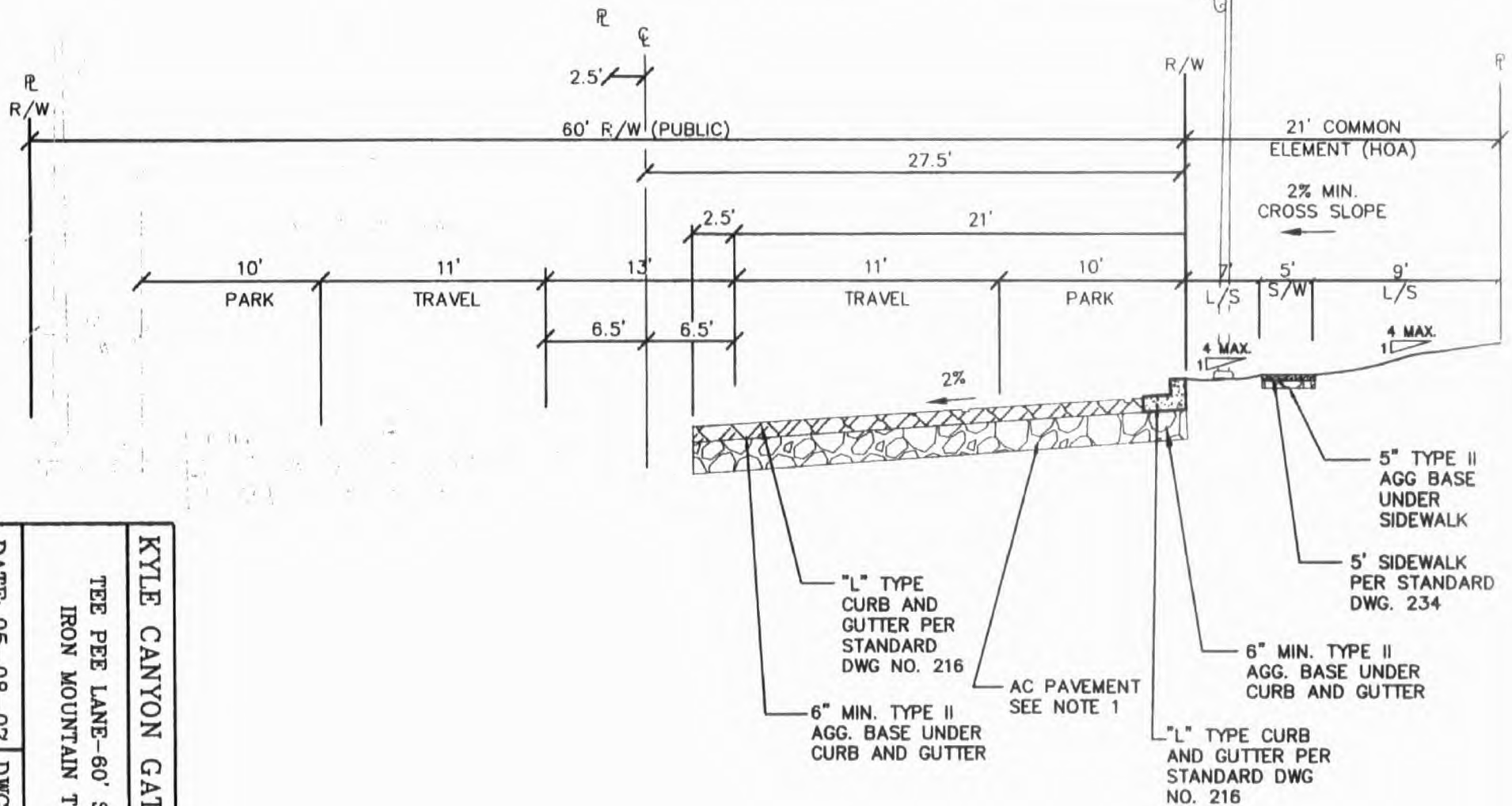
STANDARD DRAWINGS

BRENT LANE-58' SECTION (PUBLIC)
ADJACENT TO EXIST. ELEM. SCHOOL

DATE: 05-08-07

DWG NO. DG-S-P7

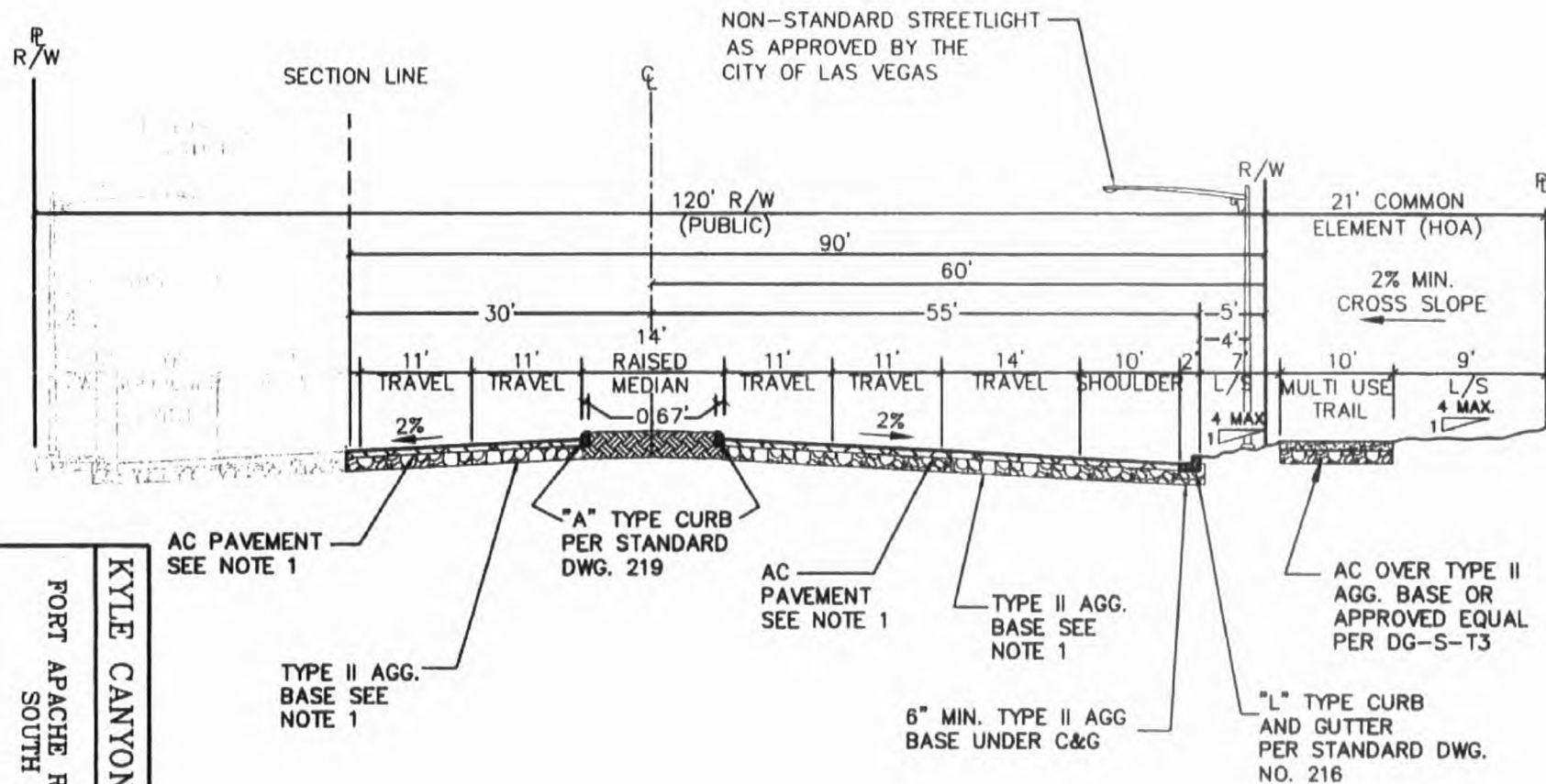
NON-STANDARD STREETLIGHT
AS APPROVED BY THE
CITY OF LAS VEGAS



NOTE:

1. STRUCTURAL SECTION SHALL BE IN ACCORDANCE WITH
STANDARD DRAWING 200. NOTED THICKNESS IS SUBJECT
TO CHANGE PER GEOTECHNICAL ENGINEER.

DATE: 05-08-07	DWG NO. DG-S-P7A
KYLE CANYON GATEWAY TEE PEE LANE-60' SECTION (PUBLIC) IRON MOUNTAIN TO BRENT LANE	
STANDARD DRAWINGS	



NOTE:

1. STRUCTURAL SECTION SHALL BE IN ACCORDANCE WITH
STANDARD DRAWING 200. NOTED THICKNESS IS SUBJECT
TO CHANGE PER GEOTECHNICAL ENGINEER.

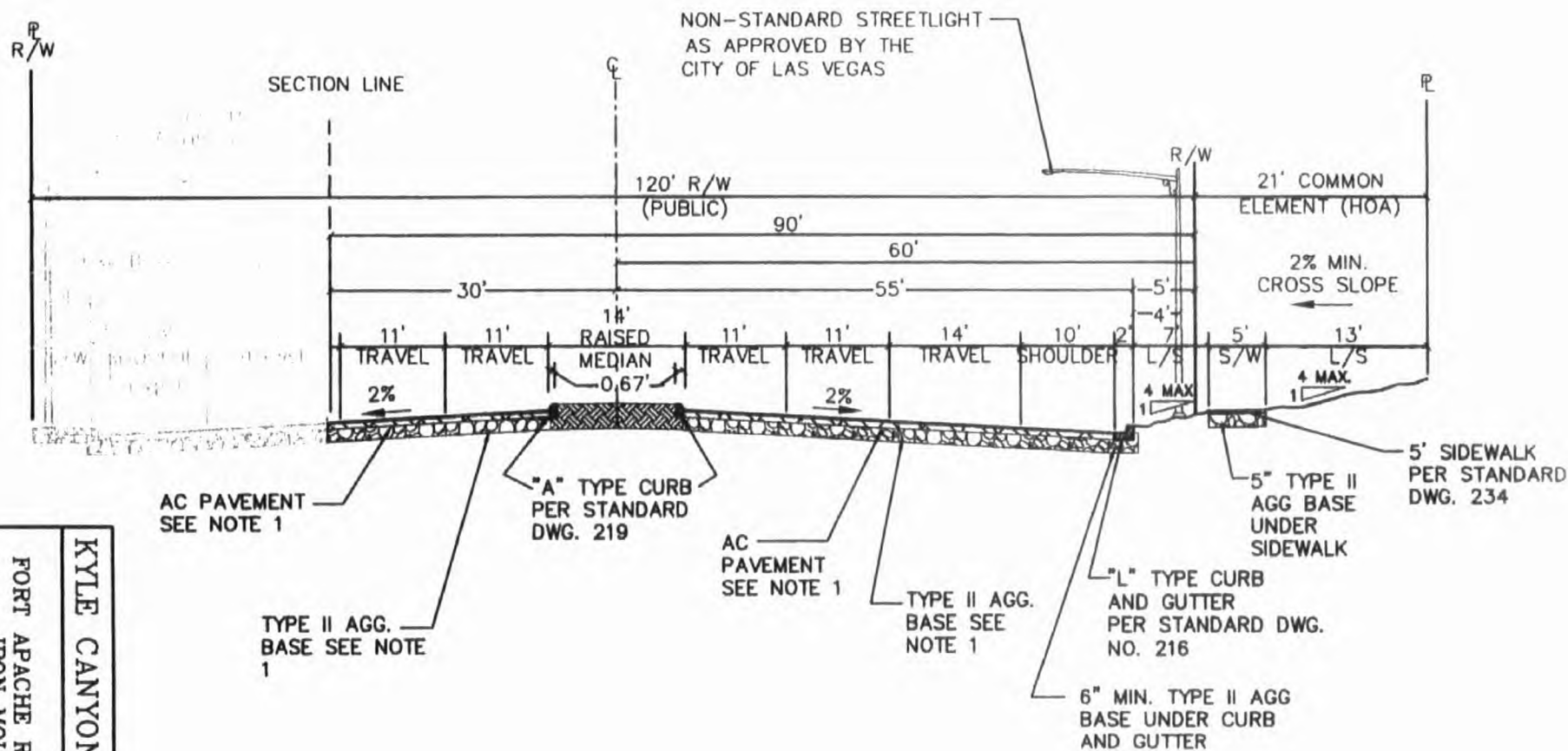
KYLE CANYON GATEWAY

STANDARD
DRAWINGS

FORT APACHE ROAD-120' SECTION (PUBLIC)
SOUTH OF IRON MOUNTAIN

DATE: 05-08-07

DWG NO. DG-S-P8



NOTE:

1. STRUCTURAL SECTION SHALL BE IN ACCORDANCE WITH
STANDARD DRAWING 200. NOTED THICKNESS IS SUBJECT
TO CHANGE PER GEOTECHNICAL ENGINEER.

KYLE CANYON GATEWAY

STANDARD
DRAWINGS

FORT APACHE ROAD-120' SECTION (PUBLIC)
IRON MOUNTAIN TO LOG CABIN

DATE: 05-08-07

DWG NO. DG-S-P8A

R/W

CL/SECTION LINE

NON-STANDARD STREETLIGHT
AS APPROVED BY CLV

120' R/W
(PUBLIC)

R/W

21' COMMON
ELEMENT (HOA)

R/W

60'

60'

55'

55'

2% MIN.
CROSS SLOPE

7'

48'

5'

5'

5'

5'

5'

5'

5'

5'

5'

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5'

RAISED MEDIAN

TRAVEL

TRAVEL

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TRAVEL

"A" TYPE CURB
PER STD DWG. 219

AC
PAVEMENT
SEE NOTE 1

TYPE II AGG.
BASE SEE
NOTE 1

"L" TYPE CURB
AND GUTTER
PER STD. DWG.
NO. 216

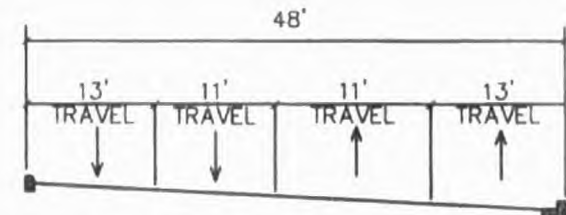
5' SIDEWALK
PER STANDARD
DWG. 234

5" TYPE II
AGG BASE
UNDER
SIDEWALK

6" MIN. TYPE II
AGG BASE UNDER
CURB AND GUTTER

EXIST GRADE TO
BE VERIFIED

TEMPORARY ROADWAY
EMBANKMENT (SLOPE
PER AASHTO
REQUIREMENTS)



INTERIM STRIPING
ON WEST SIDE ONLY UNTIL THE
FUTURE EAST SIDE IS CONSTRUCTED

NOTE:

1. STRUCTURAL SECTION SHALL BE IN ACCORDANCE WITH
STANDARD DRAWING 200. NOTED THICKNESS IS SUBJECT
TO CHANGE PER GEOTECHNICAL ENGINEER.

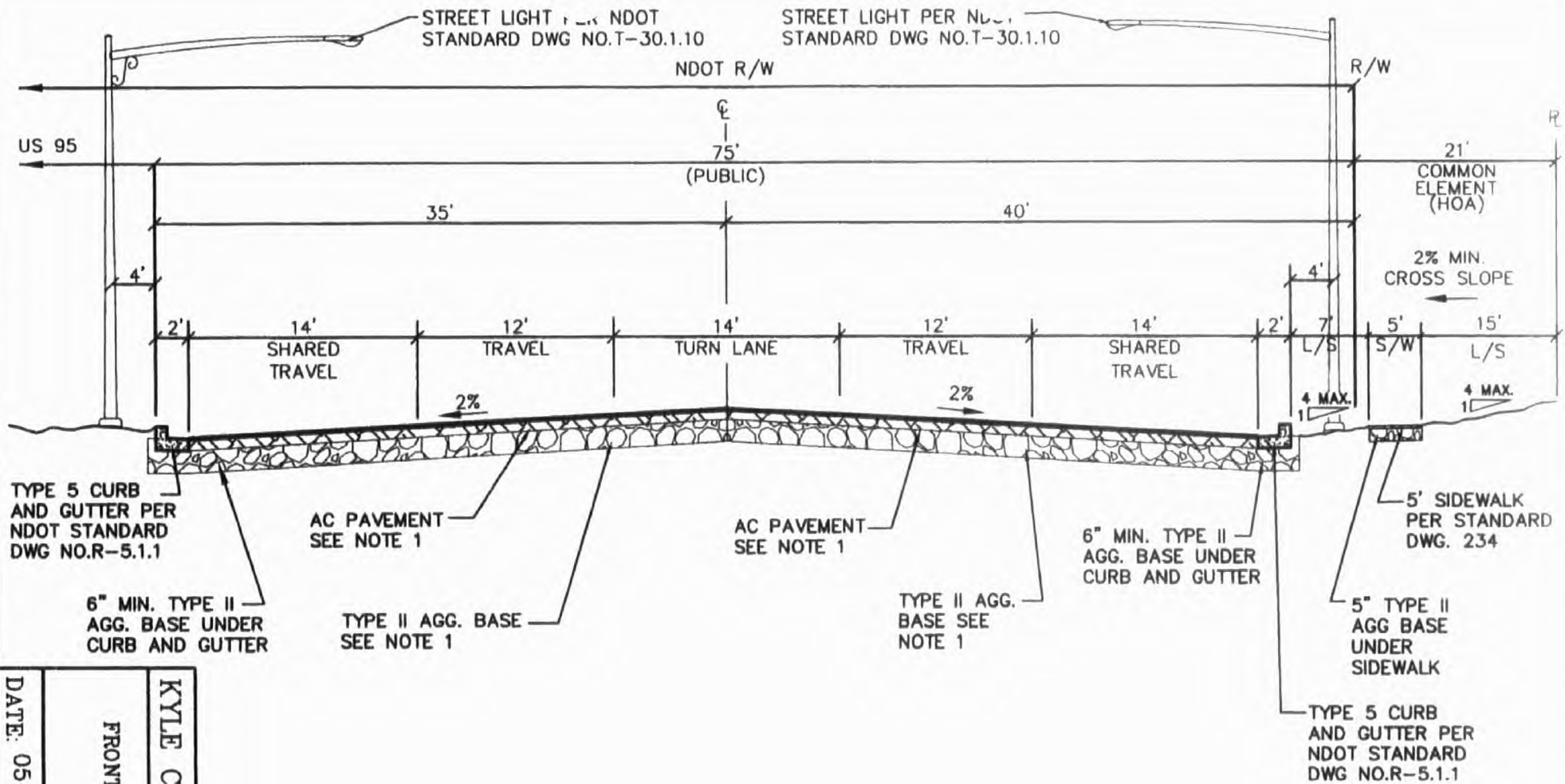
DATE: 05-08-07

DWG NO. DG-S-P9

FORT APACHE ROAD-120' SECTION (PUBLIC)
NORTH OF LOG CABIN

KYLE CANYON GATEWAY

STANDARD
DRAWINGS



NOTE:

1. STRUCTURAL SECTION SHALL BE IN ACCORDANCE WITH NDOT STANDARDS. NOTED THICKNESS IS SUBJECT TO CHANGE PER GEOTECHNICAL ENGINEER.

2. WHERE APPLICABLE WITHIN MIXED USE DISTRICT, AND ONLY IN AREAS WITH 0' BUILDING SET BACK, THE COMMON ELEMENT AMENITIES SHALL BE CONTROLLED BY FIGURE 3-21 OF THE DESIGN GUIDELINES.

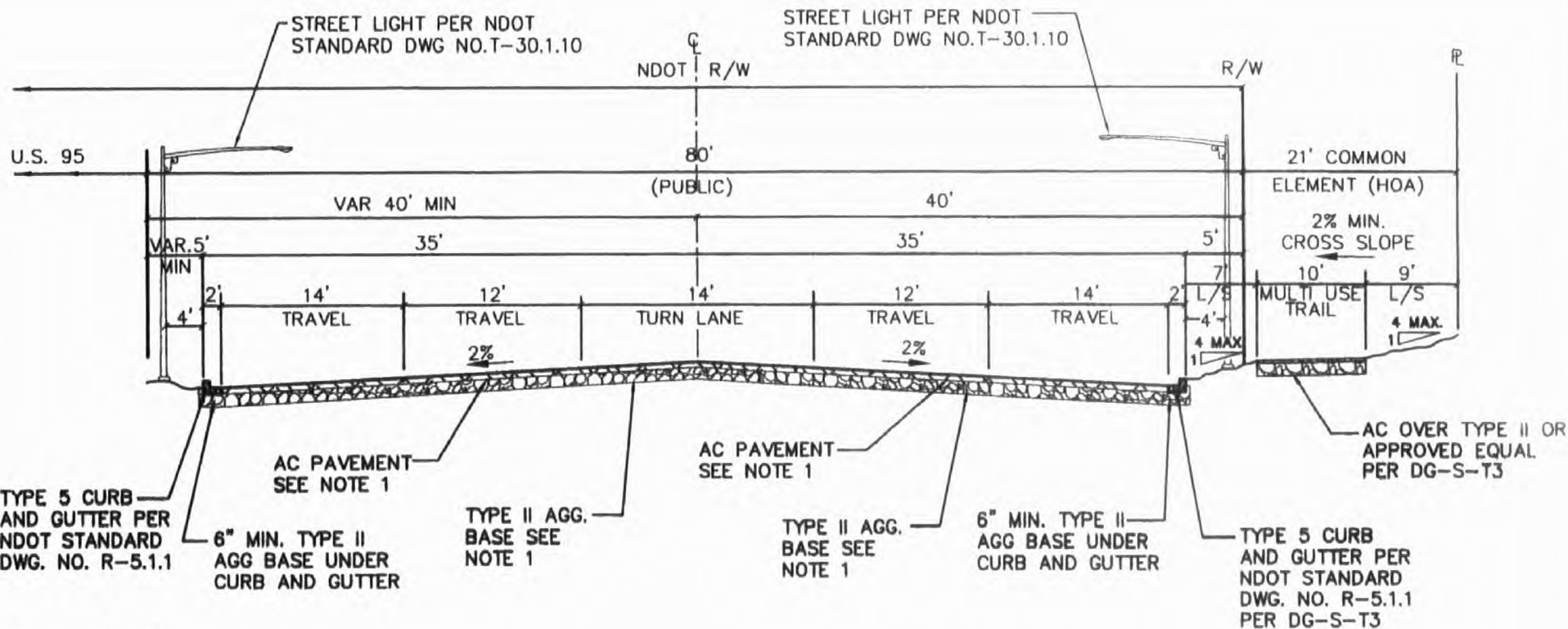
DATE: 05-08-07

DWG NO. DG-S-P10

KYLE CANYON GATEWAY

STANDARD DRAWINGS

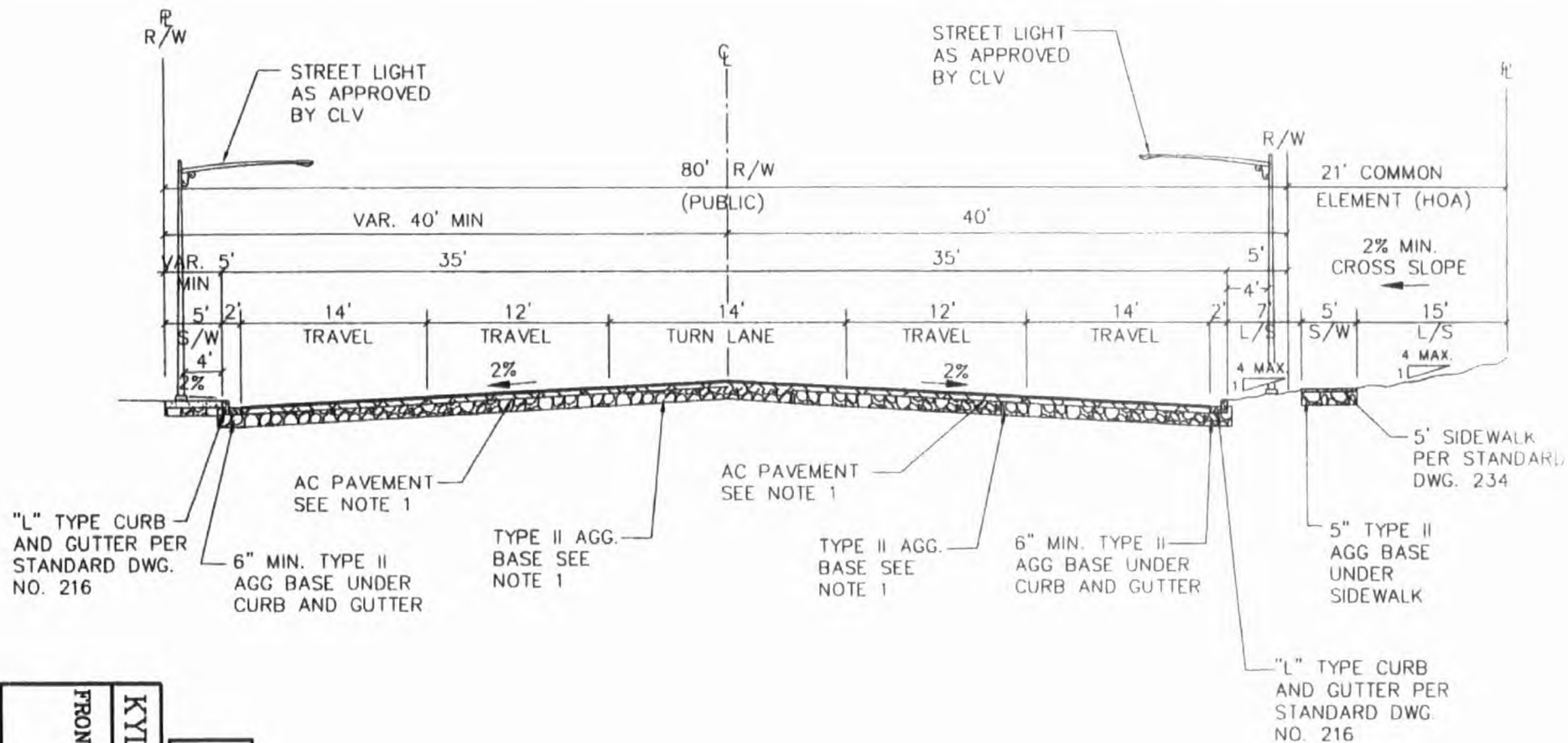
FRONTAGE ROAD (OSO BLANCA DRIVE)
75' SECTION (PUBLIC)



NOTE:

1. STRUCTURAL SECTION SHALL BE IN ACCORDANCE WITH NDOT STANDARDS. NOTED THICKNESS IS SUBJECT TO CHANGE PER GEOTECHNICAL ENGINEER.

DATE: 05-08-07	DWG NO. DG-S-P10A
FRONTAGE ROAD (SKY POINTE DR) 80' SECTION (PUBLIC) NORTH OF IRON MOUNTAIN	
KYLE CANYON GATEWAY	STANDARD DRAWINGS



NOTE:

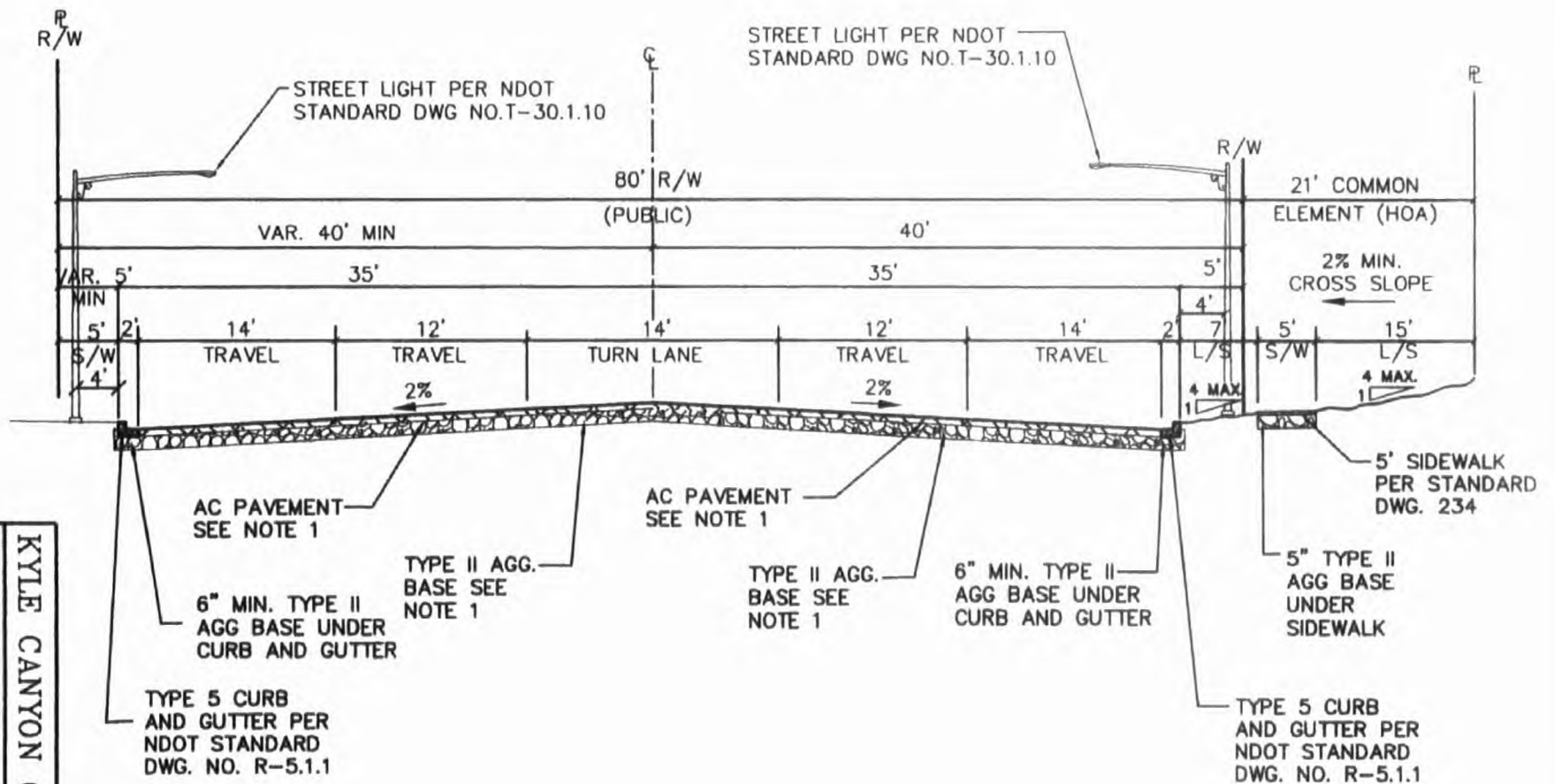
1. STRUCTURAL SECTION SHALL BE IN ACCORDANCE WITH STANDARD DRAWING 200. NOTED THICKNESS IS SUBJECT TO CHANGE PER GEOTECHNICAL ENGINEER.

TO BE CONSTRUCTED BY THE CITY OF LAS VEGAS ALONG WITH THE HORSE INTERCHANGE IMPROVEMENTS

KYLE CANYON GATEWAY STANDARD DRAWINGS

FRONTAGE ROAD (SKY POINTE DRIVE)-80' (PUBLIC)
80' SECTION (PUBLIC)
TEE PEE TO FORT APACHE

DATE: 05-08-07 DWG NO. DG-S-P10B



NOTE:

1. STRUCTURAL SECTION SHALL BE IN ACCORDANCE WITH NDOT STANDARDS. NOTED THICKNESS IS SUBJECT TO CHANGE PER GEOTECHNICAL ENGINEER.

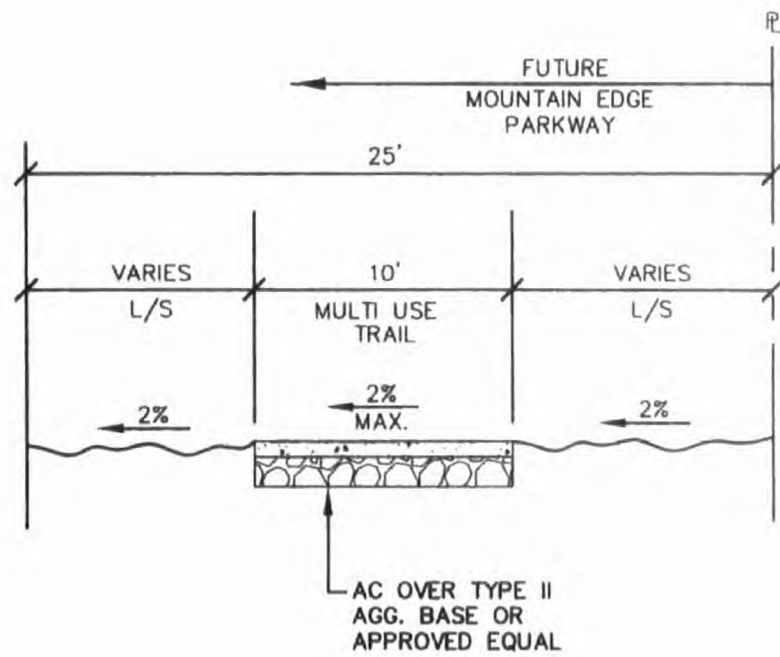
KYLE CANYON GATEWAY

STANDARD DRAWINGS

FRONTAGE ROAD (SKY POINTE DRIVE) 80' SECTION (PUBLIC)
IRON MOUNTAIN (EXTENDED) TO TEE PEE

DATE: 05-08-07

DWG NO. DG-S-P10C



KYLE CANYON GATEWAY

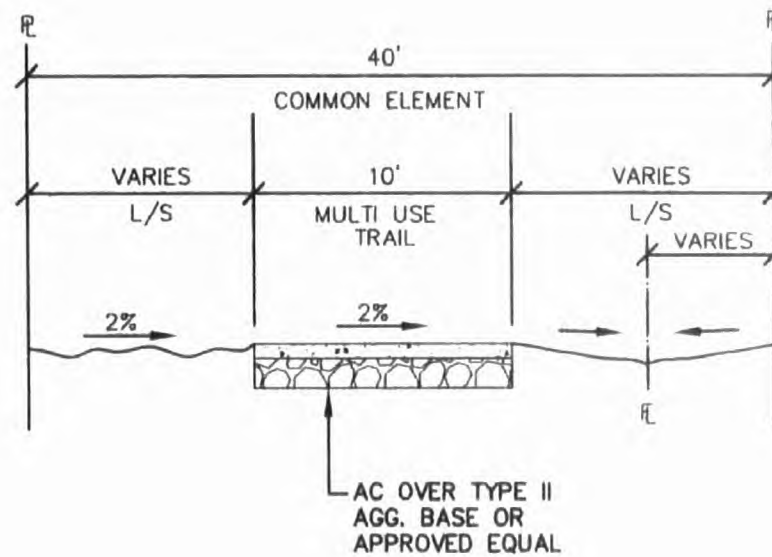
STANDARD
DRAWINGS

TRAIL SECTION

MOUNTAIN EDGE PARKWAY

DATE: 05-08-07

DWG NO. DG-S-T1



NOTE:

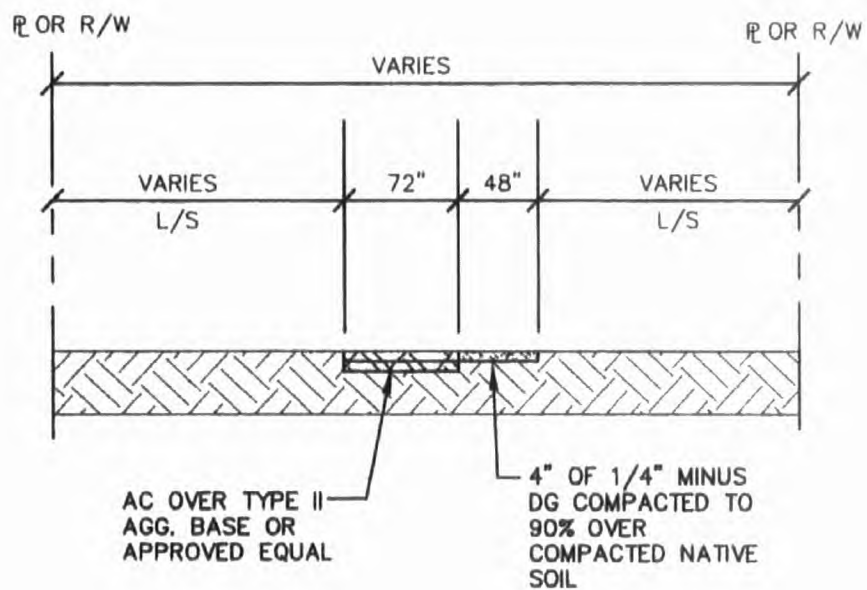
- * FOR THE PORTION BETWEEN SKY POINTE DRIVE AND BRENT LANE: THE TRAIL IS REDUCED TO 5'; THE COMMON ELEMENT IS REDUCED TO 20' AND A 20' LVVWD PUBLIC WATER LINE EASEMENT IS TO BE LOCATED WITHIN THE COMMON ELEMENT.

KYLE CANYON GATEWAY

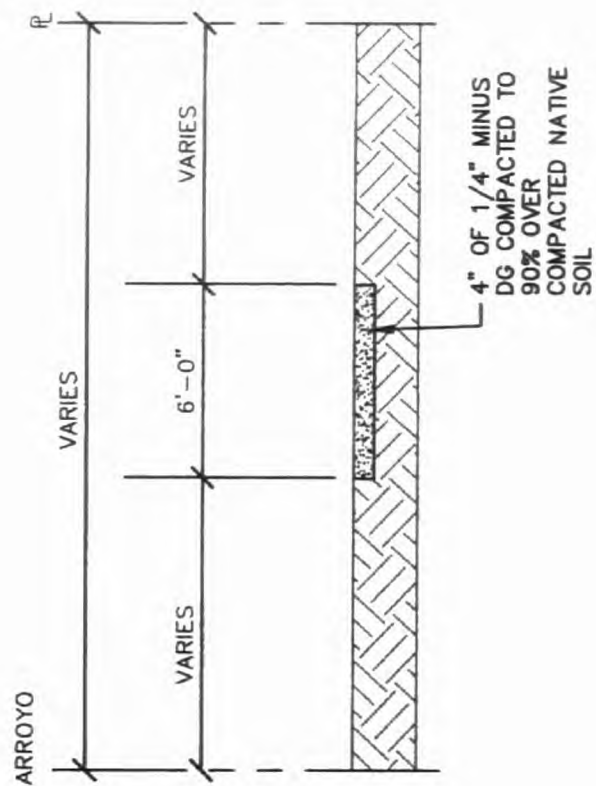
STANDARD DRAWINGS

PASEO TRAIL SECTION

DATE: 05-08-07 DWG NO. DG-S-T2



DATE: 05-08-07	MULTI-USE TRAIL	KYLE CANYON GATEWAY	STANDARD DRAWINGS
DWG NO. DG-S-T3			



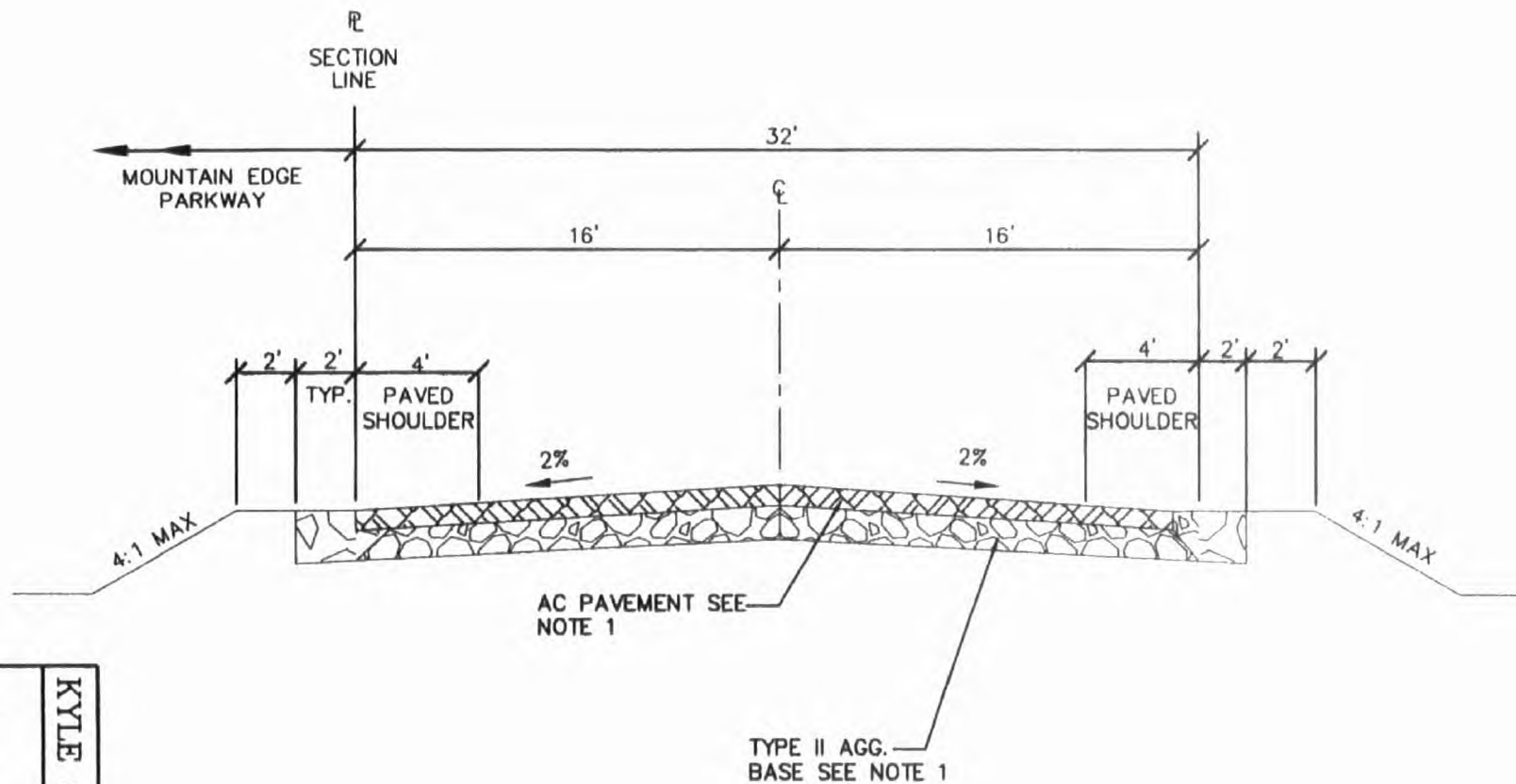
KYLE CANYON GATEWAY

STANDARD
DRAWINGS

ARROYO TRAIL

DATE: 05-08-07

DWG NO. DG-S-T4



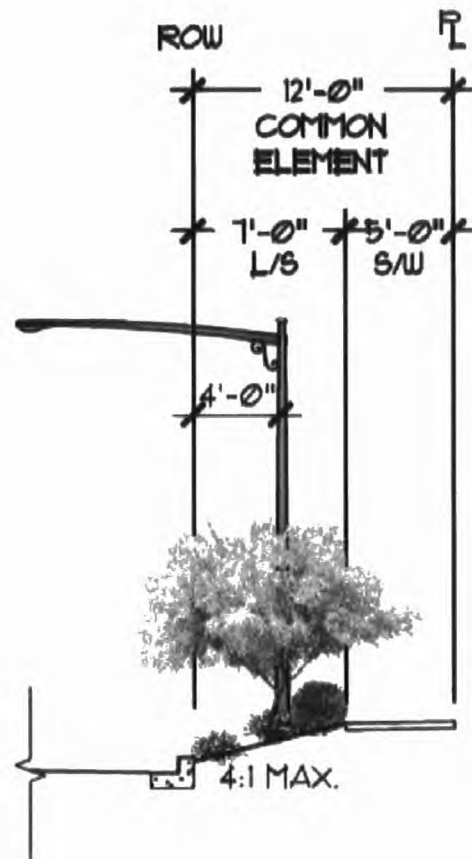
NOTE:

1. STRUCTURAL SECTION SHALL BE IN ACCORDANCE WITH STANDARD DRAWING 200. NOTED THICKNESS IS SUBJECT TO CHANGE PER GEOTECHNICAL ENGINEER.

KYLE CANYON GATEWAY STANDARD DRAWINGS

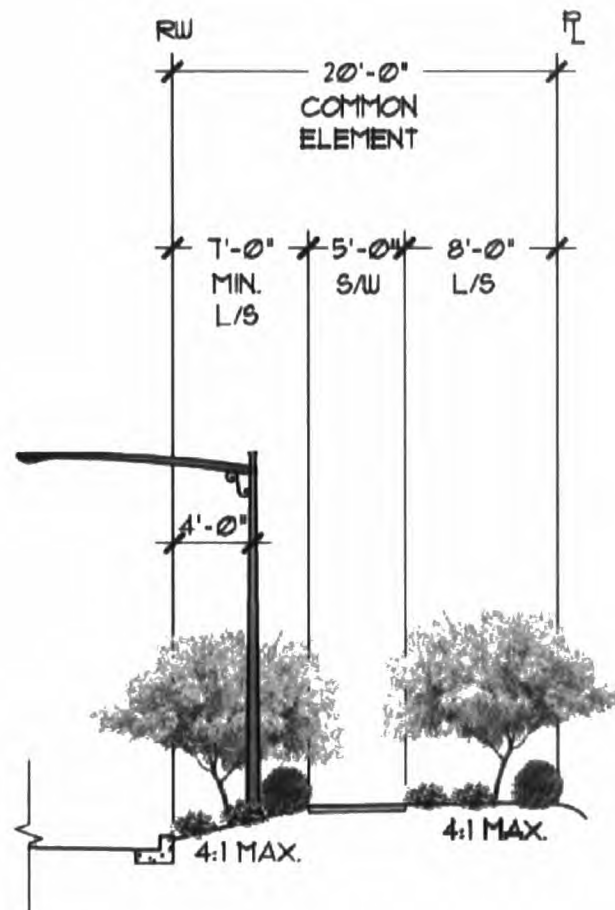
DATE: MOUNTAIN EDGE PARKWAY ACCESS ROAD TEE PEE TO FORT APACHE

05-08-07 DWG NO. DG-S-MEP-A



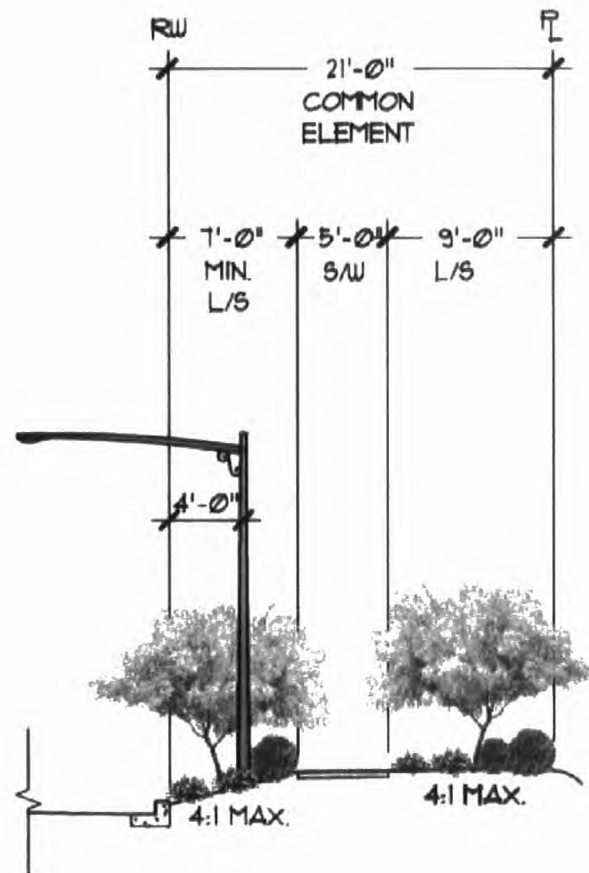
12' COMMON ELEMENT

**NTS. ILLUSTRATION OF CONCEPTUAL LANDSCAPE DESIGN
IN COMMON ELEMENT MAINTAINED BY HOA**



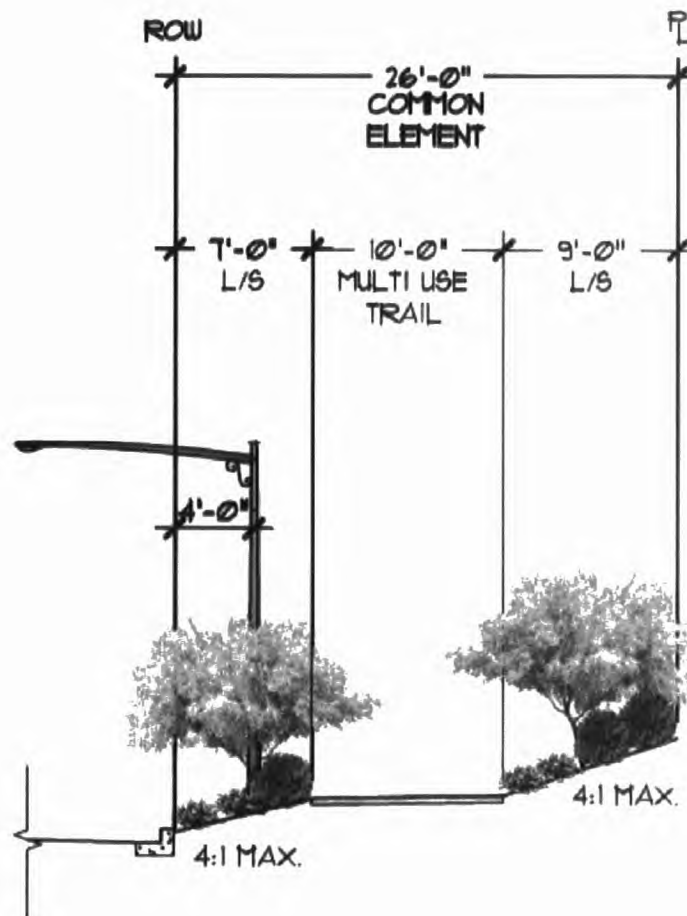
20' COMMON ELEMENT

NTS. ILLUSTRATION OF CONCEPTUAL LANDSCAPE DESIGN
IN COMMON ELEMENT MAINTAINED BY HOA



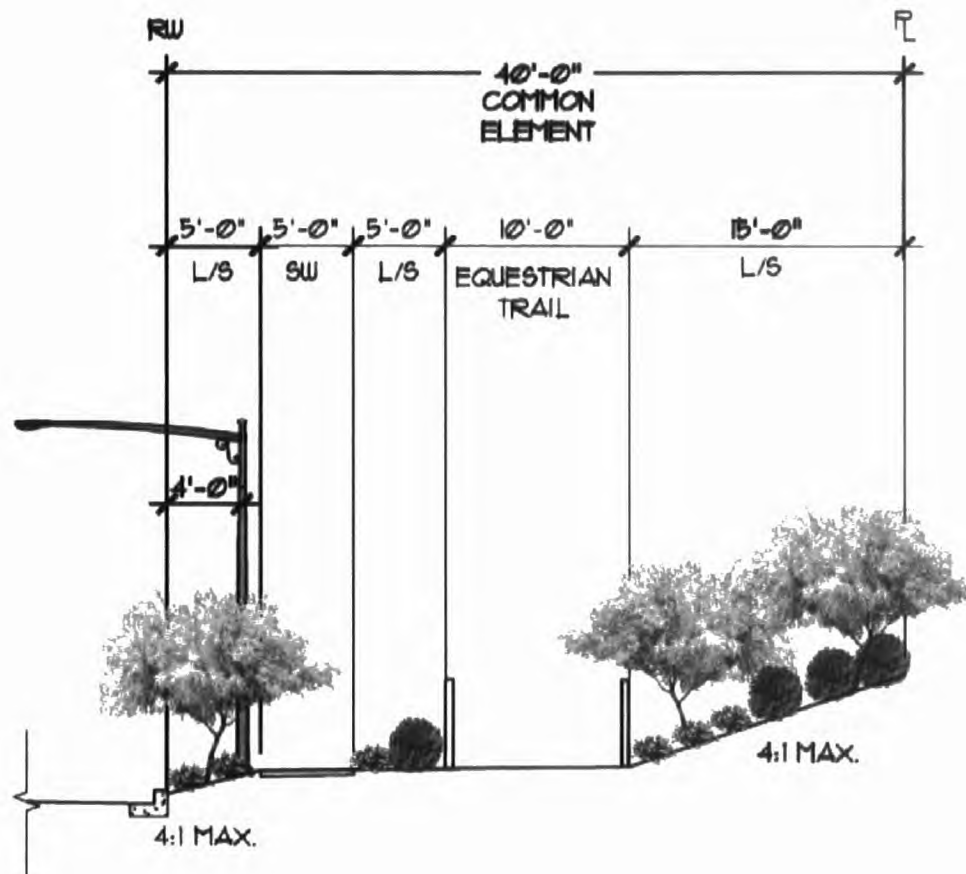
21' COMMON ELEMENT

NTS. ILLUSTRATION OF CONCEPTUAL LANDSCAPE DESIGN
IN COMMON ELEMENT MAINTAINED BY HOA



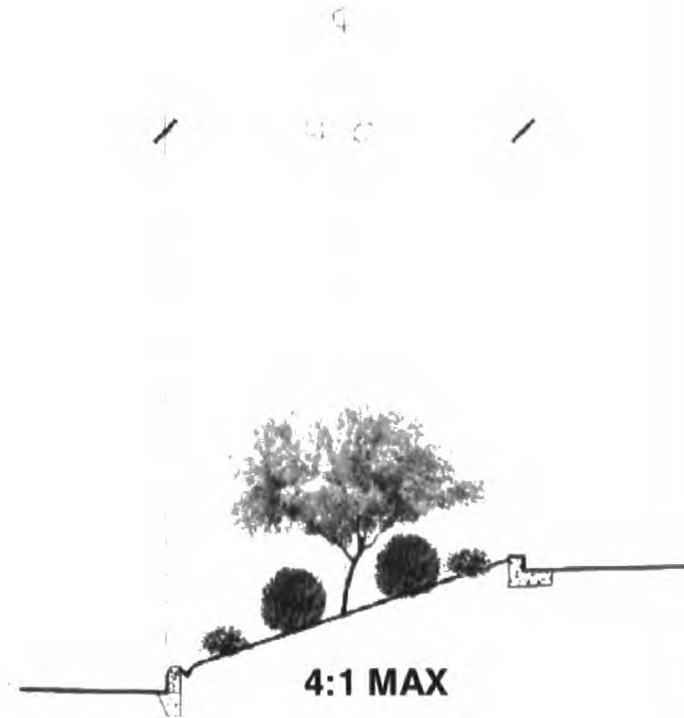
26' COMMON ELEMENT

**NTS. ILLUSTRATION OF CONCEPTUAL LANDSCAPE DESIGN
IN COMMON ELEMENT MAINTAINED BY HOA**



40' COMMON ELEMENT

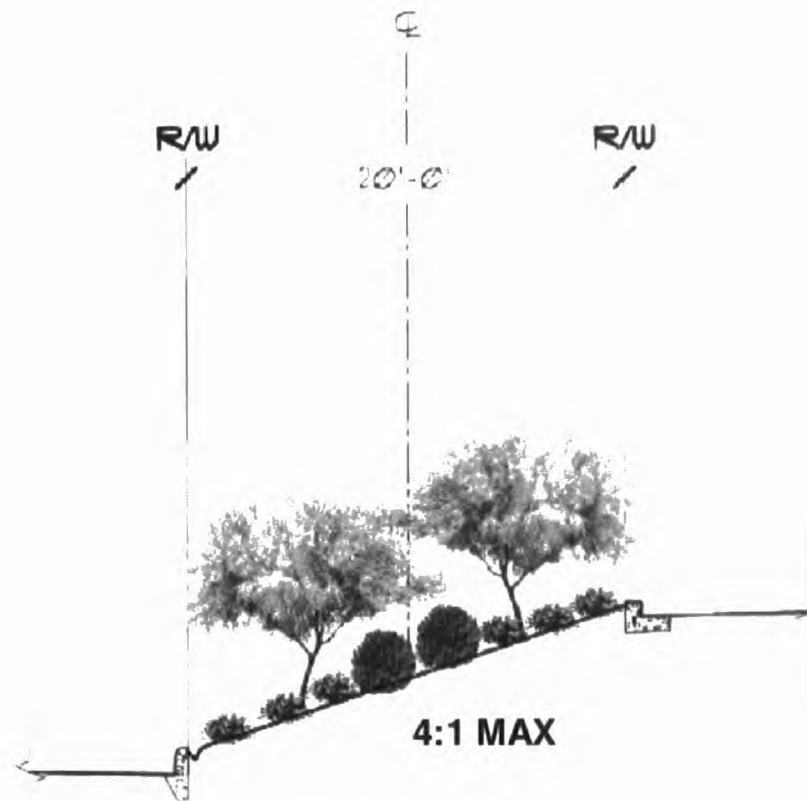
NTS. ILLUSTRATION OF CONCEPTUAL LANDSCAPE DESIGN
IN COMMON ELEMENT MAINTAINED BY HOA



NOTE: MEDIAN WITHIN R/W

14' MEDIAN

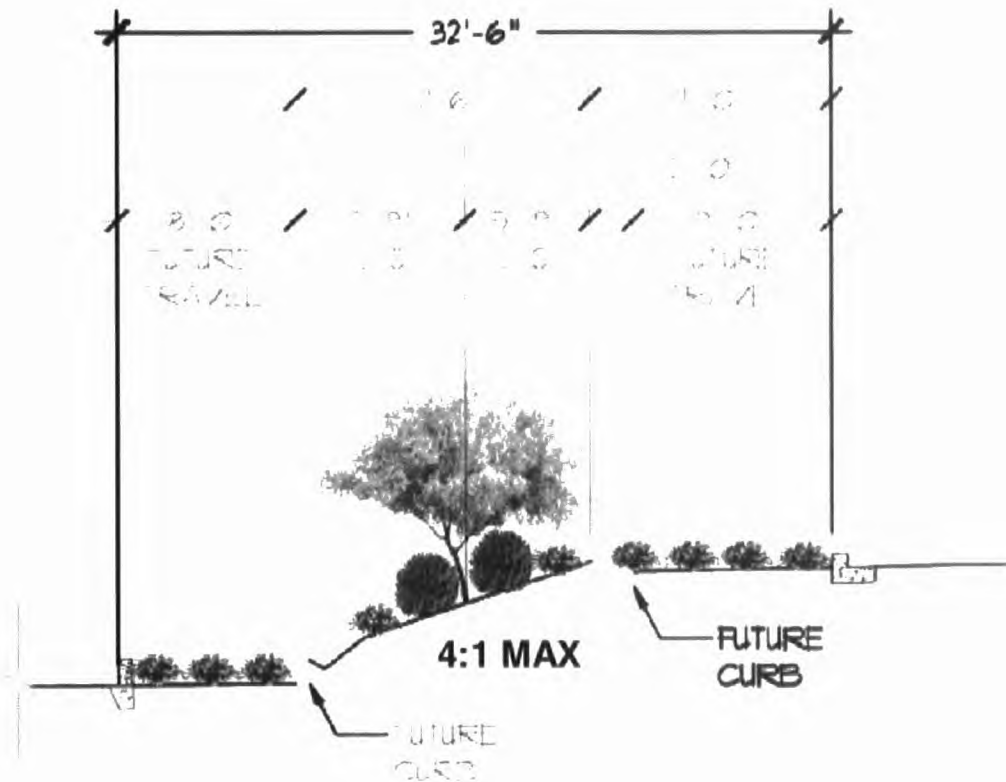
**NTS. ILLUSTRATION OF CONCEPTUAL LANDSCAPE DESIGN
IN COMMON ELEMENT MEDIAN MAINTAINED BY HOA**



NOTE: MEDIAN WITHIN R/W

20' MEDIAN

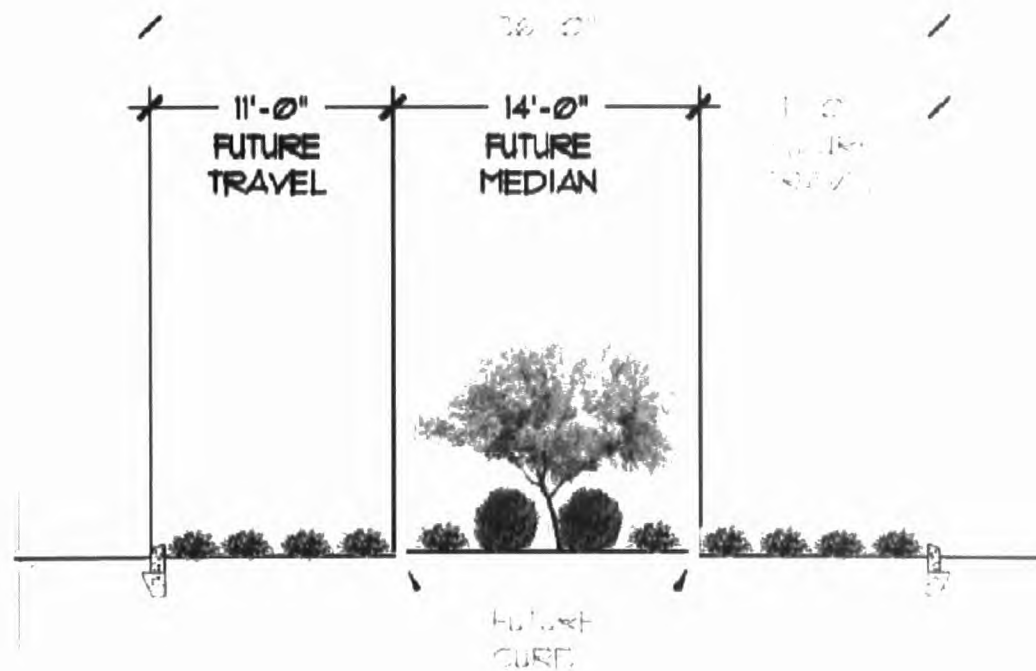
**NTS. ILLUSTRATION OF CONCEPTUAL LANDSCAPE DESIGN
IN COMMON ELEMENT MEDIAN MAINTAINED BY HOA**



NOTE: MEDIAN WITHIN ROW

32.5' MEDIAN

NTS. ILLUSTRATION OF CONCEPTUAL LANDSCAPE DESIGN
IN COMMON ELEMENT MEDIAN MAINTAINED BY HOA



NOTE: MEDIAN WITHIN R/W

36' MEDIAN

NTS. ILLUSTRATION OF CONCEPTUAL LANDSCAPE DESIGN
IN COMMON ELEMENT MEDIAN MAINTAINED BY HOA

Section 7

Color

7.1 COMMUNITY COLOR PROGRAM

The community color program contains a distinctive color and materials palette that enhances the architectural character of the community's neighborhoods. All color and materials selected respond to the surrounding desert environment by virtue of lower (darker) light reflectance values (LRV) and the use of desert appropriate shades.

Each color palette contains approved roof and paint colors. Approved masonry colors have been provided where appropriate to the architectural style. A full schedule of color palettes can be found at the end of this section.

Specific manufacturers have been listed within the approved palettes for roof, paint, stone and brick. They are all locally available and therefore are listed for the user's convenience. Alternative colors and manufacturers may be presented to the Master Developer for consideration if they are clearly within the color and value range shown in the approved palettes and are appropriate to the identified architectural style.

7.2 COLOR DESIGN FAN DECKS

An individual "Color Design Fan Deck" (Design Deck) has been created for each of the permitted architectural styles. The Design Decks shall be used for all residential projects within Kyle Canyon. Each style's Design Deck contains actual color chips in palette groups for field, fascia and accent colors as well as listings of all

approved roof and masonry colors. Dunn-Edwards Paint was selected for use in the Design Decks due to its strong selection of architectural colors. The back of each color chip in the fan deck is marked with its reference number, name and light reflectance value (LRV). The Design Decks can be checked-out from the Master Developer. The parcel Builder should inform the Master Developer as to which styles they plan to work with so a customized color design kit can be prepared.

7.3 COLOR & MATERIALS - SELECTION & APPLICATION

The following guidelines will assist in the proper selection and application of colors and materials appropriate to the architectural styles permitted within the development.

Each color palette was developed in accord with the following governing criteria:

- Roof colors shall be in a medium range of light reflectance.
- Field colors shall have a light reflectance value (LRV) appropriate to the style of the architecture.
- Trim and fascia colors shall have a light reflectance value (LRV) of 75 or less and the color shall be appropriate to the style of the architecture.
- Accent colors shall have a light reflectance value (LRV) appropriate to the architectural style.

7.3.1 ROOF MATERIALS

All roof colors shall be selected from the Roof Color Palettes provided for each style. Specific roof profiles are designated for each style.

Metal roofing used on architectural accent elements, if approved by the Master Developer, shall have an LRV between 30% and 50% and be in muted tones.

Flat roofing material contained within parapets shall be similar to the color of any pitched roof used on the same residence. The finish material of the flat roof shall have an LRV of 50% or less.

7.3.2 FIELD COLORS

All field colors shall be selected from the Field Color Palettes provided for each style. The full range of value and color exhibited in each style's palette shall be utilized within each projects' color package to ensure a dynamic street scene.

At least one color scheme with an LRV of 36 or less shall be modeled.

Any field color used at the base of the building shall continue down to the finish grade.

7.3.3 MULTIPLE FIELD COLORS

Field color blocking, or the use of multiple field colors, may be used only if it is integral to the design of the architecture and on style-appropriate applications, such as wainscots on Spanish Colonial elevations. Color blocking should be incorporated into the preliminary architectural design so thoughtful color use is integrated with the architecture and logical color termination points are identified early on. Color changes should occur at inside corners only.

- No more than two field colors may be used per color scheme.
- Primary field colors with an LRV between 70% and 83% may be used on only one scheme in a nine to eleven-scheme color package or two schemes in a twelve-scheme package.
- Primary field colors shall not be darker than 20% LRV.
- Secondary field colors shall have an LRV of 65% or less.
- If the primary field color has an LRV of 30% or less, the secondary field color shall be lighter than the primary field color.

- The LRV between the primary and secondary field colors in any color scheme shall be within a range of 15% to 35%.

7.3.4 FASCIA COLORS

Fascia colors shall be selected from the Fascia Color Palette provided for each style. Each Fascia Color Palette contains colors with an LRV range of 75 or less, however stucco fascias shall have an LRV of not less than 15%.

Stucco fascias, if colored different than the field color, should be clearly discernible from the primary field color but without extreme contrast.

Wood fascias shall be a different color than the field color and the color shall be clearly discernible from the primary field color. Other types of exposed woodwork, beams, posts, railings, etc. should be colored to match the wood fascia.

7.3.5 TRIM COLORS

Trim colors may be selected from the shades found in the Field or Fascia Color Palettes; however, extremely dark shades are not appropriate for use as stucco trim. Stucco trim shall have an LRV of 15% or greater. The Builder may also propose alternative trim colors for consideration if they are appropriate to the architectural style.

Trim color should be used judiciously on understated window trim and recessed window areas. Wood trim colors should be discernible from the field color but without extreme contrast. Stucco trim, if colored different from the field, should be discernible from the field color but without extreme contrast.

Painted-over stucco trim shall terminate at inside corners only.

7.3.6 GARAGE DOOR COLORS

Garage Door colors shall be selected from any of the colors found within the style's Field, Fascia or Trim color categories that have a LRV of 60% or less.

7.3.7 ACCENT COLORS

Accent colors may be selected from the colors provided in the Accent Color Palettes or the Builder may propose alternate colors for consideration if they are appropriate to the architectural style.

Accent colors should be used on ornamentation elements, railings, shutters and front doors. However, front doors may also be colored with shades more reminiscent of wood stain colors selected from the Fascia Color Palette within the same style.

7.3.8 WINDOW FRAMES

Window frame and mullion colors shall be in white, bone, taupe or tan. Black or brown colors are not acceptable.

7.3.9 MASONRY

Masonry veneer of brick and stone may be used in applications that are appropriate to the architectural styles that allow them. See each style's color palette schedule for approved masonry colors and materials.

Masonry elements, when used, must be integral to the architecture and not merely applied features. Masonry shall wrap columns and porches in their entirety. Masonry columns at garage corners shall have a return dimension equal to or greater than the width of the material on the front elevation. Masonry returns at areas around front doors or windows should end at logical termination points related to rooflines or building massing when they are available, otherwise returns shall be 3 feet minimum.

Both natural or faux stone veneer may be used. Appropriate grout types have been identified for each type of stone profile. Grout colors shall harmonize and blend with the colors found in the stone rather than contrast with it.

Brick veneer shall be in warm or neutral muted shades with modeled faces. Combed or raked surfaces are not allowed. "Weeping mortar" joints are not permitted.

Concrete slump block may be used for Spanish Colonial courtyard walls or pilasters if covered with a stucco slurry coat and colored to match a field color of the house.

7.4 COLOR PLOTTING CRITERIA

The two houses on either side of a specific lot and the lot across from it must all use different color schemes than that specific lot. This requirement applies to all detached neighborhoods.

7.5 COLOR PACKAGE EVALUATION

All schemes within a color package will be evaluated for:

- Harmonious color combinations
- Contrast and interest
- Liberal use of the color and value ranges provided in the approved color palettes
- Compliance with the requirements of this section.

7.6 COLOR PACKAGE SUBMITTAL

See Section 9 for materials and color submittal requirements. Included with the submittal of the color and materials board(s) shall be all elevations, noted or color coded, indicating where fascia, trim, accent and any secondary field colors will be located. All elevations, front, sides and rear, shall be shown. Incomplete submittals will be returned.

SCHEDULE 1



Craftsman Color Palette

ROOF COLORS - Approved Profile: Shake

Monier Lifetile

Standard Shake

- 1SOCB3233, Brown Blend
- 1SOCB1430, Charcoal Blend
- 1SOCB1132, Charcoal Brown Blend
- 1SOCB3156, Desert Breeze

Eagle Roofing Tile

Cityscapes – Shake

- SCP 8801, New Orleans
- SCP 8802, Nantucket
- SCP 8803, Arlington

American Heirloom – Shake

- SCP 8804, Hershey
- SHP 8705, Coastal Blend
- SHP 8706, Cascade Blend
- SHP 8707, Sierra Blend

Ponderosa – Standard Shake

- 5501, Oakwood
- 5502, Arcadia
- 5504, New Cedar
- 5552, Canyon Gray
- 5557, Live Oak

Ponderosa– Shake Ranges

5678, Light Brown Range

5687, Gray Brown Range

5689, Brown Range

FIELD COLORS – Dunn-Edwards

C715	C750	C759	6060	6061	6067	6068	6069	6072
6075	6097	6110	6115	6116	6122	6123	6124	6129
6131	6135	6137	6143	6151	6173	6192	6207	6208
6213	6214	6215	6222	6229	6278			

FASCIA COLORS – Dunn-Edwards

A148	A158	C712	C756	6037	6057	6063	6077	6069
6122	6124	6125	6126	6216	6219	6229	6231	6279
6280	6308	6312	6313	6328	6335	6340	6341	6362
6365	6376	6378	6391	6392	6393	6399		

ACCENT COLORS – Dunn-Edwards

A135	A148	A158	A175	A183	C712	C756	6028	6056
6314	6334	6342	6385					

SCHEDULE 1 – CONT.

Craftsman Color Palette

MASONRY COLORS

Eldorado Stone – Faux Stone (Allied Building Product's)

<u>Style Type</u>	<u>Color</u>	<u>Grout Type</u>
Rustic Ledge:	Sequoia, Sawtooth, Cascade, Saddleback	Drystack
Weather Edge:	Napa, Calistoga, Wisconsin	Std./Overgrout
River Rock:	American Blend	Std./Overgrout
Rustic Ledge W/ Country Rubble:	Cascade, Chateau, Tuscany	Std./Overgrout

Cultured Stone – Faux Stone (Rinker Materials, Inc.)

<u>Style Type</u>	<u>Color</u>	<u>Grout Type</u>
Southern Ledge:	Walnut, Fog, Buck's County	Drystack
River Rock:	Lake Tahoe, Lakeshore	Std./Overgrout
Weather Edge Ledge:	Fox Valley, Wisconsin, Silverado	Std./Overgrout
Dressed Fieldstone & Southernledge:	Rustic/Brandywine, Buck's County/Buck's County, Chardonnay/Chardonnay, Fog/Aspen	Std./Overgrout

<i>Style Type</i>	<i>Color</i>	<i>Grout Type</i>
Dressed Fieldstone & Country Ledgestone:		
	Caramel/Brandywine, Honey/Brandy, Chardonnay/Chardonnay, Aspen/Aspen	Std./Overgrout

Robinson Rock – Natural Stone Thin Veneer (Rinker Materials , Inc.)

Colors: Elk Horn, Coppercliff, Indian Summer, Cotswold,
Kensington, Adirondack

Robinson Brick - Full Brick (Rinker Materials , Inc.)

Designer

Classics: Cajun, Carbondale, Charleston, Heritage 441, Stoneybrook,
Tularosa, Waterlodge, Heritage Antique, Barnwood,
Old Chicago

New

Traditions: Confetti, Old Charleston, Old Chestnut, Old Delaware,
Old Georgetown, Old Stoneybrook, Santarosa, Mesquite,
Sonoma

SCHEDULE 2



Prairie Ranch Color Palette

ROOF COLORS -Approved Profile: Slate

MonierLifetile

Standard Slate

1STCS3233, Brown Blend
1STCS6464, California Mission Blend
1STCS1132, Charcoal Brown Blend
1STCS4598, Forest Green
1STCS0026, Sandstorm
1STCS3958, Smokey

Eagle Roofing Tile

Bel Air – Slate

4502, Arcadia
4553, Sandstone Flashed
4576, Topanga

Bel Air – Slate Ranges

4606, Vallejo Range
4687, Gray Brown Range
4689, Brown Range

Bel Air – Slate Blends

4626, Rancho Cordova Blend
4646, Sunset Blend
4684, San Raphael Blend

FIELD COLORS – Dunn-Edwards

6057	6066	6067	6068	6069	6075	6076	6083	6097
6115	6117	6118	6122	6123	6124	6131	6136	6138
6143	6144	6145	6157	6163	6172	6194	6208	6214
6215	6221	6222	6228	6242	6243	6393		

FASCIA COLORS – Dunn-Edwards

6056	6057	6062	6063	6075	6076	6084	6098	6119
6205	6209	6216	6217	6228	6229	6230	6231	6273
6280	6315	6363	6371	6376				

ACCENT COLORS – Dunn-Edwards

A135	A148	A157	A160	A163	A174	A175	A176	A181
A184	A186	A188	C798	C799	5713	6028	6091	

SCHEDULE 2 – CONT.

Prairie Ranch Color Palette

MASONRY COLORS

Eldorado Stone – Faux Stone (Allied Building Products)

<u>Style Type</u>	<u>Color</u>	<u>Grout Type</u>
Mt. Ledge:	Smokey, China, Warm Springs, Copper, Sycamore, Buckskin	Drystack
Stacked Stone:	Desert Shadow, Slate Gray, Mountain Blend, Oakwood	Drystack
Cliffstone:	Lantana, Mesquite, Ponderosa, Manzanita, Cambria	Drystack

Cultured Stone – Faux Stone (Rinker Materials, Inc.)

<u>Style Type</u>	<u>Color</u>	<u>Grout Type</u>
Pro-Fit:	Gray, Shale, Autumn, Mojave, Platinum	Drystack
Drystack Ledge:	Chardonnay, Cedar, Mist, Caramel	Drystack
Country Ledgestone:	Eucalyptus, Chardonnay, Aspen, Caramel, Buck's County, Shale, Mojave	Drystack/Std. /Overgrout

Robinson Rock – *Natural Stone Thin Veneer (Rinker Materials, Inc.)*

Colors: Rosa, Sierra, Regatta, Mesa Ridge, Arrowhead,
Sand Dune

Robinson Brick – *Full Brick or brick veneer (Rinker Materials, Inc.)*

Designer

Classics: Brimstone, Cajun, Cardondale, Charleston, Chestnut,
Thundercloud, Waterlodge, Barnwood, Heritage Antique

SCHEDULE 3



American Traditional Color Palette

ROOF COLORS - Approved Profile: Slate

Monier Lifetile

Standard Slate

1STCS3233R, Brown Blend
1STCS6464, California Mission Blend
1STCS1132, Charcoal Brown Blend
1STCS4598, Forest Green
1STCS0026, Sandstorm
1STCS3958, Smokey

Eagle Roofing Tile

Bel Air – Slate

4502, Arcadia
4553, Sandstone Flashed

4576, Topanga

Bel Air – Ranges
4606, Vallejo Range
4687, Gray Brown Range
4689, Brown Range

Bel Air - Blends

4626, Rancho Cordova Blend

4646, Sunset Blend

4684, San Raphael Blend

FIELD COLORS – Dunn-Edwards

5325	5373	6052	6053	6061	6064	6065	6067	6095
6097	6102	6111	6115	6116	61117	6125	6128	6130
6131	6137	6150	6151	6152	6158	6164	6165	6166
6170	6173	6179	6180	6192	6194	6199	6201	6205
6207	6213	6215	6226	6227	6229	6249	6255	6257
6270	6275	6276	6277	6290	6291	6299	6310	6312
6313	6326	6332	6339	6346				

FASCIA COLORS – Dunn-Edwards

6057	6058	6059	6066	6121	6122	6124	6125	6140
6143	6129	6211	6213	6216	6227	6229	6230	6231
6258	6274	6279	6293	6311	6313	6369	6372	

ACCENT COLORS – Dunn-Edwards

A158	A187	A181	A183	A186	6293	6335	6378	6315
6290								

SCHEDULE 3 – CONT.

American Traditional Color Palette

MASONRY COLORS

Robinson Brick or brick veneer – (Rinker Materials, Inc.)

Designer

Classics: Brimstone, Cajun, Cardondale, Charleston, Chestnut,
Thundercloud, Waterlodge, Barnwood,
Heritage Antique

New

Traditions: Confetti, Old Charleston, Old Chestnut,
Old Delaware, Old Georgetown, Old Stoneybrook,
Santarosa, Mesquite, Sonoma

SCHEDULE 4



Spanish Colonial Color Palette

ROOF COLORS - Approved Profiles: Barrel, "S" & low profile "S" tile

Monier Lifetile

Espana - Standard

1ESCS6160, Autumn Blend
1ESCS6464, California Mission Blend
1ESCS6676, Desert Sunset
1ESCS6142, Rio Grande Blend
1ESCS0026, Sandstorm
1ESCS6100, Terra Cotta

Espana - Premium

1ESCS3940, Cliffside
1ESCS0939, Toast

Villa - Standard

1VICS6464, California Mission Blend
1VICS6169, Casa Grande Blend
1VICS0024, Desert Sage
1VICS7221, Redwood Blend

Eagle Roofing Tile

Camino Real – Premium

SMC8401, San Miguel

SMC8402, Mission Santa Cruz

SMC8403, Mission Santa Barbara

SMC8404, Mission San Juan

SMC8645b, Mission San Diego Brushed

SMC8807b, Mission Carmel Brushed

Cityscapes – Premium

SCC 8807, Monterey

American Heirloom – Premium

SHC 8708, Del Oro Blend

SHC8709, El Morado Blend

SHC 8710, Ladera Blend

SHC 8711, Puesta Del Sol Blend

Capistrano – Standard

3520, Weathered Terracotta Flashed

3522, Terracotta Flashed

3553, Sandstone Flashed

3576, Topanga

Capistrano - Blends

3605, San Benito Blend

3645, Sunrise Blend

3646, Sunset Blend

SCHEDULE 4 – CONT.

Spanish Colonial Color Palette

FIELD COLORS - Dunn-Edwards

6060	6065	6068	6072	6073	6074	6075	6095	6096
6097	6108	6109	6110	6111	6116	6117	6121	6122
6123	6124	6128	6129	6130	6131	6136	6141	6142
6143	6150	6214						

FASCIA COLORS - Dunn-Edwards

6056	6062	6063	6070	6075	6076	6077	6084	6097
6097	6098	6112	6126	6294	6313	6321	6362	6368
6313	6355	6390	6391					

ACCENT COLORS - Dunn-Edwards

A148	A187	5719	5747	5774	5775	5796	5797	5817
6028	6083	6091	6105	6306	6314	6385	6399	

SCHEDULE 5



Country European Color Palette

ROOF COLORS - Approved Profiles – Shake or Slate

Monier Lifetile

Slate – Standard

1STCS3233, Brown Blend
 1STCS1132, Charcoal Brown Blend
 1STCS3374, Earth Brown
 1STCS0026, Sandstorm
 1STCS3958, Smokey

Eagle Roofing Tile

Bel Air – Standard Slate

4502, Arcadia
 4576, Topanga

Bel Air - Slate Ranges

4687, Gray Brown Range
 4689, Brown Range

FIELD COLORS – Dunn-Edwards

5224	6033	6059	6060	6066	6068	6069	6073	6075
6120	6122	6123	6135	6141	6145	6149	6150	6199
6213	6215	6219	6229	6326	6375	6382	6393	

FASCIA COLORS – Dunn-Edwards

6034	6057	6060	6062	6072	6074	6076	6125	6211
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6213 6215 6277 6280 6292 6294 6375 6376 6378
6389 6397

ACCENT COLORS – *Dunn-Edwards*

A135 A147 A148 A152 A183 A187 A188 A189 C705
6021 6057 6211 6294 6322

Eldorado Stone – Faux Stone (Allied Building Materials)

<i>Style Type</i>	<i>Color</i>	<i>Grout Type</i>
Rustic Ledge:	Cascade, Saddleback, Sawtooth	Drystack
Field Ledge:	Meseta, Andante, Umbria,	Overgrout
Limestone:	York, San Marino, Savannah	Overgrout

Cultured Stone – Faux Stone (Rinker Materials, Inc.)

<i>Style Type</i>	<i>Color</i>	<i>Grout Type</i>
Country Ledgerstone:		Overgrout/Std.
	Chardonnay, Aspen, Mojave, White Oak, Eucalyptus, Buck's County, Shale	
Old Country Fieldstone:		Overgrout/Std.
	Chardonnay, Romana, Riviera, Piedmont	
Dressed Fieldstone:		Overgrout
	Aspen, Cedar	
Country Ledgerstone & Dressed Fieldstone:		Overgrout
	Chardonnay & Chardonnay, Aspen & Aspen	
European Castle Stone:		
	Buck's County, Chardonnay	Overgrout/Std.

Robinson Rock – Natural Stone Thin Veneer (Rinker Materials, Inc.)

Colors: Canterbury, Tuscany, Grey Castle, Seabed, Cotswold,
Irish Barn

SCHEDULE 6



Andalusian Color Palette

ROOF COLORS

Approved Profiles: Barrel, "S" and low profile "S" tiles

MonierLifetile

Espana - Standard Color-Thru

1ESCS6160, Autumn Blend
1ESCS6464, California Mission Blend
1ESCS6676, Desert Sunset
1ESCS6142, Rio Grande Blend
1ESCS0026, Sandstorm
1ESCS6100, Terra Cotta
1ESCS3940, Cliffside
1ESCS0939, Toast

Villa - Standard Color-Thru

1VICS6464, California Mission Blend
1VICS6169, Casa Grande Blend
1VICI0024, Desert Sage
1VICI7221, Redwood Blend

Eagle Roofing Tile

Camino Real - Premium

SMC8401, San Miguel
SMC8402, Mission Santa Cruz
SMC8403, Mission Santa Barbara
SMC8404, Mission San Juan

SMC8645b, Mission San Diego Brushed
 SMC8807b, Mission Carmel Brushed
Cityscapes – Premium
 SCC 8807, Monterey

American Heirloom – Premium
 SHC 8708, Del Oro Blend
 SHC8709, El Morado Blend
 SHC 8710, Ladera Blend
 SHC 8711, Puesta Del Sol Blend

Capistrano – Standard
 3520, Weathered Terracotta Flashed
 3522, Terracotta Flashed
 3553, Sandstone Flashed
 3576, Topanga

Capistrano - Blends
 3605, San Benito Blend
 3645, Sunrise Blend
 3646, Sunset Blend

FIELD COLORS - Dunn-Edwards

6060	6065	6068	6072	6073	6074	6095	6096	6108
6109	6110	6116	6117	6121	6122	6123	6124	6128
6129	6130	6131	6136	6141	6142	6143	6150	6214

FASCIA COLORS - Dunn-Edwards

6056	6062	6063	6070	6075	6076	6077	6084	6097
6097	6098	6112	6126	6294	6313			

ACCENT COLORS - Dunn-Edwards

A148	A187	5719	5747	5774	5775	5796	5817	6028
6083	6091	6105	6306	6314	6385	6399		

SCHEDULE 7



Tuscan Color Palette

ROOF COLORS -Approved Profiles: Barrel, "S" & low profile "S" tiles

Monier Lifetile

Espana Standard Color-Thru

- 1ESCS6160, Autumn Blend
- 1ESCS6464, California Mission Blend
- 1ESCS6142, Rio Grande Blend
- 1ESCS6676, Desert Sunset
- 1ESCS7185, Washed Gold

Espana Premium Color-Thru

- 1ESCS3940, Cliffside
- 1ESCS0939, Toast

Villa – Standard Color-Thru

- 1VICS6464, California Mission Blend
- 1VICS6169, Casa Grande Blend
- 1VICS0024, Desert Sage
- 1VICS7221, Redwood Blend

Eagle Roofing Tile

Camino Real – Premium

SMC8402, Mission Santa Cruz
SMC8403, Mission Santa Barbara
SMC8645, Mission San Diego
SMC8807, Mission Carmel

American Heirloom – Premium

SHC 8708, Del Oro Blend
SHC 8709, El Morado Blend
SHC 8710, Ladera Blend
SHC 8711, Puesta Del Sol Blend

Capistrano – Standard Integrals

3520, Weathered Terracotta Flashed
3522, Terracotta Flashed
3530, Weathered Adobe
3576, Topanga

Capistrano - Blends

3605, San Benito Blend
3645, Sunrise Blend
3646, Sunset Blend

Malibu – Standard Integrals

2520, Weathered Terracotta Flashed
2522, Terracotta Flashed
2576, Topang
549, Santa Paula
2553, Sandstone Flashed

Malibu - Blends

2646, Sunset Blend

SCHEDULE 7—CONT.

Tuscan Color Palette

FIELD COLORS - Dunn-Edwards

5325	5326	5359	5264	5265	6097	6111	6117	6118
6130	6131	6136	6137	6138	6139	6142	6143	6144
6150	6151	6152	6157	6164	6179	6193	6194	6207
6215								

FASCIA COLORS - Dunn-Edwards

6070	6076	6077	6098	6105	6112	6119	6140	6147
6126	6196	6215	6216	6217	6223	6231	6245	6279
6294	6392							

ACCENT COLORS - Dunn-Edwards

A158	A159	A187	5922	6070	6217	6236	6265	6266
6278	6280	6294	6320	6334	6378	6355		

MASONRY COLORS

Eldorado Stone – Faux Stone (Allied Building Materials)

<u>Style Type</u>	<u>Color</u>	<u>Grout Type</u>
Fieldledge:	Meseta, Veneto, Andante, Umbria	Overgrout
Hillstone:	Lucero, Milano, Bergamo, Verona	Overgrout
Limestone:	York, Savannah, Castillo, Shilo	Overgrout
Cliffstone:	Lantana, Mesquite, Manzanita, Cambria	Drystack

Cultured Stone – Faux Stone (Rinker Materials, Inc.)

<u>Style Type</u>	<u>Color</u>	<u>Grout Type</u>
Old Country Fieldstone:		
	Chardonnay, Riviera, Romana, Piedmont	Overgrout/Std.

Robinson Rock – Natural Stone Thin Veneer (Rinker Materials, Inc.)

Colors:	Tuscany, Elk Horn, Seabed, Coppercliff, Kensington, Indian Summer
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SCHEDULE 8



Mediterranean Color Palette

ROOF COLORS - Approved Profiles: Barrel, "S" & low profile "S" tiles

MonierLifetile

Espana - Standard Color-Thru

1ESCS6160, Autumn Blend
1ESCS6464, California Mission Blend
1ESCS6676, Desert Sunset
1ESCS6142, Rio Grande Blend
1ESCS0026, Sandstorm
1ESCS6100, Terra Cotta
1ESCS3940, Cliffside
1ESCS0939, Toast

Villa - Standard Color-Thru

1VICS6464, California Mission Blend
1VICS6169, Casa Grande Blend
1VICI0024, Desert Sage
1VICI7221, Redwood Blend

Eagle Roofing Tile

Camino Real - Premium

SMC8401, San Miguel
SMC8402, Mission Santa Cruz
SMC8403, Mission Santa Barbara
SMC8404, Mission San Juan
SMC8645b, Mission San Diego Brushed
SMC8807b, Mission Carmel Brushed

Cityscapes – Premium

SCC 8807, Monterey

American Heirloom – Premium

SHC 8708, Del Oro Blend

SHC8709, El Morado Blend

SHC 8710, Ladera Blend

SHC 8711, Puesta Del Sol Blend

Capistrano – Standard Integrals

3520, Weathered Terracotta Flashed

3522, Terracotta Flashed

3553, Sandstone Flashed

3576, Topanga

Capistrano - Blends

3605, San Benito Blend

3645, Sunrise Blend

3646, Sunset Blend

FIELD COLORS - Dunn-Edwards

5263 5325 5326 5366 5367 6058 6064 6066 6073

6081 6095 6096 6108 6109 6110 6129 6137 6150

6151 6157 6164 6165 6179 6198 6200 6214

FASCIA COLORS - Dunn-Edwards

6057 6063 6070 6075 6076 6084 6097 6097 6098

6112 6121 6126 6294 6313 6362 6368 6355 6390

ACCENT COLORS - Dunn-Edwards

A148 A187 5719 5747 5774 5775 5796 5797 5817

6028 6083 6091 6105 6306 6314 6385 6399

SCHEDULE 9



Southern Italian Color Palette

ROOF COLORS - Approved Profiles: Barrel, "S", flat tiles & low profile "S" tiles

Monier Lifetile

Espana - Standard

1ESCS6160, Autumn Blend
1ESCS6464, California Mission Blend
1ESCS7185, Washed Gold
1ESCS6142, Rio Grande Blend

Espana - Premium

1ESCS3940, Cliffside
1ESCS0939, Toast

Villa - Standard

1VICS3233, Brown Blend
1VICS6464, California Mission Blend
1VICS6169, Casa Grande Blend
1VICS7221, Redwood Blend

Slate - Standard

1SMCS3233, Brown Blend
1SMCS6464, California Mission Blend
1SMCS6101, Desert Terra Cotta

Slate - Premium

1STCS0939, Toast

Eagle Roofing Tile

Camino Real – Premium

SMC 8402, Mission Santa Cruz

SMC 8403, Mission Santa Barbara

SMC 8403b, Mission Santa Barbara Brushed

SMC 8807b, Mission Carmel Brushed

American Heirloom - Premium

HC 8709, El Morado Blend

SHC 8710, Ladera Blend

SHC 8711, Puesta Del Sol Blend

Capistrano – Standard

3530, Weathered Adobe

3520, Weathered Terra Cotta Flashed

3576, Topanga

Capistrano – Blends

3605, San Benito Blend

3646, Sunset Range

3645, Sunrise Blend

Malibu – Standard

2520, Weathered Terra Cotta Fl

2522, Terra Cotta Flashed

2530, Weathered Adobe

Malibu - Ranges

2687, Gray Brown Range

Malibu - Blends

2645, Sunrise Blend

Bel-Air ?????

SCHEDULE 9-CONT.

Southern Italian Color Palette

FIELD COLORS - Dunn-Edwards

C708	6053	6060	6066	6067	6068	6074	6075	6082
6083	6089	6090	6097	6103	6104	6110	6111	6123
6124	6129	6136	6137	6138	6150	6151	6152	6172
6173								

FASCIA COLORS - Dunn-Edwards

6040	6057	6061	6062	6067	6068	6069	6074	6075
6076	6077	6123	6124	6125	6142	6143	6210	6212
6213	6320	6230	6231	6348	6355	6356	6368	6374
6376	6386	6390	6391	6397	6398			

ACCENT COLORS - Dunn-Edwards

A183	A188	5748	5776	5797	5824	5873	6013	6014
6048	6054	6056	6308	6341	6349	6363	6378	6392
6398								

MASONRY COLORS

Eldorado Stone – Faux Stone (Allied Building Materials)

<u>Style Type</u>	<u>Color</u>	<u>Grout Type</u>
Limestone:	York, San Marino	Overgrout
Fieldledge:	Meseta, Andante	Overgrout
Cliffstone:	Lantana, Ponderosa, Manzanita	Drystack
Country Rubble:	Tularosa, Tuscany, Cognac, Capri, Serrano, Palermo	Flush Grout

Cultured Stone – Faux Stone (Rinker Materials, Inc.)

<u>Style Type</u>	<u>Color</u>	<u>Grout Type</u>
Dressed Fieldstone:	Aspen, Buck's County, Brandywine, Chardonnay	Flush Grout
Dressed Fieldstone & Country Ledge:	Chardonnay, Aspen, Caramel & Brandywine	Flush Grout
Dressed Fieldstone & Southern Ledge:	Chardonnay, Buck's County	Flush Grout

Robinson Rock – Natural Stone Thin Veneer (Rinker Materials, Inc.)

Colors:	Canterbury, Tuscany, Grey Castle, Seabed, Cotswold, Irish Barn
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SCHEDULE 10

Brownstone Color Palette

ROOF COLORS - Approved Profile: Slate

MonierLifetile

Standard Slate

1STCS3233, Brown Blend
1STCS6464, California Mission Blend
1STCS1132, Charcoal Brown Blend
1STCS4598, Forest Green
1STCS0026, Sandstorm
1STCS3958, Smokey

Eagle Roofing Tile

Bel Air – Standard Slate

4502, Arcadia
4553, Sandstone Flashed
4576, Topanga

Bel Air –Slate Ranges

4606, Vallejo Range
4687, Gray Brown Range
4689, Brown Range

Bel Air – Slate Blends

4626, Rancho Cordova Blend
4646, Sunset Blend
4684, San Raphael Blend

FIELD COLORS – Dunn-Edwards

6034	6040	6047	6054	6060	6068	6075	6116	6117
6123	6125	6130	6135	6138	6139	6144	6153	6158
6173	6191	6193	6195	6206	6214	6215	6221	6229
6255	6277	6312	6374					

FASCIA COLORS – Dunn-Edwards

6057	6059	6061	6062	6068	6122	6123	6129	6144
6170	6172	6199	6208	6215	6216	6227	6228	6229
6277	6279	6314	6367	6376	6381			

ACCENT COLORS – Dunn-Edwards

A187	A183	A181	A135	6329
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SCHEDULE 10-CONT.

Brownstone Color Palette

MASONRY COLORS

Eldorado Stone – *Faux Stone (Allied Building Products)*

<u>Style Type</u>	<u>Color</u>	<u>Grout Type</u>
Ashlar:	Santa Barbara	Std./Flush
Coarsed Stone:	Santa Barbara	Std./Flush
Limestone:	Austin Cream, Pasadena	Std./Flush

Cultured Stone – *Faux Stone (Rinker Materials, Inc.)*

<u>Style Type</u>	<u>Color</u>	<u>Grout Type</u>
Cobblefield:	Texas Cream, Austin, Ohio	Std./Flush
Castle Stone:	Golden Blend, Chardonnay	Std./Flush

Robinson Rock – *Natural Stone Thin Veneer (Rinker Materials, Inc.)*

Colors: Mesa Ridge, Arrowhead, Sand Dune

Robinson Brick – *Full Brick (Rinker Materials, Inc.)*

Designer Classics: Brimstone, Cajun, Cardondale, Charleston, Chestnut, Thundercloud, Waterlodge, Barnwood, Heritage Antique

New Traditions Confetti, Old Charleston, Old Chestnut, Old Delaware, Old Georgetown, Old Stoneybrook, Santarosa, Mesquite, Sonoma

SCHEDULE 11

Contemporary Color Palette

ROOF COLORS - Approved Profile: Slate

MonierLifetile

Standard Slate

1STCS3233, Brown Blend
1STCS6464, California Mission Blend
1STCS1132, Charcoal Brown Blend
1STCS4598, Forest Green
1STCS0026, Sandstorm
1STCS3958, Smokey

Eagle Roofing Tile

Bel Air – Standard Slate

4502, Arcadia
4553, Sandstone Flashed
4576, Topanga

Bel Air –Slate Ranges

4606, Vallejo Range
4687, Gray Brown Range
4689, Brown Range

Bel Air – Slate Blends

4626, Rancho Cordova Blend
4646, Sunset Blend
4684, San Raphael Blend

FIELD COLORS – Dunn-Edwards

6034	6040	6047	6054	6060	6068	6075	6116	6117
6123	6125	6130	6135	6138	6139	6144	6153	6158
6173	6191	6193	6195	6206	6214	6215	6221	6229
6255	6277	6312	6374					

FASCIA COLORS – Dunn-Edwards

6057	6059	6061	6062	6068	6122	6123	6129	6144
6170	6172	6199	6208	6215	6216	6227	6228	6229
6277	6279	6314	6367	6376	6381			

ACCENT COLORS – Dunn-Edwards

A187	A183	A181	A135	6329
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MASONRY COLORS

Eldorado Stone – Faux Stone (Allied Building Products)

<u>Style Type</u>	<u>Color</u>	<u>Grout Type</u>
Ashlar:	Santa Barbara	Std./Flush
Coarsed Stone:	Santa Barbara	Std./Flush
Limestone:	Austin Cream, Pasadena	Std./Flush

Cultured Stone – Faux Stone (Rinker Materials, Inc.)

<u>Style Type</u>	<u>Color</u>	<u>Grout Type</u>
Cobblefield:	Texas Cream, Austin, Ohio	Std./Flush
Castle Stone:	Golden Blend, Chardonnay	Std./Flush

Robinson Rock – Natural Stone Thin Veneer (Rinker Materials, Inc.)

Colors: Mesa Ridge, Arrowhead, Sand Dune

Section 8

Permitted Uses

8.1 GENERALLY

Building, structures and land shall be used in accordance with the uses permitted in Table 8-1 and 8-2.

TABLE 8-1

INTERPRETATION OF LAND USE TABLES

Symbol	Meaning
P	The use is permitted in that district by right.
A	The use is permitted as an accessory use to a main use in the district.
C	The use is permitted subject to meeting specified conditions. These conditions are listed in Section 8.3.
S	The use is permitted in that district only after first obtaining a Special Use Permit (SUP) pursuant to the Las Vegas Municipal Code.
* (by name of use)	Base standards are required for this use. These standards are listed in Section 8.4.
T	The use is permitted on a temporary basis, subject to the provisions of Section 8.5.
	A blank square shall mean that the use is not allowed in that district.

TABLE 8-2**LAND USE TABLES**

TC= Town Center UMU= Urban Mixed-Use P= Parks NR= Neighborhood Residential CF= Community Facilities

DISTRICT

Land Uses	TC	UMU	P	NR	CF
Airport, Heliport or Landing Field					
Amphitheater	P	S	P		
Animal Hospital, Clinic, or Shelter with Outside Pens	P	P			
Animal Hospital, Clinic, or Shelter without Outside Pens	P	P			
Animal Keeping & Husbandry	A	A			
Animal Keeping, Wild or Exotic					
Animal Production					
Antique/Collectible Store	P	P			
Asphalt or Concrete Batch Plant	T	T	T	T	T
Assisted Living Apartments	P	P		P	
Astrologer, Hypnotist, or Psychic Art and Science	P	P			

Permitted Uses	TC	UMU	P	NR	CF
Auto Broker	C	C			
Auto Dealer Inventory Storage	S*	S*			
Auto Paint & Body Repair Shop	A	A			
Auto Parts (Accessory Installation)	C	C			
Auto Parts (New & Rebuilt) (Accessory Sales Service)	C	C			
Auto Repair Garage, Major	S*	S*			
Auto Repair Garage, Minor	C	C			
Auto Smog Check	C	C			
Auto Title Loan					
Automobile Rental	C	C			
Automobile Repossession Agency					
Bailbond Service					
Banquet Facility	P	P			
Bed & Breakfast Inn	S*	S*			
Beer/Wine/Cooler Off-Sale Establishment	P	C			
Beer/Wine/Cooler On-and Off- Sale Establishment	P	C			

Permitted Uses	TC	UMU	P	NR	CF
Billiard Parlor or Pool Hall	P	P			
Blood Plasma Donor Center					
Boarding or Rooming House					
Boat & Trailer Dealership (New and Used)	S*	S*			
Building & Landscape Material/Lumber Yard	P	P			
Building Maintenance Service & Sales	P	P			
Bus Charter Service & Service Facility					
Business School	P	P			
Car Wash (Full Service)	C	C			
Car Wash, (Self Service)	C	C			
Caretaker's Quarters/Domestic or Security Unit	C	C			
Catering Service	P	P			
Cemetery/Mausoleum					
Child Care – Family Home (1-6 Children)	S	S	P	P	
Child Care – Group Home (7-12 Children)	S	S	P	S	

Permitted Uses	TC	UMU	P	NR	CF
Child Care Center	P	P	P	S	
Church/House of Worship	P	P			
Cleaners, Commercial	A				
Cleaners, Commercial/Industrial					
Clinic	P	P			
Cold Storage Plant	A	A	A		
College, University, or Seminary	P	P			
Commercial Amusement/Recreation (Indoor)	P	P			
Commercial Amusement/Recreation (Outdoor)	P	P	P		
Community Center, Private (Accessory)	P	P	P	P	
Community Recreational Facility, Public	P	P	P	P	
Condominium	P	P		P	
Construction Material Supply Yard	C	C	C	C	
Contractors Plant, Shop & Storage Yard					
Convalescent Care Facility/Nursing Home	P	P			
Convent or Monastery					

Permitted Uses	TC	UMU	P	NR	CF
Copy Center	P	P	P		
Country Club, Private	P	P			
Crematorium					
Crop Production					
Custom & Craft Work	S	S			
Daily Labor Service	S	S			
Desktop Publishing	P	P			
Dry Cleaners	P	P	P		
Electric Generating Plant					
Electric Utility Substation	C	C	C	C	C
Electrical, Watch, Clock, Jewelry & Similar Repair	P	P			
Emergency Ambulance Services, Ground	P	P			
Employment Agency	P	P			
Environmentally Hazardous Materials					
Escort Bureau					
Facility to Provide Testing, Treatment, or Counseling for Drug or Alcohol Abuse	S	S			

Permitted Uses	TC	UMU	P	NR	CF
Financial Institution, General with Drive-Through	P	P			
Financial Institution, General without Drive-Through	P	P			
Financial Institution, Specified	S*	S*			
Food Processing	S				
Fraternity, Sorority House, or Private Dorm					
Gaming Establishment, Non-restricted	S				
Gaming Establishment, Restricted License	A	A			
Garden Supply/Plant Nursery	P	P			
General Personal Service	P	P	S		
General Retail Store, Other than Listed, 3500 Sq. Ft. or more	P	P	S		
General Retail Store, Other than Listed, Less than 3500 Sq. Ft.	P	P	P		
Golf Driving Range	S	S			
Government Facility	P	P	P		P
Group Residential Care Facility	S	S		S	
Guest House/Casita				P	

Permitted Uses	TC	UMU	P	NR	CF
Gun Club, Skeet or Target Range (Indoor)	S	S			
Gun Club, Skeet or Target Range (Outdoor)					
Halfway House					
Health Club	P	P	P		
Heavy Construction Trade Yard					
Heavy Machinery & Equipment (Rental, Sales & Service)					
Helipad	P				
Home Occupation	C	C		C	
Horse Corral or Stable (Commercial)					
Horse Corral or Stable (Private)					
Hospice	P	P			
Hospital	P	P			
Hotel Lounge Bar	A	A			
Hotel or Motel	P	S			
Hotel, Residence	P	S			
Individual Residential Care Facility	P	P		P	

Permitted Uses	TC	UMU	P	NR	CF
Jewelry Store, Class III	S*	S*			
Jewelry Store, New	P	P			
Keeping of Carrier or Racing Pigeons					
Laboratory, Medical or Dental	P	P			
Landfill					
Laundry, Self Service	P	P	P		
Library, Art Gallery or Museum (Public)	P	P	P		P
Light Assembly & Fabrication	S*	S*			
Liquor Establishment (Tavern)	P	C			
Livestock Farming (Bovines/Horses)					
LPG Installation 288 Gallons or Less	C	C			
LPG Installation over 288 Gallons	S	S			
Manufactured Home				P	
Manufacturing, Heavy					
Manufacturing, Light					
Massage Establishment	S*	S*			

Permitted Uses	TC	UMU	P	NR	CF
Mining, Sand & Gravel Excavation	T	T	T	T	T
Mini-warehouse	C	C			
Mixed Use	P	P			
Mobile Home					
Mobile Home Park					
Mobile Home/Trailer Sales Lot					
Monorail	S	S			
Mortuary or Funeral Chapel	S	S			
Motor Vehicle Sales (New)	S*	S*			
Motor Vehicle Sales (Used)	S*	S*			
Motorcycle/Motor Scooter Sales	C	C			
Mounted Antenna of 15' or Less (Ultimate Height)	P	P	P	S	P
Mounted Antenna over 15' (Ultimate Height)	S	S	S	S	S
Multi-Family	P	P		P	
Museum or Art Gallery (Private)	P	P	P		
Night Club	P	S			

Permitted Uses	TC	UMU	P	NR	CF
Off Premise Advertising Sign	C				
Office, Medical	P	P			
Office, Other Than Listed	P	P			
Open Air Vending/Transient Sales Lot	P	P	P		
Outcall Entertainment Referral Service					
Outside Storage	S	S			
Package Liquor Off-Sale Establishment	S	S			
Parking Lot/Sidewalk Sale	T	T	T		
Parking, Commercial	P	P			
Patio Cover	P	P		P	
Pawn Shop	S	S			
Pawn, Auto					
Pet Boarding	C	C			
Pet Shop	P	P			
Post Office, Local Service	P	P	P		P
Post Office, Regional	P	P			S

Permitted Uses	TC	UMU	P	NR	CF
Printing & Publishing	S	S			
Prison/Custodial Institution					
Private Club, Lodge or Fraternal Organization	S	S			
Private Streets	P	P	P	P	
Psychology Practice	P	P	S		
Public or Private School, Primary	P	P			P
Public or Private School, Secondary	P	P			P
Public Park or Playground	P	P	P	P	P
Radio Broadcasting	P	P			
Railroad Yard or Shop					
Recording Studio	P	P			
Recreational Vehicle and Boat Storage	A	A			
Recycling Collection Center	C	C			
Rental Store, w/o Outside Storage	P	P			
Rental Store, w/Outside Storage	S	S			
Rescue Mission or Shelter for the Homeless	S	S			

Permitted Uses	TC	UMU	P	NR	CF
Restaurant with Service Bar	P	P			
Restaurant, 2000 Sq. Ft. or more, w/Drive-Through	P	P			
Restaurant, 2000 Sq. Ft. or more, w/o Drive-Through	P	P			
Restaurant, Less than 2000 Sq. Ft., w/Drive-Through	P	P			
Restaurant, Less than 2000 Sq. Ft., w/o Drive-Through	P	P	P		
Retail Establishment with Accessory Package Liquor Off-Sale	P	P			
Salvage or Reclamation of Products (Indoors)					
Salvage or Reclamation of Products (Outdoors)					
Seasonal Outdoor Sales	T	T	T		
Secondhand Dealer	S	S			
Senior Citizens Apartments	P	P		P	
Service Station	P	P			
Sex Offender Counseling Facility					
Sexually-Oriented Business					
Single Room Occupancy Residence					
Slaughter and Processing of Live Poultry					

Permitted Uses	TC	UMU	P	NR	CF
Social Event with Alcoholic Beverage Sales	S	S			
Social Service Provider, except Rescue Mission or Homeless Shelter	P	P	P		
Sports Arena, Stadium or Track	P				
Supper Club	P	C			
Swap Meet	S*	S*			
Tattoo Parlor/Body Piercing Studio	S	S			
Taxicab/Limo Yard					
Teen Dance Center	P	S			
Temporary Contractor's Construction Yard	C	C	C	C	C
Temporary Outdoor Commercial Event	T	T	T		
Temporary Real Estate Sales Office	C	C	C	C	C
Tennis Courts	P	P	P	P	P
Thriftshop	S*	S*			
Thriftshop, Non-profit	S*	S*			
Time Share Development	P	P			

Permitted Uses	TC	UMU	P	NR	CF
Towing & Impound Yard					
Towing Service, No Storage					
Trade School	S	S			
Trailer/RV Camp/Park	S				
Transit Passenger Facility	P	S			S
Transitional Living Group Home	S	S			
Truck Rental	S	S			
Trucking Company					
TV Broadcasting & Other Communication Service	P	P			
Urban Lounge					
Utility /Transmission Lines	C	C	C	C	C
Utility Installation, Other than Listed	C	C	C	C	C
Valet Parking	P	P			
Warehouse/Distribution Center	S				
Wedding Chapel	P	P			
Welding Repair					

Permitted Uses	TC	UMU	P	NR	CF
Wholesale Showroom Facility	S	S			
Wireless Communication Facility, Non-Stealth Design					
Wireless Communication Facility, Stealth Design	C	C	C		C

8.2 Definitions

Airport, Heliport or Landing Field. Any area of land designated and set aside for the landing and taking off of any aircraft regulated by the Federal Aviation Administration.

Amphitheater. An outdoor theater in which the stage or screen area is surrounded by rising tiers of seating or assembling areas, or both.

Animal Hospital, Clinic, or Shelter. A place where animals or pets are given medical or surgical treatment and are cared for during the time of such treatment. The term does not include a kennel operation or facility for the boarding of animals for remuneration unless it is operated in conjunction with the treatment and care of animals or pets.

Animal Keeping and Husbandry. The raising, keeping and breeding of domestic animals, including without limitation dogs, cats, birds and pot-bellied pigs. The use must be ancillary to the principal use, but may be conducted for commercial purposes.

Animal Keeping, Wild or Exotic. The keeping of nondomestic animals, including without limitation wild animals as defined in Las Vegas Municipal Code 7.04.500.

Animal Production. A facility or area for raising animals (including fish and birds) and the development of animal products, such as meat, fur or eggs on a commercial basis. This use does not include raising animals to sell as pets.

Antique/Collectible Store. Any building used for the sale of any old and authentic object of personal property which was made, fabricated or manufactured sixty or more years earlier and which has a unique appeal and enhanced value mainly

because of its age and in addition, may include the sale of any article of personal property which was made, fabricated or manufactured twenty or more years earlier and because of public demand

has attained value in a recognized commercial market which is in excess of its original value.

Asphalt or Concrete Batch Plant. A permanent facility or area for the mixing of concrete or asphalt.

Assisted Living Apartment. An apartment or apartment complex which provides personal care services to senior citizens for daily living needs. Such services may include, but are not limited to, preparation and service of meals, housekeeping, laundry, monitoring of rooms, monitoring of medication, or assistance with bathing. The term includes commercial uses that are ancillary to an apartment complex as long as the total amount of floor space dedicated to such uses does not exceed 5% of the total gross floor area of the apartment complex and there is no external signage for, nor external access to, the commercial uses. The term does not include a convalescent care facility, nursing home or special care facility.

Astrologer, Hypnotist, or Psychic Art & Science. Any person who practices, teaches, or professes to practice the business of astrology, hypnotism or the psychic arts and sciences for a fee, gift, donation, or otherwise. Psychic arts and sciences may include palmistry, phrenology, life reading, fortune telling, cartomancy, clairvoyance, clairaudience, crystal gazing, mediumship, prophecy, augury, divination, magic or necromancy. The term does not include a hypnotherapy practice.

Auto Broker. A facility or area used primarily for the wholesaling of used motor vehicles, typically on an intermediary basis between an auction house and a used car

dealership. The term does not include a facility or area used for the retail sales of used vehicles.

Auto Dealer Inventory Storage. The parking or storage, other than for purposes of display, of new motor vehicles which constitute inventory of a new motor vehicle sales dealership, where such parking or storage is maintained by the dealership either on the same parcel as the dealership or on a separate parcel.

Auto Paint & Body Repair Shop. A facility for collision services including body, frame or fender straightening or repair and painting of vehicles in an appropriate paint booth.

Auto Parts (New & Rebuilt) (Accessory Sales & Service). A facility for the retail sale and installation of lubricating oils, tires, filters and other new or rebuilt goods for use in motor vehicles. The resurfacing of rotors, pressing of bearings, grinding of brake drums, and similar activities are permitted as incidental uses.

Auto Parts (Accessory Installations). A facility for the retail sale and installation of auto accessories such as stereos, alarms and other type of accessories.

Auto Repair Garage, Major. A facility for the repair or reconditioning of any type of motorized vehicle, other than the types of repair and service authorized to be performed in a minor auto repair garage. The term includes a facility which performs any repairs to vehicles with a gross vehicle weight over 10,000 pounds.

Auto Repair Garage, Minor. A facility for the performance of minor repairs and service on vehicles of 10,000 pounds gross vehicle weight or less; such repairs and service are limited to electronic tune ups, brake repairs (including drum turning), air conditioning repairs, generator and starter

repairs, tire repairs, front end alignments, battery recharging, lubrication, selling/installing minor parts and accessories, other similar activities and repairing and installing other minor elements of an automobile such as windshield wipers, hoses, windows, etc., but excluding engine, transmission and differential repair or installation.

Auto Title Loan. A business whose primary function is to lend money on the security of the title to a motor vehicle rather than on the security of the vehicle itself.

Automobile Rental. A facility for the rental of new or used automobiles. Automobiles kept on the lot for rental purposes are not considered to be outside storage.

Automobile Repossession Agency. Any parking area used for the storage of up to two operable vehicles which have been repossessed by or on behalf of a lender, together with related office operations. The term does not include the storage of more than two vehicles, which shall be treated as if the use were motor vehicles sales.

Banquet Facility. An establishment which is rented by individuals or groups to accommodate private functions such as banquets, weddings, anniversaries, and other similar celebrations. Such a use may or may not include: 1) kitchen facilities for the preparation or catering of food; 2) the sale of alcoholic beverages for on-premises consumption, only during an event, and 3) outdoor gardens or reception facilities.

Bed & Breakfast Inn. A facility wherein overnight accommodations and a morning meal are provided in a dwelling unit to tourists for compensation.

Beer/Wine/Cooler Off-Sale Establishment. An establishments whose license to sell alcoholic beverages is limited to the sale of beer, wine and coolers to consumers

only and not for resale, in original sealed or corked containers, for consumption off the premises where the same are sold, and is operated in connection with a grocery store, drug store, convenience store or specialty merchandise store.

Beer/Wine/Cooler On- and Off-Sale Establishment. An Establishment:

1. Whose license to sell alcoholic beverages is limited to:

(a) The sale of beer, wine and coolers for consumption only in connection with a meal on the premises where the same is sold; or

(b) The sale of beer, wine and coolers to consumers only and not for resale, in original sealed or corked containers, for consumption off the premises where the same are sold; or

2. Which is operated in connection with a grocery store, convenience store, or restaurant in which forty-five or more people may be served with meals at any one time at tables or stools.

Blood Plasma Donor Center. A building used for the collection of human blood plasma from plasma donors. The term does not include a facility for the provision of medical care or treatment.

Boarding or Rooming House. A building or portion thereof, other than a hotel, with no more than four guest rooms where, for compensation, lodging and meals are provided for no more than four persons who are not members of the immediate family occupying such building.

Boat and Trailer Sales Dealerships (New and Used). The use of any building or lot for the display and sale of new or used boats, jet skis or other marine vessels and trailers.

Building & Landscape Material/Lumber Yard. A facility for the sale of home, lawn and garden supplies and construction materials such as brick, lumber and other similar materials.

Building Maintenance Service & Sales. A facility or area for contracting, but not conducting, services such as building repair and maintenance, the installation of plumbing, electrical, air conditioning and heating equipment, janitorial services, and exterminating services. The retail sale of supplies is permitted as an accessory use.

Bus Charter Service & Service Facility. Any premises for the transient housing, parking, servicing or repair of motor-driven buses.

Business School. A facility or area for instruction and training in secretarial and related office skills, cosmetology, commercial art, computer software, cooking and similar training.

Caretaker's Quarters/Domestic or Security Unit. An independent, self-contained dwelling unit located on the same lot as the principal use or structure and which provides residential accommodations for a property manager or security personnel.

Car Wash (Full-Service). A car wash facility, typically operated in conjunction with a gas station, which customarily employs automatic or semi-automatic methods of cleaning.

Car Wash (Self-Service). A coin operated car wash facility operated by the customer and which does not utilize automobile conveyors or other automatic methods of cleaning.

Catering Service. A service that provides for the preparation, storage, and delivery of food and food utensils for off-premise consumption.

Cemetery/ Mausoleum. Property used for interring of the dead.

Child Care - Group Home (7-12 Children) A residential dwelling used primarily as a residence which also provides day or overnight care for a minimum of seven and a maximum of 12 children for compensation. Such uses are subject to the child care regulations and standards of the Department of Business Activity.

Child Care Center (More than 12 Children) Any commercial facility in which the licensee regularly provides day or overnight care for more than 12 children. Such uses are subject to the child care regulations and standards of the City of Las Vegas Department of Business Activity.

Child Care, Family Home. (1-6 Children) A residential dwelling used primarily as a residence which also provides day or overnight care for a maximum of six children for compensation. Such uses are subject to the child care regulations and standards of the City of Las Vegas Department of Business Activity.

Church, House of Worship. Any building used for religious worship services, religious education and fellowship activities and programs of a religious organization. The term includes the use of the building and premises for other related activities, such as child care facilities, formal educational programs, preschool classes and recreational activities, but only when those activities are ancillary to the religious use and only after those uses have been approved by means of a use review or other procedure under Chapter 19.18. The term does not include any class of child care

center, general education classroom or facility, thrift shop, homeless shelter or commercial activity.

Cleaners, Commercial. A facility or area for cleaning items in bulk quantities such as clothes and linens. This definition includes cleaning for hospitals, restaurants, hotels, diaper cleaning services and other similar accounts, as well as rug and dry cleaning plants where on-premise retail services to individual households are incidental to the operation of the plant.

Cleaners, Commercial / Industrial. A facility or premises which is used for cleaning items in bulk quantities, such as clothing and linens. The term includes diaper cleaning services and cleaning services for hospitals, restaurants, hotels and similar clients, whether or not cleaning services are provided to individual households as an incidental use.

Clinic. A facility which is occupied and used for the purpose of providing dental or medical care, and which regularly provides any of those services to the general public on an emergency basis or without appointment. The term does not include a hospital or a facility which provides for the overnight care or overnight stay of patients.

Cold Storage Plant. A facility for the protective storage or items such as food or furs, in a refrigerated place.

College, University or Seminary. A college or university is an academic institution of higher learning beyond the level of secondary school. A seminary is an institution for the training of candidates for the priesthood, ministry, rabbinate or other religious order.

Commercial Amusement/Recreation (Inside). An enclosed facility or area for sport, entertainment, games of skill, or recreations to the general public for a fee. Examples include, but are not limited to, bowling alleys, roller and ice skating

rinks, game courts, swimming pools, walk-in theaters, physical fitness centers, gyms and video game arcades.

Commercial Amusement/Recreation (Outside). An outdoor facility or area for sport, entertainment, games of skill or recreations open to the general public for a fee. The term includes without limitation game courts, water slides, miniature golf courses, drive-in theaters, batting cages, practice/instructional fields, driving ranges and sports events, but does not include an amphitheater.

Community Center, Private (Accessory). A facility associated with a planned residential development or multi-family development which provides for community activities for residents of the development.

Community Recreational Facility, Public. A facility which provides for community activities and is available to the general public.

Condominium. A multi-family dwelling or a commercial building within which the occupied area is owned individually and the structure, land, common open space areas and facilities are owned by all of the owners on a proportional, undivided basis.

Construction Material Supply Yard. A facility for the storage of construction materials for a specific development.

Contractor's Plant, Shop & Storage Yard. A facility for the storage and maintenance of contractor's supplies and operational equipment. Offices are considered an accessory use.

Convalescent Care Facility/Nursing Home. A building or structure designed, used, or intended to be used to house and provide care for persons who have a chronic physical or mental illness or infirmity, but who do not need medical,

surgical or other specialized treatment normally provided by a hospital or special care facility. "Convalescent care facility" includes "rest home" and "nursing home," but does not include "assisted living apartment," "hospital" or "special care facility."

Copy Center. A facility for the custom reproduction of written or graphic materials on a custom order basis for individuals or businesses. Typical processes include, but are not limited to, photocopying, small offset printing, blueprint, and facsimile sending and receiving.

Country Club, Private. A facility used for recreational or athletic purposes with limited membership and the use of which is primarily restricted to members and their guests. Accessory uses include retail and restaurant facilities which do not have separate signage or advertising, and a club house.

Crematorium. A facility where corpses are cremated.

Crop Production. An area for raising or harvesting agricultural crops.

Custom & Craft Work. A facility in which finished, personal or household items which are either made to order or which involve considerable handwork are produced. Examples include, but are not limited to textiles, pottery, furniture repair or refinishing, wood working, upholstery, sculpting and other work or wood products on an individualized single item basis. The term does not include cabinet making, cabinet assembly or the use of mechanized assembly line production.

Daily Labor Service. Any building or premises which serves as a staging point or gathering place for persons who are seeking immediate employment in daily labor activities and who accept or are assigned such employment in accordance

with whatever employment is available on that particular day. For purposes of this paragraph, "daily labor" means manual labor, including without limitation, construction cleanup, garbage pickup and removal, demolition, convention setup and takedown, landscaping, planting and digging.

Desktop Publishing. An establishment that provides custom set-up of graphics and text for publication in an office setting. The term does not include an establishment that performs off-set printing or related distribution.

Dry Cleaners. A facility which is used to provide, to individual households, cleaning services for items such as clothing and linens. The term includes such facilities whether the plant operation is located on- or off-site.

Electric Generating Plant. A facility that generates electricity from mechanical power produced by solar, gas, coal, hydraulic power sources or nuclear fission franchised by the City.

Electric Utility Substation. A facility for transforming electricity for distribution to individual customers.

Emergency Ambulance Services, Ground. A facility which provides emergency ambulance service and does not include the use of helicopters.

Employment Agency. Any establishment, other than a daily labor service, which provides one or both of the following:

1. Assistance to employers in finding and employing permanent or temporary employees, whether part-time or full-time.

2. Assistance to potential employees in identifying and obtaining permanent or temporary employment, whether part-time or full-time.

Environmentally Hazardous Materials. The location of activities or products which have the potential to be dangerous, extremely obnoxious, or cause substantial environmental impacts on or beyond the boundaries of the property on which the activity or use is conducted. Environmentally Hazardous Materials include, but are not limited to, the following activities:

1. Manufacture, storage and testing of explosives, fireworks or munitions.

2. Refining petroleum and the storage and distribution of natural and liquid gas or other petroleum derivatives in bulk including terminals, tank farms or other similar facilities.

3. Manufacturing, blending, or mixing of pesticides, certain acids and fertilizer.

4. Stockyards, feed pens, livestock sales with pens and/or shipping facilities. Rendering of animal fats, slaughtering or processing of animals, and industrial manufacturing processes using the following raw materials: bones, garbage, offal and dead animals.

5. Refining of raw materials, such as, but not limited to, chemicals, rubber, wood or wood pulp, into other products.

6. Forging, casting, melting, refining, extruding, rolling, drawing and/or alloying metals.

7. Jet engine or other engine testing.

8. Refuse disposal services not listed elsewhere in this Title, including but not limited to landfills, incinerators and other locations which receive garbage and refuse generated off-site for storage, treatment or disposal.

9. Boiler works.

Escort Bureau. A business establishment which, for a fee, commission, hire, or profit, furnishes or arranges for escorts to accompany other persons for social engagements.

Facility to Provide Testing, Treatment, or Counseling for Drug or Alcohol Abuse. A facility that:

1. Operates under or is subject to the provisions of NRS Title 40 and, by means of certified detoxification technicians or otherwise, provides care or treatment related to the physical and mental effects of the abuse of alcohol or drugs, or the effects of alcohol or drug dependency; or

2. Provides court-ordered or court-sanctioned testing, analysis, treatment or counseling related to the physical and mental effects of the abuse of alcohol or drugs, or the effects of alcohol or drug dependency.

Financial Institution, General. Any business or organization, including without limitation banks and credit unions, whose primary service is the exchange of currency. The term does not include any business engaged in retail sales or a business whose primary service is to lend money for repayment at a future date.

Financial Institution, Specified. Any business whose primary function is to lend money; to cash checks or other negotiable instruments for a fee, service charge or other consideration; or to provide funds in exchange for the acceptance of a check on a post-dated or deferred-deposit basis. The term includes without limitation a check cashing

service, paycheck advance service, and any business primarily providing cash loans, installment loans or cash advances, but does not include a pawn shop.

Food Processing. A facility in which food for human consumption is provided in its final form, such as candy, baked goods and ice cream, and the food is distributed to retailers or wholesalers for resale on or off the premises. The term does not include food or beverage processing which uses any mechanized assembly line production of canned or bottled goods.

Gaming Establishment, Non-restricted. An establishment which is used or intended to be used for the conduct of gaming activities for which a non-restricted gaming license is required pursuant to Title 6 of the Las Vegas Municipal Code. For informational purposes, the term refers to an establishment whose gaming operations consist of sixteen or more slot machines, or any number of slot machines together with any other game, gaming device, race book or sports pool at that establishment.

Gaming Establishment, Restricted. An establishment which is used or intended to be used for gaming activities for which a restricted gaming license is required pursuant to Title 6 of the Las Vegas Municipal Code. For informational purposes, the term refers to an establishment whose gaming operations are limited to not more than fifteen slot machines, incidental to the primary business at the establishment, and no other game or gaming device.

Garden Supply/Plant Nursery. A facility for the growing, display, or sale of plant stock, seeds or other horticulture items. This use may include raising plants outdoors or in greenhouses for sale either as food or for use in landscaping.

General Personal Service. A facility for the sale of personal services. Typical personal services include barber/beauty

shop, shoe repair, tailor, instructional arts studio, photography studio, hand-crafted art studio, safe deposit boxes, travel bureau, house cleaning service, weight reduction center and florist (excluding greenhouses) and permanent makeup establishment.

General Retail Store. A facility for the retail sale of general merchandise to the general public for direct consumption and not for wholesale. Typical general merchandise includes clothing and other apparel, equipment for hobbies or sports, gifts, flowers and household plants, dry goods, groceries and convenience and specialty foods, toys, furniture, books and stationery, hardware, and similar consumer goods. The term does not include any use specifically listed as a conditional use in this Section.

Government Facility. A facility, agency or area used for public purposes and owned or operated by an instrumentality or agency of Federal, State, or local government.

Group Residential Care Facility. A dwelling of a residential character which is used or intended to be used to provide housing and care for up to ten elderly persons or persons with a handicap. The term does not include an individual residential care facility, convalescent care facility, nursing home, hospital, special care facility or any facility which:

1. provides surgical, medical, psychiatric or other specialized treatment on a regular basis;
2. provides housing and care to persons who have a chronic illness, disease, injury or other medical condition; or
3. provides housing, care or treatment to persons whose occupancy would constitute a direct threat to the health or safety of other individuals or their property.

Guest House/Casita. A structure which is located on the same residential parcel as a principal dwelling and which, as an ancillary use, provides living quarters for the occupants of the principal dwelling, their temporary guests or domestic employees.

Gun Club, Skeet or Target Range. A facility for the sport of shooting at targets to test accuracy in rifle, pistol or archery practice owned or operated by a corporation, association or individuals.

Halfway House. A facility for the housing, rehabilitation, and training of persons on probation or parole from correctional institutions, or other persons found guilty of criminal offenses.

Heavy Construction Trade Yard. A lot or facility used for the storage of heavy construction equipment, machinery and vehicles.

Heavy Machinery & Equipment (Rental, Sales & Service). A facility for the display, sale and rental of tools, heavy machinery, dump trucks or commercial and heavy equipment such as those used in building construction, farming, restaurants or manufacturing.

Helipad. A facility for the landing and taking off of helicopters, but with no accessory gas sales, maintenance or other services.

Horse Corral or Stable (Commercial). A structure for the keeping of horses, mules or ponies which are boarded for compensation.

Horse Corral or Stable (Private). An accessory structure for the keeping of horses, mules or ponies for the use of occupants of the premises.

Hospice. A home for the terminally ill.

Hospital. An institution, designed within an integrated campus setting for the diagnosis, care, and treatment of human illness, including surgery and primary treatment.

Hotel Lounge Bar. A bar located in a lounge area of a hotel which has a minimum of 150 rooms, unless the City Council determines that public health, safety and welfare are not compromised by a lesser number of rooms, wherein;

1. Alcoholic beverages are served and consumed only at tables and booths located within the lounge bar area of the hotel, within a pool area, or within hotel rooms as an incident to room service;

2. Persons are not permitted to purchase or obtain alcoholic beverages directly from such lounge bar;

3. No other business, trade, profession or entertainment that requires a license under Title 6 of the City of Las Vegas Municipal Code is conducted or performed in the lounge bar area; and

4. The maximum available customer seating in the lounge bar area does not exceed seventy-five seats.

Hotel or Motel, or Hotel Suites.

1. **Motel** - A building or group of buildings whose main function is to provide rooms for temporary lodging; rooms are directly accessible from an outdoor parking area.

2. **Hotel** - A building or group of buildings whose main function is to provide rooms for temporary lodging where entrance to each room is gained from a completely enclosed area. A hotel may also contain restaurants, conference rooms and personal service shops.

3. **Hotel Suites.** A facility offering temporary lodging accommodations to the general public in which rooms or suites may include kitchen facilities and sitting rooms in addition to the sleeping room. The phrase "temporary lodging" refers to a rental period with a normal duration of no more than one week.

Hotel, Residence. A multi-dwelling unit for extended stay lodging consisting of efficiency units or suites with a complete kitchen suitable for long term occupancy; customary hotel services such as linen, maid service, telephone and upkeep of furniture; and optional resident and guest amenities such as meeting rooms, club house and recreation facilities. The term does not include facilities which qualify as other types of dwelling units defined in this title.

Individual Residential Care Facility. A home in which a natural person furnishes food, shelter, assistance and limited supervision, for compensation, to not more than two persons who are aged, infirm, mentally retarded or handicapped, unless the persons receiving those services are related within the third degree of consanguinity or affinity to the person providing those services.

Jewelry Store, Class III Type. A store which buys and sells scrap precious metals for marketing as a commodity in bar form or in other than jewelry form, or which buys and sells precious metal bars and coins that are sold as a commodity rather than for numismatic purposes. This may include operations similar to a new jewelry store.

Jewelry Store, New. A store which primarily sells new merchandise and some used merchandise from estate sales or reconstitutes precious metals into jewelry forms which are sold at retail on the premises.

Keeping of Carrier or Racing Pigeons. The keeping of pigeons that are bred and kept for the purpose of demonstration or racing, are registered with a national pigeon registry or organization, and are identified as to ownership and registration by a stamp or a band.

Laboratory, Medical or Dental. A facility, other than a hospital, that:

1. Conducts general medical or scientific research, investigation, testing, or experimentation; or
2. Upon referral by or request of a medical professional, provides radiological or medical testing, or creates prosthesis or artificial dental work.

The term does not include a facility for the manufacture or sale of other products, except as incidental to the main purpose of the laboratory. The term also does not include a "facility to provide testing, treatment, or counseling for drug or alcohol abuse," as that term is defined in this Section.

Landfill. A lot or premises used for the disposal of garbage, trash, refuse or waste material, but not including sewage, which is officially sanctioned by proper authorities of the jurisdiction in which it is located.

Laundry, Self-Service. A laundry facility that provides coin operated washing and drying machines for customer operation. The term includes a facility that provides additional services such as fluff and fold or dry cleaning, provided that no dry cleaning equipment is located on the premises. The term does not include a laundry room located within a residential development that is provided solely for the use of residents of the development.

Light Assembly & Fabrication. Manufacturing from standard parts of a distinct object differing from the individual components.

Liquor Establishment (Tavern). A facility which sells alcoholic beverages for consumption on the premises where the same are sold and authorizes the sale, to consumers only and not for resale, of alcoholic beverages in original sealed or corked containers, for consumption off the premises where the same are sold.

Livestock Farming (Bovines/Horses). The raising or keeping of bovine animals or horses for recreational, entertainment or training purposes only. The term does not include the breeding or raising of animals for consumption or sale.

Manufactured Home. A structure as defined in NRS 489.113. A manufactured home may or may not qualify for treatment as a single-family detached dwelling pursuant to Las Vegas Municipal Code Section 19.04.060(B).

Manufacturing, Heavy. A facility for the general mass producing of goods, usually for sale to wholesalers or other industrial or manufacturing uses. The term includes any use which employs any of the following or similar types of processes:

1. Milling of grain as retail sales and service.
2. Production of animal food, and the tanning of animal hides.
3. Production of large durable goods such as, but not limited, to motorcycles, cars, manufactured homes or airplanes.
4. Canning or bottling of food or beverages for human consumption using a mechanized assembly line.

5. Manufacturing of paint, oils, pharmaceuticals, cosmetics, solvents and other chemical products, and use of a foundry for metals.

6. Production of items made from stone, clay, metal or concrete.

7. Tire recapping or retreading.

8. Production of items by means of the chemical processing of materials.

Manufacturing, Light. A facility for producing goods without the use of any of the processes described within the definition of "Heavy Manufacturing." The term includes without limitation the following activities:

1. Assembly, finishing, and/or packaging of small items from component parts made at another location. Examples include but are not limited to cabinet making or the assembly of clocks, electrical appliances, or medical equipment.

2. Production of items made from materials derived from plants or animals including, but not limited to, leather, pre-milled wood, rubber, paper, wool or cork, or from textiles or plastics.

3. Electrical component manufacturing.

4. Reproduction, cutting, printing, or binding of written materials, drawings or newspapers on a bulk basis using lithography, offset printing, blue printing and other similar methods.

5. Machine shop where material is processed by machinery, cutting, grinding, or similar processes.

Massage Establishment. A facility which is occupied and used for the purpose of practicing massage therapy as defined in Las Vegas Municipal Code Chapter 6.52.

Mini-warehouse. A facility with enclosed storage space, divided into separate compartments, which is provided for use by individuals to store personal items or by businesses to store materials for operation of a business establishment.

Mixed-Use. A combination of certain residential and nonresidential uses on a single parcel, or a mix of certain residential and nonresidential uses within an area that is zoned for either residential or nonresidential use.

Mobile Home. A factory-assembled structure equipped with the necessary service connections and made so as to be movable as a unit on its own running gear and designed to be used for a one-family residential use.

Mobile Home Park. An area or tract of land where two or more mobile homes or mobile home lots are rented or held out for rent. The term does not include an area or tract of land where: (a) More than half of the lots are rented overnight or for less than three months for recreational vehicles. (b) Mobile homes are used occasionally for recreational purposes and not as permanent residences.

Monorail. A non-technology specific system used to transport passengers, including any system on a fixed land route installed and operated on an exclusive fixed guideway or rail, and including a monorail as defined in NRS Chapter 705. The term does not include a system to transport passengers between two end points with no intermediate stops, or a monorail that function only as part of a theme park or permanent exhibition under Las Vegas Municipal Code Chapter 6.81.

Mortuary or Funeral Chapel. A facility in which dead bodies are prepared for burial or cremation; a facility where funeral services are conducted.

Motorcycle/Motor Scooter Sales. A facility or area for the display and sale of motorcycles and motor scooters, whether new or used. The term includes service bays which are incidental and accessory to the sales use.

Motor Vehicle Sales (New). A facility or area for the display and sale (or leasing) of new automobiles, trucks, motorcycles and motor scooters. The term includes service bays and auto body shops which are incidental and accessory to the sales use.

Motor Vehicle Sales (Used). A facility or area used primarily for the display and sale (or leasing) of used automobiles, motorcycles and motor scooters. The term includes service bays and auto body shops which are incidental and accessory to the sales use.

Mounted Antenna. An antenna, other than a wireless communication facility, that is attached to a structure as permitted under this Code.

Multi-family. A structure used or designed as a residence for three or more families or households living independently of each other.

Museum or Art Gallery. A facility or area for the acquisition, preservation, study, and exhibition of works of artistic, historic or scientific value.

Night Club. An establishment other than a teen dance center, that is operated as a place of entertainment, characterized by any or all of the following as a principal use:

1. Live, recorded, or televised entertainment, including but not limited to performance by magicians, musicians or comedians.

2. Dancing.

Off-Premise Sign. Any sign advertising or announcing any place, product, goods, services, idea or statement whose subject is not available, located at, nor on the lot where the sign is erected or placed.

Office, Medical. A professional office for the administration of professional medical or dental care, including examinations, screenings and minor outpatient surgical procedures. The term does not include a facility that provides housing for individuals, a clinic, or any other facility that is specifically defined in this Section.

Office, Other Than Listed. A building or rooms used for conducting the affairs of a business, profession, service, industry or government other than those which are specifically listed in this Section.

Open Air Vending/Transient Sales Lot. An area that is used exclusively for the sale or taking of orders for any merchandise where such merchandise is displayed or sold in the open area; such activities are not part of the operation of an established business; and no permanent physical structures or facilities are used as integral parts of the sales or ordertaking operations. The term includes the display or sale of merchandise in or in connection with a truck, trailer or movable building of any type.

Outcall Entertainment Referral Service. A business which, for a fee, sends or refers an entertainer to an entertainment location (as defined in LVMC 6.57.030) in response to a telephone or other request to entertain a patron at the entertainment location.

Outside Storage. The use of a significant portion of a lot or area for the long term retention (more than 24 hours) of materials and machinery or equipment, regardless of whether the materials, machinery or equipment are to be bought, sold, repaired, stored, incinerated, or discarded. The term does not include new or used motor vehicle sales and rental display, nor does it include accessory and incidental parking of vehicles for residents, guests, customers or employees in connection with a principal use.

Package liquor off-sale establishment. An establishment, other than a retail establishment with package liquor off-sale as an accessory use, whose license to sell alcoholic beverages authorize their sale to consumers only and not for resale, in original sealed or corked containers, for consumption off the premises where the same are sold. The term includes an establishment that provides on-premises wine, cordial and liqueur tasting if the licensee also holds a wine, cordial and liqueur tasting license for that location.

Parking, Commercial. A facility for parking that is operated as a business enterprise by charging the public a fee and is not reserved or required to accommodate occupants, clients, customers or employees of a particular establishment or premises.

Parking Lot/Sidewalk Sale. A promotional sales event that is conducted by a business operation outside the confines of the commercial or manufacturing structure in which the business operation is normally conducted.

Patio Cover. An attached or detached accessory structure which is not enclosed and provides sheltered outdoor space.

Pawn, Auto. A Pawn Shop that lends money on the security of a motor vehicle, which the pawn shop takes possession of as the pledged property.

Pawn Shop. A facility (other than a bank, saving and loan or mortgage banking company) used for the business of lending money on the security of pledged goods or for the business of the purchase of tangible personal property on condition that it may be redeemed or repurchased by the seller for a fixed price within a fixed period of time.

Pet Boarding. A lot, building, premises or structure on which four or more household pets kept regularly and for extended periods of time for the benefit of persons who do not reside on the premises. The term includes facilities that provide shelter, care, feeding, exercising, grooming or incidental medical care for household pets for remuneration or otherwise on a commercial basis. The term includes a kennel operation.

Printing & Publishing. An establishment other than a Copy Center that provides printing, publishing, duplicating, or collating services using photocopy, blueprint, off-set printing, or related equipment.

Private Club, Lodge or Fraternal Organization.

1. **Club.** A facility of a private organization for the preparation and service of food and/or drink for members and their guests.

2. **Lodge or Fraternal Organization.** A facility for a special purpose organization for the sharing of sports, arts, literature, politics or other similar interests; but not primarily\ for profit or to render a service that is customarily carried on as a business.

Psychology Practice. A professional office in which a licensed professional, including a psychiatrist, psychologist, social worker, marriage and family therapist, or occupational therapist, provides evaluation, testing,

treatment or counseling services related to mental conditions or disorders. The term includes a hypnotherapy practice, but does not include a "facility to provide testing, treatment, or counseling for drug or alcohol abuse," or a "sex offender counseling facility," as those terms are defined in this Section.

Public or Private School. An educational institution for kindergarten, elementary or secondary education which is supported by a public, religious or private organization.

Public Park or Playground. A park, playground, swimming pool, reservoir, golf course, or athletic field owned, operated and maintained by a homeowners association or a local or State level government entity.

Radio Broadcasting. A building or portion of a building used as a place for radio broadcasting.

Railroad Yard, Shop, or Roundhouse. A facility or area for the maintenance, repair, or storage of bus, rail or other transit vehicles.

Recording Studio. A building or portion of a building used as a place to record music and videos. The term does not include broadcasting facilities.

Recreational Vehicle and Boat Storage. The storage of recreational vehicles, boats, or any combination thereof.

Recycling Collection Center. A facility used for the collection and temporary storage of empty beverage containers, aluminum, glass, paper or clothing for recycling purposes conducted totally within an enclosed structure or container. The term does not include processing except for "can banks" that crush cans as they are deposited.

Rental Store. A facility for the rental of general merchandise to the general public and not specifically listed as a different use elsewhere in this Section. Typical general merchandise includes clothing and other apparel; electronics; videos; tools and garden equipment; furniture and other household appliances; special occasion or seasonal items; and similar consumer goods.

Rescue Mission or Shelter For The Homeless. A building that is used or intended to be used to provide to homeless individuals temporary accommodations, shelter, meals or any combination thereof. For purposes of this Section, a "homeless individual" includes an individual who lacks a fixed, regular and adequate nighttime residence.

Restaurant, Drive-Through. A use providing preparation and retail sale of food and beverages, as defined under "Restaurant," with the added provision of one or more drive-through lanes for ordering and dispensing food and beverages to patrons remaining in their vehicles.

Restaurant Service Bar. A bar wherein alcoholic beverage drinks are prepared for service only at tables in a restaurant and for consumption only in connection with a meal served on the premises, and where customers are not permitted to purchase alcoholic beverage drinks directly from the bar or for off-premise consumption.

Salvage or Reclamation of Products. A facility or area for storing, keeping, selling, dismantling, or salvaging scrap or discarded material or equipment which is not considered as another use under this Title. Scrap or discarded material includes, but is not limited to, metal, paper, rags, tires, bottles or inoperable or wrecked motor vehicles, motor vehicle parts, machinery, structural steel, equipment and appliances. The term includes facilities for recycling recoverable resources, such as newspapers, magazines, books, and other paper products, glass, metal cans and other

products, which can be returned to a condition in which they may again be used for production.

Seasonal Outdoor Sales. The Temporary outdoor sale and display of the following (and only the following) holiday goods in connection with the corresponding holidays:

1. Christmas trees;
2. Halloween pumpkins;
3. Valentine's Day flowers; and
4. Mother's Day flowers.

The term does not include fireworks sales to the extent they are conducted in compliance with Las Vegas Municipal Code Chapter 9.28 and the requirements of the Las Vegas Department of Fire and Rescue.

Secondhand Dealer. A specialty shop which deals solely in one kind of used commodity with no new commodities, or a business in which the sale of secondhand or used articles is incidental to the sale of new articles of the same kind. For purposes of this definition, the sale of secondhand or used articles is deemed to be incidental to the sale of new articles. Used articles may include wearing apparel, furniture, fixtures, appliances, tableware, offices supplies, pictures, paintings, jewelry, cutlery or guns. The term includes the sale of jewelry (class III type) and scrap precious metals as defined in Las Vegas Municipal Code Chapter 6.74, but does not include the sale of junk as defined in that Chapter, the sale of used cars or the sale of other items which the City Council determines do not fit within the intent of this term. The term does not include the buying and selling of foreign or domestic coins for numismatic purposes, which shall be allowed where retail sales of new merchandise is permitted.

Senior Citizen Apartments. An apartment house or other multi-family dwelling in which each unit is occupied by at

least one person fifty-five years of age or older. The term includes an apartment house or other multi-family dwelling that qualifies as "housing for older persons" under the provisions of Federal law, including without limitation housing developments that:

1. Provide significant facilities and services specifically designed to meet the physical or social needs of older persons; and
2. Publish and adhere to policies and procedures that demonstrate an intent to provide housing for persons fifty-five years of age or older to the extent allowed by applicable State or Federal law.

Service Station. Any building, or premises used for the dispensing and sale of fuels or oils and accessories for the motor vehicle trade, together with any incidental minor automotive repair or automatic car wash facility.

Sex Offender Counseling Facility. A facility that regularly provides court-ordered or court-sanctioned treatment or counseling to sex offenders.

Sexually-Oriented Business. See Las Vegas Municipal Code Subchapter 19.04.040.

Single Room Occupancy Residence. A residential facility in which furnished rooms are rented on a weekly or monthly basis and which provides common facilities and services for laundry, cleaning and meals.

Social Event With Alcoholic Beverage Sales. The sale of alcoholic beverages for consumption only on the premises where the same are sold in connection with weddings, school graduations, employer and employee events, recognition ceremonies, awards ceremonies, family gatherings, fund-raising events, club and organization

events or other similar events which occur six times or more per month at a facility not licensed for the sale of alcoholic beverages.

Social Service Provider. A facility that provides assistance to persons with limited ability for self-care, but for whom medical care is not a major element. The term includes a facility that provides assistance concerning psychological problems, employment, learning disabilities or physical disabilities, but does not include a rescue mission or homeless shelter.

Supper Club. A restaurant and bar operation with alcoholic beverage sales: wherein the bar area is separated from the restaurant area by a barrier sufficient to prevent access to the bar by minors; wherein the actual seating available at all times within the restaurant area will accommodate at least one hundred twenty-five persons; wherein alcoholic beverages are served in the restaurant area only in conjunction with the service of food; wherein full course meals are available during all hours the bar area is open to the public; wherein a cook and food server, other than a bartender, are available at all times the bar area is open to the public; and wherein the restaurant operation is the principal portion of the business.

Swap Meet. A facility in which multiple vendors, dealers, sellers or traders have rented, leased, purchased or otherwise obtained an area from a swap meet operator for the purpose of selling, bartering, exchanging or trading new or used items of personal property, where the aggregate value of all such property exceeds the amount of one thousand dollars.

Tattoo Parlor/Body Piercing Studio. An establishment whose principal business activity, either in terms of operation or as held out to the public, is the practice of one or more of the following:

1. The placing of designs, letters, figures, symbols or other marks upon or under the skin of any person, using ink or other substances which result in the permanent coloration of the skin by means of the use of needles or other instruments designed to contact or puncture the skin.

2. The creation of an opening in the body of a person for the purpose of inserting jewelry or other decoration. This term does not include a permanent makeup establishment.

Taxicab/Limo Yard. An area or facility used for the storage or dispatch of taxicabs or limousines.

Teen Dance Center. An establishment that is primarily operated as a place of entertainment for persons under the age of 18 years, characterized by any or all of the following as a principal use:

1. Live, recorded, or televised entertainment, including but not limited to performance by magicians, musicians or comedians.

2. Dancing.

Temporary Contractor's Construction Yard. An on-site or off-site facility for the storage of construction materials and equipment intended for use in conjunction with a specific mining operations and development, to be removed at the time the development is completed. The term includes temporary batch plants.

Temporary Outdoor Commercial Event. A promotional activity, fair, circus, rodeo, festival, carnival, arts and crafts fair, tent revival, haunted house, amusement system, or concert that will be conducted at a location other than a stadium, auditorium or other public assembly facility that is designed to accommodate such an event. The term does not

include one-day residential celebrations; uses within public facilities or recreational facilities regulated or organized through a homeowners association or the City of Las Vegas Department of Leisure Services; parades and similar events that occur in the public right-of-way and are regulated by or organized through the Las Vegas Metropolitan Police Department; or grand openings of new businesses that meet all requirements of the Department of Fire and Rescue.

Temporary Real Estate Sales Office. An office operating at a fixed location within an existing model home, trailer or commercial structure which is used temporarily for the purpose of real estate sales.

Thrift-Shop. A shop which deals primarily in second-hand wearing apparel. All such merchandise shall be displayed and stored in an enclosed building.

Thrift Shop, Non-profit. A shop operated by a charitable organization which sells donated used merchandise only. All such merchandise shall be displayed and/or stored in an enclosed building.

Time-Share Development. A development consisting of a minimum of 50 units that are made available for use and occupancy on a recurrent periodic basis according to an arrangement allocating this right among various holders of a time-share ownership, leasehold or other similar interest.

Trade School. A facility for instruction and training in trades or crafts such as auto repair, welding, bricklaying, machinery operation or other similar trades or crafts which require the use of large equipment, or outdoor training activities, or both.

Trailer/RV Camp or Park. Any lot or tract of land used, or intended to be used, for the accommodation of two or more auto trailers.

Transit Passenger Facility. A facility for the loading and discharging of train or bus passengers.

Transitional Living Group Home. A dwelling of a residential character which is operated under an appropriate State or County license and which provides housing and related assistance for six or fewer persons who are in need of transitional living arrangements. The term does not include an individual residential care facility, group residential care facility, convalescent care facility, nursing home, hospital, special care facility or any facility which:

1. provides surgical medical, psychiatric or other specialized treatment on a regular basis;
2. provides housing and care to persons who have a chronic illness, disease, injury or other medical condition; or
3. provides housing, care or treatment to persons whose occupancy would constitute a direct threat to the health or safety of other individuals or their property.

Truck Rental. A facility for the rental of new or used trucks. Trucks kept on the lot for rental purposes are not considered to be outside storage.

Trucking Company. A business, service or industry involving the use of commercial vehicles in the loading, unloading and transportation of cargo. May also include the fueling, maintenance, servicing, storage or repair of commercial vehicles or the storage of cargo.

TV Broadcasting & Other Communication Service. A building or portion of a building used as a place for television broadcasting and similar activities.

Urban Lounge. An establishment that is:

1. Is licensed for the sale of alcoholic beverages for consumption on the premises where the same are sold, and the sale, to consumers only and not for resale, of alcoholic beverages in original sealed or corked containers, for consumption off the premises where the same are sold; and

2. Meets the criteria for an urban lounge as set forth in Section 19.04.050(B).

Utility Installation, Other than Listed. A facility or area for a utility installation not specifically listed in this Section.

Utility Lines & Transmission. Utility infrastructure providing electrical power, telephone, or cable television which is installed, operated and maintained by a municipality or a franchised utility company.

Valet Parking. A service provided in conjunction with a business or other establishment by which employees (or others acting on behalf of the establishment) park the vehicles of patrons or visitors in an area set aside for that purpose.

Warehouse/Distribution Center. An enclosed structure for the storage of goods for distribution or transfer to another location.

Wedding Chapel. A facility which is made available to be rented for wedding ceremonies. Such facilities may include a chapel, dressing rooms, offices, reception facilities and gardens.

Wholesale Showroom Facility. A building used primarily for the storage of goods and materials and secondarily for the display of merchandise for wholesale purchase.

Wireless Communication Facility, Non-stealth Design. A wireless communication facility that does not qualify as a stealth design wireless communication facility.

Wireless Communication Facility, Stealth Design. A wireless communication facility that is designed to blend into the surrounding environment. Examples include without limitation: antenna tower alternative structures; roof-mounted antennas (with architectural screening when appropriate); building-mounted antennas painted to match the existing structure; antennas integrated into architectural elements (such as steeples or cupolas); antennas and antenna structures designed to look like light poles, flagpoles, or any other camouflaging techniques available on the market; and a cable microcell network which utilized multiple low-powered transmitters/receivers or repeaters attached to existing wireline systems, such as conventional cable or telephone wires, or similar technology that does not require the use of towers.

8.3 Conditional Use Standards

AUTO BROKER

1. No more than two vehicles may be displayed or stored on the property.
2. Required on-site parking shall be provided in accordance with the applicable provisions of the Design Guidelines.
3. The installation and use of an outside public address system or bell system is prohibited.
4. No used or discarded automotive parts or equipment shall be located in any open area outside of an enclosed building.
5. All exterior lighting shall be screened or otherwise designed so as not to shine directly onto any adjacent parcel of land.
6. The repair or servicing of vehicles is not allowed.
7. No retail sales of vehicles is allowed.

AUTO PARTS (NEW AND REBUILT) (ACCESSORY SALES AND SERVICE); AUTO PARTS (ACCESSORY INSTALLATION)

1. If an installation service is offered, the service shall be restricted to the installation of minor parts only, including batteries, windshield wipers, hoses, fuses, lights, radios and similar minor elements, but excluding engine, transmission and differential service, repair or installation.
2. All installation work shall be done within a completely enclosed building.

3. Access doors to the installation bays shall be designed to minimize the visual intrusion into adjoining properties and adjacent streets.

4. No dismantling, re-manufacturing or rebuilding shall be permitted.

5. No used or discarded minor automotive parts shall be located or stored in any open area outside of an enclosed building.

AUTO REPAIR GARAGE, MINOR

1. All repair and service work shall be performed within a completely enclosed building.

2. Openings to the service bays shall be designed to minimize the visual intrusion into adjoining properties and adjacent streets.

3. No used or discarded automotive parts or equipment shall be located in any open area outside of an enclosed building.

4. No outside storage of stock, equipment or residual used equipment shall be located in any open area outside of an enclosed building.

5. All disabled vehicles shall be stored in an area which is screened from view from the surrounding properties and adjoining streets. Vehicles shall not be stored on the property longer than 45 days.

AUTOMOBILE RENTAL

1. The installation and use of an outside public address or bell system is prohibited.

2. No used or discarded automotive parts or equipment shall be located or stored in any open area outside of an enclosed building.

3. All exterior lighting shall be screened or otherwise designed so as not to shine directly onto any adjacent parcel of land.

4. Service bays for repairs, installations, cleaning or gas dispensing services facing a public street or a residential zoning district shall be screened to a height of at least eight feet.

AUTO SMOG CHECK FACILITY

1. The facility must have a minimum size of 200 square feet, of which a minimum of 100 square feet must be an enclosed structure, with the remainder of the facility allowed to be located under services canopies.

2. All equipment must be stored and utilized within the enclosed structure.

3. If conducted as an accessory use to a service station, minor auto repair facility, or major auto repair facility, the Auto Smog Check facility shall be designed to be architecturally compatible with the primary building on the site.

4. If service bay doors are provided, openings to service bay doors shall be designed to minimize the visual intrusion into adjoining properties and adjacent streets..

5. When operated as a primary use, no other automobile repair shall be permitted in conjunction with an Auto Smog Check facility.

6. No required parking spaces shall be used or eliminated to provide for the Auto Smog Check facility.

BEER/WINE/COOLER OFF-SALE ESTABLISHMENT

1. Except as otherwise provided in this Section, no beer/wine/cooler off-sale establishment (hereinafter "establishment") shall be located within four hundred feet of any church, synagogue, school, child care facility licensed for more than twelve children, or City park.

2. Except as otherwise provided in Paragraph (3) below, the distances referred to in Paragraph (1) shall be determined with reference to the shortest distance between two property lines, one being the property line of the proposed establishment which is closest to the existing use to which the measurement pertains, and the other being the property line of that existing use which is closest to the proposed establishment. The distance shall be measured in a straight line without regard to intervening obstacles. For purposes of measurement, the term "property line" refers to the property lines of fee interest parcels and does not include the property line of:

(a) Any leasehold parcel; or

(b) Any parcel which lacks access to a public street or has no area for on-site parking and which has been created so as to avoid the distance limitation described in Paragraph (1).

3. In the case of an establishment proposed to be located on a parcel of at least fifteen acres in size, the minimum distances referred to in Paragraph (1) shall be measured in a straight line:

(a). From the nearest property line of the existing use to the nearest portion of the structure in which the establishment will be located, without regard to intervening obstacles; or

(b) In the case of a proposed establishment which will be located within a shopping center or other multiple-tenant structure, from the nearest property line of the existing use to the nearest property line of a leasehold or occupancy parcel in which the establishment will be located, without regard to intervening obstacles.

4. The minimum distance requirements in Paragraph (1) do not apply to:

(a) An establishment which has a non-restricted gaming license in connection with a hotel having two hundred or more guest rooms on or before July 1, 1992 or in connection with a resort hotel having in excess of two hundred guest rooms after July 1, 1992; or

(b) A proposed establishment having more than thirty thousand square feet of retail floor space.

5. All businesses which sell alcoholic beverages shall conform to the provisions of Chapter 6.50 of the Las Vegas Municipal Code.

6. The minimum distance requirements set forth in Paragraph (1), may be waived by the approval of a special use permit.

BEER/WINE/COOLER ON- AND OFF-SALE ESTABLISHMENT

1. Except as otherwise provided in this Section, no beer/wine/cooler on- and off-sale establishment (hereinafter "establishment") shall be located within four hundred feet of any church, synagogue, school, child care facility licensed for more than twelve children, or City park.

2. Except as otherwise provided in Paragraph (3) below, the distances referred to in Paragraph (1) shall be determined with reference to the shortest distance between two property lines, one being the property line of the proposed establishment which is closest to the existing use which the measurement pertains, and the other being the property line of that existing use which is closest to the proposed establishment. The distance shall be measured in a straight line without regard to intervening obstacles. For purposes of measurement, the term "property line" refers to property lines of fee interest parcels and does not include the property line of:

(a) Any leasehold parcel; or

(b) Any parcel which lacks access to a public street or has no area for on-site parking and which has been created so as to avoid the distance limitation described in Paragraph (1).

3. In the case of an establishment proposed to be located on a parcel of at least fifteen acres in size, the minimum distances referred to in Paragraph (1) shall be measured in a straight line:

(a) From the nearest property line of the existing use to the nearest portion of the structure in which the establishment will be located, without regard to intervening obstacles; or

(b) In the case of a proposed establishment which will be located within a shopping center or other multiple-tenant structure, from the nearest property line of the existing use to the nearest property line of a leasehold or occupancy parcel in which the establishment will be located, without regard to intervening obstacles.

4. The minimum distance requirements in Paragraph (1) do not apply to:

(a) An establishment which has a nonrestricted gaming license in connection with a hotel having two hundred or more guest rooms on or before July 1, 1992 or in connection with a resort hotel having in excess of two hundred guest rooms after July 1, 1992; or

(b). A proposed establishment having more than thirty thousand square feet of retail floor space.

5. All businesses which sell alcoholic beverages shall conform to the provisions of Chapter 6.50 of the Las Vegas Municipal Code.

6. The minimum distance requirements as set forth in Paragraph (1), may be waived by the approval of a special use permit.

CAR WASH (FULL SERVICE)

1. The hours of operation shall be limited to the period between 7:00 A.M. and 10:00 P.M.

2. Openings to the wash bays shall be designed to minimize the visual intrusion into adjoining properties and adjacent streets.

3. All exterior lighting shall be screened or otherwise designed so as not to shine directly onto any adjacent parcel.

4. No retail sale of vehicles is allowed.

5. No repair or servicing of vehicles is allowed.

6. The use must not be located within 200 feet of a residential property unless the use is separated from the residential property by a street with a minimum right-of-way width of 80 feet.

7. The applicant must demonstrate that the use can be made inoperable and inaccessible to the public after business hours.

8. Vacuum bays are permitted as part of this use if their operation is in compliance with the other base standards for this use.

9. An attendant must be on the premises during all times the equipment is operational.

CAR WASH (SELF-SERVICE)

1. The hours of operation shall be limited to the period between 7:00 A.M. and 10:00 P.M.

2. Openings to the wash bays shall be designed to minimize the visual intrusion into adjoining properties and adjacent streets.

3. All exterior lighting shall be screened or otherwise designed so as not to shine directly onto any adjacent parcel.

4. No retail sale of vehicles is allowed.

5. No repair or servicing of vehicles is allowed.

6. The use must not be located within 200 feet of a residential property unless the use is separated from the residential property by a street with a minimum right-of-way width of 80 feet.

7. The applicant must demonstrate that the use can be made inoperable and inaccessible to the public after business hours.

8. Vacuum bays are permitted as part of this use if their operation is in compliance with the other base standards for this use.

9. An attendant must be on the premises during all times the equipment is operational.

CARETAKER'S QUARTERS/DOMESTIC OR SECURITY UNIT

1. Unit shall not be taller than main structure.

2. A caretaker or domestic unit shall be designed as a separate dwelling containing a bedroom, bathroom, kitchen and other living space, provided the living quarters are attached to and have interior access to the main dwelling.

3. The unit shall only be occupied by a caretaker or domestic employee of the occupant of the main dwelling.

4. No unit shall be used for rental purposes.

CONSTRUCTION MATERIAL SUPPLY YARD

1. Materials must be screened in a manner that minimizes the visual impact on adjoining properties and adjacent streets.

2. The use must be approved by the Master Developer or its designee.

ELECTRIC UTILITY SUBSTATION

1. The use must be designed in a manner that minimizes the visual impact on adjoining properties and adjacent streets.

2. The use must be approved by the Master Developer or its designee.

HOME OCCUPATION PERMIT

Home occupation permits must conform to the standards set forth in, and must be approved pursuant to the procedures in Las Vegas Municipal Code Section 19.18.110.

LIQUOR ESTABLISHMENT (TAVERN)

1. Except as otherwise provided below, no liquor establishment (tavern) may be located within fifteen hundred feet of any other liquor establishment (tavern within the Urban Mixed Use District), church, synagogue, school, child care facility licensed for more than twelve children, or City park.

2. The distance separation referred to in Paragraph (1) shall be measured with reference to the shortest distance between two property lines, one being the property line of the proposed liquor establishment (tavern) which is closest to the existing use to which the measurement pertains, and the other being the property line of that existing use which is closest to the proposed liquor establishment (tavern). The distance shall be measured in a straight line without regard to intervening obstacles.

3. For the purpose of Paragraph (2), and for that purpose only:

(a) The "property line" of a protected use refers to the property line of a fee interest parcel that has been

created by an approved and recorded parcel map or subdivision map, and does not include the property line of a leasehold parcel; and

(b) The "property line" of a liquor establishment (tavern) refers to:

(i) The property line of a parcel that has been created by an approved and recorded parcel map or commercial subdivision map; or

(ii) The property line of a parcel that is located within an approved and recorded commercial subdivision and that has been created by a record of survey or legal description, if:

(A) Using the property line of that parcel for the purpose of measuring the distance separation referred to in Paragraph (1) would qualify the parcel under the distance separation requirement;

(B) The proposed liquor establishment (tavern) will have direct access (both ingress and egress) from a street having a minimum right-of-way width of eighty feet. The required access may be shared with a larger development but must be located within the property lines of the parcel on which the proposed liquor establishment (tavern) will be located;

(C) All parking spaces required by the Design Guidelines for the liquor establishment (tavern) use will be located on the same parcel as the use; and

(D) The owners of all parcels within the commercial subdivision, including the owner of the parcel on which the liquor establishment (tavern) will be located,

execute and record an agreement that provides for perpetual, reciprocal cross-access, ingress and egress throughout the commercial subdivision.

4. The distance separation requirement set forth in Paragraph (1) does not apply to an establishment which has a non-restricted gaming license in connection with a hotel having two hundred or more guest rooms on or before July 1, 1992, or in connection with a resort hotel having in excess of two hundred guest rooms after July 1, 1992.

5. The distance separation requirement set forth in Paragraph (1) may be waived by the approval of a special use permit.

6. The use shall conform to the provisions of LVMC Chapter 6.50.

LPG (LIQUEFIED PETROLEUM GAS) INSTALLATION OVER 288 GALLONS

1. An LPG installation which includes tanks with an aggregate water capacity of 288 gallons or less is permitted as of right in a zoning district. Such use will be subject to the requirements applicable to the district if the installation complies with the provisions of NRS 590.465 et seq. and these regulations.

2. An LPG installation which includes tanks with an aggregate water capacity of more than 288 gallons shall be excluded in any U zoning district or any zoning district with an "R" prefix.

3. An LPG installation which includes tanks with an aggregate water capacity of more than 288

gallons is not permitted as of right in any zoning district and is allowed with the approval of a Special Use Permit in the C-1, C-2, C-PB, C-V, C-M and M Zoning districts.

4. The aggregate capacity provisions of this section shall not apply to mobile parks or similar multiple-unit installations whose units are served by individual tanks if:

(a) The tanks are not interconnected; and

(b) Each individual tank has a water capacity of less than 125 gallons.

5. Any LPG installation which is made non-conforming by these specific standards is subject to the expansion and discontinuance provisions set forth in Chapter 19.16.

LPG INSTALLATION 288 GALLONS OR LESS

1. The use must be accessory to a main use.
2. The use must be screened to minimize the visual impact on adjoining properties and adjacent streets.

MINI-WAREHOUSE

1. No more than one manager's security residence shall be permitted.
2. All storage shall be within an enclosed building except for the storage of recreational vehicles which shall be screened from view from surrounding properties and abutting streets.
3. No business shall be conducted from or within a mini-storage facility.
4. Retail sale of stored items on the premises is prohibited.

5. The commercial repair of motor vehicles, boats, trailers and other like vehicles shall be prohibited.

6. The operation of spray painting equipment, power tools, welding equipment or other similar equipment shall be prohibited.

7. The production, fabrication or assembly of products shall be prohibited.

8. The rental of single unit trucks and small utility trailers shall be permitted as an accessory use to a mini-storage use, provided the business is conducted out of the same office as that of the mini-storage facility. No trucks or trailers shall be displayed in public view and the combined total of all trucks and trailers stored on site shall not exceed a ratio of two trucks or trailers for each 100 storage units. On-site parking shall be provided for each rental vehicle in excess of the number required for the mini-storage complex.

9. Truck and trailer storage shall be screened from the street and adjacent property.

10. When adjacent to a residential use, the exterior wall of the mini-warehouse shall be constructed of decorative block.

MOTORCYCLE/MOTOR SCOOTER SALES

1. All display and sales shall take place in an enclosed building.
2. The minimum gross floor area of the building shall be 3,000 square feet.

OFF PREMISES ADVERTISING SIGN

1. No more than three signs oriented towards, and advertising to, traffic on US-95.

2. Shall conform to all applicable state regulations.
3. The height of the sign shall not exceed 30 feet above the elevation of the elevated roadway surface nearest the sign.
4. Sign face may include static or electronic messages.

PET BOARDING

1. All animals shall be confined within an enclosed area or on a leash at all times.
2. Structures shall be designed to provide reasonable sound barriers and odor protection for adjoining properties.
3. Pens shall be screened from view from adjacent streets and adjoining properties.
4. Any exterior pens that are adjacent to a residential parcel shall be located a minimum of fifty feet from the parcel.
5. All operations and activities shall be in accordance with Las Vegas Municipal Code Title 7.

RECREATIONAL VEHICLE AND BOAT STORAGE

1. Storage of recreational vehicles and boats is not permitted within required setbacks or buffer areas.
2. Storage areas that are not screened by an intervening building shall be screened completely from view from any public street by a screening device at least eight feet in height. In addition, storage areas shall be screened completely from view from any adjoining property by a screening device at least eight feet in height, except along the

property line of any adjoining property that is zoned C-M or M.

3. The commercial repair of recreational vehicles, boats, trailers and other like vehicles is prohibited.

RECYCLING COLLECTION CENTER

1. A collection center, located in a parking lot, may not occupy required off-street parking spaces.
2. A collection center shall be sited as to not impede traffic flow.
3. The owner of the property and the owner of and operator of the collection center shall:
 - (a) Remove products stored at the collection center at least once a week;
 - (b) Keep the collection center in proper repair and maintain a neat and clean appearance on the exterior of the center; and
 - (c) Keep the building site clean and in a neat appearance and shall dispose of cans and other litter from the building site where the collection center is located.

SUPPER CLUB

1. No supper club use shall be located within 400 feet of any church, synagogue, school, child care facility licensed for more than twelve children or City park.
2. Except as otherwise provided in Paragraph 3 below, the minimum distances referred to in Paragraph 1 shall be determined with reference to the shortest distance between

two property lines, one being the property line of the proposed supper club which is closest to the existing use to which the measurement pertains, and the other being the property line of that existing use which is closest to the proposed supper club. The distance shall be measured in a straight line without regard to intervening obstacles. For purposes of measurement, the term "property line" refers to property lines of fee interest parcels and does not include the property line of:

(a) Any leasehold parcel; or

(b) Any parcel which lacks access to a public street or has no area for on-site parking and which has been created so as to avoid the distance limitation described in Paragraph 1.

3. In the case of a supper club proposed to be located on a parcel of at least fifteen acres in size, the minimum distances referred to in Paragraph 1 shall be measured in a straight line:

(a) From the nearest property line of the existing use to the nearest portion of the structure in which the supper club will be located, without regard to intervening obstacles; or

(b) In the case of a proposed supper club which will be located within a shopping center or other multiple-tenant structure, from the nearest property line of the existing use to the nearest property line of a leasehold or occupancy parcel in which the supper club will be located, without regard to intervening obstacles.

The distance restrictions in Paragraph 1 can be waived by the approval of a special use permit.

4. All businesses, which sell alcoholic beverages, shall conform to the provisions of Chapter 6.50 of the Las Vegas Municipal Code.

TEMPORARY CONTRACTOR'S CONSTRUCTION YARD

The use must be approved by the Master Developer or its designee.

TEMPORARY REAL ESTATE SALES OFFICE

The use must be approved by the Master Developer or its designee.

UTILITY INSTALLATION, OTHER THAN LISTED

The use must be approved by the Master Developer or its designee.

UTILITY LINES & TRANSMISSION

The location of routes for lines which are 15,000 volts or above must first be approved by the Master Developer or its Designee.

WIRELESS COMMUNICATION FACILITY, STEALTH AND NON-STEALTH DESIGN

All facilities must conform to the Design Guidelines.

8.4 Special Use Standards

AUTO DEALER INVENTORY STORAGE

1. All areas used for the parking or storage of vehicles shall be paved.
2. Stored vehicles shall be effectively screened so as not to be visible from adjoining properties or public rights-of-way.
3. Lighting shall be shielded from adjacent properties.
4. The use shall not occupy or interfere with any parking spaces that are required for the dealership use or any other existing or proposed use for which required parking is or will be provided on the site

AUTO REPAIR GARAGE, MAJOR

1. All repair and service work shall be performed within a completely enclosed building. All windows and doors shall be completely closed when body and fender work, hammering, sanding or other noise-generating activities are being performed.
2. No used or discarded automotive parts or equipment shall be located or stored in any open area outside of the enclosed building.
3. Openings in service bays shall be designed to minimize the visual intrusion into adjoining properties and adjacent streets.
4. All disabled or wrecked vehicles shall be stored in an area that is screened from view from the surrounding properties and adjoining streets.

5. Outdoor hoists are prohibited.

6. All hazardous materials resulting from the repair, storage, or dismantling of vehicles shall be properly stored and removed from the premises in a timely manner. Storage, use and removal of toxic substances, solid waste pollution and flammable liquids, particularly gasoline, paints, solvents and thinners, shall conform to all applicable federal, state, and local regulations.

7. No vehicle may be parked on the premises for the purposes of offering the vehicle for sale.

8. Outdoor bells and loudspeakers are prohibited.

BED & BREAKFAST INN

1. The establishment must have a minimum of two and a maximum of five guest bedrooms.
2. Off-street parking shall be provided with a minimum of one parking space per guest bedroom and two parking spaces for the owner or operator. The required off-street parking for guest bedrooms shall be screened by a six foot fence or by dense landscaping.
3. Access to the parcel on which the establishment is located must be by means of a paved street with a right-of-way width of at least forty feet.
4. Cooking facilities for guest rooms are not permitted.
5. The Department of Fire and Rescue must inspect and approve the occupancy of an establishment before it may be used as a bed and breakfast inn.
6. Individual guest occupancy is limited to no more than one month in any three month period.

7. No sale or display of merchandise or other commodities may occur in connection with the establishment.

8. Private functions such as weddings, receptions, luncheons, parties and similar activities are not permitted, except to the extent such activities represent personal activities of the owner/resident.

9. Not more than one on-premise sign shall be permitted. With respect to that sign:

(a) The copy may contain only the name and address of the establishment.

(b) The sign may not exceed three square feet in size or four feet in height.

(c) The sign may be freestanding or may be located on the dwelling itself or on a fence or wall.

(d) Any sign illumination must be exterior to the sign and must be shielded so as not to produce glare upon an adjacent property or a public right-of-way.

(e) The design materials and colors of the sign must be compatible with the architectural style of the dwelling.

BOAT AND TRAILER SALES DEALERSHIPS, NEW AND USED

1. No vehicle, boat or trailer service or repair work shall occur except within a fully enclosed structure.

2. Service bays with individual access from the exterior of the structure shall not directly face or front on a public right-of-way.

FINANCIAL INSTITUTION, SPECIFIED

1. The use shall comply with all applicable requirements of Las Vegas Municipal Code Title 6.

2. The building design and color scheme shall be subject to review by the Department to ensure that it will be harmonious and compatible with the surrounding area.

3. No temporary signs (as described in Las Vegas Municipal Code 19.14.090) such as balloons inflated devices, searchlights, pennants, portable billboards, portable signs, streamers, trucks parked for signage purposes, or other similar devices are permitted, except that banners announcing a "grand opening" or that a business is "coming soon" may be approved administratively for a period not to exceed thirty days.

4. Window signs shall not:

(a) Cover more than twenty percent (20%) of the area of all exterior windows;

(b) Include flashing lights or neon lighting; or

(c) Include any text other than text that indicates the hours of operation and whether the business is open or closed.

5. The hours of operation shall not extend beyond the hours of 8:00 a.m. to 11:00 p.m.

6. The building or portion thereof that is dedicated to the use shall have a minimum size of one thousand five hundred square feet, and shall be designed to have sufficient interior space to provide for adequate customer waiting area, customer queuing, and transaction space (such as "teller" windows or desks).

7. No specified financial institution use may be located closer than two hundred feet from any parcel used or zoned for residential use. In addition, no specified financial institution use may be located closer than one thousand feet from any other specified financial institution use, auto title loan use, or auto pawn use. For purposes of this Paragraph (7), distances shall be measured in a straight line from property line to property line, without regard to intervening obstacles. The term "property line" refers to property lines of fee interest parcels and not leasehold parcels.

JEWELRY STORE, CLASS III

1. The use shall comply with the applicable requirements of Title 6 of the Las Vegas Municipal Code.
2. No outdoor display, sales or storage of any merchandise shall be permitted.

LIGHT ASSEMBLY & FABRICATION

1. No outside storage is permitted.
2. All processing, manufacturing, and storage of materials, equipment and products shall be performed in a completely enclosed building.
3. There shall be no audible or noticeable indication of a manufacturing operation outside the building.
4. There shall be no smoke, dust or foreign matter emitted.
5. The bulk manufactured items and raw materials stored shall not exceed four percent of the cubic content of the building.

MASSAGE ESTABLISHMENT

1. The use shall comply with all applicable requirements of Las Vegas Municipal Code Title 6.
2. The use may not be located within four hundred feet of any church, synagogue, school, city park, child care facility, or any parcel zoned exclusively for residential use.
3. The use may not be located within one thousand feet of any other massage establishment.
4. The hours of operation shall be limited to the period between 8:00 a.m. and 9:00 p.m., unless further limited by the Master Developer.

MOTOR VEHICLE SALES (NEW)

1. Motor vehicle sales may include an outdoor used car sales lot when operated by a franchised, new car dealer. The used car sales shall be located directly adjacent to the new car sales and service facility and be operated as an incidental use.
2. The installation and use of an outside public address or bell system is prohibited.
3. No used or discarded automotive parts or equipment shall be located in any open area outside of an enclosed building.
4. All exterior lighting shall be screened or otherwise designed so as not to shine directly onto any adjacent parcel of land.
5. All accessory service shall be performed inside an enclosed area.

6. Openings in service bays shall be designed to minimize the visual intrusion into adjoining properties and adjacent streets.

7. Accessory automobile rental is permitted.

MOTOR VEHICLE SALES (USED)

1. The installation and use of an outside public address or bell system is prohibited.

2. No used or discarded automotive parts or equipment shall be located in any open area outside of an enclosed building.

3. All exterior lighting shall be screened or otherwise designed so as not to shine directly onto any adjacent parcel of land.

4. Openings in service bays shall be designed to minimize the visual intrusion into adjoining properties and adjacent streets.

5. Accessory automobile rental is permitted.

SWAP MEET

1. No outdoor display, sales or storage of any merchandise or equipment is permitted, except in connection with temporary activities that have been authorized by means of a Temporary Commercial Permit.

2. No repair, installation or service work is permitted outside of an enclosed building.

3. All signage, including any temporary signage, shall comply with Las Vegas Municipal Code Chapter 19.14

4. The swap meet operation shall comply with all applicable requirements of Las Vegas Municipal Code Title 6.

THRIFTSHOP

1. No outdoor display, sales or storage of any merchandise shall be permitted.

2. The use shall comply with the applicable requirements of Title 6 of the Las Vegas Municipal Code.

THRIFTSHOP, NON-PROFIT

1. No outdoor display, sales or storage of any merchandise shall be permitted.

2. The use shall comply with the applicable requirements of Title 6 of the Las Vegas Municipal Code.

8.5 Temporary Use Standards

All temporary uses shall be approved by the Master Developer or its designee prior to an application being filed with the City of Las Vegas. The City will process all applications pursuant to the procedures set forth in Las Vegas Municipal Code 19.18.100.

Section 9

Design Review

9.1 INTRODUCTION

The Master Developer shall administer all project submittals and approvals for development within Kyle Canyon. The procedure described below shall be used to administer the implementation process.

As an expression of the Master Developer's vision for Kyle Canyon, the Design Guidelines are intended to provide builders, architects, civil engineers, and others an overall direction in the design process. The criteria contained within the Design Guidelines provides examples of ways in which the vision can be achieved, however, the Master Developer strongly encourages creativity, innovation, and variety throughout Kyle Canyon. Builders may propose other design solutions to project development, as long as the overall intent of the community vision and Design Guidelines is achieved.

All project submittals, whether designed in strict accordance with the design criteria contained herein or with other design solutions not specifically addressed in the Design Guidelines, will be reviewed by the Master Developer to ensure that all projects achieve the goals and objectives of the Master Developer's vision as expressed throughout the Design Guidelines document.

9.2 IMPROVEMENTS REQUIRING REVIEW

All parcel improvements by the builder will require review and approval by the Master Developer. Improvements requiring review

include but are not limited to commercial and residential product including new construction, remodels, landscape, signage, and amenities such as parks, open play areas or community facilities and ancillary structures.

The Master Developer has the sole responsibility to enforce the Design Guidelines for all developments. The Master Developer shall review those developments and report to the City of Las Vegas prior to the City processing any building permit or subdivision map applications.

9.3 MASTER DEVELOPER REVIEW

The Master Developer along with its architectural consultants, landscape consultants, and civil engineering consultants shall review each project submittal. In addition, the Master Developer may consult with other professional advisors as deemed appropriate. Projects for design review shall be submitted to the Master Developer on a form to be prepared and updated from time to time by the Master Developer.

9.4 SUBMITTAL REQUIREMENTS

Two sets of the following items are required for submittal of production residential development plans prior to submittal to the City of Las Vegas. A Submittal Application and Checklist for Design Review must be submitted to the Master Developer (Refer to Figure 9-1).

Preliminary Concept Site Plan (Per Production Neighborhood; 1" = 40')

The purpose of this submittal is to ensure that the overall concept of the neighborhood design, particularly regarding the layout of proposed streets and lots, is consistent with the intent of the Design Guidelines *before* the builder begins preparation of tentative tract maps. The following are required elements of the Preliminary Concept Site Plan submittal:

- Conceptual street layout
- Conceptual lot layout

- Proposed pedestrian connections
- Adjacent streets and open space

Detailed Development Plan (Per Production Phase; 1' = 40')

- Proposed street locations and dimensions
- Proposed lot lines and dimensions
- Proposed pedestrian connections
- Pre-plotting of units along parcel edges that are Adjacent to and Visible from a Public Place
- Building footprints (Model and elevation must be specified)
- Driveway and/or alley placement
- Wall and Fence locations and heights
- Adjacent street(s) and open space
- Location of all required parking

Architectural Plans

- Floor plans with dimensions (1/8" = 1' - 0" or 1/4" = 1'-0")
- Elevations for all four sides with dimensions (1/8" = 1' - 0" or 1/4" = 1'-0"). Material call-outs and depth of recesses or pop-outs should be identified
- Floor area calculations including 1st floor living area, 2nd floor living area, and garage square footage
- Typical lot for each floor plan indicating building footprint, setback requirements, driveway locations, and sidewalk locations.

Material and Color Sample Board (Maximum Size of Board(s): 11" x 17")

Actual samples mounted on boards of the following:

- Primary stucco material sample and color(s)
- Secondary stucco material sample and color(s)
- Accent and trim material sample and colors

- Accent material samples (Stone, Brick, Masonry, Etc.)
- Roof tile (Material and Color)

Landscape Plan (1" = 40')

- Street tree species, size and location
- Neighborhood entries
- Planting and fencing details

Figure 9-1

SUBMITTAL APPLICATION AND CHECKLIST Project Plan For Kyle Canyon Design Review			
POD #/Name:		Date:	
Builder:			
Contact Name			
Address			
Telephone/Fax	()	()	
Email			
Architect:			
Contact Name			
Address			
Telephone/Fax	()	()	
Email			
Civil Engineer:			
Contact Name			
Address			
Telephone/Fax	()	()	
Email			
Landscape Architect:			
Contact Name			
Address			
Telephone/Fax	()	()	
Email			

- Please provide two (2) sets of each submittal along with this completed form and any other applicable documents to the address noted below.

Submit To:

Design Review Committee

Focus Property Group . 3425 Cliff Shadows Parkway, Suite 110 Las Vegas, Nevada 89129 . Phone: (702) 242-4949 . Fax: (702) 568-2044

Figure 9-1

SUBMITTAL APPLICATION AND CHECKLIST For Kyle Canyon Design Review

POD# _____ POD NAME: _____ PLAN DATE: _____

Detailed Development Plan

(Per Production Phase; 1' = 40')

Tentative Maps

- _____ Cross Section drawing that meets the requirements from the City of Las Vegas
- _____ Proposed street locations and dimensions
- _____ Proposed lot lines and dimensions
- _____ Proposed pedestrian connections
- _____ Sample building footprints (Model and elevation must be specified)
- _____ Sample driveway and/or alley placement
- _____ Wall and Fence locations and heights
- _____ Adjacent street(s) and open space
- _____ Location of all required parking
- _____ Proposed connections to water, sewer and storm drain facilities

Site Improvement Plan

- _____ Final grading
- _____ Grading details, all perimeter grading sections and details
- _____ Typical side corner grading sections on corner lots as appropriate to define all grading conditions
- _____ Storm drain improvements, storm drain inlet/outlet details along with any storm drain pipe profiles and wall/overflow opening details
- _____ Potable water improvements (Plan and profile)
- _____ Sanitary sewer improvements (Plan and profile)
- _____ Street lighting improvements
- _____ Paving plans with all appropriate street sections
- _____ Perimeter wall opening locations with dimensions
- _____ List of construction quantities
- _____ Final grading
- _____ Grading details, all perimeter grading sections and details
- _____ Typical side corner grading sections on corner lots as appropriate to define all grading conditions
- _____ Storm drain improvements, storm drain inlet/outlet details along with any storm drain pipe profiles and wall/overflow opening details
- _____ Potable water improvements (Plan and profile)
- _____ Sanitary sewer improvements (Plan and profile)
- _____ Street lighting improvements
- _____ Paving plans with all appropriate street sections
- _____ Perimeter wall opening locations with dimensions
- _____ List of construction quantities
- _____ Drainage study must be submitted with the first submittal of Improvement Plans.

Submit To:

Design Review Committee

Focus Property Group . 3425 Cliff Shadows Parkway, Suite 110 Las Vegas, Nevada 89129 . Phone: (702) 242-4949 . Fax: (702) 568-2044

Figure 9-1

SUBMITTAL APPLICATION AND CHECKLIST For Kyle Canyon Design Review

POD# _____ POD NAME: _____ PLAN DATE: _____

Final Map

(Please submit two (2) bond copies along with Mylar for approval)

_____ All information required by the City of Las Vegas as follows:

- Signed by owner and notarized
- Signed and stamped by Surveyor
- Name of proposed project
- Vicinity map
- Total acreage
- Total number of lots/lot & block numbers
- Lot sizes/dimensions/curve data information
- Street names/street widths
- Legend/north arrow/scale (each sheet)
- Adjacent Assessor's Parcel Numbers/record information/recorded dedications

_____ All necessary utility, ingress/egress, or sight visibility easements and right of way dedications across common lots. Final maps submitted for review without all appropriate easement/right-of-way information will be deemed incomplete.

_____ Any grant deeds required by the public agencies based upon information required in the preceding item.

Recorded Final Map

(Please submit documents below upon recordation)

_____ One (1) full sized copy of the Recorded Final Map

_____ Three (3) 11" x 17" copies of the Recorded Final Map

Three (3) copies of the addresses

Submit To:

Design Review Committee

Focus Property Group . 3425 Cliff Shadows Parkway, Suite 110 Las Vegas, Nevada 89129 . Phone: (702) 242-4949 . Fax: (702) 568-2044

Figure 9-1

SUBMITTAL APPLICATION AND CHECKLIST

For Kyle Canyon Design Review

POD# _____ POD NAME: _____ PLAN DATE: _____

Plot Plan

Detailed Development Plan

(Per Production Phase; 1' = 40')

Preliminary Plot Plan (Drawing must be scaled)

- _____ Pre-plotting of units along parcel edges that are Adjacent to and Visible from a Public Place
- _____ Building footprints (typical, Model and elevation must be specified)
- _____ Setback requirements (typical)
- _____ Driveway locations and walls (typical)
- _____ Existing adjacent units with pad elevation and footprint/elevation identification
- _____ Legend or key diagram showing:
 - All different building footprints in project
 - Identification of each footprint by model number, one-story vs. two-story, plottable on corner lot or next to open space

Final Plot Plan (required for all lots adjacent to community exterior roadway)

(Please provide plot plans, approved pod final map base line work and associated x-ref's in DWG format as an electronic document to cshukis@fcglv.com. If the file size is too large to email please send a copy of the documents on CD.)

- _____ Plot of individual lots or all lots showing:
 - Building footprint
 - Building identification
 - Pad elevation – Finished floor.
 - Grading
 - Setbacks/Building Envelope
 - Product walls
 - Retaining walls
 - Driveways
 - Sidewalks
 - Existing adjacent units with pad elevation and footprint/elevation identification
- _____ Legend or key diagram showing:
 - All different building footprints in project
 - Identification of each footprint by model number, one-story vs. two-story, plottable on corner lot or next to open space

Submit To:

Design Review Committee

Focus Property Group . 3425 Cliff Shadows Parkway, Suite 110 Las Vegas, Nevada 89129 . Phone: (702) 242-4949 . Fax: (702) 568-2044

Figure 9-1

SUBMITTAL APPLICATION AND CHECKLIST For Kyle Canyon Design Review

POD# _____ POD NAME: _____ PLAN DATE: _____

Architectural Plans

(Two (2) design submittal sets, each on a CD in a PDF format, and two (2) sets of hard-copies (half size 12"x18" sets 1/8" scale). Also include a copy of the approved site plan for reference.

- _____ Identify POD number on the title sheet of architectural package and/or on the title block of each page of the submittal
- _____ Provide separate submittal sets for each building type. (Minimum two (2) building types required for Single Family)
- _____ Identify building type (architectural style per plan) on the title sheet of each set and/or on each page of the submittal
- _____ Floor plan of each residence with dimensions (1/8" scale preferred or 1/4"). Dimensioned unit floor plans and building composites for attached and multi-family products
- _____ Floor plan modifications (if any) per architectural style
- _____ Wrap elevations with dimensions for each architectural style. (Label architectural style for each elevation)
- _____ Enhanced elevations for corner side and visible side and rear elevations
- _____ Elevation drawings for all four sides of each residence with material call-outs on all elevations
- _____ Photographs or sketches of front elevations (and side and rear elevations if visible from any street) of each residence
- _____ Material call-outs and depth of recesses or pop-outs should be identified
- _____ Floor area calculations (1st floor, 2nd floor, garage, porches, etc.) including living area per floor, total living area and garage square footage
- _____ Typical lot for each floor plan indicating building footprint, setback requirements, driveway locations and sidewalk locations

Submit To:

Design Review Committee

Focus Property Group . 3425 Cliff Shadows Parkway, Suite 110 Las Vegas, Nevada 89129 . Phone: (702) 242-4949 . Fax: (702) 568-2044

Figure 9-1

SUBMITTAL APPLICATION AND CHECKLIST

For Kyle Canyon Design Review

POD# _____ POD NAME: _____ PLAN DATE: _____

Landscape Plan

- _____ Street tree species, size and location
- _____ Entry Plan, Neighborhood Entries
- _____ Entry wall locations and identification signage
- _____ Planting and fencing details
- _____ Common Area Plan
- _____ Typical lot landscape including all corner lots
- _____ Model homes landscape
- _____ Section drawings through landscaped drainage ways
- _____ Existing vegetation to be preserved

Landscape Materials Sample Board

- _____ Color chips
- _____ Manufacturer's cut sheets
- _____ Photographs and/or material samples for all landscape materials including, without limitation, walls, fences, textured paving, gravel mulch, site furnishings, stucco, paint, stain, and other visible exterior finishes

Landscape Construction Drawings

- _____ Construction and Drainage Plans
- _____ Irrigation plans
- _____ Planting plans with botanical and common names
- _____ Construction details with dimensions and specifications
- _____ Points of connection for water
- _____ Points of connection for power

Material and Color Sample Board (Maximum Size of Board(s): 11" x 17") – Actual samples mounted on boards of the following:

- _____ *Actual* Color chips for all color schemes
- _____ Manufacturer's cut sheets
- _____ Photographs and/or material samples for all building materials
- _____ Material and Color Board (maximum size of board(s): 11" x 17", preferred size: 8 1/2" x 11")
- _____ Noted or color coded elevations (front, side and rear)
- _____ Primary stucco material sample and color(s) (actual paint chip)
- _____ Secondary stucco material sample and color(s) (actual paint chip)
- _____ Accent and trim material sample and color(s) (actual paint chip)
- _____ Accent material sample(s) (stone, brick, masonry, etc.) (Manufacturer's printed picture)
- _____ Roof tile(s) (actual material and color samples)

Marketing Signage Plan

- _____ Illustrate layout and design details for all informational, directional, temporary and construction signage
- _____ Site plan showing location of signage

Submit To:

Design Review Committee

Focus Property Group , 3425 Cliff Shadows Parkway, Suite 110 Las Vegas, Nevada 89129 . Phone: (702) 242-4949 . Fax: (702) 568-2044

KYLE CANYON

TYPICAL RESIDENTIAL SUBMITTAL:

- ☐ Approved
- ☐ Approved with conditions
- ☐ Address Comments & Re-submit
- ☐ Incomplete
- ☐ Denied

POD: _____

PLAN DATE: _____

PLEASE ADDRESS:

- ☐ Some plans listed are not on the approved plant palette. Please provide plant substitution/replacement requirements. Notes: All trees and shrubs must be per the approved plant palette. If possible, coordinate with the adjacent street for planting.
- ☐ Provide botanical names for plant material.
- ☐ Identify/clarify irrigation controller location and any other above ground meters, transmitters, etc.
- ☐ Drainage and grading is not indicated.
- ☐ Mound elevations must be shown on the plan.
- ☐ Boulder type should be specified on the plan.
- ☐ We strongly encourage the use of a xeriscape/drought tolerant palette.
- ☐ Only artificial turf allowed in front yards that are 250 sqft. minimum. Artificial turf must be synthetic and the route must be submitted for review. Border should a minimum four inches of either concrete, cured stone, masonry product or steel edging that is flush to grade. Specify materials on plan.
- ☐ Full coverage of granite mulch. Size and color must be indicated on plan. Granite colors to maintain consistent between all and neighborhoods.
- ☐ River rock is discouraged and granite cobble is preferred.
- ☐ Two 24" box trees are required for each front yard.
- ☐ Trees should be spaced at least 15 feet apart, or if trees must be spaced closer, they should be the same small tree species.
- ☐ Trees to be set back a minimum of three feet on center from hardscape structures such as sidewalks, curbs, driveways, fences, and etc.
- ☐ Shrub Density: 1-5 Gal and 1-1 Gal per 40 sqft. 1-1 Gal Accent per 125 sqft.
- ☐ Foundation planting must completely cover the visible portion of the houses base including all two story prevention units. There is to screen the areas of the house just above the finished grade as well as for the expanses of wall.
- ☐ Each yard must contain at least five different plant species and no more than ten.
- ☐ Plants should be grouped and layered into flowing drifts to complement other plants of varying heights and textures.
- ☐ Access to rear yards at side yard must be maintained.
- ☐ Corner lots must have one 24" box tree per 30 linear feet along street frontage.
- ☐ Note total square footage of landscape area on plan.

OTHER:

- ☐ _____
- _____
- _____

KYLE CANYON

MULTI-FAMILY RESIDENTIAL SUBMITTAL:

- ☐ Approved
- ☐ Approved with conditions
- ☐ Address Comments & Re-submit
- ☐ Incomplete
- ☐ Denied

POD: _____

PLAN DATE: _____

PLEASE ADDRESS:

- ☐ Some plans listed are not on the approved plant palette. Please provide plant substitution requirements. Note: All trees and shrubs must be per the approved plant palette. If possible, coordinate with the adjacent street type planting.
- ☐ Provide botanical names for plant material.
- ☐ Identify/clarify irrigation controller location and any other above ground meters, transformers, etc.
- ☐ Drainage and grading is not indicated.
- ☐ Mound elevations must be shown on the plan.
- ☐ Boulder type should be specified on the plan.
- ☐ River rock is discouraged and granite cobble is preferred.
- ☐ Identify view corridor triangles at all cross traffic locations.
- ☐ Granite size and color must be indicated on plans. Parcel interiors must specify consistent granite color for common areas and front yards.
- ☐ Lawn is only allowed in park and recreation areas. Lawn must have a minimum 14" depth of topsoil and minimum width of 10'.
- ☐ We strongly encourage the use of a xeriscape/drought tolerant palette.
- ☐ Palms are not allowed.
- ☐ A minimum of one 24" box tree is required every 30 lf. on center within landscape areas in common areas and one 24" box tree every 750 sq. ft. in recreational areas.
- ☐ Common areas must have a minimum of 75% vegetative coverage with a minimum of 50% of that coverage consisting of 5-gallon material.
- ☐ Multi-family parking lots must have:
 - ☐ A planting perimeter of 10'-0"
 - ☐ Perimeter landscape a minimum of one 24" box tree for every 40 lf. of landscape area.
 - ☐ A minimum of one 24" box tree for every 8 parking spaces.
- ☐ Landscape islands in parking areas shall have a minimum of one 24" box tree per parking island.
- ☐ All non-paved areas within the perimeter and interior of parking lots shall be landscaped with a combination of plant material and rock mulch.
- ☐ Parking visible from roadways and community open space shall be screened with a combination of berms, low walls or landscaping. Maximum height of berms, walls and landscaping shall be 30" from the top of curb of the parking area for safety.

OTHER:

- ☐ _____
- _____
- _____

9.5 DESIGN REVIEW AND APPROVAL PROCESS

The Master Developer shall review each project submittal. The Master Developer shall make the final decision regarding approval of the submittal.

The Master Developer shall review each submission for the design's commitment to overall community development and adherence to these Design Guidelines. The Master Developer is not responsible for the review of submissions to determine conformance to any applicable codes and standards established by public agencies.

Submittals that are "Approved" by the Master Developer may then be submitted to the City of Las Vegas, if required. The Master Developer expects that its Development Agreement with the City will require city review of multi-family and commercial projects. Submittals that are "Approved with Conditions" or "Denied" shall be revised as necessary and re-submitted to the Master Developer for approval. All submittals must be approved by the Master Developer prior to submission to the City of Las Vegas or other public agencies.

9.6 ADMINISTRATION

9.6.1 AMENDMENT

The Design Guidelines may be amended from time to time by the Master Developer in accordance with the approved Development Agreement.

9.6.2 PREVALENCE OF DEVELOPMENT DECLARATION

In the event of any conflict between the provisions of the Design Guidelines and the Development Declaration, the most restrictive shall prevail.

9.6.3 MISCELLANEOUS

All items submitted during the review process shall become the property of the Master Developer. Changes to the approved plans shall be re-submitted to the Master Developer for approval and shall clearly identify the revision(s).

9.6.4 PROSECUTION OF WORK AFTER APPROVAL

After approval of the final plans by the Master Developer, the construction, alteration or other work described therein shall be commenced and completed in accordance with the rules set forth in these Design Guidelines and the Development Declaration. The Master Developer or its representative has the right to enter the lot or premises and to inspect the project for compliance with the Design Guidelines or Development Declaration at any time, without advance notice to the lot owner nor fear of trespass and liability.

9.6.5 VIOLATIONS

Construction deemed by the Master Developer to be in violation of approved drawings, the Design Guidelines, or the Development Declaration shall be corrected as described in the Development Declaration.

9.6.6 RECORDATION OF NOTICE

Upon approval of the final plans, the Master Developer shall, upon written request from the applicant, provide a statement of approval in a form appropriate for recordation. The Master Developer may also record a notice to reflect any work which has not been approved or any approval previously given which has been revoked.

9.6.7 RULE MAKING AUTHORITY

The Master Developer adopts these Design Guidelines for the purpose of interpreting, applying, supplementing and implementing the provisions of the Development Declaration pertaining to the design of site improvements. A copy of the Design Guidelines as from time to time adopted, amended or

repealed, shall be maintained in the office of the Master Developer and the City of Las Vegas, and shall be available for inspection during normal business hours by any applicant or any architect or agent of any such applicant. It shall be the responsibility of the applicant or architect or agent of any such applicant to inform themselves as to any and all such changes of these Design Guidelines.

9.6.8 LIABILITY OF COMMITTEE

Provided that the Master Developer acts in good faith, neither the Master Developer nor any representative thereof shall be liable to any applicant or any other person for any damage, loss or prejudice suffered or claimed on account of the review of any plans, specifications or materials. The review and delivery of a form of approval or disapproval is not to be considered an opinion as to whether or not the plans are defective or whether the construction methods or performance of the work proposed therein is defective, or whether the facts therein are correct or meet Las Vegas Building Codes.

9.6.9 PROFESSIONAL ADVICE

The Master Developer may employ the services of an architect, attorney, land planner, landscape architect or engineer to render professional advice and may charge the cost for services of such a professional to the applicant, but only after the applicant has been informed in advance such compensation shall be so charged.

Section 10

Glossary

As used in these Design Guidelines the following terms will have the definitions ascribed below:

Adjacent to and Visible from a Public Place means, with respect to any object, that such object is located within a parcel that abuts a Public Place and can be seen readily by a person of average height standing on the ground in a Public Place without the assistance of any optical aid such as a telescope or binoculars.

Alley means a road, whether public or private, that serves primarily as an access to garages.

Alley Zone means the landscapeable common area adjacent to any Alley.

Arroyo means the area shown on Figure 2-3, in which the natural washes will be preserved and enhanced.

Builder means the owner of any parcel within Kyle Canyon that proposes or commences any construction on such parcel. The term Builder refers to both Residential Builders and Non-Residential Builders.

Carriage Unit means living space on one or more floors immediately above a garage.

City means the City of Las Vegas.

Community Parks means the areas identified on Figure 2-3, which are to contain various recreational amenities.

Cul-de-Sac Streets means cul-de-sacs and other types of dead-end street segments and drive aisles serving multiple units.

Development Agreement means an agreement between the Master Developer and the City of Las Vegas regarding the development of Kyle Canyon, entered into pursuant to NRS 278.

Development Declaration means a Declaration of Development Restrictions recorded against a parcel of land within Kyle Canyon that imposes restrictions on the development of such land in favor of the Master Developer.

Development Parcel means each of the parcels shown on Figure 2-1, which are intended to be created as legal parcels.

Front-Drive Garage means a garage facing the street with a minimum recess of 5' from the façade of the principal building.

Master Developer means Kyle Acquisition Group, LLC.

Master HOA means a homeowner's association, the members of which shall be all owners of residential property within Kyle Canyon.

Mirador means a second story roofed living space that is integral to the floor plan. A roof element must cover 100% of the mirador floor area and shall consist of forms and materials that match the residence.

Multi-Family Home means a dwelling unit within a structure that is divided into more than one dwelling unit and in which one family or household lives above another or in which dwelling units do not have separate outside entrances.

Residential Parcel means each of the Neighborhood Residential Parcels, Urban Mixed-Use Parcels, and Town Center Mixed-Use Parcels shown on Figure 2-1 and any legal parcels created by a further subdivision of any such Residential Parcels that are intended to be developed into two or more residences or one or more non-residential structures by a single Builder.

Master CC&Rs means the Master Declaration of Covenants, Conditions & Restrictions for Kyle Canyon.

Neighborhood Streets means all of the roads within Kyle Canyon, whether public or private, other than the Village Streets. The Neighborhood Streets are to be constructed by the Builder of the Parcel.

Public Place means the right-of-way of a public street or sidewalk or a park area open to the general public.

Single Family Home means a dwelling unit for one household or family. The structure may be detached or attached to another dwelling unit. Attached dwelling units are considered Single Family Homes as long as the unit itself is not divided into more than one housing unit and has an independent outside entrance. Attached dwelling units that meet the foregoing definition are considered single family regardless of the legal form of ownership, whether condominium, cooperative or other form of ownership.

SNWA means the Southern Nevada Water Authority.

Story means the enclosed portion of a building between the surface of any floor and the surface of the floor next above it; or if there is not floor above it, then the space between the floor and the ceiling next above. Rooftop decks (covered or uncovered) shall not be considered a "story."

Town Center means the retail and mixed use areas within the West Side Urban District.

Village Streets means all of the roads within Kyle Canyon depicted on Figure 6-1 that are to be constructed by the Master Developer. The Village Streets are contrasted with the "Neighborhood Streets," which are to be constructed by the individual builders within each Neighborhood.

Section 11

Exhibits

- A. WATER SMART HOME STANDARDS AS OF JULY 1, 2006**
- B. 2006 INTERNATIONAL ENERGY CONSERVATION CODE
AS ADOPTED BY THE CITY OF LAS VEGAS**

EXHIBIT A

WATER SMART HOME STANDARDS AS OF JULY 1, 2006

SOUTHERN NEVADA WATER AUTHORITY



SOUTHERN NEVADA
WATER AUTHORITY

**Water Smart Homes Program
Homebuilder Participation Agreement**

This Agreement is made this _____ day of _____, 20____, by and between The Southern Nevada Water Authority and _____.
(Homebuilder Company Name)

WHEREAS:

The Southern Nevada Water Authority (the "Authority") offers a promotional program for Water Smart Homes ("Program"), and
The purposes of the Program are to establish minimum voluntary standards for water efficiency in new residential homes and communities and encourage consumers to select such homes, and
The homebuilder (Contractor) wishes to participate in the Program.

THEREFORE:

In consideration of the principles of the Program and of the mutual promises and agreements set forth in this Agreement and referenced addendums, the parties agree as follows:

GENERAL PROVISIONS

1. Commencement and Expiration of Agreement

The terms of this Agreement shall commence on the date of acceptance. The agreement shall be perpetual unless cancelled by written notice by either party. If there is an existing Water Smart Home Program agreement between the parties, this agreement will serve to supercede it.

2. Termination of Agreement

This Agreement may be terminated by either party, with or without cause by providing not less than thirty (30) days written notice to the other party of its intention to terminate. Contractor's sole remedy for any alleged breach of this agreement is termination pursuant to this provision.

3. Governing Laws

This Agreement and all rights, duties and obligations hereunder shall be governed by the laws of the state of Nevada and the city and/or county jurisdiction where the home design and construction is performed.

4. Assignment

The Contractor may not assign nor delegate any portion of this Agreement to a third party.

5. Indemnity

5.1 Contractor shall protect the property of the homebuyer and others at the work site or in the proximity of the work site. Contractor shall take all necessary precautions for the safety of employees at the work site. Contractor shall comply with all applicable provisions of federal, state and local safety laws and regulations to prevent accidents or injuries to persons or damage to property on or about or adjacent to the premises where the work is being performed.

5.2 Contractor agrees to indemnify and hold harmless any and all directors, officers, employees and agents of the Authority and any of its member agencies against all claims and demands arising out of:

- a. Injuries to persons, including deaths resulting therefrom and damage to property occurring at anytime during the term of this Agreement as direct or indirect result of the design and/or installation by Contractor, or negligence or omission by Contractor, its subcontractors, agents, employees.
- b. Contractor's fraudulent use or misrepresentation of this Program.

6. Independent Contractor

Contractor's participation in the Program shall be as an independent contractor and not as an agent or employee of the Authority or any of its member agencies.

7. Waiver

The failure or election of the Authority to enforce the terms and conditions of this Agreement or to exercise any right or privilege therein shall not be construed as a waiver of any other terms, conditions, rights or privileges.

8. Entire Agreement

8.1 This Agreement along with any and all documents incorporated by reference herein shall constitute the sole and entire Agreement and understanding between the parties as to the subject matter.

8.2 Any prior understandings, commitments or representations, expressed or implied between the parties shall not be construed to alter or waive any part of this Agreement.

PROGRAM PROVISIONS

9. Contractor as Principal

Contractor shall retain sole and principle responsibility for any and all work performed by subcontractors of Contractor pursuant to this Agreement.

10. License and Permit Requirements

10.1 Contractor shall hold all necessary licenses from all appropriate entities and governmental agencies in the state of Nevada, and applicable city and/or county jurisdictions as required.

10.2 Contractor warrants all such licenses are now and shall remain current and in good standing during the term of this Agreement.

10.3 Contractor shall obtain any and all permits or authorizations required to design and/or construct all homes, landscapes and relevant facilities.

11. Equipment and Performance Standards

The Contractor agrees to abide by all requirements and standards set forth in Agreement Addendum A and further agrees that the Authority may revise the requirements and standards by providing written notice to the contractor not less than 90 days prior to the effective date of the new requirements and standards. In the event the requirements and standards are changed during the construction of a project, the Contractor may elect to abide by either the requirements and standards in effect on the date the project was submitted to the Authority for inclusion in the Program, or by the standards in effect on the date of completion.

12. Training

12.1 The Contractor agrees to designate a primary designee as a point of contact. The designee and the following additional parties will be required to attend a program orientation of not more than two (2) hours. The Authority will determine class content.

- All construction managers
- All superintendents
- A representative from each plumbing and landscape subcontractor

At the Contractor's request, the Authority will provide supplemental training for the Contractor's sales and/or customer service representatives.

12.2 The Contractor's designee agrees to arrange and participate in a minimum of three mock inspections at three completed, unoccupied homes constructed by the Contractor. The appropriate construction manager or superintendent for the project must also attend. If any features fail in a mock inspection, an additional mock inspection will be required. This training requirement will be fulfilled when three successful inspections are recorded. There will be no charge for up to ten training inspections, after which, the Contractor will be charged the normal inspection fee.

12.3 At the Authority's discretion, the Contractor's designee may be required to attend an annual refresher training of not more than two (2) hours. The Authority will determine class content.

12.4 Costs incurred by Contractor for staff training (i.e. salaries, transportation) will be the sole responsibility of Contractor and will not be reimbursed by the Authority.

13. Use of SNWA's Water Smart Home Program Name and Logo

13.1 Only participating Contractors that have successfully completed training requirements in Section 12 may use the Program logo and materials in their advertising.

13.2 Use of the Program name, logo and materials does not constitute an endorsement of the Contractor.

13.3 No changes are permitted to the Program name and logo without express approval from the Authority.

13.4 All advertising by Contractor must include the State of Nevada Contractor's license number (Nevada Revised Statute 624.720(2)).

13.5 Upon termination of this Agreement by either party, Contractor must immediately cease and desist use of the Program name, logo and materials in their advertising.

13.6 Should this agreement be terminated for any reason, Contractor agrees that the SNWA may seek extraordinary relief in the form of a temporary restraining order, preliminary or permanent injunction requiring Contractor to cease use of SNWA program name and logo, and agrees that all legal conditions for that relief are met, including specifically a showing of irreparable harm to SNWA.

14. Customer Solicitation

14.1 The Authority will not provide any of its member agencies' customer information to Contractor for the purpose of solicitation or advertisement.

14.2 At its discretion, the Authority will provide promotional and advertising support through mediums such as but not limited to its web site, newsletters, news releases, decals, and collateral materials for Contractor to promote their participation in the Program.

15. Customer Disputes

15.1 At its discretion, the Authority may investigate Contractor compliance with the Requirements and standards set forth in Addendum A of this Agreement.

15.2 Contractor shall be solely responsible for the resolution of any and all disputes between customer and Contractor. Failure to resolve disputes may result in removal of Contractor from the Program.

16. Exclusive Benefit of the Parties

16.1 This Agreement is not intended to create any rights, powers or interest in any third party and is made and entered into for the exclusive benefit of "the Authority" and "SNWA".

17. Non-discriminatory Employee Practices

17.1 The Contractor shall not employ discriminatory practices in the provision of services, employment of personnel, or in any other respect on the basis of race, color, religion, sex, national origin, ancestry, or physical or mental handicap. During the performance of this Agreement the Contractor agrees as follows:

No person in the United States shall, on the grounds of race, color, religion, national origin, sex or sexual preference, be excluded from participation in, be denied the benefits of, or be subject to discrimination under any program or activity made possible by or resulting from this Agreement.

The Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, sexual preference, national origin, ancestry, or physical or mental handicap. The Contractor shall take affirmative action to ensure that applicants are employed, and the employees are treated during employment, without regard to their race, color, religion, sex, national origin, ancestry, or

physical or mental handicap. Such action shall include, but not be limited to, the following: employment, upgrading, demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices setting forth the provision of this nondiscrimination clause.

The Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, sexual preference, national origin, ancestry, or physical or mental handicap.

The Contractor will send to each labor union or representative of workers with which it has a collective bargaining agreement or other contract or understanding, a notice advising the said labor union or workers representatives of the Contractor's commitment under this Section and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

Contractor

Contractor License Number

Contractor Company Name

Representative Name

Representative Title

Representative Signature

Date:

Southern Nevada Water Authority

Representative Name

Representative Title

Representative Signature

Date:

Agreement Addendum A Water Smart Home Program

Annual Fee

To participate, Contractor must pay an annual fee based upon the number of homes built in the calendar year preceding the effective date of the agreement. The annual fee schedule is as follows:

\$2,000 per Contractor, plus

\$5 per home sale transaction closed the previous calendar year. Only dwellings with land use codes 110 and 160 will be used in calculating the fee.

The fee is payable on or before the effective date of this agreement. The annual fee shall be for the period of March 1 through February 28 (or February 29, when appropriate). In the event a contractor enrolls in the program after the year has commenced, the fee shall be prorated based upon the number of days remaining. Notices of fee renewal shall be issued in March of each year. Payment is due 30 days from the invoice date.

All annual fees will be used to market the program. The annual fee is not refundable if the Contractor elects to terminate the agreement. In the event the Authority terminates the agreement, the Contractor will receive a pro-rated refund based upon the number of days remaining in the agreement period.

Inspections and Inspection Fees

For the purpose of inspecting for Program compliance, the Contractor agrees to allow the Authority reasonable access to any home, structure or landscape area submitted to receive a Water Smart designation. The Contractor may request a compliance inspection at any point in the construction process provided that all of the required items are completed and functional at the time of inspection.

The Authority reserves the right to select a sample of homes and/or common areas for inspection. The quantity of homes inspected will comprise not less than ten percent (10%) of the total number of homes submitted by the Contractor in any subdivision or subdivision phase. If two to ten homes are submitted, at least two shall be inspected. If only one home is submitted it will be inspected. All community buildings will be required to be inspected in addition to the required home inspections.

The Contractor agrees to pay the Authority \$100.00 for each home or community structure inspected. The Authority will bill the Contractor for inspections on a quarterly basis. Payment is due 30 days from the invoice date. If payment is not received within 35 days, a second notice shall be issued. If payment is not received within 60 days of the first invoice, inspections shall be suspended and the Contractor may be suspended from the program until the account is paid in full.

Any home that fails to meet the program requirements shall be subject to reinspection by the Authority at the Contractor's expense.

Program Participant Designations

There are two designations:

Water Smart Home

Water Smart Neighborhood

The participating homebuilder may use either of the two designations by meeting the qualifying standards for each.

Water Smart Home – A single-family home or townhome constructed by a participating builder that is built to meet the minimum standards established by SNWA.

Water Smart Neighborhood– A multi-home development of homes and/or townhomes constructed by a participating builder wherein all of the dwellings are Water Smart Homes and the common area landscapes and structures meet minimum standards established by SNWA.

Technical Standards for Single-Family Homes and Townhomes

Water and Sewer Service

Water Smart Homes must meet all the following prerequisites:

- Single-family homes and townhomes with Land Use Codes of 110 and 160.
- Individually metered to receive water from a member agency of the Southern Nevada Water Authority.
- Discharge all wastewater to a public sewer system.

Quality of installation

All components must be properly installed. The Authority may reject or require corrective action on any home with devices improperly installed, or where any components are determined to be defective or malfunctioning prior to occupancy. The Authority may reject any home where it is determined that a leak, seen or unseen, exists in the plumbing system at the time of inspection.

Landscape Design

All landscapes and irrigation work performed by the homebuilder or their subcontractor is guaranteed to comply with applicable laws and codes in effect at the time of installation.

No turf will be used in front yards. If the builder offers backyard landscaping, turf will not exceed 50 percent of the total landscapable area of the back yard, or 1,000 square feet, whichever is less. If a pool and/or spa are installed prior to owner occupancy, the water surface area will be deducted from the turf allowance. Homebuyers will have an option to select turf varieties with greater water efficiency, such as improved varieties of Bermuda, Zoysia, Buffalo and other warm-season grasses. Ryegrass, Bluegrass, Bentgrass and Dichondra lawns are prohibited.

Builders will not install or facilitate installation of ornamental water features except as allowable components of a swimming pool or spa.

Irrigation System Standards

The Contractor guarantees that all irrigation systems, if properly operated and maintained, can sustain the landscape without creating flow or spray that leaves the property. Irrigation systems shall meet the following standards:

Compliance Criteria for Irrigation Systems

Type of irrigation system	Minimum continuous operating duration without generating spray or flow off property
Pop-up, fixed-spray sprinklers	7 minutes
Rotor sprinkler heads	20 minutes
Drip irrigation	30 minutes
Subsurface irrigation	10 minutes
Flood bubblers	10 minutes

On all new landscape installations, separate control zones (valves) will be used for each type of watering device. For example, drip emitters will be operate separately from sprinkler heads.

Sprinkler heads will be used only to water turfgrass (where allowed) and will have a 4" or greater pop-up height and matched precipitation nozzles.

Drip irrigation systems will be equipped with a pressure regulator, filter, flush end assembly and any other appropriate components. Components will be accessible for maintenance.

Contractor-provided irrigation controllers will have the following minimum features:

- Two or more programs
- Three or more start times per program
- One-minute incremental watering time
- Even/odd day scheduling
- Day interval scheduling
- Day of week scheduling
- Capable of accepting external soil moisture and/or rain sensors
- Non-volatile memory or self-charging battery circuit

A seasonal watering schedule for each zone will be posted at the controller.

An owner's manual will be provided for all irrigation controllers and other irrigation components.

Non-turf areas will include a minimum 2-inch layer of mulching material. If weed barrier fabric is used, it will be permeable to air and water. Permeable grade artificial turf may be used to meet the mulch requirement.

A one-year limited warranty will be offered on builder-installed landscaping. Terms of the warranty are at the discretion of the builder. The warranty must be provided to the homebuyer.

Swimming Pools and Spas

Even if no pool or spa is installed by the builder, all homes must be equipped to facilitate the draining of pool and spa water to the sanitary sewer.

Each dwelling shall have an exterior sewer cleanout downstream of all other sewer connections for the structure and located inside an enclosure. Enclosures must be adequately sized and shaped to allow reasonable access to use tools to remove the cap from the pipe. The enclosure lid must be clearly and permanently marked "SEWER." The words "POOL DRAIN" may be added at the Contractor's discretion.

Pool and spa water surface areas will be deducted from the maximum allowable turf area. The combined area of turf and open water may not exceed 1,000 square feet.

Pools may not feature decorative water features that drop or propel water more than 24 inches above the main water surface.

Minimum Plumbing Standards

Service pressure for all uses (indoor and outdoor) must be 60 psi or less. Compliance may be achieved by use of a pressure-regulating valve (PRV) downstream of the water meter. In the event static water pressure is at or below 60 psi, no PRV is necessary. All fixtures and irrigation system connections must be downstream of the pressure regulator.

All plumbing fixtures must be UPC approved.

High-efficiency indoor plumbing fixtures

Toilets 1.6 gallons maximum per flush.

Kitchen faucets 2.2 gallons per minute (gpm) maximum

Bathroom faucets 1.5 gallons per minute (gpm) maximum

Shower fixtures – Total water output for shower heads and similar devices may not exceed 2.5 gallons per minute (gpm) maximum. If the device has multiple nozzles (such as a body spray unit), the collective volume of all nozzles the user may operate simultaneously may not exceed 2.5 gallons per minute. If the contractor intends to design a shower facility for more than one person, the design and fixtures must be reviewed and approved by the Authority. Under no circumstance will any facility be approved where water flow may exceed 2.5 gpm per user.

Hot water recirculating systems, point of use water heating devices, or manifold systems are required to minimize water loss during hot water delivery.

Appliance Standards

If the following types of appliances are offered, financed, installed, or sold as upgrades through the Contractor, they must meet these standards:

Dishwasher – May not exceed 7.0 gallons per normal cycle. Effective January 1, 2007, the maximum water use will be 6.5 gallons per normal cycle;

Washing Machines – Must be high-efficiency models with an Energy Star water factor (WF) not to exceed 8.5 gals per cubic foot capacity. Effective January 1, 2007 the maximum allowable WF will be 7.0.

Water Softener – All devices must be certified to meet the NSF/ANSI 44 standard. All water softeners must be demand-initiated regeneration. Devices that use autoinitiated regeneration (fixed schedule) are prohibited. If the device uses an ion exchange technology, it must be capable of using potassium rather than sodium salt.

Drinking Water Treatment – Drinking water treatment systems using distillation, adsorption, reverse osmosis or ultraviolet processes must be certified to meet applicable NSF/ANSI certifications. Such systems must have an efficiency rate of not less than 85 percent (minimum of 85 gallons of water available for beneficial use within the home for every 100 gallons of water input to the device). Discharge water diverted for another code-approved use within the home may be considered a beneficial use at the discretion of the Authority.

Air Conditioning Systems

All air conditioning systems must be non-evaporative systems with zero net consumptive water use.

Standards for Water Smart Neighborhoods

All homes and community buildings must meet the applicable minimum standards for Water Smart Homes.

In addition to meeting the standards of a Water Smart home, common area landscapes are also subject to the following provisions:

Turf will be used only in functional community recreational areas that meet the following minimum standards:

1. No turf areas of less than 50 feet in any dimension.
2. At the Contractor's expense, sprinkler irrigation systems must be validated to meet an average minimum distribution uniformity of 65 percent. All testing and verification shall be conducted by an independent Certified Landscape Irrigation Auditor with credentials from the Irrigation Association. Documentation is required.

The combined surface area of community pools and spas may be up to 20 square feet for each dwelling with pool access. Communities of 50 dwellings or less may have community pool facilities with a combined surface area of up to 1,000 square feet.

Recreational water features, such as water play facilities, must be user-activated and may not be single-pass use (water used going directly to sewer). The area of such features will be deducted from the allowable surface area of swimming pools.

Compliance With Code

In the event that any standard or requirement in this agreement conflicts with local code requirements, the local code shall prevail.

EXHIBIT B

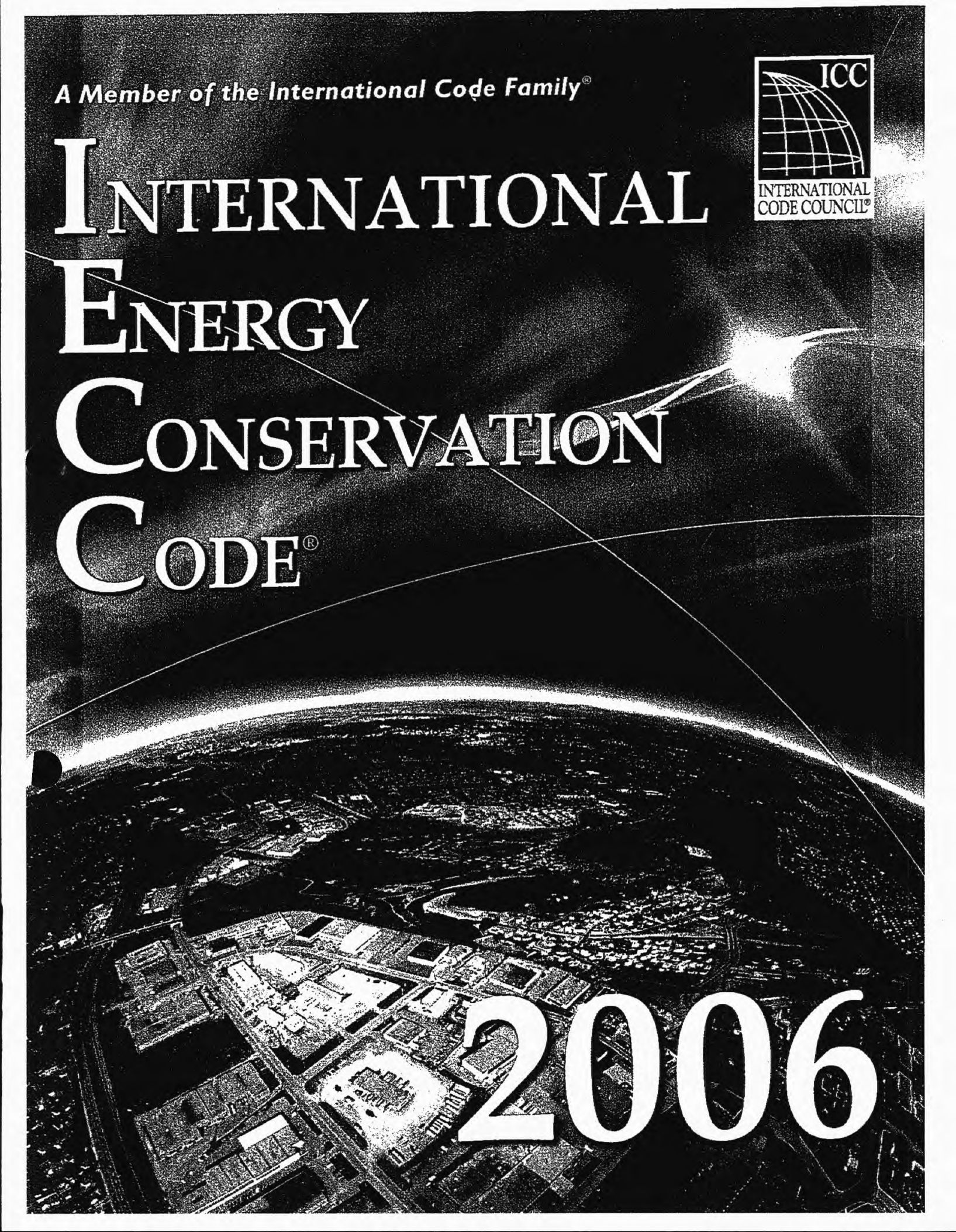
2006 INTERNATIONAL ENERGY CONSERVATION CODE AS ADOPTED BY THE CITY OF LAS VEGAS

- A) The publication entitled "International Energy Conservation Code, 2006 Edition," as published by the International Code Council, and
- B) The document entitled "Southern Nevada Amendments to the 2006 International Energy Conservation Code," which adds to, deletes from and amends the "International Energy Conservation Code, 2006 Edition."

A Member of the International Code Family®



INTERNATIONAL ENERGY CONSERVATION CODE®

The background of the cover is a high-contrast, black and white aerial photograph of a city at night. The city lights are visible, creating a bright, glowing effect against the dark sky. A prominent, bright, curved line of light, possibly a bridge or a highway, arches over the city. The overall image has a grainy, high-contrast aesthetic.

2006

BILL NO. 2006-76

ORDINANCE NO. 5882

AN ORDINANCE TO ADOPT THE 2006 EDITION OF THE INTERNATIONAL ENERGY CONSERVATION CODE, ALONG WITH AMENDMENTS THERETO, AND TO PROVIDE FOR OTHER RELATED MATTERS.

Proposed by: Paul Wilkins, Director of Building and Safety

Summary: Adopts the 2006 Edition of the International Energy Conservation Code, along with amendments thereto.

THE CITY COUNCIL OF THE CITY OF LAS VEGAS DOES HEREBY ORDAIN
AS FOLLOWS:

SECTION 1: Title 16, Chapter 52, Section 10, of the Municipal Code of the City of Las Vegas, Nevada, 1983 Edition, is hereby amended to read as follows:

16.52.010: Those certain documents, three copies of which are on file in the Office of the City Clerk and are designated as follows, are adopted by reference as if set forth herein in full:

(A) The publication entitled ["International Energy Conservation Code, 2003 Edition,"] "International Energy Conservation Code, 2006 Edition," as published by the International Code Council, as Part 1 of this Chapter; and

(B) The document entitled ["2003 Southern Nevada International Energy Conservation Code Amendments,"] "Southern Nevada Amendments to the 2006 International Energy Conservation Code," which adds to, deletes from and amends the ["International Energy Conservation Code, 2003 Edition,"] "International Energy Conservation Code, 2003 Edition," as Part 2 of this Chapter.

SECTION 2: The document entitled "Southern Nevada Amendments to the 2006 International Energy Conservation Code," referred to in Section 1 of this Ordinance, is attached hereto.

SECTION 3: The documents entitled "International Energy Conservation Code, 2003 Edition" and "2003 Southern Nevada International Energy Conservation Code Amendments" are hereby repealed.

SECTION 4: If any section, subsection, subdivision, paragraph, sentence, clause or phrase in this ordinance or any part thereof is for any reason held to be unconstitutional or invalid or



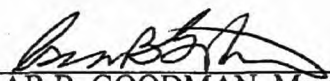
1 ineffective by any court of competent jurisdiction, such decision shall not affect the validity or
2 effectiveness of the remaining portions of this ordinance or any part thereof. The City Council of the
3 City of Las Vegas hereby declares that it would have passed each section, subsection, subdivision,
4 paragraph, sentence, clause or phrase thereof irrespective of the fact that any one or more sections,
5 subsections, subdivisions, paragraphs, sentences, clauses or phrases be declared unconstitutional,
6 invalid or ineffective.

7 SECTION 5: Whenever in this ordinance any act is prohibited or is made or declared
8 to be unlawful or an offense or a misdemeanor, or whenever in this ordinance the doing of any act is
9 required or the failure to do any act is made or declared to be unlawful or an offense or a
10 misdemeanor, the doing of such prohibited act or the failure to do any such required act shall
11 constitute a misdemeanor and upon conviction thereof, shall be punished by a fine of not more than
12 \$1,000.00 or by imprisonment for a term of not more than six months, or by any combination of such
13 fine and imprisonment. Any day of any violation of this ordinance shall constitute a separate offense.

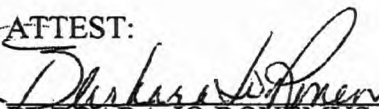
14 SECTION 6: All ordinances or parts of ordinances or sections, subsections, phrases,
15 sentences, clauses or paragraphs contained in the Municipal Code of the City of Las Vegas, Nevada,
16 1983 Edition, in conflict herewith are hereby repealed.

17 PASSED, ADOPTED and APPROVED this 17th day of January, 2007.

18 APPROVED:

19
20 By 
21 OSCAR B. GOODMAN, Mayor

22 ATTEST:

23 
24 BARBARA JO RONEMUS, City Clerk

25 APPROVED AS TO FORM:

26 Val Stead 12-7-06
27 Date
28

1 The above and foregoing ordinance was first proposed and read by title to the City Council
2 on the 20th day of December, 2006, and referred to a committee for recommendation;
3 thereafter the committee reported favorably on said ordinance on the 17th day of January,
4 2007, which as a regular meeting of said Council; that at said regular meeting, the
5 proposed ordinance was read by title to the City Council as first introduced and adopted by
6 the following vote:

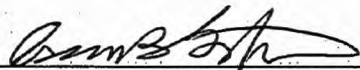
7 VOTING "AYE": Mayor Goodman and Councilmembers Reese, Brown, Weekly,
8 Wolfson, Tarkanian and Ross

9 VOTING "NAY": None

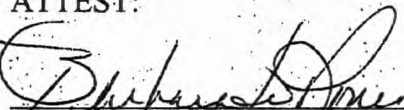
10 EXCUSED: None

11 ABSTAINED: None

12
13 APPROVED:

14 
15 OSCAR B. GOODMAN, Mayor

16 ATTEST:

17 
18 BARBARA JO RONEMUS, City Clerk
19
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Southern Nevada Amendments

To The

2006

International Energy Conservation Code

Published: October 12, 2006

Clark County 4701 W. Russell Road Las Vegas, NV 89118 (702) 455-3030 Inspections: 455-8040	City of Las Vegas 731 S. 4 th Street Las Vegas, NV 89101 (702) 229-6251 Inspections: 229-2071
Boulder City 401 California Ave. Boulder City, NV 89005 (702) 293-9282	City of Mesquite 10 East Mesquite Blvd. Mesquite, NV 89027 (702) 346-2835
North Las Vegas 2240 Civic Center Drive North Las Vegas, NV 89030 (702) 633-1577 Inspections: 633-1576	City of Henderson 240 Water Street Henderson, NV 89015 (702) 267-3600 Inspections: 267-3900
Pahrump Regional Planning District 1210 E. Basin Suite 1 Pahrump, NV 89060 (775) 751-3773	

Preface

This document comprises the proposed Southern Nevada Amendments to the 2006 International Energy Conservation Code as published by the International Code Council (ICC). It was developed by the jurisdictions listed on the cover page, the Southern Nevada Home Builders Association (SNHBA), representatives of the building industry (both contractors and trade groups), representatives of private energy consulting groups, and consultants representing the State Energy Office and DOE as a document to be adopted by reference. These provisions are not intended to prevent the use of any material or method of construction not specifically prescribed herein, provided any alternates have been approved and its use authorized by the building official. This document is available to be adopted as code by any jurisdiction without permission or approval from the jurisdictions listed on the cover page.

101.1 Title.

Section 101.1 is amended to read:

101.1 Title. This code shall be known as the Energy Conservation Code of Southern Nevada, and shall be cited as such. It is referenced to herein as "this code."

101.4.3 Additions, alterations, renovations or repairs.

Revise Sec. 101.4.3 to add Exceptions #5 and #6, so that the section reads as follows:

101.4.3 Additions, alterations, renovations or repairs. Additions, alterations, renovations or repairs to an existing building, building system or portion thereof shall conform to the provisions of this code as they relate to new construction without requiring the unaltered portion(s) of the existing building or building system to comply with this code. Additions, alterations, renovations, or repairs shall not create an unsafe or hazardous condition of overload existing building systems.

Exception: The following need not comply provided the energy use of the building is not increased:

1. Storm windows installed over existing fenestration.
2. Glass only replacements in an existing sash and frame.
3. Existing ceiling, wall or floor cavities exposed during construction provided that these cavities are filled with insulation.
4. Construction where the existing roof, wall or floor cavity is not exposed.
5. Relocations of existing luminaries within an existing space.
6. Alterations that replace 50% or less of the luminaries within a space, provided that the total energy consumption of the new luminaries is at least 10% less than the total energy consumption of the luminaries being replaced. If this exception is taken, the design professional shall provide all necessary calculations and information on the plans to show justification.

101.5.2.1 Low Energy Buildings.

Section 101.5.2 is amended to read:

101.5.2 Low energy buildings. The following buildings, or portions thereof, separated from the remainder of the building by building thermal envelope assemblies complying with this code shall be exempt from the building thermal envelope provisions of this code:

1. Those with a peak design rate of energy usage less than 3.4 Btu's /h/ft² (10.7W/m²) or 1.0 watt/ft² (10.7W/m²) of floor area for space conditioning purposes.
2. Those that do not contain conditioned space.
3. Those spaces that employ evaporative cooling as the sole source of conditioning.
4. Spaces whose sole purpose is to house and protect from freezing risers and mechanisms directly related to the building fire suppression system.

107.3 Referenced Codes.

Add a new section 107.3 to read:

107.3 Referenced Codes. Where this code refers to other codes not adopted by the jurisdiction, the applicable code adopted by the jurisdiction shall govern.

202 General Definitions.

Add the following definition:

AIR BARRIER: An integral component of the thermal energy envelope comprised of approved solid opaque materials that supports in-contact insulating material on one side and is sealed to prevent any leakage of air through the building enclosure. The air barrier can be comprised of, but not limited to, the exterior siding, exterior lath and stucco, rigid insulation board, exterior sheathing and sub-sheathing, water proof substrate with tiles, masonry or stone veneers, roof sheathing and drywall between conditioned and unconditioned attic spaces.

Revise the definition of BUILDING THERMAL ENVELOPE to read as follows:

BUILDING THERMAL ENVELOPE: The basement walls, exterior walls, floor, roof and any other building element comprised of a solid air barrier and approved insulation components in substantial, direct contact with it, that encloses conditioned space and any exempt or unconditioned space.

Add the following definitions in alphabetical order:

CASINO RESORT-BACK OF HOUSE: Areas of a casino resort that are only accessible to authorized personnel and not to the general public and guests, such as employee and delivery entrances, employee lounges and dining areas, administrative offices and meeting rooms, maintenance areas, storage rooms, service corridors, etc.

CASINO RESORT-FRONT OF HOUSE: Areas of the casino resort that are physically accessible or visible to the general public and guests, such as the exterior facades, landscaping, entries, lobbies, guestroom corridors, porte cocheres, retail shops,

restaurants, theaters, gaming areas, guest conference and meeting rooms, other areas of entertainment, etc.

Delete the definition of **CONDITIONED SPACE** and replace it with the following definition:

CONDITIONED SPACE: For energy purposes, space within a building that is provided with heating and/or cooling equipment, un-insulated ducts or systems capable of maintaining, through design or heat loss/gain, 50° F (10°C) during the heating season and 85° (29° C) during the cooling season, or through openings that communicate directly with a conditioned space. For mechanical purposes, an area, room or space being heated or cooled by any equipment or appliance. Note: Spaces which utilize required supplemental heating for the sole purpose of protecting wet fire protection systems (freeze protection to 42° F) or whose sole source of conditioning is through evaporative cooling is **not** considered conditioned space for the purposes of this code.

Add the following definitions in alphabetical order:

DISPLAY KITCHEN: A substantially open cooking and food preparation facility, located in the front-of-house dining room/lounge area specifically for the purpose of entertaining patrons by demonstrating the function of food and drink preparation.

INSULATION -- THERMAL: A component of the thermal energy envelope comprised of any approved material installed in substantially direct contact to either side of the air barrier that provides measured thermal resistance (R-value) to heat flow from a conditioned space to which it bounds.

LIGHTING -- SPECIALIZED MEDICAL, DENTAL AND RESEARCH: Lighting, other than general room illumination lighting, that is supplied from specialized single-purpose fixtures that are essential for the performance of specific medical, dental, or research-related tasks or procedures, including low-level night-lights used in clinical applications.

LIGHTING -- TASK: Lighting provided to illuminate work areas wherein specific repetitive and/or ongoing tasks or operations are performed. To be considered task lighting, the fixture(s) providing the illumination must be either cord-and-plug connected or hard-wired apart from the fixtures specified for general lighting and be switched or dimmed locally. Tasks that commonly require additional illumination include drafting; graphic design; office duties such as filing and sorting mail; reading detailed photographs, carbon copies, handwritten documents, materials printed with less than 6-point type, maps, and telephone books; maintenance work; and industrial tasks such as cutting, crushing, sorting, or grading; manufacturing components; machining; difficult or exacting assembly; difficult or exacting inspection; welding; and crafting by means of engraving, carving, painting, stitching, cutting, pressing, knitting, polishing, or woodworking. Authorities having jurisdiction may approve additional qualifying tasks.

LIGHTING -- THEATRICAL AND SPECIAL EFFECTS: Theatrical lighting shall be any lighting used to directly or indirectly illuminate a stage or other performance area, including dance floors. Special effects lighting shall be lighting used within or as part of a visual feature in a themed or theatrical environment. Special effects lighting shall

include but not be limited to: strobe lights, automated luminaries (intelligent lighting), effects projectors, and ultraviolet (UV) fixtures. In order to qualify as theatrical or special effects lighting, the lighting must be separated from general illumination and be operated from a control system accessible only by authorized personnel.

MASS WALL: Walls constructed of concrete block, concrete, insulated concrete form (ICF), masonry cavity, brick (other than brick veneer), earth (adobe, compressed earth block, rammed earth), or solid timber logs.

SIGN: An interior or exterior lighted device used to impart way-finding, identifications or promotional information to the viewer. Signs include, but are not limited to, business identification, locations maps and directories, gaming boards, sports scoreboards, and slot carousel identifiers.

401.3 Certificate.

Section 401.3 is amended to read:

401.3 Certificate. A permanent certificate shall be posted in a conspicuous place on or in the home. The certificate shall be completed by the builder or registered design professional. The certificate shall list the predominate *R*-values of insulation installed on ceiling/roof, walls, foundation (slab, basement wall, crawlspace wall and/or floor) and ducts outside conditioned spaces; *U*-factors for fenestration; and the solar heat gain coefficient (SHGC) of fenestration. Where there is more than one value for each component, the certificate shall list the value covering the largest area. The certificate shall list the type and efficiency of heating, cooling and service water heating equipment.

402.4.1 Building Thermal Envelope.

Section 402.4.1 is amended to read:

402.4.1 Sealing of air barrier. The building air barrier shall be durably sealed to limit infiltration. The sealing methods between dissimilar materials shall allow for differential expansion and contraction. The following shall be caulked, gasketed, weatherstripped or otherwise sealed with an approved material:

1. All joints, seams, and penetrations in the air barrier.
2. Site-built windows, doors and skylights.
3. Openings between window and door assemblies and their respective jambs and framing.
4. Utility penetrations.
5. Other sources of infiltration through the air barrier.

403.2.1 Insulation.

Section 403.2.1 is amended to read:

403.2.1 Insulation. Supply and return ducts shall be insulated to a minimum of R-6. Ducts in floor trusses shall be insulated to a minimum of R-6.

Exception: Ducts or portions thereof located completely inside the building thermal envelope.

403.2.2 Sealing.

Section 403.2.2 is amended to read:

403.2.2 Sealing. All ducts, filter boxes, and building cavities used as ducts shall be sealed. Joints of duct systems shall be made substantially airtight by means of tapes, mastics, gasketing or other approved closure systems. Closure systems used with rigid fibrous glass ducts shall comply with UL 181A and shall be marked "181A-P" for pressure-sensitive tape, "181 A-M" for mastic or "181 A-H" for heat-sensitive tape. Closure systems used with flexible air ducts and flexible air connectors shall comply with UL 181B and shall be marked "181B-FX" for pressure-sensitive tape or "181 B-M" for mastic. Duct connections to flanges of air distribution system equipment or sheet metal fittings shall be mechanically fastened. Mechanical fasteners for use with flexible nonmetallic air ducts shall comply with UL 181B and shall be marked 181B-C. Crimp joints for round metal ducts shall have a contact lap of at least 1 ½ inches (38mm) and shall be mechanically fastened by means of at least three sheet-metal screws or rivets equally spaced around the joint.

403.4 Circulating Hot Water Systems.

Section 403.4 is deleted and replaced with the following:

403.4 Hot water systems. All service hot water heating systems shall meet the requirements of Section 403.4.1 or Section 403.4.2.

403.4.1 Non-circulating hot water systems. All service hot water piping installed in unconditioned spaces, including under-slab piping, shall be insulated to R-2.

403.4.2 Circulating hot water systems. All circulating service hot water piping, including under-slab piping, shall be insulated to at least R-2. Circulating hot water systems shall include an automatic or readily accessible manual switch that can turn off the hot water circulating pump when the system is not in use.

403.5 Mechanical Ventilation.

Section 403.5 is amended by adding an exception, so that the section reads as follows:

403.5 Mechanical ventilation. Outdoor air intakes and exhausts shall have automatic or gravity dampers that close when the ventilation system is not operating.

Exception: Where clothes dryer exhaust vents terminate at the roof, backdraft dampers are not required.

404.3 Performance-based Compliance.

Sec. 404.3 is deleted and replaced with the following:

404.3 Site energy: The different energy sources shall be compared on the basis of source energy used at the site where 1kWh=10,239 Btu.

404.6.1 Minimum Capabilities.

Section 404.6.1 is amended to read:

404.6.1 Minimum capabilities. Calculation procedures used to comply with this section shall be software tools capable of calculating the annual energy consumption of all building elements that differ between the standard reference design and the proposed design and shall include the following capabilities:

1. Computer generation of the standard reference design using only the input for the proposed design. The calculation procedure shall not allow the user to directly modify the building component characteristics of the standard reference design.
2. Calculation of whole-building (as a single zone) sizing for the heating and cooling equipment in the standard reference design residence shall be sized based on building loads calculated in accordance with ACCA Manual J or other approved heating and cooling calculation methodologies.
3. Calculations that account for the effects of indoor and outdoor temperatures and part-load ratios on the performance of heating, ventilating and air conditioning equipment based on climate and equipment sizing.
4. Printed code official inspection checklist listing each of the proposed design component characteristics from Table 404.5.2(1) determined by the analysis to provide compliance, along with their respective performance ratings (e.g. R-Value, U-Factor, SHGC, HSPF, AFUE, SEER, ER, etc.).

502.4.4 Outdoor Air Intakes and Exhaust Openings.

Section 502.4.4 is amended by adding exceptions 2-6, so that the section reads as follows:

502.4.4 Outdoor air intakes and exhaust openings. Stair and elevator shaft vents and other outdoor air intakes and exhaust openings integral to the building envelope shall be equipped with not less than a Class I motorized, leakage-rated damper with a maximum leakage rate of 4 cfm per square foot (6.8 L/s Cm²) at 1.0 inch water gauge (w.g.) (1250 Pa) when tested in accordance with AMCA 500D.

Exceptions:

1. Gravity (non-motorized) dampers are permitted to be used in buildings less than three stories in height above grade.
2. Supply and exhaust ducts or shafts integral to the smoke management system as required by Section 909 of the International Building Code.
3. Type I and Type II hoods in commercial kitchens and the make-up air units that are required for the operation of these fume hoods.
4. All vents used for conveying products of combustion.
5. Clothes dryer vents that terminate at the roof.
6. Explosion venting.

502.4.6 Vestibules.

Section 502.4.6 is amended by adding exception 7, so that the section reads as follows:

502.4.6 Vestibules. A door that separates conditioned space from the exterior shall be protected with an enclosed vestibule, with all doors opening into and out the vestibule equipped with self-closing devices. Vestibules shall be designed so that in passing through the vestibule it is not necessary for the interior and exterior doors to open at the same time.

Exceptions:

1. Buildings in Climate Zones 1 and 2 as indicated in Figure 301.1 and Table 301.1.
2. Doors not intended to be used as a building entrance door, such as doors to mechanical or electrical equipment rooms.
3. Doors opening directly from a sleeping unit or dwelling unit.
4. Doors that open directly from a space less than 3,000 square feet (298 m²) in area.
5. Revolving doors.

6. Doors used primarily to facilitate vehicular movement or material handling and adjacent personnel doors.
7. Doors in buildings with less than four stories above grade.

505.2.2.1 Light Reduction Controls.

Section 505.2.2.1 is amended to read:

505.2.2.1 Light reduction controls. Each area that is required to have a manual control shall also allow the occupant to reduce the connected lighting load in a reasonably uniform illumination pattern by at least 50 percent. Lighting reduction shall be achieved by one of the following or other approved method:

1. Controlling all lamps or luminaires;
2. Dual switching of alternate rows of luminaires, alternate luminaires or alternate lamps;
3. Switching the middle lamp luminaires independently of the outer lamps;
4. Switching each luminaire or each lamp; or
5. Using a dimming control system to reduce load by at least 50 percent.

Exceptions:

1. Areas that have only one luminaire.
2. Areas that are controlled by an occupant-sensing device.
3. Corridors, storerooms, restrooms, public lobbies, or means of egress.
4. Sleeping unit (see Section 505.2.3).
5. Spaces that use less than 0.6 Watts per square foot (6.5 W/m^2).

505.2.2.2 Automatic Lighting Shutoff.

Section 505.2.2.2 is amended to read:

505.2.2.2 Automatic lighting shutoff. Single-occupancy buildings or single-tenant spaces larger than 5,000 square feet (465 m^2) shall be equipped with an automatic control device to shut off lighting in those areas. This automatic control device shall function on either:

1. A scheduled basis, using time-of-day, with an independent program schedule that controls the interior lighting in areas that do not exceed 25,000 square feet (2323 m²) and are not more than one floor; or
2. An occupant sensor that shall turn off the lighting within 30 minutes of an occupant leaving a space; or
3. A signal from another control or alarm system that indicates the area is unoccupied.

Exception: The following shall not require an automatic control device:

1. Sleeping units (see Section 505.2.3)
2. Lighting in spaces where patient care is directly provided.
3. Spaces where automatic shutoff would endanger occupant safety or security.
4. Buildings where the nature of the business activity operates 24 hours per day, as approved by the Building Official.

505.5.1 Total Connected Interior Lighting Power.

Section 505.5.1 is amended to read:

505.5.1 Total connected interior lighting power. The total connected interior lighting power (watts) shall be the sum of the watts of all interior lighting equipment as determined in accordance with Section 505.5.1.1 through 505.1.1.4.

Exceptions: The connected power associated with the following lighting equipment is not included in the calculating total connected lighting power.

1. Specialized medical, dental, and research lighting.
2. Professional and/or competition level sports playing area lighting.
3. Display lighting for exhibits in galleries, museums, monuments, and convention centers.
4. Sleeping unit lighting in hotels, motels, boarding houses or similar buildings.
5. Emergency lighting automatically off during normal building operation.
6. Casino Resort -- Front of House areas on properties classified as such by local jurisdictions.
7. Theatrical and special effects lighting.

8. Lighting for film, video or photography beyond general studio illumination.
9. Light Emitting Diode (LED) lighting sources.
10. Neon and cold cathode lighting sources.
11. Interior signage.
12. In a redundant, interlocked lighting system or in a system programmed to prevent simultaneous operation of more than one lighting system, the system using the least amount of power.
13. Lighting equipment available for purchase in a retail setting.
14. Task lighting.
15. Where specific lighting levels are required by state or local governmental criteria, the state or local code shall prevail. The total square footage of the area addressed in such codes shall be subtracted from the overall square footage of the space when utilized for energy calculations.
16. Display kitchen and bar areas.
17. Lighting that is integral to equipment or instrumentation and is installed by its manufacturer.

505.5.1.4 Line Voltage Lighting Track and Plug-In Busway.

Section 505.5.1.4 is amended to read:

Section 505.5.1.4 Line-voltage lighting track and plug-in busway. The wattage shall be the greater of the wattage of the luminaires determined in accordance with Sections 505.5.1.1 through 505.5.1.3 or 30 W/linear foot (98W/lin m). In track lighting equipped with a current limiting device, the wattage shall be the maximum rated power of the current limiting device.

Table 505.5.2 INTERIOR LIGHTING POWER ALLOWANCES.

Table 505.5.2 is deleted in its entirety and replaced with the following:

**TABLE 505.5.2
INTERIOR LIGHTING POWER ALLOWANCES**

LIGHTING POWER DENSITY	
Building Area Type ^a	(W/ft²)
Auditorium	1.8
Automotive Facility	0.9
Bank/Financial Institution ^c	1.5
Classroom/Lecture Hall	1.4
Convention Center ^c	1.3
Corridor, restroom, support area	0.9
Court House ^c	1.2
Dormitory	1.0
Exercise Center	1.0
Exhibit Hall	1.3
Grocery Store	1.6
Gymnasium Playing Surface	1.4
Healthcare-Clinic	1.0
Healthcare-Spa ^c	1.6
Hospital ^c	1.2
Hotel ^{b,c}	1.3
Industrial work	1.2
Kitchen	1.2
Library ^c	1.7
Lobby-hotel ^c	1.1
Lobby-other ^c	1.3
Mall, arcade, or atrium ^c	0.6
Motel	1.0
Motion Picture Theater ^{b,c}	1.2
Multi-Family	0.7
Museum ^c	1.1
Office ^c	1.1
Parking Garage	0.4
Penitentiary	1.0
Police/Fire Station	1.0
Post Office	1.1
Religious Worship ^{b,c}	2.4
Restaurant ^{b,c}	1.6
Retail Sales, wholesales, show room ^{b,c}	1.7
School/University	1.2
Sports Arena ^c	1.1
Storage, Industrial and Commercial	0.8
Theatre – Motion Picture	1.2
Theatre – Performance ^c	2.6

Town Hall	1.1
Transportation	1.0
Warehouse	0.8
Workshop	1.4
Other	1.0

For SI: 1 foot = 304.8 mm, 1 watt per square foot = W/0.0929 m².

- a. In cases where both a general building area type and a more specific building area type are listed, the more specific building area type shall apply.
- b. Where lighting equipment is specified to be installed to highlight specific merchandise or displays in addition to lighting equipment specified for general lighting and is switched or dimmed on circuits separate from the circuits for general lighting, the smaller of the actual wattage for the lighting equipment installed specifically for merchandise, or 21 W/ft times the length of the wall display, 1.6 W/ft² times the area of the specific display of the floor display, or 3.9 W/ft² times the actual case or shelf area for displaying and selling jewelry, china or silver, shall be added to the interior lighting power determined in accordance with this line item.
- c. Where lighting equipment is specified to be installed for decorative purposes in addition to lighting equipment specified for general lighting and is switched or dimmed on circuits separate from the circuits for general lighting, the smaller of the actual wattage of the decorative lighting equipment or 1.5 W/ft² times the area of the space that the decorative lighting equipment is in shall be added to the interior lighting power determined in accordance with this line item.

505.5.2 Interior Lighting Power.

Section 505.5.2 is amended, and a new Table 505.5.3 is added, to read as follows:

505.5.2 Interior lighting power. The total interior lighting power (watts) is the sum of all interior lighting powers for all areas in the building covered in this permit. The interior lighting power is the floor area for each building area type listed in Table 505.5.2 times the value from Table 505.5.2 for that area. For areas with high ceilings and lighting fixture mounting heights that exceed 12 feet, an adjustment factor is allowed by multiplying the LPD value from Table 505.5.2 with the adjustment factor in Table 505.5.3. For the purposes of this method, an "area" shall be defined as all contiguous spaces that accommodate or are associated with a single building area type as listed in Table 505.5.2. When this method is used to calculate the total interior lighting power for an entire building, each building area type shall be treated as a separate area.

**TABLE 505.5.3
ADJUSTMENTS FOR MOUNTING HEIGHTS ABOVE FLOOR**

Height (in feet) above the finished floor to the bottom of luminaire(s)	Multiply LPD by
12 or less	1.0
13	1.05
14	1.10
15	1.15
16	1.21
17	1.47
18	1.65
19	1.84
20 or more	2.04

505.6 Exterior Lighting. (Mandatory).

Revise section 505.6 to read as follows:

505.6 Exterior lighting. (Mandatory). When the power for the exterior lighting is supplied through the energy service to the building, all exterior lighting, other than low-voltage lighting shall have a source efficacy of at least 45 lumens per Watt. Fixtures employing lamps rated over 100 Watts shall either have a source efficacy of at least 60 lumens per Watt or be controlled by a motion sensor.

Exceptions:

1. Where approved because of historical, safety, signage or emergency considerations.
2. Light Emitting Diode (LED), neon, and cold cathode exterior lamp sources.
3. Casino Resort--Front of House areas on properties classified by the local jurisdiction as casino resorts.
4. Where specific lighting levels are required by state or local governmental criteria, the state or local code shall prevail. Areas affected by this exemption include, but are not limited to, ATM's and parking garage emergency lighting.
5. Theatrical and special effects lighting.

Delete sections 505.6.1 and 505.6.2

505.7 Electrical Energy Consumption. (Mandatory)

Section 505.7 is amended by adding an exception, so that the section reads as follows:

505.7 Electrical energy consumption. (Mandatory). In buildings having individual dwelling units, provisions shall be made to determine the electrical energy consumed by each tenant by separately metering individual dwelling units.

Exception: Dwelling units with a transient occupancy such as timeshares.

AFFP DISTRICT COURT
Clark County, Nevada

AFFIDAVIT OF PUBLICATION

STATE OF NEVADA)
COUNTY OF CLARK) SS:

Donna Stark, being 1st duly sworn, deposes and says: That she is the Legal Clerk for the Las Vegas Review-Journal and the Las Vegas Sun, daily newspapers regularly issued, published and circulated in the City of Las Vegas, County of Clark, State of Nevada, and that the advertisement, a true copy attached for,

LV CITY CLERK 2296311LV 1282648

was continuously published in said Las Vegas Review-Journal and / or Las Vegas Sun in 1 edition(s) of said newspaper issued from 01/05/2007 to 01/05/2007, on the following days:

01/05/2007

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CITY CLERK

2007 FEB -5 P 2:13

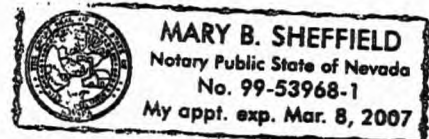
BILL NO. 2006-76
AN ORDINANCE TO ADOPT THE 2006 EDITION OF THE INTERNATIONAL ENERGY CONSERVATION CODE, ALONG WITH AMENDMENTS THERETO, AND TO PROVIDE FOR OTHER RELATED MATTERS.
Proposed by: Paul K. Wilkins, Director of Building and Safety
Summary: Adopts the 2006 Edition of the International Energy Conservation Code, along with amendments thereto.
At the City Council meeting of DECEMBER 20, 2006 BILL NO. 2006-76 WAS READ BY TITLE AND REFERRED TO A RECOMMENDING COMMITTEE
COPIES OF THE COMPLETE ORDINANCE ARE AVAILABLE FOR PUBLIC INFORMATION IN THE OFFICE OF THE CITY CLERK, 1ST FLOOR, 400 STEWART AVENUE, LAS VEGAS, NEVADA.
PUB: January 5, 2007
LV Review-Journal

Signed: Donna Stark

SUBSCRIBED AND SWORN BEFORE ME THIS, THE

12 day of January, 2007.

Mary B. Sheffield
Notary Public



AFFP DISTRICT COURT
Clark County, Nevada

AFFIDAVIT OF PUBLICATION

STATE OF NEVADA)
COUNTY OF CLARK) SS:

Donna Stark, being 1st duly sworn, deposes and says: That she is the Legal Clerk for the Las Vegas Review-Journal and the Las Vegas Sun, daily newspapers regularly issued, published and circulated in the City of Las Vegas, County of Clark, State of Nevada, and that the advertisement, a true copy attached for,

LV CITY CLERK

2296311LV

1373910

was continuously published in said Las Vegas Review-Journal and / or Las Vegas Sun in 1 edition(s) of said newspaper issued from 01/20/2007 to 01/20/2007, on the following days:

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01/20/2007

2007 FEB -5 P 2:18

BILL NO. 2006-76
ORDINANCE NO. 5882

AN ORDINANCE TO ADOPT THE 2006 EDITION OF THE INTERNATIONAL ENERGY CONSERVATION CODE, ALONG WITH AMENDMENTS THERETO, AND TO PROVIDE FOR OTHER RELATED MATTERS.

Proposed by: Paul K. Wilkins, Director of Building and Safety
Summary: Adopts the 2006 Edition of the International Energy Conservation Code, along with amendments thereto.

The above and foregoing ordinance was first proposed and read by title to the City Council on the 20th day of December 2006, and referred to a committee for recommendation; thereafter the committee reported favorably on said ordinance on the 17th day of January 2007, which was a regular meeting of said City Council; and that at said regular meeting, the proposed ordinance was read by title to the City Council as first introduced and was adopted by the following vote:

VOTING "AYE": Mayor Goodman and Councilmembers Reese, Brown, Weekly, Wolfson, Tarkanian, and Ross
VOTING "NAY": NONE
EXCUSED: NONE

COPIES OF THE COMPLETE ORDINANCE ARE AVAILABLE FOR PUBLIC INFORMATION IN THE OFFICE OF THE CITY CLERK, 1ST FLOOR, 400 STEWART AVENUE, LAS VEGAS, NEVADA.

PUB: January 20, 2007
LV Review-Journal

Signed: _____

Donna Stark

SUBSCRIBED AND SWORN BEFORE ME THIS, THE

24 day of January, 2007.

Mary B. Sheffield
Notary Public



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PREFACE

Introduction

Internationally, code officials recognize the need for a modern, up-to-date energy conservation code addressing the design of energy-efficient building envelopes and installation of energy efficient mechanical, lighting and power systems through requirements emphasizing performance. The *International Energy Conservation Code*®, in this 2006 edition, is designed to meet these needs through model code regulations that will result in the optimal utilization of fossil fuel and nondepletable resources in all communities, large and small.

This comprehensive energy conservation code establishes minimum regulations for energy efficient buildings using prescriptive and performance-related provisions. It is founded on broad-based principles that make possible the use of new materials and new energy efficient designs. This 2006 edition is fully compatible with all the *International Codes*® (I-Codes®) published by the International Code Council (ICC)®, including: the *International Building Code*®, *ICC Electrical Code*®, *International Existing Building Code*®, *International Fire Code*®, *International Fuel Gas Code*®, *International Mechanical Code*®, *ICC Performance Code*®, *International Plumbing Code*®, *International Private Sewage Disposal Code*®, *International Property Maintenance Code*®, *International Residential Code*®, *International Wildland-Urban Interface Code*™ and *International Zoning Code*®.

The *International Energy Conservation Code* provisions provide many benefits, among which is the model code development process that offers an international forum for energy professionals to discuss performance and prescriptive code requirements. This forum provides an excellent arena to debate proposed revisions. This model code also encourages international consistency in the application of provisions.

Development

The first edition of the *International Energy Conservation Code* (1998) was based on the 1995 edition of the *Model Energy Code* promulgated by the Council of American Building Officials (CABO) and included changes approved through the CABO Code Development Procedures through 1997. CABO assigned all rights and responsibilities to the International Code Council and its three statutory members at that time, including Building Officials and Code Administrators International, Inc. (BOCA), International Conference of Building Officials (ICBO) and Southern Building Code Congress International (SBCCI). This 2006 edition presents the code as originally issued, with changes reflected in the 2003 edition and further changes approved through the ICC Code Development Process through 2005. A new edition such as this is promulgated every three years.

This code is founded on principles intended to establish provisions consistent with the scope of an energy conservation code that adequately conserves energy; provisions that do not unnecessarily increase construction costs; provisions that do not restrict the use of new materials, products or methods of construction; and provisions that do not give preferential treatment to particular types or classes of materials, products or methods of construction.

Adoption

The *International Energy Conservation Code* is available for adoption and use by jurisdictions internationally. Its use within a governmental jurisdiction is intended to be accomplished through adoption by reference in accordance with proceedings establishing the jurisdiction's laws. At the time of adoption, jurisdictions should insert the appropriate information in provisions requiring specific local information, such as the name of the adopting jurisdiction. These locations are shown in bracketed words in small capital letters in the code and in the sample ordinance. The sample adoption ordinance on page v addresses several key elements of a code adoption ordinance, including the information required for insertion into the code text.

Maintenance

The *International Energy Conservation Code* is kept up to date through the review of proposed changes submitted by code enforcing officials, industry representatives, design professionals and other interested parties. Proposed changes are carefully considered through an open code development process in which all interested and affected parties may participate.

The contents of this work are subject to change both through the Code Development Cycles and the governmental body that enacts the code into law. For more information regarding the code development process, contact the Code and Standard Development Department of the International Code Council.

While the development procedure of the *International Energy Conservation Code* assures the highest degree of care, ICC, its members and those participating in the development of this code do not accept any liability resulting from compliance or noncompliance with the provisions because ICC and its members do not have the power or authority to police or enforce compliance with the contents of this code. Only the governmental body that enacts the code into law has such authority.

Letter Designations in Front of Section Numbers

In each code development cycle, proposed changes to this code are considered at the Code Development Hearing by the International Energy Conservation Code Development Committee, whose action constitutes a recommendation to the voting membership for final action on the proposed change. Proposed changes to a code section whose number begins with a letter in brackets are considered by a different code development committee. For instance, proposed changes to code sections which have the letter [EB] in front (e.g., [EB] 101.2.2.1), are considered by the International Existing Building Code Development Committee at the Code Development Hearing. Where this designation is applicable to the entire content of a main section of the code, the designation appears at the main section number and title and is not repeated at every subsection in that section.

The content of sections in this code which begin with a letter designation is maintained by another code development committee in accordance with the following:

- [B] = International Building Code Development Committee;
- [EB] = International Existing Building Code Development Committee; and
- [M] = International Mechanical Code Development Committee.

Marginal Markings

Solid vertical lines in the margins within the body of the code indicate a technical change from the requirements of the 2003 edition. Deletion indicators in the form of an arrow (→) are provided in the margin where an entire section, paragraph, exception or table has been deleted or an item in a list of items or a table has been deleted.

ORDINANCE

The International Codes are designed and promulgated to be adopted by reference by ordinance. Jurisdictions wishing to adopt the 2006 *International Energy Conservation Code* as an enforceable regulation governing energy efficient building envelopes and installation of energy efficient mechanical, lighting and power systems should ensure that certain factual information is included in the adopting ordinance at the time adoption is being considered by the appropriate governmental body. The following sample adoption ordinance addresses several key elements of a code adoption ordinance, including the information required for insertion into the code text.

SAMPLE ORDINANCE FOR ADOPTION OF THE INTERNATIONAL ENERGY CONSERVATION CODE ORDINANCE NO. _____

An ordinance of the [JURISDICTION] adopting the 2006 edition of the *International Energy Conservation Code*, regulating and governing energy efficient building envelopes and installation of energy efficient mechanical, lighting and power systems in the [JURISDICTION]; providing for the issuance of permits and collection of fees therefor; repealing Ordinance No. _____ of the [JURISDICTION] and all other ordinances and parts of the ordinances in conflict therewith.

The [GOVERNING BODY] of the [JURISDICTION] does ordain as follows:

Section 1. That a certain document, three (3) copies of which are on file in the office of the [TITLE OF JURISDICTION'S KEEPER OF RECORDS] of [NAME OF JURISDICTION], being marked and designated as the *International Energy Conservation Code*, 2006 edition, as published by the International Code Council, be and is hereby adopted as the Energy Conservation Code of the [JURISDICTION], in the State of [STATE NAME] for regulating and governing energy efficient building envelopes and installation of energy efficient mechanical, lighting and power systems as herēin provided; providing for the issuance of permits and collection of fees therefor; and each and all of the regulations, provisions, penalties, conditions and terms of said Energy Conservation Code on file in the office of the [JURISDICTION] are hereby referred to, adopted, and made a part hereof, as if fully set out in this ordinance, with the additions, insertions, deletions and changes, if any, prescribed in Section 2 of this ordinance.

Section 2. The following sections are hereby revised:

Section 101.1. Insert: [NAME OF JURISDICTION].

Section 3. That Ordinance No. _____ of [JURISDICTION] entitled [FILL IN HERE THE COMPLETE TITLE OF THE ORDINANCE OR ORDINANCES IN EFFECT AT THE PRESENT TIME SO THAT THEY WILL BE REPEALED BY DEFINITE MENTION] and all other ordinances or parts of ordinances in conflict herewith are hereby repealed.

Section 4. That if any section, subsection, sentence, clause or phrase of this ordinance is, for any reason, held to be unconstitutional, such decision shall not affect the validity of the remaining portions of this ordinance. The [GOVERNING BODY] hereby declares that it would have passed this ordinance, and each section, subsection, clause or phrase thereof, irrespective of the fact that any one or more sections, subsections, sentences, clauses and phrases be declared unconstitutional.

Section 5. That nothing in this ordinance or in the Energy Conservation Code hereby adopted shall be construed to affect any suit or proceeding impending in any court, or any rights acquired, or liability incurred, or any cause or causes of action acquired or existing, under any act or ordinance hereby repealed as cited in Section 3 of this ordinance; nor shall any just or legal right or remedy of any character be lost, impaired or affected by this ordinance.

Section 6. That the [JURISDICTION'S KEEPER OF RECORDS] is hereby ordered and directed to cause this ordinance to be published. (An additional provision may be required to direct the number of times the ordinance is to be published and to specify that it is to be in a newspaper in general circulation. Posting may also be required.)

Section 7. That this ordinance and the rules, regulations, provisions, requirements, orders and matters established and adopted hereby shall take effect and be in full force and effect [TIME PERIOD] from and after the date of its final passage and adoption.

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CHAPTER 1

ADMINISTRATION

This chapter has been revised in its entirety; there will be no marginal markings.

SECTION 101

SCOPE AND GENERAL REQUIREMENTS

101.1 Title. This code shall be known as the *International Energy Conservation Code* of [NAME OF JURISDICTION], and shall be cited as such. It is referred to herein as "this code."

101.2 Scope. This code applies to residential and commercial buildings.

101.3 Intent. This code shall regulate the design and construction of buildings for the effective use of energy. This code is intended to provide flexibility to permit the use of innovative approaches and techniques to achieve the effective use of energy. This code is not intended to abridge safety, health or environmental requirements contained in other applicable codes or ordinances.

101.4 Applicability.

101.4.1 Existing buildings. Except as specified in this chapter, this code shall not be used to require the removal, alteration or abandonment of, nor prevent the continued use and maintenance of, an existing building or building system lawfully in existence at the time of adoption of this code.

101.4.2 Historic buildings. Any building or structure that is listed in the State or National Register of Historic Places; designated as a historic property under local or state designation law or survey; certified as a contributing resource with a National Register listed or locally designated historic district; or with an opinion or certification that the property is eligible to be listed on the National or State Registers of Historic Places either individually or as a contributing building to a historic district by the State Historic Preservation Officer or the Keeper of the National Register of Historic Places, are exempt from this code.

101.4.3 Additions, alterations, renovations or repairs. Additions, alterations, renovations or repairs to an existing building, building system or portion thereof shall conform to the provisions of this code as they relate to new construction without requiring the unaltered portion(s) of the existing building or building system to comply with this code. Additions, alterations, renovations, or repairs shall not create an unsafe or hazardous condition or overload existing building systems.

Exception: The following need not comply provided the energy use of the building is not increased:

1. Storm windows installed over existing fenestration.
2. Glass only replacements in an existing sash and frame.
3. Existing ceiling, wall or floor cavities exposed during construction provided that these cavities are filled with insulation.

4. Construction where the existing roof, wall or floor cavity is not exposed.

101.4.4 Change in occupancy. Buildings undergoing a change in occupancy that would result in an increase in demand for either fossil fuel or electrical energy shall comply with this code.

101.4.5 Mixed occupancy. Where a building includes both residential and commercial occupancies, each occupancy shall be separately considered and meet the applicable provisions of Chapter 4 for residential and Chapter 5 for commercial.

101.5 Compliance. Residential buildings shall meet the provisions of Chapter 4. Commercial buildings shall meet the provisions of Chapter 5.

101.5.1 Compliance materials. The code official shall be permitted to approve specific computer software, worksheets, compliance manuals and other similar materials that meet the intent of this code.

101.5.2 Low energy buildings. The following buildings, or portions thereof, separated from the remainder of the building by building thermal envelope assemblies complying with this code shall be exempt from the building thermal envelope provisions of this code:

1. Those with a peak design rate of energy usage less than 3.4 Btu/h·ft² (10.7 W/m²) or 1.0 watt/ft² (10.7 W/m²) of floor area for space conditioning purposes.
2. Those that do not contain conditioned space.

SECTION 102

MATERIALS, SYSTEMS AND EQUIPMENT

102.1 Identification. Materials, systems and equipment shall be identified in a manner that will allow a determination of compliance with the applicable provisions of this code.

102.1.1 Building thermal envelope insulation. An R-value identification mark shall be applied by the manufacturer to each piece of building thermal envelope insulation 12 inches (305 mm) or greater in width. Alternately, the insulation installers shall provide a certification listing the type, manufacturer and R-value of insulation installed in each element of the building thermal envelope. For blown or sprayed insulation (fiberglass and cellulose), the initial installed thickness, settled thickness, settled R-value, installed density, coverage area and number of bags installed shall be listed on the certification. For sprayed polyurethane foam (SPF) insulation, the installed thickness of the areas covered and R-value of installed thickness shall be listed on the certification. The insulation installer shall sign, date and post the certification in a conspicuous location on the job site.

102.1.1.1 Blown or sprayed roof/ceiling insulation. The thickness of blown in or sprayed roof/ceiling insulation (fiberglass or cellulose) shall be written in inches (mm) on markers that are installed at least one for every 300 square feet (28 m²) throughout the attic space. The markers shall be affixed to the trusses or joists and marked with the minimum initial installed thickness with numbers a minimum of 1 inch (25 mm) in height. Each marker shall face the attic access opening. Spray polyurethane foam thickness and installed *R*-value shall be listed on certification provided by the insulation installer.

102.1.2 Insulation mark installation. Insulating materials shall be installed such that the manufacturer's *R*-value mark is readily observable upon inspection.

102.1.3 Fenestration product rating. *U*-factors of fenestration products (windows, doors and skylights) shall be determined in accordance with NFRC 100 by an accredited, independent laboratory, and labeled and certified by the manufacturer. Products lacking such a labeled *U*-factor shall be assigned a default *U*-factor from Table 102.1.3(1) or 102.1.3(2). The solar heat gain coefficient (SHGC) of glazed fenestration products (windows, glazed doors and skylights) shall be determined in accordance with NFRC 200 by an accredited, independent laboratory, and labeled and certified by the manufacturer. Products lacking such a labeled SHGC shall be assigned a default SHGC from Table 102.1.3(3).

TABLE 102.1.3(1)
DEFAULT GLAZED FENESTRATION *U*-FACTOR

FRAME TYPE	SINGLE PANE	DOUBLE PANE	SKYLIGHT	
			Single	Double
Metal	1.20	0.80	2.00	1.30
Metal with Thermal Break	1.10	0.65	1.90	1.10
Nonmetal or Metal Clad	0.95	0.55	1.75	1.05
Glazed Block	0.60			

TABLE 102.1.3(2)
DEFAULT DOOR *U*-FACTORS

DOOR TYPE	<i>U</i> -FACTOR
Uninsulated Metal	1.20
Insulated Metal	0.60
Wood	0.50
Insulated, nonmetal edge, max 45% glazing, any glazing double pane	0.35

TABLE 102.1.3(3)
DEFAULT GLAZED FENESTRATION SHGC

SINGLE GLAZED		DOUBLE GLAZED		GLAZED BLOCK
Clear	Tinted	Clear	Tinted	
0.8	0.7	0.7	0.6	0.6

102.2 Installation. All materials, systems and equipment shall be installed in accordance with the manufacturer's installation instructions and the *International Building Code*.

102.2.1 Protection of exposed foundation insulation. Insulation applied to the exterior of basement walls, crawl-space walls and the perimeter of slab-on-grade floors shall have a rigid, opaque and weather-resistant protective covering to prevent the degradation of the insulation's thermal performance. The protective covering shall cover the exposed exterior insulation and extend a minimum of 6 inches (153 mm) below grade.

102.3 Maintenance information. Maintenance instructions shall be furnished for equipment and systems that require preventive maintenance. Required regular maintenance actions shall be clearly stated and incorporated on a readily accessible label. The label shall include the title or publication number for the operation and maintenance manual for that particular model and type of product.

SECTION 103 ALTERNATE MATERIALS—METHOD OF CONSTRUCTION, DESIGN OR INSULATING SYSTEMS

103.1 General. This code is not intended to prevent the use of any material, method of construction, design or insulating system not specifically prescribed herein, provided that such construction, design or insulating system has been approved by the code official as meeting the intent of this code.

103.1.1 Above code programs. The code official or other authority having jurisdiction shall be permitted to deem a national, state or local energy efficiency program to exceed the energy efficiency required by this code. Buildings approved in writing by such an energy efficiency program shall be considered in compliance with this code.

SECTION 104 CONSTRUCTION DOCUMENTS

104.1 General. Construction documents and other supporting data shall be submitted in one or more sets with each application for a permit. The code official is authorized to require necessary construction documents to be prepared by a registered design professional.

Exception: The code official is authorized to waive the requirements for construction documents or other supporting data if the code official determines they are not necessary to confirm compliance with this code.

104.2 Information on construction documents. Construction documents shall be drawn to scale upon suitable material. Electronic media documents are permitted to be submitted when approved by the code official. Construction documents shall be of sufficient clarity to indicate the location, nature and extent of the work proposed, and show in sufficient detail pertinent data and features of the building, systems and equipment as herein governed. Details shall include, but are not limited to, insulation materials and their *R*-values; fenestration *U*-factors and SHGCs; system and equipment efficiencies, types, sizes

and controls; duct sealing, insulation and location; and air sealing details.

SECTION 105 INSPECTIONS

105.1 General. Construction or work for which a permit is required shall be subject to inspection by the code official.

105.2 Required approvals. No work shall be done on any part of the building beyond the point indicated in each successive inspection without first obtaining the written approval of the code official. No construction shall be concealed without being inspected and approved.

105.3 Final inspection. The building shall have a final inspection and not be occupied until approved.

105.4 Reinspection. A building shall be reinspected when determined necessary by the code official.

SECTION 106 VALIDITY

106.1 General. If a portion of this code is held to be illegal or void, such a decision shall not affect the validity of the remainder of this code.

SECTION 107 REFERENCED STANDARDS

107.1 General. The standards, and portions thereof, referred to in this code and listed in Chapter 6 shall be considered part of the requirements of this code to the extent of such reference.

107.2 Conflicting requirements. Where the provisions of this code and the referenced standards conflict, the provisions of this code shall take precedence.

CHAPTER 2

DEFINITIONS

This chapter has been revised in its entirety; there will be no marginal markings.

SECTION 201 GENERAL

201.1 Scope. Unless stated otherwise, the following words and terms in this code shall have the meanings indicated in this chapter.

201.2 Interchangeability. Words used in the present tense include the future; words in the masculine gender include the feminine and neuter; the singular number includes the plural and the plural includes the singular.

201.3 Terms defined in other codes. Terms that are not defined in this code but are defined in the *International Building Code*, *ICC Electrical Code*, *International Fire Code*, *International Fuel Gas Code*, *International Mechanical Code*, *International Plumbing Code*, or the *International Residential Code* shall have the meanings ascribed to them in those codes.

201.4 Terms not defined. Terms not defined by this chapter shall have ordinarily accepted meanings such as the context implies.

SECTION 202 GENERAL DEFINITIONS

ABOVE GRADE WALL. A wall more than 50 percent above grade and enclosing conditioned space. This includes between-floor spandrels, peripheral edges of floors, roof and basement knee walls, dormer walls, gable end walls, walls enclosing a mansard roof, and skylight shafts.

ACCESSIBLE. Admitting close approach as a result of not being guarded by locked doors, elevation or other effective means (see "Readily accessible").

ADDITION. An extension or increase in the conditioned space floor area or height of a building or structure.

ALTERATION. Any construction or renovation to an existing structure other than repair or addition that requires a permit. Also, a change in a mechanical system that involves an extension, addition or change to the arrangement, type or purpose of the original installation that requires a permit.

APPROVED. Approval by the code official as a result of investigation and tests conducted by him or her, or by reason of accepted principles or tests by nationally recognized organizations.

AUTOMATIC. Self-acting, operating by its own mechanism when actuated by some impersonal influence, as, for example, a change in current strength, pressure, temperature or mechanical configuration (see "Manual").

BASEMENT WALL. A wall 50 percent or more below grade and enclosing conditioned space.

BUILDING. Any structure used or intended for supporting or sheltering any use or occupancy.

BUILDING THERMAL ENVELOPE. The basement walls, exterior walls, floor, roof, and any other building element that enclose conditioned space. This boundary also includes the boundary between conditioned space and any exempt or unconditioned space.

CODE OFFICIAL. The officer or other designated authority charged with the administration and enforcement of this code, or a duly authorized representative.

COMMERCIAL BUILDING. For this code, all buildings that are not included in the definition of "Residential buildings."

CONDITIONED FLOOR AREA. The horizontal projection of the floors associated with the conditioned space.

CONDITIONED SPACE. An area or room within a building being heated or cooled, containing uninsulated ducts, or with a fixed opening directly into an adjacent conditioned space.

CRAWL SPACE WALL. The opaque portion of a wall that encloses a crawl space and is partially or totally below grade.

CURTAIN WALL. Fenestration products used to create an external nonload-bearing wall that is designed to separate the exterior and interior environments.

DUCT. A tube or conduit utilized for conveying air. The air passages of self-contained systems are not to be construed as air ducts.

DUCT SYSTEM. A continuous passageway for the transmission of air that, in addition to ducts, includes duct fittings, dampers, plenums, fans and accessory air-handling equipment and appliances.

DWELLING UNIT. A single unit providing complete independent living facilities for one or more persons, including permanent provisions for living, sleeping, eating, cooking and sanitation.

ECONOMIZER, AIR. A duct and damper arrangement and automatic control system that allows a cooling system to supply outside air to reduce or eliminate the need for mechanical cooling during mild or cold weather.

ECONOMIZER, WATER. A system where the supply air of a cooling system is cooled indirectly with water that is itself cooled by heat or mass transfer to the environment without the use of mechanical cooling.

ENERGY ANALYSIS. A method for estimating the annual energy use of the proposed design and standard reference design based on estimates of energy use.

ENERGY COST. The total estimated annual cost for purchased energy for the building functions regulated by this code, including applicable demand charges.

ENERGY RECOVERY VENTILATION SYSTEM. Systems that employ air-to-air heat exchangers to recover energy

DEFINITIONS

from exhaust air for the purpose of preheating, precooling, humidifying or dehumidifying outdoor ventilation air prior to supplying the air to a space, either directly or as part of an HVAC system.

ENERGY SIMULATION TOOL. An approved software program or calculation-based methodology that projects the annual energy use of a building.

ENTRANCE DOOR. Fenestration products used for ingress, egress and access in nonresidential buildings, including, but not limited to, exterior entrances that utilize latching hardware, automatic closers and contain over 50 percent glass specifically designed to withstand heavy use and possibly abuse.

EXTERIOR WALL. Walls including both above grade walls and basement walls.

FENESTRATION. Skylights, roof windows, vertical windows (fixed or moveable), opaque doors, glazed doors, glazed block, and combination opaque/glazed doors. Fenestration includes products with glass and non-glass glazing materials.

HEAT TRAP. An arrangement of piping and fittings, such as elbows, or a commercially available heat trap that prevents thermosyphoning of hot water during standby periods.

HEATED SLAB. Slab-on-grade construction in which the heating elements, hydronic tubing, or hot air distribution system is in contact with, or placed within or under the slab.

HUMIDISTAT. A regulatory device, actuated by changes in humidity, used for automatic control of relative humidity.

INFILTRATION. The uncontrolled inward air leakage into a building caused by the pressure effects of wind or the effect of differences in the indoor and outdoor air density or both.

INSULATING SHEATHING. An insulating board with a core material having a minimum *R*-value of *R*-2.

LABELED. Devices, equipment, or materials to which have been affixed a label, seal, symbol or other identifying mark of a nationally recognized testing laboratory, inspection agency or other organization concerned with product evaluation that maintains periodic inspection of the production of the above-labeled items that attests to compliance with a specific standard.

LISTED. Equipment, appliances, assemblies or materials included in a list published by an approved testing laboratory, inspection agency or other organization concerned with product evaluation that maintains periodic inspection of production of listed equipment, appliances, assemblies or material, and whose listing states either that the equipment, appliances, assemblies, or material meets nationally recognized standards or has been tested and found suitable for use in a specified manner.

LOW-VOLTAGE LIGHTING. Lighting equipment powered through a transformer such as a cable conductor, a rail conductor and track lighting.

MANUAL. Capable of being operated by personal intervention (see "Automatic").

PROPOSED DESIGN. A description of the proposed building used to estimate annual energy use for determining compliance based on total building performance.

READILY ACCESSIBLE. Capable of being reached quickly for operation, renewal or inspection without requiring those to whom ready access is requisite to climb over or remove obstacles or to resort to portable ladders or access equipment (see "Accessible").

REPAIR. The reconstruction or renewal of any part of an existing building.

RESIDENTIAL BUILDING. For this code, includes *R*-3 buildings, as well as *R*-2 and *R*-4 buildings three stories or less in height above grade.

***R*-VALUE (THERMAL RESISTANCE).** The inverse of the time rate of heat flow through a body from one of its bounding surfaces to the other surface for a unit temperature difference between the two surfaces, under steady state conditions, per unit area ($h \cdot \text{ft}^2 \cdot ^\circ\text{F}/\text{Btu}$) [$(\text{m}^2 \cdot \text{K})/\text{W}$].

ROOF ASSEMBLY. A system designed to provide weather protection and resistance to design loads. The system consists of a roof covering and roof deck or a single component serving as both the roof covering and the roof deck. A roof assembly includes the roof covering, underlayment, roof deck, insulation, vapor retarder and interior finish.

SCREW LAMP HOLDERS. A lamp base that requires a screw-in-type lamp, such as a compact-fluorescent, incandescent, or tungsten-halogen bulb.

SERVICE WATER HEATING. Supply of hot water for purposes other than comfort heating.

SKYLIGHT. Glass or other transparent or translucent glazing material installed at a slope of 15 degrees (0.26 rad) or more from vertical. Glazing material in skylights, including unit skylights, solariums, sunrooms, roofs and sloped walls is included in this definition.

SLEEPING UNIT. A room or space in which people sleep, which can also include permanent provisions for living, eating, and either sanitation or kitchen facilities but not both. Such rooms and spaces that are also part of a dwelling unit are not sleeping units.

SOLAR HEAT GAIN COEFFICIENT (SHGC). The ratio of the solar heat gain entering the space through the fenestration assembly to the incident solar radiation. Solar heat gain includes directly transmitted solar heat and absorbed solar radiation which is then reradiated, conducted or convected into the space.

STANDARD REFERENCE DESIGN. A version of the proposed design that meets the minimum requirements of this code and is used to determine the maximum annual energy use requirement for compliance based on total building performance.

STOREFRONT. A nonresidential system of doors and windows mullied as a composite fenestration structure that has been designed to resist heavy use and possible abuse and provide a high level of resistance to wind load and impact from wind borne debris. Storefront systems include, but are not limited to, exterior fenestration systems that span from the floor level or above to the ceiling of the same story on commercial buildings.

SUNROOM. A one-story structure attached to a dwelling with a glazing area in excess of 40 percent of the gross area of the structure's exterior walls and roof.

THERMAL ISOLATION. Physical and space conditioning separation from conditioned space(s). The conditioned space(s) shall be controlled as separate zones for heating and cooling or conditioned by separate equipment.

THERMOSTAT. An automatic control device used to maintain temperature at a fixed or adjustable set point.

U-FACTOR (THERMAL TRANSMITTANCE). The coefficient of heat transmission (air to air) through a building component or assembly, equal to the time rate of heat flow per unit area and unit temperature difference between the warm side and cold side air films ($\text{Btu/h} \cdot \text{ft}^2 \cdot ^\circ\text{F}$) [$\text{W}/(\text{m}^2 \cdot \text{K})$].

VAPOR RETARDER. A vapor resistant material, membrane or covering such as foil, plastic sheeting, or insulation facing having a permeance rating of 1 perm ($5.7 \times 10^{-11} \text{ kg/Pa} \cdot \text{s} \cdot \text{m}^2$) or less when tested in accordance with the dessicant method using Procedure A of ASTM E 96. Vapor retarders limit the amount of moisture vapor that passes through a material or wall assembly.

VENTILATION. The natural or mechanical process of supplying conditioned or unconditioned air to, or removing such air from, any space.

VENTILATION AIR. That portion of supply air that comes from outside (outdoors) plus any recirculated air that has been treated to maintain the desired quality of air within a designated space.

ZONE. A space or group of spaces within a building with heating or cooling requirements that are sufficiently similar so that desired conditions can be maintained throughout using a single controlling device.

CHAPTER 3

CLIMATE ZONES

This chapter has been revised in its entirety; there will be no marginal markings.

SECTION 301

CLIMATE ZONES

301.1 General. Climate zones from Figure 301.1 or Table 301.1 shall be used in determining the applicable requirements from Chapters 4 and 5. Locations not in Table 301.1 (outside the US) shall be assigned a climate zone based on Section 301.3.

301.2 Warm humid counties. Warm humid counties are listed in Table 301.2.

301.3 International climate zones. The climate zone for any location outside the United States shall be determined by applying Table 301.3(1) and then Table 301.3(2).

301.3.1 Warm humid criteria. "Warm humid" locations shall be defined as locations where either of the following conditions occurs:

1. 67°F (19.4°C) or higher wet-bulb temperature for 3,000 or more hours during the warmest six consecutive months of the year;
2. 73°F (22.8°C) or higher wet-bulb temperature for 1,500 or more hours during the warmest six consecutive months of the year.

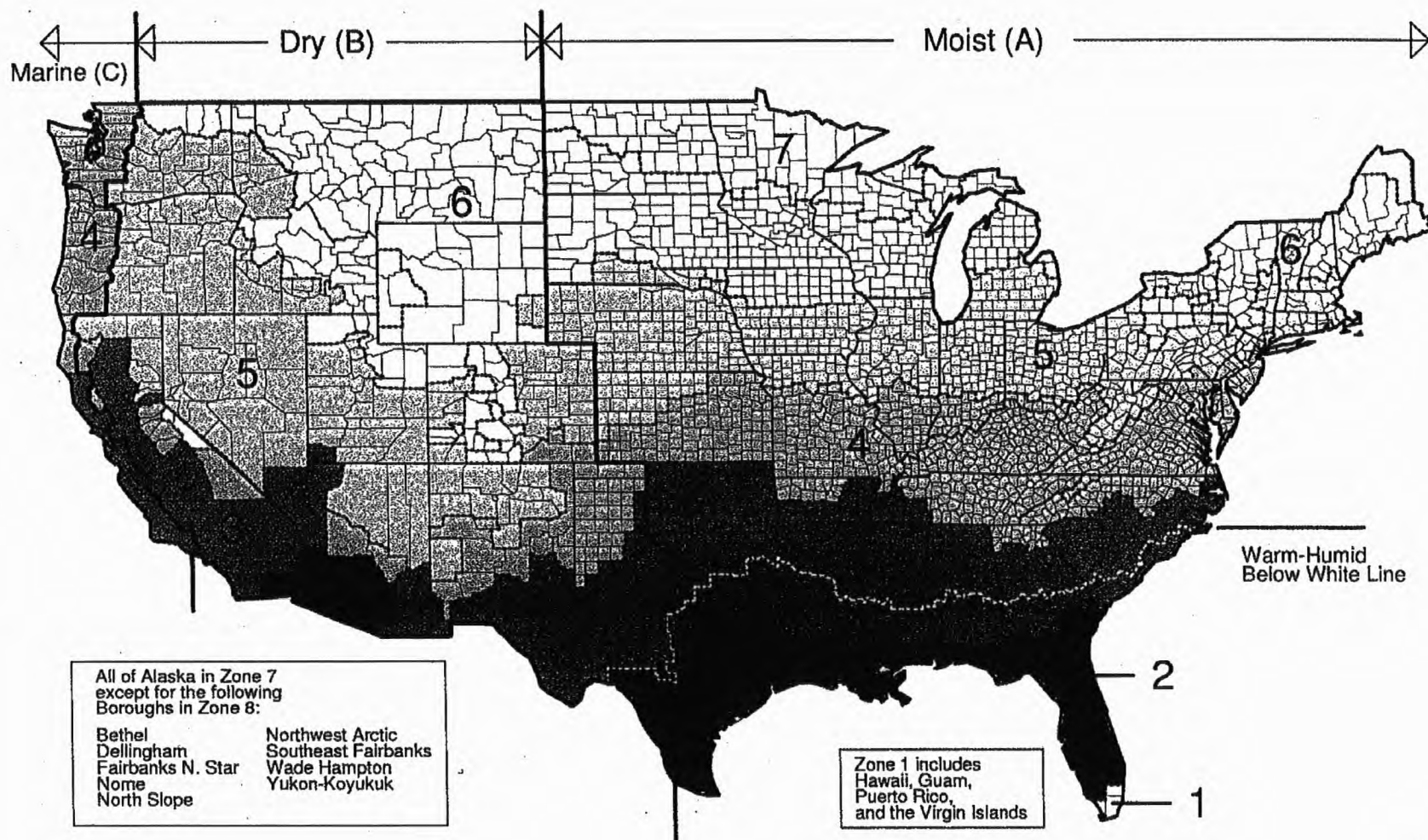


FIGURE 301.1
CLIMATE ZONES

TABLE 301.1
CLIMATE ZONES BY STATE, COUNTY AND TERRITORIES

ALABAMA	Zone 3 Dry except	Dolores	Colquitt	Canyon
Zone 3 except	Zone 2	Eagle	Cook	Cassia
Zone 2	Imperial	Moffat	Decatur	Clearwater
Baldwin	Zone 3 Marine	Ouray	Echols	Elmore
Mobile	Alameda	Rio Blanco	Effingham	Gem
	Marin	Saguache	Evans	Gooding
	Mendocino	San Miguel	Glynn	Idaho
ALASKA	Monterey	Zone 7	Grady	Jerome
Zone 7 except	Napa	Clear Creek	Jeff Davis	Kootenai
Zone 8	San Benito	Grand	Lanier	Latah
Bethel	San Francisco	Gunnison	Liberty	Lewis
Dellingham	San Luis Obispo	Hinsdale	Long	Lincoln
Fairbanks	San Mateo	Jackson	Lowndes	Minidoka
Nome	Santa Barbara	Lake	McIntosh	Nez Perce
North Slope	Santa Clara	Mineral	Miller	Owyhee
North Star	Santa Cruz	Park	Mitchell	Payette
Northwest Arctic	Sonoma	Pitkin	Pierce	Power
Southeast Fairbanks	Ventura	Rio Grande	Seminole	Shoshone
Wade Hampton	Zone 4 Dry	Routt	Tattnall	Twin Falls
Yukon-Koyukuk	Amador	San Juan	Thomas	Washington
	Calaveras	Summit	Toombs	
	El Dorado		Ware	ILLINOIS
ARIZONA	Inyo	CONNECTICUT	Wayne	Zone 5 except
Zone 3 except	Lake	Zone 5	Zone 4	Zone 4
Zone 2	Mariposa	Delaware	Banks	Alexander
La Paz	Trinity	Zone 4	Catoosa	Bond
Maricopa	Tuolumne		Chattooga	Christian
Pima	Zone 4 Marine	DIST OF	Dade	Clay
Pinal	Del Norte	COLUMBIA	Dawson	Clinton
Yuma	Humboldt	Zone 4	Fannin	Crawford
Zone 4	Zone 5		Floyd	Edwards
Gila	Lassen	FLORIDA	Franklin	Effingham
Yavapai	Modoc	Zone 2 except	Gilmer	Fayette
Zone 5	Nevada	Zone 1	Gordon	Franklin
Apache	Plumas	Broward	Habersham	Gallatin
Coconino	Sierra	Dade	Hall	Hamilton
Navajo	Siskiyou	Monroe	Lumpkin	Hardin
	Zone 6		Murray	Jackson
ARKANSAS	Alpine	GEORGIA	Pickens	Jasper
Zone 3 except	Mono	Zone 3 except	Rabun	Jefferson
Zone 4		Zone 2	Stephens	Johnson
Baxter	COLORADO	Appling	Towns	Lawrence
Benton	Zone 5 except	Atkinson	Union	Macoupin
Boone	Zone 4	Bacon	Walker	Madison
Carroll	Baca	Baker	White	Marion
Fulton	Las Animas	Berrien	Whitfield	Massac
Izard	Otero	Brantley		Monroe
Madison	Zone 6	Brooks	HAWAII	Montgomery
Marion	Alamosa	Bryan	Zone 1 Moist	Perry
Newton	Archuleta	Camden		Pope
Searcy	Chaffee	Charlton	IDAHO	Pulaski
Stone	Conejos	Chatham	Zone 6 except	Randolph
Washington	Costilla	Clinch	Zone 5	Richland
	Custer		Ada	Saline
CALIFORNIA			Benewah	Shelby

(continued)

CLIMATE ZONES

TABLE 301.1—continued
CLIMATE ZONES BY STATE, COUNTY AND TERRITORIES

St Clair	Clay	Sherman	MICHIGAN	Zone 7
Union	Clayton	Smith	Zone 5 except	Aitkin
Wabash	Delaware	Thomas	Zone 6	Becker
Washington	Dickinson	Trego	Alcona	Beltrami
Wayne	Emmet	Wallace	Alger	Carlton
White	Fayette	Wichita	Alpena	Cass
Williamson	Floyd		Antrim	Clay
	Franklin		Arenac	Clearwater
INDIANA	Grundy	KENTUCKY	Benzie	Cook
Zone 5 except	Hamilton	Zone 4	Charlevoix	Crow Wing
Zone 4	Hancock	LOUISIANA	Cheboygan	Grant
Brown	Hardin	Zone 2 except	Clare	Hubbard
Clark	Howard	Zone 3	Crawford	Itasca
Crawford	Humboldt	Bienville	Delta	Kanabec
Daviess	Ida	Bossier	Dickinson	Kittson
Dearborn	Kossuth	Caddo	Emmet	Koochiching
Dubois	Lyon	Caldwell	Gladwin	Lake Of The Woods
Floyd	Mitchell	Catahoula	Grand Traverse	Mahnomen
Gibson	O'Brien	Claiborne	Huron	Marshall
Greene	Osceola	Concordia	Iosco	Mille Lacs
Harrison	Palo Alto	De Soto	Isabella	Norman
Jackson	Plymouth	East Carroll	Kalkaska	Otter Tail
Jefferson	Pocahontas	Franklin	Lake	Pennington
Jennings	Sac	Grant	Leelanau	Pine
Knox	Sioux	Jackson	Manistee	Polk
Lawrence	Webster	La Salle	Marquette	Red Lake
Martin	Winnebago	Lincoln	Mason	Roseau
Monroe	Winneshiek	Madison	Mecosta	St Louis
Ohio	Worth	Morehouse	Menominee	Wadena
Orange	Wright	Natchitoches	Missaukee	Wilkin
Perry		Ouachita	Montmorency	
Pike	KANSAS	Red River	Newaygo	MISSISSIPPI
Posey	Zone 4 except	Richland	Oceana	Zone 3 except
Ripley	Zone 5	Sabine	Ogemaw	Zone 2
Scott	Cheyenne	Tensas	Osceola	Hancock
Spencer	Cloud	Union	Oscoda	Harrison
Sullivan	Decatur	Vernon	Otsego	Jackson
Switzerland	Ellis	Webster	Presque Isle	Pearl River
Vanderburgh	Gove	West Carroll	Roscommon	Stone
Warrick	Graham	Winn	Sanilac	
Washington	Greeley		Wexford	MISSOURI
	Hamilton	MAINE	Zone 7	Zone 4 except
IOWA	Jewell	Zone 6 except	Baraga	Zone 5
Zone 5 except	Lane	Zone 7	Chippewa	Adair
Zone 6	Logan	Aroostook	Gogebic	Andrew
Allamakee	Mitchell		Houghton	Atchison
Black Hawk	Ness	MARYLAND	Iron	Buchanan
Bremer	Norton	Zone 4 except	Keweenaw	Caldwell
Buchanan	Osborne	Zone 5	Luce	Chariton
Buena Vista	Phillips	Garrett	Mackinac	Clark
Butler	Rawlins		Ontonagon	Clinton
Calhoun	Republic	MASSACHUSETTS	Schoolcraft	Daviess
Cerro Gordo	Rooks	Zone 5		De Kalb
Cherokee	Scott		MINNESOTA	Gentry
Chickasaw	Sheridan		Zone 6 except	Grundy

(continued)

TABLE 301.1—continued
CLIMATE ZONES BY STATE, COUNTY AND TERRITORIES

Harrison	Zone 3	Sullivan	Wilkes	Cimarron
Holt	Chaves	Tompkins	Yadkin	Texas
Knox	Dona Ana	Ulster	Zone 5	OREGON
Lewis	Eddy	Warren	Alleghany	Zone 4 Marine except
Linn	Hidalgo	Wyoming	Ashe	Zone 5 Dry
Livingston	Lea	NORTH CAROLINA	Avery	Baker
Macon	Luna	Zone 3 except	Mitchell	Crook
Marion	Otero	Zone 4	Watauga	Deschutes
Mercer	Zone 5	Alamance	Yancey	Gilliam
Nodaway	Catron	Alexander	NORTH DAKOTA	Grant
Pike	Colfax	Bertie	Zone 7 except	Harney
Putnam	Harding	Buncombe	Zone 6	Hood River
Ralls	Los Alamos	Burke	Adams	Jefferson
Schuyler	McKinley	Caldwell	Billings	Klamath
Scotland	Mora	Caswell	Bowman	Lake
Shelby	Rio Arriba	Catawba	Burleigh	Malheur
Sullivan	San Juan	Chatham	Dickey	Morrow
Worth	San Miguel	Cherokee	Dunn	Sherman
MONTANA	Sandoval	Clay	Emmons	Umatilla
Zone 6	Santa Fe	Cleveland	Golden Valley	Union
NEBRASKA	Taos	Davie	Grant	Wallowa
Zone 5	Torrance	Durham	Hettinger	Wasco
NEVADA	NEW YORK	Forsyth	La Moure	Wheeler
Zone 5 except	Zone 5 except	Franklin	Logan	PENNSYLVANIA
Zone 3	Zone 4	Gates	McIntosh	Zone 5 except
Clark	Bronx	Graham	McKenzie	Zone 4
NEW HAMPSHIRE	Kings	Granville	Mercer	Bucks
Zone 6 except	Nassau	Guilford	Morton	Chester
Zone 5	New York	Halifax	Oliver	Delaware
Cheshire	Queens	Harnett	Ransom	Montgomery
Hillsborough	Richmond	Haywood	Richland	Philadelphia
Rockingham	Suffolk	Henderson	Sargent	York
Strafford	Westchester	Hertford	Sioux	Zone 6
NEW JERSEY	Zone 6	Iredell	Slope	Cameron
Zone 4 except	Allegany	Jackson	Stark	Clearfield
Zone 5	Broome	Lee	OHIO	Elk
Bergen	Cattaraugus	Lincoln	Zone 5 except	McKean
Hunterdon	Chenango	Macon	Zone 4	Potter
Mercer	Clinton	Madison	Adams	Susquehanna
Morris	Delaware	McDowell	Brown	Tioga
Passaic	Essex	Nash	Clermont	Wayne
Somerset	Franklin	Northampton	Gallia	RHODE ISLAND
Sussex	Fulton	Orange	Hamilton	Zone 5
Warren	Hamilton	Person	Lawrence	SOUTH CAROLINA
NEW MEXICO	Herkimer	Polk	Pike	Zone 3
Zone 4 except	Jefferson	Rockingham	Scioto	SOUTH DAKOTA
	Lewis	Rutherford	Washington	Zone 6 except
	Madison	Stokes		Zone 5
	Montgomery	Surry		Bennett
	Oneida	Swain		
	Otsego	Transylvania	OKLAHOMA	
	Schoharie	Vance	Zone 3 Moist except	
	Schuyler	Wake	Zone 4 Dry	
	St Lawrence	Warren	Beaver	
	Steuben			

(continued)

CLIMATE ZONES

TABLE 301.1—continued
CLIMATE ZONES BY STATE, COUNTY AND TERRITORIES

Bon Homme	Coke	Terrell	Red River	Carbon
Charles Mix	Coleman	Terry	Rockwall	Daggett
Clay	Collingsworth	Throckmorton	Rusk	Duchesne
Douglas	Concho	Tom Green	Sabine	Morgan
Gregory	Cottle	Upton	San Augustine	Rich
Hutchinson	Crane	Ward	San Saba	Summit
Jackson	Crockett	Wheeler	Shelby	Uintah
Mellette	Crosby	Wilbarger	Smith	Wasatch
Todd	Culberson	Winkler	Somervell	
Tripp	Dawson	Zone 3 Moist	Stephens	VERMONT
Union	Dickens	Archer	Tarrant	Zone 6
Yankton	Ector	Blanco	Titus	
	El Paso	Bowie	Upshur	VIRGINIA
TENNESSEE	Fisher	Brown	Van Zandt	Zone 4
Zone 4 except	Foard	Burnet	Wichita	
Zone 3	Gaines	Camp	Wise	WASHINGTON
Chester	Garza	Cass	Wood	Zone 4 Marine except
Crockett	Glasscock	Clay	Young	Zone 5 Dry
Dyer	Hall	Collin	Zone 4	Adams
Fayette	Hardeman	Comanche	Armstrong	Asotin
Hardeman	Haskell	Cooke	Bailey	Benton
Hardin	Hemphill	Dallas	Briscoe	Chelan
Haywood	Howard	Delta	Carson	Columbia
Henderson	Hudspeth	Denton	Castro	Douglas
Lake	Irion	Eastland	Cochran	Franklin
Lauderdale	Jeff Davis	Ellis	Dallam	Garfield
Madison	Jones	Erath	Deaf Smith	Grant
McNairy	Kent	Fannin	Donley	Kittitas
Shelby	Kerr	Franklin	Floyd	Klickitat
Tipton	Kimble	Gillespie	Gray	Lincoln
TEXAS	King	Grayson	Hale	Skamania
Zone 2 Moist except	Knox	Gregg	Hansford	Spokane
Zone 2 Dry	Loving	Hamilton	Hartley	Walla Walla
Bandera	Lubbock	Harrison	Hockley	Whitman
Dimmit	Lynn	Henderson	Hutchinson	Yakima
Edwards	Martin	Hood	Lamb	Zone 6 Dry
Frio	Mason	Hopkins	Lipscomb	Ferry
Kinney	Mcculloch	Hunt	Moore	Okanogan
La Salle	Menard	Jack	Ochiltree	Pend Oreille
Maverick	Midland	Johnson	Oldham	Stevens
Medina	Mitchell	Kaufman	Parmer	
Real	Motley	Kendall	Potter	WEST VIRGINIA
Uvalde	Nolan	Lamar	Randall	Zone 5 except
Val Verde	Pecos	Lampasas	Roberts	Zone 4
Webb	Presidio	Llano	Sherman	Berkeley
Zapata	Reagan	Marion	Swisher	Boone
Zavala	Reeves	Mills	Yoakum	Braxton
Zone 3 Dry	Runnels	Montague		Cabell
Andrews	Schleicher	Morris	UTAH	Calhoun
Baylor	Scurry	Nacogdoches	Zone 5 except	Clay
Borden	Shackelford	Navarro	Zone 3	Gilmer
Brewster	Sterling	Palo Pinto	Washington	Jackson
Callahan	Stonewall	Panola	Zone 6	Jefferson
Childress	Sutton	Parker	Box Elder	Kanawha
	Taylor	Rains	Cache	

(continued)

TABLE 301.1—continued
CLIMATE ZONES BY STATE, COUNTY AND TERRITORIES

Lincoln	Taylor
Logan	Vilas
Mason	Washburn
McDowell	WYOMING
Mercer	Zone 6 except
Mingo	Zone 5
Monroe	Goshen
Morgan	Platte
Pleasants	Zone 7
Putnam	Lincoln
Ritchie	Sublette
Roane	Teto
Tyler	
Wayne	
Wirt	TERRITORIES
Wood	AMERICAN
Wyoming	SAMOA
WISCONSIN	Zone 1 Moist
Zone 6 except	
Zone 7	GUAM
Ashland	Zone 1 Moist
Bayfield	
Burnett	NORTHERN
Douglas	MARIANAS
Florence	Zone 1 Moist
Forest	
Iron	PUERTO RICO
Langlade	Zone 1 Moist
Lincoln	
Oneida	U.S. VIRGIN
Price	ISLANDS
Sawyer	Zone 1 Moist

TABLE 301.2
WARM HUMID COUNTIES AND TERRITORIES

ALABAMA	Candler	Claiborne	NORTH CAROLINA	Lamar
Autauga	Chattahoochee	Concordia	Brunswick	Lampasas
Baldwin	Clay	De Soto	Carteret	Llano
Barbour	Coffee	Franklin	Columbus	Marion
Bullock	Crisp	Grant	New Hanover	Mills
Butler	Dodge	Jackson	Onslow	Morris
Choctaw	Dooly	La Salle	Pender	Nacogdoches
Clarke	Dougherty	Lincoln		Navarro
Coffee	Early	Madison	SOUTH CAROLINA	Palo Pinto
Conecuh	Emanuel	Natchitoches	Allendale	Panola
Covington	Houston	Ouachita	Barnberg	Parker
Crenshaw	Irwin	Red River	Barnwell	Rains
Dale	Jenkins	Richland	Beaufort	Red River
Dallas	Johnson	Sabine	Berkeley	Rockwall
Elmore	Laurens	Tensas	Charleston	Rusk
Escambia	Lee	Union	Colleton	Sabine
Geneva	Macon	Vernon	Dorchester	San Augustine
Henry	Marion	Webster	Georgetown	San Saba
Houston	Montgomery	Winn	Hampton	Shelby
Lowndes	Peach		Horry	Smith
Macon	Pulaski	MISSISSIPPI	Jasper	Somervell
Marengo	Quitman	All in Zone 2 Plus		Tarrant
Mobile	Randolph	Adams	TEXAS	Titus
Monroe	Schley	Amite	All in Zone 2 Plus	Upshur
Montgomery	Screven	Claiborne	Blanco	Van Zandt
Perry	Stewart	Copiah	Bowie	Wood
Pike	Sumter	Covington	Brown	
Russell	Taylor	Forrest	Burnet	TERRITORIES
Washington	Telfair	Franklin	Camp	AMERICAN
Wilcox	Terrell	George	Cass	SAMOA
	Tift	Greene	Collin	All
ARKANSAS	Treutlen	Hinds	Comanche	
Columbia	Turner	Jefferson	Dallas	GUAM
Hempstead	Twiggs	Jefferson Davis	Delta	All
Lafayette	Webster	Jones	Denton	
Little River	Wheeler	Lamar	Ellis	NORTHERN
Miller	Wilcox	Lawrence	Erath	MARIANAS
Sevier	Worth	Lincoln	Franklin	All
Union		Marion	Gillespie	
	HAWAII	Perry	Gregg	PUERTO RICO
FLORIDA	All	Pike	Hamilton	All
All		Rankin	Harrison	
	LOUISIANA	Simpson	Henderson	
GEORGIA	All in Zone 2 Plus	Smith	Hood	U.S. VIRGIN
All in Zone 2 Plus	Bienville	Walthall	Hopkins	ISLANDS
Ben Hill	Bossier	Warren	Hunt	All
Bleckley	Caddo	Wayne	Johnson	
Bulloch	Caldwell	Wilkinson	Kaufman	
Calhoun	Catahoula		Kendall	

TABLE 301.3(1)
INTERNATIONAL CLIMATE ZONE DEFINITIONS

MAJOR CLIMATE TYPE DEFINITIONS	
Marine (C) Definition - Locations meeting all four criteria:	
1. Mean temperature of coldest month between -3°C (27°F) and 18°C (65°F) 2. Warmest month mean < 22°C (72°F) 3. At least four months with mean temperatures over 10°C (50°F) 4. Dry season in summer. The month with the heaviest precipitation in the cold season has at least three times as much precipitation as the month with the least precipitation in the rest of the year. The cold season is October through March in the Northern Hemisphere and April through September in the Southern Hemisphere.	
Dry (B) Definition - Locations meeting the following criteria: Not Marine and	
$P_{in} < 0.44 \times (TF - 19.5) \dots [P_{cm} < 2.0 \times (TC + 7) \text{ in SI units}]$ where: P_{in} = Annual precipitation in inches (cm) T = Annual mean temperature in °F (°C)	
Moist (A) Definition - Locations that are not Marine and not Dry.	

For SI: °C = [(°F)-32]/1.8; 1 inch = 2.54 cm.

TABLE 301.3(2)
INTERNATIONAL CLIMATE ZONE DEFINITIONS

ZONE NUMBER	THERMAL CRITERIA	
	IP Units	SI Units
1	9000 < CDD50°F	5000 < CDD10°C
2	6300 < CDD50°F ≤ 9000	3500 < CDD10°C ≤ 5000
3A and 3B	4500 < CDD50°F ≤ 6300 AND HDD65°F ≤ 5400	2500 < CDD10°C ≤ 3500 AND HDD18°C ≤ 3000
4A and 4B	CDD50°F ≤ 4500 AND HDD65°F ≤ 5400	CDD10°C ≤ 2500 AND HDD18°C ≤ 3000
3C	HDD65°F ≤ 3600	HDD18°C ≤ 2000
4C	3600 < HDD65°F ≤ 5400	2000 < HDD18°C ≤ 3000
5	5400 < HDD65°F ≤ 7200	3000 < HDD18°C ≤ 4000
6	7200 < HDD65°F ≤ 9000	4000 < HDD18°C ≤ 5000
7	9000 < HDD65°F ≤ 12600	5000 < HDD18°C ≤ 7000
8	12600 < HDD65°F	7000 < HDD18 °C

For SI: °C = [(°F)-32]/1.8

SECTION 302 DESIGN CONDITIONS

302.1 Interior design conditions. The interior design temperatures used for heating and cooling load calculations shall be a maximum of 72°F (22°C) for heating and minimum of 75°F (24°C) for cooling.

CHAPTER 4

RESIDENTIAL ENERGY EFFICIENCY

This chapter has been revised in its entirety; there will be no marginal markings.

SECTION 401 GENERAL

401.1 Scope. This chapter applies to residential buildings.

401.2 Compliance. Projects shall comply with Sections 401, 402.4, 402.5, 402.6 and 403 (referred to as the mandatory provisions) and either:

1. Sections 402.1 through 402.3 (prescriptive); or
2. Section 404 (performance).

401.3 Certificate. A permanent certificate shall be posted on or in the electrical distribution panel. The certificate shall be completed by the builder or registered design professional. The certificate shall list the predominant *R*-values of insulation installed in or on ceiling/roof, walls, foundation (slab, basement wall, crawlspace wall and/or floor) and ducts outside conditioned spaces; *U*-factors for fenestration; and the solar heat gain coefficient (SHGC) of fenestration. Where there is more than one value for each component, the certificate shall list the value covering the largest area. The certificate shall list the type and efficiency of heating, cooling and service water heating equipment.

SECTION 402 BUILDING THERMAL ENVELOPE

402.1 General. (Prescriptive).

402.1.1 Insulation and fenestration criteria. The building thermal envelope shall meet the requirements of Table 402.1.1 based on the climate zone specified in Chapter 3.

402.1.2 *R*-value computation. Insulation material used in layers, such as framing cavity insulation and insulating sheathing, shall be summed to compute the component *R*-value. The manufacturer's settled *R*-value shall be used for blown insulation. Computed *R*-values shall not include an *R*-value for other building materials or air films.

402.1.3 *U*-factor alternative. An assembly with a *U*-factor equal to or less than that specified in Table 402.1.3 shall be permitted as an alternative to the *R*-value in Table 402.1.1.

Exception: For mass walls not meeting the criterion for insulation location in Section 402.2.3, the *U*-factor shall be permitted to be:

1. *U*-factor of 0.17 in Climate Zone 1.
2. *U*-factor of 0.14 in Climate Zone 2.
3. *U*-factor of 0.12 in Climate Zone 3.

TABLE 402.1.1
INSULATION AND FENESTRATION REQUIREMENTS BY COMPONENT*

CLIMATE ZONE	FENESTRATION <i>U</i> -FACTOR	SKYLIGHT ^b <i>U</i> -FACTOR	GLAZED FENESTRATION SHGC	CEILING <i>R</i> -VALUE	WOOD FRAME WALL <i>R</i> -VALUE	MASS WALL <i>R</i> -VALUE	FLOOR <i>R</i> -VALUE	BASEMENT ^c WALL <i>R</i> -VALUE	SLAB ^d <i>R</i> -VALUE & DEPTH	CRAWL SPACE ^e WALL <i>R</i> -VALUE
1	1.20	0.75	0.40	30	13	3	13	0	0	0
2	0.75	0.75	0.40	30	13	4	13	0	0	0
3	0.65	0.65	0.40 ^g	30	13	5	19	0	0	5 / 13
4 except Marine	0.40	0.60	NR	38	13	5	19	10 / 13	10, 2 ft	10 / 13
5 and Marine 4	0.35	0.60	NR	38	19 or 13+5 ^g	13	30 ^f	10 / 13	10, 2 ft	10 / 13
6	0.35	0.60	NR	49	19 or 13+5 ^g	15	30 ^f	10 / 13	10, 4 ft	10 / 13
7 and 8	0.35	0.60	NR	49	21	19	30 ^f	10 / 13	10, 4 ft	10 / 13

For SI: 1 foot = 304.8 mm.

a. *R*-values are minimums. *U*-factors and SHGC are maximums. *R*-19 shall be permitted to be compressed into a 2 × 6 cavity.

b. The fenestration *U*-factor column excludes skylights. The SHGC column applies to all glazed fenestration.

c. The first *R*-value applies to continuous insulation, the second to framing cavity insulation; either insulation meets the requirement.

d. *R*-5 shall be added to the required slab edge *R*-values for heated slabs.

e. There are no SHGC requirements in the Marine zone.

f. Or insulation sufficient to fill the framing cavity, *R*-19 minimum.

g. "13+5" means *R*-13 cavity insulation plus *R*-5 insulated sheathing. If structural sheathing covers 25 percent or less of the exterior, insulating sheathing is not required where structural sheathing is used. If structural sheathing covers more than 25 percent of exterior, structural sheathing shall be supplemented with insulated sheathing of at least *R*-2.

TABLE 402.1.3
EQUIVALENT U-FACTORS^a

CLIMATE ZONE	FENESTRATION U-FACTOR	SKYLIGHT U-FACTOR	CEILING U-FACTOR	FRAME WALL U-FACTOR	MASS WALL U-FACTOR	FLOOR U-FACTOR	BASEMENT WALL U-FACTOR	CRAWL SPACE WALL U-FACTOR
1	1.2	0.75	0.035	0.082	0.197	0.064	0.360	0.477
2	0.75	0.75	0.035	0.082	0.165	0.064	0.360	0.477
3	0.65	0.65	0.035	0.082	0.141	0.047	0.360	0.136
4 except Marine	0.40	0.60	0.030	0.082	0.141	0.047	0.059	0.065
5 and Marine 4	0.35	0.60	0.030	0.060	0.082	0.033	0.059	0.065
6	0.35	0.60	0.026	0.060	0.06	0.033	0.059	0.065
7 and 8	0.35	0.60	0.026	0.057	0.057	0.033	0.059	0.065

a. Nonfenestration U-factors shall be obtained from measurement, calculation or an approved source.

402.1.4 Total UA alternative. If the total building thermal envelope UA (sum of U-factor times assembly area) is less than or equal to the total UA resulting from using the U-factors in Table 402.1.3 (multiplied by the same assembly area as in the proposed building), the building shall be considered in compliance with Table 402.1.1. The UA calculation shall be done using a method consistent with the ASHRAE *Handbook of Fundamentals* and shall include the thermal bridging effects of framing materials. The SHGC requirements shall be met in addition to UA compliance.

402.2 Specific insulation requirements. (Prescriptive).

402.2.1 Ceilings with attic spaces. When Section 402.1.1 would require R-38 in the ceiling, R-30 shall be deemed to satisfy the requirement for R-38 wherever the full height of uncompressed R-30 insulation extends over the wall top plate at the eaves. Similarly R-38 shall be deemed to satisfy the requirement for R-49 wherever the full height of uncompressed R-38 insulation extends over the wall top plate at the eaves.

402.2.2 Ceilings without attic spaces. Where Section 402.1.1 would require insulation levels above R-30 and the design of the roof/ceiling assembly does not allow sufficient space for the required insulation, the minimum required insulation for such roof/ceiling assemblies shall be R-30. This reduction of insulation from the requirements of Section 402.1.1 shall be limited to 500 square feet (46 m²) of ceiling area.

402.2.3 Mass walls. Mass walls for the purposes of this Chapter shall be considered walls of concrete block, concrete, insulated concrete form (ICF), masonry cavity, brick (other than brick veneer), earth (adobe, compressed earth block, rammed earth) and solid timber/logs. The provisions of Section 402.1.1 for mass walls shall be applicable when at least 50 percent of the required insulation R-value is on the exterior of, or integral to, the wall. Walls that do not meet this criterion for insulation placement shall meet the wood frame wall insulation requirements of Section 402.1.1.

Exception: For walls that do not meet the criterion for insulation placement, the minimum added insulation R-value shall be permitted to be:

1. R-value of 4 in Climate Zone 1.
2. R-value of 6 in Climate Zone 2.
3. R-value of 8 in Climate Zone 3.

402.2.4 Steel-frame ceilings, walls and floors. Steel-frame ceilings, walls and floors shall meet the insulation requirements of Table 402.2.4 or shall meet the U-factor requirements in Table 402.1.3. The calculation of the U-factor for a steel-frame envelope assembly shall use a series-parallel path calculation method.

TABLE 402.2.4
STEEL-FRAME CEILING, WALL AND FLOOR INSULATION (R-VALUE)

WOOD FRAME R-VALUE REQUIREMENT	COLD-FORMED STEEL EQUIVALENT R-VALUE ^a
Steel Truss Ceilings^b	
R-30	R - 38 or R - 30 + 3 or R - 26 + 5
R-38	R - 49 or R - 38 + 3
R-49	R-38+5
Steel Joist Ceilings^b	
R-30	R - 38 in 2×4 or 2×6 or 2×8 R - 49 in any framing
R-38	R - 49 in 2×4 or 2×6 or 2×8 or 2×10
Steel Framed Wall	
R-13	R - 13 + 5 or R - 15 + 4 or R - 21 + 3
R-19	R - 13 + 9 or R - 19 + 8 or R - 25 + 7
R-21	R - 13 + 10 or R - 19 + 9 or R - 25 + 8
Steel Joist Floor	
R-13	R - 19 in 2×6 R - 19 + 6 in 2×8 or 2×10
R-19	R - 19 + 6 in 2×6 R - 19 + 12 in 2×8 or 2×10

a. Cavity insulation R-value is listed first, followed by continuous insulation R-value.

b. Insulation exceeding the height of the framing shall cover the framing.

402.2.5 Floors. Floor insulation shall be installed to maintain permanent contact with the underside of the subfloor decking.

402.2.6 Basement walls. Walls associated with conditioned basements shall be insulated from the top of the basement wall down to 10 feet (3048 mm) below grade or to the basement floor, whichever is less. Walls associated with unconditioned basements shall meet this requirement unless the floor overhead is insulated in accordance with Sections 402.1.1 and 402.2.5.

402.2.7 Slab-on-grade floors. Slab-on-grade floors with a floor surface less than 12 inches (305 mm) below grade shall be insulated in accordance with Table 402.1.1. The insulation shall extend downward from the top of the slab on the outside or inside of the foundation wall. Insulation located below grade shall be extended the distance provided in Table 402.1.1 by any combination of vertical insulation, insulation extending under the slab or insulation extending out from the building. Insulation extending away from the building shall be protected by pavement or by a minimum of 10 inches (254 mm) of soil. The top edge of the insulation installed between the exterior wall and the edge of the interior slab shall be permitted to be cut at a 45-degree (0.79 rad) angle away from the exterior wall. Slab-edge insulation is not required in jurisdictions designated by the code official as having a very heavy termite infestation.

402.2.8 Crawl space walls. As an alternative to insulating floors over crawl spaces, crawl space walls shall be permitted to be insulated when the crawl space is not vented to the outside. Crawl space wall insulation shall be permanently fastened to the wall and extend downward from the floor to the finished grade level and then vertically and/or horizontally for at least an additional 24 inches (610 mm). Exposed earth in unvented crawl space foundations shall be covered with a continuous vapor retarder. All joints of the vapor retarder shall overlap by 6 inches (153 mm) and be sealed or taped. The edges of the vapor retarder shall extend at least 6 inches (153 mm) up the stem wall and shall be attached to the stem wall.

402.2.9 Masonry veneer. Insulation shall not be required on the horizontal portion of the foundation that supports a masonry veneer.

402.2.10 Thermally isolated sunroom insulation. The minimum ceiling insulation *R*-values shall be *R*-19 in zones 1 through 4 and *R*-24 in zones 5 through 8. The minimum wall *R*-value shall be *R*-13 in all zones. New wall(s) separating a sunroom from conditioned space shall meet the building thermal envelope requirements.

402.3 Fenestration. (Prescriptive).

402.3.1 *U*-factor. An area-weighted average of fenestration products shall be permitted to satisfy the *U*-factor requirements.

402.3.2 Glazed fenestration SHGC. An area-weighted average of fenestration products more than 50 percent glazed shall be permitted to satisfy the SHGC requirements.

402.3.3 Glazed fenestration exemption. Up to 15 square feet (1.4 m²) of glazed fenestration per dwelling unit shall be permitted to be exempt from *U*-factor and SHGC requirements in Section 402.1.1.

402.3.4 Opaque door exemption. One opaque door assembly is exempted from the *U*-factor requirement in Section 402.1.1.

402.3.5 Thermally isolated sunroom *U*-factor. For Zones 4 through 8, the maximum fenestration *U*-factor shall be 0.50 and the maximum skylight *U*-factor shall be 0.75. New windows and doors separating the sunroom from conditioned space shall meet the building thermal envelope requirements.

402.3.6 Replacement fenestration. Where some or all of an existing fenestration unit is replaced with a new fenestration product, including sash and glazing, the replacement fenestration unit shall meet the applicable requirements for *U*-factor and SHGC in Table 402.1.1.

402.4 Air leakage. (Mandatory).

402.4.1 Building thermal envelope. The building thermal envelope shall be durably sealed to limit infiltration. The sealing methods between dissimilar materials shall allow for differential expansion and contraction. The following shall be caulked, gasketed, weatherstripped or otherwise sealed with an air barrier material, suitable film or solid material:

1. All joints, seams and penetrations.
2. Site-built windows, doors and skylights.
3. Openings between window and door assemblies and their respective jambs and framing.
4. Utility penetrations.
5. Dropped ceilings or chases adjacent to the thermal envelope.
6. Knee walls.
7. Walls and ceilings separating a garage from conditioned spaces.
8. Behind tubs and showers on exterior walls.
9. Common walls between dwelling units.
10. Other sources of infiltration.

402.4.2 Fenestration air leakage. Windows, skylights and sliding glass doors shall have an air infiltration rate of no more than 0.3 cfm per square foot (1.5 L/s/m²), and swinging doors no more than 0.5 cfm per square foot (2.6 L/s/m²), when tested according to NFRC 400 or AAMA/WDMA/CSA 101/I.S.2/A440 by an accredited, independent laboratory and listed and labeled by the manufacturer.

Exceptions: Site-built windows, skylights and doors.

402.4.3 Recessed lighting. Recessed luminaires installed in the building thermal envelope shall be sealed to limit air leakage between conditioned and unconditioned spaces by being:

1. IC-rated and labeled with enclosures that are sealed or gasketed to prevent air leakage to the ceiling cavity or unconditioned space; or

2. IC-rated and labeled as meeting ASTM E 283 when tested at 1.57 psi (75 Pa) pressure differential with no more than 2.0 cfm (0.944 L/s) of air movement from the conditioned space to the ceiling cavity; or
3. Located inside an airtight sealed box with clearances of at least 0.5 inch (12.7 mm) from combustible material and 3 inches (76 mm) from insulation.

402.5 Moisture control. (Mandatory). The building design shall not create conditions of accelerated deterioration from moisture condensation. Above-grade frame walls, floors and ceilings not ventilated to allow moisture to escape shall be provided with an approved vapor retarder. The vapor retarder shall be installed on the warm-in-winter side of the thermal insulation.

Exceptions:

1. In construction where moisture or its freezing will not damage the materials.
2. Frame walls, floors and ceilings in jurisdictions in Zones 1, 2, 3, 4A and 4B. (Crawl space floor vapor retarders are not exempted.)
3. Where other approved means to avoid condensation are provided.

402.6 Maximum fenestration U-factor and SHGC. (Mandatory). The area weighted average maximum fenestration U-factor permitted using trade offs from Section 402.1.4 or Section 404 shall be 0.48 in zones 4 and 5 and 0.40 in zones 6 through 8 for vertical fenestration, and 0.75 in zones 4 through 8 for skylights. The area weighted average maximum fenestration SHGC permitted using trade-offs from Section 404 in Zones 1 through 3 shall be 0.50.

SECTION 403 SYSTEMS (Mandatory)

403.1 Controls. At least one thermostat shall be provided for each separate heating and cooling system.

403.1.1 Heat pump supplementary heat. Heat pumps having supplementary electric-resistance heat shall have controls that, except during defrost, prevent supplemental heat operation when the heat pump compressor can meet the heating load.

403.2 Ducts.

403.2.1 Insulation. Supply and return ducts shall be insulated to a minimum of R-8: Ducts in floor trusses shall be insulated to a minimum of R-6.

Exception: Ducts or portions thereof located completely inside the building thermal envelope.

403.2.2 Sealing. All ducts, air handlers, filter boxes, and building cavities used as ducts shall be sealed. Joints and seams shall comply with Section M1601.3.1 of the *International Residential Code*.

403.2.3 Building cavities. Building framing cavities shall not be used as supply ducts.

403.3 Mechanical system piping insulation. Mechanical system piping capable of carrying fluids above 105°F (41°C) or below 55°F (13°C) shall be insulated to a minimum of R-2.

403.4 Circulating hot water systems. All circulating service hot water piping shall be insulated to at least R-2. Circulating hot water systems shall include an automatic or readily accessible manual switch that can turn off the hot water circulating pump when the system is not in use.

403.5 Mechanical ventilation. Outdoor air intakes and exhausts shall have automatic or gravity dampers that close when the ventilation system is not operating.

403.6 Equipment sizing. Heating and cooling equipment shall be sized in accordance with Section M1401.3 of the *International Residential Code*.

SECTION 404 SIMULATED PERFORMANCE ALTERNATIVE (Performance)

404.1 Scope. This section establishes criteria for compliance using simulated energy performance analysis. Such analysis shall include heating, cooling, and service water heating energy only.

404.2 Mandatory requirements. Compliance with this Section requires that the criteria of Sections 401, 402.4, 402.5, 402.6 and 403 be met.

404.3 Performance-based compliance. Compliance based on simulated energy performance requires that a proposed residence (proposed design) be shown to have an annual energy cost that is less than or equal to the annual energy cost of the standard reference design. Energy prices shall be taken from a source approved by the code official, such as the Department of Energy, Energy Information Administration's *State Energy Price and Expenditure Report*. Code officials shall be permitted to require time-of-use pricing in energy cost calculations.

Exception: Jurisdictions that require site energy (1kWh = 3,413 Btu) rather than energy cost as the metric of comparison.

404.4 Documentation.

404.4.1 Compliance software tools. Documentation verifying that the methods and accuracy of the compliance software tools conform to the provisions of this section shall be provided to the code official.

404.4.2 Compliance report. Compliance software tools shall generate a report that documents that the proposed design has annual energy costs less than or equal to the annual energy costs of the standard reference design. The compliance documentation shall include the following information:

1. Address of the residence;
2. An inspection checklist documenting the building component characteristics of the proposed design as listed in Table 404.5.2(1). The inspection checklist shall show the estimated annual energy cost for both

the standard reference design and the proposed design;

3. Name of individual completing the compliance report; and
4. Name and version of the compliance software tool.

404.4.3 Additional documentation. The code official shall be permitted to require the following documents:

1. Documentation of the building component characteristics of the standard reference design.
2. A certification signed by the builder providing the building component characteristics of the proposed design as given in Table 404.5.2(1).

404.5 Calculation procedure.

404.5.1 General. Except as specified by this section, the standard reference design and proposed design shall be configured and analyzed using identical methods and techniques.

404.5.2 Residence specifications. The standard reference design and proposed design shall be configured and analyzed as specified by Table 404.5.2(1). Table 404.5.2(1) shall include by reference all notes contained in Table 402.1.1.

404.6 Calculation software tools.

404.6.1 Minimum capabilities. Calculation procedures used to comply with this section shall be software tools capable of calculating the annual energy consumption of all building elements that differ between the standard reference design and the proposed design and shall include the following capabilities:

1. Computer generation of the standard reference design using only the input for the proposed design. The calculation procedure shall not allow the user to directly modify the building component characteristics of the standard reference design.
2. Calculation of whole-building (as a single zone) sizing for the heating and cooling equipment in the standard reference design residence in accordance with Section M1401.3 of the *International Residential Code*.
3. Calculations that account for the effects of indoor and outdoor temperatures and part-load ratios on the performance of heating, ventilating and air conditioning equipment based on climate and equipment sizing.
4. Printed code official inspection checklist listing each of the proposed design component characteristics from Table 404.5.2(1) determined by the analysis to provide compliance, along with their respective performance ratings (e.g. R-Value, U-Factor, SHGC, HSPF, AFUE, SEER, EF, etc.).

404.6.2 Specific approval. Performance analysis tools meeting the applicable sections of 404 shall be permitted to be approved. Tools are permitted to be approved based on meeting a specified threshold for a jurisdiction. The code

official shall be permitted to approve tools for a specified application or limited scope.

404.6.3 Input values. When calculations require input values not specified by Sections 402, 403 and 404, those input values shall be taken from an approved source.

TABLE 404.5.2(1)
SPECIFICATIONS FOR THE STANDARD REFERENCE AND PROPOSED DESIGNS

BUILDING COMPONENT	STANDARD REFERENCE DESIGN	PROPOSED DESIGN
Above-grade walls	Type: mass wall if proposed wall is mass; otherwise wood frame Gross area: same as proposed U-Factor: from Table 402.1.3 Solar absorptance = 0.75 Emittance = 0.90	As proposed As proposed As proposed As proposed As proposed
Basement and crawl-space walls	Type: same as proposed Gross area: same as proposed U-Factor: from Table 402.1.3 with insulation layer on interior side of walls	As proposed As proposed As proposed
Above-grade floors	Type: wood frame Gross area: same as proposed U-Factor: from Table 402.1.3	As proposed As proposed As proposed
Ceilings	Type: wood frame Gross area: same as proposed U-Factor: from Table 402.1.3	As proposed As proposed As proposed
Roofs	Type: composition shingle on wood sheathing Gross area: same as proposed Solar absorptance = 0.75 Emittance = 0.90	As proposed As proposed As proposed As proposed
Attics	Type: vented with aperture = 1 ft ² per 300 ft ² ceiling area	As proposed
Foundations	Type: same as proposed	As proposed
Doors	Area: 40 ft ² Orientation: North U-factor: same as fenestration from Table 402.1.3	As proposed As proposed As proposed
Glazing ^a	Total area ^b = (a) The proposed glazing area; where the proposed glazing area is less than 18% of the conditioned floor area (b) 18% of the conditioned floor area; where the proposed glazing area is 18% or more of the conditioned floor area Orientation: equally distributed to four cardinal compass orientations (N, E, S, & W) U-factor: from Table 402.1.2 SHGC: From Table 402.1 except that for climates with no requirement (NR) SHGC = 0.40 shall be used Interior shade fraction: Summer (all hours when cooling is required) = 0.70 Winter (all hours when heating is required) = 0.85 External shading: none	As proposed As proposed As proposed As proposed Same as standard reference design ^c As proposed
Skylights	None	As proposed
Thermally isolated sunrooms	None	As proposed

(continued)

TABLE 404.5.2(1)
SPECIFICATIONS FOR THE STANDARD REFERENCE AND PROPOSED DESIGNS—continued

BUILDING COMPONENT	STANDARD REFERENCE DESIGN	PROPOSED DESIGN
Air exchange rate	Specific Leakage Area (SLA) ^d = 0.00036 assuming no energy recovery	For residences that are not tested, the same as the standard reference design For residences without mechanical ventilation that are tested in accordance with ASHRAE 119, Section 5.1, the measured air exchange rate ^e but not less than 0.35 ACH For residences with mechanical ventilation that are tested in accordance with ASHRAE 119, Section 5.1, the measured air exchange rate ^e combined with the mechanical ventilation rate, ^f which shall not be less than $0.01 \times CFA + 7.5 \times (N_{br}+1)$ where: CFA = conditioned floor area N _{br} = number of bedrooms
Mechanical ventilation	None, except where mechanical ventilation is specified by the proposed design, in which case: Annual vent fan energy use: kWh/yr = $0.03942 \times CFA + 29.565 \times (N_{br}+1)$ where: CFA = conditioned floor area N _{br} = number of bedrooms	As proposed
Internal gains	IGain = $17,900 + 23.8 \times CFA + 4104 \times N_{br}$ (Btu/day per dwelling unit)	Same as standard reference design
Internal mass	An internal mass for furniture and contents of 8 pounds per square foot of floor area	Same as standard reference design, plus any additional mass specifically designed as a thermal storage element ^g but not integral to the building envelope or structure
Structural mass	For masonry floor slabs, 80% of floor area covered by R-2 carpet and pad, and 20% of floor directly exposed to room air	As proposed
	For masonry basement walls, as proposed, but with insulation required by Table 402.1.3 located on the interior side of the walls	As proposed
	For other walls, for ceilings, floors, and interior walls, wood frame construction	As proposed
Heating systems ^{h, i}	Fuel type: same as proposed design	As proposed
	Efficiencies:	
	Electric: air-source heat pump with prevailing federal minimum efficiency	As proposed
	Nonelectric furnaces: natural gas furnace with prevailing federal minimum efficiency	As proposed
	Nonelectric boilers: natural gas boiler with prevailing federal minimum efficiency	As proposed
	Capacity: sized in accordance with Section M1401.3 of the <i>International Residential Code</i>	As proposed
Cooling systems ^{h, j}	Fuel type: Electric	As proposed
	Efficiency: in accordance with prevailing federal minimum standards	As proposed
	Capacity: sized in accordance with Section M1401.3 of the <i>International Residential Code</i>	As proposed

(continued)

TABLE 404.5.2(1)
SPECIFICATIONS FOR THE STANDARD REFERENCE AND PROPOSED DESIGNS—continued

Service Water Heating ^{a, k}	Fuel type: same as proposed design Efficiency: in accordance with prevailing Federal minimum standards Use: gal/day = $30 + 10 \times N_{br}$ Tank temperature: 120°F	As proposed As proposed Same as standard reference Same as standard reference
Thermal distribution systems	A thermal distribution system efficiency (DSE) of 0.80 shall be applied to both the heating and cooling system efficiencies	Same as standard reference design, except as specified by Table 404.5.2(2)
Thermostat	Type: manual, cooling temperature set point = 78°F; heating temperature set point = 68°F	Same as standard reference design

For SI: 1 square foot = 0.93 m²; 1 British thermal unit = 1055 J; 1 pound per square foot = 4.88 kg/m²; 1 gallon (U.S.) = 3.785 L; °C = (°F-32)/1.8.

a. Glazing shall be defined as sunlight-transmitting fenestration, including the area of sash, curbing or other framing elements, that enclose conditioned space. Glazing includes the area of sunlight-transmitting fenestration assemblies in walls bounding conditioned basements. For doors where the sunlight-transmitting opening is less than 50% of the door area, the glazing area is the sunlight transmitting opening area. For all other doors, the glazing area is the rough frame opening area for the door including the door and the frame.

b. For residences with conditioned basements, R-2 and R-4 residences and townhouses, the following formula shall be used to determine glazing area:

$$AF = A_s \times FA \times F$$

where:

AF = Total glazing area.

A_s = Standard reference design total glazing area.

FA = (Above-grade thermal boundary gross wall area)/(above-grade boundary wall area + 0.5 x below-grade boundary wall area).

F = (Above-grade thermal boundary wall area)/(above-grade thermal boundary wall area + common wall area) or 0.56, whichever is greater.

and where:

Thermal boundary wall is any wall that separates conditioned space from unconditioned space or ambient conditions.

Above-grade thermal boundary wall is any thermal boundary wall component not in contact with soil.

Below-grade boundary wall is any thermal boundary wall in soil contact.

Common wall area is the area of walls shared with an adjoining dwelling unit.

c. For fenestrations facing within 15 degrees (0.26 rad) of true south that are directly coupled to thermal storage mass, the winter interior shade fraction shall be permitted to be increased to 0.95 in the proposed design.

d. Where Leakage Area (L) is defined in accordance with Section 5.1 of ASHRAE 119 and where:

$$SLA = L/CFA$$

where L and CFA are in the same units.

e. Tested envelope leakage shall be determined and documented by an independent party approved by the code official. Hourly calculations as specified in the 2001 ASHRAE *Handbook of Fundamentals*, Chapter 26, page 26.21, Equation 40 (Sherman-Grimsrud model) or the equivalent shall be used to determine the energy loads resulting from infiltration.

f. The combined air exchange rate for infiltration and mechanical ventilation shall be determined in accordance with Equation 43 of 2001 ASHRAE *Handbook of Fundamentals* page 26.24 and the "Whole-house Ventilation" provisions of 2001 ASHRAE *Handbook of Fundamentals*, page 26.19 for intermittent mechanical ventilation.

g. Thermal Storage Element shall mean a component not part of the floors, walls or ceilings that is part of a passive solar system, and that provides thermal storage such as enclosed water columns, rock beds, or phase-change containers. A thermal storage element must be in the same room as fenestration that faces within 15 degrees (0.26 rad) of true south, or must be connected to such a room with pipes or ducts that allow the element to be actively charged.

h. For a proposed design with multiple heating, cooling or water heating systems using different fuel types, the applicable standard reference design system capacities and fuel types shall be weighted in accordance with their respective loads as calculated by accepted engineering practice for each equipment and fuel type present.

i. For a proposed design without a proposed heating system, a heating system with the prevailing federal minimum efficiency shall be assumed for both the standard reference design and proposed design. For electric heating systems, the prevailing federal minimum efficiency air-source heat pump shall be used for the standard reference design.

j. For a proposed design home without a proposed cooling system, an electric air conditioner with the prevailing federal minimum efficiency shall be assumed for both the standard reference design and the proposed design.

k. For a proposed design with a nonstorage-type water heater, a 40-gallon storage-type water heater with the prevailing federal minimum Energy Factor for the same fuel as the predominant heating fuel type shall be assumed. For the case of a proposed design without a proposed water heater, a 40-gallon storage-type water heater with the prevailing federal minimum efficiency for the same fuel as the predominant heating fuel type shall be assumed for both the proposed design and standard reference design.

TABLE 404.5.2(2)
DEFAULT DISTRIBUTION SYSTEM EFFICIENCIES FOR PROPOSED DESIGNS^a

DISTRIBUTION SYSTEM CONFIGURATION AND CONDITION:	FORCED AIR SYSTEMS	HYDRONIC SYSTEMS ^b
Distribution system components located in unconditioned space	0.80	0.95
Distribution systems entirely located in conditioned space ^c	0.88	1.00
Proposed "reduced leakage" with entire air distribution system located in the conditioned space ^d	0.96	—
Proposed "reduced leakage" air distribution system with components located in the unconditioned space	0.88	—
"Ductless" systems ^e	1.00	—

For SI: 1 cubic foot per minute = 0.47 L/s; 1 square foot = 0.093 m²; 1 pound per square inch = 6895 Pa; 1 inch water gauge = 1250 Pa.

- a. Default values given by this table are for untested distribution systems, which must still meet minimum requirements for duct system insulation.
- b. Hydronic Systems shall mean those systems that distribute heating and cooling energy directly to individual spaces using liquids pumped through closed loop piping and that do not depend on ducted, forced air flows to maintain space temperatures.
- c. Entire system in conditioned space shall mean that no component of the distribution system, including the air handler unit, is located outside of the conditioned space.
- d. Proposed "reduced leakage" shall mean leakage to outdoors not greater than 3 cfm per 100 ft² of conditioned floor area and total leakage not greater than 9 cfm per 100 ft² of conditioned floor area at a pressure differential of 0.02 inches w.g. (25 Pa) across the entire system, including the manufacturer's air handler enclosure. Total leakage of not greater than 3 cfm per 100 ft² of conditioned floor area at a pressure difference of 0.02 inches w.g. (25 Pa) across the entire system, including the manufacturer's air handler enclosure, shall be deemed to meet this requirement without measurement of leakage to outdoors. This performance shall be specified as required in the construction documents and confirmed through field-testing of installed systems as documented by an approved independent party.
- e. Ductless systems may have forced airflow across a coil but shall not have any ducted airflows external to the manufacturer's air handler enclosure.

CHAPTER 5

COMMERCIAL ENERGY EFFICIENCY

This chapter has been reformatted; some deletions are not marked.

SECTION 501 GENERAL

501.1 Scope. The requirements contained in this chapter are applicable to commercial buildings, or portions of commercial buildings. These commercial buildings shall meet either the requirements of ASHRAE/IESNA Standard 90.1, *Energy Standard for Buildings Except for Low-Rise Residential Buildings*, or the requirements contained in this chapter.

501.2 Application. The requirements in Sections 502 (Building envelope), 503 (Building mechanical systems), 504 (Service water heating) and 505 (Lighting) shall each be satisfied on an individual basis. Where one or more of these sections is not satisfied, compliance for that section(s) shall be demonstrated in accordance with the applicable provisions of ASHRAE/IESNA 90.1.

Exception: Buildings conforming to Section 506, provided Sections 502.4, 502.5, 503.2, 504, 505.2, 505.3, 505.4, 505.6 and 505.7 are each satisfied.

SECTION 502 BUILDING ENVELOPE REQUIREMENTS

502.1 General. (Prescriptive).

502.1.1 Insulation and fenestration criteria. The building thermal envelope shall meet the requirements of Tables 502.2(1) and 502.3 based on the climate zone specified in Chapter 3. Buildings with a vertical fenestration area or skylight area that exceeds that allowed in Table 502.3 shall comply with the building envelope provisions of ASHRAE/IESNA 90.1.

502.2 Specific insulation requirements (Prescriptive). Opaque assemblies shall comply with Table 502.2(1).

502.2.1 Roof assembly. The minimum thermal resistance (R -value) of the insulating material installed either between the roof framing or continuously on the roof assembly shall be as specified in Table 502.2(1), based on construction materials used in the roof assembly.

Exception: Continuously insulated roof assemblies where the thickness of insulation varies 1 inch (25.4 mm) or less and where the area weighted U -factor is equivalent to the same assembly with the R -value specified in Table 502.2(1).

Insulation installed on a suspended ceiling with removable ceiling tiles shall not be considered part of the minimum thermal resistance of the roof insulation.

502.2.2 Classification of walls. Walls associated with the building envelope shall be classified in accordance with Section 502.2.2.1 or 502.2.2.2.

502.2.2.1 Above-grade walls. Above-grade walls are those walls covered by Section 502.2.3 on the exterior of

the building and completely above grade or walls that are more than 15 percent above grade.

502.2.2.2 Below-grade walls. Below-grade walls covered by Section 502.2.4 are basement or first-story walls associated with the exterior of the building that are at least 85 percent below grade.

502.2.3 Above-grade walls. The minimum thermal resistance (R -value) of the insulating material(s) installed in the wall cavity between the framing members and continuously on the walls shall be as specified in Table 502.2(1), based on framing type and construction materials used in the wall assembly. The R -value of integral insulation installed in concrete masonry units (CMU) shall not be used in determining compliance with Table 502.2(1). "Mass walls" shall include walls weighing at least (1) 35 pounds per square foot (170 kg/m²) of wall surface area or (2) 25 pounds per square foot (120 kg/m²) of wall surface area if the material weight is not more than 120 pounds per cubic foot (1,900 kg/m³).

502.2.4 Below-grade walls. The minimum thermal resistance (R -value) of the insulating material installed in, or continuously on, the below-grade walls shall be as specified in Table 502.2(1), and shall extend to a depth of 10 feet (3048 mm) below the outside finish ground level, or to the level of the floor, whichever is less.

502.2.5 Floors over outdoor air or unconditioned space. The minimum thermal resistance (R -value) of the insulating material installed either between the floor framing or continuously on the floor assembly shall be as specified in Table 502.2(1), based on construction materials used in the floor assembly.

"Mass floors" shall include floors weighing at least (1) 35 pounds per square foot (170 kg/m²) of floor surface area or (2) 25 pounds per square foot (120 kg/m²) of floor surface area if the material weight is not more than 12 pounds per cubic foot (1,900 kg/m³).

502.2.6 Slabs on grade. The minimum thermal resistance (R -value) of the insulation around the perimeter of unheated or heated slab-on-grade floors shall be as specified in Table 502.2(1). The insulation shall be placed on the outside of the foundation or on the inside of a foundation wall. The insulation shall extend downward from the top of the slab for a minimum distance as shown in the table or to the top of the footing, whichever is less, or downward to at least the bottom of the slab and then horizontally to the interior or exterior for the total distance shown in the table.

502.2.7 Opaque doors. Opaque doors (doors having less than 50 percent glass area) shall meet the applicable requirements for doors as specified in Table 502.2(1) and be considered as part of the gross area of above-grade walls that are part of the building envelope.

TABLE 502.2(1)
BUILDING ENVELOPE REQUIREMENTS – OPAQUE ASSEMBLIES

CLIMATE ZONE	1	2	3	4 except Marine	5 and Marine 4	6	7	8
Roofs								
Insulation entirely above deck	R-15 ci	R-15 ci	R-15 ci	R-15 ci	R-20 ci	R-20 ci	R-25 ci	R-25 ci
Metal buildings (with R-5 thermal blocks ^a) ^b	R-19 + R-10	R-19	R-19	R-19	R-19	R-19	R-19 + R-10	R-19 + R-10
Attic and other	R-30	R-30	R-30	R-30	R-30	R-30	R-38	R-38
Walls, Above Grade								
Mass	NR	NR	R-5.7 ci ^{c, e}	R-5.7 ci ^c	R-7.6 ci	R-9.5 ci	R-11.4 ci	R-13.3 ci
Metal building ^b	R-13	R-13	R-13	R-13	R-13 + R-13	R-13 + R-13	R-13 + R-13	R-13 + R-13
Metal framed	R-13	R-13	R-13	R-13	R-13 + R-3.8 ci	R-13 + R-3.8 ci	R-13 + R-7.5 ci	R-13 + R-7.5 ci
Wood framed and other	R-13	R-13	R-13	R-13	R-13	R-13	R-13	R-13 + R-7.5 ci
Walls, Below Grade								
Below grade wall ^d	NR	NR	NR	NR	NR	NR	R-7.5 ci	R-7.5 ci
Floors								
Mass	NR	R-5 ci	R-5 ci	R-10 ci	R-10 ci	R-10 ci	R-15 ci	R-15 ci
Joist/Framing	NR	R-19	R-19	R-19	R-19	R-30	R-30	R-30
Slab-on-Grade Floors								
Unheated slabs	NR	NR	NR	NR	NR	NR	NR	R-10 for 24 in. below
Heated slabs	R-7.5 for 12 in. below	R-7.5 for 12 in. below	R-7.5 for 12 in. below	R-7.5 for 12 in. below	R-7.5 for 24 in. below	R-10 for 36 in. below	R-10 for 36 in. below	R-10 for 48 in. below
Opaque Doors								
Swinging	U-0.70	U-0.70	U-0.70	U-0.70	U-0.70	U-0.70	U-0.70	U-0.50
Roll-up or sliding	U-1.45	U-1.45	U-1.45	U-1.45	U-1.45	U-0.50	U-0.50	U-0.50

For SI: 1 inch = 25.4 mm.

ci – Continuous Insulation

NR – No Requirement

a. Thermal blocks are a minimum R-5 of rigid insulation, which extends 1-inch beyond the width of the purlin on each side, perpendicular to the purlin.

b. Assembly descriptions can be found in Table 502.2(2).

c. R-5.7 ci may be substituted with concrete block walls complying with ASTM C 90, ungrouted or partially grouted at 32 in. or less on center vertically and 48 in. or less on center horizontally, with ungrouted cores filled with material having a maximum thermal conductivity of 0.44 Btu-in./h-ft² F.

d. When heated slabs are placed below grade, below grade walls must meet the exterior insulation requirements for perimeter insulation according to the heated slab-on-grade construction.

e. Insulation is not required for mass walls in Climate Zone 3A located below the "Warm-Humid" line, and in Zone 3B.

TABLE 502.2(2)
METAL BUILDING ASSEMBLY DESCRIPTIONS

ROOFS	DESCRIPTION	REFERENCE
R-19 + R-10	Filled cavity roof. Thermal blocks are a minimum, R-5 of rigid insulation, which extends 1 in. beyond the width of the purlin on each side, perpendicular to the purlin. This construction is R-10 insulation batts draped perpendicularly over the purlins, with enough looseness to allow R-19 batt to be laid above it, parallel to the purlins. Thermal blocks are then placed above the purlin/batt, and the roof deck is secured to the purlins. In the metal building industry, this is known as the "sag and bag" insulation system.	ASHRAE/IESNA 90.1 Table A2.3
R-19	Standing seam with single insulation layer. Thermal blocks are a minimum R-5 of rigid insulation, which extends 1 in. beyond the width of the purlin on each side, perpendicular to the purlin. This construction R-19 insulation batts draped perpendicularly over the purlins. Thermal blocks are then placed above the purlin/batt, and the roof deck is secured to the purlins.	ASHRAE/IESNA 90.1 Table A2.3
Walls		
R-13	Single insulation layer The first layer of R-13 insulation batts is installed continuously perpendicular to the girts and is compressed as the metal skin is attached to the girts.	ASHRAE/IESNA 90.1 Table A3.2
R-13 + R-13	Double insulation layer The first layer of R-13 insulation batts is installed continuously perpendicular to the girts, and is compressed as the metal skin is attached to the girts. The second layer of R-13 insulation batts is installed within the framing cavity.	ASHRAE/IESNA 90.1 Table A3.2

For SI: 1 inch = 25.4 mm.

502.3 Fenestration. (Prescriptive). Fenestration shall comply with Table 502.3.

502.3.1 Maximum area. The vertical fenestration area (not including opaque doors) shall not exceed the percentage of the gross wall area specified in Table 502.3. The skylight area shall not exceed the percentage of the gross roof area specified in Table 502.3.

502.3.2 Maximum U-factor and SHGC. For vertical fenestration, the maximum U-factor and solar heat gain coefficient (SHGC) shall be as specified in Table 502.3, based on the window projection factor. For skylights, the maximum U-factor and solar heat gain coefficient (SHGC) shall be as specified in Table 502.3.

The window projection factor shall be determined in accordance with Equation 5-1.

$$PF = A/B \quad \text{(Equation 5-1)}$$

where:

PF = Projection factor (decimal).

A = Distance measured horizontally from the furthest continuous extremity of any overhang, eave, or permanently attached shading device to the vertical surface of the glazing.

B = Distance measured vertically from the bottom of the glazing to the underside of the overhang, eave, or permanently attached shading device.

Where different windows or glass doors have different *PF* values, they shall each be evaluated separately, or an area-weighted *PF* value shall be calculated and used for all windows and glass doors.

502.4 Air leakage. (Mandatory).

502.4.1 Window and door assemblies. The air leakage of window and sliding or swinging door assemblies that are part of the building envelope shall be determined in accordance with AAMA/WDMA/CSA 101/I.S.2/A440, or NFRC 400 by an accredited, independent laboratory, and labeled and certified by the manufacturer and shall not exceed the values in Section 402.4.2.

Exception: Site-constructed windows and doors that are weatherstripped or sealed in accordance with Section 502.4.3.

502.4.2 Curtain wall, storefront glazing and commercial entrance doors. Curtain wall, storefront glazing and commercial-glazed swinging entrance doors and revolving doors shall be tested for air leakage at 1.57 pounds per square foot (psf) (75 Pa) in accordance with ASTM E 283.

TABLE 502.3
BUILDING ENVELOPE REQUIREMENTS: FENESTRATION

CLIMATE ZONE	1	2	3	4 except Marine	5 and Marine 4	6	7	8
Vertical Fenestration (40% maximum of above-grade wall)								
U-Factor								
Framing materials other than metal with or without metal reinforcement or cladding								
U-Factor	1.20	0.75	0.65	0.40	0.35	0.35	0.35	0.35
Metal framing with or without thermal break								
Curtain Wall/Storefront U-Factor	1.20	0.70	0.60	0.50	0.45	0.45	0.45	0.45
Entrance Door U-Factor	1.20	1.10	0.90	0.85	0.80	0.80	0.80	0.80
All Other U-Factor ^a	1.20	0.75	0.65	0.55	0.55	0.55	0.50	0.50
SHGC-All Frame Types								
SHGC: PF < 0.25	0.25	0.25	0.25	0.40	0.40	0.40	NR	NR
SHGC: 0.25 ≤ PF < 0.5	0.33	0.33	0.33	NR	NR	NR	NR	NR
SHGC: PF ≥ 0.5	0.40	0.40	0.40	NR	NR	NR	NR	NR
Skylights (3% maximum)								
Glass								
U-Factor	1.60	1.05	0.90	0.60	0.60	0.60	0.60	0.60
SHGC	0.40	0.40	0.40	0.40	0.40	0.40	NR	NR
Plastic								
U-Factor	1.90	1.90	1.30	1.30	1.30	0.90	0.90	0.60
SHGC	0.35	0.35	0.35	0.62	0.62	0.62	NR	NR

NR = No requirement.

PF = Projection factor (See Section 502.3.2)

a. All others includes operable windows, fixed windows and non-entrance doors.

For curtain walls and storefront glazing, the maximum air leakage rate shall be 0.3 cubic foot per minute per square foot (cfm/ft²) (5.5 m³/h × m²) of fenestration area. For commercial glazed swinging entrance doors and revolving doors, the maximum air leakage rate shall be 1.00 cfm/ft² (18.3 m³/h × m²) of door area when tested in accordance with ASTM E 283.

502.4.3 Sealing of the building envelope. Openings and penetrations in the building envelope shall be sealed with caulking materials or closed with gasketing systems compatible with the construction materials and location. Joints and seams shall be sealed in the same manner or taped or covered with a moisture vapor-permeable wrapping material. Sealing materials spanning joints between construction materials shall allow for expansion and contraction of the construction materials.

502.4.4 Outdoor air intakes and exhaust openings. Stair and elevator shaft vents and other outdoor air intakes and exhaust openings integral to the building envelope shall be equipped with not less than a Class I motorized, leakage-rated damper with a maximum leakage rate of 4 cfm per

square foot (6.8 L/s · C m²) at 1.0 inch water gauge (w.g.) (1250 Pa) when tested in accordance with AMCA 500D.

Exception: Gravity (nonmotorized) dampers are permitted to be used in buildings less than three stories in height above grade.

502.4.5 Loading dock weatherseals. Cargo doors and loading dock doors shall be equipped with weatherseals to restrict infiltration when vehicles are parked in the doorway.

502.4.6 Vestibules. A door that separates conditioned space from the exterior shall be protected with an enclosed vestibule, with all doors opening into and out of the vestibule equipped with self-closing devices. Vestibules shall be designed so that in passing through the vestibule it is not necessary for the interior and exterior doors to open at the same time.

Exceptions:

1. Buildings in Climate Zones 1 and 2 as indicated in Figure 301.1 and Table 301.1.
2. Doors not intended to be used as a building entrance door, such as doors to mechanical or electrical equipment rooms.

3. Doors opening directly from a sleeping unit or dwelling unit.
4. Doors that open directly from a space less than 3,000 square feet (298 m²) in area.
5. Revolving doors.
6. Doors used primarily to facilitate vehicular movement or material handling and adjacent personnel doors.

502.4.7 Recessed luminaires. When installed in the building envelope, recessed luminaires shall meet one of the following requirements:

1. Type IC rated, manufactured with no penetrations between the inside of the recessed fixture and ceiling cavity and sealed or gasketed to prevent air leakage into the unconditioned space.
2. Type IC or non-IC rated, installed inside a sealed box constructed from a minimum 0.5-inch-thick (12.7 mm) gypsum wallboard or constructed from a pre-formed polymeric vapor barrier, or other air-tight assembly manufactured for this purpose, while maintaining required clearances of not less than 0.5 inch (12.7 mm) from combustible material and not less than 3 inches (76 mm) from insulation material.
3. Type IC rated, in accordance with ASTM E 283 admitting no more than 2.0 cubic feet per minute (cfm) (0.944 L/s) of air movement from the conditioned space to the ceiling cavity. The luminaire shall be tested at 1.57 psf (75 Pa) pressure difference and shall be labeled.

502.5 Moisture control. (Mandatory). All framed walls, floors and ceilings not ventilated to allow moisture to escape shall be provided with an approved vapor retarder having a permeance rating of 1 perm (5.7×10^{-11} kg/Pa · s · m²) or less, when tested in accordance with the desiccant method using Procedure A of ASTM E 96. The vapor retarder shall be installed on the warm-in-winter side of the insulation.

Exceptions:

1. Buildings located in Climate Zones 1 through 3 as indicated in Figure 301.1 and Table 301.1.
2. In construction where moisture or its freezing will not damage the materials.
3. Where other approved means to avoid condensation in unventilated framed wall, floor, roof and ceiling cavities are provided.

SECTION 503 BUILDING MECHANICAL SYSTEMS

503.1 General. Mechanical systems and equipment serving the building heating, cooling or ventilating needs shall comply with Section 503.2 (referred to as the mandatory provisions) and either:

1. Section 503.3 (Simple systems), or
2. Section 503.4 (Complex systems).

503.2 Provisions applicable to all mechanical systems. (Mandatory).

503.2.1 Calculation of heating and cooling loads. Design loads shall be determined in accordance with the procedures described in the ASHRAE *Fundamentals Handbook*. Heating and cooling loads shall be adjusted to account for load reductions that are achieved when energy recovery systems are utilized in the HVAC system in accordance with the ASHRAE *HVAC Systems and Equipment Handbook*. Alternatively, design loads shall be determined by an approved equivalent computation procedure, using the design parameters specified in Chapter 3.

503.2.2 Equipment and system sizing. Equipment and system sizing. Heating and cooling equipment and systems capacity shall not exceed the loads calculated in accordance with Section 503.2.1. A single piece of equipment providing both heating and cooling must satisfy this provision for one function with the capacity for the other function as small as possible, within available equipment options.

Exceptions:

1. Required standby equipment and systems provided with controls and devices that allow such systems or equipment to operate automatically only when the primary equipment is not operating.
2. Multiple units of the same equipment type with combined capacities exceeding the design load and provided with controls that have the capability to sequence the operation of each unit based on load.

503.2.3 HVAC equipment performance requirements. Equipment shall meet the minimum efficiency requirements of Tables 503.2.3(1), 503.2.3(2), 503.2.3(3), 503.2.3(4), 503.2.3(5), 503.2.3(6), 503.2.3(7), 503.2.3(8), 503.2.3(9), 503.2.3(10) and 503.2.3(11) when tested and rated in accordance with the applicable test procedure. The efficiency shall be verified through certification under an approved certification program or, if no certification program exists, the equipment efficiency ratings shall be supported by data furnished by the manufacturer. Where multiple rating conditions or performance requirements are provided, the equipment shall satisfy all stated requirements. Where components, such as indoor or outdoor coils, from different manufacturers are used, calculations and supporting data shall be furnished by the designer that demonstrate that the combined efficiency of the specified components meets the requirements herein.

Exception: Equipment listed in Table 503.2.3(7) not designed for operation at ARI Standard test conditions of 44°F (7°C) leaving chilled water temperature and 85°F (29°C) entering condenser water temperature shall have a minimum full load COP and IPLV rating as shown in Tables 503.2.3(8) through 503.2.3(10) as applicable. The table values are only applicable over the following full load design ranges:

Leaving Chilled	
Water Temperature:	40 to 48°F (4 to 9°C)
Entering Condenser	
Water Temperature:	75 to 85°F (24 to 29°C)

Condensing Water
Temperature Rise: 5 to 15°F ($\Delta 3$ to $\Delta 8^\circ\text{C}$)

Chillers designed to operate outside of these ranges are not covered by this code.

503.2.4 HVAC system controls. Each heating and cooling system shall be provided with thermostatic controls as required in Section 503.2.4.1, 503.2.4.2, 503.2.4.3, 503.2.4.4, 503.4.1, 503.4.2, 503.4.3 or 503.4.4.

503.2.4.1 Thermostatic controls. The supply of heating and cooling energy to each zone shall be controlled by individual thermostatic controls capable of responding to temperature within the zone. Where humidification or dehumidification or both is provided, at least one humidity control device shall be provided for each humidity control system.

Exception: Independent perimeter systems that are designed to offset only building envelope heat losses or gains or both serving one or more perimeter zones also served by an interior system provided:

1. The perimeter system includes at least one thermostatic control zone for each building exposure having exterior walls facing only one orientation (within ± 45 degrees) (0.8 rad) for more than 50 contiguous feet (15.2 m); and

2. The perimeter system heating and cooling supply is controlled by a thermostat(s) located within the zone(s) served by the system.

503.2.4.1.1 Heat pump supplementary heat. Heat pumps having supplementary electric resistance heat shall have controls that, except during defrost, prevent supplementary heat operation when the heat pump can meet the heating load.

503.2.4.2 Set point overlap restriction. Where used to control both heating and cooling, zone thermostatic controls shall provide a temperature range or deadband of at least 5°F (2.8°C) within which the supply of heating and cooling energy to the zone is capable of being shut off or reduced to a minimum.

Exception: Thermostats requiring manual change-over between heating and cooling modes.

503.2.4.3 Off-hour controls. Each zone shall be provided with thermostatic setback controls that are controlled by either an automatic time clock or programmable control system.

Exceptions:

1. Zones that will be operated continuously.
2. Zones with a full HVAC load demand not exceeding 6,800 Btu/h (2 kW) and having a readily accessible manual shutoff switch.

TABLE 503.2.3(1)
UNITARY AIR CONDITIONERS AND CONDENSING UNITS,
ELECTRICALLY OPERATED, MINIMUM EFFICIENCY REQUIREMENTS

EQUIPMENT TYPE	SIZE CATEGORY	SUBCATEGORY OR RATING CONDITION	MINIMUM EFFICIENCY ^b	TEST PROCEDURE ^a
Air conditioners, Air cooled	< 65,000 Btu/h ^d	Split system	10.0 SEER	ARI 210/240
		Single package	9.7 SEER	
	$\geq 65,000$ Btu/h and < 135,000 Btu/h	Split system and single package	10.3 EER ^c	ARI 340/360
	$\geq 135,000$ Btu/h and < 240,000 Btu/h	Split system and single package	9.7 EER ^c	
	$\geq 240,000$ Btu/h and < 760,000 Btu/h	Split system and single package	9.5 EER ^c 9.7 IPLV ^c	
Air conditioners, Water and evaporatively cooled	$\geq 760,000$ Btu/h	Split system and single package	9.2 EER ^c 9.4 IPLV ^c	ARI 210/240
	< 65,000 Btu/h	Split system and single package	12.1 EER	
	$\geq 65,000$ Btu/h and < 135,000 Btu/h	Split system and single package	11.5 EER ^c	ARI 340/360
	$\geq 135,000$ Btu/h and < 240,000 Btu/h	Split system and single package	11.0 EER ^c	
	$\geq 240,000$ Btu/h	Split system and single package	11.0 EER ^c 10.3 IPLV ^c	

For SI: 1 British thermal unit per hour = 0.2931 W.

a. Chapter 6 contains a complete specification of the referenced test procedure, including the referenced year version of the test procedure.

b. IPLVs are only applicable to equipment with capacity modulation.

c. Deduct 0.2 from the required EERs and IPLVs for units with a heating section other than electric resistance heat.

d. Single-phase air-cooled air conditioners < 65,000 Btu/h are regulated by the National Appliance Energy Conservation Act of 1987 (NAECA), SEER values are those set by NAECA.

TABLE 503.2.3(2)
UNITARY AND APPLIED HEAT PUMPS, ELECTRICALLY
OPERATED, MINIMUM EFFICIENCY REQUIREMENTS

EQUIPMENT TYPE	SIZE CATEGORY	SUBCATEGORY OR RATING CONDITION	MINIMUM EFFICIENCY ^a	TEST PROCEDURE ^a
Air cooled (Cooling mode)	< 65,000 Btu/h ^d	Split system	10.0 SEER	ARI 210/240
		Single package	9.7 SEER	
	≥ 65,000 Btu/h and < 135,000 Btu/h	Split system and single package	10.1 EER ^c	ARI 340/360
	≥ 135,000 Btu/h and < 240,000 Btu/h	Split system and single package	9.3 EER ^c	
	≥ 240,000 Btu/h	Split system and single package	9.0 EER ^c 9.2 IPLV ^c	
Water source (Cooling mode)	< 17,000 Btu/h	86°F entering water	11.2 EER	ARI/ASHRAE-13256-1
	≥ 17,000 Btu/h and < 135,000 Btu/h	86°F entering water	12.0 EER	ARI/ASHRAE-13256-1
Groundwater source (Cooling mode)	< 135,000 Btu/h	59°F entering water	16.2 EER	ARI/ASHRAE-13256-1
Ground source (Cooling mode)	< 135,000 Btu/h	77°F entering water	13.4 EER	ARI/ASHRAE 13256-1
Air cooled (Heating mode)	< 65,000 Btu/h ^d (Cooling capacity)	Split system	6.8 HSPF	ARI 210/240
		Single package	6.6 HSPF	
	≥ 65,000 Btu/h and < 135,000 Btu/h (Cooling capacity)	47°F db/43°F wb outdoor air	3.2 COP	ARI 340/360
	≥ 135,000 Btu/h (Cooling capacity)	47°F db/43°F wb outdoor air	3.1 COP	
Water source (Heating mode)	< 135,000 Btu/h (Cooling capacity)	68°F entering water	4.2 COP	ARI/ASHRAE-13256-1
Groundwater source (Heating mode)	< 135,000 Btu/h (Cooling capacity)	50°F entering water	3.6 COP	ARI/ASHRAE-13256-1
Ground Source (Heating mode)	< 135,000 Btu/h (Cooling capacity)	32°F entering water	3.1 COP	ARI/ASHRAE-13256-1

For SI: °C = [(°F) - 32] / 1.8, 1 British thermal unit per hour = 0.2931 W.

db = dry-bulb temperature, °F; wb = wet-bulb temperature, °F

a. Chapter 6 contains a complete specification of the referenced test procedure, including the referenced year version of the test procedure.

b. IPLVs and Part load rating conditions are only applicable to equipment with capacity modulation.

c. Deduct 0.2 from the required EERs and IPLVs for units with a heating section other than electric resistance heat.

d. Single-phase air-cooled heat pumps < 65,000 Btu/h are regulated by the National Appliance Energy Conservation Act of 1987 (NAECA), SEER and HSPF values are those set by NAECA.

TABLE 503.2.3(3)
PACKAGED TERMINAL AIR CONDITIONERS AND
PACKAGED TERMINAL HEAT PUMPS

EQUIPMENT TYPE	SIZE CATEGORY (INPUT)	SUBCATEGORY OR RATING CONDITION	MINIMUM EFFICIENCY ^a	TEST PROCEDURE ^a
PTAC (Cooling mode) New construction	All capacities	95°F db outdoor air	12.5 - (0.213 · Cap/1000) EER	ARI 310/380
PTAC (Cooling mode) Replacements ^c	All capacities	95°F db outdoor air	10.9 - (0.213 · Cap/1000) EER	
PTHP (Cooling mode) New construction	All capacities	95°F db outdoor air	12.3 - (0.213 · Cap/1000) EER	
PTHP (Cooling mode) Replacements ^c	All capacities	95°F db outdoor air	10.8 - (0.213 · Cap/1000) EER	
PTHP (Heating mode) New construction	All capacities	—	3.2 - (0.026 · Cap/1000) COP	
PTHP (Heating mode) Replacements ^c	All capacities	—	2.9 - (0.026 · Cap/1000) COP	

For SI: °C - [(°F) - 32] / 1.8, 1 British thermal unit per hour = 0.2931 W

db = dry-bulb temperature, °F

wb = wet-bulb temperature, °F

a. Chapter 6 contains a complete specification of the referenced test procedure, including the referenced year version of the test procedure.

b. Cap means the rated cooling capacity of the product in Btu/h. If the unit's capacity is less than 7,000 Btu/h, use 7,000 Btu/h in the calculation. If the unit's capacity is greater than 15,000 Btu/h, use 15,000 Btu/h in the calculation.

c. Replacement units must be factory labeled as follows: "MANUFACTURED FOR REPLACEMENT APPLICATIONS ONLY: NOT TO BE INSTALLED IN NEW CONSTRUCTION PROJECTS." Replacement efficiencies apply only to units with existing sleeves less than 16 inches (406 mm) high and less than 42 inches (1067 mm) wide.

TABLE 503.2.3(4)
WARM AIR FURNACES AND COMBINATION WARM AIR FURNACES/AIR-CONDITIONING UNITS,
WARM AIR DUCT FURNACES AND UNIT HEATERS, MINIMUM EFFICIENCY REQUIREMENTS

EQUIPMENT TYPE	SIZE CATEGORY (INPUT)	SUBCATEGORY OR RATING CONDITION	MINIMUM EFFICIENCY ^{a, *}	TEST PROCEDURE ^a
Warm air furnaces, gas fired	< 225,000 Btu/h	—	78% AFUE or 80% E_t^c	DOE 10 CFR Part 430 or ANSI Z21.47
	≥ 225,000 Btu/h	Maximum capacity ^c	80% E_t^f	ANSI Z21.47
Warm air furnaces, oil fired	< 225,000 Btu/h	—	78% AFUE or 80% E_t^c	DOE 10 CFR Part 430 or UL 727
	≥ 225,000 Btu/h	Maximum capacity ^b	81% E_t^f	UL 727
Warm air duct furnaces, gas fired	All capacities	Maximum capacity ^b	80% E_c	ANSI Z83.8
Warm air unit heaters, gas fired	All capacities	Maximum capacity ^b	80% E_c	ANSI Z83.8
Warm air unit heaters, oil fired	All capacities	Maximum capacity ^b	80% E_c	UL 731

For SI: 1 British thermal unit per hour = 0.2931 W.

a. Chapter 6 contains a complete specification of the referenced test procedure, including the referenced year version of the test procedure.

b. Minimum and maximum ratings as provided for and allowed by the unit's controls.

c. Combination units not covered by the National Appliance Energy Conservation Act of 1987 (NAECA) (3-phase power or cooling capacity greater than or equal to 65,000 Btu/h [19 kW]) shall comply with either rating.

d. E_t = Thermal efficiency. See test procedure for detailed discussion.

e. E_c = Combustion efficiency (100% less flue losses). See test procedure for detailed discussion.

f. E_c = Combustion efficiency. Units must also include an IID, have jackets not exceeding 0.75 percent of the input rating, and have either power venting or a flue damper. A vent damper is an acceptable alternative to a flue damper for those furnaces where combustion air is drawn from the conditioned space.

g. E_t = Thermal efficiency. Units must also include an IID, have jacket losses not exceeding 0.75 percent of the input rating, and have either power venting or a flue damper. A vent damper is an acceptable alternative to a flue damper for those furnaces where combustion air is drawn from the conditioned space.

TABLE 503.2.3(5)
BOILERS, GAS- AND OIL-FIRED, MINIMUM EFFICIENCY REQUIREMENTS

EQUIPMENT TYPE ^f	SIZE CATEGORY (INPUT)	SUBCATEGORY OR RATING CONDITION	MINIMUM EFFICIENCY ^{a, d, e}	TEST PROCEDURE ^a
Boilers, Gas fired	< 300,000 Btu/h	Hot water	80% AFUE	DOE 10 CFR Part 430
		Steam	75% AFUE	
	≥ 300,000 Btu/h and ≤ 2,500,000 Btu/h	Minimum capacity ^b	75% E_t	H.I. HBS
		Hot water	80% E_c	
	> 2,500,000 Btu/h ^f	Hot water	80% E_c	
		Steam	80% E_c	
Boilers, Oil fired	< 300,000 Btu/h	—	80% AFUE	DOE 10 CFR Part 430
	≥ 300,000 Btu/h and ≤ 2,500,000 Btu/h	Minimum capacity ^b	78% E_t	H.I. HBS
		Hot water	83% E_c	
	> 2,500,000 Btu/h ^f	Hot water	83% E_c	
		Steam	83% E_c	
Boilers, Oil fired (Residual)	≥ 300,000 Btu/h and ≤ 2,500,000 Btu/h	Minimum capacity ^b	78% E_t	H.I. HBS
		Hot water	83% E_c	
	> 2,500,000 Btu/h ^f	Hot water	83% E_c	
		Steam	83% E_c	

For SI: 1 British thermal unit per hour = 0.2931 W.

a. Chapter 6 contains a complete specification of the referenced test procedure, including the referenced year version of the test procedure.

b. Minimum ratings as provided for and allowed by the unit's controls.

c. E_c = Combustion efficiency (100 percent less flue losses). See reference document for detailed information.

d. E_t = Thermal efficiency. See reference document for detailed information.

e. Alternative test procedures used at the manufacturer's option are ASME PTC-4.1 for units greater than 5,000,000 Btu/h input, or ANSI Z21.13 for units greater than or equal to 300,000 Btu/h and less than or equal to 2,500,000 Btu/h input.

f. These requirements apply to boilers with rated input of 8,000,000 Btu/h or less that are not packaged boilers, and to all packaged boilers. Minimum efficiency requirements for boilers cover all capacities of packaged boilers.

TABLE 503.2.3(6)
CONDENSING UNITS, ELECTRICALLY OPERATED, MINIMUM EFFICIENCY REQUIREMENTS

EQUIPMENT TYPE	SIZE CATEGORY	MINIMUM EFFICIENCY ^a	TEST PROCEDURE ^a
Condensing units, air cooled	≥ 135,000 Btu/h	10.1 EER 11.2 IPLV	ARI 365
Condensing units, water or evaporatively cooled	≥ 135,000 Btu/h	13.1 EER 13.1 IPLV	

For SI: 1 British thermal unit per hour = 0.2931 W.

a. Chapter 6 contains a complete specification of the referenced test procedure, including the referenced year version of the test procedure.

b. IPLVs are only applicable to equipment with capacity modulation.

TABLE 503.2.3(7)
WATER CHILLING PACKAGES, MINIMUM EFFICIENCY REQUIREMENTS

EQUIPMENT TYPE	SIZE CATEGORY	MINIMUM EFFICIENCY ^b	TEST PROCEDURE ^a
Air cooled, with condenser, electrically operated	< 150 tons	2.80 COP 2.80 IPLV	ARI 550/590
	≥ 150 tons	2.50 COP 2.50 IPLV	
Air cooled, without condenser, electrically operated	All capacities	3.10 COP 3.10 IPLV	ARI 550/590
Water cooled, electrically operated, positive displacement (reciprocating)	All capacities	4.20 COP 4.65 IPLV	
Water cooled, electrically operated, positive displacement (rotary screw and scroll)	< 150 tons	4.45 COP 4.50 IPLV	ARI 550/590
	≥ 150 tons and < 300 tons	4.90 COP 4.95 IPLV	
	≥ 300 tons	5.50 COP 5.60 IPLV	
Water cooled, electrically operated, centrifugal	< 150 tons	5.00 COP 5.00 IPLV	ARI 550/590
	≥ 150 tons and < 300 tons	5.55 COP 5.55 IPLV	
	≥ 300 tons	6.10 COP 6.10 IPLV	
Air cooled, absorption single effect	All capacities	0.60 COP	ARI 560
Water cooled, absorption single effect	All capacities	0.70 COP	
Absorption double effect, indirect-fired	All capacities	1.00 COP 1.05 IPLV	
Absorption double effect, direct-fired	All capacities	1.00 COP 1.00 IPLV	

For SI: 1 ton = 3.517 kW. °C = [(°F) - 32]/1.8.

a. Chapter 6 contains a complete specification of the referenced test procedure, including the referenced year version of the test procedure.

b. The chiller equipment requirements do not apply for chillers used in low temperature applications where the design leaving fluid temperature is less than or equal to 40°F.

TABLE 503.2.3(8)
COPs AND IPLVs FOR NONSTANDARD CENTRIFUGAL CHILLERS < 150 TONS

CENTRIFUGAL CHILLERS < 150 TONS COP _{std} = 5.4								
Leaving chilled water temperature (°F)	Entering condenser water temperature (°F)	Lift ^a (°F)	Condenser flow rate					
			2 gpm/ton	2.5 gpm/ton	3 gpm/ton	4 gpm/ton	5 gpm/ton	6 gpm/ton
			Required COP and IPLV					
46	75	29	6.00	6.27	6.48	6.80	7.03	7.20
45	75	30	5.92	6.17	6.37	6.66	6.87	7.02
44	75	31	5.84	6.08	6.26	6.53	6.71	6.86
43	75	32	5.75	5.99	6.16	6.40	6.58	6.71
42	75	33	5.67	5.90	6.06	6.29	6.45	6.57
41	75	34	5.59	5.82	5.98	6.19	6.34	6.44
46	80	34	5.59	5.82	5.98	6.19	6.34	6.44
40	75	35	5.50	5.74	5.89	6.10	6.23	6.33
45	80	35	5.50	5.74	5.89	6.10	6.23	6.33
44	80	36	5.41	5.66	5.81	6.01	6.13	6.22
43	80	37	5.31	5.57	5.73	5.92	6.04	6.13
42	80	38	5.21	5.48	5.64	5.84	5.95	6.04
41	80	39	5.09	5.39	5.56	5.76	5.87	5.95
46	85	39	5.09	5.39	5.56	5.76	5.87	5.95
40	80	40	4.96	5.29	5.47	5.67	5.79	5.86
45	85	40	4.96	5.29	5.47	5.67	5.79	5.86
44	85	41	4.83	5.18	5.40	5.59	5.71	5.78
43	85	42	4.68	5.07	5.28	5.50	5.62	5.70
42	85	43	4.51	4.94	5.17	5.41	5.54	5.62
41	85	44	4.33	4.80	5.05	5.31	5.45	5.53
40	85	45	4.13	4.65	4.92	5.21	5.35	5.44
Condenser ΔT ^b			14.04	11.23	9.36	7.02	5.62	4.68

For SI: °C = [(°F) - 32] / 1.8, 1 gallon per minute = 3.785 L/min., 1 ton = 12,000 British thermal units per hour = 3.517 kW

a. Lift = Entering condenser water temperature (°F) - Leaving chilled water temperature (°F).

b. Condenser ΔT = Leaving condenser water temperature (°F) - Entering condenser water temperature (°F).

$$K_{adj} = 6.1507 - 0.30244(X) + 0.0062692(X)^2 - 0.000045595(X)$$

where: X = Condenser ΔT + Lift

$$COP_{adj} = K_{adj} \times COP_{std}$$

TABLE 503.2.3(9)
COPs AND IPLVs FOR NONSTANDARD CENTRIFUGAL CHILLERS ≥ 150 TONS, ≤ 300 TONS

CENTRIFUGAL CHILLERS ≥ 150 Tons, ≤ 300 Tons COP _{std} = 5.55								
Leaving chilled water temperature (°F)	Entering condenser water temperature (°F)	Lift ^a (°F)	Condenser flow rate					
			2 gpm/ton	2.5 gpm/ton	3 gpm/ton	4 gpm/ton	5 gpm/ton	6 gpm/ton
			Required COP and IPLV					
46	75	29	6.17	6.44	6.66	6.99	7.23	7.40
45	75	30	6.08	6.34	6.54	6.84	7.06	7.22
44	75	31	6.00	6.24	6.43	6.71	6.90	7.05
43	75	32	5.91	6.15	6.33	6.58	6.76	6.89
42	75	33	5.83	6.07	6.23	6.47	6.63	6.75
41	75	34	5.74	5.98	6.14	6.36	6.51	6.62
46	80	34	5.74	5.98	6.14	6.36	6.51	6.62
40	75	35	5.65	5.90	6.05	6.26	6.40	6.51
45	80	35	5.65	5.90	6.05	6.26	6.40	6.51
44	80	36	5.56	5.81	5.97	6.17	6.30	6.40
43	80	37	5.46	5.73	5.89	6.08	6.21	6.30
42	80	38	5.35	5.64	5.8	6.00	6.12	6.20
41	80	39	5.23	5.54	5.71	5.91	6.03	6.11
46	85	39	5.23	5.54	5.71	5.91	6.03	6.11
40	80	40	5.10	5.44	5.62	5.83	5.95	6.03
45	85	40	5.10	5.44	5.62	5.83	5.95	6.03
44	85	41	4.96	5.33	5.55	5.74	5.86	5.94
43	85	42	4.81	5.21	5.42	5.66	5.78	5.86
42	85	43	4.63	5.08	5.31	5.56	5.69	5.77
41	85	44	4.45	4.93	5.19	5.46	5.60	5.69
40	85	45	4.24	4.77	5.06	5.35	5.50	5.59
Condenser ΔT ^b			14.04	11.23	9.36	7.02	5.62	4.68

For SI: °C = [(°F) - 32] / 1.8, 1 gallon per minute = 3.785 L/min., 1 ton = 12,000 British thermal units per hour = 3.517 kW

a. Lift = Entering condenser water temperature (°F) - Leaving chilled water temperature (°F).

b. Condenser ΔT = Leaving condenser water temperature (°F) - Entering condenser water temperature (°F).

$$K_{adj} = 6.1507 - 0.30244(X) + 0.0062692(X)^2 - 0.000045595(X)^3$$

where: X = Condenser ΔT + Lift COP_{adj} = K_{adj} × COP_{std}

TABLE 503.2.3(10)
COPs AND IPLVs FOR NONSTANDARD CENTRIFUGAL CHILLERS > 300 TONS

CENTRIFUGAL CHILLERS > 300 Tons COP _{std} = 6.1								
Leaving chilled water temperature (°F)	Entering condenser water temperature (°F)	Lift ^a (°F)	Condenser flow rate					
			2 gpm/ton	2.5 gpm/ton	3 gpm/ton	4 gpm/ton	5 gpm/ton	6 gpm/ton
			Required COP and IPLV					
46	75	29	6.80	7.11	7.35	7.71	7.97	8.16
45	75	30	6.71	6.99	7.21	7.55	7.78	7.96
44	75	31	6.61	6.89	7.09	7.40	7.61	7.77
43	75	32	6.52	6.79	6.98	7.26	7.45	7.60
42	75	33	6.43	6.69	6.87	7.13	7.31	7.44
41	75	34	6.33	6.60	6.77	7.02	7.18	7.30
46	80	34	6.33	6.60	6.77	7.02	7.18	7.30
40	75	35	6.23	6.50	6.68	6.91	7.06	7.17
45	80	35	6.23	6.50	6.68	6.91	7.06	7.17
44	80	36	6.13	6.41	6.58	6.81	6.95	7.05
43	80	37	6.02	6.31	6.49	6.71	6.85	6.94
42	80	38	5.90	6.21	6.40	6.61	6.75	6.84
41	80	39	5.77	6.11	6.30	6.52	6.65	6.74
46	85	39	5.77	6.11	6.30	6.52	6.65	6.74
40	80	40	5.63	6.00	6.20	6.43	6.56	6.65
45	85	40	5.63	6.00	6.20	6.43	6.56	6.65
44	85	41	5.47	5.87	6.10	6.33	6.47	6.55
43	85	42	5.30	5.74	5.98	6.24	6.37	6.46
42	85	43	5.11	5.60	5.86	6.13	6.28	6.37
41	85	44	4.90	5.44	5.72	6.02	6.17	6.27
40	85	45	4.68	5.26	5.58	5.90	6.07	6.17
Condenser ΔT ^b			14.04	11.23	9.36	7.02	5.62	4.68

For SI: °C = [(°F) - 32] / 1.8, 1 gallon per minute = 3.785 L/min., 1 ton = 12,000 British thermal units per hour = 3.517 kW

a. Lift = Entering condenser water temperature (°F) - Leaving chilled water temperature (°F).

b. Condenser ΔT = Leaving condenser water temperature (°F) - Entering condenser water temperature (°F).

$$K_{adj} = 6.1507 - 0.030244(X) + 0.0062692(X)^2 - 0.000045595(X)$$

where: X = Condenser ΔT + Lift

$$COP_{adj} = K_{adj} \times COP_{std}$$

TABLE 503.2.3(11)
PERFORMANCE REQUIREMENTS FOR HEAT REJECTION EQUIPMENT

EQUIPMENT TYPE	TOTAL SYSTEM HEAT REJECTION CAPACITY AT RATED CONDITIONS	SUBCATEGORY OR RATING CONDITION	PERFORMANCE REQUIRED ^{a, b}	TEST PROCEDURE ^c
Propeller or axial fan cooling towers	All	95°F entering water 85°F leaving water 75°F wb outdoor air	≥ 38.2 gpm/hp	CTI ATC-105 and CTI STD-201
Centrifugal fan cooling towers	All	95°F entering water 85°F leaving water 75°F wb outdoor air	≥ 20.0 gpm/hp	CTI ATC-105 and CTI STD-201
Air cooled condensers	All	125°F condensing temperature R-22 test fluid 190°F entering gas temperature 15°F subcooling 95°F entering db	≥ 176,000 Btu/h · hp (69 COP)	ARI 460

For SI: °C = [(°F) - 32] / 1.8, 1 British thermal unit per hour = 0.2931 W, 1 gallon per minute per horsepower = 0.846 L/s · kW.

wb = wet-bulb temperature, °F

- a. For purposes of this table, cooling tower performance is defined as the maximum flow rating of the tower units (gpm) divided by the fan nameplate rated motor power units (hp).
- b. For purposes of this table, air-cooled condenser performance is defined as the heat rejected from the refrigerant units (Btu/h) divided by the fan nameplate rated motor power units (hp).
- c. Chapter 6 contains a complete specification of the referenced test procedure, including the referenced year version of the test procedure.

503.2.4.3.1 Thermostatic setback capabilities.

Thermostatic setback controls shall have the capability to set back or temporarily operate the system to maintain zone temperatures down to 55°F (13°C) or up to 85°F (29°C).

503.2.4.3.2 Automatic setback and shutdown capabilities.

Automatic time clock or programmable controls shall be capable of starting and stopping the system for seven different daily schedules per week and retaining their programming and time setting during a loss of power for at least 10 hours. Additionally, the controls shall have a manual override that allows temporary operation of the system for up to 2 hours; a manually operated timer capable of being adjusted to operate the system for up to 2 hours; or an occupancy sensor.

503.2.4.4 Shutoff damper controls. Both outdoor air supply and exhaust ducts shall be equipped with motorized dampers that will automatically shut when the systems or spaces served are not in use.

Exceptions:

- Gravity dampers shall be permitted in buildings less than three stories in height.
- Gravity dampers shall be permitted for buildings of any height located in climate zones 1, 2, and 3.
- Gravity dampers shall be permitted for outside air intake or exhaust airflows of 300 cfm (14 m³/s) or less.

503.2.5 Ventilation. Ventilation, either natural or mechanical, shall be provided in accordance with Chapter 4 of the *International Mechanical Code*. Where mechanical venti-

lation is provided, the system shall provide the capability to reduce the outdoor air supply to the minimum required by Chapter 4 of the *International Mechanical Code*.

503.2.6 Energy recovery ventilation systems. Individual fan systems that have both a design supply air capacity of 5,000 cfm (2.36 m³/s) or greater and a minimum outside air supply of 70 percent or greater of the design supply air quantity shall have an energy recovery system that provides a change in the enthalpy of the outdoor air supply of 50 percent or more of the difference between the outdoor air and return air at design conditions. Provision shall be made to bypass or control the energy recovery system to permit cooling with outdoor air where cooling with outdoor air is required.

Exception: An energy recovery ventilation system shall not be required in any of the following conditions:

- Where energy recovery systems are prohibited by the *International Mechanical Code*.
- Laboratory fume hood systems with a total exhaust rate of 15,000 cfm (7.08 m³/s) or less.
- Laboratory fume hood systems with a total exhaust rate greater than 15,000 cfm (7.08 m³/s) that include at least one of the following features:
 - Variable-air-volume hood exhaust and room supply systems capable of reducing exhaust and makeup air volume to 50 percent or less of design values.
 - Direct makeup (auxiliary) air supply equal to at least 75 percent of the exhaust rate, heated no warmer than 2°F (1.1°C) below room set point, cooled to no cooler than 3°F (1.7°C) above room set point, no humidification

added, and no simultaneous heating and cooling used for dehumidification control.

4. Systems serving spaces that are not cooled and are heated to less than 60°F (15.5°C).
5. Where more than 60 percent of the outdoor heating energy is provided from site-recovered or site solar energy.
6. Heating systems in climates with less than 3600 HDD.
7. Cooling systems in climates with a 1 percent cooling design wet-bulb temperature less than 64°F (17.7°C).
8. Systems requiring dehumidification that employ series-style energy recovery coils wrapped around the cooling coil.

503.2.7 Duct and plenum insulation and sealing. All supply and return air ducts and plenums shall be insulated with a minimum of R-5 insulation when located in unconditioned spaces and with a minimum of R-8 insulation when located outside the building. When located within a building envelope assembly, the duct or plenum shall be separated from the building exterior or unconditioned or exempt spaces by a minimum of R-8 insulation.

Exceptions:

1. When located within equipment.
2. When the design temperature difference between the interior and exterior of the duct or plenum does not exceed 15°F (8°C).

All joints, longitudinal and transverse seams and connections in ductwork, shall be securely fastened and sealed with welds, gaskets, mastics (adhesives), mastic-plus-embedded-fabric systems or tapes. Tapes and mastics used to seal ductwork shall be listed and labeled in accordance with UL 181A and shall be marked "181A-P" for pressure-sensitive tape, "181A-M" for mastic or "181A-H" for heat-sensitive tape. Tapes and mastics used to seal flexible air ducts and flexible air connectors shall comply with UL 181B and shall be marked "181B-FX" for pressure-sensitive tape or "181B-M" for mastic. Duct connections to flanges of air distribution system equipment shall be sealed and mechanically fastened. Mechanical fasteners for use with flexible nonmetallic air ducts shall comply with UL 181B and shall be marked 181B-C. Unlisted duct tape is not permitted as a sealant on any duct.

503.2.7.1 Duct construction. Ductwork shall be constructed and erected in accordance with the *International Mechanical Code*.

503.2.7.1.1 Low-pressure duct systems. All longitudinal and transverse joints, seams and connections of supply and return ducts operating at a static pressure less than or equal to 2 inches w.g. (500 Pa) shall be securely fastened and sealed with welds, gaskets, mastics (adhesives), mastic-plus-embedded-fabric systems or tapes installed in accordance with the manufacturer's installation instructions. Pressure classifications specific to the duct system shall be clearly

indicated on the construction documents in accordance with the *International Mechanical Code*.

Exception: Continuously welded and locking-type longitudinal joints and seams on ducts operating at static pressures less than 2 inches w.g. (500 Pa) pressure classification.

503.2.7.1.2 Medium-pressure duct systems. All ducts and plenums designed to operate at a static pressure greater than 2 inches w.g. (500 Pa) but less than 3 inches w.g. (750 Pa) shall be insulated and sealed in accordance with Section 503.2.7. Pressure classifications specific to the duct system shall be clearly indicated on the construction documents in accordance with the *International Mechanical Code*.

503.2.7.1.3 High-pressure duct systems. Ducts designed to operate at static pressures in excess of 3 inches w.g. (746 Pa) shall be insulated and sealed in accordance with Section 503.2.7. In addition, ducts and plenums shall be leak-tested in accordance with the *SMACNA HVAC Air Duct Leakage Test Manual* with the rate of air leakage (*CL*) less than or equal to 6.0 as determined in accordance with Equation 5-2.

$$CL = F \times P^{0.65} \quad (\text{Equation 5-2})$$

where:

F = The measured leakage rate in cfm per 100 square feet of duct surface.

P = The static pressure of the test.

Documentation shall be furnished by the designer demonstrating that representative sections totaling at least 25 percent of the duct area have been tested and that all tested sections meet the requirements of this section.

503.2.8 Piping insulation. All piping serving as part of a heating or cooling system shall be thermally insulated in accordance with Table 503.2.8.

Exceptions:

1. Factory-installed piping within HVAC equipment tested and rated in accordance with a test procedure referenced by this code.
2. Piping that conveys fluids that have a design operating temperature range between 55°F (13°C) and 105°F (41°C).
3. Piping that conveys fluids that have not been heated or cooled through the use of fossil fuels or electric power.
4. Runout piping not exceeding 4 feet (1219 mm) in length and 1 inch (25 mm) in diameter between the control valve and HVAC coil.

TABLE 503.2.8
MINIMUM PIPE INSULATION^a
(thickness in inches)

FLUID	NOMINAL PIPE DIAMETER	
	≤1.5"	> 1.5"
Steam	1½	3
Hot water	1	2
Chilled water, brine or refrigerant	1	1½

For SI: 1 inch = 25.4 mm, British thermal unit per inch/h · ft² · °F = W per 25 mm/K · m²

a. Based on insulation having a conductivity (k) not exceeding 0.27 Btu per inch/h · ft² · °F.

503.2.9 HVAC system completion. Prior to the issuance of a certificate of occupancy, the design professional shall provide evidence of system completion in accordance with Sections 503.2.9.1 through 503.2.9.3.

503.2.9.1 Air system balancing. Each supply air outlet and zone terminal device shall be equipped with means for air balancing in accordance with the requirements of Chapter 6 of the *International Mechanical Code*. Discharge dampers are prohibited on constant volume fans and variable volume fans with motors 25 hp (18.6 kW) and larger.

503.2.9.2 Hydronic system balancing. Individual hydronic heating and cooling coils shall be equipped with means for balancing and pressure test connections.

503.2.9.3 Manuals. The construction documents shall require that an operating and maintenance manual be provided to the building owner by the mechanical contractor. The manual shall include, at least, the following:

1. Equipment capacity (input and output) and required maintenance actions.
2. Equipment operation and maintenance manuals.
3. HVAC system control maintenance and calibration information, including wiring diagrams, schematics, and control sequence descriptions. Desired or field-determined setpoints shall be permanently recorded on control drawings, at control devices or, for digital control systems, in programming comments.
4. A complete written narrative of how each system is intended to operate.

503.3 Simple HVAC systems and equipment. (Prescriptive). This section applies to buildings served by unitary or packaged HVAC equipment listed in Tables 503.2.3(1) through 503.2.3(5), each serving one zone and controlled by a single thermostat in the zone served. It also applies to two-pipe heating systems serving one or more zones, where no cooling system is installed.

This section does not apply to fan systems serving multiple zones, nonunitary or nonpackaged HVAC equipment and systems or hydronic or steam heating and hydronic cooling equip-

ment and distribution systems that provide cooling or cooling and heating which are covered by Section 503.4.

503.3.1 Economizers. Supply air economizers shall be provided on each cooling system as shown in Table 503.3.1(1).

Economizers shall be capable of providing 100-percent outdoor air, even if additional mechanical cooling is required to meet the cooling load of the building. Systems shall provide a means to relieve excess outdoor air during economizer operation to prevent overpressurizing the building. The relief air outlet shall be located to avoid recirculation into the building. Where a single room or space is supplied by multiple air systems, the aggregate capacity of those systems shall be used in applying this requirement.

Exceptions:

1. Where the cooling equipment is covered by the minimum efficiency requirements of Table 503.2.3(1) or 503.2.3(2) and meets or exceeds the minimum cooling efficiency requirement (EER) by the percentages shown in Table 503.3.1(2).
2. Systems with air or evaporatively cooled condensers and which serve spaces with open case refrigeration or that require filtration equipment in order to meet the minimum ventilation requirements of Chapter 4 of the *International Mechanical Code*.

TABLE 503.3.1(1)
ECONOMIZER REQUIREMENTS

CLIMATE ZONES	ECONOMIZER REQUIREMENT
1A, 1B, 2A, 3A, 4A, 7, 8	No requirement
2B, 3B, 3C, 4B, 4C, 5B, 5C, 6B	Economizers on all cooling systems ≥ 54,000 Btu/h
5A, 6A	Economizers on all cooling systems ≥ 135,000 Btu/h

For SI: 1 British thermal unit per hour = 0.293 W.

TABLE 503.3.1(2)
EQUIPMENT EFFICIENCY PERFORMANCE
EXCEPTION FOR ECONOMIZERS

CLIMATE ZONES	COOLING EQUIPMENT PERFORMANCE IMPROVEMENT (EER OR IPLV)
2B	10% Efficiency Improvement
3B	15% Efficiency Improvement
4B	20% Efficiency Improvement

503.3.2 Hydronic system controls. Hydronic systems of at least 300,000 Btu/h (87,930 W) design output capacity supplying heated and chilled water to comfort conditioning systems shall include controls that meet the requirements of Section 503.4.3.

503.4 Complex HVAC systems and equipment. (Prescriptive). This section applies to buildings served by HVAC equipment and systems not covered in Section 503.3.

503.4.1 Economizers. Supply air economizers shall be provided on each cooling system according to Table 503.3.1(1). Economizers shall be capable of operating at 100 percent outside air, even if additional mechanical cooling is required to meet the cooling load of the building.

Exceptions:

1. Systems utilizing water economizers that are capable of cooling supply air by direct or indirect evaporation or both and providing 100 percent of the expected system cooling load at outside air temperatures of 50°F (10°C) dry bulb/45°F (7°C) wet bulb and below.
2. Where the cooling equipment is covered by the minimum efficiency requirements of Table 503.2.3(1), 503.2.3(2), or 503.2.3(6) and meets or exceeds the minimum EER by the percentages shown in Table 503.3.1(2)
3. Where the cooling equipment is covered by the minimum efficiency requirements of Table 503.2.3(7) and meets or exceeds the minimum integrated part load value (IPLV) by the percentages shown in Table 503.3.1(2).

503.4.2 Variable air volume (VAV) fan control. Individual VAV fans with motors of 10 horsepower (7.5 kW) or greater shall be:

1. Driven by a mechanical or electrical variable speed drive; or
2. The fan motor shall have controls or devices that will result in fan motor demand of no more than 30 percent of their design wattage at 50 percent of design air flow when static pressure set point equals one-third of the total design static pressure, based on manufacturer's certified fan data.

For systems with direct digital control of individual zone boxes reporting to the central control panel, the static pressure set point shall be reset based on the zone requiring the most pressure, i.e., the set point is reset lower until one zone damper is nearly wide open.

503.4.3 Hydronic systems controls. The heating of fluids that have been previously mechanically cooled and the cooling of fluids that have been previously mechanically heated shall be limited in accordance with Sections 503.4.3.1 through 503.4.3.3. Hydronic heating systems comprised of multiple-packaged boilers and designed to deliver conditioned water or steam into a common distribution system shall include automatic controls capable of sequencing operation of the boilers. Hydronic heating systems comprised of a single boiler and greater than 500,000 Btu/h input design capacity shall include either a multistaged or modulating burner.

503.4.3.1 Three-pipe system. Hydronic systems that use a common return system for both hot water and chilled water are prohibited.

503.4.3.2 Two-pipe changeover system. Systems that use a common distribution system to supply both heated and chilled water shall be designed to allow a dead band between changeover from one mode to the other of at least 15°F (8.3°C) outside air temperatures; be designed to and provided with controls that will allow operation in one mode for at least 4 hours before changing over to the other mode; and be provided with controls that allow heating and cooling supply temperatures at the change-over point to be no more than 30°F (16.7°C) apart.

503.4.3.3 Hydronic (water loop) heat pump systems. Hydronic heat pumps connected to a common heat pump water loop with central devices for heat rejection and heat addition shall have controls that are capable of providing a heat pump water supply temperature dead band of at least 20°F (11.1°C) between initiation of heat rejection and heat addition by the central devices. For Climate Zones 3 through 8 as indicated in Figure 301.1 and Table 301.1, if a closed-circuit cooling tower is used, either an automatic valve shall be installed to bypass all but a minimal flow of water around the tower, or lower leakage positive closure dampers shall be provided. If an open-circuit tower is used directly in the heat pump loop, an automatic valve shall be installed to bypass all heat pump water flow around the tower. If an open-circuit cooling tower is used in conjunction with a separate heat exchanger to isolate the cooling tower from the heat pump loop, then heat loss shall be controlled by shutting down the circulation pump on the cooling tower loop. Each hydronic heat pump on the hydronic system having a total pump system power exceeding 10 horsepower (hp) (7.5 kW) shall have a two-position valve.

Exception: Where a system loop temperature optimization controller is installed and can determine the most efficient operating temperature based on real time conditions of demand and capacity, dead bands of less than 20°F (11.1°C) shall be permitted.

503.4.3.4 Part load controls. Hydronic systems greater than or equal to 300,000 Btu/h (87,930 W) in design output capacity supplying heated or chilled water to comfort conditioning systems shall include controls that have the capability to:

1. Automatically reset the supply-water temperatures using zone-return water temperature, building-return water temperature, or outside air temperature as an indicator of building heating or cooling demand. The temperature shall be capable of being reset by at least 25 percent of the design supply-to-return water temperature difference; or
2. Reduce system pump flow by at least 50 percent of design flow rate utilizing adjustable speed drive(s) on pump(s), or multiple-staged pumps where at least one-half of the total pump horsepower is capable of being automatically turned off or control valves designed to modulate or step down, and close, as a function of load, or other approved means.

503.4.3.5 Pump isolation. Chilled water plants including more than one chiller shall have the capability to reduce flow automatically through the chiller plant when a chiller is shut down. Chillers piped in series for the purpose of increased temperature differential, shall be considered as one chiller.

Boiler plants including more than one boiler shall have the capability to reduce flow automatically through the boiler plant when a boiler is shut down.

503.4.4 Heat rejection equipment fan speed control. Each fan powered by a motor of 7.5 hp (5.6 kW) or larger shall have the capability to operate that fan at two-thirds of full speed or less, and shall have controls that automatically change the fan speed to control the leaving fluid temperature or condensing temperature/pressure of the heat rejection device.

Exception: Factory-installed heat rejection devices within HVAC equipment tested and rated in accordance with Tables 503.2.3(6) through 503.2.3(11).

503.4.5 Requirements for complex mechanical systems serving multiple zones. Sections 503.4.5.1 through 503.4.5.3 shall apply to complex mechanical systems serving multiple zones. Supply air systems serving multiple zones shall be VAV systems which, during periods of occupancy, are designed and capable of being controlled to reduce primary air supply to each zone to one of the following before reheating, recooling or mixing takes place:

1. Thirty percent of the maximum supply air to each zone.
2. Three hundred cfm (142 L/s) or less where the maximum flow rate is less than 10 percent of the total fan system supply airflow rate.
3. The minimum ventilation requirements of Chapter 4 of the *International Mechanical Code*.

Exception: The following define when individual zones or when entire air distribution systems are exempted from the requirement for VAV control:

1. Zones where special pressurization relationships or cross-contamination requirements are such that VAV systems are impractical.
2. Zones or supply air systems where at least 75 percent of the energy for reheating or for providing warm air in mixing systems is provided from a site-recovered or site-solar energy source.
3. Zones where special humidity levels are required to satisfy process needs.
4. Zones with a peak supply air quantity of 300 cfm (142 L/s) or less and where the flow rate is less than 10 percent of the total fan system supply airflow rate.
5. Zones where the volume of air to be reheated, recooling or mixed is no greater than the volume of outside air required to meet the minimum ventilation requirements of Chapter 4 of the *International Mechanical Code*.

6. Zones or supply air systems with thermostatic and humidistatic controls capable of operating in sequence the supply of heating and cooling energy to the zone(s) and which are capable of preventing reheating, recooling, mixing or simultaneous supply of air that has been previously cooled, either mechanically or through the use of economizer systems, and air that has been previously mechanically heated.

503.4.5.1 Single duct variable air volume (VAV) systems, terminal devices. Single duct VAV systems shall use terminal devices capable of reducing the supply of primary supply air before reheating or recooling takes place.

503.4.5.2 Dual duct and mixing VAV systems, terminal devices. Systems that have one warm air duct and one cool air duct shall use terminal devices which are capable of reducing the flow from one duct to a minimum before mixing of air from the other duct takes place.

503.4.5.3 Single fan dual duct and mixing VAV systems, economizers. Individual dual duct or mixing heating and cooling systems with a single fan and with total capacities greater than 90,000 Btu/h [(26 375 W) 7.5 tons] shall not be equipped with air economizers.

503.4.6 Heat recovery for service water heating. Condenser heat recovery shall be installed for heating or reheating of service hot water provided the facility operates 24 hours a day, the total installed heat capacity of water-cooled systems exceeds 6,000,000 Btu/hr of heat rejection, and the design service water heating load exceeds 1,000,000 Btu/h.

The required heat recovery system shall have the capacity to provide the smaller of:

1. Sixty percent of the peak heat rejection load at design conditions; or
2. The preheating required to raise the peak service hot water draw to 85°F (29°C).

Exceptions:

1. Facilities that employ condenser heat recovery for space heating or reheat purposes with a heat recovery design exceeding 30 percent of the peak water-cooled condenser load at design conditions.
2. Facilities that provide 60 percent of their service water heating from site solar or site recovered energy or from other sources.

SECTION 504 SERVICE WATER HEATING (Mandatory)

504.1 General. This section covers the minimum efficiency of, and controls for, service water-heating equipment and insulation of service hot water piping.

504.2 Service water-heating equipment performance efficiency. Water-heating equipment and hot water storage tanks shall meet the requirements of Table 504.2. The efficiency shall be verified through data furnished by the manufacturer or through certification under an approved certification program.

504.3 Temperature controls. Service water-heating equipment shall be provided with controls to allow a setpoint of 110°F (43°C) for equipment serving dwelling units and 90°F (32°C) for equipment serving other occupancies. The outlet temperature of lavatories in public facility rest rooms shall be limited to 110°F (43°C).

504.4 Heat traps. Water-heating equipment not supplied with integral heat traps and serving noncirculating systems shall be provided with heat traps on the supply and discharge piping associated with the equipment.

504.5 Pipe insulation. For automatic-circulating hot water systems, piping shall be insulated with 1 inch (25 mm) of insulation having a conductivity not exceeding 0.27 Btu per inch/h $\times$ ft² $\times$ °F (1.53 W per 25 mm/m² $\times$ K). The first 8 feet (2438 mm) of piping in noncirculating systems served by equipment without integral heat traps shall be insulated with 0.5 inch (12.7 mm) of material having a conductivity not exceeding 0.27 Btu per inch/h $\times$ ft² $\times$ °F (1.53 W per 25 mm/m² $\times$ K).

504.6 Hot water system controls. Automatic-circulating hot water system pumps or heat trace shall be arranged to be conveniently turned off automatically or manually when the hot water system is not in operation.

504.7 Pools. Pools shall be provided with energy conserving measures in accordance with Sections 504.7.1 through 504.7.3.

504.7.1 Pool heaters. All pool heaters shall be equipped with a readily accessible on-off switch to allow shutting off the heater without adjusting the thermostat setting. Pool heaters fired by natural gas shall not have continuously burning pilot lights.

504.7.2 Time switches. Time switches that can automatically turn off and on heaters and pumps according to a preset schedule shall be installed on swimming pool heaters and pumps.

Exceptions:

1. Where public health standards require 24-hour pump operation.
2. Where pumps are required to operate solar-and waste-heat-recovery pool heating systems.

504.7.3 Pool covers. Heated pools shall be equipped with a vapor retardant pool cover on or at the water surface. Pools heated to more than 90°F (32°C) shall have a pool cover with a minimum insulation value of R-12.

Exception: Pools deriving over 60 percent of the energy for heating from site-recovered energy or solar energy source.

SECTION 505 ELECTRICAL POWER AND LIGHTING SYSTEMS (Mandatory)

505.1 General. (Mandatory). This section covers lighting system controls, the connection of ballasts, the maximum lighting power for interior applications, and minimum acceptable lighting equipment for exterior applications.

Exception: Lighting within dwelling units.

505.2 Lighting controls. (Mandatory). Lighting systems shall be provided with controls as required in Sections 505.2.1, 505.2.2, 505.2.3 and 505.2.4.

505.2.1 Interior lighting controls. Each area enclosed by walls or floor-to-ceiling partitions shall have at least one manual control for the lighting serving that area. The required controls shall be located within the area served by the controls or be a remote switch that identifies the lights served and indicates their status.

Exceptions:

1. Areas designated as security or emergency areas that must be continuously lighted.
2. Lighting in stairways or corridors that are elements of the means of egress.

505.2.2 Additional controls. Each area that is required to have a manual control shall have additional controls that meet the requirements of Sections 505.2.2.1 and 505.2.2.2.

505.2.2.1 Light reduction controls. Each area that is required to have a manual control shall also allow the occupant to reduce the connected lighting load in a reasonably uniform illumination pattern by at least 50 percent. Lighting reduction shall be achieved by one of the following or other approved method:

1. Controlling all lamps or luminaires;
2. Dual switching of alternate rows of luminaires, alternate luminaires or alternate lamps;
3. Switching the middle lamp luminaires independently of the outer lamps; or
4. Switching each luminaire or each lamp.

Exceptions:

1. Areas that have only one luminaire.
2. Areas that are controlled by an occupant-sensing device.
3. Corridors, storerooms, restrooms or public lobbies.
4. Sleeping unit (see Section 505.2.3).
5. Spaces that use less than 0.6 watts per square foot (6.5 W/m²).

TABLE 504.2
MINIMUM PERFORMANCE OF WATER-HEATING EQUIPMENT

EQUIPMENT TYPE	SIZE CATEGORY (input)	SUBCATEGORY OR RATING CONDITION	PERFORMANCE REQUIRED ^{a, b}	TEST PROCEDURE
Water heaters, Electric	≤ 12 kW	Resistance	0.97 - 0.00132V, EF	DOE 10 CFR Part 430
	> 12 kW	Resistance	1.73V + 155 SL, Btu/h	ANSI Z21.10.3
	≤ 24 amps and ≤ 250 volts	Heat pump	0.93 - 0.00132V, EF	DOE 10 CFR Part 430
Storage water heaters, Gas	≤ 75,000 Btu/h	≥ 20 gal	0.67 - 0.0019V, EF	DOE 10 CFR Part 430
	> 75,000 Btu/h and ≤ 155,000 Btu/h	< 4,000 Btu/h/gal	$80\% E_t$ $(Q/800 + 110\sqrt{V})$ SL, Btu/h	ANSI Z21.10.3
	> 155,000 Btu/h	< 4,000 Btu/h/gal	$80\% E_t$ $(Q/800 + 110\sqrt{V})$ SL, Btu/h	
Instantaneous water heaters, Gas	> 50,000 Btu/h and < 200,000 Btu/h ^c	≥ 4,000 (Btu/h)/gal and < 2 gal	0.62 - 0.0019V, EF	DOE 10 CFR Part 430
	≥ 200,000 Btu/h	≥ 4,000 Btu/h/gal and < 10 gal	80% E_t	ANSI Z21.10.3
	≥ 200,000 Btu/h	≥ 4,000 Btu/h/gal and ≥ 10 gal	$80\% E_t$ $(Q/800 + 110\sqrt{V})$ SL, Btu/h	
Storage water heaters, Oil	≤ 105,000 Btu/h	≥ 20 gal	0.59 - 0.0019V, EF	DOE 10 CFR Part 430
	> 105,000 Btu/h	< 4,000 Btu/h/gal	$78\% E_t$ $(Q/800 + 110\sqrt{V})$ SL, Btu/h	ANSI Z21.10.3
Instantaneous water heaters, Oil	≤ 210,000 Btu/h	≥ 4,000 Btu/h/gal and < 2 gal	0.59 - 0.0019V, EF	DOE 10 CFR Part 430
	> 210,000 Btu/h	≥ 4,000 Btu/h/gal and < 10 gal	80% E_t	ANSI Z21.10.3
	> 210,000 Btu/h	≥ 4,000 Btu/h/gal and ≥ 10 gal	$78\% E_t$ $(Q/800 + 110\sqrt{V})$ SL, Btu/h	
Hot water supply boilers, Gas and Oil	≥ 300,000 Btu/h and < 12,500,000 Btu/h	≥ 4,000 Btu/h/gal and < 10 gal	80% E_t	ANSI Z21.10.3
Hot water supply boilers, Gas	≥ 300,000 Btu/h and < 12,500,000 Btu/h	≥ 4,000 Btu/h/gal and ≥ 10 gal	$80\% E_t$ $(Q/800 + 110\sqrt{V})$ SL, Btu/h	
Hot water supply boilers, Oil	> 300,000 Btu/h and < 12,500,000 Btu/h	> 4,000 Btu/h/gal and > 10 gal	$78\% E_t$ $(Q/800 + 110\sqrt{V})$ SL, Btu/h	
Pool heaters, Gas and Oil	All	—	78% E_t	ASHRAE 146
Heat pump pool heaters	All	—	4.0 COP	ARI 1160
Unfired storage tanks	All	—	Minimum insulation requirement R-12.5 (h-ft ² -°F)/Btu	(none)

For SI: °C = [(°F) - 32] / 1.8, 1 British thermal unit per hour = 0.2931 W, 1 gallon = 3.785 L, 1 British thermal unit per hour per gallon = 0.078 W/L.

a. Energy factor (EF) and thermal efficiency (E_t) are minimum requirements. In the EF equation, V is the rated volume in gallons.

b. Standby loss (SL) is the maximum Btu/h based on a nominal 70°F temperature difference between stored water and ambient requirements. In the SL equation, Q is the nameplate input rate in Btu/h. In the SL equation for electric water heaters, V is the rated volume in gallons. In the SL equation for oil and gas water heaters and boilers, V is the rated volume in gallons.

c. Instantaneous water heaters with input rates below 200,000 Btu/h must comply with these requirements if the water heater is designed to heat water to temperatures 180°F or higher.

505.2.2.2 Automatic lighting shutoff. Buildings larger than 5,000 square feet (465 m²) shall be equipped with an automatic control device to shut off lighting in those areas. This automatic control device shall function on either:

1. A scheduled basis, using time-of-day, with an independent program schedule that controls the interior lighting in areas that do not exceed 25,000 square feet (2323 m²) and are not more than one floor; or
2. An occupant sensor that shall turn lighting off within 30 minutes of an occupant leaving a space; or
3. A signal from another control or alarm system that indicates the area is unoccupied.

Exception: The following shall not require an automatic control device:

1. Sleeping unit (see Section 505.2.3).
2. Lighting in spaces where patient care is directly provided.
3. Spaces where an automatic shutoff would endanger occupant safety or security.

505.2.2.2.1 Occupant override. Where an automatic time switch control device is installed to comply with Section 505.2.2.2, Item 1, it shall incorporate an override switching device that:

1. Is readily accessible.
2. Is located so that a person using the device can see the lights or the area controlled by that switch, or so that the area being lit is annunciated.
3. Is manually operated.
4. Allows the lighting to remain on for no more than 2 hours when an override is initiated.
5. Controls an area not exceeding 5,000 square feet (465 m²).

Exceptions:

1. In malls and arcades, auditoriums, single-tenant retail spaces, industrial facilities and arenas, where captive-key override is utilized, override time may exceed 2 hours.
2. In malls and arcades, auditoriums, single-tenant retail spaces, industrial facilities and arenas, the area controlled may not exceed 20,000 square feet (1860 m²).

505.2.2.2.2 Holiday scheduling. If an automatic time switch control device is installed in accordance with Section 505.2.2.2, Item 1, it shall incorporate an automatic holiday scheduling feature that turns off all loads for at least 24 hours, then resumes the normally scheduled operation.

Exception: Retail stores and associated malls, restaurants, grocery stores, places of religious worship and theaters.

505.2.3 Sleeping unit. Sleeping units in hotels, motels, boarding houses or similar buildings shall have at least one master switch at the main entry door that controls all permanently wired luminaires and switched receptacles, except those in the bathroom(s). Suites shall have a control meeting these requirements at the entry to each room or at the primary entry to the suite.

505.2.4 Exterior lighting controls. Lighting for all exterior applications shall have automatic controls capable of turning off exterior lighting when sufficient daylight is available or when the lighting is not required during nighttime hours. Lighting not designated for dusk-to-dawn operation shall be controlled by an astronomical time switch. Lighting designated for dusk-to-dawn operation shall be controlled by an astronomical time switch or photosensor. Astronomical time switches shall be capable of retaining programming and the time setting during loss of power for a period of at least 10 hours.

Exception: Lighting for covered vehicle entrances or exits from buildings or parking structures where required for safety, security, or eye adaptation.

505.3 Tandem wiring. (Mandatory). The following luminaires located within the same area shall be tandem wired:

1. Fluorescent luminaires equipped with one, three or odd-numbered lamp configurations, that are recess-mounted within 10 feet (3048 mm) center-to-center of each other.
2. Fluorescent luminaires equipped with one, three or any other odd-numbered lamp configuration, that are pendant- or surface-mounted within 1 foot (305 mm) edge-to-edge of each other.

Exceptions:

1. Where electronic high-frequency ballasts are used.
2. Luminaires on emergency circuits.
3. Luminaires with no available pair in the same area.

505.4 Exit signs. (Mandatory). Internally illuminated exit signs shall not exceed 5 Watts per side.

505.5 Interior lighting power requirements. (Prescriptive). A building complies with this section if its total connected lighting power calculated under Section 505.5.1 is no greater than the interior lighting power calculated under Section 505.5.2.

505.5.1 Total connected interior lighting power. The total connected interior lighting power (watts) shall be the sum of the watts of all interior lighting equipment as determined in accordance with Sections 505.5.1.1 through 505.5.1.4.

Exceptions: The connected power associated with the following lighting equipment is not included in calculating total connected lighting power.

1. Specialized medical, dental and research lighting.
2. Professional sports arena playing field lighting.

3. Display lighting for exhibits in galleries, museums and monuments.
4. Sleeping unit lighting in hotels, motels, boarding houses or similar buildings.
5. Emergency lighting automatically off during normal building operation.

505.5.1.1 Screw lamp holders. The wattage shall be the maximum labeled wattage of the luminaire.

505.5.1.2 Low-voltage lighting. The wattage shall be the specified wattage of the transformer supplying the system.

505.5.1.3 Other luminaires. The wattage of all other lighting equipment shall be the wattage of the lighting equipment verified through data furnished by the manufacturer or other approved sources.

505.5.1.4 Line-voltage lighting track and plug-in busway. The wattage shall be the greater of the wattage of the luminaires determined in accordance with Sections 505.5.1.1 through 505.5.1.3 or 30 W/linear foot (98W/lin m).

505.5.2 Interior lighting power. The total interior lighting power (watts) is the sum of all interior lighting powers for all areas in the building covered in this permit. The interior lighting power is the floor area for each building area type listed in Table 505.5.2 times the value from Table 505.5.2 for that area. For the purposes of this method, an "area" shall be defined as all contiguous spaces that accommodate or are associated with a single building area type as listed in Table 505.5.2. When this method is used to calculate the total interior lighting power for an entire building, each building area type shall be treated as a separate area.

505.6 Exterior lighting. (Mandatory). When the power for exterior lighting is supplied through the energy service to the building, all exterior lighting, other than low-voltage landscape lighting, shall comply with Sections 505.6.1 and 505.6.2.

Exception: Where approved because of historical, safety, signage or emergency considerations.

505.6.1 Exterior building grounds lighting. All exterior building grounds luminaires that operate at greater than 100 watts shall contain lamps having a minimum efficacy of 60 lumens per watt unless the luminaire is controlled by a motion sensor or qualifies for one of the exceptions under Section 505.6.2.

**TABLE 505.5.2
INTERIOR LIGHTING POWER ALLOWANCES**

LIGHTING POWER DENSITY	
Building Area Type ^a	(W/ft ²)
Automotive Facility	0.9
Convention Center	1.2
Court House	1.2
Dining: Bar Lounge/Leisure	1.3
Dining: Cafeteria/Fast Food	1.4
Dining: Family	1.6
Dormitory	1.0
Exercise Center	1.0
Gymnasium	1.1
Healthcare-Clinic	1.0
Hospital	1.2
Hotel	1.0
Library	1.3
Manufacturing Facility	1.3
Motel	1.0
Motion Picture Theater	1.2
Multi-Family	0.7
Museum	1.1
Office	1.0
Parking Garage	0.3
Penitentiary	1.0
Performing Arts Theater	1.6
Police/Fire Station	1.0
Post Office	1.1
Religious Building	1.3
Retail ^b	1.5
School/University	1.2
Sports Arena	1.1
Town Hall	1.1
Transportation	1.0
Warehouse	0.8
Workshop	1.4

For SI: 1 foot = 304.8 mm, 1 watt per square foot = W/0.0929 m².

- a. In cases where both a general building area type and a more specific building area type are listed, the more specific building area type shall apply.
- b. Where lighting equipment is specified to be installed to highlight specific merchandise in addition to lighting equipment specified for general lighting and is switched or dimmed on circuits different from the circuits for general lighting, the smaller of the actual wattage of the lighting equipment installed specifically for merchandise, or 1.6 W/ft² times the area of the specific display but not to exceed 50% of the floor area, or 3.9 W/ft² times the actual case or shelf area for displaying and selling jewelry, china or silver, shall be added to the interior lighting power determined in accordance with this line item.

505.6.2 Exterior building lighting power. The total exterior lighting power allowance for all exterior building applications is the sum of the individual lighting power allowances based on the densities permitted in Table 505.6.2 for these applications plus an additional unrestricted allowance of 5 percent of that sum. Tradeoffs are allowed only among exterior lighting applications listed in Table 505.6.2 in the Tradable Surfaces section. Exterior lighting for all applications (except those included in the exceptions to Section 505.6.2) shall comply with the requirements of Section 505.6.1.

Exceptions: Lighting used for the following exterior applications is exempt when equipped with a control device independent of the control of the nonexempt lighting:

1. Specialized signal, directional, and marker lighting associated with transportation;

2. Advertising signage or directional signage;
3. Integral to equipment or instrumentation and is installed by its manufacturer;
4. Theatrical purposes, including performance, stage, film production and video production;
5. Athletic playing areas;
6. Temporary lighting;
7. Industrial production, material handling, transportation sites, and associated storage areas;
8. Theme elements in theme/amusement parks; and
9. Used to highlight features of public monuments and registered historic landmark structures or buildings.

TABLE 505.6.2
LIGHTING POWER DENSITIES FOR BUILDING EXTERIORS

APPLICATIONS	LIGHTING POWER DENSITIES
Tradable Surfaces (Lighting Power Densities for uncovered parking areas, building grounds, building entrances and exits, canopies and overhangs, and outdoor sales areas may be traded.)	
Uncovered Parking Areas	
Parking Lots and drives	0.15 W/ft ²
Building Grounds	
Walkways less than 10 feet wide	1.0 watts/linear foot
Walkways 10 feet wide or greater, plaza areas and special feature areas	0.2 W/ft ²
Stairways	1.0 W/ft ²
Building Entrances and Exits	
Main entries	30 watts/linear foot of door width
Other doors	20 watts/linear foot of door width
Canopies and Overhangs	
Canopies (free standing & attached and overhangs)	1.25 W/ft ²
Outdoor Sales	
Open areas (including vehicle sales lots)	0.5 W/ft ²
Street frontage for vehicle sales lots in addition to "open area" allowance	20 watts/linear foot
Nontradable Surfaces (Lighting Power Density calculations for the following applications can be used only for the specific application and cannot be traded between surfaces or with other exterior lighting. The following allowances are in addition to any allowance otherwise permitted in the Tradable Surfaces section of this table.)	
Building facades	0.2 W/ft ² for each illuminated wall or surface or 5.0 Watts/linear foot for each illuminated wall or surface length
Automated teller machines and night depositories	270 watts per location plus 90 watts per additional ATM per location
Entrances and gatehouse inspection stations at guarded facilities	1.25 W/ft ² of uncovered area (covered areas are included in the Canopies and Overhangs section of Tradable Surfaces)
Loading areas for law enforcement, fire, ambulance and other emergency service vehicles	0.5 W/ft ² of uncovered area (covered areas are included in the Canopies and Overhangs section of Tradable Surfaces)
Drive-up windows at fast food restaurants	400 watts per drive-through
Parking near 24-hour retail entrances	800 watts per main entry

For SI: 1 foot = 304.8 mm, 1 watt per square foot = W/0.0929 m².

505.7 Electrical energy consumption. (Mandatory). In buildings having individual dwelling units, provisions shall be made to determine the electrical energy consumed by each tenant by separately metering individual dwelling units.

SECTION 506 TOTAL BUILDING PERFORMANCE

506.1 General. The proposed design complies with this section provided that:

1. Sections 502.4, 502.5, 503.2, 504 505.2, 505.3, 505.4 505.6 and 505.7 are each satisfied, and
2. Annual energy costs of the proposed design as determined in accordance with Section 506.3 do not exceed those of the standard design as determined in accordance with Section 506.4.

506.2 Analysis procedures. Sections 506.2.1 through 506.2.8 shall be applied in determining total building performance.

506.2.1 Energy analysis. Annual (8,760 hours) energy costs for the standard design and the proposed design shall each be determined using the same approved energy analysis simulation tool.

506.2.2 Climate data. The climate data used in the energy analysis shall cover a full calendar year (8,760 hours) and shall reflect approved coincident hourly data for temperature, solar radiation, humidity and wind speed for the building location.

506.2.3 Energy rates. The annual energy costs shall be estimated using energy rates published by the serving energy supplier and which would apply to the actual building or *DOE State-Average Energy Prices* published by DOE's Energy Information Administration and which would apply to the actual building.

506.2.4 Nondepletable energy. Nondepletable energy collected off site shall be treated and priced the same as purchased energy. Energy from nondepletable energy sources collected on site shall be omitted from the annual energy cost of the proposed design. The analysis and performance of any nondepletable energy system shall be determined in accordance with accepted engineering practice using approved methods.

506.2.5 Building operation. Building operation shall be simulated for a full calendar year (8,760 hours). Operating schedules shall include hourly profiles for daily operation and shall account for variations between weekdays, weekends, holidays, and any seasonal operation. Schedules shall model the time-dependent variations of occupancy, illumination, receptacle loads, thermostat settings, mechanical ventilation, HVAC equipment availability, service hot water usage, and any process loads.

506.2.6 Simulated loads. The following systems and loads shall be modeled in determining total building performance: heating systems, cooling systems, fan systems, lighting power, receptacle loads, and process loads that exceed 1.0 W/ft^2 (10.76 W/m^2) of floor area of the room or space in which the process loads are located.

Exception: Systems and loads serving required emergency power only.

506.2.7 Service water-heating systems. Service water-heating systems that are other than combined service hot water/space-heating systems shall be omitted from the energy analysis provided all requirements in Section 504 have been met.

506.2.8 Exterior lighting. Exterior lighting systems shall be the same as in the standard and proposed designs.

506.3 Determining energy costs for the proposed design. Building systems and loads shall be simulated in the proposed design in accordance with Sections 506.3.1 and 506.3.2.

506.3.1 HVAC and service water-heating equipment. All HVAC and service water-heating equipment shall be simulated in the proposed design using capacities, rated efficiencies and part-load performance data for the proposed equipment as provided by the equipment manufacturer.

506.3.2 Features not documented at time of permit. If any feature of the proposed design is not included in the building permit application, the energy performance of that feature shall be assumed to be that of the corresponding feature used in the calculations required in Section 506.4.

506.4 Determining energy costs for the standard design. Sections 506.4.1 through 506.4.7 shall be used in determining the annual energy costs of the standard design.

506.4.1 Equipment efficiency. The space-heating, space-cooling, service water-heating, and ventilation systems and equipment shall meet, but not exceed, the minimum efficiency requirements of Sections 503 and 504.

506.4.2 HVAC system capacities. HVAC system capacities in the standard design shall be established such that no smaller number of unmet heating and cooling load hours and no larger heating and cooling capacity safety factors are provided than in the proposed design.

506.4.3 Envelope. The thermal envelope of the standard design shall comply with the prescriptive requirements of Sections 502.1 through 502.3, as well as the mandatory provisions of Sections 502.4 through 502.5.

506.4.4 Identical characteristics. The heating/cooling system zoning, the orientation of each building feature, the number of floors and the gross envelope areas of the standard design shall be the same as those of the proposed design except as modified by Section 506.4.5 or 506.4.6.

Exception: Permanent fixed or movable external shading devices for windows and glazed doors shall be excluded from the standard design.

506.4.5 Window area. The window area of the standard design shall be the same as the proposed design, or 35 percent of the above-grade wall area, whichever is less, and shall be distributed in a uniform pattern equally over each building facade.

506.4.6 Skylight area. The skylight area of the standard design shall be the same as the proposed design, or 3 percent of the gross area of the roof assembly, whichever is less.

506.4.7 Interior lighting. The lighting power for the standard design shall be the maximum allowed in accordance with Section 505.5. Where the occupancy of the building is not known, the lighting power density shall be 1.5 Watts per square foot (16.1 W/m²).

506.5 Documentation. The energy analysis and supporting documentation shall be prepared by a registered design professional where required by the statutes of the jurisdiction in which the project is to be constructed. The information documenting compliance shall be submitted in accordance with Sections 506.5.1 through 506.5.4.

506.5.1 Annual energy use and associated costs. The annual energy use and costs by energy source of the standard design and the proposed design shall be clearly indicated.

506.5.2 Energy-related features. A list of the energy-related features that are included in the proposed design and on which compliance with the provisions of the code are claimed shall be provided to the code official. This list shall include and prominently indicate all features that differ from those set forth in Section 506.4 and used in the energy analysis between the standard design and the proposed design.

506.5.3 Input and output report(s). Input and output report(s) from the energy analysis simulation program containing the complete input and output files, as applicable. The output file shall include energy use totals and energy use by energy source and end-use served, total hours that space conditioning loads are not met and any errors or warning messages generated by the simulation tool as applicable.

506.5.4 Written explanation(s). An explanation of any error or warning messages appearing in the simulation tool output shall be provided in a written, narrative format.

CHAPTER 6

REFERENCED STANDARDS

This chapter lists the standards that are referenced in various sections of this document. The standards are listed herein by the promulgating agency of the standard, the standard identification, the effective date and title, and the section or sections of this document that reference the standard. The application of the referenced standards shall be as specified in Section 107.

AAMA American Architectural Manufacturers Association 1827 Walden Office Square Suite 550 Schaumburg, IL 60173-4268		
Standard reference number	Title	Referenced in code section number
AAMA/WDMA/CSA 101/1.S.2/a440-05	Specifications for Windows, Doors and Unit Skylights	402.4.2, 502.4.1

AMCA Air Movement and Control Association International 30 West University Drive Arlington Heights, IL 60004-1806		
Standard reference number	Title	Referenced in code section number
500D-98	Laboratory Methods for Testing Dampers for Rating	502.4.4

ANSI American National Standards Institute 25 West 43rd Street Fourth Floor New York, NY 10036		
Standard reference number	Title	Referenced in code section number
Z21.10.3-01	Gas Water Heaters, Volume III - Storage Water Heaters with Input Ratings Above 75,000 Btu per Hour, Circulating Tank and Instantaneous—with Addenda Z21.10.3a-2003 and Z21.10.3b-2004.	Table 504.2
Z21.13-04	Gas-Fired Low Pressure Steam and Hot Water Boilers	Table 503.2.3(5)
Z21.47-03	Gas-Fired Central Furnaces.	Table 503.2.3(4)
Z83.8-02	Gas Unit Heaters and Gas-Fired Duct Furnaces—with Addendum Z83.8a-2003.	Table 503.2.3(4)

ARI Air Conditioning and Refrigeration Institute 4301 North Fairfax Drive Suite 200 Arlington, VA 22203		
Standard reference number	Title	Referenced in code section number
210/240-03	Unitary Air-Conditioning and Air-Source Heat Pump Equipment	Table 503.2.3(1), Table 503.2.3(2)
310/380-93	Standard for Packaged Terminal Air-Conditioners and Heat Pumps	Table 503.2.3(3)
340/360-2000	Commercial and Industrial Unitary Air-conditioning and Heat Pump Equipment.	Table 503.2.3(1), Table 503.2.3(2)
365-02	Commercial and Industrial Unitary Air-Conditioning Condensing Units	Table 503.2.3(6)
460-00	Remote Mechanical-Draft Air-Cooled Refrigerant Condensers.	Table 503.2.3(11)
550/590-98	Water Chilling Packages Using the Vapor Compression Cycle—with Addenda.	Table 503.2.3(7)
560-00	Absorption Water Chilling and Water Heating Packages	Table 503.2.3(7)
13256-1 (2004)	Water-source Heat Pumps—Testing and Rating for Performance—Part 1: Water-to-air and Brine-to-air Heat Pumps	Table 503.2.3(2)
1160-2004	Performance Rating of Heat Pump Pool Heaters	Table 504.2

REFERENCED STANDARDS

ASHRAE

American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc.
1791 Tullie Circle, NE
Atlanta, GA 30329-2305

Standard reference number	Title	Referenced in code section number
119—88 (RA 1994)	Air Leakage Performance for Detached Single-family Residential Buildings	Table 404.5.2(1)
146-1998	Testing and Rating Pool Heaters	Table 504.2
13256-1 (2004)	Water-source Heat Pumps—Testing and Rating for Performance—Part 1: Water-to-air and Brine-to-air Heat Pumps (ANSI/ASHRAE/IESNA 90.1-2004)	Table 503.2.3(2)
90.1—2004	Energy Standard for Buildings Except Low-rise Residential Buildings (ANSI/ASHRAE/IESNA 90.1-2004)	501.1, 501.2, 502.1.1, Table 502.2(2)
ASHRAE—2004	ASHRAE Handbook of Fundamentals-2004	402.1.4, Table 404.5.2(1), 503.2.1
ASHRAE—2004	ASHRAE HVAC Systems and Equipment Handbook-2004	503.2.1

ASME

American Society of Mechanical Engineers
Three Park Avenue
New York, NY 10016-5990

Standard reference number	Title	Referenced in code section number
PTC 4.1 - 1964	Steam Generating Units	Table 503.2.3(5)

ASTM

ASTM International
100 Barr Harbor Drive
West Conshohocken, PA 19428-2859

Standard reference number	Title	Referenced in code section number
C 90—03	Specification for Load-bearing Concrete Masonry Units	Table 502.2(1)
E 96—00e01	Standard Test Methods for Water Vapor Transmission of Materials	202, 502.5
E 283—04	Test Method for Determining the Rate of Air Leakage Through Exterior Windows, Curtain Walls and Doors Under Specified Pressure Differences Across the Specimen	402.4.3, 502.4.2, 502.4.7

CSA

Canadian Standards Association
5060 Spectrum Way
Mississauga, Ontario, Canada L4W 5N6

Standard reference number	Title	Referenced in code section number
101/LS.2/A440—05	Specifications for Windows, Doors and Unit Skylights	402.4.2, 502.4.1

CTI

Cooling Technology Institute
2611 FM 1960 West, Suite H-200
Houston, TX 77068-3730

Standard reference number	Title	Referenced in code section number
ATC-105 (2000)	Acceptance Test Code	Table 503.2.3(11)
STD-201 (2002)	Certification Standard for Commercial Water Cooling Towers	Table 503.2.3(11)

DOE

U.S. Department of Energy
c/o Superintendent of Documents
U.S. Government Printing Office
Washington, DC 20402-9325

Standard reference number	Title	Referenced in code section number
10 CFR Part 430, Subpart B, Appendix E (1998)	Uniform Test Method for Measuring the Energy Consumption of Water Heaters	Table 504.2
10 CFR Part 430, Subpart B, Appendix N (1998)	Uniform Test Method for Measuring the Energy Consumption of Furnaces and Boilers	Table 503.2.3(4), Table 503.2.3(5)
DOE/EIA-0376 (Current Edition)	State Energy Prices and Expenditure Report	404.3, 506.2.3

HI

Hydronics Institute, Division of the Gas Appliance Manufacturers Association
P.O. Box 218
Berkeley Heights, NJ 07054

Standard reference number	Title	Referenced in code section number
HBS	I=B=R—Testing and Rating Standard for Heating Boilers, 1989 Ed.	Table 503.2.3(5)

ICC

International Code Council, Inc.
5203 Leesburg Pike, Suite 600
Falls Church, VA 22041-3401

Standard reference number	Title	Referenced in code section number
IBC—06	International Building Code®	102.2, 201.3
ICC EC—06	ICC Electrical Code®	201.3
IFC—06	International Fire Code®	201.3
IFGC—06	International Fuel Gas Code®	201.3
IMC—06	International Mechanical Code®	503.2.5, 503.2.6, 503.2.7.1, 503.2.7.1.1, 503.2.7.1.2, 503.2.9.1, 503.3.1, 503.4.5
IPC—06	International Plumbing Code®	201.3
IRC—06	International Residential Code®	201.3, 403.2.2, 403.6, 404.6.1, Table 404.5.2(1)

IESNA

Illuminating Engineering Society of North America
120 Wall Street, 17th Floor
New York, NY 10005-4001

Standard reference number	Title	Referenced in code section number
90.1-2001	Energy Standard for Buildings Except Low-rise Residential Buildings	501.1, 501.2, 502.1.1, Table 502.2(2)

NFRC

National Fenestration Rating Council, Inc.
8484 Georgia Avenue
Suite 320
Silver Spring, MD 20910

Standard reference number	Title	Referenced in code section number
100—01	Procedure for Determining Fenestration Product U-Factors—Second Edition	102.1.3
200—01	Procedure for Determining Fenestration Product Solar Heat Gain Coefficients and Visible Transmittance at Normal Incidence—Second Edition	102.1.3
400—01	Procedure for Determining Fenestration Product Air Leakage—Second Edition	402.4.2, 502.4.1

SMACNA

Sheet Metal and Air Conditioning Contractors National Association, Inc.
4021 Lafayette Center Drive
Chantilly, VA 20151-1209

Standard reference number	Title	Referenced in code section number
SMACNA—85	HVAC Air Duct Leakage Test Manual	503.2.7.1.3

UL

Underwriters Laboratories Inc.
333 Pfingsten Road
Northbrook, IL 60062-2096

Standard reference number	Title	Referenced in code section number
181A—98	Closure Systems for Use with Rigid Air Ducts and Air Connectors — with Revisions through December 1998.	503.2.7
181B—95	Closure Systems for Use with Flexible Air Ducts and Air Connectors —with Revisions through August 2003	503.2.7
727—98	Oil-Fired Central Furnaces—with Revisions through January 2001	Table 503.2.3(4)
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WDMA

Window and Door Manufacturers Association
1400 East Touhy Avenue, Suite 470
Des Plaines, IL 60018

Standard reference number	Title	Referenced in code section number
101/I.S.2/A440—05	Specifications for Windows, Doors and Unit Skylights	402.4.2, 502.4.1

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**NOTE: THE FOLLOWING DOCUMENTATION
WAS SUBMITTED FOR THE RECORD BEFORE
OR AT THE PLANNING COMMISSION HEARING
ON THIS ITEM WHICH IS NOW APPEARING
BEFORE THE CITY COUNCIL**

Carman Burney

From: Sheila Lambert
Sent: Wednesday, April 25, 2007 3:35 PM
To: Agenda Items
Subject: FW: Rezoning Application ZON-20543: PROPOSED APARTMENTS/CONDOS NEAR ELEMENTARY SCHOOLS

Zoning Opposition

From: Richard Rychtarik [mailto:rcrpower@cox.net]
Sent: Monday, April 23, 2007 7:59 PM
To: Sheila Lambert
Subject: Rezoning Application ZON-20543: PROPOSED APARTMENTS/CONDOS NEAR ELEMENTARY SCHOOLS

Adjacent to US 95 north and south of Durango what I see is the beginning of large volume, high density housing and businesses. The same holds true on Durango just west of 95. The reasons for this are usually affordability for lower income citizens, economic viability for developers or both. I believe that there is a large body of empirical evidence showing that large areas with high density, low cost housing have a dramatically higher per capita crime rate.

The city of Las Vegas has championed an "integrated" neighborhood concept, which is the grouping of affordable, usually high density, housing with other low density residential units. While on the surface this seems to have merit, same school systems, population diversity, a boot strap effect for some etc., I question the merits. In general, those in the low cost, high density housing have little in common with their adjoining low density, high cost residential neighbors. If anything, this fosters further isolation, mistrust and even resentment. It is difficult enough to relate to your neighbors with similar socio/economic backgrounds, this mix makes it nearly impossible.

Given that Horse/95 will be the next major interchange to be developed, I propose that any additional high density housing be located on the west side of 95 near Horse and not adjacent to these elementary schools. I know this seems like not in my back yard but I believe the rational put forth by others, security and safety, is sound.

Has anyone considered a traffic study incorporating all of this proposed high density housing? Thank you.

Richard Rychtarik
 8228 Weeping Springs Ave.
 89131
 702-515-7228

Carman Burney

From: Sheila Lambert
Sent: Wednesday, April 25, 2007 3:34 PM
To: Agenda Items
Subject: FW: Zoning Application ZON-20543

Opposition letter

From: Brezyiilv@aol.com [mailto:Brezyiilv@aol.com]
Sent: Monday, April 23, 2007 8:05 PM
To: Sheila Lambert
Subject: Zoning Application ZON-20543

Dear Sheila Lambert,

I believe the portion of Zoning Application ZON-20543 that would allow apartments and/or condominiums adjacent to these two elementary schools:

- 1) Will be Incompatible with and too intense for the surrounding neighborhood;
- 2) Does not allow an appropriate buffer between high-density residential and these two elementary schools;
- 3) Will result in increased traffic from a commercial use or high-density residential which will be dangerous to our children going to and from these schools;
- 4) Will result in increased crime near these schools.

Thank you for your time, assistance, and continued dedication to maintaining the quality of our neighborhoods!

Sincerely,

Wendy Bybee, A Concerned Resident & Parent

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4/25/2007

59

Carman Burney

From: Sheila Lambert
Sent: Wednesday, April 25, 2007 3:33 PM
To: Agenda Items
Subject: FW: Focus Group -

GPA 20543

-----Original Message-----

From: Marvin & Eileen Minushkin [mailto:emmm41165@cox.net]
Sent: Sunday, April 22, 2007 12:34 PM
To: Sheila Lambert
Subject: Focus Group

Sheila: Many individuals have spoken against the addition of apartments along the southeast portion of Focus' land. This will certainly impact schools in a negative way. We would again like the councilman to appose this modification of use. Single family, condo's and commercial as originally planned is the way to go.
Marvin

Carman Burney

From: Sheila Lambert
Sent: Wednesday, April 25, 2007 3:33 PM
To: Agenda Items
Subject: FW: ZON-20543

Opposition letter

From: Jennifer L. Taylor [mailto:jtaylor@RVCDLAW.COM]
Sent: Sunday, April 22, 2007 9:52 PM
To: Sheila Lambert
Subject: ZON-20543

Dear Sheila:

I am writing to express my concerns and opposition regarding Rezoning Application ZON-20543. The proposed Master Plan submitted by Focus Property Group seeks approval of commercial and/or condos/apartments on the far southeast edge of the property and immediately adjacent to Bilbray and Scherkenbach Elementary Schools. I vigorously oppose this portion of the proposed Master Plan, and request that Councilman Ross deny any request by the landowner to place high-density, multi-family housing immediately adjacent to these two elementary schools. I believe that high-density multi-family housing immediately adjacent to Bilbray and Scherkenbach Elementary Schools will be incompatible with and too intense for the surrounding neighborhood, does not allow an appropriate buffer between high-density residential and these two elementary schools, will result in increased traffic from a commercial use or high-density residential which will be dangerous to our children going to and from these schools, and will result in increased crime near these schools. Although I am outside the 1000' zone, I would appreciate being notified of any neighborhood meetings or other information related to this proposed Master Plan.

Please encourage the Councilman to ensure that this proposed Master Plan mandates responsible growth and the protection of the children at these two elementary schools. As always, thank you for your time and for passing my concerns onto Councilman Ross.

Sincerely,
 Jennifer L. Taylor
 Wertzson & Vick, LLP
 111 N. Buffalo Dr., Suite 202
 Las Vegas, NV 89145

Office Phone (702) 247-4661
 Direct E-mail address: jtaylor@rvcdlaw.com

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4/25/2007

Carman Burney

From: Sheila Lambert
Sent: Wednesday, April 25, 2007 3:33 PM
To: Agenda Items
Subject: FW: Zoning Application ZON-20543

Opposition letter

From: Heather Sams [mailto:heathersams@cox.net]
Sent: Tuesday, April 24, 2007 7:30 AM
To: Steven Ross
Subject: Zoning Application ZON-20543

Hello. I am writing to express my views on the rezoning application for the planned development on the land directly south of Bilbray Elementary School. I understand that the plan includes high density residential. My children attend Bilbray Elementary and I am quite concerned from a safety perspective. Furthermore, high-density residential development is completely incompatible with the character of the surrounding neighborhood (as is commercial development). It is quite simply the wrong place to plan a development of this kind.

Please respond in kind regarding your viewpoint and planned course of action regarding this planned development.

Thank you.

Heather Sams

heathersams@cox.net

9033 Tumblewood Avenue, Las Vegas NV 89143

Home: 702-658-4721

Cell: 702-203-2748

4/25/2007

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Carman Burney

From: Sheila Lambert
Sent: Wednesday, April 25, 2007 3:32 PM
To: Agenda Items
Subject: FW: Rezoning Application ZON-20543

Opposition letter

From: Lance Howell [mailto:howell_lance@yahoo.com]
Sent: Monday, April 23, 2007 7:56 AM
To: Steven Ross
Cc: Sheila Lambert
Subject: Rezoning Application ZON-20543

Councilman Ross,

I believe the portion of Zoning Application ZON-20543 that would allow apartments and/or condominiums adjacent to these two elementary schools:

- 1) Will be Incompatible with and too intense for the surrounding neighborhood;
- 2) Does not allow an appropriate buffer between high-density residential and these two elementary schools;
- 3) Will result in increased traffic from a commercial use or high-density residential which will be dangerous to our children going to and from these schools;
- 4) Will result in increased crime near these schools.

Thank you,

Lance Howell
8320 Jo Marcy Drive

Ahhh...imagining that irresistible "new car" smell?
Check out new cars at Yahoo! Autos.

Carman Burney

From: Sheila Lambert
Sent: Wednesday, April 25, 2007 3:31 PM
To: Agenda Items
Subject: FW: Internet Submission - proposed change to zoning off Ft. Apache/Brent GPA 20543

-----Original Message-----

From: CWaller2112@yahoo.com [mailto:CWaller2112@yahoo.com]
Sent: Sunday, April 22, 2007 11:48 AM
To: Councilman-sross@LasVegasNevada.gov
Subject: Internet Submission - proposed change to zoning off Ft. Apache/Brent

Citizen Name: Chris Waller

Email: CWaller2112@yahoo.com

Comments: I think that it's ludicrous that a large corporation can come in and ram apartments and/or condos down the communities throat merely because they have the money to do so. This isn't in the best interest of the current community nor does it speak well that Focus can exonerate themselves by claiming they have financial partners and have to follow their whims. This is a poor example of their policies. It is actually a similiar to a scam called bait and switch. I would hope that your office, as an extension of the will of the residents, do your best to block such a proposal. This is what we would expect from our councilman. Thank you for your interest, Chris Waller

Date: 4/22/2007 11:48:01 AM

Telephone Protest/ Approval Log

Meeting Date: 4-26-07

Case Number: ^{ZON-}20543

Date: 4-25-07
Name: Jay Monardo
Address: 7951 Whale Harbor St
Phone: SAS-1372
☒ PROTEST ☐ APPROVE

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