

SECTION 3

STREETS (ST)

3-1 GENERAL - Street surface improvements shall include: barricades, bikeways, bridges, bollards, curbs, gutters, driveways, pavement, curb ramps, sidewalks, signs, traffic stripes, pavement markings and trenches. These improvements shall be installed in accordance with the approved improvement plans, these Construction Standards, the latest edition of Caltrans Standard Specifications, the Grass Valley Downtown Streetscapes Standards Manual and as specified by the City Engineer. No street shall be cut in the City's right of way, nor any public improvement disturbed, until the Developer/Contractor has obtained an Encroachment Permit from the City of Grass Valley.

3-2 EXISTING ROADWAY DISTURBANCE - Removal or disturbance of an existing roadway requires that the following conditions be met:

A. Existing Stub Street Connection - The Developer shall be responsible for removing and reconstructing a portion of the existing roadway to make a satisfactory connection, as required by the City Engineer.

B. Street Widening - When widening is necessary to complete an existing partial street along a development project, the Developer shall be responsible for saw cutting and removing a narrow strip along the outside portion of the pavement to provide a clean and stable section for constructing the new pavement against. The width from centerline shall be shown on the approved plans or as determined in the field, and verified by the Public Works Inspector.

C. Sawcutting Existing Streets - When sawcutting within the street for trenching or other purposes, the Contractor shall sawcut or grind and remove the pavement to a minimum depth of 2 inches and repave the removed section with asphalt concrete in accordance with these Standards. Edges of sawcut trenches must avoid wheel paths in travel lanes and be reviewed and approved by the Public Works Inspector. Any delineators and/or striping removed during the grind shall be re-striped or replaced.

All installations on paved surfaces less than 5-years old shall be by boring and jacking only. If trenching is unavoidable, the entire lane width of the disturbed area shall be slurry sealed.

D. Adjacent Roadway Excavation - Where excavation adjacent to an existing roadway results in an elevation difference of greater than 2 inches, the excavated area shall be filled with compacted ¾-inch Class 2 aggregate base, flush with the adjacent roadway at a slope not to exceed 4:1 (horizontal to vertical) prior to the end of each workday. Temporary fill with "native" soil may only be used with the approval of the Public Works Inspector. Delineators or cones shall be placed two feet off the edge of pavement.

Where concrete forms are placed within three feet of the existing pavement edge, the preceding requirement may be exempted overnight upon the placement of appropriate delineation and the approval of the Public Works Inspector.

E. Pavement Milling Requirements - All milled edges perpendicular and diagonal to the travel way shall be temporarily transitioned at 30:1 slope with temporary pavement (cut-back).

3-3 CONSTRUCTION STAKING - Construction staking shall be provided by the Developer for all surface improvements. Such staking shall provide the station and offset, as well as the cut to the nearest hundredth

(0.01) of a foot. Stakes shall be provided at a minimum of every 50 feet in tangent sections and every 25 feet in curved sections. Monuments shall have straddle ties placed.

Cut sheets for the appropriate phase of work shall be on-site and shall be furnished to the Public Works Inspector upon request.

3-4 UTILITY RELOCATION - Existing utilities interfering with the proposed improvements shall be removed, reset, relocated, adjusted, or otherwise managed as specified on the approved project improvement plans; these Construction Standards, or as directed by the City Engineer.

If the utility is the property of a public utility or franchise, the owner shall be notified to relocate the utility within a specified reasonable amount of time. No work shall occur within the road right-of-way prior to completion of the conflicting utility relocation. Utilities damaged during construction shall be repaired to the satisfaction of the City Engineer and with direction from the owner of the utility.

3-5 TRENCH WORK - Refer to the applicable section of these Construction Standards for additional information on the specific type of trench. In addition, these general requirements will be followed:

A. Existing Pavement Trenching - When the trench is in an existing surfaced area, the pavement shall be sawcut or scored and broken ahead of the trenching operations. The pavement shall be cut accurately on neat and parallel lines.

B. Trench T-Cut - Before the final asphalt concrete patch is placed, the edges of the asphalt concrete shall be smooth otherwise sawcut one-foot wider than the width of the trench to create smooth parallel edges. The asphalt between the new sawcut lines and the walls of the trench shall be removed to a minimum depth of 2 inches. The paved trench edges shall be seal coated with Type 3 seal coat or seal coat with sand.

C. Weather - During inclement weather, trenches shall be excavated only as far as pipe can be laid and backfilled during the course of the day.

D. Water in Trench - When a saturated trench condition is encountered, where the pipe is to be installed below historic groundwater levels or where the trench is subject to inundation, the Geotechnical Engineer shall be contacted to provide input to the City Engineer. Dewatering for the installation of structures and pipelines shall commence when groundwater is first encountered and shall be continuous until the excavation is backfilled. Best Management Practices including but not limited to scouring and erosion control measures shall be used to eliminate sediment-laden discharges in accordance with the approved SWPPP. Dewatering methods and operations shall be subject to the approval of the City Engineer.

The trench shall be kept reasonably dry until the placing of the approved bedding material, laying and jointing of the pipe, and placing of the shading material has been completed and approved.

E. Unsuitable Trench Bottom - If the bottom of the trench is soft, yielding, or otherwise unsuitable as a foundation for the pipe, the Geotechnical Engineer shall be consulted for site specific recommendations. In most cases, the unsuitable material shall be removed to the depth necessary to provide a stable and satisfactory foundation. Three-quarter inch crushed rock shall be placed in the trench to provide a stable foundation. The rock is in addition to the required pipe bedding used in the pipe zone. All rock shall be wrapped with geo-fabric.

F. Trench Backfill - All trench backfill within the City's right of way shall be mechanically compacted $\frac{3}{4}$ -inch Class 2 aggregate base or two sack cement slurry material, as shown in Utility Trench Bedding, Backfill and Paving of the Standard Details. The use of the existing soil ("native") for backfill shall not be allowed.

1. **General** - Trench backfill within the City of Grass Valley street right-of-way shall conform to the Standard Details. Moisture content shall be controlled to obtain the optimum density. All compaction testing shall conform to ASTM D1557-78 test methods. Trench backfill compaction shall be tested by a licensed Geotechnical Engineer at the expense of the Contractor/Developer. Certification shall be provided to the Public Works Inspector prior to the construction of surface improvements.
2. **Existing Streets**- Longitudinal trenches for dry utilities (CATV, telephone, gas, electric, traffic signal and signal interconnect cable) shall be excavated six inches clear from the gutter lip. Following the patching of the trench with asphalt concrete, the street surface shall be slurry sealed from the gutter lip to the edge of the bike lane stripe. If the bike lane stripe is obliterated in any manner by the construction process, it shall be replaced with thermoplastic per these Construction Standards.
3. **Jetting**- Compaction of trench backfill by jetting methods is **NOT** allowed in City of Grass Valley right-of-way or over storm, sewer or water trenches. Jetting of joint utility trenches behind the right-of-way and within public utility easements may be allowed under specific conditions and upon the written approval of the City Engineer and the Geotechnical Engineer.
4. **Material** - Material for backfilled trenches shall contain no organic material and no soil lumps. Controlled Density Fill (CDF), other than two sack cement slurry, may be used on a case by case basis. The Contractor shall submit proposed CDF design mix to the City Engineer for review and approval prior to placement.

Bedding for utility conduits or chases within the City right-of-way shall use only select bedding materials such as sand.

5. **Compaction of Material** - Equipment used for material compaction shall be of a size and type satisfactory to the on-site Geotechnical Engineer and the Public Works Inspector. Impact-type pavement breakers or compactors (hydrahammers) shall not be used within five (5) feet of the top of any type pipe. Material for mechanically compacted backfill shall be placed in horizontal lifts which, prior to compaction, shall not exceed the depths specified below for the type of equipment employed. Actual maximum lift depth will vary with backfill material conditions and the compaction equipment. The Contractor shall consult with a Geotechnical Engineer to determine the appropriate maximum depths.

The Contractor shall be responsible for verifying compaction requirements for each lift.

6. Maximum Lift Depth for Typical Compaction Equipment -

a. Maximum lift depth of four (4) inches, equipment type:

- Portable, engine driven pneumatic type (wacker)
- Portable vibratory plate

b. Maximum lift depth of twelve (12) inches, equipment type:

- Backhoe mounted sheepsfoot

Vibratory smooth wheeled roller
Vibratory smooth wheel roller with pneumatic tires

- c. Maximum lift depth of eighteen (18) inches, equipment type:**
 - Excavator boom-mounted sheepsfoot
 - Walk behind, vibratory roller, "Rammax" or "Bomag"
 - Backhoe/excavator boom-mounted vibratory plate "hoe-pack"
 - d. Maximum lift depth of thirty-six (36) inches, equipment type:**
 - Impact, free-fall or stomping equipment (hydrahammer)
- G. Inspection** - No facility is to be backfilled without inspection by the Public Works Inspector. Improvements installed without proper inspection shall be exposed and inspected as required by the Public Works Inspector.
- H. Temporary Surfacing** - In roadway areas, a temporary asphalt plant mix "cut-back" surface not less than 2-inches in thickness may be placed immediately after the top backfill has been completed and compacted. This temporary surface shall be maintained at a level surface until removal. The temporary surfacing material shall be removed just prior to placing the permanent surface material.
- I. Steel Plates** - Steel plates shall not be used over open trench areas without the approval of the City Engineer. Steel plates do not eliminate the need for shoring.

All steel plates shall have an anti-skid surface and shall be adequately restrained to eliminate shifting and rocking. Temporary asphalt pavement (cut-back) at least one-foot in width shall be used to secure the plate and provide a smooth transition. Grade differences between the plate and the existing pavement may require notching of pavement for acceptable transitions.

3-6 INSTALLATION -

- A. General** - Subbase and aggregate base for the street and/or sidewalk, curb and gutter shall not be placed until these items within the City street right-of-ways are completed:
- 1. Installation of underground domestic water, irrigation water, sewer, storm drain, and landscaping irrigation sleeves with all appropriate testing, approval and acceptance by the City Engineer.
 - 2. Installation of underground dry utility crossings, including electric, natural gas, telephone, traffic signal and cable TV systems with all appropriate testing.
 - 3. Backfill and compaction of all trenches with all appropriate testing approved by the designated Geotechnical Engineer and accepted by the City Engineer.
- B. Subgrade** - The Geotechnical Engineer shall closely monitor and test subgrade to assure the material meets soil resistance values (R-Values) identified in the street design portion of the project soils report. If R-Values differ from the soils report, structural sections shall be adjusted (including plan revisions) by the design engineer and approved by the City Engineer.
- 1. **Compaction** - Subgrade for sidewalk, curb ramps, curb and gutter, driveways and asphalt concrete pavement shall be processed to 95% relative compaction to a minimum depth of six

- inches. Compaction results will be evaluated by the Public Works Inspector based upon the material and equipment used, the lift depth, compaction effort and number of passes performed and the observed stability of the resulting subgrade area. If required by the Public Works Inspector, compaction shall be tested and certified by a Geotechnical Engineer, licensed in California and certification shall be provided to the Public Works Inspector prior to the placement of concrete or aggregate base. Soils testing for relative compaction shall reference ASTM D1557-78 test methods.
2. **Stability** - Subgrade stability for curb, gutter and sidewalk, and asphalt concrete pavement shall be load tested by proof rolling with a loaded, minimum 3,000 gallon water truck (or equipment of equivalent weight as approved by the Public Works Inspector) in the presence of the Public Works Inspector, the Geotechnical Engineer and the Contractor. Deflecting, unstable areas shall, be corrected and retested per the recommendation of the Geotechnical Engineer and with the approval of the Public Works Inspector prior to placement of aggregate base, or concrete curb, gutter and sidewalk.
 3. **Sidewalk Subgrade** - Aggregate base is not required in the structural section for concrete sidewalk. 3/4-inch aggregate base may be substituted for a compacted soil subgrade at the Contractor's discretion and shall be processed to 95% relative compaction. Sidewalk subgrade exposed upon removal of existing sidewalk shall remain intact unless it is determined by the Public Works Inspector to be unstable. In this event, it shall be processed per the preceding paragraphs.
- C. **Aggregate Base** - All aggregate base shall be 3/4-inch maximum, Class 2 AB complying with applicable sections of the Caltrans Standard Specifications and these requirements.
1. **Compaction** - Aggregate base shall be moisture conditioned to optimum moisture content and compacted to 95% relative compaction. Aggregate base shall be tested for compaction and approved by a Geotechnical Engineer licensed in California. Compaction tests shall be tested using nuclear testing gauges in accordance with ASTM D-1557, D-2922 and 3017.
 2. **Stability** - Base stability shall be load tested by proof rolling with a loaded, minimum 3,000 gallon water truck (or equipment of equivalent weight as approved by the Public Works Inspector) in the presence of the Public Works Inspector, the Geotechnical Engineer and the Contractor. Deflecting, unstable areas shall be corrected and retested per the recommendation of the Geotechnical Engineer and with the approval of the Public Works Inspector prior to placement of asphalt concrete pavement or concrete curb, gutter and sidewalk, if applicable.
 3. **Recycled Materials** - Aggregate base may contain recycled asphalt concrete pavement and concrete. The recycled material shall be clean and not contain deleterious materials including wood, plastic or metal. The aggregate base shall comply with all of the applicable quality requirements for Class 2 AB. AC Grindings shall not be used directly for aggregate base.
- D. **Concrete** - All concrete curbs and gutters, curb ramps, sidewalks, driveways, bus stop pads and turnouts shall be installed in accordance with Sections 51 and 73 of the Caltrans Standard Specifications, the Standard Details and the following requirements.
1. **Certification** - All concrete shall have a 28-day compressive strength of 3,000 psi or greater with a 4-inch slump (typically a "six sack" mix will meet this requirement) unless otherwise specified on the approved project improvement plans where a 28-day minimum compressive strength

and/or mix design shall be noted. The supplier shall provide certification that any concrete furnished conforms to the proper specifications for all proposed mix designs. The maximum allowable holding time before concrete placement shall be 90-minutes from batch plant to pour.

2. **Thickness** - All residential and commercial sidewalks shall be six inches thick. Across commercial driveways and bus turnouts, the concrete section shall be eight inches thick with grade 60, #4 rebar, 18 inches on center each way, conforming to the Standard Details. Rebar shall be set on 3 inch concrete dobies/rebar supports (including wire ties) at three foot maximum spacing each way.
3. **Finishing** - Concrete shall not be placed or finished in the rain. It shall be the Contractor's responsibility to schedule construction operations accordingly.

All gutters shall be flow tested with water during the pour to assure proper drainage. Following concrete finishing, no water shall pond in the gutter pan.

All concrete surfaces shall be completed with a medium broom finish unless otherwise specified. Surfaces to be used by pedestrian traffic shall be broomed transversely to the direction of travel. Blemishes and alignment tolerances, not conforming to the Caltrans Standard Specifications, shall be cause for rejection of the work. No stamps advertising construction companies or other private concerns shall be placed in the concrete.

4. **Curb Ramps** – See the Standard Details for curb ramp specifications. Other ramp configurations in the Caltrans Standard Plans may be permitted with approval of the City Engineer if site conditions prohibit the use of the standard ramps.

A detectable warning surface panel (raised truncated dome) shall be placed at the back of curb line, immediately behind the curb and gutter, centered in the opening to the street at every curb ramp. Warning surfaces shall be pre-fabricated, yellow panels, except in the downtown area, where the panels shall be gray granite or brick red in color, in accordance with the Grass Valley Downtown Streetscapes Standards Manual.

Any runoff water standing behind the curb on the panel, or concrete voids under the panel shall be cause for replacement of the panel.

5. **Joints and score marks** - Expansion joints, consisting of ½-inch wide asphalt impregnated felt shall be placed to full depth at both sides of driveway approaches, at ends of curb returns and at 40 foot intervals in all curb, gutter, valley gutter and sidewalk sections. The concrete adjacent to expansion joints shall be finished with an edger tool.

Deep tool joints, 2-inches deep, shall be placed at 10-foot intervals in all curb, gutter, valley gutter and sidewalk sections. During final finishing the joint shall be readdressed/finished with a 3/8-inch joint tool. A deep tool joint shall be placed at the back of the curb for the total length of all monolithic curb, gutter, and sidewalk. The use of sawcutting in lieu of deep tool joints is not acceptable.

Score marks, 3/8" deep, shall be placed at 5-foot intervals in all sidewalks, regardless of width. Alternate score mark configurations in the downtown area may be approved by the City Engineer in accordance with the Grass Valley Downtown Streetscapes Standards Manual.

6. **Slopes** - All sidewalks (including portions through driveways and curb ramps) shall be constructed with a minimum cross slope of 1% and a maximum of 2%. The maximum grade in the direction of travel shall be 5% if the street grade allows.

For all curb ramps the maximum longitudinal slope is 8.33%. For a street with a steeper longitudinal grade, (where the ramp on the higher side of the landing must be lengthened to achieve the maximum 8.33% grade), 20 feet shall be the maximum length transition required, with the City Engineer's approval.

7. **Monolithic sidewalk, curb and gutter** - Adjoining sidewalk, curb and gutter shall be poured monolithically whenever possible.
8. **Curb and gutter installation in an existing street** - In an existing street, a minimum width of 24 inches of existing asphalt concrete paving shall be removed outside the proposed gutter lip and the lip poured against a form board. The resulting asphalt concrete patch between the gutter lip and the existing pavement shall be four inches thick minimum, or the thickness of the existing pavement, whichever is greater.
9. **Curb, Gutter and Sidewalk Patching** - The Public Works Inspector shall determine if damage to concrete curb, gutter or sidewalk warrants patching. Generally, any conspicuous damage shall be patched. Any spall extending more than one inch into the gutter pan from the vertical face of the gutter lip shall be patched at a minimum. The patch shall be flush and of a similar finish to the existing concrete. Any sidewalks with cracks greater than ¼" in width and/or ½" or more of vertical displacement shall be repaired or replaced. When over half of a substandard driveway is replaced, the entire driveway shall be replaced to current City Standards.
10. **Joining New Concrete to Existing** - Whenever new concrete curb, gutter and sidewalk adjoins existing, the existing concrete vertical face shall be doweled 4-inches deep with 12 inch long, grade 60, #4 rebar. Abutting sidewalk shall be doweled mid-section with a minimum of two dowels. Abutting curb and gutter ends shall be doweled twice, 18 inches apart, centered on the curb and gutter section.

Expansion joint material shall also be placed between all adjoining sections of new to existing curb, gutter and sidewalk.

11. **Section Replacement** - Replaced sections of curb, gutter and sidewalk shall be removed back to expansion joints or deep tool joints; or at the discretion of the Public Works Inspector.

If the existing edge is damaged during removal, the concrete shall be sawcut again with the Public Works Inspector's approval.

12. **Concrete and Asphalt Concrete Saw Cutting** - Residue from sawcutting shall be removed by vacuum method and disposed of conforming to local environmental and Stormwater Pollution Prevention Plan requirements. Downstream drain inlets shall be protected. In no case shall the residual be allowed to enter the storm drain system or any water of the United States.
13. **Concrete Cure** - Newly placed concrete shall be cured in accordance with the provisions in Section 90-7.01B of the State Standard Specifications and these Construction Standards. Unless

otherwise approved by the Public Works Inspector, exposed surfaces of all concrete sidewalk, curb and gutter, driveways, bus turnouts and curb ramps shall be coated with a non-pigmented curing compound immediately following surface finishing, prior to the moisture sheen disappearing from the surface.

E. Asphalt Concrete Paving - All asphalt concrete shall be installed per the specifications in Section 39 of the Caltrans Standard Specifications and these requirements.

1. **Mix Design** - The Contractor shall provide the asphalt concrete mix design to the City Engineer at least seven (7) working days prior to the start of work on the project for review and approval. The mix design must be approved prior to commencement of work.
2. **Tack Coat** - All vertical edges of asphalt concrete and concrete facilities that abut proposed asphalt concrete shall be tack coated. The surface edges shall be clean and free of dirt and dust prior to placing the tack coat.

When new pavement that is to receive a second lift has been exposed to traffic or other sources of contaminants an asphalt emulsion shall be used as a tack coat or paint binder. A tack coat shall also be applied to all existing pavements that are to receive an asphalt concrete overlay.

3. **Crack Sealing** - All cracks and joints in asphalt concrete pavement shall be filled prior to overlay. Cracks less than 1/4 inch in width shall be sealed with asphalt emulsion and 30 grit sand. Cracks from 1/4 inch to 3/4 inch shall be sealed with a hot melt rubber joint sealant. Excess sealant shall not extend more than two inches outside the crack onto the pavement surface or above the finished surface of the street. Where cracks larger than 3/4 inch (or pavement alligating) occur, asphalt concrete patching may be required at the discretion of the Public Works Inspector.
4. **Edge Grinding** - Edge grinding (Cold Planing) shall be required where existing asphalt is to be overlaid. The edge grind shall match the depth of the asphalt concrete overlay along the length of the gutter lip and abutting pavement where the asphalt concrete pavement is proposed to conform to the existing pavement. The width of the grind shall be 6 feet, unless otherwise approved by the Public Works Inspector.
5. **Existing Pavement Between the Gutter Lip and Patched Areas**- If the width of existing pavement between the gutter lip and excavated patch/pave area is three (3) feet or less, all existing pavement between the patch/pave area and the gutter lip shall be removed or milled 2 inches in depth, and patched conforming to the adjacent patch/pave area requirements.
6. **Fog Sealing** – Joints of asphalt concrete pavement and patched trench edges shall be fog sealed with a diluted asphalt emulsion per Caltrans Fog Seal Guidelines. The application of fog seals shall not be applied where rain might prevent the emulsion from fully curing before freezing conditions are encountered.
7. **Finishing** - The average finished pavement thickness shall be equal to or greater than the design thickness. The finished surface after rolling shall be free of coarse and fine pockets.

Finish, compacted pavement height shall be 1/4-inch above and over the gutter lip, except for five (5) feet at the curb ramp opening, where it shall be flush with the top surface of the gutter lip. Corrective operations for recently placed pavement more than 1/4-inch above the gutter lip may

include reheat, knead and re-compact with pneumatic tired rollers, in order to bring the improvements into compliance.

If the finished surface of the asphalt concrete does not meet required surface tolerances as specified in the Standard Specifications and these Construction Standards, the Contractor shall, at its own expense, bring pavement surface within tolerance by cold planing and replacing the failing section to a minimum depth of 0.15-feet.

A fog or slurry seal may be required at the Public Works Inspector's discretion if, following cold planing, it is determined the paving surface is sufficiently irregular, boney, discolored, or unsealed to warrant it.

Longitudinal joints in successive pavement lifts shall be offset from lift to lift a minimum of one foot. The surface pass seam shall be located on the lane line.

- 8. Testing** - Asphalt concrete shall be compacted to not less than 95 percent of the theoretical maximum density and shall be finished to the lines, grades, and cross section shown on the Project Plans.

Pavement surface variance shall be checked using a 12 foot long straightedge as detailed in the Standard Specifications. In addition, new pavement may be flooded to check for standing water. All low areas in the asphalt concrete pavement holding water more than 0.01-feet longitudinally and 0.02-feet transversely shall be marked by the Public Works Inspector and patched by the contractor with asphalt concrete fines.

- F. Sound and Retaining Walls** - Construction of sound and retaining walls shall conform to the approved improvement plans and retaining wall permits. An anti-graffiti coating shall be applied to the City side of all sound and retaining walls bounding the City right-of-way or to the side/surface of sound or retaining walls facing public-owned wetlands, open spaces, or parks, at the discretion of the Public Works Inspector. The Public Works Inspector shall be furnished a letter from the applying contractor certifying that the coating has been applied per the Manufacturer's recommendations, prior to the Certificate of Completion.

The top course of loose block retaining wall such as "Keystone" type shall be epoxy set in place. The adhesive shall conform to Section 3-9 (Materials) below.

- G. Survey Monuments** - Survey monuments shall be placed at right of way boundaries, property boundaries or sectional corners within the improvement area as shown on the plans, as required by the Public Works Director/City Engineer and as required by the Subdivision Map Act.

Survey monuments placed in the street surface shall be installed per the Boxed Survey Monument Standard Detail.

- H. Street Barricades** - All sidewalk barricades, pedestrian barricades, and street barricades shall conform to Standard Details.

- I. Pavement Removal** - Upon demolition of concrete and asphalt concrete pavement, rubble shall be immediately removed or hauled from, and not piled in the City right-of-way. Disposal of such materials shall conform to all local ordinances and regulations of the City of Grass Valley and

Nevada County relating to land grading, flood plains, drainage facilities and disposal of surplus materials.

- J. Utility Boxes** - Boxes for dry utilities shall be placed behind sidewalks and not in asphalt concrete pavement, the gutter pan, in driveways or in the ramped portion of curb ramps. Utility boxes may be placed in City sidewalk or street only upon the approval of the City Engineer and must meet H-20 load rating requirements.
- K. Slurry Seal** - After completion of vertical construction on a street, and prior to placement of traffic stripes and pavement markings, all new public streets shall be slurry sealed with a clay-stabilized emulsion.

All streets to be sealed shall be cleaned and all debris shall be removed prior to applying seal coat material. Oil spots shall be treated with an oil spot primer to insure proper adhesion. All cracks shall be blown clean with all debris removed prior to sealing. All cracks greater than ¼-inch wide shall be sealed using a hot-applied crack sealant to the level of the adjacent areas.

Upon completion of any slurry seal, all loose, residual material shall be swept up and removed as soon as the slurried area is adequately cured to do so. The surface shall be maintained in a clean condition until such a time as raveling has stopped.

- L. Raising Iron to Finished Grade** - For appurtenances such as manholes and water system valves that are in landscaped areas, the top elevation/lid of the manhole or valve shall be flush with the top of grass or to 1-inch maximum above the top of grass as determined by the Public Works Inspector. In landscaped areas using bark for cover, the top elevation/lid of the manhole shall be 2-inches minimum, to 4-inches maximum above the top of the bark.

In concrete or asphalt concrete areas, the iron shall be raised to ¼ ” below the finished surface grade in accordance with Adjust Utility Cover/Manhole to Grade of the Standard Details.

- 3-7 SIGNS** - Signs shall be constructed and installed in accordance with the approved improvement plans and specifications, these Construction Standards, The California Manual on Uniform Traffic Control Devices, the Caltrans California Sign Specifications, and the latest edition of the Caltrans Standard Specifications.

- A. Street Signs** - At non-signalized intersections, street name signs shall be provided, and shall conform to the Street Name Sign detail of these Construction Standards. Signs in the downtown area shall be constructed in accordance with the Grass Valley Downtown Streetscapes Standards Manual.

Street name signs shall be 6-inches high, 0.080 gauge aluminum, and a minimum of 24-inches long. Panels shall have ½-inch-rounded corners. The finish shall be reflectorized white letters on an engineering grade reflectorized brown background (green background for private streets) with a reflectorized white border.

Street name signs mounted on signal mast arms shall not be the swinging arm type. One side of each street name sign shall be attached to the signal pole in at least two places, and the other end shall be attached to the signal mast arm.

- B. Sign Posts** - Sign posts shall be a 2” X 2” square metal tube, or as approved by the City Engineer, conforming to the standard specifications for cold rolled carbon sheet steel, commercial quality, ASTM A-446 or hot rolled carbon steel sheet, structural quality, ASTM A-570-90 and ASTM A-653-

94 structural grade 50. The square end of the post can be pointed for easy penetration and shall be capable of being driven into the ground by the use of an approved driving cap.

The finished posts shall be straight and shall have a smooth uniform finish. All holes and ends shall be free from burrs and the ends shall be cut square. Permissible variation in the straightness is one-sixteenth of an inch in three feet. The square tubes shall have holes that are seven-sixteenths plus or minus one sixty-fourth inches diameter on one (1) inch centers, on all four sides for the entire length of the pole. The holes shall be on the centerline of each side in true alignment and opposite to each other directly and diagonally. All posts shall be cut in such a manner to ensure hole alignment between anchors and sleeves when driven into the ground.

Square tubes shall be installed into a sleeve of the same material. A 27-inch long anchor sleeve shall be embedded in Class B/Class 3, 5-sack concrete that is placed in an excavated hole a minimum of 36-inches deep and 6-inches in diameter. Two holes of the sleeve shall remain showing above the finished grade, with all holes below grade taped closed. No material other than the square post shall intrude into the sleeve. The square signpost inside the sleeve shall move freely in the vertical direction after installation.

2" round metal and 4" x 4" redwood posts may be allowed with prior approval of the City Engineer.

- C. Roadside Signs** - All sign panels, except as otherwise directed in these standards, shall be fabricated using reflective high intensity prismatic sheeting. Message and sheeting shall be on one side of the panel only. No mixing of diamond, high intensity, or engineering grade sheeting on the same panel shall be allowed. All Fluorescent Yellow Green (FYG) background colored signs shall be fabricated using diamond grade sheeting.

All signs shall be securely anchored to the posts with theft-proof bolts, washers, and nuts. Signs with a surface area greater than 5 square feet shall have back bracing attached from the post support to the sign panel.

Efforts shall be made to ensure that all signs in the center median or shoulder areas are not installed next to landscaping or other objects which may impair visibility of the sign. In addition to meeting the minimum standard height requirements of the CMUTCD, signs should be placed at a height and location to maximize visibility while ensuring the safety of pedestrians, cyclists and motorists.

All existing traffic signs, which are in conflict with the proposed work as shown on the plans, shall be removed by the Contractor and returned to the City. The Public Works Inspector shall make the final decision if a question arises as to what represents a conflict.

- 3-8 TRAFFIC STRIPES AND PAVEMENT MARKINGS** - All traffic stripes and pavement markings shall be installed in accordance with the approved improvement plans and specifications, these Construction Standards, the State Traffic Manual, the State Standard Plans and the State Standard Specifications.

- A. Material** - Traffic stripes and pavement markings shall be thermoplastic material conforming to State Specifications. Painted traffic stripes and pavement markings may be permitted with approval of the City Engineer. All traffic stripes and pavement markings shall include the application of glass beads.

- B. Removal** - Sandblasting of traffic stripes shall not be permitted. Removal of traffic stripes shall be by grinding, or by other methods approved in writing by the City Engineer. For removal of pavement markings, a rectangular area shall be ground to prevent ghosting of the original marking and be covered with rectangular area of Type II slurry or OverKote asphalt coating, or approved equal.

All conflicting striping shall be completely removed. A Type II slurry seal of conflicting striping from lane line to lane line may be required at the discretion of the City Engineer. Damage to the pavement or surfacing caused by removal shall be repaired by the Contractor, at the Contractor's expense, by methods acceptable to the City Engineer.

All striping or pavement markings damaged during construction shall be repaired at the contractor's expense. Repairs shall consist of complete replacement of markings or legends, replacement of sections of thermoplastic striping, and replacement of damaged or missing markers as directed by the City Engineer.

Residue resulting from removal operations shall be removed from pavement surfaces by sweeping or vacuuming before the residue is blown by action of traffic or wind, or migrates across lanes or shoulders. Drain inlets adjacent to areas to be ground shall be protected from grindings entering the storm drain system.

Dirt and contaminants shall be removed from existing surfaces that are to receive thermoplastic material by mechanical wire brushing. Portland Cement Concrete shall be mechanically wire brushed or abrasive blast cleaned to remove all laitance and curing compound.

- C. Thermoplastic Application** - Thermoplastic material shall be applied per Caltrans Standard Specifications Section 84 and these requirements:

1. Thermoplastic material shall be applied only to dry pavement surfaces and only when the surface temperature is above 50°F.
2. Existing surfacing which is to receive the thermoplastic material shall be mechanically wire brushed to remove all dirt and contaminants.
3. A primer recommended by the thermoplastic material manufacturer shall be applied to all Portland Cement Concrete surfaces and all asphalt surfaces over six (6) months old. The primer shall be applied immediately in advance of, and concurrent with, the application of thermoplastic material. The application rate shall be as recommended by the primer manufacturer and shall not be thinned.
4. Preheaters with mixers having a 360° rotation shall be used to preheat the thermoplastic material. The thermoplastic material shall be between 400°F and 425°F when applied to the pavement, unless the manufacturer recommends a different temperature.
5. The thermoplastic material shall be applied by either spray or extrusion methods in a single uniform layer. Unless otherwise specified in special provisions, the thermoplastic material for traffic stripes shall be applied at a minimum thickness of 0.06-inch. Pavement markings shall be applied at a thickness of 0.1 to 0.15-inch. The pavement surface shall be completely coated by the material and the voids of the pavement surface shall be filled.

6. Glass beads shall be applied immediately to the surface of the molten thermoplastic material at a rate of not less than 8-pounds per 100-square feet.
7. Metal stencils shall be used when applying pavement markings.

3-9 MATERIALS -

- A. Aggregate Base and Subbase** - All aggregate base and subbase materials shall be ¾-inch Class 2 as specified on the approved improvement plans and shall conform to provisions in Sections 25 and 26 of the Caltrans Standard Specifications.

Aggregate may include material processed from reclaimed asphalt concrete or Portland Cement Concrete, provided the Contractor supplies the City with written documentation that the material meets the Class 2 specifications. The amount of reclaimed material shall not exceed 50 percent of the total volume of the aggregate used.

- B. Asphalt Concrete** - Asphalt concrete shall be Type “A” complying with the provisions of Section 39 of the California State Standard Specifications. Asphalt binder shall be performance grade 64-16 paving asphalt conforming to Section 92, “Asphalt,” of the Caltrans Standard Specifications.

Asphalt concrete for alleys and residential roadways shall be ½-inch maximum gradation. Asphalt concrete for collector and arterial streets shall be ¾-inch maximum gradation at the discretion of the City Engineer.

- C. Concrete** - All concrete curbs, curb and gutters, sidewalks, curb ramps, and driveways shall contain not less than 6 sacks of cementitious material per cubic yard. Cementitious material shall be “Type II Modified” Portland Cement Concrete and mineral admixture, or as otherwise approved by the City Engineer, and shall conform to the provisions in Section 90 of the Caltrans Standard Specifications.

- D. Concrete Curing Compound** - Curing compound shall conform to ASTM C-309, Type 1-D, and Class B, resin base, clear with fugitive red dye. Approved products include Burke Aqua Resin Cure (with dye), W.R. Meadows 1100-Clear Series (with dye) or approved equal.

- E. Epoxies, Patching Material** - Following are products specified for the indicated applications.

1. **Bonding the top course of loose block, sound/retaining wall:** Burk Epoxy Binder 2104 (Supplier: Whitecap), Rezi-Weld 1000, (Supplier: Spec-West), Sealtight Rezi-Weld ER-43 Type I, (Supplier: Spec-West) or approved equal.
2. **Anchor Bolts/Rebar:** Seal Tight Resi-Weld Gel Paste Unitized Cartridge Epoxy (Supplier: Spec West), Covert Operations CIA Gel 7000 (Supplier: White Cap) or approved equal.
3. **Patching:** Target Speed Set (Supplier: Spec-West), Burke Fast Patch 928 (Supplier: White Cap) or approved equal.

- F. Filter Fabric** - Geotextile fabric used in trench backfill shall conform to State Specification Section 88-1.03.

- G. Reinforcement Bar** - Rebar shall be grade 60 steel, deformed type. Smooth bar shall not be allowed. All rebar shall be number four (4) unless otherwise specified on the plans.

- H. Sign Posts** – Sign posts shall be Telespar square sign posts or approved equal.
- I. Slurry Seal** - Slurry Seal shall be conform to Caltrans Specifications, Section 37-2. A design mix shall be submitted to the City Engineer for approval prior to commencing work.
- J. Truncated Domes** - Truncated dome panels shall be of vitrified polymer composite construction, embedded type manufactured by Armor Tile Tactile Systems, Buffalo, New York, ADA Solutions, N. Billerica, MA, or approved equal. The dimensions and interval of the truncated domes within the panel shall conform to Caltrans Standard Plan RNSP A88 and Division of the State Architect Accessibility Reference Manual, Figure No. 31-23A.

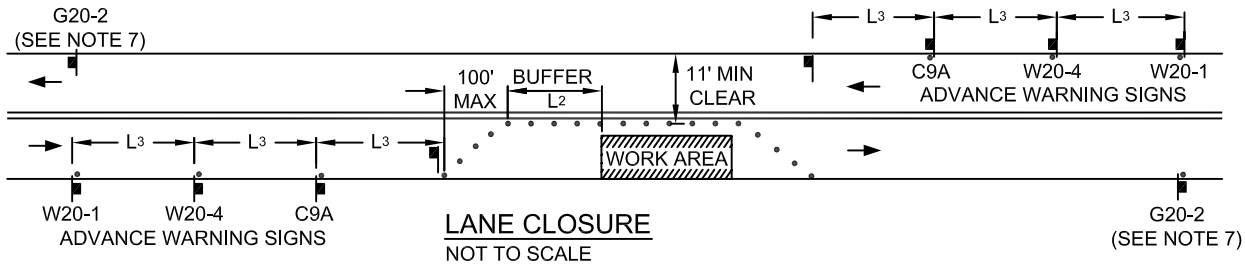


TABLE 1: TAPER LENGTHS, L₁

APPROACH SPEED (MPH)	TAPER LENGTH L ₁ (FEET)*	NUMBER OF CONES FOR TAPER*	SPACING OF CONES ALONG TAPER (FEET)
25	125	6	25
30	180	7	30
35	245	8	35
40	320	9	40

* BASED ON 12 FT. LANE WIDTH OR LESS.

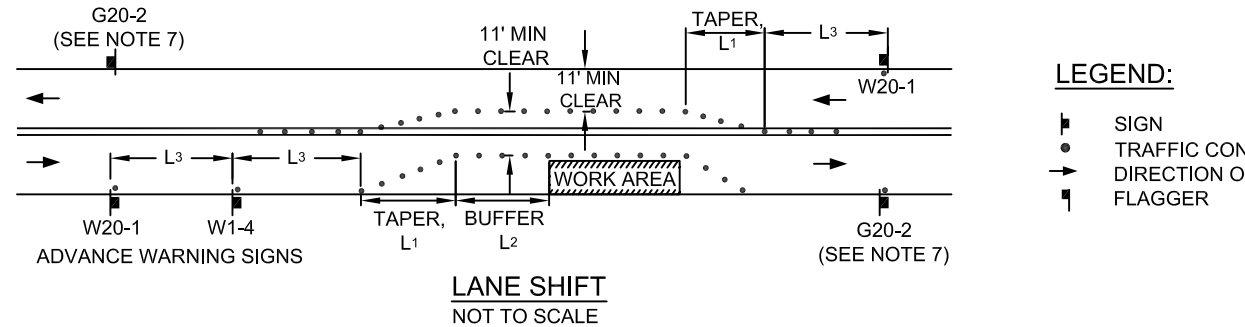


TABLE 2: BUFFER SPACE, L₂

APPROACH SPEED (MPH)	LOGITUDINAL BUFFER SPACE L ₂ (FEET)*
25	155
30	200
35	250
40	305

* SEE MUTCD TABLE 6E-101 FOR SUSTAINED DOWNGRADES STEEPER THAN 3%

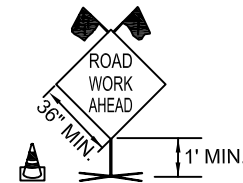
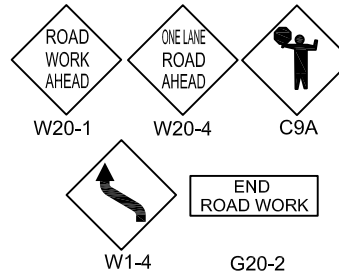
LEGEND:

- SIGN
- TRAFFIC CONE/ DELINEATOR
- DIRECTION OF TRAFFIC
- FLAGGER

NOTES:

- ALL TRAFFIC CONTROL SHALL BE IN ACCORDANCE WITH THE CALIFORNIA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
- THE CITY ENGINEER OR HIS REPRESENTATIVE HAS THE AUTHORITY TO IMPLEMENT FIELD CHANGES AS NEEDED TO INSURE PUBLIC SAFETY.
- UNDER EMERGENCY CONDITIONS, EQUIPMENT AND PERSONNEL WHICH ARE AVAILABLE SHOULD BE UTILIZED TO IMPLEMENT A CLOSURE, EVEN THOUGH SUCH CLOSURE DOES NOT MEET THE STANDARDS CONTAINED IN THIS PLAN. AS EQUIPMENT OR PERSONNEL BECOME AVAILABLE, AN IMMEDIATE EFFORT SHOULD THEN BE MADE TO IMPLEMENT THE STANDARDS SHOWN ON THIS PLAN.
- ALL ADVANCE WARNING SIGNS SHALL BE 36" x 36" MINIMUM. FOR NIGHTTIME USE, ALL WARNING SIGNS SHALL BE EITHER ILLUMINATED OR REFLECTORIZED.
- A "ROAD CONSTRUCTION AHEAD" SIGN MAY BE USED IN LIEU OF THE W20-1 SIGN.
- FLAGGERS SHALL BE EQUIPPED WITH A HARD HAT, A MINIMUM CLASS 2 SAFETY VEST AND A STOP/SLOW PADDLE.
- THE G20-2 SIGN IS OPTIONAL IF THE END OF WORK ZONE IS OBVIOUS OR FALLS WITHIN A LARGER PROJECT LIMIT.
- WARNING (W) SERIES SIGNS USED IN WORK ZONES SHALL BE BLACK ON ORANGE.
- FOR NIGHTTIME USE ALL CONES SHALL BE INTERNALLY ILLUMINATED OR FITTED WITH RETROREFLECTIVE WHITE SLEEVES.
- THE MAXIMUM SPACING BETWEEN CHANNELIZING DEVICES IN A TAPER SHOULD BE APPROXIMATELY EQUAL IN FEET TO THE SPEED LIMIT. (SEE TABLE 1).

SIGNS:



NOTE: FLAGS AND CONE ARE MANDATORY

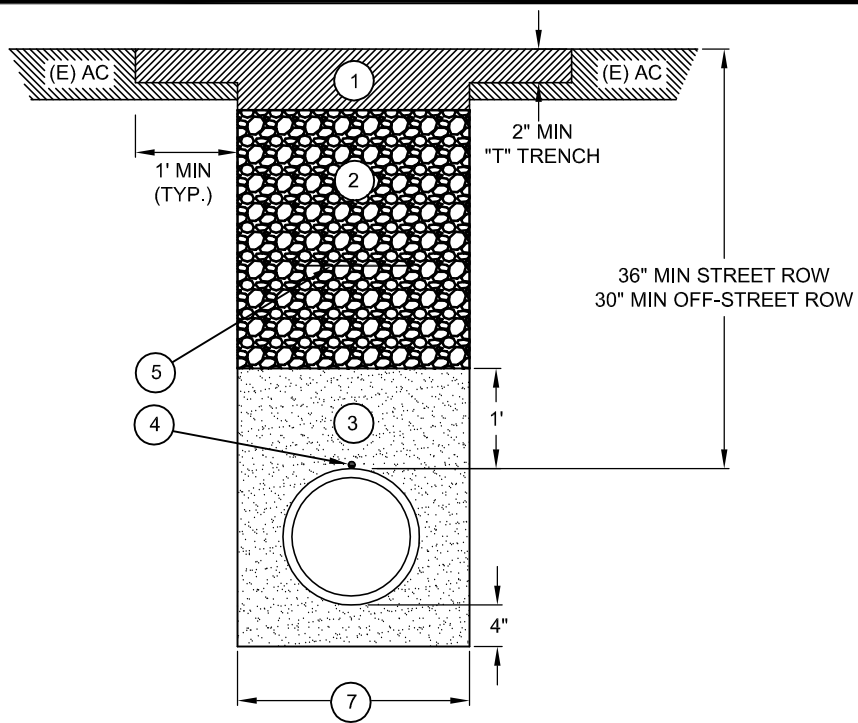
ADVANCED WARNING SIGN
NOT TO SCALE

TABLE 3: SIGN SPACING, L₃

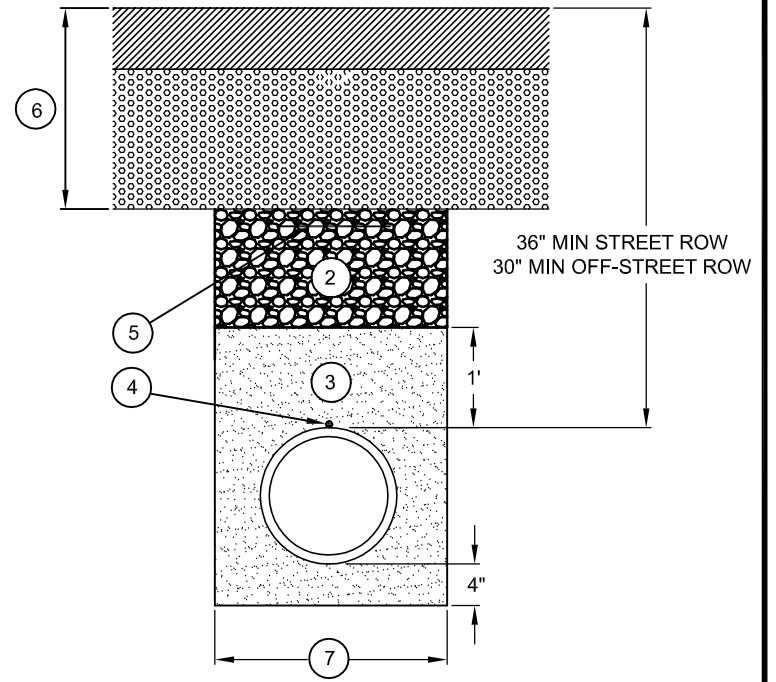
APPROACH SPEED (MPH)	MINIMUM DISTANCE BETWEEN SIGNS, L ₃ (FEET)*
LESS THAN 25	100
25 TO 40	350

* EXACT SPACING MAY VARY DUE TO FIELD CONDITIONS

	PUBLIC WORKS DEPARTMENT ENGINEERING DIVISION	
	TYPICAL TRAFFIC CONTROL LANE SHIFT/ LANE CLOSURE	
APPROVED BY:		
PUBLIC WORKS DIRECTOR / CITY ENGINEER		
SCALE: NONE	DRAWN BY: BPJ	DATE: FEB 9, 2010
		ST - 1



EXISTING STREET UTILITY TRENCH

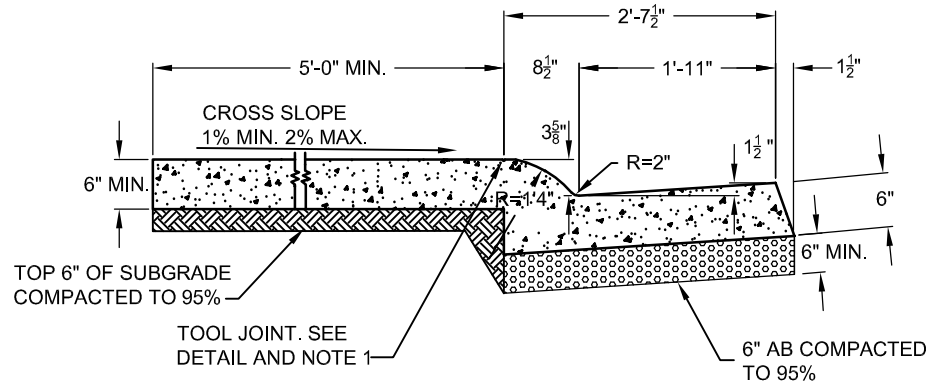


NEW STREET UTILITY TRENCH

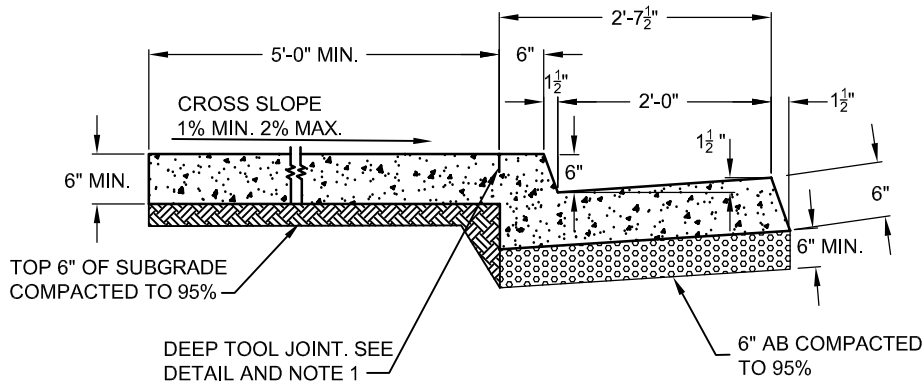
NOTES:

- ① AC PATCH, 4 INCHES THICK OR THAT OF EXISTING, WHICHEVER IS GREATER. T-TRENCH MAY BE ACHIEVED BY SAWCUT OR GRIND AND REMOVE. TACK COAT ON ALL PAVEMENT SURFACES (TYP.). SURFACE OF TRENCH EDGES SHALL BE SEAL COATED.
- ② AB PROCESSED TO 95% RELATIVE COMPACTION OR TWO SACK SLURRY CEMENT WITH CITY ENGINEER APPROVAL.
- ③ IMPORTED SAND BEDDING: MECHANICALLY CONSOLIDATED OR SHOVEL SLICED UNDER THE HAUNCHES OF THE PIPE.
- ④ #10 TRACING WIRE SECURED TO TOP OF WATER MAINS
- ⑤ BACKFILL TAPE LOCATED 12"-24" BELOW FINISH GRADE FOR ALL SEWER AND WATER MAINS.
- ⑥ STREET STRUCTURAL SECTION PER APPROVED PLANS.
- ⑦ TRENCH WIDTH IS FROM UNDISTURBED TRENCH SIDES. OD + 12" MIN., OD + 24" MAX.

	PUBLIC WORKS DEPARTMENT ENGINEERING DIVISION	
	UTILITY TRENCH BEDDING BACKFILL AND PAVING	
APPROVED BY:		
 PUBLIC WORKS DIRECTOR / CITY ENGINEER		
SCALE: NONE	DRAWN BY: EAD	DATE: MAY 12, 2012
		ST - 2



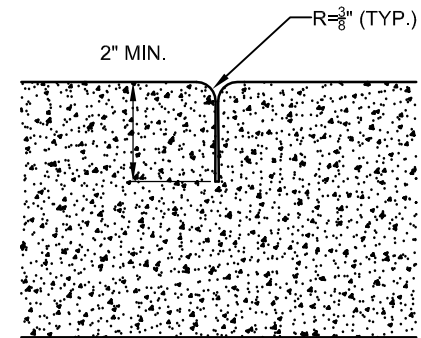
TYPE 1
ROLLED CURB AND GUTTER





TYPE 2
VERTICAL CURB AND GUTTER

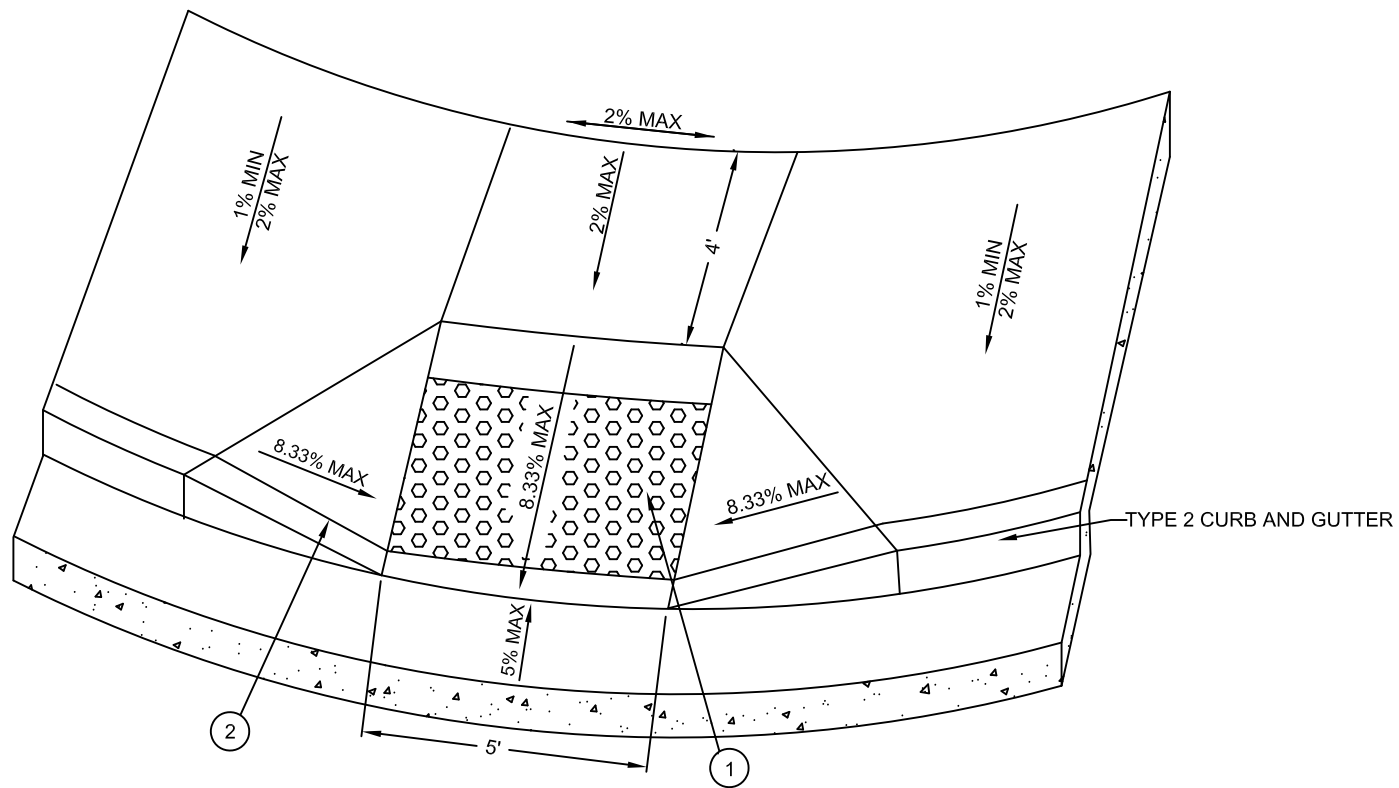
NOTES:

1. 2" DEEP TOOL JOINT AT BACK OF CURB FOR ALL MONOLITHIC CURB, GUTTER AND SIDEWALK.
2. AGGREGATE BASE, COMPACTED TO 95%, MAY BE SUBSTITUTED FOR NATIVE SUBGRADE UNDER THE SIDEWALK SECTION.





DEEP TOOL JOINT DETAIL

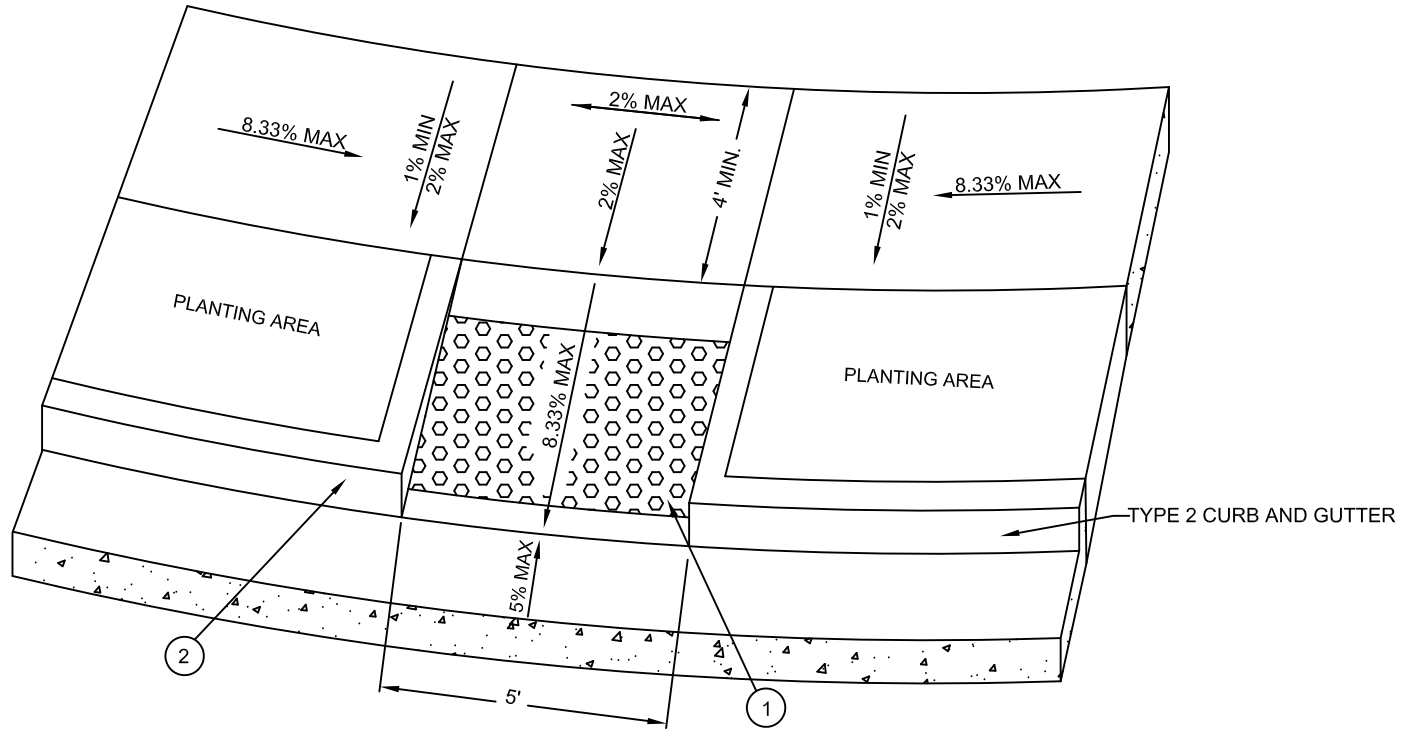
	PUBLIC WORKS DEPARTMENT ENGINEERING DIVISION	
	CURB, GUTTER AND SIDEWALK	
APPROVED BY:  PUBLIC WORKS DIRECTOR / CITY ENGINEER		
SCALE: NONE	DRAWN BY: EAD	DATE: MAY 12, 2016
		ST - 3



LEGEND:



1. 3' X 5' DETECTABLE WARNING SURFACE PER CALTRANS STANDARD PLANS.
2. DEEP TOOL JOINT, SEE CURB, GUTTER AND SIDEWALK DETAIL.
3. TRANSITION FROM RAMP LANDING TO STREET SHALL BE FLUSH AND FREE OF ABRUPT CHANGES.

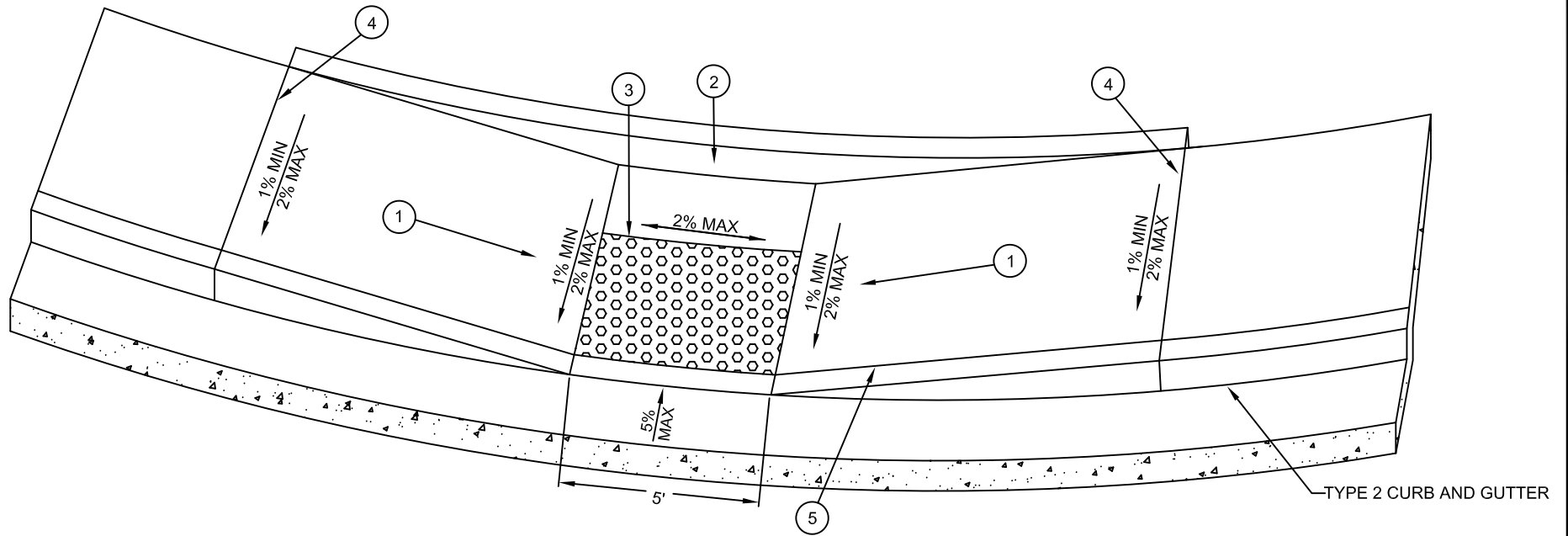
	PUBLIC WORKS DEPARTMENT ENGINEERING DIVISION		
	CURB RAMP DETAIL CASE "A"		
APPROVED BY: 			
ASSISTANT CITY ENGINEER			
SCALE: NONE	DRAWN BY: CAD	DATE: NOV 5, 2018	ST - 4



LEGEND:



1. 3' X 5' DETECTABLE WARNING SURFACE PER CALTRANS STANDARD PLANS.
2. RETAINING CURB
3. TRANSITION FROM RAMP LANDING TO STREET SHALL BE FLUSH AND FREE OF ABRUPT CHANGES.

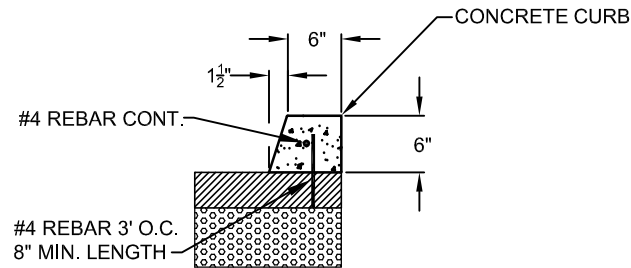
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	CURB RAMP DETAIL CASE "B"		
APPROVED BY: 			
ASSISTANT CITY ENGINEER			
SCALE: NONE	DRAWN BY: CAD	DATE: NOV 5, 2018	ST - 5



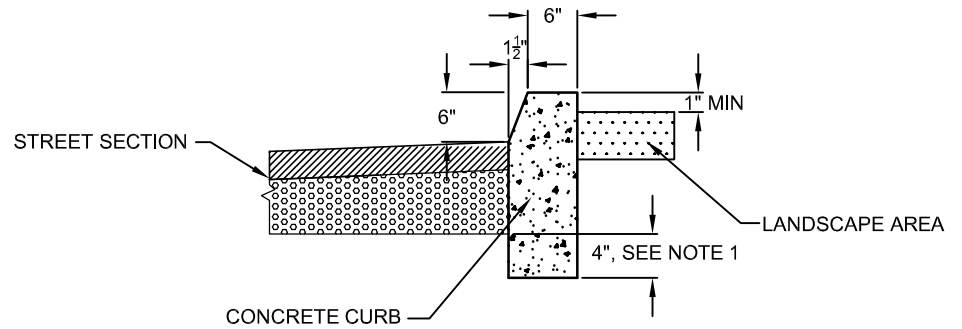
LEGEND:

1. THE MAXIMUM SLOPE IN THE DIRECTION OF TRAVEL IS 8.33%, IF LONGITUDINAL STREET GRADE ALLOWS. ON STEEPER GRADES WHERE 8.33% CANNOT BE ACHIEVED, 20 FEET IS THE MAXIMUM LENGTH TRANSITION REQUIRED WITH THE PUBLIC WORKS DIRECTOR / CITY ENGINEERS APPROVAL.
2. 6 INCH WIDE RETAINING CURB, AS REQUIRED, Poured MONOLITHICALLY WITH SIDEWALK. HEIGHT TO BE DETERMINED BY PROJECTED BACK OF WALK GRADE; MINIMUM DEPTH SECTION FLUSH WITH BOTTOM OF SIDEWALK.
3. 3' X 5' DETECTABLE WARNING SURFACE PER CALTRANS STANDARD PLANS.
4. EXPANSION JOINT.
5. DEEP TOOL JOINT, SEE CURB, GUTTER AND SIDEWALK DETAIL.
6. TRANSITION FROM RAMP LANDING TO STREET SHALL BE FLUSH AND FREE OF ABRUPT CHANGES.

	PUBLIC WORKS DEPARTMENT ENGINEERING DIVISION		
	CURB RAMP DETAIL CASE "C"		
APPROVED BY:			
		ASSISTANT CITY ENGINEER	
SCALE: NONE	DRAWN BY: CAD	DATE: NOV 5, 2018	ST - 6



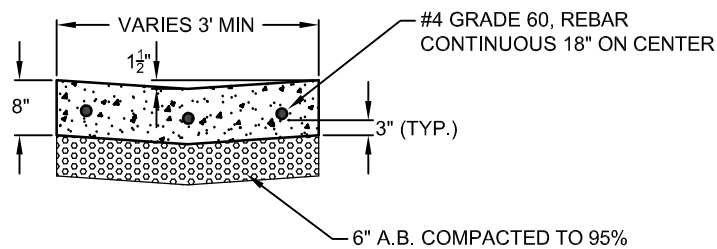
**TYPE 3 BARRIER CURB
ADJACENT TO UNIRRIGATED AREAS**




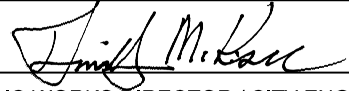
**TYPE 4 BARRIER CURB
ADJACENT TO IRRIGATED AREAS**

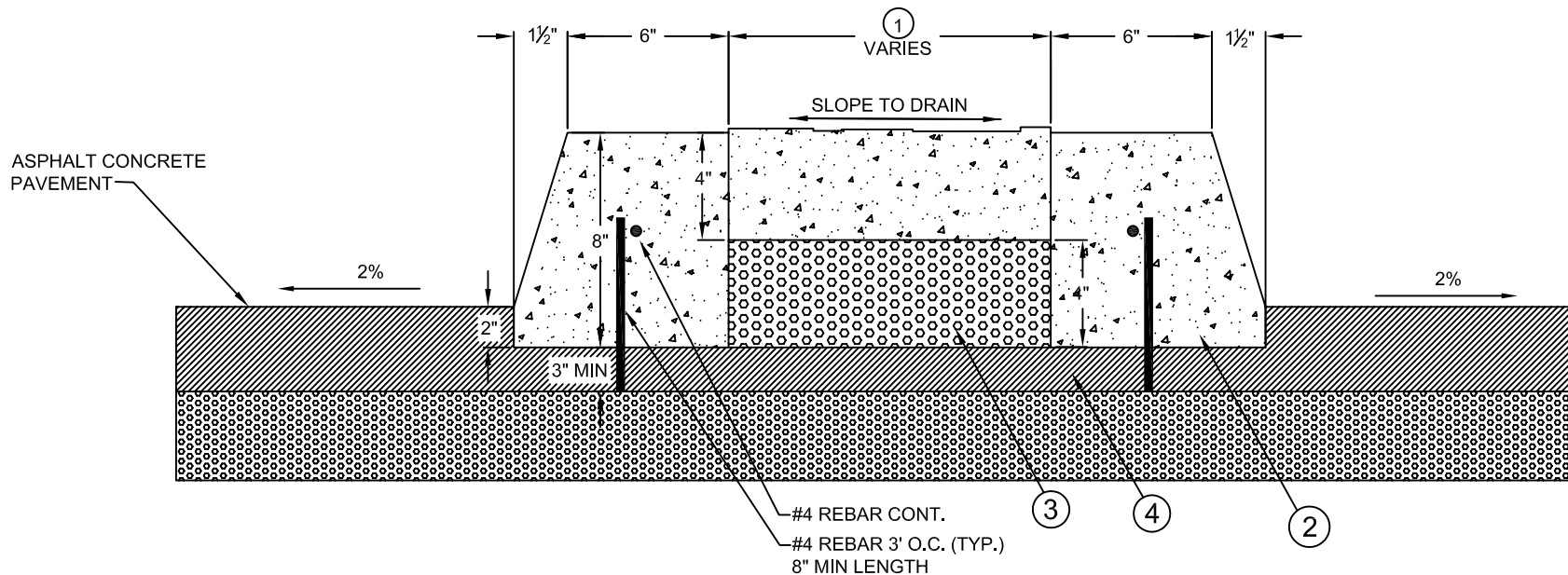
NOTES:

1. TYPE 4 CURB TO BE 18" TALL OR 4" DEEPER THAN THE STREET SECTION, WHICHEVER IS GREATER.
2. LANDSCAPE AREA TO BE SLOPED TO DRAIN TO AN APPROVED DRAINAGE OR FIELD INLET





VALLEY GUTTER

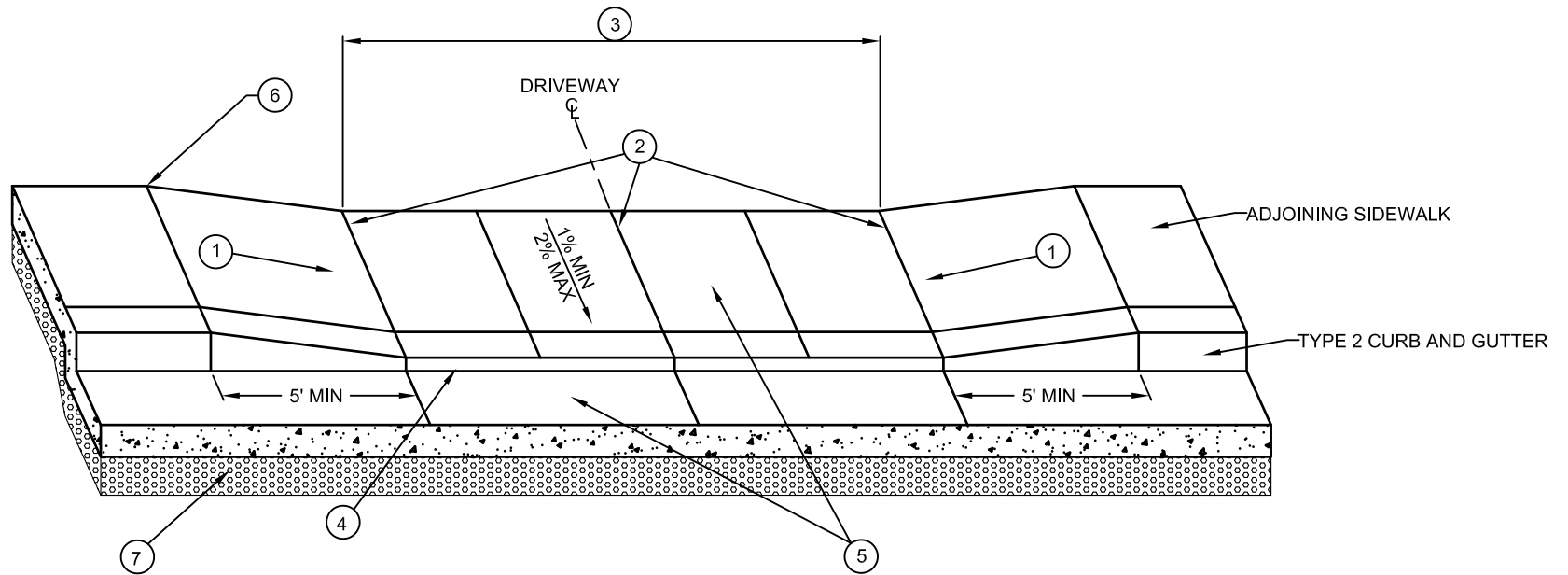
	PUBLIC WORKS DEPARTMENT ENGINEERING DIVISION	
	BARRIER CURB AND VALLEY GUTTER	
APPROVED BY:  PUBLIC WORKS DIRECTOR / CITY ENGINEER		
SCALE: NONE	DRAWN BY: EAD	DATE: MAY 12, 2016
		ST - 7



NOTES:

1. THE STANDARD PATTERN SHALL BE BASKETWEAVE BRICK WITH A BRICK RED TINT COLORING. APPLY 60 POUNDS PER 80 SQUARE FEET IN TWO HAND BROADCAST APPLICATIONS. CONTRACTOR MAY ELECT TO INCORPORATE APPROVED COLOR INTO CONCRETE MIX AT 36 POUNDS OF COLOR, INTEGRALLY MIXED, PER CUBIC YARD
2. TYPE 3 BARRIER CURB (TYP.)
3. AGGREGATE BASE COMPACTED TO 95% RELATIVE COMPACTION OR FILLED WITH CONCRETE.
4. ENTIRE AREA BELOW ISLAND MAY BE FILLED WITH AGGREGATE BASE FOR NEW CONSTRUCTION, OR AT THE CONTRACTORS DISCRETION.

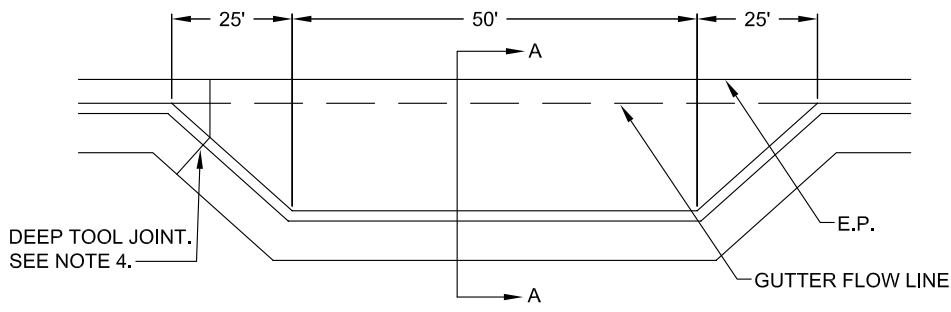
	PUBLIC WORKS DEPARTMENT ENGINEERING DIVISION
	MEDIAN ISLAND
APPROVED BY:  PUBLIC WORKS DIRECTOR / CITY ENGINEER	
SCALE: NONE	DRAWN BY: BPJ
DATE: FEB 9, 2010	ST - 8



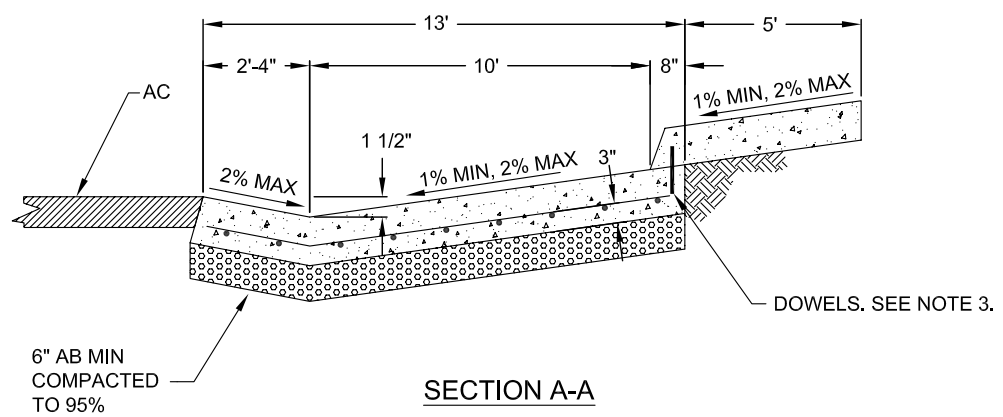
LEGEND:

- ① THE MAX. SLOPE IS 8.33% IF LONGITUDINAL STREET GRADE ALLOWS.
- ② DEEP TOOL JOINT, SEE CURB, GUTTER AND SIDEWALK DETAIL.
- ③ DRIVEWAY WIDTH PER THE DESIGN STANDARDS.
- ④ 1 INCH HIGH LIP AT 45 DEGREE BATTER.
- ⑤ COMMERCIAL DRIVEWAY: SIDEWALK, CURB AND GUTTER SHALL BE MIN. 8" THICK CONCRETE WITH NO. 4, GRADE 60 REBAR 18" ON CENTER IN DRIVEWAY SECTION.
RESIDENTIAL DRIVEWAY: SIDEWALK, CURB, AND GUTTER SHALL BE MIN. 6" THICK CONCRETE.
- ⑥ EXPANSION JOINT (TYP.)
- ⑦ 6" MIN AGGREGATE BASE COMPACTED TO 95% RELATIVE COMPACTION UNDER CURB AND GUTTER, DRIVEWAY AND DRIVEWAY WINGS.

	PUBLIC WORKS DEPARTMENT ENGINEERING DIVISION		
	RESIDENTIAL AND COMMERCIAL DRIVEWAY		
APPROVED BY: 			
ASSISTANT CITY ENGINEER			
SCALE: NONE	DRAWN BY: CAD	DATE: NOV 5, 2018	ST - 9



PLAN VIEW



SECTION A-A

NOTES

1. CONCRETE SHALL BE EIGHT INCHES THICK WITH #4, GRADE 60 REBAR AT 18 INCH CENTERS EACH WAY.
2. THE SLAB FOR THE BUS TURNOUT MAY BE PLACED MONOLITHICALLY WITH THE CURB AND SIDEWALK (PREFERRED). IF CONCRETE IS PLACED WITH A COLD JOINT BETWEEN THE BOTTOM OF THE CURB AND THE TURNOUT SLAB, THEN THE CURB SHALL BE DOWELED TO THE SLAB WITH 8" LONG, #4, GRADE 60 REBAR AT FOUR FOOT CENTERS.
3. PLACE 2 INCH DEEP TOOL JOINTS AT 10 FOOT CENTERS, PERPENDICULAR TO THE LIP OF GUTTER IN THE TURNOUT SLAB AND EXTENDED PERPENDICULAR TO THE FACE OF CURB IN THE CURB AND SIDEWALK. SEE CURB, GUTTER AND SIDEWALK DETAIL.



PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION

**BUS TURNOUT
CONCRETE SLAB**

APPROVED BY:

Jim McRae

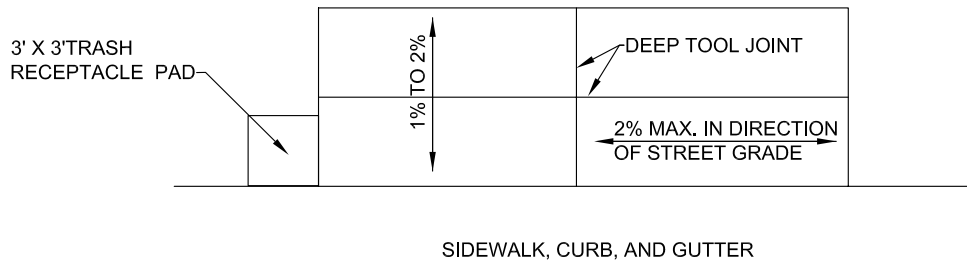
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SCALE:
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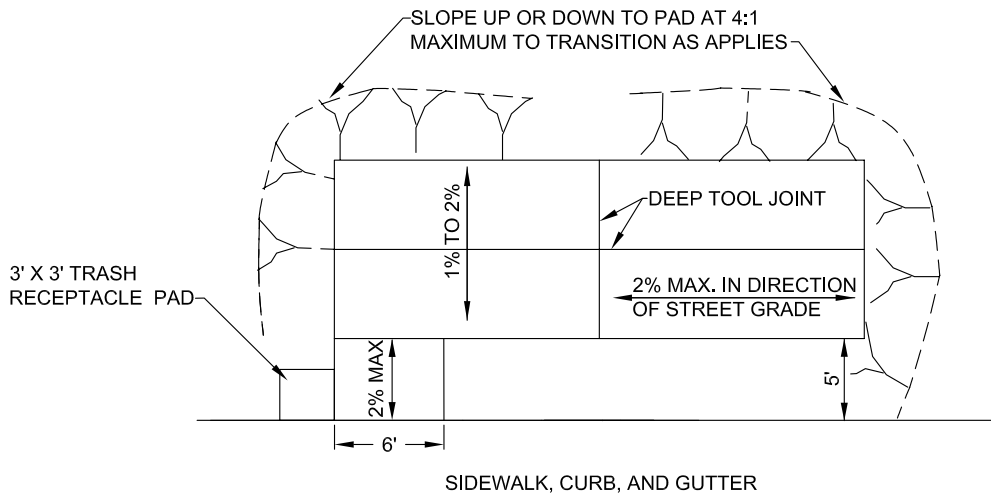
DRAWN BY:
BPJ

DATE:
MAR 3, 2009

ST - 10



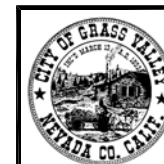
STREETS WITH LOGITUDINAL GRADES OF LESS THAN 2%



STREETS WITH LOGITUDINAL GRADES OF MORE THAN 2%

NOTES:

1. PAD SIZE: 7'x14' X 6" THICK PCC OR PER PLANS.
2. WALK TO BE WARPED FROM 2% AT PAD AS NEEDED TO MATCH STREET GRADE.



PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION

BUS STOP SHELTER PAD

APPROVED BY:

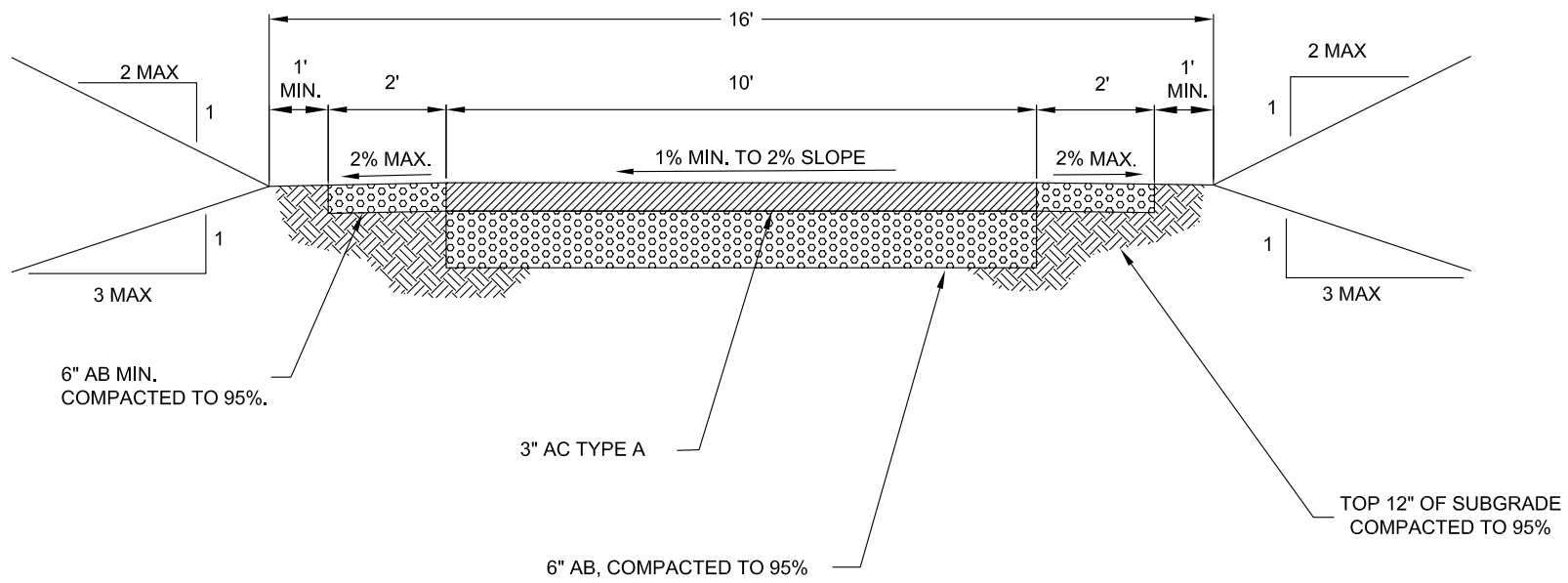
PUBLIC WORKS DIRECTOR / CITY ENGINEER

SCALE:
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DRAWN BY:
BPJ



DATE:
MAR 3, 2009

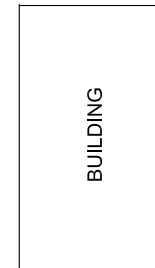
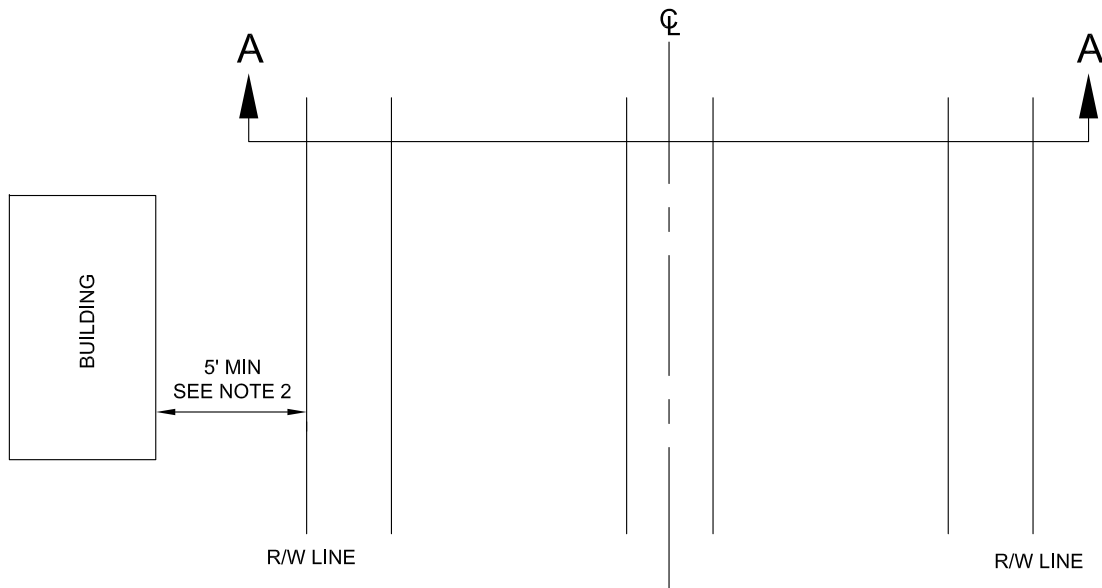
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NOTES:

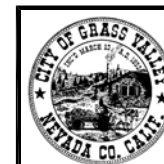
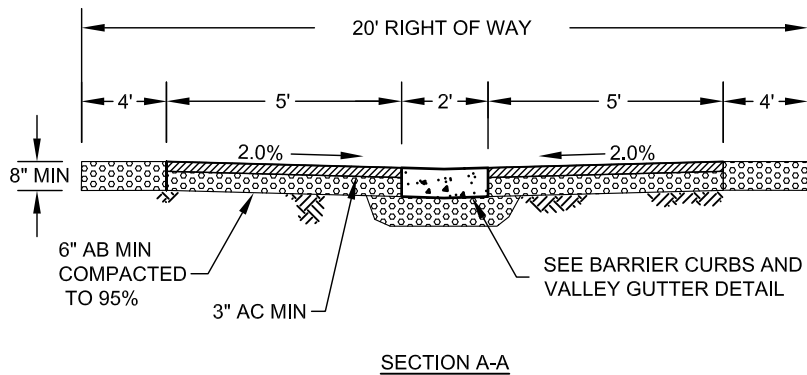
- BIKE PATHS CONSTRUCTED WITHIN CUT-SLOPES SHALL HAVE A DRAINAGE DITCH OF SUITABLE DIMENSIONS ALONG THE UPHILL SIDE TO INTERCEPT THE HILLSIDE DRAINAGE. BIKE PATHS CONSTRUCTED ON TOP OF FILL SLOPES SHALL HAVE A DRAINAGE DITCH OF SUITABLE DIMENSIONS ALONG THE DOWNHILL SIDE TO INTERCEPT THE TRAIL'S DRAINAGE.

	PUBLIC WORKS DEPARTMENT ENGINEERING DIVISION	
	SHARED USE PATH	
APPROVED BY:  PUBLIC WORKS DIRECTOR / CITY ENGINEER		
SCALE: NONE	DRAWN BY: BPJ	DATE: MAR 3, 2009
		ST-12



NOTES:

1. SEE THE DESIGN STANDARDS FOR STREET PAVEMENT REQUIREMENTS.
2. 25' SEPARATION FROM BUILDINGS IS REQUIRED IF PARKING IS ALLOWED IN FRONT OF GARAGES.
3. ALLEY DETAIL ONLY APPLICABLE TO DEVELOPMENTS OF 10 UNITS OR LESS PER CITY OF GRASS VALLEY DESIGN STANDARDS.
4. INSTALL "NO PARKING" SIGNAGE AT A MINIMUM 200' SPACING.
5. AN ACCESSIBLE ROUTE OF TRAVEL IS REQUIRED TO CONNECT FROM ALL BUILDINGS TO ADJACENT SIDEWALKS.



PUBLIC WORKS DEPARTMENT
 ENGINEERING DIVISION

RESIDENTIAL ALLEY

APPROVED BY:

Jim McRae

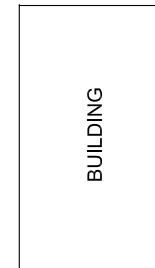
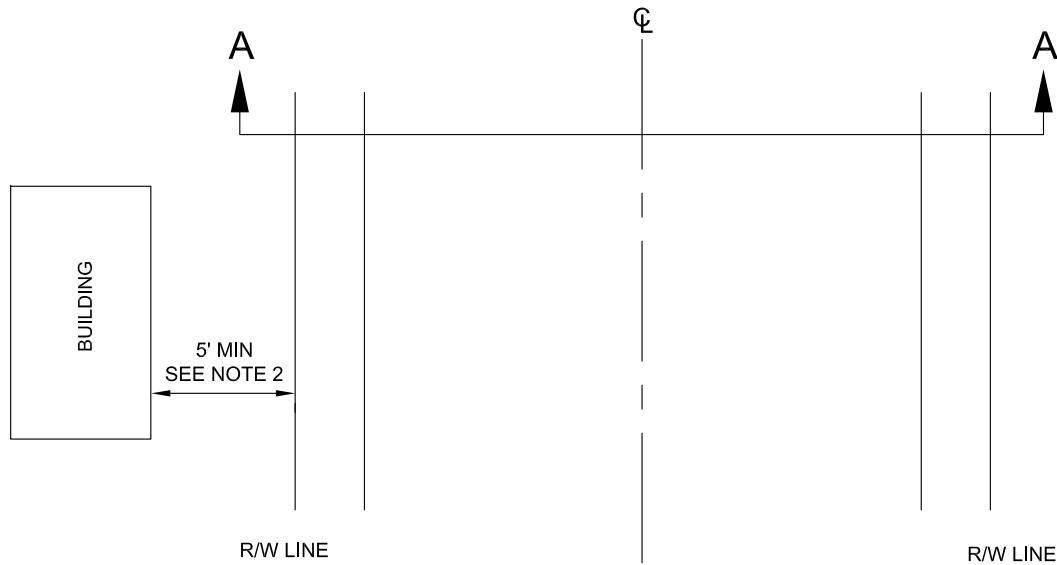
PUBLIC WORKS DIRECTOR / CITY ENGINEER

SCALE:
 NONE

DRAWN BY:
 BPJ

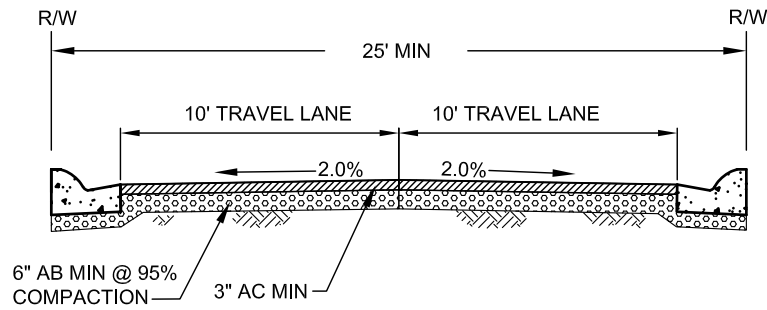
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ST-13

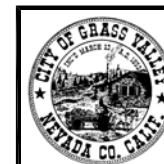


NOTES:

1. SEE THE DESIGN STANDARDS FOR STREET PAVEMENT REQUIREMENTS.
2. 25' SEPARATION FROM BUILDINGS IS REQUIRED IF PARKING IS ALLOWED IN FRONT OF GARAGES.
3. ALLEY DETAIL ONLY APPLICABLE TO DEVELOPMENTS OF 10 UNITS OR LESS PER CITY OF GRASS VALLEY DESIGN STANDARDS.
4. INSTALL "NO PARKING" SIGNAGE AT A MINIMUM 200' SPACING.
5. AN ACCESSIBLE ROUTE OF TRAVEL IS REQUIRED TO CONNECT FROM ALL BUILDINGS TO ADJACENT SIDEWALKS.



SECTION A-A



**PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION**

RESIDENTIAL ALLEY 2

APPROVED BY:

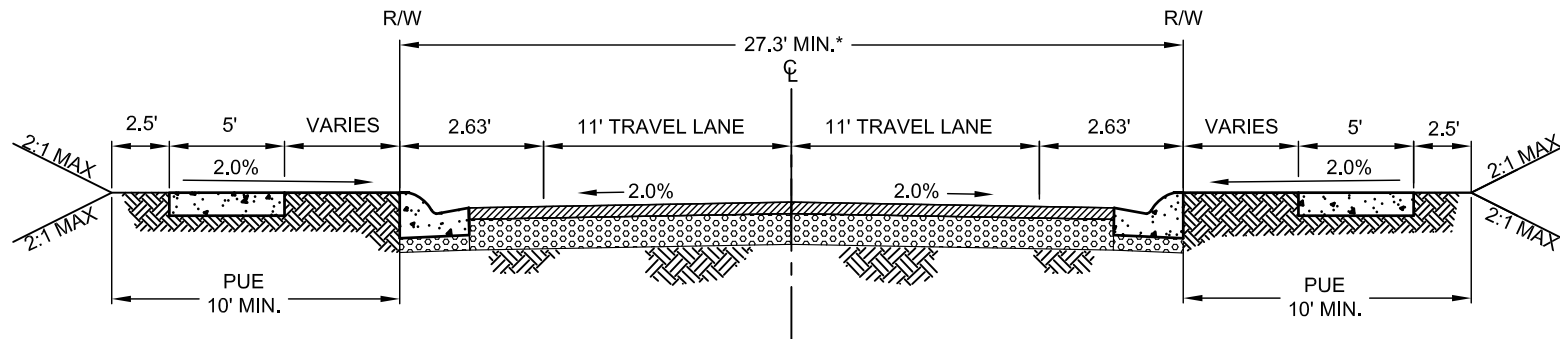
PUBLIC WORKS DIRECTOR / CITY ENGINEER

SCALE:
NONE

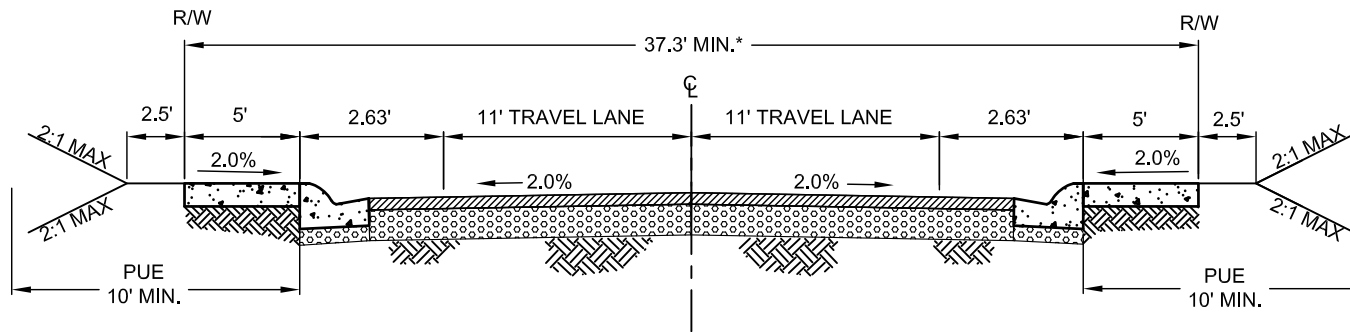
DRAWN BY:
BPJ

DATE:
FEB 20, 2018

ST-13-2



DETACHED SIDEWALK NO PARKING

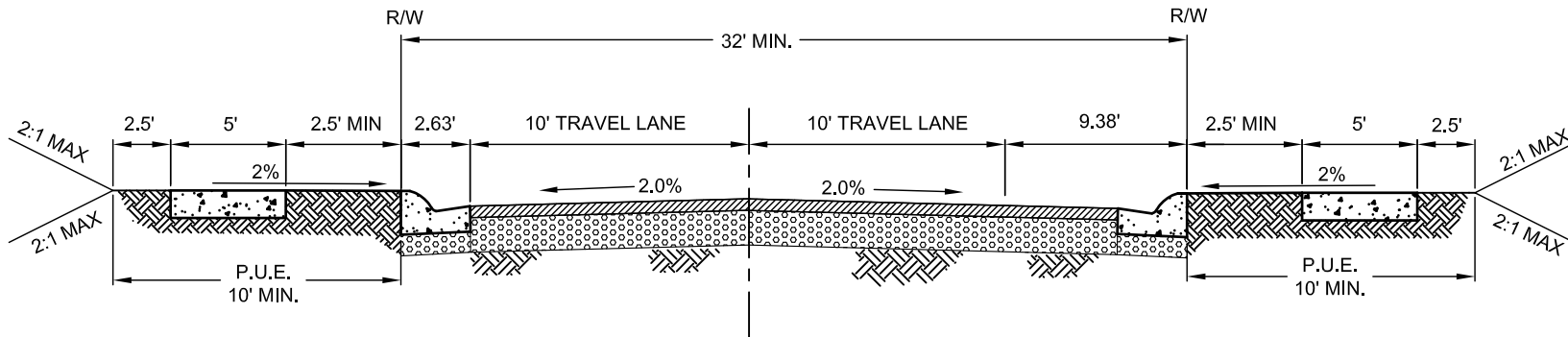


ATTACHED SIDEWALK NO PARKING

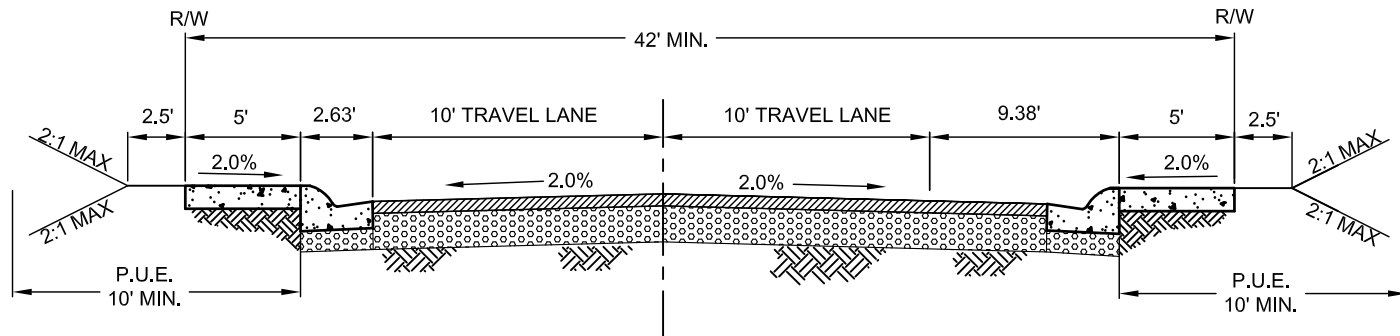
NOTES:

1. FOR STREET REQUIREMENT SEE THE DESIGN STANDARDS.
2. CURB AND GUTTER TO BE TYPE 1 ADJACENT TO SINGLE FAMILY RESIDENTIAL LOTS, TYPE 2 AT ALL OTHER LOCATIONS.
3. INSTALL "NO PARKING" SIGNAGE AT A MINIMUM 200' SPACING.
4. * THIS IS THE MINIMUM WIDTH FOR CITY DEDICATION WHEN SUFFICIENT OFF STREET PARKING IS PROVIDED.
5. FOR 20 UNITS OR LESS SIDEWALKS MAY OPTIONALLY BE OMITTED IN CONFORMANCE WITH CITY OF GRASS VALLEY DESIGN STANDARDS SECTION 6-6, SUBSECTION E.
6. AN ACCESSIBLE ROUTE OF TRAVEL IS REQUIRED TO CONNECT FROM ALL BUILDINGS TO ADJACENT SIDEWALKS.

	PUBLIC WORKS DEPARTMENT ENGINEERING DIVISION		
	MINOR RESIDENTIAL STREET (NO PARKING)		
APPROVED BY:			
 PUBLIC WORKS DIRECTOR / CITY ENGINEER			
SCALE: NONE	DRAWN BY: BPJ	DATE: FEB 20, 2018	ST-14



DETACHED SIDEWALK PARKING ONE-SIDE



ATTACHED SIDEWALK PARKING ONE-SIDE

NOTES:

1. FOR STREET REQUIREMENT SEE THE DESIGN STANDARDS.
2. CURB AND GUTTER TO BE TYPE 1 ADJACENT TO SINGLE FAMILY RESIDENTIAL LOTS, TYPE 2 AT ALL OTHER LOCATIONS.
3. INSTALL "NO PARKING" SIGNAGE AT A MINIMUM 200' SPACING.
4. * THIS IS THE MINIMUM WIDTH FOR CITY DEDICATION WHEN SUFFICIENT OFF STREET PARKING IS PROVIDED.
5. FOR 20 UNITS OR LESS SIDEWALKS MAY OPTIONALLY BE OMITTED IN CONFORMANCE WITH CITY OF GRASS VALLEY DESIGN STANDARDS SECTION 6-6, SUBSECTION E.
6. AN ACCESSIBLE ROUTE OF TRAVEL IS REQUIRED TO CONNECT FROM ALL BUILDINGS TO ADJACENT SIDEWALKS.



PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION

**MINOR RESIDENTIAL ST
(PARKING ONE-SIDE)**

APPROVED BY:

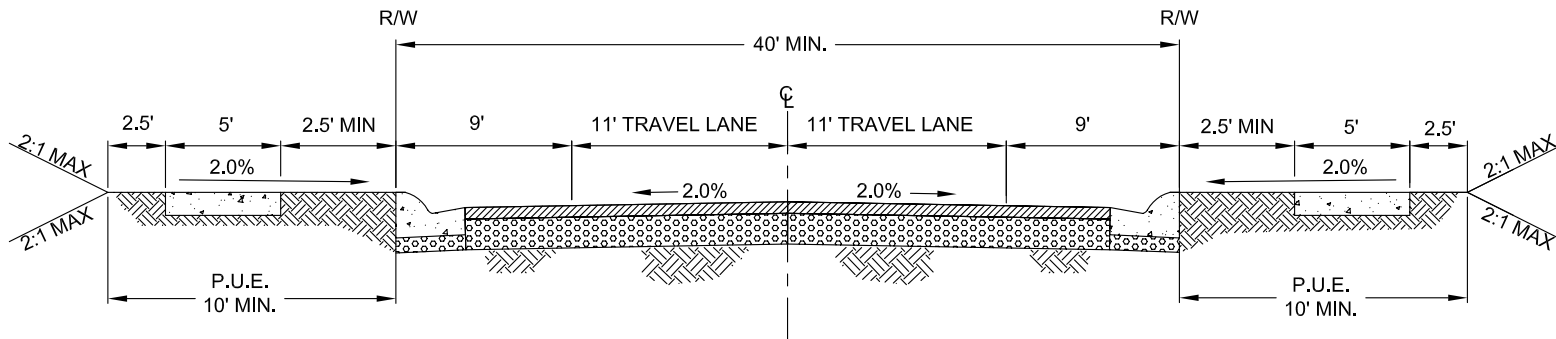
PUBLIC WORKS DIRECTOR / CITY ENGINEER

SCALE:
NONE

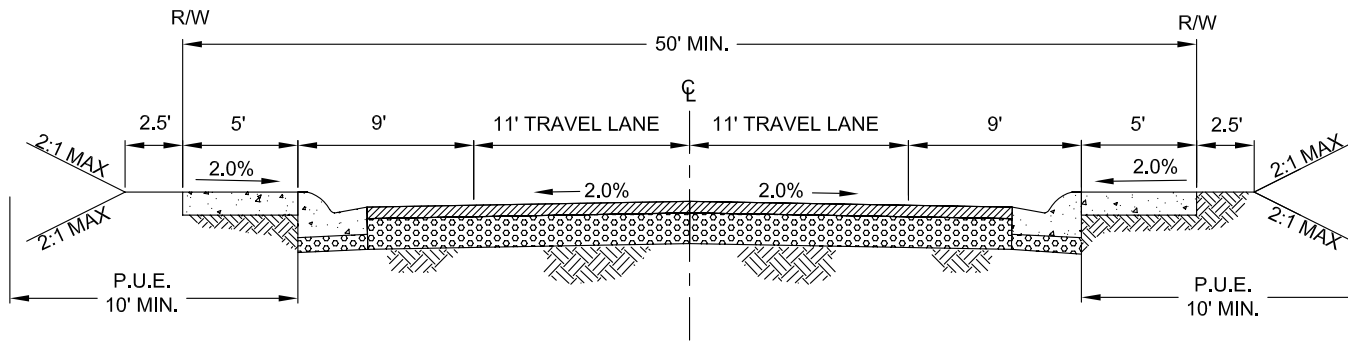
DRAWN BY:
BPJ

DATE:
FEB 20, 2018

ST-15



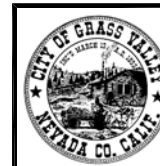
DETACHED SIDEWALK



ATTACHED SIDEWALK

NOTES:

1. FOR STREET REQUIREMENTS SEE THE DESIGN STANDARDS.
2. CURB AND GUTTER TO BE TYPE 1 ADJACENT TO SINGLE FAMILY RESIDENTIAL LOTS, TYPE 2 AT ALL OTHER LOCATIONS.



PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION

**PRIMARY RESIDENTIAL
STREET**

APPROVED BY:

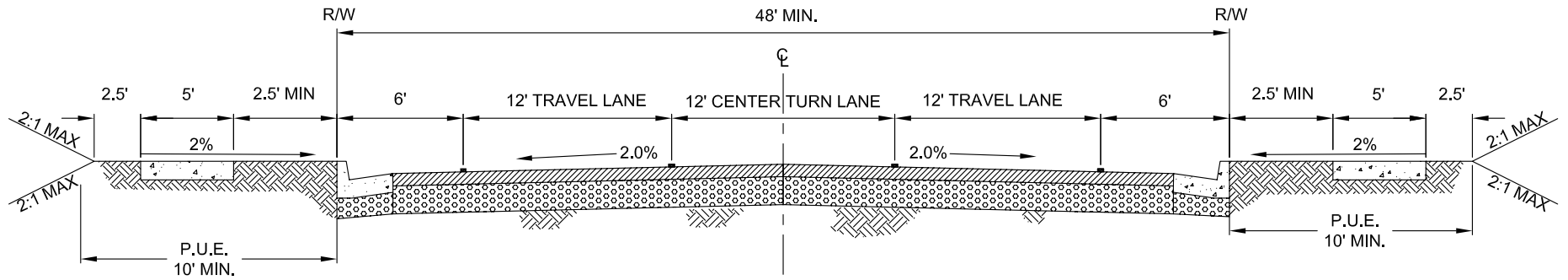
PUBLIC WORKS DIRECTOR / CITY ENGINEER

SCALE:
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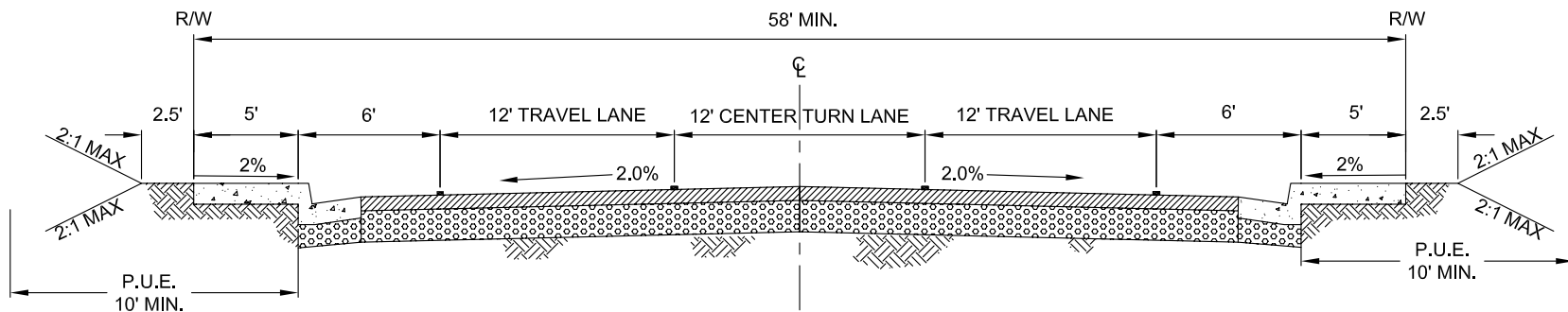
DRAWN BY:
BPJ

DATE:
MAR 3, 2009

ST-16





DETACHED SIDEWALK NO PARKING

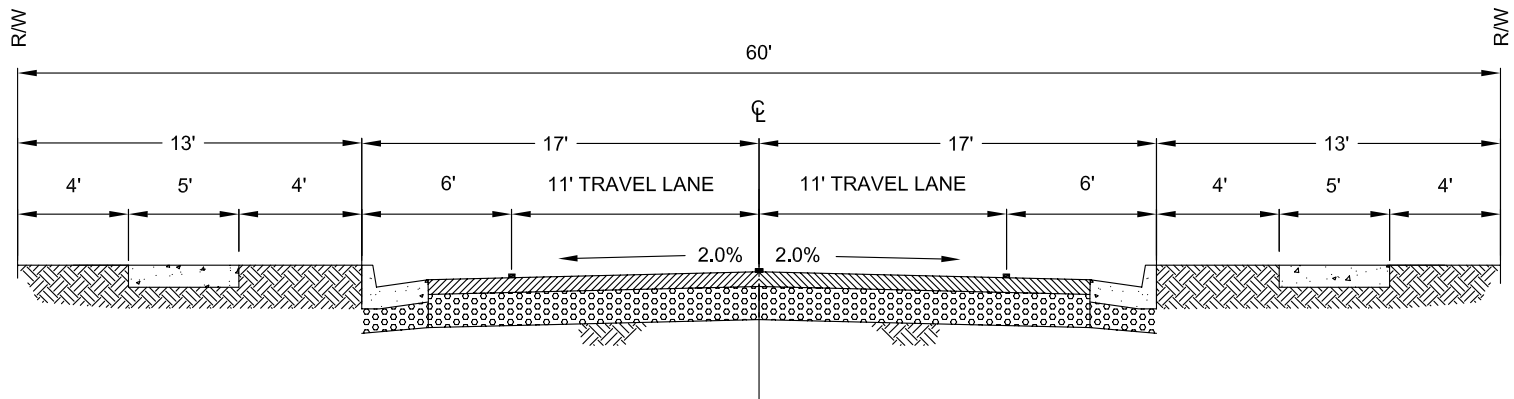


ATTACHED SIDEWALK NO PARKING

NOTES:



1. CENTER TURN LANES OR LEFT TURN LANES ARE TO BE INSTALLED AS REQUIRED OTHERWISE A SOLID OR LANDSCAPED MEDIAN IS TO BE CONSTRUCTED WITH THE APPROVAL OF THE PUBLIC WORKS DIRECTOR/CITY ENGINEER.
2. CURB AND GUTTER SHALL BE TYPE 2. MEDIAN CURBS SHALL BE TYPE 3 BARRIER CURB WHEN SOLID MEDIANS ARE INSTALLED AND TYPE 4 BARRIER CURB WHEN LANDSCAPED MEDIANS ARE INSTALLED.

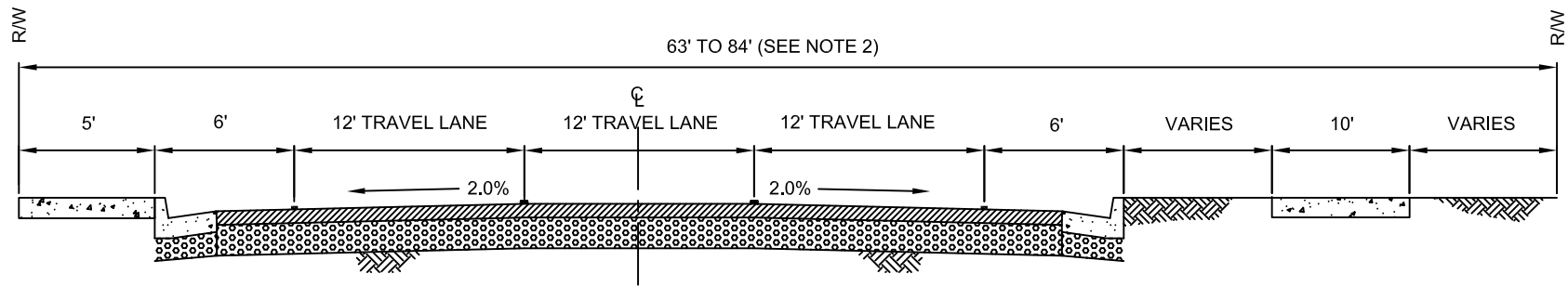
	PUBLIC WORKS DEPARTMENT ENGINEERING DIVISION
	COLLECTOR STREET (NO PARKING)
APPROVED BY: 	
PUBLIC WORKS DIRECTOR / CITY ENGINEER	
SCALE: NONE	DRAWN BY: BPJ
DATE: MAR 3, 2009	
ST - 17	



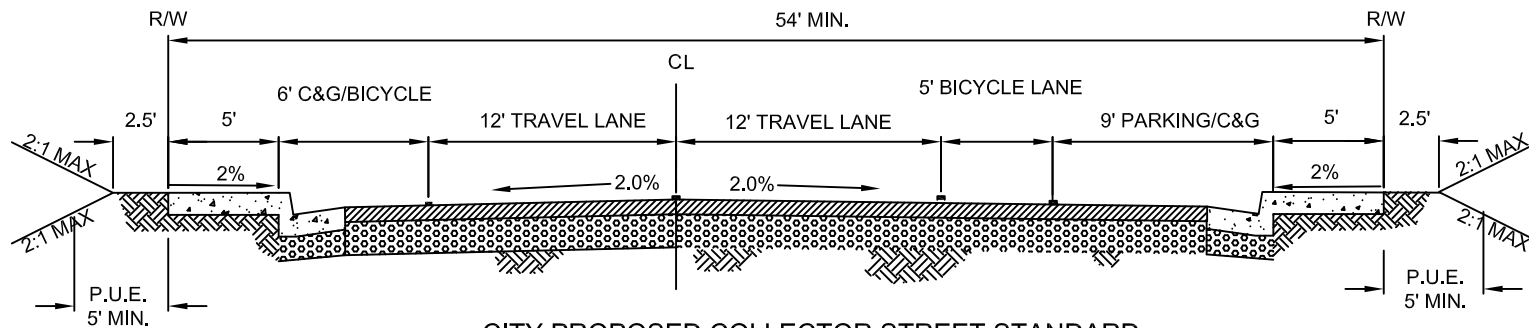
NOTES:

1. THIS MODIFIED STREET SECTION IS TO BE USED ON RIDGE RD BETWEEN SLATE CREEK AND HUGHES RD AND OTHER LOCATIONS AS DIRECTED BY THE CITY ENGINEER OR CITY COUNCIL.
2. PLANTING ADJACENT TO SIDEWALK AREA REQUIRES APPROVAL FROM THE CITY ENGINEER TO ENSURE PROPER LINE OF SITE.
3. MINIMUM RIGHT OF WAY REQUIREMENTS ARE SHOWN ABOVE. WITH CITY COUNCIL APPROVAL, ADDITIONAL RIGHT OF WAY MAY BE REQUIRED TO ALLOW FOR TURN LANES

	PUBLIC WORKS DEPARTMENT ENGINEERING DIVISION	
	MODIFIED COLLECTOR STREET 1	
APPROVED BY:		
 PUBLIC WORKS DIRECTOR / CITY ENGINEER		
SCALE: NONE	DRAWN BY: BPJ	DATE: MAR 3, 2009
		ST-18





**CITY PROPOSED COLLECTOR STREET STANDARD
FOR IDAHO MARYLAND ROAD AND BENNETT STREET**

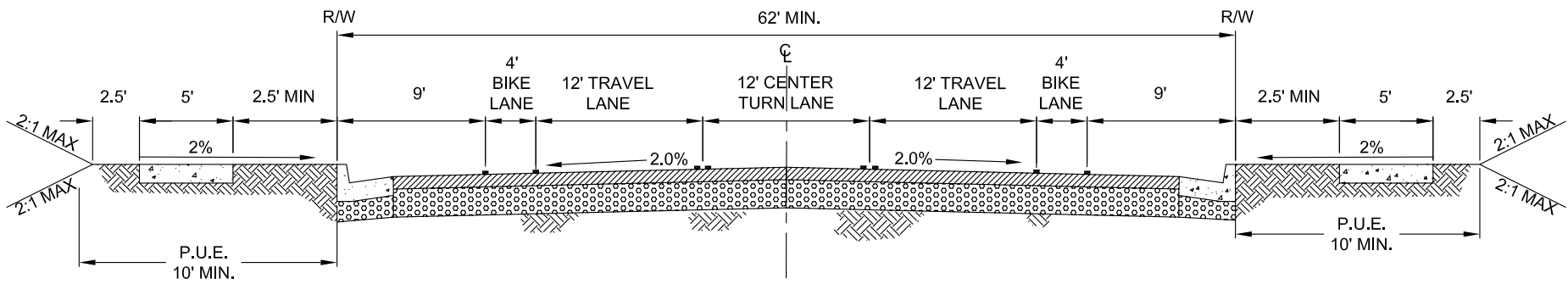


**CITY PROPOSED COLLECTOR STREET STANDARD
FOR RAILROAD AVENUE**

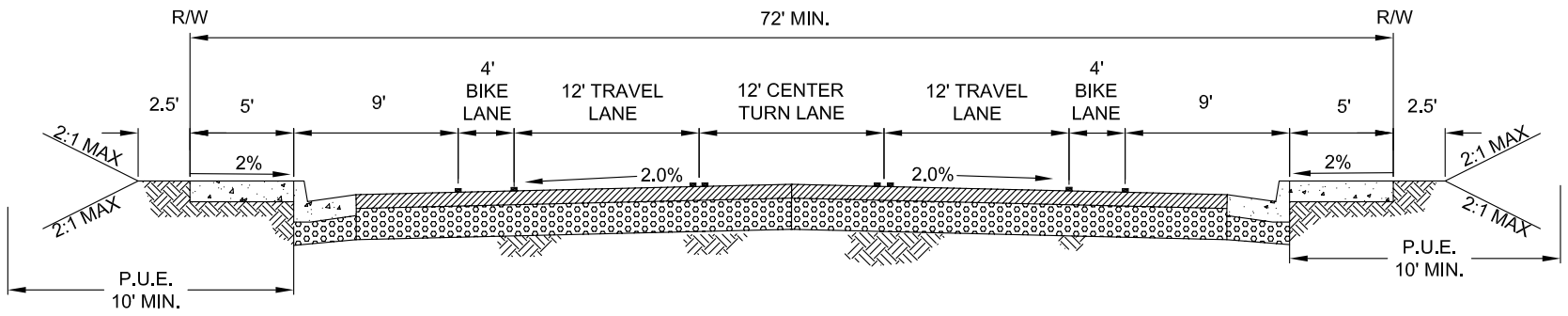
NOTES:

1. THIS MODIFIED STREET SECTION IS TO BE USED ON IDAHO MARYLAND RD BETWEEN EAST MAIN ST AND THE CITY LIMIT, RAILROAD AVENUE, BENNETT STREET BETWEEN OPHIR AND THE CITY LIMIT, AND OTHER LOCATIONS AS DIRECTED BY THE CITY ENGINEER OR CITY COUNCIL.
2. RIGHT OF WAY VARIES FROM 60' TO 84' DEPENDING UPON THE SITE LIMITATIONS AND OBSTRUCTIONS (I.E. WOLF CREEK) AND AS APPROVED BY THE CITY ENGINEER.
3. ALIGNMENT OF THE MEANDERING SIDEWALK REQUIRES APPROVAL FROM THE CITY ENGINEER.
4. LANE WIDTHS MAY BE REDUCED FROM 12' TO 11' WITH APPROVAL OF THE CITY ENGINEER.
5. CENTER TURN LANES OR LEFT TURN LANES ARE TO BE INSTALLED AS REQUIRED OTHERWISE A SOLID OR LANDSCAPED MEDIAN ISLAND IS TO BE CONSTRUCTED WITH THE APPROVAL OF THE PUBLIC WORKS DIRECTOR/CITY ENGINEER. CURB AND GUTTER SHALL BE TYPE 2. MEDIAN CURBS SHALL BE TYPE 3 BARRIER CURB WHEN SOLID MEDIANS ARE INSTALLED AND TYPE 4 BARRIER CURB WHEN LANDSCAPED MEDIANS ARE INSTALLED.

	PUBLIC WORKS DEPARTMENT ENGINEERING DIVISION	
	MODIFIED COLLECTOR STREET 2	
APPROVED BY: 		
PUBLIC WORKS DIRECTOR / CITY ENGINEER		
SCALE: NONE	DRAWN BY: TMT	DATE: FEB 5, 2014
		ST-19



DETACHED SIDEWALK PARKING BOTH SIDES

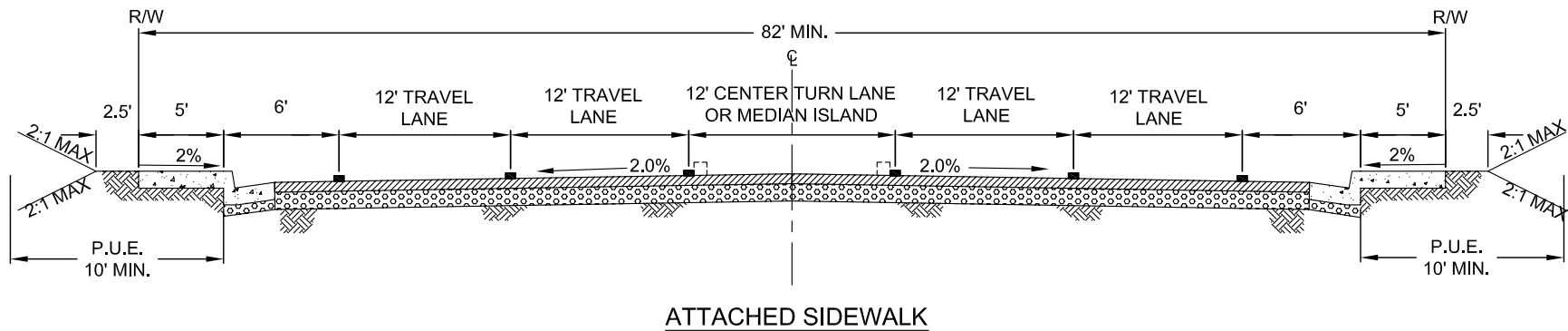
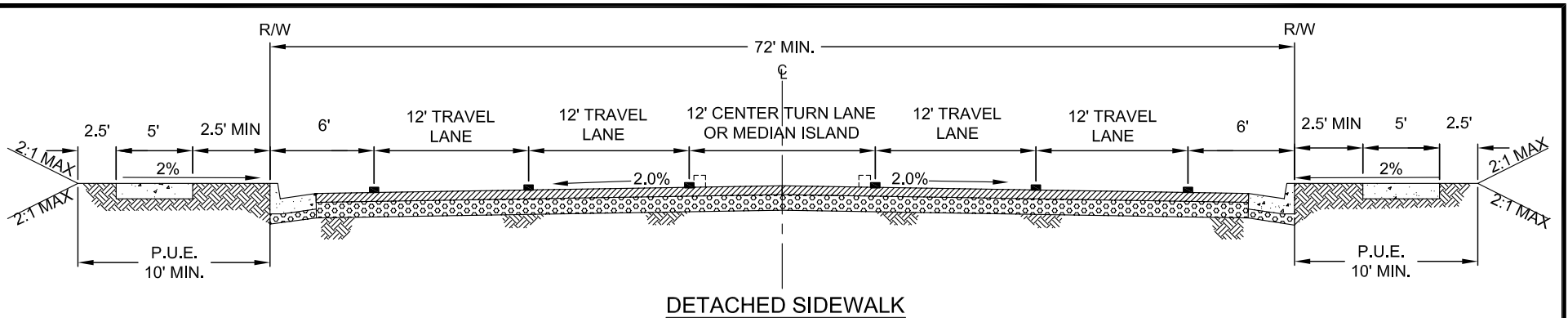


ATTACHED SIDEWALK PARKING BOTH SIDES

NOTES:



1. CENTER TURN LANES OR LEFT TURN LANES ARE TO BE INSTALLED AS REQUIRED OTHERWISE A SOLID OR LANDSCAPED MEDIAN ISLAND IS TO BE CONSTRUCTED WITH THE APPROVAL OF THE PUBLIC WORKS DIRECTOR/CITY ENGINEER.
2. CURB AND GUTTER SHALL BE TYPE 2. MEDIAN CURBS SHALL BE TYPE 3 BARRIER CURB WHEN SOLID MEDIANS ARE INSTALLED AND TYPE 4 BARRIER CURB WHEN LANDSCAPED MEDIANS ARE INSTALLED.

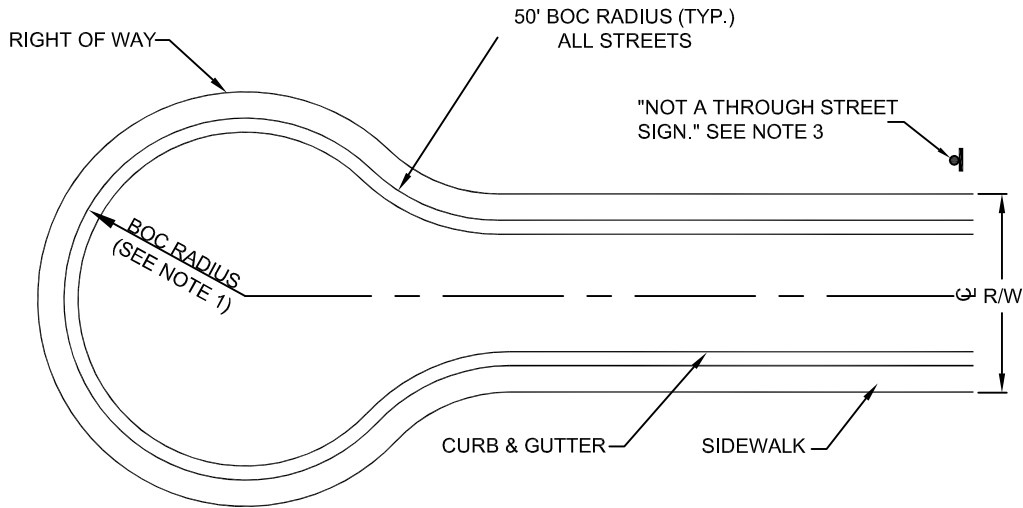
	PUBLIC WORKS DEPARTMENT ENGINEERING DIVISION	
	COLLECTOR STREET (WITH PARKING)	
APPROVED BY:		
 PUBLIC WORKS DIRECTOR / CITY ENGINEER		
SCALE: NONE	DRAWN BY: BPJ	DATE: MAR 3, 2009
		ST-20



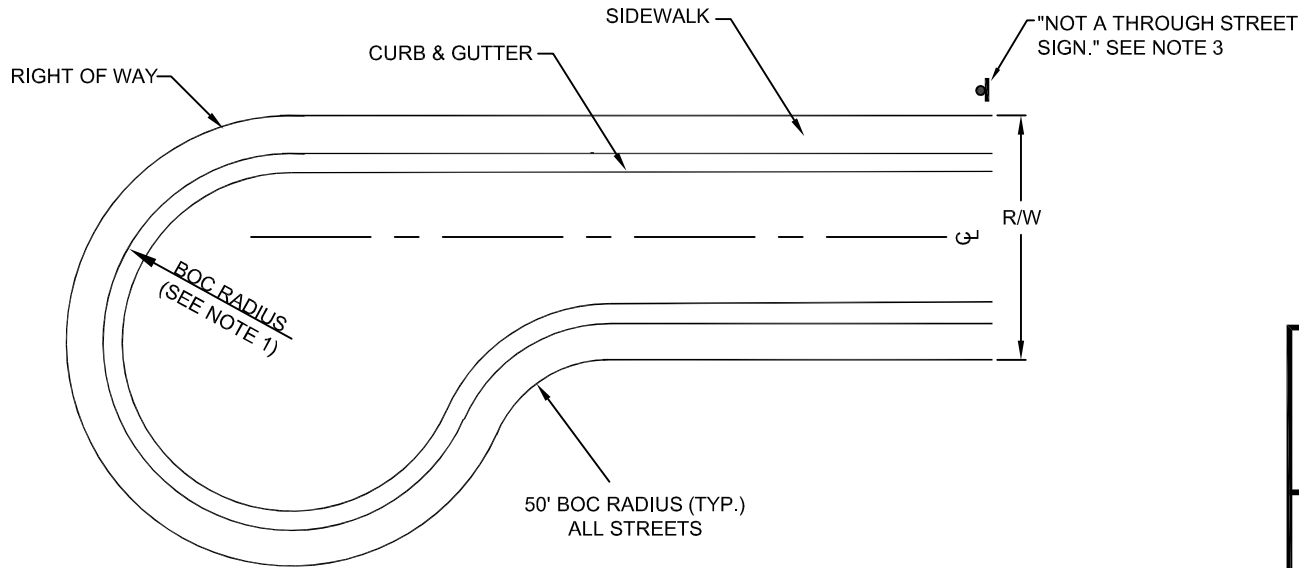
NOTES:

1. CENTER TURN LANES OR LEFT TURN LANES ARE TO BE INSTALLED AS REQUIRED OTHERWISE A SOLID OR LANDSCAPED MEDIAN ISLAND IS TO BE CONSTRUCTED AT THE DISCRETION OF THE PUBLIC WORKS DIRECTOR/CITY ENGINEER.
2. CURB AND GUTTER SHALL BE TYPE 2. MEDIAN CURBS SHALL BE TYPE 3 BARRIER CURB WHEN SOLID MEDIANS ARE INSTALLED AND TYPE 4 BARRIER CURB WHEN LANDSCAPED MEDIANS ARE INSTALLED.

	PUBLIC WORKS DEPARTMENT ENGINEERING DIVISION
	ARTERIAL STREET
APPROVED BY:  PUBLIC WORKS DIRECTOR / CITY ENGINEER	
SCALE: NONE	DRAWN BY: BPJ
DATE: MAR 3, 2009	ST-21



STANDARD CUL-DE-SAC



OFFSET CUL-DE-SAC

NOTES:

1. BACK OF CURB RADIUS FOR BULB SHALL BE AS FOLLOWS:

TYPE OF STREET	B.O.C. RADIUS
RESIDENTIAL	50' MIN
COMM. / ARTERIAL	50' MIN

2. INSTALL "NOT A THROUGH STREET" (CALTRANS W-53) SIGN ON STREET LIGHT POLE WHEN END OF CUL-DE-SAC IS NOT VISIBLE FROM ADJACENT STREET.



PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION

**CUL - DE - SAC
STREET**

APPROVED BY:

Jim McRae

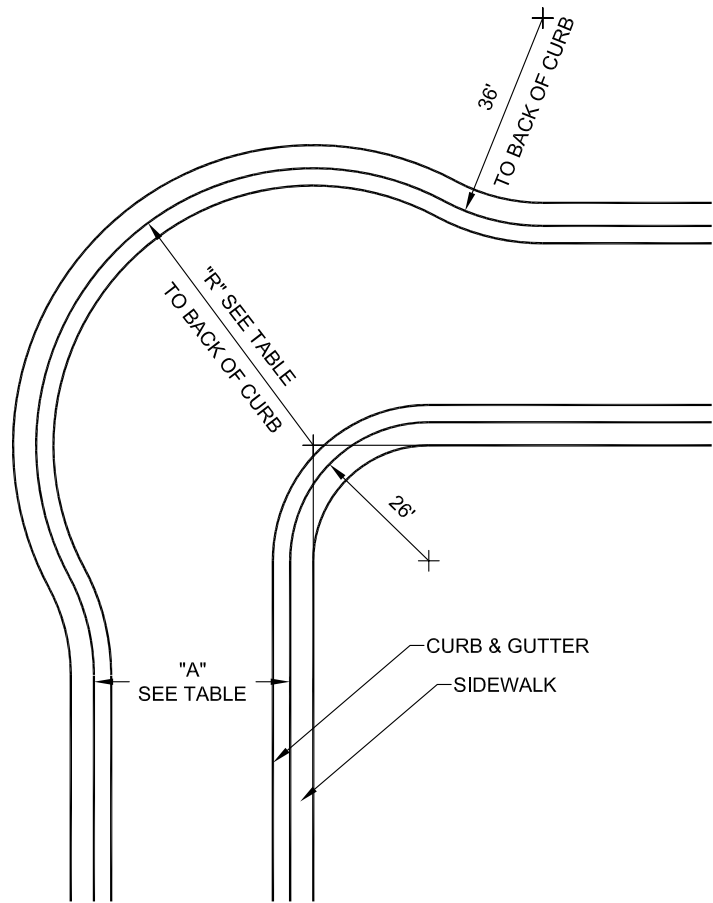
PUBLIC WORKS DIRECTOR / CITY ENGINEER

SCALE:
NONE

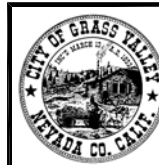
DRAWN BY:
EAD

DATE:
MAY 12, 2016

ST-22



"A" (FEET)	"R" (FEET)
34	48
38	52
40	54
48	62



PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION

STANDARD ELBOW

APPROVED BY:

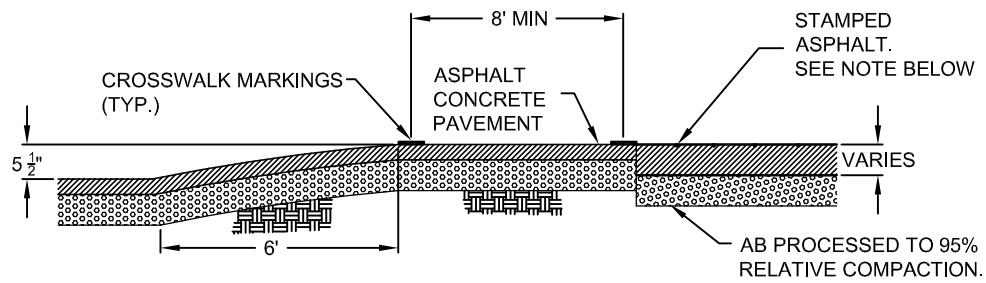
PUBLIC WORKS DIRECTOR / CITY ENGINEER

SCALE:
NONE

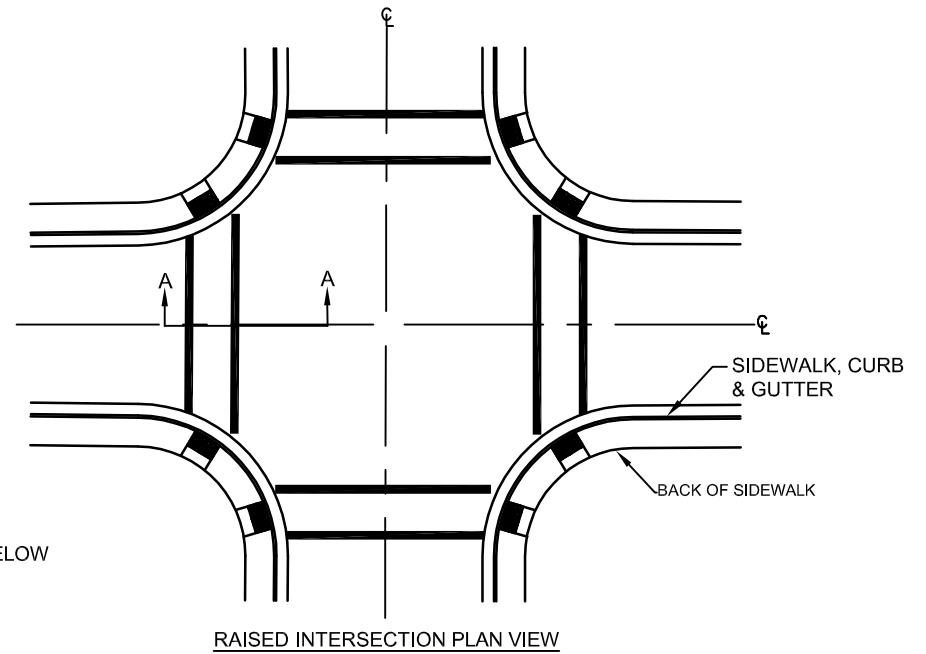
DRAWN BY:
BPJ

DATE:
MAR 3, 2009

ST-23




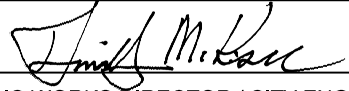
SECTION A-A
NOT TO SCALE

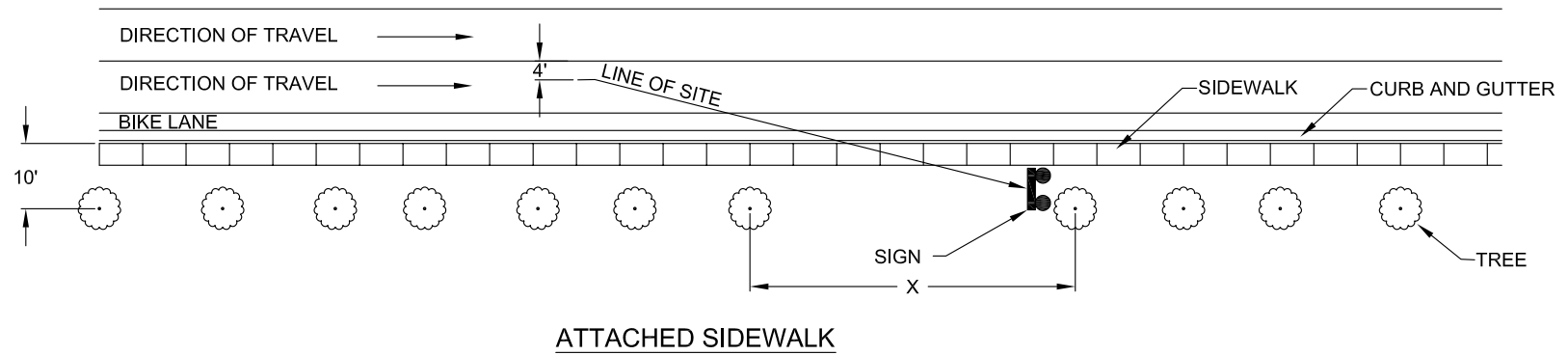
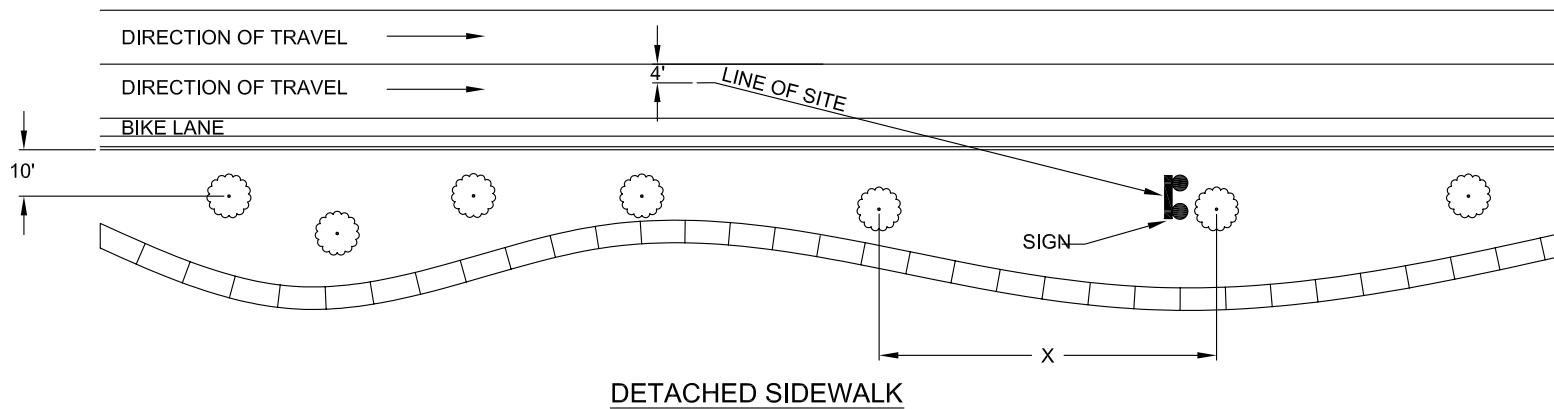


RAISED INTERSECTION PLAN VIEW

NOTE:

1. THE STANDARD PATTERN SHALL BE BASKETWEAVE WITH A BRICK RED TINT COLORING.

	PUBLIC WORKS DEPARTMENT ENGINEERING DIVISION	
	RESIDENTIAL RAISED INTERSECTION	
APPROVED BY: 		
PUBLIC WORKS DIRECTOR / CITY ENGINEER		
SCALE: NONE	DRAWN BY: EAD	DATE: MAY 12, 2016
		ST-25



NOTES:

1. THESE ARE MINIMUM DISTANCES FOR TREES ALONG ROADWAYS.
2. DISTANCE FROM BACK OF CURB TO CENTER OF TREE IS TO BE GREATER THAN OR EQUAL TO 10'

SPEED MPH	MINIMUM CLEARANCE FOR LINE OF SITE "X"
25	75'
30	90'
40	120'
50	150'
60	180'



PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION

**LANDSCAPE
SIGHT DISTANCE**

APPROVED BY:

Jim McRae

PUBLIC WORKS DIRECTOR / CITY ENGINEER

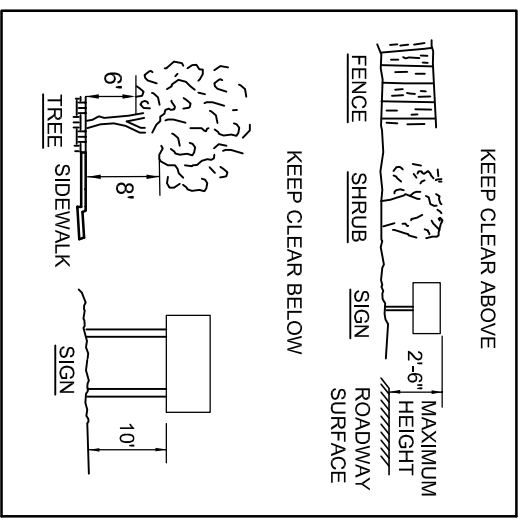
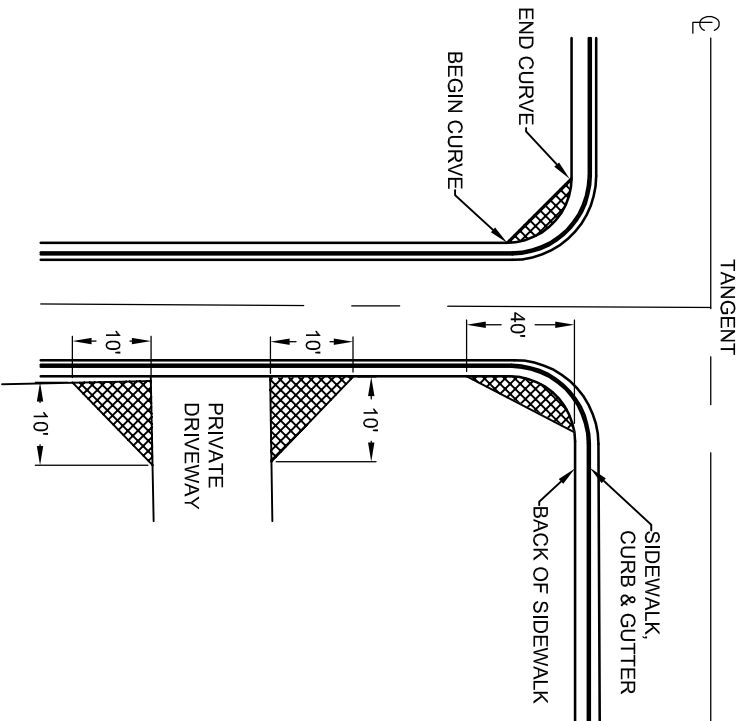
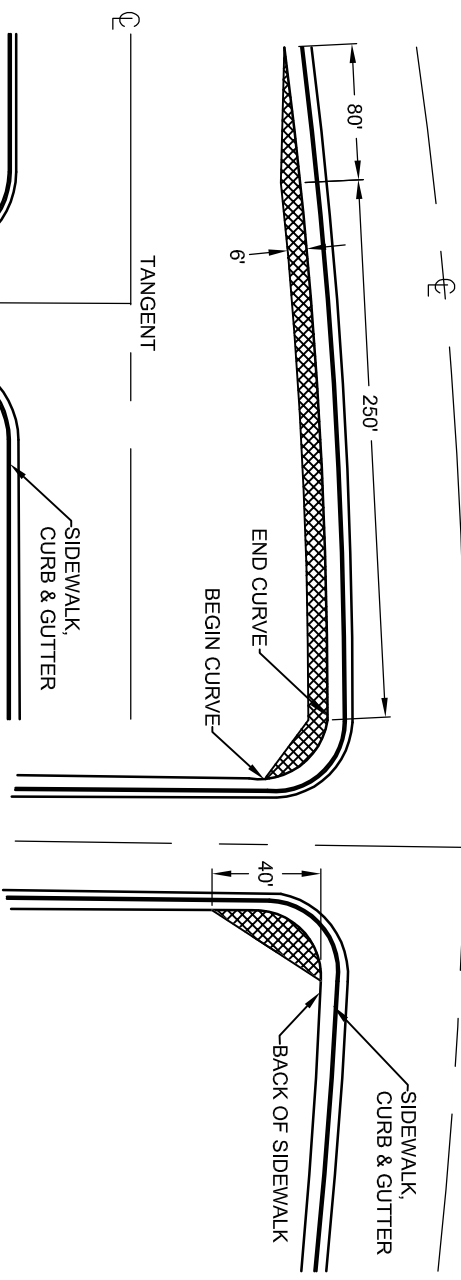
SCALE:
NONE

DRAWN BY:
BPJ

DATE:
MAR 3, 2009

ST-26

CURVE, R=2000' (SEE NOTE 2)



CLEARANCES WITHIN CONTROLLED AREA

LEGEND:



NOTES:

1. FENCES, WALLS, LANDSCAPING AND SIGNS WITHIN THE CONTROLLED AREA ARE SUBJECT TO THE CLEARANCE REQUIREMENTS SHOWN.
2. TREES WITHIN THE CONTROLLED AREA MUST MAINTAIN VERTICAL CLEARANCE OF 6 FEET FOR ADEQUATE SIGHT DISTANCE AND 8 FEET CLEARANCE OVER SIDEWALKS FOR PEDESTRIANS.
3. CURVES WITH RADII LESS THAN 2000' REQUIRE SPECIAL DESIGN FOR SIGHT DISTANCE SUBJECT TO APPROVAL BY THE CITY ENGINEER.

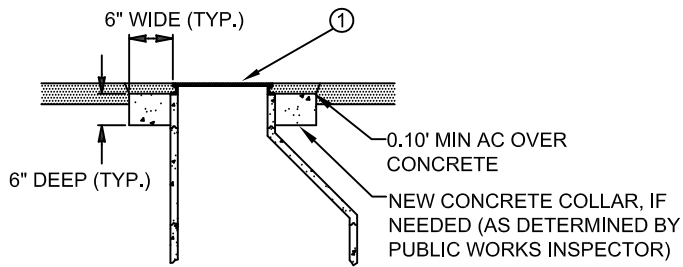
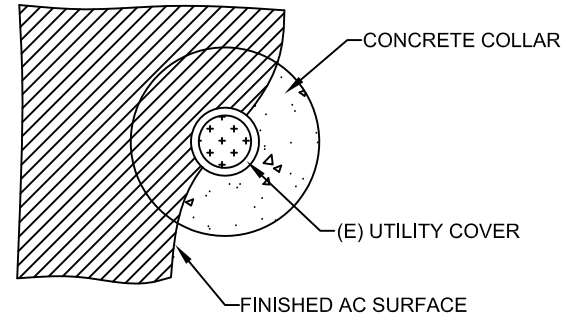
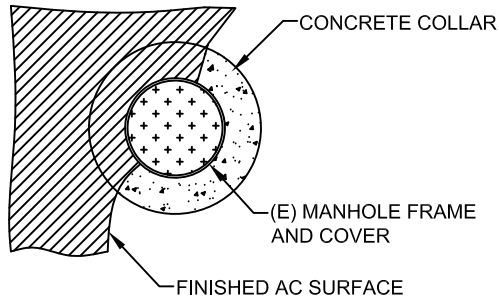


PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION
**SIGHT DISTANCE
REQUIREMENTS**

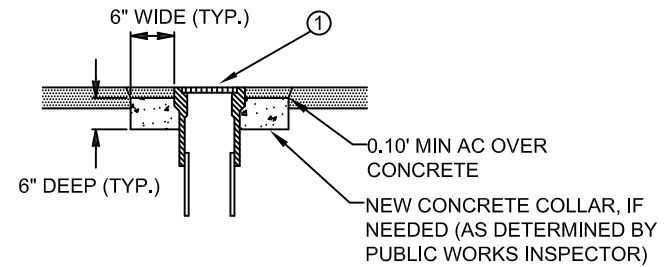
APPROVED BY:

David M. Baird
PUBLIC WORKS DIRECTOR / CITY ENGINEER

SCALE: NONE	DRAWN BY: EAD	DATE: MAY 12, 2016	CST ST-27
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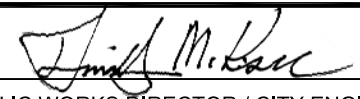
MANHOLE

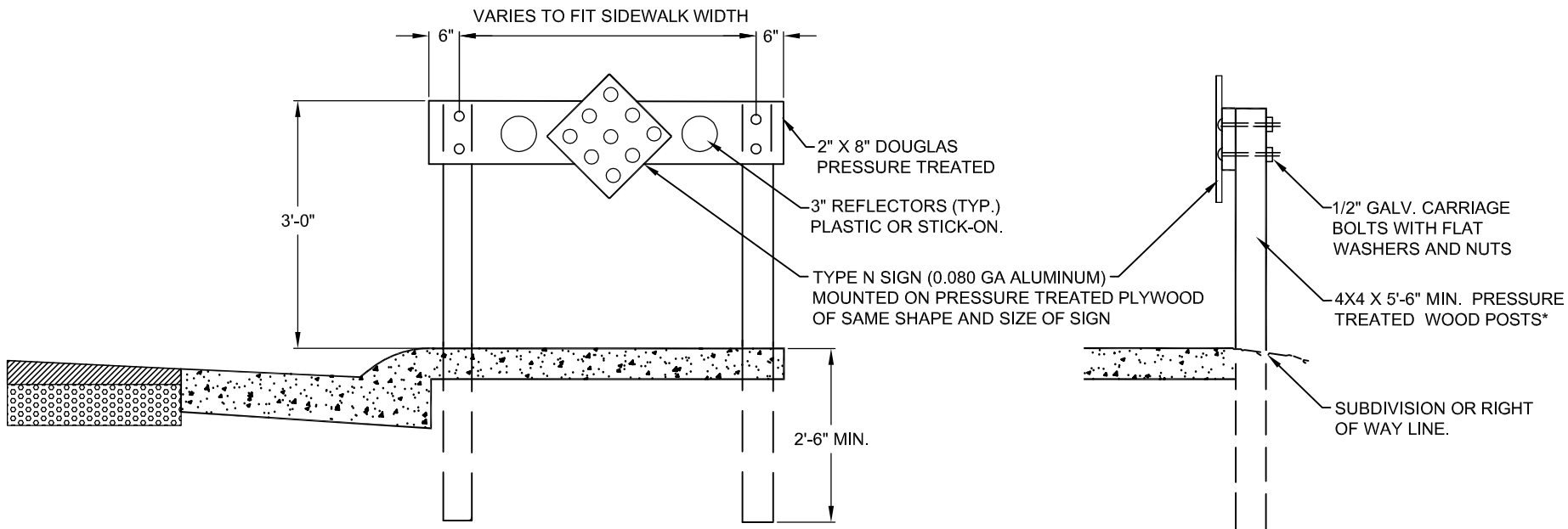


UTILITY COVER

NOTES



- ① IRON TO BE SET 1/4 INCH BELOW FINISHED GRADE.

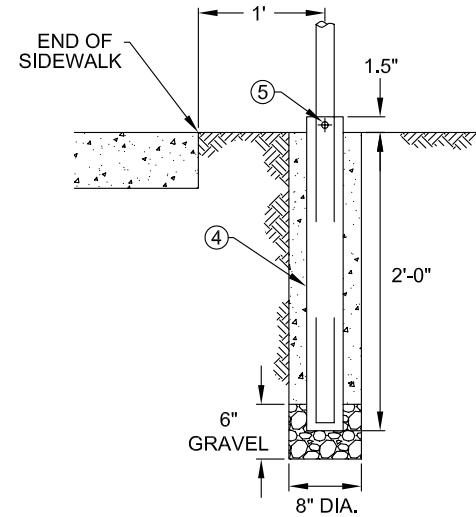
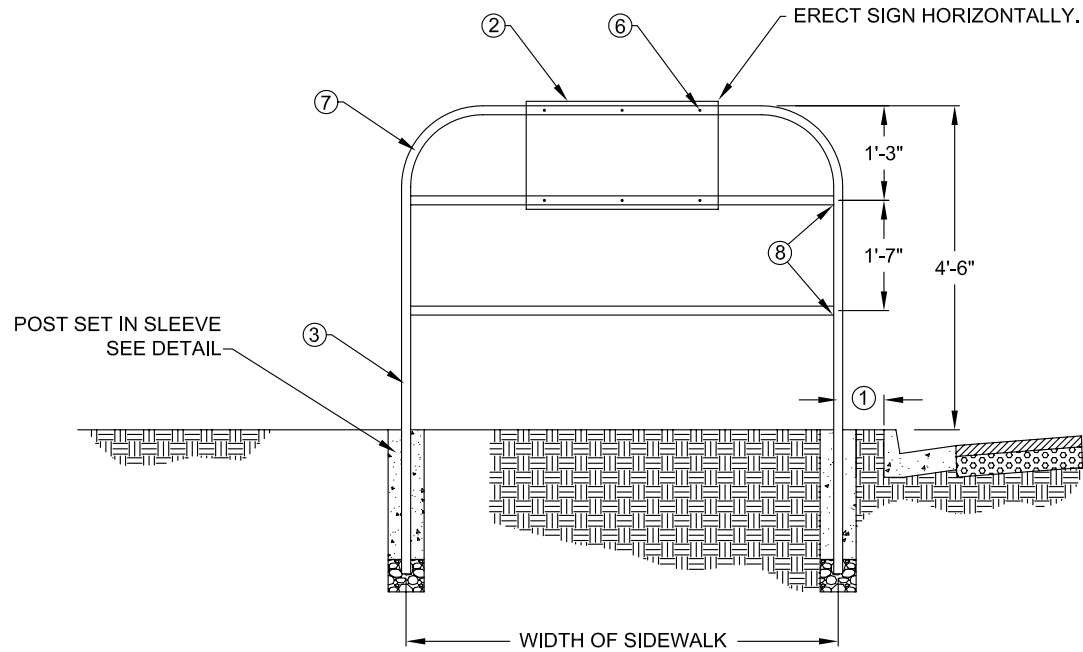
	PUBLIC WORKS DEPARTMENT ENGINEERING DIVISION		
	ADJUST UTILITY COVER/ MANHOLE TO GRADE		
APPROVED BY:  PUBLIC WORKS DIRECTOR / CITY ENGINEER			
SCALE: NONE	DRAWN BY: TMT	DATE: FEB 6, 2014	ST-28



NOTES:

1. SIDEWALK BARRICADES SHALL BE ERECTED WHERE SATISFACTORY PROVISIONS CANNOT BE MADE FOR PEDESTRIAN TO CONTINUE BEYOND THE TERMINUS OF SIDEWALK.
2. ALL EXPOSED PRESSURE TREATED WOOD SHALL BE PAINTED WITH TWO (2) COATS OF WHITE PAINT CONFORMING TO SECTION 91-3.02 OF STATE SPECIFICATIONS.

	PUBLIC WORKS DEPARTMENT ENGINEERING DIVISION
	SIDEWALK BARRICADE
APPROVED BY: 	
PUBLIC WORKS DIRECTOR / CITY ENGINEER	
SCALE: NONE	DRAWN BY: EAD
DATE: MAY 12, 2016	ST-29

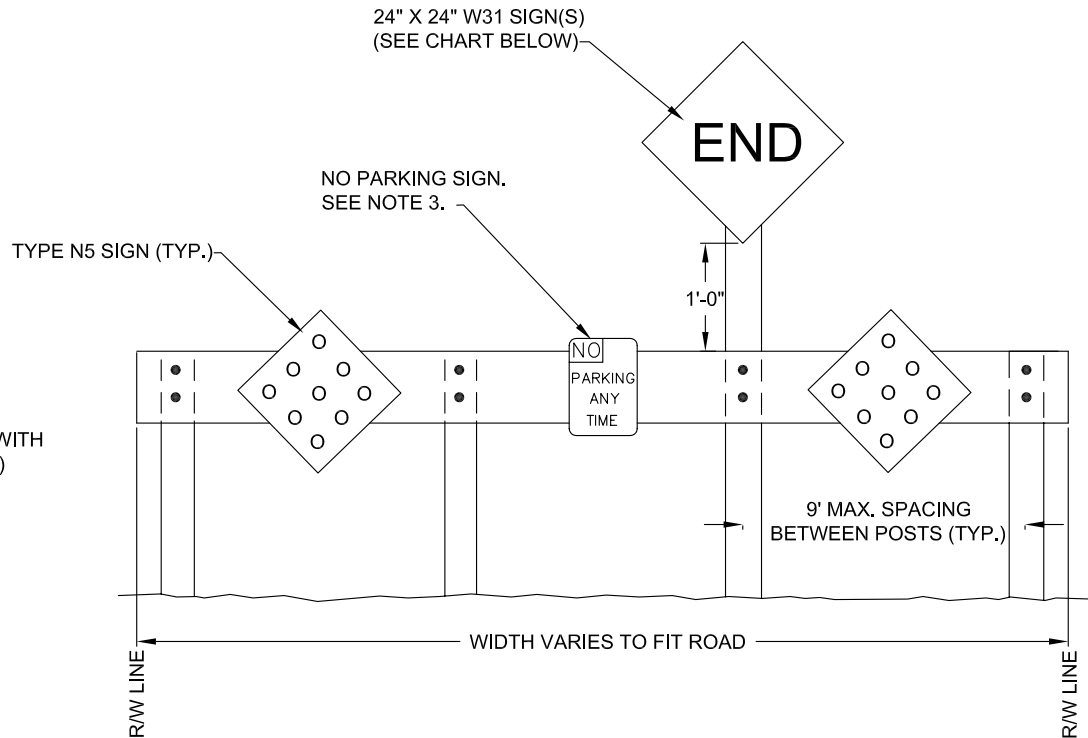
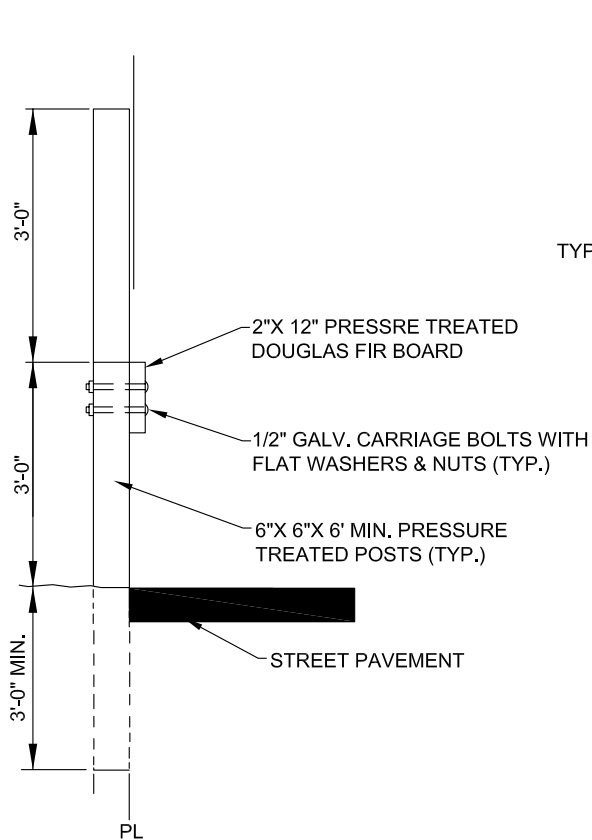


POST SLEEVE DETAIL

NOTES:

- ① SIDEWALK BARRICADES SHALL BE PLACED ADJACENT TO BACK OF CURB WHEN SIDEWALK IS ATTACHED. BARRICADES SHALL BE CENTERED ON SIDEWALK WHEN SIDEWALK IS DETACHED FROM CURBS.
- ② PLACE A R5-10c SIGN (2003 MUTCD DESIGN MANUAL CALIFORNIA SUPPLEMENT).
- ③ USE 1.5" DIAMETER NPS, GALVANIZED STANDARD PIPE
- ④ STEEL SLEEVE TO BE CONSTRUCTED WITH A 1/10" LARGER DIAMETER THAN POST. WALL THICKNESS OF SLEEVE TO BE SAME AS POST OR LARGER.
- ⑤ 3/8" DIAMETER GALVANIZED BOLT, WITH NUT AND WASHER. DEFORM THREADS (TYP)
- ⑥ DRILL 1/2" DIAMETERS HOLES. TOTAL OF 6.
- ⑦ ALL SURFACES SHALL BE PAINTED WITH TWO COATS OF WHITE PAINT CONFORMING TO SECTION 91-3.02 OF THE STATE SPECIFICATIONS.
- ⑧ $\frac{3}{16}$ " FILLET WELD (TYP.)

	PUBLIC WORKS DEPARTMENT ENGINEERING DIVISION	
	PEDESTRIAN BARRICADE	
APPROVED BY:		
PUBLIC WORKS DIRECTOR / CITY ENGINEER		
SCALE: NONE	DRAWN BY: BPJ	DATE: MAR 3, 2009
		ST-30





NOTES:

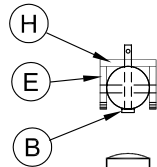
1. ALL EXPOSED SURFACES SHALL BE PAINTED WITH 2 (TWO) COATS OF WHITE PAINT CONFORMING TO SECTION 91-3.02 OF THE STATE SPECIFICATIONS.
2. ALL SIGNS SHALL BE 0.080 GA ALUMINUM.
3. "NO PARKING" (R-26) SHALL BE POSTED ON RAILS. REFER TO THE 2006 CALIFORNIA MUTCD.
4. SIGN POSTS SHALL BE 9-FEET MINIMUM.

NUMBER AND SIZE OF SIGNS

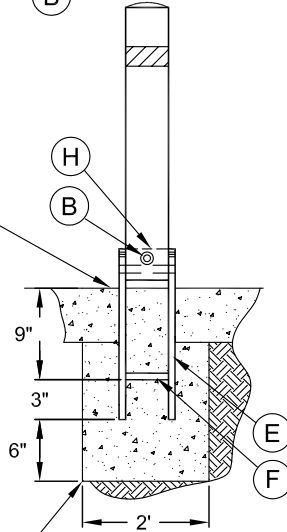
R/W WIDTH	W31 SIGN		C2 SIGN	
	SIZE	NO.	SIZE	NO.
UP TO 50'	24"	1	48" X 30"	1
51'-74'	24"	2	48" X 30"	1
75' AND UP	24"	2	48" X 30"	2

	PUBLIC WORKS DEPARTMENT ENGINEERING DIVISION	
	END OF STREET TIMBER BARRICADE	
APPROVED BY:		
		
PUBLIC WORKS DIRECTOR / CITY ENGINEER		
SCALE: NONE	DRAWN BY: BPJ	DATE: MAR 3, 2009
		ST-31

PLAN

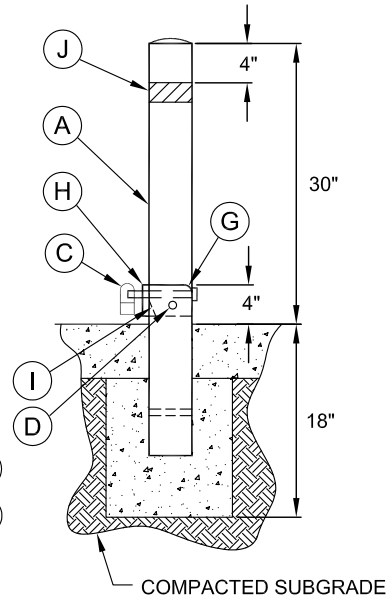


CONCRETE PAVING
OR ASPHALT



CONCRETE FOOTING

FRONT SECTION



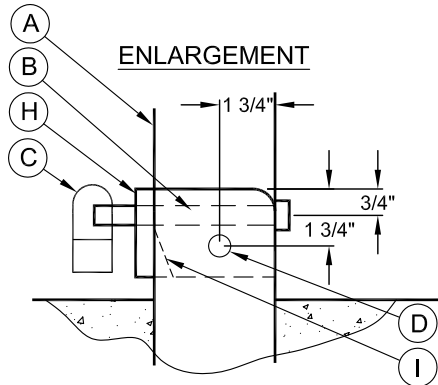
COMPACTED SUBGRADE

SIDE SECTION

LEGEND:

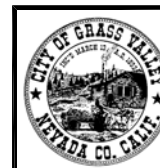
- (A.) 3 1/2" O.D. 1/4" WALL STEEL PIPE WITH CAP WELDED ON TOP, 7/8" HOLES FOR LOCKING PIN AND 3/4" HOLES FOR SWIVEL ROD. EASE ALL EDGES OF STEEL POST.
- (B.) 3/4" DIA. x 5" LOCKING PIN WITH FLAT WASHER WELDED TO ONE END AND 3/8" HOLE DRILLED 1/4" FROM END OF PIN.
- (C.) CITY KEYED PADLOCK, TO BE PROVIDED BY PUBLIC WORKS DEPARTMENT.
- (D.) 5/8" DIA. STEEL SWIVEL ROD, WELD SWIVEL ROD TO SIDE PLATES.
- (E.) 3/8" x 16" x 4" STEEL BASE PLATE WITH 1" RADIUS CORNERS. EASE ALL EDGES.
- (F.) 3/8" STEEL BRACE. FILET WELD BOTH SIDES TO BASE PLATES.
- (G.) 1" RADIUS CORNERS, TYP.
- (H.) 4" X 4" x 3/8" STEEL BACK PLATE WELDED TO BASE PLATE.
- (I.) FISH MOUTH GRIND AT BOTTOM BACK CORNER OF POST.
- (J.) PLACE 2" WHITE REFLECTIVE TAPE.

ENLARGEMENT



NOTES:

1. ALL PIPE SHALL BE BLACK STEEL PIPE.
2. ALL JOINTS SHALL BE WELDED IN ACCORDANCE WITH CA STATE STANDARD SPECIFICATIONS FOR WELDING STRUCTURAL STEEL AND GROUND SMOOTH.
3. ALL PARTS (EXCEPT PADLOCK) SHALL BE PAINTED WITH TWO COATS OF ZINC CHROMATE PRIMER AND TWO COATS OF YELLOW EXTERIOR ENAMEL.
4. BOLLARD SHALL BE INSTALLED SUCH THAT WHEN FOLDED, IT LAYS FLAT.



PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION

BOLLARD

APPROVED BY:

Jim McKeon

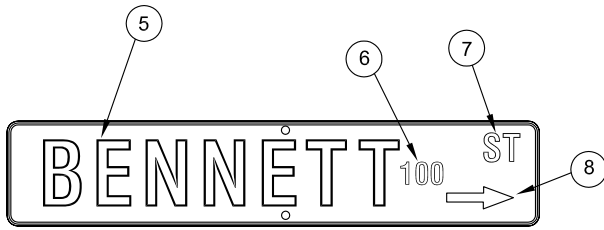
PUBLIC WORKS DIRECTOR / CITY ENGINEER

SCALE:
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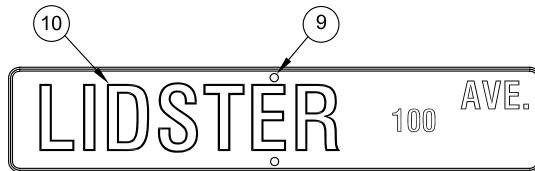
DRAWN BY:
BPJ

DATE:
MAR 3, 2009

ST-32



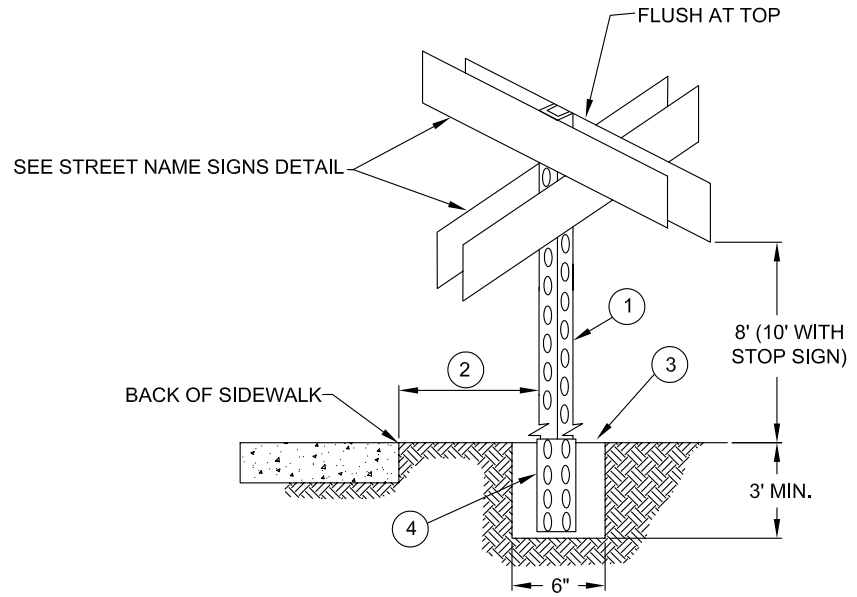
STREET NAME SIGN: ARTERIAL STREET



STREET NAME SIGN: RESIDENTIAL



LEGEND:

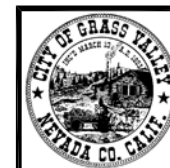
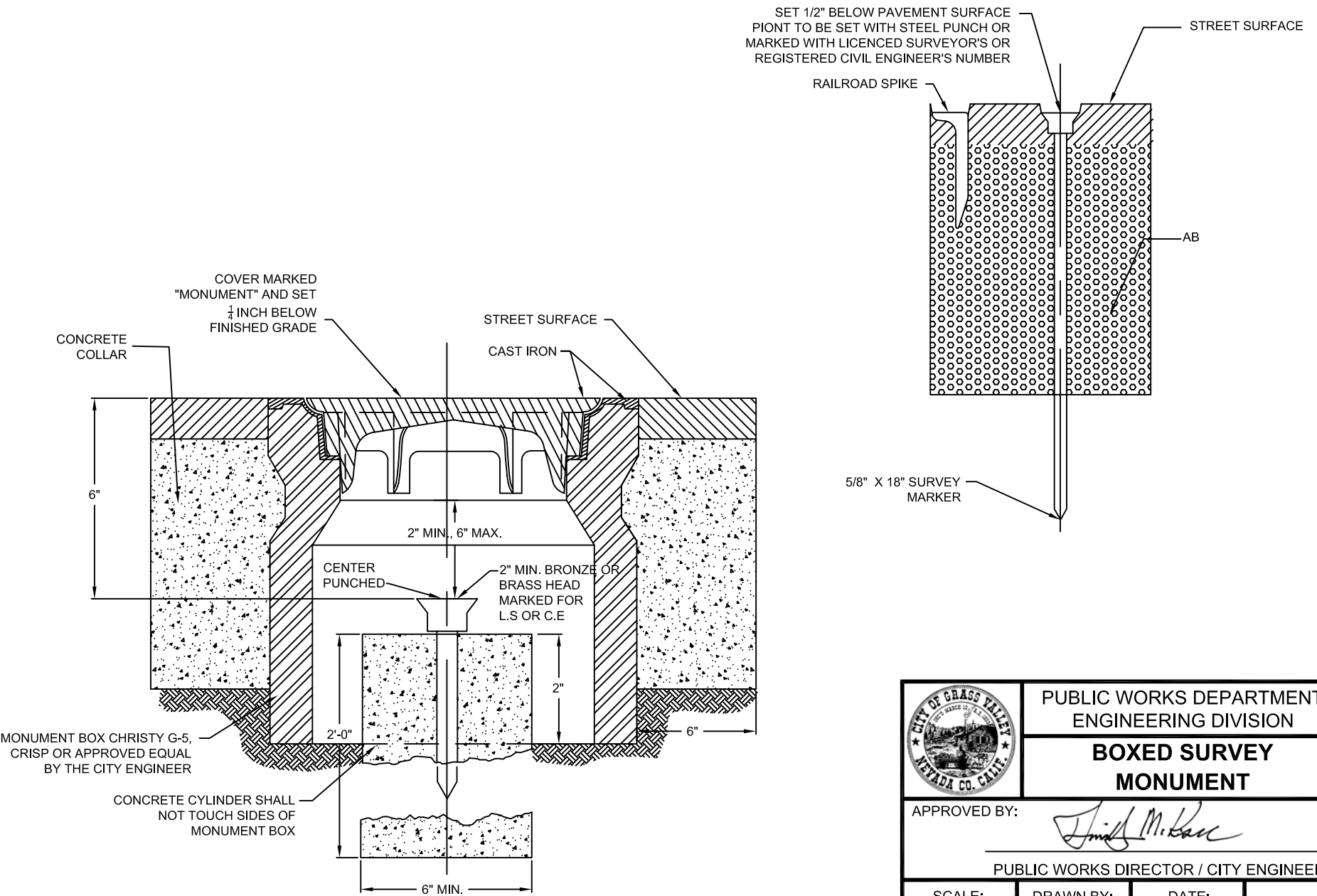
1. SIGN POST SHALL BE METAL SQUARE POST WITH HOLES PER THE CONSTRUCTION STANDARDS.
2. 18 INCHES BACK OF SIDEWALK, 24 INCHES BACK OF CURB IF NO SIDEWALK.
3. HOLE SHALL BE EXCAVATED TO A REQUIRED MINIMUM DEPTH OF 3' DEEP AND 6" IN DIAMETER. CONCRETE BACKFILL SHALL BE PER THE CONSTRUCTION SPECIFICATIONS.
4. A 27" LONG ANCHOR SLEEVE SHALL BE INSTALLED AND BACKFILLED PER THE CONSTRUCTION SPECIFICATIONS.
5. ALL UPPER CASE LETTERS, FOUR INCHES HIGH, WHITE HIGH INTENSITY REFLECTORIZED SERIES D (TYP.).
6. BLOCK NUMBER, 1-1/2 INCH HIGH, SERIES C, HIGHWAY FONT (TYP.).
7. ST, AVE, CT, WY, CIRCLE, DR, ETC., TWO INCH UPPER CASE SERIES C, HIGHWAY FONT TEXT FLUSH WITH TOP OF 6 INCH TEXT (TYP.).
8. ARROW, 1-1/2 INCH BY VARIABLE LENGTH, HIGHWAY FONT, WHITE HIGH INTENSITY REFLECTORIZED (TYP.).
9. SIGN ATTACHMENT SHALL BE TWO 3/8 INCH ALUMINUM DRIVE RIVETS THROUGH EACH PLATE INTO THE POST (TYP.).
10. FOUR INCHES HIGH, SERIES C, UPPER CASE LETTERS, HIGHWAY FONT (TYP.).



NOTE:

IN THE EVENT THE STREET NAME IS TOO LONG FOR A 36 INCH LONG SIGN, THE NEXT LOWER SERIES TEXT, SERIES C OR B, CAN BE USED.

	PUBLIC WORKS DEPARTMENT ENGINEERING DIVISION	
	STREET NAME SIGN	
APPROVED BY: 		
PUBLIC WORKS DIRECTOR / CITY ENGINEER		
SCALE: NONE	DRAWN BY: BPJ	DATE: MAR 3, 2009
		ST-33



PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION

**BOXED SURVEY
MONUMENT**

APPROVED BY:

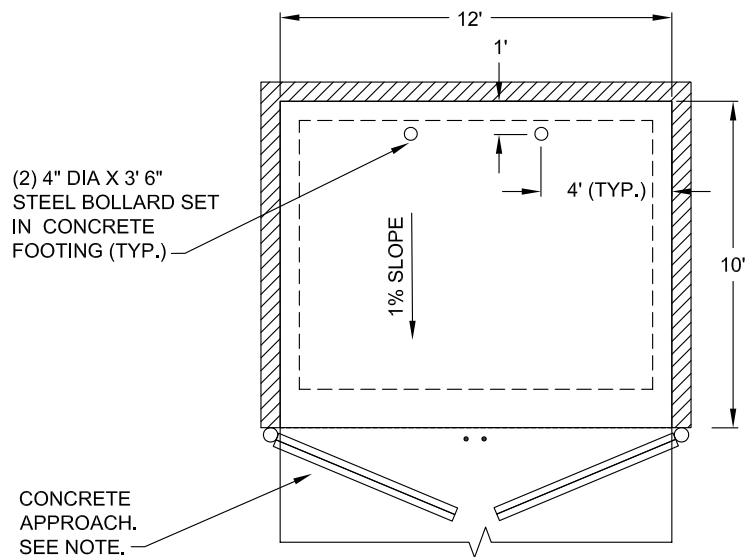
PUBLIC WORKS DIRECTOR / CITY ENGINEER

SCALE:
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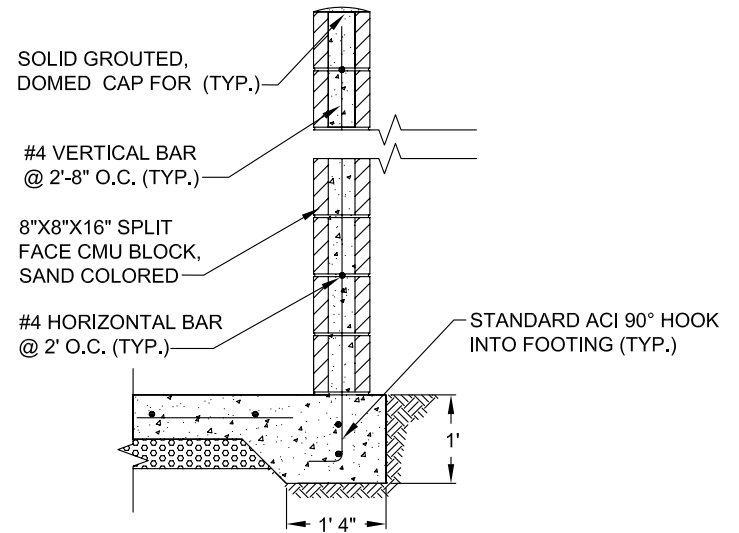
DRAWN BY:
TMT

DATE:
FEB 6, 2014

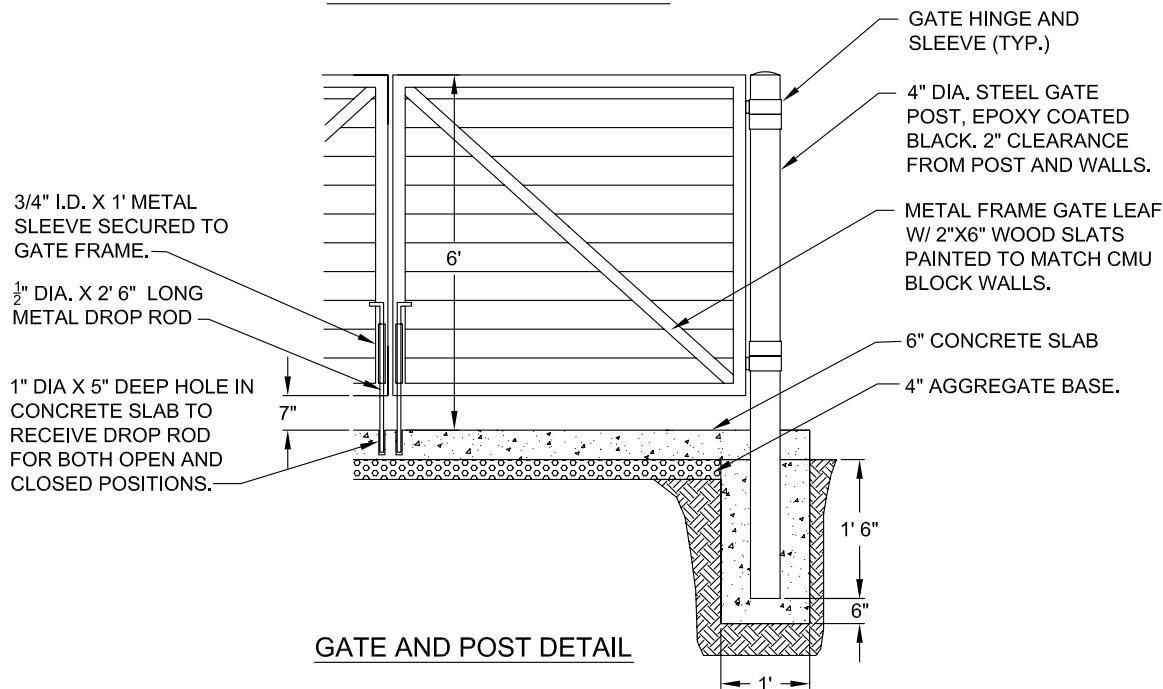
ST-34



TRASH ENCLOSURE PLAN





WALL AND FOOTING DETAIL

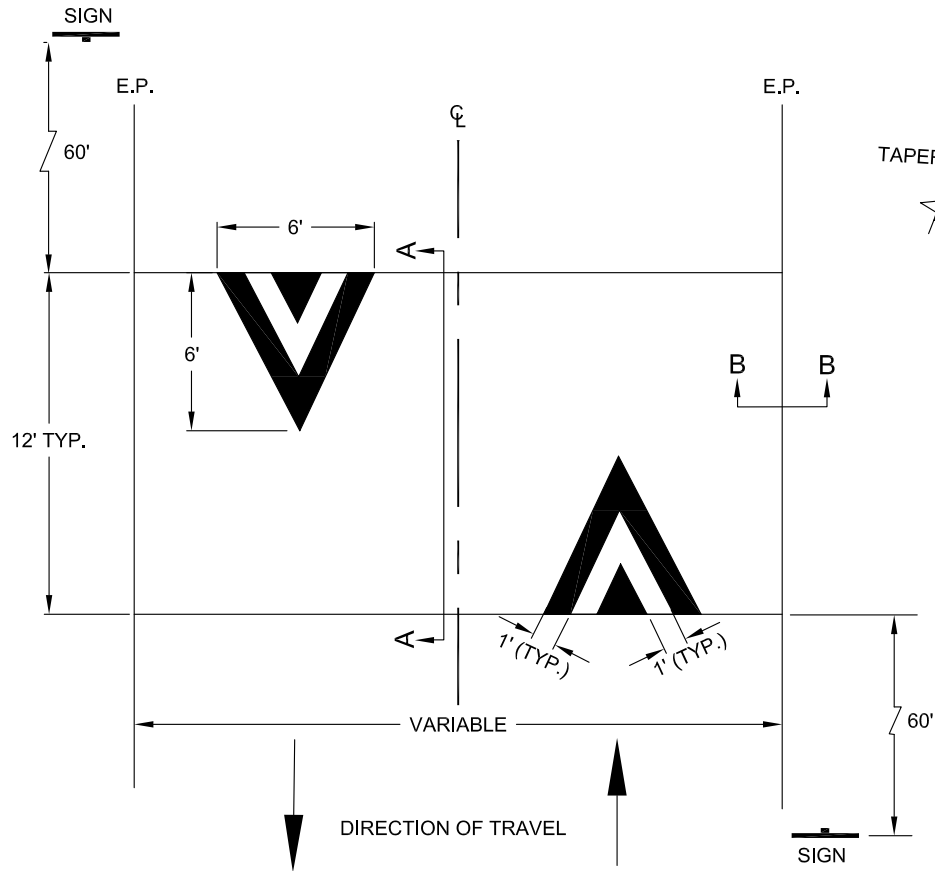


GATE AND POST DETAIL

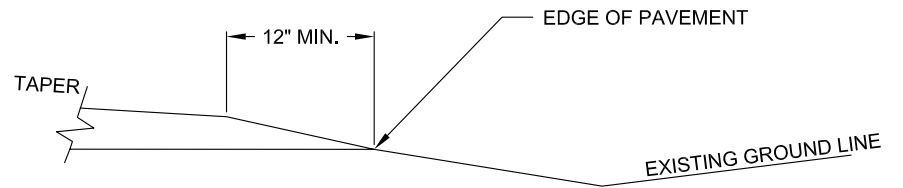
NOTES:

1. ALL STEEL PARTS ARE TO BE PAINTED BLACK.
2. THE STANDARD APPROACH IS A 12'X12' 6" THICK CONCRETE SLAB REINFORCED WITH #4 REBAR 1' O.C. BOTH WAYS. SITE CONDITIONS MAY DICTATE AN ALTERNATE APPROACH SIZE AS APPROVED BY THE PUBLIC WORKS DIRECTOR/CITY ENGINEER.

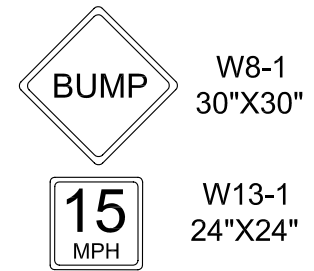
	PUBLIC WORKS DEPARTMENT ENGINEERING DIVISION	
	TRASH ENCLOSURE	
APPROVED BY:		
 PUBLIC WORKS DIRECTOR / CITY ENGINEER		
SCALE: NONE	DRAWN BY: BPJ	DATE: MAR 3, 2009
		ST-35



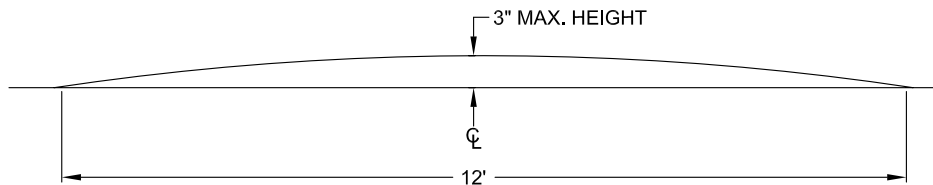
SPEED HUMP





SECTION B-B

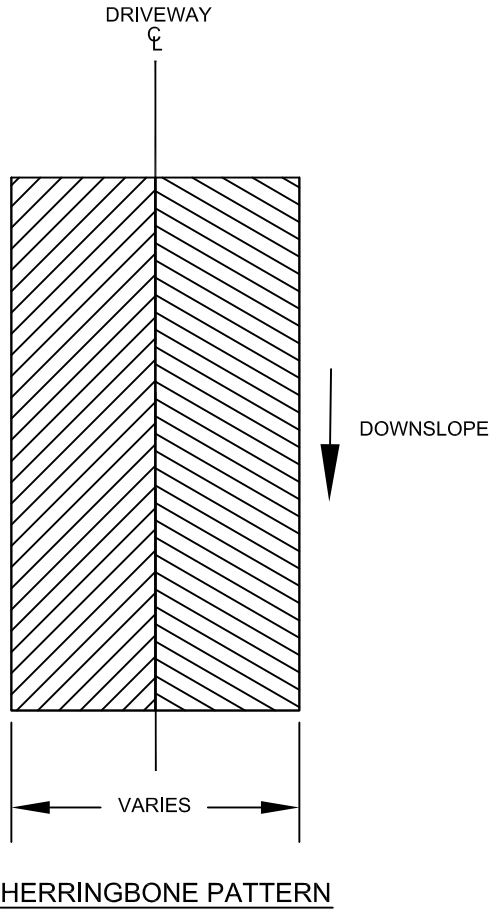


SIGN DETAIL

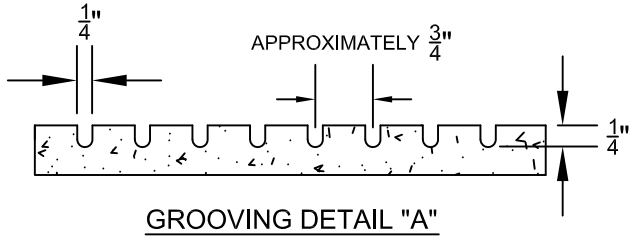


SECTION A-A

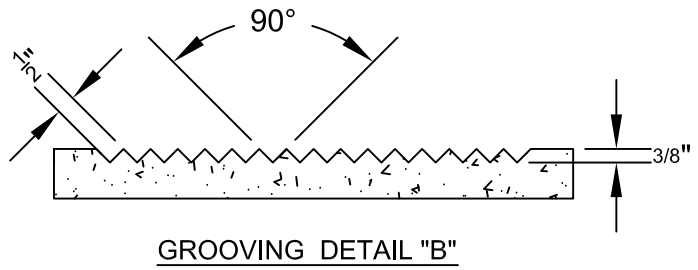
	PUBLIC WORKS DEPARTMENT ENGINEERING DIVISION	
	SPEED HUMP	
APPROVED BY:  PUBLIC WORKS DIRECTOR / CITY ENGINEER		
SCALE: NONE	DRAWN BY: BPJ	DATE: MAR 3, 2009
		ST-36



HERRINGBONE PATTERN



GROOVING DETAIL "A"



GROOVING DETAIL "B"

NOTES:

1. DRIVEWAYS SLOPED GREATER THAN 10% SHALL HAVE A GROOVED CONCRETE SURFACE PER THE DESIGN STANDARDS. GROOVING DETAIL A OR B IS ACCEPTABLE.
2. GROOVING DETAIL 'A' CAN BE ACHIEVED USING A STANDARD GROOVING TOOL.
3. GROOVING DETAIL 'B' CAN BE ACHIEVED USING A CUT BOARD TO THE DIMENSIONS SHOWN.
4. ALL GROOVING SHALL BE COMPLETED IN A HERRINGBONE PATTERN AND ALIGNED AT 60 DEGREES TO THE LONGITUDINAL AXIS OF THE ACCESS AND SHALL BE PLACED TO ALLOW DRAINAGE TO FLOW DOWNHILL.



PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION

ACCESS ROAD GROOVING

APPROVED BY:

J. McKee

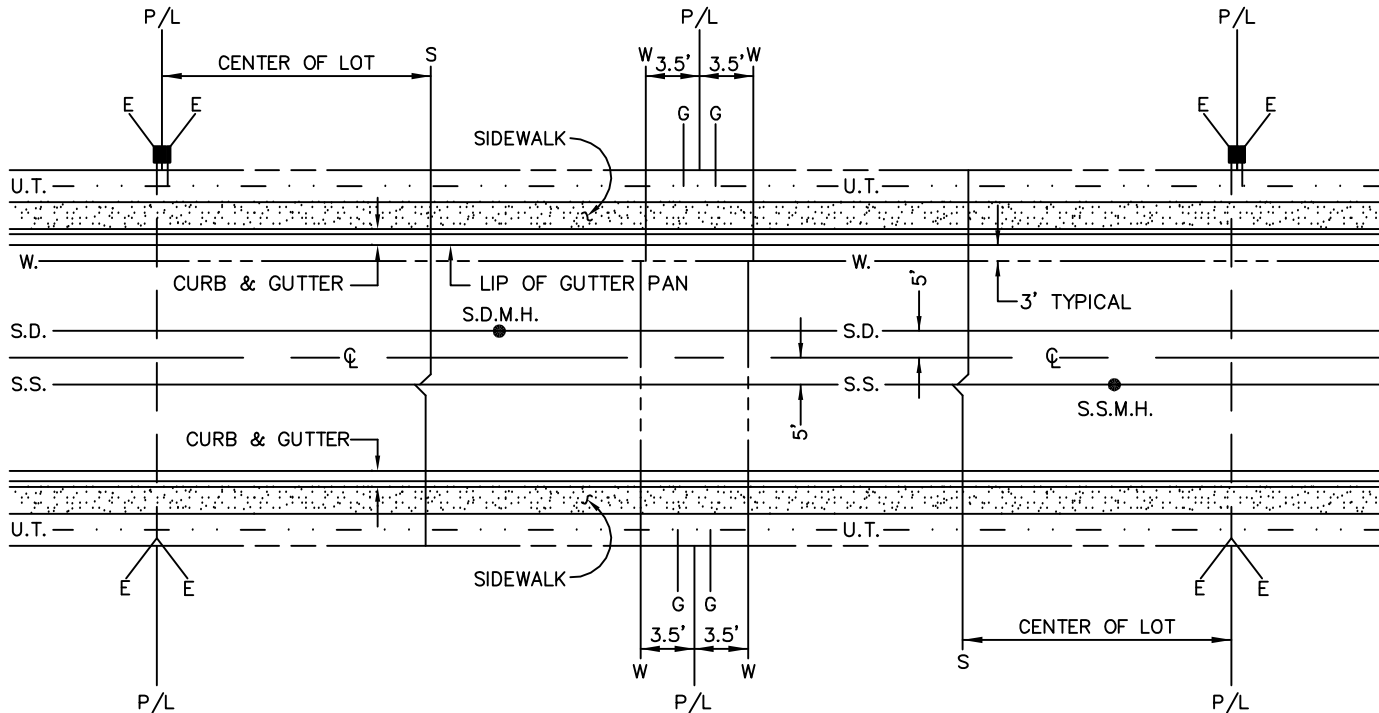
PUBLIC WORKS DIRECTOR / CITY ENGINEER

SCALE:
NONE

DRAWN BY:
TMT

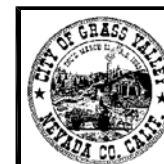
DATE:
FEB 6, 2014

ST-37



NOTES:

1. WATER IS LOCATED 3 FEET FROM THE CURB AND GUTTER ON THE NORTH OR WEST SIDE OF THE STREET.
2. SEWER IS LOCATED 5 FEET FROM THE CENTERLINE ON THE SOUTH OR EAST SIDE OF THE STREET.
3. STORM DRAIN IS LOCATED 5 FEET FROM THE CENTERLINE ON THE NORTH OR WEST SIDE OF THE STREET.
4. JOINT TRENCHES AND OTHER UTILITY TRENCHES SHOULD BE PLACED BEHIND THE SIDEWALK.



PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION

UTILITY LINE LOCATIONS

APPROVED BY:

Jim McRae

PUBLIC WORKS DIRECTOR / CITY ENGINEER

SCALE:
NONE

DRAWN BY:
TMT

DATE:
OCT 2, 2012

ST-38