ROAD DESIGN AND CONSTRUCTION STANDARDS

AND

STANDARD LAND DEVELOPMENT SPECIFICATIONS

MAY 15, 2018
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CITY COUNCIL
RESOLUTION NO. 2018-024
RESOLUTION NO. 2018–024


WHEREAS, on May 20, 2003, via Resolution No. 2003-059, the City Council adopted Road Standards and Standard Specifications for Land Development and Construction Projects, which have not undergone comprehensive updating and revisions since that time; and

WHEREAS, the Standard Specifications for Public Works Construction ("Greenbook"), written and promulgated by Public Works Standards, Inc., are commonly referred to and accepted by other cities in Ventura County and throughout Southern California; and

WHEREAS, the Standard Specifications for Public Works Construction ("Greenbook") were used in developing the updated City Road Design and Construction Standards and Standard Land Development Specifications; and

WHEREAS, it is in the best interest of the City to have a current set of Road Design and Construction Standards and Standard Specifications for orderly land development; and

WHEREAS, from time to time, the City Engineer will deem it necessary to make minor modifications or additions to said Road Design and Construction Standards and Standard Land Development Specifications.

NOW, THEREFORE, BE IT RESOLVED as follows:

1. City Council Resolution No. 2003-059 is hereby rescinded and superseded by this Resolution along with the 2018 City Road Design and Construction Standards and Standard Land Development Specifications.

2. The 2018 Road Design and Construction Standards are hereby adopted as the City’s official Road Standards and that the 2018 edition, or latest edition, of the Standard Specifications for Public Works Construction ("Greenbook"), written and promulgated by Public Works Standards, Inc., as modified in the Road Standards as well as the latest version of the California Manual of Uniform Traffic Control Devices and the State of California Standard Specifications, are hereby adopted as the City’s Official Standard Land Development Specifications.
3. The City Engineer is hereby authorized to make minor modifications or additions to said Road Design and Construction Standards and Standard Land Development Specifications.

PASSED AND ADOPTED this 15th day of May, 2018.

Andrew P. Fox, Mayor
City of Thousand Oaks, California

ATTEST:

Cynthia M. Rodriguez, City Clerk

APPROVED AS TO FORM:
Office of the City Attorney

Felicia Liberman, Assistant City Attorney

APPROVED AS TO ADMINISTRATION:

Andrew P. Powers, City Manager
CERTIFICATION

STATE OF CALIFORNIA )
COUNTY OF VENTURA ) SS.
CITY OF THOUSAND OAKS )

I, CYNTIA M. RODRIGUEZ, City Clerk of the City of Thousand Oaks, DO HEREBY CERTIFY that the foregoing is a full, true, and correct copy of Resolution No. 2018-024 which was duly and regularly passed and adopted by said City Council at a regular meeting held May 15, 2018 by the following vote:

AYES: Councilmembers Bill-de la Peña, Price, Adam, McCoy, and Mayor Fox
NOES: None
ABSENT: None

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the official seal of the City of Thousand Oaks, California.

[Signature]
Cynthia M. Rodriguez, City Clerk
City of Thousand Oaks, California

Date Attested
May 17, 2018
STANDARD LAND DEVELOPMENT SPECIFICATIONS
0-0 STANDARD SPECIFICATIONS

0-1 GENERAL


0-2 NUMBERING OF SECTIONS

THE NUMBERING OF SUBSECTIONS 1 THROUGH 700 IN THESE STANDARD LAND DEVELOPMENT SPECIFICATIONS IS COMPATIBLE WITH THE NUMBERING IN THE SSPWC.

0-3 DELETIONS

THE FOLLOWING SUBSECTIONS OF THE SSPWC AND SPPWC ARE HEREBY DELETED:

2-1 AWARD OF CONTRACT
2-3 SUBCONTRACTS
2-5.3 SHOP DRAWINGS AND SUBMITTALS
2-7 SUBSURFACE DATA
2-8 RIGHT-OF-WAY
3-1.2 PAYMENT FOR CHARGES REQUESTED BY THE CONTRACTOR
3-2 CHANGES INITIATED BY THE AGENCY
3-3 EXTRA WORK
3-4 CHANGED CONDITIONS
3-5 DISPUTED WORK
5-5 UTILITY DELAYS
6-1 CONSTRUCTION SCHEDULE AND COMMENCEMENT OF WORK
6-4 DEFAULT BY CONTRACTOR
6-6 DELAYS AND EXTENSION OF TIME
6-7.2 WORKING DAYS
6-7.3 CONTRACT TIME ACCOUNTING
6-9 LIQUIDATED DAMAGES
7-2.2 LABOR LAWS
7-11 PATENT FEES OR ROYALTIES
7-12 ADVERTISING
7-14 ANTITRUST CLAIMS
8 FACILITIES FOR AGENCY PERSONNEL
9 MEASUREMENT AND PAYMENT
0-4 MODIFICATIONS

THE SUBSECTIONS NUMBERED 1 THROUGH 700 WHICH FOLLOW EITHER REPLACE, MODIFY, OR ADD TO SECTIONS OF LIKE NUMBER IN THE SSPWC. TO THE EXTENT OF ANY CONFLICT WITH SSPWC, THE PROVISIONS OF THESE STANDARD LAND DEVELOPMENT SPECIFICATIONS SHALL TAKE PRECEDENCE.

1-2 DEFINITIONS

THE FOLLOWING DEFINITIONS REPLACE OR ARE ADDED TO THOSE CONTAINED IN SUBSECTION 1-2 OF THE SSPWC:

ACCEPTANCE - THE FORMAL ACCEPTANCE BY RESOLUTION OF THE CITY OF THOUSAND OAKS CITY COUNCIL OF THOSE PUBLIC IMPROVEMENTS THAT ARE SPECIFIED IN THE AGREEMENT BETWEEN THE CITY AND DEVELOPER TO BE ACCEPTED BY THE CITY WHEN CONSTRUCTED IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS AND ANY MODIFICATIONS THERETO PREVIOUSLY APPROVED BY THE CITY.

AGENCY OR CITY - THE CITY OF THOUSAND OAKS.

AGREEMENT OR CONTRACT - THE SUBDIVISION OR NON-SUBDIVISION IMPROVEMENT AGREEMENT BETWEEN THE CITY AND THE DEVELOPER PROVIDING FOR THE IMPROVEMENT WORK, INCLUDING PLANS, SPECIFICATIONS, AND SURETY BONDS; ALSO, ANY AND ALL SUPPLEMENT WRITTEN AGREEMENTS OR AMENDMENTS MODIFYING OR EXTENDING THE WORK SPECIFIED.

BOARD OR CITY COUNCIL - THE GOVERNING BODY CONSTITUTING THE APPROVING AUTHORITY OF THE CITY.

CONTRACT DOCUMENTS - INCLUDING BUT NOT LIMITED TO: THE AGREEMENT, BONDS, PERMITS FROM OTHER AGENCIES, PLANS, STANDARD SPECIFICATIONS AND PLANS, CITY ROAD STANDARDS, CITY WATER STANDARDS, CITY WASTEWATER STANDARDS, CITY OF THOUSAND OAKS MUNICIPAL CODE, ENTITLEMENT PERMIT CONDITIONS OF APPROVAL, AND ALL MODIFICATIONS TO THE AGREEMENT.

CONTRACTOR - IN ADDITION TO THE DEFINITION GIVEN IN SUBSECTION 1-2 OF THE SSPWC, CONTRACTOR SHALL ALSO MEAN DEVELOPER.

DESIGN SPEED - THE SPEED SELECTED BY THE DEVELOPER'S ENGINEER, AND APPROVED BY THE CITY TRAFFIC ENGINEER, TO ESTABLISH SPECIFIC MINIMUM GEOMETRIC DESIGN ELEMENTS FOR A PARTICULAR STREET SECTION.

DEVELOPER - THE PERSON OR PERSONS, FIRM, PARTNERSHIP, CORPORATION, JOINT VENTURE, LIMITED LIABILITY PARTNERSHIP OR CORPORATION, OR COMBINATION THEREOF, WHO HAVE ENTERED INTO AN AGREEMENT WITH THE CITY TO CONSTRUCT PUBLIC IMPROVEMENTS IN CONJUNCTION WITH A LAND DEVELOPMENT PROJECT. ALSO REFERRED TO AS PERMITTEE IN THE SSPWC.
DEVELOPER'S ENGINEER - THE REGISTERED CIVIL ENGINEER RETAINED BY THE DEVELOPER, WHO HAS SIGNED THE CITY CONSULTANT ACKNOWLEDGEMENT FORM, WHO PREPARES THE PLANS AND SPECIFICATIONS AND SUPERVISES CONSTRUCTION OF IMPROVEMENTS REFERRED TO IN THE AGREEMENT, ALSO REFERRED TO AS SUPERVISING CIVIL ENGINEER. MAY ALSO MEAN THE REGISTERED GEOTECHNICAL OR SOILS ENGINEER RETAINED BY THE DEVELOPER, WHO HAS SIGNED THE CITY CONSULTANT ACKNOWLEDGEMENT FORM, WHO INVESTIGATES THE SOIL MECHANICS AND SLOPE STABILITY OF PROPOSED GRADING SITES AND PERFORMS ANY AND ALL TESTING REQUIRED, ALSO REFERRED TO AS THE SOILS ENGINEER. MAY ALSO MEAN A PROFESSIONAL LAND SURVEYOR RETAINED BY THE DEVELOPER, WHO HAS PREPARED A SUBDIVISION MAP OR DESIGN SURVEY OR PROVIDES SURVEYING PER SUBSECTION 2-9 OF THE SSPWC.

DIRECTOR OF PUBLIC WORKS - THE EXECUTIVE OFFICER OR THE DEPARTMENT OF PUBLIC WORKS OF THE CITY OF THOUSAND OAKS.

ENGINEER - THE CITY ENGINEER, OR DESIGNATED REPRESENTATIVE, INCLUDING THE PUBLIC WORKS INSPECTOR, AS DEFINED IN THE SSPWC. UNLESS OTHERWISE PROVIDED, ALL CORRESPONDENCE AND DECISIONS MADE RELATIVE TO LAND DEVELOPMENT PROJECTS WILL BE BY THE CITY ENGINEER OR DESIGNATED REPRESENTATIVE.

LABORATORY - THE ESTABLISHED LABORATORY OR LABORATORIES AUTHORIZED AND APPROVED BY THE CITY OF THOUSAND OAKS, DEPARTMENT OF PUBLIC WORKS, TO SPECIFY AND CONDUCT MATERIALS AND SOILS SAMPLING AND TESTING PROCEDURES FOR THE WORK.

PRIVATE CONTRACT - IN ADDITION TO THE DEFINITION GIVEN IN SUBSECTION 1-2 OF THE SSPWC, PRIVATE CONTRACT SHALL ALSO MEAN ALL WORK REQUIRED FOR LAND DEVELOPMENT PROJECTS.

STATE STANDARD SPECIFICATIONS AND PLANS - STATE OF CALIFORNIA STANDARD SPECIFICATIONS AND PLANS, CURRENT EDITION, BUSINESS AND TRANSPORTATION AGENCY, DEPARTMENT OF TRANSPORTATION (CALTRANS).

WORKING HOURS AND DAYS - THE HOURS OF 7 A.M. THROUGH 7 P.M., MONDAY THROUGH SATURDAY, AS SET FORTH IN SECTION 8-11.01 OF THE CITY OF THOUSAND OAKS MUNICIPAL CODE, UNLESS OTHERWISE PROVIDED FOR IN THE PROJECT ENTITLEMENT CONDITIONS OF APPROVAL. INSPECTION HOURS ARE 7:00 A.M. TO 4:00 P.M., WITH ALTERNATE FRIDAYS OFF.

1-3 ABBREVIATIONS

THE FOLLOWING ABBREVIATIONS ARE ADDED TO SUBSECTION 1-3 OF THE SSPWC (ALSO SEE CITY ROAD STANDARDS PLATE NO. 1-2):

| AAN  | AMERICAN ASSOCIATION OF NURSERY |
| AGC  | ASSOCIATED GENERAL CONTRACTORS OF AMERICA |
| APWA | AMERICAN PUBLIC WORKS ASSOCIATION |
| ASA  | AMERICAN STANDARD ASSOCIATION |
| ASME | AMERICAN SOCIETY OF MECHANICAL ENGINEERS |
| IEEE | INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS |
| NEC  | NATIONAL ELECTRICAL CODE |
| SSS  | STATE OF CALIFORNIA STANDARD SPECIFICATIONS AND PLANS (CALTRANS), CURRENT EDITION |
1-4.1 UNIT OF MEASURE

SUBSECTION 1-4.1 OF THE SSPWC IS REPLACED WITH THE FOLLOWING:

THE U.S. STANDARD MEASURES SYSTEM OF UNITS, ALSO CALLED U.S. CUSTOMARY SYSTEM, IS THE PRINCIPAL MEASUREMENT SYSTEM IN THESE SPECIFICATIONS AND SHALL BE USED IN THE PREPARATION OF PLANS AND SPECIFICATIONS AND FOR CONSTRUCTION.

2-2 ASSIGNMENT

SUBSECTION 2-2 OF THE SSPWC IS REPLACED WITH THE FOLLOWING:

THE AGREEMENT BETWEEN THE CITY AND DEVELOPER, AND ASSOCIATED BONDS, MAY NOT BE ASSIGNED WITHOUT THE FORMAL ACTION BY RESOLUTION OF THE CITY COUNCIL UPON SUBMISSION OF A SUBSTITUTION AGREEMENT AND BONDS.

2-4 CONTRACT BONDS

SUBSECTION 2-4 OF THE SSPWC IS REPLACED WITH THE FOLLOWING:

SURETY BONDS SHALL BE PROVIDED BY THE DEVELOPER AS SPECIFIED IN THE AGREEMENT, THE CITY OF THOUSAND OAKS MUNICIPAL CODE, AND THE SUBDIVISION MAP ACT (GOVT. CODE SECTION 66410 ET. SEQ.)

2-5.1 PLANS AND SPECIFICATIONS

SUBSECTION 2-5.1 OF THE SSPWC IS REPLACED WITH THE FOLLOWING:

THE CONTRACTOR SHALL MAINTAIN THE FOLLOWING AT THE WORK SITE:

1. ONE COPY OF THE PLANS AND SPECIFICATIONS AND ALL APPROVED CHANGE ORDERS, IN GOOD ORDER.
2. ANY AND ALL PERMITS ISSUED BY THE OTHER AGENCIES.
3. AN UPDATED STORM WATER POLLUTION CONTROL PLAN AND/OR STORMWATER POLLUTION PREVENTION PLAN, INCLUDING THE STATE WASTE DISCHARGER IDENTIFICATION NUMBER (WDID), AS APPLICABLE.

THE PLANS, SPECIFICATIONS, AND OTHER CONTRACT DOCUMENTS WILL GOVERN THE WORK. THE CONTRACT DOCUMENTS ARE INTENDED TO BE COMPLEMENTARY AND COOPERATIVE AND TO DESCRIBE AND PROVIDE FOR A COMPLETE PROJECT. ANYTHING IN THE SPECIFICATIONS AND NOT ON THE PLANS, OR ON THE PLANS AND NOT IN THE SPECIFICATIONS, WILL BE AS THOROUGH AS SHOWN OR MENTIONED IN BOTH.

PLANS SHALL BE PREPARED BY A CALIFORNIA REGISTERED CIVIL ENGINEER ON 4-MIL THICK MYLAR SHEETS, 24-INCHES BY 36-INCHES IN SIZE, AND UTILIZING CITY STANDARD TITLE BLOCKS, DETAILS, NOTES, ETC.
2-5.2 PRECEDENCE OF CONTRACT DOCUMENTS

SUBSECTION 2-5.2 OF THE SSPWC IS REPLACED WITH THE FOLLOWING:

TO THE EXTENT THERE IS ANY CONFLICT AMONG THE VARIOUS CONTRACT DOCUMENTS, THE FOLLOWING SHALL CONSTITUTE THE PRECEDENCE OF DOCUMENTS FOR THE LAND DEVELOPMENT PROJECTS:

1. FEDERAL AND STATE STATUTES, INCLUDING THE CLEAN WATER ACT (NPDES REGULATIONS, ADA, AND THE SUBDIVISION MAP ACT (GOVT. CODE SECTION 66410 ET. SEQ.).
2. CITY OF THOUSAND OAKS MUNICIPAL CODE.
3. SUBDIVISION IMPROVEMENT AGREEMENT, OR NON-SUBDIVISION IMPROVEMENT AGREEMENT.
4. ENTITLEMENT AND/OR CITY PERMIT CONDITIONS OF APPROVAL.
5. OTHER AGENCY PERMIT CONDITIONS.
6. APPROVED PLANS.
7. CITY OF THOUSAND OAKS STANDARD LAND DEVELOPMENT SPECIFICATIONS, CITY ROAD STANDARDS, CITY WATER STANDARDS, AND CITY WASTEWATER STANDARDS.
8. SSPWC, SPPWC, SSS, AS APPLICABLE.

2-9 SURVEYING

SUBSECTION 2-9 OF THE SSPWC IS REPLACED BY THE FOLLOWING:

THE DEVELOPER'S ENGINEER SHALL PROVIDE FOR ALL CONSTRUCTION SURVEYING REQUIRED TO LAYOUT, MONITOR AND COMPLETE THE WORK. THE SURVEYING WILL BE PERFORMED BY A LAND SURVEYOR OR CIVIL ENGINEER AUTHORIZED TO PRACTICE LAND SURVEYING BY THE STATE OF CALIFORNIA.

THE PROJECT BENCHMARK, BASED ON THE VENTURA COUNTY BENCHMARK SYSTEM, SHALL BE SHOWN ON THE PLANS. THE DEVELOPER'S ENGINEER WILL ESTABLISH ALL NECESSARY CONTROL LINES BASED ON THE PLANS AND RECORD INFORMATION ON FILE WITH THE COUNTY SURVEYOR AND THE ENGINEER.

IT IS THE RESPONSIBILITY OF THE DEVELOPER'S ENGINEER TO PROTECT THE SURVEY CONTROL AS SHOWN ON THE PLANS. IF THE SURVEY CONTROL IS DESTROYED OR DISTURBED DURING CONSTRUCTION, THE DEVELOPER'S ENGINEER WILL PROVIDE FOR resetting and file appropriate documents with the county surveyor.

ALL WORK SHALL CONFORM TO THE LINES, ELEVATIONS, AND GRADE SHOWN ON THE PLANS.

2-11 INSPECTION

THE SECOND SENTENCE OF SUBSECTION 2-11 OF THE SSPWC IS REPLACED BY THE FOLLOWING:

THE CONTRACTOR SHALL PROVIDE AT LEAST 24 HOURS ADVANCE NOTICE TO THE ENGINEER FOR ANY REQUIRED INSPECTIONS. ANY INSPECTION REQUIRED OUTSIDE OF NORMAL WORKING HOURS AND DAYS, INCLUDING HOLIDAYS, WILL BE AT THE CONTRACTOR'S COST AT RATES ESTABLISHED BY THE CITY.
**4-1.3 Inspection Requirements (Certificate of Compliance)**

Subsection 4-1.3 of the SSPWC is replaced by the following:

Unless otherwise specified, inspection at the source of production for materials and fabricated items to be used in the work is not required. A certificate of compliance pursuant to subsection 4-1.5 of the SSPWC, signed by the authorized officer of the produces, certifying compliance with the contract documents, shall be submitted for all materials.

**6-2 Prosecution of Work**

Subsection 6-2 of the SSPWC is replaced with the following:

The contractor shall diligently prosecute the work to completion in order to minimize public inconvenience and possible hazard, and shall restore street and other work areas to their original condition and state of usefulness as soon as practicable. If the engineer determines that the contractor is failing to prosecute the work to the proper extent, the contractor shall, upon orders from the engineer, immediately take steps to remedy the situation. Should the contractor fail to take the necessary steps to fully accomplish said purposes, after orders of the engineer, the engineer may suspend the work in whole or in part, until the contractor takes said steps. If the contractor fails to properly provide for public safety, traffic and protection of the work during periods of suspension, the city may elect to do so, and the costs thereof shall be paid for by the contractor. Such actions will not relieve the contractor from liability.

**6-3 Suspension of Work**

Subsection 6-3 of the SSPWC is replaced with the following:

The work may be suspended in whole or in part when determined by the engineer that the suspension is necessary in the interest of the city or public safety. The contractor shall comply immediately with any written order of the engineer.

If discovery is made of items of archaeological or paleontological interest, the contractor shall immediately cease excavation or other work in the area of discovery and shall not continue until ordered by the engineer. The developer shall immediately retain the services of a city-approved archaeological consultant to investigate the nature and extent of the discovery, provide direction to the contractor concerning continued excavation operations within the area of discovery, and provide ongoing monitoring as required by the engineer. Discoveries may include, but not be limited to, dwelling sites, stone implements or other artifacts, animal bones, human bones, and fossils.
6-5 **TERMINATION**

SUBSECTION 6-5 OF THE SSPWC IS REPLACED WITH THE FOLLOWING:

THE CITY COUNCIL MAY TERMINATE THE AGREEMENT AS PROVIDED FOR IN THE AGREEMENT.

6-7 **TIME OF COMPLETION**

SUBSECTION 6-7 OF THE SSPWC IS REPLACED WITH THE FOLLOWING:

THE DEVELOPER SHALL COMPLETE THE WORK WITHIN THE TIMEFRAME SET FORTH IN THE AGREEMENT. AN AMENDMENT TO THE AGREEMENT FOR EXTENSION OF TIME MAY BE GRANTED BY THE CITY COUNCIL IF JUSTIFIED PURSUANT TO SECTION 9-3.1004 OF THE THOUSAND OAKS MUNICIPAL CODE.

7-3 **LIABILITY INSURANCE**

SUBSECTION 7-3 OF THE SSPWC IS REPLACED BY THE FOLLOWING:

THE CONTRACTOR SHALL FURNISH TO THE CITY A CERTIFICATE OF GENERAL LIABILITY INSURANCE AND AUTOMOBILE LIABILITY INSURANCE IN THE FORM, WITH THE COVERAGE LIMITS, AND IN ACCORDANCE WITH ALL OTHER CITY REQUIREMENTS. COPIES OF SAID CERTIFICATE FORMS, LIMITS, AND OTHER REQUIREMENTS ARE AVAILABLE FROM THE CITY ATTORNEY'S OFFICE OR FROM THE OFFICE OF THE ENGINEER.

7-4 **WORKERS COMPENSATION INSURANCE**

SUBSECTION 7-4 OF THE SSPWC IS REPLACED BY THE FOLLOWING:

THE CONTRACTOR SHALL FURNISH TO THE CITY A CERTIFICATE OF WORKERS COMPENSATION INSURANCE IN THE FORM, WITH THE COVERAGE LIMITS, AND IN ACCORDANCE WITH ALL PROVISIONS OF THE AGREEMENT.

7-5 **PERMITS**

REPLACE THE LAST PARAGRAPH OF SUBSECTION 7-5 OF THE SSPWC WITH THE FOLLOWING:

A CITY BUSINESS LICENSE, AVAILABLE AT THE CITY FINANCE DEPARTMENT OFFICE, IS REQUIRED FOR ALL WORK PERFORMED WITHIN CITY LIMITS. THE CONTRACTOR SHALL PAY ALL BUSINESS TAXES OR LICENSE FEES THAT ARE REQUIRED FOR THE WORK.

7-7 **COOPERATION AND COLLATERAL WORK**

DELETE THE LAST PARAGRAPH OF SUBSECTION 7-7 OF THE SSPWC.
302-5.6 ROLLING (ASPHALT CONCRETE PAVEMENT)

MODIFY TABLE 302-5.6 AS FOLLOWS:

TWO ROLLERS SHALL BE REQUIRED FOR LESS THAN 100 TONS PLACED PER HOUR FOR ANY COMPACTED THICKNESS.

306-8.3.3 WORK HOURS

SUBSECTION 306-8.3.3 OF THE SSPWC IS REPLACED BY THE FOLLOWING:

WORK HOURS ARE RESTRICTED TO BETWEEN 7 A.M. AND 7 P.M. MONDAY THROUGH SATURDAY, EXCLUDING CITY-OBSERVED HOLIDAYS, AS SET FORTH IN SECTION 8-11.01 OF THE CITY OF THOUSAND OAKS MUNICIPAL CODE, FOR ALL PORTIONS OF THE WORK.

REGULAR INSPECTION HOURS ARE MONDAY THRU THURSDAY, 7:00 A.M. TO 4:00 P.M., AND ALTERNATING FRIDAYS, 7:00 A.M. TO 3:00 P.M. WORK OUTSIDE OF THESE HOURS IS SUBJECT TO OVERTIME INSPECTION CHARGES. WORK INSTALLED WITHOUT INSPECTION IS SUBJECT TO REMOVAL.
STANDARD DESIGN AND CONSTRUCTION CRITERIA
FOREWORD

THE CITY OF THOUSAND OAKS PUBLIC WORKS DEPARTMENT ESTABLISHES UNIFORM CRITERIA, POLICIES, STANDARDS AND PROCEDURES FOR THE DESIGN AND CONSTRUCTION OF CITY ROADS, DRAINAGE FACILITIES AND APPURTEYNANCES. IT IS NOT THE INTENT OF THIS MANUAL TO CREATE OR IMPOSE ANY STANDARD OF CONDUCT OR DUTY TOWARD THE PUBLIC, NOR IS THIS MANUAL A SUBSTITUTE FOR ENGINEERING KNOWLEDGE, EXPERIENCE OR JUDGMENT. THIS MANUAL IS NEITHER DESIGNED AS, NOR DOES IT ESTABLISH, A LEGAL STANDARD FOR THESE FUNCTIONS. THE METHODS AND PROCEDURES CONTAINED HEREIN SHALL BE REVIEWED BY THE ENGINEER USING THEM TO SEE THAT THEY ARE APPLICABLE TO THE PROJECT ON WHICH THEY ARE WORKING. WHERE NOT CONSIDERED APPLICABLE, THE ENGINEER SHALL REQUEST AN EXCEPTION FROM THESE STANDARDS TO BE APPROVED BY THE CITY ENGINEER.
1. **GENERAL NOTES**

1.1. **ALL WORK IS TO BE DONE IN ACCORDANCE WITH THE STANDARD LAND DEVELOPMENT SPECIFICATIONS OF THE CITY OF THOUSAND OAKS (LATEST EDITION).**

1.2. **REFER TO THE CITY OF THOUSAND OAKS STANDARD LAND DEVELOPMENT SPECIFICATIONS AND THE SSPWC FOR DEFINITIONS.**

1.3. **ABBREVIATIONS USED IN THESE STANDARDS (ALSO SEE THE CITY OF THOUSAND OAKS STANDARD LAND DEVELOPMENT SPECIFICATIONS AND SSPWC 1-3):**

<table>
<thead>
<tr>
<th>Abbreviation</th>
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<tbody>
<tr>
<td>AB</td>
<td>AGGREGATE BASE</td>
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<tr>
<td>ADA</td>
<td>AMERICANS WITH DISABILITIES ACT</td>
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<tr>
<td>ADT</td>
<td>AVERAGE DAILY TRAFFIC TRIPS IN VEHICLES PER 24 HOURS</td>
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<td>ASB</td>
<td>AGGREGATE SUB-BASE</td>
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<tr>
<td>ARHM</td>
<td>ASPHALT RUBBER HOT MIX</td>
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<tr>
<td>ES</td>
<td>EDGE OF SHOULDER</td>
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<tr>
<td>ENR</td>
<td>ENGINEERING NEWS REVIEW</td>
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<tr>
<td>HOA</td>
<td>HOMEOWNERS ASSOCIATION</td>
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<tr>
<td>HPD</td>
<td>HILLSIDE PLANNED DEVELOPMENT</td>
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<tr>
<td>MIN</td>
<td>MINIMUM</td>
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<td>NPDES</td>
<td>NATIONAL POLLUTION DISCHARGE ELIMINATION SYSTEM</td>
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<tr>
<td>OSHA</td>
<td>OCCUPATIONAL SAFETY &amp; HEALTH AGENCY (STATE OF CALIFORNIA)</td>
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<td>PSE</td>
<td>PUBLIC SERVICE EASEMENT</td>
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<tr>
<td>SPPWC</td>
<td>STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION, LATEST EDITION</td>
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<td>SSD</td>
<td>STOPPING SIGHT DISTANCE</td>
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<td>SSPWC</td>
<td>STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION (GREEN BOOK), LATEST EDITION</td>
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<td>SSS</td>
<td>STATE STANDARD SPECIFICATIONS AND PLANS (CALTRANS), LATEST EDITION</td>
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<tr>
<td>TOMC</td>
<td>CITY OF THOUSAND OAKS MUNICIPAL CODE</td>
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<tr>
<td>UBC</td>
<td>UNIFORM BUILDING CODE, EDITION CURRENTLY ADOPTED BY CITY</td>
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<tr>
<td>VCFCD</td>
<td>VENTURA COUNTY FLOOD CONTROL DISTRICT (RENAMED VENTURA COUNTY WATERSHED PROTECTION DISTRICT EFFECTIVE JANUARY 1, 2003)</td>
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<tr>
<td>VCSD</td>
<td>VENTURA COUNTY STANDARD DESIGN</td>
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1.6 **SYMBOLS USED IN THESE STANDARDS (SEE ALSO STANDARD PLAN 100-1 OF THE SPPWC):**

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
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<tbody>
<tr>
<td>R/W</td>
<td>RIGHT OF WAY LINE</td>
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<tr>
<td>R</td>
<td>PROPERTY LINE</td>
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<tr>
<td>FL</td>
<td>FLOWLINE</td>
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<td>TC</td>
<td>TOP OF CURB</td>
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<td>BW</td>
<td>BACK OF WALK</td>
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<td>EG</td>
<td>EDGE OF GUTTER</td>
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<td>CENTERLINE</td>
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1.7. THE DEVELOPER, THEIR ENGINEER, OR THE CONTRACTOR SHALL SECURE ALL REQUIRED PERMITS FOR THE PROJECT FROM OTHER AGENCIES INCLUDING, BUT NOT LIMITED TO: THE REGIONAL WATER QUALITY CONTROL BOARD (NPDES AND 401 PERMITS); ARMY CORPS OF ENGINEERS (404 PERMIT); CALIFORNIA DEPT. OF FISH AND WILDLIFE (1601 AGREEMENT); CALTRANS (ENCROACHMENT PERMIT); COUNTY OF VENTURA PUBLIC WORKS AGENCY (FLOOD CONTROL/ROADS DEPT. ENCROACHMENT PERMITS); AND OSHA (TRENCH SAFETY, CONFINED SPACE ENTRY).

1.8. ANY CHANGES TO THE APPROVED PLANS SHALL BE APPROVED BY THE PUBLIC WORKS DEPARTMENT ON CITY FORMS PRIOR TO CONSTRUCTION.

1.9. THE CITY ENGINEER MAY, FROM TIME TO TIME, ISSUE NEW OR SUPPLEMENTAL, MODIFY, OR CANCEL THE CITY ROAD STANDARD PLATES SHOWING ENGINEERING AND STRUCTURAL DETAILS FOR CONSTRUCTION. COPIES OF SUCH PLATES WILL BE ON FILE IN THE OFFICE OF THE CITY ENGINEER.

2. MATERIAL TESTING

2.1. GENERAL

2.1.1. ALL CONTROL TESTING DURING CONSTRUCTION SHALL BE PERFORMED BY THE DEVELOPER'S ENGINEER. THE DEVELOPER WILL NORMALLY BE BILLED DIRECTLY FOR THESE SERVICES.

2.1.2. IN THE EVENT CERTAIN SERVICES ARE PERFORMED USING CITY PERSONNEL, BILLING WILL BE BASED ON A FEE SCHEDULE FOR THE VARIOUS TEST APPROVED BY THE CITY ENGINEER.

2.2. TEST METHODS AND REPORTS

2.2.1. MATERIALS SHALL BE TESTED IN ACCORDANCE WITH THE TEST METHODS SHOWN IN THE SSPWC TOGETHER WITH SUPPLEMENTARY TEST METHODS DESIGNATED BY THE CITY ENGINEER.

2.2.2. A SOIL CLASSIFICATION SURVEY SHALL BE PERFORMED AT APPROPRIATE INTERVALS IN THE STREET AREAS OF SUBDIVISIONS TO DELINEATE THE AREAS OF SIMILAR SOILS. SUCH CLASSIFICATION SURVEY SHALL INCLUDE TEST FOR PARTICLE GRADATION, ATTERBERG LIMITS AND SUCH OTHER TESTS AS THE DEVELOPER'S SOIL ENGINEER CONSIDERS NECESSARY. A LIMITED NUMBER OF TESTS OF EACH CLASS OF SOIL SHALL THEN BE PERFORMED AS REQUIRED FOR PAVEMENT DESIGN. TESTS FOR PAVEMENT DESIGN (INCLUDING R-VALUES) SHALL NOT BE PERFORMED UNTIL ROUGH GRADING HAS BEEN COMPLETED TO WITHIN ONE FOOT OF FINAL FINISH SUBGRADE. RESULTS OF SOIL SURVEY AND DESIGN TESTS SHALL BE APPROVED BY THE CITY ENGINEER PRIOR TO PLACEMENT OF ANY AB OR ASB.

2.2.3. FINAL ACCEPTANCE OF STOCKPILED MATERIALS SHALL BE SUBJECT TO THEIR COMPLIANCE WITH SPECIFICATION REQUIREMENTS WHEN IN FINAL POSITION ON THE PROJECT.

2.2.4. ALL COMPACCTION TESTS SHALL CONFORM TO ASTM D 1557-70, MODIFIED TO 5 LAYERS.

2.2.5. SUBGRADE MATERIAL EXPANSIVE QUALITIES SHALL BE ANALYZED IN ACCORDANCE WITH THE EXPANSION INDEX TEST PER UBC 29-2.
3. ROAD DESIGN

3.1. ALL ROADS, WHETHER PRIVATE OR PUBLIC, SHALL BE DESIGNED IN ACCORDANCE WITH THESE STANDARDS. WHERE STANDARDS ARE NOT DEFINITE ON SPECIFIC FEATURES, DESIGN SHALL BE IN ACCORDANCE WITH GOOD ENGINEERING PRACTICE AS INDICATED IN THE AMERICAN PUBLIC WORKS ASSOCIATION STANDARDS, CALTRANS HIGHWAY DESIGN MANUAL, AND AS APPROVED BY THE CITY ENGINEER.

3.2. DEVIATIONS FROM R/W AND IMPROVEMENT REQUIREMENTS OF THESE STANDARDS MAY BE MADE ONLY UPON THE APPROVAL OF THE CITY COUNCIL. DEVIATIONS FROM TECHNICAL ENGINEERING REQUIREMENTS OF THESE STANDARDS MAY BE MADE UPON APPROVAL OF THE CITY ENGINEER, BASED ON SUFFICIENT SUPPORTING DATA.

3.3. THE DESIGN SPEED OF ALL ROADS SHALL BE EQUAL TO OR GREATER THAN THE ANTICIPATED OPERATING SPEEDS. THE CITY ENGINEER MAY REQUIRE THE ENGINEER TO INCORPORATE A DIFFERENT DESIGN SPEED THAN INDICATED ON THE ROAD STANDARD PLATES, IF THE CITY ENGINEER DETERMINES THAT CONDITIONS WARRANT SUCH A CHANGE.

3.4. ALL SOIL TESTING AND THICKNESS DESIGN OF PAVEMENT SHALL BE PERFORMED BY THE DEVELOPER'S ENGINEER AND APPROVED BY THE CITY ENGINEER.

3.5. HILLSIDE PLANNED DEVELOPMENT ROADS

3.5.1. "HILLSIDE AREAS" SHALL MEAN THOSE AREAS SO DESIGNATED ON THE HILLSIDE DEVELOPMENT DISTRICT MAP WHICH, IN GENERAL, HAVE AN AVERAGE SLOPE BEFORE GRADING OF 10% OR MORE.

3.5.2. TOMC 9-4.3100 PROVIDES GENERAL GUIDELINES FOR STREET GEOMETRIC SECTIONS WITHIN HPD AREAS. THE PROPOSED STREET SYSTEM AND ASSOCIATED GEOMETRIC SECTION SHALL BE REVIEWED WITH THE CITY ENGINEER PRIOR TO DEVELOPING A DETAILED HPD PLAN OR TENTATIVE MAP.

3.6. HORIZONTAL CURVES

3.6.1. FOR CENTRAL ANGLES LESS THAN 30 MINUTES, NO CURVE IS REQUIRED.

3.6.2. COMPOUND CURVES SHOULD BE AVOIDED. IF DESIGNED, THE SHORTER RADIUS SHALL BE AT LEAST 2/3 THE LONGER RADIUS.

3.6.3. A MINIMUM 100' TANGENT LENGTH IS REQUIRED BETWEEN CURVES.

3.7. AT STREET INTERSECTIONS WHERE EITHER STREET GRADE EXCEEDS 5%, THE INTERSECTION AND A 25' LONG LANDING AREA BEYOND THE CURB RETURNS SHALL HAVE A 3% MAXIMUM GRADE. THE CROSS WALK AREA SHALL HAVE MAXIMUM 2% CROSS FALL PER ADA REQUIREMENTS.

3.8. THE MINIMUM STREET FLOWLINE SLOPE SHALL BE 0.6%. A MINIMUM FLOWLINE SLOPE OF 1% SHALL BE PROVIDED AROUND CURB RETURNS AND CUL-DE-SAC BULBS, EXCEPT FOR 30' EACH SIDE OF THE GRADE BREAK AT THE TOP OF THE CUL-DE-SAC BULB WHERE THE FLOWLINE SLOPE SHALL BE 0.6%.

3.9. THE CENTERLINE ANGLE AT INTERSECTIONS IS PREFERRED TO BE 90°, BUT MAY VARY FROM 72° TO 108°.
3.10. DEVELOPER SHALL SUBMIT ROADWAY PLAN AND PROFILE SIGHT DISTANCE PLANS PREPARED BY A REGISTERED CIVIL OR TRAFFIC ENGINEER DEMONSTRATING COMPLIANCE WITH ALL SSD AND CORNER SIGHT DISTANCE REQUIREMENTS AT THE LOCATIONS DETERMINED BY THE CITY ENGINEER. SUBMITTAL SHALL TAKE INTO consideration ON-SITE GRADING, FINAL SLOPES, STREET FURNITURE STRUCTURE, WALLS, FENCES AND MATURE LANDSCAPING. MAXIMUM ANTICIPATED OPERATING VEHICLE SPEED SHALL BE USED IF GREATER THAN ROAD DESIGN SPEED TO DETERMINE MINIMUM SIGHT DISTANCES. SIGHT DISTANCE EAEMENTS AND/OR DEED RESTRICTIONS MAY BE REQUIRED.

4. ASPHALT SURFACING

4.1. ALL A.C. SURFACING 3" OR GREATER IN THICKNESS SHALL BE CONSTRUCTED IN TWO COURSES, ONE BASE COURSE AND ONE SURFACE COURSE. THE SURFACE COURSE SHALL BE A MINIMUM THICKNESS OF 1 1/2". CORE-DRILLED SAMPLES OF THE FINISHED A.C. SECTION SHALL BE PROVIDED BY THE DEVELOPER'S ENGINEER AS DIRECTED BY THE PUBLIC WORKS INSPECTOR. WITHIN PRIVATE PROPERTIES, THE APPLICANT MAY SUBMIT A REQUEST TO HAVE ONE A.C. COURSE UP TO 3" THICK FOR THE REVIEW AND APPROVAL OF THE CITY ENGINEER OR ITS DESIGNEE. IT IS NOTED THAT A.C. MIXTURES C3, D, E AND F CANNOT BE USED IN A SINGLE LIFT, PURSUANT TO TABLE 302-5.5 OF THE "GREENBOOK", LATEST EDITION.

4.2. A.C. PAVEMENT BASE COURSE SHALL BE TYPE III-B-PG 64-10 OR TYPE III-C-PG64-10 (3/4") AND SURFACE COURSE TYPE III-C2-PG 64-10 (1/2") PER THE 2018 EDITION OF SSPWC 203-6. FOR PRIVATE PARKING LOTS, ALTERNATIVE A.C. PAVEMENT MAY BE CONSIDERED FOR APPROVAL BY THE CITY ENGINEER.

4.3. A.C. PAVEMENT STRUCTURAL SECTION THICKNESS SHALL BE 3" MINIMUM A.C. OVER 6" MINIMUM AB PER TOMC 9-4.2405(a)(1). THICKER STRUCTURAL SECTIONS SHALL BE CONSTRUCTED AS DETERMINED BY THE SOILS ENGINEER, BASED ON IN-SITU SUBGRADE R-VALUE AND THE SPECIFIED TRAFFIC INDEX. ALTERNATIVE EQUIVALENT SECTIONS MAY BE APPROVED BY THE CITY ENGINEER.

4.4. A.C. PAVEMENT SHALL BE PLACED IN ACCORDANCE WITH SSPWC 302-5, AND SHALL BE COMPACTED TO 95% RELATIVE COMPACTION.

4.5. LONGITUDINAL JOINTS SHALL OCCUR WITHIN ONE FOOT OF LANE LINES OR THE CENTER OF A LANE. LONGITUDINAL JOINTS ARE NOT ALLOWED ON WHEEL TRACKS.

4.6. IF APPROVED BY THE CITY ENGINEER, PCC PAVEMENT MAY BE SUBSTITUTED FOR A.C. PAVEMENT ON ALL SECTIONS, AND SHALL BE DESIGNED IN ACCORDANCE WITH THE CALTRANS HIGHWAY DESIGN MANUAL. CONCRETE FOR PCC PAVEMENT SHALL BE 520-C-2500 PER SSPWC 201-1.

4.7. SLURRY SEAL COATS SHALL COMPLY WITH SSPWC 203-5 AND 302-4, TYPE II-RUBBERIZED.

5. CONCRETE AND BASE MATERIALS

5.1. UNLESS OTHERWISE INDICATED, ALL STRUCTURAL CONCRETE (CONCRETE REINFORCED WITH STEEL) SHALL BE 560-C-3250 PER SSPWC 201-1.

5.2. ALL OTHER CONCRETE IMPROVEMENTS (CURBS, GUTTERS, DRIVEWAYS, SIDEWALKS, ETC.) SHALL BE 520-C-2500 PER SSPWC 201-1.

5.3. HIGHER CONCRETE SPECIFICATIONS SHOWN ON PLANS WILL GOVERN.
5.4. CALCIUM CHLORIDE SHALL NOT BE USED IN CONCRETE MIX DESIGNS.

5.5. AB AND ASB SHALL BE CAB OR CMB PER SSPWC 200-2. ALTERNATELY, PMB PER SSPWC 200-2 MAY BE USED FOR ASB.

5.6. FOR PUBLIC AND PRIVATE STREET AND PARKING LOT SECTIONS, INCLUDING CURBS AND GUTTERS, THE UPPER 6” OF SUBGRADE AND AB AND ASB SHALL BE COMPACTED TO 95% RELATIVE COMPACTION. FOR SIDEWALKS AND RESIDENTIAL DRIVEWAYS, SUBGRADE AND AB COMPACTION SHALL BE 90%.

6. DRAINAGE DESIGN

6.1. HYDROLOGIC AND HYDRAULIC ANALYSES IN SUPPORT OF DRAINAGE SYSTEM DESIGN SHALL BE PERFORMED IN CONFORMANCE WITH VCWPD STANDARDS.

6.2. ROAD CROSS-SECTIONS MAY BE USED TO CONVEY WATER ORIGINATING ON THE STREET, FROM ADJOINING LOTS, AND FROM ADJACENT UNIMPROVED AREAS, PROVIDED VEHICLE AND PEDESTRIAN USE OF THE ROADS IS NOT UNREASONABLY RESTRICTED, AND ROAD IMPROVEMENTS AND ADJACENT PROPERTIES WILL NOT BE DAMAGED. FLOW FROM UNIMPROVED AREAS SHALL HAVE FACILITIES TO REMOVE SILT AND DEBRIS BEFORE ENTERING THE STREET. THE HYDRAULIC DESIGN SHALL INCLUDE THE EFFECT OF NON-UNIFORM FLOW AT CHANGES IN GRADE, BENDS AND JUNCTIONS OF MULTIPLE STREAMS.

6.3. PEAK STORM RUNOFF THAT HAS A 10% PROBABILITY OF OCCURRENCE (10-YEAR AVERAGE RETURN PERIOD) SHALL BE USED FOR CALCULATING THE CAPACITY OF ROAD DRAINAGE FACILITIES. PEAK STORM RUNOFF THAT HAS A 2% PROBABILITY OF OCCURRENCE 50-YEAR AVERAGE RETURN PERIOD) SHALL BE USED FOR CALCULATING THE CAPACITY OF SUMP AREA DRAINAGE FACILITIES. ALL DRAINAGE FACILITIES SHALL BE DESIGNED SUCH THAT ADJACENT LOT PADS WILL NOT BE FLOODED BY THE STORM RUNOFF THAT HAS A 1% PROBABILITY OF OCCURRENCE (100-YEAR AVERAGE RETURN PERIOD). CONSIDERATION SHALL ALSO BE GIVEN TO FLOODING CAUSED BY PLUGGING OF DRAINAGE FACILITIES.

6.4. TO PREVENT UNDUE INTERFERENCE WITH TRAFFIC ON URBAN ROADS (ANY SECTION WITH CURBS), A PORTION OF THE ROADWAY SHALL BE KEPT FREE OF LONGITUDINALLY FLOWING DRAINAGE WATER DURING THE 10-YEAR STORM AS SHOWN ON THE STANDARD PLATES.

6.5. CROSS-GUTTERS ARE NOT PERMITTED ACROSS PRIMARY AND SECONDARY ROADS. CROSS GUTTERS ARE PERMITTED ON LOCAL RESIDENTIAL STREETS AT CONTROLLED (STOP SIGNS) SIDE STREETS ONLY.

6.6. CONCENTRATED RUNOFF MAY NOT FLOW ACROSS SIDEWALKS. PARKWAY CULVERTS SHALL BE USED.

6.7. MINIMUM STORM DRAIN PIPE SIZE AND MATERIAL:

6.7.1 MINIMUM PIPE SIZES FOR CITY-MAINTAINED STORM DRAINS SHALL BE 24” INSIDE DIAMETER FOR MAINS AND 18” INSIDE DIAMETER FOR LATERALS.

6.7.2 PIPE MATERIAL FOR CITY-MAINTAINED STORM DRAINS SHALL BE RCP WITH A MINIMUM D-LOAD RATING OF 1350-D. DESIGN OF RCP SHALL BE IN ACCORDANCE WITH VCWPD STANDARDS.

6.7.3 SMALLER DIAMETERS AND ALTERNATIVE PIPE MATERIALS FOR PRIVATELY-MAINTAINED DRAINAGE LATERALS MAY BE ALLOWED WITHIN THE PUBLIC R/W AT THE DISCRETION OF THE CITY ENGINEER.
6.7.4 MANHOLES SHALL BE CONSTRUCTED AT MAJOR STORM DRAIN JUNCTIONS, PIPE DIAMETER CHANGES, AND AT MINIMUM 500’ SPACING.

6.8. STORM DRAIN FACILITIES THAT ACCEPT STORMWATER FROM PUBLIC R/W SHALL BE OWNED AND MAINTAINED BY THE CITY. DEBRIS BASINS OR OTHER DRAINAGE IMPROVEMENTS ON PUBLIC OPEN SPACE LANDS SHALL BE MAINTAINED BY THE CITY OR OTHER PUBLIC AGENCY. NATURAL DRAINAGE COURSES ON PUBLIC OPEN SPACE LANDS ARE NOT MAINTAINED BY THE CITY.

6.9. STORM DRAIN FACILITIES TO BE MAINTAINED BY THE CITY THAT CROSS PRIVATE PROPERTY SHALL BE WITHIN A STORM DRAIN EASEMENT, MINIMUM 15’ WIDE. FOR PIPELINES LARGER THAN 36” DIAMETER OR DEEPER THAN 10’ TO INVERT, THE MINIMUM EASEMENT WIDTH SHALL BE 25’. ACCESS GATES AND ROADS SHALL BE PROVIDED FOR MAINTENANCE OF CITY FACILITIES ON PRIVATE PROPERTY.

6.10. STORM DRAIN FACILITIES WITHIN PRIVATE STREETS (GATED COMMUNITIES) OR ON PRIVATE PROPERTY THAT DO NOT CONVEY STORM RUNOFF FROM PUBLIC R/W SHALL BE OWNED AND MAINTAINED BY THE HOA OR PRIVATE PROPERTY OWNER. PRIVATE STORM DRAIN LATERALS SHALL BE CONNECTED TO THE PUBLIC MAINLINE AT MANHOLES. PRIVATE LATERALS MAY BE CONNECTED TO THE BACK OF PUBLIC CATCH BASINS ONLY UPON APPROVAL OF THE CITY ENGINEER. STORM RUNOFF ORIGINATING FROM PUBLIC OPEN SPACE LANDS THAT FLOWS ONTO PRIVATE PROPERTY OR PRIVATE STREETS MUST BE ACCOMMODATED BY THE PRIVATE PROPERTY OWNER OR HOA.

6.11. STORM DRAIN TESTING AND INSPECTION

6.11.1 CONTRACTOR SHALL THOROUGHLY CLEAN OUT ALL STORM DRAIN SYSTEM COMPONENTS PRIOR TO FINAL INSPECTION BY THE CITY.

6.11.2 DEVELOPER SHALL PERFORM A TV INSPECTION OF THE INTERIOR CONDITION OF ALL STORM DRAIN SYSTEM LINES PRIOR TO FINAL ACCEPTANCE. THE CAMERA/RECORDING SYSTEM USED SHALL BE SPECIFICALLY DESIGNED FOR TV INSPECTION OF UNDERGROUND PIPELINES AND STRUCTURES. A SET OF VIDEO TAPES OR DVDs, AND ACCOMPANYING REPORT, SHALL BE PROVIDED TO THE PUBLIC WORKS INSPECTOR FOR REVIEW. THE INSPECTOR REPORT SHALL NOTE THE PRECISE LOCATION AND INCLUDE A DETAILED DESCRIPTION OF ANY AND ALL MATERIAL AND/OR WORKMANSHIP DEFICIENCIES. AFTER COMPLETION OF ANY NEEDED REPAIRS, A TV RE-INSPECTION SHALL BE PERFORMED WITH TAPE/DVD AND REPORT PROVIDED PER ABOVE.

7. STEEL PLATES FOR OPEN TRENCHES

7.1. STEEL PLATES FOR ALL TRENCHES SHALL BE INSTALLED PER PLATE NOS. 8-18 AND 8-19

8. TRAFFIC CONTROL

8.1. TRAFFIC CONTROL IN CONFORMANCE WITH PLATE NOS. 8-15 AND 8-16 SHALL BE PROVIDED FOR ALL WORK PERFORMED WITHIN THE CITY R/W. FOR OTHER THAN STANDARD LANE CLOSURE, A TRAFFIC CONTROL PLAN SHALL BE PREPARED AND SUBMITTED TO THE CITY ENGINEER FOR APPROVAL 72 BUSINESS HOURS PRIOR TO COMMENCING ANY WORK.

8.2. WHENEVER WORK IS BEING PERFORMED ADJACENT TO A LANE CARRYING TRAFFIC OR WITHIN A TRAFFIC LANE, THE EDGED OF LANE OR PAVEMENT SHALL BE DELINEATED BY FURNISHING AND PLACING TEMPORARY PORTABLE DELINEATORS AND SIGNS ADJACENT THERETO IN ACCORDANCE WITH THE CALTRANS "MANUAL OF TRAFFIC CONTROLS FOR CONSTRUCTION AND MAINTENANCE WORK ZONES", CURRENT EDITION.
8.3. HOURS OF CONSTRUCTION WORK ON ARTERIAL OR COLLECTOR STREETS MAY BE LIMITED BY THE CITY ENGINEER (E.G. TO NON-PEAK TRAFFIC HOURS OR LIMITED DAYS DURING HOLIDAY SEASONS).

8.4. TEMPORARY, PLANNED FULL STREET CLOSURES MAY BE ALLOWED UPON APPROVAL BY THE PUBLIC WORKS DIRECTOR. A WRITTEN REQUEST, INCLUDING THE REASON FOR THE CLOSURE AND A TRAFFIC CONTROL AND DETOUR PLAN, MUST BE SUBMITTED FOR REVIEW AND APPROVAL AT LEAST TWO WEEKS PRIOR TO THE START OF THE CLOSURE.

8.5. ALL TRAFFIC CONTROL SYSTEMS AND DEVICES REQUIRED ON THE CITY'S ARTERIAL STREETS LISTED BELOW SHALL BE DESIGNED, DEPLOYED AND MAINTAINED BY ONE QUALIFIED SUBCONTRACTOR THAT HOLDS AN ACTIVE CALIFORNIA C31 CONTRACTOR'S LICENSE AND HAS NO INVOLVEMENT WITH THE PROJECT OTHER THAT TRAFFIC CONTROL DESIGN AND IMPLEMENTATION. THE ARTERIAL STREETS INCLUDE AVENIDA DE LOS ARBOLES, BORCHARD ROAD, ERBES ROAD, HAMPSHIRE, HILLCREST DRIVE, JANSS ROAD, KANAN ROAD, LINDERO CANYON ROAD, LYNN ROAD, MOORPARK ROAD, OLSEN ROAD, RANCHO CONEJO BOULEVARD, REINO ROAD, THOUSAND OAK BOULEVARD, VENTU PARK ROAD, WENDY DRIVE AND WESTLAKE BOULEVARD.

9. TRAFFIC SIGNALS, PAVEMENT MARKERS AND STRIPING

9.1. DESIGN AND CONSTRUCTION OF TRAFFIC STRIPING, PAVEMENT MARKERS, AND TRAFFIC SIGNALS SHALL CONFORM TO SECTIONS 84, 85, AND 86, RESPECTIVELY, OF THE SSS AND AS APPROVED BY THE CITY ENGINEER. TRAFFIC STRIPING PAINT SHALL ALSO CONFORM TO FEDERAL HIGHWAY ADMINISTRATION SPECIFICATIONS PER 23 CFR PART 655.

9.2. SEPARATE TRAFFIC SIGNING AND STRIPING PLAN SHEETS SHALL BE PREPARED AND SUBMITTED FOR REVIEW AND APPROVAL.

10. STREET TREE PLANTING

10.1. STREET TREE PLANTING IS REQUIRED FOR ALL PROJECTS PER TOMC 9-3.1006 UNLESS SPECIFICALLY EXCLUDED BY THE CONDITIONS OF APPROVAL.

10.2. DEVELOPER SHALL SUBMIT PLANS TO THE COMMUNITY DEVELOPMENT DEPARTMENT FOR REVIEW AND APPROVAL. SEE RESOLUTION NO. 2007-116 "GUIDELINES AND STANDARDS FOR LANDSCAPE PLANTING AND IRRIGATION PLANS" FOR SUBMITTAL REQUIREMENTS. PLANS MUST BE APPROVED BY BOTH COMMUNITY DEVELOPMENT AND PUBLIC WORKS DEPARTMENTS PRIOR TO CONSTRUCTION.

10.3. AN ADDITIONAL AMOUNT OF $250.00 (INFLATED PER THE CITY OFF-SITE IMPROVEMENT FEE CALCULATION SHEETS) FOR EACH TREE SHALL BE INCLUDED IN THE SUBDIVISION OR OTHER IMPROVEMENT BONDS.

10.4. TREES SHALL BE PLANTED PRIOR TO OCCUPANCY OF ANY BUILDING. PRIOR TO PLANTING, THE DEVELOPER SHALL MARK THE LOCATIONS FOR STREET TREES AND REQUEST CITY INSPECTION OF NURSERY STOCK AND PLANTING AREAS. THE CITY SHALL HAVE THE RIGHT OF DESTRUCTIVE INSPECTION OF UP TO 2% OF THE PROPOSED PLANTING STOCK BEFORE INSTALLATION.

10.5. TREE SELECTION SHALL BE BASED UPON CONSIDERATION OF THE PLANTING SPACE, ADJACENT USES, ENVIRONMENTAL FACTORS AND EXISTING SPECIES. SPECIES SHALL BE SELECTED PER THE CITY FORESTRY MASTER PLAN.
10.6. TREES SHALL BE A MINIMUM OF 24” BOX AND BE CERTIFIED BY THE NURSERY TO BE TRUE TO APPROVED SPECIES SELECTION. ALL LARGE STONES OR OTHER DEBRIS SHALL BE REMOVED FROM THE PLANTING SOIL. REMOVE NURSERY STAKES FOLLOWING PLANTING.

10.7. STREET TREES SHALL BE PLANTED NOT LESS THAN 40’ APART NOR MORE THAN 60’ EXCEPT IN INSTANCES WHERE SUCH PLANTING WILL INTERFERE WITH FIRE HYDRANTS, UTILITY POLES, DRIVEWAYS, OR STOPPING SIGHT DISTANCE REQUIREMENTS PER PLATE 3-10. NO TREE SHALL BE PLANTED CLOSER THAN 10’ FROM FIRE HYDRANTS OR SEWER LATERALS, 20’ FROM LAMP STANDARDS OR EITHER END OF CURB RETURNS AT INTERSECTIONS, AND 5’ FROM INTERSECTING WALKS, DRIVEWAYS OR METER BOXES. AT LEAST TWO TREES SHALL BE PLANTED AT CORNER LOTS.

10.8. TREES SHALL BE MAINTAINED AND WATERED BY THE DEVELOPER AS NEEDED UNTIL ACCEPTED BY THE CITY. DEVELOPER SHALL REPLACE TREES FOUND TO BE MISSING, DEAD OR IN POOR HEALTH PRIOR TO PROJECT ACCEPTANCE BY THE CITY.

11. TRENCH CUT REQUIREMENTS

11.1. FOR INSTALLATION OF SMALL UNDERGROUND PIPELINES IN EXISTING CITY STREETS, BORING, JACKING, HORIZONTAL DIRECTIONAL DRILLING OR MICRO-TUNNELING METHODS SHALL BE USED TO THE GREATEST EXTENT PRACTICABLE. THE CITY ENGINEER MAY PERMIT OPEN CUT TRENCHING IF OTHER METHODS ARE DETERMINED TO BE INFEASIBLE (TOMC 7-2.615). ALL TRENCHES IN EXISTING PAVED STREETS SHALL BE BACKFILLED AND REPAVED PER PLATE 8-14.

11.2. MORATORIUM STREETS - A MORATORIUM AGAINST TRENCHING IS IMPOSED IN EXISTING CITY STREETS THAT ARE LESS THAN FIVE YEARS OLD OR HAVE RECEIVED AN A.C. OVERLAY WITHIN THE LAST FIVE YEARS. EXCEPTIONS TO THE MORATORIUM MAY ONLY BE GRANTED BY THE CITY ENGINEER, AND, IF GRANTED, MAY BE SUBJECT TO ADDITIONAL CONDITIONS AS DETERMINED BY THE CITY.

11.3. WHERE MULTIPLE TRENCHES ARE CUT IN ANY STREET, SUCH AS FOR A MAINLINE AND SERVICES SERVICE LATERAL REPLACEMENT PROJECT, OR WHERE A TRENCHING PROJECT RESULTS IN SIGNIFICANT WEAR OR DAMAGE TO THE STREET SURFACE, ADDITIONAL CONDITIONS MAY BE IMPOSED, INCLUDING, BUT NOT LIMITED TO, AN ASPHALT OVERLAY OR APPLICATION OF A SLURRY SEAL OVER THE FULL WIDTH AND LENGTH OF THE AFFECTED STREET.

12. EQUESTRIAN TRAIL/UNPAVED PATH REQUIREMENTS

12.1. MATERIAL USED FOR THE INSTALLATION OF EQUESTRIAN TRAILS AND UNPAVED PATHS SHALL BE SOLIDIFIED DECOMPOSED GRANITE (DG) PER SSPWC 200-2.7. RESIN OR BINDER USED TO SOLIDIFY DG SHALL BE APPROVED BY THE CITY ENGINEER.

13. STORMWATER POLLUTION CONTROL AND BEST MANAGEMENT PRACTICES (BMPs)

13.1. ALL PAVED SURFACES SHALL BE DESIGNED TO CONSIDER AND INCORPORATE PERMANENT RUNOFF REDUCTION AND POLLUTION PREVENTION/TREATMENT BMPs, AS SPECIFIED BY THE CURRENT VENTURA COUNTY NATIONAL POLLUTANT DISCHARGE AND ELIMINATION SYSTEM (NPDES) MUNICIPAL PERMIT. TECHNICAL REFERENCES AND RESOURCES RELATING TO APPLICABILITY AND DESIGN THRESHOLDS ARE AVAILABLE AT THE COUNTYWIDE STORMWATER QUALITY MANAGEMENT PROGRAM WEBSITE, www.VCStormwater.org.
ROAD CROSS SECTIONS
DESIGN CRITERIA:

- **Design Speed**: 55 M.P.H. MIN.
- **Curve Radius**: 1160' MIN. (WITH MAX. SUPERELEVATION)
- **Gradient**: 0.6% - 5.0% OR AS DETERMINED BY THE PUBLIC WORKS DIRECTOR
- **Stopping Sight Distance**: 500' MIN.
- **Intersection Sight Distance**: 605' MIN.
- **Super elevation**: 0.04 MAX.
- **Curb Return Radius**: 35' MIN.
- **Curve Length**: 500' MIN., 0.5 MILE MAX.
- **Traffic Index**: 8.5

DRAINAGE:

- SEE "1" SERIES PLATES

### TABLE FOR A.B./A.S.B.

<table>
<thead>
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<th>BASEMENT SOIL 'R' VALUE</th>
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NOTES:

1. EMERGENCY PARKING ONLY.
2. PAVEMENT WIDTH MEASURED FROM TOP INSIDE FACE OF OPPOSING CURBS.
3. BASE UNDER CURB AND GUTTER SHALL EXTEND TO SAME DEPTH AS STREET BASE (6" MIN).
4. ADDITIONAL EASEMENTS MAY BE REQUIRED FOR UTILITIES WHERE NECESSARY.
5. STREET TREES SHALL BE REQUIRED BEHIND SIDEWALK UNLESS 10' SIDEWALK IS PROVIDED.
6. FOR LENGTH OF VERTICAL CURVE, SEE PLATE NO. 3-8.
7. FOR CURVES > 1200', SUPERELEVATION, SEE PLATE NO. 3-5.
8. MEDIAN LANDSCAPING, BERMING AND STREET FURNITURE IN MEDIAN AND ALONG PARKWAYS LOCATED WITHIN 500' OF ANY MEDIAN OPENING OR INTERSECTION SHALL BE APPROVED BY THE CITY TRAFFIC ENGINEER.
9. MINIMUM DISTANCE BETWEEN INTERSECTION SHALL BE 1320'.

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**NOTES:**

1. EMERGENCY PARKING ONLY.
2. PAVEMENT WIDTH MEASURED FROM TOP INSIDE FACE OF OPPOSING CURBS.
3. BASE UNDER CURB AND GUTTER SHALL EXTEND TO SAME DEPTH AS STREET BASE (6" MIN).
4. ADDITIONAL EASEMENTS MAY BE REQUIRED FOR UTILITIES WHERE NECESSARY.
5. STREET TREES SHALL BE REQUIRED BEHIND SIDEWALK UNLESS 10' SIDEWALK IS PROVIDED.
6. FOR LENGTH OF VERTICAL CURVE, SEE PLATE NO. 3-8.
7. FOR CURVES > 1200', SUPERELEVATION, SEE PLATE NO. 3-5.
8. MEDIAN LANDSCAPING, BERMING AND STREET FURNITURE IN MEDIAN AND ALONG PARKWAYS LOCATED WITHIN 500' OF ANY MEDIAN OPENING OR INTERSECTION SHALL BE APPROVED BY THE CITY TRAFFIC ENGINEER.
9. MINIMUM DISTANCE BETWEEN INTERSECTION SHALL BE 1320'.
DESIGN CRITERIA:

**DESIGN SPEED**: 55 M.P.H. MIN.

**CURVE RADIUS**: 1160' MIN. (WITH MAX. SUPERELEVATION)

**GRADIENT**: 0.6% - 6.0% OR AS DETERMINED BY THE PUBLIC WORKS DIRECTOR

**STOPPING SIGHT DISTANCE**: 500' MIN.

**INTERSECTION SIGHT DISTANCE**: 605' MIN.

**SUPERELEVATION**: 0.04 MAX. 3

**CURB RETURN RADIUS**: 35' MIN.

**CURVE LENGTH**: 500' MIN., 0.5 MILE MAX.

**TRAFFIC INDEX**: 8.0

**DRAINAGE**:

SEE "1" SERIES PLATES

### TABLE FOR A.B./A.S.B.

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**NOTES:**

1. EMERGENCY PARKING ONLY.

2. PAVEMENT WIDTH MEASURED FROM TOP INSIDE FACE OF OPPOSING CURBS.

3. BASE UNDER CURB AND GUTTER SHALL EXTEND TO SAME DEPTH AS STREET BASE (6" MIN.).

4. ADDITIONAL EASEMENTS MAY BE REQUIRED FOR UTILITIES WHERE NECESSARY.

5. STREET TREES SHALL BE REQUIRED BEHIND SIDEWALK UNLESS 10' SIDEWALK IS PROVIDED.

6. FOR LENGTH OF VERTICAL CURVE, SEE PLATE NO. 3-8.

7. FOR CURVES > 1200', SUPERELEVATION PER PLATE NO. 3-5.

8. MEDIAN LANDSCAPING, BERMING AND STREET FURNITURE IN MEDIAN AND ALONG PARKWAYS LOCATED WITHIN 500' OF ANY MEDIAN OPENING OR INTERSECTION SHALL BE APPROVED BY THE CITY TRAFFIC ENGINEER.
DESIGN CRITERIA:

- DESIGN SPEED: 40 M.P.H.
- CURVE RADIUS: 825' MIN.
- GRADIENT: 0.6% - 6.0% OR AS DETERMINED BY THE PUBLIC WORKS DIRECTOR
- STOPPING SIGHT DISTANCE: 300' MIN.
- INTERSECTION SIGHT DISTANCE: 440' MIN.
- SUPERELEVATION: NONE
- CURB RETURN RADIUS: 35' MIN.
- CURVE LENGTH: 300' MIN., 0.5 MILE MAX.
- TRAFFIC INDEX: 7.5

DRAINAGE:

SEE "1" SERIES PLATES

TABLE FOR A.B./A.S.B.

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NOTES:

1. PLANNING COMMISION MAY REQUIRE SIDEWALKS AND WIDENING OF RIGHT OF WAY IN INDUSTRIAL OR COMMERCIAL AREAS.
2. PAVEMENT WIDTH MEASURED FROM TOP INSIDE FACE OF OPPOSING CURBS.
3. BASE UNDER CURB AND GUTTER SHALL EXTEND TO SAME DEPTH AS STREET BASE (6" MIN.).
4. FOR LENGTH OF CURVE, SEE PLATE NO. 3-8.
5. STREET TREE SHALL BE REQUIRED.
6. SIDEWALK SHALL BE CLEAR OF ALL FURNITURE.
7. THE CITY TRAFFIC ENGINEER MAY REQUIRE MODIFICATION TO PROPOSED LANDSCAPING, BERMS, SLOPES, STREET FURNITURE, WALLS OR STRUCTURE WITHIN THE SIDEWALK OR PARKWAY AREA, AS WELL AS OUTSIDE OF THE PUBLIC RIGHT-OF-WAY, WITHIN 500' OF ANY INTERSECTION TO COMPLY WITH SIGHT DISTANCE REQUIREMENTS.
DESIGN CRITERIA:

**DRAINAGE:**

SEE "1" SERIES PLATES

**BASEMENT SOIL 'R' VALUE**

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**NOTES:**

1. PAVEMENT WIDTH MEASURED FROM TOP INSIDE FACE OF OPPOSING CURBS.
2. SIDEWALK MAY BE DELETED BY PLANNING COMMISSION.
3. THIS PLATE WILL BE USED ONLY IF TRAFFIC ANALYSIS INDICATES AVERAGE DAILY VOLUME WILL NOT EXCEED 8,000 VEHICLES WITHIN 20 YEARS AFTER CONSTRUCTION.
4. BASE CURB AND GUTTER SHALL EXTEND TO SAME DEPTH AS STREET BASE (6" MIN.)
5. STREET TREES SHALL BE REQUIRED.
6. FOR LENGTH OF VERTICAL CURVE, SEE PLATE NO. 3-8.
7. WHERE SPECIFIED BY CITY ENGINEER, ROAD PAVEMENT SHALL BE 54' AND RIGHT-OF-WAY OF 66' (4 TRAFFIC LANES, NO SIDEWALK AND NO PARKING).
8. THE CITY TRAFFIC ENGINEER MAY REQUIRE MODIFICATIONS TO PROPOSED LANDSCAPING, BERMS, SLOPES, STREET FURNITURE, WALLS OR STRUCTURE WITHIN THE SIDEWALK OR PARKWAY AREA AS WELL AS OUTSIDE OF THE PUBLIC RIGHT-OF-WAY, WITHIN 500' OF ANY INTERSECTION TO COMPLY WITH SIGHT DISTANCE REQUIREMENTS.

**CITY OF THOUSAND OAKS**
PUBLIC WORKS DEPARTMENT
TABLE FOR A.B./A.S.B.

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NOTES:
1. PAVEMENT WIDTH MEASURED FROM TOP INSIDE FACE OF OPPOSING CURBS.
2. STREET TREES SHALL BE REQUIRED.
3. BASE UNDER CURB AND GUTTER SHALL EXTEND TO SAME DEPTH AS STREET BASE (6" MIN.).
4. COLLECTOR ROAD PROVIDES ACCESS TO 250 DWELLING UNITS OR LESS.
5. FOR LENGTH OF VERTICAL CURVE, SEE PLATE NO. 3-8.
6. THE CITY TRAFFIC ENGINEER MAY REQUIRE MODIFICATIONS TO PROPOSED LANDSCAPING, BERMS, SLOPES, STREET FURNITURE, WALLS OR STRUCTURES WITHIN THE SIDEWALK OR PARKWAY AREA, AS WELL AS OUTSIDE OF THE PUBLIC RIGHT-OF-WAY, WITHIN 500' OF ANY INTERSECTION TO COMPLY WITH SIGHT DISTANCE REQUIREMENTS.
DESIGN CRITERIA:

CURVE RADIUS
300' MIN.

GRADIENT
0.6% MIN-12% MAX OR AS DETERMINED BY
THE PUBLIC WORKS DIRECTOR

STOPPING SIGHT DISTANCE
165' MIN.

INTERSECTION SIGHT DISTANCE
275' MIN.

SUPERELEVATION
NONE

CURB RETURN RADIUS
25' MIN.

TRAFFIC INDEX
6.0 OR AS DETERMINED BY THE PUBLIC
WORKS DIRECTOR

DRAINAGE:

SEE "1" SERIES PLATES

TABLE FOR A.B./A.S.B.

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NOTES:

1. PAVEMENT WIDTH MEASURED FROM TOP INSIDE FACE OF OPPOSING CURBS.
2. STREET TREES SHALL BE REQUIRED.
3. BASE UNDER CURB AND GUTTER SHALL EXTEND TO SAME DEPTH AS STREET BASE (6" MIN.)
4. RESIDENTIAL ROAD PROVIDES ACCESS TO 39 DWELLING UNITS OR LESS.
5. FOR LENGTH OF VERTICAL CURVE, SEE PLATE NO. 3-8.
6. THE CITY TRAFFIC ENGINEER MAY REQUIRE MODIFICATIONS TO PROPOSED LANDSCAPING, BERMS, SLOPES, STREET FURNITURE, WALLS OR STRUCTURES WITHIN THE SIDEWALK OR PARKWAY AREA, AS WELL AS OUTSIDE OF THE PUBLIC RIGHT-OF-WAY, WITHIN 500', OF ANY INTERSECTION TO COMPLY WITH SIGHT DISTANCE REQUIREMENTS.
TABLE FOR A.B./A.S.B.

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NOTES:

1. LOCAL PURPOSE ROAD PROVIDES ACCESS TO 15 DWELLING UNITS OR LESS, 1600' OR LESS IN LENGTH AND BEGINNING AND ENDING IN THE SAME CROSS ROAD; OR DEAD END ROAD PROVIDING ACCESS TO ADJACENT DWELLING UNITS AND NOT EXCEEDING 800' IN LENGTH MEASURED FROM THE CENTER OF TURN AROUND TO CENTERLINE OF INTERSECTING ROAD.

2. PAVEMENT WIDTH MEASURED FROM TOP INSIDE FACE OF OPPOSING CURBS.

3. BASE UNDER CURB AND GUTTER SHALL EXTEND TO SAME DEPTH AS STREET BASE (6" MIN.)

4. STREET TREES SHALL BE REQUIRED.

5. FOR LENGTH OF VERTICAL CURVE, SEE PLATE NO. 3-8.

6. THE CITY TRAFFIC ENGINEER MAY REQUIRE MODIFICATIONS TO PROPOSED LANDSCAPING, BERMS, SLOPES, STREET FURNITURE, WALLS OR STRUCTURES WITHIN THE SIDEWALK OR PARKWAY AREA, AS WELL AS OUTSIDE OF THE PUBLIC RIGHT-OF-WAY, WITHIN 500' OF ANY INTERSECTION TO COMPLY WITH SIGHT DISTANCE REQUIREMENTS.

7. POST ONE SIDE OF STREET *NO PARKING*.
TABLE FOR A.B./A.S.B.

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NOTES:
1. HINGE POINT SHALL BE A MINIMUM OF 6' FROM CURB UNLESS APPROVED IN WRITING BY THE CITY ENGINEER.
2. ADDITIONAL WIDTH OF ROAD RIGHT-OF-WAY AND/OR 6' WIDE PUBLIC SERVICE EASEMENT MAY BE REQUIRED FOR SIDEWALKS, UTILITIES AND LANDSCAPING.
3. PAVEMENT WIDTH MEASURED FROM TOP INSIDE FACE OF OPPOSING CURBS.
4. P.C.C. PAVEMENT REQUIRED FOR GRADES OF 15% OR MORE. P.C.C. PAVEMENT DESIGN SHALL BE APPROVED BY THE CITY ENGINEER.
5. STREET TREES SHALL BE REQUIRED.
6. COLLECTOR ROAD PROVIDES ACCESS TO 250 DWELLING UNITS OR LESS.
7. FOR LENGTH OF VERTICAL CURVE, SEE PLATE NO. 3-8.
8. BASE UNDER CURB AND GUTTER SHALL EXTEND TO SAME DEPTH AS STREET BASE (6" MIN.).
9. THE CITY TRAFFIC ENGINEER MAY REQUIRE MODIFICATIONS TO PROPOSED LANDSCAPING, BERMS, SLOPES, STREET FURNITURE, WALLS OR STRUCTURES WITHIN THE SIDEWALK OR PARKWAY AREA, AS WELL AS OUTSIDE OF THE PUBLIC RIGHT-OF-WAY, WITHIN 500' OF ANY INTERSECTION TO COMPLY WITH SIGHT DISTANCE REQUIREMENTS.
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**NOTES:**

1. LENGTH OF VERTICAL CURVE, SEE PLATE NO. 3-8.
2. 3' FROM CURB TO HINGE POINT, 1' IF SIDE SLOPE IS LESS THAN 5% OUTSIDE RIGHT-OF-WAY.
3. ADDITIONAL WIDTH OF ROAD RIGHT-OF-WAY AND/OR 6' WIDE PUBLIC SERVICE EASEMENT MAY BE REQUIRED FOR SIDEWALKS, UTILITIES AND LANDSCAPING.
4. PAVEMENT WIDTH MEASURED FROM TOP INSIDE FACE OF OPPOSING CURBS.
5. P.C.C. PAVEMENT REQUIRED FOR GRADES OF 15% OR MORE. P.C.C. PAVEMENT DESIGN SHALL BE APPROVED BY THE CITY ENGINEER.
6. STREET TREES SHALL BE REQUIRED.
7. LOCAL PURPOSE ROAD PROVIDES ACCESS TO 39 DWELLING UNITS OR LESS.
8. BASE UNDER CURB AND GUTTER SHALL EXTEND TO SAME DEPTH AS STREET BASE (6"MIN.).
9. THE CITY TRAFFIC CITY ENGINEER MAY REQUIRE MODIFICATIONS TO PROPOSED LANDSCAPING, BERMS, SLOPES, STREET FURNITURE, WALLS OR STRUCTURES WITHIN THE SIDEWALK AREA OR PARKWAY AREA, AS WELL AS OUTSIDE OF THE PUBLIC RIGHT-OF-WAY, WITHIN 500' OF ANY INTERSECTION TO COMPLY WITH SIGHT DISTANCE REQUIREMENTS.
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<th>A.S.B. THICKNESS WHEN USED WITH 6&quot; A.B.</th>
<th>28-33</th>
<th>23-27</th>
<th>18-22</th>
<th>12-17</th>
<th>&lt; 12</th>
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<tbody>
<tr>
<td>A.S.B. Thickness When Used With 6&quot; A.B.</td>
<td></td>
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<td>4&quot;</td>
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<td>6&quot;</td>
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<tr>
<td>ALTERNATE - A.B. ONLY</td>
<td>6&quot;</td>
<td>7&quot;</td>
<td>8&quot;</td>
<td>9&quot;</td>
<td>10&quot;</td>
</tr>
</tbody>
</table>

**NOTES:**

1. LENGTH OF VERTICAL CURVE, SEE PLATE NO. 3-8.
2. 3' FROM CURB TO HINGE POINT, 1' IF SIDE SLOPE IS LESS THAN 5% OUTSIDE RIGHT-OF-WAY.
3. ADDITIONAL WIDTH OF ROAD RIGHT-OF-WAY AND/OR 6' WIDE PUBLIC SERVICE EASEMENT MAY BE REQUIRED FOR SIDEWALKS, UTILITIES AND LANDSCAPING.
4. UNIFORM 2% CROSS FALL TOWARD CUT SLOPE ACCEPTABLE IN HILLSIDES WITH NO MEDIAN TYPE CURB AT HIGH SIDE.
5. PAVEMENT WIDTH MEASURED FROM TOP INSIDE FACE OF OPPOSING CURBS.
6. LOCAL PURPOSE ROAD PROVIDES ACCESS TO 15 DWELLING UNITS OR LESS, 1,600' OR LESS IN LENGTH AND BEGINNING AND ENDING IN THE SAME CROSS ROAD; OR DEAD END ROAD PROVIDES ACCESS TO ADJACENT DWELLING UNITS AND NOT EXCEEDING 800' IN LENGTH FROM THE CENTER OF TURNAROUND TO CENTERLINE OF INTERSECTING ROAD.
7. P.C.C. PAVEMENT REQUIRED FOR GRADES OF 15% OR MORE. P.C.C. PAVEMENT DESIGN SHALL BE APPROVED BY THE CITY ENGINEER.
8. OFF STREET PARKING SHALL BE REQUIRED AS DETERMINED BY THE PLANNING COMMISSION. POST ONE SIDE "NO PARKING".
9. STREET TREES SHALL BE REQUIRED.
10. BASE UNDER CURB AND GUTTER SHALL EXTEND TO SAME DEPTH AS STREET BASE (6" MIN.).
11. THE CITY TRAFFIC CITY ENGINEER MAY REQUIRE MODIFICATIONS TO PROPOSED LANDSCAPING, BERMS, SLOPES, STREET FURNITURE, WALLS OR STRUCTURES WITHIN THE SIDEWALK AREA, AS WELL AS OUTSIDE OF THE PUBLIC RIGHT-OF-WAY, WITHIN 500' OF ANY INTERSECTION TO COMPLY WITH SIGHT DISTANCE REQUIREMENTS.
**DESIGN CRITERIA:**

- **Drainage:** 
  - See "1" Series Plates

- **CROSS SECTION:**
  - Not to scale

- **Design Criteria:**
  - **Design Speed:** 55 M.P.H.
  - **Curve Radius:** 990' MIN. (WITH MAX. SUPERELEVATION)
  - **Gradient:** 0.6% MIN. - 10% MAX.
  - **Stopping Site Distance:** 500' MIN.
  - **Intersection Site Distance:** 605' MIN.
  - **Vertical Clearance:** 15'
  - **Design Loading:** (AASHO) H-20
  - **Superelevation:** 0.07 MAX.
  - **Traffic Index:** 6.0
  - **Passing Sight Distance:** 1950' MIN.
  - **Length of Vertical Curve:** See Plate No. 3-8
  - **Curves:** Superelevation per Plate No. 3-5

- **DRAINAGE:**
  - See "1" Series Plates

**Table for A.B./A.S.B.:**

<table>
<thead>
<tr>
<th>Basement Soil 'R' Value</th>
<th>&gt; 42</th>
<th>37-42</th>
<th>32-36</th>
<th>27-31</th>
<th>22-26</th>
<th>17-21</th>
<th>12-16</th>
<th>7-11</th>
<th>&lt; 7</th>
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<tbody>
<tr>
<td>A.S.B. Thickness When Used With 6&quot; A.B.</td>
<td>_____</td>
<td>_____</td>
<td>_____</td>
<td>4&quot;</td>
<td>5&quot;</td>
<td>6&quot;</td>
<td>7&quot;</td>
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</tr>
<tr>
<td>Alternate - A.B. Only</td>
<td>6&quot;</td>
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<td>11&quot;</td>
<td>12&quot;</td>
<td>13&quot;</td>
<td>14&quot;</td>
</tr>
</tbody>
</table>

**Notes:**

1. Road width may be adjusted if equestrian trail is required.
2. The city traffic engineer may require modifications to proposed landscaping, berms, slopes, street furniture, walls or structures within the sidewalk or parkway area, as well as outside of the public right-of-way, within 500' of any intersection to comply with sight distance requirements.
UTILITIES

R/W

5'

2'

12'

12'

2'

8'

7' NO STORM WATER

(BOTH DIRECTIONS)

EQUESTRIAN TRAIL

CROSS SECTION

NOT TO SCALE

DESIGN CRITERIA:

DESIGN SPEED
25 M.P.H.

CURVE RADIUS
200' MIN.

GRADIENT
0.6% MIN. - 15.0% MAX. OR AS DETERMINED

BY PUBLIC WORKS DIRECTOR

STOPPING SIGHT DISTANCE
150' MIN.

INTERSECTION SIGHT DISTANCE
275' MIN. SEE PLATE NO. 3-10

SUPERELEVATION
NONE

TRAFFIC INDEX
6.0

LENGTH OF VERTICAL CURVE
SEE PLATE NO. 3-8

DRAINAGE:

SEE "1" SERIES PLATES

DESIGN CRITERIA:

BASEMENT SOIL 'R' VALUE

> 42

37-42

32-36

27-31

22-26

17-21

12-16

7-11

< 7

A.S.B. THICKNESS WHEN USED WITH 6" A.B.

ALTERNATE - A.B. ONLY

4"

5"

6"

7"

8"

9"

6" 7" 8" 9" 10" 11" 12" 13" 14"

NOTES:

1. LOCAL PURPOSE ROAD PROVIDES ACCESS TO 15 DWELLING UNITS OR LESS, 1,600' OR LESS IN LENGTH AND BEGINNING AND ENDING IN THE SAME CROSS ROAD; OR DEAD END ROAD PROVIDES ACCESS TO 15 DWELLING UNITS AND NOT EXCEEDING 800' IN LENGTH MEASURED FROM THE CENTER OF TURNAROUND TO CENTER OF INTERSECTING ROAD.

2. P.C.C. PAVEMENT REQUIRED FOR GRADES OF 15% OR MORE. P.C.C. PAVEMENT DESIGN TO BE APPROVED BY THE CITY ENGINEER.

3. OFF STREET PARKING SHALL BE REQUIRED AS DETERMINED BY THE PLANNING COMMISSION. ON STREET PARKING IS PROHIBITED.

4. STREET TREES SHALL BE REQUIRED.

5. BASE UNDER CURB AND GUTTER SHALL EXTEND TO SAME DEPTH AS STREET BASE (6" MIN.).

6. EQUESTRIAN TRAIL SHALL PROVIDE 8' WIDTH, CLEAR OF ANY OBSTRUCTIONS.

7. THE CITY TRAFFIC ENGINEER MAY REQUIRE MODIFICATIONS TO PROPOSED, LANDSCAPING, BERMS, SLOPES, STREET FURNITURE, WALLS OR STRUCTURES WITHIN THE SIDEWALK OR PARKWAY AREA, AS WELL AS OUTSIDE OF THE PUBLIC RIGHT-OF-WAY WITHIN 500' OF ANY INTERSECTION TO COMPLY WITH SIGHT DISTANCE REQUIREMENTS.

CHANGE

DESCRIPTION

DATE

INITIAL

APPROVED:

CITY ENGINEER

DATE

CITY OF THOUSAND OAKS

PUBLIC WORKS DEPARTMENT

STANDARD

ALTERNATE RURAL AND CUL-DE-SAC

HILLSIDE DEVELOPMENTS

PLATE NO. 2-12
ROAD DESIGN STANDARDS
NOTE: GUTTER FLOWLINE GRADIENT 1.0% MIN.

LEGEND
R/W = RIGHT OF WAY
W = CURB TO CURB WIDTH
V = VARIABLE

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
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<td>20</td>
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<td>35.96</td>
<td>43.68</td>
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<td>10</td>
<td>33.79</td>
<td>35.96</td>
<td>43.68</td>
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<td>V</td>
<td>39.64</td>
<td>42.18</td>
<td>42.95</td>
</tr>
<tr>
<td>2-10</td>
<td>32</td>
<td>16</td>
<td>V</td>
<td>V</td>
<td>45.49</td>
<td>48.40</td>
<td>42.22</td>
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NOTES:
OFFSET CUL-DE-SAC IS PERMITTED,
WITH CENTER OFFSET = R4-W/2

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<tr>
<th>PLATE NO.</th>
<th>W (FT.)</th>
<th>W/2 (FT.)</th>
<th>R/W (FT.)</th>
<th>P (FT.)</th>
<th>A (FT.)</th>
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<td>54.99</td>
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<table>
<thead>
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<th>R1 (FT.)</th>
<th>L1 (FT.)</th>
<th>R2 (FT.)</th>
<th>L2 (FT.)</th>
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<tbody>
<tr>
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<td>18.69</td>
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<tr>
<td>2-6</td>
<td>45° 02' 08&quot;</td>
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<td>19.65</td>
<td>35</td>
<td>27.51</td>
</tr>
<tr>
<td>2-7</td>
<td>47° 09' 23&quot;</td>
<td>25</td>
<td>20.58</td>
<td>35</td>
<td>28.81</td>
</tr>
<tr>
<td>2-8</td>
<td>42° 50' 00&quot;</td>
<td>V</td>
<td>V</td>
<td>35</td>
<td>26.17</td>
</tr>
<tr>
<td>2-9</td>
<td>45° 02' 08&quot;</td>
<td>V</td>
<td>V</td>
<td>35</td>
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<td>47° 09' 23&quot;</td>
<td>V</td>
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</table>

<table>
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<th>L3 (FT.)</th>
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<th>L4 (FT.)</th>
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<td>185.47</td>
</tr>
<tr>
<td>2-6</td>
<td>270° 04' 00&quot;</td>
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<td>2-9</td>
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<td>V</td>
<td>V</td>
<td>40</td>
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</tr>
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<td>2-10</td>
<td>274° 18' 46&quot;</td>
<td>V</td>
<td>V</td>
<td>40</td>
<td>191.51</td>
</tr>
</tbody>
</table>
NOTE:
WHEN $\Delta$ IS LESS THAN 72°, A SMOOTH CURVE WITH A MINIMUM RADIUS CONFORMING WITH THE STANDARDS FOR THE PARTICULAR GEOMETRIC SECTION SHALL BE USED.

LEGEND
R/W = RIGHT OF WAY
W = CURB TO CURB WIDTH
V = VARIES

<table>
<thead>
<tr>
<th></th>
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<td>76</td>
<td>V</td>
<td>60</td>
<td>44</td>
<td>V</td>
</tr>
</tbody>
</table>

CHANGE
DESCRIPTION
DATE
INITIAL
APPROVED:
CITY ENGINEER
DATE

CITY OF THOUSAND OAKS
PUBLIC WORKS DEPARTMENT

STANDARD ROAD INTERSECTION "L" SHAPE
NOTES:
1. ALTERNATIVE DESIGN MAY BE ACCEPTED SUBJECT TO MEETING THE MINIMUM REQUIREMENTS STATED HEREIN AT THE DISCRETION OF THE CITY ENGINEER.
2. SHOULD THE CITY ENGINEER DETERMINE THAT THE GATES CAUSE A NEGATIVE IMPACT TO TRAFFIC SAFETY, THEY SHALL BE REMOVED WITHIN 24 HOURS AT THE EXPENSE OF THE PROPERTY OWNER.
3. APPLICANTS SHALL REFER TO FIRE DEPARTMENT FOR ADDITIONAL REQUIREMENTS.
4. LENGTH EQUAL TO OR GREATER THAN LENGTH OF OUTBOUND GATE.
5. 30' MINIMUM CLEARANCE TO FIRST DRIVEWAY (BOTH SIDES).
URBAN CONDITIONS

LOWER SUPERELEVATION RATES MAY BE NECESSARY IN URBAN AREAS WHERE RESTRICTED SPEED ZONES OR ROAD INTERSECTIONS ARE CONTROLLING FACTORS. IN ADDITION, ESTABLISHED ROAD GRADES, CURB, OR DRAINAGE MAY PROVE DIFFICULT TO ALTER. SUCH CONDITIONS MAY WARRANT, FOR EXAMPLE, A REDUCTION IN THE SUPERELEVATION RATE, DIFFERENT RATES FOR EACH HALF OF THE ROADBED OR BOTH. APPROVAL OF THE CITY ENGINEER IS REQUIRED FOR SUCH DEVIATIONS.

AXIS OF ROTATION

THE AXIS OF ROTATION FOR SUPERELEVATION IS USUALLY THE CENTERLINE OF THE ROADBED. HOWEVER, IN SPECIAL CASES SUCH AS ROADS WHERE CURVES ARE PRECEDED BY LONG RELATIVELY LEVEL TANGENTS, THE PLANE OF SUPERELEVATION MAY BE ROTATED ABOUT THE INSIDE EDGE OF THE PAVEMENT TO IMPROVE PERCEPTION OF THE CURVE. IN FLAT COUNTRY, DRAINAGE POCKETS CAUSED BY SUPERELEVATION MAY BE AVOIDED BY CHANGING THE AXIS OF ROTATION FROM THE CENTERLINE TO THE INSIDE EDGE OF THE PAVEMENT. INTERSECTION MAY REQUIRE SPECIAL TREATMENT.

SUPERELEVATION TRANSITION

A SUPERELEVATION TRANSITION IS VARIABLE IN LENGTH DEPENDING UPON THE AMOUNT OF SUPERELEVATION. WITH RESPECT TO THE BEGINNING, OR END OF CURVE, TWO-THIRDS OF THE TRANSITION IS ON THE TANGENT APPROACH AND ONE-THIRD WITHIN THE CURVE. THIS RESULTS IN TWO-THIRDS OF THE FULL SUPERELEVATION AT THE BEGINNING OF THE CURVE.

SUPERELEVATION SHALL BE DESIGNED AS SHOWN ON PLATE NOS. 3-6 & 3-7. SHOULDER TRANSITIONS NORMALLY SHALL BE MADE IN THE SAME MANNER AS TRAVELED WAY TRANSITIONS.

AFTER A SUPERELEVATION TRANSITION IS COMPUTED, PROFILES OF THE PAVEMENT EDGES SHOULD BE PLOTTED AND IRREGULARITIES REMOVED BY INTRODUCING SMOOTH CURVES. FOR WIDE PAVEMENT IT IS OFTEN ADVANTAGEOUS TO PLOT INTERMEDIATE PROFILES. ON CURVED INTERCHANGE ROADWAYS, A PRONOUNCED AND UNSIGHTLY SAG MAY DEVELOP ON THE LOW SIDE OF THE SUPERELEVATION. THIS IS CORRECTED BY ADJUSTING THE GRADES ON THE EDGES OF PAVEMENT THROUGH THE CURVE.

SUPERELEVATION OF COMPOUND CURVES

SUPERELEVATION OF COMPOUND CURVES SHALL BE ACCOMPLISHED AS SHOWN ON PLATE 3-7. IN CASE 2, WHEN THE STANDARD SUPERELEVATION OF BOTH CURVES IS PRACTICALLY EQUAL, THE SUPERELEVATION RATIO FOR THE LONGER RADIUS CURVES SHALL BE ARBITRARILY REDUCED BY ONE-THIRD. THIS WILL TEND TO EQUALIZE THE SAFE SPEED THROUGHOUT THE ENTIRE LENGTH OF THE COMPOUND CURVE.
CROWN RUNOFF

2/3 L

1/3 L

SUPERELEVATION RUNOFF

EDGE OF PAVEMENT

AXIS OF ROTATION

S

S

100'V.C.

CROWN

SUPERELEVATION TRANSITION

FORMULA: L = 150 DS (NOTE: ADJUST COMPUTED LENGTH TO NEAREST 10' DIVISIBLE BY 3)

L = LENGTH OF SUPERELEVATION RUNOFF (FT.)
S = SUPERELEVATION RATE (FT./FT.)
D = DISTANCE FROM AXIS OF ROTATION TO OUTSIDE EDGE OF LANES (FT.)
MIN. L = 150'
MAX. L = 510'

TABLE OF SUPERELEVATION RUNOFF LENGTHS

<table>
<thead>
<tr>
<th>SUPERELEVATION RATE &quot;S&quot; (FT./FT.)</th>
<th>LENGTH L (FT.)</th>
</tr>
</thead>
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<tr>
<td>0.02</td>
<td>150</td>
</tr>
<tr>
<td>0.03</td>
<td>150</td>
</tr>
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<td>0.06</td>
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<td>360</td>
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<td>0.11</td>
<td>390</td>
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<tr>
<td>0.12</td>
<td>420</td>
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</tbody>
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FOR WIDTHS OF "D" NOT INCLUDED IN TABLE, USE FORMULA

FORMULA: L = 150 DS

NOTE: ADJUST COMPUTED LENGTH TO NEAREST 10' DIVISIBLE BY 3

L = LENGTH OF SUPERELEVATION RUNOFF (FT.)
S = SUPERELEVATION RATE (FT./FT.)
D = DISTANCE FROM AXIS OF ROTATION TO OUTSIDE EDGE OF LANES (FT.)
MIN. L = 150'
MAX. L = 510'
L = LENGTH (FT.) FROM TABLE ON PLATE NO. 3-6.

$S_S =$ SUPERELEVATION RATE FOR SMALLER RADIUS CURVE (FT./FT.)

$S_L =$ SUPERELEVATION RATE FOR LARGER RADIUS CURVE (FT./FT.)
IN ANY VERTICAL CURVE:

\[ m = \frac{(G' - G)L}{8} \]

\[ m = \frac{1}{2} \left( \frac{\text{ELEV. B.V.C. + ELEV. E.V.C.}}{2} - \text{ELEV. V} \right) \]

\[ d = m \left( \frac{D^2}{L/2} \right) = \frac{4m}{L} D^2 \]

\[ d = \frac{D^2 (G' - G)}{2L} \]

\[ X = \frac{100 (H - P')}{(G - G')} \]

\[ S = G - D \left( \frac{G' - G}{L} \right) \]

\[ D_o = \frac{LG}{G - G'} \]

WHERE:

\[ L = \text{LENGTH OF CURVE IN 100 FT. UNITS OR STATIONS} \]

\[ G \text{ AND } G' = \text{GRADE RATES IN PERCENT} \]

\[ m = \text{MIDDLE ORDINATE IN FT.} \]

\[ d = \text{CORRECTION FROM GRADE LINE TO CURVE IN FT.} \]

\[ D = \text{DISTANCE FROM B.V.C. OR E.V.C. TO ANY POINT ON CURVE IN STATIONS} \]

\[ S = \text{SLOPE OF THE TANGENT TO THE CURVE AT ANY POINT IN PERCENT} \]

\[ X = \text{DISTANCE FROM P' TO V IN FT.} \]

\[ H = \text{ELEVATION OF GRADE G PRODUCED TO STATION OF P'} \]

\[ P \text{ AND } P' = \text{ELEVATION ON RESPECTIVE GRADES} \]

\[ D_o = \text{DISTANCE TO LOW OR HIGH POINT FROM EXTREMITY OF CURVE IN STATIONS} \]

\[ V = \text{ELEVATION OF INTERSECTION POINT OF APPROACH GRADES} \]

NOTES:

1. VERTICAL CURVE IS REQUIRED WHERE DIFFERENCE IN ROAD GRADE IS GREATER THAN 0.5%, OR WHERE SUM OF GRADE BREAKS WITHIN 200' EXCEEDS 0.5%.

2. MINIMUM VERTICAL CURVE LENGTH "L" (IN FEET) SHALL BE 3 TIMES THE DESIGN SPEED (IN MPH). A RISING GRADE CARRIES A PLUS SIGN WHILE A FALLING GRADE CARRIES A MINUS SIGN. THUS IN A CREST VERTICAL CURVE AS ABOVE, G CARRIES A PLUS SIGN AND G' A MINUS SIGN WHEN PROGRESSING IN THE DIRECTION OF THE STATIONING. WHEN PROGRESSING IN THE OPPOSITE DIRECTION, G BECOMES A MINUS GRADE AND G' A PLUS GRADE.
SIGHT DISTANCE (S) MEASURED ALONG THIS LINE

S = SIGHT DISTANCE IN FEET
R = RADIUS OF C INSIDE LANE IN FEET
m = DISTANCE FROM C INSIDE LANE IN FEET
V = DESIGN SPEED FOR "S" IN M.P.H.

ANGLE IS EXPRESSED IN DEGREES

\[ m = R \left( 1 - \cos \left( \frac{28.65 S}{R} \right) \right) \]

\[ S = \frac{R}{28.65} \left( \cos^{-1} \left( \frac{R - m}{R} \right) \right) \]

FORMULA APPLIES ONLY WHEN S IS EQUAL TO OR LESS THAN LENGTH OF CURVE.

HEIGHT OF EYE - 3.50'
HEIGHT OF OBJECT - 0.50'
LINE OF SIGHT IS 2.0' ABOVE CENTERLINE INSIDE LANE AT POINT OF OBSTRUCTION

DESIGN SPEED - MPH

<table>
<thead>
<tr>
<th>DESIGN SPEED (M.P.H.)</th>
<th>SIGHT DISTANCE (FEET)</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
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<tr>
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<td>600</td>
</tr>
<tr>
<td>70</td>
<td>750</td>
</tr>
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</table>

FORMULA APPLIES ONLY WHEN S IS EQUAL TO OR LESS THAN LENGTH OF CURVE.
CITY OF THOUSAND OAKS
PUBLIC WORKS DEPARTMENT

NO SIGHT DISTANCE OBSTRUCTIONS IN EITHER THE HORIZONTAL OR VERTICAL SIGHT ZONES FOR CONTROLLED INTERSECTIONS OR WITHIN THE SIGHT DISTANCE TRIANGLE AT UNCONTROLLED INTERSECTIONS. SIGHT DISTANCE OBSTRUCTIONS ARE OBJECTS THAT MAY BLOCK THE VIEW OF MOTORISTS INCLUDING UTILITY VENTS, HILLS, WALLS, SIGNS, STREET FURNITURE, MATURE LANDSCAPING*, HORIZONTAL AND VERTICAL ROAD CURVATURES ETC., IN THE COMBINED HORIZONTAL AND VERTICAL SIGHT ZONES. INDIVIDUAL ELEMENTS (INCLUDING STREET TREES) SHALL BE NO THICKER THAN 12 INCHES NOR SPACED CLOSER THAN 100 FEET APART AT INTERSECTIONS OR 50 FEET APART AT DRIVEWAYS.

CITY POLICY FOR EVALUATING SIGHT DISTANCE ON ALL PROPOSED PROJECTS:

1. THE DEVELOPER'S ENGINEER SHALL EVALUATE ALL PROPOSED INTERSECTIONS AND DRIVEWAYS TO MAINTAIN THE MINIMUM S.S.D. CRITERIA FOR STREET PLANS, SITE PLANS, GRADING PLANS, TRACT MAPS, AND LANDSCAPE PLANS.


* NOTE:
IT IS ESPECIALLY CRITICAL THAT "MATURE LANDSCAPING" AND FINISH SLOPED SURFACES BE CONSIDERED IN THIS S.S.D. CRITERIA, NOT JUST THE BARE GROUND.

SPEED V FOR LEFT OR THROUGH TRAFFIC 20 220' 120'
25 275' 150'
30 330' 190'
35 385' 220'
40 440' 270'
45 495' 320'
50 550' 360'
55 605' 410'
60 660' 450'

E = 8' AT DRIVEWAYS AND 18' AT PUBLIC ROAD INTERSECTIONS (LESSER VALUES MAY BE CONSIDERED ONLY UNDER SPECIAL SITUATIONS)

HEIGHT OF EYE/OBJECT AT POINTS A AND B AND C AND WITHIN THE SIGHT TRIANGLE = 3' LOWER LIMIT AND 7' 6" UPPER LIMIT

V = SPEED (MPH) = THE GREATER OF THE FOLLOWING:
1) ANTICIPATED SPEED (TBD BY CITY ENGINEER)
2) PREVAILING SPEED
3) DESIGN SPEED
4) POSTED SPEED

S.S.D. = MINIMUM STOPPING SIGHT DISTANCE - NO OBSTRUCTION PERMITTED IN THESE AREAS
L = TAPER LENGTH
AB = BC = CD = L/3
AB' AND C'D' ARE PARABOLIC CURVES EXCEPT
ON CURVED ALIGNMENTS.

FORMULA:
\[ Y = 2.25 \frac{WX^2}{L^2} \]

<table>
<thead>
<tr>
<th>L</th>
<th>DISTANCE FROM POINT &quot;A&quot; ALONG BASE LINE IN FT. (L')</th>
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<tbody>
<tr>
<td>60'</td>
<td>5  10  15  20  25  30  35  40  45  50  55  60</td>
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<tr>
<td>72'</td>
<td>6  12  18  24  30  36  42  48  54  60  66  72</td>
</tr>
<tr>
<td>90'</td>
<td>7.5 15  22.5 30  37.5 45  52.5 60  67.5 75  82.5 90</td>
</tr>
<tr>
<td>120'</td>
<td>10  20  30  40  50  60  70  80  90  100 110 120</td>
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<table>
<thead>
<tr>
<th>W</th>
<th>OFFSET FROM BASE LINE IN FT. (W')</th>
</tr>
</thead>
<tbody>
<tr>
<td>10'</td>
<td>0.16  0.62  1.41  2.50  3.75  5.00  6.25  7.50  8.59  9.38  9.84  10.00</td>
</tr>
<tr>
<td>11'</td>
<td>0.17  0.69  1.55  2.75  4.12  5.50  6.88  8.25  9.45 10.31 10.38 11.00</td>
</tr>
<tr>
<td>12'</td>
<td>0.19  0.75  1.69  3.00  4.50  6.00  7.50  9.00 10.31 11.25 11.81 12.00</td>
</tr>
</tbody>
</table>

NOTES:
1. THE STORAGE LANE SHALL BE 150' LONG MINIMUM (NOT INCLUDING TAPER).
2. TO DETERMINE OFFSET DISTANCES FOR ANY LENGTH TAPER USE THE FORMULA FOR THE PORTIONS OF
AB' AND C'D' WHICH ARE PARABOLIC CURVES. THE PORTION B'C' IS A TANGENT. IN THE CASE WHEN THE
BASE LINE CURVED, THE OFFSETS ARE CALCULATED BY ASSUMING THE BASE LINE TO BE A TANGENT;
THEY ARE THEN APPLIED TO THE CURVED BASE LINE. AB' AND C'D' ARE NO LONGER PARABOLIC AND B'C' IS
NO LONGER A TANGENT.
3. THE STANDARD TAPER LENGTH IS 90 FT. USE OF OTHER LENGTHS IS SUBJECT TO THE APPROVAL OF THE
CITY ENGINEER.
OFFSET IN FEET FOR GIVEN "X" DISTANCE

<table>
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<tr>
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<th>15</th>
<th>20</th>
<th>25</th>
<th>30</th>
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NOTE:
The standard flare shall be 1:10, 100 ft. long.
1. ROUND OFF RADIUS POINT OF NOSE STATIONING TO NEAREST 5 FEET INTERVAL.
2. STANDARD WIDTH OF MEDIAN 14 FT.
3. RP = RADIUS POINT.
TYPE A-1 MEDIAN CURB PLATE NO. 8-2

4" STAMPED CONCRETE COBBLESTONE PATTERN. MEXICAN TILE COLOR OR EQUAL.

SECTION A-A
NOT TO SCALE

SECTION B-B
NOT TO SCALE

STANDARD MEDIAN ISLAND SECTIONS
NOTES:
1. GREATER LEFT TURN POCKET STORAGE LENGTHS MAYBE REQUIRED BY THE CITY TRAFFIC ENGINEER BASED ON SITE CONDITIONS.
2. SEE PLATES 3-13 AND 3-14 FOR ADDITIONAL DETAILS.
STORM DRAIN STANDARDS
STORM DRAIN STANDARDS

THE CITY OF THOUSAND OAKS HAS ADOPTED SECTION 3, FLOOD CONTROL AND STORM DRAIN FACILITIES, OF THE SPPWC, AS THE OFFICIAL CITY STANDARDS FOR STORM DRAIN CONSTRUCTION, WITH THE FOLLOWING MODIFICATIONS:

1. CATCH BASINS
   A. REINFORCING STEEL SHALL BE REQUIRED IN ALL CATCH BASIN WALLS, BASES, AND DECKS. MINIMUM REINFORCEMENT SHALL BE #4 REBAR AT 12" CENTERS BOTH WAYS. ADDITIONAL AND/OR HEAVIER STEEL REINFORCEMENT MAY BE REQUIRED IN ACCORDANCE WITH THE SPPWC.
   B. EXPOSED EDGES OF INLET OPENING FACE PLATES SHALL BE ROUNDED OFF (NO SHARP EDGES).
   C. GRATED INLETS ARE NOT ALLOWED WITHIN PUBLIC R/W.
   D. STEPS SHALL NOT BE INSTALLED IN CATCH BASINS.
   E. CONCRETE FOR CATCH BASINS SHALL BE PER PLATE NO. 1-6.

2. MANHOLES
   A. MANHOLE AND JUNCTION STRUCTURE ACCESS FRAMES AND COVERS SHALL CONFORM TO SPPWC 632 WITH A MINIMUM CLEAR INSIDE DIAMETER OPENING OF 30".
   B. ACCESS COVER FOR CITY-MAINTAINED DRAINAGE FACILITIES SHALL BE CAST WITH 1-1/2" HIGH LETTERS "CITY OF THOUSAND OAKS" AND "STORM DRAIN". FOR PRIVATELY-MAINTAINED FACILITIES, COVERS SHALL BE CAST WITH 1-1/2" HIGH LETTERS "STORM DRAIN".
   C. MANHOLE AND JUNCTION STRUCTURE ACCESS SHAFTS SHALL BE A MINIMUM 48" INSIDE DIAMETER.
   D. STEPS SHALL NOT BE INSTALLED IN MANHOLES.

3. LOCAL DEPRESSIONS
   A. CATCH BASIN LOCAL DEPRESSION SHALL CONFORM TO SPPWC 313 CASE E, WHERE DIMENSION "M" IS SAME AS GUTTER WIDTH (TYPICALLY 18"), DIMENSION "K" IS 5' OF FULL HEIGHT CURB, AND DIMENSION "H" (ADDITIONAL GUTTER DROP AT INLET OPENING) IS 1".
   B. ROLLED CURB TO STANDARD CURB TRANSITION LENGTH SHALL BE 10' EACH SIDE OF THE LOCAL DEPRESSION TRANSITION "K".
   C. LESSER TRANSITION LENGTHS MAY ONLY BE USED IF NECESSARY TO AVOID CONFLICTS WITH OTHER IMPROVEMENTS, AS APPROVED BY THE CITY ENGINEER.
PEDESTRIAN ACCESS
RAMP STANDARDS
NOTES:
1. REFER TO PLATE NO. 5-5 FOR NOTES AND DETAILS.
2. ALL DIMENSIONS, ELEVATIONS, SLOPES AND TRANSITION LENGTHS TO BE DESIGNED BY ENGINEER.
NOTES:
1. REFER TO PLATE NO. 5-5 FOR NOTES AND DETAILS.
2. ALL DIMENSIONS, ELEVATIONS, SLOPES AND TRANSITION LENGTHS TO BE DESIGNED BY ENGINEER.
ADJUST LOCATION OF RADIUS POINTS SO CURVE WILL BE TANGENT TO R/W LINES AND CURB ON BOTH STREET.

R/W RETURN RADIUS

R/W RETURN RADIUS

CURB RETURN RADIUS

CURB RETURN RADIUS

CURB RETURN RADIUS

RETAINING CURB

RETIENING CURB

DETACHED SIDEWALK

DETACHED SIDEWALK

SIDEWALK WIDTH VARIES

SIDEWALK WIDTH VARIES

DEPRESS SIDEWALK AS REQUIRED

DEPRESS SIDEWALK AS REQUIRED

7.5% MAX.

7.5% MAX.

9.0% MAX. AT CURB

9.0% MAX. AT CURB

5% MAX

5% MAX

NO LIP

NO LIP

3' MIN.

3' MIN.

4' MIN.

4' MIN.

6'

6'

4" CONC.

4" CONC.

4" AB

4" AB

0" - 6" RETAINING CURB

0" - 6" RETAINING CURB

NOTES:
1. REFER TO PLATE NO. 5-5 FOR NOTES AND DETAILS.
2. ALL DIMENSIONS, ELEVATIONS, SLOPES AND TRANSITION LENGTHS TO BE DESIGNED BY ENGINEER.

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1. REFER TO PLATE NO. 5-5 FOR NOTES AND DETAILS.
2. ALL DIMENSIONS, ELEVATIONS, SLOPES AND TRANSITION LENGTHS TO BE DESIGNED BY ENGINEER.
NOTES FOR ACCESS RAMP STANDARD PLATE NOS. 5-1, 5-2, 5-3 AND 5-4

1. CURB ACCESS RAMPS SHALL BE CONSTRUCTED AT EACH CORNER OF STREET INTERSECTIONS AND WHERE A CROSS WALK OR PEDESTRIAN WAY CROSSES A CURB. TWO RAMPS, CENTERED ON EACH CROSS WALK, SHALL BE PROVIDED AT CURB RETURNS ON PRIMARY, SECONDARY, INDUSTRIAL AND COMMERCIAL ROADS (CURB RADIUS OF 35’). FOR 25' RADIUS CURB RETURNS, ONE RAMP, CENTERED IN THE RETURN, SHALL BE PROVIDED. RAMPS SHALL NOT EXTEND BEYOND THE CURB RETURN BCR OR ECR.

2. RAMPS SHALL BE A MIN. 4' WIDE AND SHALL GENERALLY LIE IN A SINGLE SLOPE PLAN WITH MINIMAL SURFACE WARping. RAMP SLOPE SHALL BE MAXIMUM 7.5%, WITH CROSS SLOPE OF 1.5% MAXIMUM. LANDINGS SHALL BE 4' BY 4' WITH A MAXIMUM 1.5% SLOPE IN ANY DIRECTION.

3. THE BOTTOM OF ALL RAMPS OR LANDINGS SHALL BE Flush WITH THE ADJACENT GUTTER (NO LIP). THE ADJACENT GUTTER SLOPE SHALL BE 5% MAXIMUM.

4. PROVIDE A 12" WIDE GROOVED BORDER AT THE TOP OF EACH RAMP. SEE DETAIL ABOVE FOR DIMENSIONS OF GROOVES. THE FULL WIDTH AND THE LOWER 3’ OF RAMPS OR LANDINGS SHALL HAVE A TRUNCATED DOME DETECTABLE WARNING SURFACE. DOMES SHALL BE ALIGNED ON A SQUArE GRID IN THE PREDOMINATE DIRECTION OF TRAVEL.

5. THE DIMENSIONS AND SPACING OF THE TRUNCATED DOME ON THE DETECTABLE WARNING SURFACE SHALL BE IN ACCORDANCE WITH ADA REGULATIONS AND CALTRANS STANDARD PLAN A88A.

6. TRUNCATED DOME PANELS SHALL BE INSET INTO THE CONCRETE. PANELS SHALL NOT BE APPLIED USING ADHESIVE. CONCRETE OR BRICK Pavers WITH PRECAST TRUNCATED DOMES MAY BE USED.

7. COLOR OF THE DETECTABLE WARNING SURFACE SHALL CONTRAST VISUALLY WITH ADJOINING SURFACES, EITHER LIGHT-ON-DARK, OR DARK-ON-LIGHT. SELECTION OF COLOR SHALL BE APPROVED BY THE CITY ENGINEER PRIOR TO INSTALLATION. BRICK RED COLOR IS PREFERRED.

8. THE DEVELOPER’S ENGINEER SHALL DESIGN EACH CURB ACCESS RAMP, INCLUDING ALL DIMENSIONS, ELEVATIONS, SLOPES AND TRANSITION LENGTHS AS SHOWN ON PLATE NOS. 5-1, 5-2, 5-3 AND 5-4.

9. THE CONCRETE SURFACE OF THE ENTIRE CURB ACCESS RAMP SHALL BE SLIP RESISTANT AND CONTRASTING FROM THE FINISH OF THE ADJACENT SIDEWALK.

10. SAWCUT EXISTING SIDEWALK AT NEAREST SCORE LINE AND CONSTRUCT NEW CONCRETE SIDEWALK EACH SIDE OF CURB ACCESS RAMP PER PLATE NO. 8-3. PROVIDE SIDEWALK EXTENSIONS AS REQUIRED TO MAINTAIN 4’ MIN. PATH OF TRAVEL PER PLATE NO. 8-8 OR 8-9.

11. PROVIDE 6” CONCRETE CURB AT END OF RAMP WHERE SIDEWALK DOES NOT CONTINUE.

12. SAWCUT AND REMOVE/REPLACE MIN. 1’ OF EXISTING AC PAVEMENT ALONG ENTIRE LENGTH OF ACCESS RAMP. MATCH EXISTING STRUCTURAL SECTION, MIN. 3” AC OVER 6” AB.

13. TRANSITION BOTH SIDES OF RAMP TO MATCH EXISTING SIDEWALK CONDITIONS.

14. ALL UTILITIES WITHIN THE ECR AND BCR MUST BE RAISED TO GRADE.
DRIVEWAY DESIGN STANDARDS
DESIGN CRITERIA:

1. The maximum grade for new residential driveways is 15%; 7% for new commercial/industrial driveways.
2. A grade of 2% to 3% shall be used for the first 10' of driveway approach sloping toward the street. The change in grade thereafter shall not exceed 6% per 10'.
3. A 10' vertical curve shall be used on commercial/industrial driveways where a change in grade of 3% for the first 10' and 6% for the next 10' is used.
4. An 8% maximum downward or 12% maximum upward break over angle may be permitted only under special circumstances as approved by the city engineer.
5. Residential driveways may be Portland cement concrete or asphalt concrete, as follows:
   A. 4" (5 sack) PCC on 4" AB with 6x6 #10 wire mesh or #3 reinforcing bars at 24" O.C.
   B. 6" (5 sack) PCC on native soil (reinforcing steel optional)
   C. 3" AC on 6" AB
6. A reciprocal access easement and maintenance agreement shall be recorded where common residential driveways service two or more lots.
7. For approaches, see plate nos. 6-2, 6-3, 6-4, & 6-5.
8. For lifts and compaction of asphalt concrete, see plates nos. 1-5 and 1-6.
NOTES:

1. THE TOTAL SUM OF ALL THE DRIVEWAY WIDTHS (W) IS LIMITED TO 40% OF THE PROPERTY FRONTAGE (HOWEVER, ONE DRIVEWAY UP TO 27' IS ALLOWED). THE MINIMUM DISTANCE BETWEEN THE TOP OF SIDE SLOPES ON ADJACENT DRIVEWAYS ON THE SAME LOT OR PARCEL IS 22' AND ON ADJOINING LOTS OR PARCELS IS 1'.

2. DRIVEWAYS SHALL BE CONSTRUCTED AS IN CASE I WHERE PARKWAY IS 5' WIDE AND WHERE SIDEWALK ABUTS CURB. CASE II SHALL BE USED WHEN THE PARKWAY IS 10' OR GREATER AND WHERE SIDEWALK DOES NOT ABUT CURB.


4. A DRIVEWAY SHALL NOT BE CONSTRUCTED OR MAINTAINED WHERE FENCE, BUILDINGS, NATURAL GRADE OR ANY OTHER OBSTACLE WILL PREVENT A MOTOR VEHICLE FROM BEING STORED ENTIRELY OFF THE PUBLIC RIGHT-OF-WAY AFTER ENTERING SUCH DRIVEWAY.

5. A DRIVEWAY SHALL NOT BE CONSTRUCTED IN THE CURB RETURN AREA AT INTERSECTIONS NOR WITHIN 5' OF THE CURB RETURN AT EITHER END.

6. SPECIAL APRON DESIGN SHALL BE REQUIRED BY CITY ENGINEER WHERE CURB FACE HEIGHT EXCEEDS 8".

7. REMOVE AND REPLACE ADJACENT FLOATING PIECES OF SIDEWALK LESS THAN 4' LONG.

8. A 4' WIDE SIDEWALK EASEMENT, EXTENDING 5' BEYOND EACH END OF THE DRIVEWAY, SHALL BE DEDICATED TO THE CITY FOR CASE I CONDITIONS.
NOTES:

1. TO BE USED IN APPROVED LOCATIONS ONLY.

2. MAXIMUM WIDTH (W) OF DRIVEWAY SHALL BE AS FOLLOWS:
   A. LOT FRONTAGE LESS THAN 100': 25'.
   B. LOT FRONTAGE 100' OR MORE: 30' OR 20% OF FRONT FOOTAGE WHICH EVER MAY BE GREATER, BUT NOT TO EXCEED A MAXIMUM OF 36' WIDE.
   C. THE TOTAL AGGREGATE WIDTH OF DRIVEWAYS ON ONE LOT OR PARCEL IS LIMITED TO 36% OF THE TOTAL FRONTAGE.

3. THE MINIMUM DISTANCE BETWEEN THE TOP OF SIDE SLOPES ON ADJACENT DRIVEWAYS ON THE SAME LOT OR PARCEL IS 22' AND ON ADJOINING LOTS OR PARCELS IS 1'.

4. IF THE PARKWAY IS OVER 10', THE DRIVEWAY SHALL BE CONSTRUCTED AS IF THE PARKWAY WAS 10' WIDE (CASE II).

5. A DRIVEWAY SHALL NOT BE CONSTRUCTED OR MAINTAINED WHERE FENCE, BUILDINGS, NATURAL GRADE OR ANY OTHER OBSTACLE WILL PREVENT A MOTOR VEHICLE FROM BEING STORED ENTIRELY OFF THE PUBLIC R/W AFTER ENTERING SUCH DRIVEWAY.

6. A DRIVEWAY SHALL NOT BE CONSTRUCTED IN THE CURB RETURN AREA OF INTERSECTIONS NOT WITHIN 5' OF THE CURB RETURN AT EITHER END.

7. SPECIAL APRON DESIGN SHALL BE REQUIRED BY CITY ENGINEER WHERE CURB FACE HEIGHT EXCEEDS 8".

8. REMOVE AND REPLACE ALL ADJACENT FLOATING PIECES OF SIDEWALK LESS THAN 4' LONG.

9. A 5' WIDE SIDEWALK EASEMENT, EXTENDING 5' BEYOND EACH END OF THE DRIVEWAY, SHALL BE DEDICATED TO THE CITY FOR CASE I CONDITIONS.

10. MINIMUM COMMERCIAL DRIVEWAY SPACING SHOULD BE 150 FEET MEASURED FROM DRIVEWAY CENTERLINE TO CENTERLINE.
NOTES:
1. MAXIMUM WIDTH (W) OF DRIVEWAY SHALL BE AS FOLLOWS:
   A. LOT FRONTAGE LESS THAN 100': 25'
   B. LOT FRONTAGE 100' OR MORE: 30' OR 20% OF FRONT FOOTAGE WHICHEVER MAY BE GREATER, BUT NOT TO EXCEED A MAXIMUM OF 36' WIDE.
   C. THE TOTAL AGGREGATE WIDTH OF DRIVEWAYS ON ONE LOT OR PARCEL IS LIMITED TO 36% OF THE TOTAL FRONTAGE
2. THE MINIMUM DISTANCE BETWEEN THE END OF CURB RETURN (ECR) AT THE STREET AND ADJACENT PROPERTY LINE IS 1'.
3. DRIVEWAY APPROACH SHALL NOT BE CONSTRUCTED OR MAINTAINED WHERE FENCE BUILDINGS, NATURAL GRADE OR ANY OBSTACLE WILL PREVENT A MOTOR VEHICLE FROM BEING STORED ENTIRELY OFF THE PUBLIC R/W AFTER ENTERING SUCH DRIVEWAY.
4. DRIVEWAY APPROACH SHALL NOT BE CONSTRUCTED IN THE CURB RETURN AREA OF INTERSECTIONS NOR WITHIN 5' OF THE CURB RETURN AT EITHER END.
5. SPECIAL APRON DESIGN SHALL BE REQUIRED BY THE CITY ENGINEER WHERE CURB FACE HEIGHT EXCEEDS 6".
6. REMOVE AND REPLACE ALL ADJACENT FLOATING PIECES OF SIDEWALK LESS THAT 4' LONG.
7. A SIDEWALK EASEMENT AS SHOWN SHALL BE DEDICATED TO THE CITY.
NOTES:
1. MAXIMUM WIDTH (W) OF DRIVEWAY SHALL BE AS FOLLOWS:
   A. LOT FRONTAGE LESS THAN 100': 25'
   B. LOT FRONTAGE 100' OR MORE: 30' OR 20% OF FRONT FOOTAGE WHICHEVER MAY BE GREATER, BUT NOT TO EXCEED A MAXIMUM OF 36' WIDE.
   C. THE TOTAL AGGREGATE WIDTH OF DRIVEWAYS ON ONE LOT OR PARCEL IS LIMITED TO 36% OF THE TOTAL FRONTAGE.
2. THE MINIMUM DISTANCE BETWEEN THE END OF CURB RETURN (ECR) AT THE STREET AND ADJACENT PROPERTY LINE IS 1'.
3. IF THE PARKWAY IS OVER 10', THE DRIVEWAY SHALL BE CONSTRUCTED AS IF THE PARKWAY WERE 10' WIDE.
4. DRIVEWAY APPROACH SHALL NOT BE CONSTRUCTED OR MAINTAINED WHERE FENCE, BUILDINGS, NATURAL GRADE OR ANY OBSTACLE WILL PREVENT A MOTOR VEHICLE FROM BEING STORED ENTIRELY OFF THE PUBLIC R/W AFTER ENTERING SUCH DRIVEWAY.
5. DRIVEWAY APPROACH SHALL NOT BE CONSTRUCTED IN THE CURB RETURN AREA OF INTERSECTIONS NOR WITHIN 5' OF THE CURB RETURN AT EITHER END.
6. SPECIAL APRON DESIGN SHALL BE REQUIRED BY THE CITY ENGINEER WHERE CURB FACE HEIGHT EXCEED 6".
7. REMOVE AND REPLACE ALL ADJACENT FLOATING PIECES OF SIDEWALK LESS THAT 4' LONG.
SIGN SPECIFICATIONS

1. GENERAL SIGN REQUIREMENTS:

SIGN CODES AND SPECIFICATIONS:
SIGNS SHALL CONFORM TO THE CODES AND SPECIFICATIONS OF THE MOST CURRENT CALIFORNIA MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (CALIFORNIA MUTCD) UNLESS OTHERWISE NOTED.

2. DETAILED CITY SIGN REQUIREMENTS:

A. RETROREFLECTIVITY
ALL SIGNS CONFORM TO MEET OR EXCEED THE MINIMUM SIGN GRADE AND RETROREFLECTIVITY LEVELS IN PART 1- SIGN, OF CALIFORNIA MUTCD.

B. IDENTIFICATION
IDENTIFICATION SHALL BE PERMANENTLY MARKED ON THE BACK OF ALL SIGNS IN SUCH A POSITION SO AS NOT TO FALL BEHIND ANY POST OR FRAME MEMBER. IDENTIFICATION SHALL INCLUDE THE MANUFACTURER'S NAME, YEAR OF MANUFACTURE, AND RETRO REFLECTIVE GRADE.

C. GUARANTEE
THE COMPLETE SIGN SHALL BE GUARANTEED TO HAVE AN EFFECTIVE PERFORMANCE LIFE OF 10 YEARS MINIMUM AND SHALL BE REPLACED AT NO COST TO THE CITY IF ANY VISIBLE SIGN FAILURE OCCURS WITHIN THAT PERIOD.

D. MOUNTING
ALL SIGNS SHALL BE MOUNTED WITH CITY APPROVED THEFT PROOF MOUNTING.

E. SIGN POSTS
ALL SIGN POSTS IN CONCRETE WALKWAYS/SIDEWALKS OR DIRT EXCEPT ASSEMBLIES SHALL USE 2" X 2" TELESPAR SQUARE TUBE 14 U.S.S GAUGE GALVANIZED STEEL SET 18" IN STRUCTURAL GRADE CONCRETE FOUNDATION IN 6" X 6" X 21" HOLE. THE PERFORATED HOLES SHALL BE \( \frac{7}{16} \) IN DIAMETER. ANCHORS SHALL BE 2 3/4" SQUARE HEAVY DUTY ANCHOR 7 U.S.S GAUGE 18" LONG. 1"- 1 1/2" OF THE ANCHOR SHALL REMAIN VISIBLE ABOVE GROUND FOR BREAK-AWAY PURPOSES.
H = HORIZONTAL DIMENSION
V = VERTICAL DIMENSION

NOTE:
WHEN A SIGN IS GIVEN, THE FIRST DIMENSION IS THE HORIZONTAL DIMENSION AND THE SECOND DIMENSION IS THE VERTICAL DIMENSION. THE DRAWINGS ABOVE ILLUSTRATE HOW THESE DIMENSIONS ACTUALLY RELATE TO VARIOUS SIGN SHAPES.
SIGN PLATE:
1. SHALL BE MANUFACTURED BY APPLYING RETROREFLECTIVE SHEETING TO .080 GAUGE SHEET ALUMINUM PER THE SSS.
2. THE MESSAGE, BORDER, AND SYMBOL SHALL BE RETROREFLECTIVE WHITE.
3. TYPE G-7 GUIDE SIGNS SHALL HAVE GREEN RETROREFLECTIVE BACKGROUNDS. LETTERING SHALL BE 8" UPPER CASE AND 6" LOWERCASE TYPE E LETTERS.
4. TYPE G-81 GUIDE SIGNS SHALL HAVE BLUE RETROREFLECTIVE BACKGROUND. LETTERING SHALL BE 8" UPPERCASE TYPE E LETTERS.
5. SIGN PLATE HEIGHT SHALL BE 18" AND THE LENGTH SHALL VARY ACCORDING TO LEGEND LENGTH.

SIGN FRAME:
1. USE PVC FOR POSTS AND FRAMES.
2. SECURE SIGN PLATE TO SIGN FRAME WITH AIRCRAFT ALUMINUM RIVET WITH PLUG CAP COVER.
3. LENGTH OF 1\(\frac{1}{2}\)" x 5\(\frac{1}{2}\)" SHALL VARY TO FIT EACH SIGN PLATE.
4. SEE STANDARD PLATE NOS. 7-1, AND 7-6 FOR ADDITIONAL SPECIFICATIONS.

SIGN LOCATION:
1. STANDARD LOCATION IN MEDIAN ISLAND, APPROXIMATELY 300 FT. IN ADVANCE OF ISLAND NOSE, OR AS DETERMINED BY THE CITY ENGINEER.
NOTE:

1. FINAL DETAILS AND DESIGN PER CA MUTCD, LATEST EDITION.
2. MARKINGS SHALL BE WHITE BUT YELLOW SHALL BE USED AT DESIGNATED SCHOOL CROSSINGS.
3. STOP BARS AND OTHER PAVEMENT MARKERS SHALL BE PROPERLY RE-ALIGNED AS NECESSARY TO INSTALL CROSSWALK.
4. ALL LONGITUDINAL LINES SHALL BE PARALLEL TO THE DIRECTION OF TRAFFIC (NO TRANSVERSE LINES SHALL BE USED).
5. STAFF SHALL DESIGNATE IF PAINT OR THERMOPLASTIC MATERIAL TO BE USED.
6. STAFF SHALL INSPECT "CAT TRACKING" BEFORE FINAL MARKING ARE INSTALLED.
NOTES:
1. CANNOT BE IMPLEMENTED WHERE DUAL OR TRIPLE LEFT TURN LANES EXIST.
2. CANNOT BE IMPLEMENTED IF TRAFFIC SIGNAL HAS SPLIT PHASED OPERATION.
3. IF CROSS PRODUCT (LEFT TURN VOLUME X OPPOSING THRU VOLUME) IS GREATER THAN 100,000 DURING ANY ONE HOUR PERIOD, THEN PROTECTED ONLY PHASING SHOULD BE CONSIDERED FOR THAT ONE HOUR PERIOD.
4. SIGN - "LEFT TURN YIELD ON FLASHING" - YELLOW ARROW SYMBOL, MINIMUM SIZE 24"x30" WHITE - BACKGROUND BLACK - LETTERS YELLOW - ARROW SYMBOL

DESIGN CRITERIA:
1. SHALL CONFORM TO CA MUTCD 2014, SECTION 4D.20.
2. STOPPING SIGHT DISTANCE SHOULD MEET AASHTO EXHIBIT 3-1.
3. PRIMARY SIGNAL HEAD MUST BE POSITIONED WITHIN THE CHANNELIZING LINES OF THE LEFT TURN POCKET.
4. SPEED LIMIT OF TRAFFIC SHOULD BE ≤ 45 MPH.
5. NUMBER OF OPPOSING THRU LANES SHALL BE ≤ 3

DETAIL
NOT TO SCALE
GENERAL:
ALL SIGNS TO CONFORM TO SECTION 2D.43 AND 2D.44 OF THE CA-MUTCD. ALL SIGNS ARE TO HAVE RETROREFLECTIVE SURFACES. LETTERING SHALL BE BLOCK LETTERING WITH CAPITAL AND LOWER CASE LETTERING. SPEEDS NOTED ABOVE ARE PRIMA FACIE OR POSTED SPEED LIMITS.

COLORS:
BORDER AND MESSAGE SHALL BE WHITE (RETROREFLECTIVE) AND BACKGROUND SHALL BE GREEN (RETROREFLECTIVE).

POSTS:
USE 2" X 2" TELESPAR SQUARE TUBE SIGN POST WITH SQUARE HEAVY DUTY 7 U.S.S. 2 1/2 GAUGE ANCHOR AND SET IN CONCRETE FOUNDATION 6" X 6" X 21". 1" - 1 1/2 OF ANCHOR SHALL REMAIN VISIBLE ABOVE GROUND FOR BREAK-AWAY PURPOSES.
NOTE:
1. SIGN POST SHALL BE PLACED NO FARTHER THAN 3" BEHIND SIDEWALK.
2. CURB CUT RAMPS WILL NORMALLY BE REQUIRED (REF. PLATE NOS. 5-1 & 5-6). SIDEWALK EXTENSIONS MAY ALSO REQUIRED.
NOTE:
SIGNS SHALL BE INSTALLED WITH A MINIMUM VERTICAL CLEARANCE (H1) OF SEVEN (7) FEET. IF TWO SIGNS ARE MOUNTED ON THE SAME POST, THE MINIMUM VERTICAL CLEARANCE (H2) SHALL BE 80". SIGNS SHALL BE MOUNTED ON ELECTROLIERS WHEN POSSIBLE. IF SIGN LOCATION REDUCES THE REQUIRED 4' MIN. WIDTH OF ACCESSIBLE PATHWAY, PROVIDE SIDEWALK EXTENSION PER PLATE NO. 8-9. MOUNT SIGNS WITH OFFSET BRACKETS ARE NEEDED.
NOTE:
SIGN SHALL BE INSTALLED WITH A MINIMUM VERTICAL CLEARANCE (H1) OF SEVEN (7) FEET. IF TWO SIGNS ARE MOUNTED ON THE SAME POST, THE MINIMUM VERTICAL CLEARANCE (H2) SHALL BE 80 INCHES.

WARNING & REGULATORY SIGNS ALONG ISLANDS

ONE WAY SIGNS IN MEDIAN

SIGNS AT NOSE OF ISLANDS

DETAIL
NOT TO SCALE
NOTES:
1. INSTALL MIN. 5' HIGH GALVANIZED CHAIN LINK FENCE AS SHOWN AND SET MIN. 1' INSIDE R/W LINE IN STREET AREA.
2. POST SHALL BE 2\(\frac{1}{2}\)" I.D. GALVANIZED PIPE SET IN 18" DIA. X 24" DEEP CONCRETE FOUNDATION AT 8' MAX. SPACING.
3. A 10 GAUGE GALVANIZED TENSION WIRE SHALL BE INSTALLED AT THE TOP AND BOTTOM OF FENCE.
4. EXTEND FENCE ACROSS SIDEWALK AREA WHERE SIDEWALK EXISTS.
5. 18" X 18" TYPE N-2 MARKER (RED REFLECTIVE BACKGROUND) OF HIGH INTENSITY GRADE REFLECTIVE SHEETING SHALL BE INSTALLED ON EACH POST FACING ONCOMING TRAFFIC WITH CITY APPROVED THEFT PROOF BOLTS.
6. FOR ADDITIONAL SPECIFICATIONS SEE PLATE NO. 7-1.
7. AN ACCESS GATE MAY BE REQUIRED BY THE CITY ENGINEER. IF REQUIRED, IT SHALL BE DESIGNED TO BE LOCKED AND CLOSED AT ALL TIMES WHEN NOT IN USE.
8. A 24" x 24" W31 (END) SIGN SHALL BE INSTALLED AS SHOWN.

CUT-OFF WALL DETAILS

CUT-OFF WALL - SEE DETAIL BELOW

NOT TO SCALE

ELEVATION

MIN. 5' 3' 2' 8' MAX.

CITY OF THOUSAND OAKS
PUBLIC WORKS DEPARTMENT

STANDARD TEMPORARY BARRICADE CUT-OFF-WALL

PLATE NO. 7-11
CASE I

CASE II

CASE III

NOTES:
L = LENGTH OF TAPER IN FEET
S = 85TH PERCENTILE OR DESIGN SPEED
W = OFFSET IN FEET

STRIPING AND ARROWS SHALL BE PER THE STD. SPECS. AND CALTRANS TRAFFIC MANUAL. A SHORTER LANE DROP TAPER MAY BE USED ONLY IN LOCATIONS APPROVED BY THE CITY TRAFFIC ENGINEER.

MARKER POSITIONING

DETAILS
NOT TO SCALE

APPROVED: [Signature]
CITY ENGINEER
DATE [Date]
FORMULA: $S = 3\sqrt{R-50}$

LEGEND

$S =$ GUIDE MARKER SPACING IN FEET
$R =$ CENTERLINE CURVE RADIUS IN FEET
$I =$ GUIDE MARKER
$X =$ DISTANCE FROM END OF CURVE TO CALCULATED LOCATION OF LAST GUIDE MARKER

DETAILS

MARKER POSITIONING

NOTES:
1. MAXIMUM SPACING BETWEEN GUIDE MARKERS = 160'. MINIMUM SPACING = 20'.
2. PRORATE DISTANCE "X" AMONG ALL SPACING SO LAST GUIDE MARKER FALLS ON END OF CURVE.
3. INSTALL MARKERS PERPENDICULAR TO ONCOMING TRAFFIC. REFLECTOR BRACKET ON BACK OF MARKERS SHOULD BE PERPENDICULAR TO OPPOSING TRAFFIC.
NOTES:


2. GREEN BIKE LANE LENGTH VARIES DEPENDING UPON THE LENGTH OF RIGHT TURN POCKET.

3. DESIGN TO BE CONSISTENT WITH NATIONAL ASSOCIATION OF TRANSPORTATION OFFICIALS’ "URBAN BIKEWAY DESIGN GUIDE".

DESIGN CRITERIA:

1. IMPLEMENTED AT SELECT SIGNALIZED INTERSECTION HAVING A RIGHT TURN ONLY LANE.

2. GREEN BIKE LANE REGION SHALL BE BETWEEN LIMIT LINE OR CROSSWALK TO BEGINNING OF RIGHT TURN LANE.

DETAIL
NOT TO SCALE
NOTES:
1. ALL PAVEMENT MARKINGS, LEGENDS AND STRIPING, SHALL BE WHITE SPRAYABLE THERMOPLASTIC, PER CA MUTCD FIGURE 3B-29, OPTION C.
2. NEW SIGNS AND POST SHALL BE INSTALLED PER CITY STANDARDS.
3. REMOVE CONFLICTING STRIPING BY WET SAND-BLASTING.
4. ALL PAVEMENT MARKINGS, LEGENDS AND ARROW MARKINGS SHALL BE INSTALLED AS SHOWN ON THE PLANS.
5. BASE ALL MEASUREMENTS OFF OF CENTERLINE OF ROADWAY.
6. HUMPS TO BE CENTERED IN THE TRAVEL LANES.
7. DO NOT PLACE HUMPS OVER MANHOLES, VALVES, AND JUNCTION STRUCTURES.
8. EDGE OF HUMPS SHALL BE 10 FT. MIN. FROM EDGE OF UPHILL DRIVEWAY.
9. PLACE AT PROPERTY LINES INSTEAD AT MID-LOT AND ADJACENT TO STREET LIGHTS (WHERE EVER POSSIBLE).
NOTES:
1. ALL SIZING AND DETAILS PER CAMUTCD FIGURE 3B-29, OPTION B.
2. ALL PAVEMENT MARKINGS, LEGENDS AND STRIPING, SHALL BE WHITE SPRAYABLE THERMOPLASTIC, PER CA MUTCD FIGURE 3B-29, OPTION B.
3. NEW SIGNS AND POST SHALL BE INSTALLED PER CITY STANDARDS.
4. REMOVE CONFLICTING STRIPING BY WET SAND-BLASTING.
5. ALL PAVEMENT MARKINGS, LEGENDS AND ARROW MARKINGS SHALL BE INSTALLED AS SHOWN ON THE PLANS.
6. BASE ALL MEASUREMENTS OFF OF CENTERLINE OF ROADWAY. HUMPS TO BE CENTERED IN THE TRAVEL LANES.
7. DO NOT PLACE CUSHIONS OVER MANHOLES, VALVES, AND JUNCTION STRUCTURES.
8. EDGE OF CUSHIONS SHALL BE 10 FT. MIN. FROM EDGE OF UPHILL DRIVEWAY.
9. PLACE AT PROPERTY LINES INSTEAD AT MID-LOT AND ADJACENT TO STREET LIGHTS (WHERE EVER POSSIBLE).

SCALE: 1" = 16'

CITY OF THOUSAND OAKS
PUBLIC WORKS DEPARTMENT
STANDARD
SPEED CUSHIONS

PLATE NO.
7-16
SPEED CUSHION DETAIL
SCALE: 1" = 4'

SECTION A-A
SCALE: 1" = 2'

SECTION B-B
SCALE: 1" = 2'

SIGN DETAIL
NOT TO SCALE
MISCELLANEOUS STANDARDS
NOTES:
1. WHEELCHAIR RAMP PER PLATE NO. 5-1 IF REQUIRED FOR ACCESS. SIDEWALK EASEMENT MAY BE REQUIRED.
2. INSTALLATION OF BUS SHELTER TO BE DETERMINED BY THE CITY ENGINEER.
3. FOR EACH ADDITIONAL PASS THROUGH BUS BERTH, ADD 50'; FOR EACH ADDITIONAL LAYOVER BUS BERTH, ADD 80'.
4. CONCRETE SCORING AND WEAKENED PLANE JOINTS PER PLATE 8-3.
SREET PAVEMENT WIDTH PER PLATES 2-1 THROUGH 2-10

CURB & GUTTER, TYPE A-2

VARES
12½ MIN.

LEVEL LINE

3/8" R

6" A.B.

MEDIAN CURB, TYPE A-1
(FOR ALL PUBLIC STREETS)

WATER BARRIER
SEE NOTE 4

6" A.B.

APPLY TACK COAT TO PAVEMENT

2 x 4 REDWOOD HEADER AND STAKES

ASPHALT BERM

A.B. PER STREET SECTION (6" MIN.)

MEDIAN / PLANTER CURB, TYPE A
(FOR PRIVATE ST. OR PARKING LOTS)

STREET PAVEMENT WIDTH

ROLLED CURB DETAIL

NOTES:
1. 6" MIN CURB HEIGHT.
2. ALL CONCRETE SHALL BE 520-C-2500.
3. CURB CORES SHALL BE POSITIONED PER PLATE NO. 8-20.
4. MEDIAN AND PLANTER CURB SHALL INCLUDE BARRIER TO PREVENT MIGRATION/INTRUSION OF WATER INTO ADJACENT PAVEMENT OR BASE, TO THE SATISFACTION OF THE CITY ENGINEER.

DETAILS
NOT TO SCALE
NOTES:
1. PROVIDE \( \frac{3}{4} " \) DEEP SCORE LINE IN CURBS AND SIDEWALK AT EACH SIDE OF DRIVEWAY AND AT BOTH ENDS OF ANY CURB RETURN.
2. 4" A.B. TO BE PLACED UNDER SIDEWALK AND COMPACTED TO 90% RELATIVE COMPACTION.
3. REMOVAL OF CURB, GUTTER OR SIDEWALK SHALL BE TO SAW CUT EDGES. DO NOT LEAVE FLOATING PIECES < 8' LONG.
4. ALL CONCRETE SHALL BE 520-C-2500.
5. AN ACCESSIBLE PATHWAY OF 4' MIN. WIDTH MUST BE PROVIDED AT ALL TIMES. IF AN OBJECT (I.E., FIRE HYDRANT, UTILITY, ETC.) IS TO BE PLACED ON THE SIDEWALK, PROVIDE A SIDEWALK EXTENSION PER PLATE NOS. 8-8 OR 8-9.
NOTES:
1. USE #4 REINFORCING BARS AT 12" BOTH WAYS IN CROSS GUTTER AND SPANDRELS.
2. ALL CONCRETE SHALL BE 560-C-3250.
3. CROSS GUTTERS TO BE USED ONLY WHERE VEHICLES NORMALLY STOP.
4. DRAINAGE WATER TO BE TAKEN UNDERGROUND AT INTERSECTIONS ACROSS THROUGH TRAVELED ROADS.
5. SEE PLATE NO. 1-5 FOR CONCRETE DESIGN DETAILS.
NOTES:
1. SANITARY SEWER TO BE 5' SOUTH OR EAST OF STREET CENTER LINE, OR AS REQUIRED TO MEET 4' MIN, CLEARANCE TO STORM DRAIN.
2. WATER TO BE 5' NORTH OR WEST OF STREET CENTER LINE, OR AS REQUIRED TO MEET 4' MIN CLEARANCE TO STORM DRAIN.
3. ALL ELECTRICAL UTILITIES MAY BE PLACED IN COMMON TRENCH.
4. EACH RESPECTIVE UTILITY SHOULD BE CONSULTED FOR ANY SPECIAL REQUIREMENTS DUE TO UNIQUE FIELD AND DESIGN CONDITIONS. VAULTS, J-BOXES, PEDESTALS, ETC. SHALL BE LOCATED AT PROPERTY LINES.
5. A UTILITY SHALL NOT REDUCE THE REQUIRED 4' MIN. WIDTH OF ACCESSIBLE PATHWAY FOR THE PHYSICALLY HANDICAPPED. IF NEEDED, PROVIDE SIDEWALK EXTENSION SIMILAR TO PLATE NOS. 8-8 OR 8-9.
6. NO UTILITIES IN MEDIAN UNLESS APPROVED BY THE CITY ENGINEER.
7. ENGRAVE 2" HIGH LETTER "S" IN CURB FACE AT LOCATION OF SEWER LATERAL.
8. STREEET TREE PLANTING TO CONFORM TO PLATE NOS. 1-10 AND 8-17.
NOTE:
1. THE PRECISE LOCATION OF F.H. RELATIVE TO THE LOT LINE OR THE B.C.R. OFFSET MAY BE SHIFTED UP TO 5' TO AVOID CONFLICT WITH STREET LIGHTS, MAIL BOXES OR DRIVEWAY APPROACHES (PROVIDE 4' CLEARANCE FROM THESE IMPROVEMENTS).
2. LOCATION OF F.H. MUST BE APPROVED BY VENTURA COUNTY FIRE PROTECTION DISTRICT.
3. SEE CITY OF THOUSAND OAKS WATER DESIGN STANDARDS FOR ADDITIONAL REQUIREMENTS.
NOTES:
1. THE PRECISE LOCATION OF F.H. RELATIVE TO THE LOT LINE OR THE B.C.R. OFFSET MAY BE SHIFTED UP TO 5' TO AVOID CONFLICT WITH STREET LIGHTS, MAIL BOXES OR DRIVEWAY APPROACHES (PROVIDE 4' CLEARANCE FROM THIS IMPROVEMENTS).
2. LOCATION OF F.H. MUST BE APPROVED BY VENTURA COUNTY FIRE PROTECTION DISTRICT.
3. SEE CITY OF THOUSAND OAKS WATER DESIGN STANDARDS FOR ADDITIONAL LOCATION REQUIREMENTS.
4. NO SHRUBS, BUSHES OR IMPROVEMENTS EXCEEDING 6" IN HEIGHT WITH THIS AREA.
5. 8" CIRCULAR OR RECTANGULAR CONFIGURATION FOR CONCRETE PAD.
6. 4' SQUARE EASEMENT TO CITY OF THOUSAND OAKS FOR WATER IMPROVEMENTS IS REQUIRED.
NOTES:
1. DEVELOPER TO LEAVE OPENING (APPROXIMATELY 10" X 10" OR 10' DIA.) IN SIDEWALK FOR OWNER TO INSTALL POST FOR MAILBOX. OPENING TO BE FILLED IN WITH RIGID TEMPORARY MATERIAL (I.E., WOOD OR CONCRETE BLOCK). MAILBOX POST NOT TO EXCEED 8" IN DIAMETER.
2. PAIRED MAILBOXES TO BE LOCATED MAXIMUM 2' APART.
3. THE PRECISE LOCATIONS OF MAILBOXES RELATIVE TO THE LOT LINE MAY BE SHIFTED ± 5' TO AVOID CONFLICT WITH STREET LIGHTS, FIRE HYDRANTS OR DRIVEWAY APPROACHES (NO CLOSER THAN 4' FROM SUCH ITEMS).
4. MAILBOX LOCATIONS SHALL BE CONFIRMED BY PUBLIC WORKS INSPECTOR PRIOR TO INSTALLATION.
5. PROVIDE 42"-48" CLEARANCE FROM STREET TO BOTTOM OF MAILBOX, AND 6" FROM CURB FACE TO FRONT OF MAILBOX.
6. 4' CLEARANCE REQUIRED FROM MAILBOX TO BACK OF SIDEWALK (MINIMUM). SIDEWALK EASEMENT MAY BE REQUIRED.
MAILBOX OR FIRE HYDRANT SIDEWALK EXTENSION DETAIL
NOT TO SCALE

NOTES:
1. DEVELOPER TO LEAVE OPENING (APPROXIMATELY 10" X 10" OR 10" DIA.) IN SIDEWALK FOR OWNER TO INSTALL POST FOR MAILBOX. OPENING TO BE FILLED IN WITH RIGID TEMPORARY MATERIAL (I.E., WOOD OR CONCRETE BLOCK).
2. MAILBOXES TO BE LOCATED 2' APART SO MAILCARRIER CAN MAKE DEPOSIT IN EACH FROM ONE STOP LOCATION, IF POSSIBLE.
3. THE PRECISE LOCATION OF THIS EXTENSION RELATIVE TO THE LOT LINE MAY BE SHIFTED ±5' TO AVOID CONFLICT WITH STREET LIGHT ELECTROLIERS, DRIVEWAY APPROACHES (I.E., NO CLOSER THAN 4' FROM SUCH ITEMS).
4. EXTENSIONS FOR INDIVIDUAL MAILBOX LOCATIONS, OTHER THAN AT A COMMON PROPERTY BOUNDARY OR MULTIPLE INSTALLATIONS (I.E., 3 OR MORE GROUPED TOGETHER), MAY BE PERMITTED UPON SUBMITTAL OF A FINAL PLOT PLAN.

CITY OF THOUSAND OAKS
PUBLIC WORKS DEPARTMENT

STANDARD
EXTENSION DETAILS TO EXISTING SIDEWALK
STREET LIGHT AT BACK OF SIDEWALK

ATTACHED SIDEWALK - RESIDENTIAL

ATTACHED SIDEWALK - COMMERCIAL

DETACHED SIDEWALK

LOCATION DETAIL
NOT TO SCALE
### Classification

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<th>HPSV Wattage</th>
<th>Height</th>
<th>Mast Arm Length</th>
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<td>2-5</td>
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### Notes:

1. Integral with traffic signal standard (City owned).
2. All lamps shall be LED or most recently adopted energy efficient standard. Specific manufacturer and model of luminaire to be installed will be named by the City Engineer. Marbelite Electrolier color to be earth toned and/or match existing adjacent street lights, as approved by the City Engineer.
3. At all intersections, place poles as shown above and per plate no. 8-10.
4. Spacing 200-250 feet along alternate sides of road in residential areas with exact locations approved by the City Engineer. Place poles at property lines, as shown above, and per plate no. 8-10. Avoid lights shining into rear lot areas. Locate lights opposite tee intersections, and on flat side of offset cul-de-sacs.
5. Spacing 200-250 feet along both sides of road (in commercial areas only) with exact locations approved by the City Engineer.
6. Sidewalk extensions around poles may also be required (similar to plate nos. 8-8 or 8-9).
7. Poles will be numbered using the Atlas grid number, asset type, and unique three-digit identifier. (Ex. M13SL001)
8. All luminaires shall have a correlated color temperature of 3000K.
9. All LED fixtures will be of type II or III light distribution, unless otherwise specified by City Engineer.
10. High pressure sodium vapor (HPSV) lamps permitted in approved location only.
11. See plate no. 8-12 for intersection street lighting layout.
INTERSECTION WITH 2-LANE STREET
NOT TO SCALE

INTERSECTION WITH 4-LANE STREET
NOT TO SCALE

TEE INTERSECTIONS
NOT TO SCALE

LEGEND
- ELECTROLIER

NOTE:
SEE PLATE NO. 8-11 FOR STREET LIGHTING NOTES.
NOTES:
1. PIPE ZONE BACKFILL AND BEDDING SHALL BE IN ACCORDANCE WITH SPPWC SECTION 306, EXCEPT FOR THE FOLLOWING MODIFICATIONS:
   A. BACKFILL WITH GRANULAR MATERIAL SE > 40 OR FILL SAND.
   B. FILL SAND DENSIFIED BY MECHANICAL COMPACTION SHALL BE COMPACTED 90% RELATIVE COMPACATION OR AS SPECIFIED OF THE SOILS ENGINEER OR PUBLIC WORKS INSPECTOR.
   C. FILL SAND DENSIFIED BY JETTING SHALL BE COMPACTED TO 90% RELATIVE COMPACTION OR AS SPECIFIED BY THE SOILS ENGINEER OR BY VISUAL INSPECTION AND PROBING BY THE PUBLIC WORKS INSPECTOR.
   D. MORE RESTRICTIVE REQUIREMENTS MAY BE IMPOSED BY THE UTILITY PURVEYOR.
   E. FOR WASTEWATER PIPE, PROVIDE BEDDING PER CITY OF THOUSAND OAKS WASTEWATER STANDARDS.
   F. FOR WATER PIPE WITHIN THE CITY'S WATER SERVICE AREA, PROVIDE BEDDING PER CITY OF THOUSAND OAKS STANDARDS.

2. TRENCH ZONE BACKFILL AND COMPACTION SHALL BE IN ACCORDANCE WITH SPPWC SECTION 306, EXCEPT FOR THE FOLLOWING MODIFICATIONS:
   A. 90% COMPACTION IS REQUIRED THROUGHOUT THE TRENCH ZONE AND A COMPACTION REPORT IS REQUIRED AT EACH MAXIMUM LIFT THICKNESS.
   B. JETTING OR FLOODING IS NOT ALLOWED WITHIN THE TRENCH ZONE.

3. STREET STRUCTURAL SECTION SHALL BE PER CITY'S ROAD DESIGN STANDARDS AND SOILS ENGINEER RECOMMENDATION.

4. SEE PLATE NO. 8-14 FOR TRENCHES CUT INTO EXISTING PAVEMENT.
NOTES:
1. ALL TRENCHES SHALL BE BACKFILLED WITH 100-E-100 CEMENT/SAND SLURRY MIX.
2. THESE CONDITIONS SHALL BE IN ADDITION TO THOSE ON PLATE NO. 8-13.
3. JAGGED AND/OR ROUGH EDGES SHALL BE KEPT AT A MINIMUM. INSPECTOR WILL DETERMINE ANY ADDITIONAL SAW CUTTING. EXTREME CARE MUST BE EXERCISED ON OLDER ROADS WHERE A.C. HAS BROKEN UP OR BECOME BRITTLE. EXISTING A.C. SECTION ADJACENT TO CONCRETE GUTTERS, RAMPS, CURBS, MEDIAN, CATCH BASINS, AND DRIVeways LESS THAN 18" WIDE SHALL BE REMOVED AND REPLACED WITH FULL DEPTH A.C. SECTION AND AS DIREcTED BY THE PUBLIC WORKS INSPECTOR.
4. INITIAL BASE PAVE SHALL BE PER PLATE NOS. 1-5 AND 1-6. ASPHALT SHALL BE 1" THICKER THAN EXISTING, 6" MAXIMUM OR AS DIRECTED BY CITY ENGINEER.
5. ASPHALT FOR FINAL LIFT SHALL BE PER PLATE NOS. 1-5 AND 1-6.
6. SURFACE OF ALL TRENCHES SHALL BE MAINTAINED FLUSH WITH ADJACENT EXISTING PAVEMENT.
7. ALL WORK MUST BE COMPLETED WITHIN 30 DAYS OF STARTING DATE UNLESS OTHERWISE AUTHORIZED BY THE CITY ENGINEER.
8. FOR MULTIPLE TRENCH REPAIRS LOCATED ADJACENT TO EACH OTHER, DISTANCE BETWEEN REPAIRS SHALL BE NO LESS THAN 4’ (FLOATERS LESS THAN 4’ ARE NOT ALLOWED).
9. SEE PLATE NOS. 1-5 AND 1-6 FOR ADDITIONAL ASPHALT DETAILS.
10. APPLY TACK COAT ON PERIMETER EDGES OF FINAL TRENCH REPAIR.
TRAFFIC CONTROL NOTES:

1. Actual field conditions may require some deviation from these plans & notes. However, any such deviations shall be approved by the City Engineer at least 72 hours prior to implementation.

2. These plans & notes do not apply to emergency conditions on brief operations where public & employee safety are not jeopardized.

3. All advance warning signs shall be equipped with two orange flags.

4. All advance warning signs shall be a minimum of 36" x 36".

5. Daytime channelization devices may consist of either:
   A. 28" minimum height cones, or
   B. 37" minimum height tubes, or
   C. Type one barricades.

6. All lane closures and detours that are scheduled to remain over one week shall be striped and all conflicting stripes shall be completely removed by blasting (black paint shall not be used).

7. The following are additional requirements for all night time lane closures and detours:
   A. At least one person shall be assigned full-time to maintain traffic control devices, and
   B. All traffic signs shall be reflectorized, and
   C. Type A or B (flashing) yellow flashing beacon warning lights shall be used at all warning signs.
   D. All channelization devices shall be either:
      1. Internally illuminated cones fitted with 7" reflective sleeves, or
      2. Type 1 barricades with Type C (steady burn) yellow barricade warning lights.

8. The following are additional requirements on all roads having a posted speed limit of 40 MPH or greater:
   A. All advance warning signs should be a minimum of 48" x 48", and
   B. Type 1 or 2 flashing arrow signs (FAS) shall be used on all lane closures.

9. No trenches shall be left open overnight without the express written permission of the City Engineer. Trenches shall be either plated or backfilled and resurfaced with temporary A.C.

10. Access shall be maintained at all times to all intersecting streets & driveways.

11. All provisions of the "Manual of Traffic Controls" published by the State Department of Transportation shall apply. Nothing in the City Road Standards is to be construed as to reduce the minimum State Standards.
NOTES:
1. SPECIES SHALL BE APPROVED BY THE CITY’S FORESTRY MASTER PLAN.
2. ALL TREES SHALL BE OF GOOD HEALTH WITH A SOUND ROOT SYSTEM AND STRAIGHT, SINGLE TRUNK.
3. MINIMUM TREE SIZE SHALL BE 24" BOX SIZE CONTAINER, WITH A 3/4" TRUNK CALIPER AND 6' HEIGHT. WHERE TREES ARE LOCATED WITHIN SIGHT DISTANCE AREAS PER PLATE 3-10, MINIMUM CANOPY CLEARANCE SHALL BE 8'.
4. CONTACT CITY LANDSCAPE INSPECTOR AT 805-449-2499, FOR APPROVAL OF LOCATIONS, QUALITY OF PLANT MATERIAL AND INSTALLATION.
5. SURFACE SIZE OF TREE WELL ARE TO BE 4' X 8' UNLESS AMERICAN DISABILITIES ACT (ADA) REQUIREMENTS NECESSITATE A SMALLER OPENING.
6. EXCAVATE PLANTING PIT WIDTH TWICE THE SIZE OF THE ROOT BALL, OR EQUAL TO WELL, WHICH EVER IS LARGER.
7. INSTALL 1-1/2" X 6' ROOT BARRIER PANEL (S) ADJACENT TO PAVING WHEREVER TREE IS 6' OR CLOSER TO HARDSCAPE (SIDEWALK, CURB, WALL, ETC.).
8. AMENDED BACKFILL SHALL EQUAL 2/3 EXCAVATED SOIL AND 1/3 "APPROVED" SOIL AMENDMENT. BACKFILL ENTIRE PLANT PIT/TREE WELL WITH AMENDED SOIL. THOROUGHLY TAMP BACKFILL TO ELIMINATE AIR POCKETS.
9. TREES IN LAWN OR RESIDENTIAL FRONT YARDS SHALL HAVE A TRUNK PROTECTOR INSTALLED AT GROUND LEVEL, TO PREVENT DAMAGE TO BARK AND CAMBIUM.
10. ALL TREES SHALL BE PLANTED WITHIN THE CITY RIGHT-OF-WAY OR PUBLIC SERVICE EASEMENT.
11. SEE PLATE NOS. 1-8 AND 1-9 FOR ADDITIONAL STREET TREE PLANTING REQUIREMENTS.
12. ROOT BALL SHOULD BE FREE OF GIRDLING ROOTS.
STEEL PLATE FLUSH WITH EXISTING ASPHALT (BOTH SIDES)

LONGITUDINAL

TRANSVERSE

STEEL PLATE ON TOP OF EXISTING ASPHALT (BOTH SIDES)

EXISTING BASE

12" B MIN.

A MAX.

B MIN.

EXPANDING TEMPORARY ASPHALT (BOTH SIDES)

TRENCH WIDTH

STEEL PLATE RECESSED ON TOP OF MILLED SURFACE ASPHALT

TYPE 1 (FOR < 30 MPH OR AS REQUIRED BY CITY ENGINEER)

2" B

A VARY

B

VARIES

EXISTING ASPHALT

STEEL PLATE FLUSH WITH EXISTING ASPHALT (BOTH SIDES)

STEEL PLATE ON TOP OF EXISTING ASPHALT (BOTH SIDES)

TEMPORARY ASPHALT (BOTH SIDES)

PIN, #4 REBAR OR EQUIVALENT, MIN. 12" LONG (BOTH SIDES)

EXISTING BASE

TRENCH WIDTH

12" B MIN.

A MAX.

B MIN.

EXPANDING TEMPORARY ASPHALT (BOTH SIDES)

TRENCH WIDTH

STEEL PLATE RECESSED ON TOP OF MILLED SURFACE ASPHALT

TYPE 2 (FOR > 30 MPH OR AS REQUIRED BY CITY ENGINEER)

PLATE SIZE

<table>
<thead>
<tr>
<th>LONGITUDINAL</th>
<th>TRANSVERSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>(A) (B) THICK. (W) (L)</td>
<td>(A) (B)</td>
</tr>
<tr>
<td>12&quot; 18&quot; 1&quot; 4' 8'</td>
<td>58&quot; 19&quot;</td>
</tr>
<tr>
<td>12&quot; 18&quot; 1&quot; 4' 10'</td>
<td>58&quot; 31&quot;</td>
</tr>
<tr>
<td>24&quot; 18&quot; 1&quot; 5' 10'</td>
<td>70&quot; 25&quot;</td>
</tr>
<tr>
<td>36&quot; 18&quot; 1&quot; 6' 10'</td>
<td>44&quot; 38&quot;</td>
</tr>
<tr>
<td>48&quot; 18&quot; 1&quot; 7' 10'</td>
<td>52&quot; 34&quot;</td>
</tr>
<tr>
<td>60&quot; 18&quot; 1&quot; 8' 10'</td>
<td>58&quot; 31&quot;</td>
</tr>
<tr>
<td>12&quot; 18&quot; 1-1/4&quot; 4' 15'</td>
<td>88&quot; 47&quot;</td>
</tr>
<tr>
<td>24&quot; 18&quot; 1-1/4&quot; 5' 12'</td>
<td>104&quot; 20&quot;</td>
</tr>
<tr>
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<td>66&quot; 39&quot;</td>
</tr>
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<td>36&quot; 18&quot; 1-1/4&quot; 6' 16'</td>
<td>66&quot; 63&quot;</td>
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<td>76&quot; 33&quot;</td>
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<td>102&quot; 69&quot;</td>
</tr>
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</table>

NOTES:
SEE PLATE NO. 8-19 FOR NOTES.

DETAIL
NOT TO SCALE
NOTES:

1. USE TYPE 1 PLATE INSTALLATION WHERE POSTED SPEED LIMIT IS LESS THAN 30 MPH, USE TYPE 2 PLATE INSTALLATION WHERE POSTED SPEED LIMIT IS 30 MPH OR GREATER OR AS DIRECTED BY CITY ENGINEER.

2. FOR TYPE 2 PLATE INSTALLATION, THE STEEL PLATE SHALL BE RECESSED BY MILLING INTO THE EXISTING ASPHALT TO SET FLUSH WITH THE SURFACE OF THE EXISTING ASPHALT. FULL DEPTH CUTTING OF PAVEMENT SECTION OUTSIDE OF TRENCH IS NOT PERMITTED. MILLING DEPTH SHALL MATCH THICKNESS OF THE PLATE. THE GAP BETWEEN THE EDGE OF THE PLATE AND THE ADJACENT EXISTING ASPHALT PAVEMENT MUST BE FILLED WITH PROPERLY COMPACTED TEMPORARY ASPHALT.

3. TRENCH WIDTHS ARE BASED ON AN ANALYSIS PER THE LATEST EDITION OF STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES BY AASHTO. AN ASSUMED AXLE LOADING OF 12 TONS WITH A 30% IMPACT FACTOR WAS USED. THE AXLE LENGTH IS 6 FEET: THEREFORE THE NUMBER OF WHEELS CARRIED BY A PLATE DEPENDS ON THE ROADWAY WIDTH.

4. STEEL PLATE MUST BE ABLE TO WITHSTAND H-20 TRAFFIC LOADING WITHOUT ANY MOVEMENT.

5. PLATES SHALL BE FABRICATED FROM ASTM A36 STEEL (MINIMUM 36 KSI), WITH A NON-SKID SURFACE.

6. PLATES SHALL BE SECURED FROM LATERAL MOVEMENT AND VIBRATION (ASSOCIATED NOISE) WHILE IN USE BY TEMPORARY ASPHALT (COLD MIX).

7. NO TRENCHES IN THE PUBLIC RIGHT OF WAY SHALL BE LEFT OPEN OVERNIGHT OR OVER THE WEEKEND WITHOUT THE EXPRESS WRITTEN PERMISSION OF THE CITY ENGINEER. TRENCHES SHALL EITHER BE PLATED OR BACKFILLED AND RESURFACED WITH TEMPORARY ASPHALT.

8. PINS MADE OF #4 REBAR, OR EQUIVALENT DIAMETER STEEL ROD, WITH A MINIMUM LENGTH OF 12" SHALL BE USED TO SECURE ALL TRENCH PLATES TO THE PAVEMENT OR SOIL TO ELIMINATE LATERAL MOVEMENT OF THE PLATE. PINS OR STEEL RODS SHOULD NOT RESTRICT THE VERTICAL MOVEMENT OF THE STEEL PLATE. SPACING AND PLACEMENT OF PINS SHALL BE AS DIRECTED BY THE PUBLIC WORKS INSPECTOR.

9. WHEN TWO OR MORE PLATES ARE USED, THE PLATES SHALL BE TACK WELDED AT EACH CORNER OR AS REQUIRED BY THE PUBLIC WORKS INSPECTOR.

10. PLATES SHALL BE REMOVED THE FOLLOWING DAY, OR AS APPROVED BY THE PUBLIC WORKS INSPECTOR, AND THE TRENCH PAVED WITH TEMPORARY OR PERMANENT ASPHALT. PLATES SHALL NOT BE LEFT OVER A WEEKEND WITHOUT APPROVAL BY THE CITY ENGINEER.

11. PLATES SHALL BE CHECKED AT LEAST TWICE A DAY BY THE PERMITEE TO MAKE SURE THEY ARE SECURE.

12. APPROPRIATE ADVANCE WARNING SIGNS (I.E. "ROAD PLATES AHEAD") ARE REQUIRED FOR ALL STEEL PLATE CROSSINGS.

13. IN LIEU OF A STEEL PLATE, SIDEWALKS OR OTHER NON-VEHICLE AREAS MAY BE SECURED WITH PLYWOOD. PLYWOOD USED IN PEDESTRIAN AREAS SHALL BE A MINIMUM 3/4" THICK, PROVIDE A SMOOTH NON-SLIP SURFACE AND HAVE BEVELED EDGES.

(Note: This plate to be used in conjunction with Plate No. 8-18)
NOTES:
1. TYPE, DIMENSIONS AND ELEVATIONS OF SIDEWALK, CURB AND GUTTER PER PLATE NOS. 8-2 AND 8-3.
2. FOR NEW SIDEWALK PANELS, INSTALL GALVANIZED WIRE MESH OVER PVC PIPE. WIRE MESH SHALL EXTEND 8" BEYOND THE EDGE OF PVC PIPE.
EXISTING MANHOLE

EXISTING VALVE

RAISED MANHOLE

RAISED VALVE

FULL DEPTH MIN 2", MAX 6” A.C. SURFACE COURSE FLUSH WITH OVERLAY

A.C. OVERLAY

EXISTING FRAME AND COVER TO BE REUSED

EXISTING PAVEMENT

PRECAST ADJUSTING RINGS (18" MAX.)

6" MINIMUM CONCRETE

10” TO 12”

DETAIL

NOT TO SCALE

CITY OF THOUSAND OAKS
PUBLIC WORKS DEPARTMENT

STANDARD
UTILITY COVER ADJUSTMENT DETAIL

PLATE NO. 8-21
UTILITY COVER ADJUSTMENT SPECIFICATIONS

1. REMOVAL OF EXISTING PAVEMENT:

EXISTING PAVEMENT SHALL BE COMPLETELY REMOVED TO THE PAVEMENT SAW CUT LIMIT SHOWN ON PLATE NO 8-21. ALL WORK TO BE PERFORMED SHALL BE IN ACCORDANCE WITH CITY OF THOUSAND OAKS ROAD STANDARDS, PLATE NO 8-21. BEFORE ANY EXISTING PAVEMENT IS REMOVED, REVIEW DETAILS OF RAISING UTILITY STRUCTURES.

2. UTILITY ADJUSTMENTS GENERAL NOTES:

A. CONCRETE SHALL BE GREENBOOK SPECS 560-C-3250 CONCRETE AND ALLOWED TO CURE 48 HOURS PRIOR TO A.C. OVERLAY.
B. ALL UTILITY COVERS TO BE RAISED SHALL BE REUSED, UNLESS REPLACEMENT IS REQUESTED BY THE CITY AT THE CITY’S EXPENSE. THE NEW RING AND COVER WILL BE PROVIDED PRIOR TO CONSTRUCTION FOR REPLACEMENT.
C. GRADE RINGS SHALL BE 3’ OR 6”. GRADE RINGS AND MANHOLE FRAMES SHALL BE SEALED AT EVERY JOINT WITH BUTYL RUBBER (CONSEAL CS-102 OR APPROVED EQUAL).
E. ASPHALT SURFACE COURSE SHALL BE 1/2” HMA TYPE B OR C2 (DENSE MEDIUM).
NOT TO SCALE
FRONT ELEVATION
NOT TO SCALE
SIDE ELEVATION
NOT TO SCALE
INSTALLATION DETAIL ON EX. CONCRETE
INSTALLATION DETAIL ON EDGE OF EX. CONCRETE

NOTE:
REFER TO PLATE NO. 8-25 FOR SINGLE SEAT DETAIL AND SEAT GENERAL INSTALLATION INSTRUCTIONS.
FRONT ELEVATION
NOT TO SCALE

EXISTING CONCRETE
(IF APPLICABLE)

PLAN
NOT TO SCALE

NEW FOOTING

SIDE ELEVATION
NOT TO SCALE

EXISTING CONCRETE
(IF APPLICABLE)

THRU-BOLT FASTENER

(2) ½" x 8" DOWELS

NEW FOOTING

MISCELLANEOUS BASE

INSTALLATION DETAIL ON NEW FOOTING

NOTE:
REFER TO PLATE NO. 8-25 FOR SINGLE SEAT DETAIL AND SEAT GENERAL INSTALLATION INSTRUCTIONS.
SEAT GENERAL INSTALLATION INSTRUCTIONS

1. FOR SEAT INSTALLATION ON AN EXISTING SIDEWALK OR OTHER PORTLAND CEMENT CONCRETE PAVING WITH A MINIMUM THICKNESS OF 4", SKIP TO STEP 3.

2. FOR SEAT INSTALLATION ADJACENT TO EXISTING CONCRETE OR AT AN ISOLATED POSITION AWAY FROM CONCRETE PAVING, REFER TO PLATE NO. 8-25 OR 8-26 BEFORE PROCEEDING WITH STEP 3.

3. WITH SEAT SUPPORT BASE PLATE AS TEMPLATE, MARK THE EXPANSION ANCHOR LOCATIONS AND USE AN IMPACT DRILL MOTOR AND 5/8" MASONRY BIT TO DRILL FOUR - 2 1/2" DEEP HOLES IN THE CONCRETE SIDEWALK OR PREPARED FOUNDATION.

4. INSERT FOUR PROVIDED EXPANSION ANCHORS INTO THE DRILLED HOLES AND COMPLETE THEIR INSTALLATION ACCORDINGLY.

5. POSITION THE SEAT SUPPORT IN PLACE OVER THE EXPANSION ANCHORS AND SECURE WITH FOUR MACHINE BOLTS AND FLAT WASHERS.

6. ATTACHED THE TWO SEAT SECTIONS TO THE SEAT SUPPORT GUSSET PLATES WITH 5/16" BOLTS AND LOCK NUTS.


8. REMOVE THE SIGN POST FROM THE BASE SUPPORT TUBE AND DRILL TWO, 3/16" HOLES AT THE MARKED LOCATIONS FOR THE THRU-BOLT CONNECTION. REINSERT THE SIGN POST INTO THE BASE SUPPORT TUBE, AND SECURE THE SIGN POST IN PLACE WITH THE 5/16" x 3 1/2" BOLT, FLAT WASHER AND LOCK NUT.