

SECTION 2 DESIGN REQUIREMENTS

2.01 PAVEMENT AND STRUCTURAL SECTION REQUIREMENTS

- A. PAVEMENT STRUCTURAL SECTION design by a Soils Engineer shall be required on all private development projects. The design for structural sections shall be part of a Soils Report. The report shall be submitted as a PDF file per the requirements listed in Division I, Design Standards, Section 2 of these Standard Specifications and include recommendations for natural subgrade, geotextile fabric, subbase, base, pavement compaction and thickness, and other requirements to achieve design strength of the proposed pavement.
- B. THE MINIMUM TRAFFIC INDEX (T.I.) required for on-site (non-roadway) pavement structural sections subjected mainly to non-commercial vehicular traffic shall be four-point-zero (4.0). The minimum traffic index (T.I.) required for on-site pavement structural sections subjected mainly to truck traffic shall be six-point-zero (6.0). However, it is recommended that the developer/owner of the project design and construct a pavement structural section that provides maximum strength and durability for the projects' anticipated traffic loads.
- C. THE MINIMUM CROSS-SLOPE of all pavement shall be one (1) percent.
- D. THE SOILS ENGINEER SHALL be on-site to monitor parking lot grading and to certify compaction and thickness of all components of the pavement structural section.
- E. WRITTEN CERTIFICATION OF PAVEMENT grade by a California Registered Civil Engineer or Licensed Land Surveyor and written certification of the structural section and compaction by a California Registered Geotechnical Engineer shall be required prior to the issuance of a Certificate of Occupancy. A Certificate of Occupancy will not be issued for any building if the pavement structural section or compaction does not conform to the requirements specified in the Soils Report.

NOTE: Pavement and Structural Section requirements shall not apply to single-family homes and duplexes driveways and private parking areas.

2.02 STORM DRAINAGE DESIGN REQUIREMENTS

- A. STORM DRAIN RUN-OFF FROM paved surfaces on-site and outside the City rights-of-way shall be routed to the City underground storm drain system via on-site catch basins and an underground system. No surface run-off shall be routed to an adjoining private property unless specifically approved by the City in writing and authorized by a reciprocal drainage and maintenance easement or agreement. The pavement at the driveway entrance(s) to the project may be constructed so as to allow storm drainage to cross the driveway apron provided that the high point of the pavement is situated a maximum distance of thirty (30) feet measured from the back of driveway apron or

sidewalk. In order to contain storm drainage run-off in the street, the pavement at the parking lot entrance may be crowned a maximum height of six (6) inches.

- B. ROOF DRAINS SHALL NOT BE discharged through the public street curb but shall be dissipated in the landscape area close to the building if greater than ten (10) feet from the public sidewalk or connected directly to the on-site underground storm drain system. Landscaped areas may sheet drain over the public sidewalk, curb, and gutter.
- C. THE FINISHED FLOOR ELEVATION of all habitable areas of commercial, industrial, and multi-family residential structures shall be at least twelve (12) inches above the one-hundred-year (100) frequency storm hydraulic grade line elevation as determined by a storm drainage analysis. If such analysis is waived by the City Engineer, the finished floor elevation shall be a minimum of twelve inches above the highest top of street curb elevation along the frontage of the site. In the absence of street curbs, the elevation of the crown of street shall be used.
- D. THE DESIGN OF ALL UNDERGROUND storm drain systems including their appurtenances within the building site property and up to within five (5) feet of the building shall conform to Division I, Section 4 of the City of West Sacramento Standard Specifications except for the following additions and modifications:
 - 1. Section 4.03B (4.); Design Criteria - The minimum inside diameter of on-site storm drainage pipe shall be six (6) inches.
 - 2. Section 4.05A; Cover Requirements - Pipe depths, other than RCP, to finish grade and/or subgrade shall be in conformance with the specifications of the pipe manufacturer.
 - 3. Section 4.06A (2.); Manholes - All on-site storm drain manholes shall be constructed in accordance with the Standard Details. There are no City requirements for the spacing of on-site storm drain manholes. However, future maintenance and accessibility should be considered during design of the system.
 - 4. Section 4.06B; Junction Boxes - Junction boxes for on-site drainage shall be reinforced concrete and shall conform to the Standard Details.
 - 5. Section 4.06.D; Catch Basins/Inlets - Drain inlets for on-site storm drainage shall be twelve (12) inches in the least dimension. The maximum area draining into one inlet shall be two (2) acres. All inlets for on-site use that are not included in the Standard Details shall be clearly shown and dimensioned on the plans. All grates shall be designed to provide adequate safety for automobile traffic, bicycles, and pedestrians.
 - 6. Section 4.06F; Valley Gutters - Valley gutters may be used for on-site drainage provided that a minimum slope of 0.0032 feet per foot is maintained.
 - 7. On-site underground storm drainage systems may be shown in plain view only, unless otherwise requested by the City Engineer.
 - 8. The hydraulic grade line elevations for the design storm of Section 4.02 shall be shown on the site improvements plans at all locations of on-site drain inlets, catch

basins, and manholes wherever the hydraulic grade lines are above the top of the pipe.

9. The Consulting Engineer shall be responsible for designing a grading plan, which ensures that storm waters flow through a development in a manner that will not flood habitable structures in the event of malfunction or overloading of the drainage system.
 10. All storm drainage calculations shall be signed and stamped by a California Registered Civil Engineer prior to approval by the City.
 11. On-site private temporary storm drainage inlets shall conform to Standard Detail #801.
- E. THE DESIGN AND CONSTRUCTION of all storm drain systems shall be prepared and constructed in conformance with latest edition of the City Storm Drain/Storm Water Master Plan requirements, CA Phase II MS4 Permit Requirements, Southport Drainage Master Plan (when appropriate), and City Stormwater LID and City Post-Construction Standards Plan documents.

2.03 SANITARY SEWER DESIGN REQUIREMENTS

- A. THE DESIGN OF ALL UNDERGROUND sanitary sewer systems, including their appurtenances within the building site property and up to within five feet of the building shall conform to Division I, Section 5 of the City of West Sacramento Standard Specifications except for the following modifications and additions:
1. Section 5.02A; Pipe Diameter - The minimum size of any residential on-site sanitary sewer main shall be four (4) inches in diameter.
 2. Section 5.03D; Pipe Cover and Clearances - Pipe depths to finish grade and/or subgrade must be in conformance with the specifications of the pipe manufacturer.
 3. Section 5.03G; Appurtenances - All on-site sanitary sewer manholes shall be constructed in accordance with the Standard Details. There are no City requirements for the spacing of on-site sanitary sewer manholes. However, future maintenance and accessibility should be considered.
 4. All Sanitary Sewer Design Calculations shall be signed and stamped by a California Registered Civil Engineer prior to approval by the City.

2.04 WATER SYSTEM DESIGN REQUIREMENTS

- A. THE DESIGN OF ALL UNDERGROUND water systems, including their appurtenances within the building site property and up to within five feet of the building, shall conform to Division I, Section 6 of the City of West Sacramento Standard Specifications except for the following modifications and additions:

1. Section 6.02E; Sizes - There are no City requirements for minimum size of on-site water mains. Water mains shall be sized to meet domestic, fire sprinkler, and fire flow requirements as determined by the Design Engineer.
2. Section 6.02M; Cover Requirements - Minimum cover over private fire mains shall not be less than thirty-six (36) inches beneath paved sections subject to vehicle traffic loads and not less than forty-eight (48) inches under railroad tracks as measured from the top of pipe to finish grade.
3. On-site fire lines - The Community Development Department Engineering Division will plan check and inspect the portion of the underground fire line from the tap at the City main up through and including the last bell at the downstream end of the backflow device. All on-site fire suppression infrastructure will be plan checked and reviewed by the City Building Department.
4. Backflow Certifications - All backflow devices inspected by the City Inspector shall be tested and approved by a certified tester on the "Backflow Testers List" published by the Construction Inspection Division of the Capitol Projects Department prior to any permit final or Certificate of Occupancy.
5. On-site fire hydrants - On-site fire hydrants shall be jointly inspected and approved by the Construction and Facilities Development Division of Capital Projects Department, the Building Inspection Division of the Community Development Department, the Fire Department. In addition, the GIS and Mapping Section of Capital Projects Department is required to complete a survey of on-site fire hydrant locations prior to any permit final or Certificate of Occupancy. On-site hydrants shall conform to these City Design Standards, Standard Construction Specifications and Standard Details.