DESIGN STANDARDS

SECTION DS 2

PROJECT PLANS

PREPARATION, SUBMITTAL AND PROCESSING

DS 2-01 GENERAL:

A. The following requirements shall apply where it is the intent that any portion of an improvement will be owned or maintained by the City of Vacaville or where on-site grading and drainage is included on a grading plan which is required with a subdivision development.

B. Complete Project Plans and specifications for all proposed improvements including any necessary dedications and easements shall be submitted to the City Engineer/Director of Public Works for review and approval. These Project Plans shall be prepared by an engineer licensed to practice in the State of California in the appropriate discipline for the plans submitted.

C. The Projects Plans must receive the required approval prior to the beginning of construction of any such improvements. This approval must be substantiated by the signature of the City Engineer/Director of Public Works or their authorized representative prior to the beginning of construction of any such improvements. The Director of Public Works or his representative shall order the contractor to cease work on any project if said contractor does not have properly approved Project Plans in its possession, and a Preconstruction meeting has not been held by the City Inspector.

DS 2-02 MINOR WORK EXCEPTION:

A. In lieu of approved Project Plans, at the option of the City Engineer/Director of Public Works, minor work within the City right-of-way, easement or waterways may be performed with a sketch attached to an encroachment permit. However, in such case, a clear legible dimensioned sketch showing the minor work to be performed will still be required as part of the encroachment permit.

B. Minor work generally consists of items such as a single sewer lateral, a single water service, a single driveway to be constructed in existing curb, gutter and sidewalk, sidewalk replacement, and installation of a single driveway culvert, or street light installations.

C. Project Plans shall be submitted with any subdivision of land if improvements are required and shall be prepared in accordance with section DS-2-01 of these standards.

DS 2-03 PREPARATION OF PROJECT PLANS:

A. GENERAL: Project Plans shall be submitted on 24" x 36" sheet format with 1-1/2 inch clear margin on the left edge and ½ inch margins on all other edges.

B. SCALE: Horizontal 1" = 20' and Vertical 1" = 2', or Horizontal 1" = 40' and Vertical 1"=4', or other combination approved by the City Engineer/Director of Public Works.

C. TITLE BLOCK: A standard City title block shall be located on each plan sheet at the right hand side of the lower edge of the sheet in accordance with the Standard Drawings.

D. CAD REQUIREMENTS: All development projects that are required to submit Project Plans for approval by the City Engineer/Director of Public Works are subject to the following requirements except for projects with very minor public improvements as determined by the Director of Public Works:

1. In addition to the other submittal requirements listed in the Design Standards, the Project Plans shall be prepared in digital format with AutoCAD software and shall be submitted to the City Engineer on a Compact Disk (CD) with the Project Plans when submitted for approval.

2. The Project Plans shall be prepared utilizing a layering scheme submitted by the Design Engineer. As a minimum, control planimetrics and utility information shall be shown on separate unique layers. The index for the layering scheme shall be included the CD disk submittal.

3. Upon completion of construction a record drawing submittal of the Project Plans shall be submitted to the City Engineer on a CD disk. This submittal shall include all City-approved changes which include field conditions.

E. BENCH MARKS AND CITY CONTROL NETWORK: Benchmarks and datum shall be clearly delineated on the plans as to location, description and elevations. If the proposed improvements are over 2,500' from the nearest existing benchmark, a new benchmark shall be established and tied into the City's Control Network system by the Design Engineer or a licensed Land Surveyor if required. The Project Plans shall include, as a minimum, the following information:

1. A minimum of three benchmarks from the Citywide Control Network must be tied into the project topographic survey and shown on a Key map included on the Project Plans. The preferred location of the Key map is on the Title Sheet. A field closure of this control traverse must be provided with the Project Plans submittal. All control bench marks shall be clearly shown on the Key map and tied to existing parcel lines, right of way lines, and any proposed station lines with northing and easting coordinates and elevations clearly noted at typically the beginning station.

2. Temporary project control points shall be established and maintained throughout the duration of the construction of the project.

3. All control points, monuments and other physically surveyed data shall be based upon the City of Vacaville horizontal control network coordinate system and vertical datum.

The following note shall be shown on the Title Sheet of the Project Plans

Horizontal control coordinates are based upon the City of Vacaville Control Network, which matches the North American Datum of 1983 (NAD83) based on California High Precision Geodetic Network (HPGN) 1992 and converted to California State Plane, Zone 2 in U.S. Survey feet.

Vertical control is based upon the Vertical North American Vertical Datum of 1988 (NAVD88) and based upon elevations provided by the City of Vacaville.

4. Any new monumentation placed with the project shall be tied to the City of Vacaville Control Network.

F. STATIONING AND ORIENTATION:

1. All plan sheets shall be coordinated with stationing. The Design Engineer shall contact the City Engineer/Director of Public Works to confirm the stationing system before commencing design.

2. Where possible, the stationing on plan and profile shall read from left to right and increase from south to north or from west to east.

3. Plans shall be arranged such that the north arrow points toward the top or upper 180˚, insofar as practical.

4. Stationing and the distance from the centerline shall be called out for each feature of the proposed improvements such as, but not limited to, street lights, fire hydrants, pipe fittings, valves, catch basins, beginning and end of curves etc.

5. Bearings, distances or stationing, angle points, curve data, and beginning and ending coordinates shall be shown on the Project Plans for all control and center line alignments used in the design. The control and center line shall be tied into the City Control Network.

G. TITLE SHEET:

1. A title sheet shall be prepared in accordance with Standard Drawing 2-01 for all Project Plan sets exceeding three sheets. Minor variations may be authorized by the City Engineer/Director of Public Works.

2. A current list of required standard notes obtained from the City Engineer shall be included on the Title Sheet and may extend to subsequent sheets for all development Project Plans submitted to the City for approval.

3. Project Plans consisting of three sheets or less sheets shall not be required to provide a separate title sheet, but shall be required to show all of the same items in the plans.

H. PLAN AND PROFILE SHEETS: In addition to the other requirements included with subsequent sections of these Design Standards, the following details shall be shown on the plans submitted for approval. This does not in any way exempt the

Design Engineer from the responsibility of preparing neat, accurate and comprehensive plans in keeping with the standards of the profession.

1. **Plan View**

   a. **Right-of-Way** – Right-of-way lines, the boundaries of lots fronting on the street, drainage easements, utility easements, landscape easements, section lines and corners, land grant lines and temporary construction easements, both existing and proposed, shall be delineated on the plans. All right-of-way and easement lines shall be properly dimensioned.

   b. **Topography** -- All pertinent existing topographic features shall be shown, such as street lines, medians, signing, striping, pavement markings, driveways (on both sides of the street when within 40' of the median ending), curbs, sidewalks, shoulders, location and size of storm and sanitary sewer lines, high water levels, water lines, gas lines, telephone conduits, other underground utilities, existing structures, houses, trees (6" and larger) and other foliage, traffic signals, street lights and pull boxes, underground electrical conduits, drainage ditches, utility poles, fire hydrants, retaining walls, masonry structures, and all other features of the area which may affect the design requirements for the area. When a potential utility conflict exists, the City may require "as-built" elevations of the utilities be verified in the field by the Design Engineer.

   c. **Contours and Elevations** – Existing contours or supporting elevations within and adjacent to the project limits shall be shown on all plan sheets.

   d. **Curve and Line Data** – Curve and line data for all proposed improvements shall be shown on the plans. This data only needs to be shown once for the control line if the improvements are concentric or parallel to the data shown and dimensions are included to identify the location of each improvement.

2. **Profile view**

   a. The Project Plans shall show the existing profile of the roadway centerline. The Project Plans shall show the profile of all existing improvements including, but not limited to edges of pavement, curb and gutter flow lines, drainage ditches, storm drain, water main, and sanitary sewers.

   b. The profile of the proposed top of curb shall include designation of the rate of grade, vertical curve alignment data, and elevations at 100 foot intervals, grade breaks, and at beginning and end of vertical curves.

   c. All profiles for proposed utility improvements shall conform to the requirements described in the applicable section of these Design Standards.

   d. The plans shall show the existing ground profile for a minimum distance of 200' beyond temporary street endings to facilitate setting proper

vertical alignment within the proposed improvement limits. The 200' minimum shall be increased when requested by the City Engineer.

I. TYPICAL SECTIONS: – A typical section for each type of facility within the improvement, dimensioning the structural features, shall be a part of the Project Plans.

J. CROSS SECTIONS: – Cross-sections shall be required where an existing street is being widened. Cross-sections at 50' intervals shall be required as part of the Project Plans. The cross-sections shall show all existing and proposed elevations, points of conform, and all dimensions and slopes. The sections shall be drawn at a scale that will allow a detailed review of the design.

K. MISCELLANEOUS PLAN SHEETS: Other plan sheets including but not limited to Detail sheets, Grading, Sound and/or Retaining Wall, Street Lighting, Erosion Control, Water System Connection and Testing, Landscaping, and Irrigation plans may be required to be included within the Project Plans submittal.

DS 2-04 EXISTING UTILITIES: All Existing utilities are to be shown on the plans. In addition, the Design Engineer shall submit prints of the preliminary and approved plans to the utility companies involved. This is necessary for the utilities to properly plan their relocation projects and needed additional facilities. Copies of the transmittal letters to the utility companies shall be provided to the City Engineer/Director of Public Works. The transmittal letters shall indicate all conflicts which require relocation.

If there are alterations or revisions to the Project Plans as submitted that may affect the utility design, the Design Engineer shall resubmit the revised plans to each of the utility companies.

The Design Engineer/developer is responsible for obtaining review of the Project Plans from each of the utility companies.

DS 2-05 OTHER AGENCY NOTIFICATIONS: The Design Engineer and the developer are responsible for obtaining the approval of, and necessary permits from governmental or municipal agencies when their facilities are involved.

DS 2-06 SUBMITTAL AND PROCESSING OR LAND DEVELOPMENT PROJECTS:

A. PRELIMINARY DESIGN REVIEW:

1. The Design Engineer at its option may submit a Preliminary Design Review (PDR) to the City Engineer/Director of Public Works for review and comment prior to submitting the Initial Project Plan Submittal.

2. The PDR shall be subject to the following conditions:

a. There shall be no more than one submittal of the PDR reviewed by the City unless a second review is requested by the City.

b. The PDR shall consist of as a minimum a plan and profile view of all proposed and existing streets, utilities, grading, and other major improvements as included in the conditions of approval.

B. INITIAL PROJECT PLAN SUBMITTAL:

The initial submittal of Project Plans to the City Engineer/Director of Public Works shall consist of the requirements specified in each section of the Design Standards and the following items:

1. A minimum of five sets of Project Plans **which are complete** and prepared in accordance with these Design Standards, the Standard Construction Specifications, and Standard Drawings. The City Engineer will not review Initial Project Plan submittals that are incomplete and are not in conformance with the requirements of the City Design Standards for Project Plans. The City Engineer will return the submittal to the Design Engineer without City review if the project plan submittal is incomplete.

2. Two copies of the watershed map and drainage calculations in accordance with Section DS- 4, "Storm Drain Design Standards."

3. One copy of the soils report which includes establishment of the soils "R" value and recommendations for street section design based on traffic index shown in Section 3, "Street Design." A minimum of three "R" value tests are required. Reports covering an area greater than 25 acres shall have one additional "R" value test for each additional 25 acres of portion thereof.

The soils report shall address the effect of ground and irrigation water on the proposed streets, based upon soil characteristics found at the site.

4. Ten copies of the final map with closure calculations.

5. A current Title report and copies of pertinent documents.

6. Copy of approved tentative map and/or conditions of approval.

7. Legal description of proposed easements signed by a qualified Civil Engineer or Land Surveyor, and diagram showing location (if not covered by a map).

8. All other reports or plans required by the City Conditions of Approval for the project and the City Standard Specifications.

9. Payment of a plan check deposit if improvement construction costs exceed $50,000.

10. The name, address, and telephone number of the developer.

11. The City Engineer will determine the adequacy of the supporting data, and will notify the Design engineer if additional information is required prior to beginning the plan check.

12. If the Project Plans submitted are not prepared in accordance with these Design and Construction Standards and Standard Drawings, or are not complete or in keeping with the standards of the profession, the City Engineer may return them unmarked and unapproved.

13. Should there be required alterations or revisions to the plans as submitted; the City Engineer will return a list of comments for the Design Engineer's use in revising the plans.

C. PROJECT PLAN RESUBMITTAL: Plans being resubmitted shall consist of three complete sets of plans; additional sets may be required by the City Engineer.

Plans being resubmitted that contain revisions or alterations other than those required by the City Engineer/Director of Public Works shall require the Design Engineer to bring those revisions or alterations to the attention of the City Engineer in writing.

D. RESPONSE TO CITY COMMENTS: If the Design Engineer has not made all the corrections, he shall submit a list of uncorrected items, stating why the corrections have not been made. This process will continue until the plans are ready for approval. The Design Engineer shall make every effort to minimize the number of submittals required for Project plan approval.

DS 2-07 PROJECT PLAN APPROVAL FOR LAND DEVELOPMENT PROJECTS:

Project plan approval shall be subject to the following:

A. No Project Plans will be approved, nor construction authorized until such time as the City Engineer and the Director of Public Works signify their approval by their signatures on the set of Project Plans.

B. When the Project Plans are deemed ready for approval, the developer shall pay the remainder of the plan check and inspection fee, and post required bonds. At that point, the plans will be forwarded to the City Engineer for signature. Plans will not be considered approved until signed by the City Engineer, City Planner, and Director of Public Works.

C. The City Engineer, the City Planner, and the Director of Public Works will sign the tracings in the space provided, after the Design Engineer has signed and stamped with R.E. number and expiration date on the Project Plans, and all the appropriate City fees have been paid and required bonds posted.

D. The approvals of the City Engineer, City Planner, and the Director of Public Works are valid for a period of 24 months. Should work not commence within the 24-month period, the plans shall be resubmitted for reapproval. The resubmitted Project Plans shall comply with the requirements of the most current revisions to the Standard Specifications at the date of the resubmittal.

E. After approval, the Design Engineer shall furnish the City Engineer with reproducible mylars and three sets of paper copies of the Project plans. Construction shall not commence until a Preconstruction meeting has been held with the contractor and the City Inspector. The Preconstruction meeting shall not be scheduled until two working days following the City Engineer's receipt of the copies of the approved Project Plans.

DS 2-08 **CONFLICTS, ERRORS AND OMISSIONS:** Excepted from approval are any features of the plans that are contrary to, in conflict with, or do not conform to any Federal or California State Labor Code requirement, City Code, conditions of approval, or generally accepted good engineering practice, in keeping with the standards of the profession, even though such errors omissions or conflicts may have been overlooked in the review of the plans by the City Engineer/Director of Public Works.

The Design Engineer, when notified by the City shall promptly submit a plan revision for review and approval by the City Engineer and Director of Public Works to correct the conflict, error, or omission.

DS 2-09 **PROJECT PLAN REVISIONS**: Should changes become necessary during construction, the Design Engineer shall first obtain the consent of the Director of Public Works and shall then resubmit the plan sheets affected for approval.

The changes on the plans shall be made in the following manner:

A. The original proposal shall not be eradicated from the plans, but shall be lined out.

B. In the event that eradicating the original proposal is necessary to maintain clarity of the plans, approval must first be obtained from the Director of Public Works.

C. The changes shall be clearly shown on the plans with the changes and approval noted on a revision signature block.

D. The changes shall be identified by the revision number in a triangle delineated on the plans adjacent to the change and on the revision signature block.

E. Very minor changes which do not affect the basic design may be made upon the authorization of the Director of Public Works.

F. The Director of Public Works may order changes in the plans in order to complete the necessary facilities. Changes in the plans ordered by the Director of Public Works shall conform to all of the above.