



Applicant Design Process for Developer's Substructure Work

ISSUING DIVISION: Electric Engineering
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Signed by Kevin Keating
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SECTION: Commercial Industrial Design

SD 1010

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Scope of Standard

During the permitting and site planning phase of many commercial and industrial development projects, the applicant may be required to provide details concerning the on-site layout of Silicon Valley Power's electric utility substructures. This document is intended to act as a guide for developers who choose to perform the detailed design of the required substructures.

Purpose of Revision

This is a new document in the Commercial Industrial Design section of the System Design Manual. There is no revision at this time.

References

- SVP Standard Document UG 1000, latest revision, "Installation of Underground Substructures by Developers"
- SVP Standard Document SD 1800, latest revision, "Estimate Drawings"
- California Water Code Division 7, January 2014
- City of Santa Clara Community Development Department Project requirements

Rescissions

This is an original document that has not been previously issued by the SVP Electric Engineering Division.

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Definition of Terms

- **Applicant:** The person or persons, firm, partnership, corporation or combination thereof, who has submitted development plans to the City of Santa Clara for review and approval.
- **City:** City of Santa Clara or the City Council of the City of Santa Clara.
- **Developer:** A developer is any person who causes land to be divided into two or more parcels for himself or others; or is engaged in the development of property, in whole or in part, by the placing of any improvements thereon, whether the property was previously developed in whole, in part, or at all.
- **Planning Division:** Portion of the City of Santa Clara's Community Development Department responsible for reviewing property and building development plans to verify that proposed developments are compliant with Federal, State, and local laws, regulations and ordinances associated with growth and land use within the City of Santa Clara.
- **Planning Engineer:** Individual within the SVP Electric Engineering Division who analyzes and identifies changes to the SVP energy distribution system. A Planning Engineer manages the primary system to accommodate new loads and designs the primary layout for new developments.
- **Primary:** SVP Electric distribution facilities with a nominal operating voltage of 12,000V
- **Principal Electrical Estimator:** Individual within the SVP Electric Engineering Division who assigns and supervises examination of plans and specifications prepared by developers and outside agencies. This person typically determines the effect of proposed work on existing electric utility facilities and feasibility of alternate construction proposals.
- **Property Owner:** The person, or persons, (including corporations) that holds a legal right to a piece of land and has legal authority to sign legal agreements and recorded documents such as service agreements, easements and covenants.
- **Senior Electrical Estimator:** Individual within the SVP Electric Engineering Division who prepares detailed plans and specifications, cost estimates, materials summaries, and other associated job estimate documents for construction and maintenance of electric utility distribution facilities. This person typically works with developers, consultants, contractors, property owners, and other utilities on construction activities and proposed additions and changes to the City's electric utility system.
- **Silicon Valley Power (SVP):** Municipal Electric Department of the City of Santa Clara.
- **UG1000:** SVP's Guide for the Installation of Substructures by Developers. It provides a uniform electric substructure construction standard for new electric service installations within the City of Santa Clara.
- **Utility Connection Point (UCP):** Electric service point determined by SVP. May also be called the point of connection to the utility.

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Background

Before submitting plans for building permit review, the applicant is required to acquire planning entitlements from the City's Planning Division. The planning entitlement process requires the applicant to submit preliminary project plans consisting of architectural drawings with preliminary site plans focused on general feasibility issues. The preliminary project plans are circulated to several City Departments for review.

As a result of regulatory changes, preliminary new development project plans are required to show specific tree planting schemes, locations of all storm drain systems as well as a bioswale on the site. In order to avoid conflicts between tree locations and new infrastructure, developers need better guidance on locations of proposed infrastructure improvements during the project planning phase. Therefore, developers look to the City for specific design details for service interconnections early in the design process.

For many utility service interconnections, the utility connection point is at the property line. For SVP, however, the point of connection is typically located closer to the building instead of at the property line. Therefore, applicants may need the electric utility substructure layout design details during the site planning phase instead of the detailed building design phase. If SVP's substructure layout design must be prepared during the site planning phase, the placement of SVP substructures must be coordinated with all of the other required facilities and landscaping. Multiple iterations of the site plans may be required as conflicts between various utilities, site drainage, and landscaping get resolved.

Multiple site plan iterations increase the risk of confusion between the applicant, other utilities, and SVP as different design versions address conflicts. This confusion may be minimized if the applicant takes on the responsibility of designing SVP's substructures to meet SVP's requirements. The applicant would assume the full cost, risk, and responsibility of meeting all of the various planning and utility service requirements and resolving all onsite conflicts between utilities, trees, and other issues. SVP would not be responsible for maintaining site plan version control, but would review the applicant's design to verify that it meets SVP's requirements.

Applicant Design Process

Applicant design is an option that enables an Applicant/Developer to work with SVP Engineering Division personnel to create a functional substructure construction drawing during the project planning approval phase. Applicant design differs from the traditional substructure design process because the Applicant/Developer has not applied for a building permit and detailed building construction plans may not exist. Applicant design is not likely to be used when the existing SVP infrastructure is adequate for the needs of the proposed project or only minor modifications are required on site. Applicant design is intended for those projects where the applicant is required to complete an environmental study, submit a storm water pollution prevention plan, a detailed tree planting plan during the planning review and approval process, or due to other scheduling issues of the applicant.

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If the developer chooses to use the applicant design option, then the developer will meet with the Planning Engineer and Principal Electrical Estimator to initiate the process. By agreeing to participate in the Applicant Design Process, the developer understands that he will be providing the forces required to generate the SVP electric utility substructure construction drawings, and all other related documents described herein, for the applicant's project, based on design input from the Planning Engineer and Senior Electrical Estimator assigned to work on his project. The developer accepts all of the costs, risks and responsibilities of managing on-site conflicts and clearances between the various on-site facilities, including any frontage improvements required for the project.

The developer will meet with the Planning Engineer and/or the assigned Senior Electrical Estimator at regular intervals to review the proposed design plans and move forward with additional draft revisions. Multiple sessions and revisions may be required before the site substructure drawings and related Developer's Work documents are complete enough to be considered for SVP approval. Final electronic versions (AutoCAD and pdf) are to be sent by the applicant to the assigned estimator for SVP's job records.

All conflict resolution solutions and substructure clearance issues must meet SVP design standards and practices. As an example, a typical SVP conduit trench requires a 10-foot wide clear path and an easement on the developer's property. If there is no clear pathway for this required conduit system, it is the developer's responsibility to relocate other structures, utility facilities, or trees, as necessary to provide an SVP approved route for the new SVP electric utility system. The developer is responsible for all costs and liabilities associated with any necessary relocation work to provide an SVP approved route for the new SVP electric utility system. Electric utility substructures designed and installed via this process shall be dedicated to SVP, once the substructures are accepted as complete by SVP's Inspector.

Applicant Design Process Flow

A typical applicant design project would follow the process as shown in Figure 1. The basic steps to this process are as follows:

1. Developer contacts SVP to schedule a meeting for the initial project review. This initial project meeting may occur during the PCC review process, or prior to the initial submittal to PCC.
2. SVP Engineering, based on established criteria and customer needs, approves the applicant design option request. The applicant executes the Applicant Design Responsibilities acknowledgement document and returns it to SVP Engineering.
3. The SVP Planning Engineer generates a primary design plan for the overall project.
4. The Principal Electrical Estimator assigns a Senior Electrical Estimator to the project.
5. The Senior Electrical Estimator schedules an in-house meeting with the Applicant to begin the Applicant Design Process. After this in-house meeting, the Applicant prepares Developer's Work drawings for submittal to SVP.
6. After a series of design review meetings, the applicant generates a functional Developer's Work package that meets SVP requirements.

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7. The Senior Electrical Estimator verifies all SVP drawing criteria is met, easement documents are ready for submission to Land and Property Development Division, asset numbers are assigned as appropriate, cable pulling calculations are correct, and that the Developer's Work package meets SVP requirements.

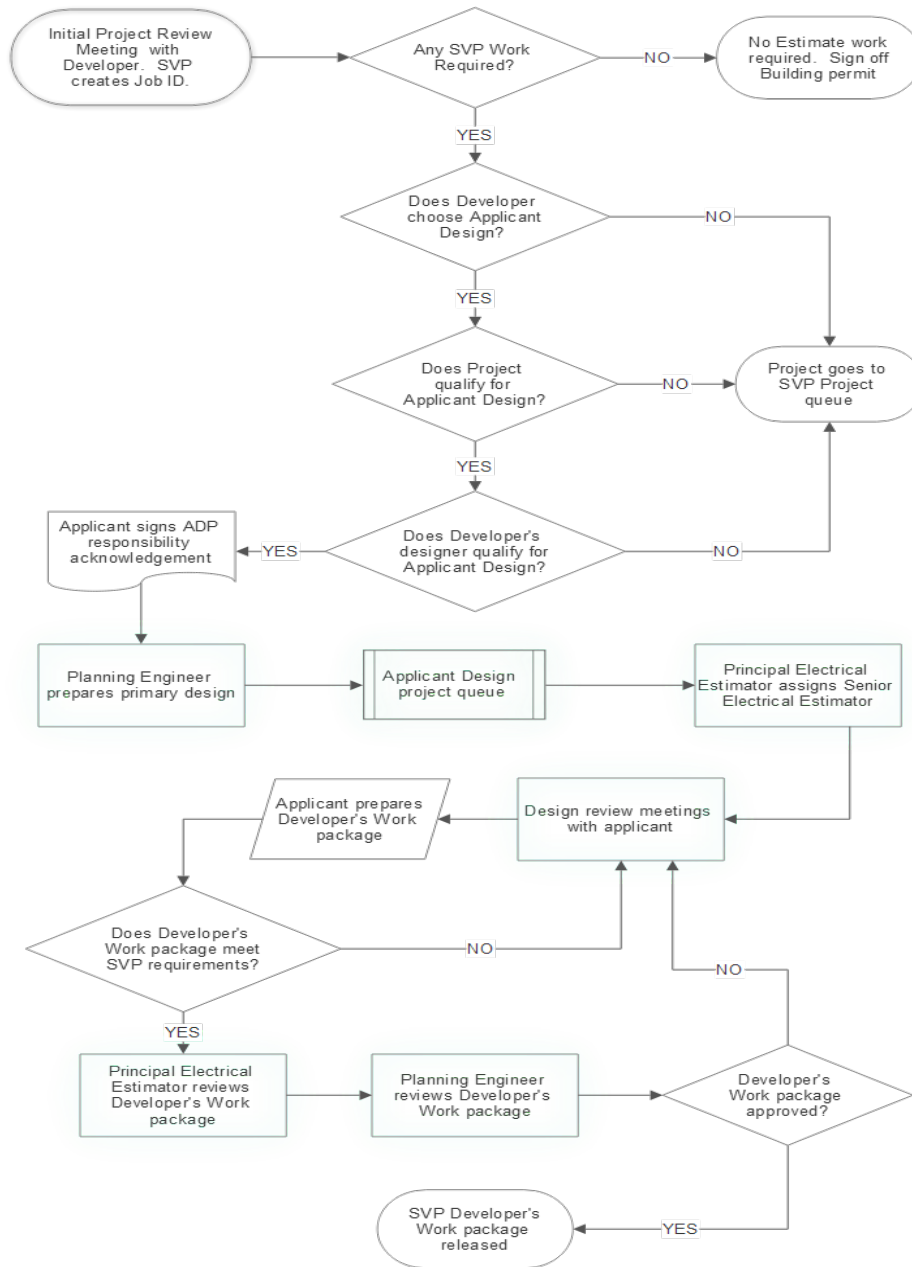


Figure 1: Applicant Design Process Flowchart

8. The Developer's Work package is then reviewed and approved by the Principal Electrical Estimator and the Planning Engineer.

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9. Applicant includes approved Developer's Work drawings with the PCC planning review package for final approval by CSC Community Development. An electronic copy (AutoCAD and pdf) is sent to Senior Electrical Estimator for placement in the appropriate SVP Project File.

Once the Applicant/Developer has an approved substructure design, it should not be changed unless absolutely necessary due to unforeseen circumstances such as physical limitations in the field or direct input from the Planning Engineer.

If a revised Developer's Work drawing is necessary, then the Applicant will work with the assigned Senior Electrical Estimator, utilizing the same routing process as shown in Figure 1, to prepare the revised drawings and related documents. The Principal Electrical Estimator must approve all changes to the substructure design drawings before the revised drawings are released. The Planning Engineer shall review all changes to primary substructure routing, clearances, or enclosure locations. In addition, changes to the substructure design that affect the overall site layout must be reviewed and approved by the CSC Community Development Department.

Concurrent Planning and Building Permit Review

In some cases, the City's Community Development Department allows an applicant to apply for building permits concurrently with the planning review process. The applicant may proceed with this option with the understanding that all detailed building design plans are prepared at the applicant's own risk. If the applicant chooses to prepare planning review and building permit plans concurrently, then the project qualifies to utilize the SVP's Applicant Design Process for electric utility substructure design.

If the developer chooses to use the applicant design option, then the developer will follow the same general process as outlined in Figure 1 and meet with the Planning Engineer and Principal Electrical Estimator to initiate the process. By agreeing to participate in the Applicant Design Process, the developer understands that he will be providing the forces required to generate both the planning review and building permit drawings for the project based on the design input from the Planning Engineer and Senior Electrical Estimator assigned to work on his project. The developer accepts all of the costs, risks and responsibilities of managing on-site conflicts and clearances between the various on-site facilities, including any frontage improvements required for the project. All conflict resolution solutions and clearance issues must comply with SVP design standards and practices.

At the conclusion of the Applicant Design Process, the applicant will include the approved SVP substructure drawings in both the planning review set and the building permit set. The applicant will provide an electronic version (AutoCAD and pdf) of the final substructure drawings to the estimator for inclusion in the appropriate SVP project file. After the applicant has submitted the final substructure design, it should not be changed unless absolutely necessary due to unforeseen circumstances such as physical limitations in the field or direct input from the Planning Engineer.

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If a revised Developer's Work drawing is necessary, then the Applicant will work with the assigned Senior Electrical Estimator, utilizing the same routing process as shown in Figure 1, to prepare the revised drawings and related documents. The Principal Electrical Estimator must approve all changes to the substructure design drawings before the revised drawings are released. The Planning Engineer shall review any changes to primary substructure routing, clearances, or enclosure locations. In addition, changes to the substructure design that affect the site layout must be reviewed and approved by the City Planning Department. Electronic versions (AutoCAD and pdf) of the final revised substructure drawings are to be submitted to the Senior Electrical Estimator by the applicant for SVP job records.

Applicant Design for Building Permit Review

On occasion, the City's Planning Division may not require an applicant to obtain any additional planning entitlements for a project site. The Applicant may want to apply for building permits and include SVP's substructure design in the initial drawing set. Alternately, the applicant may want to prepare SVP's substructure drawings and bypass the SVP project queue. The Applicant may proceed with this option with the understanding that all detailed SVP substructure design plans are prepared at the Applicant's own risk. The applicant may choose to utilize the applicant design process for SVP substructure design.

If the developer chooses to use the applicant design option, then the developer will follow the same general process as outlined in Figure 1 and meet with the Planning Engineer and Principal Electrical Estimator to initiate the process. By agreeing to participate in the Applicant Design Process, the developer understands that he will be providing the forces required to generate all SVP substructure design drawings for the project based on the design input from the Planning Engineer and Senior Electrical Estimator assigned to work on his project. The developer accepts all of the costs, risks and responsibilities of managing on-site conflicts and clearances between the various on-site facilities, including any frontage improvements required for the project. All conflict resolution solutions and clearance issues must meet SVP design standards and practices.

At the conclusion of the Applicant Design Process, the Applicant will include the approved SVP substructure drawings in the building permit set. The applicant will also provide an electronic version (AutoCAD and pdf) of the final substructure drawings to the Senior Electrical Estimator for inclusion in the SVP project file documents. After the applicant has submitted the final substructure design, it should not be changed unless absolutely necessary due to unforeseen circumstances such as physical limitations in the field or direct input from the Planning Engineer.

If a revised Developer's Work drawing is necessary, then the Applicant will work with the assigned Senior Electrical Estimator, utilizing the same routing process as shown in Figure 1, to prepare the revised drawings and related documents. The Principal Electrical Estimator must approve all changes to the revised substructure design drawings before the drawings are released. The Planning Engineer shall review any changes to primary substructure routing, clearances, or enclosure locations as well. Electronic versions (AutoCAD and pdf) of the final revised substructure drawings are to be submitted to the Senior Electrical Estimator by the applicant for SVP job records.

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Qualifications of the Applicant's Design Firm

SVP shall have final approval of the Applicant's electric utility design firm. The applicant's electric utility designer must satisfy the following minimum qualifications to be approved by SVP.

- Applicant's electric utility designer firm shall have minimum of 5 years of successful utility substructure design experience in the field of Joint use utility Design, electrical system design, or communication system design.
- Applicant's electric utility design firm shall have a California Licensed Professional Engineer available to provide appropriate PE reviews of all electric utility design drawings. The final Developer's Work drawings submitted by the applicant must be approved and stamped by applicant's California Licensed Electrical or Civil Engineer, as appropriate for the discipline.

Upon request, the Principle Electrical Estimator will provide a list of at least three electric utility design firms that have successfully designed SVP's electric utility substructures in the past. This list does not constitute any endorsement by SVP of the listed design firms. It should also be noted that past performance of any design firm does not guarantee future performance success by the same design firm.

Applicant's Responsibilities

The applicant designed "SVP Developers Work" drawings shall conform to current SVP design and construction standard documents as included in ADP materials provided to the applicant and all other requirements from SVP.

The Applicant is responsible to provide the following:

- I. Signed Applicant Design Responsibilities acknowledgement document
- II. Submit the following documents:
 - i. detailed site plans including roads, sidewalks, driveways, building outlines;
 - ii. Landscaping plans;
 - iii. utility plans;
 - iv. proposed electric plans including Single Line diagrams, loads etc.
 - v. contact joint trench participants where the trenching is required in the public right-of-way.
- III. Provide a scaled composite drawing (AutoCAD and pdf) showing the location of SVP underground facilities in relation to all other utility substructures, landscape plans and civil structures. Provide drawing details to show the cross sections of the trench and the trench participants for review and approval. Cross sections shall be at each utility crossing or a minimum of 100 foot intervals along the trench.
- IV. Provide a separate scaled drawing labelled "SVP Developers Work" showing the location and design of SVP facilities, both existing and proposed. The drawing(s) shall comply with CAD requirements as mentioned in SVP Standard Design documents.
- V. Verify field locations for all public and private utility facilities during the design process; Coordinate with assigned Senior Electrical Estimator to obtain SVP existing substructure as

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- built drawings; Work with SVP personnel to access existing SVP facilities for field investigations.
- VI. Coordinate SVP trench with other dry utilities, if present, in a separate joint trench plan.
 - VII. Coordinate with the assigned Senior Electrical Estimator for SVP asset numbers for appropriate underground substructures.
 - VIII. Provide electrical primary cable pulling calculations.
 - IX. Provide voltage drop at the customer meter location from the proposed service point either SVP transformer location or approved "Low Voltage" pull box.
 - X. Prepare easement documents legal descriptions and exhibits. Coordinate with assigned Senior Electrical Estimator to complete the easement acquisition process including getting signatures from owner, etc.
 - XI. If original approved and signed SVP Developer's Work drawings are revised, the Applicant is responsible for obtaining SVP approval and signatures on revised drawings, prior to release of revised drawings.
 - XII. Applicant is to utilize the approved and signed SVP Developer's Work drawings, including any subsequent revisions, for any building or encroachment permits that may be required for the applicant's project.
 - XIII. Applicant to provide field support during construction related to the design drawing, RFI and change orders. Provide revised drawings as required to reflect design or field changes. Coordinate with relevant parties to respond to design related field inquires during construction.
 - XIV. Applicant is to provide as-built record drawings of the completed substructure installations before SVP acceptance of the substructures as complete.

Silicon Valley Power's Responsibilities

SVP is responsible for the following items:

- I. Primary design layout and substructure requirements for the project;
- II. Electric utility connection point(s);
- III. Number and Size of SVP secondary conductors;
- IV. Maximum number of allowable customer-owned service conductors that can be connected at the point of connection with SVP;
- V. Maximum available interrupting current at utility connection point;
- VI. Applicable design and construction standards and related ADP template documents;

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