Electric Service Guide Residential Subdivision





Contact MID's Electric Engineering Department (<u>electric.standards@mid.org</u>) with any questions about this Service Guide.

Check MID's website (<u>www.mid.org</u>) "Electric Service Guide" for the most current version of this Service Guide.

If you have any suggestions about improving this Service Guide, please complete the form on the last page of this Guide and return it to MID's Electric Engineering Department.

USE CAUTION WHEN DIGGING TO AVOID BURIED ELECTRICAL CABLES BEFORE DIGGING CALL USA (Underground Service Alert) 1 (800) 227-2600 or 811

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A. Frequently Asked Questions

1. What is a Residential Subdivision?

A residential subdivision is defined as a group of residential lots consisting of 3 or more lots.

2. What are the procedures to obtain electrical service to my subdivision?

You need to provide MID with a full set of signed civil improvement plans and a completed "Application for Residential Subdivision Engineering" (see page 23 for a sample, page 24 for the form). For complete step by step requirements, see page 2, Section B of this document.

3. Does MID design my subdivision?

Yes and no. You (or the developer) are responsible for the actual layout design of the subdivision (lots, streets, etc.). MID will only design the electrical portion of the project. However, this cannot be accomplished until the initial subdivision design is complete.

4. How long does the MID engineering process take?

Design work by MID normally takes 6-8 weeks. You (or the developer) can start your portion of the project any time after you receive the requirements package (see page 2, Requirements for Obtaining Electric Service to a Subdivision). MID crews can mobilize and start installing our facilities within 4 weeks of completed requirements.

5. When will MID install its facilities?

MID normally **starts** this process 4-6 weeks **after** final inspections are complete on **all MID** required facilities.

6. Are there any fees?

Fees may be required depending on where the subdivision is located. You'll need to contact the MID Engineering Department for all applicable fees.

7. Can I have sub-surface transformers?

The standard and MID-preferred transformer style is a pad-mounted transformer. If sub-surface transformers are chosen, you will be required to pay a non-refundable cost per transformer according to the current fees listed in Appendix A of the Electric Service Rules.

B. Requirements for Obtaining Electric Service to a Subdivision

The following is a general list of items needed to obtain electric service to a proposed subdivision. In all instances a unique letter and drawings will be provided outlining all requirements that must be met by the customer/developer. The letter will also outline what MID will be providing and/or installing.

- 1. The customer must contact the MID Engineering Technician assigned to the customer's area (see the Map on page 25).
- Submit a completed Application for Residential Subdivision and a full set of signed, civil improvement plans to the MID Engineering Department. Civil improvement plans must be submitted via electronic media using AutoCAD version 2000 and above format. Submit this information to the assigned MID Engineering Technician. MID contact information is found on page 4.
- 3. The MID Engineering Department will design the electrical utilities per the submitted civil improvement plans. MID will issue a *Residential Subdivision Contract*, a *Residential Subdivision Requirements Letter*, and a *Residential Subdivision Requirements Drawing(s)*. This process normally takes 8-10 weeks. Larger projects may take an additional 2-3 weeks.
- 4. The customer is responsible for coordinating all joint trench composite drawings and coordinating the installation of facilities for all other utilities.
- 5. The customer must install all required underground facilities per the *Requirements Letter* and *Drawing(s)*. Facilities to include, but not be limited to, underground conduits, service boxes, transformer pads, and switchgear pads.
- 6. All conduit installations must be inspected and mandrilled per Drawing RES SUB-008.0 (page 11).
- 7. All vaults and/or service boxes must be installed and inspected per Drawings RES SUB-001.0 through Drawing RES SUB-019.0 (page 22).
- 8. After final inspections on all required facilities, the customer may apply for electrical service.
- 9. MID will install electric facilities. MID normally **starts** this process 4-6 weeks **after** final inspections are complete on **all MID** required facilities.

C. Project Scheduling Table

Step	Party	Typical Time Required by MID	Action
1	Customer		Send complete application package to MID's Electrical Engineering Department for review and design.
2	MID	21 business days	Engineering Technician sends preliminary design to Joint Trench Coordinator or other utilities for Joint Trench Intent.
3	MID	40 business days following Step 2	Engineering Technician designs the conduit and electrical layout. Engineering Technician sends the Application for Underground Electrical Service and one conduit and two electric layout plans to the Customer.
4	Customer		Return the signed Application for Underground Electrical Service and pay any applicable fees. Obtain all necessary permits from the local governing authority.
5	MID	15 business days	Engineering Technician assembles the work order package and submits to MID construction.
6	Customer		Call USA to locate underground utilities, install conduit and substructures, request MID and local governing authority to inspect trench and conduit.
7	MID	5 business days	MID inspects trench and conduit.
8	Customer		Curb, gutter and sidewalk are installed, and substructures set to grade. Request final inspection from MID.
9	MID	5 business days	MID inspects all substructures and witnesses mandrel test performed by developer.
10	MID	30 business days pending weather and scope of project	MID installs its electrical facilities and energizes the project.

D. Local Governing Authorities Within MID's Service Area

City of Modesto Building Department

1010 Tenth St. 3rd Floor Modesto, CA 95353 Phone: 209-577-5232

Stanislaus County Building Department

1010 Tenth St. Suite 3500 Modesto, CA 95354 Phone: 209-525-6557 Fax: 209-525-7759

San Joaquin County Building Department

1810 Hazelton Ave. Stockton, CA 95205 Phone: 209-468-3121

City of Riverbank Building Department

6617 3rd St. Riverbank, CA 95367 Phone: 209-863-7128

City of Ripon Building Department

259 N. Wilma Ave. Ripon, CA 95366 Phone: 209-599-2613 Fax: 209-599-2183

E. MID Contact Information

Modesto Irrigation District

1231 Eleventh Street (P.O. Box 4060) Modesto, CA 95354 (Modesto, CA 95352) Electrical Engineering Department¹ Phone: 209-526-7468 Fax: 209-526-7357

¹ Contact the MID Engineering Technician assigned to the area (see map on page 25).

City of Waterford Building Division 101 E St. Waterford, CA 95386

Phone: 209-874-2328 Fax: 209-874-9656

City of Oakdale Community Development 455 S. Fifth Ave.

Oakdale, CA 95361 Phone: 209-845-3625 Fax: 209-848-4344

City of Escalon Building Department

2060 McHenry Ave. Escalon, CA 95320 Phone: 209-691-7460 Fax: 209-691-7439



Drawing RES SUB-001.0: Transformer Vault Detail for URD Application, for 12kV System



Drawing RES SUB-002.0: Pull Box Detail for URD Application



Drawing RES SUB-003.0: Service Box Detail for URD Application

Residential Subdivision

Electric Service Guide



Drawing RES SUB-004.0: URD Transformer Pad Installation for 12kV System



Drawing RES SUB-005.0: Precast Concrete Vault and Lid for Horizontal Subsurface Transformers, 25kV Class



Drawing RES SUB-006.0: Transformer Box Pad, 25kV Class

1.0 GENERAL

These specifications cover installation of transformer pad, high voltage and secondary voltage conduit for single phase power service in a residential subdivision. All material shown shall be furnished by the customer or his contractor including the transformer pad or vault, secondary pull box and, primary and secondary voltage conduit. All materials used shall be supplied by a district approved manufacturer. The District will furnish and install the transformers, switchgear, and the high voltage and secondary cables.

2.0 DUCT INSTALLATION

Duct shall be installed at the proper depth consistent with District requirements and specifications and per the manufacturer's recommendations and shall be properly joined together with couplings, primer and cement and aligned such that there are no sharp edges on the inside to damage the cable. Bell ends (same size at the conduit) are required for all conduits entering pull boxes, transformer pads, and vaults.

The minimum radius of bends depends on duct size and type of installation and shall be as specified in RES SUB-018.0, RES SUB-005.0, and RES SUB-006.0 as applicable or as otherwise noted on the District approved engineering drawing. The total of all angles at couplings and bends shall not exceed 360° in any continuous duct run between outlets.

An inspection must be made by the district when the duct and any required concrete encasement is installed in the open trench. Call 526-7457 to notify the district inspector. After this part of the installation has been approved, the customer will back-fill and compact the trench and prepare to pull a mandrel no less than 0.5" smaller than the inside diameter of the duct and 12" in length. The next inspection will be made by the District when the mandrel is pulled through the duct. At time of inspection the customer will supply an appropriate length of footage-calibrated "pull tape" to attach to the mandrel and pull in the duct. The "pull tape" will be used by the District for subsequent cable installation. Failure to have required inspections at the proper time will result in a delay until the duct is uncovered for inspection and/or the mandrel is pulled in the presence of the District's inspector. See section 2 page 6 for inspection details.

All conduit shall be held vertical when back filling.

3.0 APPROVED DUCT TYPES

Polyvinyl Chloride (PVC) duct designed for direct burial installation shall comply with one of the following standards: Conduit marked schedule 40 PVC ASTM TC-2, or schedule 40 U.L., 90°C.

The District reserves the right to reject any of the above ducts which show signs of damage, or where improperly installed.

Solvent cemented joints shall be made according to the manufacturer's recommendations, using primer and cements meeting the requirements of ASTM D2564 of PVC duct.

4.0 APPROVED PULL TAPES

ARNCO part number DL WP25, Neptco product number WP2500P, or a District approved equivalent.

5.0 TRANSFORMER PADS AND VAULTS, PULL BOXES, AND SERVICE BOXES Transformer pads shall be in accordance with District specification RES SUB-004.0 or RES SUB-006.0

Transformer vaults shall be in accordance with District specification RES SUB-001.0 or RES SUB-005.0

Pull boxes shall be in accordance with District specification RES SUB-002.0.

Service boxes shall be in accordance District specification RES SUB-003.0.

6.0 STREET CROSSINGS

At locations where the primary and/or the secondary facilities cross a street, the letter 'E' shall be stamped on the curb and gutter on both sides of the street.

NOTE:

For minimum requirements for terminating underground electric s SUB-020.0 thru RES SUB-024.0.	services see M.I.D. drawings RES SUB-007.0 & RES

MID	ELECT	RIC SER	VICE GUI	DE	RESIDENTIAL SUBDIVISION		
WN BY:	APPROVED BY:	DATE:	DWC: RES SUB-008.0	REVISION:	GENERAL SPECIFICATIONS FOR URD DUCT INSTALLATION, PAD, VAULT AND PULL BOXES		

Drawing RES SUB-008.0: General Specifications for URD Duct Installation, Pad, Vault & Pull Boxes

PURPOSE:

- 1.0 These drawings provide a variety of landscape ideas that may be used by the applicant to screen pad-mounted transformers.
- 2.0 Landscape screening such as plants, shrubs, retaining walls and decorative walls are installed, owned and maintained by the applicant. Landscape screening is encouraged as it helps to improve the overall appearance and acceptance of pad-mounted transformers, which are much less costly to install and maintain than subsurface transformers.

GENERAL:

- 1.0 These drawings are intended to illustrate a variety of design concepts. They may be modified to fit a particular need or site condition.
- 2.0 These are illustrative designs and are not intended to be construction or working drawings. Materials and construction methods will have to be determined by the installer to meet the requirements of the particular site.
- 3.0 The addition of suitable plants to these basic designs will enhance the overall screening effect.
- 4.0 The designs illustrate screening single-phase transformers, but the same concepts may be applied to screening three phase transformers.

CLEARANCES:

- 1.0 A clear, level working space of 10 feet is required in front of the transformer.
- 2.0 Clearance of 3 feet is required from the transformer pad to incidental walls, such as those depicted in these drawings. This may be reduced to 1 foot if the wall height does not exceed 2 feet and the wall thickness does not exceed 1 foot.

PLANTS FOR SCREENING TRANSFORMERS:

All shrubs listed below are evergreen plants that are not over 5' at maturity. All plants should be planted at a minimum 5 gallon size.

- 1.0 Nandina Domestica (Heavenly Bamboo)
- 2.0 Agapanthus Orientalis (Lily-of-The-Nile)
- 3.0 Santolina Chamaecyparissus (Lavender Cotton)
- 4.0 Cistus Hybridus (White Rockrose)
- 5.0 Cistus Purpureus (Orchid Rockrose)
- 6.0 Raphiolepis J. "Coales Crimson" (Indian Hawthorn)
- 7.0 Raphiolepis Indica. "Enchantress" (Indian Hawthorn)
- 8.0 Eriophyllum Confertiflorum (Yellow Yarrow)
- 9.0 Juniperus Conferta (Shore Juniper)
- 10.0 Rosmarinus Officinalis (Creeping Rosemary)

 MID ELECTRIC SERVICE GUIDE
 RESIDENTIAL SUBDIVISION

 DRAWN BY:
 APPROVED BY:
 Date:
 DWG: RES SUB-009.0
 REMISION:
 SUGGESTED LANDSCAPE SCREEN FOR
PAD MOUNTED TRANSFORMERS

Drawing RES SUB-009.0: Suggested Landscape Screen for Pad Mounted Transformers



Drawing RES SUB-010.0: Suggested Landscape Screen for Pad Mounted Transformers



Drawing RES SUB-011.0: Typical Electrical Distribution Layout Without Elbows



Drawing RES SUB-012.0: Primary - Secondary Typical Trench Configuration





Drawing RES SUB-014.0: Typical 1Ø Transformer Vault and Conduit Plan Without Elbows



Drawing RES SUB-015.0: Typical 1Ø Primary Pull Box Without Elbows



Drawing RES SUB-016.0: Typical 1Ø Secondary Service Box



Drawing RES SUB-017.0: Typical Street Cross Section for Electrical Distribution (Vault)



Drawing RES SUB-018.0: Typical Street Cross Section for Electrical Distribution (Padmount)



Drawing RES SUB-019.0: URD Transformer Pad Conduit and Template Installation, for 12kV System

Modesto Irrigation District Application for Residential Subdivision Engineering					
Date: Name of the Development: Number of Lots:	<u>6/30/2014</u> Browns Garden 123				
Location of the Development:	1231 Sample Drive Modesto, CA 95353				
Civil Engineering Firm:	Sample Engineering Modesto, CA 95352				
Estimated Rough Grade Start Date: Ready for Utility Date:	<u>8/21/2014</u> 12/31/2014				
Developer's Representative Name:	John Doe				
Address:	5419 Sample Ct Modesto CA 95365 Phone No. (209) 531-1111				
(Note: Developer's representative must have the	he authority to act as a responsible agent for said developer.)				
standards. The District shall provide basic ele	ion area **- Not Available in Oakdale area				
A/C 🛛 Heating 🖾 Gas 🗖 Heat Pun	np Hot Water Heater: Gas 🛛 Electric				
Clothes Dryer: Gas 🛛 Electric	Range: Gas 🖾 Electric				
Send completed application for engineering p	oackage to: Modesto Irrigation District P.O. Box 4060 Modesto, CA 95352 Attn: Subdivision Engineering				
To be completed by Modesto Irrigation District:					
Complete Engineering Application Package Rece	ived Date: Received By:				
	k Order No. Date:				
Start Engineering Date:					
	Go to <u>http://www.mid.org/forms/</u>				
	for the most current Application.				

Sample 1: Application for Residential Sudivision Engineering

Modesto Irrigation District Application for Residential Subdivision Engineering

Date:	
Name of the Development:	
Number of Lots:	
Location of the Development:	
Civil Engineering Firm:	
Estimated Rough Grade Start Date: Ready for Utility Date:	
Developer's Representative Name:	
Address:	
-	
	Phone No. ()
(Note: Developer's representative must have the	authority to act as a responsible agent for said developer.)
standards. The District shall provide basic electr	developer and be in compliance with all District specifications and ic service from a pad-mounted transformer* at \$1,300 per lot. An equested at an additional cost of $\frac{6,900 \text{ per transformer location.}}{1000 \text{ per transformer location.}}$
Check One: Pad-mount Transformer * *- Not Available in Ripon and Escalon	area Submersible Transformer** **- Not Available in Oakdale area
Square feet of Homes (give range):	
A/C \Box Heating: \Box Gas \Box Heat Pump	
Clothes Dryer: 🛛 Gas 📮 Electric	Range: Gas Electric
Send completed application for engineering pac	kage to: Modesto Irrigation District P.O. Box 4060
	Modesto, CA 95352
	Attn: Subdivision Engineering
To be completed by Modesto Irrigation District:	
Complete Engineering Application Package Receive	d Deter
Work C	Order No. Date:
Start Engineering Date:	Complete Engineering Date:



Form 2: Area Map



Service Guide Customer Input Form

The Modesto Irrigation District strives to provide excellent customer service. In an effort to improve our Service Guides, this form is provided so you can share your comments and suggestions. Please fill out this form and submit it with along with your comments. Please be as specific as possible. Once the form is complete, email the form to our Standards Department at <u>electric.standards@mid.org</u>, or mail the form to the Modesto Irrigation District office, attention Electrical Standards.

Modesto Irrigation District Attn: Electrical Standards PO Box 4060 Modesto CA, 95352-4060							
Name:			Date:				
Phone Number:		Email:					
Indicate which Service Guide you	r comments	pertain to:					
 Residential Agricultural Commercial and Indust Temporary 	 Solar Photovoltaic Electric Vehicle Residential Subdivision Street Lighting and Miscellaneous 						
	Not Effective	Somewhat Effective	Effective	Very Effective	N/A		
Organization of Service Guide							
Requirements Were Clear							
Effectiveness of Sample Forms							
Effectiveness of Drawings							
Effectiveness of Service Guide							
Comments:							

