

INSTALLATION OF U/G ELECTRIC & GAS FACILITIES IN RESIDENTIAL SUBDIVISIONS

1.0 PURPOSE

The procedures and requirements as set forth in this standard are to provide guidance for work done by the applicant for the installation of electric & gas facilities for the exclusive use by Sierra Pacific Power Co. in a residential subdivision.

2.0 INDEX

- 1.0 PURPOSE
- 2.0 INDEX
- 3.0 DEFINITIONS
- 4.0 SCOPE OF WORK
- 5.0 INSPECTION AND PERFORMANCE
- 6.0 CHANGES
- 7.0 EXCAVATION
- 8.0 BACKFILL
- 9.0 CONCRETE
- 10.0 COMPACTION
- 11.0 WORKMANSHIP
- 12.0 GAS INSPECTION PUNCH LIST
- 13.0 SAMPLE LETTER OF SUBGRADE

3.0 DEFINITIONS

Applicant: The Owner(s), Developer(s), or thier designated representative.

SPPCo.: Sierra Pacific Power Company

Utility Project Coordinator (UPC): Sierra's engineering representative.

Inspector: SPPCo.'s employee designated to inspect installation of any portion of electric, gas, or water facilities to be owned and/or maintained by SPPCo.

Operations Coordinator: SPPCo.'s operating representative who coordinates the start of construction dates.



ENGINEERING & CONSTRUCTION STANDARD

SHEET 2 OF 8

SECTION 2 GUIDELINES
INSTALLATION OF U/G ELECTRIC & GAS
FACILITIES IN RESIDENTIAL SUBDIVISIONS

DRAWING NUMBER

GU0005U

DRAWN	DESIGN	SUPR	DATE	REV
GD	JF	KT	5/98	7/06

4.0 SCOPE OF WORK

4.1 Work by Applicant: Applicant shall perform all work necessary to construct or install facilities in accordance with SPPCo.'s work order drawings, as follows:

- A) Applicant's engineer shall provide all staking as outlined in SPPCo.'s Standard GI0001U for electric & gas facilities. (Section 3)
- B) Furnish excavation and approved backfill of trenches and vaults for electric facilities, TE0001U & SUB01X. (Section 3)
- C) Provide and install substructures including concrete encasement (if required), vaults, man-holes, hand holes, pull boxes, transformer pads, equipment pads, ground rods, conduit and risers as shown on SPPCo. work orders.
- D) Applicant - installed gas systems shall be in accordance with the standards issued for each project by the Gas Engineer.
- E) Applicant shall be solely responsible for protecting gas pipe, valves, electric cables, ducts, and structures from superimposed loading created by construction equipment or otherwise. Applicant shall repair or pay for any damage done to above equipment to meet SPPCo.'s Inspector's approval.
- F) **Applicant is responsible for contacting Underground System Alert (USAN) 1-800-227-2600 two days before digging.**
- G) Applicant is responsible for grouting vaults, and installing a minimum of 5/32" polypropylene pull line with a minimum breaking strength of 480 pounds in each conduit. Mandreling the conduit shall be required as per SPPCo. standard CD0001U. (SPPCo Volume 17)
- H) **Applicant shall not cut holes in or enter existing SPPCo. energized vaults/manholes or transformers without Inspector or other qualified SPPCo. employee being present.** Applicant shall notify the Inspector 24 hours in advance when work is to be performed on existing energized vaults.
- I) Applicant is responsible for providing enough space for proper layout of all utilities.
- J) Applicant shall not install other utilities' boxes/equipment over SPPCo. conduit.



ENGINEERING & CONSTRUCTION STANDARD

SHEET 3 OF 8

SECTION 2 GUIDELINES
INSTALLATION OF U/G ELECTRIC & GAS
FACILITIES IN RESIDENTIAL SUBDIVISIONS

DRAWING NUMBER

GU0005U

DRAWN	DESIGN	SUPR	DATE	REV
GD	JF	KT	5/98	7/06


4.2 Work by SPPCo.: SPPCo. shall perform the work necessary to complete the electric & gas systems as contracted for by Applicant. For the electric system, this includes transformers, switches, high voltage cable, service conductor, meter(s), and all connections.

5.0 INSPECTION AND PERFORMANCE

- 5.1 Preconstruction conferences will be scheduled to coordinate the start of construction. Those to attend should include SPPCo.'s Utility Project Coordinator, Operations Coordinator, and/or Inspector(s); Applicants General or Excavating Contractor, and Engineer; and Representatives of other utilities, i.e. Communication, TV, City, etc...
- 5.2 Applicant shall inform the inspector at least two work days in advance before commencing any item of construction or installation of material to enable proper inspection of materials and workmanship. Materials and/or workmanship failing to meet specifications or installed without prior notice to inspector will be subject to rejection. Any work rejected shall be immediately corrected at applicants expense. No work shall be backfilled or otherwise covered or concealed until it has been inspected and approved by the Inspector.
- 5.3 All materials and workmanship shall be first quality in every respect, plumb and true and according to the specific requirements of the work order drawings, SPPCo.'s standards, and this specification.
- 5.4 Where interpretation or clarification of intent of any drawing is required, the Inspector, UPC, Standards and the Contractor will work together to resolve the problem.
- 5.5 **If any portion of the completed system fails to operate satisfactorily due to defects in applicants work, the defect and any damaged portion of the system shall be corrected at the Applicants expense and to the satisfaction of SPPCo. Inspector.**

6.0 CHANGES

- 6.1 By mutual consent, in writing, additions/deletions may be made to these requirements without voiding this standard.
- 6.2 Any charges for additional work for SPPCo. brought about by Applicant's changes will be billed directly to the Applicant with payment due prior to service(s) being made available.

					ENGINEERING & CONSTRUCTION STANDARD		SHEET <u>4</u> OF <u>8</u>		
					SECTION 2 GUIDELINES INSTALLATION OF U/G ELECTRIC & GAS FACILITIES IN RESIDENTIAL SUBDIVISIONS				DRAWING NUMBER GU0005U
DRAWN	DESIGN	SUPR	DATE	REV					
GD	JF	KT	5/98	7/06					

7.0 EXCAVATION

- 7.1 Typical order of Utility installation is: Sewer and/or Storm Drains, Electric-Telephone-Cable TV, Water and/or Gas. Subgrade shall be established prior to staking of Electric facilities. A **Letter of Subgrade** must be received by the Sierra Gas Inspector prior to gas and pipe installation. A sample **Letter of Subgrade** is provided on sheet 8 of this section.
- 7.2 Property lines shall be chiseled on the curb and finish stakes in place prior to obtaining approval from the Inspector to proceed with excavation for electric. All trenching shall be in accordance with OSHA requirements. Prior to the start of electric trenching, the Applicant may install electric conduit at street crossings for his convenience provided permission to do so is obtained from the Inspector and the installation itself is inspected and approved.

8.0 BACKFILL

- 8.1 Backfill material shall be approved by the Inspector and shall meet SPPCo.'s Standard SUB01X. In addition, backfill material shall meet governmental codes and ordinances, as applicable.(see Section 3)
- 8.2 A minimum of 6" of SPPCo. approved sand shall be placed below conduit(s) and compacted to 90% of the relative maximum density. After the conduit installation, an additional compacted sand cover of not less than 12" shall be installed and compacted to 90%.
- 8.3 Applicant shall place SPPCo. approved backfill in trenches in the presence of the Inspector. When joint construction is utilized, two or more backfill operations shall be required. Applicant shall be responsible for the cost of repair if any damage occurs to the cables or ducts where damage results from failure of Applicant to follow proper backfill procedures.
- 8.4 No native backfill larger than 4" shall be permitted and no native backfill shall be placed directly on the pipe, cable, conduit in accordance with SUB01X.

9.0 CONCRETE

- 9.1 Concrete encasement of 90° sweeps may be required on primary/secondary conduits runs with multiple sweeps.
- 9.2 Other concrete encasements may be required, see CD0001U, Section 13, Volume 17.



ENGINEERING & CONSTRUCTION STANDARD

SHEET 5 OF 8

SECTION 2 GUIDELINES
INSTALLATION OF U/G ELECTRIC & GAS
FACILITIES IN RESIDENTIAL SUBDIVISIONS

DRAWING NUMBER
GU0005U

DRAWN	DESIGN	SUPR	DATE	REV
GD	JF	KT	5/98	7/06

10.0 COMPACTION

- 10.1 Backfill above the first 12" lift shall be secured with mechanical tamping units (not the tire or track of vehicles).
- 10.2 Backfill shall be placed in maximum lifts of 12".
- 10.3 Backfill shall be moistened as required to obtain compaction.
- 10.4 Compaction shall be a minimum of 90% of the relative maximum density, as determined by the Method ASTM D-1557. Local agencies whose ordinances require compaction in excess of 90% shall prevail.
- 10.5 Applicant is responsible for obtaining two compaction tests on all transformer and equipment pads.
 - A) The first compaction test shall be a minimum of 90% of the relative maximum density on the 12" of sand.
 - B) The second compaction test shall be a minimum of 95% of the relative maximum density on the 8" (minimum) base.

11.0 WORKMANSHIP

- 11.1 All vaults, hand holes, pull boxes, etc..., located behind sidewalk shall be parallel to sidewalk and set .20" above sidewalk so water does not drain into the vault. See TE0001U, Section 6.3.
- 11.2 Padmounted transformers and switch pads shall be parallel and flush with the back of the sidewalk, and the bottom of the pad shall be level to the top of the sidewalk.
- 11.3 If there are no sidewalks, another reference will be established by SPPCo.'s UPC, Inspector and the Contractor.
- 11.4 All material furnished by Developer to be onsite prior to the start of any work by SPPCo.
- 11.5 All work to be done in accordance with OSHA regulations.

					ENGINEERING & CONSTRUCTION STANDARD		SHEET <u>6</u> OF <u>8</u>	
SECTION 2 GUIDELINES INSTALLATION OF U/G ELECTRIC & GAS FACILITIES IN RESIDENTIAL SUBDIVISIONS					DRAWING NUMBER <i>GU0005U</i>			
DRAWN	DESIGN	SUPR	DATE	REV				
GD	JF	KT	5/98	7/06				

12.0

INSTALLATION OF U/G FACILITIES IN RESIDENTIAL SUBDIVISIONS

GAS INSPECTION PUNCH LIST

PROJECT NAME: _____ DATE: _____

W.O. # _____ INSPECTOR: _____

PLANNER: _____ COORDINATOR: _____

DEVELOPER: _____ CONTRACTOR: _____

STEPS BY CONTRACTOR

APPROVED (INITIAL)

SIERRA PACIFIC POWER INSPECTOR TO CHECK STANDARD IN VIOLATION

- 1. Letter of Subgrade
2. Grade and Location Stakes (GI0001U-GI0002U)
3. Equipment Locations (TE0020)
4. Trench Depth (TE0003)
5. Trench Bedding (SUB01X)
6. Pipe Installation
7. Box (es) Placement
8. Final Fill (SUB01X)

- 9. Gas Riser Location (GM0010)
10. Gas Main Pressure Test (GCS01G)
11. Tracer Wire (GCS01G)
12. Test Stations (CPI Sec.5)
13. Valve Boxes to Grade

Blank lines for recording inspection results.

17. Final acceptance by SPPCo. Inspector: _____

PLEASE CALL YOUR LOCAL SPPCo. OFFICE 48-HOURS IN ADVANCE OF INSPECTION IN RENO PLEASE CALL 834-4356 48-HOURS IN ADVANCE OF INSPECTION

WHITE: SPPCO YELLOW: Developer PINK: Contractor

This form is to be maintained by SPPCo.'s Inspector and turned in with the "as built" drawing for a permanent record.



ENGINEERING & CONSTRUCTION STANDARD

SHEET 7 OF 8

SECTION 2 GUIDELINES
INSTALLATION OF U/G ELECTRIC, GAS,
FACILITIES IN RESIDENTIAL SUBDIVISIONS

DRAWING NUMBER

GU0005U

Table with columns: DRAWN, DESIGN, SUPR, DATE, REV. Values: GD, JF, KT, 5/98, 7/06

13.0 SAMPLE LETTER OF SUBGRADE

10.1

ATTENTION: (*INSPECTOR OR SPPCo REPRESENTATIVE*)

RE: (*JOB NAME*)

The above referenced project has been surveyed by (*independent certified engineering firm*) and it has been determined that the existing subgrade is within ± 0.3 feet of design subgrade. This "subgrade" is defined as: final grade prior to roadway base and asphalt.

SPPCo utilities will be staked and installed from this subgrade.

In the event that this subgrade changes and effects the final depth and/or condition of the utilities, the Developer/Applicant will be responsible, at their expense, for the relocation and/or repair of the utilities effected by the change.

Sincerely,

(*Developer/Applicant and/or it's Contractor*)

Sierra Pacific
POWER COMPANY



ENGINEERING & CONSTRUCTION STANDARD

SECTION 2 GUIDELINES
INSTALLATION OF U/G ELECTRIC & GAS
FACILITIES IN RESIDENTIAL SUBDIVISIONS

SHEET 8 OF 8

DRAWING NUMBER

GU0005U

DRAWN	DESIGN	SUPR	DATE	REV
GD	JF	KT	5/98	7/06