COUNTY OF SAN JOAQUIN

DEPARTMENT OF PUBLIC WORKS
P.O. BOX 1810-1810 E. HAZELTON AVENUE
STOCKTON, CALIFORNIA 95201
(209) 468-3000
FAX # (209) 468-9324

Permit No: **PS-1603264**
Date Issued: 10/18/2016
Start Date: 10/18/2016
Exp. Date: 10/31/2016
Project No: PWP730052
Quad: NE

UE/CR/PM NO:31179017

ENCROACHMENT PERMIT

To: PACIFIC GAS & ELECTRIC - SAN RAMON
6121 BOLLINGER CANYON ROAD
SAN RAMON, CA 94583

Encroachment Type:

Bore (up to 12 inch Dia)	Trench		

Location:
S/S E ACAMPO RD 2,500' E/O CLEMENTS RD

In compliance with your request of **10/18/2016** , permission is hereby granted to do work in County right-of-way as shown on attached application and subject to all the terms, conditions and restrictions written below or printed as general or special provisions on any part of this form. See reverse side and attached sheet, if any.

Trench excavations for service connections will not be permitted within ten feet (10') of pavement centerline unless otherwise approved by the Director. Surface of trench patches shall match in kind and be smooth and even with that of abutting surface. Special attention shall be given to depth of utilities through roadside area in anticipation of future drainage facilities, road profile and/or frontage development. All underground utility facilities are to be established and accurately dimensioned on sketches from surveyed centerline of road right of way, or from right of way (border) lines.

Permittee shall call the Department of Public Works, Field Engineering Division (Permit Inspections) at (209)953-7421 at least forty-eight hours prior to beginning any work within the County right of way. All work performed under this permit shall conform to the rules and regulations pertaining to safety established by the California Division of Industrial Safety and Cal-OSHA.

The jobsite shall be kept in a safe condition at all times by the daily removal of any excess dirt or debris which might be a hazard to either pedestrian or automobile traffic. All necessary traffic convenience and warning devices and personnel shall be provided, placed and maintained by and at the sole expense of the Permittee in accordance with the latest edition of the CALTRANS Manual of Traffic Control.

After completion of the work permitted herein, all debris, lumber, barricades, or any excess material shall be removed and the jobsite left in a neat workmanlike manner. Immediately following completion of construction permitted herein, Permittee shall fill out and mail notice of completion (see attached post card) provided by Grantor.

Special Comments:
Traffic Control Per MUTCD

FORMS:

SS/WW, R-29		

Est. Permit Fee: $758.10

KRIS BALAJI, Director
Department of Public Works

By: _____
Permit Section

WHITE -Permittee
GOLDENROD -PWD Central File
YELLOW -Field Inspection
PINK -Permit Section

ENCROACHMENT PERMIT GENERAL PROVISIONS

13-1

1. This permit is issued under and subject to all laws and ordinances of agencies governing the encroachment herein permitted. See the following references:
   STREETS AND HIGHWAYS CODE
   1. Division 1, Chapter 3
   2. Division 2, Chapter 2, Section 942
   3. Division 2, Chapter 4, Section 1126
   4. Division 2, Chapter 5.5 and Chapter 6

   SAN JOAQUIN COUNTY ORDINANCES NUMBERED: 324, 441, 648, 662, 672, 695, 700, 860, 892, 3359, and 3675.

2. It is understood and agreed by the Permittee that the performance of any work under this permit shall constitute an acceptance of all the provisions contained herein and failure on the Permittee's part to comply with any provision will be cause for revocation of this permit. Except as otherwise provided for public agencies and franchise holders, this permit is revocable on five days notice.

3. All work shall be done subject to the supervision of and the satisfaction of the grantor. The Permittee shall at all times during the progress of the work keep the County Highway in as neat and clean condition as is possible and upon completion of the work authorized herein, shall leave the County Highway in a thoroughly neat, clean and usable condition.

4. The Permittee also agrees by the acceptance of this permit to properly maintain any encroachment structure placed by the Permittee on any part of the County Highway and to immediately repair any damage to any portion of the highway, which occurs as a result of the maintenance of the said encroachment structure, until such time as the Permittee may be relieved of the responsibility for such maintenance by the County of San Joaquin.

5. The Permittee also agrees by the acceptance of this permit to make, at its own expense, such repairs as may be deemed necessary by the County Department of Public Works.

6. It is further agreed by the Permittee that whenever construction, reconstruction or maintenance work upon the highway is necessary, the installation provided for herein shall, upon request of the County Department of Public Works, be immediately moved or removed by and at the sole expense of the Permittee.

7. No material used for fill or backfill in the construction of the encroachment shall be borrowed or taken from within the County right of way.

8. All work shall be planned and carried out with as little inconvenience as possible to the traveling public. No material shall be stacked within eight feet (8') of the edge of the pavement or traveled way unless otherwise provided herein. Adequate provision shall be made for the protection of the traveling public. Traffic control standards shall be utilized including barricades; approved signs and lights; and flagmen, as required by the particular work in progress.

9. The Permittee, by the acceptance of this permit, shall assume full responsibility for all liability for personal injury or damage to property which may arise out of the work herein permitted or which may arise out of the failure of the part of the Permittee to properly perform the work provided under this permit. In the event any claim of such liability is made against the County of San Joaquin or any department, official or employee thereof, the Permittee shall defend, indemnify, and hold each of them harmless for such claim.

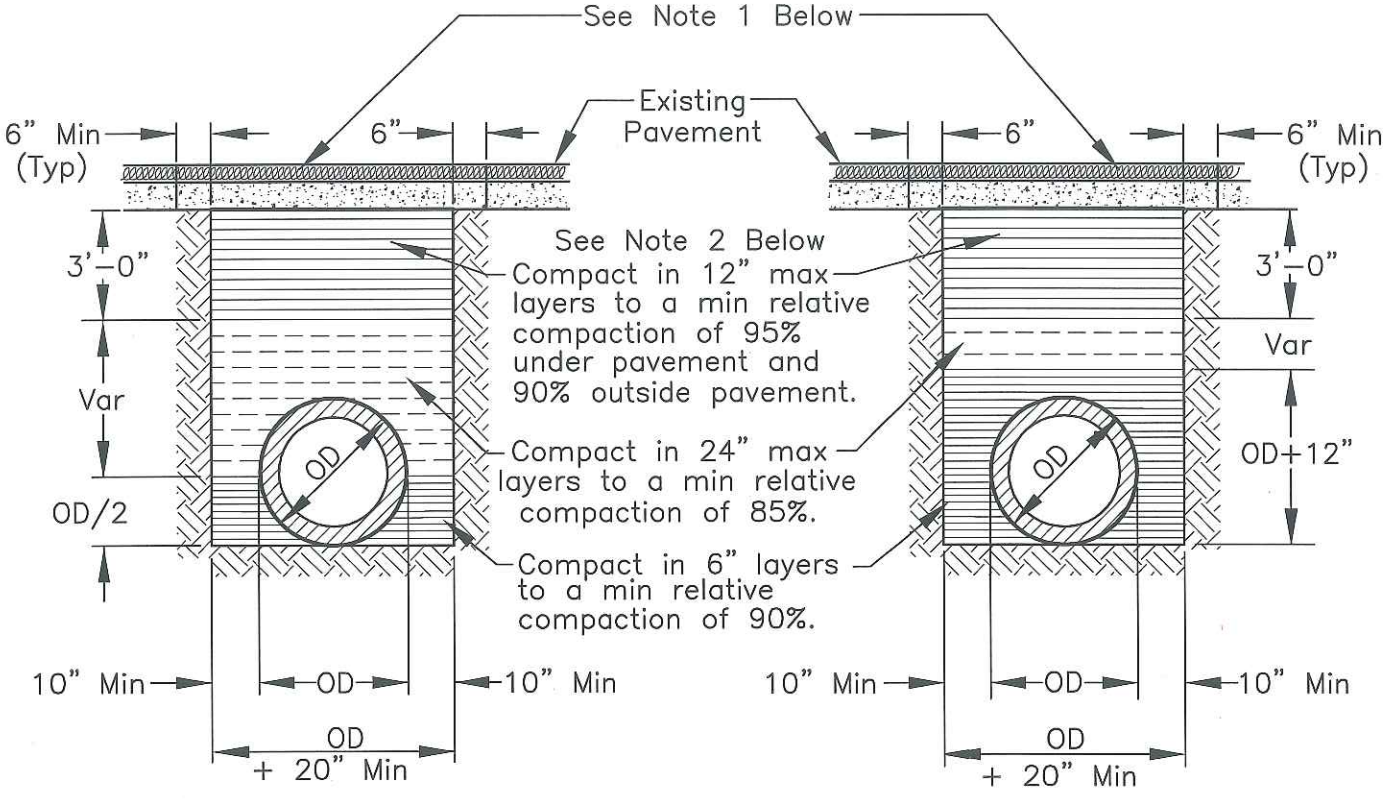
10. All backfill material is to be moistened as necessary and thoroughly compacted with mechanical means. If required by the County Director of Public Works, such backfill shall consist of gravel or crushed rock. The Permittee shall maintain the surface over structures placed hereunder as may be necessary to insure the return of the roadway to a completely stable condition and until relieved of such responsibility by the County Department of Public Works. Wherever a gravel, crushed rock or asphalt surface is removed or damaged in the course of work related to the permitted encroachment, such material shall either be separately stored and replaced in the roadway as nearly as possible in its original state or shall be replaced in kind, and the roadway shall be left in at least as good a condition as it was before the commencement of operations of placing the encroachment structure.

11. Whenever it becomes necessary to secure permission from abutting property owners for the proposed work, such authority must be secured by the Permittee prior to starting work.

12. The current and future safety and convenience of the traveling public shall be given every consideration in the location and methods of construction utilized.

13. The Permittee is responsible for the preservation of survey monuments located within the area of work herein permitted. Prior to the start of construction, survey monuments that potentially may be disturbed shall be located and referenced by a Licensed Land Surveyor, and a Corner Record filed with the County Surveyor. Any Survey Monuments disturbed during the course of construction shall be reestablished by a Licensed Land Surveyor and another Corner Record filed with the County Surveyor. (Land Surveyors' Act Section 8771)

14. Prior to any excavation, the Permittee shall notify USA North (Underground Service Alert of Northern California and Nevada) at 811 or 800-227-2600 forty-eight (48) hours in advance.



RIGID CONDUIT

FLEXIBLE CONDUIT

NOTES:

1. New pavement shall be 1" thicker than existing pavement, minimum of 0.25 Ft. New base shall be 1" thicker than existing base, min of 0.50 Ft.
2. Select native material or imported granular material as approved by the Director of Public Works. Backfill with materials equal to or better than the existing pavement and base in quality.
3. Relative compaction of materials shall be tested in accordance with the State of California, Dept. of Transportation Testing Manuals, test method No. California 216 or 231.
4. All existing pavement shall be neatly cut to line prior to trench excavation.
5. Jetting or ponding will be permitted within the street right-of-way with a 3 year bond, when approved by the Director of Public Works.
6. When shown by soil composition and compactability, ninety percent (90%) compaction may be used, when approved by the Director of Public Works.
7. Special bedding and backfill requirements may be shown on the plans or specified in the special provisions.

Public Works San Joaquin County
Working for YOU

TYIPCAL TRENCH BACKFILL

COUNTY OF SAN JOAQUIN
DEPARTMENT OF PUBLIC WORKS

Date: DEC 2014

Approved by:

No.	Revision Description	Date

Std. Dwg. No. **R-29**

GENERAL PROVISIONS
GOVERNING INSTALLATION OF SUBSURFACE STRUCTURES AND PIPELINES WITHIN COUNTY ROAD-RIGHTS-OF-WAY

PUBLIC CONVENIENCE AND SAFETY:

A. Before obstructing any private driveway entrance or County road traveled way with a trench, spoil bank, equipment or other barrier permitted for any prolonged period of time, the Permittee shall notify the known users of the respective thoroughfare(s) involved, and shall provide access for vehicular and pedestrian traffic to and from the road.
   1. Unless otherwise permitted, all work shall be conducted in such a manner that no less than one lane of the existing County road traveled way will be maintained open to public traffic during working hours in a smooth and safe riding condition(s). Two lanes shall be open after working hours.
   2. In cases where road closure is permitted, the permission to close the road will be granted under the condition that the Permittee notify the following persons and/or agencies of the time, the period of closure, and the detour route at least twenty-four (24) hours prior to said road closure.
      a. The County of San Joaquin Public Works Department
      b. The County of San Joaquin Sheriff's Office
      c. The local postal service
      d. The local fire district
      e. The local school district
      f. The local residents involved

B. Should hazardous conditions relative to the installation operations warrant flagmen, as many capable flagmen as may be necessary shall be provided by the Permittee and stationed in advance of work to warn and direct traffic.

C. Lights, signs and barricades shall be furnished, erected and maintained by the Permittee for the adequate warning and convenience of the public, with particular attention to be taken in this regard after dark.

D. Any excess dirt and/or debris which might be a hazard to either automobile or pedestrian traffic, uncontrollable by lights, signs and barricades, shall be removed from the jobsite daily.

STRUCTURES:

A. Walls of structures shall be such quality and strength that they will resist all pressures and will not crack or be deformed in such a way as to create a hazard or maintenance problem at any time. Therefore, the minimum structural requirements for concrete pipe placed under county road rights-of-way shall conform to the following American Association of State Highway and transportation Officials (AASHTO) designations.
   1. For concrete pipe up to and including thirty-three inches (33") inside diameter, extra strength concrete conforming to AASHTO Designation M 170M.
   2. For concrete pipe thirty-six inches (36") inside diameter and larger, reinforced concrete pipe conforming to AASHTO Designation M 170M Class III.
   3. Plastic pipe conforming to AASHTO Designation M294.

B. All concrete pipe joints with County road rights-of-way shall be sealed against leakage and/or infiltration with rubber gasket in conformance with Section 65-1:06 of the California Standard Specifications, or with other methods as may be permitted under the Special Provisions.

C. Cast-in-place concrete pipe, vitrified clay pipe, spiral welded steel pipe, or corrugated aluminum alloy pipe shall not be installed within the County road rights-of-way unless specifically so stated in the Special Provisions, and only under the conditions as provided.

D. All structures to be buried within the County rights-of-way shall be set at such elevations as to allow minimum coverage of thirty inches (30") to the centerline of the roadways and twelve inches (12") at the bottoms of borrow ditches each side of the roadways. The depths of structures shall be established below a flat plane extending across the rights-of-way, no part of which shall extend above the elevations stated above; manholes, lampholes, valves, etc. not included. Future surface elevations shall be anticipated as nearly as possible and structure elevations shall be established for future adjustments accordingly.

E. The County hereby reserves the right to specify in the Special Provisions the gage and surface treatment of any galvanized corrugated metal pipe that is to be installed.

F. All longitudinal utility facilities are to be established (and dimensioned on sketches) from surveyed centerline of road right-of-way, not from right-of-way (border) lines.

REPAIRS OF THE COUNTY RIGHT-OF-WAY:

A. All excavations shall be backfilled and compacted immediately after work therein has been completed.

B. Trenched shall not be left open farther than 300 feet in advance of pipe laying operations, or 200 feet to the rear thereof, unless otherwise permitted by the Engineer.

C. Unless otherwise permitted under the Special Provisions, backfill shall be placed and mechanically compacted in such a manner that the relative compaction throughout the entire fill within the County road right-of-way shall conform to the percentages of compaction as shown on the Trench detail.

D. Backfill material shall be placed in horizontal uniform layers not to exceed in thickness, before compaction, 0.67 foot in the bedding region, one –foot where 90% compaction is required, and two-feet where 80% compaction is required.

E. No portion of the excavation(s) shall be compacted by ponding or jetting unless a maintenance bond is provided.

F. Gravel backfill material shall be utilized only where specifically so stated on the face of the permit. It shall be compacted by means of a high-frequency internal vibrator, the compactor to be a size and type approved by the Engineer. Points of compaction shall not be greater than 18" centers and to the full depth of the lift.

G. All pavements, curbs, gutters, sidewalks, borrow ditches, pipes, head walls, road signs, trees, shrubbery, and/or other permanent road facilities impaired by or as a result of construction operations at the construction site(s) occupied by materials and/or equipment, shall be restored immediately upon backfilling of the excavation to the original grades and cross sections, and to a condition as good as, or better than existing prior to construction.

H. All surfacing materials of roadways and driveway approaches cut or damaged by or as a result of construction operations, shall be replaced within ONE WEEK following the backfilling of excavation, weather permitting, with compacted layers of surfacing materials at least as thick as the existing, and no less than two inches (2") of asphalt concrete over six inches (6") of aggregate base, both as specified below.
   1. Asphalt Concrete: Combined mineral aggregate shall conform to the quality and gradation requirements for Type "B" one-half inch(1/2) maximum aggregate, coarse or medium gradation as specified in Section 39 of the California Standard Specifications. The bituminous binder to be mixed with mineral aggregate shall be paving asphalt having (Grade PG 64-10), unless otherwise directed by the Engineer. Placement of asphalt concrete surfacing shall conform to the applicable provisions of Section 39 of the California Standard Specifications.
   2. Aggregate Base: Combined mineral aggregates shall conform to the quality and the grading for three-quarter inch (3/4") maximum size aggregate Class 2 Aggregate Base specified in Section 26 of the California Standard Specifications.

I. Before acceptance of repairs to the County road rights-of-way, all unsightly and detrimental dirt, dust and/or debris shall be removed and the construction areas left in a neat and presentable condition(s).
   1. If necessary, County road traveled way and driveway pavements shall be washed with water to remove dirt and dust.
   2. Driveway approaches and field entrance pavements damaged by equipment or spoil banks shall be repaired as directed by the Engineer.

J. Upon request by the County, any settlement, sagging of surface, or cracking of pavement shall be repaired immediately by and at the sole expense of the Permittee for a period of one year following acceptance of the work.

SPECIAL PROVISIONS

Winter Weather Utility Work

1. SUPERVISION: The utility company (permittee) shall furnish full-time supervision of all work to insure compliance with the permit provision.

2. START OF WORK: No work within the County right-of-way shall be started until the utility company representative has made an evaluation of weather conditions and has determined the work can be accomplished under the provisions of the permit.

3. CLEAN PAVEMENT: Dirt and mud shall not be deposited on the pavement outside the area of work, and if inadvertently tracked onto the road travel way shall be removed immediately.

4. DAILY RESTORATION: Private driveways and road intersections shall be restored daily.

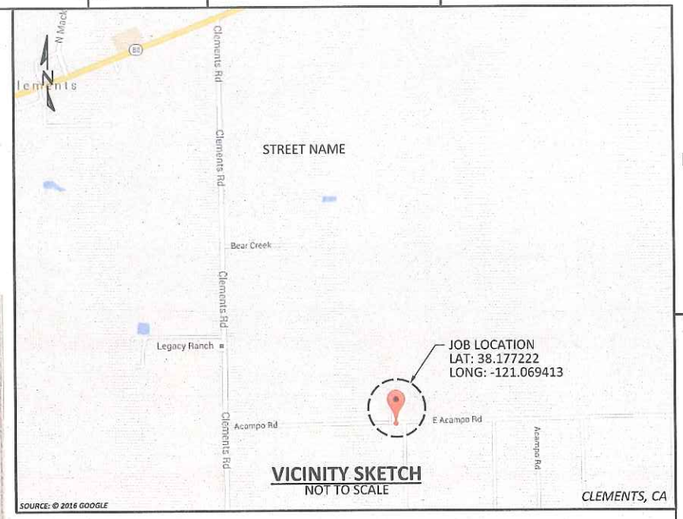
5. WEATHER-TIGHT CONDITIONS: All trenches shall be filled and compacted, ditches and other drainage facilities regarded and opened, and the entire work area restored to weather-tight condition prior to any rain.

CP AREA # L-197C
WALL MAP 2812
PLAT J4
SAN JOAQUIN COUNTY

LINE 197C, MP 0.5
INSTALL NORMAL DWA AND RECTIFIER
CLEMENTS, CA

NOTE: TOTAL WORK AREA NOT TO EXCEED 0.9 ACRES

PLAN VIEW
SCALE: 1" = 80'



VICINITY SKETCH
NOT TO SCALE

SCHEDULE OF SHEETS

NO.	DATE	DESCRIPTION	PM/SPEC	DWN	CHKD	SUPV	APVD BY
	9/27/16	ISSUED FOR CONSTRUCTION	31179017	S9MA	RAMA	K1F7	

REVISIONS

APPROVED BY	
PSRS	40358
SUPV	K1F7
DSGN	S9MA
DWN	S9MA
CHKD	RAMA
OK	
DATE	9/27/16
SCALES	

PIPELINE - TITLE & INDEX
L- 197C MP 0.5
INSTALL NORMAL DWA AND RECTIFIER
LODI, CA

GAS TRANSMISSION & DISTRIBUTION
PACIFIC GAS AND ELECTRIC COMPANY
SAN FRANCISCO, CALIFORNIA

SAFETY PLEDGE
I ALWAYS PUT SAFETY FIRST.
I LOOK FOR AND ACT TO RESOLVE UNSAFE SITUATIONS.
I HELP AND ENCOURAGE OTHERS TO ACT SAFELY.

GAS TRANSMISSION ESTIMATING & DESIGN

BILL OF MATL	SHEET 7
DWG LIST	SHEET 2
TRACKING NUMBER	C-721
SHEET NO.	1 OF 7 SHEETS
	31179017 0

31179017-S001-TI.dgn
27-SEP-2016 08:34AM
Estimating.pen

SUMMARY OF PROPOSED WORK:

1. INSTALL A 200' NORMAL DEEP WELL ANODE WITH 14 STACKED ANODE CONFIGURATION (NO SPACING BETWEEN ANODES).
2. INSTALL 40V 20AMP UNIVERSAL RECTIFIER IN A 6" EXTRA TALL CASE
3. INSTALL ANODE JUNCTION BOX
4. TRENCH AND BACKFILL
5. INSTALL (2) GROUND RODS WITH G-5 BOXES
6. TRENCH FOR 2 NEW #6 AWG CATHODE CABLES AND DIRECT BURY FROM PIPE TO AJB
7. INSTALL COUPON TEST STATION
8. RETURN SITE TO ORIGINAL CONDITION

SEQUENCE OF OPERATIONS:

1. READ ALL PROJECT DOCUMENTATION AND THE ACCOMPANYING NOTES PRIOR TO THE START OF WORK.
2. INSTALL BMPS
3. DRILL 200 FEET DEEP WELL AS REQUIRED
4. INSTALL 14 TA-2 ANODES
5. TRENCH AND INSTALL ANODE WIRES
6. INSTALL ANODE JUNCTION BOX AND NEW RECTIFIER PER CCV 0-11.1, INCLUDING INSTALLATION OF GROUNDING RODS
7. CADWELD #6 AWG CATHODE CABLE TO L-197C
8. TRENCH FROM PIPE TO AJB AND DIRECT BURY (2X) #6 AWG CATHODE CABLES
9. INSTALL CTS
10. REMOVE BMPS AS REQUIRED
11. CONTACT CORROSION MECHANIC PRIOR TO PUTTING INTO SERVICE
12. RESTORE SITE TO ORIGINAL CONDITION

CONSTRUCTION NOTES:

GENERAL REQUIREMENTS:

1. UNDERGROUND SERVICE ALERT :
   CALL 811 (1-800-227-2600) A MINIMUM OF 2 BUSINESS DAYS (NOT INCLUDING INITIAL DAY OF CONTACT) IN ADVANCE FOR THE MARKING OF UNDERGROUND UTILITIES, INCLUDING ALL NON-UTILITIES BEFORE YOU DIG, GRADE, OR EXCAVATE.

2. UTILITY NOTES:
   A. DIMENSIONS SHOWN ON THESE DRAWINGS ARE BASED ON THE BEST AVAILABLE INFORMATION FROM SEVERAL SOURCES, AND SHALL BE VERIFIED IN THE FIELD BY CONSTRUCTION PERSONNEL PRIOR TO FABRICATION.
   B. THE INFORMATION SHOWN ON THESE DRAWINGS CONCERNING TYPE AND LOCATION OF UNDERGROUND UTILITIES, PROPERTY LINES, AND OTHER SUBSTRUCTURES IS NOT GUARANTEED TO BE ACCURATE OR ALL-INCLUSIVE, UNLESS OTHERWISE NOTED. CONSTRUCTION PERSONNEL ARE RESPONSIBLE FOR MAKING ALL DETERMINATIONS AS TO THE TYPE AND LOCATION OF UNDERGROUND UTILITIES AND OTHER SUBSTRUCTURES AS NECESSARY TO AVOID DAMAGE OR ENCROACHMENTS.
   C. PROSPECTING IS REQUIRED AHEAD OF WORK. ALL OFFSETS OR ROPING WILL NEED TO BE APPROVED BY THE PG&E PROJECT ENGINEER (PED), AND REDLINED DETAILS SHOWN ON PROFILE AND CONSTRUCTION DETAIL SHEETS OF EACH ADDITIONAL SUBSTRUCTURE.
   D. ALL EXCAVATIONS WITHIN EXISTING STATIONS SHALL BE HAND DUG OR EXCAVATED USING SOFT DIG METHODS (e.g. VACUUM EXCAVATIONS OR SIMILAR).

3. ELBOWS AND FIELD BENDS:
   A. ALL BENDS ARE SMOOTH FIELD BENDS, EXCEPT WHERE ELBOWS ARE SHOWN. FIELD BENDS SHALL BE MADE IN ACCORDANCE WITH A-36, SECTION 4D. FIELD BENDS MAY BE USED IN LIEU OF ELBOWS WHEN PREAPPROVED BY THE PG&E PROJECT ENGINEER (PED).
   B. IN ORDER TO AVOID EXCESSIVE STRAIN ON THE PIPELINE, THERE SHALL BE A MINIMUM SEPARATION OF 5 FEET BETWEEN A ROPED SECTION OF PIPELINE AND ANY ELBOWS OR FIELD BENDS.
   C. ALL ANGLES SHOWN IN THE PLAN AND PROFILE ARE APPROXIMATE AND SHALL BE CUT TO SUIT FIELD CONDITIONS.

4. SEPARATION FROM OTHER STRUCTURES:
   A. CROSSING UNDERGROUND FACILITIES: PG&E PIPELINE MUST BE INSTALLED WITH AT LEAST 24 INCHES OF CLEARANCE FROM ANY OTHER SUBSTRUCTURE/UTILITY NOT ASSOCIATED WITH THE PIPELINE UNLESS NOTED ON THE DRAWINGS.
   B. PARALLELING UNDERGROUND FACILITIES: THIS PIPELINE MUST BE INSTALLED WITH AT LEAST 5 FEET OF CLEARANCE FROM ANY OTHER UNDERGROUND STRUCTURE/UTILITY NOT ASSOCIATED WITH THE PIPELINE UNLESS NOTED ON THE DRAWINGS.

5. RESTORATION AND CLEAN UP:
   A. RESTORATION OF PUBLIC STREETS, SIDEWALKS, CURBS, ETC. ABOVE PIPE BEDDING SHALL BE IN ACCORDANCE WITH THE LATEST CITY, COUNTY, OR AGENCY STANDARDS.
   B. WHERE EVER THERE ARE ROW CROPS, THE TOPSOIL SHALL BE REMOVED TO A DEPTH OF 12" AND STORED ON SITE. UPON COMPLETION OF CONSTRUCTION, THE TOPSOIL SHALL BE RESTORED. TAKE CARE TO PREVENT MIXING OF TOPSOIL AND SUBSOIL.

6. EXISTING GIRTH WELDS, AT TIE-IN LOCATIONS, SHALL BE IDENTIFIED AND REMOVED IF PRACTICAL.

7. WELDING REQUIREMENTS:
   A. ALL ARC WELDING IS TO BE PERFORMED IN ACCORDANCE WITH THE GAS WELDING CONTROL MANUAL TD-4160M. ALL CANS OR SPOOLS SHALL BE A MINIMUM LENGTH OF ONE PIPE DIAMETER, WHENEVER POSSIBLE.
   B. INSTALL TEST STATIONS WITH THERMITE WELD CONNECTION IN ACCORDANCE WITH GAS T & D CORROSION CONTROL MANUAL O-10, O-10.1 AND O-10.2.

8. WELDING:
   WHEN INTERNAL MISALIGNMENT EXCEEDS 0.094", BACKWELD ANY GIRTH WELD WHERE THERE IS ACCESS TO THE INSIDE OF THE WELD. WHERE THERE IS NO ACCESS TO THE INSIDE OF THE WELD, MACHINE BORING OR GRINDING IS REQUIRED. BACKWELDING, GRINDING, OR BORING MUST BE DONE IN ACCORDANCE WITH THE APPROPRIATE UTILITY PROCEDURE IN THE GAS WELDING CONTROL MANUAL TD-4160M.

9. STRENGTH TEST REQUIREMENTS
   A. STRENGTH TESTING SHALL MEET PRESSURE AND DURATION REQUIREMENTS OF GAS STANDARD A-34 AND SHALL BE CONDUCTED IN ACCORDANCE WITH UTILITY PROCEDURE TD-4137S.
   B. ALL WELDS THAT HAVE NOT BEEN STRENGTH TESTED AND ALL FITTINGS SHALL BE SOAP TESTED AT 100 PSI AND AT OPERATING PRESSURE BEFORE COATING CAN OCCUR.

10. PAINTING AND COATING REQUIREMENTS:
    A. ALL EXPOSED PIPE AND FITTINGS ARE TO BE PAINTED IN ACCORDANCE WITH GAS STANDARD E-30. ALL COATING ON BURIED PIPE AND FITTINGS ARE TO BE APPLIED IN ACCORDANCE WITH GAS STANDARD E-35.
    B. FOR COATING SELECTIONS ON BURIED PIPE, SEE DIRECT BURIAL COATING SELECTIONS TABLE.

11. DOCUMENTATION OF INSPECTION OF EXISTING PIPELINE:
    WHENEVER EXISTING BURIED GAS FACILITIES ARE EXCAVATED DURING ENGINEERING OR DURING CONSTRUCTION, AN A-FORM (TD-4110P-03-F01) SHALL BE COMPLETED FOR THE GENERAL INSPECTION. THIS ALSO APPLIES TO GAS FACILITIES BEING DEACTIVATED. THE COMPLETED A-FORM SHALL BE SUBMITTED WITH THE AS-BUILT PACKAGE.

12. TIE-IN AND CLEARANCE PROCEDURE TO BE PREPARED AND PERFORMED IN ACCORDANCE WITH THE FOLLOWING WORK PROCEDURES:
    A. WP 4100-01, HOT AND COLD WORK METHODS FOR NATURAL GAS TRANSMISSION PIPELINE SHUTDOWN AND TIE-IN.
    B. WP 4100-10, GAS CLEARANCE PROCEDURES FOR FACILITIES OPERATING OVER 60 PSIG.

13. COATING REMOVAL:
    A. PERFORM THE FOLLOWING STEPS, IN ACCORDANCE WITH TD-4711P-01, BEFORE REMOVING ASPHALTIC PIPE WRAP ON PIPELINES INSTALLED PRIOR TO 1972 (BASED ON PG&E ANALYSIS, PIPE INSTALLED IN 1972 OR LATER DOES NOT HAVE PIPE WRAP THAT CONTAINS ASBESTOS):
       1. REFER TO THE "EXISTING PIPE SPECS (PRE-1972)" STAMP TO DETERMINE IF A SAMPLE HAS BEEN COLLECTED OR IF A SAMPLE IS REQUIRED:
          a. "YES" REPRESENTS HISTORICAL RESULTS ARE AVAILABLE SHOWING THAT PIPE WRAP CONTAINS ASBESTOS. NO SAMPLE IS REQUIRED.
          b. "NO" REPRESENTS HISTORICAL RESULTS ARE AVAILABLE AND THE PIPE WRAP DOES NOT CONTAIN ASBESTOS (CONTENT WAS NON DETECT). NO SAMPLE IS REQUIRED.
          c. "UNKNOWN" REPRESENTS NO HISTORICAL RESULTS ARE AVAILABLE. A SAMPLE IS REQUIRED IF THE PIPE INSTALLATION DATE IS PRIOR TO 1972.
       2. WHEN A PIPE WRAP SAMPLE IS REQUIRED TO BE ANALYZED FOR ASBESTOS:
          a. COLLECT SAMPLE PER TD-4711P-01 AND COMPLETE CHAIN OF CUSTODY FORM TD-4711P-01-F01.
          b. FILE PINK COPY OF THE CHAIN OF CUSTODY FORM AND FINAL LABORATORY RESULTS WITH THE AS-BUILTS.
       3. WHEN REMOVING PIPE WRAP THAT CONTAINS ASBESTOS, OR FOR EMERGENCY WORK, FOLLOW TD-4711P-01 "PIPE WRAP REMOVAL, HANDLING AND DISPOSAL".

CATHODIC PROTECTION NOTES:

1. THE PERSON FILLING OUT THE A-FORM (TD-4110P-03-F01) IS RESPONSIBLE FOR BOTH THE INTERNAL CORROSION AND EXTERNAL CORROSION INSPECTION OF THE PIPELINE.

2. UPON COMPLETION OF BORINGS, CONTACT THE CORROSION SUPERVISOR FOR THE LOCAL AREA/DIVISION TO PERFORM CURRENT DRAIN TESTS ON THE PIPELINE SEGMENT THAT WAS INSTALLED IN THE BORE. THE CURRENT DRAIN TEST MUST BE PERFORMED PRIOR TO WELDING PIPE ON EITHER SIDE OF THE BORE.

3. FOR THE INSTALLATION OF THE OMNIMETRIX RECTIFIER REMOTE MONITOR, CONTACT THE CORROSION SUPERVISOR FOR THE LOCAL AREA/DIVISION.

4. BONDING CABLES TO BE INSTALLED ACROSS PIPELINE CUT-OUTS AT ALL LOCATIONS THE PIPELINE IS SEVERED PRIOR TO REMOVAL. CHAIN CLAMPS, MAGNETIC CLAMPS, OR OTHER CONSTRUCTION MANAGEMENT APPROVED CLAMPS AND #6 (MIN) STRANDED CABLE SHALL BE UTILIZED. CLAMPS TO REMAIN IN PLACE UNTIL PIPELINE IS TIED IN.

RETIREMENT PROCEDURE FOR EXISTING PIPE:

1. GT&D UTILITY WORK PROCEDURE TD 9500P-16, "DEACTIVATION AND/OR RETIREMENT OF UNDERGROUND GAS FACILITIES," SHALL BE FOLLOWED.

2. THE EXISTING PIPE SECTIONS SHALL HAVE FREE LIQUIDS REMOVED AND BE 100% PURGED PER GAS DESIGN STANDARD A-38, "PROCEDURES FOR PURGING GAS FACILITIES."

3. THE PIPE SHALL BE SECTIONALIZED AT INTERVALS AS SPECIFIED IN THE RETIREMENT PLAN. THE LOCATIONS CALLED OUT ARE APPROXIMATE AND ARE SUBJECT TO FIELD VERIFICATION TO IDENTIFY THE MOST OPTIMUM LOCATION IN THAT VICINITY. ACCURATE SURVEY DATA MAY NOT BE AVAILABLE FOR THESE LOCATIONS SO USE CAUTION DURING EXCAVATION AND WHEN IDENTIFYING THE PIPELINE TO BE RETIRED. OTHER ACTIVE PIPELINES MAY BE IN THE AREA.

4. AT EACH SUCH LOCATION NOTED ABOVE, A PIECE OF PIPE AT LEAST 24" LONG SHALL BE REMOVED. INSTALL A 1" HIGH PRESSURE SAVE-A-VALVE (H-17491, M022287) TO CHECK FOR PRODUCT AND PRESSURE PRIOR TO CUTTING INTO THE PIPELINE. THE OPEN ENDS OF THE RETIRED PIPE SHALL BE SEALED BY THE MOST APPROPRIATE METHOD OUTLINED IN GT&D UTILITY WORK PROCEDURE TD-9500P-16. BACKFILL MUST BE THOROUGHLY COMPACTED IN PLACE OF THE REMOVED SECTION OF PIPE.

DESIGN CHANGE PROCEDURE

MAINTENANCE AND CONSTRUCTION PERSONNEL MUST OBTAIN APPROVAL FROM THE RESPONSIBLE ENGINEER (RE) BEFORE MAKING ANY DESIGN CHANGE TO GAS FACILITIES PER WP-4900.

JOB SPECIFIC NOTES

ALL FIELD CHANGES REQUIRE APPROVAL BY PROJECT ENGINEER (PED). SEE CONTACT INFORMATION.

CONTACT INFORMATION:

PROJECT MANAGER	----	BRENT MAEDA	(925) 328-5637
PROJECT ENGINEER (PED)	----	STEPHANIE GUZMAN	(925) 328-5852
PIPELINE ENGINEER (PLE)	----		
ESTIMATOR / DESIGNER	----	SHAUNA MCDONALD	(925) 244-3493
LAND PLANNER	----		
ENVIRONMENTAL	----		
BIOLOGIST	----		
CORROSION ENGINEER	----	STEPHANIE GUZMAN	(925) 328-5852
LOCAL CORROSION SUPERVISOR	----	CHAD WARD	(209) 769-0639
LOCAL CORROSION MECHANIC	----	BILL BELASKI	(209) 406-7844
ADE	----	RUSS MINGES	(760) 253-7858

REFERENCE DRAWINGS:

OPERATING MAPS	----	385163-56
OPERATING DIAGRAMS	----	N/A
PLAT SHEETS	----	2812-J4

GAS TRANSMISSION ESTIMATING & DESIGN

811 Know what's below. Call before you dig.

ZERO IN ON SAFETY

NO.	DATE	DESCRIPTION	PM/SPEC	DWN	CHKD	SUPV	APVD BY
	9/27/16	ISSUED FOR CONSTRUCTION	31179017	S9MA	RAMA	K1F7	

REVISIONS

APPROVED BY	
PSRS	40358
SUPV	K1F7
DSGN	S9MA
DWN	S9MA
CHKD	RAMA
OK	
DATE	9/27/16
SCALES	

PIPELINE - CONSTRUCTION NOTES
L- 197C MP 0.5
INSTALL NORMAL DWA AND RECTIFIER
LODI, CA

GAS TRANSMISSION & DISTRIBUTION
PACIFIC GAS AND ELECTRIC COMPANY
SAN FRANCISCO, CALIFORNIA

BILL OF MATL	SHEET 7
DWG LIST	SHEET 2
TRACKING NUMBER	C-721
SHEET NO. 2 OF 7 SHEETS	
31179017	0

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Estimating.pgen

DIRECT BURIAL COATING SELECTIONS
LISTED IN ORDER OF PREFERENCE

MAIN LINE COATING	FBE
MINOR REPAIRS	3M SCOTCHKOTE 323, PROTAL 7200, FBE
TIE-IN WELDS	3M SCOTCHKOTE 323, PROTAL 7200, FBE
GIRTH WELDS	3M SCOTCHKOTE 323, PROTAL 7200, FBE
BUTT WELDED FITTINGS	3M SCOTCHKOTE 323, PROTAL 7200, FBE
VALVE ASSEMBLIES	3M SCOTCHKOTE 323, PROTAL 7200, DEVGRIP 238
SHORT SEGMENTS OF PIPE	3M SCOTCHKOTE 323, PROTAL 7200, FBE
AIR-TO-SOIL TRANSITIONS	PROTAL 7200 / PSX 700
PRESSURE CONTROL FITTINGS	BODY: PROTAL 7200 FLANGE: WAX TAPE
TIE-INS/COATING TRANSITIONS	PROTAL 7200, WAX TAPE, POLYKEN TAPE

BORED COATING SELECTIONS
LISTED IN ORDER OF PREFERENCE

MAIN LINE COATING	ARC APPLIED OVER FBE
MINOR REPAIRS	PROTAL 7200, POWERCRETE J, 3M SCOTCHKOTE 323
TIE-IN WELDS	ARC OVER FBE, PROTAL 7200, POWERCRETE J

NOTES:
1) CONTACT THE PIPELINE ENGINEER (PLE) TO REQUEST A VARIANCE FROM THE ABOVE COATING SELECTIONS.
2) ALL COATINGS ARE TO BE APPLIED IN ACCORDANCE WITH GS&S E-30 AND E-35.

INTERNAL CORROSION (IC) DESIGN & CONSTRUCTION REVIEW		
IC THREAT (PER RMP-16)	YES	NO
IC REVIEW COMPLETED BY (CORROSION ENGINEER OR DESIGNATE)	LAN ID	DATE
CORROSION ENGINEERING HAS REVIEWED THIS DESIGN AND INCORPORATED ANY NECESSARY IC DESIGN AND CONSTRUCTION CONSIDERATIONS. DOCUMENTATION OF THE REVIEW AND ACTIONS TAKEN ARE IN THE JOB PACKAGE AND INCORPORATED IN THIS DESIGN.		
EDRS ROUTING NUMBER:	-	

INSTALLATION TESTED OR INSPECTED AND NOTED ON DRAWING.
ALL CORROSION LEVELS SATISFACTORY PER PG&E GAS UTILITY STANDARD TD-4181S.

QUALIFIED EMPLOYEE DATE

CORROSION MECHANIC'S SIGNATURE IS REQUIRED WHEN A CPA BOUNDARY IS WITHIN THE SCOPE OF THE PROJECT.

LEGEND:

- GT — GAS TRANSMISSION LINE
- GD — GAS DISTRIBUTION LINE
- GS — GAS SERVICE LINE
- GT — GAS TRANSMISSION LINE (RETIRED)
- GD — GAS DISTRIBUTION LINE (RETIRED)
- GS — GAS SERVICE LINE (RETIRED)
- ET — ELECTRIC TRANSMISSION LINE
- ED — ELECTRIC DISTRIBUTION LINE
- ES — ELECTRIC SERVICE LINE
- T — TELEPHONE LINE
- FO — FIBER OPTIC LINE
- TV — CABLE TV LINE
- SD — STORM DRAIN LINE
- SS — SEWER LINE
- W — WATER LINE
- EDGE OF ROAD
- FACE OF CURB
- UNPAVED ROAD
- RAILROAD
- TEMPORARY EASEMENT
- PROPERTY BOUNDARY
- FENCE
- WALL
- BARRIER
- TEMPORARY BARRIER (TYPE K)
- GUARD RAIL
- DASHED PAVEMENT MARKINGS
- TOE OF SLOPE
- TOP OF SLOPE

- GAS LINE MARKER (ALL)
- GAS LINE MARKER (PADDLE DUAL)
- GAS LINE MARKER (PADDLE SINGLE)
- GAS LINE MARKER (POST)
- GAS LINE INDICATOR (DISC)
- INSULATION JOINT
- PRESSURE CONTROL FITTING
- GAS BOX
- GAS HIGH PRESSURE REGULATOR
- GAS METER
- GAS DISTRIBUTION REGULATOR
- PG&E GAS MANHOLE
- GAS VAULT
- GAS VENT
- PG&E ELECTRIC MANHOLE
- ELECTRIC VAULT
- UTILITY POLE (ELECTRIC)
- UTILITY POLE (OTHER)
- JOINT POLE
- EXISTING ELECTRIC TOWER
- WATER METER
- WATER VALVE

- STORM DRAIN
- SEWER MANHOLE
- FOREIGN MANHOLE
- CABLE TV BOX
- TELECOMM BOX
- TELECOMM MANHOLE
- TELECOMM VAULT
- STREET LIGHT BOX
- TREE
- ANODE
- DEEPWELL ANODE
- COMPUTER AUTOMATED TEST STATION
- COUPON TEST STATION
- ELECTROLYSIS TEST STATION
- POLE-MOUNTED RECTIFIER
- POTHOLE
- CITY/COUNTY MONUMENT
- MONUMENT, SEE DESCRIPTION
- SURVEY CONTROL POINT
- CENTERLINE

- ACCESS ROAD
- LAYDOWN / STAGING / CONSTRUCTION IMPACT AREA
- EXCAVATION / BELL HOLE
- SAFETY ZONE LIMITS
- ENVIRONMENTALLY SENSITIVE AREAS

DETAIL LEGEND:

- PROPOSED GAS TRANSMISSION LINE
- EXISTING GAS TRANSMISSION LINE
- GAS TRANSMISSION LINE (TO BE DEACTIVATED)
- GAS TRANSMISSION LINE (TO BE RETIRED)
- GAS TRANSMISSION LINE (TO BE REMOVED)
- PIPE END CUT (SIDE)
- PIPE END CUT
- GAS VALVE
- FLOW — FLOW ARROW
- TIE-IN WELD
- MATERIAL OF RECORD ASSET

Acronym	Definition	Acronym	Definition	Acronym	Definition	Acronym	Definition
(E)	Existing	DP	Design Pressure	LN	Linear Weldable	SD	Storm Drain
(P)	Proposed	DPV	Damage Prevention Volume	LNW	Linear Non-Weldable	SHT	Sheet
API	American Petroleum Institute	DR	Distribution Regulator	LONG	Longitude	SL	Sewer Lateral
APN	Assessor's Parcel Number	DREG	District Regulator	M	Monitor	SMLS	Seamless
ARC	Abrasion Resistant Coating	DSAW	Double Submerged Arc-Welded	MAOP	Maximum Allowable Operating Pressure	SMYS	Specified Minimum Yield Strength
ASME	American Society of Mechanical Engineers	DWA	Deep Well Anode	MAX	Maximum	SPEC	Specification
ASTM	American Society for Testing Materials	ELE	Electric	MH	Manhole	SS	Sanitary Sewer
ATM	Atmosphere	ELEV	Elevation	MIN	Minimum	SSAW	Single Submerged Arc-Welded
B	Bare Steel	EM	Electronic Marker	MLV	Main Line Valve	STA	Station
BBCL	Bell Bell Chill Ring	EMS	Engineering Material Specification	MOP	Maximum Operating Pressure	STD	Standard
BC	Back of Curb	ER	Edge of Road	MP	Mile Point	STL	Steel
BD	Blowdown	ERW	Electric Resistance Welded	MW	Working Monitor	STPR	Strength Test Pressure Report
BLDG	Building	ETS	Electrolysis Test Station	NDE	Non-Destructive Examination	T	Tied (Connected to System)
BOM	Bill of Materials	F	Filter	NOP	Normal Operating Pressure	TD	Technical Document
BTU	British Thermal Units	FBE	Fusion Bonded Epoxy	NPC	Non-Protected/Native Coupon	TT	Top Tap
BW	Back of Walk	FC	Face of Curb	NTS	Not to Scale	TCE	Temporary Construction Easement
BYP	Bypass	FDP	Future Design Pressure	OC	On Center	TCP	Traffic Control Plan
CATS	Computer Automated Test Station	FL	Fence Line	OD	Outside Pipe Diameter	TDW	T. D. Williamson
CCV	Corrosion Control Volume	FLG	Flange	OH	Overhead	TSP	Transmission System Planning
CI	Cast Iron	G	Natural Gas	P	Pipeline	TYP	Typical
CL	Centerline	GM	Natural Gas Main	P/L	Property Line	UG	Underground
CNG	Compressed Natural Gas	GR	Grade	PC	Protected/Polarized Coupon	UON	Unless Otherwise Noted
CONTR	Contractor	GS	Natural Gas Service	PCF	Pressure Control Fitting	USA	Underground Service Alert
CP	Cathodic Protection	GS&S	Gas Standards and Specifications	PL	Plastic	UT	Ultra-Sonic Test
CROP	Conditional Reduction of Pressure	GW	Natural Gas Well	PLC	Programmable Logic Controllers	V	Valve
CTR	Center	H	Horizontal	PSI	Pounds per Square Inch	VIF	Verify in Field
CTS	Coupon Test Station	HDD	Horizontal Directional Drill	RAD	Radius	VOL	Volume
CU	Copper	HFW	High Frequency Weld	RE	Reference	W	Water
DE	Dead End	HPR	High Pressure Regulator	REG	Regulator	WT	Wall Thickness
DCUST	Distribution Customer	ILI	In-Line Inspection	ROW	Right of Way	W/	With
DEG	Degree	JT	Joint Trench	S	Screwed	W/O	Without
DET	Detail	L	Line Number	SAWH	Submerged Arc-Welded Helical	WOW	Without Locating Wire
DF	Design Factor	L/R	Left/Right	SAWL	Submerged Arc-Welded Longitudinal	WP	Work Procedure
DFM	Distribution Feeder Main	LAT	Latitude	SCADA	Supervisory Control and Data Acquisition	WS	Water Service
DIST	Distribution	LNG	Liquid Natural Gas				

GAS TRANSMISSION ESTIMATING & DESIGN

811 Know what's below. Call before you dig.

ZERO IN ON SAFETY

NO.	DATE	DESCRIPTION	PM/SPEC	DWN	CHKD	SUPV	APVD BY
	9/27/16	ISSUED FOR CONSTRUCTION	31179017	S9MA	RAMA	K1F7	

REVISIONS

APPROVED BY
PSRS 40358
SUPV K1F7
DSGN S9MA
DWN S9MA
CHKD RAMA
OK
DATE 9/27/16
SCALES

PIPELINE - LEGEND & STAMPS
L- 197C MP 0.5
INSTALL NORMAL DWA AND RECTIFIER
LODI, CA

GAS TRANSMISSION & DISTRIBUTION
PACIFIC GAS AND ELECTRIC COMPANY
SAN FRANCISCO, CALIFORNIA

BILL OF MATL SHEET 7
DWG LIST SHEET 2
TRACKING NUMBER C-721
SHEET NO. 3 OF 7 SHEETS
31179017 | 0

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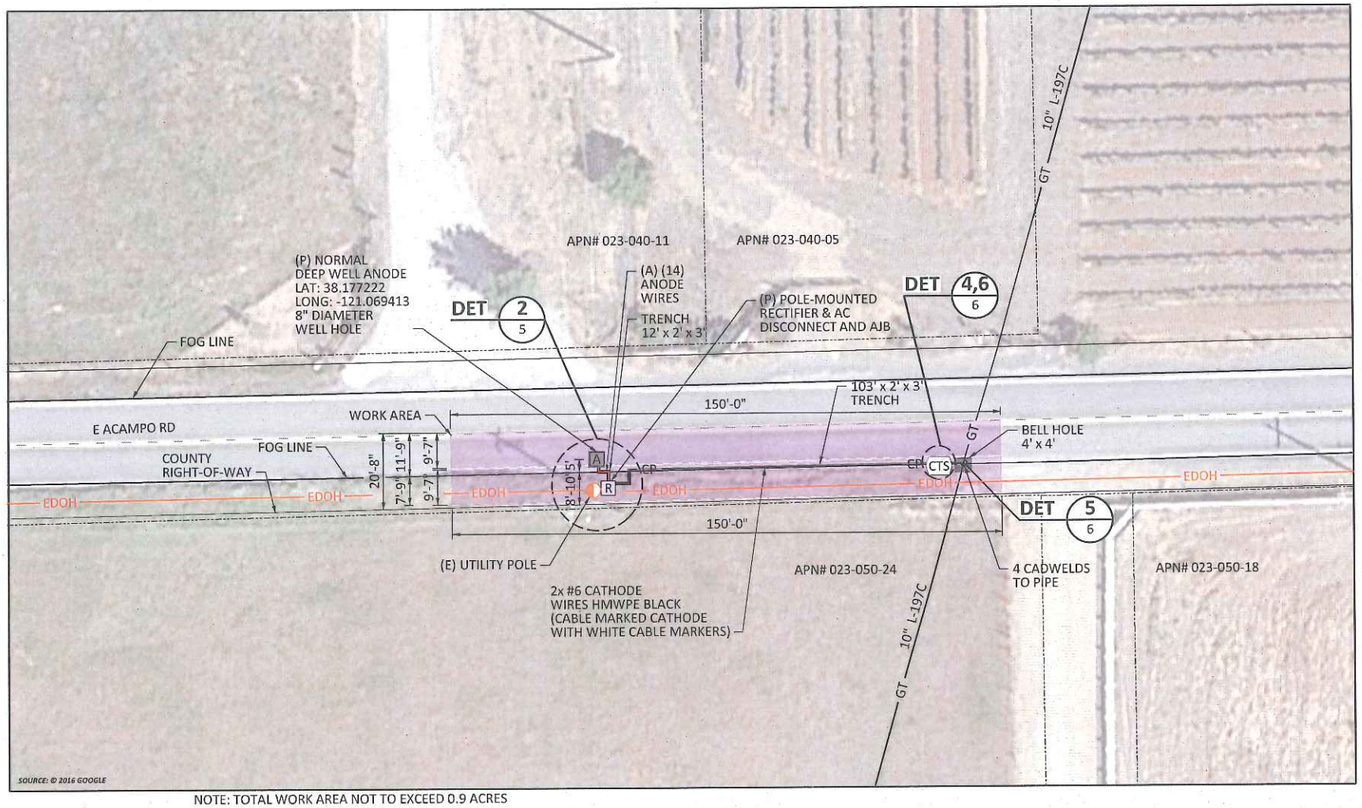

NOTE: TOTAL WORK AREA NOT TO EXCEED 0.9 ACRES

DETAIL 1
SCALE: 1" =20'-0"

GAS TRANSMISSION
ESTIMATING & DESIGN

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PIPELINE - DETAILS
L- 197C MP 0.5
INSTALL NORMAL DWA AND RECTIFIER
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GAS TRANSMISSION & DISTRIBUTION
PACIFIC GAS AND ELECTRIC COMPANY
SAN FRANCISCO, CALIFORNIA

BILL OF MATL	SHEET 7
DWG LIST	SHEET 2
TRACKING NUMBER	C-721
SHEET NO.	4 OF 7 SHEETS
31179017	0

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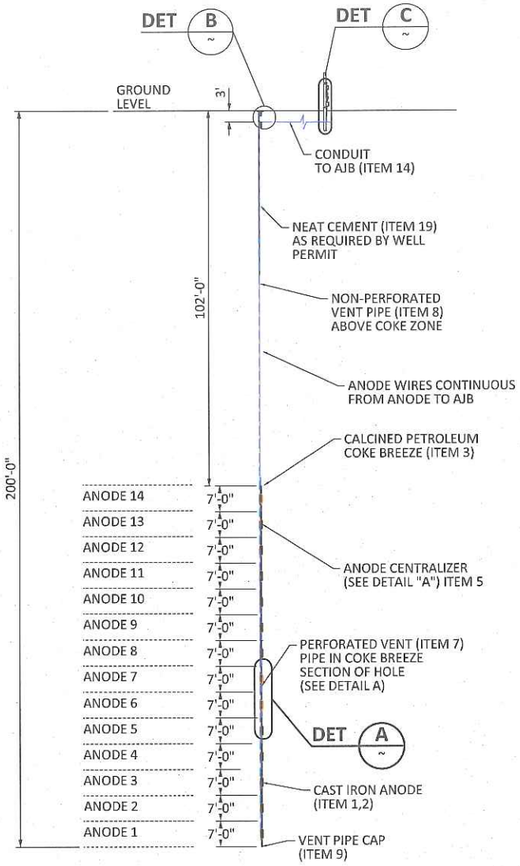
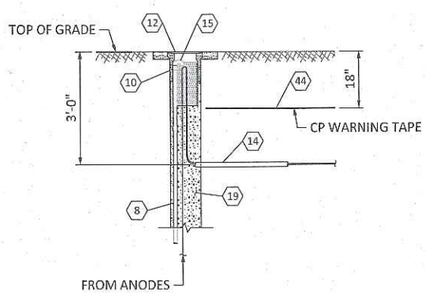
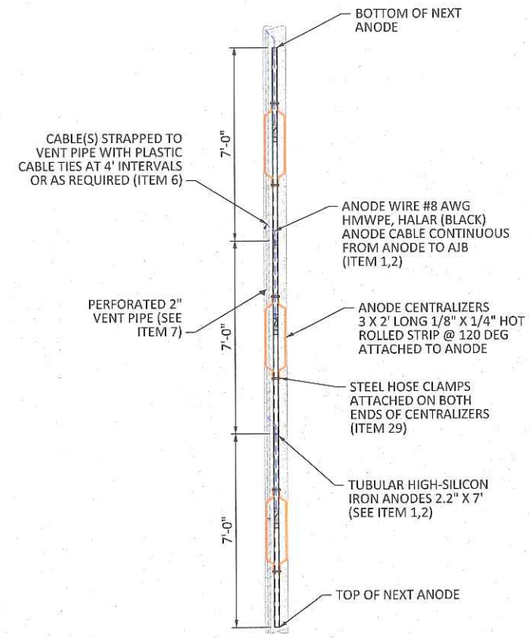


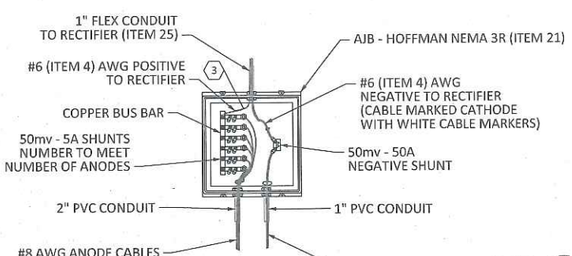
DETAIL 2 SCALE: NTS



DETAIL B SCALE: NONE — TYP VENT, FRAME & COVER PER GDS O-13.2, FIGURE 8



DETAIL A SCALE: ¾"=1' — TYP NORMAL DEEP ANODE INSTALL GUIDE



DETAIL 3 SCALE: NONE — ANODE JUNCTION BOX DETAIL PER GDS O-13.2, FIGURE 10

DETAIL C SCALE: NONE — POLE MOUNTED ANODE JUNCTION BOX INSTALLATION PER GDS O-13.2, FIGURE 9

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REVISIONS

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PSRS	40358
SUPV	K1F7
DSGN	S9MA
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CHKD	RAMA
OK	
DATE	9/27/16
SCALES	

PIPELINE - DETAILS
L- 197C MP 0.5
INSTALL NORMAL DWA AND RECTIFIER
LODI, CA

GAS TRANSMISSION & DISTRIBUTION
PACIFIC GAS AND ELECTRIC COMPANY
SAN FRANCISCO, CALIFORNIA

GAS TRANSMISSION ESTIMATING & DESIGN

BILL OF MATL	SHEET 7
DWG LIST	SHEET 2
TRACKING NUMBER	C-721
SHEET NO.	5 OF 7 SHEETS
	31179017 | 0

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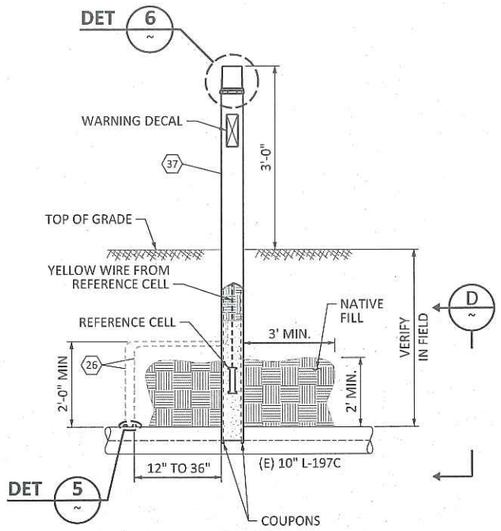
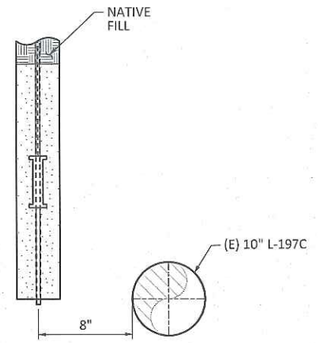


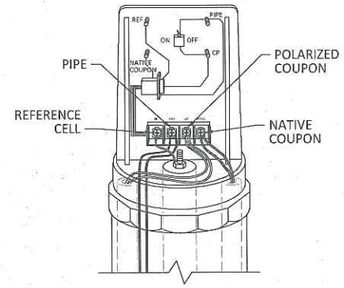
NOTE: INSTALL COUPONS PARALLEL TO PIPE A DISTANCE OF 8" TO 12". COUPONS MUST BE INSTALLED IN NATIVE SOIL WITHIN 18" OF ELECTRODE. TAMP NATIVE AND ADD IMPORT TO ACHIEVE A MINIMUM 95% COMPACTION.

DETAIL 4/4 — COUPON TEST STATION INSTALLATION PER CCV O-10.2, FIGURE 2
SCALE: NONE

NOTE:
INSTALL REFERENCE ELECTRODE WITHIN 12"FROM THE BOTTOM OF THE TUBE. FILL TUBING WITH ELECTRIC MUD TO AT LEAST 12" ABOVE REFERENCE ELECTRODE. THE REMAINDER OF THE TUBE CAN BE FILLED WITH NATIVE SOIL.

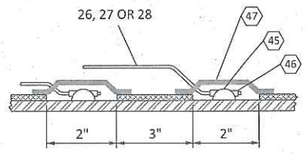


SECTION D/~
SCALE: NONE

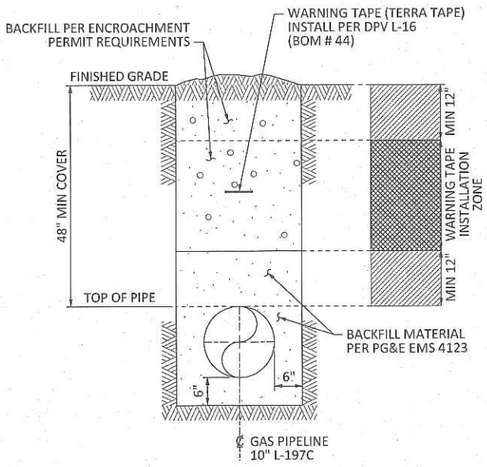


NOTE: 7 WIRES TO UNIT NPC (BLACK X 2), WIRE PC (WHITE X2), WIRE REF CELL (YELLOW), PIPE #10 (BLACK X 2) GAUGE SOLID WIRES

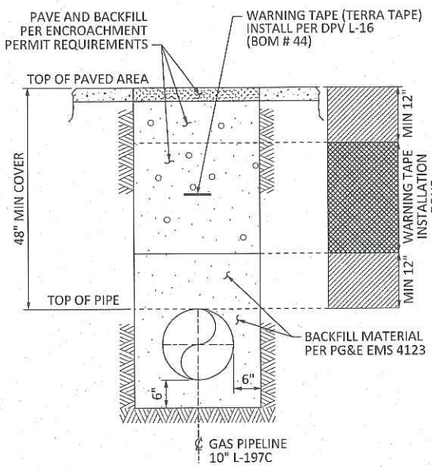
DETAIL 6/~ — COUPON TEST STATION HEAD PER CCV O-10.2, FIGURE 1
SCALE: NONE



DETAIL 5/4 — CADWELD WIRES TO PIPELINE PER CCV O-10, FIGURE 1 & TD-4181P-502
SCALE: NONE



TYPICAL TRENCH NON-PAVED AREA
SCALE: NO SCALE NATIVE BACKFILL



TYPICAL TRENCH PAVED AREA
SCALE: NO SCALE IMPORT BACKFILL

NO.	DATE	DESCRIPTION	PM/SPEC	DWN	CHKD	SUPV	APVD BY
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REVISIONS

APPROVED BY	
PSRS	40358
SUPV	K1F7
DSGN	S9MA
DWN	S9MA
CHKD	RAMA
OK	
DATE	9/27/16
SCALES	

PIPELINE - DETAILS
L- 197C MP 0.5
INSTALL NORMAL DWA AND RECTIFIER
LODI, CA

GAS TRANSMISSION & DISTRIBUTION
PACIFIC GAS AND ELECTRIC COMPANY
SAN FRANCISCO, CALIFORNIA

GAS TRANSMISSION ESTIMATING & DESIGN

BILL OF MATL	SHEET 7
DWG LIST	SHEET 2
TRACKING NUMBER	C-721
SHEET NO.	6 OF 7 SHEETS

31179017 | 0

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BILL OF MATERIALS (CAPITAL ORDER # 31179017)

BOM #	MATERIAL DESCRIPTION	MATERIAL CODE #	UNIT	QTY	STANDARD	NOTES
1	ANODES, 2.2" X 84", HSCI MODEL 2284Z OR TA 2, WITH 200' CABLE ANODE #8 HALAR/HMPWPE	M561505	EA	7	-	
2	ANODE, 2.2" X 84", HSCI MODEL 2284Z OR TA 2, WITH 250' CABLE ANODE #8 HALAR/HMWPE	M561506	EA	7	CCV O-13.2	
3	CALCINED PETROLEUM COKE BREEZE (50LB BAGS) (ASBURT 218L)	M561470	EA	50	CCV O-13.2	
4	#6 AWG HMWPE CABLE (BLACK)	M290396	FT	250	CCV O-13.2	AS REQUIRED
5	ANODE CENTRALIZER (1 PER ANODE)	M561509	EA	14	CCV O-13.2	
6	TIE, CABLE, PANDUIT # PLT3S-MO, TYTON # T50I-0, 11-1/2" X 3/8"	M399093	EA	50	CCV O-13.2	
7	VENT PIPE 2" PVC PLASTIC WELL SCREEN, PERFORATRED VENT PIPE	M561516	FT	100	CCV O-13.2	
8	VENT PIPE 2" PVC PLASTIC WELL SCREEN, NON-PERFORATED VENT PIPE	M561517	FT	100	CCV O-13.2	
9	CAP, 2" PLASTIC	M561511	EA	1	CCV O-13.2	
10	BODY, CONCRETE, VALVE FRAME, CHRISTY # G05, W/O COVER, 10-3/8" DIA X 12" HIGH	M043271	EA	3	GS&S K-40	
11	VALVE BOX, EXTENSION, PLASTIC, 8" IPS, BRANDON SUPPLY # 851, BLACK ABS, CORRUGATED, 10 FT LENGTH	M016063	EA	3	GS&S K-40	
12	COVER, VALVE, CAST IRON, YELLOW, CHRISTY # G05CY, FULL TRAFFIC, 11-1/8", TRAFFIC YELLOW WITH EXPOXY CLEAR COAT, MARKED "PG&E GAS"	M446213	EA	3	GS&S K-40	
13	1" PVC CONDUIT 90 BEND, SCHEDULE 40	M360163	EA	1	CCV O-13.2	
14	2" PVC CONDUIT, SCHEDULE 40, 20' LENGTH	M360380	EA	1	CCV O-13.2	
15	2 PVC CONDUIT 90 BEND, SCHEDULE 40 (GLUED TOGETHER TO MAKE A 180 BEND)	M360166	EA	2	CCV O-13.2	
16	TUBING, FLEX, 1" X 3'	M362638	EA	1	CCV O-13.2	
17	TAPE, SEALANT, INSULATING, AQUASEAL # 104742 OR EQUAL, ELECTRO SEAL # 10, WITHOUT VINYL BACK	M507030	EA	1	CCV O-12	
18	AJB-HOFFMAN NEMA 4X FIBERGLASS ENCLOSURE WITH 14 ANODE SHUNTS/1 CATHODE SHUNT		-	1	-	SPECIAL ORDER
19	NEAT CEMENT		-	1	-	AS REQUIRED
20	ASAI 40-20 AACFMRPON Q--6" EXTRA TALL CASE, Q-RMU TERMINALS, Q-3 DOOR CASE WITH PINS, Q-FULL FRONT		-	1	-	SPECIAL ORDER
21	NEMA 3R ENCLOSURE		-	1	-	SPECIAL ORDER FOR AJB
22	PADLOCK, CORBIN # 0906SCA, WILSON BOHANNAN # 621, 1-1/4" SHACKLE, STAMPED PG&E, KEYED 3A90909, WITHOUT KEY OR CHAIN	M016583	-	3	-	
23	SWITCH, SAFETY, 30A, 240VAC, SQUARE D # D221NRB, FUSIBLE, GENERAL DUTY, 2-POLE FACTORY-INSTALLED NEUTRAL, IN A NEMA TYPE 3R (TYPE B HUB PROVISION) ENCLOSURE, FOR CATHODIC PROTECTION RECTIFIER	M012680	EA	1	CCV O-11.1	
24	CONDUIT, 1", PVC, TYPE 2, SCHEDULE 80	M360305	EA	1	CCV O-11.1	AS REQUIRED
25	TUBING, FLEX (1")	M017140	-	1	-	AS REQUIRED
26	WIRE, ELECTRICAL, INSULATED, COPPER, 10 AWG, 600 V, 47 MIL PVC, SOLID 1 CONDUCTOR, BLACK	M294991	EA	40	CCV O-16	CONTACT LOCAL CORROSION MECHANIC
27	WIRE, ELECTRICAL, INSULATED, COPPER, 10 AWG, 600 V, 47 MIL PVC, SOLID 1 CONDUCTOR, WHITE	M294107	EA	40	CCV O-16	CONTACT LOCAL CORROSION MECHANIC
28	WIRE, ELECTRICAL, BARE, COPPER, 6 AWG, SOFT DRAWN, HAND COIL	M290072	EA	1	CCV O-11.1	AS REQUIRED
29	CLAMP METAL CONDUIT 1" GALVANIZED (1" GALVANIZED PIPE STRAPS)	M176004	-	2	-	AS REQUIRED
30	CAP, ENTRANCE, SERVICE, ELECTRIC, DOTTIE # 40015 MODEL DC100, CLAMP-ON, 1" CONDUIT, PHENOLIC INSULATOR, WEATHER RESISTANT, DIE CAST, COPPER	M022749	EA	1	CCV O-11.1	
31	ROD GROUND, 5/8" X 8'	M187013	-	2	-	
32	CLAMP, GROUND ROD, 5/8", ANDERSON ELECTRIC # GC103-01, DOSSERT # GN-62, ERITECH # HDC58H, ERITECH # SP58, GALVAN # JAB58HH, FOR #6-1/0 AWG COPPER CABLE	M187012	EA	2	CCV O-11.1	
33	FUSE FOR AC DISCONNECT SAFETY SWITCH	-	-	1	-	CONTACT LOCAL CORROSION MECHANIC
34	1/2" OFSET NIPPLE FROM RECTIFIER TO AC DISCONNECT SWITCH	-	-	1	-	
35	SCREW LAG, 1/4" DIAMETER, 2-1/2" LONG, STAINLESS STEEL	M196022	-	1	-	
36	NUT, METAL, CONDUIT, LOCK, 1", APPLETON # BL100, GALVANIZED, STEEL, RIGID CONDUIT, NOTCHED TYPE	M390269	EA	1	CCV O-11.1	AS REQUIRED
37	CONDUIT, 1/2", PVC, TYPE 2, SCHEDULE 40	M360368	EA	1	CCV O-11.1	AS REQUIRED
38	BEND PLASTIC CONDUIT 1" 90° 5-3/4" RAD	M360311	-	1	-	
39	ADAPTER, 1" SCHEDULE 80 PVC TO 1" PIPE THREAD	M360309	EA	1		AS REQUIRED
40	DECAL, PG&E WARNING - CALL 811, ELECTROMARK # Y2597849, 3.5" X 3.5", DURACRYL (ACRYLIC WITH OVERLAM 3.5" X 3.5" OR/LT GR/GR/BR/BK ON WHITE), EQUIPMENT IDENTIFICATION STICKER FOR CATHODIC PROTECTION RECTIFIERS	M379932	EA	1	CCV O-11.1	
41	DECAL, WARNING, ARC FLASH & SHOCK HAZARD, ELECTROMARK # Y2597850, 3.5" X 3.5", DURACRYL (ACRYLIC WITH OVERLAM 3.5" X 3.5" ORANGE AND BLACK ON WHITE), EQUIPMENT IDENTIFICATION STICKER FOR CATHODIC PROTECTION RECTIFIERS	M379933	EA	1	CCV O-11.1	
42	PG&E TAG, DANGER LOCKOUT	S&S 621411	EA	1		
43	STATION, TEST COUPON, CC TECHNOLOGIES # CS3100, SMALL PLASTIC CONDUIT AND TERMINAL TEST HEAD CONSTRUCTION, 3" OD X 10' LONG	M560691	EA	1	CCV O-10.2	AS REQUIRED
44	TAPE, WARNING, PIPELINE, GAS UNDERGROUND, REEF INDUSTRIES # 42-0084, YELLOW WITH BLACK WRITING, "CAUTION GAS LINE BURIED BELOW", 8 MILS THICK, 6" WIDE X 1000' LONG	M379947	EA	1	GS&S L-16	
45	CARTRIDGE, BRAZING, CADWELD # CA-15, THERMOWELD # 15P	M159260	EA	4	CCV O-10	
46	SLEEVE, COPPER SPLICING, #14 TO #10, CADWELD # CAB-133-1H, THERMOWELD # A-200	M303755	EA	1	CCV O-10	
47	TAPE, HANDY CAP, 4" X 4", ROYSTON	M562324	EA	4	GS&S E-27	

811 Know what's below. Call before you dig.

ZERO IN ON SAFETY

NO.	DATE	DESCRIPTION	PM/SPEC	DWN	CHKD	SUPV	APVD BY
	9/27/16	ISSUED FOR CONSTRUCTION	31179017	S9MA	RAMA	K1F7	

REVISIONS

APPROVED BY	
	PSRS 40358
	SUPV K1F7
	DSGN S9MA
	DWN S9MA
	CHKD RAMA
	OK
	DATE 9/27/16
	SCALES

PIPELINE - BILL OF MATERIALS
L- 197C MP 0.5
INSTALL NORMAL DWA AND RECTIFIER
LODI, CA

GAS TRANSMISSION & DISTRIBUTION
PACIFIC GAS AND ELECTRIC COMPANY
SAN FRANCISCO, CALIFORNIA

GAS TRANSMISSION ESTIMATING & DESIGN

BILL OF MATL	SHEET 7
DWG LIST	SHEET 2
TRACKING NUMBER	C-721
SHEET NO.	7 OF 7 SHEETS
	31179017 0

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27-SEP-2016 08:34AM
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