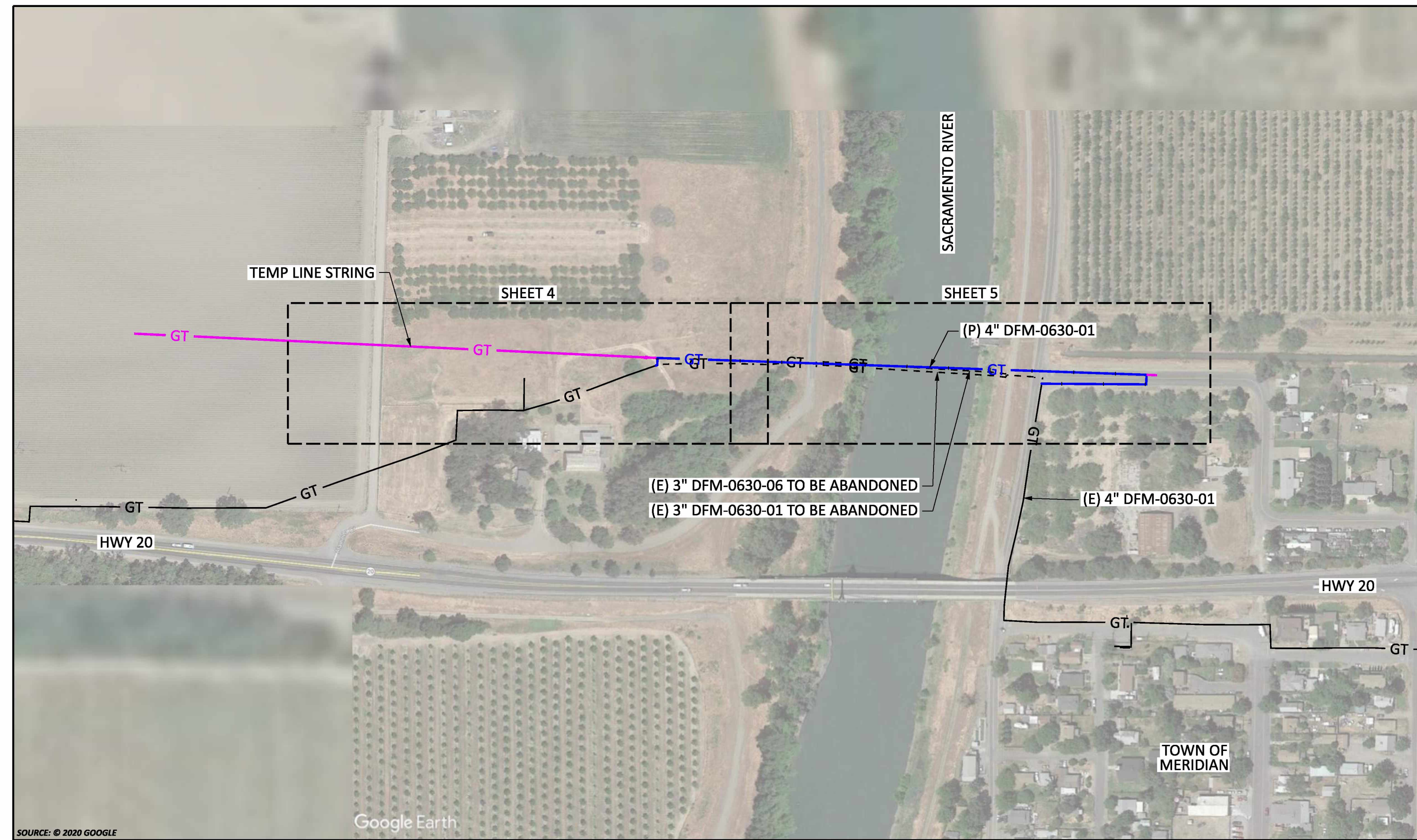
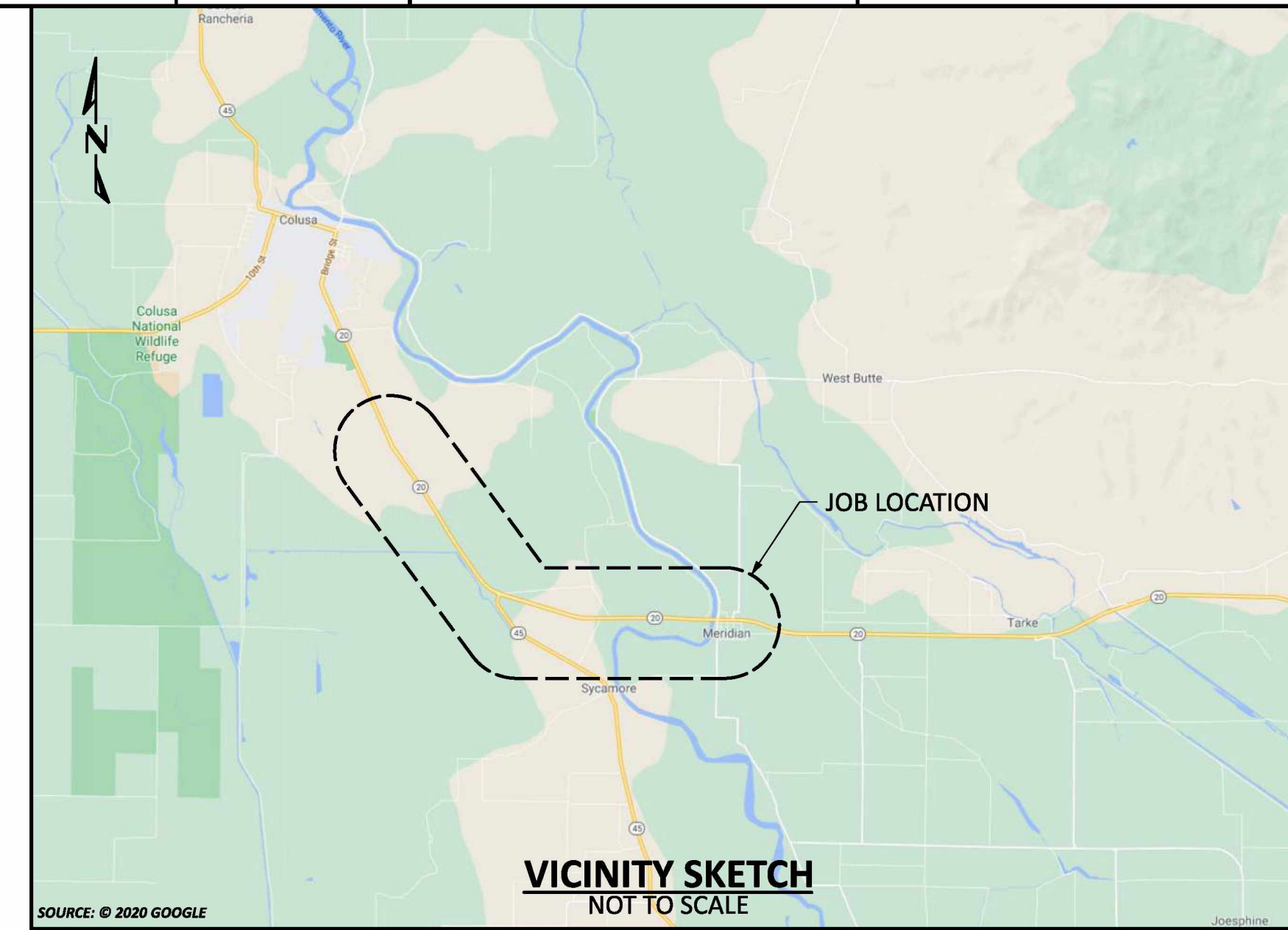


APPENDIX C

PROJECT PLANS

DFM-0630-01 MP 10.67 - 10.85 REPLACE 3" PIPE MERIDIAN, SUTTER & COLUSA COUNTY

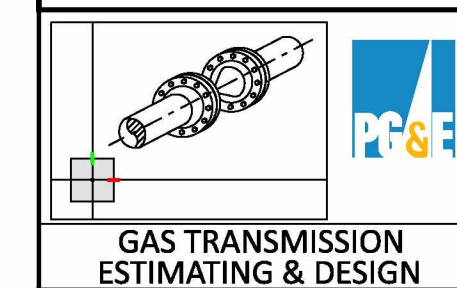
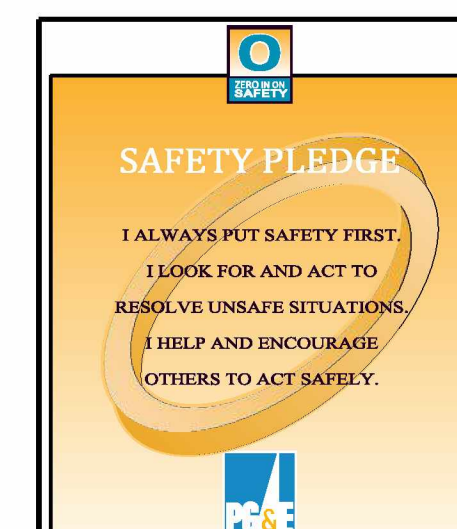


SCHEDULE OF SHEETS

- SHEET 1 -- TITLE & INDEX
- SHEET 2 -- CONSTRUCTION NOTES
- SHEET 3 -- LEGEND & STAMPS
- SHEET 4 -- PLAN & PROFILE
- SHEET 5 -- PLAN & PROFILE
- SHEET 6 -- DETAILS
- SHEET 7 -- DETAILS
- SHEET 8 -- DETAILS
- SHEET 9 -- DETAILS
- SHEET 10 -- HDD PROFILE
- SHEET 11 -- HDD PROFILE
- SHEET 12 -- BILL OF MATERIALS
- SHEET 13-14 -- EXHIBIT
- SHEET 15-22 -- DECOMMISSIONING SHEETS

KEY MAP

SCALE: 1" = 200'



ISSUED FOR PERMITTING ONLY

PACIFIC GAS AND ELECTRIC COMPANY

BILL OF MATL SHEET 12

JOB ID **R-1385**

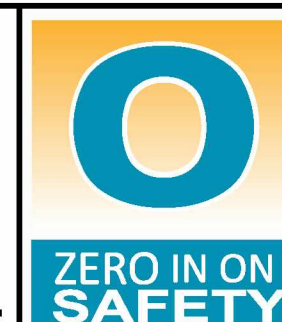
SHEET NO. 1 OF 22 SHEETS

74029104 D

IMPACTED RECORD DRAWINGS:
 YES NO

CAP # XXXXXXXXX

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REV.	DATE	DESCRIPTION	ORDER	DWN	ADE	ENG	ENG APVD
D	9/10/21	ISSUED FOR PERMIT ONLY	74029104	DSBZ	RAMA	C2L1	
C	8/13/21	ISSUED FOR PERMIT ONLY	74029104	DSBZ	RAMA	C2L1	
B	1/7/21	ISSUED FOR 60% DESIGN REVIEW	74029104	DSBZ	SME3	C2L1	
A	11/10/20	ISSUED FOR 30% DESIGN REVIEW	74029104	DSBZ	SME3	C2L1	

PIPELINE - TITLE & INDEX
DFM-0630-01 MP 10.67 - 10.85
REPLACE 3" PIPE
MERIDIAN, SUTTER & COLUSA COUNTY

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

SUMMARY OF PROPOSED WORK:

- STRENGTH TEST 4.500"OD L-0630-01 FROM MP 10.67 - 10.85 PER DRAWINGS AND STRENGTH TEST PRESSURE REPORTS (#74029104) AND MATERIAL OF RECORD DRAWING #74029104 SHEET 2 OF 2.

CAPITAL ORDER # 74029104

- INSTALL 1548'-0" OF 4.500"OD PIPE.
- REMOVE 35'-11" OF 4.500"OD PIPE.
- REMOVE 15'-11" OF 3.500"OD PIPE.
- RETIRE (1) 3" PCF.

SEQUENCE OF OPERATIONS:

- WELD AND PRE-TEST HDD PIPE STRING.
- INSTALL 1250' OF PIPE BY HORIZONTAL DIRECTIONAL DRILL.
- INSTALL 302' OF PIPE BY OPEN TRENCH.
- FABRICATE TIE-IN PIECES.
- HYDROTEST TO A MINIMUM OF 1.5 TIMES MAOP WITH A MINIMUM DURATION OF 8 HOURS, DE-WATER, AND DRY NEW 4" PIPE AND TIE-IN PIECES.
- PRIOR TO TAKING PIPELINE CLEARANCE, THE FOLLOWING MUST BE PERFORMED:
 - PG&E GPOM TO CHECK ANY DRIPS IN SHUT-IN SEGMENT FOR PRESENCE OF PIPELINE LIQUIDS.
 - REMOVE PIPE WRAP FROM CUT OUT SECTIONS EXTENDING 1' BEYOND EACH END OF THE CUT-OUT AND SANDBLAST TO NEAR WHITE.
 - COMPLETE A-FORMS IN ALL EXPOSED PIPE AND INCLUDE IN AS-BUILT PACKAGE. IF UT WT MEASUREMENTS DO NOT MATCH EXISTING PIPE SPECIFICATIONS AS SHOWN ON DRAWINGS, IMMEDIATELY NOTIFY PROJECT ENGINEER (PED).
 - INSTALL SAVE-A-VALVES FOR OIL TESTING AND SNIFF HOLES WHERE DESIGNATED.
 - CONFIRM LOCATION AND NUMBER OF SAVE-A-VALVES AND ENSURE WELD PROCEDURE CALCULATIONS ARE PROVIDED BY ENGINEERING PRIOR TO WELDING SAVE-A-VALVES ON PIPELINE.
 - STRENGTH TEST, DEWATER, AND DRY TIE-IN PIECES PER UTILITY PROCEDURE TD-4137S.
- COMPLETE CLEARANCE PER APPROVED CLEARANCE PROCEDURE.
- REMOVE RETIRED PIPE AND FITTINGS AS NECESSARY PER DRAWINGS.
- TIE-IN NEW 4" PIPE.
- COMPLETE RETIREMENT/REMOVAL OF 0630-01 AND 0630-03 AS PER DRAWING.
- BACKFILL AND RESTORE CONSTRUCTION CORRIDORS.

HORIZONTAL DATUM
THE BEARINGS AND DISTANCES ARE BASED ON CALIFORNIA COORDINATE SYSTEM, ZONE 3.
VERTICAL DATUM
ALL ELEVATIONS SHOWN ARE BASED ON THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAV88), US SURVEY FEET AS PROVIDED BY THE CALIFORNIA SURVEY AND DRAFTING SUPPLY SURVEY NETWORK.
TO CONVERT TO NGVD29 SUBTRACT 2.4 FEET FROM ALL SHOWN ELEVATIONS.

CONSTRUCTION NOTES:

GENERAL REQUIREMENTS:

- 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.
- UTILITY NOTES:
 - 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.
 - 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.
 - 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.
 - ALL EXCAVATIONS WITHIN EXISTING STATIONS SHALL BE HAND DUG OR EXCAVATED USING SOFT DIG METHODS (e.g. VACUUM EXCAVATIONS OR SIMILAR).
- ELBOWS AND FIELD BENDS:
 - ALL BENDS ARE ELBOWS, EXCEPT WHERE SMOOTH FIELD BENDS 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).
 - 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.
 - ALL ANGLES SHOWN IN THE PLAN AND PROFILE ARE APPROXIMATE AND SHALL BE CUT TO SUIT FIELD CONDITIONS.
- SEPARATION FROM OTHER STRUCTURES:
 - 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.
 - 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.
- RESTORATION AND CLEAN UP:
 - RESTORATION OF PUBLIC STREETS, SIDEWALKS, CURBS, ETC. ABOVE PIPE BEDDING SHALL BE IN ACCORDANCE WITH THE LATEST CITY, COUNTY, OR AGENCY STANDARDS.
 - 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.
- DESIGN NOTES:
 - THIS DRAWING HAS BEEN CREATED BY REVIEW OF THE AS-BUILT DRAWINGS & RECORDS. ACCURACY IS DEPENDENT UPON THE SOURCE DOCUMENT LISTED ON THE REFERENCE DRAWINGS.
 - PIPE & FITTING SPECIFICATIONS WITH ASTERISK (*) ARE CONSERVATIVE ASSUMED VALUES PER TD-4125P-09 PROCEDURE FOR THE RESOLUTION OF UNKNOWN PIPELINE FEATURES (PRUPF).
 - ALL WORK DEPICTED IN THIS DRAWING IS TO BE AS-BUILT UNDER THE PRIMARY ORDER NUMBER.
- WELDING REQUIREMENTS:
 - ALL ARC WELDING IS TO BE PERFORMED IN ACCORDANCE WITH THE GAS WELDING CONTROL MANUAL TD-4160M. REFER TO TD-4160P-20 OR TD-4160P-26 FOR GENERAL WELDING REQUIREMENTS.
 - PERFORM ALL IN-SERVICE WELDING PER UTILITY PROCEDURE TD-4160P-40.
 - ALL CANS OR SPOOLS SHALL BE A MINIMUM LENGTH OF ONE PIPE DIAMETER, WHENEVER POSSIBLE.
 - WHEN INTERNAL MISALIGNMENT AT GIRTHWELDS EXCEEDS 0.094", BACKWELD 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 TD-4160P-20 OR TD-4160-26, AS APPROPRIATE.
- STRENGTH TEST REQUIREMENTS
 - STRENGTH TESTING SHALL MEET PRESSURE AND DURATION REQUIREMENTS OF GAS STANDARD A-34 AND SHALL BE CONDUCTED IN ACCORDANCE WITH UTILITY PROCEDURE TD-4137S.
 - 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.
- COATING REQUIREMENTS:
 - ALL EXPOSED PIPE AND FITTINGS ARE TO BE COATED 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.
 - FOR COATING SELECTIONS ON BURIED PIPE, SEE DIRECT BURIAL COATING SELECTIONS TABLE.
 - CONTACT THE PROJECT ENGINEER (PED) TO REQUEST VARIANCE FROM THE APPROVED COATING PRODUCTS.
- INSPECTION OF EXISTING PIPELINE:
 - WHENEVER EXISTING BURIED GAS FACILITIES ARE EXCAVATED DURING ENGINEERING OR DURING CONSTRUCTION, FOLLOW TD-5100P-01 TO DOCUMENT PIPE INSPECTION. THIS APPLIES TO EXISTING AND TO BE RETIRED FACILITIES.
 - EXISTING GIRTH WELDS, AT TIE-IN LOCATIONS, SHALL BE IDENTIFIED AND REMOVED IF PRACTICAL.
 - PRIOR TO TIE-IN, INSPECT COATING AND PIPE FOR DEFECTS. IF DEFECTS ARE FOUND, CONTACT PROJECT ENGINEER (PED) FOR GUIDANCE.

- TIE-IN AND CLEARANCE PROCEDURE TO BE PREPARED AND PERFORMED IN ACCORDANCE WITH THE FOLLOWING WORK PROCEDURES:
 - TD-4100P-01, HOT AND COLD WORK METHODS FOR NATURAL GAS TRANSMISSION PIPELINE SHUTDOWN AND TIE-IN.
 - TD-4441S, GAS CLEARANCE PROCEDURES FOR FACILITIES OPERATING OVER 60 PSIG.
- COATING REMOVAL:
 - 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):
 - WHEN A PIPE WRAP SAMPLE IS REQUIRED TO BE ANALYZED FOR ASBESTOS:
 - COLLECT SAMPLE PER TD-4711P-01 AND COMPLETE CHAIN OF CUSTODY FORM TD-4711P-01-F01.
 - FILE PINK COPY OF THE CHAIN OF CUSTODY FORM AND FINAL LABORATORY RESULTS WITH THE AS-BUILTS.
 - WHEN REMOVING PIPE WRAP THAT CONTAINS ASBESTOS, OR FOR EMERGENCY WORK, FOLLOW TD-4711P-01 "PIPE WRAP REMOVAL, HANDLING AND DISPOSAL".

CATHODIC PROTECTION NOTES:

- FOLLOW TD-5100P-01 TO DOCUMENT INTERNAL CORROSION AND EXTERNAL CORROSION INSPECTION OF THE PIPELINE.
- INSTALL ELECTROLYSIS TEST STATIONS IN ACCORDANCE WITH GAS DESIGN STANDARDS O-10, O-10.1 AND O-10.2.
- 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.
- FOR THE INSTALLATION OF THE WATCHDOG RECTIFIER REMOTE MONITOR, CONTACT THE CORROSION SUPERVISOR FOR THE LOCAL AREA/DIVISION.
- 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 INSTALLED. CLAMPS TO REMAIN IN PLACE UNTIL PIPELINE IS TIED IN.

RETIREMENT PROCEDURE FOR EXISTING PIPE:

- GT&D UTILITY WORK PROCEDURE TD 9500P-16, "DEACTIVATION AND/OR RETIREMENT OF UNDERGROUND GAS FACILITIES," SHALL BE FOLLOWED.
- THE EXISTING PIPE SECTIONS SHALL HAVE FREE LIQUIDS REMOVED AND BE 100% PURGED PER GAS DESIGN STANDARD A-38, "PROCEDURES FOR PURGING GAS FACILITIES."
- 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.
- 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 PROJECT ENGINEER (PED) BEFORE MAKING ANY DESIGN CHANGE TO GAS FACILITIES PER TD-4014P-01.

CONTACT INFORMATION:

CONSTRUCTION MANAGER	----	KC NELSON	(916) 258-8735
I&R SUPPORT	----	JEREMY VARNER	(209) 247-5306
CLEARANCE SUPERVISOR	----	TBD	TBD
PROJECT COORDINATOR	----	ALEX RODRIGUEZ	(916) 223-5419
PROJECT ENGINEER (PED)	----	CLARENCE LI	(925) 967-8247
PIPELINE ENGINEER (PLE)	----	JEFFREY GRACE	(916) 247-1334
ESTIMATOR / DESIGNER	----	DAVE BREWER	(530) 354-3301
H-FORM	----	LUKE ZOLNIEROWSKI	(908) 464-3064
MATERIALS (PIPE)	----	MICHAEL LACHINA	(510) 468-1924
MATERIALS (FITTINGS)	----	PAMELA TREVINO	(510) 468-7964
MATERIALS (CHAIN OF CUSTODY)	----	DAVID BUCKLEY	(628) 234-5642
CORROSION ENGINEER	----	JESSE BURR	(925) 324-8076
LOCAL CORROSION MECHANIC	----	DARREN BEGLEY	(916) 601-1983

REFERENCE DRAWINGS:

OPERATING MAPS		
SUTTER CREEK FIELD SUTTER BUTTES	----	384517, REV 102
FIELD REDDING		
DISTRIBUTION PLATS		
2149	----	E7
AS-BUILTS		
MAOP13014788.TIF	----	
REPLACE 3" DFM WITH 4" FROM MOON BEND ROAD	----	09-43-G96834, REV 0
TO SACRAMENTO RIVER CROSSING		
REPLACE 3" COLUSA DFM SUTTER BYPASS TO	----	GM 4634473, SHT 7 REV 1
MERIDIAN SUTTER CO		

IMPACTED RECORD DRAWINGS:

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REV.	DATE	DESCRIPTION	ORDER	DWN	ADE	ENG	ENG APVD
D	9/10/21	ISSUED FOR PERMIT ONLY	74029104	DSBZ	RAMA	C2L1	
C	8/13/21	ISSUED FOR PERMIT ONLY	74029104	DSBZ	RAMA	C2L1	
B	1/7/21	ISSUED FOR 60% DESIGN REVIEW	74029104	DSBZ	SME3	C2L1	
A	11/10/20	ISSUED FOR 30% DESIGN REVIEW	74029104	DSBZ	SME3	C2L1	

PIPELINE - CONSTRUCTION NOTES
DFM-0630-01 MP 10.67 - 10.85
REPLACE 3" PIPE
MERIDIAN, SUTTER & COLUSA COUNTY
GAS TRANSMISSION & DISTRIBUTION
PACIFIC GAS AND ELECTRIC COMPANY
SAN FRANCISCO, CALIFORNIA

GAS TRANSMISSION ESTIMATING & DESIGN

ISSUED FOR PERMITTING ONLY

PACIFIC GAS AND ELECTRIC COMPANY

BILL OF MATL SHEET 12

JOB ID **R-1385**

SHEET NO. 2 OF 22 SHEETS

74029104 D

REVISIONS	
1	10

DIRECT BURIAL COATING SELECTIONS

MAIN LINE COATING	FBE (E-35.4)
MINOR REPAIRS	LIQUID EPOXY (E-35.3)
TIE-IN WELDS	LIQUID EPOXY (E-35.1)
GIRTH WELDS	LIQUID EPOXY (E-35.1)
BUTT WELDED FITTINGS	LIQUID EPOXY (E-35.1)
VALVE ASSEMBLIES	LIQUID EPOXY (E-35.7), WAX TAPE (E-35.7)
SHORT SEGMENTS OF PIPE	LIQUID EPOXY (E-35.1)
AIR-TO-SOIL TRANSITIONS	LIQUID EPOXY/PSX 700 (E-35.8)
PRESSURE CONTROL FITTINGS	LIQUID EPOXY (E-35.7), WAX TAPE (E-35.7)
TIE-INS/COATING TRANSITIONS	LIQUID EPOXY (E-35.3)

BORED COATING SELECTIONS

MAIN LINE COATING	ARO APPLIED OVER FBE (E-35.4)
MINOR REPAIRS	LIQUID EPOXIES (E-35.2)
TIE-IN WELDS	LIQUID EPOXIES (E-35.2)

NOTES:
1) REFERENCE CONSTRUCTION NOTE 10, COATING REQUIREMENTS.

INTERNAL CORROSION (IC) DESIGN & CONSTRUCTION REVIEW

IC THREAT (PER TD-4810P-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-41815.

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

ROPING TABLE

MIN. DISTANCE REQUIRED TO ROPE AN OFFSET OF 4.500" OD x 0.237" WT, API-5L, GR B

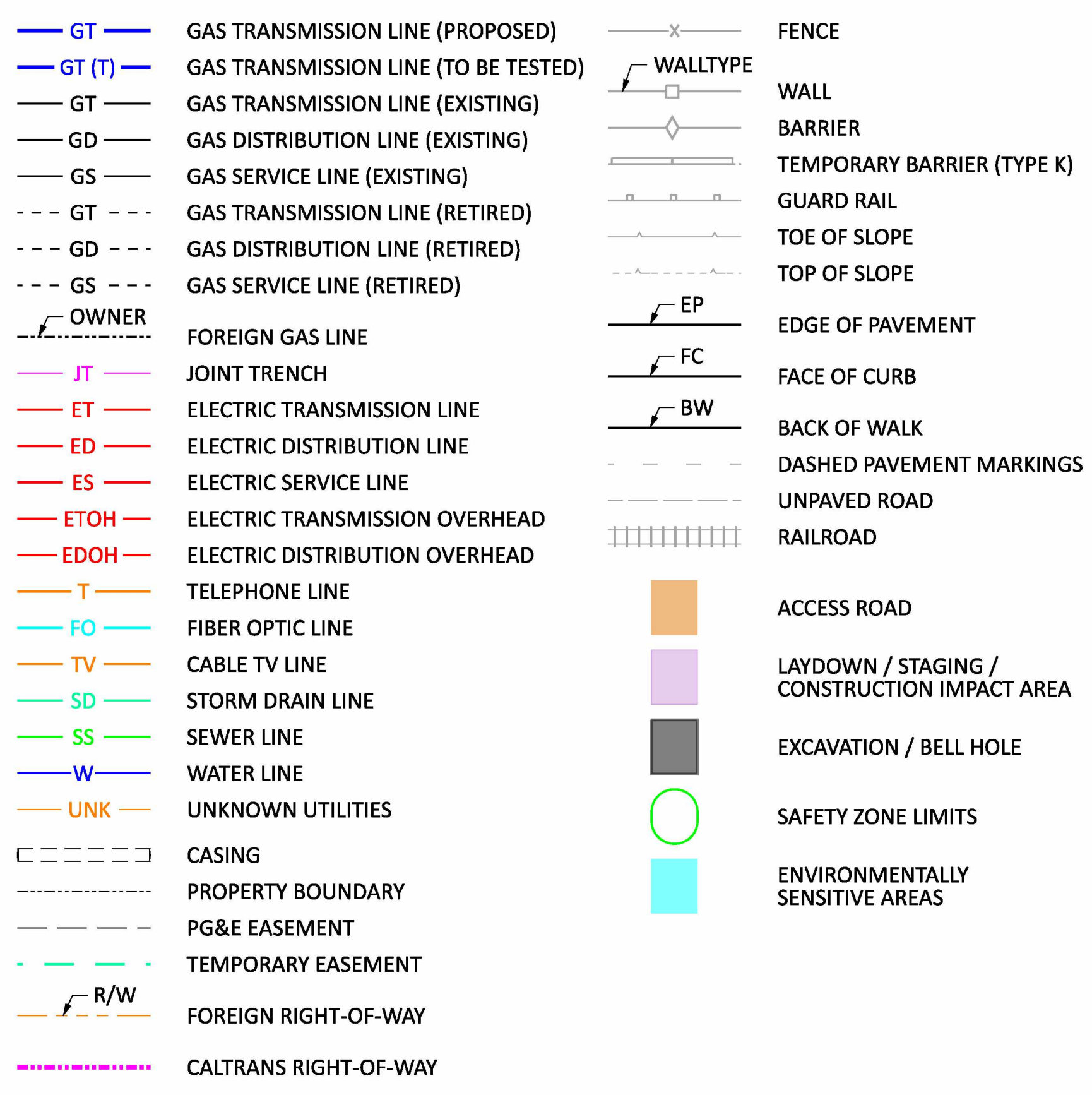
MIN ROPING RADIUS= 400 FT			
YY (FT)	XX (FT)	YY (FT)	XX (FT)
1	40	6	98
1.5	49	6.5	102
2	57	7	106
2.5	63	7.5	109
3	69	8	113
3.5	75	8.5	116
4	80	9	120
4.5	85	9.5	123
5	89	10	126

DEPTH OF COVER (FT)	MAXIMUM CONSTRUCTION PER HALF AXLE (LBS)
8	253,560
7	205,394
6	160,119
5	119,675
4	84,902
3	55,258
2	26,578

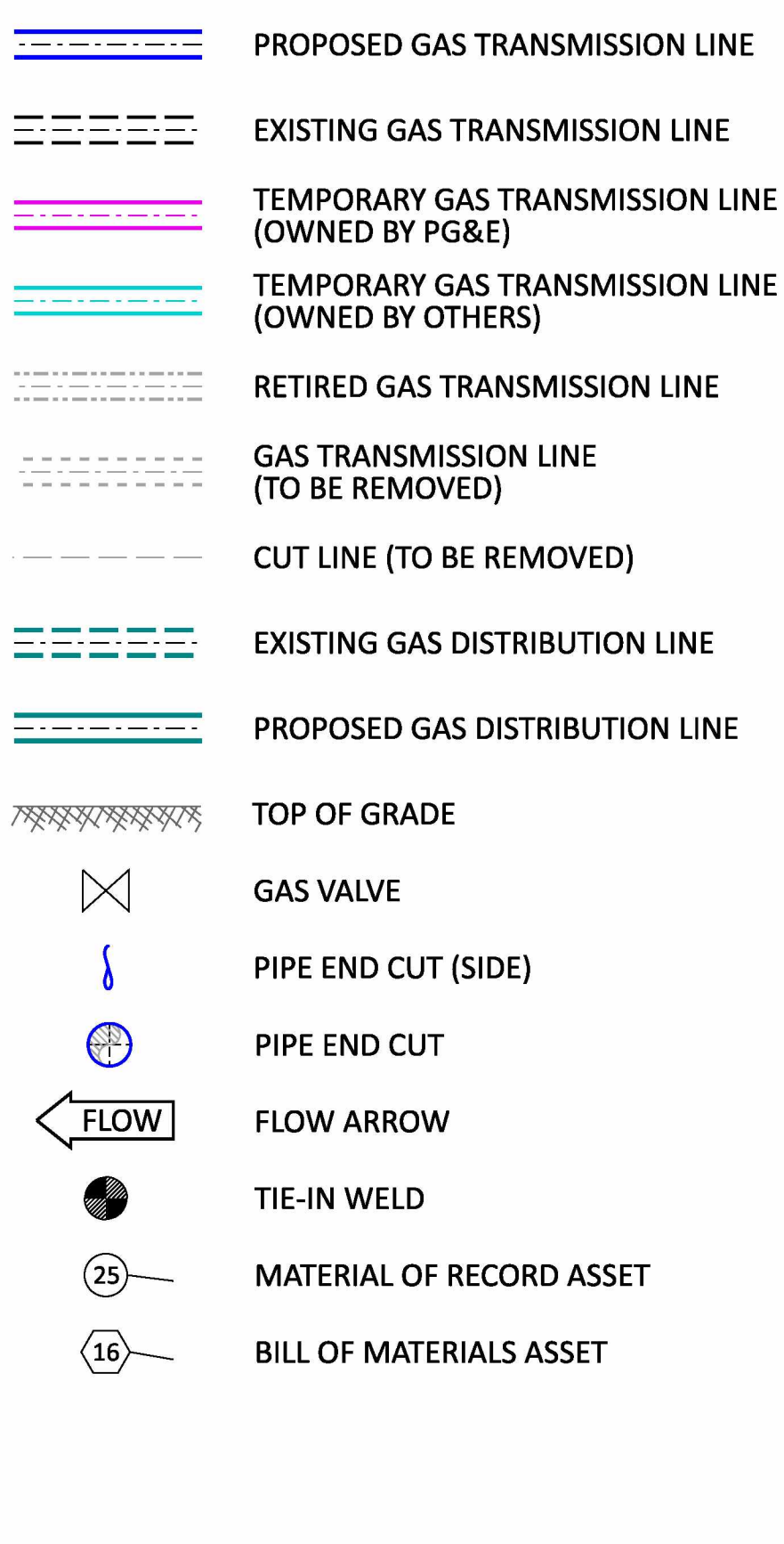
DEPTH OF COVER (FT)	MAXIMUM CONSTRUCTION PER HALF AXLE (LBS)
8	311,223
7	252,546
6	197,272
5	147,774
4	105,093
3	68,578
2	33,075

DEPTH OF COVER (FT)	MAXIMUM CONSTRUCTION PER HALF AXLE (LBS)
8	1,028,651
7	812,168
6	614,428
5	443,558
4	302,472
3	188,342
2	86,304

LEGEND:



DETAIL LEGEND:



Acronym	Definition	Acronym	Definition	Acronym	Definition	Acronym	Definition
(E)	Existing	DEG	Degree	HFV	High Frequency Weld	PKWY	Parkway
(P)	Proposed	DET	Detail	HPR	High Pressure Regulator	PL	Plastic
AB	Aggregate Base	DFM	Distribution Feeder Main	HWY	Highway	PLC	Programmable Logic Controllers
ABN	Abandon	DI	Drainage Inlet	ID	Inside Diameter	PRUPF	Procedure for the Resolution of Unknown Pipeline Features
AC	Asphalt Concrete	DIA	Diameter	ILI	In-Line Inspection	PSI	Pounds per Square Inch
API	American Petroleum Institute	DIST	Distribution	INV	Invert	PV	Plug Valve
APN	Assessor's Parcel Number	DPV	Damage Prevention Volume	IRR	Irrigation	PVMT	Pavement
APPROX	Approximate	DR	District Regulator	JN	Job Number	QTY	Quantity
AVE	Avenue	DREG	District Regulator	JP	Joint Pole	R	Radius
ARC	Abrasion Resistant Coating	DSAW	Double Submerged Arc-Welded	JT	Joint Trench	RCP	Reinforced Concrete Pipe
ASME	American Society of Mechanical Engineers	DWA	Deep Well Anode	L	Line Number	RD	Road
ASTM	American Society for Testing Materials	DWY	Driveway	LAT	Latitude	RDWY	Roadway
BBCL	Bell Bell Chill Ring	E	East	LN	Lane	REG	Regulator
BC	Begin Curve	EASE	Easement	LNG	Liquid Natural Gas	REL	Relocate
BD	Blowdown	EC	End Curve	LOC	Location	REPL	Replace
BEG	Begin	EL	Elbow	LONG	Longitude	REV	Revision
BKF	Backfill	ELECT	Electric	LT	Left	RR	Railroad
BLDG	Building	ELEVATION	Elevation	M	Monitor	RT	Right
BLVD	Boulevard	EM	Electronic Marker	MAOP	Maximum Allowable Operating Pressure	RTE	Route
BM	Bench Mark	EMS	Engineering Material Specification	MAX	Maximum	R/W	Right of Way
BMP	Best Management Practice	ENGR	Engineer	MH	Manhole	S	South
BOM	Bill of Materials	EP	Edge of Pavement	MIN	Minimum	SAWH	Submerged Arc-Welded Helical
BR	Bridge	EQ	Equation	MISC	Miscellaneous	SAWL	Submerged Arc-Welded Longitudinal
BTU	British Thermal Units	ERW	Electric Resistance Welded	MLV	Main Line Valve	SCADA	Supervisory Control and Data Acquisition
BV	Ball Valve	ESA	Environmentally Sensitive Area	MOI	Method of Installation	SD	Storm Drain
BW	Back of Walk	ETS	Electrolysis Test Station	MON	Monument	SG	Subgrade
CATS	Computer Automated Test Station	ETW	Edge of Traveled Way	MOP	Maximum Operating Pressure	SHT	Sheet
CCV	Corrosion Control Volume	F	Filter	MP	Mile Point	SMLS	Seamless
CI	Cast Iron	F & C	Frame and Cover	MSP	Maximum Stopping Pressure	SMYS	Specified Minimum Yield Strength
CL	Centerline	FBE	Fusion Bonded Epoxy	MTR	Meter	SPEC	Specification
CMP	Corrugated Metal Pipe	FC	Face of Curb	MW	Working Monitor	SS	Sanitary Sewer
CNG	Compressed Natural Gas	FDP	Future Design Pressure	MWP	Maximum Working Pressure	SSAW	Single Submerged Arc-Welded
CO	County	FG	Finished Grade	N	North	ST	Street
CONC	Concrete	FH	Fire Hydrant	NDE	Non-Destructive Examination	STA	Station
COND	Conduit	FIG	Figure	NOP	Normal Operating Pressure	STD	Standard
CP	Cathodic Protection	FL	Flow Line	NPC	Non-Protected/Native Coupon	STL	Steel
CPT	Catch Point	FLG	Flange	NTS	Not to Scale	STPR	Strength Test Pressure Report
CROP	Conditional Reduction of Pressure	FWY	Freeway	OD	Outside Pipe Diameter	T	Tied (Connected to System)
CTS	Coupon Test Station	GS	Natural Gas Service	OG	Original Ground	TCE	Temporary Construction Easement
CU	Copper	GS&S	Gas Standards and Specifications	OH	Overhead	TCP	Traffic Control Plan
CULV	Culvert	GV	Gate Valve	P	Pipeline	TD	Technical Document
D	Depth	GW	Natural Gas Well	P/L	Property Line	TDW	T. D. Williamson
DE	Dead End	H	Horizontal	PC	Point of Curvature	TEL	Telephone
DCUST	Distribution Customer	HDD	Horizontal Directional Drill	PCF	Pressure Control Fitting		

Acronym	Definition	Acronym	Definition
TEMP	Temporary	W	Water
TG	Top of Grade	WT	Wall Thickness
TT	Top Tap	WV	Water Valve
TSP	Transmission System Planning	W	With
TYP	Typical	W/O	Without
UG	Underground	WP	Work Procedure
USA	Underground Service Alert		
UT	Ultra-Sonic Test		
V	Valve		
VIF	Verify in Field		
VOL	Volume		
W	Water		
WT	Wall Thickness		
WV	Water Valve		
W	With		
W/O	Without		
WP	Work Procedure		

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D	9/10/21	ISSUED FOR PERMIT ONLY	74029104	DSBZ	RAMA	C2L1	
C	8/13/21	ISSUED FOR PERMIT ONLY	74029104	DSBZ	RAMA	C2L1	
B	1/7/21	ISSUED FOR 60% DESIGN REVIEW	74029104	DSBZ	SME3	C2L1	
A	11/10/20	ISSUED FOR 30% DESIGN REVIEW	74029104	DSBZ	SME3	C2L1	

PIPELINE - LEGEND & STAMPS
DFM-0630-01 MP 10.67 - 10.85
REPLACE 3" PIPE
MERIDIAN, SUTTER & COLUSA COUNTY
GAS TRANSMISSION & DISTRIBUTION
PACIFIC GAS AND ELECTRIC COMPANY
SAN FRANCISCO, CALIFORNIA

ISSUED FOR PERMITTING ONLY

PACIFIC GAS AND ELECTRIC COMPANY

GAS TRANSMISSION ESTIMATING & DESIGN

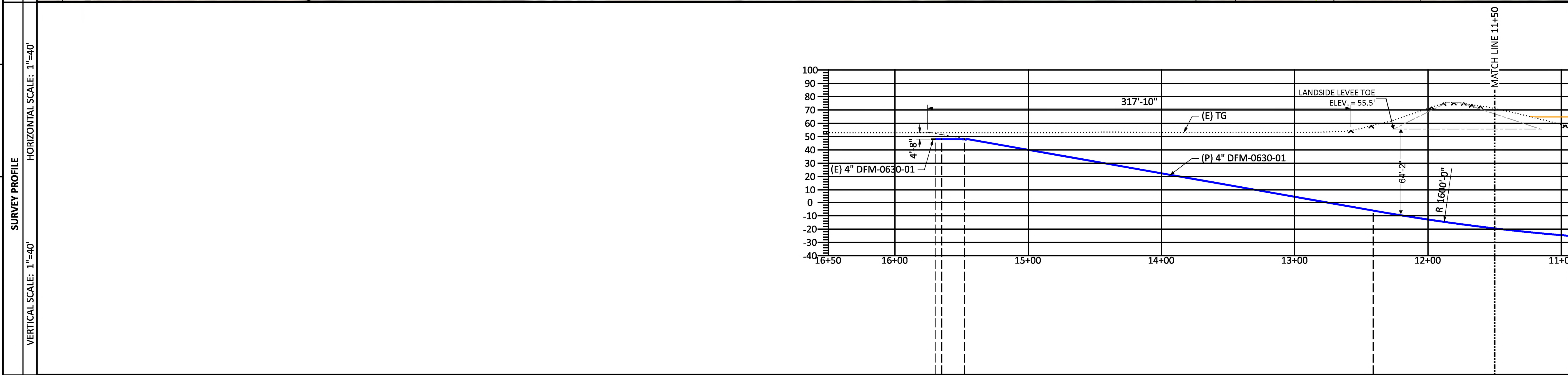
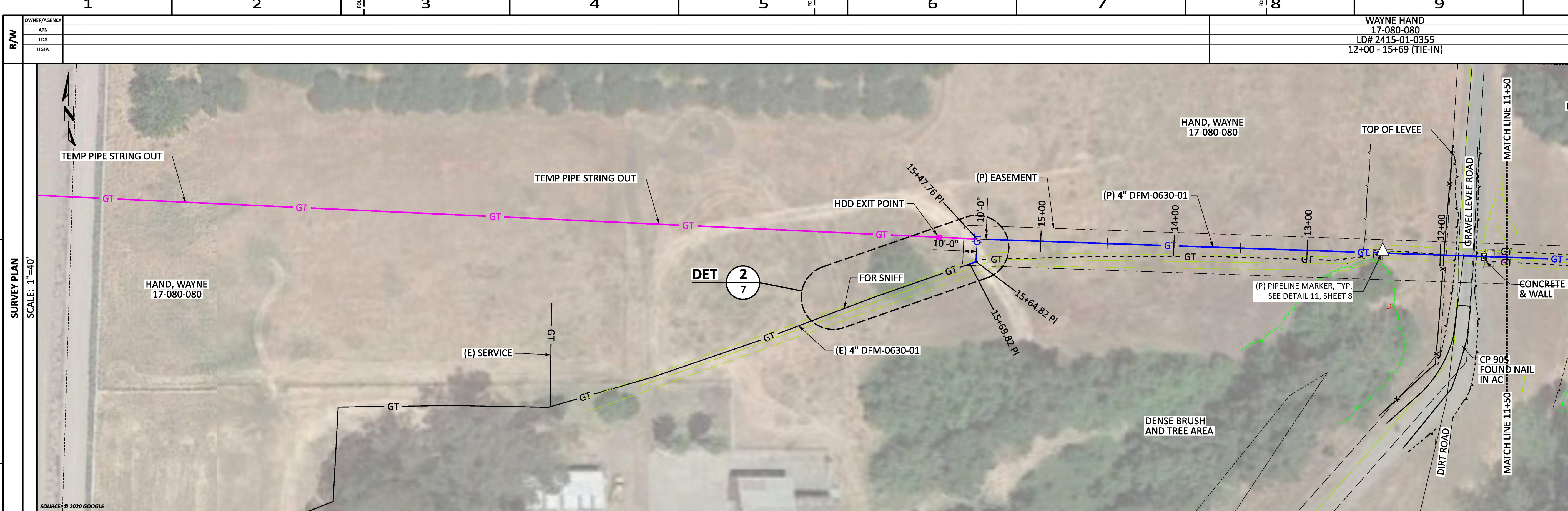
BILL OF MATL SHEET 12

JOB ID **R-1385**

SHEET NO. 3 OF 22 SHEETS

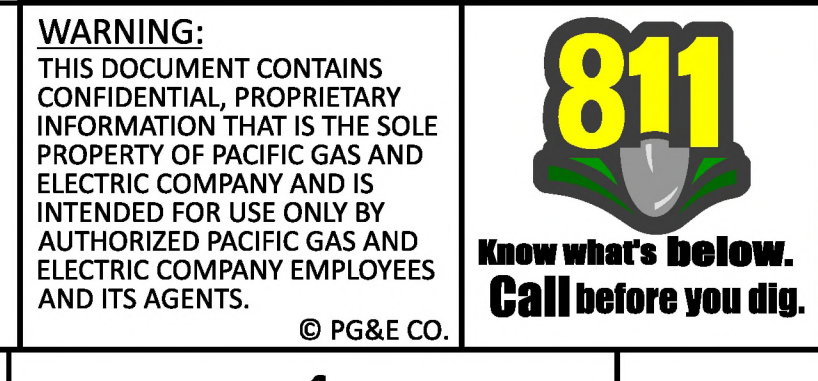
74029104 D

74029104-S003-LS.dgn	8-SEP-2021 19:04PM
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PIPELINE STATIONING	PIPELINE MOI
16+50	2
15+00	3
14+00	2
13+00	3
12+00	1
11+50	HDD

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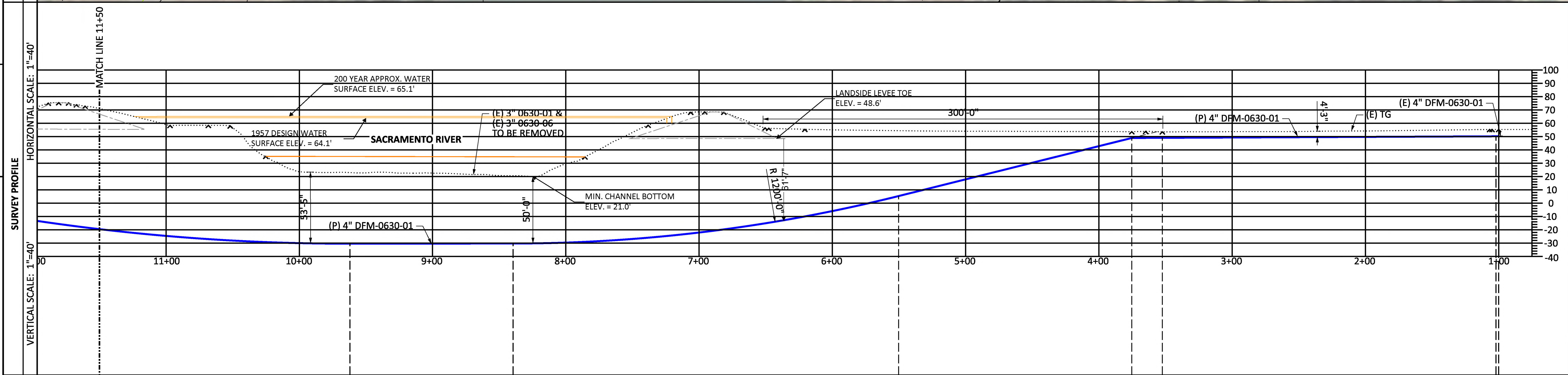
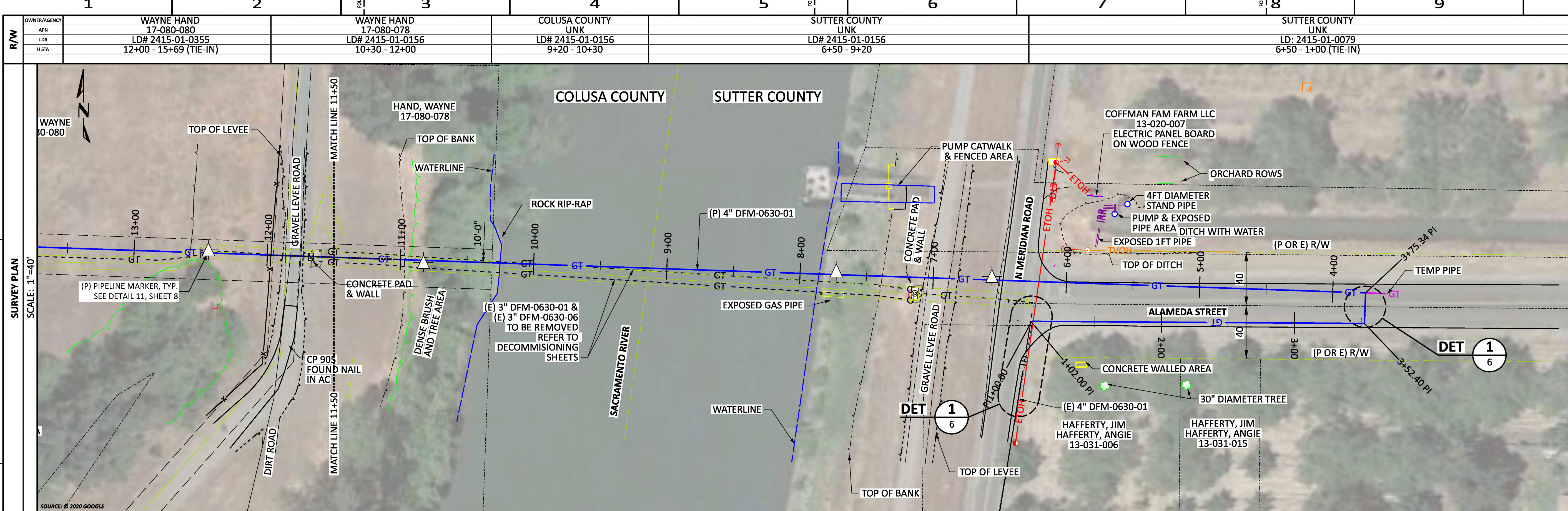
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PIPELINE - PLAN & PROFILE
DFM-0630-01 MP 10.67 - 10.85
REPLACE 3" PIPE
MERIDIAN, SUTTER & COLUSA COUNTY
GAS TRANSMISSION & DISTRIBUTION
PACIFIC GAS AND ELECTRIC COMPANY
SAN FRANCISCO, CALIFORNIA

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

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BILL OF MATL SHEET 12
JOB ID **R-1385**
SHEET NO. 4 OF 22 SHEETS
74029104 D



PIPELINE STATIONING	PIPELINE MOI
MATCH LINE 11+50	1 HDD
BEG RADIUS H STA 09+62.01 P STA 00+00.00	
END RADIUS H STA 08+39.59 P STA 00+00.00	
BEG RADIUS H STA 05+50.26 P STA 00+00.00	
EL 90.46 DEG OB 14 DEG H STA 03+75.34 P STA 00+00.00	3 2 3
EL 90.00 DEG H STA 03+52.42 P STA 00+00.00	2
EL 83.46 DEG H STA 02+00.00 P STA 00+00.00	3 2
(P) 4" DFM-0630-01 H STA 01+00.00 P STA 00+00.00	

SAFETY PLEDGE

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

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PIPELINE - PLAN & PROFILE
DFM-0630-01 MP 10.67 - 10.85
REPLACE 3" PIPE
MERIDIAN, SUTTER & COLUSA COUNTY

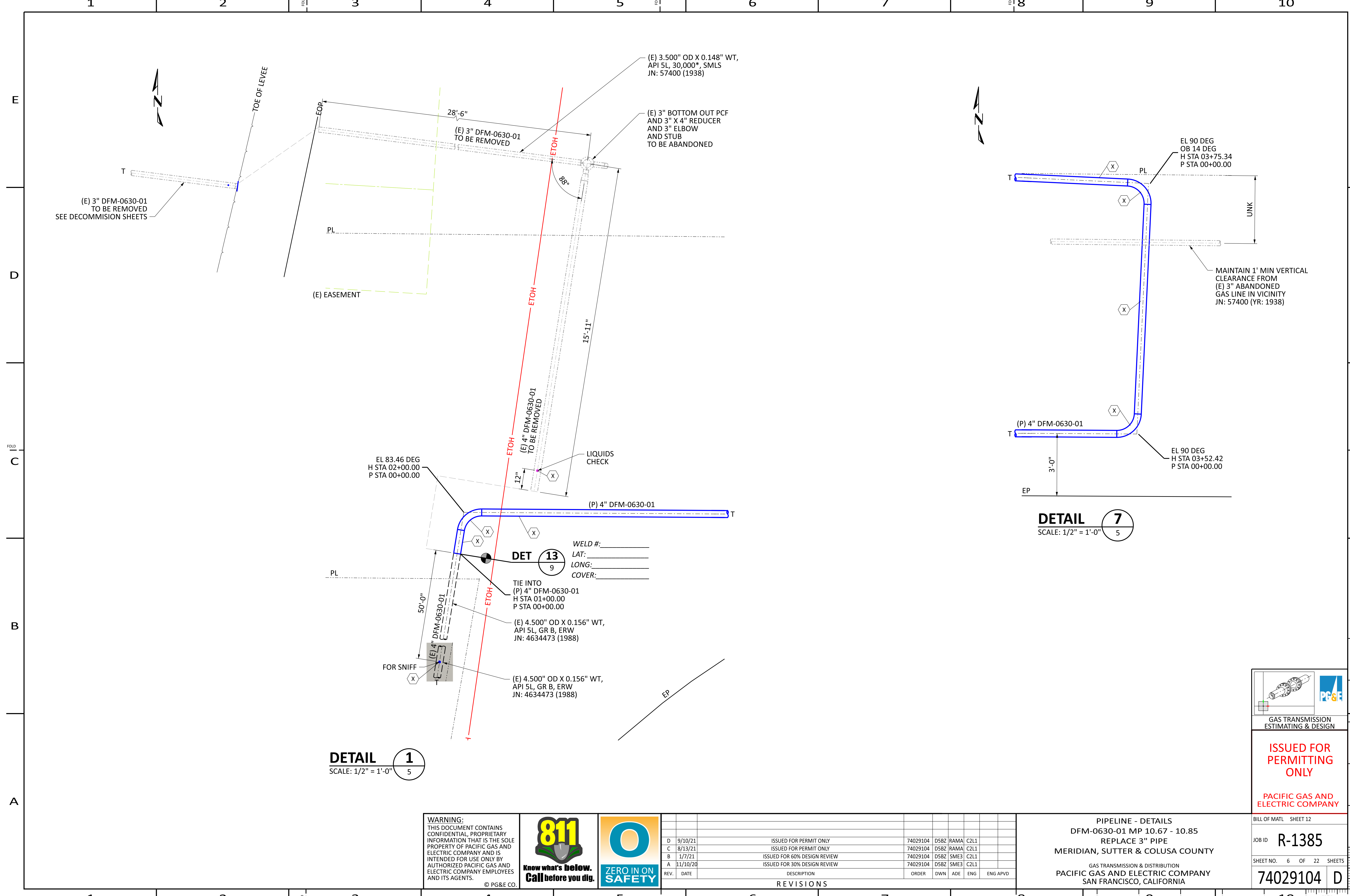
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BILL OF MATL SHEET 12

JOB ID **R-1385**

SHEET NO. 5 OF 22 SHEETS

74029104 D



(E) 3" DFM-0630-01
TO BE REMOVED
SEE DECOMMISSION SHEETS

(E) 3.500" OD X 0.148" WT,
API 5L, 30,000*, SMLS
JN: 57400 (1938)

(E) 3" BOTTOM OUT PCF
AND 3" X 4" REDUCER
AND 3" ELBOW
AND STUB
TO BE ABANDONED

(E) EASEMENT

EL 83.46 DEG
H STA 02+00.00
P STA 00+00.00

LIQUIDS
CHECK

WELD #:
LAT:
LONG:
COVER:

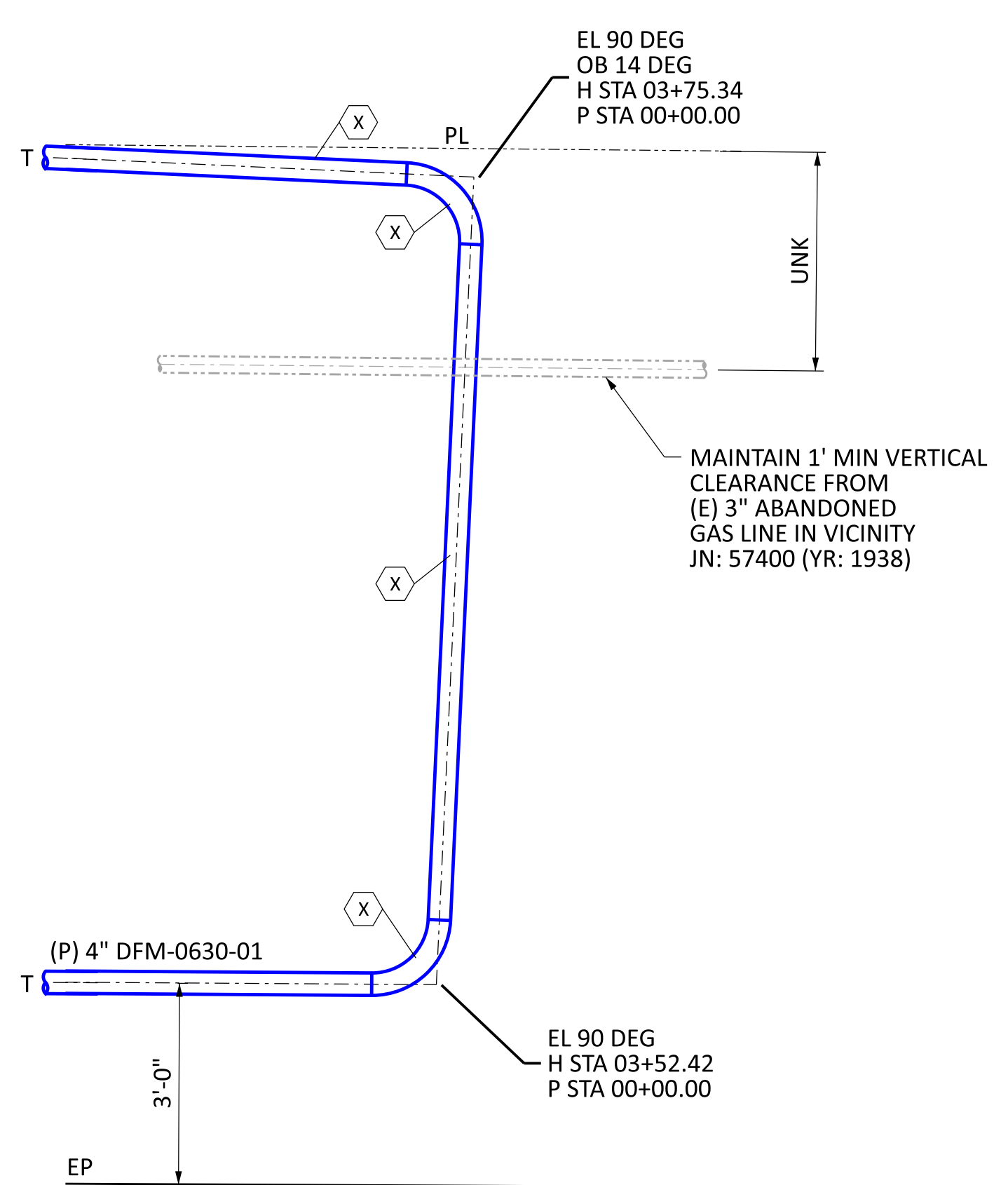
DET 13
9

TIE INTO
(P) 4" DFM-0630-01
H STA 01+00.00
P STA 00+00.00

(E) 4.500" OD X 0.156" WT,
API 5L, GR B, ERW
JN: 4634473 (1988)

(E) 4.500" OD X 0.156" WT,
API 5L, GR B, ERW
JN: 4634473 (1988)

DETAIL 1
SCALE: 1/2" = 1'-0"
5



DETAIL 7
SCALE: 1/2" = 1'-0"
5

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PIPELINE - DETAILS
DFM-0630-01 MP 10.67 - 10.85
REPLACE 3" PIPE
MERIDIAN, SUTTER & COLUSA COUNTY
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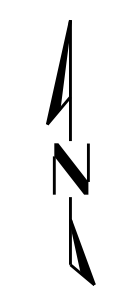
PACIFIC GAS AND ELECTRIC COMPANY

BILL OF MATL SHEET 12

JOB ID **R-1385**

SHEET NO. 6 OF 22 SHEETS

74029104 D



EL 90 DEG
OB 10 DEG
H STA 15+47.76
P STA 00+00.00

(P) 4" DFM-0630-01

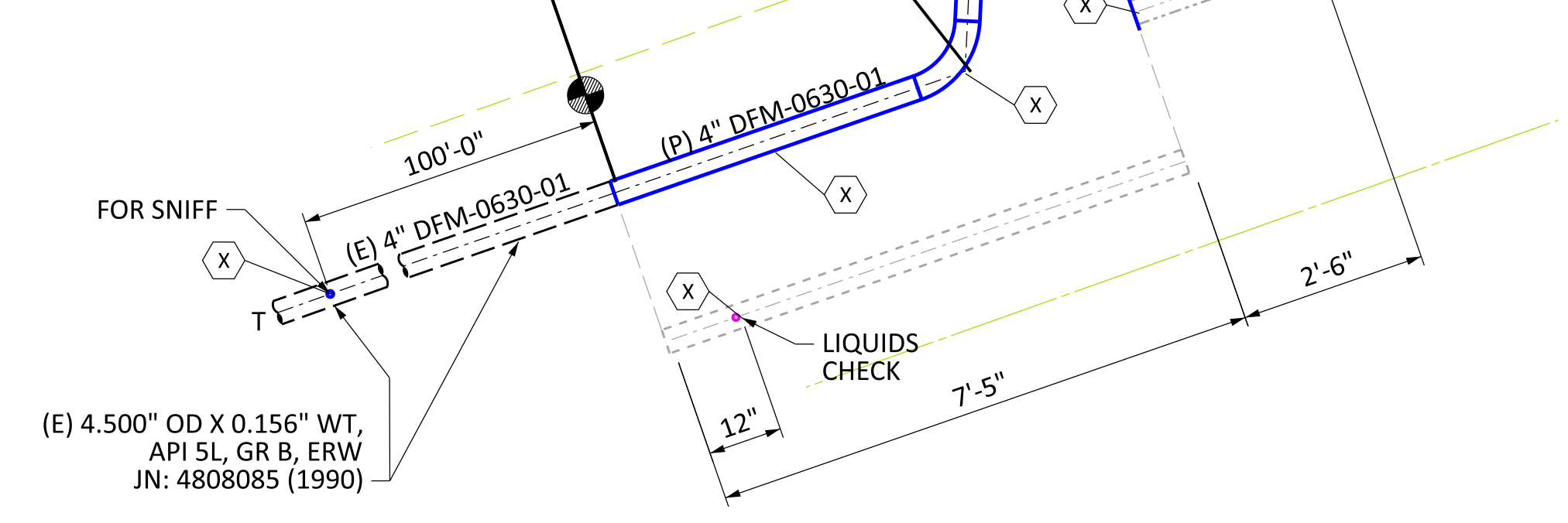
WELD #:
LAT:
LONG:
COVER:

TIE INTO
(P) 4" DFM-0630-01
H STA 15+69.76
P STA 00+00.00

DET 13
9

EL 68.20 DEG
H STA 15+64.76
P STA 00+00.00

REFER TO DECOMMISSIONING
DRAWING FOR
(E) 4" DFM-0630-01
TO BE ABANDONED



DETAIL 2
SCALE: 1/2" = 1'-0"
4

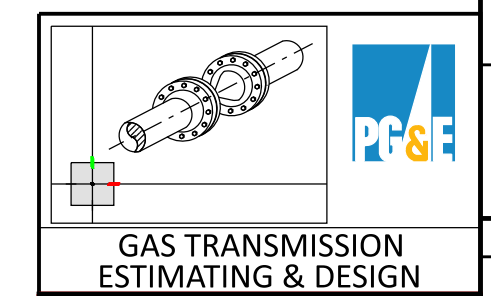
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A	11/10/20	ISSUED FOR 30% DESIGN REVIEW	74029104	DSBZ	SME3	C2L1	

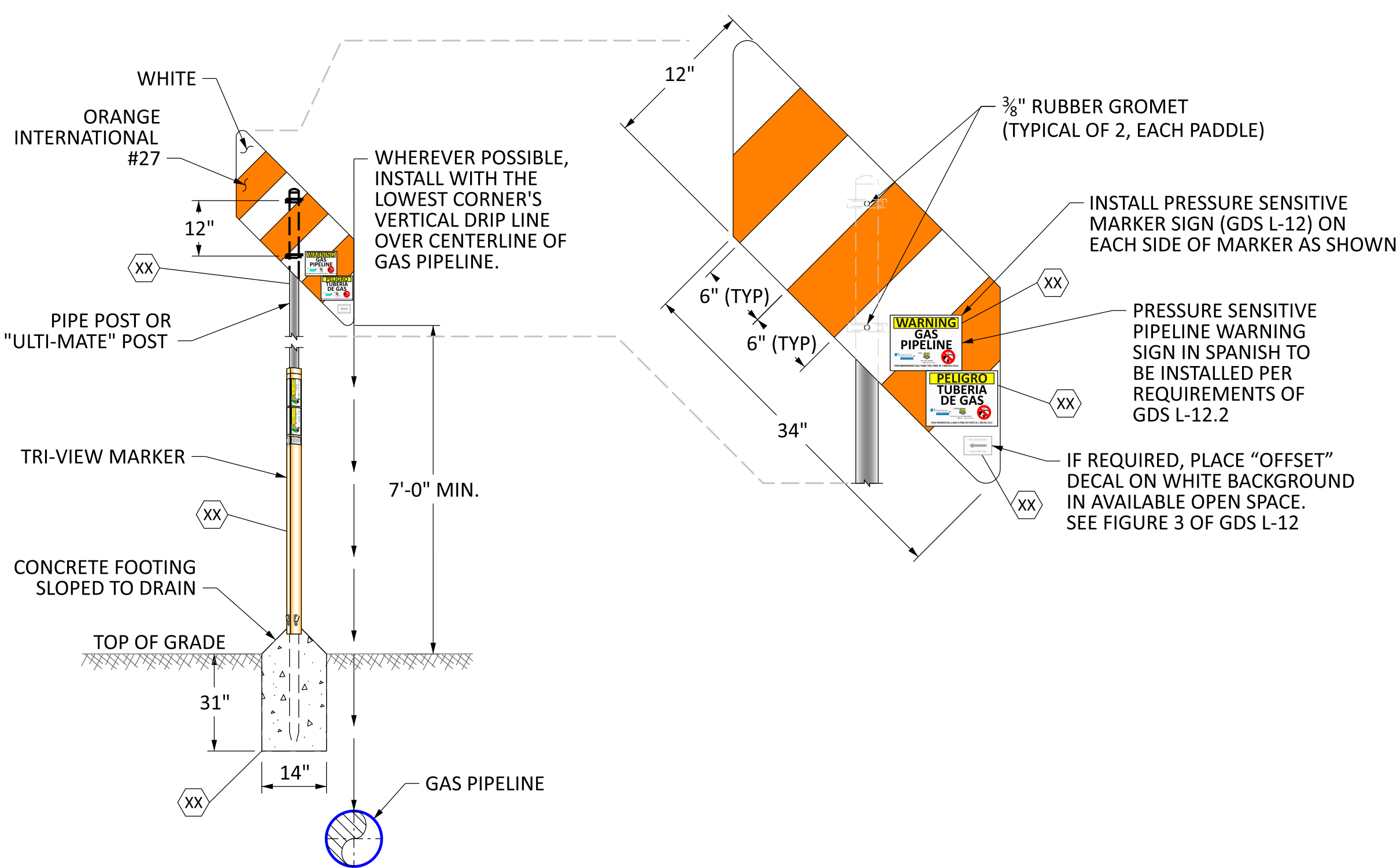
REVISIONS

PIPELINE - DETAILS
DFM-0630-01 MP 10.67 - 10.85
REPLACE 3" PIPE
MERIDIAN, SUTTER & COLUSA COUNTY
GAS TRANSMISSION & DISTRIBUTION
PACIFIC GAS AND ELECTRIC COMPANY
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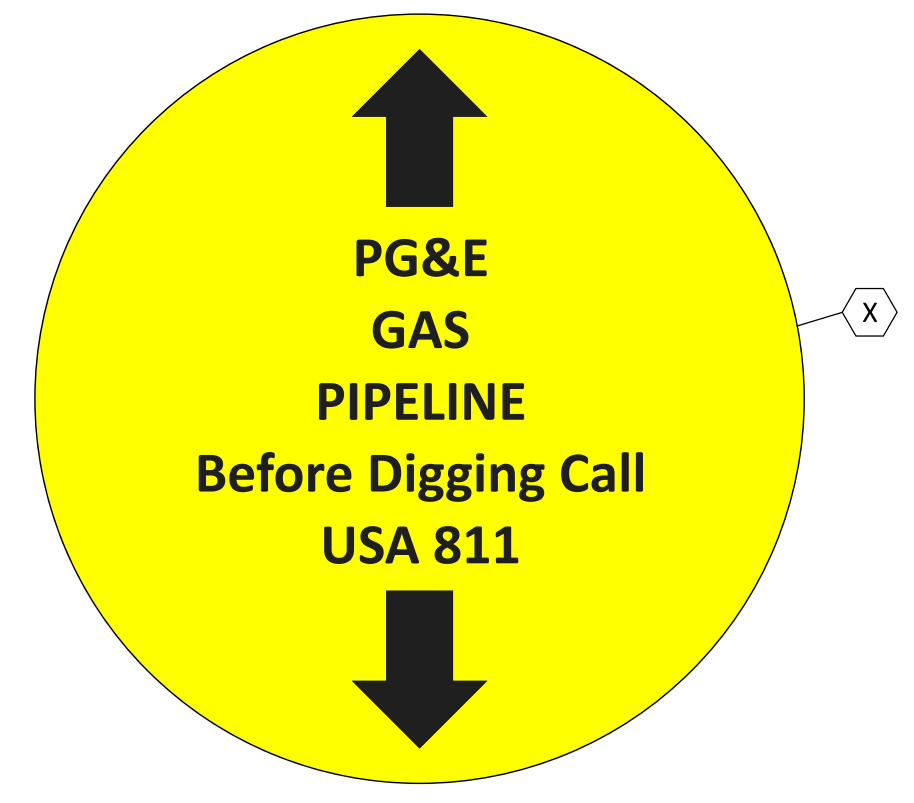


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BILL OF MATL SHEET 12
JOB ID **R-1385**
SHEET NO. 7 OF 22 SHEETS
74029104 D

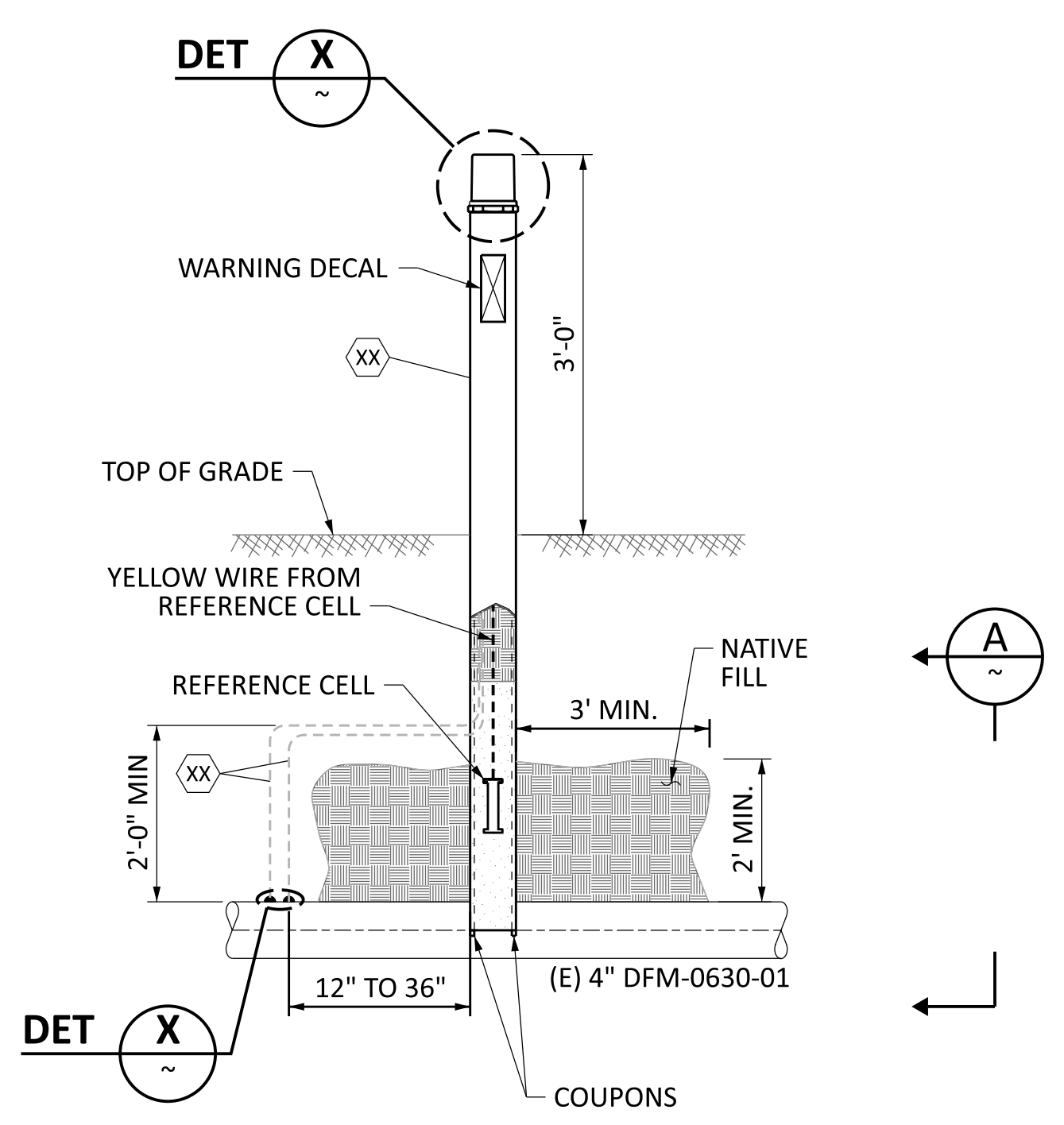


DETAIL 11 PIPELINE PADDLE MARKER
INSTALL PER GDS L-11.1 AND TD-4412P-09
SCALE: NTS



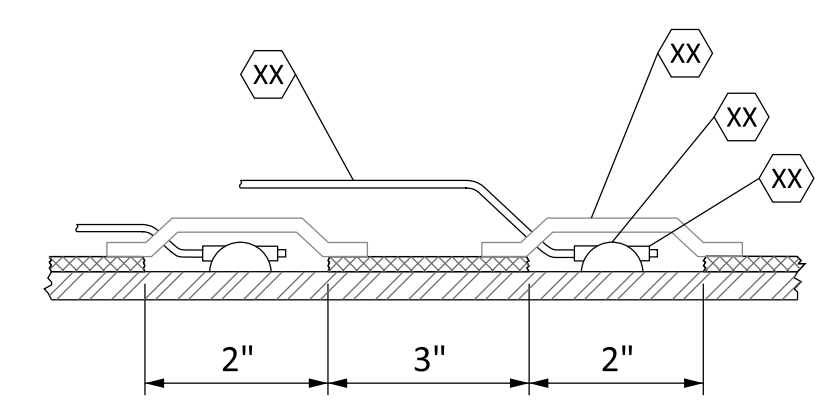
DETAIL 12
SCALE: NONE

PIPELINE MARKER INSTALLATION LOCATION TABLE						
LAT	LONG	MARKER TYPE	LINE/DFM	MP	SHEET	NOTES
39.147055	-121.919968	PADDLE	0630-01	10.673		
39.147069	-121.919961	PADDLE	0630-01	10.676		

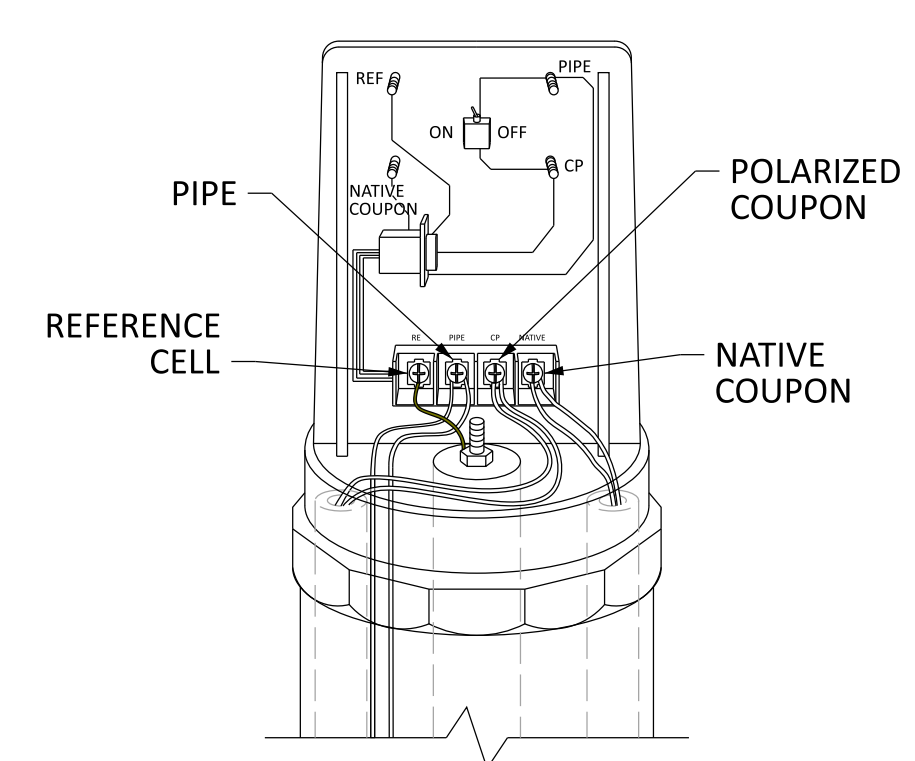


NOTE: INSTALL COUPONS PARALLEL TO PIPE A DISTANCE OF 8" TO 12". COUPONS MUST BE INSTALLED IN NATIVE SOIL WITHIN 18" OF ELECTRODE. TAMP NATIVE AND ADD IMPORT TO ACHIEVE A MINIMUM 95% COMPACTION.

DETAIL 8 COUPON TEST STATION INSTALLATION
PER CCV O-10.2, FIGURE 2
SCALE: NONE

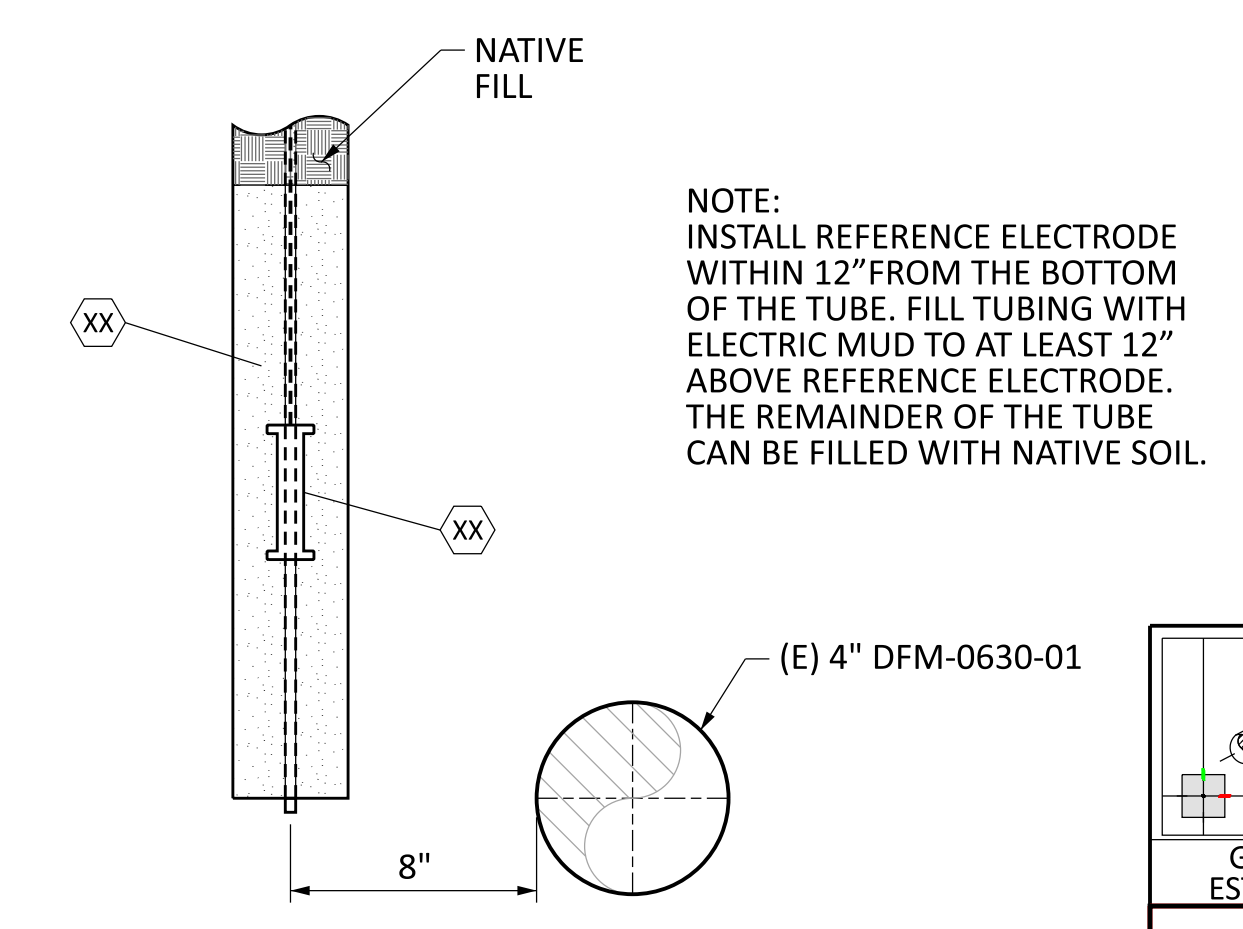


DETAIL 9 ATTACHING THE WIRES TO THE GAS MAIN
CCV O-10, FIGURE 1
SCALE: NTS



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 10 COUPON TEST STATION HEAD
PER CCV O-10.2, FIGURE 1
SCALE: NTS



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 A
SCALE: NTS

CATHODIC PROTECTION INSTALLATION LOCATION TABLE						
LINE/DFM	MP	CP TYPE	LOCATION	SHEET	LAT	LONG
0630-01	10.805	COUPON			39.14700	-121.915819

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PIPELINE - DETAILS
DFM-0630-01 MP 10.67 - 10.85
REPLACE 3" PIPE
MERIDIAN, SUTTER & COLUSA COUNTY
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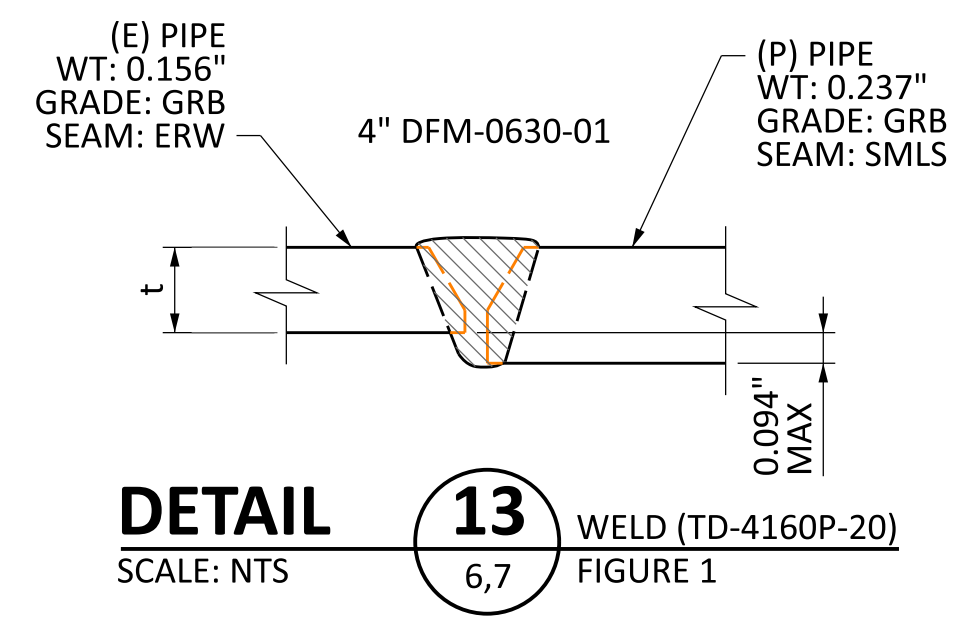
GAS TRANSMISSION ESTIMATING & DESIGN

JOB ID: R-1385

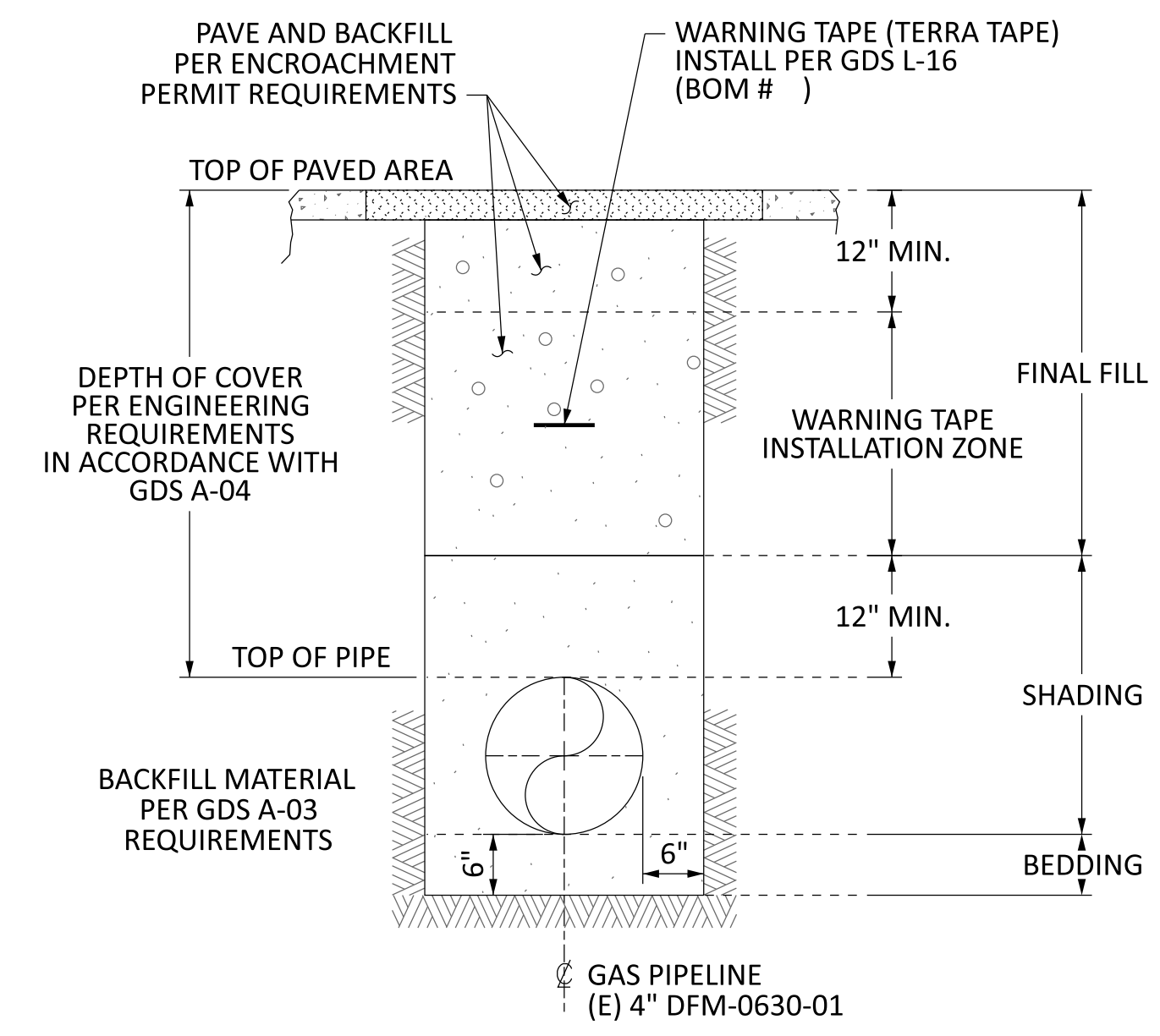
SHEET NO. 8 OF 22 SHEETS

74029104 D

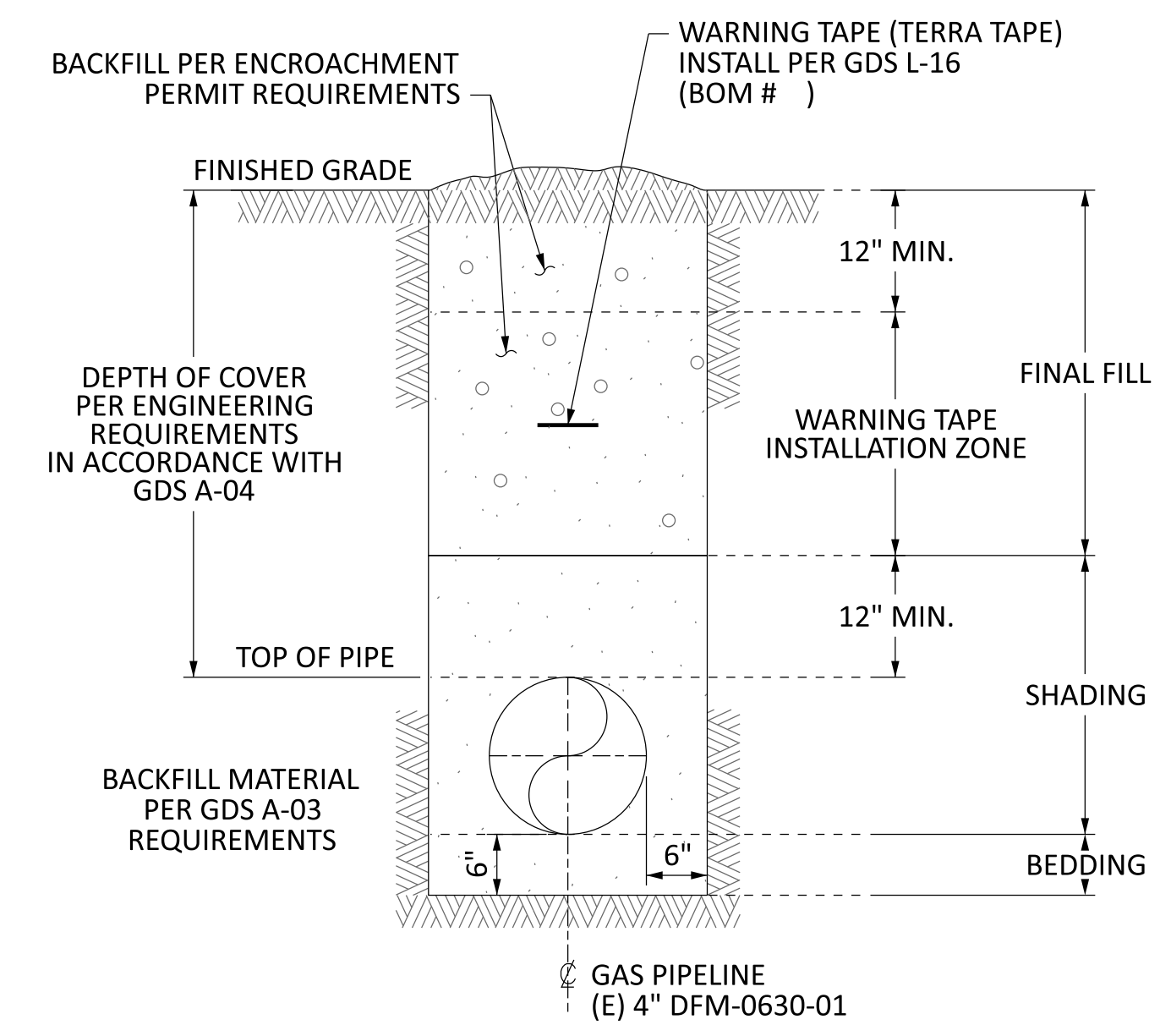
8-SEP-2021 19:05PM



DETAIL 13 WELD (TD-4160P-20)
SCALE: NTS 6,7 FIGURE 1



SEE TD-4621M FOR SHORING REQUIREMENTS
DETAIL TYP "T" TRENCH PAVED AREA
SCALE: NTS



SEE TD-4621M FOR SHORING REQUIREMENTS
DETAIL TYP TRENCH NON-PAVED AREA
SCALE: NTS

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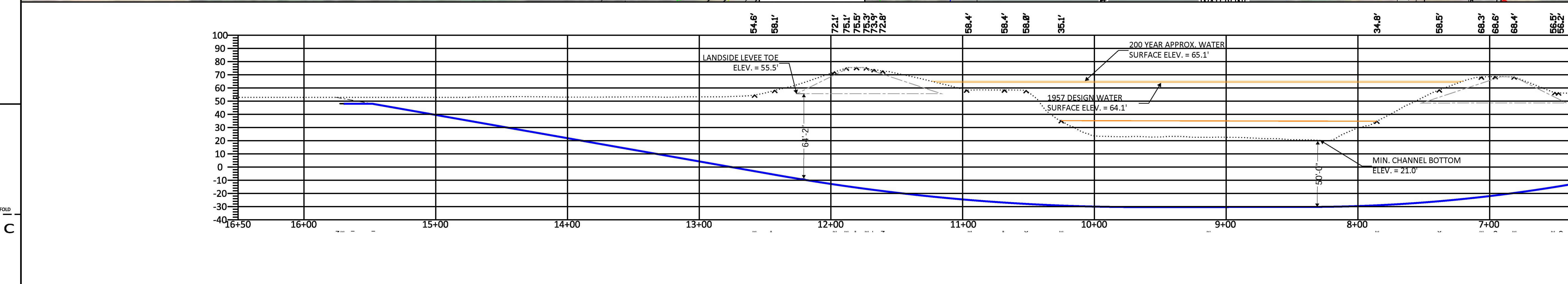
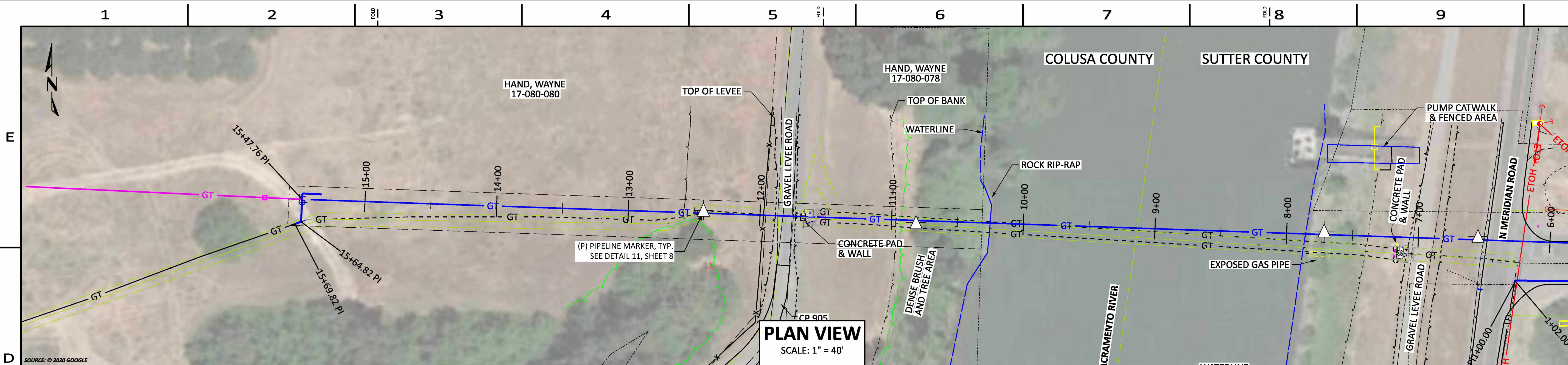
PACIFIC GAS AND ELECTRIC COMPANY

BILL OF MATL SHEET 12

JOB ID **R-1385**

SHEET NO. 9 OF 22 SHEETS

74029104 D



PROFILE
SCALE: 1" = 40'

DESIGN RADIUS: 1600'
MIN. COMPOUND RADIUS: 1600'
NOTE: REFER TO GEOTECHNICAL REPORT PREPARED BY KLEINFELDER, DATED 12/1/2020.

CL: LEAN CLAY/LEAN CLAY WITH SAND
SM: SILTY SAND
SP-SM: POORLY GRADED SAND WITH SILT
SP: POORLY GRADED SAND WITH GRAVEL
GW: WELL GRADED GRAVEL WITH SAND
ML: SANDY SILT/CLAYEY SILT
MH: ELASTIC SILT WITH SAND
SC: CLAYEY SAND

BORE PROFILE LEGEND (FOR REFERENCE ONLY)

XX XXXXXX XXXXXX	XX XXXXXX XXXXXX
XX XXXXXX XXXXXX	XX XXXXXX XXXXXX

HDD NOTES:

- WHEN BALLAST WATER IS REQUIRED DURING PRODUCT PIPE PULLBACK, CONTRACTOR TO FURNISH TWO (2) TREMMIE PIPES DURING FILL (ONE FOR FILL OPERATIONS, ONE AS REDUNDANT BACKUP). TREMMIE PIPE TO BE CONSTRUCTED OF NEW MATERIAL.
- DOWNHOLE PRESSURE SUBASSEMBLIES WILL BE REQUIRED ON ALL HDD PROJECTS. CONTRACTOR MUST KEEP LOG OF MUD PRESSURE AND SUBMIT TO PG&E PROJECT ENGINEER DAILY DURING PILOT DRILLING.
- CONTRACTOR IS RESPONSIBLE FOR MITIGATING INTERFERENCE OF TRACKING EQUIPMENT AND FURNISHING STEERING TOOLS AND SURFACE COILS CAPABLE OF PROVIDING ACCURATE STEERING INFORMATION.
 - IF INTERFERENCE IS ENCOUNTERED, CONTRACTOR TO COMMUNICATE ISSUE TO PG&E PROJECT ENGINEER WITHIN 24 BUSINESS HOURS.
- CONTRACTOR MUST PROVIDE PG&E PROJECT ENGINEER PILOT BORE STEERING AND TRACKING DATA DAILY UNTIL BORE COMPLETION. CONTRACTOR MUST FURNISH BOTH RAW AND PLUGGED AZIMUTH DATA WITH A WRITTEN EXPLANATION FOR ANY PLUGGED DATA. REAMING MAY NOT PROCEED UNTIL PG&E ACCEPTS PILOT BORE DATA.
- IF PLANNED DRILLING PROFILE DEVIATES FROM DESIGN, CONTRACTOR TO PROVIDE PROPOSED DRILLING PROFILE AT LEAST 5 BUSINESS DAYS PRIOR TO BEGINNING PILOT DRILLING FOR PG&E PROJECT ENGINEER REVIEW AND APPROVAL.
- ANY INADVERTENT RETURN EVENTS WILL BE COMMUNICATED TO PG&E PROJECT ENGINEER, CONSTRUCTION MANAGER/FIELD ENGINEER, AND ENVIRONMENTAL FIELD SPECIALIST IMMEDIATELY. CONTRACTOR TO COMPLETE MUD RELEASE FORM AND SUBMIT TO UNIFIER WITHIN 24 BUSINESS HOURS. MUD RELEASE FORM WILL BE SUPPLIED BY PROJECT ENGINEER.
- CONTRACTOR TO SUBMIT PICK PLAN TO PG&E PROJECT ENGINEER AT LEAST ONE(1) WEEK PRIOR TO PULLBACK. PULLBACK MAY NOT PROCEED UNTIL ACCEPTED BY PG&E PROJECT ENGINEER.
 - PICK PLAN TO INCLUDE, AT A MINIMUM, SPACING BETWEEN PIPE ROLLERS AND PICK POINTS, HEIGHT OF PIPE AT EACH PICK LOCATION AND MINIMUM COMPOUND RADIUS OF PIPE.
- BORE PIPE TO BE PRE-TESTED PER PROVIDED STPR.

LINE / CURVE DATA

SEGMENT	LENGTH	RADIUS	DELTA

DRILL DATA

POINT	LATITUDE	LONGITUDE	STATION	ELEVATION
ENTRY				
PC-1				
PT-2				
PC-3				
PT-4				
EXIT				

BORING LOCATIONS

BORING #	LATITUDE	LONGITUDE	DEPTH
B-1	39.14750	-121.91586	81.5'
MW-1	39.14715	-121.91933	80.0'

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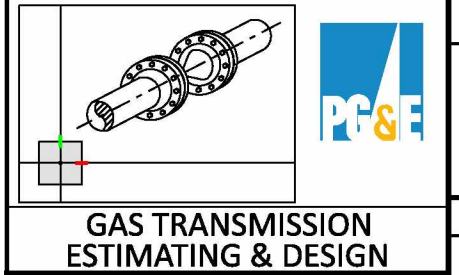
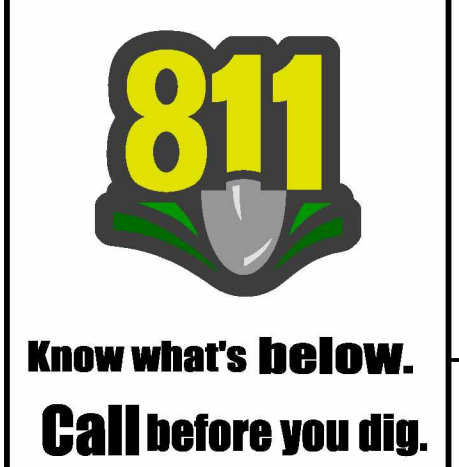
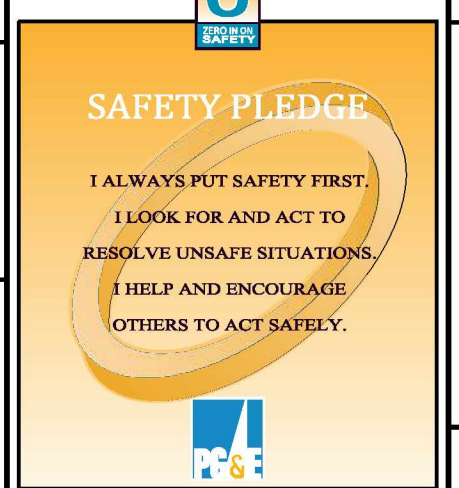


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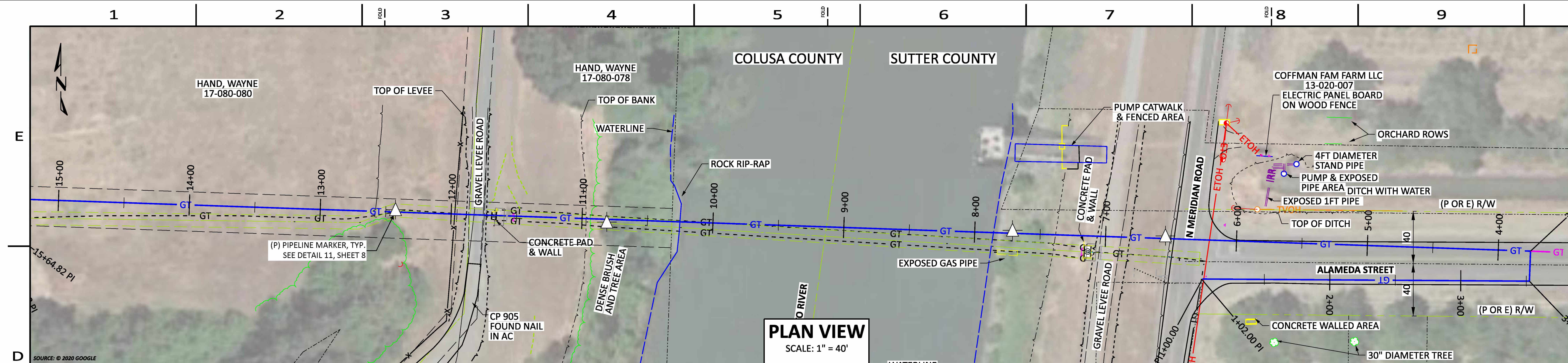
PIPELINE - HDD PROFILE
DFM-0630-01 MP 10.67 - 10.85
REPLACE 3" PIPE
MERIDIAN, SUTTER & COLUSA COUNTY
GAS TRANSMISSION & DISTRIBUTION
PACIFIC GAS AND ELECTRIC COMPANY
SAN FRANCISCO, CALIFORNIA

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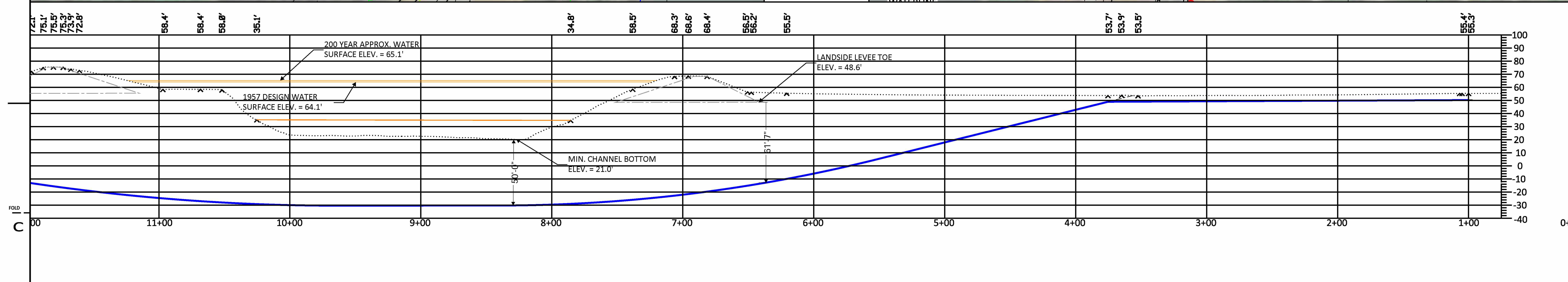


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BILL OF MATL SHEET 12
JOB ID R-1385
SHEET NO. 10 OF 22 SHEETS
74029104 D



PLAN VIEW
SCALE: 1" = 40'



PROFILE
SCALE: 1" = 40'

DESIGN RADIUS: 1200'
MIN. COMPOUND RADIUS: 1200'
NOTE: REFER TO GEOTECHNICAL REPORT PREPARED BY KLEINFELDER, DATED 12/1/2020.

CL: LEAN CLAY/LEAN CLAY WITH SAND
SM: SILTY SAND
SP-SM: POORLY GRADED SAND WITH SILT
SP: POORLY GRADED SAND WITH GRAVEL
GW: WELL GRADED GRAVEL WITH SAND
ML: SANDY SILT/CLAYEY SILT
MH: ELASTIC SILT WITH SAND
SC: CLAYEY SAND

BORE PROFILE LEGEND (FOR REFERENCE ONLY)

XX XXXXXX XXXXXX	XX XXXXXX XXXXXX
XX XXXXXX XXXXXX	XX XXXXXX XXXXXX

BORING LOCATIONS

BORING #	LATITUDE	LONGITUDE	DEPTH
B-1	39.14750	-121.91586	81.5'
MW-1	39.14715	-121.91933	80.0'

HDD NOTES:

- WHEN BALLAST WATER IS REQUIRED DURING PRODUCT PIPE PULLBACK, CONTRACTOR TO FURNISH TWO (2) TREMMIE PIPES DURING FILL (ONE FOR FILL OPERATIONS, ONE AS REDUNDANT BACKUP). TREMMIE PIPE TO BE CONSTRUCTED OF NEW MATERIAL.
- DOWNHOLE PRESSURE SUBASSEMBLIES WILL BE REQUIRED ON ALL HDD PROJECTS. CONTRACTOR MUST KEEP LOG OF MUD PRESSURE AND SUBMIT TO PG&E PROJECT ENGINEER DAILY DURING PILOT DRILLING.
- CONTRACTOR IS RESPONSIBLE FOR MITIGATING INTERFERENCE OF TRACKING EQUIPMENT AND FURNISHING STEERING TOOLS AND SURFACE COILS CAPABLE OF PROVIDING ACCURATE STEERING INFORMATION.
 - IF INTERFERENCE IS ENCOUNTERED, CONTRACTOR TO COMMUNICATE ISSUE TO PG&E PROJECT ENGINEER WITHIN 24 BUSINESS HOURS.
- CONTRACTOR MUST PROVIDE PG&E PROJECT ENGINEER PILOT BORE STEERING AND TRACKING DATA DAILY UNTIL BORE COMPLETION. CONTRACTOR MUST FURNISH BOTH RAW AND PLUGGED AZIMUTH DATA WITH A WRITTEN EXPLANATION FOR ANY PLUGGED DATA. REAMING MAY NOT PROCEED UNTIL PG&E ACCEPTS PILOT BORE DATA.
- IF PLANNED DRILLING PROFILE DEVIATES FROM DESIGN, CONTRACTOR TO PROVIDE PROPOSED DRILLING PROFILE AT LEAST 5 BUSINESS DAYS PRIOR TO BEGINNING PILOT DRILLING FOR PG&E PROJECT ENGINEER REVIEW AND APPROVAL.
- ANY INADVERTENT RETURN EVENTS WILL BE COMMUNICATED TO PG&E PROJECT ENGINEER, CONSTRUCTION MANAGER/FIELD ENGINEER, AND ENVIRONMENTAL FIELD SPECIALIST IMMEDIATELY. CONTRACTOR TO COMPLETE MUD RELEASE FORM AND SUBMIT TO UNIFIER WITHIN 24 BUSINESS HOURS. MUD RELEASE FORM WILL BE SUPPLIED BY PROJECT ENGINEER.
- CONTRACTOR TO SUBMIT PICK PLAN TO PG&E PROJECT ENGINEER AT LEAST ONE(1) WEEK PRIOR TO PULLBACK. PULLBACK MAY NOT PROCEED UNTIL ACCEPTED BY PG&E PROJECT ENGINEER.
 - PICK PLAN TO INCLUDE, AT A MINIMUM, SPACING BETWEEN PIPE ROLLERS AND PICK POINTS, HEIGHT OF PIPE AT EACH PICK LOCATION AND MINIMUM COMPOUND RADIUS OF PIPE.
- BORE PIPE TO BE PRE-TESTED PER PROVIDED STPR.

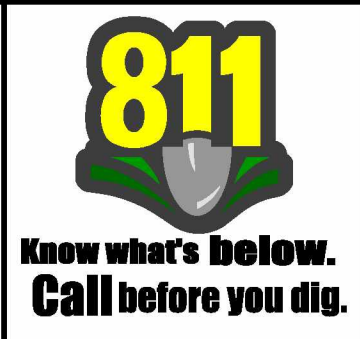
LINE / CURVE DATA

SEGMENT	LENGTH	RADIUS	DELTA

DRILL DATA

POINT	LATITUDE	LONGITUDE	STATION	ELEVATION
ENTRY				
PC-1				
PT-2				
PC-3				
PT-4				
EXIT				

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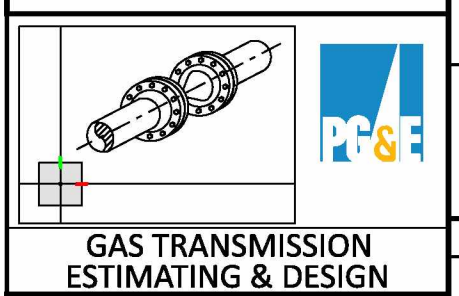
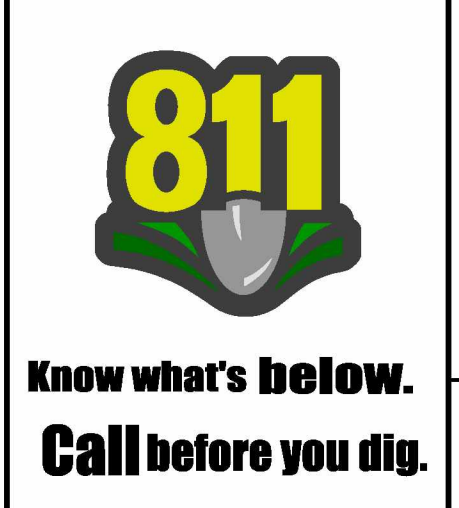


REVISIONS

REV.	DATE	DESCRIPTION	ORDER	DWN	ADE	ENG	ENG APVD
D	9/10/21	ISSUED FOR PERMIT ONLY	74029104	DSBZ	RAMA	C2L1	
C	8/13/21	ISSUED FOR PERMIT ONLY	74029104	DSBZ	RAMA	C2L1	
B	1/7/21	ISSUED FOR 60% DESIGN REVIEW	74029104	DSBZ	SME3	C2L1	
A	11/10/20	ISSUED FOR 30% DESIGN REVIEW	74029104	DSBZ	SME3	C2L1	

PIPELINE - HDD PROFILE
DFM-0630-01 MP 10.67 - 10.85
REPLACE 3" PIPE
MERIDIAN, SUTTER & COLUSA COUNTY
GAS TRANSMISSION & DISTRIBUTION
PACIFIC GAS AND ELECTRIC COMPANY
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BILL OF MATL SHEET 12
JOB ID **R-1385**
SHEET NO. 11 OF 22 SHEETS
74029104 D

1

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BILL OF MATERIALS:

CAPITAL

ITEM #	MATERIAL DESCRIPTION	MATERIAL CODE #	QTY	UNIT	STANDARD	NOTES
1	PIPE, STEEL, 4", 0.237" WT, API 5L, GRADE X42, SEAMLESS, FBE + ARC	M010716	1300	FT	GS&S A-15	
2	PIPE, STEEL, 4", 0.237" WT, API 5L, GRADE X42, SEAMLESS, BARE	M011693	314	FT	GS&S A-15	
3	ELBOW, 4", 90 DEG, 0.237" WT, LONG RADIUS, BUTT WELD, CARBON STEEL, SCH 40, ASTM A234, GRADE B	M022039	7	EA	GS&S B-20	
4	CAP, CARBON STEEL, 4", BUTT WELD, 0.237" WT, ASTM A-234, GRADE B	M022079	4	EA	GS&S B-20	
5	STEEL PLATE, 3/8" THICK	N/A	6	EA	-	
6	36" "ULTI-MATE" PENETRATOR ANCHOR, 2" X 10' SQUARE POST, FOUR 3/8" ALUMINUM RIVETS, ONE CORNER BOLT UM-SQCBL, COATED ALUMINUM PADDLE MARKER	M377179	2	EA	L-11.1	
7	NIPPLE, SAVE-A-VALVE, 1", WELD, STEEL, MUELLER # H-17491, STEEL CAP, DRILLING 1200 PSI MAXIMUM, 1440 PSI MAXIMUM	M022287	6	EA	GS&S C-14	
8	NIPPLE, SAVE-A-VALVE, 2", WELD, STEEL, MUELLER # H-17491, STEEL CAP, DRILLING 1200 PSI MAXIMUM, 1440 PSI MAXIMUM	M022289	6	EA	GS&S C-14	
9	STATION, TEST COUPON, CC TECHNOLOGIES # CS3100, SMALL PLASTIC CONDUIT AND TERMINAL TEST HEAD CONSTRUCTION, 3" OD X 10' LONG	M560691	1	EA	CCV O-10.2	
10	ELECTRODE, REFERENCE, STEALTH 2, COPPER-COPPER SULFATE, BORIN MANUFACTURING # SRE-007-CUY, WITH 50' OF WIRE	M241423	1	EA	CCV O-71	
11	ELECTRODE, REFERENCE, GELATIN, BACKFILL, BORIN MANUFACTURING # EMB-001-CUS, ELECTRIC MUD, GELATIN BACKFILL, CUCUSO4, SINGLE UNIT, FOR ONE INSTALLATION	M041192	1	EA	CCV O-71	
12	WIRE, ELECTRICAL, INSULATED, COPPER, 10 AWG, 600 V, 47 MIL PVC, SOLID 1 CONDUCTOR, BLACK	M294991	100	FT	CCV O-10	
13	TAPE HANDY CAP 4" X 4", ROYSTON IP W/ INTEGRATED PRIMER	M562324	4	EA	GS&S E-27	
14	CARTRIDGE, BRAZING, CADWELD # CA-15, THERMOWELD #15P, ERICO PRODUCTS COMPANY	M159260	4	EA	CCV O-10	
15	SLEEVE, COPPER SPLICING #14 TO #10	M303755	4	EA	CCV O-10	
16	WIRE, ELECTRICAL, INSULATED, COPPER, 10 AWG, 600 V, 47 MIL PVC, SOLID 1 CONDUCTOR, WHITE	M294107	100	FT	CCV O-10	
17	PIPE, PVC, 3" IPS, 0.300" WT, SCH 80	M016071	2	FT	CCV O-10	
18	STATION, TEST, CATHODIC PROTECTION, COTT MFG # 300S5, ORANGE, BIG FINK, 5 TERMINALS, WITHOUT CONDENSER	M569390	1	EA	CCV O-10.1	
19	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	1	EA	GS&S L-16	

FOLD

C

B

A

E

D

FOLD

C

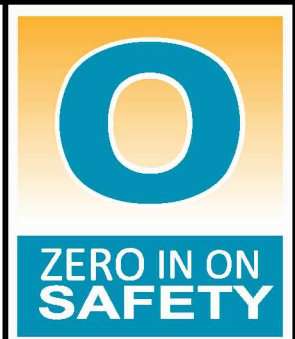
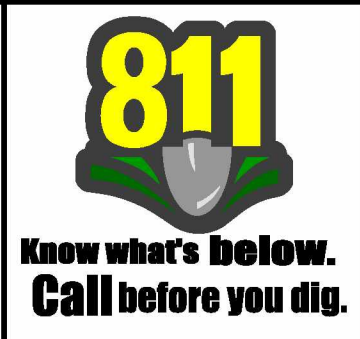
B

A

DESIGN CRITERIA

BOM #	OD (IN)	WT (IN)	SMYS (PSI)	DESIGN CLASS LOCATION	DESIGN FACTOR	FDP		MAOP		PSIG @ 90% SMYS
						(PSIG)	(% SMYS)	(PSIG)	(% SMYS)	
1	4.500	0.237	42000	3	0.50	430	9.72	430	9.72	3982
2	4.500	0.237	42000	3	0.50	430	9.72	430	9.72	3982

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REV.	DATE	DESCRIPTION	ORDER	DWN	ADE	ENG	ENG APVD
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C	8/13/21	ISSUED FOR PERMIT ONLY	74029104	DSBZ	RAMA	C2L1	
B	1/7/21	ISSUED FOR 60% DESIGN REVIEW	74029104	DSBZ	SME3	C2L1	
A	11/10/20	ISSUED FOR 30% DESIGN REVIEW	74029104	DSBZ	SME3	C2L1	

REVISIONS

PIPELINE - BILL OF MATERIALS
DFM-0630-01 MP 10.67 - 10.85
REPLACE 3" PIPE
MERIDIAN, SUTTER & COLUSA COUNTY
GAS TRANSMISSION & DISTRIBUTION
PACIFIC GAS AND ELECTRIC COMPANY
SAN FRANCISCO, CALIFORNIA

GAS TRANSMISSION ESTIMATING & DESIGN

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BILL OF MATL SHEET 12

JOB ID **R-1385**

SHEET NO. 12 OF 22 SHEETS

74029104 D

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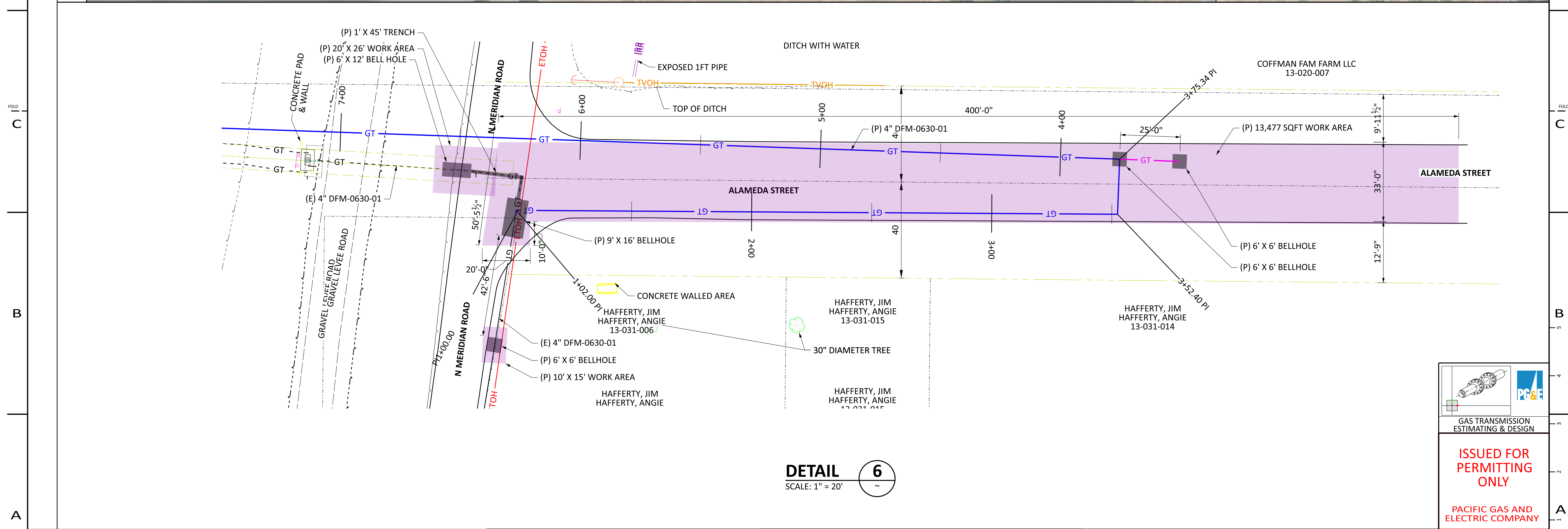
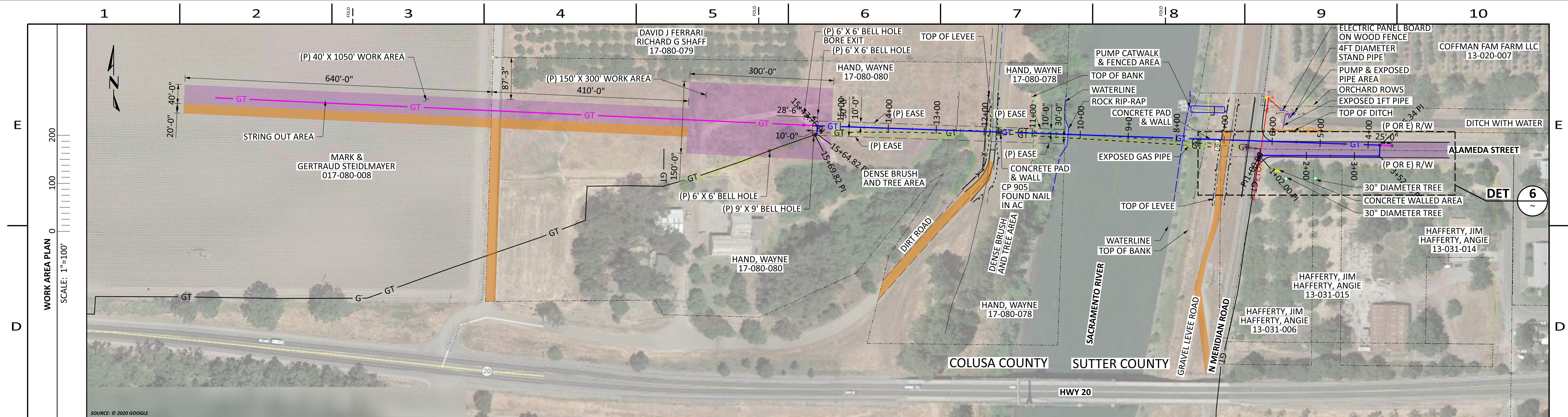
6

7

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9

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DETAIL 6
SCALE: 1" = 20'

LEGEND:

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

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PIPELINE - EXHIBIT
DFM-0630-01 MP 10.67 - 10.85
REPLACE 3" PIPE
MERIDIAN, SUTTER & COLUSA COUNTY
GAS TRANSMISSION & DISTRIBUTION
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BILL OF MATL SHEET 12

JOB ID **R-1385**

SHEET NO. 13 OF 22 SHEETS

74029104 D



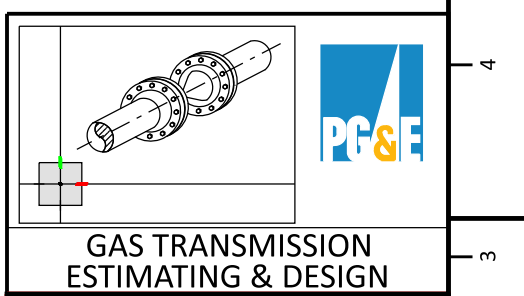
EXHIBIT
SCALE: 1" = 1000'

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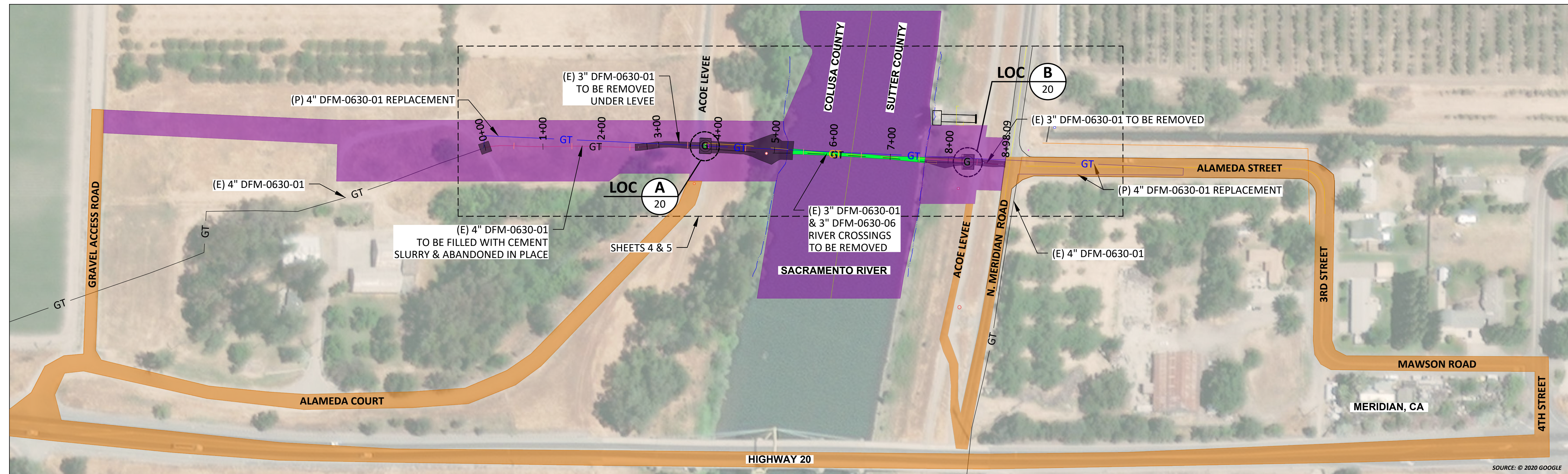
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BILL OF MATL SHEET 12
JOB ID **R-1385**
SHEET NO. 14 OF 22 SHEETS
74029104 D

DFM-0630-01 MP 10.67 - 10.85 DECOMMISSION SACRAMENTO RIVER CROSSING MERIDIAN, SUTTER & COLUSA COUNTY



KEY MAP
SCALE: 1" = 100'

SCHEDULE OF SHEETS

- SHEET 15 -- TITLE & INDEX
- SHEET 16 -- CONSTRUCTION NOTES
- SHEET 17 -- LEGEND & STAMPS
- SHEET 18 -- PLAN & PROFILE
- SHEETS 19-21 -- DETAILS
- SHEET 22 -- BILL OF MATERIALS

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ELECTRIC COMPANY**

BILL OF MATL SHEET 21

JOB ID **R-1385**

SHEET NO. 15 OF 22 SHEETS

74029104 F

REV.	DATE	DESCRIPTION	ORDER	DWN	ADE	ENG	ENG APVD
F	12-14-21	ISSUED FOR PERMIT ONLY	74029104	EAR	GDO	C2L1	
E	10-27-21	ISSUED FOR PERMIT ONLY	74029104	EAR	GDO	C2L1	
D	9-10-21	ISSUED FOR PERMIT ONLY	74029104	EAR	GDO	C2L1	
C	8-13-21	ISSUED FOR PERMIT ONLY	74029104	EAR	GDO	C2L1	
B	1-7-21	DRAFT 60% DESIGN	74029104	EAR	GDO	C2L1	
A	11-10-20	30% DESIGN	74029104	EAR	GDO	C2L1	

PIPELINE - TITLE & INDEX
DFM-0630-01 MP 10.67 - 10.85
DECOMMISSION SACRAMENTO RIVER CROSSING
MERIDIAN, SUTTER & COLUSA COUNTY

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



SUMMARY OF PROPOSED WORK:

CAPITAL ORDER # 74029104

- INSTALL HDD REPLACEMENT 4" DFM-0630-01 UNDER THE SACRAMENTO RIVER PRIOR TO PERFORMING THE DECOMMISSIONING SCOPE OF WORK. REFERENCE ORDER #74029104.
- INSTALL PIG LAUNCHERS AND RECEIVERS. PIG AND FLUSH BOTH 3" (E) DFM-0630-01 AND 3" (E) DFM-0630-06 RIVER CROSSINGS FROM VALVE VAULT TO VALVE VAULT, 3" (E) DFM-0630-01 FROM THE WEST VALVE VAULT TO THE 4" TRANSITION LOCATED NEAR THE LANDSIDE TOE OF THE LEVEE. 4" (E) DFM-0630-01 FROM THE 4" TRANSITION LOCATED NEAR THE LANDSIDE TOE OF THE LEVEE TO THE PIPE END LOCATED NEAR THE WEST REPLACEMENT TIE-IN LOCATION, AND 3" (E) DFM-0630-01 FROM THE EAST VALVE VAULT TO THE PIPE END LOCATED NEAR THE EAST TIE-IN LOCATION. REMOVE PIG LAUNCHERS AND RECEIVERS.
- REMOVE (E) 3' x 5' CONCRETE VAULT WITH ASSOCIATED VALVES/FITTINGS AT LOCATION A (WEST BANK OF RIVER).
- REMOVE (E) 5' x 7' CONCRETE VAULT WITH ASSOCIATED VALVES/FITTINGS AT LOCATION B (EAST BANK OF RIVER).
- REMOVE 464' (MP10.08 - MP 10.77) OF 3" DFM-0630-01.
- REMOVE 464' (MP 0.00 - MP 0.10) OF 3" DFM-0630-06.
- REMOVE 82' OF 3" DFM-0630-01 STEEL PIPE.
- REMOVE 34' OF 4" DFM-0630-01 STEEL PIPE.
- REMOVE 65' OF 3" DFM-0630-01 STEEL PIPE.
- ABANDON IN PLACE 264' FEET OF 4" DFM-0630-01 STEEL PIPE.
- BACKFILL AND COMPACT EXCAVATIONS AND PERFORM SITE RESTORATION IN ACCORDANCE WITH ALL APPLICABLE PERMITS AND AGREEMENTS.

CAPITAL ORDER # 74037542

- REMOVE 1'-9" OF 3.500"OD PIPE.
- REMOVE 14'-0" OF 1.050"OD PIPE.

SEQUENCE OF OPERATIONS:

- FOLLOW *DEACTIVATION PROCEDURE TD-9500P-16* FOR PIPELINE DECOMMISSIONING.
- FOLLOW *GENERAL REQUIREMENT #13 COATING REMOVAL* WHEN EXPOSING PIPELINES THAT WILL BE CUT AND THEN CAPPED WITH A STEEL PLATE WELDED TO THE ABANDONED PIPE END.
- ATTACH PIG LAUNCHERS AND RECEIVERS ON EXPOSED PIPE ENDS OF DFM-0630-01 & DFM-0630-06 AT RIVER BANK VALVE VAULTS PER SHT 19.
- PIG & FLUSH (E) 3" DFM-0630-01 & 3" DFM-0630-06 PIPELINE SEGMENTS TO BE DECOMMISSIONED. SAMPLE AND TEST FLUSH WATER TO VERIFY THAT CONTAMINANTS ARE BELOW PERMITTED THRESHOLDS (LESS THAN 15 PPM TOTAL PETROLEUM HYDROCARBONS). DISPOSE OF FLUSH WATER IN ACCORDANCE WITH PERMIT REQUIREMENTS.
- REMOVE (E) CONCRETE VALVE BOX STRUCTURES, INCLUDING ASSOCIATED VALVES/FITTINGS
- REMOVE PIPELINE SECTIONS IDENTIFIED FOR REMOVAL ON SHEET 18.
- WELD STEEL PLATE ON PIPE ENDS AT SECTIONALIZATION LOCATION #2 FOR PIPELINE TO BE ABANDONED IN PLACE. SEE DETAIL 4.
- REMOVE OLD PIPELINE MARKERS & CP PER SHEET 18. INSTALL NEW ETS AND MARINE CROSSING SIGNS.
- BACKFILL AND COMPACT EXCAVATIONS AND PERFORM SITE RESTORATION IN ACCORDANCE WITH ALL APPLICABLE PERMITS AND AGREEMENTS.

DESIGN CHANGE PROCEDURE

MAINTENANCE AND CONSTRUCTION PERSONNEL MUST OBTAIN APPROVAL FROM THE PROJECT ENGINEER (PED) BEFORE MAKING ANY DESIGN CHANGE TO GAS FACILITIES PER TD-4014P-01.

CONSTRUCTION NOTES:

GENERAL REQUIREMENTS:

- 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.
- UTILITY NOTES:
 - 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.
 - 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.
 - 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.
 - ALL EXCAVATIONS WITHIN EXISTING STATIONS SHALL BE HAND DUG OR EXCAVATED USING SOFT DIG METHODS (e.g. VACUUM EXCAVATIONS OR SIMILAR).
- ELBOWS AND FIELD BENDS:
 - 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).
 - 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.
 - ALL ANGLES SHOWN IN THE PLAN AND PROFILE ARE APPROXIMATE AND SHALL BE CUT TO SUIT FIELD CONDITIONS.
- SEPARATION FROM OTHER STRUCTURES:
 - 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.
 - 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.
- RESTORATION AND CLEAN UP:
 - RESTORATION OF PUBLIC STREETS, SIDEWALKS, CURBS, ETC. ABOVE PIPE BEDDING SHALL BE IN ACCORDANCE WITH THE LATEST CITY, COUNTY, OR AGENCY STANDARDS.
 - 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.
- DESIGN NOTES: THIS DRAWING HAS BEEN CREATED BY REVIEW OF THE AS-BUILT DRAWINGS & RECORDS. ACCURACY IS DEPENDENT UPON THE SOURCE DOCUMENT LISTED ON THE REFERENCE DRAWINGS.
- WELDING REQUIREMENTS:
 - 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.
 - 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.
- 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.
- STRENGTH TEST REQUIREMENTS
 - STRENGTH TESTING SHALL MEET PRESSURE AND DURATION REQUIREMENTS OF GAS STANDARD A-34 AND SHALL BE CONDUCTED IN ACCORDANCE WITH UTILITY PROCEDURE TD-41375.
 - 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.
- COATING REQUIREMENTS:
 - ALL EXPOSED PIPE AND FITTINGS ARE TO BE COATED 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.
 - FOR COATING SELECTIONS ON BURIED PIPE, SEE DIRECT BURIAL COATING SELECTIONS TABLE.
 - CONTACT THE PROJECT ENGINEER (PED) TO REQUEST VARIANCE FROM THE APPROVED COATING PRODUCTS.
- INSPECTION OF EXISTING PIPELINE:
 - WHENEVER EXISTING BURIED GAS FACILITIES ARE EXCAVATED DURING ENGINEERING OR DURING CONSTRUCTION, FOLLOW TD-5100P-01 TO DOCUMENT PIPE INSPECTION. THIS APPLIES TO EXISTING AND TO BE RETIRED FACILITIES.
 - EXISTING GIRTH WELDS, AT TIE-IN LOCATIONS, SHALL BE IDENTIFIED AND REMOVED IF PRACTICAL.
 - PRIOR TO TIE-IN, INSPECT COATING AND PIPE FOR DEFECTS. IF DEFECTS ARE FOUND, CONTACT PROJECT ENGINEER (PED) FOR GUIDANCE.
- TIE-IN AND CLEARANCE PROCEDURE TO BE PREPARED AND PERFORMED IN ACCORDANCE WITH THE FOLLOWING WORK PROCEDURES:
 - TD-4100P-01, HOT AND COLD WORK METHODS FOR NATURAL GAS TRANSMISSION PIPELINE SHUTDOWN AND TIE-IN.
 - TD-4441S, 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):

- WHEN A PIPE WRAP SAMPLE IS REQUIRED TO BE ANALYZED FOR ASBESTOS:
 - COLLECT SAMPLE PER TD-4711P-01 AND COMPLETE CHAIN OF CUSTODY FORM TD-4711P-01-F01.
 - FILE PINK COPY OF THE CHAIN OF CUSTODY FORM AND FINAL LABORATORY RESULTS WITH THE AS-BUILTS.
- WHEN REMOVING PIPE WRAP THAT CONTAINS ASBESTOS, OR FOR EMERGENCY WORK, FOLLOW TD-4711P-01 "PIPE WRAP REMOVAL, HANDLING AND DISPOSAL".

CATHODIC PROTECTION NOTES:

- FOLLOW TD-5100P-01 TO DOCUMENT INTERNAL CORROSION AND EXTERNAL CORROSION INSPECTION OF THE PIPELINE.
- 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.
- FOR THE INSTALLATION OF THE WATCHDOG RECTIFIER REMOTE MONITOR, CONTACT THE CORROSION SUPERVISOR FOR THE LOCAL AREA/DIVISION.
- 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:

- GT&D UTILITY WORK PROCEDURE TD 9500P-16, "DEACTIVATION AND/OR RETIREMENT OF UNDERGROUND GAS FACILITIES," SHALL BE FOLLOWED.
- THE EXISTING PIPE SECTIONS SHALL HAVE FREE LIQUIDS REMOVED AND BE 100% PURGED PER GAS DESIGN STANDARD A-38, "PROCEDURES FOR PURGING GAS FACILITIES."
- 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.
- 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.
- REMOVE ALL PIPELINE MARKERS PER UTILITY WORK PROCEDURE TD-9800-16.

BASIS OF COORDINATES & BEARINGS

- HORIZONTAL DATUM/PROJECTION: SPCS CALIFORNIA ZONE 2, NAD83 (2011) (EPOCH 2010.00)
- VERTICAL DATUM: NORTHERN AMERICAN VERTICAL DATUM OF 1998 (NAV88) (GEOID-12B)
- HORIZONTAL AND VERTICAL CONTROL: BENCHMARK '901' COORDINATES: 2,179,325.99 N, 6,585,248.10 E, ELEVATION: 70.25 FT
- UNITS: U.S. SURVEY FEET
- HYDROGRAPHIC AND TOPOGRAPHIC SURVEY DATA COLLECTED BY ETRAC, INC, ON FEBRUARY 9-12, 2021 & MARCH 17-19, 2021
- TOPOGRAPHIC DATA WAS COLLECTED WITH TRIMBLE R8-2 RTK GNSS RECEIVERS AND A TRIMBLE S5 5" DR PLUS TOTAL STATION.
- MULTIBEAM BATHYMETRY WAS COLLECTED WITH AN R2 SONIC 2024 AT 700KHZ & 400KHZ ONBOARD R/V EKKO
- SUBSURFACE CROSSING DETECTION ACQUIRED WITH AN INNOMAR SES-2000 COMPACT PARAMETRIC SUB-BOTTOM PROFILER ONBOARD R/V EKKO
- SUBSURFACE CROSSING DETECTION ACQUIRED WITH A GEOMETRICS G-882 MARINE MAGNETOMETER ONBOARD R/V EKKO
- THIS SURVEY REPRESENTS CONDITIONS AT THE TIME OF THE SURVEY
- ACCESS TO THE WEST BANK OF THE RIVER WAS IMPEDED BY DENSE VEGETATION. TOPOGRAPHIC SURVEY DATA COLLECTED BY PG&E IN APRIL, 2020 (DFM 0630-01 MP 10.07) WAS USED TO AUGMENT THE DIGITAL TERRAIN MODEL IN THIS AREA. THE CONTOURS ON THE WEST BANK REPRESENT A COMBINATION OF THE TWO DATA SETS.
- PIPELINE DETECTIONS ON LAND WERE ACQUIRED USING AN RD8100 PIPE LOCATOR AND RANGING SYSTEM. PIPE DETECTION WAS PERFORMED BY LONGITUDE 123, INC. WITH RTK GNSS POSITIONS PROVIDED BY ETRAC, INC.
- ALIGNMENT AND STATIONING IS BASED ON AN APPROXIMATE CENTERLINE BETWEEN THE TWO AS-SURVEYED PIPELINES.

CONTACT INFORMATION:

PROJECT MANAGER	----	ALEX RODRIGUEZ	916-223-5419
PROJECT ENGINEER (PED)	----	CLARENCE LI	925-967-8247
PIPELINE ENGINEER (PLE)	----	JEFFREY GRACE	916-247-1334
ESTIMATOR / DESIGNER	----	GARETH OWENS	805-428-8082
FIELD ENGINEER / CM	----	SCOT ANDERSON	805-796-1235
LAND PLANNER	----	KATHLEEN CARINGI	916-838-8712
CULTURAL MONITOR	----	PADRE ASSOC.	805-701-1581
ENVIRONMENTAL	----	BILL FROHLICH	925-549-5691
BIOLOGIST	----	CHRISSE KLINKOWSKI	925-200-8852
CORROSION ENGINEER	----	TBD	
LOCAL CORROSION MECHANIC	----	BILL FROHLICH	925-549-5691

REFERENCE DRAWINGS:

OPERATING MAPS
SUTTER CREEK FIELD SUTTER BUTTES FIELD --- 384517, REV 102
REDDING

DISTRIBUTION PLATS
2149 --- E7

AS-BUILTS
MAOP13014788.TIF
REPLACE 3" DFM WITH 4" FROM MOON BEND ROAD --- 09-43-G96834, REV 0
TO SACRAMENTO RIVER CROSSING
REPLACE 3" COLUSA DFM SUTTER BYPASS TO --- GM 4634473, SHT 7 REV 1
MERIDIAN SUTTER COUNTY
REPLACE 3" WITH 4" DFM-0630-01 MP 10.67 - 10.85 --- 74029104, REV 0
MERIDIAN, COLUSA & SUTTER COUNTY

SURVEY CONTROL

PT ID	NORTHING	EASTING	ELEV.	DESCRIPTION
901	2,179,960.09	6,585,329.54	69.05	REBAR & CAP
902	2,179,325.99	6,585,248.10	70.25	CHISELED X
905	2,179,539.25	6,584,790.86	77.65	NAIL
906	2,179,954.32	6,584,808.10	72.50	REBAR & CAP



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PACIFIC GAS AND ELECTRIC COMPANY

BILL OF MATL SHEET 21

JOB ID **R-1385**

SHEET NO. 16 OF 22 SHEETS

74029104 **F**



REV.	DATE	DESCRIPTION	ORDER	DWN	ADE	ENG	ENG APVD
F	12-14-21	ISSUED FOR PERMIT ONLY	74029104	EAR	GDO	CZLI	
E	10-27-21	ISSUED FOR PERMIT ONLY	74029104	EAR	GDO	CZLI	
D	9-10-21	ISSUED FOR PERMIT ONLY	74029104	EAR	GDO	CZLI	
C	8-13-21	ISSUED FOR PERMIT ONLY	74029104	EAR	GDO	CZLI	
B	1-7-21	DRAFT 60% DESIGN	74029104	EAR	GDO	CZLI	
A	11-10-20	30% DESIGN	74029104	EAR	GDO	CZLI	

REVISIONS

PIPELINE - CONSTRUCTION NOTES
DFM-0630-01 MP 10.67 - 10.85
DECOMMISSION SACRAMENTO RIVER CROSSING
MERIDIAN, SUTTER & COLUSA COUNTY
GAS TRANSMISSION & DISTRIBUTION
PACIFIC GAS AND ELECTRIC COMPANY
SAN FRANCISCO, CALIFORNIA

LEGEND:

Legend table with columns for various utility symbols and their definitions. Includes categories like Gas Transmission Line, Electric Transmission Line, Telephone/Fiber Optic, Water Line, and various structures like Fences and Manholes.

DETAIL LEGEND:

Detail Legend table with symbols for Proposed/Existing Gas Transmission/Distribution Lines, Original Ground, Pipe End Cuts, Flow Arrows, and Assets.

Acronym Definition table. A large table listing abbreviations used in the project, such as DEG (Degree), DET (Detail), DFM (Distribution Feeder Main), etc., with their corresponding full names.



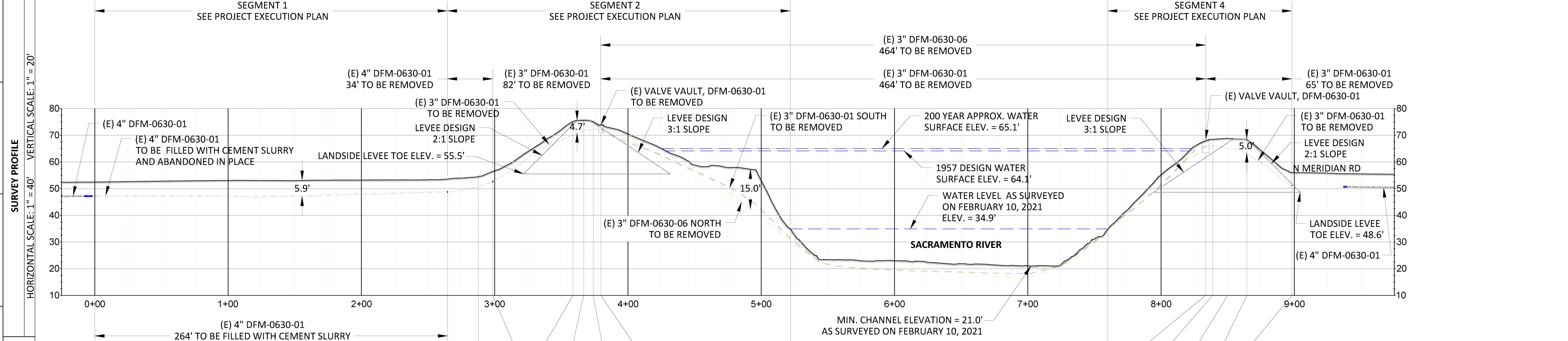
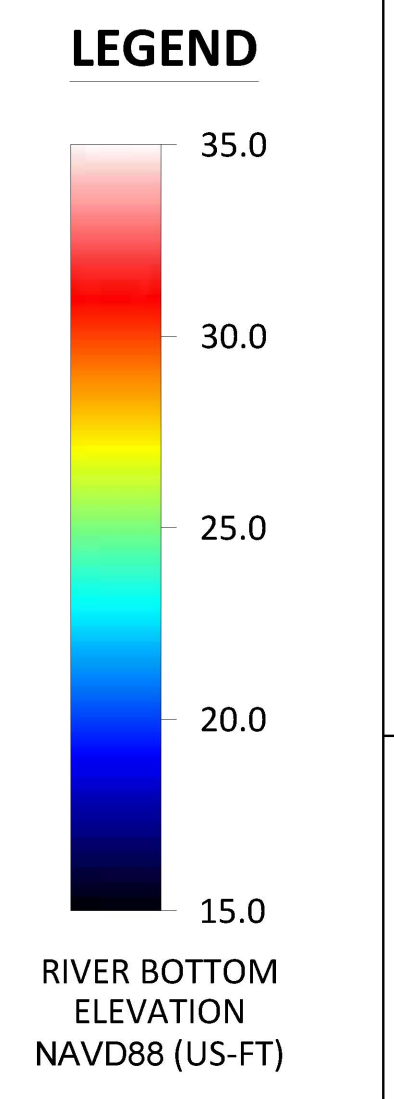
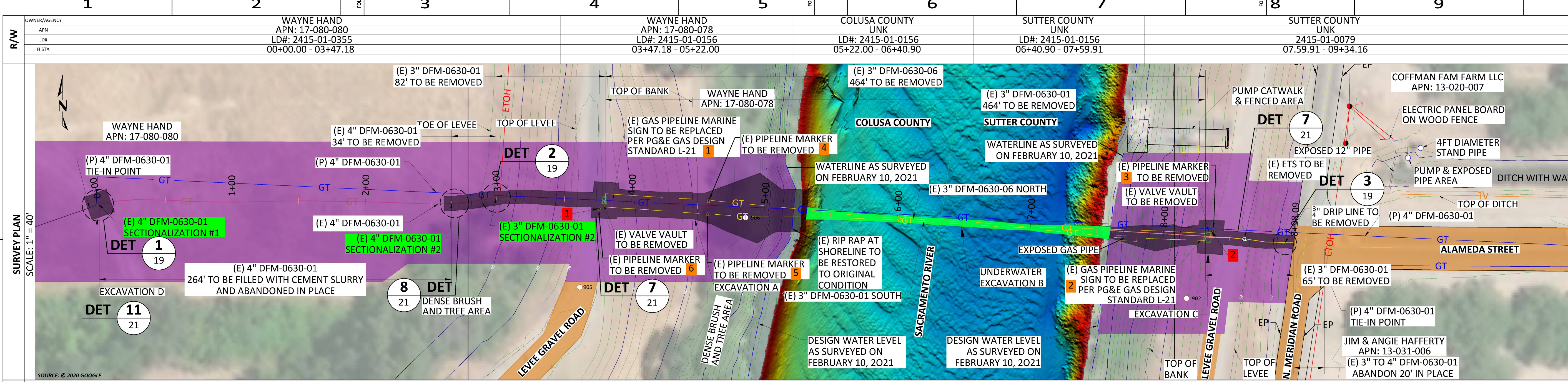
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BILL OF MATL SHEET 21
JOB ID R-1385
SHEET NO. 17 OF 22 SHEETS
74029104 F



REVISIONS table with columns: REV., DATE, DESCRIPTION, ORDER, DWN, ADE, ENG, ENG APVD

PIPELINE - LEGEND & STAMPS
DFM-0630-01 MP 10.67 - 10.85
DECOMMISSION SACRAMENTO RIVER CROSSING
MERIDIAN, SUTTER & COLUSA COUNTY
GAS TRANSMISSION & DISTRIBUTION
PACIFIC GAS AND ELECTRIC COMPANY
SAN FRANCISCO, CALIFORNIA



PIPELINE STATIONING

SEGMENTATION #1
H STA 00+00
P STA 00+00

SEGMENTATION #2
H STA 02+64.68
P STA 02+64.70

TOF OF LEVEE
H STA 02+87.69

4" - 3" TRANSITION
H STA 02+98.47
P STA 02+98.78

LEVEE TOP
H STA 03+58.63

CL LEVEE ROAD
H STA 66.71

LEVEE TOP
H STA 03+73.92

VALVE VAULT
H STA 03+79.57
P STA 03+82.68

H STA 05+20

H STA 07+60
VALVE VAULT
H STA 08+33.42
P STA 08+53.94

LEVEE TOP
H STA 08+38.72

CL LEVEE ROAD
H STA 08+50

LEVEE TOP
H STA 08+64.35

ROAD EDGE
H STA 08+98.09

EXCAVATION AREAS

ID	AREA	VOLUME	DEPTH
A	5,822 SQ. FT.	549 CU. YD.	2' - 15'
B	1,452 SQ. FT.	134 CU. YD.	0' - 5'
C	2,033 SQ. FT.	140 CU. YD.	0' - 5'
D	324 SQ. FT.	24 CU. YD.	6'

CATHODIC PROTECTION REMOVAL/CONVERSION TABLE

#	LINE NUMBER	CP TYPE	LAT	LONG	REMOVED/CONVERTED/NOT FOUND
1	DFM-0630-01	ELECTROLYSIS TEST	39.147148°	-121.918385°	
2	DFM-0630-01	ELECTROLYSIS TEST	39.147078°	-121.916863°	

PIPELINE MARKER REMOVAL/REPLACEMENT TABLE

#	LINE NUMBER	MARKER TYPE	LAT	LONG	REMOVED/REPLACED (YES/NO/NOT FOUND)
1	DFM-0630-01	MARINE SIGN	39.147148°	-121.918385°	
2	DFM-0630-01	MARINE SIGN	39.147078°	-121.916863°	
3	DFM-0630-01	PLASTIC POST	39.147071°	-121.916789°	
4	DFM-0630-06	PADDLE	39.147133°	-121.918395°	
5	DFM-0630-01	PADDLE	39.147158°	-121.918392°	
6	DFM-0630-01	PLASTIC POST	39.147143°	-121.918408°	

SECTIONALIZATION LOCATION TABLE

LOC #	LINE NUMBER	MILE POINT	LATITUDE	LONGITUDE	AS-BUILT LATITUDE	AS-BUILT LONGITUDE	CITY, COUNTY	NOTES
1	DFM-0630-01	10.67	39.147138°	-121.919738°			MERIDIAN, COLUSA	
2	DFM-0630-01	10.72	39.147133°	-121.918764°			MERIDIAN, COLUSA	



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PACIFIC GAS AND ELECTRIC COMPANY



REVISIONS

REV.	DATE	DESCRIPTION	ORDER	DWN	ADE	ENG	ENG APVD
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B	1-7-21	DRAFT 60% DESIGN	74029104	EAR	GDO	C2L1	
A	11-10-20	30% DESIGN	74029104	EAR	GDO	C2L1	

PIPELINE - PLAN & PROFILE
DFM-0630-01 MP 10.67 - 10.85
DECOMMISSION SACRAMENTO RIVER CROSSING
MERIDIAN, SUTTER & COLUSA COUNTY

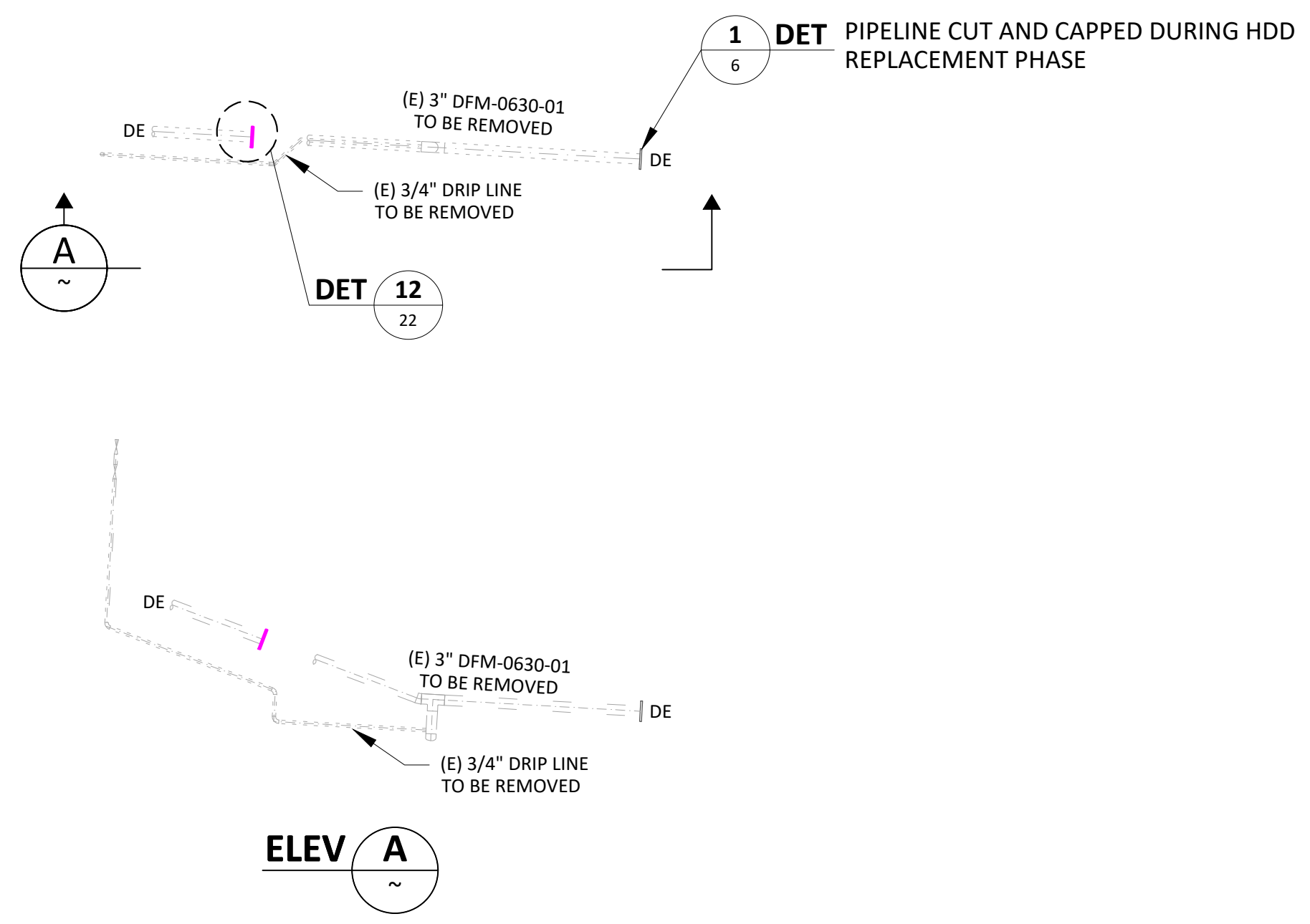
GAS TRANSMISSION & DISTRIBUTION
PACIFIC GAS AND ELECTRIC COMPANY
SAN FRANCISCO, CALIFORNIA

BILL OF MATL SHEET 21

JOB ID **R-1385**

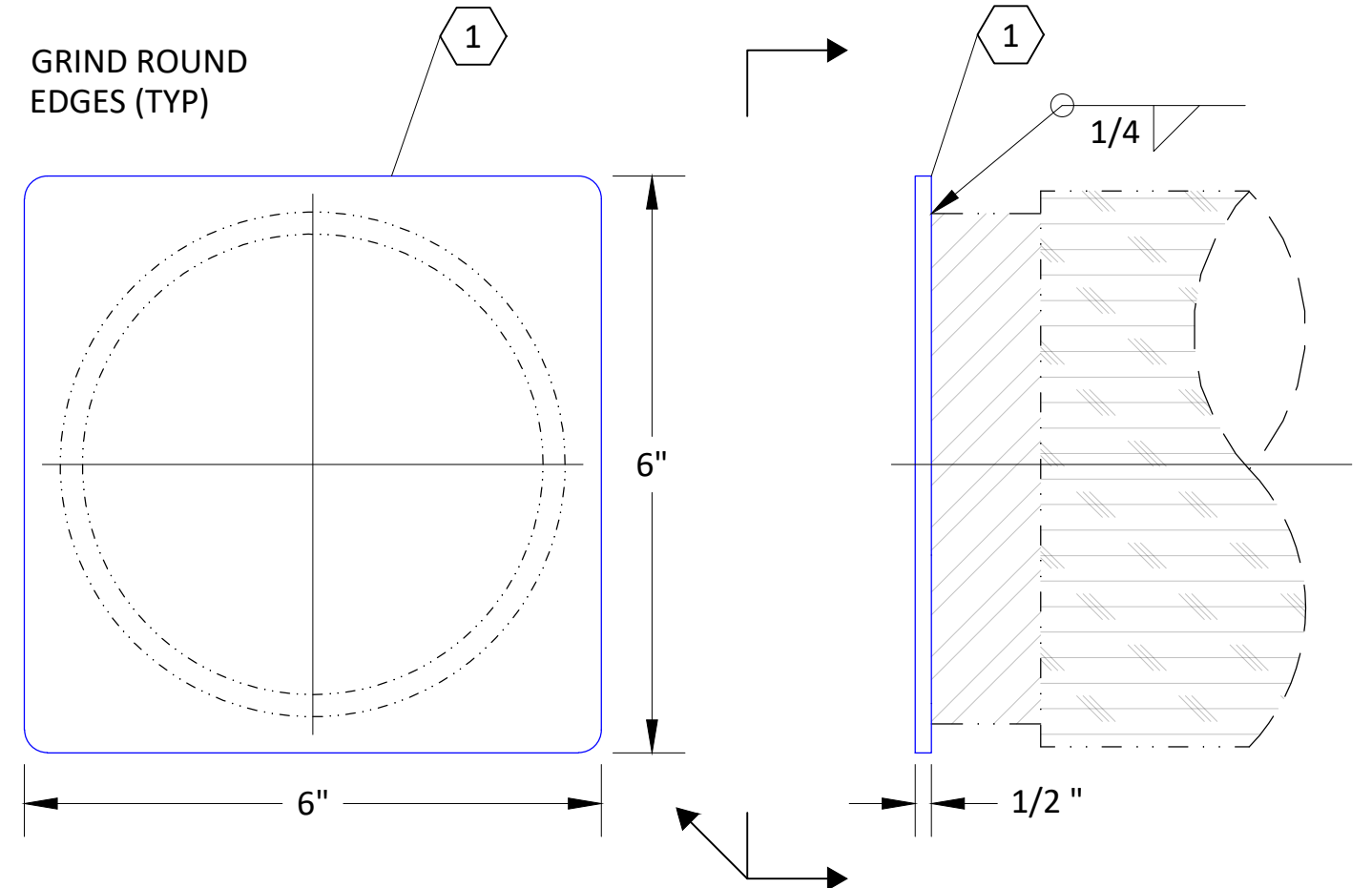
SHEET NO. 18 OF 22 SHEETS

74029104 F



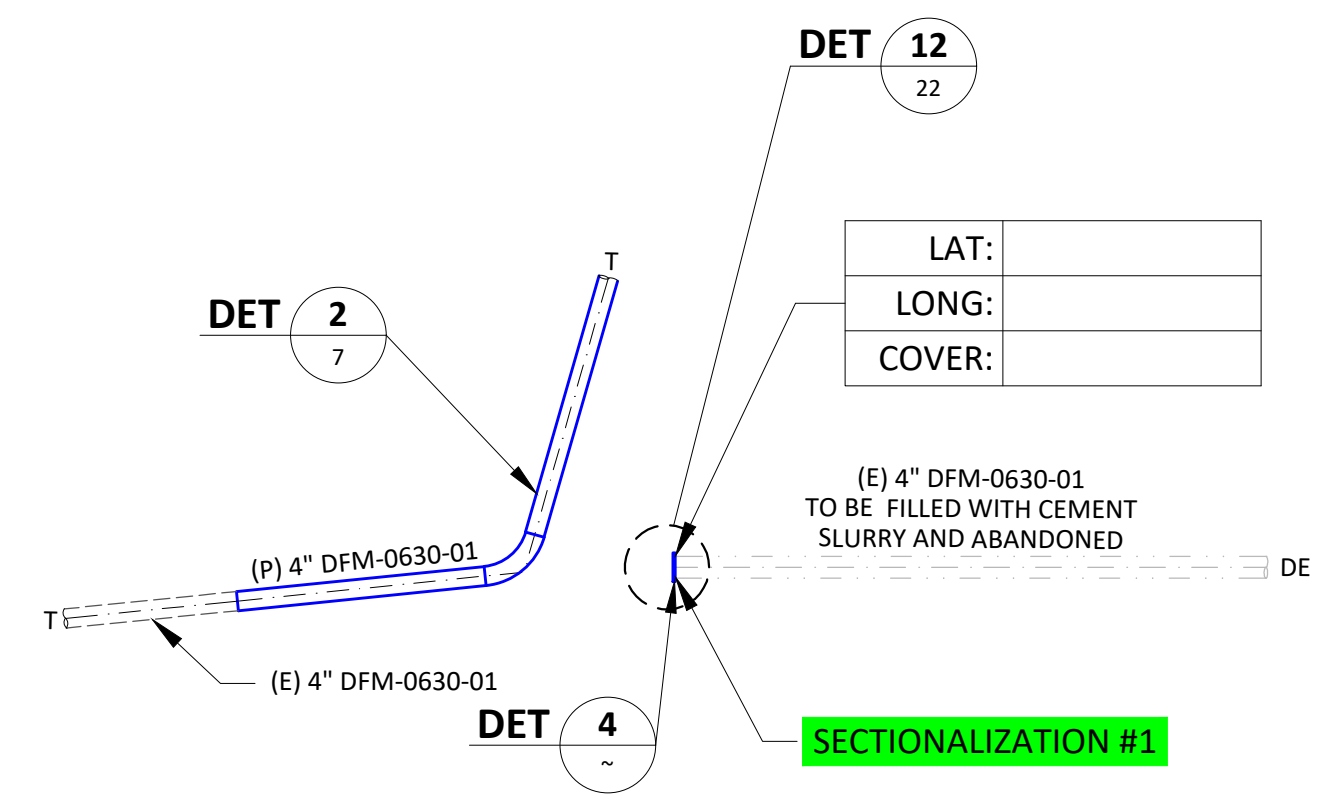
THE CAPITAL ORDER NUMBER FOR REMOVAL OF THE DRIP LINE IS 74037542, WHICH DIFFERS FROM THE ORDER NUMBER FOR THE REST OF THE PROJECT.

DETAIL 3
SECTIONALIZATION #3 & #4
SCALE: 1" = 40'



- PIPE PLATE CAP NOTES:**
- STEEL PLATE, 1/2" THICK, ASTM A-36, TO BE WELDED TO EACH PIPE END ABANDONED-IN-PLACE.
 - SQUARE: 6" x 6" FOR CAPPING DFM-0630-01 TO ABANDON IN PLACE.
 - REMOVE ALL ROUGH EDGES AND CORNERS ON ALL STEEL FABRICATION PRODUCTS.
 - WELDING FOR SHALL CONFORM TO THE STRUCTURAL WELDING CODE AWS D1.1.
 - USE AN E60 STRENGTH FILLER METAL THAT CONFORMS TO ONE OF THE FOLLOWING AWS FILLER METAL SPECIFICATIONS: AWS A5.1 OR A5.

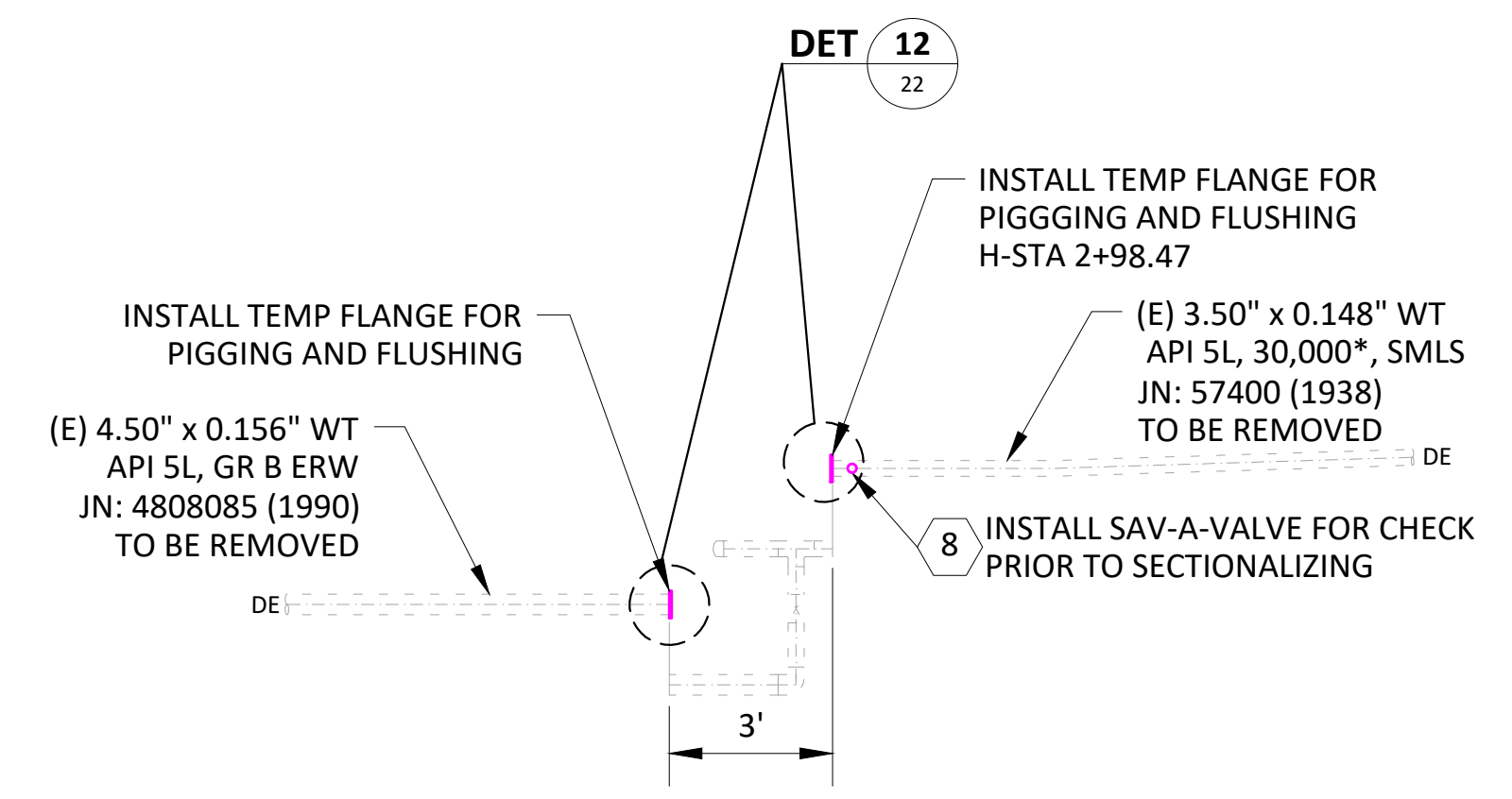
DETAIL 4
PIPE TERMINATION CAP PLATE
SCALE: NONE



NOTE:
PIPELINE TIE-IN WILL BE PERFORMED DURING THE HDD REPLACEMENT, WORK ORDER # 74029104 FOR (P) 4" DFM-0630-01. THE 4" DFM-0630-01 PIPE WILL BE PURGED OF NATURAL GAS AND CAPPED WITH A STEEL PLATE PRIOR TO DECOMMISSIONING.

DECOMMISSIONING WORK AT THIS LOCATION CONSISTS OF REMOVING THE STEEL PLATE, INSTALLING A FLANGE, PERFORMING PIGGING AND FLUSHING OPERATIONS, CUTTING OFF THE FLANGE, AND WELDING A NEW STEEL PLATE TO THE PIPELINE END.

DETAIL 1
SECTIONALIZATION #1
SCALE: 1" = 40'



DETAIL 2
SECTIONALIZATION #2
SCALE: 1" = 40'



REV.	DATE	DESCRIPTION	ORDER	DWN	ADE	ENG	ENG APVD
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PIPELINE - DETAILS
DFM-0630-01 MP 10.67 - 10.85
DECOMMISSION SACRAMENTO RIVER CROSSING
MERIDIAN, SUTTER & COLUSA COUNTY
GAS TRANSMISSION & DISTRIBUTION
PACIFIC GAS AND ELECTRIC COMPANY
SAN FRANCISCO, CALIFORNIA



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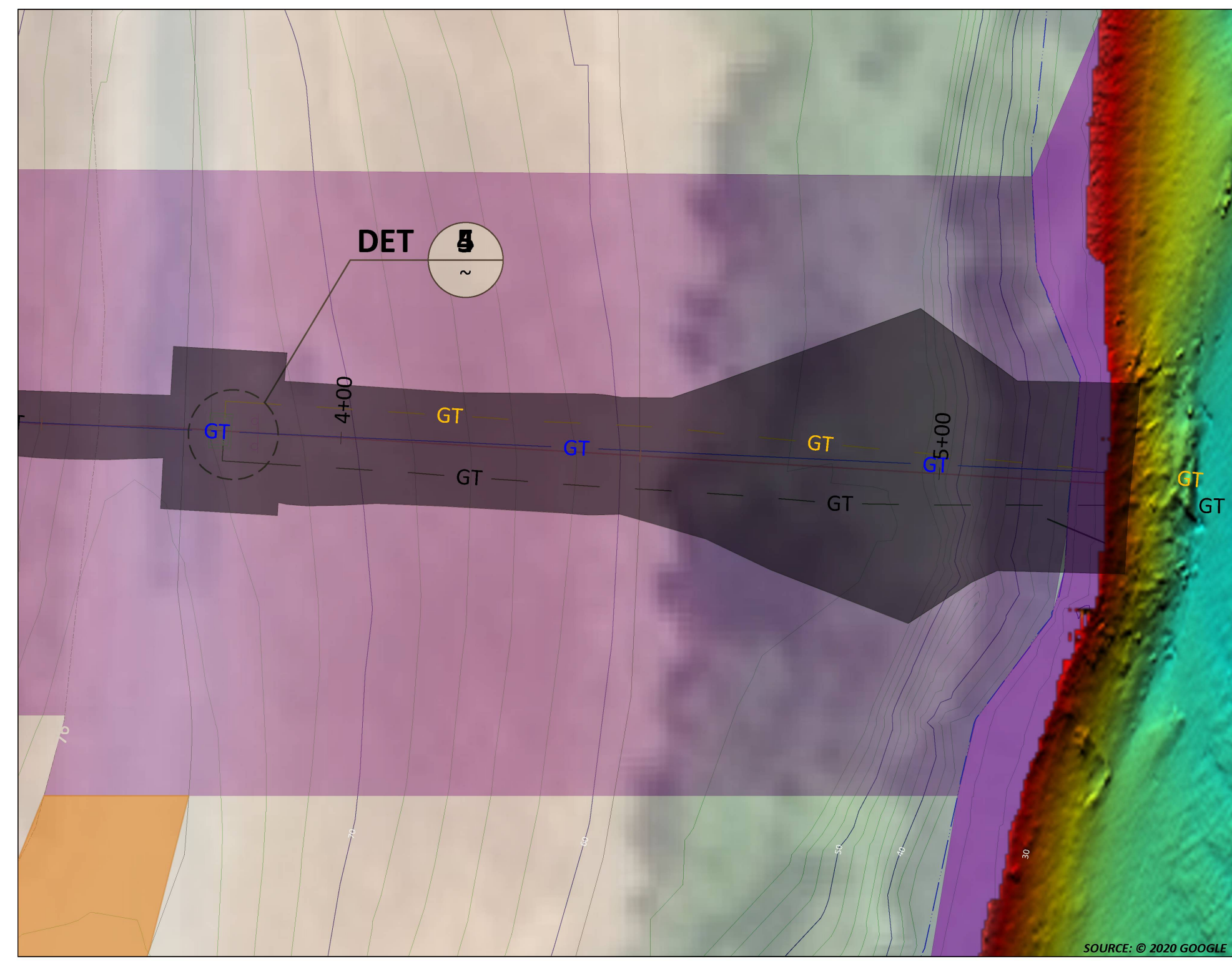
PACIFIC GAS AND ELECTRIC COMPANY

BILL OF MATL SHEET 21

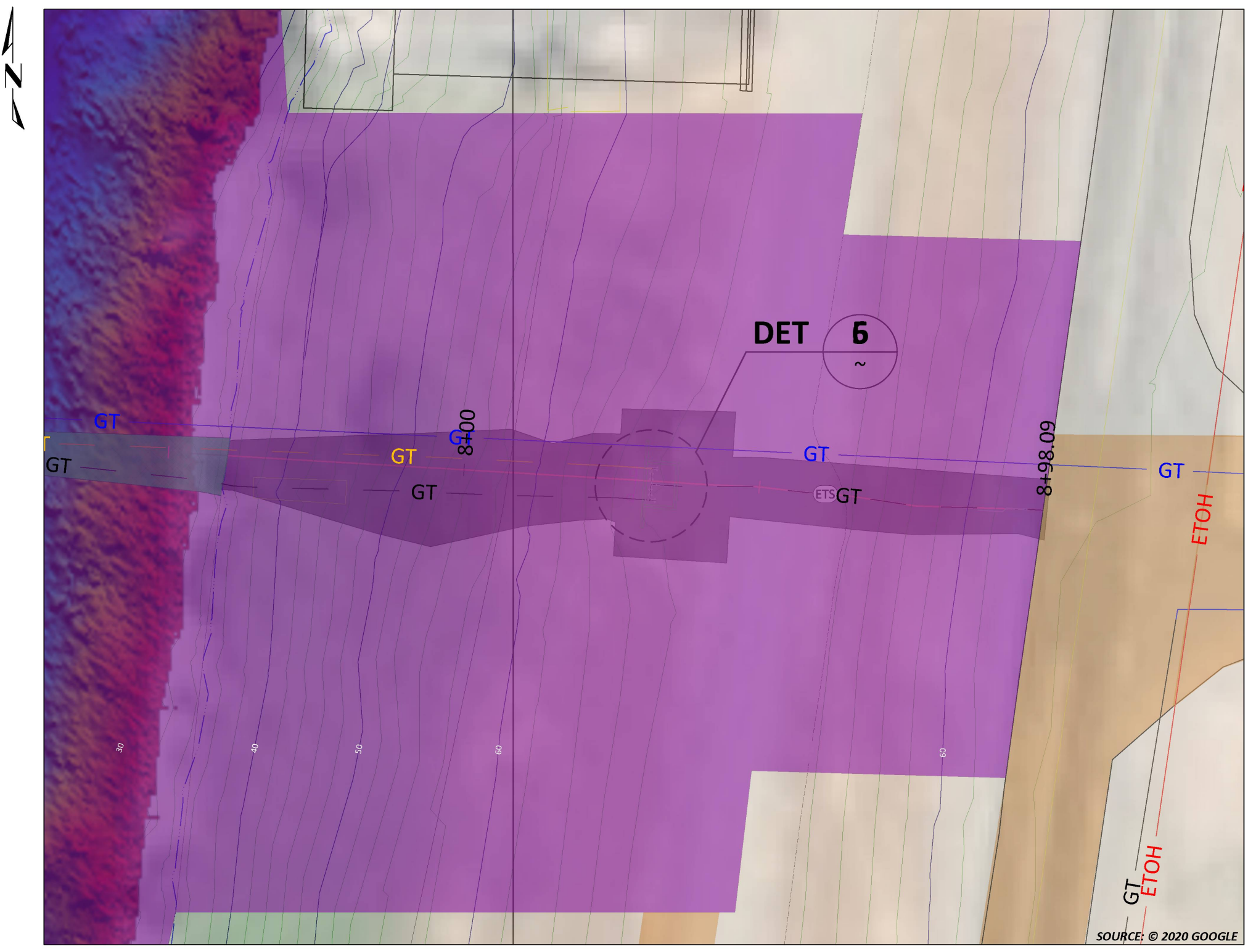
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SHEET NO. 19 OF 22 SHEETS

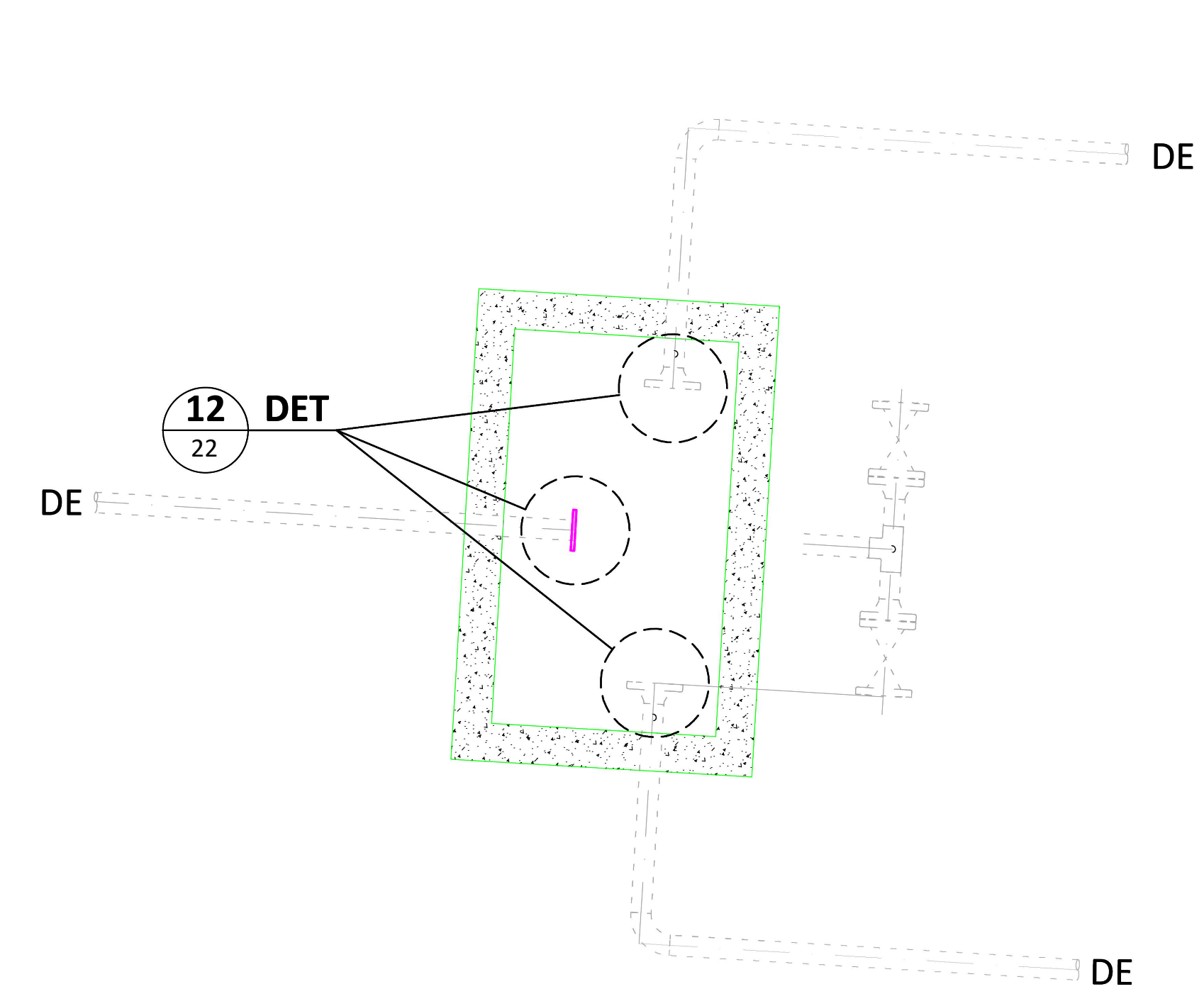
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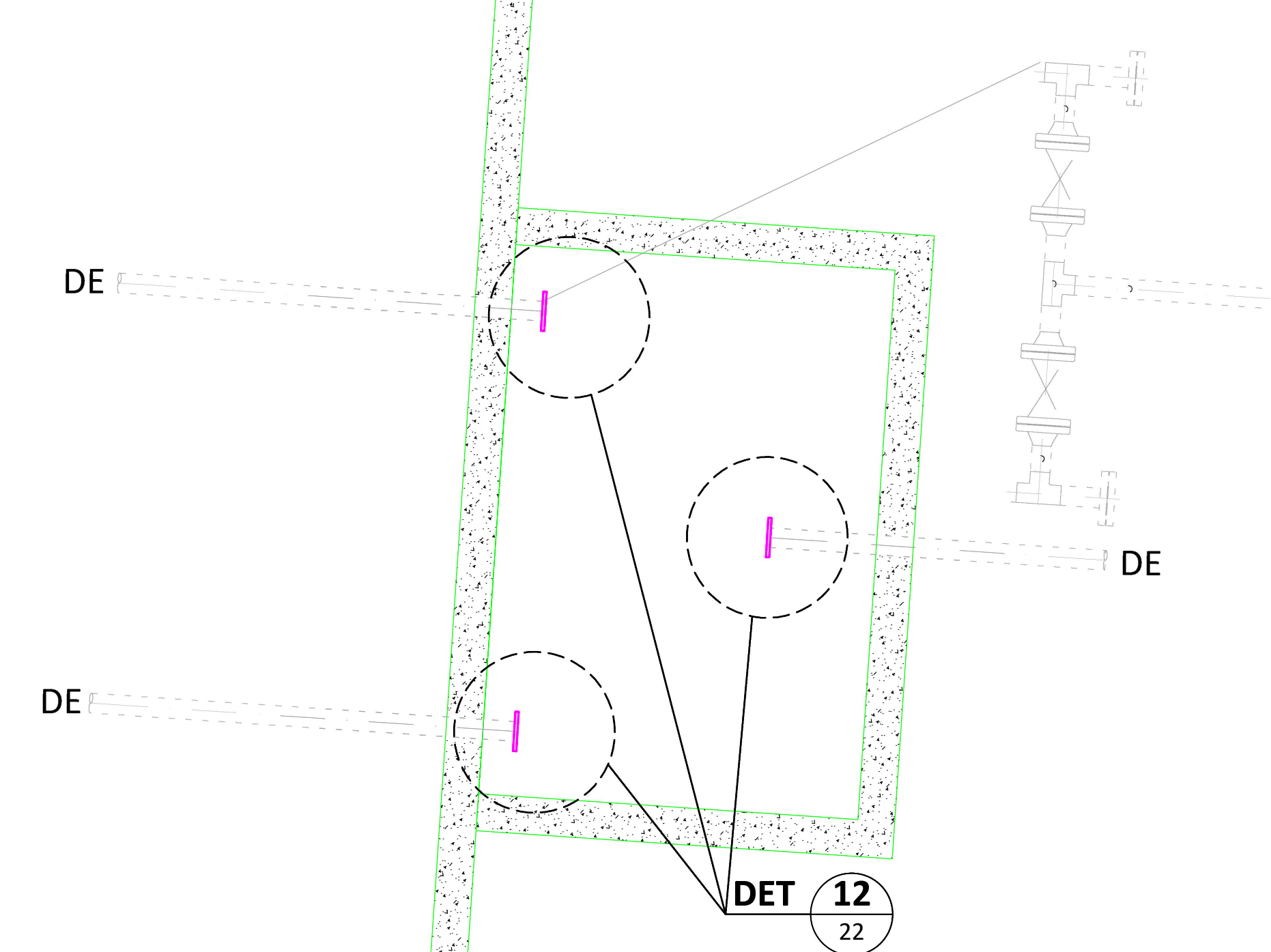
LOCATION A
LEVEE VALVE VAULT WEST
WALL MAP - COL2149; PLAT - E7; DFM-0603-01; MP 10.744
SCALE: 1" = 20'



LOCATION B
LEVEE VALVE VAULT EAST
WALL MAP - COL2149; PLAT - E7; DFM-0603-01; MP 10.84
SCALE: 1" = 20'



DETAIL 5
LEVEE VALVE VAULT WEST
SCALE: 1" = 2'



DETAIL 6
LEVEE VALVE VAULT EAST
SCALE: 1" = 2'

- PIGGING & FLUSHING NOTES:**
- REMOVE EXISTING VALVES AND PIPING AND INSTALL TEMPORARY SLIP-ON FLANGES TO ATTACH PIG LAUNCHERS AND RECEIVERS IN EACH VAULT.
 - FOLLOW RETIREMENT PROCEDURES FOR EXISTING PIPE.
 - PIG & FLUSH PIPELINE SEGMENTS TO BE DECOMMISSIONED. SAMPLE AND TEST FLUSH WATER TO CONFIRM THAT CONTAMINANT LEVELS ARE BELOW PERMITTED THRESHOLDS (LESS THAN 15 PPM TOTAL PETROLEUM HYDROCARBONS).
 - FLUSH WATER TO BE CAPTURED IN TANKER TRUCK ON RECEIVING END. DISPOSE OF FLUSH WATER IN ACCORDANCE WITH PERMIT REQUIREMENTS.

- VAULT REMOVAL NOTES:**
- REMOVE ALL VALVES AND PIPE FITTINGS AFTER PIGGING & FLUSHING OPERATIONS.
 - DEMOLISH VAULT CONCRETE STRUCTURES AND TRANSPORT DEBRIS TO AN OFFSITE DISPOSAL FACILITY.



REV.	DATE	DESCRIPTION	ORDER	DWN	ADE	ENG	ENG APVD
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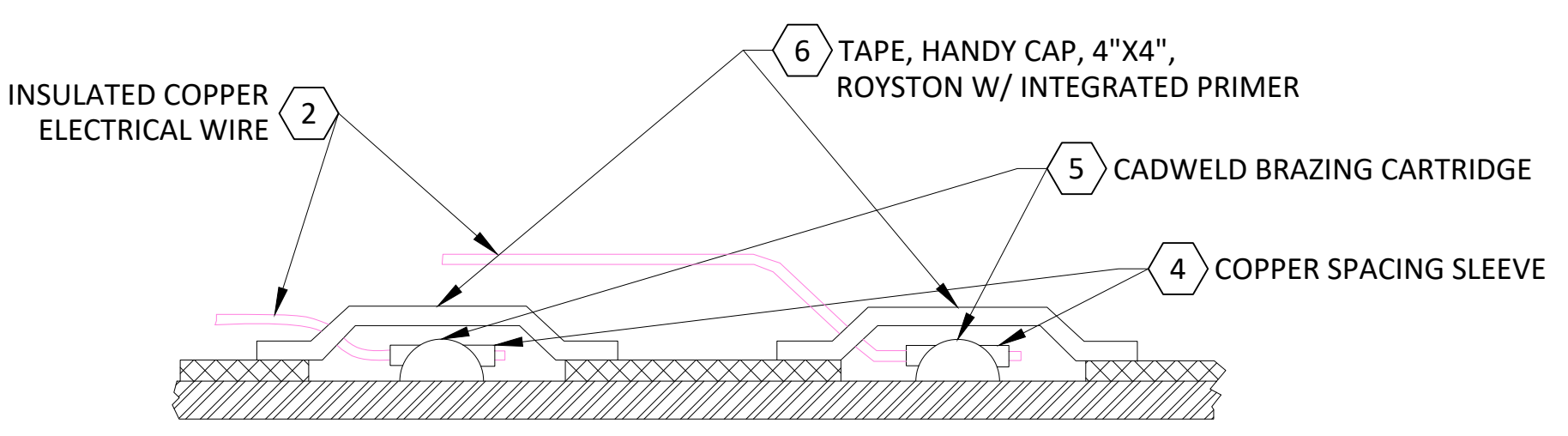
PIPELINE - DETAILS
DFM-0630-01 MP 10.67 - 10.85
DECOMMISSION SACRAMENTO RIVER CROSSING
MERIDIAN, SUTTER & COLUSA COUNTY
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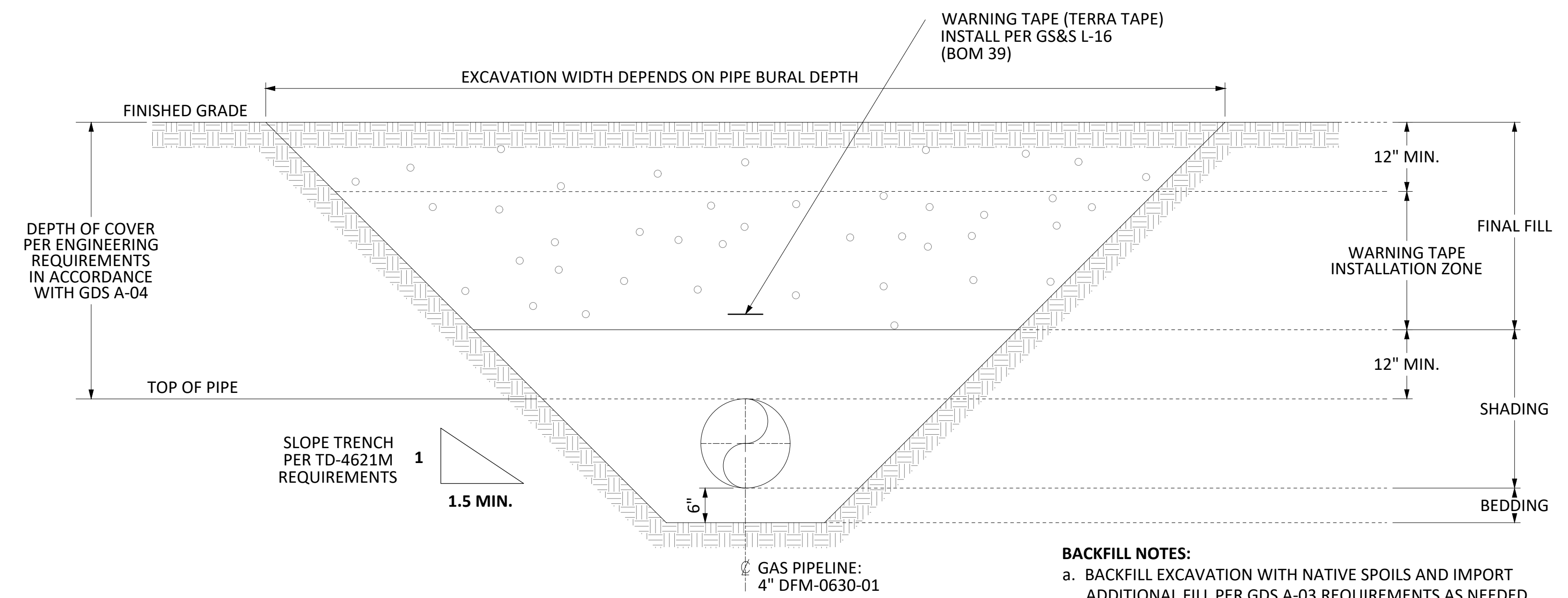
BILL OF MATL	SHEET 21
JOB ID	R-1385
SHEET NO.	20 OF 22 SHEETS
74029104	F

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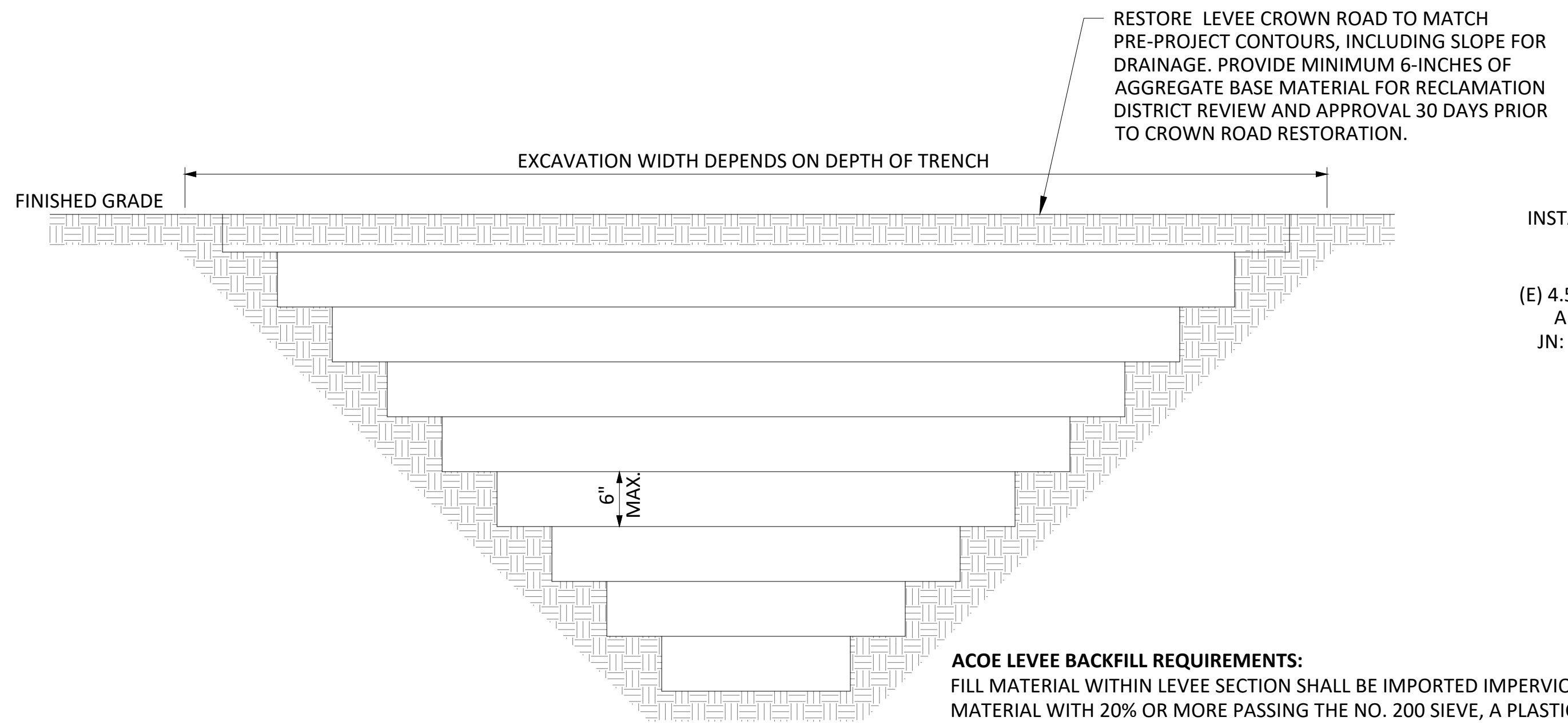
DETAIL 10
CP CONNECTION
SCALE: NTS

- NOTE:**
- CADWELD CONNECTIONS SHOULD BE MADE IN THE BURIED SECTION OF THE AIR-TO-SOIL TRANSITION, 6" MINIMUM FROM THE TRANSITION OF EXISTING TO NEW COATING.
 - INSTALL WIRES PER GDS O-10 AND E-27.



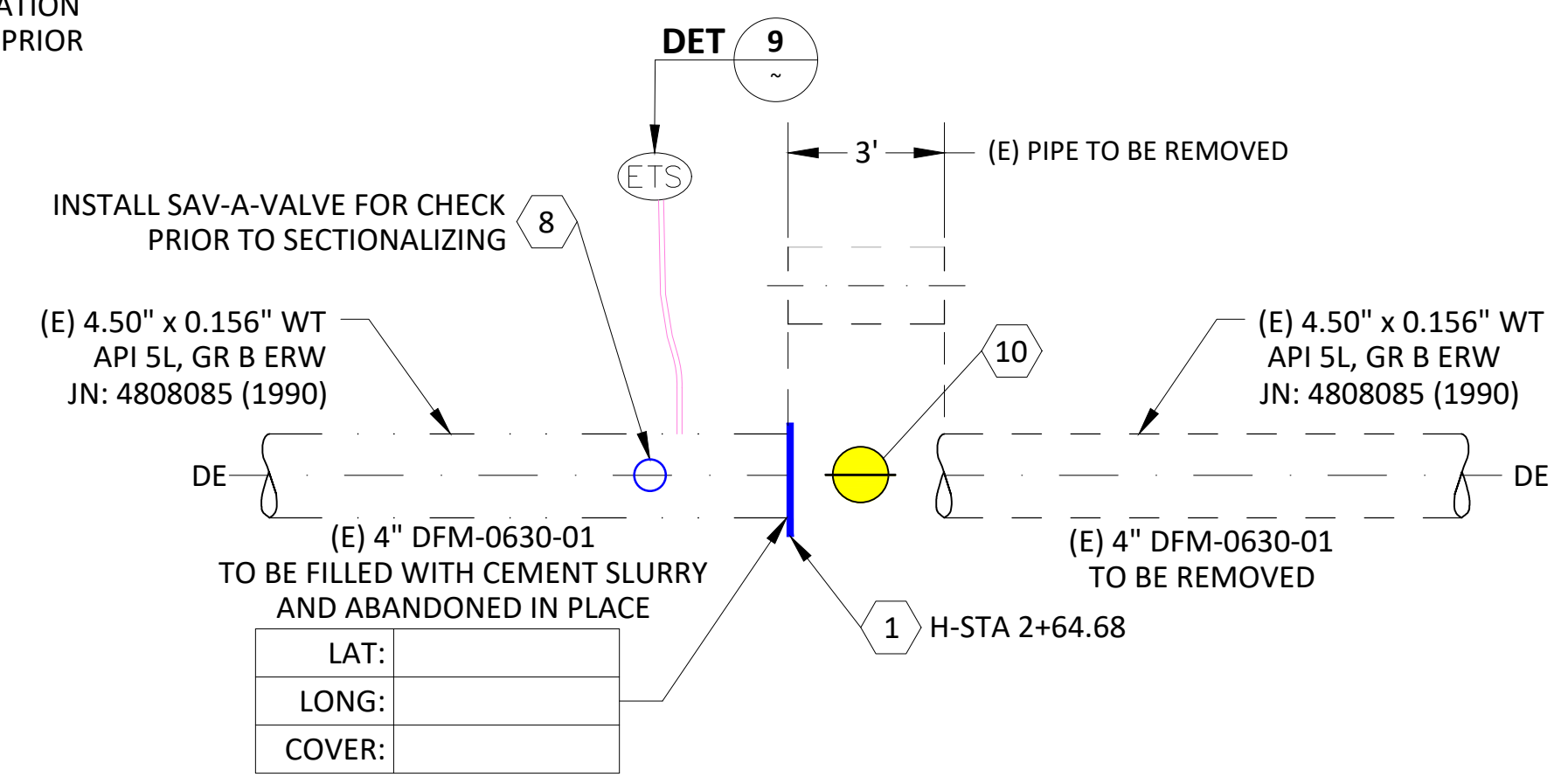
DETAIL 11
VEE TRENCH OPEN FIELD
SCALE: NONE

- BACKFILL NOTES:**
- BACKFILL EXCAVATION WITH NATIVE SPOILS AND IMPORT ADDITIONAL FILL PER GDS A-03 REQUIREMENTS AS NEEDED.
 - COMPACT BACKFILL IN 4-6 INCH LAYERS TO A MINIMUM OF 90% RELATIVE COMPACTION AS MEASURED BY ASTM D1557.

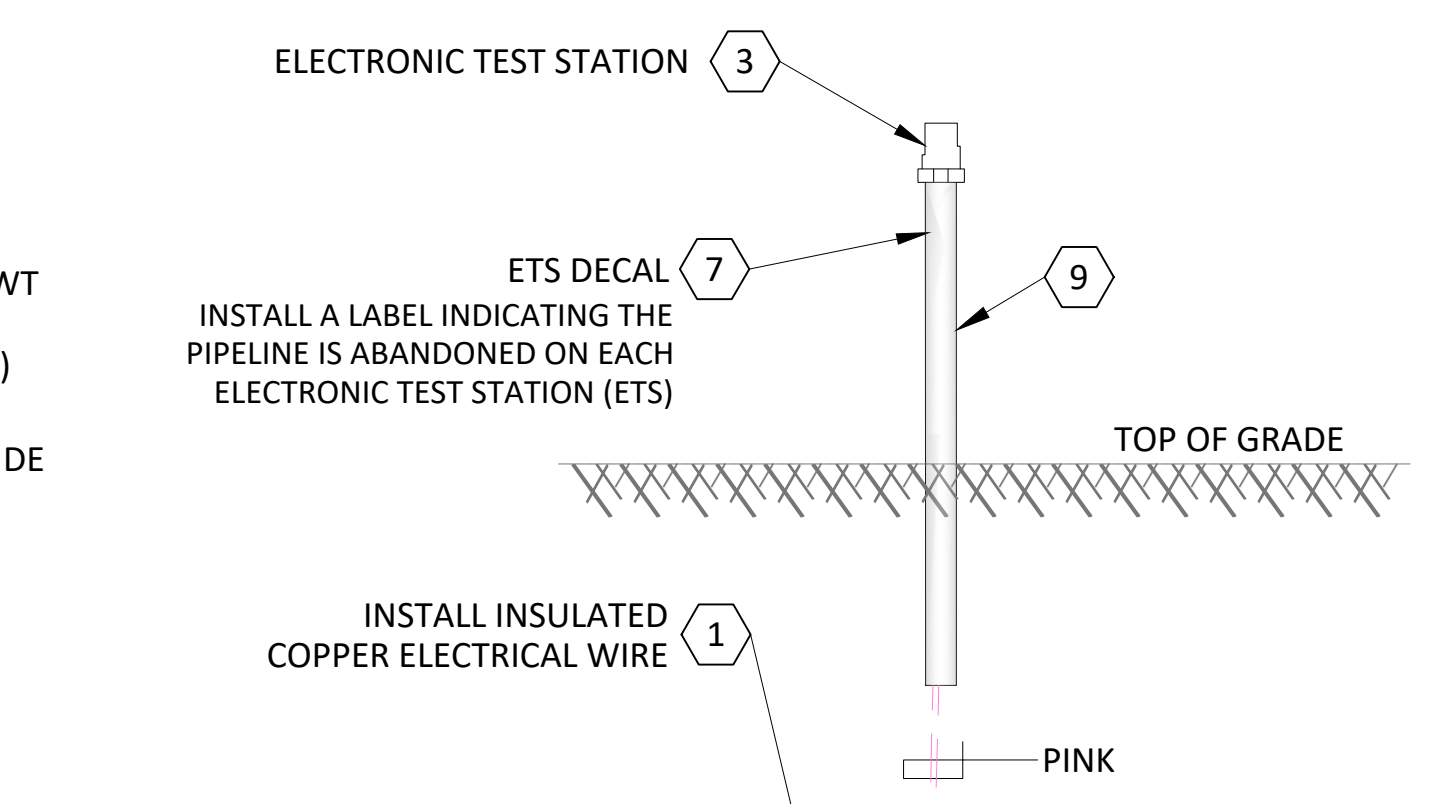


DETAIL 7
VEE TRENCH ON LEVEE
SCALE: NONE

ACOE LEVEE BACKFILL REQUIREMENTS:
FILL MATERIAL WITHIN LEVEE SECTION SHALL BE IMPORTED IMPERVIOUS MATERIAL WITH 20% OR MORE PASSING THE NO. 200 SIEVE, A PLASTICITY INDEX OF 8 OR MORE, AND A LIQUID LIMIT OF OF LESS THAN 50 AND FREE OF LUMPS OR STONES EXCEEDING 3" IN GREATEST DIMENSION, VEGETATIVE MATTER, OR OTHER UNSATISFACTORY MATERIAL. FILL MATERIAL SHALL BE KEYED INTO THE LEVEE SECTION WITH EACH LIFT AND BE COMPACTED IN 4-6 INCH LAYERS TO A MINIMUM OF 90% RELATIVE COMPACTION AS MEASURED BY THE CURRENT ASTM D1557 STANDARD AND ABOVE OPTIMUM MOISTURE CONTENT.



DETAIL 8
SCALE: NTS



DETAIL 9
ETS TYPE A CCV O-10
SCALE: NTS

LONGITUDE 123, INC.
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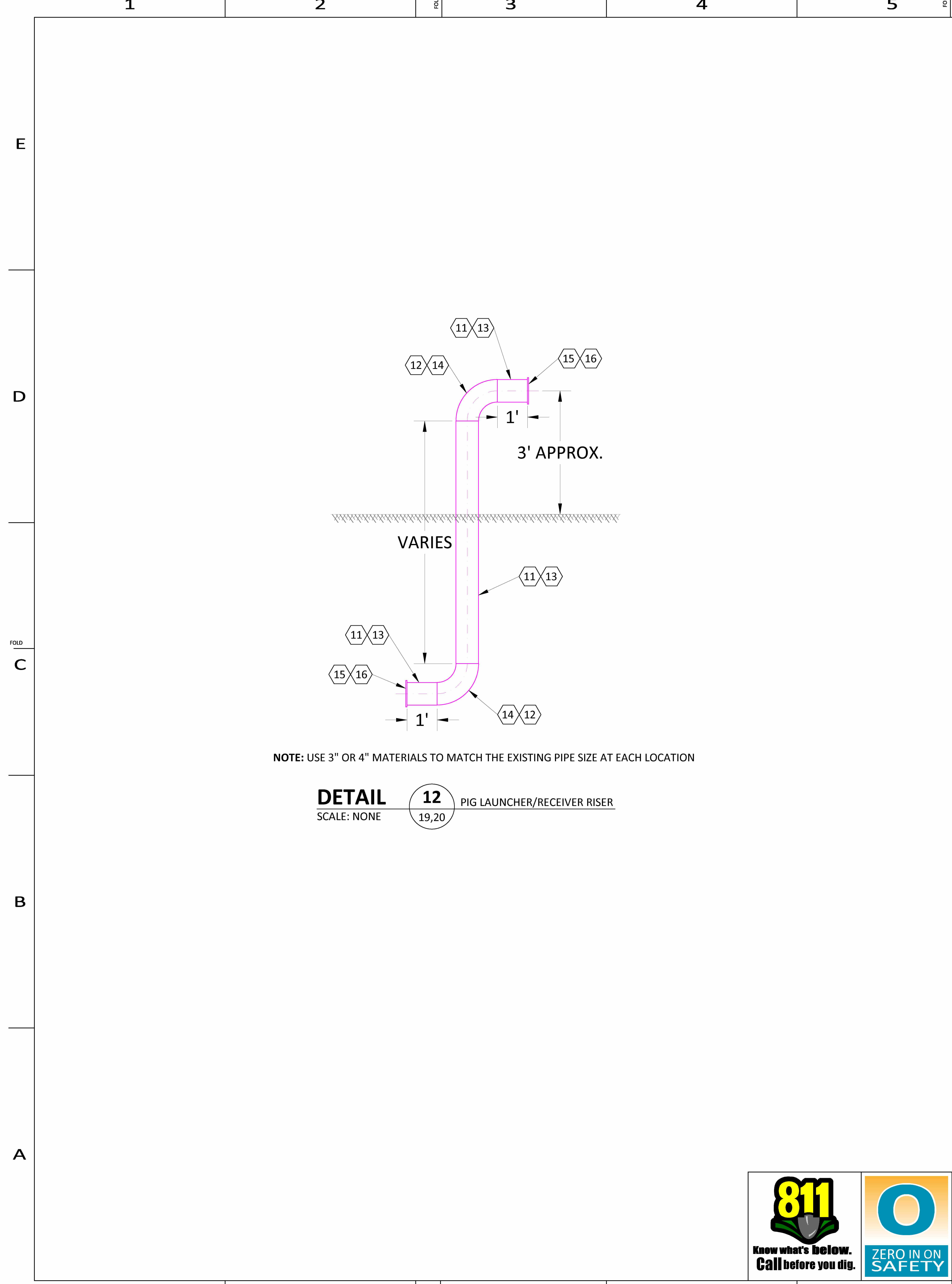
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PACIFIC GAS AND ELECTRIC COMPANY

BILL OF MATL SHEET 21
JOB ID **R-1385**
SHEET NO. 21 OF 22 SHEETS
74029104 F



REV.	DATE	DESCRIPTION	ORDER	DWN	ADE	ENG	ENG APVD
F	12-14-21	ISSUED FOR PERMIT ONLY	74029104	EAR	GDO	C2L1	
E	10-27-21	ISSUED FOR PERMIT ONLY	74029104	EAR	GDO	C2L1	
D	9-10-21	ISSUED FOR PERMIT ONLY	74029104	EAR	GDO	C2L1	
C	8-13-21	ISSUED FOR PERMIT ONLY	74029104	EAR	GDO	C2L1	
B	1-7-21	DRAFT 60% DESIGN	74029104	EAR	GDO	C2L1	
A	11-10-20	30% DESIGN	74029104	EAR	GDO	C2L1	

PIPELINE - DETAILS
DFM-0630-01 MP 10.67 - 10.85
DECOMMISSION SACRAMENTO RIVER CROSSING
MERIDIAN, SUTTER & COLUSA COUNTY
GAS TRANSMISSION & DISTRIBUTION
PACIFIC GAS AND ELECTRIC COMPANY
SAN FRANCISCO, CALIFORNIA



NOTE: USE 3" OR 4" MATERIALS TO MATCH THE EXISTING PIPE SIZE AT EACH LOCATION

DETAIL 12 PIG LAUNCHER/RECEIVER RISER
SCALE: NONE

BILL OF MATERIALS						
BOM #	MATERIAL DESCRIPTION	MATERIAL CODE #	QTY	UNIT	STANDARD	NOTES
1	PLATE, 1/2" x 6" x 6", MILD STEEL	N/A	2	EA	ASTM A-36	PROVIDED BY CONTRACTOR
2	WIRE ELECTRICAL, INSULATED, COPPER, 10 AWG, 600 V, 47MIL PVC, SOLID 1 CONDUCTOR, PINK	M290466	35	FT	CCV 0-10	ETS WIRE
3	STATION, TEST, CATHODIC PROTECTION, COTT MFG# 30055, ORANGE, BIG FINK, 5 TERMINALS, WITHOUT CONDENSER	M569390	1	EA	CCV 0-10.2	ETS TYPE A (BIG FINK)
4	SLEEVE, COPPER SPACING, #14 TO #10 CADWELD # CAB-133-1H, THERMOWELD # A-200	M303755	2	EA	CCV 0-10	ETS COMPONENT
5	CARTRIDGE, BRAZING, CADWELD # CA-15, THERMOWELD # 15P	M159260	2	EA	CCV 0-10	ETS COMPONENT
6	TAPE, HANDY CAP, 4" x 4", ROYSTON W/ INTEGRATED PRIMER	M562324	2	EA	CCV 0-10	ETS COMPONENT
7	DECAL, "ABANDONED PG&E GAS PIPE", SELF-ADHESIVE	N/A	1	EA	GS&S L-12	PROVIDED BY CONTRACTOR
8	NIPPLE, SAVE-A-VALVE, 2", WELD, STEEL, MUELLER # H-17491, STEEL CAP, DRILLING 1200 PSI MAXIMUM, 1440 PSI MAXIMUM	M022289	3	EA	GS&S C-14	
9	PIPE, PVC, 3" IPS, 0.300" WT, SCH 80	M016071	1	EA		ETS COMPONENT
10	MARKER, EXTENDED RANGE BALL, EMS TYPE, YELLOW, 3M # 1405-XR, FOR MARKING BURIED GAS FACILITIES, MAXIMUM INSTALLED DEPTH IS 5'	M374944	1	EA	GS&S M-60	
11	PIPE, STEEL, 4", 0.237" WT, API 5L, GRADE B, SEAMLESS, BARE	M011693	20	FT	GS&S A-15	
12	ELBOW, 4", 90 DEG, 0.237" WT, LONG RADIUS, BUTT WELD, CARBON STEEL, SCH 40, ASTM A234, GRADE B	M022039	4	EA	GS&S B-20	
13	PIPE, STEEL, 3", 0.216" WT, API 5L, GRADE B, SEAMLESS, BARE	M011692	80	FT	GS&S A-15	
14	ELBOW, 3", 90 DEG, 0.216" WT, LONG RADIUS, BUTT WELD, CARBON STEEL, SCH 40, ASTM A234, GRADE B	M022103	16	EA	GS&S B-20	
15	FLANGE, SLIP-ON, 4", RAISED FACE, FORGED STEEL, ANSI CLASS 150	M023225	6	EA	GS&S B-43	
16	FLANGE, SLIP-ON, 3", RAISED FACE, FORGED STEEL, ANSI CLASS 150		22	EA	GS&S B-43	



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