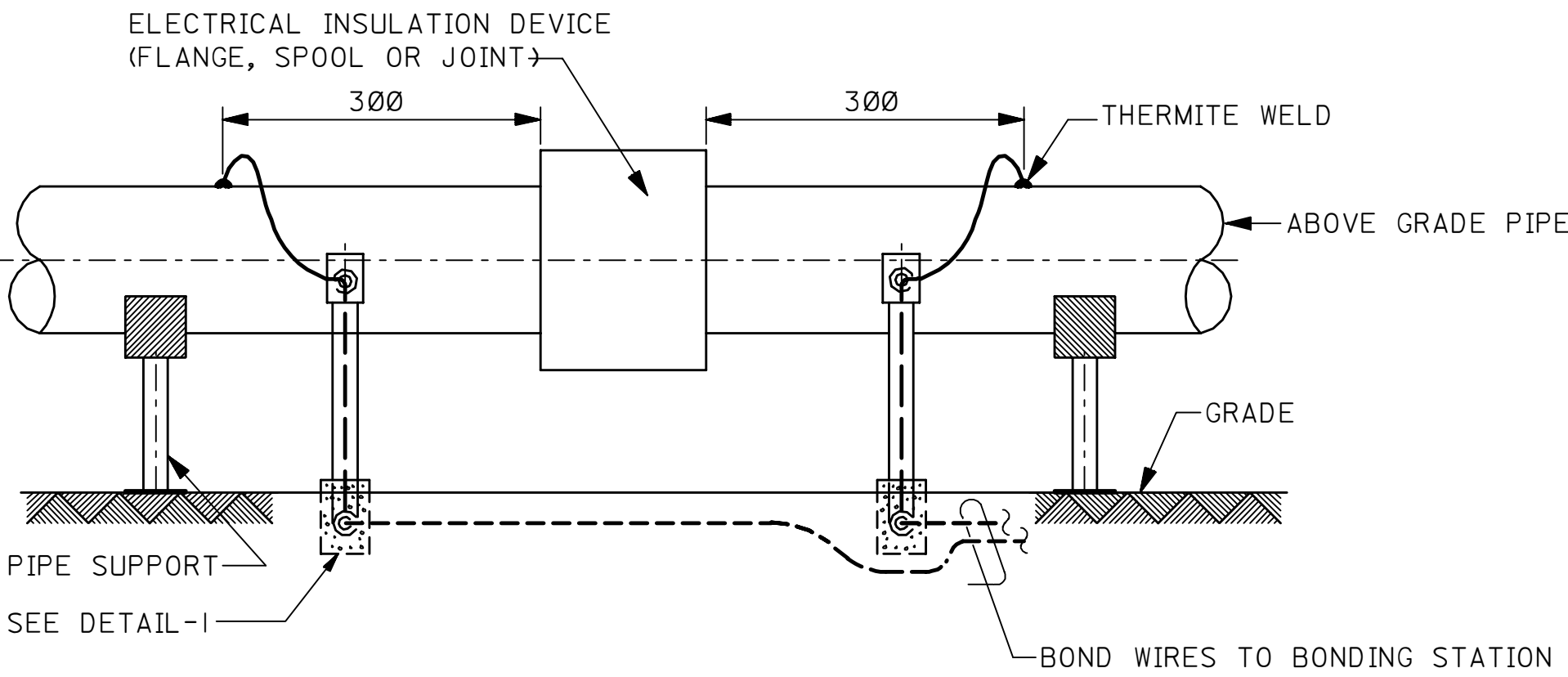
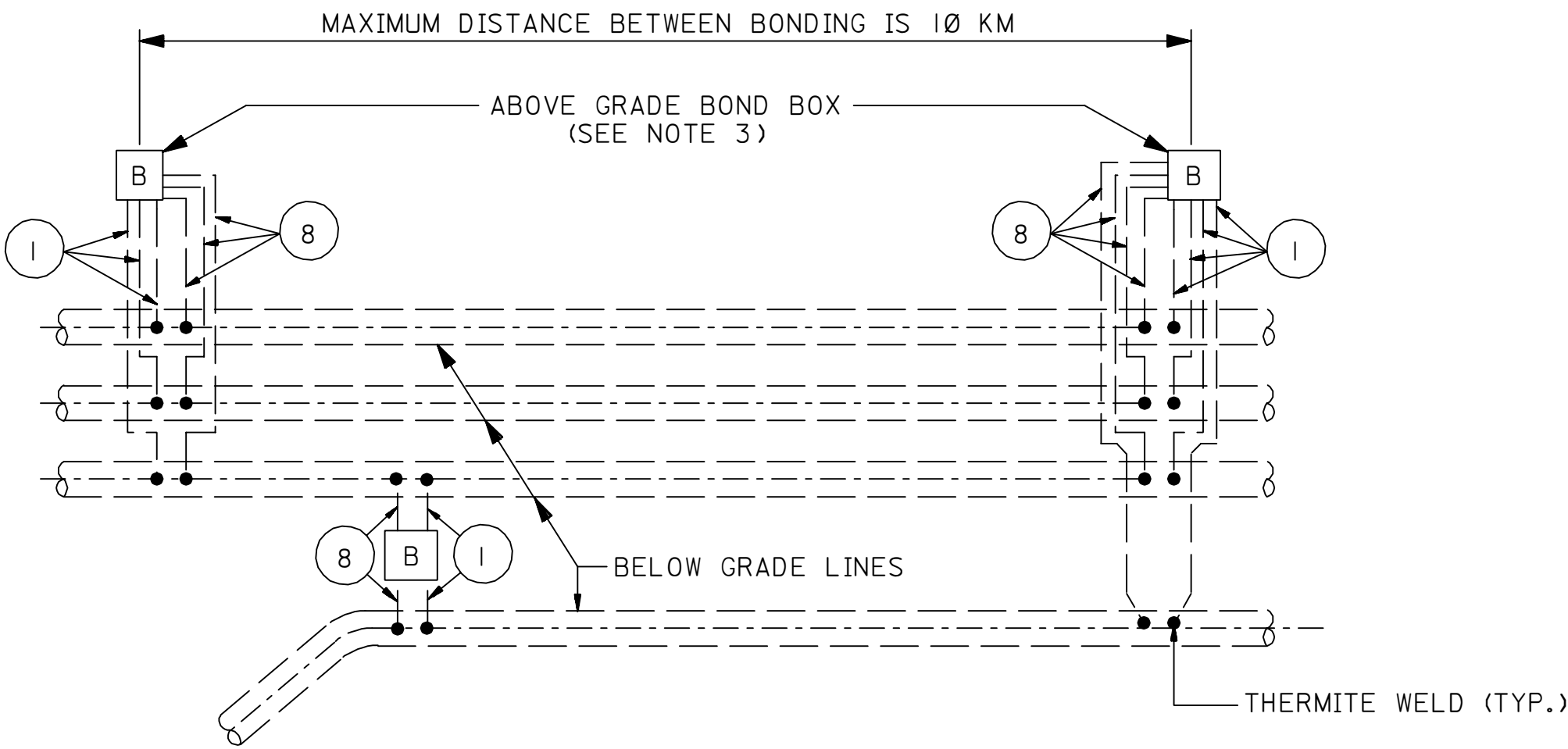


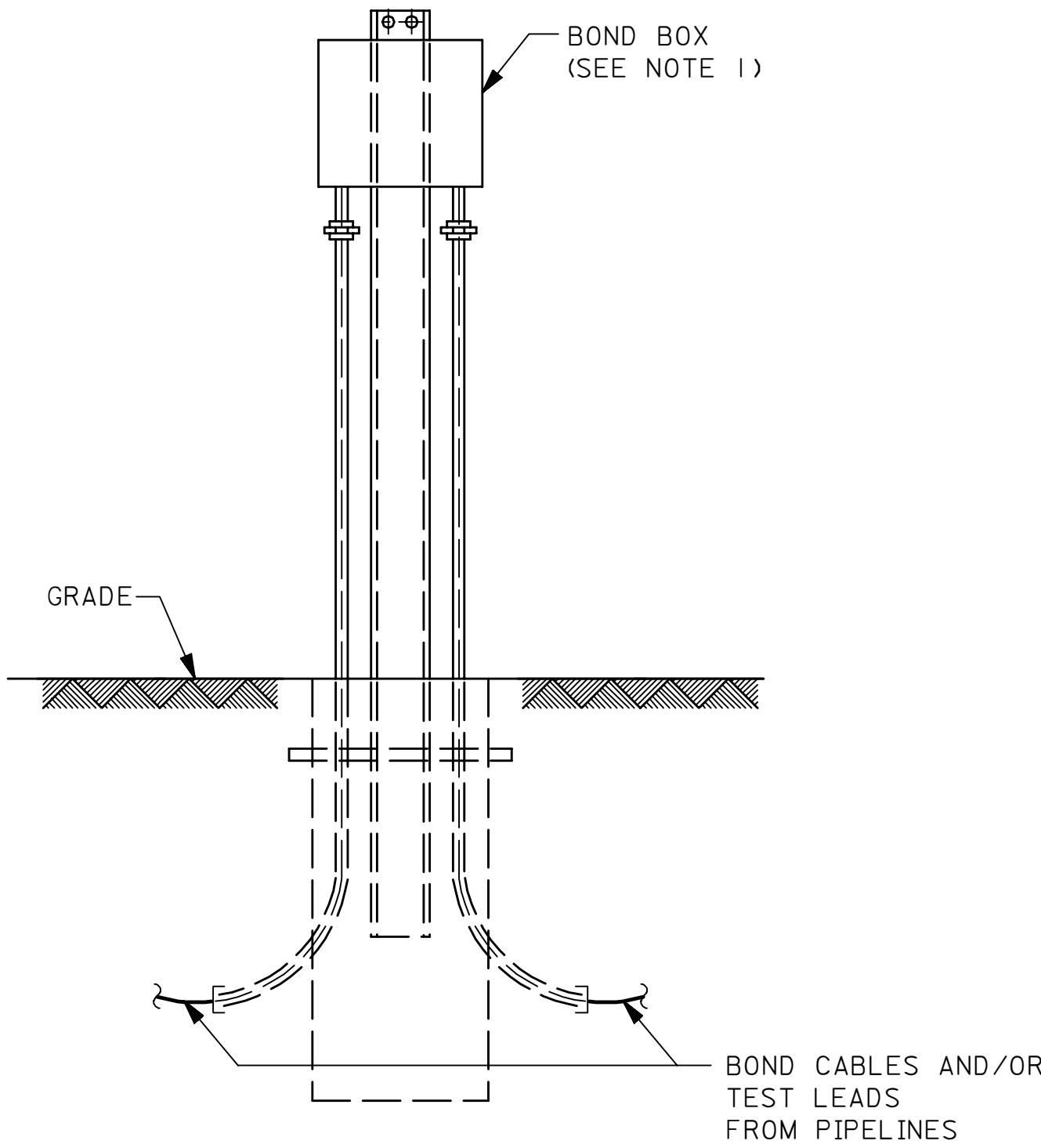
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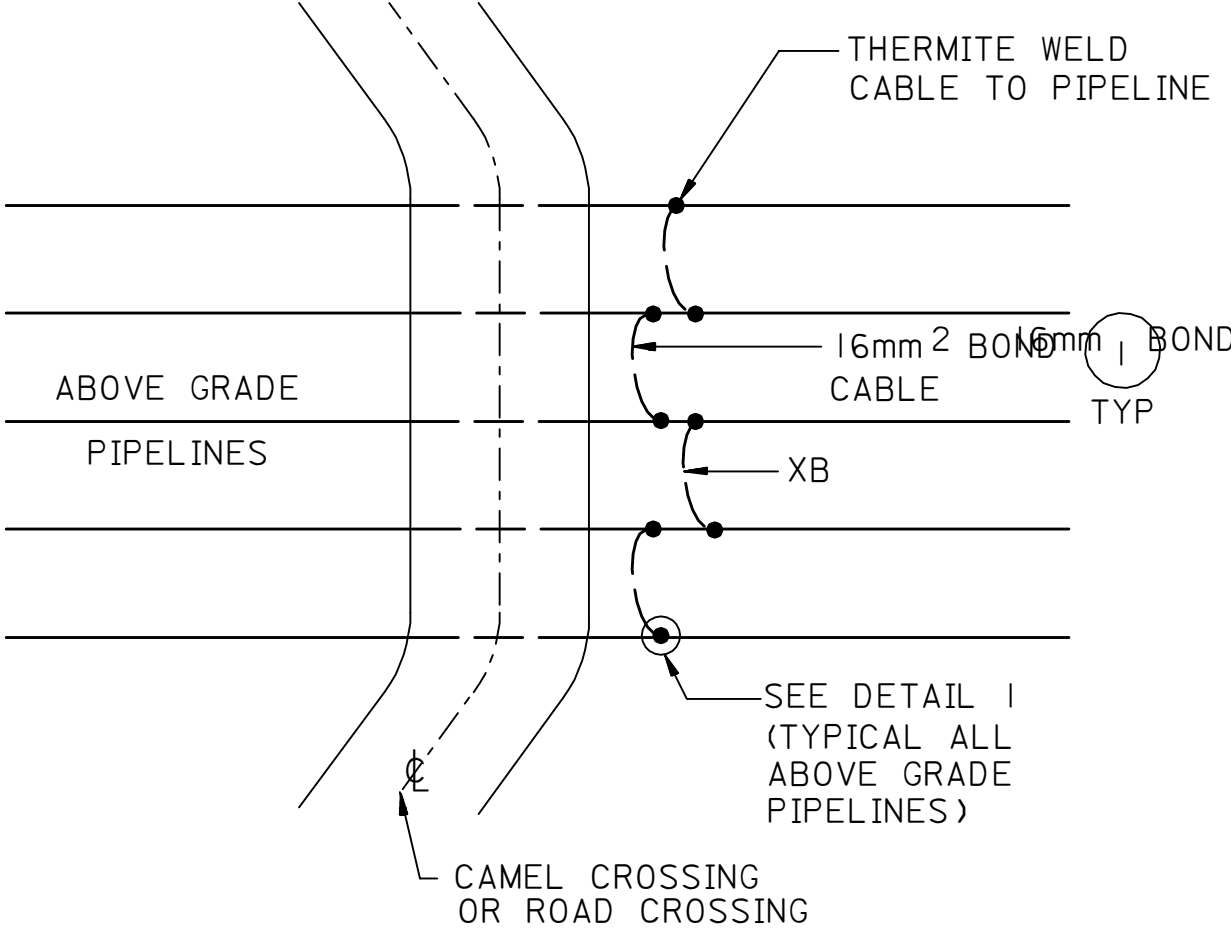
BONDING AT ABOVE GRADE ISOLATING DEVICE



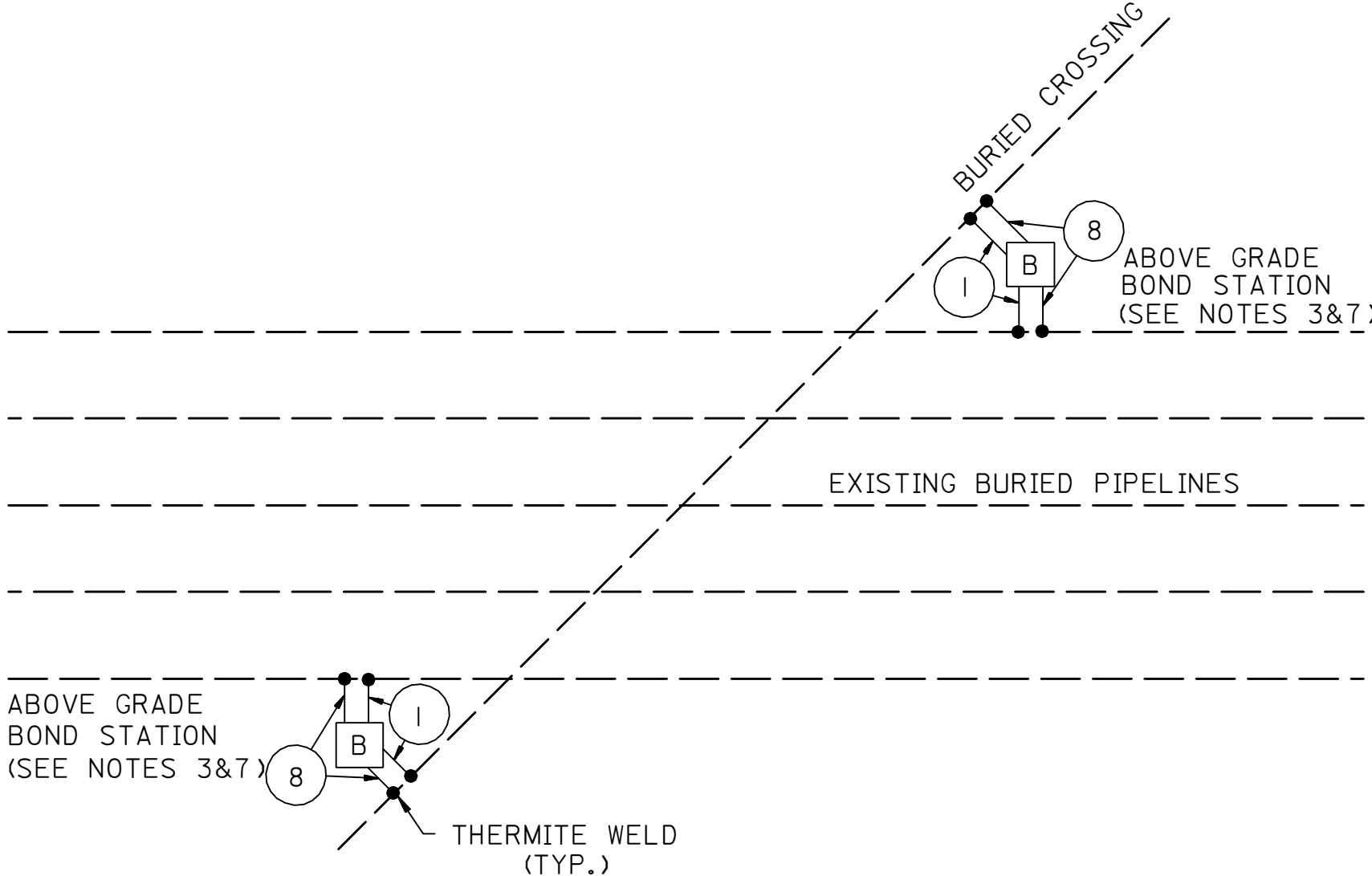
BONDING OF MULTIPLE BURIED PARALLEL LINES IN COMMON CORRIDOR



TYPICAL BOND BOX INSTALLATION
(FOR DETAILS SEE DWG. AB-036540)

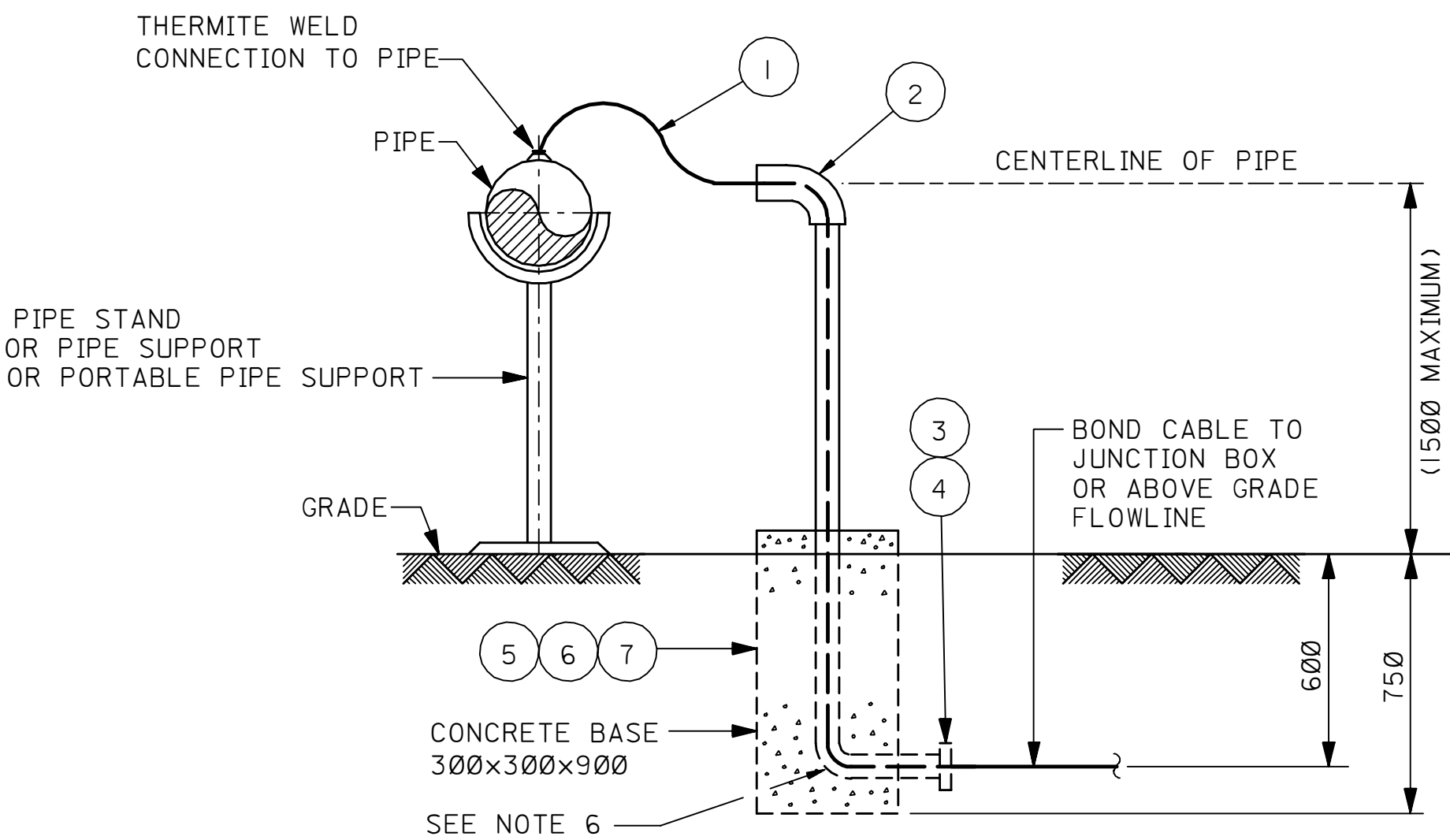


CONNECTION OF BOND CABLES AT CAMEL CROSSING /ROAD CROSSING FOR ABOVE GRADE PIPELINES
CROSS BONDING (XB)



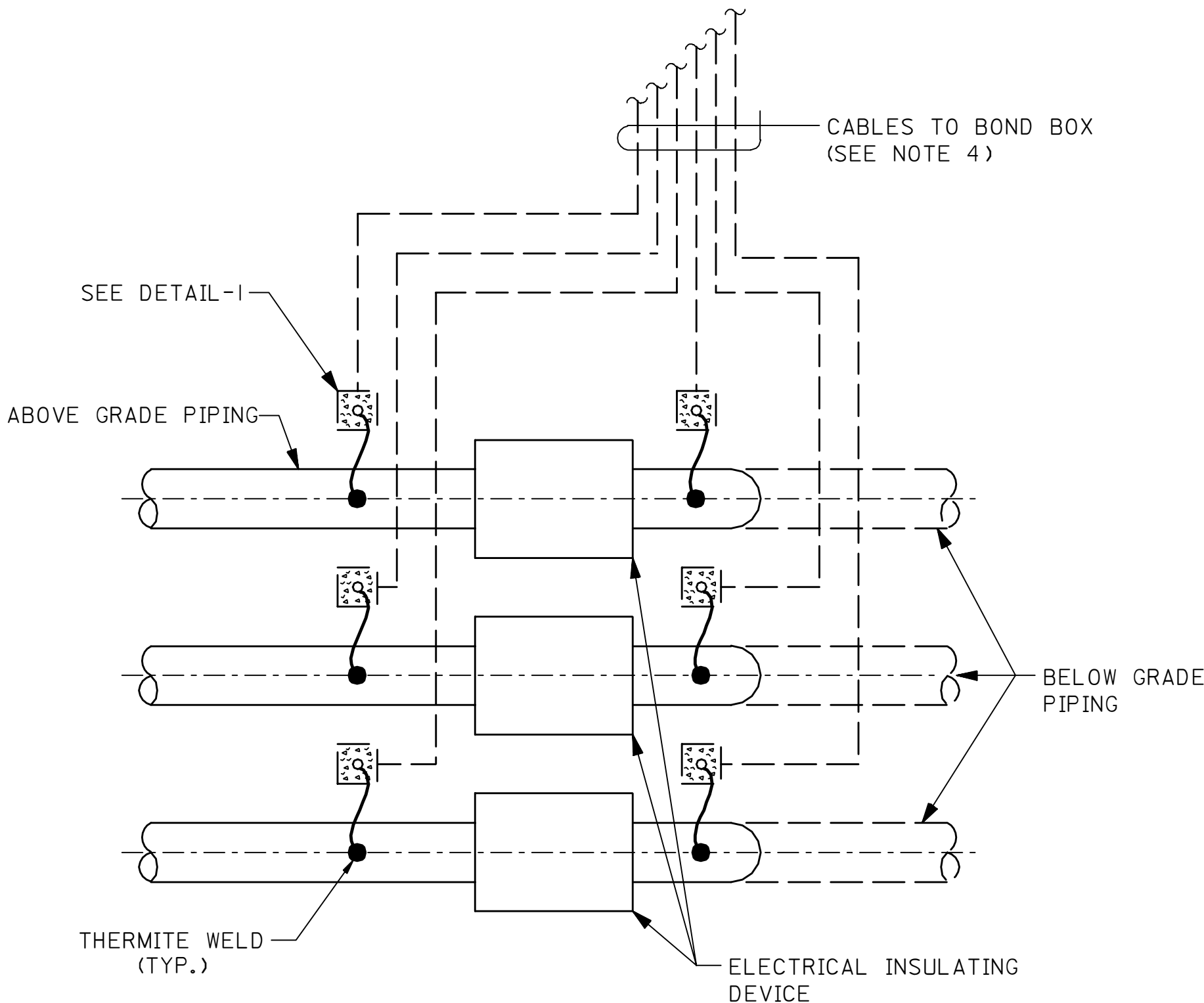
CONNECTION OF BOND STATIONS FOR MULTIPLE PIPELINE CROSSINGS

SEE NOTE 7

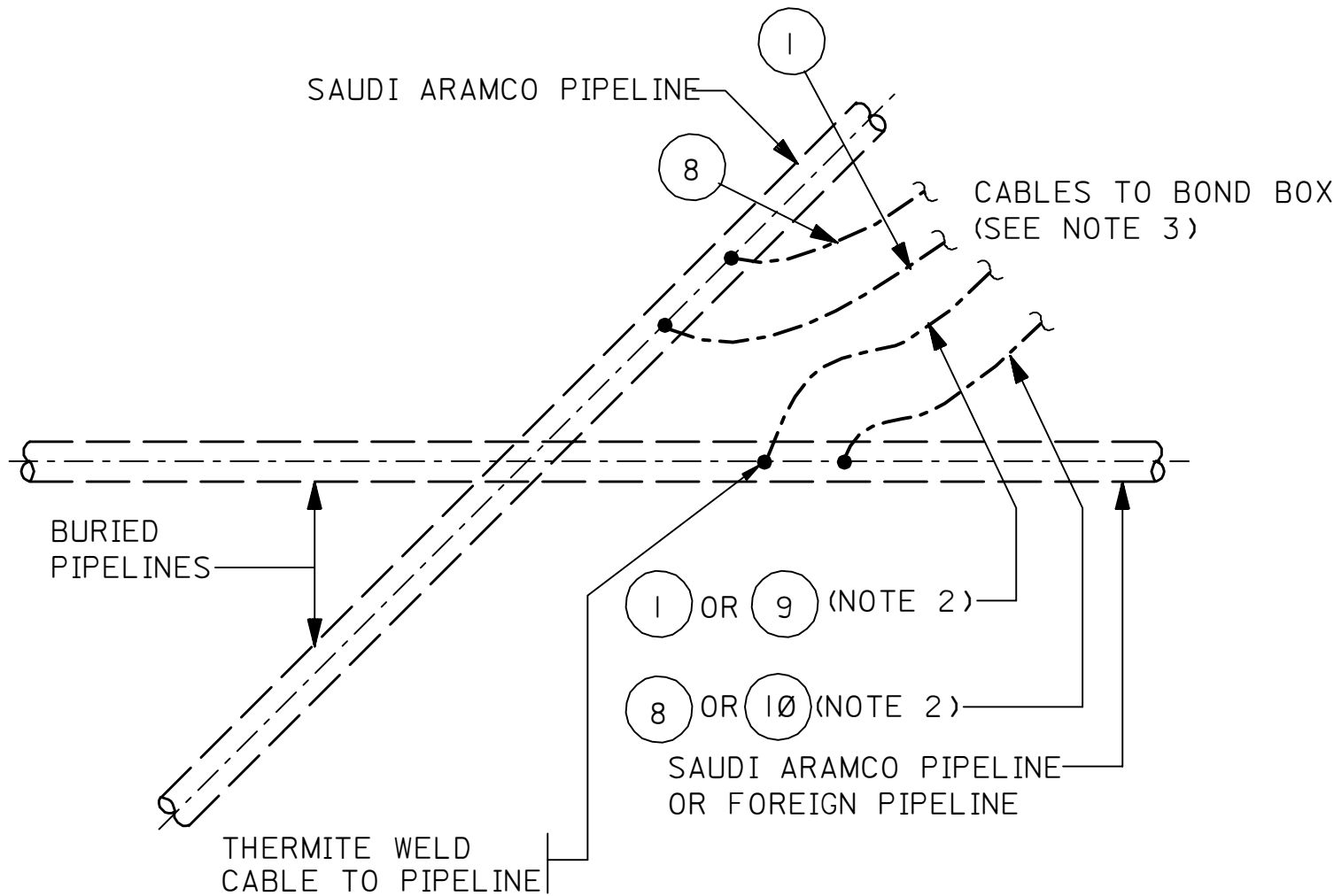


DETAIL-1

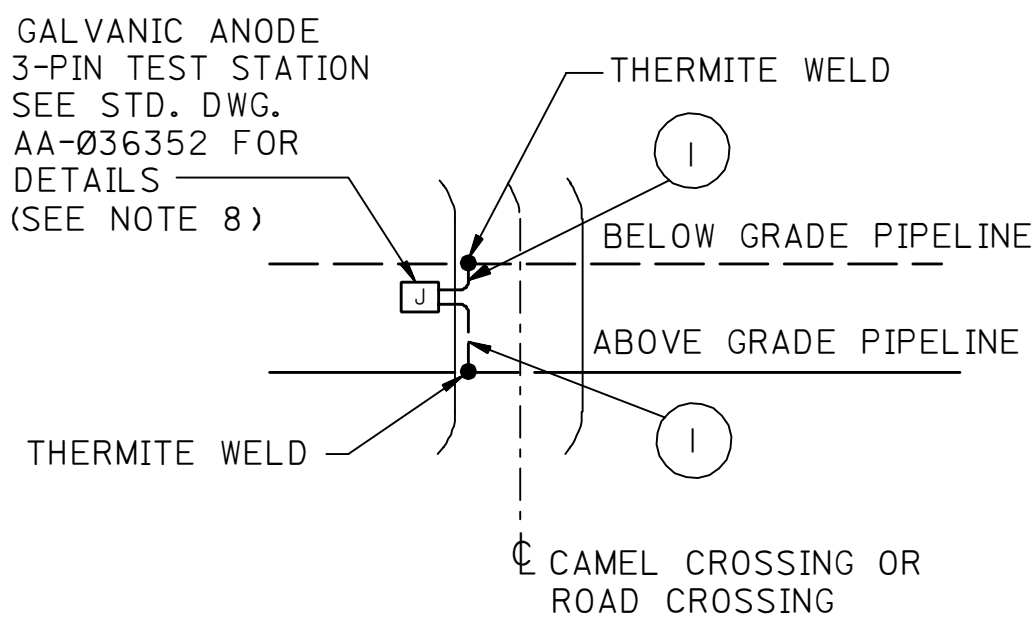
CONNECTION OF BOND CABLE TO ABOVE GRADE PIPING



BONDING OF MULTIPLE PIPELINES WITH ISOLATING DEVICES



CONNECTION OF BOND CABLES & TEST CABLES AT PIPELINE CROSSING



ABOVE GRADE AND BELOW GRADE PIPELINE SHARING COMMON ROAD/CAMEL CROSSING (CROSS BONDING)

- NOTES:**
1. THE BOND BOX SHALL BE SELECTED TO ACCOMMODATE THE REQUIRED NUMBER OF BONDING CABLES FOR THE PARTICULAR APPLICATION. SEE REFERENCE DRAWINGS LIST FOR THE AVAILABLE BOND BOXES.
 2. USE THE FOLLOWING COLORS OF BOND AND TEST LEAD CABLES FOR BONDING IN SAUDI ARAMCO PIPELINE TO A FOREIGN PIPELINE:
SAUDI ARAMCO PIPELINES BLACK CABLES
FOREIGN PIPELINES WHITE CABLES
 3. WHEREVER POSSIBLE, THE BONDING STATION (JUNCTION BOX) SHALL BE INSTALLED DIRECTLY OVER THE PIPELINE CROSSING.
 4. TEST LEADS SHALL BE INSTALLED ONLY AT THOSE LOCATIONS WHERE THE PIPELINE IS COMPLETELY BURIED AND DOES NOT COME ABOVE GRADE.
 5. ALL DIMENSIONS ARE IN MILLIMETERS.
 6. CONDUIT TO BE FIELD BENT.
 7. BURIED PIPELINES CROSSING MULTIPLE PIPELINES REQUIRE BOND STATIONS AT ENTRY AND EXIT POINTS ONLY.
 8. GALVANIC ANODE TEST STATION USED AS BOND BOX FOR THIS INSTALLATION. LOCATE BOX PER NOTE 3 OVER BURIED PIPELINE.

LIST OF MATERIAL

CODE	AMS NUMBER	DESCRIPTION
1	15-194-400	BOND CABLE; (NO.6 AWG) 600V; THHN; BLACK; 16mm 2
2	15-908-350	SERVICE HEAD; 1" DIA.
3	15-314-409	CONDUIT; RIGID; 1" DIA. HOT DIPPED GALVANIZED. AVAILABLE IN 3M LENGTHS. CUT TO REQUIRED LENGTH
4	15-290-852	END BUSHING; 1" DIA.
5	09-240-361	PORTLAND CEMENT; 112 LB SACK
6	09-246-427	AGGREGATE; 1 CUBIC FOOT BAG OF CRUSHED 3/4 " STONE
7	09-258-658	SAND CONCRETE & MORTAR; 1 CUBIC FOOT BAG
8	15-194-380	TEST LEAD CABLE; WIRE, BUILDING (NO.8 AWG) 600V; THHN; BLACK; 10mm 2
9	15-194-450	BOND CABLE; (NO.6 AWG) 600V; THHN; WHITE; 16mm 2
10	15-194-390	TEST LEAD CABLE; WIRE, BUILDING (NO.8 AWG) 600V; THHN; WHITE; 10mm 2

REFERENCE DRAWINGS

THERMITE WELDING OF CABLES & COATING REPAIRS	AB-036381
2 TERMINAL BOND BOX DETAILS	AA-036350
3 TERMINAL BOND BOX DETAILS	AA-036349
5 TERMINAL BOND BOX DETAILS	AA-036277
DIRECT BURIED CABLE INSTALLATION DETAILS	AA-036675
MOUNTING SUPPORT DETAILS FOR JUNCTION BOXES	AB-036540
GALVANIC ANODES FOR ROAD AND CAMEL CROSSINGS	AA-036352
SYMBOLS FOR CATHODIC PROTECTION	AE-036785
TERMINATION DETAIL CABLE IDENTIFICATION	AD-036132
MARKER PLATE DETAILS	AB-036351

DWG. RESPONSIBILITY:
CATHODIC PROTECTION & COATING COMMITTEE

REV. NO.	DATE	BY	JO/EWO	DESCRIPTION	CHKD.	CERT.	APPD.
11	NOV99	EDSD	WED	GENERAL REVISION			
10	MAY94	EDSD	RCR	ADDED NOTES ON DRAWING.	ORIG. SIGNED	ORIG. SIGNED	ORIG. SIGNED
09	AUG93	EDSD	CAB	REVISION UPGRADED & REVISED NOTES & REF. DRAWINGS.	ORIG. SIGNED	ORIG. SIGNED	ORIG. SIGNED
08	JAN93	EDSD	EPE	REVISED AND ADDED L/M CODE NO. 11	ORIG. SIGNED	ORIG. SIGNED	ORIG. SIGNED

SAUDI ARABIAN OIL COMPANY

DRAWN BY _____ CHECKED BY _____ SCALE: NONE
DATE STARTED _____ DATE COMPLETED _____
OPR'G. DEPT. _____ ENG. DEPT. _____
APP'D. FOR CONST. _____

THIS DRAWING IS NOT TO BE USED FOR CONSTRUCTION OR FOR ORDERING MATERIAL UNTIL CERTIFIED AND DATED
CERTIFIED BY _____ DATE _____

BONDING DETAILS FOR
ONSHORE PIPELINES & FLOWLINES
CATHODIC PROTECTION

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