

CONSTRUCTION PLANS FOR
WATER DISTRIBUTION SYSTEM IMPROVEMENTS
TO SERVE

SLIPLINING 48" WELL FIELD SUPPLY MAIN

THE CITY OF WICHITA
SEDGWICK COUNTY, KANSAS
MICHAEL E. LINDEBAK, P.E. - CITY ENGINEER



INDEX TO DRAWINGS

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	KEY MAP
3	DETAILS
4	DRAIN LINE — PLAN & PROFILE
5	ELECTRICAL DRAWINGS
6-10	ORIGINAL WATER PLANS
D4-6155-1 TO D4-6155-6	CATHODIC PROTECTION DETAILS

CITY OF WICHITA PROJECT NO. 448-89433

INDEX CODE 633712

JULY 2001

PLANS PREPARED BY
MKEC ENGINEERING CONSULTANTS INC.
WICHITA, KANSAS

Copies of the Original Drawings prepared by Black & Veatch Consulting Engineers in 1939 of the 48" Cast Iron Well Field Supply Line are being provided as part of the bid documents for Reference Purposes Only as they do not reflect present conditions or improvements that have been made since the line was installed. It is the Contractor's responsibility to have utilities located and to remove and replace any improvements that are in the locations of the insertion pits. Cost is subsidiary to the installation of the steel liner pipe.

Video tapes of the interior of the 48" Cast Iron Line are also being supplied for Reference Purposes Only. These tapes were made with a T.V. camera mounted on a transporter and run through the pipe to ascertain the condition of the pipe interior and to check for pipe line obstructions. The tapes were made between December 4, 2000 and January 4, 2001.



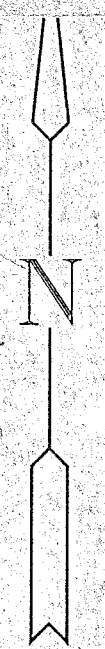
GENERAL NOTES

1. CONTRACTOR WILL BE REQUIRED TO PROVIDE A MINIMUM ADVANCE NOTICE OF FORTY-EIGHT (48) HOURS TO UTILITY COMPANIES PRIOR TO STARTING ANY EXCAVATION AS FOLLOWS:
KANSAS ONE-CALL 687-2470
OR 687-2470 (LOCAL WICHITA)
- THE CONTRACTOR MUST NOTIFY THE FOLLOWING IN CASE OF EMERGENCY:
- CABLEVISION 262-0661
K&E (GAS & ELECTRIC) 383-8600
SOUTHWESTERN BELL TELEPHONE COMPANY 1-800-734-7630
CITY OF WICHITA WATER & SEWER MAINT. 262-6000
WILLIAMS NATURAL GAS 524-0491
OR 1-800-324-9696 (AFTER 4 p.m.)
2. ALL WATER MAINS AND APPURTENANCES SHALL BE INSTALLED IN ACCORDANCE WITH CITY OF WICHITA, KANSAS STANDARD SPECIFICATIONS FOR WATER MAIN INSTALLATIONS.
3. THE WATER MAIN SHALL BE CONSTRUCTED ON THE ALIGNMENT SHOWN ON THE PLANS. TREES AND SHRUBS IN PUBLIC RIGHT OF WAY WHICH ARE IN DIRECT CONFLICT WITH PROPOSED NEW CONSTRUCTION SHALL BE REMOVED BY THE CONTRACTOR WITH THE ENGINEER'S APPROVAL, AND SHALL BE INCLUDED IN THE PRICE BID FOR THE INSTALLED WATER PIPE. TREES AND SHRUBS WHICH ARE NOT IN DIRECT CONFLICT WITH PROPOSED CONSTRUCTION SHALL BE SAVED AND PROTECTED FROM DAMAGE.
4. OPENING AND CLOSING WATER VALVES ONLY TO BE OPERATED BY WATER DEPARTMENT PERSONNEL.
5. CONTRACTOR SHALL NOT START WORK ON THE PROJECT UNTIL THE PROJECT INSPECTOR IS ASSIGNED TO THE PROJECT AND IS PRESENT ON THE SITE. ANY WORK DONE WITHOUT INSPECTION WILL BE REQUIRED TO BE UNCOVERED FOR INSPECTION.
6. UNDERGROUND UTILITY SERVICE LINES AND OVERHEAD UTILITY POLE LINES ARE TO BE ADJUSTED AS NECESSARY BY OTHERS PRIOR TO CONSTRUCTION UNLESS THE PLANS SPECIFICALLY CALL FOR THEIR ADJUSTMENT BY THE CONTRACTOR. THE CONTRACTOR WILL BE REQUIRED TO WORK AROUND EXISTING UTILITIES WITHIN THE RIGHT-OF-WAY WHICH DO NOT CONFLICT WITH PROPOSED CONSTRUCTION.
7. THE CONTRACTOR SHALL GIVE ALL PROPERTY OWNERS AND/OR TENANTS OF DEVELOPED PROPERTY DIRECTLY ABUTTING CONSTRUCTION OF THIS PROJECT A MINIMUM OF TEN (10) DAYS NOTICE PRIOR TO START OF CONSTRUCTION.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PRESERVING PROPERTY IRONS. THE CONTRACTOR WILL BE REQUIRED TO RE-ESTABLISH ANY PROPERTY IRONS WHICH ARE DAMAGED OR DESTROYED BY HIS CONSTRUCTION OPERATIONS. SUCH IRONS SHALL BE RE-ESTABLISHED BY A LICENSED LAND SURVEYOR IN ACCORDANCE WITH STATE LAWS. ALL COSTS FOR THIS WORK SHALL BE SUBSIDIARY TO SITE RESTORATION.
9. THE CONTRACTOR SHALL RESTORE ALL PAVING, DRIVEWAYS, SIDEWALKS, FENCES, DITCHES, SWALES, ROAD SHOULDERS, ENTRANCES AND BANK LINES TO THEIR ORIGINAL SLOPES AND GRADES EXCEPT AS SHOWN OTHERWISE.
10. NO SERVICES WILL BE INSTALLED AS PART OF THIS PROJECT.
11. INTERURBAN TRAFFIC GENERATED OUTSIDE THE PROJECT AREA, AND LOCAL BUSINESS OR RESIDENTIAL TRAFFIC GENERATED WITHIN THE PROJECT AREA ARE TO BE CARRIED THROUGH CONSTRUCTION AS FURTHER PROMULGATED BY PROJECT SPECIAL PROVISIONS.
12. RUBBLE FROM THE REMOVAL OF MISCELLANEOUS STRUCTURES INCLUDING ANY TREES REMOVED AND TREE TRIMMINGS SHALL BE DISPOSED OF ON SITES TO BE PROVIDED BY THE CONTRACTOR. THESE SITES SHALL BE APPROVED BY THE ENGINEER AS TO SUITABILITY, APPEARANCE AND SITE LOCATION. LOCATIONS THAT, IN THE OPINION OF THE ENGINEER, WILL LEAVE AN UNSIGHTLY APPEARANCE WILL NOT BE APPROVED. ALL DISPOSAL SITES MUST BE APPROVED BY THE KANSAS DEPARTMENT OF HEALTH AND ENVIRONMENT. MATERIAL EITHER STOCKPILED OR DISPOSED OF IN A FLOOD PLAIN WOULD REQUIRE A KANSAS STATE BOARD OF AGRICULTURE PERMIT. ANY MATERIAL DUMPED IN WATERS OF THE UNITED STATES OR WETLANDS IS SUBJECT TO U.S. CORPS OF ENGINEERS PERMITTING REGULATIONS. ANY MATERIAL BURIED OR STOCKPILED BEYOND APPROVED CONSTRUCTION LIMITS WOULD REQUIRE ADDITIONAL ARCHAEOLOGICAL INVESTIGATIONS UNLESS BURIED IN A PREVIOUSLY APPROVED BORROW LOCATION.
13. ALL LAWN/TURF AREAS DISTURBED BY CONSTRUCTION OF THE PROPOSED IMPROVEMENTS SHALL BE RESTORED WITH THE SAME GRASS/SOD AS EXISTING. RESTORATION OF DISTURBED AREAS SHALL INCLUDE, BUT NOT BE LIMITED TO, TOP SOIL PREPARATION, SEEDING, MULCH, AND/OR RESEEDING. ALL SEEDING/SODDING WORK SHALL BE IN ACCORDANCE WITH THE CITY OF WICHITA STANDARD SPECIFICATIONS AND THE CITY OF WICHITA ADMINISTRATIVE REGULATION NO. AR78 WHICH GOVERNS CLEANUP AND RESTORATION OR REPLACEMENT FOLLOWING CONSTRUCTION. ALL COSTS FOR THIS WORK SHALL BE SUBSIDIARY TO THE LUMP SUM PRICE BID FOR "SITE RESTORATION".

PROJECT AREA



1428+28.2 32°38' 2 1/4" Bend
1431+24.7 60°31' 2 1/2" Bend



SCALE: 1" = 2000'

NOTE:
WATER LINE VALVES TO BE OPERATED BY
CONTRACTOR ONLY IF WATER INSPECTOR
IS ON SITE.

T.V. INSERTION POINTS

	BEARING		APPROX. LOC. ON ORIGINAL PLANS
	N	E	
1. 2840 NO. HALSTEAD	17035440.47	1638682.18	STA. 1270+38.4
2. 2356 NO. HALSTEAD	1700667.73	1639654.16	STA. 1300+02
3. 21st ST. & AMIDON	1699343.92	1641417.23	STA. 1322.30
4. WOODROW & CORNELISON	1698661.99	1642419.38	STA. 1334+59
5. 1828 NO. PORTER	1696655.70	1642959.99	STA. 1357+20
6. 1496 NO. PERRY	1695087.21	1642684.74	STA. 1373+92
7. 1222 NO. AMIDON	1692829.09	1641310.79	STA. 1400+80

MINIMUM NUMBER OF OPENINGS FOR CONNECTIONS,
FITTINGS AND VAULTS

STA.		DEFL.
1255+75	BEGIN PROJECT	NO. OF HALSTEAD & VALLEY PARK
1260+74.4	22 1/2" BEND	21'05" LT.
1307+00	22 1/2" & 11 1/4" BENDS	32'10" LT.
1307+03.3	AIR RELIEF/VAULT	
1326+52	BLOWOFF, DRAIN/VAULT	
1328+01.9	REMOTE, VALVE/VAULT	
1334+66	AIR RELIEF/VAULT	
1340+76.67	45" & 11 1/4" BENDS	54'51" RT.
1369+20	22 1/2", 11 1/4" & 5 5/8" BENDS	38'18" RT.
1372+49	AIR RELIEF/VAULT	
1391+82	DRAIN LINE TO RIVER (8")	
1392+08.5	AIR RELIEF/VAULT	
1395+06.4	22 1/2" BEND	25'03" LT.
1404+54.9	11 1/4" BEND	14'51" LT.
1428+28.2	22 1/2" & 11 1/4" BENDS	32'38" LT.
1431+25	END PROJECT (MURDOCK & AMIDON)	

LEGEND

- EXISTING WATER MAIN
PROPOSED WATER MAIN
EXISTING WATER VALVE
PROPOSED WATER VALVE
EXISTING FIRE HYDRANT
PROPOSED FIRE HYDRANT

BENCHMARKS

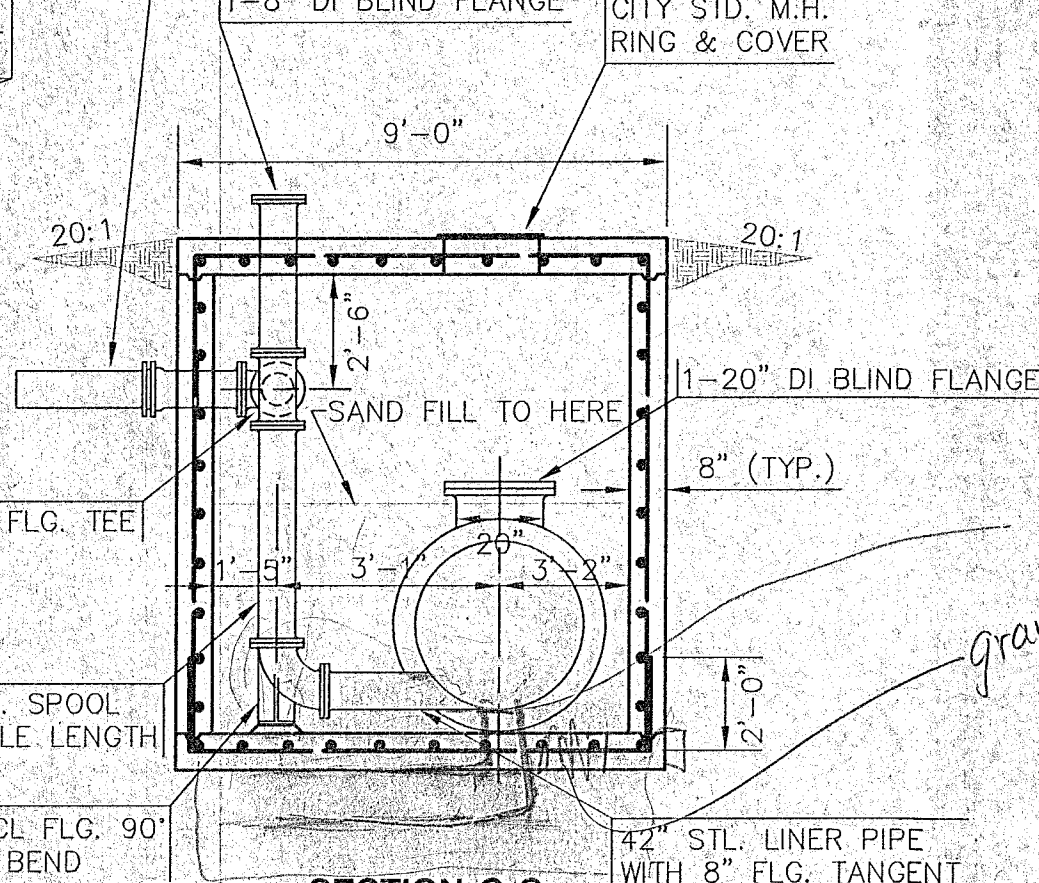
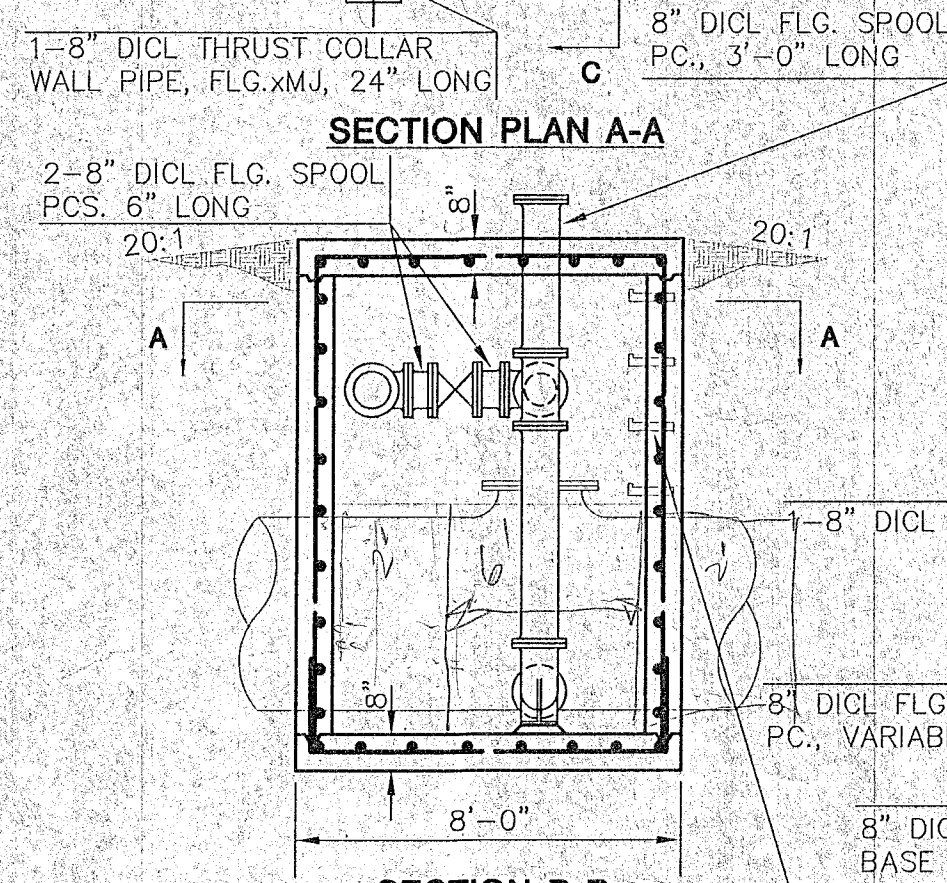
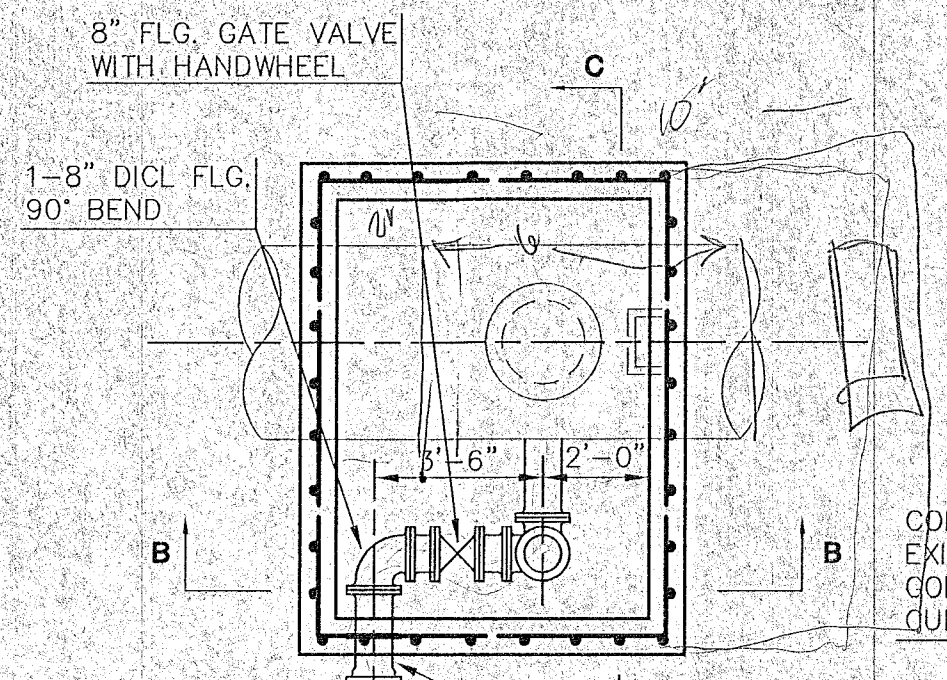
- BM #1 COW BM IN CONC. BASE OF FLASHING SCHOOL CROSSING LIGHT ON SOUTH SIDE 18TH ST. N., 100'± EAST OF PAYNE. ELEV.=122.66
- BM #2 BM "L" CUT ON TC ON SE CORNER PORTER AND JULIANNE, 24' WEST OF EAST END OF SE RETURN. ELEV.=123.82
- BM #3 COW BM ON SW COR 21ST AND AMIDON, 3' SOUTH OF BACK OF WALK WEST AND 7' EAST OF BACK OF WALK SOUTH. ELEV.=127.887
- BM #4 BM CHISELED "+" ON NORTHERN MOST CORNER OF CONC. AIR RELEASE VAULT 40' EAST OF C/L WOODROW AND 26' NORTH OF C/L CORNELISON. ELEV.=127.00
- BM #5 BM CHISELED "+" ON NORTH TC 20TH ST. N. AT C/L PORTER. ELEV.=124.68
- BM #6 USGS STANDARD DISC, STAMPED TT29 WB1939, 10' SOUTH OF SIDEWALK AND 25' EAST OF SOUTHEAST END OF HANDRAIL OF 13TH ST. N. BRIDGE OVER BIG ARKANSAS RIVER. ELEV.=124.85



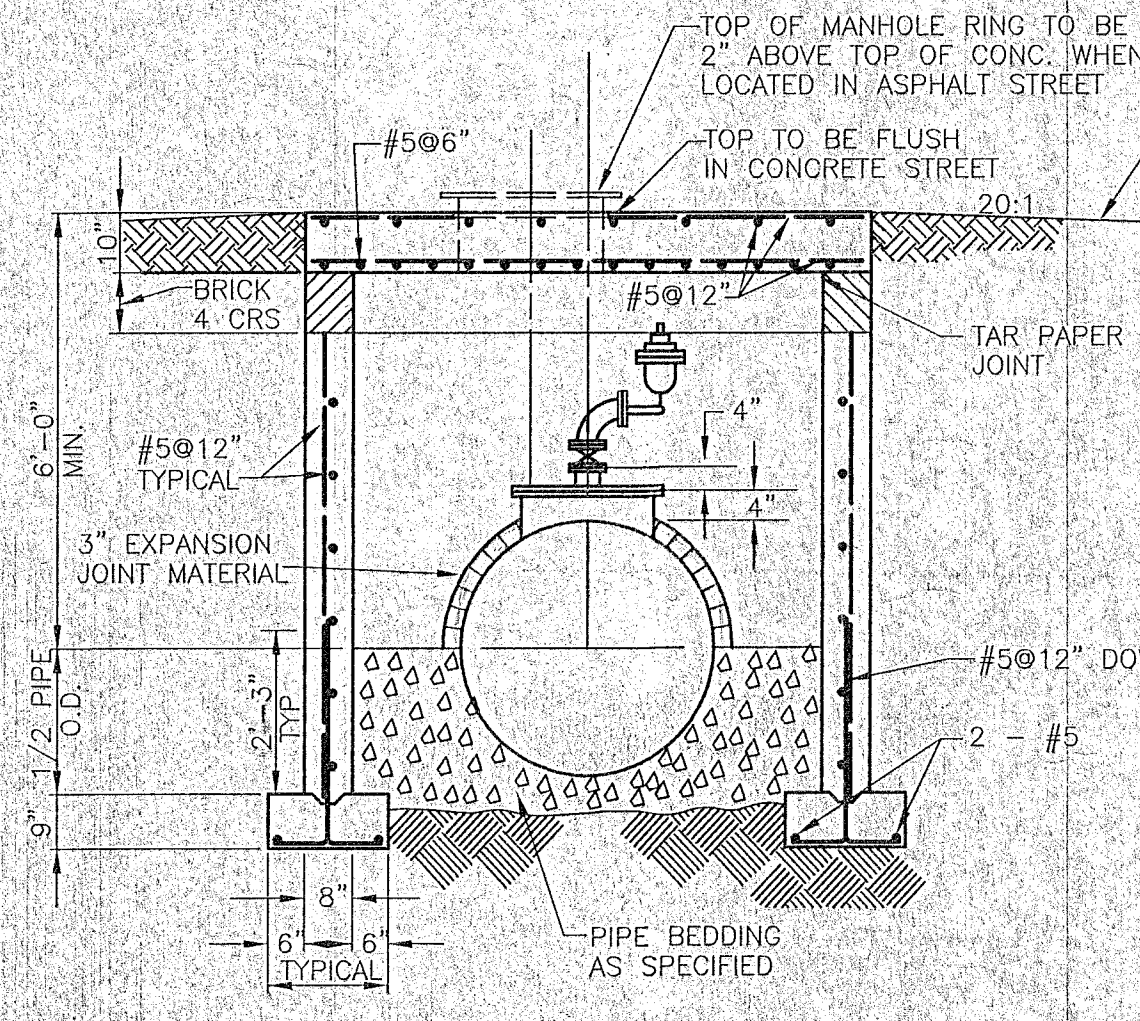
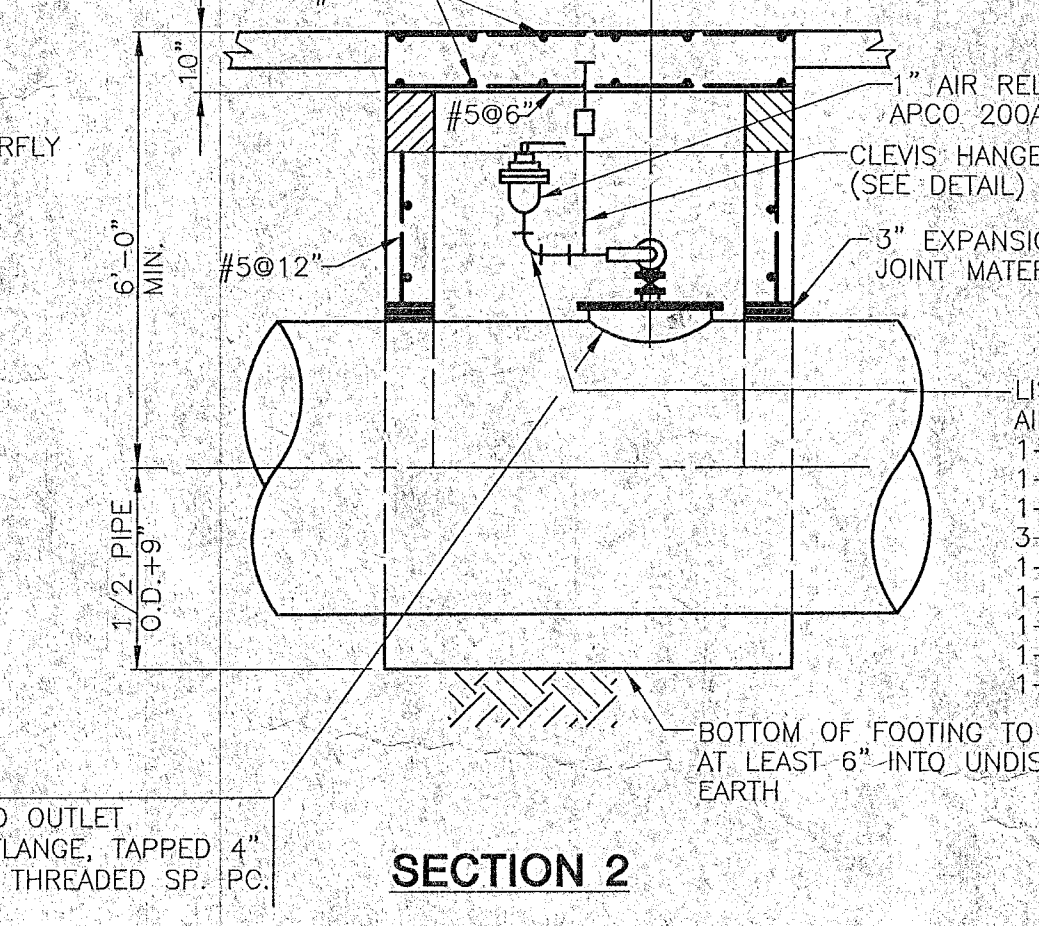
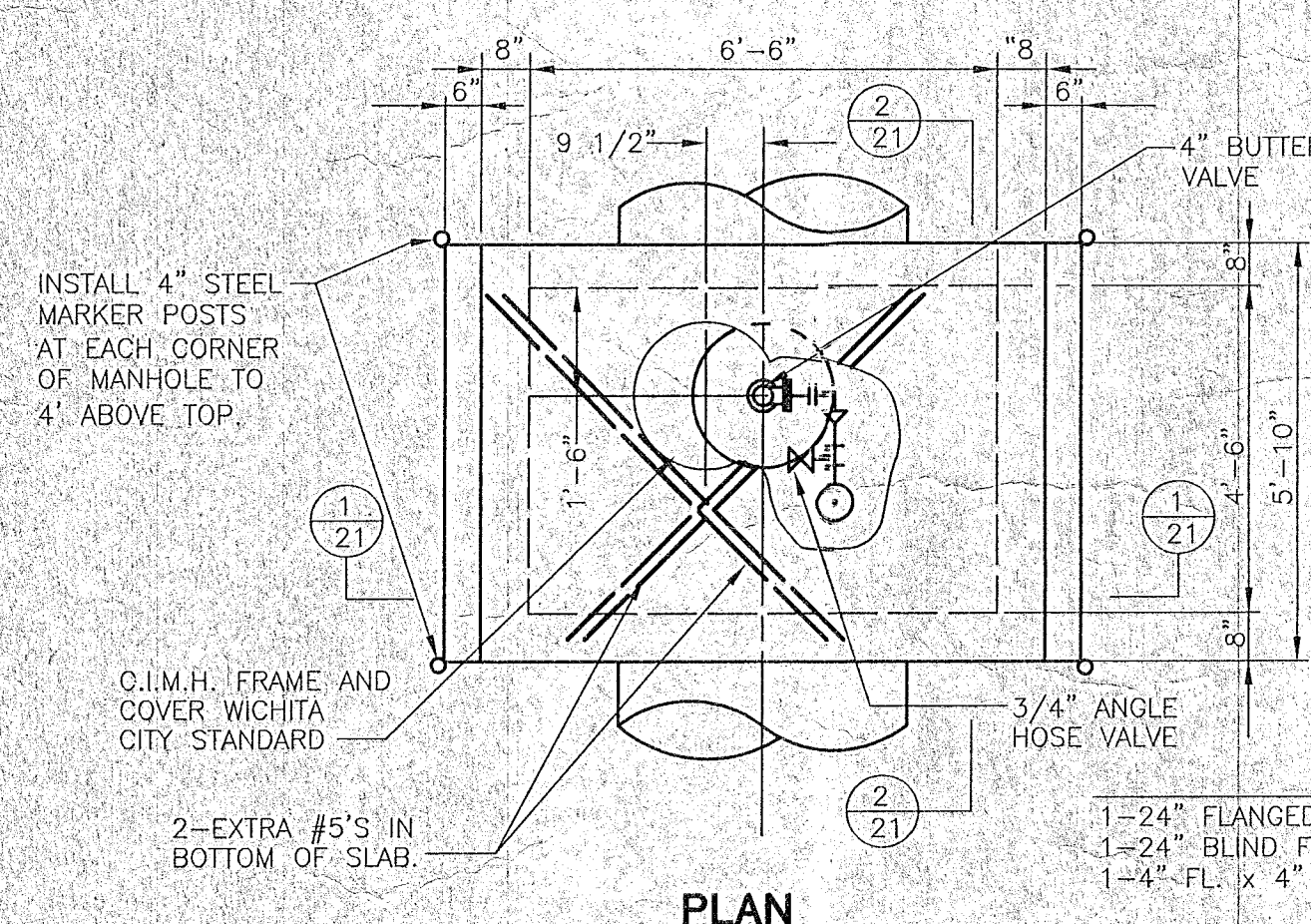
SLIPLINING 48" WELL FIELD SUPPLY MAIN

KEY MAP

ENGINEERING CONSULTANTS 411 N. WEBB ROAD WICHITA, KS. 67206 316-684-9600	DESIGN BY: BFG JUNE 2001 DATE	DRAWN BY: GJR 99141-CK DRAWING NAME	CHECKED BY: BFG 2 / 16 SHEET / OF
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BLOWOFF STRUCTURE - TYPE C MANHOLE
SCALE: 1/4" = 1'-0"

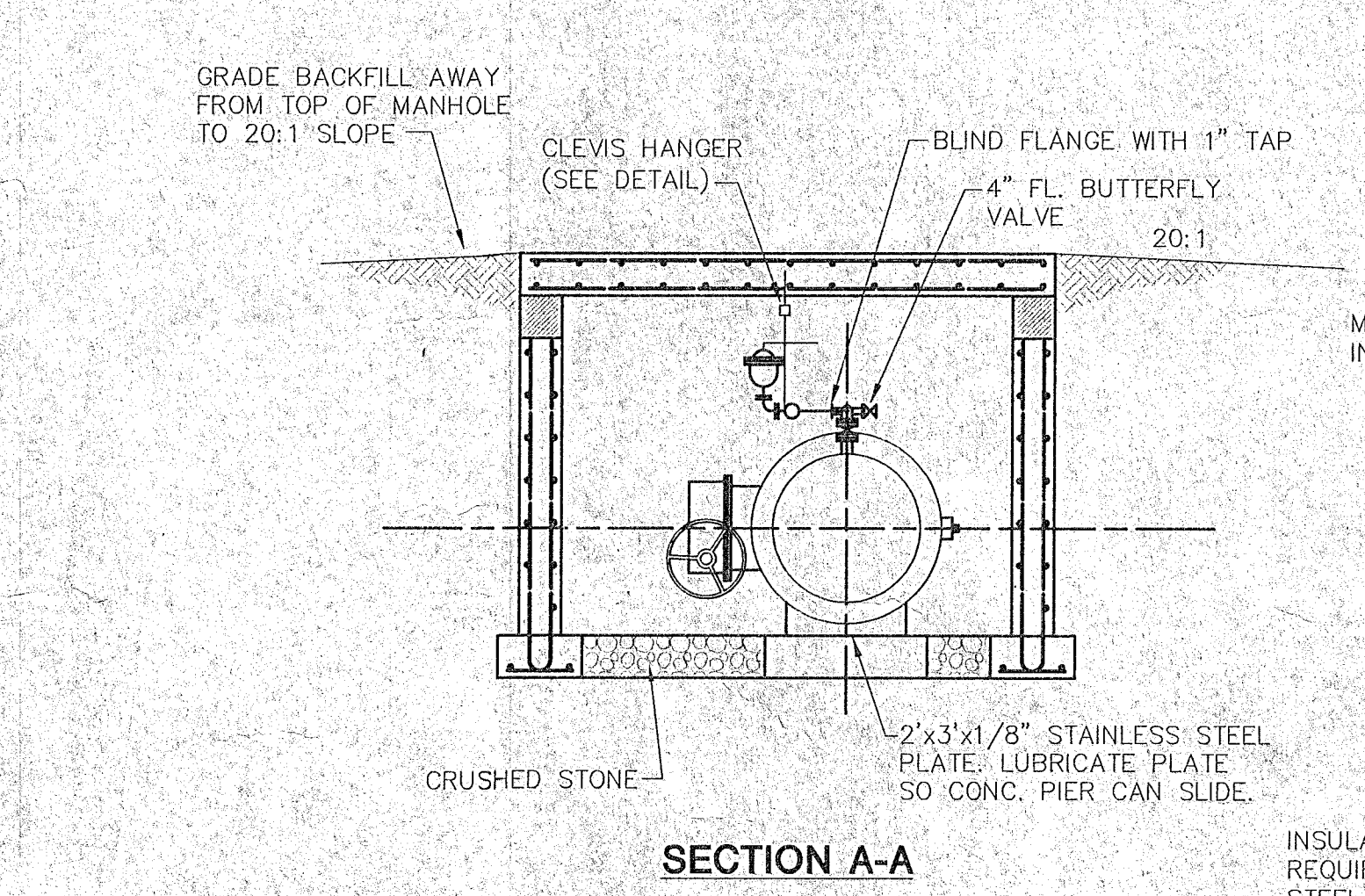
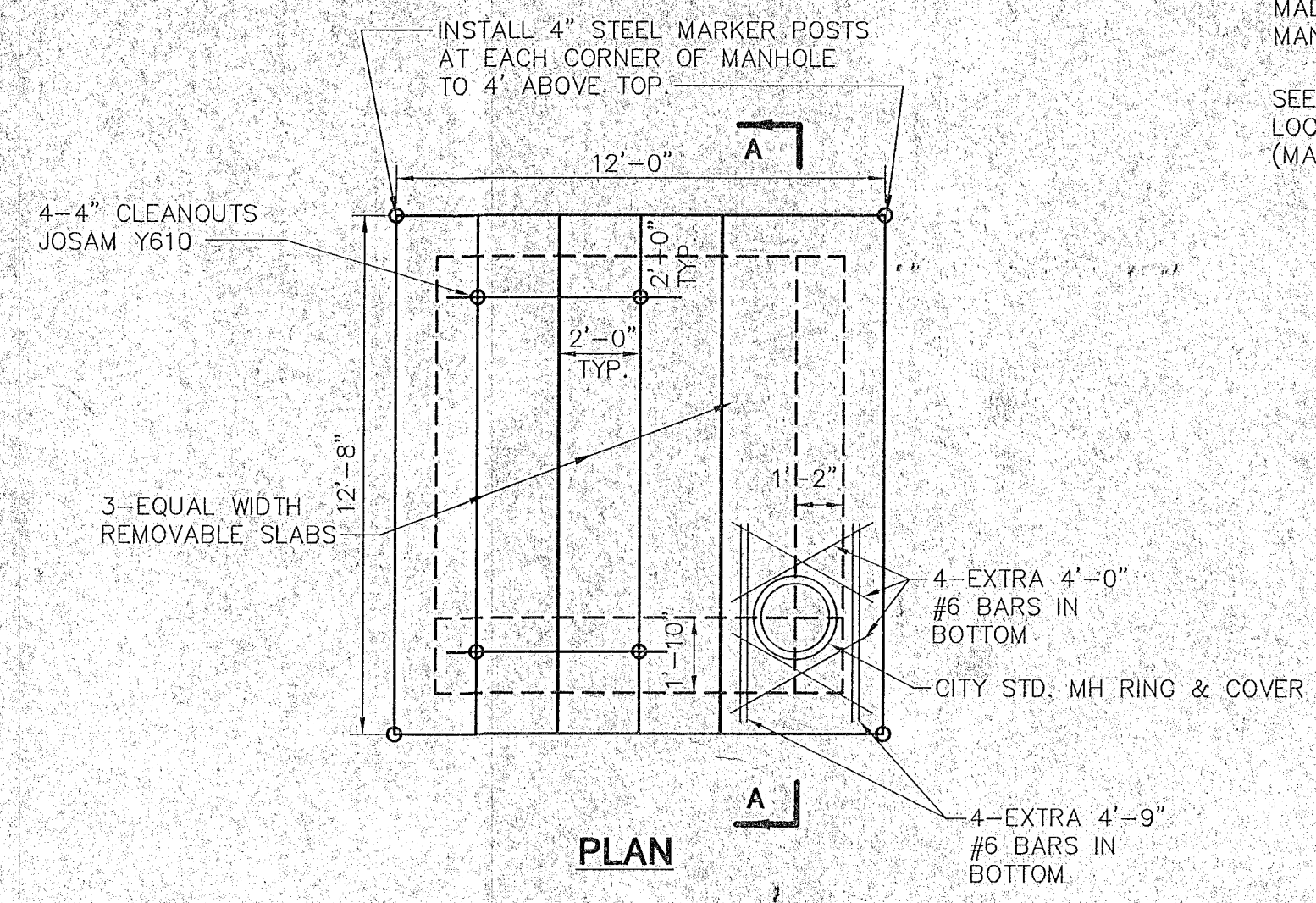


SECTION 1

MANHOLE AND VALVE LOCATIONS				
STATION	TYPE MANHOLE	AIR RELEASE VALVE	BLOWOFF VALVE	MANUAL VENT VALVE (STATION)
1307+03.3	B	1307+03.3		
1326+52	C		1326+53.7	
1328+01.9	A	1328+06.9		1327+99.4
1334+66	B	1334+66		
1372+49	B	1372+44		
1392+08.5	B	1392+08.5		

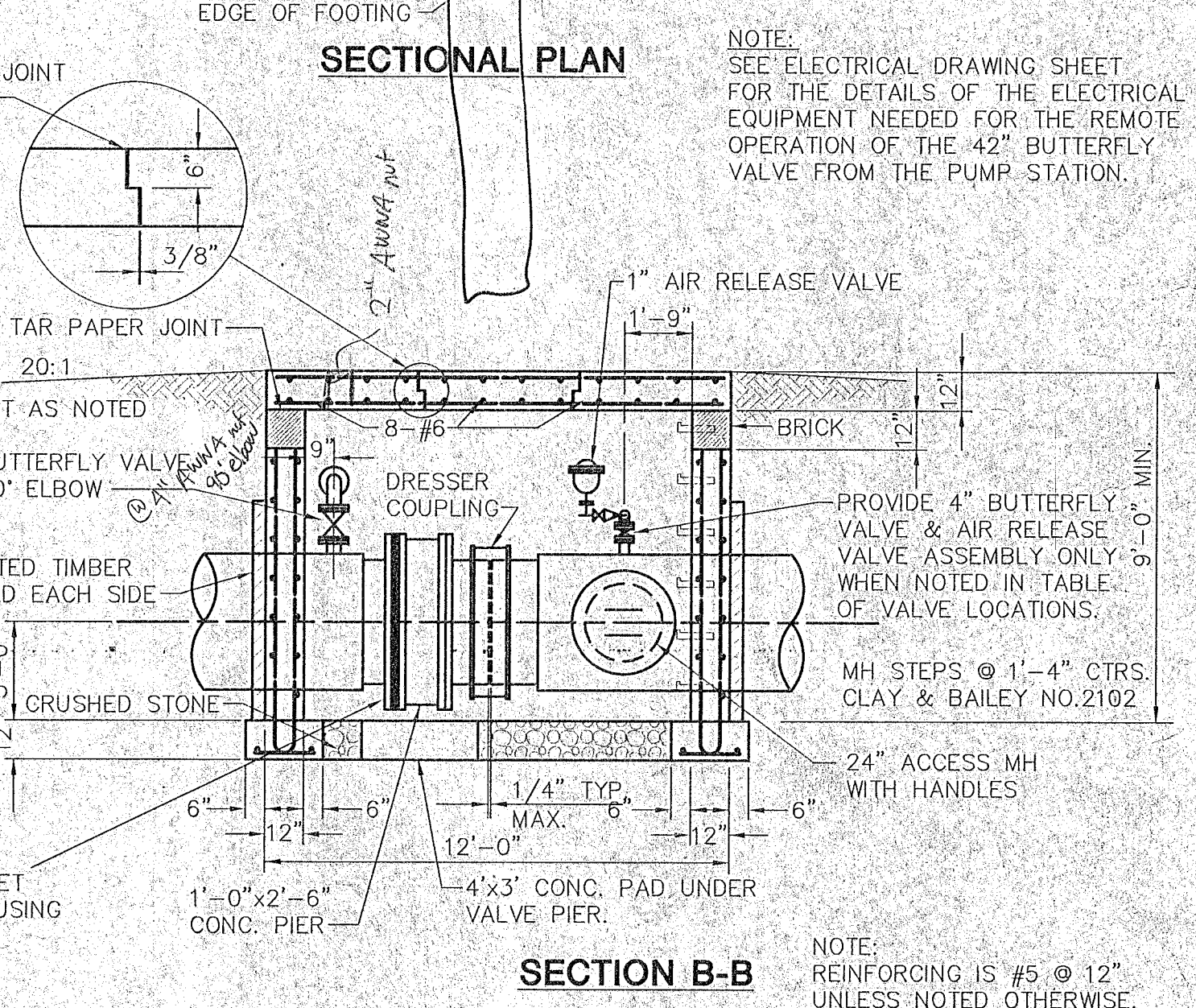
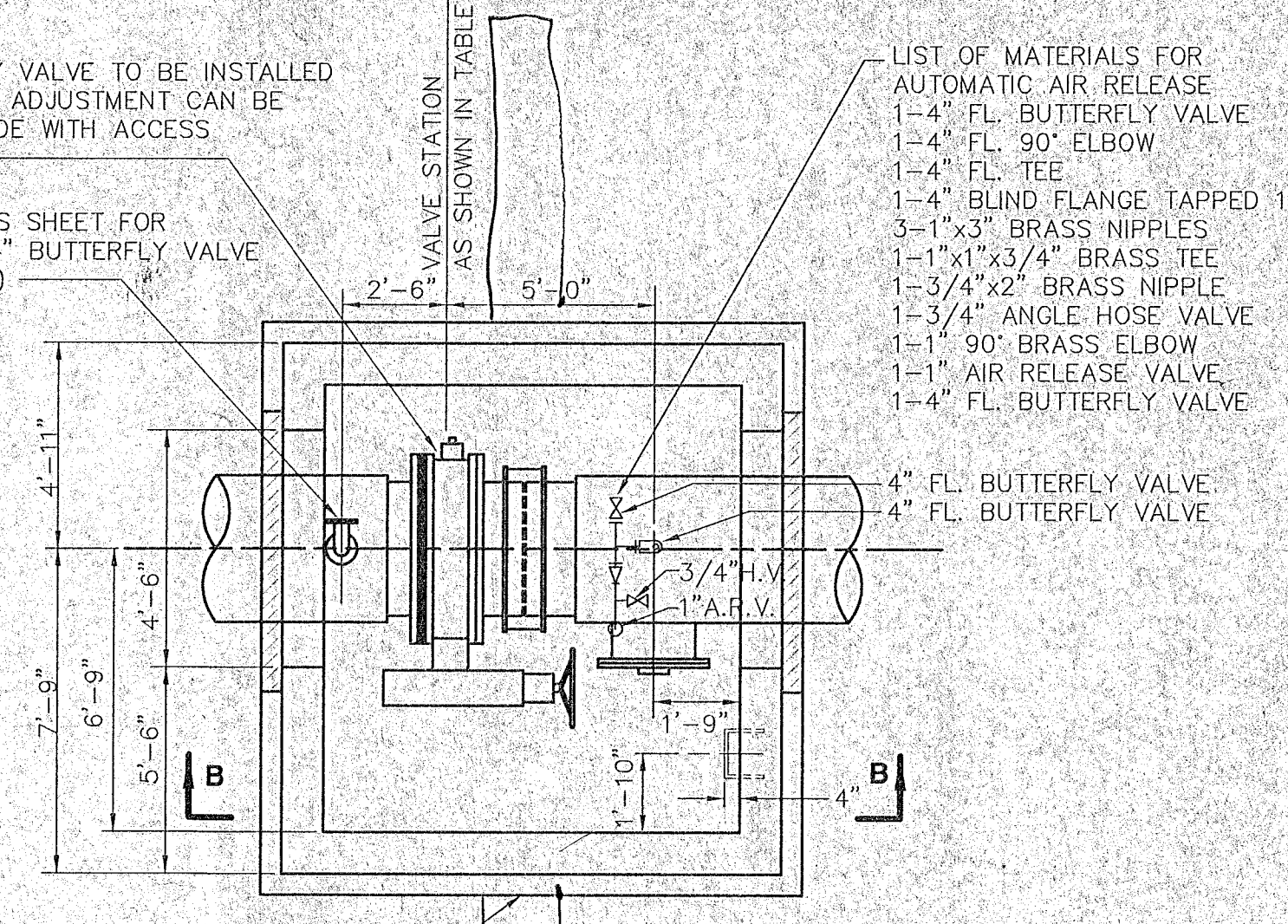
AIR RELEASE VALVE MANHOLE TYPE B

TOP OF MANHOLE TO BE APPROX. 6" ABOVE EXISTING GROUND.

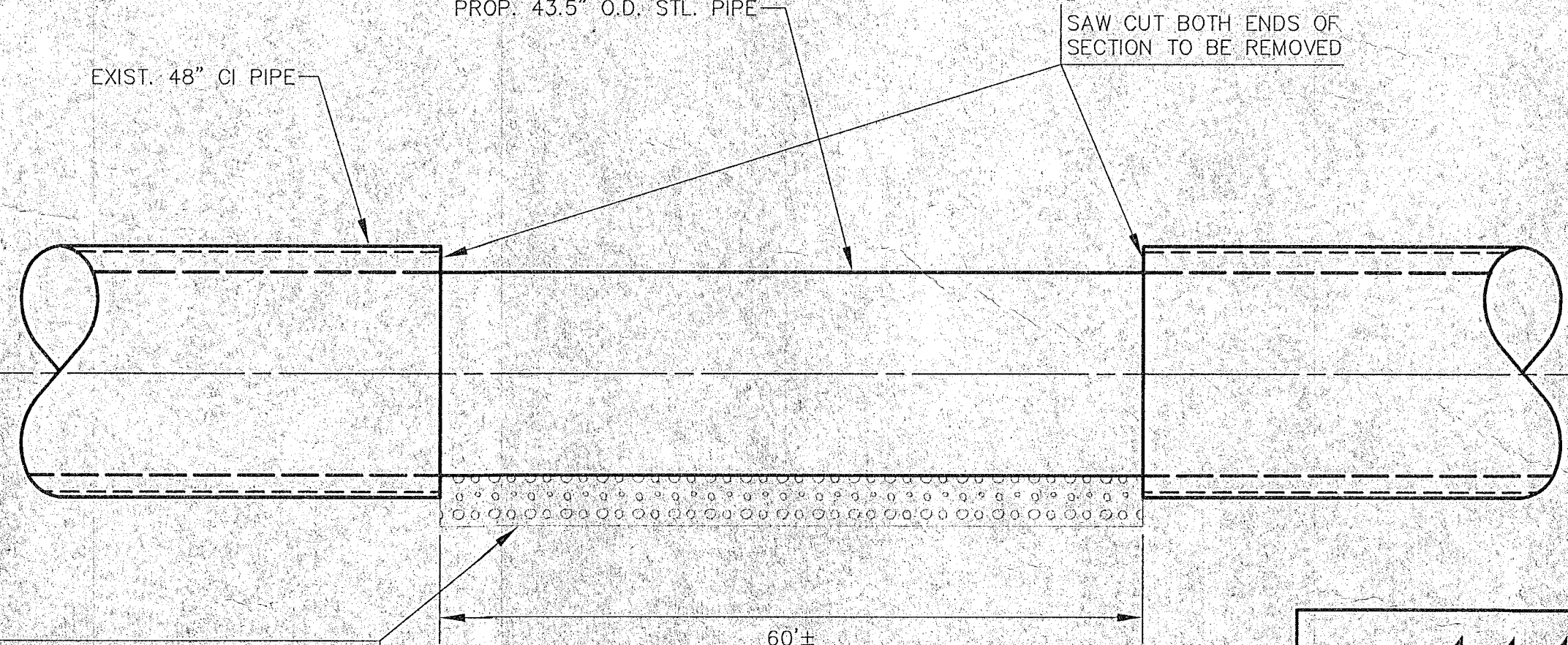


SECTION A-A

LINE VALVE MANHOLE - TYPE A
SCALE: 1/4" = 1'-0"



SECTION B-B



INSERTION POINT DETAIL

MKEC
ENGINEERING CONSULTANTS
411 N. WEBB ROAD
WICHITA, KS. 67206
316-684-9800

SLIPLINING 48" WELL FIELD SUPPLY MAIN

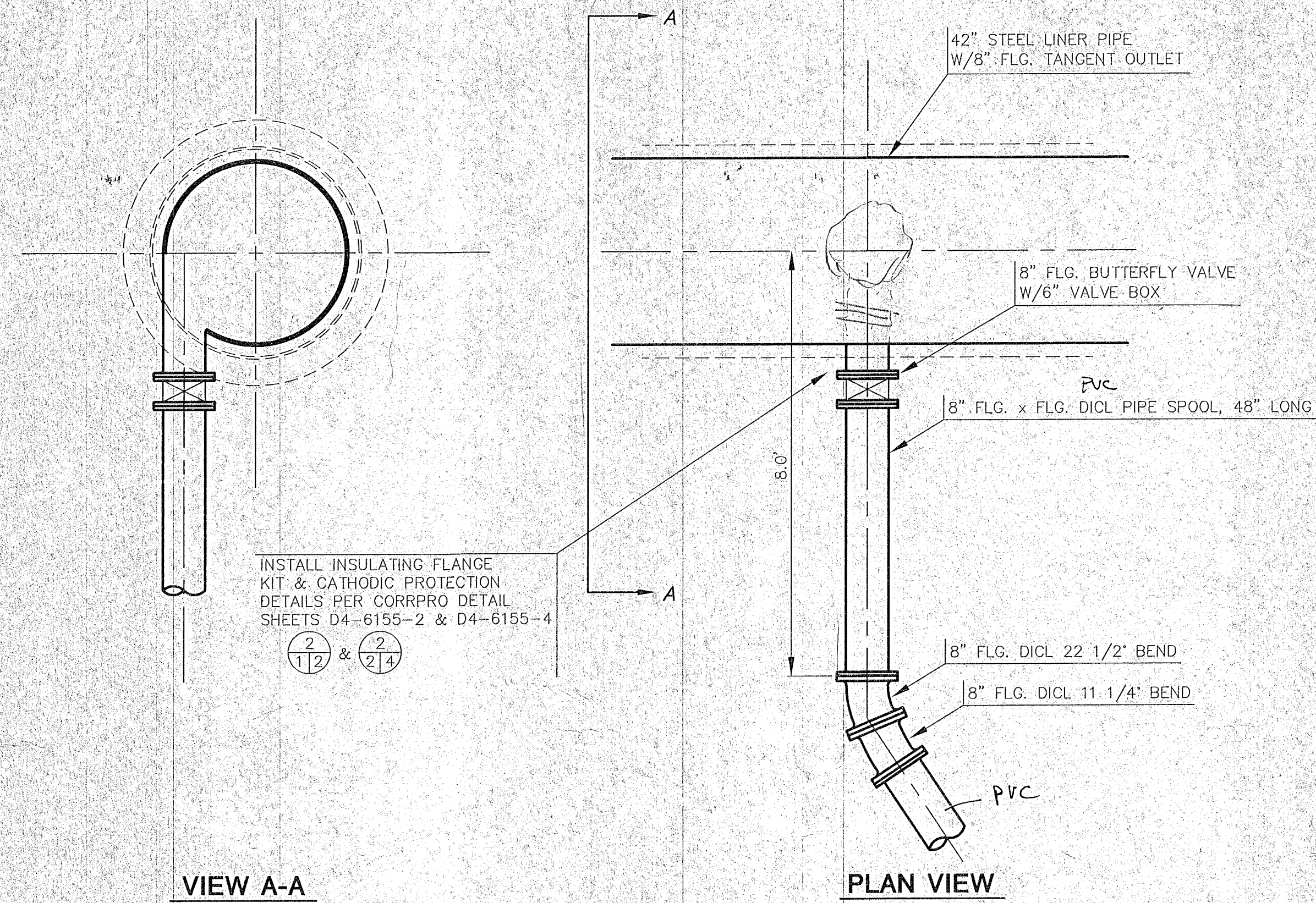
PROJECT NAME

DETAILS
SHEET TITLE

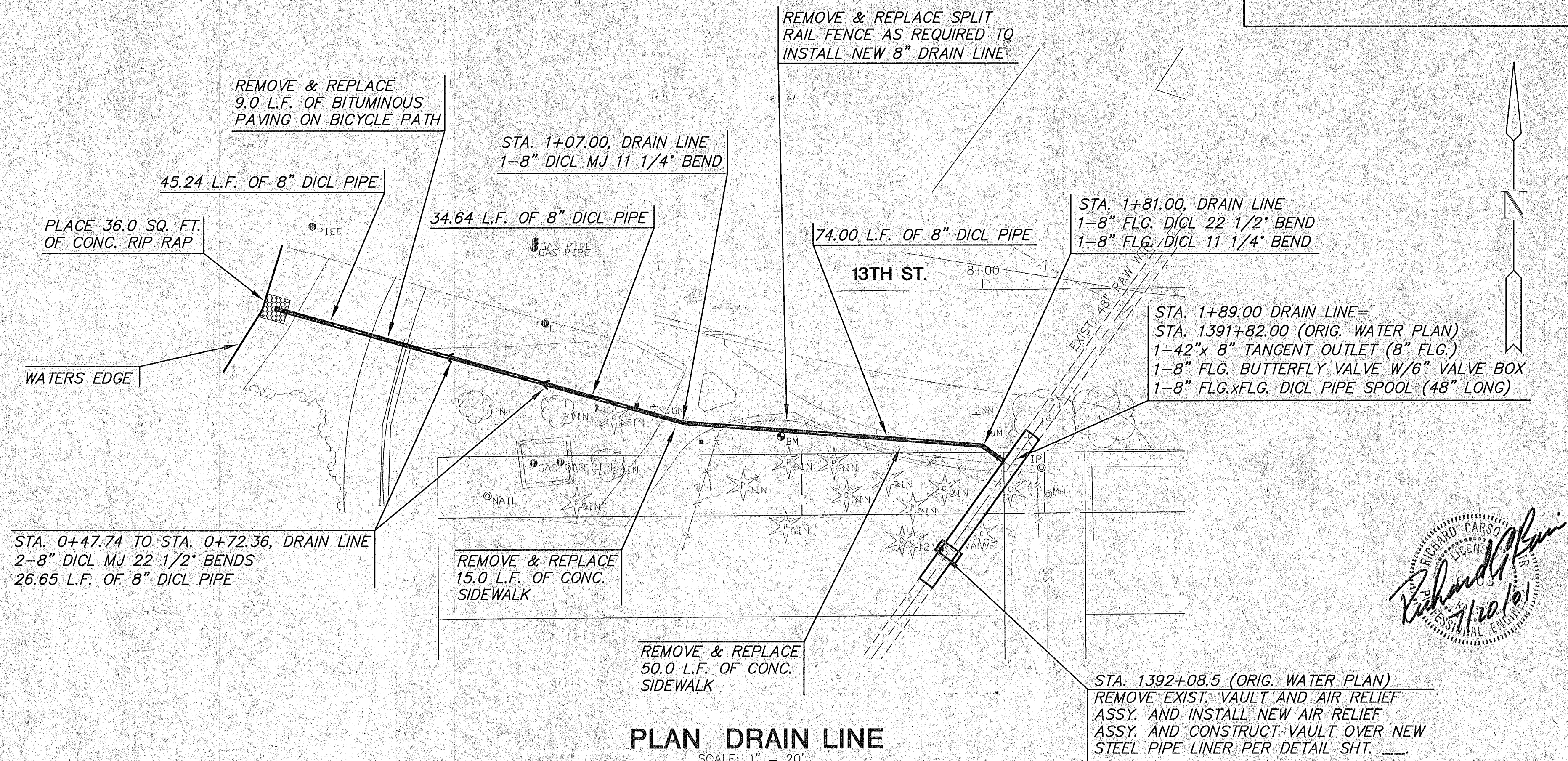
BFG DESIGN BY: **BDM** DRAWN BY: **BFG** CHECKED BY:

JUNE 2001 DATE: **99141-113** DRAWING NAME: **3 / 16** SHEET / OF

**SLIPLINING 48"
WELL FIELD SUPPLY MAIN**



DETAIL-DRAIN LINE OUTLET

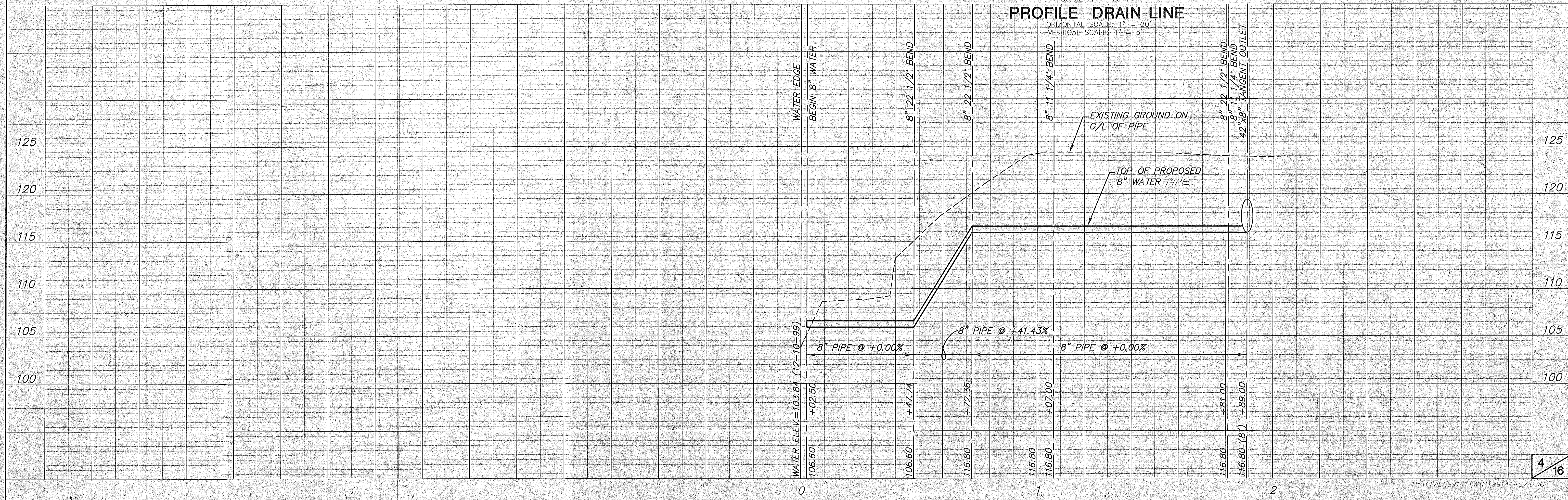


PLAN DRAIN LINE

SCALE: 1" = 20'

PROFILE DRAIN LINE

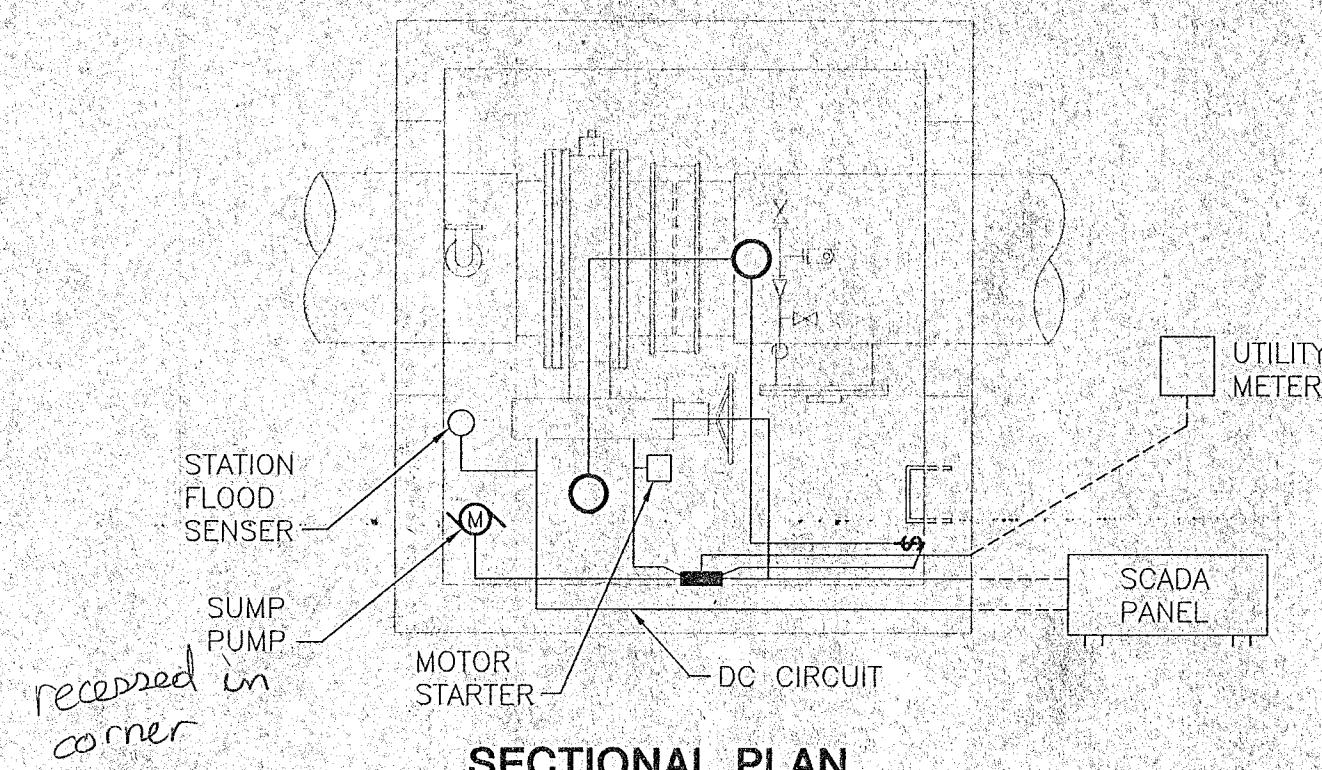
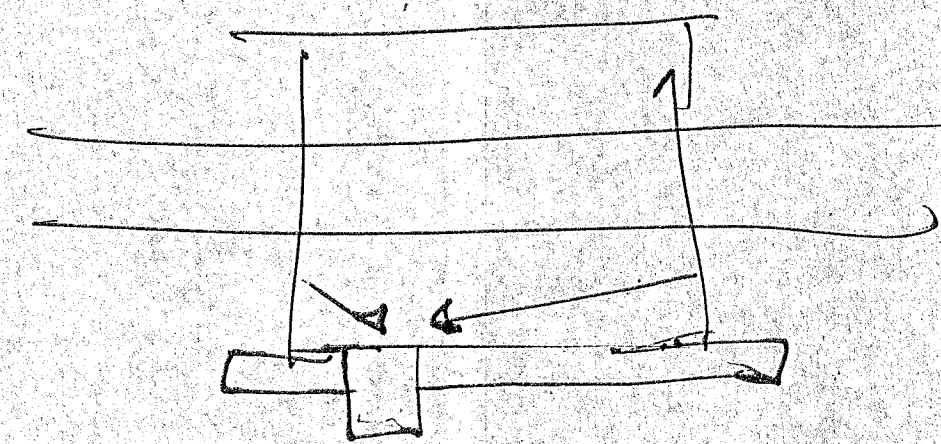
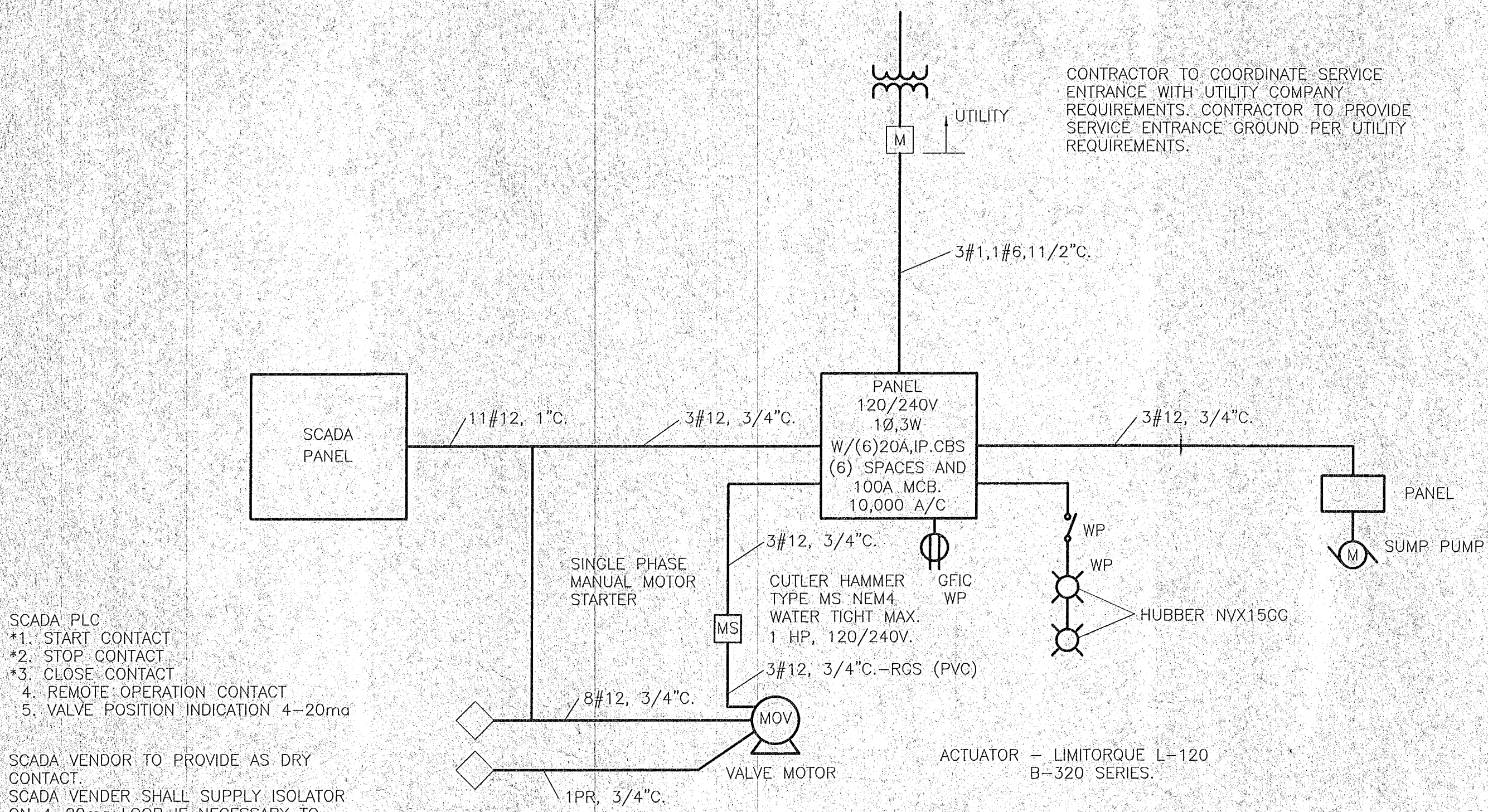
HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 5'



SCADA PLC
 *1. START CONTACT
 *2. STOP CONTACT
 *3. CLOSE CONTACT
 4. REMOTE OPERATION CONTACT
 5. VALVE POSITION INDICATION 4-20ma

SCADA VENDOR TO PROVIDE AS DRY CONTACT.
 SCADA VENDOR SHALL SUPPLY ISOLATOR ON 4-20ma LOOP IF NECESSARY TO MATCH MOV CIRCUITRY.

CONTRACTOR TO COORDINATE SERVICE ENTRANCE WITH UTILITY COMPANY REQUIREMENTS. CONTRACTOR TO PROVIDE SERVICE ENTRANCE GROUND PER UTILITY REQUIREMENTS.



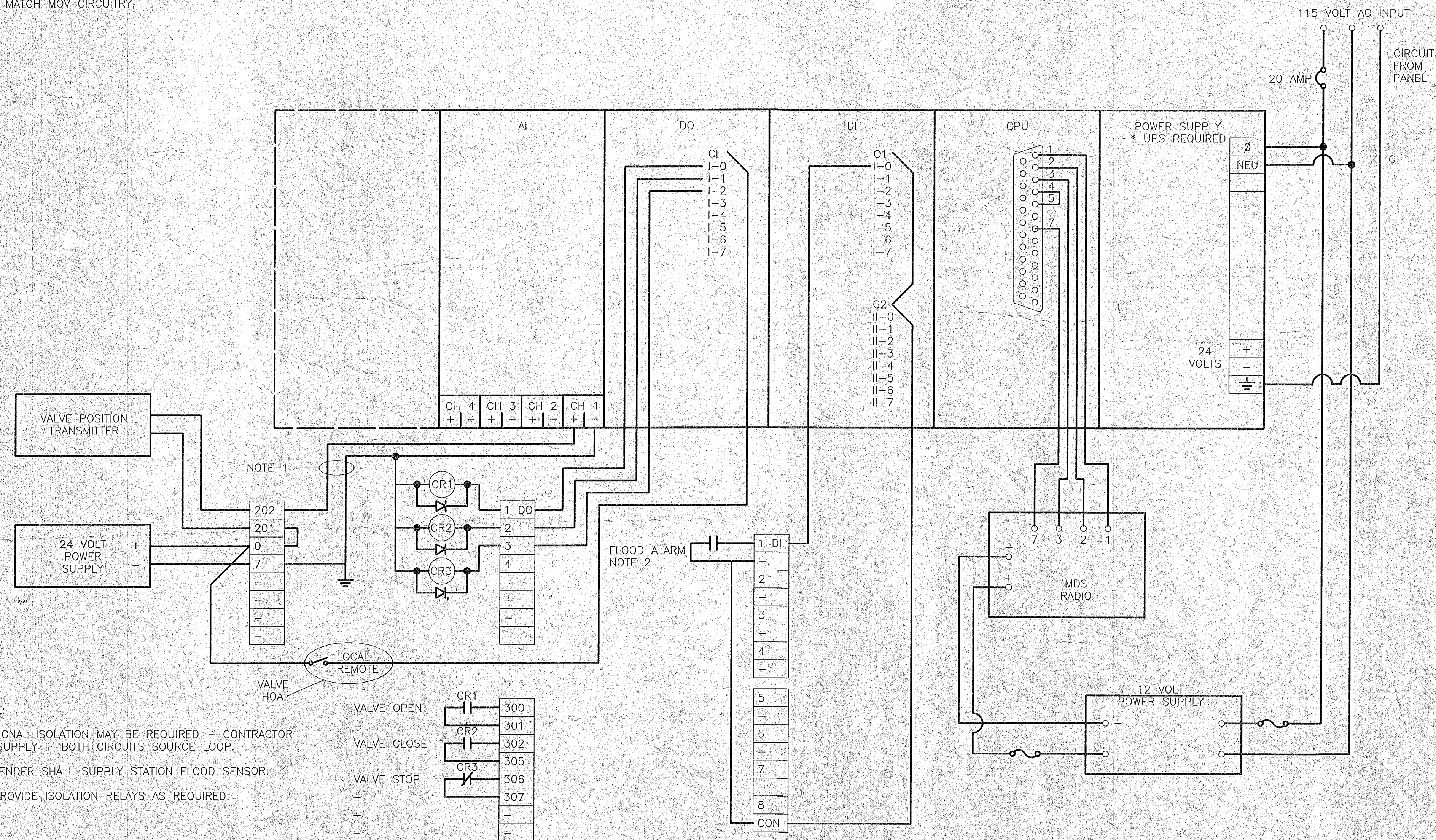
SECTIONAL PLAN

LINE VALVE MANHOLE - ELECTRICAL PLAN

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

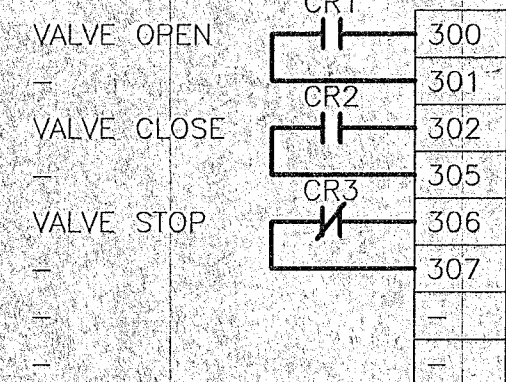
PANEL

120/240 VOLT
 SINGLE PHASE 3 WIRE
 SURFACE MOUNTED - NEMA 4 WATER TIGHT
 1 - 100A MAIN BREAKER
 6 - 20A BREAKERS
 6 - SPACES
 1 - LIGHTNING SURGE PROTECTION REQUIRED



NOTE:

1. SIGNAL ISOLATION MAY BE REQUIRED - CONTRACTOR TO SUPPLY IF BOTH CIRCUITS SOURCE LOOP.
2. VENDER SHALL SUPPLY STATION FLOOD SENSOR.
3. PROVIDE ISOLATION RELAYS AS REQUIRED.



ENGINEERING CONSULTANTS
 411 N. WEBB ROAD
 WICHITA, KS. 67206
 316-684-9600

SLIPLINING 48" WELL FIELD SUPPLY MAIN
 PROJECT NAME

ELECTRICAL DRAWING

SHEET TITLE

SA/DP
 DESIGN BY:

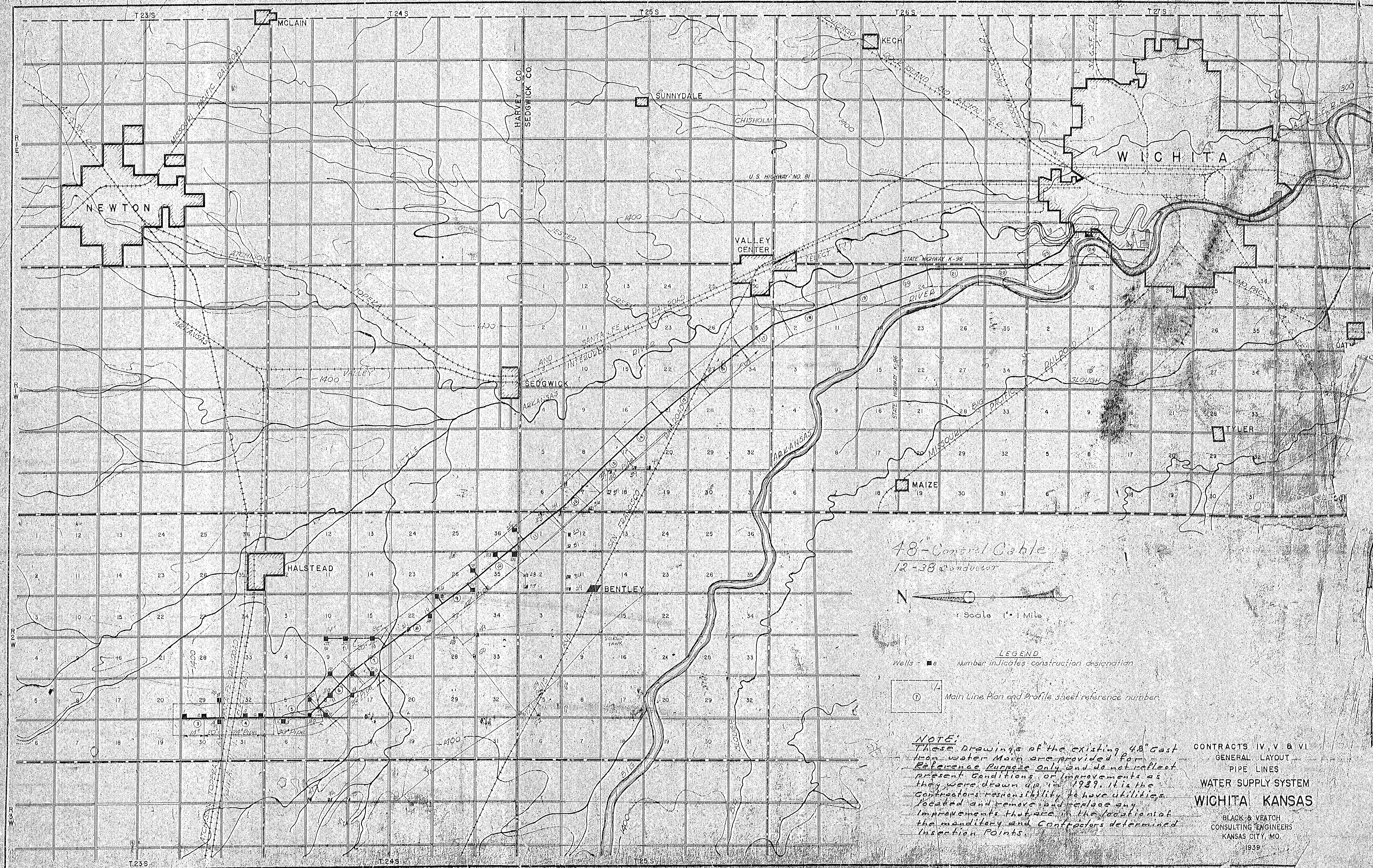
BDM
 DRAWN BY:

SA/DP
 CHECKED BY:

JUNE 2001
 DATE

99141-113
 DRAWING NAME

5 / 16
 SHEET / OF



48" Cast Iron
12-38 Conductor

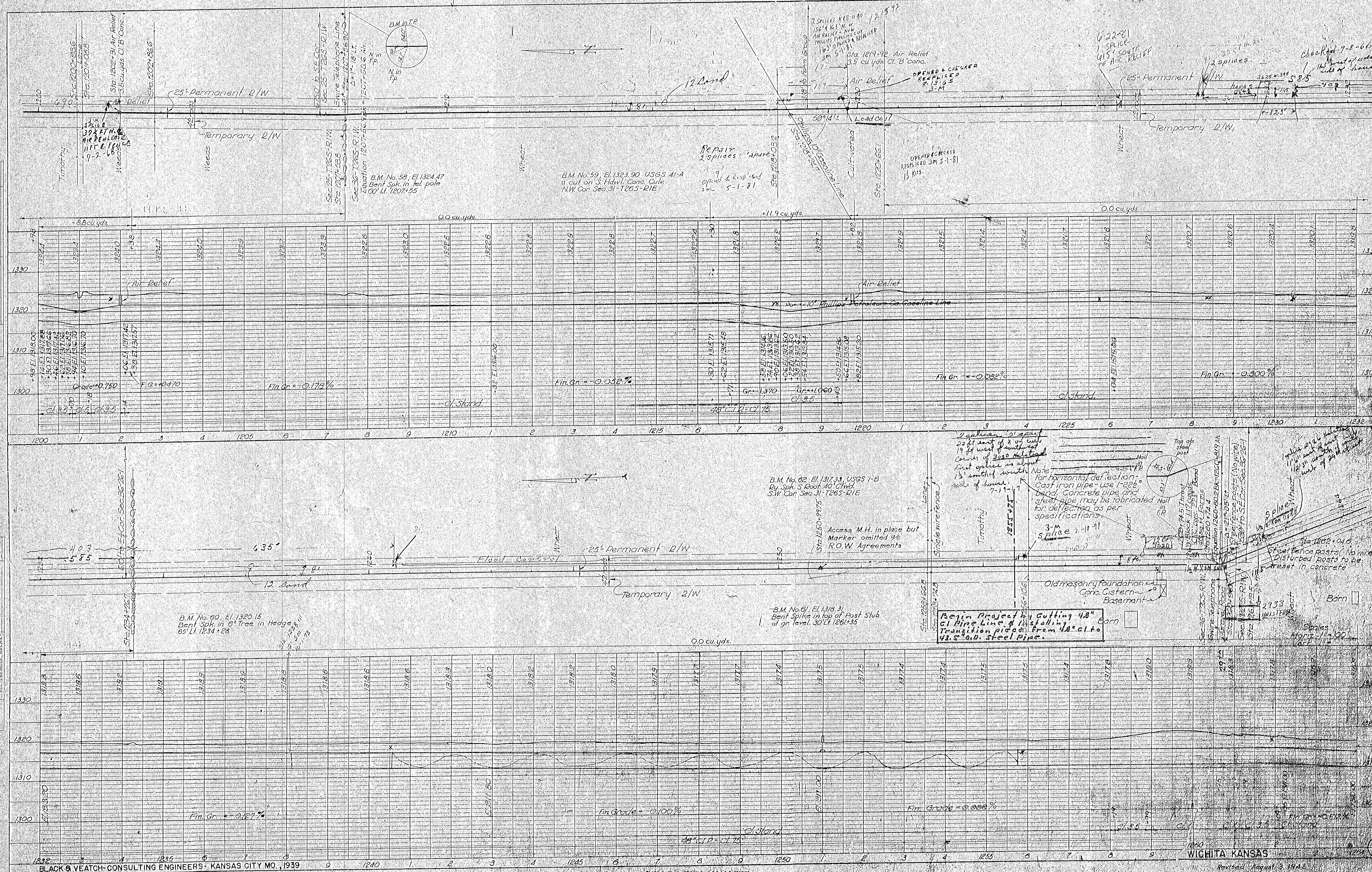
N
Scale 1" = 1 Mile

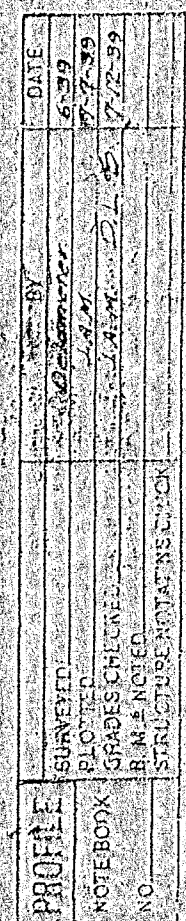
LEGEND
Wells - ■ Number indicates construction designation
① Main Line Plan and Profile sheet reference number

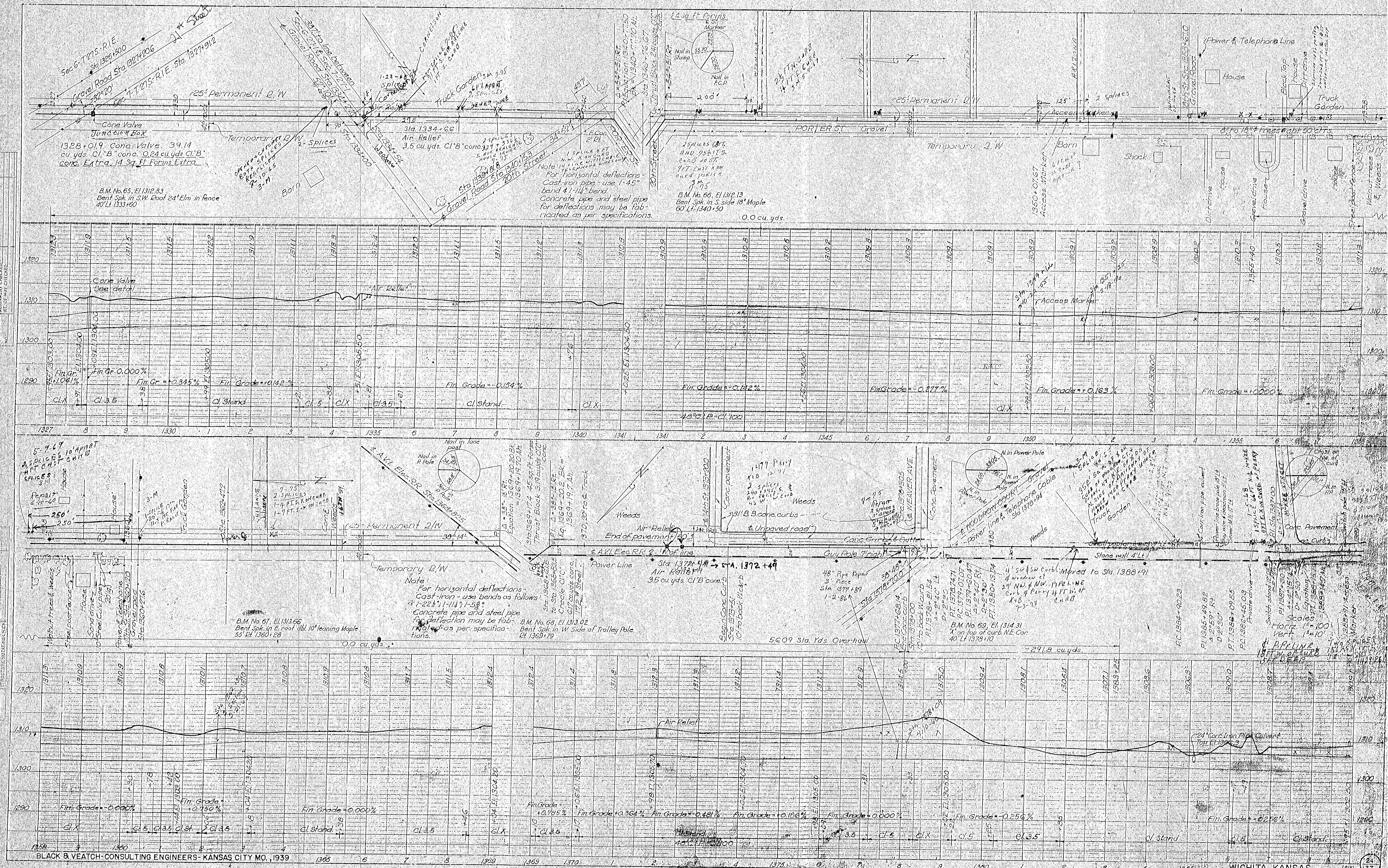
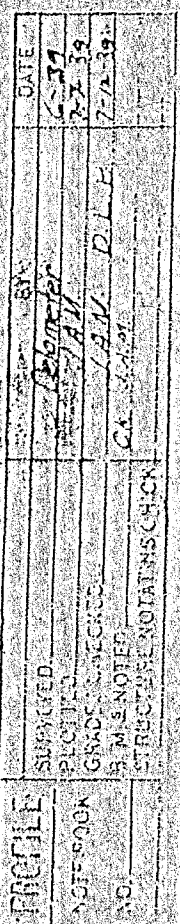
NOTE:
These drawings of the existing 48" Cast Iron water Main are provided for Reference Purpose only and do not reflect present conditions or improvements as they were drawn up in 1939. It is the Contractor's responsibility to have utilities located and remove and replace any improvements that are in the location of the main line and Contractors determined Insertion Points.

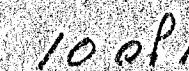
CONTRACTS IV, V & VI
GENERAL LAYOUT
PIPE LINES
WATER SUPPLY SYSTEM
WICHITA KANSAS
BLACK & VEATCH
CONSULTING ENGINEERS
KANSAS CITY, MO.
1939

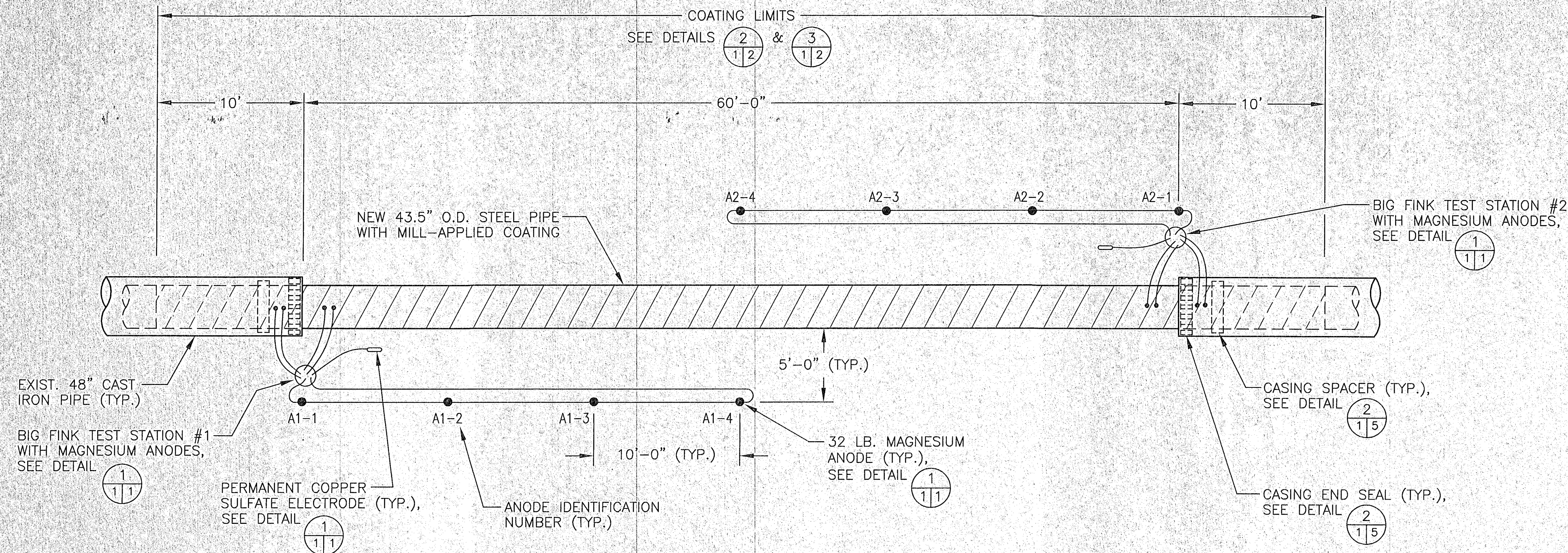
PROFILE	DATE
SURVEYED	21
PLOTTED	21
GRADES CHECKED	21
B.M. NOTED	21



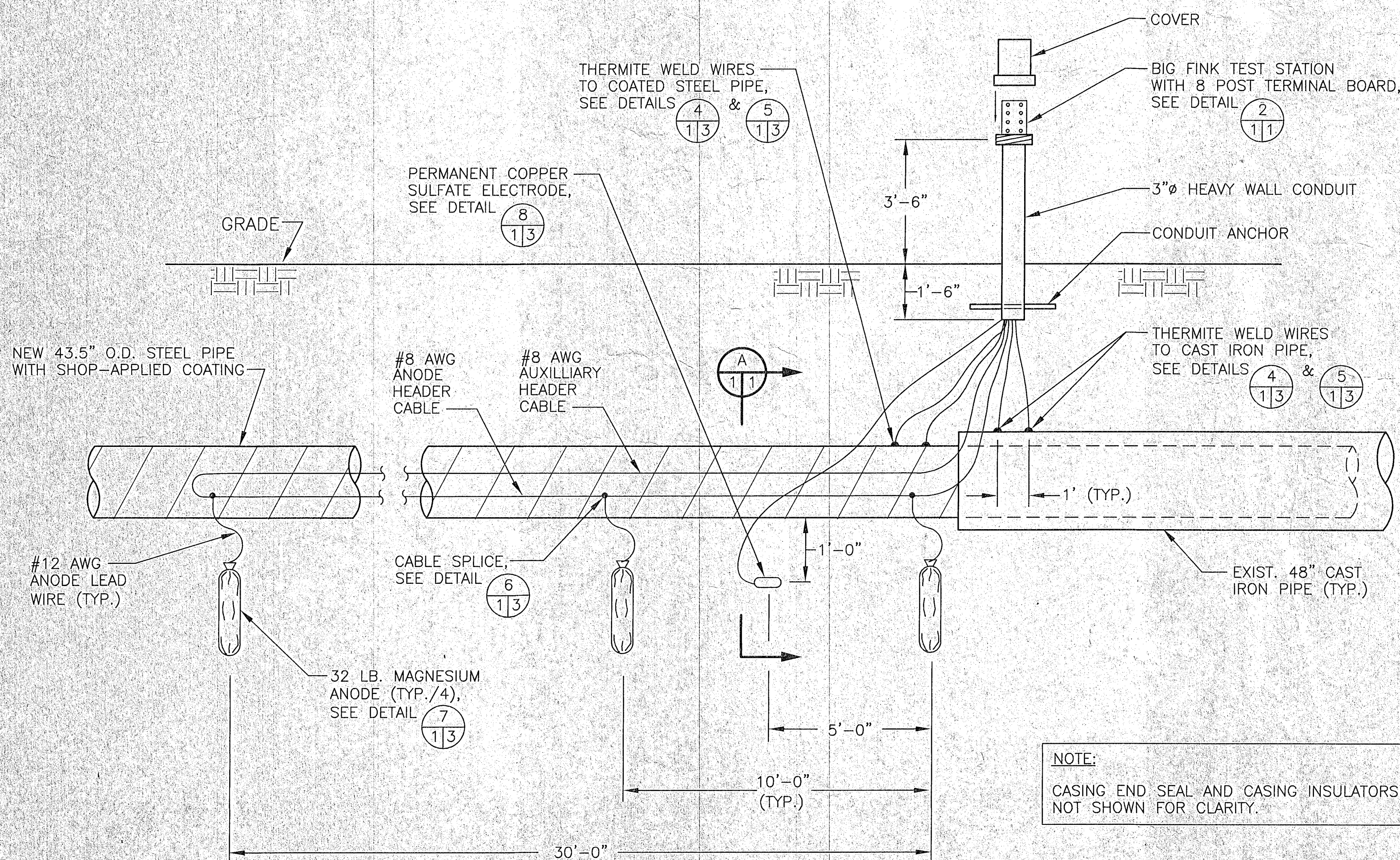






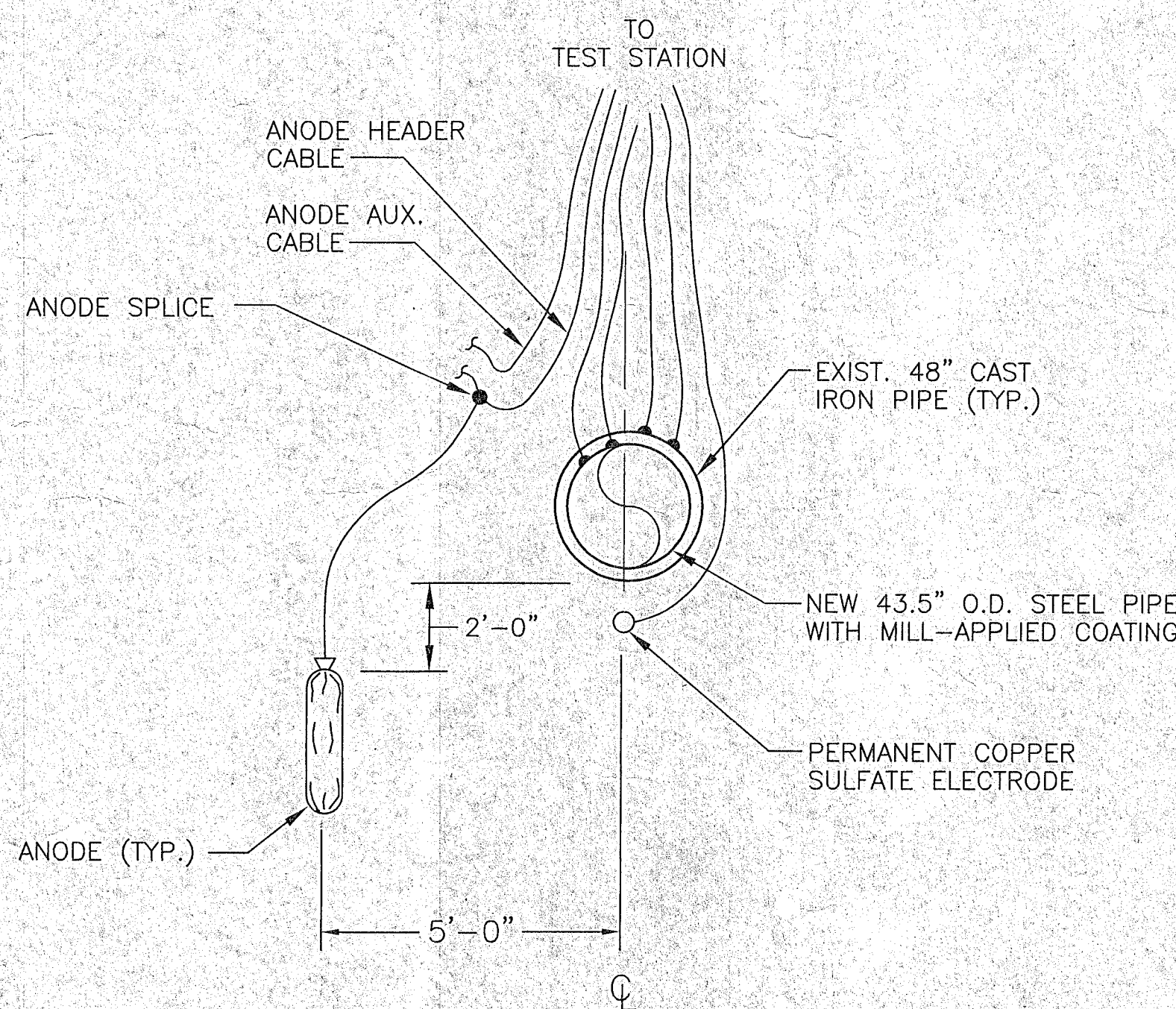


GENERAL ARRANGEMENT
SCALE: 3/16"=1'-0"

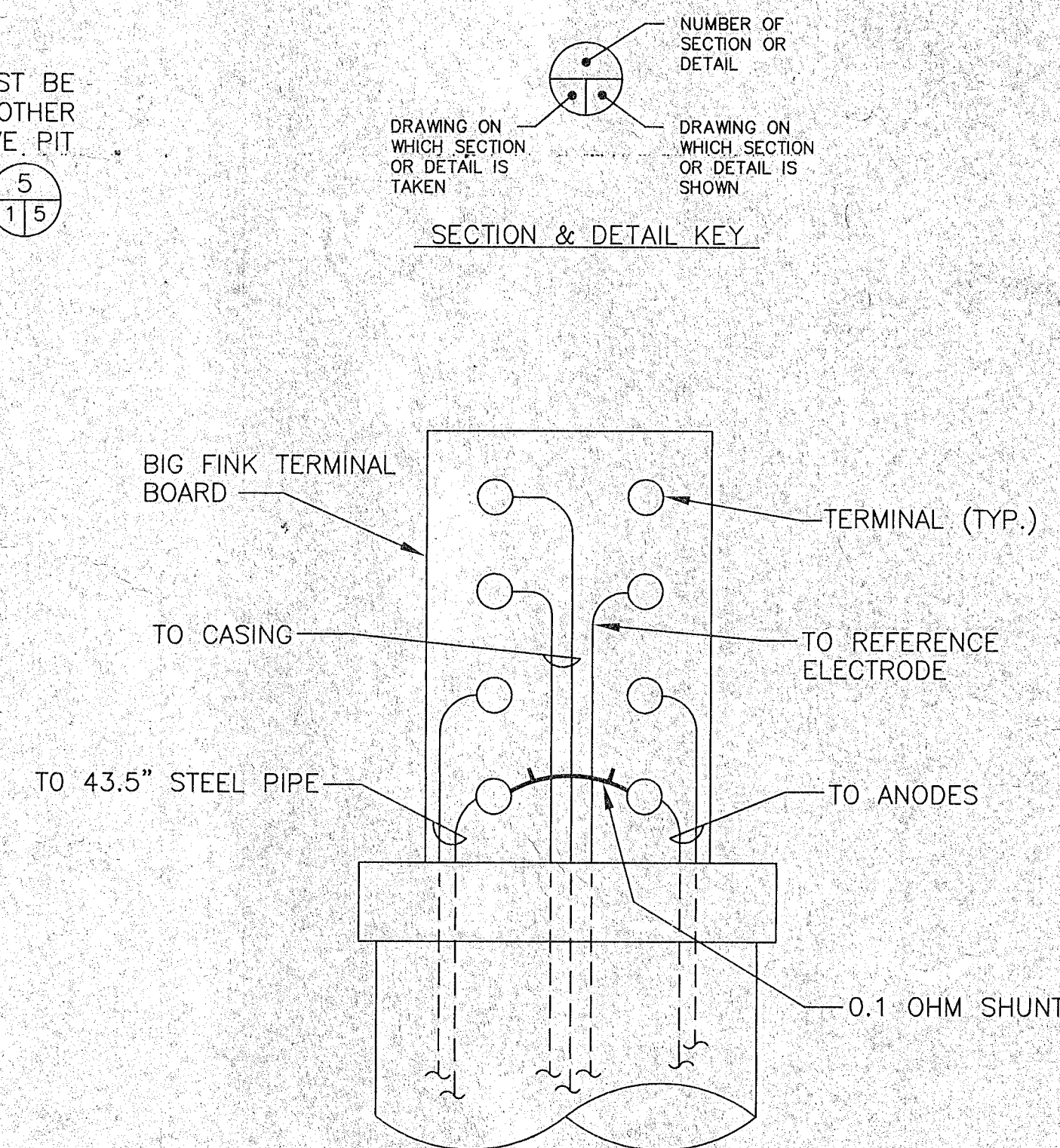


NOTE:
CASING END SEAL AND CASING INSULATORS
NOT SHOWN FOR CLARITY.

DETAIL 1/11
TEST STATION WITH MAGNESIUM ANODES



SECTION 1/11

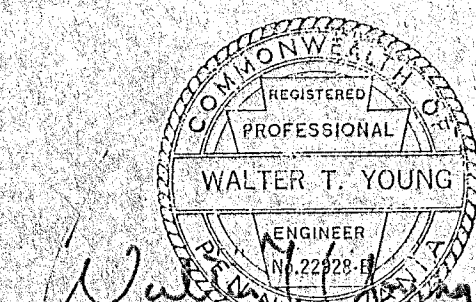
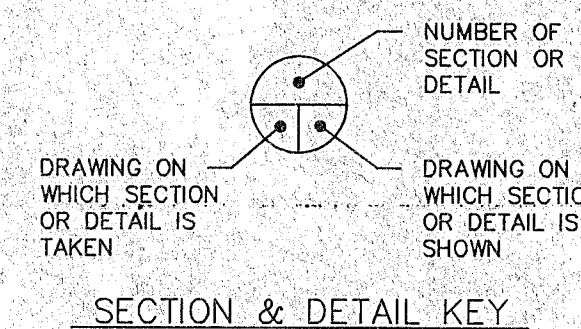


DETAIL 2/11
TEST STATION TERMINAL BOARD

GENERAL NOTES:

- INFORMATION SHOWN ON THE CORROSION CONTROL PLAN TO BE USED FOR GENERAL POSITIONING AND SCHEMATIC REPRESENTATION OF THE CORROSION CONTROL SYSTEM. THE ACTUAL INSTALLATION OF ALL CORROSION CONTROL ITEMS SHALL CONFORM TO SHEET NO. 2, 3, 4, 5, 6 AND ALL APPLICABLE SPECIFICATIONS.
- ALL TEST STATION BOXES ARE TO BE INSTALLED DIRECTLY OVER THE MAIN UNLESS OTHERWISE DIRECTED BY ENGINEER ON SITE.
- INSTALL TEST STATION, INSULATING FLANGE KIT AND CORROSION PROTECTION ON NEW PIPE AT EACH TIE-IN LOCATIONS TO EXISTING PIPE. SEE DETAILS 1/12 & 2/12.
DETAILS ARE BASED ON GENERAL CONCEPT OF TIE-IN CONSTRUCTION. A CORROSION ENGINEER WHO IS EMPLOYED BY THE CONTRACTOR SHALL REVIEW THE FINAL ARRANGEMENT. THE CORROSION ENGINEER SHALL PROVIDE CERTIFICATION TO THE CITY OF WICHITA THAT THE FINAL ARRANGEMENT IS IN ACCORDANCE WITH HIS RECOMMENDATIONS.
- ALL BURIED CATHODICALLY PROTECTED METALLIC STRAIGHT PIPE SHALL BE INSTALLED WITH A SHOP APPLIED COATING SYSTEM.
- COAT ALL BURIED CATHODICALLY PROTECTED METALLIC PIPE FITTINGS, COUPLINGS, VALVES, & WELDED JOINTS PER DETAILS ON SHEET NO. 4 AND DETAIL 1/15.
- ALL NEW PIPE COATING SHALL BE CHECKED AND ANY FAULTS LOCATED SHALL BE REPAIRED PRIOR TO INSTALLING CONCRETE KICKERS OR THRUST BLOCKS. REINFORCING RODS SHALL NOT TOUCH THE PIPE.
- ALL BURIED CATHODICALLY PROTECTED METALLIC PIPE MUST BE PROVIDED WITH AN EFFECTIVE ELECTRICAL ISOLATION FROM OTHER METALLIC SYSTEMS SUCH AS CONDUITS, PIPELINES, VALVE PIT WALL REBAR, AND GROUNDING SYSTEMS PER DETAILS 3/15 & 5/15.

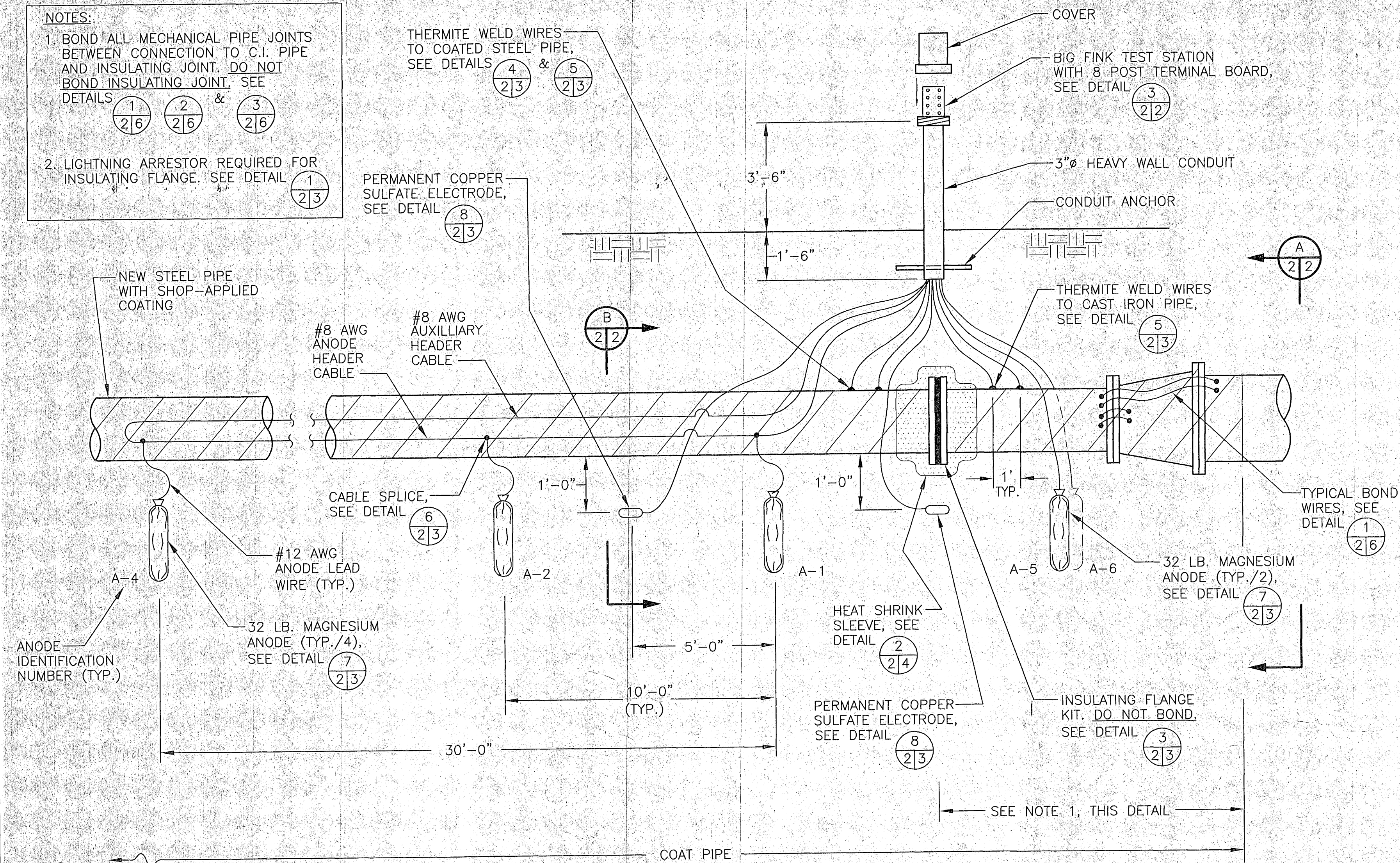
- ALL BURIED CATHODICALLY PROTECTED METALLIC PIPE JOINTS, INCLUDING VALVES, ARE TO BE BONDED WITH #4 AWG HMWPE STRANDED COPPER WIRES 1'-6" LENGTH AND NUMBER OF BOND WIRES REQUIRED VARY PER PIPE DIAMETER. SEE DETAIL 1/16.
DO NOT INSTALL BOND WIRES ACROSS INSULATING FLANGES.
- INSTALL ANODES AS FIELD CONDITIONS PERMIT. ENGINEER'S APPROVAL IS REQUIRED IF ANODE LOCATIONS MUST BE CHANGED.
- INSTALL PREPACKAGED 32-POUND, HIGH POTENTIAL ALLOY MAGNESIUM ANODES IN 12" Ø DIAMETER AUGERED HOLES IN LOCATIONS SHOWN OFFSET 5' FROM PIPING. LOWER ANODES INTO HOLES EXERCISING CARE NOT TO DAMAGE NO. 12 AWG/THIN LEAD WIRES. POUR 5 GALLONS OF WATER OVER EACH ANODE, THOROUGHLY SATURATING ANODES BEFORE BACKFILLING. BACKFILL ANNULUS BETWEEN AUGERED HOLE AND ANODE WITH NATIVE SOIL, TAMPING IN 6" LAYERS.
- A NACE CERTIFICATED CORROSION SPECIALIST OR CATHODIC PROTECTION SPECIALIST SHALL SUPERVISE ALL TESTING OF THE CATHODIC PROTECTION SYSTEM AND ELECTRICAL ISOLATION MEASURES AND SUPERVISE COMMISSIONING OF THE CATHODIC PROTECTION SYSTEM. THE SPECIALIST SHALL PROVIDE CERTIFICATION TO CITY OF WICHITA THAT THE SYSTEM WAS INSTALLED IN ACCORDANCE WITH HIS RECOMMENDATIONS.
- LIGHTNING ARRESTORS WILL BE INSTALLED AT ALL INSULATING FLANGES PER DETAIL 1/13.



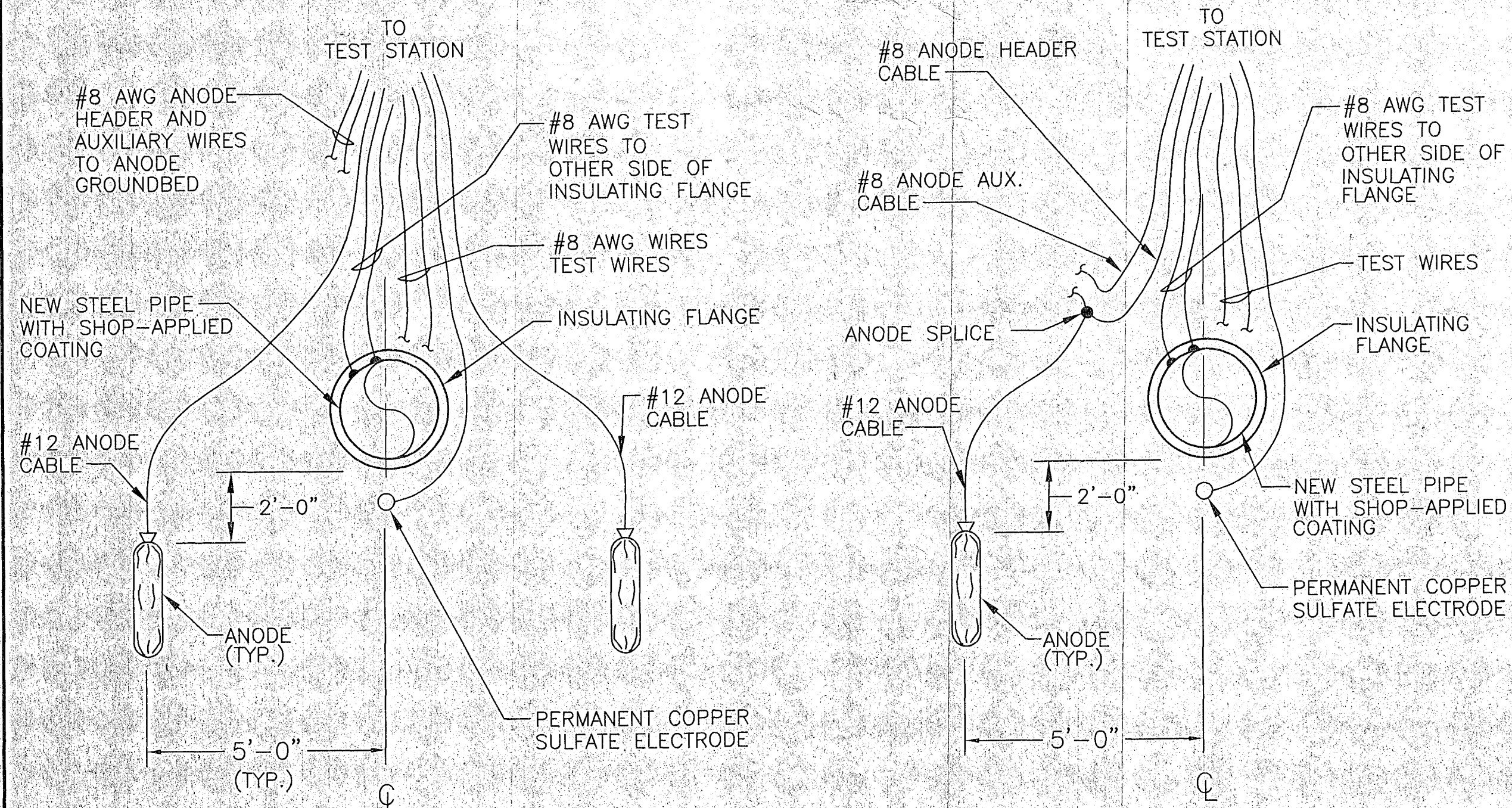
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		DESIGNED BY: WY DRAWN BY: KK CHECKED BY: XX DATE: 6/4/01	SCALE: AS NOTED SHEET 1 OF 6 DWG. NO. D4-6155-1

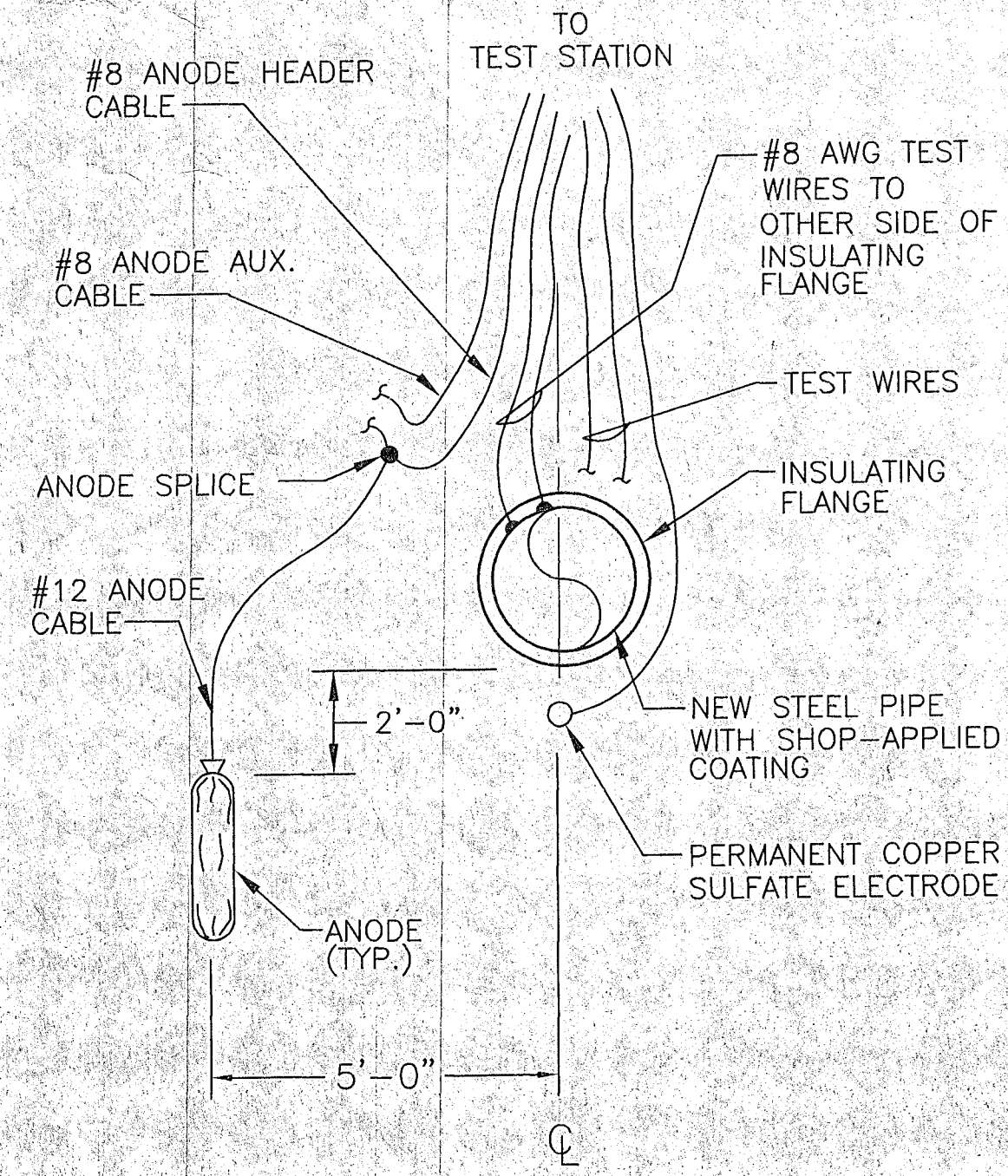
- NOTES:
1. BOND ALL MECHANICAL PIPE JOINTS BETWEEN CONNECTION TO C.I. PIPE AND INSULATING JOINT. DO NOT BOND INSULATING JOINT. SEE DETAILS (1/2/6), (2/2/6) & (3/2/6)
 2. LIGHTNING ARRESTOR REQUIRED FOR INSULATING FLANGE. SEE DETAIL (1/2/3)



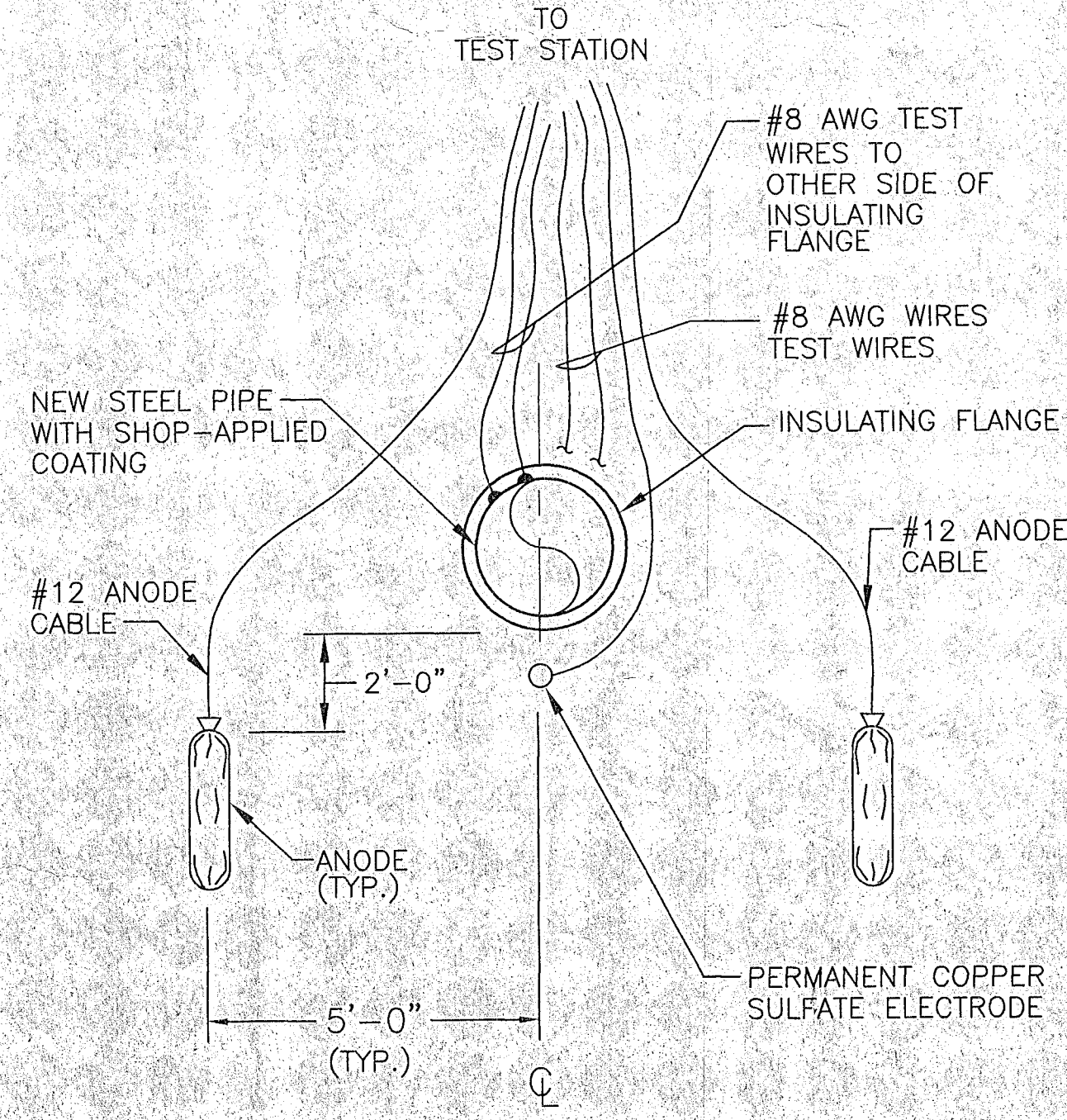
DETAIL
TIE-IN TEST STATION AND CORROSION PROTECTION
(10 WIRE TEST STATION) (1/1/2)



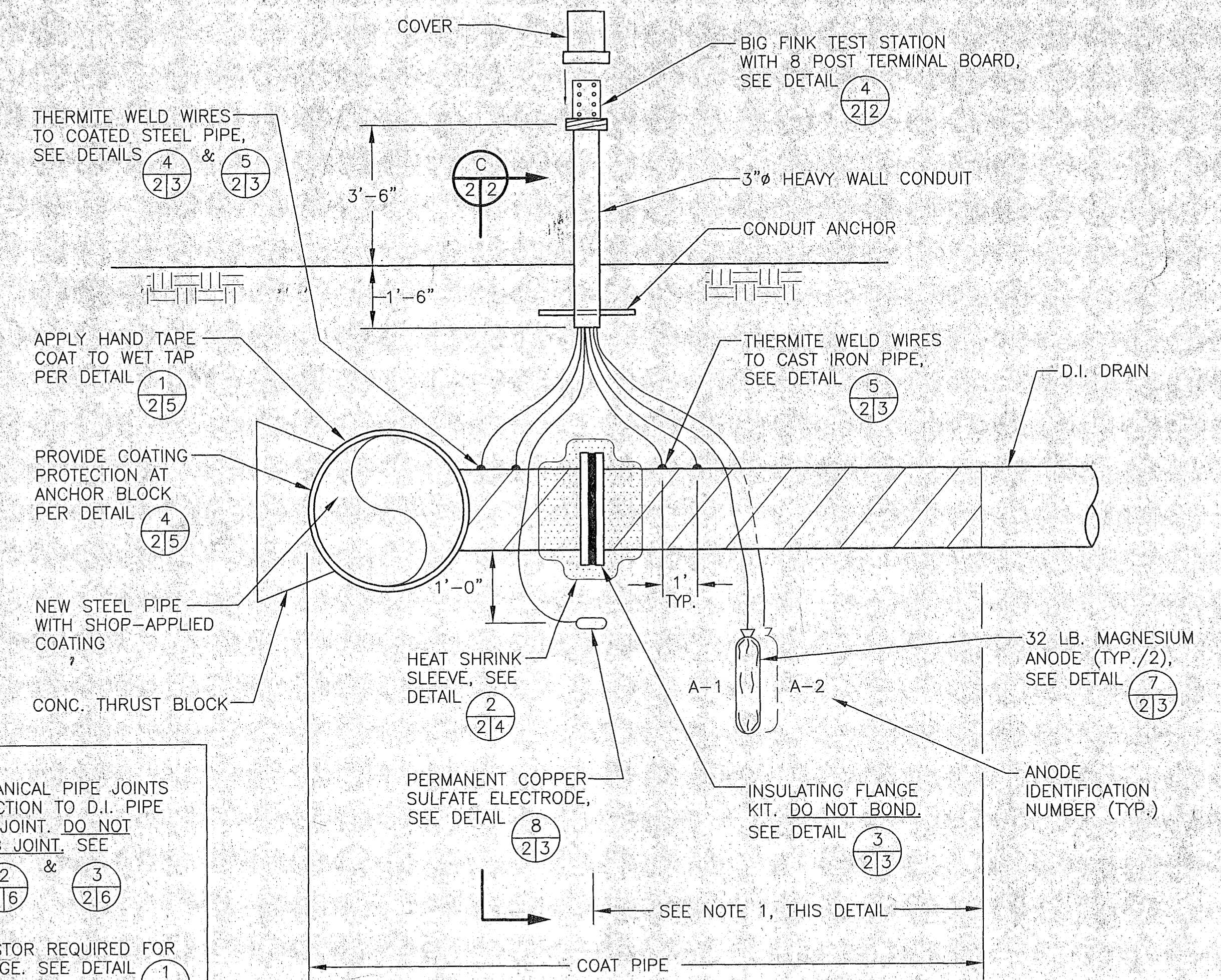
SECTION A
NTS (1/2/2)



SECTION B
NTS (2/2/2)

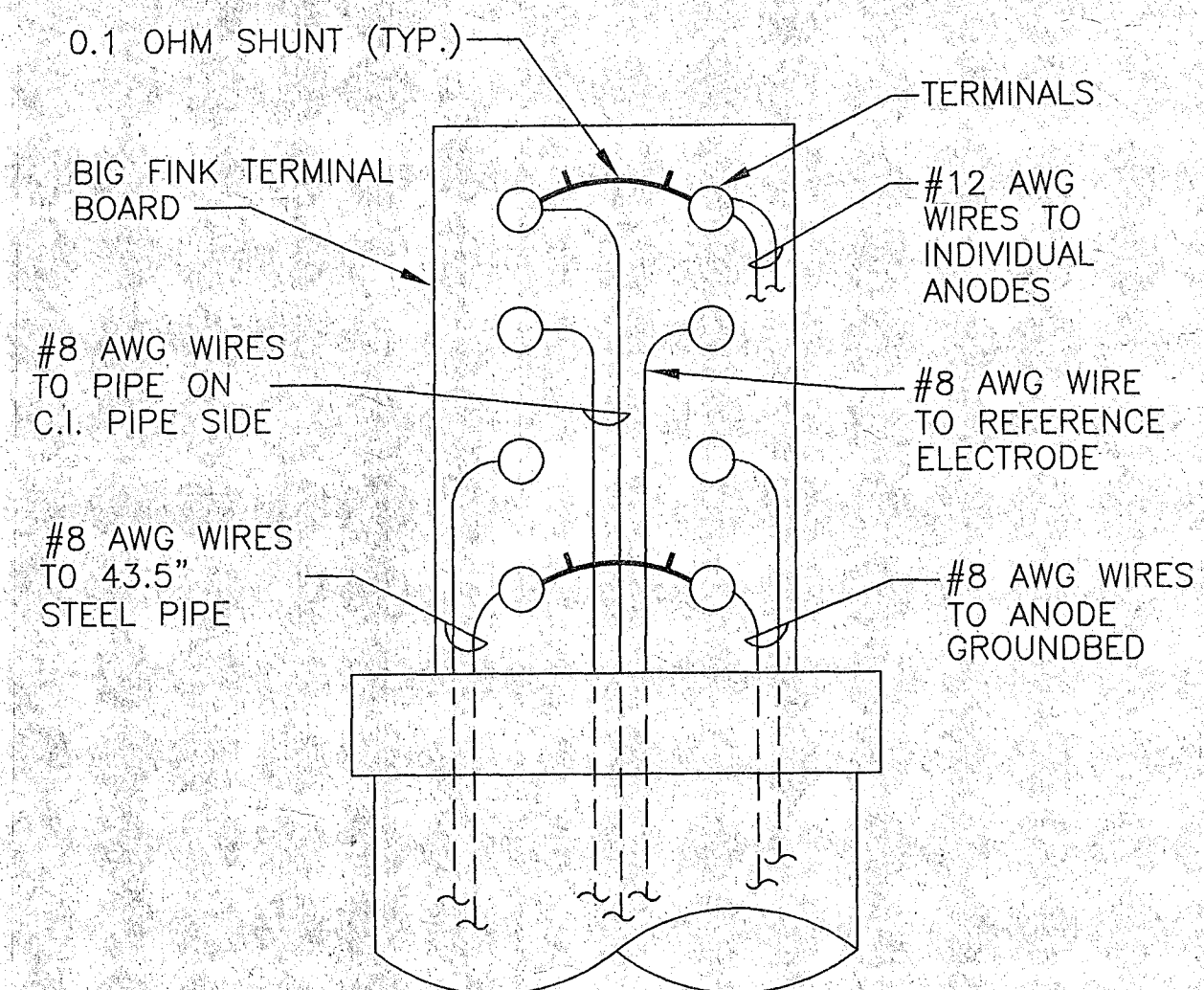


SECTION C
NTS (2/2/2)

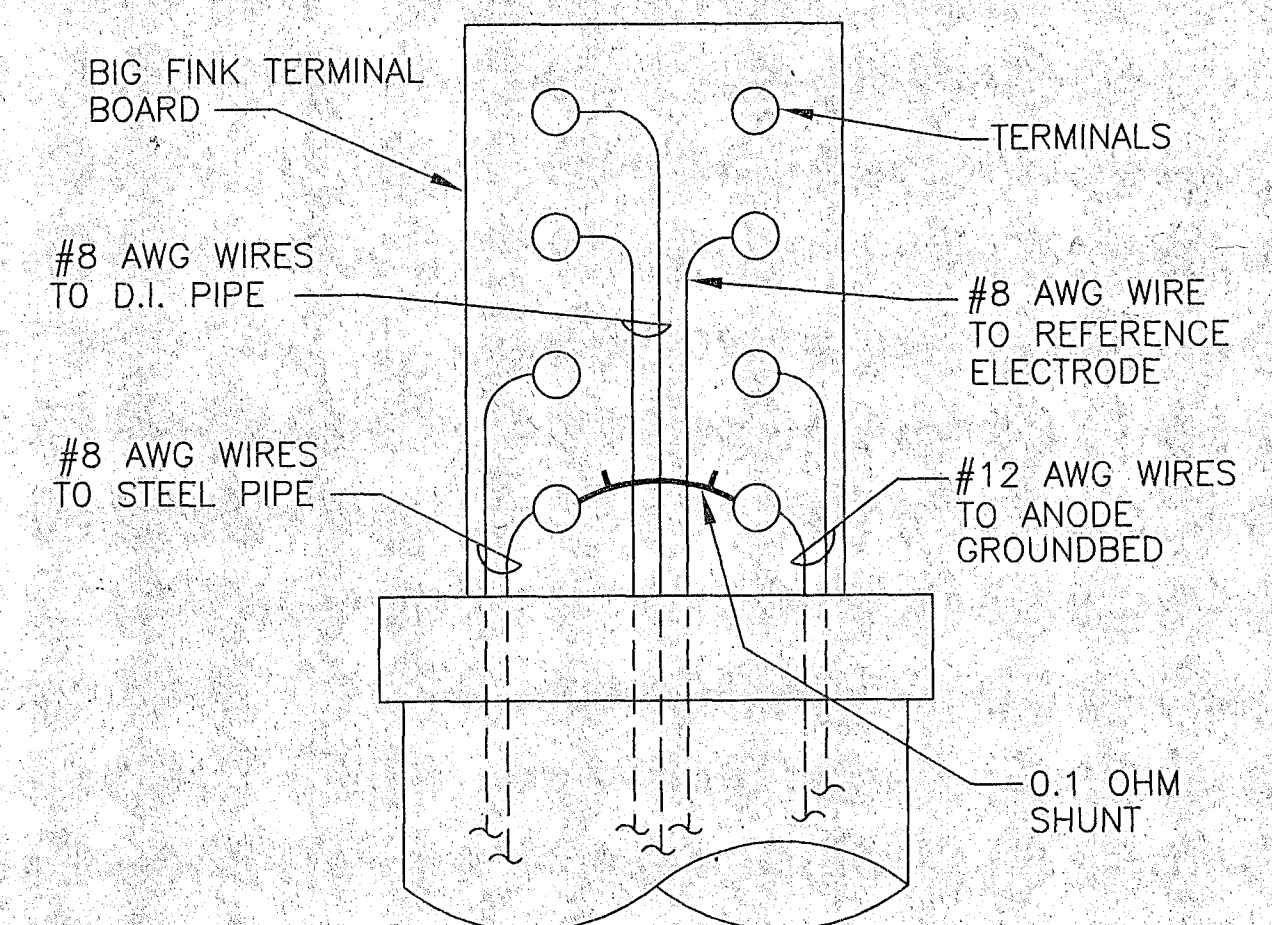


- NOTES:
1. BOND ALL MECHANICAL PIPE JOINTS BETWEEN CONNECTION TO D.I. PIPE AND INSULATING JOINT. DO NOT BOND INSULATING JOINT. SEE DETAILS (1/2/6), (2/2/6) & (3/2/6)
 2. LIGHTNING ARRESTOR REQUIRED FOR INSULATING FLANGE. SEE DETAIL (1/2/3)

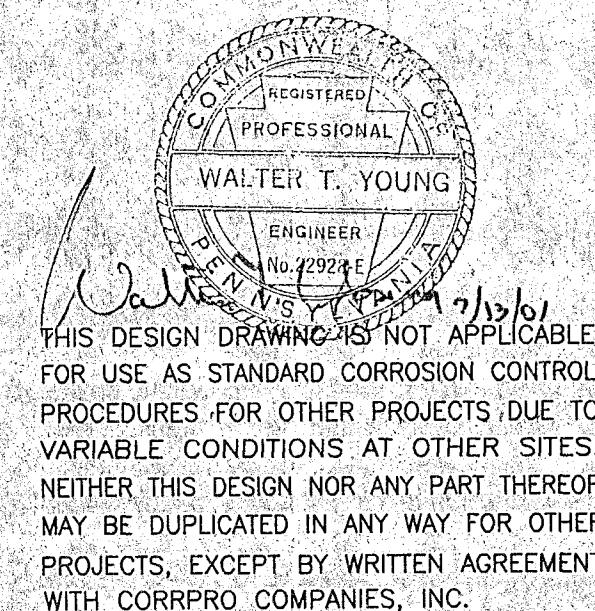
DETAIL
DRAIN PIPE TEST STATION AND CORROSION PROTECTION
(7 WIRE TEST STATION) (2/1/2)



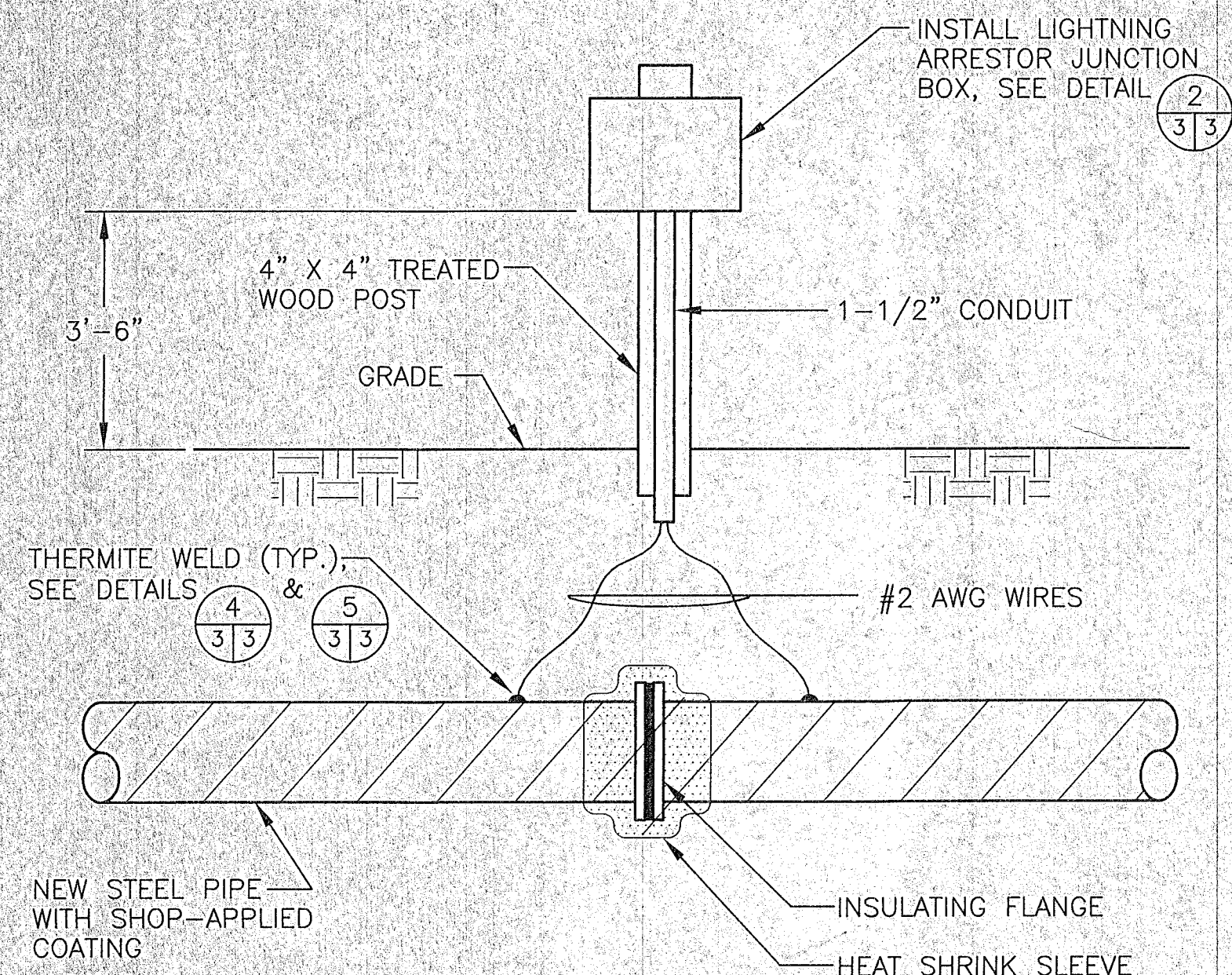
DETAIL
TEST STATION TERMINAL BOARD
(10 WIRE TEST STATION) (3/2/2)



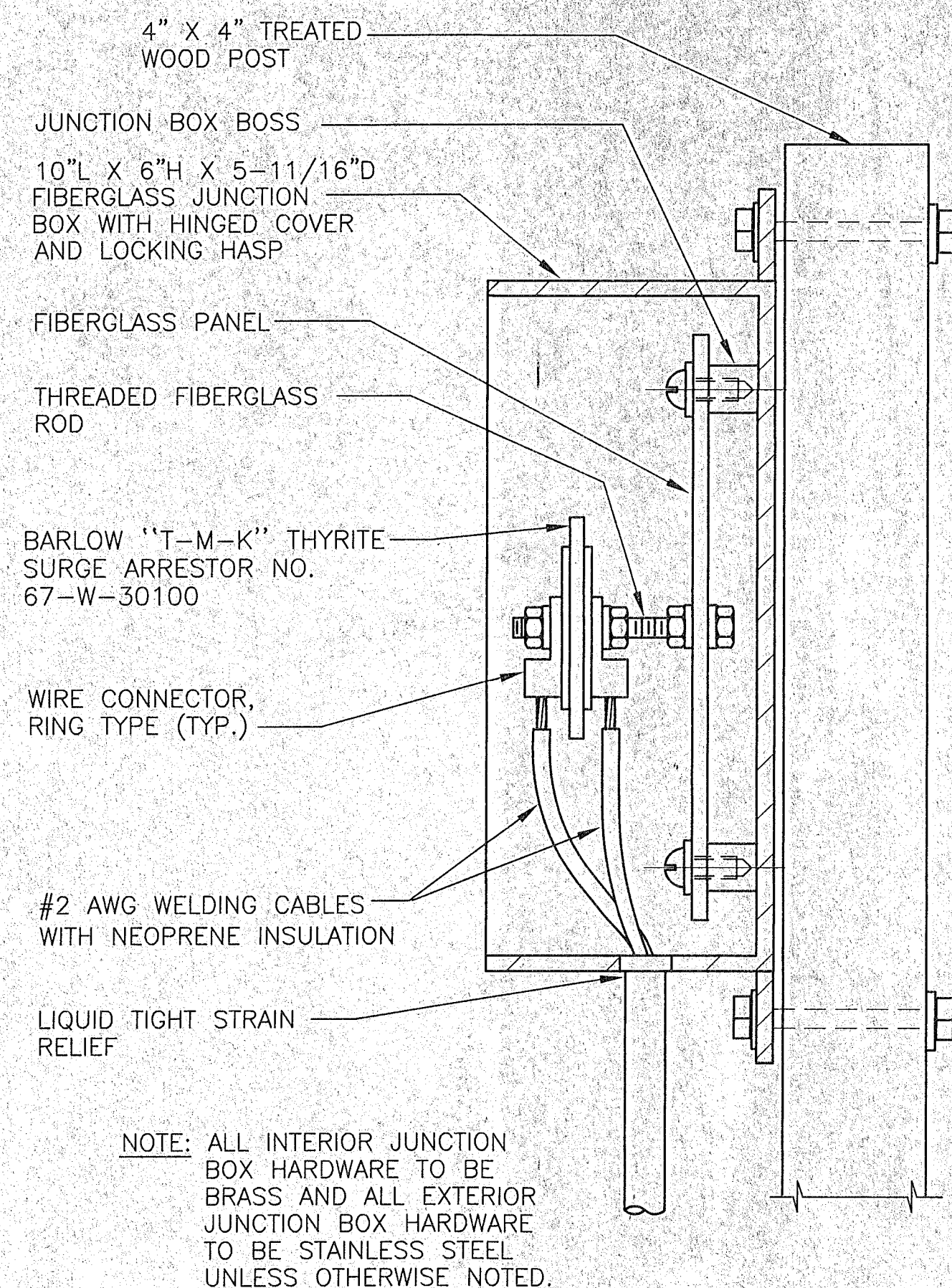
DETAIL
TEST STATION TERMINAL BOARD
(7 WIRE TEST STATION) (4/2/2)



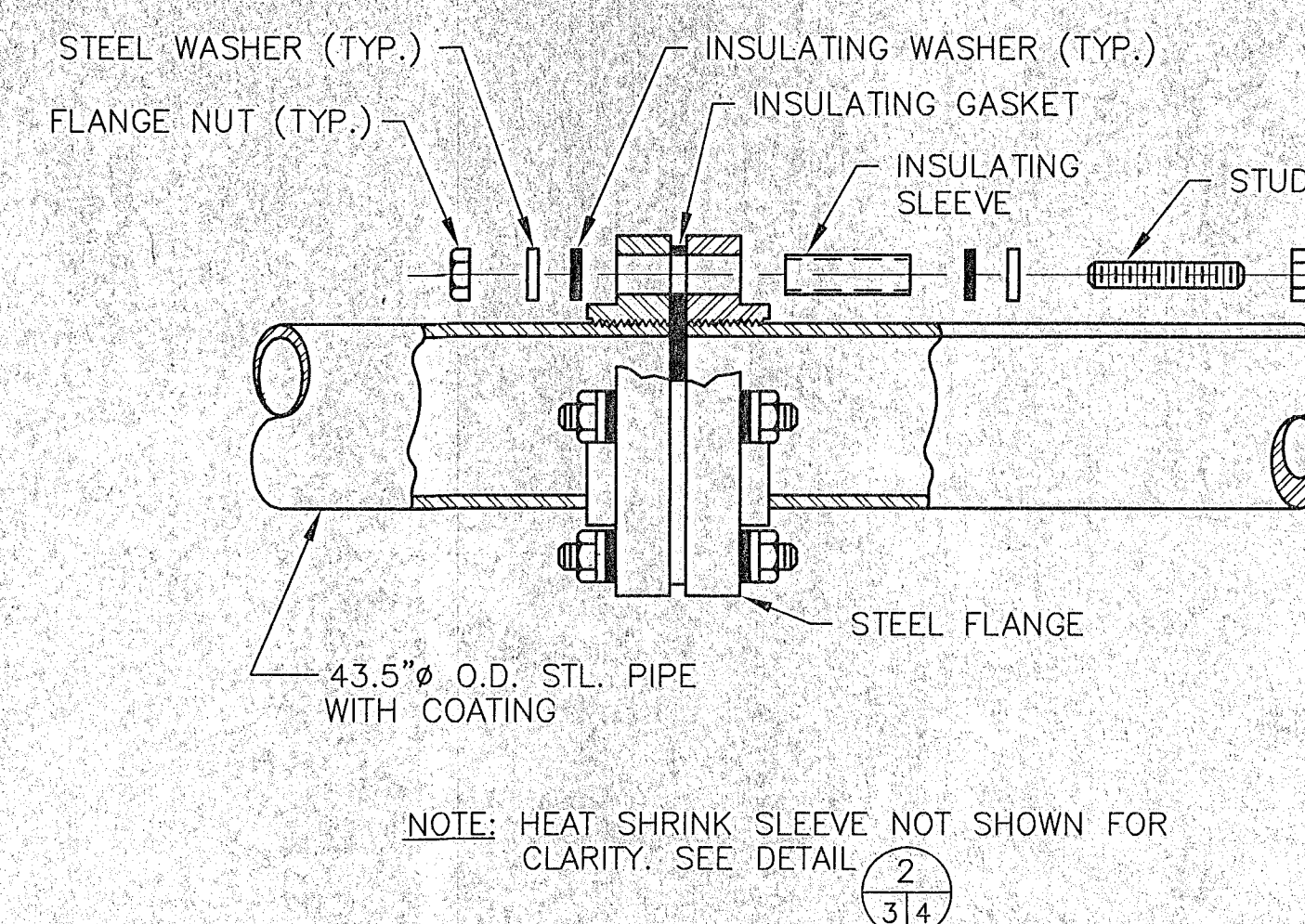
MKEC ENGINEERING		CITY OF WICHITA, KANSAS	
610 Brandywine Parkway West Chester, Pennsylvania 19380 Office: (610) 344-7002 www.corrpro.com		SPLINING 48" WELL FIELD SUPPLY MAIN	
CORRPRO COMPANIES INC. For Every Corner of Your World		CATHODIC PROTECTION DETAILS	
DESIGNED BY: WY	SCALE: NONE	DRAWN BY: KK	SHEET 2 OF 6
CHECKED BY: XX	DWG. NO. D4-6155-2	DATE: 6/4/01	



DETAIL
TYPICAL LIGHTNING ARRESTOR INSTALLATION 1,2

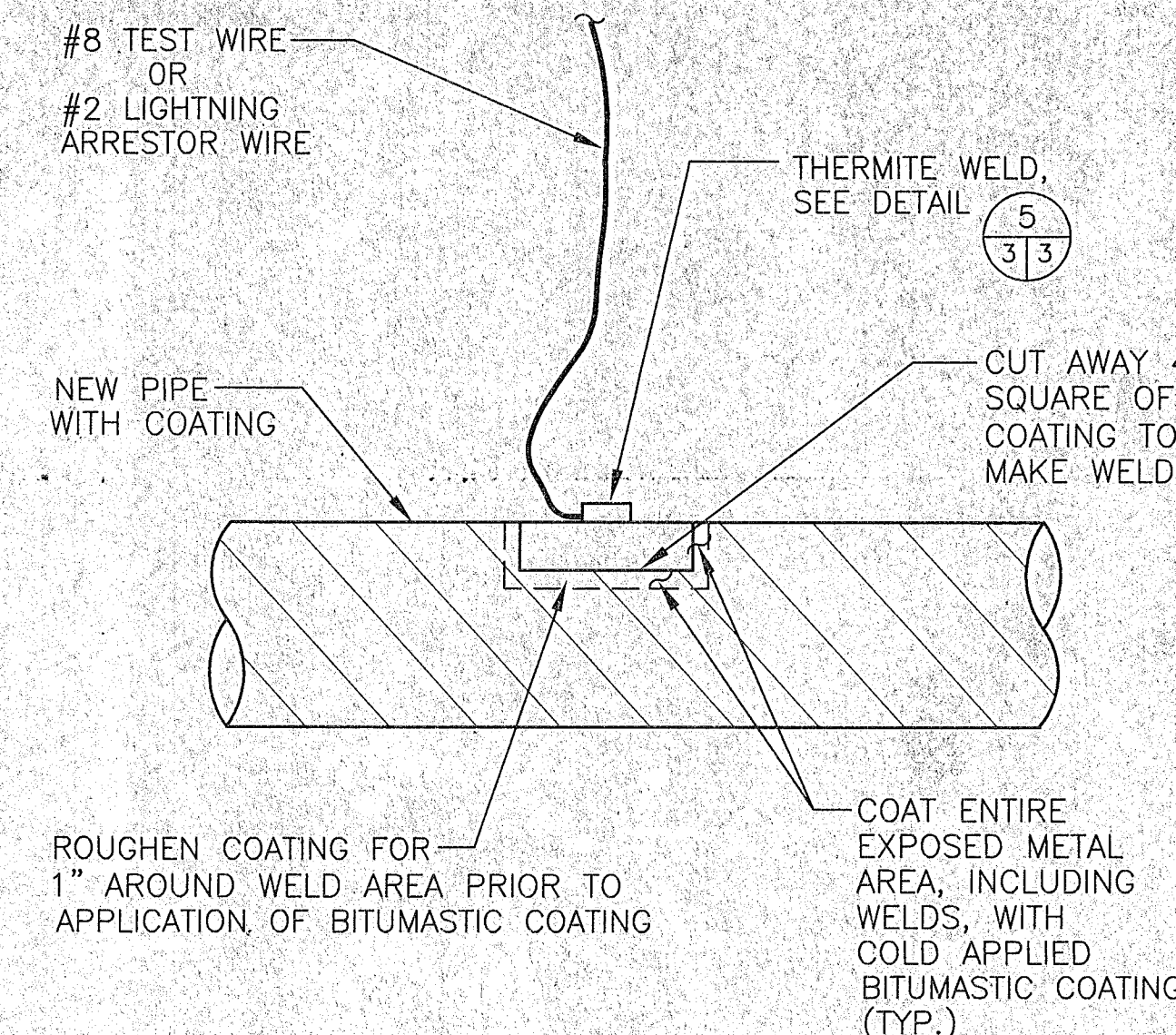


DETAIL
LIGHTNING ARRESTOR & ENCLOSURE 2,3,3

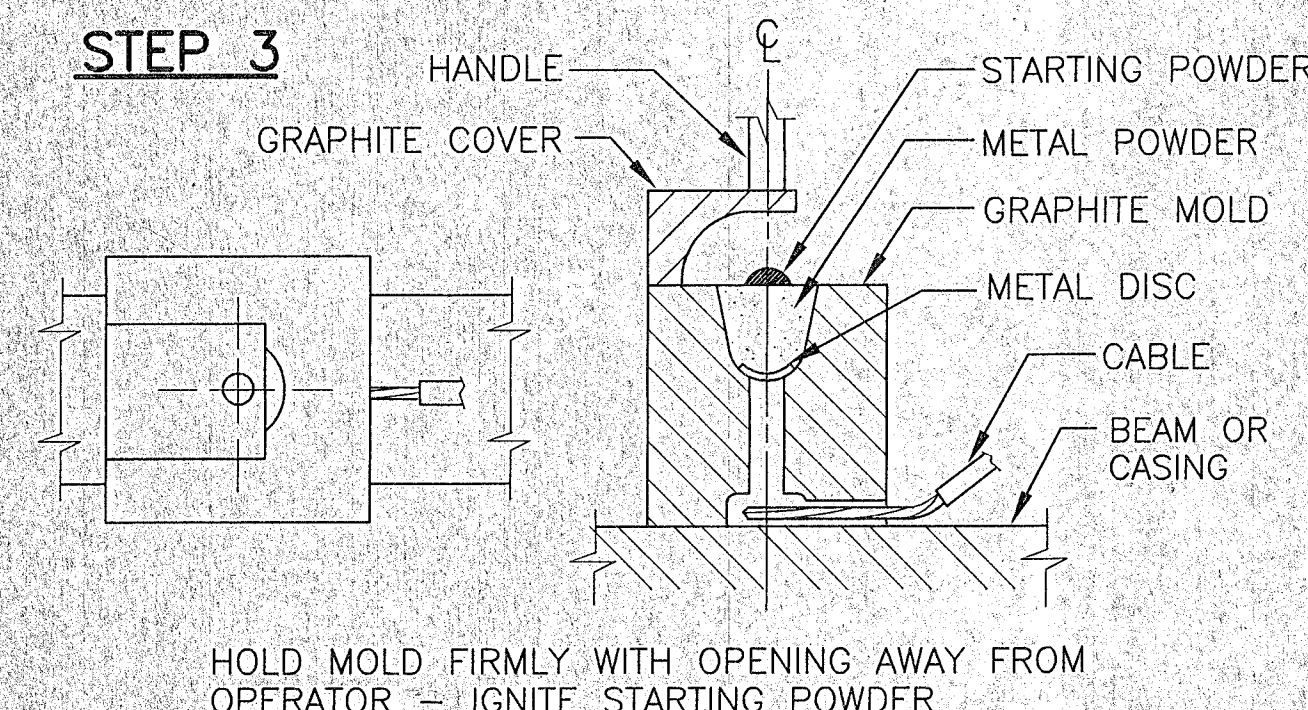
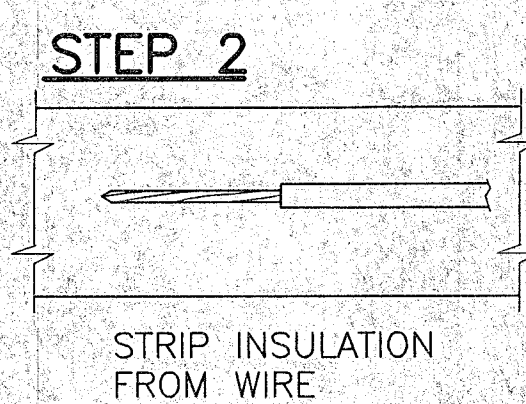
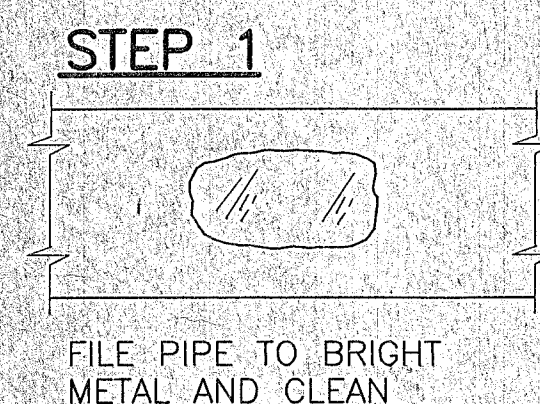


- NOTES:**
1. OBTAIN FLANGE INSULATING KIT FOR 150 LB. ANSI RATING, DOUBLE PHENOLIC INSULATING WASHERS 1/8" THICK, MYLAR INSULATING SLEEVES 1/32" THICK AND NEOPRENE FACED PHENOLIC FULL FACE GASKET - 1/8" THICK AS MANUFACTURED BY PSI, MALONEY OR APPROVED EQUAL. BOLT TORQUE REQUIREMENTS TO BE SPECIFIED BY MANUFACTURER.
 2. CLEAN ALL BOLTS, NUTS, AND FLANGES WITH APPROVED CLEANING SOLVENT TO REMOVE ALL LUBRICATING OIL & GREASE.
 4. AFTER ASSEMBLY OF INSULATING COMPONENTS AND PRIOR TO THE COATING OF THE FLANGE, THE ELECTRICAL PROPERTIES OF THE INSULATING FLANGE MUST BE CHECKED AND APPROVED. (2,000,000 OHMS OR GREATER FROM STUD TO FLANGE).
 4. COAT INSULATING FLANGE IN ACCORDANCE WITH DETAIL 2,3,4

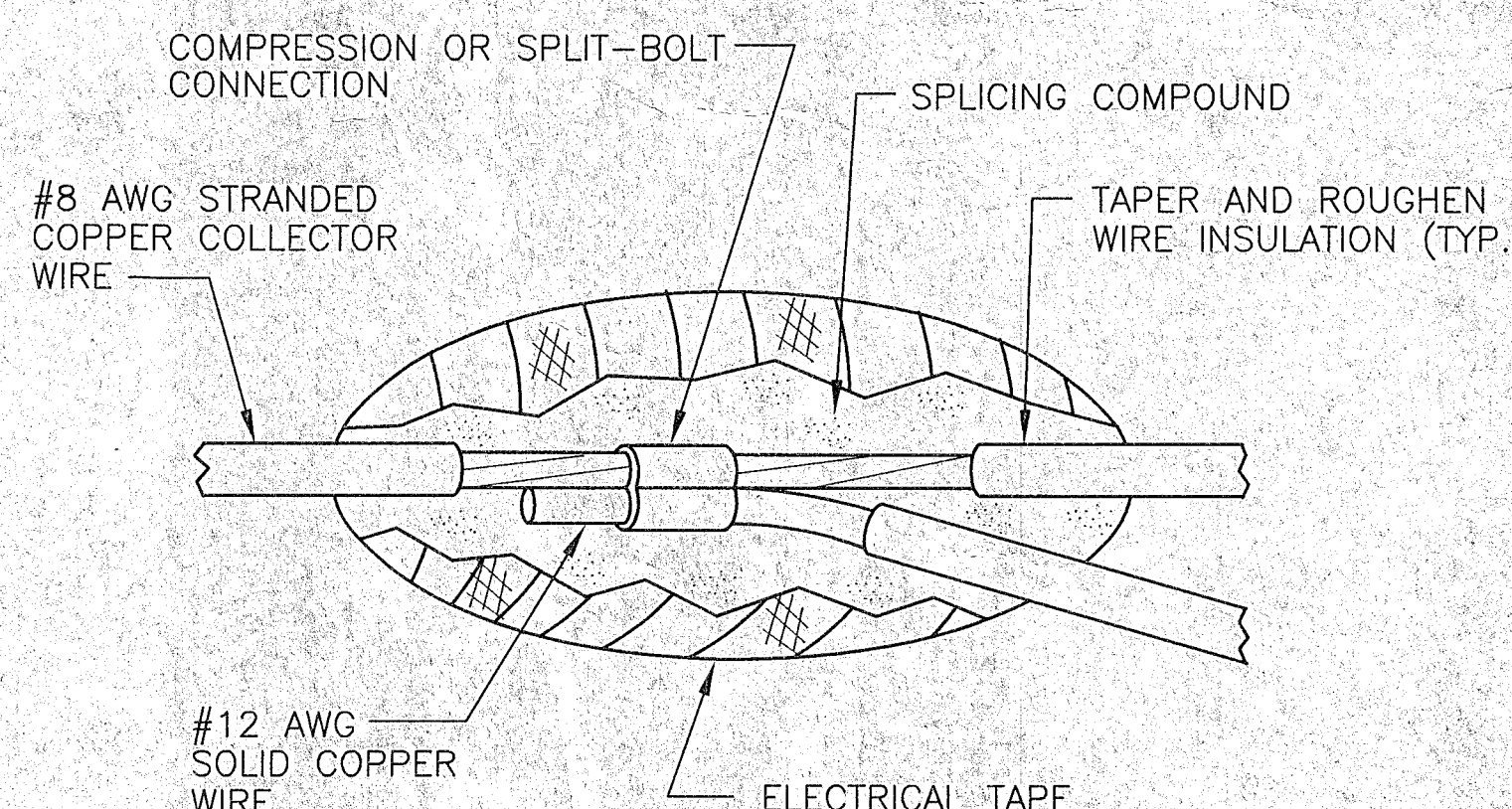
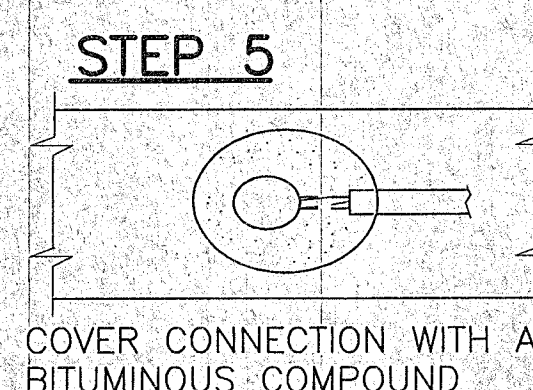
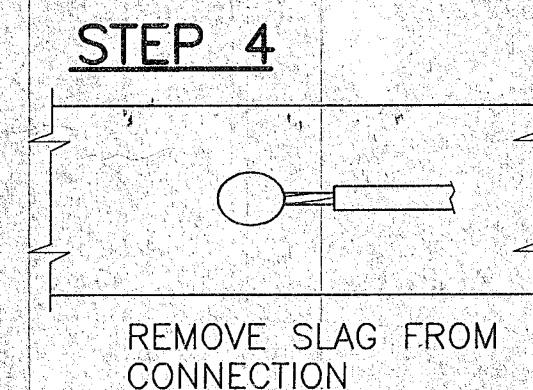
DETAIL
INSULATING FLANGE KIT ASSEMBLY 2,3



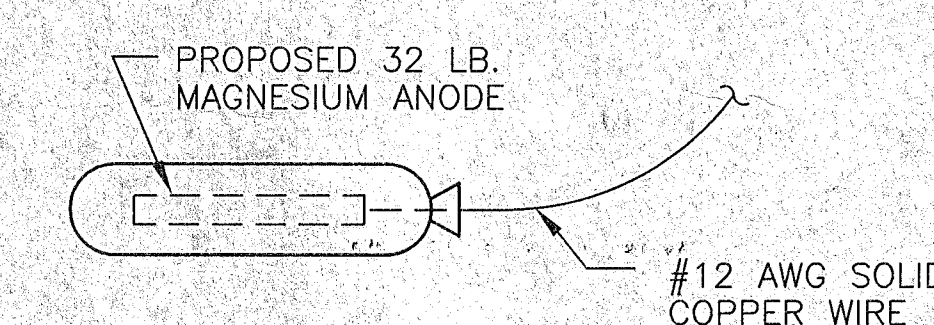
DETAIL
WIRE ATTACHMENT TO COATED PIPE 1,2,3,6,4



DETAIL
TYPICAL THERMITE WELD PROCEDURES (FOR C.I. CASING, D.I. & STL. PIPE) 1,2,3,6,5

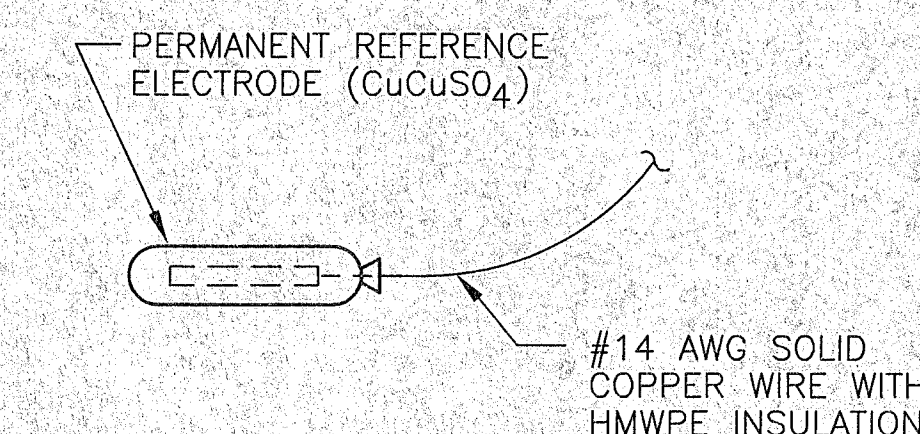


DETAIL
SPLICE 1,2,6



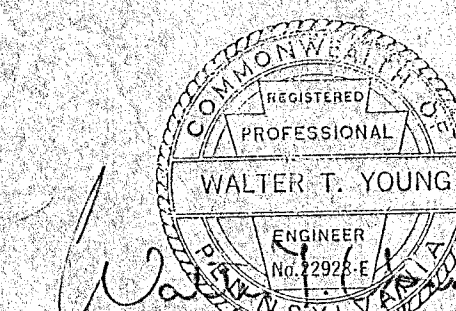
- NOTES:**
1. REMOVE MAGNESIUM ANODE FROM PLASTIC BAG PRIOR TO INSTALLATION.
 2. BEFORE BACKFILLING, WET REFERENCE ELECTRODE WITH APPROXIMATELY 5 GALLONS OF WATER. RAIN OR GROUND WATER IN DITCH WILL ALSO SUFFICE FOR THIS PURPOSE.

DETAIL
MAGNESIUM ANODE 1,2,7,3



- NOTES:**
1. REMOVE REFERENCE ELECTRODE FROM PLASTIC BAG PRIOR TO INSTALLATION.
 2. BEFORE BACKFILLING, WET REFERENCE ELECTRODE WITH APPROXIMATELY 2 GALLONS OF WATER. RAIN OR GROUND WATER IN DITCH WILL ALSO SUFFICE FOR THIS PURPOSE.

DETAIL
REFERENCE ELECTRODE 1,2,8,3



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MKEC ENGINEERING

CITY OF WICHITA, KANSAS

SLIPLINING 48" WELL
FIELD SUPPLY MAIN

CATHODIC PROTECTION DETAILS

NO.	DATE	BY	REVISIONS
DESIGNED BY:	WY	SCALE:	NONE
DRAWN BY:	KK	SHEET	3 OF 6
CHECKED BY:	XX	DWG. NO.	D4-6155-3
DATE:	6/4/01		

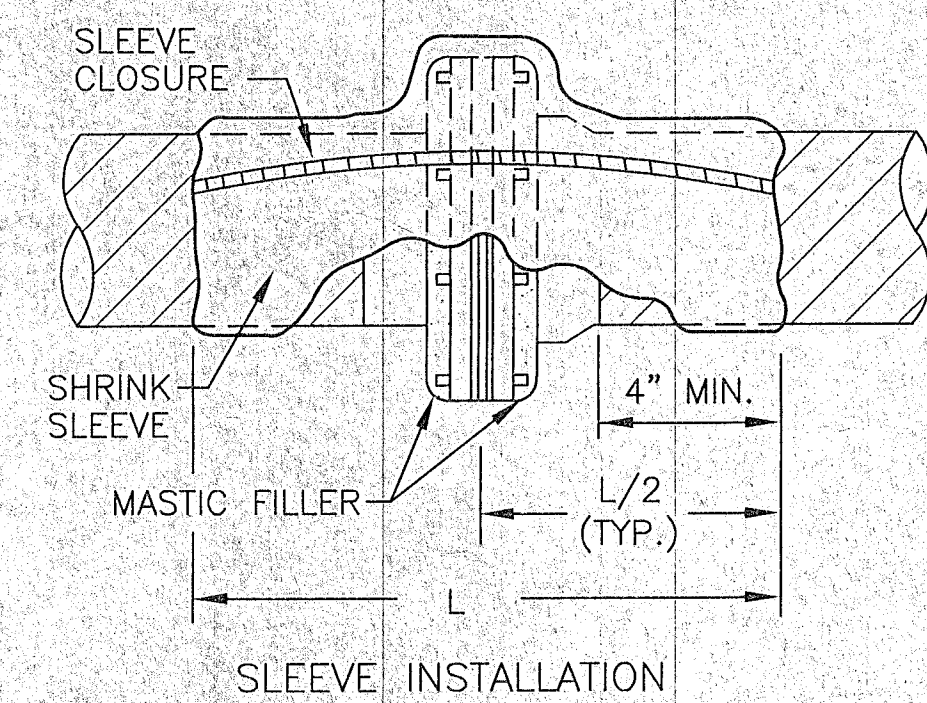
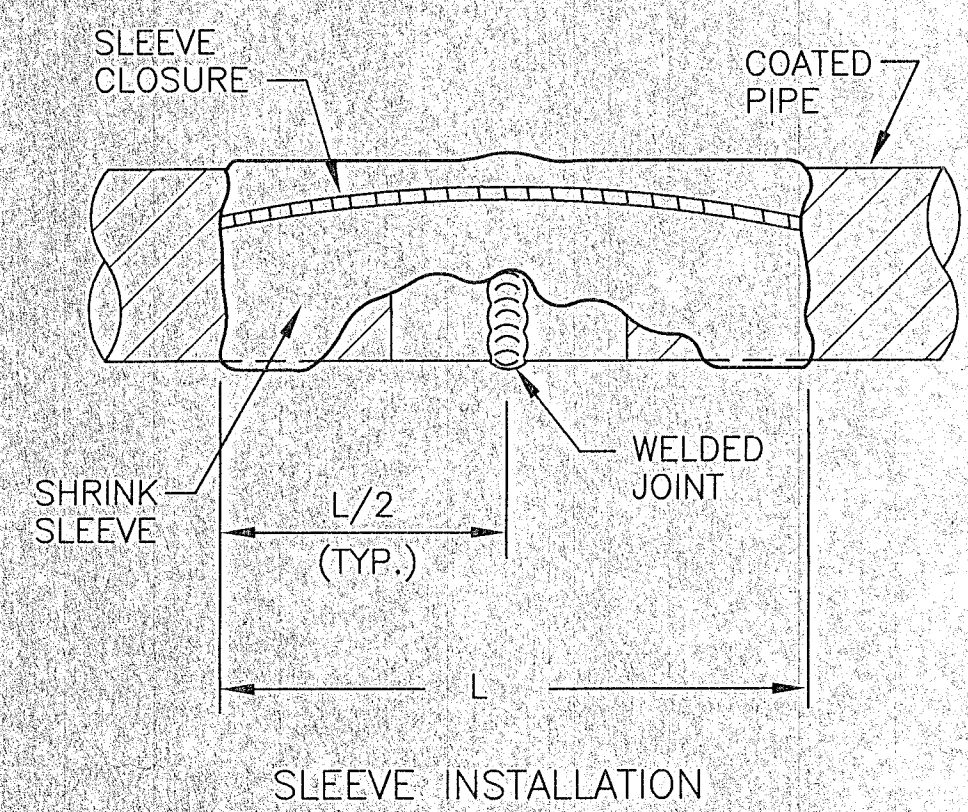
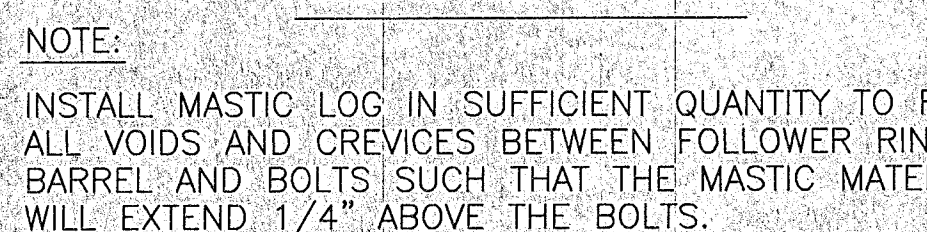
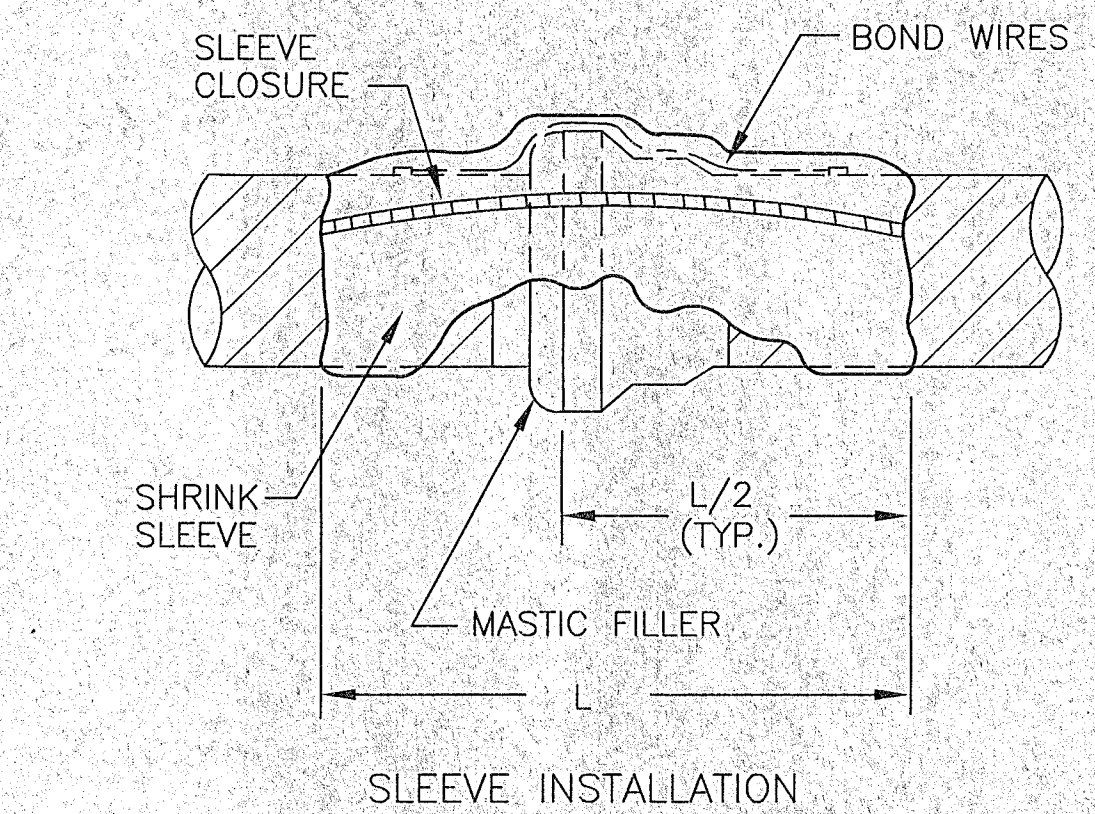


Diagram illustrating the preparation of a joint for a sleeve. The diagram shows a cross-section of a pipe with a sleeve and mastic applied to the joint. Key dimensions and labels include:

- PREHEAT PIPE SURFACE TO BE COVERED BY SLEEVE (TYP.)
- MASTIC F (TYP.)
- SEE DETAIL (10/44)
- 45° (TYP.)
- 1/4" (TYP.)
- $L/2 \pm$ (TYP.)
- ROUGHEN COATING TO BE COVERED BY SLEEVE (L)
- PREPARATION OF JOINT



DETAIL	8
FIELD COATED JOINT (COUPLING)	1,2 4



FILLER MATERIAL WORKED TO FILL ALL VOID CREVICES TO OBTAIN A SMOOTH TRANSITION ASSEMBLY FOR SLEEVE

CAULKING COMPOUND APPLIED OVER AND AROUND BOLT ENDS

This diagram illustrates the final assembly step. It shows a bolt passing through a sleeve. The area around the bolt head and the nut is filled with a material, likely a weld or a specialized filler, to create a smooth transition. Arrows point to the filler material and the caulking compound applied over and around the bolt ends.

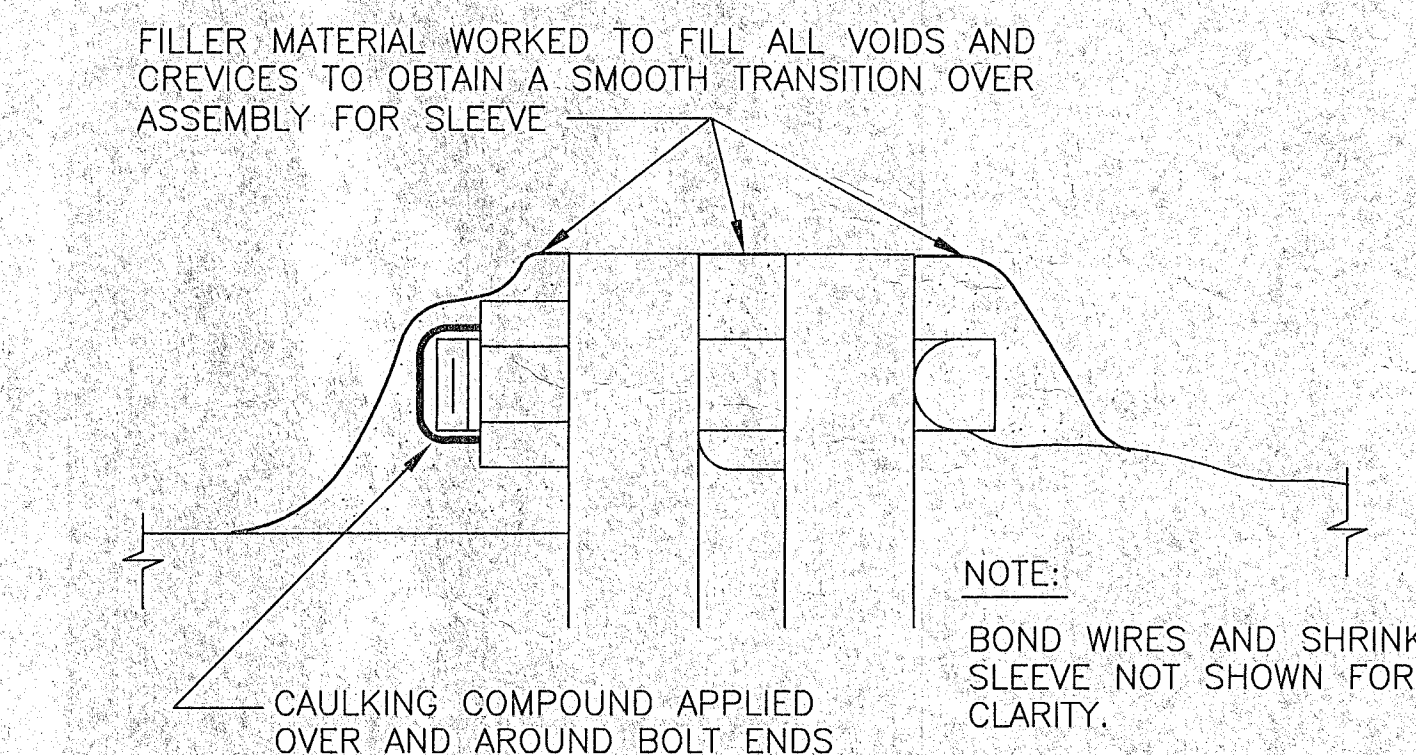
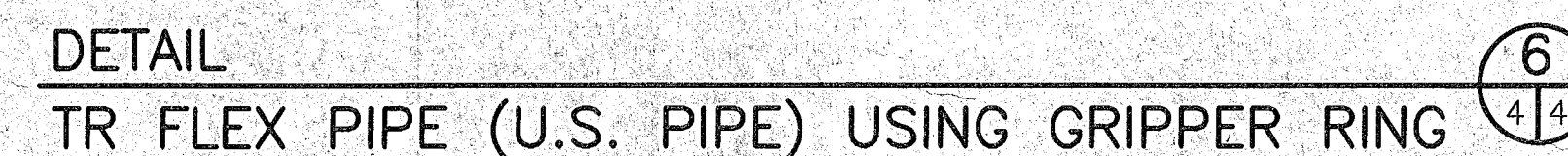
FILLER MATERIAL WORKED TO FILL ALL CREVICES TO OBTAIN A SMOOTH TRANS ASSEMBLY FOR SLEEVE

CAULKING COMPOUND OVER AND AROUND B

NOTE: SHRINK SLEEVE NOT SHOWN

DETAIL

DRESSER INSULATED CO



FILLER MATERIAL WORKED TO FILL ALL VOIDS AND CREVICES TO OBTAIN A SMOOTH TRANSITION OVER ASSEMBLY FOR SLEEVE

CAULKING COMPOUND APPLIED OVER AND AROUND BOLT ENDS

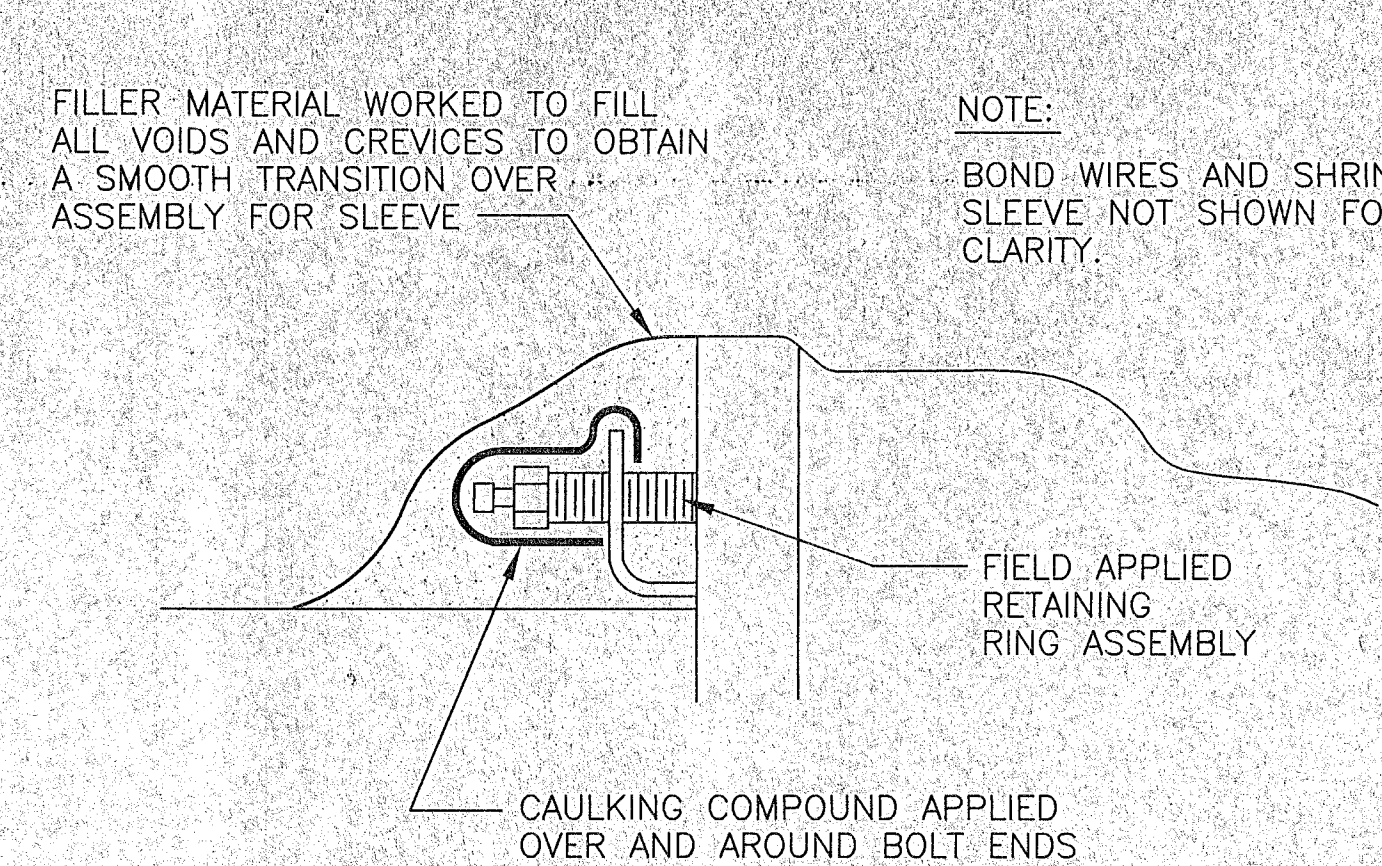
This diagram illustrates the application of filler material and caulking compound to a bolted connection. The top text indicates that filler material is used to fill all voids and crevices to achieve a smooth transition over the assembly for the sleeve. The bottom text specifies that caulking compound is applied over and around the bolt ends. The diagram shows a cross-section of a bolted joint with a sleeve, highlighting the areas where these materials are applied.

NOTE: SHRINK SLEEVE NOT SHOWN FOR CLARITY.

DETAIL

DRESSER INSULATED COUPLING

10
4 4



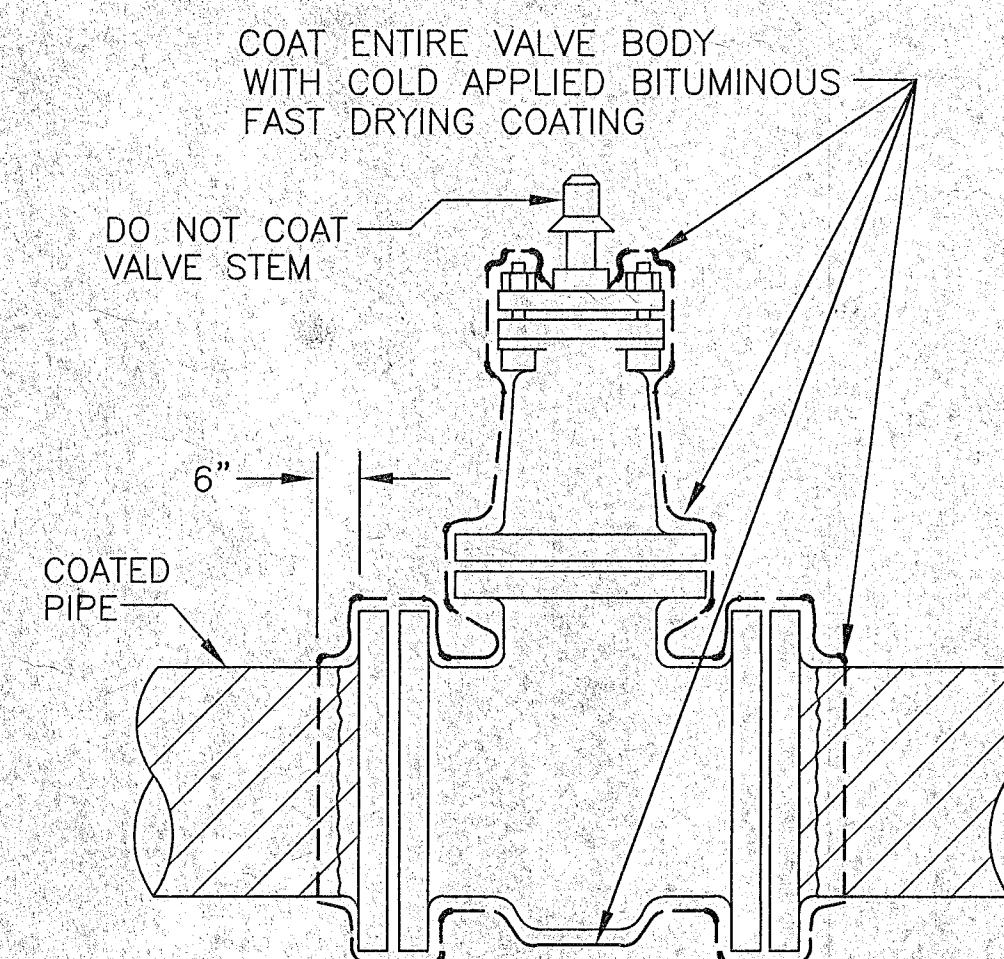
DETAIL

SNAP-LOK FIELD CUT PIPE
(GRIFFIN PIPE)

5
4 4

1. THE WELDED OR M.J. FITTINGS SHALL BE ENCAPSULATED WITH A HEAT-SHRINKABLE CROSS-LINKED POLYOFIN PROTECTIVE COATING SLEEVE, MANUFACTURED BY RACHEL CORPORATION, OR APPROVED EQUAL, IN ACCORDANCE WITH THE FOLLOWING PROCEDURES:

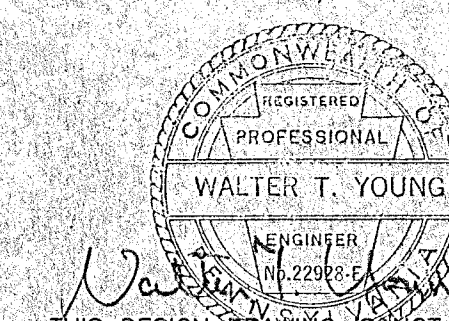
- A. PREHEAT PIPE SURFACE TO BE COATED BY REMOVING ALL DIRT, GRIME, RUST AND LOOSELY ADHERING MILL SCALE, BY HAND OR POWER WIRE BRUSHING, OR USE OF SUITABLE SAFETY SOLVENTS. ROUGHEN THE OUTER SURFACE OF THE POLYETHYLENE TAPE COATING THAT WILL BE COVERED BY THE SLEEVE, WITH COARSE SANDPAPER.
- B. PREHEAT PIPE SURFACE TO BE COVERED BY THE SLEEVE USING PROPANE TORCH SUPPLIED BY SLEEVE MANUFACTURER OR APPROVED EQUIVALENT, UNTIL THE PIPE SURFACE IS VERY WARM TO THE HAND (APPROX. 140° F.). USE TORCH IN CONTINUOUS MOTION TO PREVENT CONCENTRATED HEAT.
- C. INSTALL MASTIC COMPOUND OR FILLER GREASE AROUND SHARP EDGES OF BOLTS & NUTS AND INSTALL FILLER MATERIAL IN SUFFICIENT QUANTITY TO FILL ALL VOIDS AND CREVICES. PRESS AND MOLD THE FILLER MATERIAL AROUND JOINT ASSEMBLY TO FORM A SMOOTH TRANSITION FROM PIPE JOINT TO PIPE, AS INDICATED IN DETAIL "2". IT MAY BE NECESSARY TO REHEAT EXPOSED METAL AFTER PLACEMENT OF FILLER MATERIAL.
- D. REMOVE THE INNER PROTECTIVE RELEASE PAPER FROM AN APPROPRIATE LENGTH SLEEVE. POSITION THE SLEEVE SO THAT THE COUPLING OR INSULATING FLANGE IS IN THE CENTER OF THE SLEEVE. WRAP THE SLEEVE AROUND THE JOINT ASSEMBLY WITH THE RAIL/CHANNEL CLOSURE POSITIONED ABOUT 15 TO 30 DEGREES OFF TOP-CENTER AND THE INTERNAL FLAP OF THE SLEEVE FACING DOWNWARD.
- E. COMPLETELY ZIP THE CLOSURE AND FOLD CLOSURE FLAP BACK OVER THE ZIPPER AREA.
- F. USE PROPANE TORCH SUPPLIED BY SLEEVE MANUFACTURER OR APPROVED EQUIVALENT, FOR SHRINKING THE SLEEVE. ADJUST THE TANK REGULATOR TO OBTAIN AN APPROXIMATE 20-INCH YELLOW FLAME.
- G. BEGIN SHRINKING CIRCUMFERENTIALLY AROUND THE SLEEVE, STARTING AT THE CENTER OF THE JOINT ASSEMBLY AND CONTINUING TO THE END OF THE SLEEVE. UNTIL A BEAD OF MASTIC IS EXTRUDED. RETURN TO THE CENTER AND RECOVER THE OTHER END, HEATING CIRCUMFERENTIALLY AS BEFORE, AND WORKING TO THE EDGE, SO THAT AIR DOES NOT BECOME TRAPPED AND UNTIL A BEAD OF MASTIC IS EXTRUDED.
- H. USING A BLUNT OBJECT, SUCH AS A HAMMER, GENTLY PUSH THE CHANNEL DOWN TO MATCH THE JOINT PROFILE. A SHARP OBJECT IS NOT TO BE USED SINCE THE SLEEVE COULD BE PUNCTURED IF IT SLIPS OFF THE CHANNEL. CARE MUST BE TAKEN NOT TO TOUCH OR DAMAGE THE SLEEVE WHILE IT IS STILL HOT AND TENDER.
- I. THE SLEEVE INSTALLATION IS COMPLETE WHEN A SMOOTH UNIFORM RECOVERY HAS BEEN ACHIEVED. SLEEVE INSTALLATION WILL NOT BE ACCEPTED IF THERE ARE SHARP PROJECTIONS FROM BOLTS, NUTS AND FLANGE, OR AIR VOIDS OR NON-UNIFORM SLEEVE RECOVERY.
- J. THE JOINT CAN BE BACKFILLED WHEN THE SLEEVE HAS COOLED ENOUGH SUCH THAT IT IS WARM TO THE TOUCH AND A HAND CAN BE HELD ON THE SLEEVE COMFORTABLY. CONDITIONS SUCH AS PIPE SIZE, AIR TEMPERATURE AND APPLIED HEAT WILL AFFECT THE ACTUAL COOL DOWN TIME.



DETAIL

FIELD COATED VALVE 1.2

(VALVE BODY)



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CITY OF WICHITA, KANSAS

SLIPLINING 48" WELL
FIELD SUPPLY MAIN

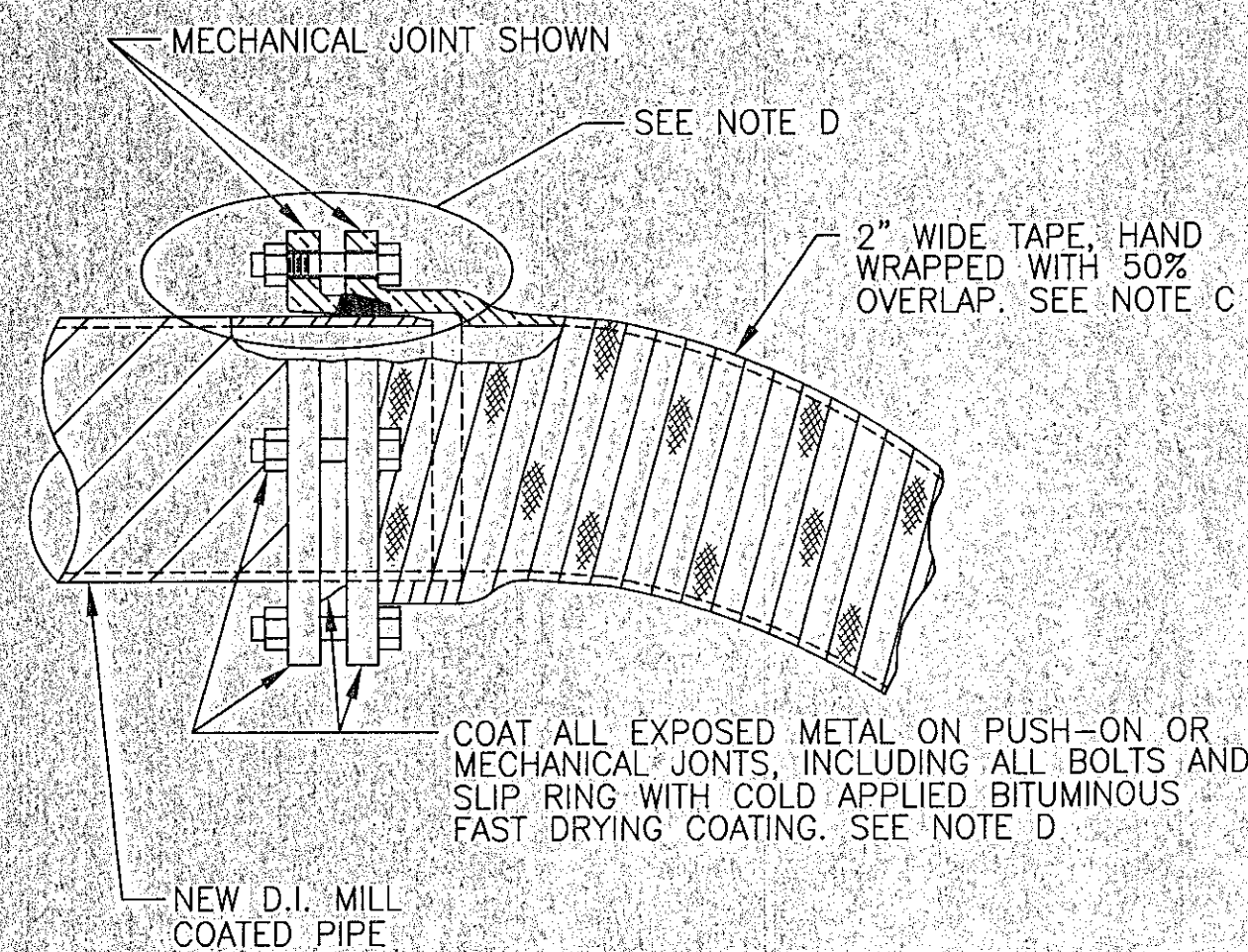
CATHODIC PROTECTION DETAIL

DESIGNED BY: WY	SCALE: NONE
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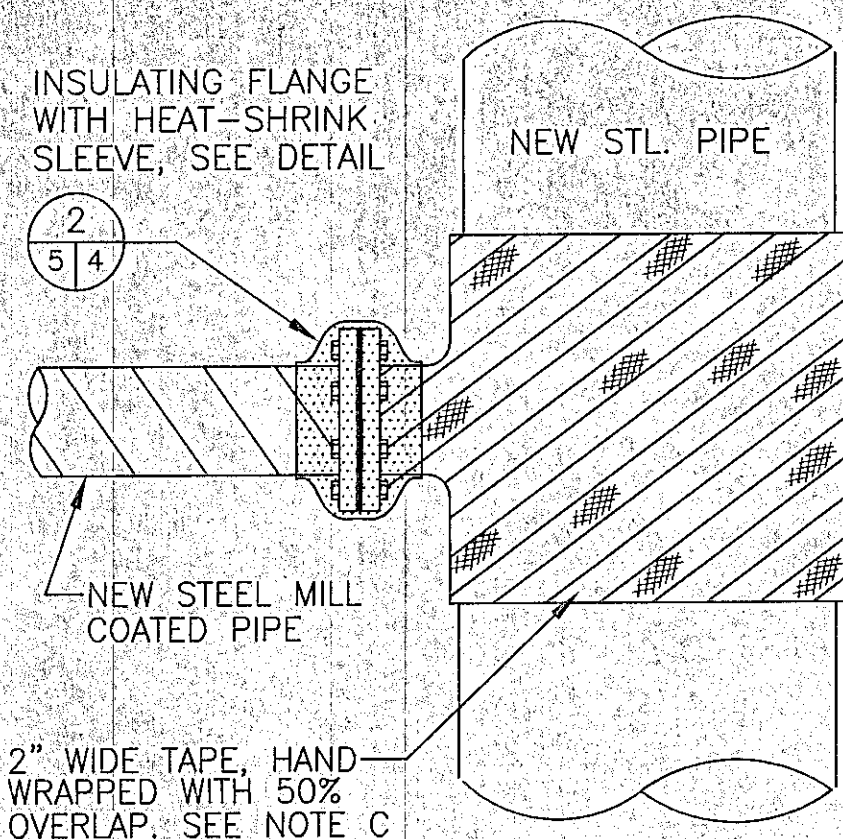
DRAWN BY: KK	SHEET 4 OF
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CHECKED BY: XX	DWG. NO.
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DATE: 6/4/01



TYPICAL FITTING

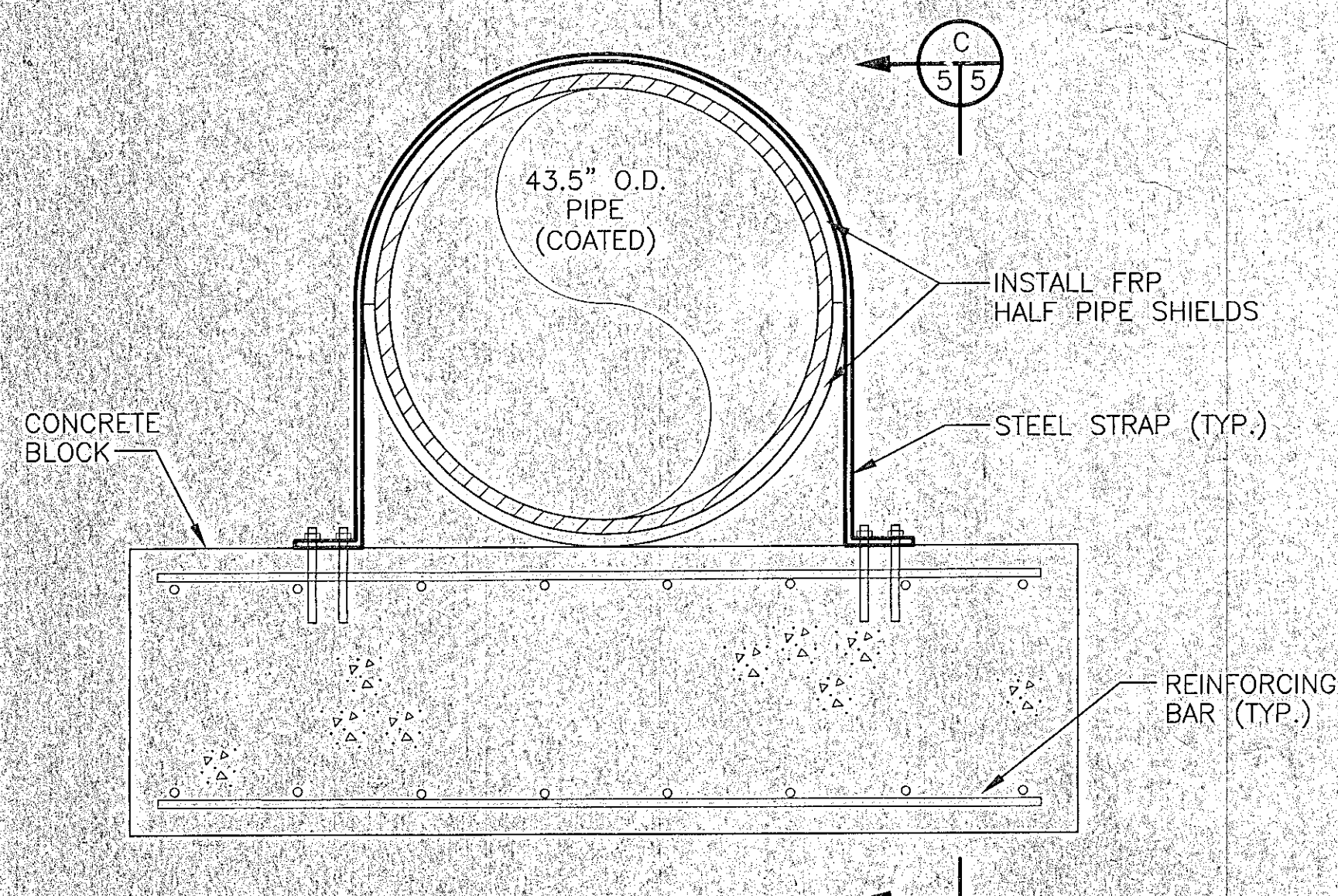


TYPICAL WET TAP

FLEX-CLAD HEAT SHRINK TAPE INSTALLATION PROCEDURE

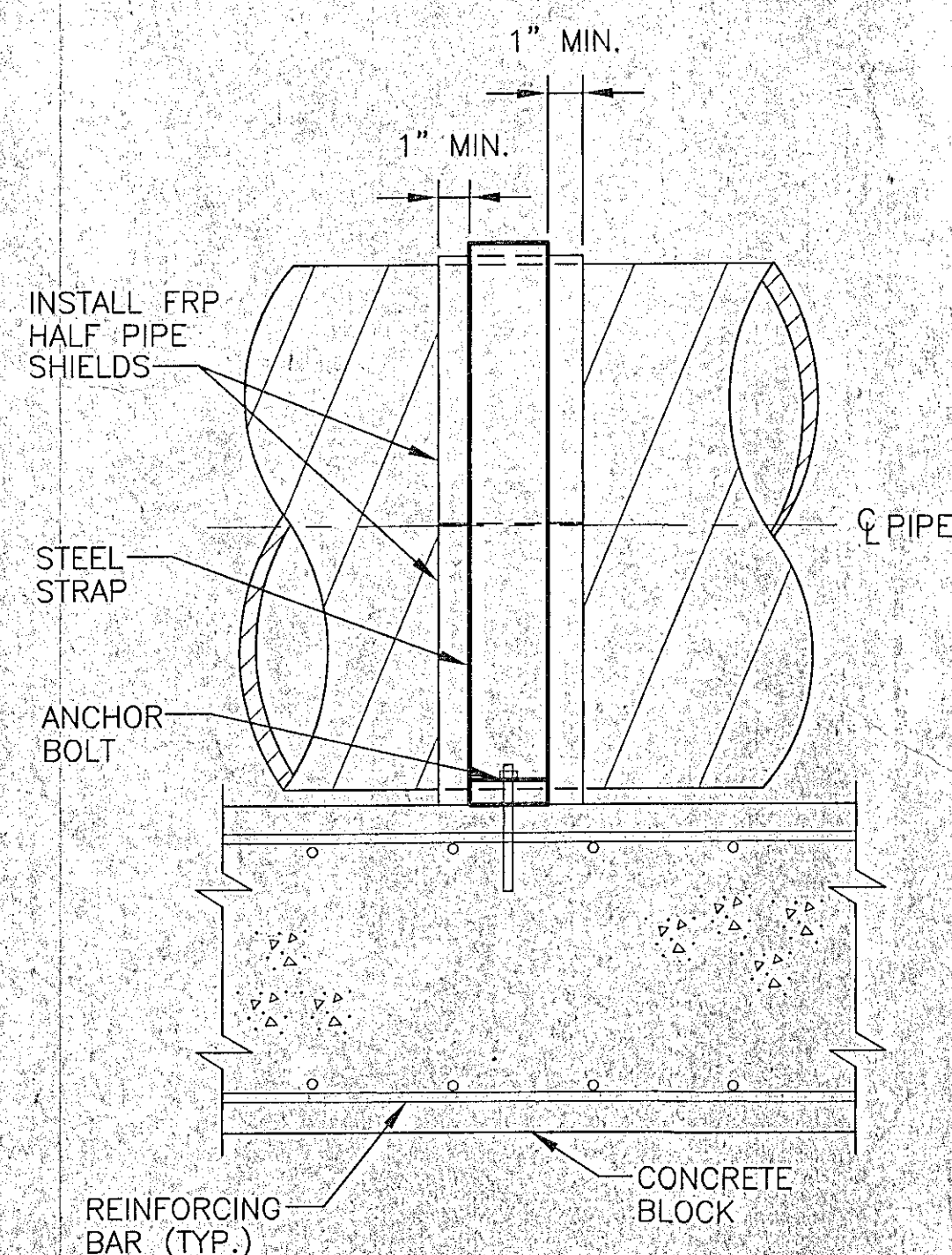
- REMOVE ALL DIRT, GRIME, GREASE, RUST AND LOOSELY ADHERING MILL SCALE FROM THE ASSEMBLED JOINT OR FITTING TO BE COATED BY POWER WIRE BRUSHING AND/OR USE OF SUITABLE SAFETY SOLVENTS.
 - WHERE BOND WIRES ARE PRESENT THEY SHOULD BE NEATLY DRESSED OVER THE PIPE JOINT OR FITTING SO AS NOT TO EXTEND ABOVE THE JOINT MORE THAN IS PRACTICAL.
 - APPLY THE TAPE MAXIMUM 4-INCHES WIDE, TO THE PRIMED PIPE IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS SO AS TO PROVIDE A 50 PERCENT OVERLAP OF TAPE. CARE SHOULD BE TAKEN TO FORM TAPE TIGHTLY AROUND BOND WIRES. DO NOT EXTEND THE TAPE SYSTEM OVER THE FACE OF THE BELL. FILL ALL VOIDS IN HEAT SHRINK TAPE AFTER SHRINKING IS COMPLETE WITH MASTIC FILLER. COAT ALL FILLED VOID AREAS WITH COLD-APPLIED BITUMINOUS FAST DRYING COATING.
 - THE FACE OF ALL BELL JOINTS ARE NOT TO BE TAPED, BUT LEFT EXPOSED AND COATED WITH A HEAT SHRINK SLEEVE PER DETAIL (7/5/4)
- IF SHRINK SLEEVE CANNOT BE INSTALLED, COAT FACE OF BELL WITH BITUMINOUS FAST DRYING COATING.

DETAIL
FIELD COATED BENDS, CROSSES, REDUCERS, WET TAPS & TEES

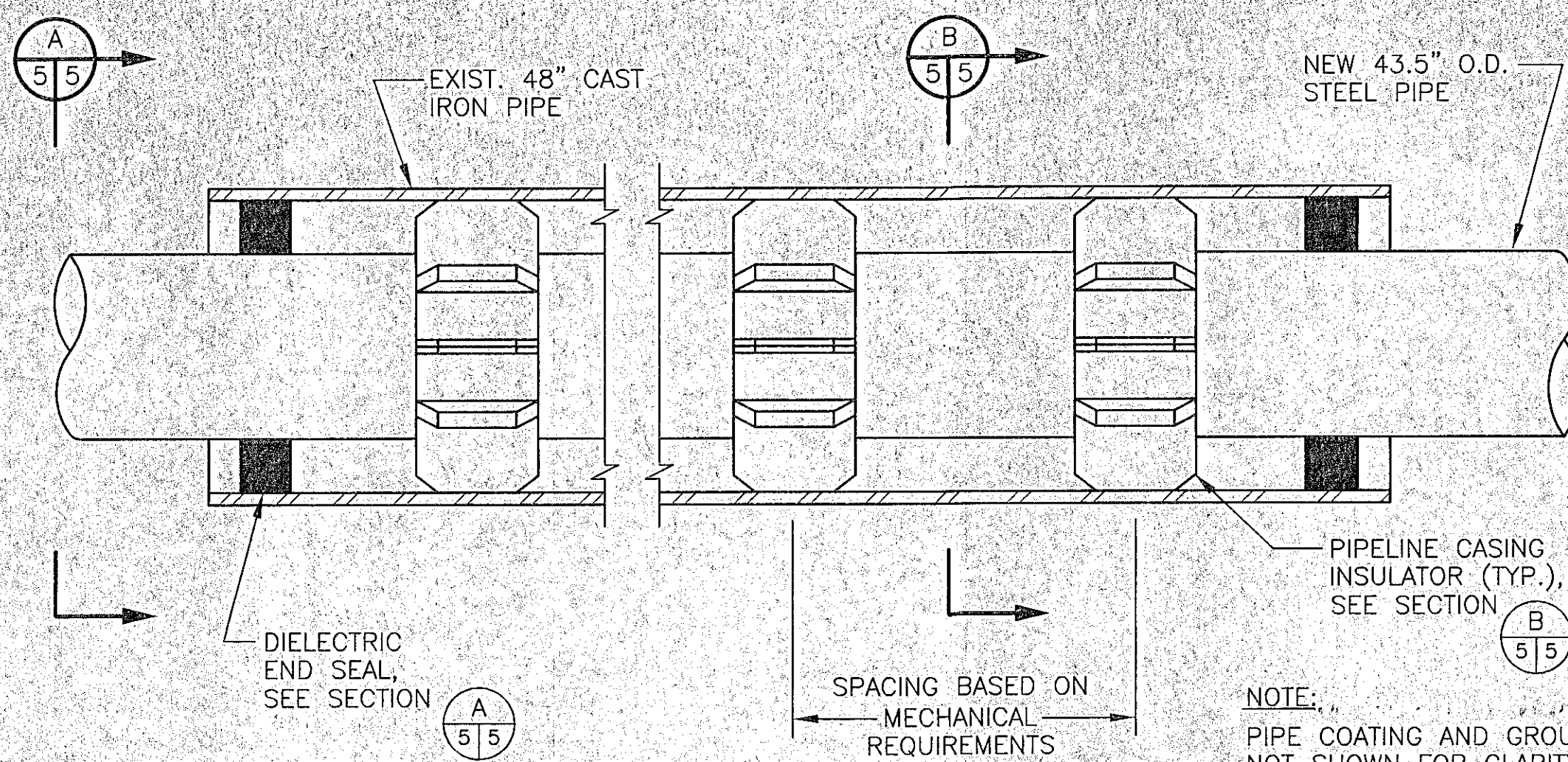


NOTE:
ACTUAL THRUST BLOCK INSTALLATION MAY BE DIFFERENT THAN DRAWING SHOWN. INSTALL CORROSION CONTROL MEASURES IN SIMILAR MANNER.

DETAIL
THRUST BLOCK STRAP DIELECTRIC ISOLATION



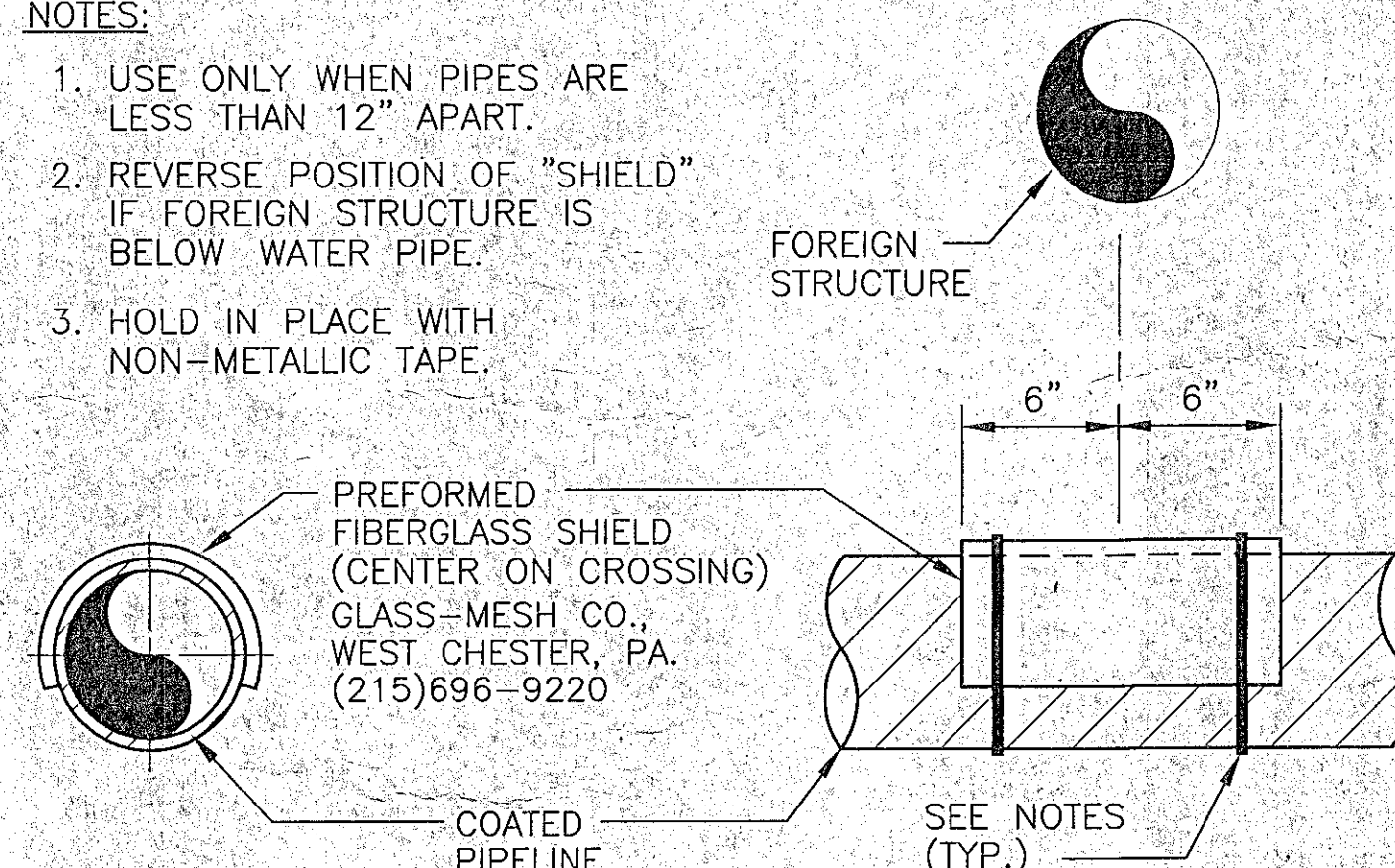
SECTION C



DETAIL
TYPICAL INSTALLATION FOR CASING END SEALS & CASING INSULATORS

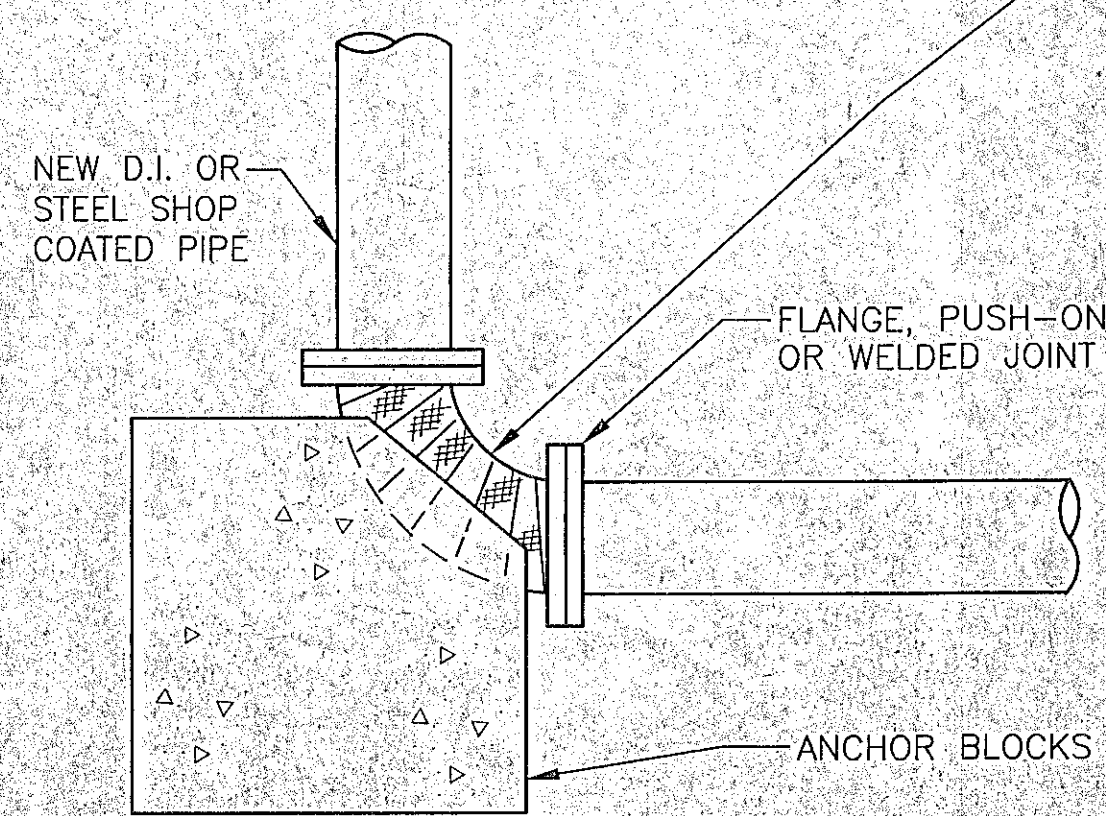
NOTES:

- USE ONLY WHEN PIPES ARE LESS THAN 12" APART.
- REVERSE POSITION OF "SHIELD" IF FOREIGN STRUCTURE IS BELOW WATER PIPE.
- HOLD IN PLACE WITH NON-METALLIC TAPE.



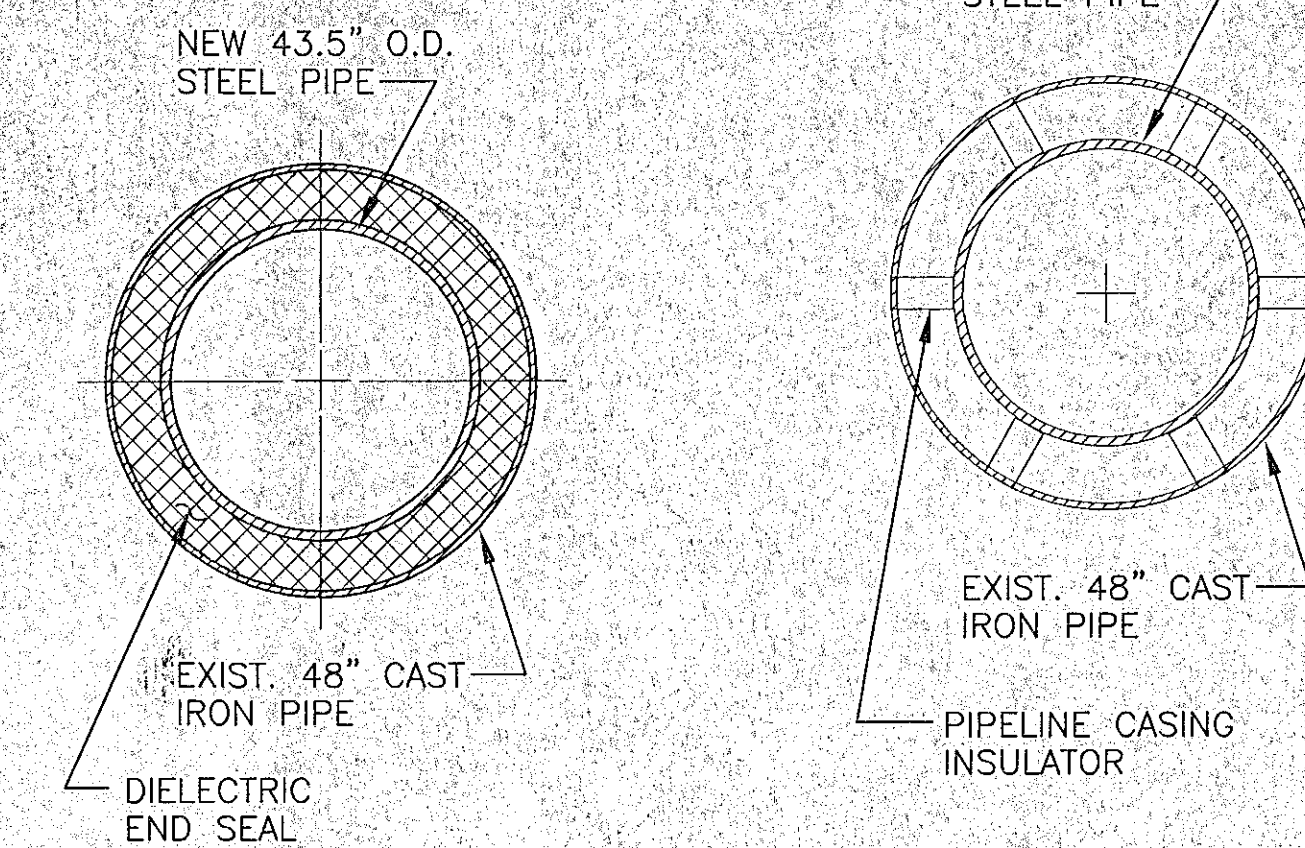
DETAIL
SEPARATOR TO AVOID ELECTRICAL CONTACT

APPLY LOOSE WRAP OF PIPE LINE FELT TO COATED PIPE TO BE IN CONTACT WITH CONCRETE. HOLD IN PLACE WITH ELECTRICAL OR OTHER NON-METALLIC TAPE.



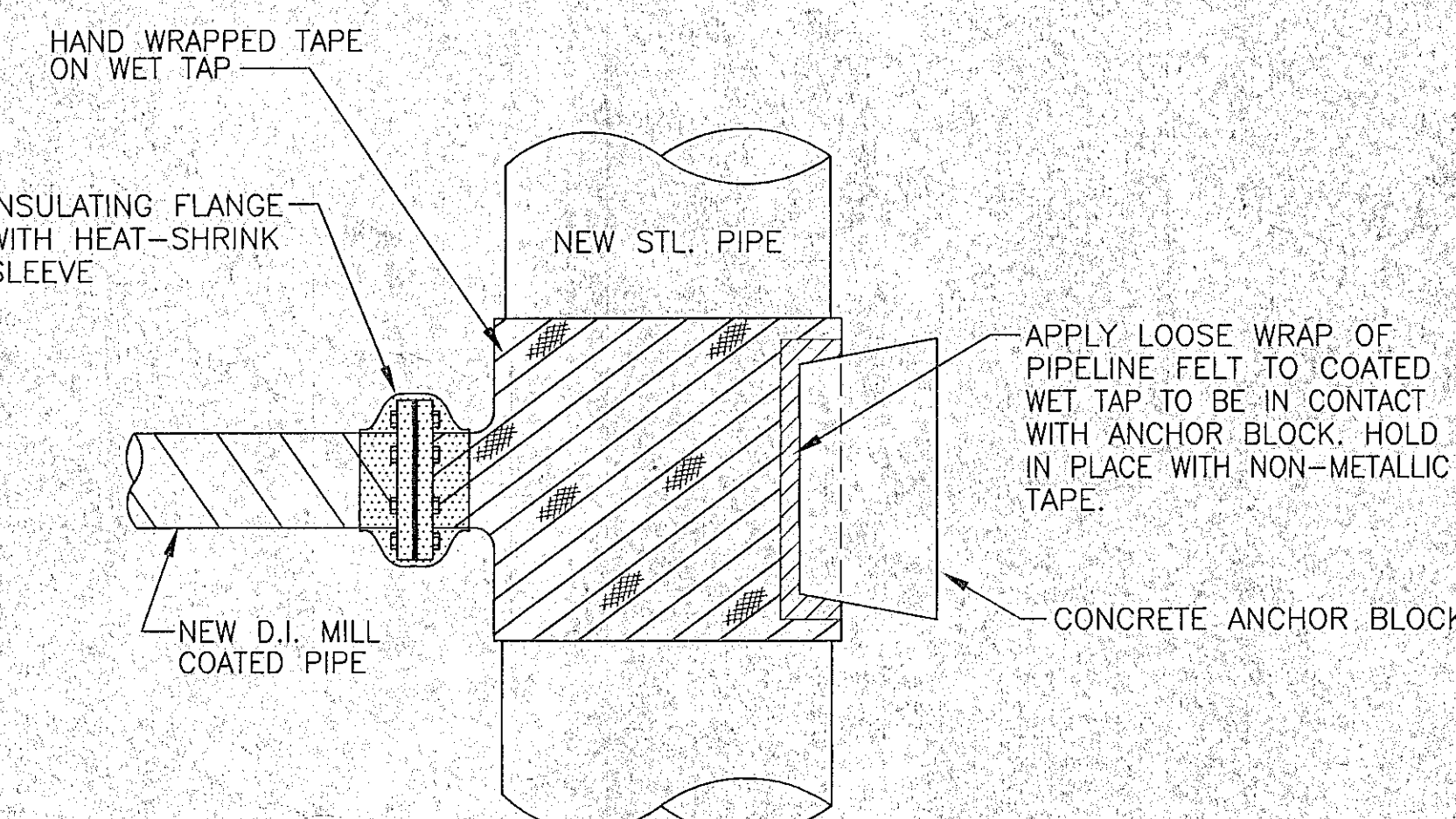
NOTE: BOND WIRES NOT SHOWN FOR CLARITY.

DETAIL
ANCHOR BLOCK ISOLATION



SECTION
CASING END SEAL

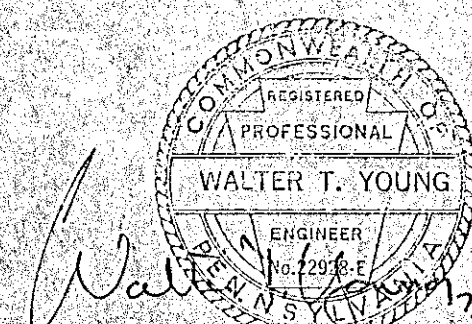
SECTION
CASING INSULATOR



NOTES:

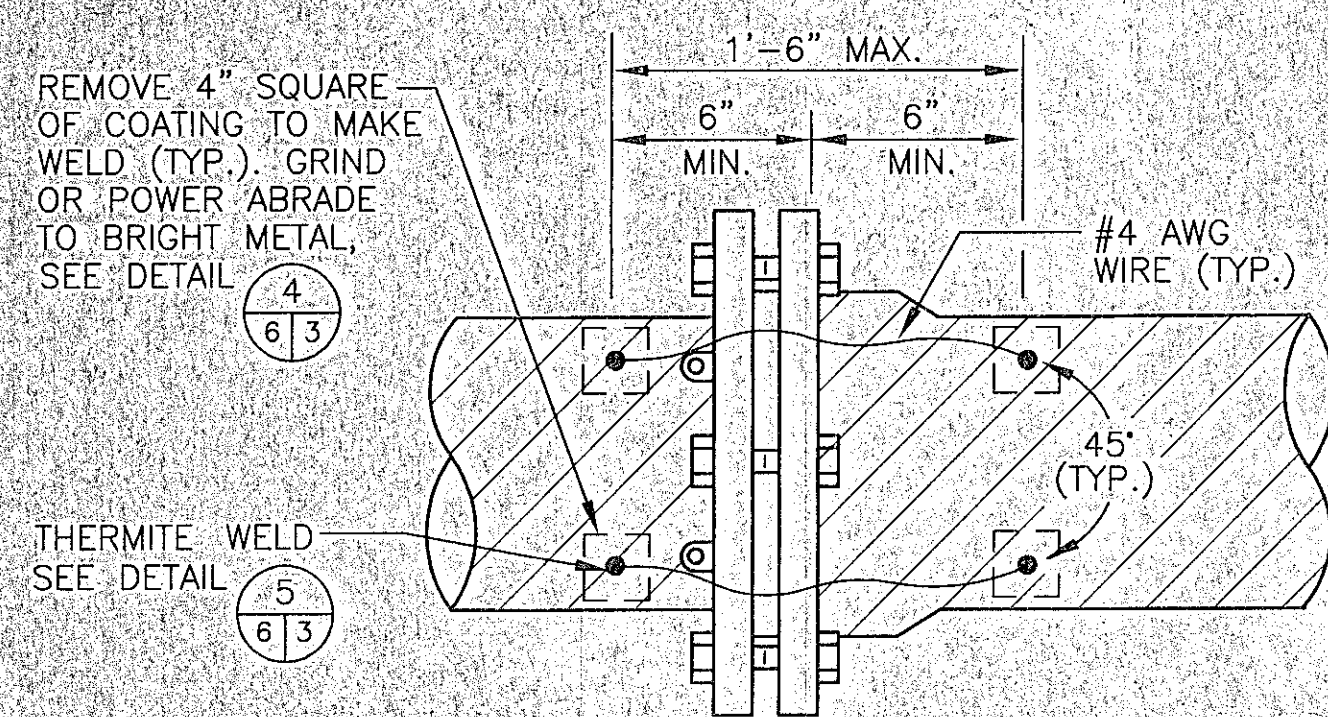
- ACTUAL THRUST BLOCK INSTALLATION MAY BE DIFFERENT THAN DRAWING SHOWN. INSTALL CORROSION CONTROL MEASURES IN SIMILAR MANNER.
- BOND WIRES NOT SHOWN FOR CLARITY. SEE DETAIL (1/5/6)

DETAIL
WET TAP COATING PROTECTION AT THRUST BLOCK



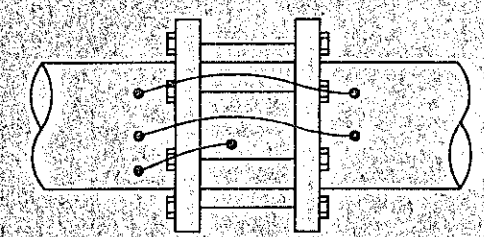
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		DESIGNED BY: WY DRAWN BY: KK CHECKED BY: XX DATE: 6/4/01	SCALE: NONE SHEET 5 OF 6 DWG. NO. D4-6155-5

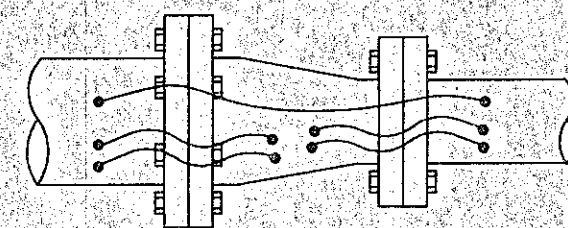


NOTE: RECOAT ALL EXPOSED PIPE PER SPECIFICATIONS UPON COMPLETION.

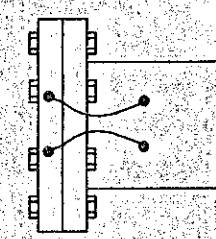
MECHANICAL JOINT, FLANGED JOINT PIPE OR PUSH-ON



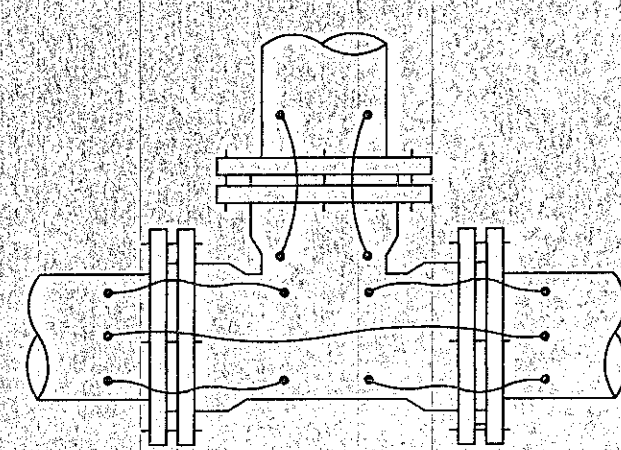
MECHANICAL SLEEVE



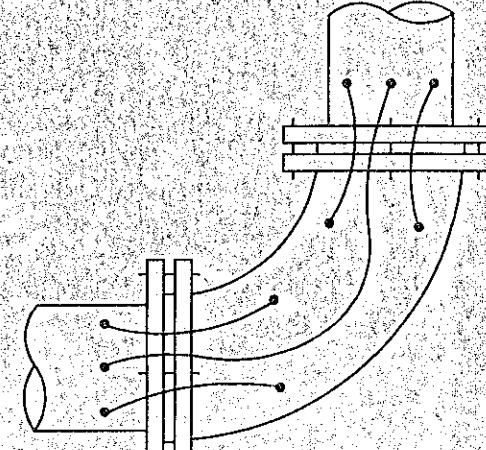
REDUCER



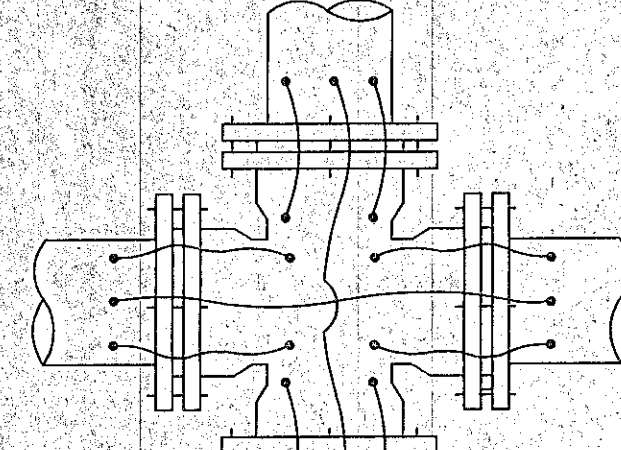
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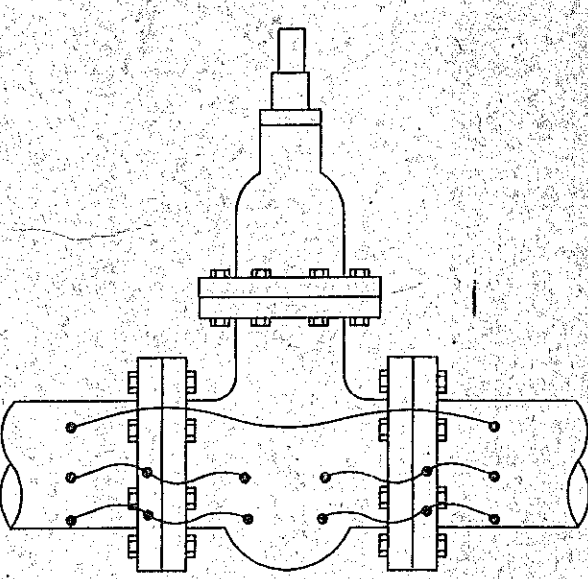
TEE



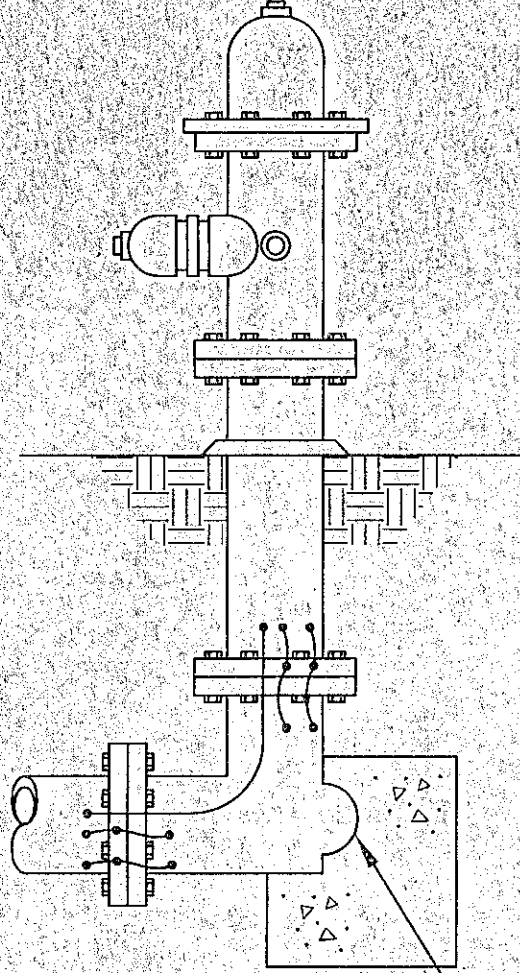
BEND



CROSS

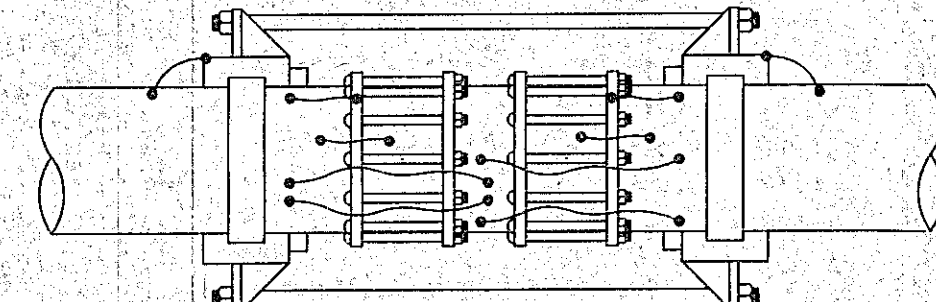


VALVE



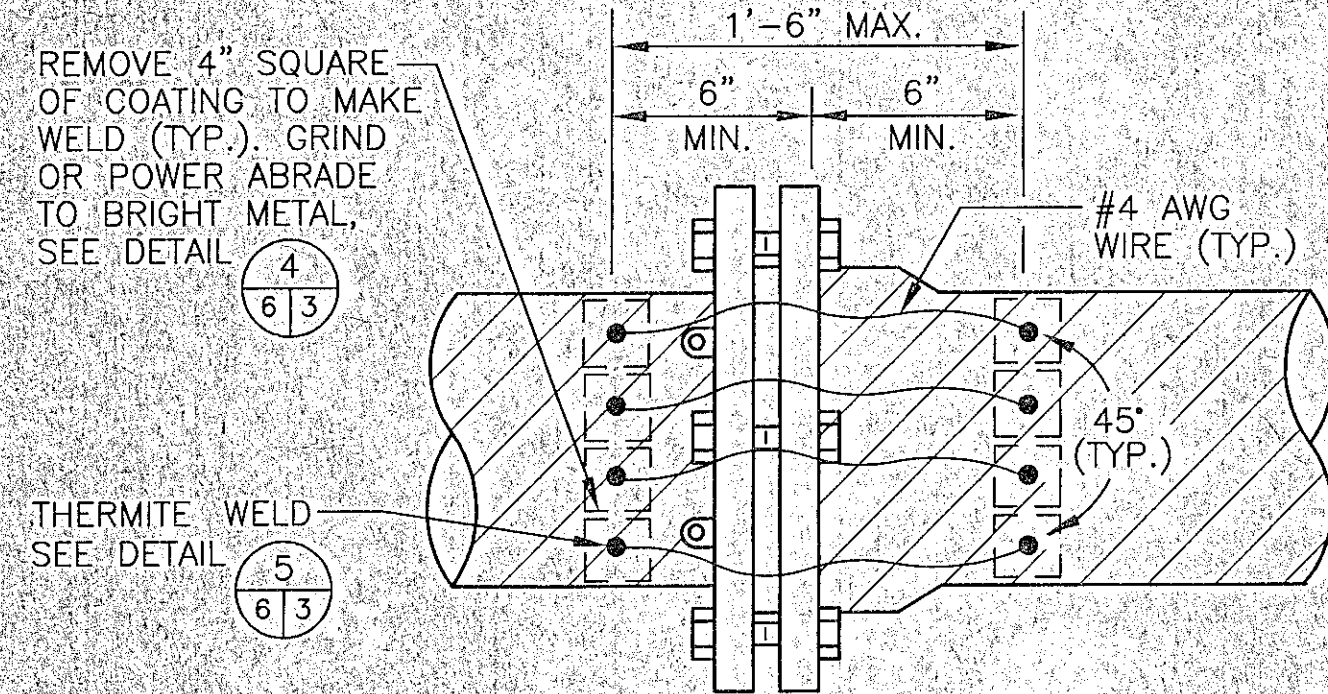
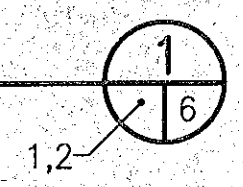
CONC. ANCHOR BLOCK ISOLATION REQUIRED (TYP.), SEE DETAIL

HYDRANT



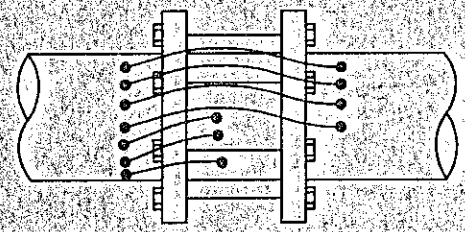
HARNESSSED JOINT PIPE

DETAIL
JOINT BONDING CONFIGURATIONS
(UP TO 16"Ø PIPE)

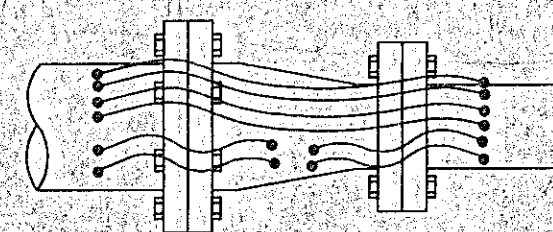


NOTE: RECOAT ALL EXPOSED PIPE PER SPECIFICATIONS UPON COMPLETION.

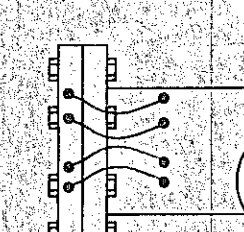
MECHANICAL JOINT, FLANGED JOINT PIPE OR PUSH-ON



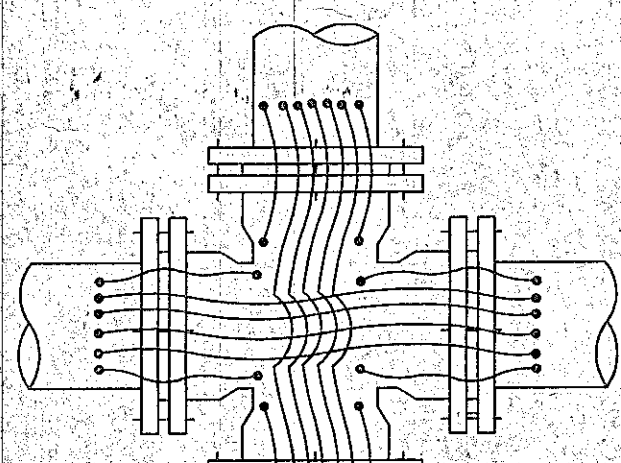
MECHANICAL SLEEVE



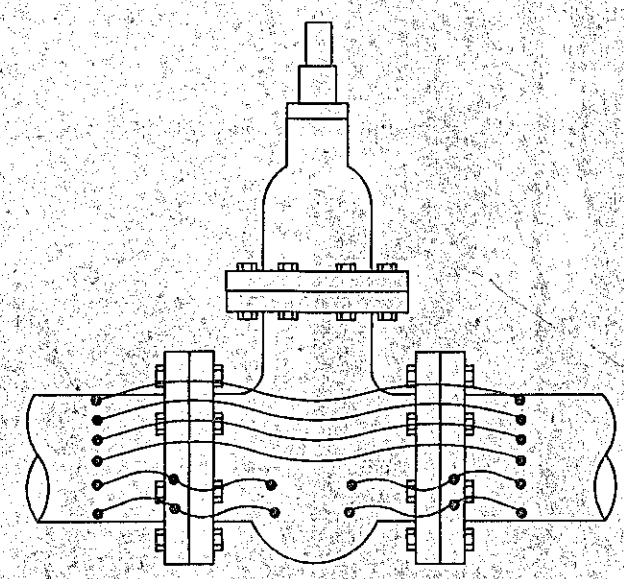
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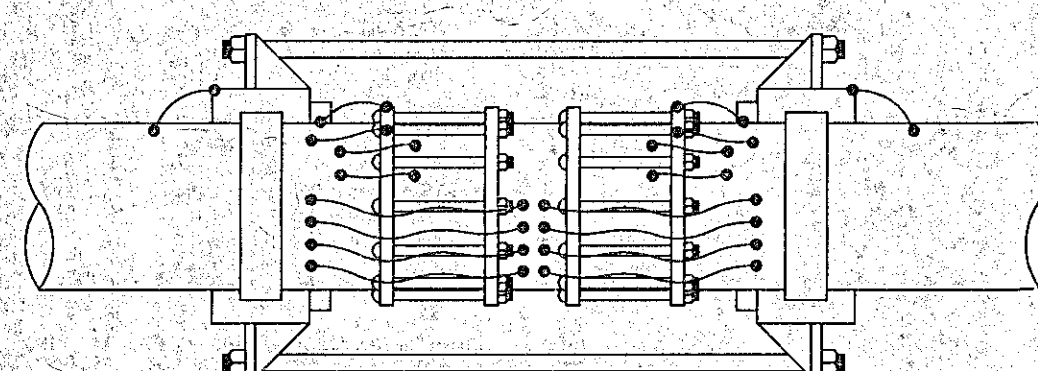
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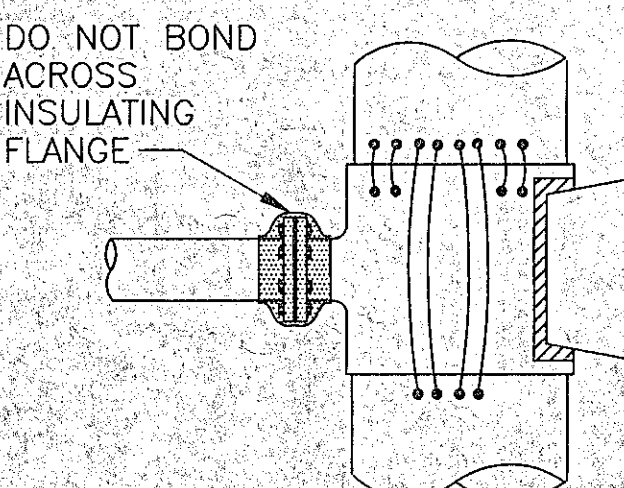
CROSS



VALVE

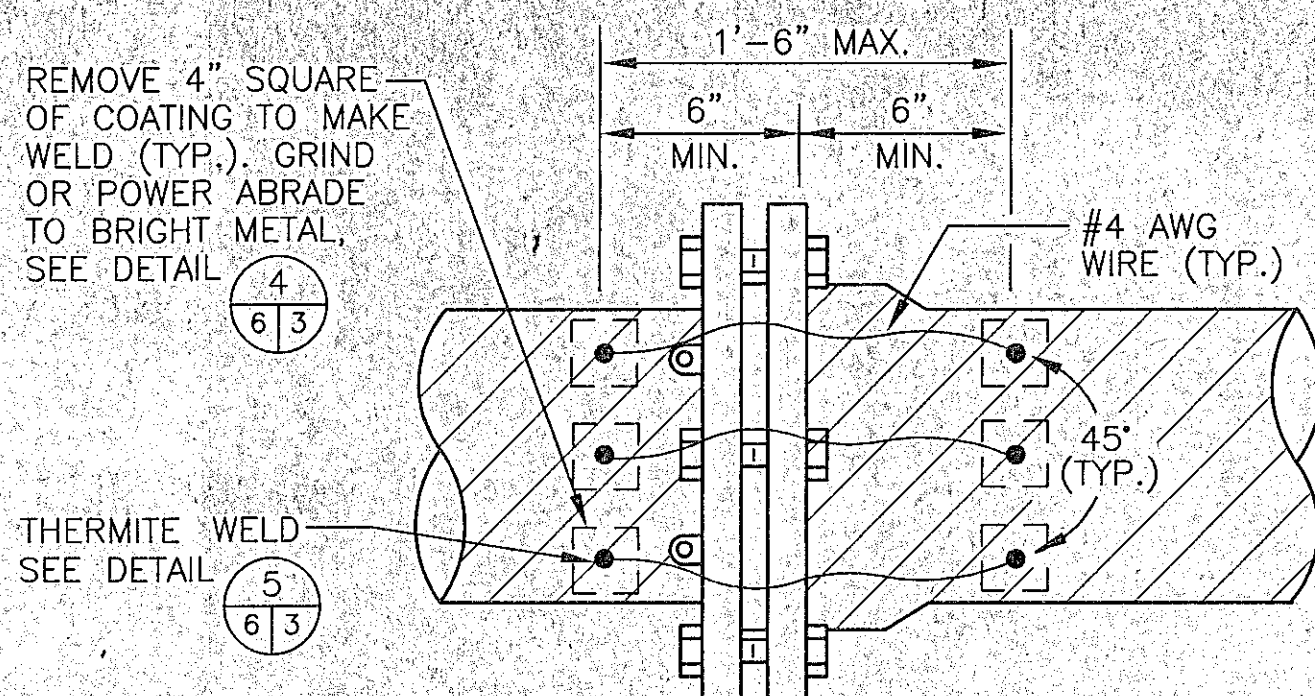
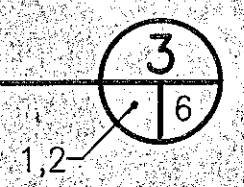


HARNESSSED JOINT PIPE



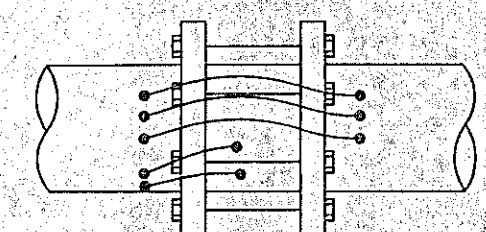
WET TAP

DETAIL
JOINT BONDING CONFIGURATIONS
(38"Ø PIPE AND UP)

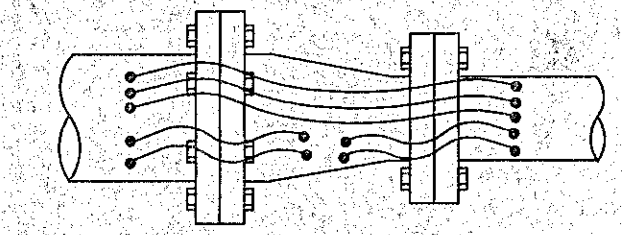


NOTE: RECOAT ALL EXPOSED PIPE PER SPECIFICATIONS UPON COMPLETION.

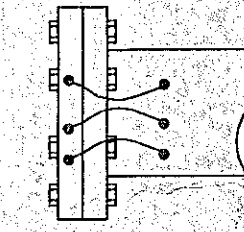
MECHANICAL JOINT, FLANGED JOINT PIPE OR PUSH-ON



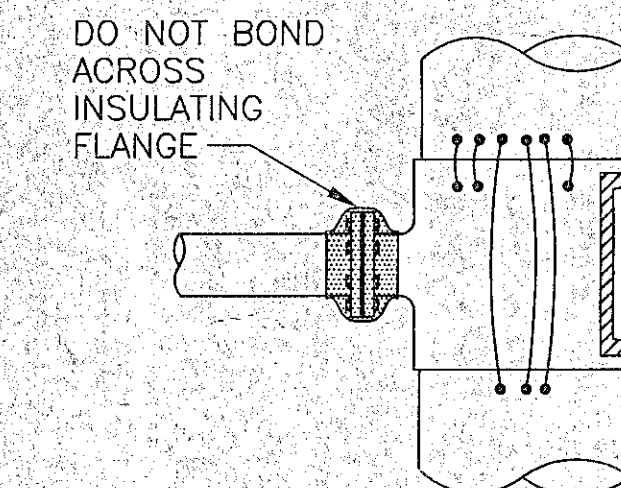
MECHANICAL SLEEVE



REDUCER

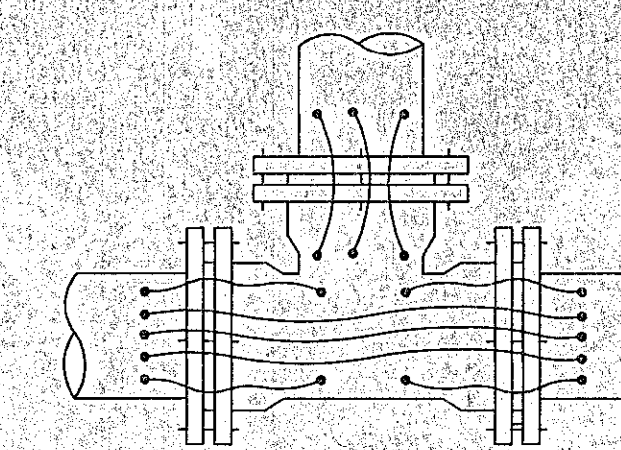
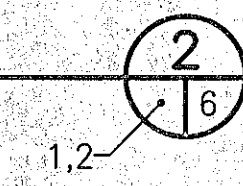


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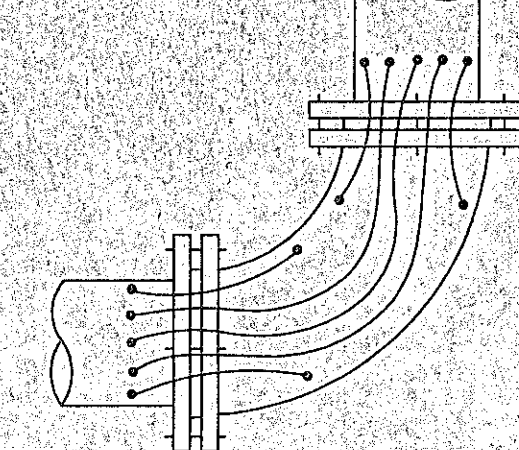


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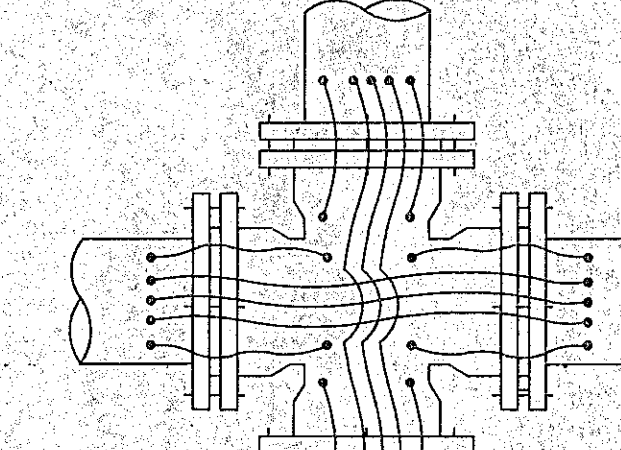
DETAIL
JOINT BONDING CONFIGURATIONS
(16"Ø PIPE TO 36"Ø PIPE)



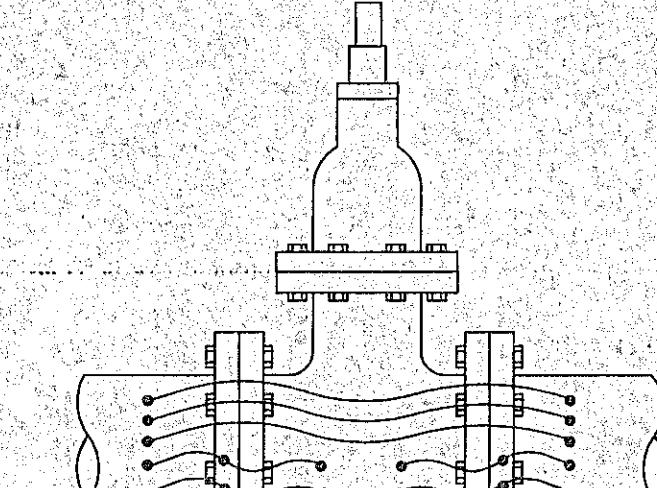
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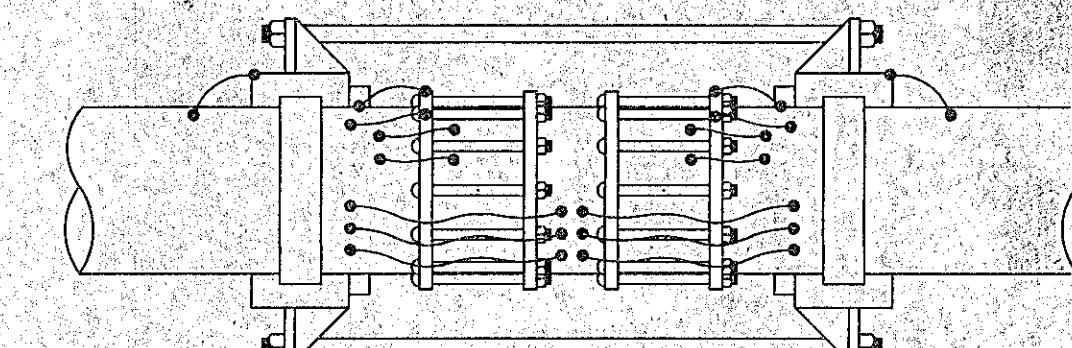
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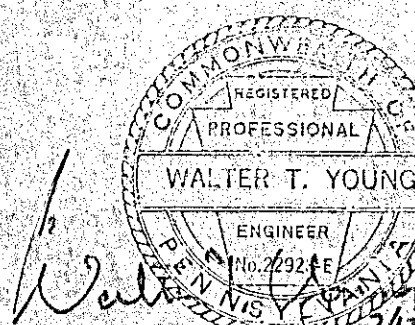
CROSS



VALVE



HARNESSSED JOINT PIPE



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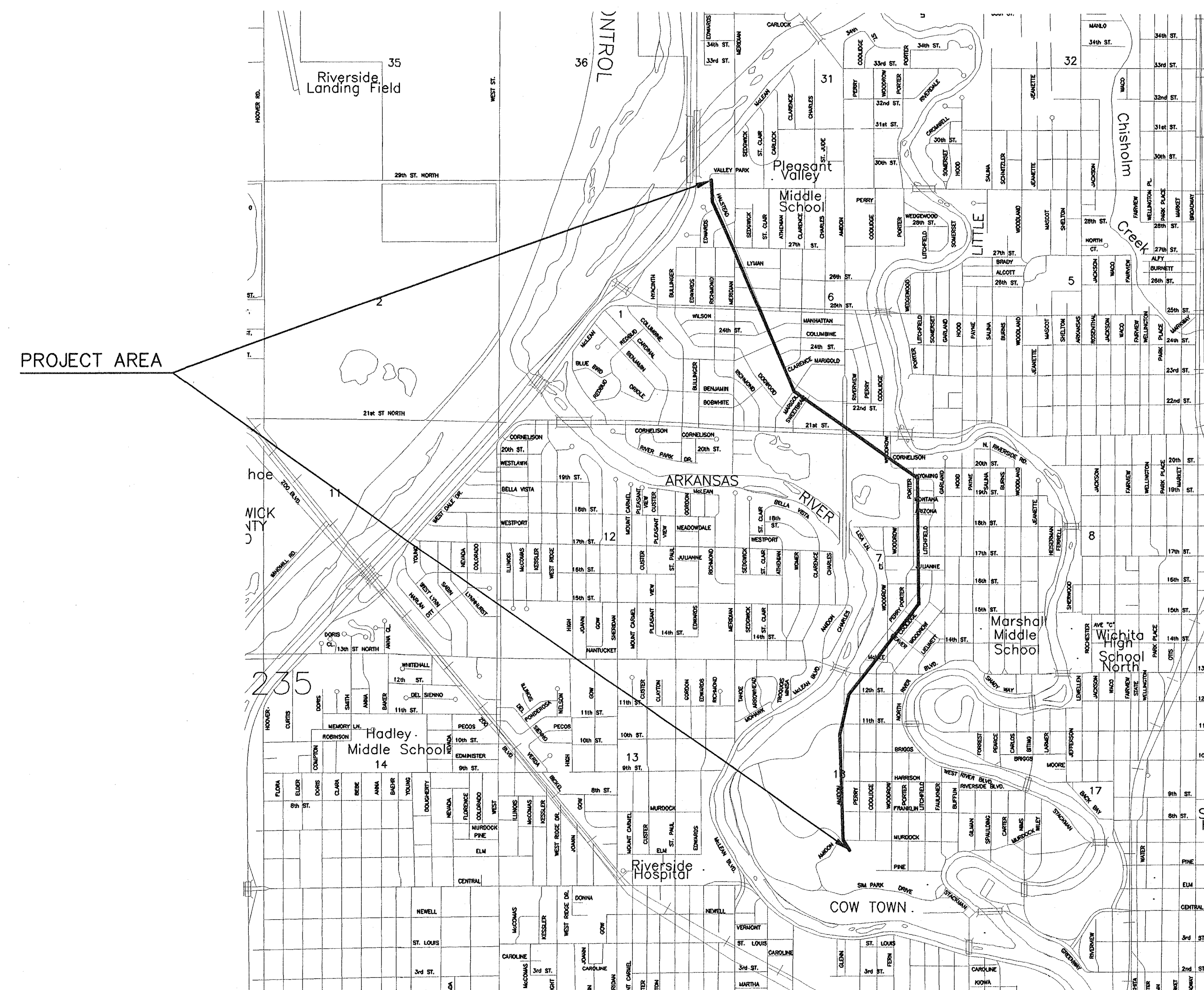
MKEC ENGINEERING



610 Brandywine Parkway
West Chester, Pennsylvania 19380
Office: (610) 344-7002
www.corrpro.com

NO.	DATE	BY	REVISIONS
CITY OF WICHITA, KANSAS			
SPLINING 48" WELL			
FIELD SUPPLY MAIN			
CATHODIC PROTECTION DETAILS			
DESIGNED BY: WY	SCALE: NONE		
DRAWN BY: KK	SHEET 6 of 6		
CHECKED BY: XX	DWG. NO.		
DATE: 6/4/01	D4-6155-6		

CONSTRUCTION PLANS FOR
WATER DISTRIBUTION SYSTEM IMPROVEMENTS
TO SERVE
**SLIPLINING
48" WELL FIELD SUPPLY MAIN**
THE CITY OF WICHITA
SEDGWICK COUNTY, KANSAS



CITY OF WICHITA PROJECT NO. 448-89433

INDEX CODE 633712

JANUARY 2003

PLANS PREPARED BY
MKEC ENGINEERING CONSULTANTS INC.
WICHITA, KANSAS

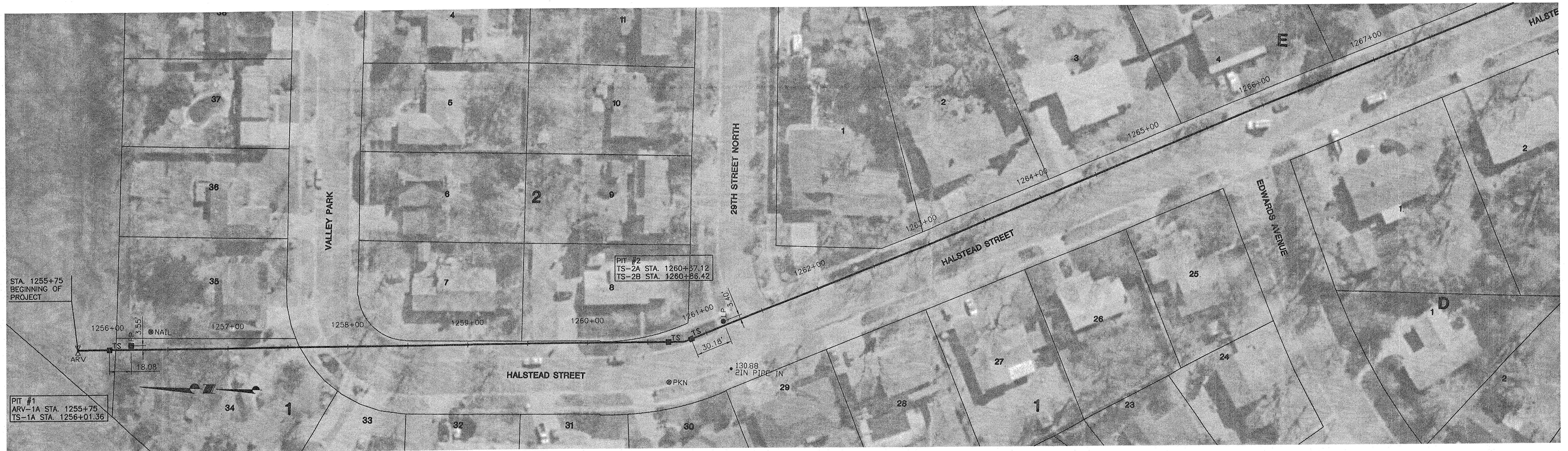


INDEX TO DRAWINGS

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2-9	WATER PLAN VIEW

LEGEND

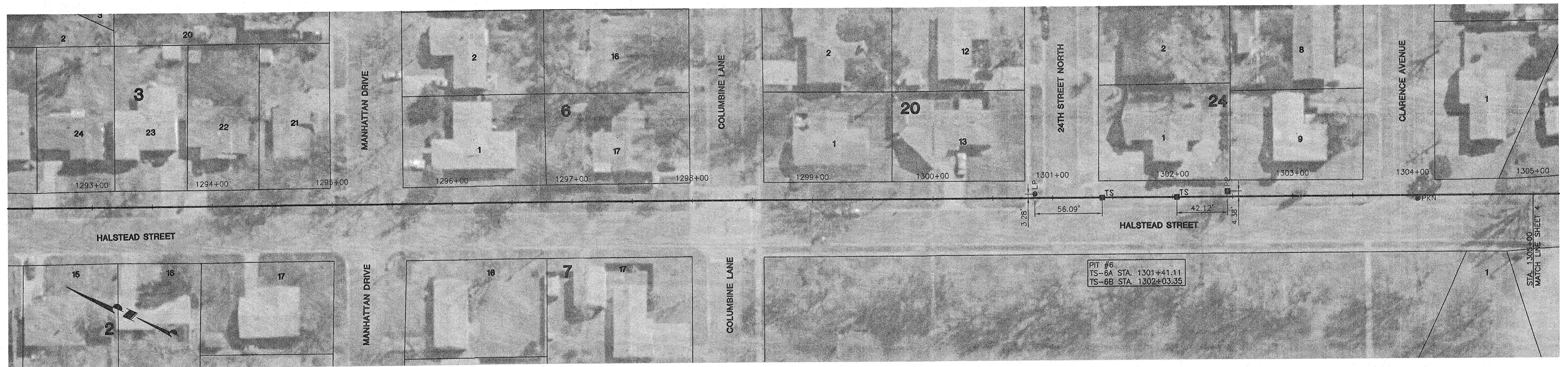
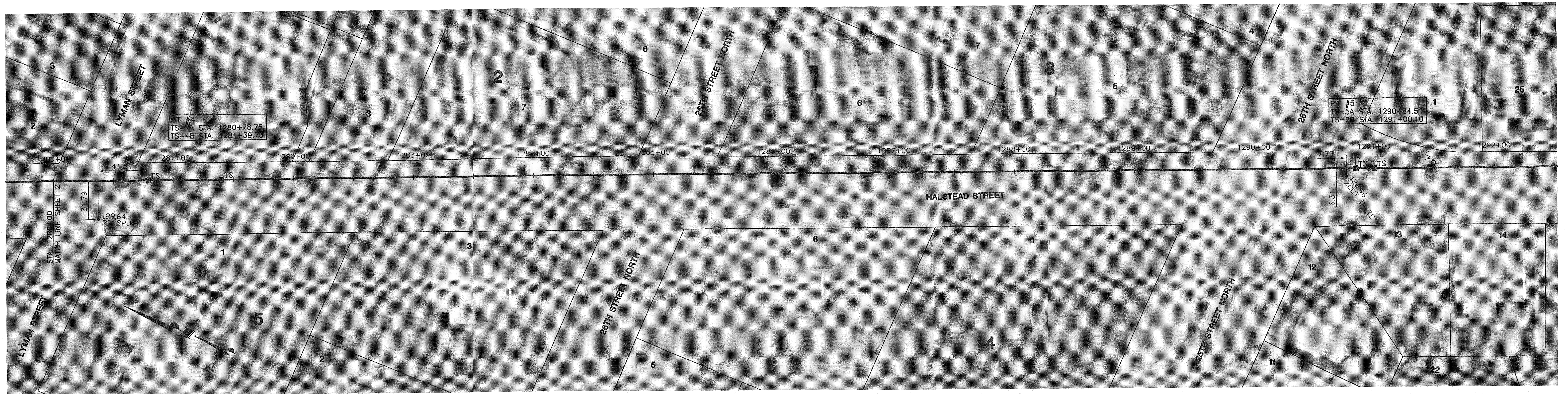
●GM - GAS METER	●POLE - POLE
●YLG - YARD LIGHT	— GATE
●ELECT MH - ELECTRIC MANHOLE	TRAF. MH - TRAFFIC SIGNAL MANHOLE
●SIG LIGHT - SIGNAL LIGHT	△ - SECTION CORNER
△SN - SIGN	*SPK - SPRINKLER HEAD
◎IP - IRON BAR	===== RETAINING WALL
■PP-X - POWER POLE AND DEADMAN	●LP - LIGHT POLE
■KGE - ELECTRIC BOX	●FH - FIRE HYDRANT
◎MH KGE - ELECTRIC MANHOLE	●VV - WATER VALVE
●CD - CLEANOUT	△ARV - AIR RELEASE VALVE
—V—V— - UNDERGROUND ELECTRIC LINE	◎WM - WATER METER
—E—E— - FENCE	□ICV - IRRIGATION CONTROL VALVE
●BM - BENCHMARK	— GRATE INLET
◎SWMH - STORM WATER MANHOLE	— INLET
◎SSMH - SANITARY SEWER MANHOLE	■TS - TEST STATION
●SWB - TELEPHONE MANHOLE	===== 48" WATER LINE
□TR - TELEPHONE RISER	----- 42" WATER LINE
===== STORM SEWER PIPE	----- 66" WATER LINE
===== SANITARY SEWER LINE	—T—T— - TELEPHONE LINE
—G—G— - GAS LINE	



MKEC
ENGINEERING CONSULTANTS
411 N. WEBB ROAD
WICHITA, KS. 67208
316-684-9600

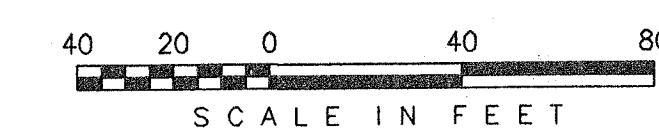
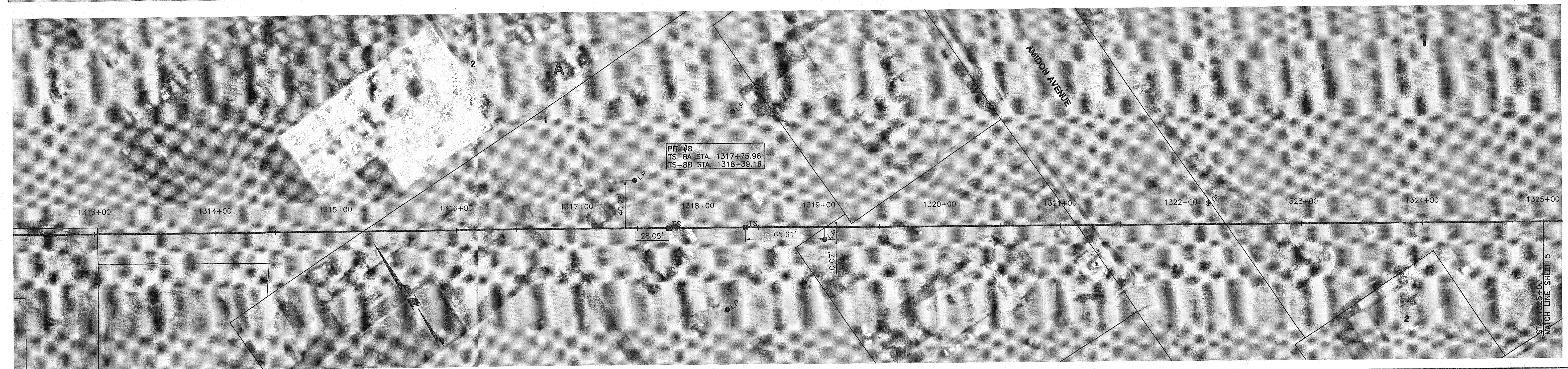
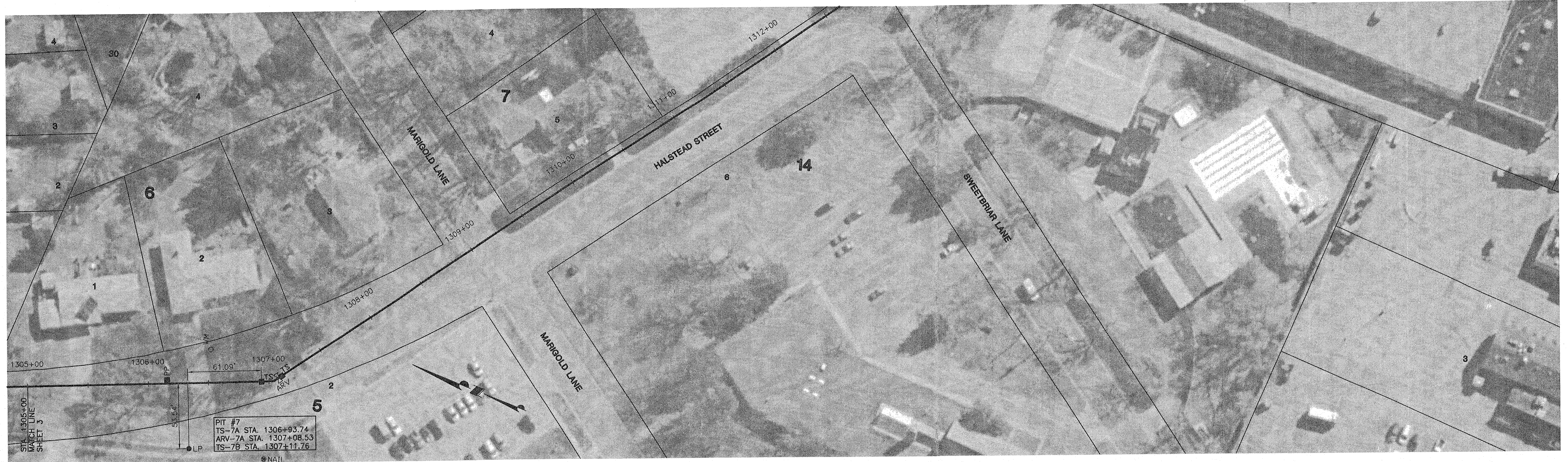
SLIPLINING 48" WELL FIELD SUPPLY MAIN
PROJECT NAME
PLAN VIEW
STA. 1255+75 TO STA. 1280+00
SHEET TITLE

BG/BLW DESIGN BY:	NCL DRAWN BY:	BLW CHECKED BY:
JANUARY 2003 DATE	99141sht1.dwg DRAWING NAME	2 / 9 SHEET / OF



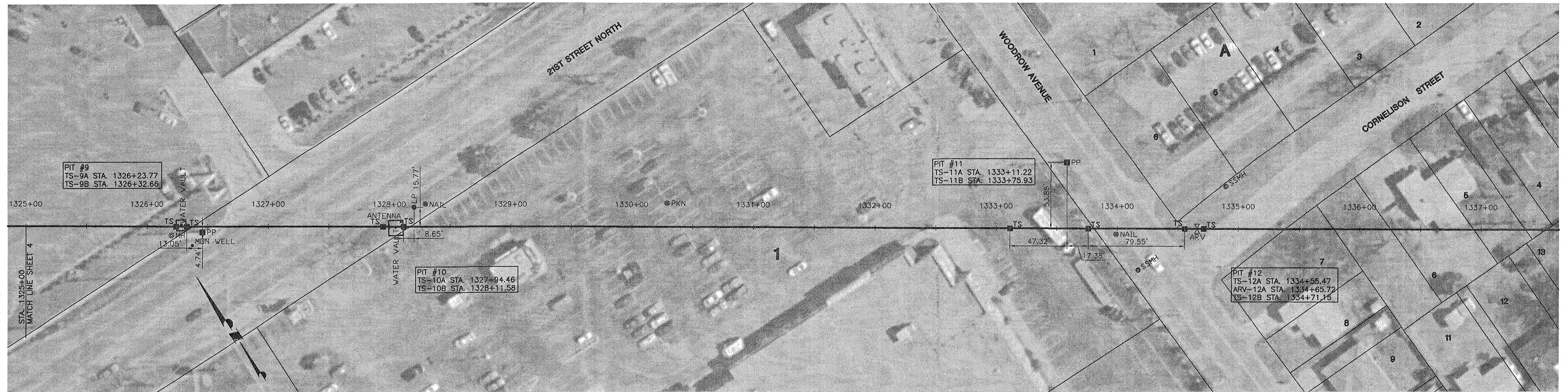
MKEC
ENGINEERING CONSULTANTS
411 N. WEBB ROAD
WICHITA, KS. 67206
316-684-9800

SLIPLINING 48" WELL FIELD SUPPLY MAIN
PROJECT NAME
PLAN VIEW
STA. 1280+00 TO STA. 1305+00
SHEET TITLE
BG/BLW
DESIGN BY: NCL
DRAWN BY: BLW
CHECKED BY: JANUARY 2003
DATE 99141sht2.dwg
DRAWING NAME 3 / 9
SHEET OF



SLIPLINING 48" WELL FIELD SUPPLY MAIN
 PROJECT NAME
PLAN VIEW
STA. 1305+00 TO STA. 1325+00
 SHEET TITLE

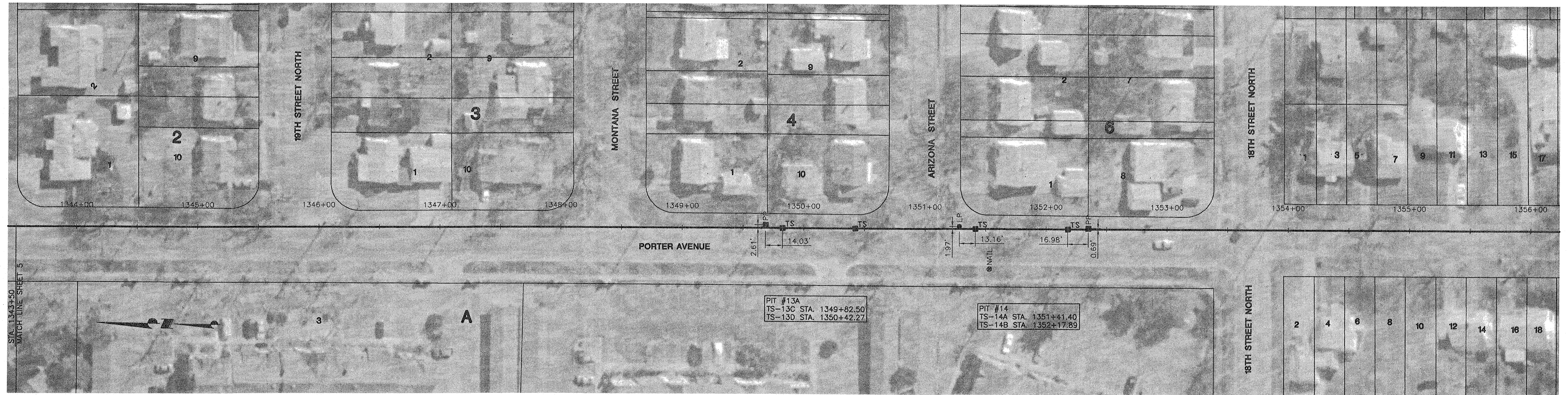
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JANUARY 2003 DATE	99141sht3.dwg DRAWING NAME	4 / 9 SHEET / OF



SLIPLINING 48" WELL FIELD SUPPLY MAIN
PROJECT NAME

PLAN VIEW
STA 1325+00 TO STA. 1343+50
SHEET TITLE

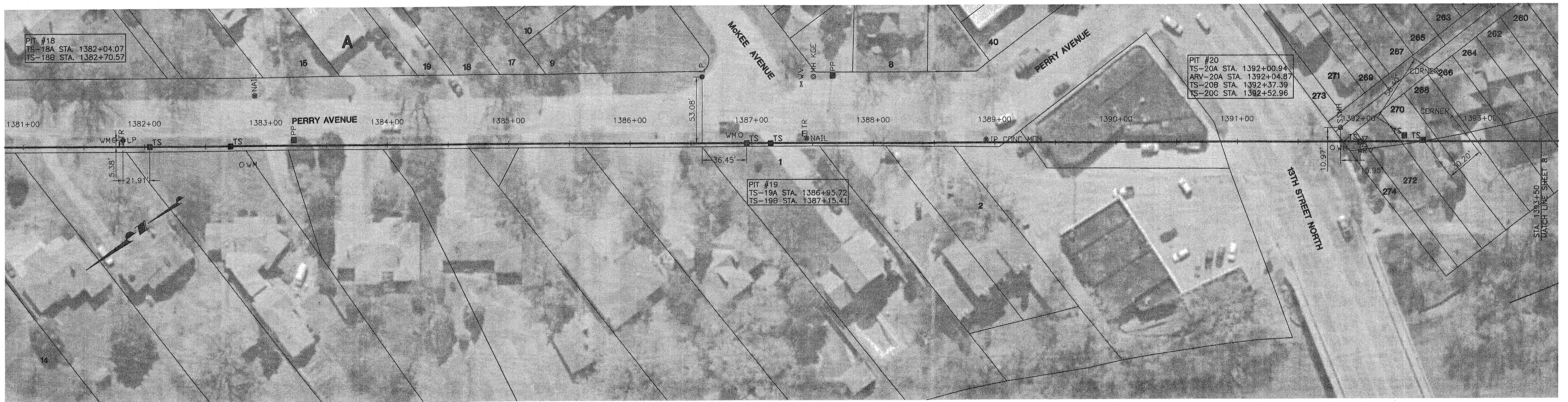
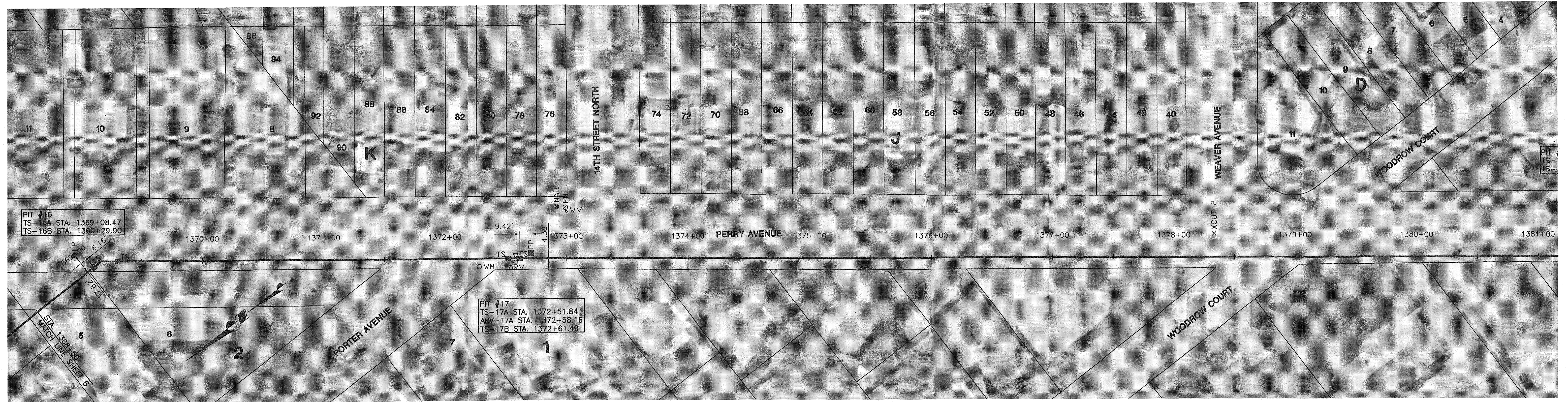
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JANUARY 2003 DATE	99141sht4.dwg DRAWING NAME	5 / 9 SHEET / OF



SLIPLINING 48" WELL FIELD SUPPLY MAIN
PROJECT NAME

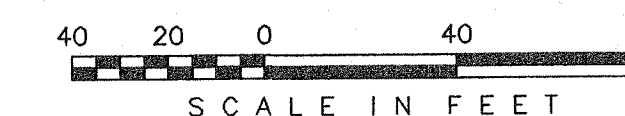
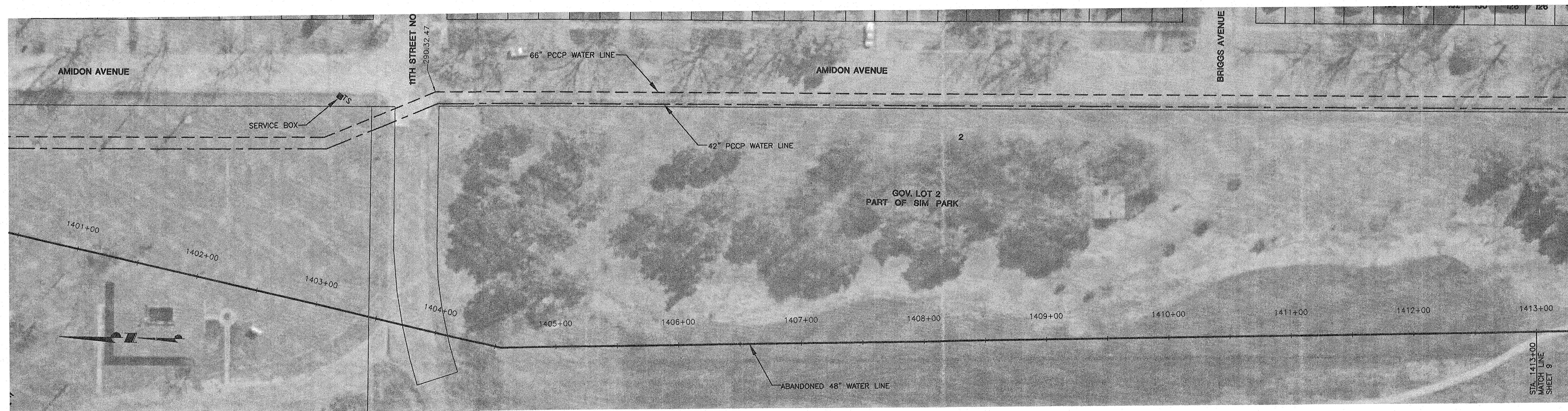
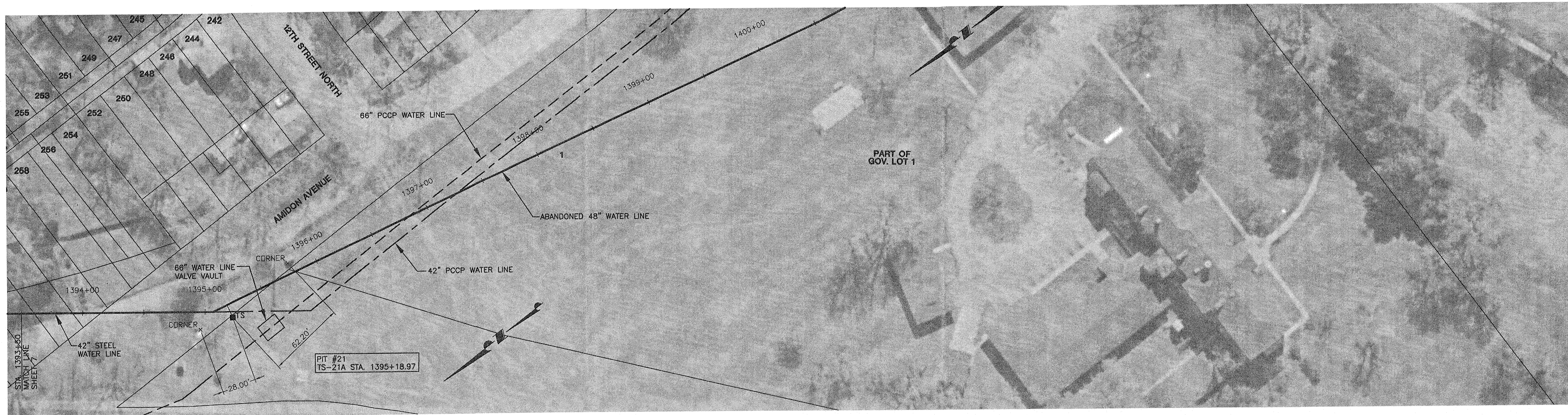
PLAN VIEW
STA. 1343+50 TO STA. 1368+50
SHEET TITLE

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JANUARY 2003 DATE	99141sht5.dwg DRAWING NAME	6 / 9 SHEET / OF

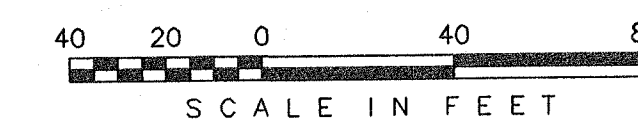
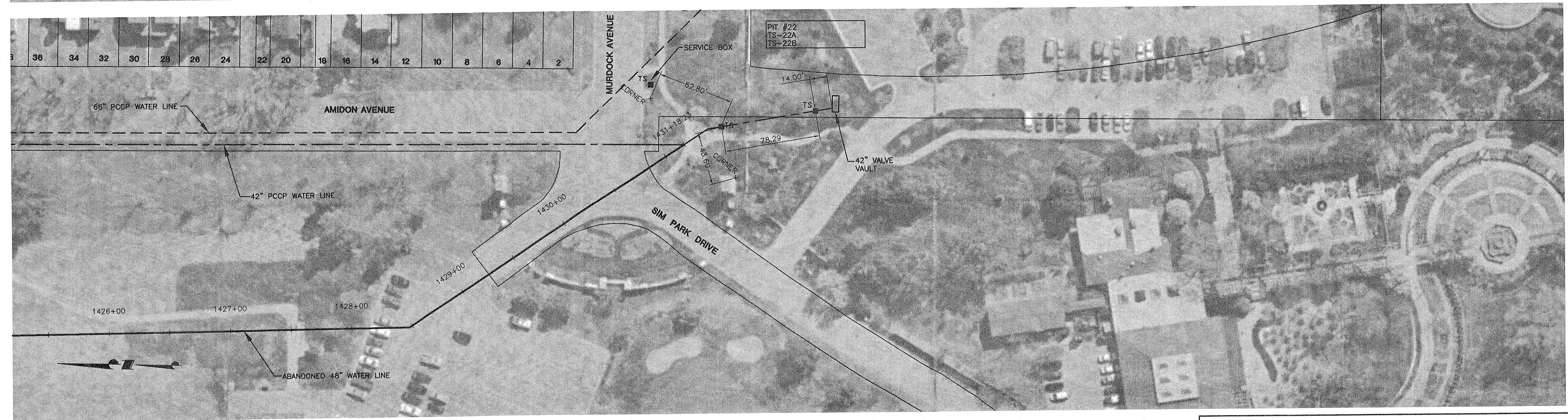
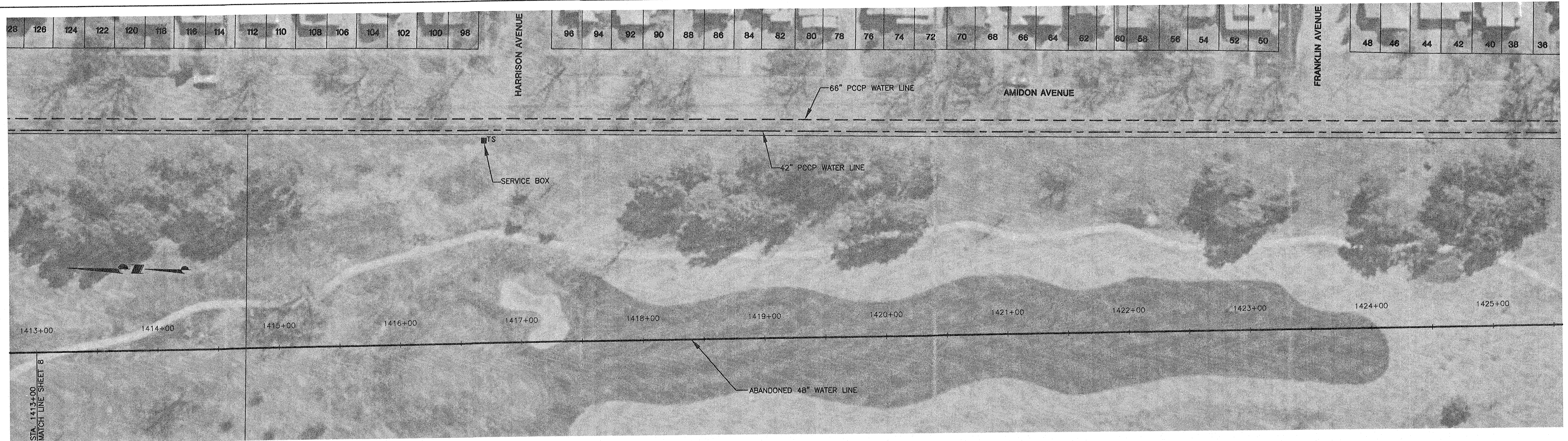


SLIPLINING 48" WELL FIELD SUPPLY MAIN
 PROJECT NAME
PLAN VIEW
STA 1368+50 TO STA 1393+50
 SHEET TITLE

BG/BLW DESIGN BY:	NCL DRAWN BY:	BLW CHECKED BY:
JANUARY 2003 DATE	99141sht6.dwg DRAWING NAME	7 / 9 SHEET / OF



SLIPLINING 48" WELL FIELD SUPPLY MAIN
 PROJECT NAME
PLAN VIEW
STA 1393+50 TO STA 1413+00
 SHEET TITLE
 BG/BLW
 DESIGN BY:
 NCL
 DRAWN BY:
 BLW
 CHECKED BY:
 JANUARY 2003
 DATE
 99141sht7.dwg
 DRAWING NAME
 8 / 9
 SHEET / OF



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WICHITA, KS. 67206
316-684-9800

SLIPLINING 48" WELL FIELD SUPPLY MAIN
PROJECT NAME

PLAN VIEW
STA. 1413+00 TO STA. 1431+18.23
SHEET TITLE

BG/BLW	NCL	BLW
DESIGN BY:	DRAWN BY:	CHECKED BY:
JANUARY 2003	99141sht8.dwg	9 / 9
DATE	DRAWING NAME	SHEET / OF