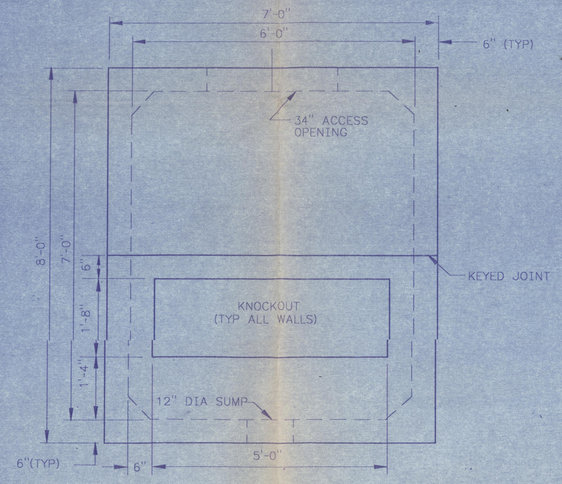
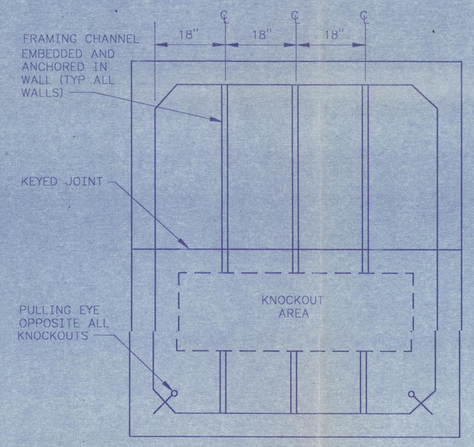


ELEVATION

MANHOLE EXTERIOR WALL

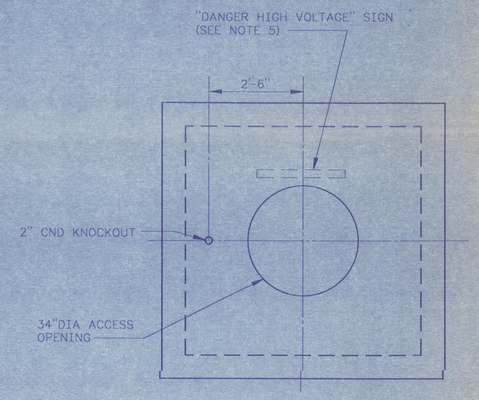
(TYPICAL)



ELEVATION

MANHOLE INTERIOR WALL

(TYPICAL)



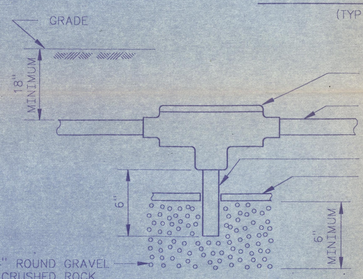
PLAN

TOP OF MANHOLE

(TYPICAL)

NOTES:

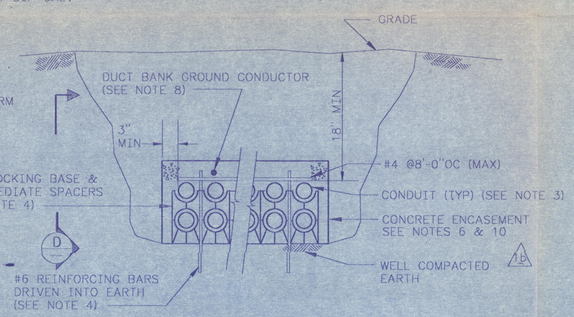
1. SEE CONSTRUCTION SPECIFICATION B-714-C2 FOR MATERIAL DESCRIPTION AND INSTALLATION INSTRUCTIONS UNLESS OTHERWISE NOTED.
2. ABBREVIATIONS ARE PER ANSI Y1.1 UNLESS OTHERWISE NOTED.
3. CONDUITS SHALL HAVE A MINIMUM OF 3" SPACING EDGE TO EDGE ALL AROUND.
4. SPACING OF CONDUIT SUPPORTS AND REINFORCING BARS SHALL NOT EXCEED 8'-0". LENGTH OF VERTICAL BARS SHALL BE AS REQUIRED FOR FIRM ANCHORAGE. HORIZONTAL REINFORCING BARS SHALL BE WIRE TIED OR WELDED TO THE VERTICAL DRIVEN BARS. INSTALLATION OF 3 CONDUITS SHALL BE SIMILAR TO SECTION "C" SHOWN EXCEPT THAT THE VERTICAL BARS SHALL BE PLACED AT THE OUTER EDGES OF THE CONDUIT ASSEMBLY.
5. "DANGER HIGH VOLTAGE" SIGN, 14" x 10", MCMASTER CARR CATALOG NO. 5731T492 SHALL BE SUPPORTED FROM THE CEILING OF ALL MANHOLES THAT HAVE 13.8 KV IN THEM USING EXPANSION ANCHORS & MOUNTED AT A LOCATION THAT WILL BE CONSPICUOUS WHEN MANHOLE COVER IS REMOVED.
6. THE CONCRETE SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI IN 28 DAYS. THE MAXIMUM SIZE OF COARSE AGGREGATE SHALL BE 3/4".
7. CONSTRUCTION JOINTS IN ENCASEMENTS (EXCEPT THOSE FOR STEEL CONDUIT) SHALL UTILIZE 4 FT LENGTHS OF #6 REINFORCING BARS PLACED IN EACH CORNER OF THE ENCASEMENT, A MINIMUM OF 2" FROM THE OUTSIDE EDGES AND CENTERED ACROSS THE JOINT.
8. A GROUNDING CONDUCTOR SHALL BE INSTALLED IN ENCASEMENTS UNLESS SPECIFIED OTHERWISE. THE CONDUCTOR SHALL BE 5/8" DIAMETER, 7 STRAND SPECIAL LOW CARBON GRADE STEEL CABLE. CABLE COATING SHALL BE CLASS B ZINC IN ACCORDANCE WITH ASTM A 475. THIS CONDUCTOR SHALL BE USED FOR INTERCONNECTION OF GROUND CABLES AND FOR GROUNDING OF CONDUIT RISERS, ETC.
9. UNDERGROUND DUCT BANKS SHALL BE SLOPED A MINIMUM OF 3" PER 100' FOR DRAINAGE INTO A MANHOLE OR CONDUIT DRAIN UNLESS OTHERWISE NOTED.
10. CONCRETE CURE REQUIREMENT AS FOLLOWS: BACKFILL OPERATION MAY BEGIN 72 HOURS AFTER CONCRETE POUR. MINIMUM CONCRETE COMPRESSIVE STRENGTH PRIOR TO BACKFILL SHALL BE 1500 PSI.
11. BY OTHERS — WHEN TRANSFORMER IS TO BE MOVED TO NEXT MANHOLE, LOADBREAK ELBOW ASSEMBLY SHALL BE DISCONNECTED FROM THE CABLE AND THE CABLE SHALL BE REMOVED FROM CONDUIT FOR REUSE AT NEXT XFMR LOCATION. WHEN CABLE HAS BEEN REINSTALLED THROUGH CONDUIT AT NEXT MANHOLE AT NEW TRANSFORMER LOCATION, CABLE SHALL BE RECONNECTED TO ELBOW PER MANUFACTURER RECOMMENDATIONS.
12. GROUND CABLES ROUTED WITHIN DUCT BANKS SHALL BE EXOTHERMICALLY WELDED TOGETHER IN MANHOLES TO MAKE ONE ELECTRICALLY CONTINUOUS GROUND CONDUCTOR. EXOTHERMIC WELD SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. FASTEN GROUND CABLES TO FRAMING CHANNEL SUPPORTS USING UNISTRUT 5/8" O.D. TUBE CLAMP, CATALOG NO. P2014.
13. REBAR AT END OF DUCT BANK SHALL EXTEND APPROX 2' BEYOND CONCRETE DUCT BANK TO ACCOMMODATE FUTURE EXTENSION OF DUCT BANK.
14. BY OTHERS — IN PREPARATION FOR FINAL BACKFILL, DISCONNECT AND UNPLUG CABLES IN I-TB-LS-104, P-TB-LS-104, I-TB-LS-105 & P-TB-LS-105 AND PULL BACK TO I-PB-LS-104, P-PB-LS-104, I-TB-LS-105 & P-PB-LS-105. MOVE TOP 24" x 30" PLATE TO TOP OF UNISTRUT AFTER EXTENDING UNISTRUT 13'-6" IN HEIGHT. INSTALL NEW CONDUITS I60B, I61B, I62B, P82B AND I73B, I74B, I75B, AND P90B. *PULL CABLES BACK INTO CONDUITS AND TERMINAL BOXES AND RECONNECT AS PREVIOUSLY TERMINATED.*
15. TRANSFORMER FEEDER CABLES SHALL BE ROUTED THROUGH ~~DIRECT BURIED~~ CONDUIT SHOWN ON DWG H-2-78501 SHEET 2, BEFORE ASSEMBLY WITH ELBOW IN MANHOLE.
16. INSULATED PROTECTIVE CAPS AS PROVIDED BY THE LOADBREAK CENTER MODULE MANUFACTURER SHALL BE INSTALLED ON ALL UNUSED BUSHINGS.
17. COIL APPROXIMATELY 20 FEET OF INPUT AND OUTPUT CONDUCTORS INSIDE RECTIFIER INSTRUMENT ENCLOSURE (BEFORE CONNECTION TO RECTIFIER TERMINALS), FOR FUTURE EXTENSION BY OTHERS.



DETAIL

CONDUIT DRAIN

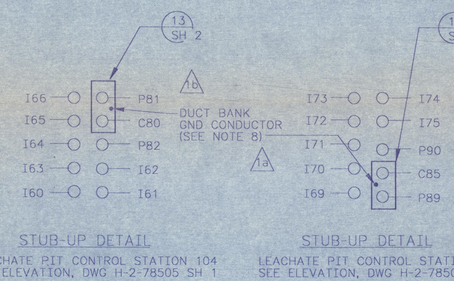
11 / H-2-78501 SH 1 & 2



SECTION

TYP ARRANGEMENT FOR CND SUPPORTS & REBAR IN DUCT BANK

C



STUB-UP DETAIL

LEACHATE PIT CONTROL STATION 104
SEE ELEVATION, DWG H-2-78505 SH 1

STUB-UP DETAIL

LEACHATE PIT CONTROL STATION 105
SEE ELEVATION, DWG H-2-78505 SH 2

SECTION

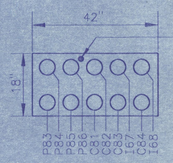
MH-103A TO LEACHATE PIT CONTROL STATION 104

G / H-2-78501 SH 1

SECTION

MH-105A TO LEACHATE PIT CONTROL STATION 105

H / H-2-78501 SH 2

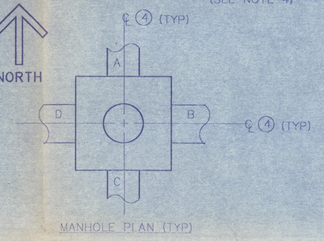


SECTION

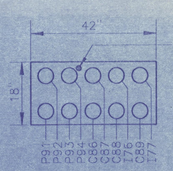
MH-105 TO MH-105A

A / H-2-78500

NORTH



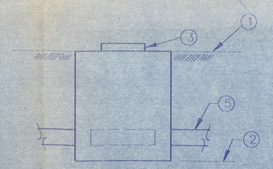
MANHOLE PLAN (TYP)



SECTION

EAST OF MH-105A

B / H-2-78500



MANHOLE ELEVATION (TYP)

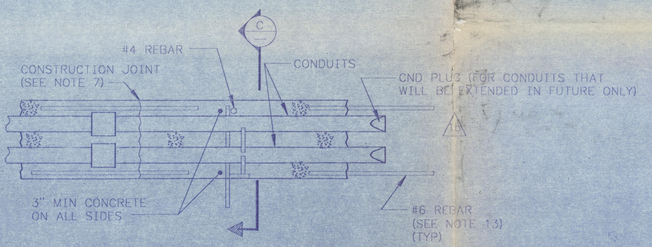
MANHOLE DETAILS

SEE TABULATION TABLE

MANHOLE TABULATION TABLE

ITEM	MANHOLE NO		103A*	105*	105A
1	GRADE ELEVATION		656'-4"	670'-0"	656'-4"
2	BOTTOM MANHOLE ELEVATION		648'-4"	659'-2"	648'-4"
3	46"OD x 7"HGT MH RING & COV		—	—	1
4	DUCT BANK COORDINATES (SEE DWG H-2-78500 FOR ORIENTATION)	A	—	—	W45479
		B	—	N40197.17	—
		C	W45479	—	W45479
		D	—	—	N40173.5
5	TOP OF DUCT BANK	A	—	662'-6"	651'-8"
		B	—	662'-6"	—
		C	651'-8"	—	651'-8"
		D	—	—	651'-8"

* FOR EXISTING MANHOLE INFORMATION, SEE TABULATION ON DRAWINGS H-2-98475 SH 3 AND H-2-77638 SH 1



ELEVATION

TYP DUCT BANK

D

DOES NOT CONTAIN CLASSIFIED OR UNCLASSIFIED CONTROLLED NUCLEAR INFORMATION

Reviewing Official/ADC
Kaiser Engineers Hanford Company
11-26-90
Date

JAN 1991 RECEIVED OSTI

CHARLES L. SUMLEY STATE OF WASHINGTON 14858 REGISTERED PROFESSIONAL ENGINEER
12-12-90
Rev 1

NUMBER	TITLE
H-2-98475 SH 3	ELECTRICAL DETAILS
H-2-98473	ELEC SITE & VAULT PL & DET
H-2-78443	DRAWING LIST

DRAWING TRACEABILITY LIST

REFERENCES

NEXT USED ON H-2-78501 SH 1 & 2

REV NO.	DESCRIPTION
RS 1	b)B-714-53,Z07,C8,C5,B3,D4,C1 a)B-714-30,ZD3-4 1THRU B-714-61 GENL REV. INCORP ALL ECN'S

REVISIONS

CAD FILE B078504A CAD CODE 2J:SUN:ACD2:10.0:NN

KEH APPROVALS

APVD FOR IMPL/TRC FOR DATE

IMPACT LEVEL 2 EDT 151655

DRAWN JL BRINKLEY DATE
CHECKED G KUBINSKI 10-27-89
SAFETY J ARCHIBALD 10-31-89
ENVIR R HOLLENBECK 10-31-89
QR L GADDIS 11-1-89
TO HAYS 11-1-89
LEAD CND APVD A SNOWHITE 10-27-89

APPROVED FOR IMPLEMENTATION BY SR BRIGGS FOR WHC DATE 10/31/89

M U.S. DEPARTMENT OF ENERGY
RICHLAND OPERATIONS OFFICE
KAISER ENGINEERS HANFORD COMPANY

ELECTRICAL
MANHOLE & CONDUIT
DETAILS

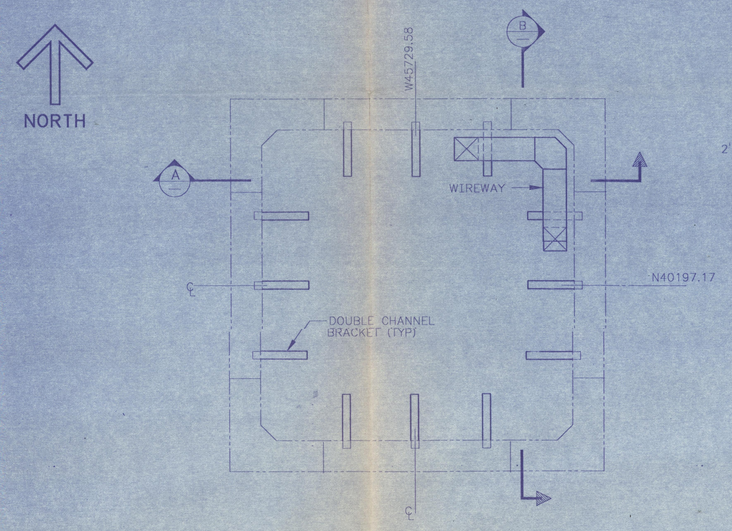
PROJECT B-714 GROUT VAULT PAIR (218-E-16-104 & 105)

SIZE	BLDG NO.	DRWG NO.	DWG NO.	REV NO.
F	218-E 16	7301 7306	H-2-78504	1

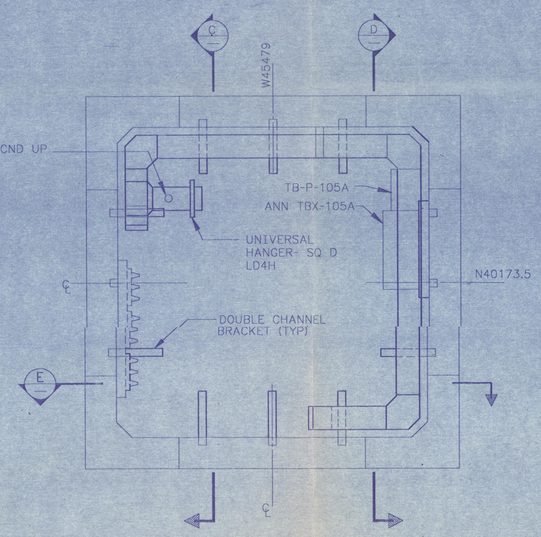
SCALE NONE JOB NO. FR8159 SHEET 1 OF 3

KEHCAD

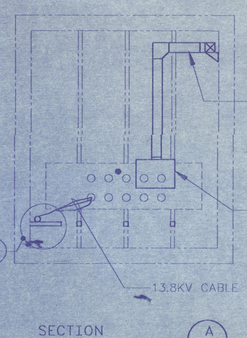
00124631 1of3



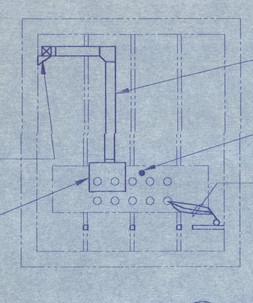
ENLARGED PLAN (1) H-2-78500
MANHOLE 105
(SEE DWGS H-2-98473 & H-2-98475 SH 3,DET 9)



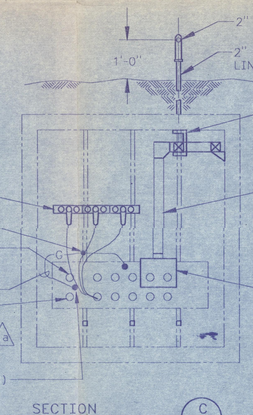
ENLARGED PLAN (2) H-2-78501, SH 2
MANHOLE 105A



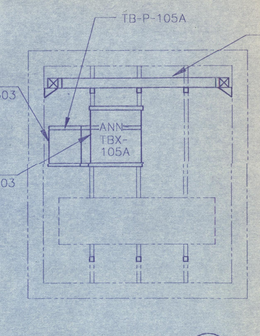
SECTION (A)
MANHOLE 105
NORTH WALL



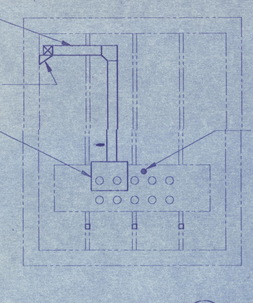
SECTION (B)
MANHOLE 105
EAST WALL



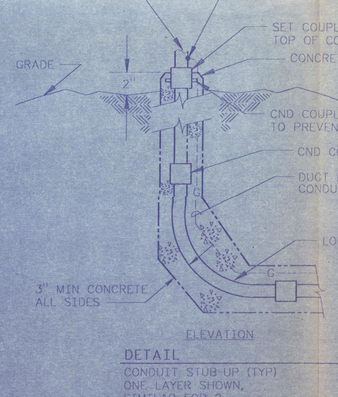
SECTION (C)
MANHOLE 105A
WEST WALL



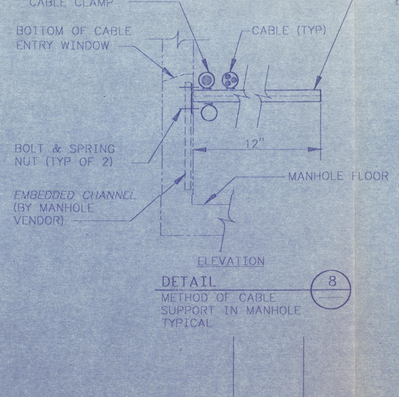
SECTION (D)
MANHOLE 105A
EAST WALL



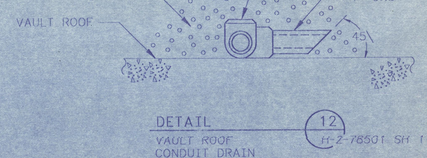
SECTION (E)
MANHOLE 105A
SOUTH WALL



DETAIL (13 SH 1)
CONDUIT STUB-UP (TYP)
ONE LAYER SHOWN, SIMILAR FOR 2 LAYERS OF CONDUIT



DETAIL (8)
METHOD OF CABLE SUPPORT IN MANHOLE TYPICAL



DETAIL (12)
VAULT ROOF CONDUIT DRAIN

NOTES:
1. SEE SHEET 1 FOR NOTES.

DOES NOT CONTAIN CLASSIFIED OR UNCLASSIFIED CONTROLLED NUCLEAR INFORMATION

Reviewing Official/ADC
Kaiser Engineers Hanford Company
11-26-90
Date

CHARLES L. SUBLETT, STATE OF WASHINGTON, 14518, REGISTERED PROFESSIONAL ENGINEER
12-12-90
Rev 1

NUMBER	TITLE	NUMBER	TITLE
			REFERENCES

DRAWING TRACEABILITY LIST — NEXT USED ON H-2-78500

REV NO.	DESCRIPTION	REV BY	DATE	KEH APPROVALS	APVD FOR IMPL/CNC FOR DATE
RS 1	a)B-714-53,ZC5 GENERAL REVISION PER ECN THRU B-714-61 GENL REV; INCORP ALL ECN'S	JG	11-26-90	JJ 12-3-90 / KEH 12-10-90 / JE 12-10-90	JE 12/10/90

REVISIONS

CAD FILE B078504B — CAD CODE 2J;SUN;ACD2;10.0;NN

DRAWN JL BRINKLEY DATE
CHECKED G KUBINSKI 10-27-89
SAFETY J ARCHIBALD 10-31-89
LDVPR R HOLLENBECK 10-31-89
QE L CADDIS 11-1-89
QE TD HAYS 11-1-89
LEAD ENG APVD A SNOWHITE 10-27-89
APPROVED FOR IMPLEMENTATION BY SR BRIGGS
FOR WHC DATE 10/31/89

IMPACT LEVEL 2 — EDT 151695

M U.S. DEPARTMENT OF ENERGY
RICHLAND OPERATIONS OFFICE
KAISER ENGINEERS HANFORD COMPANY

ELECTRICAL MANHOLE & CONDUIT DETAILS

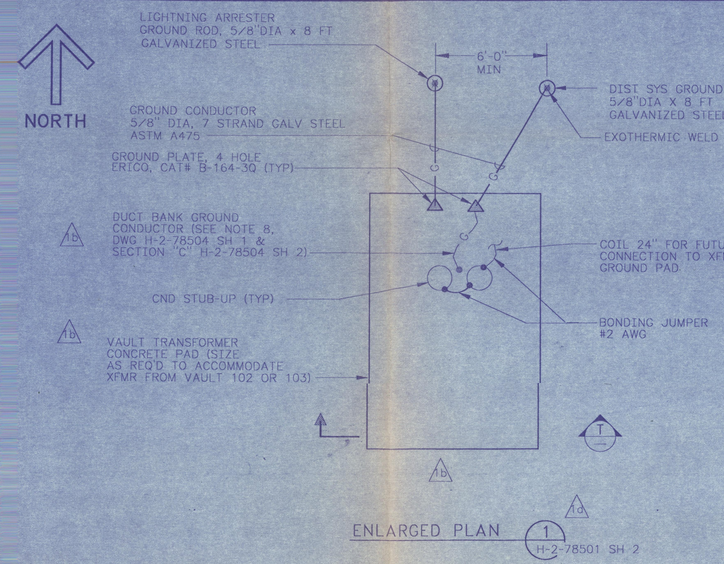
PROJECT B-714 GROUT VAULT PAIR (218-E-16-104 & 105)

SIZE	BLDG NO.	TASK NO.	CAD NO.	SCH NO.
F	218-E-16	7301 7306	H-2-78504	1

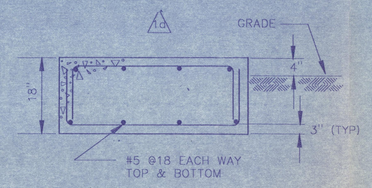
SCALE NONE — JOB NO. ERB159 — SHEET 2 OF 3

KEHCAD

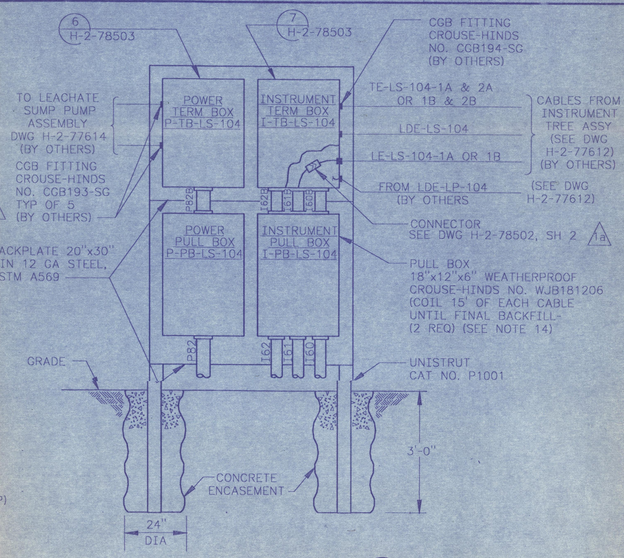
Diahes 2 of 3



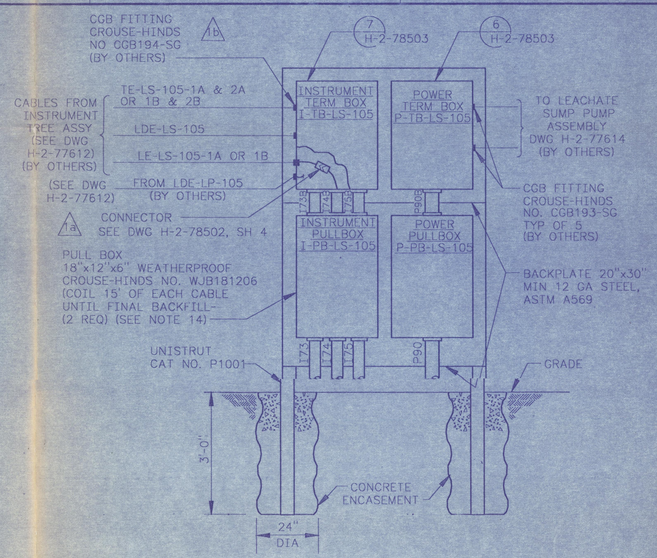
ENLARGED PLAN (1 / H-2-78501 SH 2)



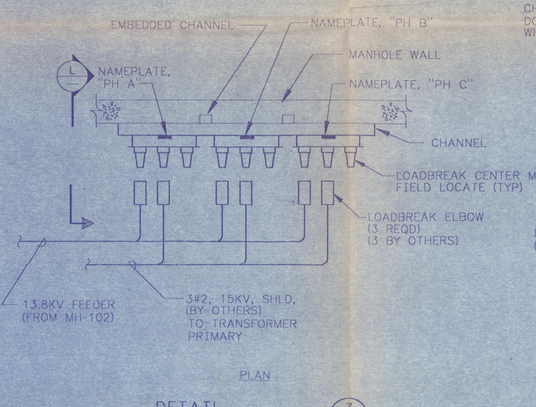
SECTION (T / —) XFMR PAD



ELEVATION (J / H-2-78501 SH 1) VAULT 104 LEACHATE PIT & SUMP TERMINAL BOXES

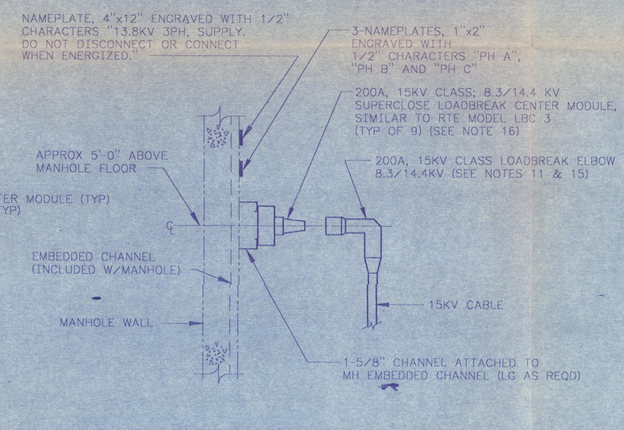


ELEVATION (K / H-2-78501 SH 2) VAULT 105 LEACHATE PIT & SUMP TERMINAL BOXES

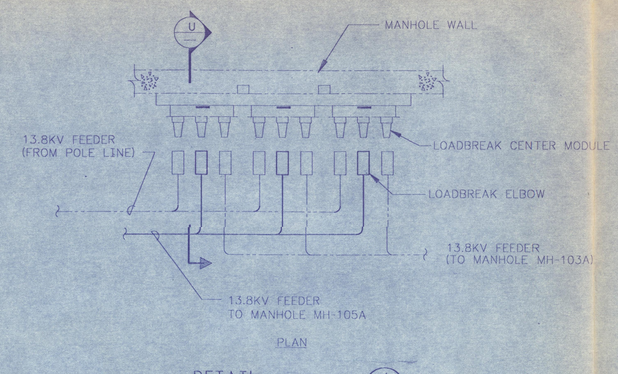


PLAN

DETAIL (3 / SH 2) MANHOLE MH-105A (SEE NOTES 11,15 & 16)

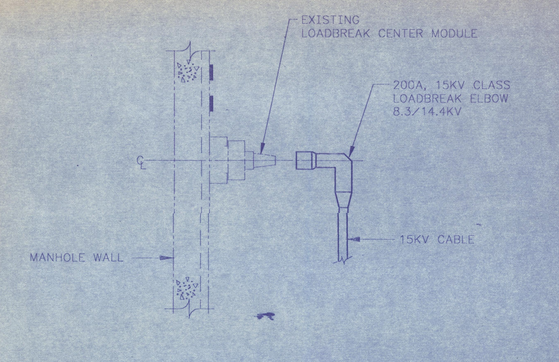


SECTION (L / —)



PLAN

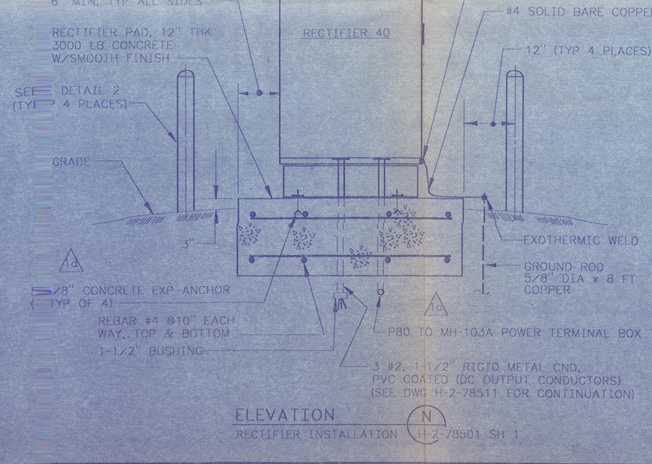
DETAIL (4 / H-2-78500) MANHOLE MH-102 (SEE NOTE 16)



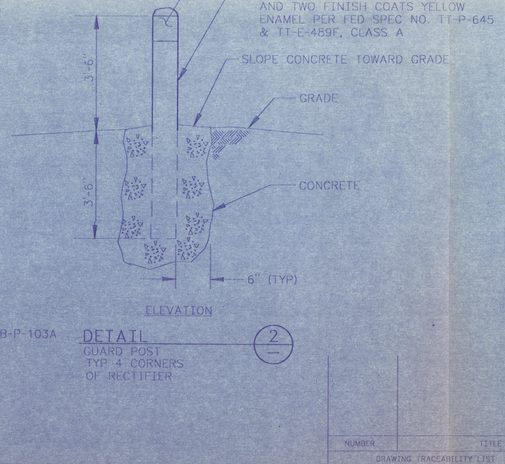
SECTION (U / —)

NOTE:

SEE SHEET 1 FOR NOTES.



ELEVATION (N / H-2-78501 SH 1) RECTIFIER INSTALLATION



ELEVATION

DETAIL (2 / —) GUARD POST TYP 4 CORNERS OF RECTIFIER

DOES NOT CONTAIN CLASSIFIED OR UNCLASSIFIED CONTROLLED NUCLEAR INFORMATION

Reviewing Official/ADC
Kaiser Engineers Hanford Company
11-26-90
Date

STATE OF WASHINGTON — CHARLES L. SUBLETT — 14816 — REGISTERED PROFESSIONAL ENGINEER — 12-12-90

NUMBER	TITLE	NUMBER	TITLE
DRAWING TRACEABILITY LIST		NEXT USED ON H-2-78501 SH 1 & 2	

REV NO.	DESCRIPTION	REV BY	DATE	KEH APPROVALS
M	d)B-714-53,Z5-6,A8,B8,L7-F8 c)B-714-35,ZA7 b)B-714-30,ZE7,E8,F8,F5,F2 a)B-714-24,ZF3,F2 1 THRU B-714-61 GENL REV; INCORP ALL ECN'S	BS	11-26-90	12-3-90 12-3-90 12-3-90

REVISIONS

CAD FILE: B078504C CAD CODE: 2J:SUN:ACD2:10.0:NN

DRAWN	JL BRINKLEY	DATE
CHECKED	G KUBINSKI	10-27-89
SAFETY	J ARCHIBALD	10-31-89
CVER	R HOLLENBECK	10-31-89
SE	L CANDLS	11-1-89
SE	JD HAYS	11-1-89
CAD ENG APVD	A SNOWHITE	10-27-89

APPVD FOR IMPLEMENTATION BY SB BRIGGS FOR WHC DATE 10/31/89

IMPACT LEVEL 2 EDT 151655

M U.S. DEPARTMENT OF ENERGY
RICHLAND OPERATIONS OFFICE
KAISER ENGINEERS HANFORD COMPANY

ELECTRICAL MANHOLE & CONDUIT DETAILS

PROJECT B-714 GROUT VAULT PAIR (218-E-16-104 & 105)

SIZE	BLDG NO	INDEX NO	DWG NO	REV NO
F	218 E -16	7301	H-2-78504	1

SCALE NONE JOB NO. FR8159 SHEET 3 OF 3

KEHCAD

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3 of 3