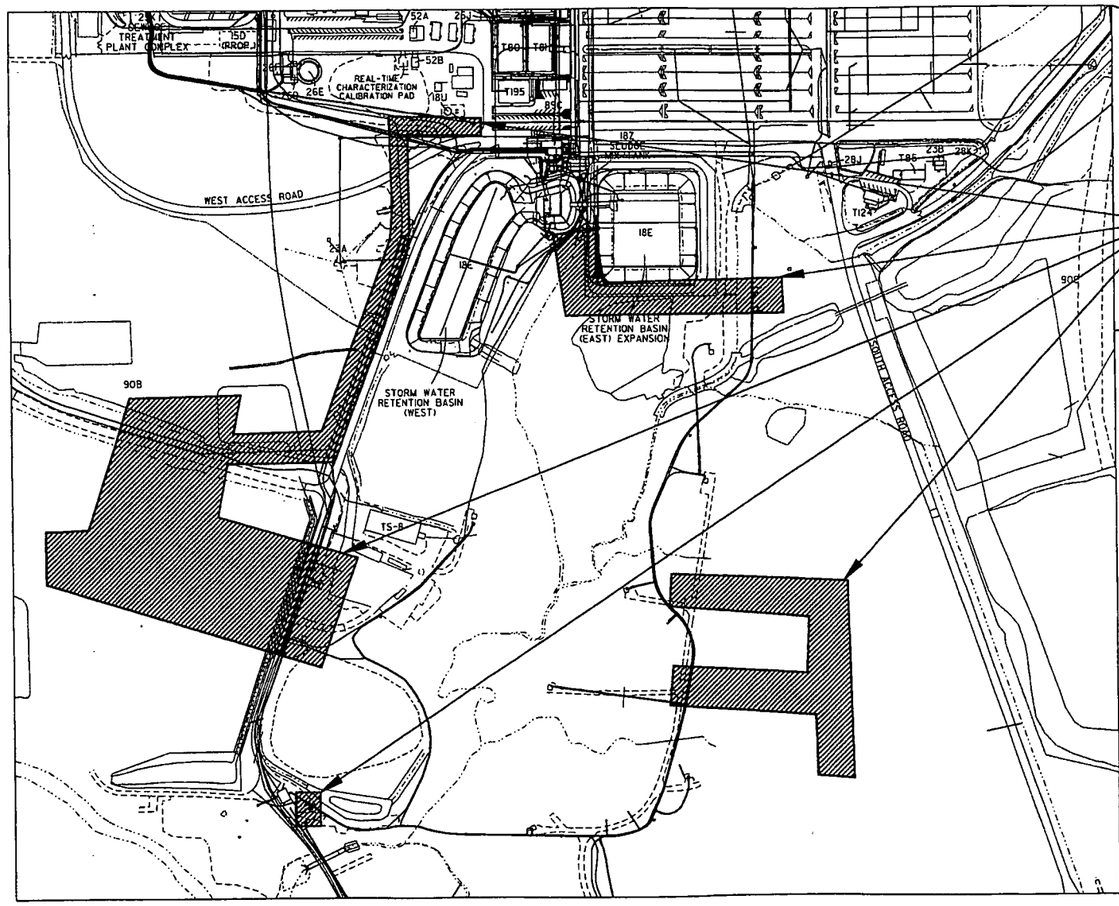
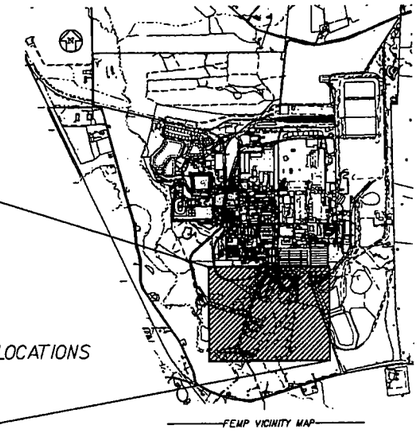
UNITED STATES
DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

4487

SOUTH FIELD EXTRACTION SYSTEM
PHASE 2
OPERABLE UNIT 5





FEMP VICINITY MAP

DRAWING INDEX		
FILEPATH	DRAWING NO.	TITLE DESCRIPTION
rea4340/95xx2065.dgn	95X-5500-X-02065	SOUTH FIELD EXTRACTION SYSTEM PHASE 2 PROJECT TITLE AND INDEX SHEET
rea4340/95xg2066.dgn	95X-5500-G-02066	SOUTH FIELD EXTRACTION SYSTEM PHASE 2 CIVIL LEGEND & SYMBOLS
rea4340/95xg2067.dgn	95X-5500-G-02067	SOUTH FIELD EXTRACTION SYSTEM PHASE 2 SITE UTILITY PIPING PLAN IW-29 AND INFILTRATION POND
rea4340/95xg2068.dgn	95X-5500-G-02068	SOUTH FIELD EXTRACTION SYSTEM PHASE 2 SITE UTILITY PIPING PLAN EW-64 AND IW-16
rea4340/95xg2069.dgn	95X-5500-G-02069	SOUTH FIELD EXTRACTION SYSTEM PHASE 2 SITE UTILITY PIPING PLAN EW-30, 31 & 32
rea4340/95xg2070.dgn	95X-5500-G-02070	SOUTH FIELD EXTRACTION SYSTEM PHASE 2 SITE UTILITY PIPING PLAN CROSS OVER LINE
rea4340/95xg2071.dgn	95X-5500-G-02071	SOUTH FIELD EXTRACTION SYSTEM PHASE 2 PROFILES
rea4340/95xg2072.dgn	95X-5500-G-02072	SOUTH FIELD EXTRACTION SYSTEM PHASE 2 PROFILES
rea4340/95xg2073.dgn	95X-5500-G-02073	SOUTH FIELD EXTRACTION SYSTEM PHASE 2 DETAILS
rea4340/95xg2074.dgn	95X-5500-G-02074	SOUTH FIELD EXTRACTION SYSTEM PHASE 2 DETAILS
rea4340/95xg2075.dgn	95X-5500-G-02075	SOUTH FIELD EXTRACTION SYSTEM PHASE 2 DETAILS
rea4340/95xg2076.dgn	95X-5500-G-02076	SOUTH FIELD EXTRACTION SYSTEM PHASE 2 DETAILS
rea4340/95xg2077.dgn	95X-5500-G-02077	SOUTH FIELD EXTRACTION SYSTEM PHASE 2 DETAILS
rea4340/95xa2078.dgn	95X-5500-A-02078	SOUTH FIELD EXTRACTION SYSTEM PHASE 2 ARCHITECTURAL PLAN AND ELEVATIONS WELL HOUSE No's 30, 31 AND 32
rea4340/95xs2079.dgn	95X-5500-S-02079	SOUTH FIELD EXTRACTION SYSTEM PHASE 2 PLANS, SECTIONS AND DETAILS
rea4340/95xp2080.dgn	95X-5500-P-02080	SOUTH FIELD EXTRACTION SYSTEM PHASE 2 PIPING/PLANT DESIGN WELL HOUSE PIPING PLAN
rea4340/95xp2081.dgn	95X-5500-P-02081	SOUTH FIELD EXTRACTION SYSTEM PHASE 2 PIPING/PLANT DESIGN AND DETAILS WELL HOUSE PIPING SECTION
rea4340/95xp2082.dgn	95X-5500-P-02082	SOUTH FIELD EXTRACTION SYSTEM PHASE 2 INJECTION WELL PIPING PLAN, SECTIONS AND DETAIL
rea4340/95xe2083.dgn	95X-5500-E-02083	SOUTH FIELD EXTRACTION SYSTEM PHASE 2 ELECTRICAL SYMBOLS AND LEGEND
rea4340/95xe2084.dgn	95X-5500-E-02084	SOUTH FIELD EXTRACTION SYSTEM PHASE 2 ELECTRICAL SYMBOLS AND LEGEND
rea4340/95xe2085.dgn	95X-5500-E-02085	SOUTH FIELD EXTRACTION SYSTEM PHASE 2 SITE UTILITY ELECTRIC PLAN IW-29 AND INFILTRATION POND
rea4340/95xe2086.dgn	95X-5500-E-02086	SOUTH FIELD EXTRACTION SYSTEM PHASE 2 SITE UTILITY ELECTRIC PLAN EW-64 AND IW-16
rea4340/95xe2087.dgn	95X-5500-E-02087	SOUTH FIELD EXTRACTION SYSTEM PHASE 2 SITE UTILITY ELECTRIC PLAN EW-30, 31 & 32
rea4340/95xe2088.dgn	95X-5500-E-02088	SOUTH FIELD EXTRACTION SYSTEM PHASE 2 ELECTRICAL 480/277V POWER, INSTRUMENT & LIGHTING PLAN
rea4340/95xe2089.dgn	95X-5500-E-02089	SOUTH FIELD EXTRACTION SYSTEM PHASE 2 ELECTRICAL SINGLE LINE/ELEVATION INJECTION WELL 29
rea4340/95xe2090.dgn	95X-5500-E-02090	SOUTH FIELD EXTRACTION SYSTEM PHASE 2 ELECTRICAL 0.2 KV POLE SCHEDULE SHEET
rea4340/95xe2091.dgn	95X-5500-E-02091	SOUTH FIELD EXTRACTION SYSTEM PHASE 2 ELECTRICAL MATERIAL LIST AND STANDARD DETAILS
rea4340/95xe2092.dgn	95X-5500-E-02092	SOUTH FIELD EXTRACTION SYSTEM PHASE 2 ELECTRICAL ELEVATIONS, SECTIONS & DETAILS
rea4340/95xe2093.dgn	95X-5500-E-02093	SOUTH FIELD EXTRACTION SYSTEM PHASE 2 ELECTRICAL SECTIONS & DETAILS
rea4340/95xe2094.dgn	95X-5500-E-02094	SOUTH FIELD EXTRACTION SYSTEM PHASE 2 ELECTRICAL ELEVATIONS, SECTIONS & DETAILS
rea4340/95xe2095.dgn	95X-5500-E-02095	SOUTH FIELD EXTRACTION SYSTEM PHASE 2 0.2 KV AERIAL DISTRIBUTION SINGLE LINE DIAGRAM
rea4340/95xe2096.dgn	95X-5500-E-02096	SOUTH FIELD EXTRACTION SYSTEM PHASE 2 ELECTRICAL SINGLE LINE DIAGRAM
rea4340/95xe2097.dgn	95X-5500-E-02097	SOUTH FIELD EXTRACTION SYSTEM PHASE 2 ELECTRICAL PANEL SCHEDULES & DIAGRAMS ELEMENTARY AND INTERCONNECTION
rea4340/95xe2098.dgn	95X-5500-E-02098	SOUTH FIELD EXTRACTION SYSTEM PHASE 2 CABLE AND CONDUIT SCHEDULE INJECTION WELL 6
rea4340/95xe2099.dgn	95X-5500-E-02099	SOUTH FIELD EXTRACTION SYSTEM PHASE 2 CABLE AND CONDUIT SCHEDULE INJECTION WELL 29
rea4340/95xe2100.dgn	95X-5500-E-02100	SOUTH FIELD EXTRACTION SYSTEM PHASE 2 CABLE AND CONDUIT SCHEDULE INJECTION FILTRATION POND
rea4340/95xe2101.dgn	95X-5500-E-02101	SOUTH FIELD EXTRACTION SYSTEM PHASE 2 ELECTRICAL WELL HOUSE CABLE SCHEDULE
rea4340/95xe2102.dgn	95X-5500-E-02102	SOUTH FIELD EXTRACTION SYSTEM PHASE 2 ELECTRICAL WELL HOUSE CONDUIT SCHEDULE
rea4340/95xe2103.dgn	95X-5500-E-02103	SOUTH FIELD EXTRACTION SYSTEM PHASE 2 ELECTRICAL CABLE SCHEDULE
rea4340/95xe2104.dgn	95X-5500-E-02104	SOUTH FIELD EXTRACTION SYSTEM PHASE 2 ELECTRICAL GROUNDED CABLE SCHEDULE
rea4340/95xn2105.dgn	95X-5500-N-02105	SOUTH FIELD EXTRACTION SYSTEM PHASE 2 MECHANICAL PROCESS PIPING AND INSTRUMENTATION SYMBOLS & LEGEND
rea4340/95xn2106.dgn	95X-5500-N-02106	SOUTH FIELD EXTRACTION SYSTEM PHASE 2 INSTRUMENTATION INTERCONNECTION DIAGRAM INJECTION WELL PLATFORM DCS PCS
rea4340/95xn2107.dgn	95X-5500-N-02107	SOUTH FIELD EXTRACTION SYSTEM PHASE 2 INSTRUMENTATION INTERCONNECTION DIAGRAM EXTRACTION WELL HOUSE DCS PCS
rea4340/95xn2108.dgn	95X-5500-N-02108	SOUTH FIELD EXTRACTION SYSTEM PHASE 2 INSTRUMENTATION CONTROL SYSTEM ARCHITECTURE
rea4340/95xn2109.dgn	95X-5500-N-02109	SOUTH FIELD EXTRACTION SYSTEM PHASE 2 PIPING AND INSTRUMENTATION DIAGRAM EXTRACTION WELLS No's. 30, 31 & 32
rea4340/95xn280.dgn	95X-5500-N-0280	SOUTH FIELD EXTRACTION SYSTEM PHASE 2 PIPING AND INSTRUMENTATION DIAGRAM INJECTION WELLS No's. 16, 29 & U.F.

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NO.	REVISIONS	DATE	DWN. BY	APPD.	NO.	REVISIONS	DATE	DWN. BY	APPD.	REF. DWG. NO.
					0	ISSUED FOR CFC	1-29-02	GES	1965	

NOTE: FLUOR FERNALD CADD DRAWING. DO NOT REVISE MANUALLY.

CONFIGURATION MANAGEMENT DRAWING — YES / NO

EXISTING STRUCTURES OR COMPONENTS AFFECTED BY THIS DRAWING, USE LATEST CONFIGURATION MANAGEMENT CONTROL. SEE NOTES.

CONSULTANT ENGINEER — DATE

APPROVALS

CIVIL & STR.			SAFETY ENG.
ELECTRICAL			MAINTENANCE
ENGINEER			FIRE PROTECT.
INSTRUMENT			WASTE MANAGE.
MECHANICAL			SECURITY
			PROJECTS
CHECKED			
APPROVED			

Fernald Environmental Management Project

FLUOR FERNALD, INC.

U.S. DEPARTMENT OF ENERGY

ARWWP — SITE

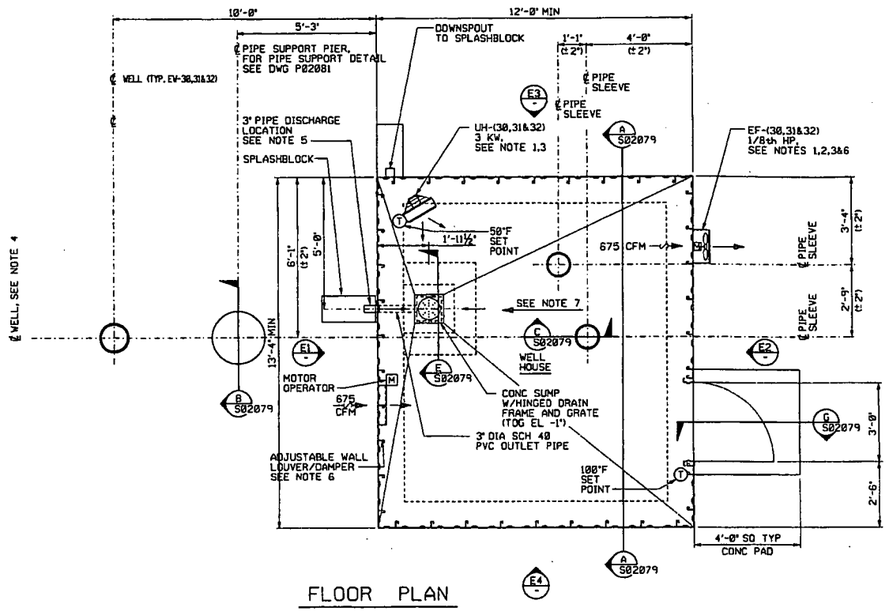
SOUTH FIELD EXTRACTION SYSTEM
PHASE 2
PROJECT TITLE & INDEX SHEET

RES 4340
DATE JAN. 28, 2002
DRAWN G. SCHWARZMAN

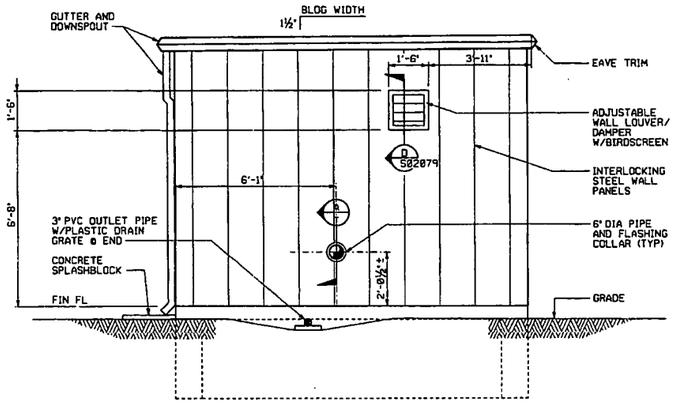
95X-5500-X-02065 | 0

FILE NAME: /rea4340/95xx2065.dgn

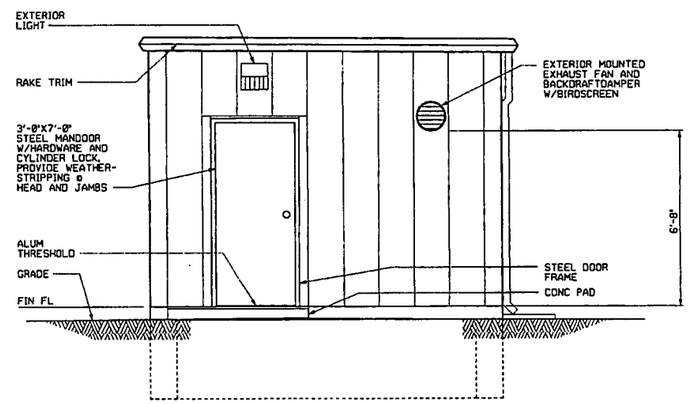
FF LDGN 3/22/00



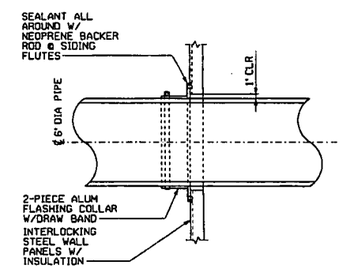
FLOOR PLAN



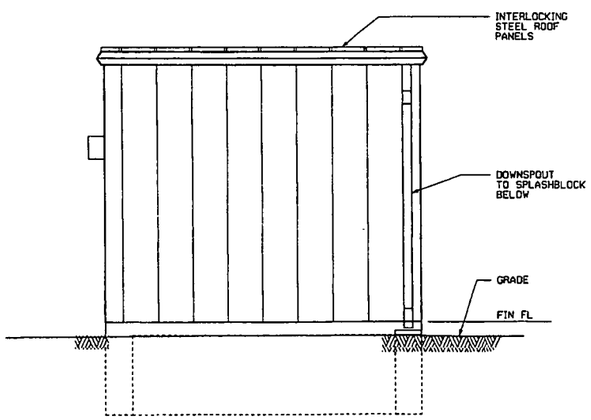
ELEVATION E1



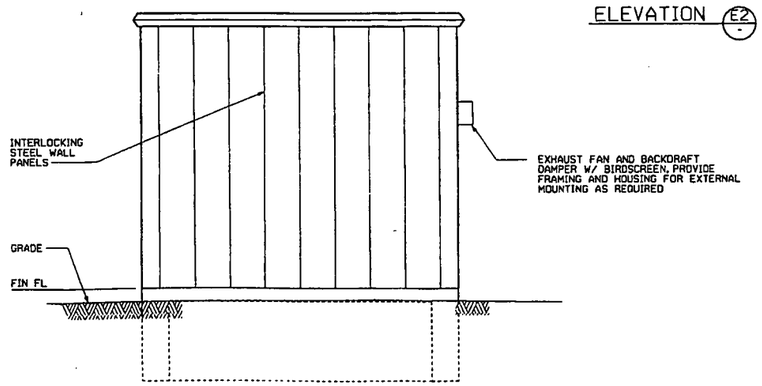
ELEVATION E2



SECTION A
1"=1'-0"



ELEVATION E3



ELEVATION E4

LEGEND :

Ⓣ - THERMOSTAT

Ⓜ - MOTOR OPERATOR

4487

NOTES :

1. SEE SPECIFICATION SECTION 15500 FOR EXHAUST FAN AND UNIT HEATER INFORMATION.
2. THE ADJUSTABLE LOUVER/DAMPER MOTOR OPERATORS SHALL BE INTERLOCKED WITH THE EXHAUST FAN.
3. THE EXHAUST FAN AND UNIT HEATER SHALL HAVE THE SAME EQUIPMENT TAG NUMBER AS THE WELL HOUSE NUMBER. ALL UNIT HEATERS SHALL BE INSTALLED A MINIMUM OF 6'-8' CLEAR ABOVE FINISH FLOOR.
4. SEE DRAWINGS 95X-5500-G-02072 & 95X-5500-P-02081 FOR CENTERLINE OF WELL COORDINATES AND FINISH FLOOR ELEVATIONS. LOCATE WELL HOUSE BASED ON THESE COORDINATES.
5. 3" OUTLET PIPE/SLASHBLOCK AS INDICATED AND THE CONTRACTOR TO GRADE BEYOND END OF PIPE AT 0.3% SLOPE AS NECESSARY TO ALLOW FREE DRAINING AT OUTLET.
6. THE EXHAUST FAN AND THE BACKDRAFT DAMPER SHALL BE EXTERIOR MOUNTED IN A WEATHERTIGHT HOUSING, AND ADDITIONAL ANGLE SUPPORTS ADDED IF REQUIRED. SUPPORTS MUST BE ATTACHED TO RIBS OF SIDING ONLY, USING WEATHERTIGHT FASTENERS.
7. SLOPE FLOOR TO PROVIDE POSITIVE DRAINAGE TO SUMP.

000002

REF DWG NO.	DRAWING TITLE
95X-5500-X-02065	DRAWING INDEX
95X-5500-G-02066	LEGEND AND SYMBOLS
95X-5500-G-02069	SITE UTILITY PIPING PLAN
95X-5500-S-02079	WELL HOUSE No's. 30,31 AND 32
95X-5500-P-02081	PIPE SUPPORT DETAILS
95X-5500-E-02088	480/120V POWER, INSTRUMENT, AND LIGHTING PLAN

REV	REVISIONS	DATE	DRAWN	BY	APPD	REV	REVISIONS	DATE	DRAWN	BY	APPD	REF DWG NO.
						0	ISSUED FOR CFC	8-29-02	GES			95X-5500-X-02065

NOTE: FLUOR FERNALD CADD DRAWING. DO NOT REVISE MANUALLY.

CONFIGURATION MANAGEMENT DRAWING — STRUCTURE, SYSTEMS, OR COMPONENTS IDENTIFIED ON DRAWING SUBJECT TO CONFIGURATION MANAGEMENT CONTROL (CF BOX)

COORDINATOR APPROVED / DATE

APPROVALS: CIVIL & STR. / ELECTRICAL / ENGINEER / INSTRUMENT / MECHANICAL / CHECKED — SAFETY ENG. / MAINTENANCE / FIRE PROTECT. / BASIC MANAGE. / SECURITY / PROJECTS

Fernald Environmental Management Project

FLUOR FERNALD, INC.

U.S. DEPARTMENT OF ENERGY

ARWWP — SITE

SOUTH FIELD EXTRACTION SYSTEM
PHASE 2
ARCHITECTURAL PLAN AND ELEVATIONS, WELL HOUSE No's. 30, 31 AND 32

DES 4340 — DATE FEB. 8, 2002 — 95X-5500-A-02078 — 0

4487

SINGLE LINE DIAGRAM SYMBOLS

ARRESTER	YY-XXXX	'YY' INDICATES SPECIAL IDENTIFIER 'XXXX' INDICATES ID NO.
CIRCUIT BREAKER, LOW VOLTAGE	FFFF TTTT	'FFFF' INDICATES FRAME RATING AMPS (SHOWN ON SWITCHGEAR ONLY) 'TTTT' INDICATES TRIP RATING AMPS
CIRCUIT BREAKER, MEDIUM VOLTAGE	FFFF TTTT	'FFFF' INDICATES FRAME RATING AMPS 'TTTT' INDICATES TRIP RATING AMPS
COMBINATION STARTER, NON-REVERSING	TTTT ZZZZ	'TTTT' INDICATES TRIP RATING AMPS 'ZZZZ' INDICATES NEMA SIZE EQUIPMENT OUTLINE (TYP)
FUSED SWITCH	FFFF	'FFFF' INDICATES FUSE SIZE
CURRENT TRANSFORMER	YY ZZZZ	'YY' INDICATES NO. OF CT(S) 'ZZZZ' INDICATES CT RATIO(S)
DISCONNECT SWITCH	FFFF	'FFFF' INDICATES FRAME RATING AMPS
DRAW-OUT DEVICE/ RECEPTACLE		
FUSED DISCONNECT SWITCH	FFFF TTTT	'FFFF' INDICATES FRAME RATING AMPS 'TTTT' INDICATES TRIP RATING AMPS
FUSE	XXXX YY TTTT	'XXXX' INDICATES ID NO. 'YY' INDICATES SPECIAL IDENTIFIER 'TTTT' INDICATES TRIP RATING AMPS
GENERATOR		
INDICATING METER	XXXX YYY	'XXXX' INDICATES ID NO. 'YYY' INDICATES SPECIAL INDICATOR
LOAD, NON-MOTOR	ZZZ ZZZ	'ZZZ' INDICATES EQUIPMENT SIZE IN KVA OR KW
MOTOR	ZZZ HP	'ZZZ' INDICATES HORSEPOWER SIZE
MOTOR OVERLOAD RELAY		
MOTOR STARTER CONTACT	ZZ	'ZZ' INDICATES NEMA SIZE
PANEL MOUNTED SWITCH	XXXX YY	'YY' INDICATES SPECIAL IDENTIFIER 'XXXX' INDICATES ID NO.
POTENTIAL TRANSFORMER	ZZZZ	'ZZZZ' INDICATES VOLTAGE RATIO (TYP. 14.4K/120)
SYMBOL 3 PHASE DELTA		
SYMBOL, 3 PHASE WYE GROUNDED		
TRANSFER SWITCH	YY-XXXX	'YY' INDICATES SPECIAL IDENTIFIER 'XXXX' INDICATES ID NO.
WELDING/POWER RECEPTACLE		
TRANSFORMER	XXXX ZZZZ	'XXXX' INDICATES ID NO. 'ZZZZ' INDICATES TRANSFORMER RATINGS - KVA, 1 OR 3 PHASE, VOLTAGE RATIO, IMPEDANCE

ELEMENTARY DIAGRAM SYMBOLS

CIRCUIT BREAKER	TTTT	'TTTT' INDICATES TRIP RATING AMPS
CONTACT	YY-XXXX	NORMALLY OPEN, CLOSES WHEN COIL IS ENERGIZED. 'XXXX' INDICATES ID NO., 'YY' INDICATES SPECIAL IDENTIFIER
CONTACT	YY-XXXX	NORMALLY CLOSED, OPENS WHEN COIL IS ENERGIZED. 'XXXX' INDICATES ID NO., 'YY' INDICATES SPECIAL IDENTIFIER
CONTROL POWER XFMR	H1 480V H2 CPT X1 120V X2	
DISCONNECT SWITCH	FFFF	'FFFF' INDICATES FRAME RATING AMPS
DISCONNECT SWITCH, 3 PHASE	DSVXXXX FFFF	'XXXX' INDICATES ID NO., 'FFFF' INDICATES FRAME RATING AMPS
EQUIPMENT LOAD, 1 PHASE	H1 H2 ZZZZ ZZZZ	'ZZZZ' INDICATES EQUIPMENT SIZE IN 'KVA' OR 'KW'
EQUIPMENT LOAD, 1 PHASE	H1 H2 ZZZZ ZZZZ	'ZZZZ' INDICATES EQUIPMENT SIZE IN 'KVA' OR 'KW'
EQUIPMENT LOAD, 3 PHASE	H1 H2 H3 ZZZZ ZZZZ	'ZZZZ' INDICATES EQUIPMENT SIZE IN 'KVA' OR 'KW'
FUSE	XXXX TTTT	'XXXX' INDICATES ID NO., 'TTTT' INDICATES TRIP RATING AMPS 'Y' INDICATES SPECIAL IDENTIFIER
GROUND		
MOTOR, 1 PHASE	T1 T2 ZZZ HP	'ZZZ' INDICATES HP SIZE
MOTOR, 1 PHASE	T1 T2 ZZZ HP	'ZZZ' INDICATES HP SIZE
MOTOR, 3 PHASE	T1 T2 T3 ZZZ HP	'ZZZ' INDICATES HP SIZE
OVERLOAD ELEMENT	OL	
PILOT LIGHT	XXXX YY	'XXXX' INDICATES ID NO., 'YY' INDICATES SPECIAL IDENTIFIER
PUSH-TO-TEST LIGHT	XXXX YY	'XXXX' INDICATES ID NO., 'YY' INDICATES SPECIAL IDENTIFIER
RELAY	XXXX YY	'XXXX' INDICATES ID NO., 'YY' INDICATES SPECIAL IDENTIFIER
RELAY, TIME DELAY	TDR-XXXX TDAE TTTT	TIME DELAY AFTER ENERGIZED. 'XXXX' INDICATES ID NO. 'TTTT' INDICATES TIMING SET POINT
RELAY, TIME DELAY	TDR-XXXX TDAD TTTT	TIME DELAY AFTER DE-ENERGIZED, 'XXXX' INDICATES ID NO. 'TTTT' INDICATES TIMING SET POINT
RESISTOR	XXXX ZZZZ	'XXXX' INDICATES ID NO. 'ZZZZ' INDICATES SIZE IN OHMS
SOLENOID VALVE COIL	XXXX	'XXXX' INDICATES ID NO.
THERMAL OVERLOAD CONTACT	OL	NORMALLY CLOSED, OPENS WHEN OVERLOAD RELAY(S) TRIP

WIRING BY SUBCONTRACTOR ———————

WIRING BY CONSTRUCTION - - - - - - - - - - - -

SWITCHES

FLOW SWITCH	NORMALLY CLOSED, OPENS ABOVE SET FLOW
FLOW SWITCH	NORMALLY OPEN, CLOSES ABOVE SET FLOW
FOOT SWITCH	NORMALLY OPEN, CLOSES WHEN ACTUATED
FOOT SWITCH	NORMALLY CLOSED, OPENS WHEN ACTUATED
LEVEL SWITCH	NORMALLY CLOSED, OPENS ABOVE SET LEVEL
LEVEL SWITCH	NORMALLY OPEN, CLOSES ABOVE SET LEVEL
LIMIT SWITCH	NORMALLY CLOSED, OPENS BY MECHANICAL OPERATION
LIMIT SWITCH	NORMALLY OPEN, CLOSES BY MECHANICAL OPERATION
VACUUM SWITCH	NORMALLY OPEN, CLOSES BELOW SET PRESSURE
VACUUM SWITCH	NORMALLY CLOSED, OPENS BELOW SET PRESSURE
PRESSURE SWITCH	NORMALLY CLOSED, OPENS ABOVE SET PRESSURE
PRESSURE SWITCH	NORMALLY OPEN, CLOSES ABOVE SET PRESSURE
PUSHBUTTON	XX MOMENTARY OR MAINTAIN CONTACT (XX = MC), NORMALLY OPEN CONTACT
PUSHBUTTON	XX MOMENTARY OR MAINTAIN CONTACT (XX = MC), NORMALLY CLOSED CONTACT
PUSHBUTTON, MUSHROOM HEAD	XX MOMENTARY OR MAINTAIN CONTACT (XX = MC), NORMALLY OPEN CONTACT
PUSHBUTTON, MUSHROOM HEAD	XX MOMENTARY OR MAINTAIN CONTACT (XX = MC), NORMALLY CLOSED CONTACT
SELECTOR SWITCH (GENERAL)	XXXX YY ZZ (XO) (OX) 'XXXX' INDICATES ID NO. 'YY' INDICATES NAME OF CURRENT SWITCH POSITION, 'ZZ' INDICATES NAME OF OTHER SWITCH POSITION(S) 'X' INDICATES CLOSED CIRCUIT POSITION 'O' INDICATES OPEN CIRCUIT POSITION (CONTACTS DIAGRAMMATICALLY SHOWN CLOSED)
TEMPERATURE SWITCH	NORMALLY CLOSED, OPENS ABOVE SET TEMPERATURE
TEMPERATURE SWITCH	NORMALLY OPEN, CLOSES ABOVE SET TEMPERATURE
TIMER SWITCH	NORMALLY CLOSED, OPENS ON TIME DELAY AFTER COIL IS ENERGIZED
TIMER SWITCH	NORMALLY OPEN, CLOSES ON TIME DELAY AFTER COIL IS ENERGIZED
TIMER SWITCH	NORMALLY CLOSED, CLOSES ON TIME DELAY AFTER COIL IS DE-ENERGIZED
TIMER SWITCH	NORMALLY OPEN, OPENS ON TIME DELAY AFTER COIL IS DE-ENERGIZED
TORQUE SWITCH	NORMALLY OPEN, CLOSES BELOW SET POINT
TORQUE SWITCH	NORMALLY CLOSED, OPENS ABOVE SET POINT

SPECIAL IDENTIFIERS

A	AMBER LIGHT OR AMMETER
AS	AMMETER SWITCH
ATS	AUTOMATIC TRANSFER SWITCH
C	CLEAR LIGHT
CB	CIRCUIT BREAKER
CL	CURRENT LIMITING FUSE
CR	CONTROL RELAY
CS	CONTROL SWITCH
E	HIGH SPEED, MEDIUM VOLTAGE FUSE
G	GREEN LIGHT
LA	LIGHTNING ARRESTER
LR	LATCHING RELAY
M	MOTOR RELAY
MTS	MANUAL TRANSFER SWITCH
PF	POWER FACTOR METER
R	RED LIGHT
SA	SURGE ARRESTER
SP	SPARE
T	TIME DELAY FUSE
V	VOLTMETER
VS	VOLTMETER SWITCH
W	WATTMETER
WH	WATTHOUR METER
WHD	WATTHOUR DEMAND METER

000003

REF DWG NO.	DRAWING TITLE
95X-5500-X-02065	DRAWING INDEX
95X-5500-E-02089	SINGLE LINE/ELEVATION INJECTION WELL 29

NO	REVISIONS	DATE	DWN.	BY	APPD.	NO	REVISIONS	DATE	DWN.	BY	APPD.	REF. DWG. NO.
						0	ISSUED FOR CFC	1-7-02	GES		GEP	95X-5500-X-02065

NOTE: FLUOR FERNALD CADD DRAWING. DO NOT REVISE MANUALLY.

CONFIGURATION MANAGEMENT DRAWING

SYSTEM, STRUCTURE OR COMPONENTS SHOWN HEREON ARE CONSISTENT WITH THE DESIGN DOCUMENTS REF NOTES

CONSULTANT CHECKED DATE

APPROVALS

CIVIL & STR.			SAFETY ENG.	
ELECTRICAL	J.L. HUSTINGS	1/7/02	MAINTENANCE	
ENGINEER			FIRE PROTECT.	
INSTRUMENT			WASTE MANAGE	
MECHANICAL			SECURITY	
			PROJECTS	
CHECKED				
APPROVED		1/7/02		

Fernald Environmental Management Project

FLUOR FERNALD, INC.

U.S. DEPARTMENT OF ENERGY

ARWWP SITE

SOUTH FIELD EXTRACTION SYSTEM
PHASE 2
ELECTRICAL SYMBOLS AND LEGEND

RES 4340
DATE FEB. 12, 2002
DRAWN C. SCHWARTZMAN

95X-5500-E-02083 | 0

ELECTRICAL PLAN SYMBOLS

-4487

SWITCH AND RECEPTACLE SYMBOLS

- SWITCH, SINGLE POLE WALL MOUNTED FLUSH
- SWITCH, THREE-WAY
- SWITCH, FOUR-WAY
- INDICATES DISTRIBUTION PANEL AND CIRCUIT BREAKER NUMBER FROM WHICH POWER IS SUPPLIED (TYPICAL)
- SINGLE RECEPTACLE
- SINGLE RECEPTACLE WP = WEATHER PROOF
- DUPLEX RECEPTACLE G = GROUND FAULT TYPE (GFCI)
- WELDING OR POWER RECEPTACLE
- DISCONNECT SWITCH WITH AMP RATING
- TRANSFORMER WITH KVA RATING
- THERMOSTAT

LIGHTING SYMBOLS

- FLUORESCENT FIXTURE
- WALL MOUNTED FLUORESCENT LIGHT FIXTURE, WITH INDIVIDUAL PHOTOCELL CONTROL, SUITABLE FOR OUTDOOR AND WET LOCATIONS, LAMP WATTAGE AS SHOWN
- TWO-LAMP EMERGENCY EGRESS LIGHT FIXTURE WITH RECHARGEABLE BATTERIES
- EXIT LIGHT
- CEILING OR PENDANT MOUNTED HIGH PRESSURE SODIUM LIGHT, WITH WIDE BEAM SPREAD, LOWBAY TYPE, FULLY ENCLOSED, LAMP WATTAGE AS SHOWN
- POLE MOUNTED, WITH PHOTO CONTROL HIGH PRESSURE SODIUM FLOOD LIGHT, WITH LAMP WATTAGE AS SHOWN
- STANCHION MOUNTED INCANDESCENT LIGHT WITH LAMP WATTAGE AS SHOWN
- WALL MOUNTED INCANDESCENT LIGHT WITH LAMP WATTAGE SHOWN

COMMUNICATIONS SYMBOLS

- PUBLIC ADDRESS SPEAKER WITH SINGLE HORN.
- PUBLIC ADDRESS SPEAKER WITH DUAL HORN.
- PUBLIC ADDRESS SPEAKER FLUSH CEILING MOUNTED
- TELEPHONE OUTLET
- BELL
- HORN
- EVACUATION SYSTEM HORN/SPEAKER

MISCELLANEOUS SYMBOLS

- HORIZONTAL MOTOR
- VERTICAL MOTOR
- POWER POLE
- POLE DOWN-GUY AND ANCHOR
- HEAT TRACING POWER CONNECTION
- OVERHEAD DOOR MOTOR CONNECTION

GROUNDING SYMBOLS

- GROUNDING CABLE EXPOSED
- GROUNDING CABLE EMBEDDED OR DIRECT BURIED
- GROUNDING CONNECTION
- GROUNDING ROD CONNECTION TO GROUNDING CABLE
- GROUNDING ROD TEST WELL, BOLTED CONNECTIONS TO GROUNDING CABLE
- GROUNDING CABLE WITH PARALLEL TAP TO TO STUB-UP WITH PIGTAIL

CABLE TRAY SYMBOLS

- COVER
- CABLE TRAY - END VIEW
- CABLE TRAY - SIDE VIEW
- CABLE TRAY - VERTICAL CURVE (TURNING DOWN)
- CABLE TRAY - VERTICAL CURVE (TURNING UP)
- TRAY SECTION DESIGNATION
  - I = INSTRUMENTATION (ANALOG)
  - P = POWER
  - C = CONTROL (DIGITAL)
- TRAY WIDTH

CONDUIT, LINE AND DUCTBANK SYMBOLS

- CONDUIT, EXPOSED
- CONDUIT, ROUTED BELOW PLAN ELEVATION, EMBEDDED OR DIRECT BURIED
- CONDUIT TURNING TOWARDS
- CONDUIT TURNING AWAY
- CONDUIT AND CABLE HOMERUN TO LOCATION INDICATED
- DISCONNECT AND REMOVE CONDUIT (D&R)
- FLEXIBLE CONDUIT AND CONNECTOR AT END OF RIGID CONDUIT RUN
- SEALED CONDUIT CONNECTOR FOR FIRE PROTECTION, VAPOR BARRIER
- CONDUIT GROUPINGS ALONG FLOOR OR WALL
- 3-1/C#10 ,3/4"C — CONDUIT AND CABLE RUNS NOT LISTED IN CONDUIT AND CABLE SCHEDULE
- WEATHERHEAD AT END OF RIGID CONDUIT RUN
- CONDUIT NUMBER AS IDENTIFIED ON CONDUIT SCHEDULE
- CONDUIT IDENTIFICATION BUBBLE
- CONDUIT SIZE AS IDENTIFIED ON CONDUIT SCHEDULE

PUSHBUTTON AND PANEL SYMBOLS

- PUSH BUTTON OR SELECTOR SWITCH, REMOTE MOUNTED, SINGLE
- PUSH BUTTON OR SELECTOR SWITCH, REMOTE MOUNTED, TWO OR MORE
- LP(X) — LIGHTING PANEL, SURFACE MOUNTED AND I.D. NUMBER
- PP(X) — POWER PANEL, FLUSH MOUNTED AND I.D. NUMBER
- TEL(X) — TELEPHONE PANEL
- ANNUN — ANNUNCIATOR

MONITOR SYMBOLS

- CM — CRITICALITY MONITOR WITH EMERGENCY POWER CIRCUIT
- RM — RADIATION MONITOR
- AM — AIR MONITOR STATION
- CO — CARBON MONOXIDE MONITOR PANEL
- INSTRUMENT
- XXXX — XXXX - DEVICE NUMBER

000004

REF DWG NO.	DRAWING TITLE
95X-5500-X-02065	DRAWING INDEX
95X-5500-E-02089	SINGLE LINE/ELEVATION INJECTION WELL 29

NO	REVISIONS	DATE	DWN. BY	APPD.	NO.	REVISIONS	DATE	DWN. BY	APPD.	REF. DWG. NO.
					0	ISSUED FOR CFC	1-29-02	GES	GEP	95X-5500-X-02065

NOTE: FLUOR FERNALD CADD DRAWING, DO NOT REVISE MANUALLY.

CONFIGURATION MANAGEMENT DRAWING — SYSTEM ATTRIBUTES OR CONDITIONS ACCEPTED BY CONFIGURATION CONTROL. SEE NOTES.

CONCURRENT ENGINEER — DATE

APPROVALS: CIVIL & STRC. — SAFETY ENG. — MAINTENANCE — ELECTRICAL — FIRE PROTECT. — ENGINEER — WASTE MANAGE. — INSTRUMENT — SECURITY — MECHANICAL — PROJECTS — CHECKED — APPROVED

Fernald Environmental Management Project

FLUOR FERNALD, INC.

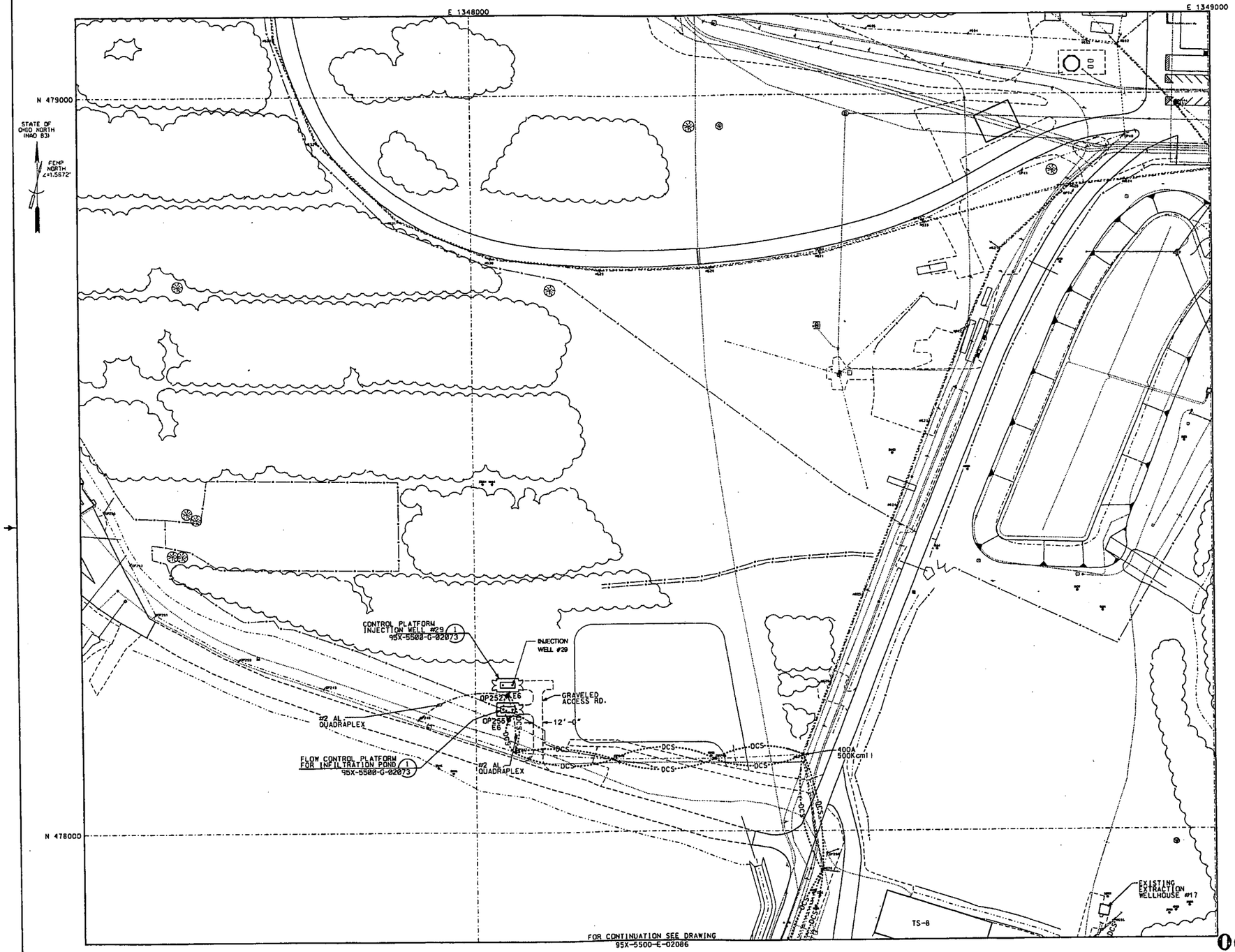
U.S. DEPARTMENT OF ENERGY

ARWWP — SITE

SOUTH FIELD EXTRACTION SYSTEM
PHASE 2
ELECTRICAL SYMBOLS AND LEGEND

RES 4340 — DATE FEB. 13, 2002 — DRAWN B. SCHWARTZWALD

95X-5500-E-02084 | 0



KEY PLAN

4487

NOTES

PROPOSED POLE COORDINATES (NAD83)						STATIC LINE	13.2 KV LINE	480 V LINE	COMM. LINE	DCS LINE (FIBEROPTIC)	BISSECTOR	DEADEND
POLE No.	POLE HEIGHT	POLE STATUS	EASTING	NORTHING	DETAIL DWG. No.							
OP252	45 ft	NEW	1348043.46	478186.20	95X-5500-E-02092			X		X		
OP255	45 ft	NEW	1348044.55	478153.24	95X-5500-E-02092							

CABLE SAG BETWEEN POLES:		
CABLE SPAN	SAG (@ 70° F)	REMARKS
OP252 TO OP255	4.00 FT	SLACK SPAN

LEGEND:

- POLE, GUY WIRE, GRADE
- ⊖ = ANGLE OF GUY WIRE TO GROUND
- LIGHT POLE (EXISTING)
- POWER POLE (EXISTING)
- POWER/LIGHT POLE (EXISTING)
- POWER POLE (NEW)
- GUY WIRE (NEW)
- COMMUNICATION LINE (EXISTING OVERHEAD LINE)
- DCS — D.C.S. FIBEROPTIC LINE. (COMMUNICATION LINE, NEW OVERHEAD LINE)
- 120-480V POWER LINE (EXISTING OVERHEAD LINE)
- 120-480V POWER LINE (NEW LINE)
- 13.2 KV LINE (EXISTING OVERHEAD LINE)
- 13.2 KV LINE (NEW OVERHEAD LINE)

REF DWG NO.	DRAWING TITLE
95X-5500-X-02065	DRAWING INDEX
95X-5500-G-02066	LEGEND AND SYMBOLS
95X-5500-G-02067	SITE UTILITY PIPING PLAN
95X-5500-G-02071	PROFILES
95X-5500-G-02073	DETAILS - 1 OF 5
95X-5500-G-02075	DETAILS - 3 OF 5
95X-5500-P-02082	PIPING PLAN, SECTIONS AND DETAIL
95X-5500-E-02086	SITE UTILITY ELECTRIC PLAN
95X-5500-E-02092	ELECTRICAL ELEVATIONS, SECTIONS AND DETAILS

000005

0' 50' 100' 200'
SCALE BAR NAD83

REVISIONS	DATE	DWN. BY	APPD.	NO.	REVISIONS	DATE	DWN. BY	APPD.	REF. DWG. NO.
				0	ISSUED FOR CFC	1-28-02	GES	GEP	95X-5500-X-02065

NOTE: FLUOR FERNALD CADD DRAWING. DO NOT REVISE MANUALLY.

CONFIGURATION MANAGEMENT DRAWING

SYSTEMS, STRUCTURES OR COMPONENTS DEPICTED ON THIS DRAWING ARE UNDER CONFIGURATION MANAGEMENT CONTROL. SEE NOTES.

COGNIZANT ENGINEER DATE

APPROVALS

CIVIL & STR.			SAFETY ENG.
ELECTRICAL	T.E. HASTINGS	8/29/02	MAINTENANCE
ENGINEER			FIRE PROTECT.
INSTRUMENT			WASTE MANAGE
MECHANICAL			SECURITY
			PROJECTS
CHECKED	GEP		
APPROVED			

Fernald Environmental Management Project

FLUOR FERNALD, INC.

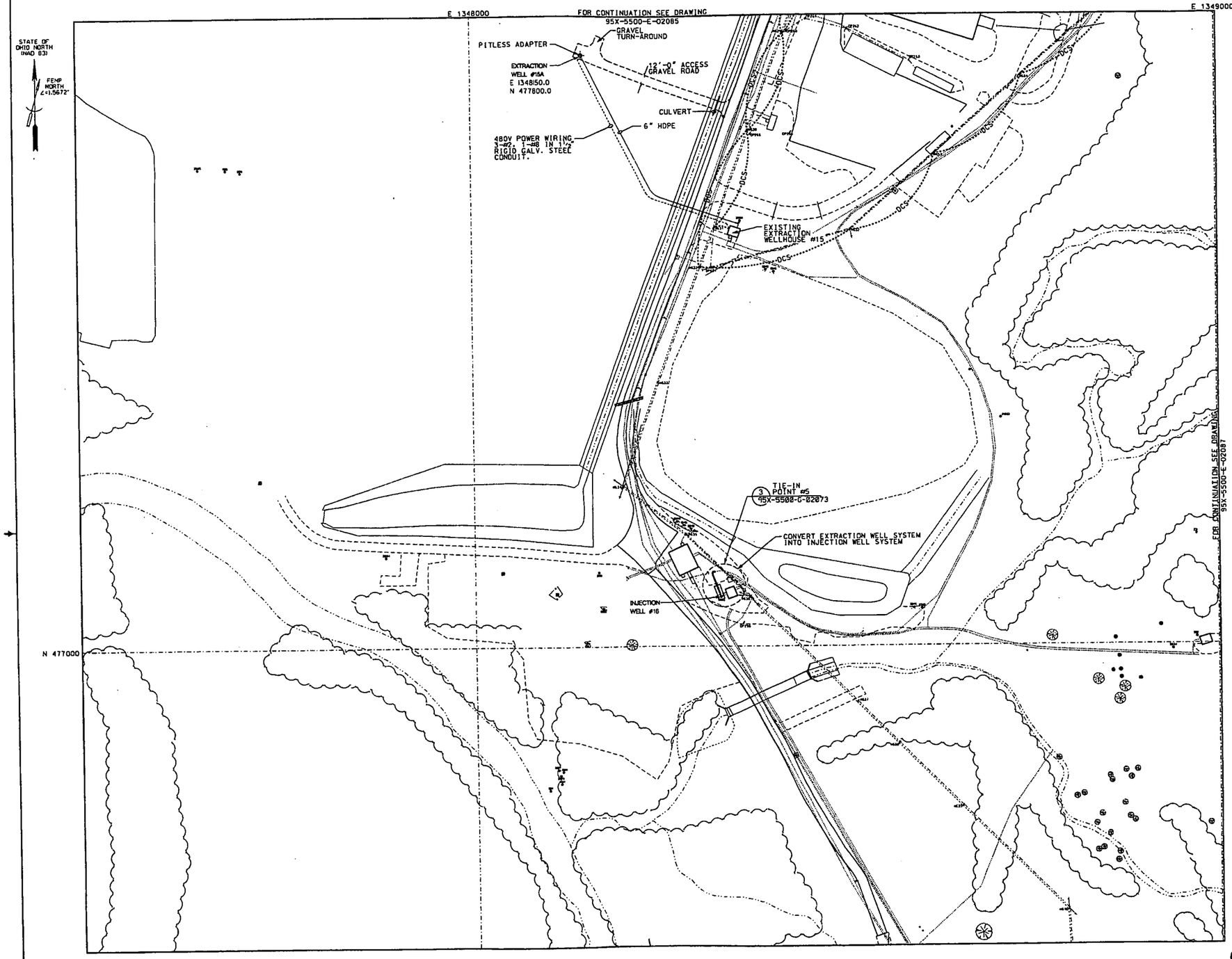
U.S. DEPARTMENT OF ENERGY

ARWWP SITE

SOUTH FIELD EXTRACTION SYSTEM PHASE 2
SITE UTILITY ELECTRIC PLAN
IW-29 AND INFILTRATION POND

RES 4340
DATE JAN. 26, 2002
DRAWN C. SCHWARZMAN

95X-5500-E-02085 | 0



KEY PLAN

4487

NOTE

1. EXTEND 480 VOLT WIRING TO EXTRACTION WELL15A CIRCUIT #3 IN POWER DISTRIBUTION PANEL DP-15.

CABLE SAG BETWEEN POLES:

CABLE SPAN	SAG (@ 70°F)	REMARKS
#629 TO #655	4.00 FT	BLACK SPAN

LEGEND:

θ = ANGLE OF GUY WIRE TO GROUND

- POLE
- GUY WIRE
- GRADE
- LIGHT POLE (EXISTING)
- POWER POLE (EXISTING)
- POWER/LIGHT POLE (EXISTING)
- POWER POLE (NEW)
- GUY WIRE (NEW)
- COMMUNICATION LINE (EXISTING OVERHEAD LINE)
- DCS — D.C.S. FIBEROPTIC LINE, (COMMUNICATION LINE, NEW OVERHEAD LINE)
- 120-480V POWER LINE (EXISTING OVERHEAD LINE)
- 120-480V POWER LINE (NEW LINE)
- 13.2 KV LINE (EXISTING OVERHEAD LINE)
- 13.2 KV LINE (NEW OVERHEAD LINE)

REF DWG NO.	DRAWING TITLE
95X-5500-X-02065	DRAWING INDEX
95X-5500-G-02066	LEGEND AND SYMBOLS
95X-5500-G-02067	SITE UTILITY PIPING PLAN
95X-5500-G-02071	PROFILES
95X-5500-G-02073	DETAILS - 1 OF 5
95X-5500-G-02075	DETAILS - 3 OF 5
95X-5500-P-02082	PIPING PLAN, SECTIONS AND DETAIL
95X-5500-E-02085	SITE UTILITY ELECTRIC PLAN
95X-5500-E-02092	ELECTRICAL ELEVATIONS, SECTIONS AND DETAILS

000006

0' 50' 100' 200'
SCALE BAR
NAD83

NO.	REVISIONS	DATE	DWN.	BY	APPD.
0	ISSUED FOR CFC	8-26-02	GES		GEP

REVISIONS	DATE	DWN.	BY	APPD.	REF. DWG. NO.
	8-26-02	GES		GEP	95X-5500-X-02065

NOTE: FLUOR FERNALD CADD DRAWING. DO NOT REVISE MANUALLY.

CONFIGURATION MANAGEMENT DRAWING — YES / NO

EXISTING STRUCTURES OR COMPONENTS AFFECTED BY THIS DRAWING CHANGE HAVE BEEN VERIFIED. 22 NOVEMBER 2002

CONCERNS DENOTED — DATE

APPROVALS				
CIVIL & STR.			SAFETY ENG.	
ELECTRICAL	T.E. MASTINS	8/29/02	MAINTENANCE	
ENGINEER			FIRE PROTECT.	
INSTRUMENT			MATL. MANAGE.	
MECHANICAL			SECURITY	
			PROJECTS	
CHECKED	GEP			
APPROVED	G.E.PAUL	8/29/02		

Fernald Environmental Management Project

FLUOR FERNALD, INC.

U.S. DEPARTMENT OF ENERGY

ARWWP SITE

SOUTH FIELD EXTRACTION SYSTEM PHASE 2

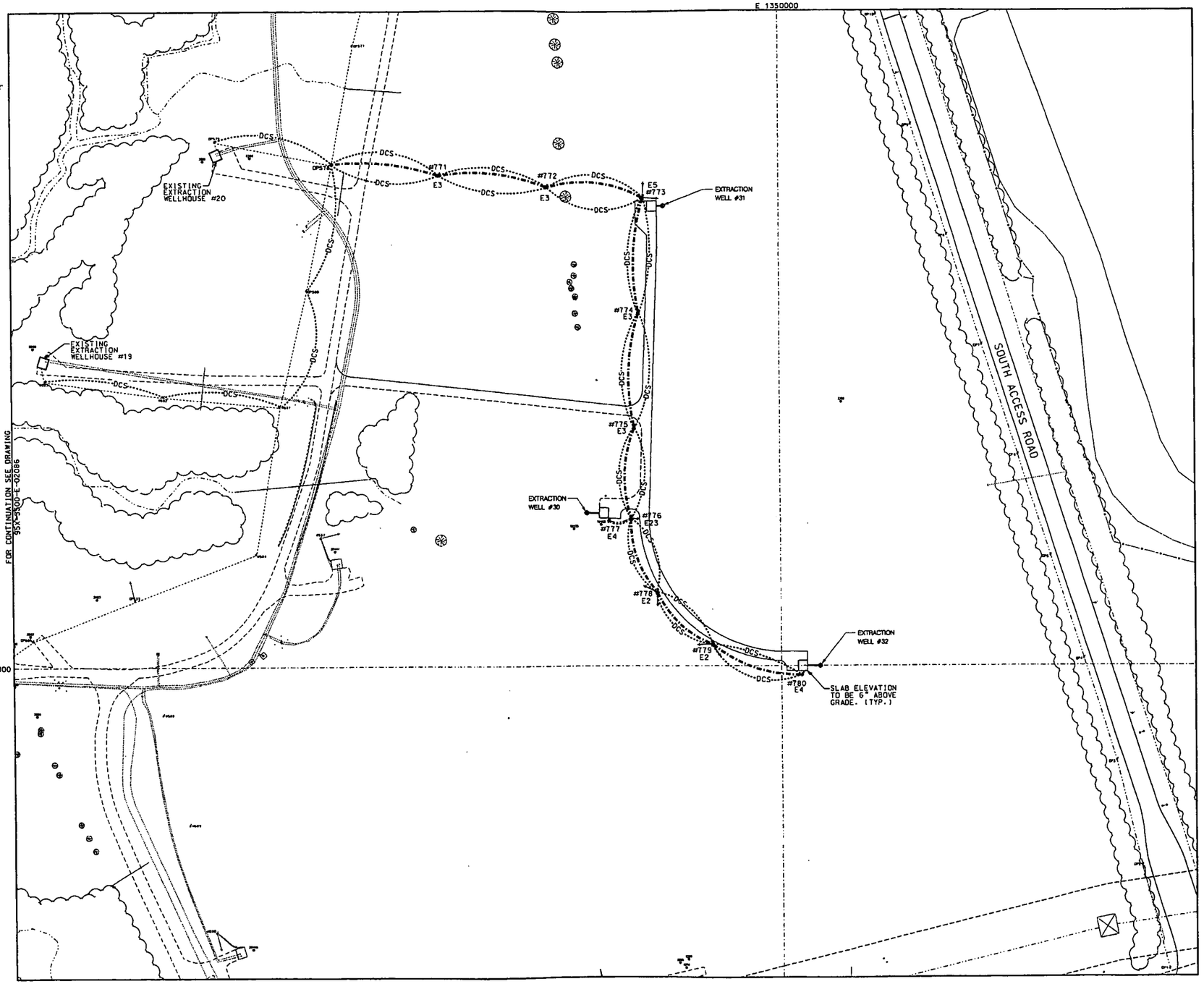
SITE UTILITY ELECTRIC PLAN EW-15A AND IW-16

RES 4340

DATE JAN. 28, 2002

DRAWN G. SCHWARTMAN

95X-5500-E-02086 | 0



KEY PLAN

4487

PROPOSED POLE COORDINATES (NAD83)						STATE & LINE	FED'L LINE	COMM. LINE	OPT. SLING (TYPE)	BISSECTOR	DEADEND
POLE NO.	POLE HEIGHT	POLE STATUS	EASTING	NORTHING	DETAIL DWG. No.						
#771	55 FT	NEW	1349559.38	477639.66	95X-5500-E-	X	X		X		
#772	55 FT	NEW	1349699.49	477624.61	95X-5500-E-	X	X		X		
#773	55 FT	NEW	1349823.93	477611.28	95X-5500-E-	X	X		X		
#774	55 FT	NEW	1349817.71	477481.39	95X-5500-E-	X	X		X		
#775	55 FT	NEW	1349811.48	477311.50	95X-5500-E-	X	X		X		
#776	55 FT	NEW	1349806.55	477192.78	95X-5500-E-	X	X		X		
#777	55 FT	NEW	1349781.81	477193.97	95X-5500-E-	X	X		X		
#778	55 FT	NEW	1349639.45	477096.52	95X-5500-E-	X	X		X		
#779	55 FT	NEW	1349910.72	477028.13	95X-5500-E-	X	X		X		
#780	55 FT	NEW	1350016.17	476999.73	95X-5500-E-	X	X		X		

GUY WIRE ANCHORING:			SEE LEGEND. THIS DWG.		
POLE#	ANCHOR(S)	GUY(S)	ANGLE OF GUY @	OR	DISTANCE FROM POLE
#773	REQUIRED		N/A		N/A
#776					
#778					
#779					

CABLE SAG BETWEEN POLES:		
CABLE SPAN	SAG (@ 70°F)	REMARKS
#771 TO #780	4.00 FT	SLACK SPAN

LEGEND:

- POLE
- GUY WIRE
- GRADE
- θ = ANGLE OF GUY WIRE TO GROUND
- LIGHT POLE (EXISTING)
- POWER POLE (EXISTING)
- POWER/LIGHT POLE (EXISTING)
- POWER POLE (NEW)
- GUY WIRE (NEW)
- COMMUNICATION LINE (EXISTING OVERHEAD LINE)
- DCS — D.C.S. FIBEROPTIC LINE. (COMMUNICATION LINE. NEW OVERHEAD LINE)
- 120-480V POWER LINE (EXISTING OVERHEAD LINE)
- 120-480V POWER LINE (NEW LINE)
- 13.2 KV LINE (EXISTING OVERHEAD LINE)
- 13.2 KV LINE (NEW OVERHEAD LINE)

REF DWG NO.	DRAWING TITLE
95X-5500-X-02065	DRAWING INDEX
95X-5500-G-02066	LEGEND AND SYMBOLS
95X-5500-G-02067	SITE UTILITY PIPING PLAN
95X-5500-G-02071	PROFILES
95X-5500-G-02073	DETAILS - 1 OF 5
95X-5500-G-02075	DETAILS - 3 OF 5
95X-5500-P-02080	PIPING/PLANT DESIGN WELL HOUSE PIPING PLAN
95X-5500-E-02086	SITE UTILITY ELECTRIC PLAN
95X-5500-E-02092	ELECTRICAL ELEVATIONS, SECTIONS AND DETAILS

000007

0' 50' 100' 200'
SCALE BAR
NAD83

REV.	REVISIONS	DATE	DWN. BY	APPD.
0	ISSUED FOR CFC	8-29-02	GES	GEP

NO.	REVISIONS	DATE	DWN. BY	APPD.	REF. DWG. NO.
					95X-5500-X-02065

NOTE:
FLUOR FERNALD CADD DRAWING, DO NOT REVISE MANUALLY.

CONFIGURATION MANAGEMENT DRAWING
SYSTEMS, STRUCTURES, AND COMPONENTS SHOWN ON THIS DRAWING ARE UNDER CONFIGURATION MANAGEMENT CONTROL. SEE DCRN.
DOCUMENT CONTROL | DATE

APPROVALS			
CIVIL & STR.			SAFETY ENG.
ELECTRICAL	J.Z. MASINGS		MAINTENANCE
ENGINEER			FIRE PROTECT.
INSTRUMENT			WASTE MANAGE.
MECHANICAL			SECURITY
			PROJECTS
CHECKED	GEP		
APPROVED			

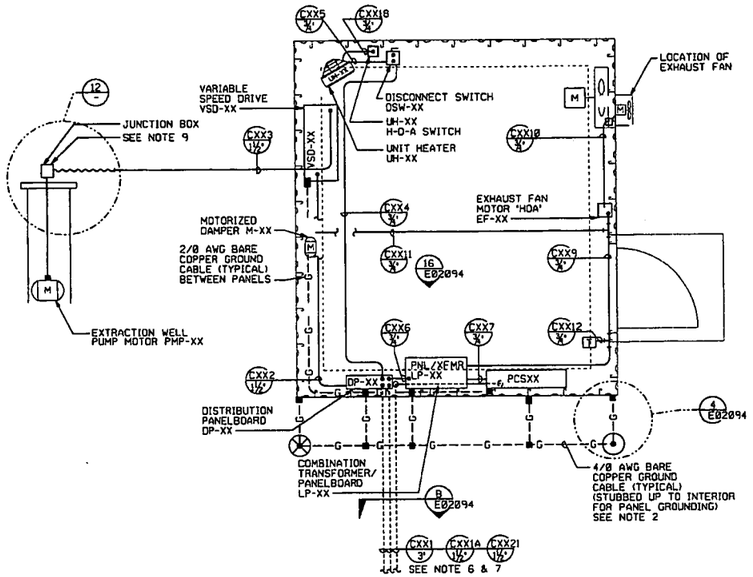
Fernald Environmental Management Project

FLUOR FERNALD, INC.

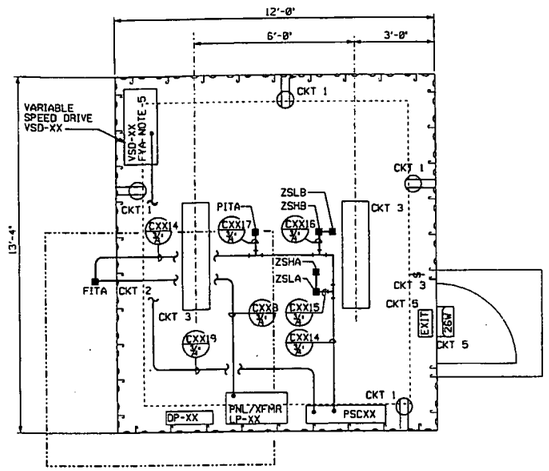
U.S. DEPARTMENT OF ENERGY

ARWWP SITE
SOUTH FIELD EXTRACTION SYSTEM
PHASE 2
SITE UTILITY ELECTRIC PLAN
EW-30, 31 & 32

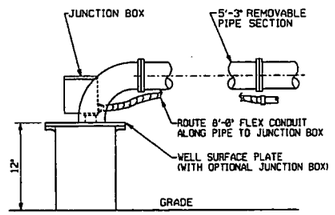
RES 4240
DATE JAN. 28, 2002
95X-5500-E-02087 | 0



WELL HOUSE EW-XX
POWER PLAN



WELL HOUSE EW-XX
LIGHTING AND INSTRUMENT PLAN

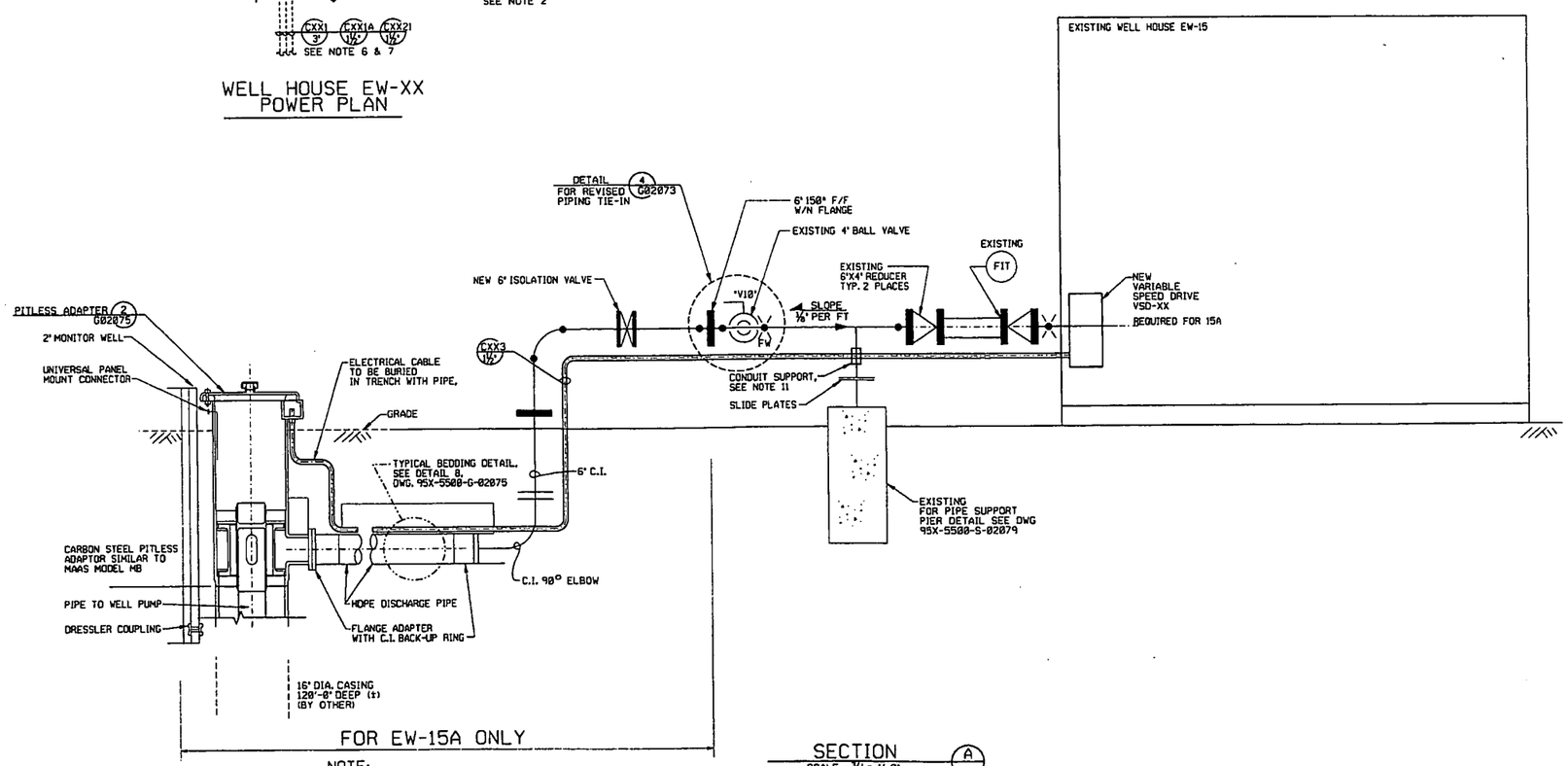


DETAIL 12
NTS
EXTRACTION WELL ELECTRICAL CONNECTION
TYPICAL FOR EW-30, 31 & 32

NOTES :

1. 'XX' REPRESENTS THE CORRESPONDING EXTRACTION WELL HOUSE NUMBER.
2. INSTALL #4/0 AWG BARE COPPER BUILDING GROUND GRID. CONNECT COLUMNS TO GROUND GRID USING #2/0 AWG BARE COPPER GROUND CABLE. ALLOW 10 FOOT PIGTAIL AT GROUND STUB UP LOCATIONS FOR CONNECTION TO EQUIPMENT.
3. CONDUIT RUNS ARE SHOWN DIAGRAMMATICALLY. FIELD ROUTE AND SUPPORT CONDUITS AS NECESSARY SUBJECT TO APPROVAL OF THE FERMCO CONSTRUCTION MANAGER.
4. ALL ELECTRICAL DISTRIBUTION RACK(S), PANEL(S), SWITCHE(S), TRANSFORMER(S), AND STARTER(S) SHALL BE GROUNDED USING A #1/0 AWG COPPER GROUND CABLE.
5. FYA DENOTES 4-20 MA INPUT TO VARIABLE SPEED DRIVE.
6. ROUTE CONDUIT TO POLE WITH TRANSFORMER (SEE DWG. 95X-5900-E-02087). PROVIDE 480 V SERVICE ENTRANCE AT POLE AND CONTINUE FEEDER TO TRANSFORMER. STUBUP SPARE CONDUIT AT POWER POLE AND INSIDE WELL HOUSE AT LP-1.
7. ROUTE COMMUNICATIONS CONDUIT WITH ELECTRICAL CONDUITS IN NOTE 6, SEE SECTION B, ON DWG. 95X-5500-E-02094.
8. FIELD ROUTE 120V POWER FOR LIGHTING AND RECEPTACLES IN ¾" RIGID GALVANIZED STEEL CONDUIT TO LIGHTING PANEL LP-XX (OR LP-1) CIRCUIT INDICATED. SEE DWG. 95X-5500-E-02097 FOR PANEL SCHEDULES.
9. TERMINATE MOTOR CONDUIT AND CABLES AT EXTRACTION WELL ELECTRICAL JUNCTION BOX.
10. NOT USED.
11. SUPPORT CONDUIT TO PIPE SUPPORTS WITH UNISTRUT OR STRUCTURAL CHANNEL.

4487



NOTE:
PITLESS ADAPTER TO BE USED FOR EW-15A

SECTION A
SCALE : ¾" = 1'-0"
NOTE : FOR PIPING INFORMATION, SEE DWG. 95X-5500-P-02080

000008

REF DWG NO.	DRAWING TITLE
95X-5500-X-02065	DRAWING INDEX

REV	DATE/DWN	BY/APPD	NO	REVISIONS	DATE/DWN.	BY/APPD.	REF. DWG. NO.
			0	ISSUED FOR CFC	1-23-02	GES	GEP	95X-5500-X-02065

NOTE:
FLUOR FERNALD CADD DRAWING. DO NOT REVISE MANUALLY.

CONFIGURATION MANAGEMENT DRAWING
EXISTING STRUCTURES OR CONTROLS CONFIRMED TO BE CURRENT PER CONFIGURATION MANAGEMENT CONTROL SYSTEM NO.
CONTROL NO. / CHECKER / DATE

APPROVALS

CIVIL & STR.			SAFETY ENG.
ELECTRICAL	T.E. NATHO	1/24/02	MAINTENANCE
ENGINEER			FIRE PROTECT.
INSTRUMENT			WASTE MANAGE.
MECHANICAL			SECURITY
			PROJECTS
CHECKED			
APPROVED			

Fernald Environmental Management Project
FLUOR FERNALD, INC.
U.S. DEPARTMENT OF ENERGY

ARWWP — SITE
SOUTH FIELD EXTRACTION SYSTEM
PHASE 2
ELECTRICAL 480/120V POWER, INSTRUMENT & LIGHTING PLAN
NOT TO SCALE

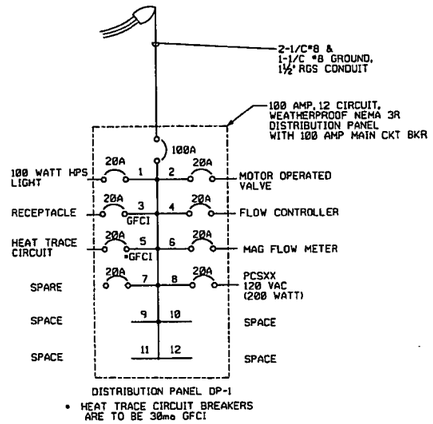
RES 4340
DATE FEB. 13, 2002
DRAWN G. SCHWARTZMAN

95X-5500-E-02088 | 0

NOTES

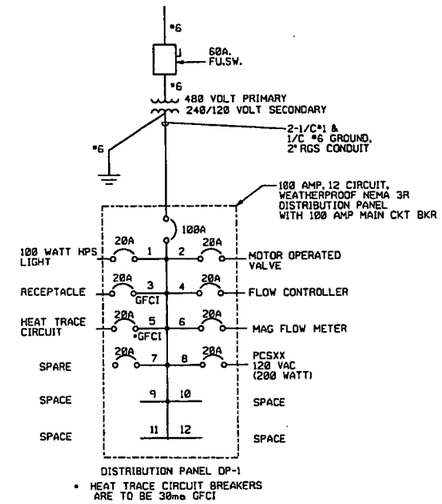
1. TYPICAL 100 AMP SERVICE SUPPLIED FROM UTILITY POLE FOR INJECTION WELL #29 AND INJECTION POND.
2. PROVIDE 4" THICK CONCRETE PAD EXTENDING 3'-0" IN FRONT OF SERVICE RACK AND 6" ON SIDES AND REAR.
3. ALL ELECTRICAL ENCLOSURES SHALL BE WEATHERPROOF, NEMA 3R.
4. ALL ELECTRICAL ENCLOSURES AND DEVICES SHALL BE GROUNDED.
5. "XX" REPRESENTS THE CORRESPONDING WELL NUMBER.

4487



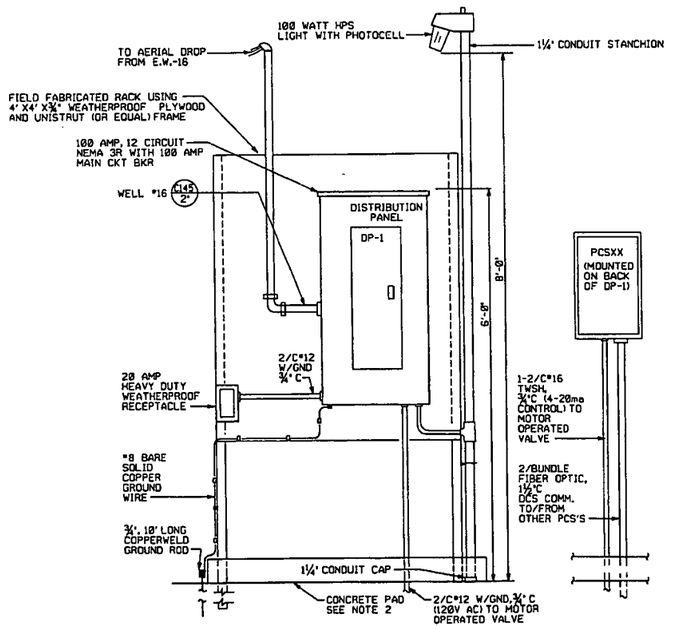
SINGLE LINE DIAGRAM

INJECTION WELL #16



SINGLE LINE DIAGRAM

TYPICAL
SEE NOTE 1

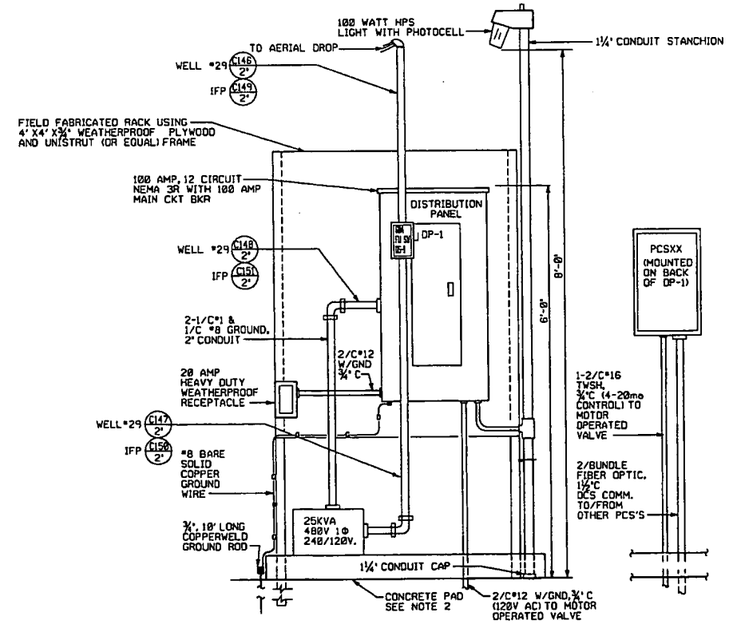


ELEVATION

SERVICE PANEL RACK

INJECTION WELL #16

NTS



ELEVATION

SERVICE PANEL RACK

TYPICAL FOR INJECTION WELL #29 AND IFP PLATFORM

NTS

000009

REF DWG NO.	DRAWING TITLE
95X-5500-X-02065	DRAWING INDEX

0	ISSUED FOR CFC	1-29-02	GES	GEP	95X-5500-E-02065
	REVISIONS	DATE	DWN BY	APPR	REF DWG NO

NOTE: FLUOR FERNALD CADD DRAWING. DO NOT REVISE MANUALLY.

CONFIGURATION MANAGEMENT DRAWING — CONCURRENT ENGINEER — DATE

APPROVALS

CIVIL & STR.			SAFETY ENG.	
ELECTRICAL			MAINTENANCE	
ENGINEER			FIRE PROTECT.	
INSTRUMENT			WASTE MANAGE	
MECHANICAL			SECURITY	
			PROJECTS	
CHECKED				

Fernald Environmental Management Project

FLUOR FERNALD, INC.

U.S. DEPARTMENT OF ENERGY

ARWWP — SITE

SOUTH FIELD EXTRACTION SYSTEM

PHASE 2

SINGLE LINE/ELEVATION INJECTION WELL #16 AND #29

RES 4340 — DATE FEB. 5, 2002 — DRAWN G. SCHWARTZMAN

95X-5500-E-02089 | 0

POLE INFORMATION					13.2 KV SERVICE ON POLE			ELECTRICAL EQUIPMENT ON POLE						
POLE NUMBER NEW	OLD	POLE HEIGHT	COORDINATES (NAD83) NORTHING	EASTING	FOR-3C	FOR-2C	FOR-2C/3C	LIGHTNING ARRESTER(S)	FUSED CUTOUT(S)	FUSE SIZE(S)	LOAD BREAK(S)	TRANSFORMER(S)	# - KVA SIZE	NOTES :
*771		55'	477.639	1.349.559		✓								
*772		55'	477.625	1.349.700		✓								
*773		55'	477.611	1.349.824		✓		773-2C-LA	773-2C-FCL	3-5E		773-2C-T	3-25	
*774		55'	477.461	1.349.818										
*775		55'	477.312	1.349.812		✓								
*776		55'	477.193	1.349.807		✓								
*777	N/A	55'	477.189	1.349.778		✓		777-2C-LA	777-2C-FCL	3-5E		777-2C-T	3-25	
*778		55'	477.097	1.349.839		✓								
*779		55'	477.028	1.349.911		✓								
*780		55'	476.989	1.350.027		✓		780-2C-LA	780-2C-FCL	3-5E		780-2C-T	3-25	

1. SEE DRAWING 95X-5900-E-02087 FOR POLE LOCATIONS.
2. SEE DRAWING 95X-5900-E-00358 FOR CIRCUITS, EQUIPMENT, AND RATINGS.
3. LIGHTNING ARRESTORS (LA) ARE STAND ALONE, KV AS SHOWN.
4. LIGHTNING ARRESTORS (LA) ARE COMBINATION WITH FUSE CUTOUTS, KV AS SHOWN.

4487

LEGEND

PPP-CC-EEE	TYPICAL, PPP-POLE NO.: CC-CIRCUIT NO.: EEE-EQUIPMENT
LA	LIGHTING ARRESTER (SEE NOTES 3, 4)
FC	FUSED CUTOUT
FCL	FUSED CUTOUT, LOAD BREAK RATED
LB	LOAD BREAK SWITCH, 3 POLE GANG OPERATED
FLB	FUSED LOAD BREAK SWITCH
T	TRANSFORMER
FP	PORCELAIN BODY FUSE

000010

REF DWG NO.	DRAWING TITLE
95X-5500-X-02065	DRAWING INDEX

NO	REVISIONS	DATE	DWN. BY	APPD.	NO	REVISIONS	DATE	DWN. BY	APPD.	REF. DWG. NO.
					0	ISSUED FOR CFC	1-24-02	GES	GEP	95X-5500-X-02065

NOTE:
FLUOR FERNALD CADD DRAWING. DO NOT REVISE MANUALLY.

CONFIGURATION MANAGEMENT DRAWING — OFFICIAL / UNOFFICIAL
REFERENCE DETAILS MAY BE ON OTHER DRAWINGS. DO NOT DESIGN FROM THIS DRAWING WITHOUT MANAGEMENT CONTROL. SEE NOTES.
COONLEY ENGINEER / DATE

APPROVALS

CIVIL & STR.			SAFETY ENG.	
ELECTRICAL	J.L. MATHNEY	1/24/02	MAINTENANCE	
ENGINEER			ENV. PROTECT.	
INSTRUMENT			WASTE MANAGE.	
MECHANICAL			SECURITY	
			PROJECTS	
CHECKED				
APPROVED		1/24/02		

Fernald Environmental Management Project
FLUOR FERNALD, INC.
U.S. DEPARTMENT OF ENERGY

ARWWP — SITE
SOUTH FIELD EXTRACTION SYSTEM
PHASE 2
ELECTRICAL 13.2 KV POLE SCHEDULE
SHEET

RES. 4340
DATE MAY, 25, 2001
DRAWN G. SCHWARZMAN

95X-5500-E-02090 | 0

MATERIAL LIST

ITEM TAG	POLE MATERIAL ITEMS
0A	WOODEN POLE - ANSI 05.1, CLASS 2. SOUTHERN PINE, PENTACHLOROPHENOL TREATED TO 12 lbs/ft³, AWPA C4. SEE "POLE SCHEDULE" FOR REQUIRED LENGTH.
0B	WOODEN CROSSARM - 3½" X 4½" X 6'-0". SOUTHERN PINE, PENTACHLOROPHENOL TREATED TO 8 lbs/ft³.
0C	WOODEN CROSSARM - 3½" X 4½" X 8'-0". SOUTHERN PINE, PENTACHLOROPHENOL TREATED TO 8 lbs/ft³.
0D	WOODEN CROSSARM - 3¾" X 4¾" X 10'-0". SOUTHERN PINE, PENTACHLOROPHENOL TREATED TO 8 lbs/ft³.
0E	CROSSARM ANGLE BRACE - 63" LONG X 18" DROP, HOT DIP GALVANIZED ASTM A675 (2 PIECE BRACES ARE ACCEPTABLE). (2 SINGLE CROSSARM BRACES SHALL BE USED WHEN REQUIRED BY ELEC. EQUIPMENT, I.E. FUSED CUTOUTS.)

ITEM TAG	HARDWARE ITEMS
1A	DOUBLE ARMING ⅝" BOLT - FULL THREAD, HOT DIP GALVANIZED, LENGTH AS REQUIRED.
1B	⅝" MACHINE BOLT - ANSI C135.1, LENGTH AS REQUIRED, HOT DIP GALVANIZED.
1C	SQUARE WASHER - FOR ⅝" BOLT, HOT DIP GALVANIZED.
1D	ROUND WASHER - FOR ⅝" BOLT, HOT DIP GALVANIZED.
1E	SPRING LOCK WASHER - FOR ⅝" BOLT, HOT DIP GALVANIZED.
1F	SQUARE NUT - FOR ⅝" BOLT, HOT DIP GALVANIZED.
1G	EYENUT - ANSI C135.1, FOR ⅝" BOLT, HOT DIP GALVANIZED.
1H	THIMBLE EYENUT - FOR ⅝" BOLT, HOT DIP GALVANIZED.
1J	ASSEMBLY, EXTENSION LINK 20", WITH END CLEVIS, ANCHOR SHACKLE AND EYENUT, ALL HOT DIP GALVANIZED, PLUS CLEVISES FOR DOUBLE ARMING BOLT ATTACHMENT.
1K	CROSSARM GAIN - 3" X 4", TEETH ON BOTH SIDES, HOT DIP GALVANIZED.

ITEM TAG	GROUNDING ITEMS
2A	GROUND ROD - ¾" DIAMETER X 10' LONG, COPPERWELD.
2B	GROUND ROD CLAMP (FOR GROUND WIRE CONNECTION) - ¾" DIA., BRONZE OR BRASS.
2C	GROUND CONDUCTOR - #2 AWG, BARE SOLID COPPER, SOFT DRAWN.
2D	GROUND CONDUCTOR - #4 AWG, BARE SOLID COPPER, SOFT DRAWN.
2E	GROUND STAPLE - COPPERCLAD, 1½" LONG.
2F	GROUNDING CLAMP - WIRE TO WIRE.
2G	POLE BOTTOM GROUND PLATE - COPPER (OR COIL GROUND WIRE ON POLE BOTTOM)

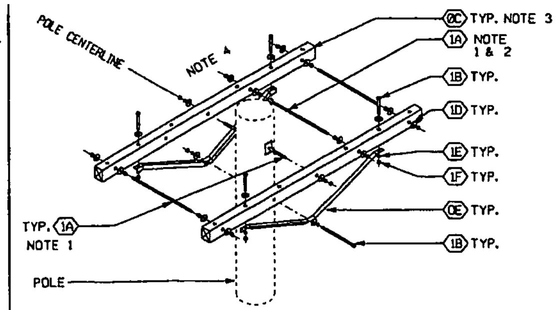
ITEM TAG	GUYING ITEMS
3A	GUY ANCHOR SYSTEM - HELIX SCREW TYPE, GALVANIZED STEEL, ASTM A36/36M WITH MINIMUM PULLOUT CAPACITY OF 23,000 lbs. FOR SOIL WITH BLOW COUNT OF 10, MID-STRENGTH INSTALLATION TORQUE SERIES, EYENUT TO ACCOMMODATE UP TO THREE GUY WIRES.
3B	GUY WIRE - ½" DIA. STRAND, CLASS A OR B GALVANIZED, ASTM A475 1 X 7 EXTRA HIGH STRENGTH CONSTRUCTION, MINIMUM TENSILE STRENGTH OF 26,000 lbs.
3C	DEADEND GRIP - PREFORMED TWISTED LOOP, CLASS A OR B GALVANIZED, SIZED FOR GUY WIRE.
3D	GUY STRAIN INSULATOR - ⅝" SIZE, ANSI C29.4 CLASS 54-1.
3E	FIBERGLASS GUY STRAIN INSULATOR - 16,000 LBS. RATING, HOT-DIPPED GALVANIZED CLEVIS-THIMBLE-EYE FITTINGS, LENGTH AS REQUIRED.
3F	¾" THIMBLEYE ANGLE BOLT (LENGTH AS REQUIRED), WASHER, SPRING LOCK WASHER, NUT, HOT DIP GALVANIZED, MINIMUM TENSILE STRENGTH OF 18,000 lbs.
3G	GUY WIRE MARKER - HALF ROUND UV RESISTANT YELLOW PLASTIC, 2" WIDE X 96" LONG, WITH MOUNTING HARDWARE.
3H	GUY STATIC ATTACHMENT - THIMBLEYES(2) WITH ROD SIZED FOR BAYONET HOLE, HOT DIP GALVANIZED.

ITEM TAG	ELECTRICAL SWITCH ITEMS
4A	CUTOUT SWITCH/ARRESTER COMBINATION UNIT, FOR CROSSARM MOUNTING; CUTOUTS, ANSI C37.42, LOAD BREAK, UNLESS EXISTING, DROPOUT TYPE, 110 KV BIL, SEE SINGLE LINE FOR RATINGS, SEE ITEM TAG 4E BELOW FOR ARRESTER REQUIREMENTS.
4B	FUSED CUTOUT SWITCH/ARRESTER COMBINATION UNIT, FOR CROSSARM MOUNTING; CUTOUTS, ANSI C37.42, LOAD BREAK, UNLESS EXISTING, DROPOUT TYPE, 110 KV BIL, FUSES, TYPE K, SEE SINGLE LINE FOR RATINGS, SEE ITEM TAG 4E BELOW FOR ARRESTER TYPE AND RATING.
4C	LOAD BREAK SWITCH, FOR CROSSARM MOUNTING; ANSI C37.30, 110 KV BIL, FUSES, WHERE REQUIRED, TYPE K, SEE SINGLE LINE FOR RATINGS.
4D	LOAD BREAK SWITCH, FOR CROSSARM MOUNTING, HORIZONTAL, S & C CAT. # 147432-D-S2; ANSI C37.30, 110 KV BIL, FUSES, WHERE REQUIRED, TYPE K; SEE SINGLE LINE FOR RATINGS.
4E	ARRESTER, DIRECT CONNECTED, 9 KV, IEEE C62.1, RISER POLE TYPE, METAL OXIDE VALVE W/CROSSARM MOUNTING HARDWARE.
4F	SWITCH NAMEPLATE - ¼" BAKELITE SIGN MATERIAL SIZED FOR NUMBER OF CHARACTERS, BLACK LETTERS ON WHITE BACKGROUND WITH MOUNTING HOLES SIZED FOR ¼" BOLTS SET AT BOTH ENDS. MOUNT THE NAMEPLATE AT EYE LEVEL NEAR OPERATING HANDLE. SEE DETAIL 5.

ITEM TAG	TRANSFORMER ITEMS
5A	TRANSFORMER - POLE MOUNTED, SEE SINGLE LINE FOR RATINGS AND QUANTITIES. ANSI C57.12.20, 1 PHASE, OIL FILLED, 125 KV BIL, 65°C OVER 30°C RISE, EXTERNALLY OPERATED CHANGER FOR TWO EACH 2½% ABOVE AND BELOW NORMAL VOLTAGE TAPS.
5B	POLE MOUNTED EQUIPMENT BRACKET FOR SINGLE TRANSFORMER - DOUBLE-BANDED, HEAVY DUTY CLUSTER MOUNT, HIGH-STRENGTH STEEL GALVANIZED OR ALUMINUM, WITH GROUNDING LUG. SIZED FOR ITEM 5A ABOVE.
5C	POLE MOUNTED EQUIPMENT BRACKET FOR THREE TRANSFORMERS - DOUBLE-BANDED, HEAVY DUTY CLUSTER MOUNT, HIGH-STRENGTH STEEL GALVANIZED OR ALUMINUM, WITH GROUNDING LUG. SIZED FOR ITEM 5A ABOVE.

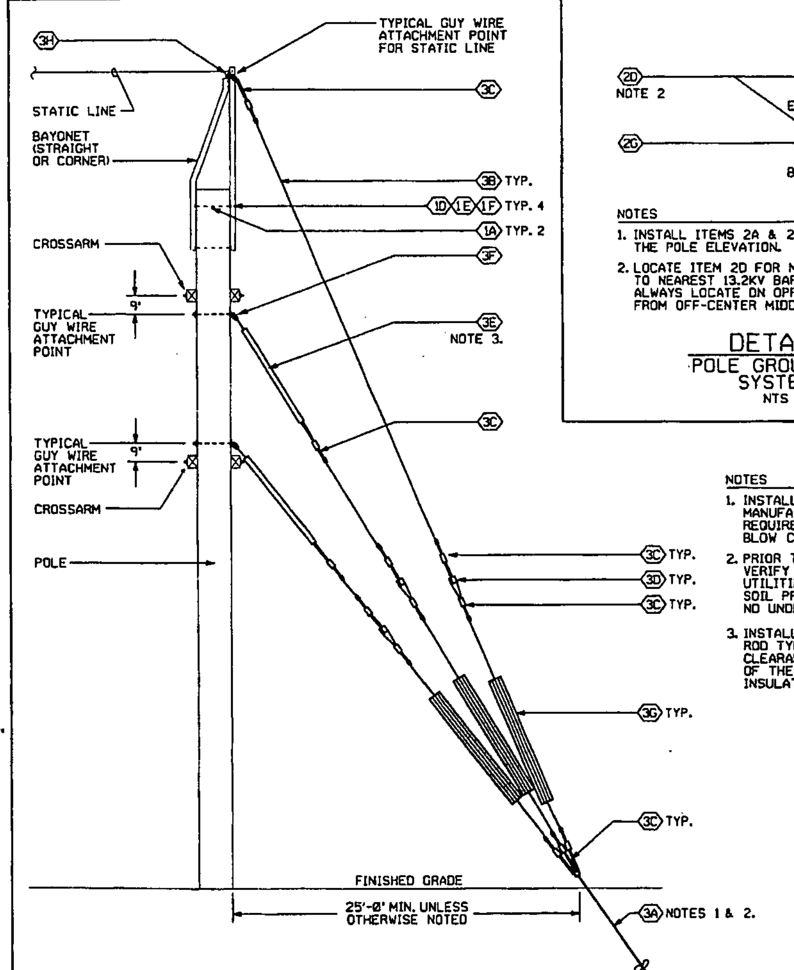
ITEM TAG	STATIC LINE, CABLE(S) AND INSULATOR ITEMS
6A	STATIC LINE - ⅜" DIA. STRAND, CLASS A OR B GALVANIZED, 1 X 7 HIGH STRENGTH CONSTRUCTION, MINIMUM TENSILE STRENGTH OF 10,000 LBS.
6B	STATIC LINE BAYONET - STRAIGHT, 66" LENGTH, HOT DIP GALVANIZED.
6C	STATIC LINE BAYONET - CORNER, 66" LENGTH, HOT DIP GALVANIZED.
6D	STATIC LINE CLAMP - HOT DIP GALVANIZED J-BOLT DESIGNED TO FIT INTO TWO HOLES AT TOP OF BAYONET.
6E	13.2KV AERIAL CABLE - 336.4KCMIL ACSR "MERLIN", ASTM B232.
6G	13.2KV AERIAL CABLE - #2 AWG ACSR "SPARROW", ASTM B232.
6I	DEADEND CLAMP - ALUMINUM, STRAIGHT-LINE, SIZED FOR AERIAL CABLE.
6J	CABLE TO CABLE CONNECTOR USED FOR XFMR PRIMARY CONNECTION TO OVERHEAD - COMPRESSION STIRRUP (ALUM., SIZED FOR AERIAL CABLE) WITH MECHANICAL HOT LINE CLAMP (ALUM., SIZED FOR STIRRUP AND TAP CABLE). USE SILICON-BRONZE BOLTING MATERIALS.
6K	CABLE TO CABLE CONNECTOR USED FOR MAIN LINE TAPS TO BRANCH CIRCUITS - ALUMINUM MECHANICAL NON-CRIMP REMOVABLE CONNECTOR, SIZED FOR CABLES. USE SILICON-BRONZE BOLTING MATERIALS.
6L	CABLE TO CABLE CONNECTOR USED FOR MAIN LINE CONNECTIONS - ALUMINUM COMPRESSION CONNECTOR, SIZED FOR CABLES. USE SILICON-BRONZE BOLTING MATERIALS.
6M	SUSPENSION INSULATOR - CLEVIS TYPE, STEEL HARDWARE, ANSI C29.2, CLASS 52-9, 2 REQUIRED FOR 13.2KV SERVICE. OTHER INSULATOR ARRANGEMENTS SUITABLE FOR 15KV SERVICE MAY BE SUBMITTED FOR APPROVAL.
6O	STRAIGHT PIN/INSULATOR/ASSEMBLY. FOR WOOD CROSSARM - FLAT BASE LONG SHANK TYPE, MOUNTING HARDWARE, HOT DIP GALVANIZED; PIN INSULATOR - 14.4KV, GLAZED PORCELAIN, ANSI C29.5, CLASS 55-5, "F" NECK; ARMOR ROD - SIZED AND LENGTH AS REQUIRED BY AERIAL CABLE SIZE/SUPPORT(S); TIE WIRE - TYPE (COPPER OR ALUMINUM), SIZED AND LENGTH AS REQUIRED BY AERIAL CABLE SIZE/SUPPORT(S). SEAL WITH SILICON PUTTY WHEN NOT MOUNTED UPRIGHT.
6P	CORNER ANGLE PIN/INSULATOR/PREFORMED ARMOR ROD/TIE WIRE ASSEMBLY. CORNER ANGLE PIN FOR WOOD CROSSARM - MOUNTING HARDWARE, HOT DIP GALVANIZED; PIN INSULATOR - 14.4KV, GLAZED PORCELAIN, ANSI C29.5, CLASS 55-5, "F" NECK; ARMOR ROD - SIZED AND LENGTH AS REQUIRED BY AERIAL CABLE SIZE/SUPPORT(S); TIE WIRE - TYPE (COPPER OR ALUMINUM), SIZED AND LENGTH AS REQUIRED BY AERIAL CABLE SIZE/SUPPORT(S). SEAL WITH SILICON PUTTY WHEN NOT MOUNTED UPRIGHT.
6Q	POLE TOP PIN/INSULATOR/ASSEMBLY. POLE TOP PIN - C135.22, 15" LENGTH, MOUNTING HARDWARE FOR WOOD POLE, HOT DIP GALVANIZED; PIN INSULATOR - 14.4KV, GLAZED PORCELAIN, ANSI C29.5, CLASS 55-5, "F" NECK; ARMOR ROD - SIZED AND LENGTH AS REQUIRED BY AERIAL CABLE SIZE/SUPPORT(S); TIE WIRE - TYPE (COPPER OR ALUMINUM), SIZED AND LENGTH AS REQUIRED BY AERIAL CABLE SIZE/SUPPORT(S). SEAL WITH SILICON PUTTY WHEN NOT MOUNTED UPRIGHT.
6S	CABLE TERMINATION - SIZED FOR INSULATED CABLE WITH CROSSARM MOUNTING HARDWARE.

ITEM TAG	MISC. HARDWARE ITEMS
7A	THIMBLE, FOR STATIC WIRE OR MESSENGER WIRE DEAD-END.
7B	EYE BOLT, OVAL EYE TYPE, FOR DEAD-END ⅝" DIA. WITH ONE SQUARE NUT, ADDITIONAL NUTS, WASHERS, AND LENGTH AS REQUIRED.
7C	GUY GRIP FOR STATIC WIRE, PREFORMED WIRE TYPE.
7D	COMMUNICATION (DCS) CABLE LASHED TO ⅜" MESSENGER.
7E	#2 AWG BARE COPPER.
7F	LASHING WIRE CLIP, SIZE AS REQUIRED.
7G	CLAMP, SUSPENSION, FOR ⅜" MESSENGER.

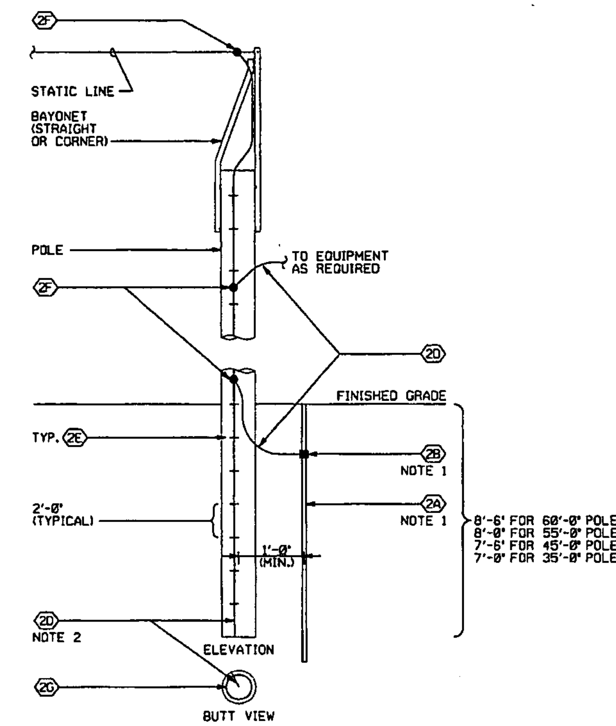


NOTES
1. PROVIDE ADEQUATE LENGTH OF THREAD TO FACILITATE THE ADDITION OF FUTURE EYENUTS ON END OF BOLT.
2. PROVIDE ITEM 1A WITH REQUIRED HARDWARE WHEN "OFFSET" IS NEEDED.
3. 0D REPLACES 0C WHERE NOTED. USE 4 CROSSARMS (ADJUST LENGTH OF 1A WHERE NOTED.
4. USE STANDARD CROSSARM DRILL HOLE SPACINGS.

DETAIL 1 (E02028)
CROSSARMS & MOUNTING ITEMS
NTS



DETAIL 13 (E02028)
GUYING SYSTEM
NTS

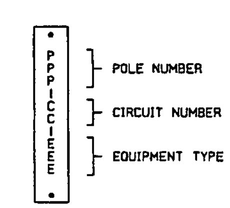


NOTES
1. INSTALL ITEMS 2A & 2B ONLY WHEN CALLED OUT ON THE POLE ELEVATION.
2. LOCATE ITEM 2D FOR MAXIMUM CLEARANCE TO NEAREST 13.2KV BARE AERIAL CONDUCTOR(S). ALWAYS LOCATE ON OPPOSITE SIDE OF POLE FROM OFF-CENTER MIDDLE PHASE FEATURES.

DETAIL 12 (E02028)
POLE GROUNDING SYSTEM
NTS

LEGEND:
(XX) - AERIAL MATERIAL OR EQUIPMENT

NOTES
1. INSTALL SOIL ANCHORS ACCORDING TO MANUFACTURER'S INSTRUCTIONS. FOR REQUIRED PULLOUT SOIL, ASSUME MINIMUM BLOW COUNT OF 10. (ASTM D1586).
2. PRIOR TO INSTALLATION OF EARTH ANCHORS, VERIFY LOCATION OF NEARBY UNDERGROUND UTILITIES AND PUSH SMALL DIAMETER STEEL SOIL PROBE THROUGH AREA TO VERIFY THAT NO UNDERGROUND OBSTRUCTIONS ARE PRESENT.
3. INSTALL GUY STRAIN INSULATORS (FIBERGLASS ROD TYPE) TO MAINTAIN LINE TO GROUND CLEARANCE TO ANY CONDUCTIVE PART OF THE GUY ASSEMBLY. USE MINIMUM 4 FOOT INSULATOR, IN SERIES IF REQUIRED.



DETAIL 15 (-)
SWITCH NAMEPLATE LETTERING
NTS

4487

000011

NO.	REVISIONS	DATE	DWN. BY	APPD	NO.	REVISIONS	DATE	DWN. BY	APPD	REF. DWG. NO.
					0	ISSUED FOR CFC	1-28-02	GES	GEP	95X-5500-X-02065

NOTE: FLUOR FERNALD CADD DRAWING, DO NOT REVISE MANUALLY.

CONFIGURATION MANAGEMENT DRAWING — SYSTEMS, STRUCTURES OR COMPONENTS DEPICTED ON THIS DRAWING ARE UNDER CONFIGURATION MANAGEMENT CONTROL. SEE NOTES.
COGNIZANT ENGINEER / DATE

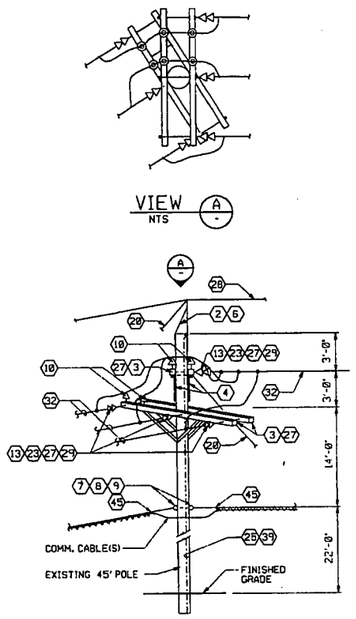
APPROVALS

			SAFETY ENG.	
CIVIL & STR.			MAINTENANCE	
ELECTRICAL	T.E. HASTINGS	1/29/02	FIRE PROTECT.	
ENGINEER			WASTE MANAGE.	
INSTRUMENT			SECURITY	
MECHANICAL			PROJECTS	
CHECKED	GEP			

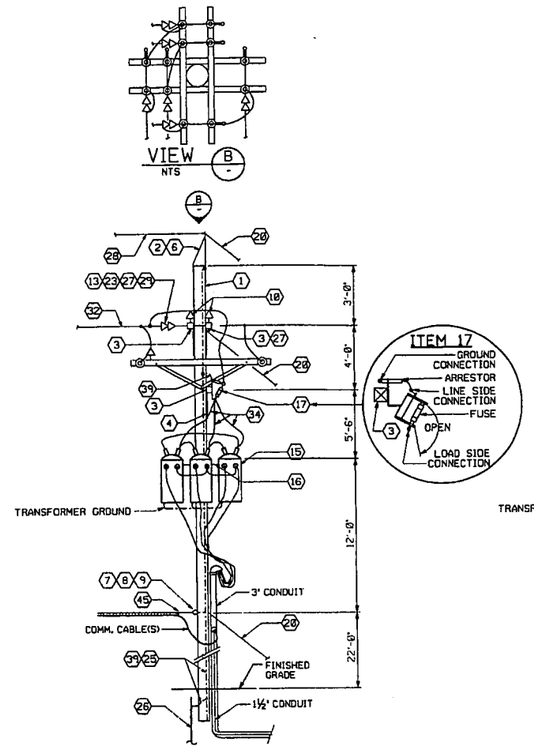
Fernald Environmental Management Project
FLUOR FERNALD, INC.
U.S. DEPARTMENT OF ENERGY

ARWWP — SITE
SOUTH FIELD EXTRACTION SYSTEM
PHASE 2
ELECTRICAL
MATERIAL LIST AND STANDARD DETAILS
RES 4340
DATE MAY 28, 2002
95X-5500-E-02091 | 0

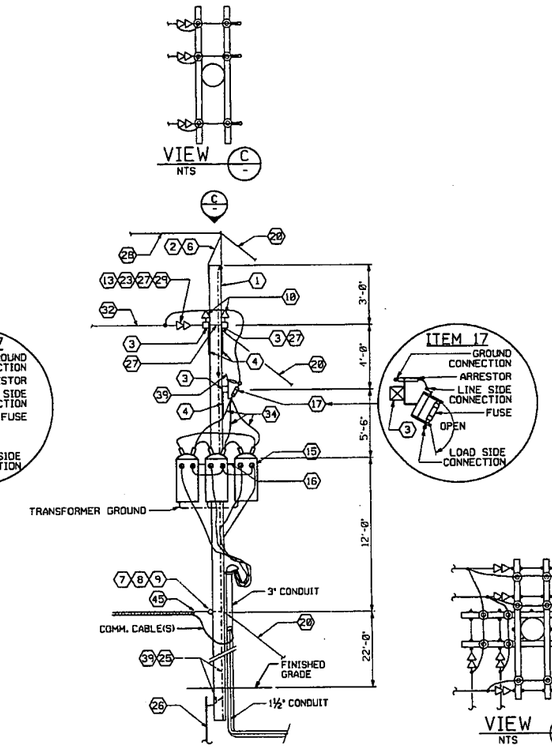
4487



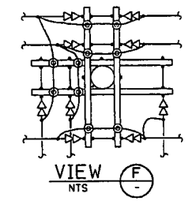
ELEVATION E2 REF E02087 E02091
POLE 778 & 779
NTS

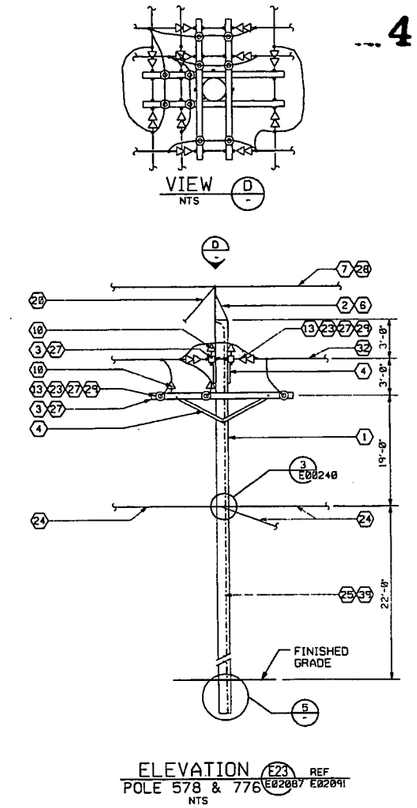


ELEVATION E5 REF E02087 E02091
POLE 773
NTS

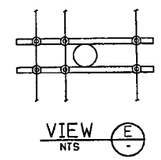


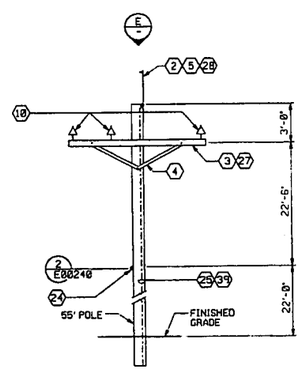
ELEVATION E4 REF E02087 E02091
POLE 777 & 780
NTS



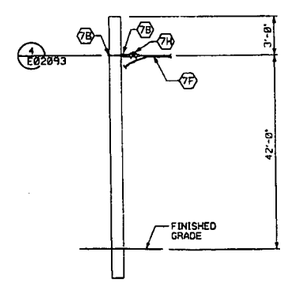


ELEVATION E23 REF E02087 E02091
POLE 578 & 776
NTS

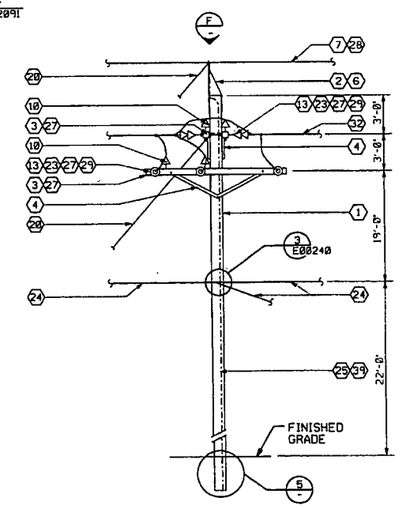




ELEVATION E3 REF E02087 E02091
POLES 771, 772, 774 & 775
NTS



ELEVATION E6 REF E02085 E02091
POLES OP252 & OP255
NTS



ELEVATION E7 REF E02087 E02091
POLE 776
NTS

GENERAL NOTES :

1. SEE DRAWING 95X-5500-E-02091 FOR MATERIAL LIST.

000012

REF DWG NO.	DRAWING TITLE
95X-5500-X-02065	DRAWING INDEX
95X-5500-E-02085	SITE UTILITY ELECTRIC PLAN
95X-5500-E-02086	SITE UTILITY ELECTRIC PLAN
95X-5500-E-02087	SITE UTILITY ELECTRIC PLAN
95X-5500-E-02091	ELECTRICAL LIST AND STANDARD DETAILS
95X-5500-E-02093	ELECTRICAL SECTIONS AND DETAILS

REVISIONS	DATE	DWN.	APPD.	NO.	REVISIONS	DATE	DWN.	APPD.	REF. DWG. NO.
				0	ISSUED FOR CFC	1-29-01	CES	GEP	95X-5500-X-02065

NOTE:
FLUOR FERNALD CADD DRAWING. DO NOT REVISE MANUALLY.

CONFIGURATION MANAGEMENT DRAWING
EXECUTING ATTACHED DOC. CONTROLLED DOCUMENTATION MANAGEMENT CONTROL SYSTEM
CONCERNANT ENGINEER / DATE

APPROVALS

CIVIL & STR.				SAFETY ENG.
ELECTRICAL	1/4 INSTRMS	1/31/02		MAINTENANCE
ENGINEER				ENV. PROJECT.
INSTRUMENT				WASTE MANAGE
MECHANICAL				SECURITY
				PROJECTS
CHECKED	GF			
APPROVED				

Fernald Environmental Management Project

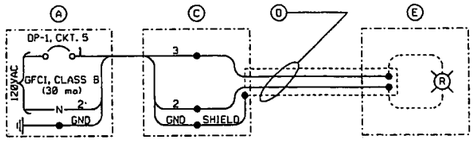
FLUOR FERNALD, INC.

U.S. DEPARTMENT OF ENERGY

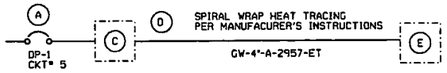
ARWWP SITE
SOUTH FIELD EXTRACTION SYSTEM
PHASE 2
ELECTRICAL
ELEVATIONS, SECTIONS AND DETAILS

RES 4340
DATE JUNE 3, 2001
DRAWN C. SCHWARZMAN

95X-5500-E-02092 | 0

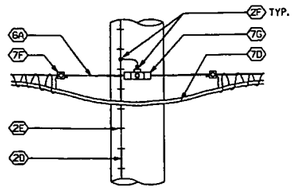


TYPICAL WIRING DIAGRAM FOR HEAT TRACING SYSTEM

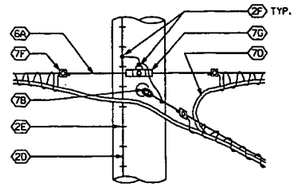


BILL OF MATERIAL		
ITEM	QUANTITY	DESCRIPTION
A	1	CIRCUIT BKR, 20A, GFCI, CLASS B, 30MA, 1 POLE
C	1	POWER CONNECTION KIT
D	60 FT	SELF REGULATING HEAT TRACE, NOMINAL 15 W/FT
E	1	PILOT LIGHT CONNECTION KIT, WITH RED LIGHT

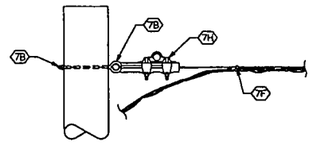
DETAIL 1 (E020---)
HEAT TRACE
RISER DIAGRAM
NTS



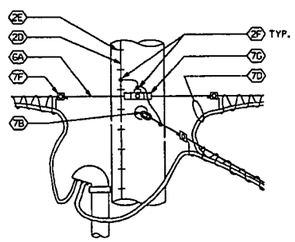
DETAIL 2 (E0---)
COMM. CABLE
ATTACHMENT
NTS



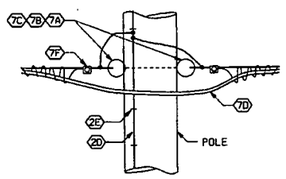
DETAIL 3 (E0---)
COMM. CABLE
INTERSECTION
NTS



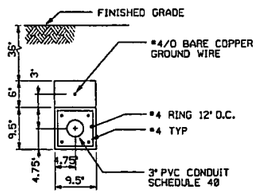
DETAIL 4 (E0---)
DEAD END CONNECTION
50 - 150 FT. SPAN
NTS



DETAIL 10 (E0---)
COMM. CABLE
INTERSECTION
NTS



DETAIL 9 (E0---)
NTS



SECTION A (E0---)
NTS

GENERAL NOTES :

1. SEE DRAWING 95X-5500-E-02091 FOR MATERIAL LIST.

4487

000013

REF DWG NO.	DRAWING TITLE
95X-5500-X-02065	DRAWING INDEX

REVISIONS								
0	ISSUED FOR CFC	1-29-02	GES	GEP	95X-5500-X-02065
REVISION	DATE	DRAWN	BY	APPD	REF DWG NO

NOTE:
FLUOR FERNALD CADD DRAWING, DO NOT REVISE MANUALLY.

CONFIGURATION MANAGEMENT DRAWING
EXISTING DRAWINGS OR COMPONENTS CONFIGURATION MANAGEMENT CONTROL 127 CFR 830.3
PROJECT ENGINEER / DATE

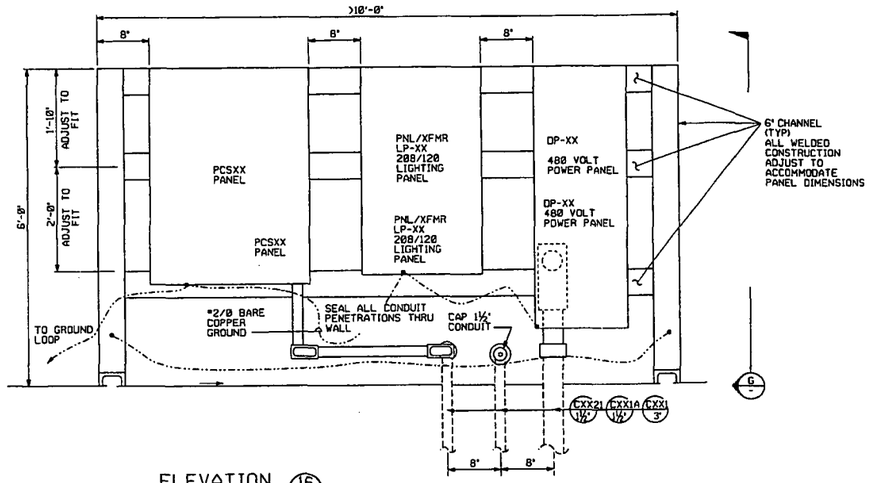
APPROVALS			
		SAFETY ENG.	
CIVIL & STR.		MAINTENANCE	
ELECTRICAL	J.L. MESTING	1/25/02 FIRE PROTECT.	
ENGINEER		WASTE MANAGE.	
INSTRUMENT		SECURITY	
MECHANICAL		PROJECTS	
CHECKED	GEP		

Fernald Environmental Management Project
FLUOR FERNALD, INC.
U.S. DEPARTMENT OF ENERGY

ARWWP SITE
SOUTH FIELD EXTRACTION SYSTEM
PHASE 2
ELECTRICAL SECTIONS & DETAILS
NOT TO SCALE

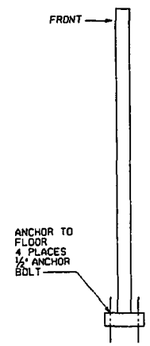
RES 4340
DATE MAY 9, 2001
95X-5500-E-02093 | 0

4487

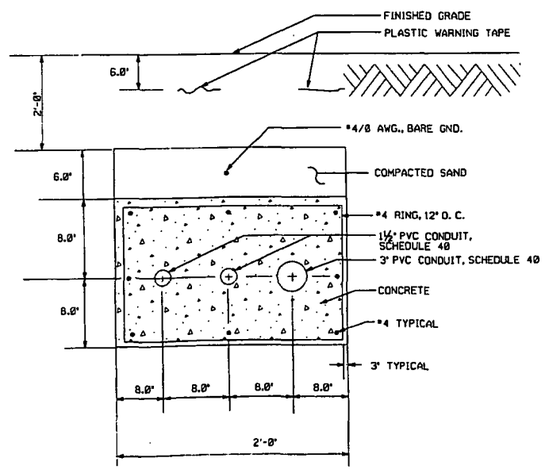


ELEVATION 16 E020-- SWITCHRACK NTS

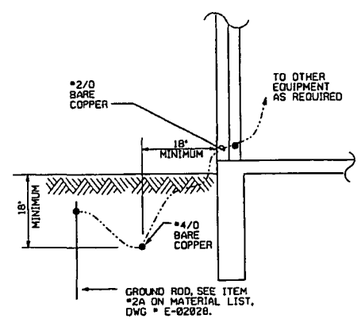
REQUIRED IN EACH WELL HOUSE



VIEW G - SIDE VIEW NTS



SECTION B E02088 NTS



DETAIL 4 E02088 NTS

000014

REF DWG NO.	DRAWING TITLE
95X-5500-X-02065	DRAWING INDEX
95X-5500-E-	SYMBOLS AND LEGEND
96X-5900-E-	SINGLE LINE DIAGRAM - 13.2 KV FEEDERS
95X-5500-E-	13.2 KV DISTRIBUTION & COMMUNICATION PLAN
95X-5500-E-	480/120V POWER, INSTRUMENT, AND LIGHTING PLAN - WELL HOUSE AND VALVE HOUSE
95X-5500-E-	CABLE SCHEDULE
95X-5500-E-	PANEL SCHEDULES
95X-5500-N-	INTERCONNECTION - WELL HOUSE DCS PCS

REVISIONS									
				0	ISSUED FOR CFC	1-29-02	GES	GEP	95X-5500-X-02065
REVISIONS	DATE	DWN.	B'APPD.	NO.		DATE	DWN.	B'APPD.	REF. DWG. NO.

NOTE: FLUOR FERNALD CADD DRAWING. DO NOT REVISE MANUALLY.

CONFIGURATION MANAGEMENT DRAWING. DCN CNCF. EXCLUDES ATTACHMENTS OR COMPONENTS CONTROLLED BY NEO MATERIAL CONTROL. SEE NOTES.

ENGINEERING MANAGER / DATE

APPROVALS

CIVIL & STR.				SAFETY ENG.
ELECTRICAL	T.K. MATHEWS	1/29/02		MAINTENANCE
ENGINEER				FIRE PROTECT.
INSTRUMENT				WASTE MANAGE.
MECHANICAL				SECURITY
				PROJECTS
CHECKED				
APPROVED				

Fernald Environmental Management Project

FLUOR FERNALD, INC.

U.S. DEPARTMENT OF ENERGY

ARWWP SITE

SOUTH FIELD EXTRACTION SYSTEM PHASE 2

ELECTRICAL ELEVATIONS, SECTIONS & DETAILS

NOT TO SCALE

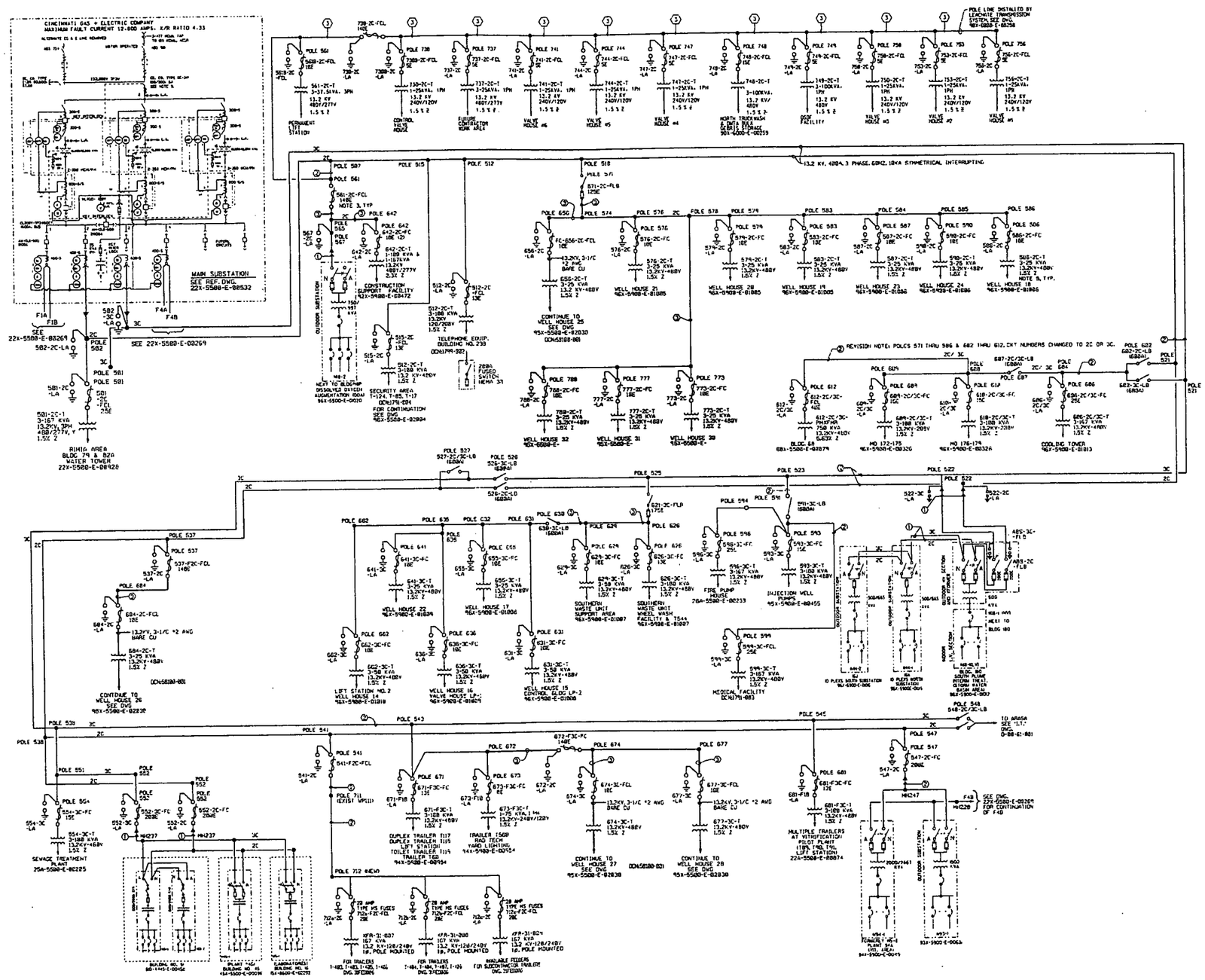
RES #340

DATE MAY 5, 2001

DRAWN C. SCHWARTZMAN

95X-5500-E-02094 | 0

4487



NOTES

1. M - INDICATES NORMAL FEED
   A - INDICATES ALTERNATE OR EMERGENCY FEED
2. UNIT SUBSTATION, UNLESS OTHERWISE NOTED, RATING IS 1000KVA, 13200Δ/480Y, 3 PH, 60 HZ, CONNECTED Δ PRIMARY, 4 % SECONDARY.
3. ALL SWITCHES AND CUTOUTS RATED 13.2KV, 18KA SYMMETRICAL INTERRUPTING UNLESS NOTED. CUTOUTS ARE RATED 200A EXCEPT FOR FUSES LESS THAN 100E, WHICH ARE 100A.
4. SEE 95X-5700-E-00352 & 95X-5700-E-00356 FOR POLE LOCATIONS, NUMBERS, AND EQUIPMENT.
5. POLE MOUNTED TRANSFORMER RATINGS ARE 28.8KV WYE/13.2KV DELTA, 3 PH, 60 HZ CONNECTED Δ PRIMARY, 4 % SECONDARY.
6. SEE LEGEND ON 95X-5700-E-00352 FOR EQUIPMENT IDENTIFICATION.
7. SEE 22X-5500-E-269 FOR UNDERGROUND 13.2 KV DISTRIBUTION SYSTEM SINGLE LINE DIAGRAM & 22X-5500-E-00729 FOR CONDUIT ROUTING.
8. SEE 95X-5700-E-01003 MASTER SITE ELECTRICAL POWER DISTRIBUTION REFERENCE DRAWING DIAGRAM FOR 480 VOLT SINGLE LINE CONTINUATION REFERENCE DRAWINGS.
9. SET AT 1200 AMPS.

LEGEND:

INSTRUMENT IDENTIFICATION	
50/51	OVERCURRENT RELAY, TYPE IAC
51	OVERCURRENT RELAY, TYPE IAC
51G	OVERCURRENT RELAY, TYPE IAC
51N	OVERCURRENT RELAY, TYPE IAC
86T	AUXILIARY RELAY
87T	DIFFERENTIAL CURRENT RELAY, TYPE HCD
87TG	OVERCURRENT RELAY, TYPE IAC
A	AMMETER, TYPE AR-8
V	VOLTMETER, TYPE AR-8
W	POLYPHASE WATTMETER, TYPE AR-8
WHM	WATTHOUR METER, TYPE DS-C1

CABLE
1. 3- 350 KCMIL, #2 CNO, 1332 INSUL., 15KV, CU IN 4"C
2. 3-1/C 336 KCMIL, ASCR, "MERLIN"
3. 3-1/C #2, ACSR, "SPARROW"

15 KV CABLE TERMINATION

LEGEND

EXISTING
NEW/REPLACEMENT
A.I.P. ABANDONED IN PLACE

000015

REF DWG NO.	DRAWING TITLE
95X-5500-X-02065	DRAWING INDEX
22X-5500-E-02063	ELECTRICAL SYMBOLS AND LEGEND
95X-5600-E-00358	13.2 KV AERIAL DISTRIBUTION

REV	REVISIONS	DATE	DWN.	BY	APPD.	NO	REVISIONS	DATE	DWN.	BY	APPD.	REF. DWG. NO.
						0	ISSUED FOR CFC	1-23-02	CES		CEP	95X-5500-X-02065

NOTE: FLUOR FERNALD CADD DRAWING. DO NOT REVISE MANUALLY.

CONFIGURATION MANAGEMENT DRAWING — EXTERIOR STRUCTURES OR COMPONENTS SHOWN AS REFERENCE ARE UNDER CONFIGURATION MANAGEMENT CONTROL. SEE NOTES.

COGNIZANT ENGINEER — DATE

APPROVALS				
CIVIL & STR.			SAFETY ENG.	
ELECTRICAL	T.E. BISTNER	1/23/02	MAINTENANCE	
ENGINEER			FIRE PROTECT.	
INSTRUMENT			WASTE MANAGE.	
MECHANICAL			SECURITY	
			PROJECTS	
CHECKED				
APPROVED		1/23/02		

Fernald Environmental Management Project

FLUOR FERNALD, INC.

U.S. DEPARTMENT OF ENERGY

ARWWP — SITE

SOUTH FIELD EXTRACTION SYSTEM
PHASE 2
13.2 KV AERIAL DISTRIBUTION
SINGLE LINE DIAGRAM

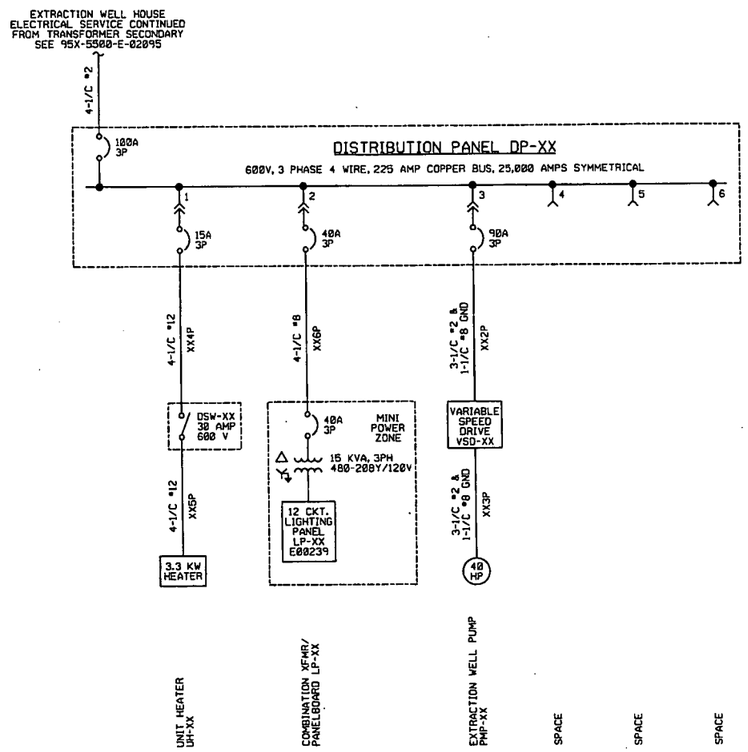
REF. 4340
DATE JUNE 6, 2002
DRAWN G. SCHWARZMAN

95X-5500-E-02095 | 0

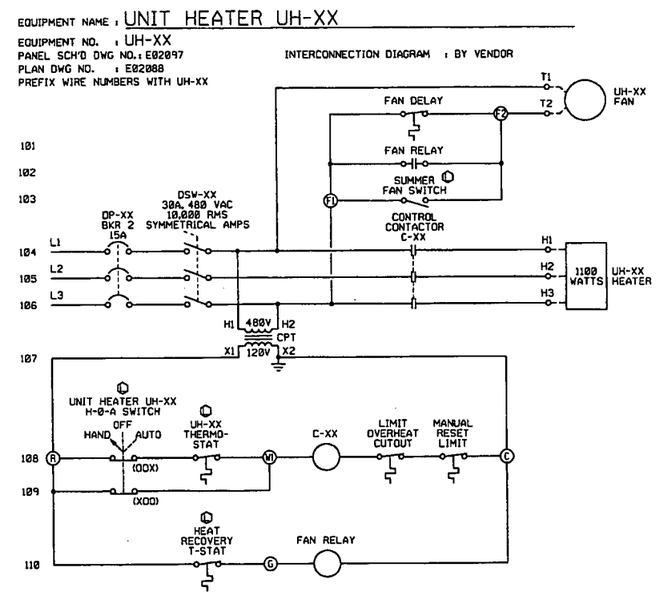
GENERAL NOTES :

1. 'XX' REPRESENTS THE CORRESPONDING EXTRACTION WELL HOUSE NUMBER.

4487



SINGLE LINE CONFIGURATION FOR EXTRACTION WELL HOUSES 30, 31 AND 32



000016

REF DWG NO.	DRAWING TITLE
95X-5500-X-02065	DRAWING INDEX
95X-5500-E-02084	SYMBOLS AND LEGEND
95X-5500-E-02088	480/120V POWER, INSTRUMENT, AND LIGHTING PLAN - WELL HOUSE AND VALVE HOUSE
95X-5500-E-02090	13.2 KV DISTRIBUTION & COMMUNICATION PLAN
96X-5900-E-02095	SINGLE LINE DIAGRAM - 13.2 KV FEEDERS
95X-5500-E-02097	PANEL SCHEDULES
95X-5500-E-02101	CABLE SCHEDULE
95X-5500-N-02107	INTERCONNECTION - WELL HOUSE DCS PCS

NO	REVISIONS	DATE	DWN. BY	APPD.
0	ISSUED FOR CFC	1-25-02	GES	GEP

NO.	REVISIONS	DATE	DWN. BY	APPD.	REF. DWG. NO.
					95X-5500-X-02065

NOTE: FLUOR FERNALD CADD DRAWING. DO NOT REVISE MANUALLY.

CONFIGURATION MANAGEMENT DRAWING

SYSTEMS, STRUCTURES OR COMPONENTS DEPICTED ON THIS DRAWING ARE UNDER CONFIGURATION MANAGEMENT CONTROL. SEE NOTES.

COGNIZANT ENGINEER DATE

APPROVALS

CIVIL & STR.			SAFETY ENG.
ELECTRICAL	T.E. HUSTINGS	1/25/02	MAINTENANCE
ENGINEER			FIRE PROTECT.
INSTRUMENT			WASTE MANAGE
MECHANICAL			SECURITY
			PROJECTS
CHECKED	GEP		
APPROVED	KEPRE	1/28/02	

Fernald Environmental Management Project

FLUOR FERNALD, INC.

U.S. DEPARTMENT OF ENERGY

ARWWP SITE

SOUTH FIELD EXTRACTION SYSTEM
PHASE 2
ELECTRICAL SINGLE LINE DIAGRAM
NOT TO SCALE

RES 4340
DATE MAY 5, 2001
DRAWN C. SCHWARZMAN

95X-5500-E-02096 0

DISTRIBUTION PANEL DP-XX

VOLTAGE : 480 VOLTS, 3 PHASE, 4 WIRE
MAIN BKR : 100 AMP
MOUNTING : SURFACE

REMARKS : 1. ALL BREAKERS SHALL BE LOCKABLE IN THE 'OFF' POSITION
2. SEE NOTE 1.

MAIN BUS 225 AMP

DIRECTORY	WATTS LOAD L1	WATTS LOAD L2	WATTS LOAD L3	CKT NO	WIRE SIZE	BKR AMPS	BKR AMPS	WIRE SIZE	CKT NO	WATTS LOAD L1	WATTS LOAD L2	WATTS LOAD L3	DIRECTORY
UNIT HEATER UH-XX	1100									5882			COMBINATION TRANSFORMER/PANELBOARD LP-XX
		1100		1	*12	15	40	*8	2		5882		
			1100									5882	
EXTRACTION WELL PUMP XX	10.8K												SPACE
		10.8K		3	*2	80			4				
			10.8K										
SPACE													SPACE
				5					6				
SUB-TOTALS	11.9K L1	11.9K L2	11.9K L3	NEUTRAL BUS						5882 L1	5882 L2	5882 L3	SUB-TOTALS

TOTAL WATTS L1 : 17.8K TOTAL WATTS L2 : 17.8K TOTAL WATTS L3 : 17.8K TOTAL WATTS : 53.4K

LIGHTING PANEL LP-XX

VOLTAGE : 208Y/120 VOLT, 3 PHASE, 4 WIRE
MAIN BKR : 50 AMP
MOUNTING : COMBINATION TRANSFORMER/PANEL

REMARKS : 1. * INDICATES GFCI, ** INDICATES 30MA GFEP
2. SEE NOTE 1.

MAIN BUS : 100 AMP

DIRECTORY	WATTS LOAD L1	WATTS LOAD L2	WATTS LOAD L3	CKT NO	WIRE SIZE	BKR AMPS	BKR AMPS	WIRE SIZE	CKT NO	WATTS LOAD L1	WATTS LOAD L2	WATTS LOAD L3	DIRECTORY
RECEPTACLES	900			1	*12	20	20	*12	2	80			INSTRUMENT POWER FIT 000271) & PCSXX
LIGHTS - INSIDE		118		3	*12	20			4				SPACE
LIGHTS - OUTSIDE & EXIT			33	5	*12	20	20	*12	6			38	EXHAUST FAN EF-XX
SPACE				7		20			10				SPACE
SPACE				9		20			8				SPACE
SPACE				11		20			12				SPACE
SUB-TOTALS	900 L1	118 L2	33 L3	NEUTRAL BUS						80 L1	0 L2	38 L3	SUB-TOTALS

TOTAL WATTS L1 : 980 TOTAL WATTS L2 : 118 TOTAL WATTS L3 : 71 TOTAL WATTS : 1169

LIGHTING PANEL LP-XX EXISTING EW-16

VOLTAGE : 208Y/120 VOLT, 3 PHASE, 4 WIRE
MAIN BKR : 50 AMP
MOUNTING : COMBINATION TRANSFORMER/PANEL

REMARKS : 1. * INDICATES GFCI, ** INDICATES 30MA GFEP
2. SEE NOTE 1.

MAIN BUS : 100 AMP

DIRECTORY	WATTS LOAD L1	WATTS LOAD L2	WATTS LOAD L3	CKT NO	WIRE SIZE	BKR AMPS	BKR AMPS	WIRE SIZE	CKT NO	WATTS LOAD L1	WATTS LOAD L2	WATTS LOAD L3	DIRECTORY
RECEPTACLES	900			1	*12	20	20	*12	2	80			INSTRUMENT POWER FIT 000271) & PCSXX
LIGHTS - INSIDE		118		3	*12	20			4				SPACE
LIGHTS - OUTSIDE & EXIT			33	5	*12	20	20	*12	6			38	EXHAUST FAN EF-XX
SPACE				7		20			10				INJ. WELL #16
SPACE				9		20	40	*8	8				
SPACE				11		20			12				SPACE
SUB-TOTALS	900 L1	118 L2	33 L3	NEUTRAL BUS						80 L1	0 L2	38 L3	SUB-TOTALS

TOTAL WATTS L1 : 980 TOTAL WATTS L2 : 118 TOTAL WATTS L3 : 71 TOTAL WATTS : 1169

NOTE: INSTALL 40A, 2 POLE BREAKER TO FEED DISTRIBUTION PANEL IN THE NEW INJECTION WELL-IW-16

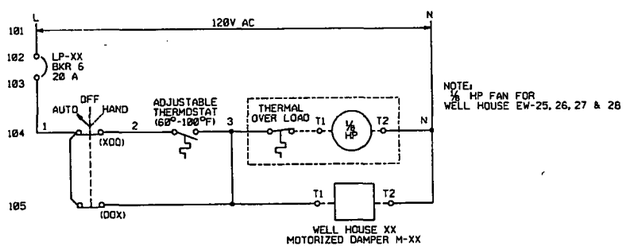
GENERAL NOTES :

1. 'XX' REPRESENTS THE CORRESPONDING EXTRACTION WELL HOUSE NUMBER.
2. INSTALL A 40A, 2 POLE BREAKER IN EXISTING EW-16 TO FEED INJECTION WELL 16.

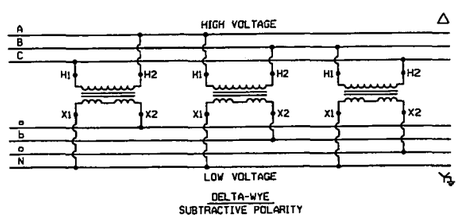
4487

SEE NOTE 1 (TYPICAL)

EQUIPMENT NAME : WELL HOUSE XX EXHAUST FAN EF-XX
EQUIPMENT NO. : EF-XX
S/L DWG NO. : E-020--
PLAN DWG NO. : E-020--
PANEL SCH'D DWG NO. : E-020--



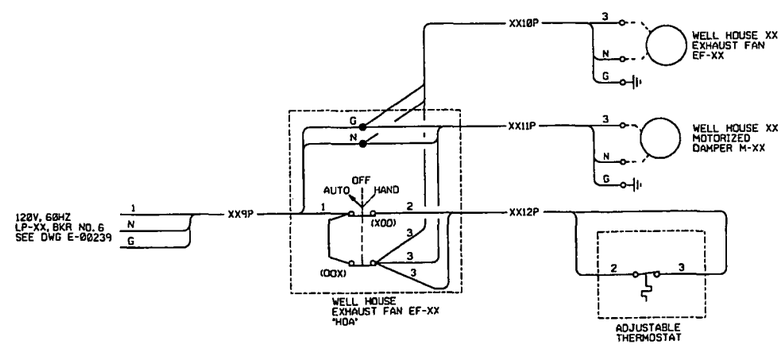
POLE MOUNTED TRANSFORMER CONNECTION



DELTA-WYE
SUBTRACTIVE POLARITY

NOTE : INSTALLER SHALL CONFIRM DESIGNATIONS WITH VENDOR SUPPLIED INFORMATION.

SINGLE PHASE TRANSFORMER JUMPER WIRE SIZING TABLE				
TRANSFORMER KVA	PRIMARY AMPS	SECONDARY AMPS	PRIMARY WIRE SIZE	SECONDARY WIRE SIZE
25	3.28	98.21	#2	#4



WELL HOUSE EXHAUST FAN EF-XX INTERCONNECTION DIAGRAM

000017

REF DWG NO.	DRAWING TITLE
95X-5500-X-02065	DRAWING INDEX
95X-5500-E-02084	SYMBOLS AND LEGEND

REVISIONS	DATE	DRAWN	APPD.	NO.	REVISIONS	DATE	DRAWN	APPD.	REF. DWG. NO.
				0	ISSUED FOR CFC	1-28-02	GES	GEP	95X-5500-X-02065

NOTE: FLUOR FERNALD CADD DRAWING, DO NOT REVISE MANUALLY.

CONFIGURATION MANAGEMENT DRAWING — SYSTEMS DESIGNED OR COMPONENTS SPECIFIED FOR MAINTENANCE OR OPERATION MANDATORY CONTROL SEE NOTES

DOCUMENT ENGINEER / DATE

APPROVALS				
CIVIL & STR.			SAFETY ENG.	
ELECTRICAL	J.L. HOLTMES	1/25/02	MAINTENANCE	
ENGINEER			FIRE PROTECT.	
INSTRUMENT			WASTE MANAGE.	
MECHANICAL			SECURITY	
			PROJECTS	
CHECKED				
APPROVED	K.E.NEL	1/25/02		

Fernald Environmental Management Project
FLUOR FERNALD, INC.
U.S. DEPARTMENT OF ENERGY

ARWWP SITE
SOUTH FIELD EXTRACTION SYSTEM
PHASE 2
ELECTRICAL PANEL SCHEDULES & DIAGRAMS
ELEMENTARY AND INTERCONECTION

RES. 4340
DATE MAY 5, 2001
DRAWN C. SCHWARZMAN

95X-5500-E-02097 | 0

4487

CABLE SCHEDULE

CABLE NO	FROM	TO	CONDUCTOR NUMBER	CONDUCTOR SIZE		CONDUCTOR INSUL	CONDUCTOR FUNCTION	WIRE TERMINATIONS 1	2	3	4	5	6	7	8	9	10	11	12	ROUTING	REF DWG	REMARKS
200P	EW-16 LIGHTING PANEL	DISTRIBUTION PANEL DP-1	2-1/C 1-1/C	#8 #8 GND		600V	120V AC PWR FDR	DP1-L1	DP1-L2	DP1-L3	DP1-G									C145	E02058	
232P	DISTRIBUTION PANEL DP-1 CKT.1	100W HPS LIGHT	3-1/C	#12		600V	120V AC PWR FDR	DP1-1L	DP1-1N	DP1-1G										FIELD ROUTE	E02058	
233P	DISTRIBUTION PANEL DP-1 CKT.2	INJECTION WELL NO.16 FCV076	1-3/C	#12		600V	120V AC PWR FDR	DP1-2L	DP1-2N	DP1-2G										FIELD ROUTE	N02062	
234P	DISTRIBUTION PANEL DP-1 CKT.6	INJECTION WELL NO.16 FLOW TRANSMITTER FIT076	1-3/C	#12		600V	120V AC PWR FDR	DP1-6L	DP1-6N	DP1-6G										FIELD ROUTE	N02062	
235P	DISTRIBUTION PANEL DP-1 CKT.4	INJECTION WELL NO.16 PCS16	1-3/C	#12		600V	120V AC PWR FDR	DP1-4L	DP1-4N	DP1-4G										FIELD ROUTE	N02062	
236I	INJECTION WELL NO.16 PCS 16	INJECTION WELL NO.16 PCV076	1 PAIR TWSH	#16		BELDEN 8719	INSTR	FC-(+)	FC-(-)											FIELD ROUTE	N02062	
237I	INJECTION WELL NO.16 PCS 16	INJECTION WELL NO.16 FLOW TRANSMITTER FIT076	1 PAIR TWSH	#16		BELDEN 8719	INSTR	FT-(+)	FT-(-)											FIELD ROUTE	N02062	
238I	INJECTION WELL NO.16 PCS 16	INJECTION WELL NO.16 PIT076 PRESSURE TRANSMITTER	1 PAIR TWSH	#16		BELDEN 8719	INSTR	PT-(+)	PT-(-)											FIELD ROUTE	N02062	
239I	INJECTION WELL NO.16 PCS 16	INJECTION WELL NO.16 LEVEL TRANSMITTER LT076	1 PAIR TWSH	#16		BELDEN 8719	INSTR	LT-(+)	LT-(-)											FIELD ROUTE	N02062	
1005I	PSC12 VH1 (EXIST.)	PSC16	2/BNDL	62.5/125 MULTMODE		FIBER OPTIC	COMM	1	2											FIELD ROUTE DIRECT BURIAL	N02061	
1007I	PSC16	PSC EW-22 (EXIST.)	2/BNDL	62.5/125 MULTMODE		FIBER OPTIC	COMM	1	2											FIELD ROUTE DIRECT BURIAL	N02061	
230C	INJECTION WELL NO.16 PCS16	INJECTION WELL 16 LIMIT SWITCH ZSL076	2-1/C	#14		600V	CONTROL	ZS070 -1	ZS070 -2	ZS070 -3										FIELD ROUTE	N02061	

CONDUIT SCHEDULE

CONDUIT NO	FROM	TO	COND SIZE	CONTAINS CABLE(S)	REMARKS
C-145	AERIAL MAST	DP-1	2"	2-1/C #8, 1-1/C #8 GROUND	

000018

REF DWG NO.	DRAWING TITLE
95X-5500-X-02065	DRAWING INDEX
95X-5500-E-02089	ELECTRICAL SINGLE LINE/ELEVATION INJECTION WELL #16 AND #29

NO	REVISIONS	DATE	DWN. BY	APPD.	NO.	REVISIONS	DATE	DWN. BY	APPD.	REF. DWG. NO.
					0	ISSUE FOR CFC	1-29-02	GES	GEP	

NOTE: FLUOR FERNALD CADD DRAWING. DO NOT REVISE MANUALLY.

CONFIGURATION MANAGEMENT DRAWING — YES / NO
EXISTING ATTACHMENT OF COMPONENTS SHOWN ON THIS DRAWING ARE UNDER CONFIGURATION MANAGEMENT CONTROL. SEE NOTES.
COGNIZANT ENGINEER — DATE

APPROVALS

CIVIL & STR.			SAFETY ENG.	
ELECTRICAL ENGINEER	LE MATHIS	1/29/02	MAINTENANCE	
INSTRUMENT			FIRE PROTECT.	
MECHANICAL			WASTE MANAGE.	
			SECURITY	
			PROJECTS	
CHECKED	RF			
APPROVED	R.E.PAS	1/29/02		

Fernald Environmental Management Project

FLUOR FERNALD, INC.

U.S. DEPARTMENT OF ENERGY

ARWWP — SITE

SOUTH FIELD EXTRACTION SYSTEM PHASE 2

CABLE AND CONDUIT SCHEDULE

INJECTION WELL 16

RES. 4340
DATE 2-23-02
DRAWN C. SCHWARTZMAN

95X-5500-E-02098 | 0

4487

CABLE SCHEDULE

CABLE NO	FROM	TO	CONDUCTOR NUMBER	CONDUCTOR SIZE		CONDUCTOR INSUL	CONDUCTOR FUNCTION	WIRE TERMINATIONS 1	2	3	4	5	6	7	8	9	10	11	12	ROUTING	REF DWG	REMARKS
201P	AERIAL DROP FROM POLE OF 252	DISC. SWITCH, DS-1 INJECTION WELL NO. 29	2-1/C 1-1/C	#6 #6 GND		600V	480 PWR. FDR	X1	X2	NC	GND									C146	E02058	
202P	DISC. SW. DS-1	480 V. XFMR	2-1/C 1-1/C	#6 #6 GND		600V	480 PWR. FDR	X1	X2	NC	GND									C147	E02058	
203P	480 V. XFMR	DISTRIBUTION PANEL DP-1	2-1/C 1-1/C	#1 #8 GND		600V	120V AC PWR FDR	DP1-L1	DP1-L2		DP1-G									C148	E02058	
212P	DISTRIBUTION PANEL DP-1 CKT.1	100W HPS LIGHT	3-1/C	#12		600V	120V AC PWR FDR	DP1-1L	DP1-1N	DP1-1G										FIELD ROUTE	E02058	
213P	DISTRIBUTION PANEL DP-1 CKT.2	INJECTION WELL NO. 29 FCV072	1-3/C	#12		600V	120V AC PWR FDR	DP1-2L	DP1-2N	DP1-2G										FIELD ROUTE	N02062	
214P	DISTRIBUTION PANEL DP-1 CKT.6	INJECTION WELL NO. 29 FLOW TRANSMITTER FIT072	1-3/C	#12		600V	120V AC PWR FDR	DP1-6L	DP1-6N	DP1-6G										FIELD ROUTE	N02062	
215P	DISTRIBUTION PANEL DP-1 CKT.4	INJECTION WELL NO. 29 PCS29	1-3/C	#12		600V	120V AC PWR FDR	DP1-4L	DP1-4N	DP1-4G										FIELD ROUTE	N02062	
216I	INJECTION WELL NO. 29 PCS 29	INJECTION WELL NO. 29 PCV070	1 PAIR TWSH	#16		BELDEN 8719	INSTR	FC-(+)	FC-(-)											FIELD ROUTE	N02062	
217I	INJECTION WELL NO. 29 PCS 29	INJECTION WELL NO. 29 FLOW TRANSMITTER FIT072	1 PAIR TWSH	#16		BELDEN 8719	INSTR	FT-(+)	FT-(-)											FIELD ROUTE	N02062	
218I	INJECTION WELL NO. 29 PCS 29	INJECTION WELL NO. 29 PIT072 PRESSURE TRANSMITTER	1 PAIR TWSH	#16		BELDEN 8719	INSTR	PT-(+)	PT-(-)											FIELD ROUTE	N02062	
219I	INJECTION WELL NO. 16 PCS 29	INJECTION WELL NO. 29 LEVEL TRANSMITTER LT072	1 PAIR TWSH	#16		BELDEN 8719	INSTR	LT-(+)	LT-(-)											FIELD ROUTE	N02062	
1005I	PSC EW15	PSC29	2/BNDL	62.5/125 MULTIMODE		FIBER OPTIC	COMM	1	2											FIELD ROUTE	N02061	
1007I	PSC29	PSC IFP	2/BNDL	62.5/125 MULTIMODE		FIBER OPTIC	COMM	1	2											FIELD ROUTE	N02061	
1002I	PSC IFB	PSC EW-17	2/BNDL	62.5/125 MULTIMODE		FIBER OPTIC	COMM	1	2											FIELD ROUTE	N02061	
211C	INJECTION WELL NO. 29 PCS72	INJECTION WELL 29 LIMIT SWITCH ZSL072	2-1/C	#14		600V	CONTROL	ZS070 -1	ZS070 -2	ZS070 -3										FIELD ROUTE	N02061	

CONDUIT SCHEDULE

CONDUIT NO	FROM	TO	COND SIZE	CONTAINS CABLE(S)	REMARKS
C-146	SERVICE MAST	DS-1 INJECTION WELL NO. 29	2"	2 1/C #6 & 1 #8 GND	
C-147	DS-1	480 VOLT XFMR	2"	2 1/C #6 & 1 #8 GND	
C-148	480 VOLT XFMR	DISTRIBUTION PNL.	2"	2 1/C #1 & 1 #6 GND	

000019

REF DWG NO.	DRAWING TITLE
95X-5500-X-02065	DRAWING INDEX
95X-5500-E-02089	ELECTRICAL SINGLE LINE/ELEVATION INJECTION WELL #16 AND #29

NO	REVISIONS	DATE	DWN. BY	APPD.	NO.	REVISIONS	DATE	DWN. BY	APPD.	REF. DWG. NO.
					A	ISSUE FOR 90%	8-8-02	GES	GEP	

NOTE:
FLUOR FERNALD CADD DRAWING. DO NOT REVISE MANUALLY.

CONFIGURATION MANAGEMENT DRAWING
YES
NO
STATICS STRUCTURES ON COMPUTER SYSTEM ARE THE CURRENT CONFIGURATION MANAGEMENT CONTROLLED NOTES.

CONSULTANT ENGINEER DATE

APPROVALS

CIVIL & STR.			SAFETY ENG.	
ELECTRICAL	TJ. MATHEWS	8/21/02	MAINTENANCE	
ENGINEER			FIRE PROTECT.	
INSTRUMENT			WASTE MANAGE	
MECHANICAL			SECURITY	
			PROJECTS	
CHECKED	GEP			
APPROVED	R.J.PAGE	8/21/02		

Fernald Environmental Management Project
FLUOR FERNALD, INC.
U.S. DEPARTMENT OF ENERGY

ARWWP SITE
SOUTH FIELD EXTRACTION SYSTEM
PHASE 2
CABLE AND CONDUIT SCHEDULE
INJECTION WELL 29

RES 4348
DATE 5-23-02
DRAWN C. SCHWARTZMAN

95X-5500-E-02099 | 0

4487

CABLE SCHEDULE

CABLE NO	FROM	TO	CONDUCTOR NUMBER	SIZE		INSUL	FUNCTION	WIRE TERMINATIONS 1	2	3	4	5	6	7	8	9	10	11	12	ROUTING	REF DWG	REMARKS
204P	AERIAL DROP FROM POLE OP255	DISC. SWITCH, DS-1 INJECTION WELL IFP	2-1/C 1-1/C	#6 #6		600V	480 VOLT PWR FDR	X1	X2		GND									C149	E02058	
205P	DISC. SW. DS-1	480 VOLT XFMR	2-1/C 1-1/C	#6 #6 GND		600V	120V AC PWR FDR	X1	X2		GND									C150	E02058	
206P	480 VOLT XFMR	DISTRIBUTION PANEL DP-1	2-1/C 1-1/C	#1 #8 GND		600V	120V AC PWR FDR	DP1-L1	DP1-L2		DP1-G									C151	E02058	
222P	DISTRIBUTION PANEL DP-1 CKT.1	100W HPS LIGHT	3-1/C	#12		600V	120V AC PWR FDR	DP1-1L	DP1-1N	DP1-1G										FIELD ROUTE	E02058	
223P	DISTRIBUTION PANEL DP-1 CKT.2	INJECTION WELL IFP FCV074	1-3/C	#12		600V	120V AC PWR FDR	DP1-2L	DP1-2N	DP1-2G										FIELD ROUTE	N02062	
224P	DISTRIBUTION PANEL DP-1 CKT.6	INJECTION WELL IFP FLOW TRANSMITTER FIT074	1-3/C	#12		600V	120V AC PWR FDR	DP1-6L	DP1-6N	DP1-6G										FIELD ROUTE	N02062	
225P	DISTRIBUTION PANEL DP-1 CKT.4	INJECTION WELL IFP PCS IFP	1-3/C	#12		600V	120V AC PWR FDR	DP1-4L	DP1-4N	DP1-4G										FIELD ROUTE	N02062	
226I	INJECTION WELL IFP PCS IFP	INJECTION WELL IFP PCV074	1 PAIR TWSH	#16		BELDEN 8719	INSTR	FC-(+)	FC-(-)											FIELD ROUTE	N02062	
227I	INJECTION WELL IFP PCS IFP	INJECTION WELL IFP FLOW TRANSMITTER FIT074	1 PAIR TWSH	#16		BELDEN 8719	INSTR	FT-(+)	FT-(-)											FIELD ROUTE	N02062	
228I	INJECTION WELL IFP PCS IFP	INJECTION WELL IFP PIT074 PRESSURE TRANSMITTER	1 PAIR TWSH	#16		BELDEN 8719	INSTR	PT-(+)	PT-(-)											FIELD ROUTE	N02062	
229I	INJECTION WELL IFP PCS IFP	INJECTION WELL IFP LEVEL TRANSMITTER LT074	1 PAIR TWSH	#16		BELDEN 8719	INSTR	LT-(+)	LT-(-)											FIELD ROUTE	N02062	
10022	PSC EW-29	PSCIFP	2/BNDL	62.5/125 MULTMODE		FIBER OPTIC	COMM	1	2											FIELD ROUTE DIRECT BURIAL	N02061	
10023	PSCIFP	PSC EW-17	2/BNDL	62.5/125 MULTMODE		FIBER OPTIC	COMM	1	2											FIELD ROUTE DIRECT BURIAL	N02061	
220C	INJECTION WELL NO. IFP PCSIFP	INJECTION WELL IFP LIMIT SWITCH ZSL074	2-1/C	#14		600V	CONTROL	ZS070 -1	ZS070 -2	ZS070 -3										FIELD ROUTE	N02061	

CONDUIT SCHEDULE

CONDUIT NO	FROM	TO	COND SIZE	CONTAINS CABLE(S)	REMARKS
C-149	SERVICE MAST	DS-1 INJECTION WELL IFP	2"	2 1/C #6 & 1 #8 GND	
C-150	DS-1	480 VOLT XFMR	2"	2 1/C #6 & 1 #8 GND	
C-151	480 VOLT XFMR	DISTRIBUTION PNL. DP-1	2"	2 1/C #1 & 1 #6 GND	

000020

REF DWG NO.	DRAWING TITLE
95X-5500-X-02065	DRAWING INDEX
95X-5500-E-02089	ELECTRICAL SINGLE LINE/ELEVATION INJECTION WELL #16 AND #29

NO.	REVISIONS	DATE	DWN. BY	APPD.	NO.	REVISIONS	DATE	DWN. BY	APPD.	REF. DWG. NO.
					0	ISSUE FOR CFC	1-24-92	CES	CEP	

NOTE:
FLUOR FERNALD CADD DRAWING, DO NOT REVISE MANUALLY.

CONFIGURATION MANAGEMENT DRAWING
YES / NO
EXISTING ATTACHMENTS ARE COMPONENTS NORMALLY PART OF THIS DRAWING. REFERENCE CONFIGURATION MANAGEMENT CONTROL. SEE NOTES.
COGNIZANT ENGINEER DATE

APPROVALS

			SAFETY ENG.	
CIVIL & STR.			MAINTENANCE	
ELECTRICAL	T.E. HOLTMES	1/30/92	FERN. PROJECT.	
ENGINEER			WASTE MANAGE.	
INSTRUMENT			SECURITY	
MECHANICAL			PROJECTS	
CHECKED	CEP			
APPROVED	E.E.FAIL	1/31/92		

Fernald Environmental Management Project
FLUOR FERNALD, INC.
U.S. DEPARTMENT OF ENERGY

ARWWP SITE
SOUTH FIELD EXTRACTION SYSTEM PHASE 2
CABLE AND CONDUIT SCHEDULE
INJECTION FILTRATION POND

RES 4340
DATE 3-23-92
DRAWN C. SCHWARZMAN

95X-5500-E-02100 | 0

CABLE SCHEDULE

CABLE NO	FROM	TO	CONDUCTOR NUMBER	CONDUCTOR SIZE	CONDUCTOR MATL.	CONDUCTOR INSUL	CONDUCTOR FUNCTION	WIRE TERMINATIONS 1	2	3	4	5	6	7	8	9	10	11	12	ROUTING	REF DWG	REMARKS
XX1P	TRANSFORMER ZZZ	WELL HOUSE DISTRIBUTION PANEL DP-XX	4-1/C	#2 AWG	CU	600V	480V POWER	ZZZ -L1	ZZZ -L2	ZZZ -L3	ZZZ -GND									CXX1	SEE REF DWG. BLOCK	NOTE 4
XX2P	WELL HOUSE DISTRIBUTION PANEL DP-XX	VARIABLE SPEED DRIVE VSD-XX	3-1/C 1-1/C	#2 AWG #8 GND	CU	600V	480V POWER	VSD-XX -L1	VSD-XX -L2	VSD-XX -L3	VSD-XX -GND									CXX2	" "	NOTE 5
XX3P	VARIABLE SPEED DRIVE VSD-XX	EXTRACTION WELL PUMP MOTOR PMP-XX	3-1/C 1-1/C	#2 AWG #8 GND	CU	600V	480V POWER	PMP-XX -L1	PMP-XX -L2	PMP-XX -L3	PMP-XX -GND									CXX3	" "	NOTE 6
XX4P	WELL HOUSE DISTRIBUTION PANEL DP-XX	DISCONNECT SWITCH DSW-XX	4-1/C	#12 AWG	CU	600V	480V POWER	DSW-XX -L1	DSW-XX -L2	DSW-XX -L3	DSW-XX -GND									CXX4	" "	NOTE 7
XX5P	DISCONNECT SWITCH DSW-XX	UNIT HEATER UH-XX	4-1/C	#12 AWG	CU	600V	480V POWER	UH-XX -L1	UH-XX -L2	UH-XX -L3	UH-XX -GND									CXX5	" "	NOTE 8
XX6P	WELL HOUSE DISTRIBUTION PANEL DP-XX	COMBINATION TRANSFORMER/ PANELBOARD LP-XX	4-1/C	#8 AWG	CU	600V	480V POWER	LP-XX -L1	LP-XX -L2	LP-XX -L3	LP-XX -GND									CXX6	" "	NOTE 9
XX7P	COMBINATION TRANSFORMER/ PANELBOARD LP-XX, CKT. 2	INSTRUMENT POWER TO PCS-XX	3-1/C	#12 AWG	CU	600V	120V POWER	L	N	GND										CXX7	" "	
XX8P	COMBINATION TRANSFORMER/ PANELBOARD LP-XX, CKT. 2	INSTRUMENT POWER TO FITA	3-1/C	#12 AWG	CU	600V	120V POWER	L	N	GND										CXX8	" "	
XX9P	COMBINATION TRANSFORMER/ PANELBOARD LP-XX, CKT. 6	EXHAUST FAN EF-XX HAND-OFF-AUTO SWITCH	3-1/C	#12 AWG	CU	600V	120V POWER	EF-XX -1	EF-XX -N	EF-XX -GND										CXX9	" "	
XX10P	EXHAUST FAN EF-XX HAND-OFF-AUTO SWITCH	EXHAUST FAN EF-XX MOTOR	3-1/C	#12 AWG	CU	600V	120V POWER	EF-XX -3	EF-XX -N	EF-XX -GND										CXX10	" "	
XX11P	EXHAUST FAN EF-XX HAND-OFF-AUTO SWITCH	EXHAUST FAN EF-XX MOTORIZED DAMPER M-XX	3-1/C	#12 AWG	CU	600V	120V POWER	M-XX -3	M-XX -N	M-XX -GND										CXX11	" "	
XX12P	EXHAUST FAN EF-XX HAND-OFF-AUTO SWITCH	EXHAUST FAN EF-XX ADJUSTABLE THERMOSTAT	2-1/C	#12 AWG	CU	600V	120V POWER	T -2	T -3											CXX12	" "	

NOTES :

1. 'XX' REPRESENTS THE CORRESPONDING EXTRACTION WELL HOUSE NUMBER.
2. 'ZZZ' REPRESENTS THE CORRESPONDING POLE MOUNTED TRANSFORMER NUMBER FROM WHICH CABLE IS CONNECTED TO. SEE 95X-5900-E-00358 SINGLE LINE FOR CLARITY.
3. NOT USED.
4. CABLE ROUTING FROM XFMR SECONDARY TO WEATHERHEAD BELOW XFMR, TO CONDUIT UNDERGROUND, TO DISTRIBUTION PANEL.

4487

5. CABLE NO. REPRESENTS THE FOLLOWING CABLE NUMBERS: 232P, 262P, 272P, 282P.
6. CABLE NO. REPRESENTS THE FOLLOWING CABLE NUMBERS: 253P, 263P, 273P, 283P.
7. CABLE NO. REPRESENTS THE FOLLOWING CABLE NUMBERS: 254P, 264P, 274P, 284P.
8. CABLE NO. REPRESENTS THE FOLLOWING CABLE NUMBERS: 255P, 265P, 275P, 285P.
9. CABLE NO. REPRESENTS THE FOLLOWING CABLE NUMBERS: 256P, 266P, 276P, 286P.

000021

REF DWG NO.	DRAWING TITLE
95X-5500-X-02065	DRAWING INDEX

NO	REVISIONS	DATE	DWN. BY	APPD.

NO.	REVISIONS	DATE	DWN. BY	APPD.	REF. DWG. NO.
0	ISSUED FOR CFC	6/7/02	GES	GEP	95X-5500-X-02065

NOTE: FLUOR FERNALD CADD DRAWING. DO NOT REVISE MANUALLY.

CONFIGURATION MANAGEMENT DRAWING — YES / NO

EXISTING DETAILS SHOWN ARE CONSIDERED CONFIGURATION MANAGEMENT CONTROL. SEE NOTES.

CONSULTANT ENGINEER — DATE

APPROVALS

CIVIL & STR.			SAFETY ENG.		
ELECTRICAL	J.A. MATHIS	6/25/02	MAINTENANCE		
ENGINEER			FIRE PROTECT.		
INSTRUMENT			WASTE MANAGE		
MECHANICAL			SECURITY		
			PROJECTS		
CHECKED	GEP				
APPROVED	G.E.PAR	6/7/02			

Fernald Environmental Management Project

FLUOR FERNALD, INC.

U.S. DEPARTMENT OF ENERGY

ARWWP — SITE

SOUTH FIELD EXTRACTION SYSTEM PHASE 2

ELECTRICAL WELL HOUSE CABLE SCHEDULE

RES. 43-40

DATE JULY 30, 2002

DRAWN G. SCHWARTZMAN

95X-5500-E-02101 | 0

CONDUIT SCHEDULE

CONDUIT NO	FROM	TO	COND SIZE	CONTAINS CABLE(S)	REMARKS
CXX1	WEATHERHEAD ON POLE	WELL HOUSE DISTRIBUTION PANEL DP-XX	3"	XX1P	WELL HOUSE XX CONDUITS
CXX1A	STUB-UP AT POLE	STUB-UP BELOW DISTRIBUTION PANEL DP-XX	1½"	(EMPTY)	
CXX2	WELL HOUSE DISTRIBUTION PANEL DP-XX	VARIABLE SPEED DRIVE VSD-XX	1½"	XX2P	
CXX3	VARIABLE SPEED DRIVE VSD-XX	EXTRACTION WELL PUMP MOTOR PMP-XX	1½"	XX3P	
CXX4	WELL HOUSE DISTRIBUTION PANEL DP-XX	DISCONNECT SWITCH DSW-XX	¾"	XX4P	
CXX5	DISCONNECT SWITCH DSW-XX	UNIT HEATER UH-XX	¾"	XX5P	
CXX6	WELL HOUSE DISTRIBUTION PANEL DP-XX	COMBINATION TRANSFORMER/ PANELBOARD LP-XX	¾"	XX6P	
CXX7	COMBINATION TRANSFORMER/ PANELBOARD LP-XX	PCS-XX	¾"	XX7P	
CXX8	COMBINATION TRANSFORMER/ PANELBOARD LP-XX	FLOW INDICATING TRANSMITTER FIT	¾"	XX8P	
CXX9	COMBINATION TRANSFORMER/ PANELBOARD LP-XX	EXHAUST FAN EF-XX HAND-OFF-AUTO SWITCH	¾"	XX9P, XX11P, 1112P	
CXX10	EXHAUST FAN EF-XX HAND-OFF-AUTO SWITCH	EXHAUST FAN EF-XX MOTOR	¾"	XX10P	
CXX11	TEE IN CXX9	EXHAUST FAN EF-XX MOTORIZED DAMPER M-XX	¾"	XX11P	
CXX12	TEE IN CXX9	EXHAUST FAN EF-XX ADJUSTABLE THERMOSTAT	¾"	XX12P	
CXX13	TEE IN CXX20	FLOW ELEMENT FEB (RECIEVER)	¾"	XX03I	WELL HOUSE XX CONDUITS
CXX14	PCS-XX	FLOW INDICATING TRANSMITTER FIT	¾"	XX01I, XX04I, XX01C, XX02C	
CXX15	TEE IN CXX14	POSITION SWITCHES ZSHA & ZSLA	¾"	XX01C	
CXX16	TEE IN CXX14	POSITION SWITCHES ZSHB & ZSLB	¾"	XX02C	
CXX17	TEE IN CXX14	PRESSURE INDICATING TRANSMITTER PITA	¾"	XX04I	
CXX18	UNIT HEATER UH-XX	UNIT HEATER HAND-OFF-AUTO SWITCH	¾"	XX03C	
CXX19	VARIABLE SPEED DRIVE VSD-XX	PCS-XX	¾"	XX05I	
CXX21	WEATHERHEAD AT POLE	PCS-XX	1½"	CONTAINS PCS COMM. CABLES	

NOTES :

1. CONDUIT RIGID GALVANIZED UNLESS OTHERWISE INDICATED.
2. 'XX' REPRESENTS THE CORRESPONDING EXTRACTION WELL HOUSE NUMBER.
3. 'ZZZ' REPRESENTS THE CORRESPONDING POLE MOUNTED TRANSFORMER NUMBER FROM WHICH CABLE IS CONNECTED TO. SEE DWG # 96X-5500-E-00358 SINGLE LINE FOR CLARITY.

4487

000022

REF DWG NO.	DRAWING TITLE
95X-5500-X-02065	DRAWING INDEX
95X-5500-E-02066	SYMBOLS AND LEGEND
96X-5900-E-00358	SINGLE LINE DIAGRAM - 13.2 KV FEEDERS

0	ISSUED FOR CFC		GES	GEP	95X-5500-X-02065
			DRAWN BY	APPD.	REF. DWG. NO.

NOTE: FLUOR FERNALD CADD DRAWING. DO NOT REVISE MANUALLY.

CONFIGURATION MANAGEMENT DRAWING — YES / NO

STATUS: STAGEMEET OF CONTROLLED DRAWING AS OF DATE SHOWN. SEE FERNALD CONFIGURATION MANAGEMENT CONTROL. SEE NOTES.

COGNIZANT ENGINEER — DATE

APPROVALS

CIVIL & STR.			SAFETY ENG.	
ELECTRICAL	J.A. HUGHES	1/31/02	MAINTENANCE	
ENGINEER			FIRE PROTECT.	
INSTRUMENT			WASTE MANAGE	
MECHANICAL			SECURITY	
			PROJECTS	
CHECKED	GEP			
APPROVED	J.C.HAIL	1/31/02		

Fernald Environmental Management Project

FLUOR FERNALD, INC.

U.S. DEPARTMENT OF ENERGY

ARWWP — SITE

SOUTH FIELD EXTRACTION SYSTEM
PHASE 2
ELECTRICAL WELL HOUSE CONDUIT SCHEDUL

RES 4240
DATE JULY 30, 2002
DRAWN G. SCHWARZMAN

95X-5500-E-02102

CABLE SCHEDULE

CABLE NO	FROM	TO	CONDUCTOR NUMBER	CONDUCTOR SIZE	CONDUCTOR MATL.	CONDUCTOR INSUL	CONDUCTOR FUNCTION	WIRE TERMINATIONS 1	2	3	4	5	6	7	8	9	10	11	12	ROUTING	REF DWG	REMARKS
1020I	FIT001	PCSVH1	1 PAIR	#16 AWG	CU	600V	ANALOG	+	-	SHLD										C575	N-00272 E-00245	
1021I	FE001A (TRANSMITTER)	FIT001	1/C COAX	VENDOR			ULTRSNC X-MITTR	+	SHLD											C585	N-00272 E-00245	VENDOR CABLE
1022I	FE001B (RECEIVER)	FIT001	1/C COAX	VENDOR			ULTRSNC RECEIVER	+	SHLD											C585, C586	N-00272 E-00245	VENDOR CABLE
1023I	PIT002	PCSVH1	1 PAIR	#16 AWG	CU	600V	ANALOG	+	-	SHLD										C575, C579	N-00272 E-00245	
1024I	FIT003	PCSVH1	1 PAIR	#16 AWG	CU	600V	ANALOG	+	-	SHLD										C575, C576	N-00272 E-00245	
1025I	FE003A (TRANSMITTER)	FIT003	1/C COAX	VENDOR			ULTRSNC X-MITTR	+	SHLD											C587	N-00272 E-00245	VENDOR CABLE
1026I	FE003B (RECEIVER)	FIT003	1/C COAX	VENDOR			ULTRSNC RECEIVER	+	SHLD											C587, C588	N-00272 E-00245	VENDOR CABLE
1027I	FCV001	PCSVH1	1 PAIR	#16 AWG			ANALOG	+	-	SHLD										C575, C584	N-00272 E-00245	
1028I	PCV002	PCSVH1	1 PAIR	#16 AWG	CU	600V	ANALOG	+	-	SHLD										C575, C589	N-00272 E-00245	
XX01I	FIT	PCS-XX	1 PAIR	#16 AWG	CU	600V	ANALOG	+	-	SHLD										CXX14	N-00271 E-00245	
XX04I	PITA	PCS-XX	1 PAIR	#16 AWG	CU	600V	ANALOG	+	-	SHLD										CXX14, CXX17	N-00271 E-00245	
XX05I	FYA	PCS-XX	1 PAIR	#16 AWG	CU	600V	ANALOG	+	-	SHLD										CXX19	N-00271 E-00245	
1001C	ZSH022/ZSL022	PCSVH1	3-1/C	#14 AWG	CU	600V	DIGITAL	1	2	3										C575, C580	N-00272 E-00245	
1002C	ZSH023/ZSL023	PCSVH1	3-1/C	#14 AWG	CU	600V	DIGITAL	1	2	3										C575, C582	N-00272 E-00245	
1003C	ZSH024/ZSL024	PCSVH1	3-1/C	#14 AWG	CU	600V	DIGITAL	1	2	3										C575, C581	N-00272 E-00245	
1004C	ZSH025/ZSL025	PCSVH1	3-1/C	#14 AWG	CU	600V	DIGITAL	1	2	3										C575, C577, C581	N-00272 E-00245	
1006C	ZSH027/ZSL027	PCSVH1	3-1/C	#14 AWG	CU	600V	DIGITAL	1	2	3										C575, C583	N-00272 E-00245	
1008C	ZSH030/ZSL030	PCSVH1	3-1/C	#14 AWG	CU	600V	DIGITAL	1	2	3										C575, C578	N-00272 E-00245	
1009C	FCV001	PCSVH1	2-1/C	#14 AWG	CU	600V	DIGITAL	1	2											C575, C584	N-00272 E-00245	(ZSL001)
XX01C	ZSHA/ZSLA	PCS-XX	3-1/C	#14 AWG	CU	600V	DIGITAL	1	2	3										CXX14, CXX15	N-00271 E-00245	
XX02C	ZSHB/ZSLB	PCS-XX	3-1/C	#14 AWG	CU	600V	DIGITAL	1	2	3										CXX14, CXX16	N-00271 E-00245	
XX03C	UNIT HEATER UH-XX	UNIT HEATER UH-XX HAND-OFF-AUTO SWITCH	3-1/C	#12 AWG	CU	600V	CONTROL	UH-XX-1	UH-XX-2	UH-XX-3	UH-XX-4	UH-XX-5								CXX18	E-00245 E-00243	NOTE 4
573C	UNIT HEATER UH-1	UNIT HEATER UH-1 HAND-OFF-AUTO SWITCH	3-1/C	#12 AWG	CU	600V	CONTROL	UH-1-1	UH-1-2	UH-1-3	UH-1-4	UH-1-5								C387, C573	E-00245 E-00243	NOTE 4
574C	UNIT HEATER UH-2	UNIT HEATER UH-2 HAND-OFF-AUTO SWITCH	3-1/C	#12 AWG	CU	600V	CONTROL	UH-2-1	UH-2-2	UH-2-3	UH-2-4	UH-2-5								C389, C574	E-00245 E-00243	NOTE 4
601C	UNIT HEATER UH-3	UNIT HEATER UH-3 HAND-OFF-AUTO SWITCH	3-1/C	#12 AWG	CU	600V	CONTROL	UH-3-1	UH-3-2	UH-3-3	UH-3-4	UH-3-5								C403, C601	E-00375 E-00243	NOTE 4

NOTES :

1. "XX" REPRESENTS THE CORRESPONDING EXTRACTION WELL HOUSE NUMBER.
2. FEA (ULTRASONIC TRANSMITTER) AND FEB (ULTRASONIC RECEIVER) MAKE UP THE FLOW ELEMENT FOR FITA.
3. FOR INSTRUMENT LOOP NUMBER MATRIX SEE DRAWING 95X-5900-N-00271.
4. INSTALL PER MANUFACTURERS INSTRUCTIONS
5. STARTING @ EXISTING EXTRACTION WELL #20 RUN FIBER OPTIC CABLE FOR THE DCS FROM POLE OP579 ALONG NEW POLE LINE DROPPING OFF AT EACH NEW WELL HOUSE #31, #38 AND #32.
6. RUN FIBER OPTIC CABLE BACK ALONG NEW POLE LINE TO EXISTING POLE OP578 EXTENDING INSTRUMENT CONTROL SYSTEM LOOP BACK TO EXISTING WELL HOUSE #19.
7. AT WELL HOUSE #19 REMOVE OLD FIBER CABLE FEED TO DCS PCS AND REPLACE IT WITH THE NEW CABLE.

4487

000023

REF DWG NO.	DRAWING TITLE
95X-5500-X-02065	DRAWING INDEX

REVISIONS							
0	ISSUED FOR CFC	1-3-02	GES	CEP	95X-5500-X-02065
		DATE	DWN. BY	APPD.	REF. DWG. NO.

NOTE:
FLUOR FERNALD CADD DRAWING. DO NOT REVISE MANUALLY.

CONFIGURATION MANAGEMENT DRAWING
SYSTEMS ATTACHED OR CONFORMED TO THIS DRAWING ARE UNDER CONFIGURATION MANAGEMENT CONTROL AT SITE.
COGNIZANT ENGINEER DATE

APPROVALS

CIVIL & STR.			SAFETY ENG.	
ELECTRICAL	J.L. MATHIS	1/2/02	MAINTENANCE	
ENGINEER			FIRE PROTECT.	
INSTRUMENT			WASTE MANAGE.	
MECHANICAL			SECURITY	
			PROJECTS	
CHECKED	CEP			
APPROVED	KEMB.	1/2/02		

Fernald Environmental Management Project
FLUOR FERNALD, INC.
U.S. DEPARTMENT OF ENERGY

ARWWP — SITE
SOUTH FIELD EXTRACTION SYSTEM
PHASE 2
ELECTRICAL CABLE SCHEDULE

RES 4340
DATE JULY 30, 2002
DRAWN C. SCHWARZMAN

95X-5500-E-02103 | 0

CABLE SCHEDULE

CABLE NO	FROM	TO	CONDUCTOR NUMBER	SIZE	MATL.	INSUL	FUNCTION	1	2	3	4	5	6	7	8	9	10	11	12	ROUTING	REF DWG	REMARKS
10121I	PCS-20	PCS-31	2/BNDL	62.5/125 MULTIMOD	FIBER OPTIC		COMM	1	2												SEE REF DWG. BLOCK	BELDEN NO. 225702 OR EQUAL
10122I	PCS-31	PCS-30	2/BNDL	62.5/125 MULTIMOD	FIBER OPTIC		COMM	1	2												" "	BELDEN NO. 225702 OR EQUAL
10123I	PCS-30	PCS-32	2/BNDL	62.5/125 MULTIMOD	FIBER OPTIC		COMM	1	2												" "	BELDEN NO. 225702 OR EQUAL
10124I	PCS-32	PCS-19	2/BNDL	62.5/125 MULTIMOD	FIBER OPTIC		COMM	1	2												" "	BELDEN NO. 225702 OR EQUAL
2C-36	TAP 2C-3 @ POLE *578	DEADEND TERMINATION @ POLE * 773	3-1/C	*2 AWG	ASCR	BARE	13.2KV POWER	F1A1-24 -L1	F1A1-24 -L2	F1A1-24 -L3										C403, C681	E-00375 E-00243	
2C-37	TAP 2C-24 @ POLE 773	FUSED CUTOUT FC-773 (POLE 773)	3-1/C	*2 AWG	ASCR	BARE	13.2KV POWER	F1A1-25 -L1	F1A1-25 -L2	F1A1-25 -L3											E00244 E00477	
2C-38	FUSED CUTOUT FC-773 (POLE 773)	TRANSFORMER T-773 (POLE 773)	3-1/C	*2 AWG	ASCR	BARE	13.2KV POWER	F1A1-26 -L1	F1A1-26 -L2	F1A1-26 -L3											E00244 E00477	
2C-39	TAP 2C @ POLE *773	DEADEND TERMINATION @ POLE *777	3-1/C	*2 AWG	ASCR	BARE	13.2KV POWER	F3C -L1	F3C -L2	F3C -L3										C403, C681	SEE REF DWG. BLOCK	NOTE 4
2C-40	TAP 2C @ POLE *777	FUSED CUTOUT FC-777 (POLE *777)	3-1/C	*2 AWG	ASCR	BARE	13.2KV POWER	F3C -L1	F3C -L2	F3C -L3											" "	NOTE 4
2C-41	FUSED CUTOUT FC-777 (POLE *777)	TRANSFORMER T-777 (POLE *777)	3-1/C	*2 AWG	ASCR	BARE	13.2KV POWER	F3C -L1	F3C -L2	F3C -L3											" "	
2C-42	TAP 2C @ POLE *776	DEADEND TERMINATION @ POLE *780	3-1/C	*2 AWG	ASCR	BARE	13.2KV POWER	F3C -L1	F3C -L2	F3C -L3											" "	NOTE 4
2C-43	TAP 2C @ POLE *780	FUSED CUTOUT FC-780 (POLE *780)	3-1/C	*2 AWG	ASCR	BARE	13.2KV POWER	F3C -L1	F3C -L2	F3C -L3											" "	NOTE 4
2C-44	FUSED CUTOUT FC-780 (POLE *780)	TRANSFORMER T-780 (POLE *780)	3-1/C	*2 AWG	ASCR	BARE	13.2KV POWER	F3C -L1	F3C -L2	F3C -L3											" "	

4487

000024

REF DWG NO.	DRAWING TITLE
95X-5500-X-02065	DRAWING INDEX
96X-5900-E-00358	13.2 KV ARIAL DISTRIBUTION SINGLE LINE DIAGRAM
95X-5500-N-02108	SOUTH FIELD EXTRATION SYSTEM PHASE 2 INSTRUMENTATION CONTROL SYSTEM ARCHITECTURE

REVISIONS		DATE	DRN. BY	APPD.	REF. DWG. NO.
0	ISSUED FOR CFC	6/7/02	CES	CEP	95X-5500-X-02065

NOTE:
FLUOR FERNALD CADD DRAWING, DO NOT REVISE MANUALLY.

CONFIGURATION MANAGEMENT DRAWING — YES / NO
SYSTEMS, STRUCTURES, AND COMPONENTS SHOWN ARE CONSIDERED "CM ITEMS" (CONFIGURATION MANAGEMENT CONTROL). SEE NOTES.
COGNIZANT ENGINEER — DATE

APPROVALS				
			SAFETY ENG.	
			MAINTENANCE	
CIVIL & STR.				
ELECTRICAL	J.A. MATTHEW	6/25/02	FIRE PROTECT.	
ENGINEER			WASTE MANAGE	
INSTRUMENT			SECURITY	
MECHANICAL			PROJECTS	
CHECKED	G.P.			
APPROVED	G.E.PAUL	6/25/02		

Fernald Environmental Management Project
FLUOR FERNALD, INC.
U.S. DEPARTMENT OF ENERGY

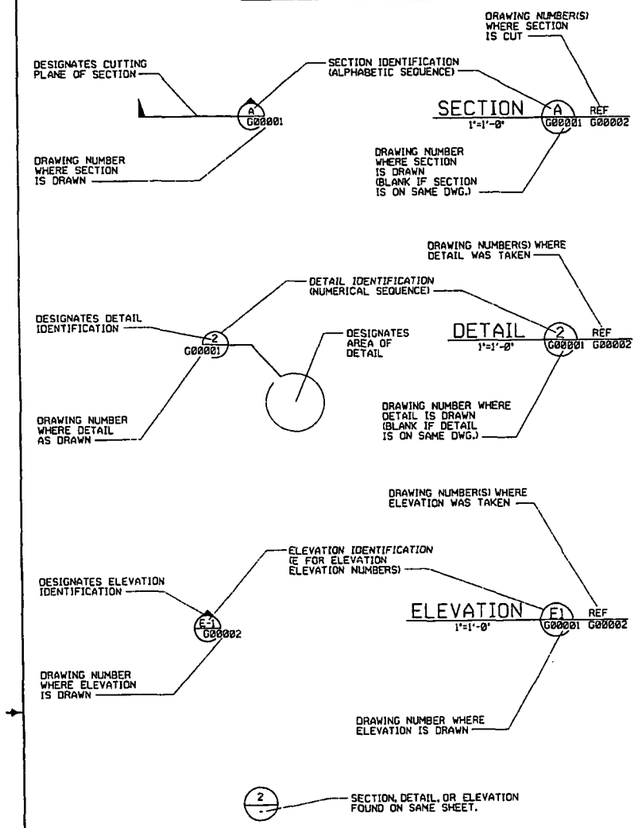
ARWWP — SITE
SOUTH FIELD EXTRACTION SYSTEM
PHASE 2
ELECTRICAL OVERHEAD CABLE SCHEDULE

RES 4349
DATE JULY 30, 2002
DRAWN C. SCHWARZMAN

95X-5500-E-02104 | 0

4487

GENERAL LEGEND



NOTE:

ABBREVIATED DRAWING NUMBERS WILL BE USED FOR ALL SECTIONS, DETAILS, ELEVATIONS, AND WITHIN NOTES AND CALL OUTS IN THE BODY OF THE DRAWING.

FOR EXAMPLE: 95X-5900-G-00002 = DRAWING NUMBER
G00002 = ABBREVIATED DRAWING NUMBER

DIMENSIONING:

DIMENSIONS AND/OR ELEVATIONS MARKED THUS (+/-) SHALL BE VERIFIED IN THE FIELD BY CONTRACTOR.

USE DIMENSIONS AS SHOWN. DO NOT SCALE.

NTS (NOT TO SCALE) IS SHOWN ONLY WHERE DIMENSION IS OBVIOUSLY OUT OF SCALE.

ABBREVIATIONS

AWWT	ADVANCED WASTEWATER TREATMENT
FEMP	FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
SFES	SOUTH FIELD EXTRACTION SYSTEM
SPO	SOUTH PLUME OPTIMIZATION
ID	INJECTION DEMONSTRATION
SDR	SIDE WALL DIMENSION RATIO

CONSTRUCTION BY OTHERS

CONTOUR - MAJOR & MINOR

UTILITIES

UTILITY SYMBOLS

EXISTING		PROPOSED
ST	STORM SEWER	ST
SN	SANITARY SEWER	SN
FG	FUEL GAS	FG
DW	DRINKING WATER	DW
FO1	FIRE PROTECTION	FO1
LS	LIVE STEAM	LS
WS	WATER SUPPLY	WS
WR	COOLING WATER RETURN	WR
TW	PROCESS WATER	TW
CE	CONTAMINATE WATER	CE
FT	FILTRATE OR EFFLUENT	FT
DF	DEIONIZED FEED	DF
PW	DEIONIZED WATER	PW
BR	BRINE	BR
RW	RAW WATER	RW
A	ALARM	A
CN	STEAM CONDENSATE	CN
VE	VENT LINES	VE
SD	SUB-SURFACE DRAINAGE	SD
SL	SUMP LIQUOR	SL
E	ELECTRICAL	E
OE	OVERHEAD ELECTRICAL	
T	TELEPHONE	T
G	ELECTRIC GROUND	G
PA	PLANT AIR	PA
SA	INSTRUMENT AIR SUPPLY	SA
	ABANDONED	
	DISCHARGE	
	TREATMENT	

BALLOON LEGEND

PIV	POST INDICATOR VALVE
SMH	SANITARY MANHOLE
EMH	ELECTRICAL MANHOLE
TMH	TELEPHONE MANHOLE
CB	STORM SEWER CATCH BASIN
HFH	HIGH PRESSURE FIRE HYDRANT
LFH	LOW PRESSURE FIRE HYDRANT

GRADING SYMBOLS

EXISTING		PROPOSED
	SPOT ELEVATION	X 589.4
584	CONTOUR - MINOR	584
585	CONTOUR - MAJOR	585
(TOE)	SLOPE INDICATOR	(TOE)

SYMBOLS LEGEND

EXISTING		PROPOSED
	POST INDICATOR VALVE (PIV)	
	FIRE HYDRANT (FH)	
	MANHOLE (MH)	S OR D
	CATCH BASIN (CB)	D
	POLE	
	PIPE SUPPORT	
	ELECTRICAL MANHOLE	E
	TELEPHONE MANHOLE	T
	STREET WASHERS	
	VALVE BOX	
1313	MONITORING WELL	
	SURFACE DRAINAGE FLOW	
	GRAVEL ROADWAY/DRIVEWAY	
	ASPHALT ROADWAY/DRIVEWAY	
	CONCRETE PAD/ ROADWAY/DRIVEWAY	
	BUILDING/TRAILER	
	OU BOUNDARY	
	FENCE	
	TREE LINE	
	DECIDUOUS TREE	
	CONIFEROUS TREE	
	CENTERLINE DRAINAGE DITCH	
	RIVER/CREEK	
	TO BE REMOVED	
	SILT FENCE	
	ELECTRICAL TRANSFORMER	T
	TRANSMISSION TOWER	
	HEADWALL	OR
BM	BENCH MARK	
XX XX	CONSTRUCTION/WIND BARRIER FENCE	XX XX
	SIGN SINGLE/DOUBLE POST	
	BOLLARD/GUARD POST	
PB	ELECTRICAL PULL BOX	
	SURVEY CONTROL POINT	
	ROAD CENTERLINE OR BASELINE	
	BEND	OR
	TEE	
	THRUST BLOCK	
	REDUCER	
W OR U	UNKNOWN	
	STRAW BALE SILT BARRIER	
	GRAVEL EROSION CONTROL BARRIER	
	FENCE GATE	
	CONCRETE ENCASEMENT	
	EXTRACTION WELL (** IS NUMBER)	EW-**

000025

REF DWG NO.	DRAWING TITLE
95X-5500-X-02065	DRAWING INDEX

REVISIONS							
				0	ISSUED FOR CFC	1-24-02	CES	MKB	95X-5500-X-02065
DESCRIPTION	DATE	DWN.	APPD.	NO.		DATE	DWN. BY	APPD.	REF. DWG. NO.

NOTE: FLUOR FERNALD CADD DRAWING, DO NOT REVISE MANUALLY.

CONFIGURATION MANAGEMENT DRAWING — USE ONLY — DO NOT

APPROVALS

CIVIL & STR.				SAFETY ENG.	
ELECTRICAL				MAINTENANCE	
ENGINEER				FIRE PROTECT.	
INSTRUMENT				WASTE MANAGE.	
MECHANICAL				SECURITY	
				PROJECTS	
CHECKED					
APPROVED					

Fernald Environmental Management Project

FLUOR FERNALD, INC.

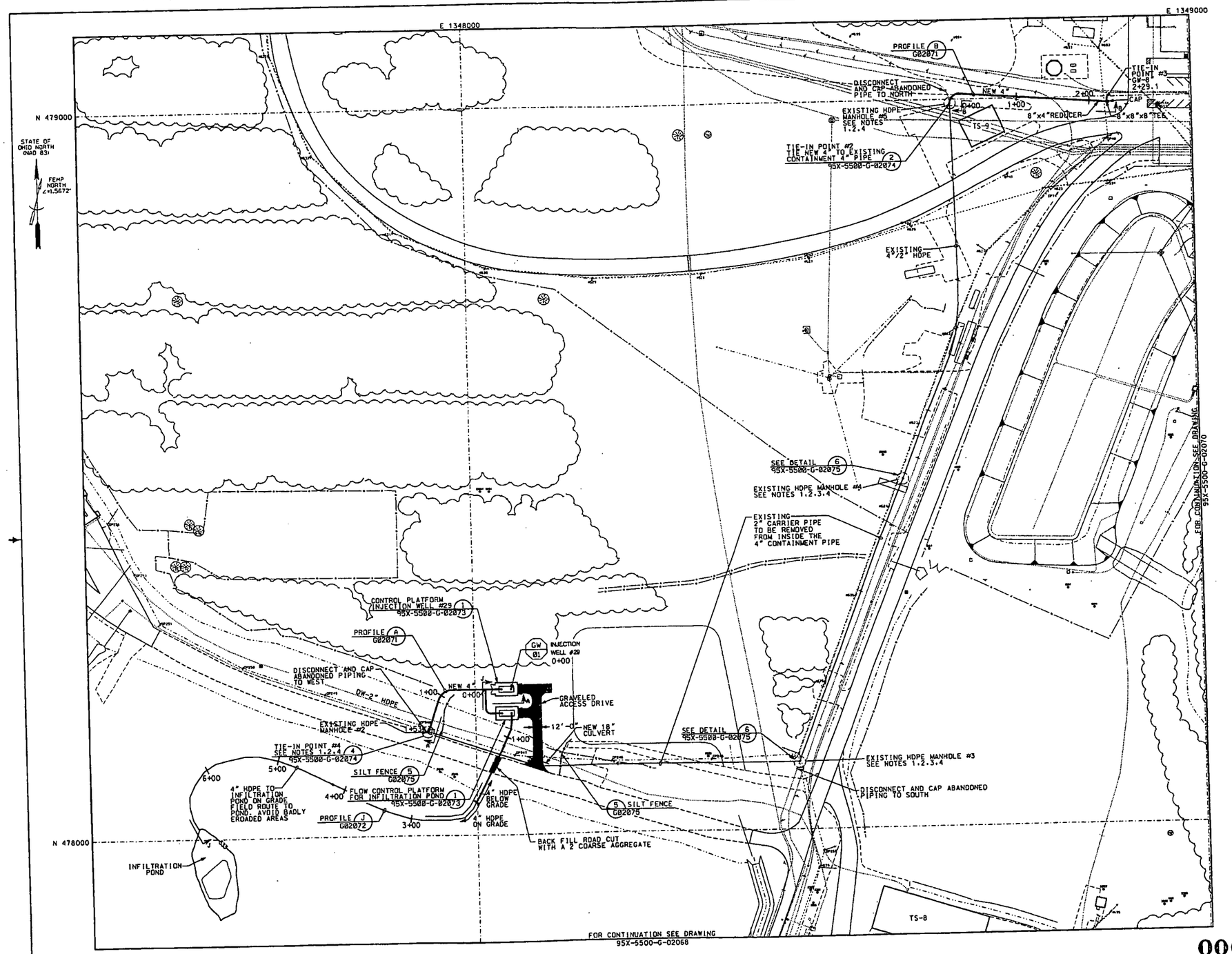
U.S. DEPARTMENT OF ENERGY

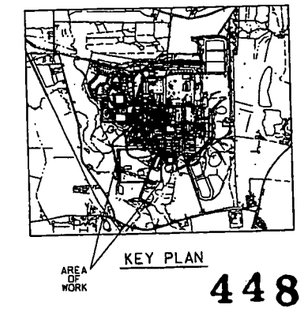
ARWWP — SITE

SOUTH FIELD EXTRACTION SYSTEM
PHASE 2
CIVIL LEGEND & SYMBOLS

RES 4340
DATE FEB. 8, 2002
DRAWN G. SCHWARZMAN

95X-5500-G-02066 | 0





KEY PLAN

4487

NOTES

1. EXISTING SEEPAGE COLLECTION HDPE MANHOLE 2.3.4&5 ARE TO BE PUMPED FREE OF WATER PRIOR TO EXCAVATION. WATER TO BE PUMPED TO STORM WATER RETENTION BASIN.
2. EXCAVATE TO EXPOSE EXISTING MANHOLES 2.3.4&5 AND ATTACHED PIPELINES. CUT 4" HDPE CONTAINMENT AND 2" CARRIER PIPE LOOSE FROM MANHOLES. EXCAVATION TO BE LARGE ENOUGH TO ALLOW REMOVAL OF MANHOLES, 2" CARRIER PIPE, AND ACCESS FOR FUSION MACHINE. 2" CARRIER PIPE TO BE CUT INTO 10' LENGTHS AND STACKED FOR DISPOSAL BY F.F. CONSTRUCTION.
3. AT EXISTING MANHOLES #3&4, FUSE HDPE FLANGE ADAPTERS TO ENDS OF EXISTING 4" SDR17 CONTAINMENT PIPE AND TIE TOGETHER WITH NEW 4" HDPE SDR17 FLANGED SPOOL PIECE.
4. FOR REFERENCE SEE SEEPAGE COLLECTION AND REMOVAL OF SEDIMENT DRAWINGS 92X-5900-G-00125, 92X-5900-G-00164 AND 92X-5900-G-00163.

REF DWG NO.	DRAWING TITLE
95X-5500-X-02065	DRAWING INDEX
95X-5500-G-02066	LEGEND AND SYMBOLS
95X-5500-G-02068	SITE UTILITY PIPING PLAN
95X-5500-G-02070	SITE UTILITY PIPING PLAN
95X-5500-G-02071	PROFILES
95X-5500-G-02073	DETAILS
95X-5500-G-02074	DETAILS
95X-5500-G-02075	DETAILS
95X-5500-G-02076	DETAILS
95X-5500-G-02077	DETAILS
95X-5500-S-02079	WELL HOUSE No's. 30,31 AND 32
95X-5500-P-02082	PLAN, SECTIONS AND DETAIL

0' 50' 100' 200'
SCALE BAR
NAD83

000026

NO	REVISIONS	DATE	DWN. BY	APPD.	REF. DWG. NO.
0	ISSUED FOR CFC	11/7/02	GES	MB	95X-5500-X-02065

NOTE: FLUOR FERNALD CADD DRAWING. DO NOT REVISE MANUALLY.

CONFIGURATION MANAGEMENT DRAWING

APPROVALS: CIVIL & STR. / ELECTRICAL / ENGINEER / INSTRUMENT / MECHANICAL / CHECKED / APPROVED / SAFETY ENG. / MAINTENANCE / FIRE PROTECT. / WASTE MANAGE. / SECURITY / PROJECTS

Fernald Environmental Management Project

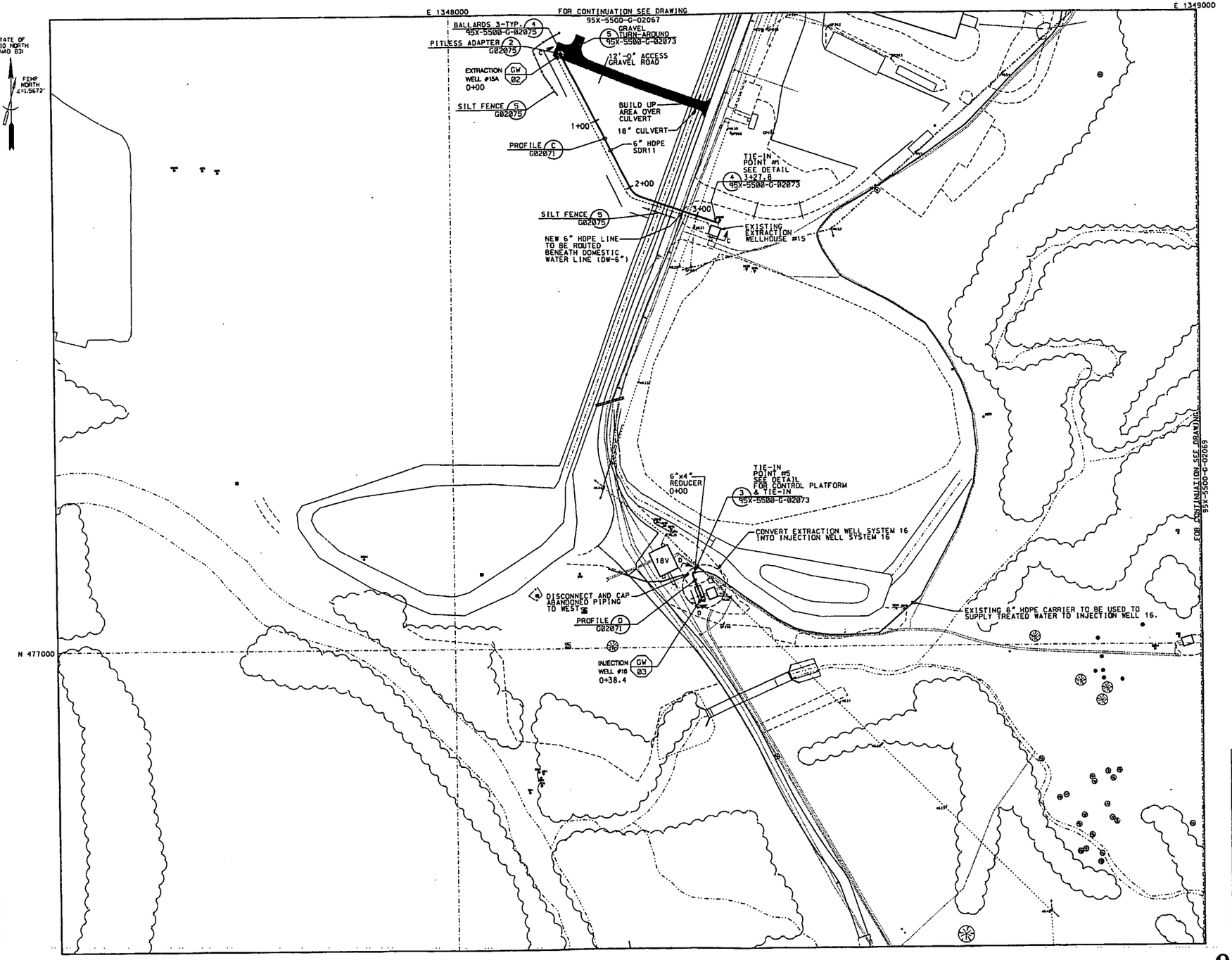
FLUOR FERNALD, INC.

U.S. DEPARTMENT OF ENERGY

ARWWP SOUTH FIELD EXTRACTION SYSTEM PHASE 2 SITE UTILITY PIPING PLAN IW-29 AND INFILTRATION POND

RES 4340 DATE JAN. 28, 2002 DRAWN C. SCHWARZMAN

95X-5500-G-02067



KEY PLAN

NOTE

1. EXISTING 6" HDPE CARRIER TO BE LEAK TESTED PRIOR TO COMMISSION.

4487

REF DWG NO.	DRAWING TITLE
95X-5500-X-02065	DRAWING INDEX
95X-5500-X-02066	LEGEND AND SYMBOLS
95X-5500-G-02067	SITE UTILITY PIPING PLAN
95X-5500-G-02069	SITE UTILITY PIPING PLAN
95X-5500-G-02071	PROFILES
95X-5500-G-02073	DETAILS
95X-5500-G-02074	DETAILS
95X-5500-G-02075	DETAILS
95X-5500-G-02076	DETAILS
95X-5500-G-02077	DETAILS
95X-5500-S-02079	WELL HOUSE No's. 30,31 AND 32
95X-5500-P-02082	PLAN, SECTIONS AND DETAIL

000027

0' 50' 100' 200'
SCALE BAR
NAD83

NO.	REVISIONS	DATE	DWN. BY	APPD.
0	ISSUED FOR CFC	6-7-02	GES	MCB

NO.	REVISIONS	DATE	DWN. BY	APPD.	REF. DWG. NO.
					95X-5500-X-02065

NOTE:
FLUOR FERNALD CADD DRAWING. DO NOT REVISE MANUALLY.

CONFIGURATION MANAGEMENT DRAWING
YES X
NO
EXISTING STRUCTURES OR COMPONENTS AFFECTED BY DESIGN ARE CORRECTLY SHOWN.
CONSULTANT ENGINEER / DATE

APPROVALS

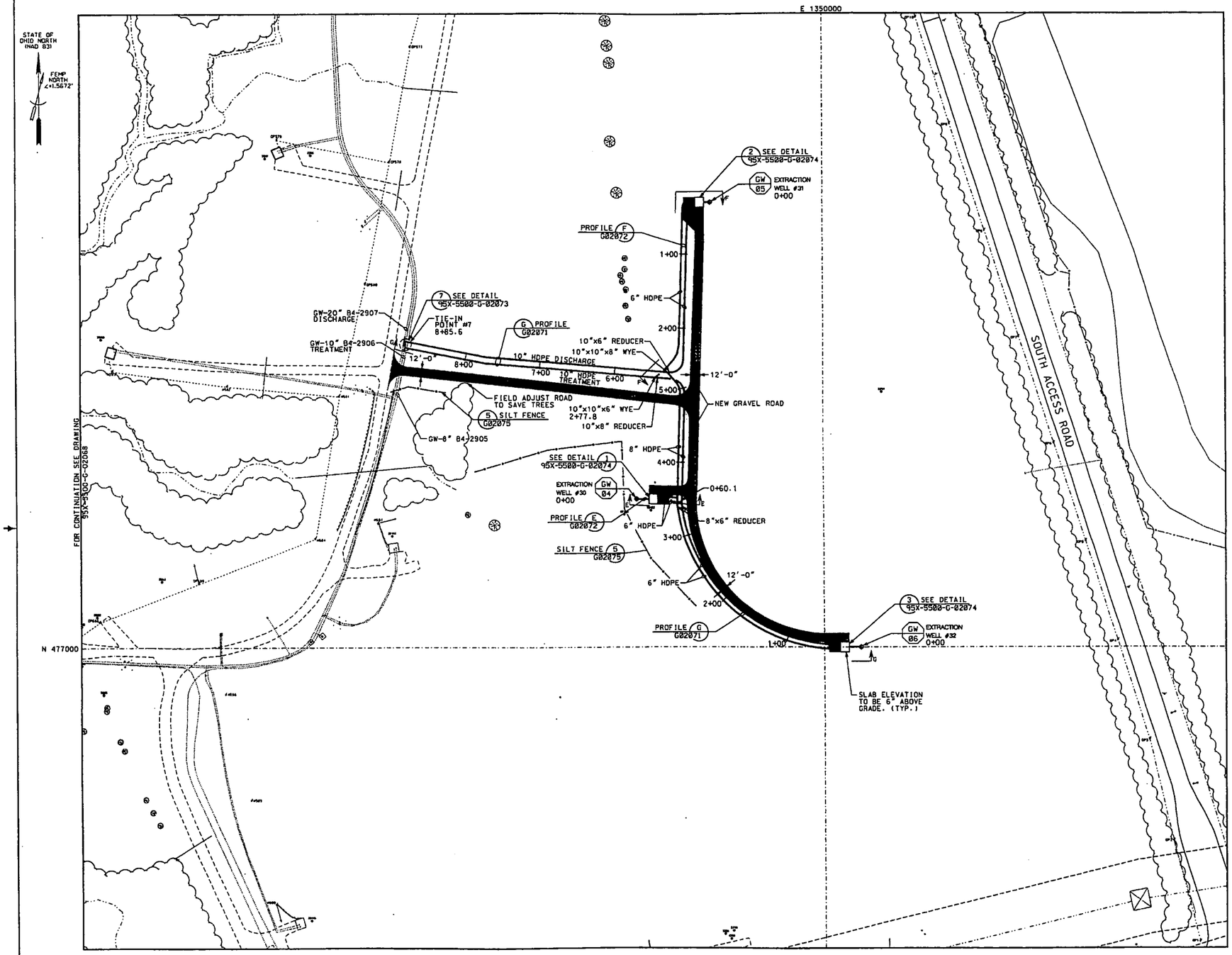
CIVIL & STR.			SAFETY ENG.
ELECTRICAL			MAINTENANCE
ENGINEER			FIRE PROTECT.
INSTRUMENT			WASTE MANAGE.
MECHANICAL			SECURITY
			PROJECTS
CHECKED			
APPROVED			

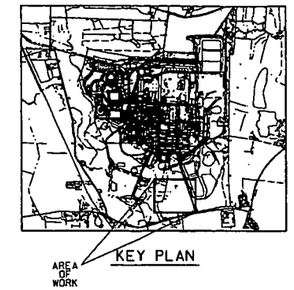
Fernald Environmental Management Project
FLUOR FERNALD, INC.
U.S. DEPARTMENT OF ENERGY

ARWWP SITE
SOUTH FIELD EXTRACTION SYSTEM
PHASE 2
SITE UTILITY PIPING PLAN
EW-15A AND IW-16

RES 4340
DATE JAN. 28, 2002
DRAWN C. SCHWARZMAN

95X-5500-G-02068 | 0





4487

REF DWG NO.	DRAWING TITLE
95X-5500-X-02065	DRAWING INDEX
95X-5500-X-02066	LEGEND AND SYMBOLS
95X-5500-G-02068	SITE UTILITY PIPING PLAN
95X-5500-G-02072	PROFILES
95X-5500-G-02073	DETAILS
95X-5500-G-02074	DETAILS
95X-5500-G-02075	DETAILS
95X-5500-G-02076	DETAILS
95X-5500-G-02077	DETAILS
95X-5500-S-02078	WELL HOUSE No's. 30,31 AND 32
95X-5500-P-02082	PLAN, SECTIONS AND DETAIL

000028

0' 50' 100' 200'
SCALE BAR NAD83

NO.	REVISIONS	DATE	DWN BY	APPD	NO.	REVISIONS	DATE	DWN BY	APPD	REF DWG NO.
					0	ISSUED FOR CFC	1-29-02	GES		95X-5500-X-02065

NOTE: FLUOR FERNALD CADD DRAWING. DO NOT REVISE MANUALLY.

CONFIGURATION MANAGEMENT DRAWING

SYSTEMS, STRUCTURES OR COMPONENTS DEPICTED ON THIS DRAWING ARE UNDER CONFIGURATION MANAGEMENT CONTROL. SEE NOTES.

COGNIZANT ENGINEER / DATE

APPROVALS

CIVIL & STR.		SAFETY ENG.	
ELECTRICAL		MAINTENANCE	
ENGINEER		FIRE PROTECT.	
INSTRUMENT		WASTE MANAGE.	
MECHANICAL		SECURITY	
		PROJECTS	
CHECKED			

Fernald Environmental Management Project

FLUOR FERNALD, INC.

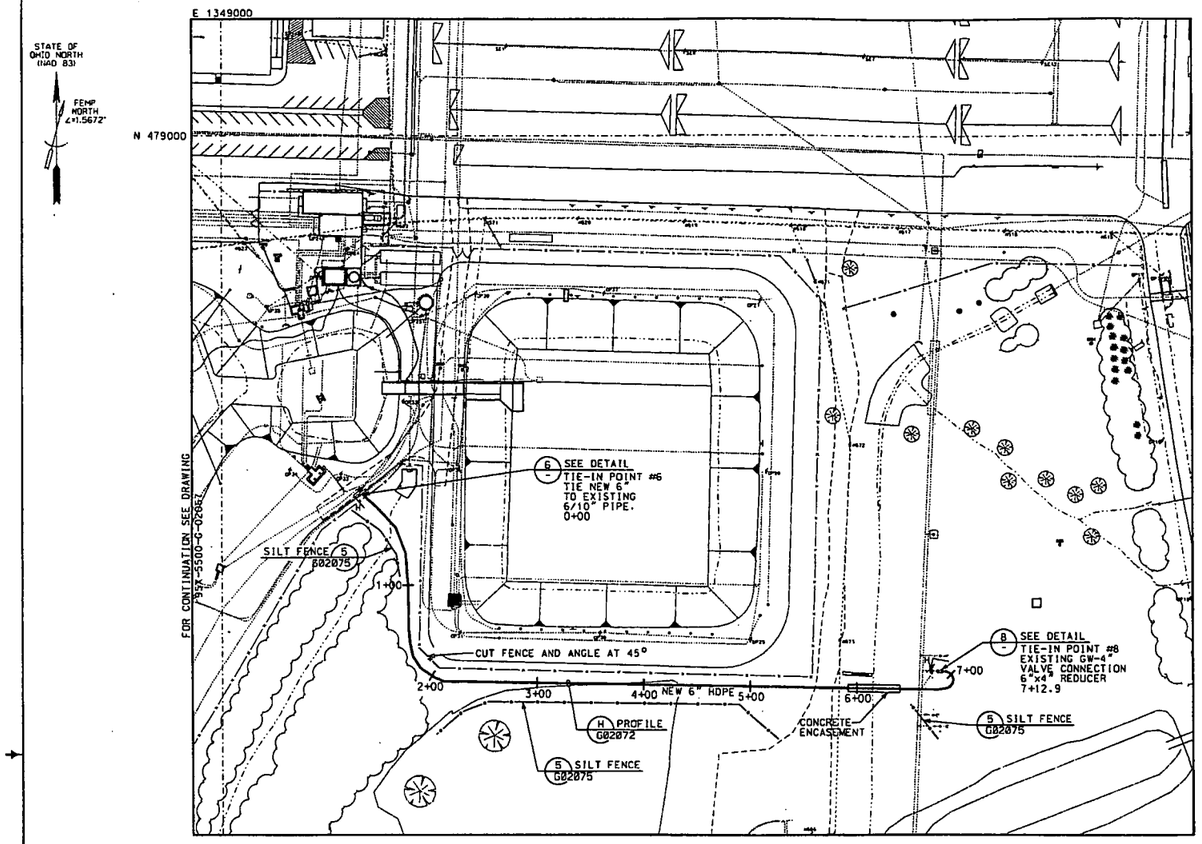
U.S. DEPARTMENT OF ENERGY

ARWWP SITE

SOUTH FIELD EXTRACTION SYSTEM
PHASE 2
SITE UTILITY PIPING PLAN
EW-30, 31 & 32

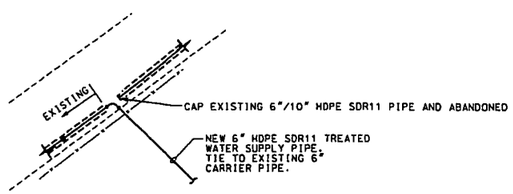
RES 4340
DATE JAN. 28, 2002

95X-5500-G-02069 | 0

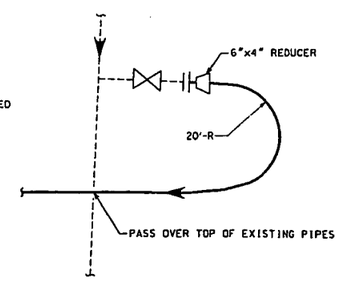


KEY PLAN

4487



TIE-IN POINT #6 (6)
NTS



TIE-IN POINT #8 (8)
NTS

REF DWG NO.	DRAWING TITLE
95X-5500-X-02065	DRAWING INDEX
95X-5500-G-02066	LEGEND AND SYMBOLS
95X-5500-G-02067	SITE UTILITY PIPING PLAN
95X-5500-G-02071	PROFILES
95X-5500-G-02073	DETAILS
95X-5500-G-02075	DETAILS
95X-5500-G-02076	DETAILS

000029

0' 50' 100' 200'
SCALE BAR
NAD83

NO.	REVISIONS	DATE	DWN.	BY	APPD.	NO.	REVISIONS	DATE	DWN.	BY	APPD.	REF. DWG. NO.
						0	ISSUED FOR CFC	1-25-02	GES			95X-5500-X-02065

NOTE:
FLUOR FERNALD CADD DRAWING. DO NOT REVISE MANUALLY.

CONFIGURATION MANAGEMENT DRAWING
YES / NO
EXISTING DRAWINGS OR COMPONENTS REFERENCED ARE NOT CONTROLLED BY FLUOR FERNALD CONFIGURATION MANAGEMENT CONTROL. SEE ABOVE.
COMPANY ENGINEER / DATE

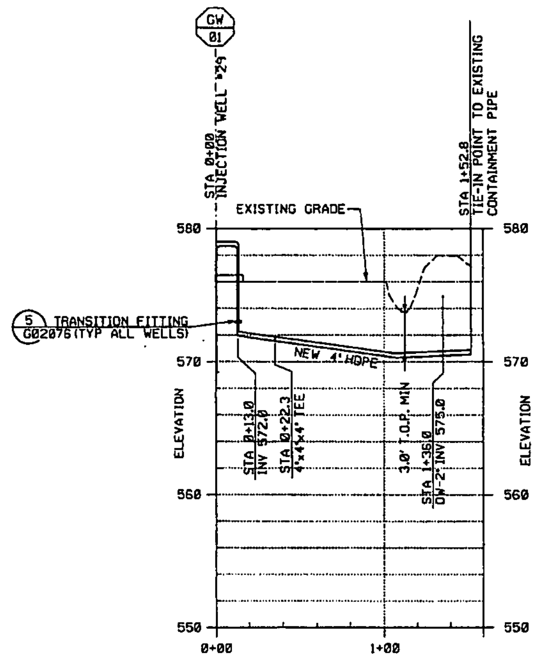
APPROVALS

CIVIL & STR.		SAFETY ENG.	
ELECTRICAL		MAINTENANCE	
ENGINEER		FIRE PROTECT.	
INSTRUMENT		WASTE MANAGE.	
MECHANICAL		SECURITY	
		PROJECTS	
CHECKED			

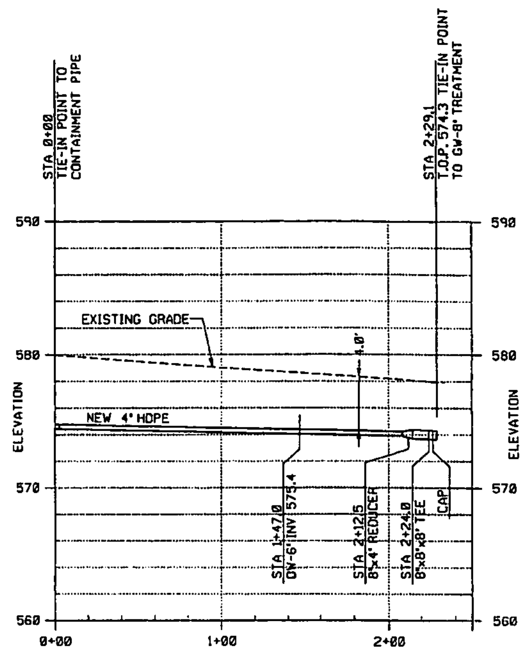
Fernald Environmental Management Project
FLUOR FERNALD, INC.
U.S. DEPARTMENT OF ENERGY

ARWWP SITE
SOUTH FIELD EXTRACTION SYSTEM
PHASE 2
SITE UTILITY PIPING PLAN
CROSS OVER LINE

RES. 4340
DATE JAN. 25, 2002
95X-5500-G-02070 0



PROFILE (A) REF G02067
SCALE: HOR 1"=40' VER 1"=5'



PROFILE (B) REF G02067
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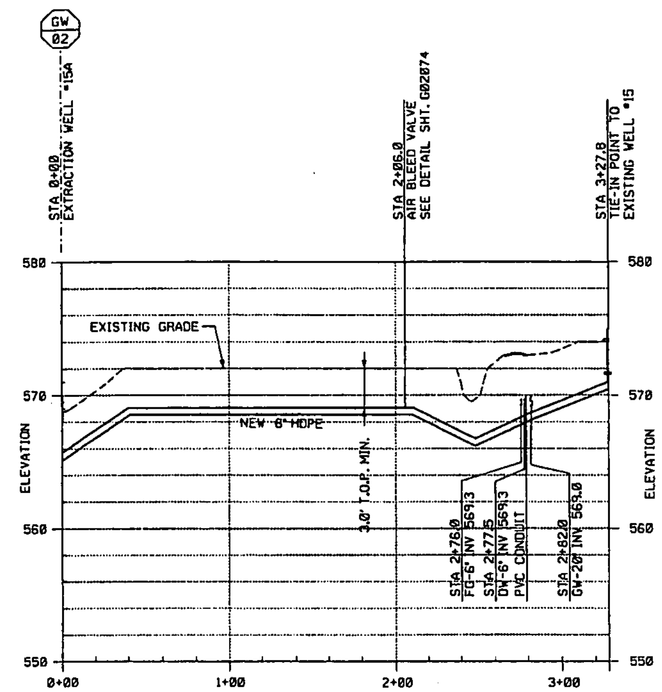

PROFILE (C) REF G02068
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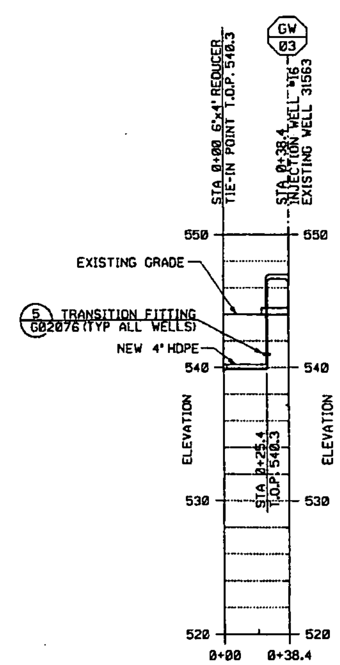

PROFILE (D) REF G02068
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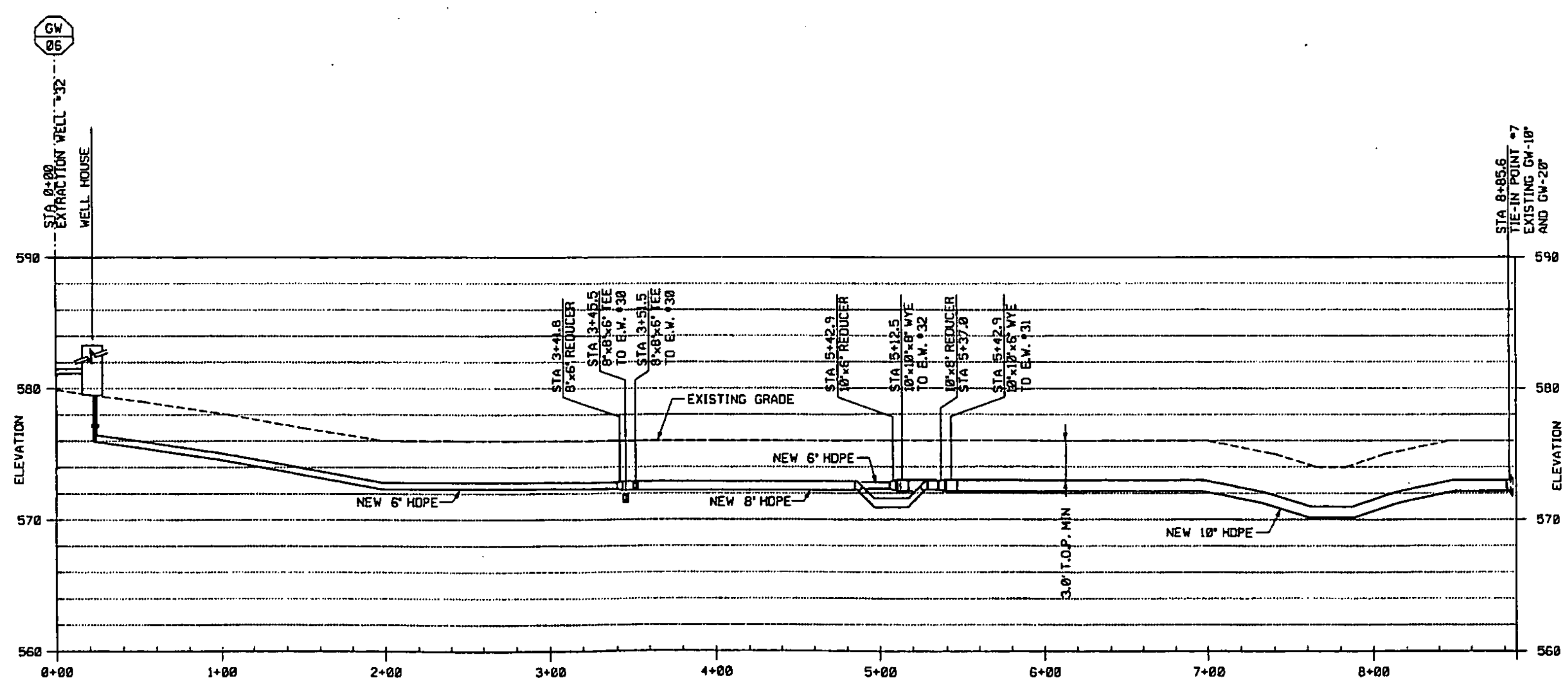


PROFILE (G) REF G02069
SCALE: HOR 1"=40' VER 1"=5'

NOTES

1. EXISTING CONDITIONS SHOWN ON THIS DRAWING WERE PREPARED FROM FEMP SITE PROVIDED DATA FROM THE DOCUMENTS LISTED BELOW.

   EXISTING SITE DATA SOURCE (IN PLANT FILES)
   FEMP CADD GRID/UTILITY DRAWINGS
   FEMP CONTRACTOR PROJECT DESIGN DOCUMENTS
   PARSONS TOPOGRAPHY, 1992

2. FOR PIPING DETAILS AT INJECTION WELLS SEE DRAWINGS 95X-5500-P-02082 AND FOR STRUCTURAL DETAILS SEE DWG 95X-5500-S-02079.

-4487

(GW) UNDERGROUND UTILITY COORDINATES			
POINT	NORTHING	EASTING	DESCRIPTION
01	478200.00	1348050.00	INJECTION WELL #29
02	477800.00	1348150.00	EXTRACTION WELL #15A
03	477066.68	1348331.00	INJECTION WELL #16
06	477000.00	1350050.00	EXTRACTION WELL #32

000030

REF DWG NO.	DRAWING TITLE
95X-5500-X-02065	DRAWING INDEX
95X-5500-G-02066	LEGEND AND SYMBOLS
95X-5500-G-02067	SITE UTILITY PIPING PLAN
95X-5500-G-02068	SITE UTILITY PIPING PLAN
95X-5500-G-02070	SITE UTILITY PIPING PLAN
95X-5500-G-02073	DETAILS
95X-5500-G-02079	PLANS, SECTIONS AND DETAILS
95X-5500-P-02082	PLANS, SECTIONS AND DETAILS

NO.	REVISIONS	DATE	DWN	BY	APPR	NO.	REVISIONS	DATE	DWN	BY	APPR	REF. DWG. NO.
						0	ISSUE FOR CFC	1-29-02	GES		MB	

NOTE: FLUOR FERNALD CADD DRAWING, DO NOT REVISE MANUALLY.

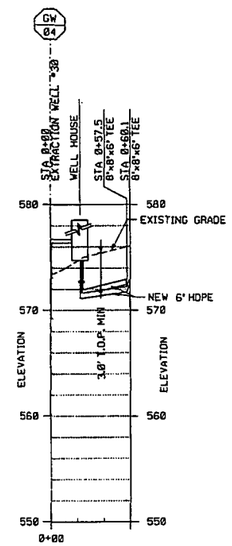
CONFIGURATION MANAGEMENT DRAWING
SYSTEMS, STRUCTURES OR COMPONENTS DEPICTED ON THIS DRAWING ARE UNDER CONFIGURATION MANAGEMENT CONTROL. SEE NOTES.
COGNIZANT ENGINEER / DATE

APPROVALS
CIVIL & STR. | ELECTRICAL | ENGINEER | INSTRUMENT | MECHANICAL | CHECKED
SAFETY ENG. | MAINTENANCE | FIRE PROTECT. | WASTE MANAGE. | SECURITY | PROJECTS

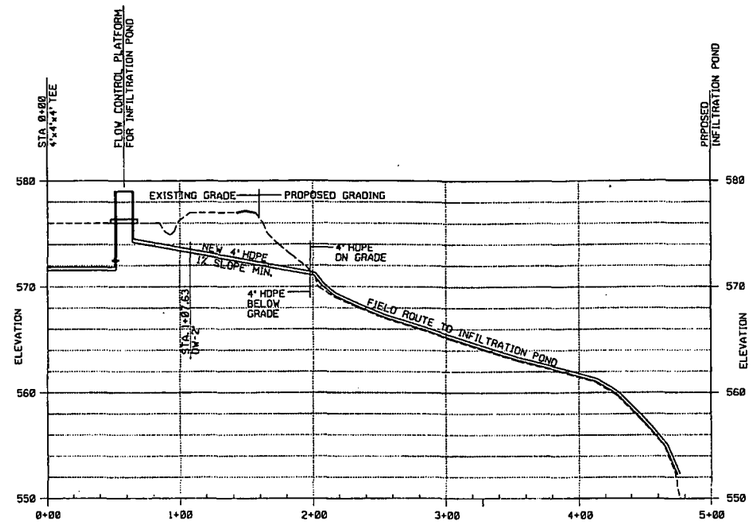
Fernald Environmental Management Project
FLUOR FERNALD, INC.
U.S. DEPARTMENT OF ENERGY

ARWWP SITE
SOUTH FIELD EXTRACTION SYSTEM
PHASE 2
PROFILES
SCALE: NOTED

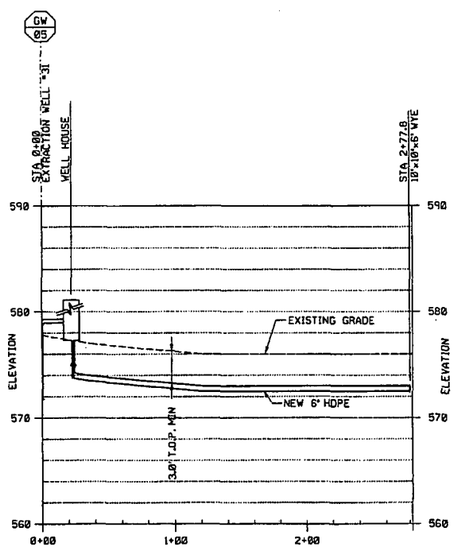
RES 4340
DATE 7-10-02
95X-5500-G-02071 | 0



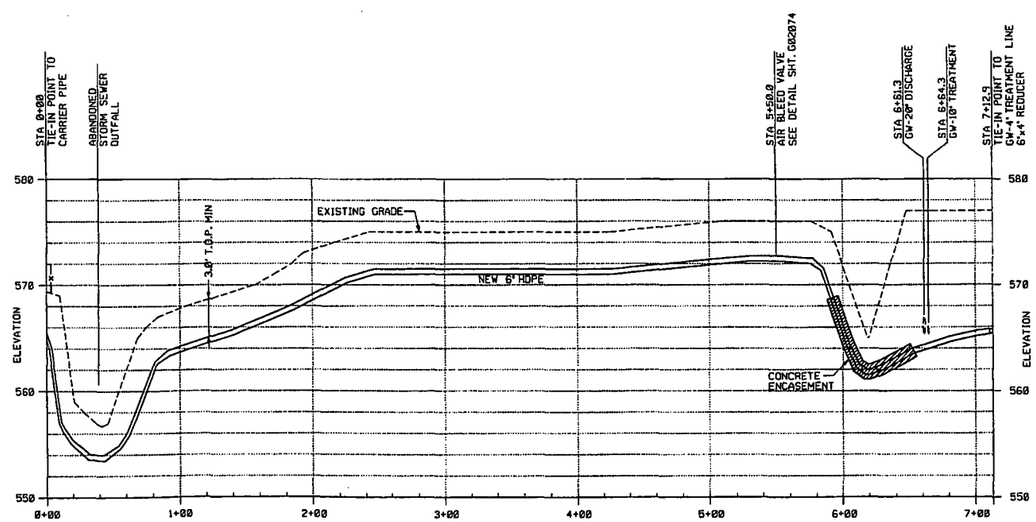
PROFILE (E) REF G02069
SCALE: HOR 1"=40' VER 1"=5'



PROFILE (J) REF G02067
SCALE: HOR 1"=40' VER 1"=5'



PROFILE (F) REF G02069
SCALE: HOR 1"=40' VER 1"=5'



PROFILE (H) REF G02070
SCALE: HOR 1"=40' VER 1"=5'

NOTES

1. EXISTING CONDITIONS SHOWN ON THIS DRAWING WERE PREPARED FROM FEMP SITE PROVIDED DATA FROM THE DOCUMENTS LISTED BELOW.
   EXISTING SITE DATA SOURCE (IN PLANT FILES)
   FEMP CADD GRID/UTILITY DRAWINGS
   FEMP CONTRACTOR PROJECT DESIGN DOCUMENTS
   PARSONS TOPOGRAPHY, 1992
2. FOR PIPING DETAILS AT EXTRACTION WELLS SEE DRAWINGS 95X-5500-P-02080, P-02081 AND FOR STRUCTURAL DETAILS SEE DWG 95X-5500-S-02079.

4487

(GW) UNDERGROUND UTILITY COORDINATES			
POINT	NORTHING	EASTING	DESCRIPTION
04	477200.00	1349750.00	EXTRACTION WELL #30
05	477600.00	1349850.00	EXTRACTION WELL #31

000031

REF DWG NO.	DRAWING TITLE
95X-5500-X-02065	DRAWING INDEX
95X-5500-G-02066	LEGEND AND SYMBOLS
95X-5500-G-02069	SITE UTILITY PIPING PLAN
95X-5500-G-02074	DETAILS
95X-5500-G-02076	DETAILS
95X-5500-A-02079	PLANS, SECTIONS AND DETAILS
95X-5500-P-02080	WELL HOUSE PIPING PLAN
95X-5500-P-02081	WELL HOUSE PIPING SECTION

0	ISSUE FOR CFC	6-29	GES		

NOTE: FLUOR FERNALD CADD DRAWING. DO NOT REVISE MANUALLY.

CONFIGURATION MANAGEMENT DRAWING

APPROVALS: CIVIL & STR., ELECTRICAL, ENGINEER, INSTRUMENT, MECHANICAL, CHECKED, SAFETY ENG., MAINTENANCE, FIRE PROTECT., WASTE MANAGE., SECURITY, PROJECTS

Fernald Environmental Management Project

FLUOR FERNALD, INC.

U.S. DEPARTMENT OF ENERGY

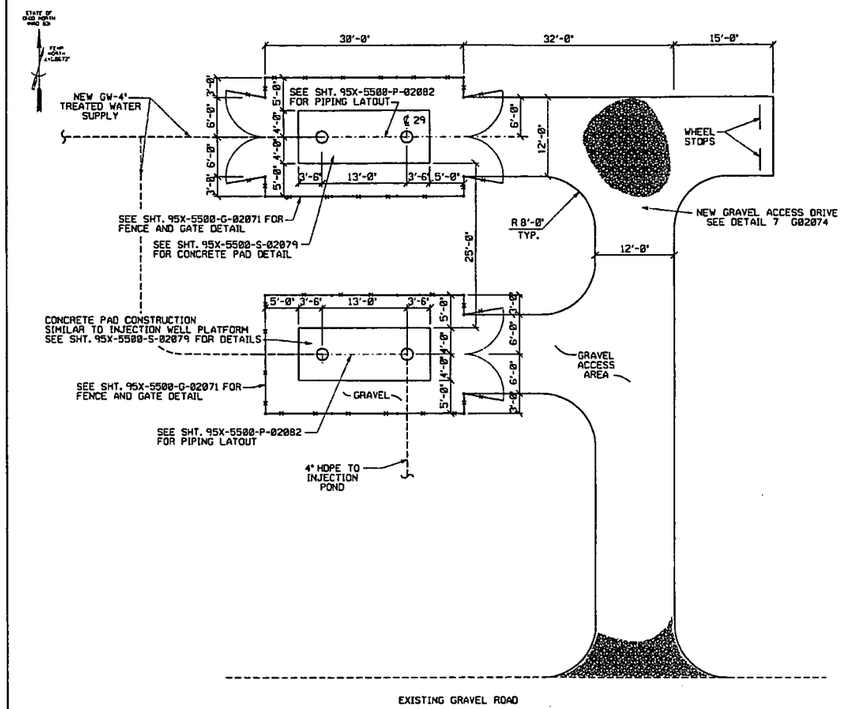
ARWWP SITE

SOUTH FIELD EXTRACTION SYSTEM
PHASE 2
PROFILES
SCALE: NOTED

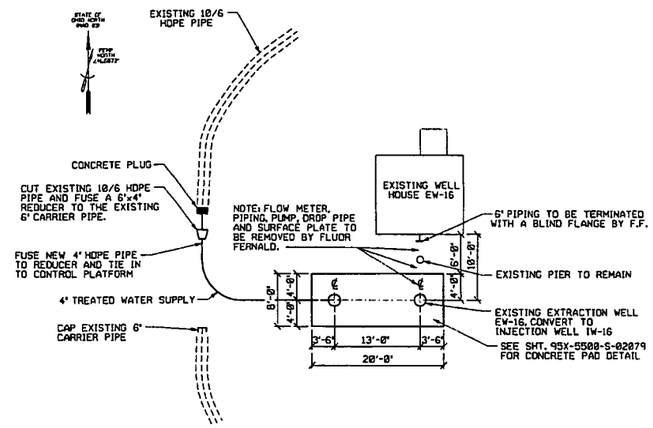
RES 4340
DATE 7-10-92

95X-5500-G-02072 | 0

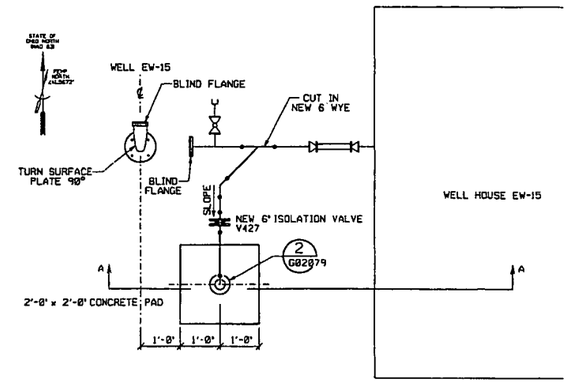
4487



PLAN LAYOUT INJECTION WELL 29 (1 G02067)
SCALE: 1/8" = 1'-0"

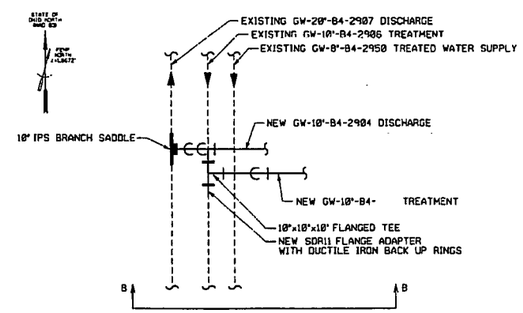


TIE-IN POINT #5 AT EXISTING WELL EW-16
CONVERT INJECTION WELL IW-16 (3 G02068)
SCALE: 1/2" = 1'-0"



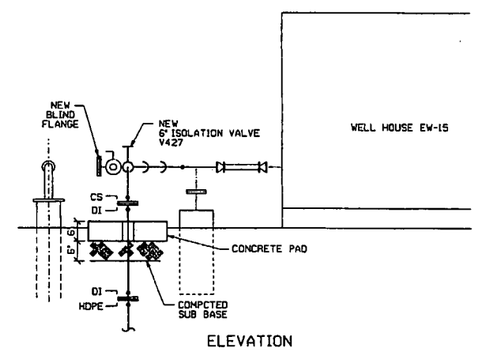
PLAN

TIE-IN POINT #1 AT EXISTING WELL HOUSE EW-15 (4 G02068)
SCALE: 3/4" = 1'-0"



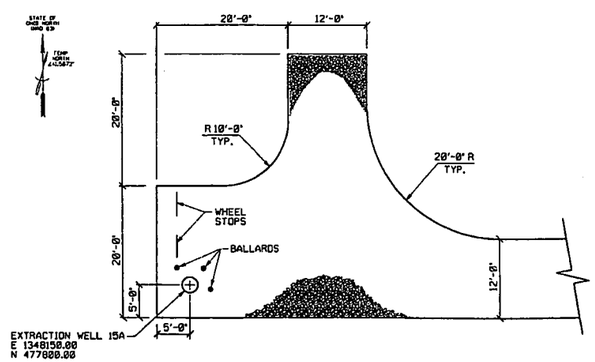
PLAN

TIE-IN DETAIL #7 (7)
SCALE: 3/8" = 1'-0"

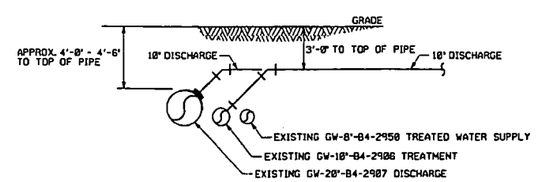


ELEVATION

SECTION "A-A" TIE-IN POINT #1



PLAN LAYOUT EXTRACTION WELL 15A (5 G02068)
SCALE: 1/8" = 1'-0"



ELEVATION

SECTION "B-B" TIE-IN POINT #7

ABBREVIATIONS

HDPE	HIGH DENSITY POLYETHYLENE
DI	DUCTILE IRON
PIV	POST INDICATOR VALVE
CO	CLEANOUT
CS	CARBON STEEL

000032
LEGEND AND SYMBOLS

REF DWG NO.	DRAWING TITLE
95X-5500-X-02065	DRAWING INDEX
95X-5500-G-02066	
95X-5500-G-02067	SITE UTILITY PIPING PLAN
95X-5500-G-02068	SITE UTILITY PIPING PLAN
95X-5500-G-02071	PROFILES
95X-5500-S-02079	WELL HOUSE No's. 30,31 AND 32
95X-5500-P-02082	PIPING PLAN,SECTIONS AND DETAIL

NO	REVISIONS	DATE	DRWN	BY	APPD
0	ISSUE FOR CFC	12-9-02	GES		

NOTE: FLUOR FERNALD CADD DRAWING. DO NOT REVISE MANUALLY.

CONFIGURATION MANAGEMENT DRAWING
STATUS: STABILIZED-AS CONTROLLED BY FLUOR FERNALD CONFIGURATION MANAGEMENT CONTROL SYSTEM
DRAWN / CHECKED / DATE

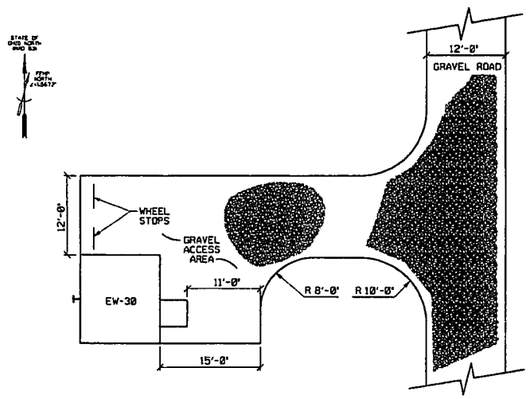
APPROVALS

CIVIL & STR.			SAFETY ENG.
ELECTRICAL			MAINTENANCE
ENGINEER			FIRE PROTECT.
INSTRUMENT			WASTE MANAGE.
MECHANICAL			SECURITY
			PROJECTS
CHECKED			

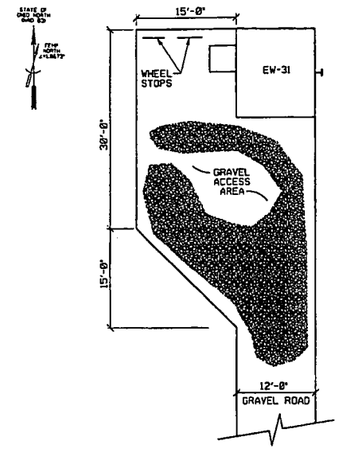
Fernald Environmental Management Project
FLUOR FERNALD, INC.
US DEPARTMENT OF ENERGY

ARWWP — SITE
SOUTH FIELD EXTRACTION SYSTEM
PHASE 2
DETAILS
SCALE AS NOTED
REV. 4345
DATE JUNE 21, 2002
95X-5500-G-02073 | 0

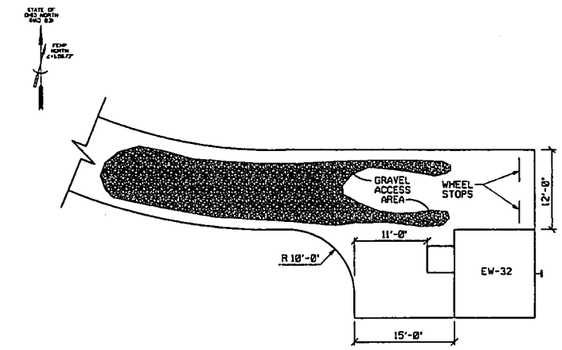
4487



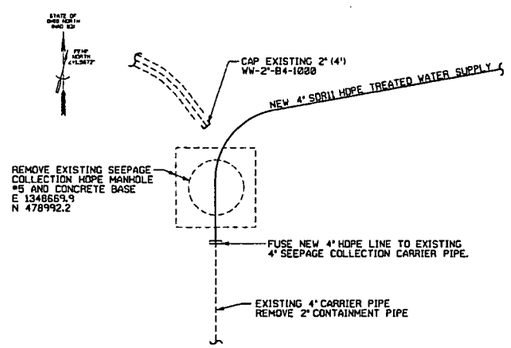
PLAN LAYOUT EXTRACTION WELL 30 (1 G02069)
SCALE: 1/8" = 1'-0"



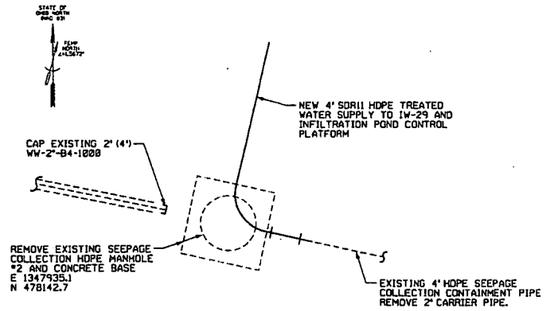
PLAN LAYOUT EXTRACTION WELL 31 (2 G02069)
SCALE: 1/8" = 1'-0"



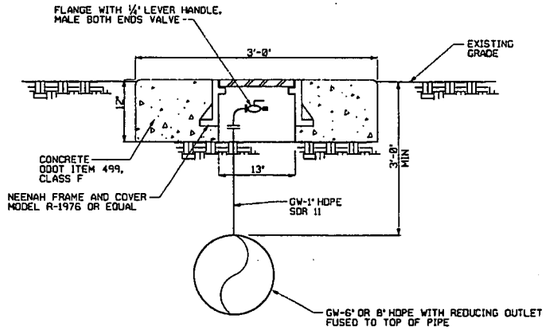
PLAN LAYOUT EXTRACTION WELL 32 (3 G02069)
SCALE: 1/8" = 1'-0"



PLAN-TIE-IN POINT #2 (2 G02067)
NTS



PLAN-TIE-IN POINT #4 (4 G02067)
NTS



AIR BLEED DETAIL (4 G02074) REF G02071
NTS

000033

REF DWG NO.	DRAWING TITLE
95X-5500-X-02065	DRAWING INDEX
95X-5500-G-02066	LEGEND AND SYMBOLS
95X-5500-G-02069	SITE UTILITY PIPING PLAN
95X-5500-G-02073	DETAILS
95X-5500-G-02075	DETAILS
95X-5500-A-02078	ARCHITECYURAL PLAN AND ELEVATIONS WELL HOUSE No's. 30, 31 AND 32
95X-5500-A-02079	PLANS, SECTIONS AND DETAILS
95X-5500-P-02080	WELL HOUSE PIPING PLAN
95X-5500-P-02081	WELL HOUSE PIPING SECTION

NO.	REVISIONS	DATE	DWN	DSGN	NO.	REVISIONS	DATE	DWN	DSGN	REF DWG NO.
					0	ISSUE FOR CFC	6-24-02	GES	JMB	

NOTE: FLUOR FERNALD CADD DRAWING. DO NOT REVISE MANUALLY.

CONFIGURATION MANAGEMENT DRAWING
EXISTING DRAWINGS AS REVISED BY CONFIGURATION CONTROL 02 GEN.
PROJECT ENGINEER / DATE

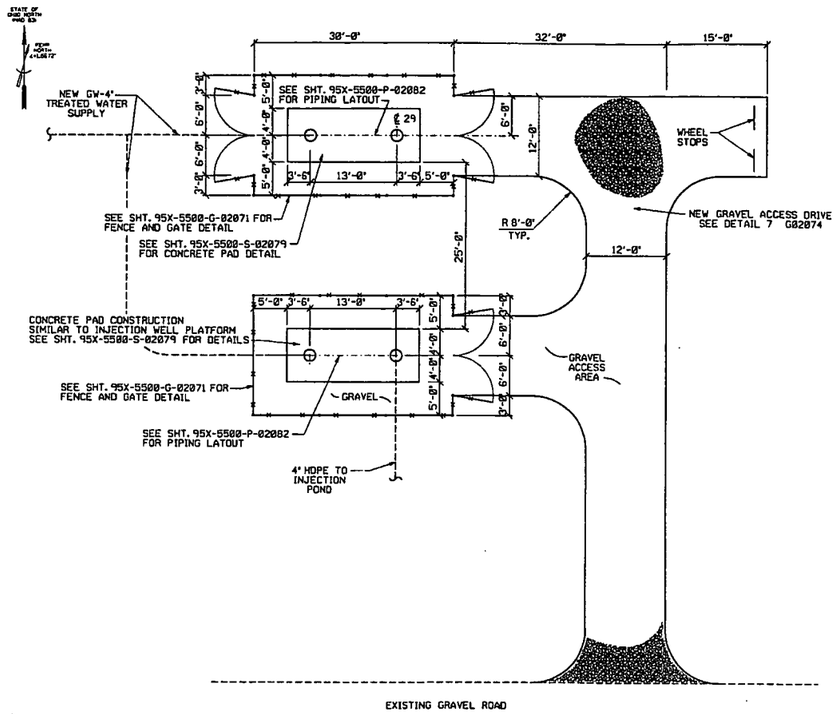
APPROVALS

CIVIL & STR.			SAFETY ENG.	
ELECTRICAL			MAINTENANCE	
ENGINEER			FIRE PROTECT.	
INSTRUMENT			WASTE MANAGE.	
MECHANICAL			SECURITY	
			PROJECTS	
CHECKED				

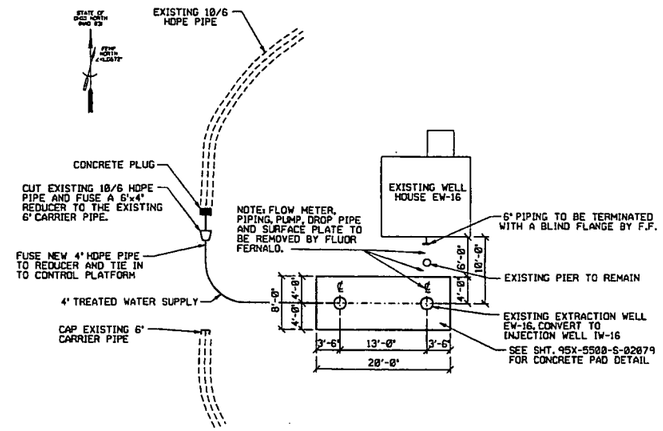
Fernald Environmental Management Project
FLUOR FERNALD, INC.
U.S. DEPARTMENT OF ENERGY

ARWWP SITE
SOUTH FIELD EXTRACTION SYSTEM
PHASE 2
DETAILS
SCALE AS NOTED
RES 4340
DATE JUNE 27, 2002
95X-5500-G-02074 0

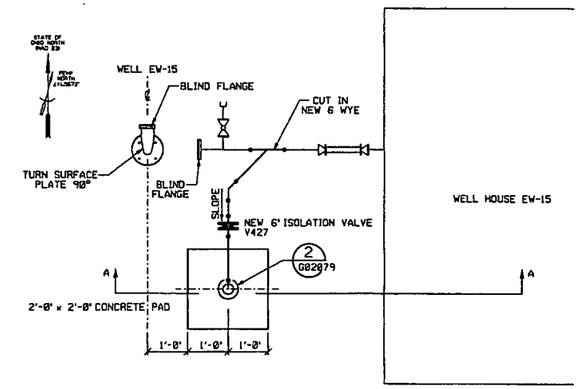
4487



PLAN LAYOUT INJECTION WELL 29 (1 G02067)
SCALE: 1/16" = 1'-0"

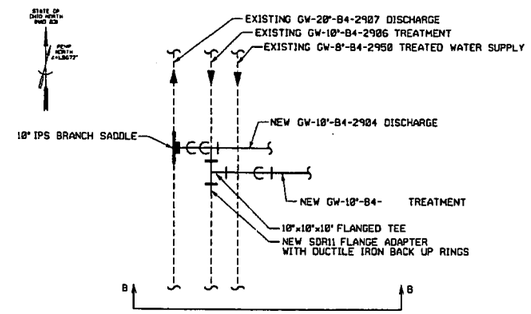


TIE-IN POINT #5 AT EXISTING WELL EW-16
CONVERT INJECTION WELL IW-16 (3 G02068)
SCALE: 1/16" = 1'-0"



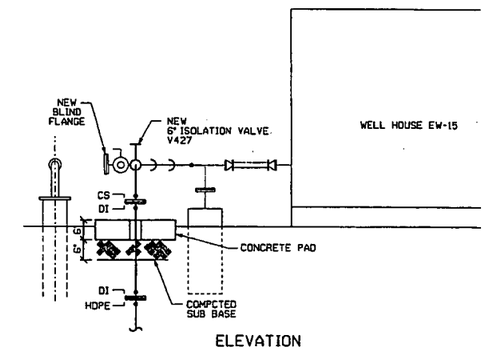
PLAN

TIE-IN POINT #1 AT EXISTING WELL HOUSE EW-15 (4 G02068)
SCALE: 3/4" = 1'-0"



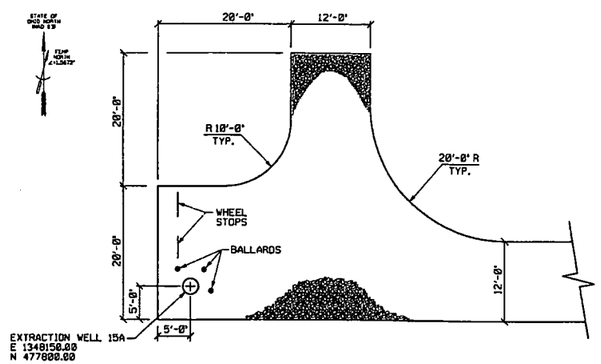
PLAN

TIE-IN DETAIL #7 (7)
SCALE: 1/16" = 1'-0"

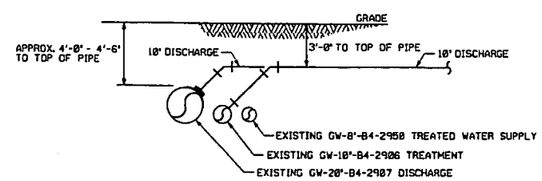


ELEVATION

SECTION "A-A" TIE-IN POINT #1



PLAN LAYOUT EXTRACTION WELL 15A (5 G02068)
SCALE: 1/16" = 1'-0"



ELEVATION

SECTION "B-B" TIE-IN POINT #7

ABBREVIATIONS

HDPE	HIGH DENSITY POLYETHYLENE
DI	DUCTILE IRON
PIV	POST INDICATOR VALVE
CO	CLEANOUT
CS	CARBON STEEL

000034

LEGEND AND SYMBOLS

REF DWG NO.	DRAWING TITLE
95X-5500-X-02065	DRAWING INDEX
95X-5500-G-02066	
95X-5500-G-02067	SITE UTILITY PIPING PLAN
95X-5500-G-02068	SITE UTILITY PIPING PLAN
95X-5500-G-02071	PROFILES
95X-5500-S-02079	WELL HOUSE No's. 30,31 AND 32
95X-5500-P-02082	PIPING PLAN,SECTIONS AND DETAIL

NO.	REVISIONS	DATE	DWN. BY	APPD.	NO.	REVISIONS	DATE	DWN. BY	APPD.	REF. DWG. NO.
					0	ISSUE FOR CFC	6-13-02	GES	MAB	

NOTE: FLUOR FERNALD CADD DRAWING. DO NOT REVISE MANUALLY.

CONFIGURATION MANAGEMENT DRAWING — EXISTING ATTACHED AS CONFIGURED DRAWING PER CONFIGURATION MANAGEMENT CONTROL. SEE NOTES.

CONCURRENT ENGINEER — DATE

APPROVALS: CIVIL & STR.; ELECTRICAL; ENGINEER; INSTRUMENT; MECHANICAL; CHECKED; APPROVED; SAFETY ENG.; MAINTENANCE; TRS PROJECT; WASTE MANAGE; SECURITY; PROJECTS

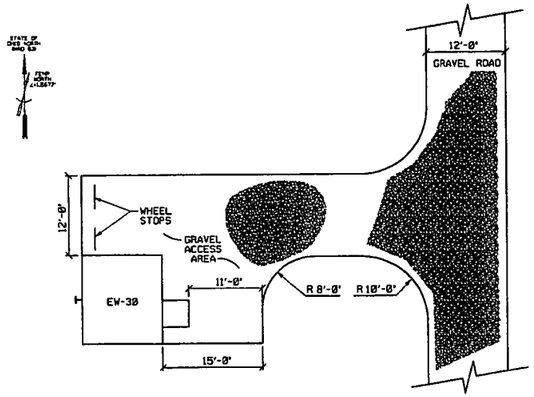
Fernald Environmental Management Project
FLUOR FERNALD, INC.
U.S. DEPARTMENT OF ENERGY

ARWWP — SITE
SOUTH FIELD EXTRACTION SYSTEM
PHASE 2
DETAILS
SCALE AS NOTED

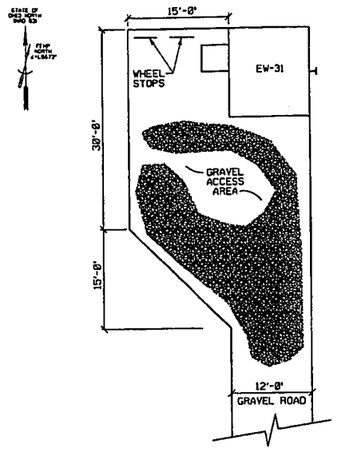
RES. 4340
DATE JUNE 27, 2002
DRAWN G. SCHWARZKOPF
95X-5500-G-02073 | 0

FS.DGN 3/27/00

4487



PLAN LAYOUT EXTRACTION WELL 30 (1) G02069
SCALE: 1/8" = 1'-0"



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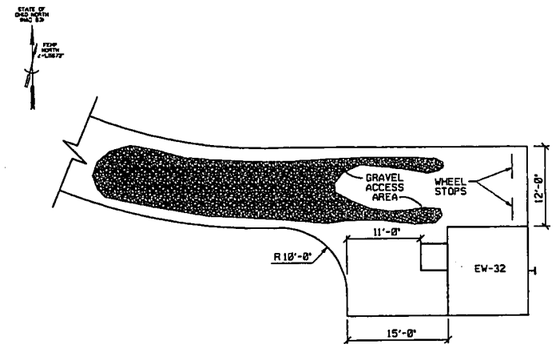

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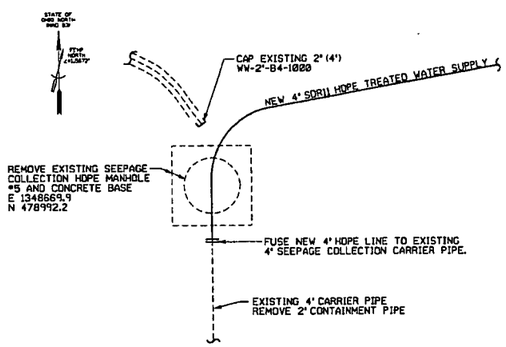
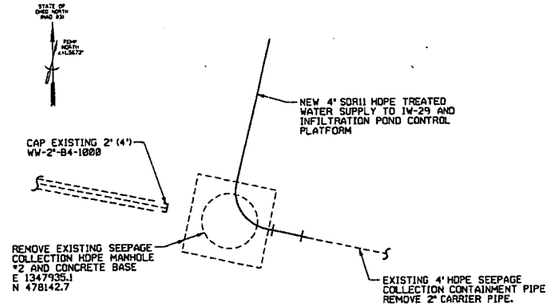
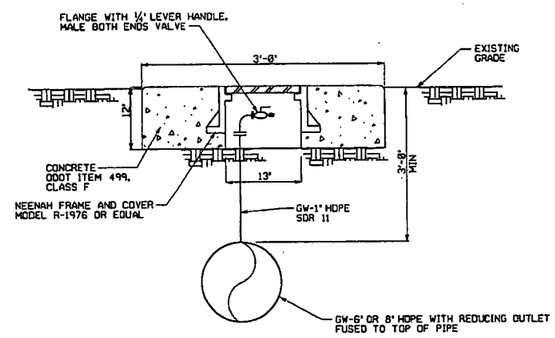


PLAN-TIE-IN POINT #2 (2) G02067
NTS



PLAN-TIE-IN POINT #4 (4) G02067
NTS



AIR BLEED DETAIL (4) G02074 REF G02071
NTS

000035

REF DWG NO.	DRAWING TITLE
95X-5500-X-02065	DRAWING INDEX
95X-5500-G-02066	LEGEND AND SYMBOLS
95X-5500-G-02069	SITE UTILITY PIPING PLAN
95X-5500-G-02073	DETAILS
95X-5500-G-02075	DETAILS
95X-5500-A-02078	ARCHITECTURAL PLAN AND ELEVATIONS WELL HOUSE No's. 30, 31 AND 32
95X-5500-A-02079	PLANS, SECTIONS AND DETAILS
95X-5500-P-02080	WELL HOUSE PIPING PLAN
95X-5500-P-02081	WELL HOUSE PIPING SECTION

NO.	REVISIONS	DATE	DWN. BY	APPD.	NO.	REVISIONS	DATE	DWN. BY	APPD.	REF. DWG. NO.
					0	ISSUE FOR CFC	1-7-02	GES	[illegible]	

NOTE: FLUOR FERNALD CADD DRAWING. DO NOT REVISE MANUALLY.

CONFIGURATION MANAGEMENT DRAWING
SYSTEMS, STRUCTURES OR COMPONENTS CONTAINED ON THIS DRAWING ARE SUBJECT TO CONFIGURATION MANAGEMENT CONTROL. SEE NOTES.
COGNIZANT ENGINEER DATE

APPROVALS
CIVIL & STR. | SAFETY ENG.
ELECTRICAL | MAINTENANCE
ENGINEER | FIRE PROTECT.
INSTRUMENT | WASTE MANAGE
MECHANICAL | SECURITY
PROJECTS
CHECKED
APPROVED

Fernald Environmental Management Project
FLUOR FERNALD, INC.
U.S. DEPARTMENT OF ENERGY

ARWWP SITE
SOUTH FIELD EXTRACTION SYSTEM
PHASE 2
DETAILS
SCALE AS NOTED

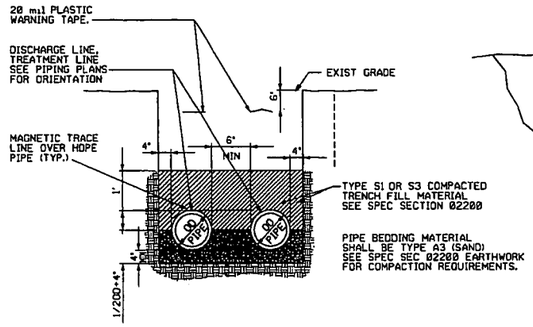
RES 4340
DATE JUNE 27, 2002
DRAWN C. SCHWARZMAN
95X-5500-G-02074 0

FILE NAME: [illegible]

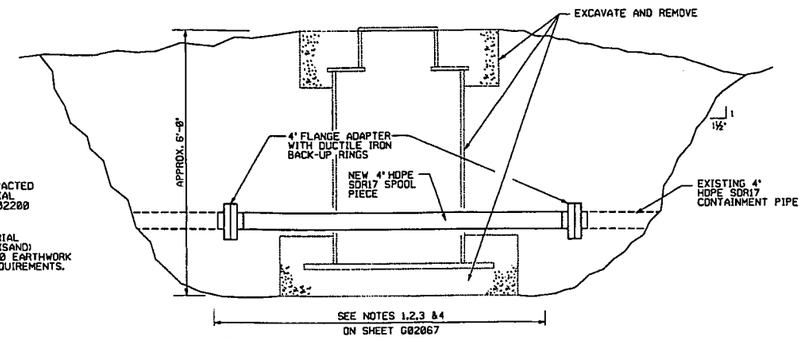
GENERAL NOTES :

1. UNLESS OTHERWISE NOTED ALL MATERIALS SHALL CONFORM TO THE STATE OF OHIO DEPARTMENT OF TRANSPORTATION (ODOT) CONSTRUCTION AND MATERIAL SPECIFICATIONS DATED JANUARY 1, 1997.
2. UNLESS OTHERWISE NOTED ALL CONCRETE SHALL BE 3000 PSI AS SPECIFIED IN THE SPECIFICATIONS.

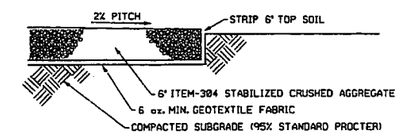
4487



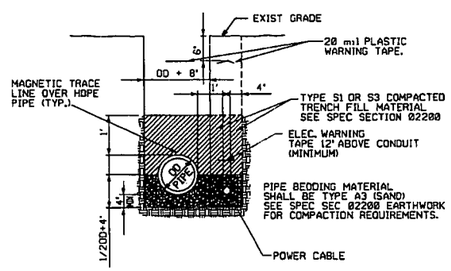
TYPICAL 2 PIPE BEDDING DETAIL (9 / G02069)
NTS



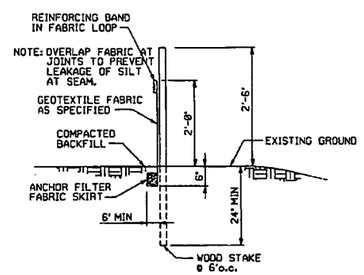
TYPICAL TIE-IN AT EXISTING MANHOLE #3 AND #4 (6 / G02067)
NTS



GRAVEL ACCESS DRIVE (7 / G02073, G02074)
NTS

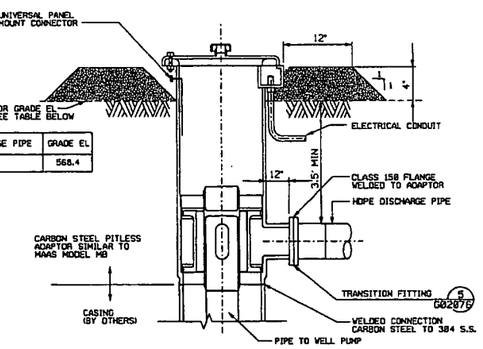


TYPICAL PIPE BEDDING DETAIL (8 / G02067, G02068, G02070)
NTS



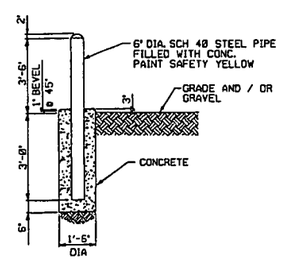
SILT FENCE (5 / G02067, G02068, G02069, G02070)
NTS

WELL #	CASING	DISCHARGE PIPE	GRADE EL
15A	16"	6"	568.4

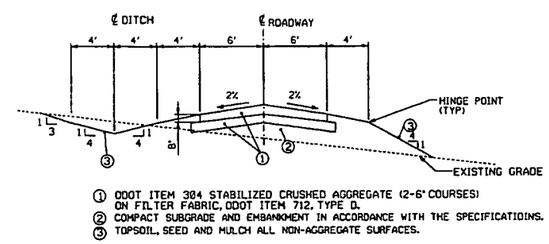


TYPICAL PITLESS ADAPTOR (2 / G02068)

NOTE: PROVIDE WELL WITH A ½" POLYETHYLENE CHLORINE INJECTION TUBE STRAPPED TO THE PUMP DISCHARGE COLUMN WITH NON CORRODING FASTENERS AT 10' INTERVALS. TERMINATE LOWER END NEAR PUMP INLET SCREEN. CLAMP UPPER END OF TUBE TO PITLESS ADAPTOR UPPER CASING AND LEAVE SUFFICIENT LENGTH, COILED INSIDE UPPER CASING TO EXTEND 3' ABOVE GRADE.



TYPICAL EXTERIOR BOLLARDS DETAIL (4 / G02068)
NTS



CRUSHED AGGREGATE PAVING DETAIL (1 / G02067, G02068, G02069, G02074)
NTS

000036

REF DWG NO.	DRAWING TITLE
95X-5500-X-02065	DRAWING INDEX
95X-5500-G-02066	LEGEND AND SYMBOLS
95X-5500-G-02067	SITE UTILITY PIPING PLAN
95X-5500-G-02068	SITE UTILITY PIPING PLAN
95X-5500-G-02069	SITE UTILITY PIPING PLAN
95X-5500-G-02070	SITE UTILITY PIPING PLAN
95X-5500-G-02073	DETAILS
95X-5500-G-02074	DETAILS
95X-5500-G-02076	DETAILS

NO.	REVISIONS	DATE	DWN. BY	APPD.	NO.	REVISIONS	DATE	DWN. BY	APPD.	REF. DWG. NO.
					0	ISSUED FOR CFC	4-28-02	CES		95X-5500-X-02065

NOTE: FLUOR FERNALD CADD DRAWING. DO NOT REVISE MANUALLY.

CONFIGURATION MANAGEMENT DRAWING — REFERENCE STRUCTURES OR EQUIPMENT SHOWN ARE FOR INFORMATION ONLY. CONTACT CONFIGURATION MANAGEMENT CONTROL FOR DETAILS.

APPROVALS: CIVIL & STR. / ELECTRICAL / ENGINEER / INSTRUMENT / MECHANICAL / CHECKED / APPROVED — SAFETY ENG. / MAINTENANCE / FIRE PROTECT. / WASTE MANAGE / SECURITY / PROJECTS — DATE

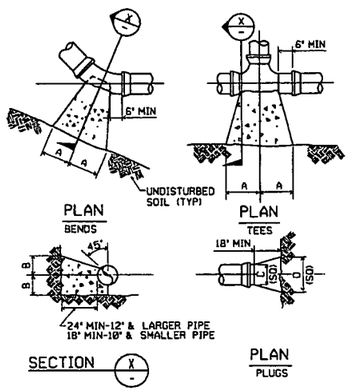
Fernald Environmental Management Project
FLUOR FERNALD, INC.
U.S. DEPARTMENT OF ENERGY

ARWWP SITE
SOUTH FIELD EXTRACTION SYSTEM
PHASE 2
DETAILS
NO SCALE

RES 4340 DATE FEB. 12, 2002 DRAWN G. SCHWARZMAN

95X-5500-G-02075 | 0

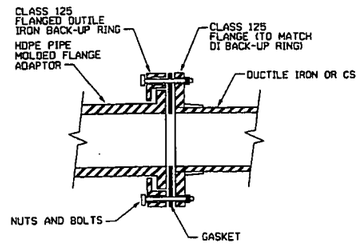
FFS.DGN 3/22/00



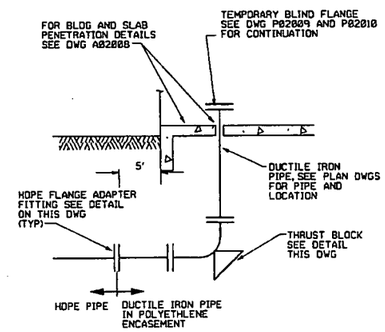
TYPE	SIZE	1/4 BENDS		1/8 BENDS		1/16 BENDS		TEES		PLUGS	
		A	B	A	B	A	B	A	B	C	D
2000 PSF SOIL	6"	16"	10"	9"	10"	6"	8"	10"	12"	10"	21"
	8"	22"	13"	12"	13"	8"	10"	13"	16"	12"	29"
	10"	26"	17"	14"	17"	10"	13"	16"	20"	14"	36"
	12"	29"	21"	16"	21"	11"	16"	18"	24"	16"	41"
	16"	38"	27"	-	-	-	-	24"	30"	-	-
	20"	42"	30"	-	-	-	-	27"	30"	-	-
	24"	48"	30"	-	-	-	-	36"	30"	-	-

NOTE: BASED ON 150 PSI STATIC PRESSURE PLUS A.W.W.A. WATER HAMMER. ALL BEARING SURFACES TO BE CARRIED TO UNDISTURBED GROUND.

THRUST BLOCK DETAILS (8 / G02076)
NTS



HDPE FLANGE ADAPTER DETAIL (5 / G02076, P02081, P02082)
NTS



NOTE: OTHER THRUST BLOCKS NEARBY CAN BE COMBINED TOGETHER, AT CONTRACTOR'S OPTION. THIS DETAIL IS TYPICAL FOR ALL WELL HOUSES.

TYPICAL WELL HOUSE TIE-IN DETAIL (2 / G02076)
NTS

GENERAL NOTES:

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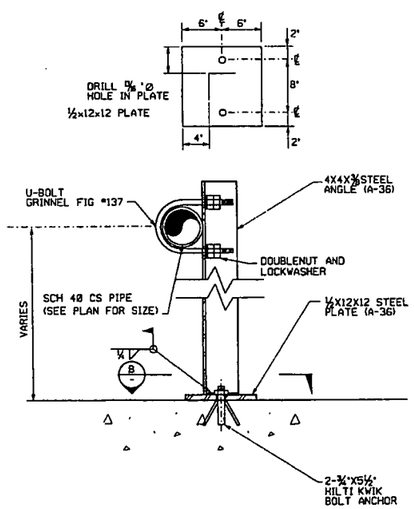
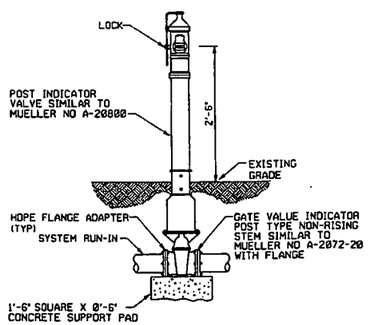
2. UNLESS OTHERWISE NOTED ALL CONCRETE SHALL BE 3000 PSI AS STATED IN SPECIFICATION SECTION 03001.

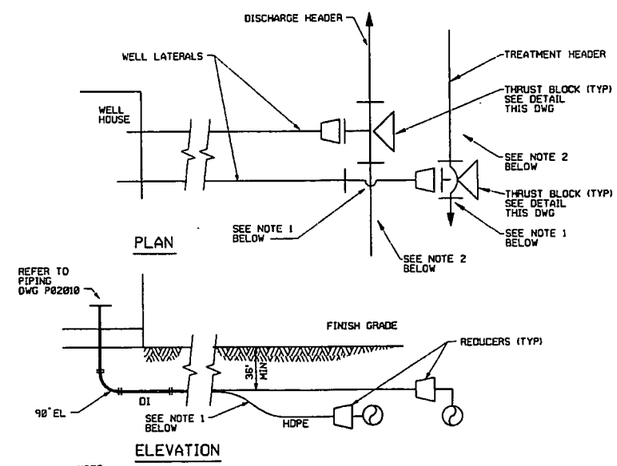
4487



PIPE SUPPORT (6 / G02076)
NTS



POST INDICATOR VALVE DETAIL (3 / G02076)
LINES SIZES 12" AND LESS
NTS



NOTE:

1. BEND TREATMENT LATERAL AND HEADER TO PROVIDE 8' CLEARANCE. MINIMUM BEND RADIUS IS 48 DIAMETERS OR AS SPECIFIED BY PIPE MANUFACTURER.
2. THE DISCHARGE HEADER IS NOT ALWAYS CLOSE TO WELL HOUSE. REFER TO SITE/GRADING/UTILITY PLAN FOR EACH TIE-IN.

TYPICAL WELL HOUSE TIE-IN DETAIL (1 / G02076)
NTS

ABBREVIATIONS

HDPE	HIGH DENSITY POLYETHYLENE
DI	DUCTILE IRON
PIV	POST INDICATOR VALVE
CO	CLEANOUT
CS	CAST STEEL

000037

REF DWG NO.	DRAWING TITLE
95X-5500-X-02065	DRAWING INDEX
95X-5500-G-02066	LEGEND AND SYMBOLS
95X-5500-G-02069	SITE UTILITY PIPING PLAN
95X-5500-G-02080	WELL HOUSE PIPING PLAN
95X-5500-G-02081	WELL HOUSE PIPING SECTION

NO.	REVISIONS	DATE	DWN. BY	APPD.
0	ISSUED FOR CFC	8-29-02	CES	MEB

NO.	REVISIONS	DATE	DWN. BY	APPD.	REF. DWG. NO.
					95X-5500-X-02065

NOTE: FLUOR FERNALD CADD DRAWING. DO NOT REVISE MANUALLY.

CONFIGURATION MANAGEMENT DRAWING — DATE

APPROVALS: CIVIL & STR. / ELECTRICAL / ENGINEER / INSTRUMENT / MECHANICAL / CHECKED / APPROVED — SAFETY ENG. / MAINTENANCE / FIRE PROTECT. / WASTE MANAGE / SECURITY / PROJECTS

Fernald Environmental Management Project
FLUOR FERNALD, INC.
U.S. DEPARTMENT OF ENERGY

ARWWP — SITE
SOUTH FIELD EXTRACTION SYSTEM
PHASE 2
DETAILS
NO SCALE

RES 4340 — DATE FEB. 8, 2002 — DRAWN G. SCHWARZMAN

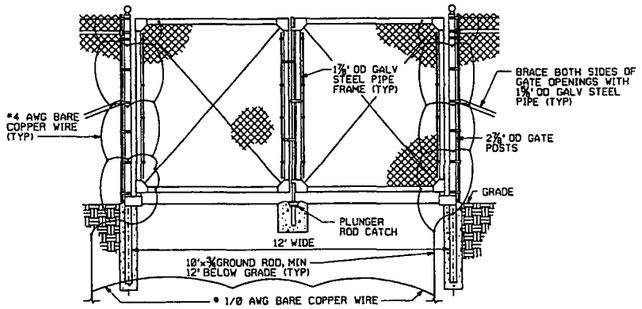
95X-5500-G-02076 — 0

FILE NAME: /res4340/95xg2076.dgn

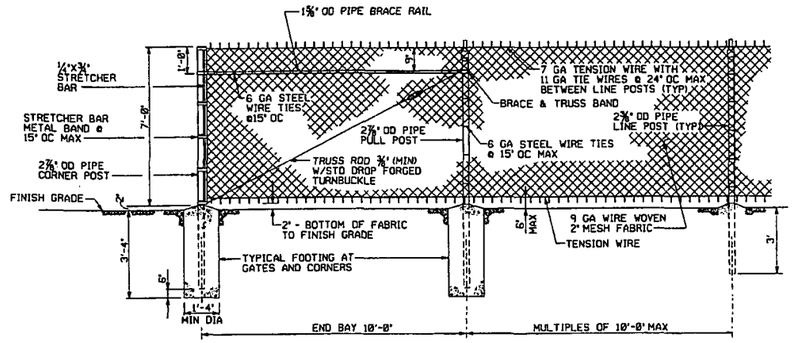
TT LOGN 3/21/00

NOTES

4487

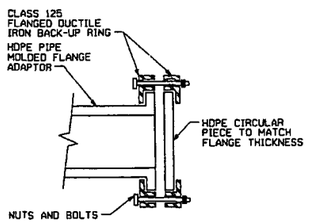


DOUBLE GATE DETAIL (1 / G02073)
NTS



NOTE: GROUND FENCE ACCORDING TO SPECIFICATION SECTION 16170.

CHAIN LINK FENCE (2 / G02073)
NTS



DETAIL (3 / G02077)
END PIPE
NTS

000038

REF DWG NO.	DRAWING TITLE
95X-5500-X-02065	DRAWING INDEX
95X-5500-G-02066	LEGEND AND SYMBOLS
95X-5500-G-02067	SITE UTILITY PIPING PLAN
95X-5500-G-02068	SITE UTILITY PIPING PLAN
95X-5500-G-02069	SITE UTILITY PIPING PLAN
95X-5500-G-02070	SITE UTILITY PIPING PLAN
95X-5500-G-02071	PROFILES
95X-5500-G-02072	PROFILES
95X-5500-G-02073	DETAILS - 1 OF 5
95X-5500-G-02075	DETAILS - 3 OF 5
95X-5500-G-02076	DETAILS - 4 OF 5

NO.	REVISIONS	DATE	DWN. BY	APPD.	NO.	REVISIONS	DATE	DWN. BY	APPD.	REF. DWG. NO.
					0	ISSUED FOR CFC	1-24-02	GES	MCB	95X-5500-X-02065

NOTE: FLUOR FERNALD CADD DRAWING. DO NOT REVISE MANUALLY.

CONFIGURATION MANAGEMENT DRAWING
STATIONS, STRUCTURES OR COMPONENTS DEPICTED ON THIS DRAWING ARE UNDER CONFIGURATION MANAGEMENT CONTROL. SEE NOTES.
ENGINEER / DATE

APPROVALS
CIVIL & STR. / ELECTRICAL / ENGINEER / INSTRUMENT / MECHANICAL / CHECKED / APPROVED
SAFETY ENG. / MAINTENANCE / FIRE PROTECT. / WASTE MANAGE / SECURITY / PROJECTS

Fernald Environmental Management Project
FLUOR FERNALD, INC.
U.S. DEPARTMENT OF ENERGY

ARWWP SITE
SOUTH FIELD EXTRACTION SYSTEM
PHASE 2
DETAILS
NO SCALE

RES 4340
DATE FEB. 8, 2002
DRAWN G. SCHWARTZMAN
95X-5500-G-02077 | 0

FILE NAME: /res4340/95x02077.dgn

FFS.DGN 3/22/00

PIPING VALVES

CONFIGURATIONS FOR VALVE TYPE

ANGLE STRAIGHT 3-WAY 4-WAY

VALVE TYPES

- AIR RELEASE VALVE
- AIR AND VACUUM VALVE
- BACKPRESSURE REGULATOR
- BACKFLOW PREVENTER
- BALL
- BLOWDOWN
- BUTTERFLY/DAMPER
- CHECK, SWING TYPE
- CHECK, WAFER TYPE
- DELUGE
- DIAPHRAGM
- DIFFERENTIAL PRESSURE REGULATOR
- FLOAT
- FOOT
- GATE
- GLOBE
- HOSE
- KNIFE
- NEEDLE
- PINCH
- PRESSURE REGULATOR
- PLUG
- SAFETY RELIEF
- SLIDING GATE
- STOP CHECK
- VACUUM

PIPING SEGMENT BREAKS

- CONSTRUCTION REQUIREMENTS
- INSULATION REQUIREMENTS
- PIPING MATERIAL REQUIREMENTS
- UNDERGROUND ROUTING (SHADED AREA INDICATES DIRECTION OF UNDERGROUND)
- GROUP BREAK FOR END OF PIPING LINE NUMBER

PIPING FITTINGS

- BASKET STRAINER - SINGLE
- BASKET STRAINER - DUPLEX
- CAP
- CONCENTRIC REDUCER
- CONE STRAINER
- ECCENTRIC REDUCER
- EXPANSION FLANGE
- EXPANSION JOINT
- FILTER
- FLANGE
- FLEXIBLE HOSE
- HOSE CONNECTION
- HOSE QUICK COUPLING
- MECHANICAL COUPLING
- ORIFICE
- ORIFICE UNION
- PLUG
- REDUCING FLANGE
- STEAM TRAP
- SUMP STRAINER
- TEMPORARY STRAINER
- Y-STRAINER

PIPING SYMBOLOGY

- PRIMARY PIPING
- SECONDARY PIPING
- EXISTING PIPING
- FLEXIBLE HOSE
- FUTURE PIPING
- TIE-IN POINT
- INSULATED ELECTRIC HEAT TRACE

EQUIPMENT SYMBOLS

- AGITATOR (MIXER)
- CENTRIFUGAL BLOWER
- (AREA NAME) DEFINED BOUNDRY
- HORIZONTAL CENTRIFUGAL PUMP
- (SYSTEM NAME) PACKAGED SYSTEM BOUNDRY
- SUBMERSIBLE TURBINE PUMP
- SUMP PUMP WITH MOTOR

PIPING LINE NUMBER FORMAT

MEDIUM CODE
NOMINAL PIPE SIZE
NOMINAL CONTAINMENT
PIPE SIZE (WHERE SHOWN)
MATERIAL CODE
LINE NUMBER
INSULATION CODE

GV-6(10)-B4-2930-ET

MEDIUM FLOW DIRECTION

ABBREVIATIONS

AC	AIR TO CLOSE
AG	AGITATOR
AO	AIR TO OPEN
ARV	AIR RELEASE VALVE
AVV	AIR AND VACUUM VALVE
AWWT	ADVANCED WASTEWATER TREATMENT
BLW	BLOWER
BTU	BRITISH THERMAL UNIT
CFM	CUBIC FEET/MINUTE
CO	CLEAN OUT
CU FT	CUBIC FEET
ECC	ECCENTRIC
EF	EXHAUST FAN
FC	FAIL CLOSED
FO	FAIL OPEN
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GV	GRAVITY VENTILATOR
HDPE	HIGH DENSITY POLYETHYLENE
IA	INSTRUMENT AIR
KW	KILOWATT
LB/HR	POUNDS PER HOUR
MATL	MATERIAL
MED	MEDIUM
MS	MIST ELIMINATOR
NC	NORMALLY CLOSED
NO	NORMALLY OPEN
PIV	POST INDICATOR VALVE
PMP	PUMP
RED	REDUCER
RH	RELATIVE HUMIDITY
SCFM	STANDARD CUBIC FEET/MINUTE
SFES	SOUTH FIELD EXTRACTION SYSTEM
SWRB	STORMWATER RETENTION BASIN
TBD	TO BE DETERMINED
TF	TOP FLAT
TNK	TANK
TYP	TYPICAL
UH	UNIT HEATER
1	SOLENOID VALVE COMMON PORT
2	SOLENOID VALVE NORM. OPEN PORT
3	SOLENOID VALVE NORM. CLOSED PORT
ID	INJECTION DEMONSTRATION
SPO	SOUTH PLUME OPTIMIZATION

PIPING SPECIFICATIONS

FLOWING MEDIUM	MED. CODE	MATL. CODE
BACK WASH	BW	T
BLOWER AIR	BA	A
CHILLED WATER	CHS, CHR	A
CHLORINE	CL	B1
CONDENSATE	LC	W, T
CONDENSER WATER	CWS, CWR	A
COOLING WATER	WS, WR	A
DRAIN	DR	A, T
FILTRATE EFFLUENT	FT	A
FLOCCULANT	FL	A
FLUSH WATER	FW	T
FORCE MAIN	FM	M
GROUND WATER	GW	A, B, B4, M
INSTRUMENT AIR	IA	T
MELTER OFF-GAS	OG	T
NITRIC ACID	AN	T1
PERCHED GND WATER	PGW	B
PHOSPHORIC ACID	PAPH	T1
PLANT AIR	PA	W
POLISHED WATER	PW	A
POTABLE WATER	DW	W, B4, C1
PROCESS WATER	TW, TWX1	A, B4
PROCESS WASTEWATER	CE	A
RAW WATER	RW	A
RECYCLE WATER	RC	T, B2
SCRUBBER RECYCLE	RSL	T
SLURRY	SL	T
SODIUM CARBONATE	SC	A
SODIUM HYDROXIDE	NA	T
SODIUM SILICATE	SS	A
STORM WATER	ST	A, B4, B5
SULFURIC ACID	SB	T1
SUMP DISCHARGE	SU	T
THICKENER OVERFLOW	TO	T
VACUUM	V	A
VENTILATION AIR	VE	T, A
WASTE WATER	WW	T

MATL. CODE	DESCRIPTION
A	A53 SEAMLESS CARBON STEEL
B	PVC
B1	PVDF
B2	PVDF, 100PSI
B3	CPVC
B4	HDPE
B5	CORRUGATED HDPE
C1	CLASS 150, COPPER TUBING
L	FIBERGLASS REINFORCED PLASTIC
M	DUCTILE IRON
T	304L STAINLESS STEEL
T1	316L STAINLESS STEEL
W	A53, GR. A, GALVANIZED STEEL

INSUL. CODE	DESCRIPTION
ET	ELECTRIC TRACED AND INSULATED
IC	ANTI-CONDENSATION INSULATION
ST	STEAM TRACED AND INSULATED

LETTERS OF INSTRUMENT IDENTIFICATION

LETTER	1ST LETTER	2ND LETTER	3RD OR 4TH LETTER
	MEASURED OR INITIATING VARIABLE	MODIFIER	READ OUT OR PASSIVE FUNCTION
A	ANALYSIS	ALARM	ALARM
B	BURNER FLAME	----	----
C	CAMERA	CONTROLLER	CLOSED
D	DENSITY	DIFFERENTIAL	----
E	VOLTAGE	ELEMENT	ELEMENT
F	FLOW RATE	RATIO (FRACTION)	----
G	GAGING (DIM)	VIEWING DEVICE	GLASS
H	HAND (MANUAL)	----	----
I	CURRENT (ELEC)	INDICATE	INDICATE
J	POWER	SCAN	----
K	TIME	----	----
L	LEVEL	LIGHT	LOW
M	MOIST. OR HUMIDITY	----	----
N	----	----	----
O	OBSERVATION	ORIFICE	OPEN
P	PRESSURE OR VACUUM	----	POINT (TEST)
Q	QUANTITY OR EVENT	TOTALIZER	----
R	RESTRICTIVE	RECORDER	RECORDER
S	SPEED OR FREQUENCY	SAFETY/SWITCH	SWITCH
T	TEMPERATURE	TRANSMITTER	TRANSMITTER
U	USER'S GUIDE	----	MULTIFUNCTION
V	VISCOSITY	----	VENT, VALVE
W	WEIGHT OR FORCE	WELL	----
X	UNCLASSIFIED	---	UNCLASSIFIED
Y	RELAY	RELAY	----
Z	POSITION	----	----

FUNCTION LABELS

SYMBOLS	DESCRIPTION
	AVERAGING
-	BIAS MINUS
+	BIAS PLUS
±	BIAS PLUS/MINUS
	DERIVATIVE
÷	DIVIDING
∫	INTEGRAL
X	MULTIPLYING
K	PROPORTIONAL
X^n	RAISE TO POWER
	REVERSE ACTION
	ROOT EXTRACT
Σ	SUMMING

4487

INSTRUMENT ACTUATOR LABELS

- BALL FLOAT
- CAPACITY SENSOR
- DIAPHRAGM
- DISPLACING FLOAT
- DUAL ACTION PISTON
- DUAL SOLENOID
- MANUAL
- MOTOR
- PILOT
- SINGLE ACTION PISTON
- SINGLE SOLENOID
- SINGLE SOLENOID WITH RESET

INSTRUMENT DEVICE TAG TYPES

- IN-LINE TAG WITH LEADER LINE
- LOCAL MOUNTED DEVICE
- FRONT OF PANEL MOUNTED DEVICE
- FRONT OF PANEL MOUNTED DEVICE AUXILLARY LOCATION
- REAR OF PANEL MOUNTED DEVICE
- REAR OF PANEL MOUNTED DEVICE AUXILLARY LOCATION
- SHARED DISPLAY COMPUTER CONTROL AND OPERATOR INTERFACE

EXAMPLE OF TAG CALLOUTS

- INSTRUMENT TAG TYPE
- LETTERS OF INSTRUMENT IDENT.
- LOOP NUMBER SUFFIX
- LOOP NUMBER
- SPECIAL DESIGNATION

INSTRUMENT IN-LINE DEVICES

- AVERAGING PITOT
- FLOW NOZZLE
- FLUME
- MAGNETIC FLOW METER
- ORIFICE PLATE
- POSITIVE DISPLACEMENT METER
- PROPELLER METER
- STRAIGHTING VANE
- SILENCER
- THERMOWELL
- ULTRASONIC FLOW METER
- VARIABLE AREA FLOW METER
- VENTURI
- VORTEX SHEDDING FLOW METER
- WEIR

INSTRUMENT SIGNAL LINES

- CONNECT TO PROCESS
- MECHANICAL LINK
- ELECTRIC BINARY
- PNEUMATIC BINARY
- GUIDED ELECTROMAG OR SONIC
- SOFTWARE/DATA LINK
- CAPILLARY
- ELECTRIC
- PNEUMATIC
- HYDRAULIC
- UNGUIDED ELECTROMAG OR SONIC
- UNDEFINED

MISC. INSTRUMENTATION SYMBOLS

- INTERLOCK
- DIAPHRAGM SEAL
- IA INSTRUMENT AIR SUPPLY

INSTRUMENT SPECIAL DESIGNATIONS

DESIGNATION	FUNCTION / ABBREVIATION
C	CLOSED
DIF	DIFFERENTIAL
EX	EXISTING INSTRUMENTATION
H	HIGH
HH	HIGH HIGH
HL	HIGH LOW
HOA	HAND-OFF-AUTO
IA	IN-AUTO
I/I	CURRENT TO CURRENT
I/O	INPUT/OUTPUT
I/P	CURRENT TO PNEUMATIC TRANSDUCER
L	LOW
LL	LOW LOW
LOR	LOCAL-OFF-REMOTE
O	OPEN
OA	OFF-AUTO
OCA	OPEN-CLOSED-AUTO
R	RUNNING
Y	UNDETERMINED COMPUTING RELAY

000039

REF DWG NO.	DRAWING TITLE
95X-5500-X-02065	DRAWING INDEX

NO.	REVISIONS	DATE	DWN. BY	APPD.	NO.	REVISIONS	DATE	DWN. BY	APPD.	REF. DWG. NO.
					0	ISSUED FOR CFC	1-24-02	GES		95X-5500-X-02065

NOTE: FLUOR FERNALD CADD DRAWING. DO NOT REVISE MANUALLY.

CONFIGURATION MANAGEMENT DRAWING

APPROVALS

CIVIL & STR.		SAFETY ENG.	
ELECTRICAL		MAINTENANCE	
ENGINEER		ENV. PROTECT.	
INSTRUMENT		WASTE MANAGE.	
MECHANICAL		SECURITY	
		PROJECTS	
CHECKED			
APPROVED			

Fernald Environmental Management Project

FLUOR FERNALD, INC.

U.S. DEPARTMENT OF ENERGY

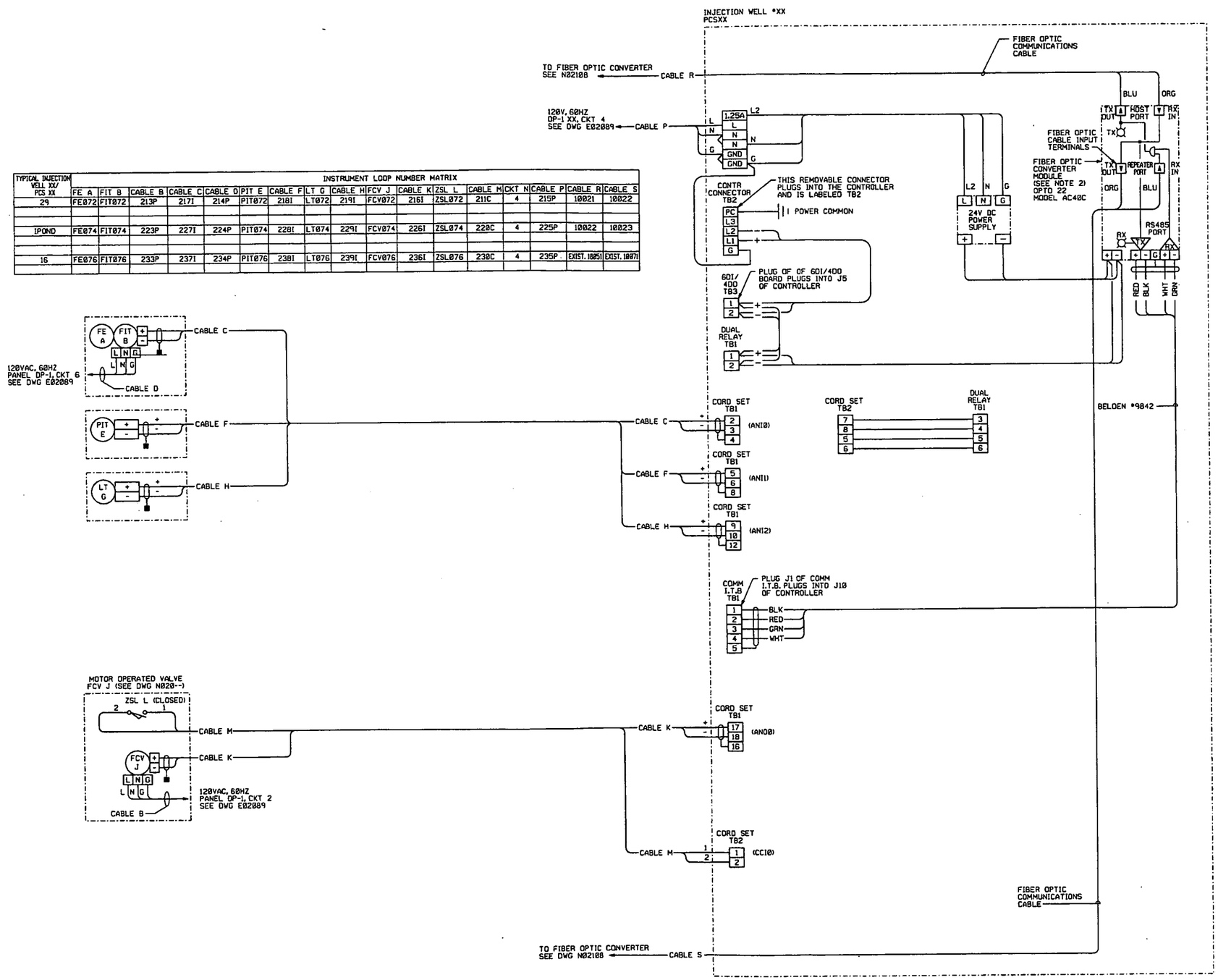
ARWWP SITE

SOUTH FIELD EXTRACTION SYSTEM
PHASE 2
MECHANICAL PROCESS
PIPING AND INSTRUMENTATION SYMBOLS & LEGEND

RES 4340
DATE FEB. 13, 2002
DRAWN C. SCHWARZMAN

95X-5500-N-02105 | 0

FFS.DGN 3/27/00



TYPICAL INJECTION WELL XX/ PCS XX	INSTRUMENT LOOP NUMBER MATRIX																
	FE A	FIT B	CABLE B	CABLE C	CABLE D	PIT E	CABLE F	LT G	CABLE H	FCV J	CABLE K	ZSL L	CABLE M	CKT N	CABLE P	CABLE R	CABLE S
29	FE072	FIT072	213P	217I	214P	PIT072	218I	LT072	219I	FCV072	216I	ZSL072	211C	4	215P	10021	10022
1POND	FE074	FIT074	223P	227I	224P	PIT074	228I	LT074	229I	FCV074	226I	ZSL074	220C	4	225P	10022	10023
16	FE076	FIT076	233P	237I	234P	PIT076	238I	LT076	239I	FCV076	236I	ZSL076	230C	4	235P	EXIST. 1085I	EXIST. 1087I

NOTES

1. 'XX' REPRESENTS THE CORRESPONDING WELL NUMBER.
2. BE SURE THAT ONLY JUMPERS A2 & A5 ARE INSERTED IN THE FIBER OPTIC CONVERTER MODULE.
3. FOR CABLE SCHEDULES SEE DRAWING 95X-5500-E-02099 AND 02100.
4. ONE BAILEY FISCHER & PORTER MODEL 53MC5222A25BAC1XXCXX CONTROLLER WITH CORD SETS IS REQUIRED PER WELL HOUSE. THIS MODEL NUMBER INCLUDES ALL ITEMS IN THE WELL HOUSE INDICATED AS CONTR CONNECTOR, 6DI/4DO, DUAL RELAY, COMM I.T.B. AND CORD SET.
5. 6A, 24V DC POWER SUPPLY SHALL BE SOLA (GENERAL SIGNAL) TYPE 28-1024-1, OR APPROVED EQUAL.

4487

LEGEND:

CONTRACTOR WIRING

SHIELD - CUT AND TAPED

000040

REF DWG NO.	DRAWING TITLE
95X-5500-X-02065	DRAWING INDEX
95X-5500-N-02105	SYMBOLS AND LEGEND
95X-5500-N-02108	CONTROL SYSTEM ARCHITECTURE

NO.	REVISIONS	DATE	DWN. BY	APPD.	NO.	REVISIONS	DATE	DWN. BY	APPD.	REF. DWG. NO.
					0	ISSUE FOR CFC	1-31-02	GES		

NOTE: FLUOR FERNALD CADD DRAWING. DO NOT REVISE MANUALLY.

CONFIGURATION MANAGEMENT DRAWING

APPROVALS			
CIVIL & STR.		SAFETY ENG.	
ELECTRICAL		MAINTENANCE	
ENGINEER		FIRE PROTECT.	
INSTRUMENT		WASTE MANAGE.	
MECHANICAL		SECURITY	
		PROJECTS	
CHECKED			
APPROVED			

Fernald Environmental Management Project

FLUOR FERNALD, INC.

U.S. DEPARTMENT OF ENERGY

ARWWP SITE

SOUTH FIELD EXTRACTION SYSTEM PHASE 2

INSTRUMENTATION INTERCONNECTION DIAGRAM INJECTION WELL PLATFORM DCS PCS

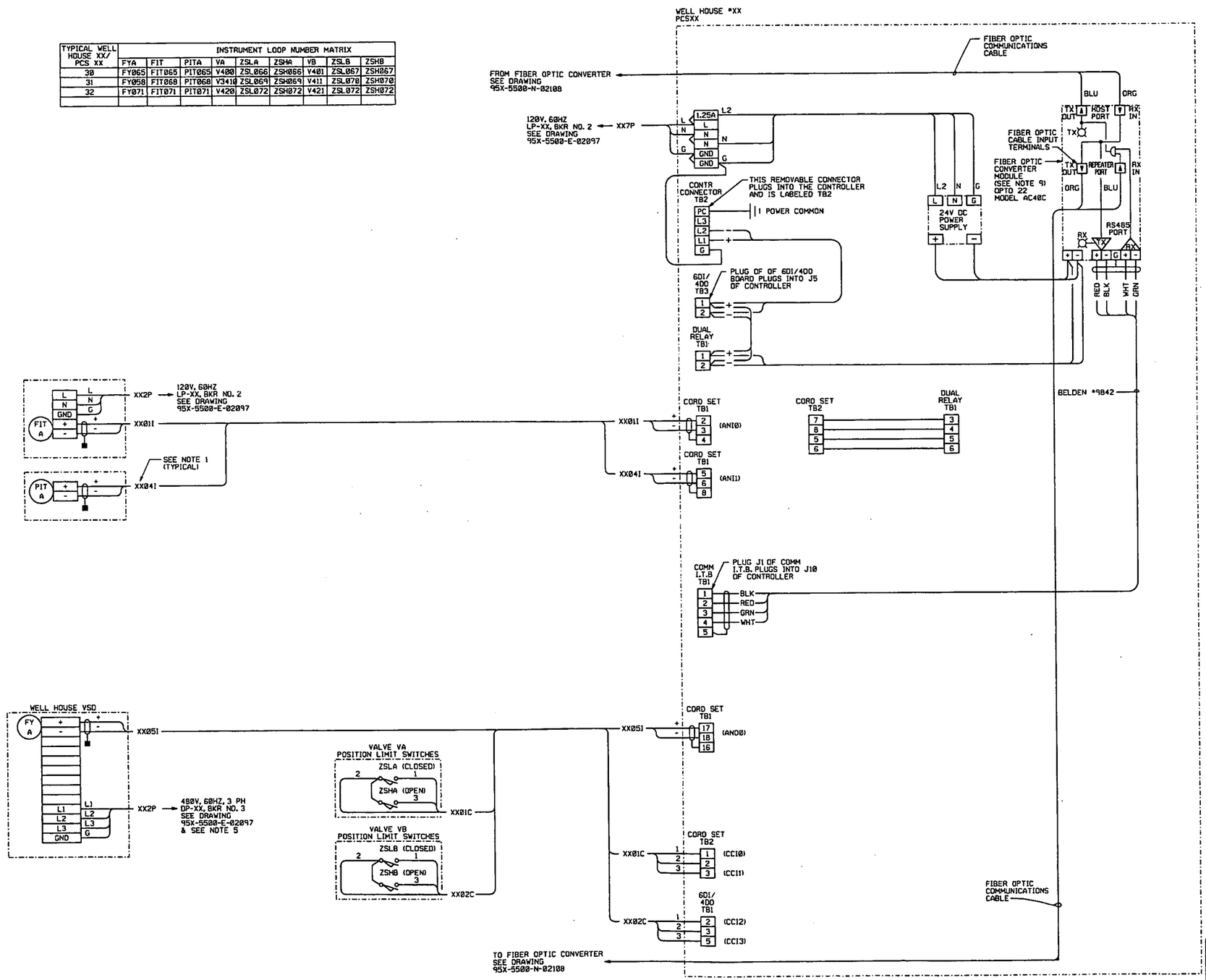
RES 4340

DATE MAY 23, 2002

DRAWN G. SCHWARZMAN

95X-5500-N-02106 | 0

TYPICAL WELL HOUSE XX/ PCS XX	INSTRUMENT LOOP NUMBER MATRIX								
	FYA	FIT	PITA	VA	ZSLA	ZSHA	VB	ZSLB	ZSHB
30	FY065	FIT065	PIT065	V400	ZSL066	ZSH066	V401	ZSL067	ZSH067
31	FY068	FIT068	PIT068	V3410	ZSL069	ZSH069	V411	ZSL070	ZSH070
32	FY071	FIT071	PIT071	V420	ZSL072	ZSH072	V421	ZSL072	ZSH072



NOTES:

1. 'XX' REPRESENTS THE CORRESPONDING WELL NUMBER.
2. BE SURE THAT ONLY JUMPERS A2 & A5 ARE INSERTED IN THE FIBER OPTIC CONVERTER MODULE.
3. NOT USED
4. FOR CABLE SCHEDULES SEE DRAWING'S 95X-5500-E-02101, 02103, & 02104.
5. FOR THREE PHASE POWER CABLES, SEE DRAWING 95X-5500-E-02100.
6. NOT USED
7. ONE BAILEY FISCHER & PORTER MODEL 53MC5222A25BAC1XXCXX CONTROLLER WITH CORD SETS IS REQUIRED PER WELL HOUSE. THIS MODEL NUMBER INCLUDES ALL ITEMS IN THE WELL HOUSE INDICATED AS CONTR CONNECTOR, 6DI/400, DUAL RELAY, COMM I.T.B. AND CORD SET.
8. 6A, 24V DC POWER SUPPLY SHALL BE SOLA (GENERAL SIGNAL) TYPE 28-1024-1, OR APPROVED EQUAL.
9. BE SURE THAT ONLY JUMPERS A2 & A5 ARE INSERTED IN THE FIBER OPTIC CONVERTER MODULE.

4487

LEGEND:

CONTRACTOR WIRING

SHIELD - CUT AND TAPED

000041

REF DWG NO.	DRAWING TITLE
95X-5500-X-02065	DRAWING INDEX
95X-5500-E-02104	CABLE SCHEDULE

NO.	REVISIONS	DATE	DWN. BY	APPD.	NO.	REVISIONS	DATE	DWN. BY	APPD.	REF. DWG. NO.
					0	ISSUED FOR CFC	12-02	GES		95X-5500-X-02065

NOTE: FLUOR FERNALD CADD DRAWING. DO NOT REVISE MANUALLY.

CONFIGURATION MANAGEMENT DRAWING

APPROVALS

CIVIL & STR.		SAFETY ENG.	
ELECTRICAL		MAINTENANCE	
ENGINEER		FIRE PROTECT.	
INSTRUMENT		WASTE MANAGE	
MECHANICAL		SECURITY	
		PROJECTS	
CHECKED			
APPROVED			

Fernald Environmental Management Project

FLUOR FERNALD, INC.

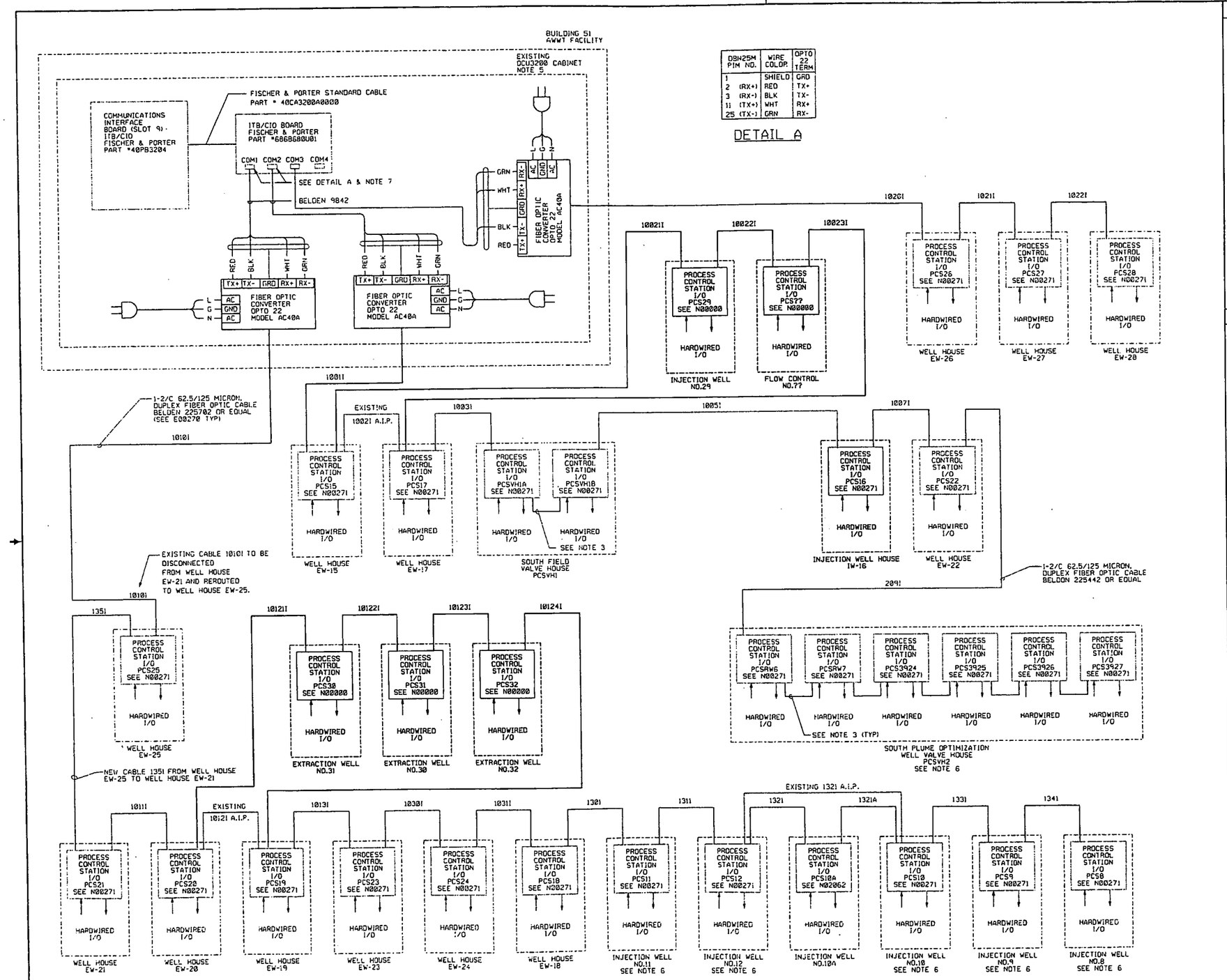
U.S. DEPARTMENT OF ENERGY

ARWWP SITE

SOUTH FIELD EXTRACTION SYSTEM
PHASE 2
INSTRUMENTATION INTERCONNECTION DIAGRAM
EXTRACTION WELL HOUSE DCS PCS

RES. 4340
DATE JULY 30, 2002
DRAWN C. SCHWARTZMAN

95X-5500-N-02107 | 0



DB#25M PIN NO.	WIRE COLOR	OPTO 22 TERM
1	SHIELD	GRD
2 (RX+)	RED	TX+
3 (RX-)	BLK	TX-
11 (TX+)	WHT	RX+
25 (TX-)	GRN	RX-

DETAIL A

NOTES

1. FIBER OPTIC CONVERTERS REQUIRED FOR EACH END OF FIBER OPTIC COMMUNICATIONS CABLE. SEE DWG 95X-5500-N-00--- THRU 00272 FOR PROCESS CONTROL STATION INTERCONNECTION DIAGRAMS.
2. SEE DRAWING 95X-5500-E-020-- FOR PCS LOCATIONS.
3. CONTRACTOR SHALL PROVIDE DB25 MALE CONNECTOR WITH SOLDER CONNECTIONS AS SHOWN IN DETAIL A.
4. NEW EQUIPMENT AND CABLE REROUTING/ADDITIONS PROVIDED FOR INJECTION WELL 10A (WORK SHOWN BOLD).

4487

LEGEND

EXISTING
NEW/REPLACEMENT
A.I.P. ABANDONED IN PLACE

000042

REF DWG NO.	DRAWING TITLE
95X-5500-X-02065	DRAWING INDEX
95X-5500-E-02083	ELECTRICAL SYMBOLS AND LEGEND
95X-5500-E-02084	ELECTRICAL SYMBOLS AND LEGEND
95X-5500-E-02104	CABLE SCHEDULE
95X-5500-N-02105	INSTRUMENTATION SYMBOLS AND LEGEND

NO.	REVISIONS	DATE	DWN. BY	APPD.	NO.	REVISIONS	DATE	DWN. BY	APPD.	REF. DWG. NO.
					0	ISSUE FOR CFC	1-30-02	GES		

NOTE: FLUOR FERNALD CADD DRAWING, DO NOT REVISE MANUALLY.

CONFIGURATION MANAGEMENT DRAWING

APPROVALS: CIVIL & STR. / ELECTRICAL ENGINEER / INSTRUMENT / MECHANICAL / CHECKED / APPROVED / SAFETY ENG. / MAINTENANCE / FIRE PROTECT. / WASTE MANAGE. / SECURITY / PROJECTS

Fernald Environmental Management Project

FLUOR FERNALD, INC.

U.S. DEPARTMENT OF ENERGY

ARWWP SITE

SOUTH FIELD EXTRACTION SYSTEM PHASE 2 INSTRUMENTATION CONTROL SYSTEM ARCHITECTURE

RES 4340 DATE 5-31-02 DRAWN C. SCHWARZMAN

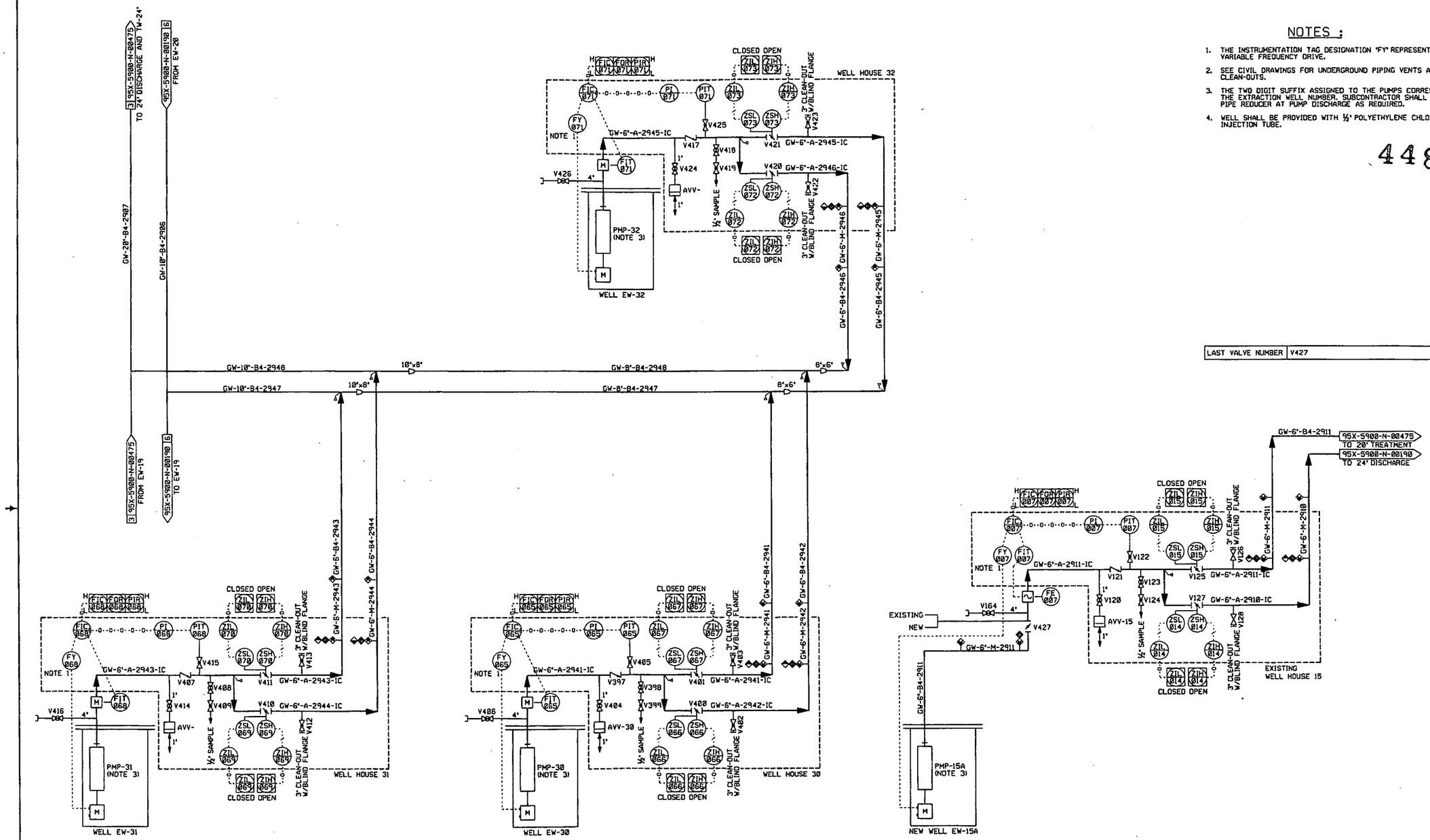
95X-5500-N-02108 0

FILE NAME: /ces4340/95xn2108.dgn

NOTES :

1. THE INSTRUMENTATION TAG DESIGNATION 'FY' REPRESENTS A VARIABLE FREQUENCY DRIVE.
2. SEE CIVIL DRAWINGS FOR UNDERGROUND PIPING VENTS AND CLEAN-OUTS.
3. THE TWO DIGIT SUFFIX ASSIGNED TO THE PUMPS CORRESPOND TO THE EXTRACTION WELL NUMBER. SUBCONTRACTOR SHALL PROVIDE PIPE REDUCER AT PUMP DISCHARGE AS REQUIRED.
4. WELL SHALL BE PROVIDED WITH ½" POLYETHYLENE CHLORINE INJECTION TUBE.

4487



LAST VALVE NUMBER	V427

REF DWG. NO.	DRAWING TITLE
95X-5500-X-02065	DRAWING INDEX
95X-5500-N-02105	SYMBOLS AND LEGEND

000043

NO.	REVISIONS	DATE	DWN. BY	APPD.
0	ISSUED FOR CFC	1-7-02	GES	

NO.	REVISIONS	DATE	DWN. BY	APPD.	REF. DWG. NO.
					95X-5500-X-02065

NOTE: FLUOR FERNALD CADD DRAWING. DO NOT REVISE MANUALLY.

CONFIGURATION MANAGEMENT DRAWING — EXISTING ATTACHED AS CONTROLLED DOCUMENTS PER FERNALD CONFIGURATION MANAGEMENT CONTROL SET 02-0102. — CONFIGURATION MANAGEMENT DATE

APPROVALS: CIVIL & STR. / ELECTRICAL / ENGINEER / INSTRUMENT / MECHANICAL / CHECKED / APPROVED — SAFETY ENG. / MAINTENANCE / FIRE PROTECT. / WASTE MANAGE. / SECURITY / PROJECTS

Fernald Environmental Management Project

FLUOR FERNALD, INC.

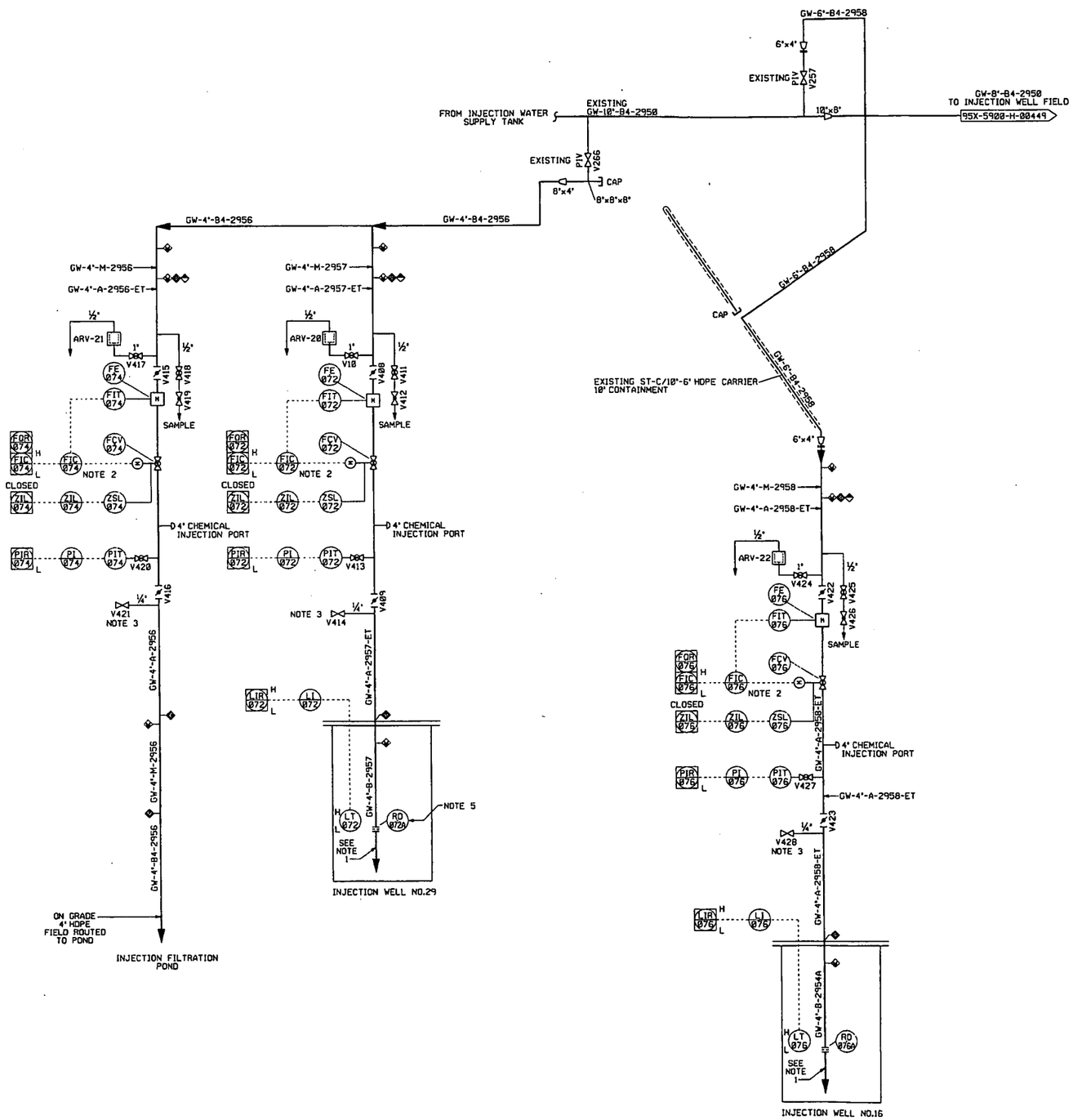
U.S. DEPARTMENT OF ENERGY

ARWWP — SITE

SOUTH FIELD EXTRACTION SYSTEM
PHASE 2
PIPING AND INSTRUMENTATION DIAGRAM
EXTRACTION WELL No's. 30, 31 & 32

RES 4340 — DATE MAR. 8, 2002 — DRAWN C. SCHWARZMAN

95X-5500-N-02109 | 0



1. EACH WELL INJECTION TUBE SHALL HAVE PERFORATED FLOW DISTRIBUTION OUTLETS.
2. CONTROLLER INITIATES CLOSING OF VALVE ON LINE PRESSURE BELOW SET POINT, OR WELL LEVEL ABOVE HIGH OR BELOW LOW SET POINTS.
3. SAND CONTENT TEST PORT.
4. THE 'A' SUFFIX RESTRICTION ORFICE IS SIZED FOR 150 GPM.

4487

LAST VALVE NUMBER	V428

000044

REF DWG NO.	DRAWING TITLE
95X-5500-X-02065	DRAWING INDEX
95X-5500-N-02105	SYMBOLS AND LEGEND

NO.	REVISIONS	DATE	DWN. BY	APPD.
0	ISSUED FOR CFC	1-29-02	GES	

NO.	REVISIONS	DATE	DWN. BY	APPD.	REF. DWG. NO.
0	ISSUED FOR CFC	1-29-02	GES		95X-5500-X-02065

NOTE: FLUOR FERNALD CADD DRAWING, DO NOT REVISE MANUALLY.

CONFIGURATION MANAGEMENT DRAWING

SYSTEMS, STRUCTURES OR COMPONENTS DESIGNED ON THIS DRAWING ARE UNDER CONFIGURATION MANAGEMENT CONTROL. SEE NOTES.

COGNIZANT ENGINEER DATE

APPROVALS

CIVIL & STR.		SAFETY ENG.	
ELECTRICAL		MAINTENANCE	
ENGINEER		FIRE PROTECT.	
INSTRUMENT		WASTE MANAGE	
MECHANICAL		SECURITY	
		PROJECTS	
CHECKED			
APPROVED			

Fernald Environmental Management Project

FLUOR FERNALD, INC.

U.S. DEPARTMENT OF ENERGY

ARWWP SITE

SOUTH FIELD EXTRACTION SYSTEM PHASE 2

PIPING AND INSTRUMENTATION DIAGRAM

INJECTION WELL No's. 16, 29 & I.F.P.

RES 4340

DATE MAR. 16, 2002

DRAWN C. SCHWARZMAN

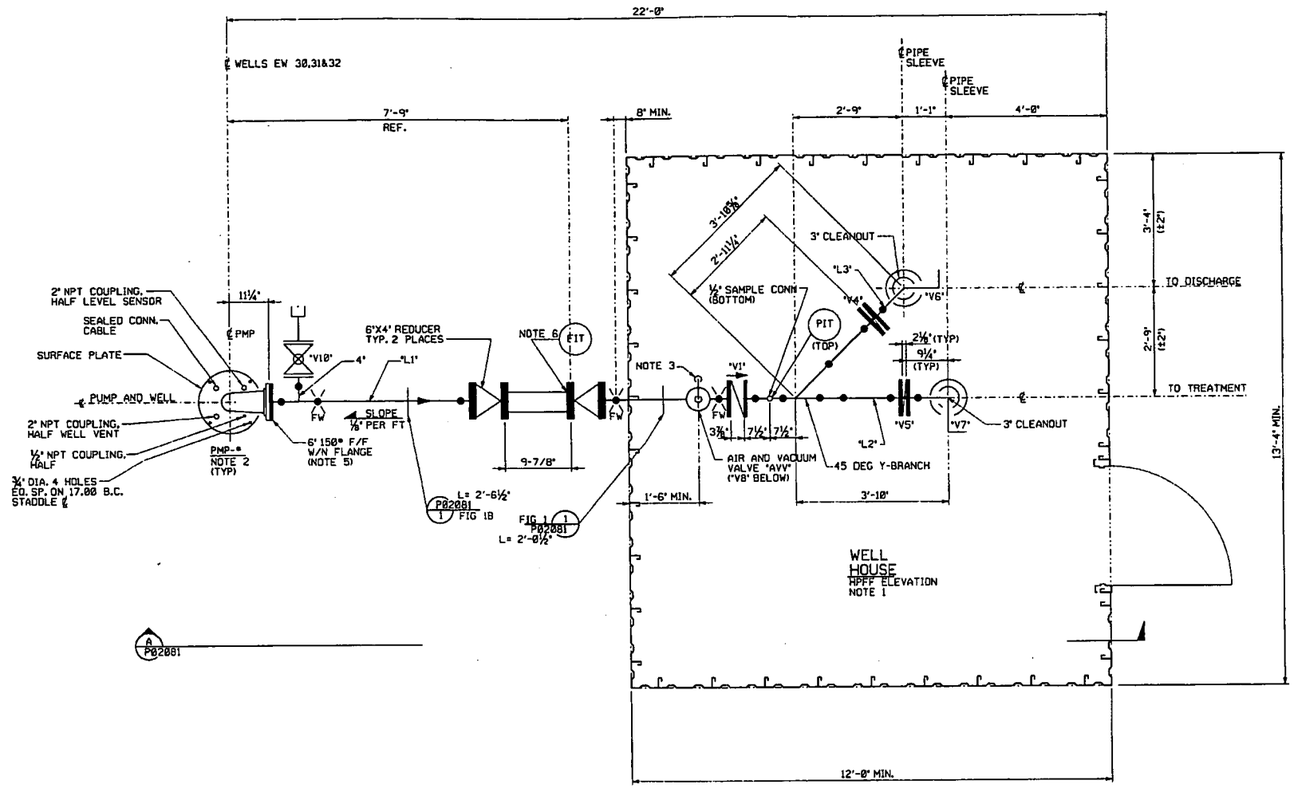
95X-5500-N-02110 0

FFS.DGN 3/22/00

NOTES :

1. SEE "TABLE A" FOR PUMP, LINE, INSTRUMENT, VALVE NUMBERS AND HIGH POINT FINISHED FLOOR (H.P.F.F.) ELEVATION.
2. SEE 95X-5500-G-02068 & 95X-5500-G-02069 SITE UTILITY PIPING PLAN DRAWINGS FOR ACTUAL WELL HOUSE ORIENTATIONS.
3. VENT LINE SHALL BE 1" FIELD ROUTE LINE TO 1'-0" ABOVE FLOOR AND PROVIDE PIPE SUPPORT.
4. FOR P&IDS SEE DRAWINGS 95X-5500-N-02109 AND 95X-5500-N-02110.
5. USE FLAT FACED FLANGE FOR MATING TO PUMP DISCHARGE FLANGE ONLY.
6. WELLS EW-30 , 31 & 32 THE FIT IS ALSO THE PRIMARY FLOW ELEMENT (FE).
7. SEE DRAWING 95X-5500-G-02073 FOR PIPING TIE-IN TO EXISTING WELL HOUSE EW-15 FROM PITLESS ADAPTOR AT WELL 15A.

4487



WELL HOUSE PLAN

SCALE : 3/4" = 1'-0"

TABLE "A"

PMP#	"L1"	"L2"	"L3"	"FIT"	"PIT"	"V1"	"V2"	"V3"	"V4"	"V5"	"V6"	"V7"	"V8"	"V9"	"V10"	"AVV"	H.P.F.F. ELEVATION
30	GW-6"-A-2941	GW-6"-A-2941-IC	GW-6"-A-2942-IC	065	065	V397	V398	V399	V400	V401	V402	V403	V404	V405	V406	30	7' ABOVE GRADE
31	GW-6"-A-2943	GW-6"-A-2943-IC	GW-6"-A-2944-IC	068	068	V407	V408	V409	V410	V411	V412	V413	V414	V415	V416	31	7' ABOVE GRADE
32	GW-6"-A-2945	GW-6"-A-2945-IC	GW-6"-A-2946-IC	071	071	V417	V418	V419	V420	V421	V422	V423	V424	V425	V426	32	7' ABOVE GRADE
15A	GW-6"-A-2911	GW-6"-A-2911-IC	GW-6"-A-2910-IC	007	007	V121	V123	V124	V127	V125	V128	V126	V120	V122	V164	15	N/A

000045

REF DWG NO.	DRAWING TITLE
95X-5500-X-02065	DRAWING INDEX
95X-5500-X-02081	PIPING/PLANT DESIGN AND DETAILS WELL HOUSE PIPING SECTION

NO.	REVISIONS	DATE	DWN. BY	APPD.	NO.	REVISIONS	DATE	DWN. BY	APPD.	REF. DWG. NO.
					0	ISSUED FOR CFC	8-29-02	GES	[illegible]	95X-5500-X-02065

NOTE: FLUOR FERNALD CADD DRAWING. DO NOT REVISE MANUALLY.

CONFIGURATION MANAGEMENT DRAWING — EXISTING STRUCTURES OR COMPONENTS MAY BE AFFECTED BY THIS DRAWING. FOR CONSULTATION MANAGEMENT CONTROL SEE INITIAL. COMMENT CHECKER / DATE

APPROVALS: CIVIL & STR. ENGINEER; ELECTRICAL ENGINEER; INSTRUMENT MECHANICAL; CHECKED; APPROVED; SAFETY ENG.; MAINTENANCE; FIRE PROTECT.; WASTE MANAGE.; SECURITY; PROJECTS

Fernald Environmental Management Project

FLUOR FERNALD, INC.

U.S. DEPARTMENT OF ENERGY

ARWWP — SITE

SOUTH FIELD EXTRACTION SYSTEM
PHASE 2
PIPING/PLANT DESIGN
WELL HOUSE PIPING PLAN

RES 4310 — DATE FEB. 8, 2002 — DRAWN C. SCHWARTZMAN

95X-5500-P-02080 | 0

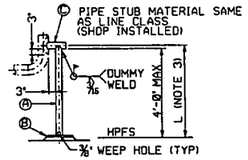


FIG 3,3A,& 3G
(SEE DETAIL 1A)

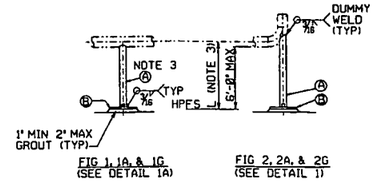
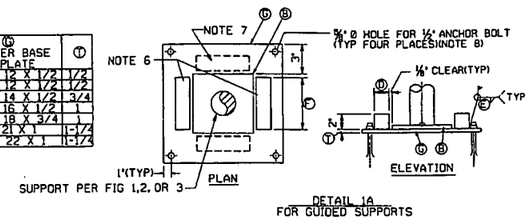


FIG 1, 1A, & 1G
(SEE DETAIL 1A)

FIG 2, 2A, & 2G
(SEE DETAIL 1)

LINE SIZE	Ⓐ SUPPORTING PIPE SIZE	Ⓑ PIPE SUPPORT BASE PLATE	Ⓒ PIPE STUB SIZE	Ⓓ	Ⓔ	Ⓕ	Ⓖ LOWER BASE PLATE	Ⓣ
1 1/2, 2	1-1/2 XS	6X 6X 1/2	1-1/2 XS	1/2	1/4	4	12 X 12 X 1/2	1/2
3,4	2 XS	6X 6X 1/2	3 STD WT	1/2	1/4	4	12 X 12 X 1/2	1/2
6,8	3 STD WT	8X 8X 1/2	4 STD WT	1/2	3/8	8	14 X 14 X 1/2	3/4
10,12	4 STD WT	10X10 X 1/2	6 STD WT	1/2	3/8	8	16 X 16 X 1/2	1
14,16	6 STD WT	12X12 X 3/4	8 STD WT	3/4	3/8	8	18 X 18 X 3/4	1
18,20	10 STD WT	15 X 15 X 1	SEE	3/4	1/2	8	21 X 21 X 1	1-1/4
24	12 STD WT	16 X 16 X 1	NOTE 4	3/4	1/2	8	22 X 22 X 1	1-1/4



DETAIL 1A
FOR GUIDED SUPPORTS

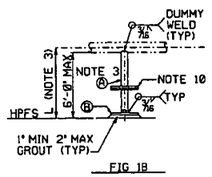


FIG 1B

DETAIL 1 NTS REF P02080 P02082

FIXED BASE SUPPORT

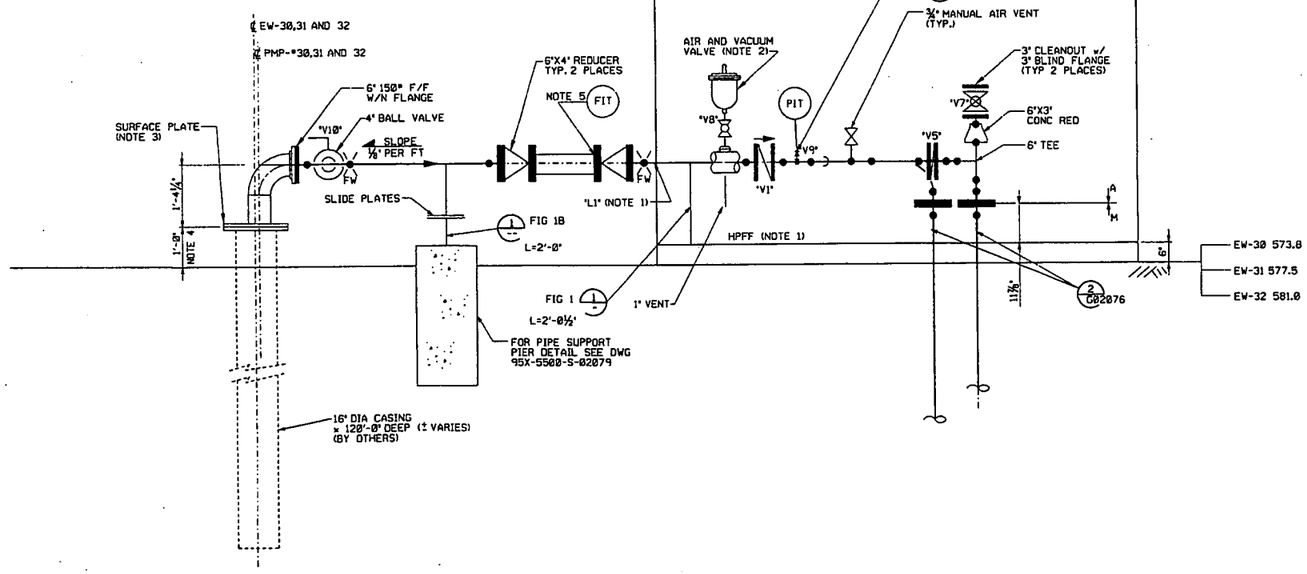
DETAIL "1" NOTES:

1. ALL SUPPORT MATERIAL SHALL BE CARBON STEEL.
2. SPOOL FABRICATOR SHALL FURNISH SUPPORT COMPLETE AS SHOWN AND BAND SUPPORT PARTS TO SPOOL FOR SHIPMENT. STUB Ⓐ SHALL HAVE BEVELED END.
3. DIMENSION L IS SHOWN ON PIPING DRAWING. FABRICATOR SHALL INCLUDE AN EXTRA 6 INCHES IN ITEM Ⓐ FOR FIELD FIT-UP AT INSTALLED LOCATION.
4. DO NOT USE FIGURE 3 FOR SIZE 18 INCHES AND LARGER.
5. PAINT PER SPECIFICATION.
6. INSTALL GUIDE BARS ON TWO SIDES ONLY FOR FIGURES WITH G DESIGNATION. GUIDES TO BE ORIENTED PER THE PIPING DRAWING.
7. INSTALL GUIDE BARS ON ALL SIDES FOR FIGURES WITH A DESIGNATION WHERE INDICATED ON THE PIPING DRAWING.
8. USE HILTI 1/2" X 3 1/2" MINIMUM EMBEDMENT ANCHOR BOLT OR APPROVED EQUAL FOR BASE PLATE.
9. ALL DIMENSIONS ARE IN INCHES, UNLESS NOTED OTHERWISE.
10. SLIDE PLATES TO BE ADDED IN ORDER TO MAKE SUPPORT REMOVABLE.

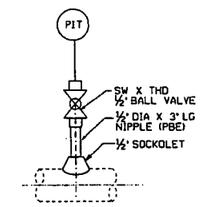
NOTES :

1. SEE 'TABLE A' ON DRAWING 95X-5500-P-02080 FOR PUMP, LINE, INSTRUMENT, VALVE NUMBERS AND HIGH POINT OF FINISHED FLOOR.
2. USE A 1" SOCKOLET WITH A 1" BALL VALVE AND A 1" AIR AND VACUUM VALVE.
3. PROVIDE EACH WELL WITH A 3/4" POLYETHYLENE CHLORINE INJECTION TUBE STRAPPED TO THE PUMP DISCHARGE COLUMN WITH NON CORRODING FASTENERS AT 10' INTERVALS. TERMINATE LOWER END NEAR PUMP INLET SCREEN AND EXTEND UPPER END THROUGH THE PUMP SURFACE PLATE FOR EW-30, 31 & 32.
4. TRIM CASING TO HEIGHT SHOWN AND INSTALL NEW CLASS 150 SS FLAT FACE FLANGE FOR EW-30, 31 & 32.
5. WELLS EW-15A, 30, 31 & 32 THE FIT IS ALSO THE PRIMARY FLOW ELEMENT (FE).
6. SEE SHEET 95X-5500-G-02075 FOR PIPING TIE-IN AT EXISTING WELL HOUSE EW-15.

4487



SECTION A 3/4"=1'-0" P02080



DETAIL 3 NTS

SCREWED INSTRUMENT INSTALLATION

000046

REF DWG NO.	DRAWING TITLE
95X-5500-X-02065	DRAWING INDEX
95X-5500-A-02078	ARCHITECTURAL PLAN AND ELEVATIONS, WELL HOUSE No's. 30, 31 AND 32
95X-5500-S-02079	PLANS, SECTIONS AND DETAILS
95X-5500-G-02074	DETAILS
95X-5500-G-02076	DETAILS

NO.	REVISIONS	DATE	DWN. BY	APPD.	NO.	REVISIONS	DATE	DWN. BY	APPD.	REF. DWG. NO.
					0	ISSUED FOR CFC	1-29-02	GES	MCB	95X-5500-X-02065

NOTE: FLUOR FERNALD CADD DRAWING, DO NOT REVISE MANUALLY.

CONFIGURATION MANAGEMENT DRAWING — YES / NO — UTILITY, STRUCTURE, OR COMPONENT SAFETY SYSTEM, SEISMIC, NOT CLASS. SEE NOTES. — QUALITY ASSURANCE MANAGEMENT CONTROL. SEE NOTES. — CONTRACT OFFICER — DATE

APPROVALS: CIVIL & STR., ELECTRICAL, ENGINEER, INSTRUMENT, MECHANICAL, CHECKED, APPROVED — SAFETY ENG., MAINTENANCE, FIRE PROTECT., WASTE MANAGE., SECURITY, PROJECTS

Fernald Environmental Management Project

FLUOR FERNALD, INC.

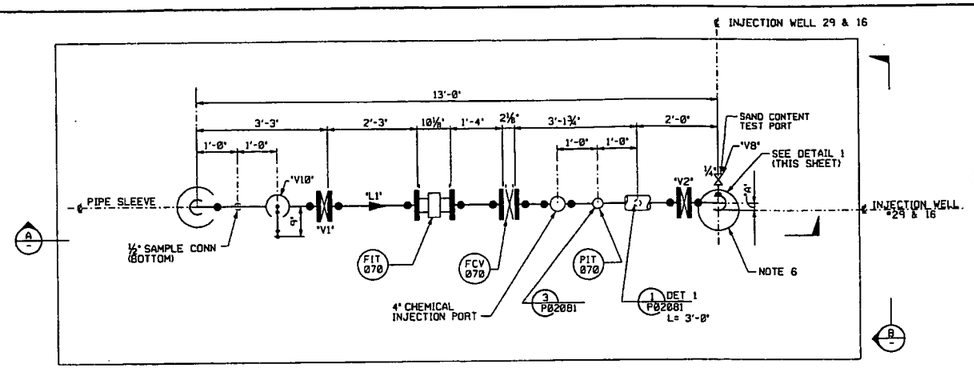
U.S. DEPARTMENT OF ENERGY

ARWWP — SITE

SOUTH FIELD EXTRACTION SYSTEM
PHASE 2
PIPING/PLANT DESIGN AND DETAILS
WELL HOUSE PIPING SECTION

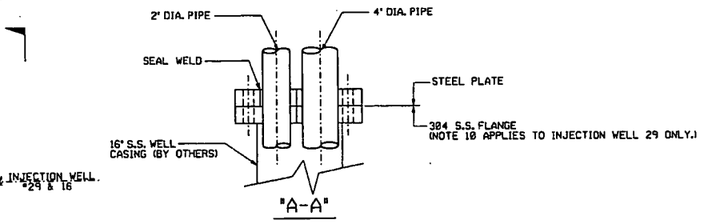
RES 4340 — DATE FEB. 5, 2002 — DRAWN D. SCHWARZMAN

95X-5500-P-02081 | 0

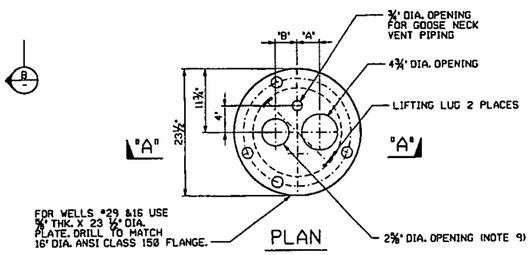


TYPICAL PLAN-ARRANGEMENT INJECTION WELLS 29,16& IPOND

SCALE: ¾" = 1'-0"

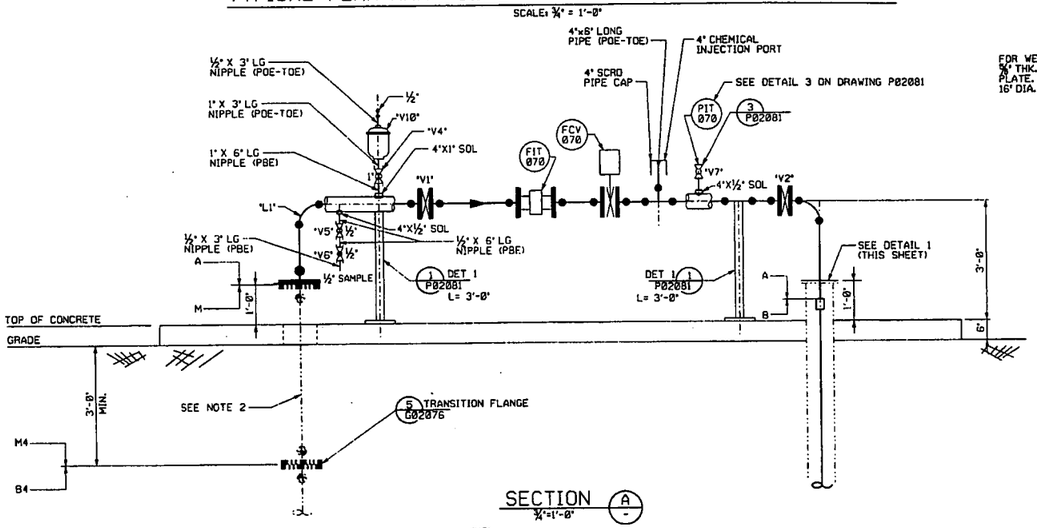


"A-A"

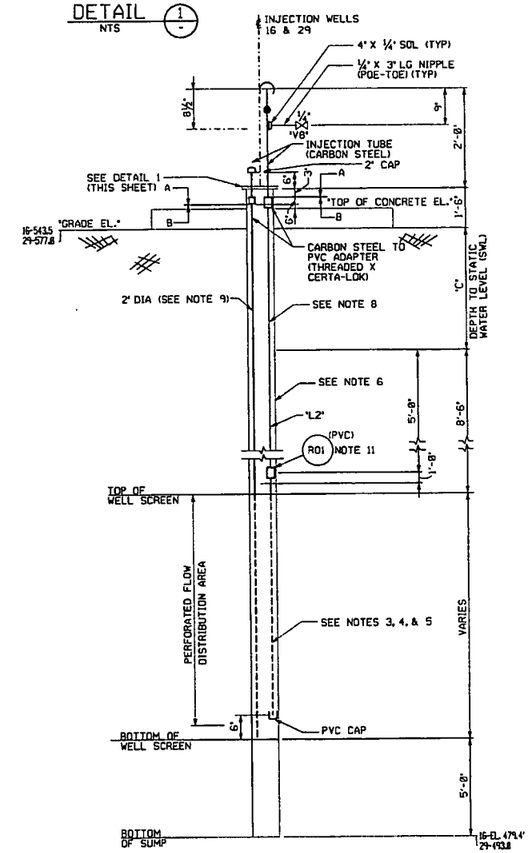


PLAN

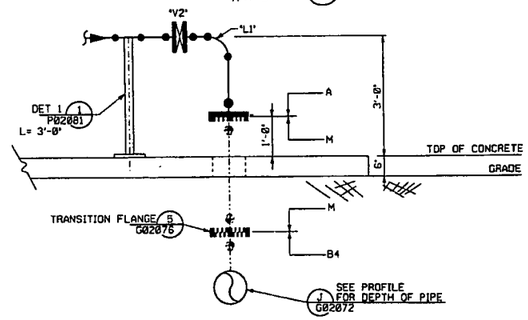
DETAIL 1 NTS



SECTION A ¾"=1'-0"



SECTION B NTS



PARTIAL SECTION-INFILTRATION POND PIPING C ¾"=1'-0"

TABLE "A"

WELL#	"L1"	"L2"	"FCV"	"FIT"	"PIT"	"R01"	"V1"	"V2"	"V4"	"V5"	"V6"	"V7"	"V8"	"V10"	DIM "A"	DIM "B"	DIM "C"	SLAB ELEVATION SEE NOTE 7
29	GW-4"-A-1957-ET	GW-4"-B-2957	072	072	072	072A	V408	V409	V410	V411	V412	V413	V414	ARV-20	0'-4"	0'-4"		EL.576.5
I POND	GW-4"-A-2956-ET	GW-4"-B-2956	074	074	074	074A	V415	V416	V417	V418	V419	V420	V421	ARV-21			N/A	EL.576.5
16	GW-4"-A-2958-ET	GW-4"-B-2958	076	076	076	076A	V422	V423	V424	V425	V426	V427	V428	ARV-22	0'-4"	0'-4"		EL.544.0'

NOTES

1. SEE "TABLE A" FOR PIPE LINE, INSTRUMENT, VALVE NUMBERS, DIMENSIONS A-D, GRADE EL. AND TOP OF CONCRETE ELEVATION.
2. FOR UNDERGROUND LINES TO WELL NUMBER 29, SEE CIVIL PLAN AND PROFILE DRAWING 95X-5500-G-02067.
3. TOTAL OPENING AREA WILL BE LARGER THAN DOWNCOMER FLOW AREA.
4. PERFORATIONS WILL BE LARGER AT BOTTOM AND SMALLER TOWARDS THE TOP.
5. 30 RINGS OF 4 HOLES EACH, SPACED 6" CENTER LINE. FIRST RING 3" BELOW TOP OF SCREEN AND LAST RING 3" ABOVE BOTTOM OF SCREEN. HOLES SHALL BE PLACED AT 90°, STAGGERED 45° PER RING AND SIZED AS FOLLOWS: FOR 4" PIPE: 10 X ½", 10X ⅜", AND 10 X 5/16". FOR WELLS 29 AND 16, THE LARGEST DIAMETER HOLES SHALL BE AT THE BOTTOM WITH THE HOLES BECOMING PROGRESSIVELY SMALLER TOWARDS THE TOP.
6. 304 S.S. WELL CASING WILL BE 16" FOR WELL NUMBER 29 CASING AND SCREEN WILL BE BY OTHERS. EXISTING WELL #16 IS 12" DIA.
7. EXISTING SLAB ELEVATION TO BE FIELD VERIFIED.
8. PROVIDE ½" THICK RUBBER PIPE WIPER SPACER GUIDES AT APPROXIMATELY 20 FT. INTERVALS TO CENTER INJECTION PIPES WITHIN WELL CASING. DRILL HOLES IN SPACERS FOR PIPE PENETRATIONS AND ATTACH DISCS TO PIPE WITH STAINLESS STEEL HOSE CLAMPS ON EACH SIDE OF THE DISCS. PROVIDE RUBBER GASKETS UNDER EACH HOSE CLAMP.
9. LEVEL TRANSMITTER STILLING WELL SHALL EXTEND TO THE BOTTOM OF THE WELL SCREEN. THE TOP SHALL BE CAPPED BUT NOT WELDED. A ¼" DIAMETER VENT HOLE SHALL BE PROVIDED 1' BELOW THE BOTTOM OF THE REMOVABLE CAP.
10. TRIM 304 S.S. CASING INSTALLED BY OTHERS TO HEIGHT SHOWN AND INSTALL S.S. FLANGE MATCHING CLASS 150 DRILLING.
11. "CERTA-LOK" COUPLING. INSERT ORIFICE PLATE INTO LOWER HALF OF COUPLING.
12. THE VALVING AND ABOVE GRADE PIPING ARRANGEMENT FOR THE INJECTION POND CONTROL PLATFORM SHALL BE THE SAME AS THAT SHOWN FOR INJECTION WELLS 29 AND 16. INSTEAD OF THE 4" STEEL PIPE TERMINATEING AT AN INJECTION TUBE IT WILL TERMINATE ABOVE GRADE IN A FLANGED CONNECTION TO DUCTILE IRON PIPE WHICH WILL CONNECT BELOW GRADE IN A FLANGED CONNECTION TO 4" SDR11 HDPE PIPE. SEE PARTIAL SECTION DETAIL "C" ON THIS SHEET.

4487

LAST VALVE No. USED V428

000047

REF DWG NO.	DRAWING TITLE
95X-5500-X-02065	DRAWING INDEX
95X-5500-G-02067	SITE UTILITY PIPING PLAN
95X-5500-G-02068	SITE UTILITY PIPING PLAN
95X-5500-S-02079	STRUCTURAL WELL HOUSE No's. 30,31 AND 32

NO.	REVISIONS	DATE	DWN. BY	APPD.
0	ISSUED FOR CFC	6-7-02	GES	

NO.	REVISIONS	DATE	DWN. BY	APPD.	REF. DWG. NO.
0	ISSUED FOR CFC	6-7-02	GES		95X-5500-X-02065

NOTE: FLUOR FERNALD CADD DRAWING. DO NOT REVISE MANUALLY.

CONFIGURATION MANAGEMENT DRAWING — YES / NO

REFERENCE DATA/REPORT NO. CONTROL CONFIGURATION MANAGEMENT CONTROL EX. NO REF.

CONCERNED MANAGER — DATE

APPROVALS

CIVIL & STR.			SAFETY ENG.	
ELECTRICAL			MAINTENANCE	
ENGINEER			FRM PROJECT	
INSTRUMENT			WASTE MANAGE.	
MECHANICAL			SECURITY	
			PROJECTS	
CHECKED				
APPROVED				

Fernald Environmental Management Project

FLUOR FERNALD, INC.

U.S. DEPARTMENT OF ENERGY

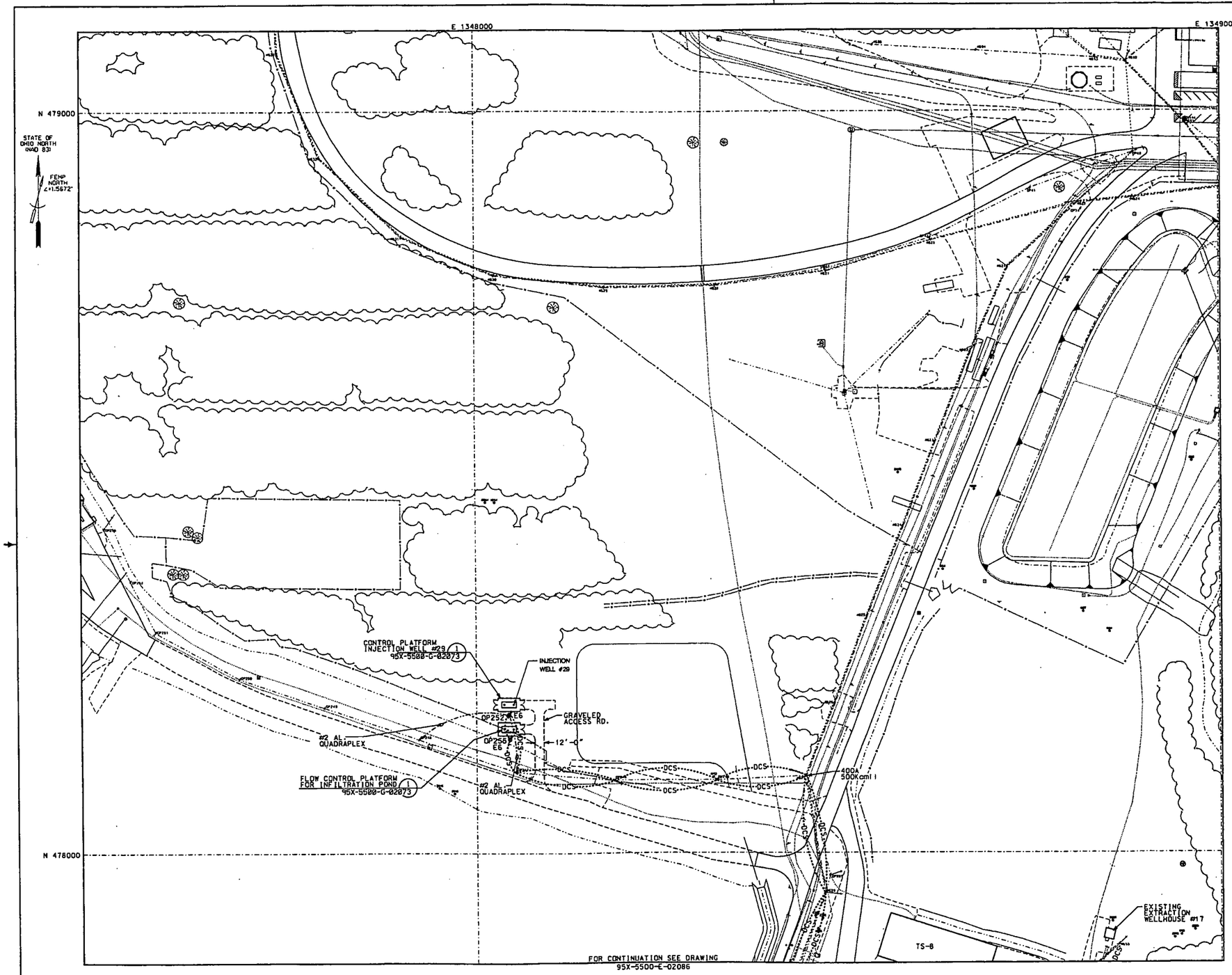
ARWWP — SITE

SOUTH FIELD EXTRACTION SYSTEM PHASE 2

INJECTION WELL PIPING PLAN, SECTIONS AND DETAIL

RES. 4340 — DATE FEB. 5, 2002 — DRAWN C. SCHWARZMAN

95X-5500-P-02082 | 0



KEY PLAN

NOTES

4487

PROPOSED POLE COORDINATES (NAD83)						STATIC LINE	4160 V LINE	COAX. LINE	FOS. LINE (FIBEROPTIC)	BISECTOR	GROUND
POLE NO.	POLE HEIGHT	POLE STATUS	EASTING	NORTHING	DETAIL DWG. NO.						
OP252	45FT	NEW	1348043.46	478186.20	95X-5500-E-02092		X				
OP253	45FT	NEW	1348044.55	478153.24	95X-5500-E-02092				X		

CABLE SAG BETWEEN POLES:		
CABLE SPAN	SAG (@ 70° F)	REMARKS
OP252 TO OP253	4.00 FT	SLACK SPAN

LEGEND:

- POLE, GUY WIRE, GRADE; θ = ANGLE OF GUY WIRE TO GROUND
- LIGHT POLE (EXISTING)
- POWER POLE (EXISTING)
- POWER/LIGHT POLE (EXISTING)
- POWER POLE (NEW)
- GUY WIRE (NEW)
- COMMUNICATION LINE (EXISTING OVERHEAD LINE)
- DCS — D.C.S. FIBEROPTIC LINE. (COMMUNICATION LINE. NEW OVERHEAD LINE)
- 120-480V POWER LINE (EXISTING OVERHEAD LINE)
- 120-480V POWER LINE (NEW LINE)
- 13.2 KV LINE (EXISTING OVERHEAD LINE)
- 13.2 KV LINE (NEW OVERHEAD LINE)

REF DWG NO.	DRAWING TITLE
95X-5500-X-02065	DRAWING INDEX
95X-5500-G-02066	LEGEND AND SYMBOLS
95X-5500-G-02067	SITE UTILITY PIPING PLAN
95X-5500-G-02071	PROFILES
95X-5500-G-02073	DETAILS - 1 OF 5
95X-5500-G-02075	DETAILS - 3 OF 5
95X-5500-P-02082	PIPING PLAN, SECTIONS AND DETAIL
95X-5500-E-02086	SITE UTILITY ELECTRIC PLAN
95X-5500-E-02092	ELECTRICAL ELEVATIONS, SECTIONS AND DETAILS

000048

SCALE BAR NAD83 (0' 50' 100' 200')

NO.	REVISIONS	DATE	DWN. BY	APPD.	NO.	REVISIONS	DATE	DWN. BY	APPD.	REF. DWG. NO.
					0	ISSUED FOR CFC	8/20/02	GES	GEP	95X-5500-X-02065

NOTE: FLUOR FERNALD CADD DRAWING. DO NOT REVISE MANUALLY.

CONFIGURATION MANAGEMENT DRAWING — EXISTING ACTIVITIES OR COMPONENTS SHOWN ON THIS DRAWING ARE PROPERLY CLASSIFIED IN MANAGEMENT CONTROL OPERATION MANAGEMENT CONTROL SEE NOTES.

DOCUMENT ENGINEER / DATE

APPROVALS				
CIVIL & STR.			SAFETY ENG.	
ELECTRICAL	T.E. MASTRICS	8/20/02	MAINTENANCE	
ENGINEER			FIRE PROTECT.	
INSTRUMENT			WASTE MANAGE.	
MECHANICAL			SECURITY	
			PROJECTS	
CHECKED	GEP			
APPROVED	G.E.P.M.A.	8/20/02		

Fernald Environmental Management Project

FLUOR FERNALD, INC.

U.S. DEPARTMENT OF ENERGY

ARWWP SITE

SOUTH FIELD EXTRACTION SYSTEM PHASE 2

SITE UTILITY ELECTRIC PLAN

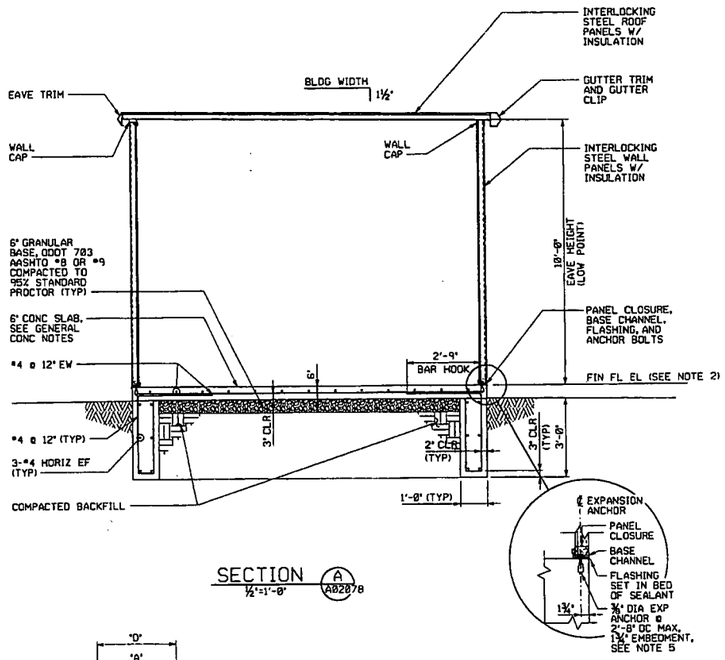
IW-29 AND INFILTRATION POND

RES. 4340

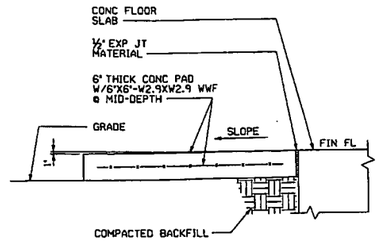
DATE JUL. 26, 2002

DRAWN C. SCHWARZMAN

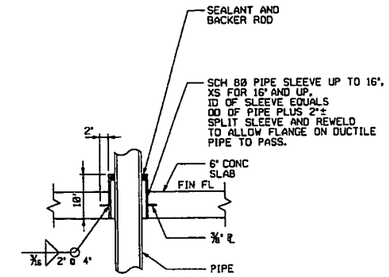
95X-5500-E-02085 | 0



SECTION A (A02078)
½"=1'-0"



SECTION G (A02078)
1"=1'-0"



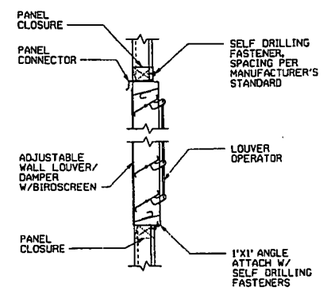
TYP PIPE SLEEVE SECTION C (A02078)
1"=1'-0"

1. FOR GROUNDING SYSTEM CONNECTION TO REINFORCEMENT, SEE DRAWING 95X-5500-E-02080.
2. SEE DRAWING 95X-5500-G-02069 AND 95X-5500-P-02081 FOR FINISH FLOOR ELEVATIONS FOR WELL HOUSE 30,31 AND 32.

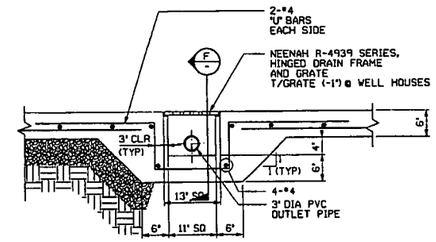
GENERAL CONCRETE NOTES

1. DESIGN, MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH SPECIFICATION SECTION 03301.
2. CONCRETE FOR SLAB ON GRADE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI AT 28 DAYS. CONCRETE FOR FOUNDATIONS AND MISCELLANEOUS PADS SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI AT 28 DAYS.
3. REINFORCING STEEL SHALL CONFORM TO ASTM SPECIFICATION A-615, GRADE 60.
4. FOUNDATION DESIGN IS BASED ON ASSUMED NET SOIL BEARING PRESSURE ALLOWABLE OF 2000 PSF. SITE SPECIFIC GEOLOGICAL INVESTIGATION WAS NOT PERFORMED. IF ANY SOFT, WET, ORGANIC OR LOOSE SOIL OR ANY OLD FILL IS ENCOUNTERED, THE FDF CONSTRUCTION MANAGER SHALL BE INFORMED AND THE CONDITIONS RESOLVED BEFORE CONTINUATION OF CONCRETE WORK.
5. ANCHOR BOLTS FOR PRE-ENGINEERED BUILDING AS SHOWN WERE DETERMINED USING PARKLINE BUILDING CATALOG INFORMATION. ANCHOR BOLT LOCATIONS SHALL BE CONFIRMED BY SELECTED PRE-ENGINEERED BUILDING VENDOR'S CERTIFIED DRAWINGS, BEFORE CONSTRUCTION OF THE FOUNDATION.
6. HOLD PLAN DIMENSION OF CONCRETE FOUNDATION +¼", -0" FOR ANCHOR BOLT EDGE DISTANCE REQUIREMENTS.

4487



SECTION D (A02078)
1½"=1'-0"



SECTION E (A02078)
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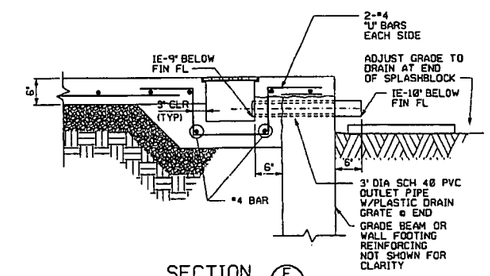
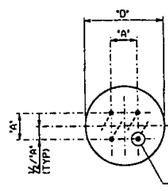


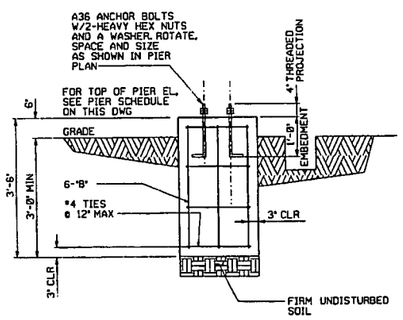
SECTION F
1½"=1'-0"



CONC PIER PLAN
1"=1'-0"

PIER SCHEDULE

WELL HOUSE NO.	"D"	"A"	½"/"A"	"B"	"AB"
30	18'	6'	3'	#5	½"
31	18'	6'	3'	#5	½"
32	18'	6'	3'	#5	½"



SECTION B (A02078)
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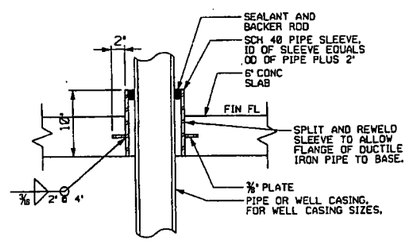
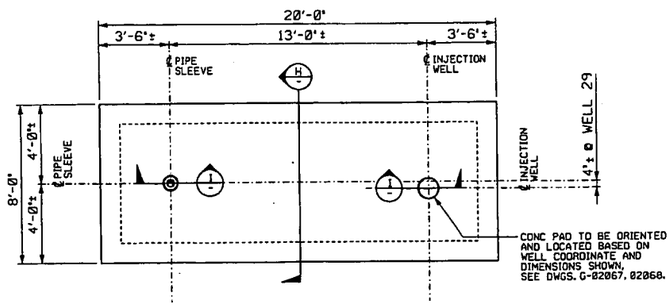
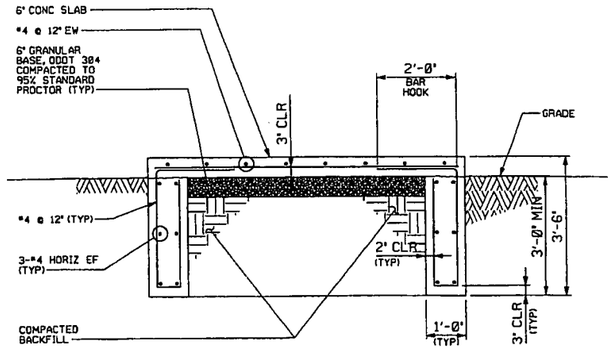


SECTION I
1½"=1'-0"



PLAN - TYPICAL INJECTION WELL/POND CONC PAD
⅜"=1'-0"



SECTION H
¾"=1'-0"

000043

REF DWG NO.	DRAWING TITLE
95X-5500-X-02065	DRAWING INDEX
95X-5500-G-02066	LEGEND AND SYMBOLS
95X-5500-G-02067	SITE UTILITY PIPING PLAN
95X-5500-G-02069	SITE UTILITY PIPING PLAN
95X-5500-A-02078	ARCHITECTURAL PLAN AND ELEVATIONS, WELL HOUSE No's. 30, 31 AND 32

NO.	REVISIONS	DATE	DWN. BY	APPD.
0	ISSUED FOR CFC	1-7-02	GES	

NO.	REVISIONS	DATE	DWN. BY	APPD.	REF. DWG. NO.
		1-7-02	GES		95X-5500-X-02065

NOTE: FLUOR FERNALD CADD DRAWING. DO NOT REVISE MANUALLY.

CONFIGURATION MANAGEMENT DRAWING — EXISTING DRAWINGS MAY BE CONFIRMED FOR CURRENCY VIA FLUOR FERNALD CONTROL DOCUMENT CENTER

APPROVALS: CIVIL & STR. / ELECTRICAL / ENGINEER / INSTRUMENT / MECHANICAL / CHECKED / APPROVED — SAFETY ENG. / MAINTENANCE / FIRE PROTECT. / WASTE MANAGE. / SECURITY / PROJECTS

Fernald Environmental Management Project

FLUOR FERNALD, INC.

U.S. DEPARTMENT OF ENERGY

ARWWP — SITE

SOUTH FIELD EXTRACTION SYSTEM
PHASE 2
PLANS, SECTIONS AND DETAILS

DES. 4249 — DATE FEB. 6, 2002 — DRAWN G. SCHWARZMAN

95X-5500-S-02079 | 0

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