Department of Energy

Ohio Field Office
Fernald Environmental Management Project
P. O. Box 538705
Cincinnati, Ohio 45253-8705
(513) 648-3155

- 4675

DEC 19 2002

Mr. James A. Saric, Remedial Project Manager
United States Environmental Protection Agency
Region V-SRF-5J
77 West Jackson Boulevard
Chicago, Illinois 60604-3590

DOE-0134-03

Mr. Tom Schneider, Project Manager
Ohio Environmental Protection Agency
401 East 5th Street
Dayton, Ohio 45402-2911

Mr. Bill Kurey
United States Fish & Wildlife Service, Suite H
6950 American Parkway
Reynoldsburg, OH 43068

Dear Mr. Saric, Mr. Schneider, and Mr. Kurey:

TRANSMITTAL OF RESPONSES TO THE OHIO ENVIRONMENTAL PROTECTION AGENCY AND UNITED STATES FISH AND WILDLIFE AGENCY COMMENTS AND THE GRADING PLAN FOR ACCELERATED RESTORATION OF THE ON-SITE DISPOSAL FACILITY BORROW AREA

Enclosed for your review are the Accelerated Restoration Drawings for grading and seeding activities in Subareas 1 and 2 of the On-Site Disposal Facility Borrow Area. Also enclosed are the responses to the Ohio Environmental Protection Agency and the United States Fish and Wildlife Service comments on the Accelerated Restoration Drawings. These drawings include the layout for final grading and seeding in the first two phases of the Borrow Area. The final Restoration Design Plans for the Borrow Area will include the layout for additional planting and seeding in future phases of the Borrow Area and the perimeter of the Borrow Area. Monitoring requirements for the Borrow Area will also be included in the Final Restoration Design Plan. The grading and seeding as outlined on the enclosed drawings is planned for completion this fall, weather permitting.

Recycled and Recyclable

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DEC 19 2002

If you have any questions or need further information, please contact Pete Yerace at (513) 648-3161.

Sincerely,

Johnny Reising

Johnny W. Reising
Fernald Remedial Action
Project Manager

FEMP:Yerace

Enclosures: As Stated

2

cc w/enclosures:
R. Janke, OH/FEMP
D. Pfister, OH/FEMP
G. Stegner, OH/FEMP
P. Yerace, OH/FEMP
T. Schneider, OEPA-Dayton (three copies of enclosures)
G. Jablonowski, USEPA-V, SRF-5J
D. Bidwell, FCAB
D. Sarno, FCAB
F. Bell, ATSDR
M. Cullerton, Tetra Tech
M. Shupe, HSI GeoTrans
R. Vandegrift, ODH
AR Coordinator, MS78

cc w/o enclosures:
R. Greenberg, EM-31/CLOV
N. Hallein, EM-31/CLOV
J. Reising, OH/FEMP
E. Skintik, OH/FEMP
A. Tanner, OH/FEMP
D. Carr, Fluor Fernald, Inc./MS2
J. Chiou, Fluor Fernald, Inc./MS64
J. Foster, Fluor Fernald, Inc./MS76
T. Hagen, Fluor Fernald, Inc./MS9
J. Homer, Fluor Fernald, Inc./MS65-2
L. Ludwick, Fluor Fernald, Inc./MS65-2
T. Poff, Fluor Fernald, Inc./MS65-2
J. Schomaker, Fluor Fernald, Inc./MS65-2
H. Swiger, Fluor Fernald, Inc./MS65-2
S. Walpole, Fluor Fernald, Inc./MS76
E. Woods, Fluor Fernald, Inc./MS65-2
ECDC, Fluor Fernald, Inc./MS52-7

RESPONSE TO U.S. FISH AND WILDLIFE SERVICES TECHNICAL REVIEW COMMENT ON THE BORROW AREA DESIGN DRAWINGS (20600-IRDP, 20600-PL-0003, REVISION A)

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

GENERAL COMMENT

Commenting Organization: U.S. FWS Commentor: Kurey
Section #: Not Applicable (NA) Page #: NA Line #: NA
Original General Comment #: 1

Comment: Could we make a very gradual slope (e.g., 100:1) on one side of each of the pools in the Borrow Area. This would get us more expansive areas of shallow water. Shorebirds would like it, at least until it became heavily vegetated. It might also be better for amphibians other than bullfrogs. Bullfrogs have taken over the mitigation bank wetlands at Slate Run Metropark.

Response: It is agreed that a very shallow slope on one side of each of the shallow ponds would be beneficial to the project with respect to habitat diversity. There will not be enough room in most areas of the project area to create a 1% slope on one side of the large pond. However, field adjustments can be made during grading work to flatten the slope on one side of the ponds to the degree possible. In restoration designs for future phases of the borrow area, consideration will be given to larger areas of shallow water in the project area.

Action: The drawing will not be modified to reflect a 1% slope on one side of each of the shallow ponds. However, field adjustments will be made during grading to flatten the slopes on one side of the ponds to the degree possible.

RESPONSES TO OHIO ENVIRONMENTAL PROTECTION AGENCY COMMENTS ON BORROW AREA DRAWINGS 90X-5500-G-00619 AND –00620 (20104)

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

Commenting Organization: Ohio EPA Commentator: OFFO
Section #: Drawing –00619, Note 6 Pg. #: NA Line #: NA Code:
Original Comment #: 1

Comment: Why is no topsoil being proposed for placement below elevation 571? It appears to Ohio EPA that Subarea 2 will act like a large mudflat with water levels receding over the course of the summer. The area should be covered with at least a 6-inch layer of topsoil to support vegetation during drying periods. Considering the large quantity of available topsoil, this shouldn't be difficult to obtain.

Response: It is anticipated that the portion of Subarea 2 below elevation 571 will be covered with at least a foot of water on a permanent basis. Given the water level that has been maintained in the sediment basin of the Borrow Area, it is expected that the same water levels will be maintained in Subarea 2. It is possible that the area will dry out in drought conditions, such as those experienced in the summer of 2002. The area was inundated in late summer and fall until pumping was initiated to dry the area out for grading. Because the area will be covered with water, there are no plans to cover the entire area with topsoil or seed the area. This is consistent with the approach taken in other restoration areas where permanent inundation is expected. Some topsoil can be added in the area immediately adjacent to the 571 contour where elevations may be sloping and less than 1 foot.

Action: Some topsoil will be added in the area immediately adjacent to the 571 contour in the event that some drying occurs in the summer months. The area will be observed over the next summer. If drying does occur in the area immediately adjacent to the 571 contour, this area will be seeded per the seeding specification.

Commenting Organization: Ohio EPA Commentator: OFFO
Section #: Drawing –00619, Note 5 Pg. #: NA Line #: NA Code:
Original Comment #: 2

Comment: Similar to the previous comment, Ohio EPA believes it is important to seed the entirety of Subarea 2. Unless an area is going to be permanently inundated by a foot of water or more it should be seeded. This seed will provide available seed bank for periods of drying supporting essential vegetative cover. If not seeded, this area is likely to become a large monoculture of cattails. Plugging would also be useful to prevent such a monoculture establishment.

Response: See response to Comment No. 1.

Action: No action required.

Commenting Organization: Ohio EPA Commentator: OFFO
Section #: Drawing –00619, Silt Fence Pg. #: NA Line #: NA Code:
Original Comment #: 3

Comment: The proposed placement of silt fence probably doesn't provide much benefit to the project and should be eliminated. It simply places an additional maintenance burden without providing any tangible environmental benefit considering the area is designed as a sediment basin. Silt fence should be installed along the eastern project area where drainage from the clay screening area stockpiles may impact the restoration.

Response: These silt fences are intended to be installed after topsoil placement in the upslope areas to avoid washout into the basin area. However, the washout would be minimal therefore the silt fences will be eliminated from the drawings. There is no silt fence shown at the toe of the clay stockpiles because these piles will be treated with surfactant.

Action: The silt fences will be removed from the drawings.

Commenting Organization: Ohio EPA Commentator: OFFO
Section #: Drawing –00620, Island Typical Pg. #: NA Line #: NA Code:
Original Comment #: 4
Comment: The drawing calls for a "minimum 2-foot" vertical elevation. Our previous comments recommended the islands but with a 2-foot maximum elevation. The drawing should be revised to ensure construction personnel do not create islands that are too high.

Response: Agreed. The intent is to create the island with an elevation of no more than 2 feet.

Action: Island will be constructed at an elevation no greater than 2 feet. The notation on the drawing will be revised to indicate that the island will be a maximum of 2 feet.

Commenting Organization: Ohio EPA Commentator: OFFO
Section #: Specification 02930 Pg. #: NA Line #: NA Code:
Original Comment #: 5
Comment: Ohio EPA recommends changing the permanent wet mix to replace yellow coneflower (*Ratibida pinnata*) with sawtooth sunflower (*Helianthus grosserratus*). Sawtooth sunflower is better suited to wet conditions and is a good food source for wildlife. Additionally, Ohio EPA recommends replacement of purple prairie clover (*Petalostemum purpureaum*) with Dotted Horsemint (*Monarda punctata*). This recommendation is due to questions regarding the native status of purple prairie clover in Ohio and the demonstrated success of Dotted Horsemint in the Carolina Area.

Response: There are a number of changes that need to be considered with the current seeding specification. Seed for the Borrow Area has already been purchased and mixed for the project. However, it is unlikely that seeding will occur until the spring given the time of the year. It is recommended that a Natural Resource Trustee (NRT) meeting be planned in January that is dedicated to seeding requirements so that the sitewide seeding specification can be modified.

Action: No change to current seed mix specified for Borrow Area. Overall seeding approach needs to be discussed at an upcoming NRT meeting to consider revisions to the seeding specification and the issuance of a new sitewide seeding specification.

DITCH 1 CENTERLINE CONTROL

POINT	TYPE		STATION		NORTHING (Y)	EASTING (X)	ELV.
DI-1	POB		0+00.00		477564.49	1350580.60	572.8
			39.95	S 31°34'53" W			
DI-2	PC		0+39.95		477530.46	1350559.68	573.2
		LC=169.92		CD=48°40'38"			
DI-7		RC=-200.0		DC=28°38'52"	477425.72	1350730.06	NA
	PI		1+30.41		477453.39	1350512.31	
DI-3	PT		2+09.86		477366.92	1350538.90	574.9
			104.43	S 17°05'45" E			
DI-4	PC		3+14.29		477267.11	1350569.60	575.9
		LC=30.99		CD=23°40'40"			
DI-8		RC=75.00		DC=76°23'40"	477245.06	1350497.91	NA
	PI		3+30.01		477252.08	1350574.22	
DI-5	PT		3+45.28		477236.47	1350572.42	576.3
			10.10	S 6°34'55" W			
DI-6	POE		3+55.38		477226.43	1350571.26	576.4

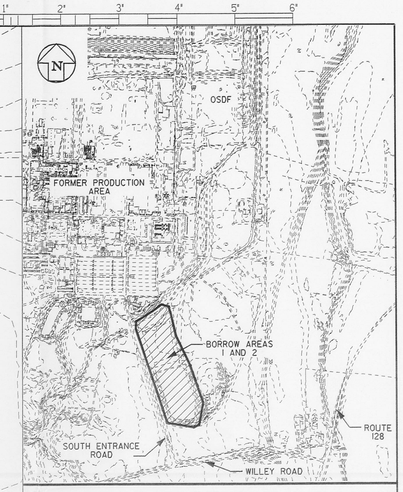
DITCH 2 CENTERLINE CONTROL

POINT	TYPE		STATION		NORTHING (Y)	EASTING (X)	ELV.
D2-1	POB		0+00.00		477542.15	1350649.54	572.8
			38.9374	S 1°18'11" E			
D2-2	PC		0+38.94		477503.22	1350650.43	573.2
		LC= 33.4		CD= 38°16'38"			
D2-11	RADIUS	RC= -50		DC=114°35'30"	477504.36	1350700.41	NA
D2-11PI	PI		0+56.29		477485.88	1350650.82	NA
D2-3	PT		0+72.34		477472.50	1350661.88	573.5
			86.9603	S 39°34'49" E			
D2-4	PC		1+59.30		477405.48	1350717.28	574.4
		LC= 63.6		CD= 36°28'06"			
D2-12	RADIUS	RC= 100		DC= 57°17'45"	477341.76	1350640.21	NA
D2-12PI	PI		1+92.25		477380.09	1350738.27	NA
D2-5	PT		2+22.95		477347.19	1350740.06	575.0
			40.7919	S 3°06'43" E			
D2-6	PC		2+63.74		477306.46	1350742.28	575.4
		LC= 36.3		CD= 20°48'04"			
D2-13	RADIUS	RC= 100		DC= 57°17'45"	477301.03	1350642.42	NA
D2-13PI	PI		2+82.10		477288.13	1350743.27	NA
D2-7	PT		3+00.05		477270.65	1350737.70	575.8
			38.1568	S 17°41'21" W			
D2-8	PC		3+38.20		477234.29	1350726.10	576.2
		LC= 13.8		CD= 15°45'36"			
D2-14	RADIUS	RC= -50		DC=114°35'30"	477219.10	1350773.74	NA
D2-14PI	PI		3+45.12		477227.70	1350724.00	NA
D2-9	PT		3+51.96		477220.78	1350723.77	576.3
			9.4189	S 1°55'44" W			
D2-10	POE		3+61.38		477211.37	1350723.45	576.4

DITCH 3 CENTERLINE CONTROL

POINT	TYPE	CURVE	STATION		NORTHING (Y)	EASTING (X)	ELV.
D3-1	POB		0+00.00		478100.85	1350524.42	569.80
			72.4558	S 0°35'17" E			
D3-2	PC		0+72.46		478028.40	1350525.16	570.16
		LC= 107.1		CD= 30°41'46"			
D3-3	RADIUS	RC= 200		DC= 28°38'52"	478026.34	1350325.17	
	PI		1+27.35		477973.51	1350525.73	
D3-4	PT		1+79.61		477926.02	1350498.19	570.70
			84.91	S 30°06'29" W			
D3-5	PC		2+64.52		477852.56	1350455.60	571.12
		LC= 59.0		CD= 45°04'13"			
D3-6	RADIUS	RC= -75		DC= 76°23'40"	477814.94	1350520.48	
	PI		2+95.64		477825.64	1350439.99	
D3-7	PT		3+23.51		477795.58	1350448.02	571.42
			4.5444	S 14°57'45" E			
D3-8	PC		3+28.06		477791.19	1350449.19	571.44
		LC= 80.3		CD= 61°20'25"			
D3-9	RADIUS	RC= -75		DC= 76°23'40"	477810.55	1350521.65	
	PI		3+72.54		477748.22	1350460.68	
D3-10	PT		4+08.35		477737.68	1350503.89	571.84
			47.9081	S 76°18'10" E			
D3-11	PC		4+56.26		477726.34	1350550.44	572.08
		LC= 38.7		CD= 44°21'43"			
D3-12	RADIUS	RC= 50		DC=114°35'30"	477677.76	1350538.60	
	PI		4+76.64		477721.51	1350570.24	
D3-13	PT		4+94.97		477704.21	1350581.03	572.27
			33.7438	S 31°56'27" E			
D3-14	POE		5+28.72		477675.58	1350598.88	572.44

PLAN - BORROW SUBAREAS IA, IB & 2



KEY PLAN
NOT TO SCALE

NOTES:

1. CONTRACTOR SHALL INSTALL AND MAINTAIN EROSION AND SEDIMENT CONTROLS INCLUDING CHECK DAMS AS PER TECHNICAL SPECIFICATION SECTION 02270 SURFACE WATER MANAGEMENT AND EROSION CONTROL.
2. EXCAVATE DEPRESSIONS, RESTORATION DITCHES AND PONDS IN ACCORDANCE WITH TECHNICAL SPECIFICATION SECTION 02200. FIELD LOCATE DEPRESSIONS AND FLOWLINES FOR THE RESTORATION DITCHES AS DIRECTED BY THE CONSTRUCTION MANAGER. SURFACE IRREGULARITIES SHALL BE LEFT IN DISTURBED AREAS.
3. REFER TO TECHNICAL SPECIFICATION SECTION 02930 FOR PERMANENT VEGETATION.
4. WET AREA PERMANENT SEED TO BE APPLIED IN PONDS, DEPRESSIONS AND DITCHES. SEE DITCH AND POND DETAIL.
5. DRY AREA PERMANENT SEED TO BE APPLIED ON ALL DISTURBED AREAS OTHER THAN WET AREAS.
6. TOPSOIL SHALL BE APPLIED MIN. 6" DEEP OVER ENTIRE AREA EXCEPT FOR THE BOTTOM OF EACH POND AND ALL SURFACE BELOW ELEVATION 571.0 IN SUB AREA 2.
7. CONSTRUCTION SAFETY FENCING TO BE PLACED AS DIRECTED BY CONSTRUCTION MANAGER IN ACCORDANCE WITH TECHNICAL SPECIFICATION 02200.
8. SEE DRAWING 90X-5500-G-00620 FOR POND AND ISLAND RESTORATION CONTROL POINTS AND THIS DRAWING FOR FLOWLINE RESTORATION CONTROL POINTS
9. FIELD ADJUST HORIZONTAL ALIGNMENTS OF PONDS AND DITCHES TO FIT EXISTING CONDITIONS.
10. CLEAR AND GRUB AREAS TO BE GRADED. SEED DISTURBED DRY AREA WITH DRY AREA SEED . SEED DISTURBED WET AREA WITH WET AREA SEED. SEE DETAILS ON DRAWING 62090X-5500-G-00620.

4675

LEGEND:

- 580 — EXISTING GROUND ELEVATION (FEET)
- 572 — FINISHED GRADE ELEVATION (FEET)
- 569 — SPOT ELEVATION
- FLOW LINE DIRECTION
- LIMIT OF PERMANENT SEEDING

0 50 100 200
SCALE IN FEET

NO.	REVISIONS	DATE	DWN. BY	APPD.
1	REMOVE SILT FENCING. CHANGE ISLAND MIN. HTG. TO MAX. PER EPA REVIEW COMMENTS	12/08/02	WJO	
0	ISSUED CERTIFIED FOR CONSTRUCTION	11/01/02	WJO	JEP

NO.	REVISIONS	DATE	DWN. BY	APPD.	REF. DWG. NO.

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

CONFIGURATION MANAGEMENT DRAWING — YES / NO
SYSTEMS, STRUCTURES OR COMPONENTS REFLECTED ON THIS DRAWING ARE UNDER CONFIGURATION MANAGEMENT CONTROL. SEE NOTES.
COGNIZANT ENGINEER — DATE 12/7/02

APPROVALS

CADD SERVICES	JEP	11/01/02	SAFETY ENG.	GJK	11/01/02
CIVIL & STR.	SK	11/01/02	MAINTENANCE		
ELECTRICAL			FIRE PROTECT.		
ENGINEER			WASTE MANAGE.		
INSTRUMENT			SECURITY		
MECHANICAL			PROJECTS		
			CONSTRUCTION	WAZ	11/13/02
CHECKED	JEP	11/01/02	QA/QC	WMG	11/08/02
APPROVED			RESTORATION	WEW	11/11/02

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

ON-SITE DISPOSAL FACILITY
BORROW AREA-SUBAREA IA, IB & 2
INTERIM RESTORATION PLAN

PROJ. NO. 20104
DATE 9/27/02
DRAWN WJO
90X-5500-G-00619 | 1

6

RESTORATION CONTROL POINTS - POND 1

POINT	NORTHING	EASTING	ELV.	DESCRIPTION
P1-1	477969.51	1350406.12	572.0	TOP OF SLOPE
P1-2	477975.08	1350401.26	572.0	TOP OF SLOPE
P1-3	477959.45	1350371.51	572.0	TOP OF SLOPE
P1-4	477921.44	1350357.78	572.0	TOP OF SLOPE
P1-5	477890.25	1350338.45	572.0	TOP OF SLOPE
P1-6	477872.04	1350343.02	572.0	TOP OF SLOPE
P1-7	477854.97	1350356.63	572.0	TOP OF SLOPE
P1-8	477851.48	1350375.69	572.0	TOP OF SLOPE
P1-9	477856.07	1350396.50	572.0	TOP OF SLOPE
P1-10	477870.61	1350417.95	572.0	TOP OF SLOPE
P1-11	477892.62	1350432.86	572.0	TOP OF SLOPE
P1-12	477914.78	1350438.79	572.0	TOP OF SLOPE
P1-13	477937.25	1350437.17	572.0	TOP OF SLOPE
P1-14	477955.60	1350404.6	569.2	TOE OF SLOPE
P1-15	477956.20	1350399.2	569.2	TOE OF SLOPE
P1-16	477948.83	1350387.5	569.2	TOE OF SLOPE
P1-17	477916.15	1350376.4	569.2	TOE OF SLOPE
P1-18	477883.34	1350357.8	569.2	TOE OF SLOPE
P1-19	477868.63	1350361.3	569.2	TOE OF SLOPE
P1-20	477865.15	1350372.7	569.2	TOE OF SLOPE
P1-21	477869.70	1350393.1	569.2	TOE OF SLOPE
P1-22	477878.47	1350406.4	569.2	TOE OF SLOPE
P1-23	477900.48	1350421.3	569.2	TOE OF SLOPE
P1-24	477913.77	1350424.8	569.2	TOE OF SLOPE
P1-25	477936.24	1350423.2	569.2	TOE OF SLOPE
P1-R1	477945.26	1350397.95	569.2	11 FT RADIUS
P1-R2	477934.72	1350402.26	569.2	21 FT RADIUS
P1-R3	477912.26	1350403.89	569.2	21 FT RADIUS
P1-R4	477890.25	1350388.97	569.2	21 FT RADIUS
P1-R5	477875.90	1350370.31	569.2	21 FT RADIUS
P1-R6	477877.84	1350367.34	569.2	11 FT RADIUS

RESTORATION CONTROL POINTS - POND 2

POINT	NORTHING	EASTING	ELV.	DESCRIPTION
P2-1	477907.65	1350562.44	572.0	TOP OF SLOPE
P2-2	477905.67	1350524.15	572.0	TOP OF SLOPE
P2-3	477888.27	1350503.41	572.0	TOP OF SLOPE
P2-4	477845.25	1350496.23	572.0	TOP OF SLOPE
P2-5	477833.97	1350502.50	572.0	TOP OF SLOPE
P2-6	477824.69	1350509.98	572.0	TOP OF SLOPE
P2-7	477805.21	1350532.12	572.0	TOP OF SLOPE
P2-8	477813.67	1350587.43	572.0	TOP OF SLOPE
P2-9	477838.38	1350596.44	572.0	TOP OF SLOPE
P2-10	477858.41	1350596.44	572.0	TOP OF SLOPE
P2-11	477876.42	1350591.45	572.0	TOP OF SLOPE
P2-12	477890.73	1350582.86	572.0	TOP OF SLOPE
P2-13	477902.96	1350570.48	572.0	TOP OF SLOPE
P2-14	477895.56	1350555.39	569.2	TOE OF SLOPE
P2-15	477893.90	1350531.79	569.2	TOE OF SLOPE
P2-16	477877.87	1350512.78	569.2	TOE OF SLOPE
P2-17	477852.05	1350508.47	569.2	TOE OF SLOPE
P2-18	477837.79	1350516.74	569.2	TOE OF SLOPE
P2-19	477815.72	1350541.37	569.2	TOE OF SLOPE
P2-20	477820.87	1350575.43	569.2	TOE OF SLOPE
P2-21	477838.38	1350582.44	569.2	TOE OF SLOPE
P2-22	477858.41	1350582.44	569.2	TOE OF SLOPE
P2-23	477869.22	1350579.45	569.2	TOE OF SLOPE
P2-24	477883.53	1350570.86	569.2	TOE OF SLOPE
P2-25	477890.86	1350563.43	569.2	TOE OF SLOPE
P2-26	477810.57	1350557.06	569.2	TOE OF SLOPE
P2-27	477796.72	1350559.36	572.0	TOP OF SLOPE

RESTORATION CONTROL POINTS - POND 2 CONT.

POINT	NORTHING	EASTING	ELV.	DESCRIPTION
P2-R1	477877.42	1350544.81	569.2	21 FT RADIUS
P2-R2	477872.72	1350552.85	569.2	21 FT RADIUS
P2-R3	477858.41	1350561.44	569.2	21 FT RADIUS
P2-R4	477838.38	1350561.44	569.2	21 FT RADIUS
P2-R5	477831.49	1350555.24	569.2	21 FT RADIUS
P2-R6	477850.97	1350533.10	569.2	21 FT RADIUS
P2-R7	477862.25	1350526.82	569.2	21 FT RADIUS

RESTORATION CONTROL POINTS - POND 3

POINT	NORTHING	EASTING	ELV.	DESCRIPTION
P3-1	477677.18	1350606.75	574.0	TOP OF SLOPE
P3-2	477679.47	1350614.99	574.0	TOP OF SLOPE
P3-3	477679.37	1350642.16	574.0	TOP OF SLOPE
P3-4	477666.03	1350688.70	574.0	TOP OF SLOPE
P3-5	477649.77	1350713.51	574.0	TOP OF SLOPE
P3-6	477632.69	1350727.59	574.0	TOP OF SLOPE
P3-7	477599.60	1350738.99	574.0	TOP OF SLOPE
P3-8	477591.30	1350738.78	574.0	TOP OF SLOPE
P3-9	477567.03	1350731.77	574.0	TOP OF SLOPE
P3-10	477549.28	1350713.80	574.0	TOP OF SLOPE
P3-11	477540.82	1350698.20	574.0	TOP OF SLOPE
P3-12	477534.85	1350672.03	574.0	TOP OF SLOPE
P3-13	477537.01	1350626.08	574.0	TOP OF SLOPE
P3-14	477556.55	1350615.82	574.0	TOP OF SLOPE
P3-15	477551.64	1350582.46	574.0	TOP OF SLOPE
P3-16	477565.44	1350570.07	574.0	TOP OF SLOPE
P3-17	477600.99	1350562.39	574.0	TOP OF SLOPE
P3-18	477636.69	1350568.14	574.0	TOP OF SLOPE
P3-19	477658.28	1350576.30	574.0	TOP OF SLOPE
P3-20	477672.38	1350590.40	574.0	TOP OF SLOPE
P3-21	477661.16	1350620.08	570.2	TOE OF SLOPE
P3-22	477661.10	1350636.93	570.2	TOE OF SLOPE
P3-23	477647.77	1350683.47	570.2	TOE OF SLOPE
P3-24	477637.69	1350698.85	570.2	TOE OF SLOPE
P3-25	477620.60	1350712.93	570.2	TOE OF SLOPE
P3-26	477600.09	1350720.00	570.2	TOE OF SLOPE
P3-27	477591.79	1350719.79	570.2	TOE OF SLOPE
P3-28	477566.15	1350705.00	570.2	TOE OF SLOPE
P3-29	477557.53	1350689.16	570.2	TOE OF SLOPE
P3-30	477553.83	1350672.93	570.2	TOE OF SLOPE
P3-31	477556.19	1350644.42	570.2	TOE OF SLOPE
P3-32	477555.19	1350644.38	570.2	TOE OF SLOPE
P3-33	477565.59	1350595.38	570.2	TOE OF SLOPE
P3-34	477571.12	1350589.84	570.2	TOE OF SLOPE
P3-35	477597.37	1350581.15	570.2	TOE OF SLOPE
P3-36	477633.67	1350586.30	570.2	TOE OF SLOPE
P3-37	477649.91	1350593.36	570.2	TOE OF SLOPE
P3-38	477655.66	1350600.28	570.2	TOE OF SLOPE
P3-R1	477631.30	1350628.39	570.2	31 FT RADIUS
P3-R2	477617.97	1350674.93	570.2	31 FT RADIUS
P3-R3	477600.88	1350689.01	570.2	31 FT RADIUS
P3-R4	477592.58	1350688.80	570.2	31 FT RADIUS
P3-R5	477584.80	1350674.40	570.2	31 FT RADIUS
P3-R6	477587.51	1350617.30	570.2	31 FT RADIUS
P3-R7	477593.05	1350611.76	570.2	31 FT RADIUS
P3-R8	477643.03	1350604.97	570.2	13 FT RADIUS

RESTORATION CONTROL POINTS - POND 4

POINT	NORTHING	EASTING	ELV.	DESCRIPTION
P4-1	477482.15	1350599.23	574.0	TOP OF SLOPE
P4-2	477475.96	1350611.37	574.0	TOP OF SLOPE
P4-3	477460.78	1350621.41	574.0	TOP OF SLOPE
P4-4	477446.65	1350622.71	574.0	TOP OF SLOPE
P4-5	477435.69	1350609.59	574.0	TOP OF SLOPE
P4-6	477432.74	1350580.07	574.0	TOP OF SLOPE
P4-7	477445.90	1350563.69	574.0	TOP OF SLOPE
P4-8	477455.07	1350562.60	574.0	TOP OF SLOPE
P4-9	477467.72	1350567.17	574.0	TOP OF SLOPE
P4-10	477478.03	1350578.04	574.0	TOP OF SLOPE
P4-11	477482.15	1350593.80	574.0	TOP OF SLOPE
P4-12	477472.15	1350599.23	572.0	TOE OF SLOPE
P4-13	477469.90	1350603.40	572.0	TOE OF SLOPE
P4-14	477455.27	1350613.07	572.0	TOE OF SLOPE
P4-15	477450.56	1350613.50	572.0	TOE OF SLOPE
P4-16	477448.66	1350612.70	572.0	TOE OF SLOPE
P4-17	477445.64	1350608.59	572.0	TOE OF SLOPE
P4-18	477442.69	1350579.08	572.0	TOE OF SLOPE
P4-19	477447.08	1350572.62	572.0	TOE OF SLOPE
P4-20	477456.24	1350572.53	572.0	TOE OF SLOPE
P4-21	477460.46	1350572.05	572.0	TOE OF SLOPE
P4-22	477470.77	1350584.93	572.0	TOE OF SLOPE
P4-23	477472.15	1350588.37	572.0	TOE OF SLOPE
P4-R1	477467.15	1350588.37	571.2	5 FT RADIUS
P4-R2	477467.15	1350599.23	571.2	5 FT RADIUS
P4-R3	477452.51	1350608.90	571.2	5 FT RADIUS
P4-R4	477450.62	1350608.09	571.2	5 FT RADIUS
P4-R5	477447.67	1350578.58	571.2	5 FT RADIUS
P4-R6	477456.83	1350577.49	571.2	5 FT RADIUS

RESTORATION CONTROL POINTS - POND 5

POINT	NORTHING	EASTING	ELV.	DESCRIPTION
P5-1	477308.86	1350629.16	576.0	TOP OF SLOPE
P5-2	477306.56	1350631.49	576.0	TOP OF SLOPE
P5-3	477303.74	1350637.47	576.0	TOP OF SLOPE
P5-4	477302.41	1350649.30	576.0	TOP OF SLOPE
P5-5	477281.21	1350659.65	576.0	TOP OF SLOPE
P5-6	477274.10	1350656.21	576.0	TOP OF SLOPE
P5-7	477265.90	1350645.54	576.0	TOP OF SLOPE
P5-8	477263.08	1350630.82	576.0	TOP OF SLOPE
P5-9	477265.17	1350619.91	576.0	TOP OF SLOPE
P5-10	477271.02	1350610.76	576.0	TOP OF SLOPE
P5-11	477283.44	1350603.84	576.0	TOP OF SLOPE
P5-12	477297.35	1350603.63	576.0	TOP OF SLOPE
P5-13	477301.74	1350622.14	574.0	TOP OF SLOPE
P5-14	477299.44	1350624.47	574.0	TOE OF SLOPE
P5-15	477293.79	1350636.43	574.0	TOE OF SLOPE
P5-16	477292.72	1350646.67	574.0	TOE OF SLOPE
P5-17	477285.57	1350650.65	574.0	TOE OF SLOPE
P5-18	477278.46	1350647.21	574.0	TOE OF SLOPE
P5-19	477275.72	1350643.65	574.0	TOE OF SLOPE
P5-20	477272.90	1350628.94	574.0	TOE OF SLOPE
P5-21	477273.59	1350625.30	574.0	TOE OF SLOPE
P5-22	477279.45	1350616.15	574.0	TOE OF SLOPE
P5-23	477283.59	1350613.84	574.0	TOE OF SLOPE
P5-24	477298.10	1350613.63	574.0	TOE OF SLOPE
P5-R1	477298.17	1350618.63	573.2	5 FT RADIUS
P5-R2	477287.75	1350646.15	573.2	5 FT RADIUS
P5-R3	477280.63	1350642.71	573.2	5 FT RADIUS
P5-R4	477277.81	1350627.99	573.2	5 FT RADIUS
P5-R5	477283.66	1350618.84	573.2	5 FT RADIUS
P5-R6	477313.68	1350638.51	576.0	20 FT RADIUS

RESTORATION CONTROL POINTS - ISLANDS

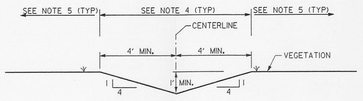
POINT	NORTHING	EASTING	ELV.	DESCRIPTION
I-1	478272.47	1350306.15	570.0	TOE OF SLOPE
I-2	478296.70	1350288.41	570.0	TOE OF SLOPE
I-3	478301.10	1350257.09	570.0	TOE OF SLOPE
I-4	478320.47	1350246.96	570.0	TOE OF SLOPE
I-5	478341.32	1350264.21	570.0	TOE OF SLOPE
I-6	478342.36	1350287.45	570.0	TOE OF SLOPE
I-7	478326.59	1350319.36	570.0	TOE OF SLOPE
I-8	478315.96	1350331.43	570.0	TOE OF SLOPE
I-9	478301.44	1350338.35	570.0	TOE OF SLOPE
I-10	478276.61	1350335.80	570.0	TOE OF SLOPE
I-11	478269.77	1350318.76	570.0	TOP OF SLOPE
I-12	478296.73	1350318.47	572.5	TOP OF SLOPE
I-13	478311.95	1350305.72	571.2	TOP OF SLOPE
I-14	478321.16	1350279.87	573.3	TOP OF SLOPE
I2-1	477395.45	1350707.53	576.0	TOE OF SLOPE
I2-2	477381.88	1350700.75	576.0	TOE OF SLOPE
I2-3	477397.43	1350643.39	576.0	TOE OF SLOPE
I2-4	477405.05	1350634.96	576.0	TOE OF SLOPE
I2-5	477415.64	1350639.11	576.0	TOE OF SLOPE
I2-6	477432.31	1350667.77	576.0	TOE OF SLOPE
I2-7	477408.18	1350650.21	578.0	TOP OF SLOPE
I2-8	477421.45	1350667.55	578.0	TOP OF SLOPE
I2-9	477398.58	1350685.75	578.0	TOP OF SLOPE

RESTORATION CONTROL POINTS - LIMITS

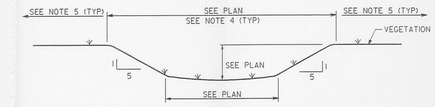
POINT	NORTHING	EASTING	ELV.	DESCRIPTION
L-1	478463.83	1350112.57	NA	LIMIT OF PERM. VEG.
L-2	478017.56	1350283.81	NA	LIMIT OF PERM. VEG.
L-3	478054.46	1350331.28	NA	LIMIT OF PERM. VEG.
L-4	478075.80	1350408.07	NA	LIMIT OF PERM. VEG.
L-5	478100.48	1350501.16	NA	LIMIT OF PERM. VEG.
L-6	478161.40	1350544.00	NA	LIMIT OF PERM. VEG.
L-7	478020.32	1350575.95	NA	LIMIT OF PERM. VEG.
L-8	477922.89	1350584.10	NA	LIMIT OF PERM. VEG.
L-9	477793.69	1350683.60	NA	LIMIT OF PERM. VEG.
L-10	477684.48	1350700.81	NA	LIMIT OF PERM. VEG.
L-11	477599.63	1350746.38	NA	LIMIT OF PERM. VEG.
L-12	477502.11	1350735.45	NA	LIMIT OF PERM. VEG.
L-13	477435.88	1350833.35	NA	LIMIT OF PERM. VEG.
L-14	477235.33	1350816.46	NA	LIMIT OF PERM. VEG.
L-15	477198.98	1350720.46	NA	LIMIT OF PERM. VEG.
L-16	477220.25	1350569.67	NA	LIMIT OF PERM. VEG.
L-17	477236.35	1350453.35	NA	LIMIT OF PERM. VEG.
L-18	477422.27	1350394.80	NA	LIMIT OF PERM. VEG.
L-19	477653.40	1350314.38	NA	LIMIT OF PERM. VEG.
L-20	477812.94	1350271.65	NA	LIMIT OF PERM. VEG.
L-21	478039.90	1350205.85	NA	LIMIT OF PERM. VEG.
L-22	478442.49	1350060.28	NA	LIMIT OF PERM. VEG.

RESTORATION CONTROL POINTS - MISC

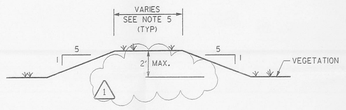
POINT	NORTHING	EASTING	ELV.	DESCRIPTION
S-1	478504.03	1350337.4	569.0	GRADE
S-2	478495.39	1350323.9	569.0	GRADE
S-3	478566.01	1350285.5	569.0	GRADE
S-4	478493.25	1350464.0	569.0	GRADE
S-5	478319.89	1350149.9	569.0	GRADE
S-6	478067.69	1350425.1	570.0	GRADE
S-7	478008.29	1350273.4	570.0	GRADE
S-8	478024.47	1350470.2	571.5	GRADE
S-9	477797.29	1350411.6	572.4	GRADE
S-10	477618.60	1350480.3	573.5	GRADE
S-11	477758.77	1350646.2	573.5	GRADE



RESTORATION DITCH
TYPICAL CROSS SECTION
NOT TO SCALE



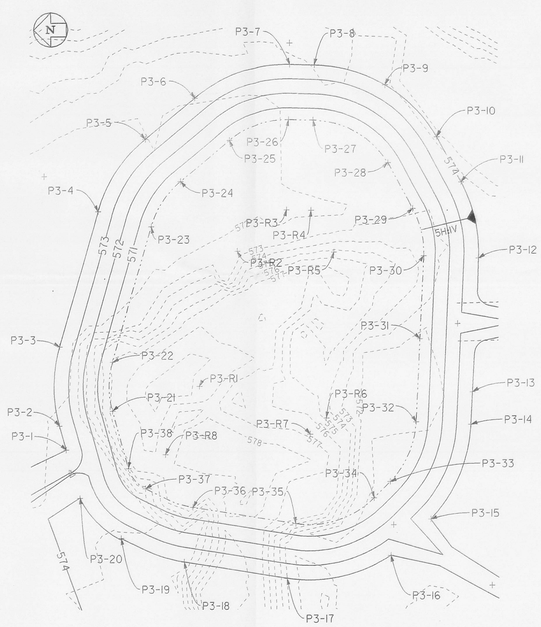
POND
TYPICAL CROSS SECTION
NOT TO SCALE



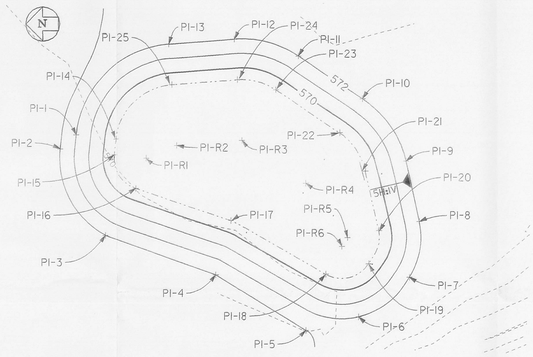
ISLAND
TYPICAL CROSS SECTION
NOT TO SCALE

NOTES:

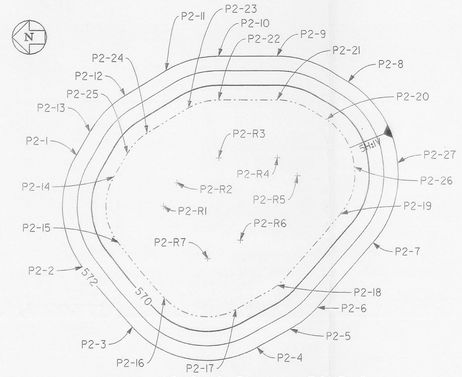
1. CONTRACTOR SHALL INSTALL AND MAINTAIN EROSION AND SEDIMENT CONTROLS INCLUDING CHECK DAMS AS PER TECHNICAL SPECIFICATION SECTION 02270 SURFACE WATER MANAGEMENT AND EROSION CONTROL.
2. EXCAVATE DEPRESSIONS, RESTORATION DITCHES AND PONDS IN ACCORDANCE WITH TECHNICAL SPECIFICATION SECTION 02200, FIELD LOCATE DEPRESSIONS AND FLOWLINES FOR THE RESTORATION DITCHES AS DIRECTED BY THE CONSTRUCTION MANAGER. SURFACE IRREGULARITIES SHALL BE LEFT IN DISTURBED AREAS.
3. REFER TO TECHNICAL SPECIFICATION SECTION 02930 FOR PERMANENT VEGETATION.
4. WET AREA PERMANENT SEED TO BE APPLIED IN PONDS, DEPRESSIONS AND DITCHES. SEE DITCH AND POND DETAIL.
5. DRY AREA PERMANENT SEED TO BE APPLIED ON ALL DISTURBED AREAS OTHER THAN WET AREAS.
6. TOPSOIL SHALL BE APPLIED MIN. 6" DEEP OVER ENTIRE AREA EXCEPT FOR THE BOTTOM OF EACH POND AND ALL SURFACE BELOW ELEVATION 571.0 IN SUB AREA 2.
7. FIELD ADJUST HORIZONTAL ALIGNMENTS OF PONDS AND DITCHES TO FIT EXISTING CONDITIONS.
8. CLEAR AND GRUB AREAS TO BE GRADED. SEED DISTURBED DRY AREA WITH DRY AREA SEED . SEED DISTURBED WET AREA WITH WET AREA SEED. SEE TYPICAL CROSS SECTIONS THIS SHEET
9. RESTORATION CONTROL POINT LOCATIONS FOR DITCHES ARE SHOWN ON DRAWING 90X-5500-G-00619.



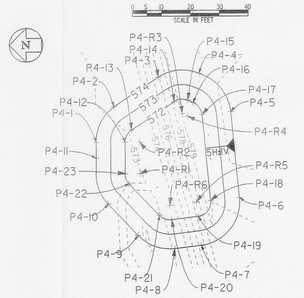
DETAIL GRADING PLAN - POND 3
SCALE: 1"=20'
0 5 10 20 30 40
SCALE IN FEET



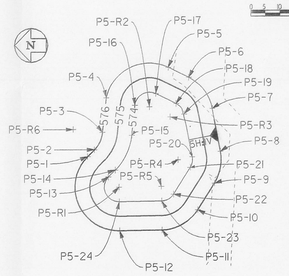
DETAIL GRADING PLAN - POND 1
SCALE: 1"=20'
0 5 10 20 30 40
SCALE IN FEET



DETAIL GRADING PLAN - POND 2
SCALE: 1"=20'
0 5 10 20 30 40
SCALE IN FEET



DETAIL GRADING PLAN - POND 4
SCALE: 1"=20'
0 5 10 20 30 40
SCALE IN FEET



DETAIL GRADING PLAN - POND 5
SCALE: 1"=20'
0 5 10 20 30 40
SCALE IN FEET

LEGEND

P2-8 CONTROL POINT

570 PROPOSED CONTOUR

EXISTING CONTOUR

4675

NO.	REVISIONS	DATE	DWN. BY	APPD.
1	REMOVE SILT FENCING, CHANGE ISLAND MIN. HTG. TO MAX. PER OEPA REVIEW COMMENTS	12/09/02	WJO	
0	ISSUED CERTIFIED FOR CONSTRUCTION	1/07/02	WJO	JEP

NO.	REVISIONS	DATE	DWN. BY	APPD.	REF. DWG. NO.

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

CONFIGURATION MANAGEMENT DRAWING — YES / NO
SYSTEMS, STRUCTURES OR COMPONENTS DESCRIBED ON THIS DRAWING ARE UNDER CONFIGURATION MANAGEMENT CONTROL. SEE NOTES.
COGNIZANT ENGINEER — DATE 12/17/02

APPROVALS

CADD SERVICES	JEP	1/07/02	SAFETY ENG.	GLJ	1/07/02
CIVIL & STR.	SK	1/02/02	MAINTENANCE		
ELECTRICAL			FIRE PROTECT.		
ENGINEER			WASTE MANAGE.		
INSTRUMENT			SECURITY		
MECHANICAL			PROJECTS		
			CONSTRUCTION	MAZ	1/01/02
CHECKED	JEP	1/07/02	QA/QC	MWC	1/08/02
APPROVED			RESTORATION	WEH	1/08/02

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

ON-SITE DISPOSAL FACILITY
BORROW AREA-SUBAREA 1A, 1B & 2
INTERIM RESTORATION PLAN

PROJ. NO. 20104
DATE 9/27/02
DRAWN WJO
90X-5500-G-00620 | 1

7