FLUOR

Combined Technical Specifications
For
Soil and Disposal Facility Project

Area 3B/4B/5 Remediation

Excavation for Remediation
Technical Specifications
Document 20300-TS-0001
Revision 1

Area 4B Dewatering
Technical Specifications
Document 20810-TS-0001
Revision A

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U.S. DEPARTMENT OF ENERGY
FERNALD CLOSURE PROJECT

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Excavation For Remediation

Document 20300-TS-0001
Revision 1

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U.S. DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

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FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

Excavation For Remediation Technical Specifications

Technical specifications contained in this document detail requirements for soil excavation projects performed under the Soils and Disposal Facility Project. Technical specifications referenced, but not contained herein, are provided in On-Site Disposal Facility (OSDF) technical specification packages. The Legend and General Notes drawing within each excavation design package identify the applicable OSDF technical specification package document.

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SPECIFICATION REVISION RECORD

Spec. No./Rev.	Description	Approval	Date
02150, Rev.A	Issue for 30% design review	DRR	5/23/02
02150, Rev B	Issue for 90% A2PII design review	DRR	6/24/02
02150, Rev C	Issue for 90% SWL/FTF design review	DRR	7/16/02
02150, Rev D	Re-issue for 90% SWL/FTF and 90% 3B/4B/5 design reviews	DRR	8/13/02
02150, Rev E	Issue for 100% 3B/4B/5 design review	DRR	9/27/02
02150, Rev 0	Issue for CFC SWL/FTF design package	DRR	10/16/02
02150, Rev 1	Revised per DCN 20600-005 per internal, DOE and agency comments	DRR	02/06/03
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02205, Rev C	Issue for 90% SWL/FTF design review	DRR	7/16/02
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02205, Rev 0	Issue for CFC SWL/FTF design package	DRR	10/16/02
02205, Rev 1	Revised per DCN 20600-005 per internal, DOE and agency comments	DRR	02/06/03
02206, Rev.A	Issue for 30% design review	DRR	5/23/02
02206, Rev B	Issue for 90% A2PII design review	DRR	6/24/02
02206, Rev C	Issue for 90% SWL/FTF design review	DRR	7/16/02
02206, Rev D	Re-issue for 90% SWL/FTF and 90% 3B/4B/5 design reviews	DRR	8/13/02
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02207, Rev C	Issue for 90% SWL/FTF design review	DRR	7/16/02
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02207, Rev E	Issue for 100% 3B/4B/5 design review	DRR	9/27/02
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02210	Deleted in favor of project-specific ACM work plans	DRR	8/13/02
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02275, Rev B	Issue for 90% A2PII design review	DRR	6/24/02
02275, Rev C	Issue for 90% SWL/FTF design review	DRR	7/16/02
02275, Rev D	Re-issue for 90% SWL/FTF and 90% 3B/4B/5 design reviews	DRR	8/13/02
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02275, Rev 1	Revised per DCN 20600-005 per internal, DOE and agency comments	DRR	02/06/03

SECTION 02150
TRAFFIC CONTROL

PART 1 GENERAL

1.1 SCOPE

A. This Section includes the traffic control requirements for the excavation areas, Special Materials Transfer Area (SMTA), Stockpile 7 (SP-7) and movement between the following: On-Site Disposal Facility (OSDF), OSDF Material Transfer Areas (OMTA), Bulk Material Transfer Area (BMTA), OSDF borrow area, Waste Pits Remedial Action Project (WPRAP), and designated project operational limits. (Requirements for traffic control within the OSDF and OSDF borrow area are contained in the IMPP and the OSDF Borrow Area Management and Restoration Work Plan.)

1.2 RELATED SECTIONS AND DOCUMENTS

A. Section 02200 – Earthwork.

B. Section 02205 – Impacted Material Excavation.

C. Section 02206 – Earthwork for Remediation.

1.3 REFERENCES

A. Manual of Uniform Traffic Control Devices (MUTCD) for Streets and Highways, current edition.

B. State of Ohio, Department of Transportation (ODOT): Construction and Material Specifications, current edition.

PART 2 PRODUCTS

2.1 MATERIALS

A. Provide materials for traffic control, including stop and yield signs conforming to MUTCD and ODOT specifications.

B. Provide fencing as specified in Section 02200.

PART 3 EXECUTION

3.1 TRAFFIC CONTROL

A. Supply, install, and maintain traffic control devices.

B. Maintain speed limit of construction vehicles and equipment per postings and specific requirements stated in the Construction Traveler Package.

C. Ensure that haul equipment or other equipment traveling between certified and non-certified areas, remains on roads constructed of certified material. Perform wheel-wash activities and decontamination as necessary. The Construction Manager will arrange for radiological monitoring in accordance with Section 02205.

D. Provide entry points to the excavation area free of interference from non-project operations. Ensure that traffic entering haul roads yields to traffic already on the road.

E. Ensure that traffic routes are acceptable for use (stable) daily and after an event (rain) that may have altered the condition of the route.

F. Routes that cause equipment and/or vehicles to operate on inclines shall be evaluated and operational limits stated.

3.2 IMPACTED MATERIAL HAUL ROAD

A. Control the Impacted Material Haul Road (IMHR) as a contamination area during excavation and hauling of above-WAC materials. The Construction Manager must approve IMHR crossings from controlled areas.

B. The Construction Manager may post or reclassify road crossing intersections with the IMHR during periods of inactivity.

3.3 UTILITY CROSSINGS

A. Protect energized or active utility lines outside of existing paved areas that intersect proposed traffic routes. Use a 1 inch thick steel plate or an equivalent alternative. Provide length and width of steel plates as required to protect the existing utilities.

3.4 EQUIPMENT PARKING

A. OSDF Contractor Administration Area

1. Provide non-contaminated equipment parking areas within the OSDF Contractor Administration Area.
2. Restrict personal vehicles from the equipment parking areas.
3. Provide personnel parking at the OSDF Contractor Administration Area.

B. Contaminated Equipment Parking Area

1. Locate the contaminated equipment parking area as close as possible to the Radiological Control Point Facility.
2. Maintain contaminated equipment parking areas free of mud, debris and standing water.
3. Park contaminated equipment utilized in the SP-7 area, or above-WAC areas at the boundary of the area, in accordance with Section 02205, until decontaminated and released from the area.

C. Parking areas shall be constructed to insure that personnel accessing and servicing the vehicles shall have firm and stable footing. The use of rip rap and other like materials is not acceptable.

END OF SECTION

SECTION 02205
IMPACTED MATERIAL EXCAVATION

PART 1 GENERAL

1.1 SCOPE

A. This Section includes the requirements for excavating, size-reducing, segregating, stockpiling, loading, hauling, and unloading impacted material. Activities include, but are not limited to, the following:

1. Excavation of impacted materials to the design grade.
2. Segregation of impacted materials for disposition or reuse.
3. Size reduction of remaining structures, utilities, and miscellaneous debris.
4. Loading, hauling and unloading of impacted materials to appropriate disposition.
5. Development and maintenance of project stockpiles.
6. Support of site monitoring and sampling activities.
7. Performance of area management activities.
8. Supplemental excavation beyond the design grade.
9. Excavation of utilities below the design grade.

1.2 RELATED SECTIONS AND DOCUMENTS

A. Section 02100 – Surveying.

B. Section 02150 – Traffic Control.

C. Section 02200 – Earthwork.

D. Section 02206 – Earthwork for Remediation.

E. Section 02230 – Road Construction.

F. Section 02275 – Surface Water Management and Erosion Control for Remediation.

G. Section 02930 – Vegetation.

H. Impacted Materials Placement Plan (IMPP), On Site Disposal Facility (OSDF), 20100-PL-007, current revision.

1.3 REFERENCES

A. Title 29, Code of Federal Regulations (CFR): 29 CFR 1926 Subpart P – Excavation, current edition.

B. Waste Acceptance Criteria (WAC) Attainment Plan for On Site Disposal Facility (OSDF), 20100-PL-0014, current revision.

C. RM-0047, Fugitive Dust Control Requirements, current revision.

1.4 DEFINITIONS

A. Active Stockpile: A stockpile specifically designed to operate for longer than 45 calendar days. This includes interim stockpiles that are older that 45 days and existing stockpiles shown on the Construction Drawings.

B. Debris: Impacted material that is generated during the excavation and removal of building structures, utilities, miscellaneous man-made materials, and natural materials. These materials include floor slabs; foundation walls; sheet piling; foundations; piers; footings; hydraulic ram casings; structural steel, re-bar and miscellaneous metal; electrical duct-bank, manholes, electrical wiring, and power poles; remaining equipment and miscellaneous mechanical items; chain link and other fencing; agricultural drain tiles; and rock, asphaltic pavement, and other aggregate materials not defined as Special Materials.

C. Design Grade: Grade created by excavation of impacted material to the lines and grades shown on Construction Drawings.

D. Final Remediation Levels (FRLs): The permissible concentration of contaminants that may remain in site soil and sediment following completion of remedial actions.

E. Hazardous Waste Management Unit (HWMU): Area shown on the Construction Drawings that has contained hazardous or mixed waste.

F. Impacted Material: Soil with contamination levels above the established FRLs or man-made materials. Impacted materials associated with soil excavation projects are presented in Table 02205-1.

G. Interim Stockpile: An impacted material project stockpile that is intended to be dispositioned in less than 45 calendar days.

H. Process Piping: Piping that is more likely to contain contaminated residue based on process knowledge of previous excavation activities (i.e. sanitary, effluent, or sump liquor lines).

I. Real-time Monitoring: Consists of several alternative methods of utilizing in-situ gamma spectroscopy, to analyze contaminant levels on the excavation surface.

J. Special Materials: Impacted material requiring special handling as specified in this Section and presented in Table 02205-1.

K. Supplemental Excavation: Removal of impacted material encountered beyond design grade.

L. Underground Storage Tank (UST): Tank that was used to contain an accumulation of a regulated substance, of which the volume was 10 percent or more beneath the ground surface.

M. WAC: Waste acceptance criteria (WAC) for disposition of material at the OSDF as defined by the WAC Attainment Plan. This WAC includes radiological/chemical criteria for soil,

physical criteria for debris, and criteria for ancillary remediation waste (i.e., analytical sample returns, PPE).

1.5 SUBMITTALS

A. Maintain a daily record of underground utilities that have been excavated from below the design grade, in the form of a redline drawing mark-up, for review by the Project Engineer every 30 days following the start of excavation beyond the design grade.

B. Submit calculations certified by a registered Professional Engineer ensuring slope stability when using equipment having a gross weight greater than specified for a Caterpillar CAT 350L within the excavation area, as necessary.

1.6 VERIFICATION OF THE EXISTING CONDITIONS

A. Verify existing conditions as specified in Section 02100.

PART 2 PRODUCTS

2.1 MATERIALS

A. Provide 20-mil sheets of Herculite or equal for use in buffer areas.

B. Provide 3/8-inch yellow nylon rope fence. Posts shall be in accordance with Section 02200.

2.2 EQUIPMENT

A. Furnish and maintain equipment to perform required operations in accordance with this Section.

B. Equipment used to haul impacted material over the existing paved IMHR, shall be equal to or less than the gross vehicle weight and axle loading for a Caterpillar CAT D300E haul truck (gross vehicle weight of 120,000 pounds and maximum axle width of 9-feet 10-inches). Pavement width of the existing two-way IMHR is 24-feet. Select equipment and equipment width to ensure safe operation on this road.

C. Equipment used within the excavation area shall be equal or less than the gross weight for a Caterpillar CAT 350L track hoe (112,500 pounds). Heavier equipment may be approved for use in this area pending submittal and approval of calculations certified by a registered Professional Engineer, that ensure slope stability.

D. Equipment used to haul and unload impacted materials shall have enclosed cabs. Enclosed cab is defined as an equipment cab isolated from outside environment (intact windows, doors, panels and floors surrounding driver with windows and doors shut) which provides a barrier from intrusion of outside airborne particles. Heating, ventilating, or air conditioning units associated with the equipment cab must not provide a direct path for outside air to enter (air conditioner on air recirculate mode) unless the air is first passed through a high efficiency particulate air (HEPA) filter pulled directly from outside the cab.

E. Furnish placards, placard carriers and 3-inch nominal diameter mounted sealable polyvinyl-chloride (PVC) tubes to serve as manifest carriers on haul trucks. Install at locations as directed by the Construction Manager.

F. Assign equipment used to haul material to the OSDF with unique alpha-numeric identifiers. This identifier shall be placed on both sides of the truck cab and shall be visible from 20 feet.

G. Equip trucks used for hauling impacted material with automatic load cover tops or employ Best Available Technology (BAT) methods to ensure that no airborne materials are emitted from the haul truck bed or load, whether empty or full.

H. Provide water tank trucks, water wagons, hydroseeders, portable tanks, pressure distributors, piping, sprinklers or other equipment designed to apply water and/or dust suppressant and crusting agent uniformly and in controlled quantities to variable surface widths to provide fugitive dust control.

I. Provide pressure wash or comparable equipment necessary to clean visible process residue and soil from piping and debris for placement in the OSDF.

J. Provide portable wash equipment to wash vehicle tires and vehicle exteriors as necessary.

K. Provide equipment used for size reducing concrete and asphalt materials for use as temporary aggregate surfaces.

PART 3 EXECUTION

3.1 GENERAL EXCAVATION

A. Prior to performing excavation activities, satisfy the following requirements:

1. Complete preliminary survey and layout work in accordance with Section 02100.
2. Establish dust control methods in accordance with RM-0047, "Fugitive Dust Control Requirements".
3. Install and manage surface water management and erosion and sediment control measures in accordance with Section 02275.
4. Install, modify, and manage construction safety and radiological-control fence and signage. Install posts at spacing recommended by the manufacturer's installation procedures and as required to prevent sagging. Posts with less than 4 feet remaining above the ground after installation shall have safety caps installed.
5. Obtain survey and red line markup of area isolation trench, where applicable, to verify completeness.

B. Perform excavation activities in compliance with 29 CFR Part 1926.650 through 1926.652.

C. Unless otherwise noted on the Construction Drawings, the following slope stability requirements shall apply during excavation activities:

1. Excavation slopes with depths less than 20-feet shall be performed in accordance

with applicable Occupational Safety and Health Administration (OSHA) guidelines.

2. Sloped excavations greater than 20 feet in depth shall be designed by a Professional Engineer (PE) registered in the state of Ohio.
3. Temporary excavation slopes with depths less than 20-feet shall be no steeper than 1.5H:1V with a maximum height of 13 feet between 15 foot benches.
4. Design slopes and slopes created by supplemental excavation shall be no steeper than 2H:1V with a maximum height of 13 feet between 15 foot benches.

D. Install and manage traffic control devices in accordance with Section 02150.

E. Blasting, including use of explosives or explosive devices, is not permitted.

F. As necessary, establish and manage Special Materials Transfer Area(s) (SMTA) as follows:

1. Establish the SMTA on an existing building slab, paved parking area, or new aggregate surface adjacent to the project boundary, accessible from inside and outside the excavation area.
2. Construct ingress/egress to the SMTA, including access roads, ramps, and drainage improvements as required.
3. Install new aggregate surface SMTA in accordance with the Construction Drawings and Section 02230, and provide positive drainage.
4. The SMTA shall not be used as a laydown area.
5. The SMTA shall be controlled as a radiological buffer area in accordance with this Section.

G. Establish controls for removal of ACM in accordance with the approved Construction Traveler Package.

H. Excavate surface material within the limits of excavation to a minimum depth of 2 feet, unless otherwise noted on the Construction Drawings.

I. Excavate fractured materials concurrent with the adjacent above-WAC or below-WAC material, minimizing generation of above-WAC material. Fracturing of at-grade concrete slabs may continue concurrently with above-WAC and/or RCRA hazardous soil removal, but concrete outside of above-WAC and RCRA hazardous areas shall not be removed until above-WAC and RCRA hazardous soil removal has been completed, unless otherwise approved by the Construction Manager.

J. Excavate and load material in such a manner that enables visual observation of excavation and loading operations as required to accurately manifest material for disposition.

K. Excavations shall generally proceed in an up-gradient to down-gradient pattern to the lines and grades shown on the Construction Drawings.

L. Keep excavation equipment in contaminated areas to prevent recontamination of areas excavated to final grade. Excavate an area by methods that prevent drainage of surface water into the area.

M. Unless otherwise noted on the Construction Drawings or directed by the Construction Manager, excavate material from known above-WAC and RCRA hazardous areas in accordance with this Section, prior to excavating below-WAC material

N. Survey and stake excavation areas as shown on the Construction Drawings, in accordance with Section 02100. Perform intermediate and final surveys as specified in Section 02100 for measurement and to confirm attainment of the design grade.

O. Remove material adjacent to structures that extend above the excavation surface, as well as the structures themselves, in a safe manner to ensure that an unstable condition does not exist.

P. Prior to excavating previously trenched and backfilled isolation trenches, physical sampling is required in locations where sanitary and process lines were cut during trenching. Allow 10 working days for physical sampling and analysis.

Q. Design contours and grades shown on the Construction Drawings represent the minimum limits of excavation required to capture contamination and foundations, while maintaining safe slope requirements. Field changes shall be reported to the Construction Manager and approved by the Project Engineer.

R. In the event a historic, prehistoric, or archeological site, feature, or object is discovered, stop excavation in the area and immediately notify the Construction Manager for evaluation by Cultural Resources.

S. Continuously observe excavations for Special Materials or change in materials. In the event a Special Material or change in materials is encountered, stop excavation in the area and immediately notify the Construction Manager for evaluation by WAO. Dispose of Special Materials in accordance with Table 02205-1.

T. In the event solvent saturated soils are encountered, stop excavation in the area and immediately notify the Construction Manager for evaluation by WAO. Excavate, load, and haul the material as directed by the Construction Manager.

U. Prevent damage to adjacent structures, materials, and equipment, including utilities that are to remain, or those installed for performance of this work. Repair damage that occurs due to execution of this scope.

3.2 EXCAVATIONS APPROACHING THE GMA

A. Stop excavation activities in the immediate area and immediately notify the Construction Manager if sands and gravel are encountered, even if the design grade has not been achieved.

B. Use caution when excavations encroach on the 5-feet protective cover over the unsaturated sands and gravel of the GMA. Approximate GMA elevations are shown on the Construction Drawings.

C. Prior to initiating work activities that will breach the 5-feet protective cover of the GMA, but not extend within 2-feet of the GMA, proceed as follows:

1. Excavate to achieve design grades shown on the Construction Drawings or to remove Above-FRL material.
2. Allow 24 hours for coordination of the following: examination of the excavation bottom to determine if GMA sediments are present, real-time monitoring and/or physical sampling of the area to be backfilled, and identification of necessary pumping requirements for ponded water.
3. Immediately following monitoring and sampling, initiate backfilling to protect the GMA in accordance with Section 02206.

D. Prior to initiating work activities which will encroach within 2 feet of or breach the GMA, obtain approval and direction from the Construction Manager to proceed as follows:

1. Excavate to achieve design grades shown on the Construction Drawings or to remove Above-FRL material.
2. Allow for real-time monitoring and physical sampling in the area prior to backfilling.
3. Immediately following monitoring and sampling collection, initiate backfilling to protect the GMA in accordance with Section 02206.

3.3 BUFFER AREA MANAGEMENT

A. Establish excavation boundary and buffer area controls for above-WAC, RCRA hazardous areas, HWMUs, and USTs as follows:

1. Establish excavation area boundaries at surveyed and staked locations, in accordance with this Section.
2. Install T-posts and rope fence at the excavation boundary.
3. Establish the buffer area adjacent to the excavation area to serve as a controlled loading area between the excavation area and the surrounding radiological controlled area.
4. Grade the buffer area to drain into the excavation.
5. Install T-posts and rope fence around the buffer area.
6. Cover the buffer area with a 20-mil sheet of Herculite, or equivalent.
7. Collect water encountered during excavation and pump it as specified in Section 02275 and the construction drawings.
8. Keep the buffer area clean and free of dirt and mud.
9. Remove spillage before releasing haul equipment from the buffer area.

B. Dedicate and restrict equipment required to excavate, load, haul and place above-WAC, RCRA hazardous and HWMU material to that specific use until decontamination rinsing has been completed and approved by the Construction Manager. Upon approval by the Construction Manager that no visible material is present on exterior equipment surfaces, or in haul truck beds, equipment may be used elsewhere.

C. Unless constructability requires that equipment access above-WAC, RCRA hazardous or HWMU excavation areas, excavate these areas by reaching over the excavation area

boundary and dumping directly into haul equipment located in the buffer area. Above-WAC, RCRA hazardous and HWMU excavation boundaries may be adjusted as sampling and/or monitoring demonstrates that constituents of concern have been excavated to levels sufficient to down-post portions of the area.

D. Load haul equipment in a manner that prevents spillage and accumulation of material on the wheels and exterior of the haul equipment. Remove visible material that accumulates on the truck exterior. Multiple loading areas may be established within the buffer area.

E. Wash haul equipment within the buffer area as necessary (using low volume, high-pressure washer or approved equivalent) to remove above-WAC, RCRA hazardous or HWMU material from the exterior of equipment.

3.4 ABOVE-WAC EXCAVATIONS

A. Establish excavation boundary and buffer area controls in accordance with this Section.

B. Remove debris (concrete, asphalt, and miscellaneous structures) from above-WAC areas and pressure wash the debris as directed by the Construction Manager to remove soil/residue. The Construction Manager will visually monitor washing operations to ensure that debris is free of soil/residue and approved for loading and hauling to the OSDF.

C. Debris from above-WAC areas not approved for disposal at the OSDF shall be dispositioned at Waste Pits Remedial Action Project (WPRAP) in accordance with this Section.

D. Excavate above-WAC soil/gravel in 3+/-1 foot lifts to the design grade, as shown on the Construction Drawings. Load and haul above-WAC soil/gravel to WPRAP in accordance with this Section.

E. The Construction Manager will arrange for real-time monitoring on excavated side slopes after each lift is removed and on the excavation floor upon achieving the above-WAC contamination limits shown on the Construction Drawings. In above-WAC areas contaminated with Tc-99, as shown on the Construction Drawings, the Construction Manager will arrange for physical sampling at the design depth. Allow 10 working days for sampling and analysis. Do not proceed with further excavation in this area until directed by the Construction Manager.

F. If initial depth of above-WAC material is below the existing surface, excavate below-WAC material in 2+/-1 foot lifts until above-WAC material has been reached, then proceed in 3+/-1 foot lifts.

G. Pending results of monitoring or analysis, perform supplemental above-WAC excavation beyond design limits shown on the Construction Drawings or in areas not shown on the Construction Drawings, as directed by the Construction Manager.

3.5 RCRA HAZARDOUS EXCAVATIONS

Excavate RCRA Hazardous areas to the limits shown on the Drawings as follows:

A. Establish excavation boundary and buffer area controls in accordance with this Section.

B. Remove debris (concrete, asphalt, and miscellaneous structures) from RCRA hazardous areas and pressure wash the debris as directed by the Construction Manager to remove any soil/residue. The Construction Manager will visually monitor washing operations to ensure that debris is free of all soil/residue and approved for loading and hauling to the OSDF. The Construction Manager may require additional washing as necessary to satisfy visual inspection.

C. Debris from RCRA hazardous areas not approved for disposal at the OSDF shall be stockpiled for treatment by others in accordance with this Section.

D. Excavate RCRA hazardous soil/gravel in 3+/-1 foot lifts to the limits shown on the Construction Drawing. Load and haul material to an appropriate stockpile for treatment by others in accordance with this Section. Do not proceed with further excavation in this area until directed by the Construction Manager.

E. The Construction Manager will perform physical sampling upon confirmation that all RCRA hazardous material has been excavated. Allow 10 working days for sampling and analysis.

F. Perform additional RCRA hazardous excavations, as directed by the Construction Manager, if analysis identifies additional RCRA hazardous material beyond the limits shown on the Construction Drawings.

3.6 HWMU EXCAVATIONS

Excavate material from the HWMU to the limits shown on the Construction Drawings as follows:

A. Establish excavation boundary and buffer area controls in accordance with this Section.

B. Remove debris (concrete, asphalt, and miscellaneous structures) from the HWMU and haul to the OSDF as a discrete waste stream. If the HWMU is considered an above-WAC area, load and haul the debris to WPRAP, or containerize it as directed by the Construction Manager.

C. Excavate HWMU soil/gravel in 3+/-1 foot lifts to the HWMU design grade, as shown on the Construction Drawings. Load and haul HWMU soil/gravel to the OSDF as a discrete waste stream. If the HWMU is considered an above-WAC area, containerize soil/gravel as directed by the Construction Manager.

D. The Construction Manager will arrange for physical sampling on excavated side slopes after each lift is removed and on the excavation floor upon achieving the HWMU design grade shown on Construction Drawings. Allow 10 working days for sampling and analysis required for closure of the HWMU. Do not proceed with further excavation in the area until directed by the Construction Manager.

E. Pending analysis of sample results, perform supplemental HWMU excavation beyond the design grade as directed by the Construction Manager.

F. Upon confirmation from the Construction Manager that the HWMU excavation is complete, remove HWMU boundary fence, load and haul buffer area Herculite as HWMU debris.

3.7 UST EXCAVATIONS

Excavate USTs and areas that previously contained USTs shown on the Construction Drawings, as well as USTs discovered during excavation, as follows:

A. Excavate to expose the top of the tank (UST) to allow the Construction Manager to assess the tank's condition.

B. The Construction Manager and Industrial Hygiene will inspect the tank for the presence of liquid or non-soil residue.

C. If the tank contains liquid or non-soil residue, as determined by the Construction Manager, proceed as follows:

1. Pump remaining tank contents into drums provided by the Construction Manager.
2. Move filled drums from the excavation area to the SMTA.
3. Drums will be removed from the SMTA by others for appropriate disposition.

D. Upon confirmation from the Construction Manager that the tank is empty, proceed with removing the tank. Ensure that water does not accumulate in the tank from the surrounding excavation.

E. During excavation, stage the tank, soil excavated from around the UST, and soil excavated from areas that previously contained USTs separate from other excavated materials.

F. Upon confirmation from the Construction Manager that the tank is free of visible process residue, size-reduce the tank to meet physical WAC and dispose of it in the OSDF as a discrete waste stream.

G. If the tank cannot be cleaned of visible process residue, size-reduce the tank for disposition in accordance with this Section.

H. Over-excavate soil surrounding UST excavations and from areas that previously contained USTs to remove visible stains. Transport this soil as directed by the Construction Manager.

3.8 BELOW-WAC EXCAVATIONS

Excavate below-WAC material to the limits shown on the Construction Drawings as follows:

A. Remove slabs, concrete pads, asphalt, gravel, base and sub-base to sub-grade soil within below-WAC areas. Load and haul this material to the OMTA-Bulk Debris or OSDF. The Construction Manager will arrange for real-time monitoring prior to subsequent excavation in the below-WAC area.

B. Excavate below-WAC areas to the design grade shown on Construction Drawings. Load and haul this material to the OSDF in accordance with this Section.

C. In below-WAC excavations driven by contamination rather than removal of underground structures, as shown on Construction Drawings, excavate in 3+/-1 foot lifts to the design grade shown on Construction Drawings. The Construction Manager will arrange for real-time monitoring upon removal of each lift. Do not proceed with further excavation in these areas until directed by the Construction Manager.

D. Over-excavate a minimum of 6 inches in areas where impacted material was stockpiled or pushed for load-out during excavation to allow for visual inspection and disposition of debris that may have been tracked into the soil.

E. Coordinate real-time monitoring as necessary to minimize delays.

F. Upon reaching the design grade, notify the Construction Manager for real-time monitoring.

3.9 UTILITY REMOVAL BELOW THE DESIGN GRADE

A. Excavate known utilities as indicated on the Construction Drawings. Prior to removal, cap, drain, purge and/or plug utility lines to be excavated to prevent release of material into surrounding soil. If fluids or hold-up material is encountered in utility lines, stop work and notify the Construction Manager. Plug sanitary and process lines when liquid flow is detected. Material released from sanitary or process lines will be excavated and dispositioned as directed by the Construction Manager.

B. If unidentified utilities or underground structures are encountered, notify the Construction Manager, and proceed in accordance with the applicable Penetration Permit.

C. Process piping that is deformed, closed or otherwise hinders visual inspection shall be managed as above-WAC debris based on it's area of origin.

D. If a utility is suspected of containing ACM, notify the Construction Manager and Industrial Hygiene and manage in accordance with the Construction Traveler Package.

E. Excavate, size-reduce, and handle piping and debris in such a manner so as to minimize the generation of above-WAC debris or friable asbestos.

F. Prior to excavating utilities below the design grade, satisfy the following conditions:

1. Complete the intermediate survey, as specified in Section 02100.
2. Obtain Construction Manager approval that real-time monitoring of the design grade is complete.

G. Excavate and remove utilities in accordance with this Section and details shown on Construction Drawings.

H. Backfill utilities located below the design grade in accordance with the details shown on Construction Drawings and Section 02206.

I. If visual monitoring identifies Special Materials during excavation of utilities below the design grade, perform supplemental excavation in accordance with this Section.

J. Excavate miscellaneous debris encountered below the design grade and disposition in accordance with this Section.

K. Maintain a daily record of underground utilities excavated from below the design grade.

3.10 MATERIAL SEGREGATION

A. During excavation, segregate materials by the impacted material categories as defined in the IMPP. Maximize the volume of Category 1 material.

B. Segregate below-WAC material to support construction of the four zones of each OSDF cell (protective layer, select impacted material layer, impacted material layer, and contouring layer).

C. Segregate existing surface aggregate material and size-reduced concrete and asphalt materials for use as temporary aggregate material.

3.11 SIZE REDUCTION

A. Size-reduce remaining structures (i.e., building foundations, slabs, sumps, hydraulic ram casings) located above the design grade to meet OSDF physical WAC.

B. Size-reduce concrete and asphalt structures (i.e., building slabs, concrete/asphalt pads, roads, parking areas) to maximize the generation of material for temporary aggregate surfaces.

C. Size-reduce piping and debris to meet OSDF physical WAC in accordance with the IMPP, or size requirements for WPRAP in accordance with this Section.

D. Size-reduce metal materials (i.e., structural steel, piping, equipment, re-bar, miscellaneous metal) in accordance with the IMPP. Load metal components in bulk and haul to the OSDF or OMTA.

E. Size-reduction shall be by mechanical means, not by flame or torch cutting unless otherwise approved by the Construction Manager.

3.12 GENERAL LOADING AND HAULING

A. Use paved haul roads designated on the Construction Drawings for hauling where practical or as directed by the Construction Manager. Upon entering the paved haul roads with haul equipment, do not exit except to the excavation area, WPRAP, OMTA Bulk Debris Area, and/or the OSDF, without approval by the Construction Manager.

B. Maintain equipment within the excavation area during periods of non-work (evenings, weekends, and holidays) unless equipment decontamination has been completed. Complete

decontamination activities and request a radiological survey of the equipment prior to moving equipment out of radiological contamination areas.

C. When hauling materials to the SMTA, enter the SMTA from the excavation area only.

D. Load haul equipment in a fashion to minimize load shifting and to prevent spillage during transit.

E. Extend automatic covers on suitably equipped haul equipment, whether full or empty, during equipment movement.

F. Keep equipment cab closed and stay within the equipment cab when inside posted contamination area without appropriate PPE except in emergency situations.

G. Prior to loading and hauling, material designated for the OSDF shall be void of free liquid.

H. Prohibit tracked equipment from hauling, operating, or tracking over the Impacted Material Haul Road (IMHR) or other paved roadways, unless otherwise approved by the Construction Manager.

3.13 GENERAL DISPOSAL

A. Dispose of impacted material in accordance with this Section. Table 02205-1 provides guidance for the disposition of materials that may be encountered which will be disposed at the three destinations identified in this Section. Notify the Construction Manager in the event that materials are discovered that do not appear to be represented in Table 02205-1.

B. Pending coordination between the projects, material designated for WPRAP disposition may be hauled directly to WPRAP. Material hauled directly to WPRAP must comply with WPRAP disposition requirements presented in this Section.

C. OSDF disposition requires the following:

1. Compliance with requirements stated in the WAC Attainment Plan and the IMPP.
2. Piping and debris shall be cleaned of process-related residue in accordance with this Section. Notify the Construction Manager of residue that is not readily removed and manage the debris as directed.
3. Compliance with criteria identified in Table 02205-1 for management of Special Materials for disposition at the OSDF.
4. ACM shall be removed, packaged, loaded and hauled in accordance with the Construction Traveler Package.

D. WPRAP disposition requires the following:

1. Soil, piping and debris exceeds the requirements for OSDF disposition as outlined in Table 02205-1.
2. Piping and debris shall be less than 10 inches in at least one dimension, and no longer than 6 feet in any dimension.

E. SMTA disposition requires the following:

1. Soil, piping and debris exceeds the requirements for OSDF and WPRAP disposition as outlined in Table 02205-1.
2. Materials shall be containerized as directed by the Construction Manager.
3. Loaded containers shall be placed in the SMTA in a manner that protects the containers from damage. Do not stack containers.

3.14 STOCKPILING

A. Install construction safety fence around active stockpiles in accordance with Section 02200.

B. Install appropriate signage around the boundary of active stockpiles as directed by the Construction Manager.

C. Install erosion control measures around active stockpile in accordance with Section 02275.

D. Maintain fencing, signage, and erosion control measures for the duration of the active stockpile's existence.

E. Repair damage to active stockpile support structures (i.e., silt fence, perimeter fence) inflicted during performance of this project to their original condition within 24 hours of damage discovery.

F. Apply crusting agent as specified in Section 02930 within 7 calendar days upon completion of the active soil stockpile or if the active soil stockpile is to be inactive for more than 45 calendar days as directed by the Construction Manager.

G. Compact/seal the surface of the stockpile in use at the close of each work-day to prevent fugitive dust and erosion.

H. Locate interim stockpiles within the limit of excavation upon approval from the Construction Manager. Remove interim stockpiles within 45 calendar days.

I. Establish a separate stockpile for solvent saturated soils, as encountered. Manage the stockpile material to avoid cross-contamination with adjacent soil, and to control surface water and dust.

J. Stockpile excavated surface aggregate materials and size-reduced concrete and asphalt as necessary for use as temporary aggregate material.

K. Stockpiles shall not be located within 30 feet of an excavation top-of-slope.

L. Above-WAC and RCRA material, and material not identified in Table 02205-1 that cannot go to the OSDF as is, which is stockpiled within a larger active stockpile area shall be fenced or roped individually in accordance with Section 02200.

M. In addition to general stockpiling requirements, the following requirements shall apply to the management of above-WAC stockpiles:

1. Use dedicated equipment for the preparation and management of the stockpile.
2. Maintain ingress/egress to the stockpile, including access roads, ramps, and drainage features.
3. Maintain unloading areas to prevent haul equipment tires from coming in contact with stockpile material.
4. Locate the stockpile as directed by the Construction Manager.
5. Decontaminate tools and equipment used to place and manage material within the stockpile prior to requesting release. Following decontamination, the Construction Manager will arrange for a radiological survey to release these tools and equipment.

O. In addition to general and above-WAC stockpiling requirements, the following requirements apply to the management of stockpiled RCRA material awaiting treatment:

1. Install surface water run-on/run-off controls to minimize water within the area in accordance with Section 02275.
2. Establish methods for collection of water from within the area.
3. Install chain link fence immediately around the stockpile to control access.

P. Cover or lock down soil or debris containing non-friable ACM at the end of the day in accordance with the Construction Traveler Package.

3.15 MONITORING AND SAMPLING

A. The Construction Manager will arrange for real-time monitoring of below-WAC areas following removal of surface aggregate, concrete and asphalt slabs, pads, roads and parking areas, and between each lift in contaminated areas until the design grade has been achieved, including the design grade.

B. The Construction Manager will arrange for real-time monitoring after each excavation lift for above-WAC materials.

C. The Construction Manager will arrange for radiological monitoring before equipment is released from a buffer area. Working in rain and/or wet weather will increase scanning time.

D. The Construction Manager will perform visual monitoring during excavation for Special Materials that are not permitted in the OSDF or that will require additional processing to meet WAC. If Special Materials are found, real-time monitoring may be performed to verify removal and determine appropriate disposition of the material.

E. The Construction Manager will visually monitor piping and debris to ensure no visible process residue remains, in order to be placed in the OSDF.

F. The Construction Manager will arrange for real-time monitoring to verify that the excavation area has met the requirements for precertification.

G. When real-time monitoring or sampling is required, excavate in an alternate location within the excavation area while awaiting the results. Excavate alternate locations a minimum of 50 feet from the area being monitored. Allow up to 2 working days for monitoring after

area is ready for monitoring. Extend duration for monitoring at least 1 working day for each day precipitation occurs.

H. The Construction Manager and regulatory agencies may collect samples from the excavation, haul equipment and the OSDF at any time during the project.

I. The Construction Manager will arrange for monitoring of water collected in suspect VOC areas for the presence of volatile organic compounds (VOCs). If VOCs are detected, the water will be sampled and analyzed to determine disposition.

J. The Construction Manager will arrange for magnetometer surveys to verify removal of ferrous debris from areas where former underground utilities and structures were removed.

3.16 PRECERTIFICATION AND SUPPLEMENTAL EXCAVATION

A. The Construction Manager will arrange for real-time monitoring to pre-certify an area as having attained FRL requirements.

B. Perform supplemental excavations beyond the design grade if either of the following conditions exist:

1. Real-time monitoring and/or physical sampling identifies material beyond the design grade that does not meet FRL requirements.
2. Utilities or other impacted materials identified beyond the design grade.

C. Install rope fencing and appropriate signage around the pre-certified area perimeter after precertification has been achieved, as directed by the Construction Manager.

3.17 AREA MANAGEMENT

A. Maintain construction safety fence, radiological-control fence, and stockpile fence as specified in this Section, Section 02200, and as shown on the Construction Drawings.

B. Management of excavation water shall be as specified in Section 02275.

C. Perform stabilization of the excavated areas using crusting agent and temporary seeding in accordance with Sections 02275 and 02930.

D. Notify the Construction Manager prior to removing sediment and debris from ditches, drains and erosion control devices. The Construction Manager will arrange for sampling and analysis of sediment for WAC compliance. Remove and de-water sediment in accordance with the following:

1. Notify the Construction Manager two (2) days prior to removing sediment from ditches, drains and erosion and sediment control devices to determine whether or not sampling and analysis of the sediment is required for disposition.
2. Remove accumulated sediment from ditches, drains and erosion and sediment control devices as directed by the Construction Manager. In no case shall sediment reduce the available depth of the associated feature to less than two-thirds the depth

shown on Construction Drawings.

3. De-water sediment removed from above-WAC or RCRA hazardous areas within the associated above-WAC or RCRA hazardous area.
4. De-water sediment removed from ditches, drains and erosion and sediment control devices adjacent to and up-gradient of the associated feature as necessary to allow water to drain immediately back into the feature.
5. Disposition de-watered sediment to the OSDF unless otherwise directed by the Construction Manager.
6. Place sediments accumulated in above-WAC stockpile surface water control devices in the associated stockpile.

E. Implement seasonal closure methods at the end of each construction season and maintain seasonal closure through winter shutdown. Seasonal shutdown requirements include, but are not limited to:

1. Maintain surface water management and erosion and sediment controls.
2. Maintain dust control, as required.
3. Perform equipment decontamination, as required.
4. Remove water from excavation during seasonal closure, when water depth exceeds 3-foot. Pump water out of the excavations in a manner that maintains the integrity of the design slopes, (i.e., no rapid draw down) and prevents an overflow condition. The pumping priority for open excavations is as follows:
   a. Open excavation areas containing impacted material that are located up-gradient of remediated areas,
   b. Completed excavations, and
   c. Other uncompleted excavations.
5. Remove sediment and debris from sediment control basins and ditches in accordance with this Section.
6. Seed/stabilize stockpiles.

END OF SECTION

Table 02205-1

The table should be interpreted to read that material in column 1 may be dispositioned at the appropriate destination in columns 2-4 if the corresponding criteria are met.

MATERIAL	DESTINATION *		
	OSDF	WPRAP (1)	SMTA (2)
Soil from general/UST excavation	• Meets WAC	• Above-WAC	• Not applicable
Soil from RCRA hazardous excavation	• Prohibited	• Prohibited	• Containerize
Soil from HWMU excavation	• Meets WAC	• From an Above-WAC area	• RCRA Hazardous
Soil requiring treatment	• Prohibited pending treatment and direction by the Construction Manager	• Prohibited pending treatment and direction by the Construction Manager	• Fails treatment
Debris from general/UST excavation	• Meets WAC	• Above-WAC • Visible residue cannot be removed	• Not applicable
Debris from above-WAC excavation	• Meets WAC and free of visible soil/residue	• Visible soil/residue cannot be removed	• Not applicable
Debris from RCRA hazardous excavation	• Meets WAC and free of visible soil/residue	• Above-WAC and free of visible soil/residue	• Visible soil/residue cannot be removed
Debris from HWMU excavation	• Meets WAC	• Above-WAC and free of visible soil/residue	• Above-WAC and visible soil/residue cannot be removed
Asbestos (3)	• Meets WAC and passes visual inspection by CM	• Above-WAC and non-friable • Visible soil/residue cannot be removed and non-friable	• Friable and fails visual inspection by CM
Non-pressurized Containers (3)	• Meets WAC, free of visible soil/residue, and contains no free liquid, product, etc	• Above-WAC and contains no free liquid, product, etc. • Visible soil/residue cannot be removed and contains no free liquid, product, etc. • Has been crushed	• Contains free liquid, residue, etc • Has been crushed
Piping/Pumps (3)	• Meets WAC, free of visible soil/residue, and contains no free liquid	• Interior not visible and contains no free liquid • Visible soil/residue cannot be removed and contains no free liquid	• Above-WAC/HWMU and visible soil/residue cannot be removed • Above-WAC/RCRA and visible soil/residue cannot be removed
Transformers/Electrical Equipment (3)	• Meets WAC and free of visible soil/residue	• Visible soil/residue cannot be removed and drained of all fluid	• Contains fluid • Above-WAC/HWMU and visible soil/residue cannot be removed • Above-WAC/RCRA and visible soil/residue cannot be removed
Brick including Acid Brick (3)	• No acid brick	• Acid brick	• Not applicable
Lead Acid Batteries (3) Medical Infectious Waste (3) Non-soil Residue (3) Pressurized Containers (3) Tires (3) Uranium Metal (3) Sealed radiological calibration sources	• Prohibited	• Prohibited	• Containerize

(1) Must meet WPRAP size requirements per this Section (2) SMTA materials must be containerized. (3) Special Material per this Section.

* These are final destinations beyond which the project bears no responsibility for material movement. The OMTAs are staging areas prior to OSDF disposition.

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SECTION 02206
EARTHWORK FOR REMEDIATION

PART 1 GENERAL

1.1 SCOPE

A. This Section includes requirements for earthwork associated with remediation of the former production area to include, but is not limited to:

1. Excavation of fill material.
2. Excavation and placement of materials for ditches and berms.
3. Placement of fill material in trenches excavated for utility removal in areas below design grade.
4. Placement of plug material over the unsaturated sands and gravels of the Great Miami Aquifer (GMA).
5. Interim grading for drainage and road preparation.
6. Final grading.

1.2 RELATED SECTIONS AND DOCUMENTS

A. Section 02100 – Surveying.

B. Section 02150 – Traffic Control.

C. Section 02205 – Impacted Material Excavation.

D. Section 02230 – Road Construction.

E. Section 02275 – Surface Water Management and Erosion Control for Remediation.

F. Section 02930 – Vegetation.

1.3 REFERENCES

A. American Society for Testing and Materials (ASTM):

1.	ASTM C150	Specification for Portland Cement, current edition.
2.	ASTM D698	Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lb/ft), current edition.
3.	ASTM D2216	Test Method for Laboratory Determination of Water (Moisture) Content of Soil and Rock, current edition.
4.	ASTM D2487	Standard Classification of Soils for Engineering Purposes (Unified Soil Classification System), current edition.

5.	ASTM D2922	Standard Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth), current edition.
6.	ASTM D3017	Standard Test Methods for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth), current edition.
7.	ASTM D4643	Test Method for Determination of Water (Moisture) Content of Soil by Microwave Oven Method, current edition.

1.4 DEFINITIONS

A. Fill Material: Non-impacted soil obtained from within the excavation area, below the design grades, following pre-certification, or from a designated borrow area.

B. Design Grade: Grade created by excavation of impacted material to the lines and grades shown on Construction Drawings.

C. GMA Plug: Non-impacted clay material from the certified Borrow Area used to maintain a minimum protective cover thickness over, and seal breaches into, the GMA unsaturated sands and gravels.

D. Clay Plug: Same material as specified for GMA Plug used to create a protective cover thickness over pilings and/or foundations to be cut off and left in place.

1.5 SUBMITTALS

A. Submit for approval, name, address, and qualifications of an independent soil testing laboratory and resume(s) of field technician(s).

B. Within seven (7) calendar days of obtaining samples and performing field tests, provide copies of lab and field tests performed by the soil testing laboratory and Contractor performing field tests. Soil test results shall include Standard Proctor moisture density tests, sieve analysis, density tests, and Proctor curves for each type of material to be used prior to its use. Field test results shall include a map depicting locations and depth/lift.

C. Submit specification sheet and Material Safety Data Sheet (MSDS) for sodium bentonite grout.

D. Submit specification sheet and MSDS for Portland cement.

E. Submit as-built survey to verify completion of design excavation in accordance with Section 02100.

F. Documentation of nuclear density gauge calibration in accordance with manufacturer's requirements.

1.6 EXISTING CONDITIONS

A. Verify existing conditions as specified in Section 02100.

PART 2 PRODUCTS

2.1 MATERIALS

A. Fill material shall be free of debris, foreign objects, large rock fragments (maximum dimension of 6 inches), organic, and other deleterious materials.

B. GMA plug material shall be non-impacted clay material conforming to CL classification according to Unified Soil Classification System in accordance with ASTM D2487.

C. Use the designated certified borrow area as the source for GMA plug material.

D. Material used to backfill utility trenches located below the design grade and areas where grout plugs are installed into air-gapped storm sewers shall be surrounding soils following pre-certification.

E. Use below-FRL material from the excavation area, following pre-certification, as a source of fill material for supplemental excavations.

F. Portland cement per ASTM C150, normal – Type 1.

G. Sodium bentonite grout.

H. Safety signs around ponds shall be exterior quality signs with minimum 4 inch high letter and shall state, "Life jackets required when working within 5 feet of edge of ponds, use of buddy system required". Hand written signs are unacceptable.

2.2 EQUIPMENT

A. Furnish and maintain equipment to perform required operations in conformance with the requirements of these specifications.

B. Furnish equipment to perform required operations in conformance with this Section. Equipment that results in waste or damage of material, inaccurate work, or is otherwise objectionable shall be promptly replaced.

C. Equipment used to haul non-impacted material over the existing paved Impacted Material Haul Road (IMHR), shall be equal to or less than the gross weight and axle loading for a Caterpillar CAT D300E haul truck (gross vehicle weight of 120,000 pounds and maximum axle width of 9-feet 10-inches). Pavement width of the existing two-way IMHR is 24-feet. Select equipment and equipment width to ensure safe operation on this road.

D. Equipment used within the excavation area shall be in accordance with Section 02205.

E. Furnish compaction equipment, as needed.

PART 3 EXECUTION

3.1 GENERAL

A. Perform intermediate surveys in accordance with Section 02100, to confirm attainment of design grade prior to initiating earthwork activities below the design grade.

B. Stop excavation activities and immediately notify the Construction Manager upon discovery of unexpected cultural resources suspected to be historic, prehistoric, or archeological site, feature or object.

C. Excavate soil below the design grade with equipment that has been cleaned of visible soil from prior above-FRL excavation activities.

D. Use material from the immediate excavation area or a designated borrow area to meet fill material requirements for trenches and supplemental excavations.

E. Perform construction activities such that surface water runoff from non-certified construction areas does not flow into pre-certified areas, in accordance with Section 02275.

F. Maintain slope stability in the area surrounding trenches created to excavate below the design grade in accordance with Section 02205.

G. After certification, perform final grading in accordance with this Section.

3.2 BACKFILL

A. Obtain fill material from areas approved by the Construction Manager. In high-leachability areas shown on the Construction Drawings, obtain fill material from precertified or certified areas meeting the 20 mg/kg total Uranium FRL.

B. Maintain a minimum 5-feet protective cover over the unsaturated sands and gravel of the GMA in accordance with the following. GMA elevations are shown on the Construction Drawings.

1. Following excavation activities that encroach on the 5-feet protective cover but do not extend within 2-feet of the GMA, install GMA plug as follows:

a. Immediately following monitoring and sampling activities specified in Section 02205, survey the excavation and initiate filling.
b. Backfill using GMA plug material meeting the requirements of this Section. Complete backfilling within 5 days following sampling.

c. Backfill GMA plug material in 8-inch +/- 1-inch loose lifts until protective cover is returned to a minimum thickness of 5-feet.

d. Compact fill material in each 8-inch loose lift to at least 95% Standard Proctor dry density (ASTM D698) within 0 to +3% of optimum moisture content.

2. Following excavation activities that encroach within 2 feet of or breach the GMA, install GMA plug as follows:

a. Immediately following monitoring and sampling activities specified in Section 02205, survey the excavation and initiate backfilling.

b. Backfill using GMA Plug material meeting the requirements of this Section.

c. If precipitation is likely within the next 24 hours, immediately place a minimum fresh compacted thickness of 2 feet. Otherwise, place the 2 feet of compacted cover within 24 hours of excavating to within 2 feet or breaching the GMA.

d. Place the first lift of GMA plug material in an approximate 18-inch loose lift. Compact the first lift using 4 passes of compaction equipment approved by the Construction Manager.

e. Backfill the remaining lifts in 8-inch +/- 1-inch loose lifts until the protective cover is returned to a minimum of 5 feet. Compact GMA plug material in each 8-inch loose lift to at least 95% Standard Proctor dry density (ASTM D698) within 0 to +3% of optimum moisture content. These lifts must be continuous over the entire breached area.

D. Install clay plug in locations shown on the Construction Drawings in accordance with the following:

1. Backfill using clay plug material meeting the requirements of this Section.
2. Place clay plug material in 8-inch +/- 1-inch loose lifts as necessary to achieve a total compacted thickness of 2-feet.
3. Compact each lift with four (4) passes of compaction equipment approved by the Construction Manager.
4. If clay plug is placed over an open pile, seal void spaces within the pile with sodium bentonite grout and cap the top 2 feet of the pile with Type 1 Portland cement ASTM C150 prior to placing the clay plug. Sodium bentonite grout shall be mixed at a water ratio of 2.1 pounds of sodium bentonite per gallon of water, and have a minimum density of 9.4 lbs./gallon. Grout viscosity shall be field checked periodically to assure proper viscosity of 70 +/- 6 seconds using the Marsh funnel viscometer. Tremie the grout into the open pile to eliminate void space.

E. Excavate, remove utilities, and backfill trenches below the design grade in accordance with the following:

1. Remove utilities located below the design grade in accordance with Section 02205 and details presented on Construction Drawings.

2. Remove water collected in trenches to sump areas and pump it to the appropriate sediment control basin as specified in Section 02275.
3. Backfill utility trenches located below design grade in accordance with the Construction Drawings.

3.3 FIELD QUALITY CONTROL

A. In-place density testing will be performed in accordance with ASTM D2922. Nuclear density gauge (ASTM D2922) will be calibrated in accordance with the manufacturer's requirements. Documentation of this calibration will be provided to the Construction Manager. Register nuclear or radiological sources brought on site.

B. Perform in-place moisture tests in accordance with ASTM D3017, or ASTM D4643 as applicable.

C. Determine moisture-density curves in accordance with ASTM D698 (Standard Proctor). Test results must be reviewed and approved by the Construction Manager.

D. If in-place density and/or moisture tests indicate that work does not meet specified requirements, replace or re-compact to specified requirements.

E. Perform soil classification in accordance with ASTM D2487.

F. Frequency of Tests: Frequency of in-place density and moisture testing shall be whichever of the following requires the greatest number of test:

1. Once each day when compacting GMA plug material.
2. Once each compacted lift of GMA plug material.
3. Once every 3,000 sq. ft. of compacted GMA plug material.

G. Notify the Construction Manager of activities requiring testing/inspection a minimum of 24 hours prior to the start of such activities.

3.4 EARTHEN BERMS

A. Install earthen berms at locations shown on the Construction Drawings using soils from surrounding area following pre-certification.

B. Place material in 8-inch loose lifts.

C. Compact each lift of berm with four (4) passes of compaction equipment approved by the Construction Manager.

3.5 INTERIM GRADING

A. When the design grade has been achieved, perform interim grading as follows:

1. Correct washouts or other similar irregularities to maintain the design grade slopes of 2H:1V or less.

2. Grade to maintain smooth continuous slopes.
3. Finish ditches so they drain readily.
4. Perform temporary seeding in accordance with Section 02930.
5. Repair damage within 3 working days.

3.6 FINAL GRADING

A. Obtain verification that the area to be graded has been certified.

B. Provide, maintain and operate temporary drains, ditches, pumps, drainage lines or other equipment to intercept, divert, or remove water from excavations.

C. Provide and maintain stormwater management measures that assure isolation of stormwater between certified and non-certified areas.

D. Regrade the certified area design grades to achieve grades no steeper than 5H:1V. As the 5H:1V excavation proceeds, the cut material shall be placed in the bottom of existing excavations and graded level.

E. Final grading shall be achieved with minimum five (5) foot radii at contour direction changes, and smooth transitions between grade breaks and depressions.

F. Perform permanent seeding in accordance with Section 02930.

G. Stabilize 2H:1V slopes along excavation boundary with erosion control blankets in accordance with Section 02275.

3.7 SURFACE WATER MANAGEMENT

A. Manage surface water in accordance with Section 02275.

B. Perform excavation in a manner that promotes positive drainage.

C. Install earthen berms as shown on Construction Drawings. Apply temporary seed and fertilizer on earthen berms in accordance with Section 02930.

3.8 SEASONAL SHUTDOWN

A. Perform seasonal shutdown activities in accordance with Section 02205.

END OF SECTION

SECTION 02207
AREA ISOLATION TRENCHING

PART 1 GENERAL

1.1 SCOPE

A. This Section includes the requirements for trenching and backfilling an isolation trench around the project excavation limits, as shown on the Construction Drawings.

1.2 RELATED SECTIONS AND DOCUMENTS

A. Section 02205 – Impacted Material Excavation.

B. Section 02275 –Surface Water Management and Erosion Control for Remediation.

1.3 REFERENCES

A. Title 29, Code of Federal Regulations (CFR): 29 CFR 1926 Subpart P – Excavation, current edition.

B. RM-0021, "Safety Performance Requirements Manual".

C. RM-0047, "Fugitive Dust Control Requirements".

D. SPR 3-5, "Barricades".

E. Applicable Construction Traveler package(s)

1.4 DEFINITIONS

A. Special Materials: Impacted material requiring special handling as specified in Section 02205 and presented in Table 02205-1.

B. Trencher: Specific equipment used in trenching around the area excavation limits.

PART 2 PRODUCTS

2.1 MATERIALS

A. Provide rope fence consisting of 3/8-inch yellow nylon rope as shown on the Construction Drawings.

B. Provide T-posts in accordance with Section 02200.

C. Provide construction area signage in accordance with SPR 3-5.

D. Provide crusting agent as specified in Section 02275.

2.2 EQUIPMENT

A. Furnish and maintain trencher equipment, manufactured by Vermeer or an approved equivalent, to perform trenching in accordance with this Section. The trencher must meet the following requirements:
   1. Trencher must be capable of cutting to a minimum depth of 12 feet, with a tolerance of 0 to 6 inches.
   2. Trencher must be capable of cutting a trench no greater than 30 inches wide.
   3. Trencher must be capable of maintaining a trench centerline lateral tolerance of +/- 1 foot over the entire trench depth.
   4. Trencher digging mechanism must be capable of being removed for turnover to Fluor Fernald at the completion of the project.

B. Furnish and maintain equipment to perform trench backfilling in accordance with this Section.

C. Equipment used within the trenching exclusion zone shall have enclosed cabs. Enclosed cab is defined as an equipment cab isolated from the outside environment (intact windows, doors, panels and floors surrounding driver with windows and doors shut) which provides a barrier from intrusion of outside airborne particles. Heating, ventilating, or air conditioning units associated with the equipment cab must not provide a direct path for outside air to enter (air conditioner on air recirculate mode) unless the air is first passed through a high efficiency particulate air filter pulled directly from outside the cab.

D. Furnish and maintain equipment to perform compaction in accordance with this Section.

E. Provide water tank trucks, water wagons, hydroseeders, portable tanks, pressure distributors, piping, sprinklers or other equipment designed to apply water and/or dust suppressant and crusting agent uniformly and in controlled quantities to variable surface widths to provide fugitive dust control.

F. Furnish and maintain portable wash equipment to wash vehicle tires and vehicle exteriors as necessary.

G. Equipment used within the excavation area shall meet weight requirements in accordance with Section 02205, to ensure slope stability.

PART 3 EXECUTION

3.1 GENERAL

A. Survey and layout the isolation trench centerline as shown on Construction Drawings. Remove or relocate surface obstructions that may impede trencher operations prior to trenching, as approved by the Construction Manager.

B. Prior to trenching activities, install and manage rope fence and appropriate signage to establish safe distances around the trench and excavations during equipment operation and while the trench remains open.

C. Excavate known above-WAC and RCRA areas in the path of the isolation trench in accordance with Section 02205 prior to performing trenching activities in those areas.

D. Install radiological-control signs as required.

E. Install and maintain surface water management and erosion and sediment control measures in accordance with Section 02275.

F. Trench and backfill in accordance with the Construction Drawings and this Section.

G. Blasting, including use of explosives or explosive devices, is not permitted.

H. Maintain equipment in a safe condition within the trenching/excavation area during periods of non-work (evening, weekends, and holidays).

I. Prohibit tracked equipment from hauling, operating, or tracking over or on the Impacted Material Haul Road (IMHR) or other paved roadways unless otherwise approved by the Construction Manager.

J. In the event a historic, prehistoric, or archeological site, feature, or object is discovered, stop work immediately in the area and immediately notify the Construction Manager.

K. Excavation performed in support of trenching activities shall be in accordance with Section 02205.

L. L. Material removed from the utility isolation trench shall be backfilled daily to avoid stockpile requirements.

3.2 TRENCHING

A. Trench at locations, as shown on the Construction Drawings, using approved trencher equipment. Trenches shall be cut to a minimum depth of 12 feet, with a tolerance of 0 to 6 inches. Trench centerline shall have a lateral tolerance of +/- 1-foot. Deviation beyond the

+/- 1-foot lateral tolerance requires prior review and approval by the Construction Manager, Project Engineer, and Utility Engineer to evaluate potential impacts to surrounding structures and utilities.

B. Trench in such a manner that enables the Construction Manager to visually observe trenching activities.

C. In areas inaccessible to the trencher, excavate around utilities and structures as directed by the Construction Manager, to verify no active utilities are present. Air gap active utilities found in areas inaccessible to the trencher using methods and equipment as approved by the Construction Manager, in accordance with the Construction Drawings. Dispose of pipe sections removed during air-gapping in accordance with Section 02205.

D. Stop trenching and immediately notify the Construction Manager if unidentified utilities are encountered.

E. Continuously observe trenching for the presence of Special Materials or change in materials. Stop trenching in the area and immediately notify the Construction Manager if Special Materials are encountered. Dispose of Special Materials in accordance with Section 02205.

F. Stop trenching operations and notify the Construction Manager if fluid is detected flowing into the trench from a utility line cut during the trenching operations. The Construction Manager will note the location of the leakage for future remediation of the trenching corridor by others.

G. Perform trenching activities in such a manner as to minimize water accumulation in the trench.

H. Backfill trenches and excavations daily unless otherwise approved by the Construction Manager. Trenches or excavations remaining open after working hours shall be barricaded in accordance with requirements stated in the approved Construction Traveler(s).

I. Verify and record "as-built" trench locations and depths every 50 feet, and at intersections, along the trench centerline.

3.3 BACKFILL

A. Backfill trenches and excavations using material removed during trenching and excavation activities. The final 24 inches of backfill placed shall be free of debris, foreign objects, large rock fragments (maximum dimension of 6 inches), organic matter, and other deleterious materials so as to obtain adequate compaction. Spread these materials within the adjacent excavation area.

B. Backfill trenches to within 24 inches of grade. Backfill and compact the remaining 24 inches in 8-inch lifts compacted by four passes of compaction equipment suitable for use in the trench.

C. Use remaining material removed during trenching to construct a diversion berm along the trench centerline as shown on the Construction Drawings. Construct diversion berm in 8-inch lifts compacted by four passes of equipment approved by the Construction Manager. Obtain supplemental material to construct the diversion berm as necessary from the surrounding areas as directed by the Construction Manager. Spread excess material in place.

D. After completion of backfilling and diversion berm construction activities, install and modify rope fence to locations as shown on the Construction Drawings unless otherwise directed by the Construction Manager.

E. Upon completion of trenching, backfilling and diversion berm construction, stabilize the disturbed area using crusting agent in accordance with Section 02275.

END OF SECTION

SECTION 02275
SURFACE WATER MANAGEMENT AND EROSION CONTROL FOR REMEDIATION

PART 1 GENERAL

1.1 SCOPE

A. This Section includes, but is not limited to, the following:

1. Installation of erosion and sediment control measures.
2. Maintenance of existing and new erosion and sediment control measures installed under this activity, including removal of temporary erosion control facilities.
3. Management of excavation water in excavation areas, including pumping water to the appropriate sediment basin during general excavation and management of volatile organic compound (VOC)-contaminated water.
4. Modification of existing storm sewer system.
5. Installation and maintenance of runon/runoff controls along the perimeter of the project boundary.
6. Protection of the unsaturated sands and gravels of the Great Miami Aquifer (GMA) from runon within the excavation areas, including installation and maintenance of runon controls.
7. Management of area for precertification.
8. Stabilization of disturbed excavation areas or stockpiles.
9. Inspection requirements.

1.2 RELATED SECTIONS AND DOCUMENTS

A. Section 02100 – Surveying.

B. Section 02205 – Impacted Material Excavation.

C. Section 02206 – Earthwork for Remediation.

D. Section 02270 – Surface Water Management and Erosion Control

E. Section 02930 – Vegetation.

1.3 REFERENCES

A. State of Ohio, Department of Natural Resources (ODNR), Rainwater and Land Development, Ohio's Standard for Stormwater Management Land Development and Urban Stream Protection, current edition.

B. State of Ohio, Department of Transportation (ODOT), Construction and Material Specifications, current edition.

C. Surface Water Management Plan (SWMP) for the applicable soil excavation project.

1.4 DEFINITIONS

A. Excavation Water: The combination of surface water and perched water that collects in the excavation.

1.5 SUBMITTALS

A. For each product proposed for use, submit the following:

1. Manufacturer's product data and recommended methods of installation and maintenance.
2. Certification from manufacturer that the product meets the material requirements of this Section, including test results.
3. Material Safety Data Sheet (MSDS), if applicable.

B. Records of inspection of erosion and sediment control measures as specified herein shall be submitted monthly upon completion of the inspection report.

PART 2 PRODUCTS

2.1 MATERIALS

A. Furnish silt fence in accordance with ODNR, composed of, at a minimum, strong rot-proof polymeric fibers formed into a woven fabric having fabric and fence post properties as shown on the Construction Drawings.

B. Furnish woven yarn blanket-like erosion mat that will resist degredation for a minimum of 6-months after installation, having a permissible velocity of 7 feet per second, with the following material properties:

1. Yarn content: 100 percent jute or coconut fiber.
2. Weight: minimum 11.5 ounces per square yard.
3. Open Area: maximum 65 percent.
4. Mesh Opening: minimum 0.5 inches.

C. Furnish metal staples specifically made to anchor erosion control blankets. Anchors will be 11 gauge wire formed into a staple shape with minimum dimensions of 6 inches by 1 inch by 6 inches.

D. Furnish dust suppression/crusting agent in accordance with Section 02930.

E. Furnish backfill in accordance Section 02206.

2.2 EQUIPMENT

A. Furnish portable tank (minimum 3,000 gal.), as needed to hold water contaminated with volatile organic compounds (VOCs).

B. Furnish pumps, filters, hoses and other appurtences required to execute work specified in this Section.

PART 3 EXECUTION

3.1 GENERAL

A. Construct and maintain erosion and sediment control measures as specified in this Section and shown on Construction Drawings. Maintain existing erosion and sediment control facilities and measures in accordance with this Section.

B. Minimize runon into disturbed excavation areas by grading the surrounding area away from the disturbed area and/or by constructing temporary diversions as shown on Construction Drawings.

C. As the excavation progresses, excavate sumps at resulting low points used for water collection of excavation water. Do not penetrate to within 5 feet of the GMA with sump excavations.

D. Dewater excavations in accordance with the Construction Drawings, if applicable. Excavation water collected within active excavations and below design grade utility removal shall be pumped to the appropriate sediment control basin as shown on Construction Drawings. Collected water shall be pumped down to a depth of less than one foot remaining in the bottom of the excavation within 3 days of the last rainfall.

E. The Construction Manager will arrange for sampling and analysis of excavation water present in suspect VOC areas prior to a discharge event. Following sampling and analysis, pump collected VOC-contaminated water to the appropriate treatment and/or disposition.

F. Plug storm sewers at the excavation boundary prior to removal of storm sewer piping located within the excavation area. Plug storm sewer system in such a manner to minimize water collected in abandoned portions of the system.

G. Remove erosion and sediment control measures after the disturbed excavation areas are stabilized as specified in Section 02930.

3.2 SILT FENCES

A. Install silt fence at locations down-gradient of areas to be disturbed until drainage and erosion control structures have been established as shown on the Construction Drawings. Remove and dispose accumulated sediment as specified in Section 02205.

B. Install breaks and overlaps in silt fence as necessary to allow equipment access to construction areas.

3.3 EROSION CONTROL BLANKETS

A. Install and maintain erosion control blankets in accordance with manufacturer's recommendations. Install additional staples as necessary to maintain erosion control blankets taut to the ground surface.

3.4 SEDIMENT BASINS AND DITCHES

A. Remove accumulated sediment and debris from sediment basins and ditches. In no case shall sediment build up to a depth greater than 18 inches in the sediment basin or to a depth greater than one-half the constructed depth of the ditch.

B. Dispose of sediment and debris as specified in Section 02205.

3.5 GMA PROTECTION

A. When possible, limit excavations within 5 feet of the GMA to periods of dry weather.

B. Construct bench terrace or interceptor ditch directly above the excavation extending within 5 feet of the GMA, observing slope stability requirements for the excavation. Slope bench terrace directly above the GMA toward the excavated slope as shown on the Construction Drawings. Grade the bench terrace or interceptor ditch to a sump for pumping to prevent runon into the GMA.

C. Size and locate pumps for sumps above the GMA such that no water within the excavation area shall overflow into the GMA from a 10-yr, 24-hr or lesser storm event. Sump bottoms shall not extend to within 5 feet of the GMA.

D. For excavations extending to within 5-feet of the GMA elevation shown on the Construction Drawings, maintain less than three foot of standing water in the excavations by pumping excavation water to a sediment basin or an adjacent excavation, as necessary.

E. Backfill over the GMA in accordance with Section 02206.

F. In areas where 2 feet of compacted cover has been recently restored following excavation which has extended to within 2 feet of or breached the GMA, pump ponded water from the affected excavation as soon as practical (but within 24 hours or by the direction of the Construction Manager) following a precipitation event.

3.6 PRECERTIFICATION

A. Pipes that daylight at the excavation face shall be plugged at the excavation face prior to precertification in accordance with Section 02205 and the Construction Drawings.

B. Install run-on controls along perimeter of precertification boundary, as shown on the Construction Drawings, to prevent surface water from non-certified areas from flowing into precertified areas.

C. During precertification, direct drainage from precertified areas to the sediment basin. Routing of surface water pump lines must be approved by the Construction Manager.

D. Maintain surface water management within the area to be precertified in accordance with this Section until precertification is complete.

3.7 INSPECTION

A. Inspect erosion and sediment control measures in accordance with Section 02270.

B. File records of inspections in accordance with Section 02270.

END OF SECTION

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Combined Technical Specifications For Soil and Disposal Facility Project

Area 3B/4B/5 Remediation

Excavation for Remediation Technical Specifications Document 20300-TS-0001 Revision E

Area 4B Dewatering Technical Specifications Document 20810-TS-0001 Revision A

September 2002

U.S. DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

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FLUOR

Technical Specifications
For
Soil and Disposal Facility Project

Excavation For Remediation

Document 20300-TS-0001
Revision E

September 2002

PREPARED BY:_____

CHECKED BY:_____

APPROVED BY:_____

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FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

Excavation For Remediation Technical Specifications

Technical specifications contained in this document detail requirements for soil excavation projects performed under the Soils and Disposal Facility Project. Technical specifications referenced, but not contained herein, are provided in On-Site Disposal Facility (OSDF) technical specification packages. The Legend and General Notes drawing within each excavation design package identify the applicable OSDF technical specification package document.

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02207	Area Isolation Trenching	E	9/27/02
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02100	Surveying	1	03/13/02
02200	Earthwork	1	03/13/02
02215	Trenching and Backfilling	1	03/13/02
02230	Road Construction	1	03/13/02
02270	Surface Water Management and Erosion Control	1	03/13/02
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SPECIFICATION REVISION RECORD

Spec. No./Rev.	Description	Approval	Date
02150, Rev.A	Issue for 30% design review	DRR	5/23/02
02150, Rev B	Issue for 90% A2PII design review	DRR	6/24/02
02150, Rev C	Issue for 90% SWL/FTF design review	DRR	7/16/02
02150, Rev D	Re-issue for 90% SWL/FTF and 90% 3B/4B/5 design reviews	DRR	8/13/02
02150, Rev E	Issue for 100% 3B/4B/5 design review	DRR	9/27/02
02205, Rev.A	Issue for 30% design review	DRR	5/23/02
02205, Rev B	Issue for 90% A2PII design review	DRR	6/24/02
02205, Rev C	Issue for 90% SWL/FTF design review	DRR	7/16/02
02205, Rev D	Re-issue for 90% SWL/FTF and 90% 3B/4B/5 design reviews	DRR	8/13/02
02205, Rev E	Issue for 100% 3B/4B/5 design review	DRR	9/27/02
02206, Rev.A	Issue for 30% design review	DRR	5/23/02
02206, Rev B	Issue for 90% A2PII design review	DRR	6/24/02
02206, Rev C	Issue for 90% SWL/FTF design review	DRR	7/16/02
02206, Rev D	Re-issue for 90% SWL/FTF and 90% 3B/4B/5 design reviews	DRR	8/13/02
02206, Rev E	Issue for 100% 3B/4B/5 design review	DRR	9/27/02
02207, Rev.A	Issue for 30% design review	DRR	5/23/02
02207, Rev B	Issue for 90% A2PII design review	DRR	6/24/02
02207, Rev C	Issue for 90% SWL/FTF design review	DRR	7/16/02
02207, Rev D	Re-issue for 90% SWL/FTF and 90% 3B/4B/5 design reviews	DRR	8/13/02
02207, Rev E	Issue for 100% 3B/4B/5 design review	DRR	9/27/02
02210	Deleted in favor of project-specific ACM work plans	DRR	8/13/02
02275, Rev.A	Issue for 30% design review	DRR	5/23/02
02275, Rev B	Issue for 90% A2PII design review	DRR	6/24/02
02275, Rev C	Issue for 90% SWL/FTF design review	DRR	7/16/02
02275, Rev D	Re-issue for 90% SWL/FTF and 90% 3B/4B/5 design reviews	DRR	8/13/02
02275, Rev E	Issue for 100% 3B/4B/5 design review	DRR	9/27/02

SECTION 02150
TRAFFIC CONTROL

PART 1 GENERAL

1.1 SCOPE

A. This Section includes the traffic control requirements for the excavation areas, Special Materials Transfer Area (SMTA), Stockpile 7 (SP-7) and movement between the following: On-Site Disposal Facility (OSDF), OSDF Material Transfer Areas (OMTA), Bulk Material Transfer Area (BMTA), OSDF borrow area, and designated project operational limits. (Requirements for traffic control within the OSDF and OSDF borrow area are contained in the IMPP and the OSDF Borrow Area Management and Restoration Work Plan.)

1.2 RELATED SECTIONS AND DOCUMENTS

A. Section 02200 - Earthwork

B. Section 02205 – Impacted Material Excavation.

C. Section 02206 – Earthwork for Remediation.

1.3 REFERENCES

A. Manual of Uniform Traffic Control Devices (MUTCD) for Streets and Highways, current edition.

B. State of Ohio, Department of Transportation (ODOT): Construction and Material Specifications, current edition.

PART 2 PRODUCTS

2.1 MATERIALS

A. Provide materials for traffic control, including stop and yield signs conforming to MUTCD and ODOT specifications.

B. Provide fencing as specified in Section 02200.

PART 3 EXECUTION

3.1 TRAFFIC CONTROL

A. Supply, install, and maintain traffic control devices.

B. Maintain speed limit of construction vehicles and equipment per postings and specific requirements stated in the Construction Traveler Package.

C. Ensure that haul equipment or other equipment traveling between certified and non-certified areas, remains on roads constructed of certified material. Perform wheel-wash activities and decontamination as necessary. The Construction Manager will arrange for radiological monitoring in accordance with Section 02205.

D. Provide entry points to the excavation area free of interference from non-project operations. Ensure that traffic entering haul roads yields to traffic already on the road.

E. Ensure that traffic routes are acceptable for use (stable) daily and after an event (rain) that may have altered the condition of the route.

F. Routes that cause equipment and/or vehicles to operate on inclines shall be evaluated and operational limits stated.

3.2 IMPACTED MATERIAL HAUL ROAD

A. Control the Impacted Material Haul Road (IMHR) as a contamination area during excavation and hauling of above-WAC materials. The Construction Manager must approve IMHR crossings from controlled areas.

B. The Construction Manager may post or reclassify road crossing intersections with the IMHR during periods of inactivity.

3.3 UTILITY CROSSINGS

A. Protect energized or active utility lines outside of existing paved areas that intersect proposed traffic routes. Use a 1 inch thick steel plate or an equivalent alternative. Provide length and width of steel plates as required to protect the existing utilities.

3.4 EQUIPMENT PARKING

A. OSDF Contractor Administration Area

1. Provide non-contaminated equipment parking areas within the OSDF Contractor Administration Area.
2. Restrict personal vehicles from the equipment parking areas.
3. Provide personnel parking at the OSDF Contractor Administration Area.

B. Contaminated Equipment Parking Area

1. Locate the contaminated equipment parking area as close as possible to the Radiological Control Point Facility.
2. Maintain contaminated equipment parking areas free of mud, debris and standing water.
3. Park contaminated equipment utilized in the SP-7 area, or above-WAC areas at the boundary of the area, in accordance with Section 02205, until decontaminated and released from the area.

C. Parking areas shall be constructed to insure that personnel accessing and servicing the vehicles shall have stable footing. The use of rip rap and other like materials is not acceptable.

END OF SECTION

SECTION 02205
IMPACTED MATERIAL EXCAVATION

PART 1 GENERAL

1.1 SCOPE

A. This Section includes the requirements for excavating, size-reducing, segregating, stockpiling, loading, hauling, and unloading impacted material. Activities include, but are not limited to, the following:

1. Excavation of impacted materials to the design grade.
2. Segregation of impacted materials for disposition or reuse.
3. Size reduction of remaining structures, utilities, and miscellaneous debris.
4. Loading, hauling and unloading of impacted materials to appropriate disposition.
5. Development and maintenance of project stockpiles.
6. Support of site monitoring and sampling activities.
7. Performance of area management activities.
8. Supplemental excavation beyond the design grade.
9. Excavation of utilities below the design grade.

1.2 RELATED SECTIONS AND DOCUMENTS

A. Section 02100 – Surveying.

B. Section 02150 – Traffic Control.

C. Section 02200 – Earthwork.

D. Section 02206 – Earthwork for Remediation.

E. Section 02210 – Asbestos Containing Material (ACM).

F. Section 02230 – Road Construction.

G. Section 02275 – Surface Water Management and Erosion Control for Remediation.

H. Section 02930 – Vegetation.

I. Impacted Materials Placement Plan (IMPP), On Site Disposal Facility (OSDF), 20100-PL-007, current revision.

1.3 REFERENCES

A. Title 29, Code of Federal Regulations (CFR): 29 CFR 1926 Subpart P – Excavation, current edition.

B. Waste Acceptance Criteria (WAC) Attainment Plan for On Site Disposal Facility (OSDF), 20100-PL-0014, current revision.

1.4 DEFINITIONS

A. Active Stockpile: A stockpile specifically designed to operate for longer than 45 calendar days. This includes interim stockpiles that are older that 45 days and existing stockpiles shown on the Construction Drawings.

B. Debris: Impacted material that is generated during the excavation and removal of building structures, utilities, miscellaneous man-made materials, and natural materials. These materials include floor slabs; foundation walls; foundations; piers; footings; hydraulic ram casings; structural steel, re-bar and miscellaneous metal; electrical duct-bank, manholes, electrical wiring, and power poles; remaining equipment and miscellaneous mechanical items; chain link and other fencing; agricultural drain tiles; and rock, asphaltic pavement, and other aggregate materials not defined as Special Materials.

C. Design Grade: Grade created by excavation of impacted material to the lines and grades shown on Construction Drawings.

D. Final Remediation Levels (FRLs): The permissible concentration of contaminants that may remain in site soil and sediment following completion of remedial actions.

E. Hazardous Waste Management Unit (HWMU): Area shown on the Drawings that has contained hazardous or mixed waste.

F. Impacted Material: Soil with contamination levels above the established FRLs or man-made materials. Impacted materials associated with soil excavation projects are presented in Table 02205-1.

G. Interim Stockpile: An impacted material project stockpile that is intended to be dispositioned in less than 45 calendar days.

H. Process Piping: Piping that is more likely to contain contaminated residue based on process knowledge of previous excavation activities (i.e. sanitary, effluent, or sump liquor lines).

I. Real-time Monitoring: Consists of several alternative methods of utilizing in-situ gamma spectroscopy, to analyze contaminant levels on the excavation surface.

J. Special Materials: Impacted material requiring special handling as specified in this Section and presented in Table 02205-1.

K. Supplemental Excavation: Removal of impacted material encountered beyond design grade.

L. Underground Storage Tank (UST): Tank that was used to contain an accumulation of a regulated substance, of which the volume was 10 percent or more beneath the ground surface.

M. WAC: Waste acceptance criteria (WAC) for disposition of material at the OSDF as defined by the WAC Attainment Plan. This WAC includes radiological/chemical criteria for soil, physical criteria for debris, and criteria for ancillary remediation waste (i.e., analytical sample returns, PPE).

1.5 SUBMITTALS

A. Maintain a daily record of underground utilities that have been excavated from below the design grade, in the form of a redline drawing mark-up, for review by the Project Engineer every 30 days following the start of excavation beyond the design grade.

B. Submit calculations certified by a registered Professional Engineer ensuring slope stability when using equipment having a gross weight greater than the specified Caterpillar CAT 350L within the excavation area, as necessary.

1.6 VERIFICATION OF THE EXISTING CONDITIONS

A. Verify existing conditions as specified in Section 02100.

PART 2 PRODUCTS

2.1 MATERIALS

A. Provide 20-mil sheets of Herculite or equal for use in buffer areas.

B. Provide 3/8-inch yellow nylon rope fence. Posts shall be in accordance with Section 02200.

2.2 EQUIPMENT

A. Furnish and maintain equipment to perform required operations in accordance with this Section.

B. Equipment used to haul impacted material over the existing paved IMHR, shall be equal to or less than the gross vehicle weight and axle loading for a Caterpillar CAT D300E haul truck (gross vehicle weight of 120,000 pounds and maximum axle width of 9-feet 10-inches). Pavement width of the existing two-way IMHR is 24-feet. Select equipment and equipment width to ensure safe operation on this road.

C. Equipment used within the excavation area shall be equal or less than the gross weight for a Caterpillar CAT 350L track hoe (112,500 pounds). Heavier equipment may be approved for use in this area pending submittal and approval of calculations certified by a registered Professional Engineer, that ensure slope stability.

D. Equipment used to excavate, load, haul, and unload impacted materials shall have enclosed cabs. Enclosed cab is defined as an equipment cab isolated from outside environment (intact windows, doors, panels and floors surrounding driver with windows and doors shut) which provides a barrier from intrusion of outside airborne particles. Heating, ventilating, or air conditioning units associated with the equipment cab must not provide a direct path

for outside air to enter (air conditioner on air recirculate mode) unless the air is first passed through a high efficiency particulate air filter pulled directly from outside the cab.

E. Furnish placards, placard carriers and 3-inch nominal diameter mounted sealable polyvinyl-chloride (PVC) tubes to serve as manifest carriers on haul trucks. Install at locations as directed by the Construction Manager.

F. Assign equipment used to haul material to the OSDF with unique alpha-numeric identifiers. This identifier shall be placed on both sides of the truck cab and shall be visible from 20 feet.

G. Equip trucks used for hauling impacted material with automatic load cover tops or employ Best Available Technology (BAT) methods to ensure that no airborne materials are emitted from the haul truck bed or load, whether empty or full.

H. Provide water tank trucks, water wagons, hydroseeders, portable tanks, pressure distributors, piping, sprinklers or other equipment designed to apply water and/or dust suppressant and crusting agent uniformly and in controlled quantities to variable surface widths to provide fugitive dust control.

I. Provide pressure wash or comparable equipment necessary to clean visible process residue and soil from piping and debris for placement in the OSDF.

J. Provide portable wash equipment to wash vehicle tires and vehicle exteriors as necessary.

K. Equipment used for size reducing concrete and asphalt materials for use as temporary aggregate surfaces.

PART 3 EXECUTION

3.1 GENERAL EXCAVATION

A. Prior to performing excavation activities, satisfy the following requirements:

1. Complete preliminary survey and layout work in accordance with Section 02100.
2. Establish dust control methods in accordance with site procedures.
3. Install and manage surface water management and erosion and sediment control measures in accordance with Section 02275.
4. Install, modify, and manage construction safety and radiological-control fence and signage. Install posts at spacing recommended by the manufacturer's installation procedures and as required to prevent sagging. Posts with less than 4 feet remaining above the ground after installation shall have safety caps installed.
5. Obtain survey and red line markup of area isolation trench, where applicable, to verify completeness.

B. Perform excavation activities in compliance with 29 CFR Part 1926.650 through 1926.652.

C. Unless otherwise noted on the Construction Drawings, the following slope stability requirements shall apply during excavation activities:

1. Excavation slopes with depths less than 20-feet shall be performed in accordance with applicable Occupational Safety and Health Administration (OSHA) guidelines.
2. Sloped excavations greater than 20 feet in depth shall be designed by a Registered Professional Engineer (RPE) with registration in the state of Ohio.
3. Temporary excavation slopes with depths less than 20-feet shall be no steeper than 1.5H:1V with a maximum height of 13 feet between 15 foot benches.
4. Design slopes and slopes created by supplemental excavation shall be no steeper than 2H:1V with a maximum height of 13 feet between 15 foot benches.

D. Install and manage traffic control devices in accordance with Section 02150.

E. Blasting, including use of explosives or explosive devices, is not permitted.

F. As necessary, establish and manage Special Materials Transfer Area(s) (SMTA) as follows:

1. Establish the SMTA on an existing building slab, paved parking area, or new aggregate surface adjacent to the project boundary, accessible from inside and outside the excavation area.
2. Construct ingress/egress to the SMTA, including access roads, ramps, and drainage improvements as required.
3. Install new aggregate surface SMTA in accordance with the Construction Drawings and Section 02230, and provide positive drainage.
4. The SMTA shall not be used as a laydown area.
5. The SMTA shall be controlled as a radiological buffer area in accordance with this Section.

G. Establish controls for removal of ACM in accordance with approved Construction Traveler Package.

H. Excavate surface material within the limits of excavation to a minimum depth of 2 feet, unless otherwise noted on the Construction Drawings.

I. Excavate fractured materials concurrent with the adjacent above-WAC or below-WAC material, minimizing generation of above-WAC material. Fracturing of at-grade concrete slabs may continue concurrently with above-WAC and/or RCRA hazardous soil removal, but concrete outside of above-WAC and RCRA hazardous areas shall not be removed until above-WAC and RCRA hazardous soil removal has been completed, unless otherwise approved by the Construction Manager.

J. Excavate and load material in such a manner that enables visual observation of excavation and loading operations as required to accurately manifest material for disposition.

K. Excavations shall generally proceed in an up-gradient to down-gradient pattern to the lines and grades shown on the Construction Drawings.

L. Keep excavation equipment in contaminated areas to prevent recontamination of areas excavated to final grade. Excavate an area by methods that prevent drainage of surface water into the area.

M. Unless otherwise noted on the Construction Drawings or directed by the Construction Manager, excavate material from known above-WAC and RCRA hazardous areas in accordance with this Section, prior to excavating below-WAC material.

N. Survey and stake excavation areas as shown on the Construction Drawings, in accordance with Section 02100. Perform intermediate and final surveys as specified in Section 02100 for measurement and to confirm attainment of the design grade.

O. Remove material adjacent to structures that extend above the excavation surface, as well as the structures themselves, in a safe manner to ensure that an unstable condition is not created.

P. Prior to excavating previously trenched and backfilled isolation trenches, physical sampling is required in locations where sanitary and process lines were cut during trenching. Allow 10 working days for physical sampling and analysis.

Q. Design contours and grades shown on the Construction Drawings represent the minimum limits of excavation required to capture contamination and foundations, while maintaining safe slope requirements. Minimal changes may be submitted to incorporate breaks in contours, ponding of water, equipment accessibility, etc. These changes shall not exceed 10% of the total designed excavation quantity.

R. In the event a historic, prehistoric, or archeological site, feature, or object is discovered, stop excavation in the area and immediately notify the Construction Manager.

S. Continuously observe excavations for Special Materials or change in materials. In the event a Special Material or change in materials is encountered, stop excavation in the area and immediately notify the Construction Manager. Dispose of Special Materials in accordance with Table 02205-1.

T. In the event solvent saturated soils are encountered, stop excavation in the area and immediately notify the Construction Manager. Excavate, load, and haul the material as directed by the Construction Manager.

U. Prevent damage to adjacent structures, materials, and equipment, including utilities that are to remain, or those installed for performance of this work. Repair damage that occurs due to execution of this scope.

3.2 EXCAVATIONS APPROACHING THE GMA

A. Stop excavation activities in the immediate area and immediately notify the Construction Manager if sands and gravel are encountered, even if the design grade has not been reached.

B. Use caution when excavations encroach on the 5-feet protective cover over the unsaturated sands and gravel of the GMA. Approximate GMA elevations are shown on the Construction Drawings.

C. Prior to initiating work activities which will encroach on the 5-feet protective cover but not

extend within 2-feet of the GMA, proceed as follows:

1. Excavate to achieve design grades shown on the Construction Drawings or to remove Above-FRL material.
2. Allow 24 hours for coordination of the following: examination of the excavation bottom to determine if GMA sediments are present, real-time monitoring and/or physical sampling of the area to be backfilled, and identification of necessary pumping requirements for ponded water.
3. Immediately following monitoring and sampling, initiate backfilling to protect the GMA in accordance with Section 02206.

D. Prior to initiating work activities which will encroach within 2 feet of or breach the GMA, obtain approval and direction from the Construction Manager. Proceed as follows:

1. Excavate to achieve design grades shown on the Construction Drawings or to remove Above-FRL material.
2. Allow for real-time monitoring and physical sampling in the area prior to backfilling.
3. Immediately following monitoring and sampling collection, initiate backfilling to protect the GMA in accordance with Section 02206.

3.3 BUFFER AREA MANAGEMENT

O. Establish excavation boundary and buffer area controls for above-WAC, RCRA hazardous areas, USTs, and HWMUs as follows:

1. Establish excavation area boundaries at surveyed and staked locations, in accordance with this Section.
2. Install T-posts and rope fence at the excavation boundary.
3. Establish the buffer area adjacent to the excavation area to serve as a controlled loading area between the excavation area and the surrounding radiological controlled area.
4. Grade the buffer area to drain into the excavation.
5. Install T-posts and rope fence around the buffer area.
6. Cover the buffer area with a 20-mil sheet of Herculite, or equivalent.
7. Collect water encountered during excavation and pump it as specified in Section 02275 and the construction drawings.
8. Keep the buffer area clean and free of dirt and mud.
9. Remove spillage before releasing haul equipment from the buffer area.

P. Dedicate and restrict equipment required to excavate, load, haul and place above-WAC, RCRA hazardous and HWMU material to that specific use until decontamination rinsing has been completed and approved by the Construction Manager. Upon approval by the Construction Manager that no visible material is present on exterior equipment surfaces, or in haul truck beds, equipment may be used elsewhere.

Q. In above-WAC, RCRA hazardous and HWMU excavations, load haul equipment by reaching over the excavation area boundary and dumping directly into haul equipment located in the buffer area. Load haul equipment in a manner that prevents spillage and

accumulation of material on the wheels and exterior of the haul equipment. Remove visible material that accumulates on the truck exterior. Multiple loading areas may be established within the buffer area.

R. Wash haul equipment within the buffer area as necessary (using low volume, high-pressure washer or approved equivalent) to remove above-WAC, RCRA hazardous or HWMU material from the exterior of equipment.

3.4 ABOVE-WAC EXCAVATIONS

A. Establish excavation boundary and buffer area controls in accordance with this Section.

B. Remove debris (concrete, asphalt, and miscellaneous structures) from above-WAC areas and pressure wash the debris to remove soil/residue. The Construction Manager will visually monitor washing operations to ensure that debris is free of soil/residue and approved for loading and hauling to the OSDF.

C. Debris from above-WAC areas not approved for disposal at the OSDF shall be dispositioned at SP-7 in accordance with this Section.

D. Excavate above-WAC soil/gravel in 3+/-1 foot lifts to the design grade, as shown on the Construction Drawings. Load and haul above-WAC soil/gravel to SP-7 in accordance with this Section.

E. The Construction Manager will arrange for real-time monitoring on excavated side slopes after each lift is removed and on the excavation floor upon achieving the above-WAC contamination limits shown on the Construction Drawings. In above-WAC areas contaminated with Tc-99, as shown on the Construction Drawings, the Construction Manager will arrange for physical sampling at the design depth. Allow 10 working days for sampling and analysis. Do not proceed with further excavation in this area until directed by the Construction Manager.

F. If initial depth of above-WAC material is below the existing surface, excavate below-WAC material in 2+/-1 foot lifts until above-WAC material has been reached, then proceed in 3+/-1 foot lifts.

G. Pending results of monitoring or analysis, perform supplemental above-WAC excavation beyond design limits shown on the Construction Drawings or in areas not shown on the Construction Drawings, as directed by the Construction Manager.

3.5 RCRA HAZARDOUS EXCAVATIONS

Excavate RCRA Hazardous areas to the limits shown on the Drawings as follows:

A. Establish excavation boundary and buffer area controls in accordance with this Section.

B. Remove debris (concrete, asphalt, and miscellaneous structures) from RCRA hazardous areas and pressure wash the debris to remove any soil/residue. The Construction Manager will visually monitor washing operations to ensure that debris is free of all soil/residue and

approved for loading and hauling to the OSDF. The Construction Manager may require additional washing as necessary to satisfy visual inspection.

C. Debris from RCRA hazardous areas not approved for disposal at the OSDF shall be staged at an appropriate area for treatment by others, as directed by the Construction Manager.

D. Excavate RCRA hazardous soil/gravel in 3+/-1 foot lifts to the limits shown on the Drawing. Load and haul material to an appropriate area for treatment by others, as directed by the Construction Manager. Do not proceed with further excavation in this area until directed by the Construction Manager.

E. The Construction Manager will perform physical sampling upon confirmation that all RCRA hazardous material has been excavated. Allow 10 working days for sampling and analysis.

F. Perform additional RCRA hazardous excavations, as directed by the Construction Manager, if analysis identifies additional RCRA hazardous material beyond the limits shown on the Drawings.

3.6 HWMU EXCAVATIONS

Excavate material from the HWMU to the limits shown on the Drawings as follows:

A. Establish excavation boundary and buffer area controls in accordance with this Section.

B. Remove debris (concrete, asphalt, and miscellaneous structures) from the HWMU and haul to the OSDF as a discrete waste stream. If the HWMU is considered an above-WAC area, load and haul the debris to SP-7, or containerize it as directed by the Construction Manager.

C. Excavate HWMU soil/gravel in 3+/-1 foot lifts to the HWMU design grade, as shown on the Construction Drawings. Load and haul HWMU soil/gravel to the OSDF as a discrete waste stream. If the HWMU is considered an above-WAC area, containerize soil/gravel as directed by the Construction Manager.

D. The Construction Manager will arrange for physical sampling on excavated side slopes after each lift is removed and on the excavation floor upon achieving the HWMU design grade shown on Construction Drawings. Allow 10 working days for sampling and analysis required for closure of the HWMU. Do not proceed with further excavation in the area until directed by the Construction Manager.

E. Pending analysis of sample results, perform supplemental HWMU excavation beyond the design grade shown on Construction Drawings as directed by the Construction Manager.

F. Upon confirmation from the Construction Manager that the HWMU excavation is complete, remove HWMU boundary fence, load and haul buffer area Herculite as HWMU debris.

3.7 UST EXCAVATIONS

Excavate USTs and areas that previously contained USTs shown on the Construction Drawings, as well as USTs discovered during excavation, as follows:

A. Excavate to expose the top of the tank (UST) to allow the Construction Manager to assess the tank's condition.

B. The Construction Manager and Industrial Hygiene will inspect the tank for the presence of liquid or non-soil residue.

C. If the tank contains liquid or non-soil residue, as determined by the Construction Manager, proceed as follows:

1. Pump remaining tank contents into drums provided by the Construction Manager.
2. Move filled drums from the excavation area to the SMTA.
3. Drums will be removed from the SMTA by others for appropriate disposition.

D. Upon confirmation from the Construction Manager that the tank is empty, excavate the tank. Ensure that water does not accumulate in the tank from the surrounding excavation.

E. During excavation, stage the tank, soil excavated from around the UST, and soil excavated from areas that previously contained USTs separate from other excavated materials.

F. Upon confirmation from the Construction Manager that the tank is free of visible process residue, size-reduce the tank to meet physical WAC and dispose of it in the OSDF as a discrete waste stream.

G. If the tank cannot be cleaned of visible process residue, size-reduce the tank for disposition in accordance with this Section.

H. Over-excavate soil surrounding UST excavations and from areas that previously contained USTs to remove visible stains. Transport this soil as directed by the Construction Manager.

3.8 BELOW-WAC EXCAVATIONS

Excavate below-WAC material to the limits shown on the Construction Drawings as follows:

A. Remove slabs, concrete pads, asphalt, gravel, base and sub-base to sub-grade soil within below-WAC areas. Load and haul this material to the OMTA-Bulk Debris or OSDF. The Construction Manager will arrange for real-time monitoring prior to subsequent excavation in the below-WAC area.

B. Excavate below-WAC areas to the design grade shown on Construction Drawings. Load and haul this material to the OSDF in accordance with this Section.

C. In below-WAC excavations driven by contamination rather than removal of underground structures, as shown on Construction Drawings, excavate in 3+/-1 foot lifts to the design grade shown on Construction Drawings. The Construction Manager will arrange for real-time monitoring upon removal of each lift. Do not proceed with further excavation in these areas until directed by the Construction Manager.

D. Over-excavate a minimum of 6 inches in areas where impacted material was stockpiled or pushed for load-out during excavation to allow for visual inspection and disposition of debris that may have been tracked into the soil.

E. Coordinate real-time monitoring as necessary to minimize delays.

F. Upon reaching the design grade, notify the Construction Manager for real-time monitoring.

3.9 UTILITY REMOVAL BELOW THE DESIGN GRADE

A. Excavate known utilities as indicated on the Construction Drawings. Prior to removal, cap, drain, purge and/or plug utility lines to be excavated to prevent release of material into surrounding soil. If fluids or hold-up material is encountered in utility lines, stop work and notify the Construction Manager. Plug sanitary and process lines when liquid flow is detected. Material released from sanitary or process lines will be excavated and dispositioned as directed by the Construction Manager.

B. If unidentified utilities or underground structures are encountered, notify the Construction Manager, and proceed in accordance with the approved Penetration Permit.

C. Process piping that is deformed, closed or otherwise hinders visual inspection shall be managed as above-WAC debris based on it's area of origin.

D. If a utility is suspected of containing ACM, notify the Construction Manager and Industrial Hygiene and manage in accordance with Section 02210.

E. Excavate, size-reduce, and handle piping and debris in such a manner to minimize the generation of above-WAC debris or friable asbestos.

F. Prior to excavating utilities below the design grade, satisfy the following conditions:

1. Complete the intermediate survey, as specified in Section 02100.
2. Obtain Construction Manager approval that real-time monitoring of the design grade is complete.

G. Excavate and remove utilities in accordance with this Section and details shown on Construction Drawings.

H. Backfill utilities located below the design grade in accordance with the details shown on Construction Drawings and Section 02206.

I. If visual monitoring identifies Special Materials during excavation of utilities below the design grade, perform supplemental excavation in accordance with this Section.

J. Excavate miscellaneous debris encountered below the design grade and disposition in accordance with this Section.

K. Maintain a daily record of underground utilities excavated from below the design grade.

3.10 MATERIAL SEGREGATION

A. During excavation, segregate materials by the impacted material categories as defined in the IMPP. Maximize the volume of Category 1 material.

B. Segregate below-WAC material to support construction of the four zones of each OSDF cell (protective layer, select impacted material layer, impacted material layer, and contouring layer).

C. Segregate existing surface aggregate material and size-reduced concrete and asphalt materials for use as temporary aggregate material.

3.11 SIZE REDUCTION

A. Size-reduce remaining structures (i.e., building foundations, slabs, sumps, hydraulic ram casings) located above the design grade to meet OSDF physical WAC.

B. Size-reduce concrete and asphalt structures (i.e., building slabs, concrete/asphalt pads, roads, parking areas) to maximize the generation of material for temporary aggregate surfaces.

C. Size-reduce piping and debris to meet OSDF physical WAC in accordance with the IMPP, or size requirements for SP-7 in accordance with this Section.

D. Size-reduce metal materials (i.e., structural steel, piping, equipment, re-bar, miscellaneous metal) in accordance with the IMPP. Load metal components in bulk and haul to the OSDF or OMTA.

E. Size-reduction shall be by mechanical means, not by flame or torch cutting.

3.12 GENERAL LOADING AND HAULING

A. Use paved haul roads designated on the Construction Drawings for hauling. Upon entering the paved haul roads with haul equipment, do not exit except to the excavation area, SP-7, OMTA Bulk Debris Area, and/or the OSDF, without approval by the Construction Manager.

B. Maintain equipment within the excavation area during periods of non-work (evenings, weekends, and holidays) unless equipment decontamination has been completed. Complete decontamination activities and request a radiological survey of the equipment prior to moving equipment out of radiological contamination areas.

C. When hauling materials to the SMTA, enter the SMTA from the excavation area only.

D. Load haul equipment in a fashion to minimize load shifting and to prevent spillage during transit.

E. Extend automatic covers on suitably equipped haul equipment, whether full or empty, during equipment movement.

F. Keep equipment cab closed and stay within the equipment cab when inside posted

contamination area without appropriate PPE except in emergency situations.

G. Provide material tracking information in accordance with the Material Tracking Plan shown on Construction Drawings.

H. Prior to loading and hauling, material designated for the OSDF shall be void of free liquid.

I. Prohibit tracked equipment from hauling, operating, or tracking over the Impacted Material Haul Road (IMHR) or other paved roadways, unless otherwise approved by the Construction Manager.

3.13 GENERAL DISPOSAL

A. Dispose of impacted material in accordance with this Section. Table 02205-1 provides guidance for the disposition of materials that may be encountered which will be disposed at the 3 destinations identified in this Section. Notify the Construction Manager in the event that materials are discovered that do not appear to be represented in Table 02205-1.

B. Pending coordination between the projects, material designated for SP-7 disposition may be hauled directly to WPRAP. Material hauled directly to WPRAP must comply with SP-7 disposition requirements presented in this Section.

C. OSDF disposition requires the following:

1. Compliance with requirements stated in the WAC Attainment Plan and the IMPP.
2. Piping and debris shall be cleaned of process-related residue in accordance with this Section. Notify the Construction Manager of residue that is not readily removed and manage the debris as directed.
3. Compliance with criteria identified in Table 02205-1 for management of Special Materials for disposition at the OSDF.
4. ACM shall be removed, packaged, loaded and hauled in accordance with Section 02210.

D. SP-7 disposition requires the following:

1. Soil, piping and debris exceeds the requirements for OSDF disposition as outlined in Table 02205-1.
2. Piping and debris shall be less than 10 inches in at least one dimension, and no longer than 6 feet in any dimension.

E. SMTA disposition requires the following:

1. Soil, piping and debris exceeds the requirements for OSDF and SP-7 disposition as outlined in Table 02205-1.
2. Materials shall be containerized as directed by the Construction Manager.
3. Loaded containers shall be placed in the SMTA in a manner that protects the containers from damage. Do not stack containers.

3.14 STOCKPILING

A. Install construction safety fence around active stockpiles in accordance with Section 02200.

B. Install appropriate signage around the boundary of active stockpiles as directed by the Construction Manager.

C. Install erosion control measures around active stockpile in accordance with Section 02275.

D. Maintain fencing, signage, and erosion control measures for the duration of the active stockpile's existence.

E. Repair damage to active stockpile support structures (i.e., silt fence, perimeter fence) inflicted during performance of this project to their original condition within 24 hours of damage discovery.

F. Apply crusting agent as specified in Section 02930 within 7 calendar days upon completion of the active soil stockpile or if the active soil stockpile is to be inactive for more than 45 calendar days.

G. Compact/seal the surface of the stockpile in use at the close of each work-day to prevent fugitive dust and erosion.

H. Construct stockpiles with maximum slopes of 3H:1V and a maximum height-to-base ratio 0.2.

I. Locate interim stockpiles within the limit of excavation upon approval from the Construction Manager. Remove interim stockpiles within 45 calendar days.

J. Establish a separate stockpile for solvent saturated soils, as encountered. Manage the stockpile material to avoid cross-contamination with adjacent soil, and to control surface water and dust.

K. Stockpile excavated surface aggregate materials and size-reduced concrete and asphalt as necessary for use as temporary aggregate material.

L. Stockpiles shall not be located within 30 feet of an excavation top-of-slope.

M. In addition to general stockpiling requirements, the following requirements shall apply to the management of above-WAC stockpiles:

1. Use dedicated equipment for the preparation and management of the stockpiles.
2. Maintain ingress/egress to the stockpiles, including access roads, ramps, and drainage features.
3. Maintain unloading areas that prevent haul equipment tires from coming in contact with stockpiles material.
4. Locate the stockpiles as directed by the Construction Manager.
5. Decontaminate tools and equipment used to place and manage material withing these stockpiles prior to requesting release. Following decontamination, the

Construction Manager will arrange for a radiological survey to release tools and equipment.

N. Cover or lock down soil or debris containing non-friable ACM at the end of the day in accordance with Section 02210.

3.15 MONITORING AND SAMPLING

A. The Construction Manager will arrange for real-time monitoring of below-WAC areas following removal of surface aggregate, concrete and asphalt slabs, pads, roads and parking areas, and between each lift in contaminated areas until the design grade has been achieved, including the design grade.

B. The Construction Manager will arrange for real-time monitoring after each excavation lift for above-WAC materials.

C. The Construction Manager will arrange for radiological monitoring before equipment is released from a buffer area. Working in rain and/or wet weather increases scanning time.

D. The Construction Manager will perform visual monitoring during excavation for Special Materials that are not permitted in the OSDF or that will require additional processing to meet WAC. If Special Materials are found, real-time monitoring may be performed to verify removal and determine appropriate disposition of the material.

E. The Construction Manager will visually monitor piping and debris to ensure no visible process residue remains, in order to be placed in the OSDF.

F. The Construction Manager will arrange for real-time monitoring to verify that the excavation area has met the requirements for precertification.

G. When real-time monitoring or sampling is required, excavate in an alternate location within the excavation area while awaiting the results. Excavate alternate locations a minimum of 50 feet from the area being monitored. Allow up to 2 working days for monitoring after area is ready for monitoring. Extend duration for monitoring at least 1 working day for each day precipitation occurs.

H. The Construction Manager and regulatory agencies may collect samples from the excavation, haul equipment and the OSDF at any time during the project.

I. The Construction Manager will monitor water collected in suspect VOC areas for the presence of volatile organic compounds (VOCs). If VOCs are detected, the water will be sampled and analyzed to determine disposition.

J. The Construction Manager will arrange for magnetometer surveys to verify removal of ferrous debris from areas where former underground utilities and structures were excavated.

3.16 PRECERTIFICATION AND SUPPLEMENTAL EXCAVATION

A. The Construction Manager will arrange for real-time monitoring to pre-certify an area as having attained FRL requirements.

B. Perform supplemental excavations beyond the design grade if either of the following conditions exist:

1. Real-time monitoring and/or physical sampling identifies material beyond the design grade that does not meet FRL requirements.
2. Utilities or other impacted materials identified beyond the design grade.

C. Install rope fencing and appropriate signage around the pre-certified area perimeter after precertification has been achieved.

3.17 AREA MANAGEMENT

A. Maintain construction safety fence, radiological-control fence, and stockpile fence as specified in this Section, Section 02200, and as shown on the Construction Drawings.

B. Management of excavation water shall be as specified in Section 02275.

C. Perform stabilization of the excavated areas using crusting agent and temporary seeding in accordance with Sections 02275 and 02930.

D. Notify the Construction Manager prior to removing sediment and debris from ditches, drains and erosion control devices. The Construction Manager will arrange for sampling and analysis of sediment for WAC compliance. Remove and de-water sediment in accordance with the following:

1. Notify the Construction Manager two (2) days prior to removing sediment from ditches, drains and erosion and sediment control devices to arrange for sampling and analysis of the sediment for disposition.
2. Remove accumulated sediment from ditches, drains and erosion and sediment control devices as directed by the Construction Manager. In no case shall sediment reduce the available depth of the associated feature to less than two-thirds the depth shown on Construction Drawings.
3. De-water sediment removed from above-WAC or RCRA hazardous areas within the associated above-WAC or RCRA hazardous area.
4. De-water sediment removed from ditches, drains and erosion and sediment control devices adjacent to and up-gradient of the associated feature as necessary to allow water to drain immediately back into the feature.
5. Disposition de-watered sediment to the OSDF unless otherwise directed by the Construction Manager.
6. Place sediments accumulated in above-WAC stockpile surface water control devices in the associated stockpile.

E. Implement seasonal closure methods at the end of each construction season and maintain seasonal closure through winter shutdown. Seasonal shutdown requirements include, but are not limited to:

1. Maintain surface water management and erosion and sediment controls.
2. Maintain dust control, as required.

3. Perform equipment decontamination, as required.
4. Remove water from excavation during seasonal closure, when water depth exceeds 1-foot. Pump water out of the excavations in a manner that maintains the integrity of the 2H:1V side slopes, (i.e., no rapid draw down) and prevents an overflow condition. The pumping priority for open excavations is as follows:
   a. Open excavation areas containing impacted material that are located up-gradient of remediated areas,
   b. Completed excavations, and
   c. Other uncompleted excavations.
5. Remove sediment and debris from sediment control basins and ditches in accordance with this Section.
6. Seed/stabilize stockpiles.

END OF SECTION

Table 02205-1

The table should be interpreted to read that material in column 1 may be dispositioned at the appropriate destination in columns 2-4 if the corresponding criteria are met.

MATERIAL	DESTINATION *		
	OSDF	SP7 (1)	SMTA (2)
Soil from general/UST excavation	• Meets WAC	• Above-WAC	• Not applicable
Soil from RCRA hazardous excavation	• Prohibited	• Prohibited	• Containerize
Soil from HWMU excavation	• Meets WAC	• From an Above-WAC area	• RCRA Hazardous
Soil requiring treatment	• Prohibited pending treatment and direction by the Construction Manager	• Prohibited pending treatment and direction by the Construction Manager	• Fails treatment
Debris from general/UST excavation	• Meets WAC	• Above-WAC • Visible residue cannot be removed	• Not applicable
Debris from above-WAC excavation	• Meets WAC and free of visible soil/residue	• Visible soil/residue cannot be removed	• Not applicable
Debris from RCRA hazardous excavation	• Meets WAC and free of visible soil/residue	• Above-WAC and free of visible soil/residue	• Visible soil/residue cannot be removed
Debris from HWMU excavation	• Meets WAC	• Above-WAC and free of visible soil/residue	• Above-WAC and visible soil/residue cannot be removed
Asbestos (3)	• Meets WAC and passes visual inspection by CM	• Above-WAC and non-friable • Visible soil/residue cannot be removed and non-friable	• Friable and fails visual inspection by CM
Non-pressurized Containers (3)	• Meets WAC, free of visible soil/residue, and contains no free liquid, product, etc	• Above-WAC and contains no free liquid, product, etc. • Visible soil/residue cannot be removed and contains no free liquid, product, etc. • Has been crushed	• Contains free liquid, residue, etc • Has been crushed
Piping/Pumps (3)	• Meets WAC, free of visible soil/residue, and contains no free liquid	• Interior not visible and contains no free liquid • Visible soil/residue cannot be removed and contains no free liquid	• Above-WAC/HWMU and visible soil/residue cannot be removed • Above-WAC/RCRA and visible soil/residue cannot be removed
Transformers/Electrical Equipment (3)	• Meets WAC and free of visible soil/residue	• Visible soil/residue cannot be removed and drained of all fluid	• Contains fluid • Above-WAC/HWMU and visible soil/residue cannot be removed • Above-WAC/RCRA and visible soil/residue cannot be removed
Brick including Acid Brick (3)	• No acid brick	• Acid brick	• Not applicable
Lead Acid Batteries (3) Medical Infectious Waste (3) Non-soil Residue (3) Pressurized Containers (3) Tires (3) Uranium Metal (3) Sealed radiological calibration sources	• Prohibited	• Prohibited	• Containerize

(1) Must meet SP7 size requirements per this Section (2) SMTA materials must be containerized. (3) Special Material per this Section.

* These are final destinations beyond which the project bears no responsibility for material movement. The OMTA area staging areas prior to OSDF disposition.

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SECTION 02206
EARTHWORK FOR REMEDIATION

PART 1 GENERAL

1.1 SCOPE

A. This Section includes requirements for earthwork associated with remediation of the former production area to include, but is not limited to:

1. Excavation of fill material.
2. Excavation and placement of materials for ditches and berms.
3. Placement of fill material in trenches excavated for utility removal in areas below design grade.
4. Placement of plug material over the unsaturated sands and gravels of the Great Miami Aquifer (GMA).
5. Interim grading for drainage and road preparation.
6. Final grading.

1.2 RELATED SECTIONS AND DOCUMENTS

A. Section 02100 – Surveying.

B. Section 02150 – Traffic Control.

C. Section 02205 – Impacted Material Excavation.

D. Section 02230 – Road Construction.

E. Section 02275 – Surface Water Management and Erosion Control for Remediation.

F. Section 02930 – Vegetation.

1.3 REFERENCES

A. American Society for Testing and Materials (ASTM):

1.	ASTM C150	Specification for Portland Cement, current edition.
2.	ASTM D698	Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lb/ft), current edition.
3.	ASTM D2216	Test Method for Laboratory Determination of Water (Moisture) Content of Soil and Rock, current edition.
4.	ASTM D2487	Standard Classification of Soils for Engineering Purposes (Unified Soil Classification System), current edition.

5.	ASTM D2922	Standard Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).
6.	ASTM D3017	Standard Test Methods for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth).
7.	ASTM D4643	Test Method for Determination of Water (Moisture) Content of Soil by Microwave Oven Method.

1.4 DEFINITIONS

A. Fill Material: Non-impacted soil obtained from within the excavation area, below the design grades, following pre-certification, or from a designated borrow area.

B. Design Grade: Grade created by excavation of impacted material to the lines and grades shown on Construction Drawings.

C. GMA Plug: Non-impacted gray clay material from the certified Borrow Area used to maintain a minimum protective cover thickness over, and seal breaches into, the GMA unsaturated sands and gravels.

D. Clay Plug: Same material as specified for GMA Plug used to create a protective cover thickness over pilings to be cut off and left in place as shown on the Construction Drawings.

1.5 SUBMITTALS

A. Submit for approval, name, address, and qualifications of an independent soil testing laboratory and resume(s) of field technician(s).

B. Within seven (7) calendar days of obtaining samples and performing field tests, provide copies of lab and field tests performed by the soil testing laboratory and Contractor performing field tests. Soil test results shall include Standard Proctor moisture density tests, sieve analysis, density tests, and Proctor curves for each type of material to be used prior to its use. Field test results shall include a map depicting locations and depth/lift.

C. Submit specification sheet and MSDS for sodium bentonite grout.

D. Submit specification sheet and MSDS for Portland cement.

E. Submit as-built survey to verify completion of design excavation in accordance with Section 02100, Surveying.

F. Documentation of nuclear density gauge calibration in accordance with manufacturer's requirements.

1.6 EXISTING CONDITIONS

A. Verify existing conditions as specified in Section 02100.

PART 2 PRODUCTS

2.1 MATERIALS

A. Fill material shall be free of debris, foreign objects, large rock fragments (maximum dimension of 6 inches), organic, and other deleterious materials.

B. GMA plug material shall be fill material conforming to CL classification according to United Soil Classification System in accordance with ASTM D2487.

C. Use the designated certified borrow area as the source for GMA plug material.

D. Material used to backfill utility trenches located below the design grade and areas where grout plugs are installed into air-gapped storm sewers shall be surrounding soils following pre-certification.

E. Use below-FRL material from the excavation area, following pre-certification, as a source of fill material for supplemental excavations.

F. Portland cement per ASTM C150, normal – Type 1.

G. Sodium bentonite grout.

H. Safety signs around ponds shall be exterior quality signs with minimum 4 inch high letter and shall state, "Life jackets required when working within 5 feet of edge of ponds, use of buddy system required". Hand written signs are unacceptable.

2.2 EQUIPMENT

A. Furnish and maintain equipment to perform required operations in conformance with the requirements of these specifications.

B. Furnish equipment to perform required operations in conformance with this Section. Equipment that results in waste or damage of material, inaccurate work, or is otherwise objectionable shall be promptly replaced.

C. Equipment used to haul non-impacted material over the existing paved Impacted Material Haul Road (IMHR), shall be equal to or less than the gross weight and axle loading for a Caterpillar CAT D300E haul truck (gross vehicle weight of 120,000 pounds and maximum axle width of 9-feet 10-inches). Pavement width of the existing two-way IMHR is 24-feet. Select equipment and equipment width to ensure safe operation on this road.

D. Equipment used within the excavation area shall be in accordance with Section 02205.

E. Furnish compaction equipment, as needed.

PART 3 EXECUTION

3.1 GENERAL

A. Perform intermediate surveys in accordance with Section 02100, to confirm attainment of design grade prior to initiating earthwork activities below the design grade.

B. Stop excavation activities and immediately notify the Construction Manager upon discovery of unexpected cultural resources suspected to be historic, prehistoric, or archeological site, feature or object.

C. Excavate soil below the design grade with equipment free of visible above-FRL soil.

D. Use material from the immediate excavation area or a designated borrow area to meet fill material requirements for trenches and supplemental excavations.

E. Perform construction activities such that surface water runoff from non-certified construction areas does not flow into pre-certified areas, in accordance with Section 02275.

F. Maintain slope stability outside of utility trenches created by excavating utilities below the design grade, in accordance with Section 02205.

G. After certification, perform final grading in accordance with this Section.

3.2 BACKFILL

A. Obtain fill material from areas approved by the Construction Manager. In high-leachability areas shown on the Construction Drawings, obtain fill material from precertified or certified areas meeting the 20 mg/kg total Uranium FRL.

B. Maintain a minimum 5-feet protective cover over the unsaturated sands and gravel of the GMA in accordance with the following. GMA elevations are shown on the Construction Drawings.

1. Following excavation activities that encroach on the 5-feet protective cover but do not extend within 2-feet of the GMA, install GMA plug as follows:

   a. Immediately following monitoring and sampling activities specified in Section 02205, survey the excavation and initiate filling.
   b. Backfill using GMA plug material meeting the requirements of this Section. Complete backfilling within 5 days following sampling.
   c. Backfill GMA plug material in 8-inch +/- 1-inch loose lifts until protective cover is returned to a minimum thickness of 5-feet.
   d. Compact fill material in each 8-inch loose lift to at least 95% Standard Proctor dry density (ASTM D698) within 0 to +3% of optimum moisture content.

2. Following excavation activities that encroach within 2 feet of or breach the GMA, install GMA plug as follows:

   a. Immediately following monitoring and sampling activities specified in Section 02205, survey the excavation and initiate backfilling.
   b. Backfill using GMA Plug material meeting the requirements of this Section.
   c. If precipitation is likely within the next 24 hours, immediately place a minimum fresh compacted thickness of 2 feet. Otherwise, place the 2 feet of compacted cover within 24 hours of excavating to within 2 feet or breaching the GMA.
   d. Place the first lift of GMA plug material in an approximate 18-inch loose lift. Compact the first lift using 4 passes of compaction equipment approved by the Construction Manager.
   e. Backfill the remaining lifts in 8-inch +/- 1-inch loose lifts until the protective cover is returned to a minimum of 5 feet. Compact GMA plug material in each 8-inch loose lift to at least 95% Standard Proctor dry density (ASTM D698) within 0 to +3% of optimum moisture content. These lifts must be continuous over the entire breached area.

D. Install clay plug in locations shown on the Construction Drawings in accordance with the following:

   1. Backfill using clay plug material meeting the requirements of this Section.
   2. Place clay plug material in 8-inch +/- 1-inch loose lifts as necessary to achieve a total compacted thickness of 2-feet.
   3. Compact each lift with four (4) passes of compaction equipment approved by the Construction Manager.
   4. If clay plug is placed over an open pile, seal void spaces within the pile with sodium bentonite grout and cap the top 2 feet of the pile with Type 1 Portland cement ASTM C150 prior to placing the clay plug. Sodium bentonite grout shall be mixed at a water ratio of 2.1 pounds of sodium bentonite per gallon of water, and have a minimum density of 9.4 lbs./gallon. Grout viscosity shall be field checked periodically to assure proper viscosity of 70 +/- 6 seconds using the Marsh funnel viscometer. Tremie the grout into the open pile to eliminate void space.

E. Excavate, remove utilities, and backfill trenches below the design grade in accordance with the following:

   1. Remove utilities located below the design grade in accordance with Section 02205 and details presented on Construction Drawings.
   2. Remove water collected in trenches to sump areas and pump it to the appropriate sediment control basin as specified in Section 02275.
   3. Backfill utility trenches located below design grade in accordance with the Construction Drawings.

3.3 FIELD QUALITY CONTROL

A. In-place density testing will be performed in accordance with ASTM D2922. Nuclear density gauge (ASTM D2922) will be calibrated in accordance with the manufacturer's requirements. Documentation of this calibration will be provided to the Construction Manager. Register nuclear or radiological sources brought on site.

B. Perform in-place moisture tests in accordance with ASTM D3017, or ASTM D4643 as applicable.

C. Determine moisture-density curves in accordance with ASTM D698 (Standard Proctor). Test results must be reviewed and approved by the Construction Manager.

D. If in-place density and/or moisture tests indicate that work does not meet specified requirements, remove work and replace or re-compact to specified requirements.

E. Perform soil classification in accordance with ASTM D2487.

F. Frequency of Tests: Frequency of in-place density and moisture testing shall be whichever of the following requires the greatest number of test:

1. Once each day when compacting GMA plug material.
2. Once each compacted lift of GMA plug material.
3. Once every 3,000 sq. ft. of compacted GMA plug material.

G. Notify the Construction Manager of activities requiring testing/inspection a minimum of 24 hours prior to the start of such activities.

3.4 EARTHEN BERMS

A. Install earthen berms at locations shown on the Construction Drawings using soils from surrounding area following pre-certification by Fluor Fernald.

B. Place material in 8-inch loose lifts.

C. Compact each lift of berm with 4 passes of compaction equipment approved by the Construction Manager.

3.5 INTERIM GRADING

A. When the design grade has been achieved, perform interim grading as follows:

1. Correct washouts or other similar irregularities to maintain the design grade slopes of 2H:1V or less.
2. Grade to maintain smooth continuous slopes.
3. Finish ditches so they drain readily.
4. Perform temporary seeding in accordance with Section 02930.
5. Repair damage within 3 working days.

3.6 FINAL GRADING

A. Obtain verification that the area to be graded has been certified.

B. Provide, maintain and operate temporary drains, ditches, pumps, drainage lines or other equipment to intercept, divert, or remove water from excavations.

C. Provide and maintain stormwater management measures that assure isolation of stormwater between certified and non-certified areas.

D. Regrade within the certified area by cutting back the 2H:1V grades to achieve grades no steeper than 5H:1V. As the 5H:1V excavation proceeds, the cut material shall be placed in the bottom of existing excavations and graded level.

E. Final grading shall be achieved with minimum 5 foot radii at contour direction changes, and smooth transitions between grade breaks and depressions.

F. Perform permanent seeding in accordance with Section 02930.

G. Stabilize 2H:1V slopes along excavation boundary with erosion control blankets in accordance with Section 02275.

3.7 SURFACE WATER MANAGEMENT

A. Manage surface water in accordance with Section 02275.

B. Perform excavation in a manner that promotes positive drainage.

C. Install earthen berms as shown on Construction Drawings. Apply temporary seed and fertilizer on earthen berms in accordance with Section 02930.

3.8 SEASONAL SHUTDOWN

A. Perform seasonal shutdown activities in accordance with Section 02205.

END OF SECTION

SECTION 02207
AREA ISOLATION TRENCHING

PART 1 GENERAL

1.1 SCOPE

A. This Section includes the requirements for trenching and backfilling an isolation trench around the project excavation limits, as shown on the Construction Drawings.

1.2 RELATED SECTIONS AND DOCUMENTS

A. Section 02205 – Impacted Material Excavation.

B. Section 02275 –Surface Water Management and Erosion Control for Remediation.

1.3 REFERENCES

A. Title 29, Code of Federal Regulations (CFR): 29 CFR 1926 Subpart P – Excavation, current edition.

B. RM-0021, "Safety Performance Requirements Manual".

C. RM-0047, "Fugitive Dust Control Requirements".

D. SPR 3-5, "Barricades".

1.4 DEFINITIONS

A. Special Materials: Impacted material requiring special handling as specified in Section 02205 and presented in Table 02205-1.

B. Trencher: Specific equipment used in trenching around the area excavation limits.

PART 2 PRODUCTS

2.1 MATERIALS

A. Provide rope fence consisting of 3/8-inch yellow nylon rope as shown on the Construction Drawings.

B. Provide T-posts in accordance with Section 02200.

C. Provide construction area signage in accordance with SPR 3-5.

D. Provide crusting agent as specified in Section 02275.

2.2 EQUIPMENT

A. Furnish and maintain trencher equipment, manufactured by Vermeer or an approved equivalent, to perform trenching in accordance with this Section. The trencher must meet the following requirements:
   1. Trencher must be capable of cutting to a minimum depth of 12 feet, with a tolerance of 0 to 6 inches.
   2. Trencher must be capable of cutting a trench no greater than 30 inches wide.
   3. Trencher must be capable of maintaining a trench centerline lateral tolerance of +/- 1 foot over the entire trench depth.
   4. Trencher digging mechanism must be capable of being removed for turnover to Fluor Fernald at the completion of the project.

B. Furnish and maintain equipment to perform trench backfilling in accordance with this Section.

C. Equipment used within the trenching exclusion zone shall have enclosed cabs. Enclosed cab is defined as an equipment cab isolated from the outside environment (intact windows, doors, panels and floors surrounding driver with windows and doors shut) which provides a barrier from intrusion of outside airborne particles. Heating, ventilating, or air conditioning units associated with the equipment cab must not provide a direct path for outside air to enter (air conditioner on air recirculate mode) unless the air is first passed through a high efficiency particulate air filter pulled directly from outside the cab.

D. Furnish and maintain equipment to perform compaction in accordance with this Section.

E. Provide water tank trucks, water wagons, hydroseeders, portable tanks, pressure distributors, piping, sprinklers or other equipment designed to apply water and/or dust suppressant and crusting agent uniformly and in controlled quantities to variable surface widths to provide fugitive dust control.

F. Furnish and maintain portable wash equipment to wash vehicle tires and vehicle exteriors as necessary.

G. Equipment used within the excavation area shall meet weight requirements in accordance with Section 02205, to ensure slope stability.

PART 3 EXECUTION

3.1 GENERAL

A. Survey and layout the isolation trench centerline as shown on Construction Drawings. Remove or relocate surface obstructions that may impede trencher operations prior to trenching, as approved by the Construction Manager.

B. Prior to trenching activities, install and manage rope fence and appropriate signage to establish safe distances around the trench and excavations during equipment operation and while the trench remains open.

C. Install radiological-control signs as required.

D. Install and maintain surface water management and erosion and sediment control measures in accordance with Section 02275.

E. Trench and backfill in accordance with the Construction Drawings and this Section.

F. Blasting, including use of explosives or explosive devices, is not permitted.

G. Maintain equipment in a safe condition within the trenching/excavation area during periods of non-work (evening, weekends, and holidays).

H. Prohibit tracked equipment from hauling, operating, or tracking over or on the Impacted Material Haul Road (IMHR) or other paved roadways unless otherwise approved by the Construction Manager.

I. In the event a historic, prehistoric, or archeological site, feature, or object is discovered, stop work immediately in the area and immediately notify the Construction Manager.

J. Excavation performed in support of trenching activities shall be in accordance with Section 02205.

K. Material removed from the utility isolation trench shall be backfilled daily to avoid stockpile requirements.

3.2 TRENCHING

A. Trench at locations, as shown on the Construction Drawings, using approved trencher equipment. Trenches shall be cut to a minimum depth of 12 feet, with a tolerance of 0 to 6 inches. Trench centerline shall have a lateral tolerance of +/- 1-foot. Deviation beyond the +/- 1-foot lateral tolerance requires prior review and approval by the Construction Manager, Project Engineer, and Utility Engineer to evaluate potential impacts to surrounding structures and utilities.

B. Trench in such a manner that enables the Construction Manager to visually observe trenching activities.

C. In areas inaccessible to the trencher, excavate around utilities and structures as directed by the Construction Manager, to verify no active utilities are present. Air gap active utilities found in areas inaccessible to the trencher using methods and equipment as approved by the Construction Manager, in accordance with the Construction Drawings. Dispose of pipe sections removed during air-gapping in accordance with Section 02205.

D. Stop trenching and immediately notify the Construction Manager if unidentified utilities are encountered.

E. Continuously observe trenching for the presence of Special Materials or change in materials. Stop trenching in the area and immediately notify the Construction Manager if Special Materials are encountered. Dispose of Special Materials in accordance with Section 02205.

F. Stop trenching operations and notify the Construction Manager if fluid is detected flowing into the trench from a utility line cut during the trenching operations. The Construction Manager will note the location of the leakage for future remediation of the trenching corridor by others.

G. Perform trenching activities in such a manner as to minimize water accumulation in the trench.

H. Backfill trenches and excavations daily unless otherwise approved by the Construction Manager. Trenches or excavations remaining open after working hours shall be barricaded in accordance with requirements stated in the approved Construction Traveler(s).

I. Verify and record "as-built" trench locations and depths every 50 feet, and at intersections, along the trench centerline.

3.3 BACKFILL

A. Backfill trenches and excavations using material removed during trenching and excavation activities. The final 24 inches of backfill placed shall be free of debris, foreign objects, large rock fragments (maximum dimension of 6 inches), organic matter, and other deleterious materials so as to obtain adequate compaction. Spread these materials within the adjacent excavation area.

B. Backfill trenches to within 24 inches of grade. Backfill and compact the remaining 24 inches in 8-inch lifts compacted by four passes of compaction equipment suitable for use in the trench.

C. Use remaining material removed during trenching to construct a diversion berm along the trench centerline as shown on the Construction Drawings. Construct diversion berm in 8-inch lifts compacted by four passes of equipment approved by the Construction Manager. Obtain supplemental material to construct the diversion berm as necessary from the

surrounding areas as directed by the Construction Manager. Spread excess material in place.

D. After completion of backfilling and diversion berm construction activities, install and modify rope fence to locations as shown on the Construction Drawings unless otherwise directed by the Construction Manager.

E. Upon completion of trenching, backfilling and diversion berm construction, stabilize the disturbed area using crusting agent in accordance with Section 02275.

END OF SECTION

SECTION 02275
SURFACE WATER MANAGEMENT AND EROSION CONTROL FOR REMEDIATION

PART 1 GENERAL

1.1 SCOPE

A. This Section includes, but is not limited to, the following:

1. Installation of erosion and sediment control measures.
2. Maintenance of existing and new erosion and sediment control measures installed under this activity, including removal of temporary erosion control facilities.
3. Management of excavation water in excavation areas, including pumping water to the appropriate sediment basin during general excavation and management of volatile organic compound (VOC)-contaminated water.
4. Modification of existing storm sewer system.
5. Installation and maintenance of runon/runoff controls along the perimeter of the project boundary.
6. Protection of the unsaturated sands and gravels of the Great Miami Aquifer (GMA) from runon within the excavation areas, including installation and maintenance of runon controls.
7. Management of area for precertification.
8. Stabilization of disturbed excavation areas or stockpiles.
9. Inspection requirements.

1.2 RELATED SECTIONS AND DOCUMENTS

A. Section 02100 – Surveying.

B. Section 02205 – Impacted Material Excavation.

C. Section 02206 – Earthwork for Remediation.

D. Section 02270 – Surface Water Management and Erosion Control

E. Section 02930 – Vegetation.

1.3 REFERENCES

A. State of Ohio, Department of Natural Resources (ODNR), Rainwater and Land Development, Ohio's Standard for Stormwater Management Land Development and Urban Stream Protection, current edition.

B. State of Ohio, Department of Transportation (ODOT), Construction and Material Specifications, current edition.

C. Surface Water Management Plan (SWMP) for the applicable soil excavation project.

1.4 DEFINITIONS

A. Excavation Water: The combination of surface water and perched water that collects in the excavation.

1.5 SUBMITTALS

A. For each product proposed for use, submit the following:

1. Manufacturer's product data and recommended methods of installation and maintenance.
2. Certification from manufacturer that the product meets the material requirements of this Section, including test results.
3. Material Safety Data Sheet (MSDS), if applicable.

B. Records of inspection of erosion and sediment control measures as specified herein shall be submitted monthly upon completion of the inspection report.

PART 2 PRODUCTS

2.1 MATERIALS

A. Furnish silt fence in accordance with ODNR, composed of, at a minimum, strong rot-proof polymeric fibers formed into a woven fabric having fabric and fence post properties as shown on the Construction Drawings.

B. Furnish woven yarn blanket-like erosion mat that will resist degredation for a minimum 6-month period after installation, having a permissible velocity of 7 feet per second, with the following material properties:

1. Yarn content: 100 percent jute or coconut fiber.
2. Weight: minimum 11.5 ounces per square yard.
3. Open Area: maximum 65 percent.
4. Mesh Opening: minimum 0.5 inches.

C. Furnish metal staples specifically made to anchor erosion control blankets. Anchors will be 11 gauge wire formed into a staple shape with minimum dimensions of 6 inches by 1 inch by 6 inches.

D. Furnish dust suppression/crusting agent in accordance with Section 02930.

E. Furnish backfill in accordance Section 02206.

2.2 EQUIPMENT

A. Furnish portable tank (minimum 3,000 gal.), as needed to hold water contaminated with volatile organic compounds (VOCs).

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B. Furnish pumps, filters, hoses and other appurtences required to execute work specified in this Section.

PART 3 EXECUTION

3.1 GENERAL

A. Construct and maintain erosion and sediment control measures as specified in this Section and shown on Construction Drawings. Maintain existing erosion and sediment control facilities and measures in accordance with this Section.

B. Minimize runon into disturbed excavation areas by grading the surrounding area away from the disturbed area and/or by constructing temporary diversions as shown on Construction Drawings.

C. As the excavation progresses, excavate sumps at resulting low points used for water collection of excavation water. Do not penetrate to within 5 feet of the GMA with sump excavations.

D. Dewater excavations in accordance with the Construction Drawings. Excavation water collected within active excavations and below design grade utility removal shall be pumped to the appropriate sediment control basin as shown on Construction Drawings. Collected water shall be pumped down to a depth of less than one foot remaining in the bottom of the excavation within 3 days of the last rainfall.

E. The Construction Manager will arrange for sampling and analysis of excavation water present in suspect VOC areas prior to a discharge event. Following sampling and analysis, pump collected VOC-contaminated water to the appropriate treatment and/or disposition.

F. Plug storm sewers at the excavation boundary prior to removal of storm sewer piping located within the excavation area. Plug storm sewer system in such a manner to minimize water collected in abandoned portions of the system.

G. Remove erosion and sediment control measures after the disturbed excavation areas are stabilized as specified in Section 02930.

3.2 SILT FENCES

A. Install silt fence at locations down-gradient of areas to be disturbed until drainage and erosion control structures have been established as shown on the Construction Drawings. Remove and dispose accumulated sediment as specified in Section 02205.

B. Install breaks and overlaps in silt fence as necessary to allow equipment access to construction areas.

3.3 EROSION CONTROL BLANKETS

A. Install and maintain erosion control blankets in accordance with manufacturer's recommendations. Install additional staples as necessary to maintain erosion control blankets taut to the ground surface.

3.4 SEDIMENT BASINS AND DITCHES

A. Remove accumulated sediment and debris from sediment basins and ditches. In no case shall sediment build up to a depth greater than 10 inches in the sediment basin or to a depth greater than one-half the constructed depth of the ditch.

B. Dispose of sediment and debris as specified in Section 02205.

3.5 GMA PROTECTION

A. When possible, limit excavations within 5 feet of the GMA to periods of dry weather.

B. Slope bench terrace directly above the GMA toward the excavated slope as shown on the Construction Drawings. Grade the bench terrace to a sump for pumping to prevent runon into the GMA.

C. Size and locate pumps for sumps along benches above the GMA such that no water within the excavation area shall overflow into the GMA from a 10-yr, 24-hr or lesser storm event. Proposed pump locations and sizes are found in the project-specific surface water management plans (SWMPs) . Sump bottoms shall not extend to within 5 feet of the GMA.

D. For excavations extending to within 5-feet of the GMA elevation shown on the Construction Drawings, maintain less than one foot of standing water in the excavations by pumping excavation water to a sediment basin or an adjacent excavation, as necessary.

E. Backfill over the GMA in accordance with Section 02206.

F. In areas where 2 feet of compacted cover has been recently restored following excavation which has extended to within 2 feet of or breached the GMA, pump ponded water from the affected excavation as soon as practical (but within 24 hours or by the direction of the Construction Manager) following a precipitation event.

3.6 PRECERTIFICATION

A. Pipes that daylight at the excavation face shall be plugged at the excavation face prior to precertification in accordance with Section 02205 and the Construction Drawings.

B. Install run-on controls along perimeter of precertification boundary, as shown on the Construction Drawings, to prevent surface water from non-certified areas from flowing into precertified areas.

C. During precertification, direct drainage from precertified areas to the sediment basin. Routing of surface water pump lines must be approved by the Construction Manager.

D. Maintain surface water management within the area to be precertified in accordance with this Section until precertification is complete.

3.7 INSPECTION

A. Inspect erosion and sediment control measures in accordance with Section 02270.

B. File records of inspections in accordance with Section 02270. In addition, the records of inspection shall include destination of pumping ponded water, estimated quantity of ponded water and corrective action measures, as required. The records of inspection shall indicate if areas are not in compliance or contain a certification that control measures are effective and in compliance with this Section and Section 02270.

END OF SECTION

SPECIFICATION COVER SHEET

SPECIFICATION SECTION: 02100 TITLE: SURVEYING

Specifications By: Signature _____ 17 Aug 01
(Cognizant Engineer) Date
Printed Name and Title: Michael J. Monteleone, P.E., Associate

Scope and Format Checked By: Signature _____ 17 Aug 01
(Checker) Date
Printed Name and Title: Michael J. Monteleone, P.E., Associate

Detailed Requirements Checked by: Signature _____ 17 Aug 01
(Checker) Date
Printed Name and Title: David K. Phillips, Senior Project Engineer

Overall Review By: Signature _____ 20 Aug 2001
(PDP) Date
Printed Name and Title: J.F. Beech, Ph.D., P.E., Principal

Approved by: Signature _____ 20 Aug 2001
(DTL) Date
Printed Name and Title: J.F. Beech, Ph.D., P.E., Principal

Record of Revision (Number and initial all revisions)

Rev. No.	Reason	Date	By	Checked	Approval
0	Certified for Construction	20 August 01	MJM	DKP	JFB
1	Revisions from Phase III DCNs	13 March 02	DKP	DKP	JFB

SECTION 02100

SURVEYING

PART 1 GENERAL

1.01 SCOPE

A. This Section includes the requirements for surveying. Requirements include, but shall not be limited to:
   1. establishing permanent and temporary survey benchmarks and control points;
   2. establishing a horizontal and vertical project control system based on existing benchmarks;
   3. setting limits and boundaries of construction activities;
   4. performing support surveys and surveys for conformance checks, "red-line" drawings, and sketches, and to determine measurement of quantities for periodic progress payments and final payment;
   5. preparing and furnishing "red-line" drawings and sketches; and
   6. surveys for Excavation Project.

1.02 RELATED SECTIONS AND PLANS

A. Section 02110 - Clearing, Grubbing, and Stripping

B. Section 02200 - Earthwork

C. Section 02205 - Impacted Material Excavation

D. Section 02206 - Earthwork for Remediation

E. Section 02207 - Area Isolation Trenching

F. Section 02215 - Trenching and Backfilling

G. Section 02225 - Compacted Clay Liner and Cap

H. Section 02230 - Road Construction

I. Section 02240 - Non-Impacted Protective and Contouring Layers

J. Section 02250 - Vegetative Soil Layer

K. Section 02270 - Surface-Water Management and Erosion Control

L. Section 02271 - Riprap

M. Section 02275 - Surface Water Management and Erosion Control for Remediation

N. Section 02280 - Biointrusion Barrier

O. Section 02605 - High-Density Polyethylene (HDPE) Pipes and Fittings

P. Section 02710 - Granular Drainage Material

Q. Section 02712 - Granular Filter Material

R. Section 02721 - Culverts

S. Section 02770 - Geomembrane Liner and Cap

T. Section 02831 - Chain-Link Fences and Gates

U. Section 02920 - Topsoil

V. Section 13000 - Borrow Area Management

W. Section 13005 - Liner Penetration Boxes

X. Section 13010 - Impacted Materials Placement

Y. Impacted Materials Placement (IMP) Plan

Z. Part 6 - Statement of Work

AA. Part 8 - Environmental Health & Safety/Training Requirements

BB. Part 9 - Quality Assurance Requirements

1.03 REFERENCES

A. National Geodetic Survey (NGS) Standards.

1.04 QUALIFICATIONS

A. Oversight for the survey work shall be provided and certified by a Land Surveyor licensed in the State of Ohio.

B. Surveying work shall be performed under the direct supervision of a person who has at least 5 years of experience in construction surveying.

C. Work performed in referencing or re-establishment of land or United States survey monuments shall be signed and sealed by a Land Surveyor licensed in the State of Ohio.

1.05 SUBMITTALS

A. Submit a copy of Land Surveyor's license and a résumé of the person supervising the surveys to the Construction Manager within 10 calendar days from Notice to Proceed.

B. For each liner and cap submit two copies of proposed control points on a minimum 50-foot grid for verification of the following surfaces at least 3 days prior to commencement of work:
   1. subgrade for roads, clay liner, and for other locations shown on the construction drawings;
   2. top of compacted clay liner;
   3. top of leak detection system (LDS);
   4. top of leachate collection system (LCS);
   5. top of impacted protective layer and non-impacted protective layer within impacted runoff catchment area and intercell berm;
   6. top of protective clay layer in Area 1;
   7. top of impacted select layers;
   8. top of impacted material placement;
   9. top of select impacted material placement;
   10. top of contouring layer;
   11. top of compacted clay cap;
   12. top of protective clay layer in Area 4;
   13. top of cover drainage layer;
   14. top of biointrusion barrier with choking layer;
   15. top of granular filter;
   16. top of vegetative soil layer; and
   17. top of topsoil layer.

C. Submit electronic files and two hard copies of the survey notes, sketches, and drawings for the following surveys to the Construction Manager within one week of performance:
   1. preliminary surveys;
   2. intermediate surveys;
   3. written statement and surveys for conformance checks and "red-line" drawings;
   4. surveys prior to end of construction season and/or winter shutdown;
   5. survey at completion of impacted material excavation specified in Section 02205 of the following:
      a. above Waste Acceptance Criteria (WAC) material;

b. above Final Remedial Level (FRL) material;
c. Resource Conservation and Recovery Act (RCRA) hazardous waste;
d. underground storage tanks and/or associated soil; and
e. Hazardous Waste Management Units (HWMUs);

6. survey at completion of the Contract;
7. measurement and payment surveys; and
8. final surveys.

D. On request by the Construction Manager, submit documentation verifying accuracy of survey work.

E. Upon completion of the survey work, provide the Construction Manager the original field notes, layout, computations, signed and sealed sketches and drawings in Microstation 95 ".dgn" format or electronic files in other format approved by the Construction Manager.

F. One complete set of final "red-line" drawings, sketches, and survey notes signed and sealed by a Land Surveyor licensed in the State of Ohio shall be submitted to the Construction Manager within 15 days of completion of the Contract. Drawing and sketch format shall be Microstation 95 ".dgn" or electronic files in other format approved by the Construction Manager. Survey notes shall include a point listing with coordinates, elevation, and description.

1.06 PROJECT RECORD DOCUMENTS

A. Maintain on site, a complete, accurate log documenting survey work as it progresses.

B. Maintain on-site, a plan showing survey control points, and benchmarks with coordinates and elevations.

C. Maintain on-site, an accurate and current set of marked-up "red-line" drawings showing "as-built" conditions. "As-built" conditions shall be marked-up on "red-line" drawings within one week of completion of the respective construction activity.

1.07 HEALTH AND SAFETY REQUIREMENTS

A. Environmental health & safety/training requirements shall be in accordance with Part 8 of the Contract Documents.

1.08 CONTRACTOR'S QUALITY ASSURANCE

A. Contractor's quality assurance requirements shall be in accordance with Part 9 of the Contract Documents.

PART 2 PRODUCTS

2.01 MATERIALS AND SURVEY INSTRUMENTS

A. Provide materials as required to properly perform the surveys, including, but not limited to, personal protective equipment, instruments, tapes, rods, measures, mounts and tripods, stakes and hubs, nails, ribbons, other reference markers, and all else as required.

B. The survey instruments used for this work shall be precise and accurate to meet the needs of the project. Survey instruments should be capable of reading to a precision of 0.001 feet and with a setting accuracy of ±8 seconds.

PART 3 EXECUTION

3.01 GENERAL

A. Maintain accurate and complete notes of surveys:
   1. Handwritten survey field notes and information shall be documented. A copy of the numbered, dated, and signed documentation shall be given to the Construction Manager weekly or upon request by the Construction Manager. Survey notes shall be legibly recorded. Notation shall be consistently applied to survey work. The stake marking format and the document notations shall be compatible. Identify survey benchmarks on the field notes, sketches, and drawings.
   2. Electronically collected field survey information shall be stored, for retrieval and submittal if requested by the Construction Manager, during the period of performance of the Contract.
      a. Electronic format for printed output of data collector field survey notes shall be compatible with the approved field notation format.
      b. Electronic format for printed output of data collector survey work shall be compatible with the Contractor's computer equipment and software specified in this Section for verifying and checking the work. A copy of the data disk shall be submitted to the Construction Manager monthly.
   3. Submit electronic file and two hard copies of above information when requested by the Construction Manager

B. During construction, survey notes shall be retained by the Contractor and Land Surveyor.

C. Perform surveys for conformance checks specified in this Section. Contractor shall submit a written statement with conformance surveys certifying compliance of the preceding layer thickness, limits, and grades to the Construction Manager.

D. The precision of horizontal and vertical controls shall meet or exceed Third-Order Class I and Third-Order accuracies, respectively, as defined by NGS Standards.

E. Conformance check surveys for elevation and for horizontal coordinates shall be recorded to the nearest 0.01 feet and for angles shall be to the nearest 20 seconds.

F. Measurement and payment surveys for elevation and for horizontal distances shall be recorded to the nearest 0.1 feet and 0.05 feet, respectively.

G. Final "red-line" drawings and sketches shall be signed and sealed for method and accuracy of work and sealed by the Land Surveyor.

H. Perform construction layout surveys in advance of scheduled construction activities. At completion of a survey, provide a copy of the field notes, drawings, or sketches to the Construction Manager for review. The Contractor shall allow the CQC Consultant and/or Construction Manager three working days for review of conformance surveys. The Contractor shall be responsible for rework and/or construction delays caused by survey or staking errors.

I. Set grade and slope stakes required for construction activities as the work progresses. Staking shall be in accordance with accepted surveying practices, provisions herein, and subject to Construction Manager review. Set fine grade stakes on all surfaces for which the plans show a definite grade line. Grade stakes shall not be permitted on soil layers overlying any geosynthetic material within 12 inches of the geosynthetic material or on the contouring layer and first lift of compacted clay cap.

J. Verify pipe alignment and elevation. The Contractor shall:
   1. check layout and elevation of pipe embedment fill prior to pipe placement;
   2. check pipe alignment during placement and backfill; and
   3. verify alignment and elevation at top of pipe after pipe has been backfilled to top of pipe at a maximum interval of 25 feet.

K. Upon completion of the work, the Contractor shall provide the Construction Manager with original survey field notes, layouts, computations, and electronic files, binders containing electronic file information and one copy each of electronic files specified in this Section.

L. Protect benchmarks and survey control points. Replace disturbed survey control points and benchmarks at no additional cost.

M. Establish temporary survey control points to support construction work activities.

N. Survey control points, accuracy, and documentation:
   1. Record the following information in survey notebooks for each control point established:
      a. designation of control point;
      b. coordinates based on State Planar North American Datum (NAD) 1983 Ohio South;
      c. elevations based on National Geodetic Vertical Datum (NGVD);
      d. date of establishment;
      e. description and sketch of the control point location; and
      f. control points referenced to a minimum of three features that can be seen from the control point.
   2. Document survey work in the fieldbooks using the format and procedures described below:
      a. title and consecutive fieldbook number on the front cover;
      b. consecutively numbered pages;
      c. table of contents, indicated by survey task, on the first numbered page;
      d. legend indicating symbols used in survey notes;
      e. names of survey team for each task;
      f. notes on weather, equipment, etc.;
      g. date and time on each page to indicate when work was recorded;
      h. notes in a uniform character such that they can be interpreted and used by anyone with survey knowledge; and
      i. description and/or sketches of the existing survey control used.

O. Provide hardware and software to download data to Fluor Fernald computers as approved by Engineering Manager.

3.02 SUPPORT SURVEYS

A. Preliminary Surveys:
   1. Verification of the Existing Conditions:
      a. Prior to the start of clearing and earthwork activities, verify the accuracy of the existing conditions shown on the Construction Drawings and Reference Drawings. Immediately notify the Construction Manager in writing of deviations from the existing conditions indicated on the Construction Drawings and Reference Drawings that affect construction cost and/or schedule.
   2. Verify the existing benchmarks, structures, utilities, wells, topography, surface-water management and erosion control measures, construction safety and radiological-control fences, sedimentation basins and appurtenances, drainage

features, and existing stockpiles of materials and quantities shown on the Construction Drawings, Reference Drawings, or specified in the Contract. Notify the Construction Manager of any differences or conflicts with work included in this Contract.

3. Verify Mid-Valley Pipeline Easement as shown on the Construction Drawings adjacent to battery limits. Stake western limits of easement at 50-foot intervals.
4. Establish construction limits required for installation of the construction safety fence and radiological-control fence specified in Section 02200.
5. Establish location for the installation of the surface-water management and erosion control measures specified in Sections 02270, 02271, and 02275.
6. Clearing Limit Staking: Stake clearing limits specified in Section 02110.
7. Alignment and Existing Ground Staking: Following clearing operations and before stripping operations begin, preliminary locations of alignments and/or baseline of project features shall be established. Perform topographic surveys to describe original ground features before stripping or excavation begins. The distance between grid points shall not exceed 50 feet, and all breaks shall be noted.
8. Earthwork Staking: Staking for excavation and fill limits shall establish the exterior limits of excavations and fills. The maximum staking interval shall be 50 feet. Stakes shall be prominently noted with description of point, vertical distance to design elevation, and offset distance as applicable.
9. Perform additional surveys required for the layout of other construction activities.
10. Prior to construction activities in remedial excavation areas specified in Sections 02205 and 02207, perform topographic surveys of above-WAC and impacted runoff catchment area (IRCA) stockpiles, staging areas, excavation areas, and concrete crushing support areas at minimum 50-foot intervals with additional points as follows:
    a. grade breaks;
    b. points of horizontal curvature and tangency;
    c. edge and corners of concrete or asphalt pads, slabs, catch basins, and manholes;
    d. above-grade obstructions (e.g., fire hydrants, utility poles, handrails, etc.); and
    e. ditches, channels, and depressions.

    In addition, spot check slab elevations as indicated on applicable building foundation reference drawings. This includes basement, pit, sump, and other below-grade slab elevations.
11. Prior to area isolation trench excavation specified in Section 02207, survey the trench location and stake the centerline of the trenches.
12. Initial limits of excavation specified in Section 02207 shall be surveyed and staked after the completion of excavation of area isolation trenches.

13. The centerline of the completed area isolation trench specified in Section 02207 shall be surveyed with reference to the permanent trench monuments and staked after the completion of trenching. Provide redline mark-ups showing where the trench deviates from the design location by more than the maximum lateral tolerance specified in Section 02207. The Contractor will identify the area isolation trench using a rope boundary. The rope will be a color other than orange, yellow, or magenta.

B. Intermediate Surveys:

1. Perform surveys during progress of the construction activities to verify the accuracy of work and as directed by the Construction Manager. These surveys include, but are not limited to, surveys of the subgrade excavation; compacted clay liner and cap; LDS, LCS, and cover drainage layers; protective layer; contouring layer; biointrusion barrier layer; granular filter; vegetative soil layer; topsoil; LDS and LCS piping; horizontal monitoring wells; select impacted material layer; impacted material layer; and other surveys directed by the Construction Manager.
2. Perform surveys for the impacted material placement and stockpiles as follows:
   a. Survey the locations and surface of impacted material placement when the category of impacted material changes in any given grid. Survey the locations and surface of the previous layers prior to changing impacted material category within the grid.
   b. Survey the locations and surface of completed impacted material lifts in any grid where placement occurs at or near the end of the workday.
   c. Survey the impacted material placed in the OSDF every week and within one working day of the last day of the month. This survey shall include locations, elevations, category of impacted materials, and pertinent information in ASCII format necessary to develop a 3-D topographic computer generated surface.
   d. Perform interim surveys of impacted material stockpiles or other areas designated by the Construction Manager. This survey shall include volume (CY) remaining in the stockpiles or in designated areas.
   e. Survey the impacted material surface in the OSDF, including the cell access ramps, at the completion of the construction season activities.
3. Perform surveys for measurement and periodic progress payment as specified in this Section.
4. Perform surveys during progress of impacted material excavations specified in Section 02205 to confirm limits of the excavation.
5. Perform survey if either the unsaturated sands and gravel of the Great Miami Aquifer (GMA) are encountered or excavation has reached the GMA elevation as indicated on the Construction Drawings.

6. Perform surveys after the installation of the first 2 feet of GMA plug placement to confirm 2 feet thickness.
7. Perform surveys upon restoration of the minimum 5-feet protective cover over the unsaturated sands and gravel of the GMA.
8. Perform surveys when establishing new Special Material Transfer Areas.
9. Prior to obtaining GMA plug material as specified in Section 02206, perform topographic survey and establish work limits of designated borrow areas.
10. Perform survey at the completion of each supplemental excavation.

C. Final Surveys:
1. Final topography shall be surveyed at nominal 50-foot intervals. Additionally, the following points shall be surveyed as applicable:
   a. grade breaks;
   b. points of horizontal curvature and tangency; and
   c. points of stationing equation.
2. Structures: Survey structure centerlines or building lines so that the orientation, position, limits, and foundation elevation(s) are positively identified.
3. Ditches and Channels: Survey ditches, channels, and culverts as specified in Sections 02270, 02275, and 02721.
4. Limits of Final Excavations: Survey limits of final impacted material excavations.
5. Pipes: Utility pipes shall be surveyed at nominal 25-foot intervals at the top of pipe. Surface-water management pipes shall be surveyed at inlet and outlet inverts and along perimeter of riprap protection.

3.03 SURVEYS FOR MEASUREMENT AND PAYMENT

A. Perform surveys for periodic progress payments and final payment to determine quantities of work and percent of completed work. Quantities to be measured and measurements for quantities shall be as specified in Part 6 of the Contract Documents.

B. Calculate and certify quantities of work and submit survey notes and calculations to the Construction Manager for review, evaluation, and payment.

3.04 SURVEYS FOR CONFORMANCE CHECKS AND "RED-LINE" DOCUMENTS

A. Survey the following to verify the locations, lines, and grades achieved during construction for conformance checks and "red-line" documents:
1. for berms, roads, ditches, and other earthwork specified in Sections 02200, 02206, 02230, and 02270:
   a. original grade surface;
   b. compacted surface of cut slopes; and
   c. finished grade surface;

2. for culverts and other surface-water management and erosion control structures specified in Sections 02270 and 02721:
   a. original grade surface;
   b. pipe inverts; and
   c. finished grade surface including riprap protection at inverts;
3. for the subgrade specified in Section 02200:
   a. prepared subgrade surface;
4. for the trenching and backfilling specified in Section 02215;
   a. bottom of the liner system anchor trench and pipe trench and top of finished compacted backfill; and
   b. pipes and culverts;
5. for the compacted clay liner specified in Section 02225:
   a. finished compacted clay liner surface;
6. for the liner penetration boxes specified in Section 13005 and shown on the Construction Drawings:
   a. original grade surface; and
   b. top of liner penetration boxes;
7. for the LDS, LCS, and cover drainage layers, and piping specified in Sections 02605 and 02710:
   a. finished grade surface;
   b. horizontal monitoring wells; and
   c. piping system, including location of each joint;
8. for the granular filter specified in Section 02712:
   a. finished granular filter surface;
9. for the compacted clay cap specified in Section 02225:
   a. prepared top of non-impacted contouring layer surface; and
   b. finished compacted clay cap surface;
10. for the geomembrane liner specified in Section 02770:
    a. anchor trench;
    b. top and bottom of side slopes;
    c. seam intersections;
    d. repairs; and
    e. location of destructive testing;
11. for the non-impacted protective layer specified in Section 02240:
    a. finished protective layer surface;
12. for impacted material placement surface specified in Section 13010:
    a. top of protective layer surface;
    b. top of select impacted material layers (liner and final cover system) surfaces;
    c. top of final impacted material surface (prior to placement of select impacted material layer in final cover system); and

d. Category 5 material placement per specialized placement plans as specified in the IMP Plan.

13. for biointrusion barrier specified in Section 02280:
    a. finished biointrusion barrier surface;
14. for vegetative soil layer specified in Section 02250;
    a. finished vegetative soil layer surface;
15. for topsoil specified in Section 02920;
    a. top of topsoil surface;
16. for chain-link fences and gates specified in Section 02831:
    a. location and alignment;
17. for the borrow area specified in Section 13000;
    a. test pits used for pre-conformance testing; and
    b. finished grades of interim restoration of borrow subareas;
18. centerlines at nominal 50-foot intervals and at points of intersection of area isolation trenches specified in Section 02207.

B. Drawings and sketches for the items described in this Section shall include the following:
1. North arrow, graphical scale, title block, and legend;
2. Northing and Easting grid lines;
3. spot grade location and elevation on plan including list of coordinates with point number, northing, easting, and elevation in table format;
4. 1-foot contour lines;
5. location of structures;
6. labeled components;
7. for geomembrane liner and cap plans:
    a. all seams;
    b. panel identification numbers;
    c. location of top of slope, toe of slope, anchor trench, and limits of geomembrane;
    d. repair location and identifying number; and
    e. destructive testing location and identifying number; and
8. for pipe profiles:
    a. original grades with stationing;
    b. final grades with stationing; and
    c. pipe with inverts, slopes, pipe material, pipe size, and length of pipe.

C. Perform conformance checks and "red-line" surveying immediately upon completion of a given installation or excavation activity to facilitate progress and avoid delaying commencement of the next installation. Provide the following minimum spacings and locations for survey points (additional survey points may be required if field conditions warrant):

1. surfaces with gradients less than 10 percent, survey on a square grid spaced not wider than 50 feet;
2. on slopes greater than 10 percent, a square grid spaced not wider than 50 feet shall be used, but in any case, a line at the crest and toe of the slope shall be taken; if the slope distance is greater than 50 feet, a midpoint slope survey point is required;
3. a line of survey points spaced not more than 50 feet apart shall be taken along any slope break (this will include the inside edge and outside edge of any bench on a slope);
4. a line of survey points spaced not more than 25 feet apart shall be taken at the top of any pipes or other appurtenances; and
5. at the corners and midpoints of the top and bottom of slope breaks for liner penetration areas in cells.

[END OF SECTION]

SPECIFICATION COVER SHEET

SPECIFICATION SECTION: 02200 **TITLE:** Earthwork

Specifications By: Signature _____ 17 Aug 01
(Cognizant Engineer) Date
Printed Name and Title: Michael J. Monteleone, P.E. Associate

Scope and Format Checked By: Signature _____ 17 Aug 01
(Checker) Date
Printed Name and Title: Michael J. Monteleone, P.E. Associate

Detailed Requirements Checked by: Signature _____ 17 Aug 01
(Checker) Date
Printed Name and Title: David K. Phillips Senior Project Engineer

Overall Review By: Signature _____ 20 Aug 2001
(PDP) Date
Printed Name and Title: J.F. Beech, Ph.D., P.E. Principal

Approved by: Signature _____ 20 Aug 2001
(DTL) Date
Printed Name and Title: J.F. Beech, Ph.D., P.E. Principal

Record of Revision (Number and initial all revisions)

Rev. No.	Reason	Date	By	Checked	Approval
0	Certified for Construction	20 August 01	[illegible]	DKP	JFB
1	Revisions from Phase III DCNs	13 March 02	DKP	DKP	JFB

SECTION 02200

EARTHWORK

PART 1 GENERAL

1.01 SCOPE

A. This Section includes site preparation including construction safety fence and radiological-control fence, surface-water management and erosion control, excavation, dewatering, stockpiling, subgrade and top of contouring layer preparation, compacted fill, and clayey rockfill.

1.02 RELATED SECTIONS AND PLANS

A. Section 02100 - Surveying

B. Section 02110 - Clearing, Grubbing, and Stripping

C. Section 02150 - Traffic Control

D. Section 02205 - Impacted Material Excavation

E. Section 02206 – Earthwork for Remediation

F. Section 02215 - Trenching and Backfilling

G. Section 02225 - Compacted Clay Liner and Cap

H. Section 02230 - Road Construction

I. Section 02240 - Non-Impacted Protective and Contouring Layers

J. Section 02250 - Vegetative Soil Layer

K. Section 02270 - Surface-Water Management and Erosion Control

L. Section 02271 - Riprap

M. Section 02280 - Biointrusion Barrier

N. Section 02605 - High-Density Polyethylene (HDPE) Pipes and Fittings

O. Section 02710 - Granular Drainage Material

P. Section 02712 - Granular Filter Material

Q. Section 02714 - Geotextiles

R. Section 02721 - Culverts

S. Section 02831 - Chain-Link Fences and Gates

T. Section 02920 - Topsoil

U. Section 02930 - Vegetation

V. Section 13000 - Borrow Area Management

W. Section 13005 - Liner Penetration Boxes

X. Section 13010 - Impacted Materials Placement

Y. Construction Quality Assurance (CQA) Plan

Z. Part 6 - Statement of Work

AA. Part 8 - Environmental Health & Safety/Training Requirements

BB. Part 9 - Quality Assurance Requirements

1.03 REFERENCES

A. Latest version of American Society for Testing and Materials (ASTM) Standards:

1. ASTM D 698. Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft^3 (600 kN-m/m^3)).
2. ASTM D 2487. Standard Classification of Soils for Engineering Purposes (Unified Soil Classification System).

B. Reference Reports addressing On-Site Disposal Facility (OSDF) and borrow area site subsurface conditions:

1. *"Geotechnical Investigation Report, On-Site Disposal Facility"* [Parsons, 1995]. This report contains geotechnical data for the subsurface soils in the OSDF area.
2. *"Disposal Facility Pre-Design Geotechnical Investigation, Soil Investigation Data Report, CERCLA-RCRA Unit 2"* [Science Applications International Corporation, 1995]. This report presents geotechnical data for the subsurface soils in the OSDF area.

3. *"Geotechnical Data and Evaluation Report for East and South Field Borrow Areas"* [Parsons, 1996]. This report contains geotechnical data for the subsurface soils in the borrow area.

1.04 SUBMITTALS

A. Submit to the Construction Manager for review a Contractor's Earthwork Work Plan within 30 calendar days from Notice to Proceed. The Contractor's Earthwork Work Plan shall include, at a minimum:

1. list of equipment and description of construction methods proposed for the scope specified in this Section and in Sections 02110, 02206, 02215, 02225, 02230, 02240, 02250, 02271, 02280, 02605, 02710, 02712, 02714, 02721, 02831, 02920, 02930, 02940, and 13005;
2. location of equipment service area and fueling station;
3. excavation and trenching dewatering methods and techniques;
4. methods for removal of visible rock particles larger than specified from the material for compacted fill and clayey rockfill specified in this Section and compacted clay liner and cap specified in Section 02225;
5. coordination of survey requirements for the site work;
6. verification of the existing conditions and material stockpiles;
7. stockpile management plan including surface-water management and erosion control, stockpiling by type of material, stockpile maintenance, stockpile removal and relocation, and site grading and stabilization;
8. coordination of earthwork activities with Contractor's Surface-Water Management and Erosion Control Work Plan specified in Section 02270;
9. schedule for site work activities;
10. water supply system including location, type, and size of water tank, water distribution system and equipment for dust control, construction and wheel wash system;
11. plan and measures for cold weather at temperatures below 32 degrees Fahrenheit site work activities;
12. installation and maintenance of construction safety fence and radiological-control fence;
13. coordination with Traffic Control Plan specified in Section 02150;
14. location of construction laydown area(s);
15. locations of stockpiles for material generated from clearing, grubbing, and stripping operations;
16. layout and typical cross sections of roads within the Contractor's work area;
17. construction site access and haul road layout;
18. construction utilities layout including construction power and water;
19. description of methods for installation and removal of trench supports; and

20. coordination with the Contractor's Quality Assurance Work Plan in accordance with Part 9 of the Contract Documents.

1.05 HEALTH AND SAFETY REQUIREMENTS

A. Environmental health & safety/training requirements shall be in accordance with Part 8 of the Contract Documents.

1.06 CONTRACTOR'S QUALITY ASSURANCE

A. Contractor's quality assurance requirements shall be in accordance with Part 9 of the Contract Documents.

PART 2 PRODUCTS

2.01 MATERIALS

A. Obtain fill material for compacted fill from OSDF cell excavation, trenching, and stockpiles approved by the Construction Manager. Obtain additional fill material for compacted fill, if required, from the on-site borrow area indicated on the Construction Drawings. Borrow area management shall be in accordance with Section 13000.

B. Fill material for compacted fill and trench backfill shall be free of debris, foreign objects, large rock fragments, organics, and other deleterious materials. Visible rock particles shall be maximum dimension of 5 inches for 8-inch ±1-inch thick loose lifts and 2 inches for 4-inch ±1-inch thick loose lifts. Material for compacted fill shall conform to GC, SC, SM, ML, CL, or CH according to the Unified Soil Classification System (per ASTM D 2487).

C. Clayey rockfill: The reject material from clay screening operations may be substituted for material for compacted fill below base aggregate elevations in the impacted material haul roads, cell access ramps, access corridor located outside the perimeter berm baseline, and borrow area haul road; for interim restoration in borrow area; and other fill areas outside the OSDF perimeter berm baseline. Use of clayey rockfill as specified in this Section shall be approved by the Construction Manager.

D. Construction water for moisture conditioning compacted fill shall be obtained from the on-site water source shown on the Construction Drawings.

E. Construction safety fence and radiological-control fence for activities with duration less than 30 calendar days shall be orange, high-density polyethylene, 4 feet in height, opening size approximately 4 inches by 1 inch, minimum tensile strength of 2000

pounds per foot of width. Where used to delineate radiologically controlled areas (RCAs), no fencing is required. Contractor shall install posts and Fluor Fernald will provide and install yellow/magenta rope. Posts shall be T-shaped (T-post), 1-1/2 inch by 1-1/2 inch, 3/16 inch thick by 6 feet long, and made of steel or as approved by the Construction Manager.

F. Furnish construction safety fence and radiological-control fence for activities with a duration greater than 30 calendar days made of galvanized steel welded wire fabric, 2 inch by 4 inch mesh, 4 feet in height, 12-1/2 gauge, or equivalent approved by the Construction Manager. Posts for the fence material shall be 6 feet long and made of steel. Install posts at spacing recommended by the Manufacturer's installation procedures and as required to prevent sagging.

G. Contractor shall furnish and install signs for construction safety fence in accordance with Part 8 of the Contract Documents.

H. Signs for radiological-control fence shall be furnished and installed by Fluor Fernald, Inc.

2.02 EQUIPMENT

A. Furnish equipment to perform work specified in this Section.

B. Furnish equipment to achieve required compaction specified in this Section.

C. Furnish hand compaction equipment, such as walk-behind padfoot compactors, hand tampers, or vibratory plate compactors, for compaction in areas inaccessible to large compaction equipment.

D. Furnish water tank trucks, pressure distributors, or other equipment designed to apply water uniformly and in controlled quantities at variable surface widths to provide the required in-place moisture content and to prevent drying of soil surfaces.

E. Furnish equipment such as scarifiers, disks, spring tooth or spike tooth harrows, earth hauling equipment, and other equipment as required for earthwork construction.

PART 3 EXECUTION

3.01 GENERAL

A. Verify existing conditions in accordance with Section 02100.

B. Perform construction activities in such a manner that equipment operating in the RCAs do not operate in non-RCAs. Equipment operating in RCAs shall be washed by the Contractor; and radiologically surveyed and released by Fluor Fernald, Inc. prior to exiting for use in non-RCAs.

C. Install surface-water management and erosion controls in accordance with Section 02270.

D. Dust control shall be in accordance with Part 6 of the Contract Documents.

3.02 SITE PREPARATION

A. Install construction safety fence and radiological-control fence at construction limits and limits of the RCAs in accordance with the Contractor's Earthwork Work Plan and Part 8 of the Contract Documents. Relocate construction safety fence and radiological-control fence as shown on the Construction Drawings or as approved by the Construction Manager. Provide construction safety fence as shown on Construction Drawings. Signs and barricades around trenches, stockpiles, and excavated areas shall be in accordance with Part 8 of the Contract Documents.

B. Maintain and repair construction safety fence and radiological-control fence for the duration of the Contract. Fencing shall be maintained so as to minimize vertical sagging.

C. Install, maintain, and inspect surface-water management and erosion controls in accordance with Section 02270.

D. Prior to earthwork activities, perform clearing, grubbing, and stripping in accordance with Section 02110.

E. Construct impacted material haul roads, cell access ramps, and access corridors in accordance with the Construction Drawings and Section 02230.

F. Locate existing manholes, drop inlet structures, monitoring wells, piezometers, lysimeters, utilities, and other subsurface structures in the work area. Protect structures and utilities during earthwork activities as indicated on the Construction Drawings and approved by the Construction Manager.

3.03 SURFACE-WATER MANAGEMENT AND EROSION CONTROL

A. Install surface-water management and erosion controls in and around work areas in accordance with Section 02270.

3.04 EXCAVATION

A. Excavate designated areas to the subgrade elevations or excavation limits shown on the Construction Drawings. Stockpile excavated material in the designated stockpile area shown on the Construction Drawings or at locations approved by the Construction Manager.

B. Excavate material within the excavation limits, including rock encountered, regardless of type, character, composition, and condition. Remove clay pipe tile subdrain system when encountered in accordance with Section 02205. Place clay pipe subdrain section in the OSDF constructed cells in accordance with Section 13010.

C. Blasting, including use of explosives or explosive devices, shall not be permitted.

D. Remove and relocate impacted material encountered during excavation in accordance with Section 02205. Impacted material meeting OSDF Waste Acceptance Criteria (WAC) shall be placed in accordance with Section 13010. Impacted materials exceeding OSDF WAC shall be disposed of in accordance with Section 02205.

E. Minimize sloughing and caving of excavations. Over-excavate and fill areas of excavations that cave or slough with compacted fill in accordance with this Section.

F. Over-excavate abandoned monitoring wells, borings, utilities, and lysimeters within the OSDF perimeter baseline shown on the Reference Drawings to a depth of 3 feet below subgrade elevation. Well casings, concrete, and grout shall be excavated in accordance with Section 02205 and placed in the OSDF constructed cells in accordance with Section 13010. Before removal of the existing well casings, Construction Managers will verify closure of the existing wells. Fill to subgrade elevation with compacted fill in accordance with this Section.

G. Do not remove soil from the site or dispose of soil included in this Contract except as approved in writing by the Construction Manager.

H. Perform activities in such a manner that hauling equipment transporting non-impacted materials do not operate on roads used to haul impacted material. Equipment driven on roads used to haul impacted material or in an impacted area shall be washed by Contractor, and radiologically surveyed and released by Fluor Fernald, Inc. prior to being used for earthwork activities in non-impacted areas.

I. Perform activities in such a manner that earthwork and hauling equipment working in contamination areas do not cross into certified areas.

J. Remove the existing Rerouted North Entrance and North Entrance Road pavement within the limits shown on the Construction Drawings and haul and place in OSDF constructed cells in accordance with Section 13010. Existing North Entrance Road pavement section consists of 6 inches of asphaltic concrete over 6 inches of crushed rock. Existing rerouted North Entrance Road pavement section consists of 12 inches of asphalt concrete over 8 inches of crushed rock. Existing rerouted North Entrance Road pavement section consists of 12 inches of asphaltic concrete over 8 inches of crushed rock. Excavate 2 feet below bottom of pavement elevation and road shoulder in accordance with Section 02205 and place in accordance with Section 13010, unless otherwise directed by the Construction Manager.

K. Stabilize disturbed areas in accordance with Section 02930.

3.05 EXCAVATION DEWATERING

A. Anticipate seepage of groundwater into and accumulation of surface-water runoff in excavations. Manage groundwater and surface-water runoff in excavations in accordance with this Section and Section 02270.

B. Collect water that accumulates in the excavation in a toe drain, or other suitable sump, and pump to the former production area stormwater drain control system, the leachate transmission system, or other locations as directed by the Construction Manager.

C. Prevent surface-water runon from adjacent areas from entering the excavation in accordance with Section 02270.

3.06 STOCKPILING

A. Stockpile excavated soils in the stockpile areas shown on the Construction Drawings or as directed by the Construction Manager.

B. Construct stockpiles no steeper than 3H:1V (horizontal:vertical), grade to drain, seal by tracking perpendicular to the slope contours with a dozer, and dress daily during periods when material is taken from or added to the stockpile.

C. Install surface-water management and erosion control measures at the stockpile areas in accordance with Section 02270. Stabilize stockpiles in accordance with Section 02930.

3.07 SUBGRADE AND TOP OF CONTOURING LAYER PREPARATION

A. Subgrade and top of contouring layer material shall be free of debris, foreign objects, organics, and other deleterious materials.

B. In the event saturated subgrade is encountered, localized sumps shall be constructed to facilitate removal of water. Manage removed water in accordance with this Section.

C. Perform subgrade and top of contouring layer proofrolling by driving a loaded dump truck with minimum loaded weight of 20 tons and minimum weight of 10 tons per axle or other pneumatic-tired vehicle back and forth across the area to be prepared to confirm the firmness of subgrade and top of contouring layer surface. Overlap the passes such that one set of tires on each pass runs between the two sets of tire tracks from the previous pass. Soils shall not exhibit pumping or develop ruts more than 2 inches in depth. Rutting, larger than 2 inches, shall be scarified in accordance with this Section and regraded with compacted fill material or non-impacted contouring layer material to meet the proposed subgrade or top of contouring layer elevations.

D. Subgrade for the compacted clay liner and top of contouring layer shall be scarified in accordance with Section 02225. At other locations where compacted fill is to be placed, prepare the subgrade by scarifying to a depth of 2 inches using the equipment identified in this Section.

E. In areas where unsuitable soils are encountered, remove and replace the soil to a minimum depth of 1 foot below the proposed subgrade elevation. Remove unsuitable subgrade to an additional depth if necessary to obtain a suitable soil surface for subsequent fill placement. Removal of unsuitable soils to additional depth shall be as approved by the Construction Manager. Suitable soil surface exhibiting pumping or developing ruts more than 2 inches in depth shall be removed to a minimum depth of 1 foot or dried in place by a method approved by the Construction Manager. Fill areas from which subgrade has been removed with compacted fill in accordance with this Section. Compact the fill material to at least 95 percent standard Proctor maximum dry unit weight as determined by ASTM D 698. Compact the uppermost lift of compacted fill beneath road and access corridor alignments to a minimum 98 percent of the standard Proctor maximum dry unit weight as determined by ASTM D 698.

F. In excavations or other areas where water accumulates, implement measures to remove the water in accordance with this Section. Maintain the subgrade surface free of standing water and in a firm condition to meet the proofrolling requirements of this Section. Maintain dewatered areas in this condition until overlying construction is complete.

G. Manage surface-water runon or runoff in accordance with Section 02270.

3.08 COMPACTED FILL

A. Use fill material that meets the material requirements of this Section. Place the fill material to the limits and grades shown on the Construction Drawings.

B. Place fill material on surfaces which are free of debris, branches, vegetation, mud, ice, or other deleterious materials.

C. Place fill material in loose lifts with a thickness of 8 inches ±1 inch. In areas where compaction is to be performed using hand-operated equipment, place the fill material in loose lifts with a thickness of 4 inches ±1 inch.

D. Remove visible rock particles with a maximum dimension larger than 5 inches for 8-inch ±1-inch thick loose lifts. For 4-inch ±1-inch thick loose lifts, the maximum rock particle size shall be 2 inches.

E. Prior to placing a succeeding lift of fill material over a previously compacted lift, thoroughly scarify the previous lift to a depth of 2 inches by discing, raking, or tracking with a dozer. Moisture condition the preceding lift in accordance with this Section if the moisture content of the surface of the preceding lift is not within the range of acceptable moisture contents specified in this Section.

F. The trafficking of scarified surfaces by trucks or other equipment, except compaction equipment, is not permitted.

G. The maximum acceptable soil clod size after processing is 3 inches. Reduce clod size by discing, raking, tracking with a dozer, using a soil stabilizer, or other means approved by the Construction Manager. Soil clumps, consisting of an agglomeration of 3-inch clods, or smaller, will not be considered a clod for purposes of this Section.

H. Compact fill material in each lift to at least 95 percent of its standard Proctor maximum dry unit weight as determined by ASTM D 698. Compact fill at a moisture content within ±3 percentage points of the standard Proctor optimum moisture content as determined by ASTM D 698.

I. Moisture condition the fill material to achieve the compaction requirements of this Section. Use a water spraying system for wetting. During wetting or drying, regularly disc, rake, or otherwise mix the material to thoroughly blend the moisture throughout the lift. Use discing, raking, or other appropriate methods to dry the material as required.

J. Do not place frozen fill nor place fill material on frozen subgrade or previously placed compacted fill.

K. Do not compact fill material at temperatures below 32 degrees Fahrenheit, unless authorized in writing by the Construction Manager.

L. Do not place fill during periods of precipitation. Placement may occur during periods of misting or drizzle, but only if authorized by the Construction Manager.

M. Rework compacted fill that does not meet the required compaction.

3.09 CLAYEY ROCKFILL

A. Visible rock particles with maximum dimension greater than 12 inches shall be removed from the clayey rockfill and stockpiled for future use in areas designated by the Construction Manager. Clayey rockfill shall be placed in maximum 12-inch thick loose lifts and compacted with a minimum of four passes of a Caterpillar 815 compactor or approved equal. Final lift surface of compacted clayey rockfill material shall be proofrolled as specified in this Section. Any compacted clayey rockfill material exhibiting excessive pumping or rutting (ruts greater than 2 inches in depth) due to wet material or insufficient compaction shall be dried and recompacted or removed from the fill. Clayey rockfill shall be used only as specified in this Section unless otherwise approved by the Construction Manager.

3.10 PERFORATIONS

A. Perforations in the compacted fill, subgrade, and top of contouring layer resulting from survey stakes or other activities shall be backfilled with soil or bentonite mix specified in Section 02225. Perforations resulting from nuclear density tests and sand-cone or drive cylinder density tests will be filled by the CQC Consultant in accordance with Section 02225.

3.11 CONSTRUCTION QUALITY REQUIREMENTS

A. CQC Consultant will perform soil conformance testing on compacted fill materials to confirm compliance with this Section. Conformance testing to be performed and minimum testing frequencies shall be in accordance with the Construction Quality Assurance (CQA) Plan. Provide equipment and labor to assist the CQC Consultant in obtaining conformance samples from excavations, stockpiles, and borrow areas. Identify source(s) and quantity of fill material required from each source for Construction Manager's approval at least 15 calendar days prior to use.

B. CQC Consultant will monitor earthwork activities in accordance with this Section and the CQA Plan. CQC Consultant will provide documentation to the Construction Manager for the proofrolling of subgrade, top of contouring layer, and compacted clayey rockfill final lift surface.

C. CQC Consultant will perform performance testing on compacted fill lifts to confirm compliance with this Section. The performance testing to be performed and minimum testing frequencies shall be in accordance with the CQA Plan.

D. If CQC Consultant's tests indicate that any portion of the compacted fill does not meet the requirements of this Section, CQC Consultant will delineate the extent of the nonconforming area. Rework the nonconforming area until it meets the requirements of this Section.

3.12 SURVEY CONTROL

A. Survey the locations, limits and grades of excavations, stockpiles, prepared subgrade, compacted fill, and compacted clayey rockfill in accordance with Section 02100.

3.13 TOLERANCES

A. Perform the earthwork construction to within ±0.3 feet of the grades indicated on the Construction Drawings except for subgrade for the compacted clay liner, top of contouring layer, access corridor, and roads for which earthwork construction shall be within -0.3 to +0.1 feet of the grades indicated.

[END OF SECTION]

SPECIFICATION COVER SHEET

SPECIFICATION SECTION: 02215 **TITLE:** Trenching and Backfilling

Specifications By: Signature _____ 17 Aug 01
(Cognizant Engineer) Date
Printed Name and Title: Michael J. Monteleone, P.E., Associate

Scope and Format Checked By: Signature _____ 17 Aug 01
(Checker) Date
Printed Name and Title: Michael J. Monteleone, P.E., Associate

Detailed Requirements Checked by: Signature _____ 17 Aug 01
(Checker) Date
Printed Name and Title: David K. Phillips, Senior Project Engineer

Overall Review By: Signature _____ 20 Aug 2001
(PDP) Date
Printed Name and Title: J.F. Beech, Ph.D., P.E., Principal

Approved by: Signature _____ 20 Aug 2001
(DTL) Date
Printed Name and Title: J.F. Beech, Ph.D., P.E., Principal

Record of Revision (Number and initial all revisions)

Rev. No.	Reason	Date	By	Checked	Approval
0	Certified for Construction	20 August 01	MJM	DKP	JFB
1	Revisions from Phase III DCNs	13 March 02	DKP	DKP	JFB

SECTION 02215

TRENCHING AND BACKFILLING

PART 1 GENERAL

1.01 SCOPE

A. This Section includes trenching and backfilling, including pipe embedment fill materials and placement.

1.02 RELATED SECTIONS AND PLANS

A. Section 02100 - Surveying

B. Section 02110 - Clearing, Grubbing, and Stripping

C. Section 02200 - Earthwork

D. Section 02225 - Compacted Clay Liner and Cap

E. Section 02605 - High-Density Polyethylene (HDPE) Pipes and Fittings

F. Section 02721 - Culverts

G. Section 13000 - Borrow Area Management

H. Construction Quality Assurance (CQA) Plan

I. Part 6 - Statement of Work

J. Part 8 - Environmental Health & Safety/Training Requirements

K Part 9 - Quality Assurance Requirements

1.03 REFERENCES

A. Latest version of American Society for Testing and Materials (ASTM) Standards:

1. ASTM C 136. Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.
2. ASTM D 698. Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft^3 (600 kN-m/m^3)).

B. Latest version of Ohio Department of Transportation Construction and Material Specifications (Ohio DOT Specifications).

C. Latest version of Occupational Safety and Health Administration (OSHA) Construction Standards.

D. Reference Reports addressing On-Site Disposal Facility (OSDF) and borrow area site subsurface conditions and off-site borrow sources:
   1. "*Geotechnical Investigation Report, On-Site Disposal Facility*" [Parsons, 1995]. This report contains geotechnical data for the subsurface soils in the OSDF area.
   2. *"Disposal Facility Pre-Design Geotechnical Investigation, Soil Investigation Data Report, CERCLA-RCRA Unit 2"* [Science Applications International Corporation, 1995]. This report presents geotechnical data for the subsurface soils in the OSDF area.
   3. "*Geotechnical Data and Evaluation Report for East and South Field Borrow Areas*" [Parsons, 1996]. This report contains geotechnical data for the subsurface soils in the borrow area.
   4. *"Off-Site Borrow Materials Geotechnical Evaluation Report"* [Parsons, 1996]. This report presents geotechnical data for potential off-site borrow sources for OSDF construction materials, including fine concrete aggregates (sand), coarse concrete aggregates (gravel), pea gravel, and riprap.

1.04 SUBMITTALS

A. For each source of pipe embedment fill material, submit the following to the Construction Manager for review within 30 calendar days from Notice to Proceed:
   1. the source of the pipe embedment fill material;
   2. written certification and test results conducted in accordance with ASTM C 136; and
   3. a 50-pound representative sample of the pipe embedment fill for visual examination, and testing, if necessary.

B. Provide a list of equipment, description of construction methods for trenching and backfilling, and other required information for trenching and backfilling in the Contractor's Earthwork Work Plan specified in Section 02200.

1.05 HEALTH AND SAFETY REQUIREMENTS

A. Environmental health and safety/training requirements shall be in accordance with Part 8 of the Contract Documents.

1.06 CONTRACTOR'S QUALITY ASSURANCE

A. Contractor's quality assurance requirements shall be in accordance with Part 9 of the Contract Documents.

PART 2 PRODUCTS

2.01 MATERIALS

A. Furnish natural sand pipe embedment fill material for reinforced concrete pipe (RCP), corrugated metal pipe (CMP), and high-density polyethylene (HDPE) pipe meeting the gradation requirements of Section 703.06 of the Ohio DOT Specifications unless otherwise indicated on the Construction Drawings or specified in this Section. Gradation testing shall be in accordance with ASTM C 136.

B. Furnish trench backfill material for RCP, CMP, HDPE pipe, and electrical conduit that meet the fill material requirements for compacted fill specified in Section 02200. Obtain trench backfill material from OSDF cell excavation, trenching, and stockpiles shown on the Construction Drawings. Obtain additional material for trench backfill, if required, from on-site borrow areas indicated on the Construction Drawings. Borrow area management shall be in accordance with Section 13000.

C. Trench backfill material for liner system anchor trenches shall meet the material requirements for compacted clay liner and cap specified in Section 02225.

D. Construction water for moisture conditioning trench backfill shall be obtained from on-site water source shown on the Construction Drawings.

E. Furnish a minimum 4-inch wide plastic underground marker tape with suitable warning legend to mark HDPE pipes and electrical conduits.

F. Furnish 14-gauge insulated stranded copper wire as shown on the Construction Drawings.

G. Bentonite for soil-bentonite plugs shall be in accordance with Section 02225.

2.02 EQUIPMENT

A. Furnish equipment to perform the work specified in this Section.

B. Furnish hand compaction equipment such as walk-behind pad-foot compactor, hand tamper, or vibratory plate compactors for compaction in areas inaccessible to large compaction equipment.

PART 3 EXECUTION

3.01 GENERAL

A. Verify existing conditions in accordance with Section 02100.

B. Review existing site utility drawings, and identify and stake existing above and below ground utilities in vicinity of trenching. Staking shall be as approved by the Construction Manager.

C. In areas of trenching and backfilling, maintain and protect existing above and below ground utilities.

D. Do not damage or disturb survey benchmarks, finished construction, and existing utilities and structures.

E. Perform clearing, grubbing, and stripping in accordance with Section 02110.

F. Dust control for trenching and backfilling shall be in accordance with Part 6 of the Contract Documents.

3.02 TRENCHING

A. Trench for placement of pipes and for liner system anchor trenches shall be to the depths and dimensions shown on the Construction Drawings. Stockpile excess excavated material from trenching in the stockpile areas shown on the Construction Drawings or as approved by Construction Manager in accordance with Section 02200.

B. Use trench support methods approved by the Construction Manager. Trench support shall satisfy applicable local, state, and federal requirements, including requirements of the OSHA Construction Standards. Provide trench support materials on site prior to the start of trenching. Maintain the safety and stability of slopes and trenches and protect adjacent utilities and structures.

C. Protect and maintain the trench bottom. Remove rock fragments or raveled materials that collect on the trench bottom. Backfill any overexcavation with compacted fill in accordance with Section 02200. Excavate any soft subgrade encountered at the trench bottom and backfill to trench bottom elevation with compacted fill in accordance with Section 02200.

D. Where trenches will be excavated in compacted fill areas, perform trenching only after compacted fill has reached at least 12 inches above proposed elevation of top of the pipe.

E. For pipe installation limit the maximum length of open trench to 200 feet in advance and 200 feet behind pipe unless otherwise approved by the Construction Manager. For anchor trench limit, open trenches to length of proposed daily geosynthetics installation unless otherwise approved by the Construction Manager. Contractor shall provide appropriate non-skid surface walkways, such as wooden boards, for access across open trenches.

F. Continuously dewater trenches. Perform dewatering in accordance with Section 02200.

G. The inside edge of liner system anchor trenches where geosynthetics will be placed shall be cut with a trenching machine to minimize soil raveling and shall be rounded to a minimum 6-inch radius.

3.03 BACKFILLING

A. General:
1. Do not backfill with frozen or saturated material.
2. Do not backfill over frozen, wet, or soft trench bottom or side slopes. Remove materials that are frozen, wet, or soft as specified in this Section.
3. Do not disturb or damage piping or geosynthetics in trench during backfilling.
4. Do not use compaction equipment which exerts greater than 10 pounds per square inch ground pressure over piping that is covered by less than 12 inches of backfill material.

B. Placement of pipe embedment fill for pipes and culverts:
1. Place pipe embedment fill in 7-inch ±1-inch thick loose lifts to the elevation of the bottom of the pipe or culvert.
2. Compact pipe embedment fill with a minimum of 4 passes of a vibratory plate compactor prior to placing pipe.
3. Place pipe or culvert on top of the compacted pipe embedment fill.
4. Install 14-gauge insulated stranded copper wire to top of HDPE pipes as shown on the Construction Drawings. Use cable tie-wraps at 5-feet intervals to tie copper wire to pipe prior to backfilling.
5. For pipes 12 inches in diameter or less, place additional pipe embedment fill on the sides and gently hand tamp the fill around the sides as needed, such that intimate contact between the pipe and the pipe embedment fill is maintained below the spring line of the pipe. Continue placing pipe embedment fill until it is even with the top of the pipe. Compact the pipe embedment fill with a minimum of 4 passes of a walk-behind pad-foot compactor, hand tamper, or vibratory plate compactor, as appropriate. Place pipe embedment fill above the top of pipe to a minimum depth of 12 inches in two 7-inch ±1-inch thick loose lifts. Compact each lift of pipe

embedment fill with a minimum of 4 passes of a walk-behind pad-foot compactor, hand tamper, or vibratory plate compactor, as appropriate.

6. For pipes or culverts greater than 12 inches in diameter, place pipe embedment fill in 7-inch ±1-inch thick loose lifts to the limits shown on the Construction Drawings. Compact each lift with a minimum of 4 passes of a vibratory plate compactor.
7. For horizontal monitoring well pipe trenches and HDPE pipe trenches between each valve house tie-in and the cell outlet, construct a soil-bentonite plug every 50-feet along the length of the trench. Prepare soil-bentonite mixture consisting of embedment fill at its natural moisture content mixed with minimum 10 percent (by dry weight basis) bentonite granules. Thoroughly mix with a portable cement mixer or other suitable method. Place and compact the soil-bentonite mixture in the same manner as specified in this Section for the embedment fill.

C. Placement of trench backfill material for pipes and culverts:
1. After placement and compaction of pipe embedment fill to the limits shown on the Construction Drawings, place the first lift of trench backfill material in a 12-inch thick loose lift. Place subsequent lifts of trench backfill material in 8-inch ±1-inch thick loose lifts.
2. Compact trench backfill material in each lift to at least 95 percent of its standard Proctor maximum dry unit weight and at a moisture content within ±3 percent of the optimum moisture content as determined by ASTM D 698.

D. Placement of trench backfill material for liner system anchor trench:
1. Place the anchor trench backfill material in 8-inch ±1-inch thick loose lifts if compaction equipment operating weight is greater than 2000 pounds, and in 4-inch ±1-inch thick loose lifts if compaction equipment operating weight is less than 2000 pounds.
2. Compact the anchor trench backfill material to the minimum dry unit weight and range of moisture contents required for compacted clay liner and cap material specified in Section 02225.

E. Place underground marker tape in trench backfill 12 inches below finished grade above all HDPE pipes and electrical conduits.

3.04 PERFORATIONS

A. Perforations in the trench backfill resulting from survey stakes or other activities shall be backfilled with trench backfill material. Perforations resulting from nuclear density

tests and sand-cone or drive cylinder density tests will be filled with trench backfill material by the CQC Consultant.

3.05 CONSTRUCTION QUALITY REQUIREMENTS

A. CQC Consultant will perform conformance testing on pipe embedment fill and trench backfill materials to establish compliance with this Section, and Sections 02200 and 02225, as applicable. The conformance testing to be performed and the minimum testing frequencies shall be in accordance with the Construction Quality Assurance (CQA) Plan.

B. CQC Consultant will monitor trenching and backfilling as specified in this Section and the CQA Plan.

C. CQC Consultant will perform performance testing on the backfill materials to establish compliance with this Section. The performance testing to be performed and minimum testing frequencies shall be in accordance with the CQA Plan.

D. CQC Consultant shall review and approve pipe installation as-built elevations prior to backfilling.

3.06 SURVEY CONTROL

A. Survey the locations, limits, and grades of the bottom of the liner system anchor trench and compacted trench backfill in accordance with Section 02100.

B. Survey the locations, limits, and grades of pipes and culverts, including invert elevations, in accordance with Section 02100.

3.07 TOLERANCES

A. Trench bottom shall be within 0.0 to +0.2 feet of the depth indicated on the Construction Drawings.

B. Embedment fill for pipes and culverts shall be placed within 0.0 to +0.2 feet of the depth indicated on the Construction Drawings.

[END OF SECTION]

SPECIFICATION COVER SHEET

SPECIFICATION SECTION: 02230 **TITLE:** Road Construction

Specifications By: Signature _____ Date 17 Aug 01
(Cognizant Engineer)
Printed Name and Title: Michael J. Monteleone, P.E., Associate

Scope and Format Checked By: Signature _____ Date 17 Aug 01
(Checker)
Printed Name and Title: Michael J. Monteleone, P.E., Associate

Detailed Requirements Checked by: Signature _____ Date 17 Aug 01
(Checker)
Printed Name and Title: David K. Phillips, Senior Project Engineer

Overall Review By: Signature _____ Date 20 Aug 2001
(PDP)
Printed Name and Title: J.F. Beech, Ph.D., P.E., Principal

Approved by: Signature _____ Date 20 Aug 2001
(DTL)
Printed Name and Title: J.F. Beech, Ph.D., P.E., Principal

Record of Revision (Number and initial all revisions)

Rev. No.	Reason	Date	By	Checked	Approval
0	Certified for Construction	20 August 01	[illegible]	DKP	JFB
1	Revisions from Phase III DCNs	13 March 02	DKP	DKP	JFB

SECTION 02230

ROAD CONSTRUCTION

PART 1 GENERAL

1.01 SCOPE

A. This Section includes impacted material haul roads, cell access ramps, access corridor, the Emergency Access Road, the Special Materials Transfer Area (SMTA), and other roads and areas as shown on the Construction Drawings to be surfaced with base aggregate.

1.02 RELATED SECTIONS AND PLANS

A. Section 02100 - Surveying

B. Section 02110 - Clearing, Grubbing, and Stripping

C. Section 02150 – Traffic Control

D. Section 02200 - Earthwork

E. Section 02270 - Surface-Water Management and Erosion Control

F. Section 02714 - Geotextiles

G. Construction Quality Assurance (CQA) Plan

H. Part 6 - Statement of Work

I. Part 8 - Environmental Health & Safety/Training Requirements

J. Part 9 - Quality Assurance Requirements

1.03 REFERENCE

A. Latest version of Ohio Department of Transportation Construction and Material Specifications (Ohio DOT Specifications).

1.04 SUBMITTALS

A. For each source of base aggregate material, submit the following to the Construction Manager for review within 30 calendar days from Notice to Proceed:
   1. the source of the materials along with written certification from the supplier that the material meets the material requirements of this Section; and
   2. certification shall include test results as required by Ohio DOT Specifications for base aggregate materials demonstrating that it meets the requirements of items from the Ohio DOT Specifications specified in this Section.

B. Provide a list of equipment, description of construction methods, and other required information to perform the construction activities described in this Section with the Contractor's Earthwork Work Plan specified in Section 02200.

1.05 HEALTH AND SAFETY REQUIREMENTS

A. Environmental health & safety/training requirements shall be in accordance with Part 8 of the Contract Documents.

1.06 CONTRACTOR'S QUALITY ASSURANCE

A. Contractor's quality assurance requirements shall be in accordance with Part 9 of the Contract Documents.

PART 2 PRODUCTS

2.01 MATERIALS

A. Furnish base aggregate material consisting of crushed carbonate stone or crushed gravel, free of organic matter and other deleterious materials, which meets the requirements of Items 304.02 and 703.04 (2) of the Ohio DOT Specifications for aggregate base.

B. Furnish a geotextile separator meeting the requirements of Section 02714.

C. Furnish materials for compacted fill or clayey rockfill meeting the requirements of Section 02200.

D. Furnish road signs and other traffic controls in accordance with Section 02150.

2.02 EQUIPMENT

A. Furnish equipment for construction of impacted material haul roads, cell access ramps, access corridors, the Emergency Access Road, the SMTA, and other roads shown on the Construction Drawings in accordance with the requirements of this Section.

PART 3 EXECUTION

3.01 GENERAL

A. Dust control during the performance of road construction activities described in this Section shall be in accordance with Part 6 of the Contract Documents.

B. Install surface-water management and erosion controls in accordance with Section 02270.

C. Perform clearing, grubbing, and stripping to the limits indicated on the Construction Drawings or identified by the Construction Manager, and in accordance with Section 02110 prior to any earthwork activity.

3.02 SUBGRADE PREPARATION

A. Prepare subgrade for the road construction described in this Section in accordance with Section 02200.

3.03 GEOTEXTILE PLACEMENT

A. Install the geotextile separator over the prepared subgrade in accordance with Section 02714.

3.04 BASE AGGREGATE

A. Construct the base aggregate layer to the thickness, grades, and limits indicated on the Construction Drawings.

B. Place the base aggregate material on top of the geotextile separator by end dumping and carefully spread using a track bulldozer. Do not operate equipment directly on the geotextile.

C. Place the base aggregate in accordance with the requirements of Item 304.04 of the Ohio DOT Specifications.

D. Compact the base aggregate in accordance with the requirements of Item 304.05 of the Ohio DOT Specifications.

3.05 CONSTRUCTION QUALITY REQUIREMENTS

A. CQC Consultant will perform conformance testing on materials for compacted fill used for the construction described in this Section to establish compliance with this Section and Section 02200 as applicable. Conformance testing to be performed and minimum testing frequencies shall be in accordance with the Construction Quality Assurance (CQA) Plan.

B. CQC Consultant will monitor road construction in accordance with this Section and the CQA Plan.

C. CQC Consultant will perform performance testing on compacted fill and/or compacted clayey rockfill used for the construction described in this Section to establish compliance with this Section and Section 02200. Performance test requirements and minimum testing frequencies shall be in accordance with the CQA Plan.

3.06 SURVEY CONTROL

A. Survey alignment and grades for roads, ramps, the SMTA, and corridor in accordance with Section 02100.

TOLERANCES

A. Construct the base aggregate to within 0.0 to +0.1 feet of the thickness indicated on the Construction Drawings.

B. Construct the impacted material haul roads, cell access ramps, access corridor, the Emergency Access Road, the SMTA, and other roads shown on the Construction Drawings to within ±0.2 feet of the grades indicated on the Construction Drawings.

[END OF SECTION]

SPECIFICATION COVER SHEET

SPECIFICATION SECTION: 02270 **TITLE:** Surface-Water Management and Erosion Control

Specifications By: Signature _____ Date 17 Aug 01
(Cognizant Engineer)
Printed Name and Title: Michael J. Monteleone, P.E., Associate

Scope and Format Checked By: Signature _____ Date 17 Aug 01
(Checker)
Printed Name and Title: Michael J. Monteleone, P.E., Associate

Detailed Requirements Checked by: Signature _____ Date 17 Aug 01
(Checker)
Printed Name and Title: David K. Phillips, Senior Project Engineer

Overall Review By: Signature _____ Date 20 Aug 2001
(PDP)
Printed Name and Title: J.F. Beech, Ph.D., P.E., Principal

Approved by: Signature _____ Date 20 Aug 2001
(DTL)
Printed Name and Title: J.F. Beech, Ph.D., P.E., Principal

Record of Revision (Number and initial all revisions)

Rev. No.	Reason	Date	By	Checked	Approval
0	Certified for Construction	20 August 01	MJM	DKP	JFB
1	Revisions from Phase III DCNs	13 March 02	DKP	DKP	JFB

SECTION 02270

SURFACE-WATER MANAGEMENT AND EROSION CONTROL

PART 1 GENERAL

1.01 SCOPE

A. This Section includes materials and placement of silt fence, erosion mat, check dams, construction entrances, diversions, ditches, channels, berms, and stabilization; and maintenance of sedimentation basins and surface-water management and erosion control measures.

B. Surface-water management and erosion control for the impacted material placement shall be in accordance with Section 13010.

1.02 RELATED SECTIONS AND PLANS

A. Section 02100 - Surveying

B. Section 02200 - Earthwork

C. Section 02240 - Non-Impacted Protective and Contouring Layers

D. Section 02271 - Riprap

E. Section 02275 – Surface Water Management and Erosion Control For Remediation

F. Section 02721 - Culverts

G. Section 02930 - Vegetation

H. Section 13010 - Impacted Materials Placement

I. Surface-Water Management and Erosion Control (SWMEC) Plan

J. Construction Quality Assurance (CQA) Plan

K. Part 6 - Statement of Work

L. Part 8 - Environmental Health & Safety/Training Requirements

M. Part 9 - Quality Assurance Requirements

1.03 REFERENCES

A. Latest version of Ohio Department of Natural Resources (ODNR) Rainwater and Land Development Standards (ODNR Rainwater and Land Development Standards).

1.04 SUBMITTALS

A. Submit to the Construction Manager for review within 15 calendar days from Notice to Proceed, Contractor's Surface-Water Management and Erosion Control Work Plan that shall be prepared in accordance with this Section, Section 02240, Section 02275, Section 13010, ODNR Rainwater and Land Development Standards, and the Surface-Water Management and Erosion Control (SWMEC) Plan, and shall include but not be limited to the following:
   1. descriptions of the surface-water management and erosion control measures to be implemented throughout the duration of the Contract;
   2. a list of equipment, description of methods, and other required information for installing and maintaining surface-water management and erosion control measures specified in this Section;
   3. drawings showing, in plan view, the location and sequencing of the surface-water management and erosion control measures and other required information for installation of surface-water management and erosion control measures;
   4. drawings showing details of the surface-water management and erosion control measures; and
   5. calculations supporting the selection and use of surface-water management and erosion control measures.

B. Submit the following to the Construction Manager for review within 15 calendar days from Notice to Proceed:
   1. manufacturer's product data and recommended methods of installation for products used for surface-water management and erosion control measures; and
   2. certification from the supplier or Manufacturer that products meet the requirements of this Section.

1.05 HEALTH AND SAFETY REQUIREMENTS

A. Environmental health & safety/training requirements shall be in accordance with Part 8 of the Contract Documents.

1.06 CONTRACTOR'S QUALITY ASSURANCE

A. Contractor's quality assurance requirements shall be in accordance with Part 9 of the Contract Documents.

PART 2 PRODUCTS

2.01 SILT FENCE

A. Furnish silt fence with either woven or nonwoven geotextile conforming to ODNR Rainwater and Land Development standards. Silt fence shall:
   1. be woven geotextile consisting of slit films of polypropylene treated with ultraviolet light stabilizers, or nonwoven geotextile consisting of long chain polymeric filaments or polyester yarns;
   2. be inert to chemicals commonly found in soils and to hydrocarbons;
   3. be resistant to mildew, rot, insects, and rodent attack; and
   4. have geotextile and fence post properties and minimum dimensions in accordance with this Section and ODNR Rainwater and Land Development Standards.

2.02 EROSION MAT

A. Furnish erosion mat which shall be a woven blanket-like fabric made of biodegradable yarn with the following material properties:
   1. Yarn Content: 100 percent jute except as indicated on Construction Drawings;
   2. Weight: Minimum 11.5 ounces per square yard;
   3. Open Area: 55 ±10 percent; and
   4. Minimum Mesh Opening: 0.5 inches.

B. Furnish erosion mat that will resist degradation for a minimum 6-month period after installation.

C. Furnish erosion mat having a permissible velocity of 7 feet per second (fps).

2.03 STABILIZATION

A. Materials for stabilization, including vegetation and crusting agent, shall be in accordance with Section 02930.

2.04 OTHER MATERIALS

A. Riprap shall be in accordance with Section 02271.

B. Culverts shall be in accordance with Section 02721.

C. Materials for berms shall be as specified for compacted fill in Section 02200.

D. Construction entrances shall be in accordance with ODNR Rainwater and Land Development Standards.

E. Diversions and channels shall be in accordance with ODNR Rainwater and Land Development Standards.

F. Materials for other surface-water management and erosion controls, including storm drain inlet protection, shall be in accordance with ODNR Rainwater and Land Development Standards.

2.05 EQUIPMENT

A. Furnish equipment to perform work specified in this Section.

PART 3 EXECUTION

3.01 INSTALLATION

A. Silt Fence
1. Install silt fence in accordance with ODNR Rainwater and Land Development, and at the locations required by the Contractor's Surface-Water Management and Erosion Control Work Plan.

B. Erosion Mat
1. Provide erosion mat at the locations indicated on the Construction Drawings and the locations indicated on the Contractor's Surface-Water Management and Erosion Control Work Plan, and those locations resulting from Section 02930 permanent slope stabilization requirements. Begin installation of erosion mat in a specific area within 48 hours after seeding has been completed in that area. Seeding shall be as specified in Section 02930. If seeding coverage in an area is lost due to inclement weather prior to installation of the erosion mat, Contractor shall reseed the previously seeded area.
2. Place erosion mat on a prepared surface that is free of deleterious vegetation, trash, ruts, and rocks.
3. Overlap adjacent erosion mats in accordance with the Manufacturer's recommendations.
4. Install and staple erosion mat in accordance with Manufacturer's recommendations, except staples shall be a minimum 6-inches in length.

C. Install check dams in ditches and channels in accordance with ODNR Rainwater and Land Development Standards.

D. Apply crusting agents in accordance with Section 02930. Areas of crusting agent application shall be approved in advance by the Construction Manager.

E. Stabilize and vegetate disturbed areas in accordance with Section 02930.

F. Install riprap in accordance with Section 02271 and as shown on the Construction Drawings.

G. Construct channels, ditches, and berms as shown on the Construction Drawings and in accordance with the Contractor's Surface-Water Management and Erosion Control Work Plan. Earthwork for channels, ditches, and berms shall be in accordance with Section 02200.

H. Install construction entrances in accordance with the Contractor's Surface-Water Management and Erosion Control Work Plan.

I. Install additional surface-water management and erosion controls in accordance with the Contractor's Surface-Water Management and Erosion Control Work Plan.

J. Install storm drain inlet protection in accordance with ODNR Rainwater and Land Development Standards.

3.02 ADDITIONAL REQUIREMENTS

A. Prevent the runoff of polluting substances such as silt, clay, fuels, oils, and contaminated soils into water supplies and surface waters in accordance with the Contractor's Surface-Water Management and Erosion Control Work Plan.

B. Remove accumulated silt and debris from behind the face of the silt fence when the silt deposits reach approximately one half the height of the fence. Replace silt fence geotextile damaged during maintenance operations. Removed silt and debris shall be placed in the OSDF constructed cells in accordance with Section 13010 or stockpiled in locations approved by the Construction Manager.

3.03 SURVEY CONTROL

A. Survey permanent locations of surface-water management and erosion control measures in accordance with Section 02100.

3.04 MAINTENANCE

A. Clean, maintain, repair, and replace surface-water management and erosion controls for the duration of the Contract in accordance with the Contractor's Surface-Water Management and Erosion Control Work Plan.

B. Maintain erosion control measures and existing sedimentation basins in accordance with Part 6 of the Contract Documents.

C. Sedimentation basins shall be cleaned of silt once per construction season.

3.05 INSPECTIONS

A. Inspect surface-water management and erosion control measures and sedimentation basins to evaluate their effectiveness and need for maintenance. Any required repairs to the surface-water management and erosion control measures and sedimentation basins shall be initiated upon discovery, but no later than 24 hours after discovery. Inspections shall occur, at a minimum, at the following frequencies:
   1. weekly;
   2. daily after each rain event exceeding 0.5 inches; and
   3. at least daily during prolonged rainfall events.

B. Records of inspections shall be kept on file on-site by Contractor and shall be submitted monthly to the Construction Manager. The records of inspection shall include the following:
   1. summary of the scope of the inspection;
   2. name of inspector;
   3. inspection date;
   4. inspection location;
   5. purpose of the inspection (i.e., regular weekly, following a storm, etc.);
   6. observations relative to performance of the surface-water management and erosion control measures;
   7. any necessary corrective actions; and
   8. corrective actions completed and their performance since the previous inspection.

3.06 CONSTRUCTION QUALITY REQUIREMENTS

A. CQC Consultant will monitor the installation and maintenance of surface-water management and erosion control measures in accordance with this Section and the Construction Quality Assurance (CQA) Plan.

[END OF SECTION]

SPECIFICATION COVER SHEET

SPECIFICATION SECTION: 02714 TITLE: Geotextiles

Specifications By: Signature _____ 17 Aug 01
(Cognizant Engineer) Date
Printed Name and Title: Michael J. Monteleone, P.E., Associate

Scope and Format Checked By: Signature _____ 17 Aug 01
(Checker) Date
Printed Name and Title: Michael J. Monteleone, P.E., Associate

Detailed Requirements Checked by: Signature _____ 17 Aug 01
(Checker) Date
Printed Name and Title: David K. Phillips, Senior Project Engineer

Overall Review By: Signature _____ 20 Aug 2001
(PDP) Date
Printed Name and Title: J.F. Beech, Ph.D., P.E., Principal

Approved by: Signature _____ 20 Aug 2001
(DTL) Date
Printed Name and Title: J.F. Beech, Ph.D., P.E., Principal

Record of Revision (Number and initial all revisions)

Rev. No.	Reason	Date	By	Checked	Approval
0	Certified for Construction	20 August 01	MJM	DKP	JFB
1	Revisions from Phase III DCNs	13 Mar 02	DKP	DKP	JFB

SECTION 02714

GEOTEXTILES

PART 1 GENERAL

1.01 SCOPE

A. This Section includes materials and installation for geotextiles.

B. Quantity of geotextile materials to be furnished by Fluor Fernald, Inc. will be as specified in Part 6 of the Contract Documents. Additional required geotextile materials, shall be furnished by the Contractor.

1.02 RELATED SECTIONS AND PLANS

A. Section 02200 - Earthwork

B. Section 02215 - Trenching and Backfilling

C. Section 02230 - Road Construction

D. Section 02271 - Riprap

E. Construction Quality Assurance (CQA)

F. Part 6 - Statement of Work

G. Part 8 - Environmental Health & Safety/Training Requirements

H. Part 9 - Quality Assurance Requirements

1.03 REFERENCES

A. Latest version of American Society for Testing and Materials (ASTM) Standards:

1. ASTM D 4355. Standard Test Method for Deterioration of Geotextiles from Exposure to Ultraviolet Light and Water (Xenon-ARC type apparatus).
2. ASTM D 4491 Standard Test Method for Water Permeability of Geotextiles by Permittivity.
3. ASTM D 4533. Standard Test Method for Trapezoid Tearing Strength of Geotextiles.
4. ASTM D 4632. Standard Test Method for Breaking Load and Elongation of Geotextiles (Grab Method).

5. ASTM D 4751. Standard Test Method for Determining Apparent Opening Size of a Geotextile.
6. ASTM D 4833. Standard Test Method for Index Puncture Resistance of Geotextiles, Geomembranes, and Related Products.
7. ASTM D 4873. Standard Guide for Identification, Storage, and Handling of Geotextiles.
8. ASTM D 5261. Standard Test Method for Measuring Mass Per Unit Area of Geotextiles.
9. ASTM D 5493. Standard Test Method for Permittivity of Geotextiles Under Load.
10. ASTM D 6241. Standard Test Method for the Static Puncture Strength of Geotextiles and Geotextile Related Products Using a 50-mm Probe.

B. Federal Standard No. 75la - Stitches, Seams, and Stitching.

1.04 SUBMITTALS

A. Submit to the Construction Manager a letter of acceptance for the quantity of geotextile materials furnished by Fluor Fernald, Inc. Quantity of geotextile materials stored on site shall be inspected, inventoried, and accepted within 30 calendar days of Notice to Proceed.

B. For geotextiles furnished by Contractor, submit the following to Construction Manager for review within 30 calendar days from Notice to Proceed:
1. product name;
2. geotextile manufacturing capabilities, including;
   a. daily production capacity available for this Contract; and
   b. manufacturing quality control procedures;
3. certification of minimum average roll values 95 percent lower confidence limits and the corresponding test procedures for all geotextile properties listed in Tables 02714-1 to 02714-5;
4. projected geotextile delivery dates; and
5. recommended long-term storage requirements and limitations.

C. For geotextiles furnished by Contractor, submit to Construction Manager for review at least 14 calendar days prior to transporting geotextile to the site, manufacturing quality control certificates signed by the quality control manager applicable to each roll of geotextile as specified in this Section. The submittal shall include a list of roll numbers to be shipped indicating which rolls were sampled and tested. The certificates shall state that the geotextiles are continuously inspected and are needle-free. The quality control certificates shall also include:
1. lot, roll numbers, and other identification;

2. sampling procedures; and
3. results of quality control tests, including descriptions of test methods used (the Manufacturer quality control tests to be performed are specified in this Section).

D. Provide list of equipment, description of installation methods storage methods in accordance with manufacturer's recommendation, and other required information related to the installation of geotextile in the Earthwork Work Plan specified in Section 02200.

1.05 HEALTH AND SAFETY REQUIREMENTS

A. Environmental health & safety/training requirements shall be in accordance with Part 8 of the Contract Documents.

1.06 CONTRACTOR'S QUALITY ASSURANCE

A. Contractor's quality assurance requirements shall be in accordance with Part 9 of the Contract Documents.

PART 2 PRODUCTS

2.01 GEOTEXTILE

A. Geotextile materials furnished by Fluor Fernald, Inc. will meet the following requirements:
1. minimum average roll values with 95 percent lower confidence limits meeting or exceeding the required property values specified in Tables 02714-1 for geotextile filters and sacrificial geotextile filters, 02714-2 for geotextile cushion in final cover system, 02714-3 for geotextile cushion in liner system, 02714-4 for supplemental geotextile cushion in liner and scaraficial geotextile cushion in the final cover systems, and 02714-5 for geotextile separator; and
2. manufactured from first quality polymers, with not more than 20 percent reclaimed polymer used in production.

B. Geotextiles furnished by Contractor shall meet or exceed the required property values specified in Tables 02714-1 through 02714-5. Geotextiles shall be manufactured from first quality polymers with not more than 20 percent reclaimed polymer used in production.

C. Furnish polymeric threads for stitching that are ultra-violet (UV) light stabilized to at least the same requirements as the geotextile to be sewn. Threads shall be polyester or polypropylene threads that have a minimum size of 2,000 denier.

2.02 MANUFACTURING QUALITY CONTROL

A. For geotextile furnished by Contractor, sample and test the geotextile to demonstrate that the material conforms to the requirements of this Section. Do not supply any geotextile roll that does not comply with the manufacturing quality control requirements.

1. Perform manufacturing quality control tests to demonstrate that properties conform to the values specified in Tables 02714-1 to 02714-5. Perform the following manufacturing quality control tests at a maximum interval of one test for each 50,000 square feet manufactured. All tested rolls of material used to certify compliance shall be delivered to the site. Test data for rolls not delivered to the site will not be accepted.

Test	Procedure
Mass per unit area	ASTM D 5261
Grab strength	ASTM D 4632
Tear strength	ASTM D 4533
Puncture strength	ASTM D 4833 or ASTM D 6241

2. Perform additional manufacturing quality control tests on geotextile filter properties only, at a maximum interval of one test for each 100,000 square feet manufactured to demonstrate that its apparent opening size (ASTM D 4751) and permittivity (ASTM D 4491 or ASTM D 5493) conform to the values specified in Table 02714-1. All tested rolls of material used to certify compliance shall be delivered to the site. Test data for rolls not delivered to the site will not be accepted.

B. For geotextile furnished by Contractor, if a geotextile sample fails to meet the quality control requirements of this Section, sample and test rolls manufactured at the same time and in the same lot as the failing roll. Continue to sample and test the rolls until the extent of the failing rolls are bracketed by passing rolls. Do not supply failing rolls.

2.03 PACKAGING

A. Geotextiles rolls will be wrapped in relatively impermeable and opaque protective covers.

B Covers which become torn or damaged shall be repaired by the Contractor with similar materials.

C. Geotextile rolls will be marked or tagged in accordance with ASTM D 4873 with the following information:

1. Manufacturer's name;
2. product identification;
3. lot or batch number;
4. roll number; and
5. roll dimensions.

D. Geotextile rolls not labeled in accordance with this Section or on which labels are illegible shall be rejected and replaced. The Contractor shall notify the Construction Manager of any rolls not labeled in accordance with the Section.

E. The minimum size of each lot for geotextile furnished by the Contractor and delivered to the Site will be 100,000 ft^2.

2.04 SHIPPING

A. Geotextiles furnished by Contractor, shall not be shipped prior to final review and confirmation of compliance of Manufacturer's quality control submittals specified in this Section and conformance testing specified in the CQA Plan and by the Consultant

2.05 ACCEPTANCE, HANDLING, AND STORAGE

A. Upon delivery to the project site, Contractor shall inspect and inventory the geotextile materials and the manner in which they are stored. Contractor shall also inspect geotextile material stockpiled at the OSDF. Contractor shall provide to the Construction Manager with a written letter of acceptance within 30 calendar days if material is acceptable for installation. Contractor shall also notify the Construction Manager in writing within 30 calendar days of any geotextile material that is not acceptable for installation.

B. Protection and preservation of geotextile material shall include, but not be limited to:
   1. protection from sunlight, moisture, excessive heat or cold, puncture, mud, dirt, and dust or other damaging conditions; follow geotextile Manufacturer recommendations for handling and storage; Manufacturer recommendations will be provided by the Construction Manager for geotextile furnished by Fluor Fernald, Inc.; and
   2. storage of rolls on pallets, or other elevated structures; do not store rolls directly on the ground.

C. Contractor shall unload, handle and store geotextile material furnished by Fluor Fernald, Inc. and by Contractor. Handling shall be performed such that damage to geotextile materials does not occur.

2.06 EQUIPMENT

A. Furnish equipment for acceptance, handling, storage, and installation of geotextile.

PART 3 EXECUTION

3.01 PLACEMENT

A. Do not commence geotextile installation until the CQC Consultant completes performance testing and confirmation of compliance of underlying layers, including acceptance of Contractor's survey results for underlying layers.

B. Handle geotextiles so as to ensure they are not damaged.

C. Take precautions to prevent damage to underlying layers.

D. After unwrapping the geotextiles from their opaque covers, do not leave them exposed for a period in excess of 10 calendar days or for the Manufacturer's written recommended exposure period.

E. If white colored geotextiles are used, take appropriate safety precautions against "snowblindness" of personnel.

F. Take care not to entrap stones, excessive dust, or moisture below or in the geotextiles.

G. Examine the geotextile surface after installation to ensure that no potentially harmful foreign objects are present. Remove any such objects and replace any damaged geotextiles.

3.02 SEAMS AND OVERLAPS

A. Continuously overlap a minimum of 6 inches and sew geotextile filters, cushions, and supplemental geotextile cushions using a "single prayer" seam. Sew seams using Stitch Type 401 as per Federal Standard No. 751a. Spot sewing will not be allowed.

B. Do not install horizontal seams on slopes that are steeper than 10 horizontal to 1 vertical (10H:1V). Seams shall be along, not across, the slopes.

C. Overlap geotextile separator a minimum of 12 inches and spot sew at intervals to ensure that the overlap is maintained.

D. Overlap geotextile filter used for riprap construction in Section 02271 a minimum of 12 inches. No seaming is required.

3.03 REPAIR

A. Repair holes or tears in the geotextiles using a patch made from the same geotextile material. Extend geotextile patches a minimum of 1 foot beyond the damaged area. Sew geotextile patches into place no closer than 1 inch from panel edge. Should tear exceed 50 percent of the width of the panel, cut across the entire width of the panel and seam as an end seam. For slope areas steeper than 10H:1V, tears exceeding 50 percent of the width of the panel shall be removed and replaced.

B. Remove any soil or other material that may have penetrated the torn geotextiles.

3.04 CREST ANCHORAGE SYSTEM

A. Install the geotextile along with the other geosynthetic layers in the anchor trench and wedge at the crest of the slope as shown on the Construction Drawings. Temporarily anchor the geosynthetic layers using sandbags or other means until the commencement of trench backfilling. Do not place geotextiles in anchor trench if standing water is present.

B. Do not entrap soil, sand bags, excessive moisture, or other materials below or between the geosynthetic layers in the anchor trench.

C. Backfill the anchor trench with compacted clay liner once all the geosynthetic layers are installed in the anchor trench. Backfill to the limits shown on the Construction Drawings. Compact backfill in accordance with Section 02215.

D. Do not damage exposed geosynthetic layer when backfilling the anchor trench.

E. Do not place granular drainage material for the leak detection system or leachate collection system on the side slopes until after the anchor trenches are completely backfilled unless authorized in writing by the Construction Manager.

3.05 PLACEMENT OF SOIL AND AGGREGATE MATERIALS

A. Place soil materials on top of geotextiles in such a manner as to ensure that:
   1. the geotextiles and the underlying materials are not damaged; and
   2. slippage does not occur between the geotextile and the underlying layers during placement.

B. Spread soil on top of the geotextile to cause the soil to cascade onto the geotextile rather than be shoved across the geotextile.

C. For geotextile cushions overlying the geomembrane, do not place granular drainage material at ambient temperatures below 40 degrees Fahrenheit (°F) or above 104°F.

For placement of granular drainage material below 40°F and above 104°F, Contractor shall submit placement methods to the Construction Manager for review and approval.

D. Do not drive equipment directly on the geotextile. Only use equipment above a geotextile cushion overlying a geomembrane that meets the following ground pressure requirements:

Maximum Allowable Equipment Ground Pressure (pounds per square inch)	Minimum Thickness of Overlying Fill or Aggregate Layer (inches)
less than 5	12 (see note 1)
less than 10	18
less than 20	24
greater than 20	36

Note 1: Minimum thickness of first loose lift of the clay liner material for the protective clay layer shall be a 10-inch ±1-inch.

E. Place aggregate over geotextile separator as shown on the Construction Drawings prior to trafficking in accordance with Section 02230.

F. Place soil over geotextile filters as shown on the Construction Drawings prior to trafficking.

3.06 CONSTRUCTION QUALITY REQUIREMENTS

A. CQC Consultant will perform conformance testing on the geotextile materials furnished by Contractor to establish compliance with this Section. Conformance testing and minimum frequencies shall be in accordance with the Construction Quality Assurance (CQA) Plan.

B. CQC Consultant will monitor the geotextile installation in accordance with this Section and CQA Plan.

TABLE 02714-1

REQUIRED PROPERTY VALUES FOR GEOTEXTILE FILTER AND SACRIFICIAL GEOTEXTILE FILTER

PROPERTIES	QUALIFIER	UNITS[4]	SPECIFIED[3] PROPERTY VALUES	TEST METHOD
Identification Requirements				
Type	(-)	(-)	Nonwoven needlepunched	(-)
Polymer composition	minimum	%	95 polypropylene or polyester by weight	(-)
Mass per unit area	minimum	oz/yd^2	7	ASTM D 5261
Filter Requirements				
Apparent opening size (O_{95})	maximum	mm	0.212	ASTM D 4751
Permittivity	minimum	sec^{-1}	0.5	ASTM D 4491 or ASTM D 5493
Mechanical Requirements				
Grab strength	minimum	lb	180	ASTM D 4632[1]
Trapezoidal tear strength	minimum	lb	75	ASTM D 4533[2]
Puncture strength	minimum	lb	75	ASTM D 4833
Static puncture strength	minimum	lb	450	ASTM D 6241
Durability Requirements				
Ultraviolet Resistance	minimum	%	70	ASTM D 4355

Notes:

(1) Minimum of values measured in machine and cross machine directions with 1 by 2 inch clamp on Constant Rate of Extension (CRE) machine.

(2) Minimum value measured in machine and cross machine direction.

(3) All values represent minimum average roll values.

(4) mm = millimeter
% = percent
oz/yd^2 = ounce per square yard
sec = second
lb = pound
psi = pound per square inch

TABLE 02714-2

REQUIRED PROPERTY VALUES FOR GEOTEXTILE CUSHION IN FINAL COVER SYSTEM

PROPERTIES	QUALIFIER	UNITS[4]	SPECIFIED[3] PROPERTY VALUES	TEST METHOD
Identification Requirements				
Type	(-)	(-)	Nonwoven needlepunched	(-)
Polymer composition	minimum	%	95 polypropylene or polyester by weight	(-)
Mass per unit area	minimum	oz/yd^2	8	ASTM D 5261
Mechanical Requirements				
Grab strength	minimum	lb	200	ASTM D 4632[1]
Tear strength	minimum	lb	75	ASTM D 4533[2]
Puncture strength	minimum	lb	90	ASTM D 4833
Static puncture strength	minimum	lb	500	ASTM D 6241
Durability Requirements				
Ultraviolet Resistance	minimum	%	70	ASTM D 4355

Notes:

(1) Minimum of values measured in machine and cross machine directions with 1 by 2 inch clamp on Constant Rate of Extension (CRE) machine.
(2) Minimum value measured in machine and cross machine direction.
(3) All values represent minimum average roll values.
(4) mm = millimeter
% = percent
oz/yd^2 = ounce per square yard
sec = second
lb = pound
psi = pound per square inch

TABLE 02714-3

REQUIRED PROPERTY VALUES FOR GEOTEXTILE CUSHION IN LINER SYSTEM

PROPERTIES	QUALIFIER	UNITS[4]	SPECIFIED[3] PROPERTY VALUES	TEST METHOD
Identification Requirements				
Type	(-)	(-)	Nonwoven needlepunched	(-)
Polymer composition	minimum	%	95 polypropylene or polyester by weight	(-)
Mass per unit area	minimum	oz/yd^2	10	ASTM D 5261
Mechanical Requirements				
Grab strength	minimum	lb	225	ASTM D 4632[1]
Tear strength	minimum	lb	90	ASTM D 4533[2]
Puncture strength	minimum	lb	120	ASTM D 4833
Static puncture strength	minimum	lb	675	ASTM D 6241
Durability Requirements				
Ultraviolet Resistance	minimum	%	70	ASTM D 4355

Notes:

(1) Minimum of values measured in machine and cross machine directions with 1 by 2 inch clamp on Constant Rate of Extension (CRE) machine.
(2) Minimum value measured in machine and cross machine direction.
(3) All values represent minimum average roll values.
(4) mm = millimeter
% = percent
oz/yd^2 = ounce per square yard
sec = second
lb = pound
psi = pound per square inch

TABLE 02714-4

REQUIRED PROPERTY VALUES FOR SUPPLEMENTAL AND SACRAFICIAL GEOTEXTILE CUSHION IN LINER SYSTEM AND FINAL COVER SYSTEM

PROPERTIES	QUALIFIER	UNITS[4]	SPECIFIED[3] PROPERTY VALUES	TEST METHOD
Identification Requirements				
Type	(-)	(-)	Nonwoven needlepunched	(-)
Polymer composition	minimum	%	95 polypropylene or polyester by weight	(-)
Mass per unit area	minimum	oz/yd²	16	ASTM D 5261
Mechanical Requirements				
Grab strength	minimum	lb	350	ASTM D 4632[1]
Tear strength	minimum	lb	120	ASTM D 4533[2]
Puncture strength	minimum	lb	180	ASTM D 4833
Static puncture strength	minimum	lb	1,275	ASTM D 6241
Durability Requirements				
Ultraviolet Resistance	minimum	%	70	ASTM D 4355

Notes:

(1) Minimum of values measured in machine and cross machine directions with 1 by 2 inch clamp on Constant Rate of Extension (CRE) machine.
(2) Minimum value measured in machine and cross machine direction.
(3) All values represent minimum average roll values.
(4) mm = millimeter
% = percent
oz/yd² = ounce per square yard
sec = second
lb = pound
psi = pound per square inch

TABLE 02714-5

REQUIRED PROPERTY VALUES FOR GEOTEXTILE SEPARATOR

PROPERTIES	QUALIFIER	UNITS[4]	SPECIFIED[3] PROPERTY VALUES	TEST METHOD
Identification Requirements				
Type	(-)	(-)	Nonwoven needlepunched	(-)
Polymer composition	minimum	%	95 polypropylene or polyester by weight	(-)
Mass per unit area	minimum	oz/yd²	6	ASIM D 5261
Mechanical Requirements				
Grab strength	minimum	lb	180	ASTM D 4632[1]
Tear strength	minimum	lb	75	ASTM D 4533[2]
Puncture strength	minimum	lb	75	ASTM D 4833
Static puncture strength	minimum	lb	450	ASTM D 6241
Durability Requirements				
Ultraviolet Resistance	minimum	%	70	ASTM D 4355

Notes:

(1) Minimum of values measured in machine and cross machine directions with 1 by 2 inch clamp on Constant Rate of Extension (CRE) machine.
(2) Minimum value measured in machine and cross machine direction.
(3) All values represent minimum average roll values.
(4) mm = millimeter
% = percent
oz/yd² = ounce per square yard
sec = second
lb = pound
psi = pound per square inch

[END OF SECTION]

SPECIFICATION COVER SHEET

SPECIFICATION SECTION: 02930 TITLE: Vegetation

Specifications By: (Cognizant Engineer)
Signature _____ Date 17 Aug 01
Printed Name and Title: Michael J. Monteleone, P.E. Associate

Scope and Format Checked By: (Checker)
Signature _____ Date 17 Aug 01
Printed Name and Title: Michael J. Monteleone, P.E. Associate

Detailed Requirements Checked by: (Checker)
Signature _____ Date 17 Aug 01
Printed Name and Title: David K. Phillips Senior Project Engineer

Overall Review By: (PDP)
Signature _____ Date 20 Aug 2001
Printed Name and Title: J.F. Beech, Ph.D., P.E. Principal

Approved by: (DTL)
Signature _____ Date 20 Aug 2001
Printed Name and Title: J.F. Beech, Ph.D., P.E. Principal

Record of Revision (Number and initial all revisions)

Rev. No.	Reason	Date	By	Checked	Approval
0	Certified for Construction	20 August 01	MJM	DKP	JFB
1	Revisions from Phase III DCNs	13 March 02	DKP	DKP	JFB

SECTION 02930

VEGETATION

PART 1 GENERAL

1.01 SCOPE

A. This Section includes soil stabilization, which includes application of crusting agent and establishing vegetation by seeding. The work in this Section includes, but is not limited to; soil preparation, interim vegetation, permanent vegetation, application of fertilizer, application of mulches, and application of crusting agent.

1.02 RELATED SECTIONS AND PLANS

A. Section 02200 - Earthwork

B. Section 02270 - Surface-Water Management and Erosion Control

C. Part 6 - Statement of Work

D. Part 8 - Environmental Health & Safety/Training Requirements

E. Part 9 - Quality Assurance Requirements

1.03 REFERENCES

A. Latest version of Ohio Department of Natural Resources (ODNR) Rainwater and Land Development Standards (ODNR Rainwater and Land Development Standards).

B. "*Identification and Listing of Hazardous Waste*", Title 40, Code of Federal Regulations (CFR), Part 261, Subpart E.C.

C. *"Federal Hazardous Material Transportation Law"*, U.S. Department of Transportation [U.S. DOT, 1994].

1.04 SUBMITTALS

A. Submit the following to the Construction Manager for review within 15 calendar days from Notice to Proceed:
   1. proposed mixes and application rates for seed, mulch, fertilizers, and crusting agents;

2. Manufacturer's product data and recommended methods of application for seed, mulches, fertilizer, and crusting agents;
3. product data for fertilizer shall also include chemical analysis including uranium analysis to assure there is no resultant or derived uranium from fertilizer use, unless waived by Construction Manager;
4. material safety data sheet (MSDS) for fertilizer, mulch binder and crusting agent; and
5. inoculant information for the permanent seed mixes.

B. Submit the following to the Construction Manager for review within 30 calendar days before seeding:
1. certificate stating seed mixture, guaranteed percentages of purity, weed content, germination of seed, name of seller, test date for the seed, and the net weight and date of shipment;
2. Manufacturer's certificate stating the available nutrients contained in the proposed fertilizer;
3. Manufacturer's certificate stating that the fiber matrix (wood fibers) meets the requirements of this Section;
4. Manufacturer's certificate stating the mulch binder meets the requirements of this Section;
5. Manufacturer's certificate stating the crusting agent meets the requirements of this Section; and
6. documentation of the straw to be used for mulch; this documentation shall verify that the straw is weed free in accordance with the requirements of this Section.

C. Submit to the Construction Manager for review within 10 calendar days before seeding a plan showing seeding area and a written statement of application rate of seed mix and/or associated materials (i.e., fertilizer, mulch, and mulch binder). Choice of seeding type shall follow the site seeding requirements and as approved by the Construction Manager.

D. Provide a list of equipment, description of construction methods, and other required information for vegetation and application of crusting agent in the Contractor's Earthwork Work Plan specified in Section 02200.

1.05 HEALTH AND SAFETY REQUIREMENTS

A. Environmental health & safety/training requirements shall be in accordance with Part 8 of the Contract Documents.

1.06 CONTRACTOR'S QUALITY ASSURANCE

A. Contractor's quality assurance requirements shall be in accordance with Part 9 of the Contract Documents.

PART 2 PRODUCTS

2.01 MATERIALS

A. Furnish seed labeled in accordance with U.S. Department of Agriculture (USDA) Rules and Regulations under the Federal Seed Act and applicable State seed laws. Furnish seed in sealed bags or containers bearing the date of expiration. Do not use seed after its date of expiration. Each variety of seed shall have a purity of not less than 90 percent by weight, a percentage of germination not less than 80 percent by weight, and a weed to seed content of not more than 0.75 percent by weight and contain no noxious weeds. Furnish seed mixtures having seed proportioned by weight in accordance with Tables 02930-1A, 02930-1B, 02930-1C and 02930-2. Areas requiring permanent seeding during the summer months (June 15 – September 20), excluding the OSDF Cell Final Cover, shall be seeded with 30 lbs/acre of ReGreen as specified in this Section. An alternative to ReGreen, and the only acceptable alternative for summer seeding of the OSDF Cell Final Cover, is stabilizing with a crusting agent as specified in this Section. Stabilization performed during the summer shall be followed by fall application of the appropriate permanent seed mix.

B. Permanent seed mixes shall be treated with fungal (Mycorrhizae) inoculant and bacterial (Rhyzobium) inoculants. The specified legumes must be inoculated with the appropriate Rhizobial strains.

C. Furnish mulch meeting the following requirements:
   1. Mulch shall be straw or wood cellulose fiber, free of clay, stone, foreign substances, and free of weeds.
   2. Straw should not contain sticks larger than ¼-inch diameter or other materials that may prevent matting down during application. Use straw that is free from mold and other objectionable material for placing with mulch blower equipment or other equipment as approved by the Construction Manager. Straw shall be generally 6 inches or more in length.
   3. Straw shall be:
      a. weed free straw from the Minnesota Crop Improvement Association certified weed free straw vendors;
      b. straw that has been inspected and determined to be weed free by Central Ohio Seed Testing;

c. native prairie grass mulch; or
d. equivalent substitute as approved by the Construction Manager.

4. Mulch applied by hydrospraying shall be a bonded fiber matrix containing wood fibers held together with a hydrocolloid-based binder, which upon drying becomes insoluble and non-dispersible. Mulch shall be comprised of 39 parts wood fiber to one part binder by weight. The fibers shall be composed of 100 percent wood or wood by-products and shall be 100 percent biodegradable. Use a bonded fiber matrix containing a green dye that will provide for easy visual inspection for uniformity of slurry spread. The bonded fiber matrix, including dye, shall contain no growth or germination inhibiting properties. The wood cellulose fiber shall be manufactured in such a manner that, after addition and agitation in slurry tanks with water, the fibers in the material become uniformly suspended to form a homogeneous material. When sprayed on the ground, the material shall allow absorption and percolation of moisture. The wood cellulose fiber shall meet the following requirements:

Item	Specification Limit
Particle Length	0.8 inch (maximum)
Particle Thickness	0.047 inch (maximum)
Ph	4.0 to 8.5
Ash Content	1.6% (maximum)
Water Holding Capacity (based on fiber dry weight)	500% (minimum)
Moisture Content	12% ± 4% (by weight)

D. Mulch binder agent shall be as approved by the Construction Manager and shall meet the following requirements:

1. The mulch binder shall be hydrocolloid base (guar gum) and shall not dissolve or disperse upon rewetting.
2. The mulch binder shall not have hazardous characteristics of ignitability, corrosivity, reactivity, or toxicity as defined in 40 CFR Part 261, Subpart C, for a hazardous waste in either its pre-applied or cured states.
3. The mulch binder shall have a flash point greater than 200°F. The mulch binder shall be neither a flammable nor combustible liquid per United States (US) Department of Transportation definition [U. S. DOT, 1994]. The mulch binder must not be susceptible to significant deterioration from exposure to the elements, including sunlight.
4. The mulch binder shall be provided in concentrated solution and prepared so that it will not change in transportation or storage.

E. The crusting agent shall be as approved by the Construction Manager and shall meet the following criteria:
   1. pine sap emulsion comprised of a 100 percent organic emulsion produced from naturally occurring resins (pine sap); or an approved equal;
   2. not comprised of chloride, lignosulfonate, petroleum, or asphaltic-type emulsions;
   3. provide dust suppression and surface stability for exposed soils, both disturbed and undisturbed soils, and exposed coal fired ash (fly ash);
   4. compatible with application via a hydro seeder, and must not require intense cleaning of equipment after application;
   5. non-tracking (i.e., will not stick to boots or tires) once cured;
   6. not have hazardous characteristics of ignitability, corrosivity, reactivity, or toxicity as defined in 40 CFR Part 261, Subpart C, for a hazardous waste in either its pre-applied or cured states;
   7. have a flash point greater than 200 °F;
   8. be neither a flammable nor combustible liquid per DOT definition; and
   9. not be susceptible to significant deterioration from exposure to the elements, including sunlight.

F. Erosion mat shall be in accordance with Section 02270.

G. Fertilizer:
   1. Furnish commercial grade fertilizer, uniform in composition that meets the requirements of all State and Federal regulations and standards of the Association of Agricultural Chemists.
   2. Fertilizer shall be slow release complete fertilizer.
   3. Two types of fertilizer mixes shall be used. Fertilizer for application within the former production area shall be 34-0-10; other fertilizers may be approved by the Construction Manager for the former production area, but they must not contain phosphorous. Fertilizer for other areas shall be 22-5-10. Other fertilizers may be approved by the Construction Manager for areas outside the former production area provided the fertilizer mix does not contain more than 6% phosphorous. Fertilizers shall contain not less than 1 percent added sulfur and not more than 8 percent added iron, or an approved equal.
   4. Fertilizer must have MSDS submitted in accordance with this Section.
   5. Fertilizer shall be used for interim seeding only.

H. Construction water shall be obtained from the on-site water source shown on the Construction Drawings.

2.02 EQUIPMENT

A. Provide equipment of size and type to perform work specified in this Section.

PART 3 EXECUTION

3.01 DELIVERY, STORAGE, AND HANDLING

A. Deliver containerized materials in uniform packages bearing the name of the manufacturer, the net weight and a statement of content. Deliver containerized materials to the site in original, properly labeled, unopened, clean containers each showing the manufacturer's guaranteed analysis conforming to applicable regulations and standards.

B. Store materials in a dry area in a manner to prevent physical damage.

3.02 GENERAL

A. Stabilization of disturbed areas by vegetation or by use of a crusting agent shall be performed at completion of excavation and stockpiles or within 7 calendar days of knowing a disturbed area will be idle for more than 45 calendar days, whichever is sooner.

B. Crusting agents may be used as temporary measures prior to placement of interim vegetation after approval for the area by the Construction Manager.

C. Interim vegetation, as specified in this Section, is required for all areas except OSDF final cover system and soil stockpiles, which are scheduled to be disturbed in future. Fertilizer shall be used for interim vegetation as specified in this Section.

D. Permanent vegetation, as specified in this Section, is required for OSDF final cover system. No fertilizer shall be used with permanent vegetation as specified in this Section.

E. Disturbed areas which are scheduled to be significantly disturbed after initial stabilization and/or need effective erosion control immediately, are to be stabilized with the interim seed mix rate specified in this Section. Disturbed areas which are not scheduled to be significantly disturbed again are to be stabilized with the permanent seed mix rate specified in this Section. Soil piles, which require effective erosion control immediately, are to be stabilized with the interim seed mix rate or a crusting agent as specified in this Section.

F. Use an erosion mat as specified in Section 02270 at locations shown on the Construction Drawings after application of seed mixture.

G. Area(s) to be seeded shall be generally free of debris, rock, root material, and other objects that may impede soil preparation and seeding activities. Perform soil

preparation by tilling/cultivating, to a depth of approximately 2 inches, to eliminate uneven areas and low spots. Maintain lines, levels and contours.

H. Repeat cultivation in areas where equipment used for hauling and spreading has compacted the area(s) to be seeded.

3.03 APPLICATION

A. The seeding season, for interim vegetation specified in this Section, is year round. However, if seeding is contemplated during the winter months of December through March, then field conditions should be assessed for ability to provide soil to seed contact. If field conditions do not support the ability to provide soil to seed contact then the area shall be stabilized with a crusting agent followed by seeding during conditions conducive to adequate soil to seed contact.

B. The permanent seeding in wet and dry areas and the cell final cover shall be performed in the Spring Season between April 1 and June 15 and/or the Fall Season between September 20 and November 30, unless otherwise approved by the Construction Manager.

C. Apply fertilizer, seed, and mulch to disturbed areas and areas excavated and graded under this Contract requiring seeding unless otherwise directed by the Construction Manager. Apply mulch within 24 hours of seeding; do not seed areas in excess of that which can be mulched within 24 hours. Winter application of seed and related materials are subject to adjustment as directed by the Construction Manager.

D. Apply seed using either the drilling, broadcasting, or hydroseeding method, as described below:
   1. Seed drilling method:
      a. This method shall be used for applying the permanent seed mix in accessible areas unless otherwise approved by the Construction Manager. The method may also be used for interim vegetation.
      b. Prepare area to be seeded by loosening the soil to a minimum depth of 3 inches.
      c. Apply commercial grade, slow release complete fertilizer, for interim vegetation only, at a rate of 150 lbs/acre at the time of preparing the seedbed for seeding.
      d. Install seed with a seed drill to obtain a final planting depth of ¼ to ½ inch using the seed rates indicated in Tables 02930-1A, 02930-1B, 02930-1C and 02930-2. All seed drilling should be done perpendicular to the direction of surface-water flow.

2. Broadcast Seeding Method:
   a. This method may be used for interim vegetation, and can be performed with the use of mechanical "cyclone" seeders, by hand seeding or by any other method which scatters seed over the soil surface.
   b. This method may also be used for permanent seeding in areas that are not accessible by the seed drill method or areas where seed drilling cannot be performed perpendicular to the direction of the surface-water flow.
   c. If Broadcast Method is used to apply permanent seed mix in sloped areas (3H:1V slope or steeper), seeding application rates in Tables 02930-1A and 02930-1B should be doubled.
   d. Prepare the area to be seeded by loosening the soil to a minimum depth of 3 inches. This is critical to allow seeds to filter into the soil to avoid washout from runoff.
   e. Apply commercial grade, slow release complete fertilizer, for interim vegetation only, at a rate of 150 lbs/acre at the time of preparing the seedbed for seeding.
   f. Install seed by broadcasting evenly over the entire site using the seed rates indicated in this Section.
   g. After application of seed, perform the following prior to placement of erosion mat.
      i. For areas receiving seed mix for cell final cover permanent vegetation (Table 02930-1C), roll seeded area with a 200 to 600 pound drum roller after seeding. If surface is not accessible for the drum roller after seeding, apply sprayed mulch at 1500 pounds per acre minimum and 100 percent continuous coverage. Mix the mulch with water at a ratio of 50 pounds of mulch per 100 gallons of water.
      ii. For areas receiving other seed mixes (Tables 02930-1A, 02930-1B or 02930-2), rake seeded area after seeding
   h. Mulch and disc-anchor using weed free mulch at a rate of 2.0 tons per acre. Spread straw mulch, either by hand or by blowing method, at the rate of 2 air-dried tons per acre. During June through September, increase straw mulch application rate to 3 air-dried tons per acre. Application of straw mulch by the blowing method is exempt from the dust control requirements specified in Part 6 of the Contract Documents.3.

Hydroseeding Method:

a. This method may be used for interim vegetation only. Hydroseeding shall be a two-step process. The seed shall be applied first, followed by a separate application of the mulch. This is to ensure soil to seed contact.
b. The mixture tank shall be cleaned prior to use to ensure remnant seed is not introduced to the proposed seed mixture.

c. Prepare area to be seeded by loosening the soil to a minimum depth of 3 inches. This is critical to allow seeds to filter into the soil to avoid washout from runoff.
d. Apply commercial grade, slow release complete fertilizer, for interim vegetation only, at a rate of 150 lbs/acre. The fertilizer is to be mixed and applied with the mulch.
e. Install seed by hydroseeding evenly over the entire area using the seed rates indicated in Table 02930-2. Use a fan-type nozzle with approximately 500 gallons of water per acre to ensure even distribution.
f. Rake the area where accessible following seeding.
g. Apply sprayed mulch at a net dry weight of 2,000 pounds per acre minimum and 100 percent continuous coverage. Mix the mulch with water at a ratio of 50 pounds of mulch per 100 gallons of water.

E. Application of Crusting Agent:
1. Apply crusting agent in accordance with manufacturer's directions.
2. Unless otherwise specified by the manufacturer, dilute concentrated pine sap emulsion to ratio of 4 parts water to 1 part concentrate. Apply diluted pine sap emulsion at a rate of 2,500 gallons per acre.

3.04 MAINTENANCE

A. Maintain the vegetated areas in satisfactory condition until acceptance of the vegetation by the Construction Manager. Maintenance of the vegetated areas includes repairing eroded areas, revegetating when necessary, watering, and mowing (if applicable). A satisfactory condition of vegetated area is defined as follows:
1. an area shall have a predominant stand of the seeded vegetation;
2. within 3 weeks, germination must occur over 90 percent of the area with no single bare area greater than 3 square feet; and
3. within 3 months, 90 percent of the area must be covered with mature vegetation.

B. The above timeframes for germination and coverage requirements are to be delayed during the dormant season between November 1 and March 15 application of the seed. The performance criteria shall be measured at the beginning of the growing season (April 1) for seed applied during the previous dormant season.

C. Areas that fail to meet these requirements shall be repaired or reseeded as necessary to produce an acceptable stand of vegetation, as specified in this Section.

D. The acceptance inspection will be performed by the Construction Manager who will determine whether repair of vegetated areas or revegetation is required.

E. Maintain areas with a crusting agent to ensure proper erosion control. The crusting agent shall be reapplied to eroded and bare areas as necessary.

3.05 WARRANTY

A. Vegetated areas shall be subject to a warranty period of not less than 12 months from initial establishment of vegetation over 100 percent of the areas seeded.

B. At the end of the warranty period, the Construction Manager will perform an inspection of the area. Seeded areas not demonstrating satisfactory condition of vegetation as specified in this Section, shall be repaired, reseeded, and maintained to meet requirements as specified in this Section at the Contractor's expense.

C. Areas that fail to meet these requirements shall be repaired or reseeded as necessary to produce an acceptable stand of vegetation, as specified in this Section. For the OSDF Cell Final Cover vegetation only, areas that fail to meet these requirements shall be repaired as necessary and reseeded to produce an acceptable stand of vegetation by using an alternate seed mix such as hydroseeding tall fescue as determined to be appropriate by the Construction Manager.

3.06 ACCEPTANCE

A. The vegetated areas shall be accepted at the end of the warranty period if a satisfactory condition exists as defined in this Section.

B. After disturbed areas are stabilized and all necessary corrective work has been completed, the Construction Manager will certify in writing the final acceptance of the vegetated areas.

3.07 CONSTRUCTION QUALITY REQUIREMENTS

A. CQC Consultant will monitor vegetation and crusting agent application in accordance with this Section and Construction Quality Assurance (CQA) Plan.

TABLE 02930-1A

SEED MIX IN DRY AREAS FOR PERMANENT VEGETATION

SPECIES	POUNDS PER ACRE (lb/ac)
Big Bluestem (*Andropogen gerardi*)	3
Little Bluestem (*Andropogen scoparius*)	2
Side-Oats Grama (*Bouteloua curtipendula*)	0.5
Indian Grass (*Sorghastrum nutans*)	2
Canada Wild-Rye (*Elymus canadensis*)	25
Switch grass (*Panicum virgatum*)	0.5
ReGreen	5
Wildflowers(1):	1.5
Butterflyweed (*Asclepias tuberosa*)	
New England Aster (*Aster novae-angliae*)	
Smooth Aster (*Aster laevis*)	
Canada Milkvetch (*Astragalus Canadensis*)	
Purple Prairie Clover (*Petalostemum purpureum*)	
Ox-eye Sunflower (*Heliopsis helianthoides*)	
Bergamot (*Monadara fistulosa*)	
Purple Coneflower (*Echinacea purpurea*)	
Pale Purple Coneflower (*Echinacea pallida*)	
Yellow Coneflower (*Ratibida pinnata*)	
Black-Eyed Susan (*Rudbeckia hirta*)	
Spiderwort (*Tradescantia ohioensis*)	
Blue Vervain (*Verbena hastata*)	
Hoary Vervain (*Verbena stricta*)	
Beardtongue (*Penstemon grandiflorus*)	
Cupplant (*Silphium perfoliatum*)	
Sweet Joe Pye-Weed (*Eupatorium purpureum*)	
White False Indigo (*Baptisia leucantha*)	
Blue False Indigo (*Baptisia australis*)	
Partridge Pea (*Cassia fasciculata*)	
Rattlesnake Master (*Eryngium yuccifolium*)	
Round-headed Bush Clover (*Lespedea Capitata*)	
Stiff Goldenrod (*Solidago risida*)	

Note: (1) Wildflower mix to be apportioned according to species aggressiveness and seed counts as approved by the Construction Manager. If certain species are not available, appropriate substitutions will be approved by the Construction Manager.

TABLE 02930-1B

SEED MIX IN WET AREAS[1] FOR PERMANENT VEGETATION

Species	POUNDS PER ACRE (lb/ac)
Big Bluestem *(Andropogen gerardi)*	3
Canada Wild-Rye *(Elymus canadensis)*	25
S Grass *(Panicum virgatum)*	0.5
Blue Joint Grass *(Calamagrostis canadensis)*	0.5
Porcupine Sedge (*Carex hystericina*)	1 ounce per acre (oz/ac)
Fox Sedge (*Carex stipata*)	1 ounce per acre (oz/ac)
Dark Green Bulrush (*Scirpu.s atrovirens*)	1 ounce per acre (oz/ac)
ReGreen	5
Prairie Cordgrass (*Spartina pectinata*)	1
Wildflowers[2]:	1.5
Red Milkweed (*Asclepias incarnata*)	
New England Aster (*Aster novae-angliae*)	
Wild Senna (*Cassia hebecarpa*)	
Canada Tick Trefoil (*Desmodium canadense*)	
Prairie Blazingstar (*Liatris pycnostachya*)	
Great Blue Lobelia (*Lobelia siphilitica)*	
Bergamot (*Monadara fistulosa*)	
Yellow Coneflower (*Ratibida pinnata*)	
Branched Coneflower (*Rudbeckia hirta*)	
Blue Vervain (*Verbena hastata*)	
Angelica (*Angelica atropurpurea*)	
Sweet Joe-Rye Weed (*Eupatorium purpureum)*	

Notes: (1) Seeding in drainage ditches or swales shall contain erosion mats as specified in Section 02270 after application of seed mixture. Erosion mat shall cover a minimum width of 12 feet.

(2) Wildflower mix to be apportioned according to species aggressiveness and seed counts as approved by the Construction Manager. If certain species are not available, appropriate substitutions will be approved by the Construction Manager.

TABLE 02930-1C

SEED MIX FOR CELL FINAL COVER PERMANENT VEGETATION

Species Grass	POUNDS PER ACRE (lb/ac)
Big Bluestem *(Andropogen geradi)*	0.5
Little Bluestem *(Andropogen scoparius)*	3
Side-Oats Grama *(Bouteloua curtipendula)*	5
Buffalo Grass *(Buchloe dactyloides)*	1
Indian Grass *(Sorghastrum nutans)*	0.5
Canada Wild-Rye *(Elymus Canadensis)*	25
Annual Rye *(Lolium multiflorum)*	10
Prarie Dropseed *(Sporobulus heterolepis)*	1.5
Species Wildflower	**Ounces Per Acre (oz/ac)**
Butterflyweed *(Asclepias tuberosa)*	3.125
Smooth Aster *(Aster laevis)*	0.25
Ox-eye Sunflower *(Heliopsis helianthoides)*	1.75
Bergamot *(Monadara fistulosa)*	0.25
Purple Coneflower *(Echinacea purpurea)*	2.0
Pale Purple Coneflower *(Enhinacea pallida)*	2.0
Yellow Coneflower *(Ratibida pinnata)*	0.375
Black-Eyed Susan *(Rudbeckia hirta)*	1.0
Spiderwort *(Tradescantia ohioensis)*	1.25
Hoary Vervain *(Verbena stricta)*	0.50
Beardtongue *(Penstemon grandiflorus)*	1.0
Sweet Joe Pye-Weed *(Eupatorium perpureum)*	0.25
White False Indigo *(Baptisia leucantha)*	4.25
Blue False Indigo *(Baptisia australis)*	4.25
Partridge Pea *(Cassia fasciculate)*	32
Round-headed Bush Clover *(Lespedea Capitata)*	1.0
Stiff Goldenrod *(Solidago risida)*	0.75

TABLE 02930-2

SEED MIX FOR INTERIM VEGETATION

Species	Pounds Per Acre (lb/ac)
ReGreen	50
Partidge Pea (*Cassia fasciculate)*	10
Canada Wild Rye (*Elymus Canadensis*)	40

[END OF SECTION]

CONSTRUCTION DRAWING INDEX

PROJECT	DRAWING NO.	REV.	DRAWING TITLE	SHEET NO.
ALL	99X-5500-X-00641	D	DRAWING INDEX	X-1
ALL	99X-5500-X-00642	D	DRAWING INDEX	X-2
ALL	99X-5500-X-00639	J	LEGEND AND GENERAL NOTES	X-3
ALL	99X-5500-G-00640	0A	MASTER PLAN	G-1
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3B	99X-5500-G-00697	C	CONTAMINATION GRADING (SOUTH)	G-54
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3B	99X-5500-G-00700	B	ABOVE-WAC EXCAVATION DETAILS AND LIMITS	G-56
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5	99X-5500-G-00703	D	TRAFFIC FLOW AND MATERIAL TRACKING PLAN	G-62
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MDC	99X-5500-G-00714	D	DEWATERING AND EXCAVATION PLAN	G-70
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MDC	99X-5500-G-00720	C	CROSS SECTIONS SHEET 1	G-76
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MDC	99X-5500-G-00722	C	CROSS SECTIONS SHEET 3	G-78
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ALL	99X-5500-G-00769	F	UTILITY AND STRUCTURE REMOVAL BELOW DESIGN GRADE	D-3
4B	99X-5500-N-00680	C	WASTEWATER COLLECTION AND TRANSFER LINE P & ID	N-1

CONSTRUCTION DRAWING INDEX

PROJECT	DRAWING NO.	REV.	DRAWING TITLE	SHEET NO.
4B	99X-5500-E-00758	B	ELECTRICAL SYMBOLS AND LEGEND	E0001
4B	99X-5500-E-00759	B	SINGLE LINE DIAGRAM / ELEVATIONS	E0002
4B	99X-5500-E-00760	B	SINGLE LINE EQUIPMENT DIAGRAMS	E0003
4B	99X-5500-E-00761	B	ELECTRICAL POWER POLE GUY WIRES ANCHORING & AERIAL DETAILS	E0004
4B	99X-5500-E-00762	B	ELECTRICAL POWER POLE GUY WIRES ANCHORING & AERIAL DETAILS	E0005
4B	99X-5500-E-00763	B	ELECTRICAL PANEL SCHEDULES	E0006
4B	99X-5500-E-00764	B	ELECTRICAL PP-45-2 LOCATION	E0007
4B	99X-5500-E-00765	B	ELECTRICAL POWER POLE SW128 LOCATION	E0008

CONSTRUCTION REFERENCE DRAWING INDEX

PROJECT	DRAWING NO.	REV.	DRAWING TITLE	SHEET NO.
4B	99X-5500-G-00767	0	SILOS UTILITY EXCAVATION PLAN - PHASE 1	
4B	99X-5500-G-00768	0	BUILDING 68 BERM REMOVAL	

UTILITY GRID REFERENCE DRAWING INDEX

PROJECT	DRAWING NO.	DRAWING TITLE
ALL	22X-5500-P-00659	MASTER GRID OF UNDERGROUND UTILITY PLANS
4B	22H-5500-P-00673	GRID 14 UNDERGROUND UTILITIES
4B	22D-5500-P-00678	GRID 19 UNDERGROUND UTILITIES
4B	22D-5500-P-00679	GRID 20 UNDERGROUND UTILITIES
4B	22G-5500-P-00680	GRID 21 UNDERGROUND UTILITIES
4B	22D-5500-P-00684	GRID 25 UNDERGROUND UTILITIES
4B	22G-5500-P-00685	GRID 26 UNDERGROUND UTILITIES
3B	22B-5500-P-00676	GRID 17 UNDERGROUND UTILITIES
3B	22B-5500-P-00677	GRID 18 UNDERGROUND UTILITIES
3B	22D-5500-P-00678	GRID 19 UNDERGROUND UTILITIES
3B	22B-5500-P-00681	GRID 22 UNDERGROUND UTILITIES
3B	22B-5500-P-00682	GRID 23 UNDERGROUND UTILITIES
3B	22B-5500-P-00683	GRID 24 UNDERGROUND UTILITIES
3B	22B-5500-P-00686	GRID 27 UNDERGROUND UTILITIES
5	22A-5500-P-00664	GRID 5 UNDERGROUND UTILITIES
5	22H-5500-P-00666	GRID 7 UNDERGROUND UTILITIES
5	22H-5500-P-00667	GRID 8 UNDERGROUND UTILITIES
5	22H-5500-P-00673	GRID 14 UNDERGROUND UTILITIES
5	22H-5500-P-00674	GRID 15 UNDERGROUND UTILITIES
MDC	22F-5500-P-00663	GRID 4 UNDERGROUND UTILITIES
MDC	22F-5500-P-00665	GRID 6 UNDERGROUND UTILITIES
MDC	22H-5500-P-00666	GRID 7 UNDERGROUND UTILITIES
MDC	22C-5500-P-00668	GRID 9 UNDERGROUND UTILITIES
MDC	22C-5500-P-00669	GRID 10 UNDERGROUND UTILITIES
MDC	22C-5500-P-00670	GRID 11 UNDERGROUND UTILITIES
MDC	22E-5500-P-00671	GRID 12 UNDERGROUND UTILITIES
MDC	22E-5500-P-00672	GRID 13 UNDERGROUND UTILITIES
MDC	22H-5500-P-00673	GRID 14 UNDERGROUND UTILITIES
MDC	22H-5500-P-00674	GRID 15 UNDERGROUND UTILITIES
MDC	22B-5500-P-00675	GRID 16 UNDERGROUND UTILITIES
MDC	22B-5500-P-00676	GRID 17 UNDERGROUND UTILITIES
MDC	22B-5500-P-00677	GRID 18 UNDERGROUND UTILITIES
MDC	22D-5500-P-00678	GRID 19 UNDERGROUND UTILITIES
MDC	22D-5500-P-00679	GRID 20 UNDERGROUND UTILITIES
MDC	22G-5500-P-00680	GRID 21 UNDERGROUND UTILITIES
ALL	00X-5500-G-01846	MASTER FEMP GPS BENCHMARK LOCATION PLAN

GENERAL NOTES

1. DESIGN BASED ON CURRENT REVISION OF UTILITY GRID DRAWINGS AT CFC ISSUE DATE. REFER TO CURRENT UTILITY GRID DRAWINGS AT TIME OF EXCAVATION.

483

PRELIMINARY
NOT FOR CONSTRUCTION

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	DATE	REV. BY	APPR.
D	RE-ISSUED FOR AGENCY REVIEW	3/31/03	KLR	
C	ISSUED FOR AGENCY REVIEW	9/30/02	KLR	
B	ISSUED FOR 90% DESIGN REVIEW	8/30/02	KLR	
A	ISSUED FOR 30% DESIGN REVIEW	8/7/02	KLR	

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY

FLUOR FERNALD, INC.

PROJECT NAME: SOIL REMEDIATION

DRAWING TITLE: DRAWING INDEX **000161**

APPROVALS

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

DRAWN BY	PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
KLR	20810	99X-5500-X-00641	X-1	D
RES PROJECT NO.	FILENAME: 99XX00641.DGN			

TECHNICAL REFERENCE DRAWING INDEX

AREA 3B

GRID NO.	DRAWING NO.	REV.	DRAWING TITLE	SHEET NO.
17	56X-1900-S-00050	0	STRUCTURE 56A FOUNDATION AND SLAB PLAN	S-001
18	30X-5500-S-00091	0	BUILDING 30A FOUNDATION AND SLAB PLAN	
24	67X-1900-S-00006	0	STRUCTURE 67 FOUNDATION AND SLAB PLAN	S-001
24	74B-1900-S-00077	0	STRUCTURE 74T FOUNDATION AND SLAB PLAN	S-001
27	01D-1900-S-01388	1	STRUCTURE 1B FOUNDATION AND SLAB PLAN	S-001
27	01X-1900-S-01389	1	STRUCTURE NORTH 2H AND 1A FOUNDATION AND SLAB PLAN	S-001
27	66X-1900-S-00005	0	STRUCTURE 66 FOUNDATION AND SLAB PLAN	S-001
27	71X-1900-S-00071	1	STRUCTURE 71 NORTH PORTION FOUNDATION AND SLAB PLAN	S-001
27	71X-1900-S-00072	1	STRUCTURE 71 SOUTH PORTION FOUNDATION AND SLAB PLAN	S-001
27	72X-1900-S-00018	0	STRUCTURE 72 FOUNDATION AND SLAB PLAN	S-001

AREA 4B

GRID NO.	DRAWING NO.	REV.	DRAWING TITLE	SHEET NO.
19	02X-1900-S-03451	0	STRUCTURE 2A WEST AND 2D FOUNDATION PLAN	S-001
19	02X-1900-S-03452	0	STRUCTURE 2A WEST AND 2D SLAB PLAN	S-002
19	02X-1900-S-03453	0	STRUCTURE 2A EAST, SOLVENT STORAGE AND TREATMENT AREAS FOUNDATION PLAN	S-001
19	02X-1900-S-03454	0	STRUCTURE 2A EAST, SOLVENT STORAGE AND TREATMENT AREAS SLAB PLAN	S-002
19	02B-3900-S-02884	1	PLANT 02 TBP AND KEROSENE STORAGE FOUNDATION LOCATION PLAN AND MISC SECTIONS AND DETAILS	
19	01C-1900-S-01390	1	STRUCTURE SOUTH 2H, 2E AND 1C FOUNDATION AND SLAB PLAN	S-001
19	02X-1900-S-03448	0	STRUCTURE 2H AND PIT FOUNDATION AND SLAB PLAN	S-001
19	03X-1900-S-01042	0	STRUCTURE 3A AND 2C FOUNDATION PLAN	S-001
19	03X-1900-S-01043	0	STRUCTURE 3A AND 2C SLAB PLAN	S-002
19	03X-1900-S-01041	0	STRUCTURE 3C AND 3B FOUNDATION AND SLAB PLAN	S-001
19	03X-1900-S-01048	0	STRUCTURE 3D FOUNDATION PLAN	S-001
19	03X-1900-S-01049	0	STRUCTURE 3D SLAB PLAN	S-002
19	02X-1900-S-03459	0	STRUCTURE 3E FOUNDATION PLAN	S-001
19	02X-1900-S-03460	0	STRUCTURE 3E SLAB PLAN	S-002
19	03A-1900-S-01044	0	STRUCTURE 3G AND 3F FOUNDATION PLAN	S-001
19	03A-1900-S-01045	0	STRUCTURE 3G AND 3F SLAB PLAN	S-002
19	18X-1900-S-01412	0	STRUCTURE 3H AND 2B FOUNDATION PLAN	S-001
19	18X-1900-S-01413	0	STRUCTURE 3H AND 2B SLAB PLAN	S-002
19	02E-1900-S-03457	0	STRUCTURE 3J FOUNDATION PLAN	S-001
19	02E-1900-S-03458	0	STRUCTURE 3J SLAB PLAN	S-002
19	03B-1900-S-01050	0	STRUCTURE 3L FOUNDATION PLAN	S-001
19	03B-1900-S-01051	0	STRUCTURE 3L SLAB PLAN	S-002
19	18X-1900-S-01414	0	STRUCTURE 18B FOUNDATION PLAN	S-001
19	18X-1900-S-01415	0	STRUCTURE 18B SLAB PLAN	S-002
19	18D-1900-S-01416	0	STRUCTURE 18D FOUNDATION PLAN	S-001
19	18D-1900-S-01417	0	STRUCTURE 18D SLAB PLAN	S-002
19	39X-1900-S-00073	0	STRUCTURE 39A FOUNDATION PLAN	S-001
19	39X-1900-S-00074	0	STRUCTURE 39A SLAB PLAN	S-002
19	02X-1900-S-03455	0	STRUCTURE 39B AND NITRIC ACID STORAGE AREA FOUNDATION PLAN	S-001
19	02X-1900-S-03456	0	STRUCTURE 39B AND NITRIC ACID STORAGE AREA SLAB PLAN	S-002
19	03X-1900-S-01046	0	STRUCTURE 39C AND 3K FOUNDATION PLAN	S-001
19	03X-1900-S-01047	0	STRUCTURE 39C AND 3K SLAB PLAN	S-002
19	02X-1900-S-03450	0	STRUCTURE 74B AND ELEVATOR PIT FOUNDATION AND SLAB PLAN	S-001
19	34X-5900-S-00151	0	K-65 TRENCH FOUNDATION AND SLAB PLAN	S0001
19	18X-1900-S-01408	0	OK LIQUOR STORAGE AREA AND CONTAINMENT AREA FOR TANKS 10,11,AND 13 FOUNDATION PLAN	S-001
19	18X-1900-S-01409	0	OK LIQUOR STORAGE AREA AND CONTAINMENT AREA FOR TANKS 10,11,AND 13 SLAB PLAN	S-002
19	18X-1900-S-01410	0	CONTAINMENT AREA FOR TANKS 8 AND 14 AND CONTAINMENT AREA FOR TANK 9 FOUNDATION PLAN	S-001
19	18X-1900-S-01411	0	CONTAINMENT AREA FOR TANKS 8 AND 14 AND CONTAINMENT AREA FOR TANK 9 SLAB PLAN	S-002
20	08X-5900-S-03729	0	BUILDING 8A FOUNDATION PLAN - WEST	S0001
20	08X-5900-S-03730	0	BUILDING 8A FOUNDATION PLAN - EAST	S0002
20	08X-5900-S-03743	0	BUILDING 8A FOOTING SCHEDULE	S0003
20	08X-5900-S-03731	0	BUILDING 8A SLAB PLAN - WEST	S0004
20	08X-5900-S-03732	0	BUILDING 8A SLAB PLAN - EAST	S0005
20	08H-5900-S-03733	0	BUILDING 8B FOUNDATION PLAN	S0001
20	08H-5900-S-03734	0	BUILDING 8B SLAB PLAN	S0002
20	08H-5900-S-03735	0	BUILDING 8C FOUNDATION PLAN	S0001
20	08H-5900-S-03736	0	BUILDING 8C SLAB PLAN	S0002
20	24B-5900-S-00202	0	BUILDING 8D FOUNDATION AND SLAB PLAN	S0001
20	08X-5900-S-03737	0	BUILDING 8G FOUNDATION PLAN - WEST	S0001
20	08X-5900-S-03738	0	BUILDING 8G FOUNDATION PLAN - EAST	S0002
20	08X-5900-S-03739	0	BUILDING 8G SLAB PLAN - WEST	S0003
20	08X-5900-S-03740	0	BUILDING 8G SLAB PLAN - EAST	S0004
20	08X-5900-S-03741	0	BUILDING 8H FOUNDATION PLAN	S0001
20	08X-5900-S-03742	0	BUILDING 8H SLAB PLAN	S0002
20	18D-5900-S-01418	0	BUILDING 18H FOUNDATION AND SLAB PLAN	S0001
20	74D-5900-S-00079	0	BUILDING 74C FOUNDATION PLAN	S0001
20	74D-5900-S-00080	0	BUILDING 74C SLAB PLAN	S0002
20	74D-5900-S-00081	0	BUILDING 74D FOUNDATION PLAN	S0001
20	74D-5900-S-00082	0	BUILDING 74D SLAB PLAN	S0002
20	80X-5900-S-00049	0	BUILDING 80 FOUNDATION PLAN	S0001
20	80X-5900-S-00050	0	BUILDING 80 SLAB PLAN	S0002
21	15X-5900-S-02542	1	BUILDING 15A FOUNDATION PLAN - NORTH	S0001
21	15X-5900-S-02543	1	BUILDING 15A FOUNDATION PLAN - SOUTH	S0002
21	15X-5900-S-02544	0	BUILDING 15A SLAB PLAN - NORTH	S0003
21	15X-5900-S-02545	0	BUILDING 15A SLAB PLAN - SOUTH	S0004
21	15X-5900-S-02546	1	BUILDING 15B FOUNDATION PLAN	S0001
21	15X-5900-S-02547	0	BUILDING 15B SLAB PLAN	S0002
25	22D-5900-S-00979	0	SCALE 22D FOUNDATION AND SLAB PLAN	S0001
25	26A-5900-S-00299	0	BUILDING 26A FOUNDATION PLAN	S0001
25	26A-5900-S-00300	0	BUILDING 26A SLAB PLAN	S0002
25	26B-5900-S-00301	1	ELEVATED WATER STORAGE TANK 26B FOUNDATION AND SLAB PLAN	S0001
25	45X-5900-S-00265	1	BUILDING 45A FOUNDATION PLAN	S0001
25	45X-5900-S-00266	0	BUILDING 45A SLAB PLAN	S0002
25	34X-5900-S-00150	0	K65 TRENCH FOUNDATION AND SLAB PLAN	S0001
26	54X-5900-S-00923	0	BUILDING 13A, 54A, & 74U FOUNDATION PLAN	S0001
26	54X-5900-S-00924	0	BUILDING 13A, 54A, & 74U SLAB PLAN	S0002
26	13X-5900-S-00781	0	BUILDING 13B FOUNDATION PLAN	S0001
26	13X-5900-S-00782	0	BUILDING 13B SLAB PLAN	S0002
26	13X-5900-S-00779	0	TANK AREA 13C & 13D FOUNDATION PLAN	S0001
26	13X-5900-S-00780	0	TANK AREA 13C & 13D SLAB PLAN	S0002
26	19X-3900-S-00320	3	PLANT 19 AMMONIA STORAGE AREA FOUNDATION LOCATION AND FINISH GRADING PLAN	
26	19X-3900-S-00321	1	PLANT 19 AMMONIA STORAGE AREA FOUNDATION LOCATION AND FINISH GRADING PLAN	
26	19X-3900-S-00322	2	PLANT 19 AMMONIA STORAGE AREA FOUNDATION LOCATION AND FINISH GRADING PLAN, AND DETAILS	
26	19X-3900-S-00323	1	PLANT 19 AMMONIA STORAGE AREA SUMP SECTIONS AND DETAILS	
26	37X-5900-S-01303	0	BUILDING 37 FOUNDATION PLAN	S0001
26	37X-5900-S-01304	0	BUILDING 37 SLAB PLAN	S0002
26	54D-5900-S-00925	0	BUILDING 54B FOUNDATION AND SLAB PLAN	S0001
26	54X-5900-S-00926	0	BUILDING 54C FOUNDATION AND SLAB PLAN	S0001
26	68X-5900-S-00091	0	BUILDING 68 FOUNDATION AND SLAB PLAN	S0001

TECHNICAL REFERENCE DRAWING INDEX

AREA 5

GRID NO.	DRAWING NO.	REV.	DRAWING TITLE	SHEET NO.
7	16H-5900-S-00114	0	BUILDING 16 FOUNDATION PLAN	S0001
7	16H-5900-S-00115	0	BUILDING 16 SLAB PLAN	S0002
7	25H-5900-S-00227	0	BUILDING 25C FOUNDATION PLAN	S0001
7	25H-5900-S-00228	0	BUILDING 25C SLAB PLAN	S0002
7	16X-5900-S-00117	0	BUILDING 26C FOUNDATION PLAN	S0001
7	16X-5900-S-00118	0	BUILDING 26C SLAB PLAN	S0002
7	31X-5900-S-00059	0	BUILDING 31A & 31B FOUNDATION PLAN	S0001
7	31X-5900-S-00060	0	BUILDING 31A & 31B SLAB PLAN	S0002
7	46X-5900-S-00068	0	BUILDING 46A, 46B, & 46C FOUNDATION PLAN	S0001
7	46X-5900-S-00069	0	BUILDING 46A, 46B, & 46C SLAB PLAN	S0002
14	11X-5900-S-00770	0	BUILDING 11 FOUNDATION PLAN - EAST	S0001
14	11X-5900-S-00771	0	BUILDING 11 FOUNDATION PLAN - WEST	S0002
14	11X-5900-S-00772	0	BUILDING 11 SLAB PLAN - EAST	S0001
14	11X-5900-S-00773	0	BUILDING 11 SLAB PLAN - WEST	S0002
14	14X-5900-S-00531	0	BUILDING 14A & 14B FOUNDATION PLAN	S0001
14	14X-5900-S-00532	0	BUILDING 14A & 14B SLAB PLAN	S0002
14	22G-5900-S-00980	0	BUILDING 22B FOUNDATION PLAN	S0001
14	22G-5900-S-00981	0	BUILDING 22B SLAB PLAN	S0002
14	22B-5900-S-00345	0	BUILDING 28A & B FOUNDATION PLAN	S0001
14	22B-5900-S-00346	0	BUILDING 28A & B SLAB PLAN	S0002
14	53B-5900-S-00431	0	BUILDING 53A FOUNDATION PLAN	S0001
14	53B-5900-S-00432	0	BUILDING 53A SLAB PLAN	S0002
14	53C-5900-S-00433	0	BUILDING 53B FOUNDATION PLAN	S0001
14	53C-5900-S-00434	0	BUILDING 53B SLAB PLAN	S0002

AREA MDC

GRID NO.	DRAWING NO.	REV.	DRAWING TITLE	SHEET NO.
11	12X-5900-S-00477	0	BUILDING 12A - WEST FOUNDATION PLAN	S0001
11	12X-5900-S-00479	0	BUILDING 12A - WEST SLAB PLAN	S0002
11	19X-5900-S-00696	0	TANK FARM 19A FOUNDATION PLAN	S0001
11	19X-5900-S-00697	0	TANK FARM 19A SLAB PLAN	S0002
11	19X-5900-S-00699	0	TANK FARM 19D FOUNDATION AND SLAB PLAN	S0001
11	19X-5900-S-00698	0	BUILDING 19C AND TANK FARM 19E FOUNDATION AND SLAB PLAN	S0001
11	20B-5900-S-00456	0	BUILDING 20A FOUNDATION AND SLAB PLAN	S0001

GENERAL NOTES

1. DESIGN BASED ON CURRENT TECHNICAL REFERENCE DRAWINGS AT CFC ISSUE DATE. REFER TO CURRENT TECHNICAL REFERENCE DRAWINGS AT TIME OF EXCAVATION.

4831

PRELIMINARY
NOT FOR CONSTRUCTION

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	DATE	REV. BY	APPR.
D	RE-ISSUED FOR AGENCY REVIEW	3/31/03	KLR	
C	ISSUED FOR AGENCY REVIEW	9/30/02	KLR	
B	ISSUED FOR 90% DESIGN REVIEW	8/30/02	KLR	
A	ISSUED FOR 30% DESIGN REVIEW	8/7/02	KLR	

DETAILS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
FLUOR FERNALD, INC.

PROJECT NAME
SOIL REMEDIATION

DRAWING TITLE
DRAWING INDEX 000162

APPROVALS

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

DRAWN BY	PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
KLR	20810	99X-5500-X-00642	X-2	D
RES PROJECT NO.	FILENAME 99XX00642.DGN			

SYMBOLS LEGEND

EXISTING		PROPOSED
●	MANHOLE	N/A
⊙	CATCH BASIN	○
— · — · —	ABOVE-GRADE WATERLINE	N/A
	ELECTRIC POLE	N/A
	LIGHT POLE	N/A
	ELECTRIC MANHOLE	N/A
	ELECTRIC MANHOLE WITH TELEPHONE MANHOLE	N/A
	GRAVEL ROADWAY	
	PAVED ROADWAY	N/A
	BUILDING SLAB/CONCRETE PAD/TRAILER	■
	CHAIN LINK FENCE	
	TRAFFIC GATE	
	CONSTRUCTION SAFETY FENCE	
	ROPE CONSTRUCTION FENCE	
N/A	SILT FENCE	
N/A	STRAW BALE	
N/A	LIMIT OF EXCAVATION OR WORK	
N/A	PROTECTED AREA	
BM OR P	BENCHMARK	N/A
	LIMIT OF ABOVE-WAC MATERIAL	N/A
	LIMIT OF HWMU MATERIAL	N/A
	LIMIT OF ABOVE-WAC AND HWMU MATERIAL	N/A
	PIPE PLUG	
	AIR GAP FOR STORM SEWER	
	UNDERGROUND UTILITIES	
N/A	HAUL ROAD	
N/A	WALKWAY	
584	CONTOUR - MINOR	584
585	CONTOUR - MAJOR	585
	CERTIFIED AREA BOUNDARY	
N/A	DEWATERING CHANNEL OR LINE	
	AREA ISOLATION TRENCH	SEE PLANS
	MODELED URANIUM CONTAMINATION EXTENDING OUTSIDE EXCAVATION AREAS	N/A

SYMBOLS LEGEND

EXISTING		PROPOSED
	POST INDICATOR VALVE	N/A
	OVERHEAD PIPE RACK PEDESTALS	N/A
	RAILROAD TIES	N/A
	RAILROAD	N/A
	HIGH LEACHABILITY AREA LIMIT	N/A
	MONITORING WELL	N/A
	HWMU BOUNDARY	N/A
● 1721	SOIL BORING	N/A

CONSTRUCTION DRAWING ABBREVIATIONS

AIP	ABANDONED IN PLACE
BR	BRINE LINE
BSL	BIODENITRIFICATION SURGE LAGOON
CB	CATCH BASIN
CE	CONTAMINATED EFFLUENT LINES
CI	CAST IRON
CFM	CUBIC FEET PER MINUTE
CMP	CORRUGATED METAL PIPE
COC	CONSTITUENTS OF CONCERN
CN	STEAM & CONDENSATE LINES
DF	DEIONIZED FEEDLINES
D.I.	DUCTILE IRON
DW	DOMESTIC/POTABLE WATER LINES
EC	EDGE OF CONCRETE
EMH	ELECTRICAL MANHOLE
EP	EDGE OF PAVEMENT
EPLTS	ENHANCED PERMANENT LEACHATE TRANSMISSION SYSTEM
EL	ELECTRICAL LINES
ELEV	ELEVATION
FEMP	FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
FG	FUEL GAS LINES
FRL	FINAL REMEDIATION LEVEL
FT	FILTRATE OR EFFLUENT LINES
FTF	FIRE TRAINING FACILITY
FQI	HIGH PRESSURE FIRE PROTECTION LINES
GMA	UNSATURATED SANDS AND GRAVELS OF THE GREAT MIAMI AQUIFER
GW	GROUND WATER LINES
HDPE	HIGH DENSITY POLYETHYLENE
HWMU	HAZARDOUS WASTE MANAGEMENT UNIT
IE	INVERT ELEVATION
LF	LINEAR FEET
LSP	LIME SLUDGE POND
MDC	MAIN DRAINAGE CORRIDORS
MDPE	MEDIUM DENSITY POLYETHYLENE
MH	MANHOLE
NAR	NITRIC ACID RECOVERY
NI	PIPE CLASSIFICATION
NES	NORTHEAST SUMP
OC	ON CENTER
OD	OUTSIDE DIAMETER
OMTA	OSDF MATERIAL TRANSFER AREA
OSDF	ON-SITE DISPOSAL FACILITY
PA	PLANT AIR LINES
PCE	TETRACHLOROETHENE
PIV	POST INDICATOR VALVE
PVC	POLYVINYL CHLORIDE
RAD	RADIUS
RCP	REINFORCED CONCRETE PIPE
RCRA	RESOURCE CONSERVATION AND RECOVERY ACT
RW	RAW WATER LINES
SA	INSTRUMENT AIR SUPPLY LINES
SD	SUBSURFACE DRAINS
SL	SUMP LIQUOR LINES
SMH	SANITARY MANHOLE
SMTA	SPECIAL MATERIAL TRANSFER AREA
SN	SANITARY SEWER LINES
SP	STOCKPILE / SOIL PILE
ST	STORM SEWER
SWL	SOLID WASTE LANDFILL
SWRB	STORMWATER RETENTION BASIN
TC-99	TECHNETIUM-99
TOP	TOP OF PIPE
TYP	TYPICAL
TW	TREATED WATER LINES
UST	UNDERGROUND STORAGE TANK
VCP	VITRIFIED CLAY PIPE
VOC	VOLATILE ORGANIC COMPOUND(S)
VT	PIPE CLASSIFICATION
WAC	WASTE ACCEPTANCE CRITERIA
WR	WATER RETURN-COOLING LINES
WS	WATER SUPPLY-COOLING LINES
WWF	WELDED WIRE FABRIC
Y	PIPE CLASSIFICATION

FOUNDATION DRAWING ABBREVIATIONS

APPROX	APPROXIMATELY
B/	BOTTOM OF
C.L	CAST IRON
	CENTERLINE
CONC.	CONCRETE
Δ	INTERSECTION ANGLE (DELTA)
DIA	DIAMETER
E	EASTING
E/W	EAST WEST
EL	ELEVATION
EXIST	EXISTING
FIN	FINISHED
FTG	FOOTING
H.P.	HIGH POINT
INV	INVERT
JT	JOINT
L	LENGTH
L.P.	LOW POINT
N	NORTHING
N/S	NORTH SOUTH
PED	PEDESTAL
PS	PIPE SUPPORT
R	RADIUS
R	RISER FOR STAIRS
S	SLOPE
S	CURVE DATA
SYM	SYMMETRICAL
T	TANGENT
T	TREAD FOR STAIRS
T/	TOP OF
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
WWF	WELDED WIRE FABRIC

GENERAL NOTES

1. EXISTING TOPOGRAPHY SHOWN ON DRAWINGS PROVIDED BY FLUOR FERNALD. THESE SOURCES INCLUDE EXISTING SITE DATA SOURCE (ON-PLANT FILES) FEMP CADD GRID/UTILITY DRAWINGS.
2. HORIZONTAL CONTROL SHOWN ON THE DRAWINGS IS BASED UPON NORTH AMERICAN DATUM 1983 (NAD 83).
3. VERTICAL CONTROL SHOWN ON THE DRAWINGS IS BASED UPON NATIONAL GEODETIC VERTICAL DATUM 1929 (NGVD 29).
4. SILT FENCES SHALL BE INSTALLED AND FUNCTIONAL PRIOR TO UPGRADIENT LAND DISTURBANCES IN ACCORDANCE WITH THE SPECIFICATION REQUIREMENTS.
5. DESIGN CONTOURS AND GRADES SHOWN REPRESENT THE MINIMUM-LIMITS OF EXCAVATION REQUIRED TO CAPTURE CONTAMINATION AND FOUNDATIONS WHILE MAINTAINING SAFE SLOPE REQUIREMENTS. FIELD CHANGES SHALL BE REPORTED TO CONSTRUCTION MANAGER AND APPROVED BY ENGINEER.
6. GEOLOGICAL AND CROSS SECTION INFORMATION TAKEN FROM (FEMP) OU-2 RI, 1995, OU-2 FS, 1995, GEOTECHNICAL REPORTS, AND FEMP 3D CADD MODEL. ACTUAL GEOLOGICAL CONDITIONS AND DEPTHS SHOWN ON CROSS SECTIONS MAY VARY AND SHALL BE DETERMINED IN THE FIELD DURING EXCAVATION.
7. LOCATION AND DEPTH OF EXISTING UTILITIES AND FOUNDATION STRUCTURES ARE APPROXIMATE. IF UNIDENTIFIED UTILITIES ARE DISCOVERED, PROCEED AS DIRECTED BY THE CONSTRUCTION MANAGER.
8. DIMENSIONS SHOWN ON THE CONSTRUCTION DRAWINGS TAKE PRECEDENCE OVER SCALED DIMENSIONS.
9. FIGURED DIMENSIONS AND/OR ELEVATIONS MARKED THUS (+/-) SHALL BE VERIFIED IN THE FIELD BEFORE START OF REMEDIATION.
10. MAINTAIN AND PROTECT UTILITIES OUTSIDE THE LIMIT OF EXCAVATION AND/OR LIMIT OF WORK.
11. PROVIDE TEMPORARY SHORING, BRACING, OR OTHER METHODS AS NECESSARY TO SAFELY SUPPORT EXCAVATION. PROTECTION SHALL BE IN ACCORDANCE WITH OSHA 29 CFR 1926, SUBPART P-EXCAVATIONS, LATEST EDITION.
12. OUTSIDE THE BOUNDARIES OF A COMPLETED UTILITY ISOLATION TRENCHED AREA, A PENETRATION PERMIT MUST BE OBTAINED BY THE CONSTRUCTION MANAGER FOR EXCAVATION OR PENETRATION INTO THE SOIL DEEPER THAN 6 INCHES.
13. TECHNICAL SPECIFICATIONS GOVERNING THIS PROJECT ARE THE LATEST REVISIONS OF 3B/4B/5 TECHNICAL SPECIFICATIONS (DOCUMENTS NO. 20000-TS-0001 AND 20810-TS-0001) AND ON-SITE DISPOSAL FACILITY (OSDF) PHASE IV TECHNICAL SPECIFICATIONS (DOCUMENT NO. 20104-TS-0001).
14. UNDERGROUND UTILITY GRIDS AND UTILITY DESIGNATION ABBREVIATIONS ARE IN ACCORDANCE WITH THE FEMP MASTER GRID OF UNDERGROUND UTILITY PLANS DRAWING 22X-5500-P-00659.

4831

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	DATE	REV. BY	APPR.
J	RE-ISSUED FOR AGENCY REVIEW	3/31/03	KLR	
H	ISSUED FOR AGENCY REVIEW	9/30/02	KLR	
G	ISSUED FOR 90% DESIGN REVIEW	8/30/02	KLR	
F	ISSUED FOR AGENCY REVIEW (SWL & FTF)	8/27/02	KLR	
E	ISSUED FOR 30% DESIGN REVIEW (4B AND MDC)	8/1/02	DRF	
D	ISSUED FOR DOE REVIEW (SWL & FTF)	7/15/02	ATG	
C	ISSUED FOR A2PII IRDP AGENCY REVIEW	6/24/02	GDD	
B	ISSUED FOR 90% DESIGN REVIEW (SWL & FTF)	6/7/02	ATG	
A	ISSUED FOR 90% DESIGN REVIEW	6/3/02	GDD	

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
FLUOR FERNALD, INC.

PROJECT NAME
SOIL REMEDIATION

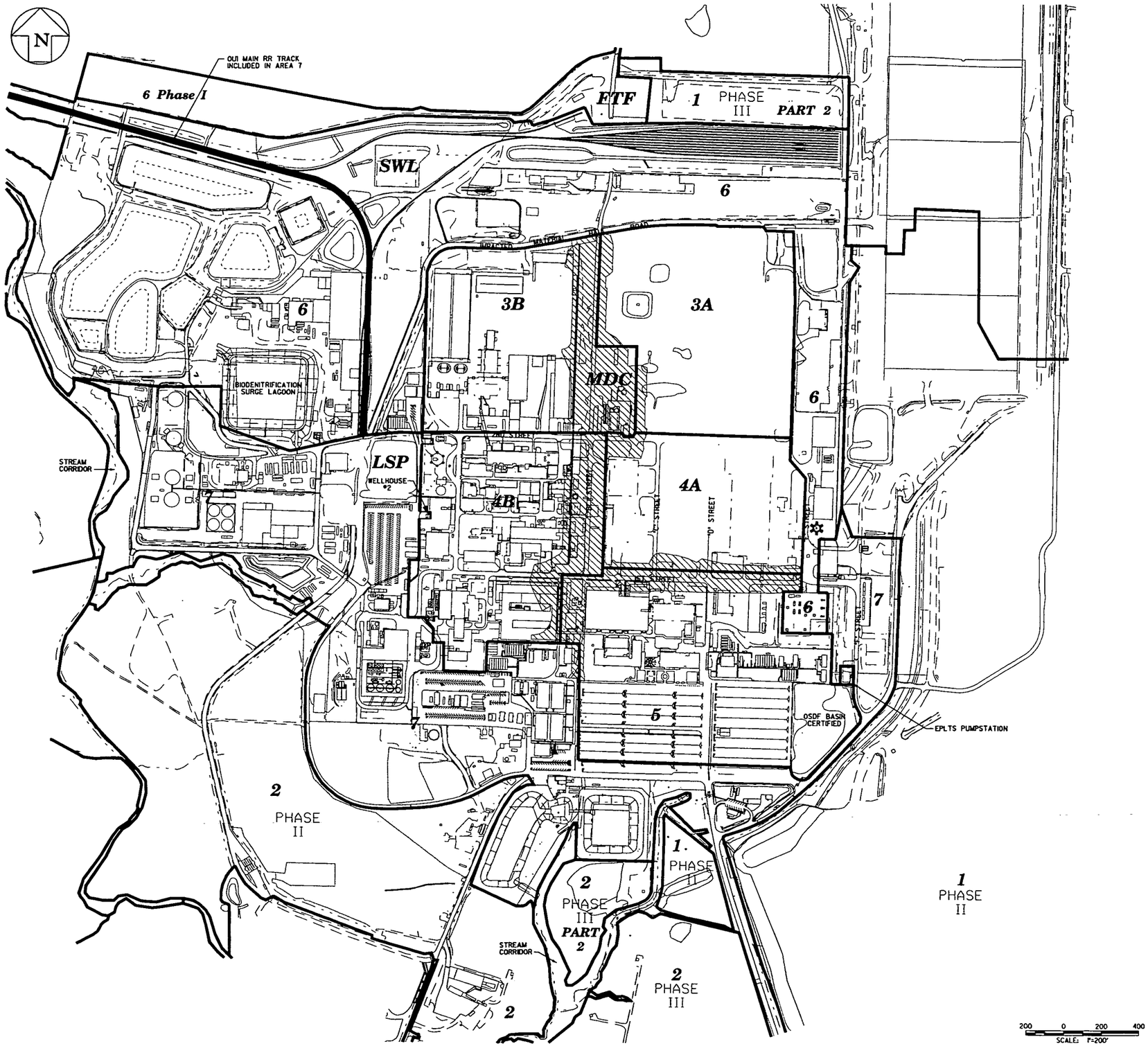
DRAWING TITLE
LEGEND AND GENERAL NOTES

000163

APPROVALS

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

DRAWN BY	PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
KLR	20810	99X-5500-X-00639	X-3	J
RES PROJECT NO.	FILENAME 99XX00639.DGN			



GENERAL NOTES

1. SEE DRAWING 99X-5500-X-00742 FOR LEGEND AND GENERAL NOTES.
2. FEATURES SHOWN OUTSIDE THE PROJECT AREA ARE FOR REFERENCE AND ORIENTATION ONLY.
3. MAINTAIN NEW AND EXISTING SURVEY MONUMENTS OUTSIDE THE LIMITS OF EXCAVATION FOR THE DURATION OF THE PROJECT.
4. OBTAIN NON-POTABLE WATER FROM WELLHOUSE #2.
5. REFER TO MASTER FEMP BENCHMARK LOCATION PLAN, DRAWING 00X-5500-G-01846 FOR EXISTING BENCHMARK LOCATIONS.

4831

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	DATE	REV. BY	APPR.
0A	ISSUED FOR AGENCY REVIEW	3/31/03	KLR	
0	CFC - ISSUED FOR CONSTRUCTION	10/1/02	DRF	GEP

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
FLUOR FERNALD, INC.

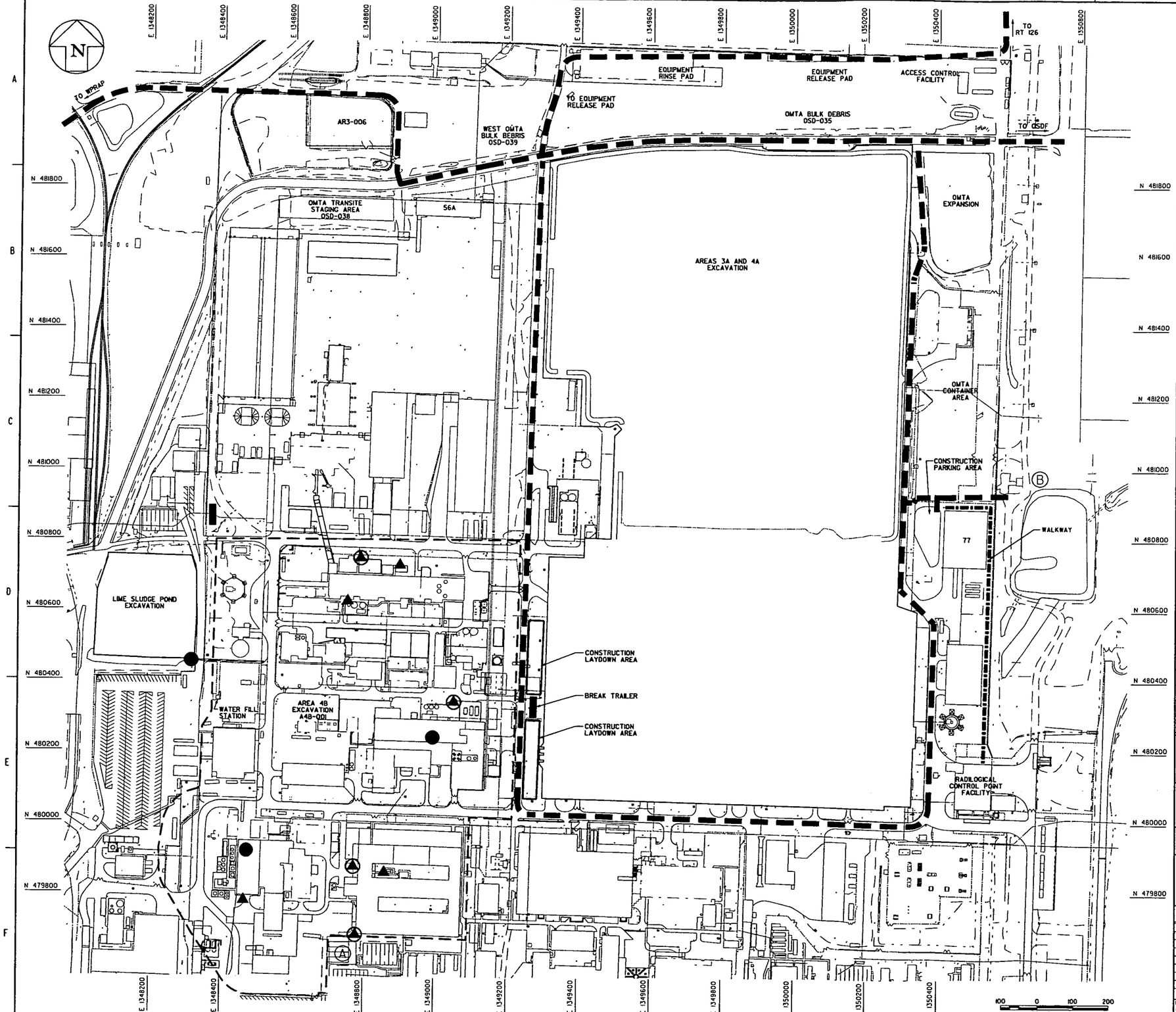
PROJECT NAME
SOIL REMEDIATION

DRAWING TITLE
MASTER PLAN 000164

APPROVALS

COGNIZANT ENG.	A.C. SNEED	0/5/02	SAFETY ENG.	J. MCDAUGH	0/5/02
CIVIL & STR.			MAINTENANCE		
ELECTRICAL			FIRE PROTECT.		
ENGINEER	B. RUSSELL	0/5/02	WASTE MANAGE		
INSTRUMENT			SECURITY		
MECHANICAL			QA	M. OSDIEK	0/5/02
			CONSTRUCTION	F. FLACK	0/5/02
CHECKED	C. KEISMAN	0/5/02			
APPROVED	G.E. PIES	0/5/02			

DRAWN BY	PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
DRF	20600	99X-5500-G-00640	G-1	0A
RES PROJECT NO.	FILENAME 99X00064G.DGN			



GENERAL NOTES

1. SEE DRAWING 99X-5500-X-00639 FOR LEGEND AND GENERAL NOTES.
2. TRAFFIC CONTROL SHALL BE IN ACCORDANCE WITH SPECIFICATION 02150.
3. FIELD LOCATED SUPPORT FACILITIES AND SMTA AS DIRECTED BY THE CONSTRUCTION MANAGER.
4. DO NOT STAGE LOADED HAUL TRUCKS WITHIN 15 FT. FROM THE TOP OF DEEP EXCAVATION SLOPES. DO NOT STAGE GENERAL CONSTRUCTION EQUIPMENT WITHIN 10 FT. FROM TOP OF DEEP EXCAVATION SLOPES.
5. MATERIAL TRACKING LOCATIONS (MTL'S) (I.E. A48-001) ARE SHOWN FOR REFERENCE ONLY FOR FIELD TRACKING OF MATERIALS.

4831

KEYED NOTES

(A) T-207 OPTIONAL RADIOLOGICAL CONTROL POINT FACILITY, UNTIL REMOVED BY OTHERS.

(B) USE SOUTH ACCESS TO OSDF AFTER CONSTRUCTION OF CELL 4 CAP BEGINS. SOUTH ACCESS TO BE DESIGNED AND CONSTRUCTED BY OSDF PROJECT.

LEGEND

▲ URANIUM ABOVE-WAC AREA

● TC-99 ABOVE-WAC AREA

URANIUM AREA & TC-99 ABOVE-WAC AREA

PRELIMINARY
NOT FOR CONSTRUCTION

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	DATE	REV. BY	APPR.
D	RE-ISSUED FOR AGENCY REVIEW	7/22/03	KLR	
C	ISSUED FOR AGENCY REVIEW	9/30/02	KLR	
B	ISSUED FOR 90% DESIGN REVIEW	8/30/02	KLR	
A	ISSUED FOR 30% DESIGN REVIEW	8/1/02	DRF	

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
FLUOR FERNALD, INC.

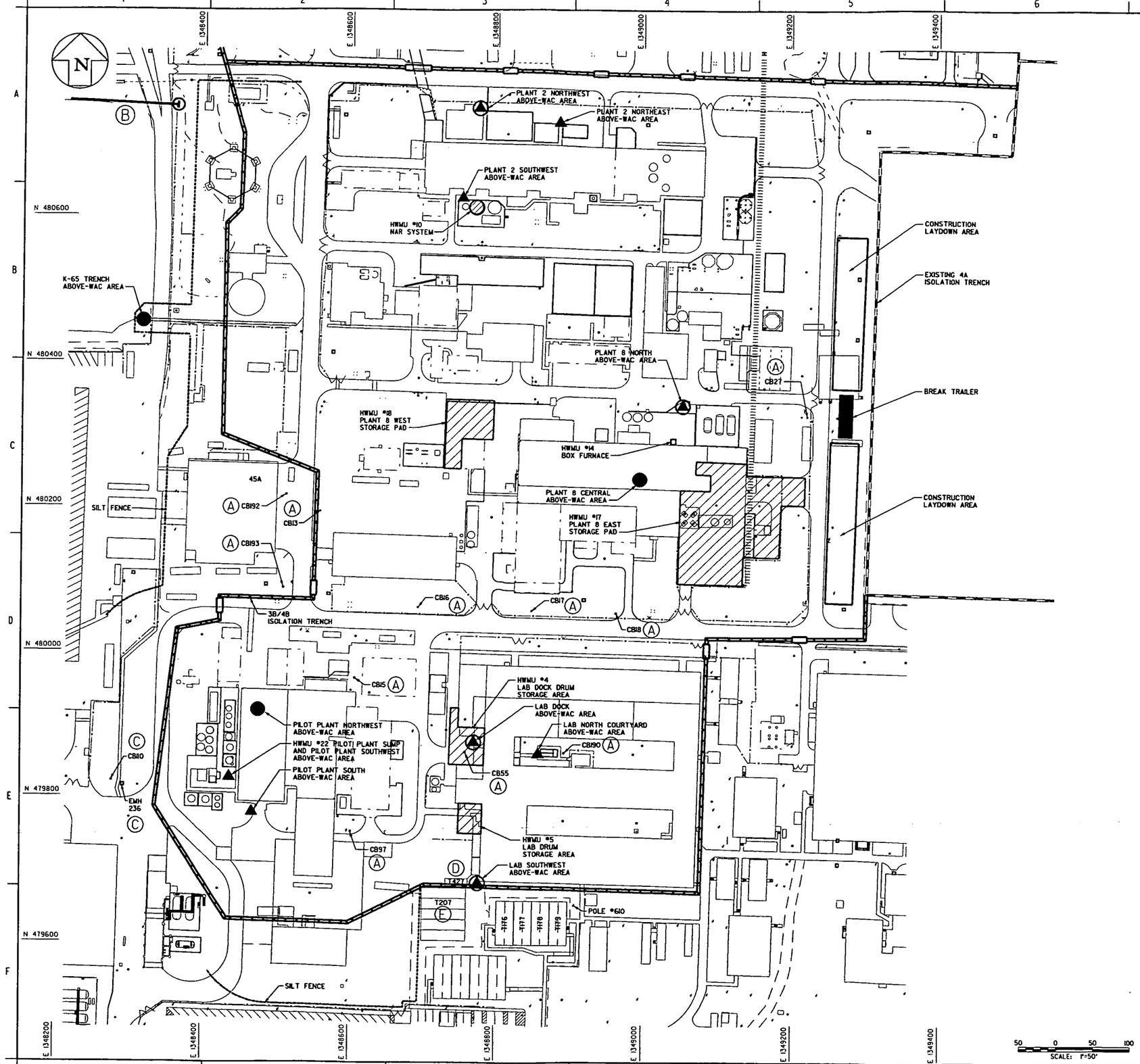
PROJECT NAME
SOIL REMEDIATION 000165

DRAWING TITLE
AREA 3B/4B
TRAFFIC FLOW AND MATERIAL TRACKING PLAN

APPROVALS

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

DRAWN BY	PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
DRF	2000	99X-5500-G-00645	G-2	D
RES PROJECT NO.	FILENAME 99XG00645.DGN			



GENERAL NOTES

1. SEE DRAWING 99X-5500-X-00639 FOR LEGEND AND GENERAL NOTES.
2. EXISTING FENCE WITHIN PROJECT AREA TO BE REMOVED AFTER PERIMETER FENCE IS INSTALLED. FENCE REMOVAL SEQUENCE SHALL BE DETERMINED IN THE FIELD.
3. FIELD LOCATE SUPPORT FACILITIES AS DIRECTED BY THE CM.
4. FIELD LOCATE THE SMTA IN ACCORDANCE WITH SPECIFICATION SECTION 02205 AND DRAWING 99X-5500-G-00738.
5. SEE DRAWING 99X-5500-G-00738 FOR SILT FENCE DETAIL.
6. SEE 3B/4B/5 EXCAVATION AND GRADING PLANS FOR LIMIT OF EXCAVATION SHOWN HERE FOR REFERENCE ONLY.
7. ABOVE-WAC AREAS ARE LABELED WITH THEIR PROJECT-SPECIFIC IDENTIFIERS. SEE DRAWING 99X-5500-G-00677 FOR AREA 4B ABOVE-WAC AREA COORDINATES AND EXCAVATION DETAILS.
8. HWMU'S ARE LABELED WITH THEIR APPROPRIATE SITE DESIGNATED TITLES AND NUMERIC IDENTIFIERS. SEE DRAWING 99X-5500-G-00678 FOR AREA 4B HWMU COORDINATES AND EXCAVATION DETAILS.

4831

KEYED NOTES

(A) PRIOR TO EXCAVATION, INSTALL INLET PROTECTION AT CATCH BASINS CB13, CB15, CB16, CB17, CB18, CB27, CB55, CB97, CB190, CB192, CB193 IN ACCORDANCE WITH DRAWING 99X-5500-G-00738.

(B) PRIOR TO EXCAVATION, INSTALL 4B1 TRANSFER LINE FROM BSL TO 4B1 TRANSFER LINE FLANGE TIE-IN (REFER TO DRAWING 99X-5500-G-00680).

(C) PRIOR TO EXCAVATION NEAR ELECTRICAL MANHOLE 236, INSTALL INLET PROTECTION AT CATCH BASIN CB110 IN ACCORDANCE WITH DRAWING 99X-5500-G-00738.

(D) TRAILER T427 TO BE REMOVED BY OTHERS PRIOR TO CUTTING UTILITY ISOLATION TRENCH SOUTH OF THE LABORATORY.

(E) PRIOR TO EXCAVATION SOUTH OF THE LABORATORY, TRAILERS T176, T177, T178, T179, AND T207, AND UTILITY POLE #610 TO BE REMOVED BY OTHERS.

LEGEND

- ▲ URANIUM ABOVE-WAC AREA
- ● TC-99 ABOVE-WAC AREA
- URANIUM AREA & TC-99 ABOVE-WAC AREA

PRELIMINARY
NOT FOR CONSTRUCTION

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	DATE	REV. BY	APPR.
D	RE-ISSUED FOR AGENCY REVIEW	3/31/03	KLR	
C	ISSUED FOR AGENCY REVIEW	9/30/02	KLR	
B	ISSUED FOR 90% DESIGN REVIEW	8/30/02	DRF	
A	ISSUED FOR 30% DESIGN REVIEW	8/7/02	DRF	

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
FLUOR FERNALD, INC.

PROJECT NAME
SOIL REMEDIATION

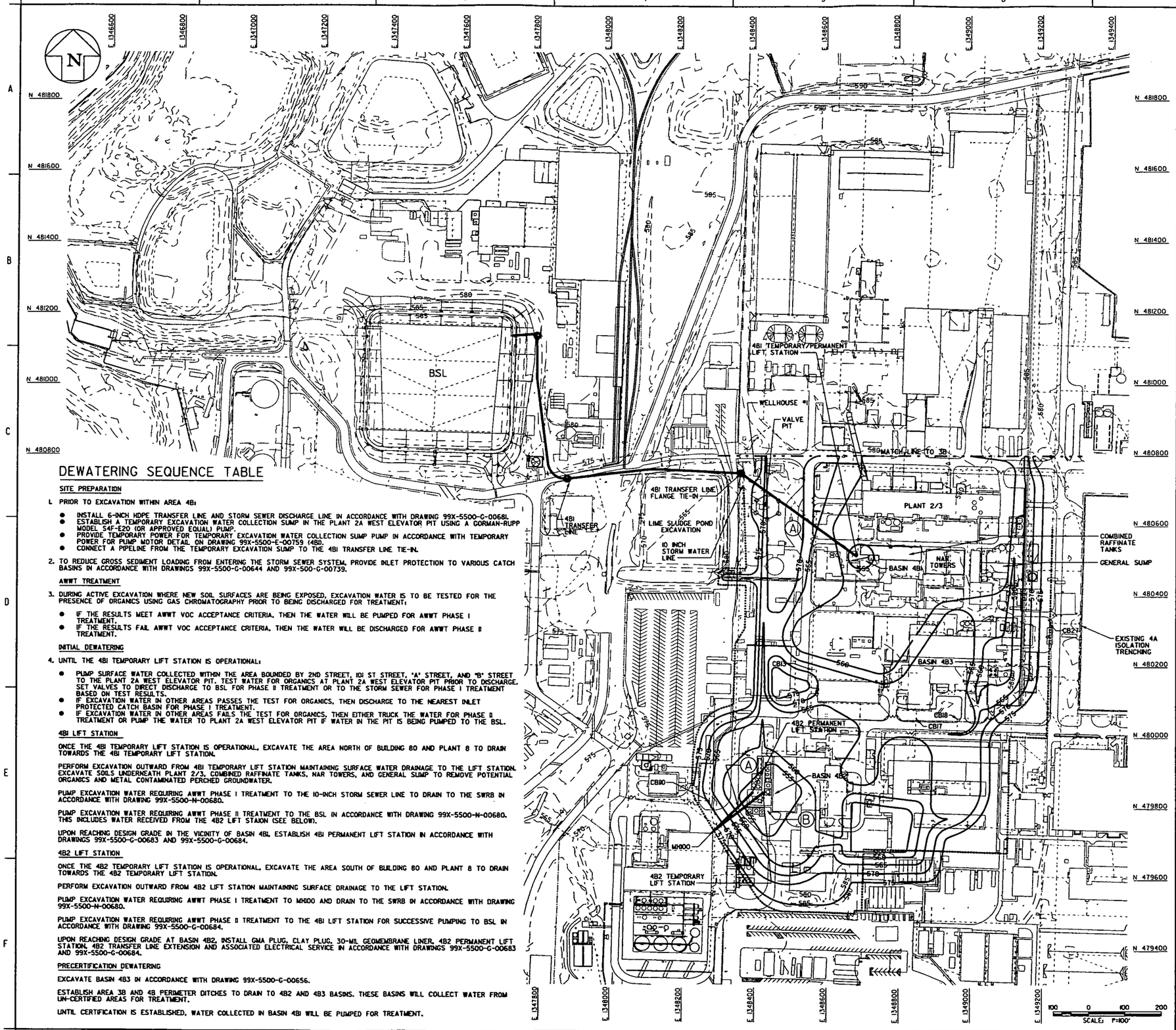
DRAWING TITLE
AREA 4B LAYOUT PLAN

000166

APPROVALS

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

DRAWN BY	PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
DRF	2080	99X-5500-G-00644	G-3	D
RES PROJECT NO.	FILENAME 99XG00644.DGN			



DEWATERING SEQUENCE TABLE

SITE PREPARATION

1. PRIOR TO EXCAVATION WITHIN AREA 4B1:
   - INSTALL 6-INCH HDPE TRANSFER LINE AND STORM SEWER DISCHARGE LINE IN ACCORDANCE WITH DRAWING 99X-5500-G-00681.
   - ESTABLISH A TEMPORARY EXCAVATION WATER COLLECTION SUMP IN THE PLANT 2A WEST ELEVATOR PIT USING A GORMAN-RUPP MODEL S4F-E20 (OR APPROVED EQUAL) PUMP.
   - PROVIDE TEMPORARY POWER FOR TEMPORARY EXCAVATION WATER COLLECTION SUMP PUMP IN ACCORDANCE WITH TEMPORARY POWER FOR PUMP MOTOR DETAIL ON DRAWING 99X-5500-E-00759 (4B).
   - CONNECT A PIPELINE FROM THE TEMPORARY EXCAVATION SUMP TO THE 4B1 TRANSFER LINE TIE-IN.
2. TO REDUCE GROSS SEDIMENT LOADING FROM ENTERING THE STORM SEWER SYSTEM, PROVIDE INLET PROTECTION TO VARIOUS CATCH BASINS IN ACCORDANCE WITH DRAWINGS 99X-5500-G-00644 AND 99X-500-G-00739.

AWWT TREATMENT

3. DURING ACTIVE EXCAVATION WHERE NEW SOIL SURFACES ARE BEING EXPOSED, EXCAVATION WATER IS TO BE TESTED FOR THE PRESENCE OF ORGANICS USING GAS CHROMATOGRAPHY PRIOR TO BEING DISCHARGED FOR TREATMENT:
   - IF THE RESULTS MEET AWWT VOC ACCEPTANCE CRITERIA, THEN THE WATER WILL BE PUMPED FOR AWWT PHASE I TREATMENT.
   - IF THE RESULTS FAIL AWWT VOC ACCEPTANCE CRITERIA, THEN THE WATER WILL BE DISCHARGED FOR AWWT PHASE II TREATMENT.

INITIAL DEWATERING

4. UNTIL THE 4B1 TEMPORARY LIFT STATION IS OPERATIONAL:
   - PUMP SURFACE WATER COLLECTED WITHIN THE AREA BOUNDED BY 2ND STREET, 101 ST STREET, "A" STREET, AND "B" STREET TO THE PLANT 2A WEST ELEVATOR PIT. TEST WATER FOR ORGANICS AT PLANT 2A WEST ELEVATOR PIT PRIOR TO DISCHARGE. SET VALVES TO DIRECT DISCHARGE TO BSL FOR PHASE II TREATMENT OR TO THE STORM SEWER FOR PHASE I TREATMENT BASED ON TEST RESULTS.
   - IF EXCAVATION WATER IN OTHER AREAS PASSES THE TEST FOR ORGANICS, THEN DISCHARGE TO THE NEAREST INLET PROTECTED CATCH BASIN FOR PHASE I TREATMENT.
   - IF EXCAVATION WATER IN OTHER AREAS FAILS THE TEST FOR ORGANICS, THEN EITHER TRUCK THE WATER FOR PHASE II TREATMENT OR PUMP THE WATER TO PLANT 2A WEST ELEVATOR PIT IF WATER IN THE PIT IS BEING PUMPED TO THE BSL.

4B1 LIFT STATION

ONCE THE 4B1 TEMPORARY LIFT STATION IS OPERATIONAL, EXCAVATE THE AREA NORTH OF BUILDING 80 AND PLANT 8 TO DRAIN TOWARDS THE 4B1 TEMPORARY LIFT STATION.

PERFORM EXCAVATION OUTWARD FROM 4B1 TEMPORARY LIFT STATION MAINTAINING SURFACE WATER DRAINAGE TO THE LIFT STATION. EXCAVATE SOILS UNDERNEATH PLANT 2/3, COMBINED RAFFINATE TANKS, NAR TOWERS, AND GENERAL SUMP TO REMOVE POTENTIAL ORGANICS AND METAL CONTAMINATED PERCHED GROUNDWATER.

PUMP EXCAVATION WATER REQUIRING AWWT PHASE I TREATMENT TO THE 10-INCH STORM SEWER LINE TO DRAIN TO THE SWRB IN ACCORDANCE WITH DRAWING 99X-5500-N-00680.

PUMP EXCAVATION WATER REQUIRING AWWT PHASE II TREATMENT TO THE BSL IN ACCORDANCE WITH DRAWING 99X-5500-N-00680. THIS INCLUDES WATER RECEIVED FROM THE 4B2 LIFT STAION (SEE BELOW).

UPON REACHING DESIGN GRADE IN THE VICINITY OF BASIN 4B1, ESTABLISH 4B1 PERMANENT LIFT STATION IN ACCORDANCE WITH DRAWINGS 99X-5500-G-00683 AND 99X-5500-G-00684.

4B2 LIFT STATION

ONCE THE 4B2 TEMPORARY LIFT STATION IS OPERATIONAL, EXCAVATE THE AREA SOUTH OF BUILDING 80 AND PLANT 8 TO DRAIN TOWARDS THE 4B2 TEMPORARY LIFT STATION.

PERFORM EXCAVATION OUTWARD FROM 4B2 LIFT STATION MAINTAINING SURFACE DRAINAGE TO THE LIFT STATION.

PUMP EXCAVATION WATER REQUIRING AWWT PHASE I TREATMENT TO MH900 AND DRAIN TO THE SWRB IN ACCORDANCE WITH DRAWING 99X-5500-N-00680.

PUMP EXCAVATION WATER REQUIRING AWWT PHASE II TREATMENT TO THE 4B1 LIFT STATION FOR SUCCESSIVE PUMPING TO BSL IN ACCORDANCE WITH DRAWING 99X-5500-G-00684.

UPON REACHING DESIGN GRADE AT BASIN 4B2, INSTALL GMA PLUG, CLAY PLUG, 30-MIL GEOMEMBRANE LINER, 4B2 PERMANENT LIFT STATION, 4B2 TRANSFER LINE EXTENSION AND ASSOCIATED ELECTRICAL SERVICE IN ACCORDANCE WITH DRAWINGS 99X-5500-G-00683 AND 99X-5500-G-00684.

PRECERTIFICATION DEWATERING

EXCAVATE BASIN 4B3 IN ACCORDANCE WITH DRAWING 99X-5500-G-00656.

ESTABLISH AREA 3B AND 4B PERIMETER DITCHES TO DRAIN TO 4B2 AND 4B3 BASINS. THESE BASINS WILL COLLECT WATER FROM UN-CERTIFIED AREAS FOR TREATMENT.

UNTIL CERTIFICATION IS ESTABLISHED, WATER COLLECTED IN BASIN 4B1 WILL BE PUMPED FOR TREATMENT.

GENERAL NOTES

1. SEE DRAWING 99X-5500-X-00639 FOR LEGEND AND GENERAL NOTES.
2. INSTALL TRANSFER LINES AND LIFT STATIONS IN ACCORDANCE WITH SPECIFICATION SECTIONS 02668 AND 15060 AND THE DETAILS PRESENTED ON DRAWING 99X-5500-G-00683.
3. SEE DRAWINGS 99X-5500-G-00681 AND 00682 FOR BASIN 4B1 TRANSFER LINE PLAN AND PROFILE AND BASIN 4B2 GMA/CLAY PLUG PLAN AND PROFILE, RESPECTIVELY.

4831

KEYED NOTES

(A) FIELD ROUTE TRANSFER LINE EXTENSION FROM FLANGE TIE-IN TO LIFT STATION. MINIMUM COVER 2 FOOT-6 INCH. MAKE CONNECTION AT TRANSFER LINE TIE-IN AFTER LIFT STATION IS OPERATIONAL.

(B) WATER COLLECTED FROM SUSPECT RCRA AREA WILL REQUIRE AWWT PHASE II TREATMENT IF ANY RCRA VOLITILE ORGANIC COMPOUND IS GREATER THAN 50 ug/L.

PRELIMINARY
NOT FOR CONSTRUCTION

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	DATE	REV. BY	APPR.
D	RE-ISSUED FOR AGENCY REVIEW	3/31/03	KLR	
C	ISSUED FOR AGENCY REVIEW	9/30/02	KLR	
B	ISSUED FOR 90% DESIGN REVIEW	8/30/02	KLR	
A	ISSUED FOR 30% DESIGN REVIEW	8/7/02	DRF	

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
FLUOR FERNALD, INC.

PROJECT NAME
SOIL REMEDIATION

DRAWING TITLE
AREA 4B DEWATERING PLAN

000167

APPROVALS

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

DRAWN BY	PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
DRF	7080	99X-5500-G-00646	G-4	D
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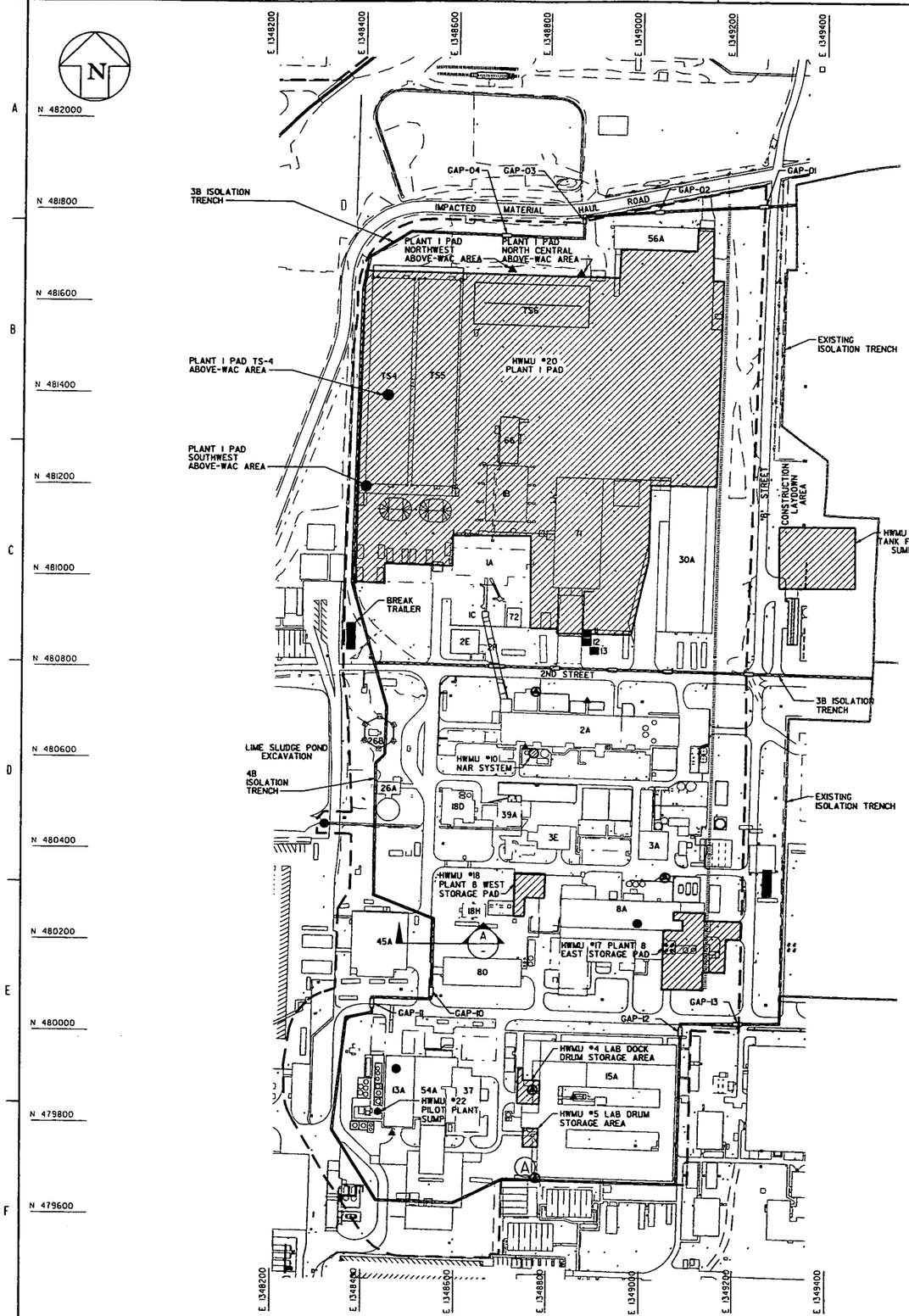


ISOLATION SEQUENCING TABLE

THE FOLLOWING SEQUENCE DOES NOT SUPERCEDE REQUIREMENTS SPECIFIED IN THE TECHNICAL SPECIFICATION OR CONSTRUCTION DRAWINGS, RATHER IT IS INTENDED TO PRESENT GENERAL GUIDANCE FOR SEQUENCING 3B/4B AREA ISOLATION.

1. SURVEY ISOLATION TRENCH CENTERLINE AT MINIMUM 50-FOOT INTERVALS, INCLUDING INTERSECTION, BREAK LINES, GAPS, AND UTILITY CUT COORDINATES. SURVEY AND MARK UTILITY CUTS ALONG THE TRENCH CENTERLINE WITH THE CORRESPONDING UTILITY DESIGNATOR (EX. ST-10"-NI) AND UTILITY CUT I.D. (EX 4B-NW-01) FOR REFERENCE TO POTENTIAL HAZARDS LISTED ON DESIGN DRAWINGS.
2. VERIFY COMPLETION OF UTILITY ISOLATIONS PERFORMED BY OTHERS IN PREPARATION FOR ISOLATION TRENCHING AND STORM SEWER ISOLATIONS.
3. COMPLETE ABOVE-WAC AREA EXCAVATIONS IN THE PATH OF THE ISOLATION TRENCH.
4. INSTALL AIR-GAPS AND/OR PLUGS BEYOND THE LIMIT OF EXCAVATION (EXTERIOR ISOLATIONS) TO PROTECT THE STORM SEWER SYSTEM TO REMAIN IN SERVICE OUTSIDE THE EXCAVATION AS SHOWN ON INDIVIDUAL ISOLATION PLAN DRAWINGS. THE FOLLOWING IS A SUMMARY OF EXTERIOR STORM SEWER ISOLATIONS LISTED AS THEY ARE ENCOUNTERED MOVING COUNTERCLOCKWISE AROUND 3B/4B ISOLATION TRENCH STARTING FROM THE NORTHEAST CORNER.
5. PERFORM STORM SEWER REROUTES AS SHOWN ON INDIVIDUAL ISOLATION PLAN DRAWINGS.

EXTERIOR STORM SEWER ISOLATIONS				
ID	UTILITY	QUADRANT	GRID	DESCRIPTION
ISO-EX-01	ST-12"-PVC	4B NORTHWEST	25	MECHANICAL PLUG IN EAST LEG OF CB 232
ISO-EX-02	ST-10"-NI	4B SOUTHWEST	26	MECHANICAL PLUG AT INTERSECTION OF ISOLATION TRENCH AND STORM SEWER
ISO-EX-03	CE-138-2"	4B SOUTHWEST	26	GROUT PLUG AT INTERSECTION OF ISOLATION TRENCH AND CONTAMINATED EFFLUENT LINE
ISO-EX-04	ST-6" Drain Tile	4B SOUTHWEST	26	GROUT PLUG AT INTERSECTION OF ISOLATION TRENCH AND DRAIN TILE

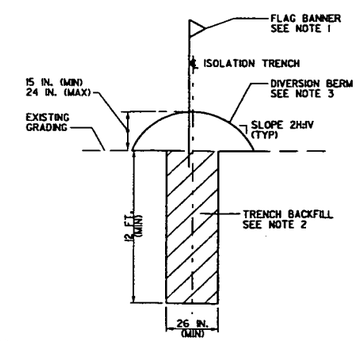
6. INSTALL AIR-GAPS AND/OR PLUGS INSIDE THE LIMIT OF EXCAVATION (INTERIOR ISOLATIONS) TO PROTECT THE STORM SEWER SYSTEM TO REMAIN IN SERVICE INSIDE THE LIMIT OF EXCAVATIONS AGAINST INFILTRATION OF SEDIMENT FROM THE ISOLATION TRENCH. THE FOLLOWING IS THE ONLY PLANNED INTERIOR STORM SEWER ISOLATION.

INTERIOR STORM SEWER ISOLATIONS				
ID	UTILITY	QUADRANT	GRID	DESCRIPTION
ISO-IN-01	ST-10"-NI	3B NORTH	I7	MECHANICAL PLUG IN NORTH LEG OF CB 180

7. SURVEY LOCATIONS OF PLUGS INSTALLED OUTSIDE OF MANHOLES OR CATCH BASINS FOR PREPARATION OF AS-BUILT DRAWINGS.
8. PERFORM AREA ISOLATION TRENCHING IN ACCORDANCE WITH SPECIFICATION SECTION 02207 AS SHOWN ON 3B/4B ISOLATION PLAN DRAWINGS. LEAVE THE FOLLOWING 20-FEET WIDE GAPS IN 3B/4B ISOLATION TRENCH TO PROTECT DESIRED STORM SEWER LINES.

EXTERIOR STORM SEWER ISOLATIONS				
GAP	UTILITY	QUADRANT	GRID	DESCRIPTION
GAP-01	ST-6C-10"-NI	3B NORTH	I7	GAP TO PROTECT NORTHERN LIMIT OF MAIN STORM SEWER LINE
GAP-02	ST-10" PVC	3B NORTH	I7	GAP TO PROTECT STORM SEWER LINE FROM NORTH OF HAUL ROAD
GAP-03	ST-8-12"-NI	3B NORTH	I7	GAP TO PROTECT STORM SEWER FROM NORTH OF HAUL ROAD
GAP-04	ST-9-10"-NI	3B NORTH	I7	GAP TO PROTECT STORM SEWER FROM NORTH OF HAUL ROAD
GAP-05	CONVEYOR TUNNEL	4B NW	27	GAP TO PROTECT TRENCHER FROM CROSSING TUNNEL
GAP-06	ST-10"-NI	3B SW	27	GAP TO PROTECT STORM SEWER DRAINING 3B
GAP-07	ST-10-30"-NI	3B SW	27	GAP TO PROTECT STORM SEWER THAT DRAINS PLANT 1 PAD
GAP-08	ST-6"-NI	3B SW	I8	GAP TO PROTECT STORM SEWER THAT DRAINS BLDG 30A
GAP-09	48" STORM MAIN	3B SW	I8	GAP TO PROTECT STORM MAIN THAT DRAINS NORTHERN FPA
GAP-10	ST-8"-NI	4B CW	20	GAP TO PROTECT STORM SEWER LINE FROM BLDG 45
GAP-11	GW-10" HDPE	4B CW	25	GAP TO PROTECT GROUND WATER LINE TO EXTRACTION WELL 28
GAP-12	ST-13-24"-NI	4B SE	20	GAP TO PROTECT STORM SEWER FROM 45, 80, PLANT 8 AND LAB
GAP-13	ST-16-54"-NI	4B SE	I4	GAP TO PROTECT MAIN STORM SEWER LINE AT IST STREET

9. SURVEY AS-BUILT TRENCH CENTERLINE AT INTERSECTIONS AND MINIMUM 50-FEET INTERVALS.
10. INSTALL FLAG BANNERS AT APPROXIMATE 100-FEET INTERVALS AND AT TRENCH INTERSECTIONS TO INDICATE LIMIT OF ISOLATION TRENCH.



NOTES:

1. INSTALL FLAG BANNER APPROXIMATELY EVERY 100 L.F. AND AT TRENCH INTERSECTIONS TO INDICATE LIMIT OF ISOLATION TRENCH.
2. PLACE AND COMPACT TRENCH BACKFILL IN ACCORDANCE WITH SPECIFICATION SECTION 02207.
3. PLACE AND COMPACT DIVERSION BERM IN ACCORDANCE WITH SPECIFICATION SECTION 02207.

TYPICAL ISOLATION TRENCH/ DIVERSION BERM DETAIL

NTS

A
99X-5500-G-00647
648
649
650
651
652

100 0 100 200
SCALE: 1"=100'

GENERAL NOTES

1. SEE DRAWING 99X-5500-X-00639 FOR LEGEND AND GENERAL NOTES.
2. SEE DRAWING 99X-5500-G-00677 FOR COORDINATES OF ABOVE-WAC AREAS.
3. SEE 4B EXCAVATION/DRAINAGE PLANS FOR LIMIT OF EXCAVATION SHOWN HERE FOR REFERENCE ONLY.
4. VERIFY COMPLETION OF D & D ACTIVITIES AND ISOLATION OF UTILITIES ENTERING AN AREA TO BE TRENCHED PRIOR TO TRENCHING.
5. PERFORM ISOLATION TRENCHING IN SUPPORT OF EXCAVATION SEQUENCING DETAILED ON DRAWING 99X-5500-G-00635.
6. PERFORM ISOLATION TRENCHING IN ACCORDANCE WITH DRAWINGS 99X-5500-G-00647, 648, 649, 650, 651, AND 652 AND SPECIFICATION SECTION 02207.
7. SEE DRAWINGS 99X-5500-G-00647, 648, 649, 650, 651, AND 652 FOR CONTROL POINTS OF UTILITY ISOLATION TRENCH SHOWN HERE FOR REFERENCE ONLY.

4831

KEYED NOTES

(A) EXCAVATE THE LAB SOUTHWEST ABOVE-WAC AREA IN ACCORDANCE WITH DRAWING 99X-5500-G-00677 AND SPECIFICATION SECTION 02205 BEFORE PERFORMING PHASE II UTILITY ISOLATION TRENCHING IN THAT AREA.

LEGEND

- URANIUM ABOVE-WAC AREA
- TC-99 ABOVE-WAC AREA
- URANIUM AREA & TC-99 ABOVE-WAC AREA
- PROPOSED ISOLATION TRENCH
- EXISTING ISOLATION TRENCH
- ISOLATION TRENCH GAP

PRELIMINARY
NOT FOR CONSTRUCTION

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	DATE	REV. BY	APPR.
C	RE-ISSUED FOR AGENCY REVIEW	3/3/03	KLR	
B	ISSUED FOR AGENCY REVIEW	9/30/02	KLR	
A	ISSUED FOR 90% DESIGN REVIEW	8/30/02	KLR	

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
FLUOR FERNALD, INC.

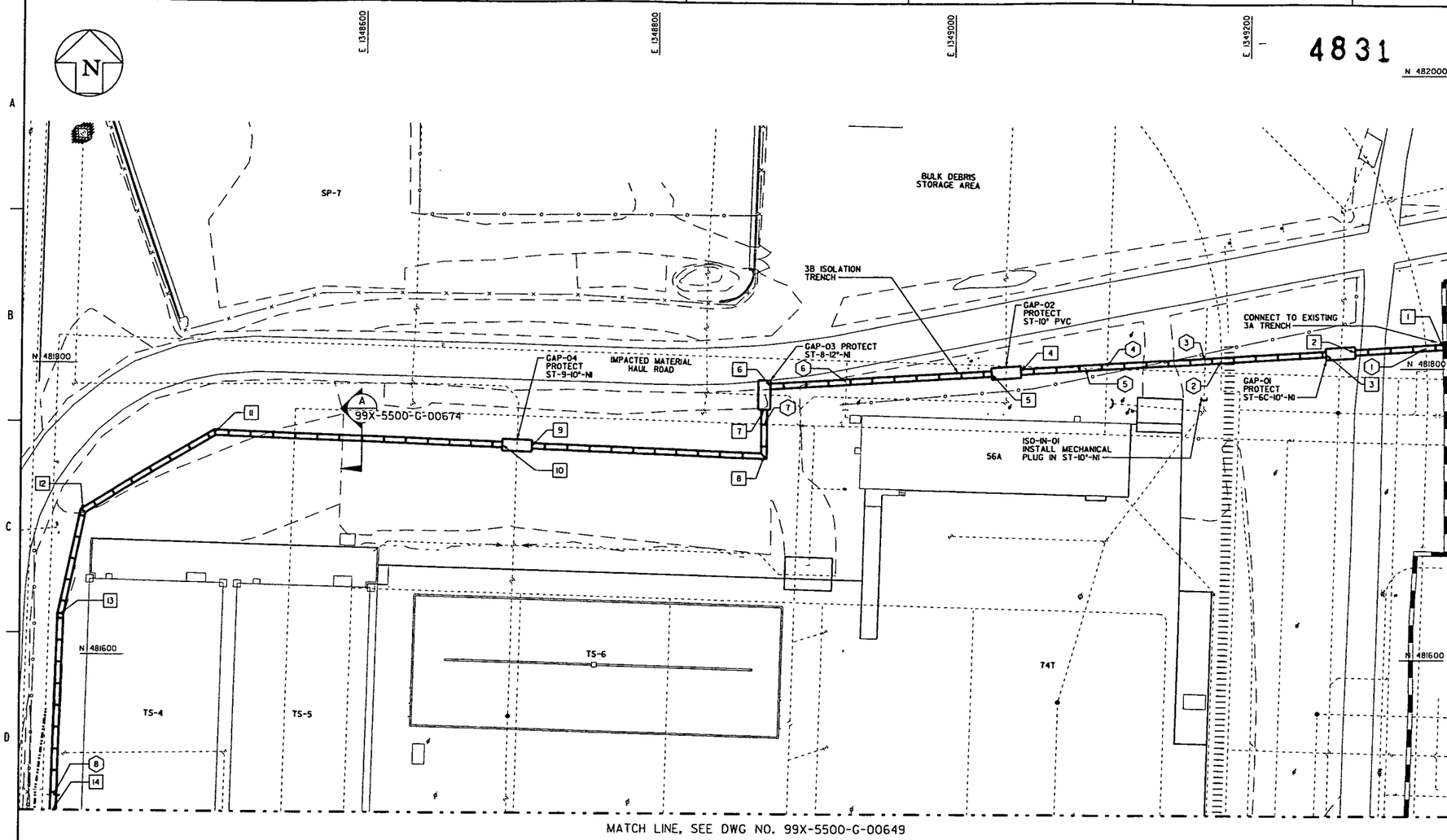
PROJECT NAME
SOIL REMEDIATION 000168

DRAWING TITLE
AREA 3B/4B
UTILITY ISOLATION OVERVIEW PLAN

APPROVALS

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

DRAWN BY	PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
KLR	20310	99X-5500-G-00674	G-5	C
RES PROJECT NO.	FILENAME 99XG00674.DGN			



GENERAL NOTES

1. SEE DRAWING 99X-5500-X-00639 FOR LEGEND AND GENERAL NOTES.
2. UNDERGROUND UTILITIES SHOWN REPRESENT FLUOR FERNALD MASTER REFERENCE FILES FOR UNDERGROUND UTILITY DRAWINGS 22D-5500-P-00678 (GRID 19), 22B-5500-P-00683 (GRID 24), 22D-5500-P-00684 (GRID 25), AND 22B-5500-P-00686 (GRID 27). THIS DRAWING DOES NOT ATTEMPT TO SHOW UNDERGROUND UTILITIES WITHIN BUILDING FOOTPRINTS.
3. PERFORM ISOLATION TRENCHING SHOWN IN ACCORDANCE WITH SPECIFICATION SECTION 02207.
4. VERIFY LOCATIONS AND PROTECT EXISTING ENERGIZED UNDERGROUND UTILITIES.
5. UTILITY CUT TABLE SUMMARIZES UTILITY CUTS TO BE MADE DURING ISOLATION TRENCHING, MOVING CLOCKWISE AROUND THE TRENCH CENTERLINE.
6. GRID NUMBERS AND UTILITY DESIGNATORS ARE BASED ON FLUOR FERNALD UNDERGROUND UTILITY GRID DRAWINGS.
7. POTENTIAL HAZARDS ARE ASSESSED FOR MONITORING PURPOSES BASED ON INFORMATION GATHERED FROM CATALYTIC CONSTRUCTION DRAWINGS AND ORIGINAL FEMP CONSTRUCTION SPECIFICATIONS. LESSONS LEARNED FROM PREVIOUS EXCAVATIONS, AND DISCUSSIONS WITH ENVIRONMENTAL COMPLIANCE, MAINTENANCE, AND SAFETY REPRESENTATIVES.
8. COORDINATES FOR LOCATIONS WHERE ISOLATION TRENCHING INTERSECTS UTILITIES ARE BASED ON FEMP UNDERGROUND UTILITY GRID DRAWINGS.
9. EACH UTILITY CUT WILL BE LABELED IN THE FIELD AT THE CORRESPONDING COORDINATE LOCATION WITH TWO DESIGNATORS. THE FIRST IS THE UTILITY DESIGNATOR FROM THE TABLE PROVIDED (EX. ST-12"-PVC). THE SECOND IS THE CUT DESIGNATOR DEVELOPED FROM THIS DRAWING TO IDENTIFY THE CORRESPONDING AREA, QUADRANT, AND CUT IDENTIFICATION NUMBER (EX. 4B-NW-00).
10. UNLESS SPECIFIED BY COORDINATES, OR SHOWN IN A SPECIFIC MANHOLE OR CATCH BASIN, PROPOSED AIR GAP LOCATIONS ARE APPROXIMATE. AIR GAPS MAY BE INSTALLED AT THE INTERSECTION OF THE UTILITY AND THE ISOLATION TRENCH, OUTSIDE OF THE PROPOSED EXCAVATION AREA.
11. STORM SEWERS HAVE BEEN ASSIGNED A POTENTIAL ASBESTOS HAZARD FOR PURPOSES OF AGENCY NOTIFICATION OF POTENTIAL ACM DISTURBANCE BASED ON PROCESS KNOWLEDGE THAT LINES MAY CONTAIN TRANSITE-LIKE MATERIALS. THE ASBESTOS COMPETENT PERSON SHALL VERIFY PIPE MATERIALS ENCOUNTERED IN THE FIELD AND DIRECT THE MANAGEMENT OF THESE MATERIALS ACCORDINGLY.
12. EXISTING STORM SEWER SYSTEM MAY BE USED TO CONTROL RUNOFF DURING REMEDIATION. HOWEVER, STORM SEWER PIPES TO BE CUT DURING AREA ISOLATION SHALL BE PLUGGED AT THE EXCAVATION BOUNDARY IN ACCORDANCE WITH SECTION 02275.
13. UTILITY AIR GAPPING AND PLUGGING SHALL BE SEQUENCED WITH THE RELATED AREA ISOLATION TRENCH PHASE.
14. EXCAVATE ISOLATION TRENCH GAPS SHOWN TO DEPTH AND WIDTH REQUIREMENTS SPECIFIED IN SECTION 02207 USING EXCAVATION EQUIPMENT RATHER THAN THE TRENCHER, TO ISOLATE REMAINING UTILITIES AND TO PROTECT THE STORM SEWER. DO NOT EXCAVATE DIRECTLY BELOW THE PROTECTED UTILITY.
15. PRIOR TO EXCAVATION EXTENDING TO A DEPTH THAT WILL DAMAGE A PROTECTED STORM SEWER, PLUG THE STORM SEWER BEYOND THE LIMIT OF EXCAVATION USING A GROUT PLUG AT A LOCATION APPROVED BY THE PROJECT ENGINEER.

LEGEND

- PROPOSED ISOLATION TRENCH
- EXISTING ISOLATION TRENCH
- ISOLATION TRENCH GAP

3B TRENCH UTILITY CUTS (3B NORTH)					
ID	GRID	UTILITY DESIGNATOR	POTENTIAL HAZARD	NORTHING	EASTING
1	9	ST-6" DRAIN TILE	NONE	481814.21	1349318.87
2	17	ST-6" DRAIN TILE	NONE	481805.55	1349180.77
3	17	ST-E17-1-10"NI	ASBESTOS	481804.84	1349169.50
4	17	DWB-8"-LI	ACM COATING/LEAD JOINTS	481800.66	1349102.82
5	17	FQI-4-12"-LI	LEAD JOINTS	481799.77	1349088.62
6	17	FQ-1-6"	LEAD JOINTS	481789.66	1348927.46
7	17	DW-10-8"-LI	ACM COATING/LEAD JOINTS	481760.59	1348872.85
8	23	FQI-12"-LI	LEAD JOINTS	481502.26	1348391.66

3B TRENCH CONTROL POINTS		
PT NO.	NORTHING	EASTING
1	481814.91	1349330.00
2	481811.23	1349271.45
3	481809.98	1349251.49
4	481797.08	1349045.73
5	481795.82	1349025.77
6	481786.48	1348876.85
7	481770.66	1348872.85
8	481738.63	1348872.85
9	481744.65	1348715.09
10	481745.42	1348695.11
11	481752.89	1348499.15
12	481698.46	1348410.10
13	481627.65	1348395.49
14	481492.37	1348391.36

PRELIMINARY
NOT FOR CONSTRUCTION

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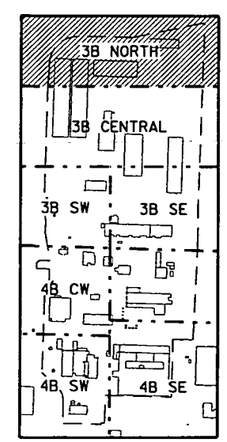


AREA 3B/4B ISOLATION TRENCH KEY PLAN
SCALE: NONE

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	DATE	REV. BY	APPR.
D	RE-ISSUED FOR AGENCY REVIEW	7/22/03	KLR	
C	ISSUED FOR AGENCY REVIEW	9/30/02	KLR	
B	ISSUED FOR 90% DESIGN REVIEW	8/30/02	DRF	
A	ISSUED FOR 30% DESIGN REVIEW	5/22/02	DRF	

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
FLUOR FERNALD, INC.

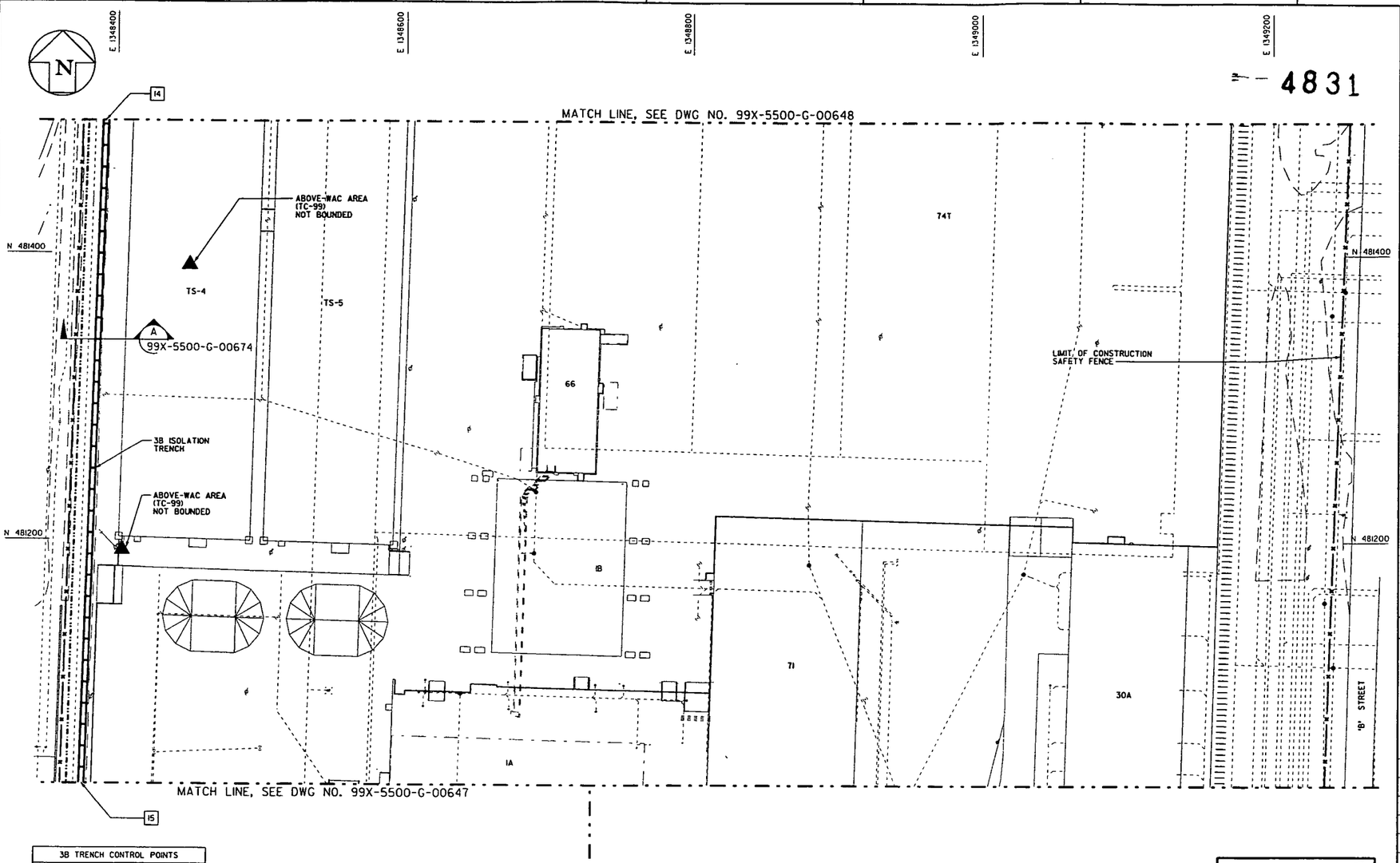
PROJECT NAME
SOIL REMEDIATION 000169

DRAWING TITLE
AREA 3B/4B
UTILITY ISOLATION PLAN (3B NORTH)

APPROVALS

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

DRAWN BY	PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
DRF	2080	99X-5500-G-00648	G-6	D
RES PROJECT NO.	FILENAME 99XG00648D.DGN			



3B TRENCH CONTROL POINTS		
PT NO.	NORTHING	EASTING
14	481492.37	1348359.36
15	481028.63	1348377.20

PRELIMINARY
NOT FOR CONSTRUCTION

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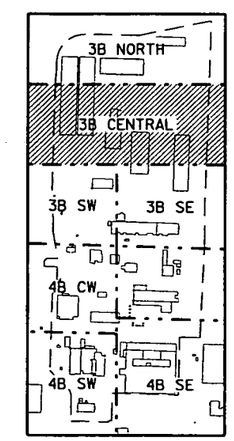

NORTH

AREA 3B/4B
ISOLATION TRENCH
KEY PLAN
SCALE: NONE

GENERAL NOTES

1. SEE DRAWING 99X-5500-X-00639 FOR LEGEND AND GENERAL NOTES.
2. UNDERGROUND UTILITIES SHOWN REPRESENT FLUOR FERNALD MASTER REFERENCE FILES FOR UNDERGROUND UTILITY DRAWINGS 22D-5500-P-00678 (GRID 19), 22B-5500-P-00683 (GRID 24), 22D-5500-P-00684 (GRID 25), AND 22B-5500-P-00686 (GRID 27). THIS DRAWING DOES NOT ATTEMPT TO SHOW UNDERGROUND UTILITIES WITHIN BUILDING FOOTPRINTS.
3. PERFORM ISOLATION TRENCHING SHOWN IN ACCORDANCE WITH SPECIFICATION SECTION 02207.
4. VERIFY LOCATIONS AND PROTECT EXISTING ENERGIZED UNDERGROUND UTILITIES.
5. UTILITY CUT TABLE SUMMARIZES UTILITY CUTS TO BE MADE DURING ISOLATION TRENCHING, MOVING CLOCKWISE AROUND THE TRENCH CENTERLINE.
6. GRID NUMBERS AND UTILITY DESIGNATORS ARE BASED ON FLUOR FERNALD UNDERGROUND UTILITY GRID DRAWINGS.
7. POTENTIAL HAZARDS ARE ASSESSED FOR MONITORING PURPOSES BASED ON INFORMATION GATHERED FROM CATALYTIC CONSTRUCTION DRAWINGS AND ORIGINAL FEMP CONSTRUCTION SPECIFICATIONS, LESSONS LEARNED FROM PREVIOUS EXCAVATIONS, AND DISCUSSIONS WITH ENVIRONMENTAL COMPLIANCE, MAINTENANCE, AND SAFETY REPRESENTATIVES.
8. COORDINATES FOR LOCATIONS WHERE ISOLATION TRENCHING INTERSECTS UTILITIES ARE BASED ON FEMP UNDERGROUND UTILITY GRID DRAWINGS.
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14. EXCAVATE ISOLATION TRENCH GAPS SHOWN TO DEPTH AND WIDTH REQUIREMENTS SPECIFIED IN SECTION 02207 USING EXCAVATION EQUIPMENT RATHER THAN THE TRENCHER, TO ISOLATE REMAINING UTILITIES AND TO PROTECT THE STORM SEWER. DO NOT EXCAVATE DIRECTLY BELOW THE PROTECTED UTILITY.
15. PRIOR TO EXCAVATION EXTENDING TO A DEPTH THAT WILL DAMAGE A PROTECTED STORM SEWER, PLUG THE STORM SEWER BEYOND THE LIMIT OF EXCAVATION USING A GROUT PLUG AT A LOCATION APPROVED BY THE PROJECT ENGINEER.

LEGEND

- PROPOSED ISOLATION TRENCH
- EXISTING ISOLATION TRENCH
- ISOLATION TRENCH GAP

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	DATE	REV. BY	APPR.
D	RE-ISSUED FOR AGENCY REVIEW	7/22/03	KLR	
C	ISSUED FOR AGENCY REVIEW	9/30/02	KLR	
B	ISSUED FOR 90% DESIGN REVIEW	8/30/02	DRF	
A	ISSUED FOR 30% DESIGN REVIEW	5/22/02	DRF	

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
FLUOR FERNALD, INC.

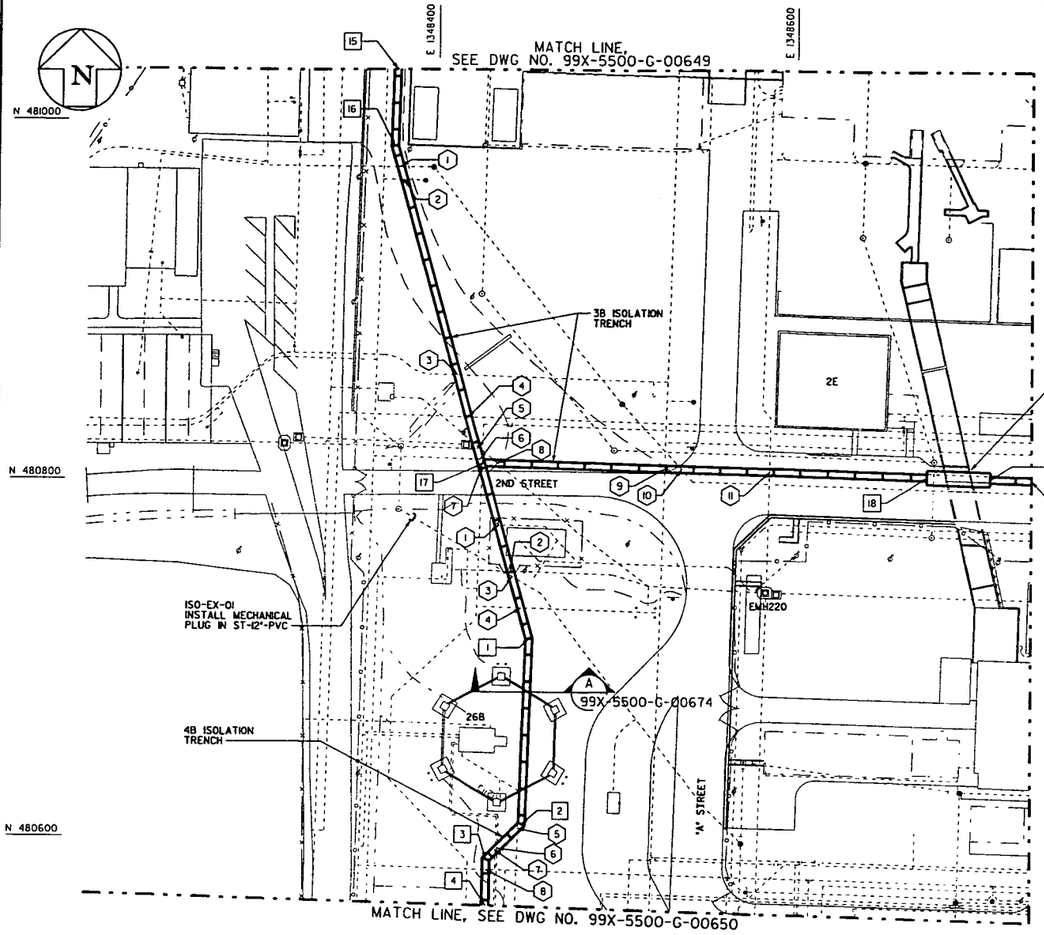
PROJECT NAME
SOIL REMEDIATION 000170

DRAWING TITLE
AREA 3B/4B
UTILITY ISOLATION PLAN (3B CENTRAL)

APPROVALS

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

DRAWN BY	PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
DRF	20060	99X-5500-G-00649	G-7	D
RES PROJECT NO.	FILENAME 99X00649G.DGN			



4831

GENERAL NOTES

1. SEE DRAWING 99X-5500-X-00639 FOR LEGEND AND GENERAL NOTES.
2. UNDERGROUND UTILITIES SHOWN REPRESENT FLUOR FERNALD MASTER REFERENCE FILES FOR UNDERGROUND UTILITY DRAWINGS 22D-5500-P-00678 (GRID 19), 22B-5500-P-00683 (GRID 24), 22D-5500-P-00684 (GRID 25), AND 22B-5500-P-00686 (GRID 27). THIS DRAWING DOES NOT ATTEMPT TO SHOW UNDERGROUND UTILITIES WITHIN BUILDING FOOTPRINTS.
3. PERFORM ISOLATION TRENCHING SHOWN IN ACCORDANCE WITH SPECIFICATION SECTION 02207.
4. VERIFY LOCATIONS AND PROTECT EXISTING ENERGIZED UNDERGROUND UTILITIES.
5. UTILITY CUT TABLE SUMMARIZES UTILITY CUTS TO BE MADE DURING ISOLATION TRENCHING, MOVING CLOCKWISE AROUND THE TRENCH CENTERLINE.
6. GRID NUMBERS AND UTILITY DESIGNATORS ARE BASED ON FLUOR FERNALD UNDERGROUND UTILITY GRID DRAWINGS.
7. POTENTIAL HAZARDS ARE ASSESSED FOR MONITORING PURPOSES BASED ON INFORMATION GATHERED FROM CATALYTIC CONSTRUCTION DRAWINGS AND ORIGINAL FEMP CONSTRUCTION SPECIFICATIONS, LESSONS LEARNED FROM PREVIOUS EXCAVATIONS, AND DISCUSSIONS WITH ENVIRONMENTAL COMPLIANCE, MAINTENANCE, AND SAFETY REPRESENTATIVES.
8. COORDINATES FOR LOCATIONS WHERE ISOLATION TRENCHING INTERSECTS UTILITIES ARE BASED ON FEMP UNDERGROUND UTILITY GRID DRAWINGS.
9. EACH UTILITY CUT WILL BE LABELED IN THE FIELD AT THE CORRESPONDING COORDINATE LOCATION WITH TWO DESIGNATORS. THE FIRST IS THE UTILITY DESIGNATOR FROM THE TABLE PROVIDED (EX. ST-12"-PVC). THE SECOND IS THE CUT DESIGNATOR DEVELOPED FROM THIS DRAWING TO IDENTIFY THE CORRESPONDING AREA, QUADRANT, AND CUT IDENTIFICATION NUMBER (EX. 4B-NW-00).
10. UNLESS SPECIFIED BY COORDINATES, OR SHOWN IN A SPECIFIC MANHOLE OR CATCH BASIN, PROPOSED AIR GAP LOCATIONS ARE APPROXIMATE. AIR GAPS MAY BE INSTALLED AT THE INTERSECTION OF THE UTILITY AND THE ISOLATION TRENCH, OUTSIDE OF THE PROPOSED EXCAVATION AREA.
11. STORM SEWERS HAVE BEEN ASSIGNED A POTENTIAL ASBESTOS HAZARD FOR PURPOSES OF AGENCY NOTIFICATION OF POTENTIAL ACM DISTURBANCE BASED ON PROCESS KNOWLEDGE THAT LINES MAY CONTAIN TRANSITE-LIKE MATERIALS. THE ASBESTOS COMPETENT PERSON SHALL VERIFY PIPE MATERIALS ENCOUNTERED IN THE FIELD AND DIRECT THE MANAGEMENT OF THESE MATERIALS ACCORDINGLY.
12. EXISTING STORM SEWER SYSTEM MAY BE USED TO CONTROL RUNOFF DURING REMEDIATION. HOWEVER, STORM SEWER PIPES TO BE CUT DURING AREA ISOLATION SHALL BE PLUGGED AT THE EXCAVATION BOUNDARY IN ACCORDANCE WITH SECTION 02275.
13. UTILITY AIR GAPPING AND PLUGGING SHALL BE SEQUENCED WITH THE RELATED AREA ISOLATION TRENCH PHASE.
14. EXCAVATE ISOLATION TRENCH GAPS SHOWN TO DEPTH AND WIDTH REQUIREMENTS SPECIFIED IN SECTION 02207 USING EXCAVATION EQUIPMENT RATHER THAN THE TRENCHER, TO ISOLATE REMAINING UTILITIES AND TO PROTECT THE STORM SEWER. DO NOT EXCAVATE DIRECTLY BELOW THE PROTECTED UTILITY.
15. PRIOR TO EXCAVATION EXTENDING TO A DEPTH THAT WILL DAMAGE A PROTECTED STORM SEWER, PLUG THE STORM SEWER BEYOND THE LIMIT OF EXCAVATION USING A GROUT PLUG AT A LOCATION APPROVED BY THE PROJECT ENGINEER.

LEGEND

- PROPOSED ISOLATION TRENCH
- EXISTING ISOLATION TRENCH
- ISOLATION TRENCH GAP

3B TRENCH UTILITY CUTS (4B NW)

ID	GRID	UTILITY DESIGNATOR	POTENTIAL HAZARD	NORTHING	EASTING
1	24	SN-6"	NONE	480974.00	1348379.14
2	24	FQI-6"	LEAD JOINTS	480966.81	1348381.14
3	24	DW-4"	ACM COATING/LEAD JOINTS	480858.51	1348411.37
4	24	FT-3-3"-W	ASBESTOS GASKETS	480835.25	1348417.86
5	24	ELEC. DUCT 12"X18"	ASBESTOS INSULATION	480817.61	1348422.78
6	24	FQ-10-12"-LI	LEAD JOINTS	480811.79	1348424.40
7	24	RW-4-12"-LI	ASBESTOS GASKETS	480808.13	1348425.42
8	25	ELEC. DUCT 12"X18"	ASBESTOS INSULATION	480809.60	1348433.88
9	24	DW-6-8"-LI	ACM COATING/LEAD JOINTS	480807.04	1348526.93
10	24	SN-6"	NONE	480806.79	1348536.07
11	27	ST-10"-NI	ASBESTOS	480805.43	1348585.42

4B TRENCH UTILITY CUTS (4B NW)

ID	GRID	UTILITY DESIGNATOR	POTENTIAL HAZARD	NORTHING	EASTING
1	25	ELEC. DUCT 18"X18"	ASBESTOS INSULATION	480775.14	1348434.66
2	25	ELEC. DUCT 1'X1'6"	ASBESTOS INSULATION	480749.35	1348441.83
3	25	ST-12"-PVC	ASBESTOS	480746.45	1348442.64
4	25	RW-8"	ASBESTOS GASKETS	480728.90	1348447.53
5	25	ELEC. DUCT	ASBESTOS INSULATION	480605.65	1348446.77
6	25	CN	ASBESTOS GASKETS	480594.33	1348435.58
7	25	LS	ASBESTOS GASKETS	480593.29	1348434.55
8	25	FQI-12"-LI	LEAD JOINTS	480582.34	1348429.42

3B TRENCH CONTROL POINTS

PT NO.	NORTHING	EASTING
15	481028.63	1348377.20
16	480985.64	1348375.89
17	480809.79	1348426.91
18	480803.06	1348671.51
19	480802.07	1348707.49
20	480801.45	1348730.28

4B TRENCH CONTROL POINTS

PT NO.	NORTHING	EASTING
1	480711.91	1348452.28
2	480607.94	1348449.03
3	480588.16	1348429.48
4	480562.09	1348429.21

PRELIMINARY
NOT FOR CONSTRUCTION

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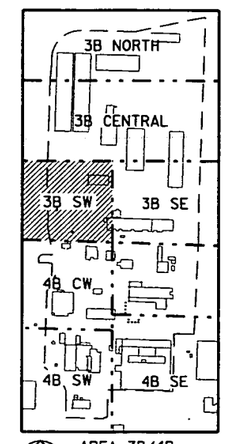
SCALE: 1"=30'



NORTH

AREA 3B/4B ISOLATION TRENCH KEY PLAN
SCALE: NONE

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	DATE	REV. BY	APPR.
D	RE-ISSUED FOR AGENCY REVIEW	7/22/03	KLR	
C	ISSUED FOR AGENCY REVIEW	9/30/02	DRF	
B	ISSUED FOR 90% DESIGN REVIEW	8/30/02	DRF	
A	ISSUED FOR 30% DESIGN REVIEW	8/7/02	DRF	

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
FLUOR FERNALD, INC.

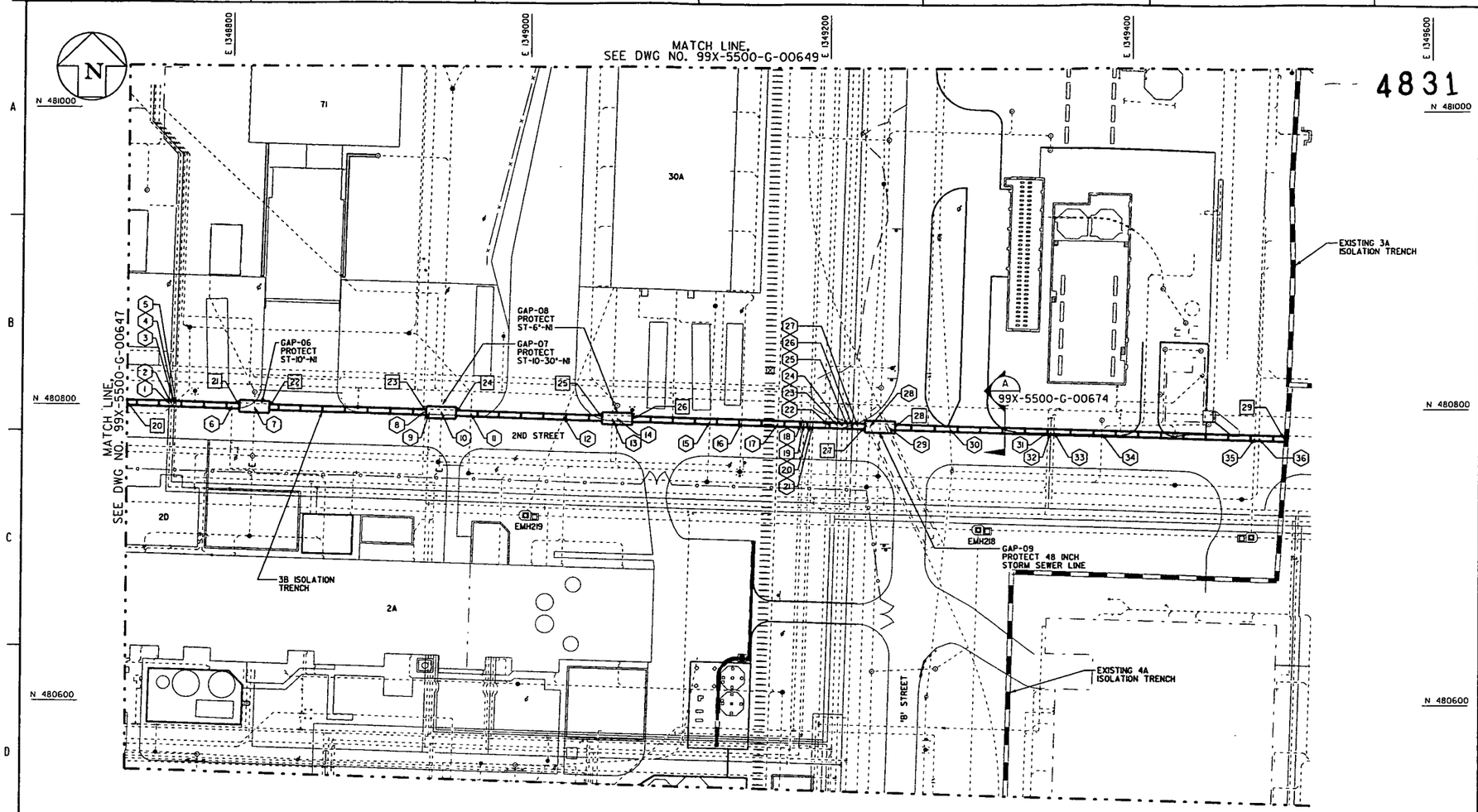
PROJECT NAME
SOIL REMEDIATION 000171

DRAWING TITLE
AREA 3B/4B
UTILITY ISOLATION PLAN (3B SW)

APPROVALS

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

DRAWN BY	PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
DRF	20010	99X-5500-G-00647	G-8	D
RES PROJECT NO.	FILENAME 99XG00647.DGN			



GENERAL NOTES

1. SEE DRAWING 99X-5500-X-00639 FOR LEGEND AND GENERAL NOTES.
2. UNDERGROUND UTILITIES SHOWN REPRESENT FLUOR FERNALD MASTER REFERENCE FILES FOR UNDERGROUND UTILITY DRAWINGS 220-5500-P-00678 (GRID 19), 228-5500-P-00683 (GRID 24), 220-5500-P-00684 (GRID 25), AND 228-5500-P-00686 (GRID 27). THIS DRAWING DOES NOT ATTEMPT TO SHOW UNDERGROUND UTILITIES WITHIN BUILDING FOOTPRINTS.
3. PERFORM ISOLATION TRENCHING SHOWN IN ACCORDANCE WITH SPECIFICATION SECTION 02207.
4. VERIFY LOCATIONS AND PROTECT EXISTING ENERGIZED UNDERGROUND UTILITIES.
5. UTILITY CUT TABLE SUMMARIZES UTILITY CUTS TO BE MADE DURING ISOLATION TRENCHING, MOVING CLOCKWISE AROUND THE TRENCH CENTERLINE.
6. GRID NUMBERS AND UTILITY DESIGNATORS ARE BASED ON FLUOR FERNALD UNDERGROUND UTILITY GRID DRAWINGS.
7. POTENTIAL HAZARDS ARE ASSESSED FOR MONITORING PURPOSES BASED ON INFORMATION GATHERED FROM CATALYTIC CONSTRUCTION DRAWINGS AND ORIGINAL FEMP CONSTRUCTION SPECIFICATIONS. LESSONS LEARNED FROM PREVIOUS EXCAVATIONS, AND DISCUSSIONS WITH ENVIRONMENTAL COMPLIANCE, MAINTENANCE, AND SAFETY REPRESENTATIVES.
8. COORDINATES FOR LOCATIONS WHERE ISOLATION TRENCHING INTERSECTS UTILITIES ARE BASED ON FEMP UNDERGROUND UTILITY GRID DRAWINGS.
9. EACH UTILITY CUT WILL BE LABELED IN THE FIELD AT THE CORRESPONDING COORDINATE LOCATION WITH TWO DESIGNATORS. THE FIRST IS THE UTILITY DESIGNATOR FROM THE TABLE PROVIDED (EX. ST-12"-PVC). THE SECOND IS THE CUT DESIGNATOR DEVELOPED FROM THIS DRAWING TO IDENTIFY THE CORRESPONDING AREA, QUADRANT, AND CUT IDENTIFICATION NUMBER (EX. 4B-NW-00).
10. UNLESS SPECIFIED BY COORDINATES, OR SHOWN IN A SPECIFIC MANHOLE OR CATCH BASIN, PROPOSED AIR GAP LOCATIONS ARE APPROXIMATE. AIR GAPS MAY BE INSTALLED AT THE INTERSECTION OF THE UTILITY AND THE ISOLATION TRENCH, OUTSIDE OF THE PROPOSED EXCAVATION AREA.
11. STORM SEWERS HAVE BEEN ASSIGNED A POTENTIAL ASBESTOS HAZARD FOR PURPOSES OF AGENCY NOTIFICATION OF POTENTIAL ACM DISTURBANCE BASED ON PROCESS KNOWLEDGE THAT LINES MAY CONTAIN TRANSITE-LIKE MATERIALS. THE ASBESTOS COMPETENT PERSON SHALL VERIFY PIPE MATERIALS ENCOUNTERED IN THE FIELD AND DIRECT THE MANAGEMENT OF THESE MATERIALS ACCORDINGLY.
12. EXISTING STORM SEWER SYSTEM MAY BE USED TO CONTROL RUNOFF DURING REMEDIATION. HOWEVER, STORM SEWER PIPES TO BE CUT DURING AREA ISOLATION SHALL BE PLUGGED AT THE EXCAVATION BOUNDARY IN ACCORDANCE WITH SECTION 02275.
13. UTILITY AIR GAPPING AND PLUGGING SHALL BE SEQUENCED WITH THE RELATED AREA ISOLATION TRENCH PHASE.
14. EXCAVATE ISOLATION TRENCH GAPS SHOWN TO DEPTH AND WIDTH REQUIREMENTS SPECIFIED IN SECTION 02207 USING EXCAVATION EQUIPMENT RATHER THAN THE TRENCHER, TO ISOLATE REMAINING UTILITIES AND TO PROTECT THE STORM SEWER. DO NOT EXCAVATE DIRECTLY BELOW THE PROTECTED UTILITY.
15. PRIOR TO EXCAVATION EXTENDING TO A DEPTH THAT WILL DAMAGE A PROTECTED STORM SEWER, PLUG THE STORM SEWER BEYOND THE LIMIT OF EXCAVATION USING A GROUT PLUG AT A LOCATION APPROVED BY THE PROJECT ENGINEER.

LEGEND

PROPOSED ISOLATION TRENCH
EXISTING ISOLATION TRENCH
ISOLATION TRENCH GAP

3B TRENCH UTILITY CUTS (3B SW)						3B TRENCH UTILITY CUTS (3B SW)					
ID	GRID	UTILITY DESIGNATOR	POTENTIAL HAZARD	NORTHING	EASTING	ID	GRID	UTILITY DESIGNATOR	POTENTIAL HAZARD	NORTHING	EASTING
1	27	FG-12-3"-V	ASBESTOS GASKETS	480800.67	1348758.38	19	18	FOI-12-12"-LI	LEAD JOINTS	480788.99	1349183.18
2	27	TW-12-3"-W	ASBESTOS GASKETS	480800.63	1348759.88	20	18	TW-17-10"-W	ASBESTOS GASKETS	480788.88	1349187.18
3	27	SN-3"-HDPE	NONE	480800.58	1348761.65	21	18	FT-3-3"-W	ASBESTOS GASKETS	480788.82	1349189.18
4	27	WS-8-4"-W	ASBESTOS GASKETS	480800.58	1348761.88	22	18	DW-5-8"-LI	ACM COATING/LEAD JOINTS	480788.53	1349199.68
5	27	WR-8-4"-W	ASBESTOS GASKETS	480800.55	1348762.95	23	18	DF-1-4"-W	ASBESTOS GASKETS	480788.37	1349205.68
6	27	FOI-28-6"-LI	LEAD JOINTS	480799.52	1348800.33	24	18	TW-1-10"-W	ASBESTOS GASKETS	480788.29	1349208.67
7	27	ST-10"-NI	ASBESTOS	480799.11	1348815.32	25	18	FT-2-8"-W	ASBESTOS GASKETS	480788.31	1349212.35
8	27	FOI-28-6"-LI	LEAD GASKETS	480795.99	1348928.75	26	18	WS-1-24"-W	ASBESTOS GASKETS	480788.09	1349215.67
9	27	FOI-23-6"-LI	LEAD GASKETS	480795.89	1348932.28	27	18	WR-6-24"-W	ASBESTOS GASKETS	480788.00	1349219.17
10	27	ST-10-30"-NI	ASBESTOS	480796.43	1348940.30	28	18	SN-3-6"-MI	NONE	480787.76	1349227.66
11	27	SN-6"-MI	NONE	480795.12	1348960.27	29	18	6" DRAIN LINE	NONE	480787.43	1349239.92
12	18	ELEC. DUCT 14"X22"	ASBESTOS INSULATION	480793.39	1349023.22	30	18	ELEC. LIGHTING	ASBESTOS INSULATION	480786.34	1349279.33
13	18	ELEC. DUCT 16"X16"	ASBESTOS INSULATION	480792.51	1349055.24	31	11	TW-20-4"-W	ASBESTOS GASKETS	480784.54	1349344.76
14	18	ST-6"-NI	ASBESTOS	480792.42	1349058.53	32	11	WS-15-2"-W	ASBESTOS GASKETS	480784.49	1349346.76
15	18	SN-4A-6"-MI	NONE	480790.70	1349120.73	33	11	WR-16-2"-W	ASBESTOS GASKETS	480784.43	1349348.76
16	18	ST-6"-NI	ASBESTOS	480790.11	1349142.20	34	11	ST-10"-NI	ASBESTOS	480783.57	1349380.11
17	18	6" DRAIN LINE	NONE	480789.45	1349166.23	35	11	ELEC. DUCT 3'-2"X2'-4"	ASBESTOS INSULATION	480780.76	1349482.39
18	18	FT-3-3"-W	ASBESTOS GASKETS	480789.04	1349181.18	36	11	SN-34-6"	NONE	480780.68	1349485.15

3B TRENCH CONTROL POINTS		
PT NO.	NORTHING	EASTING
20	480801.45	1348730.28
21	480799.38	1348805.33
22	480798.83	1348825.32
23	480795.94	1348930.28
24	480795.39	1348950.27
25	480792.69	1349048.53
26	480792.14	1349068.53
27	480787.86	1349224.17
28	480787.31	1349244.16
29	480780.22	1349501.88

PRELIMINARY
NOT FOR CONSTRUCTION

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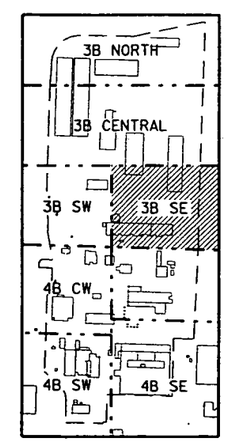
SCALE: 1"=30'



NORTH

AREA 3B/4B
ISOLATION TRENCH
KEY PLAN
SCALE: NONE

REV. NO.	REVISION PURPOSE - DESCRIPTION	DATE	REV. BY	APPR.
A	ISSUED FOR AGENCY REVIEW	3/31/03	KLR	

DETAILS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
FLUOR FERNALD, INC.

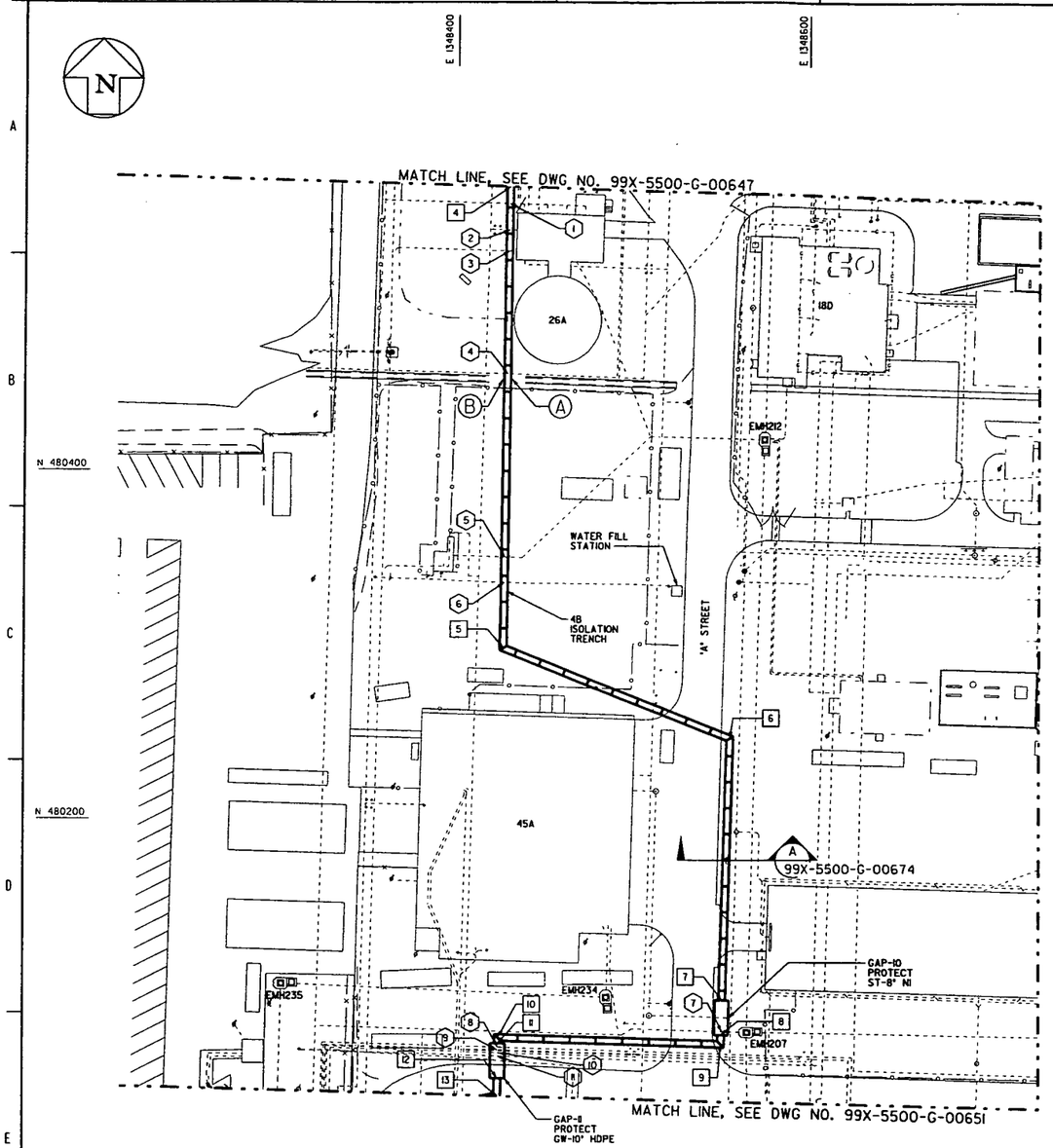
PROJECT NAME
SOIL REMEDIATION 000172

DRAWING TITLE
AREA 3B/4B
UTILITY ISOLATION PLAN (3B SE)

APPROVALS

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

DRAWN BY	PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
KLR	2080	99X-5500-G-00686	G-9	A
RES PROJECT NO.	FILENAME 99XG00686.DGN			



4831

4B TRENCH CONTROL POINTS		
PT NO.	NORTHING	EASTING
4	480562.09	1348429.21
5	480298.77	1348426.48
6	480247.37	1348555.76
7	480096.81	1348551.65
8	480076.82	1348551.10
9	480071.48	1348550.95
10	480074.95	1348424.16
11	480071.67	1348424.12
12	480051.67	1348423.92
13	480041.45	1348423.81

4B TRENCH UTILITY CUTS (4B CW)					
ID	GRID	UTILITY DESIGNATOR	POTENTIAL HAZARD	NORTHING	EASTING
1	25	FQI-24-12"-LI	LEAD JOINTS	480552.34	1348429.11
2	25	RWI-1-6"-LI	LEAD JOINTS	480537.33	1348428.95
3	25	DW-1-6"-LI	ACM COATING/LEAD JOINTS	480525.33	1348428.83
4	25	TW-19-3"-LI	ASBESTOS GASKETS	480455.33	1348428.10
5	25	ELEC. DUCT 1'6"X1'	ASBESTOS INSULATION	480350.92	1348427.02
6	25	RW-4"-PVC	ASBESTOS GASKETS	480336.37	1348426.87
7	20	ELEC. DUCT 34"X20"	ASBESTOS INSULATION	480078.54	1348424.19
8	25	DW-105-4"	ACM COATING/LEAD JOINTS	480069.29	1348424.10
9	25	SN-101-4"	NONE	480067.79	1348424.08
10	25	TW-105-4"	ASBESTOS GASKETS	480066.29	1348424.07
11	25	WS-138-6"	ASBESTOS GASKETS	480064.29	1348424.05

GENERAL NOTES

1. SEE DRAWING 99X-5500-X-00639 FOR LEGEND AND GENERAL NOTES.
2. UNDERGROUND UTILITIES SHOWN REPRESENT FLUOR FERNALD MASTER REFERENCE FILES FOR UNDERGROUND UTILITY DRAWINGS 22D-5500-P-00678 (GRID 19), 22B-5500-P-00683 (GRID 24), 22D-5500-P-00684 (GRID 25), AND 22B-5500-P-00686 (GRID 27). THIS DRAWING DOES NOT ATTEMPT TO SHOW UNDERGROUND UTILITIES WITHIN BUILDING FOOTPRINTS.
3. PERFORM ISOLATION TRENCHING SHOWN IN ACCORDANCE WITH SPECIFICATION SECTION 02207.
4. VERIFY LOCATIONS AND PROTECT EXISTING ENERGIZED UNDERGROUND UTILITIES.
5. UTILITY CUT TABLE SUMMARIZES UTILITY CUTS TO BE MADE DURING ISOLATION TRENCHING, MOVING CLOCKWISE AROUND THE TRENCH CENTERLINE.
6. GRID NUMBERS AND UTILITY DESIGNATORS ARE BASED ON FLUOR FERNALD UNDERGROUND UTILITY GRID DRAWINGS.
7. POTENTIAL HAZARDS ARE ASSESSED FOR MONITORING PURPOSES BASED ON INFORMATION GATHERED FROM CATALYTIC CONSTRUCTION DRAWINGS AND ORIGINAL FEMP CONSTRUCTION SPECIFICATIONS, LESSONS LEARNED FROM PREVIOUS EXCAVATIONS, AND DISCUSSIONS WITH ENVIRONMENTAL COMPLIANCE, MAINTENANCE, AND SAFETY REPRESENTATIVES.
8. COORDINATES FOR LOCATIONS WHERE ISOLATION TRENCHING INTERSECTS UTILITIES ARE BASED ON FEMP UNDERGROUND UTILITY GRID DRAWINGS.
9. EACH UTILITY CUT WILL BE LABELED IN THE FIELD AT THE CORRESPONDING COORDINATE LOCATION WITH TWO DESIGNATORS. THE FIRST IS THE UTILITY DESIGNATOR FROM THE TABLE PROVIDED (EX. ST-12"-PVC). THE SECOND IS THE CUT DESIGNATOR DEVELOPED FROM THIS DRAWING TO IDENTIFY THE CORRESPONDING AREA, QUADRANT, AND CUT IDENTIFICATION NUMBER (EX. 4B-NW-01).
10. UNLESS SPECIFIED BY COORDINATES, OR SHOWN IN A SPECIFIC MANHOLE OR CATCH BASIN, PROPOSED AIR GAP LOCATIONS ARE APPROXIMATE. AIR GAPS MAY BE INSTALLED AT THE INTERSECTION OF THE UTILITY AND THE ISOLATION TRENCH, OUTSIDE OF THE PROPOSED EXCAVATION AREA.
11. STORM SEWERS HAVE BEEN ASSIGNED A POTENTIAL ASBESTOS HAZARD FOR PURPOSES OF AGENCY NOTIFICATION OF POTENTIAL ACM DISTURBANCE BASED ON PROCESS KNOWLEDGE THAT LINES MAY CONTAIN TRANSITE-LIKE MATERIALS. THE ASBESTOS COMPETENT PERSON SHALL VERIFY PIPE MATERIALS ENCOUNTERED IN THE FIELD AND DIRECT THE MANAGEMENT OF THESE MATERIALS ACCORDINGLY.
12. EXISTING STORM SEWER SYSTEM MAY BE USED TO CONTROL RUNOFF DURING REMEDIATION. HOWEVER, STORM SEWER PIPES TO BE CUT DURING AREA ISOLATION SHALL BE PLUGGED AT THE EXCAVATION BOUNDARY IN ACCORDANCE WITH SECTION 02275.
13. UTILITY AIR GAPPING AND PLUGGING SHALL BE SEQUENCED WITH THE RELATED AREA ISOLATION TRENCH PHASE.
14. EXCAVATE ISOLATION TRENCH GAPS SHOWN TO DEPTH AND WIDTH REQUIREMENTS SPECIFIED IN SECTION 02207 USING EXCAVATION EQUIPMENT RATHER THAN THE TRENCHER, TO ISOLATE REMAINING UTILITIES AND TO PROTECT THE STORM SEWER. DO NOT EXCAVATE DIRECTLY BELOW THE PROTECTED UTILITY.
15. PRIOR TO EXCAVATION EXTENDING TO A DEPTH THAT WILL DAMAGE A PROTECTED STORM SEWER, PLUG THE STORM SEWER BEYOND THE LIMIT OF EXCAVATION USING A GROUT PLUG AT A LOCATION APPROVED BY THE PROJECT ENGINEER.

KEYED NOTES

(A) K65 TRENCH CONTAINED THE FOLLOWING UTILITIES THAT HAVE BEEN REMOVED FROM THE PATH OF THE ISOLATION TRENCH: (2) 2"C NON-METALLIC CONDUIT, CE-6"-M, SL-18"-1000-6', FTS-18-1000-6', PA-1"

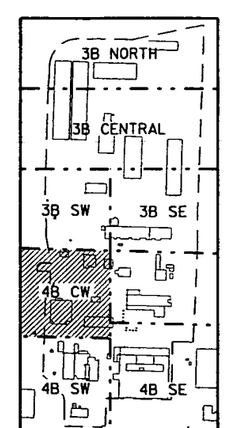
(B) BEFORE PERFORMING 4B UTILITY ISOLATION TRENCHING, EXCAVATE TC-99 ABOVE-WAC ASSOCIATED WITH PHASE I AREA 4B SILOS UTILITY TRENCH EXCAVATION, IN ACCORDANCE WITH DRAWING 99X-5500-G-00767.

LEGEND

PROPOSED ISOLATION TRENCH
EXISTING ISOLATION TRENCH
ISOLATION TRENCH GAP

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	DATE	REV. BY	APPR.
D	RE-ISSUED FOR AGENCY REVIEW	3/31/03	KLR	
C	ISSUED FOR AGENCY REVIEW	9/30/02	DRF	
B	ISSUED FOR 90% DESIGN REVIEW	8/30/02	DRF	
A	ISSUED FOR 30% DESIGN REVIEW	8/7/02	DRF	

INITIALS AND DATE



AREA 3B/4B ISOLATION TRENCH KEY PLAN
SCALE: NONE

PRELIMINARY
NOT FOR CONSTRUCTION

30 0 30 60
SCALE: 1"=30'

NORTH

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
FLUOR FERNALD, INC.

PROJECT NAME
SOIL REMEDIATION 000173

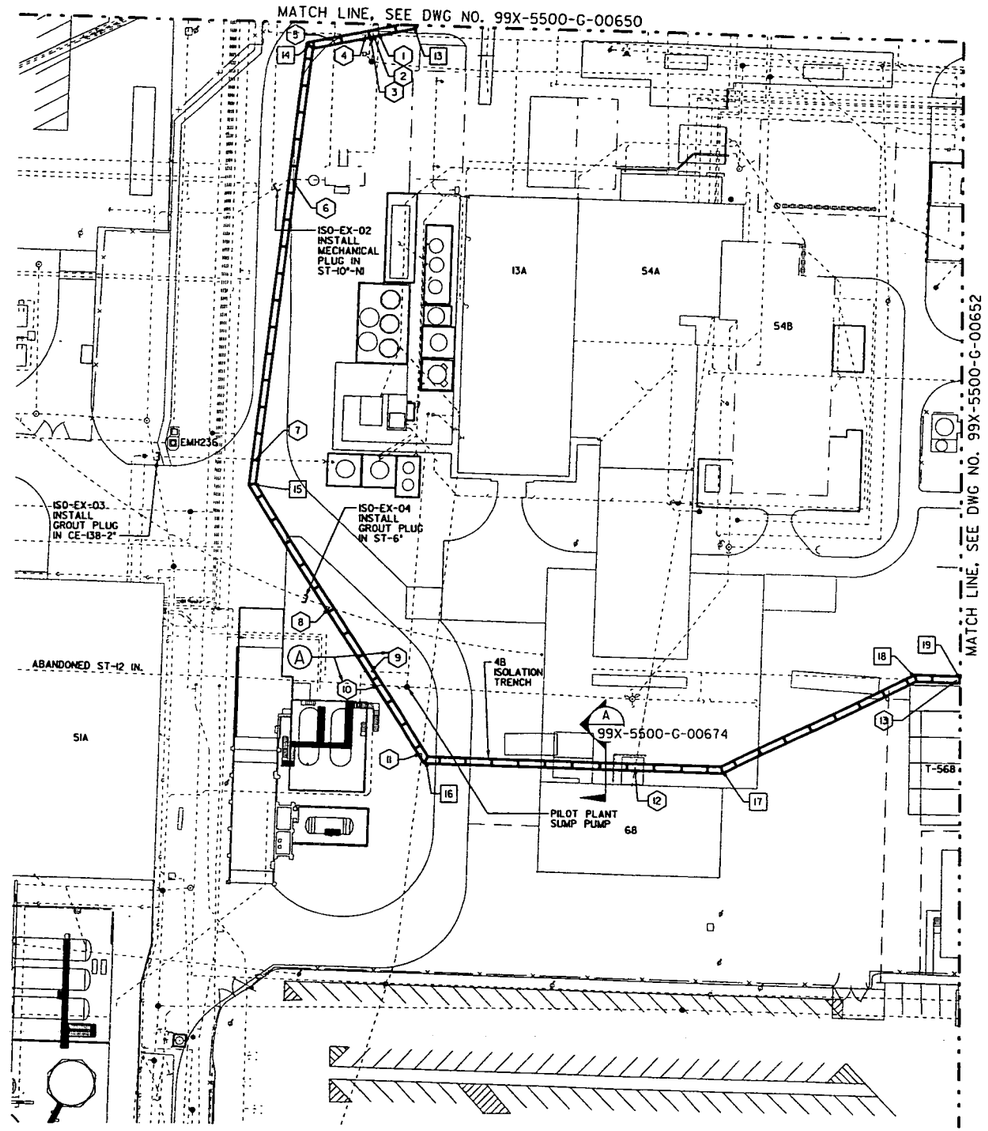
DRAWING TITLE
AREA 3B/4B
UTILITY ISOLATION PLAN (4B CW)

APPROVALS

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

DRAWN BY	PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
DRF	20180	99X-5500-G-00650	G-10	D
RES PROJECT NO.	FILENAME 99XG00650.DGN			

4831



4B TRENCH CONTROL POINTS		
PT NO.	NORTHING	EASTING
13	480041.45	1348423.81
14	480029.86	1348367.64
15	479785.86	1348337.41
16	479631.65	1348433.73
17	479627.06	1348599.53
18	479679.14	1348705.64
19	479678.26	1348730.28

4B TRENCH UTILITY CUTS (4B SW)					
ID	GRID	UTILITY DESIGNATOR	POTENTIAL HAZARD	NORTHING	EASTING
1	26	RW-3-8"-A	NONE	480037.43	1348404.33
2	26	SN-4"-MJ	NONE	480036.81	1348401.32
3	26	¾" ELEC.	ASBESTOS INSULATION	480036.49	1348399.80
4	26	FQI-9-12"-LI	LEAD JOINTS	480036.01	1348397.45
5	26	ELEC. DUCT 12"X18"	ASBESTOS INSULATION	480032.54	1348380.64
6	26	ST-10"-NI	ASBESTOS	479943.37	1348337.41
7	26	CE-138-2"	NONE	479799.71	1348337.41
8	26	ST-6"	ASBESTOS	479716.83	1348380.52
9	26	CE-3"	NONE	479680.98	1348402.92
10	26	ST-12"	ASBESTOS	479673.40	1348407.65
11	26	DW-2"	ACM COATING/LEAD JOINTS	479635.39	1348431.39
12	26	ELEC. DUCT 16"X8"	ASBESTOS INSULATION	479628.40	1348550.80
13	26	DRAIN TILE	NONE	479678.32	1348728.32

GENERAL NOTES

1. SEE DRAWING 99X-5500-X-00639 FOR LEGEND AND GENERAL NOTES.
2. UNDERGROUND UTILITIES SHOWN REPRESENT FLUOR FERNALD MASTER REFERENCE FILES FOR UNDERGROUND UTILITY DRAWINGS 220-5500-P-00678 (GRID 19), 228-5500-P-00683 (GRID 24), 220-5500-P-00684 (GRID 25), AND 228-5500-P-00686 (GRID 27). THIS DRAWING DOES NOT ATTEMPT TO SHOW UNDERGROUND UTILITIES WITHIN BUILDING FOOTPRINTS.
3. PERFORM ISOLATION TRENCHING SHOWN IN ACCORDANCE WITH SPECIFICATION SECTION 02207.
4. VERIFY LOCATIONS AND PROTECT EXISTING ENERGIZED UNDERGROUND UTILITIES.
5. UTILITY CUT TABLE SUMMARIZES UTILITY CUTS TO BE MADE DURING ISOLATION TRENCHING, MOVING CLOCKWISE AROUND THE TRENCH CENTERLINE.
6. GRID NUMBERS AND UTILITY DESIGNATORS ARE BASED ON FLUOR FERNALD UNDERGROUND UTILITY GRID DRAWINGS.
7. POTENTIAL HAZARDS ARE ASSESSED FOR MONITORING PURPOSES BASED ON INFORMATION GATHERED FROM CATALYTIC CONSTRUCTION DRAWINGS AND ORIGINAL FEMP CONSTRUCTION SPECIFICATIONS, LESSONS LEARNED FROM PREVIOUS EXCAVATIONS, AND DISCUSSIONS WITH ENVIRONMENTAL COMPLIANCE, MAINTENANCE, AND SAFETY REPRESENTATIVES.
8. COORDINATES FOR LOCATIONS WHERE ISOLATION TRENCHING INTERSECTS UTILITIES ARE BASED ON FEMP UNDERGROUND UTILITY GRID DRAWINGS.
9. EACH UTILITY CUT WILL BE LABELED IN THE FIELD AT THE CORRESPONDING COORDINATE LOCATION WITH TWO DESIGNATORS. THE FIRST IS THE UTILITY DESIGNATOR FROM THE TABLE PROVIDED (EX. ST-12"-PVC). THE SECOND IS THE CUT DESIGNATOR DEVELOPED FROM THIS DRAWING TO IDENTIFY THE CORRESPONDING AREA, QUADRANT, AND CUT IDENTIFICATION NUMBER (EX. 4B-NW-00.
10. UNLESS SPECIFIED BY COORDINATES, OR SHOWN IN A SPECIFIC MANHOLE OR CATCH BASIN, PROPOSED AIR GAP LOCATIONS ARE APPROXIMATE. AIR GAPS MAY BE INSTALLED AT THE INTERSECTION OF THE UTILITY AND THE ISOLATION TRENCH, OUTSIDE OF THE PROPOSED EXCAVATION AREA.
11. STORM SEWERS HAVE BEEN ASSIGNED A POTENTIAL ASBESTOS HAZARD FOR PURPOSES OF AGENCY NOTIFICATION OF POTENTIAL ACM DISTURBANCE BASED ON PROCESS KNOWLEDGE THAT LINES MAY CONTAIN TRANSITE-LIKE MATERIALS. THE ASBESTOS COMPETENT PERSON SHALL VERIFY PIPE MATERIALS ENCOUNTERED IN THE FIELD AND DIRECT THE MANAGEMENT OF THESE MATERIALS ACCORDINGLY.
12. EXISTING STORM SEWER SYSTEM MAY BE USED TO CONTROL RUNOFF DURING REMEDIATION. HOWEVER, STORM SEWER PIPES TO BE CUT DURING AREA ISOLATION SHALL BE PLUGGED AT THE EXCAVATION BOUNDARY IN ACCORDANCE WITH SECTION 02275.
13. UTILITY AIR GAPPING AND PLUGGING SHALL BE SEQUENCED WITH THE RELATED AREA ISOLATION TRENCH PHASE.
14. EXCAVATE ISOLATION TRENCH GAPS SHOWN TO DEPTH AND WIDTH REQUIREMENTS SPECIFIED IN SECTION 02207 USING EXCAVATION EQUIPMENT RATHER THAN THE TRENCHER. TO ISOLATE REMAINING UTILITIES AND TO PROTECT THE STORM SEWER. DO NOT EXCAVATE DIRECTLY BELOW THE PROTECTED UTILITY.
15. PRIOR TO EXCAVATION EXTENDING TO A DEPTH THAT WILL DAMAGE A PROTECTED STORM SEWER, PLUG THE STORM SEWER BEYOND THE LIMIT OF EXCAVATION USING A GROUT PLUG AT A LOCATION APPROVED BY THE PROJECT ENGINEER.

KEYED NOTES

(A) RE-ESTABLISH ABANDONED ST-12 IN. LINE AT ID (9) AND (10) AFTER TRENCHING OPERATIONS TO ALLOW CONTAMINATED LIQUID SEEPING INTO LINE TO DRAIN TO PILOT PLANT SUMP PUMP.

LEGEND

PROPOSED ISOLATION TRENCH
EXISTING ISOLATION TRENCH
ISOLATION TRENCH GAP

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	DATE	REV. BY	APPR.
D	RE-ISSUED FOR AGENCY REVIEW	3/31/03	KLR	
C	ISSUED FOR AGENCY REVIEW	9/30/02	KLR	
B	ISSUED FOR 90% DESIGN REVIEW	8/30/02	DRF	
A	ISSUED FOR 30% DESIGN REVIEW	8/7/02	DRF	

INITIALS AND DATE

PRELIMINARY
NOT FOR CONSTRUCTION

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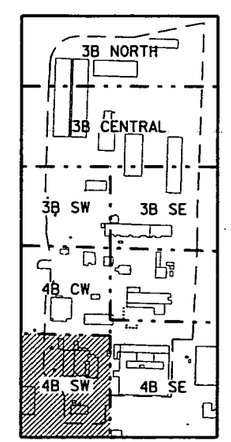


NORTH

AREA 3B/4B ISOLATION TRENCH KEY PLAN
SCALE: NONE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
FLUOR FERNALD, INC.

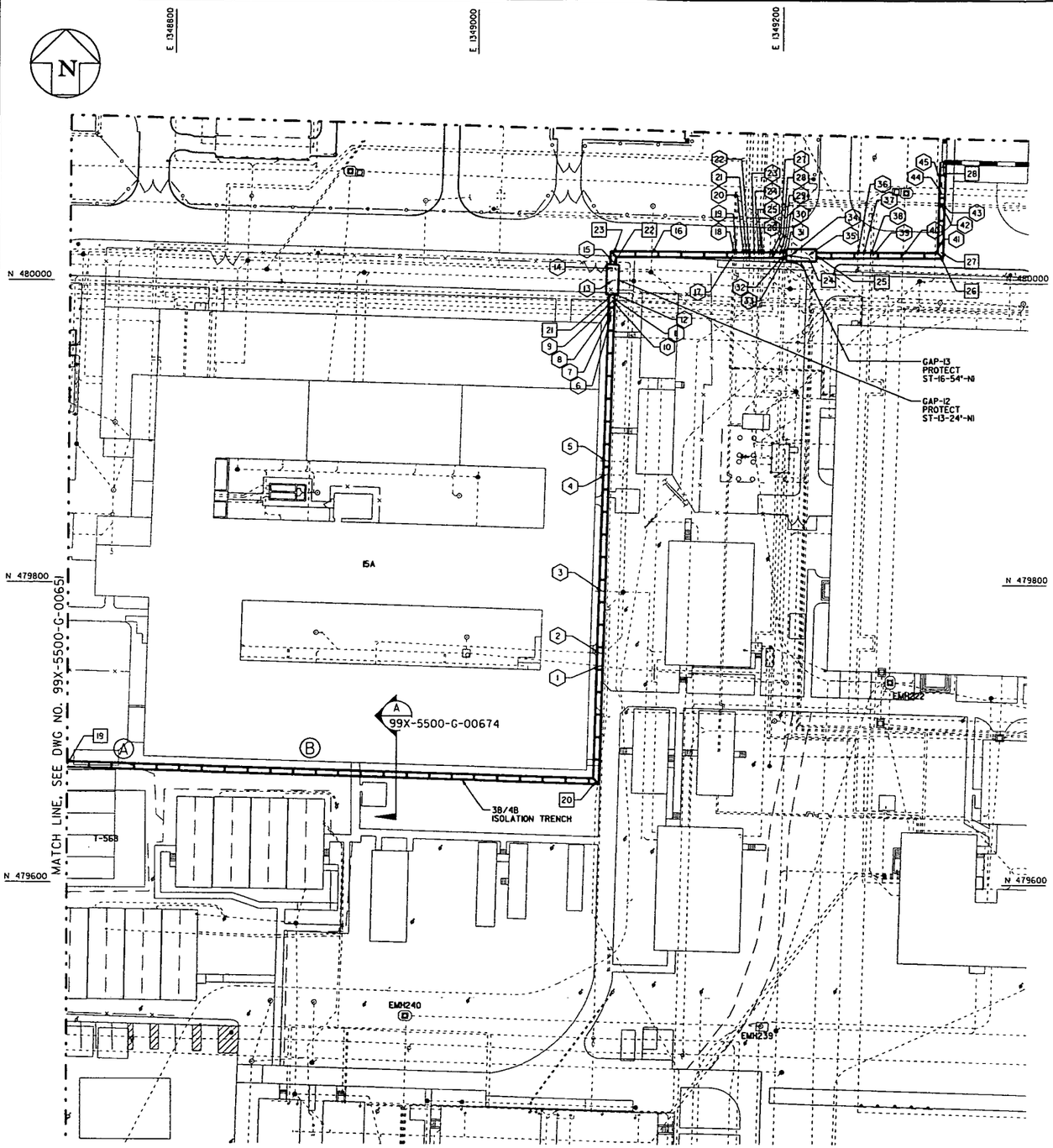
PROJECT NAME
SOIL REMEDIATION 000174

DRAWING TITLE
AREA 3B/4B
UTILITY ISOLATION PLAN (4B SW)

APPROVALS

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

DRAWN BY	PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
DRF	2080	99X-5500-G-00651	G-11	D
RES PROJECT NO.	FILENAME 99XG00651.DGN			



4B TRENCH UTILITY CUTS (4B SE)					
ID	GRID	UTILITY DESIGNATOR	POTENTIAL HAZARD	NORTHING	EASTING
1	21	ST-12"	ASBESTOS	479745.69	1349081.51
2	21	SN-6"	NONE	479754.08	1349081.74
3	21	SN-6"	NONE	479795.37	1349082.86
4	21	SN-4"	NONE	479872.93	1349084.99
5	21	SN-6"-MI	NONE	479881.93	1349085.23
6	21	FG-2-6"-V	ASBESTOS GASKETS	479978.11	1349087.86
7	21	WR-4-6"-W	ASBESTOS GASKETS	479981.10	1349087.95
8	21	WS-6-6"-W	ASBESTOS GASKETS	479984.10	1349088.03
9	21	TW-9-3"-W	ASBESTOS GASKETS	479987.10	1349088.11
10	21	TW-8"	ASBESTOS GASKETS	479988.10	1349088.14
11	21	DW-1-1"-DI	ASBESTOS GASKETS	479990.10	1349088.19
12	21	DW-7-8"-LI	ACM COATING/LEAD JOINTS	479993.10	1349088.27
13	21	SN-1-6"-MI	NONE	480001.40	1349088.50
14	21	FOI-12"	ASBESTOS GASKETS	480009.09	1349088.71
15	14	ELEC. LIGHTING	ASBESTOS INSULATION	480013.45	1349088.83
16	14	ST-10"-NI	ASBESTOS	480018.72	1349114.19
17	14	FG-2"	ASBESTOS GASKETS	480018.72	1349167.61
18	14	LS-2"	ASBESTOS GASKETS	480018.72	1349168.61
19	14	CN-2"	ASBESTOS GASKETS	480018.72	1349169.61
20	14	WS-E22-1-12"-W	ASBESTOS GASKETS	480018.72	1349174.61
21	14	WR-E22-1-12"-W	ASBESTOS GASKETS	480018.72	1349176.62
22	14	DW-6-8"-LI	ACM COATING/LEAD JOINTS	480018.72	1349178.62
23	14	FG-1-6"-W	ASBESTOS GASKETS	480018.72	1349181.62
24	14	PW-1-1"-LI	ASBESTOS GASKETS	480018.72	1349184.62
25	14	TW-22-8"-W	ASBESTOS GASKETS	480018.72	1349186.37
26	14	TW-4-4"-W	ASBESTOS GASKETS	480018.72	1349187.62
27	14	FT-1-12"-W	ASBESTOS GASKETS	480018.72	1349191.69
28	14	WS-6-6"-W	ASBESTOS GASKETS	480018.72	1349194.62
29	14	WR-4-6"-W	ASBESTOS GASKETS	480018.72	1349198.12
30	14	FT-6"-M	LEAD JOINTS	480018.72	1349200.23
31	14	LS-23-2"-S	ASBESTOS GASKETS	480018.72	1349200.37
32	14	SA-E22-1-2"-W	ASBESTOS GASKETS	480018.72	1349200.87
33	14	CN-5-2"-W	ASBESTOS GASKETS	480018.72	1349201.87
34	14	SN-8-10"-MI	NONE	480018.72	1349205.63
35	14	FG-2"	ASBESTOS GASKETS	480018.72	1349217.23
36	14	ELEC. LIGHTING	ASBESTOS INSULATION	480018.72	1349249.46
37	14	SD-2-15"-NI	ASBESTOS	480018.72	1349253.14
38	14	CN-5-2"-W	ASBESTOS GASKETS	480018.72	1349257.61
39	14	LS-23-2"-S	ASBESTOS GASKETS	480018.72	1349259.11
40	14	ELEC. DUCT 30"X38"	ASBESTOS INSULATION	480018.72	1349278.31
41	14	ST-6"	ASBESTOS	480018.72	1349299.27
42	13	MISC. CN	ASBESTOS	480051.72	1349303.91
43	13	MISC. LS	ASBESTOS	480053.22	1349303.95
44	13	ELEC. DUCT 38"X38"	ASBESTOS INSULATION	480059.22	1349304.12
45	13	SD-3-12"-NI	ASBESTOS	480063.22	1349304.24

4B TRENCH CONTROL POINTS		
PT NO.	NORTHING	EASTING
19	479678.26	1348730.28
20	479668.79	1349079.40
21	479991.82	1349088.24
22	480081.81	1349088.79
23	480018.72	1349088.98
24	480018.72	1349202.36
25	480018.72	1349222.36
26	480018.72	1349302.98
27	480021.02	1349303.04
28	480080.52	1349304.59

PRELIMINARY
NOT FOR CONSTRUCTION

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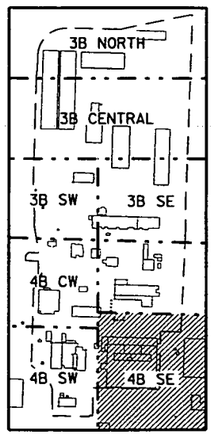


NORTH

AREA 3B/4B ISOLATION TRENCH KEY PLAN
SCALE: NONE

GENERAL NOTES

1. SEE DRAWING 99X-5500-X-00639 FOR LEGEND AND GENERAL NOTES.
2. UNDERGROUND UTILITIES SHOWN REPRESENT FLUOR FERNALD MASTER REFERENCE FILES FOR UNDERGROUND UTILITY DRAWINGS 220-5500-P-00678 (GRID 19), 228-5500-P-00683 (GRID 24), 220-5500-P-00684 (GRID 25), AND 228-5500-P-00686 (GRID 27). THIS DRAWING DOES NOT ATTEMPT TO SHOW UNDERGROUND UTILITIES WITHIN BUILDING FOOTPRINTS.
3. PERFORM ISOLATION TRENCHING SHOWN IN ACCORDANCE WITH SPECIFICATION SECTION 02207.
4. VERIFY LOCATIONS AND PROTECT EXISTING ENERGIZED UNDERGROUND UTILITIES.
5. UTILITY CUT TABLE SUMMARIZES UTILITY CUTS TO BE MADE DURING ISOLATION TRENCHING, MOVING CLOCKWISE AROUND THE TRENCH CENTERLINE.
6. GRID NUMBERS AND UTILITY DESIGNATORS ARE BASED ON FLUOR FERNALD UNDERGROUND UTILITY GRID DRAWINGS.
7. POTENTIAL HAZARDS ARE ASSESSED FOR MONITORING PURPOSES BASED ON INFORMATION GATHERED FROM CATALYTIC CONSTRUCTION DRAWINGS AND ORIGINAL FEMP CONSTRUCTION SPECIFICATIONS, LESSONS LEARNED FROM PREVIOUS EXCAVATIONS, AND DISCUSSIONS WITH ENVIRONMENTAL COMPLIANCE, MAINTENANCE, AND SAFETY REPRESENTATIVES.
8. COORDINATES FOR LOCATIONS WHERE ISOLATION TRENCHING INTERSECTS UTILITIES ARE BASED ON FEMP UNDERGROUND UTILITY GRID DRAWINGS.
9. EACH UTILITY CUT WILL BE LABELED IN THE FIELD AT THE CORRESPONDING COORDINATE LOCATION WITH TWO DESIGNATORS. THE FIRST IS THE UTILITY DESIGNATOR FROM THE TABLE PROVIDED (EX. ST-12"-PVC). THE SECOND IS THE CUT DESIGNATOR DEVELOPED FROM THIS DRAWING TO IDENTIFY THE CORRESPONDING AREA, QUADRANT, AND CUT IDENTIFICATION NUMBER (EX. 4B-NW-01).
10. UNLESS SPECIFIED BY COORDINATES, OR SHOWN IN A SPECIFIC MANHOLE OR CATCH BASIN, PROPOSED AIR GAP LOCATIONS ARE APPROXIMATE. AIR GAPS MAY BE INSTALLED AT THE INTERSECTION OF THE UTILITY AND THE ISOLATION TRENCH, OUTSIDE OF THE PROPOSED EXCAVATION AREA.
11. STORM SEWERS HAVE BEEN ASSIGNED A POTENTIAL ASBESTOS HAZARD FOR PURPOSES OF AGENCY NOTIFICATION OF POTENTIAL ACM DISTURBANCE BASED ON PROCESS KNOWLEDGE THAT LINES MAY CONTAIN TRANSITE-LIKE MATERIALS. THE ASBESTOS COMPETENT PERSON SHALL VERIFY PIPE MATERIALS ENCOUNTERED IN THE FIELD AND DIRECT THE MANAGEMENT OF THESE MATERIALS ACCORDINGLY.
12. EXISTING STORM SEWER SYSTEM MAY BE USED TO CONTROL RUNOFF DURING REMEDIATION. HOWEVER, STORM SEWER PIPES TO BE CUT DURING AREA ISOLATION SHALL BE PLUGGED AT THE EXCAVATION BOUNDARY IN ACCORDANCE WITH SECTION 02275.
13. UTILITY AIR GAPPING AND PLUGGING SHALL BE SEQUENCED WITH THE RELATED AREA ISOLATION TRENCH PHASE.
14. EXCAVATE ISOLATION TRENCH GAPS SHOWN TO DEPTH AND WIDTH REQUIREMENTS SPECIFIED IN SECTION 02207 USING EXCAVATION EQUIPMENT RATHER THAN THE TRENCHER, TO ISOLATE REMAINING UTILITIES AND TO PROTECT THE STORM SEWER. DO NOT EXCAVATE DIRECTLY BELOW THE PROTECTED UTILITY.
15. PRIOR TO EXCAVATION EXTENDING TO A DEPTH THAT WILL DAMAGE A PROTECTED STORM SEWER, PLUG THE STORM SEWER BEYOND THE LIMIT OF EXCAVATION USING A GROUT PLUG AT A LOCATION APPROVED BY THE PROJECT ENGINEER.

KEYED NOTES

(A) EXCAVATE THE LAB SOUTHWEST ABOVE-WAC AREA IN ACCORDANCE WITH DRAWING 99X-5500-G-00677 AND SPECIFICATION SECTION 02205 BEFORE PERFORMING PHASE II UTILITY ISOLATION TRENCHING IN THAT AREA.

(B) REMOVE SATELITE DISH POST BEFORE PERFORMING UTILITY ISOLATION TRENCHING.

LEGEND

PROPOSED ISOLATION TRENCH
EXISTING ISOLATION TRENCH
ISOLATION TRENCH GAP

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	DATE	REV. BY	APPR.
D	RE-ISSUED FOR AGENCY REVIEW	3/31/03	KLR	
C	ISSUED FOR AGENCY REVIEW	9/30/02	DRF	
B	ISSUED FOR 90% DESIGN REVIEW	8/30/02	DRF	
A	ISSUED FOR 30% DESIGN REVIEW	8/7/02	DRF	

DETAILS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
FLUOR FERNALD, INC.

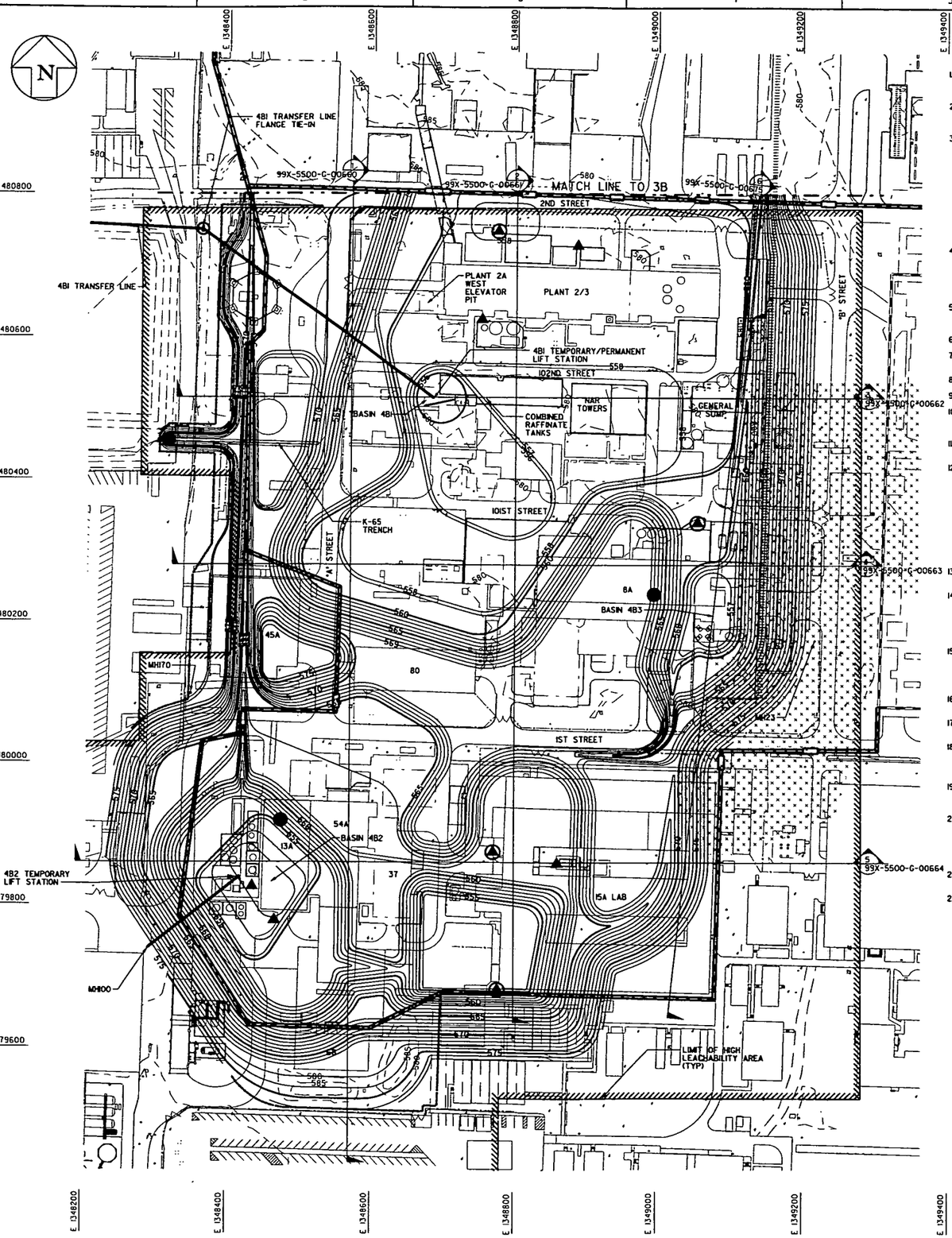
PROJECT NAME
SOIL REMEDIATION 000175

DRAWING TITLE
AREA 3B/4B
UTILITY ISOLATION PLAN (4B SE)

APPROVALS

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

DRAWN BY	PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
DRF	20180	99X-5500-G-00652	G-12	D
RES PROJECT NO.	FILENAME 99XG00652.DGN			



EXCAVATION SEQUENCING TABLE

4B SITE PREPARATION

1. BEFORE PERFORMING 4B UTILITY ISOLATION TRENCHING, EXCAVATE TC-99 ABOVE-WAC ASSOCIATED WITH PHASE I AREA 4B SILOS UTILITY TRENCH EXCAVATION, IN ACCORDANCE WITH DRAWING 99X-5500-G-00767.
2. BEFORE PERFORMING 4B UTILITY ISOLATION TRENCHING IN THE VICINITY OF THE LABORATORY, EXCAVATE THE URANIUM AND TC-99 ABOVE-WAC AREA SOUTHWEST OF THE LABORATORY, IN ACCORDANCE WITH DRAWING 99X-5500-G-00677.
3. PRIOR TO EXCAVATION WITHIN AREA 4B:

   PERFORM 4B UTILITY ISOLATION TRENCHING AND ENSURE UTILITY ISOLATIONS HAVE BEEN COMPLETED.

   INSTALL A 6-INCH HDPE TRANSFER LINE FROM BSL TO 4B1 TRANSFER LINE FLANGE TIE-IN IN ACCORDANCE WITH DRAWING 99X-5500-G-00681.

   ESTABLISH A TEMPORARY EXCAVATION WATER COLLECTION SUMP IN THE PLANT 2A WEST ELEVATOR PIT.

   CONNECT A PIPELINE FROM THE TEMPORARY EXCAVATION SUMP TO THE 4B1 TRANSFER LINE FLANGE TIE-IN.
4. ESTABLISH A DEBRIS STOCKPILE AREA WEST OF 'A' STREET SOUTH OF THE K-65 TRENCH AND NORTH OF BUILDING 45A. THIS AREA IS TO BE REAL TIME SCANNED TO VERIFY NO ABOVE-WAC MATERIAL IS LOCATED AT THE SURFACE PRIOR TO STOCKPILING DEBRIS.

AT- AND BELOW-GRADE EXCAVATION

5. UNTIL THE 4B1 TEMPORARY LIFT STATION IS OPERATIONAL, PUMP SURFACE WATER COLLECTD WITHIN THE AREA BOUNDED BY 2ND STREET, 101ST STREET, 'A' STREET, AND 'B' STREET TO THE PLANT 2A WEST ELEVATOR PIT.
6. BREAK SURFACE CONCRETE.
7. PLACE BROKEN SURFACE CONCRETE IN THE DEBRIS STOCKPILE AREA OR HAUL BROKEN SURFACE CONCRETE FOR DISPOSAL AS DIRECTED BY CONSTRUCTION MANAGER.
8. COORDINATE WITH REAL-TIME TO SCAN SURFACE FOLLOWING REMOVAL OF CONCRETE.
9. EXCAVATE KNOWN ABOVE-WAC AREAS IN ACCORDANCE WITH DRAWING 99X-5500-G-00677.
10. PRIOR TO FOUNDATION REMOVAL, EXCAVATE UNDERGROUND PROCESS, SANITARY, AND STORM SEWER LINES, SUMPS, AND TRENCHES WITHIN BUILDING FOOTPRINTS TO ENSURE REMOVAL OF POTENTIAL UNKNOWN AWAC MATERIAL.
11. EXCAVATE REMAINING IMPACTED MATERIAL WITHIN EXCAVATION LIMITS IN ACCORDANCE WITH SPECIFICATION SECTION 02205 USING A SLOPE NO STEEPER THAN 4H:1V.
12. EXCAVATE SOILS ABOVE CONTAMINATION GRADES (SEE DRAWINGS 99X-5500-G-00676, AND 665 THROUGH 670) IN 3 FOOT PLUS OR MINUS 1 FOOT LIFTS IN ACCORDANCE WITH SPECIFICATION SECTION 02205. UPON REACHING CONTAMINATION GRADE, PERFORM PRECERTIFICATION REAL-TIME SCANNING.

    IF SURFACE PASSES PRECERTIFICATION REAL-TIME SCANNING, THEN EXCAVATE SOIL BELOW THAT SURFACE AND STOCKPILE IN A DESIGNATED "CLEAN" AREA. SOILS STOCKPILED IN DESIGNATED "CLEAN" AREA WILL BE SAMPLED FOR CERTIFICATION DURING THE CERTIFICATION PROCESS.

    IF SURFACE FAILS PRECERTIFICATION REAL-TIME SCANNING, THEN CONTINUE REMEDIAL EXCAVATION, AS REQUIRED.
13. INSTALL 4B1 AND 4B2 TEMPORARY LIFT STATIONS IN ACCORDANCE WITH DRAWINGS 99X-5500-G-00683 AND 99X-5500-G-00684.
14. PERFORM EXCAVATION OUTWARD FROM TEMPORARY LIFT STATION 4B1 IN ACCORDANCE WITH SPECIFICATION SECTION 02205. MAINTAIN SURFACE WATER DRAINAGE TO TEMPORARY LIFT STATION 4B1. EXCAVATE SOILS UNDERNEATH PLANT 2/3, COMBINED RAFFINATE TANKS, NAR TOWERS, AND GENERAL SUMP TO REMOVE POTENTIALLY ORGANIC AND METAL CONTAMINATED PERCHED GROUNDWATER SOURCE MATERIAL.
15. UPON REACHING DESIGN GRADE AT BASIN 4B1 CONVERT TEMPORARY LIFT STATION INTO 4B1 PERMANENT LIFT STATION AND INSTALL ASSOCIATED ELECTRICAL SERVICE. INSTALL 4B1 TRANSFER LINE EXTENSION FROM 4B1 LIFT STATION TO 4B1 TRANSFER LINE FLANGE TIE-IN IN ACCORDANCE WITH DRAWINGS 99X-5500-G-00758 THROUGH 99X-5500-G-00765.
16. INSTALL MH170 AND REROUTE STORM SEWER BETWEEN MH170 AND MH100 AROUND PERIMETER OF EXCAVATION AREA IN ACCORDANCE WITH DRAWING 99X-5500-G-00745.
17. EXCAVATE BASIN 4B2 IN ACCORDANCE WITH SPECIFICATION SECTION 02205 USING A SLOPE NO STEEPER THAN 4H:1V.
18. UPON REACHING DESIGN GRADE, ESTABLISH 4B2 BASIN BY INSTALLING GMA PLUG, CLAY PLUG, 30 MIL GEOMEMBRANE LINER, 4B2 PERMANENT LIFT STATION, AND 4B2 TRANSFER LINE EXTENSION IN ACCORDANCE WITH DRAWINGS 99X-5500-G-00682 AND 99X-5500-G-00683.
19. DO NOT EXCAVATE CONTAMINATION BELOW ELEVATION 560 FEET IN THE GENERAL VICINITY OF THE LABORATORY BASEMENT UNTIL AFTER BASIN 4B2 HAS BEEN ESTABLISHED.
20. UPON REACHING DESIGN GRADE AND VERIFYING REMOVAL OF IMPACTED SOIL IN THE GENERAL VICINITY OF THE LABORATORY BASEMENT, INSTALL GMA PLUG AND COMPACTED FILL IN ACCORDANCE WITH DRAWING 99X-5500-G-00653 AND FINALIZE DITCH FROM CONTROL POINTS S3 TO S5.

GRADING

21. UPON REACHING FINAL DESIGN GRADE IN AREA 4B, ESTABLISH 4B PRECERTIFICATION AREA.
22. DO NOT PERFORM INTERIM OR FINAL GRADING WITHIN THE 4B PRECERTIFICATION AREA UNTIL PRECERTIFICATION SAMPLES HAVE BEEN ANALYZED AND RESULTS SHOW REMAINING SOILS ARE BELOW APPLICABLE FRLS. GRADING MAY BE PERFORMED WITHIN THE 4B PRECERTIFICATION AREA PRIOR TO ANALYTICAL RESULTS BEING REPORTED FOR SLOPE STABILITY AND SAFETY REASONS, IF REQUIRED.

GENERAL NOTES

1. SEE DRAWING 99X-5500-X-00639 FOR LEGEND AND GENERAL NOTES.
2. THIS DRAWING REPRESENTS A GENERAL OVERVIEW OF AREA 4B EXCAVATION AND DRAINAGE. SEE EXCAVATION/DRAINAGE PLAN DRAWINGS 99X-5500-G-00654 THROUGH 00659 FOR EXCAVATION COORDINATES AND DETAILS.
3. REFER TO DEWATERING PLAN 99X-5500-G-00646 FOR DEWATERING OF EXCAVATION.
4. BUILDING NUMBERS REFER TO FORMER LOCATIONS OF BUILDINGS OR PADS.
5. SEE DRAWING 99X-5500-G-00677 FOR COORDINATES AND EXCAVATION DETAILS FOR ABOVE-WAC AREAS SHOWN HERE FOR REFERENCE ONLY.
6. SEE DRAWING 99X-5500-G-00678 FOR COORDINATES AND EXCAVATION DETAILS FOR HWNU'S SHOWN HERE FOR REFERENCE ONLY.
7. OBTAIN APPROVAL OF THE CONSTRUCTION MANAGER PRIOR TO EXCAVATION OUTSIDE THE LIMITS OF THE AREA ISOLATION TRENCH CORRESPONDING TO THE EXCAVATION STAGE.
8. MANHOLE AND CATCHBASIN OPENINGS SHALL BE PROTECTED IN ACCORDANCE WITH SPR3-5.
9. RESEARCH IS ONGOING INTO UNDERGROUND PIPING IN BUILDING FOOTPRINTS NOT SHOWN ON UNDERGROUND UTILITY GRID DRAWINGS. THIS INFORMATION WILL BE MADE AVAILABLE TO THE CONSTRUCTION MANAGER PRIOR TO EXCAVATION WITHIN A BUILDING FOOTPRINT.

4831

LEGEND

- URANIUM ABOVE-WAC AREA
- TC-99 ABOVE-WAC AREA
- URANIUM AREA & TC-99 ABOVE-WAC AREA
- POTENTIAL BARIUM RCRA AREA
- PROPOSED ISOLATION TRENCH
- EXISTING ISOLATION TRENCH
- ISOLATION TRENCH GAP

PRELIMINARY
NOT FOR CONSTRUCTION

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	DATE	REV. BY	APPR.
D	RE-ISSUED FOR AGENCY REVIEW	3/3/03	KLR	
C	ISSUED FOR AGENCY REVIEW	9/30/02	KLR	
B	ISSUED FOR 90% DESIGN REVIEW	8/30/02	KLR	
A	ISSUED FOR 30% DESIGN REVIEW	8/7/02	DRF	

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
FLUOR FERNALD, INC.

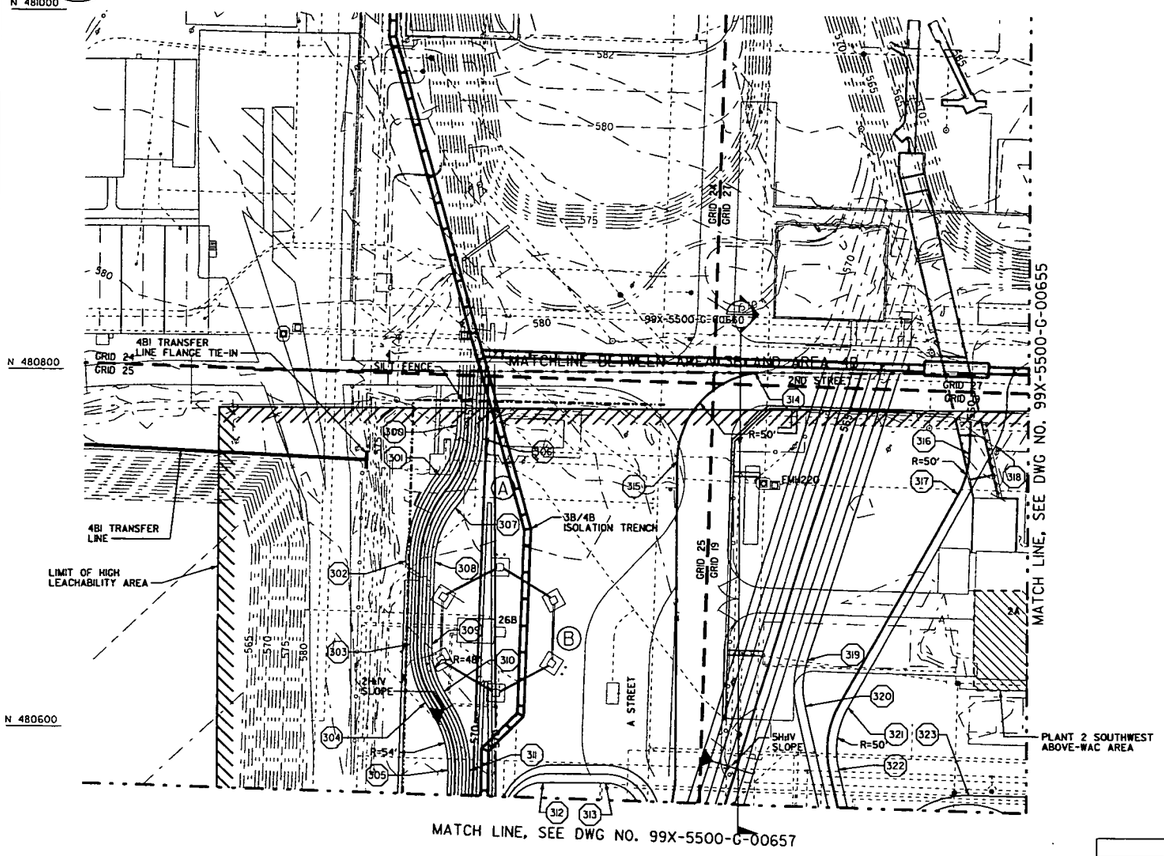
PROJECT NAME
SOIL REMEDIATION 000176

DRAWING TITLE
AREA 4B
EXCAVATION/DRAINAGE OVERVIEW PLAN

APPROVALS

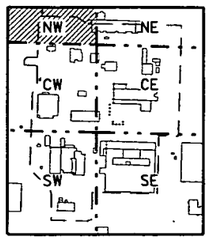
COGNIZANT ENG.		SAFETY ENG.	
CIVIL & STR.		MAINTENANCE	
ELECTRICAL		FIRE PROTECT.	
ENGINEER		WASTE MANAGE	
INSTRUMENT		SECURITY	
MECHANICAL		QA	
		CONSTRUCTION	
CHECKED			
APPROVED			

DRAWN BY	PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
DRF	20610	99X-5500-G-00653	G-13	D
RES PROJECT NO.	FILENAME 99XG00653.DGN			



DESIGN GRADE CONTROL POINTS			
PT NO.	NORTHING	EASTING	ELEV.
300	480769.63	1348413.21	578.00
301	480741.64	1348403.60	578.00
302	480693.86	1348385.26	579.00
303	480647.21	1348387.98	577.00
304	480614.54	1348396.60	577.00
305	480576.71	1348409.35	577.00
306	480762.32	1348427.00	571.00
307	480723.72	1348412.54	571.00
308	480693.41	1348401.25	571.00
309	480646.88	1348399.98	571.00
310	480620.75	1348406.87	571.00
311	480576.35	1348421.35	571.00
312	480569.83	1348461.62	573.00
313	480569.83	1348497.05	573.00
314	480800.00	1348578.34	570.00
315	480750.52	1348535.50	570.00
316	480755.30	1348696.91	560.00
317	480732.56	1348690.73	560.00
318	480759.90	1348711.49	559.00
319	480639.12	1348608.57	561.00
320	480613.54	1348607.57	561.00
321	480613.17	1348630.73	559.00
322	480578.14	1348625.74	559.00
323	480563.90	1348697.36	558.00

DITCH CONTROL POINTS			
PT NO.	NORTHING	EASTING	ELEV.
WG	480728.59	1348430.94	570.00



AREA 4B KEY PLAN
SCALE: NONE

GENERAL NOTES

1. SEE DRAWING 99X-5500-X-00639 FOR LEGEND AND GENERAL NOTES.
2. GRID NUMBERS REFER TO THE UNDERGROUND UTILITIES GRID DRAWINGS AS SHOWN IN UTILITY GRID REFERENCE DRAWING INDEX ON DRAWING 99X-5500-X-00642.
3. COMPLETE ABOVE-WAC AREA EXCAVATION IN ACCORDANCE WITH DRAWING 99X-5500-G-00677 AND SPECIFICATION SECTION 02205 PRIOR TO PERFORMING ADJACENT GENERAL AREA EXCAVATION.
4. COMPLETE HWMU AREA EXCAVATION IN ACCORDANCE WITH DRAWING 99X-5500-G-00678 AND SPECIFICATION SECTION 02205 PRIOR TO PERFORMING ADJACENT GENERAL AREA EXCAVATION.
5. DESIGN CONTOURS AND GRADES SHOWN REPRESENT THE MINIMUM LIMITS OF EXCAVATION REQUIRED TO CAPTURE CONTAMINATION AND FOUNDATIONS, WHILE MAINTAINING SAFE SLOPE REQUIREMENTS. FIELD CHANGES SHALL BE REPORTED TO CONSTRUCTION MANAGER AND APPROVED BY THE ENGINEER.
6. BUILDING NUMBERS REFER TO FORMER LOCATIONS OF BUILDINGS OR PADS.
7. OBTAIN APPROVAL OF THE CONSTRUCTION MANAGER PRIOR TO EXCAVATION OUTSIDE THE LIMITS OF THE TRENCHED EXCAVATION AREA.
8. MANHOLE AND CATCHBASIN OPENINGS SHALL BE PROTECTED IN ACCORDANCE WITH SPR3-5.

KEYED NOTES

(A) TRANSITION FROM 2HIV SLOPE TO 5HIV SLOPE.

(B) PLACE 2 FOOT CLAY PLUG OVER EXPOSED CONCRETE PILES IN 26B FOUNDATION IN ACCORDANCE WITH SPECIFICATION SECTION 02206. MAINTAIN POSITIVE DRAINAGE IN DITCH.

4831

LEGEND

PROPOSED ISOLATION TRENCH
EXISTING ISOLATION TRENCH
ISOLATION TRENCH GAP

PRELIMINARY
NOT FOR CONSTRUCTION

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	DATE	REV. BY	APPR.
D	RE-ISSUED FOR AGENCY REVIEW	3/31/03	KLR	
C	ISSUED FOR AGENCY REVIEW	9/30/02	DRF	
B	ISSUED FOR 90% DESIGN REVIEW	8/30/02	KLR	
A	ISSUED FOR 30% DESIGN REVIEW	8/7/02	DRF	

INITIALS AND DATE

UNITED STATES
DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
FLUOR FERNALD, INC.

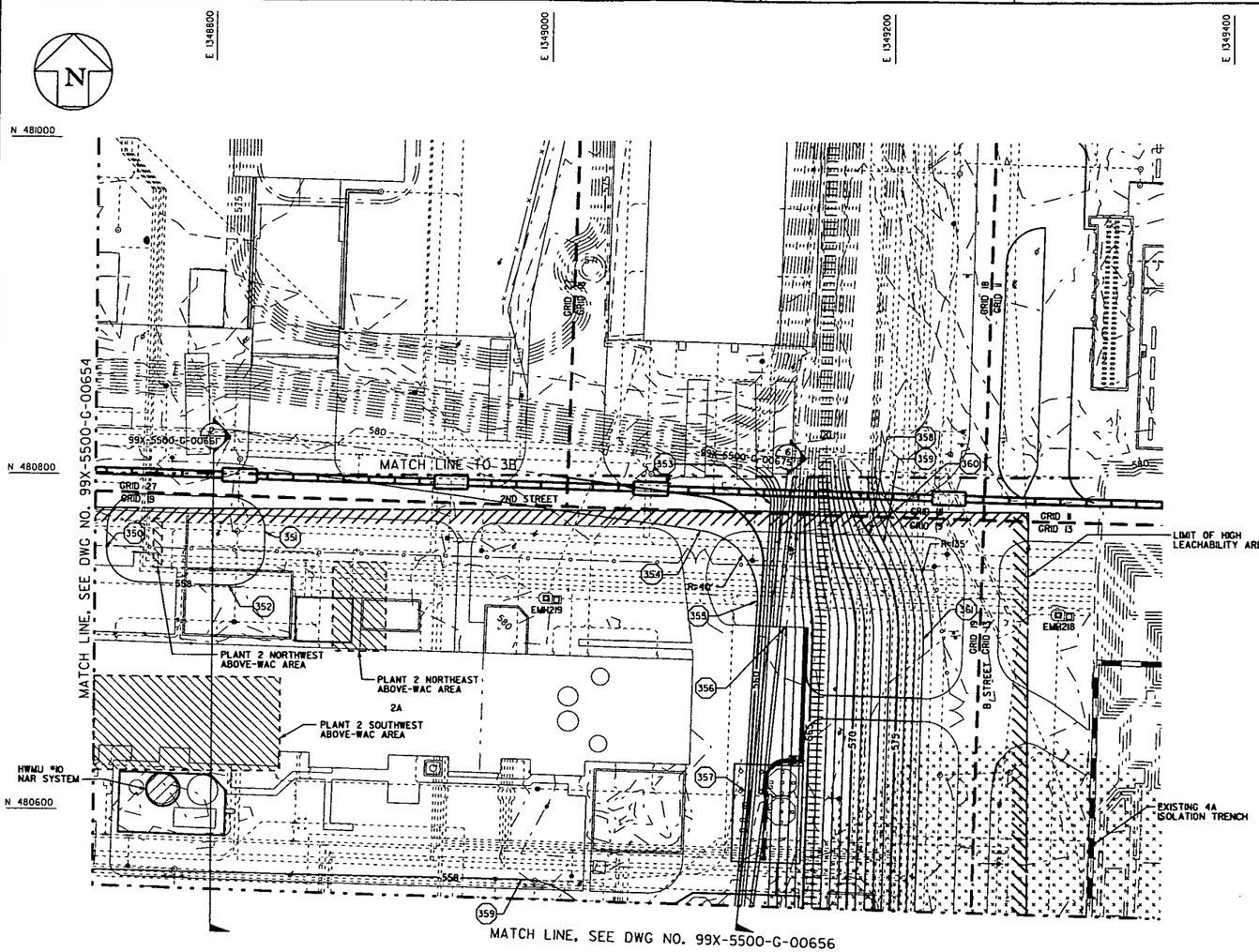
PROJECT NAME
SOIL REMEDIATION 000177

DRAWING TITLE
AREA 4B
EXCAVATION/DRAINAGE PLAN (NW)

APPROVALS

COGNIZANT ENG.		SAFETY ENG.	
CIVIL & STR.		MAINTENANCE	
ELECTRICAL		FRE PROJECT.	
ENGINEER		WASTE MANAGE	
INSTRUMENT		SECURITY	
MECHANICAL		QA	
		CONSTRUCTION	
CHECKED			
APPROVED			

DRAWN BY	PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
DRF	2080	99X-5500-G-00654	G-14	D
RES PROJECT NO.	FILENAME 99XG00654.DGN			



DESIGN GRADE CONTROL POINTS			
PT NO.	NORTHING	EASTING	ELEV.
350	480755.62	1348736.94	558.00
351	480765.58	1348830.34	558.00
352	480733.63	1348809.45	558.00
353	480783.67	1349129.46	561.00
354	480767.85	1349087.67	559.00
355	480725.93	1349122.14	559.00
356	480710.01	1349138.25	562.00
357	480611.98	1349115.60	559.00
358	480765.67	1349186.77	575.00
359	480761.07	1349194.96	576.00
360	480779.36	1349200.67	579.00
361	480703.75	1349219.10	578.00

GENERAL NOTES

1. SEE DRAWING 99X-5500-X-00639 FOR LEGEND AND GENERAL NOTES.
2. GRID NUMBERS REFER TO THE UNDERGROUND UTILITIES GRID DRAWINGS AS SHOWN IN UTILITY GRID REFERENCE DRAWING INDEX ON DRAWING 99X-5500-X-00642.
3. COMPLETE ABOVE-WAC AREA EXCAVATION IN ACCORDANCE WITH DRAWING 99X-5500-G-00677 AND SPECIFICATION SECTION 02205 PRIOR TO PERFORMING ADJACENT GENERAL AREA EXCAVATION.
4. COMPLETE HWMU AREA EXCAVATION IN ACCORDANCE WITH DRAWING 99X-5500-G-00678 AND SPECIFICATION SECTION 02205 PRIOR TO PERFORMING ADJACENT GENERAL AREA EXCAVATION.
5. DESIGN CONTOURS AND GRADES SHOWN REPRESENT THE MINIMUM LIMITS OF EXCAVATION REQUIRED TO CAPTURE CONTAMINATION AND FOUNDATIONS, WHILE MAINTAINING SAFE SLOPE REQUIREMENTS. FIELD CHANGES SHALL BE REPORTED TO CONSTRUCTION MANAGER AND APPROVED BY THE ENGINEER.
6. BUILDING NUMBERS REFER TO FORMER LOCATIONS OF BUILDINGS OR PADS.
7. OBTAIN APPROVAL OF THE CONSTRUCTION MANAGER PRIOR TO EXCAVATION OUTSIDE THE LIMITS OF THE TRENCHED EXCAVATION AREA.
8. MANHOLE AND CATCHBASIN OPENINGS SHALL BE PROTECTED IN ACCORDANCE WITH SPR3-5.

4831

LEGEND

PROPOSED ISOLATION TRENCH
EXISTING ISOLATION TRENCH
ISOLATION TRENCH GAP

PRELIMINARY
NOT FOR CONSTRUCTION

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	DATE	REV. BY	APPR.
D	RE-ISSUED FOR AGENCY REVIEW	3/31/03	KLR	
C	ISSUED FOR AGENCY REVIEW	9/30/02	DRF	
B	ISSUED FOR 90% DESIGN REVIEW	8/30/02	KLR	
A	ISSUED FOR 30% DESIGN REVIEW	8/7/02	DRF	

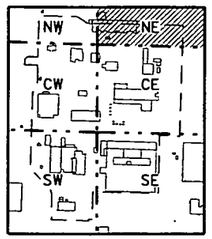
INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
FLUOR FERNALD, INC.

PROJECT NAME
SOIL REMEDIATION 000178

DRAWING TITLE
AREA 4B
EXCAVATION/DRAINAGE PLAN (NE)



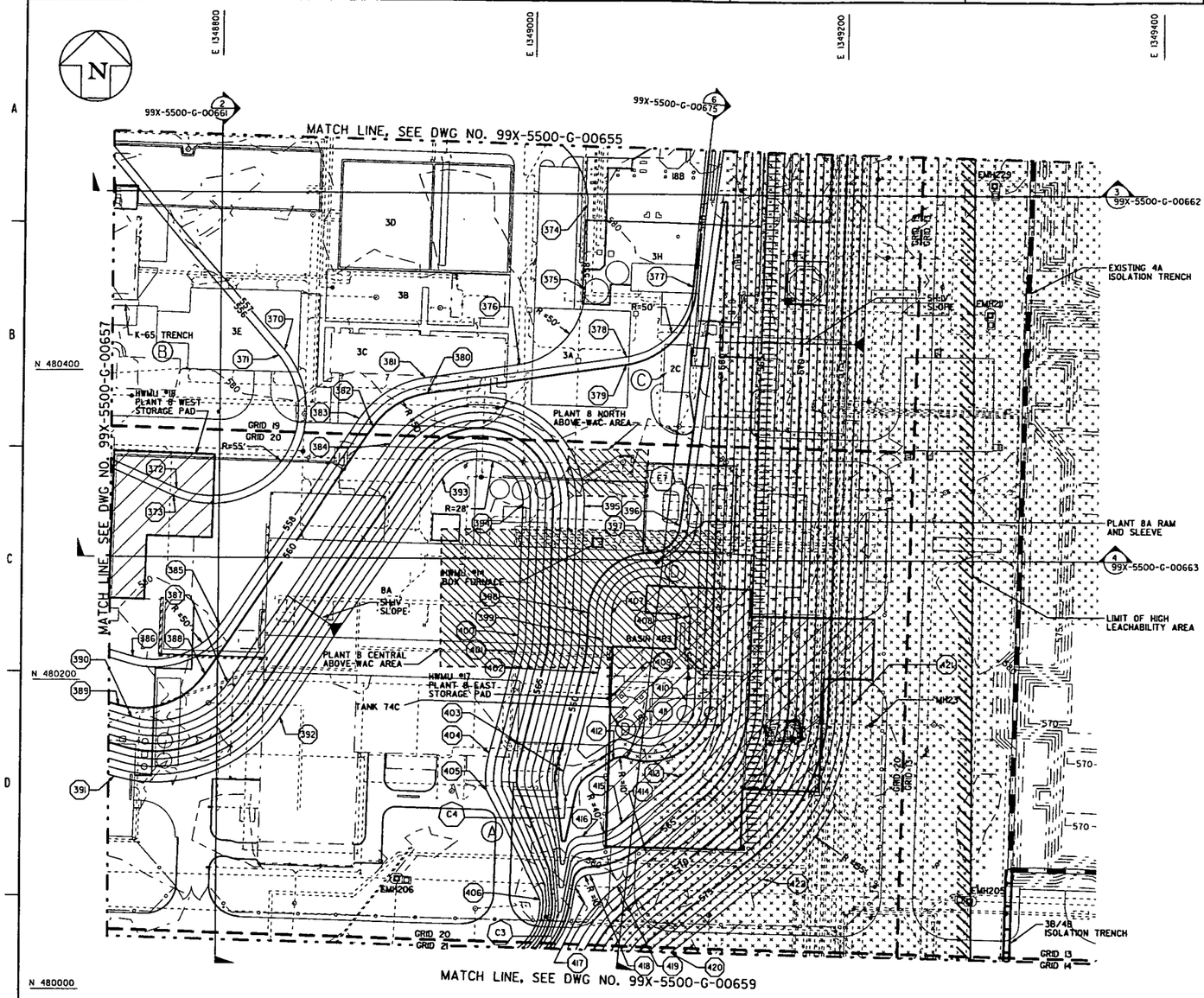
NORTH
AREA 4B KEY PLAN
SCALE: NONE

30 0 30 60
SCALE: 1"=30'

APPROVALS

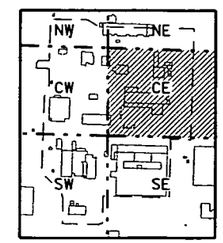
COGNIZANT ENG.		SAFETY ENG.	
CIVIL & STR.		MAINTENANCE	
ELECTRICAL		FIRE PROTECT.	
ENGINEER		WASTE MANAGE	
INSTRUMENT		SECURITY	
MECHANICAL		DA	
		CONSTRUCTION	
CHECKED			
APPROVED			

DRAWN BY	PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
DRF	20810	99X-5500-G-00655	G-15	D
RES PROJECT NO.	FILENAME 99XG00655.DGN			



DESIGN GRADE CONTROL POINTS																			
PT NO.	NORTHING	EASTING	ELEV.	PT NO.	NORTHING	EASTING	ELEV.	PT NO.	NORTHING	EASTING	ELEV.	PT NO.	NORTHING	EASTING	ELEV.	PT NO.	NORTHING	EASTING	ELEV.
370	480413.55	1348840.60	557.00	381	480396.29	1348930.60	558.00	392	480176.60	1348839.81	569.00	403	480142.49	1349021.60	559.00	414	480090.14	1349074.55	566.00
371	480410.31	1348836.79	556.00	382	480364.48	1348897.80	560.00	393	480331.66	1348942.03	569.00	404	480154.02	1348972.95	569.00	415	480109.56	1349058.80	561.00
372	480324.25	1348773.03	556.00	383	480369.99	1348889.45	558.00	394	480315.48	1348993.40	569.00	405	480130.06	1348971.46	569.00	416	480100.62	1349033.81	561.00
373	480319.66	1348771.05	557.00	384	480353.68	1348908.64	561.00	395	480315.48	1349033.39	561.00	406	480059.64	1349006.61	569.00	417	480067.69	1349029.60	566.00
374	480507.91	1349033.84	558.00	385	480236.05	1348801.15	558.00	396	480302.04	1349094.95	560.00	407	480245.29	1349051.50	557.00	418	480075.82	1349038.65	566.00
375	480453.84	1349032.88	558.00	386	480215.56	1348745.45	558.00	397	480284.59	1349075.57	560.00	408	480243.92	1349101.48	557.00	419	480068.80	1349056.18	567.00
376	480405.29	1348990.33	558.00	387	480198.62	1348806.42	561.00	398	480245.70	1349036.51	560.00	409	480190.31	1349050.00	557.00	420	480026.09	1349090.83	578.00
377	480455.72	1349101.88	559.00	388	480204.29	1348792.19	560.00	399	480228.54	1349046.04	558.00	410	480188.94	1349099.98	557.00	421	480186.07	1349204.94	578.00
378	480410.65	1349059.51	559.00	389	480183.80	1348736.49	560.00	400	480230.59	1348991.08	569.00	411	480151.83	1349061.89	560.00	422	480073.68	1349149.50	578.00
379	480405.60	1349059.54	560.00	390	480176.07	1348745.15	561.00	401	480219.69	1348989.57	569.00	412	480150.67	1349053.02	560.00				
380	480386.40	1348932.09	560.00	391	480137.66	1348733.98	569.00	402	480206.74	1349043.02	558.00	413	480139.69	1349095.95	561.00				

DITCH CONTROL POINTS			
PT NO.	NORTHING	EASTING	ELEV.
E7	480311.21	1349107.33	558.00
C3	480051.54	1349019.37	563.00
C4	480127.29	1349123.11	559.00



AREA 4B KEY PLAN
SCALE: NONE

30 0 30 60
SCALE: 1"=30'

GENERAL NOTES

1. SEE DRAWING 99X-5500-X-00639 FOR LEGEND AND GENERAL NOTES.
2. GRID NUMBERS REFER TO THE UNDERGROUND UTILITIES GRID DRAWINGS AS SHOWN IN UTILITY GRID REFERENCE DRAWING INDEX ON DRAWING 99X-5500-X-00642.
3. COMPLETE ABOVE-WAC AREA EXCAVATION IN ACCORDANCE WITH DRAWING 99X-5500-G-00677 AND SPECIFICATION SECTION 02205 PRIOR TO PERFORMING ADJACENT GENERAL AREA EXCAVATION.
4. COMPLETE HWMU AREA EXCAVATION IN ACCORDANCE WITH DRAWING 99X-5500-G-00678 AND SPECIFICATION SECTION 02205 PRIOR TO PERFORMING ADJACENT GENERAL AREA EXCAVATION.
5. DESIGN CONTOURS AND GRADES SHOWN REPRESENT THE MINIMUM LIMITS OF EXCAVATION REQUIRED TO CAPTURE CONTAMINATION AND FOUNDATIONS. WHILE MAINTAINING SAFE SLOPE REQUIREMENTS. FIELD CHANGES SHALL BE REPORTED TO CONSTRUCTION MANAGER AND APPROVED BY THE ENGINEER.
6. BUILDING NUMBERS REFER TO FORMER LOCATIONS OF BUILDINGS OR PADS.
7. OBTAIN APPROVAL OF THE CONSTRUCTION MANAGER PRIOR TO EXCAVATION OUTSIDE THE LIMITS OF THE TRENCHED EXCAVATION AREA.
8. MANHOLE AND CATCHBASIN OPENINGS SHALL BE PROTECTED IN ACCORDANCE WITH SPR3-5.

4831

KEYED NOTES

(A) TRANSITION FROM 2H:1V SLOPE TO 5H:1V SLOPE.

(B) SEE DRAWING 99X-5500-G-00657 FOR K-65 TRENCH EXCAVATION METHOD.

(C) UPON REACHING DESIGN GRADE, CUT/SHEAR BUILDING 2C PIERS AT LEAST 3 FEET ABOVE GRADE AND PULL. GROUT SUBSEQUENT HOLES AFTER EACH PULL IN ACCORDANCE WITH SPECIFICATION SECTION 02206. IF PIERS ARE BRITTLE AND FRACTURE UPON PULLING, LEAVE IN PLACE UNTIL FOLLOWING PRECERTIFICATION OF THE AREA. REMOVE REMAINING PORTIONS OF PIERS IN ACCORDANCE WITH DRAWING 99X-5500-G-00769.

(D) PRIOR TO EXCAVATION, PULL 1 FOOT DIA. HYDRAULIC RAM. UPON REACHING FINAL DESIGN GRADE, PULL THE 3 FOOT DIA. STEEL CASING. GROUT THE SUBSEQUENT HOLE IN ACCORDANCE WITH SPECIFICATION SECTION 02206. MATERIAL EXCAVATED TO LOOSEN CASING SHALL NOT BE USED FOR BACKFILL.

LEGEND

PROPOSED ISOLATION TRENCH
EXISTING ISOLATION TRENCH
ISOLATION TRENCH GAP

PRELIMINARY
NOT FOR CONSTRUCTION

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	DATE	REV. BY	APPR.
D	RE-ISSUED FOR AGENCY REVIEW	3/3/03	KLR	
C	ISSUED FOR AGENCY REVIEW	9/30/02	DRF	
B	ISSUED FOR 90% DESIGN REVIEW	8/30/02	KLR	
A	ISSUED FOR 30% DESIGN REVIEW	8/1/02	DRF	

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
FLUOR FERNALD, INC.

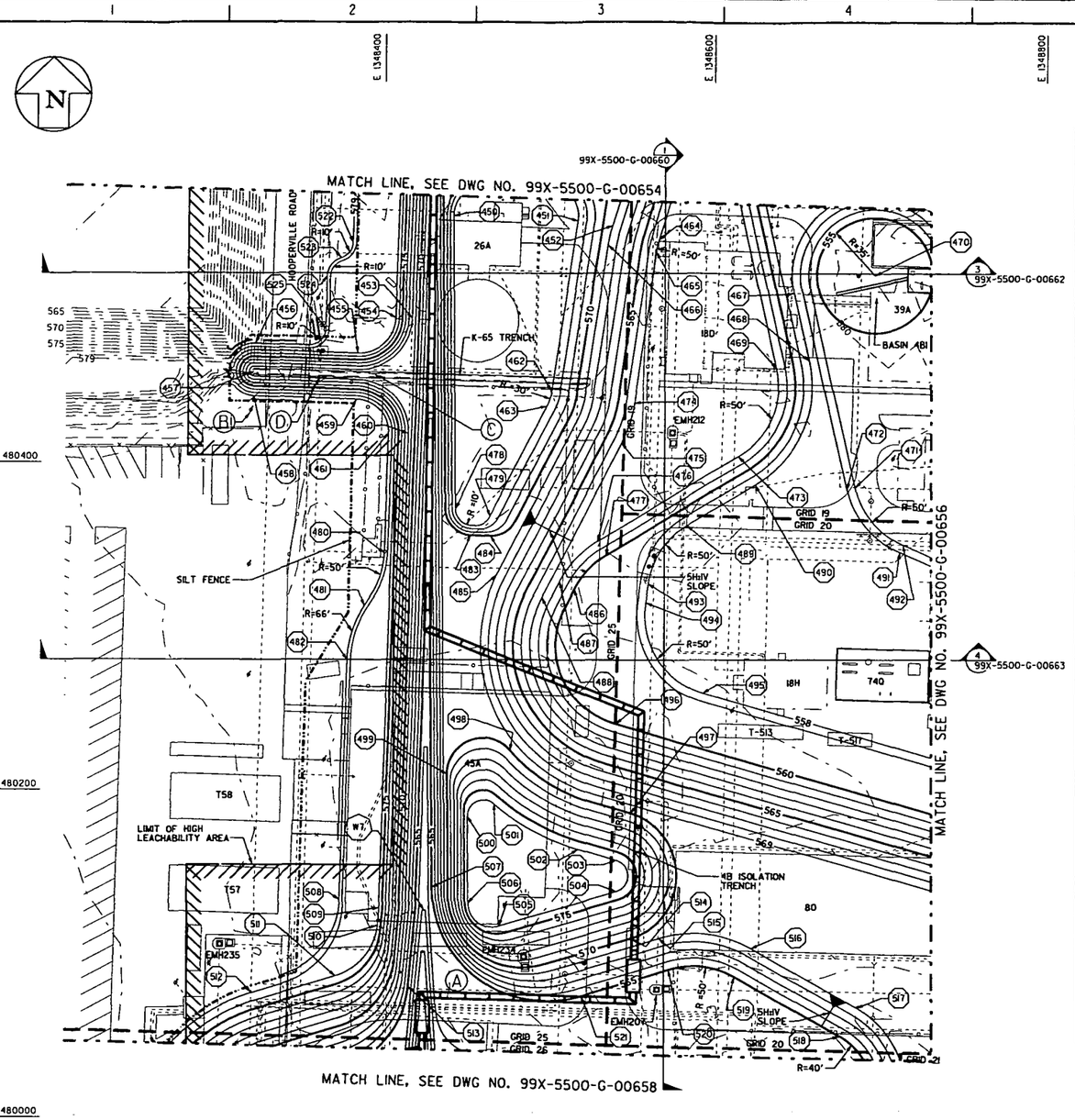
PROJECT NAME
SOIL REMEDIATION 000179

DRAWING TITLE
AREA 4B
EXCAVATION/DRAINAGE PLAN (CE)

APPROVALS

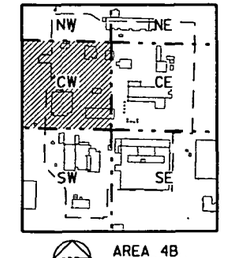
COGNIZANT ENG.		SAFETY ENG.	
CIVIL & STR.		MAINTENANCE	
ELECTRICAL		FIRE PROTECT.	
ENGINEER		WASTE MANAGE	
INSTRUMENT		SECURITY	
MECHANICAL		QA	
		CONSTRUCTION	
CHECKED			
APPROVED			

DRAWN BY	PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
DRF	2080	99X-5500-G-00656	G-16	D
RES PROJECT NO.	FILENAME 99XG00656.DGN			



DESIGN GRADE CONTROL POINTS							
PT NO.	NORTHING	EASTING	ELEV.	PT NO.	NORTHING	EASTING	ELEV.
450	480549.64	1348441.62	573.00	491	480345.47	1348718.30	557.00
451	480546.91	1348516.83	573.00	492	480350.06	1348713.29	556.00
452	480543.92	1348537.53	569.00	493	480326.45	1348560.09	558.00
453	480487.44	1348416.65	572.00	494	480314.92	1348558.38	558.00
454	480487.75	1348406.65	577.00	495	480259.60	1348593.90	558.00
455	480466.43	1348383.99	577.00	496	480240.83	1348540.22	560.00
456	480472.32	1348321.76	579.00	497	480186.19	1348549.09	570.00
457	480455.33	1348321.25	572.00	498	480224.41	1348477.71	570.00
458	480440.33	1348320.79	578.00	499	480210.02	1348438.89	570.00
459	480438.44	1348383.14	578.00	500	480184.14	1348451.14	576.00
460	480417.48	1348414.52	572.00	501	480191.71	1348467.78	576.00
461	480417.84	1348402.53	578.00	502	480164.01	1348517.90	576.00
462	480443.69	1348501.59	573.00	503	480157.38	1348540.72	576.00
463	480434.60	1348498.72	573.00	504	480138.22	1348540.85	576.00
464	480535.13	1348566.21	563.00	505	480116.83	1348471.04	576.00
465	480527.77	1348564.55	563.00	506	480131.03	1348451.65	576.00
466	480532.16	1348534.87	569.00	507	480140.58	1348429.56	565.00
467	480502.99	1348647.68	558.00	508	480132.98	1348373.86	578.00
468	480462.01	1348656.85	558.00	509	480128.17	1348397.73	576.00
469	480457.64	1348637.33	562.00	510	480117.49	1348396.76	576.00
470	480513.91	1348696.47	555.00	511	480086.32	1348371.45	576.00
471	480385.04	1348684.32	556.00	512	480075.95	1348320.55	577.00
472	480383.95	1348679.44	557.00	513	480080.02	1348415.46	565.00
473	480403.96	1348614.45	562.00	514	480109.53	1348549.64	570.00
474	480436.38	1348551.05	563.00	515	480109.59	1348566.89	569.00
475	480412.15	1348543.39	563.00	516	480103.21	1348622.52	569.00
476	480352.30	1348529.18	562.00	517	480066.92	1348685.08	569.00
477	480343.75	1348534.37	560.00	518	480049.62	1348675.05	565.00
478	480371.83	1348443.33	573.00	519	480085.91	1348612.48	565.00
479	480367.34	1348464.92	573.00	520	480090.47	1348572.75	565.00
480	480344.85	1348400.31	578.00	521	480074.32	1348520.06	565.00
481	480312.82	1348383.33	578.00	522	480533.49	1348380.87	579.00
482	480279.84	1348378.32	578.00	523	480524.21	1348373.83	579.00
483	480355.94	1348452.74	570.00	524	480513.07	1348365.39	579.00
484	480355.48	1348465.28	570.00	525	480481.05	1348364.51	579.00
485	480331.50	1348469.29	569.00				
486	480323.43	1348515.60	560.00				
487	480327.92	1348506.66	562.00				
488	480318.03	1348496.10	563.00				
489	480361.91	1348583.64	558.00				
490	480386.86	1348624.81	558.00				

DITCH CONTROL POINTS			
PT NO.	NORTHING	EASTING	ELEV.
W7	480126.59	1348424.69	563.00



AREA 4B KEY PLAN
SCALE: NONE

30 0 30 60
SCALE: 1"=30'

GENERAL NOTES

1. SEE DRAWING 99X-5500-X-00639 FOR LEGEND AND GENERAL NOTES.
2. GRID NUMBERS REFER TO THE UNDERGROUND UTILITIES GRID DRAWINGS AS SHOWN IN UTILITY GRID REFERENCE DRAWING INDEX ON DRAWING 99X-5500-X-00642.
3. COMPLETE ABOVE-WAC AREA EXCAVATION IN ACCORDANCE WITH DRAWING 99X-5500-G-00677 AND SPECIFICATION SECTION 02205 PRIOR TO PERFORMING ADJACENT GENERAL AREA EXCAVATION.
4. COMPLETE HWMU AREA EXCAVATION IN ACCORDANCE WITH DRAWING 99X-5500-G-00678 AND SPECIFICATION SECTION 02205 PRIOR TO PERFORMING ADJACENT GENERAL AREA EXCAVATION.
5. DESIGN CONTOURS AND GRADES SHOWN REPRESENT THE MINIMUM LIMITS OF EXCAVATION REQUIRED TO CAPTURE CONTAMINATION AND FOUNDATIONS, WHILE MAINTAINING SAFE SLOPE REQUIREMENTS. FIELD CHANGES SHALL BE REPORTED TO CONSTRUCTION MANAGER AND APPROVED BY THE ENGINEER.
6. BUILDING NUMBERS REFER TO FORMER LOCATIONS OF BUILDINGS OR PADS.
7. OBTAIN APPROVAL OF THE CONSTRUCTION MANAGER PRIOR TO EXCAVATION OUTSIDE THE LIMITS OF THE TRENCHED EXCAVATION AREA.
8. MANHOLE AND CATCHBASIN OPENINGS SHALL BE PROTECTED IN ACCORDANCE WITH SPR3-5.
9. EXCAVATION OF K-65 TRENCH REPRESENTS AN ABOVE-WAC EXCAVATION ASSOCIATED WITH A LANDMARK RATHER THAN AN AREA OF SOIL. SPECIFIC EXCAVATION REQUIREMENTS AND DETAILS ARE PRESENTED ON THE DRAWING.

KEYED NOTES

(A) TRANSITION FROM 2H:1V SLOPE TO 5H:1V SLOPE.

(B) RELOCATE UTILITY POLE PRIOR TO EXCAVATION OF K-65 TRENCH.

(C) 1. TC-99 SEDIMENTS IN BOTTOM OF K-65 TRENCH WEST OF 'A' STREET AND SMALL PORTION OF THE TRENCH IN LINE WITH THE 4B UTILITY ISOLATION TRENCH WAS REMOVED BY OTHERS PRIOR TO THIS SCOPE PER DRAWING 99X-5500-G00767.

2. PRIOR TO EXCAVATION OF K-65 TRENCH EAST OF 'A' STREET, REMOVE SEDIMENT FROM THE BOTTOM OF THE TRENCH AS TC-99 ABOVE-WAC MATERIAL.

3. FOR REMAINING TRENCH, EXCAVATE CONCRETE K-65 TRENCH AND 2 FT. OF SURROUNDING SOIL BELOW AND ADJACENT TO THE TRENCH AS TC-99 ABOVE-WAC MATERIAL.

4. ARRANGE FOR PHYSICAL SAMPLING OF THE EXCAVATION SURFACE FOLLOWING EXCAVATION OF THE K-65 TRENCH TO CONFIRM REMOVAL OF ABOVE-WAC MATERIAL.

5. RE-ESTABLISH HOOPERVILLE ROAD BY PLACING COMPACTED FILL IN ACCORDANCE WITH SPECIFICATION SECTION 02200. SEE TYPICAL HAUL ROAD/MAINTENANCE ROAD/SMTA DETAIL ON DRAWING 99X-5500-G-00738.

(D) PROTECT EXISTING 10 INCH STORM SEWER TO REMAIN.

LEGEND

PROPOSED ISOLATION TRENCH
EXISTING ISOLATION TRENCH
ISOLATION TRENCH GAP

PRELIMINARY
NOT FOR CONSTRUCTION

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	DATE	REV. BY	APPR.
D	RE-ISSUED FOR AGENCY REVIEW	3/31/03	KLR	
C	ISSUED FOR AGENCY REVIEW	9/30/02	DRF	
B	ISSUED FOR 90% DESIGN REVIEW	8/30/02	KLR	
A	ISSUED FOR 30% DESIGN REVIEW	8/17/02	DRF	

INITIALS AND DATE

UNITED STATES
DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
FLUOR FERNALD, INC.

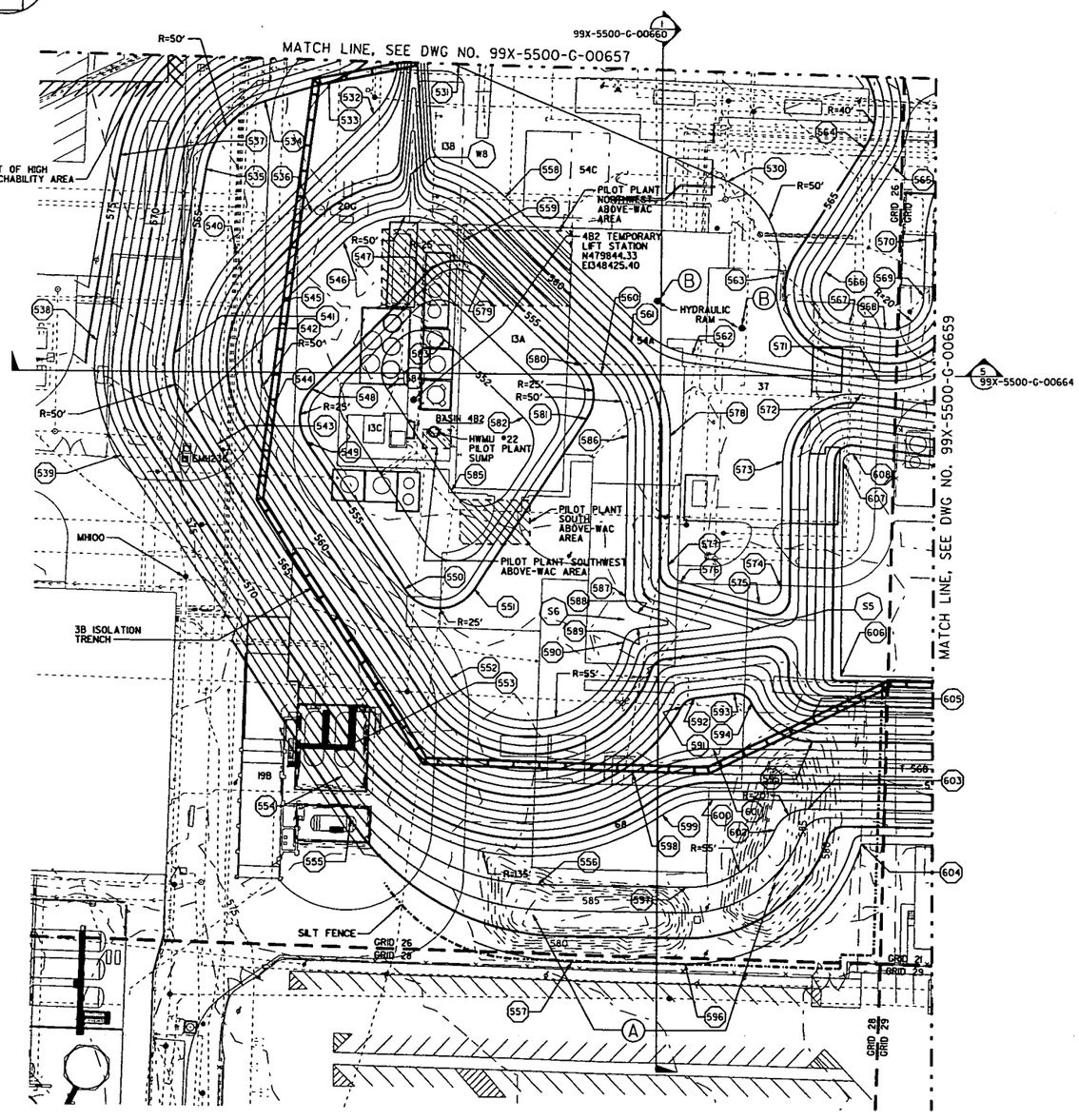
PROJECT NAME
SOIL REMEDIATION 000180

DRAWING TITLE
AREA 4B
EXCAVATION/DRAINAGE PLAN (CW)

APPROVALS

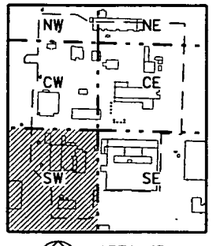
COGNIZANT ENG.		SAFETY ENG.	
CIVIL & STR.		MAINTENANCE	
ELECTRICAL		FIRE PROTECT.	
ENGINEER		WASTE MANAGE	
INSTRUMENT		SECURITY	
MECHANICAL		QA	
		CONSTRUCTION	
CHECKED			
APPROVED			

DRAWN BY	PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
DRF	20160	99X-5500-G-00657	G-17	D
RES PROJECT NO.	FILENAME 99XG00657.DGN			



DESIGN GRADE CONTROL POINTS				DESIGN GRADE CONTROL POINTS			
PT NO.	NORTHING	EASTING	ELEV.	PT NO.	NORTHING	EASTING	ELEV.
530	479973.47	1348608.66	564.00	570	479940.39	1348724.64	569.00
531	480039.75	1348450.30	564.00	571	479857.71	1348697.45	563.00
532	480081.50	1348400.35	564.00	572	479848.97	1348687.22	561.00
533	480029.78	1348374.69	565.00	573	479809.61	1348642.01	561.00
534	480018.58	1348338.13	565.00	574	479735.42	1348641.45	561.00
535	479978.64	1348303.40	565.00	575	479725.86	1348628.80	561.00
536	479953.72	1348365.90	561.00	576	479738.54	1348582.79	561.00
537	479986.50	1348254.02	575.00	577	479748.26	1348575.45	561.00
538	479877.88	1348241.79	574.00	578	479824.11	1348576.02	561.00
539	479810.79	1348256.21	574.00	579	479919.03	1348467.37	555.00
540	479929.16	1348321.71	564.00	580	479865.53	1348523.40	555.00
541	479870.81	1348286.23	565.00	581	479833.97	1348527.18	555.00
542	479835.49	1348293.82	565.00	582	479834.63	1348490.60	552.00
543	479817.58	1348311.57	564.00	583	479879.58	1348443.53	552.00
544	479839.54	1348345.00	556.00	584	479850.55	1348409.56	552.00
545	479901.53	1348350.63	556.00	585	479791.20	1348448.55	552.00
546	479936.45	1348383.98	556.00	586	479824.30	1348551.02	556.00
547	479918.22	1348432.03	555.00	587	479729.59	1348550.31	556.00
548	479850.26	1348367.12	555.00	588	479719.88	1348557.65	556.00
549	479819.27	1348364.31	555.00	589	479710.82	1348558.09	556.00
550	479733.18	1348420.86	555.00	590	479702.48	1348549.48	556.00
551	479733.43	1348462.81	555.00	591	479664.43	1348583.59	565.00
552	479680.94	1348449.20	556.00	592	479669.68	1348591.16	565.00
553	479642.51	1348390.70	570.00	593	479672.65	1348614.41	565.00
554	479622.50	1348385.89	573.00	594	479666.97	1348624.74	565.00
555	479596.83	1348390.79	575.00	595	479644.50	1348659.77	565.00
556	479559.38	1348501.04	573.00	596	479513.24	1348586.61	576.00
557	479514.12	1348520.72	576.00	597	479558.24	1348587.21	573.00
558	479963.39	1348478.85	563.00	598	479625.32	1348555.66	566.00
559	479938.08	1348454.68	556.00	599	479600.80	1348572.94	572.00
560	479860.83	1348535.55	556.00	600	479609.93	1348602.12	572.00
561	479878.91	1348552.82	561.00	601	479639.93	1348602.35	566.00
562	479872.02	1348588.49	563.00	602	479592.17	1348638.75	573.00
563	479918.25	1348638.52	564.00	603	479604.51	1348657.38	573.00
564	479993.45	1348688.66	565.00	604	479584.27	1348688.87	577.00
565	479982.66	1348705.51	569.00	605	479659.49	1348659.88	562.00
566	479920.85	1348665.93	569.00	606	479683.37	1348676.06	554.00
567	479890.24	1348680.17	569.00	607	479809.34	1348677.01	554.00
568	479887.45	1348701.35	569.00	608	479814.26	1348682.66	554.00
569	479906.87	1348723.95	569.00				

DITCH CONTROL POINTS			
PT NO.	NORTHING	EASTING	ELEV.
W8	479976.60	1348423.14	557.00
S5	479710.29	1348625.12	558.00
S6	479716.03	1348549.89	555.50



NORTH

AREA 4B KEY PLAN
SCALE: NONE

30 0 30 60
SCALE: 1"=30'

GENERAL NOTES

4831

1. SEE DRAWING 99X-5500-X-00639 FOR LEGEND AND GENERAL NOTES.
2. GRID NUMBERS REFER TO THE UNDERGROUND UTILITIES GRID DRAWINGS AS SHOWN IN UTILITY GRID REFERENCE DRAWING INDEX ON DRAWING 99X-5500-X-00642.
3. COMPLETE ABOVE-WAC AREA EXCAVATION IN ACCORDANCE WITH DRAWING 99X-5500-G-00677 AND SPECIFICATION SECTION 02205 PRIOR TO PERFORMING ADJACENT GENERAL AREA EXCAVATION.
4. COMPLETE HWMU AREA EXCAVATION IN ACCORDANCE WITH DRAWING 99X-5500-G-00678 AND SPECIFICATION SECTION 02205 PRIOR TO PERFORMING ADJACENT GENERAL AREA EXCAVATION.
5. DESIGN CONTOURS AND GRADES SHOWN REPRESENT THE MINIMUM LIMITS OF EXCAVATION REQUIRED TO CAPTURE CONTAMINATION AND FOUNDATIONS. WHILE MAINTAINING SAFE SLOPE REQUIREMENTS. FIELD CHANGES SHALL BE REPORTED TO CONSTRUCTION MANAGER AND APPROVED BY THE ENGINEER.
6. BUILDING NUMBERS REFER TO FORMER LOCATIONS OF BUILDINGS OR PADS.
7. OBTAIN APPROVAL OF THE CONSTRUCTION MANAGER PRIOR TO EXCAVATION OUTSIDE THE LIMITS OF THE TRENCHED EXCAVATION AREA.
8. MANHOLE AND CATCHBASIN OPENINGS SHALL BE PROTECTED IN ACCORDANCE WITH SPR3-5.

KEYED NOTES

(A) BUILDING 68 SHIELD PILE REMOVED PER DRAWING 99X-5500-G-00768.

(B) PRIOR TO EXCAVATION, PULL 1 FOOT DIA. HYDRAULIC RAM. UPON REACHING FINAL DESIGN GRADE, PULL THE 3 FOOT DIA. STEEL CASING. GROUT THE SUBSEQUENT HOLE IN ACCORDANCE WITH SPECIFICATION SECTION 02206. MATERIAL EXCAVATED TO LOOSEN CASING SHALL NOT BE USED FOR BACKFILL.

LEGEND

PROPOSED ISOLATION TRENCH
EXISTING ISOLATION TRENCH
ISOLATION TRENCH GAP

PRELIMINARY
NOT FOR CONSTRUCTION

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	DATE	REV. BY	APPR.
D	RE-ISSUED FOR AGENCY REVIEW	3/31/03	KLR	
C	ISSUED FOR AGENCY REVIEW	9/30/02	DRF	
B	ISSUED FOR 90% DESIGN REVIEW	8/30/02	KLR	
A	ISSUED FOR 30% DESIGN REVIEW	8/1/02	DRF	

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
FLUOR FERNALD, INC.

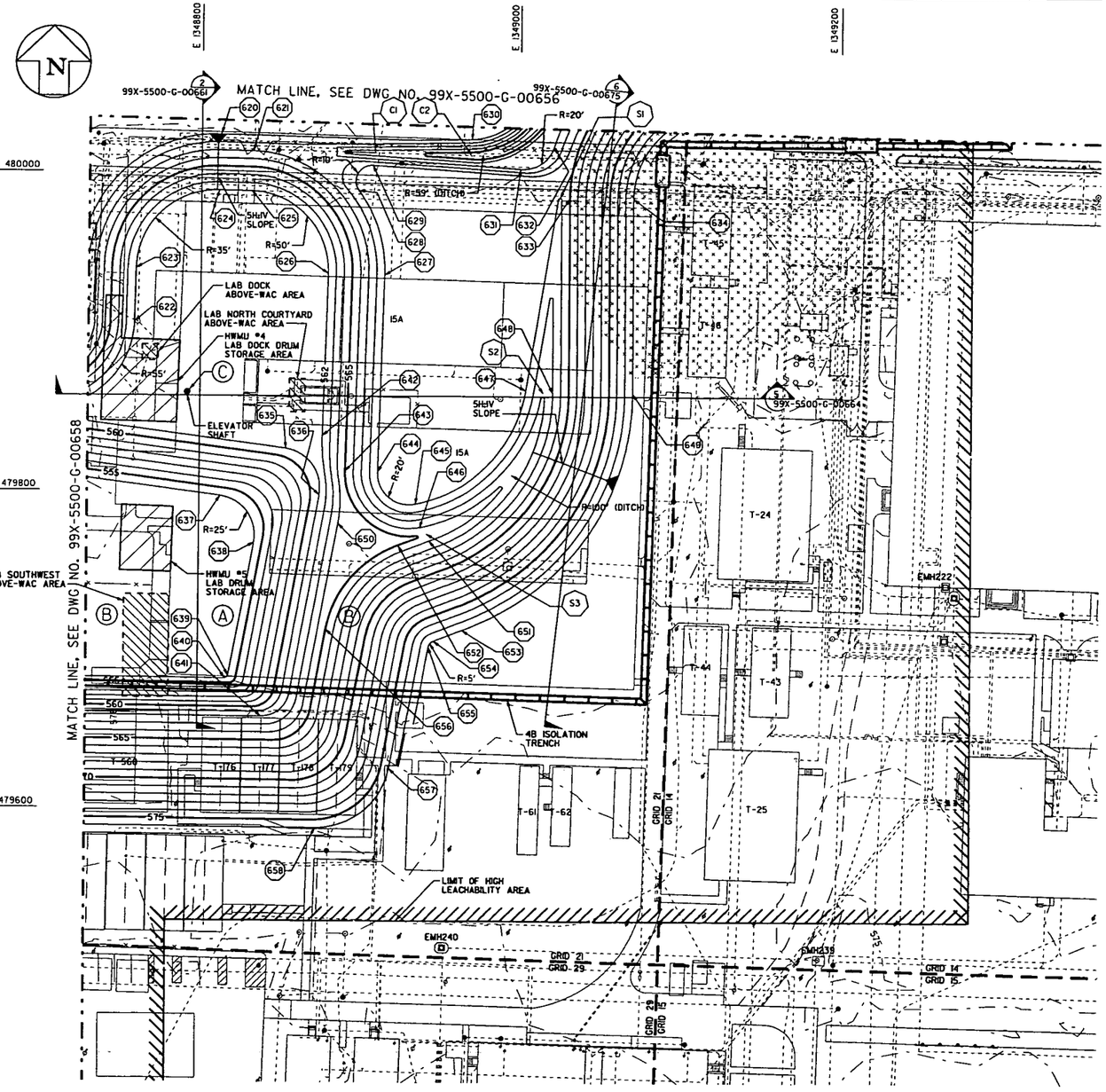
PROJECT NAME
SOIL REMEDIATION 000181

DRAWING TITLE
AREA 4B
EXCAVATION/DRAINAGE PLAN (SW)

APPROVALS

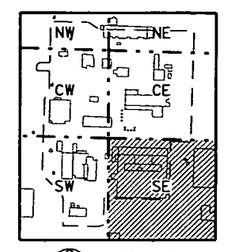
COGNIZANT ENG.		SAFETY ENG.	
CIVIL & STR.		MAINTENANCE	
ELECTRICAL		FIRE PROTECT.	
ENGINEER		WASTE MANAGE.	
INSTRUMENT		SECURITY	
MECHANICAL		QA	
		CONSTRUCTION	
CHECKED			
APPROVED			

DRAWN BY	PROJECT NO.	DRAWING BLOCK CODE NO.	SHEET NO.	REV. NO.
DRF	20810	99X-5500-G-00658	G-18	D
RES PROJECT NO.	FILENAME 99X00658.DGN			



DESIGN GRADE CONTROL POINTS			
PT NO.	NORTHING	EASTING	ELEV.
620	480023.60	1348811.95	569.00
621	480013.05	1348831.99	567.00
622	479906.15	1348758.94	562.00
623	479939.67	1348759.64	562.00
624	479988.62	1348810.99	562.00
625	479988.06	1348831.31	562.00
626	479936.71	1348879.92	562.00
627	479935.75	1348914.91	569.00
628	479988.56	1348898.33	569.00
629	480004.48	1348907.03	569.00
630	480020.79	1348969.29	569.00
631	480002.40	1349000.16	567.00
632	480016.36	1349020.54	567.00
633	479983.11	1349030.49	570.00
634	479983.22	1349070.49	578.00
635	479827.06	1348854.05	561.00
636	479797.76	1348875.39	561.00
637	479797.15	1348812.98	554.00
638	479767.85	1348834.31	554.00
639	479683.95	1348818.90	554.00
640	479682.31	1348816.93	554.00
641	479658.14	1348839.71	562.00
642	479835.06	1348877.14	562.00
643	479813.02	1348891.55	565.00
644	479812.46	1348911.54	569.00
645	479792.27	1348935.26	569.00
646	479777.55	1348938.07	566.00
647	479863.77	1349004.35	569.00
648	479862.10	1349020.83	568.00
649	479862.09	1349070.83	578.00
650	479779.95	1348887.37	564.00
651	479769.17	1348944.25	566.00
652	479766.42	1348924.78	565.00
653	479712.95	1348965.23	578.00
654	479706.11	1348947.42	578.00
655	479702.35	1348944.29	578.00
656	479713.42	1348880.24	565.00
657	479625.57	1348920.04	576.00
658	479587.88	1348874.44	576.00

DITCH CONTROL POINTS			
PT NO.	NORTHING	EASTING	ELEV.
C1	480012.62	1348889.73	566.00
C2	480010.62	1348969.03	565.71
S1	479984.42	1349024.51	569.00
S2	479862.08	1349015.02	567.05
S3	479773.56	1348942.46	565.09



AREA 4B KEY PLAN
SCALE: NONE

SCALE: 1"=30'

GENERAL NOTES

1. SEE DRAWING 99X-5500-X-00639 FOR LEGEND AND GENERAL NOTES.
2. GRID NUMBERS REFER TO THE UNDERGROUND UTILITIES GRID DRAWINGS AS SHOWN IN UTILITY GRID REFERENCE DRAWING INDEX ON DRAWING 99X-5500-X-00642.
3. COMPLETE ABOVE-WAC AREA EXCAVATION IN ACCORDANCE WITH DRAWING 99X-5500-G-00677 AND SPECIFICATION SECTION 02205 PRIOR TO PERFORMING ADJACENT GENERAL AREA EXCAVATION.
4. COMPLETE HWMU AREA EXCAVATION IN ACCORDANCE WITH DRAWING 99X-5500-G-00678 AND SPECIFICATION SECTION 02205 PRIOR TO PERFORMING ADJACENT GENERAL AREA EXCAVATION.
5. DESIGN CONTOURS AND GRADES SHOWN REPRESENT THE MINIMUM LIMITS OF EXCAVATION REQUIRED TO CAPTURE CONTAMINATION AND FOUNDATIONS, WHILE MAINTAINING SAFE SLOPE REQUIREMENTS. FIELD CHANGES SHALL BE REPORTED TO CONSTRUCTION MANAGER AND APPROVED BY THE ENGINEER.
6. BUILDING NUMBERS REFER TO FORMER LOCATIONS OF BUILDINGS OR PADS.
7. OBTAIN APPROVAL OF THE CONSTRUCTION MANAGER PRIOR TO EXCAVATION OUTSIDE THE LIMITS OF THE TRENCHED EXCAVATION AREA.
8. MANHOLE AND CATCHBASIN OPENINGS SHALL BE PROTECTED IN ACCORDANCE WITH SPR3-5.

KEYED NOTES

(A) STABILIZE THE WALLS IN THE SOUTH END OF THE LABORATORY BASEMENT, IN ACCORDANCE WITH THE FOLLOWING STEPS:

1. REMOVE BASEMENT CEILING.
2. REMOVE A PORTION OF THE BASEMENT WALL LOCATED ALONG COLUMN LINE 12 BETWEEN COLUMN LINES T AND P FOR HEAVY EQUIPMENT ACCESS.
3. REMOVE FREE-STANDING COLUMNS WITHIN THE BASEMENT AREA.
4. FILL THE SOUTH END OF THE BASEMENT WITH BELOW OSDF WAC SOIL APPROXIMATELY TO DESIGN GRADE, IN ACCORDANCE WITH THE PLACEMENT REQUIREMENTS FOR COMPACTED FILL IN SPECIFICATION SECTION 02206.
5. DO NOT DAMAGE FOUNDATION WALLS NEAR THE SOUTH END OF THE LABORATORY BASEMENT UNTIL STEPS 1 THROUGH 4 HAVE BEEN COMPLETED.
6. REMOVE LABORATORY FOUNDATIONS ABOVE DESIGN GRADE AS REQUIRED.
7. SEE REFERENCE DRAWING 15X-5900-S-002543 FOR COLUMN LINE LOCATIONS.

(B) DO NOT PERFORM SOIL EXCAVATION OR CONCRETE BREAKING OF AT-GRADE SLABS NEAR THE SOUTHERN END OF THE LABORATORY BASEMENT UNTIL FOUNDATION WALLS HAVE BEEN STABILIZED.

(C) PRIOR TO EXCAVATION, PULL 1 FOOT DIA. HYDRAULIC RAM. UPON REACHING FINAL DESIGN GRADE, PULL THE 3 FOOT DIA. STEEL CASING. GROUT THE SUBSEQUENT HOLE IN ACCORDANCE WITH SPECIFICATION SECTION 02206. MATERIAL EXCAVATED TO LOOSEN CASING SHALL NOT BE USED FOR BACKFILL.

LEGEND

PROPOSED ISOLATION TRENCH
EXISTING ISOLATION TRENCH
ISOLATION TRENCH GAP

PRELIMINARY
NOT FOR CONSTRUCTION

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	DATE	REV. BY	APPR.
D	RE-ISSUED FOR AGENCY REVIEW	3/31/03	KLR	
C	ISSUED FOR AGENCY REVIEW	9/30/02	DRF	
B	ISSUED FOR 90% DESIGN REVIEW	8/30/02	KLR	
A	ISSUED FOR 30% DESIGN REVIEW	8/1/02	DRF	

INITIALS AND DATE

UNITED STATES
DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
FLUOR FERNALD, INC.

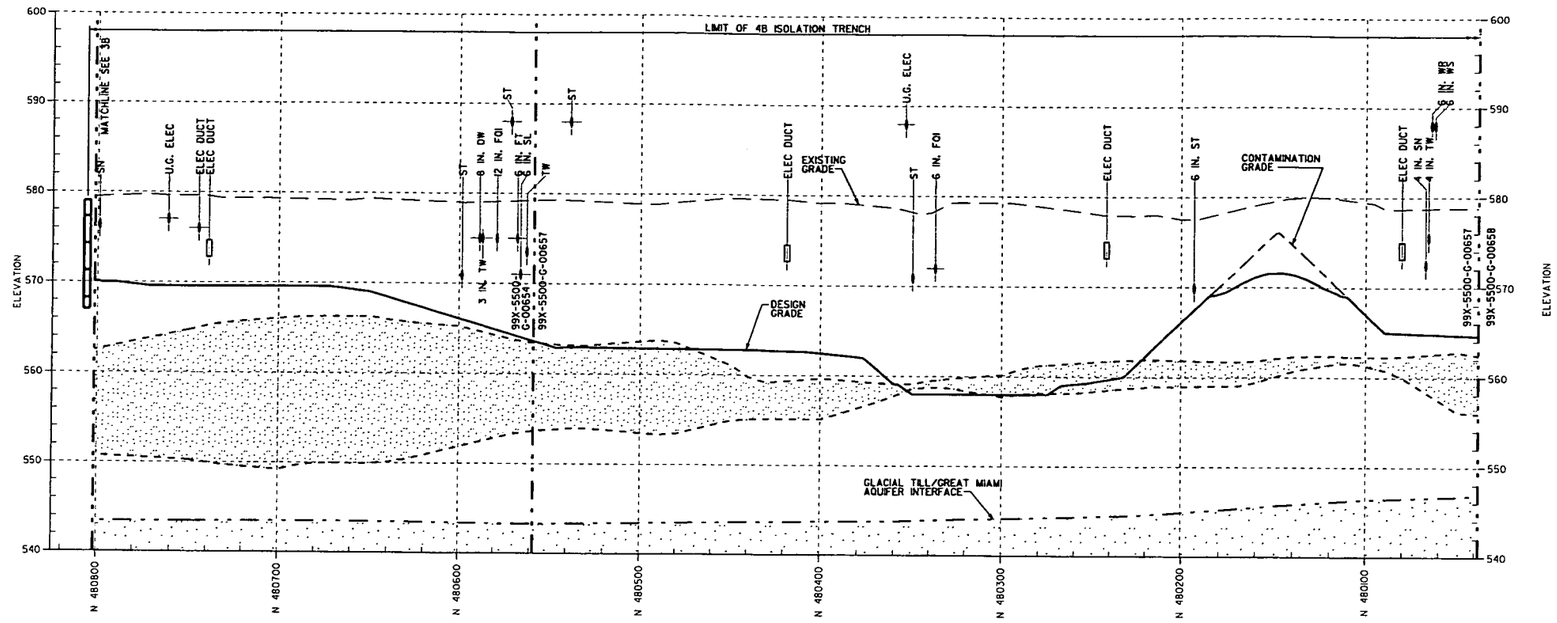
PROJECT NAME
SOIL REMEDIATION 000182

DRAWING TITLE
AREA 4B
EXCAVATION/DRAINAGE PLAN (SE)

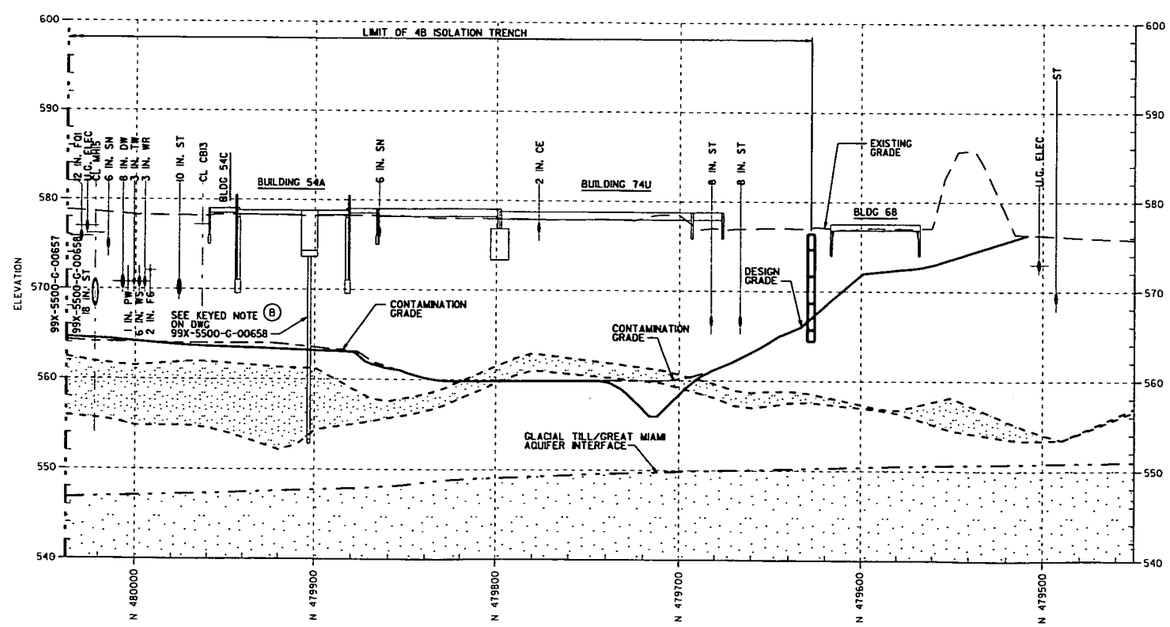
APPROVALS

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

DRAWN BY	PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
DRF	20810	99X-5500-G-00659	G-19	D
RES PROJECT NO.	FILENAME 99XG00659.DGN			



4B EXCAVATION (1)
SCALE: 1"=30' HORIZ
1"=6' VERT
99X-5500-G-00653
00654
00657
00665
00668
00671
00672
00676



4B EXCAVATION (1)
SCALE: 1"=30' HORIZ
1"=6' VERT
99X-5500-G-00653
00658
00669
00673
00676

30 0 30 60
HORIZ. SCALE: 1"=30'

6 0 6 12
VERT. SCALE: 1"=6'

GENERAL NOTES

1. SEE DRAWING 99X-5500-X-00639 FOR LEGEND AND GENERAL NOTES.
2. UNDERGROUND UTILITIES ENCOUNTERED DURING EXCAVATION TO THE DESIGN GRADE SHALL BE REMOVED IN ACCORDANCE WITH SPECIFICATION SECTION 02205. REMAINING UTILITIES BELOW THE DESIGN GRADE SHALL BE REMOVED USING TRENCHING METHODS IN ACCORDANCE WITH SPECIFICATION SECTION 02205.
3. DESIGN CONTOURS AND GRADES SHOWN REPRESENT THE MINIMUM LIMIT OF EXCAVATION REQUIRED TO CAPTURE CONTAMINATION AND STRUCTURES, WHILE MAINTAINING SAFE SLOPES.
4. ELEVATIONS HAVE NOT BEEN DETERMINED FOR UTILITIES SHOWN ABOVE EXISTING GRADE.
5. OBTAIN APPROVAL OF THE CONSTRUCTION MANAGER PRIOR TO EXCAVATION OUTSIDE THE LIMITS OF THE TRENCHED EXCAVATION AREA.

4831

LEGEND

- UNSATURATED SAND AND GRAVEL OF THE GREAT MIAMI AQUIFER
- SAND/GRAVEL
- PROPOSED ISOLATION TRENCH
- EXISTING ISOLATION TRENCH

PRELIMINARY
NOT FOR CONSTRUCTION

REV. NO.	ISSUE ☒ REVISION PURPOSE - DESCRIPTION	DATE	REV. BY	APPR.
C	RE-ISSUED FOR AGENCY REVIEW	3/31/03	KLR	
B	ISSUED FOR AGENCY REVIEW	9/30/02	KLR	
A	ISSUED FOR 90% DESIGN REVIEW	8/30/02	DRF	

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
FLUOR FERNALD, INC.

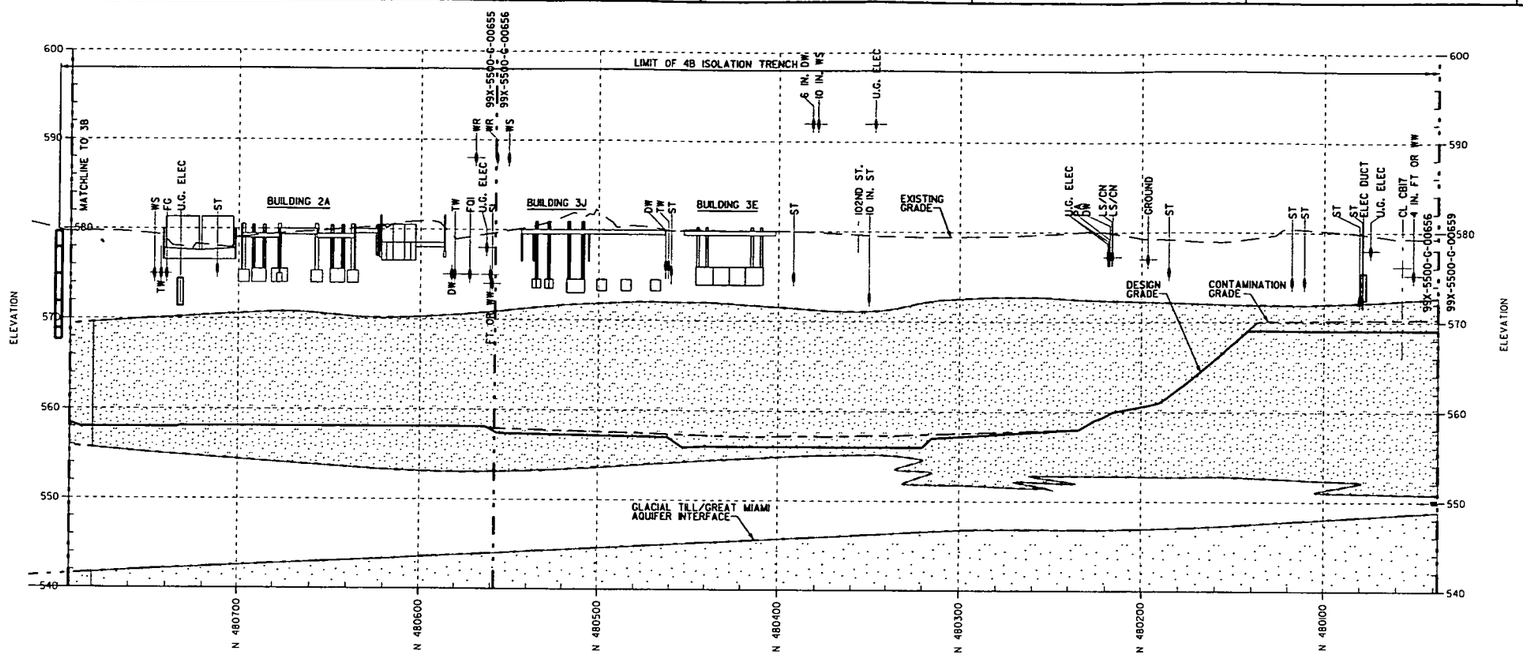
PROJECT NAME
SOIL REMEDIATION 000183

DRAWING TITLE
AREA 4B
CROSS SECTIONS SHEET 1

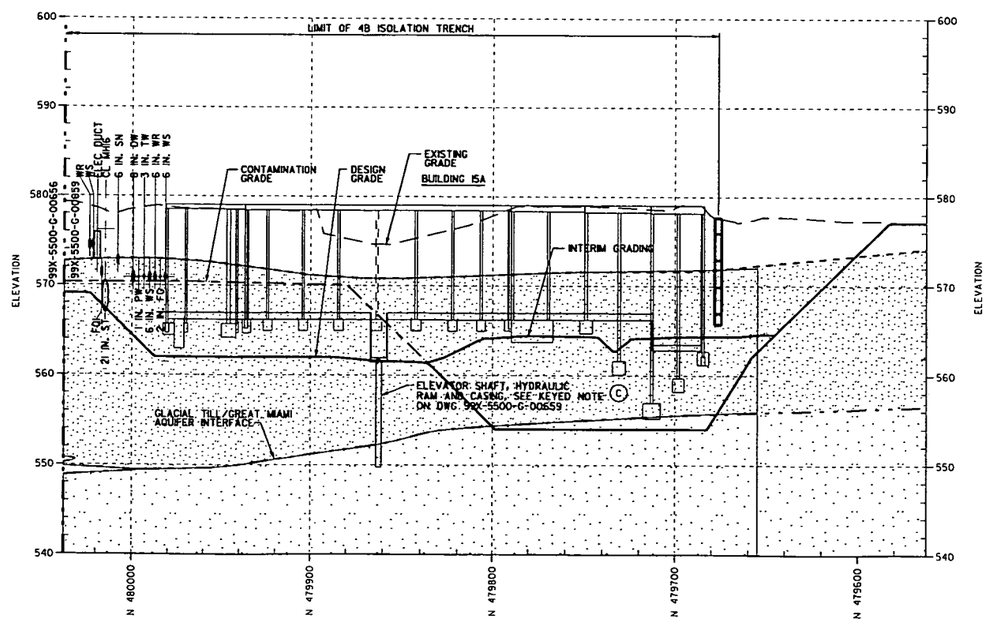
APPROVALS

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

DRAWN BY	PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
DRF	20180	99X-5500-G-00660	G-20	C
RES PROJECT NO.	FILENAME 99XG00660.DGN			



4B EXCAVATION (2)
SCALE: 1"=30' HORIZ
1"=6' VERT
99X-5500-G-00653
00655
00656
00671
00672
00676



4B EXCAVATION (2)
SCALE: 1"=30' HORIZ
1"=6' VERT
99X-5500-G-00653
00659
00673
00676

HORIZ. SCALE: 1"=30'

VERT. SCALE: 1"=6'

GENERAL NOTES

1. SEE DRAWING 99X-5500-X-00639 FOR LEGEND AND GENERAL NOTES.
2. UNDERGROUND UTILITIES ENCOUNTERED DURING EXCAVATION TO THE DESIGN GRADE SHALL BE REMOVED IN ACCORDANCE WITH SPECIFICATION SECTION 02205. REMAINING UTILITIES BELOW THE DESIGN GRADE SHALL BE REMOVED USING TRENCHING METHODS IN ACCORDANCE WITH SPECIFICATION SECTION 02205.
3. DESIGN CONTOURS AND GRADES SHOWN REPRESENT THE MINIMUM LIMIT OF EXCAVATION REQUIRED TO CAPTURE CONTAMINATION AND STRUCTURES, WHILE MAINTAINING SAFE SLOPES.
4. ELEVATIONS HAVE NOT BEEN DETERMINED FOR UTILITIES SHOWN ABOVE EXISTING GRADE.
5. OBTAIN APPROVAL OF THE CONSTRUCTION MANAGER PRIOR TO EXCAVATION OUTSIDE THE LIMITS OF THE TRENCHED EXCAVATION AREA.

4831

LEGEND

- UNSATURATED SAND AND GRAVEL OF THE GREAT MIAMI AQUIFER
- SAND/GRAVEL
- PROPOSED ISOLATION TRENCH
- EXISTING ISOLATION TRENCH

PRELIMINARY
NOT FOR CONSTRUCTION

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	DATE	REV. BY	APPR.
C	RE-ISSUED FOR AGENCY REVIEW	3/31/03	KLR	
B	ISSUED FOR AGENCY REVIEW	9/30/02	KLR	
A	ISSUED FOR 90% DESIGN REVIEW	8/30/02	DRF	

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
FLUOR FERNALD, INC.

PROJECT NAME
SOIL REMEDIATION

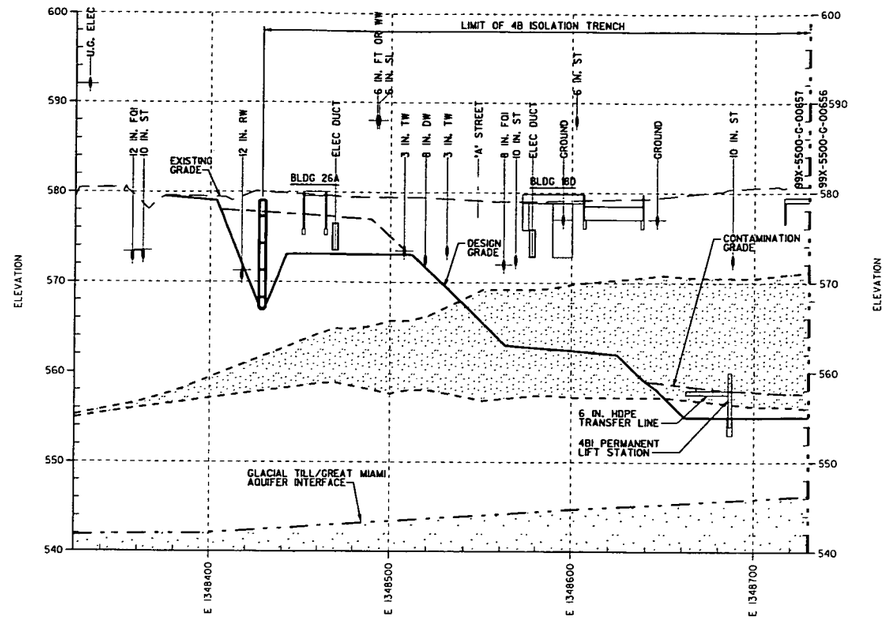
DRAWING TITLE
AREA 4B
CROSS SECTIONS SHEET 2

000184

APPROVALS

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

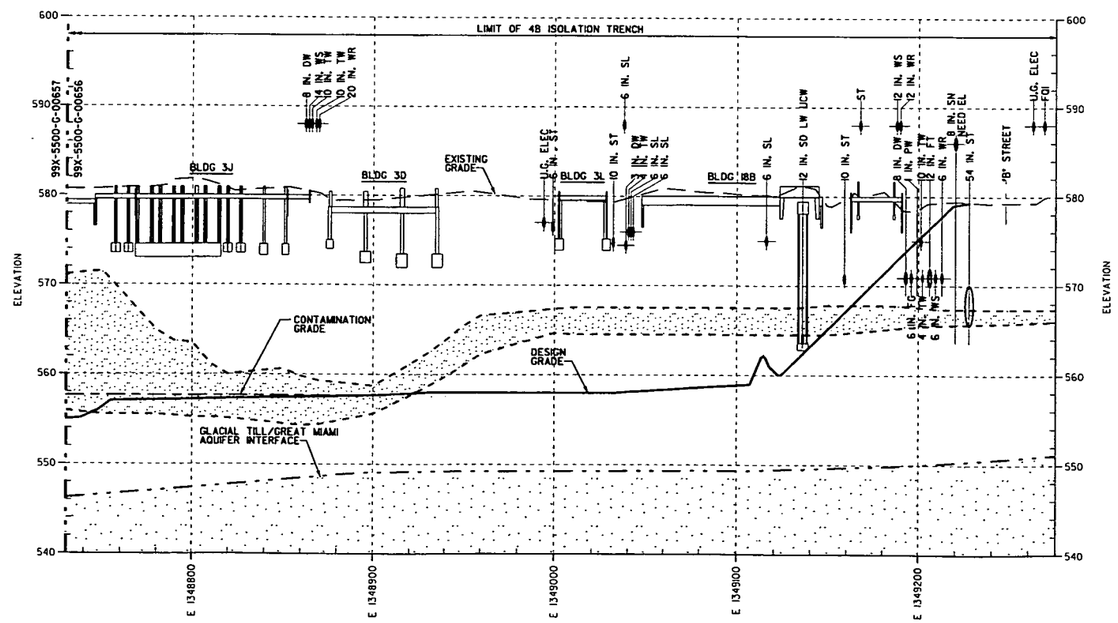
DRAWN BY	PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
DRF	2060	99X-5500-G-00661	G-21	C
RES PROJECT NO.	FILENAME 99XG0066LDGN			



4B EXCAVATION (3)

SCALE: 1"=30' HORIZ
1"=6' VERT

99X-5500-G-00653
00657
00667
00668
00672
00676



4B EXCAVATION (3)

SCALE: 1"=30' HORIZ
1"=6' VERT

99X-5500-G-00653
00656
00667
00668
00672
00676

30 0 30 60
HORIZ. SCALE: 1"=30'

6 0 6 12
VERT. SCALE: 1"=6'

GENERAL NOTES

1. SEE DRAWING 99X-5500-X-00639 FOR LEGEND AND GENERAL NOTES.
2. UNDERGROUND UTILITIES ENCOUNTERED DURING EXCAVATION TO THE DESIGN GRADE SHALL BE REMOVED IN ACCORDANCE WITH SPECIFICATION SECTION 02205. REMAINING UTILITIES BELOW THE DESIGN GRADE SHALL BE REMOVED USING TRENCHING METHODS IN ACCORDANCE WITH SPECIFICATION SECTION 02205.
3. DESIGN CONTOURS AND GRADES SHOWN REPRESENT THE MINIMUM LIMIT OF EXCAVATION REQUIRED TO CAPTURE CONTAMINATION AND STRUCTURES, WHILE MAINTAINING SAFE SLOPES.
4. ELEVATIONS HAVE NOT BEEN DETERMINED FOR UTILITIES SHOWN ABOVE EXISTING GRADE.
5. OBTAIN APPROVAL OF THE CONSTRUCTION MANAGER PRIOR TO EXCAVATION OUTSIDE THE LIMITS OF THE TRENCHED EXCAVATION AREA.

481

LEGEND

- UNSATURATED SAND AND GRAVEL OF THE GREAT MIAMI AQUIFER
- SAND/GRAVEL
- PROPOSED ISOLATION TRENCH
- EXISTING ISOLATION TRENCH

PRELIMINARY
NOT FOR CONSTRUCTION

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	DATE	REV. BY	APPR.
C	RE-ISSUED FOR AGENCY REVIEW	3/31/03	KLR	
B	ISSUED FOR AGENCY REVIEW	9/30/02	KLR	
A	ISSUED FOR 90% DESIGN REVIEW	8/30/02	DRF	

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
FLUOR FERNALD, INC.

PROJECT NAME
SOIL REMEDIATION

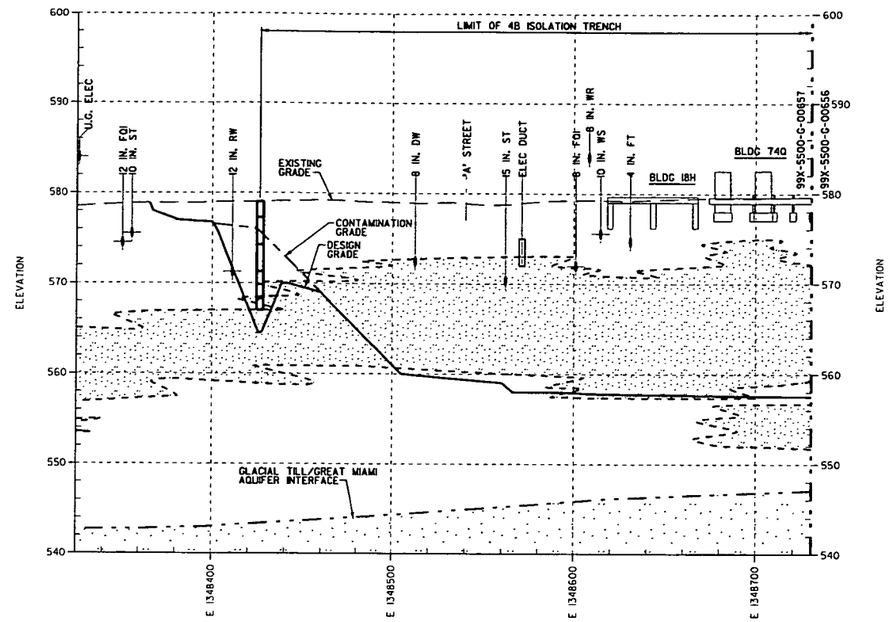
DRAWING TITLE
AREA 4B
CROSS SECTIONS SHEET 3

000185

APPROVALS

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

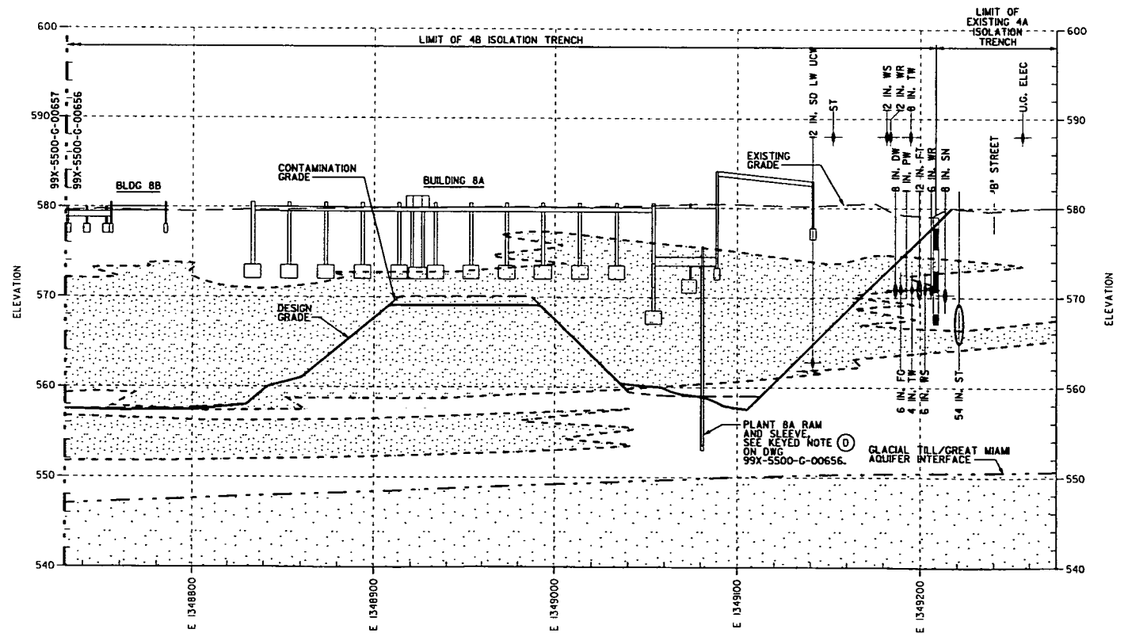
DRAWN BY	PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
DRF	2080	99X-5500-G-00662	G-22	C
RES PROJECT NO.	FILENAME 99XGD0662.DGN			



4B EXCAVATION (4)

SCALE: 1"=30' HORIZ
1"=6' VERT

99X-5500-G-00653
00657
00667
00668
00672
00676



4B EXCAVATION (4)

SCALE: 1"=30' HORIZ
1"=6' VERT

99X-5500-G-00653
00656
00667
00668
00672
00676

30 0 30 60
HORIZ. SCALE: 1"=30'

6 0 6 12
VERT. SCALE: 1"=6'

GENERAL NOTES

1. SEE DRAWING 99X-5500-X-00639 FOR LEGEND AND GENERAL NOTES.
2. UNDERGROUND UTILITIES ENCOUNTERED DURING EXCAVATION TO THE DESIGN GRADE SHALL BE REMOVED IN ACCORDANCE WITH SPECIFICATION SECTION 02205. REMAINING UTILITIES BELOW THE DESIGN GRADE SHALL BE REMOVED USING TRENCHING METHODS IN ACCORDANCE WITH SPECIFICATION SECTION 02205.
3. DESIGN CONTOURS AND GRADES SHOWN REPRESENT THE MINIMUM LIMIT OF EXCAVATION REQUIRED TO CAPTURE CONTAMINATION AND STRUCTURES, WHILE MAINTAINING SAFE SLOPES.
4. ELEVATIONS HAVE NOT BEEN DETERMINED FOR UTILITIES SHOWN ABOVE EXISTING GRADE.
5. OBTAIN APPROVAL OF THE CONSTRUCTION MANAGER PRIOR TO EXCAVATION OUTSIDE THE LIMITS OF THE TRENCHED EXCAVATION AREA.

4831

LEGEND

- UNSATURATED SAND AND GRAVEL OF THE GREAT MIAMI AQUIFER
- SAND/GRAVEL
- PROPOSED ISOLATION TRENCH
- EXISTING ISOLATION TRENCH

PRELIMINARY
NOT FOR CONSTRUCTION

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	DATE	REV. BY	APPR.
C	RE-ISSUED FOR AGENCY REVIEW	3/31/03	KLR	
B	ISSUED FOR AGENCY REVIEW	9/30/02	KLR	
A	ISSUED FOR 90% DESIGN REVIEW	8/30/02	DRF	

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
FLUOR FERNALD, INC.

PROJECT NAME
SOIL REMEDIATION

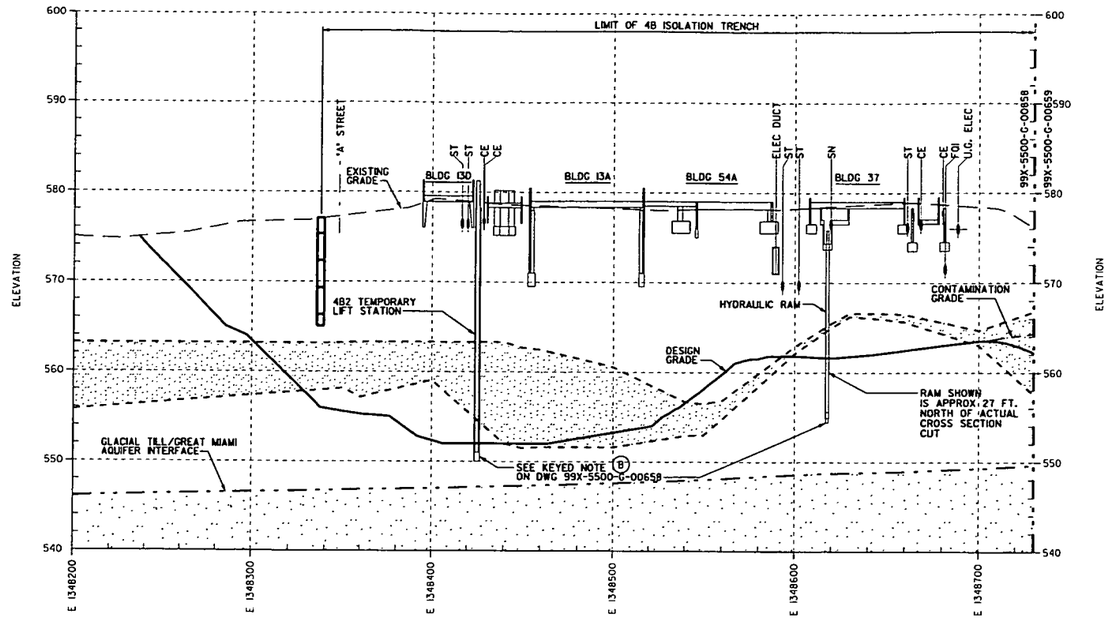
DRAWING TITLE
AREA 4B
CROSS SECTIONS SHEET 4

000186

APPROVALS

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

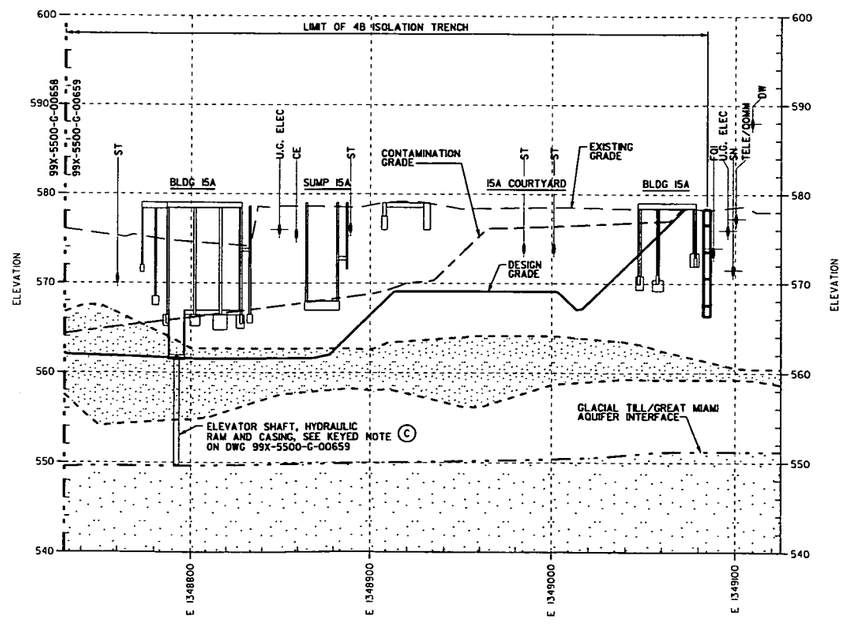
DRAWN BY	PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
DRF	20910	99X-5500-G-00663	G-23	C
RES PROJECT NO.	FILENAME 99XG00663.DGN			



4B EXCAVATION (5)

SCALE: 1"=30' HORIZ
1"=6' VERT

99X-5500-G-00653
00658
00669
00670
00673
00676



4B EXCAVATION (5)

SCALE: 1"=30' HORIZ
1"=6' VERT

99X-5500-G-00653
00659
00669
00670
00673
00676

30 0 30 60
HORIZ. SCALE: 1"=30'

6 0 6 12
VERT. SCALE: 1"=6'

GENERAL NOTES

1. SEE DRAWING 99X-5500-X-00639 FOR LEGEND AND GENERAL NOTES.
2. UNDERGROUND UTILITIES ENCOUNTERED DURING EXCAVATION TO THE DESIGN GRADE SHALL BE REMOVED IN ACCORDANCE WITH SPECIFICATION SECTION 02205. REMAINING UTILITIES BELOW THE DESIGN GRADE SHALL BE REMOVED USING TRENCHING METHODS IN ACCORDANCE WITH SPECIFICATION SECTION 02205.
3. DESIGN CONTOURS AND GRADES SHOWN REPRESENT THE MINIMUM LIMIT OF EXCAVATION REQUIRED TO CAPTURE CONTAMINATION AND STRUCTURES, WHILE MAINTAINING SAFE SLOPES.
4. ELEVATIONS HAVE NOT BEEN DETERMINED FOR UTILITIES SHOWN ABOVE EXISTING GRADE.
5. OBTAIN APPROVAL OF THE CONSTRUCTION MANAGER PRIOR TO EXCAVATION OUTSIDE THE LIMITS OF THE TRENCHED EXCAVATION AREA.

4831

LEGEND

- UNSATURATED SAND AND GRAVEL OF THE GREAT MIAMI AQUIFER
- SAND/GRAVEL
- PROPOSED ISOLATION TRENCH
- EXISTING ISOLATION TRENCH

PRELIMINARY
NOT FOR CONSTRUCTION

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	DATE	REV. BY	APPR.
C	RE-ISSUED FOR AGENCY REVIEW	3/31/03	KLR	
B	ISSUED FOR AGENCY REVIEW	9/30/02	KLR	
A	ISSUED FOR 90% DESIGN REVIEW	8/30/02	DRF	

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
FLUOR FERNALD, INC.

PROJECT NAME
SOIL REMEDIATION

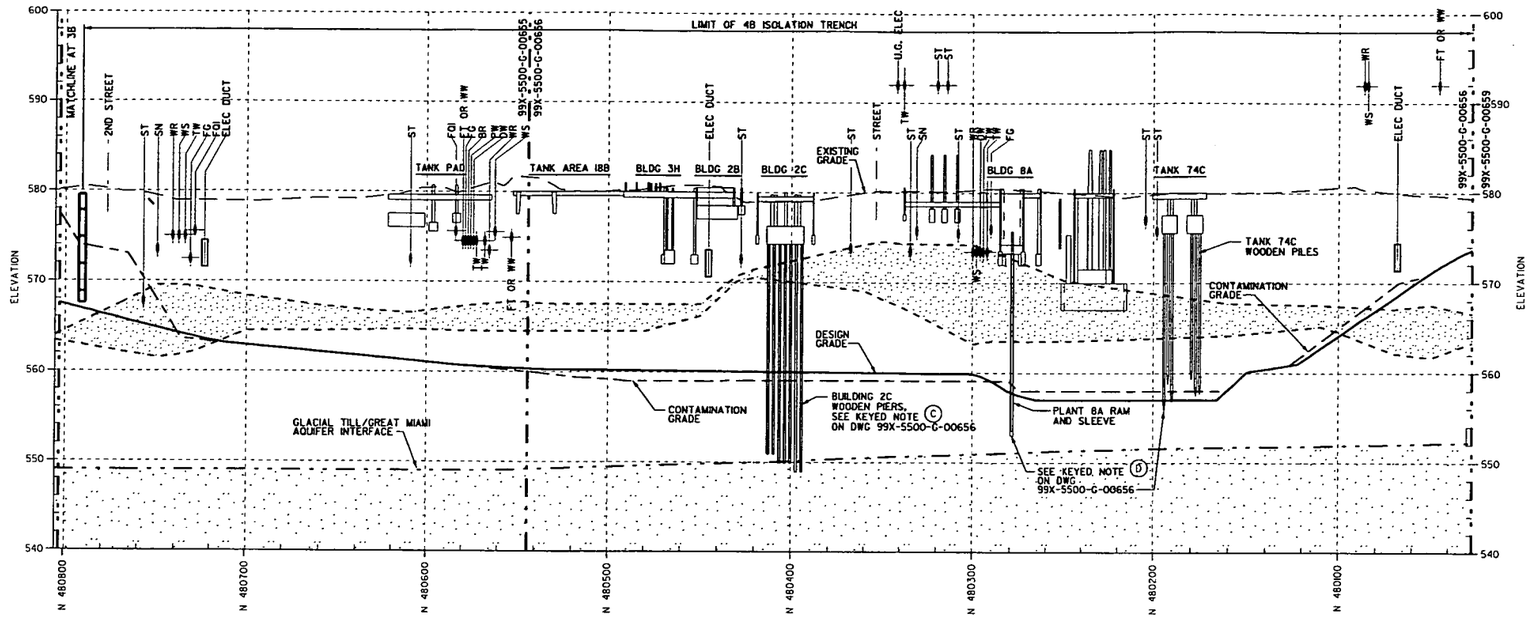
DRAWING TITLE
AREA 4B
CROSS SECTIONS SHEET 5

000187

APPROVALS

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

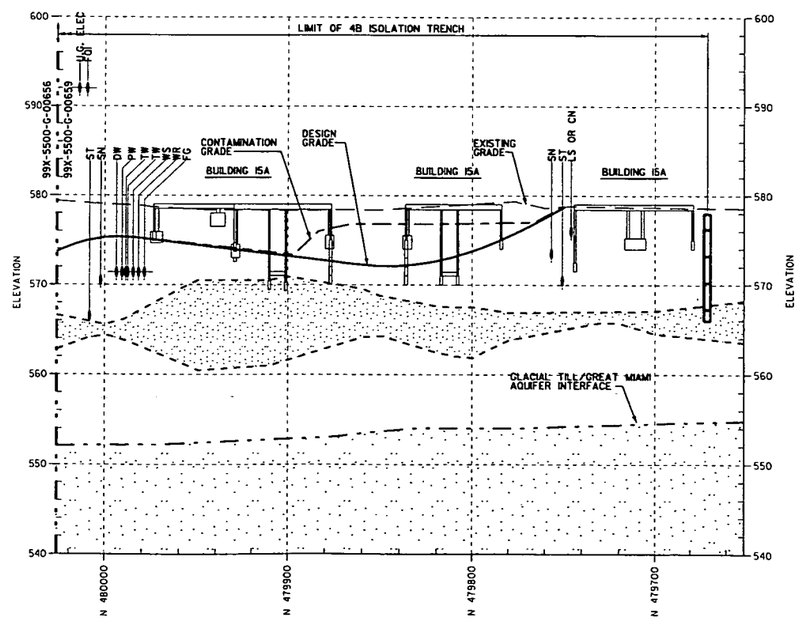
DRAWN BY	PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
DRF	20180	99X-5500-G-00664	G-24	C
RES PROJECT NO.	FILENAME 99XG00664.DGN			



4B EXCAVATION (6)

SCALE: 1"=30' HORIZ
1"=6' VERT

99X-5500-G-00653
00655
00656
00666
00667
00671
00672
00676



4B EXCAVATION (6)

SCALE: 1"=30' HORIZ
1"=6' VERT

99X-5500-G-00653
00659
00670
00673
00676

30 0 30 60
HORIZ. SCALE: 1"=30'

6 0 6 12
VERT. SCALE: 1"=6'

GENERAL NOTES

1. SEE DRAWING 99X-5500-X-00639 FOR LEGEND AND GENERAL NOTES.
2. UNDERGROUND UTILITIES ENCOUNTERED DURING EXCAVATION TO THE DESIGN GRADE SHALL BE REMOVED IN ACCORDANCE WITH SPECIFICATION SECTION 02205. REMAINING UTILITIES BELOW THE DESIGN GRADE SHALL BE REMOVED USING TRENCHING METHODS IN ACCORDANCE WITH SPECIFICATION SECTION 02205.
3. DESIGN CONTOURS AND GRADES SHOWN REPRESENT THE MINIMUM LIMIT OF EXCAVATION REQUIRED TO CAPTURE CONTAMINATION AND STRUCTURES, WHILE MAINTAINING SAFE SLOPES.
4. ELEVATIONS HAVE NOT BEEN DETERMINED FOR UTILITIES SHOWN ABOVE EXISTING GRADE.
5. OBTAIN APPROVAL OF THE CONSTRUCTION MANAGER PRIOR TO EXCAVATION OUTSIDE THE LIMITS OF THE TRENCHED EXCAVATION AREA.

4831

LEGEND

- UNSATURATED SAND AND GRAVEL OF THE GREAT MIAMI AQUIFER
- SAND/GRAVEL
- PROPOSED ISOLATION TRENCH
- EXISTING ISOLATION TRENCH

PRELIMINARY
NOT FOR CONSTRUCTION

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	DATE	REV. BY	APPR.
B	RE-ISSUED FOR AGENCY REVIEW	3/31/03	KLR	
A	ISSUED FOR AGENCY REVIEW	9/30/02	DRF	

INITIALS AND DATE

UNITED STATES
DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
FLUOR FERNALD, INC.

PROJECT NAME
SOIL REMEDIATION

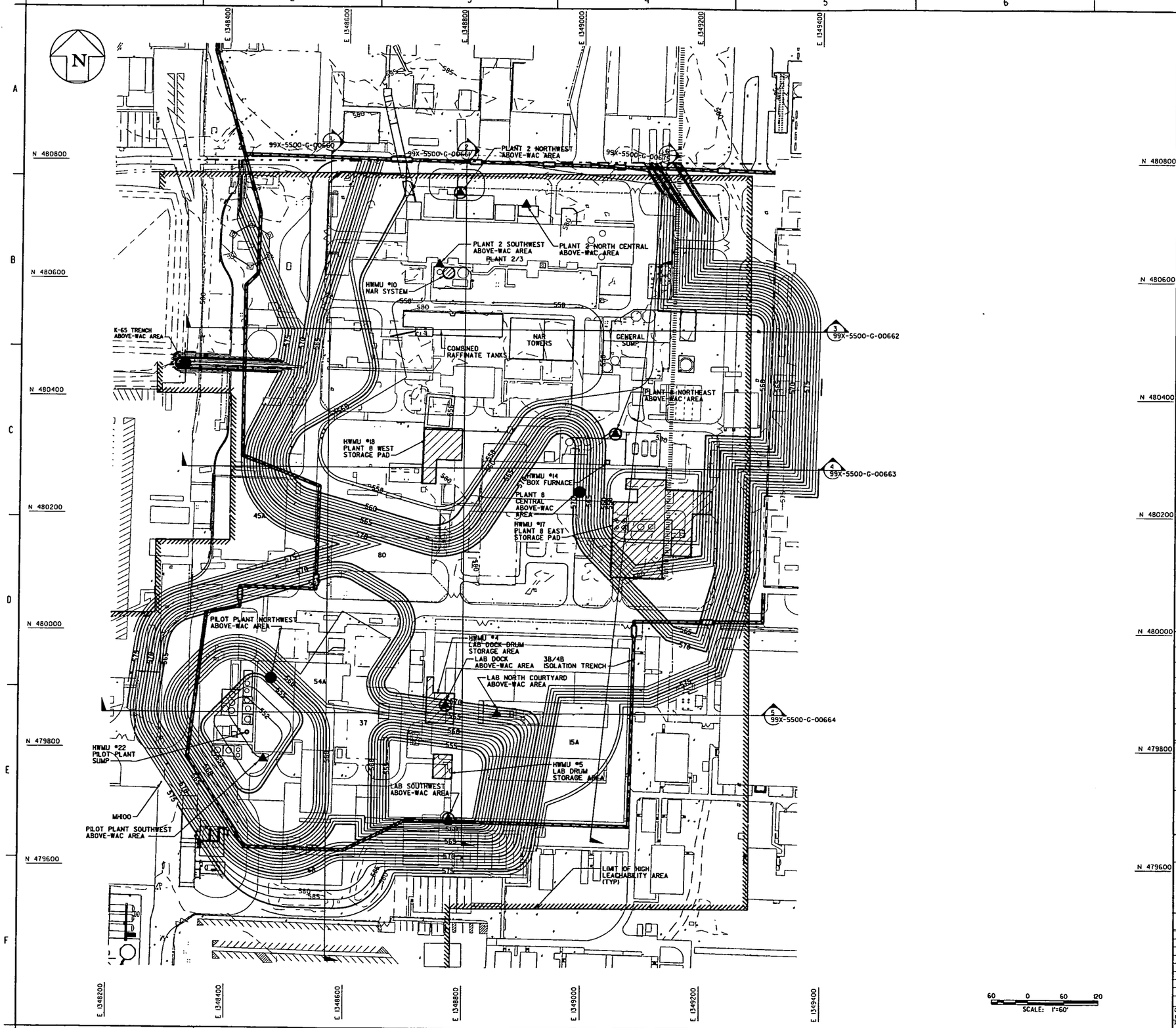
DRAWING TITLE
AREA 4B
CROSS SECTIONS SHEET 6

000188

APPROVALS

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

DRAWN BY	PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
DRF	20810	99X-5500-G-00675	G-25	B
RES PROJECT NO.	FILENAME 99XG00675.DGN			



GENERAL NOTES

1. SEE DRAWING 99X-5500-X-00639 FOR LEGEND AND GENERAL NOTES.
2. THIS DRAWING SHOWS THE APPROXIMATE DEPTH OF EXCAVATION TO REMOVE URANIUM ABOVE FRLS, BASED ON 3-DIMENSIONAL CONTAMINATION MODELING.
3. FOR CONTAMINATION PROFILE CONTROL POINTS SEE DRAWINGS 99X-5500-G-00665, 00666, 00667, 00668, 00669 AND 00670.
4. PERFORM ADDITIONAL EXCAVATION TO THE DESIGN GRADES SHOWN ON DRAWINGS 99X-5500-G-00653, 00654, 00655, 00656, 00657, 00658 AND 00659.
5. SEE DRAWING 99X-5500-G-00677 FOR COORDINATES AND EXCAVATION DETAILS FOR ABOVE-WAC AREAS SHOWN HERE FOR REFERENCE ONLY.
6. SEE DRAWING 99X-5500-G-00678 FOR COORDINATES AND EXCAVATION DETAILS FOR HWMU'S SHOWN HERE FOR REFERENCE ONLY.
7. OBTAIN APPROVAL OF THE CONSTRUCTION MANAGER PRIOR TO EXCAVATION OUTSIDE THE LIMITS OF THE AREA ISOLATION TRENCH CORRESPONDING TO THE EXCAVATION STAGE.

4831

LEGEND

- URANIUM ABOVE-WAC AREA
- TC-99 ABOVE-WAC AREA
- URANIUM AREA & TC-99 ABOVE-WAC AREA
- PROPOSED ISOLATION TRENCH
- EXISTING ISOLATION TRENCH
- ISOLATION TRENCH GAP

PRELIMINARY
NOT FOR CONSTRUCTION

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	DATE	REV. BY	APPR.
C	RE-ISSUED FOR AGENCY REVIEW	3/3/03	KLR	
B	ISSUED FOR AGENCY REVIEW	9/30/02	KLR	
A	ISSUED FOR 90% DESIGN REVIEW	8/30/02	DRF	

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
FLUOR FERNALD, INC.

PROJECT NAME
SOIL REMEDIATION

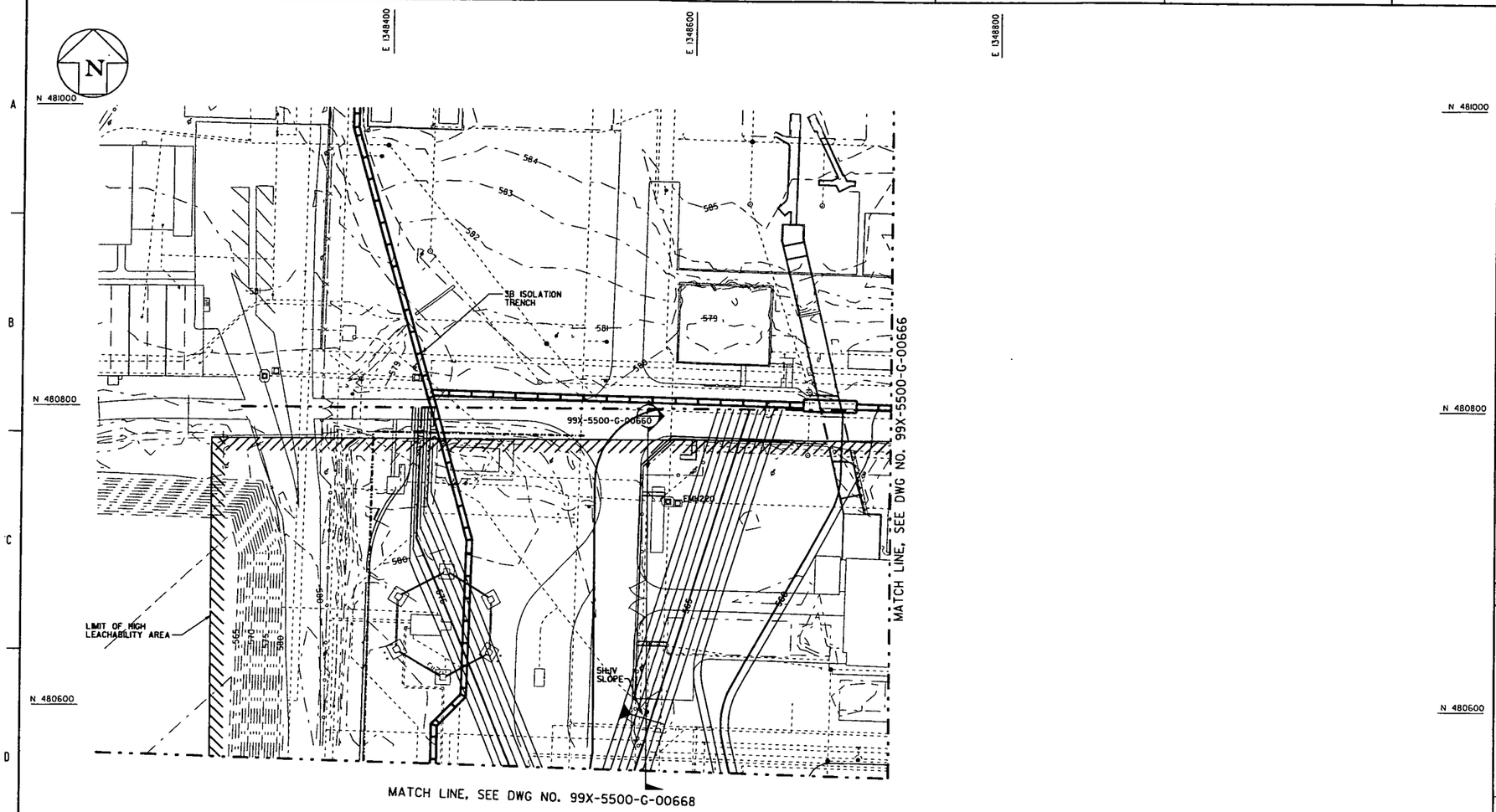
DRAWING TITLE
AREA 4B
CONTAMINATION GRADING OVERVIEW

000189

APPROVALS

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

DRAWN BY	PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
DRF	2080	99X-5500-G-00676	G-26	C
RES PROJECT NO.	FILENAME 99XGD0676.DGN			



GENERAL NOTES

1. SEE DRAWING 99X-5500-X-00639 FOR LEGEND AND GENERAL NOTES.
2. THIS DRAWING SHOWS THE APPROXIMATE DEPTH OF EXCAVATION TO REMOVE URANIUM CONTAMINATION ABOVE FRLS.
3. PERFORM EXCAVATION FOR CONTAMINATION TO THE GRADES SHOWN IN ACCORDANCE WITH SPECIFICATION SECTION 02205.
4. PERFORM ADDITIONAL EXCAVATION TO THE DESIGN GRADES SHOWN ON DRAWING 99X-5500-G-00654 IN ACCORDANCE WITH SPECIFICATION SECTION 02205.
5. MODELED CONTAMINATION CONTROL POINTS ARE ONLY GIVEN IN AREAS WHERE THE DESIGN GRADE IS SIGNIFICANTLY DEEPER THAN THE MODELED CONTAMINATION GRADE.

4831

LEGEND

- PROPOSED ISOLATION TRENCH
- EXISTING ISOLATION TRENCH
- ISOLATION TRENCH GAP

PRELIMINARY
NOT FOR CONSTRUCTION

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	DATE	REV. BY	APPR.
C	RE-ISSUED FOR AGENCY REVIEW	3/31/03	KLR	
B	ISSUED FOR AGENCY REVIEW	9/30/02	DRF	
A	ISSUED FOR 90% DESIGN REVIEW	8/30/02	DRF	

INITIALS AND DATE

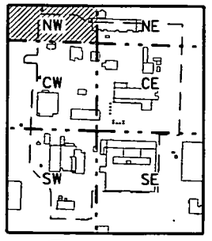
UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
FLUOR FERNALD, INC.

PROJECT NAME
SOIL REMEDIATION

DRAWING TITLE
AREA 4B
CONTAMINATION GRADING PLAN (NW)

000190



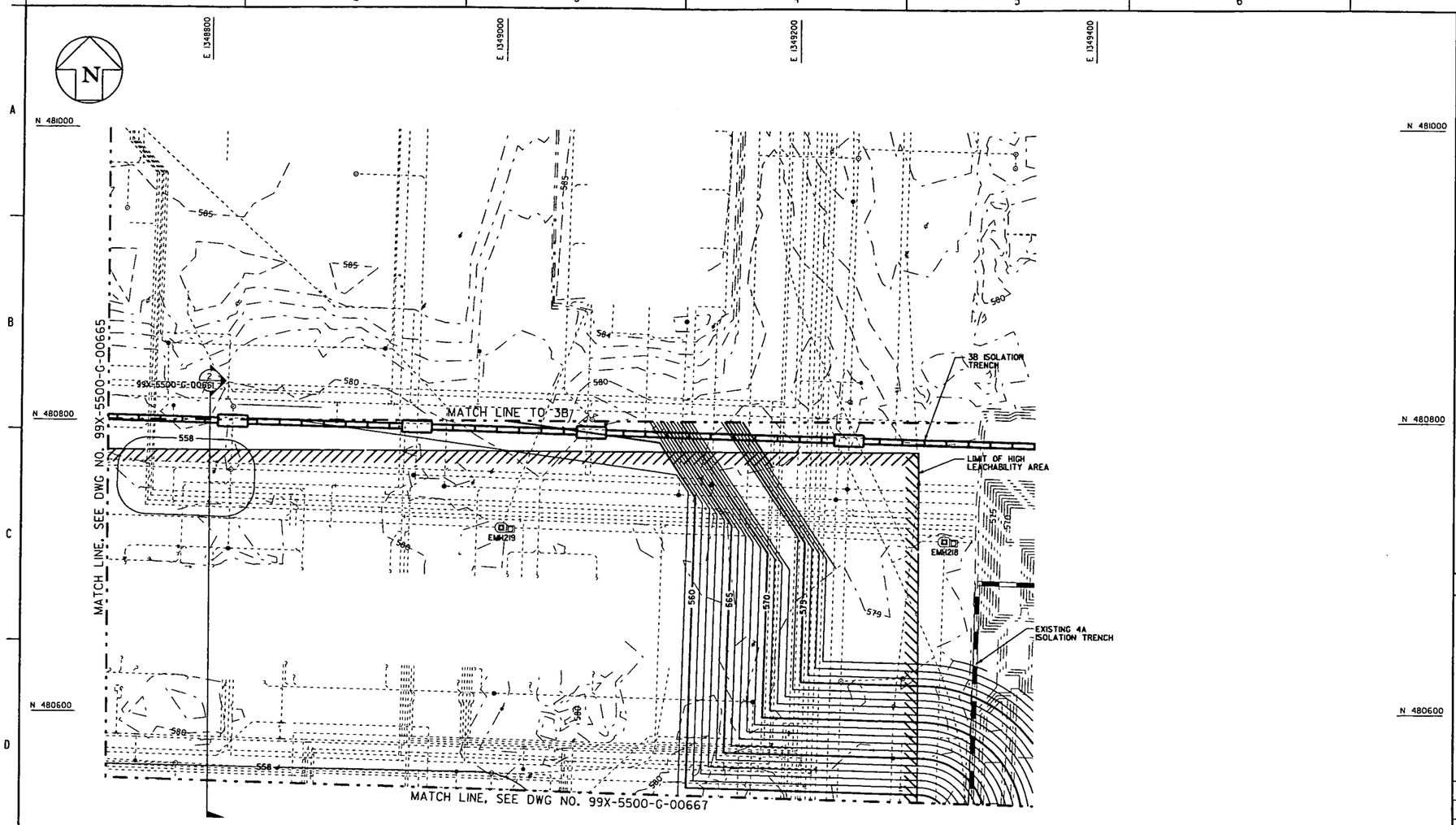
NORTH
AREA 4B KEY PLAN
SCALE: NONE

30 0 30 60
SCALE: 1"=30'

APPROVALS

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

DRAWN BY	PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
DRF	20810	99X-5500-G-00665	G-27	C
RES PROJECT NO.	FILENAME 99XG00665.DGN			



GENERAL NOTES

1. SEE DRAWING 99X-5500-X-00639 FOR LEGEND AND GENERAL NOTES.
2. THIS DRAWING SHOWS THE APPROXIMATE DEPTH OF EXCAVATION TO REMOVE URANIUM CONTAMINATION ABOVE FRLS.
3. PERFORM EXCAVATION FOR CONTAMINATION TO THE GRADES SHOWN IN ACCORDANCE WITH SPECIFICATION SECTION 02205.
4. PERFORM ADDITIONAL EXCAVATION TO THE DESIGN GRADES SHOWN ON DRAWING 99X-5500-G-00655 IN ACCORDANCE WITH SPECIFICATION SECTION 02205.

4831

LEGEND

- PROPOSED ISOLATION TRENCH
- EXISTING ISOLATION TRENCH
- ISOLATION TRENCH GAP

PRELIMINARY
NOT FOR CONSTRUCTION

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	DATE	REV. BY	APPR.
C	RE-ISSUED FOR AGENCY REVIEW	3/31/03	KLR	
B	ISSUED FOR AGENCY REVIEW	9/30/02	KLR	
A	ISSUED FOR 90% DESIGN REVIEW	8/30/02	DRF	

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
FLUOR FERNALD, INC.

PROJECT NAME
SOIL REMEDIATION

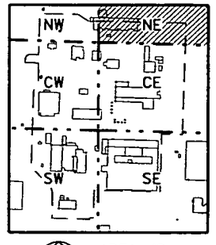
DRAWING TITLE
AREA 4B
CONTAMINATION GRADING PLAN (NE)

000191

APPROVALS

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

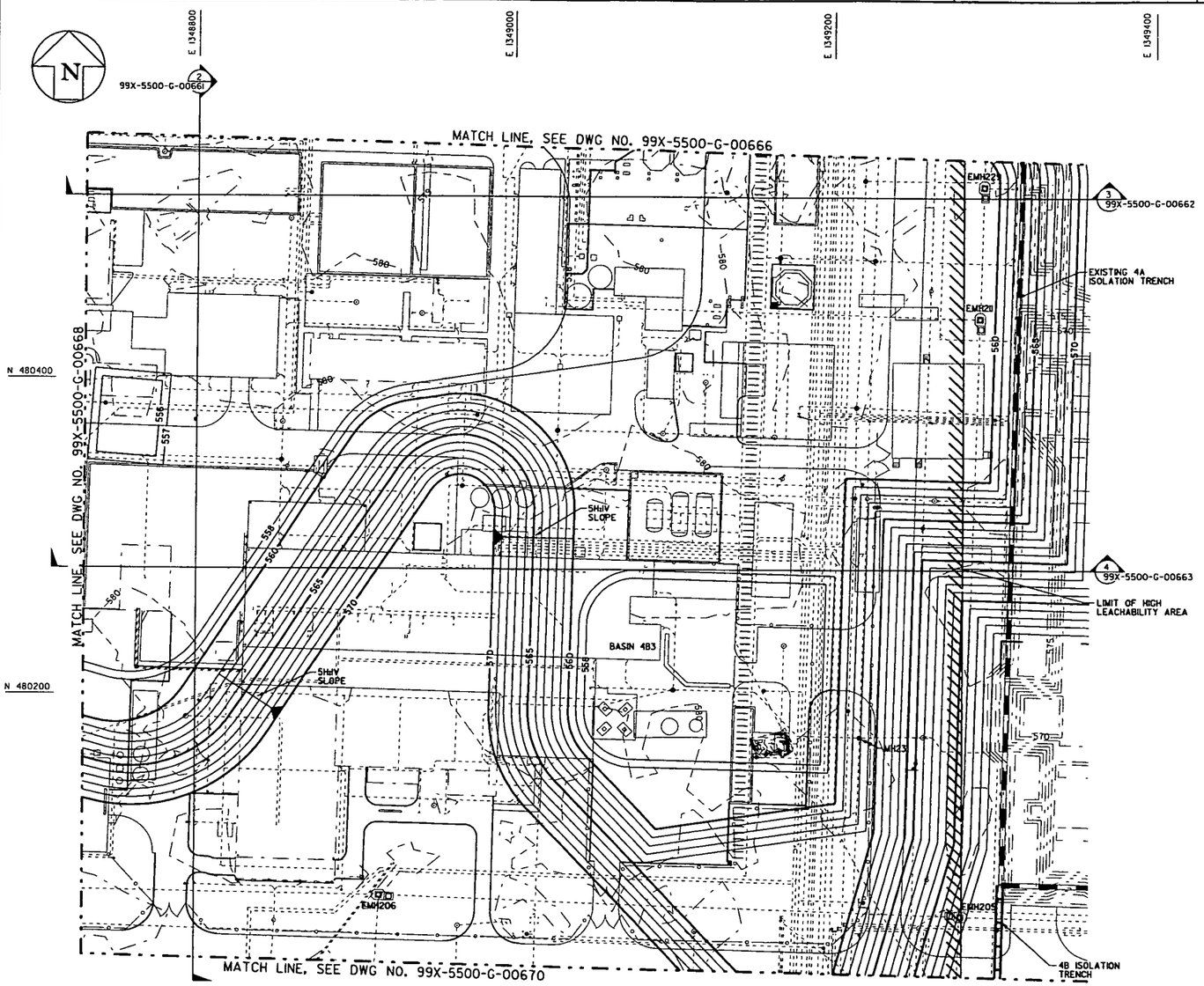
DRAWN BY	PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
DRF	2080	99X-5500-G-00666	G-28	C
RES PROJECT NO.	FILENAME 99XG00666.DGN			



AREA 4B KEY PLAN
SCALE: NONE

NORTH

30 0 30 60
SCALE: 1"=30'



GENERAL NOTES

1. SEE DRAWING 99X-5500-X-00639 FOR LEGEND AND GENERAL NOTES.
2. THIS DRAWING SHOWS THE APPROXIMATE DEPTH OF EXCAVATION TO REMOVE URANIUM CONTAMINATION ABOVE FRLS.
3. PERFORM EXCAVATION FOR CONTAMINATION TO THE GRADES SHOWN IN ACCORDANCE WITH SPECIFICATION SECTION 02205.
4. PERFORM ADDITIONAL EXCAVATION TO THE DESIGN GRADES SHOWN ON DRAWING 99X-5500-G-00656 IN ACCORDANCE WITH SPECIFICATION SECTION 02205.

4831

LEGEND

- PROPOSED ISOLATION TRENCH
- EXISTING ISOLATION TRENCH
- ISOLATION TRENCH GAP

PRELIMINARY
NOT FOR CONSTRUCTION

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	DATE	REV. BY	APPR.
C	RE-ISSUED FOR AGENCY REVIEW	3/31/03	KLR	
B	ISSUED FOR AGENCY REVIEW	9/30/02	KLR	
A	ISSUED FOR 90% DESIGN REVIEW	8/30/02	DRF	

INITIALS AND DATE

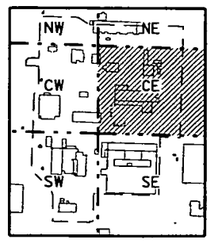
UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
FLUOR FERNALD, INC.

PROJECT NAME
SOIL REMEDIATION

DRAWING TITLE
AREA 4B
CONTAMINATION GRADING PLAN (CE)

000192



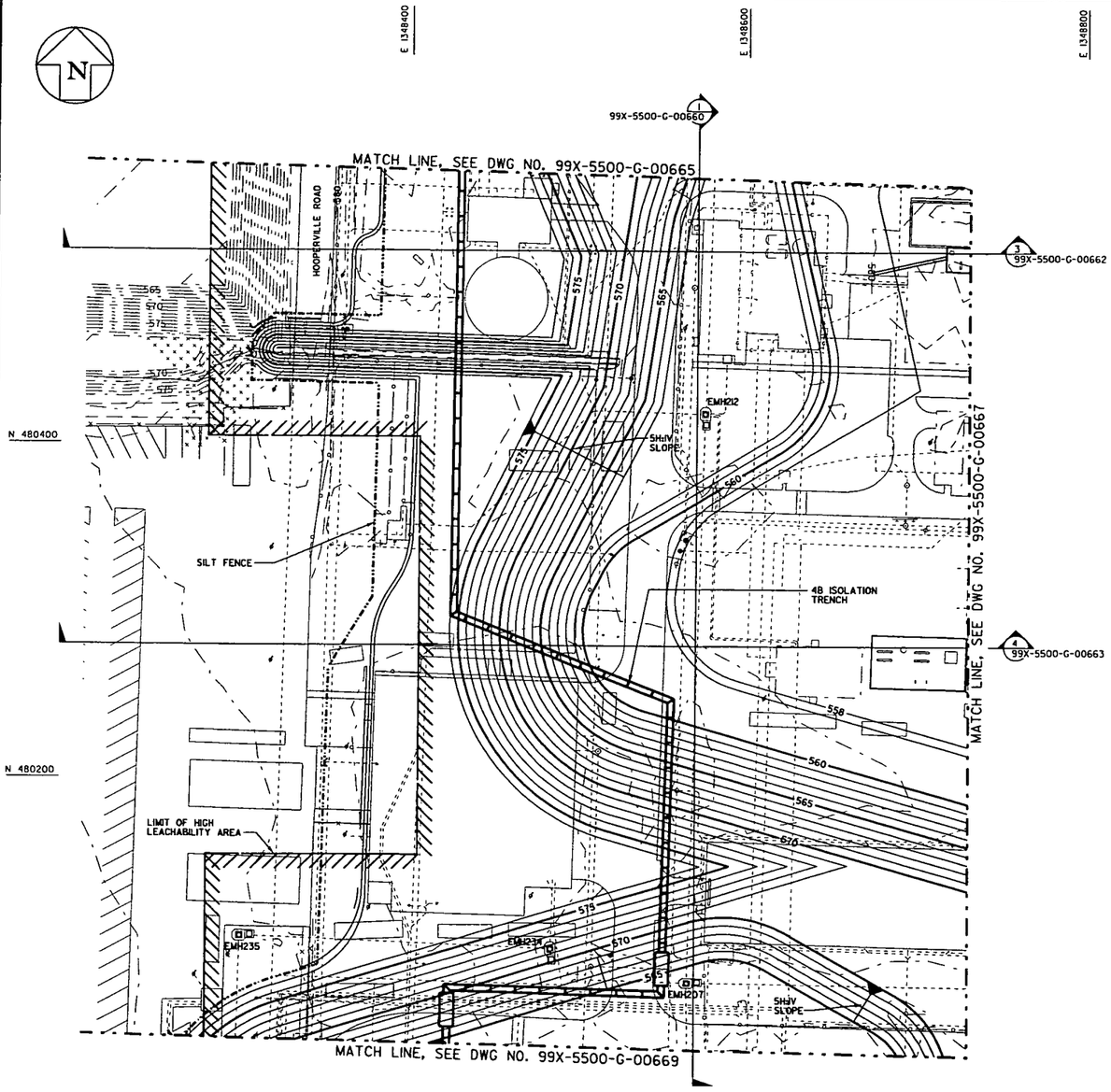
NORTH

AREA 4B KEY PLAN
SCALE: NONE

APPROVALS

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

DRAWN BY	PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
DRF	20810	99X-5500-G-00667	G-29	C
RES PROJECT NO.	FILENAME 99XG00667.DGN			



GENERAL NOTES

1. SEE DRAWING 99X-5500-X-00639 FOR LEGEND AND GENERAL NOTES.
2. THIS DRAWING SHOWS THE APPROXIMATE DEPTH OF EXCAVATION TO REMOVE URANIUM CONTAMINATION ABOVE FRLS.
3. PERFORM EXCAVATION FOR CONTAMINATION TO THE GRADES SHOWN IN ACCORDANCE WITH SPECIFICATION SECTION 02205.
4. PERFORM ADDITIONAL EXCAVATION TO THE DESIGN GRADES SHOWN ON DRAWING 99X-5500-G-00657 IN ACCORDANCE WITH SPECIFICATION SECTION 02205.

4831

LEGEND

PROPOSED ISOLATION TRENCH
EXISTING ISOLATION TRENCH
ISOLATION TRENCH GAP

PRELIMINARY
NOT FOR CONSTRUCTION

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	DATE	REV. BY	APPR.
C	RE-ISSUED FOR AGENCY REVIEW	3/31/03	KLR	
B	ISSUED FOR AGENCY REVIEW	9/30/02	KLR	
A	ISSUED FOR 90% DESIGN REVIEW	8/30/02	DRF	

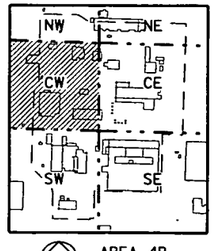
INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
FLUOR FERNALD, INC.

PROJECT NAME
SOIL REMEDIATION 000193

DRAWING TITLE
AREA 4B
CONTAMINATION GRADING PLAN (CW)



AREA 4B KEY PLAN
SCALE: NONE

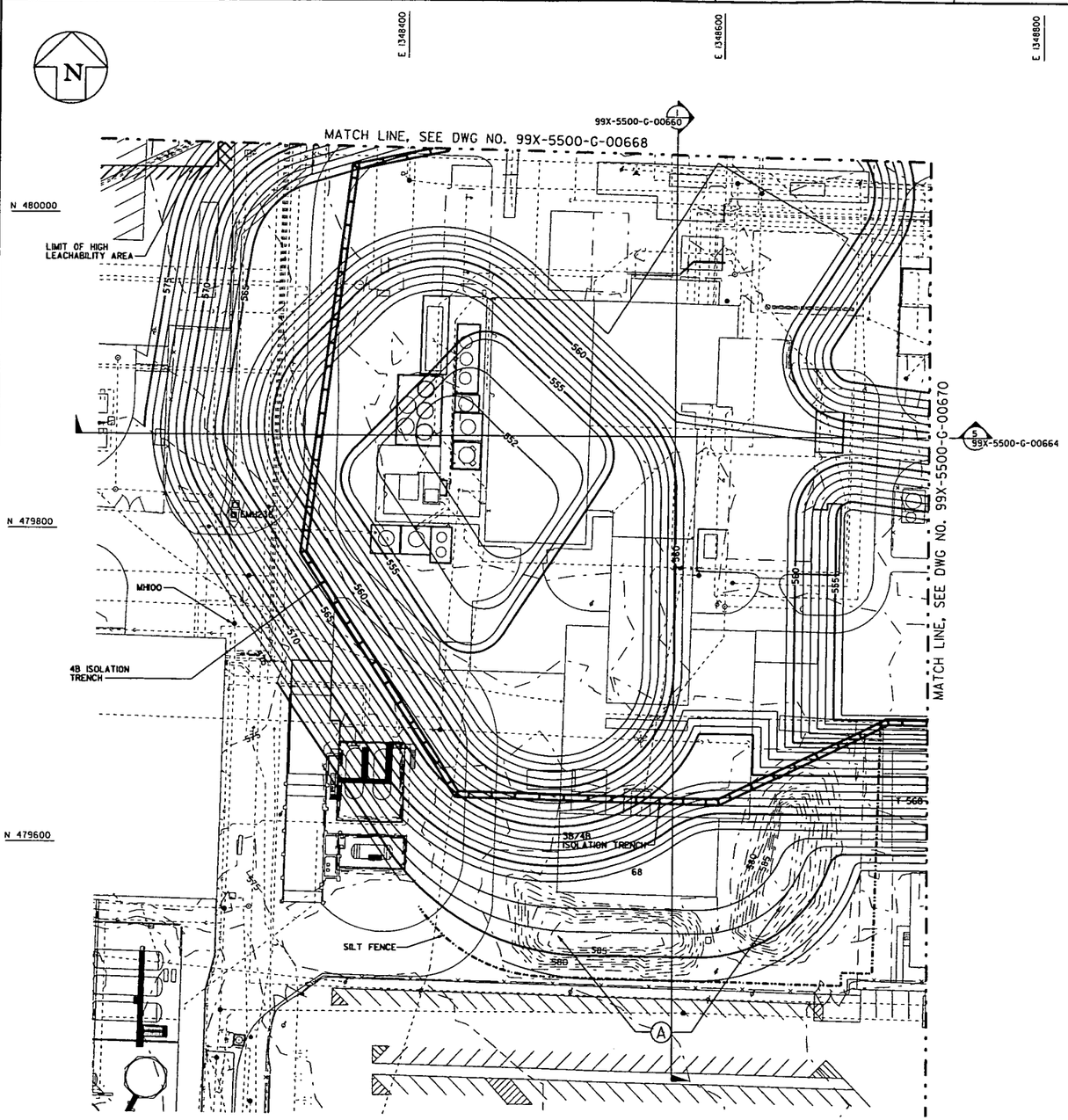
30 0 30 60
SCALE: 1"=30'

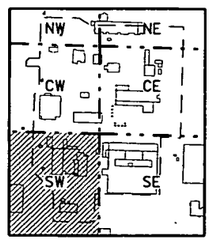
NORTH

APPROVALS

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

DRAWN BY	PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
DRF	20080	99X-5500-G-00668	G-30	C
RCS PROJECT NO.	FILENAME 99XG00668.DGN			





NORTH

AREA 4B KEY PLAN

SCALE: NONE

30 0 30 60

SCALE: 1"=30'

GENERAL NOTES

1. SEE DRAWING 99X-5500-X-00639 FOR LEGEND AND GENERAL NOTES.
2. THIS DRAWING SHOWS THE APPROXIMATE DEPTH OF EXCAVATION TO REMOVE URANIUM CONTAMINATION ABOVE FRLS.
3. PERFORM EXCAVATION FOR CONTAMINATION TO THE GRADES SHOWN IN ACCORDANCE WITH SPECIFICATION SECTION 02205.
4. PERFORM ADDITIONAL EXCAVATION TO THE DESIGN GRADES SHOWN ON DRAWING 99X-5500-G-00658 IN ACCORDANCE WITH SPECIFICATION SECTION 02205.

4831

LEGEND

PROPOSED ISOLATION TRENCH
EXISTING ISOLATION TRENCH
ISOLATION TRENCH GAP

PRELIMINARY
NOT FOR CONSTRUCTION

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	DATE	REV. BY	APPR.
C	RE-ISSUED FOR AGENCY REVIEW	3/31/03	KLR	
B	ISSUED FOR AGENCY REVIEW	9/30/02	KLR	
A	ISSUED FOR 90% DESIGN REVIEW	8/30/02	DRF	

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
FLUOR FERNALD, INC.

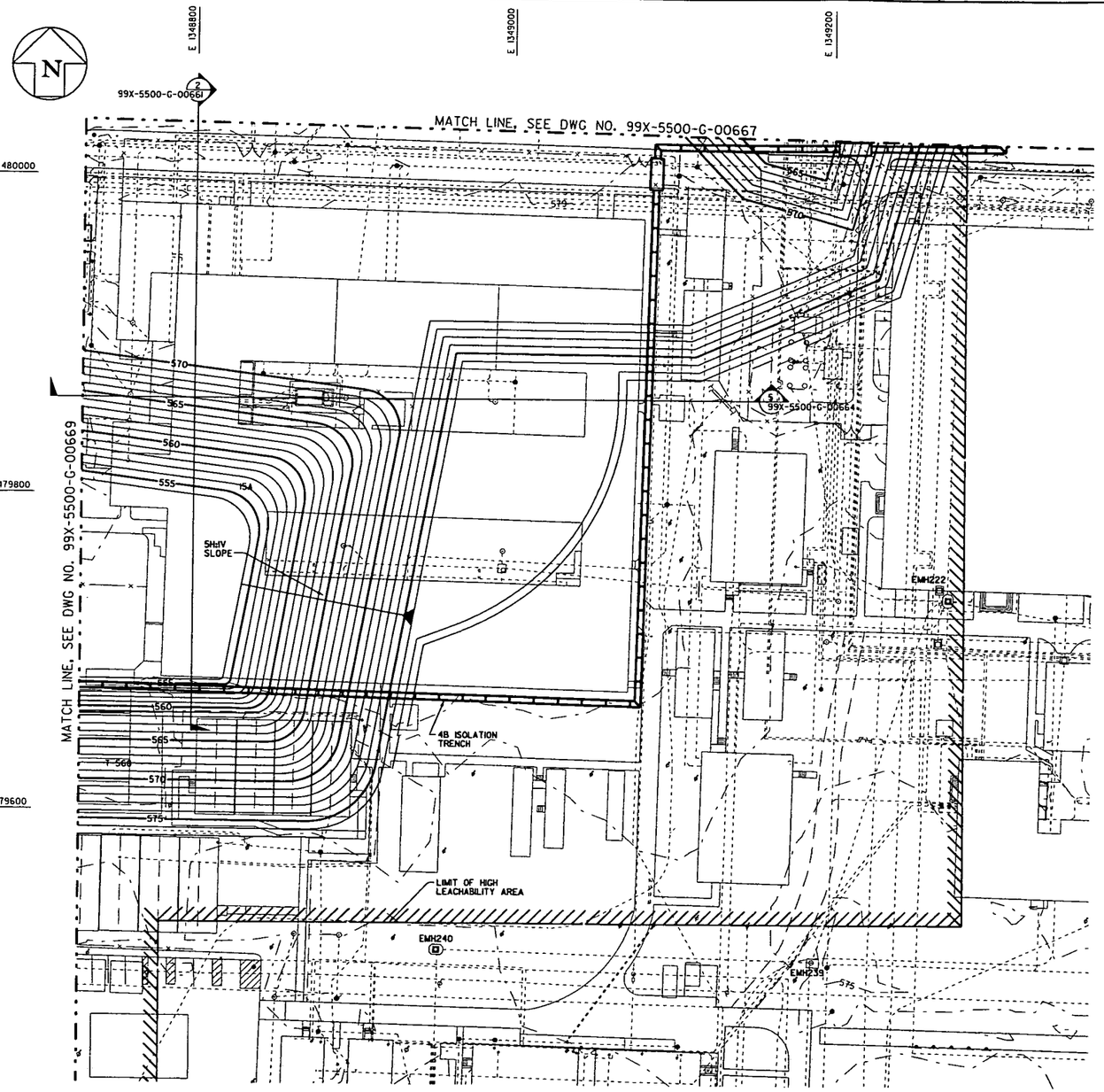
PROJECT NAME
SOIL REMEDIATION 000194

DRAWING TITLE
AREA 4B
CONTAMINATION GRADING PLAN (SW)

APPROVALS

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

DRAWN BY	PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
DRF	2080	99X-5500-G-00669	G-31	C
RES. PROJECT NO.	FILENAME 99XG00669.DGN			



GENERAL NOTES

1. SEE DRAWING 99X-5500-X-00639 FOR LEGEND AND GENERAL NOTES.
2. THIS DRAWING SHOWS THE APPROXIMATE DEPTH OF EXCAVATION TO REMOVE URANIUM CONTAMINATION ABOVE FRLS.
3. PERFORM EXCAVATION FOR CONTAMINATION TO THE GRADES SHOWN IN ACCORDANCE WITH SPECIFICATION SECTION 02205.
4. PERFORM ADDITIONAL EXCAVATION TO THE DESIGN GRADES SHOWN ON DRAWING 99X-5500-G-00659 IN ACCORDANCE WITH SPECIFICATION SECTION 02205.

4831

LEGEND

PROPOSED ISOLATION TRENCH
EXISTING ISOLATION TRENCH
ISOLATION TRENCH GAP

PRELIMINARY
NOT FOR CONSTRUCTION

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	DATE	REV. BY	APPR.
C	RE-ISSUED FOR AGENCY REVIEW	3/31/03	KLR	
B	ISSUED FOR AGENCY REVIEW	9/30/02	KLR	
A	ISSUED FOR 90% DESIGN REVIEW	8/30/02	DRF	

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
FLUOR FERNALD, INC.

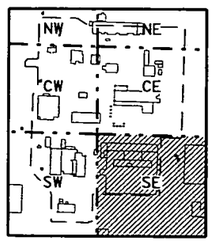
PROJECT NAME
SOIL REMEDIATION 000195

DRAWING TITLE
AREA 4B
CONTAMINATION GRADING PLAN (SE)

APPROVALS

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

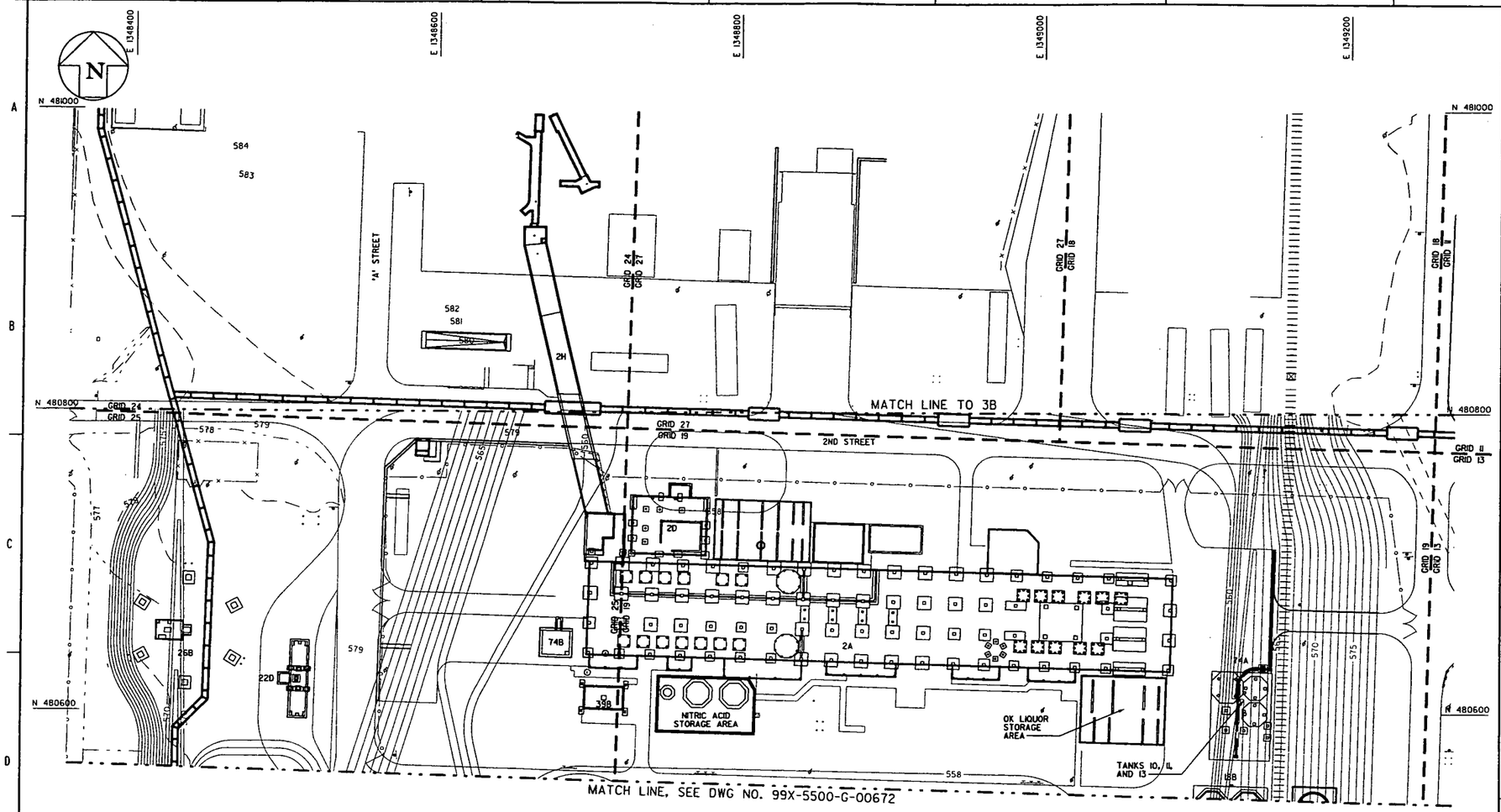
DRAWN BY	PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
DRF	20000	99X-5500-G-00670	G-32	C
RES PROJECT NO.	FILENAME 99X00670.DGN			



NORTH

AREA 4B KEY PLAN
SCALE: NONE

30 0 30 60
SCALE: 1"=30'



GENERAL NOTES

1. SEE DRAWING 99X-5500-X-00639 FOR LEGEND AND GENERAL NOTES.
2. BUILDING NUMBERS REFER TO FORMER LOCATIONS OF BUILDINGS OR PADS.
3. FOR FOUNDATION/SLAB DETAILS, SEE TECHNICAL REFERENCE DRAWINGS LISTED.

4831

KEYED NOTES

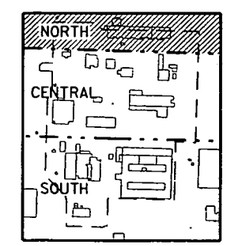
LEGEND

PROPOSED ISOLATION TRENCH
EXISTING ISOLATION TRENCH
ISOLATION TRENCH GAP

TECHNICAL REFERENCE DRAWING LIST FOR BUILDING FOUNDATIONS

DRAWING NO.	DRAWING TITLE	SHT. NO.
02X-1900-S-03451	STRUCTURE 2A WEST AND 2D FOUNDATION PLAN	S-001
02X-1900-S-03452	STRUCTURE 2A WEST AND 2D SLAB PLAN	S-002
02X-1900-S-03453	STRUCTURE 2A EAST,SOLVENT STORAGE AND TREATMENT AREAS FOUNDATION PLAN	S-001
02X-1900-S-03454	STRUCTURE 2A EAST,SOLVENT STORAGE AND TREATMENT AREAS SLAB PLAN	S-002
02X-1900-S-03455	STRUCTURE 39B AND NITRIC ACID STORAGE AREA FOUNDATION PLAN	S-001
02X-1900-S-03456	STRUCTURE 39B AND NITRIC ACID STORAGE AREA SLAB PLAN	S-002
18X-1900-S-01408	OK LIQUOR STORAGE AREA AND CONTAINMENT AREA FOR TANKS 10,11,AND 13 FOUNDATION PLAN	S-001
18X-1900-S-01409	OK LIQUOR STORAGE AREA AND CONTAINMENT AREA FOR TANKS 10,11,AND 13 SLAB PLAN	S-002
18X-1900-S-01414	STRUCTURE 18B FOUNDATION PLAN	S-001
18X-1900-S-01415	STRUCTURE 18B SLAB PLAN	S-002
22D-5900-S-00979	SCALE 22D FOUNDATION AND SLAB PLAN	S0001
26B-5900-S-00301	ELEVATED WATER STORAGE TANK 26B FOUNDATION AND SLAB PLAN	S0001
02X-1900-S-03448	STRUCTURE 2H AND PIT FOUNDATION AND SLAB PLAN	S-001
02X-1900-S-03450	STRUCTURE 74B AND ELEVATOR PIT FOUNDATION AND SLAB PLAN	S-001

30 0 30 60
SCALE: 1"=30'



NORTH

AREA 4B KEY PLAN
SCALE: NONE

PRELIMINARY
NOT FOR CONSTRUCTION

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	DATE	REV. BY	APPR.
C	RE-ISSUED FOR AGENCY REVIEW	3/31/03	KLR	
B	ISSUED FOR AGENCY REVIEW	9/30/02	KLR	
A	ISSUED FOR 90% DESIGN REVIEW	8/30/02	KLR	

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
FLUOR FERNALD, INC.

PROJECT NAME
SOIL REMEDIATION

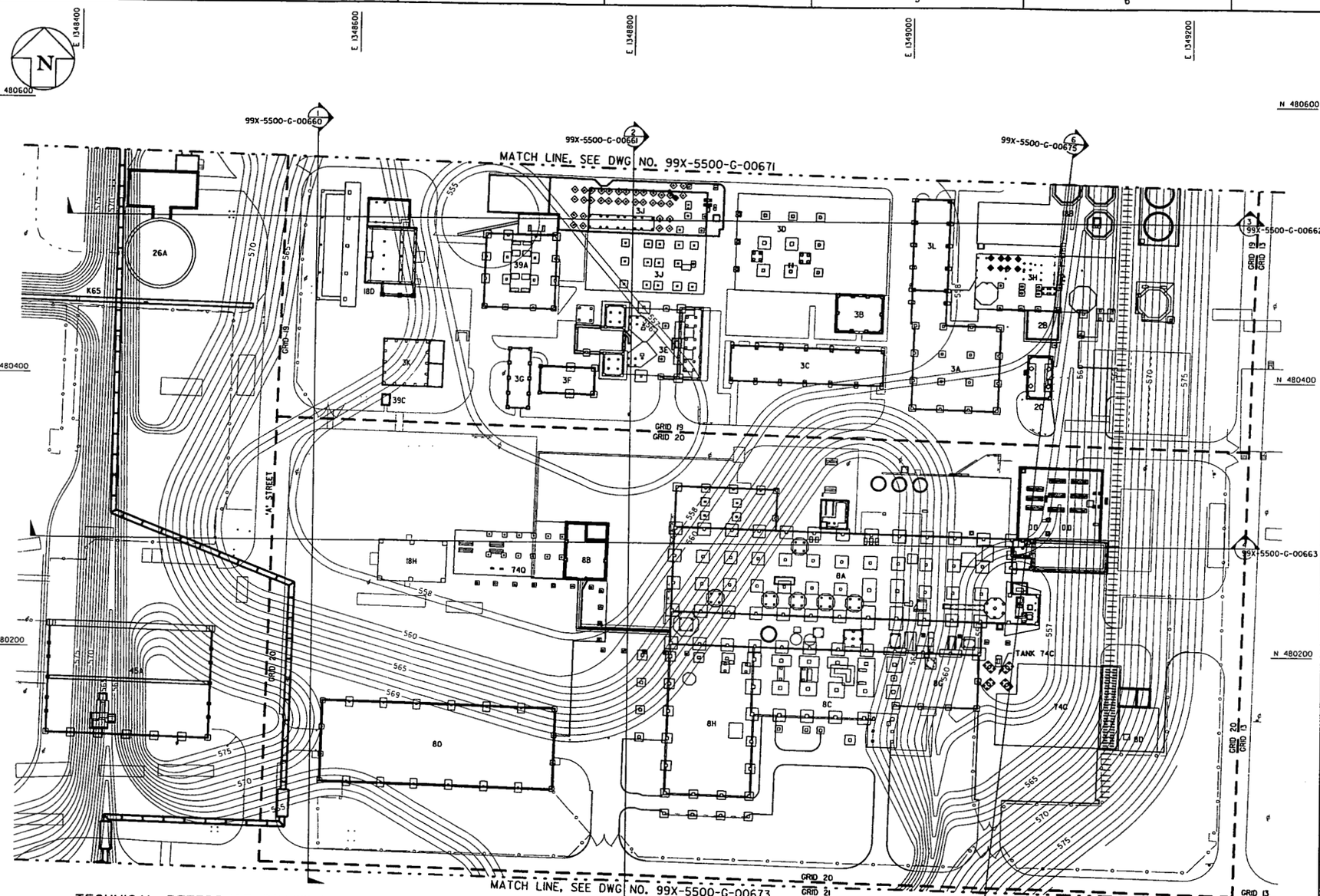
DRAWING TITLE
AREA 4B
FOUNDATION PLAN (NORTH)

000196

APPROVALS

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

DRAWN BY	PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
KLR	2080	99X-5500-G-00671	G-33	C
RES PROJECT NO.	FILENAME 99XG0067LDGN			



GENERAL NOTES

1. SEE DRAWING 99X-5500-X-00639 FOR LEGEND AND GENERAL NOTES.
2. BUILDING NUMBERS REFER TO FORMER LOCATIONS OF BUILDINGS OR PADS.
3. FOR FOUNDATION/SLAB DETAILS, SEE TECHNICAL REFERENCE DRAWINGS LISTED.

4831

KEYED NOTES

LEGEND

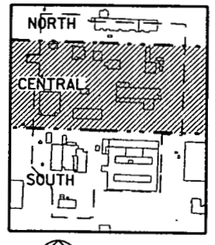
PROPOSED ISOLATION TRENCH
EXISTING ISOLATION TRENCH
ISOLATION TRENCH GAP

TECHNICAL REFERENCE DRAWING LIST FOR BUILDING FOUNDATIONS

DRAWING NO.	DRAWING TITLE	SHT. NO.
02E-1900-S-03457	STRUCTURE 3J FOUNDATION PLAN	S-001
02E-1900-S-03458	STRUCTURE 3J SLAB PLAN	S-002
02X-1900-S-03459	STRUCTURE 3E FOUNDATION PLAN	S-001
02X-1900-S-03460	STRUCTURE 3E SLAB PLAN	S-002
03A-1900-S-01044	STRUCTURE 3G AND 3F FOUNDATION PLAN	S-001
03A-1900-S-01045	STRUCTURE 3G AND 3F SLAB PLAN	S-002
03B-1900-S-01050	STRUCTURE 3L FOUNDATION PLAN	S-001
03B-1900-S-01051	STRUCTURE 3L SLAB PLAN	S-002
03X-1900-S-01041	STRUCTURE 3C AND 3B FOUNDATION AND SLAB PLAN	S-001
03X-1900-S-01042	STRUCTURE 3A AND 2C FOUNDATION PLAN	S-001
03X-1900-S-01043	STRUCTURE 3A AND 2C SLAB PLAN	S-002
03X-1900-S-01046	STRUCTURE 39C AND 3K FOUNDATION PLAN	S-001
03X-1900-S-01047	STRUCTURE 39C AND 3K SLAB PLAN	S-002
03X-1900-S-01048	STRUCTURE 3D FOUNDATION PLAN	S-001
03X-1900-S-01049	STRUCTURE 3D SLAB PLAN	S-002
18D-1900-S-01416	STRUCTURE 18D FOUNDATION PLAN	S-001
18D-1900-S-01417	STRUCTURE 18D SLAB PLAN	S-002
18X-1900-S-01410	CONTAINMENT AREA FOR TANKS 8 AND 14 AND CONTAINMENT AREA FOR TANK 9 FOUNDATION PLAN	S-001
18X-1900-S-01411	CONTAINMENT AREA FOR TANKS 8 AND 14 AND CONTAINMENT AREA FOR TANK 9 SLAB PLAN	S-002
18X-1900-S-01412	STRUCTURE 3H AND 2B FOUNDATION PLAN	S-001
18X-1900-S-01413	STRUCTURE 3H AND 2B SLAB PLAN	S-002
18X-1900-S-01414	STRUCTURE 18B FOUNDATION PLAN	S-001
18X-1900-S-01415	STRUCTURE 18B SLAB PLAN	S-002
39X-1900-S-00073	STRUCTURE 39A FOUNDATION PLAN	S-001
39X-1900-S-00074	STRUCTURE 39A SLAB PLAN	S-002

TECHNICAL REFERENCE DRAWING LIST FOR BUILDING FOUNDATIONS

DRAWING NO.	DRAWING TITLE	SHT. NO.
34X-5900-S-00151	K-65 TRENCH FOUNDATION AND SLAB PLAN	S0001
08X-5900-S-03729	BUILDING 8A FOUNDATION PLAN - WEST	S0001
08X-5900-S-03730	BUILDING 8A FOUNDATION PLAN - EAST	S0002
08X-5900-S-03743	BUILDING 8A FOOTING SCHEDULE	S0003
08X-5900-S-03731	BUILDING 8A SLAB PLAN - WEST	S0004
08X-5900-S-03732	BUILDING 8A SLAB PLAN - EAST	S0005
08H-5900-S-03733	BUILDING 8B FOUNDATION PLAN	S0001
08H-5900-S-03734	BUILDING 8B SLAB PLAN	S0002
08H-5900-S-03735	BUILDING 8C FOUNDATION PLAN	S0001
08H-5900-S-03736	BUILDING 8C SLAB PLAN	S0002
24B-5900-S-00202	BUILDING 8D FOUNDATION AND SLAB PLAN	S0001
08X-5900-S-03737	BUILDING 8G FOUNDATION PLAN - WEST	S0001
08X-5900-S-03738	BUILDING 8G FOUNDATION PLAN - EAST	S0002
08X-5900-S-03739	BUILDING 8G SLAB PLAN - WEST	S0003
08X-5900-S-03740	BUILDING 8G SLAB PLAN - EAST	S0004
08X-5900-S-03741	BUILDING 8H FOUNDATION PLAN	S0001
08X-5900-S-03742	BUILDING 8H SLAB PLAN	S0002
18D-5900-S-01418	BUILDING 18H FOUNDATION AND SLAB PLAN	S0001
74D-5900-S-00079	BUILDING 74C FOUNDATION PLAN	S0001
74D-5900-S-00080	BUILDING 74C SLAB PLAN	S0002
74D-5900-S-00081	BUILDING 74Q FOUNDATION PLAN	S0001
74D-5900-S-00082	BUILDING 74Q SLAB PLAN	S0002
80X-5900-S-00049	BUILDING 80 FOUNDATION PLAN	S0001
80X-5900-S-00050	BUILDING 80 SLAB PLAN	S0002



AREA 4B KEY PLAN
NORTH
SCALE: NONE

30 0 30 60
SCALE: 1"=30'

PRELIMINARY
NOT FOR CONSTRUCTION

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	DATE	REV. BY	APPR.
C	RE-ISSUED FOR AGENCY REVIEW	3/31/03	KLR	
B	ISSUED FOR AGENCY REVIEW	9/30/02	KLR	
A	ISSUED FOR 90% DESIGN REVIEW	8/30/02	KLR	

INITIALS AND DATE

UNITED STATES
DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
FLUOR FERNALD, INC.

PROJECT NAME
SOIL REMEDIATION

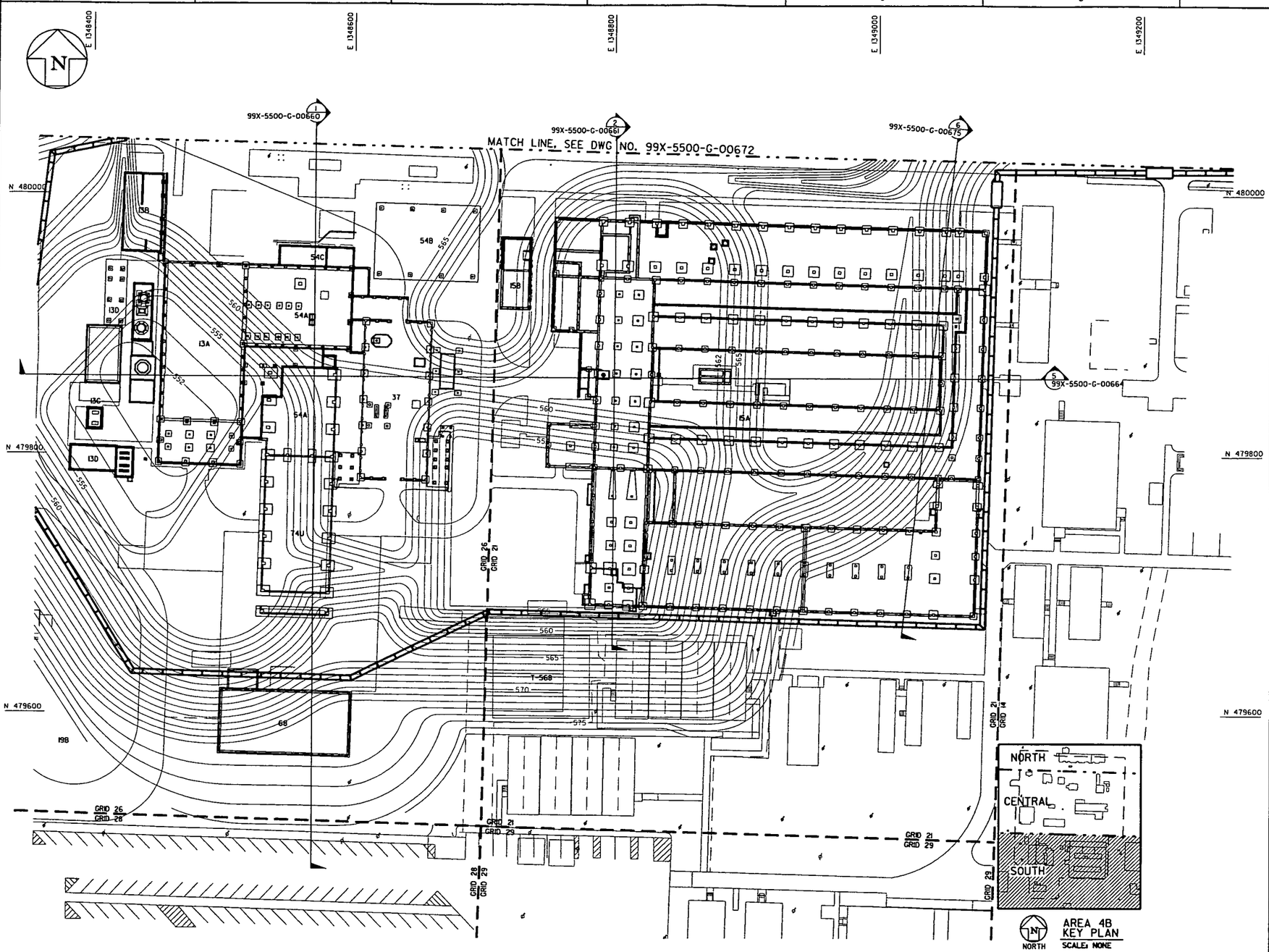
DRAWING TITLE
AREA 4B
FOUNDATION PLAN (CENTRAL)

000197

APPROVALS

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

DRAWN BY	PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
KLR	2080	99X-5500-G-00672	G-34	C
RES PROJECT NO.	FILENAME 99XG00672.DGN			



GENERAL NOTES

1. SEE DRAWING 99X-5500-X-00639 FOR LEGEND AND GENERAL NOTES.
2. BUILDING NUMBERS REFER TO FORMER LOCATIONS OF BUILDINGS OR PADS.
3. FOR FOUNDATION/SLAB DETAILS, SEE TECHNICAL REFERENCE DRAWINGS LISTED.

4831

KEYED NOTES

LEGEND

- PROPOSED ISOLATION TRENCH
- EXISTING ISOLATION TRENCH
- ISOLATION TRENCH GAP

TECHNICAL REFERENCE DRAWING LIST FOR BUILDING FOUNDATIONS

DRAWING NO.	DRAWING TITLE	SHT. NO.
15X-5900-S-02542	BUILDING 15A FOUNDATION PLAN - NORTH	S0001
15X-5900-S-02543	BUILDING 15A FOUNDATION PLAN - SOUTH	S0002
15X-5900-S-02544	BUILDING 15A SLAB PLAN - NORTH	S0003
15X-5900-S-02545	BUILDING 15A SLAB PLAN - SOUTH	S0004
15X-5900-S-02546	BUILDING 15B FOUNDATION PLAN	S0001
15X-5900-S-02547	BUILDING 15B SLAB PLAN	S0002
54X-5900-S-00923	BUILDING 13A, 54A, & 74U FOUNDATION PLAN	S0001
54X-5900-S-00924	BUILDING 13A, 54A, & 74U SLAB PLAN	S0002

TECHNICAL REFERENCE DRAWING LIST FOR BUILDING FOUNDATIONS

DRAWING NO.	DRAWING TITLE	SHT. NO.
13X-5900-S-00781	BUILDING 13B FOUNDATION PLAN	S0001
13X-5900-S-00782	BUILDING 13B SLAB PLAN	S0002
13X-5900-S-00779	TANK AREA 13C & 13D FOUNDATION PLAN	S0001
13X-5900-S-00780	TANK AREA 13C & 13D SLAB PLAN	S0002
37X-5900-S-01303	BUILDING 37 FOUNDATION PLAN	S0001
37X-5900-S-01304	BUILDING 37 SLAB PLAN	S0002
54D-5900-S-00925	BUILDING 54B FOUNDATION AND SLAB PLAN	S0001
54X-5900-S-00926	BUILDING 54C FOUNDATION AND SLAB PLAN	S0001
68X-5900-S-00091	BUILDING 68 FOUNDATION AND SLAB PLAN	S0001

30 0 30 60
SCALE: 1"=30'

PRELIMINARY
NOT FOR CONSTRUCTION

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	DATE	REV. BY	APPR.
C	RE-ISSUED FOR AGENCY REVIEW	3/31/03	KLR	
B	ISSUED FOR AGENCY REVIEW	9/30/02	KLR	
A	ISSUED FOR 90% DESIGN REVIEW	8/30/02	KLR	

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
FLUOR FERNALD, INC.

PROJECT NAME
SOIL REMEDIATION

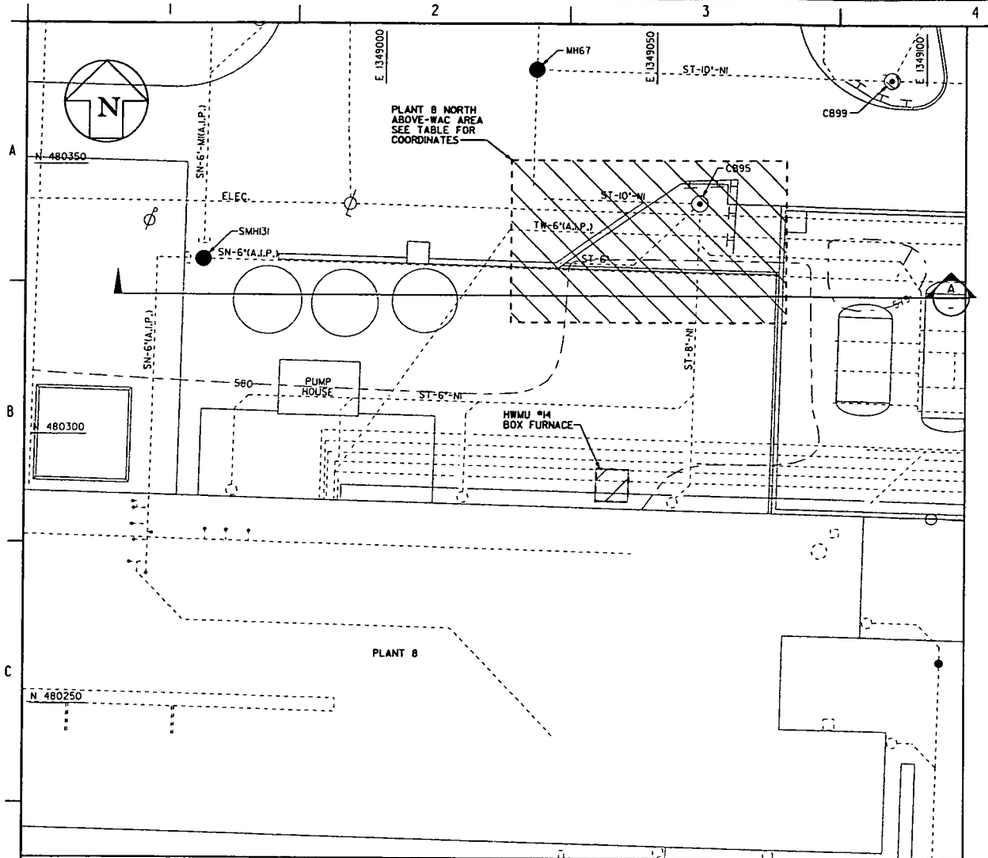
DRAWING TITLE
AREA 4B
FOUNDATION PLAN (SOUTH)

000198

APPROVALS

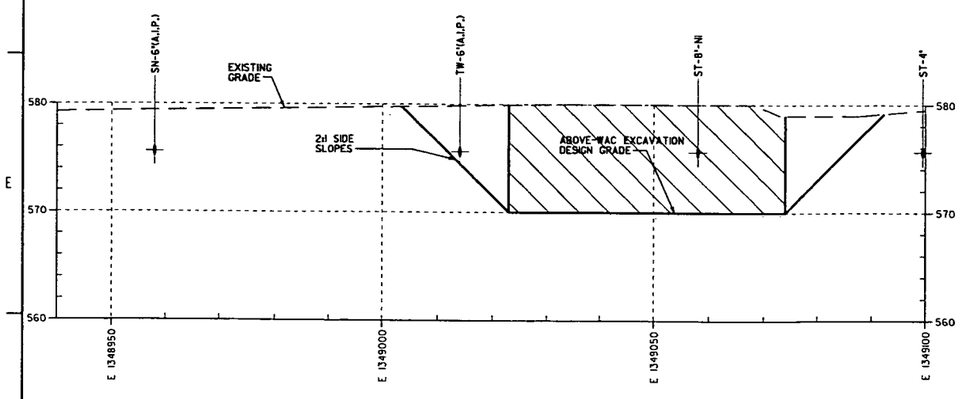
COGNIZANT ENG.		SAFETY ENG.	
CIVIL & STR.		MAINTENANCE	
ELECTRICAL		FIRE PROTECT.	
ENGINEER		WASTE MANAGE	
INSTRUMENT		SECURITY	
MECHANICAL		QA	
		CONSTRUCTION	
CHECKED			
APPROVED			

DRAWN BY	PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
KLR	2080	99X-5500-G-00673	G-35	C
RES PROJECT NO.	FILENAME 99XG00673.DGN			



SAMPLE ABOVE-WAC EXCAVATION PLAN
ABOVE-WAC AREA I: PLANT 8 NORTH

10 0 10 20
SCALE: 1"=10'



SECTION A
SCALE: 1"=10' HORZ
1"=5' VERT

AREA 4B ABOVE-WAC EXCAVATION BOUNDARIES					
ID	IDENTIFIER	COC(S)	NORTHING	EASTING	ELEVATION (MSL)
1	PLANT 8 NORTH ABOVE-WAC AREA	U & TC-99	480351	1349023	570
			480351	1349074	570
			480321	1349074	570
			480321	1349023	570
2	PLANT 8 CENTRAL ABOVE-WAC AREA	TC-99	480299	1348942	576.5
			480299	1349121	576.5
			480210	1349121	576.5
			480210	1348942	576.5
3	PLANT 2 NORTHWEST ABOVE-WAC AREA	U & TC-99	480774	1348765	577
			480774	1348784	577
			480746	1348784	577
			480746	1348765	577
4	PLANT 2 NORTHEAST ABOVE-WAC AREA	U	480748	1348871	579
			480748	1348902	579
			480696	1348902	579
			480696	1348871	579
5	PLANT 2 SOUTHWEST ABOVE-WAC AREA	U	480679	1348700	574.5
			480679	1348840	574.5
			480623	1348840	574.5
			480623	1348700	574.5
6	PILOT PLANT SOUTH ABOVE-WAC AREA	U	479786	1348454	577
			479786	1348495	577
			479760	1348495	577
			479760	1348454	577
7	PILOT PLANT NORTHWEST ABOVE-WAC AREA	TC-99	479944	1348406	572
			479944	1348517	572
			479900	1348517	572
			479900	1348406	572
8	PILOT PLANT SOUTHWEST ABOVE-WAC AREA	U	479827	1348431	572
			479827	1348448	572
			479816	1348448	572
			479816	1348431	572
9	LAB DOCK ABOVE-WAC AREA	U & TC-99	479892	1348764	576
			479892	1348774	576
			479882	1348774	576
			479882	1348764	576
10	LAB NORTH COURTYARD ABOVE-WAC AREA	U	479871	1348856	577
			479871	1348866	577
			479850	1348866	577
			479850	1348856	577
11	LAB SOUTHWEST ABOVE-WAC AREA	U & TC-99	479735	1348754	575
			479735	1348782	575
			479670	1348782	575
			479670	1348754	575
12	K-65 ABOVE-WAC AREA (A)	TC-99	N/A	N/A	N/A

AREA 4B ABOVE-WAC EXCAVATIONS

1. ESTABLISH EXCAVATION BOUNDARY AND BUFFER AREA CONTROLS IN ACCORDANCE WITH SPECIFICATION SECTION 02205.
2. REMOVE AT-GRADE DEBRIS FROM ABOVE-WAC AREAS AND CLEAN OF VISIBLE SOIL/GRAVEL WITHIN THE EXCAVATION AREAS.
3. HAUL CLEAN DEBRIS TO THE OSDF. DISPOSE OF DEBRIS THAT IS NOT CLEANED WITH UNDERLYING SOIL.
4. EXCAVATE ABOVE-WAC AREAS IN 3-FT +/- 1-FOOT LIFTS TO THE COORDINATES AND ELEVATIONS SHOWN, LEAVING VERTICAL SIDEWALLS.
5. HAUL EXCAVATED ABOVE-WAC MATERIAL TO SP-7. DO NOT TRACK EQUIPMENT THROUGH ADJACENT ABOVE-WAC AREAS.
6. UPON COMPLETION OF EACH ABOVE-WAC EXCAVATION LIFT:
   - A. DECONTAMINATE THE EXCAVATOR BUCKET WITHIN THE EXCAVATION AREA AS DIRECTED BY THE CONSTRUCTION MANAGER.
   - B. EXCAVATE ABOVE-WAC AREA SIDE SLOPES TO 2H:1V AND TEMPORARILY STOCKPILE MATERIAL ADJACENT TO THE EXCAVATION.
   - C. THE CONSTRUCTION MANAGER ARRANGES FOR REAL-TIME MONITORING AND/OR PHYSICAL SAMPLING OF ABOVE-WAC AREA SIDE SLOPES AND FOOTPRINT.
   - D. THE CONSTRUCTION MANAGER DIRECTS DISPOSAL OF STOCKPILED SIDE SLOPE MATERIAL, AS WELL AS, FURTHER ABOVE-WAC EXCAVATION AS NECESSARY.
7. UPON REACHING THE DESIGN GRADE OF THE ABOVE-WAC EXCAVATION:
   - A. DECONTAMINATE THE EXCAVATOR BUCKET WITHIN THE HAUL TRUCK BED AS DIRECTED BY THE CONSTRUCTION MANAGER.
   - B. DECONTAMINATE THE HAUL TRUCK BED IN SP-7.
   - C. EXCAVATE ABOVE-WAC AREA SIDE SLOPES TO 2H:1V AND TEMPORARILY STOCKPILE MATERIAL ADJACENT TO THE EXCAVATION.
   - D. THE CONSTRUCTION MANAGER ARRANGES FOR REAL-TIME MONITORING AND/OR PHYSICAL SAMPLING OF ABOVE-WAC AREA SIDE SLOPES AND FOOTPRINT.
   - E. THE CONSTRUCTION MANAGER DIRECTS DISPOSAL OF STOCKPILED SIDE SLOPE MATERIAL, AS WELL AS, FURTHER ABOVE-WAC EXCAVATION AS NECESSARY.

ABOVE-WAC AREA EXCAVATION SEQUENCE AND REQUIREMENTS

GENERAL NOTES

1. SEE DRAWING 99X-5500-X-00639 FOR LEGEND AND GENERAL NOTES.
2. THIS DRAWING PROVIDES EXCAVATION DETAIL AND LIMITS FOR KNOWN ABOVE-WAC AREAS IN AREA 3B. ABOVE-WAC AREAS ARE BOUNDED AS STRAIGHT WALL EXCAVATIONS USING COORDINATES AND BOTTOM ELEVATIONS PROVIDED.
3. SEE AREA 4B LAYOUT PLAN DRAWING 99X-5500-G-00644 FOR GENERAL LOCATIONS OF ABOVE-WAC AREAS.
4. EXCAVATE ABOVE-WAC AREAS AS SHOWN ON THIS DRAWING AND IN ACCORDANCE WITH SPECIFICATION SECTION 02205. CONSTRUCTION MANAGER WILL VERIFY THE LIMITS OF ABOVE-WAC MATERIAL IN THE FIELD. ADDITIONAL EXCAVATION MAY BE REQUIRED.
5. LOAD TRUCKS IN BUFFER ZONE OUTSIDE OF ABOVE-WAC AREA IN ACCORDANCE WITH TECHNICAL SPECIFICATION SECTION 02205.
6. SURVEY LIMITS AND ELEVATION OF EACH EXCAVATED LIFT IN ABOVE-WAC EXCAVATIONS.
7. MAINTAIN POSITIVE DRAINAGE WITHIN THE ABOVE-WAC EXCAVATIONS TO COLLECT WATER. IF VOCS ARE PRESENT WATER WILL BE SAMPLED AND ANALYZE TO DETERMINE DISPOSITION.
8. SURVEY FINAL EXCAVATION LIMITS. ARRANGE FOR SAMPLING AND/OR REAL-TIME MONITORING AT BOTTOM OF ABOVE-WAC EXCAVATIONS.

4831

KEYED NOTES

(A) EXCAVATION OF K65 TRENCH REPRESENTS AN ABOVE-WAC EXCAVATION ASSOCIATED WITH A LANDMARK RATHER THAN AN AREA OF SOIL. SPECIFIC EXCAVATION REQUIREMENTS AND DETAILS ARE PRESENTED ON DRAWING 99X-5500-G-00657.

PRELIMINARY
NOT FOR CONSTRUCTION

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	DATE	REV. BY	APPR.
B	RE-ISSUED FOR AGENCY REVIEW	3/31/03	KLR	
A	ISSUED FOR AGENCY REVIEW	9/30/02	DRF	

DETAILS AND DATE

UNITED STATES
DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
FLUOR FERNALD, INC.

PROJECT NAME
SOIL REMEDIATION

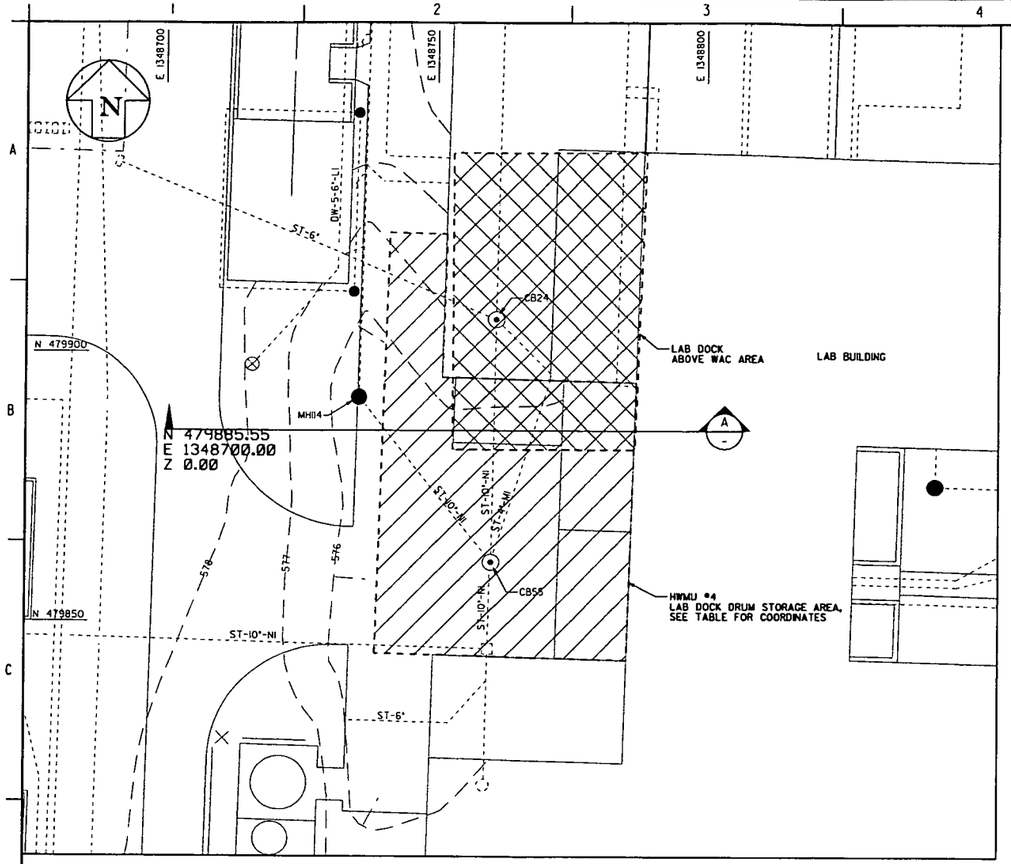
DRAWING TITLE
AREA 4B
ABOVE-WAC EXCAVATION DETAILS AND LIMITS

000199

APPROVALS

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

DRAWN BY	PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
DRF	2080	99X-5500-G-00677	G-36	B
RES PROJECT NO.	FILENAME 99XC00677.DGN			



SAMPLE HWMU EXCAVATION PLAN
HWMU #4 LAB DOCK DRUM STORAGE AREA

10 0 10 20
SCALE: 1"=10'

AREA 4B HAZARDOUS WASTE MANAGEMENT UNITS					
HWMU	IDENTIFIER	COC(S)	NORTHING	EASTING	ELEVATION
4	LAB LOADING DOCK STORAGE AREA	SEE NOTE 3	479843	1348786	SEE NOTE 3
			479844	1348738	
			479922	1348741	
			479922	1348752	
			479895	1348751	
			479894	1348787	
5	LAB DRUM STORAGE AREA		479749	1348783	
			479750	1348751	
			479791	1348752	
			479790	1348784	
10	NITRIC ACID RECOVERY SYSTEM COMPONENTS		480612	1348771	
			CENTER OF APPROX. 9 FT RADIUS		
14	BOX FURNACE		480288	1349045	
			480288	1349039	
			480294	1349039	
			480294	1349045	
17	PLANT 8 EAST PAD		480092	1349135	
			480094	1349049	
			480224	1349052	
			480223	1349093	
			480245	1349093	
			480246	1349073	
			480264	1349074	
			480261	1349141	
			480244	1349141	
			480242	1349219	
			480203	1349218	
			480204	1349187	
			480131	1349184	
			480132	1349136	
18	PLANT 8 WEST PAD		480253	1348753	
			480253	1348729	
			480348	1348732	
			480346	1348797	
			480293	1348796	
			480294	1348754	
22	PILOT PLANT SUMP		479826	1348438	
			CENTER OF APPROX. 2 FT RADIUS		

SUMMARY OF AREA 4B
HAZARDOUS WASTE MANAGEMENT UNITS

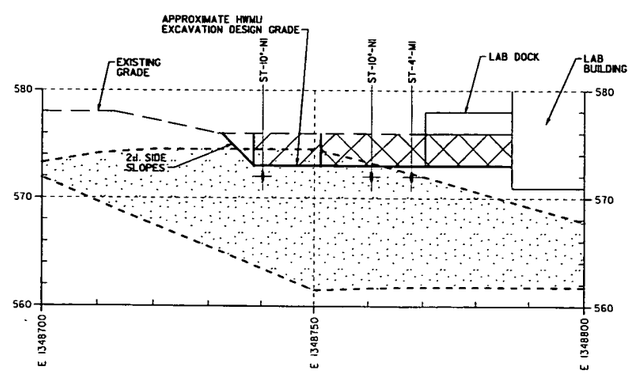
GENERAL NOTES

1. SEE DRAWING 99X-5500-X-00639 FOR LEGEND AND GENERAL NOTES.
2. THIS DRAWING PROVIDES EXCAVATION DETAIL AND LIMITS FOR EXCAVATION OF AREA 4B HWMU'S. HWMU BOUNDING COORDINATES ARE PROVIDED TO ASSIST FIELD-LOCATION AND DEMARCATION OF HWMU BOUNDARIES LARGELY DEFINED BY LANDMARKS.
3. SEE AREA 4B LAYOUT PLAN DRAWING 99X-5500-G-00644 FOR GENERAL LOCATIONS OF HWMU'S.
4. HWMU EXCAVATION DEPTHS WILL BE DETERMINED IN THE FIELD BASED ON SAMPLE RESULTS OF COC'S.
5. EXCAVATE HWMU AREAS AS SHOWN ON THIS DRAWING AND IN ACCORDANCE WITH SPECIFICATION SECTION 02205. CONSTRUCTION MANAGER WILL VERIFY THE LIMITS OF THE HWMU IN THE FIELD. ADDITIONAL EXCAVATION MAY BE REQUIRED.
6. LOAD TRUCKS IN THE BUFFER ZONE OUTSIDE OF THE HWMU IN ACCORDANCE WITH TECHNICAL SPECIFICATION SECTION 02205.
7. SURVEY LIMITS AND ELEVATION OF EACH EXCAVATED LIFT IN HWMU AREAS.
8. MAINTAIN POSITIVE DRAINAGE WITHIN HWMU EXCAVATIONS TO COLLECT WATER. IF VOCS ARE PRESENT WATER WILL BE SAMPLED AND ANALYZE TO DETERMINE DISPOSITION.
9. SURVEY FINAL EXCAVATION LIMITS. ARRANGE FOR CONFIRMATORY SAMPLING OR MONITORING AT BOTTOM OF HWMU EXCAVATION.
10. HWMU #4 OVERLAPS THE LAB DOCK ABOVE-WAC AREA, AS SHOWN IN THE SAMPLE HWMU EXCAVATION PLAN.

4831

LEGEND

SAND/GRAVEL



SECTION A
SCALE: 1"=10' HORZ
1"=5' VERT

A. ESTABLISH HWMU BOUNDARY AND BUFFER AREA CONTROLS IN ACCORDANCE WITH THIS DRAWING AND SPECIFICATION SECTION 02205.

B. REMOVE DEBRIS (CONCRETE, ASPHALT AND MISCELLANEOUS STRUCTURES) AND HAUL TO THE OSDF AS A DISCRETE WASTE STREAM. IF THE HWMU IS CONSIDERED AN ABOVE-WAC AREA, LOAD AND HAUL THE DEBRIS TO SP-7, OR CONTAINERIZE IT AS DIRECTED BY THE CONSTRUCTION MANAGER.

C. EXCAVATE HWMU SOIL/GRAVEL IN 3-FT +/- 1-FOOT LIFTS TO THE HWMU DESIGN GRADE WHILE MAINTAINING SAFE SLOPES IN ACCORDANCE WITH SPECIFICATION SECTION 02205. LOAD AND HAUL HWMU SOIL/GRAVEL TO THE OSDF AS A DISCRETE WASTE STREAM. IF THE HWMU IS CONSIDERED AN ABOVE-WAC AREA, LOAD AND HAUL THE SOIL/GRAVEL TO SP-7, OR CONTAINERIZE IT AS DIRECTED BY THE CONSTRUCTION MANAGER.

D. ARRANGE FOR PHYSICAL SAMPLING ON EXCAVATED SIDE SLOPES AFTER EACH LIFT IS REMOVED AND ON THE EXCAVATION FLOOR UPON ACHIEVING THE HWMU DESIGN GRADE. ALLOW 10 WORKING DAYS FOR SAMPLING AND ANALYSIS REQUIRED FOR CLOSURE OF THE HWMU. DO NOT PROCEED WITH FURTHER EXCAVATION IN THE AREA UNTIL DIRECTED BY THE CONSTRUCTION MANAGER.

E. PENDING ANALYSIS OF SAMPLING RESULTS, PERFORM SUPPLEMENTAL HWMU EXCAVATION BEYOND THE HWMU DESIGN GRADE AS DIRECTED BY THE CONSTRUCTION MANAGER.

F. UPON CONFIRMATION FROM THE CONSTRUCTION MANAGER THAT THE HWMU EXCAVATION IS COMPLETE, REMOVE HWMU BOUNDARY FENCE, LOAD AND HAUL BUFFER AREA HERCULITE AS HWMU DEBRIS.

HWMU EXCAVATION
SEQUENCE AND REQUIREMENTS

PRELIMINARY
NOT FOR CONSTRUCTION

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	DATE	REV. BY	APPR.
B	RE-ISSUED FOR AGENCY REVIEW	3/31/03	KLR	
A	ISSUED FOR AGENCY REVIEW	9/30/02	DRF	

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
FLUOR FERNALD, INC.

PROJECT NAME
SOIL REMEDIATION

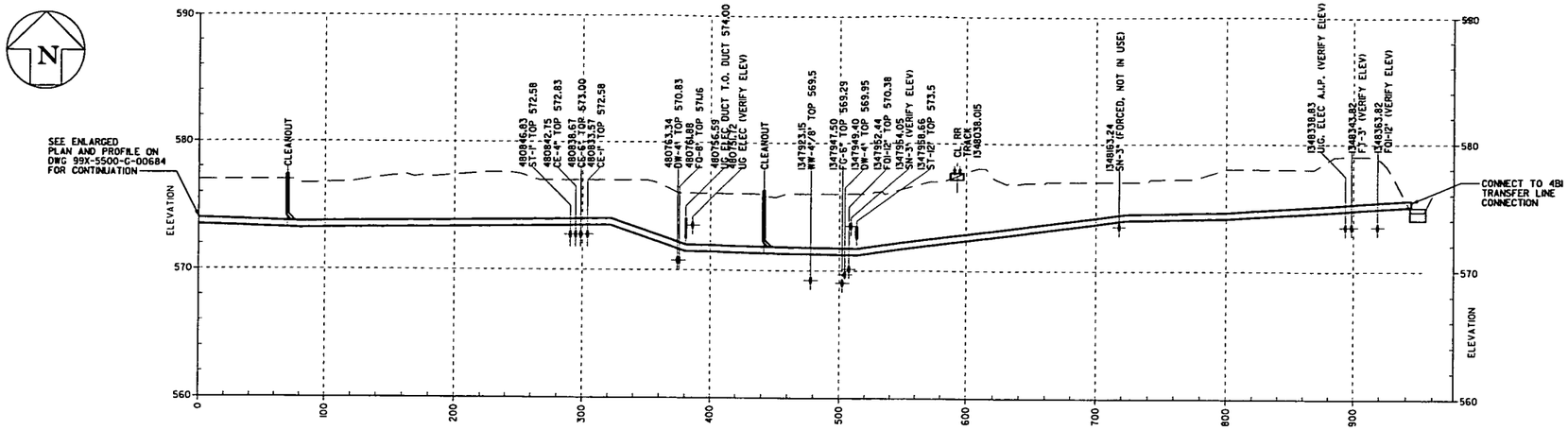
DRAWING TITLE
AREA 4B
HWMU EXCAVATION DETAILS AND LIMITS

000200

APPROVALS

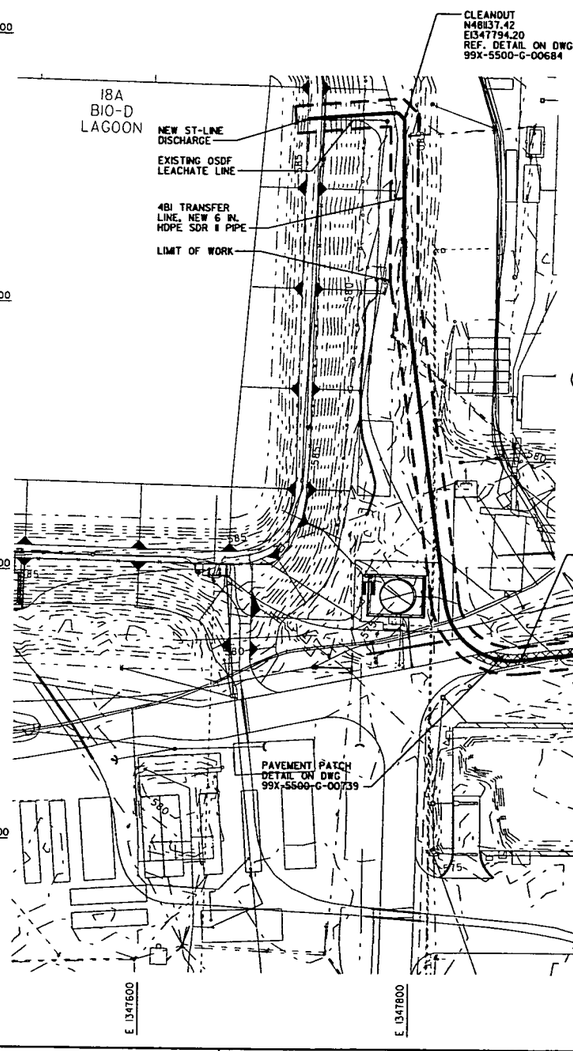
COGNIZANT ENG.		SAFETY ENG.	
CIVIL & STR.		MAINTENANCE	
ELECTRICAL		FIRE PROTECT.	
ENGINEER		WASTE MANAGE	
INSTRUMENT		SECURITY	
MECHANICAL		QA	
		CONSTRUCTION	
CHECKED			
APPROVED			

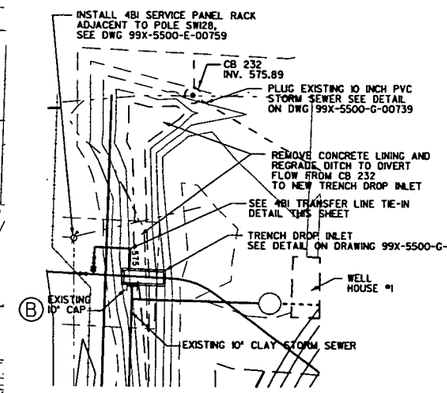
DRAWN BY	PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
DRF	20180	99X-5500-G-00678	G-37	B
RES PROJECT NO.	FILENAME 99XG00678.DGN			



4BI TRANSFER LINE PROFILE

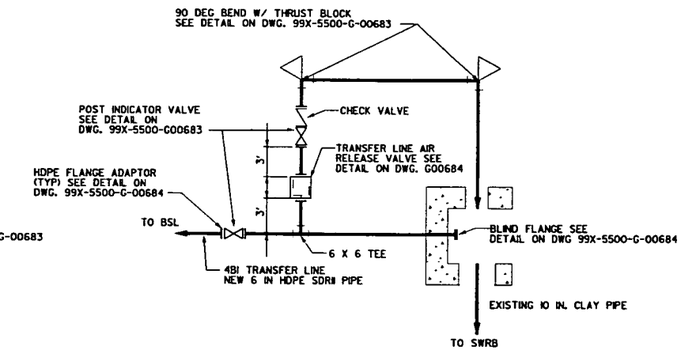
SCALE: 1"=40' HORIZ
1"=4' VERT





DROP INLET AREA ENLARGEMENT

SCALE: 1"=10'



4BI TRANSFER LINE TRENCH DROP INLET TIE-IN DETAIL

NTS

GENERAL NOTES

4831

KEYED NOTES

(A) FIELD ROUTE 4BI TRANSFER LINE EXTENSION FROM FLANGE TIE-IN TO 4BI LIFT STATION. MINIMUM COVER 2 FOOT-6 INCH. MAKE CONNECTION AT 4BI TRANSFER LINE TIE-IN AFTER 4BI LIFT STATION IS OPERATIONAL.

(B) REMOVE CAP. FORM TRENCH DROP INLET AROUND EXISTING PIPE.

PRELIMINARY
NOT FOR CONSTRUCTION

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	DATE	REV. BY	APPR.
D	RE-ISSUED FOR AGENCY REVIEW	3/31/03	KLR	
C	ISSUED FOR AGENCY REVIEW	9/30/02	KLR	
B	ISSUED FOR 90% DESIGN REVIEW	8/30/02	KLR	
A	ISSUED FOR 30% DESIGN REVIEW	8/7/02	KLR	

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
FLUOR FERNALD, INC.

PROJECT NAME
SOIL REMEDIATION

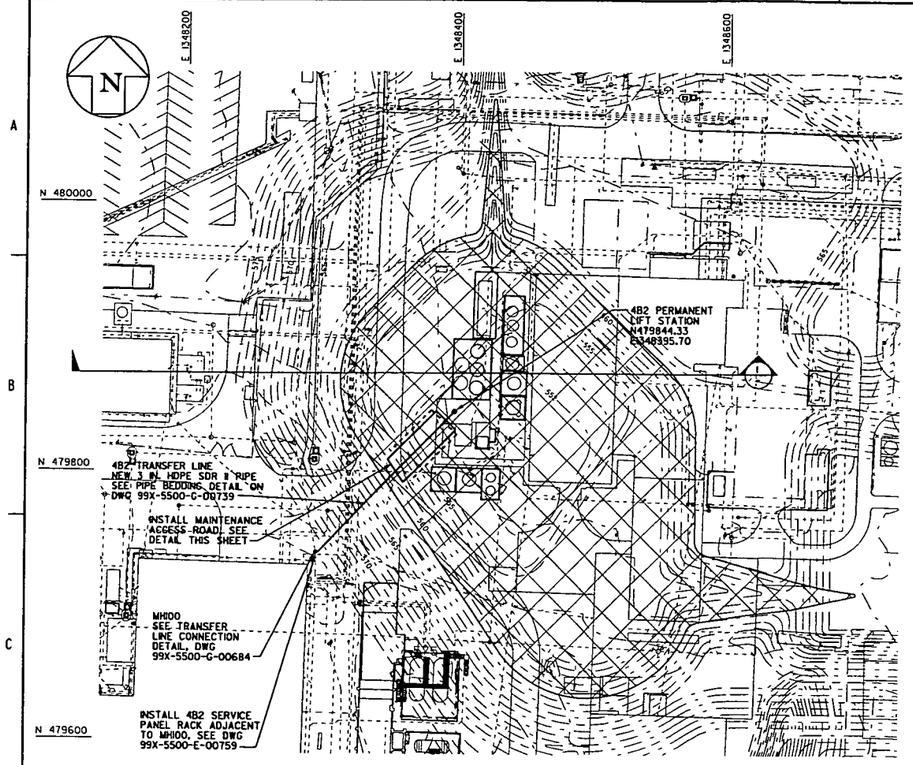
DRAWING TITLE
AREA 4B
BASIN 4BI TRANSFER LINE PLAN AND PROFILE

000201

APPROVALS

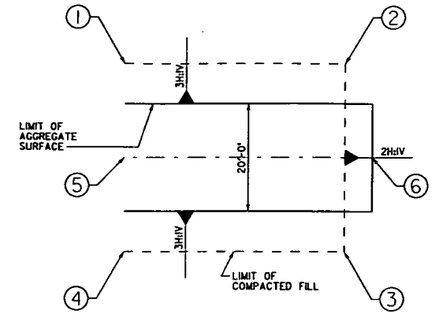
COGNIZANT ENG.		SAFETY ENG.	
CIVIL & STR.		MAINTENANCE	
ELECTRICAL		FIRE PROTECT.	
ENGINEER		WASTE MANAGE	
INSTRUMENT		SECURITY	
MECHANICAL		DA	
		CONSTRUCTION	
CHECKED			
APPROVED			

DRAWN BY	PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
KLR	20810	99X-5500-G-00681	G-38	D
RES PROJECT NO.	FILENAME 99XG00681.DGN			



4B2 TRANSFER LINE PLAN

SCALE: 1"=40'



TYPICAL MAINTENANCE ACCESS ROAD DETAIL

NTS

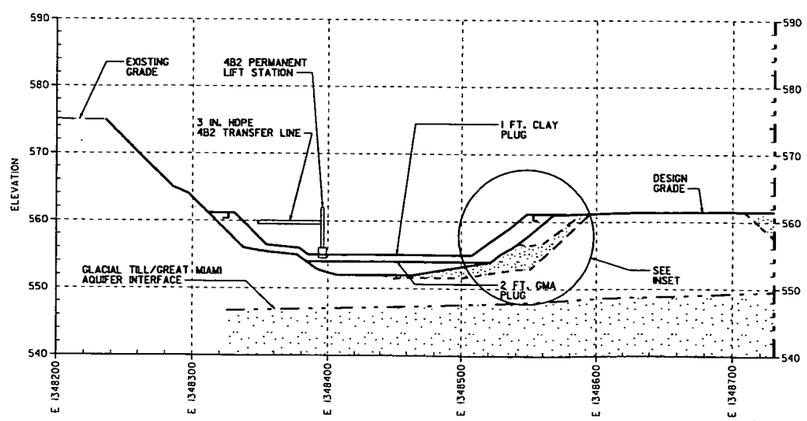
	4B1			4B2			
PT NO.	NORTHING	EASTING	ELEV	NORTHING	EASTING	ELEV	DESCRIPTION
1	480548.85	1348660.71	558.0	479815.00	1348349.16	558.0	LIMIT OF COMPACTED FILL
2	480530.90	1348685.27	558.0	479845.48	1348378.71	558.0	LIMIT OF COMPACTED FILL
3	480509.91	1348669.92	558.0	479827.38	1348397.38	558.0	LIMIT OF COMPACTED FILL
4	480525.97	1348647.95	558.0	479792.73	1348363.79	558.0	LIMIT OF COMPACTED FILL
5	480554.44	1348631.05	559.0	479800.18	1348352.91	559.0	℄ AGGREGATE SURFACE
6	480519.23	1348679.21	559.0	479837.87	1348389.44	559.0	℄ AGGREGATE SURFACE

GENERAL NOTES

1. SEE DRAWING 99X-5500-X-00639 FOR LEGEND AND GENERAL NOTES.
2. REPLACE UNSUITABLE SUBGRADE FOR CLAY PLUG WITH COMPACTED FILL MATERIAL IN ACCORDANCE WITH OSDF SPECIFICATION SECTION 02200.

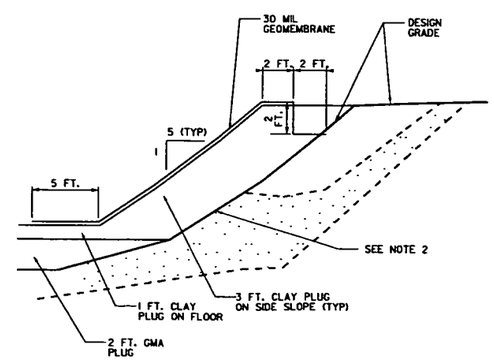
4831

CLAY PLUG



4B2 TRANSFER LINE PROFILE (1)

SCALE: 1"=40' HORIZ
1"=8' VERT



INSET

NTS

40 0 40 80
SCALE: 1"=40'

8 0 8 16
SCALE: 1"=8'

PRELIMINARY

NOT FOR CONSTRUCTION

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	DATE	REV. BY	APPR.
D	RE-ISSUED FOR AGENCY REVIEW	3/31/03	KLR	
C	ISSUED FOR AGENCY REVIEW	9/30/02	KLR	
B	ISSUED FOR 90% DESIGN REVIEW	8/30/02	KLR	
A	ISSUED FOR 30% DESIGN REVIEW	8/7/02	KLR	

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
FLUOR FERNALD, INC.

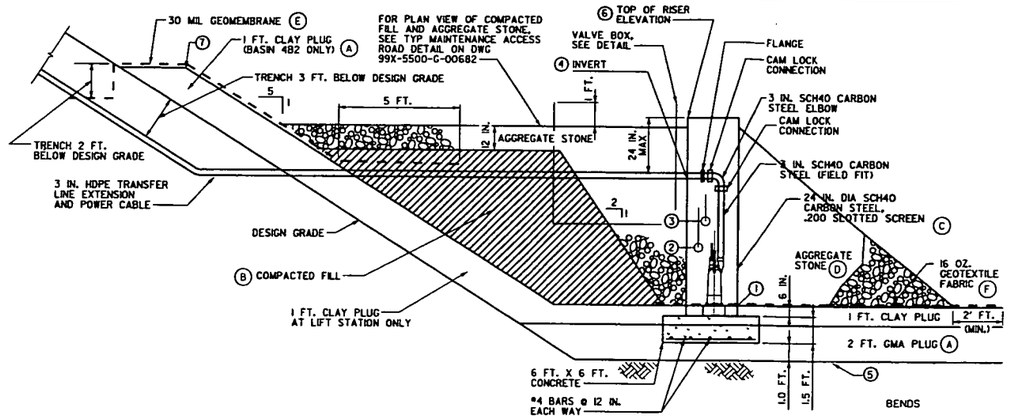
PROJECT NAME
SOIL REMEDIATION

DRAWING TITLE
AREA 4B 000202
BASIN 4B2 GMA/CLAY PLUG PLAN AND PROFILE

APPROVALS

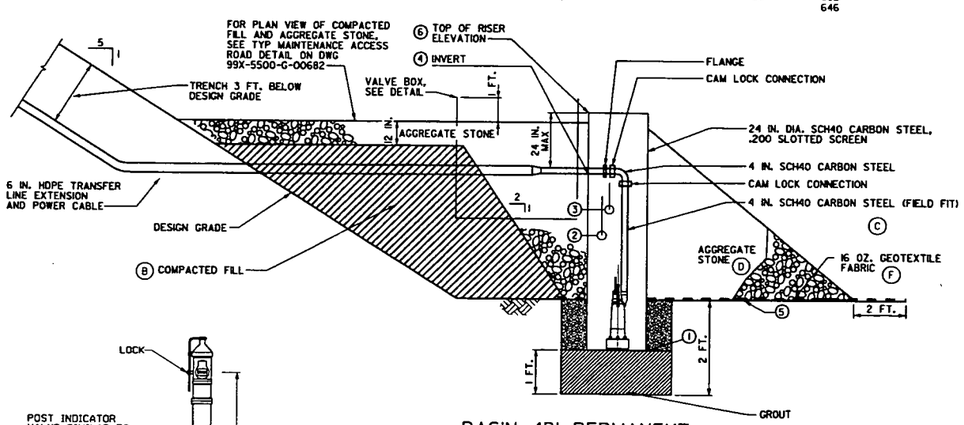
COGNIZANT ENG.		SAFETY ENG.	
CIVIL & STR.		MAINTENANCE	
ELECTRICAL		FIRE PROTECT.	
ENGINEER		WASTE MANAGE	
INSTRUMENT		SECURITY	
MECHANICAL		QA	
		CONSTRUCTION	
CHECKED			
APPROVED			

DRAWN BY	PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
KLR	20310	99X-5500-G-00682	G-39	D
RES PROJECT NO.	FILENAME 99X00682.DGN			



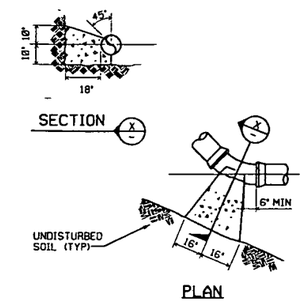
BASIN 4B2 PERMANENT PUMP/LIFT STATION DETAIL

NTS (99X-5500-G-00681 682 646)



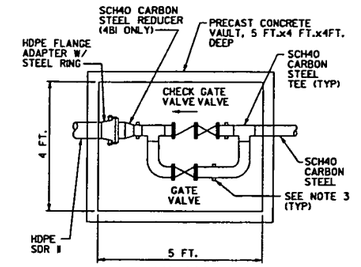
BASIN 4B1 PERMANENT PUMP/LIFT STATION DETAIL

NTS (99X-5500-G-00681 682 646)



THRUST BLOCK DETAIL

NTS (99X-5500-G-00681)



1. 4B1 SCH40 CARBON STEEL IS 4 IN. DIA. 4B2 SCH40 CARBON STEEL IS 3 IN. DIA.
2. 4B1 HDPE IS 6 IN. DIA. 4B2 HDPE IS 3 IN. DIA.
3. PROVIDE ADJUSTABLE PIPE SUPPORT SADDLE, EQUAL TO OR SIMILAR TO PIPING TECHNOLOGY AND PRODUCTS, FIG. 46, BOLTED TO FLOOR OF VAULT

VALVE BOX DETAIL

NTS

KEYED NOTES

(A) GMA PLUG AND CLAY PLUG SHALL BE CONSTRUCTED OF GMA PLUG MATERIAL IN ACCORDANCE WITH SPECIFICATION SECTION 02206.

(B) COMPACTED FILL SHALL BE PLACED IN ACCORDANCE WITH SPECIFICATION SECTION 02200.

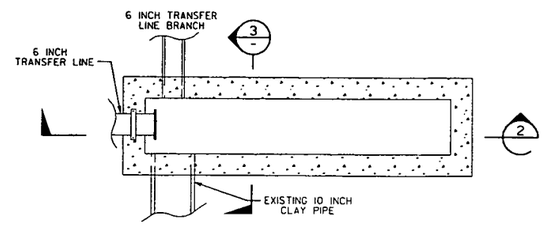
(C) RISER PIPE SHALL BE SCH40 CARBON STEEL, .200 SLOTTED SCREEN

(D) PLACE AGGREGATE STONE TO ELEVATION SHOWN. STONE SHALL BE NO. 2 WITH ANY FRACTION SMALLER THAN 1/2 IN. REMOVED IN ACCORDANCE WITH ODOT ITEM 703.01.

(E) INSTALL 30 MIL GEOMEMBRANE LINER IN ACCORDANCE WITH OSDF SPECIFICATION SECTION 02770.

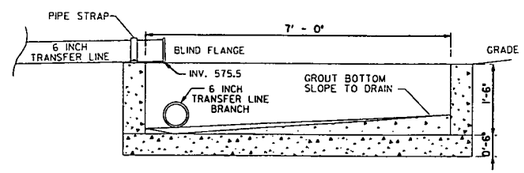
(F) INSTALL GEOTEXTILE FABRIC IN ACCORDANCE WITH OSDF SPECIFICATION SECTION 02714.

4831



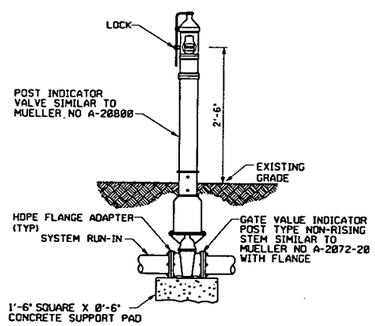
(1) TRENCH DROP INLET PLAN

NOT TO SCALE



(2) TRENCH DROP INLET SECTION

NOT TO SCALE

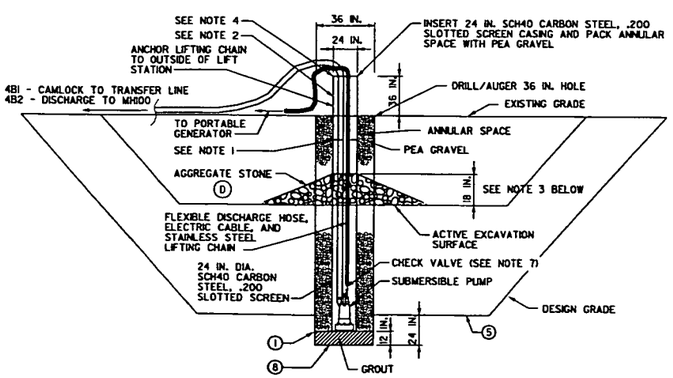


POST INDICATOR VALVE DETAIL

LINES SIZES 12" AND LESS

NTS (99X-5500-G-00681)

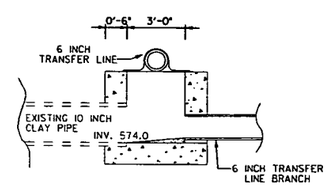
TABLE NO. 1				
	BASIN/LIFT STA 4B1 TEMPORARY /PERMANENT	BASIN/LIFT STA 4B2 PERMANENT	BASIN/LIFT STA 4B2 TEMPORARY	DESCRIPTION
ELEV (1)	554.0	554.5	551.0	BOTTOM ELEVATION
ELEV (2)	557.0	557.0	N/A	HIGH LEVEL PROBE - START PUMP ELEVATION
ELEV (3)	554.5	555.0	N/A	LOW LEVEL PROBE - STOP PUMP ELEVATION
ELEV (4)	557.5	557.5	N/A	TRANSFER LINE EXTENSION INVERT
ELEV (5)	555.0	552.0	552.0	DESIGN GRADE - BOTTOM OF BASIN ELEVATION
ELEV (6)	559.5	559.5	N/A	TOP OF RISER ELEVATION
ELEV (7)	N/A	561.5	N/A	LIMIT OF 1 FT. CLAY PLUG
ELEV (8)	553.0	N/A	552.0	BOTTOM OF TEMPORARY LIFT STATION
FORCE MAIN PIPE	6 IN. TRANSFER LINE	3 IN. TRANSFER LINE	3 IN. TRANSFER LINE	



1. CUT OFF PVC RISER AS EXCAVATION PROGRESSES AS REQUIRED.
2. MAINTAIN 3 FOOT MINIMUM OF RISER ABOVE ACTIVE EXCAVATION SURFACE.
3. MAINTAIN 18 INCH MINIMUM OF AGGREGATE STONE AROUND RISER FOLLOWING CUT OFF.
4. PROTECT FLEXIBLE DISCHARGE.
5. MODIFY TEMPORARY 4B1 LIFT STATION TO PERMANENT LIFT STATION. SEE DETAIL THIS SHEET.
6. UPON REACHING DESIGN GRADE IN BASIN 4B2, REMOVE TEMPORARY LIFT STATION AND INSTALL PERMANENT LIFT STATION.
7. CHECK VALVE TO BE RELOCATED FOR PERMANENT CONFIGURATION.

BASIN 4B1 & 4B2 TEMPORARY LIFT STATION DETAIL

NTS (99X-5500-G-00646)



(3) TRENCH DROP INLET SECTION

NOT TO SCALE

TRENCH DROP INLET DETAIL

NTS (99X-5500-G-00681)

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	DATE	REV. BY	APPR.
D	RE-ISSUED FOR AGENCY REVIEW	3/3/03	KLR	
C	ISSUED FOR AGENCY REVIEW	9/30/02	KLR	
B	ISSUED FOR 90% DESIGN REVIEW	8/30/02	KLR	
A	ISSUED FOR 30% DESIGN REVIEW	8/7/02	KLR	

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY

FLUOR FERNALD, INC.

PROJECT NAME: SOIL REMEDIATION

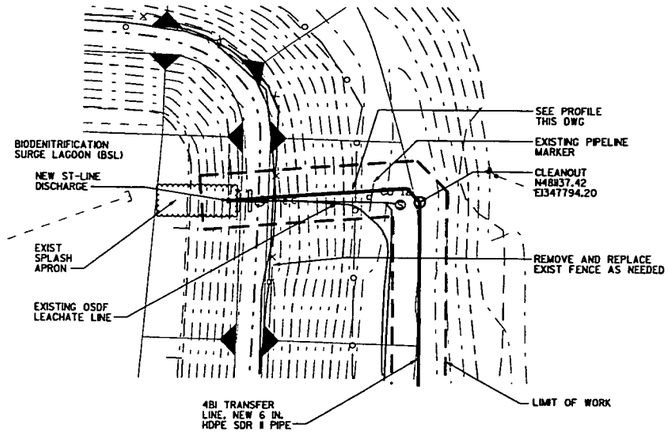
DRAWING TITLE: AREA 4B TRANSFER LINE DETAILS SHEET 1

000203

APPROVALS

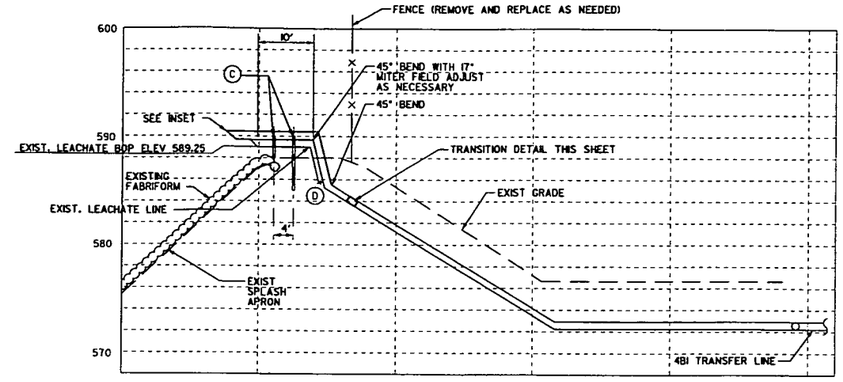
COGNIZANT ENG.		SAFETY ENG.	
CIVIL & STR.		MAINTENANCE	
ELECTRICAL		FIRE PROTECT.	
ENGINEER		WASTE MANAGE	
INSTRUMENT		SECURITY	
MECHANICAL		QA	
		CONSTRUCTION	
CHECKED			
APPROVED			

DRAWN BY	PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
KLR	2080	99X-5500-G-00683	G-40	D
RES PROJECT NO.	FILENAME 99XG00683.DGN			



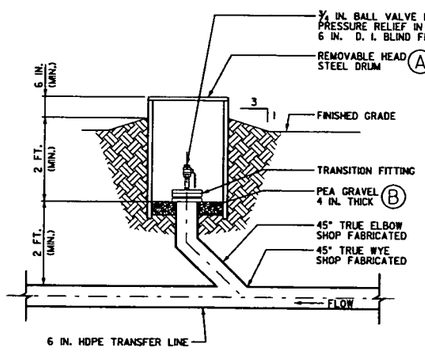
ENLARGED PLAN (99X-5500-G-00681)
SCALE: 1" = 20'

20' 0' 20' 40'
GRAPHIC SCALE: 1"=20'

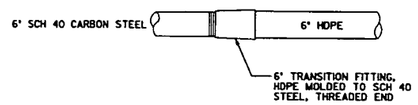


INSET
NTS

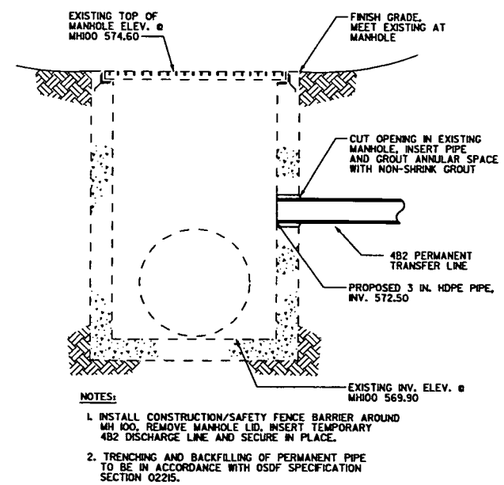
PROFILE
SCALE: HOR 1" = 10'
VERT 1" = 5'



TRANSFER LINE CLEANOUT DETAIL (99X-5500-G-00681)
NTS



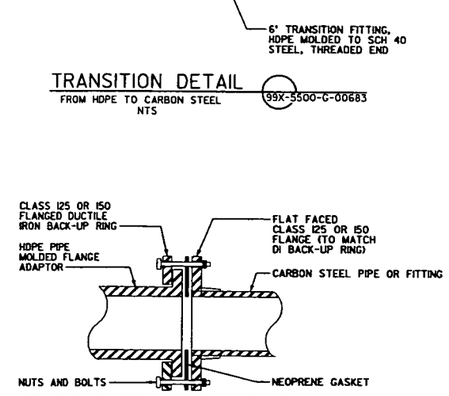
TRANSITION DETAIL (99X-5500-G-00683)
FROM HDPE TO CARBON STEEL
NTS



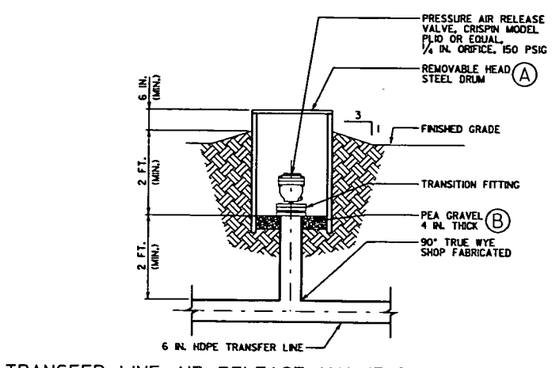
NOTES:

1. INSTALL CONSTRUCTION/SAFETY FENCE BARRIER AROUND MH 100, REMOVE MANHOLE LID. INSERT TEMPORARY 4B2 DISCHARGE LINE AND SECURE IN PLACE.
2. TRENCHING AND BACKFILLING OF PERMANENT PIPE TO BE IN ACCORDANCE WITH OSDF SPECIFICATION SECTION 02215.

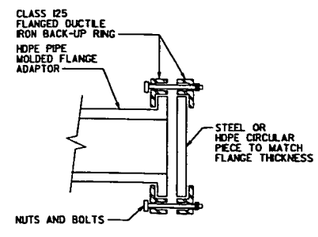
TRANSFER LINE CONNECTION DETAIL (99X-5500-G-00682)
NTS



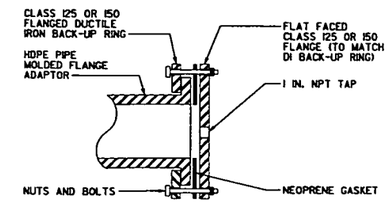
TYPICAL TRANSITION PIPE FITTING DETAIL
NTS



TRANSFER LINE AIR RELEASE VALVE DETAIL (99X-5500-G-00681)
NTS



TYPICAL BLIND FLANGE DETAIL (99X-5500-G-00681)
END PIPE
NTS



TYPICAL TRANSITION FITTING DETAIL
NTS

GENERAL NOTES

4831

KEYED NOTES

(A) USE 55 OR 85 GALLON REMOVABLE HEAD STEEL DRUM. CUT HOLE IN BOTTOM OF DRUM TO SLIDE OVER ASSEMBLED PRESSURE RELIEF OR AIR RELEASE VALVE. DRILL 3-1 IN. HOLES NEAR THE TOP OF THE SIDES OF THE DRUM FOR AIR AND PRESSURE RELEASE. HOLES MUST BE INSTALLED ABOVE FINISH GRADE. BACKFILL AROUND DRUM WITH LID LOCKED IN POSITION TO PREVENT DRUM DEFORMATION.

(B) PLACE PEA GRAVEL AFTER INSTALLATION OF STEEL DRUM.

(C) EXTEND EXISTING PIPE SUPPORTS AS NECESSARY AND MOUNT 4B1 TRANSFER LINE ON TOP OF THE EXISTING LEACHATE LINE.

(D) INSTALL 4B1 TRANSFER LINE ADJACENT TO THE EXISTING LEACHATE LINE. BEGIN OVERLAP OF PIPING AT 45 DEG. BEND IN TRANSFER LINE.

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	DATE	REV. BY	APPR.
D	RE-ISSUED FOR AGENCY REVIEW	3/31/03	KLR	
C	ISSUED FOR AGENCY REVIEW	9/30/02	KLR	
B	ISSUED FOR 90% DESIGN REVIEW	8/30/02	KLR	
A	ISSUED FOR 30% DESIGN REVIEW	8/7/02	KLR	

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
FLUOR FERNALD, INC.

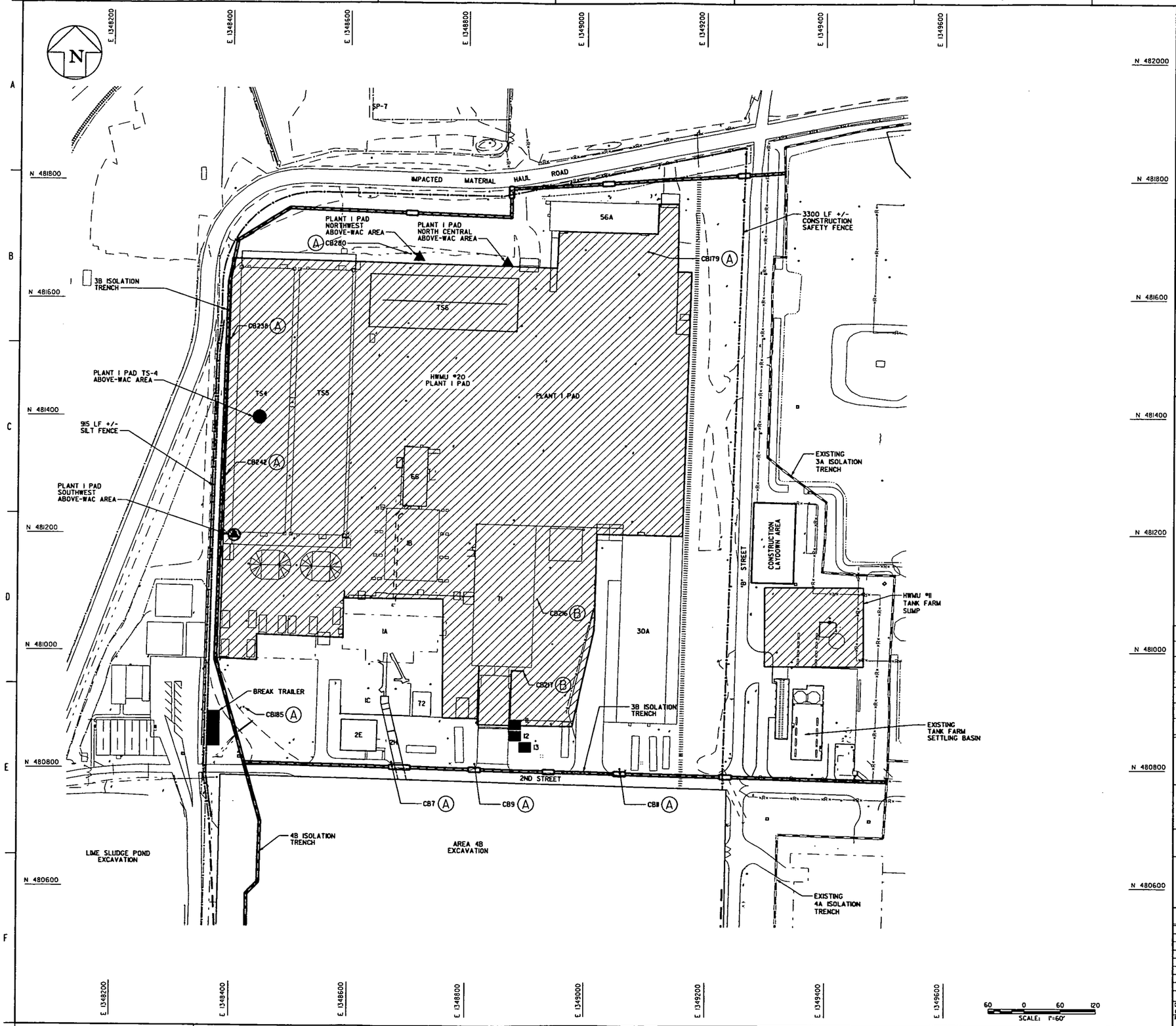
PROJECT NAME
SOIL REMEDIATION

DRAWING TITLE
AREA 4B
TRANSFER LINE DETAILS SHEET 2

APPROVALS

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

DRAWN BY	PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
KLR	20610	99X-5500-G-00684	G-41	D
RES PROJECT NO.	FILENAME 99XG00684.DGN			



GENERAL NOTES

1. SEE DRAWING 99X-5500-X-00639 FOR LEGEND AND GENERAL NOTES.
2. EXISTING FENCE WITHIN PROJECT AREA TO BE REMOVED AFTER PERIMETER FENCE IS INSTALLED. FENCE REMOVAL SEQUENCE SHALL BE DETERMINED IN THE FIELD.
3. FIELD LOCATE SUPPORT FACILITIES AS DIRECTED BY THE CONSTRUCTION MANAGER.
4. FIELD LOCATE THE SMTA IN ACCORDANCE WITH SPECIFICATION SECTION 02205 AND DRAWING 99X-5500-G-00738.
5. SEE DRAWING 99X-5500-G-00738 FOR SILT FENCE DETAIL.
6. SEE 3B EXCAVATION AND GRADING PLANS FOR LIMIT OF EXCAVATION SHOWN HERE FOR REFERENCE ONLY.
7. ABOVE-WAC AREAS ARE LABELED WITH THEIR PROJECT-SPECIFIC IDENTIFIERS. SEE DRAWING 99X-5500-G-00700 FOR AREA 3B ABOVE-WAC AREA COORDINATES AND EXCAVATION DETAILS.
8. HWMU'S ARE LABELED WITH THEIR APPROPRIATE SITE-RECOGNIZED TITLES AND NUMERIC IDENTIFIERS. SEE DRAWING 99X-5500-G-00711 FOR AREA 3B HWMU COORDINATES AND EXCAVATION DETAILS.

KEYED NOTES

(A) PRIOR TO EXCAVATION IN AREA 3B, INSTALL PROTECTION AT CATCH BASINS CB7, CB9, CB179, CB 185, CB238, CB242, AND CB280 IN ACCORDANCE WITH DRAWING 99X-5500-G-00738.

(B) AFTER DTD HAS COMPLETED THE ABOVE-GRADE REMOVAL OF BUILDING 7I, INSTALL INLET PROTECTION AT CATCH BASINS CB216 AND CB217 IN ACCORDANCE WITH DRAWING 99X-5500-G-00738.

4831

LEGEND

- URANIUM ABOVE-WAC AREA
- TC-99 ABOVE-WAC AREA
- 13 FORMER UST FOOTPRINT WITH CORRESPONDING UST NUMBER
- URANIUM AREA & TC-99 ABOVE-WAC AREA
- PROPOSED ISOLATION TRENCH
- EXISTING ISOLATION TRENCH
- ISOLATION TRENCH GAP

PRELIMINARY
NOT FOR CONSTRUCTION

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	DATE	REV. BY	APPR.
D	RE-ISSUED FOR AGENCY REVIEW	3/31/03	KLR	
C	ISSUED FOR AGENCY REVIEW	9/30/02	KLR	
B	ISSUED FOR 90% DESIGN REVIEW	8/30/02	DRF	
A	ISSUED FOR 30% DESIGN REVIEW	5/22/02	DRF	

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
FLUOR FERNALD, INC.

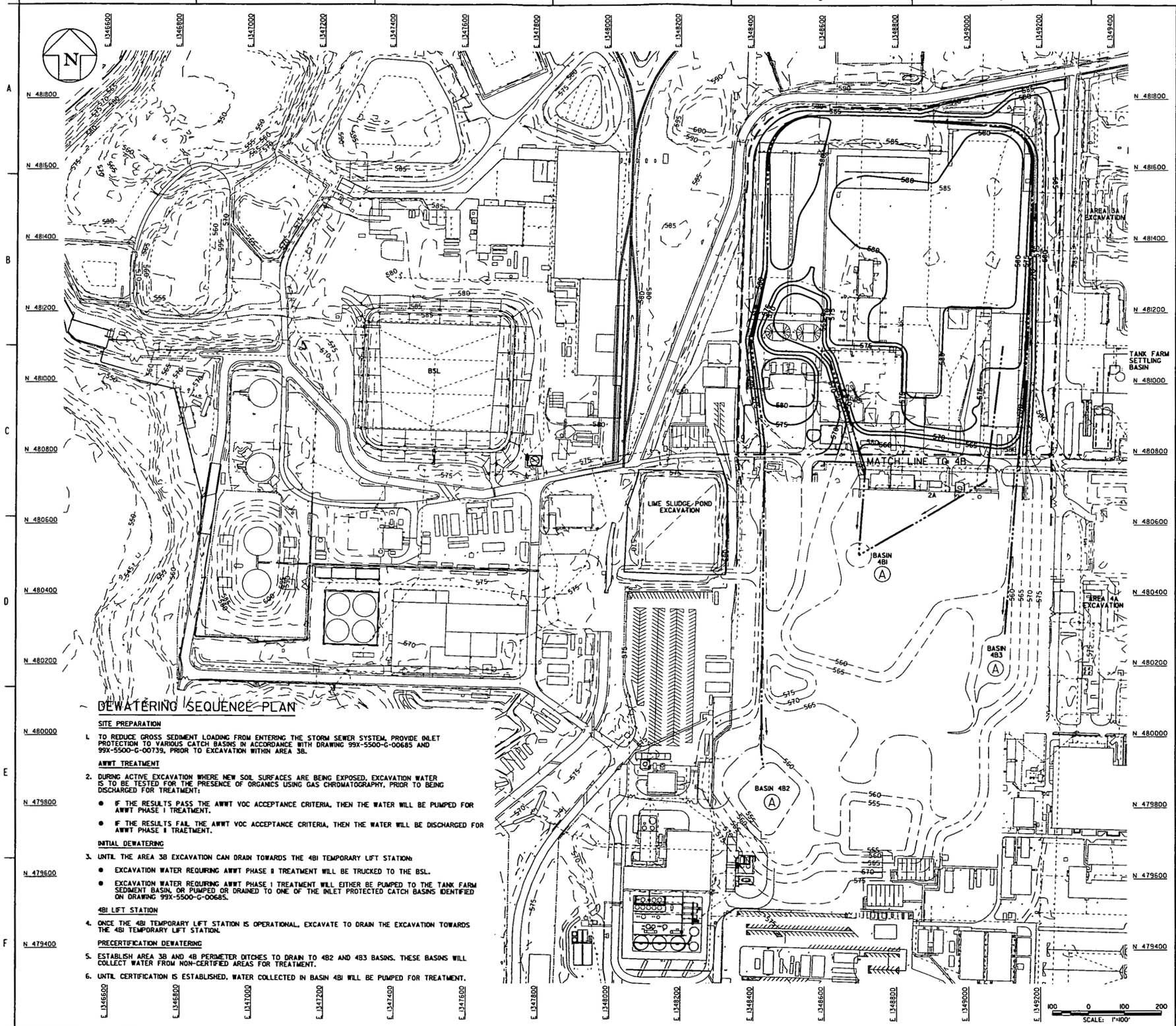
PROJECT NAME
SOIL REMEDIATION

DRAWING TITLE
AREA 3B LAYOUT PLAN 000204

APPROVALS

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

DRAWN BY	PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
DRF	70880	99X-5500-G-00685	G-42	D
RLS PROJECT NO.	FILENAME 99XG00685.DGN			



DEWATERING SEQUENCE PLAN

SITE PREPARATION

1. TO REDUCE GROSS SEDIMENT LOADING FROM ENTERING THE STORM SEWER SYSTEM, PROVIDE INLET PROTECTION TO VARIOUS CATCH BASINS IN ACCORDANCE WITH DRAWING 99X-5500-G-00685 AND 99X-5500-G-00739, PRIOR TO EXCAVATION WITHIN AREA 3B.

AWWT TREATMENT

2. DURING ACTIVE EXCAVATION WHERE NEW SOIL SURFACES ARE BEING EXPOSED, EXCAVATION WATER IS TO BE TESTED FOR THE PRESENCE OF ORGANICS USING GAS CHROMATOGRAPHY, PRIOR TO BEING DISCHARGED FOR TREATMENT:
   - IF THE RESULTS PASS THE AWWT VOC ACCEPTANCE CRITERIA, THEN THE WATER WILL BE PUMPED FOR AWWT PHASE I TREATMENT.
   - IF THE RESULTS FAIL THE AWWT VOC ACCEPTANCE CRITERIA, THEN THE WATER WILL BE DISCHARGED FOR AWWT PHASE II TRAETMENT.

INITIAL DEWATERING

3. UNTIL THE AREA 3B EXCAVATION CAN DRAIN TOWARDS THE 4B1 TEMPORARY LIFT STATION:
   - EXCAVATION WATER REQUIRING AWWT PHASE II TREATMENT WILL BE TRUCKED TO THE BSL.
   - EXCAVATION WATER REQUIRING AWWT PHASE I TREATMENT WILL EITHER BE PUMPED TO THE TANK FARM SEDIMENT BASIN, OR PUMPED OR DRAINED TO ONE OF THE INLET PROTECTED CATCH BASINS IDENTIFIED ON DRAWING 99X-5500-G-00685.

4B1 LIFT STATION

4. ONCE THE 4B1 TEMPORARY LIFT STATION IS OPERATIONAL, EXCAVATE TO DRAIN THE EXCAVATION TOWARDS THE 4B1 TEMPORARY LIFT STATION.

PRECERTIFICATION DEWATERING

5. ESTABLISH AREA 3B AND 4B PERIMETER DITCHES TO DRAIN TO 4B2 AND 4B3 BASINS. THESE BASINS WILL COLLECT WATER FROM NON-CERTIFIED AREAS FOR TREATMENT.
6. UNTIL CERTIFICATION IS ESTABLISHED, WATER COLLECTED IN BASIN 4B1 WILL BE PUMPED FOR TREATMENT.

GENERAL NOTES

1. SEE DRAWING 99X-5500-X-00639 FOR LEGEND AND GENERAL NOTES.
2. GENERALLY EXCAVATE FROM SOUTH TO NORTH MAINTAINING DRAIN SOUTHWARD TOWARDS BASIN 4BL
3. INSTALL TRANSFER LINES AND LIFT STATIONS IN ACCORDANCE WITH SPECIFICATION SECTION 02668 AND THE DETAIL PRESENTED ON DRAWING 99X-5500-G-00683.

4831

KEYED NOTES

(A) INSTALLATION OF BASINS 4BL 4B2, AND 4B3 TO BE PER DRAWINGS 99X-5500-G-00653, 654, 656, AND 657.

PRELIMINARY
NOT FOR CONSTRUCTION

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	DATE	REV. BY	APPR.
D	RE-ISSUED FOR AGENCY REVIEW	3/31/03	KLR	
C	ISSUED FOR AGENCY REVIEW	9/30/02	KLR	
B	ISSUED FOR 90% DESIGN REVIEW	8/30/02	DRF	
A	ISSUED FOR 30% DESIGN REVIEW	5/22/02	DRF	

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
FLUOR FERNALD, INC.

PROJECT NAME
SOIL REMEDIATION

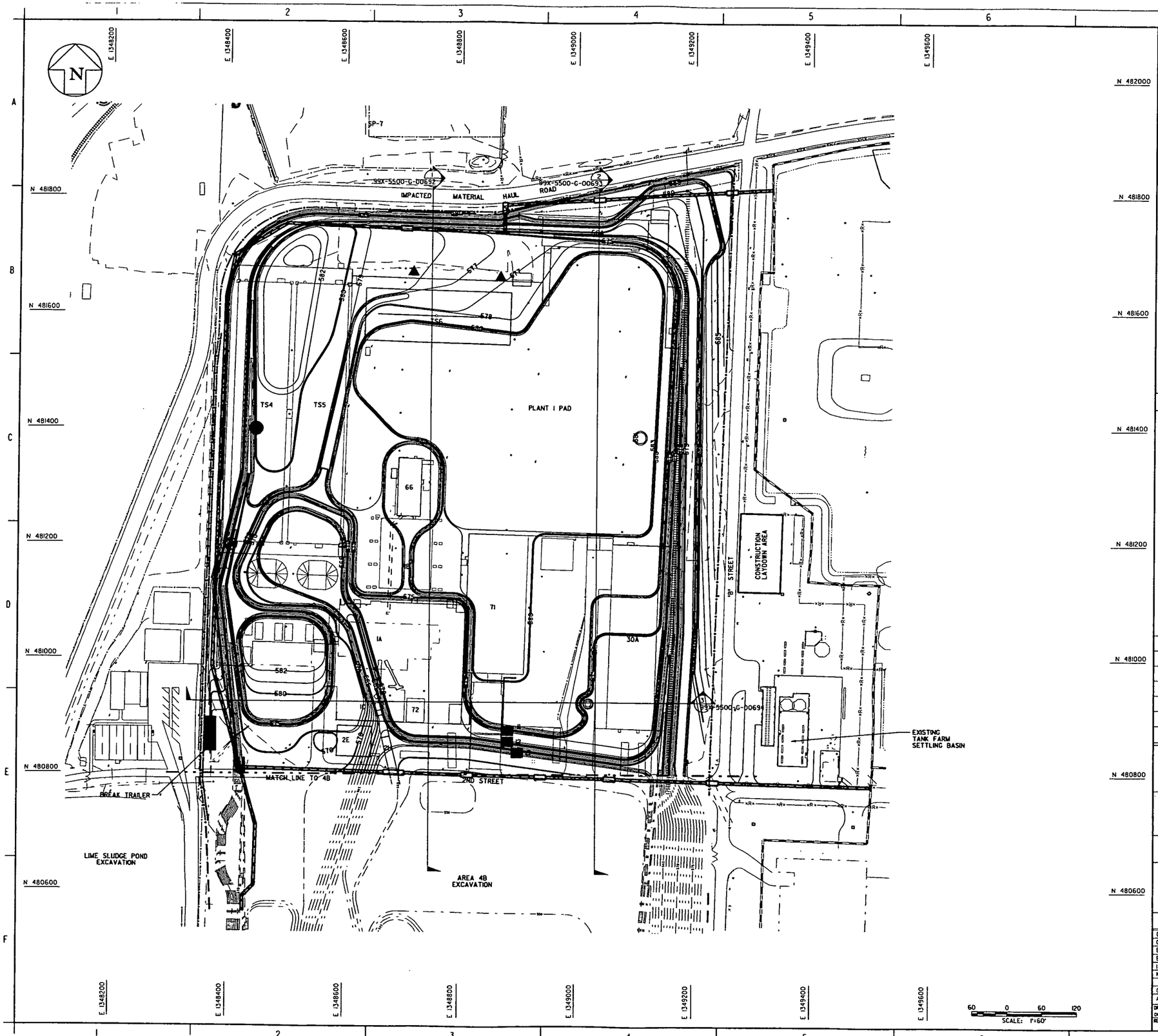
DRAWING TITLE
AREA 3B
DEWATERING PLAN AND EXCAVATION PLAN

000205

APPROVALS

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

DRAWN BY	PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
DRF	20810	99X-5500-G-00687	G-43	D
RES PROJECT NO.	FILENAME 99XG00687.DGN			



GENERAL NOTES

1. SEE DRAWING 99X-5500-X-00639 FOR LEGEND AND GENERAL NOTES.
2. GRID NUMBERS REFER TO THE UNDERGROUND UTILITIES GRID DRAWINGS AS SHOWN IN UTILITY GRID REFERENCE DRAWING INDEX ON DRAWING 99X-5500-X-00642.
3. COMPLETE ABOVE-WAC AREA EXCAVATION IN ACCORDANCE WITH DRAWING 99X-5500-G-00677 AND SPECIFICATION SECTION 02205 PRIOR TO PERFORMING ADJACENT GENERAL AREA EXCAVATION.
4. COMPLETE HWMU AREA EXCAVATION IN ACCORDANCE WITH DRAWING 99X-5500-G-00678 AND SPECIFICATION SECTION 02205 PRIOR TO PERFORMING ADJACENT GENERAL AREA EXCAVATION.
5. DESIGN CONTOURS AND GRADES SHOWN REPRESENT THE MINIMUM LIMITS OF EXCAVATION REQUIRED TO CAPTURE CONTAMINATION AND FOUNDATIONS, WHILE MAINTAINING SAFE SLOPE REQUIREMENTS. FIELD CHANGES SHALL BE REPORTED TO CONSTRUCTION MANAGER AND APPROVED BY THE ENGINEER.
6. BUILDING NUMBERS REFER TO FORMER LOCATIONS OF BUILDINGS OR PADS.
7. OBTAIN APPROVAL OF THE CONSTRUCTION MANAGER PRIOR TO EXCAVATION OUTSIDE THE LIMITS OF THE TRENCHED EXCAVATION AREA.
8. MANHOLE AND CATCH BASIN OPENINGS SHALL BE BARRICADED FOR SAFETY IN ACCORDANCE WITH SPR3-5.
9. FOR PURPOSES OF READABILITY, PLANT 1 PAD HWMU #20 IS NOT PATTERNED PER THE LEGEND. SEE DRAWING 99X-5500-G-00711 FOR HWMU BOUNDING.

4831

LEGEND

- URANIUM ABOVE-WAC AREA
- TC-99 ABOVE-WAC AREA
- 13 FORMER UST FOOTPRINT WITH CORRESPONDING UST NUMBER
- URANIUM AREA & TC-99 ABOVE-WAC AREA
- PROPOSED ISOLATION TRENCH
- EXISTING ISOLATION TRENCH
- ISOLATION TRENCH GAP

PRELIMINARY
NOT FOR CONSTRUCTION

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	DATE	REV. BY	APPR.
B	RE-ISSUED FOR AGENCY REVIEW	3/31/03	DRF	
A	ISSUED FOR AGENCY REVIEW	9/30/02	DRF	

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
FLUOR FERNALD, INC.

PROJECT NAME
SOIL REMEDIATION

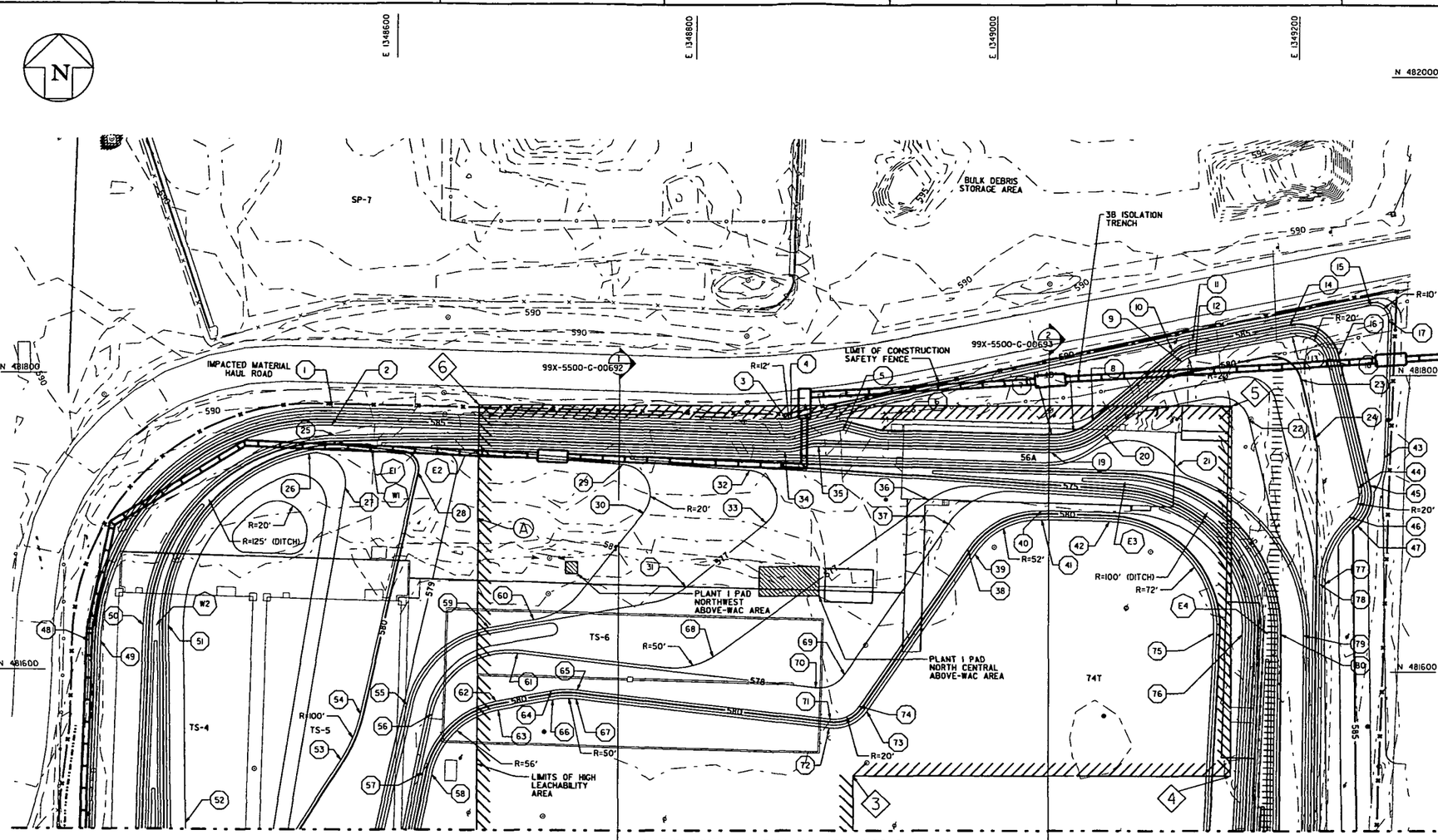
DRAWING TITLE
AREA 3B
EXCAVATION/DRAINAGE OVERVIEW PLAN

000206

APPROVALS

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

DRAWN BY	PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
DRF	20810	99X-5500-G-00688	G-44	B
RES PROJECT NO.	FILENAME 99XG00688.DGN			



GENERAL NOTES

1. SEE DRAWING 99X-5500-X-00639 FOR LEGEND AND GENERAL NOTES.
2. GRID NUMBERS REFER TO THE UNDERGROUND UTILITIES GRID DRAWINGS AS SHOWN IN UTILITY GRID REFERENCE DRAWING INDEX ON DRAWING 99X-5500-X-00642.
3. COMPLETE ABOVE-WAC AREA EXCAVATION IN ACCORDANCE WITH DRAWING 99X-5500-G-00677 AND SPECIFICATION SECTION 02205 PRIOR TO PERFORMING ADJACENT GENERAL AREA EXCAVATION.
4. COMPLETE HWMU AREA EXCAVATION IN ACCORDANCE WITH DRAWING 99X-5500-G-00678 AND SPECIFICATION SECTION 02205 PRIOR TO PERFORMING ADJACENT GENERAL AREA EXCAVATION.
5. DESIGN CONTOURS AND GRADES SHOWN REPRESENT THE MINIMUM LIMITS OF EXCAVATION REQUIRED TO CAPTURE CONTAMINATION AND FOUNDATIONS, WHILE MAINTAINING SAFE SLOPE REQUIREMENTS. FIELD CHANGES SHALL BE REPORTED TO CONSTRUCTION MANAGER AND APPROVED BY THE ENGINEER.
6. BUILDING NUMBERS REFER TO FORMER LOCATIONS OF BUILDINGS OR PADS.
7. OBTAIN APPROVAL OF THE CONSTRUCTION MANAGER PRIOR TO EXCAVATION OUTSIDE THE LIMITS OF THE TRENCHED EXCAVATION AREA.
8. MANHOLE AND CATCH BASIN OPENINGS SHALL BE BARRICADED FOR SAFETY IN ACCORDANCE WITH SPR3-5.
9. FOR PURPOSES OF READABILITY, PLANT 1 PAD HWMU #20 IS NOT PATTERNED PER THE LEGEND. SEE DRAWING 99X-5500-G-00711 FOR HWMU BOUNDING.

4831

CONTROL POINTS

PT NO.	NORTHING	EASTING	ELEV.	PT NO.	NORTHING	EASTING	ELEV.	PT NO.	NORTHING	EASTING	ELEV.	PT NO.	NORTHING	EASTING	ELEV.
1	481777.23	1348557.63	589.00	21	481738.99	1349120.01	577.00	41	481702.82	1349030.20	582.00	61	481611.95	1348682.79	578.00
2	481765.23	1348557.45	583.00	22	481770.28	1349167.31	578.00	42	481701.61	1349074.65	582.00	62	481579.46	1348668.72	579.00
3	481770.30	1348860.48	590.00	23	481797.60	1349201.83	580.00	43	481744.78	1349257.35	586.00	63	481573.57	1348669.88	582.00
4	481770.67	1348863.80	590.00	24	481758.15	1349211.42	580.00	44	481724.34	1349240.22	581.00	64	481586.58	1348704.86	579.00
5	481765.08	1348898.52	582.00	25	481758.46	1348559.26	582.00	45	481726.23	1349247.99	585.00	65	481587.26	1348722.12	579.00
6	481762.88	1348923.58	585.00	26	481746.20	1348543.00	582.00	46	481704.87	1349234.30	581.00	66	481580.69	1348706.02	582.00
7	481759.99	1349036.71	585.00	27	481723.49	1348566.84	582.00	47	481698.98	1349239.70	585.00	67	481581.30	1348721.43	582.00
8	481769.37	1349063.48	585.00	28	481733.38	1348615.69	580.00	48	481619.62	1348394.92	587.00	68	481609.56	1348812.87	577.00
9	481809.08	1349123.11	581.00	29	481739.69	1348752.45	578.00	49	481619.40	1348402.91	583.00	69	481597.82	1348900.03	578.00
10	481816.73	1349186.67	586.00	30	481707.34	1348766.77	578.00	50	481630.03	1348431.38	582.00	70	481589.00	1348881.07	578.00
11	481823.19	1349130.09	586.00	31	481657.08	1348794.94	577.00	51	481629.92	1348448.35	582.00	71	481567.72	1348890.95	579.00
12	481813.39	1349132.06	581.00	32	481735.93	1348836.24	577.00	52	481496.26	1348460.36	583.00	72	481561.76	1348890.26	582.00
13	481826.15	1349195.73	581.00	33	481700.56	1348847.60	577.00	53	481539.31	1348564.86	581.00	73	481573.22	1348914.92	582.00
14	481834.00	1349194.16	585.00	34	481748.31	1348859.83	579.00	54	481570.60	1348577.63	581.00	74	481576.54	1348909.92	579.00
15	481846.83	1349247.99	586.00	35	481751.93	1348882.39	579.00	55	481577.03	1348608.82	578.00	75	481626.23	1349144.60	582.00
16	481813.15	1349226.87	585.00	36	481715.65	1348954.81	577.00	56	481570.51	1348625.83	578.00	76	481625.59	1349163.59	579.00
17	481836.74	1349259.96	586.00	37	481699.55	1348967.48	578.00	57	481530.80	1348619.91	579.00	77	481659.60	1349218.20	583.00
18	481881.26	1349219.10	581.00	38	481682.89	1348980.44	579.00	58	481529.63	1348625.80	582.00	78	481659.63	1349214.20	581.00
19	481747.99	1349036.40	579.00	39	481679.58	1348985.44	582.00	59	481629.31	1348663.40	578.00	79	481624.85	1349203.94	576.00
20	481760.18	1349071.18	579.00	40	481708.82	1349030.36	579.00	60	481634.55	1348693.11	578.00	80	481625.71	1349188.95	575.00

DITCH CONTROL POINTS

PT NO.	NORTHING	EASTING	ELEV.
W1	481753.46	1348559.41	580.00
W2	481629.93	1348439.99	578.11
E1	481753.46	1348559.41	580.00
E2	481749.22	1348657.61	577.00
E3	481728.41	1349085.15	572.72
E4	481625.83	1349177.82	571.17

HIGH LEACHABILITY AREA COORDINATE POINTS

PT NO.	NORTHING	EASTING
3	481529.40	1348905.98
4	481529.40	1349155.97
5	481779.40	1349155.97
6	481779.40	1348655.97

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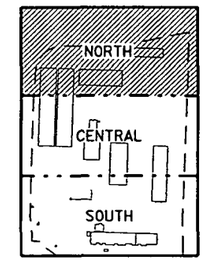
SCALE: 1"=30'



NORTH
AREA 3B KEY PLAN
SCALE: NONE

PRELIMINARY
NOT FOR CONSTRUCTION

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	DATE	REV. BY	APPR.
D	RE-ISSUED FOR AGENCY REVIEW	3/31/03	KLR	
C	ISSUED FOR AGENCY REVIEW	9/30/02	KLR	
B	ISSUED FOR 90% DESIGN REVIEW	8/30/02	DRF	
A	ISSUED FOR 30% DESIGN REVIEW	5/22/02	DRF	

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
FLUOR FERNALD, INC.

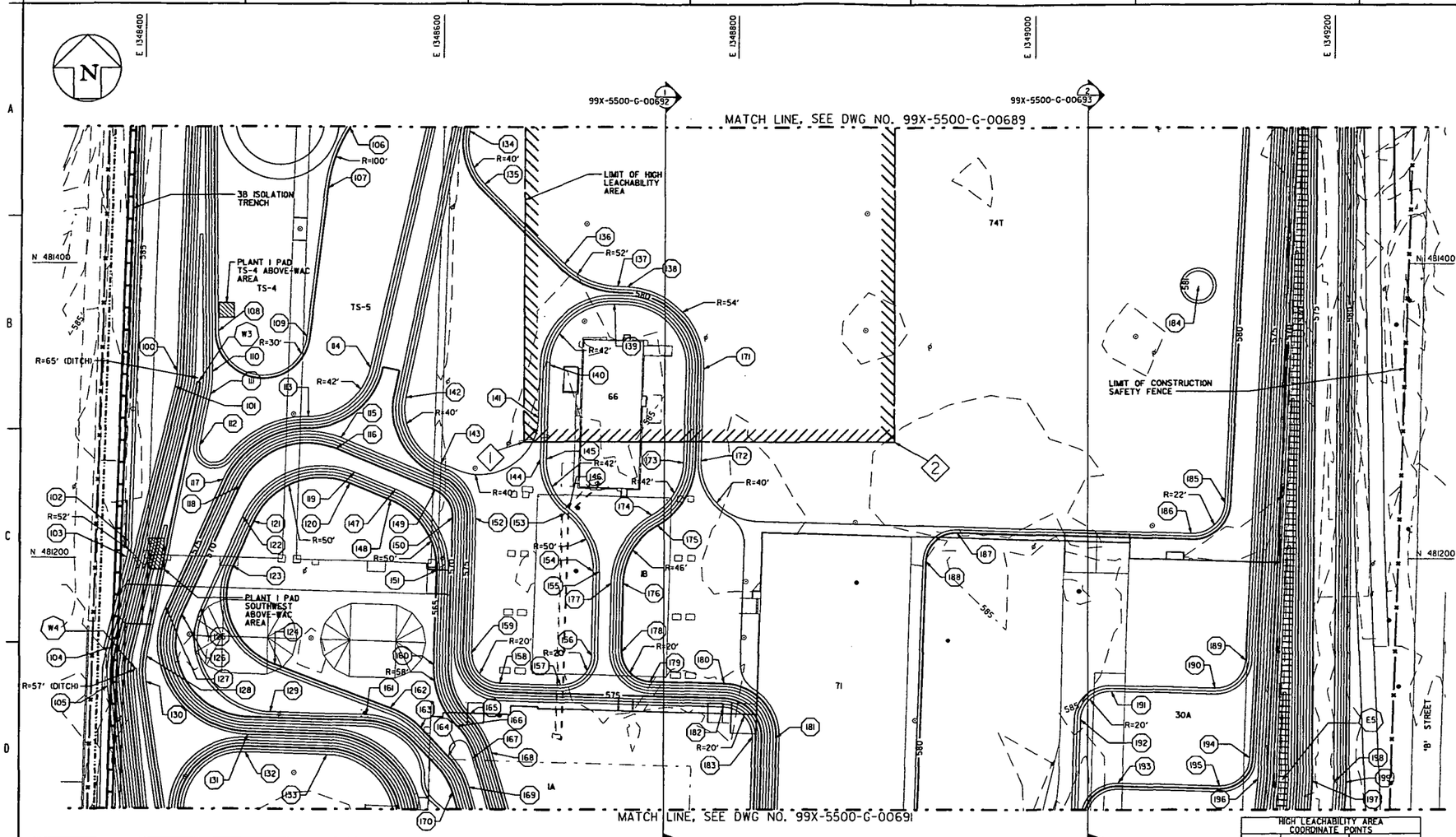
PROJECT NAME
SOIL REMEDIATION

DRAWING TITLE
AREA 3B **000207**
EXCAVATION/DRAINAGE PLAN (NORTH)

APPROVALS

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

DRAWN BY	PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
DRF	70810	99X-5500-G-00689	G-45	D
FES PROJECT NO.	FILENAME 99X000689.DGN			



GENERAL NOTES

1. SEE DRAWING 99X-5500-X-00639 FOR LEGEND AND GENERAL NOTES.
2. GRID NUMBERS REFER TO THE UNDERGROUND UTILITIES GRID DRAWINGS AS SHOWN IN UTILITY GRID REFERENCE DRAWING INDEX ON DRAWING 99X-5500-X-00642.
3. COMPLETE ABOVE-WAC AREA EXCAVATION IN ACCORDANCE WITH DRAWING 99X-5500-G-00677 AND SPECIFICATION SECTION 02205 PRIOR TO PERFORMING ADJACENT GENERAL AREA EXCAVATION.
4. COMPLETE HWMU AREA EXCAVATION IN ACCORDANCE WITH DRAWING 99X-5500-G-00678 AND SPECIFICATION SECTION 02205 PRIOR TO PERFORMING ADJACENT GENERAL AREA EXCAVATION.
5. DESIGN CONTOURS AND GRADES SHOWN REPRESENT THE MINIMUM LIMITS OF EXCAVATION REQUIRED TO CAPTURE CONTAMINATION AND FOUNDATIONS, WHILE MAINTAINING SAFE SLOPE REQUIREMENTS. FIELD CHANGES SHALL BE REPORTED TO CONSTRUCTION MANAGER AND APPROVED BY THE ENGINEER.
6. BUILDING NUMBERS REFER TO FORMER LOCATIONS OF BUILDINGS OR PADS.
7. OBTAIN APPROVAL OF THE CONSTRUCTION MANAGER PRIOR TO EXCAVATION OUTSIDE THE LIMITS OF THE TRENCHED EXCAVATION AREA.
8. MANHOLE AND CATCH BASIN OPENINGS SHALL BE BARRICADED FOR SAFETY IN ACCORDANCE WITH SPR3-5.
9. FOR PURPOSES OF READABILITY, PLANT 1 PAD HWMU #20 IS NOT PATTERNED PER THE LEGEND, SEE DRAWING 99X-5500-G-00711 FOR HWMU BOUNDING.

4831

CONTROL POINTS

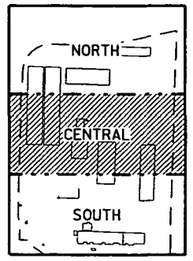
PT NO.	NORTHING	EASTING	ELEV.	PT NO.	NORTHING	EASTING	ELEV.	PT NO.	NORTHING	EASTING	ELEV.	PT NO.	NORTHING	EASTING	ELEV.	PT NO.	NORTHING	EASTING	ELEV.
100	481326.57	1348422.03	582.00	121	481224.88	1348473.62	565.00	142	481309.28	1348575.54	579.00	163	481084.38	1348586.28	565.00	184	481385.57	1349108.24	581
101	481316.28	1348420.64	582.00	122	481228.09	1348466.29	569.00	143	481264.55	1348599.26	579.00	164	481064.70	1348604.82	565.00	185	481238.40	1349126.23	582.00
102	481210.94	1348389.74	584.00	123	48194.17	1348460.17	565.00	144	481267.81	1348666.92	578.00	165	481093.68	1348619.62	571.00	186	481217.45	1349103.65	582.00
103	481200.09	1348388.29	584.00	124	481127.37	1348488.25	565.00	145	481267.70	1348670.92	576.00	166	481085.31	1348611.02	565.00	187	481217.73	1348947.41	580.00
104	48138.27	1348377.39	582.00	125	48165.82	1348439.03	569.00	146	481233.97	1348686.40	576.00	167	481063.34	1348621.67	564.00	188	48198.41	1348926.87	580.00
105	48112.09	1348375.68	582.00	126	48161.42	1348426.18	570.00	147	481246.95	1348568.88	569.00	168	481067.34	1348635.09	571.00	189	481130.79	1349140.15	579.00
106	481491.79	1348537.61	580.00	127	48166.23	1348415.19	576.00	148	481239.58	1348565.78	565.00	169	481043.67	1348619.19	564.00	190	48111.75	1349119.62	579.00
107	481450.69	1348523.18	580.00	128	481132.50	1348402.32	576.00	149	481246.77	1348595.12	570.00	170	481040.24	1348607.69	570.00	191	481109.63	1349050.68	577.00
108	481353.70	1348449.48	581.00	129	481094.99	1348485.30	568.00	150	481227.78	1348596.39	570.00	171	481328.83	1348776.88	582.00	192	481090.19	1349030.14	577.00
109	481350.45	1348509.27	581.00	130	48115.24	1348401.89	576.00	151	48192.12	1348596.39	565.00	172	481266.46	1348775.17	582.00	193	481046.79	1349054.96	576.00
110	481326.20	1348445.75	579.00	131	481079.39	1348470.29	576.00	152	481227.34	1348623.36	578.00	173	481265.18	1348763.13	576.00	194	481063.99	1349142.99	576.00
111	481310.91	1348444.30	579.00	132	481067.43	1348468.70	582.00	153	481230.87	1348683.87	578.00	174	481229.71	1348741.73	576.00	195	481044.94	1349122.46	576.00
112	481276.44	1348437.37	579.00	133	481065.91	1348524.04	582.00	154	48191.30	1348702.31	578.00	175	481222.74	1348745.65	580.00	196	481050.16	1349148.34	573.00
113	481296.30	1348510.60	579.00	134	481489.71	1348628.73	582.00	155	48191.24	1348706.31	576.00	176	48183.36	1348722.19	580.00	197	481048.30	1349184.70	575.00
114	481329.22	1348551.95	579.00	135	481453.57	1348628.73	582.00	156	48133.48	1348701.41	578.00	177	48183.48	1348714.19	576.00	198	481047.81	1349199.70	576.00
115	481281.76	1348532.52	574.00	136	481399.68	1348682.60	582.00	157	48113.80	1348680.86	578.00	178	48136.47	1348721.46	580.00	199	481047.56	1349207.70	580.00
116	481274.39	1348529.42	574.00	137	481384.46	1348717.95	582.00	158	48114.91	1348640.29	578.00	179	48116.16	1348740.91	580.00				
117	481253.16	1348453.25	576.00	138	481384.28	1348724.38	582.00	159	48135.45	1348620.85	578.00	180	48114.78	1348791.48	580.00				
118	481248.35	1348464.24	570.00	139	481372.51	1348715.80	576.00	160	48127.35	1348594.61	565.00	181	481077.81	1348826.48	580.00				
119	481258.30	1348541.90	569.00	140	481331.68	1348672.67	576.00	161	481093.21	1348550.29	568.00	182	481098.78	1348791.04	572.00				
120	481250.92	1348538.80	565.00	141	481295.73	1348665.68	579.00	162	481097.84	1348566.13	565.00	183	481078.24	1348810.49	572.00				

HIGH LEACHABILITY AREA COORDINATE POINTS

PT NO.	NORTHING	EASTING
1	481279.39	1348655.98
2	481279.39	1348905.98

DITCH CONTROL POINTS

PT NO.	NORTHING	EASTING	ELEV.
W3	481319.43	1348436.47	575.00
W4	48124.8	1348394.36	573.00
E5	481048.87	1349164.49	565.40



NORTH

AREA 3B KEY PLAN
SCALE: NONE

30 0 30 60
SCALE: 1"=30'

PRELIMINARY
NOT FOR CONSTRUCTION

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	DATE	REV. BY	APPR.
D	RE-ISSUED FOR AGENCY REVIEW	3/31/03	KLR	
C	ISSUED FOR AGENCY REVIEW	9/30/02	KLR	
B	ISSUED FOR 90% DESIGN REVIEW	8/30/02	DRF	
A	ISSUED FOR 30% DESIGN REVIEW	5/22/02	DRF	

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
FLUOR FERNALD, INC.

PROJECT NAME
SOIL REMEDIATION

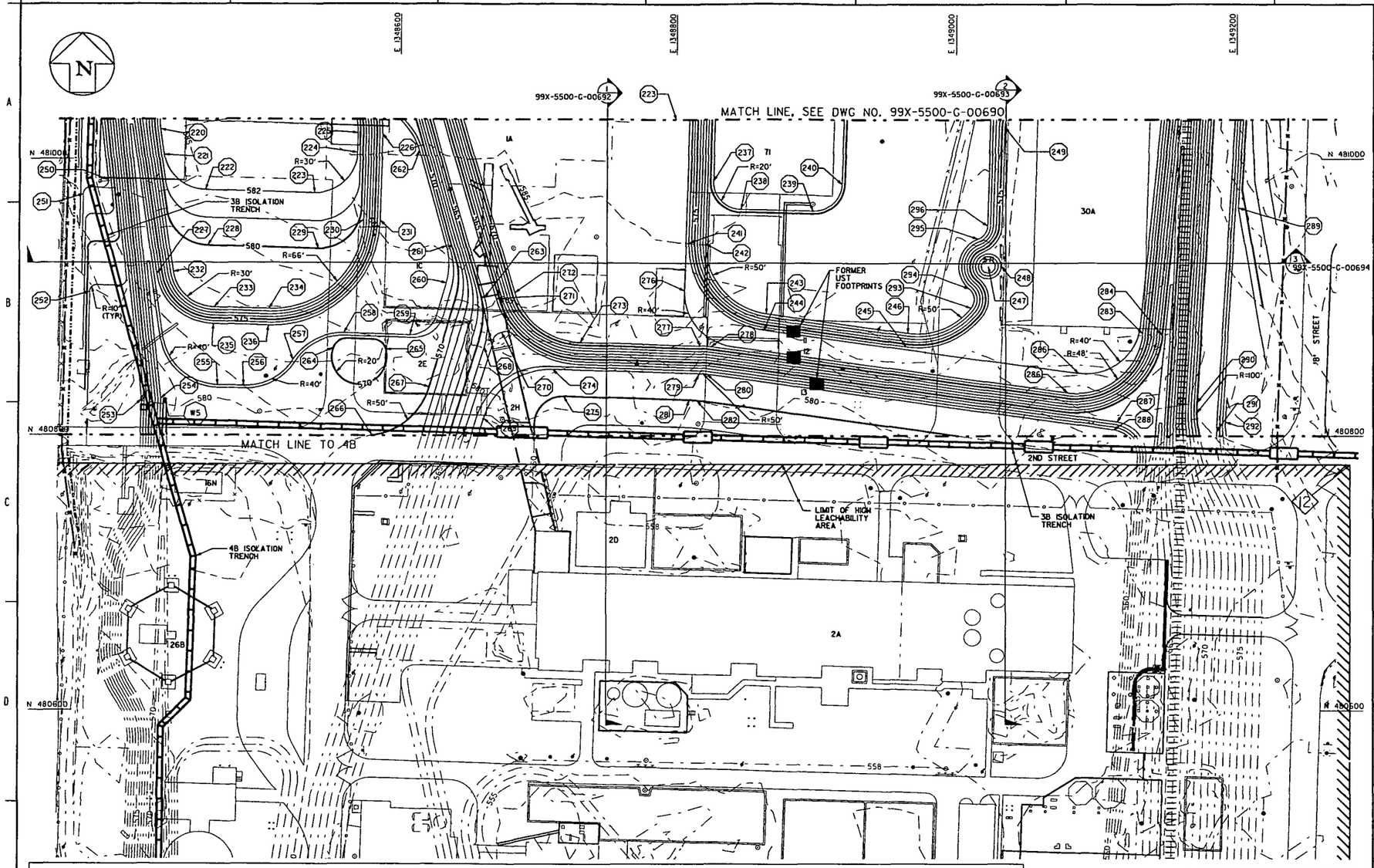
DRAWING TITLE
AREA 3B
EXCAVATION/DRAINAGE PLAN (CENTRAL)

000208

APPROVALS

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

DRAWN BY	PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
DRF	20810	99X-5500-G-00690	G-46	D
RES PROJECT NO.	FILENAME 99XG00690.DGN			



GENERAL NOTES

1. SEE DRAWING 99X-5500-X-00639 FOR LEGEND AND GENERAL NOTES.
2. GRID NUMBERS REFER TO THE UNDERGROUND UTILITIES GRID DRAWINGS AS SHOWN IN UTILITY GRID REFERENCE DRAWING INDEX ON DRAWING 99X-5500-X-00642.
3. COMPLETE ABOVE-WAC AREA EXCAVATION IN ACCORDANCE WITH DRAWING 99X-5500-G-00677 AND SPECIFICATION SECTION 02205 PRIOR TO PERFORMING ADJACENT GENERAL AREA EXCAVATION.
4. COMPLETE HWMU AREA EXCAVATION IN ACCORDANCE WITH DRAWING 99X-5500-G-00678 AND SPECIFICATION SECTION 02205 PRIOR TO PERFORMING ADJACENT GENERAL AREA EXCAVATION.
5. DESIGN CONTOURS AND GRADES SHOWN REPRESENT THE MINIMUM LIMITS OF EXCAVATION REQUIRED TO CAPTURE CONTAMINATION AND FOUNDATIONS, WHILE MAINTAINING SAFE SLOPE REQUIREMENTS. FIELD CHANGES SHALL BE REPORTED TO CONSTRUCTION MANAGER AND APPROVED BY THE ENGINEER.
6. BUILDING NUMBERS REFER TO FORMER LOCATIONS OF BUILDINGS OR PADS.
7. OBTAIN APPROVAL OF THE CONSTRUCTION MANAGER PRIOR TO EXCAVATION OUTSIDE THE LIMITS OF THE TRENCHED EXCAVATION AREA.
8. MANHOLE AND CATCH BASIN OPENINGS SHALL BE BARRICADED FOR SAFETY IN ACCORDANCE WITH SPR3-5.
9. FOR PURPOSES OF READABILITY, PLANT 1 PAD HWMU #20 IS NOT PATTERNED PER THE LEGEND, SEE DRAWING 99X-5500-G-00711 FOR HWMU BOUNDING.

KEYED NOTES

4831

CONTROL POINTS

PT NO.	NORTHING	EASTING	ELEV.	PT NO.	NORTHING	EASTING	ELEV.	PT NO.	NORTHING	EASTING	ELEV.	PT NO.	NORTHING	EASTING	ELEV.	PT NO.	NORTHING	EASTING	ELEV.
220	481021.52	1348428.05	582.00	237	480984.36	1348825.92	581.00	254	480826.45	1348428.95	571.00	271	480899.25	1348670.62	564.00	288	480804.63	1349112.23	561.00
221	481002.94	1348430.83	582.00	238	480963.82	1348845.44	581.00	255	480836.53	1348468.88	572.00	272	480903.25	1348684.04	571.00	289	480965.08	1349200.96	579.00
222	480977.40	1348459.68	582.00	239	480962.59	1348897.13	581.00	256	480836.02	1348487.48	572.00	273	480867.56	1348730.58	571.00	290	480824.24	1349171.83	575.00
223	480975.27	1348537.57	582.00	240	480981.91	1348917.59	581.00	257	480854.67	1348522.41	572.00	274	480848.09	1348710.99	561.00	291	480803.35	1349185.66	576.00
224	481004.43	1348568.38	582.00	241	480939.62	1348808.70	573.00	258	480874.25	1348559.08	572.00	275	480828.65	1348718.93	560.00	292	480810.37	1349192.07	579.00
225	481018.67	1348568.77	582.00	242	480939.29	1348820.69	579.00	259	480872.93	1348607.41	572.00	276	480905.11	1348805.75	572.00	293	480892.83	1349010.67	579.00
226	481018.18	1348586.76	573.00	243	480888.39	1348863.83	579.00	260	480910.34	1348634.22	572.00	277	480865.21	1348816.67	571.00	294	480906.76	1349009.24	579.00
227	480916.57	1348425.56	573.00	244	480876.51	1348862.19	573.00	261	480936.97	1348634.32	572.00	278	480864.57	1348824.33	571.00	295	480942.74	1349015.67	579.00
228	480937.33	1348461.63	580.00	245	480864.56	1348963.36	574.00	262	481006.00	1348613.73	572.00	279	480845.21	1348816.12	561.00	296	480951.90	1349022.35	579.00
229	480935.17	1348540.47	580.00	246	480874.46	1348964.73	579.00	263	480900.06	1348662.03	564.00	280	480844.76	1348821.59	561.00				
230	480955.90	1348573.05	579.00	247	480922.93	1349022.64	571.00	264	480863.45	1348551.31	570.00	281	480826.18	1348809.24	560.00				
231	480955.57	1348585.05	573.00	248	480922.93	1349031.64	573.00	265	480862.40	1348589.47	570.00	282	480825.73	1348814.71	560.00				
232	480918.35	1348437.42	579.00	249	481023.35	1349034.31	574.00	266	480800.17	1348579.66	570.00	283	480874.34	1349133.19	572.00				
233	480892.80	1348466.27	579.00	250	480984.61	1348389.58	582.00	267	480835.17	1348621.63	570.00	284	480872.98	1349147.13	565.00				
234	480891.73	1348505.27	579.00	251	480974.37	1348371.71	582.00	268	480864.15	1348661.89	564.00	285	480845.52	1349086.58	573.00				
235	480880.80	1348465.94	573.00	252	480903.90	1348376.56	579.00	269	480812.77	1348661.82	561.00	286	480831.45	1349078.85	572.00				
236	480879.74	1348504.94	573.00	253	480825.90	1348414.92	578.00	270	480874.83	1348674.71	563.00	287	480810.32	1349114.87	564.00				

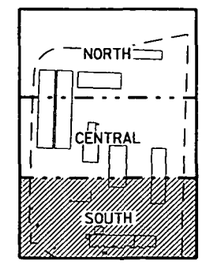
HIGH LEACHABILITY AREA COORDINATE POINTS

PT NO.	NORTHING	EASTING
12	479529.38	1349281.00

DITCH CONTROL POINTS

PT NO.	NORTHING	EASTING	ELEV.
W5	480826.56	1348431.95	570.00

30 0 30 60
SCALE: 1"=30'



NORTH

AREA 3B KEY PLAN
SCALE: NONE

PRELIMINARY
NOT FOR CONSTRUCTION

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	DATE	REV. BY	APPR.
D	RE-ISSUED FOR AGENCY REVIEW	3/31/03	KLR	
C	ISSUED FOR AGENCY REVIEW	9/30/02	KLR	
B	ISSUED FOR 90% DESIGN REVIEW	8/30/02	DRF	
A	ISSUED FOR 30% DESIGN REVIEW	5/22/02	DRF	

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
FLUOR FERNALD, INC.

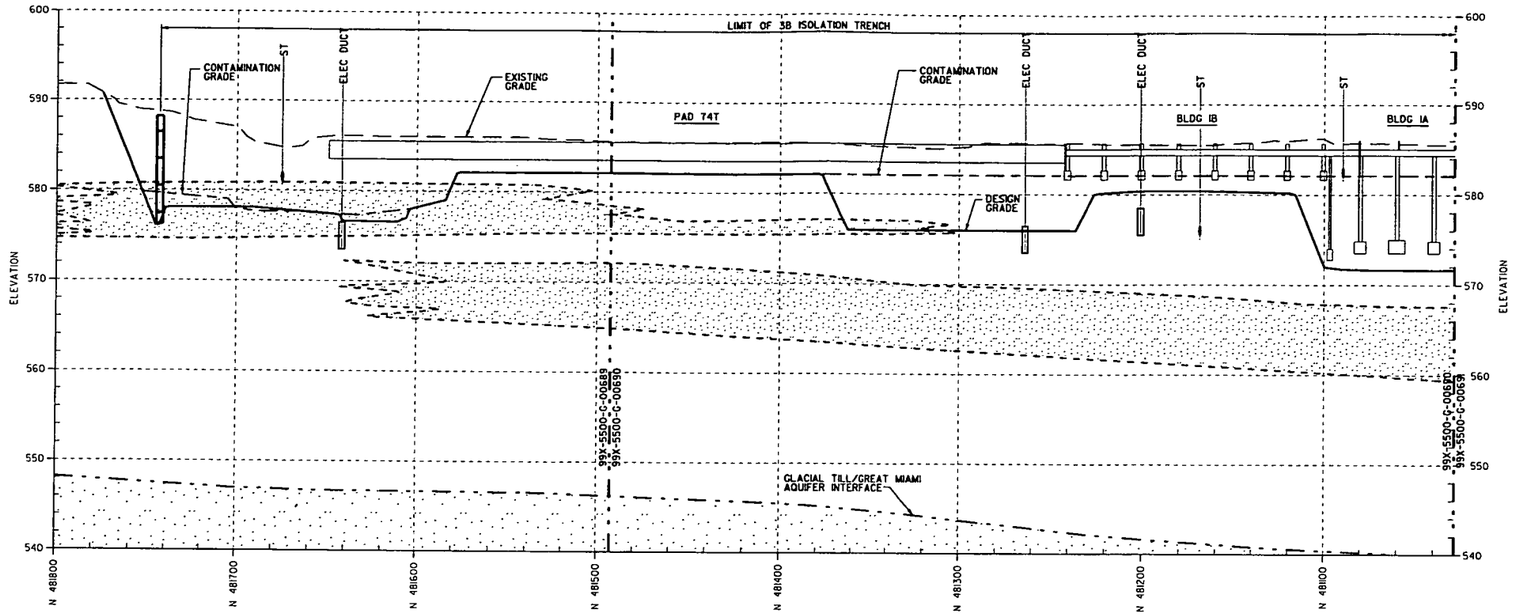
PROJECT NAME
SOIL REMEDIATION

DRAWING TITLE
AREA 3B 000209
EXCAVATION/DRAINAGE PLAN (SOUTH)

APPROVALS

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

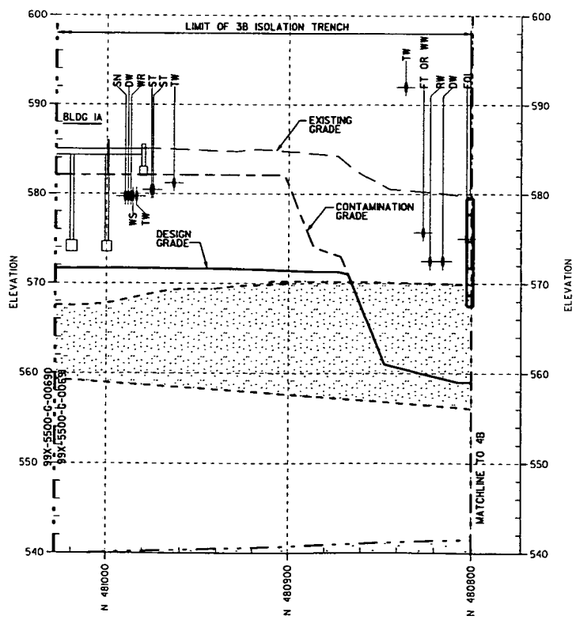
DRAWN BY	PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
DRF	20810	99X-5500-G-00691	G-47	D
RES PROJECT NO.	FILENAME 99XG00691.DGN			



3B EXCAVATION (1)

SCALE: 1"=30' HORIZ
1"=6' VERT

99X-5500-G-00688
00689
00690
00695
00696
00698



3B EXCAVATION (1)

SCALE: 1"=30' HORIZ
1"=6' VERT

99X-5500-G-00688
00691
00697
00698

30 0 30 60
HORIZ. SCALE: 1"=30'

6 0 6 12
VERT. SCALE: 1"=6'

GENERAL NOTES

1. SEE DRAWING 99X-5500-X-00639 FOR LEGEND AND GENERAL NOTES.
2. UNDERGROUND UTILITIES ARE SHOWN AT THEIR APPROXIMATE LOCATIONS AND INVERT ELEVATIONS. FOR UTILITY LINE DESCRIPTION, SEE UNDERGROUND UTILITY GRID DRAWINGS.
3. ELEVATIONS HAVE NOT BEEN DETERMINED FOR UTILITIES SHOWN ABOVE EXISTING GRADE.
4. UNDERGROUND UTILITIES ENCOUNTERED DURING EXCAVATION TO THE DESIGN GRADE SHALL BE REMOVED IN ACCORDANCE WITH SPECIFICATION SECTION 02205. REMAINING UTILITIES BELOW THE DESIGN GRADE SHALL BE REMOVED USING TRENCHING METHODS IN ACCORDANCE WITH SPECIFICATION SECTION 02205.
5. DESIGN CONTOURS AND GRADES SHOWN REPRESENT THE MINIMUM LIMIT OF EXCAVATION REQUIRED TO CAPTURE CONTAMINATION AND STRUCTURES, WHILE MAINTAINING SAFE SLOPES.
6. MODELED CONTAMINATION GRADE MARKS EXTENT OF EXCAVATION REQUIRED TO MEET FINAL REMEDIATION LEVEL (FRLS) FOR URANIUM AS SHOWN ON CONTAMINATION GRADING PLAN DRAWINGS 99X-5500-G-00665 THROUGH 670.

4831

LEGEND

- UNSATURATED SAND AND GRAVEL OF THE GREAT MIAMI AQUIFER
- SAND/GRAVEL
- PROPOSED ISOLATION TRENCH
- EXISTING ISOLATION TRENCH

PRELIMINARY
NOT FOR CONSTRUCTION

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	DATE	REV. BY	APPR.
C	RE-ISSUED FOR AGENCY REVIEW	3/31/03	KLR	
B	ISSUED FOR AGENCY REVIEW	9/30/02	KLR	
A	ISSUED FOR 90% DESIGN REVIEW	8/30/02	DRF	

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
FLUOR FERNALD, INC.

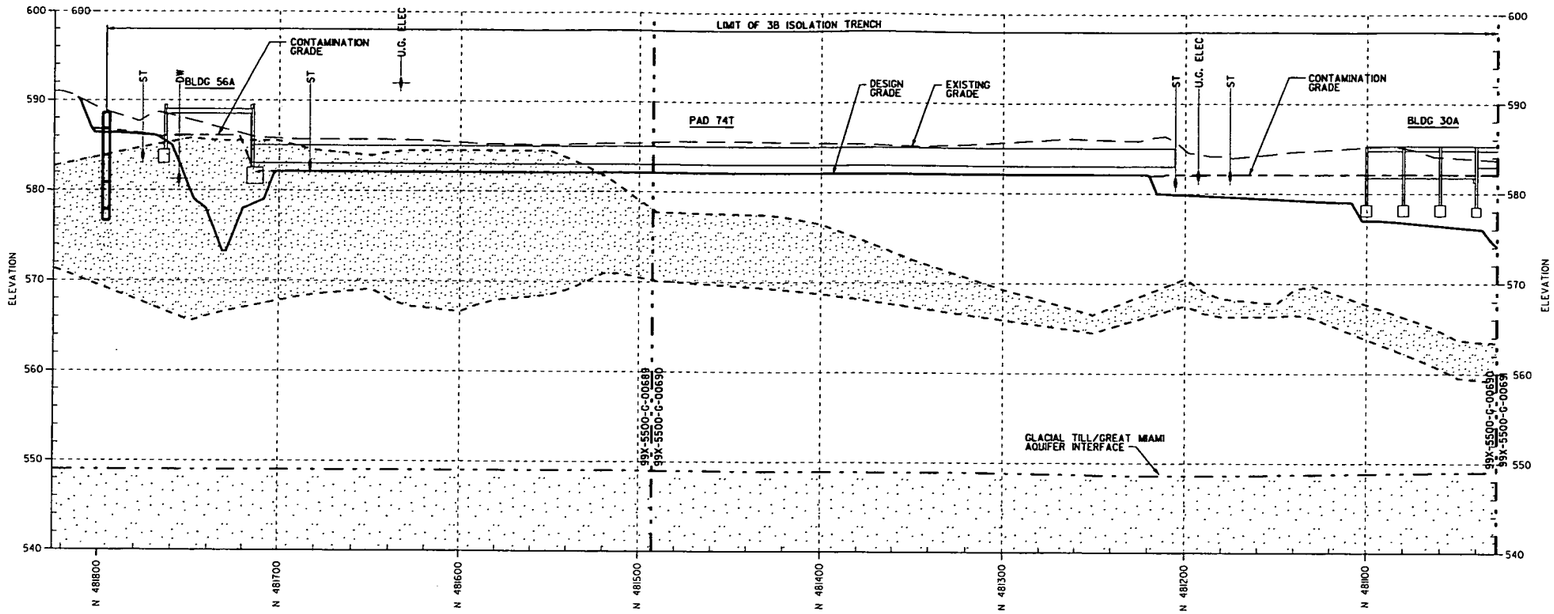
PROJECT NAME
SOIL REMEDIATION

DRAWING TITLE
AREA 3B 000210
CROSS SECTIONS SHEET I

APPROVALS

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

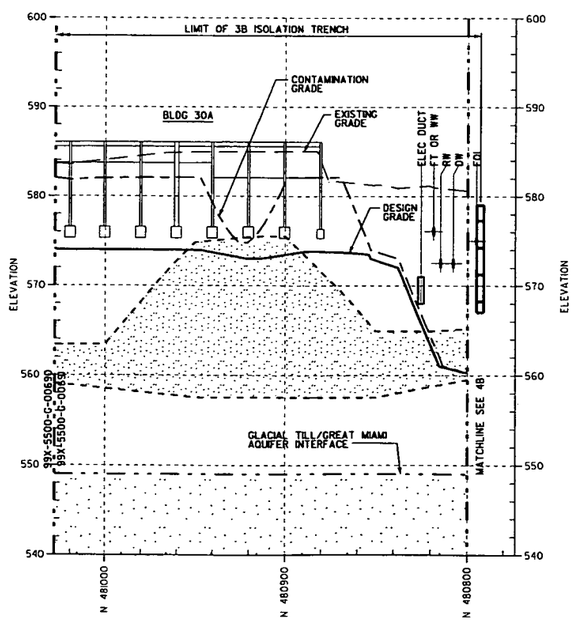
DRAWN BY	PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
KLR	20810	99X-5500-G-00692	G-48	C
RES PROJECT NO.	FILENAME 99XG00692.DGN			



3B EXCAVATION (2)

SCALE: 1"=30' HORIZ
1"=6' VERT

99X-5500-G-00688
00689
00690
00695
00696
00698



3B EXCAVATION (2)

SCALE: 1"=30' HORIZ
1"=6' VERT

99X-5500-G-00688
00691
00697
00698

30 0 30 60
HORIZ. SCALE: 1"=30'

6 0 6 12
VERT. SCALE: 1"=6'

GENERAL NOTES

1. SEE DRAWING 99X-5500-X-00639 FOR LEGEND AND GENERAL NOTES.
2. UNDERGROUND UTILITIES ARE SHOWN AT THEIR APPROXIMATE LOCATIONS AND INVERT ELEVATIONS. FOR UTILITY LINE DESCRIPTION, SEE UNDERGROUND UTILITY GRID DRAWINGS.
3. ELEVATIONS HAVE NOT BEEN DETERMINED FOR UTILITIES SHOWN ABOVE EXISTING GRADE.
4. UNDERGROUND UTILITIES ENCOUNTERED DURING EXCAVATION TO THE DESIGN GRADE SHALL BE REMOVED IN ACCORDANCE WITH SPECIFICATION SECTION 02205. REMAINING UTILITIES BELOW THE DESIGN GRADE SHALL BE REMOVED USING TRENCHING METHODS IN ACCORDANCE WITH SPECIFICATION SECTION 02205.
5. DESIGN CONTOURS AND GRADES SHOWN REPRESENT THE MINIMUM LIMIT OF EXCAVATION REQUIRED TO CAPTURE CONTAMINATION AND STRUCTURES, WHILE MAINTAINING SAFE SLOPES.
6. MODELED CONTAMINATION GRADE MARKS EXTENT OF EXCAVATION REQUIRED TO MEET FINAL REMEDIATION LEVEL (FRLS) FOR URANIUM AS SHOWN ON CONTAMINATION GRADING PLAN DRAWINGS 99X-5500-G-00665 THROUGH 670.

4831

LEGEND

- UNSATURATED SAND AND GRAVEL OF THE GREAT MIAMI AQUIFER
- SAND/GRAVEL
- PROPOSED ISOLATION TRENCH
- EXISTING ISOLATION TRENCH

PRELIMINARY
NOT FOR CONSTRUCTION

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	DATE	REV. BY	APPR.
C	RE-ISSUED FOR AGENCY REVIEW	3/3/03	KLR	
B	ISSUED FOR AGENCY REVIEW	9/30/02	KLR	
A	ISSUED FOR 90% DESIGN REVIEW	8/30/02	DRF	

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
FLUOR FERNALD, INC.

PROJECT NAME
SOIL REMEDIATION

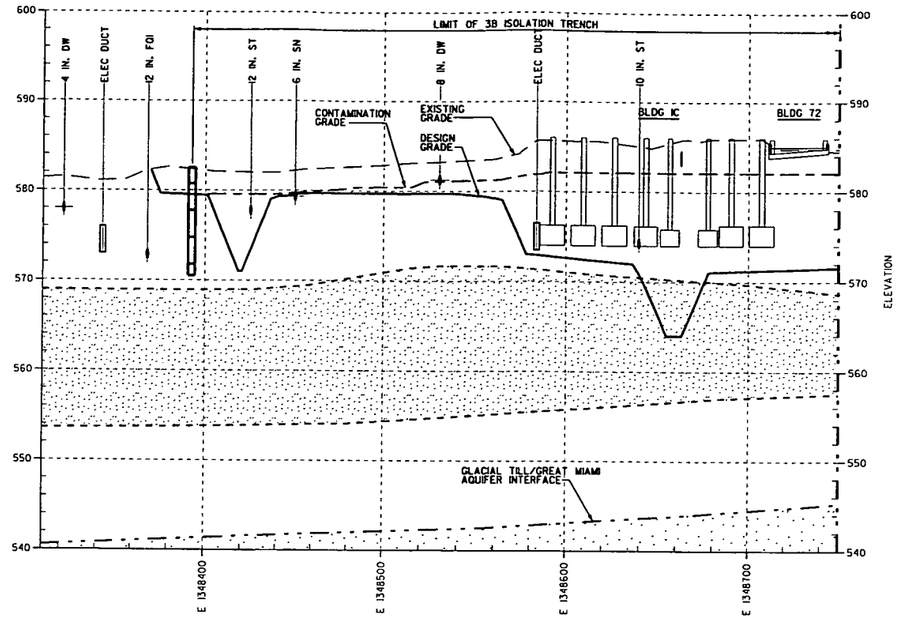
DRAWING TITLE
AREA 3B
CROSS SECTIONS SHEET 2

000211

APPROVALS

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

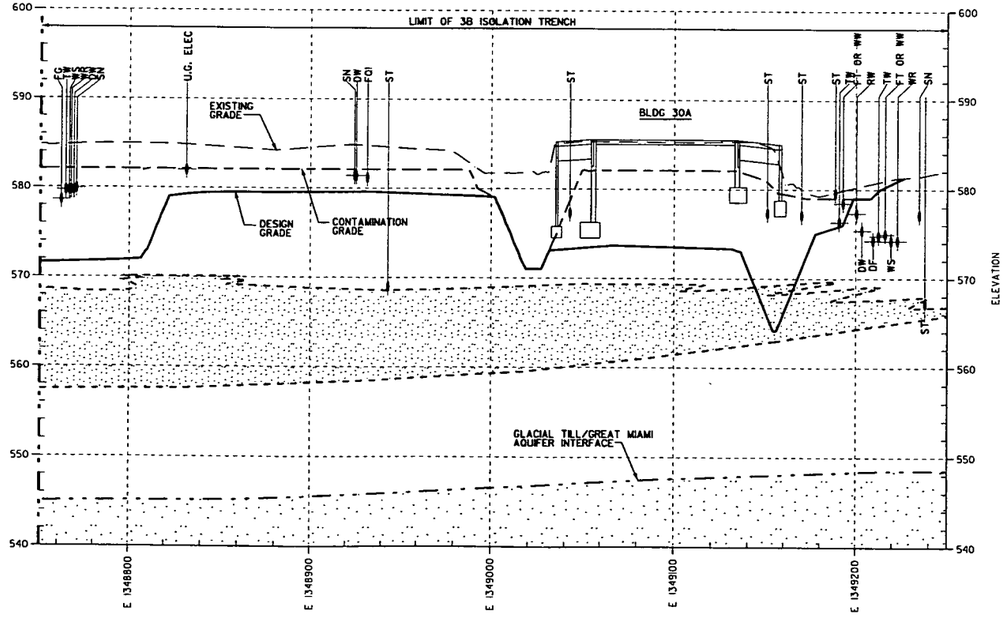
DRAWN BY	PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
DRF	20840	99X-5500-G-00693	G-49	C
RES PROJECT NO.	FILENAME 99X500693.DGN			



3B EXCAVATION (3)

SCALE: 1"=30' HORIZ
1"=6' VERT

99X-5500-G-00688
00691
00697
00698



3B EXCAVATION (3)

SCALE: 1"=30' HORIZ
1"=6' VERT

99X-5500-G-00688
00691
00697
00698

GENERAL NOTES

1. SEE DRAWING 99X-5500-X-00639 FOR LEGEND AND GENERAL NOTES.
2. UNDERGROUND UTILITIES ARE SHOWN AT THEIR APPROXIMATE LOCATIONS AND INVERT ELEVATIONS. FOR UTILITY LINE DESCRIPTION, SEE UNDERGROUND UTILITY GRID DRAWINGS.
3. ELEVATIONS HAVE NOT BEEN DETERMINED FOR UTILITIES SHOWN ABOVE EXISTING GRADE.
4. UNDERGROUND UTILITIES ENCOUNTERED DURING EXCAVATION TO THE DESIGN GRADE SHALL BE REMOVED IN ACCORDANCE WITH SPECIFICATION SECTION 02205. REMAINING UTILITIES BELOW THE DESIGN GRADE SHALL BE REMOVED USING TRENCHING METHODS IN ACCORDANCE WITH SPECIFICATION SECTION 02205.
5. DESIGN CONTOURS AND GRADES SHOWN REPRESENT THE MINIMUM LIMIT OF EXCAVATION REQUIRED TO CAPTURE CONTAMINATION AND STRUCTURES, WHILE MAINTAINING SAFE SLOPES.
6. MODELED CONTAMINATION GRADE MARKS EXTENT OF EXCAVATION REQUIRED TO MEET FINAL REMEDIATION LEVEL (FRLS) FOR URANIUM AS SHOWN ON CONTAMINATION GRADING PLAN DRAWINGS 99X-5500-G-00665 THROUGH 670.

4831

LEGEND

- UNSATURATED SAND AND GRAVEL OF THE GREAT MIAMI AQUIFER
- SAND/GRAVEL
- PROPOSED ISOLATION TRENCH
- EXISTING ISOLATION TRENCH

PRELIMINARY
NOT FOR CONSTRUCTION

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	DATE	REV. BY	APPR.
C	RE-ISSUED FOR AGENCY REVIEW	3/31/03	KLR	
B	ISSUED FOR AGENCY REVIEW	9/30/02	KLR	
A	ISSUED FOR 90% DESIGN REVIEW	8/30/02	DRF	

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
FLUOR FERNALD, INC.

PROJECT NAME
SOIL REMEDIATION

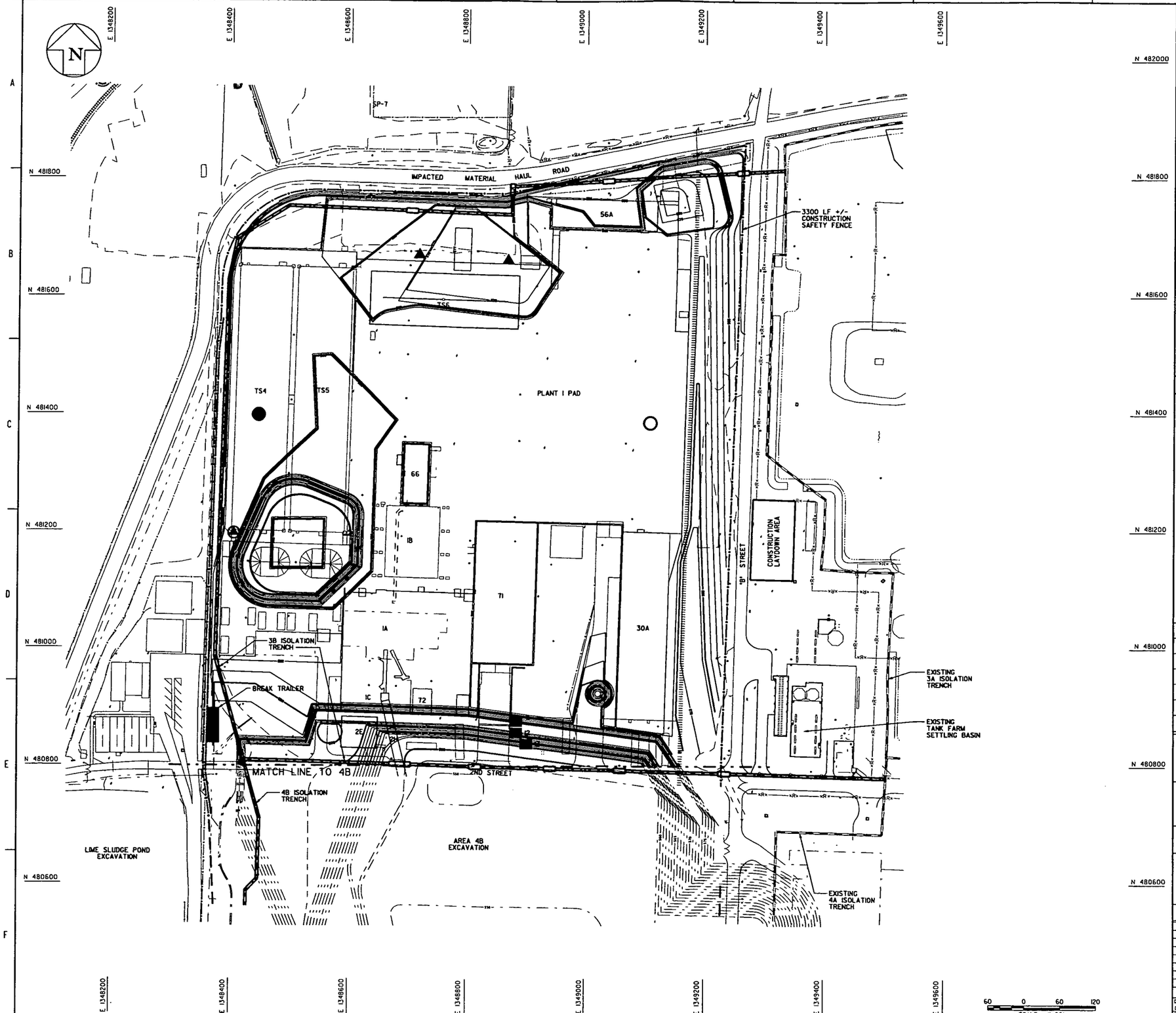
DRAWING TITLE
AREA 3B
CROSS SECTIONS SHEET 3

000212

APPROVALS

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

DRAWN BY	PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
DRF	2080	99X-5500-G-00694	G-50	C
RES PROJECT NO.	FILENAME 99XG00694.DGN			



GENERAL NOTES

1. SEE DRAWING 99X-5500-X-00639 FOR LEGEND AND GENERAL NOTES.
2. THIS DRAWING SHOWS THE APPROXIMATE DEPTH OF EXCAVATION TO REMOVE URANIUM ABOVE FRLS, BASED ON 3-DIMENSIONAL CONTAMINATION MODELING.
3. PERFORM EXCAVATION TO THE DESIGN GRADES SHOWN ON DRAWINGS 99X-5500-G-00689, 00690 AND 00691.
4. SEE DRAWING 99X-5500-G-00700 FOR COORDINATES AND EXCAVATION DETAILS FOR ABOVE-WAC AREAS SHOWN HERE FOR REFERENCE ONLY.
5. SEE DRAWING 99X-5500-G-00711 FOR COORDINATES AND EXCAVATION DETAILS FOR HWMU'S SHOWN HERE FOR REFERENCE ONLY.
6. OBTAIN APPROVAL OF THE CONSTRUCTION MANAGER PRIOR TO EXCAVATION OUTSIDE THE LIMITS OF THE AREA ISOLATION TRENCH CORRESPONDING TO THE EXCAVATION STAGE.

4831

LEGEND

- URANIUM ABOVE-WAC AREA
- TC-99 ABOVE-WAC AREA
- FORMER UST FOOTPRINT WITH CORRESPONDING UST NUMBER
- URANIUM AREA & TC-99 ABOVE-WAC AREA
- PROPOSED ISOLATION TRENCH
- EXISTING ISOLATION TRENCH
- ISOLATION TRENCH GAP

PRELIMINARY
NOT FOR CONSTRUCTION

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	DATE	REV. BY	APPR.
B	RE-ISSUED FOR AGENCY REVIEW	3/31/03	DRF	
A	ISSUED FOR AGENCY REVIEW	9/30/02	DRF	

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
FLUOR FERNALD, INC.

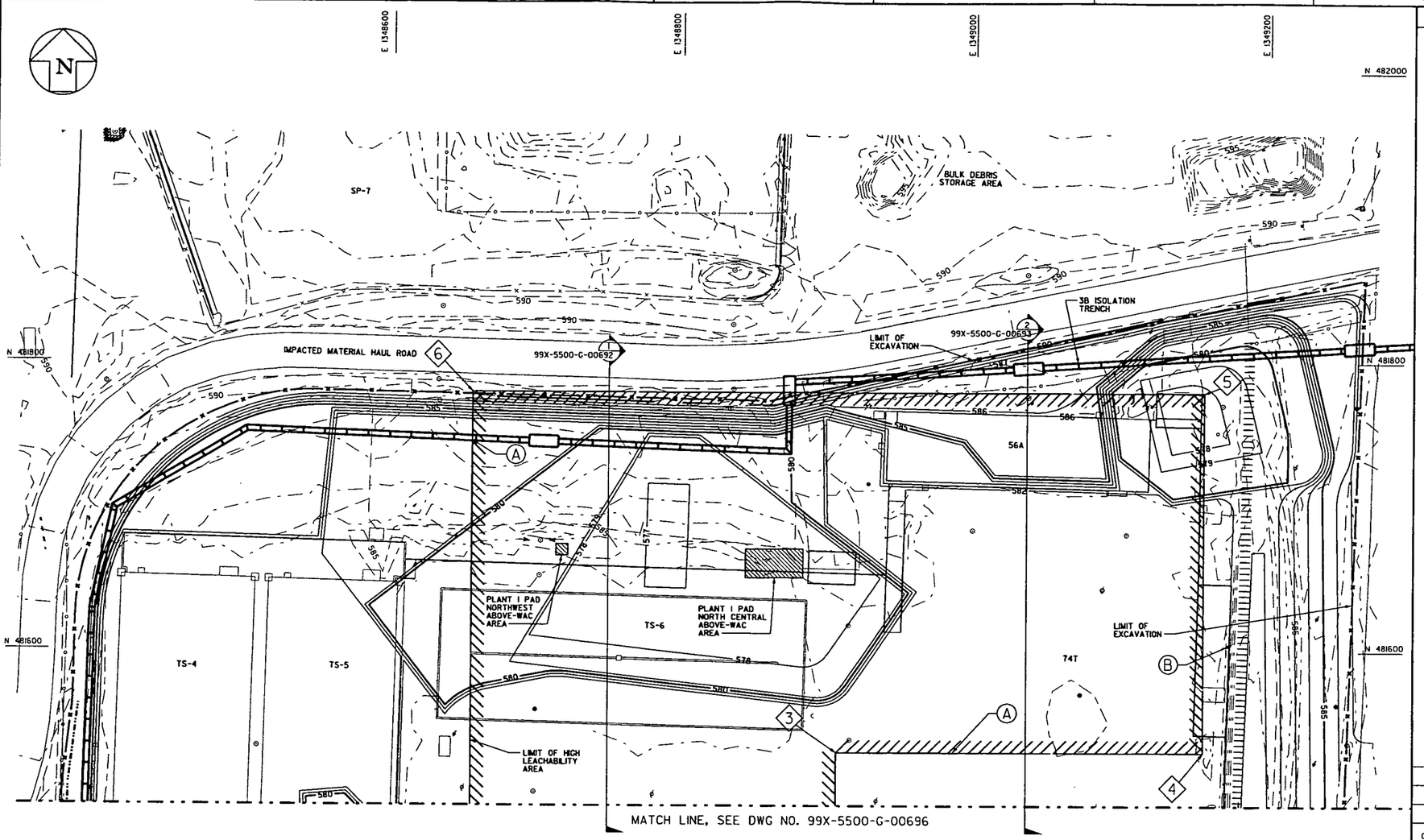
PROJECT NAME
SOIL REMEDIATION

DRAWING TITLE
AREA 3B 000213
CONTAMINATION GRADING (OVERVIEW)

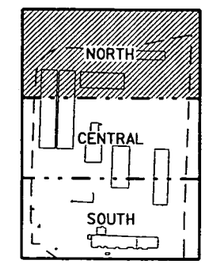
APPROVALS

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

DRAWN BY	PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
DRF	20610	99X-5500-G-00699	G-51	B
RES PROJECT NO.	FILENAME 99XG00699.DGN			



HIGH LEACHABILITY AREA COORDINATE POINTS		
PT NO.	NORTHING	EASTING
3	481529.40	1348905.98
4	481529.40	1349155.97
5	481779.40	1349155.97
6	481779.40	1348655.97



NORTH

AREA 3B KEY PLAN
SCALE: NONE

30 0 30 60
SCALE: 1"=30'

GENERAL NOTES

1. SEE DRAWING 99X-5500-X-00639 FOR LEGEND AND GENERAL NOTES.
2. GRID NUMBERS REFER TO THE UNDERGROUND UTILITIES GRID DRAWINGS AS SHOWN IN UTILITY GRID REFERENCE DRAWING INDEX ON DRAWING 99X-5500-X-00642.
3. THIS DRAWING SHOWS THE APPROXIMATE DEPTH OF EXCAVATION TO REMOVE URANIUM CONTAMINATION ABOVE FRLS.
4. COMPLETE ABOVE-WAC AREA EXCAVATION IN ACCORDANCE WITH DRAWING 99X-5500-G-00677 AND SPECIFICATION SECTION 02205 PRIOR TO PERFORMING ADJACENT GENERAL AREA EXCAVATION.
5. COMPLETE HWMU AREA EXCAVATION IN ACCORDANCE WITH DRAWING 99X-5500-G-00678 AND SPECIFICATION SECTION 02205 PRIOR TO PERFORMING ADJACENT GENERAL AREA EXCAVATION.
6. BUILDING NUMBERS REFER TO FORMER LOCATIONS OF BUILDINGS OR PADS
7. PERFORM EXCAVATION FOR CONTAMINATION TO THE GRADES SHOWN IN ACCORDANCE WITH SPECIFICATION SECTION 02205.
8. PERFORM ADDITIONAL EXCAVATION TO THE DESIGN GRADES SHOWN ON DRAWING 99X-5500-G-00689 IN ACCORDANCE WITH SPECIFICATION SECTION 02205.
9. FOR PURPOSES OF READABILITY, PLANT 1 PAD HWMU #20 IS NOT PATTERNED PER THE LEGEND. SEE DRAWING 99X-5500-G-00711 FOR HWMU BOUNDING.

4831

PRELIMINARY
NOT FOR CONSTRUCTION

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	DATE	REV. BY	APPR.
C	RE-ISSUED FOR AGENCY REVIEW	3/31/03	KLR	
B	ISSUED FOR AGENCY REVIEW	9/30/02	KLR	
A	ISSUED FOR 90% DESIGN REVIEW	8/30/02	DRF	

INITIALS AND DATE

UNITED STATES
DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
FLUOR FERNALD, INC.

PROJECT NAME
SOIL REMEDIATION

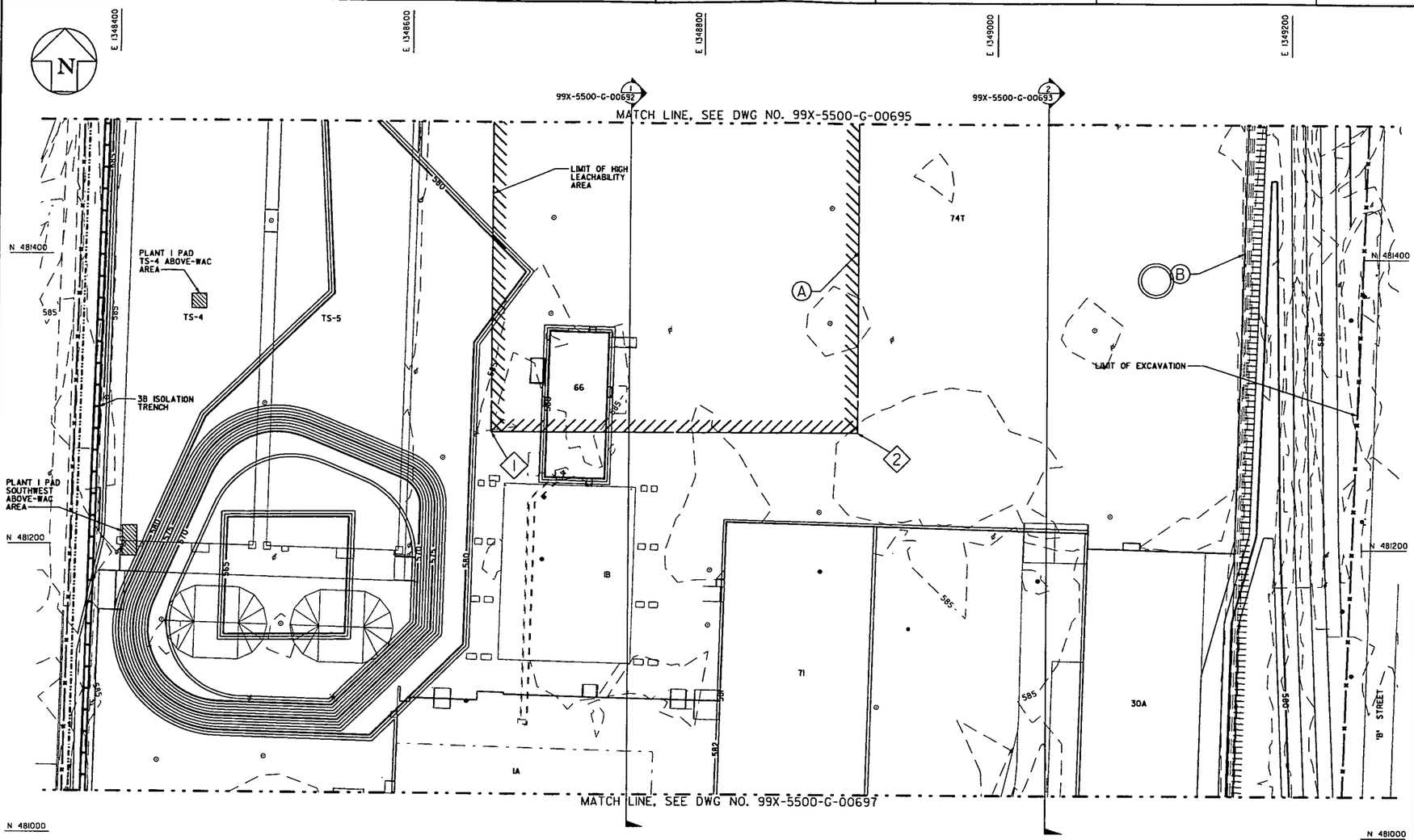
DRAWING TITLE
AREA 3B
CONTAMINATION GRADING PLAN (NORTH)

000214

APPROVALS

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

DRAWN BY	PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
DRF	2080	99X-5500-G-00695	G-52	C
RES PROJECT NO.	FILENAME 99XG00695.DGN			

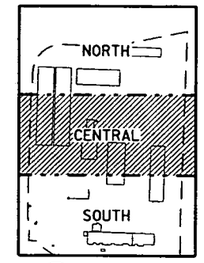


GENERAL NOTES

1. SEE DRAWING 99X-5500-X-00639 FOR LEGEND AND GENERAL NOTES.
2. GRID NUMBERS REFER TO THE UNDERGROUND UTILITIES GRID DRAWINGS AS SHOWN IN UTILITY GRID REFERENCE DRAWING INDEX ON DRAWING 99X-5500-X-00642.
3. THIS DRAWING SHOWS THE APPROXIMATE DEPTH OF EXCAVATION TO REMOVE URANIUM CONTAMINATION ABOVE FRLS.
4. COMPLETE ABOVE-WAC AREA EXCAVATION IN ACCORDANCE WITH DRAWING 99X-5500-G-00677 AND SPECIFICATION SECTION 02205 PRIOR TO PERFORMING ADJACENT GENERAL AREA EXCAVATION.
5. COMPLETE HWMU AREA EXCAVATION IN ACCORDANCE WITH DRAWING 99X-5500-G-00678 AND SPECIFICATION SECTION 02205 PRIOR TO PERFORMING ADJACENT GENERAL AREA EXCAVATION.
6. BUILDING NUMBERS REFER TO FORMER LOCATIONS OF BUILDINGS OR PADS
7. PERFORM EXCAVATION FOR CONTAMINATION TO THE GRADES SHOWN IN ACCORDANCE WITH SPECIFICATION SECTION 02205.
8. PERFORM ADDITIONAL EXCAVATION TO THE DESIGN GRADES SHOWN ON DRAWING 99X-5500-G-00689 IN ACCORDANCE WITH SPECIFICATION SECTION 02205.
9. FOR PURPOSES OF READABILITY, PLANT 1 PAD HWMU #20 IS NOT PATTERNED PER THE LEGEND. SEE DRAWING 99X-5500-G-00711 FOR HWMU BOUNDING.

4831

HIGH LEACHABILITY AREA COORDINATE POINTS		
PT NO.	NORTHING	EASTING
1	481279.39	1348655.98
2	481279.39	1348905.98



AREA 3B KEY PLAN
SCALE: NONE

30 0 30 60
SCALE: 1"=30'

PRELIMINARY
NOT FOR CONSTRUCTION

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	DATE	REV. BY	APPR.
C	RE-ISSUED FOR AGENCY REVIEW	3/31/03	KLR	
B	ISSUED FOR AGENCY REVIEW	9/30/02	KLR	
A	ISSUED FOR 90% DESIGN REVIEW	8/30/02	DRF	

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
FLUOR FERNALD, INC.

PROJECT NAME
SOIL REMEDIATION

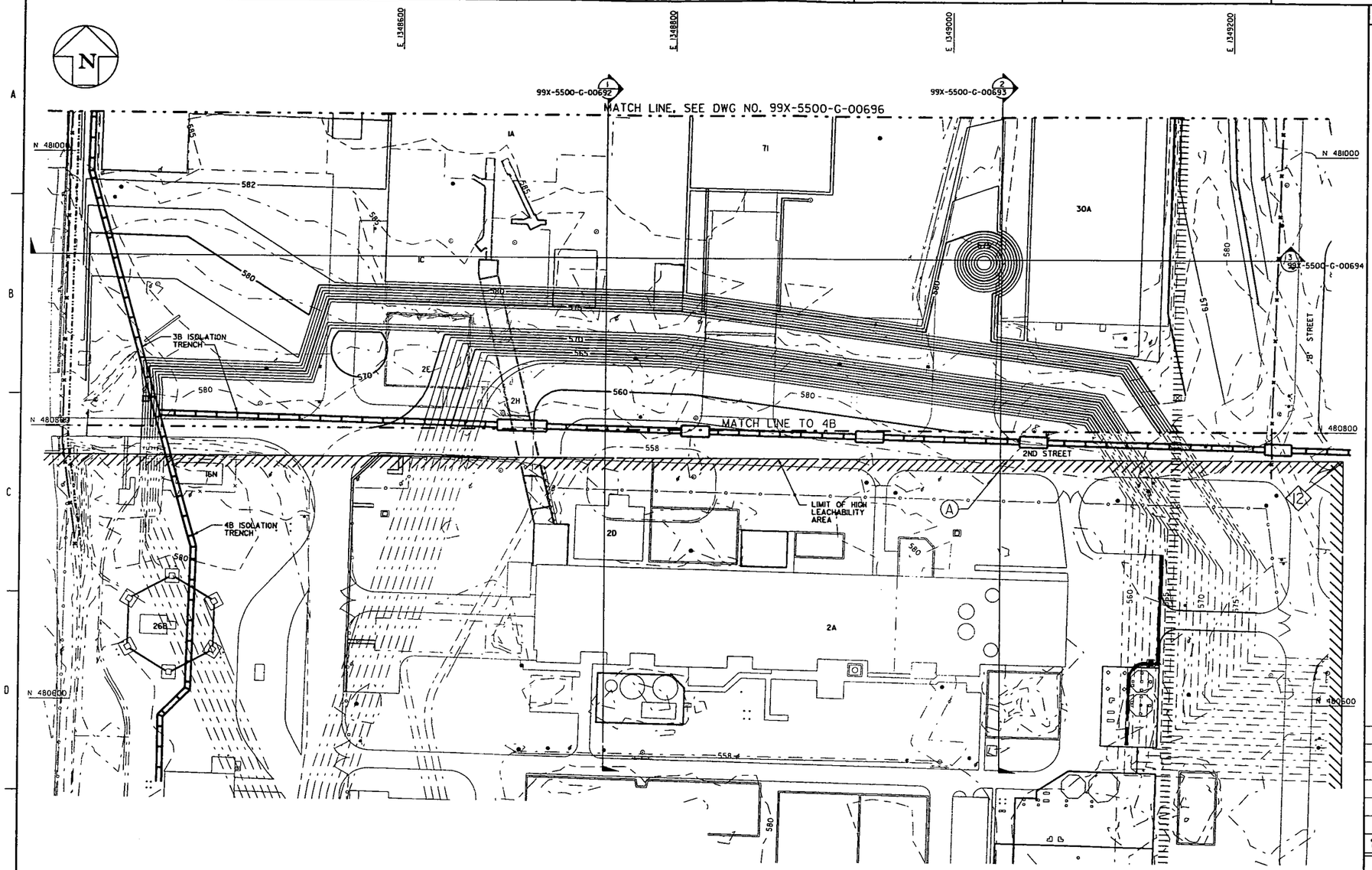
DRAWING TITLE
AREA 3B
CONTAMINATION GRADING PLAN (CENTRAL)

000215

APPROVALS

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

DRAWN BY	PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
DRF	20810	99X-5500-G-00696	G-53	C
RES PROJECT NO.	FILENAME 99XG00696.DGN			

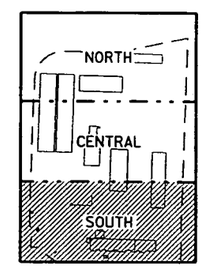


GENERAL NOTES

1. SEE DRAWING 99X-5500-X-00639 FOR LEGEND AND GENERAL NOTES.
2. GRID NUMBERS REFER TO THE UNDERGROUND UTILITIES GRID DRAWINGS AS SHOWN IN UTILITY GRID REFERENCE DRAWING INDEX ON DRAWING 99X-5500-X-00642.
3. THIS DRAWING SHOWS THE APPROXIMATE DEPTH OF EXCAVATION TO REMOVE URANIUM CONTAMINATION ABOVE FRLS.
4. COMPLETE ABOVE-WAC AREA EXCAVATION IN ACCORDANCE WITH DRAWING 99X-5500-G-00677 AND SPECIFICATION SECTION 02205 PRIOR TO PERFORMING ADJACENT GENERAL AREA EXCAVATION.
5. COMPLETE HWMU AREA EXCAVATION IN ACCORDANCE WITH DRAWING 99X-5500-G-00678 AND SPECIFICATION SECTION 02205 PRIOR TO PERFORMING ADJACENT GENERAL AREA EXCAVATION.
6. BUILDING NUMBERS REFER TO FORMER LOCATIONS OF BUILDINGS OR PADS
7. PERFORM EXCAVATION FOR CONTAMINATION TO THE GRADES SHOWN IN ACCORDANCE WITH SPECIFICATION SECTION 02205.
8. PERFORM ADDITIONAL EXCAVATION TO THE DESIGN GRADES SHOWN ON DRAWING 99X-5500-G-00689 IN ACCORDANCE WITH SPECIFICATION SECTION 02205.
9. FOR PURPOSES OF READABILITY, PLANT 1 PAD HWMU #20 IS NOT PATTERNED PER THE LEGEND. SEE DRAWING 99X-5500-G-00711 FOR HWMU BOUNDING.

4831

HIGH LEACHABILITY AREA COORDINATE POINTS		
PT NO.	NORTHING	EASTING
12	479529.38	1349281.00



NORTH

AREA 3B KEY PLAN
SCALE: NONE

30 0 30 60
SCALE: 1"=30'

PRELIMINARY
NOT FOR CONSTRUCTION

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	DATE	REV. BY	APPR.
C	RE-ISSUED FOR AGENCY REVIEW	3/31/03	KLR	
B	ISSUED FOR AGENCY REVIEW	9/30/02	KLR	
A	ISSUED FOR 90% DESIGN REVIEW	8/30/02	DRF	

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
FLUOR FERNALD, INC.

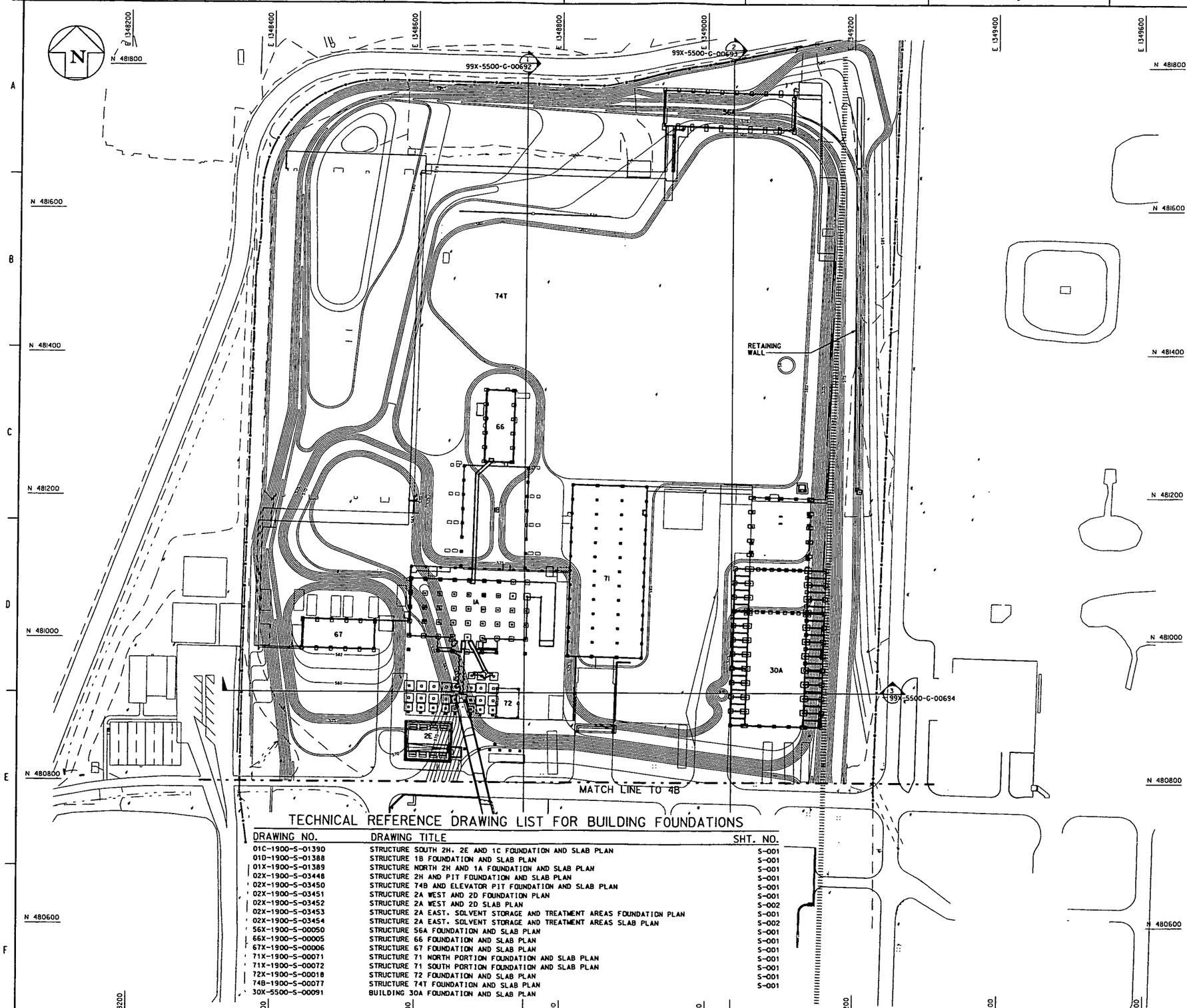
PROJECT NAME
SOIL REMEDIATION

DRAWING TITLE
AREA 3B 000216
CONTAMINATION GRADING PLAN (SOUTH)

APPROVALS

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

DRAWN BY	PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
DRF	2080	99X-5500-G-00697	G-54	C
RES PROJECT NO.	FILENAME 99XG00697.DGN			



TECHNICAL REFERENCE DRAWING LIST FOR BUILDING FOUNDATIONS

DRAWING NO.	DRAWING TITLE	SHT. NO.
01C-1900-S-01390	STRUCTURE SOUTH 2H, 2E AND 1C FOUNDATION AND SLAB PLAN	S-001
01D-1900-S-01388	STRUCTURE 1B FOUNDATION AND SLAB PLAN	S-001
01X-1900-S-01389	STRUCTURE NORTH 2H AND 1A FOUNDATION AND SLAB PLAN	S-001
02X-1900-S-03448	STRUCTURE 2H AND PIT FOUNDATION AND SLAB PLAN	S-001
02X-1900-S-03450	STRUCTURE 74B AND ELEVATOR PIT FOUNDATION AND SLAB PLAN	S-001
02X-1900-S-03451	STRUCTURE 2A WEST AND 2D FOUNDATION PLAN	S-001
02X-1900-S-03452	STRUCTURE 2A WEST AND 2D SLAB PLAN	S-002
02X-1900-S-03453	STRUCTURE 2A EAST, SOLVENT STORAGE AND TREATMENT AREAS FOUNDATION PLAN	S-001
02X-1900-S-03454	STRUCTURE 2A EAST, SOLVENT STORAGE AND TREATMENT AREAS SLAB PLAN	S-002
56X-1900-S-00050	STRUCTURE 56A FOUNDATION AND SLAB PLAN	S-001
66X-1900-S-00005	STRUCTURE 66 FOUNDATION AND SLAB PLAN	S-001
67X-1900-S-00006	STRUCTURE 67 FOUNDATION AND SLAB PLAN	S-001
71X-1900-S-00071	STRUCTURE 71 NORTH PORTION FOUNDATION AND SLAB PLAN	S-001
71X-1900-S-00072	STRUCTURE 71 SOUTH PORTION FOUNDATION AND SLAB PLAN	S-001
72X-1900-S-00018	STRUCTURE 72 FOUNDATION AND SLAB PLAN	S-001
74B-1900-S-00077	STRUCTURE 74T FOUNDATION AND SLAB PLAN	S-001
30X-5500-S-00091	BUILDING 30A FOUNDATION AND SLAB PLAN	

GENERAL NOTES

1. SEE DRAWING 99X-5500-X-00639 FOR LEGEND AND GENERAL NOTES.
2. BUILDING NUMBERS REFER TO FORMER LOCATIONS OF BUILDINGS OR PADS.
3. FOR FOUNDATION/SLAB DETAILS, SEE TECHNICAL REFERENCE DRAWINGS LISTED.

4831

KEYED NOTES

PRELIMINARY
NOT FOR CONSTRUCTION

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	DATE	REV. BY	APPR.
C	RE-ISSUED FOR AGENCY REVIEW	3/31/03	KLR	
B	ISSUED FOR AGENCY REVIEW	9/30/02	KLR	
A	ISSUED FOR 90% DESIGN REVIEW	8/30/02	KLR	

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
FLUOR FERNALD, INC.

PROJECT NAME
SOIL REMEDIATION

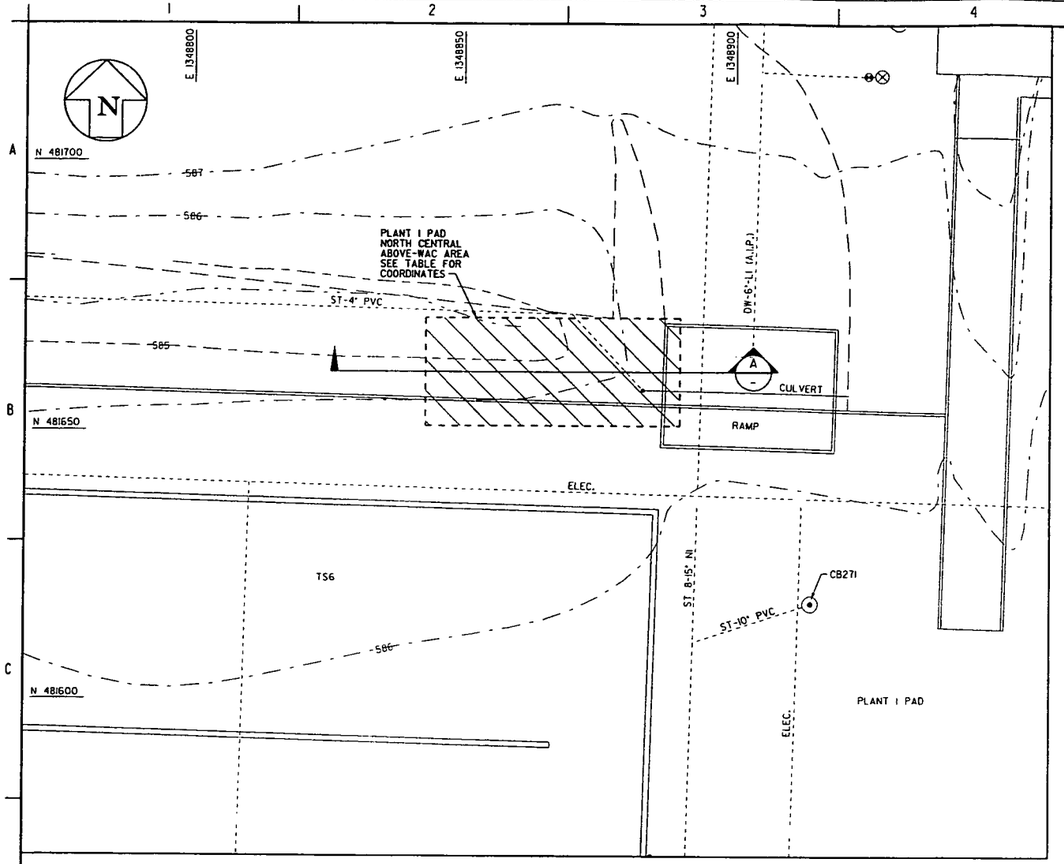
DRAWING TITLE
AREA 3B
FOUNDATION PLAN

000217

APPROVALS

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

DRAWN BY	PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
KLR	2080	99X-5500-G-00698	G-55	C
RES PROJECT NO.	FILENAME 99XG00698.DGN			



SAMPLE ABOVE-WAC AREA EXCAVATION PLAN
PLANT I PAD NORTH CENTRAL

10 0 10 20
SCALE: 1"=10'

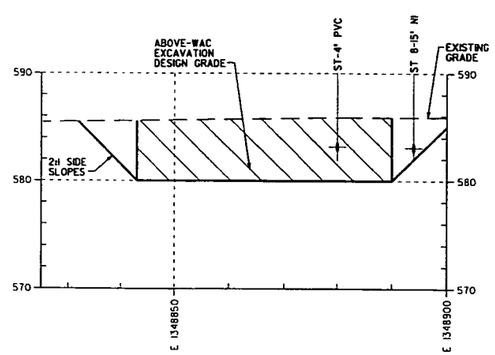
AREA 3B ABOVE-WAC AREAS					
ID	IDENTIFIER	COC(S)	NORTHING	EASTING	ELEVATION (MSL)
1	PLANT I PAD NORTHWEST ABOVE-WAC AREA	U	481674	1348714	585
			481674	1348722	585
			481666	1348722	585
			481666	1348714	585
2	PLANT I PAD NORTH CENTRAL ABOVE-WAC AREA	U	481671	1348843	580
			481671	1348883	580
			481651	1348883	580
			481651	1348843	580
3	PLANT I PAD TS-4 ABOVE-WAC AREA	TC-99	481373	1348450	582
			481373	1348460	582
			481363	1348460	582
			481363	1348450	582
4	PLANT I PAD SOUTHWEST ABOVE-WAC AREA	U & TC-99	481213	1348404	581.5
			481213	1348414	581.5
			481192	1348414	581.5
			481192	1348404	581.5

AREA 3B ABOVE-WAC EXCAVATIONS

GENERAL NOTES

1. SEE DRAWING 99X-5500-X-00639 FOR LEGEND AND GENERAL NOTES.
2. THIS DRAWING PROVIDES EXCAVATION DETAIL AND LIMITS FOR KNOWN ABOVE-WAC AREAS IN AREA 3B. ABOVE-WAC AREAS ARE BOUNDED AS STRAIGHT WALL EXCAVATIONS USING COORDINATES AND BOTTOM ELEVATIONS PROVIDED.
3. SEE AREA 3B LAYOUT PLAN DRAWING 99X-5500-G-00685 FOR GENERAL LOCATIONS OF ABOVE-WAC AREAS.
4. EXCAVATE ABOVE-WAC AREAS AS SHOWN ON THIS DRAWING AND IN ACCORDANCE WITH SPECIFICATION SECTION 02205. CONSTRUCTION MANAGER WILL VERIFY THE LIMITS OF ABOVE-WAC MATERIAL IN THE FIELD. ADDITIONAL EXCAVATION MAY BE REQUIRED.
5. LOAD TRUCKS IN BUFFER ZONE OUTSIDE OF ABOVE-WAC AREA IN ACCORDANCE WITH TECHNICAL SPECIFICATION SECTION 02205.
6. SURVEY LIMITS AND ELEVATION OF EACH EXCAVATED LIFT IN ABOVE-WAC EXCAVATIONS.
7. MAINTAIN POSITIVE DRAINAGE WITHIN THE ABOVE-WAC EXCAVATIONS TO COLLECT WATER. IF VOCS ARE PRESENT WATER WILL BE SAMPLED AND ANALYZE TO DETERMINE DISPOSITION.
8. SURVEY FINAL EXCAVATION LIMITS. ARRANGE FOR SAMPLING AND/OR REAL-TIME MONITORING AT BOTTOM OF ABOVE-WAC EXCAVATIONS.

4831



SECTION A
SCALE: 1"=10' HORZ
1"=5' VERT

1. ESTABLISH EXCAVATION BOUNDARY AND BUFFER AREA CONTROLS IN ACCORDANCE WITH SPECIFICATION SECTION 02205.
2. REMOVE AT-GRADE DEBRIS FROM ABOVE-WAC AREAS AND CLEAN OF VISIBLE SOIL/GRAVEL WITHIN THE EXCAVATION AREAS.
3. HAUL CLEAN DEBRIS TO THE OSDF. DISPOSE OF DEBRIS THAT IS NOT CLEANED WITH UNDERLYING SOIL.
4. EXCAVATE ABOVE-WAC AREAS IN 3-FT +/- 1-FOOT LIFTS TO THE COORDINATES AND ELEVATIONS SHOWN, LEAVING VERTICAL SIDEWALLS.
5. HAUL EXCAVATED ABOVE-WAC MATERIAL TO SP-7. DO NOT TRACK EQUIPMENT THROUGH ADJACENT ABOVE-WAC AREAS.
6. UPON COMPLETION OF EACH ABOVE-WAC EXCAVATION LIFT:
   A. DECONTAMINATE THE EXCAVATOR BUCKET WITHIN THE EXCAVATION AREA AS DIRECTED BY THE CONSTRUCTION MANAGER.
   B. EXCAVATE ABOVE-WAC AREA SIDE SLOPES TO 2H:1V AND TEMPORARILY STOCKPILE MATERIAL ADJACENT TO THE EXCAVATION.
   C. THE CONSTRUCTION MANAGER ARRANGES FOR REAL-TIME MONITORING AND/OR PHYSICAL SAMPLING OF ABOVE-WAC AREA SIDE SLOPES AND FOOTPRINT.
   D. THE CONSTRUCTION MANAGER DIRECTS DISPOSAL OF STOCKPILED SIDE SLOPE MATERIAL, AS WELL AS, FURTHER ABOVE-WAC EXCAVATION AS NECESSARY.
7. UPON REACHING THE DESIGN GRADE OF THE ABOVE-WAC EXCAVATION:
   A. DECONTAMINATE THE EXCAVATOR BUCKET WITHIN THE HAUL TRUCK BED AS DIRECTED BY THE CONSTRUCTION MANAGER.
   B. DECONTAMINATE THE HAUL TRUCK BED IN SP-7.
   C. EXCAVATE ABOVE-WAC AREA SIDE SLOPES TO 2H:1V AND TEMPORARILY STOCKPILE MATERIAL ADJACENT TO THE EXCAVATION.
   D. THE CONSTRUCTION MANAGER ARRANGES FOR REAL-TIME MONITORING AND/OR PHYSICAL SAMPLING OF ABOVE-WAC AREA SIDE SLOPES AND FOOTPRINT.
   E. THE CONSTRUCTION MANAGER DIRECTS DISPOSAL OF STOCKPILED SIDE SLOPE MATERIAL, AS WELL AS, FURTHER ABOVE-WAC EXCAVATION AS NECESSARY.

ABOVE-WAC AREA EXCAVATION SEQUENCE AND REQUIREMENTS

PRELIMINARY
NOT FOR CONSTRUCTION

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	DATE	REV. BY	APPR.
B	RE-ISSUED FOR AGENCY REVIEW	3/31/03	KLR	
A	ISSUED FOR AGENCY REVIEW	9/30/02	DRF	

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
FLUOR FERNALD, INC.

PROJECT NAME
SOIL REMEDIATION

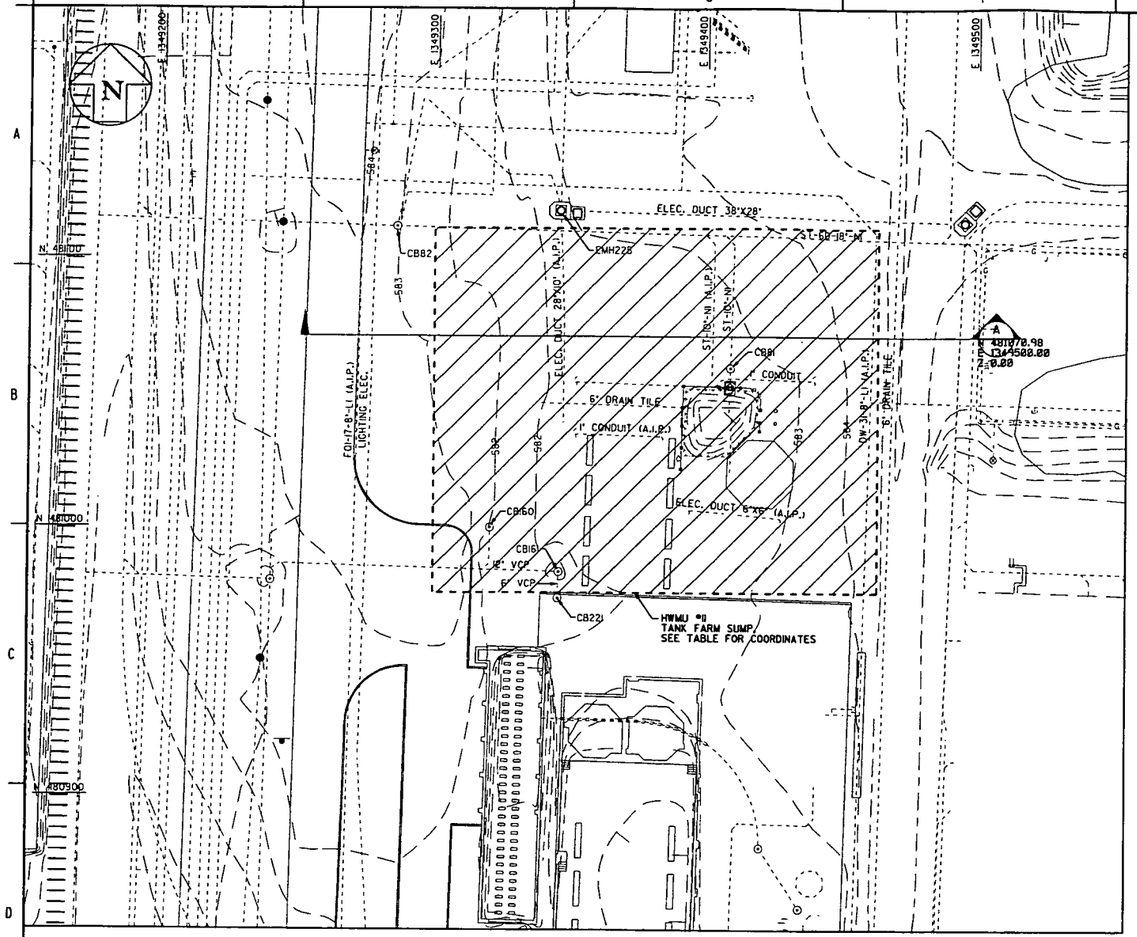
DRAWING TITLE
AREA 3B
ABOVE-WAC EXCAVATION DETAILS AND LIMITS

000218

APPROVALS

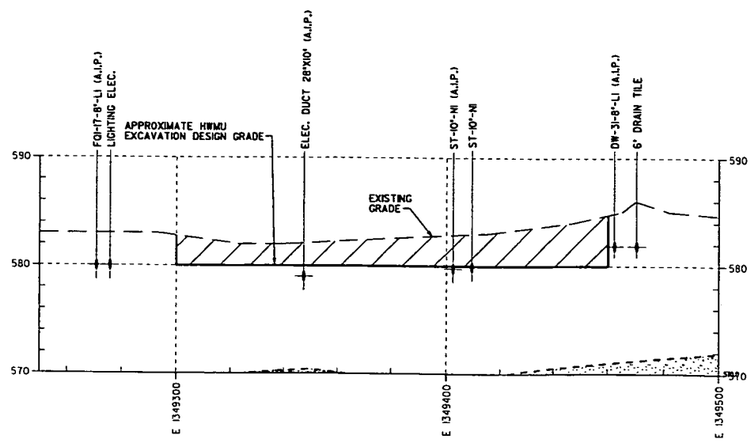
COGNIZANT ENG.		SAFETY ENG.	
CIVIL & STR.		MAINTENANCE	
ELECTRICAL		FIRE PROTECT.	
ENGINEER		WASTE MANAGE	
INSTRUMENT		SECURITY	
MECHANICAL		QA	
		CONSTRUCTION	
CHECKED			
APPROVED			

DRAWN BY	PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
DRF	20810	99X-5500-G-00700	G-56	B
RES PROJECT NO.	FILENAME 99X5500700G.DGN			



SAMPLE HWMU EXCAVATION PLAN
HWMU #11 TANK FARM SUMP

20 0 20 40
SCALE: 1"=20'



SECTION A
SCALE: 1"=20' HORZ
1"=5' VERT

AREA 3B HAZARDOUS WASTE MANAGEMENT UNITS					
HWMU	IDENTIFIER	COC(S)	NORTHING	EASTING	ELEVATION
20	PLANT 1 STORAGE AREA	SEE NOTE 3	480873	1348980	SEE NOTE 3
			480876	1348820	
			480886	1348820	
			480887	1348762	
			481089	1348762	
			481090	1348593	
			481023	1348592	
			481028	1348446	
			480984	1348446	
			480987	1348382	
			481668	1348400	
			481653	1348951	
			481716	1348954	
			481711	1349118	
			481762	1349120	
			481762	1349154	
			481647	1349152	
			481198	1349162	
			481201	1349020	
			481037	1349016	

MAIN DRAINAGE CORRIDOR HAZARDOUS WASTE MANAGEMENT UNITS					
HWMU	IDENTIFIER	COC(S)	NORTHING	EASTING	ELEVATION
11	TANK FARM SUMP	SEE NOTE 3	480976	1349464	SEE NOTE 3
			480976	1349299	
			48011	1349299	
			48011	1349464	

AREA 3B AND MDC
HAZARDOUS WASTE MANAGEMENT UNITS

A. ESTABLISH HWMU BOUNDARY AND BUFFER AREA CONTROLS IN ACCORDANCE WITH THIS DRAWING AND SPECIFICATION SECTION 02205.

B. REMOVE DEBRIS (CONCRETE, ASPHALT AND MISCELLANEOUS STRUCTURES) AND HAUL TO THE OSDF AS A DISCRETE WASTE STREAM. IF THE HWMU IS CONSIDERED AN ABOVE-WAC AREA, LOAD AND HAUL THE DEBRIS TO SP-7, OR CONTAINERIZE IT AS DIRECTED BY THE CONSTRUCTION MANAGER.

C. EXCAVATE HWMU SOIL/GRAVEL IN 3-FT +/- 1-FOOT LIFTS TO THE HWMU DESIGN GRADE WHILE MAINTAINING SAFE SLOPES IN ACCORDANCE WITH SPECIFICATION SECTION 02205. LOAD AND HAUL HWMU SOIL/GRAVEL TO THE OSDF AS A DISCRETE WASTE STREAM. IF THE HWMU IS CONSIDERED AN ABOVE-WAC AREA, LOAD AND HAUL THE SOIL/GRAVEL TO SP-7, OR CONTAINERIZE IT AS DIRECTED BY THE CONSTRUCTION MANAGER.

D. ARRANGE FOR PHYSICAL SAMPLING ON EXCAVATED SIDE SLOPES AFTER EACH LIFT IS REMOVED AND ON THE EXCAVATION FLOOR UPON ACHIEVING THE HWMU DESIGN GRADE. ALLOW 10 WORKING DAYS FOR SAMPLING AND ANALYSIS REQUIRED FOR CLOSURE OF THE HWMU. DO NOT PROCEED WITH FURTHER EXCAVATION IN THE AREA UNTIL DIRECTED BY THE CONSTRUCTION MANAGER.

E. PENDING ANALYSIS OF SAMPLING RESULTS, PERFORM SUPPLEMENTAL HWMU EXCAVATION BEYOND THE HWMU DESIGN GRADE AS DIRECTED BY THE CONSTRUCTION MANAGER.

F. UPON CONFIRMATION FROM THE CONSTRUCTION MANAGER THAT THE HWMU EXCAVATION IS COMPLETE, REMOVE HWMU BOUNDARY FENCE, LOAD AND HAUL BUFFER AREA HERCULITE AS HWMU DEBRIS.

HWMU EXCAVATION
SEQUENCE AND REQUIREMENTS

GENERAL NOTES

1. SEE DRAWING 99X-5500-X-00639 FOR LEGEND AND GENERAL NOTES.
2. THIS DRAWING PROVIDES EXCAVATION DETAIL AND LIMITS FOR EXCAVATION OF AREA 4B HWMU'S. HWMU BOUNDING COORDINATES ARE PROVIDED TO ASSIST FIELD-LOCATION AND DEMARCATION OF HWMU BOUNDARIES LARGELY DEFINED BY LANDMARKS.
3. SEE AREA 3B LAYOUT PLAN DRAWING 99X-5500-G-00685 FOR GENERAL LOCATIONS OF HWMU'S.
4. HWMU EXCAVATION DEPTHS WILL BE DETERMINED IN THE FIELD BASED ON SAMPLE RESULTS OF COC'S.
5. EXCAVATE HWMU AREAS AS SHOWN ON THIS DRAWING AND IN ACCORDANCE WITH SPECIFICATION SECTION 02205. CONSTRUCTION MANAGER WILL VERIFY THE LIMITS OF THE HWMU IN THE FIELD. ADDITIONAL EXCAVATION MAY BE REQUIRED.
6. LOAD TRUCKS IN THE BUFFER ZONE OUTSIDE OF THE HWMU IN ACCORDANCE WITH TECHNICAL SPECIFICATION SECTION 02205.
7. SURVEY LIMITS AND ELEVATION OF EACH EXCAVATED LIFT IN HWMU AREAS.
8. MAINTAIN POSITIVE DRAINAGE WITHIN HWMU EXCAVATIONS TO COLLECT WATER. IF VOCS ARE PRESENT WATER WILL BE SAMPLED AND ANALYZE TO DETERMINE DISPOSITION.
9. SURVEY FINAL EXCAVATION LIMITS. ARRANGE FOR CONFIRMATORY SAMPLING OR MONITORING AT BOTTOM OF HWMU EXCAVATION.

4831

LEGEND

SAND/GRAVEL

PRELIMINARY
NOT FOR CONSTRUCTION

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	DATE	REV. BY	APPR.
B	RE-ISSUED FOR AGENCY REVIEW	3/31/03	KLR	
A	ISSUED FOR AGENCY REVIEW	9/30/02	DRF	

DETAILS AND DATE

UNITED STATES
DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
FLUOR FERNALD, INC.

PROJECT NAME
SOIL REMEDIATION

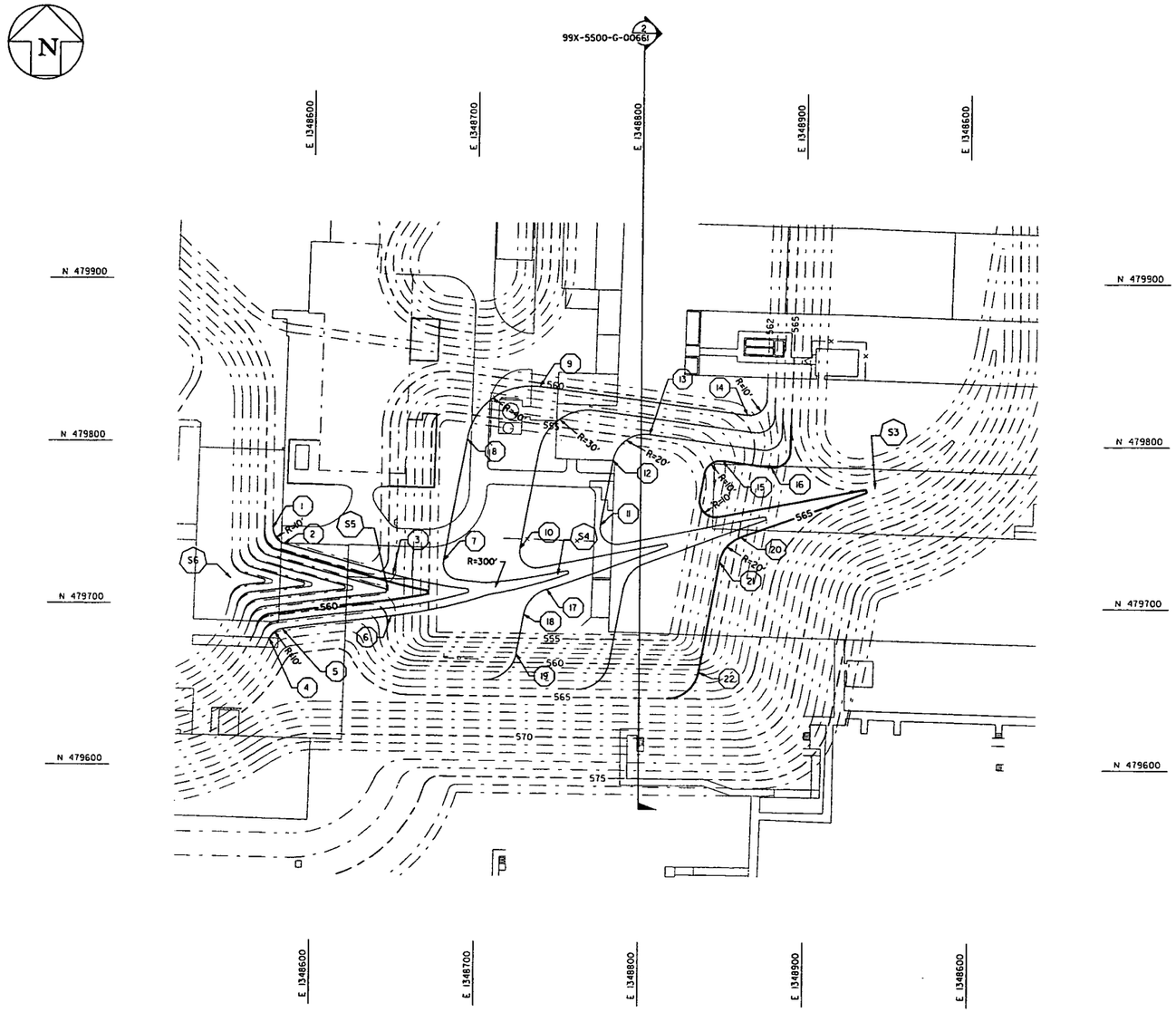
DRAWING TITLE
AREA 3B & MDC
HWMU EXCAVATION DETAILS AND LIMITS

000219

APPROVALS

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

DRAWN BY	PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
DRF	2080	99X-5500-G-00711	G-57	B
RES PROJECT NO.	FILENAME 99XG00711.DGN			



DESIGN GRADE CONTROL POINTS			
PT NO.	NORTHING	EASTING	ELEV.
1	479747.13	1348575.44	561.00
2	479737.42	1348582.76	561.00
3	479718.85	1348649.42	561.00
4	479678.88	1348573.80	562.00
5	479685.01	1348581.83	562.00
6	479693.27	1348648.56	562.00
7	479727.71	1348680.13	562.00
8	479802.74	1348693.90	562.00
9	479835.18	1348738.45	562.00
10	479735.25	1348727.27	563.00
11	479750.05	1348775.74	564.00
12	479790.00	1348783.07	564.00
13	479806.22	1348805.34	564.00
14	479818.47	1348865.65	562.00
15	479790.19	1348850.63	565.00
16	479786.36	1348879.78	565.00
17	479710.45	1348743.81	563.00
18	479694.94	1348730.00	563.00
19	479670.54	1348725.52	563.00
20	479743.14	1348861.95	565.00
21	479728.00	1348849.23	565.00
22	479659.70	1348836.69	565.00

DITCH CONTROL POINTS			
PT NO.	NORTHING	EASTING	ELEV.
S2	479849.61	1349001.64	564.83
S3	479770.10	1348930.18	564.02
S4	479719.32	1348750.11	560.03
S5	479708.69	1348646.63	558.36
S6	479715.88	1348549.96	555.17

30 0 30 60
SCALE: 1"=30'

GENERAL NOTES

1. SEE DRAWING 99X-5500-X-00639 FOR LEGEND AND GENERAL NOTES.
2. DESIGN CONTOURS AND GRADES SHOWN REPRESENT INTERIM GRADING REQUIRED AFTER REMEDIAL EXCAVATION AND PRECERTIFICATION SAMPLING HAVE BEEN COMPLETED WITHIN THE GENERAL LABORATORY AND UPGRADE AREAS.
3. FILL MATERIAL SHALL BE BELOW FINAL REMEDIATION LEVELS (FRLS) OR HIGH LEACHABILITY AREA (20mg/kg URANIUM).
4. PLACE GMA PLUG IN ACCORDANCE WITH SPECIFICATION SECTION 02206. BACKFILL THE REMAINING AREA IN 8 INCH LOOSE LIFTS WITH FOUR PASSES OF COMPACTION EQUIPMENT IN ACCORDANCE WITH SPECIFICATION SECTION 02206.
5. PLACE GMA PLUG TO ELEVATION 559.0 FEET.

4831

PRELIMINARY
NOT FOR CONSTRUCTION

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	DATE	REV. BY	APPR.
A	ISSUED FOR AGENCY REVIEW	3/31/03	RML	

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
FLUOR FERNALD, INC.

PROJECT NAME
SOIL REMEDIATION

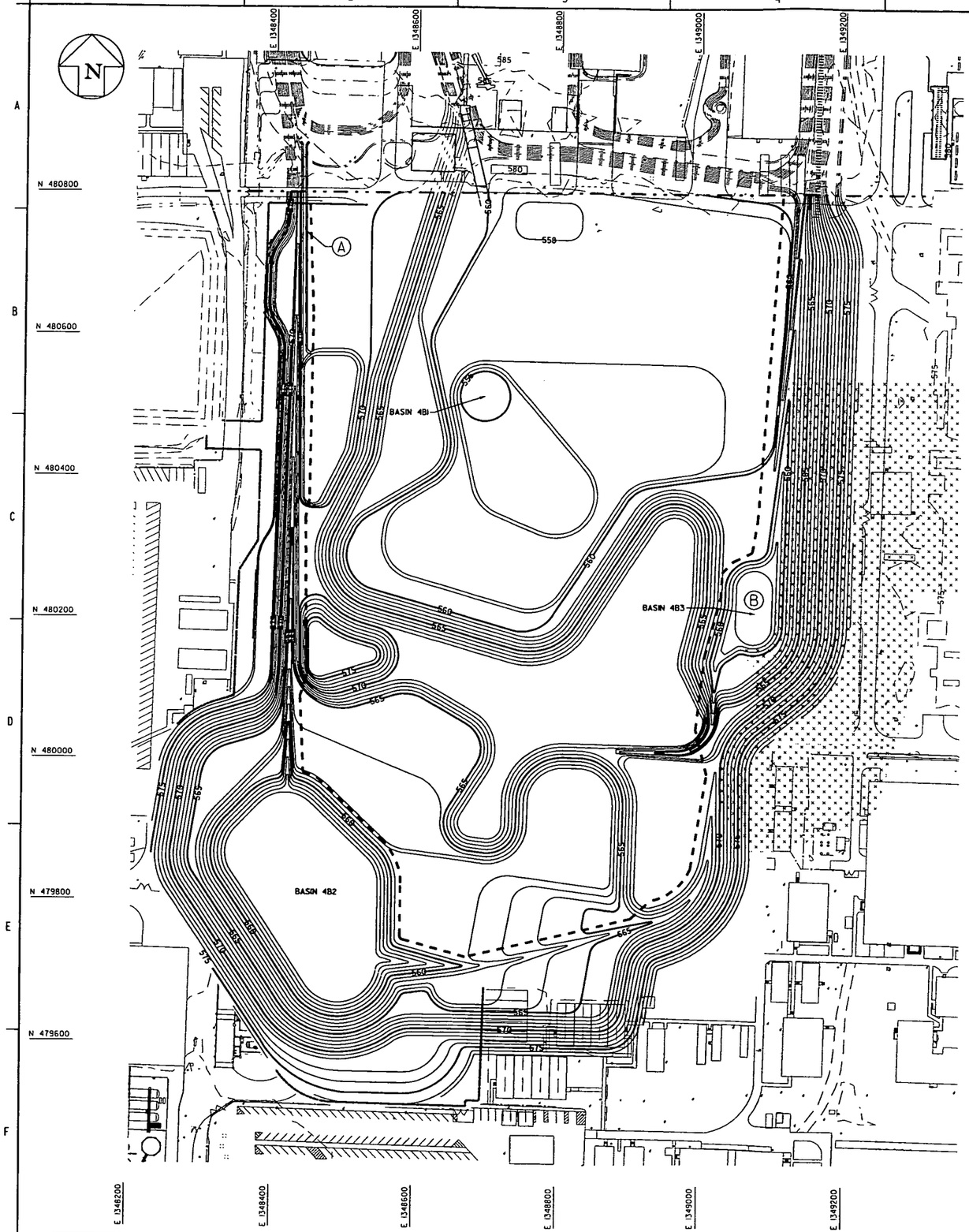
DRAWING TITLE
AREA 4B
INTERIM GRADING (SOUTH)

000220

APPROVALS

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

DRAWN BY	PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
RM LINDGREN	2080	99X-5500-G-00706	G-58	A
RES PROJECT NO.	FILENAME 99X00706.DGN			



SCALE: 1"=60'

GENERAL NOTES

1. SEE DRAWING 99X-5500-X-00639 FOR LEGEND AND GENERAL NOTES.
2. RUN ON FROM OUTSIDE PRECERTIFICATION AREA COLLECTED IN PERIMETER DITCHES AND DRAINED TO BASINS 4B2 AND 4B3 TO BE SENT TO THE SWRB FOR AWWT PHASE I TREATMENT.
3. SURFACE WATER COLLECTED WITHIN PRECERTIFIED AREA DRAINS TO BASIN 4B1.
4. SEE DRAWING 99X-5500-G-00701 FOR AREA 3B PRECERTIFICATION CONFIGURATION.
5. AREA 3B PRECERTIFICATION MUST OCCUR BEFORE OR AT THE SAME TIME AS AREA 4B PRECERTIFICATION, DUE TO RUNON COLLECTED IN BASIN 4B1.

4831

KEYED NOTES

(A) CONSTRUCT BERM TO PREVENT RUN ON INTO CERTIFIED AREA.

(B) PROVIDE TEMPORARY PUMP TO LIFT WATER COLLECTED IN BASIN 4B3 TO MH23 UNTIL THE MDC 1ST STREET CORRIDOR IS EXCAVATED.

LEGEND

- - - PROPOSED PRECERTIFICATION AREA

PRELIMINARY
NOT FOR CONSTRUCTION

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	DATE	REV. BY	APPR.
B	RE-ISSUED FOR AGENCY REVIEW	3/31/03	KLR	
A	ISSUED FOR AGENCY REVIEW	9/30/02	KLR	

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
FLUOR FERNALD, INC.

PROJECT NAME
SOIL REMEDIATION

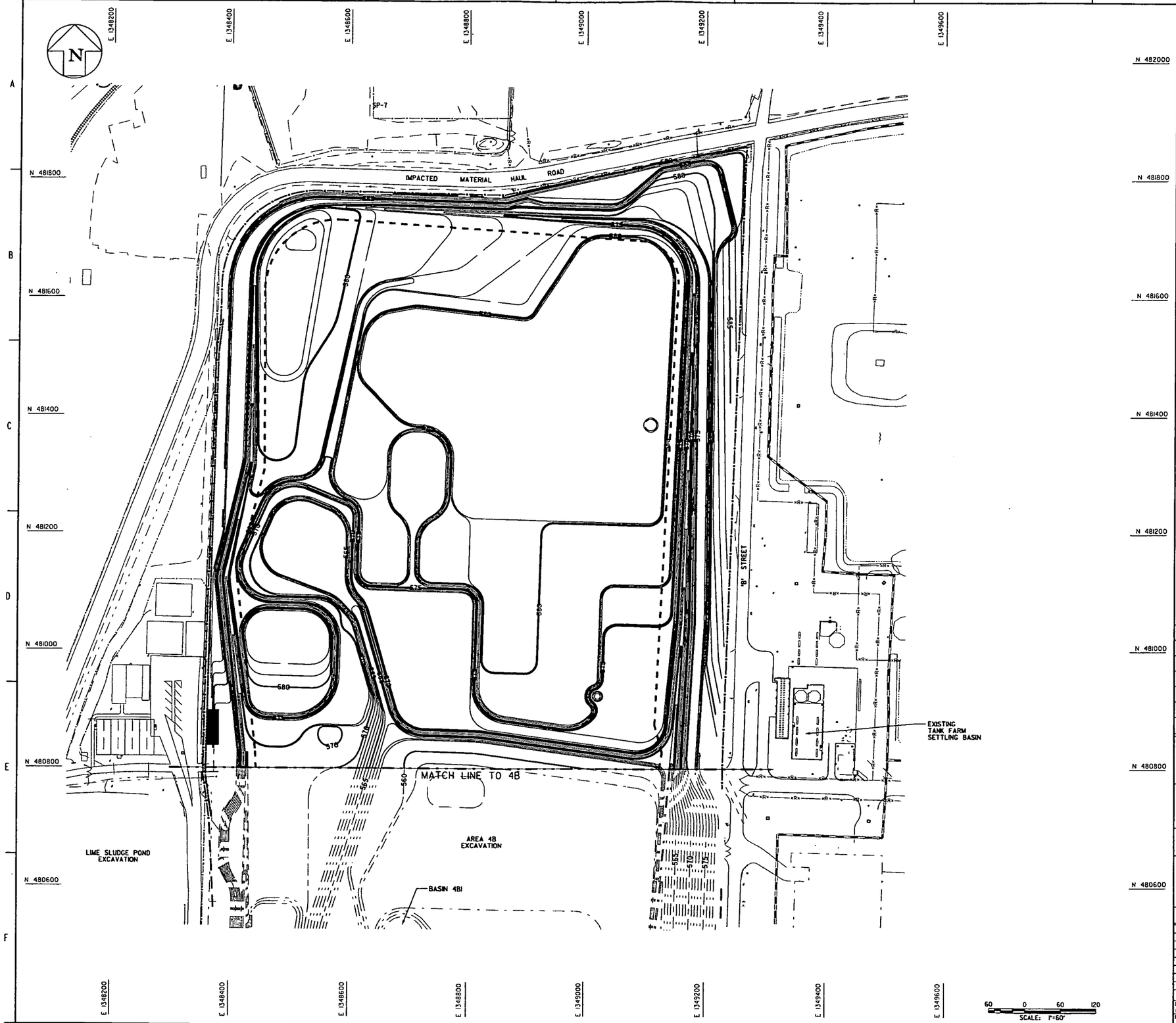
DRAWING TITLE
AREA 4B
PRECERTIFICATION CONFIGURATION

000221

APPROVALS

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

DRAWN BY	PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
KLR	20810	99X-5500-G-00679	G-59	B
RES PROJECT NO.	FILENAME 99XG00679.DGN			



GENERAL NOTES

1. SEE DRAWING 99X-5500-X-00639 FOR LEGEND AND GENERAL NOTES.
2. RUN ON FROM OUTSIDE PRECERTIFICATION AREA COLLECTED IN PERIMETER DITCHES AND DRAINED TO BASINS 4B2 AND 4B3 (NOT SHOWN) TO BE SENT TO THE SWRB FOR AWWT PHASE I TREATMENT.
3. SURFACE WATER COLLECTED WITHIN PRECERTIFIED AREA DRAINS TO BASIN 4B1.
4. SEE DRAWING 99X-5500-G-00679 FOR AREA 4B PRECERTIFICATION CONFIGURATION.

4831

LEGEND

- - - PROPOSED PRECERTIFICATION AREA

PRELIMINARY
NOT FOR CONSTRUCTION

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	DATE	REV. BY	APPR.
B	RE-ISSUED FOR AGENCY REVIEW	3/3/03	KLR	
A	ISSUED FOR AGENCY REVIEW	9/30/02	DRF	

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
FLUOR FERNALD, INC.

PROJECT NAME
SOIL REMEDIATION

DRAWING TITLE
AREA 3B
PRECERTIFICATION CONFIGURATION

000222

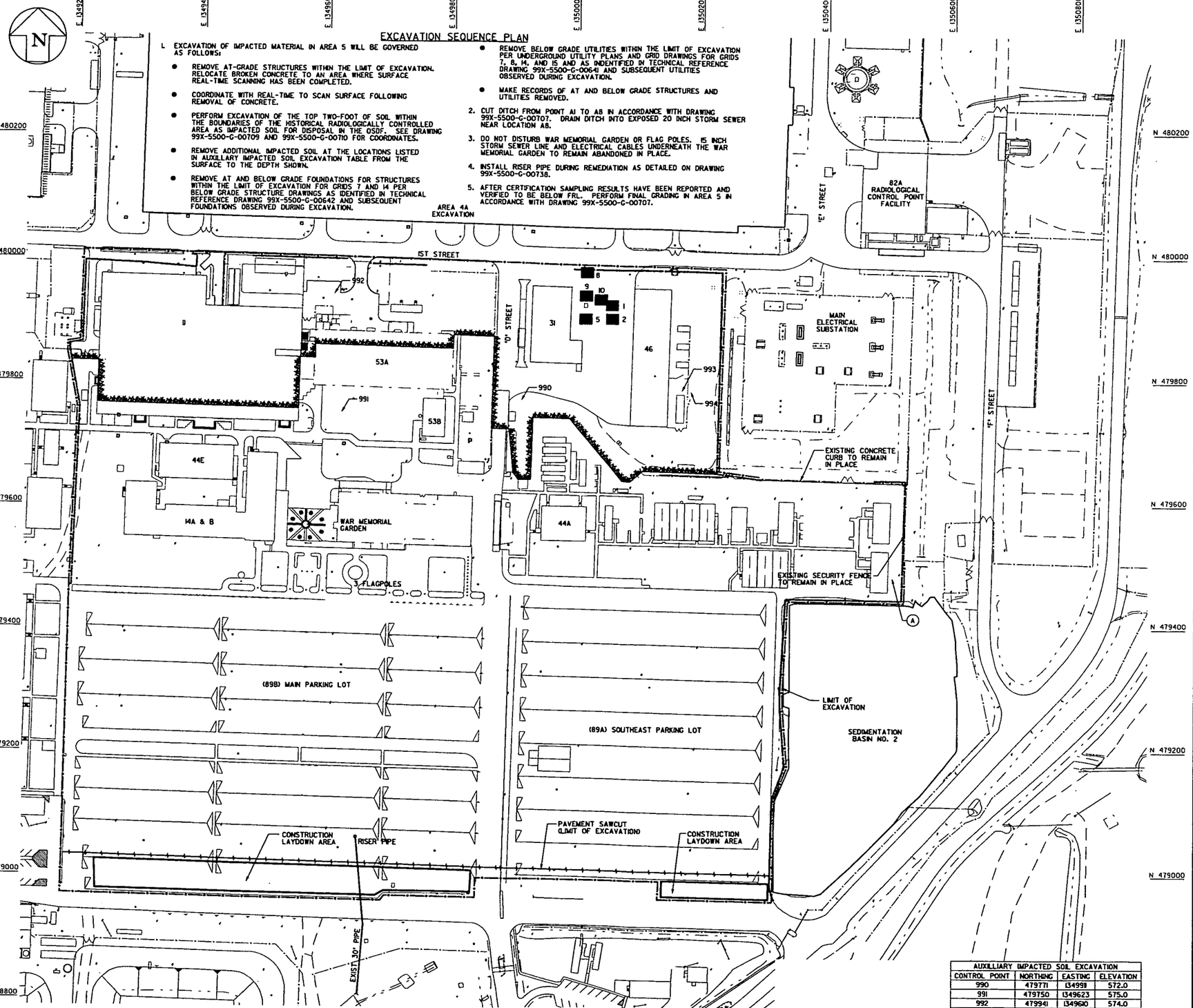
APPROVALS

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

DRAWN BY	PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
DRF	20810	99X-5500-G-00701	G-60	B
RES PROJECT NO.	FILENAME 99XGOOTOLDGN			

EXCAVATION SEQUENCE PLAN

1. EXCAVATION OF IMPACTED MATERIAL IN AREA 5 WILL BE GOVERNED AS FOLLOWS:
   - REMOVE AT-GRADE STRUCTURES WITHIN THE LIMIT OF EXCAVATION. RELOCATE BROKEN CONCRETE TO AN AREA WHERE SURFACE REAL-TIME SCANNING HAS BEEN COMPLETED.
   - COORDINATE WITH REAL-TIME TO SCAN SURFACE FOLLOWING REMOVAL OF CONCRETE.
   - PERFORM EXCAVATION OF THE TOP TWO-FOOT OF SOIL WITHIN THE BOUNDARIES OF THE HISTORICAL RADIOLOGICALLY CONTROLLED AREA AS IMPACTED SOIL FOR DISPOSAL IN THE OSDF. SEE DRAWING 99X-5500-G-00709 AND 99X-5500-G-00710 FOR COORDINATES.
   - REMOVE ADDITIONAL IMPACTED SOIL AT THE LOCATIONS LISTED IN AUXILLARY IMPACTED SOIL EXCAVATION TABLE FROM THE SURFACE TO THE DEPTH SHOWN.
   - REMOVE AT AND BELOW GRADE FOUNDATIONS FOR STRUCTURES WITHIN THE LIMIT OF EXCAVATION FOR GRIDS 7 AND 14 PER BELOW GRADE STRUCTURE DRAWINGS AS IDENTIFIED IN TECHNICAL REFERENCE DRAWING 99X-5500-G-00642 AND SUBSEQUENT FOUNDATIONS OBSERVED DURING EXCAVATION.
   - REMOVE BELOW GRADE UTILITIES WITHIN THE LIMIT OF EXCAVATION PER UNDERGROUND UTILITY PLANS AND GRID DRAWINGS FOR GRIDS 7, 8, 14, AND 15 AND AS INDENTIFIED IN TECHNICAL REFERENCE DRAWING 99X-5500-G-00641 AND SUBSEQUENT UTILITIES OBSERVED DURING EXCAVATION.
   - MAKE RECORDS OF AT AND BELOW GRADE STRUCTURES AND UTILITIES REMOVED.
2. CUT DITCH FROM POINT A1 TO A8 IN ACCORDANCE WITH DRAWING 99X-5500-G-00707. DRAIN DITCH INTO EXPOSED 20 INCH STORM SEWER NEAR LOCATION A8.
3. DO NOT DISTURB WAR MEMORIAL GARDEN OR FLAG POLES. 15 INCH STORM SEWER LINE AND ELECTRICAL CABLES UNDERNEATH THE WAR MEMORIAL GARDEN TO REMAIN ABANDONED IN PLACE.
4. INSTALL RISER PIPE DURING REMEDIATION AS DETAILED ON DRAWING 99X-5500-G-00738.
5. AFTER CERTIFICATION SAMPLING RESULTS HAVE BEEN REPORTED AND VERIFIED TO BE BELOW FRL. PERFORM FINAL GRADING IN AREA 5 IN ACCORDANCE WITH DRAWING 99X-5500-G-00707.



AUXILLIARY IMPACTED SOIL EXCAVATION			
CONTROL POINT	NORTHING	EASTING	ELEVATION
990	479771	1349591	572.0
991	479750	1349623	575.0
992	479941	1349610	574.0
993	479786.3	1350167.9	573.0
994	479784.7	1350182.5	573.0

GENERAL NOTES

1. SEE DRAWING 99X-5500-X-00639 FOR LEGEND AND GENERAL NOTES.
2. EXISTING FENCE WITHIN PROJECT AREA TO BE REMOVED AFTER PERIMETER FENCE IS INSTALLED. FENCE REMOVAL SEQUENCE SHALL BE DETERMINED IN THE FIELD.
3. SUPPORT FACILITIES SHALL BE FIELD LOCATED.
4. THE SMTA SHALL BE FIELD LOCATED IN ACCORDANCE WITH SPECIFICATION SECTION 02205 AND DRAWING 99X-5500-G-00738.

4831

KEYED NOTES

(A) REMOVE AT AND BELOW GRADE FOUNDATIONS OF HISTORICAL GUARD TOWER.

LEGEND

- SILT FENCE
- CONSTRUCTION FENCE
- 10 FORMER UST FOOTPRINT WITH CORRESPONDING UST NUMBER
- SILT FENCE
- CONSTRUCTION FENCE
- SOUTHERN BOUNDARY OF HISTORICAL RADIOLOGICAL CONTROLLED AREA

PRELIMINARY
NOT FOR CONSTRUCTION

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	DATE	REV. BY	APPR.
D	RE-ISSUED FOR AGENCY REVIEW	3/31/03	KLR	
C	ISSUED FOR AGENCY REVIEW	9/30/02	KLR	
B	ISSUED FOR 90% DESIGN REVIEW	8/30/02	DRF	
A	ISSUED FOR 30% DESIGN REVIEW	5/22/02	DRF	

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
FLUOR FERNALD, INC.

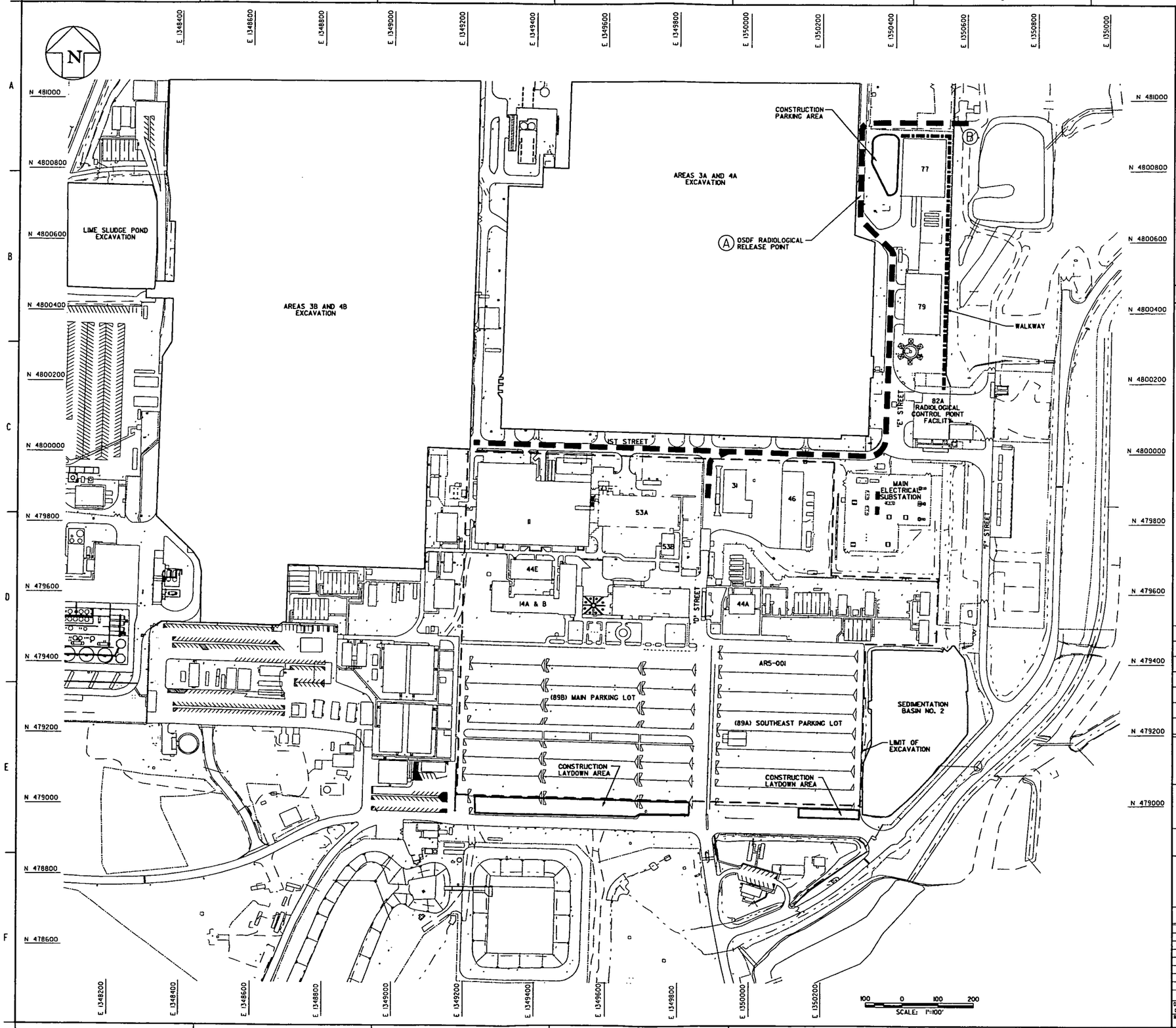
PROJECT NAME
SOIL REMEDIATION

DRAWING TITLE
AREA 5 000223
LAYOUT AND REMEDIATION PLAN

APPROVALS

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

DRAWN BY	PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
DRF	20810	99X-5500-G-00702	G-61	D
RES PROJECT NO.	FILENAME 99XG00702.DGN			



GENERAL NOTES

1. SEE DRAWING 99X-5500-X-00639 FOR LEGEND AND GENERAL NOTES.
2. TRAFFIC CONTROL SHALL BE IN ACCORDANCE WITH SPECIFICATION 02150.
3. SUPPORT FACILITIES AND SMTA SHALL BE FIELD LOCATED.
4. PORTIONS OF IST, "D" AND "E" STREETS ARE PROPOSED HAUL ROUTES AS SHOWN. CHANGES IN TRAFFIC ROUTING SHALL BE AS DIRECTED BY THE CONSTRUCTION MANAGER AS FIELD ACTIVITIES PROGRESS.

4831

KEYED NOTES

(A) TO BE USED ONLY WHEN EXCAVATING AREA 5 AS A RADIOLOGICALLY UNCONTROLLED AREA.

(B) USE SOUTH ACCESS TO OSDF AFTER CONSTRUCTION OF CELL CAP 4 BEGINS. (SOUTH ACCESS TO BE DESIGNED AND CONSTRUCTED BY OSDF PROJECT.)

PRELIMINARY
NOT FOR CONSTRUCTION

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	DATE	REV. BY	APPR.
D	RE-ISSUED FOR AGENCY REVIEW	3/31/03	KLR	
C	ISSUED FOR AGENCY REVIEW	9/30/02	KLR	
B	ISSUED FOR 90% DESIGN REVIEW	8/30/02	KLR	
A	ISSUED FOR 30% DESIGN REVIEW	5/22/02	DRF	

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
FLUOR FERNALD, INC.

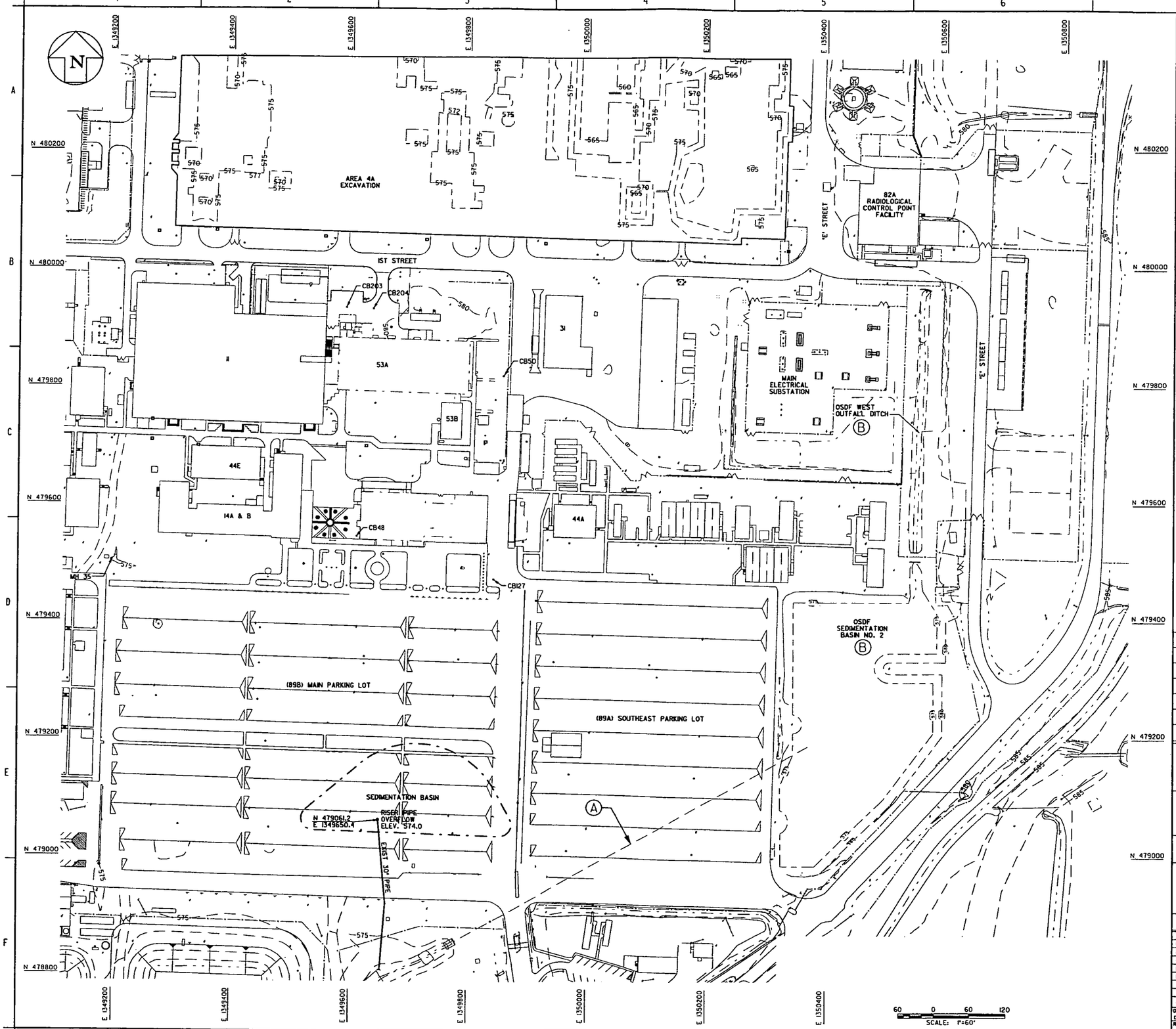
PROJECT NAME
SOIL REMEDIATION

DRAWING TITLE
AREA 5 000224
TRAFFIC FLOW AND MATERIAL TRACKING PLAN

APPROVALS

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

DRAWN BY	PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
DRF	20840	99X-5500-G-00703	G-62	D
RES PROJECT NO.	FILENAME 99XG00703.DGN			



GENERAL NOTES

1. SEE DRAWING 99X-5500-X-00639 FOR LEGEND AND GENERAL NOTES.
2. DEWATER EXCAVATIONS BY PUMPING FROM REMOTE AREAS TO DRAINAGE TRENCHES SHOWN. GRADE DRAINAGE TRENCHES TO EXCAVATION SUMPS AS SHOWN.

4831

KEYED NOTES

(A) EXISTING 44 IN. STORM SEWER TO REMAIN IN PLACE.

(B) OSDF SEDIMENTATION BASIN AND OSDF WEST OUTFALL DITCH TO REMAIN IN PLACE.

DEWATERING SEQUENCE TABLE

SITE PREPARATION

1. TO REDUCE GROSS SEDIMENT LOADING FROM ENTERING THE STORM SEWER SYSTEM, PROVIDE INLET PROTECTION TO CATCH BASINS CB48, CB50, CB127, CB203, AND CB204 IN ACCORDANCE WITH DRAWING 99X-5500-G-00739.
2. INSTALL RISER PIPE AND ESTABLISH SEDIMENTATION BASIN IN ACCORDANCE WITH DETAIL ON DRAWING 99X-5500-G-00739.

DEWATERING

3. EXCAVATION WATER COLLECTED FROM NORTH OF THE MAIN AND SOUTHEAST PARKING LOTS WILL BE PUMPED OR DRAINED TO THE NEAREST INLET PROTECTED CATCH BASIN.
4. EXCAVATION WATER COLLECTED WITHIN THE MAIN AND SOUTHEAST PARKING LOTS WILL BE PUMPED OR DRAINED TO AREA 5 SEDIMENTATION BASIN.
5. AS STORM SEWER LINES AND CATCH BASINS ARE TAKEN OUT OF SERVICE AND REMOVED, PUMP EXCAVATION WATER NORTH OF THE MAIN AND SOUTHEAST PARKING LOTS TO MH 35.

FINAL GRADING

6. AFTER IMPACTED MATERIAL EXCAVATION HAS BEEN COMPLETED WITHIN AREA 5 AND PRECERTIFICATION SAMPLING RESULTS HAVE BEEN REPORTED ESTABLISHING REMOVAL OF ABOVE FRL SOILS, BEGIN FINAL GRADING IN ACCORDANCE WITH DRAWING 99X-5500-G-00707 AND 99X-5500-G-00708.
7. DRAIN WATER INTO OPEN STORM SEWER LINE AT END OF AREA 5 DITCH.

PRELIMINARY
NOT FOR CONSTRUCTION

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	DATE	REV. BY	APPR.
D	RE-ISSUED FOR AGENCY REVIEW	3/31/03	KLR	
C	ISSUED FOR AGENCY REVIEW	9/30/02	KLR	
B	ISSUED FOR 90% DESIGN REVIEW	8/30/02	DRF	
A	ISSUED FOR 30% DESIGN REVIEW	5/22/02	DRF	

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
FLUOR FERNALD, INC.

PROJECT NAME
SOIL REMEDIATION

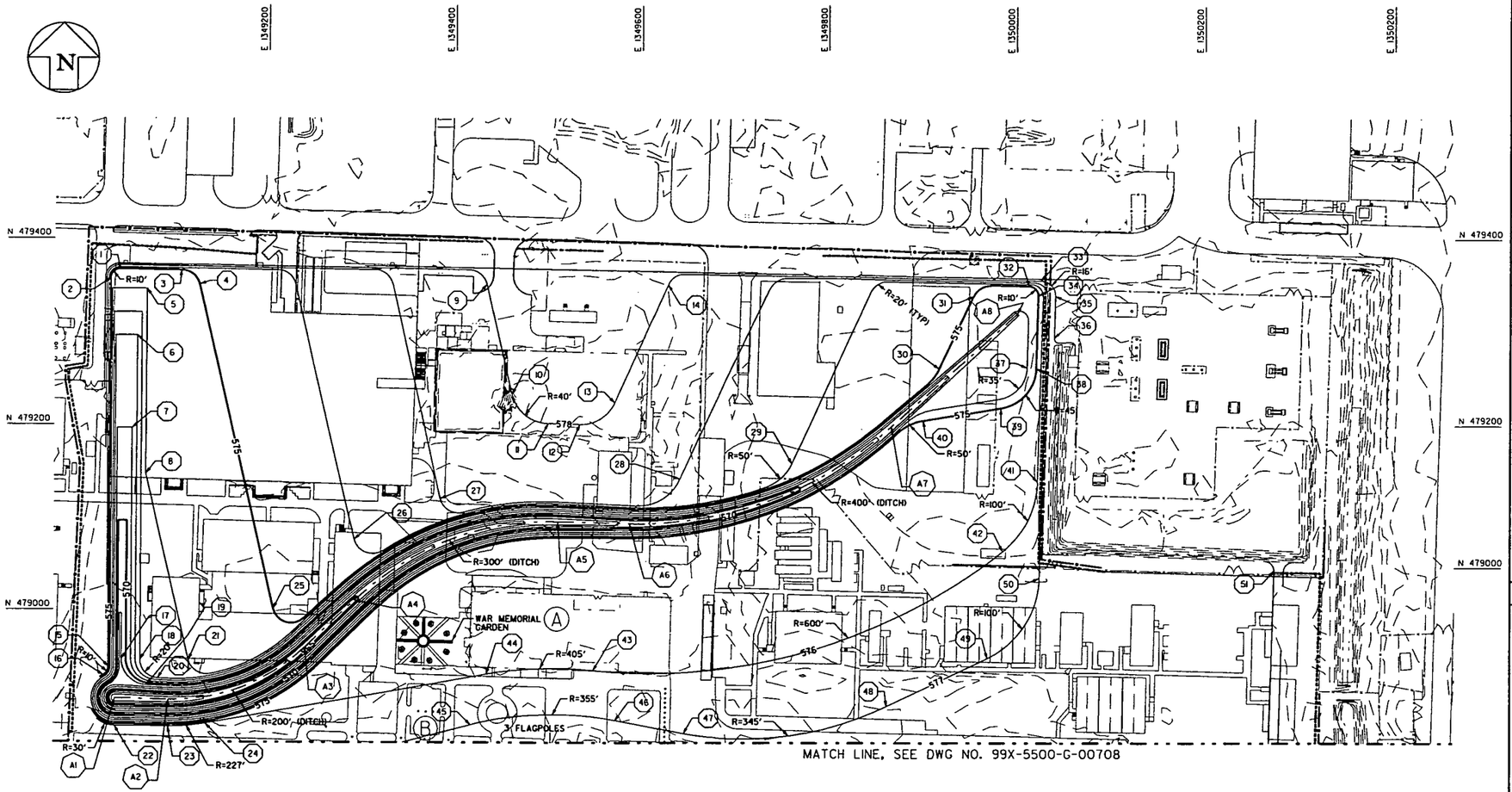
DRAWING TITLE
AREA 5
DEWATERING PLAN

000225

APPROVALS

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

DRAWN BY	PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
DRF	2010	99X-5500-G-00704	G-63	D
RES PROJECT NO.	FILENAME 99XG00704.DGN			



GENERAL NOTES

1. SEE DRAWING 99X-5500-X-00639 FOR LEGEND AND GENERAL NOTES.
2. GRID NUMBERS REFER TO THE UNDERGROUND UTILITIES GRID DRAWINGS AS SHOWN IN UTILITY GRID REFERENCE DRAWINGS LISTED ON DRAWING 99X-5500-X-00641.
3. DESIGN CONTOURS AND GRADES SHOW FINAL GRADING TO BE PERFORMED AFTER PRECERTIFICATION SAMPLE RESULTS HAVE BEEN REPORTED AND REMEDIATION VERIFIED TO BE BELOW FRLS.
4. CONSTRUCTION FENCE MARKS THE LIMIT OF EXCAVATION WITH EXCEPTIONS NOTED.
5. FOR EXCAVATION OF IMPACTED MATERIAL IN AREA 5, SEE DRAWING 99X-5500-G-00702.

4831

KEYED NOTES

(A) WAR MEMORIAL GARDEN AND FLAG POLES TO REMAIN DURING FINAL GRADING.

(B) FLAG POLES TO BE REMOVED JUST BEFORE SITE CLOSURE (BY OTHERS).

LEGEND

- SILT FENCE
- CONSTRUCTION FENCE
- PAVEMENT SAWCUT

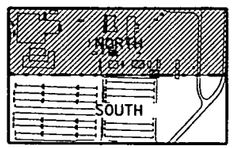
PRELIMINARY
NOT FOR CONSTRUCTION

DESIGN GRADE CONTROL POINTS

PT NO.	NORTHING	EASTING	ELEV.	PT NO.	NORTHING	EASTING	ELEV.	PT NO.	NORTHING	EASTING	ELEV.	PT NO.	NORTHING	EASTING	ELEV.	PT NO.	NORTHING	EASTING	ELEV.
1	479967.18	1349242.31	575.00	12	479800.97	1349733.03	578.00	23	479473.93	1349295.16	576.00	34	479940.24	1350223.22	575.00	45	479475.94	1349618.29	577.00
2	479957.20	1349232.14	575.00	13	479824.22	1349770.45	578.00	24	479477.05	1349334.58	576.00	35	479939.86	1350241.55	578.00	46	479481.09	1349771.86	577.00
3	479966.06	1349307.69	575.00	14	479951.17	1349828.96	578.00	25	479601.32	1349406.65	575.00	36	479894.94	1350240.33	578.00	47	479466.96	1349847.64	577.00
4	479950.52	1349326.84	575.00	15	479537.86	1349231.42	575.00	26	479676.55	1349492.04	576.00	37	479862.54	1350281.11	574.00	48	479496.52	1350063.04	577.00
5	479946.30	1349271.12	574.00	16	479528.97	1349225.97	575.00	27	479720.43	1349584.59	577.00	38	479862.27	1350221.10	575.00	49	479548.67	1350169.10	577.00
6	479896.32	1349261.04	572.00	17	479546.48	1349245.44	569.00	28	479742.26	1349842.78	577.00	39	479819.09	1350183.46	575.00	50	479635.69	1350224.94	577.00
7	479796.33	1349255.87	571.00	18	479545.91	1349265.44	573.00	29	479758.90	1349960.56	576.00	40	479805.49	1350101.18	575.00	51	479644.20	1350473.32	578.00
8	479746.99	1349270.78	574.00	19	479518.46	1349272.13	569.00	30	479861.66	1350118.04	575.00	41	479739.55	1350222.77	576.00				
9	479951.24	1349634.42	578.00	20	479525.89	1349284.51	573.00	31	479939.58	1350153.95	575.00	42	479664.35	1350185.48	576.00				
10	479832.97	1349661.45	578.00	21	479545.95	1349316.73	574.00	32	479950.51	1350213.40	575.00	43	479535.00	1349748.10	576.00				
11	479801.90	1349699.35	578.00	22	479474.31	1349238.20	576.00	33	479956.29	1350225.83	578.00	44	479530.81	1349635.48	576.00				

DITCH CONTROL POINTS

PT NO.	NORTHING	EASTING	ELEV.
A1	479504.16	1349238.62	562.00
A2	479502.65	1349295.40	562.62
A3	479559.59	1349440.57	564.23
A4	479610.55	1349492.67	564.95
A5	479695.98	1349710.18	567.35
A6	479693.99	1349787.26	568.13
A7	479798.97	1350067.85	571.20
A8	479920.85	1350200.84	573.00



AREA 5 KEY PLAN
SCALE: NONE

50 0 50 100
SCALE: 1"=50'

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	DATE	REV. BY	APPR.
A	ISSUED FOR AGENCY REVIEW	3/3/03	RML	

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
FLUOR FERNALD, INC.

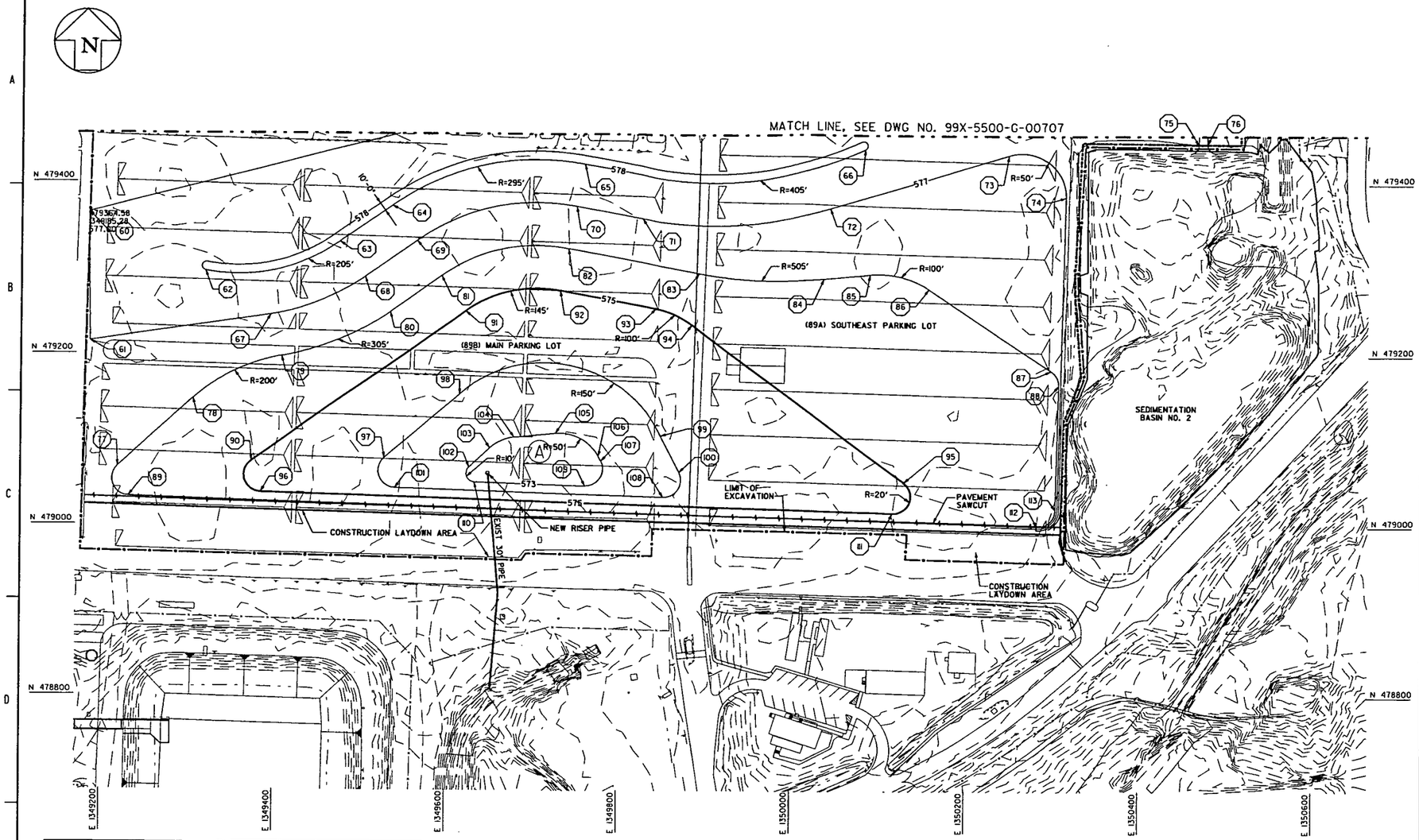
PROJECT NAME
SOIL REMEDIATION

DRAWING TITLE
AREA 5 000226
FINAL GRADING RESTORATION PLAN (NORTH)

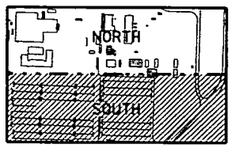
APPROVALS

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

DRAWN BY	PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
RML	20180	99X-5500-G-00707	G-64	A
RES PROJECT NO.	FILENAME 99XG00707.DGN			



DESIGN GRADE CONTROL POINTS																			
PT NO.	NORTHING	EASTING	ELEV.	PT NO.	NORTHING	EASTING	ELEV.	PT NO.	NORTHING	EASTING	ELEV.	PT NO.	NORTHING	EASTING	ELEV.	PT NO.	NORTHING	EASTING	ELEV.
60	479364.58	1349185.28	577.00	72	479371.38	1350044.97	577.00	84	479289.45	1350037.72	576.00	96	479038.38	1349385.46	575.00	108	479034.15	1349853.71	574.00
61	479214.59	1349187.11	577.00	73	479434.54	1350249.64	577.00	85	479294.84	1350091.31	576.00	97	479078.87	1349528.57	574.00	109	479046.92	1349762.74	573.00
62	479296.68	1349320.73	578.00	74	479385.55	1350314.36	577.00	86	479278.31	1350157.13	576.00	98	479154.83	1349617.73	574.00	110	479050.82	1349634.38	573.00
63	479330.88	1349476.88	578.00	75	479446.97	1350467.95	578.00	87	479183.39	1350298.23	576.00	99	479109.40	1349848.33	574.00	111	479016.14	135086.97	575.00
64	479372.96	1349536.34	578.00	76	479447.91	1350477.98	578.00	88	479166.31	1350307.06	576.00	100	479063.31	1349872.09	574.00	112	479001.09	1350282.93	576.00
65	479422.11	1349760.85	578.00	77	479067.75	1349220.19	576.00	89	479033.01	1349233.09	576.00	101	479043.66	1349540.93	574.00	113	479020.60	1350303.53	576.00
66	479440.57	1350085.14	578.00	78	479147.78	1349307.61	576.00	90	479074.70	1349374.52	575.00	102	479068.19	1349627.94	573.00				
67	479246.01	1349396.29	577.00	79	479197.46	1349409.29	576.00	91	479250.53	1349623.01	575.00	103	479090.63	1349652.45	573.00				
68	479289.97	1349505.62	577.00	80	479249.27	1349534.67	576.00	92	479274.69	1349733.36	575.00	104	479103.50	1349681.21	573.00				
69	479332.12	1349565.19	577.00	81	479291.35	1349594.13	576.00	93	479254.04	1349844.09	575.00	105	479108.30	1349728.91	573.00				
70	479372.98	1349751.69	577.00	82	479323.84	1349742.54	576.00	94	479235.62	1349885.91	575.00	106	479081.46	1349778.35	573.00				
71	479358.85	1349827.47	577.00	83	479295.48	1349894.65	576.00	95	479052.11	1350129.61	575.00	107	479076.08	1349781.12	573.00				



AREA 5 KEY PLAN
SCALE: NONE

50 0 50 100
SCALE: 1"=50'

GENERAL NOTES

1. SEE DRAWING 99X-5500-X-00639 FOR LEGEND AND GENERAL NOTES.
2. GRID NUMBERS REFER TO THE UNDERGROUND UTILITIES GRID DRAWINGS AS SHOWN IN UTILITY GRID REFERENCE DRAWINGS LISTED ON DRAWING 99X-5500-X-00641.
3. DESIGN CONTOURS AND GRADES SHOW FINAL GRADING TO BE PERFORMED AFTER PRECERTIFICATION SAMPLE RESULTS HAVE BEEN REPORTED AND REMEDIATION VERIFIED TO BE BELOW FRLS.
4. CONSTRUCTION FENCE MARKS THE LIMIT OF EXCAVATION WITH EXCEPTIONS NOTED.
5. FOR EXCAVATION OF IMPACTED MATERIAL IN AREA 5, SEE DRAWING 99X-5500-G-00702.

4831

KEYED NOTES

(A) INSTALL 30 INCH RISER PIPE IN ACCORDANCE WITH OUTFALL DETAIL ON DRAWING 99X-5500-G-00738.

LEGEND

- SILT FENCE
- CONSTRUCTION FENCE
- PAVEMENT SAWCUT

PRELIMINARY
NOT FOR CONSTRUCTION

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	DATE	REV. BY	APPR.
A	ISSUED FOR AGENCY REVIEW	3/31/03	RML	

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
FLUOR FERNALD, INC.

PROJECT NAME
SOIL REMEDIATION

DRAWING TITLE
AREA 5
FINAL GRADING RESTORATION PLAN (SOUTH)

000227

APPROVALS

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

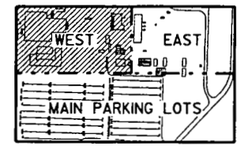
DRAWN BY	PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
DRF	20810	99X-5500-G-00708	G-65	A
RES PROJECT NO.	FILENAME 99X00070.8.DGN			

TECHNICAL REFERENCE DRAWING LIST FOR BUILDING FOUNDATIONS

DRAWING NO.	DRAWING TITLE	SHT. NO.
11X-5900-S-00770	BUILDING 11 FOUNDATION PLAN - EAST	S0001
11X-5900-S-00771	BUILDING 11 FOUNDATION PLAN - WEST	S0002
11X-5900-S-00772	BUILDING 11 SLAB PLAN - EAST	S0001
11X-5900-S-00773	BUILDING 11 SLAB PLAN - WEST	S0002
14X-5900-S-00531	BUILDING 14A & 14B FOUNDATION PLAN	S0001
14X-5900-S-00532	BUILDING 14A & 14B SLAB PLAN	S0002
16H-5900-S-00114	BUILDING 16 FOUNDATION PLAN	S0001
16H-5900-S-00115	BUILDING 16 SLAB PLAN	S0002
22G-5900-S-00980	BUILDING 22B FOUNDATION PLAN	S0001
22G-5900-S-00981	BUILDING 22B SLAB PLAN	S0002
22B-5900-S-00345	BUILDING 28A & B FOUNDATION PLAN	S0001
22B-5900-S-00346	BUILDING 28A & B SLAB PLAN	S0002
31X-5900-S-00059	BUILDING 31A & 31B FOUNDATION PLAN	S0001
31X-5900-S-00060	BUILDING 31A & 31B SLAB PLAN	S0002
53B-5900-S-00431	BUILDING 53A FOUNDATION PLAN	S0001
53B-5900-S-00432	BUILDING 53A SLAB PLAN	S0002
53C-5900-S-00433	BUILDING 53B FOUNDATION PLAN	S0001
53C-5900-S-00434	BUILDING 53B SLAB PLAN	S0002

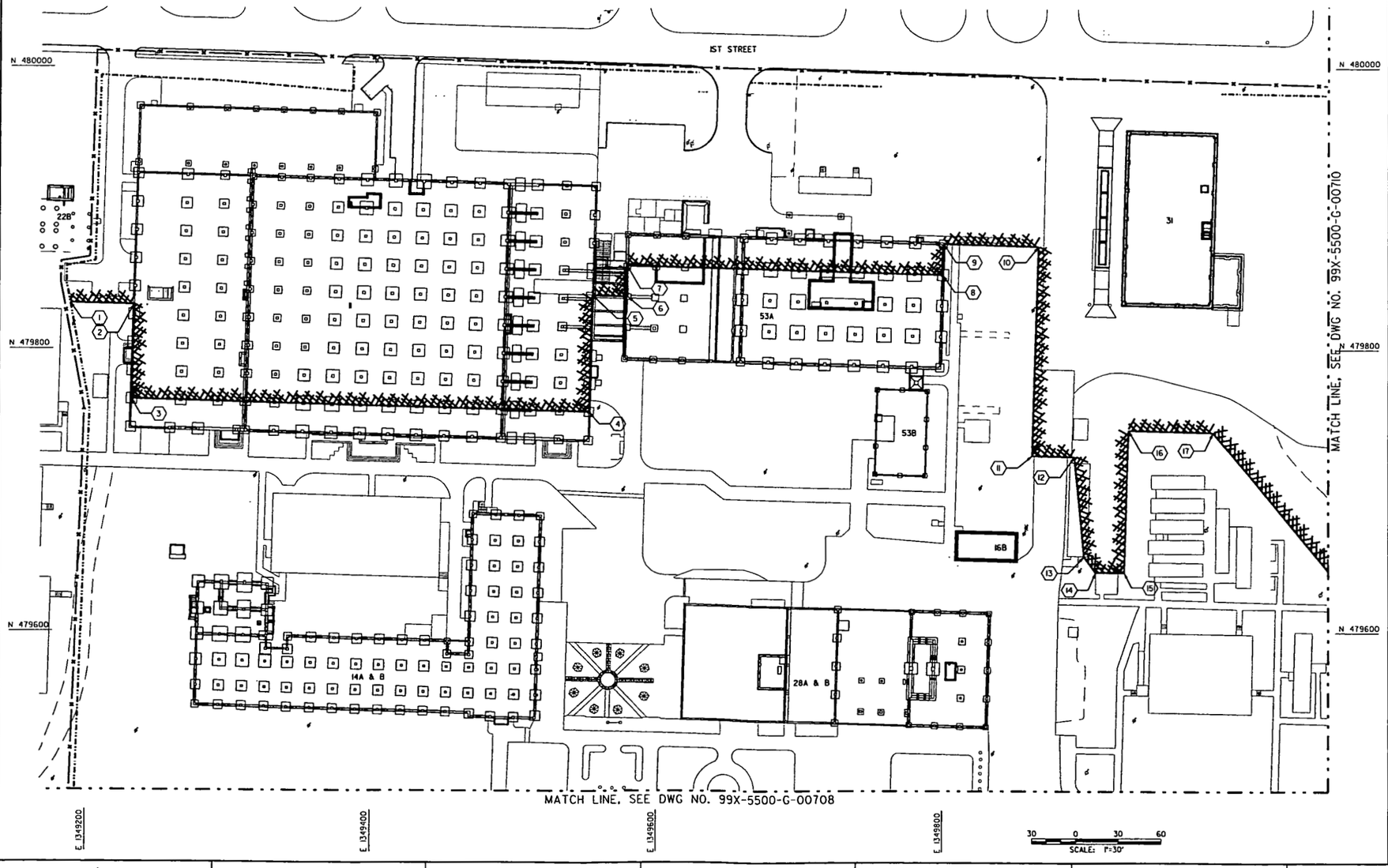
CONTROL POINTS

PT NO.	NORTHING	EASTING	PT NO.	NORTHING	EASTING
1	479832.70	1349189.35	10	479873.75	1349866.68
2	479831.46	1349234.78	11	479725.00	1349862.61
3	479764.38	1349232.94	12	479724.26	1349891.40
4	479755.62	1349553.20	13	479653.72	1349898.15
5	479838.82	1349555.27	14	479642.46	1349906.40
6	479837.73	1349580.20	15	479642.46	1349926.66
7	479859.75	1349579.91	15	479743.02	1349929.67
8	479853.71	1349800.74	17	479741.52	1349988.20
9	479875.74	1349801.35			



NORTH

AREA 5 KEY PLAN
SCALE: NONE



GENERAL NOTES

1. SEE DRAWING 99X-5500-X-00639 FOR LEGEND AND GENERAL NOTES.
2. BUILDING NUMBERS REFER TO FORMER LOCATIONS OF BUILDINGS OR PADS.
3. FOR FOUNDATION/SLAB DETAILS, SEE TECHNICAL REFERENCE DRAWINGS LISTED.

4831

KEYED NOTES

LEGEND

SILT FENCE
CONSTRUCTION FENCE

SILT FENCE
CONSTRUCTION FENCE
SOUTHERN BOUNDARY OF HISTORICAL RADIOLOGICAL CONTROLLED AREA

PRELIMINARY
NOT FOR CONSTRUCTION

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	DATE	REV. BY	APPR.
C	RE-ISSUED FOR AGENCY REVIEW	3/31/03	KLR	
B	ISSUED FOR AGENCY REVIEW	9/30/02	KLR	
A	ISSUED FOR 90% DESIGN REVIEW	8/30/02	KLR	

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
FLUOR FERNALD, INC.

PROJECT NAME
SOIL REMEDIATION

DRAWING TITLE
AREA 5 000228
FOUNDATION PLAN (WEST)

APPROVALS

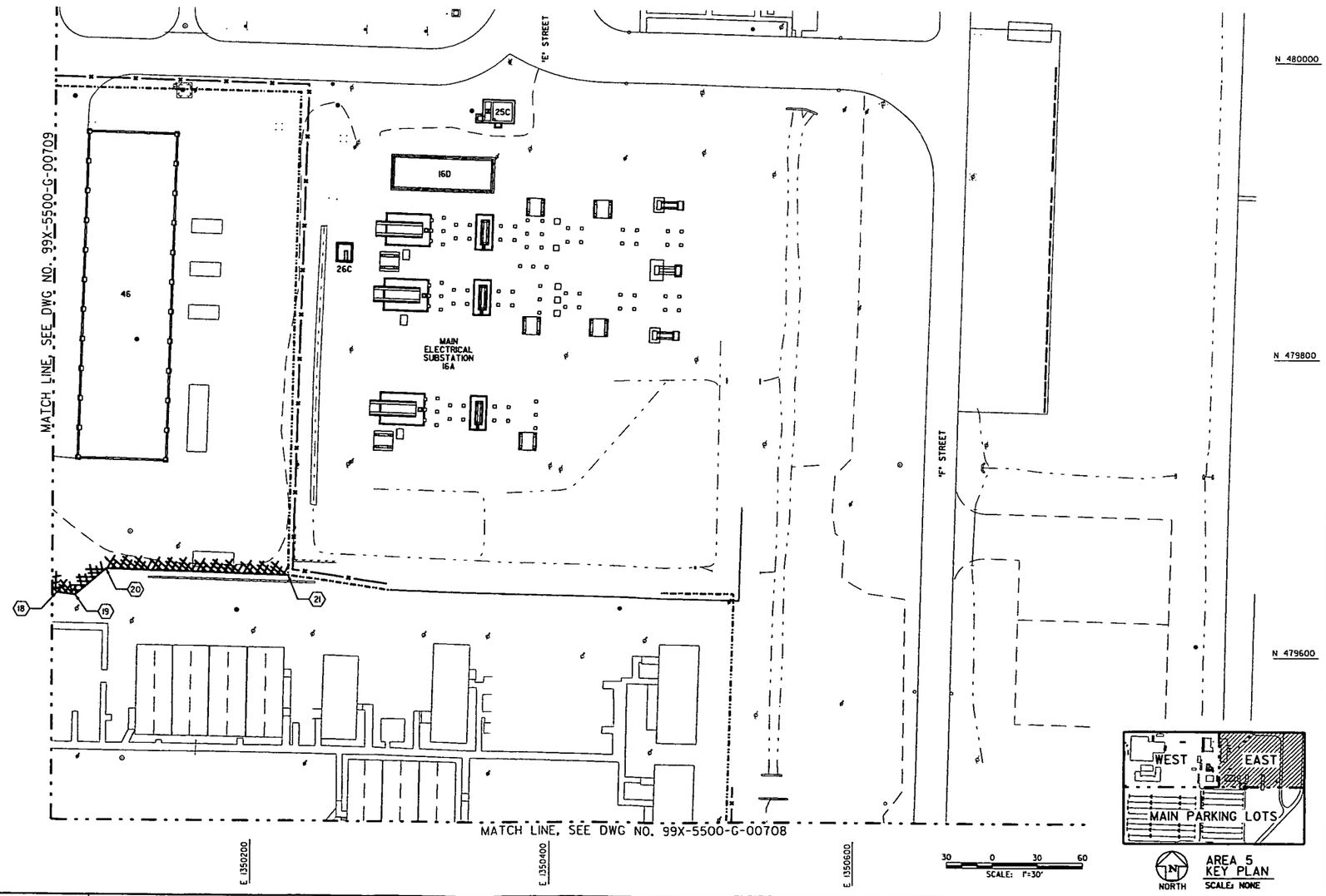
COGNIZANT ENG.		SAFETY ENG.	
CIVIL & STR.		MAINTENANCE	
ELECTRICAL		FIRE PROTECT.	
ENGINEER		WASTE MANAGE	
INSTRUMENT		SECURITY	
MECHANICAL		QA	
		CONSTRUCTION	
CHECKED			
APPROVED			

DRAWN BY	PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
KLR	20880	99X-5500-G-00709	G-66	C
RES PROJECT NO.	FILENAME 99XG00709.DGN			

TECHNICAL REFERENCE DRAWING LIST FOR BUILDING FOUNDATIONS

DRAWING NO.	DRAWING TITLE	SHT. NO.
25H-5900-S-00227	BUILDING 25C FOUNDATION PLAN	S0001
25H-5900-S-00228	BUILDING 25C SLAB PLAN	S0002
16X-5900-S-00117	BUILDING 26C FOUNDATION PLAN	S0001
16X-5900-S-00118	BUILDING 26C SLAB PLAN	S0002
46X-5900-S-00068	BUILDING 46A, 46B, & 46C FOUNDATION PLAN	S0001
46X-5900-S-00069	BUILDING 46A, 46B, & 46C SLAB PLAN	S0002

CONTROL POINTS		
PT NO.	NORTHING	EASTING
18	479640.21	1350071.49
19	479638.71	1350083.50
20	479656.32	1350104.37
21	479652.57	1350224.31



GENERAL NOTES

1. SEE DRAWING 99X-5500-X-00639 FOR LEGEND AND GENERAL NOTES.
2. BUILDING NUMBERS REFER TO FORMER LOCATIONS OF BUILDINGS OR PADS.
3. FOR FOUNDATION/SLAB DETAILS, SEE TECHNICAL REFERENCE DRAWINGS LISTED.

4831

KEYED NOTES

LEGEND

- SILT FENCE
- CONSTRUCTION FENCE
- SOUTHERN BOUNDARY OF HISTORICAL RADIOLOGICAL CONTROLLED AREA

PRELIMINARY
NOT FOR CONSTRUCTION

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	DATE	REV. BY	APPR.
C	RE-ISSUED FOR AGENCY REVIEW	3/31/03	KLR	
B	ISSUED FOR AGENCY REVIEW	9/30/02	KLR	
A	ISSUED FOR 90% DESIGN REVIEW	8/30/02	KLR	

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
FLUOR FERNALD, INC.

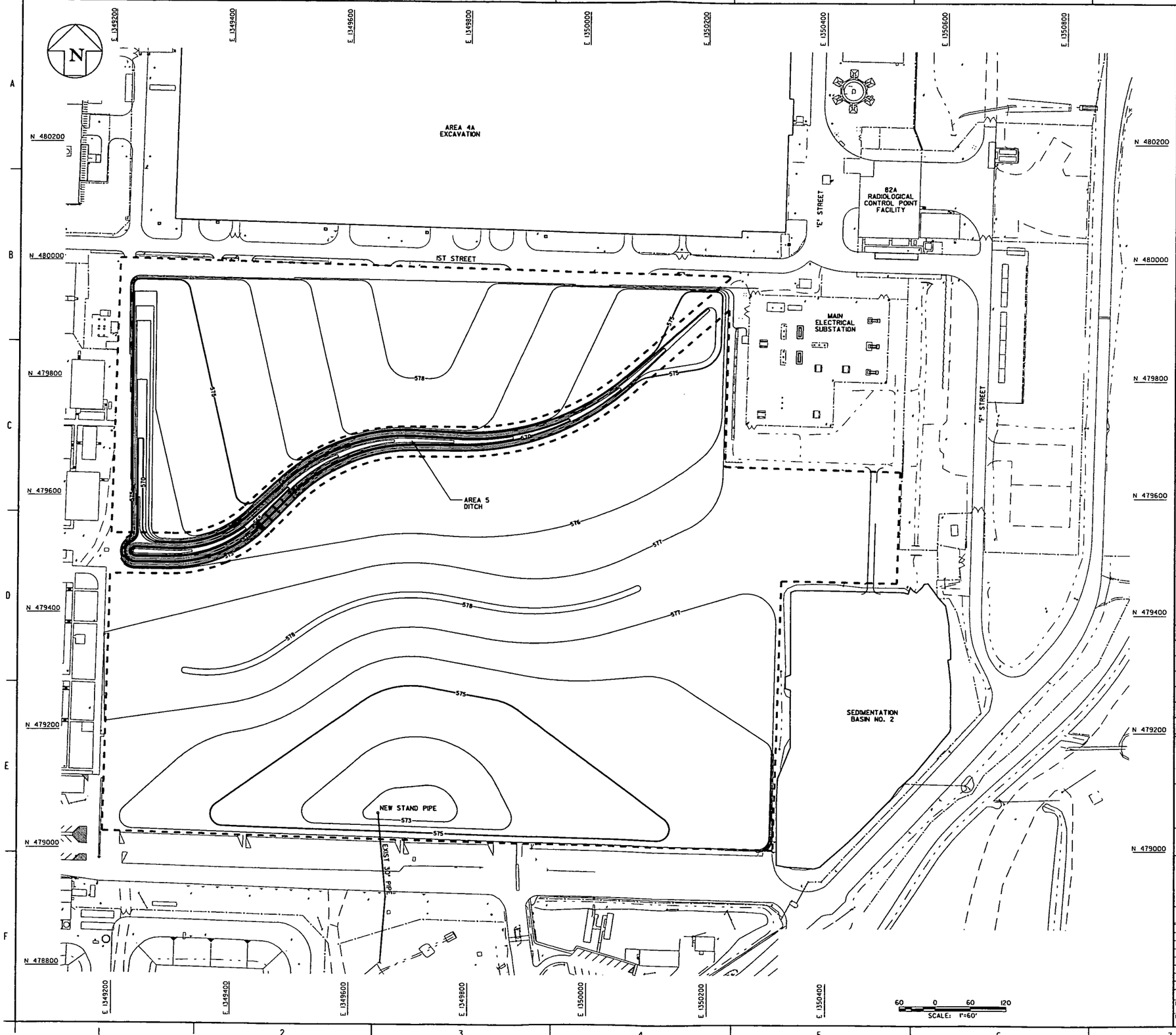
PROJECT NAME
SOIL REMEDIATION

DRAWING TITLE
AREA 5 000229
FOUNDATION PLAN (EAST)

APPROVALS

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

DRAWN BY	PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
KLR	20510	99X-5500-G-00710	G-67	C
RES PROJECT NO.	FILENAME 99X5G0710.DGN			



GENERAL NOTES

1. SEE DRAWING 99X-5500-X-00639 FOR LEGEND AND GENERAL NOTES.
2. EXISTING CONSTRUCTION SAFETY FENCE AND SILT FENCES AT LIMIT OF EXCAVATION TO REMAIN IN PLACE. MAINTAIN AS NECESSARY.
3. PRECERTIFIED AREA TO DRAIN TO CENTRAL DRAINAGE CORRIDOR, AND DISCHARGE THROUGH THE EXPOSED STORM SEWER TO THE SWRB FOR AWWT PHASE I TREATMENT.
4. AREA 5 DITCH TO BE INCLUDED WITH MDC PRE-CERTIFICATION EFFORT, BECAUSE OF POTENTIAL BACK FLOW OUT OF EXPOSED STORM SEWER.
5. SUSPENDED SOLIDS IN RUNOFF ARE TO BE REMOVED IN SWRB.

4831

KEYED NOTES

LEGEND

- - - PROPOSED PRECERTIFICATION AREA

PRELIMINARY
NOT FOR CONSTRUCTION

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	DATE	REV. BY	APPR.
B	RE-ISSUED FOR AGENCY REVIEW	3/31/03	KLR	
A	ISSUED FOR AGENCY REVIEW	9/30/02	DRF	

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
FLUOR FERNALD, INC.

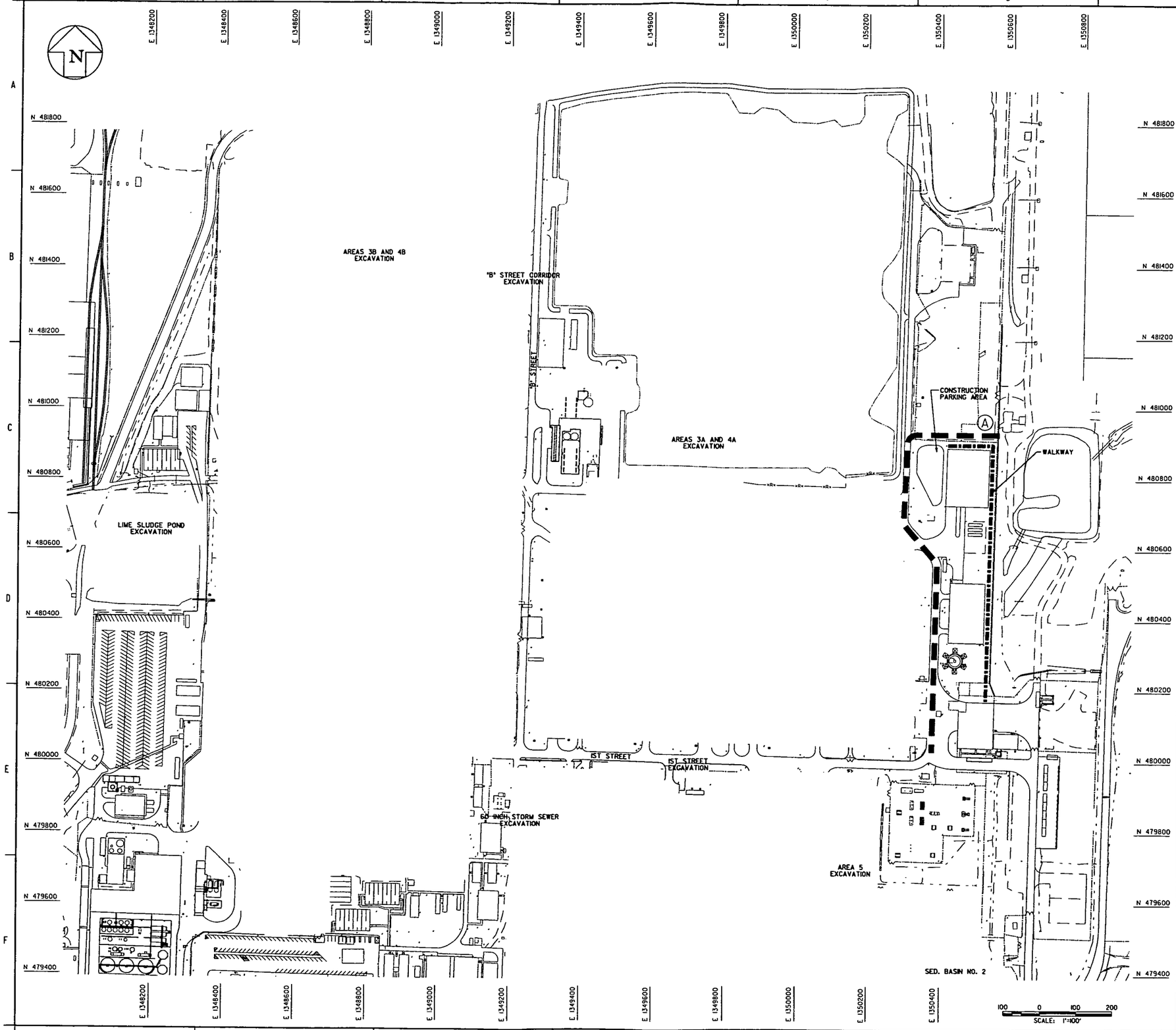
PROJECT NAME
SOIL REMEDIATION

DRAWING TITLE
AREA 5 000230
PRECERTIFICATION CONFIGURATION

APPROVALS

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

DRAWN BY	PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
DRF	20610	99X-5500-G-00712	G-68	B
RES PROJECT NO.	FILENAME 99XG00712.DGN			



GENERAL NOTES

1. SEE DRAWING 99X-5500-X-00639 FOR LEGEND AND GENERAL NOTES.
2. TRAFFIC CONTROL SHALL BE IN ACCORDANCE WITH SPECIFICATION 02150.
3. SUPPORT FACILITIES AND SMTA SHALL BE FIELD LOCATED.
4. PORTIONS OF "B", "E", AND 1ST STREETS ARE PROPOSED HAUL ROUTES AS SHOWN. CHANGES IN TRAFFIC ROUTING SHALL BE AS DIRECTED BY THE CONSTRUCTION MANAGER AS FIELD ACTIVITIES PROGRESS.
5. MATERIALS TRANSPORTED TO THE OSDF AND SMTA WILL BE TRACKED BY THE CONSTRUCTION MANAGER.

4831

KEYED NOTES

(A) OSDF ACCESS TO BE INSTALLED BY OTHERS

PRELIMINARY
NOT FOR CONSTRUCTION

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	DATE	REV. BY	APPR.
D	RE-ISSUED FOR AGENCY REVIEW	3/31/03	KLR	
C	ISSUED FOR AGENCY REVIEW	9/30/02	KLR	
B	ISSUED FOR 90% DESIGN REVIEW	8/30/02	KLR	
A	ISSUED FOR 30% DESIGN REVIEW	8/7/02	DRF	

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
FLUOR FERNALD, INC.

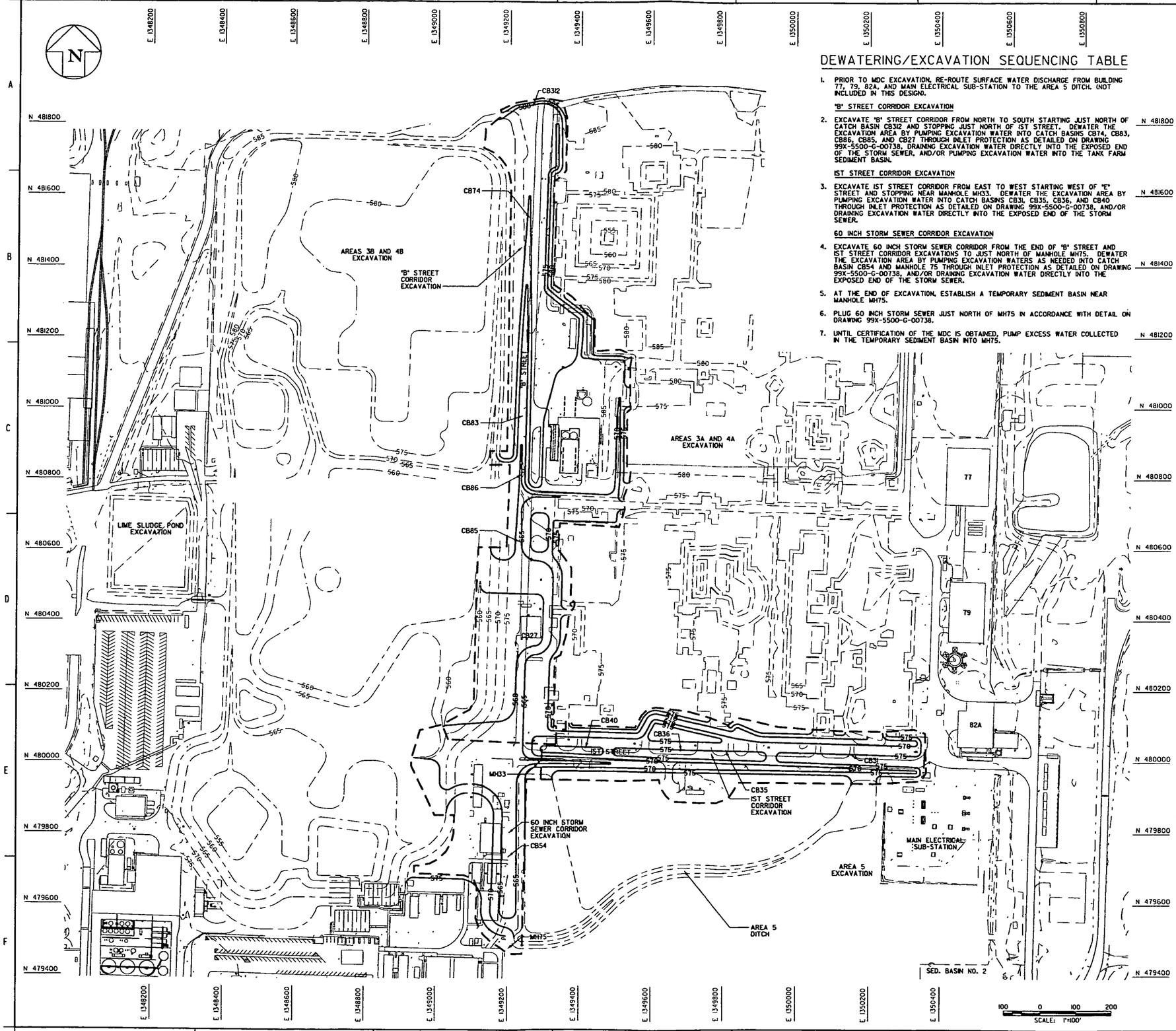
PROJECT NAME
SOIL REMEDIATION

DRAWING TITLE
MDC 000231
TRAFFIC FLOW AND MATERIAL TRACKING PLAN

APPROVALS

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

DRAWN BY	PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
D. FOX	20510	99X-5500-G-00713	G-69	D
RES PROJECT NO.	FILENAME 99X00713.DGN			



DEWATERING/EXCAVATION SEQUENCING TABLE

1. PRIOR TO MDC EXCAVATION, RE-ROUTE SURFACE WATER DISCHARGE FROM BUILDING 77, 79, 82A, AND MAIN ELECTRICAL SUB-STATION TO THE AREA 5 DITCH. (NOT INCLUDED IN THIS DESIGN).

"B" STREET CORRIDOR EXCAVATION

2. EXCAVATE "B" STREET CORRIDOR FROM NORTH TO SOUTH STARTING JUST NORTH OF CATCH BASIN CB312 AND STOPPING JUST NORTH OF IST STREET. DEWATER THE EXCAVATION AREA BY PUMPING EXCAVATION WATER INTO CATCH BASINS CB74, CB83, CB86, CB85, AND CB27 THROUGH INLET PROTECTION AS DETAILED ON DRAWING 99X-5500-G-00738, DRAINING EXCAVATION WATER DIRECTLY INTO THE EXPOSED END OF THE STORM SEWER, AND/OR PUMPING EXCAVATION WATER INTO THE TANK FARM SEDIMENT BASIN. — N 481800

IST STREET CORRIDOR EXCAVATION

3. EXCAVATE IST STREET CORRIDOR FROM EAST TO WEST STARTING WEST OF "E" STREET AND STOPPING NEAR MANHOLE MH33. DEWATER THE EXCAVATION AREA BY PUMPING EXCAVATION WATER INTO CATCH BASINS CB31, CB35, CB36, AND CB40 THROUGH INLET PROTECTION AS DETAILED ON DRAWING 99X-5500-G-00738, AND/OR DRAINING EXCAVATION WATER DIRECTLY INTO THE EXPOSED END OF THE STORM SEWER. — N 481600

60 INCH STORM SEWER CORRIDOR EXCAVATION

4. EXCAVATE 60 INCH STORM SEWER CORRIDOR FROM THE END OF "B" STREET AND IST STREET CORRIDOR EXCAVATIONS TO JUST NORTH OF MANHOLE MH75. DEWATER THE EXCAVATION AREA BY PUMPING EXCAVATION WATERS AS NEEDED INTO CATCH BASIN CB54 AND MANHOLE 75 THROUGH INLET PROTECTION AS DETAILED ON DRAWING 99X-5500-G-00738, AND/OR DRAINING EXCAVATION WATER DIRECTLY INTO THE EXPOSED END OF THE STORM SEWER. — N 481400

5. AT THE END OF EXCAVATION, ESTABLISH A TEMPORARY SEDIMENT BASIN NEAR MANHOLE MH75.

6. PLUG 60 INCH STORM SEWER JUST NORTH OF MH75 IN ACCORDANCE WITH DETAIL ON DRAWING 99X-5500-G-00738.

7. UNTIL CERTIFICATION OF THE MDC IS OBTAINED, PUMP EXCESS WATER COLLECTED IN THE TEMPORARY SEDIMENT BASIN INTO MH75. — N 481200

GENERAL NOTES

1. SEE DRAWING 99X-5500-X-00639 FOR LEGEND AND GENERAL NOTES.

4831

PRELIMINARY
NOT FOR CONSTRUCTION

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	DATE	REV. BY	APPR.
D	RE-ISSUED FOR AGENCY REVIEW	3/31/03	KLR	
C	ISSUED FOR AGENCY REVIEW	9/30/02	KLR	
B	ISSUED FOR 90% DESIGN REVIEW	8/30/02	KLR	
A	ISSUED FOR 30% DESIGN REVIEW	8/7/02	DRF	

DETAILS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
FLUOR FERNALD, INC.

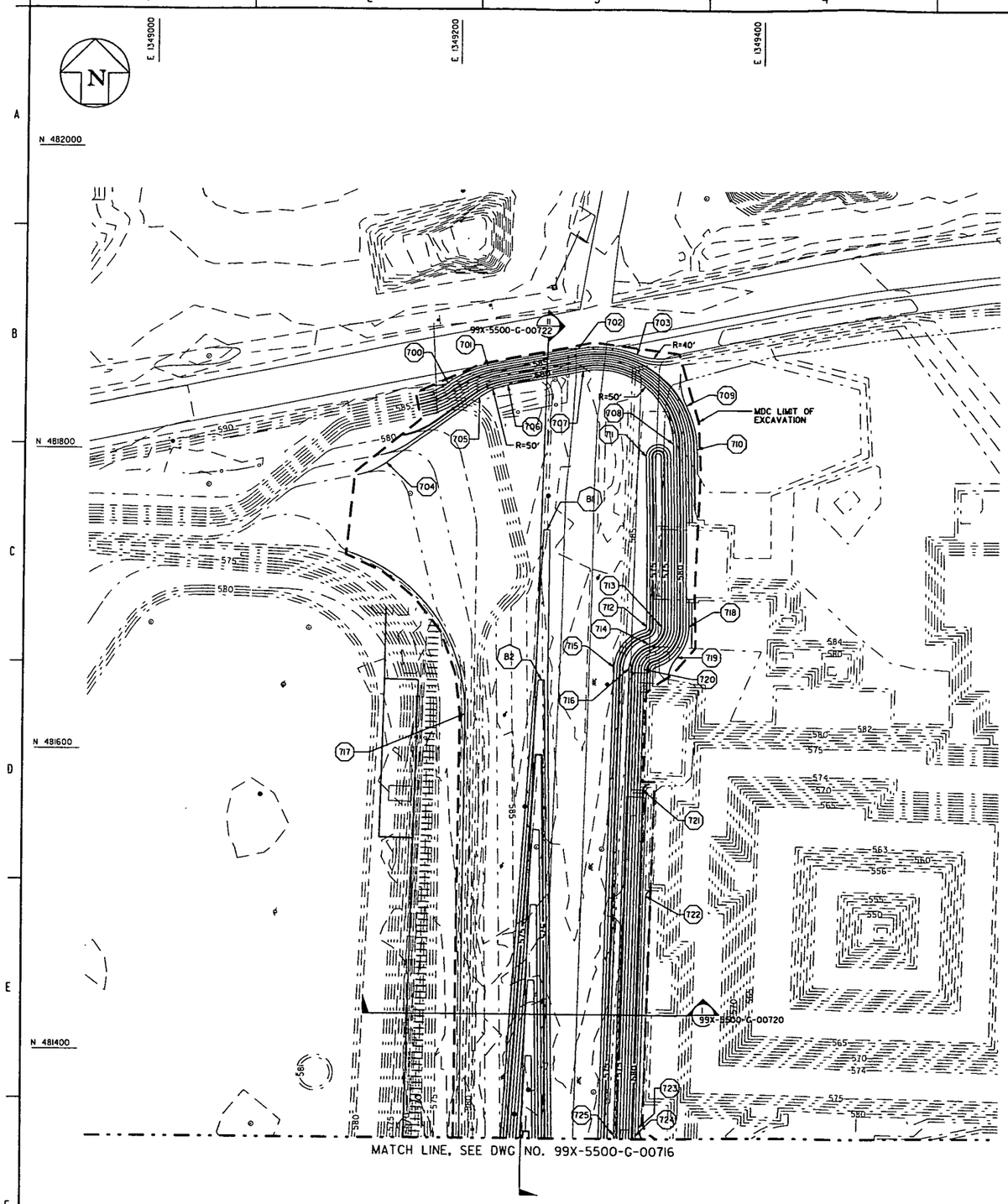
PROJECT NAME
SOIL REMEDIATION

DRAWING TITLE
MDC **000232**
DEWATERING AND EXCAVATION PLAN

APPROVALS

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

DRAWN BY	PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
D. Fox	2080	99X-5500-G-00714	G-70	D
RES PROJECT NO.	FILENAME 99XGDOTH.DGN			



DESIGN GRADE CONTROL POINTS			
PT NO.	NORTHING	EASTING	ELEV.
700	481844.23	1349192.57	588.00
701	481855.85	1349219.59	588.00
702	481867.40	1349278.34	588.00
703	481863.93	1349317.28	588.00
704	481791.34	1349152.62	578.00
705	481834.98	1349214.07	578.00
706	481843.27	1349233.37	578.00
707	481852.85	1349282.08	578.00
708	481804.96	1349341.72	578.00
709	481830.09	1349350.43	586.00
710	481801.27	1349357.81	586.00
711	481796.54	1349323.96	577.00
712	481683.47	1349325.23	577.00
713	481683.51	1349335.17	574.00
714	481671.96	1349326.58	574.00
715	481656.34	1349303.75	577.00
716	481655.77	1349313.73	574.00
717	481624.54	1349205.94	577.00
718	481683.58	1349353.17	583.00
719	481663.03	1349345.14	583.00
720	481655.18	1349323.71	579.00
721	481574.52	1349323.52	580.00
722	481503.86	1349325.60	582.00
723	481350.64	1349321.44	582.00
724	481344.94	1349319.29	581.00
725	481345.31	1349305.30	574.00

DITCH CONTROL POINTS			
PT NO.	NORTHING	EASTING	ELEV.
B1	481747.52	1349259.37	577.00
B2	481647.56	1349256.69	576.00

GENERAL NOTES

1. SEE DRAWING 99X-5500-X-00639 FOR LEGEND AND GENERAL NOTES.
2. GRID NUMBERS REFER TO THE UNDERGROUND UTILITIES GRID DRAWINGS AS SHOWN IN UTILITY GRID REFERENCE DRAWING INDEX ON DRAWING 99X-5500-X-00641.
3. DESIGN CONTOURS AND GRADES SHOWN REPRESENT THE MINIMUM LIMITS OF EXCAVATION REQUIRED TO CAPTURE CONTAMINATION AND FOUNDATIONS, WHILE MAINTAINING SAFE SLOPE REQUIREMENTS. FIELD CHANGES SHALL BE REPORTED TO CONSTRUCTION MANAGER AND APPROVED BY ENGINEER.
4. BUILDING NUMBERS REFER TO FORMER LOCATIONS OF BUILDINGS OR PADS.
5. MANHOLE AND CATCHBASIN OPENINGS SHALL BE PROTECTED IN ACCORDANCE WITH SPR3-5.

4831

PRELIMINARY
NOT FOR CONSTRUCTION

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	DATE	REV. BY	APPR.
D	RE-ISSUED FOR AGENCY REVIEW	3/31/03	KLR	
C	ISSUED FOR AGENCY REVIEW	9/30/02	KLR	
B	ISSUED FOR 90% DESIGN REVIEW	8/30/02	KLR	
A	ISSUED FOR 30% DESIGN REVIEW	8/7/02	DRF	

INITIALS AND DATE

UNITED STATES
DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
FLUOR FERNALD, INC.

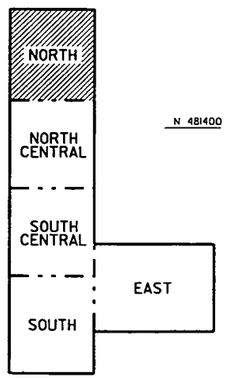
PROJECT NAME
SOIL REMEDIATION

DRAWING TITLE
MDC 000233
EXCAVATION/DRAINAGE PLAN (NORTH)

APPROVALS

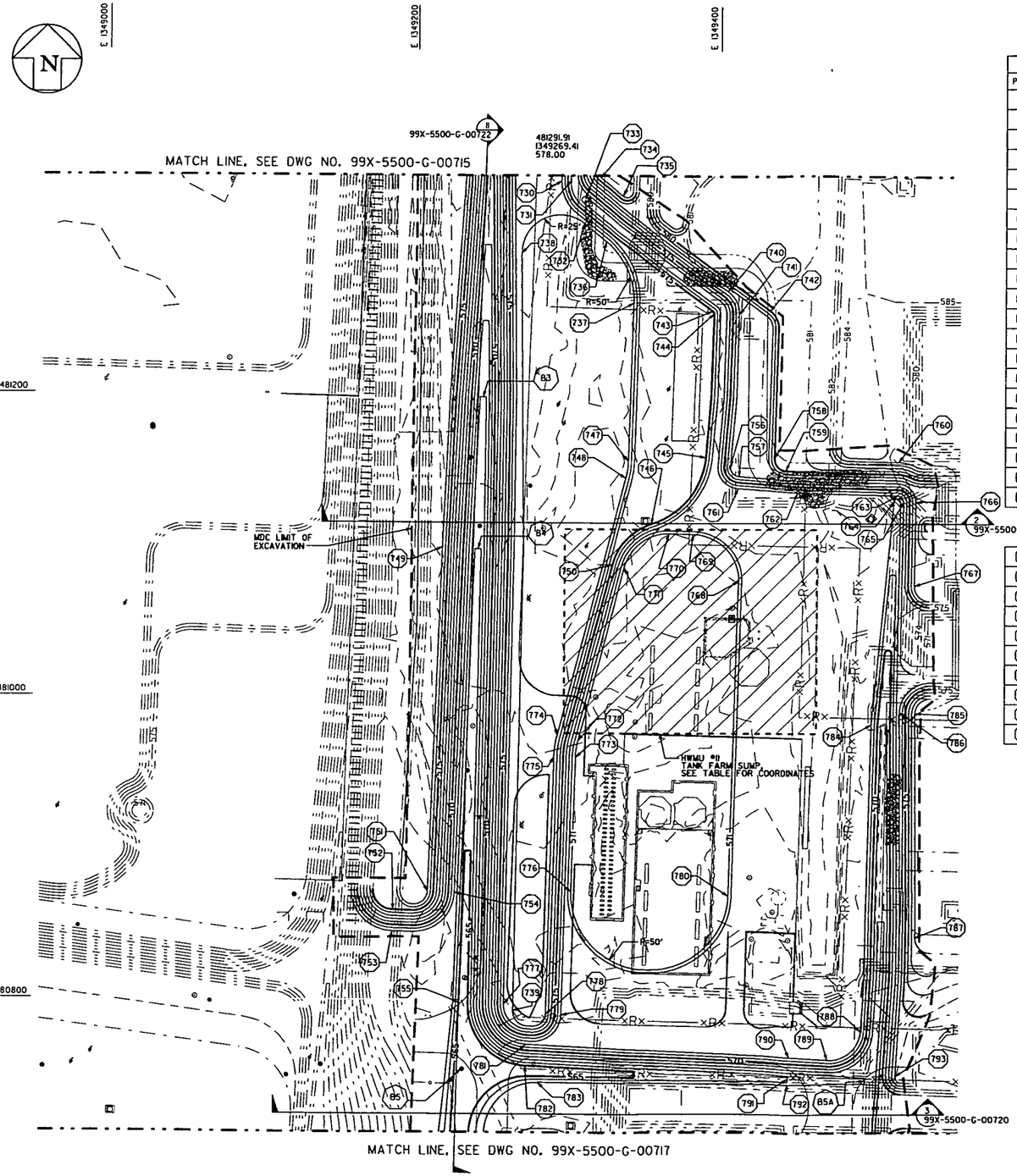
COGNIZANT ENG.		SAFETY ENG.	
CIVIL & STR.		MAINTENANCE	
ELECTRICAL		FIRE PROTECT.	
ENGINEER		WASTE MANAGE	
INSTRUMENT		SECURITY	
MECHANICAL		QA	
		CONSTRUCTION	
CHECKED			
APPROVED			

DRAWN BY	PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
DRF	20810	99X-5500-G-00715	G-71	D
RES PROJECT NO.	FILENAME 99XG00715.DGN			



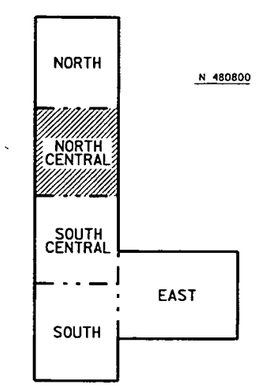
MDC KEY PLAN
SCALE: NONE

30 0 30 60
SCALE: 1"=30'



DESIGN GRADE CONTROL POINTS							
PT NO.	NORTHING	EASTING	ELEV.	PT NO.	NORTHING	EASTING	ELEV.
730	481339.55	1349295.14	577.00	761	481138.11	1349412.07	573.00
731	481339.39	1349301.14	574.00	762	481135.12	1349451.13	573.00
732	481314.61	1349310.22	578.00	763	481133.62	1349515.61	573.00
733	481330.88	1349311.91	574.00	764	481129.81	1349513.37	572.00
734	481341.73	1349320.76	581.00	765	481129.56	1349519.52	573.00
735	481329.57	1349335.66	581.00	766	481129.44	1349527.52	577.00
736	481299.76	1349324.74	578.00	767	481074.11	1349526.72	577.00
737	481259.65	1349343.12	578.00	768	481076.93	1349412.85	571.00
738	481291.91	1349269.41	578.00	769	481107.74	1349383.68	571.00
739	480792.81	1349266.91	578.00	770	481108.17	1349367.80	571.00
740	481267.71	1349404.94	577.00	771	481085.68	1349337.93	571.00
741	481252.76	1349412.23	577.00	772	480971.12	1349308.36	571.00
742	481254.93	1349432.32	580.00	773	480959.99	1349306.79	571.00
743	481254.85	1349395.43	575.00	774	480974.62	1349294.80	578.00
744	481253.19	1349396.24	575.00	775	480960.37	1349292.79	578.00
745	481158.46	1349339.59	575.00	776	480871.10	1349304.36	571.00
746	481114.59	1349356.08	575.00	777	480796.91	1349260.98	577.00
747	481155.85	1349340.28	578.00	778	480790.29	1349288.14	578.00
748	481144.72	1349338.71	578.00	779	480790.03	1349298.14	573.00
749	481098.85	1349218.03	577.00	780	480868.36	1349407.14	571.00
750	481087.68	1349330.18	575.00	781	480770.68	1349275.74	572.00
				782	480756.69	1349275.09	565.00
				783	480745.79	1349283.10	567.00
751	480870.99	1349209.66	577.00	784	480982.23	1349499.39	572.00
752	480858.73	1349187.18	575.00	785	480989.65	1349527.49	578.00
753	480844.74	1349186.76	568.00	786	480990.41	1349517.50	573.00
754	480870.33	1349227.65	568.00	787	480841.34	1349527.94	578.00
755	480797.94	1349230.99	565.00	788	480779.58	1349493.32	572.00
756	481152.55	1349407.16	577.00	789	480760.87	1349472.02	572.00
757	481146.08	1349412.68	577.00	790	480762.56	1349447.00	572.00
758	481157.96	1349435.73	580.00	791	480748.59	1349446.22	566.00
759	481149.77	1349443.12	580.00	792	480744.59	1349446.11	567.00
760	481155.61	1349516.12	584.00	793	480749.98	1349515.51	574.00

DITCH CONTROL POINTS			
PT NO.	NORTHING	EASTING	ELEV.
83	481197.72	1349244.66	567.00
84	481097.75	1349242.00	566.00
85	480754.42	1349232.83	564.80
85A	480747.22	1349496.20	567.00



30 0 30 60
SCALE: 1"=30'

NORTH

MDC KEY PLAN
SCALE: NONE

GENERAL NOTES

1. SEE DRAWING 99X-5500-X-00639 FOR LEGEND AND GENERAL NOTES.
2. GRID NUMBERS REFER TO THE UNDERGROUND UTILITIES GRID DRAWINGS AS SHOWN IN UTILITY GRID REFERENCE DRAWING INDEX ON DRAWING 99X-5500-X-00641.
3. FOR ADDITIONAL SECTION LOCATIONS SEE FOUNDATION DRAWINGS.
4. DESIGN CONTOURS AND GRADES SHOWN REPRESENT THE MINIMUM LIMITS OF EXCAVATION REQUIRED TO CAPTURE CONTAMINATION AND FOUNDATIONS, WHILE MAINTAINING SAFE SLOPE REQUIREMENTS. FIELD CHANGES SHALL BE REPORTED TO CONSTRUCTION MANAGER AND APPROVED BY ENGINEER.
5. BUILDING NUMBERS REFER TO FORMER LOCATIONS OF BUILDINGS OR PADS.
6. MANHOLE AND CATCHBASIN OPENINGS SHALL BE PROTECTED IN ACCORDANCE WITH SPR3-5.

4831

PRELIMINARY
NOT FOR CONSTRUCTION

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	DATE	REV. BY	APPR.
D	RE-ISSUED FOR AGENCY REVIEW	3/31/03	KLR	
C	ISSUED FOR AGENCY REVIEW	9/30/02	KLR	
B	ISSUED FOR 90% DESIGN REVIEW	8/30/02	KLR	
A	ISSUED FOR 30% DESIGN REVIEW	8/7/02	DRF	

DETAILS AND DATE

UNITED STATES
DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
FLUOR FERNALD, INC.

PROJECT NAME
SOIL REMEDIATION

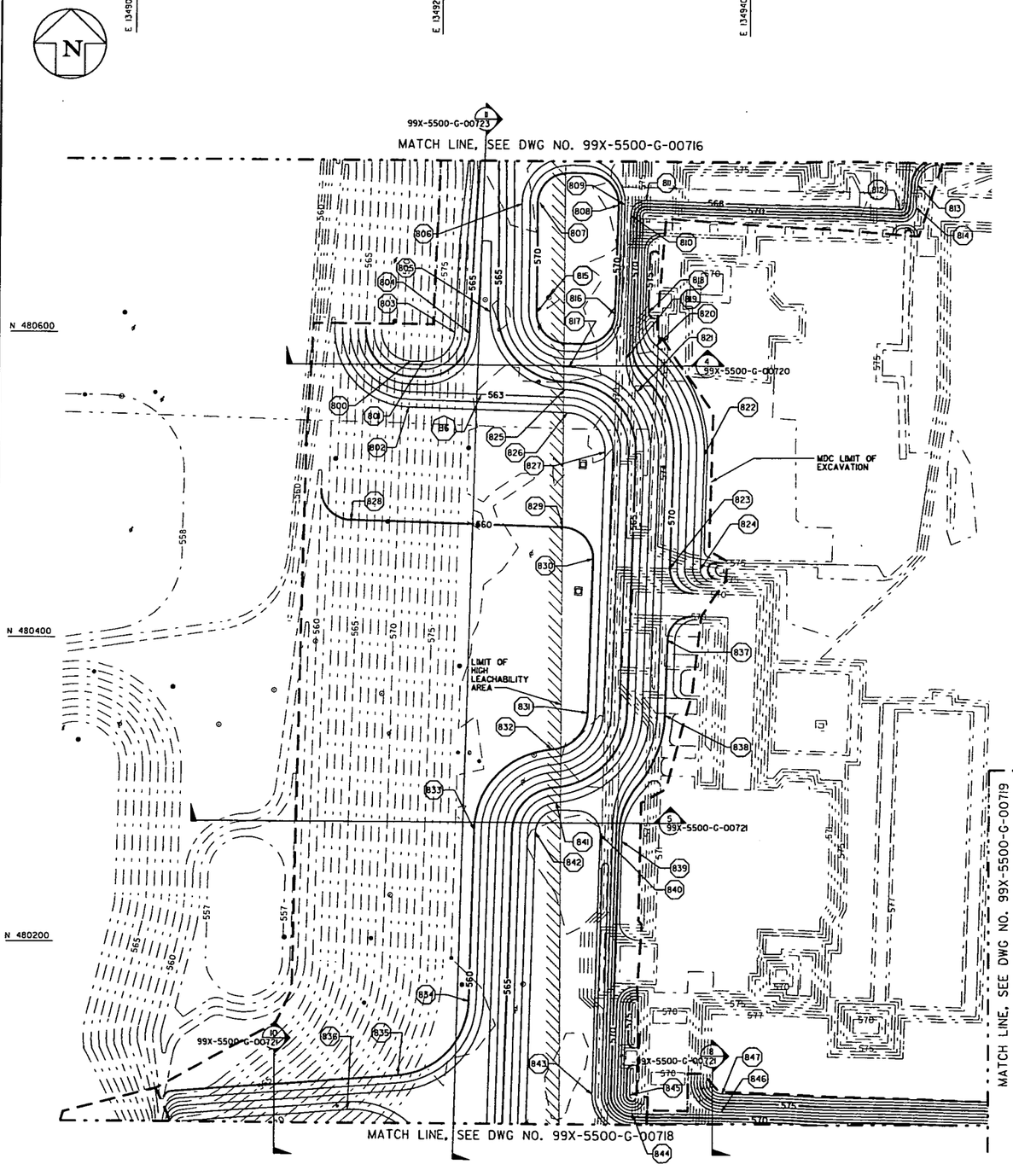
DRAWING TITLE
MDC
EXCAVATION/DRAINAGE PLAN (NORTH CENTRAL)

000234

APPROVALS

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

DRAWN BY	PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
DRF	20810	99X-5500-G-00716	G-72	D
RES PROJECT NO.	FILENAME 99X00076.DGN			



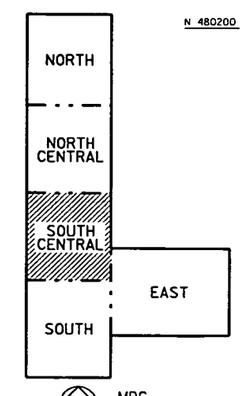
DESIGN GRADE CONTROL POINTS							
PT NO.	NORTHING	EASTING	ELEV.	PT NO.	NORTHING	EASTING	ELEV.
800	480582.07	1349180.76	567.00	826	480549.25	1349283.30	561.00
801	480581.84	1349188.98	567.00	827	480523.58	1349307.61	561.00
802	480552.08	1349179.94	561.00	828	480478.07	1349142.90	560.00
803	480600.90	1349209.51	567.00	829	480474.28	1349281.25	560.00
804	480600.44	1349219.50	565.00	830	480453.74	1349300.70	560.00
805	480614.62	1349233.02	564.00	831	480352.34	1349297.92	560.00
806	480685.24	1349253.09	568.00	832	480328.12	1349275.09	560.00
807	480685.34	1349263.09	570.00	833	480274.83	1349224.85	560.00
808	480684.71	1349315.09	570.00	834	480162.66	1349221.78	560.00
809	480684.63	1349319.09	568.00	835	480114.19	1349175.71	560.00
810	480677.94	1349322.93	568.00	836	480091.55	1349142.96	564.00
811	480687.69	1349333.23	568.00	837	480400.44	1349349.26	570.00
812	480682.69	1349497.32	568.00	838	480350.98	1349347.91	570.00
813	480698.95	1349508.30	572.00	839	480267.97	1349320.13	571.00
814	480684.06	1349507.36	572.00	840	480272.49	1349306.42	568.00
815	480614.42	1349263.01	570.00	841	480293.25	1349278.11	567.00
816	480613.51	1349313.34	570.00	842	480273.74	1349264.84	568.00
817	480579.24	1349284.13	567.00	843	480102.94	1349301.89	568.00
818	480614.99	1349335.39	575.00	844	480090.28	1349327.57	571.00
819	480584.74	1349320.64	568.00	845	480102.33	1349325.89	576.00
820	480593.27	1349340.40	574.00	846	480090.75	1349385.70	572.00
821	480563.19	1349328.28	568.00	847	480102.75	1349386.01	577.00
822	480521.80	1349372.59	574.00				
823	480447.43	1349350.54	570.00				
824	480446.88	1349370.54	574.00				
825	480564.25	1349283.71	564.00				

DITCH CONTROL POINTS			
PT NO.	NORTHING	EASTING	ELEV.
86	480560.78	1349227.65	563.00

GENERAL NOTES

1. SEE DRAWING 99X-5500-X-00639 FOR LEGEND AND GENERAL NOTES.
2. GRID NUMBERS REFER TO THE UNDERGROUND UTILITIES GRID DRAWINGS AS SHOWN IN UTILITY GRID REFERENCE DRAWING INDEX ON DRAWING 99X-5500-X-00641.
3. FOR ADDITIONAL SECTION LOCATIONS SEE FOUNDATION DRAWINGS.
4. DESIGN CONTOURS AND GRADES SHOWN REPRESENT THE MINIMUM LIMITS OF EXCAVATION REQUIRED TO CAPTURE CONTAMINATION AND FOUNDATIONS. WHILE MAINTAINING SAFE SLOPE REQUIREMENTS. FIELD CHANGES SHALL BE REPORTED TO CONSTRUCTION MANAGER AND APPROVED BY ENGINEER.
5. BUILDING NUMBERS REFER TO FORMER LOCATIONS OF BUILDINGS OR PADS.
6. MANHOLE AND CATCHBASIN OPENINGS SHALL BE PROTECTED IN ACCORDANCE WITH SPR3-5.

4831



SCALE: 1"=30'

NORTH

MDC KEY PLAN
SCALE: NONE

PRELIMINARY
NOT FOR CONSTRUCTION

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	DATE	REV. BY	APPR.
D	RE-ISSUED FOR AGENCY REVIEW	3/31/03	KLR	
C	ISSUED FOR AGENCY REVIEW	9/30/02	KLR	
B	ISSUED FOR 90% DESIGN REVIEW	8/30/02	KLR	
A	ISSUED FOR 30% DESIGN REVIEW	8/7/02	DRF	

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
FLUOR FERNALD, INC.

PROJECT NAME
SOIL REMEDIATION

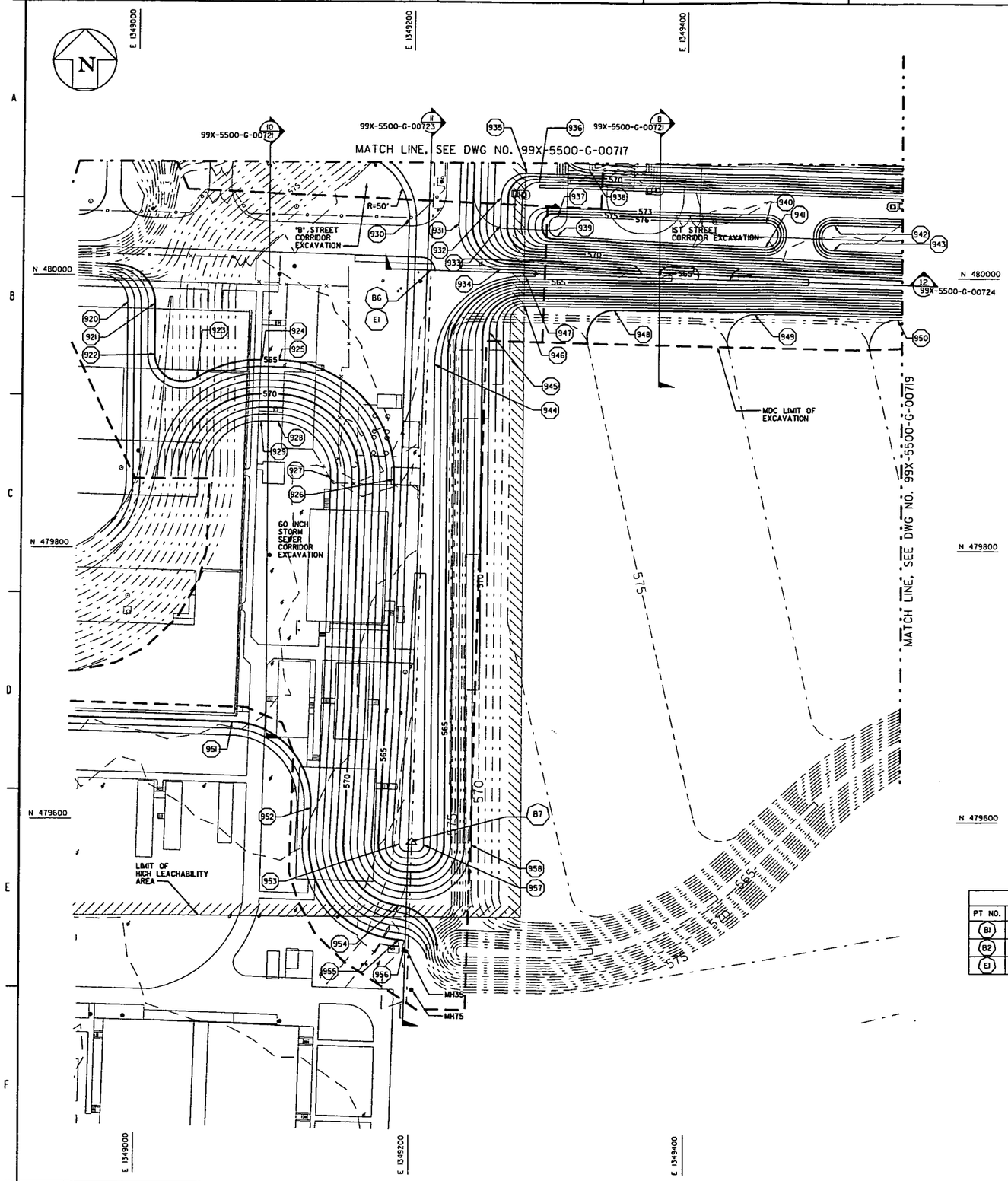
DRAWING TITLE
MDC
EXCAVATION/DRAINAGE PLAN (SOUTH CENTRAL)

000235

APPROVALS

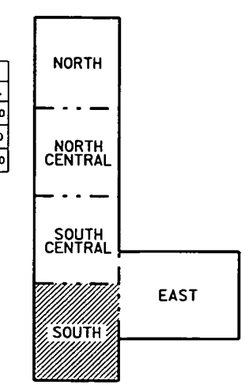
COGNIZANT ENG.		SAFETY ENG.	
CIVIL & STR.		MAINTENANCE	
ELECTRICAL		FIRE PROTECT.	
ENGINEER		WASTE MANAGE	
INSTRUMENT		SECURITY	
MECHANICAL		QA	
		CONSTRUCTION	
CHECKED			
APPROVED			

DRAWN BY	PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
DRF	2080	99X-5500-G-00717	G-73	D
RES PROJECT NO.	FILENAME 99XG00717.DGN			



DESIGN GRADE CONTROL POINTS			
PT NO.	NORTHING	EASTING	ELEV.
920	479980.14	1348992.70	569.0
921	479979.35	1349012.70	565.0
922	479941.80	1349012.70	565.0
923	479924.96	1349043.49	565.0
924	479938.39	1349090.09	565.0
925	479938.27	1349102.75	565.0
926	479854.09	1349186.98	565.0
927	479852.25	1349141.99	574.0
928	479893.28	1349102.36	574.0
929	479893.38	1349090.96	574.0
930	480040.42	1349196.85	564.0
931	480038.4	1349233.39	563.0
932	480057.95	1349263.93	569.0
933	480037.22	1349263.37	569.0
934	480005.57	1349263.87	563.0
935	480075.46	1349282.40	569.0
936	480069.23	1349291.24	572.0
937	480044.21	1349304.57	576.0
938	480078.28	1349327.26	567.0
939	480029.7.	1349304.06	576.0
940	480040.00	1349458.18	576.0
941	480022.46	1349457.53	576.0
942	480038.68	1349506.39	576.0
943	480020.34	1349505.79	576.0
944	479935.55	1349216.11	563.0
945	479959.49	1349256.14	571.0
946	479978.44	1349281.23	574.0
947	480000.44	1349281.58	563.0
948	479975.97	1349346.26	575.0
949	479973.24	1349449.46	576.0
950	479969.85	1349553.01	577.0
951	479671.84	1349070.55	575.0
952	479608.76	1349128.81	575.0
953	479582.67	1349192.52	562.0
954	479537.60	1349192.42	570.0
955	479512.51	1349192.30	575.0
956	479507.32	1349196.34	576.0
957	479582.16	1349210.51	562.0
958	479582.10	1349245.50	569.0

DITCH CONTROL POINTS			
PT NO.	NORTHING	EASTING	ELEV.
B1	480004.46	1349212.79	563.80
B2	479584.78	1349201.58	561.00
E1	480004.46	1349212.79	563.80



30 0 30 60
SCALE: 1"=30'

NORTH

MDC KEY PLAN
SCALE: NONE

GENERAL NOTES

1. SEE DRAWING 99X-5500-X-00639 FOR LEGEND AND GENERAL NOTES.
2. GRID NUMBERS REFER TO THE UNDERGROUND UTILITIES GRID DRAWINGS AS SHOWN IN UTILITY GRID REFERENCE DRAWING INDEX ON DRAWING 99X-5500-X-00641.
3. FOR ADDITIONAL SECTION LOCATIONS SEE FOUNDATION DRAWINGS.
4. DESIGN CONTOURS AND GRADES SHOWN REPRESENT THE MINIMUM LIMITS OF EXCAVATION REQUIRED TO CAPTURE CONTAMINATION AND FOUNDATIONS, WHILE MAINTAINING SAFE SLOPE REQUIREMENTS. FIELD CHANGES SHALL BE REPORTED TO CONSTRUCTION MANAGER AND APPROVED BY ENGINEER.
5. BUILDING NUMBERS REFER TO FORMER LOCATIONS OF BUILDINGS OR PADS.
6. MANHOLE AND CATCHBASIN OPENINGS SHALL BE PROTECTED IN ACCORDANCE WITH SPR3-5.

4831

PRELIMINARY
NOT FOR CONSTRUCTION

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	DATE	REV. BY	APPR.
D	RE-ISSUED FOR AGENCY REVIEW	3/31/03	KLR	
C	ISSUED FOR AGENCY REVIEW	9/30/02	KLR	
B	ISSUED FOR 90% DESIGN REVIEW	8/30/02	KLR	
A	ISSUED FOR 30% DESIGN REVIEW	8/7/02	DRF	

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
FLUOR FERNALD, INC.

PROJECT NAME
SOIL REMEDIATION

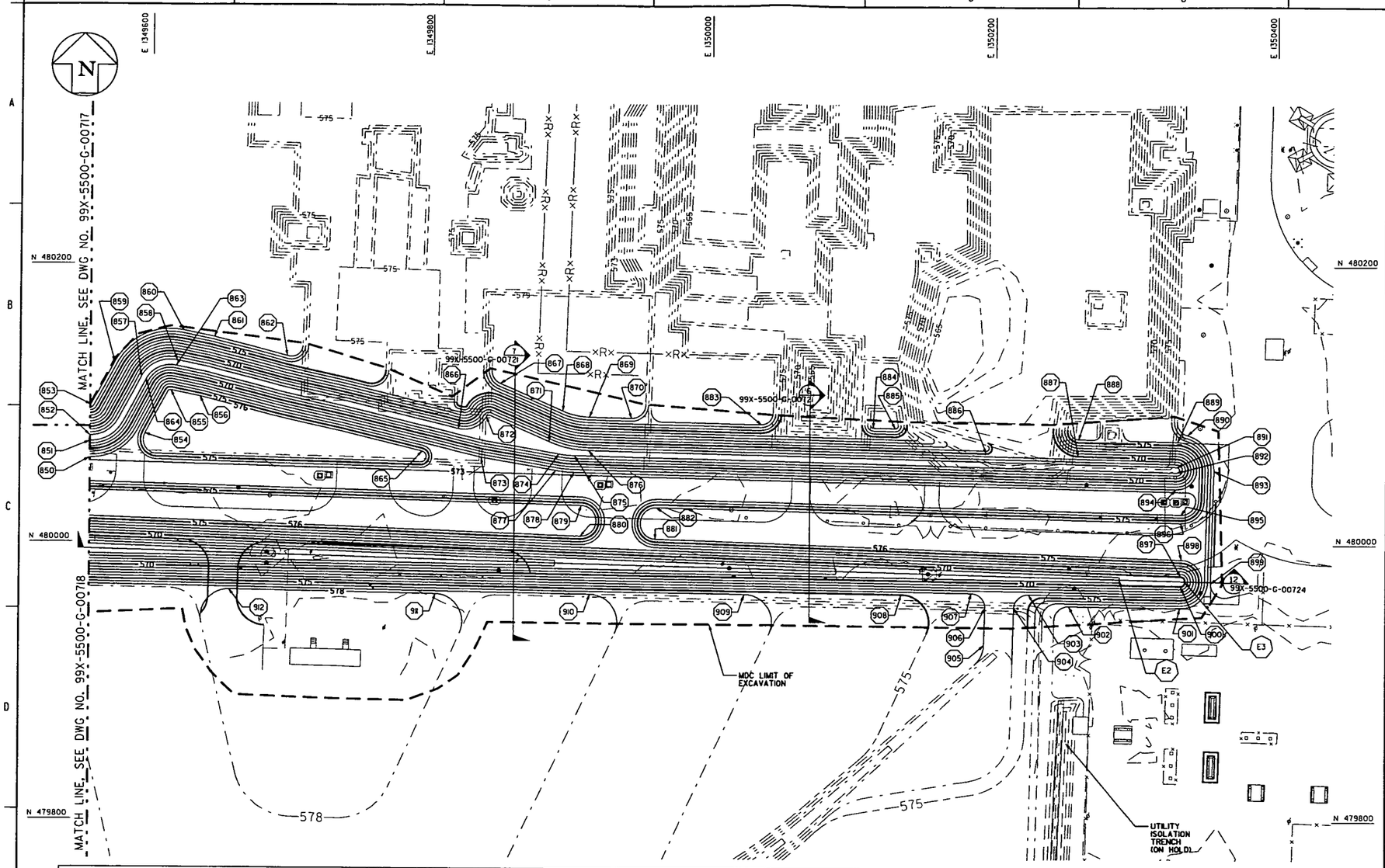
DRAWING TITLE
MDC
EXCAVATION/DRAINAGE PLAN (SOUTH)

000236

APPROVALS

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

DRAWN BY	PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
DRF	20810	99X-5500-G-00718	G-74	D
RES PROJECT NO.	FILENAME 99X5G0718.DGN			



GENERAL NOTES

1. SEE DRAWING 99X-5500-X-00639 FOR LEGEND AND GENERAL NOTES.
2. GRID NUMBERS REFER TO THE UNDERGROUND UTILITIES GRID DRAWINGS AS SHOWN IN UTILITY GRID REFERENCE DRAWING INDEX ON DRAWING 99X-5500-X-00641.
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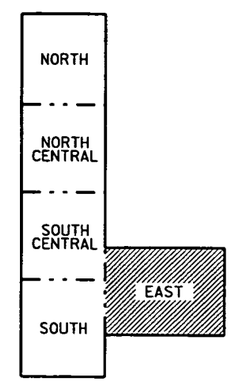
4831

DESIGN GRADE CONTROL POINTS

PT NO.	NORTHING	EASTING	ELEV.	PT NO.	NORTHING	EASTING	ELEV.	PT NO.	NORTHING	EASTING	ELEV.	PT NO.	NORTHING	EASTING	ELEV.
850	480060.39	1349555.79	573.00	866	480082.47	1349819.96	567.00	882	480026.24	1349961.37	576.00	898	479989.60	1350332.40	576.00
851	480072.27	1349556.02	567.00	867	480085.13	1349849.62	579.00	883	480086.01	1350035.72	577.00	899	479972.53	1350352.78	579.00
852	480076.27	1349556.13	567.00	868	480095.46	1349893.95	579.00	884	480083.99	1350114.10	577.00	900	479970.48	1350331.76	570.00
853	480098.26	1349556.70	577.00	869	480091.18	1349912.93	579.00	885	480083.58	1350129.62	577.00	901	479954.48	1350331.48	578.00
854	480078.02	1349595.78	576.00	870	480090.40	1349943.18	579.00	886	480065.91	1350194.16	570.00	902	479955.85	1350251.89	578.00
855	480109.13	1349614.33	576.00	871	480073.52	1349884.22	567.00	887	480064.26	1350258.07	570.00	903	479964.33	1350223.78	574.00
856	480104.93	1349634.82	576.00	872	480091.20	1349839.88	567.00	888	480076.26	1350258.38	576.00	904	479954.60	1350213.61	574.00
857	480118.65	1349592.85	567.00	873	480062.13	1349836.14	573.00	889	480074.42	1350329.41	576.00	905	479927.67	1350192.87	574.00
858	480130.68	1349618.75	567.00	874	480064.58	1349891.14	567.00	890	480079.34	1350336.34	579.00	906	479954.75	1350193.61	574.00
859	480129.16	1349573.53	577.00	875	480063.44	1349902.43	567.00	891	480056.43	1350328.94	567.00	907	479965.02	1350183.78	574.00
860	480152.23	1349623.18	577.00	876	480067.19	1349912.31	567.00	892	480052.43	1350328.84	567.00	908	479963.87	1350134.25	575.00
861	480147.79	1349644.85	577.00	877	480052.77	1349889.05	573.00	893	480053.76	1350354.88	579.00	909	479963.76	1350024.09	576.00
862	480134.19	1349696.58	577.00	878	480051.45	1349902.12	573.00	894	480040.43	1350328.53	573.00	910	479963.65	1349913.93	577.00
863	480126.77	1349617.95	567.00	879	480027.71	1349907.39	576.00	895	480022.10	1350332.04	573.00	911	479963.54	1349803.77	578.00
864	480116.74	1349596.36	567.00	880	480005.43	1349906.67	576.00	896	480016.10	1350331.88	576.00	912	479966.07	1349656.45	578.00
865	480066.18	1349793.56	576.00	881	480003.42	1349960.64	576.00	897	479977.61	1350331.95	570.00				

DITCH CONTROL POINTS

PT NO.	NORTHING	EASTING	ELEV.
E2	479975.22	1350288.51	569.00
E3	479973.96	1350334.83	570.00



30 0 30 60
SCALE: 1"=30'

NORTH

MDC KEY PLAN
SCALE: NONE

PRELIMINARY
NOT FOR CONSTRUCTION

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	DATE	REV. BY	APPR.
D	RE-ISSUED FOR AGENCY REVIEW	3/31/03	KLR	
C	ISSUED FOR AGENCY REVIEW	9/30/02	KLR	
B	ISSUED FOR 90% DESIGN REVIEW	8/30/02	KLR	
A	ISSUED FOR 30% DESIGN REVIEW	8/7/02	DRF	

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
FLUOR FERNALD, INC.

PROJECT NAME
SOIL REMEDIATION

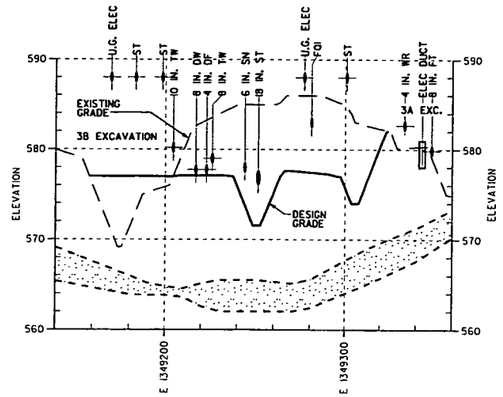
DRAWING TITLE
MDC
EXCAVATION/DRAINAGE PLAN (EAST)

000237

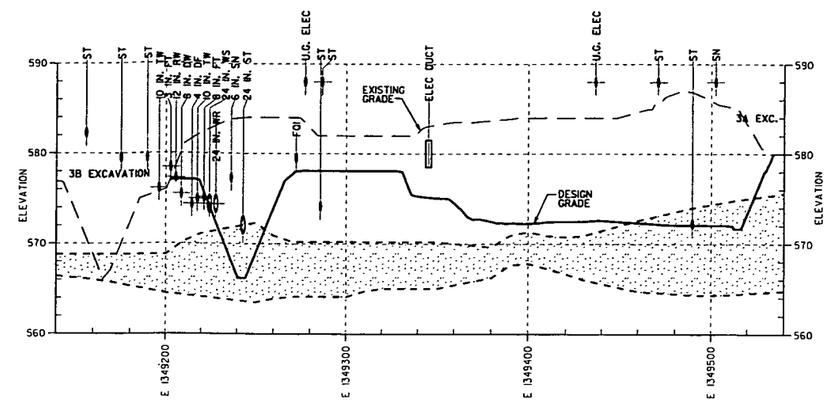
APPROVALS

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

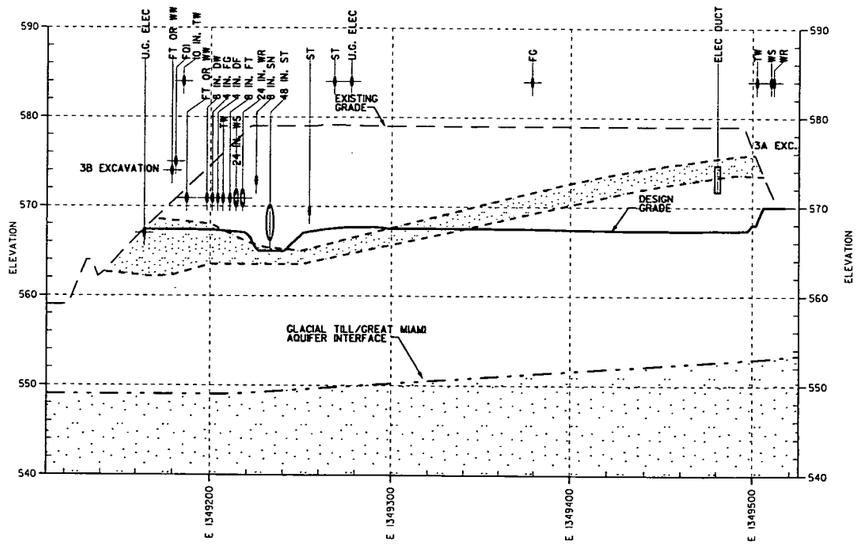
DRAWN BY	PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
DRF	20810	99X-5500-G-00719	G-75	D
RES PROJECT NO.	FILENAME 99XG00719.DGN			



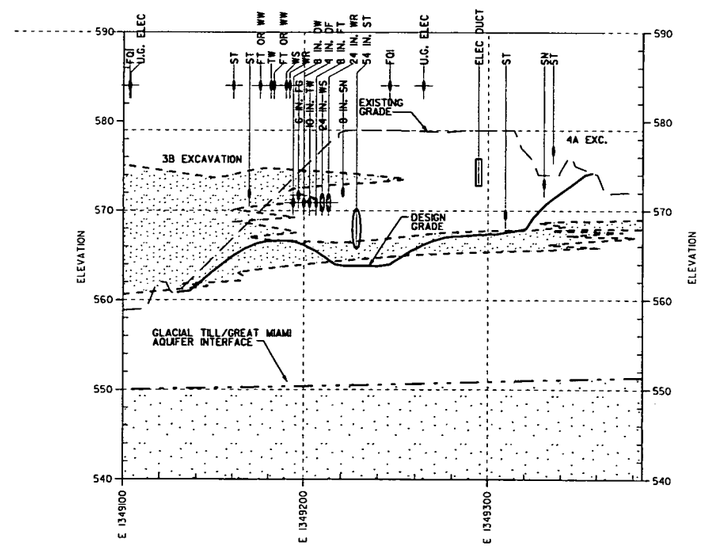
MDC EXCAVATION (1) 99X-5500-G-00715
SCALE: 1"=30' HORIZ
1"=6' VERT



MDC EXCAVATION (2) 99X-5500-G-00705 00716
SCALE: 1"=30' HORIZ
1"=6' VERT



MDC EXCAVATION (3) 99X-5500-G-00716
SCALE: 1"=30' HORIZ
1"=6' VERT



MDC EXCAVATION (4) 99X-5500-G-00717
SCALE: 1"=30' HORIZ
1"=6' VERT

30 0 30 60
HORIZ. SCALE: 1"=30'

6 0 6 12
VERT. SCALE: 1"=6'

GENERAL NOTES

1. SEE DRAWING 99X-5500-X-00639 FOR LEGEND AND GENERAL NOTES.
2. UNDERGROUND UTILITIES ARE SHOWN AT THEIR APPROXIMATE LOCATIONS AND INVERT ELEVATIONS. FOR UTILITY LINE DESCRIPTION, SEE UNDERGROUND UTILITY GRID DRAWINGS.
3. ELEVATIONS HAVE NOT BEEN DETERMINED FOR UTILITIES SHOWN ABOVE EXISTING GRADE.
4. UNDERGROUND UTILITIES ENCOUNTERED DURING EXCAVATION TO THE DESIGN GRADE SHALL BE REMOVED IN ACCORDANCE WITH SPECIFICATION SECTION 02205. REMAINING UTILITIES BELOW THE DESIGN GRADE SHALL BE REMOVED USING TRENCHING METHODS IN ACCORDANCE WITH SPECIFICATION SECTION 02205.
5. DESIGN CONTOURS AND GRADES SHOWN REPRESENT THE MINIMUM LIMIT OF EXCAVATION REQUIRED TO CAPTURE CONTAMINATION AND STRUCTURES, WHILE MAINTAINING SAFE SLOPES.

4831

LEGEND

UNSATURATED SAND AND GRAVEL OF THE GREAT MIAMI AQUIFER

SAND/GRAVEL

PRELIMINARY
NOT FOR CONSTRUCTION

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	DATE	REV. BY	APPR.
C	RE-ISSUED FOR AGENCY REVIEW	3/3/03	KLR	
B	ISSUED FOR AGENCY REVIEW	9/30/02	KLR	
A	ISSUED FOR 90% DESIGN REVIEW	8/30/02	DRF	

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
FLUOR FERNALD, INC.

PROJECT NAME
SOIL REMEDIATION

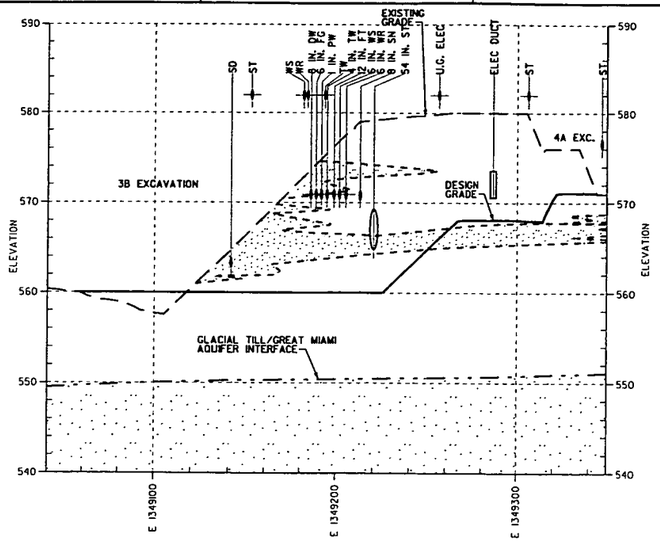
DRAWING TITLE
MDC
CROSS SECTIONS SHEET I

000238

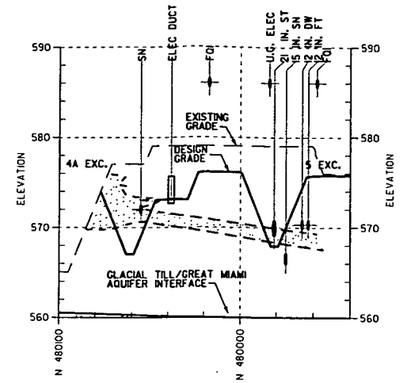
APPROVALS

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

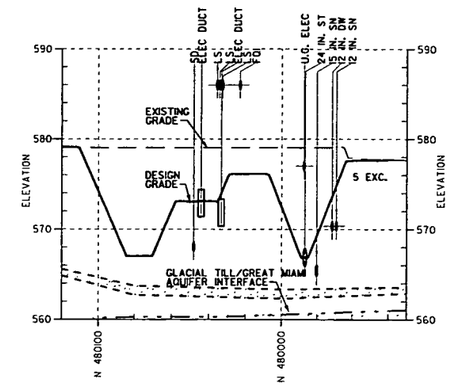
DRAWN BY	PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
DRF	20810	99X-5500-G-00720	G-76	C
RES PROJECT NO.	FILENAME 99XG00720.DGN			



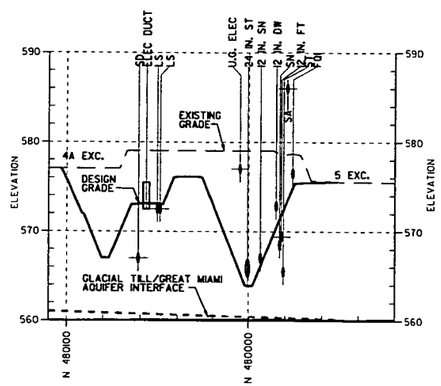
MDC EXCAVATION (5)
SCALE: 1"=30' HORIZ 1"=6' VERT
99X-5500-G-00717



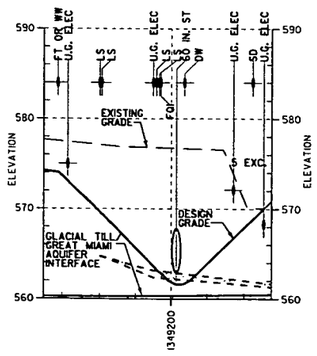
MDC EXCAVATION (6)
SCALE: 1"=30' HORIZ 1"=6' VERT
99X-5500-G-00719



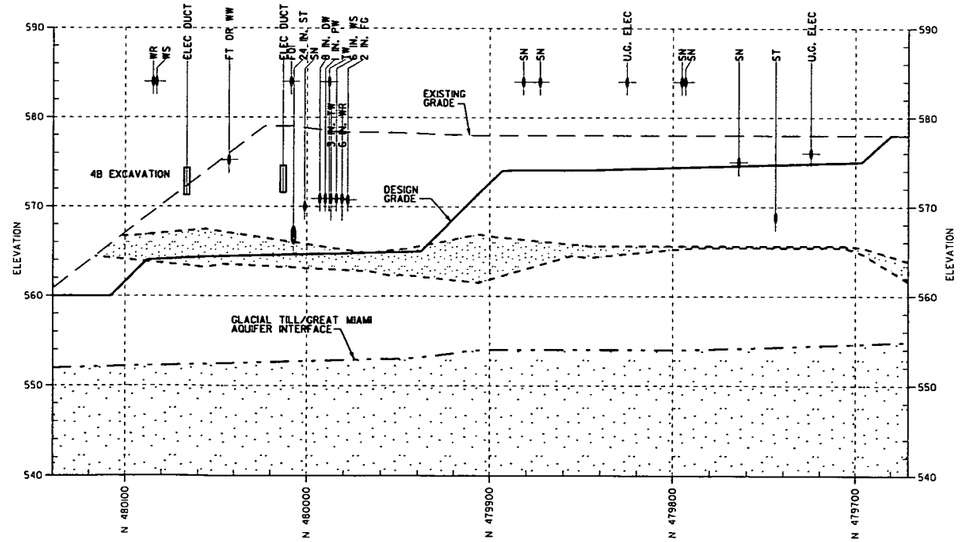
MDC EXCAVATION (7)
SCALE: 1"=30' HORIZ 1"=6' VERT
99X-5500-G-00719



MDC EXCAVATION (8)
SCALE: 1"=30' HORIZ 1"=6' VERT
99X-5500-G-00718



MDC EXCAVATION (9)
SCALE: 1"=30' HORIZ 1"=6' VERT
99X-5500-G-00718



MDC EXCAVATION (10)
SCALE: 1"=30' HORIZ 1"=6' VERT
99X-5500-G-00718

30 0 30 60
HORIZ. SCALE: 1"=30'

6 0 6 12
VERT. SCALE: 1"=6'

GENERAL NOTES

1. SEE DRAWING 99X-5500-X-00639 FOR LEGEND AND GENERAL NOTES.
2. UNDERGROUND UTILITIES ARE SHOWN AT THEIR APPROXIMATE LOCATIONS AND INVERT ELEVATIONS. FOR UTILITY LINE DESCRIPTION, SEE UNDERGROUND UTILITY GRID DRAWINGS.
3. ELEVATIONS HAVE NOT BEEN DETERMINED FOR UTILITIES SHOWN ABOVE EXISTING GRADE.
4. UNDERGROUND UTILITIES ENCOUNTERED DURING EXCAVATION TO THE DESIGN GRADE SHALL BE REMOVED IN ACCORDANCE WITH SPECIFICATION SECTION 02205. REMAINING UTILITIES BELOW THE DESIGN GRADE SHALL BE REMOVED USING TRENCHING METHODS IN ACCORDANCE WITH SPECIFICATION SECTION 02205.
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4831

LEGEND

UNSATURATED SAND AND GRAVEL OF THE GREAT MIAMI AQUIFER

SAND/GRAVEL

PRELIMINARY
NOT FOR CONSTRUCTION

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	DATE	REV. BY	APPR.
C	RE-ISSUED FOR AGENCY REVIEW	3/31/03	KLR	
B	ISSUED FOR AGENCY REVIEW	9/30/02	KLR	
A	ISSUED FOR 90% DESIGN REVIEW	8/30/02	DRF	

DETAILS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
FLUOR FERNALD, INC.

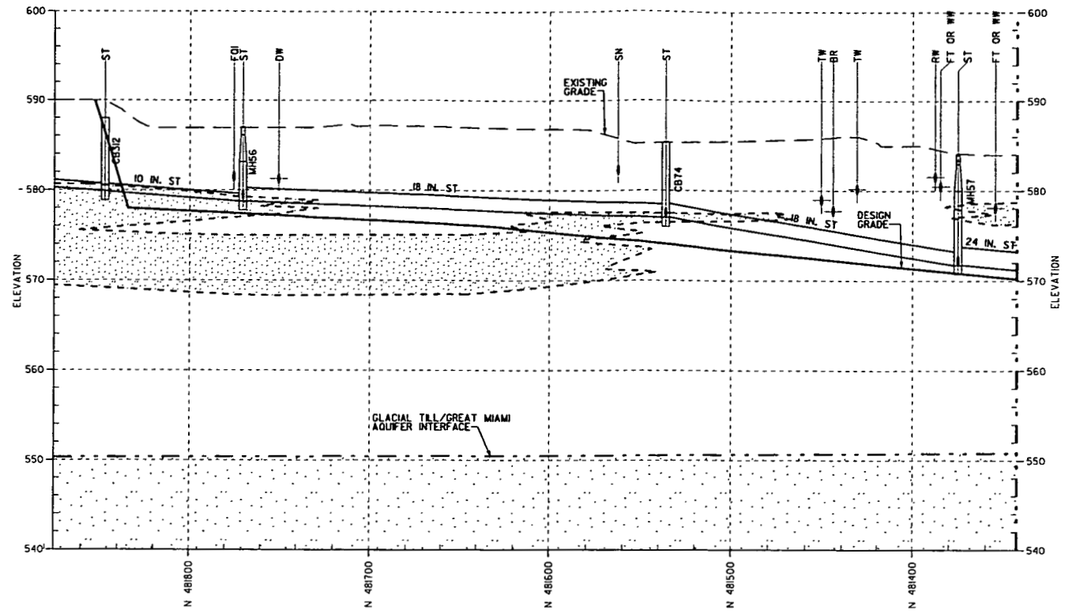
PROJECT NAME
SOIL REMEDIATION

DRAWING TITLE
MDC 000239
CROSS SECTIONS SHEET 2

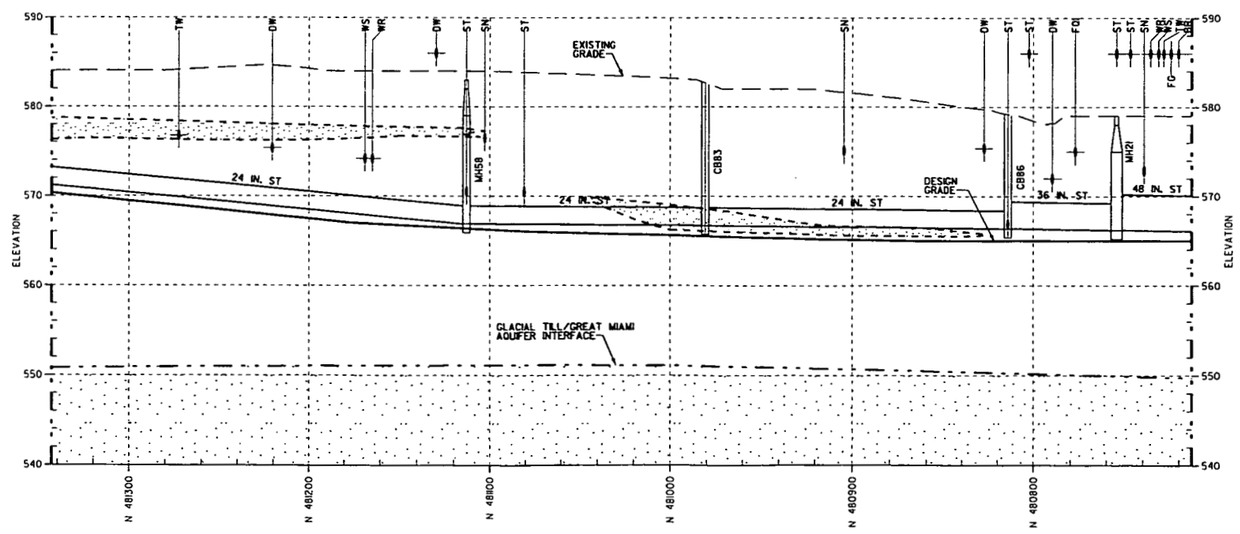
APPROVALS

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

DRAWN BY	PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
KLR	20E0	99X-5500-G-00721	G-77	C
RES PROJECT NO.	FILENAME 99XG00721.DGN			



MDC EXCAVATION (11)
SCALE: 1"=30' HORIZ
1"=6' VERT
99X-5500-G-00715



MDC EXCAVATION (11)
SCALE: 1"=30' HORIZ
1"=6' VERT
99X-5500-G-00705
00716

30 0 30 60
HORIZ. SCALE: 1"=30'

6 0 6 12
VERT. SCALE: 1"=6'

GENERAL NOTES

1. SEE DRAWING 99X-5500-X-00639 FOR LEGEND AND GENERAL NOTES.
2. UNDERGROUND UTILITIES ARE SHOWN AT THEIR APPROXIMATE LOCATIONS AND INVERT ELEVATIONS. FOR UTILITY LINE DESCRIPTION, SEE UNDERGROUND UTILITY GRID DRAWINGS.
3. ELEVATIONS HAVE NOT BEEN DETERMINED FOR UTILITIES SHOWN ABOVE EXISTING GRADE.
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4831

LEGEND

UNSATURATED SAND AND GRAVEL OF THE GREAT MIAMI AQUIFER

SAND/GRAVEL

PRELIMINARY
NOT FOR CONSTRUCTION

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	DATE	REV. BY	APPR.
C	RE-ISSUED FOR AGENCY REVIEW	3/31/03	KLR	
B	ISSUED FOR AGENCY REVIEW	9/30/02	KLR	
A	ISSUED FOR 90% DESIGN REVIEW	8/30/02	DRF	

INITIALS AND DATE

UNITED STATES
DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
FLUOR FERNALD, INC.

PROJECT NAME
SOIL REMEDIATION

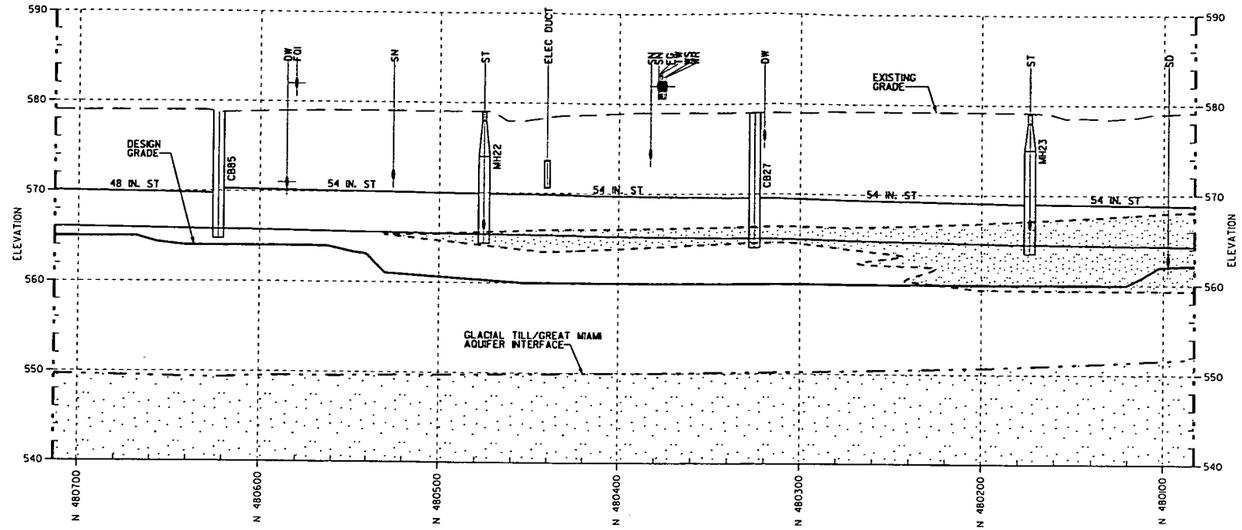
DRAWING TITLE
MDC
CROSS SECTIONS SHEET 3

000240

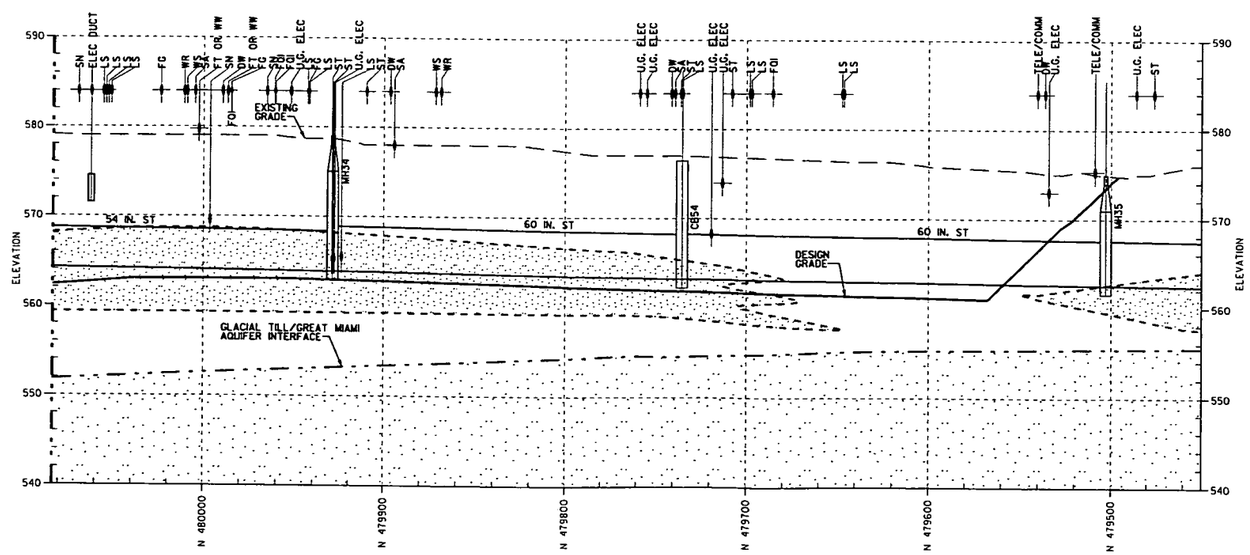
APPROVALS

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

DRAWN BY	PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
KLR	20810	99X-5500-G-00722	G-78	C
RES PROJECT NO.	FILENAME 99X00722.DGN			



MDC EXCAVATION (II) 99X-5500-G-00717
SCALE: 1"=30' HORIZ
1"=6' VERT



MDC EXCAVATION (I) 99X-5500-G-00718
SCALE: 1"=30' HORIZ
1"=6' VERT

30 0 30 60
HORIZ. SCALE: 1"=30'

6 0 6 12
VERT. SCALE: 1"=6'

GENERAL NOTES

1. SEE DRAWING 99X-5500-X-00639 FOR LEGEND AND GENERAL NOTES.
2. UNDERGROUND UTILITIES ARE SHOWN AT THEIR APPROXIMATE LOCATIONS AND INVERT ELEVATIONS. FOR UTILITY LINE DESCRIPTION, SEE UNDERGROUND UTILITY GRID DRAWINGS.
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4831

LEGEND

UNSATURATED SAND AND GRAVEL OF THE GREAT MIAMI AQUIFER

SAND/GRAVEL

PRELIMINARY
NOT FOR CONSTRUCTION

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	DATE	REV. BY	APPR.
C	RE-ISSUED FOR AGENCY REVIEW	3/31/03	KLR	
B	ISSUED FOR AGENCY REVIEW	9/30/02	KLR	
A	ISSUED FOR 90% DESIGN REVIEW	8/30/02	DRF	

INITIALS AND DATE

UNITED STATES
DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
FLUOR FERNALD, INC.

PROJECT NAME
SOIL REMEDIATION

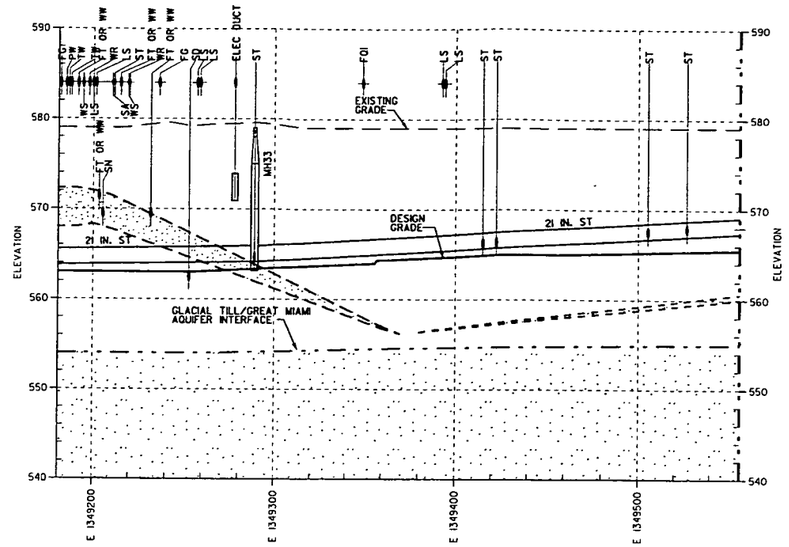
DRAWING TITLE
MDC
CROSS SECTIONS SHEET 4

000241

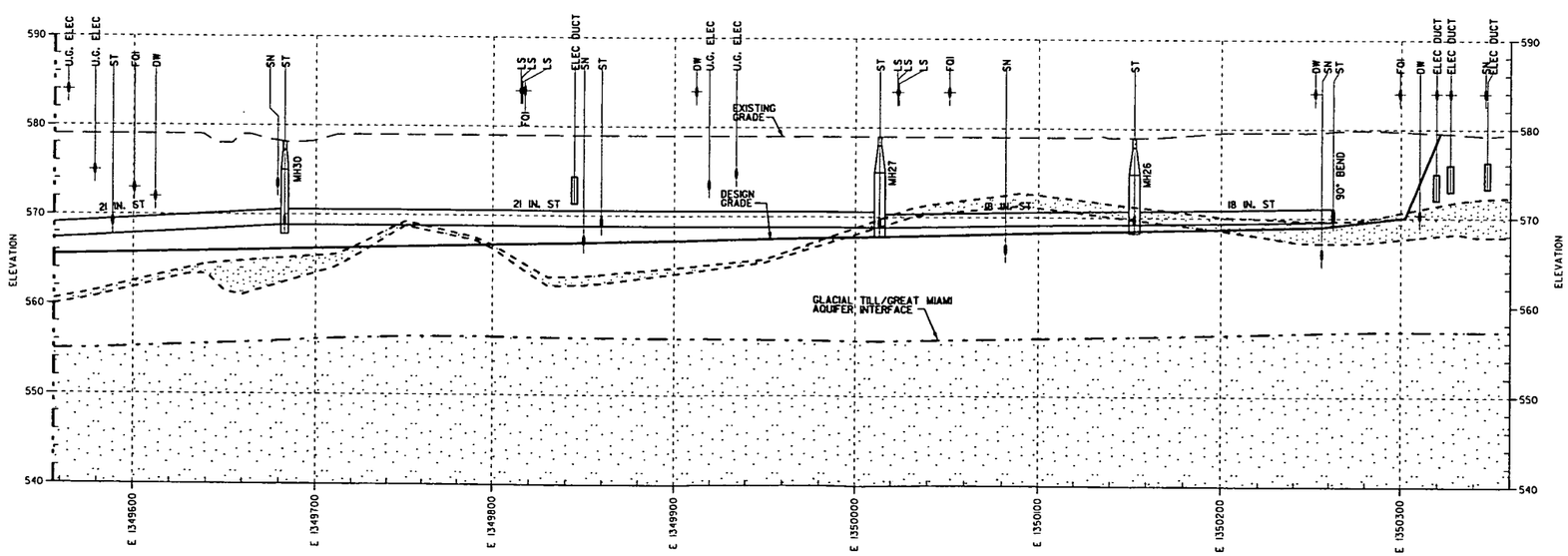
APPROVALS

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

DRAWN BY	PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
KLR	2080	99X-5500-G-00723	G-79	C
RES PROJECT NO.	FILENAME 99XG00723.DGN			



MDC EXCAVATION (12)
SCALE: 1"=30' HORIZ
1"=6' VERT
99X-5500-G-00718



MDC EXCAVATION (12)
SCALE: 1"=30' HORIZ
1"=6' VERT
99X-5500-G-00719

GENERAL NOTES

1. SEE DRAWING 99X-5500-X-00639 FOR LEGEND AND GENERAL NOTES.
2. UNDERGROUND UTILITIES ARE SHOWN AT THEIR APPROXIMATE LOCATIONS AND INVERT ELEVATIONS. FOR UTILITY LINE DESCRIPTION, SEE UNDERGROUND UTILITY GRID DRAWINGS.
3. ELEVATIONS HAVE NOT BEEN DETERMINED FOR UTILITIES SHOWN ABOVE EXISTING GRADE.
4. UNDERGROUND UTILITIES ENCOUNTERED DURING EXCAVATION TO THE DESIGN GRADE SHALL BE REMOVED IN ACCORDANCE WITH SPECIFICATION SECTION 02205. REMAINING UTILITIES BELOW THE DESIGN GRADE SHALL BE REMOVED USING TRENCHING METHODS IN ACCORDANCE WITH SPECIFICATION SECTION 02205.
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4831

LEGEND

UNSATURATED SAND AND GRAVEL OF THE GREAT MIAMI AQUIFER

SAND/GRAVEL

PRELIMINARY
NOT FOR CONSTRUCTION

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	DATE	REV. BY	APPR.
C	RE-ISSUED FOR AGENCY REVIEW	3/31/03	KLR	
B	ISSUED FOR AGENCY REVIEW	9/30/02	KLR	
A	ISSUED FOR 90% DESIGN REVIEW	8/30/02	DRF	

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
FLUOR FERNALD, INC.

PROJECT NAME
SOIL REMEDIATION

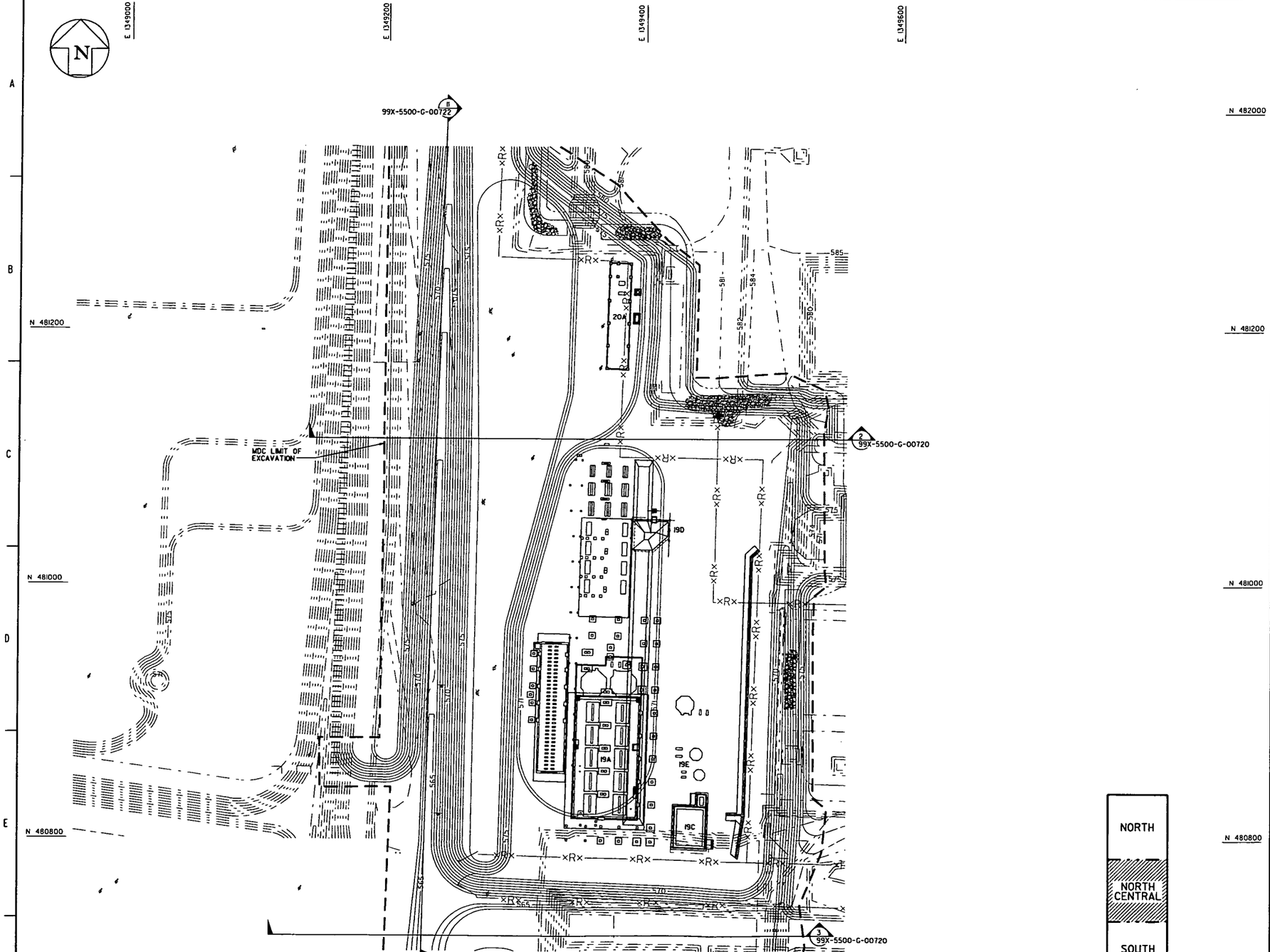
DRAWING TITLE
MDC
CROSS SECTIONS SHEET 5

000242

APPROVALS

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

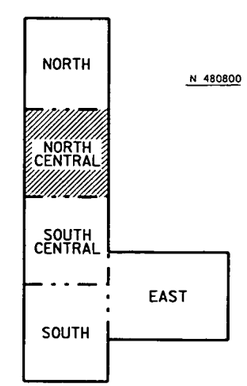
DRAWN BY	PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
DRF	2020	99X-5500-G-00724	G-80	C
RES. PROJECT NO.	FILENAME 99XG00724.DGN			



TECHNICAL REFERENCE DRAWING LIST FOR BUILDING FOUNDATIONS

DRAWING NO.	DRAWING TITLE	SHT. NO.
12X-5900-S-00477	BUILDING 12A - WEST FOUNDATION PLAN	S0001
12X-5900-S-00479	BUILDING 12A - WEST SLAB PLAN	S0002
19X-5900-S-00696	TANK FARM 19A FOUNDATION PLAN	S0001
19X-5900-S-00697	TANK FARM 19A SLAB PLAN	S0002
19X-5900-S-00699	TANK FARM 19D FOUNDATION AND SLAB PLAN	S0001
19X-5900-S-00698	BUILDING 19C AND TANK FARM 19E FOUNDATION AND SLAB PLAN	S0001
20B-5900-S-00456	BUILDING 20A FOUNDATION AND SLAB PLAN	S0001

30 0 30 60
SCALE: 1"=30'



MDC KEY PLAN
SCALE: NONE

GENERAL NOTES

1. SEE DRAWING 99X-5500-X-00639 FOR LEGEND AND GENERAL NOTES.
2. BUILDING NUMBERS REFER TO FORMER LOCATIONS OF BUILDINGS OR PADS.
3. FOR FOUNDATION/SLAB DETAILS, SEE TECHNICAL REFERENCE DRAWINGS LISTED.

4831

PRELIMINARY
NOT FOR CONSTRUCTION

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	DATE	REV. BY	APPR.
B	RE-ISSUED FOR AGENCY REVIEW	3/31/03	KLR	
A	ISSUED FOR AGENCY REVIEW	9/30/02	KLR	

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
FLUOR FERNALD, INC.

PROJECT NAME
SOIL REMEDIATION

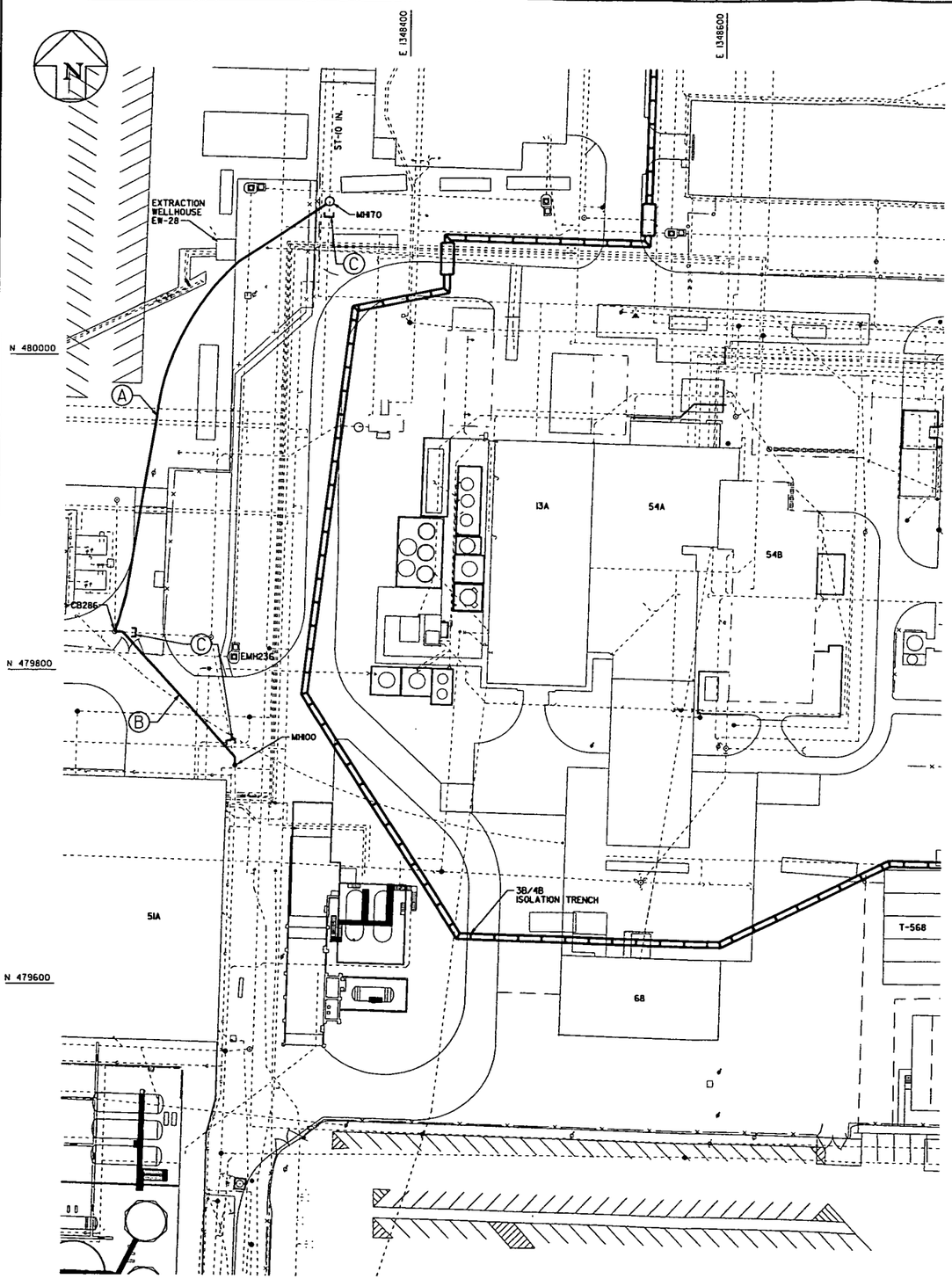
DRAWING TITLE
MDC FOUNDATION PLAN

000243

APPROVALS

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

DRAWN BY	PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
KLR	20B0	99X-5500-G-00705	G-81	B
RES. PROJECT NO.	FILENAME 99XG00705.DGN			



REROUTED STORM SEWER LINE				
ID	INLET INVERT ELEVATION	OUTLET INVERT ELEVATION	NORTHING	EASTING
MH70	573.1	573.05	480097.48	1348350.96
CB286	571.9	571.3	EXISTING	EXISTING
MH100	569.9	EXISTING	EXISTING	EXISTING

30 0 30 60
SCALE: 1"=30'

GENERAL NOTES

1. SEE DRAWING 99X-5500-X-00639 FOR LEGEND AND GENERAL NOTES.
2. UNDERGROUND UTILITIES SHOWN REPRESENT FLUOR FERNALD MASTER REFERENCE FILES FOR UNDERGROUND UTILITY DRAWINGS 22D-5500-P-00684 (GRID 25), 22G-5500-P-00685 (GRID 26). THIS DRAWING DOES NOT ATTEMPT TO SHOW UNDERGROUND UTILITIES WITHIN BUILDING FOOTPRINTS.
3. INSTALL NEW 12 IN. AND 24 IN. STORMSEWER LINE BEFOR PERFORMING STAGE II EXCAVATION.

4831

KEYED NOTES

(A) INSTALL NEW 12 IN. HDPE STORM SEWER LINE IN ACCORDANCE WITH SPECIFICATION SECTION 02668.

(B) INSTALL NEW 24 IN. HDPE STORM SEWER LINE IN ACCORDANCE WITH SPECIFICATION SECTION 02668.

(C) INSTALL PIPE PLUGS IN ACCORDANCE WITH TYPICAL PIPE PLUG DETAIL ON DRAWING 99X-5500-G-00739.

LEGEND

PROPOSED ISOLATION TRENCH
EXISTING ISOLATION TRENCH
ISOLATION TRENCH GAP

PRELIMINARY
NOT FOR CONSTRUCTION

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	DATE	REV. BY	APPR.
B	RE-ISSUED FOR AGENCY REVIEW	3/31/03	KLR	
A	ISSUED FOR AGENCY REVIEW	9/30/02	DRF	

INITIALS AND DATE

UNITED STATES
DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
FLUOR FERNALD, INC.

PROJECT NAME
SOIL REMEDIATION

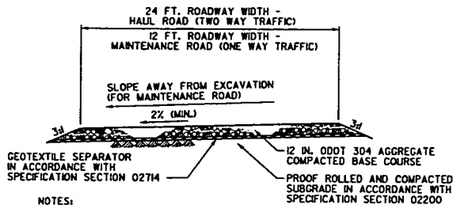
DRAWING TITLE
AREA 4B
REROUTED STORM SEWER LINE

000244

APPROVALS

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

DRAWN BY	PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
DRF	20610	99X-5500-G-00745	G-82	B
RES PROJECT NO.	FILENAME 99XG00745.DGN			

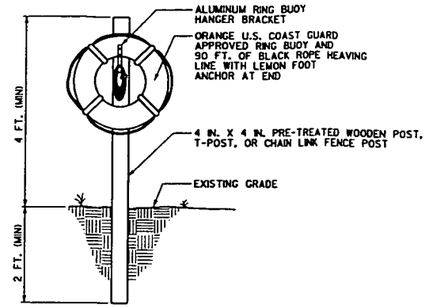


NOTES:

1. SEE SPECIFICATION SECTION 02230 FOR ROAD CONSTRUCTION.
2. SMTA DIMENSIONS AS DIRECTED BY THE CONSTRUCTION MANAGER.

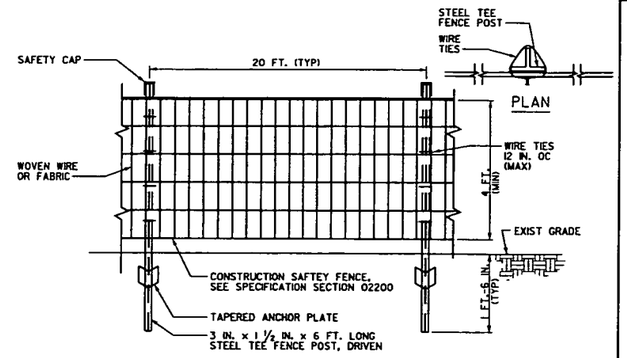
TYPICAL HAUL ROAD/ MAINTENANCE ROAD/SMTA DETAIL

NTS — 99X-5500-G-00657



RING BUOY STATION DETAIL

NTS — 99X-5500-G-00679 701 712

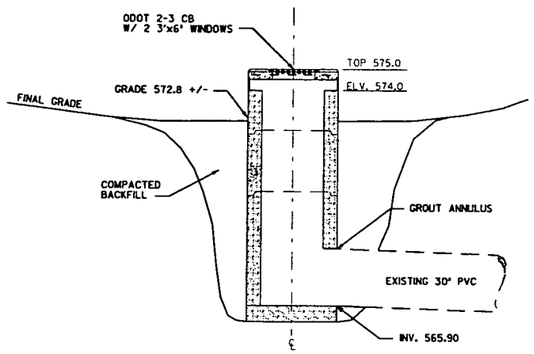


NOTE:

INSTALL SAFETY CAPS ON T-POSTS THAT ARE LESS THAN 4 FEET IN HEIGHT ABOVE-GRADE.

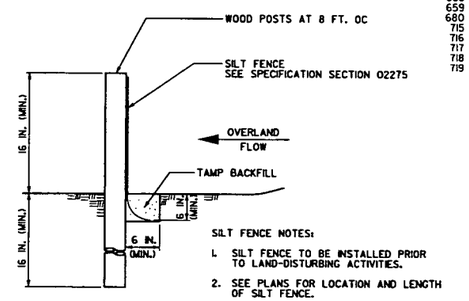
CONSTRUCTION SAFETY FENCE DETAIL

NTS — 99X-5500-G-00653 654 655 656 657 658 659 680 715 716 717 718 719



OUTFALL DETAIL

NTS — 99X-5500-G-00708

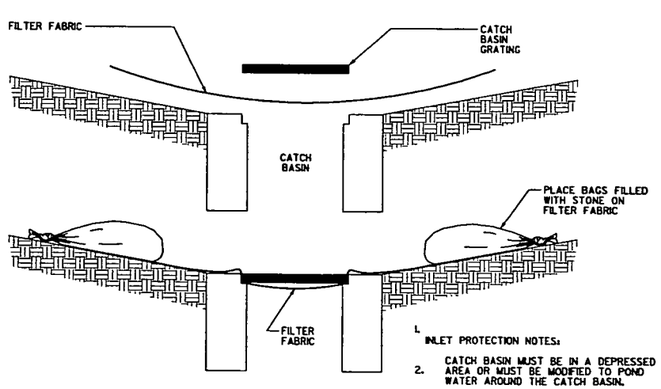


SILT FENCE NOTES:

1. SILT FENCE TO BE INSTALLED PRIOR TO LAND-DISTURBING ACTIVITIES.
2. SEE PLANS FOR LOCATION AND LENGTH OF SILT FENCE.
3. WOOD POSTS SHALL BE 2 IN. X 2 IN. (MIN.) OF OAK OR SIMILAR HARDWOOD.
4. BACKFILL MATERIAL IN ACCORDANCE WITH SPECIFICATION SECTION 02200.

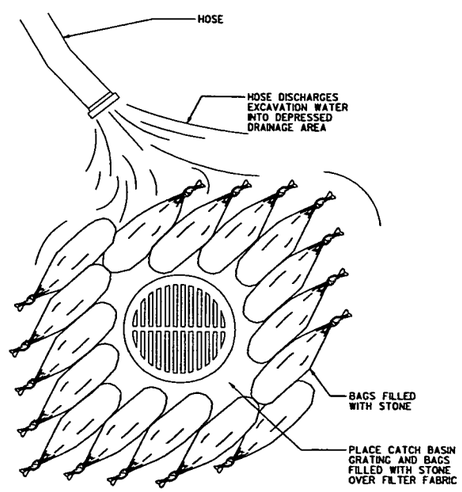
SILT FENCE DETAIL

NTS — 99X-5500-G-00653 654 655 656 657 658 659 715 716 717 718 719



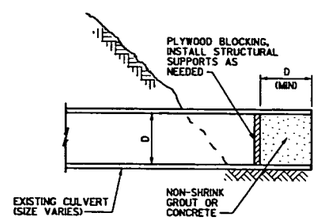
INLET PROTECTION NOTES:

1. CATCH BASIN MUST BE IN A DEPRESSED AREA OR MUST BE MODIFIED TO POND WATER AROUND THE CATCH BASIN.
2. BAGS ARE TO BE MADE FROM BURLAP CLOTH (ODOT 705.05).
3. STONE TO BE ODOT #78 OR #57 GRADATION PER SPECIFICATION SECTION 02275.
4. FILTER FABRIC TO BE 10 OZ PER SPECIFICATION SECTION 02714.



INLET PROTECTION DETAIL

NTS — 99X-5500-G-00644 646



PLUG NOTES:

1. CLEAN CULVERT/STORM SEWER OF LOOSE MATERIAL PRIOR TO INSTALLING PLUG.
2. INSPECT STORM SEWER TO ENSURE STRUCTURAL SOUNDNESS PRIOR TO INSTALLING PLUG.

TYPICAL CULVERT/ EXPOSED STORM SEWER PLUG DETAIL

NTS

GENERAL NOTES

4831

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	DATE	REV. BY	APPR.
J	RE-ISSUED FOR AGENCY REVIEW	3/31/03	KLR	
H	ISSUED FOR AGENCY REVIEW	9/30/02	KLR	
G	ISSUED FOR 90% DESIGN REVIEW	8/30/02	KLR	
F	ISSUED FOR AGENCY REVIEW (SWL & FTF)	8/21/02	KLR	
E	ISSUED FOR 30% DESIGN REVIEW (4B AND MDC)	8/1/02	KLR	
D	ISSUED FOR DOE REVIEW (SWL & FTF)	7/15/02	DRF	
C	ISSUED FOR A2P11 IRDP AGENCY REVIEW	6/24/02	GDD	
B	ISSUED FOR 90% DESIGN REVIEW (SWL & FTF)	6/7/02	ATG	
A	ISSSUED FOR 90% DESIGN REVIEW	6/3/02	GDD	

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY

FLUOR FERNALD, INC.

PROJECT NAME: SOIL REMEDIATION

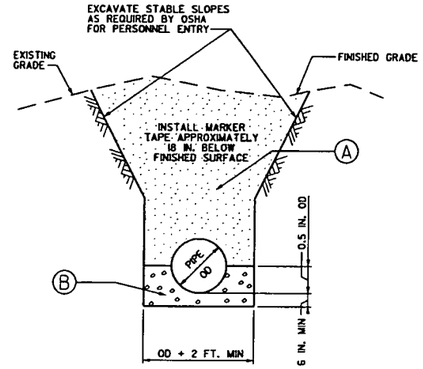
DRAWING TITLE: CIVIL DETAILS SHEET I

000245

APPROVALS

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

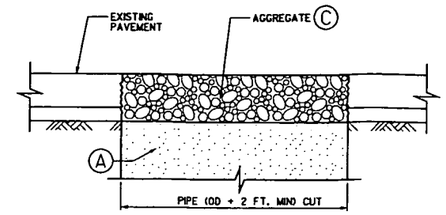
DRAWN BY	PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
KLR	2080	99X-5500-G-00738	D-1	J
RES PROJECT NO.	FILENAME 99XG00738.DGN			



PIPE BEDDING DETAIL

NTS

99X-5500-G-00681
00682

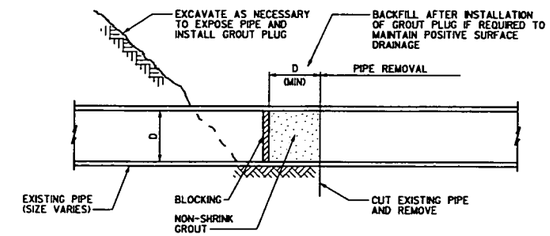


PAVEMENT PATCH DETAIL

NTS

99X-5500-G-00681

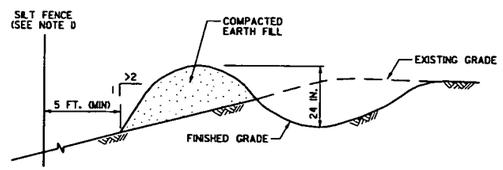
NOTE:
MECHANICAL PLUG MAY BE USED IN PLACE OF GROUT PLUG IN ACCORDANCE WITH THE DETAIL ON THIS SHEET.



TYPICAL AIR GAP DETAIL

NTS

99X-5500-G-00647
00648
00649
00650
00651
00652

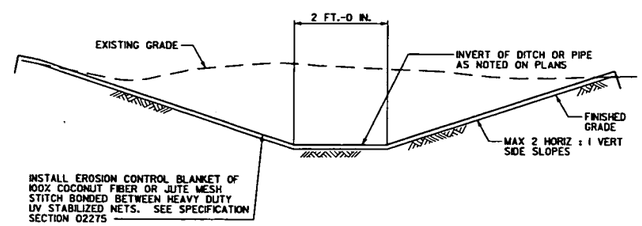


GENERAL NOTES:

1. INSTALL SILT FENCE (SEE DETAIL ON DRAWING 99X-5500-G-00738) ON DOWNGRADIENT SIDE OF DIVERSION PRIOR TO LAND-DISTURBING ACTIVITES. MAINTAIN SILT FENCE IN ACCORDANCE WITH SPECIFICATION SECTION 02275 UNTIL GRASS HAS BEEN ESTABLISHED ON ENTIRE DIVERSION.
2. SEED AND MULCH ENTIRE DIVERSION SEE OSDF SPECIFICATION SECTION 02930.
3. DIVERSION SLOPES SHALL NOT BE STEEPER THAN 2 HORIZONTAL TO 1 VERTICAL.
4. COMPACTED EARTH FILL SHALL CONSIST OF SOILS EXCAVATED ON SITE AND PLACED AS NECESSARY TO PROVIDE MINIMUM 24 INCH DITCH DEPTH. EARTH FILL SHALL BE COMPACTED BY 4 PASSES OF COMPACTION EQUIPMENT IN 12 INCH LOOSE LIFTS AS APPROVED BY THE CONSTRUCTION MANAGER.

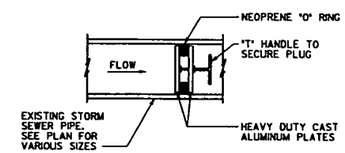
TEMPORARY DIVERSION DETAIL

NTS



EROSION BLANKET LINED DITCH DETAIL

NTS



NOTE:
PIPE PLUGS SHALL BE CHERNE ALUMINUM GRIPPER PLUGS OR APPROVED EQUAL.

TYPICAL PIPE PLUG DETAIL

NTS

99X-5500-G-00647
00648
00649
00650
00651
00652
00681

GENERAL NOTES

1. TRENCHING AND BACKFILLING SHALL BE IN ACCORDANCE WITH SPECIFICATION SECTION 02215.

4831

KEYED NOTES

(A) BACKFILL TRENCH WITH TRENCHING SPOILS. REMOVE CONCRETE/ASPHALT PIECES GREATER THAN 4 INCHES IN ANY DIMENSION PRIOR TO BACKFILLING. PLACE BACKFILL IN MAXIMUM 8 INCH LOOSE LIFTS AND COMPACT WITH MINIMUM OF 4 PASSES WITH VIBRATORY COMPACTOR.

(B) FURNISH NATURAL SAND PIPE EMBEDMENT FILL MATERIAL MEETING GRADATION REQUIREMENTS OF ODOT 703.06.

(C) FURNISH ODOT ITEM 304 AGGREGATE PLACED IN 4 INCH LOOSE LIFTS AND COMPACT WITH A MINIMUM OF 4 PASSES WITH VIBRATORY COMPACTOR TO MATCH THICKNESS OF EXISTING PAVEMENT.

PRELIMINARY
NOT FOR CONSTRUCTION

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	DATE	REV. BY	APPR.
F	RE-ISSUED FOR AGENCY REVIEW	3/31/03	KLR	
E	ISSUED FOR AGENCY REVIEW	9/30/02	KLR	
D	ISSUED FOR 90% DESIGN REVIEW	8/30/02	KLR	
C	ISSUED FOR 30% DESIGN REVIEW (4B AND MDC)	8/1/02	KLR	
B	ISSUED FOR 90% DESIGN REVIEW (SWL & FTF)	6/7/02	ATG	
A	ISSUED FOR 90% DESIGN REVIEW	6/3/02	GOD	

INITIALS AND DATE

UNITED STATES
DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
FLUOR FERNALD, INC.

PROJECT NAME
SOIL REMEDIATION

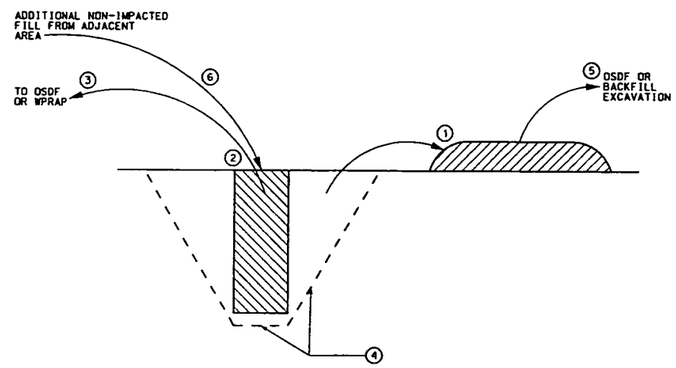
DRAWING TITLE
CIVIL DETAILS SHEET 2

000246

APPROVALS

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

DRAWN BY	PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
KLR	2080	99X-5500-G-00739	D-2	F
RES PROJECT NO.	FILENAME 99XG00739.DGN			

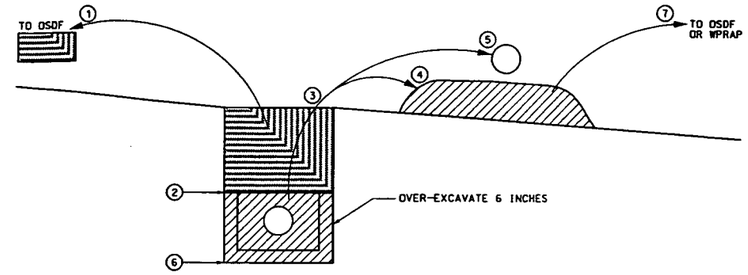


1. EXCAVATE PRECERTIFIED OVERBURDEN SOIL FROM AROUND THE STRUCTURE* AND TEMPORARILY STOCKPILE WITHIN THE EXCAVATION.
2. EXCAVATE THE STRUCTURE, PLUS OVER-EXCAVATE 6 INCHES ADJACENT TO AND BELOW THE STRUCTURE TO ENSURE REMOVAL OF POTENTIAL IMPACTED MATERIAL.
3. VISUALLY INSPECT THE STRUCTURE DURING EXCAVATION. STRUCTURES FREE OF VISIBLE PROCESS RESIDUE SHALL BE DISPOSITIONED IN THE OSDF IN ACCORDANCE WITH SECTION 02205. STRUCTURES THAT ARE DEFORMED, CLOSED OR OTHERWISE HINDER VISUAL INSPECTION, OR CANNOT BE CLEANED OF VISIBLE PROCESS RESIDUE SHALL BE DISPOSITIONED IN WPRAP IN ACCORDANCE WITH SECTION 02205.
4. PERFORM REAL-TIME MONITORING AND/OR PHYSICAL SAMPLING AT THE EXCAVATION BOTTOM.
5. AS DIRECTED BY THE CONSTRUCTION MANAGER, DISPOSITION MATERIAL STOCKPILED IN STEP 1 IN EITHER THE OSDF AS IMPACTED MATERIAL OR USE AS NON-IMPACTED MATERIAL TO BACKFILL THE EXCAVATION. IF STOCKPILED MATERIAL IS DEEMED IMPACTED, OVER-EXCAVATE STOCKPILE FOOTPRINTS 6 INCHES TO ENSURE REMOVAL OF IMPACTED MATERIAL.
6. BACKFILL ADDITIONAL NON-IMPACTED SOIL FROM THE IMMEDIATE PRE-CERTIFIED AREA AND COMPACT IN ACCORDANCE WITH SECTION 02206 AS NEEDED TO MEET SURROUNDING GRADE.

* THE TERM "STRUCTURE" IS USED AS A GENERIC REFERENCE TO PILES, PIERS, OR FOOTERS.

EXCAVATION OF STRUCTURES BELOW THE DESIGN GRADE

NTS



1. EXCAVATE PRECERTIFIED OVERBURDEN SOIL FROM ABOVE THE PIPE* BEDDING AND DISPOSITION IN THE OSDF.
2. PERFORM REAL-TIME MONITORING, AND/OR AT 50 FEET INTERVALS, PERFORM PHYSICAL SAMPLING OF THE PIPE BEDDING MATERIAL IN THE TRENCH.
3. EXCAVATE PIPE AND PIPE BEDDING, PLUS OVER-EXCAVATE 6 INCHES ADJACENT TO AND BELOW THE PIPE BEDDING TO ENSURE REMOVAL OF IMPACTED MATERIAL.
4. TEMPORARILY STOCKPILE PIPE BEDDING ADJACENT TO AND DOWN-GRADIENT OF THE UTILITY TRENCH.
5. VISUALLY INSPECT THE PIPE DURING EXCAVATION. PIPE FREE OF VISIBLE PROCESS RESIDUE SHALL BE DISPOSITIONED IN THE OSDF IN ACCORDANCE WITH SECTION 02205. PIPING THAT IS DEFORMED, CLOSED OR OTHERWISE HINDERS VISUAL INSPECTION, OR CANNOT BE CLEANED OF VISIBLE PROCESS RESIDUE SHALL BE DISPOSITIONED IN WPRAP IN ACCORDANCE WITH SECTION 02205.
6. AS IN STEP 2, PERFORM REAL-TIME MONITORING, AND/OR AT 50 FEET INTERVALS, PERFORM PHYSICAL SAMPLING BELOW THE PIPE BEDDING WITHIN THE TRENCH.
7. AS DIRECTED BY THE CONSTRUCTION MANAGER, DISPOSITION PIPE BEDDING IN EITHER THE OSDF AS IMPACTED MATERIAL OR WPRAP AS ABOVE-WAC MATERIAL. OVER-EXCAVATE STOCKPILE FOOTPRINTS 6 INCHES TO ENSURE REMOVAL OF IMPACTED MATERIAL.
8. BACKFILL ADDITIONAL NON-IMPACTED SOIL FROM THE IMMEDIATE PRE-CERTIFIED AREA AND COMPACT IN ACCORDANCE WITH SECTION 02206 AS NEEDED TO MEET SURROUNDING GRADE.

NOTE:

1. AS DIRECTED BY THE CONSTRUCTION MANAGER, PENDING MONITORING OF TRENCH BOTTOM, RE-EXCAVATE AT TRENCH LOCATIONS DESIGNATED BY THE CONSTRUCTION MANAGER TO REMOVE ADDITIONAL IMPACTED MATERIAL. THE CONSTRUCTION MANAGER CERTIFIES THE BACKFILLED TRENCH AND SURROUNDING AREA.

* THE TERM "PIPE" IS USED AS A GENERIC REFERENCE TO UNDERGROUND UTILITIES.

EXCAVATION OF UTILITIES BELOW THE DESIGN GRADE

NTS

GENERAL NOTES

4831

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	DATE	REV. BY	APPR.
F	RE-ISSUED FOR AGENCY REVIEW AND REVISED DRAWING NUMBER	3/31/03	KLR	
E	ISSUED FOR AGENCY REVIEW	9/30/02	KLR	
D	ISSUED FOR 90% DESIGN REVIEW	8/30/02	KLR	
C	ISSUED FOR AGENCY REVIEW (SWL & FTF)	8/27/02	KLR	
B	ISSUED FOR 30% DESIGN REVIEW (4B & MDC)	8/7/02	KLR	
A	ISSUED FOR DOE REVIEW (SWL & FTF)	7/15/02	KLR	

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY

FLUOR FERNALD, INC.

PROJECT NAME
SOIL REMEDIATION

DRAWING TITLE
UTILITY AND STRUCTURE REMOVAL BELOW DESIGN GRADE

000247

APPROVALS

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

DRAWN BY	PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
KLR	20810	99X-5500-G-00769	D-3	F
RES PROJECT NO.	FILENAME 99XG00769.DGN			

PIPING VALVES

CONFIGURATIONS FOR VALVE TYPE

ANGLE STRAIGHT 3-WAY 4-WAY

VALVE TYPES (STRAIGHT CONFIG.)

- AIR RELEASE VALVE
- BALL
- CHECK, SWING TYPE
- GATE

PIPING SEGMENT BREAKS

- CONSTRUCTION REQUIREMENTS
- UNDERGROUND ROUTING (SHADED AREA INDICATES DIRECTION OF UNDERGROUND)

PIPING FITTINGS

- CAP
- CONCENTRIC REDUCER

PIPING SYMBOLOGY

- PRIMARY PIPING
- EXISTING PIPING
- FUTURE PIPING
- TIE-IN POINT

EQUIPMENT SYMBOLS

- 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

GW-6 (00) IN.-B4-2930-ET

MEDIUM FLOW DIRECTION

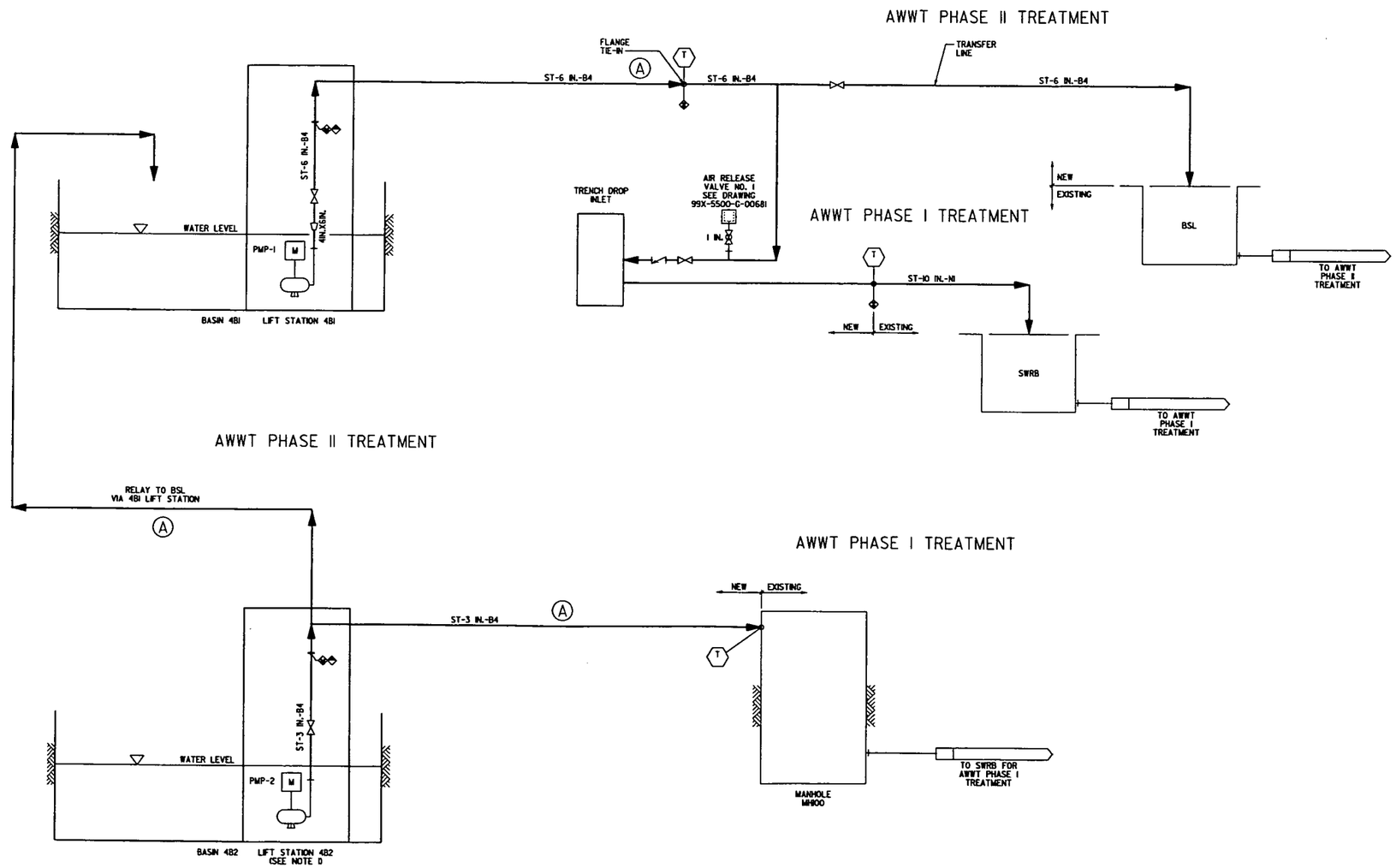
PIPING SPECIFICATIONS

MATL. CODE	DESCRIPTION
A	A53 SEAMLESS CARBON STEEL
A7	CORRUGATED METAL PIPE
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

GENERAL NOTES

1. GATE AND CHECK VALVES IN THE LIFT STATIONS CONFORM TO MATERIAL CODE "A".

4831



KEYED NOTES

(A) FIELD ROUTE

PRELIMINARY
NOT FOR CONSTRUCTION

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	DATE	REV. BY	APPR.
C	RE-ISSUED FOR AGENCY REVIEW	3/31/03	KLR	
B	ISSUED FOR AGENCY REVIEW	9/30/02	KLR	
A	ISSUED FOR 90% DESIGN REVIEW	8/30/02	KLR	

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY

FLUOR FERNALD, INC.

PROJECT NAME
SOIL REMEDIATION

DRAWING TITLE
AREA 4B
WASTEWATER COLLECTION AND TRANSFER LINE
PIPING AND INSTRUMENTATION DIAGRAM

000248

APPROVALS

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

DRAWN BY	PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
KLR	20810	99X-5500-N-00680	N-1	C
RES. PROJECT NO.	FILENAME 99XN00680.DGN			

1831

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
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
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
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
SYMBOL 3 PHASE DELTA	Δ	
SYMBOL, 3 PHASE WYE GROUNDED	Y	
WELDING/POWER RECEPTACLE		
TRANSFORMER	XXXX ZZZZ	'XXXX' INDICATES ID NO. 'ZZZZ' INDICATES TRANSFORMER RATINGS - KVA, 1 OR 3 PHASE, VOLTAGE RATIO, IMPEDANCE
LIGHT		DESCRIPTION INDICATES WATTS AND VOLTAGE

PLOT PLAN SYMBOLS

480V POWER LINE (EXISTING)	— - - — - - —
480V POWER LINE (NEW)	— - - — - - —
13.2 kV POWER LINE	— - — - — - -
EXISTING POWER POLE	
NEW POWER POLE	
GUY WIRE	→
DUCT BANK	— — — — —

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
FUSE	XXXX TTTT Y	'XXXX' INDICATES ID NO., 'TTTT' INDICATES TRIP RATING AMPS 'Y' INDICATES SPECIAL IDENTIFIER
GROUND		
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
RELAY	XXXX YY	'XXXX' INDICATES ID NO., 'YY' INDICATES SPECIAL IDENTIFIER
OVERLOAD CONTACT	OL	NORMALLY CLOSED, OPENS WHEN OVERLOAD RELAY(S) TRIP

WIRING BY SUBCONTRACTOR

WIRING BY CONSTRUCTION

SWITCHES

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

SPECIAL IDENTIFIERS

FC	FUSED CUTOUT
LB	LOAD BREAK
M	MOTOR RELAY
R	RED LIGHT

ABBREVIATIONS

ACSR	ALUMINUM CONDUCTOR STEEL REINFORCED
MESS.	MESSENGER

PRELIMINARY

000249

SHEET NO. E0001

NO.	REVISIONS	DATE	DWN. BY	APPD.	NO.	REVISIONS	DATE	DWN. BY	APPD.	REF. DWG. NO.
					B	REISSUED FOR AGENCY REVIEW	1/1/03	GES		
					A	ISSUED FOR AGENCY REVIEW	12/1/02	GES		

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

CONFIGURATION MANAGEMENT DRAWING — YES / NO

LISTING, STRUCTURES OR COMPONENTS MODIFIED ON THIS DRAWING PER LABOR INSTRUCTION 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

AREA 4B LIFT STATIONS
ELECTRICAL SYMBOLS AND LEGEND

RES 4410
DATE 9-6-02
DRAWN G. SCHWARZMAN

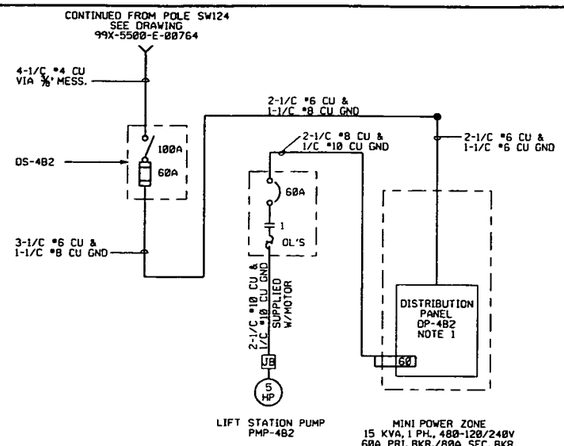
99X-5500-E-00758 B

FILE NAME: /res4410/99xe0758.dgn

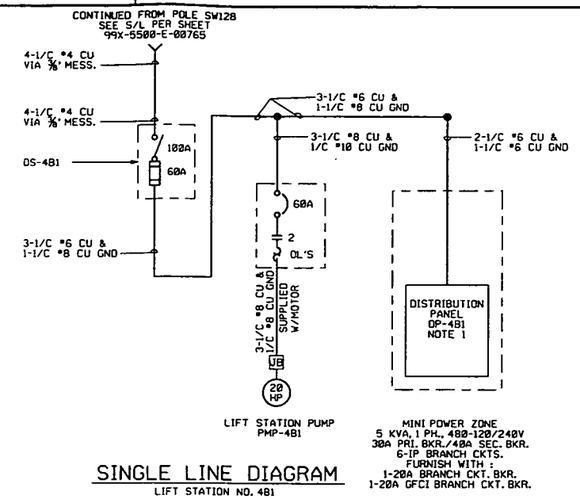
FF3.DGN 1/22/00

1. SEE SHEET 99X-5500-E-00763 FOR PANEL SCHEDULES.
2. SEE SHEET 99X-5500-E-00760 FOR ELEMENTARY DIAGRAMS.

4831



SINGLE LINE DIAGRAM
LIFT STATION NO. 4B2

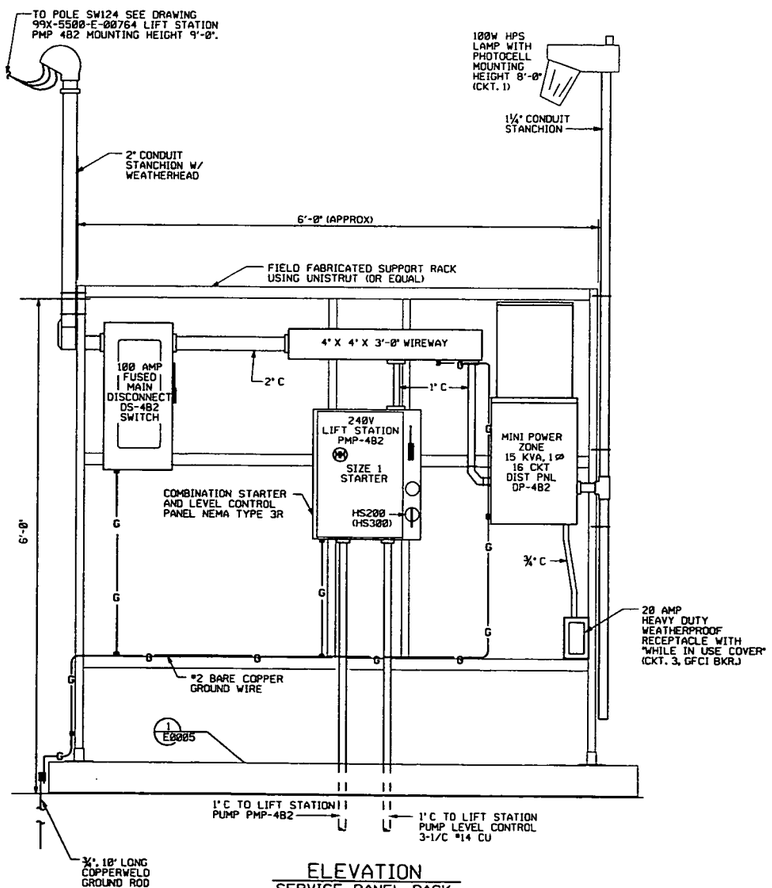


SINGLE LINE DIAGRAM
LIFT STATION NO. 4B1

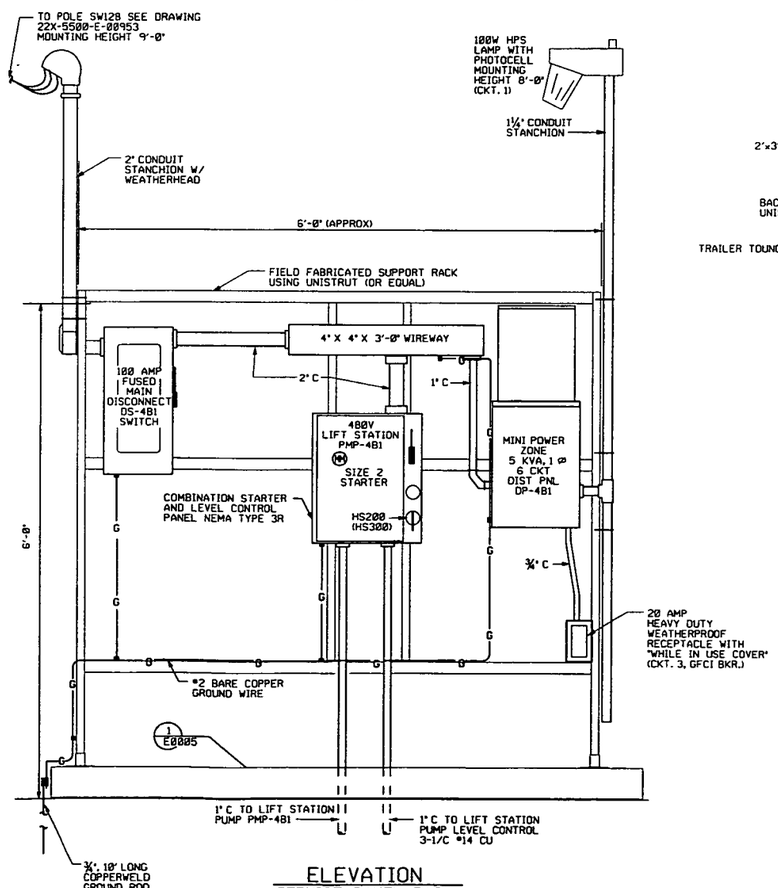
LEGEND:

(HM) RUN-TIME METER (MINUTES)

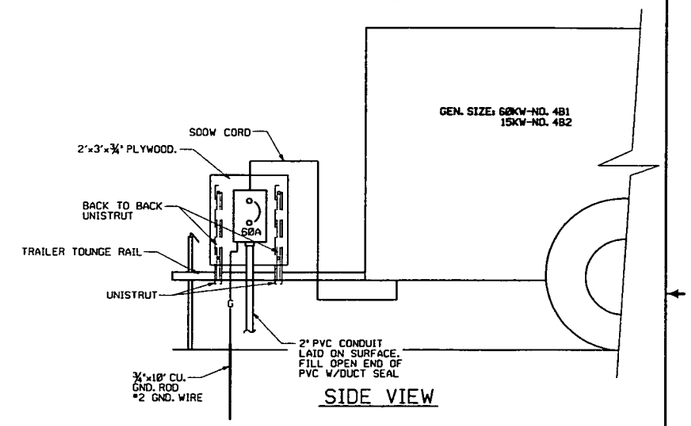
NOTE:
USE COMB. STARTER FOR PERMANENT
LIFT STA. SERVICE RACK.



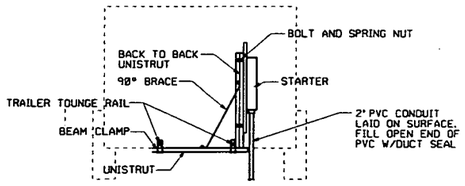
ELEVATION
SERVICE PANEL RACK
@ LIFT STATION NO. 4B2
NTS



ELEVATION
SERVICE PANEL RACK
@ LIFT STATION NO. 4B1
NTS



SIDE VIEW



FRONT VIEW

TEMP. POWER FOR PUMP MOTOR
LIFT STATION 4B1 & 4B2
NTS SEE DRAWING 99X-5500-G-00683

PRELIMINARY

000250

SHEET NO. E0002

NO.	REVISIONS	DATE	DWN. BY	APPD.	NO.	REVISIONS	DATE	DWN. BY	APPD.	REF. DWG. NO.
					B	REISSUED FOR AGENCY REVIEW	1/31/01	GES		
					A	ISSUED FOR AGENCY REVIEW	1/25/01	GES		

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

CONFIGURATION MANAGEMENT DRAWING
STATUS: STRUCTURES OR COMPONENTS DESCRIBED BY 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

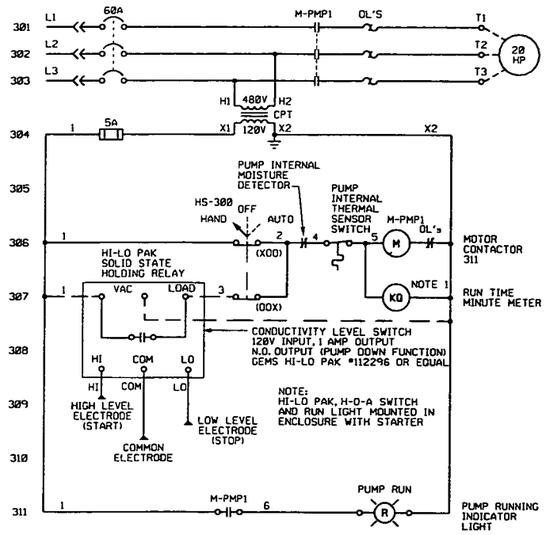
AREA 4B LIFT STATIONS
SINGLE LINE DIAGRAM / ELEVATIONS

RES 4410
DATE 9-6-02
DRAWN G. SCHWARZMAN
99X-5500-E-00759 B

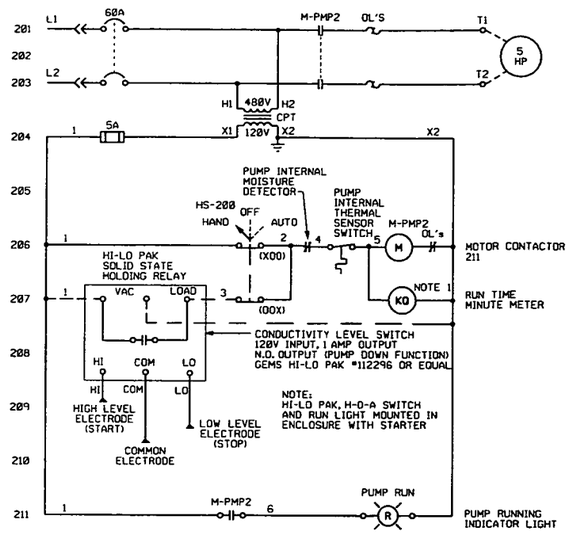
FILE NAME: /res4410/99xe0759.dgn

FFS.DGN 3/22/00

EQUIPMENT NAME : LIFT STATION NO. 4B1 PUMP PMP-1
EQUIPMENT NO. : PMP-1
S/L SHT. NO. : 99X-5500-E-00759
PLAN SHT. NO. :
PREFIX WIRE NUMBERS WITH PMP1-



EQUIPMENT NAME : LIFT STATION NO. 4B2 PUMP PMP-2
EQUIPMENT NO. : PMP-2
S/L SHT. NO. : 99X-5500-E-00759
PLAN SHT. NO. :
PREFIX WIRE NUMBERS WITH PMP2-



1. 6 DIGIT, NON RESETTABLE MINUTE METER WITH TENTHS OF A MINUTE. ON EXISTING MOTOR STARTER. INSTALLATION SHALL BE SUITABLE FOR OUTDOOR SERVICE AND MAINTAIN A NEMA 3R RATING OF THE CABINET.

4831

PRELIMINARY

000251

SHEET NO. E0003

NO.	REVISIONS	DATE	DWN. BY	APPD.	NO.	REVISIONS	DATE	DWN. BY	APPD.	REF. DWG. NO.
					B	REISSUED FOR AGENCY REVIEW	3-3-03	GES		
					A	ISSUED FOR AGENCY REVIEW	9/23/02	GES		

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

CONFIGURATION MANAGEMENT DRAWING
YES / NO
SYSTEMS, STRUCTURES OR COMPONENTS CONTROLLED 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

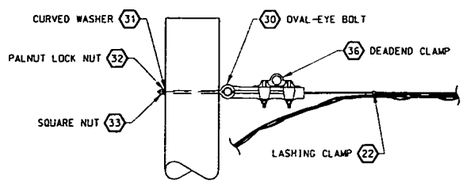
AREA 4B LIFT STATIONS
SINGLE LINE EQUIPMENT DIAGRAMS

RES 4410
DATE 9-6-02
DRAWN G. SCHWARZMAN
99X-5500-E-00760 B

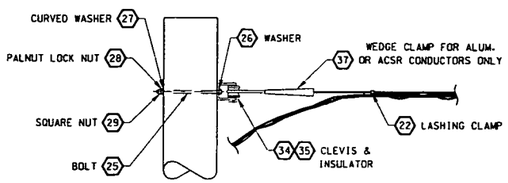
FILE NAME: /res4410/99xe0760.dgn

FFS.DGN 3/21/00

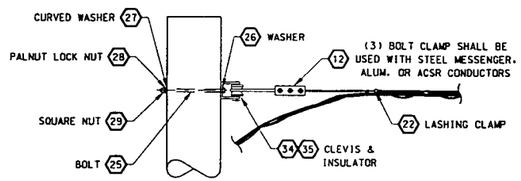
4831



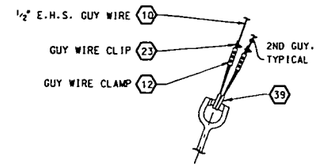
DEAD END CONNECTION DETAIL
50 - 150 FT. SPAN



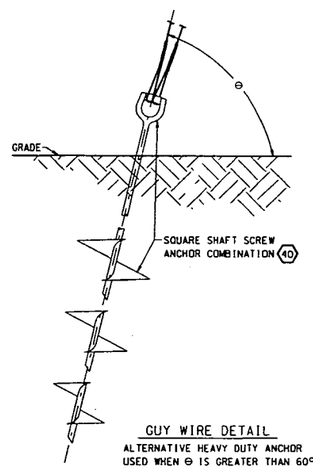
DEAD END CONNECTION DETAIL
0 - 50 FT. SPAN



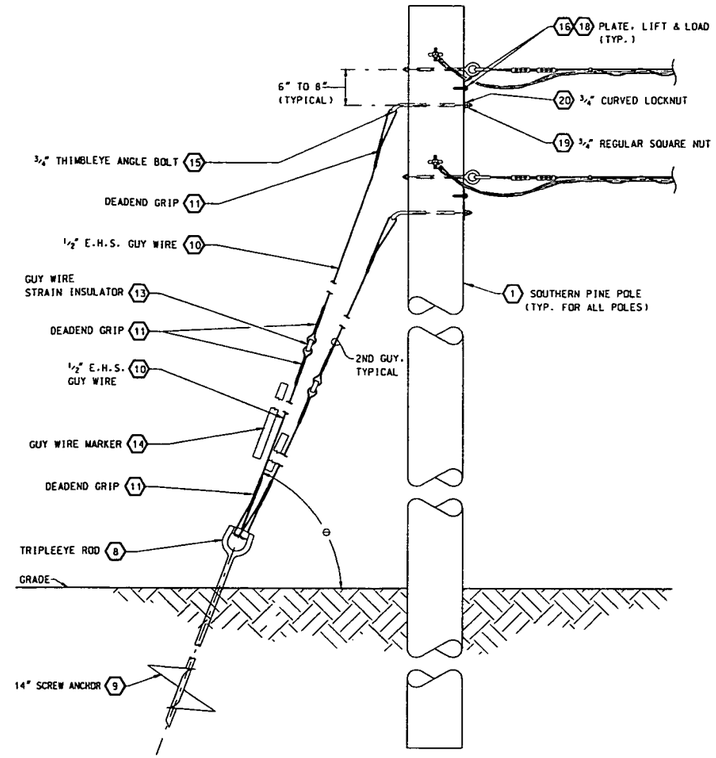
DEAD END CONNECTION DETAIL
0 - 50 FT. SPAN
(ALTERNATIVE)



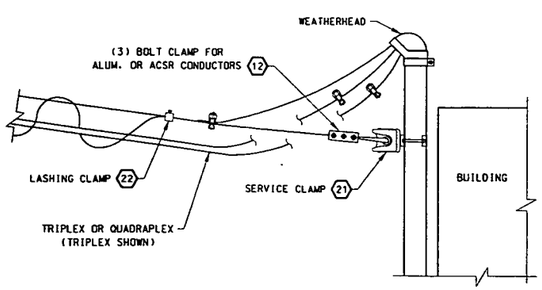
GUY WIRE DETAIL
ALTERNATIVE TO WIRING PREFORMS 11 FOR GUY WIRES LESS THAN OR EQUAL TO 1/2".



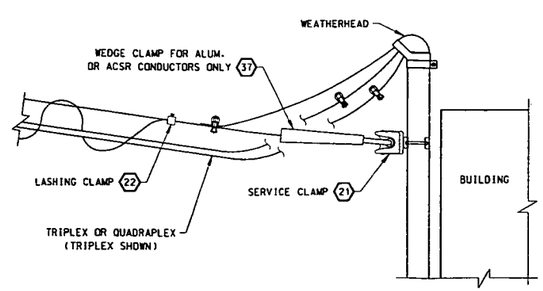
GUY WIRE DETAIL
ALTERNATIVE HEAVY DUTY ANCHOR USED WHEN Θ IS GREATER THAN 60°.



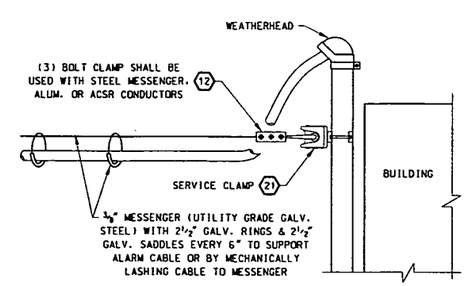
GUY WIRE DETAIL



SERVICE ENTRANCE DETAIL
0 - 50 FT. SPAN
TO POLE OR OTHER STRUCTURE



SERVICE ENTRANCE DETAIL
0 - 50 FT. SPAN
TO POLE OR OTHER STRUCTURE



SERVICE ENTRANCE DETAIL
0 - 50 FT. SPAN
TO POLE OR OTHER STRUCTURE

LEGEND:

Θ - GUY WIRE ANGLE TO BE DEFINED ON PROJECT DRAWING.

NOTES:

1. CLASS II, 100% TREATED SOUTHERN PINE POLE.
2. 12 FEET OF #4 COPPER (CU) WIRE COILED AND STAPLED (COPPER CLAD, 1-1/2" LONG).
3. BUTT PLATE: POLE BOTTOM GROUND PLATE - COPPER. "BLAKBURN" #GP114.
4. #4 COPPER WIRE STAPLED (COPPERCLAD, 1-1/2" LONG) EVERY 2'-0" AND EXTENDED 8" ABOVE POLE.
5. GROUND CLAMP (FOR GROUND WIRE CONNECTION) - 3/4" DIAMETER, BRONZE OR BRASS. "BURNDY" #GRD34.
6. GROUND ROD, 3/4" DIAMETER x 10'-0" LONG COPPER WELD. "BLACKBURN" #CC7510.
7. GROUNDING CLAMP - WIRE TO WIRE. "BURNDY" #GX264C.
8. TRIPLEYE ROD, 7 FEET MINIMUM SHAFT LENGTH. "A.B.CHANCE" #E102-0053.
9. 14 IN-SCREW ANCHOR. "CHANCE" #C102-5203.
10. 1/2" E.H.S. GUY WIRE.
11. DEADEND GRIP - PREFORMED TWISTED LOOP, CLASS A OR B, GALVINIZED, SIZED FOR GUY WIRE.
12. GUY CLAMP, 3 BOLT. "CHANCE" #6461.
13. GUY STRAIN INSULATOR, SIZED FOR GUY WIRE (EX: 5/8" WIRE MAX. "CHANCE" #708).
14. GUY WIRE MARKER - HALF ROUND UV RESISTANT, YELLOW PLASTIC, 2" WIDE x 96" LONG WITH MOUNTING HARDWARE. "CHANCE" #96-PBG-2Y.
15. 3/4" THIMBLEYE ANGLE BOLT, 3" LONGER THAN POLE DIAMETER. "CHANCE" #5114T (14" LONG).
16. PLATE, LIFT AND LOAD - 3 HOLE. "CHANCE" #7897.
17. 1/2" DIA. x 4" LONG LAG SCREWS. "CHANCE" #508754.
18. 1/2" DIA. x 5" LONG LAG SCREWS. "CHANCE" #508755.
19. REGULAR SQUARE NUT. 3/4". "CHANCE" #55085P.
20. CURVED LOCK NUT. 3/4". "CHANCE" #3513.
21. SERVICE CLAMP, 1-1/4" TO 2-1/2" CONDUIT. "CHANCE" #C207-0075. 3" TO 4" CONDUIT. "CHANCE" #C207-0076.
22. LASHING CLAMP. "CHANCE" #9000.
23. GUY WIRE CLIP. "CHANCE" #6484.
24. 5/8" BOLT, 12" LONG. "CHANCE" #8812.
25. 5/8" BOLT, 14" LONG. "CHANCE" #8814.
26. ROUND WASHER. "CHANCE" #6805.
27. CURVED WASHER. "CHANCE" #6823-1/2.
28. PALNUT LOCK NUTS. "CHANCE" #3532.
29. SQUARE NUT. "CHANCE" #55084P.
30. 3/4" OVAL-EYE BOLT, 14" LONG. "CHANCE" #29984.
31. CURVED WASHER, 3/4" BOLT HOLE. "CHANCE" #6825.
32. PALNUT LOCK NUT. 3/4". "CHANCE" #3533.
33. SQUARE NUT. 3/4". "CHANCE" #55085P.
34. CLEVIS. "CHANCE" #0337.
35. INSULATOR. "CHANCE" #0909-1032.
36. STRAIGHT-LINE DEADEND CLAMP. "CHANCE" #CSDF20.
37. WEDGE CLAMPS.

	ASR	AL	AAAC
"BLACKBURN" #W62-1	2-6	1 STR-6 SAL	2-6
"BLACKBURN" #W20-1	1/0-4	2/0 STR-2 SAL	1/0-4
"BLACKBURN" #W4/0-1	4/0-2/0	4/0 STR-2/0 SAL	4/0-2/0

38. BONDING CLAMP. "CHANCE" #CB1.
39. THIMBLES, GUY WIRE 1/2". "CHANCE" #6594.
40. SQUARE SHAFT 'SS' SCREW ANCHOR COMBINATION: 10"-12"-14" HELICES. "CHANCE" #12654-3EJN. 7 FOOT EXTENSION. "CHANCE" #12657. TRIPLEYE. "CHANCE" #C102-0025.
41. POLE PLATE. "CHANCE" #0501
42. END FITTING w/ CLAMP. "CHANCE" #0512
43. 5/8" BOLT, 24" LONG. "CHANCE" #8874
44. MESSENGER HANGER - UNIVERSAL TYPE. 1/2" x 2" x 4-1/2". "CHANCE" #7911

PRELIMINARY

000252

NO.	REVISIONS	DATE	DWN.	BY	APPD.
B	REISSUED FOR AGENCY REVIEW	1-3-03	GES		
A	ISSUED FOR AGENCY REVIEW	1/22/02	GES		

NO.	REVISIONS	DATE	DWN.	BY	APPD.	REF. DWG. NO.
						99X-5500-E-00762

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, APPROVED; SAFETY ENG., MAINTENANCE, FIRE PROTECT., WASTE MANAGE., SECURITY, PROJECTS

Fernald Environmental Management Project

FLUOR FERNALD, INC.

U.S. DEPARTMENT OF ENERGY

AREA 4B LIFT STATIONS
ELECTRICAL POWER POLE GUY WIRES.
ANCHORING & AERIAL DETAILS

RES 4410
DATE 9-5-02
DRAWN G. SCHWARZMAN

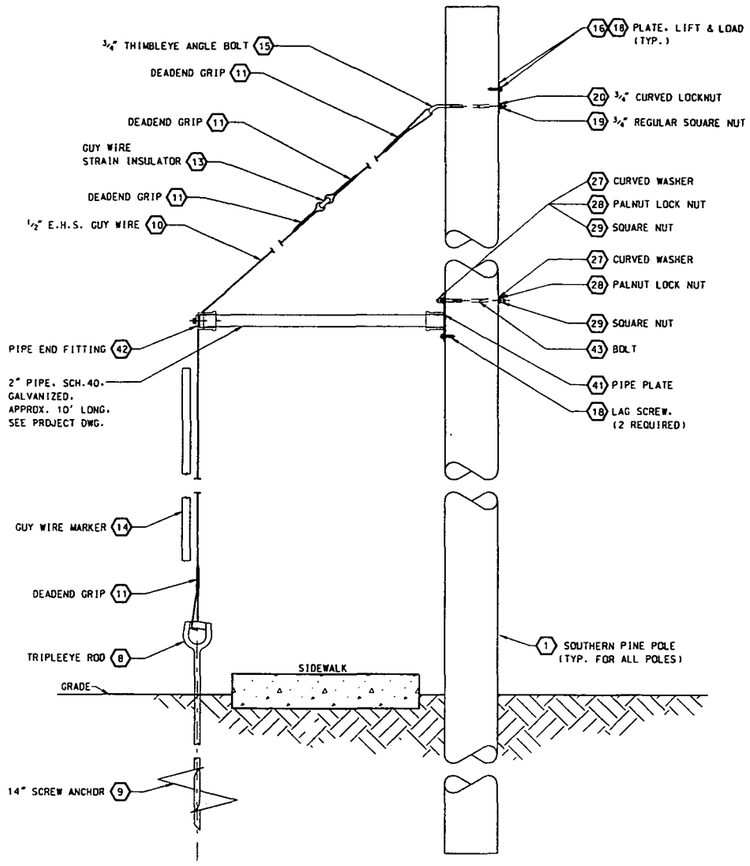
99X-5500-E-00761 B

SHEET NO. E0004

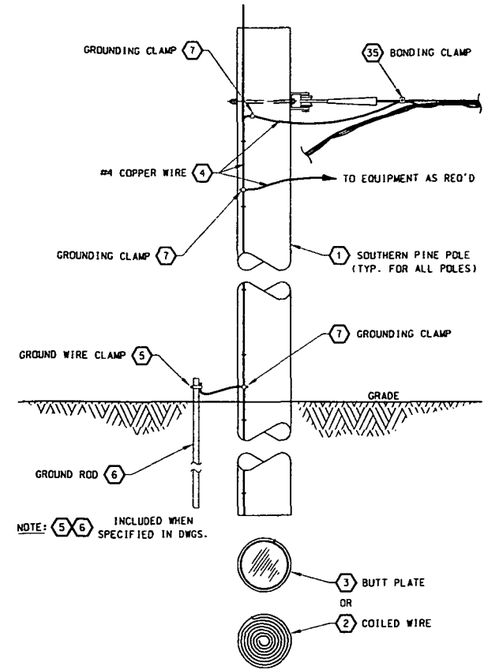
FILE NAME: /res4410/99xe0761.dgn

FFS.DGN 3/22/00

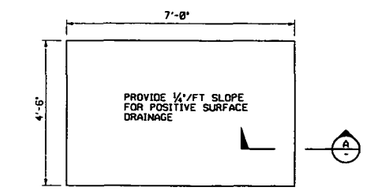
4831



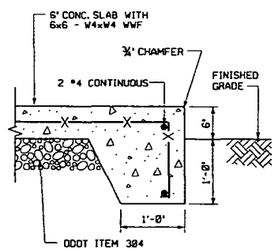
GUY WIRE DETAIL
SIDEWALK ANCHOR



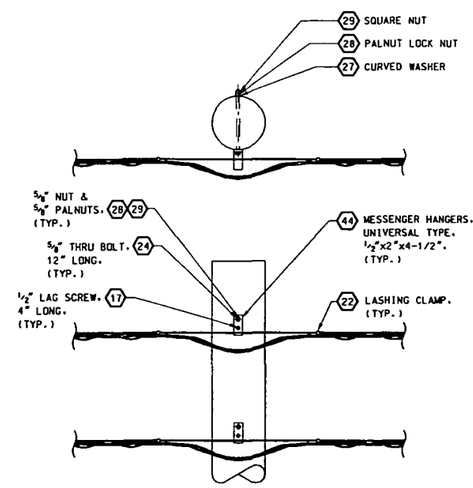
POLE GROUNDING
TYP. FOR ALL POLES



ELECTRICAL SERVICE PANEL RACK PAD DETAIL (1 / E0005)
NTS



SECTION
NTS



MID-SPAN DETAIL

NOTES: ⬡

1. CLASS II. 100% TREATED SOUTHERN PINE POLE.
2. 12 FEET OF #4 COPPER (CU) WIRE COILED AND STAPLED (COPPER CLAD. 1-1/2" LONG).
3. BUTT PLATE: POLE BOTTOM GROUND PLATE - COPPER. "BLAKBURN" #GP114.
4. #4 COPPER WIRE STAPLED (COPPERCLAD. 1-1/2" LONG) EVERY 2'-0" AND EXTENDED 8" ABOVE POLE.
5. GROUND CLAMP (FOR GROUND WIRE CONNECTION) - 3/4" DIAMETER. BRONZE OR BRASS. "BURNDY" #GRD34.
6. GROUND ROD. 3/4" DIAMETER x 10'-0" LONG COPPER WELD. "BLACKBURN" #CC7510.
7. GROUNDING CLAMP - WIRE TO WIRE. "BURNDY" #GX264C.
8. TRIPLEYE ROD. 7 FEET MINIMUM SHAFT LENGTH. "A.B.CHANCE" #E102-0053.
9. 14 IN-SCREW ANCHOR. "CHANCE" #C102-5203.
10. 1/2" E.H.S. GUY WIRE.
11. DEADEND GRIP - PREFORMED TWISTED LOOP. CLASS A OR B. GALVINIZED. SIZED FOR GUY WIRE.
12. GUY CLAMP. 3 BOLT. "CHANCE" #6461.
13. GUY STRAIN INSULATOR. SIZED FOR GUY WIRE (EX: 5/8" WIRE MAX. "CHANCE" #708).
14. GUY WIRE MARKER - HALF ROUND UV RESISTANT. YELLOW PLASTIC. 2" WIDE x 96" LONG WITH MOUNTING HARDWARE. "CHANCE" #96-PBG-2Y.
15. 3/4" THIMBLEYE ANGLE BOLT. 3" LONGER THAN POLE DIAMETER. "CHANCE" #5114T (14" LONG).
16. PLATE. LIFT AND LOAD - 3 HOLE. "CHANCE" #7897.
17. 1/2" DIA. x 4" LONG LAG SCREWS. "CHANCE" #508754.
18. 1/2" DIA. x 5" LONG LAG SCREWS. "CHANCE" #508755.
19. REGULAR SQUARE NUT. 3/4". "CHANCE" #55085P.
20. CURVED LOCK NUT. 3/4". "CHANCE" #3513.
21. SERVICE CLAMP. 1-1/4" TO 2-1/2" CONDUIT. "CHANCE" #C207-0075. 3" TO 4" CONDUIT. "CHANCE" #C207-0076.
22. LASHING CLAMP. "CHANCE" #9000.
23. GUY WIRE CLIP. "CHANCE" #6484.
24. 5/8" BOLT. 12" LONG. "CHANCE" #8812.
25. 5/8" BOLT. 14" LONG. "CHANCE" #8814.
26. ROUND WASHER. "CHANCE" #6805.
27. CURVED WASHER. "CHANCE" #6823-1/2.
28. PALNUT LOCK NUTS. "CHANCE" #3532.
29. SQUARE NUT. "CHANCE" #55084P.
30. 3/4" OVAL-EYE BOLT. 14" LONG. "CHANCE" #29984.
31. CURVED WASHER. 3/4" BOLT HOLE. "CHANCE" #6825.
32. PALNUT LOCK NUT. 3/4". "CHANCE" #3533.
33. SQUARE NUT. 3/4". "CHANCE" #55085P.
34. CLEVIS. "CHANCE" #0337.
35. INSULATOR. "CHANCE" #0909-1032.
36. STRAIGHT-LINE DEADEND CLAMP. "CHANCE" #CSDF20.
37. WEDGE CLAMPS.

	ASR	AL	AAAC
"BLACKBURN" #W62-1	2-6	1 STR-6 SAL	2-6
"BLACKBURN" #W20-1	1/0-4	2/0 STR-2 SAL	1/0-4
"BLACKBURN" #W4/0-1	4/0-2/0	4/0 STR-2/0 SAL	4/0-2/0

38. BONDING CLAMP. "CHANCE" #CB1.
39. THIMBLES. GUY WIRE 1/2". "CHANCE" #6594.
40. SQUARE SHAFT 'SS' SCREW ANCHOR COMBINATION: 10"-12"-14" HELICES. "CHANCE" #12654-3EJN. 7 FOOT EXTENSION. "CHANCE" #12657. TRIPLEYE. "CHANCE" #C102-0025.
41. POLE PLATE. "CHANCE" #0501
42. END FITTING w/ CLAMP. "CHANCE" #0512
43. 5/8" BOLT. 24" LONG. "CHANCE" #8874
44. MESSENGER HANGER. UNIVERSAL TYPE. 1/2" x 2" x 4-1/2". "CHANCE" #7911

PRELIMINARY

000253

SHEET NO. E0005

NO.	REVISIONS	DATE	DWN.	BY	APPD.
B	REISSUED FOR AGENCY REVIEW	1/31/01	CES		
A	ISSUED FOR AGENCY REVIEW	1/21/02	CES		

REF. DWG. NO.: 99X-5500-E-00761

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

CONFIGURATION MANAGEMENT DRAWING — SYSTEMS, STRUCTURES OR COMPONENTS CONTROLLED BY THIS DRAWING ARE UNDER CONFIGURATION MANAGEMENT CONTROL. SEE NOTES.

COGNIZANT 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

AREA 4B LIFT STATIONS
ELECTRICAL POWER POLE GUY WIRES.
ANCHORING & AERIAL DETAILS

RES. 4410 — DATE 9-5-02 — DRAWN C. SCHWARZMAN — 99X-5500-E-00762 — B

FILE NAME: /res4410/99xe0762.dgn

FFS.DGN 3/22/00

4831

PANEL DP-4B1

VOLTAGE : 120/240V
MAIN BKR : 40A
MOUNTING : RACK MOUNTED MINI POWER ZONE

REMARKS : 1. * INDICATES 6MA GFCI CLASS A, ** INDICATES 30MA GFCI CLASS B
LOCATION : LIFT STATION NO. 1, SEE SHEET NO. E000- AND E000- ??

DIRECTORY	WATTS LOAD L1	WATTS LOAD L2	CKT NO	WIRE SIZE	BKR AMPS		BKR AMPS	WIRE SIZE	CKT NO	WATTS LOAD L1	WATTS LOAD L2	DIRECTORY
100 WATT HPS FLOODLIGHT	100		1	12	20	L1 L2 40 A MAIN	--	N/A	2	---		SPACE
RECEPTACLE		180	3	12	20		--	N/A	4		---	SPACE
SPACE	---		5	N/A	--		--	N/A	6	---		SPACE
SUB-TOTALS	100	180	NEUTRAL BUS							0	0	SUB-TOTALS
	L1	L2								L1	L2	

TOTAL WATTS L1 : 100 TOTAL WATTS L2 : 180 TOTAL WATTS : 280

PANEL DP-4B2

VOLTAGE : 120/240V
MAIN BKR : 80A
MOUNTING : RACK MOUNTED MINI POWER ZONE

REMARKS : 1. * INDICATES 6MA GFCI CLASS A, ** INDICATES 30MA GFCI CLASS B
LOCATION : LIFT STATION NO. 2, SEE SHEET NO. E0006

DIRECTORY	WATTS LOAD L1	WATTS LOAD L2	CKT NO	WIRE SIZE	BKR AMPS		BKR AMPS	WIRE SIZE	CKT NO	WATTS LOAD L1	WATTS LOAD L2	DIRECTORY
100 WATT HPS FLOODLIGHT	100		1	12	20	L1 L2 80 A MAIN	30	N/A	2	3240	3240	LIFT STATION
RECEPTACLE		180	3	12	20	60 60	30	N/A	4		---	482
SPACE	---		5	N/A	--		--	N/A	6	---		SPACE
SPACE	---		7	N/A	--		--	N/A	8	---		SPACE
SPACE	---		9	N/A	--		--	N/A	10	---		SPACE
SPACE	---		11	N/A	--		--	N/A	12	---		SPACE
SPACE	---		13	N/A	--		--	N/A	14	---		SPACE
SPACE	---		15	N/A	--		--	N/A	16	---		SPACE
SUB-TOTALS	100	180	NEUTRAL BUS							0	0	SUB-TOTALS
	L1	L2								L1	L2	

TOTAL WATTS L1 : 3340 TOTAL WATTS L2 : 3340 TOTAL WATTS : 6680

PRELIMINARY

000254

SHEET NO. E0006

NO.	REVISIONS	DATE	DWN. BY	APPD.	NO.	REVISIONS	DATE	DWN. BY	APPD.	REF. DWG. NO.
					B	REISSUED FOR AGENCY REVIEW	3/30/01	GES		
					A	ISSUED FOR AGENCY REVIEW	1/23/97	GES		

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

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

COGNIZANT 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

AREA 4B LIFT STATIONS
ELECTRICAL PANEL SCHEDULES AND ELEMENTARY DIAGRAMS

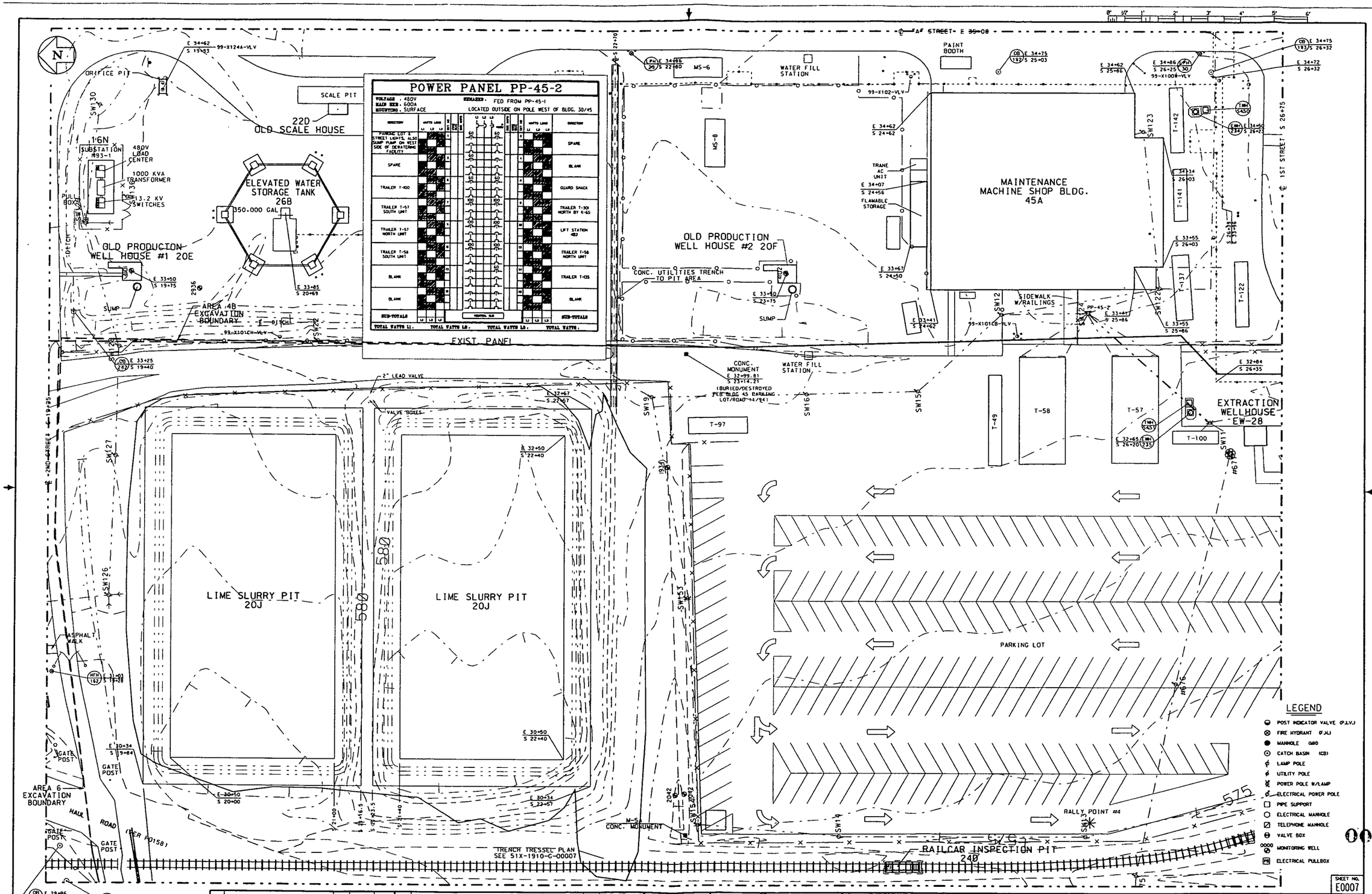
RES 4410 DATE 9-6-02 DRAWN G. SCHWARZMAN

99X-5500-E-00763 B

FILE NAME: /res4410/99xe0763.dgn

FFS.DGN 3/22/00

4831



NO.	REVISIONS	DATE	DWN. BY	APPD.	NO.	REVISIONS	DATE	DWN. BY	APPD.	REF. DWG. NO.
					B	REISSUED FOR AGENCY REVIEW	1/30/01	GES		
					A	ISSUED FOR AGENCY REVIEW	1/20/92	GES		750-5500-G00072

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

CONFIGURATION MANAGEMENT DRAWING

COGNIZANT ENGINEER DATE

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

Fernald Environmental Management Project

FLUOR FERNALD, INC.

U.S. DEPARTMENT OF ENERGY

ELECTRICAL PP-45-2 LOCATION
SCALE: 1"=20'

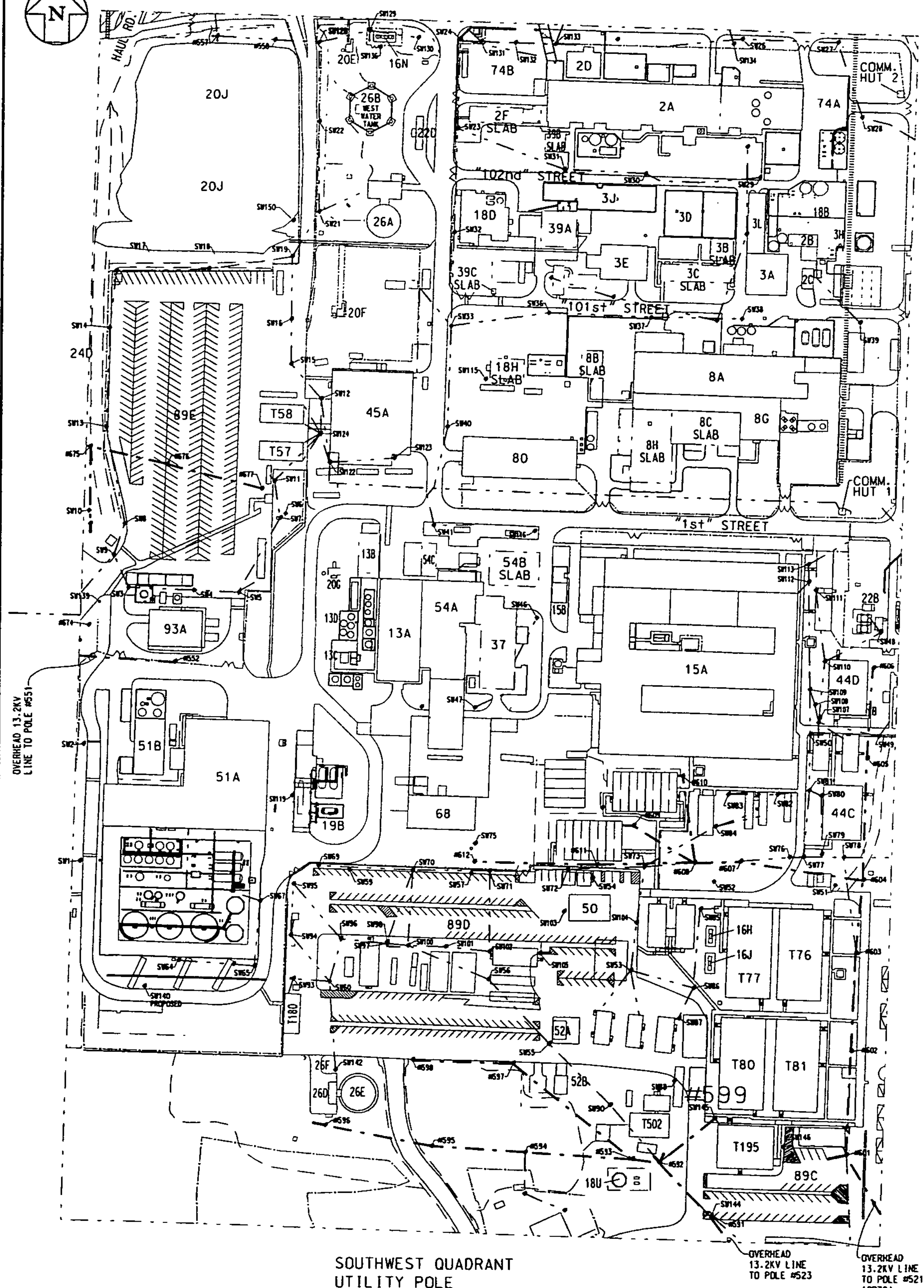
RES 4410
DATE 9-6-02
DRAWN G. SCHWARZMAN

99X-5500-E-00764 B

FILE NAME: /res4410/99xe0764.dgn

000255

4831



SOUTHWEST QUADRANT
UTILITY POLE
NUMBER DESIGNATION SITE PLAN
SCALE : 1" = 80'-0"

80 60 40 20 0 20 40 60 80 100 200 300
BAR SCALE IN FEET

POLE SCHEDULE (SOUTHWEST)

FORMER DESIGNATION(S)			NEW DESIGNATION	AREA LIGHT	DOCUMENTED DRAWINGS (POLE INSTALLATION &/OR MODIFICATIONS)	COORDINATES (NAD 83) EASTING	NORTHING	ELEV.
—	—	—	SW1	YES	NA	1348004	479517	0.00
—	—	—	SW2	YES	NA	1348009	479695	0.00
—	—	—	SW3	YES	NA	1348076	479932	0.00
—	—	—	SW4	YES	NA	1348175	479828	0.00
—	—	—	SW5	YES	NA	1348241	479825	0.00
—	—	—	SW6	YES	NA	1348311	480045	0.00
—	—	—	SW7	YES	NA	1348303	480038	0.00
—	—	—	SW8	YES	NA	1348070.21	480028.79	574.63
—	—	—	SW9	YES	NA	1348053	479982	0.00
—	—	—	SW10	YES	NA	1348015	480049	0.00
—	—	—	SW11	YES	NA	1348294	480094	0.00
—	—	—	SW12	YES	NA	1348364	480218	0.00
BELLY PT.4	—	—	SW13	YES	NA	1348041.30	480175.62	575.43
—	—	—	SW14	YES	NA	1348045.13	480325.03	575.44
—	—	—	SW15	YES	NA	1348318	480270	0.00
—	—	—	SW16	YES	NA	1348318	480338	0.00
—	—	—	SW17	YES	NA	1348104	480437	0.00
—	—	—	SW18	YES	NA	1348202	480434	0.00
—	—	—	SW19	YES	NA	1348318	480431	0.00
—	—	—	SW20	YES	NA, REMOVED PRIOR 4/01			
—	—	—	SW21	YES	NA	1348359	480499	0.00
—	—	—	SW22	YES	NA	1348358	480635	0.00
—	—	—	SW23	YES	NA	1348566	480627	0.00
—	—	—	SW24	YES	NA	1348570	480762	0.00
—	—	—	SW25	—	NA, REMOVED			
—	—	—	SW26	YES	NA	1348991	480765	0.00
—	—	—	SW27	YES	NA	1349134	480761	0.00
—	—	—	SW28	YES	NA	1349170	480647	0.00
—	—	—	SW29	YES	NA	1349019	480555	0.00
—	—	—	SW30	YES	NA	1348846	480560	0.00
—	—	—	SW31	YES	NA	1348726	480566	0.00
—	—	—	SW32	YES	NA	1348562	480469	0.00
—	—	—	SW33	YES	NA	1348558	480329	0.00
—	—	—	SW34	YES	NA, REMOVED PRIOR 1/00			
—	—	—	SW35	YES	NA, REMOVED PRIOR 1/00			
—	—	—	SW36	YES	NA	1348705	480350	0.00
—	—	—	SW37	YES	NA	1348856	480344	0.00
—	—	—	SW38	YES	NA	1348993	480342	0.00
—	—	—	SW39	YES	NA	1349168	480337	0.00
—	—	—	SW40	YES	NA	1348554	480177	0.00
—	—	—	SW41	YES	NA	1348534	480028	0.00
—	—	—	SW42	—	NA, REMOVED			
—	—	—	SW43	—	NA, REMOVED			
—	—	—	SW44	—	NA, REMOVED			
—	—	—	SW45	—	NA, REMOVED			
—	—	—	SW46	YES	NA	1348689	479890	0.00
—	—	—	SW47	YES	NA	1348597	479753	0.00
—	—	—	SW48	YES	NA	1349202	479870	0.00
—	—	—	SW49	YES	NA	1349200	479713	0.00
—	—	—	SW50	YES	NA	1349099	479714	0.00
—	—	—	SW51	YES	NA	1349137	479487	0.00
—	—	—	SW52	YES	NA	1348956	479491	0.00
—	—	—	SW53	YES	NA	1348831	479355	0.00
—	—	—	SW54	YES	NA	1348774	479496	0.00
—	—	—	SW55	YES	NA	1348711	479244	0.00
—	—	—	SW56	YES	NA	1348620.70	479341.15	576.08
—	—	—	SW57	YES	NA	1348593.63	479501.46	576.86
—	—	—	SW58	YES	NA, REMOVED PRIOR 10/00			
—	—	—	SW59	YES	NA	1348411.85	479508.34	575.25
—	—	—	SW60	YES	NA	1348382.88	479336.54	573.68
—	CT3	SW61	#603	NA	96X-5900-E-00352, 96X-5900-E-00356, 96X-5900-E-00304	1349168.19	479383.87	576.85
—	CT2	SW62	#602	NA	96X-5900-E-00352, 96X-5900-E-00356, 96X-5900-E-00304	1349161.82	479235.46	576.98
—	CT1	SW63	#601	NA	96X-5900-E-00352, 96X-5900-E-00356, 96X-5900-E-00304	1349155.08	479079.34	576.83
—	—	—	SW64	YES	NA	1348154.85	479368.51	573.45
—	—	—	SW65	YES	NA	1348267	479354	0.00
—	—	—	SW66	—	NA, REMOVED			
—	—	—	SW67	NA	NA	1348276	479457	0.00
—	—	—	SW68	NA	NA, REMOVED PRIOR 1/00			
—	—	—	SW69	NA	NA	1348363.42	479511.58	575.11
—	—	—	SW70	NA	NA	1348506.04	479506.05	576.06
—	—	—	SW71	NA	NA	1348621.38	479505.14	576.04
—	—	—	SW72	NA	NA	1348737	479508	0.00
—	—	—	SW73	NA	NA	1348850	479513	0.00
		—	—	—				
—	—	—	SW75	NA	96X-5900-E-00341	1348599.20	479546.51	576.40
—	—	—	SW76	NA	NA	1349069	479529	0.00
—	—	—	SW77	NA	NA	1349090	479528	0.00
—	—	—	SW78	NA	NA	1349149	479529	0.00
—	—	—	SW79	NA	NA	1349117	479533	0.00
—	—	—	SW80	NA	NA	1349116	479622	0.00
—	—	—	SW81	NA	NA	1349098	479630	0.00
—	—	—	SW82	NA	NA	1349050	479624	0.00
—	—	—	SW83	NA	NA	1348977	479623	0.00
—	—	—	SW84	NA	NA	1348958	479574	0.00
—	—	—	SW85	NA	NA	1348936	479449	0.00
—	—	—	SW86	NA	NA	1348927	479329	0.00
—	—	—	SW87	NA	NA	1348905	479283	0.00
—	—	—	SW88	NA	NA	1348898	479189	0.00
—	—	—	SW89	NA	NA, REMOVED PRIOR 1/00			
—	—	—	SW90	NA	NA	1348801	479152	0.00
—	—	SW91	#597	NA	NA	1348657.81	479215.10	576.75
—	—	SW92	#598	NA	NA	1348507.69	479219.03	573.19
—	—	—	SW93	NA	NA, 96X-5900-E-00312	1348327.83	479340.29	573.26
—	—	—	SW94	NA	NA	1348323.30	479406.12	573.97
—	—	—	SW95	NA	NA	1348326.99	479463.84	574.52
—	—	—	SW96	NA	NA	1348389.71	479400.82	574.40
—	—	—	SW97	NA	NA	1348468.48	479394.02	575.06
—	—	—	SW98	NA	NA	1348468.47	479396.67	574.99
—	—	—	SW99	NA	NA, REMOVED PRIOR 10/00			
—	—	—	SW100	NA	NA	1348499.65	479391.67	575.29

POLE SCHEDULE (SOUTHWEST) CONT.

FORMER DESIGNATION(S)			NEW DESIGNATION	AREA LIGHT	DOCUMENTED DRAWINGS (POLE INSTALLATION &/OR MODIFICATIONS)	COORDINATES (NAD 83) EASTING	NORTHING	ELEV.
—	—	—	SW101	NA	NA	1348555.60	479390.07	575.89
—	—	—	SW102	NA	NA	1348621	479363	0.00
—	—	—	SW103	NA	NA	1348732	479444	0.00
—	—	—	SW104	NA	NA	1348839	479426	0.00
—	—	—	SW105	NA	NA	1348697.15	479361.50	576.70
		—	—	—				
—	—	—	SW107	NA	NA	1349111	479733	0.00
—	—	—	SW108	NA	NA	1349106	479759	0.00
—	—	—	SW109	NA	NA	1349098	479783	0.00
—	—	—	SW110	NA	NA	1349120	479826	0.00
—	—	—	SW111	NA	NA	1349106	479933	0.00
—	—	—	SW112	NA	NA	1349096	479946	0.00
—	—	—	SW113	NA	NA	1349095	479972	0.00
		—	—	—				
—	—	—	SW115	NA	NA	1348611	480249	0.00
—	—	—	SW116	NA	NA	1348685	480020	0.00
—	—	—	SW117	NA	REMOVED PRIOR 1/00			
—	—	—	SW118	NA	REMOVED PRIOR 1/00			
—	—	—	SW119	NA	NA	1348324	479618	0.00
—	—	—	SW120	NA	REMOVED PRIOR 1/00			
—	—	—	SW121	NA	REMOVED PRIOR 1/00			
—	—	—	SW122	NA	NA	1348377	480122	0.00
—	—	—	SW123	NA	NA	1348474	480129	0.00
—	—	—	SW124	NA	NA	1348363	480165	0.00
—	—	—	SW125	NA	REMOVED PRIOR 1/00			
—	—	SW126	#557	NA	NA, RE-NUMBERED PER RES #4381	1348204	480766	0.00
—	—	SW127	#558	NA	NA, RE-NUMBERED PER RES #4381	1348390	480760	0.00
—	—	—	SW128	NA	NA	1348357	480756	0.00
—	—	—	SW129	NA	NA	1348434	480775	0.00
—	—	—	SW130	NA	NA	1348507	480765	0.00
—	—	—	SW131	NA	NA	1348600	480759	0.00
—	—	—	SW132	NA	NA	1348652	480757	0.00
—	—	—	SW133	NA	NA	1348712	480756	0.00
—	—	—	SW134	NA	NA	1348978	480757	0.00
—	—	—	SW135	NA	REMOVED PRIOR 1/00			
—	—	—	SW136	NA	NA	1348449	480749	0.00
		—	—	—				
		—	—	—				
—	—	—	SW139	NA	NA, CUT OFF AT GRADE	1348032	479910	0.00
—	—	—	SW140	YES	150-1900-E-02534 (PROPOSED)	1348104	479327	0.00
		—	—	—				
—	—	—	SW142	NA	26A-5500-0-00232	1348392.22	479202.30	574.14
		—	—	—				
BELLY PT.2	—	—	SW144	NA	NA, 2599 POLE	1348957	478991	0.00
—	—	—	SW145	NA	NA	1348959	479133	0.00
—	—	—	SW146	NA	NA	1349061	479081	0.00
		—	—	—				
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—	—	—	SW150	NA	NA	1348320	480406	0.00
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—	ST4	—	#552	YES	96X-6900-E-00307, 96X-6900-E-00352	1348147	479820	0.00
		—	—	—				
		—	—	—				
		—	—	—				
—	24B	—	#591	NA	96X-6900-E-00352, 96X-6900-E-00356, 92X-6900-E-00379	1348957	478987	0.00
—	24C	—	#592	NA	96X-5900-E-00346, 96X-6900-E-00352	1348876.95	479066.48	577.88
—	24D	—	#593	NA	96X-5900-E-00346, 96X-6900-E-00352	1348836	479072	0.00
—	—	—	#594	NA	96X-5900-E-00346, 96X-5900-E-00352	1348676	479081	0.00
—	—	—	#595	NA	96X-5900-E-00346, 96X-5900-E-00352	1348537	479089	0.00
—	—	—	#596	NA	96X-5900-E-00346, 96X-5900-E-00352	1348377.42	479119.31	577.59
—	—	SW91	#597	NA	NA, ADDED 13.2 KV	1348657.81	479215.10	576.75
—	—	SW92	#598	NA	NA, ADDED 13.2 KV	1348507.88	479219.03	573.19
		—	—	—				
		—	—	—				
—	CT1	SW63	#601	NA	96X-5900-E-00352, 96X-6900-E-00356, 96X-5900-E-00304	1349155.08	479079.34	576.83
—	CT2	SW62	#602	NA	96X-5900-E-00352, 96X-6900-E-00356, 96X-5900-E-00304	1349161.82	479235.46	576.98
—	CT3	SW61	#603	NA	96X-5900-E-00352, 96X-6900-E-00356, 96X-5900-E-00304	1349168.19	479383.87	576.85
—	CT4	—	#604	NA	96X-6900-E-00352, 96X-6900-E-00304	1349178	479498	0.00
—	CT5	—	#605	NA	96X-6900-E-00352, 96X-6900-E-00304	1349182	479680	0.00
—	CT6	—	#606	NA	96X-6900-E-00352, 96X-6900-E-00304	1349191	479817	0.00
—	LT1	—	#607	NA	96X-5900-E-00352	1348998	479522	0.00
—	LT2	—	#608	NA	96X-5900-E-00352	1348927	479519	0.00
—	LT3	—	#609	NA	96X-6900-E-00352, 96X-6900-E-00326, 96X-6900-E-00341	1348839	479576	0.00
—	LT4	—	#610	NA	96X-6900-E-00352, 96X-6900-E-00326, 96X-6900-E-00341	1348909	479651	0.00
—	—	—	#611	NA	96X-6900-E-00352, 96X-6900-E-00341	1348779.09	479515.90	577.40
—	—	—	#612	NA	96X-6900-E-00352, 96X-6900-E-00341	1348598.45	479519.16	575.94
		—	—	—				
		—	—	—				
		—	—	—				
		—	—	—				
		—	—	—				
—	—	—	#674	NA	95X-6500-E-02021	1348015	479875	0.00
—	—	—	#675	NA	95X-6500-E-02021	1348016	480145	0.00
—	—	—	#676	NA	95X-6500-E-02021	1348133	480118	0.00
—	—	—	#677	NA	95X-6500-E-02021	1348275	480082	0.00

LEGEND / GENERAL NOTES:

1. POLE NUMBERS 001 THRU 499 : 480 VOLT AND LOWER (INCLUDING LIGHT POLES).
2. POLE NUMBERS 500 THRU 799 : 13.2 KV LINES (INCLUDING LIGHT POLES).
3. POLE NUMBERS 800 THRU 999 : 34.5 KV LINES (INCLUDING LIGHT POLES).
4. POLE NUMBERS 1000 AND HIGHER : 132.0 KV LINES.

PRELIMINARY

000256

NO.	REVISIONS	DATE	DWN. BY	APPD.
B	REISSUED FOR AGENCY REVIEW	1/3/03	GES	
A	ISSUED FOR AGENCY REVIEW	1/23/02	GES	

REF. DWG. NO.

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

CONFIGURATION MANAGEMENT DRAWING — YES / NO
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 / APPROVED / SAFETY ENG. / MAINTENANCE / FIRE PROTECT. / WASTE MANAGE / SECURITY / PROJECTS

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

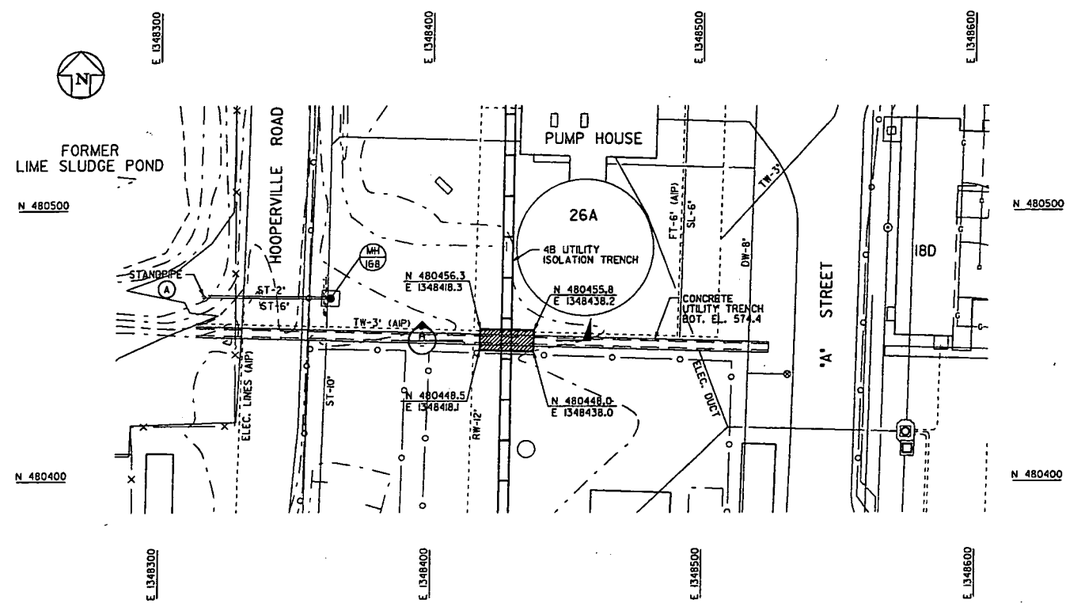
SITE MAP
ELECTRICAL POWER POLE SW128 LOCATION
SCALE: 1"=80'

SHEET NO. E0008
RES 4410
DATE 9-24-02
DRAWN G. SCHWARZMAN
99X-5500-E-00765 B

FILE NAME: /res4410/99xe0765.dgn

FFS.DGN 3/22/00

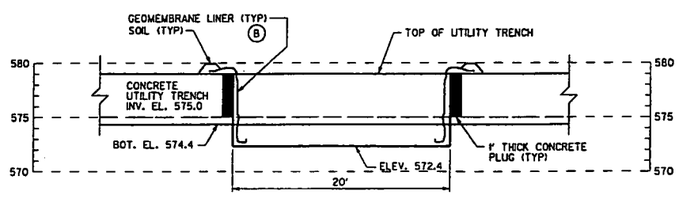
4831



PLAN

20 0 20 40

SCALE: 1"=20'



SECTION A

NTS

5 0 5 10

SCALE: 1"=5'

CONSTRUCTION & DEWATERING NOTES

THE FOLLOWING SEQUENCE DOES NOT SUPERCEDE REQUIREMENTS SPECIFIED IN THE TECHNICAL SPECIFICATION OR CONSTRUCTION DRAWINGS, RATHER IT IS INTENDED TO PRESENT GENERAL GUIDANCE FOR SEQUENCING:

1. INSTALL A TRASH PUMP IN THE UTILITY TRENCH WEST OF HOOPERVILLE ROAD. PUMP WATER FROM THE TRENCH TO THE STAND PIPE LOCATED AT THE SOUTHEAST CORNER OF THE LIME SLUDGE PONDS.
2. EXCAVATE ABOVE-WAC SEDIMENT FROM THE PORTION OF THE UTILITY TRENCH REMAINING BETWEEN "A" STREET AND HOOPERVILLE ROAD AND DISPOSE OF THE SEDIMENT IN ACCORDANCE WITH SPECIFICATION SECTION 02205. REMOVE THE METAL PLATE FROM OVER THE UTILITY TRENCH AS EXCAVATION PROCEEDS.
3. WASH THE UTILITY TRENCH FROM EAST TO WEST USING A PRESSURE WASHER TO CLEAN THE TRENCH OF ABOVE-WAC SEDIMENT RESIDUE. COLLECT WASH WATER IN THE WESTERN PORTION OF THE TRENCH AND PUMP IT INTO THE STAND PIPE LOCATED IN THE SOUTHEAST CORNER OF THE LIME SLUDGE PONDS.
4. INSTALL CONCRETE PLUGS IN THE TRENCH JUST BEYOND THE LIMITS OF THE PROPOSED 20-FEET SECTION EXCAVATION AS SHOWN IN SECTION A.
5. EXCAVATE THE 20-FEET LONG SECTION OF UTILITY TRENCH DESIGNATED BY COORDINATES SHOWN IN THE PLAN VIEW TO ELEVATION 572.4. DISPOSE OF SOIL AND DEBRIS IN ACCORDANCE WITH SPECIFICATION SECTION 02205.
6. UPON COMPLETION OF UTILITY TRENCH EXCAVATION, DECONTAMINATE THE EXCAVATOR BUCKET WITHIN THE HAUL TRUCK BED AS DIRECTED BY THE CONSTRUCTION MANAGER.
7. THE CONSTRUCTION MANAGER WILL ARRANGE FOR REAL-TIME MONITORING AND/OR PHYSICAL SAMPLING AT THE EXCAVATION LIMITS.
8. DRAPE GEOMEMBRANE LINER OVER THE ENTIRE EXPOSED ENDS OF THE EXCAVATION TO A DEPTH OF 572.4 AS SHOWN IN SECTION A.
9. PLACE SOIL ON THE GEOMEMBRANE LINER AT THE TOP EDGE OF THE EXCAVATION AS SHOWN IN SECTION A SUFFICIENT TO ANCHOR THE LINER IN PLACE.
10. BACKFILL THE EXCAVATION BY PUSHING THE SIDES OF THE EXCAVATION INTO THE HOLE, KEEPING THE GEOMEMBRANE IN PLACE.
11. GRADE THE AREA TO PROVIDE A GRADUAL DIP IN THE PROPOSED PATH OF THE ISOLATION TRENCHER. COMPACT THE AREA WITH FOUR PASSES OF EXCAVATION EQUIPMENT TO PROVIDE A FIRM PATH FOR THE TRENCHER.

GENERAL NOTES

1. SEE DRAWING 99X-5500-X-00639 FOR LEGEND AND GENERAL NOTES.
2. SEE THE LATEST REVISIONS OF UNDERGROUND UTILITY GRID DRAWINGS 220-5500-P-00678 (GRID 19) AND 220-5500-P-00684 (GRID 25) FOR INFORMATION PERTAINING TO UNDERGROUND UTILITIES IN THE AREA.
3. THIS DRAWING PROVIDES DETAILS, LIMITS AND GENERAL SEQUENCING FOR EXCAVATION OF ABOVE-WAC SEDIMENTS FROM THE REMAINING SECTION OF UTILITY TRENCH WITHIN AREA 4B AND EXCAVATION OF A 20 FEET LONG SECTION OF THE TRENCH IN THE PATH OF 3B/4B UTILITY ISOLATION TRENCHING.
4. FIELD VERIFY THAT PIPING WITHIN THE UTILITY TRENCH HAS BEEN REMOVED BY OTHERS.
5. EXCAVATION LIMITS SHOWN REPRESENT THE MINIMUM EXCAVATION REQUIRED TO CAPTURE CONTAMINATION AND UTILITY TRENCH MATERIAL. SEDIMENT WITHIN THE UTILITY TRENCH, THE TRENCH CONCRETE, AND 2 FEET OF SOIL ALONGSIDE AND UNDERNEATH THE UTILITY TRENCH SHALL BE DISPOSED OF AT WPRAP AS ABOVE-WAC MATERIAL.
6. PLACE GEOMEMBRANE LINER ON THE GROUND WHERE EXCAVATED MATERIAL IS TO BE TRANSFERRED FROM ONE VEHICLE TO ANOTHER.
7. EXCAVATE ABOVE-WAC MATERIAL IN ACCORDANCE WITH SPECIFICATION SECTION 02205 AND AS DIRECTED BY THE CONSTRUCTION MANAGER. THE CONSTRUCTION MANAGER WILL VERIFY THE LIMITS OF ABOVE-WAC EXCAVATION IN THE FIELD AND EXPAND THE EXCAVATION AS NECESSARY.
8. SIZE REDUCE TRENCH CONCRETE TO MEET WPRAP WAC IN ACCORDANCE WITH SPECIFICATION SECTION 02205. WET CONCRETE DURING BREAKING AS NECESSARY TO CONTROL DUST.
9. SURVEY FINAL LIMITS OF SEDIMENT REMOVAL AND UTILITY TRENCH EXCAVATION.
10. INSTALL WIREMESH CONSTRUCTION SAFETY FENCE AROUND THE TRENCH EXCAVATION AND HANG 'DANGER-OPEN EXCAVATION' SIGNAGE AS DIRECTED BY THE CONSTRUCTION MANAGER.
11. PERFORM WORK IN ACCORDANCE WITH THE APPROVED CONSTRUCTION TRAVELER PACKAGE.

KEYED NOTES

(A) PUMP WASH WATER COLLECTED IN THE UTILITY TRENCH TO THE STANDPIPE LOCATED IN THE SOUTHEAST CORNER OF THE LIME SLUDGE PONDS.

(B) GEOMEMBRANE MATERIAL SHALL MEET OR EXCEED THE MATERIAL PROPERTIES SPECIFIED IN SPECIFICATION SECTION 02770.

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	DATE	REV. BY	APPR.
0	ISSUED CERTIFIED FOR CONSTRUCTION	3/11/03	RML	GEP

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY

FLUOR FERNALD, INC.

PROJECT NAME
SOIL REMEDIATION

000257

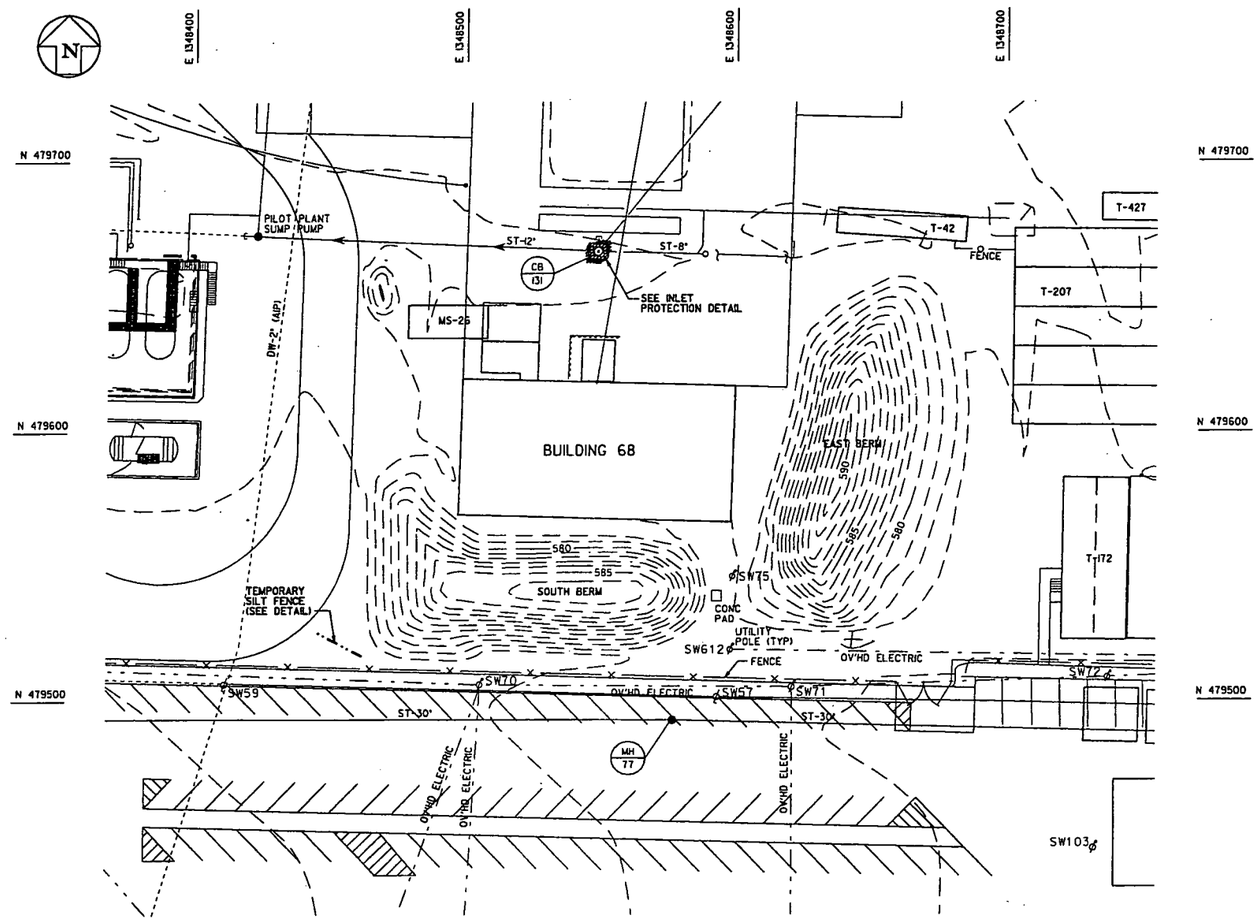
DRAWING TITLE
AREA 4B
SILOS UTILITY TRENCH EXCAVATION PLAN
PHASE I

APPROVALS

COGNIZANT ENG.	B. RUSSELL	3/14/03	SAFETY ENG.	J. MCDANIEL FOR L. JOHNSON	3/14/03
CIVIL & STR.			MAINTENANCE		
ELECTRICAL			FIRE PROTECT.		
ENGINEER	J.C. SHOEN	3/14/03	WASTE MANAGE		
INSTRUMENT			SECURITY		
MECHANICAL			QA	M. STORER	3/14/03
			CONSTRUCTION	C. MARSH	3/14/03
CHECKED	J.D. CHOU	3/14/03			
APPROVED	J. PICL	3/15/03			

DRAWN BY	PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
RM LINDGREN	20310	99X-5500-G-00767		0
RES PROJECT NO.	FILENAME 99X00767.DGN			

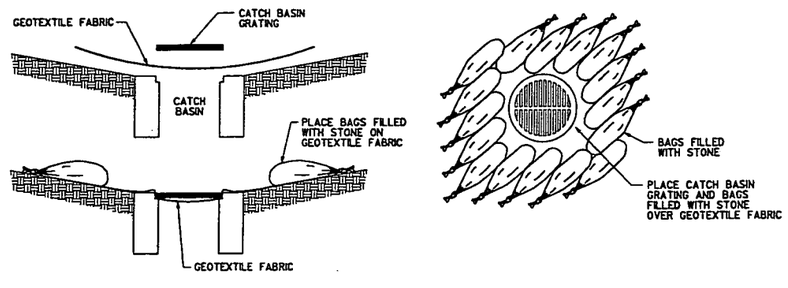
4831



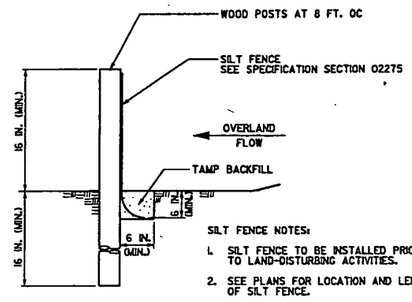
PLAN
SCALE: 1"=20'

INLET PROTECTION NOTES:

1. CATCH BASIN MUST BE IN A DEPRESSED AREA OR MUST BE MODIFIED TO POND WATER AROUND THE CATCH BASIN.
2. BAGS ARE TO BE MADE FROM BURLAP CLOTH (ODOT 705.05).
3. STONE TO BE ODOT #78 OR #57 GRADATION PER SPECIFICATION SECTION 02275.
4. GEOTEXTILE FABRIC TO BE 10 OZ PER SPECIFICATION SECTION 02714.



INLET PROTECTION DETAIL
NTS



SILT FENCE NOTES:

1. SILT FENCE TO BE INSTALLED PRIOR TO LAND-DISTURBING ACTIVITIES.
2. SEE PLANS FOR LOCATION AND LENGTH OF SILT FENCE.
3. WOOD POSTS SHALL BE 2 IN. X 2 IN. (MIN.) OF OAK OR SIMILAR HARDWOOD.
4. BACKFILL MATERIAL IN ACCORDANCE WITH SPECIFICATION SECTION 02200.

SILT FENCE DETAIL
NTS

20 0 20 40
SCALE: 1"=20'

GENERAL NOTES

1. HORIZONTAL CONTROL SHOWN ON THIS DRAWING IS BASED UPON NORTH AMERICAN DATUM 1983 (NAD 83).
2. VERTICAL CONTROL SHOWN ON THIS DRAWING IS BASED UPON NATIONAL GEODETIC VERTICAL DATUM 1929 (NGVD 29).
3. LOCATION AND DEPTH OF EXISTING UTILITIES AND FOUNDATIONS ARE APPROXIMATE. IF UNIDENTIFIED UTILITIES ARE DISCOVERED, PROCEED AS DIRECTED BY THE CONSTRUCTION MANAGER.
4. DIMENSIONS SHOWN ON THE CONSTRUCTION DRAWINGS TAKE PRECEDENCE OVER SCALED DIMENSIONS.
5. PROTECT UNDERGROUND AND OVERHEAD UTILITIES DURING STOCKPILE EXCAVATION.
6. TECHNICAL SPECIFICATIONS GOVERNING THIS ACTIVITY ARE THE LATEST REVISIONS OF TECHNICAL SPECIFICATIONS FOR SOIL AND DISPOSAL FACILITY PROJECT - EXCAVATION FOR REMEDIATION (DOCUMENT NO. 20300-TS-0000 AND ON-SITE DISPOSAL FACILITY (OSDF) PHASE IV TECHNICAL SPECIFICATIONS (DOCUMENT NO. 20104-TS-0000).
7. INSTALL TEMPORARY SILT FENCE PER DETAIL ON THIS DRAWING.
8. PROCEED WITH EXCAVATIONS OF THE "EAST" BERM FROM THE NORTH SIDE AND THE "SOUTH" BERM FROM THE WEST SIDE MAKING SURE THE EXCAVATED SOIL IS NOT PUSHED AGAINST THE EXISTING PARKING LOT FENCE.
9. EXCAVATE BERMS IN A MANNER THAT MINIMIZES DISTURBANCE TO THE EXISTING GROUND SURFACE.
10. MODIFY CATCH BASIN 131 AS SHOWN PER INLET PROTECTION DETAIL ON THIS DRAWING.
11. DISPOSE OF EXCAVATED MATERIAL IN AREA 3A/4A AS DIRECTED BY THE CONSTRUCTION MANAGER.
12. STABILIZE THE EXCAVATED AREA USING INTERIM VEGETATION SEED MIX IN ACCORDANCE WITH SPECIFICATION SECTION 02930.

PRELIMINARY
NOT FOR CONSTRUCTION

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	DATE	REV. BY	APPR.
A	ISSUED CERTIFIED FOR CONSTRUCTION			

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
FLUOR FERNALD, INC.

PROJECT NAME
SOIL REMEDIATION 000258

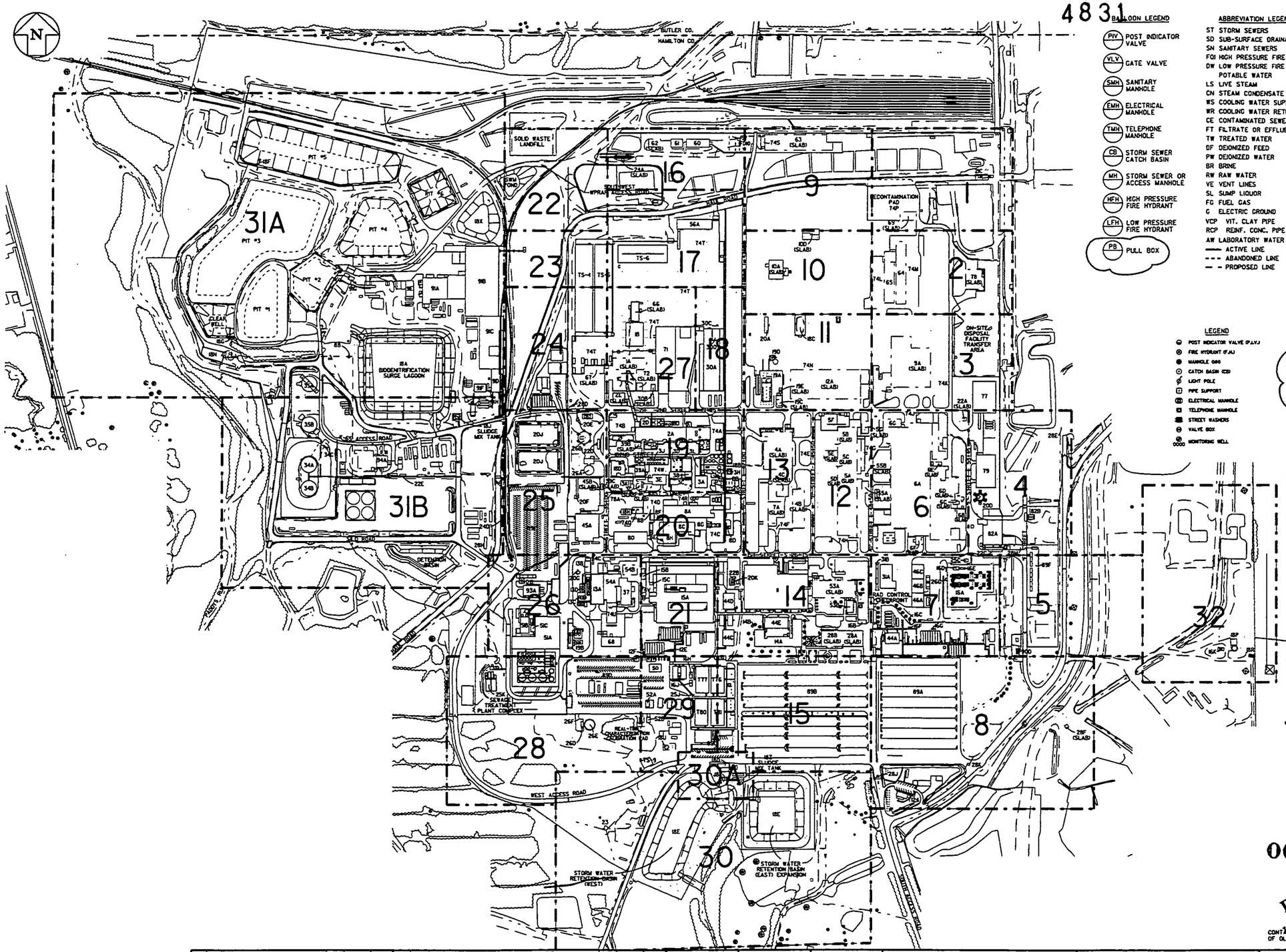
DRAWING TITLE
AREA 4B
BUILDING 68 BERM REMOVAL

APPROVALS

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

DRAWN BY	PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
RM LINDGREN	20410	99X-5500-G-00768		0
RES PROJECT NO.	FILENAME 99XG0768.DGN			

4831



BALLOON LEGEND

- PIV — POST INDICATOR VALVE
- VLV — GATE VALVE
- SMH — SANITARY MANHOLE
- EMH — ELECTRICAL MANHOLE
- TMH — TELEPHONE MANHOLE
- CB — STORM SEWER CATCH BASIN
- MH — STORM SEWER OR ACCESS MANHOLE
- HFH — HIGH PRESSURE FIRE HYDRANT
- LFH — LOW PRESSURE FIRE HYDRANT
- PB — PULL BOX

ABBREVIATION LEGEND

ST	STORM SEWERS
SD	SUB-SURFACE DRAINAGE
SN	SANITARY SEWERS
FQ	HIGH PRESSURE FIRE LINES
DW	LOW PRESSURE FIRE LINE/ POTABLE WATER
LS	LIVE STEAM
CN	STEAM CONDENSATE
WS	COOLING WATER SUPPLY
WR	COOLING WATER RETURN
CE	CONTAMINATED SEWER
FT	FILTRATE OR EFFLUENT
TW	TREATED WATER
DF	DEIONIZED FEED
PW	DEIONIZED WATER
BR	BRINE
RW	RAW WATER
VE	VENT LINES
SL	SUMP LIQUOR
FG	FUEL GAS
G	ELECTRIC GROUND
VCP	VIT. CLAY PIPE
RCP	REINF. CONC. PIPE
AW	LABORATORY WATER
——	ACTIVE LINE
- - -	ABANDONED LINE
— -	PROPOSED LINE

GRID	DRAWING NUMBER
1	22C-5500-P-00660
2	22C-5500-P-00661
3	22C-5500-P-00662
4	22F-5500-P-00663
5	22A-5500-P-00664
6	22F-5500-P-00665
7	22H-5500-P-00666
8	22H-5500-P-00667
9	22C-5500-P-00668
10	22C-5500-P-00669
11	22C-5500-P-00670
12	22E-5500-P-00671
13	22E-5500-P-00672
14	22H-5500-P-00673
15	22H-5500-P-00674
16	22B-5500-P-00675
17	22B-5500-P-00676
18	22B-5500-P-00677
19	22D-5500-P-00678
20	22D-5500-P-00679
21	22G-5500-P-00680
22	22B-5500-P-00681
23	22B-5500-P-00682
24	22B-5500-P-00683
25	22D-5500-P-00684
26	22G-5500-P-00685
27	22B-5500-P-00686
28	22A-5500-P-00687
28	22A-5500-P-00744
29	22A-5500-P-00688
30	22A-5500-P-00689
30A	22A-5500-P-00785
31A	22A-5500-P-00804
31B	22A-5500-P-00805
32	22A-5500-P-00707

LEGEND

- POST INDICATOR VALVE (P.I.V.)
- FIRE HYDRANT (F.H.)
- MANHOLE (MH)
- CATCH BASIN (CB)
- LIGHT POLE
- PIPE SUPPORT
- ELECTRICAL MANHOLE
- TELEPHONE MANHOLE
- STREET WASHERS
- VALVE BOX
- MONITORING WELL

GRID DETAIL DRAWINGS

GRID NO.	DETAIL DWG NO.
10	22C-5500-P-00706
13,14,20,21	22H-5500-P-00963
28	22A-5500-P-00744
31A	22A-5500-P-00961
31B	22A-5500-P-00930
31B	22A-5500-P-00961

FUEL GAS (FG) NOTE:
THE ONLY ACTIVE FUEL GAS LINES ARE FROM NEW GAS METER AT WILLEY ROAD TO MAINLINE (EAST OF BLDG. 54A), THEN TO NEW BOILER HOUSE (BLDG. 93A) AND TO WPRAP AREA.

FERNALD UNDERGROUND UTILITES
THIS COMPOSITE DRAWING CONTAINS INFORMATION TAKEN FROM ENGINEERING DRAWINGS FROM 1951 TO THE PRESENT WHICH ARE PRESENTLY ON FILE IN THE FERNALD SITE ENGINEERING DEPARTMENT. NOTE: UNDERGROUND UTILITIES WHICH ARE NOT OF RECORD IN THE FERNALD SITE ENGINEERING DEPARTMENT ARE NOT DISPLAYED IN THESE COMPOSITE DRAWINGS.

POST INDICATOR COLORS AT THE F.E.M.P.
(PER FRED BRAUN, UTILITY ENG. 5/18/93)

COLOR	SERVICE
WHITE	(DW) POTABLE WATER LOW PRESSURE FIRE HYDRANT
ORANGE/GREEN	HIGH PRESSURE FIRE HYDRANT
YELLOW	(TW) TREATED WATER PROCESS WATER
BLACK	(FT) EFFLUENT
GREEN	(WS) COOLING WATER SUPPLY
BLUE	(WR) COOLING WATER RETURN
PINK	(RW) RAW WATER
PINK/WHITE	UN-USED (RW) & (DW) CROSS CONNECTION
RED	PROPANE AREA SUMP PIT
PINK/GREEN	(DW) & FIRE PUMP HOUSE (25A)
GRAY	(FT) LIME SLURRY POND LINE
YELLOW/GREEN	(TW) TREATED WATER
WHITE/GREEN	(DW) FEED TO GROUNDWATER STORAGE TANK

FIRE HYDRANT COLORS AT THE F.E.M.P.

ORANGE	LOW PRESSURE HYDRANTS
ORANGE/GREEN	HIGH PRESSURE HYDRANTS

INTERIOR PIPING COLORS (PRELIMINARY)

BLUE	AIR
GREEN	WATER
RED	FIRE PROTECTION

000259

PRELIMINARY
INFORMATION ONLY
CADD SERVICES

CONTACT CADD SERVICES FOR PIPE SPECIFICATIONS OF OLD AND MOST OF THE NEW PIPING INSTALLATIONS.

NOTE:
1. THIS DRAWING ISSUED PERIODICALLY, FOR THE MOST RECENT VERSION OF THIS DRAWING, ACCESS THE FILENAME BELOW THE TITLE BLOCK.
2. COORDINATES SHOWN ON THIS DRAWING ARE TAKEN FROM EXISTING FEMP DRAWINGS AND ARE NOT VERIFIED TO BE "AS-BUILT". IT IS HIGHLY RECOMMENDED THAT A FIELD SURVEY BE PERFORMED PRIOR TO SITE DESIGN WORK.

NO.	REVISIONS	DATE	DWN. BY	APPD.	NO.	REVISIONS	DATE	DWN. BY	APPD.	REF. DWG. NO.
					12	REMOVE GRID 10A REF. GENERAL UPDATE	1-25-10	RML	GEP	
					11	MODIFIED GRID 26 & GRID 31B OUTLINES. ADD GRID 10A	1-13-10	RML	GEP	
					10	MODIFIED GRID 28 OUTLINE. ADDED DWG NO..	1-5-10	RML	GEP	
						DELETED GRID 33				
15	GENERAL UPDATE				9	UPDATED	1-4-97	GEP	GEP	
14	ADDED GRID DETAIL DRAWING INDEX	6/12/00	RML	GEP	8	UPDATED	1-23-96	JSW	GEP	93X-5900-G-00273
13	REVISED PER MARK-UP	3/14/00	SJS	GEP	7	UPDATED	2-1-95	GES	GEP	93X-5900-G-00272

FORMAT REVISED 8/7/95

NOTE:
FERMCO C.A.D. DRAWING NOT TO BE REVISED MANUALLY

PERFORMANCE GRADE
1 2 3 4 5
BY: DATE:

APPROVALS

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

FERNALD ENVIRONMENTAL RESTORATION MANAGEMENT CORPORATION
FERMCO
Fernald
Environmental Management Project
U.S. DEPARTMENT OF ENERGY

SITE MAP

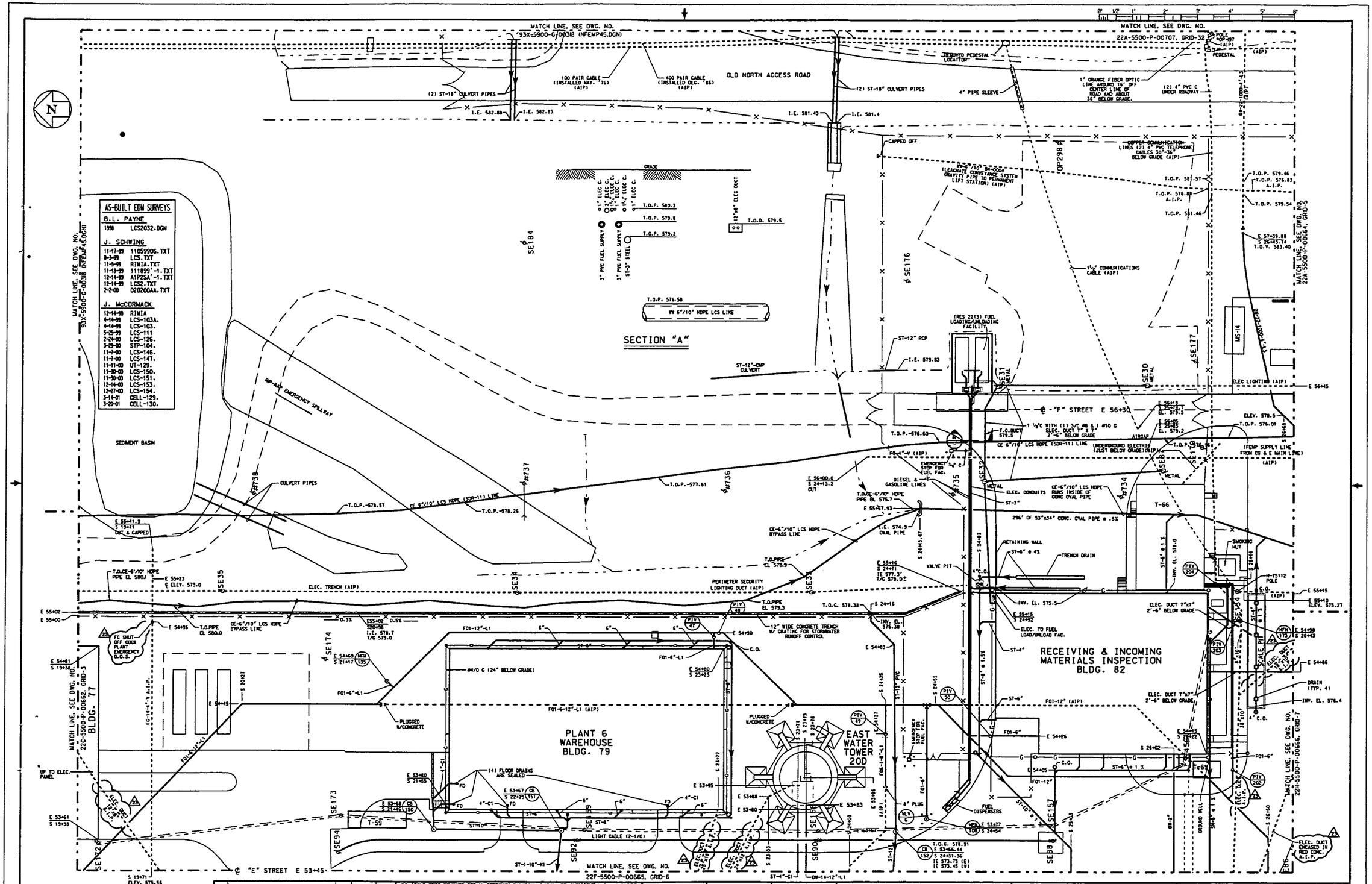
MASTER GRID OF UNDERGROUND UTILITY PLANS

DATE 5/1/91
DRAWN C.E.S.

22X-5500-P-00659 | 15

FILE NAME: /UNDER/22XP0659.DGN

4831



NOTE:
1. THIS DRAWING ISSUED PERIODICALLY, FOR THE MOST RECENT VERSION OF THIS DRAWING, ACCESS THE FILENAME BELOW THE TITLE BLOCK.
2. COORDINATES SHOWN ON THIS DRAWING ARE TAKEN FROM EXISTING FEMP DRAWINGS AND ARE NOT VERIFIED TO BE "AS-BUILT". IT IS HIGHLY RECOMMENDED THAT A FIELD SURVEY BE PERFORMED PRIOR TO SITE DESIGN WORK.
3. LEACHATE CONVEYANCE SYSTEM (PO 8140 0.25) LINE IS FROM B.L. PAYNE AS-BUILT SURVEY, SEE /PAYNE/LCS/LESSLOGL

NO.	REVISIONS	DATE	DWN. BY	APPD.
23	ELECTRIC DUCTS A.I.P. PER COMPLETED WORK ORDER AL05633	11/12	GES	GEP

NO.	REVISIONS	DATE	DWN. BY	APPD.
22	POLE SE35 REMOVED PER M. DERROUGH WALKDOWN 6/12/01. REMOVED PORTION OF ORIGINAL WW-6"/10" LEACHATE LINE. REMOVED POLES SE35 & SE36 PER WSE TASK ORDER 051. MOVE 28W TO NFEMP 45. MOVE 28E SOUTH. COMM EAST OF FENCE A.I.P., GENERAL UPDATE	7/9/02	RWL	GEP
21	ADD ELEC & LCS LINE TO SECTION "A", AS-BUILT LCS LINE & POLE "734 TO "738 PER J. McCORMACK SURVEYS, EXCAVATION BOUNDARIES	5/9/01	RWL	GEP

REF. DWG. NO.: 22X-5500-P-00659

NOTE: WEMCO C.A.D. DRAWING NOT TO BE REVISED MANUALLY

APPROVALS			
CIVIL & STR.		SAFETY ENG.	
ELECTRICAL		MAINTENANCE	
ENGINEER		Q.A.	
INSTRUMENT			
MECHANICAL		FIRE PROTECT.	
		WASTE MANAGE	
CHECKED	GEP	Q.O.S.	
APPROVED	C.E. PAUL 2-20-90	SECURITY	

WESTINGHOUSE ENVIRONMENTAL MANAGEMENT CO. OF OHIO
FERNALD, OHIO
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
U.S. DEPARTMENT OF ENERGY

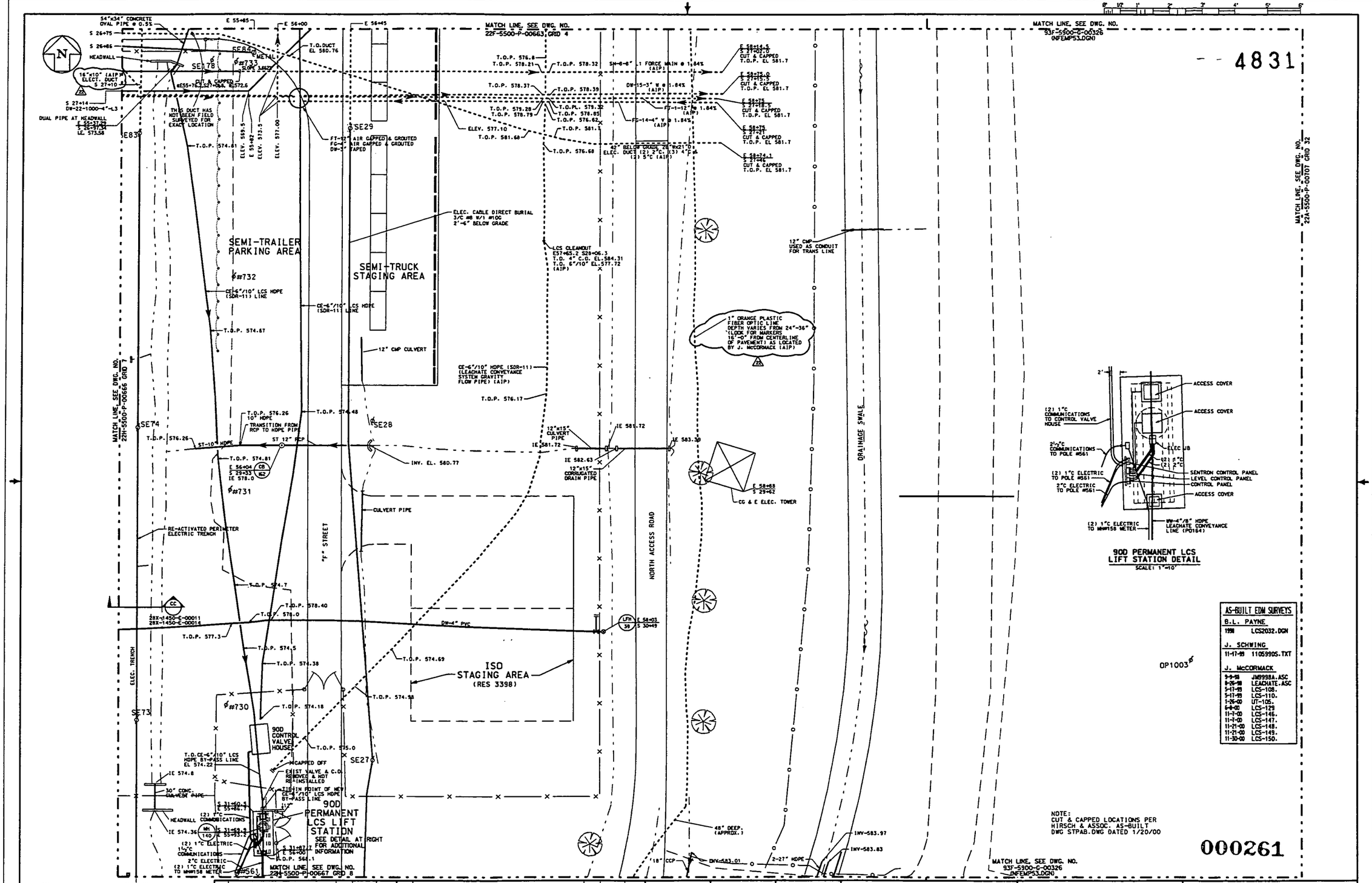
BLDG. 79,82 & E. WATER TOWER YARD AREA
GRID 4
UNDERGROUND UTILITIES
SCALE 1"=20'

DATE 2-20-90
DRAWN J. KING

22F-5500-P-00663 | 23

FILE NAME: /UNDER/22FP0663.DGN

000260



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2. COORDINATES SHOWN ON THIS DRAWING ARE TAKEN FROM EXISTING FEMP DRAWINGS AND ARE NOT VERIFIED TO BE "AS-BUILT". IT IS HIGHLY RECOMMENDED THAT A FIELD SURVEY BE PERFORMED PRIOR TO SITE DESIGN WORK.
3. THE WEST UTILITIES CORRIDOR TRENCH IS THE RESULT OF AN AS-BUILT SURVEY BY B.L. PAYNE & ASSOC. THIS INCLUDES THE LCS LINE (P0164). FOR B.L. PAYNE SURVEY SEE FILE/PAYNE/LCS2032.DGN.

NO.	REVISIONS	DATE	DWN. BY	APPD.	NO.	REVISIONS	DATE	DWN. BY	APPD.	REF. DWG. NO.
					23	A.I.P. UND'GD. FIBER OPTIC LINE. GENERAL UPDATE	7/5/02	RML	GEP	
					22	RE-ACTIVATED PERIMETER ELECTRIC IN TRENCH PER R. DUCKWORTH 3/18/01 MEMO. ADDED LIFT STATION DETAIL. INCORP. REDLINE AS-BUILT FROM J. McCORMACK 5/01/01. GENERAL UPDATE	5/3/01	RML	GEP	22X-5500-P-00659

NOTE: WEMCO C.A.D. DRAWING NOT TO BE REVISED MANUALLY

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ARE
FRACTIONS ± 1/8
ANGLES ± 0° - 30'
DECIMALS
.X ± 0.1
.XX ± 0.03
.XXX ± 0.010
.XXXX ± 0.0050
SEAL RELEASE DATE

APPROVALS				
CIVIL & STR.			SAFETY ENG.	
ELECTRICAL			MAINTENANCE	
ENGINEER			O.A.	
INSTRUMENT				
MECHANICAL			FIRE PROTECT.	
			WASTE MANAGE	
CHECKED	GEP		D.O.E.	
APPROVED	G.E. PAUL	7-25-95	SECURITY	

WESTINGHOUSE ENVIRONMENTAL MANAGEMENT CO. OF OHIO
FERNALD, OHIO
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
U.S. DEPARTMENT OF ENERGY

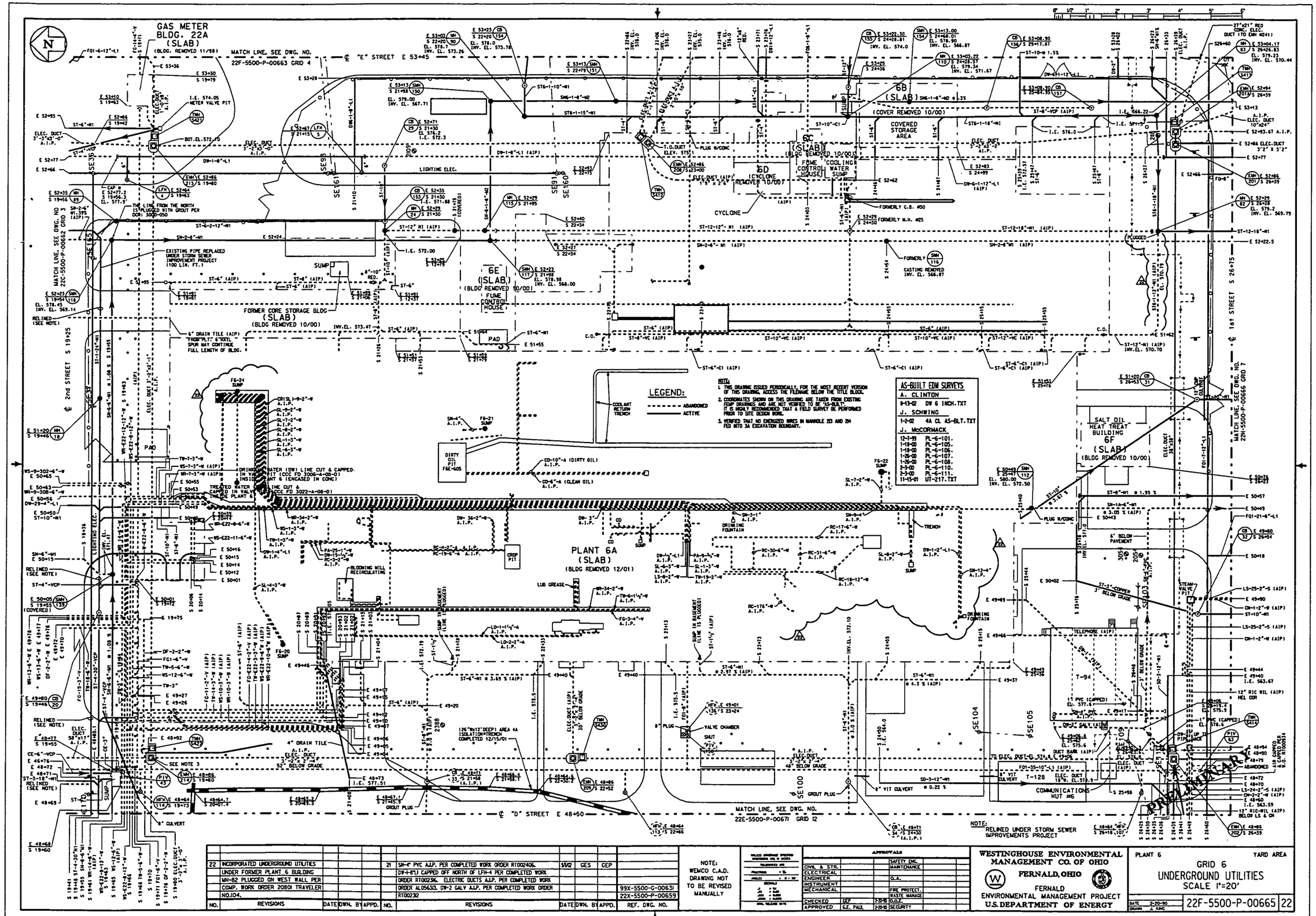
EAST OF MAIN SUB-STATION YARD AREA
GRID 5
UNDERGROUND UTILITIES
SCALE 1"=20'

DATE 2-20-90
DRAWN DEL TURPIN

22A-5500-P-00664 | 23

FILE NAME: /UNDER/22AP0664.DGN

4831



NO.	REVISIONS	DATE	DWN.	BY	APPD.	NO.	REVISIONS	DATE	DWN.	BY	APPD.	REF. DWG. NO.
22	INCORPORATED UNDERGROUND UTILITES					21	SW-4" PVC ALP. PER COMPLETED WORK ORDER RT002406.	1/02	GES	GEP		
	UNDER FORMER PLANT 6 BUILDING						DW-6"LI CAPPED OFF NORTH OF LFH-4 PER COMPLETED WORK					
	MH-82 PLUGGED ON WEST WALL PER						ORDER RT002396. ELECTRIC DUCTS ALP. PER COMPLETED WORK					
	COMP. WORK ORDER 20801 TRAVELER						ORDER AL056303. DW-2 GALV ALP. PER COMPLETED WORK ORDER					99X-5500-G-00631
	NO.104.						RT002392					22X-5500-P-00659

NOTE: WEMCO C.A.D. DRAWING NOT TO BE REVISED MANUALLY

APPROVALS			
CIVIL & STR.			SAFETY, ENC.
ELECTRICAL			MAINTENANCE
ENGINEER			Q.A.
INSTRUMENT			
MECHANICAL			FIRE PROTECT.
			WASTE MANAGE
CHECKED	GEP	7-20-90	D.O.E.
APPROVED	G.E. PAUL	7-20-90	SECURITY

WESTINGHOUSE ENVIRONMENTAL MANAGEMENT CO. OF OHIO
FERNALD, OHIO
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
U.S. DEPARTMENT OF ENERGY

PLANT 6 YARD AREA

GRID 6
UNDERGROUND UTILITIES
SCALE 1"=20'

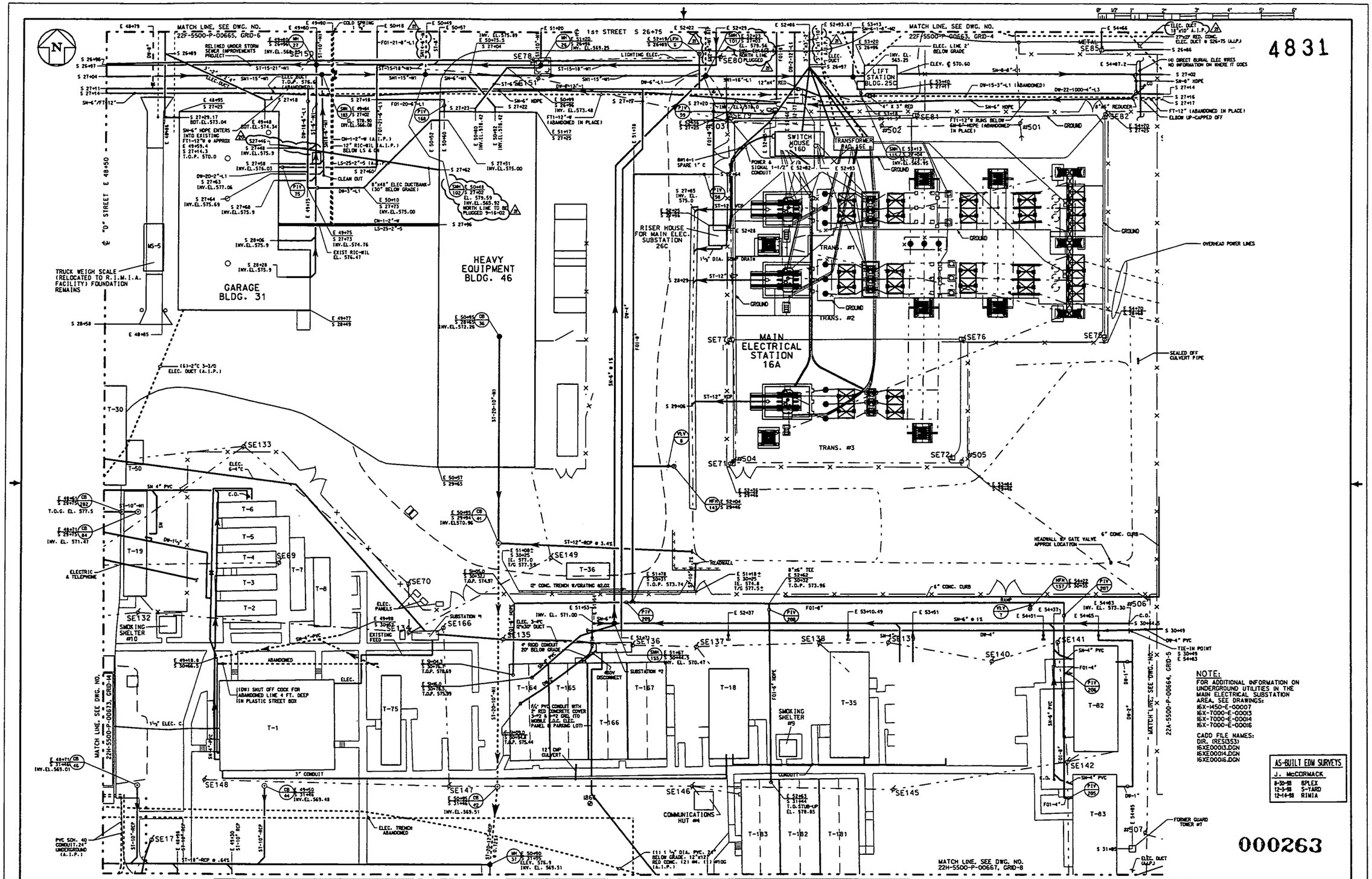
DATE 2-20-90
DRAWN J. KING

22F-5500-P-00665 22

FILE NAME: /UNDER/22FP0665.DGN

000262

4831



NOTE:
FOR ADDITIONAL INFORMATION ON UNDERGROUND UTILITIES IN THE MAIN ELECTRICAL SUBSTATION AREA, SEE DRAWINGS:
16X-1450-E-00007
16X-7000-E-00013
16X-7000-E-00014
16X-7000-E-00016

CADD FILE NAMES:
DIR. (RES1353)
16XE00013.DGN
16XE00014.DGN
16XE00016.DGN

AS-BUILT EDM SURVEYS
J. McCORMACK
8-30-88 8PLEX
12-3-88 S-YARD
12-14-88 RIMIA

000263

NOTE:
1. THIS DRAWING ISSUED PERIODICALLY FOR THE MOST RECENT VERSION OF THIS DRAWING, ACCESS THE FILENAME BELOW THE TITLE BLOCK.
2. COORDINATES SHOWN ON THIS DRAWING ARE TAKEN FROM EXISTING FEMP DRAWINGS AND ARE NOT VERIFIED TO BE "AS-BUILT". IT IS HIGHLY RECOMMENDED THAT A FIELD SURVEY BE PERFORMED PRIOR TO SITE DESIGN WORK.

NO.	REVISIONS	DATE	DWN. BY	APPD.	NO.	REVISIONS	DATE	DWN. BY	APPD.	REF. DWG. NO.
					21	NORTH LINE (SNM4-6"-MD) FROM SMH-102 PLUGGED PER COMPLETED WORK ORDER RT002406. NORTH LINE (SN-2-8"-MD FROM SMH-101 PLUGGED PER COMPLETED WORK ORDER RT002405. ELECTRIC DUCTS A.I.P. PER COMPLETED WORK ORDER AL056313	1-4-92	GES	GEP	22X-5500-P-00659

NOTE:
WEMCO C.A.D. DRAWING NOT TO BE REVISED MANUALLY

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ARE
FRACTIONS ± ⅛
ANGLES ± 0° - 30'
DECIMALS
.X ± 0.25
.XX ± 0.010
.XXX ± 0.005
.XXXX ± 0.0005
ORIG. RELEASE DATE

APPROVALS			
CIVIL & STR.			SAFETY ENG.
ELECTRICAL			MAINTENANCE
ENGINEER			Q.A.
INSTRUMENT			
MECHANICAL			FIRE PROTECT.
			WASTE MANAGE
CHECKED	GEP		D.O.E.
APPROVED	C.E. PAUL	1-20-92	SECURITY

WESTINGHOUSE ENVIRONMENTAL MANAGEMENT CO. OF OHIO
FERNALD, OHIO
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
U.S. DEPARTMENT OF ENERGY

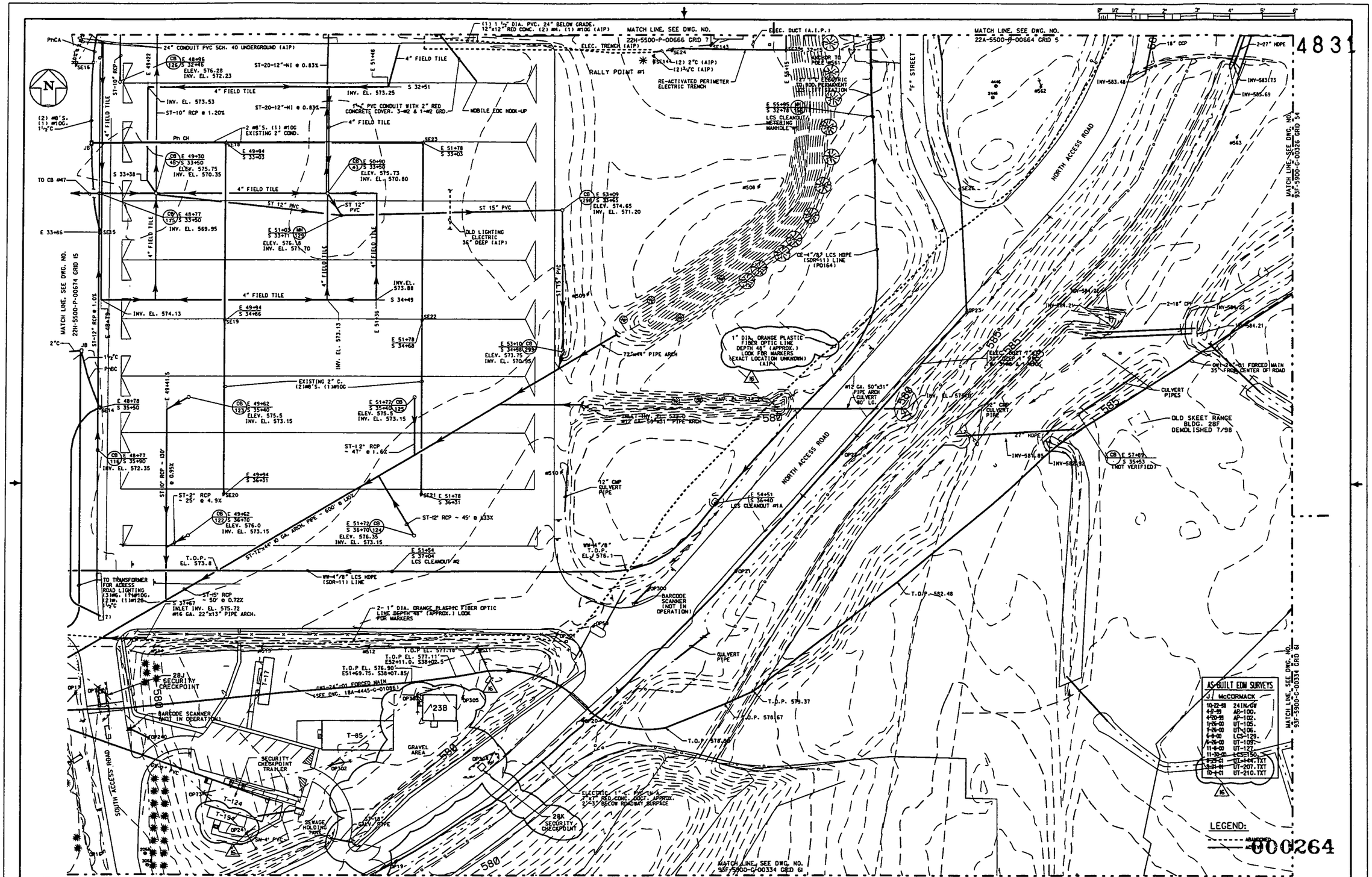
BLDG. 31 & 46, AREA 16 — YARD AREA

GRID 7
UNDERGROUND UTILITIES
SCALE 1"=20'

DATE 2-20-90
DRAWN J. KING

22H-5500-P-00666 | 21

FILE NAME: /UNDER/22HP0666.DGN



NOTE:
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3. FOR ADDITIONAL INFO. ON STORM SEWER LINES AND CATCH BASINS SEE IRIS #2055. FOR AS-BUILT FIELD SURVEY OF THE 4"/8" LCS LINE, SEE B.L. PAYNE SURVEY REF. DRAWING - LCS2012.DGN

NO.	REVISIONS	DATE	DWN. BY	APPD.
16	ADD TELE. BLDG 238, ADD 28K SECURITY CHECKPOINT.	7/25/02	RWL	GEP
	ADD T-194, UNDERGROUND FIBER OPTIC LINE (A.I.P.).			
	GENERAL UPDATE			
15	RE-ACTIVATED PERIMETER ELECTRIC IN TRENCH PER R.	5/3/01	RWL	GEP
	DUCKWORTH MEMO 3/18/01, ADDED ELECTRIC TO MH#158			
	FROM 900. GENERAL UPDATE			92X-5900-E-00323
14	ELECT. TRENCH A.I.P.	5/8/00	RWL	GEP	22X-5500-P-00659

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FRACTIONS ± 1/8
ANGLES ± 0° - 30'
DECIMALS
.X ± 0.1
.XX ± 0.03
.XXX ± 0.005
.XXXX ± 0.0005
FINAL RELEASE DATE

APPROVALS				
CIVIL & STR.			SAFETY ENG.	
ELECTRICAL			MAINTENANCE	
ENGINEER			O.A.	
INSTRUMENT				
MECHANICAL			FIRE PROTECT.	
			WASTE MANAGE.	
CHECKED	GP	2-20-90	D.O.E.	
APPROVED	GE Pell	2-20-90	SECURITY	

WESTINGHOUSE ENVIRONMENTAL MANAGEMENT CO. OF OHIO
FERNALD, OHIO
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
U.S. DEPARTMENT OF ENERGY

EAST PARKING LOT — YARD AREA

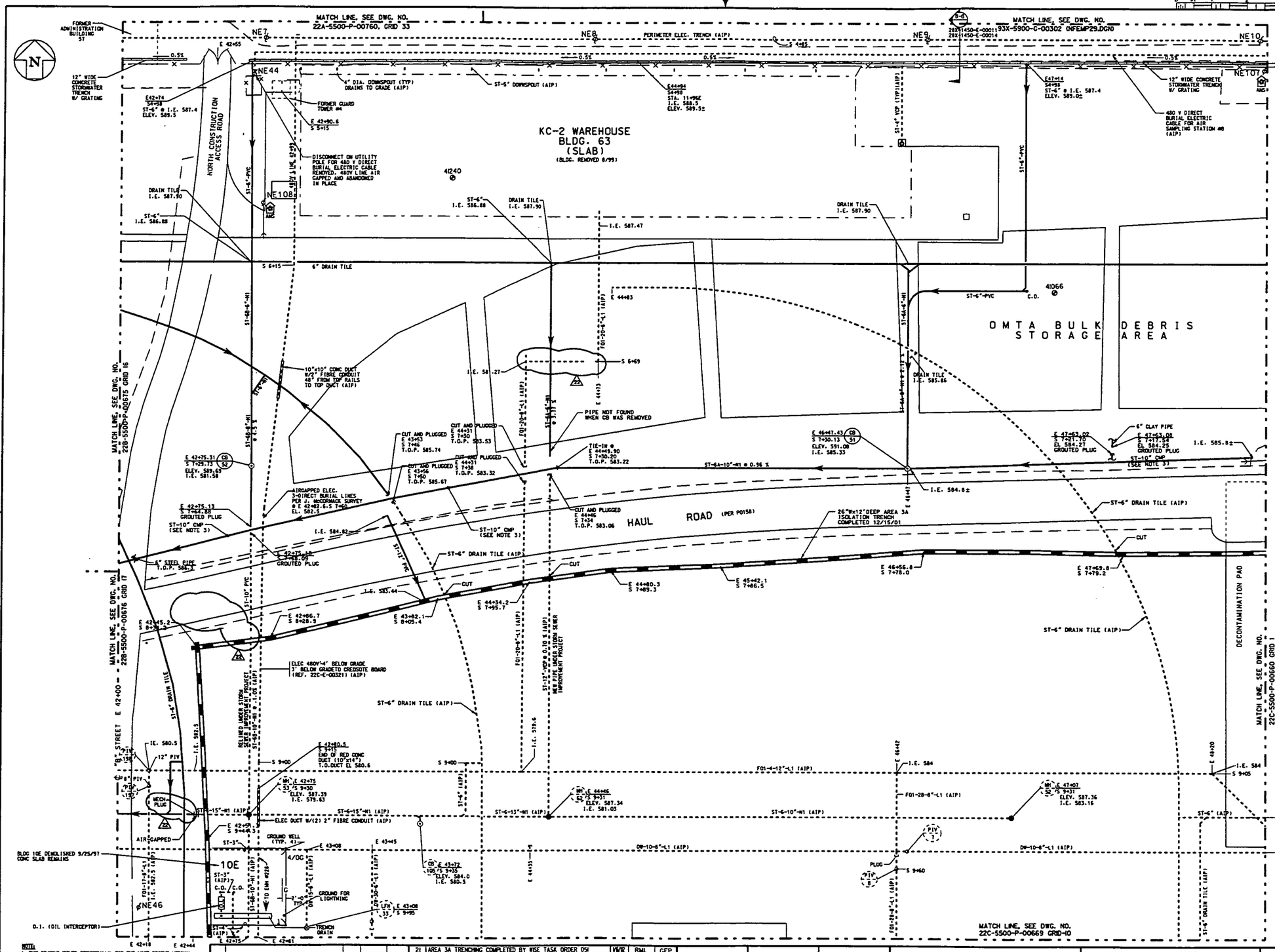
GRID 8
UNDERGROUND UTILITIES
SCALE 1"=30'

DATE 2-20-90
DRAWN DEL TURPIN

22H-5500-P-00667 | 16

FILE NAME: /UNDER/22HP0667.DGN

4831



AS-BUILT EDM SURVEYS

J. SCHWING	
9-5-01	090401.TXT
11-9-01	7110701.TXT
1-2-02	AREA3A CL AS-BLT.TXT
J. McCORMACK	
4-5-00	3A-109.
5-24-00	3A-114.
6-22-00	3A-115.
7-25-00	CELL-115.
7-27-00	CELL-116.
7-27-00	CELL-117.
7-28-00	CELL-118.
8-2-00	CELL-120.
8-14-00	CELL-122.
8-15-00	OMTA3.
12-7-00	OMTA-5.
12-7-00	OMTA-15.

000265

LEGEND:

- ABANDONED
- ACTIVE

NOTE:
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3. STORM SEWERS PER PROJECT 2002. SEE DRAWING /RECS4/SC2C002-005.DGN

NO.	REVISIONS	DATE	DWN. BY	APPD.	NO.	REVISIONS	DATE	DWN. BY	APPD.	REF. DWG. NO.
22	GENERAL UPDATE, HFH-130 & PIV-1	9/26/02	GES/RML	GEP	21	AREA 3A TRENCHING COMPLETED BY WSE TASK ORDER 051	1/8/02	RML	GEP	
	REMOVED PER COMPLETED WORK					12/15/01 GENERAL UPDATE				
	ORDER RT00934, REMOVED CB 34,				20	ADD PROP AREA 3A ISOLATION TRENCH AND BUFFER PER RES 427L	1/03/01	RML	GEP	
	ADDED GROUT AND MECH. PLUG					GENERAL UPDATE				
	LOCATIONS PER COMPLETED AREA				19	480V LINE ABANDONED IN PLACE, DISCONNECT FOR	1/17/01	RML	GEP	
	3A TRENCHING ACTIVITIES.					480V REMOVED FROM POLE NE44 AND 480V SERVICE				99X-5500-G-00627
						AIR GAPPED PER R. DUCKWORTH REQUEST T-27-OL				22X-5500-P-00659

NOTE: WEMCO C.A.D. DRAWING NOT TO BE REVISED MANUALLY

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TOLERANCES ARE
FRACTIONS ± ⅛
ANGLES ± 0° - 30'
SCALES
1" = 1'-0"
1/2" = 1'-0"
1/4" = 1'-0"
1/8" = 1'-0"
1/16" = 1'-0"
1/32" = 1'-0"
1/64" = 1'-0"
1/128" = 1'-0"
1/256" = 1'-0"
1/512" = 1'-0"
1/1024" = 1'-0"
FINAL RELEASE DATE

APPROVALS			
		SAFETY ENG.	
CIVIL & STR.		MAINTENANCE	
ELECTRICAL			
ENGINEER		O.A.	
INSTRUMENT			
MECHANICAL		FIRE PROTECT.	
		WASTE MANAGE	
CHECKED	GEP	O.O.E.	
APPROVED	G.E. PAUL	SECURITY	

WESTINGHOUSE ENVIRONMENTAL MANAGEMENT CO. OF OHIO
FERNALD, OHIO
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
U.S. DEPARTMENT OF ENERGY

BUILDING 63 — YARD AREA

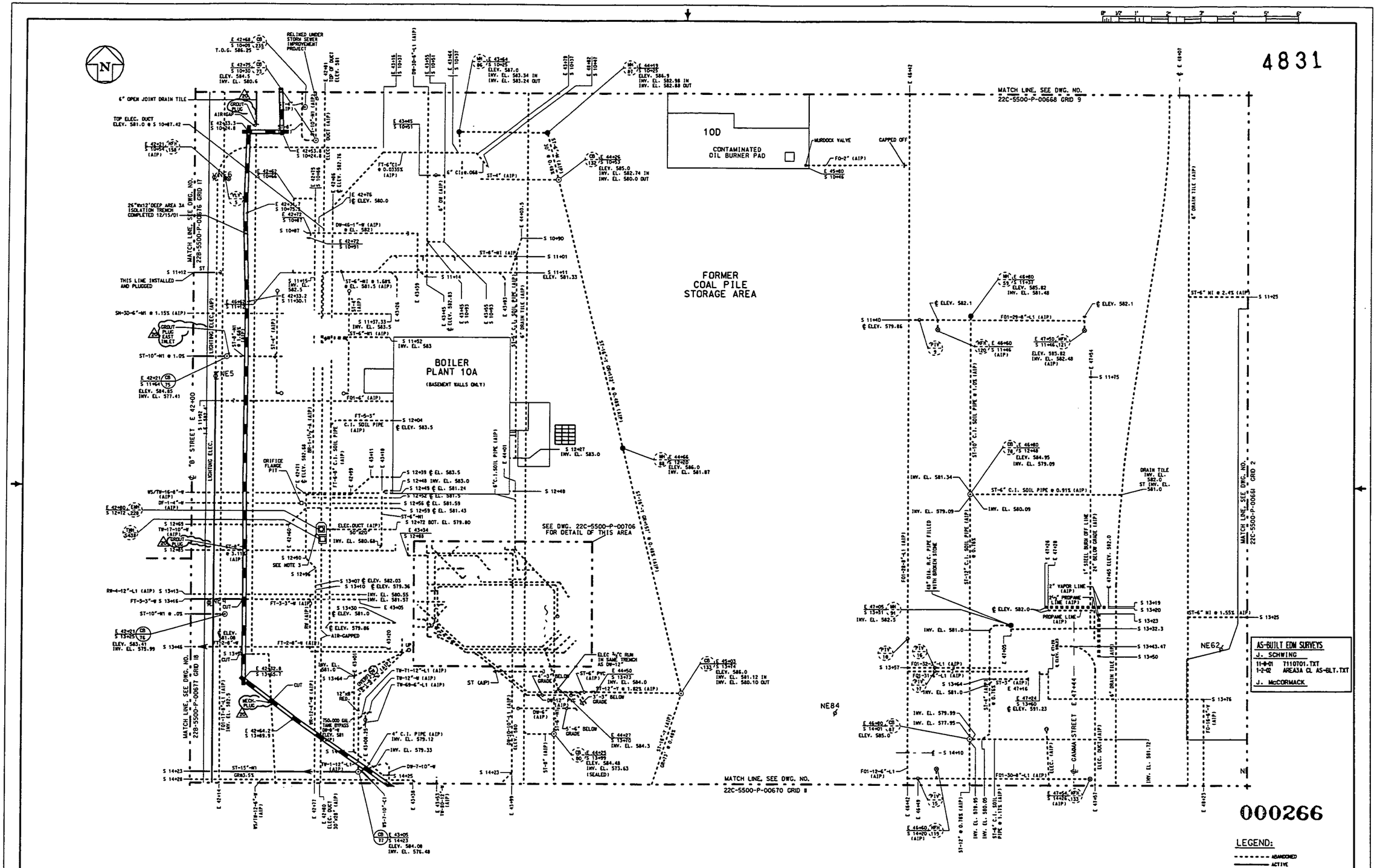
GRID 9
UNDERGROUND UTILITIES
SCALE 1"=20'

DATE 7-10-99
DRAWN J. KING

22C-5500-P-00668 | 22

FILE NAME: /UNDER/22CP0668.DGN

4831



NOTE:
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3. VERIFIED THAT NO ENERGIZED LINES IN ELECTRIC MANHOLE #229 FED INTO OR THROUGH THE 3A EXCAVATION ZONE PER B.O. #AL054806.

NO.	REVISIONS	DATE	DWN. BY	APPD.	NO.	REVISIONS	DATE	DWN. BY	APPD.	REF. DWG. NO.
					20	GENERAL UPDATE ADDED GROUT & MECH. PLUGS	9/25/02	GES	GEP	
						TO STORM SEWER LINES PER COMPLETED AREA				99X-5500-C-00629
						3A TRENCHING ACTIVITIES				99X-5500-C-00627
					19	AREA 3A TRENCHING COMPLETED BY WISE TASK ORDER 051	1/6/02	RWL	GEP	22C-5500-P-00706
						12/15/01 GENERAL UPDATE				22X-5500-P-00659

NOTE: WEMCO C.A.D. DRAWING NOT TO BE REVISED MANUALLY

APPROVALS				
CIVIL & STR.			SAFETY ENG.	
ELECTRICAL			MAINTENANCE	
ENGINEER				
INSTRUMENT			D.A.	
MECHANICAL			FIRE PROTECT.	
			WASTE MANAGE	
CHECKED	GEP	3-8-02	D.O.E.	
APPROVED	G.E. PAUL	3-8-02	SECURITY	

WESTINGHOUSE ENVIRONMENTAL MANAGEMENT CO. OF OHIO
FERNALD, OHIO
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
U.S. DEPARTMENT OF ENERGY

BLDG. 10,20 & 38 YARD AREA
GRID 10
UNDERGROUND UTILITIES
SCALE 1"=20'

DATE 6-15-90
DRAWN DEL TURPIN

22C-5500-P-00669 | 20

FILE NAME: /UNDER/22CP0669.DGN

4831

FOR ADDITIONAL UNDERGROUND PIPING SEE DWG. 20C-1450-P-00046

MATCH LINE, SEE DWG. NO. 22C-5500-P-00669 GRID 10

MATCH LINE, SEE DWG. NO. 22B-5500-P-00677 GRID 18

MATCH LINE, SEE DWG. NO. 22E-5500-P-00672 GRID 13

MATCH LINE, SEE DWG. NO. 22E-5500-P-00671 GRID 12

MATCH LINE, SEE DWG. NO. 22C-5500-P-00662 GRID 3

PUMP STATION & POWER CENTER 20A

COAL PILE RUNOFF BASIN 18C

MAIN TANK FARM 19A (TANKS, ETC. REMOVED 4/99)

MAIN MAINTENANCE BLDG. 12A (SLAB) (BLDG REMOVED 9/99)

CONTROL HOUSE 19C

AS-BUILT EDM SURVEYS
J. SCHWING
6-21-01 062001.TXT
1-2-02 AREA3A CL AS-BLT.TXT
J. McCORMACK
5-9-00 3a-113.

000267

DIGITAL PHOTO NUMBER
① 7337-D19.JPG - D21.JPG

LEGEND:
ABANDONED
ACTIVE

NOTE:
1. THIS DRAWING ISSUED PERIODICALLY, FOR THE MOST RECENT VERSION OF THIS DRAWING, ACCESS THE FILENAME BELOW THE TITLE BLOCK.
2. COORDINATES SHOWN ON THIS DRAWING ARE TAKEN FROM EXISTING FEMP DRAWINGS AND ARE NOT VERIFIED TO BE "AS-BUILT". IT IS HIGHLY RECOMMENDED THAT A FIELD SURVEY BE PERFORMED PRIOR TO SITE DESIGN WORK.
3. TERMINATED FEEDER 9 THAT FORMERLY FED OLD BOILER PLANT PER W.O. #AL05-4806.
4. VERIFIED THAT NO ENERGIZED WIRES LOCATED INSIDE OR CROSSING THE BOUNDARY AREA OF THE 3A EXCAVATION GRID PER W.O. #AL05-4806.

NO.	REVISIONS	DATE	DWN. BY	APPD.	NO.	REVISIONS	DATE	DWN. BY	APPD.	REF. DWG. NO.
										99X-5500-G-00629
										19X-1450-E-00008
					24	ADDED GROUT & MECH. PLUGS PER COMPLETED	1/25/02	GES	GEP	22C-1450-E-00319
						AREA 3A TRENCHING ACTIVITIES				20B-1450-E-00023
					23	DW-9-8"LI A.I.P. PER COMPLETED WORK ORDER RT002403	9/1/2	GES	GEP	22X-5500-P-00659

NOTE: WEMCO C.A.D. DRAWING NOT TO BE REVISED MANUALLY

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ARE
FRACTIONS ± 1/16
DECIMALS .X ± .1
.XX ± .03
.XXX ± .010
ANGLES ± 1°
SIGNAL RELEASE DATE

APPROVALS				
CIVIL & STR.			SAFETY ENG.	
ELECTRICAL			MAINTENANCE	
ENGINEER			Q.A.	
INSTRUMENT				
MECHANICAL			FIRE PROTECT.	
			WASTE MANAGE	
CHECKED	GEP	1-9-90	D.O.E.	
APPROVED	G.E. PAUL	1-9-90	SECURITY	

WESTINGHOUSE ENVIRONMENTAL MANAGEMENT CO. OF OHIO
FERNALD, OHIO
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
U.S. DEPARTMENT OF ENERGY

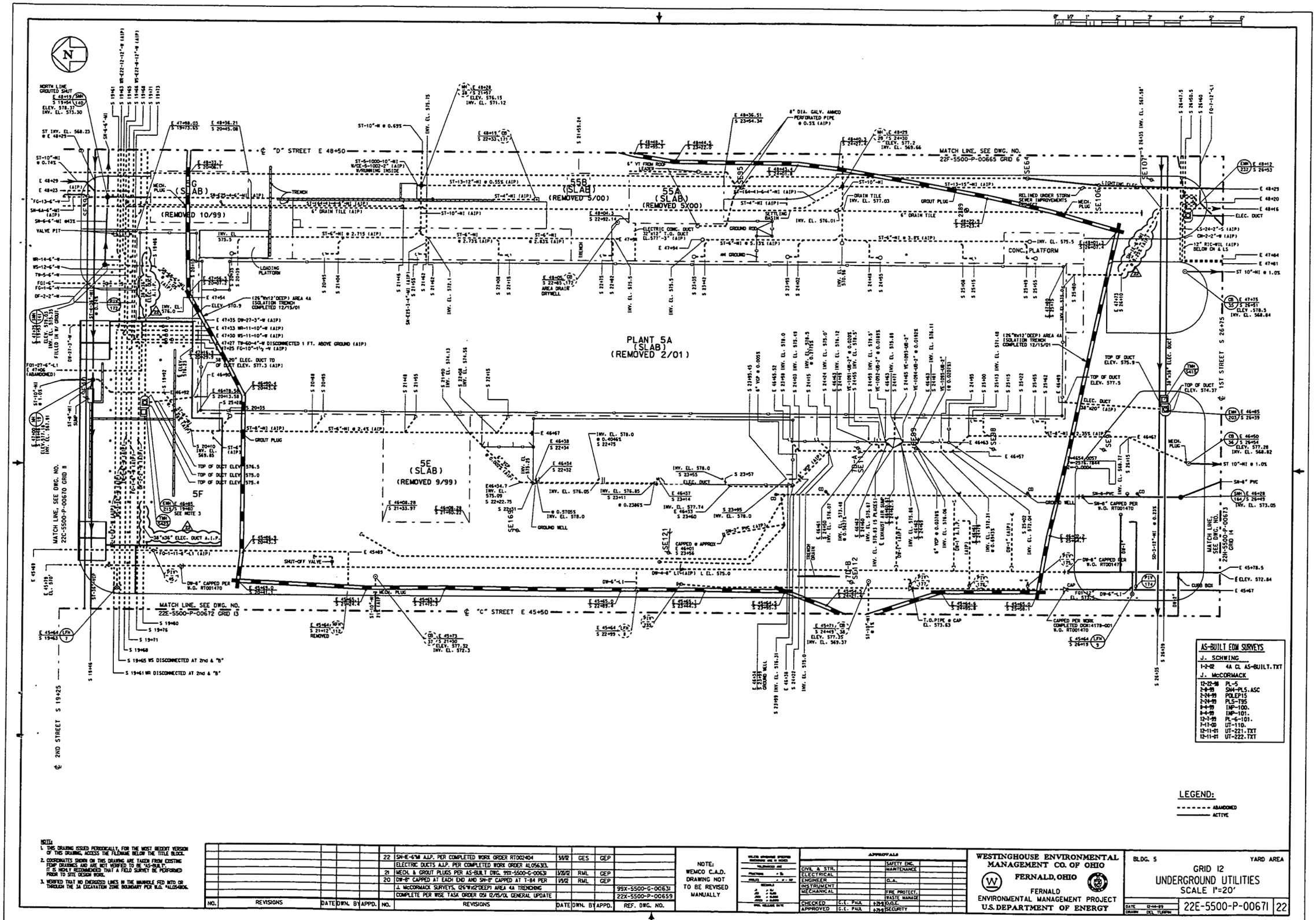
BLDG. 12, 24 & TANK FARM — YARD AREA

GRID II
UNDERGROUND UTILITIES
SCALE 1"=20'

DATE 5-2-90
DRAWN J. KING

22C-5500-P-00670 | 24

FILE NAME: /UNDER/22CP0670.DGN



NOTE:
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3. VERIFIED THAT NO ENERGIZED LINES IN THE MANHOLE FED INTO OR THROUGH THE 3A EXCAVATION ZONE BOUNDARY PER W.O. #AL054806.

NO.	REVISIONS	DATE	DWN. BY	APPD.	NO.	REVISIONS	DATE	DWN. BY	APPD.	REF. DWG. NO.
					22	SH-E-6"W A.I.P. PER COMPLETED WORK ORDER RT002404	5/1/02	GES	GEP	
						ELECTRIC DUCTS A.I.P. PER COMPLETED WORK ORDER AL056303.				
					21	MECH. & GROUT PLUGS PER AS-BUILT DWG. 99X-5500-G-00631	1/31/02	RWL	GEP	
					20	DW-8" CAPPED AT EACH END AND SH-8" CAPPED AT T-84 PER	1/9/02	RWL	GEP	
						J. McCORMACK SURVEYS, 126"Wx12"DEEP) AREA 4A TRENCHING				99X-5500-G-00631
						COMPLETE PER WSE TASK ORDER 051 12/15/01 GENERAL UPDATE				22X-5500-P-00659

NOTE: WEMCO C.A.D. DRAWING NOT TO BE REVISED MANUALLY

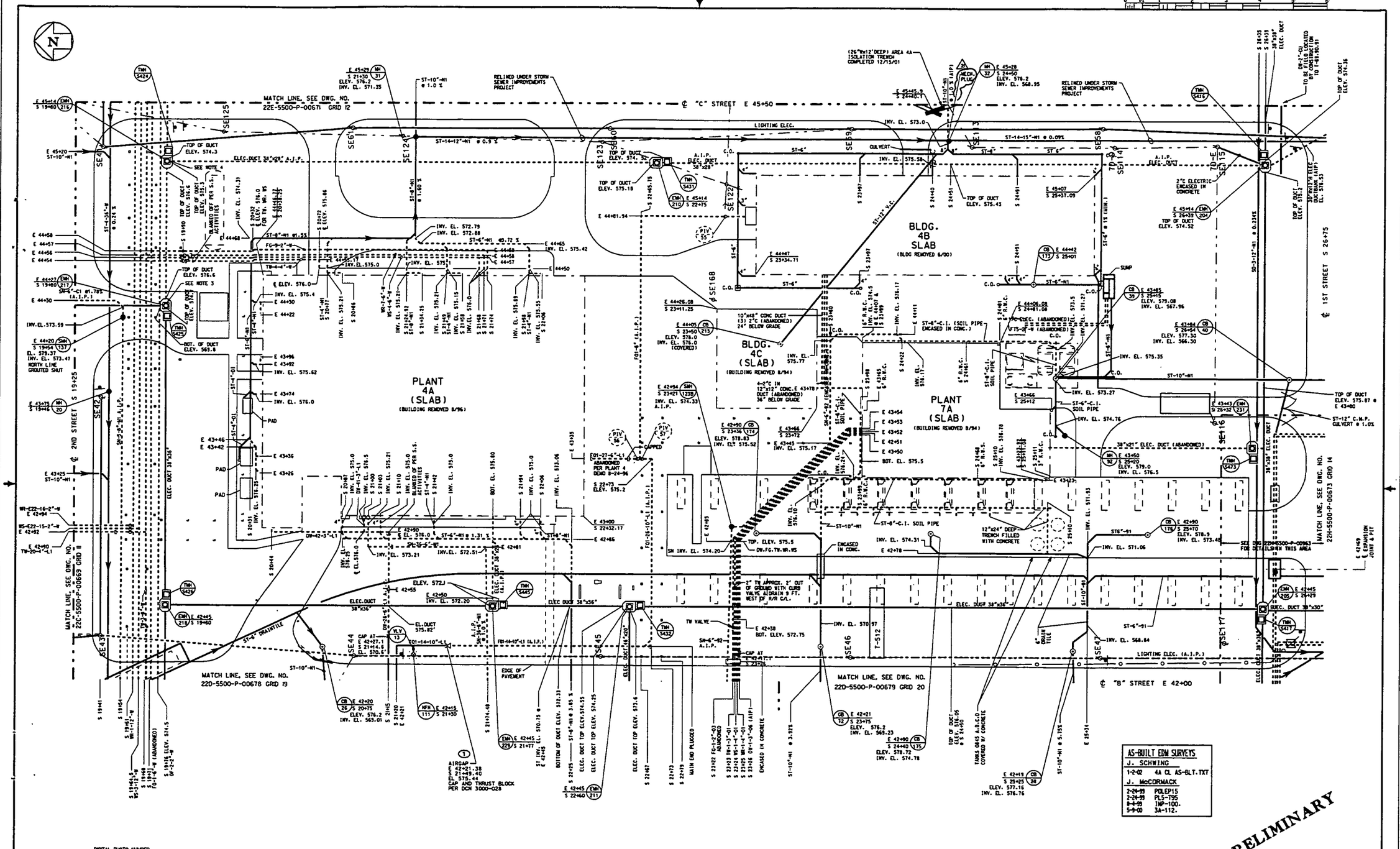
APPROVALS			
CIVIL & STR.		SAFETY ENG.	
ELECTRICAL		MAINTENANCE	
ENGINEER		Q.A.	
INSTRUMENT			
MECHANICAL		FIRE PROTECT.	
		WASTE MANAGE	
CHECKED	G.E. PAUL	6-24-99 O.O.E.	
APPROVED	G.E. PAUL	6-24-99 SECURITY	

WESTINGHOUSE ENVIRONMENTAL MANAGEMENT CO. OF OHIO
FERNALD, OHIO
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
U.S. DEPARTMENT OF ENERGY

BLDG. 5 YARD AREA
GRID 12
UNDERGROUND UTILITIES
SCALE 1"=20'
DATE 12-14-99
DRAWN DCL TURNER
22E-5500-P-00671 22

FILE NAME: /UNDER/22EP0671.DGN

4831



DIGITAL PHOTO NUMBER

(1) 7337-013.JPG - 018.JPG

NOTE:

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3. VERIFIED THAT FEEDER #4 COMG NORTH TO FORMER LOCATIONS OF THE WATER PLANT AND OLD BOILER PLANT HAS BEEN TERMINATED PER W.O. #AL05480L.
4. TERMINATED FEEDER #1 SHOW USED TO FEED OLD BOILER PLANT PER W.O. #AL05480L.

NO.	REVISIONS	DATE	DWN. BY	APPD.
20	SH-5-8"M A.I.P. PER COMPLETED WORK ORDER RT002408	3/1/02	GES	GEP
	SH-36-6"M A.I.P. PER COMPLETED WORK ORDER RT002402			
	SH-6"-92 A.I.P. PER COMPLETED WORK ORDER RT002407			
	DW-26-6"U A.I.P. PER COMPLETED WORK ORDER RT002368			
	DW-4-3"-06 A.I.P. PER COMPLETED WORK ORDER RT002293			
	ELECT. DUCTS A.I.P. PER COMPLETED WORK ORDER AL05630			
21	ADDED MECH. PLUG ON EAST INLET OF MH-32 PER AREA 3A/4A TRENCHING ACTIVITIES			

NO.	REVISIONS	DATE	DWN. BY	APPD.

REF. DWG. NO. 22X-5500-P-00659

NOTE: WEMCO C.A.D. DRAWING NOT TO BE REVISED MANUALLY

APPROVALS				
CIVIL & STRL			SAFETY ENG.	
ELECTRICAL			MAINTENANCE	
ENGINEER			Q.A.	
INSTRUMENT				
MECHANICAL			FIRE PROTECT.	
			WASTE MANAGE	
CHECKED	GEP		Q.A.E.	
APPROVED	G.E. PAUL	1-29-99	SECURITY	

WESTINGHOUSE ENVIRONMENTAL MANAGEMENT CO. OF OHIO
FERNALD, OHIO
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
U.S. DEPARTMENT OF ENERGY

PLANT 4 & 7 — YARD AREA

GRID 13
UNDERGROUND UTILITIES
SCALE 1"=20'

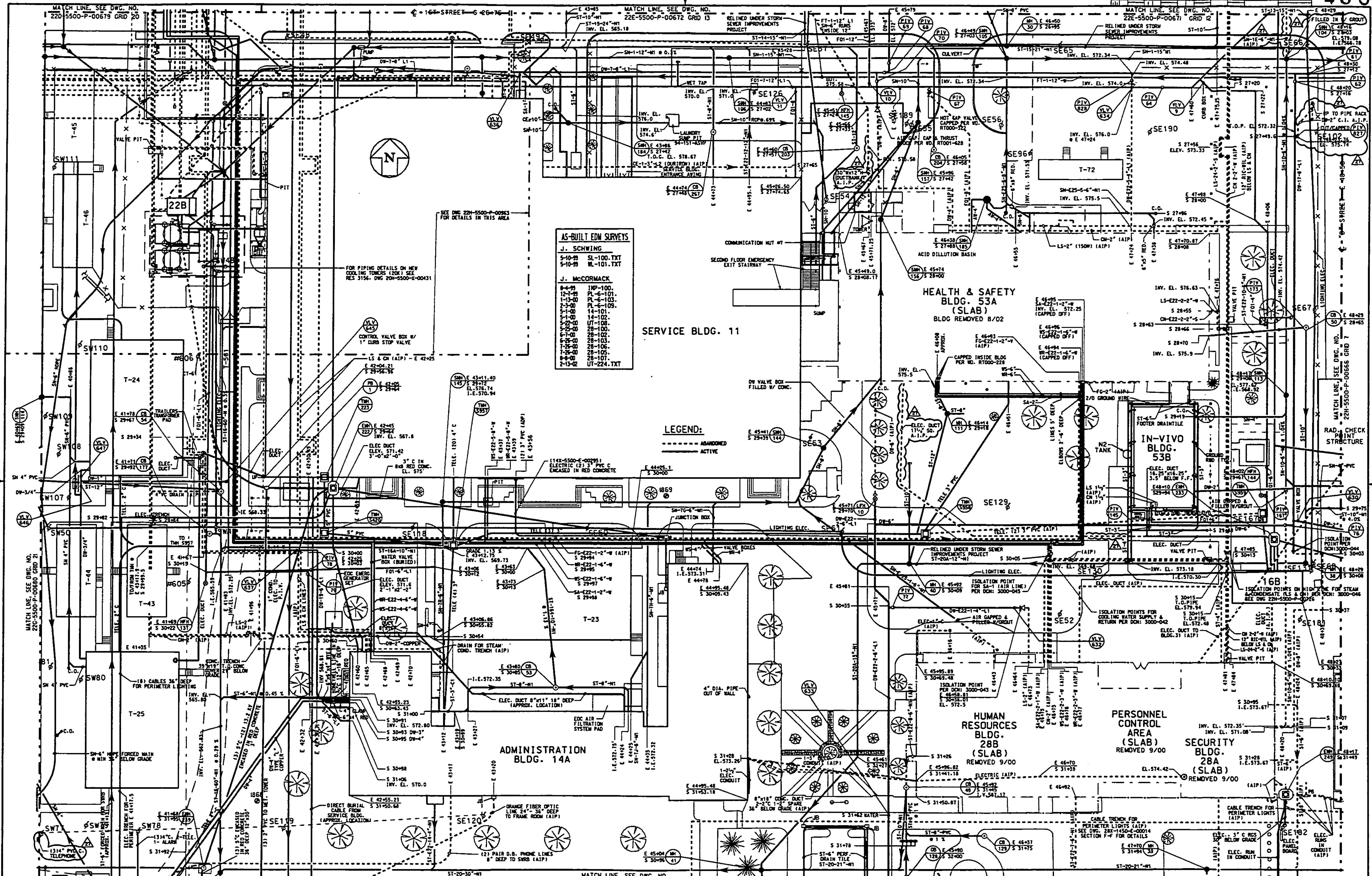
DATE 3-29-90
DRAWN DEL TURPIN

22E-5500-P-00672 | 21

FILE NAME: /UNDER/22EP0672.DGN

000269

4831



NO.	REVISIONS	DATE	DWN. BY	APPD.
27	NORTH LINE (SN-IE-6"MO) FROM SMH-104 PLUGGED PER COMPLETED WORK ORDER RT002404. ADDED (3) 4" PVC C. TELEPHONE PER D. DICKMAN REDLINE. NUMBERED DW PIV'S & VLV'S NOT PREVIOUSLY NUMBERED. PIV'S 61, 62, 68, 69, 70, 76, 827 & 828, VLV'S 630, 632, 633, 634, 636, 637, 645, 646 & 647. DW-2"CI AIP PER COMPLETED WORK ORDER RT00232. DUCT BANKS AIP PER D. HUEBENER	9/1/02	SJS/AML/GES	GEP

REF. DWG. NO.
22H-5500-P-00673
22C-5500-P-00659

NOTE: WEMCO C.A.D. DRAWING NOT TO BE REVISED MANUALLY

APPROVALS

		SAFETY ENG.	
CIVIL & STR.		MAINTENANCE	
ELECTRICAL			
ENGINEER		Q.A.	
INSTRUMENT			
MECHANICAL		FIRE PROTECT.	
		WASTE MANAGE	
CHECKED	GEP	D.O.E.	
APPROVED	C.E. PAUL	SECURITY	

WESTINGHOUSE ENVIRONMENTAL MANAGEMENT CO. OF OHIO
FERNALD, OHIO
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
U.S. DEPARTMENT OF ENERGY

BLDG. 11,14,28 & 53 — YARD AREA

GRID 14
UNDERGROUND UTILITIES
SCALE 1"=20'

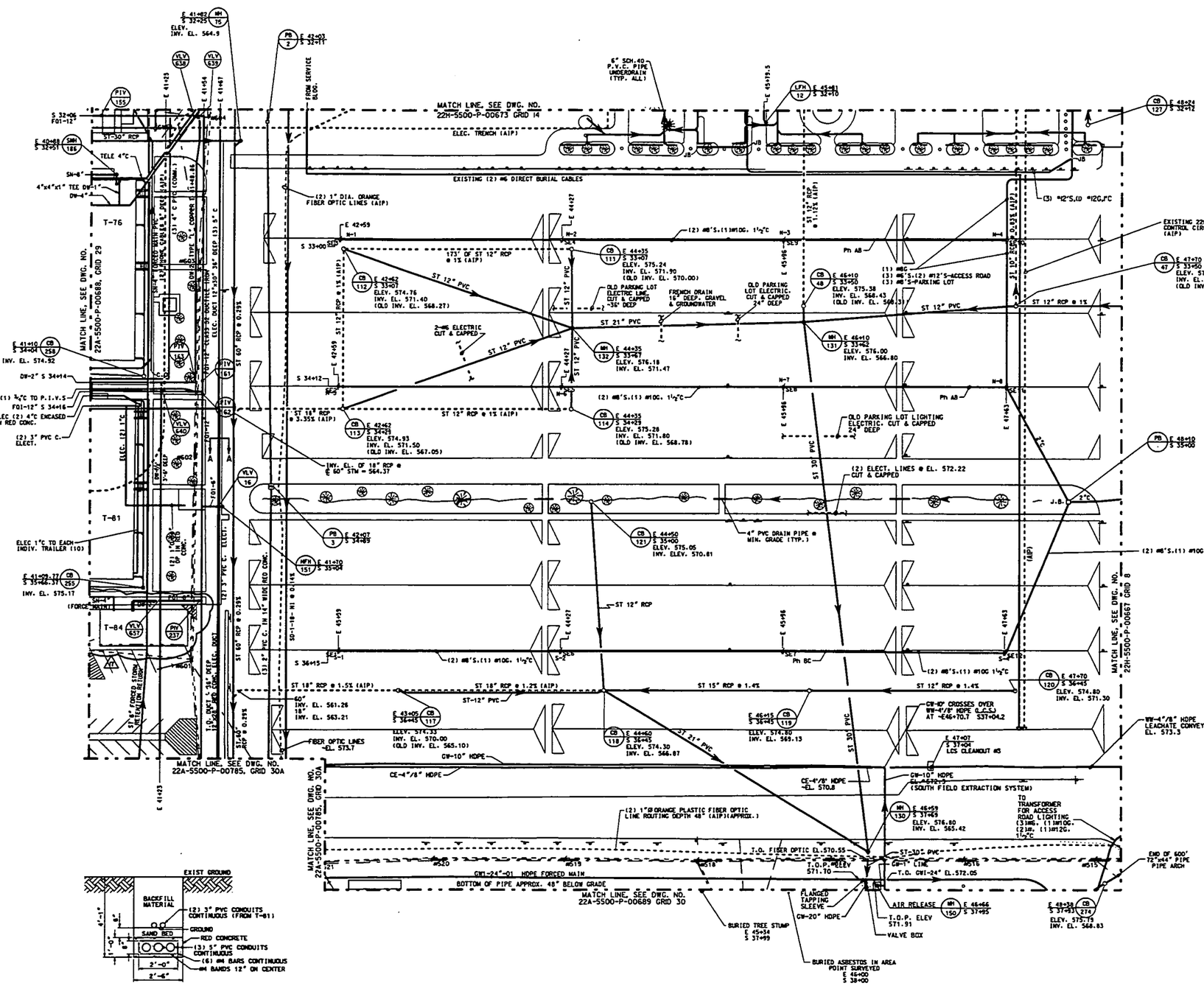
DATE 05-30-89

22H-5500-P-00673 | 27

FILE NAME: /UNDER/22HP0673.DGN

000270

4831



000271

PRELIMINARY
INFORMATION ONLY
CADD SERVICES

NOTE:
1. THIS DRAWING ISSUED PERIODICALLY, FOR THE MOST RECENT VERSION OF THIS DRAWING, ACCESS THE FILENAME BELOW THE TITLE BLOCK.
2. COORDINATES SHOWN ON THIS DRAWING ARE TAKEN FROM EXISTING FEMP DRAWINGS AND ARE NOT VERIFIED TO BE "AS-BUILT". IT IS HIGHLY RECOMMENDED THAT A FIELD SURVEY BE PERFORMED PRIOR TO SITE DESIGN WORK.
3. FOR ADDITIONAL INFO. ON STORM SEWER LINES AND CATCH BASINS SEE RES #C859. FOR AS-BUILT FIELD SURVEY OF THE 4"/8" LCS LINE, SEE B.L. PAYNE SURVEY (REF. DRAWING - LCS2032.DGN)

NO.	REVISIONS	DATE	DWN. BY	APPD.

NO.	REVISIONS	DATE	DWN. BY	APPD.
17	ADDED T-84. NUMBERED DW, FOI PIV'S & VLV'S NOT PREVIOUSLY NUMBERED. DW VLV'S 638, 639, 640, 657. FOI PIV 237	1/20/92	S.S./RML	

REF. DWG. NO.: 22X-5500-P-00659

NOTE: WEMCO C.A.D. DRAWING NOT TO BE REVISED MANUALLY

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
FRACTIONS ± ¼
ANGLES ± 0° - 30'
SCALES:
A = ½"
B = ¼"
C = 1/8"
D = 1/16"
E = 1/32"
FINAL RELEASE DATE

APPROVALS

			SAFETY ENG.
CIVIL & STR.			MAINTENANCE
ELECTRICAL			
ENGINEER			O.A.
INSTRUMENT			
MECHANICAL			FIRE PROTECT.
			WASTE MANAGE
CHECKED	GP	1/25/91	D.O.E.
APPROVED	C.E. PAUL	1/25/91	SECURITY

WESTINGHOUSE ENVIRONMENTAL MANAGEMENT CO. OF OHIO
FERNALD, OHIO
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
U.S. DEPARTMENT OF ENERGY

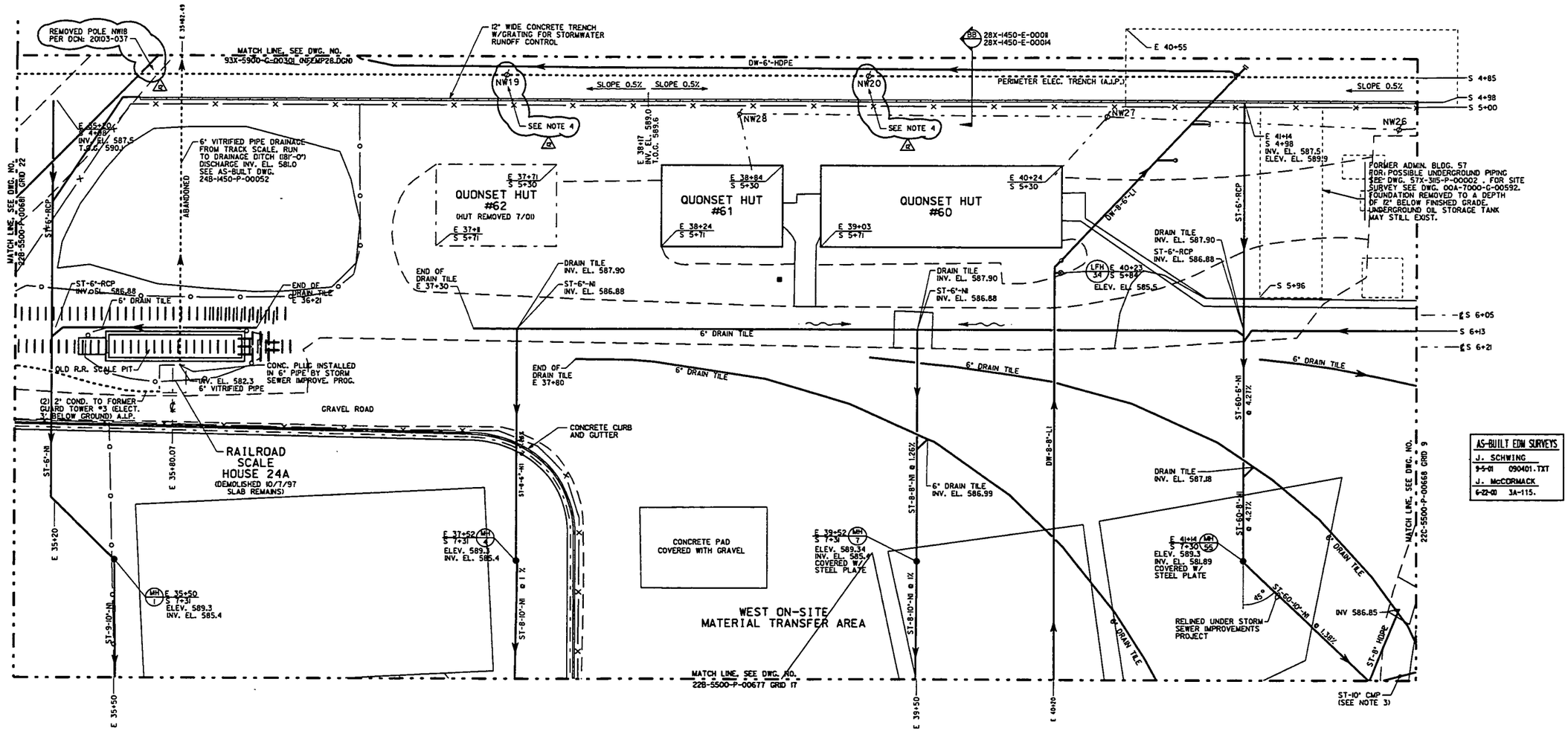
WEST PARKING LOT — YARD AREA
GRID 15
UNDERGROUND UTILITIES
SCALE 1"=30'

DATE 5-21-90
DRAWN DEL TURPIN

22H-5500-P-00674 | 17

FILE NAME: /UNDER/22HP0674.DGN

4831



000272

NOTE:
1. THIS DRAWING ISSUED PERIODICALLY, FOR THE MOST RECENT VERSION OF THIS DRAWING, ACCESS THE FILENAME BELOW THE TITLE BLOCK.
2. COORDINATES SHOWN ON THIS DRAWING ARE TAKEN FROM EXISTING FEMP DRAWINGS AND ARE NOT VERIFIED TO BE "AS-BUILT". IT IS HIGHLY RECOMMENDED THAT A FIELD SURVEY BE PERFORMED PRIOR TO SITE DESIGN WORK.
3. STORM SEWERS PER PROJECT 20102. SEE DRAWING /RES444/ SK20102-00L.DGN
4. POLES NW19 AND NW20 REMOVED AND REPLACED WITH 35' CLASS 1 SOUTHERN PINE 100% TREATED PER DCN: 20103-037.

NO.	REVISIONS	DATE	DWN. BY	APPD.	NO.	REVISIONS	DATE	DWN. BY	APPD.	REF. DWG. NO.
					12	INCORP WORK COMLETED DCN: 20103-037, ADDED NOTE 4.	5/31/02	RML	GEP	
					11	AS-BUILT ST-10" CMP PER J. McCORMACK SURVEY 3A-115. AS-	8/8/01	RML	GEP	
						BUILT ST-8" HDPE PER J. SCHWING SURVEY 090401.TXT. REMOVE				
						POLES NW29 & NW30, COVERED MH 7 & MH 55 PER RES 4267.				90X-5500-G-00576
						GENERAL UPDATE				22X-5500-P-00659

NOTE: WEMCO C.A.D. DRAWING NOT TO BE REVISED MANUALLY

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ARE
FRACTIONS ± 1/16
ANGLES ± 0°-30'
DECIMALS
.X ± 0.1
.XX ± 0.03
.XXX ± 0.005
.XXXX ± 0.0005
FINISH TOLERANCE 125/32

APPROVALS			
CIVIL & STR.		SAFETY ENG.	
ELECTRICAL		MAINTENANCE	
ENGINEER		Q.A.	
INSTRUMENT			
MECHANICAL		FIRE PROTECT.	
		WASTE MANAGE.	
CHECKED	RDP	D.O.E.	
APPROVED	K.E. PATL	SECURITY	

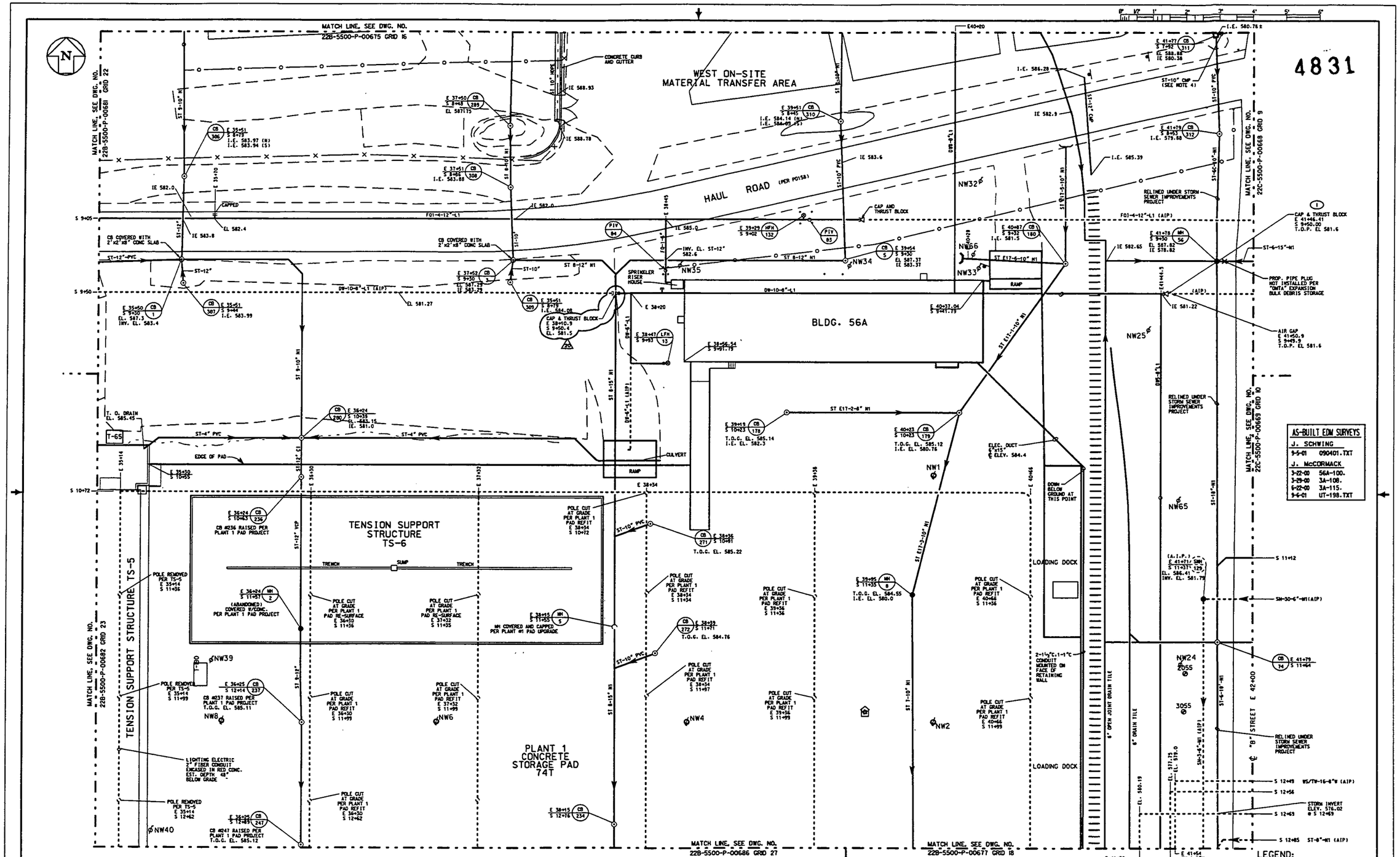
WESTINGHOUSE ENVIRONMENTAL MANAGEMENT CO. OF OHIO
FERNALD, OHIO
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
U.S. DEPARTMENT OF ENERGY

BLDG. 60,61 & 62 YARD AREA
GRID 16
UNDERGROUND UTILITIES
SCALE 1"=20'

DATE 4-25-90
DRAWN DCL. TURPIN

22B-5500-P-00675 | 12

FILE NAME: /UNDER/22BP0675.DGN



DIGITAL PHOTO NUMBERS

(1) 7337-D0L.JPG THRU 7337-D06.JPG

NOTE:
1. THIS DRAWING ISSUED PERIODICALLY. FOR THE MOST RECENT VERSION OF THIS DRAWING, ACCESS THE FILENAME BELOW THE TITLE BLOCK.
2. COORDINATES SHOWN ON THIS DRAWING ARE TAKEN FROM EXISTING FEMP DRAWINGS AND ARE NOT VERIFIED TO BE "AS-BUILT". IT IS HIGHLY RECOMMENDED THAT A FIELD SURVEY BE PERFORMED PRIOR TO SITE DESIGN WORK.
3. HAUL ROAD & REV 1 RELOCATED AND NEW CATCH BASINS AND FIRE HYDRANTS PER B.L. PAYNE AS-BUILT SURVEY (PO 150) SEE /PAYNE/HAUL/HAULROAD.DGN.
4. STORM SEWERS PER PROJECT 20K02. SEE DRAWING /RES4M4/SK20K02-005.DGN

NO.	REVISIONS	DATE	DWN. BY	APPD.
20	ADD CAP & THRUST BLOCK ON DW-10-8"LI PER SURVEY UT-198 & WORK ORDER ALD55481. GENERAL UPDATE	6/1/02	RML	GEP
19	GENERAL UPDATE	8/8/01	RML	GEP
18	GENERAL UPDATE	12/11/00	RML	GEP

NO.	REVISIONS	DATE	DWN. BY	APPD.	REF. DWG. NO.
17	WORK COMPLETED TO A.I.P. SM-H29 AND SM-3-6"M PER DCN: 3000-050	5/10/01	RML	GEP	
16	WORK COMPLETED TO ISOLATE DW-10-8"LI EAST OF 56A PER 1. McCORMACK SURVEY & DCN: 3000-033, ADD EDM SURVEY TABLE	1/8/01	RML	GEP	
15	WORK COMPLETED DCN 3000-035, ADDED PROPOSED ISOLATION POINT PER DCN 3000-039	3/14/00	SJS	GEP	
14	ADD PIV NUMBERS TO FOI LINES, ISOLATED FOI-4-12" APPROX. 30' EAST OF PW83 PER DCN 3000-035	2-3-00	RML/CES	GEP	ITX-7000-S-00008 22X-5500-P-00659

NOTE: WEMCO C.A.D. DRAWING NOT TO BE REVISED MANUALLY

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ARE
FRACTIONS ± 1/8
ANGLES ± 0° - 30'
DECIMALS
.X ± 0.1
.XX ± 0.03
.XXX ± 0.005
.XXXX ± 0.0005
GEN. RELEASE DATE

APPROVALS			
CIVIL & STR.		SAFETY ENG.	
ELECTRICAL		MAINTENANCE	
ENGINEER		O.A.	
INSTRUMENT			
MECHANICAL		FIRE PROTECT.	
		WASTE MANAGE	
CHECKED	GEP	D.O.E.	
APPROVED	C.E. PAUL	SECURITY	

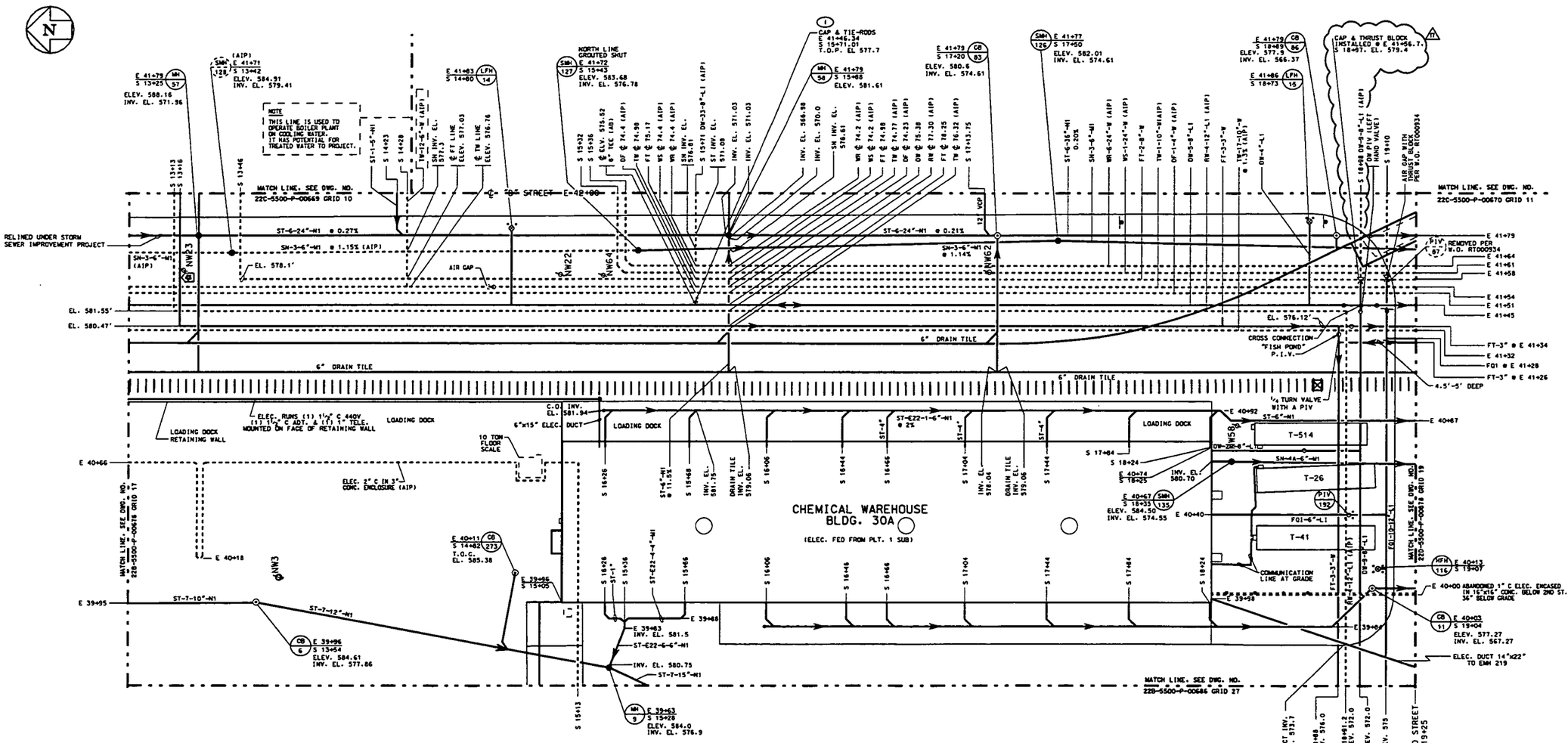
WESTINGHOUSE ENVIRONMENTAL MANAGEMENT CO. OF OHIO
FERNALD, OHIO
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
U.S. DEPARTMENT OF ENERGY

BLDG. 56 & PLANT #1 PAD YARD AREA
GRID 17
UNDERGROUND UTILITIES
SCALE 1"=20'

DATE 4-25-90
DRAWN DEL. TURPIN

22B-5500-P-00676 | 20

FILE NAME: /UNDER/22BP0676.DGN



AS-BUILT EDM SURVEYS

A. CLINTON
8-13-02 THRUSTBLOCK.TXT
J. McCORMACK
4-5-00 3A-110.
11-15-01 UT-216.TXT

DIGITAL PHOTO NUMBERS

(1) 7337-007.JPG THRU 7337-010.JPG

LEGEND:

- - - - - - ABANDONED
——— ACTIVE

NOTE:
1. THIS DRAWING ISSUED PERIODICALLY, FOR THE MOST RECENT VERSION OF THIS DRAWING, ACCESS THE FILENAME BELOW THE TITLE BLOCK.
2. COORDINATES SHOWN ON THIS DRAWING ARE TAKEN FROM EXISTING TEMP DRAWINGS AND ARE NOT VERIFIED TO BE "AS-BUILT". COORDINATES SHOWN IN SLANTED FONTS WILL BE CONSIDERED AS-BUILT PER FIELD SURVEYS. IT IS HIGHLY RECOMMENDED THAT A FIELD SURVEY BE PERFORMED PRIOR TO SITE DESIGN WORK.

NO.	REVISIONS	DATE	DWN.	BY	APPD.
17	ADDED A. CLINTON SURVEY TABLE, WORK COMPLETED ON WORK ORDER RT002356 TO INSTALL CAP & THRUSTBLOCK ON DW-9-8"U	3/2/02	GES		GEP
16	AIR-GAPPED FO1-10-12" PER J. McCORMACK SURVEY, PIV 87 REMOVED PER GARY EVANS, GENERAL UPDATE	3/5/02	RML		GEP

NO.	REVISIONS	DATE	DWN.	BY	APPD.
15	WORK COMPLETE TO GROUT SHUT NORTH LINE OF SMH-127, A.I.P. SMH-126 AND SM-1-6"M PER DCN 3000-050	3/15/02	RML		GEP
14	WORK COMPLETED TO ISOLATE DW-33-8LI PER J. McCORMACK SURVEY AND DCN: 3000-039. ADD EDM SURVEY TABLE	4/8/02	RML		GEP
13	REVISED PER I/E MARK-UP 2/28/00, AIR GAP & A.I.P. TW-1-10"-W. A.I.P. TW-12-6"-W. ADDED PROPOSED ISOLATION POINT PER DCN 3000-039	3/4/02	SJS		GEP

REF. DWG. NO.: 22X-5500-P-00659

NOTE:
WEMCO C.A.D. DRAWING NOT TO BE REVISED MANUALLY

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ARE
FRACTIONS ± ½
ANGLES ± 0° - 30'
DECIMALS
.X ± .1
.XX ± .03
.XXX ± .010
.XXXX ± .0005
SEAL RELEASE DATE

APPROVALS				
CIVIL & STR.			SAFETY ENG.	
ELECTRICAL			MAINTENANCE	
ENGINEER			G.A.	
INSTRUMENT				
MECHANICAL			FIRE PROTECT.	
			WASTE MANAGE	
CHECKED	GEP		O.O.E.	
APPROVED	G.E. PAUL	1/5/00	SECURITY	

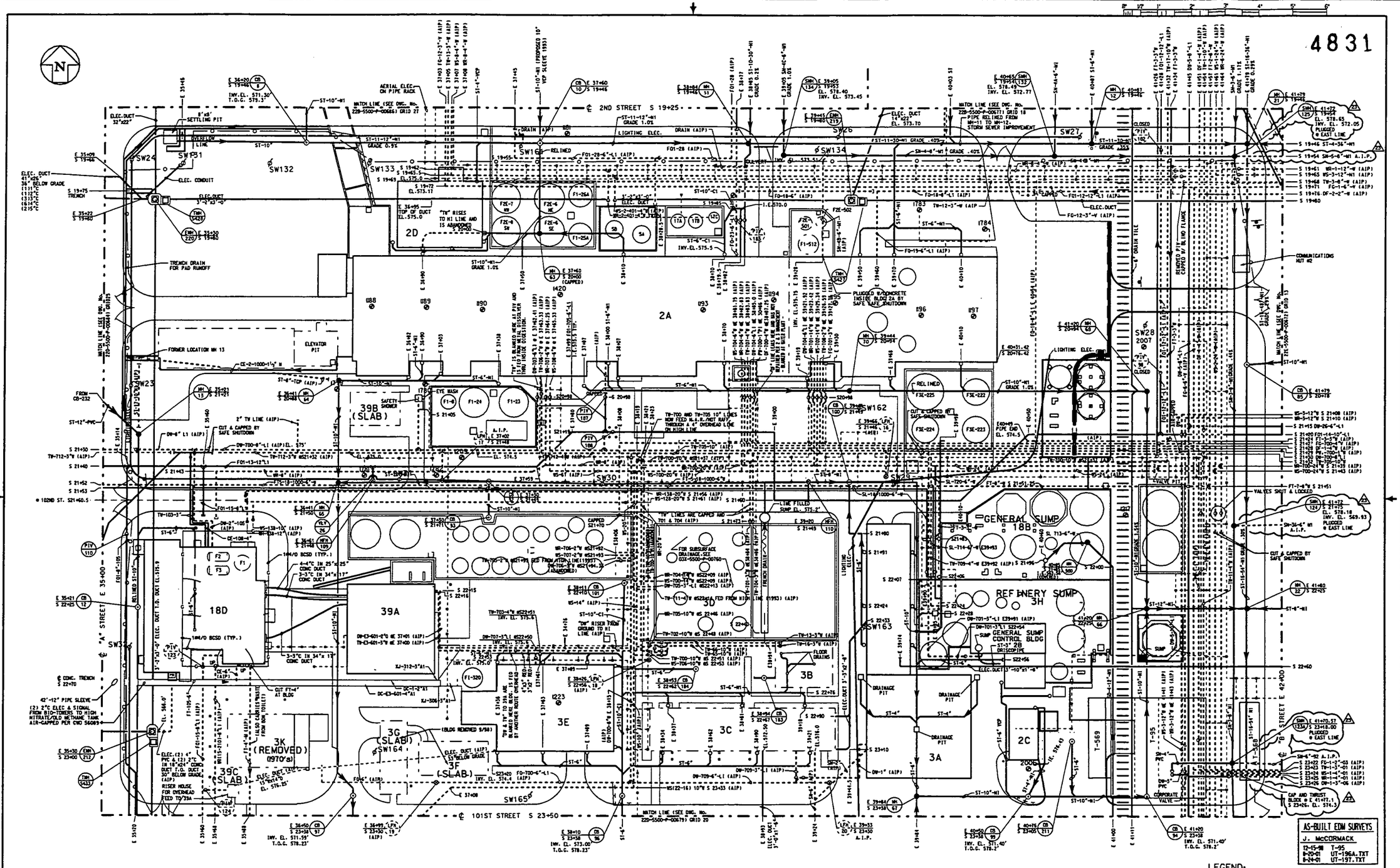
WESTINGHOUSE ENVIRONMENTAL MANAGEMENT CO. OF OHIO
FERNALD, OHIO
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
U.S. DEPARTMENT OF ENERGY

BLDG. 30 YARD AREA
GRID 18
UNDERGROUND UTILITIES
SCALE 1"=20'

DATE 4-25-90
DRAWN DEL. TURPIN

22B-5500-P-00677 | 17

FILE NAME: /UNDER/22BP0677.DGN



NOTE:
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NO.	REVISIONS	DATE	DWN. BY	APPD.
23	SMH-124 EAST PIPE (SN36-6"MD PLUGGED PER COMPLETED WORK ORDER	9/2/02	GES	GEP
	RT002402, SMH-23A EAST PIPE (SH-6"-SD) PLUGGED PER COMPLETED			
	WORK ORDER RT002407, SMH-25 EAST PIPE (SN-5-8"MD PLUGGED PER			
	COMPLETED WORK ORDER RT002408, DW-4-3"-06 A.I.P. PER COMPLETED			
	WORK ORDER RT002293.			

REF. DWG. NO.: 22X-5500-P-00659

NOTE: WEMCO C.A.D. DRAWING NOT TO BE REVISED MANUALLY

APPROVALS				
CIVIL & STR.			SAFETY ENG.	
ELECTRICAL			MAINTENANCE	
ENGINEER			O.A.	
INSTRUMENT				
MECHANICAL			FIRE PROTECT.	
			WASTE MANAGE	
CHECKED	EP		D.O.E.	
APPROVED	E E PAL	9-24-9	SECURITY	

WESTINGHOUSE ENVIRONMENTAL MANAGEMENT CO. OF OHIO
FERNALD, OHIO
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
U.S. DEPARTMENT OF ENERGY

PLANTS 2 & 3 — YARD AREA

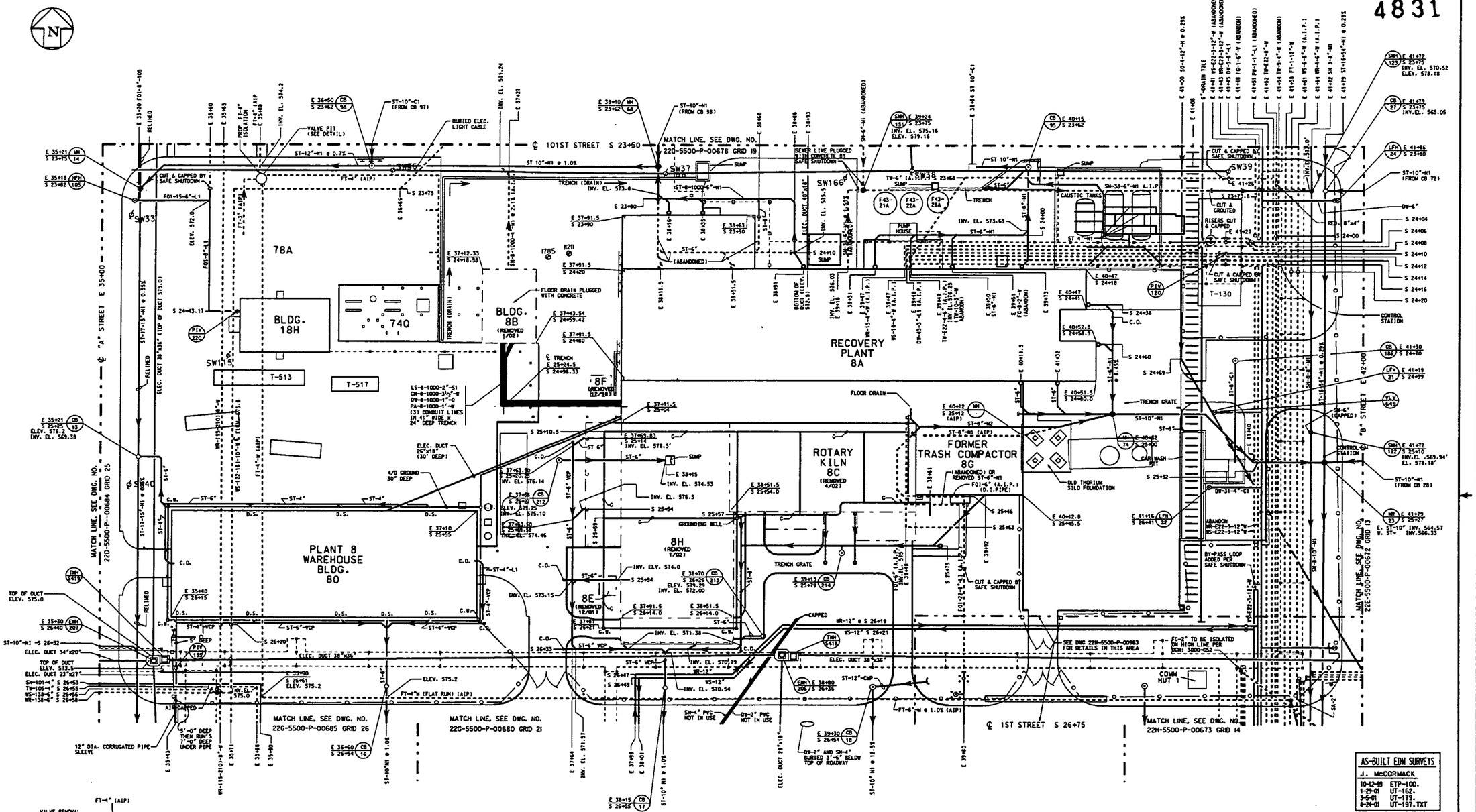
GRID 19
UNDERGROUND UTILITIES
SCALE 1"=20'

DATE 10-10-90
DRAWN J. KING

22D-5500-P-00678 | 23

FILE NAME: /UNDER/22DP0678.DGN

4831



AS-BUILT EDM SURVEYS

J. McCORMACK

10-12-99	ETP-100.
1-29-01	UT-162.
3-5-01	UT-179.
8-24-01	UT-197.TXT

PRELIMINARY INFORMATION ONLY

LEGEND:
CONC. - ABANDONED
ACTIVE

000276

NOTE:
1. THIS DRAWING ISSUED PERIODICALLY, FOR THE MOST RECENT VERSION OF THIS DRAWING, ACCESS THE FILENAME BELOW THE TITLE BLOCK.
2. COORDINATES SHOWN ON THIS DRAWING ARE TAKEN FROM EXISTING FEMP DRAWINGS AND ARE NOT VERIFIED TO BE "AS-BUILT". IT IS HIGHLY RECOMMENDED THAT A FIELD SURVEY BE PERFORMED PRIOR TO SITE DESIGN WORK.

NO.	REVISIONS	DATE	DWN. BY	APPD.
24	NUMBERED DW PVV'S & VLV'S NOT PREVIOUSLY NUMBERED. PIV 200, VLV 649, GENERAL UPDATE	1/14/02	SJS	
23	WORK COMPLETED TO A.I.P. FT LINES PER DCN: 3000-053, GENERAL UPDATE	7/8/02	RJML	GEP
22	AS-BUILT SURVEY (UT-162) TO AIR GAP TW-105-4" BY J. McCORMACK, AND R. DUCKWORTH REDLINE. MODIFIED DW-2" & SN-4" PER DRAWING 22D-5500-P-00793	7-1-01	RML/GES	GEP

REF. DWG. NO.: 22X-5500-P-00659

NOTE: WEMCO C.A.D. DRAWING NOT TO BE REVISED MANUALLY

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ARE
FRACTIONS ± ¼
ANGLES ± 0°-30'
DECIMALS
.X ± 0.4
.XX ± 0.08
.XXX ± 0.030
MIN. FILLETS 1/16

APPROVALS

CIVIL & STR.		SAFETY ENG.	
ELECTRICAL		MAINTENANCE	
ENGINEER		D.A.	
INSTRUMENT			
MECHANICAL		FIRE PROTECT.	
		WASTE MANAGE.	
CHECKED	GEP	D.O.E.	
APPROVED	C.E. PAUL	4/25/9 SECURITY	

WESTINGHOUSE ENVIRONMENTAL MANAGEMENT CO. OF OHIO
FERNALD, OHIO
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
U.S. DEPARTMENT OF ENERGY

PLANT 8 — YARD AREA

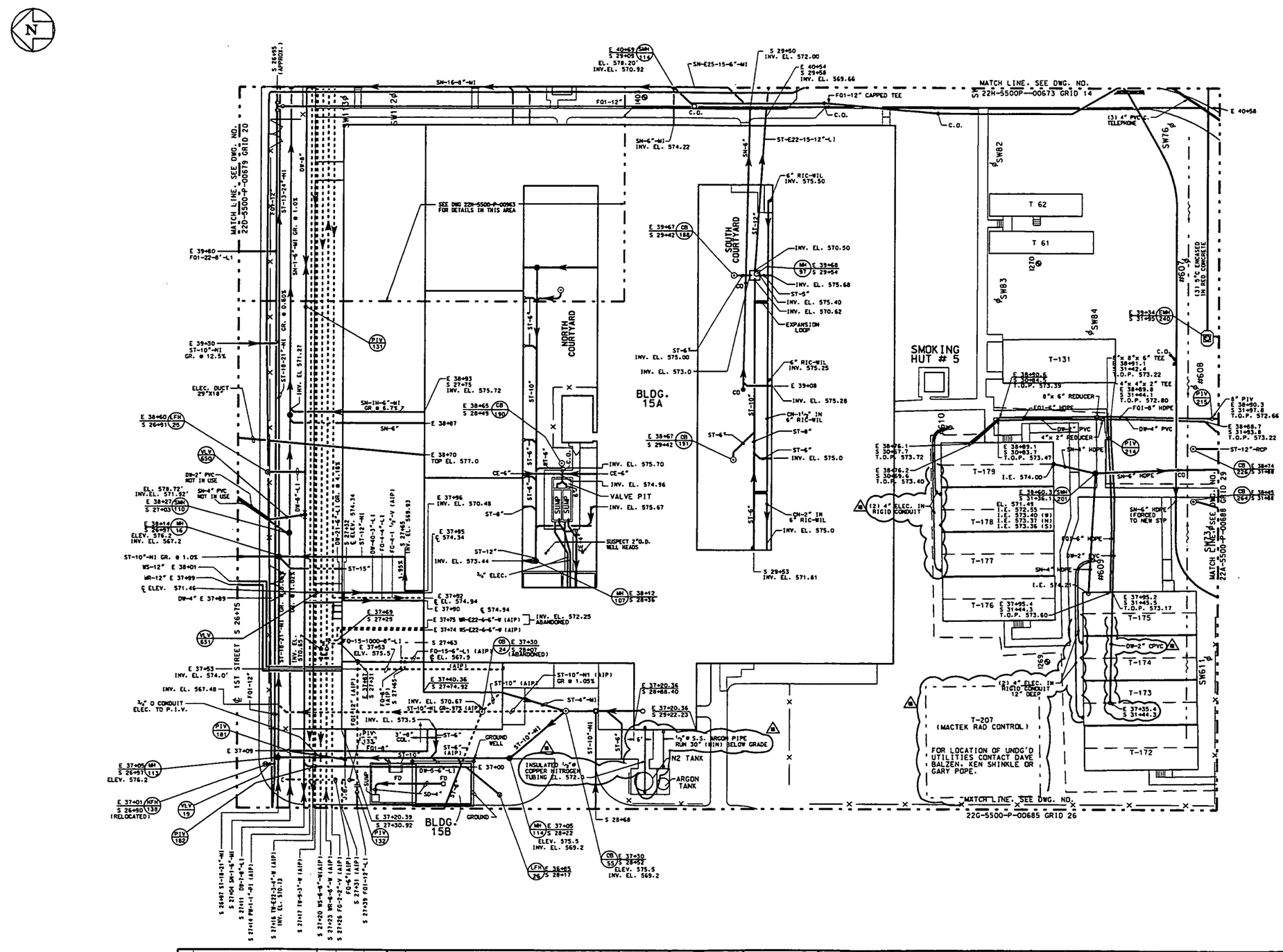
GRID 20
UNDERGROUND UTILITIES
SCALE 1"=20'

DATE 7-10-90
DRAWN DEL TURPIN

22D-5500-P-00679 | 24

FILE NAME: /UNDER/22DP0679.DGN

4831



NOTE:
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NO.	REVISIONS	DATE	DWN. BY	APPD.	NO.	REVISIONS	DATE	DWN. BY	APPD.	REF. DWG. NO.
					18	NUMBERED DW PIV'S & VLV'S NOT PREVIOUSLY NUMBERED. PIV'S (3) & (32), VLV'S 650 & 651, GENERAL UPDATE. ADDED ELEC. CONDUIT TO TRAILERS T-173, T74, T77 & T78. ADDED DW-2" CPVC PER GARY POPE 6-8-02. GENERAL UPDATE	1/5/12	SJS/GES	GEP	15X-5500-P-0991 15X-5500-G-0667 22X-5500-P-00659

NOTE: WEMCO C.A.D. DRAWING NOT TO BE REVISED MANUALLY

APPROVALS				
CIVIL & STR.			SAFETY ENG.	
ELECTRICAL			MAINTENANCE	
ENGINEER			Q.A.	
INSTRUMENT				
MECHANICAL			FIRE PROTECT.	
			WASTE MANAGE	
CHECKED	GEP	1/25/5	D.O.E.	
APPROVED	G.E. PAUL	1/25/5	SECURITY	

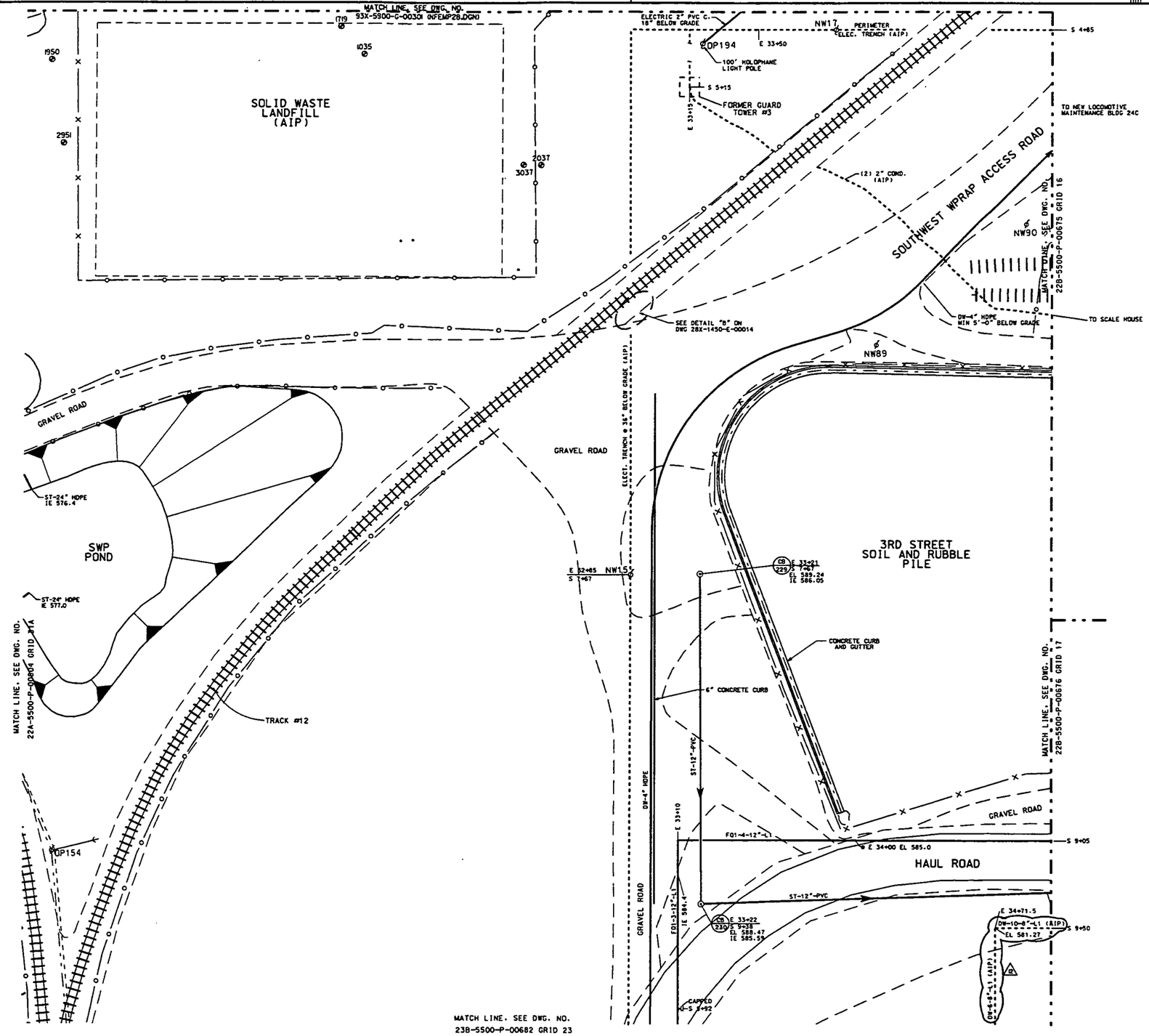
WESTINGHOUSE ENVIRONMENTAL MANAGEMENT CO. OF OHIO
FERNALD, OHIO
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
U.S. DEPARTMENT OF ENERGY

BLDG. 15-LAB. YARD AREA
GRID 21
UNDERGROUND UTILITIES
SCALE 1"=20'
DATE 7/17/99
DRAWN DEL TURPIN
22G-5500-P-00680 | 18

FILE NAME: /UNDER/22GP0680.DGN

000277

4831



AS-BUILT EDM SURVEYS	
J. SCHWING	
5-10-93	ML-106.TXT
6-3-93	060339NA.TXT
J. McCORMACK	
11-20-93	RY-114.
11-23-93	RY-115.

000278

NOTE:
1. THIS DRAWING ISSUED PERIODICALLY, FOR THE MOST RECENT VERSION OF THIS DRAWING, ACCESS THE FILENAME BELOW THE TITLE BLOCK.
2. COORDINATES SHOWN ON THIS DRAWING ARE TAKEN FROM EXISTING FEMP DRAWINGS AND ARE NOT VERIFIED TO BE "AS-BUILT". IT IS HIGHLY RECOMMENDED THAT A FIELD SURVEY BE PERFORMED PRIOR TO SITE DESIGN WORK.
3. FOR INFORMATION ON HAUL ROAD SEE P0151.

NO.	REVISIONS	DATE	DWN. BY	APPD.	NO.	REVISIONS	DATE	DWN. BY	APPD.	REF. DWG. NO.
12	AIP DW-0-8"U1 PER UT-018, GENERAL UPDATE	6/8/92	RJWL	GEP	7	UPDATED RELOCATED FIRE HYDRANT 156 AND ADDED PROPOSED HAUL ROAD	3-4-91	GES	GEP	
11	GENERAL UPDATE	1/2/00	RJWL	GEP	6	UPDATED	2-2-95	JSW	GEP	
10	ELECT TRENCH A.I.P.	1/12/00	RJWL	GEP	5	UPDATED	1-25-95	JSW	GEP	
9	ADDED T32.330 DELETED OSDF	1/4/00	JSW/SJS	GEP	4	ADDED NOTE	1-20-95	GES	GEP	
	WAC TEXT, MONUMENT TEXT,				3	UPDATED	0-9-91	MET	GEP	
	ABANDONED (2) 2" COND. PER MARK-UP				2	UPDATED	8-2-91	GES	GEP	
8	UPDATED, ADDED DW-4"	1/20/98	SJS	GEP	1	UPDATED	1-1-91	RJW	GEP	22X-5500-P-00659

NOTE:
WEMCO C.A.D. DRAWING NOT TO BE REVISED MANUALLY

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ARE
FRACTIONS ± 1/8
ANGLES ± 0° - 30'
DECIMALS
.X ± .10
.XX ± .030
.XXX ± .0030
.XXXX ± .0010
FINAL VOLUME DATE

APPROVALS					
			SAFETY ENG.		
			MAINTENANCE		
CIVIL & STR.					
ELECTRICAL					
ENGINEER			Q.A.		
INSTRUMENT					
MECHANICAL			FIRE PROTECT.		
			WASTE MANAGE		
CHECKED	GEP		Q.O.E.		
APPROVED	KZ/RGL	8/25/93	SECURITY		

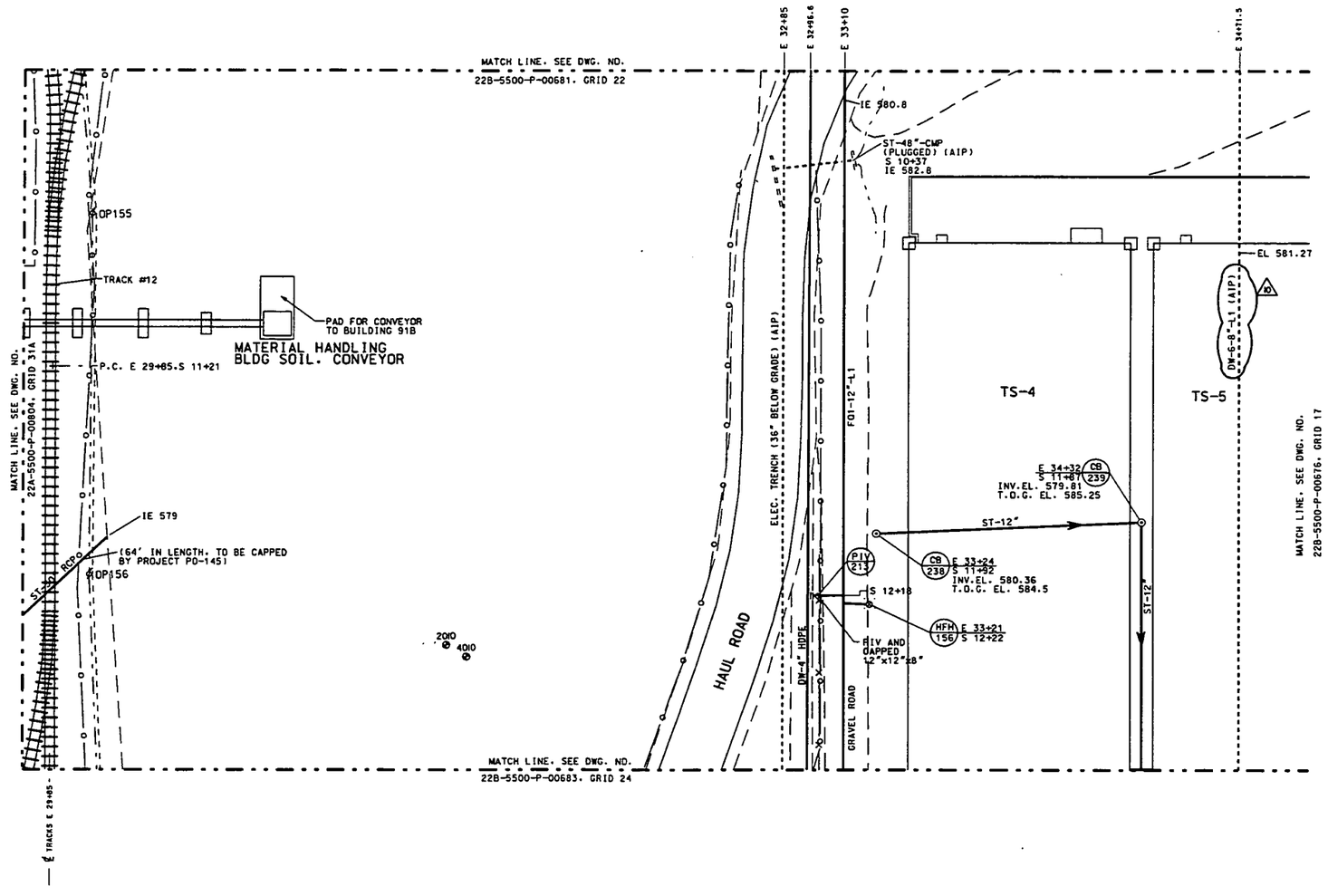
WESTINGHOUSE ENVIRONMENTAL MANAGEMENT CO. OF OHIO
FERNALD, OHIO
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
U.S. DEPARTMENT OF ENERGY

N.W. CORNER/SITE — YARD AREA
GRID 22
UNDERGROUND UTILITIES
SCALE 1"=20'

DATE 9/25/90
DRAWN S.J.S.
22B-5500-P-00681 | 12

FILE NAME: /UNDER/22BP0681.DGN

4831



000279

NOTE:
1. THIS DRAWING ISSUED PERIODICALLY. FOR THE MOST RECENT VERSION OF THIS DRAWING, ACCESS THE FILENAME BELOW THE TITLE BLOCK.
2. COORDINATES SHOWN ON THIS DRAWING ARE TAKEN FROM EXISTING FDMP DRAWINGS AND ARE NOT VERIFIED TO BE 'AS-BUILT'. IT IS HIGHLY RECOMMENDED THAT A FIELD SURVEY BE PERFORMED PRIOR TO SITE DESIGN WORK.
3. FOR INFORMATION ON HAUL ROAD SEE PO58.

NO.	REVISIONS	DATE	DWN. BY	APPD.
10	REMOVED T-53L, AIP DW-6-8"L1, GENERAL UPDATE	6-8-92	RWL	GEP
9	ADD PIV NUMBER TO FO1 LINE, ADDED T-53L, SOIL CONVEYOR PAD, DELETED OSDF RAC TEXT.	12-5-90	JSW	GEP
8	UPDATED, ADDED DW-4" & RELOCATED FIRE HYDRANT S6	1/5/88	SJS	GEP
7	UPDATED ADDED PROPOSED HAUL ROAD AND RELOCATED FIRE HYDRANT S6	3-9-91	GES	GEP
6	UPDATED	2-6-91	JSW	GEP
5	UPDATED	1-15-91	JSW	GEP
4	ADDED NOTE	1-30-91	GES	GEP
3	UPDATED	10/8/90	GES	GEP
2	UPDATED	9-7-90	GES	GEP
1	UPDATED	1-4-9	LM	GEP

REF. DWG. NO. 22X-5500-P-00659

NOTE:
WEMCO C.A.D.
DRAWING NOT
TO BE REVISED
MANUALLY

APPROVALS				
			SAFETY ENG.	
CIVIL & STR.			MAINTENANCE	
ELECTRICAL				
ENGINEER			Q.A.	
INSTRUMENT				
MECHANICAL			FIRE PROTECT.	
			WASTE MANAGE	
CHECKED	GP		D.O.E.	
APPROVED	G.E. PAUL	9/25/90	SECURITY	

WESTINGHOUSE ENVIRONMENTAL MANAGEMENT CO. OF OHIO
FERNALD, OHIO
FERNALD
ENVIRONMENTAL MANAGEMENT PROJECT
U.S. DEPARTMENT OF ENERGY

E. OF BLDG. S6 — YARD AREA

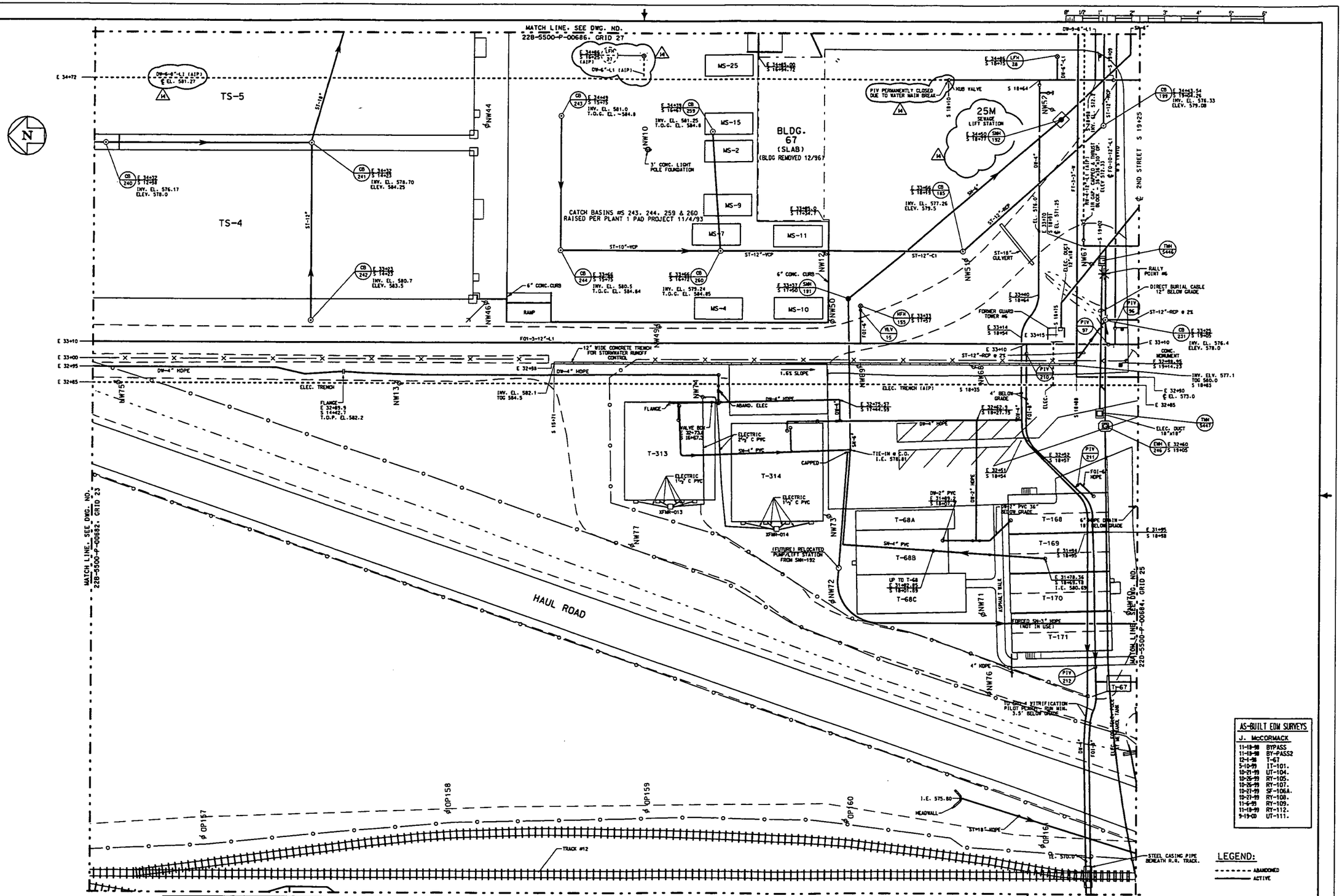
GRID 23
UNDERGROUND UTILITIES
SCALE 1"=20'

DATE 9/25/90
DRAWN S.J.S.

22B-5500-P-00682 | 10

FILE NAME: /UNDER/22BP0682.DGN

4831



NOTE:
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2. COORDINATES SHOWN ON THIS DRAWING ARE TAKEN FROM EXISTING FEMP DRAWINGS AND ARE NOT VERIFIED TO BE "AS-BUILT". IT IS HIGHLY RECOMMENDED THAT A FIELD SURVEY BE PERFORMED PRIOR TO SITE DESIGN WORK.
3. FOR INFORMATION ON HAUL ROAD SEE PO5R.

NO.	REVISIONS	DATE	DWN. BY	APPD.
14	ADD NO. 25M TO SEWAGE LIFT STATION @	6-8-02	SJS/RML	GEP
	SMH #92, AIP DW-8" FROM PIV @ S 18+10 TO			
	WEST & LFH 27, GENERAL UPDATE			

NO.	REVISIONS	DATE	DWN. BY	APPD.	REF. DWG. NO.
13	AS-BUILT UTILITIES TO T-168 TO T-171, GENERAL UPGRADE	12/05/01	RML	GEP	
12	WORK COMPLETED DCN 3000-038, ISOLATE 12"RW	5/4/01	SJS	GEP	
11	ADD DW-4" PER DCN: 1695-063, ADD EDM SURVEY TABLE, ADD	2/1/01	RML/GES	GEP	
	PIV & VLV NUMBERS TO FOI LINES, ADD UTILITIES TO T-33 &				
	T-34, ADD WATER TO T-68B, WORK COMPLETED TO				22B-5500-P-00588
	ISOLATE RW-4-12" EAST OF PIV PER DCN 3000-038				22X-5500-P-00659

NOTE: WEMCO C.A.D. DRAWING NOT TO BE REVISED MANUALLY

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ARE
FRACTIONS ± ⅛
ANGLES ± 0° - 30'
DECIMALS
.X ± 0.1
.XX ± 0.03
.XXX ± 0.005
.XXXX ± 0.0005
FINAL RELEASE DATE

APPROVALS				
CIVIL & STR.			SAFETY ENG.	
ELECTRICAL			MAINTENANCE	
ENGINEER			Q.A.	
INSTRUMENT				
MECHANICAL			FIRE PROTECT.	
			WASTE MANAGE.	
CHECKED	G.F.		K.O.E.	
APPROVED	G. PAUL	12/3/98	SECURITY	

WESTINGHOUSE ENVIRONMENTAL MANAGEMENT CO. OF OHIO
FERNALD, OHIO
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
U.S. DEPARTMENT OF ENERGY

BLDG. 67 YARD AREA

GRID 24
UNDERGROUND UTILITIES
SCALE 1"=20'

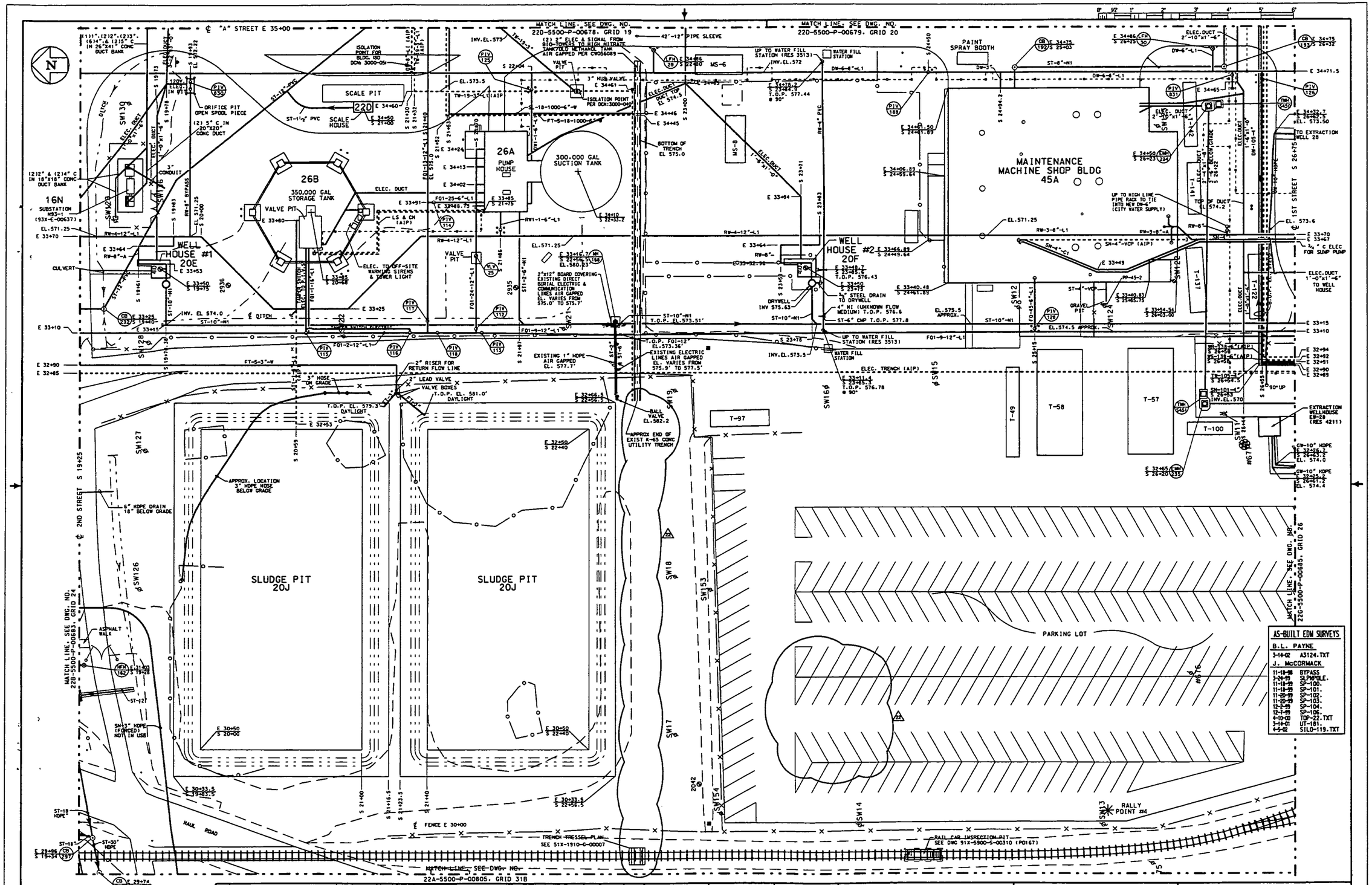
DATE 5/26/90
DRAWN S.J.S.

22B-5500-P-00683 | 14

FILE NAME: /UNDER/22BP0683.DGN

000280

4831



NOTE:
1. THIS DRAWING ISSUED PERIODICALLY. FOR THE MOST RECENT VERSION OF THIS DRAWING, ACCESS THE FILENAME BELOW THE TITLE BLOCK.
2. COORDINATES SHOWN ON THIS DRAWING ARE TAKEN FROM EXISTING FEMP DRAWINGS AND ARE NOT VERIFIED TO BE "AS-BUILT". IT IS HIGHLY RECOMMENDED THAT A FIELD SURVEY BE PERFORMED PRIOR TO SITE DESIGN WORK.

NO.	REVISIONS	DATE	DWN.	BY	APPD.
22	CONC. UTILITY TRENCH AND ALL PIPING	1/15/02	KES/RML	GEP	
	REMOVED IN SUMMER OF 2002 BY SLO				
	PROJECTS. REMOVED SECTION A-A				

NO.	REVISIONS	DATE	DWN.	BY	APPD.
21	ADDED CALLOUT FOR PIPING REMOVED 6/02 FROM CONC. TRENCH (22C). NUMBERED DW PIPS NOT PREVIOUSLY NUMBERED. PIPS 025, 026, 188, 830 & 831. GENERAL UPDATE	1/8/02	SJS		
20	ADD 2"C ELEC & SIGNAL FROM BIO-TOWERS (SBD) TO HIGH NITRATE TANK. CHANGE SECTION A-A. ADD AS-BUILT SURVEY PER B.L. PAYNE DATED 3/14/02. (RES 420) GENERAL UPDATE	4/4/02	RML	GEP	

REF. DWG. NO.
SIX-HS10-G-00006
22X-5500-P-00659
26A-4445-P-00040

NOTE: WEMCO C.A.D. DRAWING NOT TO BE REVISED MANUALLY

APPROVALS				
			SAFETY ENG.	
CIVIL & STR.			MAINTENANCE	
ELECTRICAL				
ENGINEER			Q.A.	
INSTRUMENT				
MECHANICAL			FIRE PROTECT.	
			WASTE MANAGE	
CHECKED	GP	1/29/02	D.O.E.	
APPROVED	C.E.PEL	1/29/02	SECURITY	

WESTINGHOUSE ENVIRONMENTAL MANAGEMENT CO. OF OHIO
FERNALD, OHIO
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
U.S. DEPARTMENT OF ENERGY

BLDG 45, SLUDGE PITS — YARD AREA
GRID 25
UNDERGROUND UTILITIES
SCALE 1"=20'

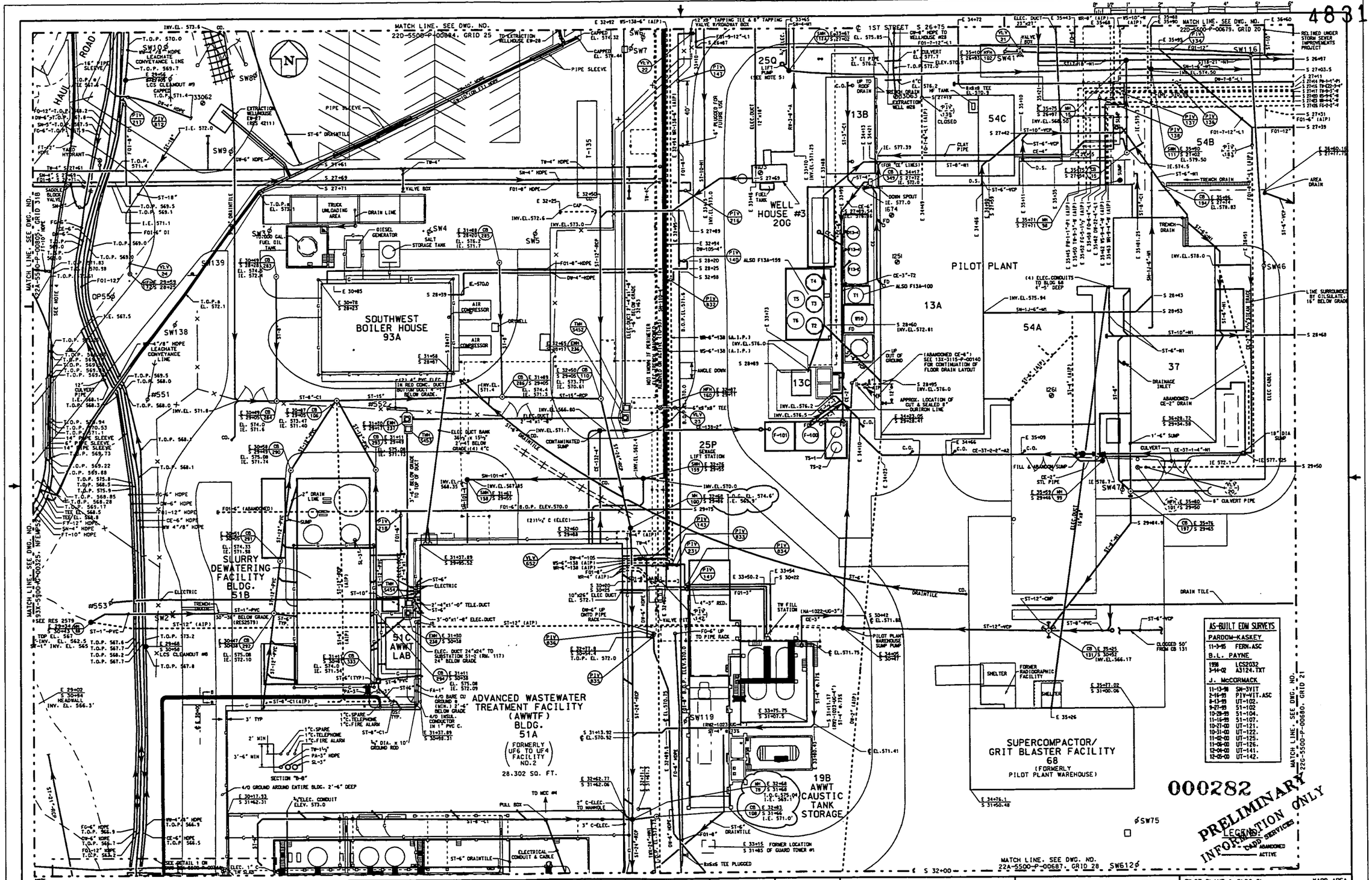
DATE 9-7-90
DRAWN J. KING

22D-5500-P-00684 | 22

FILE NAME: /UNDER/22DP0684.DGN

000281

4831



NOTE:
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3. CB-07, AND WB-4"/8" LINES LOCATED PER B.L. PAYNE AS-BUILT SURVEY, SEE /PAYNE/LCS/LCS2032.DGN.
4. SEE PARSONS TOP-046 DWG 95X-5300-G-00019 FOR CONSTRUCTION DETAILS.
5. SEE RES2933, DRAWING 25G-5500-P-00693.

NO.	REVISIONS	DATE	DWN. BY	APPD.
28	NUMBERED DW PIV'S & VLV'S NOT PREVIOUSLY NUMBERED.	1/8/02	SJS	
	PIV'S 130, 137, 138, 143, 182, 832 THRU 836, VLV 652			
27	ADDED NOTE 5, MOLS 25P & 25Q TO SEWAGE LIFT STATIONS, ADD	4/6/92	GEP/SJS	GEP
	AS-BULT SURVEY BY B.P. PAYNE DATED 3/14/02, GENERAL UPDATE			

NO.	REVISIONS	DATE	DWN. BY	APPD.	REF. DWG. NO.
					95X-5900-P-00430
					96X-5900-E-00354
					93X-5900-G-00688
					13X-5500-P-00619
					22X-5500-P-00659

NOTE:
WEMCO C.A.D. DRAWING NOT TO BE REVISED MANUALLY

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ARE
FRACTIONS ± ½
ANGLES ± 0° - 30'
DECIMALS
.X ± 0.5
.XX ± 0.025
.XXX ± 0.005
.XXXX ± 0.0005
SURF. ROUGHNESS 125

APPROVALS				
CIVIL & STR.			SAFETY ENG.	
ELECTRICAL			MAINTENANCE	
ENGINEER			O.A.	
INSTRUMENT				
MECHANICAL			FIRE PROTECT.	
			WASTE MANAGE	
CHECKED	GEP		D.O.E.	
APPROVED	G.E. PAUL	4/25/9	SECURITY	

WESTINGHOUSE ENVIRONMENTAL MANAGEMENT CO. OF OHIO
FERNALD, OHIO
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
U.S. DEPARTMENT OF ENERGY

PILOT PLANT & BLDG 51 — YARD AREA

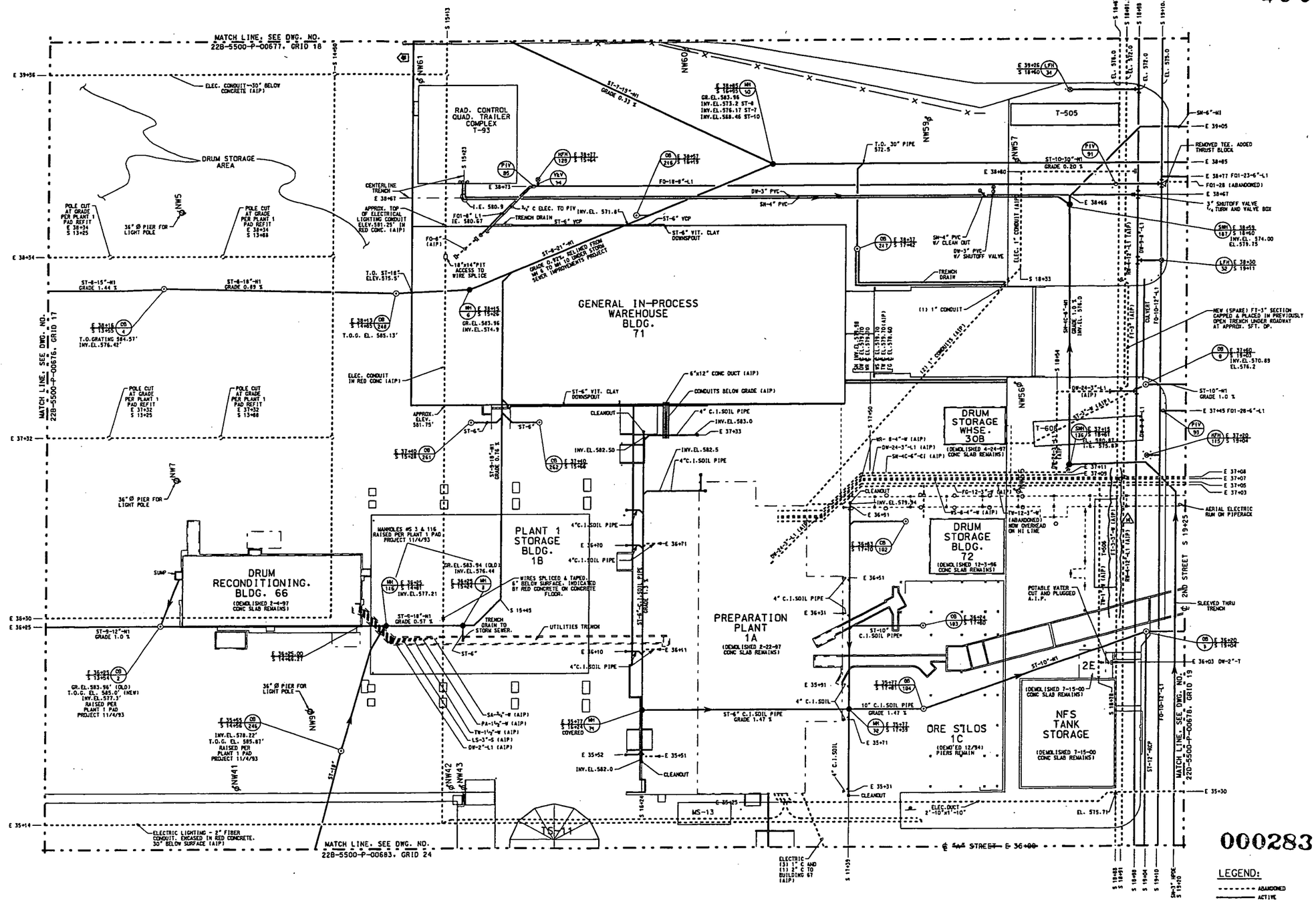
GRID 26
UNDERGROUND UTILITIES
SCALE 1"=20'

DATE 2-5-90
DRAWN J. ENG

22G-5500-P-00685 | 28

FILE NAME: /UNDER/22GP0685.DGN

4831



LEGEND:

- - - - - - ABANDONED
———— ACTIVE

NOTE:
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NO.	REVISIONS	DATE	DWN.	BY	APPD.
14	FT-3-3"W A.I.P. PER LIME SLUDGE PONDS REMEDIATION	1/3/12	RJML	GEP	
	PROJECT 20103, GENERAL UPDATE				
13	SECTION OF FO-18-8"-L1 REMOVED AND REPLACED, TEE	1/6/12	RJML	GEP	
	REMOVED, THRUST BLOCK INSTALLED PER COMPLETED				
	W.O. CM055501 (RES 4232), NFS STORAGE TANKS AND				
	BLDG 2E REMOVED, GENERAL UPDATE				

NO.	REVISIONS	DATE	DWN.	BY	APPD.	REF. DWG. NO.
						22X-5500-P-00659

NOTE: WEMCO C.A.D. DRAWING NOT TO BE REVISED MANUALLY

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
FRACTIONS ± 1/8
ANGLES ± 0° - 30'
DECIMALS
.X ± 0.1
.XX ± 0.05
.XXX ± 0.005
.XXXX ± 0.0005
FINAL DELIVERED SIZE

APPROVALS				
CIVIL & STR.			SAFETY ENG.	
ELECTRICAL			MAINTENANCE	
ENGINEER			Q.A.	
INSTRUMENT				
MECHANICAL			FIRE PROTECT.	
			WASTE MANAGE.	
CHECKED	GEP	1/25/5	O.D.E.	
APPROVED	G.E. PAUL	1/25/5	SECURITY	

WESTINGHOUSE ENVIRONMENTAL MANAGEMENT CO. OF OHIO
FERNALD, OHIO
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
U.S. DEPARTMENT OF ENERGY

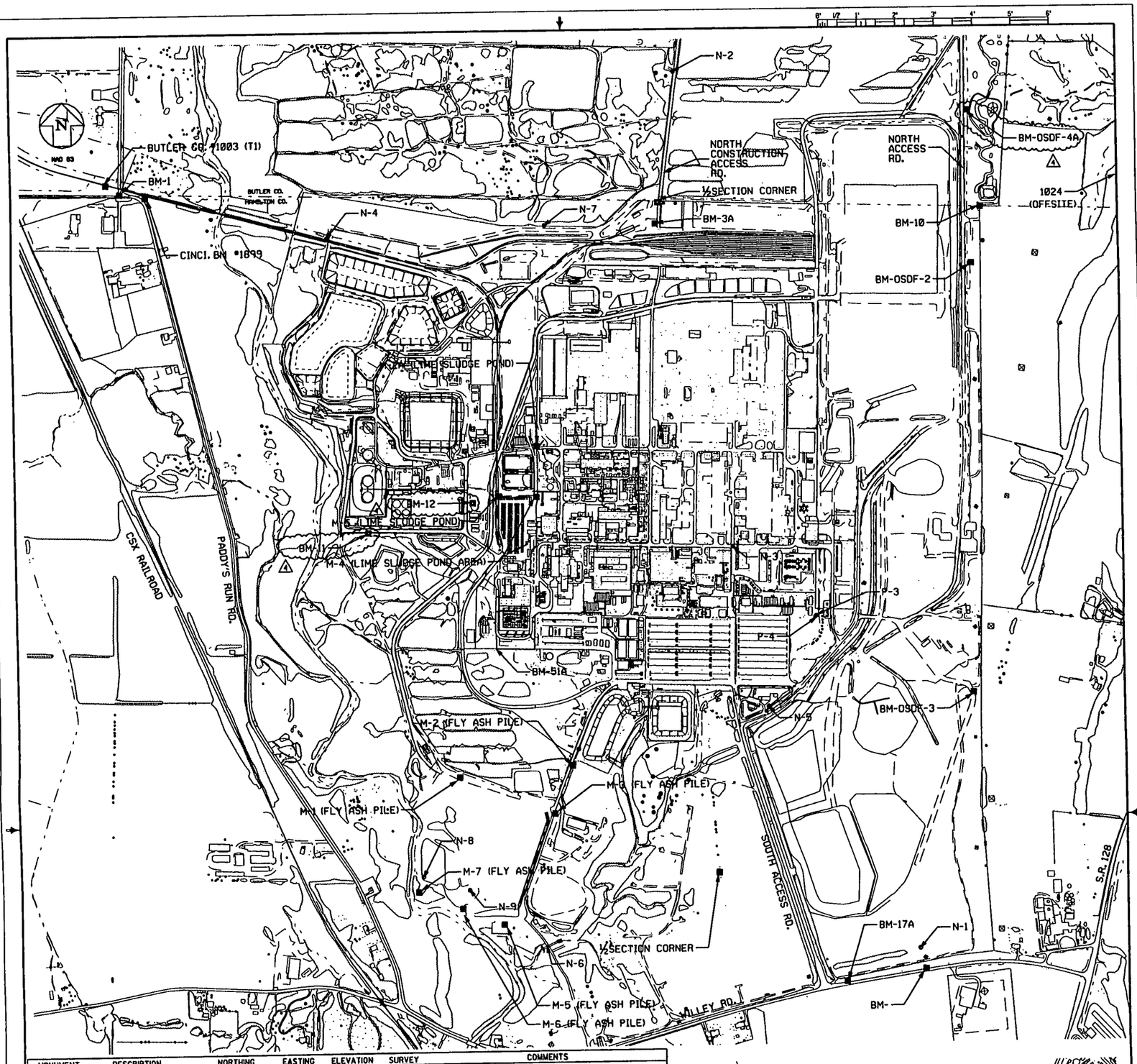
BLDG. 1, 66, 71 & 72 — YARD AREA

GRID 27
UNDERGROUND UTILITIES
SCALE 1"=20'

DATE 9-25-90
DRAWN J. KING

22B-5500-P-00686 | 14

FILE NAME: under/22bp0686.dgn



MONUMENT	DESCRIPTION	NORTHING	EASTING	ELEVATION	SURVEY	COMMENTS
BM-1	(ESTAB.)SITE ORIGIN (0,0)	482813.982	1345109.041	579.83	WOOLPERT	COUNTY SECTION CORNER GPS LOCATED
M-1A	LIME SLUDGE POND					DESTROYED RAIL UPGRADE 1997
M-2A	LIME SLUDGE POND					
M-4A	LIME SLUDGE POND					DESTROYED/COVERED PER BLDG 45 PARKING LOT PROJ.
M-5A	LIME SLUDGE POND					
M-1	FLY ASH PILE	478237.93	1347705.20	573.62	WOOLPERT	GPS LOCATED
M-2	FLY ASH PILE	478322.05	1348595.78	576.67	WOOLPERT	GPS LOCATED
M-3	FLY ASH PILE	477948.929	1348451.099	577.41	WOOLPERT	GPS LOCATED
M-4	FLY ASH PILE					DESTROYED 10/94 PER FLY ASH PILE DRAIN. DITCH PROJ.
M-5	FLY ASH PILE	477100.59	1348036.39	537.03	WOOLPERT	GPS LOCATED
M-6	FLY ASH PILE	477226.90	1347710.31	538.66	WOOLPERT	GPS LOCATED
M-7	FLY ASH PILE	477360.67	1347365.20	537.75	WOOLPERT	GPS LOCATED
M-5A/M-8	FLY ASH PILE	477071.77	1348810.37	537.60	WOOLPERT	GPS LOCATED
M-1	SAN LANDFILL					DESTROYED RAIL UPGRADE 1997
M-2	SAN LANDFILL					DESTROYED RAIL UPGRADE 1997
M-3	SAN LANDFILL					DESTROYED RAIL UPGRADE 1997
N-1	ALUMINUM CAPPED PIN	476876.20	1351301.43	607.88	WOOLPERT	GPS LOCATED
N-2	ALUMINUM CAPPED PIN	483717.88	1349475.83	634.26	WOOLPERT	GPS LOCATED
N-3	ALUMINUM CAPPED PIN	480007.25	1349883.72	579.44	WOOLPERT	GPS LOCATED
N-4	ALUMINUM CAPPED PIN	482445.14	1346725.45	576.91	WOOLPERT	GPS LOCATED
N-5	ALUMINUM CAPPED PIN	478758.71	1350146.60	580.37	WOOLPERT	GPS LOCATED
N-6	ALUMINUM CAPPED PIN	476928.55	1348369.68	551.99	WOOLPERT	GPS LOCATED
N-7	ALUMINUM CAPPED PIN	482526.88	1348443.85	585.57	WOOLPERT	GPS LOCATED
N-8	ALUMINUM CAPPED PIN	477479.18	1347404.43	538.89	WOOLPERT	GPS LOCATED
N-9	ALUMINUM CAPPED PIN	477370.11	1347767.16	537.99	WOOLPERT	
P-1	U.S. AEC				WOOLPERT	DESTROYED PER T-42 PROJECT
P-2	U.S. AEC				WOOLPERT	DESTROYED PER HAUL ROAD 1997
P-3	U.S. AEC	479464.687	1350529.596	577.18	WOOLPERT	PRODUCTION AREA BOUNDARY (10' OFFSET) GPS LOCATED
P-4	U.S. AEC	479454.81	1350519.26	577.74	WOOLPERT	PRODUCTION AREA BOUNDARY (10' OFFSET) GPS LOCATED
BM 1003	BUTLER CO.	482887.97	1345001.20	579.93	WOOLPERT	BUTLER COUNTY WITNESS GPS LOCATED
BM 1024		482524.62	1357525.75	542.64	WOOLPERT	GPS LOCATED
BM 1899	CITY OF CINCINNATI	482781.79	1345309.62	579.06	WOOLPERT	CINCINNATI WATER DEPT BM
½ SECTION	HAMILTON COUNTY					DESTROYED 8/94 - BASE STONE INTACT
½ SECTION	HAMILTON COUNTY					CAGIS #3160
BM-1A	U.S. DOE/WMCO					DESTROYED BY STP DEMOLITION PROJECT
BM-2A	U.S. DOE/WMCO					CAGIS #3154, WOOLPERT #551 DESTROYED PER OSDF
BM-3A	U.S. DOE/WMCO	482531.64	1349314.19	589.53	WOOLPERT	GPS LOCATED
BM-10	U.S. AEC	482637.962	1351857.178	615.88	WOOLPERT	GPS LOCATED
BM-17A	U.S. DOE/WMCO				WOOLPERT	DAMAGED-BRASS PLATE MISSING/DESTROYED
BM-51-A1						TO BE RE-SURVEYED
BM-8011	U.S. DOE/WMCO					TO BE RE-SURVEYED
	HAMILTON COUNTY	475374.29	1352068.16	614.20	WOOLPERT	CAGIS #801 GPS LOCATED
BM-OSDF-2	ON-SITE DISPOSAL FAC.	482199.937	1351779.165	615.82	B.L. PAYNE	GPS LOCATED
BM-OSDF-3	ON-SITE DISPOSAL FAC.	478850.416	1351749.328	595.61	B.L. PAYNE	GPS LOCATED
BM-OSDF-4	ON-SITE DISPOSAL FAC.					DESTROYED
BM-11	SILOS AREA	480149.12	1347018.47	569.02	T. BAUMANN	#996, BRASS DISK LOCATED AT BASE OF SILOS CAMERA
BM-12	SILOS AREA	480368.83	1347842.41	577.76	T. BAUMANN	#992, BRASS DISK ADJACENT TO HFH-171
BM-OSDF-4A	ON SITE DISPOSAL FAC.	483394.96	1351770.39	609.93	J. SCHWING	REPLACED BM-OSDF-4

CAGIS #8011

LOCATION	FEMP	NAD27	NAD83	USGS
BUTTERFIELD NATIONAL MONUMENT	—	—	—	N 39° 18' 09.78" W 84° 42' 50.567"
BM-1	N 00+00 E 00+00	N 482,784.90 E 1,376,578.31	N 482,813.982 E 1,345,109.041	N 39° 18' 16.9" W 84° 42' 12.5"
CENTER PLANT 4A (CENTER OF FEMP)	S 21+35.38 E 43+72.89	—	N 480,559.36 E 1,349,421.62	N 39° 17' 55.1" W 84° 41' 14.1"
CENTER EAST WATER TOWER 20D	S 23+75.21 E 54+00.0	—	N 480,291.53 E 1,350,442.15	N 39° 17' 54" W 84° 41' 03"

4831

PRELIMINARY

1. COORDINATES LISTED ON THIS DRAWING ARE BASED ON N.A.D. 83 FOR HORIZONTAL CONTROL.
2. BENCHMARKS LOCATED ARE EITHER CONCRETE MONUMENTS W/ CHISELED CROSSES OR CONCRETE MONUMENTS WITH BRASS PLATES.

NO.	REVISIONS	DATE	DWN. BY	APPD.
6	ADDED COORDINATE BLOCK	6/5/98	JSW	
5	REVISED BM-1&12 COORDINATES PER DCN-40315-065	1/5/10	JSW	GEP
4	ADDED BM-11,12, OSDF-4A REMOVED BM-1A & BM-OSDF-4, INCORP. DCN:20102-084	1/8/98	JSW	GEP

FORMAT REVISED 4/8/94 FORMAT:ACH

NOTE: FERMCO C.A.D. DRAWING NOT TO BE REVISED MANUALLY

CONFIGURATION MANAGEMENT DRAWING
REVISIONS MUST BE AS CONCURRED BY FERMCO AND SUBMITTED TO FERMCO FOR ENGINEERING CHANGE NOTICE
COORD'ANT ENGINEER DATE

APPROVALS				
CIVIL & STR.	J. SCHWING	1/2/98	SAFETY ENG.	
ELECTRICAL			MAINTENANCE O.A.	
ENGINEER			FRC PROJECT.	
INSTRUMENT			WASTE MANAGE	
MECHANICAL			SECURITY	
			CRU	
CHECKED	GEP			
APPROVED	G.E. PAUL	1/5/98		

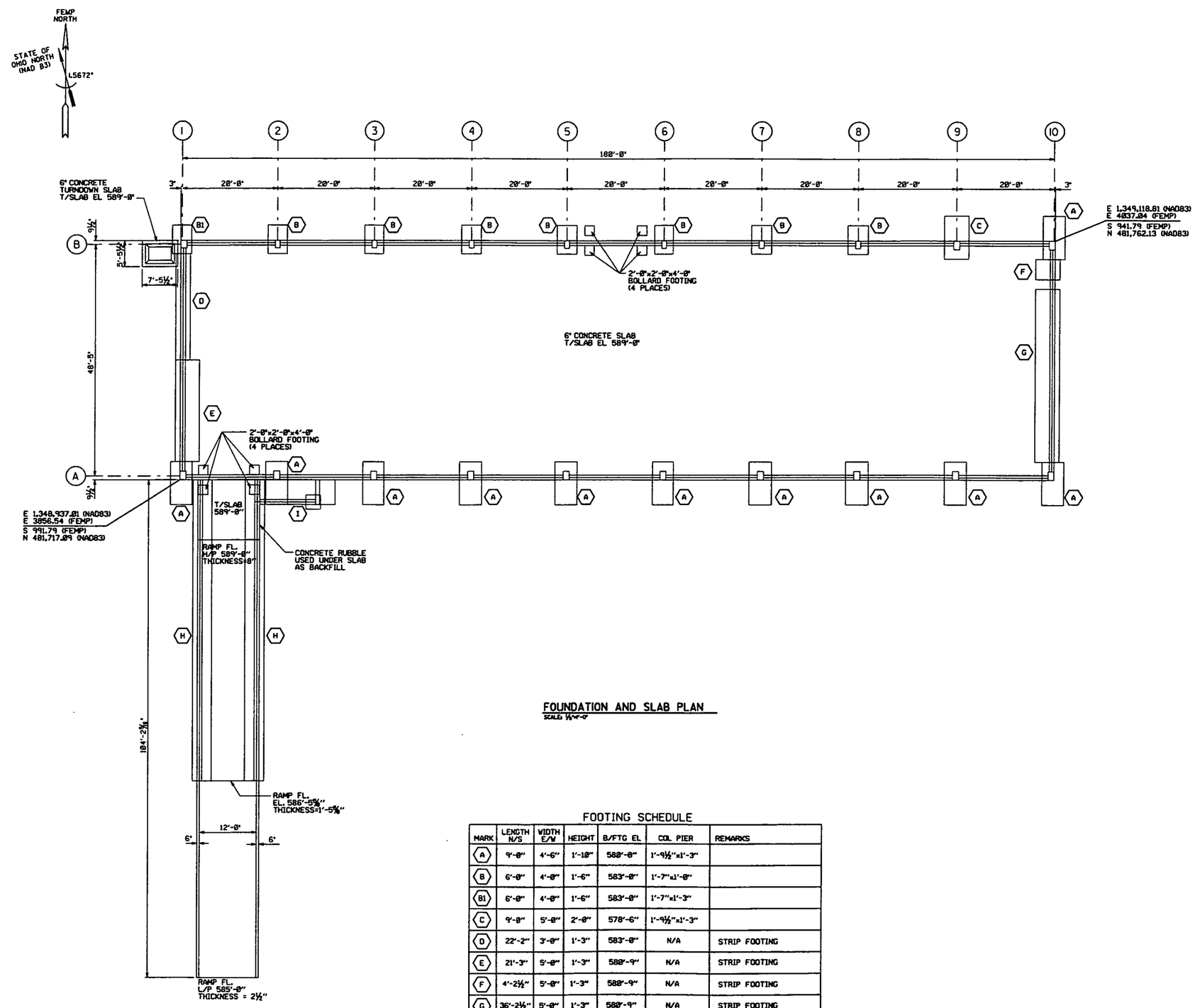
FERNALD ENVIRONMENTAL RESTORATION MANAGEMENT CORPORATION
FERMCO
Fernald Environmental Management Project
U.S. DEPARTMENT OF ENERGY

SITEWIDE
MASTER FEMP
GPS BENCHMARK LOCATION PLAN
NO SCALE

RES-2740
DATE June 4, 1996
DRAWN JSW
00X-5500-G-01846 | 6

FILE NAME: /res2740/00xg1846.dgn

000284



FOUNDATION AND SLAB PLAN

SCALE: 1/8"=1'-0"

FOOTING SCHEDULE

MARK	LENGTH N/S	WIDTH E/W	HEIGHT	B/FTG EL	COL PIER	REMARKS
A	9'-0"	4'-6"	1'-10"	580'-8"	1'-9½"x1'-3"	
B	6'-0"	4'-0"	1'-6"	583'-0"	1'-7"x1'-0"	
B1	6'-0"	4'-0"	1'-6"	583'-0"	1'-7"x1'-3"	
C	9'-0"	5'-0"	2'-0"	578'-6"	1'-9½"x1'-3"	
D	22'-2"	3'-0"	1'-3"	583'-0"	N/A	STRIP FOOTING
E	21'-3"	5'-0"	1'-3"	580'-9"	N/A	STRIP FOOTING
F	4'-2½"	5'-0"	1'-3"	580'-9"	N/A	STRIP FOOTING
G	36'-2½"	5'-0"	1'-3"	580'-9"	N/A	STRIP FOOTING
H	63'-2"	4'-0"	1'-3"	580'-9"	N/A	STRIP FOOTING
I	3'-0"	3'-0"	1'-0"	581'-0"	N/A	STRIP FOOTING

SCALE: 1/8 INCH= FOOT

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION REFERENCE DRAWINGS LISTED BELOW AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.

4831

REF DWG NO.	DRAWING TITLE
17X-7000-S-00006	GENERAL STORAGE PAVED AREA PLOT PLAN
17X-7000-S-00007	GENERAL STORAGE PAVED AREA SECTIONS & DETAILS
56X-7000-A-00001	TEMPORARY STORAGE FACILITIES FOUNDATION PLAN
56X-7000-S-00002	TEMPORARY STORAGE FACILITIES FOUNDATIONS & 1ST FLOOR DETAILS
56X-5500-A-00006	CP STORAGE WAREHOUSE NEW FIRE PROTECTION VALVE HOUSE PLAN, ELEVATION & SECTIONS
75B-5500-C-00899	GRID 17 EXISTING SITE PLAN

000285

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	RCM BY
0	ISSUED FOR TECHNICAL REFERENCE ONLY	N/A	SDS 100CT01	

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY LOCKWOOD GREENE TECHNOLOGIES

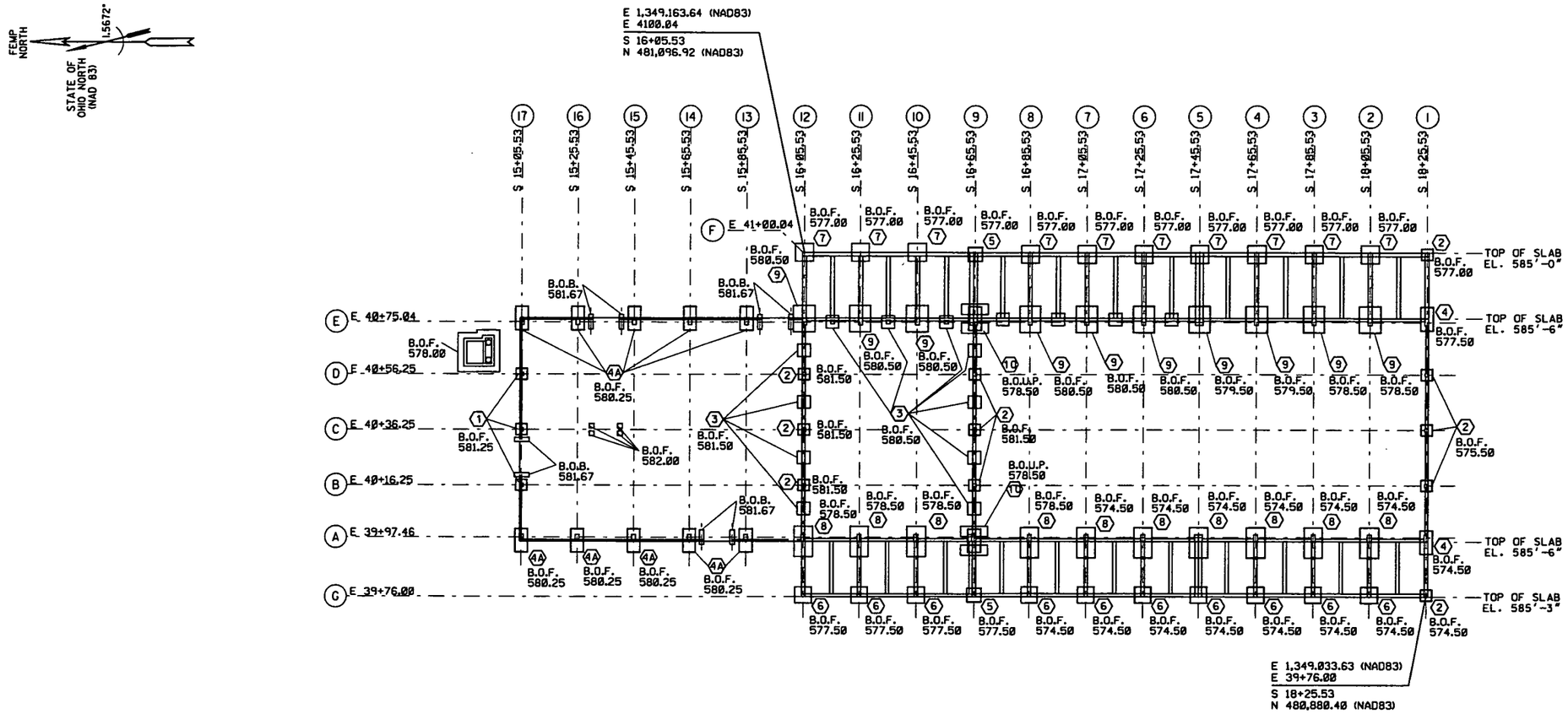
PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 17 - TECHNICAL REFERENCE DRAWING

DRAWING TITLE
STRUCTURE 56A
FOUNDATION AND SLAB PLAN

CONFIGURATION MANAGEMENT DRAWING

TASK ORDER NO.	OPTIONAL NO.	SCALE	
L-010	N/A	1/8"=1'-0"	
		DRAWN BY J. ALCORN	DATE 01OCT01
JES NO. N/A	FEP PROJECT NO. 20810	TECHNICAL LEAD M. ROBERTS	DATE 01OCT01
		CHECKED BY	DATE
COGNIZANT ENGINEER	DATE	DRAWING INDEX CODE NO. 56X-1900-S-00050	SHEET NO. S-001 / REV. NO. 0

4831



FOOTER SIZES			
I.D.	LENGTH	WIDTH	THICK
1	4'-0"	4'-0"	1'-3"
2	4'-0"	4'-0"	1'-0"
3	4'-6"	4'-6"	1'-0"
4	8'-6"	4'-6"	1'-3"
4A	8'-6"	4'-6"	1'-6"
5	5'-0"	5'-0"	1'-0"
6	5'-10"	5'-10"	1'-3"
7	6'-4"	6'-4"	1'-9"
8	11'-0"	6'-6"	1'-9"
9	9'-6"	7'-6"	1'-9"
10	9'-6"	3'-9"	2'-0"

REFERENCE DRAWINGS

75B-5500-G-00102
17X-3115-S-00012
30X-5500-S-00021
30X-5500-G-00063
30X-1450-S-00005
30X-1450-S-00006
30X-3115-S-00034
30X-7000-A-00010
30X-7000-S-00011
30A-5500-X-00052

BUMPER SIZES
5'-3"L 1'-6"W 3'-10"T

TEN TON SCALE FOOTER SIZE
15'-0"L 15'-0"W 1'-0"T

B.O.F. BOTTOM OF FOOTER
B.O.B. BOTTOM OF BUMPER FOOTER
B.O.U.P. BOTTOM OF UNDERPINNINGS

FOUNDATION AND SLAB PLAN

SCALE: 1" = 20'-0"

000286

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

FORMAT REVISED 8/5/96
FORMAT REVISED 6/25/98 FDF4.DGN

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

CONFIGURATION MANAGEMENT DRAWING
YES NO
SYSTEMS, STRUCTURES OR COMPONENTS SHOWN ON THIS DRAWING ARE UNDER CONFIGURATION MANAGEMENT CONTROL. SEE NOTES.
COGNIZANT ENGINEER DATE

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

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

BUILDING 30A
CHEMICAL WAREHOUSE
FOUNDATION AND SLAB PLAN
SCALE: 1" = 20'-0"

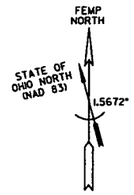
RES 3769
DATE 12-22-98
DRAWN G. SCHWARZMAN

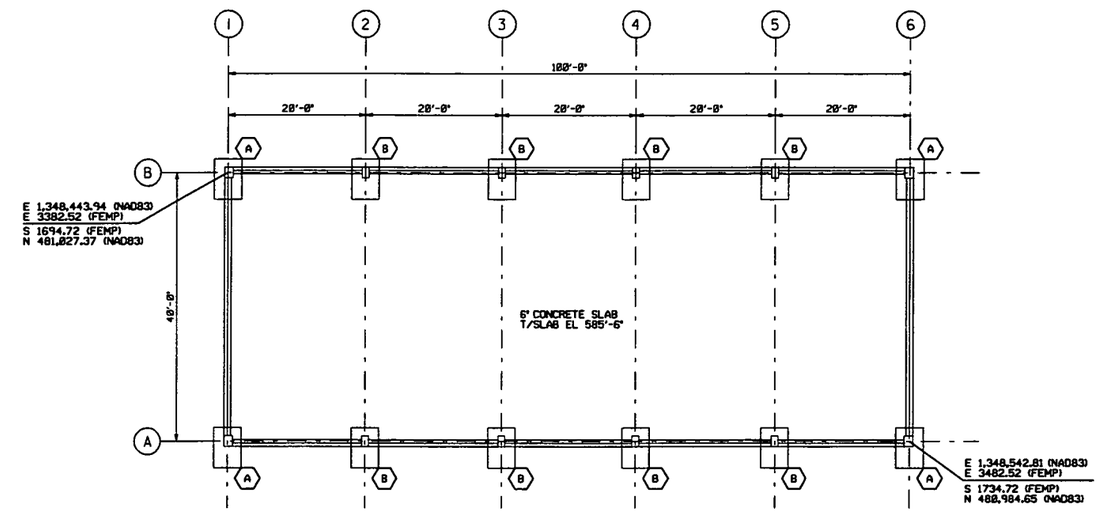
30X-5500-S-00091 | 0

FILE NAME: /RES3769/30XS0091.DGN

FOOTING SCHEDULE

MARK	LENGTH N/S	WIDTH E/W	HEIGHT	B/FTG EL.	COL PIER	REMARKS
A	6'-0"	4'-0"	1'-6"	579'-6"	1'-7"x1'-3"	SEE GENERAL NOTE 2
B	6'-0"	4'-0"	1'-6"	579'-6"	1'-7"x1'-0"	SEE GENERAL NOTE 2





FOUNDATION AND SLAB PLAN
SCALE: 1/8"=1'-0"

SCALE: 1/8 INCH= FOOT

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION REFERENCE DRAWINGS LISTED BELOW AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.
2. STRUCTURE 67 (BUTLER BLDG.) LACKED INFORMATION FOR BLDG. FOOTERS, COLUMN PIERS, & FOUNDATION WALLS. THEREFORE, STRUCTURE 56A (BUTLER BLDG.) TYPE II FOOTING AND COL. PIERS AND GB-2 FDN WALLS WERE USED INSTEAD PER 56A DRAWINGS 56X-7000-A-00001 AND 56X-7000-A-00002 AND MAY NOT REPRESENT ACTUAL CONDITIONS.

4831

REF DWG NO.	DRAWING TITLE
75B-5500-G-00101	GRID 24 EXISTING SITE PLAN
67X-5500-A-00004	OLD PLANT 1 THORIUM WAREHOUSE FLOOR PLAN

000287

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	REVR BY
0	ISSUED FOR TECHNICAL REFERENCE ONLY	N/A	SDS 10/27/11	

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY LOCKWOOD GREENE TECHNOLOGIES

PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 24 - TECHNICAL REFERENCE DRAWING

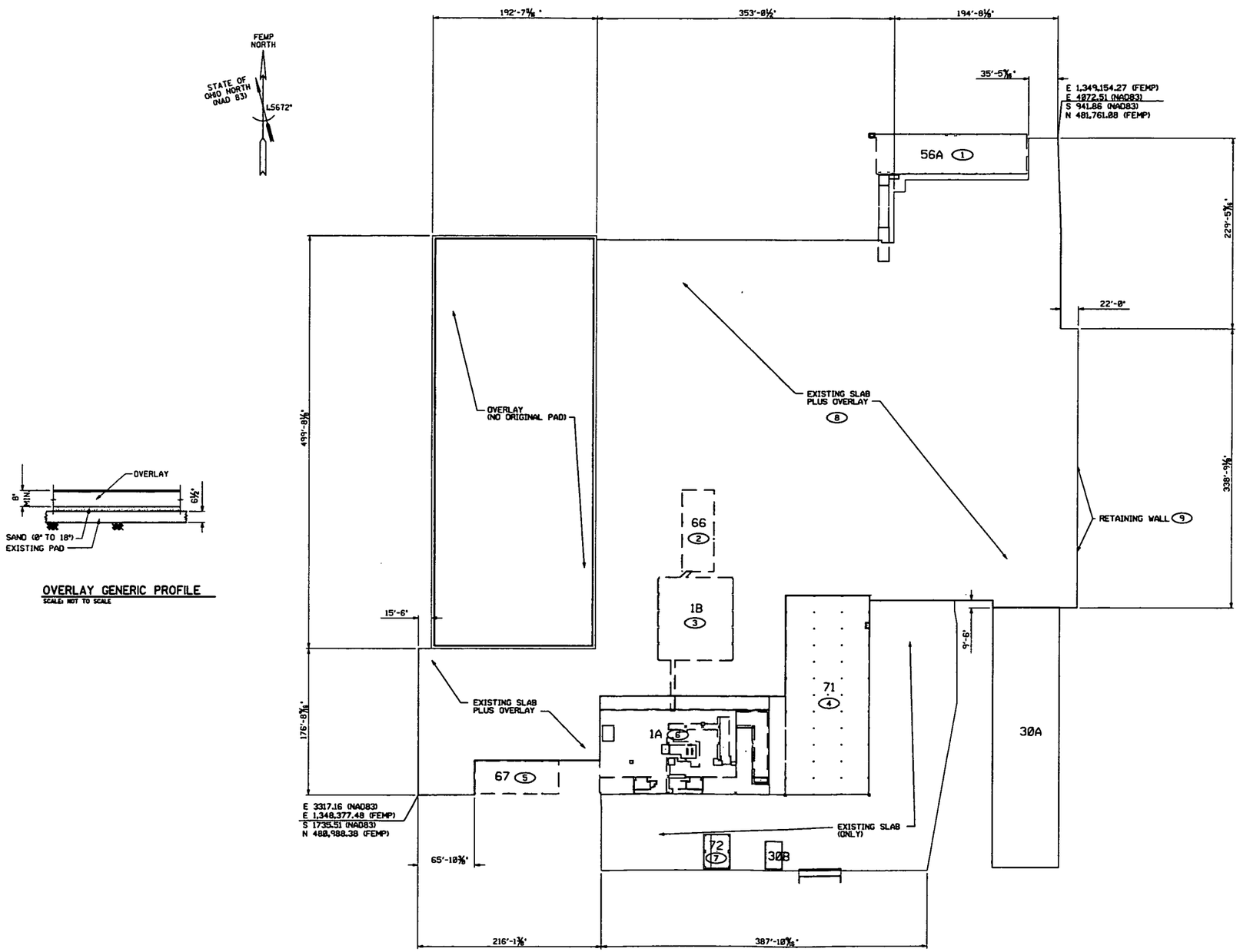
DRAWING TITLE
STRUCTURE 67
FOUNDATION AND SLAB PLAN

CONFIGURATION MANAGEMENT DRAWING
EXISTING STRUCTURES AS CONFIRMED COMPLETED PER CONFIGURATION MANAGEMENT CONTROL. SEE NOTES.
COGNIZANT ENGINEER DATE

TASK ORDER NO.	OPTIONAL NO.	SCALE
L-010	N/A	1/8"=1'-0"

RES NO.	FOF PROJECT NO.	DRAWN BY	DATE
N/A	20810	A. BETANZOS	10/20/11
		TECHNICAL LEAD: J. ALCORN	DATE: 2/28/2011
		CHECKED BY	DATE

DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
67X-1900-S-00006	S-001	0



OVERLAY GENERIC PROFILE
SCALE: NOT TO SCALE

FOUNDATION AND SLAB PLAN
SCALE: 1"=50'

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION REFERENCE DRAWINGS LISTED BELOW AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.
2. ALL DIMENSIONS GIVEN ARE APPROXIMATE AND MUST BE FIELD VERIFIED.

4831

KEYED NOTES

ADDITIONAL DETAIL FOR EACH OF THE COMPONENT STRUCTURES IS LOCATED ON THE FOLLOWING DRAWINGS AND SKETCHES.

1. SEE DWG 56X-1900-S-00050 FOR FOUNDATION AND SLAB PLAN. SEE DWG SK56-1 FOR ISOMETRIC VIEW.
2. SEE DWG 66X-1900-S-00005 FOR FOUNDATION AND SLAB PLAN. SEE DWG SK66-1 FOR ISOMETRIC VIEW.
3. SEE DWG 01D-1900-S-01388 FOR FOUNDATION AND SLAB PLAN. SEE DWG SK1B-1 FOR ISOMETRIC VIEW.
4. SEE DWGS 71X-1900-S-00071 AND 71X-1900-S-00071 FOR FOUNDATION AND SLAB PLAN. SEE DWGS SK71-1 AND SK71-2 FOR ISOMETRIC VIEW.
5. SEE DWG 67X-1900-S-00086 FOR FOUNDATION AND SLAB PLAN. SEE DWG SK67-1 FOR ISOMETRIC VIEW.
6. SEE DWG 01X-1900-S-01389 FOR FOUNDATION AND SLAB PLAN. SEE DWG SK1A-1 FOR ISOMETRIC VIEW.
7. SEE DWG 71X-1900-S-00072 FOR FOUNDATION AND SLAB PLAN. SEE DWG SK72-1 FOR ISOMETRIC VIEW.
8. 74T PAD CONSISTS OF 2 DIFFERENT PADS. EXISTING PAD IS 6½" THICK, ELEVATION VARIES FROM H.P. OF 585'-0" TO L.P. OF 584'-0". OVERLAY PAD IS 8" THICK ELEVATIONS VARY FROM H.P. 586'-9" TO L.P. 584'-0". A SAND LAYER 0" TO 18" THICK WAS USED BETWEEN SLABS. SEE OVERLAY GENERIC PROFILE THIS SHEET.
9. SEE DWG 74B-5500-S-00078 FOR FOUNDATION AND SLAB INFORMATION.

REF DWG NO.	DRAWING TITLE
17X-1450-S-00004	PLAN OF DRUM STORAGE PAVED AREA
17X-1450-S-00005	DETAILS OF DRUM STORAGE PAVED AREA
30X-5500-A-00066	RECEIVING SCALES SHELTER FLOOR PLAN
74B-4445-G-00064	COVERED CONTROLLED STORAGE PAD - PLANT 1 CONSTRUCTION PHASE DETAILS
74B-4445-G-00067	COVERED CONTROLLED STORAGE PAD - PLANT 1 PHASES C,D, AND E
74B-4445-G-00068	COVERED CONTROLLED STORAGE PAD - PLANT 1 SITE DETAILS
74B-5500-S-00052	CONTROLLED STORAGE PAD PHASE A - SECTIONS

000288

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	D.	PM	REVIS BY INITIALS AND DATE
0	ISSUED FOR TECHNICAL REFERENCE ONLY	N/A	SDS [redacted]	

UNITED STATES
DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY LOCKWOOD GREENE TECHNOLOGIES

PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 27 - TECHNICAL REFERENCE DRAWING

DRAWING TITLE
STRUCTURE 74T
FOUNDATION AND SLAB PLAN

CONFIGURATION MANAGEMENT DRAWING — TECH / REF

EXISTING DRAWINGS AS CONTROLLED BY THE CONFIGURATION MANAGEMENT DRAWING LISTS ARE SUPERSEDED BY THE LATEST CONFIGURATION MANAGEMENT CONTROLLED DRAWING LISTS.

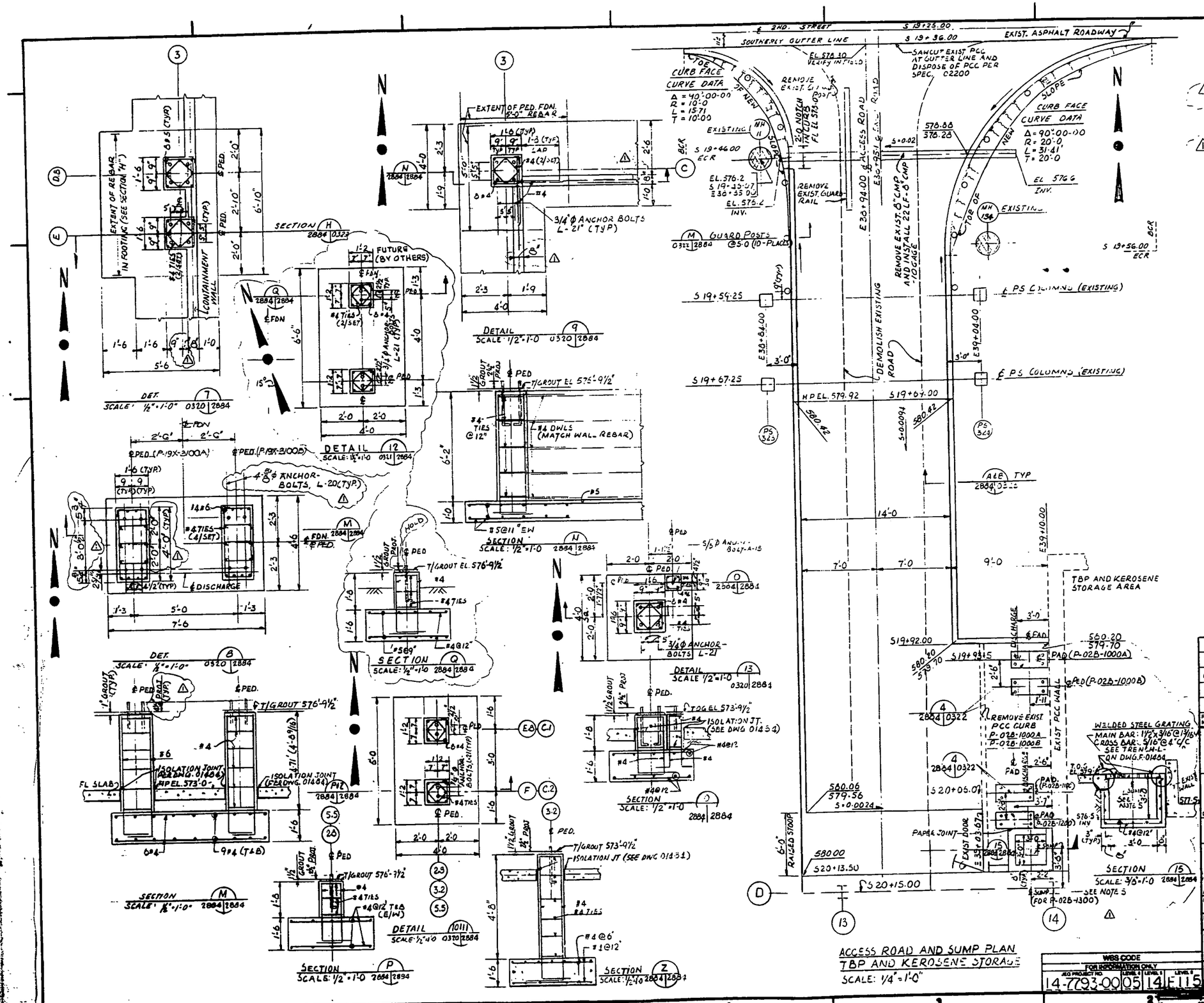
COGNIZANT ENGINEER — DATE

TASK ORDER NO.	OPTIONAL NO.	SCALE 1"=50'	
L-010	N/A	DRAWN BY G. THURMAN	DATE 19-01-01
RES NO. N/A	FSF PROJECT NO. 20810	TECHNICAL LEAD J. ALCORN	DATE 19-01-01
		CHECKED BY	DATE
DRAWING INDEX CODE NO. 74B-1900-S-00077		SHEET NO. S-001	REV. NO. 0

4831

GENERAL NOTES

1. FOR STRUCTURAL NOTES, SEE DWG. S-00323
2.
3. SEE DWG. F-01484 FOR ANCHOR BOLT DETAILS
4.
5. FOR SUPPORT FOR P-02B-1300, TBP & KEROSENE STORAGE, SEE DWG S-00270



FOR INFORMATION ONLY
CADD SERVICES

000289

DO NOT SCALE REDUCED DRAWING

REV NO	ISSUE OR REVISION PURPOSE - DESCRIPTION	INITIALS AND DATE
1	GENERAL REVISIONS DR KRW	SCH 10-21-96 AF 10-23-96
0	CERTIFIED FOR CONSTRUCTION	
B	ISSUED FOR 100% DESIGN REVIEW	8-5-96
A	ISSUED FOR 50% DESIGN REVIEW	12-20-95

UNITED STATES DEPARTMENT OF ENERGY

JACOBS ENGINEERING GROUP INC.
PASADENA, CALIFORNIA

DOE CONTRACT NO DE-AC05-850R21462 A-E NO. 3900

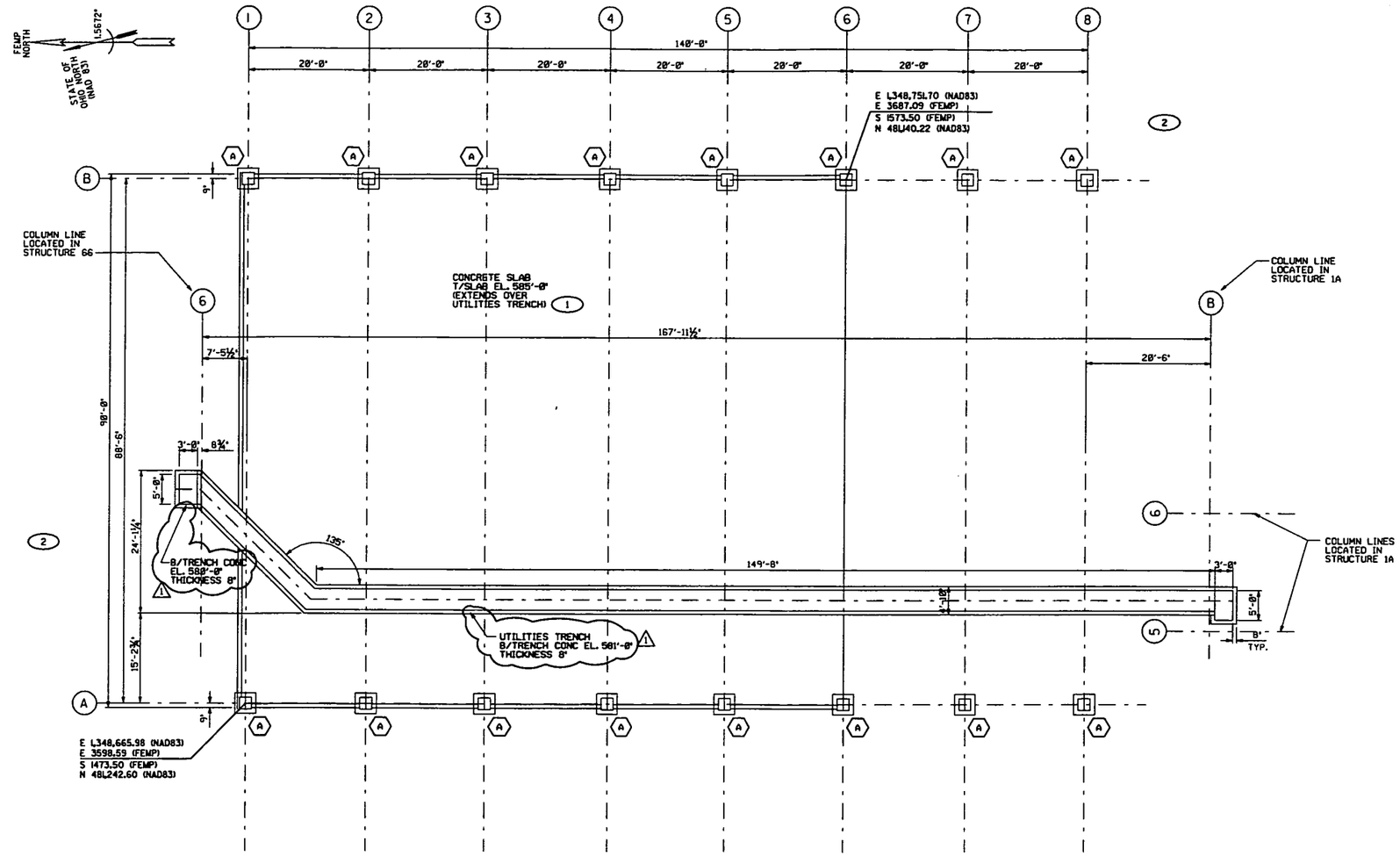
PROJECT NAME
PRODUCTIVITY & RADIOLOGICAL IMPROVEMENTS

DRAWING TITLE
TANK FARM PROJECT PLANT 02
TBP AND KEROSENE STORAGE
FOUNDATION LOCATION PLAN
AND MISCELLANEOUS SECTIONS AND DETAILS

DRAWN BY S. PEIRIS DATE 12-5-85 CHECKED BY D. RHODES DATE 3-8-86
PLANT FMPC BLDG. FLOOR SCALE NOTED CLASS
SUBMITTED FOR APPROVAL A-E DATE 3-27-86
APPROVAL RECOMMENDED R.W. HELMES 4-1-86 OPER CONTRACTOR DATE
DRAWING APPROVED R. STUMPO FOR M.A. PAGES 4-1-86 DOE DATE

WBS CODE FOR INFORMATION ONLY
JEG PROJECT NO. 14-7793-00 LEVEL 4 05 LEVEL 5 14 LEVEL 6 F115

PROJECT NO. 85-D-140 | 02B | 3900 | S | 02884 | REV. NO. 1



FOUNDATION AND SLAB PLAN

SCALE: 1/8"=1'-0"

FOOTING SCHEDULE

MARK	LENGTH N/S	WIDTH E/W	HEIGHT	B/FTG EL	COL PIER	REMARKS
(A)	3'-6"	3'-6"	1'-8"	581'-8"	2'-0"x2'-8"	

0' 4' 8' 16' 24'
SCALE: 1/8 INCH FOOT

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION REFERENCE DRAWINGS LISTED BELOW AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.
2. STRUCTURE 1B (BUTLER BLDG.) LACKED INFORMATION FOR BLDG. FOUNDATION WALLS. THEREFORE, STRUCTURE 56A BUTLER BLDG.) GB-2 FDN WALLS WERE USED PER 56A DRAWINGS 56X-7000-A-00001 AND 56X-7000-A-00002.

4831

KEYED NOTES

1. FOR THICKNESS OF CONCRETE SLAB, SEE DRAWING 74B-1900-S-00077.
2. FOR CONTINUATION OF ADJACENT SLAB, SEE DRAWING 74B-1900-S-00077.

REF DWG NO.	DRAWING TITLE
01D-5500-A-01338	DRUM STORAGE BUILDING FLOOR PLAN
01D-5500-S-00765	DRUM RECOND BLDG SERVICE LINE TRENCH AND TRENCH COVER LAYOUT & DETAILS

000290

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	D.	PM	RCM BY
1	REVISED TRENCH NOTES	N/A	SDS 25AUG02	
0	ISSUED FOR TECHNICAL REFERENCE ONLY	N/A	SDS 16OCT01	

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY LOCKHEED MARTIN ENERGY TECHNOLOGIES

PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 27 - TECHNICAL REFERENCE DRAWING

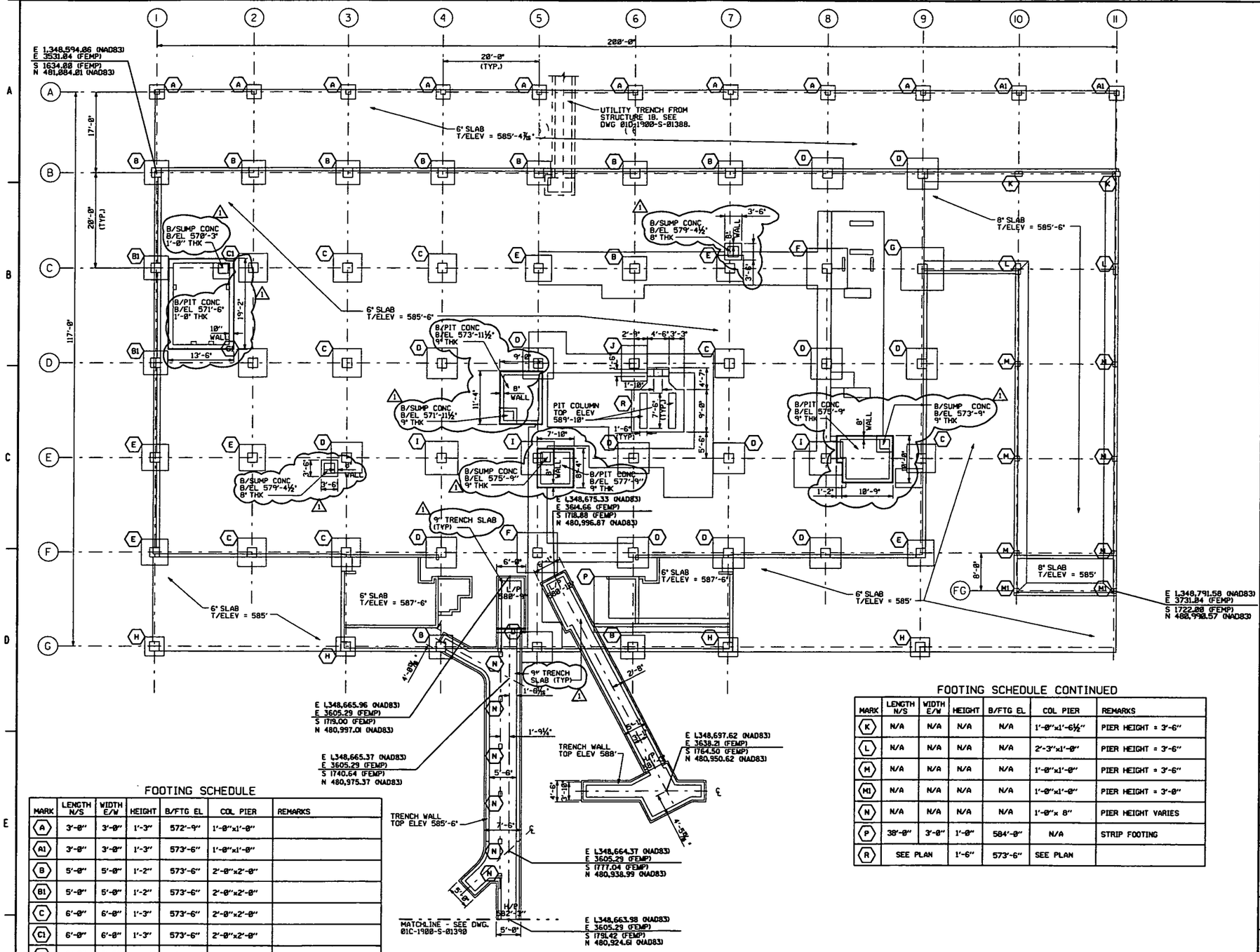
DRAWING TITLE
STRUCTURE 1B
FOUNDATION AND SLAB PLAN

CONFIGURATION MANAGEMENT DRAWING

EXISTING STRUCTURES OR COMPONENTS SHOWN ON THIS DRAWING ARE UNDER CONFIGURATION MANAGEMENT CONTROL. SEE NOTES.

COGNIZANT ENGINEER DATE

TASK ORDER NO.	OPTIONAL NO.	SCALE	
L-010	N/A	1/8"=1'-0"	
		DRAWN BY K. DAVIS	DATE 15NOV01
RES NO. N/A	FOR PROJECT NO. 20810	TECHNICAL LEAD J. ALCORN	DATE 15NOV01
		CHECKED BY J. ALCORN	DATE 15NOV01
DRAWING BOOK CODE NO. 01D-1900-S-01388		SHEET NO. S-001	REV. NO. 1



FOUNDATION AND SLAB PLAN
SCALE: ¼"=1'-0"

FOOTING SCHEDULE

MARK	LENGTH N/S	WIDTH E/W	HEIGHT	B/FTG EL	COL PIER	REMARKS
A	3'-0"	3'-0"	1'-3"	572'-9"	1'-0"x1'-0"	
A1	3'-0"	3'-0"	1'-3"	573'-6"	1'-0"x1'-0"	
B	5'-0"	5'-0"	1'-2"	573'-6"	2'-0"x2'-0"	
B1	5'-0"	5'-0"	1'-2"	573'-6"	2'-0"x2'-0"	
C	6'-0"	6'-0"	1'-3"	573'-6"	2'-0"x2'-0"	
C1	6'-0"	6'-0"	1'-3"	573'-6"	2'-0"x2'-0"	
D	6'-6"	6'-6"	1'-4"	573'-6"	2'-0"x2'-0"	
E	5'-6"	5'-6"	1'-2"	573'-6"	2'-0"x2'-0"	
F	8'-6"	8'-6"	1'-6"	573'-6"	2'-0"x2'-0"	
G	9'-0"	9'-0"	1'-6"	573'-6"	2'-0"x2'-0"	
H	4'-0"	4'-0"	1'-0"	582'-0"	2'-0"x2'-0"	
I	7'-0"	7'-0"	1'-5"	573'-6"	2'-0"x2'-0"	
J	5'-4"	7'-6"	1'-6"	573'-6"	2'-0"x2'-0"	

FOOTING SCHEDULE CONTINUED

MARK	LENGTH N/S	WIDTH E/W	HEIGHT	B/FTG EL	COL PIER	REMARKS
K	N/A	N/A	N/A	N/A	1'-0"x1'-6½"	PIER HEIGHT = 3'-6"
L	N/A	N/A	N/A	N/A	2'-3"x1'-0"	PIER HEIGHT = 3'-6"
M	N/A	N/A	N/A	N/A	1'-0"x1'-0"	PIER HEIGHT = 3'-6"
M1	N/A	N/A	N/A	N/A	1'-0"x1'-0"	PIER HEIGHT = 3'-0"
N	N/A	N/A	N/A	N/A	1'-0"x 8"	PIER HEIGHT VARIES
P	38'-0"	3'-0"	1'-0"	584'-0"	N/A	STRIP FOOTING
R	SEE PLAN		1'-6"	573'-6"	SEE PLAN	

SCALE: 1/8 INCH= FOOT

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION REFERENCE DRAWINGS LISTED BELOW AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.

4831

REF DWG NO.	DRAWING TITLE
01A-1450-S-00006	CONCRETE CONVEYOR TRENCHES SAMPLING PLANT TO SILOS
01B-1450-S-00002	SAMPLING PLANT EQUIPMENT, FOUNDATIONS, AND SECTIONS
01X-1450-S-00055	CONCRETE PLAN OF FIRST FLOOR SAMPLING PLANT
01X-1450-S-00057	PLAN AND DETAILS OF FIRST FLOOR SLAB SAMPLING PLANT
01X-1450-S-00060	CONCRETE CONVEYOR PITS IN FIRST FLOOR SAMPLING PLANT
01X-1450-S-00061	PLAN, SECTIONS, ANCHOR BOLT LOCATIONS DRUMMING STATION @ MGX AND Q-11 SAMPLING PLANT
01X-3115-S-00392	SAMPLING PLANT
01B-3115-S-00398	THAWING AREA SAMPLING PLANT
01X-5500-A-01245	PREPARATION PLANT FLOOR PLAN

000291

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	RCM BY
1	REVISED SUMP, PIT AND TRENCH INFORMATION	N/A	SDS 25JAN02	
0	ISSUED FOR TECHNICAL REFERENCE ONLY	N/A	SDS 06DEC01	

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY LOCKWOOD GREENE TECHNOLOGIES

PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 27 - TECHNICAL REFERENCE DRAWING

DRAWING TITLE
STRUCTURE NORTH 2H AND 1A
FOUNDATION AND SLAB PLAN

CONFIGURATION MANAGEMENT DRAWING

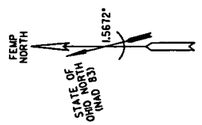
STATUS: STRUCTURES OR COMPONENTS SHOWN ON THIS DRAWING ARE UNDER CONFIGURATION MANAGEMENT CONTROL. SEE NOTES.

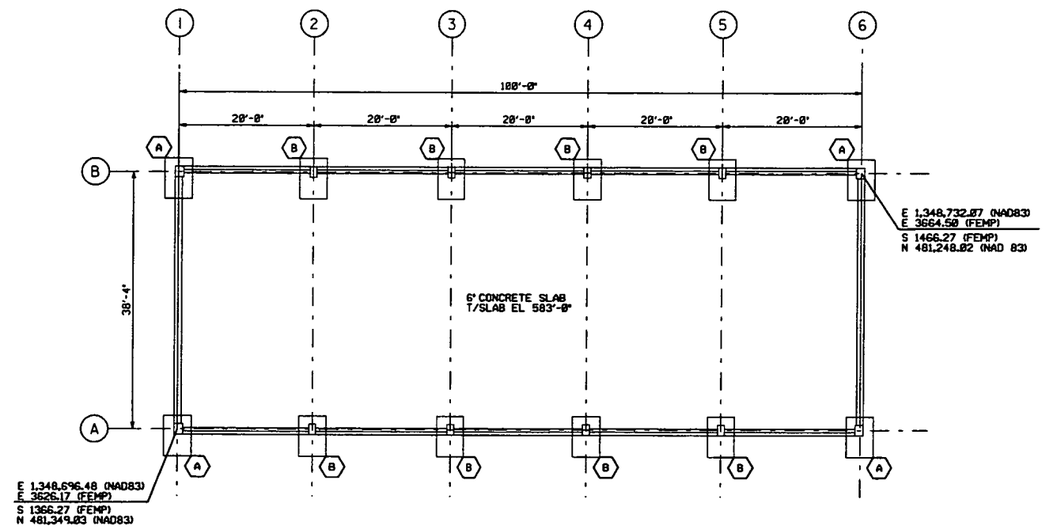
0
COGNIZANT ENGINEER DATE

TASK ORDER NO.	OPTIONAL NO.	SCALE ¼"=1'-0"
L-010	N/A	DRAWN BY G. THURMAN — DATE 14OCT01
RES NO. N/A	FOR PROJECT NO. 20810	TECHNICAL LEAD J. ALCORN — DATE 28OCT01
		CHECKED BY J. ALCORN — DATE 19NOV01
DRAWING INDEX CODE NO. 01X-1900-S-01389	SHEET NO. S-001	REV. NO. 1

FOOTING SCHEDULE

MARK	LENGTH N/S	WIDTH E/W	HEIGHT	B/FTG EL	COL PIER	REMARKS
A	4'-0"	6'-0"	1'-6"	577'-0"	1'-7"x1'-3"	SEE GENERAL NOTE 2
B	4'-0"	6'-0"	1'-6"	577'-0"	1'-7"x1'-0"	SEE GENERAL NOTE 2





FOUNDATION AND SLAB PLAN
SCALE: 1/8"=1'-0"

SCALE: 1/8 INCH= 1 FOOT

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION REFERENCE DRAWINGS LISTED BELOW AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.
2. STRUCTURE 66 (BUTLER BLDG.) LACKED INFORMATION FOR BLDG. FOOTERS, COLUMN PIERS, & FOUNDATION WALLS. THEREFORE, STRUCTURE 56A (BUTLER BLDG.) TYPE II FOOTING AND COL. PIERS AND GB-2 FDN WALLS WERE USED INSTEAD PER 56A DRAWINGS 56X-7000-A-00001 AND 56X-7000-A-00002 AND MAY NOT REPRESENT ACTUAL CONDITIONS.

4831

REF DWG NO.	DRAWING TITLE
66X-5500-A-00002	DRUM RECONDITIONING BLDG. FLOOR PLAN

000292

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	REVW BY
0	ISSUED FOR TECHNICAL REFERENCE ONLY	N/A	SDS 10OCT01	

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY LOCKWOOD GREENE TECHNOLOGIES

PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 27 - TECHNICAL REFERENCE DRAWING

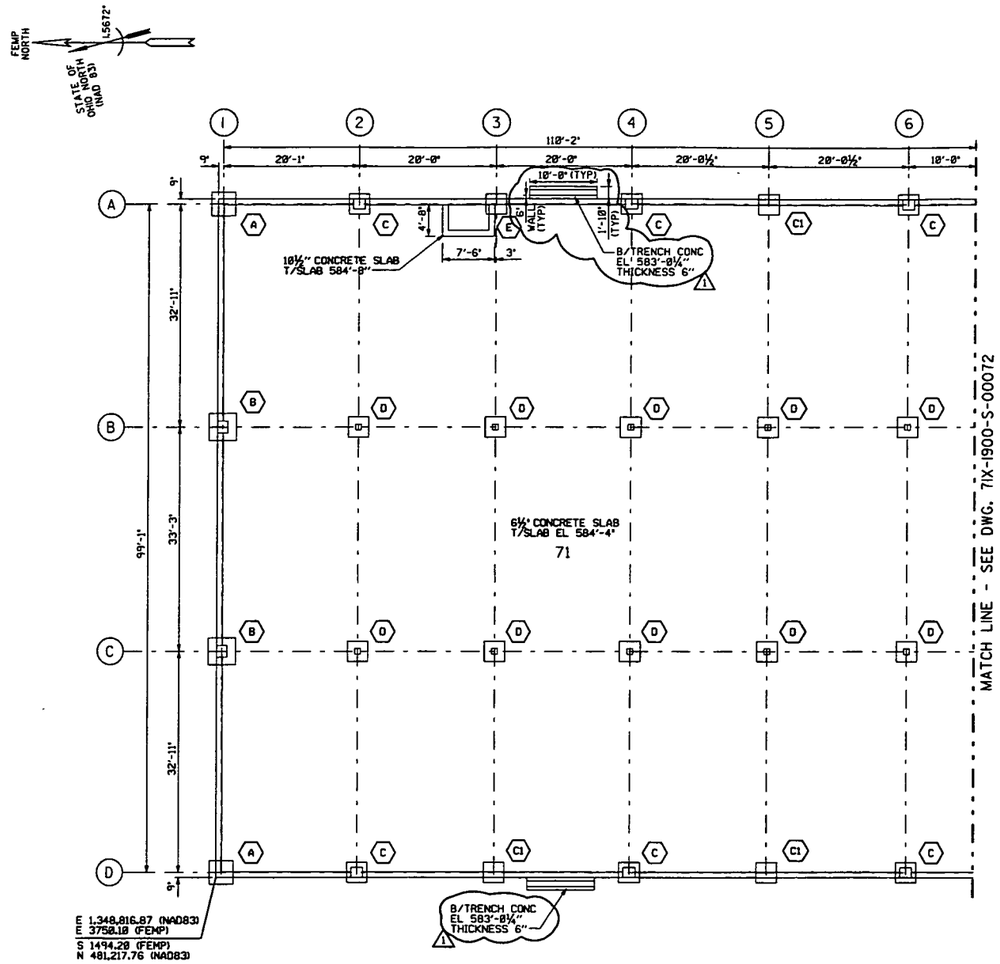
DRAWING TITLE
STRUCTURE 66
FOUNDATION AND SLAB PLAN

CONFIGURATION MANAGEMENT DRAWING

TASK ORDER NO.	OPTIONAL NO.	SCALE 1/8"=1'-0"
L-010	N/A	DRAWN BY A. BETANZOS — DATE 14NOV01
RES NO. N/A	FOF PROJECT NO. 20810	TECHNICAL LEAD J. ALCORN — DATE 28NOV01
		CHECKED BY — DATE

CONSULTANT ENGINEER — DATE

DRAWING INDEX CODE NO. 66X-1900-S-00005 — SHEET NO. S-001 — REV. NO. 0



FOUNDATION AND SLAB PLAN

SCALE: 1/8"=1'-0"

FOOTING SCHEDULE

MARK	LENGTH N/S	WIDTH E/W	HEIGHT	B/FTG EL	COL PIER	REMARKS
A	3'-6"	3'-6"	1'-8"	581'-8"	N/A	
B	4'-8"	4'-8"	1'-8"	581'-8"	1'-6"x1'-9"	
C	3'-8"	3'-8"	1'-8"	581'-8"	1'-9"x1'-6"	
C1	3'-8"	3'-8"	1'-8"	581'-8"	N/A	
D	3'-8"	3'-8"	1'-8"	582'-6"	18"x18"	
E	3'-8"	3'-8"	2'-8"	580'-8"	N/A	

SCALE: 1/8 INCH = FOOT

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION REFERENCE DRAWINGS LISTED BELOW AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.

4831

REF DWG NO.	DRAWING TITLE
71X-5500-A-00044	GEN. IN-PROCESS STORAGE WHSE. FLOOR PLAN
71X-5500-A-00004	GENERAL IN-PROCESS STORAGE WAREHOUSE ARCHITECTURAL ELEVATIONS AND SECTIONS
71X-5500-S-00005	GENERAL IN-PROCESS STORAGE WAREHOUSE CONCRETE FOUNDATION PLAN
71X-5500-S-00007	GENERAL IN-PROCESS STORAGE WAREHOUSE CONCRETE FOOTING DETAILS
75B-5500-C-00014	GRID 27 EXISTING SITE PLAN

000293

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	ROR BY
1	REVISED TRENCH INFORMATION	N/A	SDS 25JAN02	
0	ISSUED FOR TECHNICAL REFERENCE ONLY	N/A	SDS 18DEC01	

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY LOCKWOOD GREENE TECHNOLOGIES

PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 27 - TECHNICAL REFERENCE DRAWING

DRAWING TITLE
STRUCTURE 71 NORTH PORTION
FOUNDATION AND SLAB PLAN

CONFIGURATION MANAGEMENT DRAWING

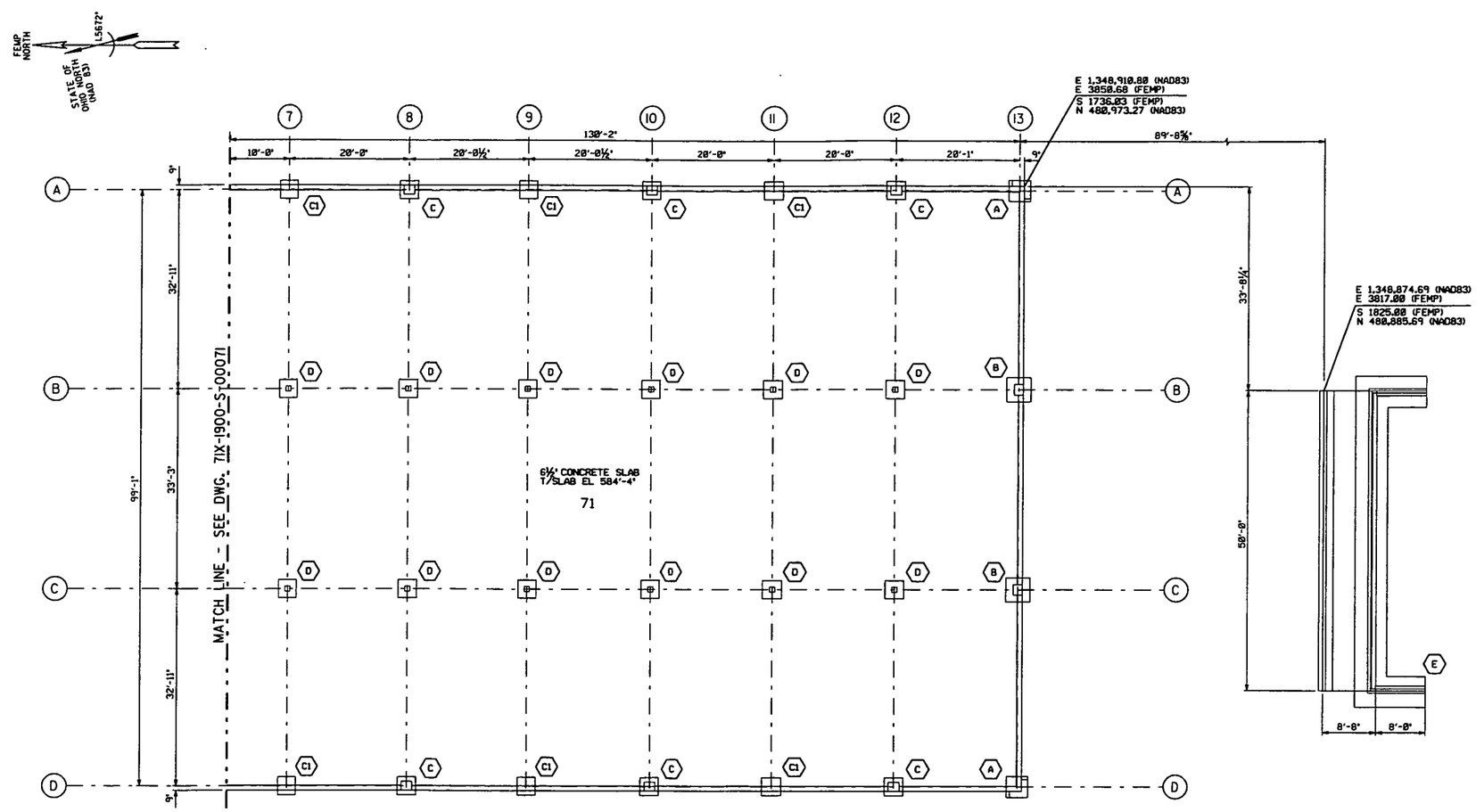
STATUS: STRUCTURES OR COMPONENTS SHOWN ALTHOUGH DESIGN, ARE UNDER CONFIGURATION MANAGEMENT CONTROL. SEE NOTES.

COGNIZANT ENGINEER DATE

TASK ORDER NO.	OPTIONAL NO.	SCALE
L-010	N/A	1/8"=1'-0"

RES NO.	FOF PROJECT NO.	DRAWN BY	DATE
N/A	20810	C. COX	15NOV01
		TECHNICAL LEAD J. ALCORN	28NOV01
		CHECKED BY J. ALCORN	15NOV01

DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
71X-1900-S-00071	S-001	1



FOUNDATION AND SLAB PLAN
SCALE: 1/8"=1'-0"

FOOTING SCHEDULE

MARK	LENGTH N/S	WIDTH E/W	HEIGHT	B/FTG EL	COL PIER	REMARKS
A	3'-6"	3'-6"	1'-0"	581'-8"	N/A	
B	4'-0"	4'-0"	1'-0"	581'-8"	1'-6"x1'-9"	
C	3'-0"	3'-0"	1'-0"	581'-8"	1'-9"x1'-6"	
C1	3'-0"	3'-0"	1'-0"	581'-8"	N/A	
D	3'-0"	3'-0"	1'-0"	582'-6"	18"x18"	
E	70'-0"	5'-2"	1'-0"	577'-0"	N/A	STRIP FOOTING

SCALE: 1/8 INCH= FOOT

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION REFERENCE DRAWINGS LISTED BELOW AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.

4831

REF DWG NO.	DRAWING TITLE
71X-5500-A-00044	GEN. IN-PROCESS STORAGE WHSE. FLOOR PLAN
71X-5500-A-00004	GENERAL IN-PROCESS STORAGE WAREHOUSE ARCHITECTURAL ELEVATIONS AND SECTIONS
71X-5500-S-00005	GENERAL IN-PROCESS STORAGE WAREHOUSE CONCRETE FOUNDATION PLAN
71X-5500-S-00007	GENERAL IN-PROCESS STORAGE WAREHOUSE CONCRETE FOOTING DETAILS
75B-5500-G-00014	GRID 27 EXISTING SITE PLAN

000294

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	REVW BY
0	ISSUED FOR TECHNICAL REFERENCE ONLY	N/A	SDS 10DEC01	

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY LOCKWOOD GREENE TECHNOLOGIES

PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 27 - TECHNICAL REFERENCE DRAWING

DRAWING TITLE
STRUCTURE 71 SOUTH PORTION
FOUNDATION AND SLAB PLAN

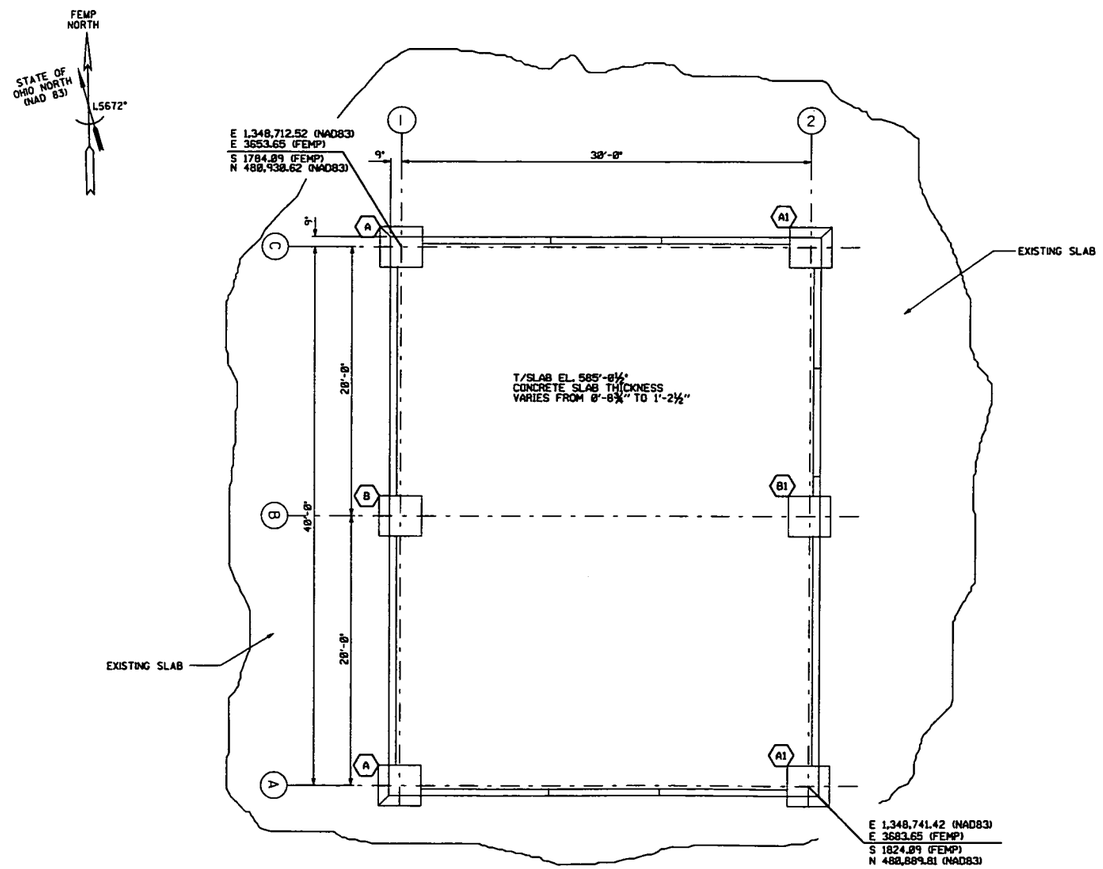
CONFIGURATION MANAGEMENT DRAWING

TASK ORDER NO.	OPTIONAL NO.	SCALE	
L-010	N/A	1/8"=1'-0"	
		DRAWN BY C. COX	DATE 15NOV01
RES NO. N/A	FOP PROJECT NO. 20810	TECHNICAL LEAD J. ALCORN	DATE 28NOV01
		CHECKED BY	DATE
DRAWING INDEX CODE NO. 71X-1900-S-00072		SHEET NO. S-002	REV. NO. 0

COGNIZANT ENGINEER DATE

FOOTING SCHEDULE

MARK	LENGTH N/S	WIDTH E/W	HEIGHT	B/FTG EL	COL PIER	REMARKS
A	3'-0"	3'-0"	1'-6"	584'-4½"	N/A	
A1	3'-0"	3'-0"	1'-0¼"	584'-10¼"	N/A	
B	3'-0"	3'-0"	1'-6"	584'-4½"	N/A	
B1	3'-0"	3'-0"	1'-0¼"	584'-10¼"	N/A	



FOUNDATION AND SLAB PLAN
SCALE: ¼"=1'-0"

0' 2' 4' 6' 12'
SCALE: 1/4 INCH= FOOT

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION REFEREMCE DRAWINGS LISTED BELOW AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.

1831

REF DWG NO.	DRAWING TITLE
72X-5500-S-00002	CONCRETE FOUNDATION FOR DRUM STORAGE BLDG SAMPLING PLANT AREA
72X-5500-A-00015	DRUM STORAGE FLOOR PLAN
758-5500-C-00014	GRID 27 EXISTING SITE PLAN

000295

FOR INFORMATION ONLY

REVISION NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	NCHS BY
0	ISSUED FOR TECHNICAL REFERENCE ONLY	N/A	SDS 10/06/01	

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY LOCKWOOD GREENE TECHNOLOGIES

PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 27 - TECHNICAL REFERENCE DRAWING

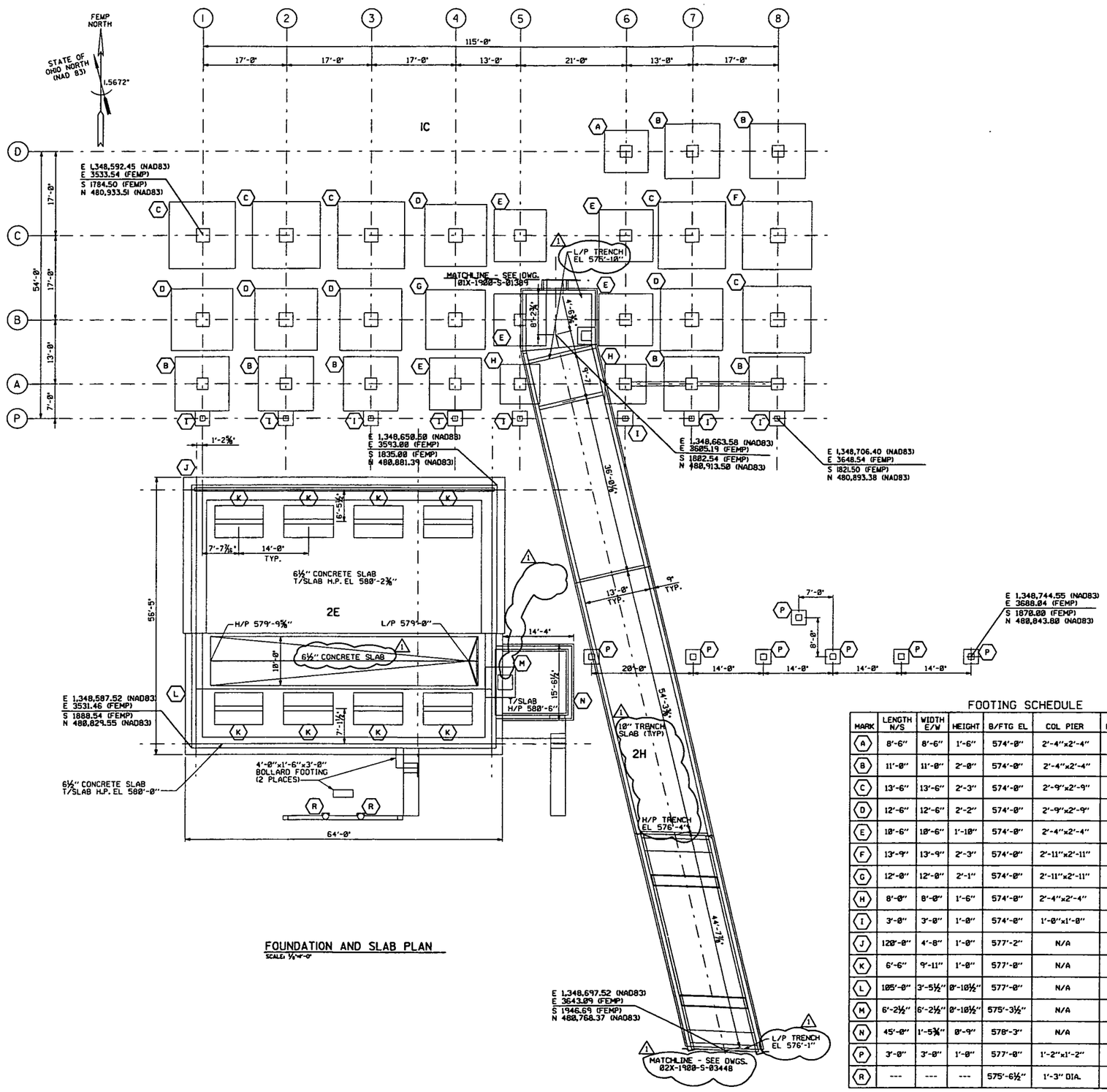
DRAWING TITLE
STRUCTURE 72
FOUNDATION AND SLAB PLAN

CONFIGURATION MANAGEMENT DRAWING

EXISTING STRUCTURES OR COMPONENTS MAY NOT REPRESENT CONFIGURATION MANAGEMENT CONTROL. SEE NOTES.

COGNIZANT ENGINEER DATE

TASK ORDER NO.	OPTIONAL NO.	SCALE ¼"=1'-0"	
L-010	N/A	DRAWN BY G. THURMAN	DATE 1/10/2001
AES NO. N/A	FOR PROJECT NO. 20810	TECHNICAL LEAD J. ALCORN	DATE 2/8/2001
		CHECKED BY	DATE
DRAWING INDEX CODE NO. 72X-1900-S-00018		SHEET NO. S-001	REV. NO. 0



FOUNDATION AND SLAB PLAN
SCALE: ⅛"=1'-0"

FOOTING SCHEDULE

MARK	LENGTH N/S	WIDTH E/W	HEIGHT	B/FTG EL	COL PIER	REMARKS
A	8'-6"	8'-6"	1'-6"	574'-0"	2'-4"x2'-4"	
B	11'-0"	11'-0"	2'-0"	574'-0"	2'-4"x2'-4"	
C	13'-6"	13'-6"	2'-3"	574'-0"	2'-9"x2'-9"	
D	12'-6"	12'-6"	2'-2"	574'-0"	2'-9"x2'-9"	
E	10'-6"	10'-6"	1'-10"	574'-0"	2'-4"x2'-4"	
F	13'-9"	13'-9"	2'-3"	574'-0"	2'-11"x2'-11"	
G	12'-0"	12'-0"	2'-1"	574'-0"	2'-11"x2'-11"	
H	8'-0"	8'-0"	1'-6"	574'-0"	2'-4"x2'-4"	
I	3'-0"	3'-0"	1'-0"	574'-0"	1'-0"x1'-0"	
J	120'-0"	4'-8"	1'-0"	577'-2"	N/A	STRIP FOOTING
K	6'-6"	9'-11"	1'-0"	577'-0"	N/A	STRIP FOOTING
L	105'-0"	3'-5½"	0'-10½"	577'-0"	N/A	STRIP FOOTING
M	6'-2½"	6'-2½"	0'-10½"	575'-3½"	N/A	SUMP FOOTING
N	45'-0"	1'-5¾"	0'-9"	578'-3"	N/A	STRIP FOOTING
P	3'-0"	3'-0"	1'-0"	577'-0"	1'-2"x1'-2"	
R	---	---	---	575'-6½"	1'-3" DIA.	

0' 4' 8' 16' 24'
SCALE: 1/8 INCH=1 FOOT

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION REFERENCE DRAWINGS LISTED BELOW AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.
2. SLAB NOT MODELED FOR 1C DUE TO LACK OF INFORMATION.

4831

REF DWG NO.	DRAWING TITLE
01C-1450-S-00003	SILO FOUNDATION PLAN
01C-1450-S-00004	CONCRETE PLAN OF CONVEYOR TRENCH BET. SILOS AND ORE REFINING BUILDING C1-1
01C-3115-S-00396	REINF. DET'S - SAMPLING PLANT
02A-5500-S-02333	NFS STORAGE TANKS FOR THE REFINERY CONCRETE PAD PLAN
02A-5500-S-02334	NFS STORAGE TANKS FOR THE REFINERY CONCRETE PAD EXIST. GRADE CONTOUR & SECTION
02A-5500-S-02335	NFS STORAGE TANKS FOR THE REFINERY CONCRETE PAD TANK SUPPORT & RETAINING WALLS
02A-5500-S-02336	NFS STORAGE TANKS FOR THE REFINERY CONCRETE PAD SECTIONS
02A-5500-S-02337	NFS STORAGE TANKS FOR THE REFINERY MISC. CONCRETE WORK SECTIONS & DETAILS
02A-5500-S-02338	NFS STORAGE TANKS FOR THE REFINERY PUMPHOUSE FOUNDATION PLANS & SECTIONS
02X-1900-S-03448	STRUCTURE 2H AND PIT FOUNDATION AND SLAB PLAN

000296

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	REVD BY
1	REVISED SUMP AND TRENCH INFORMATION	N/A	SDS 25JAN02	
0	ISSUED FOR TECHNICAL REFERENCE ONLY	N/A	SDS 18DEC01	

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY LOCKWOOD GREENE TECHNOLOGIES

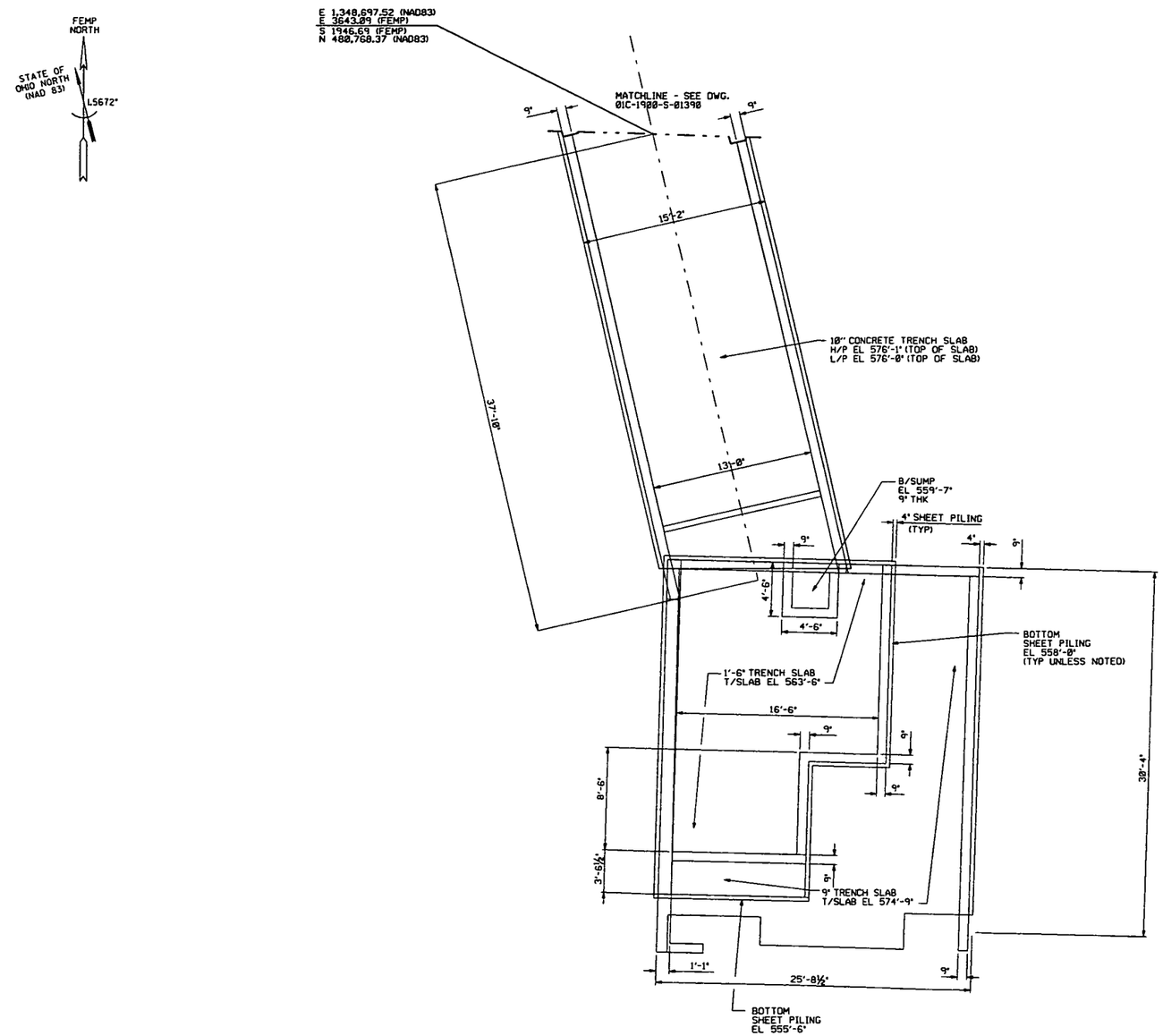
PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 27 - TECHNICAL REFERENCE DRAWING

DRAWING TITLE
STRUCTURE SOUTH 2H, 2E AND 1C
FOUNDATION AND SLAB PLAN

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

COGNIZANT ENGINEER DATE

TASK ORDER NO.	OPTIONAL NO.	SCALE	
L-010	N/A	⅛"=1'-0"	
		DRAWN BY K. DAVIS	DATE 12NOV01
RES NO. N/A	FOR PROJECT NO. 20810	TECHNICAL LEAD J. ALCORN	DATE 12NOV01
		CHECKED BY J. ALCORN	DATE 13NOV01
DRAWING INDEX CODE NO. 01C-1900-S-01390		SHEET NO. S-001	REV. NO. 1



FOUNDATION AND SLAB PLAN

SCALE: ¼" = 1'-0"

0' 2' 4' 8' 12'

SCALE: 1/4 INCH= FOOT

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION REFERENCE DRAWINGS LISTED BELOW AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.

4831

REF DWG NO.	DRAWING TITLE
01C-1450-S-00004	CONCRETE PLAN OF CONVEYOR TRENCH BET. SILOS AND ORE REFINING BUILDING
01C-3115-S-00402	SHEET PILING DETAILS FOR CONVEYOR PIT AT ORE REFINERY
01C-3115-S-00405	CONVEYOR TRENCH PIT AT ORE REFINERY BLDG 3001-C1-1 (NW CORNER)

000297

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	REVD BY
		INITIALS AND DATE		
0	ISSUED FOR TECHNICAL REFERENCE ONLY	N/A	SDS 25JAN02	

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

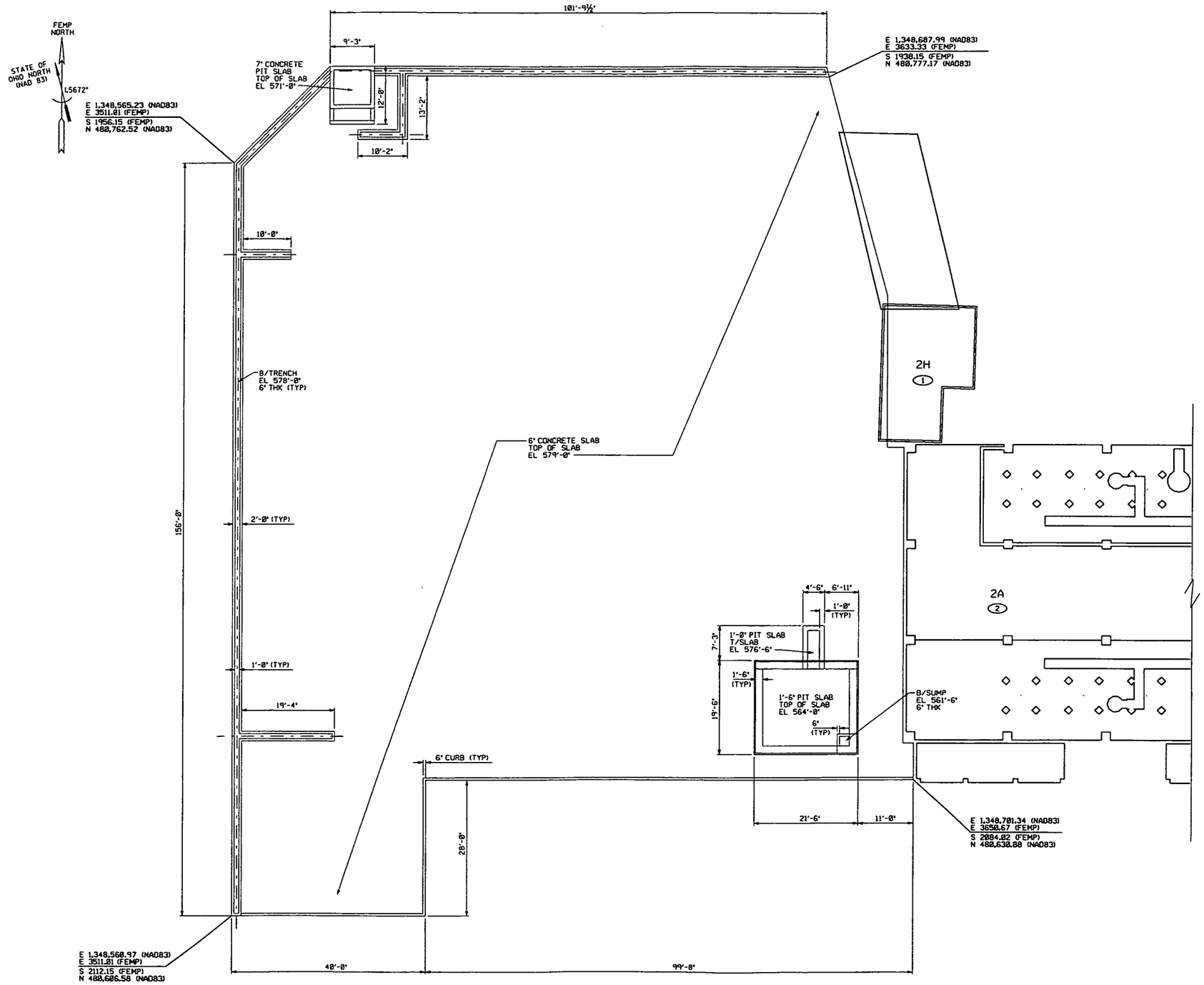
THIS DRAWING PREPARED BY LOCKWOOD GREENE TECHNOLOGIES

PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 19 - TECHNICAL REFERENCE DRAWING

DRAWING TITLE
STRUCTURE 2H AND PIT
FOUNDATION AND SLAB PLAN

CONFIGURATION MANAGEMENT DRAWING
EXISTING ATTACHED UPDATE CONTROLS CONFIGURATION MANAGEMENT CONTROL. SEE NOTES.
COGNIZANT ENGINEER DATE

TASK ORDER NO.	OPTIONAL NO.	SCALE	
L-010	N/A	¼" = 1'-0"	
RES NO.	FOF PROJECT NO.	DRAWN BY G. THURMAN	DATE 19DEC01
N/A	20810	TECHNICAL LEAD J. ALCORN	DATE 25DEC01
		CHECKED BY J. ALCORN	DATE 04JAN02
DRAWING INDEX CODE NO. 02X-1900-S-03448		SHEET NO. S-001	REV. NO. 0



FOUNDATION AND SLAB PLAN
SCALE: ⅛" = 1'-0"

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION REFERENCE DRAWINGS LISTED BELOW AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.

4831

KEYED NOTES

ADDITIONAL DETAIL FOR EACH OF THE COMPONENT STRUCTURES IS LOCATED ON THE FOLLOWING DRAWINGS AND SKETCHES.

1. SEE DWG 02X-1900-S-03448 FOR FOUNDATION AND SLAB PLAN. SEE DWG SK2H-1 FOR ISOMETRIC VIEW.
2. SEE DWG 02X-1900-S-03451 FOR FOUNDATION PLAN AND DWG 02X-1900-S-03452 FOR SLAB PLAN. SEE DWG SK2A-1 FOR ISOMETRIC VIEW.

REF DWG NO.	DRAWING TITLE
02A-5500-S-01689	SEETTLING PIT & PAD DRAINAGE TRENCHES PLOT PLAN & CONCRETE SECTIONS
02A-5500-S-01690	SEETTLING PIT & PAD DRAINAGE TRENCHES PIT PLAN, SECTIONS & DETAILS
02A-5500-S-01691	SEETTLING PIT & PAD DRAINAGE TRENCHES EQUIPMENT LOCATION & TRENCH PROFILES
02A-5500-S-01505	BUCKET ELEVATOR PIT PLAN, SECTIONS & DETAILS WEST PAD AREA

000298

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PW	REVD BY
0	ISSUED FOR TECHNICAL REFERENCE ONLY	N/A	SDS 25JAN02	

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY LOCKWOOD GREENE TECHNOLOGIES

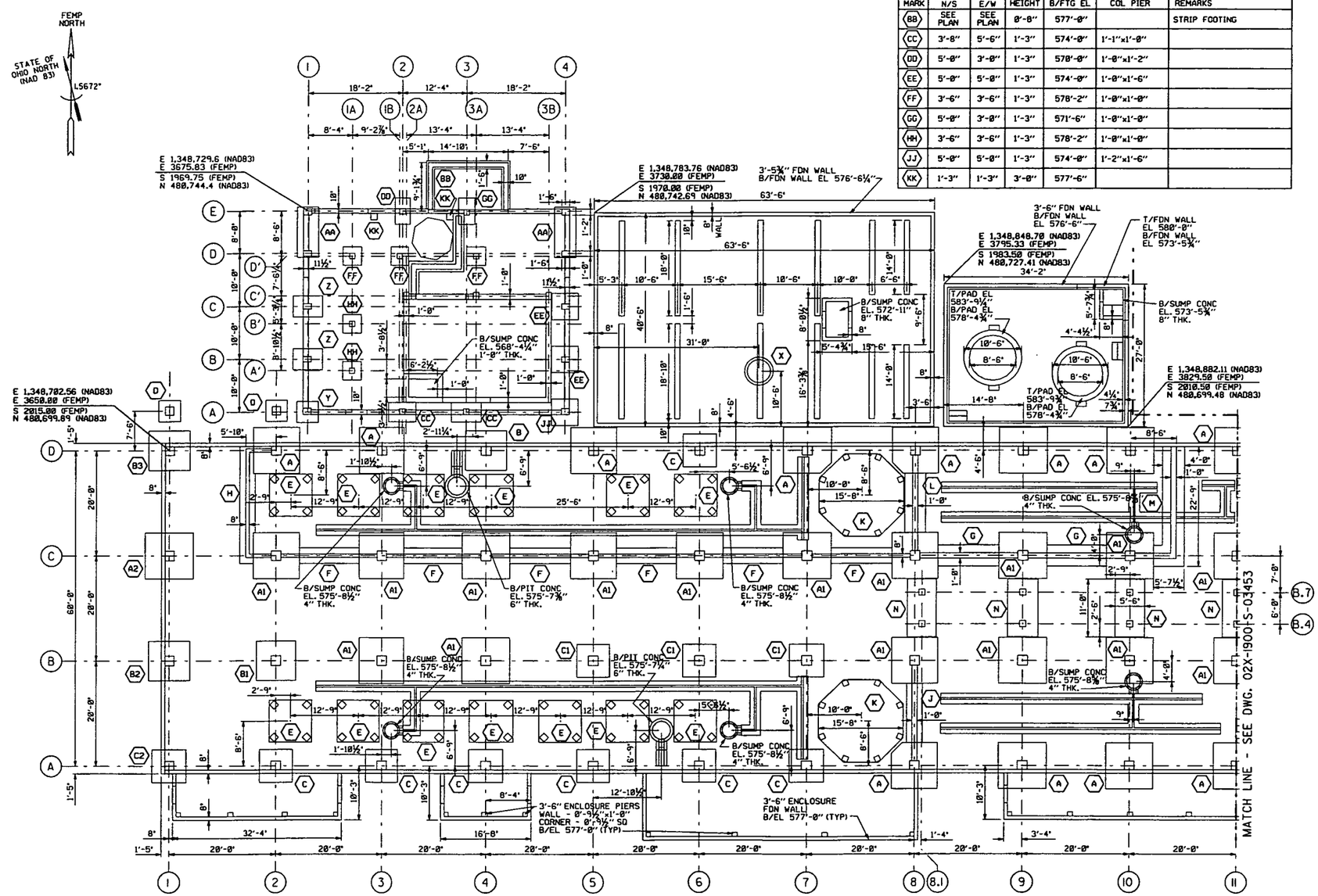
PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 19 - TECHNICAL REFERENCE DRAWING

DRAWING TITLE
STRUCTURE 74B AND ELEVATOR PIT
FOUNDATION AND SLAB PLAN

CONFIGURATION MANAGEMENT DRAWING — VOID / DATE
EXISTING ATTACHMENT AS COMPRISED HERETO IS NOT SUBJECT TO THE CASE CONFIGURATION MANAGEMENT CONTROL. SEE NOTES.

COGNIZANT ENGINEER — DATE

TASK ORDER NO.	OPTIONAL NO.	SCALE	
L-010	N/A	⅛" = 1'-0"	
RES NO.	FOF PROJECT NO.	DRAWN BY: G. THURMAN	DATE: 17DEC01
N/A	20810	TECHNICAL LEAD: J. ALCORN	DATE: 26DEC01
		CHECKED BY: J. ALCORN	DATE: 04JAN02
DRAWING INDEX CODE NO.		SHEET NO.	REV. NO.
02X-1900-S-03450		S-001	0



FOOTING SCHEDULE (CONTINUED)

MARK	LENGTH N/S	WIDTH E/W	HEIGHT	B/FTG EL	COL PIER	REMARKS
BB	SEE PLAN	SEE PLAN	0'-8"	577'-0"		STRIP FOOTING
CC	3'-8"	5'-6"	1'-3"	574'-0"	1'-1"x1'-0"	
DD	5'-0"	3'-0"	1'-3"	578'-0"	1'-0"x1'-2"	
EE	5'-0"	5'-0"	1'-3"	574'-0"	1'-0"x1'-6"	
FF	3'-6"	3'-6"	1'-3"	578'-2"	1'-0"x1'-0"	
GG	5'-0"	3'-0"	1'-3"	571'-6"	1'-0"x1'-0"	
HH	3'-6"	3'-6"	1'-3"	578'-2"	1'-0"x1'-0"	
JJ	5'-0"	5'-0"	1'-3"	574'-0"	1'-2"x1'-6"	
KK	1'-3"	1'-3"	3'-0"	577'-6"		

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION REFERENCE DRAWINGS LISTED BELOW AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.

4831

REF DWG NO.	DRAWING TITLE
02A-5500-S-01580	PLANT 2 DIGESTION AREA SLURRY FEED TANKS FOUNDATION PLAN & DETAILS
02A-5500-S-02747	PLANT 2 DIGESTION AREA HAZ. MAT. SPILL PROTECT. NITRIC ACID STOR. RETENT. DIKE & SUMP PUMP PLAN
02A-7000-S-00586	ORE REFINERY DIGESTION AREA SLOP LIQUOR & A.F. FEED STORAGE CONC. PLAN & SECTS. SHT.1
02A-7000-S-00587	ORE REFINERY DIGESTION AREA SLOP LIQUOR & A.F. FEED STORAGE CONC. SECTIONS & DETLS.
02A-7000-S-00599	ORE REFINERY DIGESTION AREA SLOP LIQUOR & A.F. FEED STORAGE CONC. PLAN & SECTS. SHT.2
02B-5500-S-01558	PLANT 2 EXTRACTION AREA FOUNDATION PLAN STRUCTURAL STEEL COL. SCHEDULE SECT. & DETAILS
02C-7000-S-00867	DENITRATION AREA DENITRATION BLDG. EXPANSION FOUNDATION PLAN & DETAILS
02C-7000-S-00876	DENITRATION AREA DENITRATION BLDG. EXPANSION FIRST FLOOR PLAN & DETAILS
02C-7000-S-00904	ORE REFINERY, DENITRATION AREA NEW REACTOR POT FOUNDATIONS CONCRETE PLAN & DETAILS
02C-7000-S-00910	DENITRATION AREA DENITRATION BLDG. EXPANSION DEMOLITION & ERECTION PROCEDURE
02X-1450-S-00006	EQUIPMENT FOUNDATIONS SECT.-A
02X-1450-S-00007	ORE REFINERY BUILDING C1-1 CONCRETE 1ST FLOOR PLAN SECTION 'B'
02X-1450-S-00008	ORE REFINERY BLDG. C1-1 EQUIPMENT FOUNDATIONS SECT.-C
02X-1450-S-00009	ORE REFINERY BUILDING - A CONCRETE FLOOR SLAB & EQUIPMENT FOUNDATIONS
02X-1450-S-00010	ORE REFINERY - SECTION - 'A'-BUILDING C1-1 CONCRETE FLOOR SLAB & EQUIPMENT FOUNDATIONS
02X-1450-S-00015	ORE REFINERY BUILDING C1-1 SECTION C CONCRETE FOUNDATION PLAN SECT.-A
02X-1450-S-00016	ORE REFINERY BUILDING-C1-1 CONCRETE FOUNDATION PLAN SECTION-B
02X-1450-S-00017	ORE REFINERY BLDG. C1-1 CONCRETE FOUNDATION PLAN SECTION-C
02X-1450-S-00018	ORE REFINERY BLDG. C1-1 FOUNDATION PLAN & SECTIONS
02X-5500-S-01564	ELECTRICAL ENCLOSURES ORE REFINERY SLOP LIQUOR CONCENTRATION AREA CONCRETE FOUNDATIONS PLAN AND ELEVATIONS
02X-5500-S-01565	SLOP LIQUOR CONCENTRATION AREA CONCRETE FOUNDATIONS ALT. SCHEME FOR DRAINAGE TRENCH
02X-5500-S-01566	SLOP LIQUOR CONCENTRATION AREA CONCRETE FOUNDATIONS SECTIONS AND DETAILS
03A-5500-M-00396	SLOP LIQUOR CONCENTRATION AND SOLVENT STORAGE AREA PLOT PLAN AND EQUIPMENT LAYOUT
02D-7000-A-00704	DIGESTION AREA METAL DISSOLVER BLDG. FOUNDATION PLAN
02D-7000-A-00705	DIGESTION AREA METAL DISSOLVER BLDG. FOUNDATION - SECTS. & DETAILS SHT-1
02D-7000-A-00711	DIGESTION AREA METAL DISSOLVER BUILDING FOUNDATION - SECTS. & DETAILS - SHT-2
02D-5500-A-02848	METAL DISSOLVER IMPROVEMENTS FOUNDATION & DECK MISC. DETAILS
02D-5500-A-02855	METAL DISSOLVER IMPROVEMENTS TANK FOUNDATION & DECK
02D-5500-A-02959	METAL DISSOLVER FLOOR PLAN

000299

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	REVW BY INITIALS AND DATE
0	ISSUED FOR TECHNICAL REFERENCE ONLY	N/A	SDS 25JAN02	

FOOTING SCHEDULE

MARK	LENGTH N/S	WIDTH E/W	HEIGHT	B/FTG EL	COL PIER	REMARKS
A	8'-9"	8'-9"	1'-6"	574'-0"	1'-8"x1'-10"	
A1	8'-9"	8'-9"	1'-6"	574'-0"	1'-10"x1'-10"	
A2	8'-9"	8'-9"	1'-6"	574'-0"	1'-10"x1'-8"	
B	7'-6"	7'-6"	1'-4"	574'-0"	1'-8"x1'-10"	
B1	7'-6"	7'-6"	1'-4"	574'-0"	1'-10"x1'-10"	
B2	7'-6"	7'-6"	1'-4"	574'-0"	1'-10"x1'-8"	
B3	7'-6"	7'-6"	1'-4"	574'-0"	1'-8"x1'-8"	
C	6'-3"	6'-3"	1'-4"	574'-0"	1'-8"x1'-10"	

FOOTING SCHEDULE (CONTINUED)

MARK	LENGTH N/S	WIDTH E/W	HEIGHT	B/FTG EL	COL PIER	REMARKS
C1	6'-3"	6'-3"	1'-4"	574'-0"	1'-10"x1'-10"	
C2	6'-3"	6'-3"	1'-4"	574'-0"	1'-8"x1'-8"	
D	4'-0"	4'-0"	1'-0"	574'-0"	1'-7"x1'-7"	
E	8'-0"	8'-0"	1'-6"	574'-0"	1'-2"x1'-2"	
F	3'-0"	11'-3"	1'-0"	574'-0"		STRIP FOOTING
G	4'-0"	11'-3"	1'-0"	574'-0"		STRIP FOOTING
H	22'-3"	3'-0"	1'-0"	574'-0"		STRIP FOOTING
J	11'-3"	3'-0"	1'-0"	574'-0"		STRIP FOOTING

FOOTING SCHEDULE (CONTINUED)

MARK	LENGTH N/S	WIDTH E/W	HEIGHT	B/FTG EL	COL PIER	REMARKS
K	SEE PLAN	SEE PLAN	2'-0"	574'-0"	1'-0"x1'-0"	SHORT DIMENSION
L	11'-3"	4'-0"	1'-0"	574'-0"		STRIP FOOTING
M	SEE PLAN	SEE PLAN	1'-0"	574'-0"		STRIP FOOTING
N	11'-0"	5'-6"	1'-2"	574'-0"	1'-2"x1'-2"	
X	N/A	N/A	0'-6"	574'-0"		5'-4" DIAMETER
Y	4'-0"	4'-0"	1'-3"	574'-0"	1'-2"x1'-6"	
Z	5'-6"	4'-0"	1'-3"	574'-0"	1'-0"x1'-6"	
AA	9'-6"	4'-0"	1'-6"	571'-6"	SEE PLAN	

FOUNDATION PLAN

SCALE: 1/8" = 1'-0"

SCALE: 1/8 INCH = FOOT

UNITED STATES
DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY LOCKWOOD GREENE TECHNOLOGIES

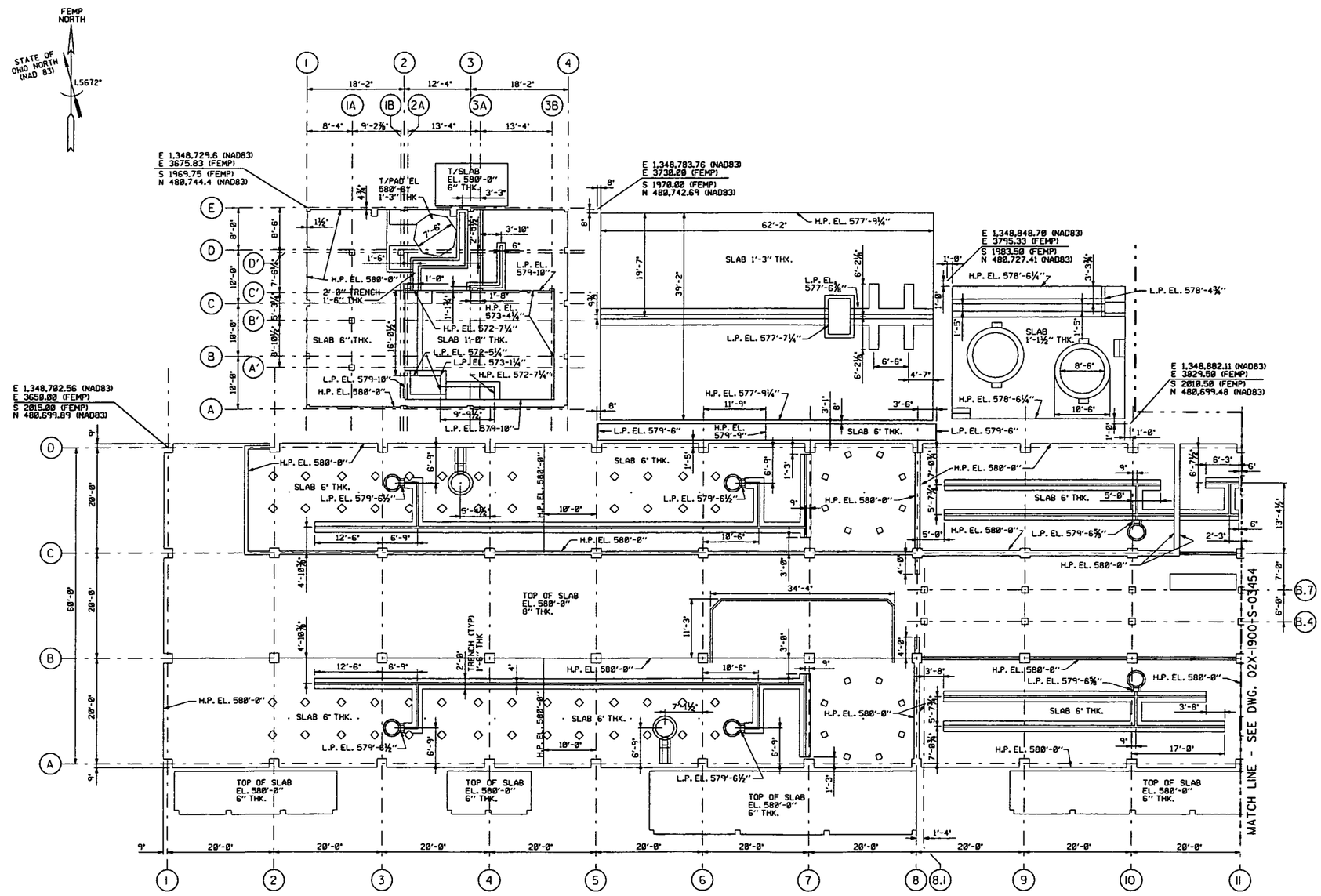
PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 19 - TECHNICAL REFERENCE DRAWING

DRAWING TITLE
STRUCTURE 2A WEST AND 2D
FOUNDATION PLAN

CONFIGURATION MANAGEMENT DRAWING
STATING STRUCTURES OR COMPONENTS SHOWN ON THIS DRAWING ARE UNDER CONFIGURATION MANAGEMENT CONTROL. NO NOTES.

COGNIZANT ENGINEER DATE

TASK ORDER NO.	OPTIONAL NO.	SCALE 1/8" = 1'-0"
L-010	N/A	DRAWN BY C. COX — DATE 18DEC01
RES NO. N/A	FDF PROJECT NO. 20810	TECHNICAL LEAD J. ALCORN — DATE 26DEC01
		CHECKED BY J. ALCORN — DATE 04JAN02
DRAWING INDEX CODE NO. 02X-1900-S-03451		SHEET NO. S-001 — REV. NO. 0



SLAB PLAN
SCALE: ⅛" = 1'-0"

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION REFERENCE DRAWINGS LISTED BELOW AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.

4831

REF DWG NO.	DRAWING TITLE
02A-5500-S-01580	PLANT 2 DIGESTION AREA SLURRY FEED TANKS FOUNDATION PLAN & DETAILS
02A-5500-S-02747	PLANT 2 DIGESTION AREA HAZ. MAT. SPILL PROTECT. NITRIC ACID STOR. RETENT. DIKE & SUMP PUMP PLAN
02A-7000-S-00586	ORE REFINERY DIGESTION AREA SLOP LIQUOR & A.F. FEED STORAGE CONC. PLAN & SECTS. SHT.1
02A-7000-S-00587	ORE REFINERY DIGESTION AREA SLOP LIQUOR & A.F. FEED STORAGE CONC. SECTIONS & DETLS.
02A-7000-S-00599	ORE REFINERY DIGESTION AREA SLOP LIQUOR & A.F. FEED STORAGE CONC. PLAN & SECTS. SHT.2
02B-5500-S-01556	PLANT 2 EXTRACTION AREA FOUNDATION PLAN STRUCTURAL STEEL COL. SCHEDULE SECT. & DETAILS
02C-7000-S-00867	DENITRATION AREA DENITRATION BLDG. EXPANSION FOUNDATION PLAN & DETAILS
02C-7000-S-00876	DENITRATION AREA DENITRATION BLDG. EXPANSION FIRST FLOOR PLAN & DETAILS
02C-7000-S-00904	ORE REFINERY, DENITRATION AREA NEW REACTOR POT FOUNDATIONS CONCRETE PLAN & DETAILS
02C-7000-S-00910	DENITRATION AREA DENITRATION BLDG. EXPANSION DEMOLITION & ERECTION PROCEDURE
02X-1450-S-00006	EQUIPMENT FOUNDATIONS SECT.-A ORE REFINERY BUILDING C1-1
02X-1450-S-00007	CONCRETE 1ST FLOOR PLAN SECTION 'B' ORE REFINERY BLDG. C1-1
02X-1450-S-00008	EQUIPMENT FOUNDATIONS SECT.-C ORE REFINERY BUILDING - A
02X-1450-S-00009	CONCRETE FLOOR SLAB & EQUIPMENT FOUNDATIONS ORE REFINERY - SECTION - 'A'-BUILDING C1-1
02X-1450-S-00010	CONCRETE FLOOR SLAB & EQUIPMENT FOUNDATIONS ORE REFINERY BUILDING C1-1 SECTION C
02X-1450-S-00015	CONCRETE FOUNDATION PLAN SECT.-A ORE REFINERY BUILDING-C1-1
02X-1450-S-00016	CONCRETE FOUNDATION PLAN SECTION-B ORE REFINERY BLDG. C1-1
02X-1450-S-00017	CONCRETE FOUNDATION PLAN SECTION-C ORE REFINERY BLDG. C1-1
02X-1450-S-00018	FOUNDATION PLAN & SECTIONS ELECTRICAL ENCLOSURES ORE REFINERY
02X-5500-S-01564	SLOP LIQUOR CONCENTRATION AREA CONCRETE FOUNDATIONS PLAN AND ELEVATIONS
02X-5500-S-01565	SLOP LIQUOR CONCENTRATION AREA CONCRETE FOUNDATIONS ALT. SCHEME FOR DRAINAGE TRENCH
02X-5500-S-01566	SLOP LIQUOR CONCENTRATION AREA CONCRETE FOUNDATIONS SECTIONS AND DETAILS
03A-5500-M-00396	SLOP LIQUOR CONCENTRATION AND SOLVENT STORAGE AREA PLOT PLAN AND EQUIPMENT LAYOUT
02D-7000-A-00704	DIGESTION AREA METAL DISSOLVER BLDG. FOUNDATION PLAN
02D-7000-A-00705	DIGESTION AREA METAL DISSOLVER BLDG. FOUNDATION - SECTS.& DETAILS SHT-1
02D-7000-A-00711	DIGESTION AREA METAL DISSOLVER BUILDING FOUNDATION - SECTS.& DETAILS - SHT-2
02D-5500-A-02848	METAL DISSOLVER IMPROVEMENTS FOUNDATION & DECK MISC. DETAILS
02D-5500-A-02855	METAL DISSOLVER IMPROVEMENTS TANK FOUNDATION & DECK
02D-5500-A-02959	METAL DISSOLVER FLOOR PLAN

000300

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	REVW BY
0	ISSUED FOR TECHNICAL REFERENCE ONLY	N/A	SDS 25JAN02	

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

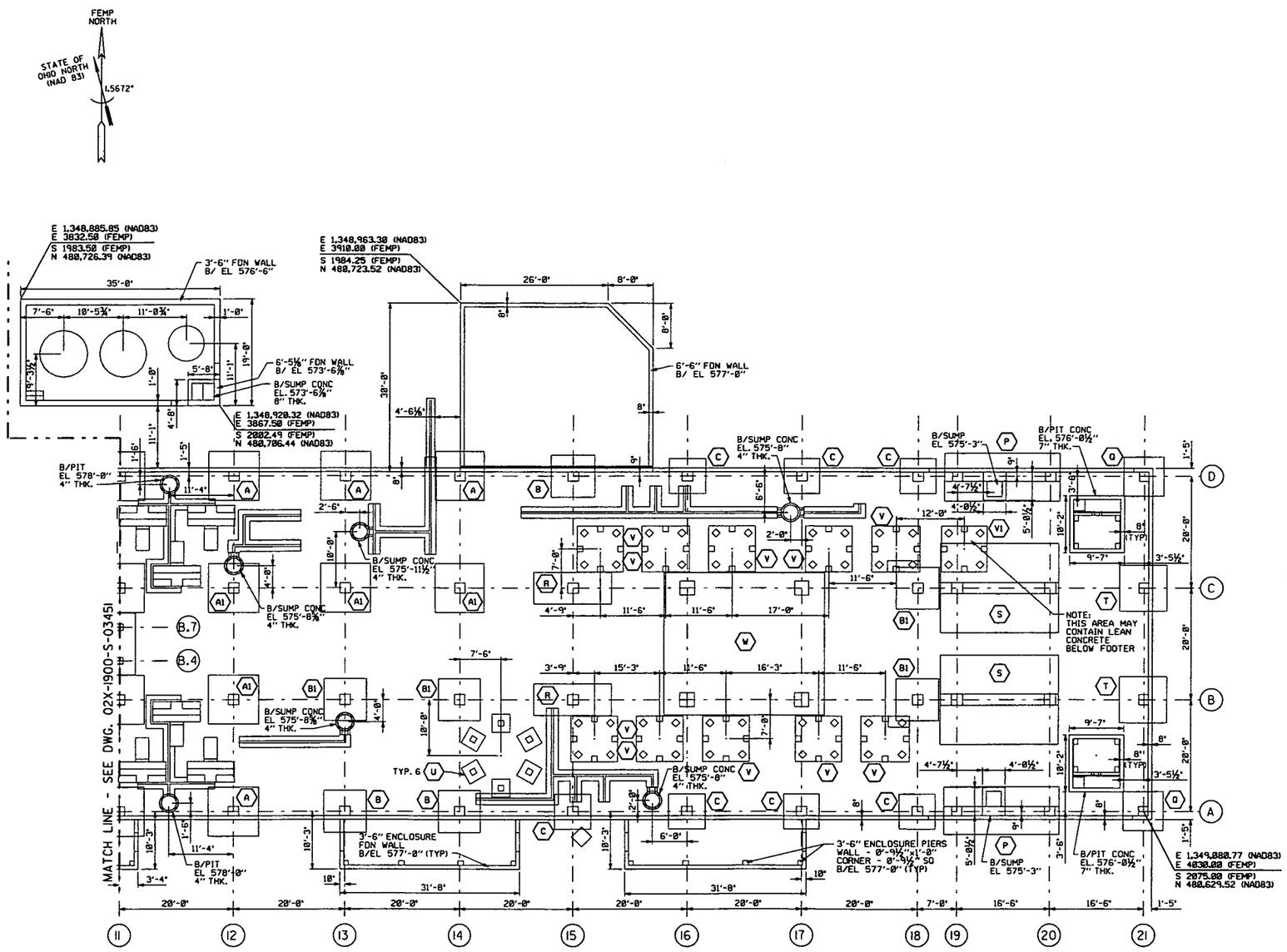
THIS DRAWING PREPARED BY LOCKWOOD GREENE TECHNOLOGIES

PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 19 - TECHNICAL REFERENCE DRAWING

DRAWING TITLE
STRUCTURE 2A WEST AND 2D
SLAB PLAN

CONFIGURATION MANAGEMENT DRAWING
SYSTEMS, STRUCTURES OR COMPONENTS SHOWN ON THIS DRAWING ARE UNDER CONFIGURATION MANAGEMENT CONTROL, AS NOTED.
COGNIZANT ENGINEER DATE

TASK ORDER NO.	OPTIONAL NO.	SCALE	
L-010	N/A	⅛" = 1'-0"	
		DRAWN BY C. COX	DATE 18DEC01
RES NO. N/A	FOF PROJECT NO. 20810	TECHNICAL LEAD J. ALCORN	DATE 26DEC01
		CHECKED BY J. ALCORN	DATE 04JAN02
DRAWING INDEX CODE NO. 02X-1900-S-03452		SHEET NO. S-002	REV. NO. 0



FOOTING SCHEDULE

MARK	LENGTH N/S	WIDTH E/W	HEIGHT	B/FTG EL	COL PIER	REMARKS
A	8'-9"	8'-9"	1'-6"	574'-0"	1'-8"x1'-10"	
A1	8'-9"	8'-9"	1'-6"	574'-0"	1'-10"x1'-10"	
B	7'-6"	7'-6"	1'-4"	574'-0"	1'-8"x1'-10"	
B1	7'-6"	7'-6"	1'-4"	574'-0"	1'-10"x1'-10"	
C	6'-3"	6'-3"	1'-4"	574'-0"	1'-8"x1'-10"	
P	8'-6"	20'-6"	3'-3"	574'-0"	1'-8"x1'-10"	
Q	7'-0"	7'-0"	1'-3"	574'-0"	1'-8"x1'-8"	
R	5'-8"	13'-6"	1'-10"	574'-0"	1'-10"x1'-10"	

FOOTING SCHEDULE (CONTINUED)

MARK	LENGTH N/S	WIDTH E/W	HEIGHT	B/FTG EL	COL PIER	REMARKS
S	16'-0"	21'-0"	4'-6"	574'-0"	2'-0"x2'-0"	
T	8'-3"	8'-3"	1'-4"	574'-0"	1'-10"x1'-8"	
U	3'-3"	3'-3"	1'-2"	574'-0"	1'-0"x1'-0"	
V	8'-2"	8'-2"	1'-6"	574'-0"	1'-0"x1'-0"	
V1	8'-2"	8'-2"	1'-6"	575'-0"	1'-0"x1'-0"	
W	25'-6"	28'-0"	3'-0"	574'-0"	2'-6"x2'-6"	

FOUNDATION PLAN

SCALE: 1/8" = 1'-0"

SCALE: 1/8 INCH = 1 FOOT

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION REFERENCE DRAWINGS LISTED BELOW AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.

4831

REF DWG NO.	DRAWING TITLE
02A-5500-S-01580	PLANT 2 DIGESTION AREA SLURRY FEED TANKS FOUNDATION PLAN & DETAILS
02A-5500-S-02747	PLANT 2 DIGESTION AREA HAZ. MAT. SPILL PROTECT. NITRIC ACID STOR. RETENT. DIKE & SUMP PUMP PLAN
02B-5500-S-01558	PLANT 2 EXTRACTION AREA FOUNDATION PLAN STRUCTURAL STEEL COL. SCHEDULE SECT. & DETAILS
02C-7000-S-00867	DENITRATION AREA DENITRATION BLDG. EXPANSION FOUNDATION PLAN & DETAILS
02C-7000-S-00876	DENITRATION AREA DENITRATION BLDG. EXPANSION FIRST FLOOR PLAN & DETAILS
02C-7000-S-00904	ORE REFINERY, DENITRATION AREA NEW REACTOR POT FOUNDATIONS CONCRETE PLAN & DETAILS
02C-7000-S-00910	DENITRATION AREA DENITRATION BLDG. EXPANSION DEMOLITION & ERECTION PROCEDURE
02X-1450-S-00006	EQUIPMENT FOUNDATIONS SECT.-A ORE REFINERY BUILDING CI-1
02X-1450-S-00007	CONCRETE 1ST FLOOR PLAN SECTION 'B' ORE REFINERY BLDG. CI-1
02X-1450-S-00008	EQUIPMENT FOUNDATIONS SECT.-C ORE REFINERY BUILDING - A
02X-1450-S-00009	CONCRETE FLOOR SLAB & EQUIPMENT FOUNDATIONS ORE REFINERY - SECTION - 'A'-BUILDING CI-1
02X-1450-S-00010	CONCRETE FLOOR SLAB & EQUIPMENT FOUNDATIONS ORE REFINERY BUILDING CI-1 SECTION C
02X-1450-S-00012	CONCRETE EXTERIOR TRENCH AND FOUNDATIONS ORE REFINERY SOLVENT TREATMENT AREA BLDG. CI-1
02X-1450-S-00015	CONCRETE FOUNDATION PLAN SECT.-A ORE REFINERY BUILDING-CI-1
02X-1450-S-00016	CONCRETE FOUNDATION PLAN SECTION-B ORE REFINERY BLDG. CI-1
02X-1450-S-00017	CONCRETE FOUNDATION PLAN SECTION-C ORE REFINERY BLDG. CI-1
02X-1450-S-00018	FOUNDATION PLAN & SECTIONS ELECTRICAL ENCLOSURES ORE REFINERY
02X-5500-M-01563	SLOP LIQUOR CONCENTRATION AND SOLVENT STORAGE AREA PLOT PLAN AND EQUIPMENT LAYOUT
02X-5500-S-01567	SOLVENT STORAGE AREA CONCRETE FOUNDATIONS PLAN AND ELEVATIONS
02X-5500-S-01568	SOLVENT STORAGE AREA CONCRETE FOUNDATIONS SECTIONS AND DETAILS

000301

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	INITIALS AND DATE: TL	PM	REVD BY
0	ISSUED FOR TECHNICAL REFERENCE ONLY	N/A	SDS 25JAN02	

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY LOCKWOOD GREENE TECHNOLOGIES

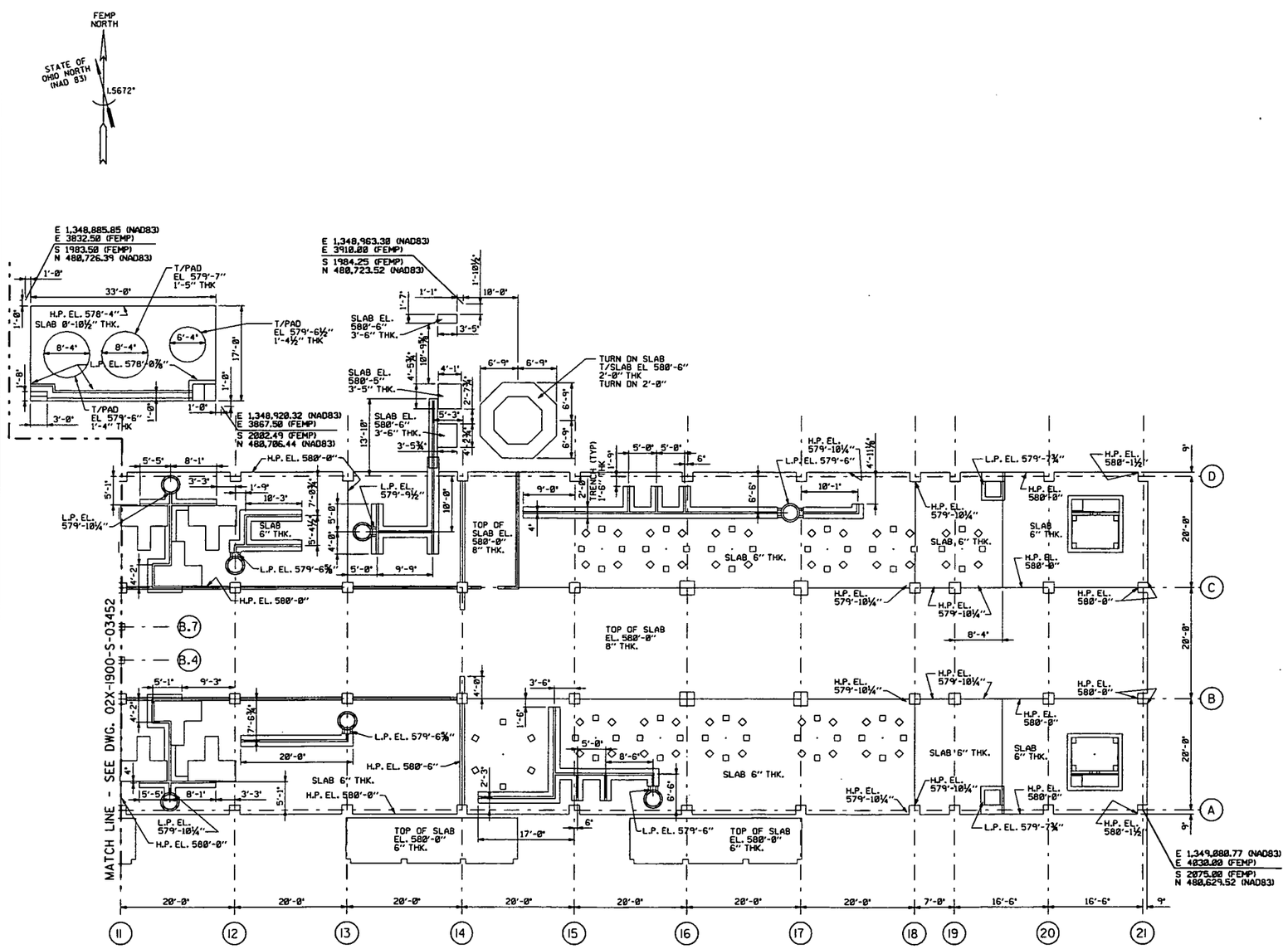
PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 19 - TECHNICAL REFERENCE DRAWING

DRAWING TITLE
STRUCTURE 2A EAST, SOLVENT STORAGE AND TREATMENT AREAS FOUNDATION PLAN

CONFIGURATION MANAGEMENT DRAWING

TASK ORDER NO.	OPTIONAL NO.	SCALE	
L-010	N/A	1/8" = 1'-0"	
		DRAWN BY C. COX	DATE 18DEC01
RES NO. N/A	FOR PROJECT NO. 20810	TECHNICAL LEAD J. ALCORN	DATE 26DEC01
		CHECKED BY J. ALCORN	DATE 04JAN02
DRAWING INDEX CODE NO. 02X-1900-S-03453		SHEET NO. S-003	REV. NO. 0

COGNIZANT ENGINEER DATE



SLAB PLAN
SCALE: 1/8" = 1'-0"

SCALE: 1/8 INCH FOOT

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION REFERENCE DRAWINGS LISTED BELOW AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.

4831

REF DWG NO.	DRAWING TITLE
02A-5500-S-01588	PLANT 2 DIGESTION AREA SLURRY FEED TANKS FOUNDATION PLAN & DETAILS
02A-5500-S-02747	PLANT 2 DIGESTION AREA HAZ. MAT. SPILL PROTECT. NITRIC ACID STOR. RETENT. DIKE & SUMP PUMP PLAN
02B-5500-S-01558	PLANT 2 EXTRACTION AREA FOUNDATION PLAN STRUCTURAL STEEL COL. SCHEDULE SECT. & DETAILS
02C-7000-S-00867	DENITRATION AREA DENITRATION BLDG. EXPANSION FOUNDATION PLAN & DETAILS
02C-7000-S-00876	DENITRATION AREA DENITRATION BLDG. EXPANSION FIRST FLOOR PLAN & DETAILS
02C-7000-S-00904	ORE REFINERY, DENITRATION AREA NEW REACTOR POT FOUNDATIONS CONCRETE PLAN & DETAILS
02C-7000-S-00910	DENITRATION AREA DENITRATION BLDG. EXPANSION DEMOLITION & ERECTION PROCEDURE
02X-1450-S-00006	EQUIPMENT FOUNDATIONS SECT.-A ORE REFINERY BUILDING C1-1
02X-1450-S-00007	CONCRETE 1ST FLOOR PLAN SECTION 'B' ORE REFINERY BLDG. C1-1
02X-1450-S-00008	EQUIPMENT FOUNDATIONS SECT.-C ORE REFINERY BUILDING - A
02X-1450-S-00009	CONCRETE FLOOR SLAB & EQUIPMENT FOUNDATIONS ORE REFINERY - SECTION - 'A'-BUILDING C1-1
02X-1450-S-00010	CONCRETE FLOOR SLAB & EQUIPMENT FOUNDATIONS ORE REFINERY BUILDING C1-1 SECTION C
02X-1450-S-00012	CONCRETE EXTERIOR TRENCH AND FOUNDATIONS ORE REFINERY SOLVENT TREATMENT AREA BLDG. C1-1
02X-1450-S-00015	CONCRETE FOUNDATION PLAN SECT.-A ORE REFINERY BUILDING-C1-1
02X-1450-S-00016	CONCRETE FOUNDATION PLAN SECTION-B ORE REFINERY BLDG. C1-1
02X-1450-S-00017	CONCRETE FOUNDATION PLAN SECTION-C ORE REFINERY BLDG. C1-1
02X-1450-S-00018	FOUNDATION PLAN & SECTIONS ELECTRICAL ENCLOSURES ORE REFINERY
02X-5500-M-01563	SLOP LIQUOR CONCENTRATION AND SOLVENT STORAGE AREA PLOT PLAN AND EQUIPMENT LAYOUT
02X-5500-S-01567	SOLVENT STORAGE AREA CONCRETE FOUNDATIONS PLAN AND ELEVATIONS
02X-5500-S-01568	SOLVENT STORAGE AREA CONCRETE FOUNDATIONS SECTIONS AND DETAILS

000302

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	REVD BY
0	ISSUED FOR TECHNICAL REFERENCE ONLY	N/A	SDS 25JAN02	

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY LOCKWOOD GREENE TECHNOLOGIES

PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 19 - TECHNICAL REFERENCE DRAWING

DRAWING TITLE
STRUCTURE 2A EAST, SOLVENT STORAGE AND TREATMENT AREAS
SLAB PLAN

CONFIGURATION MANAGEMENT DRAWING

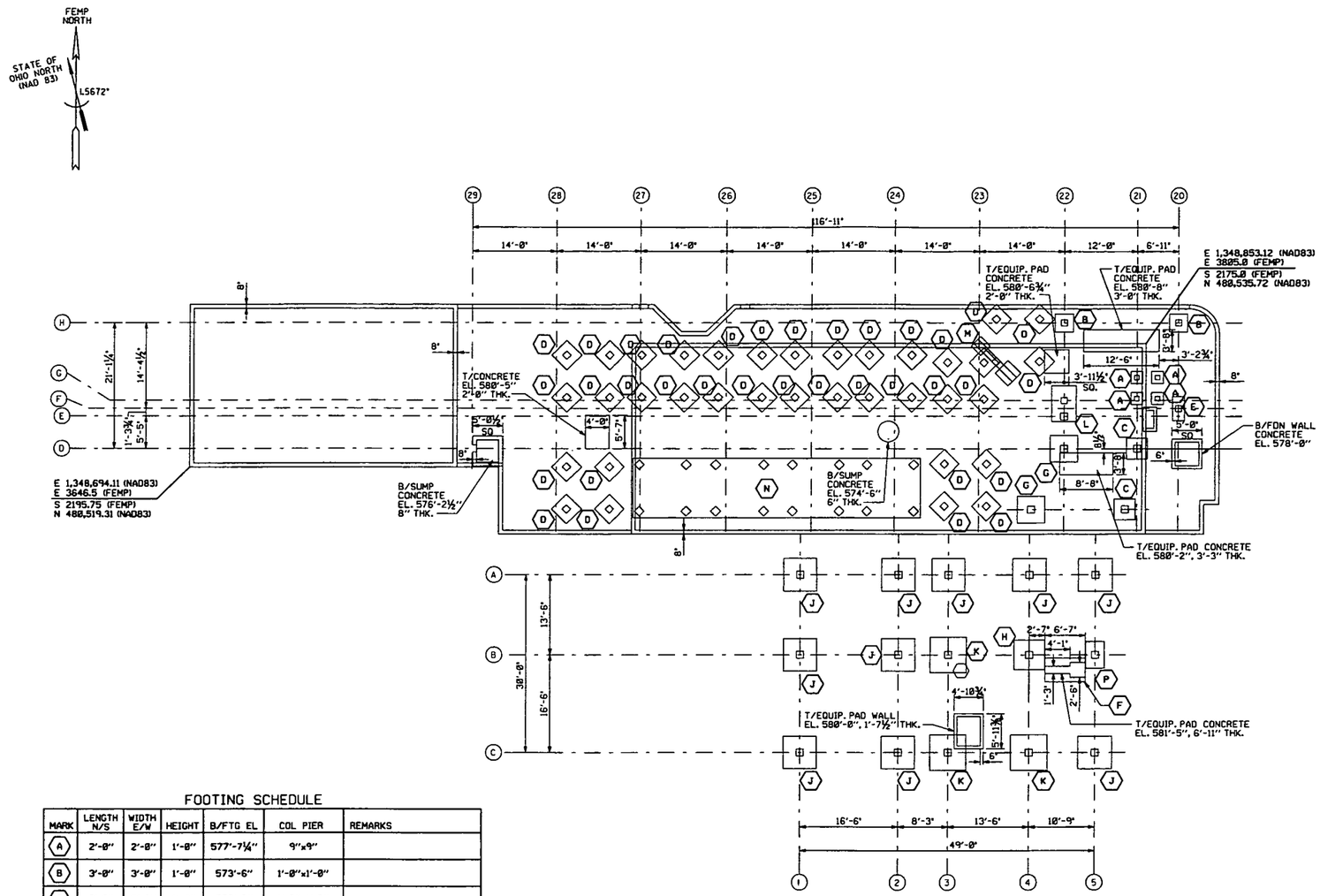
EXISTING STRUCTURES AS CONTROLLED BY THE FEMP CONFIGURATION MANAGEMENT CONTROL. SEE NOTES.

COGNIZANT ENGINEER DATE

TASK ORDER NO.	OPTIONAL NO.	SCALE
L-010	N/A	1/8" = 1'-0"

DRAWN BY C. COX		DATE 18DEC01
TECHNICAL LEAD J. ALCORN		DATE 25DEC01
CHECKED BY J. ALCORN		DATE 04JAN02

JES NO.	JOP PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
N/A	20810	02X-1900-S-03454	S-004	0



FOUNDATION PLAN
SCALE: 1/8" = 1'-0"

FOOTING SCHEDULE

MARK	LENGTH N/S	WIDTH E/W	HEIGHT	B/FTG EL	COL PIER	REMARKS
A	2'-0"	2'-0"	1'-0"	577'-7¼"	9"x9"	
B	3'-0"	3'-0"	1'-0"	573'-6"	1'-0"x1'-0"	
C	3'-6"	3'-6"	1'-3"	573'-3"	1'-2"x1'-2"	
D	3'-6"	3'-6"	1'-0"	573'-6"	1'-0"x1'-0"	ROTATED 45 DEGREES
E	4'-0"	2'-0"	1'-0"	573'-6"	1'-0"x1'-0"	
F	4'-0"	6'-7"	1'-3"	573'-3"	SEE PLAN	
G	4'-6"	4'-6"	1'-3"	573'-3"	1'-2"x1'-2"	
H	5'-0"	5'-0"	1'-3"	573'-3"	1'-2"x1'-2"	
J	5'-6"	5'-6"	1'-3"	573'-3"	1'-2"x1'-2"	
K	6'-0"	6'-0"	1'-3"	573'-3"	1'-2"x1'-2"	
L	6'-0"	4'-0"	1'-0"	573'-6"	1'-0"x1'-0" 1'-2"x1'-2"	
M	9'-0⅜"	3'-0"	1'-3"	573'-6"	1'-2"x1'-2"	
N	10'-0"	47'-6"	1'-6"	573'-0"	1'-2"x1'-2"	TOTAL OF 16 PIERS ON PAD ROTATED 45 DEGREES
P	4'-6"	3'-0"	1'-3"	573'-3"	1'-2"x1'-2"	T/PIER 581'-5"

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION REFERENCE DRAWINGS LISTED BELOW AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.

4831

REF DWG NO.	DRAWING TITLE
02E-7000-S-00816	COMBINED RAFFINATE AREA - EAST PORTION CONCRETE FOUNDATIONS & PADS - PLAN
02E-7000-S-00817	COMBINED RAFFINATE AREA - EAST PORTION SECTIONS & DETAILS
02E-7000-S-00823	COMBINED RAFFINATE AREA - WEST PORTION CONCRETE FOUNDATIONS & PADS
02E-7000-S-00824	COMBINED RAFFINATE AREA NORTH PORTION - PLAN OF SLAB
02E-7000-S-00825	COMBINED RAFFINATE AREA WEST PORTION EXPANSION PLAN SECTIONS & DETAILS
02X-1450-S-00019	COMBINED RAFFINATE AREA PLAN OF SLAB & EQUIPMENT FOUNDATIONS ANCHOR BOLT LOCATIONS
02X-1450-S-00020	COMBINED RAFFINATE AREA SECTIONS & DETAILS

000303

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	BCHS BY
0	ISSUED FOR TECHNICAL REFERENCE ONLY	N/A	SDS 25JAN02	

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY LOCKWOOD GREENE TECHNOLOGIES

PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 19 - TECHNICAL REFERENCE DRAWING

DRAWING TITLE
STRUCTURE 3J
FOUNDATION PLAN

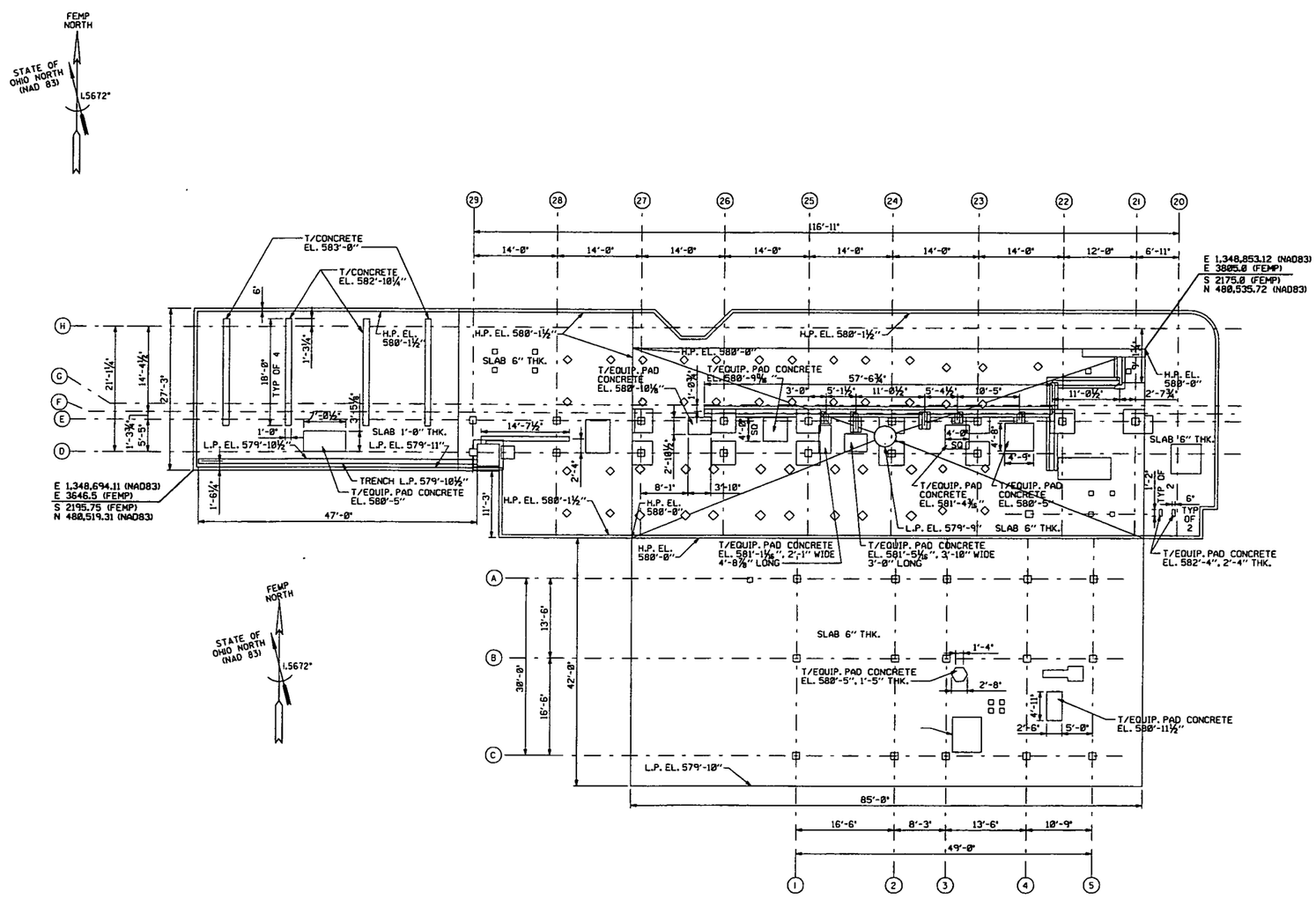
CONFIGURATION MANAGEMENT DRAWING

STATUS: A "CHECKED" OR "CONTROL" DRAWING IS "AS-BUILT" AND "UNDER CONFIGURATION MANAGEMENT CONTROL". SEE NOTES.

COGNIZANT ENGINEER DATE

TASK ORDER NO.	OPTIONAL NO.	SCALE	
L-010	N/A	⅛" = 1'-0"	
		DRAWN BY A. MLEKODAJ	DATE 26DEC01
RES NO. N/A	FOP PROJECT NO. 20810	TECHNICAL LEAD J. ALCORN	DATE 26DEC01
		CHECKED BY J. ALCORN	DATE 02JAN02
DRAWING INDEX CODE NO. 02E-1900-S-03457		SHEET NO. S-001	REV. NO. 0

0" 4" 8" 16" 24"
SCALE: 1/8 INCH= FOOT



SLAB PLAN
SCALE: ⅛" = 1'-0"

SCALE: 1/8 INCH = FOOT

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION REFERENCE DRAWINGS LISTED BELOW AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.

4831

REF DWG NO.	DRAWING TITLE
02E-7000-S-00816	COMBINED RAFFINATE AREA - EAST PORTION CONCRETE FOUNDATIONS & PADS - PLAN
02E-7000-S-00817	COMBINED RAFFINATE AREA - EAST PORTION SECTIONS & DETAILS
02E-7000-S-00823	COMBINED RAFFINATE AREA - WEST PORTION CONCRETE FOUNDATIONS & PADS
02E-7000-S-00824	COMBINED RAFFINATE AREA NORTH PORTION - PLAN OF SLAB
02E-7000-S-00825	COMBINED RAFFINATE AREA WEST PORTION EXPANSION PLAN SECTIONS & DETAILS
02X-1450-S-00019	COMBINED RAFFINATE AREA PLAN OF SLAB & EQUIPMENT FOUNDATIONS; ANCHOR BOLT LOCATIONS
02X-1450-S-00020	COMBINED RAFFINATE AREA SECTIONS & DETAILS

000304

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	REVW BY
0	ISSUED FOR TECHNICAL REFERENCE ONLY	N/A	SDS 25JAN02	

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY LOCKWOOD GREENE TECHNOLOGIES

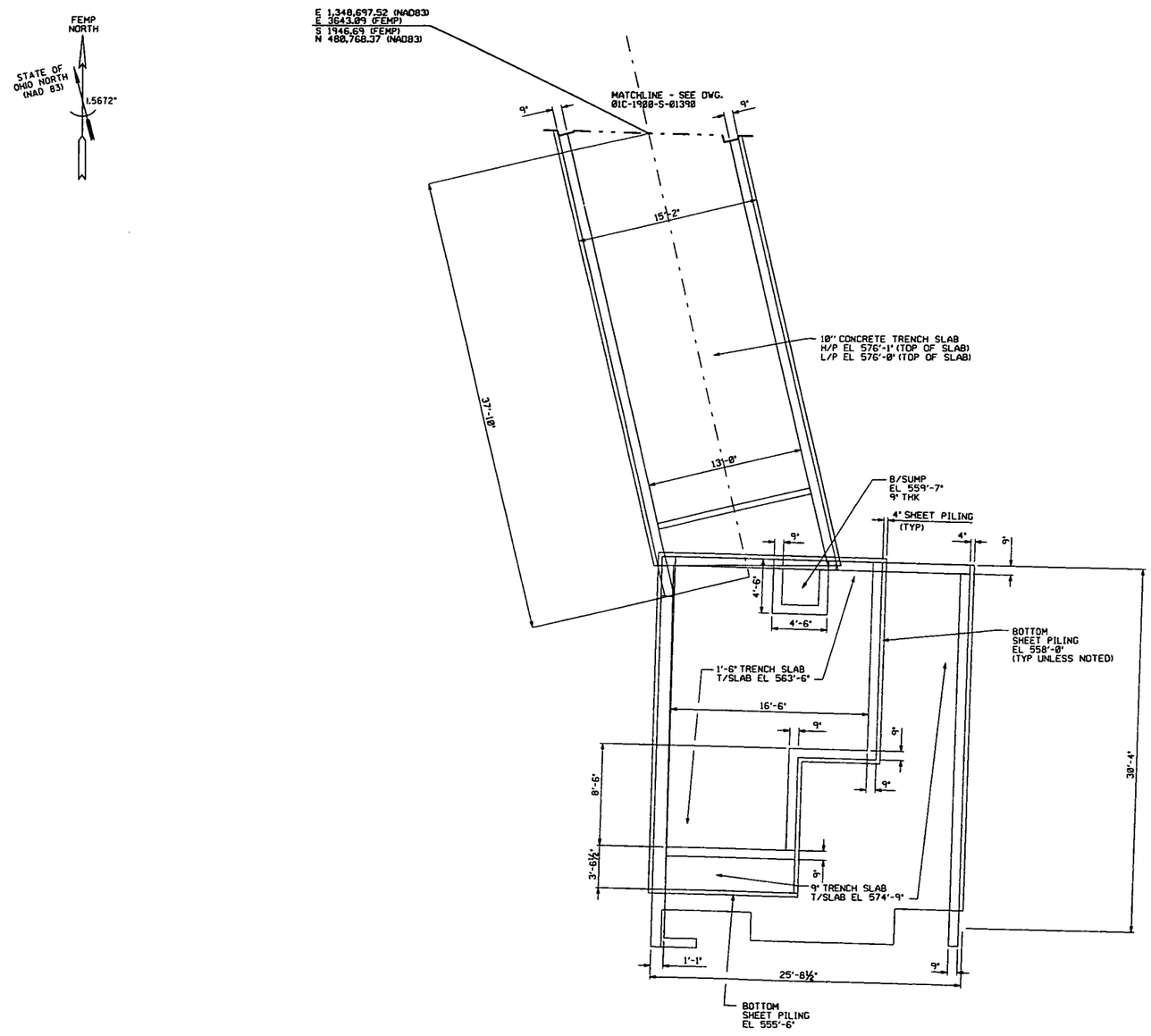
PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 19 - TECHNICAL REFERENCE DRAWING

DRAWING TITLE
STRUCTURE 3J
SLAB PLAN

CONFIGURATION MANAGEMENT DRAWING — YES / NO
EXISTING STRUCTURES OR COMPONENTS MAY NOT BE THE SAME AS THOSE SHOWN. USE CONFIGURATION MANAGEMENT CONTROL SEE NOTES.

COGNIZANT ENGINEER — DATE

TASK ORDER NO.	OPTIONAL NO.	SCALE	
L-010	N/A	⅛" = 1'-0"	
		DRAWN BY: A. MLEKODAJ	DATE: 26DEC01
RES NO.: N/A	FDF PROJECT NO.: 20810	TECHNICAL LEAD: J. ALCORN	DATE: 26DEC01
		CHECKED BY: J. ALCORN	DATE: 03JAN02
DRAWING INDEX CODE NO.: 02E-1900-S-03458		SHEET NO.: S-002	REV. NO.: 0



FOUNDATION AND SLAB PLAN

SCALE: ¼" = 1'-0"

SCALE: 1/4 INCH= FOOT

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION REFERENCE DRAWINGS LISTED BELOW AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.

4831

REF DWG NO.	DRAWING TITLE
01C-1450-S-00004	CONCRETE PLAN OF CONVEYOR TRENCH BET. SILOS AND ORE REFINING BUILDING
01C-3115-S-00402	SHEET PILING DETAILS FOR CONVEYOR PIT AT ORE REFINERY
01C-3115-S-00405	CONVEYOR TRENCH PIT AT ORE REFINERY BLDG 3001-C1-1 (NW CORNER)

000305

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	RCHD BY
0	ISSUED FOR TECHNICAL REFERENCE ONLY	N/A	SDS 25JAN02	

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY LOCKWOOD GREENE TECHNOLOGIES

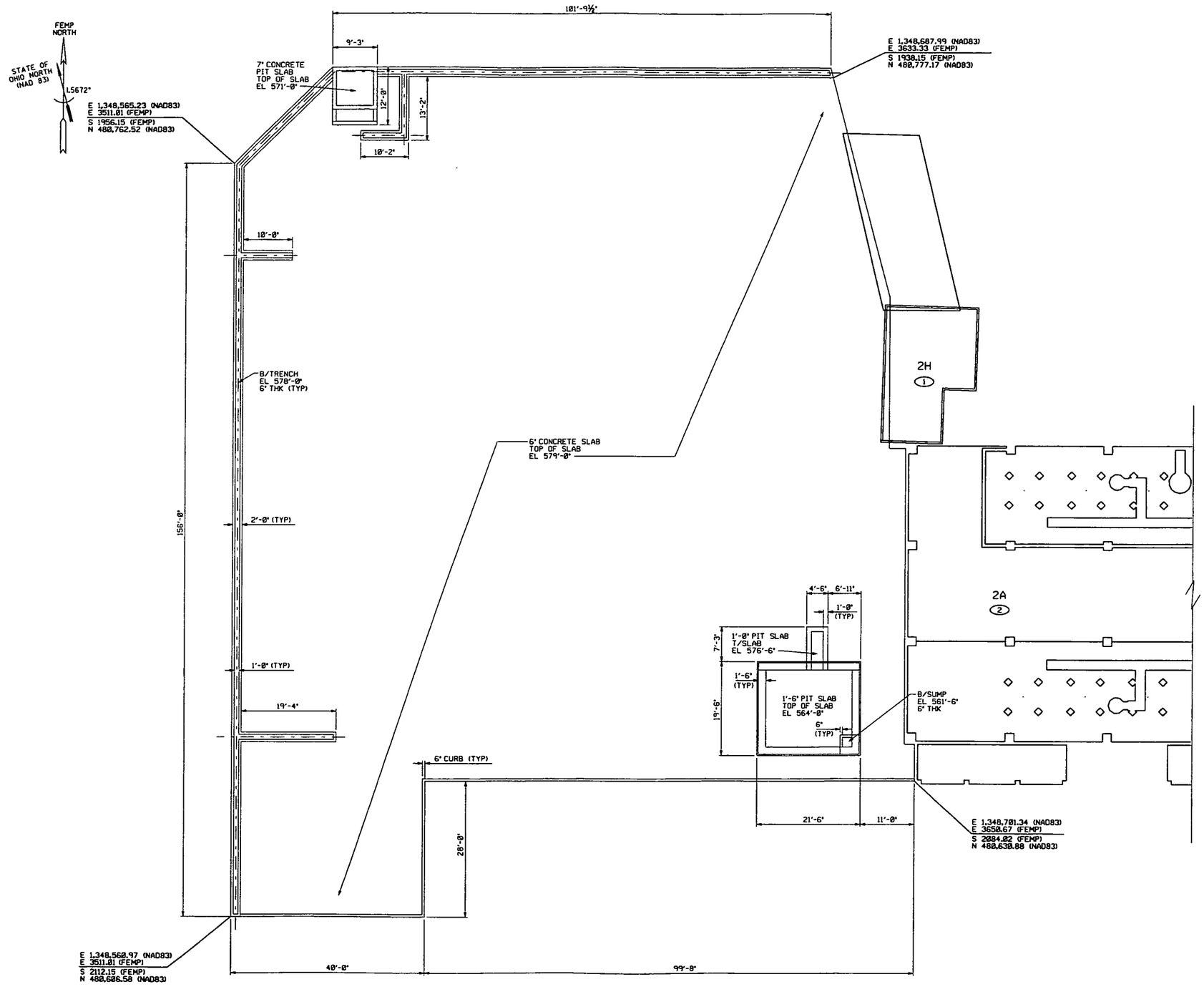
PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 19 - TECHNICAL REFERENCE DRAWING

DRAWING TITLE
STRUCTURE 2H AND PIT
FOUNDATION AND SLAB PLAN

CONFIGURATION MANAGEMENT DRAWING YES NO
EXISTING DWGS/SPECS OR CONTROLLED DOCUMENTS MUST BE USED UNDER CONFIGURATION MANAGEMENT CONTROL. SEE NOTES.

COGNIZANT ENGINEER DATE

TASK ORDER NO.	OPTIONAL NO.	SCALE ¼" = 1'-0"	
L-010	N/A	DRAWN BY G. THURMAN	DATE 19DEC01
RES NO. N/A	FOF PROJECT NO. 20810	TECHNICAL LEAD J. ALCORN	DATE 26DEC01
		CHECKED BY J. ALCORN	DATE 04JAN02
DRAWING INDEX CODE NO. 02X-1900-S-03448		SHEET NO. S-001	REV. NO. 0



FOUNDATION AND SLAB PLAN
SCALE: 1/8" = 1'-0"

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION REFERENCE DRAWINGS LISTED BELOW AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.

4831

KEYED NOTES

ADDITIONAL DETAIL FOR EACH OF THE COMPONENT STRUCTURES IS LOCATED ON THE FOLLOWING DRAWINGS AND SKETCHES.

1. SEE DWG 02X-1900-S-03448 FOR FOUNDATION AND SLAB PLAN. SEE DWG SK2H-1 FOR ISOMETRIC VIEW.
2. SEE DWG 02X-1900-S-03451 FOR FOUNDATION PLAN AND DWG 02X-1900-S-03452 FOR SLAB PLAN. SEE DWG SK2A-1 FOR ISOMETRIC VIEW.

REF DWG NO.	DRAWING TITLE
02A-5500-S-01689	SEETTLING PIT & PAD DRAINAGE TRENCHES PLOT PLAN & CONCRETE SECTIONS
02A-5500-S-01690	SEETTLING PIT & PAD DRAINAGE TRENCHES PIT PLAN, SECTIONS & DETAILS
02A-5500-S-01691	SEETTLING PIT & PAD DRAINAGE TRENCHES EQUIPMENT LOCATION & TRENCH PROFILES
02A-5500-S-01505	BUCKET ELEVATOR PIT PLAN, SECTIONS & DETAILS WEST PAD AREA

000306

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	REVIEW BY
0	ISSUED FOR TECHNICAL REFERENCE ONLY	N/A	SDS 25JAN02	

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY LOCKWOOD GREENE TECHNOLOGIES

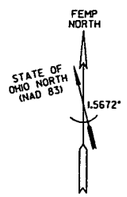
PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 19 - TECHNICAL REFERENCE DRAWING

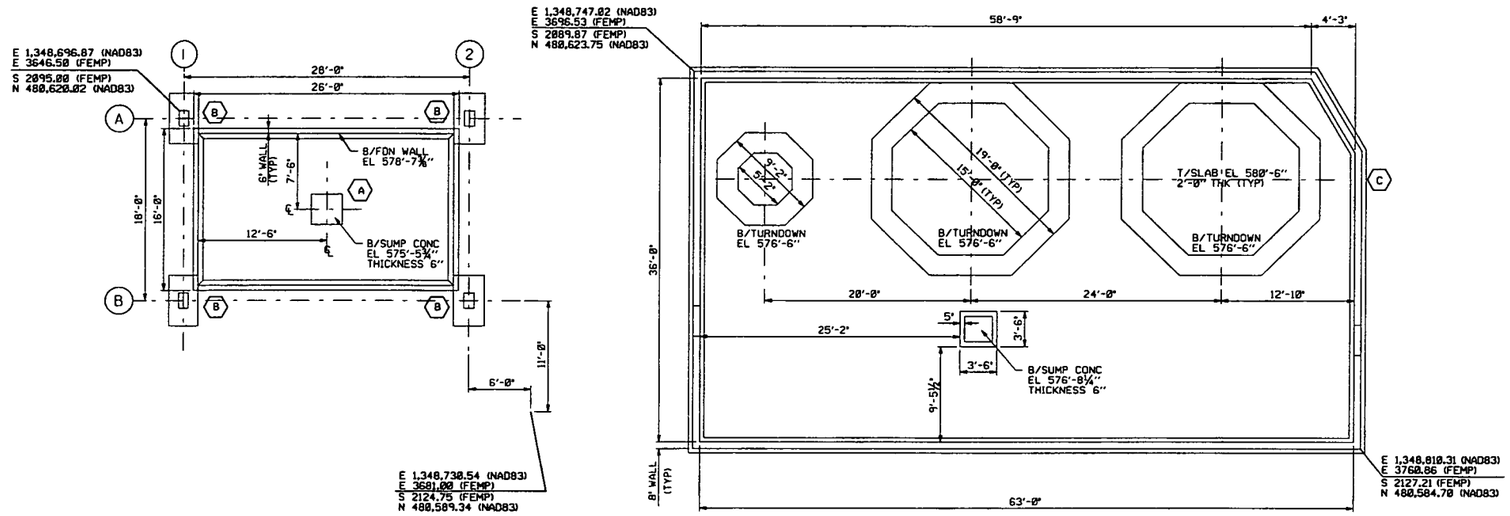
DRAWING TITLE
STRUCTURE 74B AND ELEVATOR PIT
FOUNDATION AND SLAB PLAN

CONFIGURATION MANAGEMENT DRAWING — YES / NO
EXISTING STRUCTURES OR COMPONENTS DEPICTED ON THIS DRAWING ARE UNDER CONFIGURATION MANAGEMENT CONTROL. SEE NOTES.

COGNIZANT ENGINEER — DATE

TASK ORDER NO.	OPTIONAL NO.	SCALE	
L-010	N/A	1/8" = 1'-0"	
		DRAWN BY: G. THURMAN	DATE: 17DEC01
RES NO.: N/A	FDF PROJECT NO.: 20810	TECHNICAL LEAD: J. ALCORN	DATE: 26DEC01
		CHECKED BY: J. ALCORN	DATE: 04JAN02
DRAWING INDEX CODE NO.: 02X-1900-S-03450		SHEET NO.: S-001	REV. NO.: 0





FOUNDATION PLAN
SCALE: 3/16" = 1'-0"

FOOTING SCHEDULE

MARK	LENGTH N/S	WIDTH E/W	HEIGHT	B/FTG EL	COL PIER	REMARKS
A	3'-0"	3'-0"	0'-6"	575'-5¾"	N/A	
B	5'-0"	3'-0"	1'-0"	575'-10⅝"	1'-0" X 1'-6"	
C	SEE PLAN	SEE PLAN	0'-8"	576'-10"	N/A	STRIP FOOTING

0' 3' 6' 12' 16'
SCALE: 3/16 INCH= FOOT

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION REFERENCE DRAWINGS LISTED BELOW AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.

4831

REF DWG NO.	DRAWING TITLE
398-5500-S-00016	LIQUID WASTE INCINERATOR SHELTER BLDG PLAN & ELEVATIONS
398-5500-S-00017	LIQUID WASTE INCINERATOR WASTE OIL HANDLING CURBED PAD PLAN-ELEV-DETAIL
02A-5500-S-02747	HAZARDOUS MATERIALS SPILL PROTECTION NITRIC ACID STORAGE RETENTION DIKE SUMP PLAN
02A-5500-P-02443	REPLACE NITRIC ACID STORAGE PUMP BASES & SUMP PLAN & SECTIONS
02A-5500-S-02445	REPLACE NITRIC ACID STORAGE PUMP BASES & SUMP MISCELLANEOUS DETAILS
02A-5500-S-02750	HAZARDOUS MATERIALS SPILL PROTECTION ACID PROOF COVER @ PUMPS PLAN
02X-1450-S-00009	FLOOR SLAB & EQUIPMENT LAYOUT ORE REFINERY SECTION "A"
02A-5500-S-02841	HAZARDOUS MATERIALS SPILL PROTECTION NITRIC ACID STORAGE RETENTION DIKE SUMP DETAIL
02A-5500-S-02748	HAZARDOUS MATERIALS SPILL PROTECTION NITRIC ACID STORAGE RETENTION DIKE DETAILS

000307

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	RCM BY
0	ISSUED FOR TECHNICAL REFERENCE ONLY	N/A	SDS 25JAN02	

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY LOCKWOOD GREENE A JACOBS COMPANY TECHNOLOGIES

PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 19 - TECHNICAL REFERENCE DRAWING

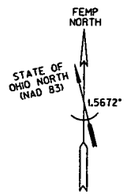
DRAWING TITLE
STRUCTURE 39B AND NITRIC ACID STORAGE AREA FOUNDATION PLAN

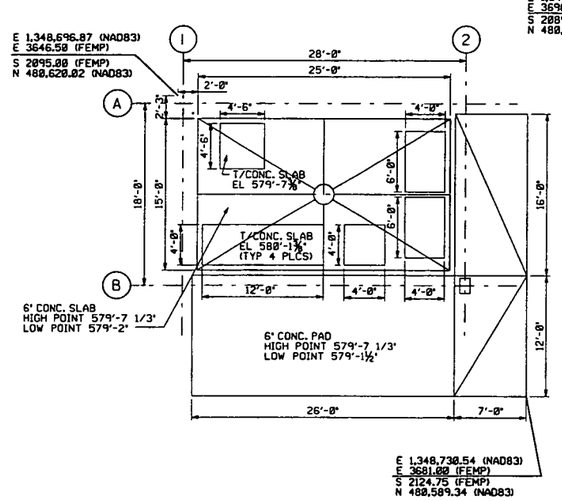
CONFIGURATION MANAGEMENT DRAWING — YES / NO
STATUS: ATTACHED OR COMPONENTS SHOWN ON THIS DRAWING ARE UNDER CONFIGURATION MANAGEMENT CONTROL. SEE NOTES.

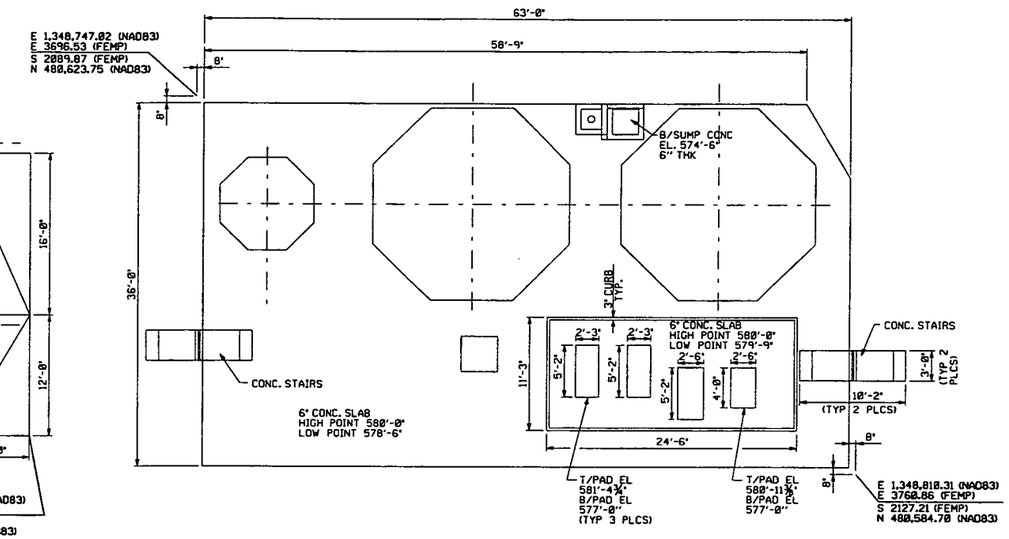
COGNIZANT ENGINEER — DATE

TASK ORDER NO.	OPTIONAL NO.	SCALE
L-010	N/A	3/16" = 1'-0"
RES NO.	FOF PROJECT NO.	DRAWN BY: J. LUTTRELL — DATE: 28DEC01
N/A	20810	TECHNICAL LEAD: J. ALCORN — DATE: 25DEC01
		CHECKED BY: J. ALCORN — DATE: 04JAN02

DRAWING INDEX CODE NO.: 02X-1900-S-03455 — SHEET NO.: S-001 — REV. NO.: 0







SLAB PLAN

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

0' 3' 6' 12' 18'

SCALE: 3/16 INCH= FOOT

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION REFERENCE DRAWINGS LISTED BELOW AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.

4831

REF DWG NO.	DRAWING TITLE
398-5500-S-00016	LIQUID WASTE INCINERATOR SHELTER BLDG PLAN & ELEVATIONS
398-5500-S-00017	LIQUID WASTE INCINERATOR WASTE OIL HANDLING CURBED PAD PLAN-ELEV-DETAIL
02A-5500-S-02747	HAZARDOUS MATERIALS SPILL PROTECTION NITRIC ACID STORAGE RETENTION DIKE SUMP PLAN
02A-5500-P-02443	REPLACE NITRIC ACID STORAGE PUMP BASES & SUMP PLAN & SECTIONS
02A-5500-S-02445	REPLACE NITRIC ACID STORAGE PUMP BASES & SUMP MISCELLANEOUS DETAILS
02A-5500-S-02750	HAZARDOUS MATERIALS SPILL PROTECTION ACID PROOF COVER @ PUMPS PLAN
02X-1450-S-00089	FLOOR SLAB & EQUIPMENT LAYOUT ORE REFINERY SECTION "A"
02A-5500-S-02841	HAZARDOUS MATERIALS SPILL PROTECTION NITRIC ACID STORAGE RETENTION DIKE SUMP DETAIL
02A-5500-S-02748	HAZARDOUS MATERIALS SPILL PROTECTION NITRIC ACID STORAGE RETENTION DIKE DETAILS

000308

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	REVW BY
		INITIALS AND DATE		
0	ISSUED FOR TECHNICAL REFERENCE ONLY	N/A	SDS 25JAN02	

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

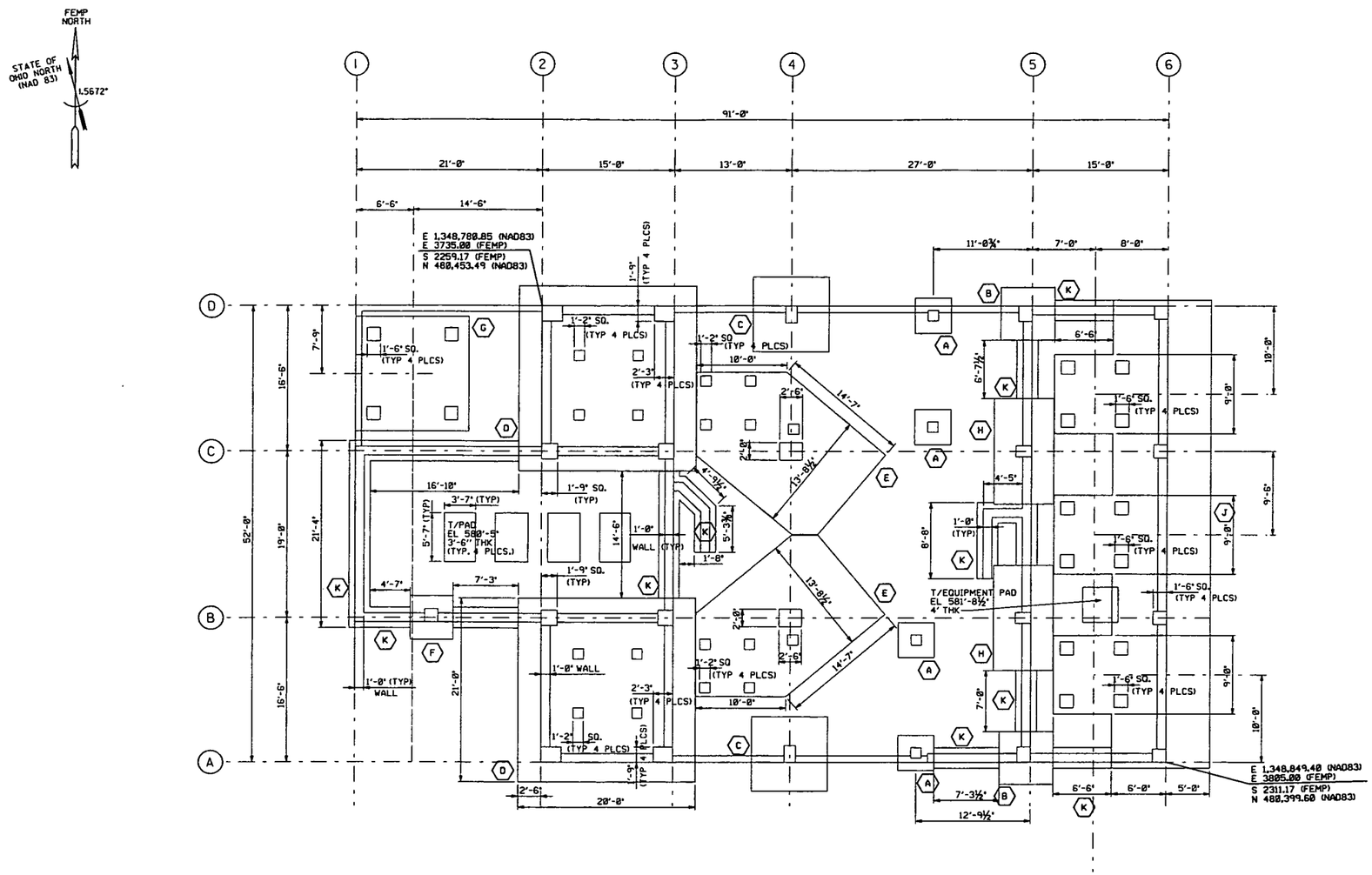
THIS DRAWING PREPARED BY LOCKWOOD GREENE TECHNOLOGIES

PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 19 - TECHNICAL REFERENCE DRAWING

DRAWING TITLE
STRUCTURE 39B AND NITRIC ACID STORAGE AREA SLAB PLAN

CONFIGURATION MANAGEMENT DRAWING
EXISTING STRUCTURES OR COMPONENTS AFFECTED BY THIS DRAWING ARE UNDER CONFIGURATION MANAGEMENT CONTROL. SEE NOTES.
COGNIZANT ENGINEER DATE

TASK ORDER NO.	OPTIONAL NO.	SCALE 3/16" = 1'-0"
L-010	N/A	DRAWN BY J. LUTTRELL — DATE 28DEC01
RES NO. N/A	FOF PROJECT NO. 20810	TECHNICAL LEAD J. ALCORN — DATE 28DEC01
		CHECKED BY J. ALCORN — DATE 04JAN02
DRAWING INDEX CODE NO. 02X-1900-S-03456		SHEET NO. S-002 — REV. NO. 0



FOUNDATION PLAN

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

FOOTING SCHEDULE

MARK	LENGTH N/S	WIDTH E/W	HEIGHT	B/FTG EL	COL PIER	REMARKS
A	4'-0"	4'-0"	1'-6"	573'-0"	1'-2"x1'-2"	
B	6'-0"	6'-0"	2'-0"	573'-0"	1'-9"x1'-6"	
C	8'-6"	8'-6"	2'-0"	574'-0"	1'-11"x1'-3"	
D	21'-0"	20'-0"	2'-0"	574'-0"	SEE PLAN	SPREAD FOOTING
E	SEE PLAN	SEE PLAN	2'-0"	574'-0"	SEE PLAN	SPREAD FOOTING
F	5'-0"	5'-0"	2'-0"	574'-0"	1'-6"x1'-6"	
G	13'-0"	13'-0"	2'-0"	574'-0"	SEE PLAN	SPREAD FOOTING
H	12'-0"	6'-8"	2'-0"	574'-0"	1'-3"x1'-9"	
J	53'-4"	SEE PLAN	2'-0"	574'-0"	SEE PLAN	SPREAD FOOTING
K	SEE PLAN	2'-4"	2'-0"	574'-0"	N/A	STRIP FOOTING

SCALE: 3/16 INCH= FOOT

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION REFERENCE DRAWINGS LISTED BELOW AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.

4831

REF DWG NO.	DRAWING TITLE
02X-1450-S-00058	CONCRETE PLAN & DETAILS HOT RAFFINATE BUILDING C1-2
02X-1450-S-00059	CONCRETE FOOTING PLAN & DETAILS HOT RAFFINATE BUILDING C1-2

000309

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	RCW BY
0	ISSUED FOR TECHNICAL REFERENCE ONLY	N/A	SDS 25JAN02	

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY LOCKWOOD GREENE TECHNOLOGIES

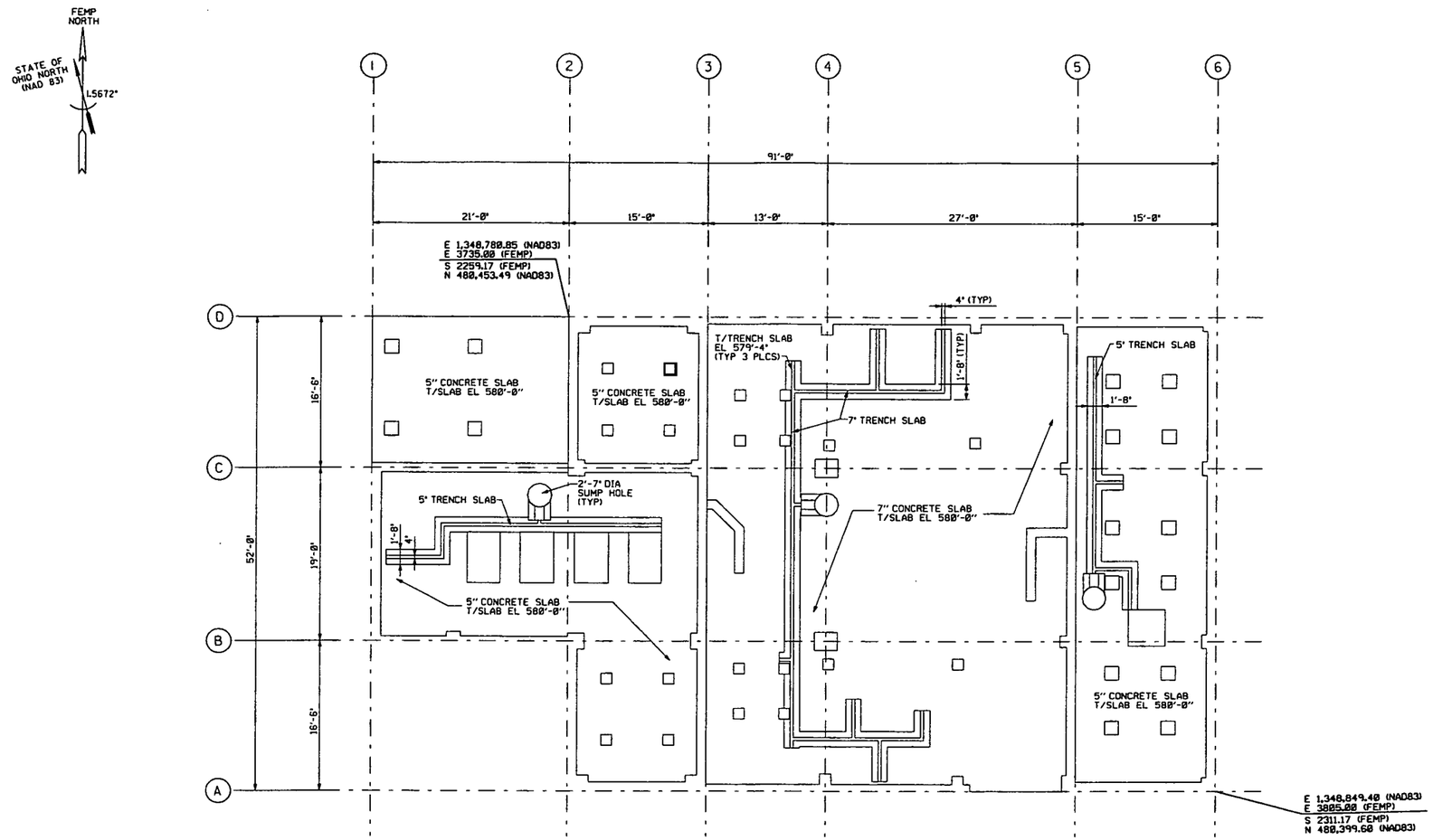
PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 19 - TECHNICAL REFERENCE DRAWING

DRAWING TITLE
STRUCTURE 3E
FOUNDATION PLAN

CONFIGURATION MANAGEMENT DRAWING — EXISTING STRUCTURES OR COMPONENTS DEPICTED ON THIS DRAWING ARE UNDER CONFIGURATION MANAGEMENT CONTROL. SEE NOTES.

COGNIZANT ENGINEER — DATE

TASK ORDER NO.	OPTIONAL NO.	SCALE 3/16" = 1'-0"
L-010	N/A	DRAWN BY J. LONG — DATE 19DEC01
AES NO. N/A	FDF PROJECT NO. 20810	TECHNICAL LEAD J. ALCORN — DATE 26DEC01
		CHECKED BY J. ALCORN — DATE 04JAN02
DRAWING INDEX CODE NO. 02X-1900-S-03459		SHEET NO. S-001 — REV. NO. 0



SLAB PLAN
SCALE: 3/16" = 1'-0"

0' 3' 6' 12' 16'
SCALE: 3/16 INCH= FOOT

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION REFERENCE DRAWINGS LISTED BELOW AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.

4831

REF DWG NO.	DRAWING TITLE
02X-1450-S-00058	CONCRETE PLAN & DETAILS HOT RAFFINATE BUILDING C1-2
02X-1450-S-00059	CONCRETE FOOTING PLAN & DETAILS HOT RAFFINATE BUILDING C1-2

000310

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	REVIS BY
		INITIALS AND DATE		
0	ISSUED FOR TECHNICAL REFERENCE ONLY	N/A	SDS 25JAN02	

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

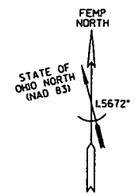
THIS DRAWING PREPARED BY LOCKWOOD GREENE TECHNOLOGIES

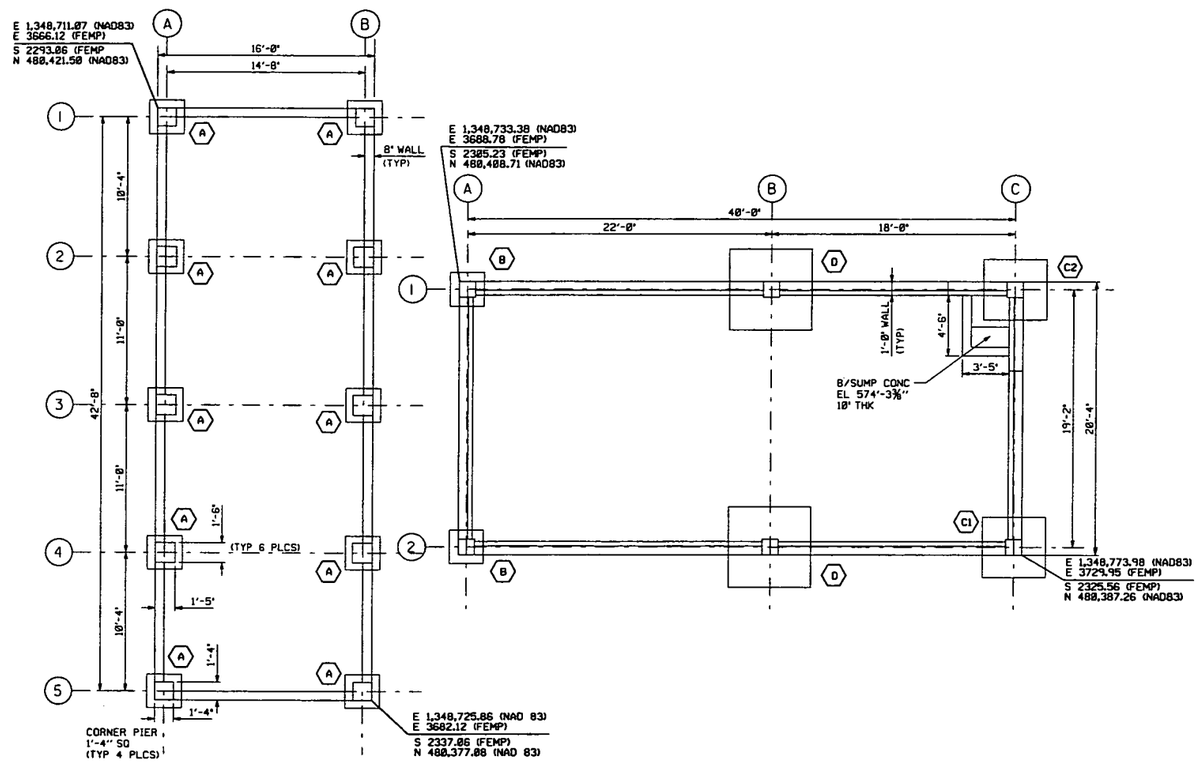
PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 19 - TECHNICAL REFERENCE DRAWING

DRAWING TITLE
STRUCTURE 3E
SLAB PLAN

CONFIGURATION MANAGEMENT DRAWING
SYSTEMS, STRUCTURES OR COMPONENTS DESIGNATED BY THIS DRAWING ARE CONFIGURATION MANAGEMENT CONTROL. SEE NOTES.
COGNIZANT ENGINEER DATE

TASK ORDER NO.	OPTIONAL NO.	SCALE 3/16" = 1'-0"
L-010	N/A	
RES NO.	FDF PROJECT NO.	DRAWN BY J. LONG — DATE 1DEC00
N/A	20810	TECHNICAL LEAD J. ALCORN — DATE 26DEC00
		CHECKED BY J. ALCORN — DATE 05JAN02
DRAWING INDEX CODE NO.		SHEET NO. / REV. NO.
02X-1900-S-03460		S-002 / 0





FOUNDATION PLAN
SCALE: ¼" = 1'-0"

FOOTING SCHEDULE

MARK	LENGTH N/S	WIDTH E/W	HEIGHT	B/FTG EL	COL PIER	REMARKS
A	2'-6"	2'-6"	0'-10"	576'-6"	SEE PLAN	
B	2'-6"	2'-6"	1'-0"	575'-6"	1'-2" X 1'-2"	
C1	4'-6"	4'-6"	1'-0"	575'-6"	1'-2" X 1'-2"	
C2	4'-6"	4'-6"	1'-0"	573'-3⅜"	1'-2" X 1'-2"	
D	6'-0"	6'-0"	1'-2"	575'-4"	1'-2" X 1'-2"	

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION REFERENCE DRAWINGS LISTED BELOW AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.

4831

REF DWG NO.	DRAWING TITLE
03A-5500-A-01023	REFRIGERATION BUILDING FLOOR PLAN
03A-5500-S-00411	DIGESTION FUME RECOVERY SYSTEM REFRIGERATION BLDG. FDN PLAN, ELEV & DETAILS
03A-5500-G-00402	DIGESTION FUME RECOVERY SYSTEM LOCATION PLAN
03A-5500-S-00403	DIGESTION FUME RECOVERY SYSTEM CONCRETE FOUNDATIONS PLAN AND ELEVATIONS
03A-5500-S-00405	DIGESTION FUME RECOVERY SYSTEM CONCRETE FOUNDATIONS SECTIONS AND DETAILS
03A-5500-A-01024	DIGESTION FUME RECOVERY FLOOR PLAN

000311

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	REVW BY
0	ISSUED FOR TECHNICAL REFERENCE ONLY	N/A	SDS 25JAN02	

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY LOCKWOOD GREENE TECHNOLOGIES

PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 19 - TECHNICAL REFERENCE DRAWING

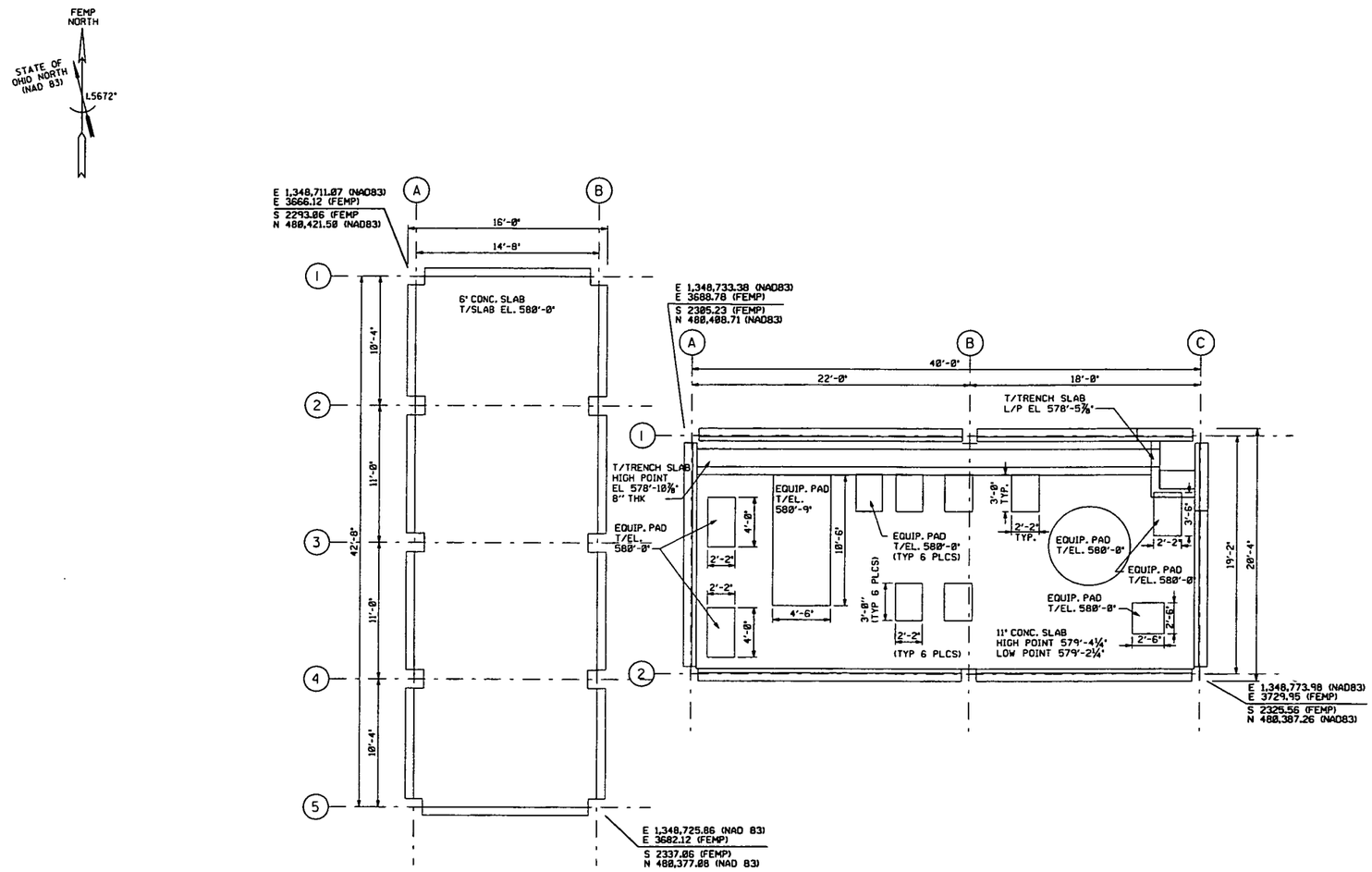
DRAWING TITLE
STRUCTURE 3G AND 3F
FOUNDATION PLAN

CONFIGURATION MANAGEMENT DRAWING
EXISTING DRAWINGS ARE CONVERTED TO CONFIGURATION MANAGEMENT DRAWINGS. SEE NOTES.

COGNIZANT ENGINEER DATE

TASK ORDER NO.	OPTIONAL NO.	SCALE	
L-010	N/A	¼" = 1'-0"	
		DRAWN BY J. LUTTRELL	DATE 28DEC01
RES NO. N/A	FOF PROJECT NO. 20810	TECHNICAL LEAD J. ALCORN	DATE 25DEC01
		CHECKED BY J. ALCORN	DATE 04JAN02
DRAWING INDEX CODE NO. 03A-1900-S-01044		SHEET NO. S-001	REV. NO. 0

0" 2" 4" 8" 12"
SCALE: 1/4 INCH= FOOT



SLAB PLAN
SCALE: ¼" = 1'-0"

SCALE: 1/4 INCH= FOOT

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION REFERENCE DRAWINGS LISTED BELOW AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.

4831

REF DWG NO.	DRAWING TITLE
03A-5500-A-01023	REFRIGERATION BUILDING FLOOR PLAN
03A-5500-S-00411	DIGESTION FUME RECOVERY SYSTEM REFRIGERATION BLDG. FDN PLAN,ELEV & DETAILS
03A-5500-C-00402	DIGESTION FUME RECOVERY SYSTEM LOCATION PLAN
03A-5500-S-00403	DIGESTION FUME RECOVERY SYSTEM CONCRETE FOUNDATIONS PLAN AND ELEVATIONS
03A-5500-S-00405	DIGESTION FUME RECOVERY SYSTEM CONCRETE FOUNDATIONS SECTIONS AND DETAILS
03A-5500-A-01024	DIGESTION FUME RECOVERY FLOOR PLAN

000312

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	REVD BY
0	ISSUED FOR TECHNICAL REFERENCE ONLY	N/A	SDS 25JAN02	

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY LOCKWOOD GREENE TECHNOLOGIES

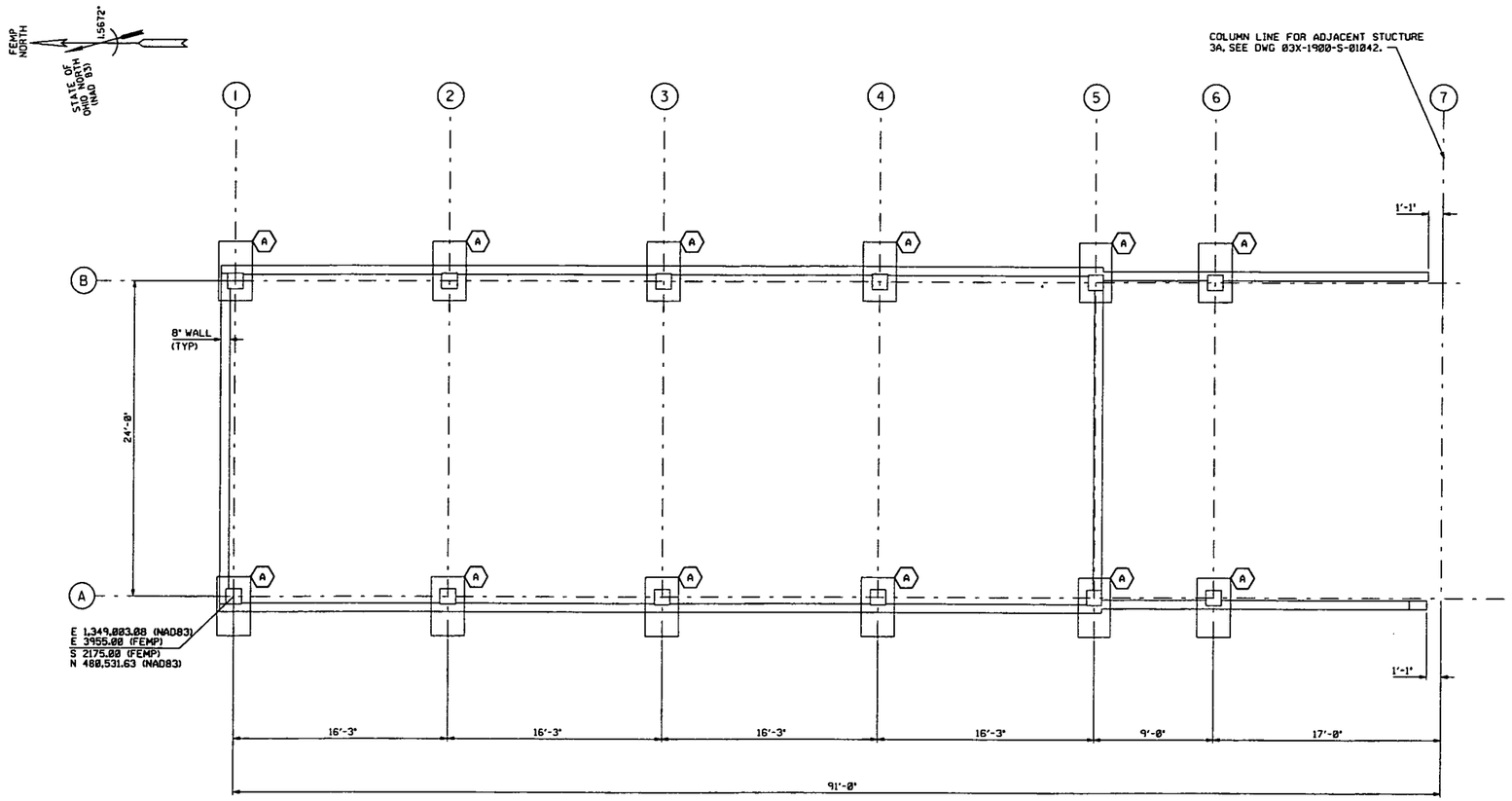
PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 19 - TECHNICAL REFERENCE DRAWING

DRAWING TITLE
STRUCTURE 3G AND 3F
SLAB PLAN

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

COGNIZANT ENGINEER DATE

TASK ORDER NO.	OPTIONAL NO.	SCALE ¼" = 1'-0"	
L-010	N/A	DRAWN BY J. LUTTRELL	DATE 26DEC01
RES NO. N/A	FDF PROJECT NO. 20810	TECHNICAL LEAD J. ALCORN	DATE 26DEC01
		CHECKED BY J. ALCORN	DATE 04JAN02
DRAWING INDEX CODE NO. 03A-1900-S-01045		SHEET NO. S-002	REV. NO. 0



FOOTING SCHEDULE

MARK	LENGTH N/S	WIDTH E/W	HEIGHT	B/FTG EL	COL PIER	REMARKS
(A)	2'-6"	4'-6"	1'-3"	574'-0"	1'-2"x1'-2"	

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

SCALE: 1/4 INCH= FOOT

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION REFERENCE DRAWINGS LISTED BELOW AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.

4831

REF DWG NO.	DRAWING TITLE
02X-1450-S-00067	CONCRETE POWER CENTER BUILDING C1-5 ORE REFINERY
03B-7000-S-00195	ELECTRIC POWER STATION CENTER BUILDING EXTENSION FOUNDATION PLAN & SECTIONS

000313

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	REVR BY
0	ISSUED FOR TECHNICAL REFERENCE ONLY	N/A	SDS 25JAN02	

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY LOCKWOOD GREENE TECHNOLOGIES

PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 19 - TECHNICAL REFERENCE DRAWING

DRAWING TITLE
STRUCTURE 3L
FOUNDATION PLAN

CONFIGURATION MANAGEMENT DRAWING

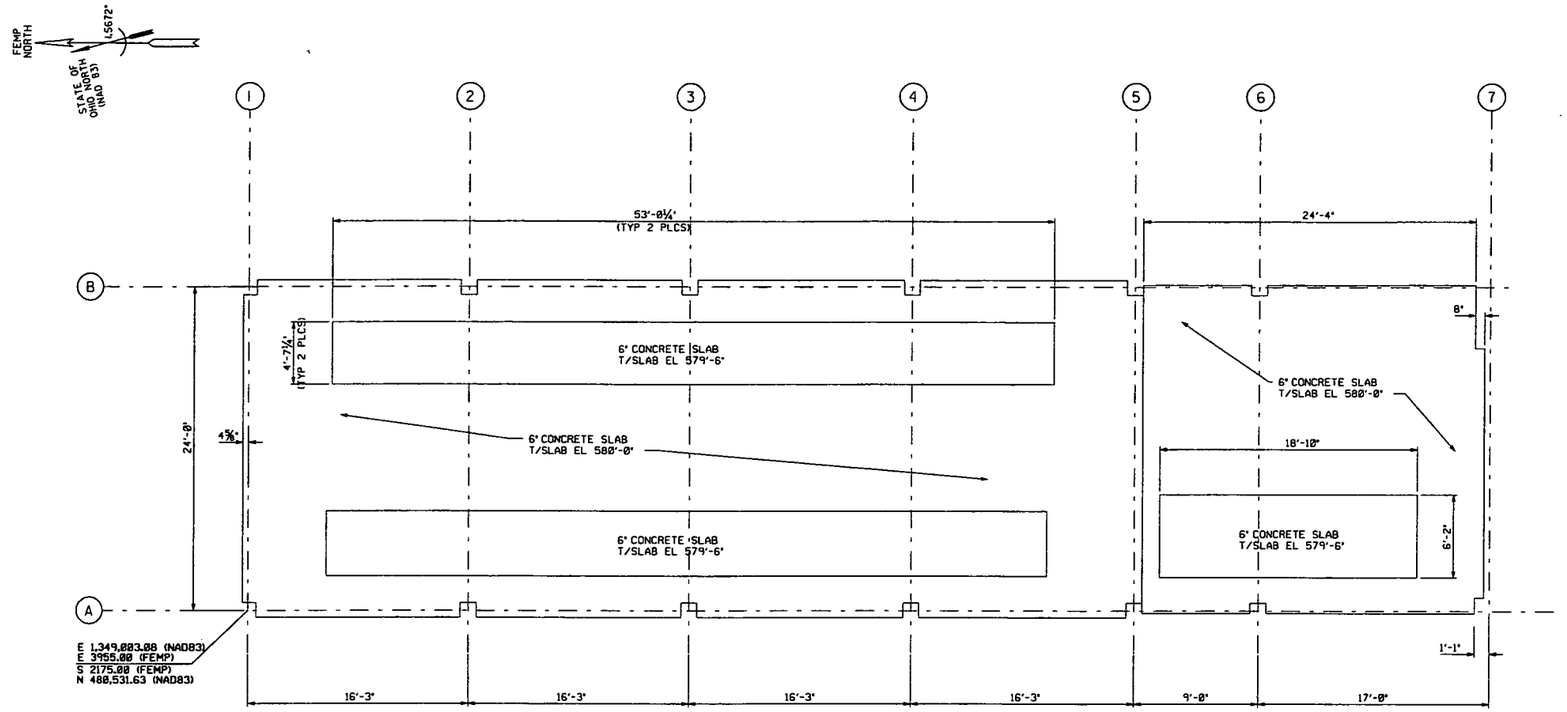
EXISTING STRUCTURES OR COMPONENTS SHOWN ON THIS DRAWING ARE UNDER CONFIGURATION MANAGEMENT CONTROL. SEE NOTES.

COGNIZANT ENGINEER DATE

TASK ORDER NO.	OPTIONAL NO.	SCALE
L-010	N/A	1/4" = 1'-0"

RES NO.	FOF PROJECT NO.	DRAWN BY	DATE
N/A	20810	G. THURMAN	28DEC01
		TECHNICAL LEAD J. ALCORN	26DEC01
		CHECKED BY J. ALCORN	05JAN02

DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
03B-1900-S-01050	S-001	0



SLAB PLAN
SCALE: ¼" = 1'-0"

0' 2' 4' 8' 12'
SCALE: 1/4 INCH= FOOT

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION REFERENCE DRAWINGS LISTED BELOW AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.

4831

REF DWG NO.	DRAWING TITLE
02X-1450-S-00067	CONCRETE POWER CENTER BUILDING C1-5 ORE REFINERY
03B-7000-S-00195	ELECTRIC POWER STATION CENTER BUILDING EXTENSION FOUNDATION PLAN & SECTIONS

000314

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	REVD BY
0	ISSUED FOR TECHNICAL REFERENCE ONLY	N/A	SDS 25JAN02	

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
LOCKWOOD GREENE TECHNOLOGIES

PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 19 - TECHNICAL REFERENCE DRAWING

DRAWING TITLE
STRUCTURE 3L
SLAB PLAN

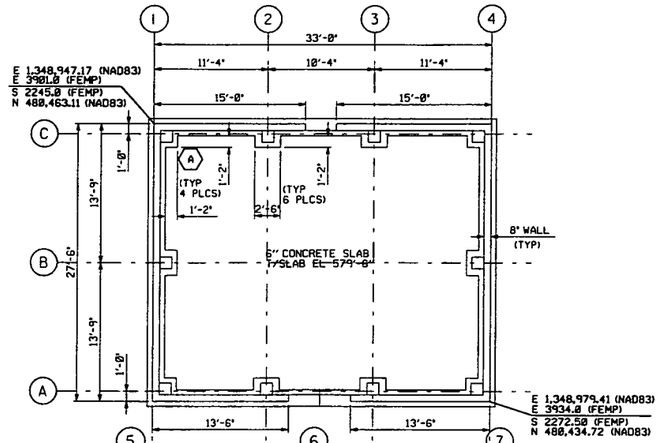
CONFIGURATION MANAGEMENT DRAWING
USE LATEST REVISION OF CONFIGURATION MANAGEMENT CONTROLLED DRAWINGS. USE LATEST REVISION.

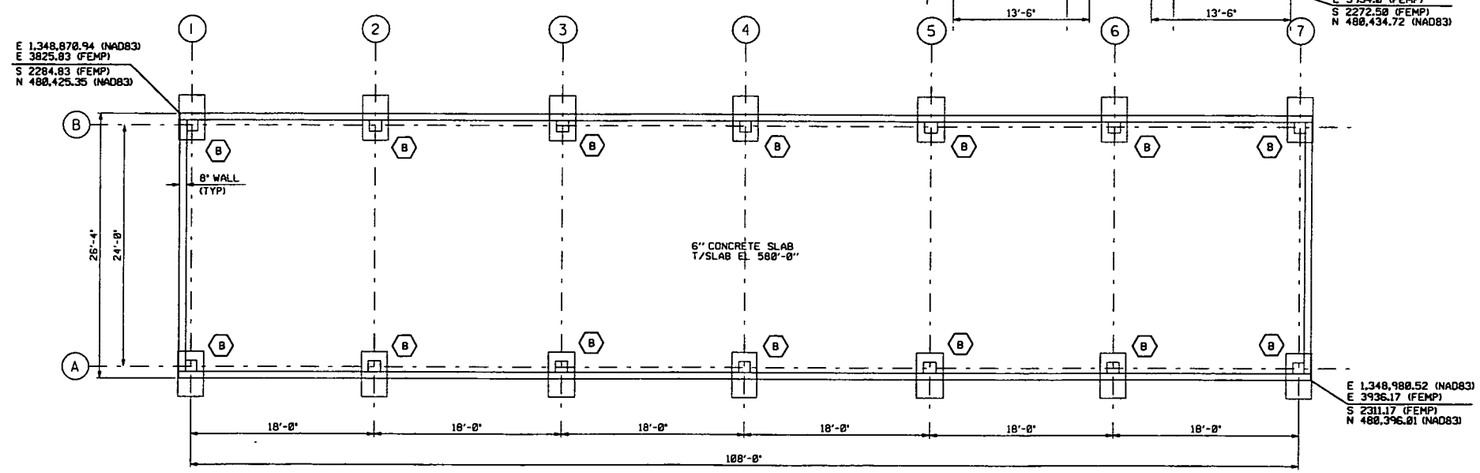
COGNIZANT ENGINEER DATE

TASK ORDER NO.	OPTIONAL NO.	SCALE ¼" = 1'-0"	
L-010	N/A	DRAWN BY G. THURMAN	DATE 20DEC01
RES NO. N/A	FOF PROJECT NO. 20810	TECHNICAL LEAD J. ALCORN	DATE 26DEC01
		CHECKED BY J. ALCORN	DATE 05JAN02
DRAWING INDEX CODE NO. 03B-1900-S-01051		SHEET NO. S-002	REV. NO. 0

FOOTING SCHEDULE

MARK	LENGTH N/S	WIDTH E/W	HEIGHT	B/FTG EL	COL PIER	REMARKS
A	SEE PLAN	SEE PLAN	0'-8"	577'-0"	N/A	STRIP FOOTING
B	4'-6"	2'-6"	1'-3"	574'-0"	1'-2" X 1'-1"	





FOUNDATION AND SLAB PLAN
SCALE: 3/16"=1'-0"

SCALE: 3/16 INCH= FOOT

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION REFERENCE DRAWINGS LISTED BELOW AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.

4831

REF DWG NO.	DRAWING TITLE
03X-1450-S-00006	CONCRETE FOUNDATION PLAN & DETAILS CONTROL BLDG
03X-5500-A-01033	OZONE BUILDING FLOOR PLAN
03X-1450-A-00527	PLAN FOR OZONE BLDG NITRIC-ACID-RECOVERY

000315

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	REVD BY
0	ISSUED FOR TECHNICAL REFERENCE ONLY	N/A	SDS 25JAN02	

DETAILS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY LOCKWOOD GREENE TECHNOLOGIES

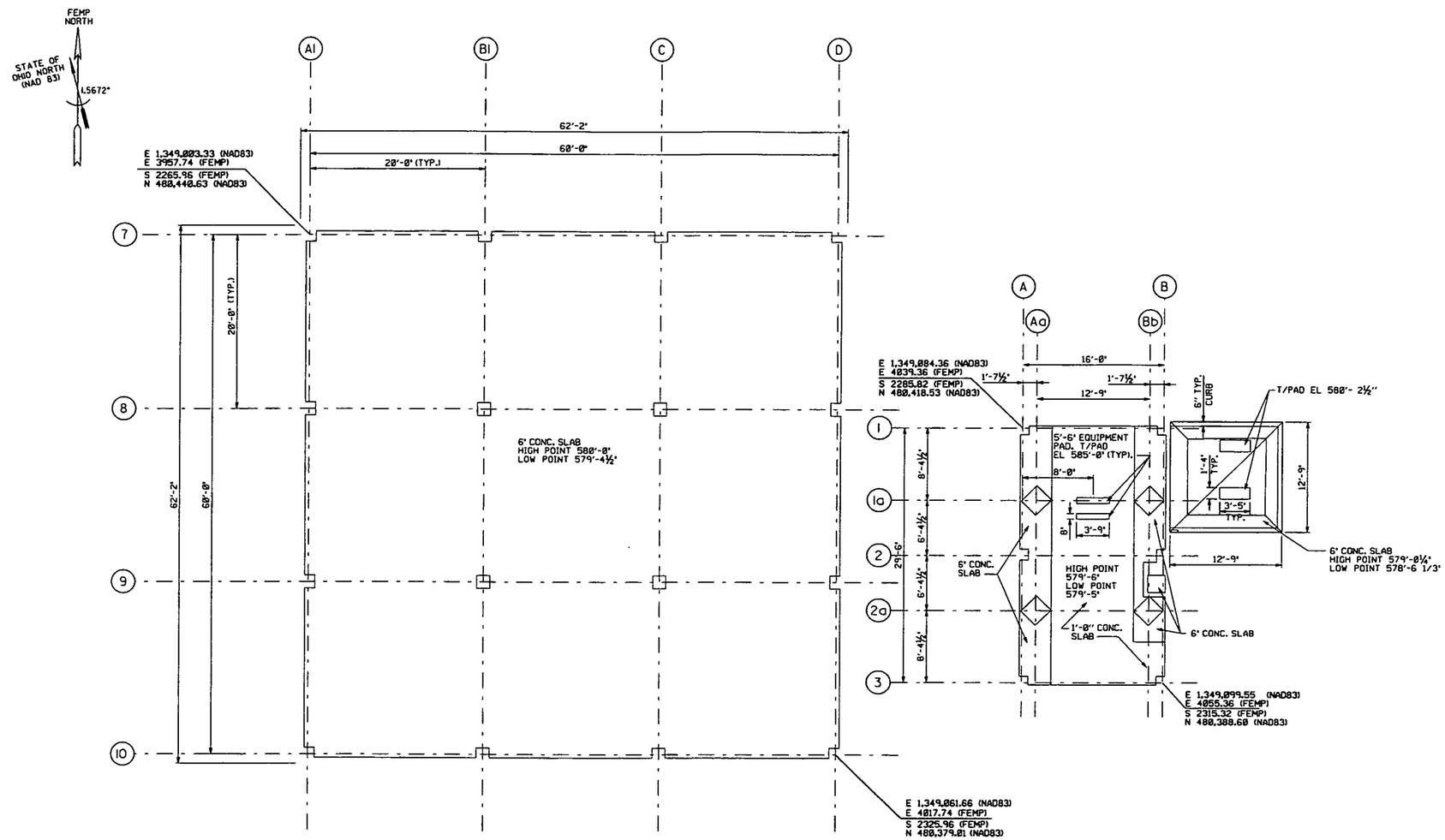
PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 19 - TECHNICAL REFERENCE DRAWING

DRAWING TITLE
STRUCTURE 3C AND 3B
FOUNDATION AND SLAB PLAN

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

TASK ORDER NO.	OPTIONAL NO.	SCALE	
L-010	N/A	3/16"=1'-0"	
		DRAWN BY J. LUTTRELL	DATE 19DEC01
RES NO. N/A	FOF PROJECT NO. 20810	TECHNICAL LEAD J. ALCORN	DATE 26DEC01
		CHECKED BY J. ALCORN	DATE 04JAN02
DRAWING INDEX CODE NO. 03X-1900-S-01041		SHEET NO. S-001	REV. NO. 0

COGNIZANT ENGINEER DATE



SLAB PLAN
SCALE: 3/16"=1'-0"

0' 3' 6' 12' 15'
SCALE: 3/16 INCH= FOOT

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION REFERENCE DRAWINGS LISTED BELOW AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.

4831

REF DWG NO.	DRAWING TITLE
038-7000-S-00161	ORE REFINERY WAREHOUSE & MAINTENANCE BUILDING FOUNDATION PLAN & SECTIONS
02E-550-A-03354	BULK LIME HANDLING FLOOR PLAN
18A-5500-S-00124	BULK LIME HANDLING SYSTEM CONCRETE SILO FOOTINGS & SLAKER BLDG FDNS
18X-3900-S-00800	GENERAL SUMP LIME BUILDING FOUNDATIONS
18X-3900-S-00831	GENERAL SUMP LIME BUILDING DEMOLITION

000316

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	NCSD BY
		INITIALS AND DATE		
0	ISSUED FOR TECHNICAL REFERENCE ONLY	N/A	SDS 25JAN02	

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY LOCKWOOD GREENE TECHNOLOGIES

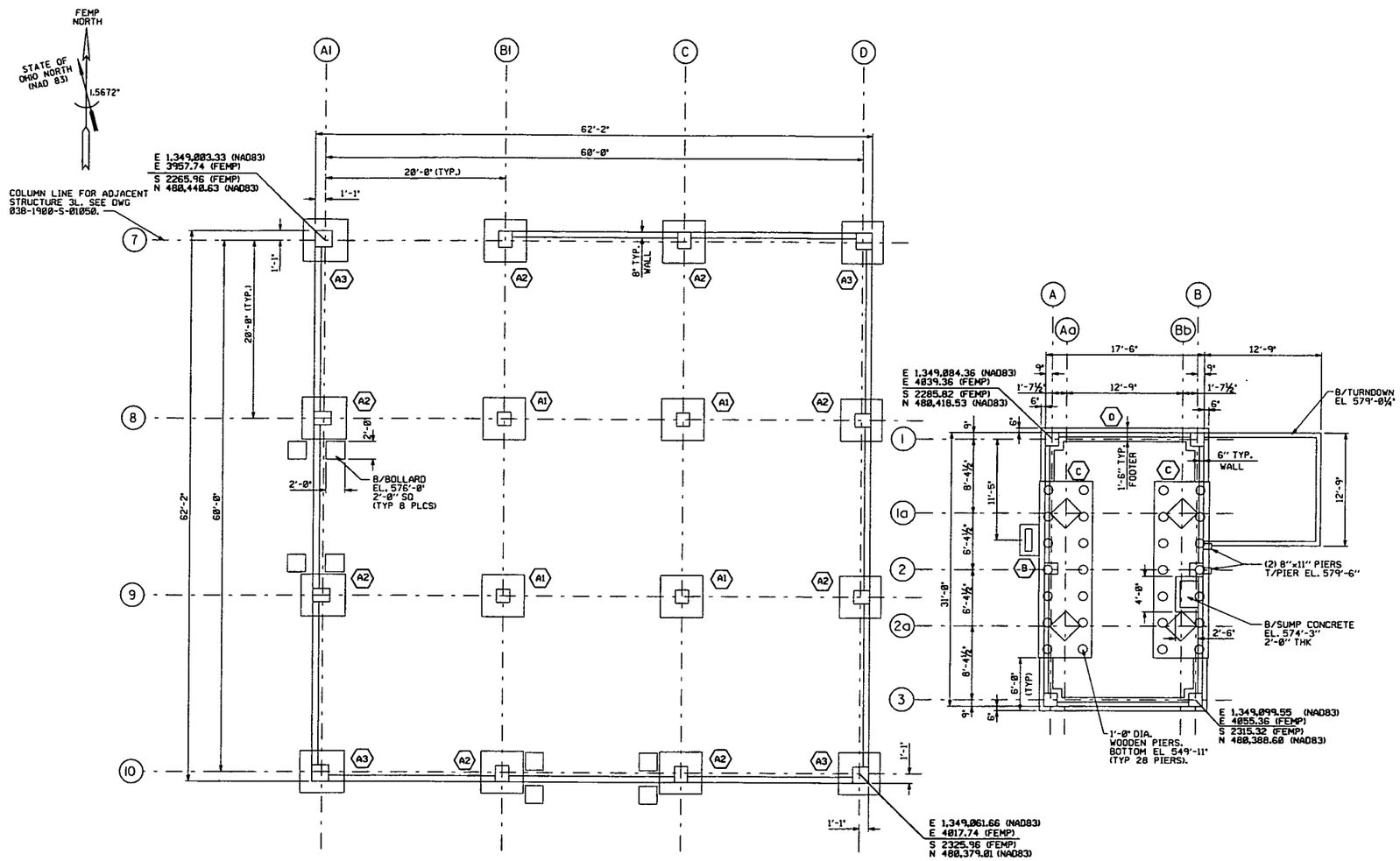
PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 19 - TECHNICAL REFERENCE DRAWING

DRAWING TITLE
STRUCTURE 3A AND 2C
SLAB PLAN

CONFIGURATION MANAGEMENT DRAWING
SYSTEMS ATTRIBUTES OR COMPONENTS CONTROLLED BY CONFIGURATION MANAGEMENT CONTROL. SEE NOTES.

COGNIZANT ENGINEER DATE

TASK ORDER NO.	OPTIONAL NO.	SCALE	
L-010	N/A	3/16"=1'-0"	
		DRAWN BY J. LUTTRELL	DATE 18DEC01
JES NO. N/A	J OF PROJECT NO. 20810	TECHNICAL LEAD J. ALCORN	DATE 26DEC01
		CHECKED BY J. ALCORN	DATE 04JAN02
DRAWING INDEX CODE NO. 03X-1900-S-01043		SHEET NO. S-002	REV. NO. 0



FOOTING SCHEDULE

MARK	LENGTH N/S	WIDTH E/W	HEIGHT	B/FTG EL	COL PIER	REMARKS
A1	4'-9"	4'-9"	1'-3"	574'-6"	1'-6" X 1'-6"	
A2	4'-9"	4'-9"	1'-3"	574'-6"	1'-10" X 1'-6"	
A3	4'-9"	4'-9"	1'-3"	574'-6"	1'-10" X 1'-10"	
B	3'-6"	2'-2"	1'-0"	574'-3"	0'-9" X 2'-6"	
C	20'-0"	6'-0"	2'-0"	574'-3"	2'-4" X 2'-6"	PIERS ROTATED
D	SEE PLAN	SEE PLAN	1'-0"	574'-3"	1'-6" X 1'-6" CORNER 1'-3" X 1'-6" WALL	STRIP FOOTING

FOUNDATION PLAN

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

SCALE: 3/16 INCH= FOOT

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION REFERENCE DRAWINGS LISTED BELOW AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.

4831

REF DWG NO.	DRAWING TITLE
038-7000-S-00161	ORE REFINERY WAREHOUSE & MAINTENANCE BUILDING FOUNDATION PLAN & SECTIONS
02E-550-A-03354	BULK LIME HANDLING FLOOR PLAN
18A-5500-S-00124	BULK LIME HANDLING SYSTEM CONCRETE SILO FOOTINGS & SLAKER BLDG FDNS
18X-3900-S-00800	GENERAL SUMP LIME BUILDING FOUNDATIONS
18X-3900-S-00831	GENERAL SUMP LIME BUILDING DEMOLITION

000317

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	RCM BY
0	ISSUED FOR TECHNICAL REFERENCE ONLY	N/A	SDS 25JAN02	

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY LOCKWOOD GREENE TECHNOLOGIES

PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 19 - TECHNICAL REFERENCE DRAWING

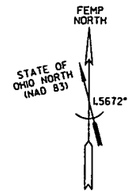
DRAWING TITLE
STRUCTURE 3A AND 2C
FOUNDATION PLAN

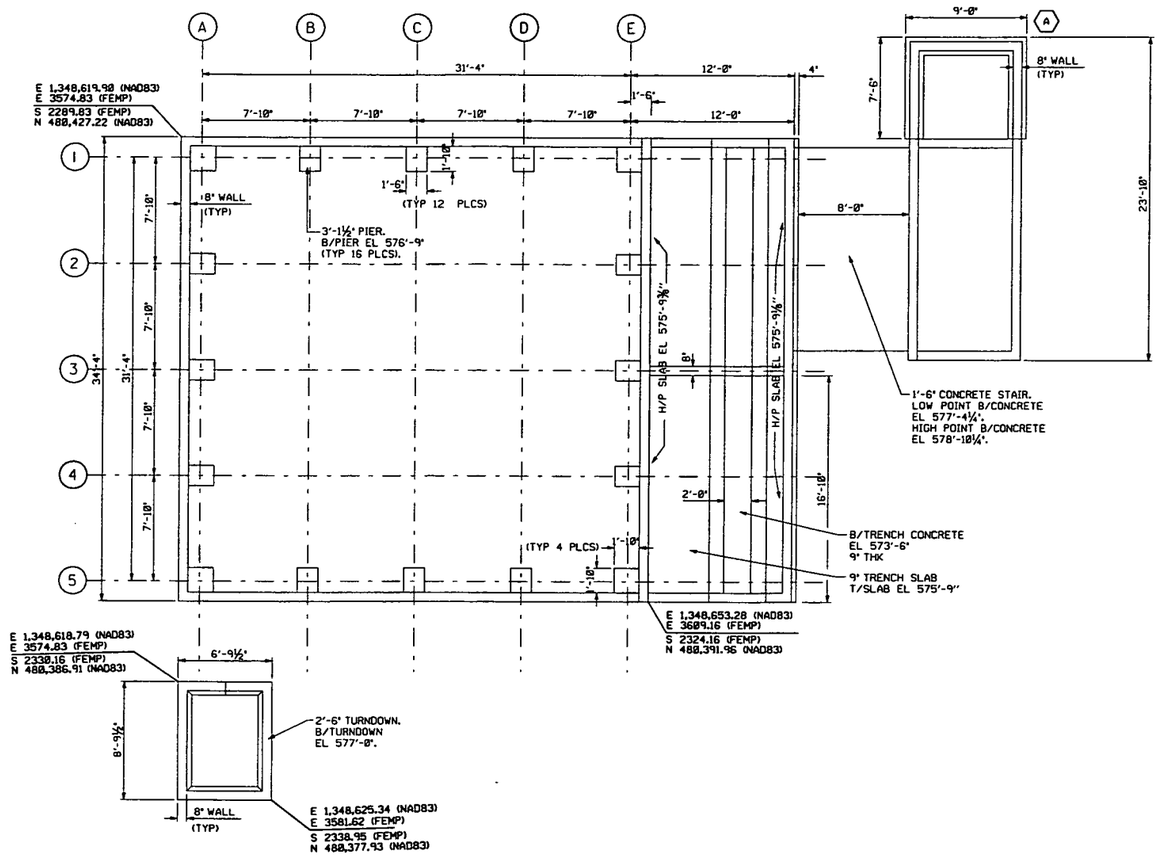
CONFIGURATION MANAGEMENT DRAWING

EXISTING STRUCTURES OR COMPONENTS AFFECTED BY THIS DRAWING ARE UNDER CONFIGURATION MANAGEMENT CONTROL. SEE NOTES.

COGNIZANT ENGINEER DATE

TASK ORDER NO.	OPTIONAL NO.	SCALE 3/16"=1'-0"
L-010	N/A	DRAWN BY J. LUTTRELL — DATE 18DEC01
RES NO. N/A	FEP PROJECT NO. 20810	TECHNICAL LEAD J. ALCORN — DATE 26DEC01
		CHECKED BY J. ALCORN — DATE 04JAN02
DRAWING INDEX CODE NO. 03X-1900-S-01042		SHEET NO. S-001 — REV. NO. 0





FOUNDATION PLAN
SCALE: ¼" = 1'-0"

FOOTING SCHEDULE

MARK	LENGTH N/S	WIDTH E/W	HEIGHT	B/FTG EL	COL PIER	REMARKS
A	SEE PLAN	1'-4"	0'-9"	573'-6"	N/A	STRIP FOOTING

SCALE: 1/4 INCH= FOOT

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION REFERENCE DRAWINGS LISTED BELOW AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.

4831

REF DWG NO.	DRAWING TITLE
39X-7000-A-00062	INCINERATOR BUILDING SPRINKLER RISER HOUSE
03X-7000-S-00216	COOLING TOWER AREA STRUC. CONC. PLAN & SECT'S
03X-7000-S-00217	COOLING TOWER AREA STRUC. CONC. PLAN & SECT'S
03X-7000-S-00244	COOLING TOWER AREA LIMESTONE PIT STRUC. CONC. - PLAN & SECTIONS

000318

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	REVR BY
0	ISSUED FOR TECHNICAL REFERENCE ONLY	N/A	SDS 25JAN02	

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY LOCKWOOD GREENE TECHNOLOGIES

PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 19 - TECHNICAL REFERENCE DRAWING

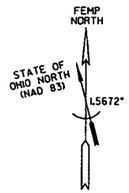
DRAWING TITLE
STRUCTURE 39C AND 3K
FOUNDATION PLAN

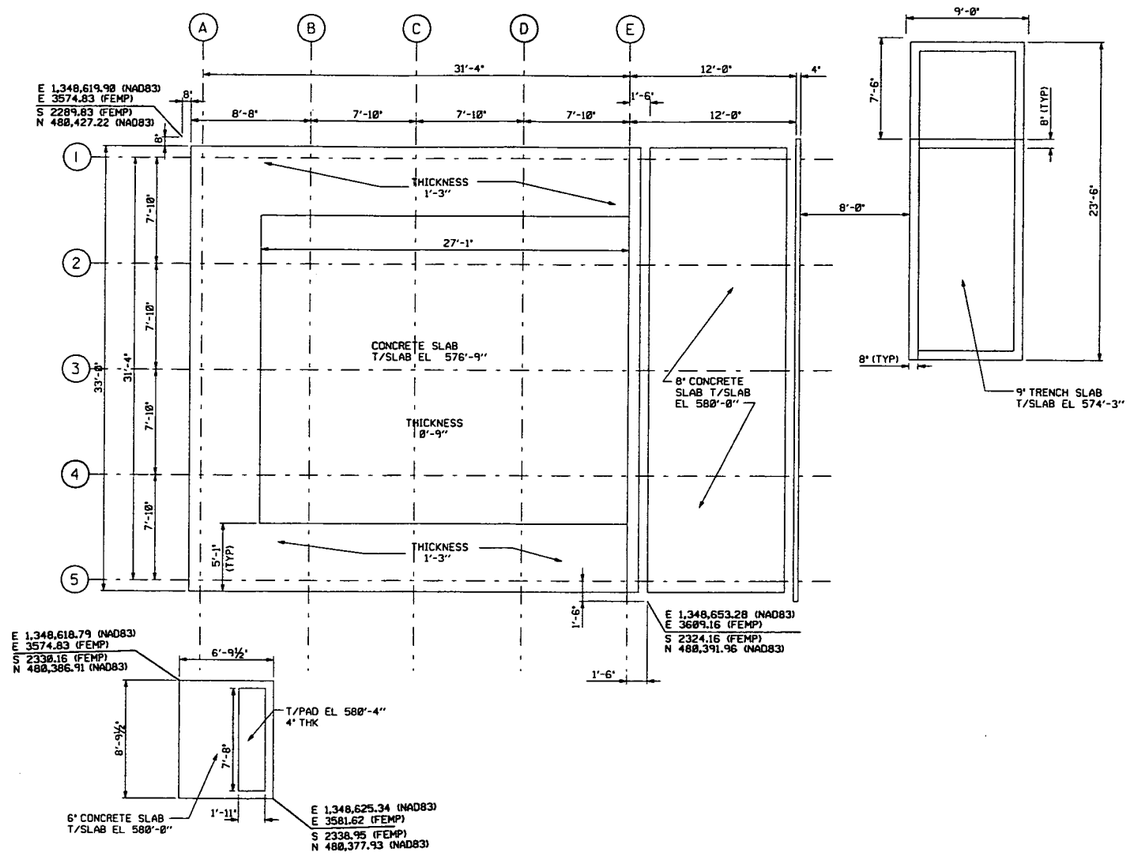
CONFIGURATION MANAGEMENT DRAWING

EXISTING STRUCTURES OR COMPONENTS SHOWN AS THUS DRAWN MAY VARY. SEE SCHEDULE MANAGEMENT CONTROL. SEE NOTES.

COGNIZANT ENGINEER DATE

TASK ORDER NO.	OPTIONAL NO.	SCALE	
L-010	N/A	¼" = 1'-0"	
		DRAWN BY J. LONG	DATE 19DEC01
REF NO. N/A	FOF PROJECT NO. 20810	TECHNICAL LEAD J. ALCORN	DATE 26DEC01
		CHECKED BY J. ALCORN	DATE 04JAN02
DRAWING INDEX CODE NO. 03X-1900-S-01046		SHEET NO. S-001	REV. NO. 0





SLAB PLAN
SCALE: ¼" = 1'-0"

0" 2" 4" 8" 12"
SCALE: 1/4 INCH= FOOT

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION REFERENCE DRAWINGS LISTED BELOW AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.

4831

REF DWG NO.	DRAWING TITLE
39X-7000-A-00062	INCINERATOR BUILDING SPRINKLER RISER HOUSE
03X-7000-S-00216	COOLING TOWER AREA STRUC. CONC. PLAN & SECT'S
03X-7000-S-00217	COOLING TOWER AREA STRUC. CONC. PLAN & SECT'S
03X-7000-S-00244	COOLING TOWER AREA LIMESTONE PIT STRUC. CONC. - PLAN & SECTIONS

000319

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	REVW BY
		INITIALS AND DATE		
0	ISSUED FOR TECHNICAL REFERENCE ONLY	N/A	SDS 25JAN02	

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

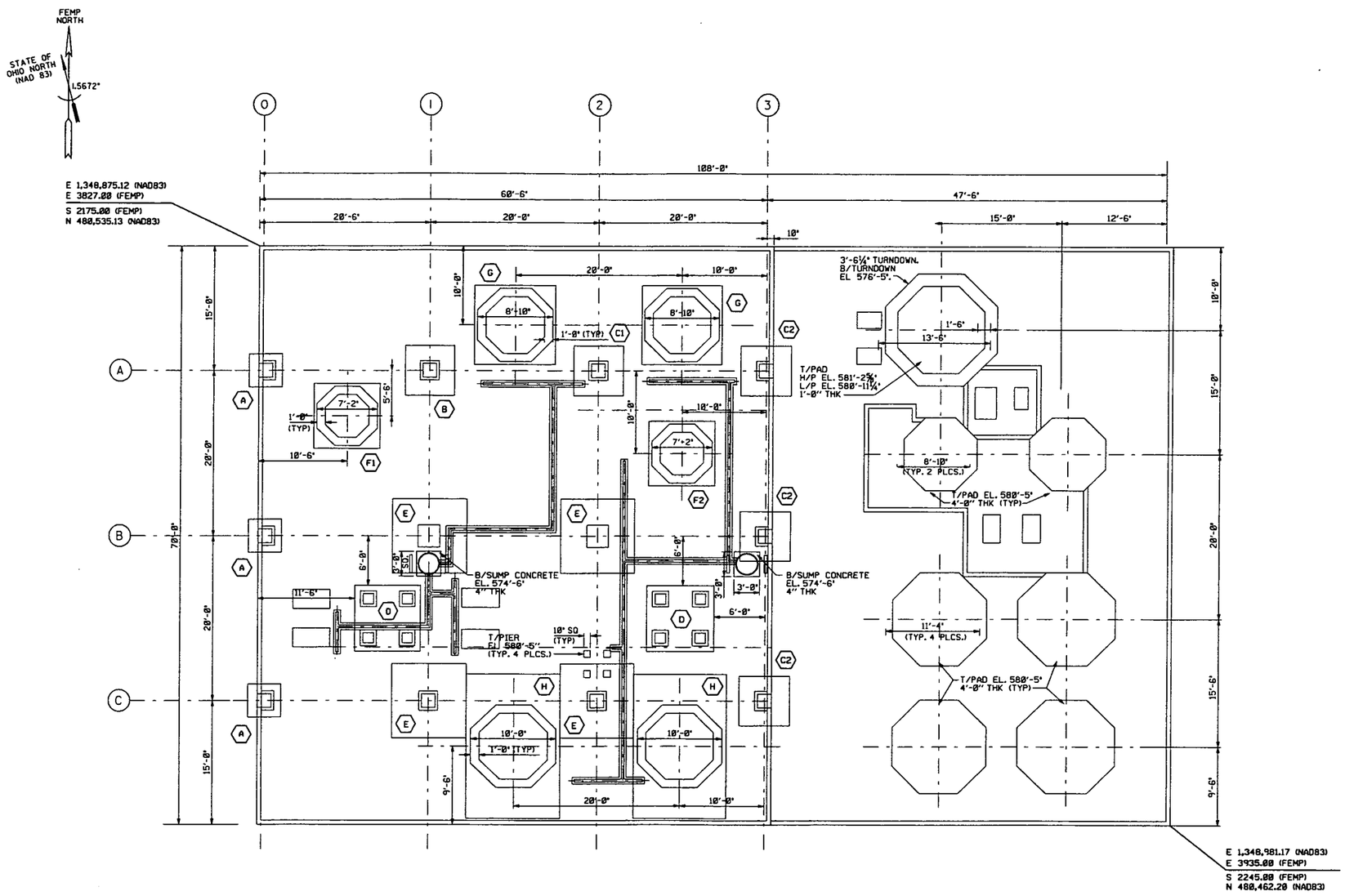
THIS DRAWING PREPARED BY LOCKWOOD GREENE TECHNOLOGIES

PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 19 - TECHNICAL REFERENCE DRAWING

DRAWING TITLE
STRUCTURE 39C AND 3K
SLAB PLAN

CONFIGURATION MANAGEMENT DRAWING
STATUS: ☐ "AS-BUILT" OR ☐ "AS-CHECKED" DRAWING. ☐ CONTROLLED BY CONFIGURATION MANAGEMENT CONTROL. SEE NOTES.

TASK ORDER NO.	OPTIONAL NO.	SCALE	
L-010	N/A	¼" = 1'-0"	
		DRAWN BY J. LONG	DATE 28DEC01
RES NO. N/A	FOF PROJECT NO. 20810	TECHNICAL LEAD J. ALCORN	DATE 26DEC01
		CHECKED BY J. ALCORN	DATE 04JAN02
COGNIZANT ENGINEER	DATE	DRAWING INDEX CODE NO. 03X-1900-S-01047	SHEET NO. S-002 / REV. NO. 0



FOOTING SCHEDULE

MARK	LENGTH N/S	WIDTH E/W	HEIGHT	B/FTG EL	COL PIER	REMARKS
A	4'-0"	4'-0"	1'-0"	574'-0"	2'-4" X 1'-6"	
B	6'-0"	6'-0"	1'-3"	572'-5"	1'-8" X 1'-8"	
C1	6'-0"	6'-0"	1'-6"	571'-11"	1'-8" X 1'-8"	
C2	6'-0"	6'-0"	1'-6"	571'-11"	2'-4" X 1'-6"	
D	8'-0"	8'-0"	1'-3"	571'-11"	1'-3" X 1'-3"	TOTAL PIERS 4
E	9'-0"	9'-0"	1'-6"	571'-11"	1'-8" X 1'-8"	
F1	7'-10"	7'-10"	1'-0"	573'-5"	SEE PLAN	TANK FOUNDATION
F2	7'-10"	7'-10"	1'-6"	572'-11"	SEE PLAN	TANK FOUNDATION
G	9'-6"	9'-6"	1'-0"	571'-11"	SEE PLAN	TANK FOUNDATION
H	17'-6"	11'-0"	1'-6"	571'-11"	SEE PLAN	TANK FOUNDATION

FOUNDATION PLAN
SCALE: 3/16" = 1'-0"

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION REFERENCE DRAWINGS LISTED BELOW AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.

4831

REF DWG NO.	DRAWING TITLE
03X-1450-S-00013	CONCRETE FOUNDATION PLAN AND DETAILS NITRIC ACID RECOVERY
03X-1450-S-00014	CONCRETE EQUIPMENT FOUNDATION DETAILS NITRIC ACID RECOVERY
03X-5500-S-00761	REPLACEMENT OF NITRIC ACID RECOVERY PAD CONCRETE PAD PLAN, VIEW & SECTIONS
03X-5500-S-00762	REPLACEMENT OF NITRIC ACID RECOVERY PAD CONCRETE JOINT SEALS SECTIONS & VIEW
03X-5500-S-00763	REPLACEMENT OF NITRIC ACID RECOVERY PAD SUMPS 7 DRAIN VIEWS & SECTIONS
03X-7000-S-00206	NITRIC ACID RECOVERY AREA EXPANSION FOR CONCENTRATOR FDN PLAN & DETAILS
03X-7000-S-00675	CONCRETE COLLAR FOR PIERS B1 & B2
03X-5500-S-00817	NITRIC ACID RECOVERY TOWER EAST AREA RETENTION DIKE PLAN-SECTIONS-DETAILS
03X-7000-S-00276	OZONATION FACILITIES EXPANSION ALTERATIONS-STEEL & CONCRETE

000320

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	REVIEW BY
0	ISSUED FOR TECHNICAL REFERENCE ONLY	N/A	SDS 25JAN02	

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY LOCKWOOD GREENE

PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 19 - TECHNICAL REFERENCE DRAWING

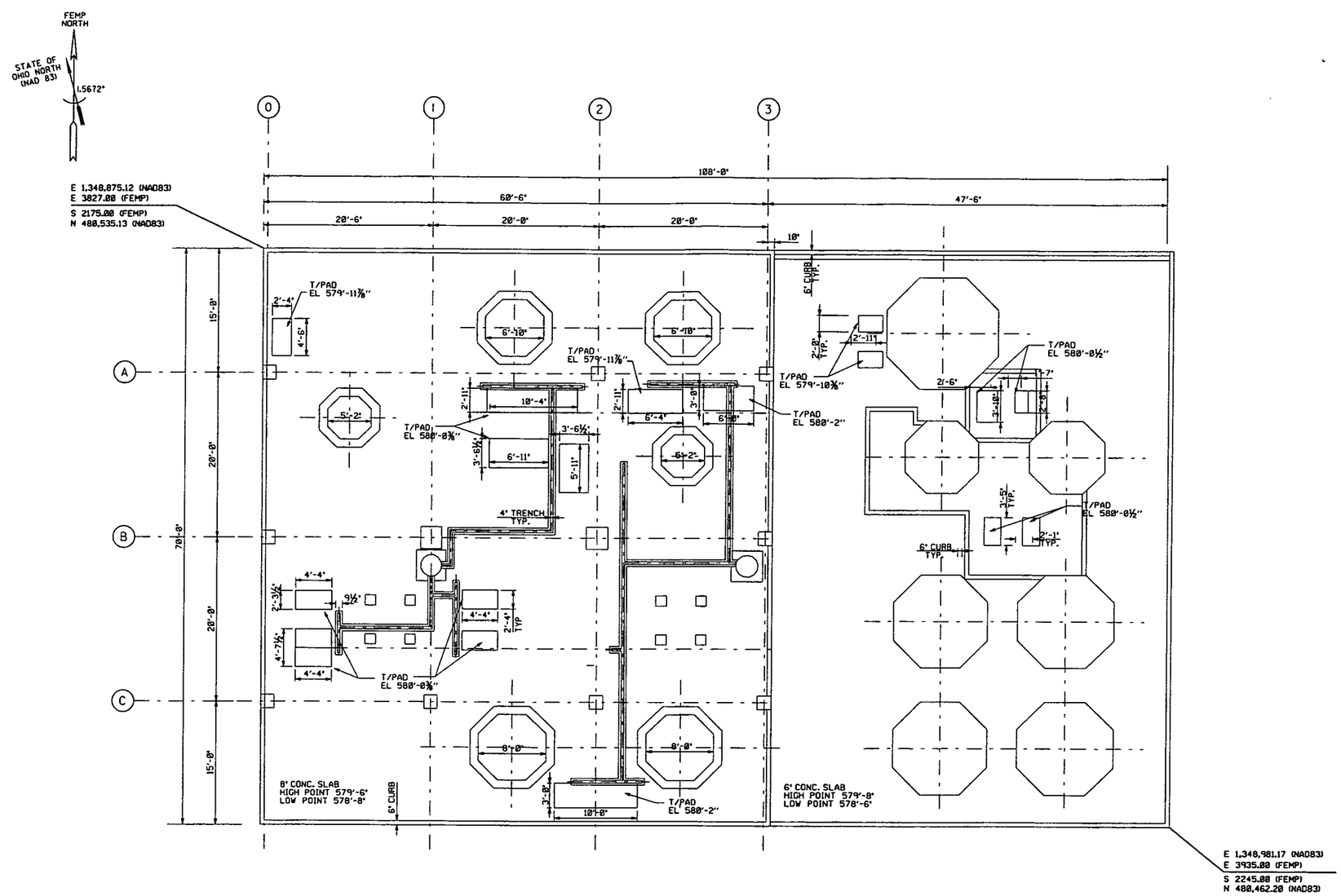
DRAWING TITLE
STRUCTURE 3D
FOUNDATION PLAN

CONFIGURATION MANAGEMENT DRAWING

TASK ORDER NO.	OPTIONAL NO.	SCALE 3/16" = 1'-0"
L-010	N/A	DRAWN BY J. LUTTRELL — DATE 26DEC01
RES NO. N/A	FDF PROJECT NO. 20810	TECHNICAL LEAD J. ALCORN — DATE 26DEC01
		CHECKED BY J. ALCORN — DATE 04JAN02

COGNIZANT ENGINEER — DATE

DRAWING INDEX CODE NO. 03X-1900-S-01048 — SHEET NO. S-001 — REV. NO. 0



SLAB PLAN
SCALE: 3/16" = 1'-0"

SCALE: 3/16 INCH= FOOT

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION REFERENCE DRAWINGS LISTED BELOW AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.

4831

REF DWG NO.	DRAWING TITLE
03X-1450-S-00013	CONCRETE FOUNDATION PLAN AND DETAILS NITRIC ACID RECOVERY
03X-1450-S-00014	CONCRETE EQUIPMENT FOUNDATION DETAILS NITRIC ACID RECOVERY
03X-5500-S-00761	REPLACEMENT OF NITRIC ACID RECOVERY PAD CONCRETE PAD PLAN VIEW & SECTIONS
03X-5500-S-00762	REPLACEMENT OF NITRIC ACID RECOVERY PAD CONCRETE JOINT SEALS SECTIONS & VIEW
03X-5500-S-00763	REPLACEMENT OF NITRIC ACID RECOVERY PAD SUMPS & DRAIN VIEWS & SECTIONS
03X-7000-S-00206	NITRIC ACID RECOVERY AREA EXPANSION FOR CONCENTRATOR FDN PLAN & DETAILS
03X-7000-S-00675	CONCRETE COLLAR FOR PIERS B1 & B2
03X-5500-S-00817	NITRIC ACID RECOVERY TOWER EAST AREA RETENTION DIKE PLAN-SECTIONS-DETAILS
03X-7000-S-00276	OZONATION FACILITIES EXPANSION ALTERATIONS-STEEL& CONCRETE

000321

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	ACTN BY
0	ISSUED FOR TECHNICAL REFERENCE ONLY	N/A	SDS 25JAN02	

DETAILS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY LOCKWOOD GREENE TECHNOLOGIES

PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 19 - TECHNICAL REFERENCE DRAWING

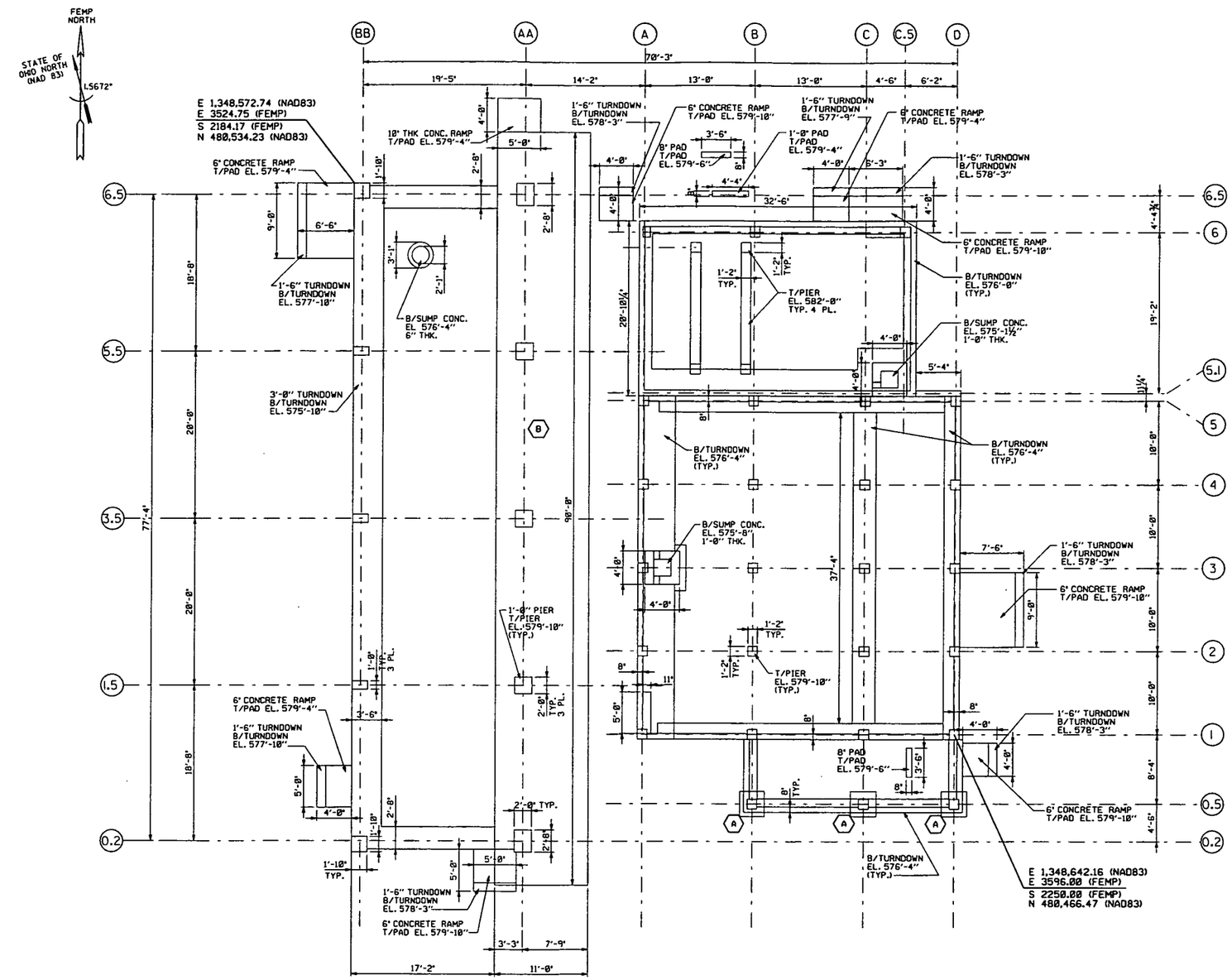
DRAWING TITLE
STRUCTURE 3D
SLAB PLAN

CONFIGURATION MANAGEMENT DRAWING

EXISTING STRUCTURES OR COMPONENTS SHOWN ON THIS DRAWING ARE UNDER CONFIGURATION MANAGEMENT CONTROL. SEE NOTES.

COGNIZANT ENGINEER DATE

TASK ORDER NO.	OPTIONAL NO.	SCALE 3/16" = 1'-0"
L-010	N/A	DRAWN BY J. LUTTRELL — DATE 26DEC01
RES NO. N/A	FOR PROJECT NO. 20810	TECHNICAL LEAD J. ALCORN — DATE 26DEC01
		CHECKED BY J. ALCORN — DATE 04JAN02
DRAWING MOCK CODE NO. 03X-1900-S-01049		SHEET NO. S-002 — REV. NO. 0



FOUNDATION PLAN
SCALE: 3/16"=1'-0"

FOOTING SCHEDULE

MARK	LENGTH N/S	WIDTH E/W	HEIGHT	B/FTG EL	COL PIER	REMARKS
A	3'-0"	3'-0"	1'-0"	576'-4"	1'-2"x1'-2"	
B	90'-0"	11'-0"	6'-0"	572'-0"	SEE PLAN	

SCALE: 3/16 INCH= FOOT

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION REFERENCE DRAWINGS LISTED BELOW AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.
2. ALTERNATE COLUMN DESIGNATIONS SHOWN ON SAME REFERENCE DRAWINGS, LISTED BELOW.

4831

REF DWG NO.	DRAWING TITLE
18D-5900-S-00438	BDN FACILITY UPGRADE FOUNDATION AND SLAB PLAN, SECTIONS & DETAILS
18D-5900-S-00439	BDN FACILITY UPGRADE CONCRETE SECTIONS & DETAILS
18D-1920-S-00287	BIODENITRIFICATION SYSTEM BIOREACTOR FOUNDATION PLAN & SECTIONS
18D-1920-S-00288	BIODENITRIFICATION SYSTEM METHCANOL STORAGE FOUNDATION PLAN & SECTIONS
18D-1900-S-00192	WATER POLLUTION CONTROL FOUNDATION AND SLAB PLAN
18D-1900-S-00193	WATER POLLUTION CONTROL SECTIONS & DETAILS
18D-1900-S-00199	WATER POLLUTION CONTROL SECTIONS & DETAILS

000322

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	DETAILS AND DATE	BCHK BY
0	ISSUED FOR TECHNICAL REFERENCE ONLY	N/A	SDS 25JAN02		

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY LOCKWOOD GREENE TECHNOLOGIES

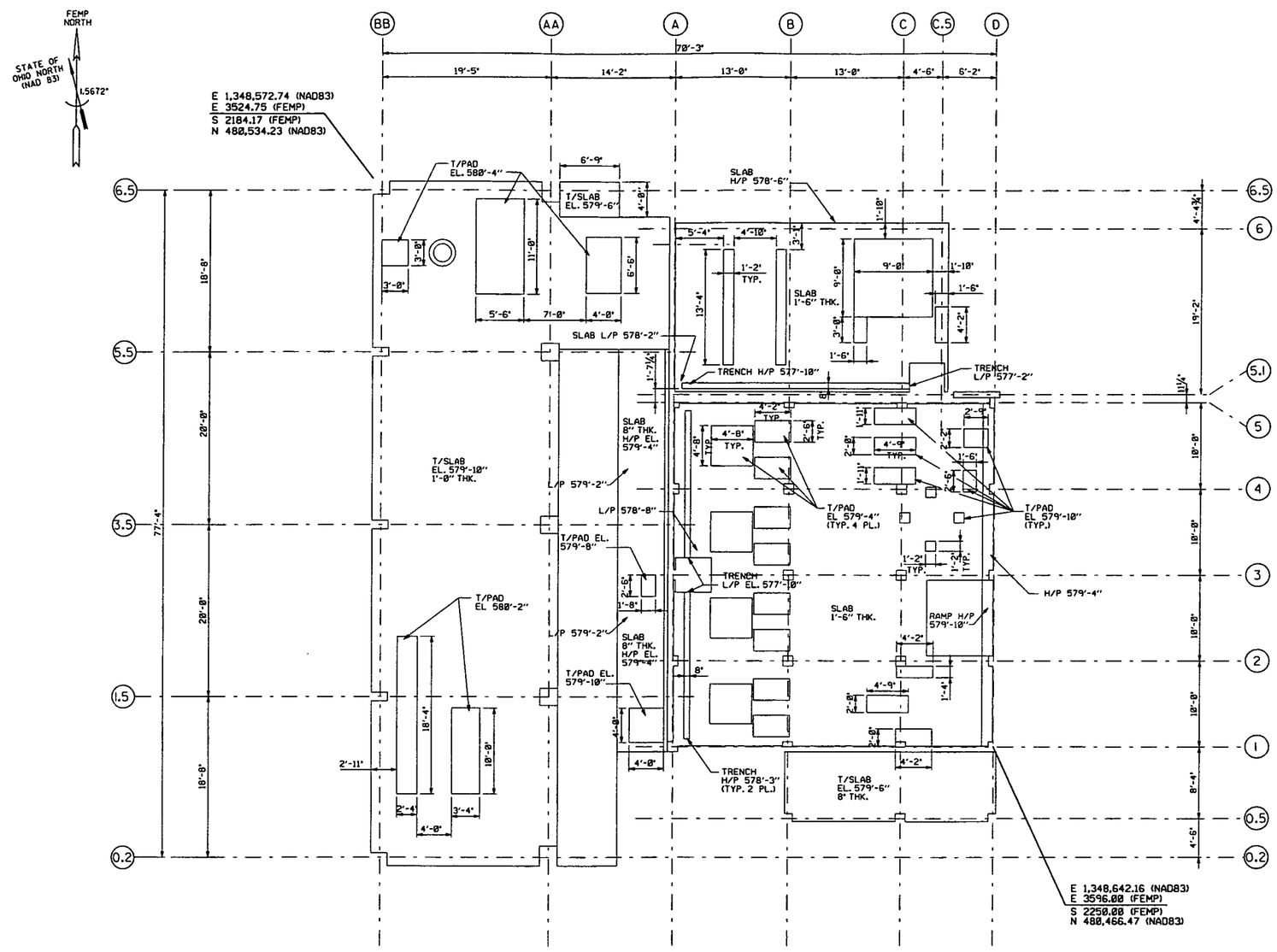
PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 19 - TECHNICAL REFERENCE DRAWING

DRAWING TITLE
STRUCTURE 18D
FOUNDATION PLAN

CONFIGURATION MANAGEMENT DRAWING
EXISTING STRUCTURES OR COMPONENTS SHOWN ON THIS DRAWING ARE UNDER CONFIGURATION MANAGEMENT CONTROL, SEE NOTES.

TASK ORDER NO.	OPTIONAL NO.	SCALE 3/16"=1'-0"	
L-010	N/A	DRAWN BY K. DAVIS	DATE 26DEC01
RES NO. N/A	FOF PROJECT NO. 20810	TECHNICAL LEAD J. ALCORN	DATE 26DEC01
		CHECKED BY J. ALCORN	DATE 10JAN02
DRAWING INDEX CODE NO. 18D-1900-S-01416		SHEET NO. S-001	REV. NO. 0

COGNIZANT ENGINEER DATE



SLAB PLAN
SCALE: 3/16"=1'-0"

SCALE: 3/16 INCH = FOOT

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION REFERENCE DRAWINGS LISTED BELOW AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.
2. ALTERNATE COLUMN DESIGNATIONS SHOWN ON SAME REFERENCE DRAWINGS. LISTED BELOW.

4831

REF DWG NO.	DRAWING TITLE
18D-5900-S-00438	BDN FACILITY UPGRADE FOUNDATION AND SLAB PLAN, SECTIONS & DETAILS
18D-5900-S-00439	BDN FACILITY UPGRADE CONCRETE SECTIONS & DETAILS
18D-1920-S-00287	BIODENITRIFICATION SYSTEM BIOREACTOR FOUNDATION PLAN & SECTIONS
18D-1920-S-00288	BIODENITRIFICATION SYSTEM METHCANOL STORAGE FOUNDATION PLAN & SECTIONS
18D-1900-S-00192	WATER POLLUTION CONTROL FOUNDATION AND SLAB PLAN
18D-1900-S-00193	WATER POLLUTION CONTROL SECTIONS & DETAILS
18D-1900-S-00199	WATER POLLUTION CONTROL SECTIONS & DETAILS

000323

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	REVIEW BY
0	ISSUED FOR TECHNICAL REFERENCE ONLY	N/A	SDS 25JAN02	

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY LOCKWOOD GREENE TECHNOLOGIES

PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 19 - TECHNICAL REFERENCE DRAWING

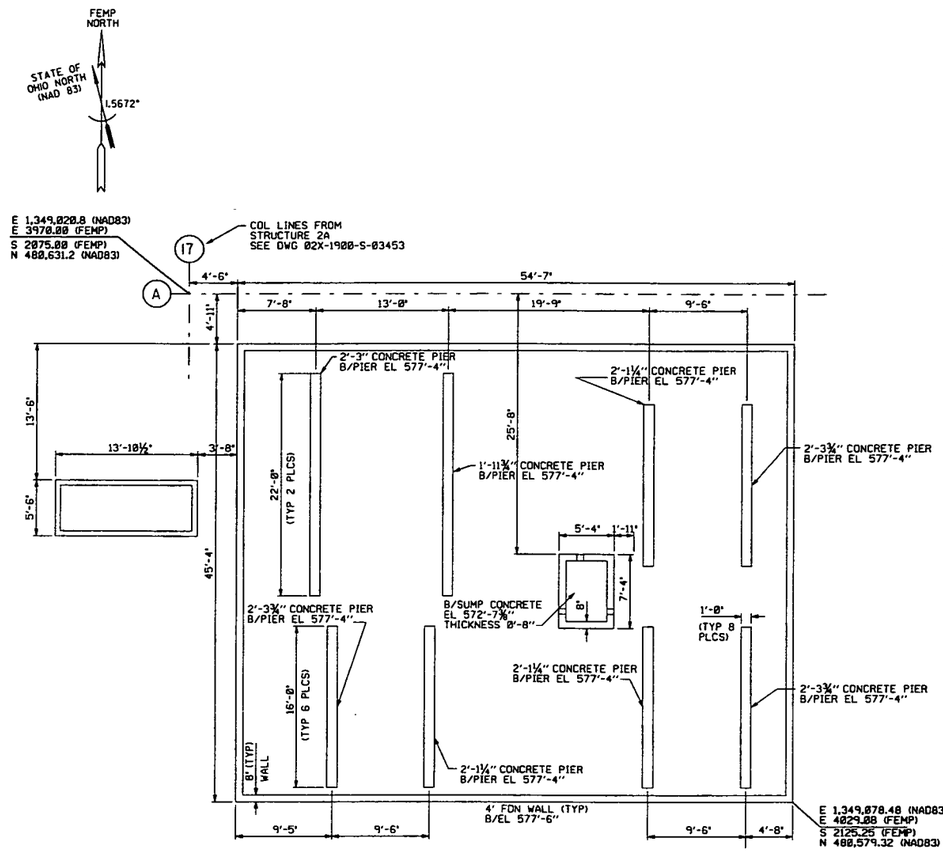
DRAWING TITLE
STRUCTURE 18D
SLAB PLAN

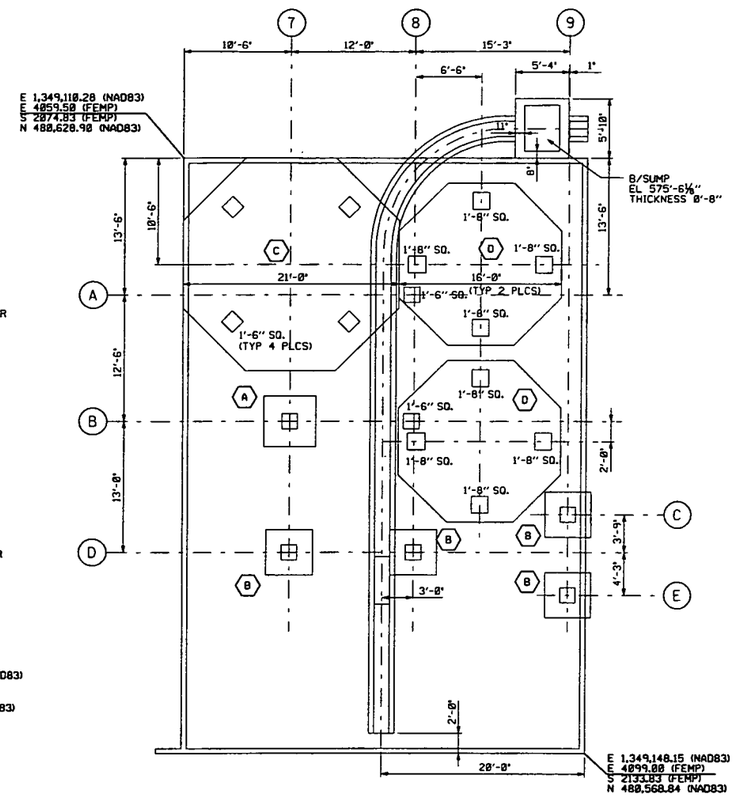
CONFIGURATION MANAGEMENT DRAWING

EXISTING STRUCTURES OR COMPONENTS LOCATED AS PER DRAWING AND TABLE IN CONTROL MANAGEMENT CONTROL. SEE NOTES.

COGNIZANT ENGINEER DATE

TASK ORDER NO.	OPTIONAL NO.	SCALE 3/16"=1'-0"	
L-010	N/A	DRAWN BY K. DAVIS	DATE 25DEC01
RES NO. N/A	FOR PROJECT NO. 20810	TECHNICAL LEAD J. ALCORN	DATE 25DEC01
		CHECKED BY J. ALCORN	DATE 03JAN02
DRAWING INDEX CODE NO. 18D-1900-S-01417		SHEET NO. S-002	REV. NO. 0





FOOTING SCHEDULE

MARK	LENGTH N/S	WIDTH E/W	HEIGHT	B/FTG EL	COL PIER	REMARKS
A	5'-0"	5'-0"	1'-0"	575'-6"	1'-6"x1'-6"	
B	4'-6"	4'-6"	1'-0"	576'-6"	1'-6"x1'-6"	
C	SEE PLAN	N/A	1'-6"	576'-0"	SEE PLAN	
D	SEE PLAN	N/A	1'-6"	576'-0"	SEE PLAN	

FOUNDATION PLAN
SCALE: 3/16"=1'-0"

SCALE: 3/16 INCH FOOT

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION REFERENCE DRAWINGS LISTED BELOW AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.

4831

REF DWG NO.	DRAWING TITLE
02C-7000-S-00855	OK LIQUOR STORAGE CONC. PLAN & MISC STEEL
02C-7000-S-00856	OK LIQUOR STORAGE CONC. SECT'S & DET'LS. SHEET NO. 1
02C-7000-S-00859	OK LIQUOR STORAGE CONC. SECT'S & DETA'LS. SHEET NO. 2
02C-7000-S-00892	ORE REFINERY-DENITRATION AREA RELOCATED BACK-UP FILTERS CONCRETE FOUNDATION
18X-3900-S-00825	GENERAL SUMP MISCELLANEOUS FOUNDATIONS
18X-3900-S-00796	GENERAL SUMP EQUIPMENT FOUNDATIONS SH. 1
18X-3900-S-00792	GENERAL SUMP FOUDATION LOCATION PLAN SHEET 1
18X-3900-S-00797	GENERAL SUMP EQUIPMENT FOUNDATIONS SH. 2
18X-3900-S-00832	GENERAL SUMP PLATFORM FOUNDATIONS

000324

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	NCRB RY
0	ISSUED FOR TECHNICAL REFERENCE ONLY	N/A	SOS 25JAN02	

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

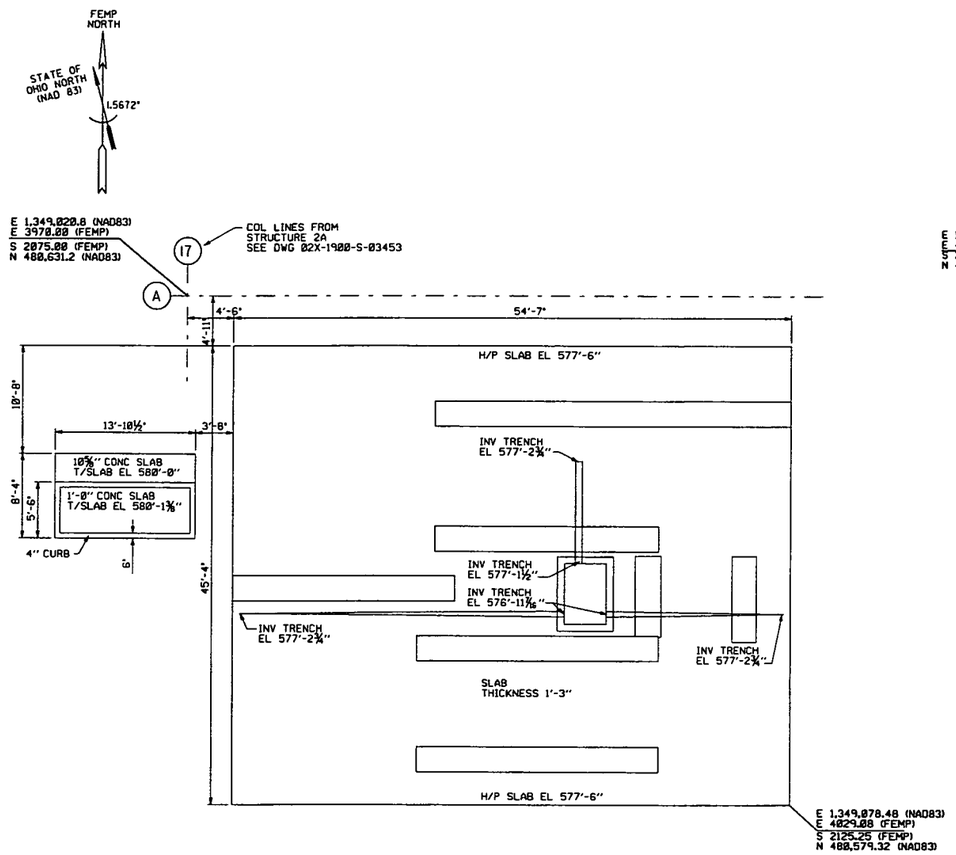
THIS DRAWING PREPARED BY LOCKWOOD GREENE TECHNOLOGIES

PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 19 - TECHNICAL REFERENCE DRAWING

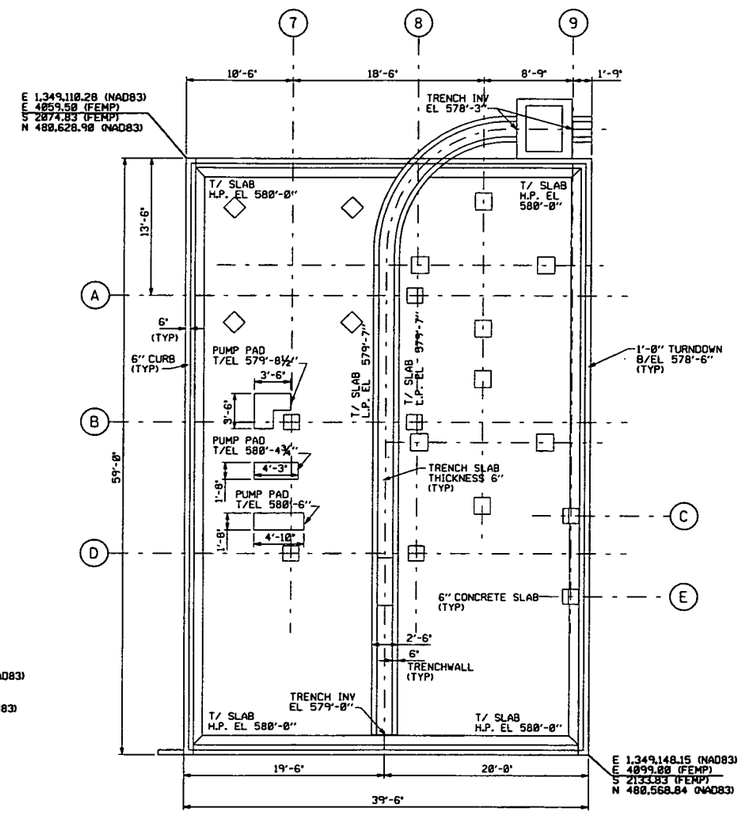
DRAWING TITLE
OK LIQUOR STORAGE AREA AND CONTAINMENT AREA FOR TANKS 10, 11 AND 13 FOUNDATION PLAN

CONFIGURATION MANAGEMENT DRAWING

TASK ORDER NO.	OPTIONAL NO.	SCALE 3/16"=1'-0"	
L-010	N/A	DRAWN BY J. ALCORN	DATE 28DEC01
RES NO. N/A	FOP PROJECT NO. 20810	TECHNICAL LEAD J. ALCORN	DATE 26DEC01
		CHECKED BY J. ALCORN	DATE 05JAN02
COGNIZANT ENGINEER DATE	DRAWING INDEX CODE NO. 18X-1900-S-01408	SHEET NO. S-001	REV. NO. 0



SLAB PLAN
SCALE: 3/16"=1'-0"



0' 3' 6' 12' 18'
SCALE: 3/16 INCH= FOOT

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION REFERENCE DRAWINGS LISTED BELOW AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.

4831

REF DWG NO.	DRAWING TITLE
02C-7000-S-00855	OK LIQUOR STORAGE CONC. PLAN & MISC. STEEL
02C-7000-S-00856	OK LIQUOR STORAGE CONC. SECT'S & DET'LS. SHEET NO. 1
02C-7000-S-00859	OK LIQUOR STORAGE CONC. SECT'S & DET'LS. SHEET NO. 2
02C-7000-S-00892	ORE REFINERY-DENITRATION AREA RELOCATED BACK-UP FILTERS CONCRETE FOUNDATION
18X-3900-S-00825	GENERAL SUMP MISCELLANEOUS FOUNDATIONS
18X-3900-S-00796	GENERAL SUMP EQUIPMENT FOUNDATIONS SH. 1
18X-3900-S-00792	GENERAL SUMP FOUDATION LOCATION PLAN SHEET 1
18X-3900-S-00797	GENERAL SUMP EQUIPMENT FOUNDATIONS SH. 2
18X-3900-S-00832	GENERAL SUMP PLATFORM FOUNDATIONS

000325

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	REVD BY
0	ISSUED FOR TECHNICAL REFERENCE ONLY	N/A	SDS 25JAN02	

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY LOCKWOOD GREENE TECHNOLOGIES

PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 19 - TECHNICAL REFERENCE DRAWING

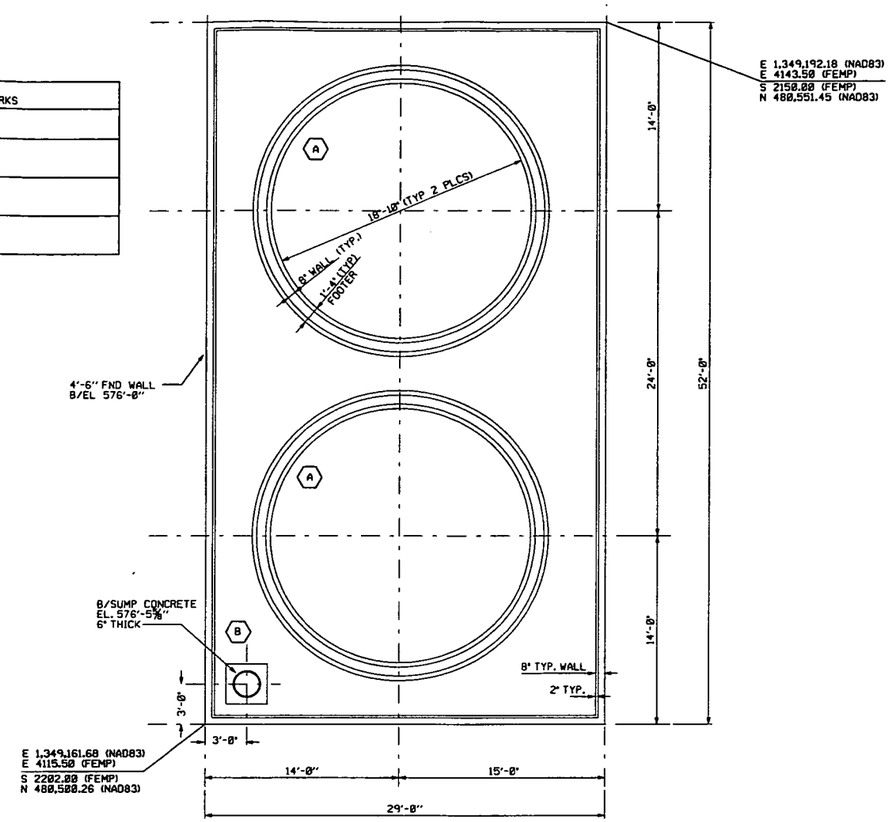
DRAWING TITLE
OK LIQUOR STORAGE AREA AND CONTAINMENT AREA FOR TANKS 10, 11 AND 13
SLAB PLAN

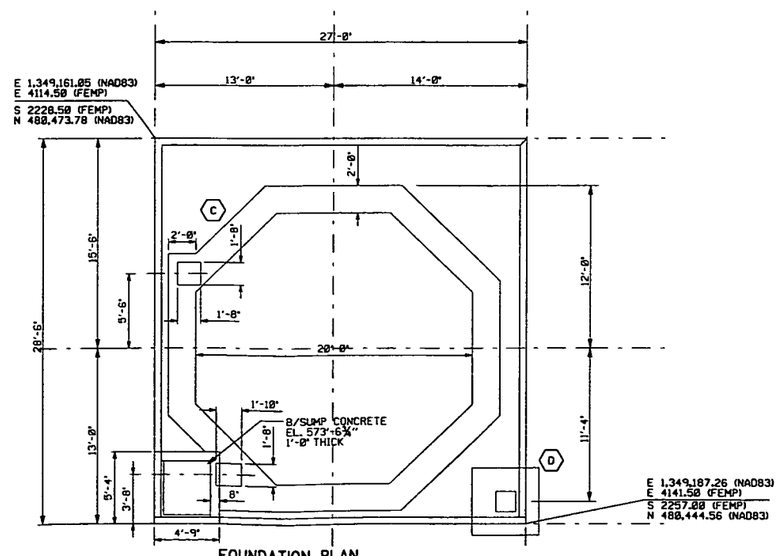
CONFIGURATION MANAGEMENT DRAWING
SYSTEMS ATTACHED AS COMPONENTS CONTROL THE DRAWING. SEE LOCAL SYSTEM CONFIGURATION MANAGEMENT CONTROL. SEE NOTES.
COGNIZANT ENGINEER DATE

TASK ORDER NO.	OPTIONAL NO.	SCALE	
L-010	N/A	3/16"=1'-0"	
		DRAWN BY J. ALCORN	DATE 28DEC01
RES NO. N/A	FOF PROJECT NO. 20810	TECHNICAL LEAD J. ALCORN	DATE 28DEC01
		CHECKED BY J. ALCORN	DATE 07JAN02
DRAWING INDEX CODE NO. 18X-1900-S-01409		SHEET NO. S-002	REV. NO. 0

FOOTING SCHEDULE

MARK	LENGTH N/S	WIDTH E/W	HEIGHT	B/FTG EL	COL PIER	REMARKS
A	SEE PLAN		0'-6"	577'-6"	20'-10" DIA X 0'-8"	
B	3'-0"	3'-0"	0'-6"	576'-11⅝"	N/A	
C	SEE PLAN		1'-6"	575'-3"	SEE PLAN	
D	5'-0"	5'-0"	1'-6"	574'-9"	1'-6" X 1'-6"	





FOUNDATION PLAN
SCALE: ¼" = 1'-0"

SCALE: 1/4 INCH= FOOT

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION REFERENCE DRAWINGS LISTED BELOW AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.

4831

REF DWG NO.	DRAWING TITLE
18X-5500-S-00084	PLANT 3 GENERAL SUMP AREA CONCRETE FOUNDATIONS & PAD PLAN SECTIONS-DET.
18X-3900-S-00824	TANK 9 CONTAINMENT AREA PLAN AND DETAILS
18X-3900-S-00796	GENERAL SUMP EQUIPMENT FOUNDATIONS SH.1
18X-3900-S-00799	GENERAL SUMP PIPE SUPPORT DETAILS

000326

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	RCSB BY
0	ISSUED FOR TECHNICAL REFERENCE ONLY	N/A	SDS 25JAN02	

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY LOCKWOOD GREENE TECHNOLOGIES

PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 19 - TECHNICAL REFERENCE DRAWING

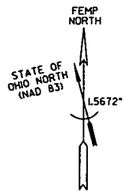
DRAWING TITLE
CONTAINMENT AREA FOR TANKS 8 AND 14 AND CONTAINMENT AREA FOR TANK 9 FOUNDATION PLAN

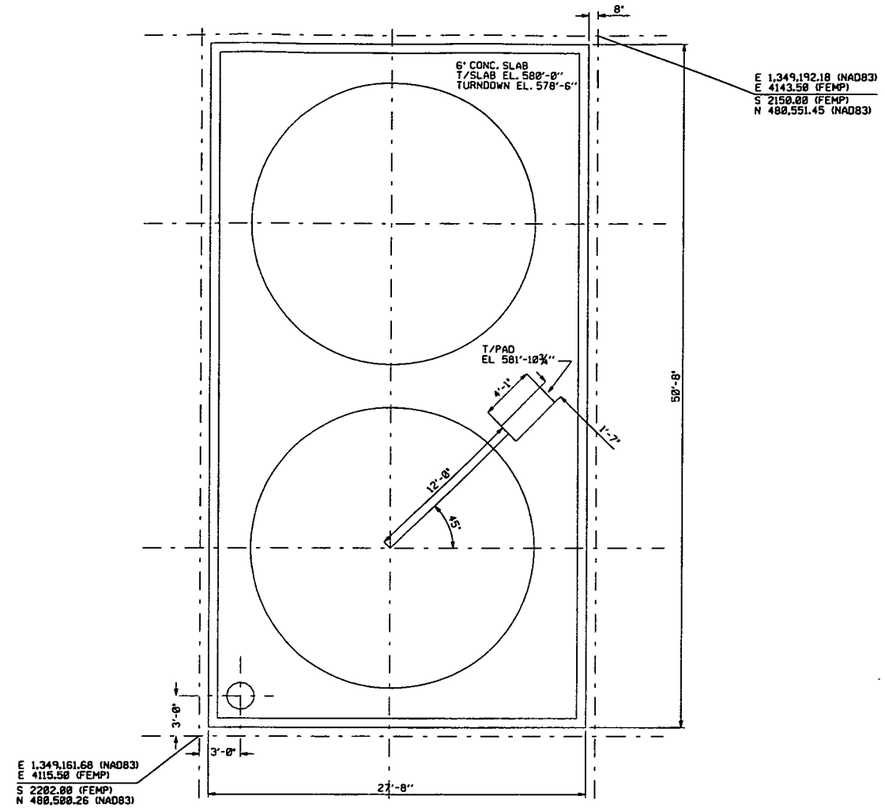
CONFIGURATION MANAGEMENT DRAWING

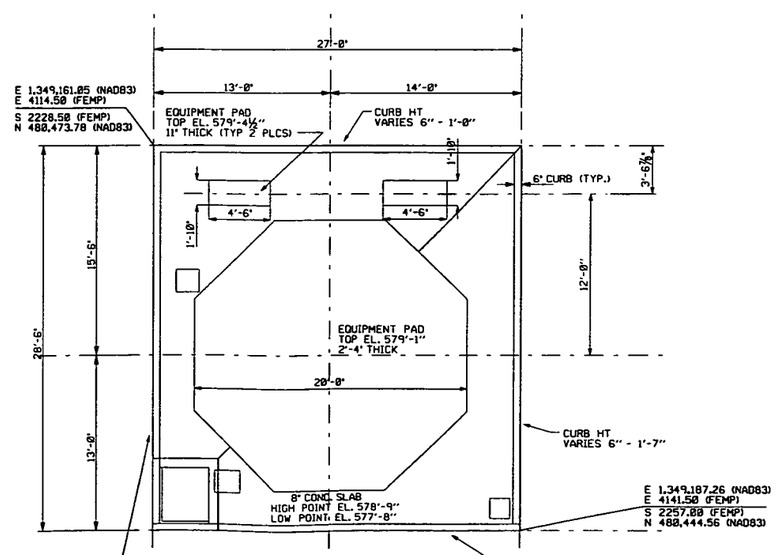
SYSTEMS, STRUCTURES, OR COMPONENTS SHOWN ON THIS DRAWING ARE UNDER CONFIGURATION MANAGEMENT CONTROL. SEE NOTES.

COGNIZANT ENGINEER DATE

TASK ORDER NO.	OPTIONAL NO.	SCALE	
L-010	N/A	¼" = 1'-0"	
		DRAWN BY J. LUTTRELL	DATE 21DEC01
RES. NO. N/A	FOF PROJECT NO. 20810	TECHNICAL LEAD J. ALCORN	DATE 26DEC01
		CHECKED BY J. ALCORN	DATE 07JAN02
DRAWING INDEX CODE NO. 18X-1900-S-01410		SHEET NO. S-001	REV. NO. 0







SLAB PLAN
SCALE: ¼" - 1'-0"

0" 2" 4" 8" 12"
SCALE: 1/4 INCH= FOOT

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION REFERENCE DRAWINGS LISTED BELOW AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.

4831

REF DWG NO.	DRAWING TITLE
18X-5500-S-00084	PLANT 3 GENERAL SUMP AREA CONCRETE FOUNDATIONS & PAD PLAN, SECTIONS-DET.
18X-3900-S-00824	TANK 9 CONTAINMENT AREA PLAN AND DETAILS
18X-3900-S-00796	GENERAL SUMP EQUIPMENT FOUNDATIONS SH. 1
18X-3900-S-00799	GENERAL SUMP PIPE SUPPORT DETAILS

000327

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	REVW BY / DETAILS AND DATE
0	ISSUED FOR TECHNICAL REFERENCE ONLY	N/A	SDS 25JAN92	

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY LOCKWOOD GREENE TECHNOLOGIES

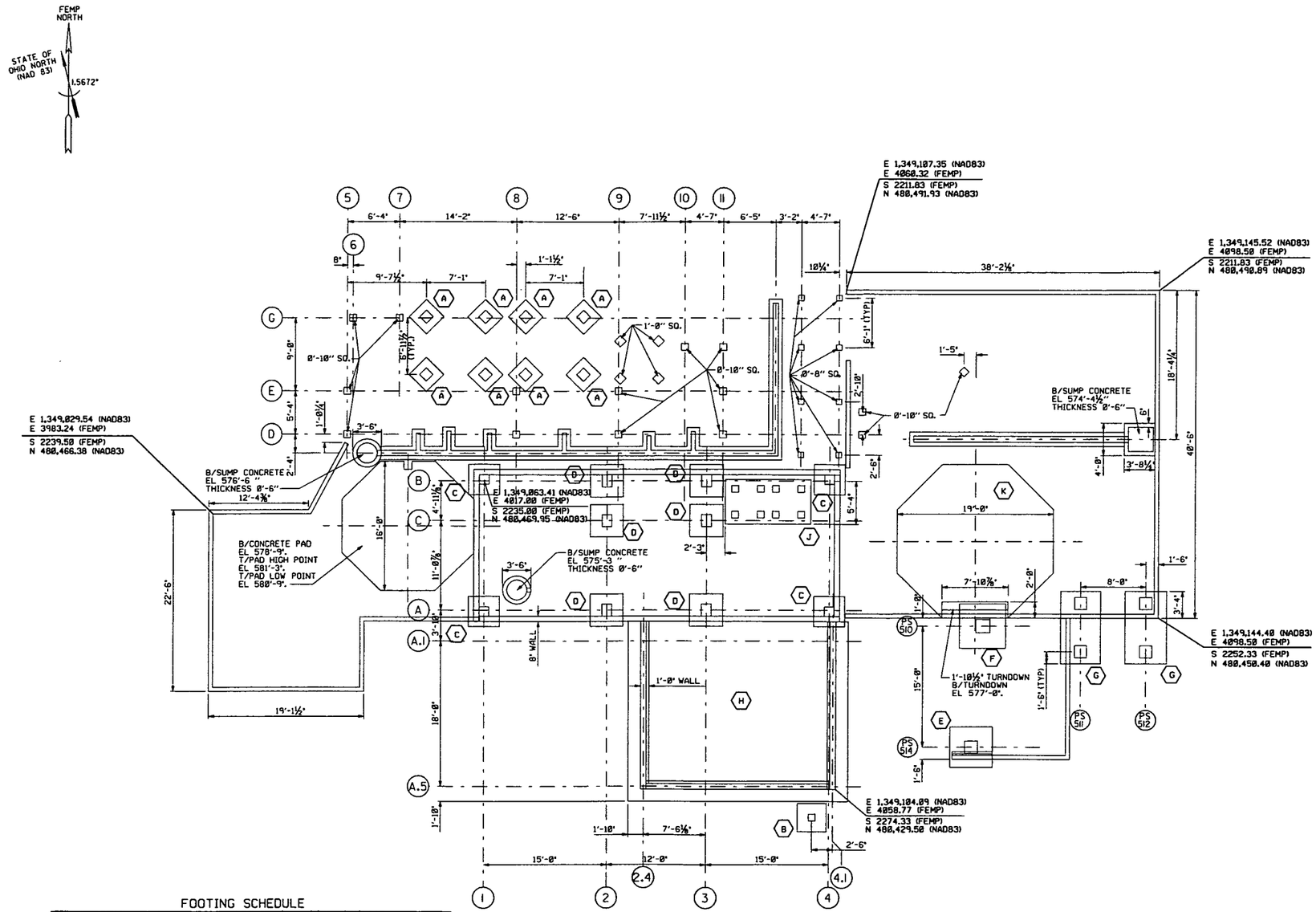
PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 19 - TECHNICAL REFERENCE DRAWING

DRAWING TITLE
CONTAINMENT AREA FOR TANKS 8 AND 14
AND CONTAINMENT AREA FOR TANK 9
SLAB PLAN

CONFIGURATION MANAGEMENT DRAWING — REF / DWG
STATUS: ☐ NOT "REF" OR "DWG" ☐ "REF" OR "DWG" CONFIGURATION MANAGEMENT CONTROL. SEE NOTES.

TASK ORDER NO.	OPTIONAL NO.	SCALE	
L-010	N/A	¼" - 1'-0"	
		DRAWN BY J. LUTTRELL	DATE 21DEC91
RES NO. N/A	FOP PROJECT NO. 20810	TECHNICAL LEAD J. ALCORN	DATE 26DEC91
		CHECKED BY J. ALCORN	DATE 07JAN92
DRAWING INDEX CODE NO. 18X-1900-S-01411		SHEET NO. S-002	REV. NO. 0

COGNIZANT ENGINEER DATE



FOUNDATION PLAN

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

FOOTING SCHEDULE

MARK	LENGTH N/S	WIDTH E/W	HEIGHT	B/FTG EL	COL PIER	REMARKS
A	-	-	1'-6"	572'-0"	1'-2" X 1'-2"	ROTATED (3'-0" SQ)
B	3'-6"	3'-6"	1'-0"	577'-6"	0'-10" X 0'-10"	
C	3'-9"	3'-9"	1'-0"	572'-0"	1'-2" X 1'-2"	
D	4'-0"	4'-0"	1'-6"	572'-0"	1'-2" X 1'-6"	
E	5'-0"	5'-0"	1'-6"	577'-9"	1'-6" X 1'-6"	
F	5'-6"	5'-6"	1'-6"	574'-0"	1'-8" X 1'-8"	
G	9'-0"	5'-0"	1'-6"	575'-6"	1'-6" X 1'-6"	
H	22'-6"	26'-8"	1'-6"	577'-0"	N/A	
J	10'-6"	5'-6"	1'-6"	572'-0"	0'-10" X 0'-10"	8 TOTAL PIERS
K	SEE PLAN		1'-10½"	578'-10½"	N/A	

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION REFERENCE DRAWINGS LISTED BELOW AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.

4831

REF DWG NO.	DRAWING TITLE
02X-1450-S-00063	CONCRETE FOUNDATION PLAN REFINERY SUMP COLLECTION SYSTEM CI-3
02G-7000-S-00689	REFINERY SUMP AREA - WEST END PLAN & SECTIONS
02G-7000-S-00708	REFINERY SUMP AREA - EAST END PLAN & SECTIONS
18X-3900-S-00798	GENERAL SUMP MISCELLANEOUS DETAILS
02X-1450-S-00064	FOUNDATION PLAN & SECTIONS REFINERY SUMP COLLECTION SYSTEM CI-3
18X-3900-S-00795	GENERAL SUMP CONTROL BUILDING FOUNDATION AND DETAILS

000328

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	REVD BY
0	ISSUED FOR TECHNICAL REFERENCE ONLY	N/A	SDS 25JAN02	

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

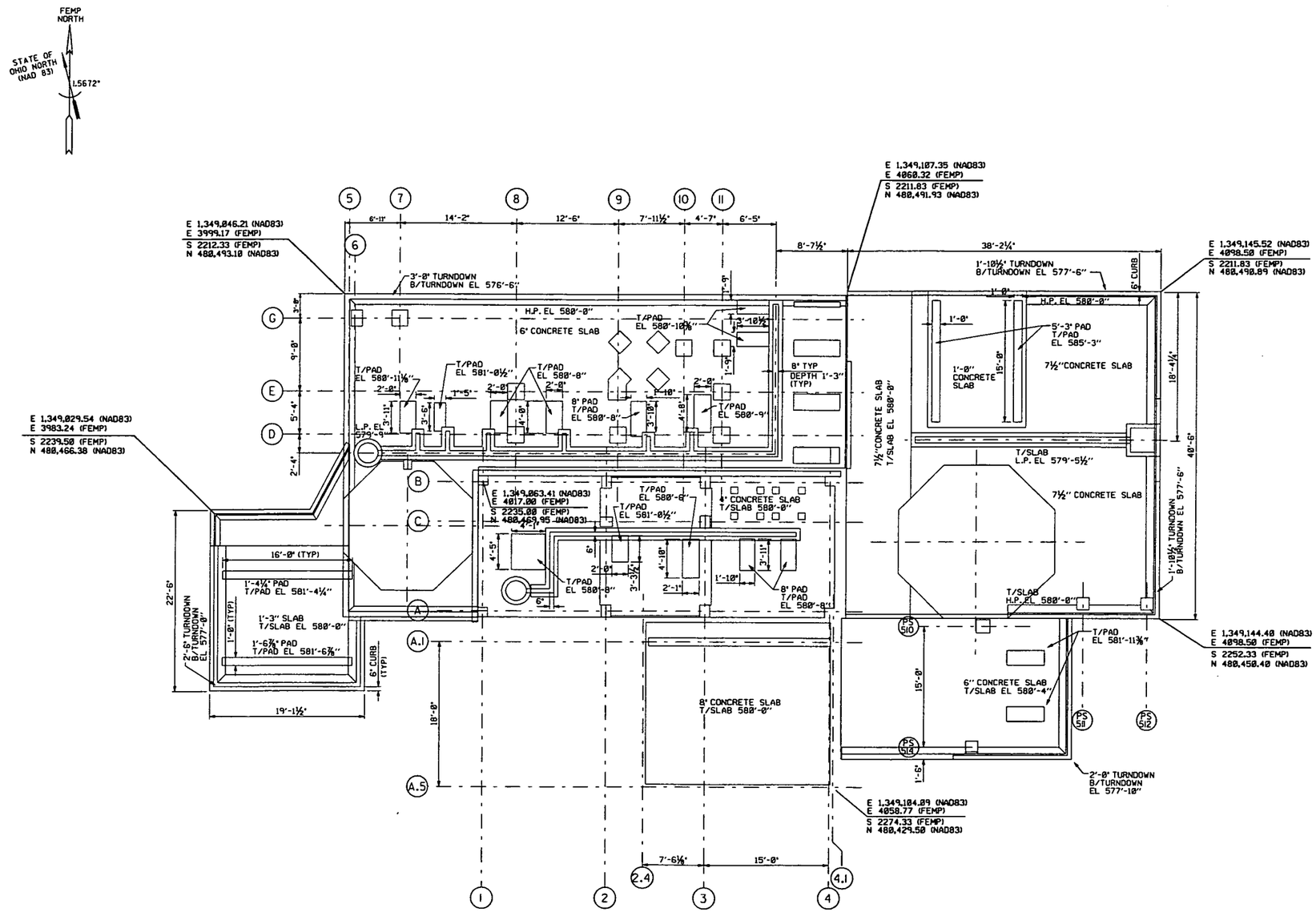
THIS DRAWING PREPARED BY LOCKWOOD GREENE TECHNOLOGIES

PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 19 - TECHNICAL REFERENCE DRAWING

DRAWING TITLE
STRUCTURE 3H AND 2B
FOUNDATION PLAN

CONFIGURATION MANAGEMENT DRAWING

TASK ORDER NO.	OPTIONAL NO.	SCALE 3/16"=1'-0"	
L-010	N/A	DRAWN BY J. ALCORN	DATE 21DEC01
RES NO. N/A	FOF PROJECT NO. 20810	TECHNICAL LEAD J. ALCORN	DATE 26DEC01
		CHECKED BY J. ALCORN	DATE 06JAN02
COGNIZANT ENGINEER	DATE	DRAWING INDEX CODE NO. 18X-1900-S-01412	SHEET NO. S-001 / REV. NO. 0



SLAB PLAN
SCALE: 3/16"=1'-0"

SCALE: 3/16 INCH= FOOT

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION REFERENCE DRAWINGS LISTED BELOW AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.

4831

REF DWG NO.	DRAWING TITLE
02X-1450-S-00063	CONCRETE FOUNDATION PLAN
02G-7000-S-00689	REFINERY SUMP COLLECTION SYSTEM C1-3 REFINERY SUMP AREA - WEST END PLAN & SECTIONS
02G-7000-S-00708	REFINERY SUMP AREA - EAST END PLAN & SECTIONS
18X-3900-S-00798	GENERAL SUMP MISCELLANEOUS DETAILS
02X-1450-S-00064	FOUNDATION PLAN & SECTIONS
02X-1450-S-00065	REFINERY SUMP COLLECTION SYSTEM C1-3
18X-3900-S-00795	GENERAL SUMP CONTROL BUILDING FOUNDATION AND DETAILS

000329

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	REVW BY
0	ISSUED FOR TECHNICAL REFERENCE ONLY	N/A	SDS 25JAN02	

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY LOCKWOOD GREENE TECHNOLOGIES

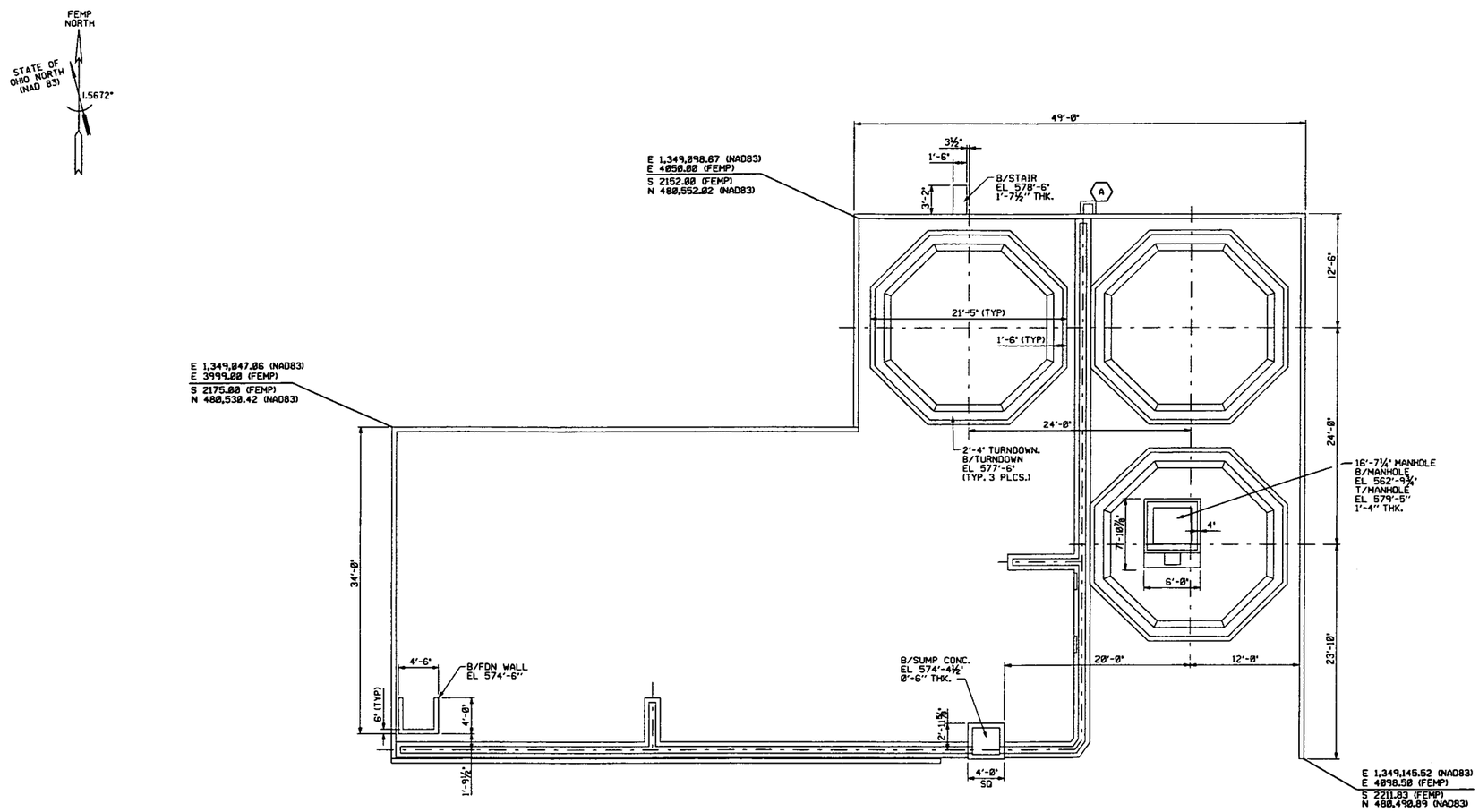
PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 19 - TECHNICAL REFERENCE DRAWING

DRAWING TITLE
STRUCTURE 3H AND 2B
SLAB PLAN

CONFIGURATION MANAGEMENT DRAWING

STATUS: STRUCTURES OR COMPONENTS DEPICTED OR THEIR DESIGNS ARE TRACKED FOR CHANGE MANAGEMENT CONTROL. SEE NOTES.

TASK ORDER NO.	OPTIONAL NO.	SCALE 3/16"=1'-0"	
L-010	N/A	DRAWN BY J. ALCORN	DATE 21DEC01
RLS NO. N/A	FOF PROJECT NO. 20810	TECHNICAL LEAD J. ALCORN	DATE 26DEC01
		CHECKED BY J. ALCORN	DATE 06JAN02
COGNIZANT ENGINEER / DATE	DRAWING INDEX CODE NO. 18X-1900-S-01413	SHEET NO. S-002	REV. NO. 0



FOOTING SCHEDULE

MARK	LENGTH N/S	WIDTH E/W	HEIGHT	B/FTG EL	COL PIER	REMARKS
(A)	1'-5"	1'-8"	0'-9"	577'-6"	1'-1"x1'-8"	

FOUNDATION PLAN

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

0' 3' 6' 12' 18'

SCALE: 3/16 INCH= FOOT

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION REFERENCE DRAWINGS LISTED BELOW AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.

4831

REF DWG NO.	DRAWING TITLE
18X-7000-S-00035	GENERAL SUMP AREA TANK FDN'S PLAN & DETAILS
18X-7000-S-00036	GENERAL SUMP AREA PLAN - SECTIONS & DETAILS
18X-1450-S-00001	CONCRETE FOUNDATION PLAN GENERAL SUMP
22X-1450-S-00121	MANHOLE #34 & #500 STORM SEWER SYSTEM
18X-3900-S-00799	GENERAL SUMP PIPE SUPPORT DETAILS

000330

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	REVD BY
0	ISSUED FOR TECHNICAL REFERENCE ONLY	N/A	SDS 25JAN82	

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY LOCKWOOD GREENE TECHNOLOGIES

PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 19 - TECHNICAL REFERENCE DRAWING

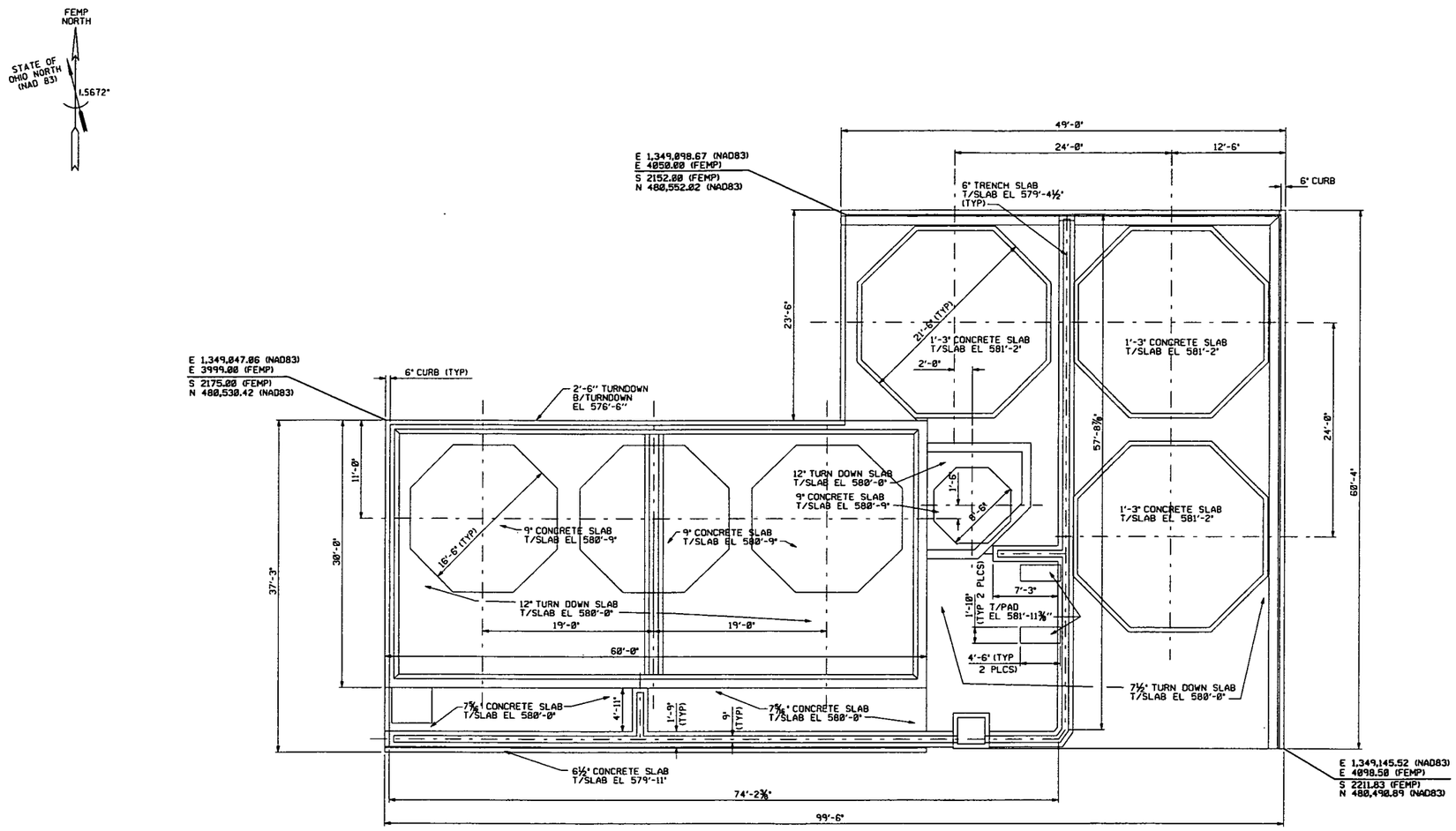
DRAWING TITLE
STRUCTURE 18B
FOUNDATION PLAN

CONFIGURATION MANAGEMENT DRAWING

EXISTING ATTRIBUTES ARE CONTROLLED BY THE FERNALD ENVIRONMENTAL MANAGEMENT PROJECT CONFIGURATION MANAGEMENT CONTROL-LED NOTES.

COGNIZANT ENGINEER DATE

TASK ORDER NO.	OPTIONAL NO.	SCALE 3/16"=1'-0"
L-010	N/A	DRAWN BY G. THURMAN — DATE 21DEC81
RES NO. N/A	FDF PROJECT NO. 20810	TECHNICAL LEAD J. ALCORN — DATE 26DEC81
		CHECKED BY J. ALCORN — DATE 04JAN82
DRAWING INDEX CODE NO. 18X-1900-S-01414		SHEET NO. S-001 — REV. NO. 0



SLAB PLAN
SCALE: 3/16"=1'-0"

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION REFERENCE DRAWINGS LISTED BELOW AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.

4831

REF DWG NO.	DRAWING TITLE
18X-7000-S-00035	GENERAL SUMP AREA TANK FDN'S PLAN & DETAILS
18X-7000-S-00036	GENERAL SUMP AREA PLAN - SECTIONS & DETAILS
18X-1450-S-00001	CONCRETE FOUNDATION PLAN GENERAL SUMP
22X-1450-S-00121	MANHOLE #34 & #500 STORM SEWER SYSTEM
18X-3900-S-00799	GENERAL SUMP PIPE SUPPORT DETAILS

000331

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PW	RDW BY
0	ISSUED FOR TECHNICAL REFERENCE ONLY	N/A	SDS 25JAN02	

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY LOCKWOOD GREENE

PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 19 - TECHNICAL REFERENCE DRAWING

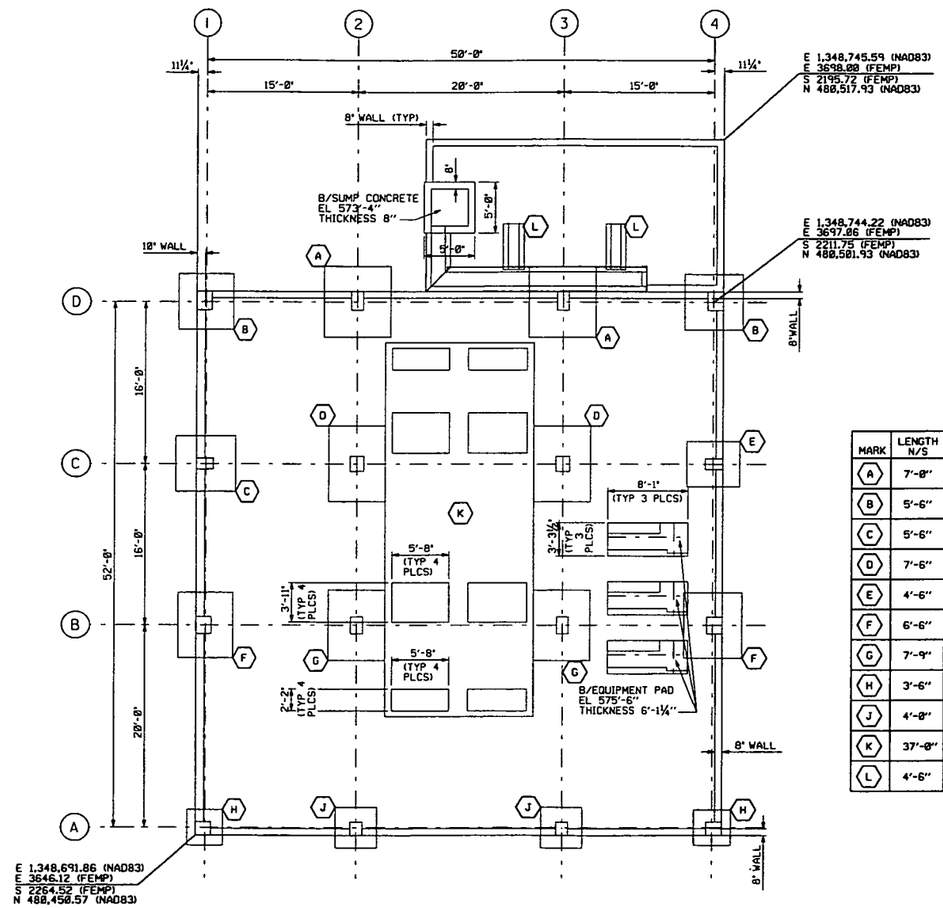
DRAWING TITLE
STRUCTURE 18B
SLAB PLAN

CONFIGURATION MANAGEMENT DRAWING

COGNIZANT ENGINEER DATE

TASK ORDER NO.	OPTIONAL NO.	SCALE 3/16"=1'-0"
L-010	N/A	DRAWN BY G. THURMAN — DATE 21DEC01
RES NO. N/A	FDF PROJECT NO. 20810	TECHNICAL LEAD J. ALCORN — DATE 26DEC01
		CHECKED BY J. ALCORN — DATE 04JAN02
DRAWING INDEX CODE NO. 18X-1900-S-01415		SHEET NO. S-002 — REV. NO. 0

SCALE: 3/16 INCH FOOT



FOUNDATION PLAN
SCALE: 3/16" = 1'-0"

FOOTING SCHEDULE

MARK	LENGTH N/S	WIDTH E/W	HEIGHT	B/FTG EL	COL PIER	REMARKS
A	7'-0"	6'-6"	1'-3"	575'-6"	1'-10"x1'-2"	
B	5'-6"	5'-6"	1'-3"	575'-6"	1'-10"x1'-4"	
C	5'-6"	6'-0"	1'-3"	575'-6"	1'-1"x1'-6"	
D	7'-6"	5'-6"	1'-3"	575'-6"	1'-6"x1'-4"	
E	4'-6"	5'-0"	1'-3"	575'-6"	1'-1"x1'-8"	
F	6'-6"	5'-6"	1'-3"	575'-6"	1'-8"x1'-4"	
G	7'-9"	5'-6"	1'-3"	575'-6"	1'-8"x1'-2"	
H	3'-6"	3'-6"	1'-3"	575'-6"	1'-4"x1'-6"	
J	4'-0"	4'-0"	1'-3"	575'-6"	1'-4"x1'-2"	
K	37'-0"	14'-6"	1'-6"	575'-6"	SEE PLAN	SPREAD FOOTING
L	4'-6"	2'-0"	1'-0"	575'-6"	4'-6"x1'-0"	STRIP FOOTING

0' 3' 6' 12' 16'
SCALE: 3/16 INCH= 1 FOOT

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION REFERENCE DRAWINGS LISTED BELOW AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.

4831

REF DWG NO.	DRAWING TITLE
02F-7000-S-00964	INCINERATOR BUILDING FOUNDATION PLAN
02F-7000-S-00965	INCINERATOR BUILDING 1ST FLOOR PLAN @ EL. 580'-0"
02F-7000-S-00966	ORE REFINERY - CALCINER BLDG CONCR. SECTIONS & DETAILS
02F-7000-S-01001	INCINERATOR BLDG - NORTH PAD. SECTIONS & DETAILS

000332

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	REVD BY
0	ISSUED FOR TECHNICAL REFERENCE ONLY	N/A	SDS 25JAN02	

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY LOCKWOOD GREENE TECHNOLOGIES

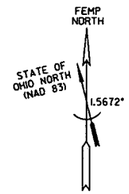
PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 19 - TECHNICAL REFERENCE DRAWING

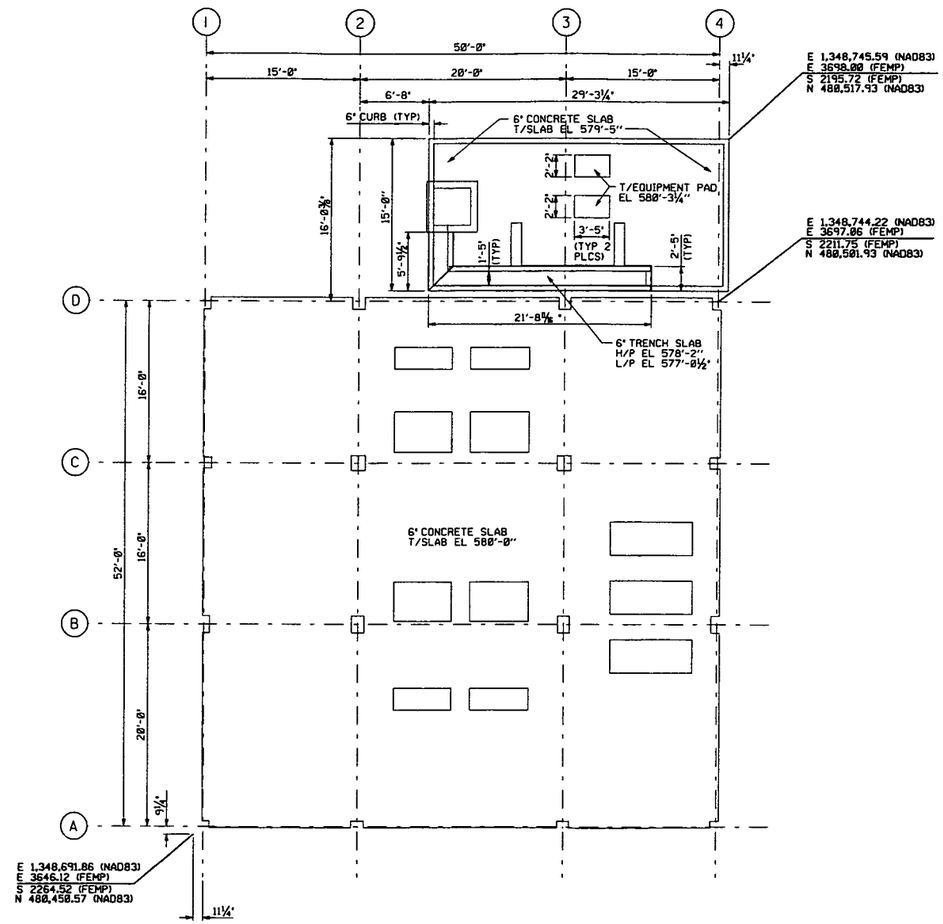
DRAWING TITLE
STRUCTURE 39A
FOUNDATION PLAN

CONFIGURATION MANAGEMENT DRAWING
EXISTING STRUCTURES OR COMPONENTS SHOWN HAVE NOT BEEN AND CANNOT BE VERIFIED BY CONFIGURATION MANAGEMENT CONTROL. SEE NOTES.

COGNIZANT ENGINEER DATE

TASK ORDER NO.	OPTIONAL NO.	SCALE 3/16" = 1'-0"
L-010	N/A	
DRAWN BY C. THURMAN		DATE 21DEC01
REF NO. N/A	OF PROJECT NO. 20810	TECHNICAL LEAD J. ALCORN — DATE 26DEC01
		CHECKED BY J. ALCORN — DATE 04JAN02
DRAWING INDEX CODE NO. 39X-1900-S-00073		SHEET NO. S-001 — REV. NO. 0





SLAB PLAN
SCALE: 3/16" = 1'-0"

SCALE: 3/16 INCH FOOT

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION REFERENCE DRAWINGS LISTED BELOW AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.

4831

REF DWG NO.	DRAWING TITLE
02F-7000-S-00964	INCINERATOR BUILDING FOUNDATION PLAN
02F-7000-S-00965	INCINERATOR BUILDING 1ST FLOOR PLAN @ EL 580'-0"
02F-7000-S-00966	ORE REFINERY - CALCINER BLDG CONCR. SECTIONS & DETAILS
02F-7000-S-01001	INCINERATOR BLDG - NORTH PAD. SECTIONS & DETAILS

000333

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	REVIS BY
0	ISSUED FOR TECHNICAL REFERENCE ONLY	N/A	SDS 25JAN02	

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY LOCKWOOD GREENE TECHNOLOGIES

PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 19 - TECHNICAL REFERENCE DRAWING

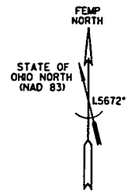
DRAWING TITLE
STRUCTURE 39A
SLAB PLAN

CONFIGURATION MANAGEMENT DRAWING — TECH / REF

EXISTING STRUCTURES OR COMPONENTS SHOWN ON THIS DRAWING ARE NOT CONFIGURATION MANAGEMENT CONTROLLED NOTES.

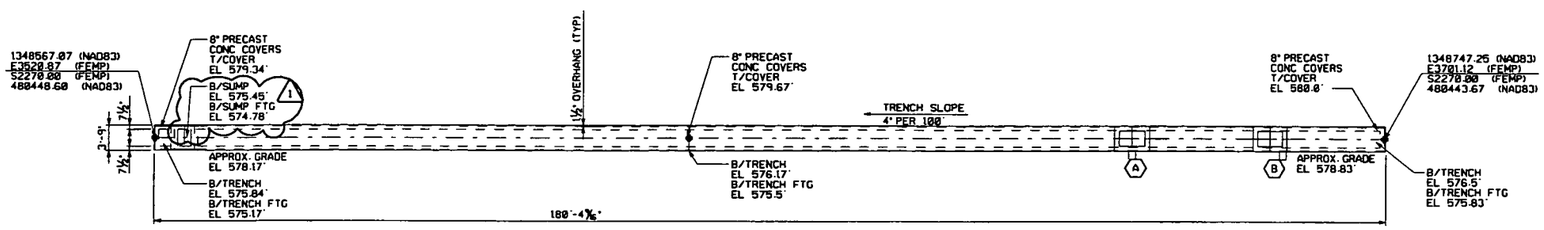
COGNIZANT ENGINEER — DATE

TASK ORDER NO.	OPTIONAL NO.	SCALE	
L-010	N/A	3/16" = 1'-0"	
RES NO.	FOF PROJECT NO.	DRAWN BY: G. THURMAN	DATE: 21DEC01
N/A	20810	TECHNICAL LEAD: J. ALCORN	DATE: 25DEC01
		CHECKED BY: J. ALCORN	DATE: 04JAN02
DRAWING INDEX CODE NO.		SHEET NO.	REV. NO.
39X-1900-S-00074		S-002	0



FOOTING SCHEDULE

MARK	LENGTH N/S	WIDTH E/W	HEIGHT	B/FTG EL	COL PIER	REMARKS
(A)	1'-4"	1'-0"	5'-1¾"	575'-0¾"	N/A	PIPE SUPPORT
(B)	1'-4"	1'-0"	5'-1¾"	575'-1¾"	N/A	PIPE SUPPORT



FOUNDATION AND SLAB PLAN

GRAPHIC SCALE: ⅛"=1'-0"

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION DRAWINGS AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.
2. SEE EXISTING REFERENCED DRAWINGS FOR CONSTRUCTION DETAILS AND/OR ISOMETRIC DRAWING SK65-2.

4831

REF DWG NO.	DRAWING TITLE
34X-3115-S-00078	SLURRY TRENCH
75D-5500-G-00018	GRID 19 - EXISTING SITE PLAN
02F-7000-S-01008	CALCINER BLDG - OUTSIDE PIPE SUPPORTS
24A-7000-G-00038	CALCINER BLDG - ROADS & WALKS

000334

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	REVD BY
1	REVISED LEADER FOR SUMP NOTE, ISSUED FOR TECHNICAL REFERENCE ONLY.	N/A	KG 02/28/92	KLR 02/28/92
0	ISSUED FOR TECHNICAL REFERENCE ONLY.	N/A	KG 01/29/92	KLR 01/29/92

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
PARSONS I & T GROUP
CINCINNATI, OHIO

PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 19 - TECHNICAL REFERENCE DRAWING

DRAWING TITLE
K65 TRENCH
FOUNDATION AND SLAB PLAN
WITH HIDDEN LINES

CONFIGURATION MANAGEMENT DRAWING
EXISTING ATTACHMENT OR COMPONENT DRAWINGS ARE NOT SHOWN. THEY CONFORM TO CM MANAGEMENT CONTROL. SEE NOTES.
COGNIZANT ENGINEER DATE

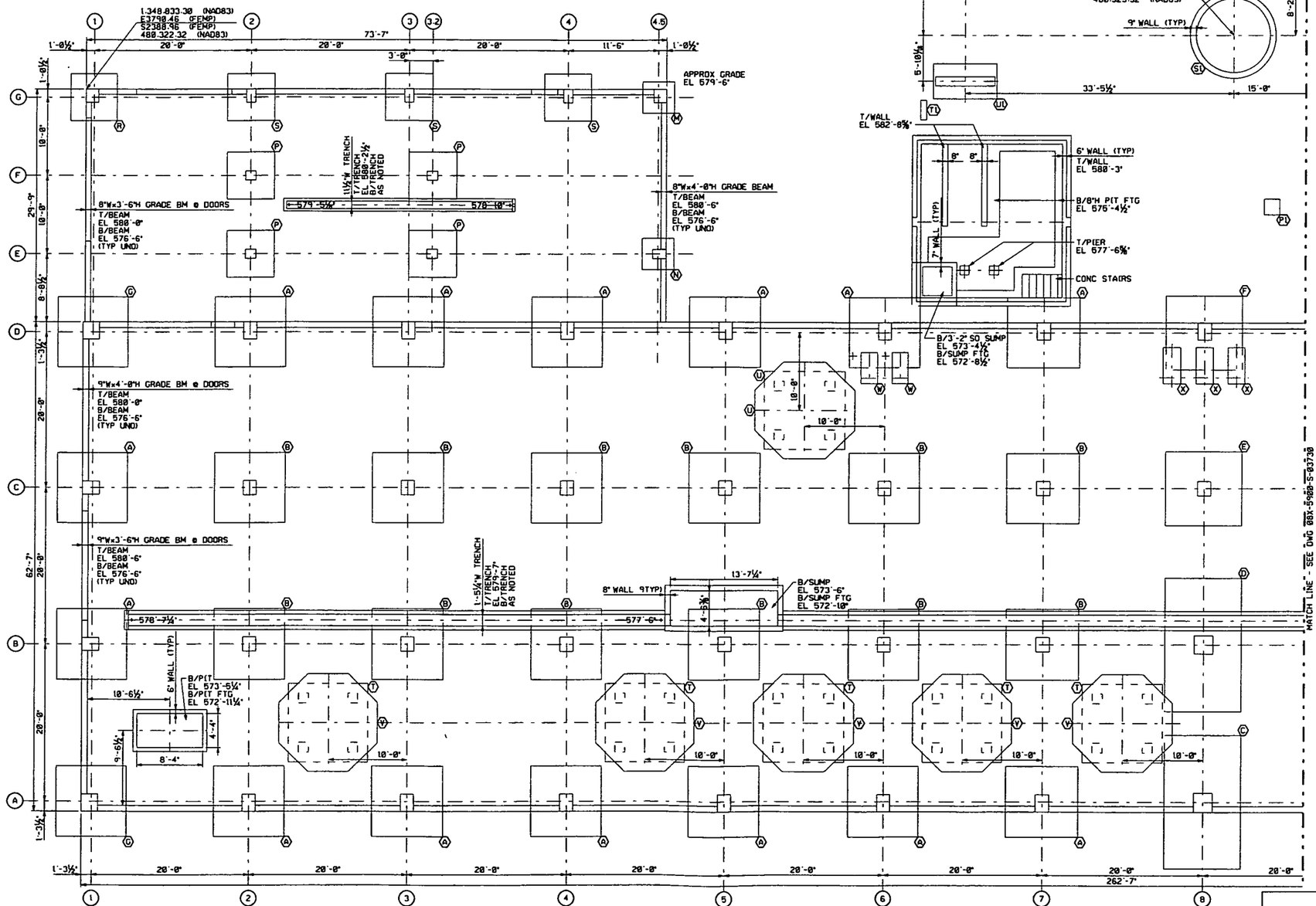
TASK ORDER NO.	OPTIONAL NO.	SCALE	
060	N/A	⅛" = 1'-0"	
RES NO.	FEF PROJECT NO.	DRAWN BY K.L. RABBITT	DATE 12/05/91
4327	20810	TECHNICAL LEAD N/A	DATE N/A
		CHECKED BY DOREEN REED	DATE 12/19/91

DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
34X-5900-S-00151	S0001	1

SEAL

FOOTING SCHEDULE

MARK	LENGTH N/S	WIDTH E/W	HEIGHT	B/FTG EL	COL PIER	REMARKS
SEE DWG 08X-5900-S-03743						



FOUNDATION PLAN - WEST

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION DRAWINGS AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.
2. SEE EXISTING REFERENCED DRAWINGS FOR CONSTRUCTION DETAILS AND/OR ISOMETRIC DRAWING SK8A-1.

4831

REF DWG NO.	DRAWING TITLE
08A-5500-S-01426	FOUNDATIONS & PAD FOR FILTER FEED TANK
08A-5500-S-01442	FOUNDATIONS & PLATFORM FOR SO2 STORAGE TANK PLAN ELEV. SECTIONS & DETAILS
08A-5500-S-01780	CORBED ACID BRICK FLOOR AREA GENERAL ARRANGEMENT PLAN & SECTIONS
08D-5500-S-01482	STRUCTURAL AND CONCRETE FOUNDATION
08X-1450-S-00002	CONCRETE PLAN OF EQUIPMENT FOUNDATIONS SCRAP PLANT - AREA "A"
08X-1450-S-00003	CONCRETE PLAN OF EQUIPMENT FOUNDATIONS SCRAP PLANT - AREA "B"
08X-1450-S-00005	CONCRETE PLAN OF EQUIPMENT FOUNDATIONS SCRAP PLANT - AREA "C"
08X-1450-S-00006	CONCRETE DETAILS OF EQUIPMENT FOUNDATIONS SCRAP PLANT
08X-1450-S-00007	CONCRETE EQUIPMENT FOUNDATIONS-AREA A, B, & C SCRAP PLANT
08X-1450-S-00008	CONCRETE DETAILS-EQUIPMENT FOUNDATIONS SCRAP PLANT
08X-1450-S-00009	CONCRETE DETAILS OF EQUIPMENT FOUNDATIONS SCRAP PLANT
08X-1450-S-00024	CONCRETE FOUNDATION PLAN AND DETAILS SCRAP PLANT
08X-1450-S-00025	CONCRETE ELEVATOR PIT AND LOADING PLATFORM SCRAP PLANT
08X-3900-S-02824	PLANT 8 ELEVATOR DEMOLITION PLAN
08X-5500-P-01129	U.A.P. PROCESS MISCELLANEOUS PIPING DETAILS
08X-5500-S-01890	U.A.P. PROCESS CONCRETE FOUNDATIONS LAYOUT
08X-5500-S-01891	U.A.P. PROCESS CONCRETE FOUNDATIONS DETAILS
08X-5500-S-01268	FEED PREP OFF SITE MATERIAL EQUIPMENT SUPPORTS STRUCTURAL - SECTIONS & DETAILS
08X-5500-S-01269	FEED PREP OFF SITE MATERIAL EQUIPMENT SUPPORTS STRUCTURAL - DETAILS
08X-5500-S-01331	CONCRETE PAD & TRENCH PLAN SECTIONS & DETAILS
08X-5500-S-01573	SURFACE DRAINAGE IMPROVEMENT AREA PLAN & SECTION
08X-5500-S-01588	RECOVERY FACILITY BOX FURNACE-PROD. DRUM PIT & SUMP DETAILS
08X-5500-S-02383	HAZARDOUS MATERIALS SPILL PROTECTION CAUSTIC SODA STORAGE RETENTION DIKE & SUMP PUMP PLAN
08X-5500-S-02384	HAZARDOUS MATERIALS SPILL PROTECTION CAUSTIC SODA STORAGE RETENTION DIKE SECTIONS & DETAILS
08X-5500-S-02394	HAZARDOUS MATERIALS SPILL PROTECTION CAUSTIC SODA STORAGE RETENTION DIKE & SUMP PUMP DETAILS
08X-5945-S-00419	SCRAP PLANT EXPANSION PLANT EFFLUENT SURGE FOUNDATIONS
FPF-3843-C43-538	HATCH PLAN OF OIL HYDRAULIC FREIGHT ELEVATOR
SKPLANT8-1	PLANT 8 - BLDG'S 8A, 8B, 8C, 8D, 8G, 8H, 18H, 74C, 74Q & 80 - FOUNDATION ISOMETRIC VIEW
SKPLANT8-2	PLANT 8 - BLDG'S 8A, 8B, 8C, 8D, 8G, 8H, 18H, 74C, 74Q & 80 - FOUNDATION AND SL80 ISOMETRIC VIEW
08X-5900-S-03743	BUILDING 8A FOOTING SCHEDULE
08X-5900-S-03730	BUILDING 8A FOUNDATION PLAN - EAST

000335

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	REVD BY
0	ISSUED FOR TECHNICAL REFERENCE ONLY.	N/A	KG 10/25/92	LNH 10/25/92

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
PARSONS I & T GROUP
CINCINNATI, OHIO

PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 20 - TECHNICAL REFERENCE DRAWING

DRAWING TITLE
BUILDING 8A
FOUNDATION PLAN - WEST
WITH HIDDEN LINES

CONFIGURATION MANAGEMENT DRAWING YES NO

EXISTING STRUCTURES AS CONTRACTED CONDITION AS DEFINED BY PROJECT CONFIGURATION MANAGEMENT CONTROL. SEE NOTES.

COGNIZANT ENGINEER DATE

TASK ORDER NO.	OPTIONAL NO.	SCALE
060	N/A	3/16" = 1'-0"

DRAWN BY	DATE
K. L. RABBITT	10/25/92

RES NO.	FOF PROJECT NO.	TECHNICAL LEAD	DATE
4327	20810	N/A	N/A

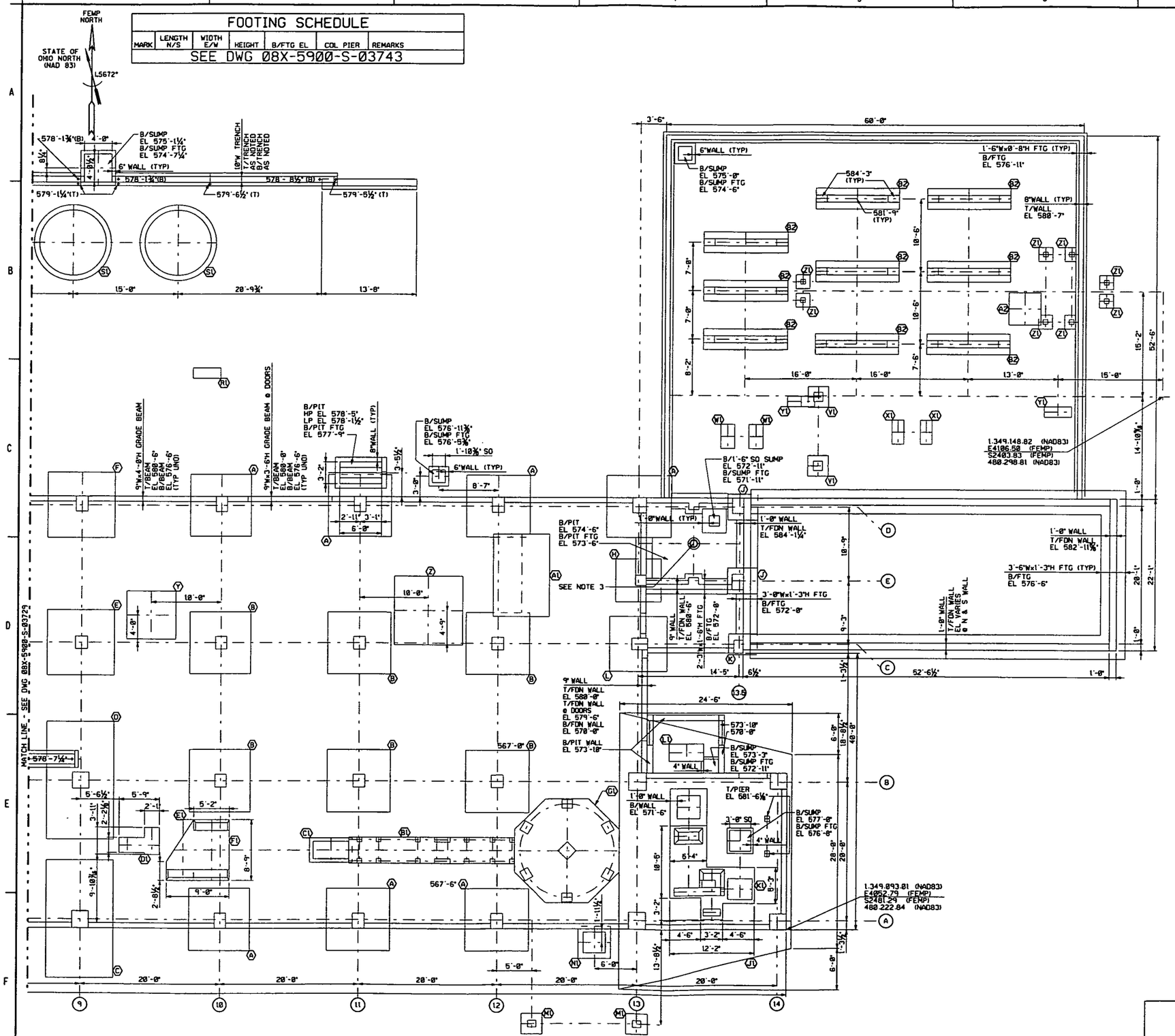
CHECKED BY	DATE
DOREEN REED	02/11/92

DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
08X-5900-S-03729	S0001	0

SEAL

FOOTING SCHEDULE

MARK	LENGTH N/S	WIDTH E/W	HEIGHT	B/FTG EL	COL PIER	REMARKS
SEE DWG 08X-5900-S-03743						



FOUNDATION PLAN - EAST

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION DRAWINGS AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.
2. SEE EXISTING REFERENCED DRAWINGS FOR CONSTRUCTION DETAILS AND/OR ISOMETRIC DRAWING SK8A-1.
3. 20" DIA CASING WITH 12" DIA HYDRULIC RAM, BOTTOM OF CASING EL 553'-0" WITH BOTTOM OF HYDRULIC RAM EL 553'-6".

4831

REF DWG NO.	DRAWING TITLE
08A-5500-S-01426	FOUNDATIONS & PAD FOR FILTER FEED TANK
08A-5500-S-01442	FOUNDATIONS & PLATFORM FOR SO2 STORAGE TANK PLAN, ELEV, SECTIONS & DETAILS
08A-5500-S-01760	CURBED ACID BRICK FLOOR AREA GENERAL ARRANGEMENT PLAN & SECTIONS
08D-5500-S-01482	STRUCTURAL AND CONCRETE FOUNDATION
08X-1450-S-00002	CONCRETE PLAN OF EQUIPMENT FOUNDATIONS SCRAP PLANT - AREA 'A'
08X-1450-S-00003	CONCRETE PLAN OF EQUIPMENT FOUNDATIONS SCRAP PLANT - AREA 'B'
08X-1450-S-00005	CONCRETE PLAN OF EQUIPMENT FOUNDATIONS SCRAP PLANT - AREA 'C'
08X-1450-S-00006	CONCRETE DETAILS OF EQUIPMENT FOUNDATIONS SCRAP PLANT
08X-1450-S-00007	CONCRETE EQUIPMENT FOUNDATIONS-AREA A, B, & C SCRAP PLANT
08X-1450-S-00008	CONCRETE DETAILS-EQUIPMENT FOUNDATIONS SCRAP PLANT
08X-1450-S-00009	CONCRETE DETAILS OF EQUIPMENT FOUNDATIONS SCRAP PLANT
08X-1450-S-00024	CONCRETE FOUNDATION PLAN AND DETAILS SCRAP PLANT
08X-1450-S-00025	CONCRETE ELEVATOR PIT AND LOADING PLATFORM SCRAP PLANT
08X-3900-S-02824	PLANT 8 ELEVATOR DEMOLITION PLAN
08X-5500-P-01129	U.A.P. PROCESS MISCELLANEOUS PIPING DETAILS
08X-5500-S-01090	U.A.P. PROCESS CONCRETE FOUNDATIONS LAYOUT
08X-5500-S-01091	U.A.P. PROCESS CONCRETE FOUNDATIONS DETAILS
08X-5500-S-01268	FEED PREP OFF SITE MATERIAL EQUIPMENT SUPPORTS STRUCTURAL - SECTIONS & DETAILS
08X-5500-S-01269	FEED PREP OFF SITE MATERIAL EQUIPMENT SUPPORTS STRUCTURAL - DETAILS
08X-5500-S-01331	CONCRETE PAD & TRENCH PLAN, SECTIONS & DETAILS
08X-5500-S-01573	SURFACE DRAINAGE IMPROVEMENT AREA PLAN & SECTION
08X-5500-S-01588	RECOVERY FACILITY BOX FURNACE-PROD. DRUM PIT & SUMP DETAILS
08X-5500-S-02383	HAZARDOUS MATERIALS SPILL PROTECTION CAUSTIC SODA STORAGE RETENTION DIKE & SUMP PUMP PLAN
08X-5500-S-02384	HAZARDOUS MATERIALS SPILL PROTECTION CAUSTIC SODA STORAGE RETENTION DIKE SECTIONS & DETAILS
08X-5500-S-02394	HAZARDOUS MATERIALS SPILL PROTECTION CAUSTIC SODA STORAGE RETENTION DIKE & SUMP PUMP DETAILS
08X-5945-S-00419	SCRAP PLANT EXPANSION PLANT EFFLUENT SURGE FOUNDATIONS
FPF-3043-C43-53B	HATCH PLAN OF OIL HYDRAULIC FREIGHT ELEVATOR
SKPLANT8-1	PLANT 8 - BLDG'S 8A, 8B, 8C, 8D, 8G, 8H, 18H, 74C, 74Q, & 80 - FOUNDATION ISOMETRIC VIEW
SKPLANT8-2	PLANT 8 - BLDG'S 8A, 8B, 8C, 8D, 8G, 8H, 18H, 74C, 74Q, & 80 - FOUNDATION AND SLAB ISOMETRIC VIEW
08X-5900-S-03743	BUILDING 8A FOOTING SCHEDULE
08X-5900-S-03729	BUILDING 8A FOUNDATION PLAN - WEST

000336

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	NCW BY
0	ISSUED FOR TECHNICAL REFERENCE ONLY.	N/A	KG 10/25/82	LNH 10/25/82

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
PARSONS I & T GROUP
CINCINNATI, OHIO

PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 20 - TECHNICAL REFERENCE DRAWING

DRAWING TITLE
BUILDING 8A
FOUNDATION PLAN - EAST
WITH HIDDEN LINES

CONFIGURATION MANAGEMENT DRAWING

TASK ORDER NO.	OPTIONAL NO.	SCALE 3/16" = 1'-0"	
060	N/A	DRAWN BY K. L. RABBITT	DATE 10/25/82
REV. NO. 4327	FOF PROJECT NO. 20810	TECHNICAL LEAD N/A	DATE N/A
		CHECKED BY DOREEN REED	DATE 02/11/82
COGNIZANT ENGINEER	DATE	DRAWING INDEX CODE NO. 08X-5900-S-03730	SHEET NO. S0002 / REV. NO. 0

SEAL

FOOTING SCHEDULE

MARK	LENGTH N/S	WIDTH E/W	HEIGHT	B/FTG EL	COL PIER	REMARKS
A	9'-0"	9'-0"	1'-6"	572'-0" UNO	1'-8"x2'-2½"	T/PIER EL 580'-6"
B	9'-0"	9'-0"	1'-6"	572'-0" UNO	1'-8"x1'-10"	T/PIER EL 580'-6"
C	17'-0"	9'-6"	2'-6"	572'-0"	2'-4"x2'-5½"	T/PIER EL 580'-6"
D	17'-0"	9'-6"	2'-6"	572'-0"	2'-4" SQ	T/PIER EL 580'-6"
E	9'-6"	9'-6"	1'-6"	572'-0"	1'-8"x1'-10"	T/PIER EL 580'-6"
F	9'-6"	9'-6"	1'-6"	572'-0"	1'-8"x2'-2½"	T/PIER EL 580'-6"
G	9'-0"	9'-0"	1'-6"	572'-0"	2'-1½"x2'-2½"	T/PIER EL 580'-6"
H	6'-3"	6'-3"	1'-3"	570'-6"	1'-6"x1'-8½"	T/PIER EL 580'-6"
J	3'-9"	4'-3"	1'-3"	572'-0"	2'-1½"x1'-10½"	T/PIER EL 580'-6"
K	3'-0"	3'-0"	1'-3"	572'-0"	1'-10½"x2'-3½"	T/PIER EL 580'-6"
L	8'-0"	8'-0"	1'-6"	570'-6"	1'-8"x2'-2½"	T/PIER EL 580'-6"
M	4'-0"	4'-0"	1'-6"	575'-0"	1'-8½"x1'-7½"	T/PIER EL 580'-6"
N	4'-0"	4'-0"	1'-6"	575'-0"	1'-2"x1'-8½"	T/PIER EL 580'-6"
P	6'-0"	6'-0"	1'-6"	577'-6"	1'-2"x1'-4"	T/PIER EL 580'-6"
R	6'-0"	6'-0"	1'-6"	575'-0"	1'-8½"x1'-7½"	T/PIER EL 580'-6"
S	6'-0"	6'-0"	1'-6"	575'-0"	1'-8½"x1'-2"	T/PIER EL 580'-6"
T	10'-0"	10'-0"	1'-3"	572'-0"	(4)1'-3" SQ	T/PIER EL 579'-6"
U	12'-5" OCTOGON	12'-5" OCTOGON	1'-9"	579'-6"	N/A	T/PAD FTG EL 581'-3"
V	12'-5" OCTOGON	12'-5" OCTOGON	1'-7"	579'-6"	N/A	T/PAD FTG EL 581'-1"
W	4'-0"	2'-1"	1'-3"	579'-2"	N/A	T/FTG EL 580'-5"
X	4'-8"	2'-2"	1'-3"	579'-2"	N/A	T/FTG EL 580'-5"
Y	7'-0"	7'-0"	1'-0"	579'-0"	N/A	T/FTG EL 580'-0"
Z	10'-0"	10'-0"	1'-0"	579'-0"	N/A	T/FTG EL 580'-0"

FOOTING SCHEDULE

MARK	LENGTH N/S	WIDTH E/W	HEIGHT	B/FTG EL	COL PIER	REMARKS
A1	12'-0"	8'-0"	1'-3"	578'-9"	N/A	T/FTG EL 580'-0"
B1	3'-9"	23'-10"	1'-0"	579'-0"	(12)18"x8" (2)8"x2'-3"	T/PIER EL 580'-5"
C1	3'-6"	6'-0"	1'-3"	572'-0"	2'-6"x5'-0"	T/PIER EL 580'-0"
D1	SEE PLAN	SEE PLAN	1'-3"	579'-1⅞"	N/A	T/FTG EL 580'-4⅞"
E1	7'-9"	9'-0"	1'-3"	574'-0"	(21)'-6½"x5'-2"	T/PIER EL 579'-2"
F1	SEE PLAN	SEE PLAN	0'-10"	579'-2"	SEE NOTE 2	T/PIER EL 582'-1½"
G1	15'-0" OCTOGON	15'-0" OCTOGON	2'-0"	567'-0"	1'-10" SQ CENTER (6)1'-3"x1'-6"	T/PIER EL 580'-10¼" CENTER T/PIER EL 580'-3" (6-TYP)
H1	15'-0"	15'-0"	0'-10"	579'-2"	N/A	SEE SLAB PLAN
J1	SEE PLAN	SEE PLAN	3'-0"	567'-0"	VARIES	SEE NOTE 2
K1	SEE PLAN	SEE PLAN	1'-6"	570'-0"	VARIES	SEE NOTE 2
L1	2'-6"	5'-0"	5'-4"	570'-0"	N/A	SITS ON FOOTING AJ
M1	3'-0"	3'-0"	1'-3"	572'-0"	1'-0"x1'-2"	T/PIER EL 580'-5"
N1	4'-8"	4'-8"	1'-3"	572'-0"	3'-0"x3'-2"	T/PIER EL 579'-10"
P1	2'-0"	2'-0"	4'-6"	575'-6"	N/A	T/FTG EL 580'-0"
R1	1'-6"	4'-0"	2'-10½"	577'-0"	N/A	T/FTG EL 579'-10½"
S1	18'-11" DIA	18'-11" DIA	3'-6"	577'-5⅛"	N/A	T/FTG EL 580'-11⅛"
T1	2'-6"	8'-9"	2'-6"	578'-3"	N/A	T/FTG EL 580'-9"
U1	4'-6"	8'-0"	1'-8"	576'-3"	1'-2"x7'-6"	T/PIER EL 580'-2"
V1	3'-0"	3'-0"	1'-8"	571'-3"	1'-4" SQ	T/PIER EL 580'-2"
W1	3'-6"	2'-0"	1'-8"	578'-4⅞"	N/A	T/FTG EL 580'-0⅞"
X1	3'-6"	2'-0"	1'-8"	579'-7¼"	N/A	T/FTG EL 581'-3¼"
Y1	1'-6"	3'-11"	1'-4"	578'-9¼"	N/A	T/FTG EL 580'-1¼"
Z1	2'-0"	2'-0"	0'-8"	577'-1⅝"	0'-8" SQ	T/PIER EL 580'-3⅝"

FOOTING SCHEDULE

MARK	LENGTH N/S	WIDTH E/W	HEIGHT	B/FTG EL	COL PIER	REMARKS
A2	4'-8"	4'-8"	1'-0"	578'-11"	N/A	SAFETY SHOWER PAD, SEE NOTE 2
B2	3'-0"	12'-0"	1'-6"	576'-9"	1'-0"x12'-0"	T/PIER EL (SEE PLAN & ISO VIEW)

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION DRAWINGS AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.

4831

REF DWG NO.	DRAWING TITLE
08A-5500-S-01426	FOUNDATIONS & PAD FOR FILTER FEED TANK
08A-5500-S-01442	FOUNDATIONS & PLATFORM FOR SO2 STORAGE TANK PLAN, ELEV, SECTIONS & DETAILS
08A-5500-S-01780	CURBED ACID BRICK FLOOR AREA GENERAL ARRANGEMENT PLAN & SECTIONS
08D-5500-S-01482	STRUCTURAL AND CONCRETE FOUNDATION
08X-1450-S-00002	CONCRETE PLAN OF EQUIPMENT FOUNDATIONS SCRAP PLANT - AREA "A"
08X-1450-S-00003	CONCRETE PLAN OF EQUIPMENT FOUNDATIONS SCRAP PLANT - AREA "B"
08X-1450-S-00005	CONCRETE PLAN OF EQUIPMENT FOUNDATIONS SCRAP PLANT - AREA "C"
08X-1450-S-00006	CONCRETE DETAILS OF EQUIPMENT FOUNDATIONS SCRAP PLANT
08X-1450-S-00007	CONCRETE EQUIPMENT FOUNDATIONS-AREA A, B, & C SCRAP PLANT
08X-1450-S-00008	CONCRETE DETAILS-EQUIPMENT FOUNDATIONS SCRAP PLANT
08X-1450-S-00009	CONCRETE DETAILS OF EQUIPMENT FOUNDATIONS SCRAP PLANT
08X-1450-S-00024	CONCRETE FOUNDATION PLAN AND DETAILS SCRAP PLANT
08X-1450-S-00025	CONCRETE ELEVATOR PIT AND LOADING PLATFORM SCRAP PLANT
08X-3900-S-02824	PLANT 8 ELEVATOR DEMOLITION PLAN
08X-5500-P-01129	U.A.P. PROCESS MISCELLANEOUS PIPING DETAILS
08X-5500-S-01090	U.A.P. PROCESS CONCRETE FOUNDATIONS LAYOUT
08X-5500-S-01091	U.A.P. PROCESS CONCRETE FOUNDATIONS DETAILS
08X-5500-S-01268	FEED PREP OFF SITE MATERIAL EQUIPMENT SUPPORTS STRUCTURAL - SECTIONS & DETAILS
08X-5500-S-01269	FEED PREP OFF SITE MATERIAL EQUIPMENT SUPPORTS STRUCTURAL - DETAILS
08X-5500-S-01331	CONCRETE PAD & TRENCH PLAN, SECTIONS & DETAILS
08X-5500-S-01573	SURFACE DRAINAGE IMPROVEMENT AREA PLAN & SECTION
08X-5500-S-01588	RECOVERY FACILITY BOX FURNACE-PROD. DRUM PIT & SUMP DETAILS
08X-5500-S-02383	HAZARDOUS MATERIALS SPILL PROTECTION CAUSTIC SODA STORAGE RETENTION DIKE & SUMP PUMP PLAN
08X-5500-S-02384	HAZARDOUS MATERIALS SPILL PROTECTION CAUSTIC SODA STORAGE RETENTION DIKE SECTIONS & DETAILS
08X-5500-S-02394	HAZARDOUS MATERIALS SPILL PROTECTION CAUSTIC SODA STORAGE RETENTION DIKE & SUMP PUMP DETAILS
08X-5945-S-00419	SCRAP PLANT EXPANSION PLANT EFFLUENT SURGE FOUNDATIONS
FPF-3043-C43-538	HATCH PLAN OF OIL HYDRAULIC FREIGHT ELEVATOR
SKPLANT8-1	PLANT 8 - BLDG'S 8A, 8B, 8C, 8D, 8G, 8H, 18H, 74C, 74Q, & 80 - FOUNDATION ISOMETRIC VIEW
SKPLANT8-2	PLANT 8 - BLDG'S 8A, 8B, 8C, 8D, 8G, 8H, 18H, 74C, 74Q, & 80 - FOUNDATION AND SLAB ISOMETRIC VIEW
08X-5900-S-03729	BUILDING 8A FOUNDATION PLAN - WEST
08X-5900-S-03730	BUILDING 8A FOUNDATION PLAN - EAST

000337

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	RESP.	PM	REVIS BY
0	ISSUED FOR TECHNICAL REFERENCE ONLY.	N/A	KG 03/28/02	LNH 03/28/02

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
PARSONS I & T GROUP
CINCINNATI, OHIO

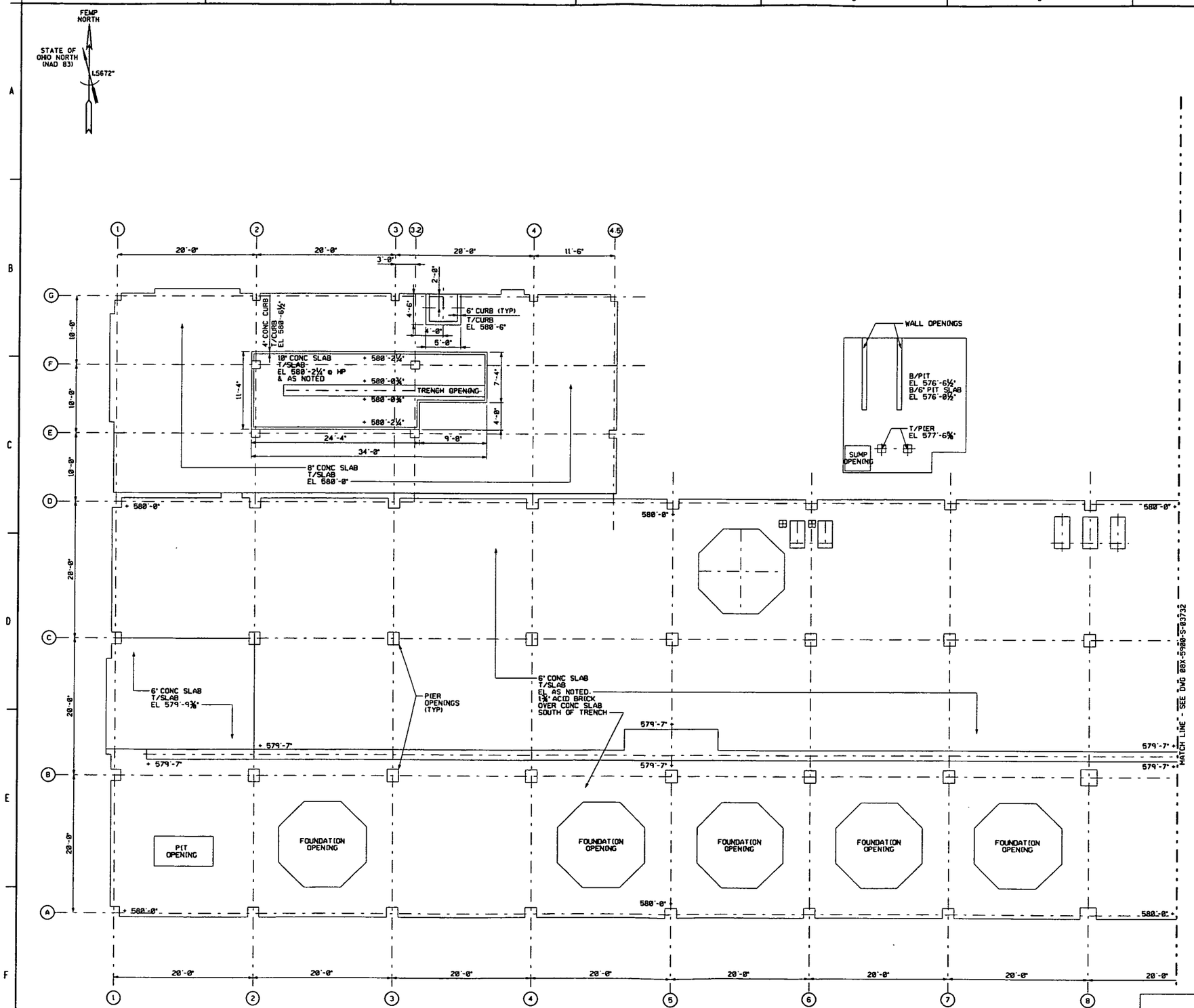
PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 20 - TECHNICAL REFERENCE DRAWING

DRAWING TITLE
BUILDING 8A
FOOTING SCHEDULE

CONFIGURATION MANAGEMENT DRAWING
EXISTING ATTACHMENTS OR CONTENTS DIFFERS FROM ORIGINAL PER CONFIGURATION MANAGEMENT CONTROL. SEE NOTES.

TASK ORDER NO. 060	OPTIONAL NO. N/A	SCALE NONE	
		DRAWN BY L. N. HAGAMAN	DATE 02/19/02
RES NO. 4327	FDF PROJECT NO. 20810	TECHNICAL LEAD N/A	DATE N/A
		CHECKED BY DOREEN REED	DATE 02/11/02
COGNIZANT ENGINEER DATE	DRAWING INDEX CODE NO. 08X-5900-S-03743	SHEET NO. S0003	REV. NO. 0

SEAL



SLAB PLAN - WEST

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION DRAWINGS AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.
2. SEE EXISTING REFERENCED DRAWINGS FOR CONSTRUCTION DETAILS AND/OR ISOMETRIC DRAWING SK8A-1.

4831

REF DWG NO.	DRAWING TITLE
08A-5500-S-01426	FOUNDATIONS & PAD FOR FILTER FEED TANK
08A-5500-S-01442	FOUNDATIONS & PLATFORM FOR SO2 STORAGE TANK PLAN, ELEV, SECTIONS & DETAILS
08A-5500-S-01780	CURBED ACID BRICK FLOOR AREA GENERAL ARRANGEMENT PLAN & SECTIONS
08D-5500-S-01482	STRUCTURAL AND CONCRETE FOUNDATION
08X-1450-S-00002	CONCRETE PLAN OF EQUIPMENT FOUNDATIONS SCRAP PLANT - AREA "A"
08X-1450-S-00003	CONCRETE PLAN OF EQUIPMENT FOUNDATIONS SCRAP PLANT - AREA "B"
08X-1450-S-00005	CONCRETE PLAN OF EQUIPMENT FOUNDATIONS SCRAP PLANT - AREA "C"
08X-1450-S-00006	CONCRETE DETAILS OF EQUIPMENT FOUNDATIONS SCRAP PLANT
08X-1450-S-00007	CONCRETE EQUIPMENT FOUNDATIONS-AREA A, B, & C SCRAP PLANT
08X-1450-S-00008	CONCRETE DETAILS-EQUIPMENT FOUNDATIONS SCRAP PLANT
08X-1450-S-00009	CONCRETE DETAILS OF EQUIPMENT FOUNDATIONS SCRAP PLANT
08X-1450-S-00024	CONCRETE FOUNDATION PLAN AND DETAILS SCRAP PLANT
08X-1450-S-00025	CONCRETE ELEVATOR PIT AND LOADING PLATFORM SCRAP PLANT
08X-3900-S-02824	PLANT 8 ELEVATOR DEMOLITION PLAN
08X-5500-P-01129	U.A.P. PROCESS MISCELLANEOUS PIPING DETAILS
08X-5500-S-01090	U.A.P. PROCESS CONCRETE FOUNDATIONS LAYOUT
08X-5500-S-01091	U.A.P. PROCESS CONCRETE FOUNDATIONS DETAILS
08X-5500-S-01268	FEED PREP OFF SITE MATERIAL EQUIPMENT SUPPORTS STRUCTURAL - SECTIONS & DETAILS
08X-5500-S-01269	FEED PREP OFF SITE MATERIAL EQUIPMENT SUPPORTS STRUCTURAL - DETAILS
08X-5500-S-01331	CONCRETE PAD & TRENCH PLAN, SECTIONS & DETAILS
08X-5500-S-01573	SURFACE DRAINAGE IMPROVEMENT AREA PLAN & SECTION
08X-5500-S-01588	RECOVERY FACILITY BOX FURNACE-PROD.DRUM PIT & SUMP DETAILS
08X-5500-S-02383	HAZARDOUS MATERIALS SPILL PROTECTION CAUSTIC SODA STORAGE RETENTION DIKE & SUMP PUMP PLAN
08X-5500-S-02384	HAZARDOUS MATERIALS SPILL PROTECTION CAUSTIC SODA STORAGE RETENTION DIKE SECTIONS & DETAILS
08X-5500-S-02394	HAZARDOUS MATERIALS SPILL PROTECTION CAUSTIC SODA STORAGE RETENTION DIKE & SUMP PUMP DETAILS
08X-5945-S-00419	SCRAP PLANT EXPANSION PLANT EFFLUENT SURGE FOUNDATIONS
FPF-3843-C43-538	HATCH PLAN OF OIL HYDRAULIC FREIGHT ELEVATOR
SKPLANT8-1	PLANT 8 - BLDG'S 8A, 8B, 8C, 8D, 8G, 8H, 18H, 74C, 74Q, & 80 - FOUNDATION ISOMETRIC VIEW
SKPLANT8-2	PLANT 8 - BLDG'S 8A, 8B, 8C, 8D, 8G, 8H, 18H, 74C, 74Q, & 80 - FOUNDATION AND SLAB ISOMETRIC VIEW
08X-5900-S-03732	BUILDING 8A SLAB PLAN - EAST

000338

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	REVD BY
				DETAILS AND DATE
0	ISSUED FOR TECHNICAL REFERENCE ONLY.	N/A	KG 10/29/92	LNH 10/29/92

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

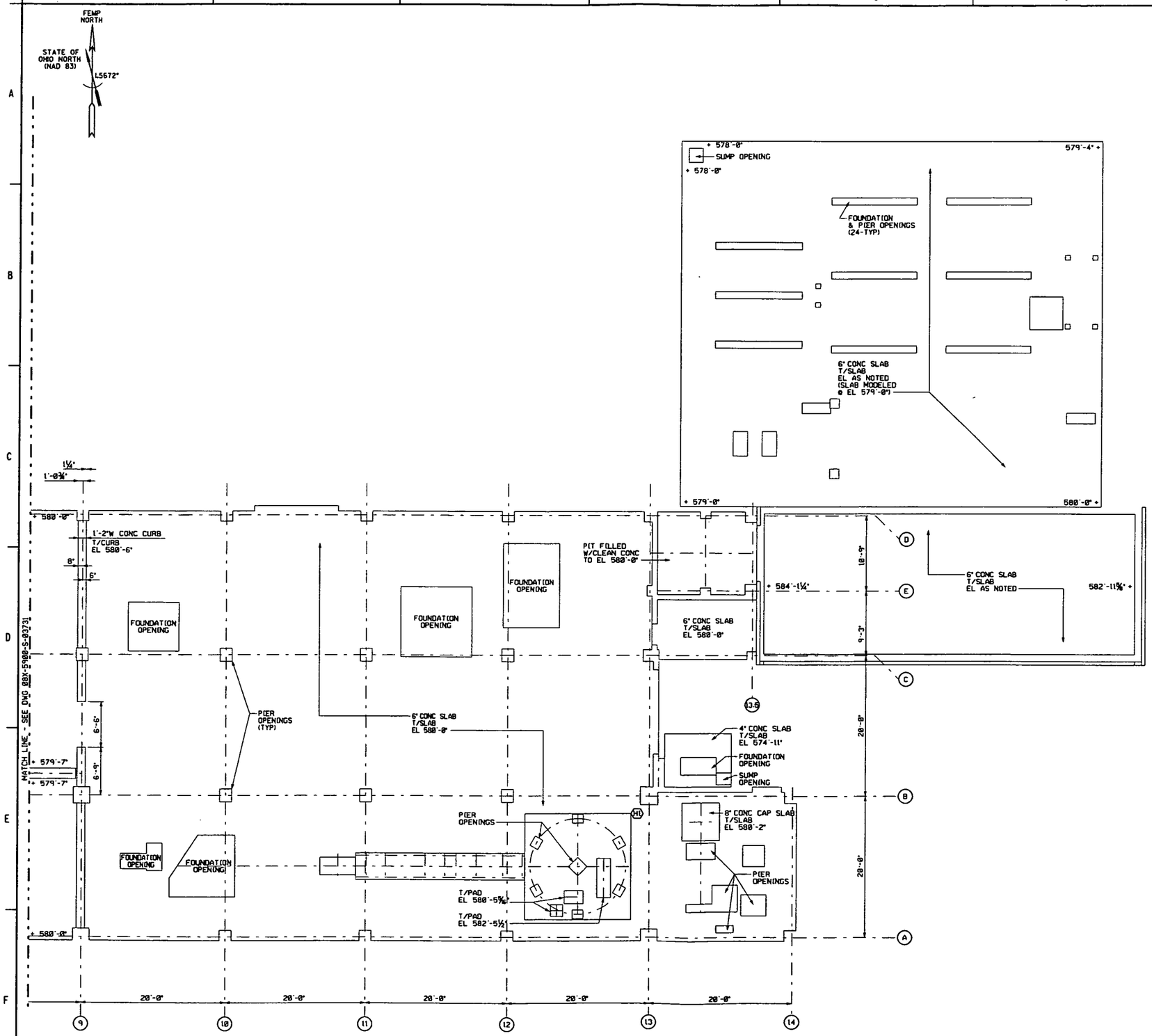
THIS DRAWING PREPARED BY
PARSONS I & T GROUP
CINCINNATI, OHIO

PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 20 - TECHNICAL REFERENCE DRAWING

DRAWING TITLE
BUILDING 8A
SLAB PLAN - WEST
WITHOUT HIDDEN LINES

CONFIGURATION MANAGEMENT DRAWING
EXISTING ATTRIBUTES ON COMPONENTS CONFORM TO REQUIREMENTS OF CONFIGURATION MANAGEMENT CONTROL, LEV DATED.
COGNIZANT ENGINEER DATE

TASK ORDER NO.	OPTIONAL NO.	SCALE 3/16" = 1'-0"	
060	N/A	DRAWN BY K. L. RABBITT	DATE 01/25/92
REV NO. 4327	FSF PROJECT NO. 20810	TECHNICAL LEAD N/A	DATE N/A
		CHECKED BY DOREEN REED	DATE 02/11/92
DRAWING INDEX CODE NO. 08X-5900-S-03731		SHEET NO. S0004	REV. NO. 0



SLAB PLAN - EAST

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION DRAWINGS AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.
2. SEE EXISTING REFERENCED DRAWINGS FOR CONSTRUCTION DETAILS AND/OR ISOMETRIC DRAWING SK8A-1.

4831

REF DWG NO.	DRAWING TITLE
08A-5500-S-01426	FOUNDATIONS & PAD FOR FILTER FEED TANK
08A-5500-S-01442	FOUNDATIONS & PLATFORM FOR SO2 STORAGE TANK PLAN ELEV SECTIONS & DETAILS
08A-5500-S-01780	CURBED ACID BRICK FLOOR AREA GENERAL ARRANGEMENT PLAN & SECTIONS
08D-5500-S-01482	STRUCTURAL AND CONCRETE FOUNDATION
08X-1450-S-00002	CONCRETE PLAN OF EQUIPMENT FOUNDATIONS SCRAP PLANT - AREA "A"
08X-1450-S-00003	CONCRETE PLAN OF EQUIPMENT FOUNDATIONS SCRAP PLANT - AREA "B"
08X-1450-S-00005	CONCRETE PLAN OF EQUIPMENT FOUNDATIONS SCRAP PLANT - AREA "C"
08X-1450-S-00006	CONCRETE DETAILS OF EQUIPMENT FOUNDATIONS SCRAP PLANT
08X-1450-S-00007	CONCRETE EQUIPMENT FOUNDATIONS-AREA A, B, & C SCRAP PLANT
08X-1450-S-00008	CONCRETE DETAILS-EQUIPMENT FOUNDATIONS SCRAP PLANT
08X-1450-S-00009	CONCRETE DETAILS OF EQUIPMENT FOUNDATIONS SCRAP PLANT
08X-1450-S-00024	CONCRETE FOUNDATION PLAN AND DETAILS SCRAP PLANT
08X-1450-S-00025	CONCRETE ELEVATOR PIT AND LOADING PLATFORM SCRAP PLANT
08X-3900-S-02824	PLANT 8 ELEVATOR DEMOLITION PLAN
08X-5500-P-01129	U.A.P. PROCESS MISCELLANEOUS PIPING DETAILS
08X-5500-S-01090	U.A.P. PROCESS CONCRETE FOUNDATIONS LAYOUT
08X-5500-S-01091	U.A.P. PROCESS CONCRETE FOUNDATIONS DETAILS
08X-5500-S-01268	FEED PREP OFF SITE MATERIAL EQUIPMENT SUPPORTS STRUCTURAL - SECTIONS & DETAILS
08X-5500-S-01269	FEED PREP OFF SITE MATERIAL EQUIPMENT SUPPORTS STRUCTURAL - DETAILS
08X-5500-S-01331	CONCRETE PAD & TRENCH PLAN SECTIONS & DETAILS
08X-5500-S-01573	SURFACE DRAINAGE IMPROVEMENT AREA PLAN & SECTION
08X-5500-S-01588	RECOVERY FACILITY BOX FURNACE-PROD DRUM PIT & SUMP DETAILS
08X-5500-S-02383	HAZARDOUS MATERIALS SPILL PROTECTION CAUSTIC SODA STORAGE RETENTION DIKE & SUMP PUMP PLAN
08X-5500-S-02384	HAZARDOUS MATERIALS SPILL PROTECTION CAUSTIC SODA STORAGE RETENTION DIKE SECTIONS & DETAILS
08X-5500-S-02394	HAZARDOUS MATERIALS SPILL PROTECTION CAUSTIC SODA STORAGE RETENTION DIKE & SUMP PUMP DETAILS
08X-5945-S-00419	SCRAP PLANT EXPANSION PLANT EFFLUENT SURGE FOUNDATIONS
FPF-3043-C43-538	HATCH PLAN OF OIL HYDRAULIC FREIGHT ELEVATOR
SKPLANT8-1	PLANT 8 - BLDG'S 8A, 8B, 8C, 8D, 8G, 8H, 18H, 74C, 74Q, & 80 - FOUNDATION ISOMETRIC VIEW
SKPLANT8-2	PLANT 8 - BLDG'S 8A, 8B, 8C, 8D, 8G, 8H, 18H, 74C, 74Q, & 80 - FOUNDATION AND SLAB ISOMETRIC VIEW
08X-5900-S-03731	BUILDING 8A SLAB PLAN - WEST

000339

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	REVIS BY
			DETAILS AND DATE	
0	ISSUED FOR TECHNICAL REFERENCE ONLY.	N/A	KG 10/29/92	LNH 10/29/92

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
PARSONS I & T GROUP
CINCINNATI, OHIO

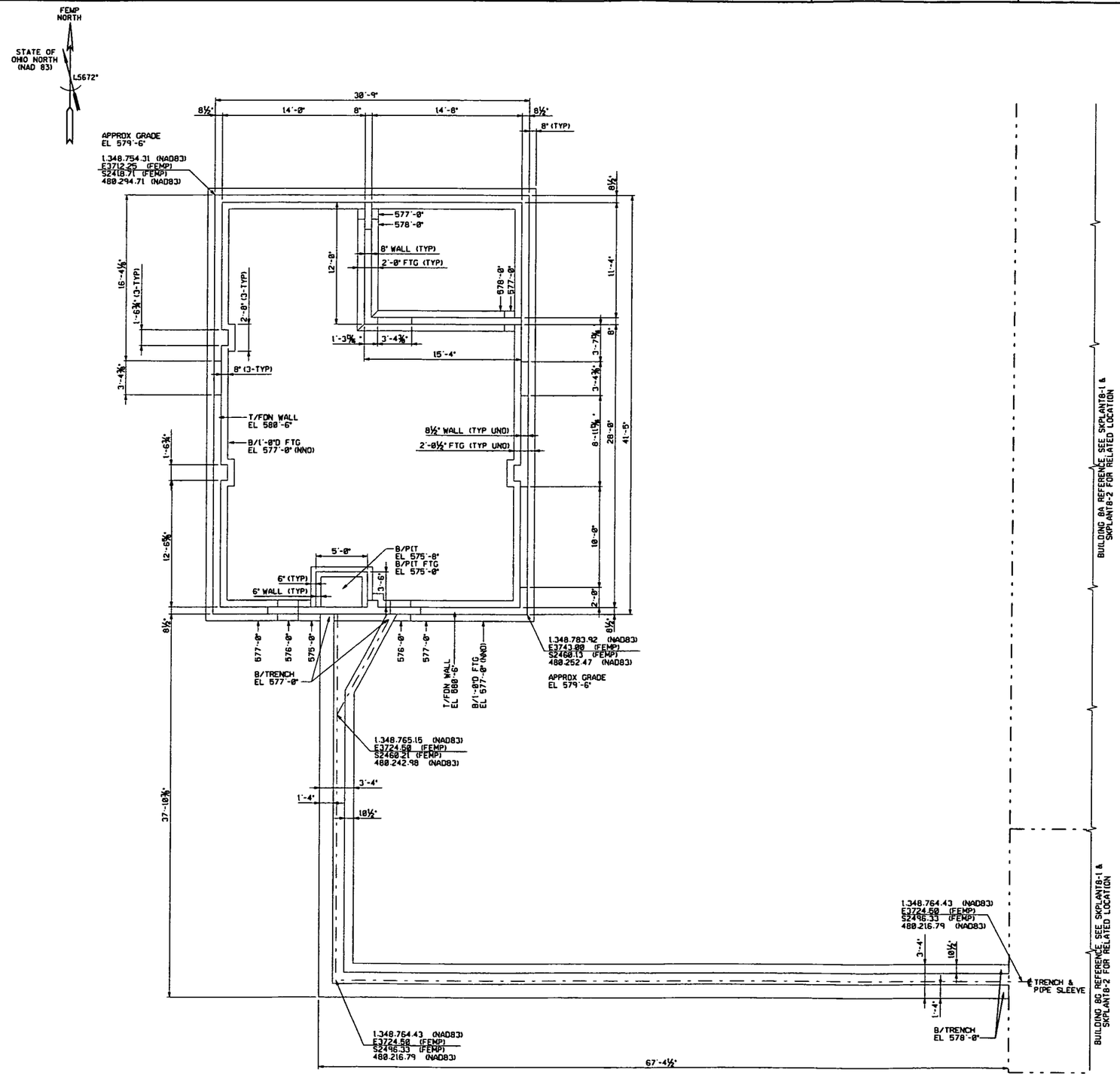
PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 20 - TECHNICAL REFERENCE DRAWING

DRAWING TITLE
BUILDING 8A
SLAB PLAN - EAST
WITHOUT HIDDEN LINES

TASK ORDER NO. 060	OPTIONAL NO. N/A	SCALE 3/16" = 1'-0"	
		DRAWN BY K. L. RABBITT	DATE 01/25/92
AES NO. 4327	FOR PROJECT NO. 20810	TECHNICAL LEAD N/A	DATE N/A
		CHECKED BY DOREEN REED	DATE 02/11/92
COGNIZANT ENGINEER	DATE	DRAWING INDEX CODE NO. 08X-5900-S-03732	SHEET NO. S0005 / REV. NO. 0

CONFIGURATION MANAGEMENT DRAWING

SEAL



FOUNDATION PLAN

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION DRAWINGS AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.
2. SEE EXISTING REFERENCED DRAWINGS FOR CONSTRUCTION DETAILS AND/OR ISOMETRIC DRAWING SK8B-1.

4831

REF DWG NO.	DRAWING TITLE
08X-5500-A-01176	FOUNDATION & FOOTING PLAN - WALL & DOORS. PLAN ELEVATIONS & SECTIONS
08X-5500-P-01184	INTER-PLANT SERVICES TRENCH DETAILS MISC. PIPING & CONCRETE DETAILS
75D-5500-G-00019	GRID 20 - EXISTING SITE PLAN
SKPLANT8-1	PLANT 8 - BLDG'S 8A, 8B, 8C, 8D, 8G, 8H, 18H, 74C, 74Q, & 80 - FOUNDATION ISOMETRIC VIEW
SKPLANT8-2	PLANT 8 - BLDG'S 8A, 8B, 8C, 8D, 8G, 8H, 18H, 74C, 74Q, & 80 - FOUNDATION AND SLAB ISOMETRIC VIEW

000340

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	RCB BY
0	ISSUED FOR TECHNICAL REFERENCE ONLY.	N/A	KG 03/28/92	LNH 03/28/92

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
PARSONS I & T GROUP
CINCINNATI, OHIO

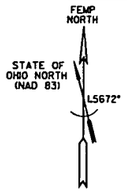
PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 20 - TECHNICAL REFERENCE DRAWING

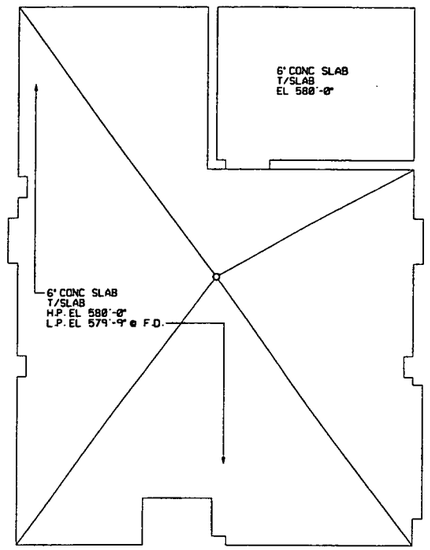
DRAWING TITLE
BUILDING 8B
FOUNDATION PLAN
WITHOUT HIDDEN LINES

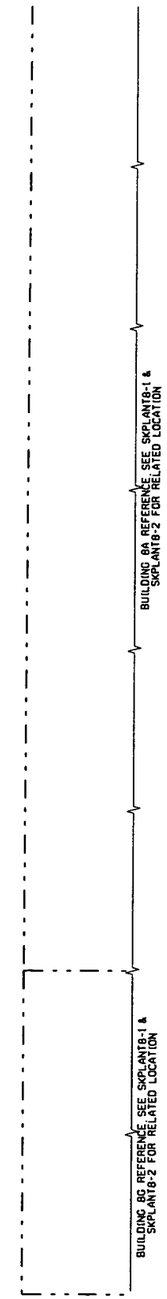
CONFIGURATION MANAGEMENT DRAWING
DATE
SHEET
EXISTING ATTRIBUTES OR CONTENTS CONFLICTING WITH THIS DRAWING, MUST BE RESOLVED IN THE DRAWING CONTROL LOG BOOKS.
COGNIZANT ENGINEER DATE

TASK ORDER NO.	OPTIONAL NO.	SCALE	
060	N/A	¼" = 1'-0"	
		DRAWN BY K.L. RABBITT	DATE 01/22/92
RES NO. 4327	FOR PROJECT NO. 20810	TECHNICAL LEAD N/A	DATE N/A
		CHECKED BY DOREEN REED	DATE 02/11/92
DRAWING INDEX CODE NO. 08H-5900-S-03733		SHEET NO. S0001	REV. NO. 0

SEAL







SLAB PLAN

GRAPHIC SCALE: ¼"=1'-0"

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION DRAWINGS AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.
2. SEE EXISTING REFERENCED DRAWINGS FOR CONSTRUCTION DETAILS AND/OR ISOMETRIC DRAWING SK88-1.

4831

REF DWG NO.	DRAWING TITLE
08X-5500-A-01176	FOUNDATION & FOOTING PLAN - WALL & DOORS. PLAN ELEVATIONS & SECTIONS
08X-5500-P-01184	INTER-PLANT SERVICES TRENCH DETAILS MISC. PIPING & CONCRETE DETAILS
750-5500-G-00019	GRID 20 - EXISTING SITE PLAN
SKPLANT8-1	PLANT 8 - BLDG'S 8A, 8B, 8C, 8D, 8G, 8H, 18H, 74C, 74Q, & 80 - FOUNDATION ISOMETRIC VIEW
SKPLANT8-2	PLANT 8 - BLDG'S 8A, 8B, 8C, 8D, 8G, 8H, 18H, 74C, 74Q, & 80 - FOUNDATION AND SLAB ISOMETRIC VIEW

000341

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	REVD BY
0	ISSUED FOR TECHNICAL REFERENCE ONLY.	N/A	KG 03/25/92	LNH 03/25/92

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
PARSONS I & T GROUP
CINCINNATI, OHIO

PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 20 - TECHNICAL REFERENCE DRAWING

DRAWING TITLE
BUILDING 8B
SLAB PLAN
WITHOUT HIDDEN LINES

CONFIGURATION MANAGEMENT DRAWING

UTILIZING STRUCTURES OR COMPONENTS DEPICTED ON THIS DRAWING ARE UNDER CONFIGURATION MANAGEMENT CONTROL. USE WITH.

TASK ORDER NO.	OPTIONAL NO.	SCALE ¼" = 1'-0"
060	N/A	DRAWN BY K. L. RAGBITT — DATE 01/22/92
RES NO. 4327	FOR PROJECT NO. 20810	TECHNICAL LEAD N/A — DATE N/A
		CHECKED BY DOREEN REED — DATE 02/11/92
DRAWING INDEX CODE NO. 08H-5900-S-03734		SHEET NO. S0002 — REV. NO. 0

COGNIZANT ENGINEER — DATE

SEAL

FOOTING SCHEDULE

MARK	LENGTH N/S	WIDTH E/W	HEIGHT	B/FTG EL	COL PIER	REMARKS
A	8'-0"	14'-0"	2'-0"	575'-0"	2'-6" SQ	T/PIER EL 580'-6"
B	10'-0"	12'-0"	2'-0"	575'-0"	2'-6" SQ	T/PIER EL 580'-6"
C	11'-0"	11'-0"	2'-0"	575'-0"	VARIES	SEE NOTE 2
D	9'-0"	9'-0"	1'-6"	575'-6"	2'-6¼"x2'-6" 2'-6¼" SQ @ 4-#3	T/PIER EL 580'-6"
E	10'-0"	10'-0"	1'-6"	575'-6"	2'-6¼"x2'-7½"	T/PIER EL 580'-6"
F	11'-0"	11'-0"	2'-0"	575'-0"	2'-6"x2-6 5/16" *	T/PIER EL 581'-0"
G	10'-0"	10'-0"	2'-0"	575'-0"	2'-6"x2-6 5/16" *	T/PIER EL 581'-0"
H	5'-0"	5'-0"	1'-6"	575'-6"	1'-2"x1'-11 3/16"	T/PIER EL 581'-0"

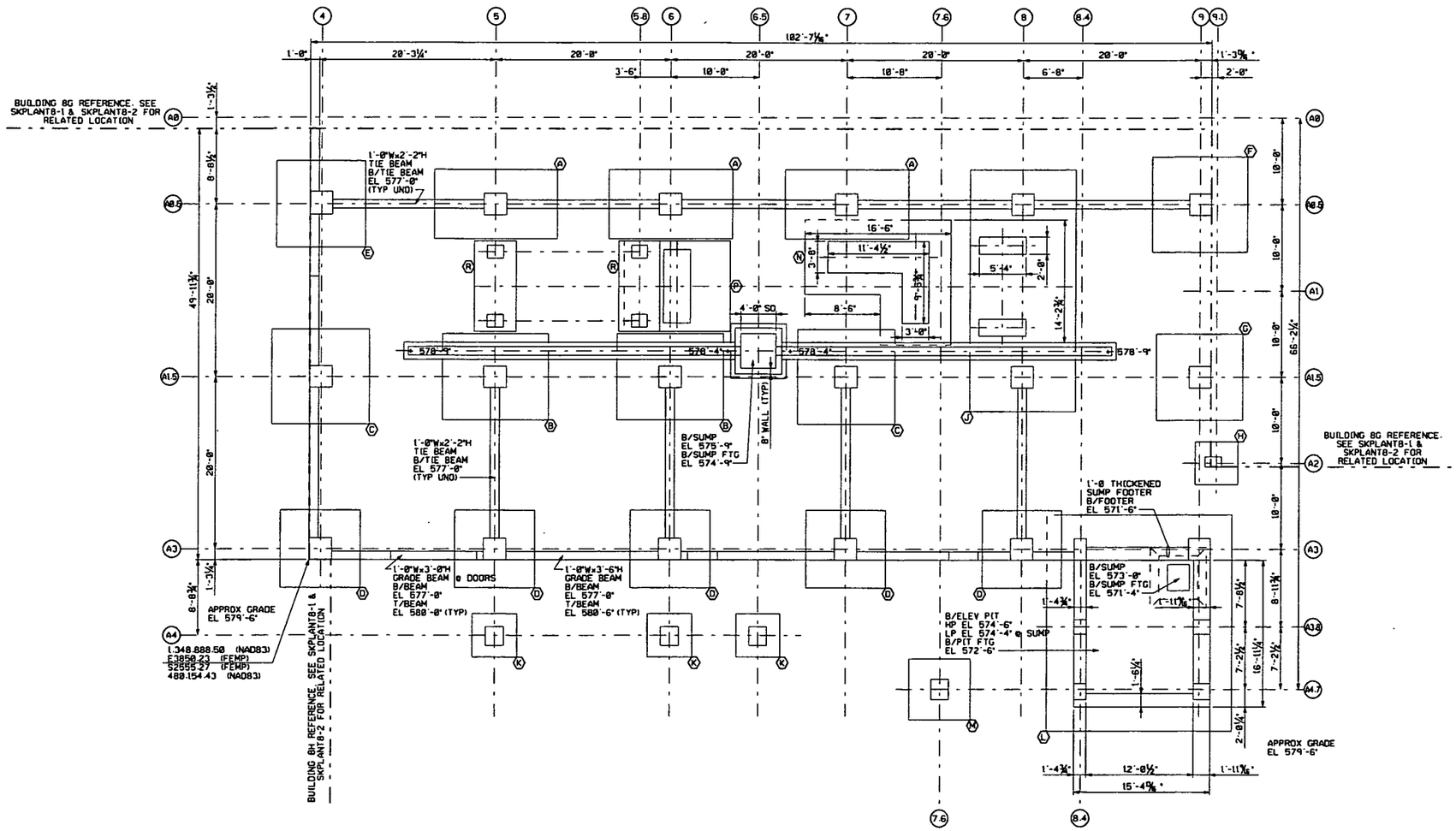
FOOTING SCHEDULE

MARK	LENGTH N/S	WIDTH E/W	HEIGHT	B/FTG EL	COL PIER	REMARKS
J	28'-0"	12'-0"	2'-6"	574'-6"	(2)2'-6" SQ	T/PIER EL 580'-6"
K	5'-0"	5'-0"	1'-6"	576'-0"	2'-2"x2'-0"	T/PIER EL 580'-6"
L	25'-0"	21'-0"	2'-0"	572'-6"	VARIES	SEE NOTE 2
M	7'-0"	7'-0"	1'-6"	573'-0"	2'-4"x2'-0"	T/PIER EL 580'-6"
N	SEE PLAN	SEE PLAN	2'-0"	571'-0"	SEE PLAN	T/PIER HP EL 587'-1"
P	18'-6"	12'-0"	2'-0"	571'-0"	8'-6"x3'-0"	T/PIER EL 586'-9 5/16"
R	18'-6"	4'-8"	1'-6"	576'-0"	(2)1'-6"x1'-10"	T/PIER EL 580'-6"

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION DRAWINGS AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.
2. SEE EXISTING REFERENCED DRAWINGS FOR CONSTRUCTION DETAILS AND/OR ISOMETRIC DRAWING SK8C-1.

4831



FOUNDATION PLAN

REF DWG NO.	DRAWING TITLE
08F-3900-S-02523	ROTARY KILN BUILDING FOUNDATION PLAN - SHEET 1
08F-3900-S-02524	ROTARY KILN BUILDING FOUNDATION PLAN - SHEET 2
08F-3900-S-02525	ROTARY KILN BUILDING FOUNDATION PLAN - SHEET 1
08F-3900-S-02526	ROTARY KILN BUILDING FOUNDATION PLAN - SHEET 2
08F-3900-S-02527	ROTARY KILN EQUIPMENT FOUNDATIONS
08F-3900-S-02558	ROTARY KILN MISCELLANEOUS DETAILS
08X-3900-S-02826	ELEVATOR PLANT 8 PLAN AND DETAILS
08X-3900-S-02828	ELEVATOR PLANT 8 SECTIONS AND DETAILS
SKPLANT8-1	PLANT 8 - BLDG'S 8A, 8B, 8C, 8D, 8G, 8H, 18H, 74C, 74Q & 80 - FOUNDATION ISOMETRIC VIEW
SKPLANT8-2	PLANT 8 - BLDG'S 8A, 8B, 8C, 8D, 8G, 8H, 18H, 74C, 74Q & 80 - FOUNDATION AND SLAB ISOMETRIC VIEW

000342

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	REVW BY
0	ISSUED FOR TECHNICAL REFERENCE ONLY.	N/A	KG 10/20/92	LNH 10/20/92

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
PARSONS I & T GROUP
CINCINNATI, OHIO

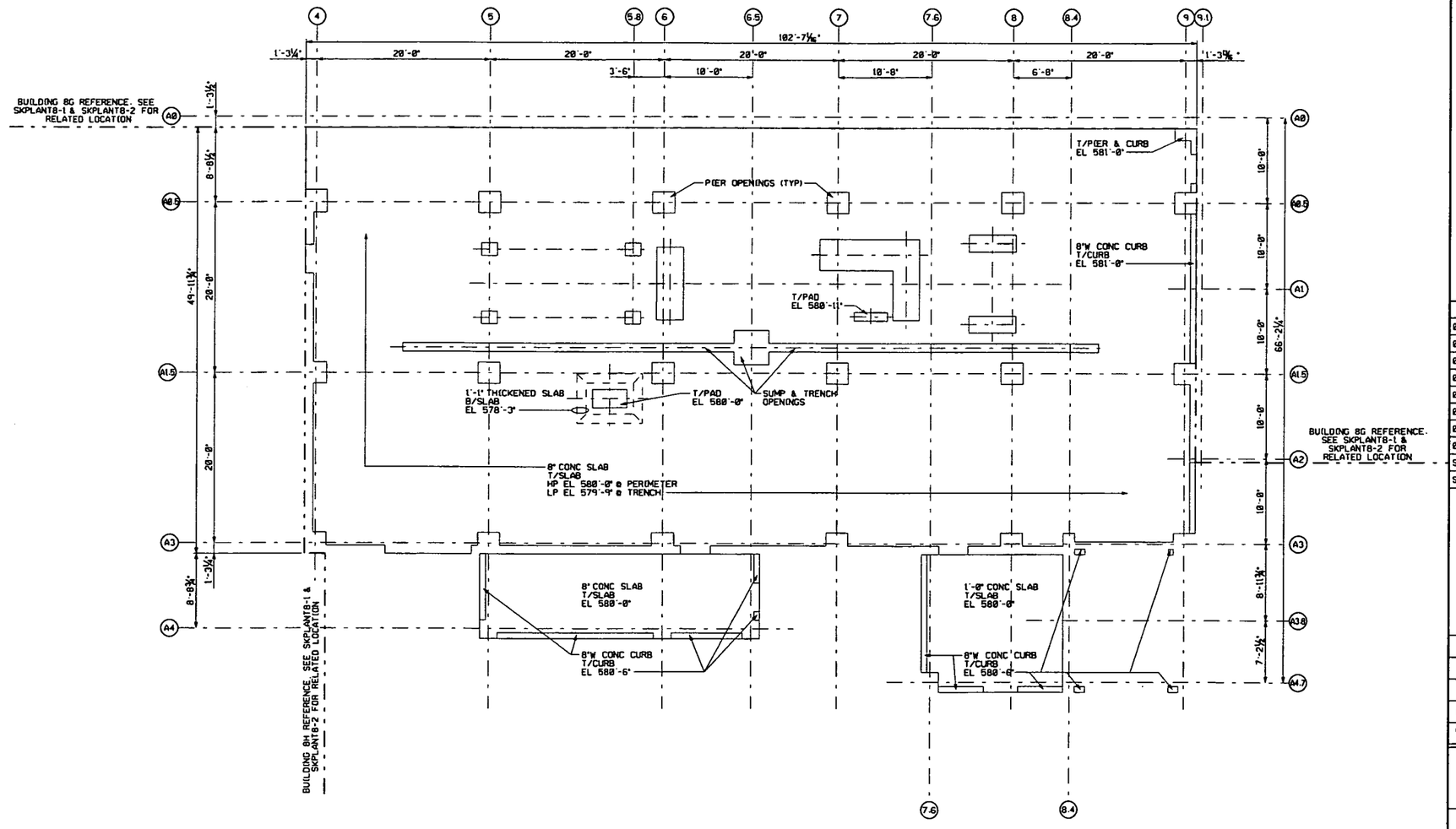
PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 20 - TECHNICAL REFERENCE DRAWING

DRAWING TITLE
BUILDING 8C
FOUNDATION PLAN
WITH HIDDEN LINES

CONFIGURATION MANAGEMENT DRAWING

TASK ORDER NO.	OPTIONAL NO.	SCALE 3/16" = 1'-0"	
060	N/A	DRAWN BY K. L. RABBITT	DATE 01/21/92
AES NO. 4327	JOB PROJECT NO. 20810	TECHNICAL LEAD N/A	DATE N/A
		CHECKED BY DOREEN REED	DATE 02/11/92
COGNIZANT ENGINEER	DATE	DRAWING INDEX CODE NO. 08H-5900-S-03735	SHEET NO. S0001 / REV. NO. 0

SEAL



SLAB PLAN

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION DRAWINGS AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.
2. SEE EXISTING REFERENCED DRAWINGS FOR CONSTRUCTION DETAILS AND/OR ISOMETRIC DRAWING SK8C-1.

4831

REF DWG NO.	DRAWING TITLE
08F-3900-S-02523	ROTARY KILN BUILDING FOUNDATION PLAN - SHEET 1
08F-3900-S-02524	ROTARY KILN BUILDING FOUNDATION PLAN - SHEET 2
08F-3900-S-02525	ROTARY KILN BUILDING FOUNDATION PLAN - SHEET 1
08F-3900-S-02526	ROTARY KILN BUILDING FOUNDATION PLAN - SHEET 2
08F-3900-S-02527	ROTARY KILN EQUIPMENT FOUNDATIONS
08F-3900-S-02558	ROTARY KILN MISCELLANEOUS DETAILS
08X-3900-S-02826	ELEVATOR PLANT 8 PLAN AND DETAILS
08X-3900-S-02828	ELEVATOR PLANT 8 SECTIONS AND DETAILS
SKPLANT8-1	PLANT 8 - BLDG'S 8A, 8B, 8C, 8D, 8G, 8H, 18H, 74C, 74Q, & 80 - FOUNDATION ISOMETRIC VIEW
SKPLANT8-2	PLANT 8 - BLDG'S 8A, 8B, 8C, 8D, 8G, 8H, 18H, 74C, 74Q, & 80 - FOUNDATION AND SLAB ISOMETRIC VIEW

000343

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	FM	REVIB BY
		INITIALS AND DATE		
0	ISSUED FOR TECHNICAL REFERENCE ONLY.	N/A	KG 10/29/92	LNH 10/29/92

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
PARSONS I & T GROUP
CINCINNATI, OHIO

PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 20 - TECHNICAL REFERENCE DRAWING

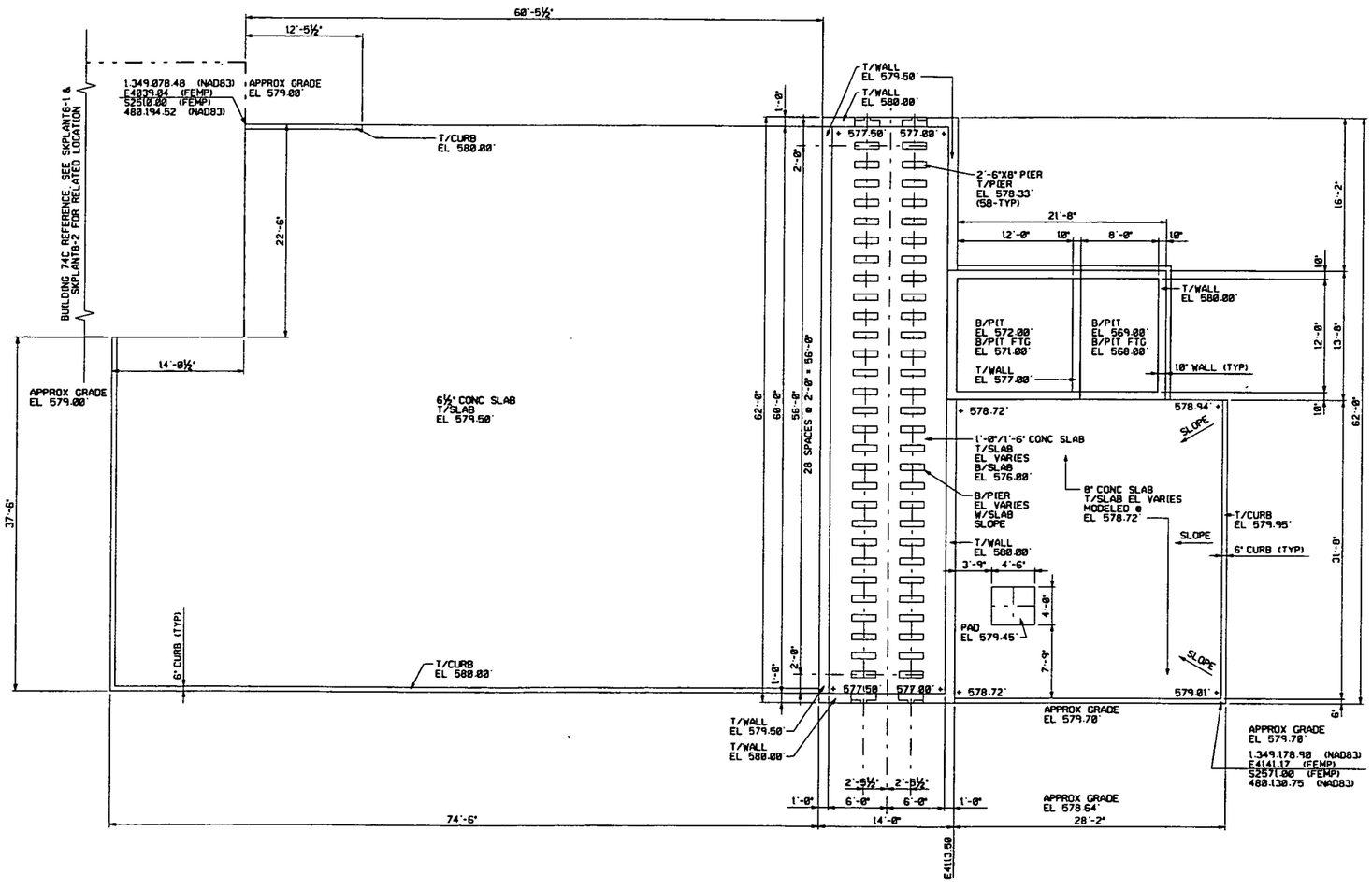
DRAWING TITLE
BUILDING 8C
SLAB PLAN
WITH HIDDEN LINES

TASK ORDER NO. 060	OPTIONAL NO. N/A	SCALE 3/16" = 1'-0"	
		DRAWN BY K. L. RABBITT	DATE 01/21/92
JOB NO. 4327	FOF PROJECT NO. 20810	TECHNICAL LEAD N/A	DATE N/A
		CHECKED BY DOREEN REED	DATE 02/11/92
DRAWING INDEX CODE NO. 08H-5900-S-03736		SHEET NO. S0002	REV. NO. 0

CONFIGURATION MANAGEMENT DRAWING YES NO
EXISTING STRUCTURES OR COMPONENTS CONFLICTING WITH DRAWING CONTROL. SEE NOTES.

COGNIZANT ENGINEER DATE

SEAL



FOUNDATION AND SLAB PLAN

GRAPHIC SCALE: 3/16"=1'-0"

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION DRAWINGS AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.
2. SEE EXISTING REFERENCED DRAWINGS FOR CONSTRUCTION DETAILS AND/OR ISOMETRIC DRAWING SK80-1.

4831

REF DWG NO.	DRAWING TITLE
08X-3115-S-02091	CAR WASH PIT & FILTER SCRAP PLANT REINFORCING DETAILS
08X-5500-S-01365	OFF-SITE FEED PREPARATION PAD PLAN & SECTIONS
SKPLANT8-1	PLANT 8 - BLDG'S 8A, 8B, 8C, 8D, 8G, 8H, 18H, 74C, 74Q, & 80 - FOUNDATION ISOMETRIC VIEW
SKPLANT8-2	PLANT 8 - BLDG'S 8A, 8B, 8C, 8D, 8G, 8H, 18H, 74C, 74Q, & 80 - FOUNDATION AND SLAB ISOMETRIC VIEW

000344

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	REVD BY
0	ISSUED FOR TECHNICAL REFERENCE ONLY.	N/A	KG 03/28/02	LNH 03/28/02

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
PARSONS I & T GROUP
CINCINNATI, OHIO

PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 20 - TECHNICAL REFERENCE DRAWING

DRAWING TITLE
BUILDING 8D
FOUNDATION AND SLAB PLAN
WITHOUT HIDDEN LINES

CONFIGURATION MANAGEMENT DRAWING: YES / NO

EXISTING STRUCTURES OR COMPONENTS LOCATED BY THIS DRAWING ARE UNDER CONTROL OF THE MANAGEMENT CONTRACTOR SEE NOTES.

TASK ORDER NO.	OPTIONAL NO.	SCALE	
060	N/A	3/16" = 1'-0"	
		DRAWN BY K. L. RABBITT	DATE 01/25/02
RES NO. 4327	FDF PROJECT NO. 20810	TECHNICAL LEAD N/A	DATE N/A
		CHECKED BY DOREEN REED	DATE 02/11/02
COGNIZANT ENGINEER / DATE	DRAWING INDEX CODE NO. 24B-5900-S-00202	SHEET NO. S0001	REV. NO. 0

SEAL

FOOTING SCHEDULE

MARK	LENGTH N/S	WIDTH E/W	HEIGHT	B/FTG EL	COL PIER	REMARKS
A	9'-0"	9'-0"	1'-6"	570'-0"	2'-2½"x1'-8"	T/PIER EL 580'-6"
B	5'-3"	15'-6"	2'-0"	570'-0"	2'-2½"x1'-8"	T/PIER EL 580'-6"
C	9'-6"	9'-6"	1'-6"	570'-0"	(4)1'-0"x1'-0"	T/PIER EL 579'-6"
D	7'-0¾"	7'-2¾"	1'-6"	570'-0"	(4)1'-2"x1'-4"	T/PIER EL 579'-0"
E	17'-6" OCTOGON	17'-6" OCTOGON	1'-3½"	579'-6"	N/A	T/FTG EL 580'-9½"
F	7'-0¾"	7'-2¾"	1'-0"	579'-0"	(4)1'-2"x1'-4"	T/PIER EL 580'-5"
G	12'-0 7/16"	12'-0 7/16"	1'-6"	570'-0"	(1)1'-6" SQ (4)1'-6"x1'-3"	T/PIER EL 579'-2"
H	15'-3½"	13'-6"	0'-10"	579'-2"	SEE ISO VIEW	SEE NOTE 2
J	9'-8"	7'-0"	1'-6"	570'-0"	(4)1'-0"x1'-0"	T/PIER EL 579'-0"
K	11'-0"	7'-0"	1'-0"	579'-0"	N/A	T/PIER EL 580'-0"
L	13'-10"	8'-0"	1'-6"	570'-0"	SEE NOTE 2	T/PIER EL 583'-9 5/16"

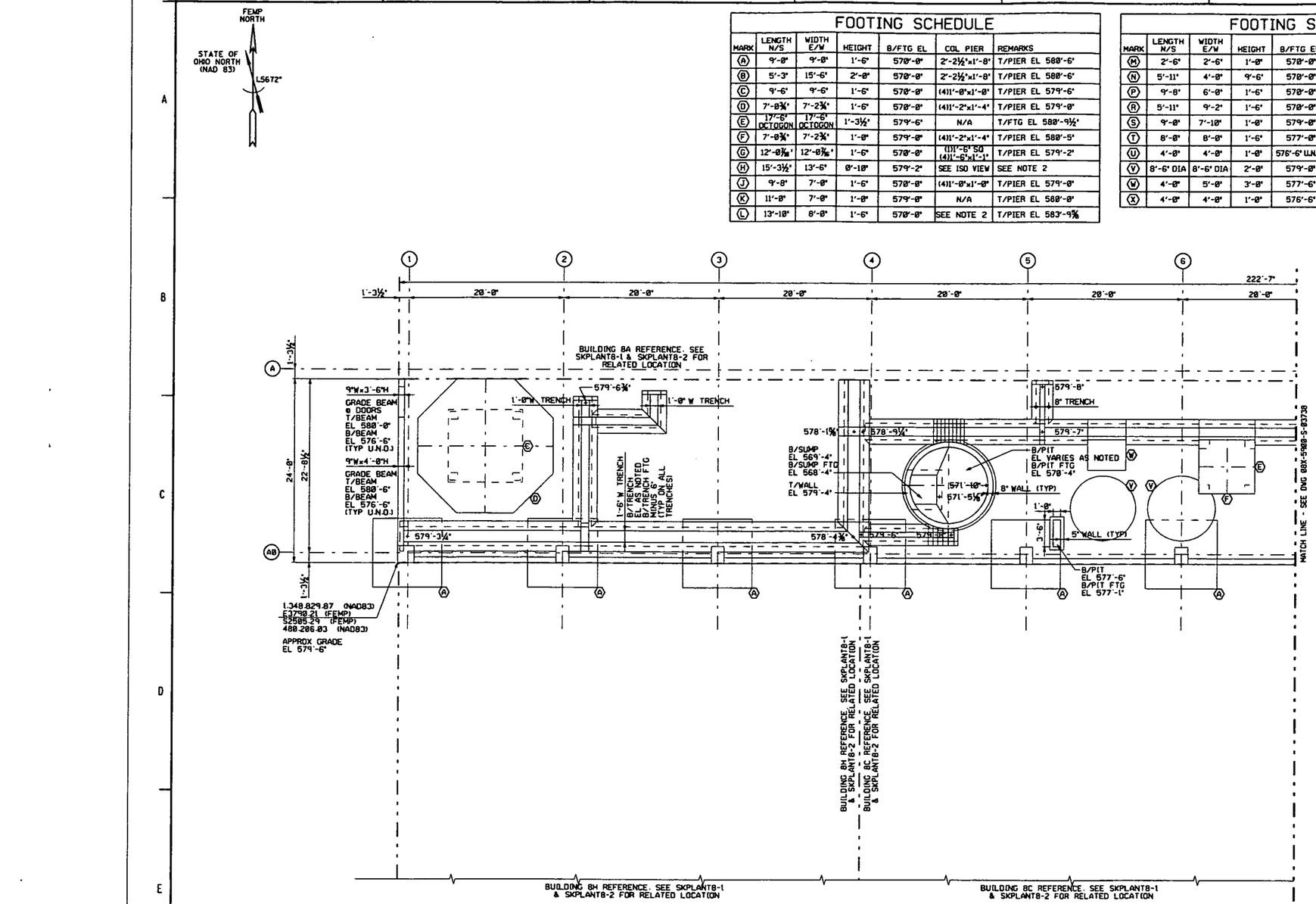
FOOTING SCHEDULE

MARK	LENGTH N/S	WIDTH E/W	HEIGHT	B/FTG EL	COL PIER	REMARKS
M	2'-6"	2'-6"	1'-0"	570'-0"	1'-0" SQ	T/PIER EL 580'-6"
N	5'-11"	4'-0"	9'-6"	570'-0"	SEE NOTE 4	T/PIER EL 583'-9 5/16"
P	9'-8"	6'-0"	1'-6"	570'-0"	9'-8"x4'-0"	T/PIER EL 583'-11¼"
R	5'-11"	9'-2"	1'-6"	570'-0"	(4)1'-0" SQ	T/PIER EL 579'-0"
S	9'-0"	7'-10"	1'-0"	579'-0"	N/A	T/PIER EL 580'-0"
T	8'-0"	8'-0"	1'-6"	577'-0"	0'-11"x0'-10" ROTATED 45°	T/PIER EL 580'-6"
U	4'-0"	4'-0"	1'-0"	576'-6" U.N.O.	1'-0" SQ	T/PIER EL 581'-0"
V	8'-6" DIA	8'-6" DIA	2'-0"	579'-0"	N/A	T/FTG EL 581'-0"
W	4'-0"	5'-0"	3'-0"	577'-6"	N/A	T/FTG EL 580'-6"
X	4'-0"	4'-0"	1'-0"	576'-6"	1'-0" SQ	T/PIER EL 579'-4"

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION DRAWINGS AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.
2. SEE EXISTING REFERENCED DRAWINGS FOR CONSTRUCTION DETAILS AND/OR ISOMETRIC DRAWING SK8G-1.
3. ALL ELEVATIONS SHOWN ON PLAN ARE TO THE TOP OF CONCRETE, ACID BRICK & PROTECTIVE LINERS WERE SUBTRACTED.

4831



FOUNDATION PLAN - WEST

GRAPHIC SCALE: 3/16"=1'-0"

REF DWG NO.	DRAWING TITLE
08X-5500-A-02395	SCRAP RECOVERY PLANT FLOOR PLAN
08X-5500-S-01510	STORAGE FACILITIES CONCRETE FOUNDATION PLAN, SECTIONS & DETAILS
08X-5500-S-01613	FACILITY FOR CO-EXTRUSION BILLETS RECOVERY FACILTY - U.A.P. FURNACE CONCRETE FURNACE FOUNDATION AND DETAILS
08X-5500-S-01614	FACILITY FOR CO-EXTRUSION BILLETS RECOVERY FACILTY - U.A.P. FURNACE CONCRETE MISCELLANEOUS DETAILS
08X-5945-S-00282	SCRAP PLANT EXPANSION SCRUBBER LIQUOR ACCOUNTABILTY TANK
08X-5945-S-00285	SCRAP PLANT EXPANSION FOUNDATION FOR OXIDATION FURNACE
08X-5945-S-00288	SCRAP PLANT EXPANSION BUILDING FOUNDATIONS AND PLAN AT EL 580'-0"
08X-5945-S-00355	SCRAP PLANT EXPANSION ROTARY KILN CONCRETE FOUNDATIONS SH-1
08X-5945-S-00356	SCRAP PLANT EXPANSION ROTARY KILN CONCRETE FOUNDATIONS SH-2
08X-5945-S-00437	SCRAP PLANT EXPANSION FLUO-SOLIDS REACTOR CONCRETE & FOUNDATION DETAILS
08X-5945-S-00447	SCRAP PLANT EXPANSION ACID FILTRATE SURGE TANK & MISCELLANEOUS FOUNDATIONS
SKPLANT8-1	PLANT 8 - BLDG'S 8A, 8B, 8C, 8D, 8G, 8H, 18H, 74C, 74Q, & 80 - FOUNDATION ISOMETRIC VIEW
SKPLANT8-2	PLANT 8 - BLDG'S 8A, 8B, 8C, 8D, 8G, 8H, 18H, 74C, 74Q, & 80 - FOUNDATION AND SLAB ISOMETRIC VIEW
08X-5900-S-03738	BUILDING 8G FOUNDATION PLAN - EAST

FOR INFORMATION ONLY

~~000345~~

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	REVW BY
0	ISSUED FOR TECHNICAL REFERENCE ONLY.	N/A	KG 03/28/02	LNH 03/28/02

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
PARSONS I & T GROUP
CINCINNATI, OHIO

PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 20 - TECHNICAL REFERENCE DRAWING

DRAWING TITLE
BUILDING 8G
FOUNDATION PLAN - WEST
WITH HIDDEN LINES

CONFIGURATION MANAGEMENT DRAWING — YES / NO

EXISTING STRUCTURES OR COMPONENTS LOCATED AS PER DESIGN. ADD TO DOCUMENT CONTROL. USE EXPLOSION MANAGEMENT CONTROL. SEE NOTES.

COGNIZANT ENGINEER — DATE

TASK ORDER NO.	OPTIONAL NO.	SCALE
060	N/A	3/16" = 1'-0"

DRAWN BY	DATE
L. M. HAGAMAN	03/23/02

RES NO.	FDF PROJECT NO.	TECHNICAL LEAD	DATE
4327	20810	N/A	N/A

CHECKED BY: DOREEN REED — DATE: 02/11/02

DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
08X-5900-S-03737	S0001	0

SEAL

FEMP NORTH

STATE OF OHIO NORTH (NAD 83) L5672°

FOOTING SCHEDULE

MARK	LENGTH N/S	WIDTH E/W	HEIGHT	B/FTG EL	COL PIER	REMARKS
A	9'-0"	9'-0"	1'-6"	570'-0"	2'-2½"x1'-8"	T/PIER EL 580'-6"
B	5'-3"	15'-6"	2'-0"	570'-0"	2'-2½"x1'-8"	T/PIER EL 580'-6"
C	9'-6"	9'-6"	1'-6"	570'-0"	(4)1'-0"x1'-0"	T/PIER EL 579'-6"
D	7'-0¾"	7'-2¾"	1'-6"	570'-0"	(4)1'-2"x1'-4"	T/PIER EL 579'-0"
E	17'-6" OCTOGON	17'-6" OCTOGON	1'-3½"	579'-6"	N/A	T/FTG EL 580'-9½"
F	7'-0¾"	7'-2¾"	1'-0"	579'-0"	(4)1'-2"x1'-4"	T/PIER EL 580'-5"
G	12'-0 7/16"	12'-0 7/16"	1'-6"	570'-0"	(1)1'-6" SQ (4)1'-6"x1'-1"	T/PIER EL 579'-2"
H	15'-3½"	13'-6"	0'-10"	579'-2"	SEE ISO VIEW	SEE NOTE 2
J	9'-8"	7'-0"	1'-6"	570'-0"	(4)1'-0"x1'-0"	T/PIER EL 579'-0"
K	11'-0"	7'-0"	1'-0"	579'-0"	N/A	T/PIER EL 580'-0"
L	13'-10"	8'-0"	1'-6"	570'-0"	SEE NOTE 2	T/PIER EL 583'-9⅝"

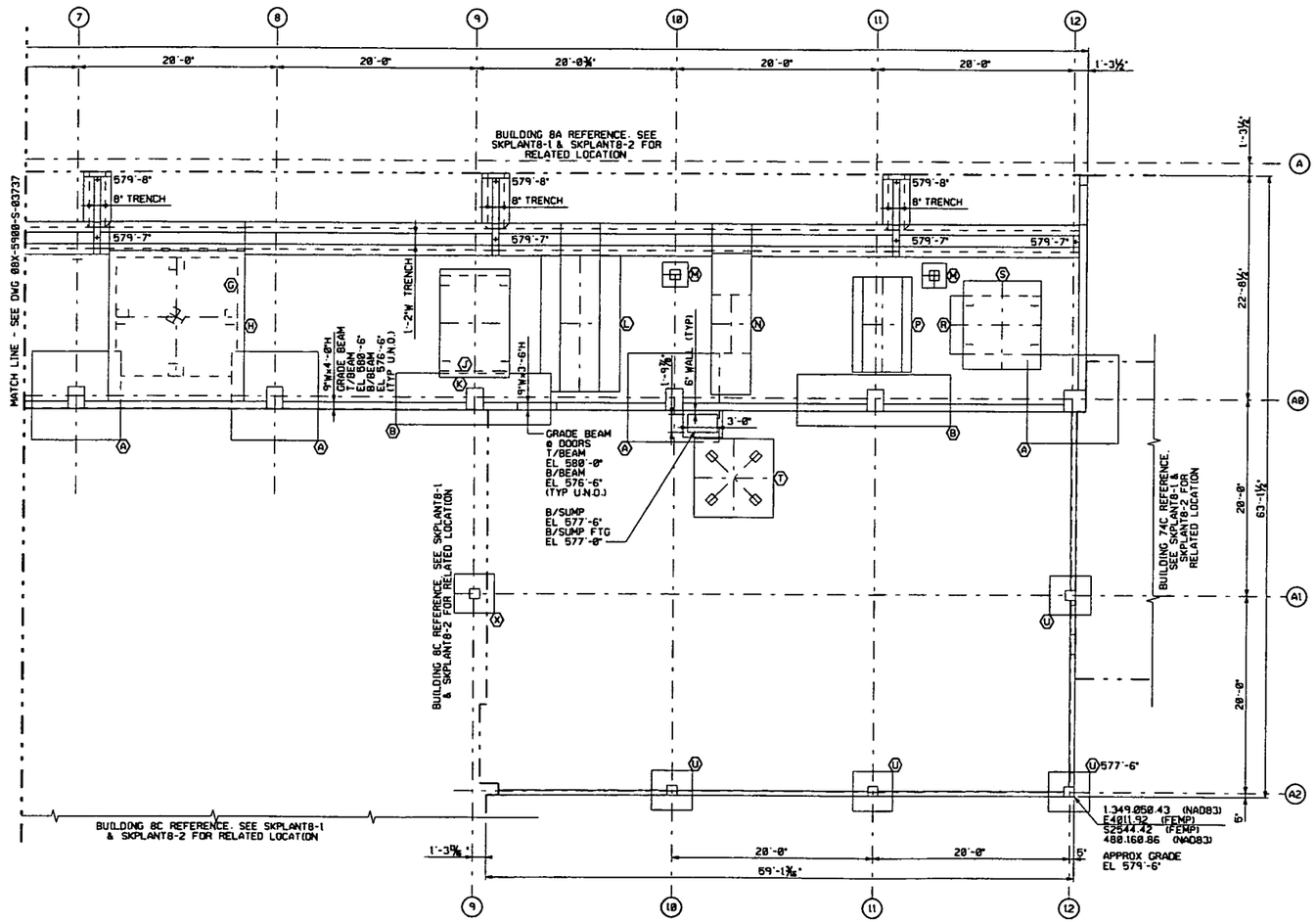
FOOTING SCHEDULE

MARK	LENGTH N/S	WIDTH E/W	HEIGHT	B/FTG EL	COL PIER	REMARKS
M	2'-6"	2'-6"	1'-0"	570'-0"	1'-0" SQ	T/PIER EL 580'-6"
N	5'-11"	4'-0"	9'-6"	570'-0"	SEE NOTE 4	T/PIER EL 583'-9⅝"
P	9'-8"	6'-0"	1'-6"	570'-0"	9'-8"x4'-0"	T/PIER EL 583'-11¼"
R	5'-11"	9'-2"	1'-6"	570'-0"	(4)1'-0" SQ	T/PIER EL 579'-0"
S	9'-8"	7'-10"	1'-0"	579'-0"	N/A	T/PIER EL 580'-0"
T	8'-0"	8'-0"	1'-6"	577'-0"	8'-11"x8'-10" ROTATED 45°	T/PIER EL 580'-6"
U	4'-0"	4'-0"	1'-0"	576'-6" U.N.O.	1'-0" SQ	T/PIER EL 581'-0"
V	8'-6" DIA	8'-6" DIA	2'-0"	579'-0"	N/A	T/FTG EL 581'-0"
W	4'-0"	5'-0"	3'-0"	577'-6"	N/A	T/FTG EL 580'-6"
X	4'-0"	4'-0"	1'-0"	576'-6"	1'-0" SQ	T/PIER EL 579'-4"

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION DRAWINGS AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.
2. SEE EXISTING REFERENCED DRAWINGS FOR CONSTRUCTION DETAILS AND/OR ISOMETRIC DRAWING SK8G-1.
3. ALL ELEVATIONS SHOWN ON PLAN ARE TO THE TOP OF CONCRETE, ACID BRICK & PROTECTIVE LINERS WERE SUBTRACTED.
4. 13'-10"x4'-0" BELOW SLAB, 14'-4"x4'-0" ABOVE SLAB.

4831



FOUNDATION PLAN - EAST

REF DWG NO.	DRAWING TITLE
08X-5500-A-02395	SCRAP RECOVERY PLANT FLOOR PLAN
08X-5500-S-01510	STORAGE FACILITIES CONCRETE FOUNDATION PLAN,SECTIONS & DETAILS
08X-5500-S-01613	FACILITY FOR CO-EXTRUSION BILLETS RECOVERY FACILTY - U.A.P. FURNACE CONCRETE FURNCE FOUNDATION AND DETAILS
08X-5500-S-01614	FACILITY FOR CO-EXTRUSION BILLETS RECOVERY FACILTY - U.A.P. FURNACE CONCRETE MISCELLANEOUS DETAILS
08X-5945-S-00282	SCRAP PLANT EXPANSION SCRUBBER LIQUOR ACCOUNTABILTY TANK
08X-5945-S-00285	SCRAP PLANT EXPANSION FOUNDATION FOR OXIDATION FURNACE
08X-5945-S-00288	SCRAP PLANT EXPANSION BUILDING FOUNDATIONS AND PLAN AT EL 580'-0"
08X-5945-S-00355	SCRAP PLANT EXPANSION ROTARY KILN CONCRETE FOUNDATIONS SH-1
08X-5945-S-00356	SCRAP PLANT EXPANSION ROTARY KILN CONCRETE FOUNDATIONS SH-2
08X-5945-S-00437	SCRAP PLANT EXPANSION FLUO-SOLIDS REACTOR CONCRETE & FOUNDATION DETAILS
08X-5945-S-00447	SCRAP PLANT EXPANSION ACID FILTRATE SURGE TANK & MISCELLANEOUS FOUNDATIONS
SKPLANT8-1	PLANT 8 - BLDG'S 8A, 8B, 8C, 8D, 8G, 8H, 18H, 74C, 74D, & 80 - FOUNDATION ISOMETRIC VIEW
SKPLANT8-2	PLANT 8 - BLDG'S 8A, 8B, 8C, 8D, 8G, 8H, 18H, 74C, 74D, & 80 - FOUNDATION AND SLAB ISOMETRIC VIEW
08X-5900-S-03737	BUILDING 8G FOUNDATION PLAN - WEST

FOR INFORMATION ONLY

000346

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	REVD BY
		INITIALS AND DATE		
0	ISSUED FOR TECHNICAL REFERENCE ONLY.	N/A	KG 03/28/92	LNH 03/28/92

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
PARSONS I & T GROUP
CINCINNATI, OHIO

PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 20 - TECHNICAL REFERENCE DRAWING

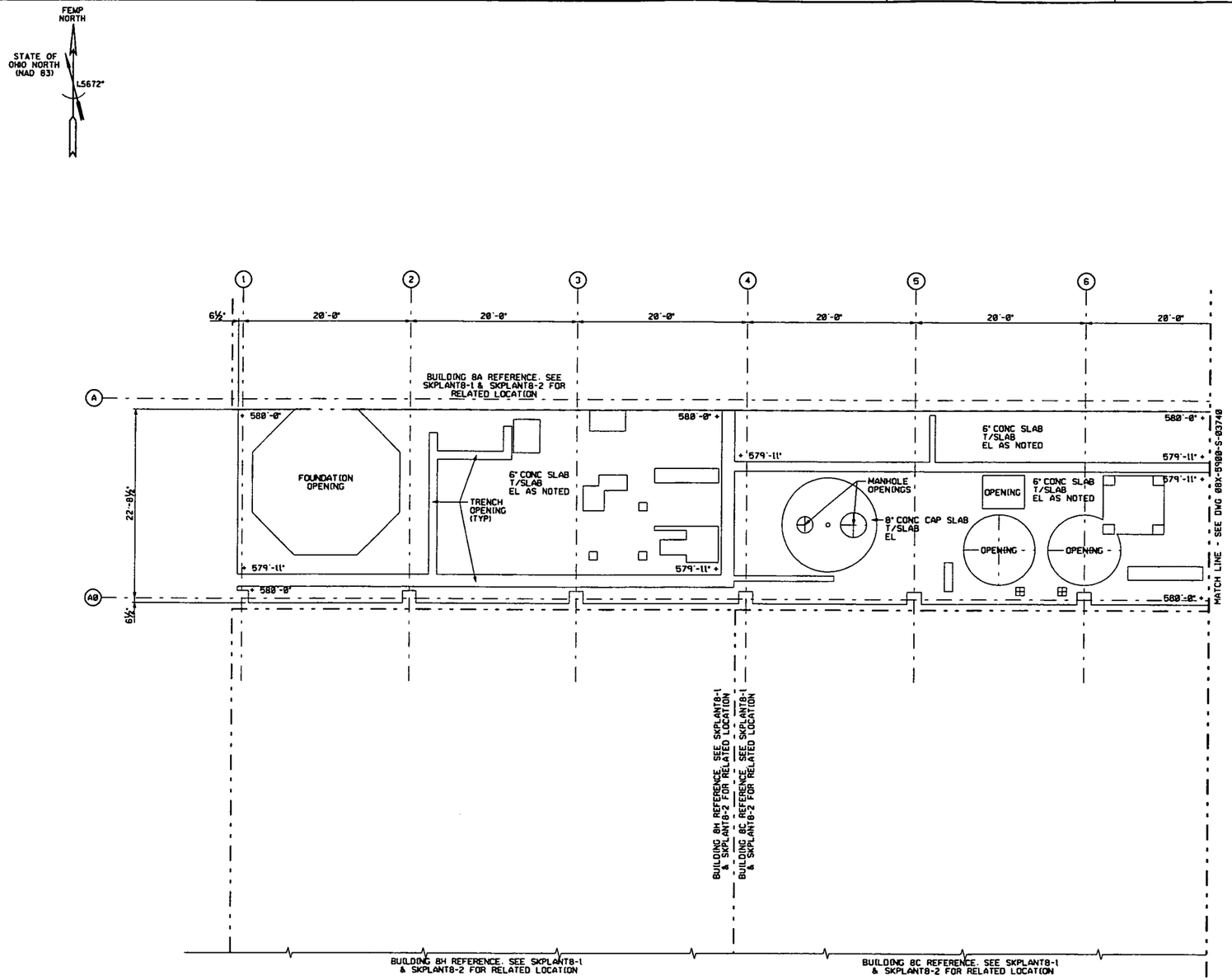
DRAWING TITLE
BUILDING 8G
FOUNDATION PLAN - EAST
WITH HIDDEN LINES

CONFIGURATION MANAGEMENT DRAWING
EXISTING ATTACHMENT OR COMPONENTS SHOWN ARE NOT DETAILED. THIS DRAWING CONFIGURATION MANAGEMENT CONTROLS SEE NOTES.

COGNIZANT ENGINEER DATE

TASK ORDER NO.	OPTIONAL NO.	SCALE	
060	N/A	3/16" = 1'-0"	
		DRAWN BY L. N. HAGAMAN	DATE 01/23/92
RCS NO. 4327	FOF PROJECT NO. 20810	TECHNICAL LEAD N/A	DATE N/A
		CHECKED BY DOREEN REED	DATE 02/11/92
DRAWING INDEX CODE NO. 08X-5900-S-03738		SHEET NO. S0002	REV. NO. 0

SEAL



SLAB PLAN - WEST

GRAPHIC SCALE: 3/16"=1'-0"

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION DRAWINGS AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.
2. SEE EXISTING REFERENCED DRAWINGS FOR CONSTRUCTION DETAILS AND/OR ISOMETRIC DRAWING SK8G-1.
3. ALL ELEVATIONS SHOWN ON PLAN ARE TO THE TOP OF CONCRETE. ACID BRICK & PROTECTIVE LINERS WERE SUBTRACTED.

4831

REF DWG NO.	DRAWING TITLE
08X-5500-A-02395	SCRAP RECOVERY PLANT FLOOR PLAN
08X-5500-S-01510	STORAGE FACILITIES CONCRETE FOUNDATION PLAN, SECTIONS & DETAILS
08X-5500-S-01613	FACILITY FOR CO-EXTRUSION BILLETS RECOVERY FACILITY - U.A.P. FURNACE CONCRETE FURNACE FOUNDATION AND DETAILS
08X-5500-S-01614	FACILITY FOR CO-EXTRUSION BILLETS RECOVERY FACILITY - U.A.P. FURNACE CONCRETE MISCELLANEOUS DETAILS
08X-5945-S-00282	SCRAP PLANT EXPANSION SCRUBBER LIQUOR ACCOUNTABILITY TANK
08X-5945-S-00285	SCRAP PLANT EXPANSION FOUNDATION FOR OXIDATION FURNACE
08X-5945-S-00288	SCRAP PLANT EXPANSION BUILDING FOUNDATIONS AND PLAN AT EL 580'-0"
08X-5945-S-00355	SCRAP PLANT EXPANSION ROTARY KILN CONCRETE FOUNDATIONS SH-1
08X-5945-S-00356	SCRAP PLANT EXPANSION ROTARY KILN CONCRETE FOUNDATIONS SH-2
08X-5945-S-00437	SCRAP PLANT EXPANSION FLUID-SOLIDS REACTOR CONCRETE & FOUNDATION DETAILS
08X-5945-S-00447	SCRAP PLANT EXPANSION ACID FILTRATE SURGE TANK & MISCELLANEOUS FOUNDATIONS
SKPLANT8-1	PLANT 8 - BLDG'S 8A, 8B, 8C, 8D, 8G, 8H, 18H, 74C, 74Q, & 80 - FOUNDATION ISOMETRIC VIEW
SKPLANT8-2	PLANT 8 - BLDG'S 8A, 8B, 8C, 8D, 8G, 8H, 18H, 74C, 74Q, & 80 - FOUNDATION AND SLAB ISOMETRIC VIEW
08X-5900-S-03740	BUILDING 8G SLAB PLAN - EAST

FOR INFORMATION ONLY

000347

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	REVD BY
		INITIALS AND DATE		
0	ISSUED FOR TECHNICAL REFERENCE ONLY.	N/A	KG 01/26/92	LNH 03/26/92

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
PARSONS I & T GROUP
CINCINNATI, OHIO

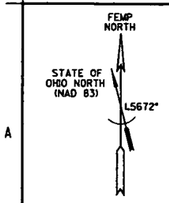
PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 20 - TECHNICAL REFERENCE DRAWING

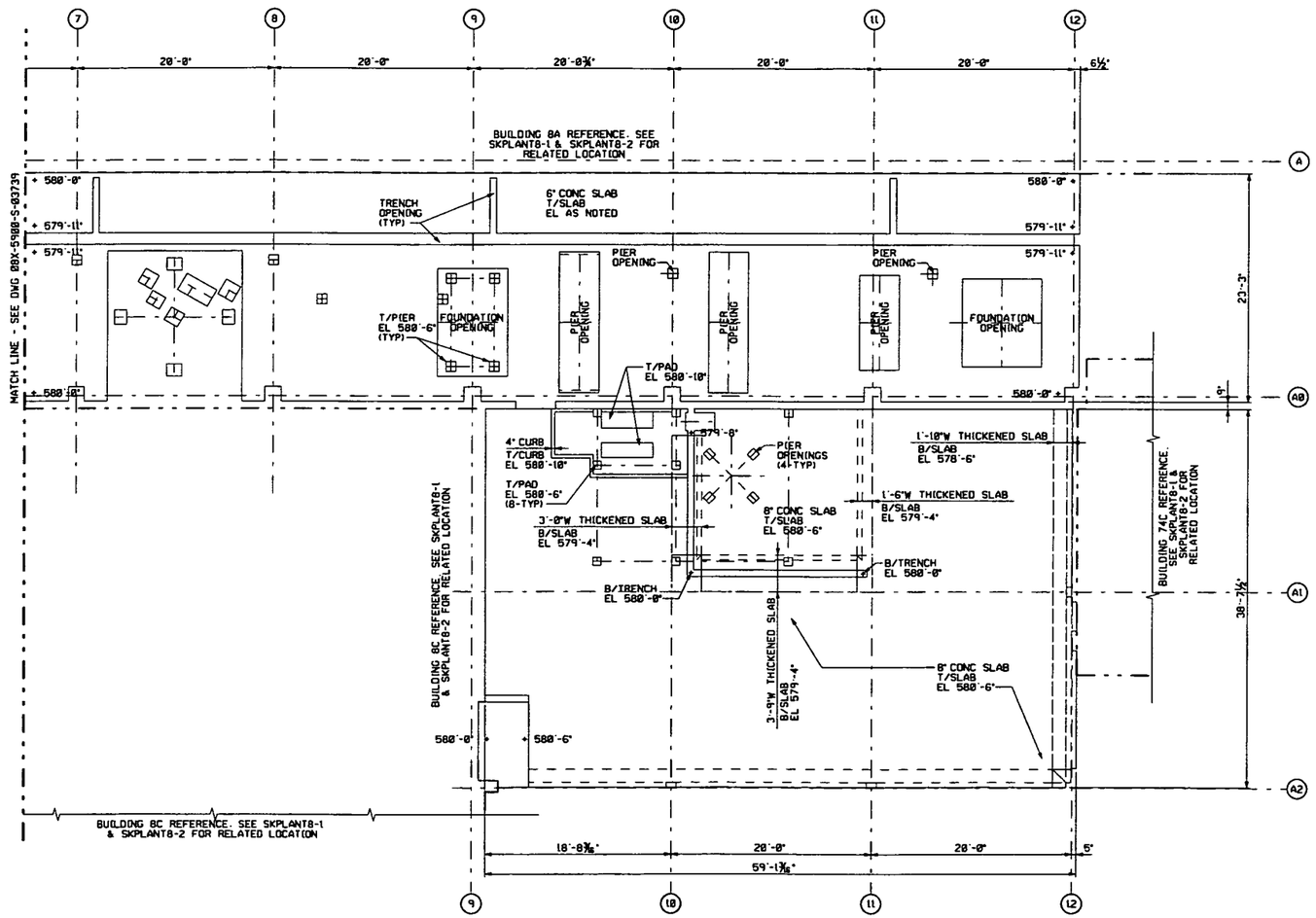
DRAWING TITLE
BUILDING 8G
SLAB PLAN - WEST
WITH HIDDEN LINES

CONFIGURATION MANAGEMENT DRAWING — YES / NO
EXISTING ATTACHED AS COMPONENTS SHOWN ON THIS DRAWING ARE UNDER CONFIGURATION MANAGEMENT CONTROL. SEE NOTES.

TASK ORDER NO.	OPTIONAL NO.	SCALE 3/16" = 1'-0"	
060	N/A	DRAWN BY L. N. HAGAMAN	DATE 01/24/92
AES NO. 4327	FOF PROJECT NO. 20810	TECHNICAL LEAD N/A	DATE N/A
		CHECKED BY DOREEN REED	DATE 02/11/92
COGNIZANT ENGINEER	DATE	DRAWING INDEX CODE NO. 08X-5900-S-03739	SHEET NO. S0003 / REV. NO. 0

SEAL





SLAB PLAN - EAST

GRAPHIC SCALE: 3/16"=1'-0"

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION DRAWINGS AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.
2. SEE EXISTING REFERENCED DRAWINGS FOR CONSTRUCTION DETAILS AND/OR ISOMETRIC DRAWING SK8G-1.
3. ALL ELEVATIONS SHOWN ON PLAN ARE TO THE TOP OF CONCRETE, ACID BRICK & PROTECTIVE LINERS WERE SUBTRACTED.

4831

REF DWG NO.	DRAWING TITLE
08X-5500-A-02395	SCRAP RECOVERY PLANT FLOOR PLAN
08X-5500-S-01510	STORAGE FACILITIES CONCRETE FOUNDATION PLAN, SECTIONS & DETAILS
08X-5500-S-01613	FACILITY FOR CO-EXTRUSION BILLETS RECOVERY FACILITY - U.A.P. FURNACE CONCRETE FURNACE FOUNDATION AND DETAILS
08X-5500-S-01614	FACILITY FOR CO-EXTRUSION BILLETS RECOVERY FACILITY - U.A.P. FURNACE CONCRETE MISCELLANEOUS DETAILS
08X-5945-S-00282	SCRAP PLANT EXPANSION SCRUBBER LIQUOR ACCOUNTABILTY TANK
08X-5945-S-00285	SCRAP PLANT EXPANSION FOUNDATION FOR OXIDATION FURNACE
08X-5945-S-00288	SCRAP PLANT EXPANSION BUILDING FOUNDATIONS AND PLAN AT EL 580'-0"
08X-5945-S-00355	SCRAP PLANT EXPANSION ROTARY KILN CONCRETE FOUNDATIONS SH-1
08X-5945-S-00356	SCRAP PLANT EXPANSION ROTARY KILN CONCRETE FOUNDATIONS SH-2
08X-5945-S-00437	SCRAP PLANT EXPANSION FLUO-SOLIDS REACTOR CONCRETE & FOUNDATION DETAILS
08X-5945-S-00447	SCRAP PLANT EXPANSION ACID FILTRATE SURGE TANK & MISCELLANEOUS FOUNDATIONS
SKPLANT8-1	PLANT 8 - BLDG'S 8A, 8B, 8C, 8D, 8G, 8H, 18H, 74C, 74G & 80 - FOUNDATION ISOMETRIC VIEW
SKPLANT8-2	PLANT 8 - BLDG'S 8A, 8B, 8C, 8D, 8G, 8H, 18H, 74C, 74G & 80 - FOUNDATION AND SLAB ISOMETRIC VIEW
08X-5900-S-03739	BUILDING 8C SLAB PLAN - WEST

FOR INFORMATION ONLY

000348

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	RCHD BY
0	ISSUED FOR TECHNICAL REFERENCE ONLY.	N/A	KG 03/28/92	LNH 03/28/92

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
PARSONS I & T GROUP
CINCINNATI, OHIO

PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 20 - TECHNICAL REFERENCE DRAWING

DRAWING TITLE
BUILDING 8G
SLAB PLAN - EAST
WITH HIDDEN LINES

CONFIGURATION MANAGEMENT DRAWING

TASK ORDER NO.	OPTIONAL NO.	SCALE 3/16" = 1'-0"	
060	N/A	DRAWN BY L. N. HAGAMAN	DATE 01/29/92
RES NO. 4327	FOR PROJECT NO. 20810	TECHNICAL LEAD N/A	DATE N/A
		CHECKED BY DOREEN REED	DATE 02/11/92
DRAWING INDEX CODE NO. 08X-5900-S-03740		SHEET NO. S0004	REV. NO. 0

COGNIZANT ENGINEER DATE

SEAL

FEMP NORTH

STATE OF OHIO NORTH (NAD 83)

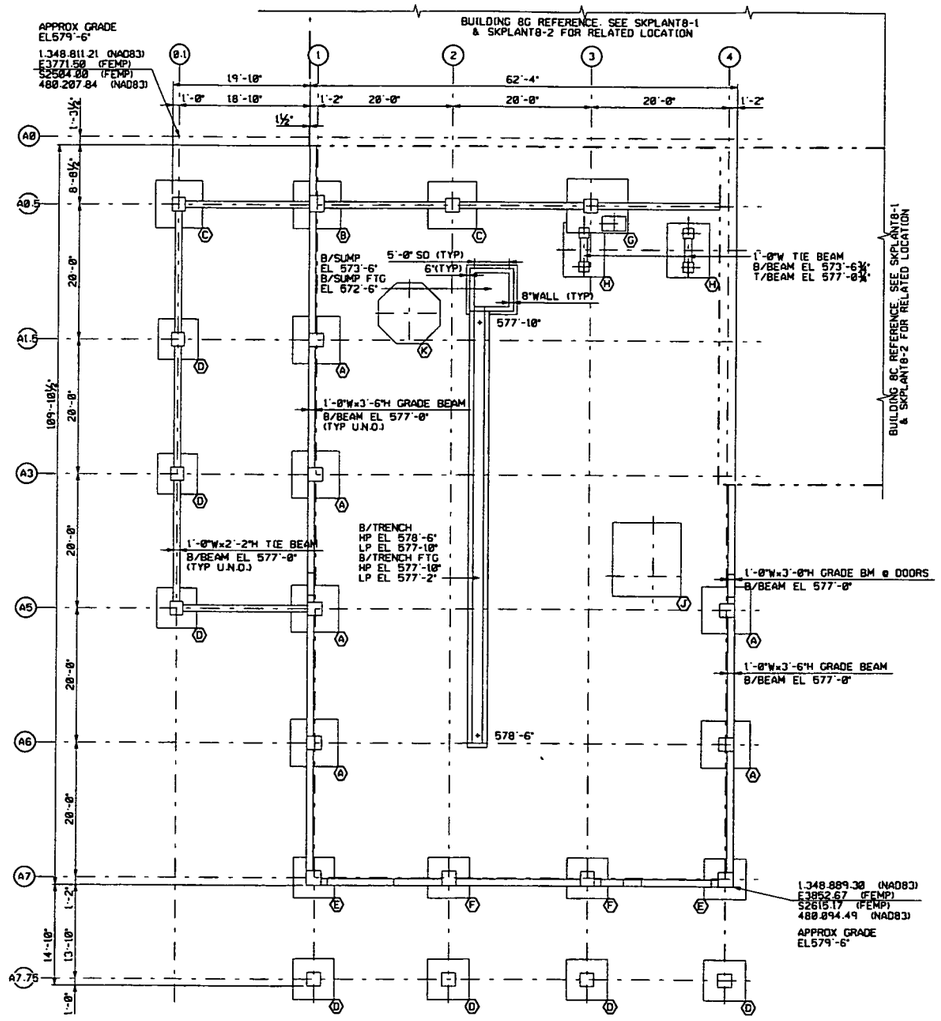
L5672°

FOOTING SCHEDULE

MARK	LENGTH N/S	WIDTH E/W	HEIGHT	B/FTG EL	COL PIER	REMARKS
A	7'-0"	7'-0"	1'-6"	575'-6"	2'-0"x2'-2"	T/PIER EL 580'-6"
B	7'-0"	7'-0"	1'-6"	575'-6"	2'-4½"x2'-2"	T/PIER EL 580'-6"
C	7'-0"	7'-0"	1'-6"	575'-6"	2'-0" SQ	T/PIER EL 580'-6"
D	6'-0"	6'-0"	1'-6"	575'-6"	2'-0" SQ	T/PIER EL 580'-6"
E	6'-0"	6'-0"	1'-6"	575'-6"	2'-2" SQ	T/PIER EL 580'-6"

FOOTING SCHEDULE

MARK	LENGTH N/S	WIDTH E/W	HEIGHT	B/FTG EL	COL PIER	REMARKS
F	6'-0"	6'-0"	1'-6"	575'-6"	2'-2"x2'-0"	T/PIER EL 580'-6"
G	8'-0"	9'-0"	1'-6"	575'-6"	(1) 2'-0" SQ (1) 2'-2"x2'-6"	T/PIER EL 580'-6"
H	8'-½"	6'-0"	1'-6"	572'-¾"	(2) 1'-6" SQ	T/PIER EL 579'-11¾"
J	11'-0"	10'-0"	1'-9"	576'-3"	N/A	T/FDN EL 580'-0"
K	9'-0" OCTOGON	9'-0" OCTOGON	1'-10½"	579'-0"	N/A	T/FDN EL 580'-10½"



FOUNDATION PLAN

GRAPHIC SCALE: ⅛"=1'-0"

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION DRAWINGS AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.
2. SEE EXISTING REFERENCED DRAWINGS FOR CONSTRUCTION DETAILS AND/OR ISOMETRIC DRAWING SK08H-1.

4831

REF DWG NO.	DRAWING TITLE
08J-3900-S-02777	DRUM RECONDITIONING FOUNDATION LOCATION PLAN - SHEET 1
08J-3900-S-02778	DRUM RECONDITIONING FOUNDATION LOCATION PLAN - SHEET 2
08J-3900-S-02780	DRUM RECONDITIONING SUMP AND FLOOR DRAIN DETAILS
08J-3900-S-02782	DRUM RECONDITIONING FOUNDATION LOCATION PLAN - SHEET 2
08J-3900-S-02783	DRUM RECONDITIONING FOUNDATION LOCATION PLAN - SHEET 3
SKPLANT8-1	PLANT 8 - BLDG'S 8A, 8B, 8C, 8D, 8G, 8H, 18H, 74C, 74Q, & 80 - FOUNDATION ISOMETRIC VIEW
SKPLANT8-2	PLANT 8 - BLDG'S 8A, 8B, 8C, 8D, 8G, 8H, 18H, 74C, 74Q, & 80 - FOUNDATION AND SLAB ISOMETRIC VIEW

000349

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	ROW BY
0	ISSUED FOR TECHNICAL REFERENCE ONLY.	N/A	KG 10/28/92	LNH 10/28/92

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY

PARSONS I & T GROUP

CINCINNATI, OHIO

PROJECT NAME

LOCATION OF BELOW GRADE STRUCTURES

GRID 20 - TECHNICAL REFERENCE DRAWING

DRAWING TITLE

BUILDING 8H

FOUNDATION PLAN

WITHOUT HIDDEN LINES

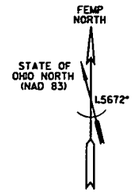
CONFIGURATION MANAGEMENT DRAWING

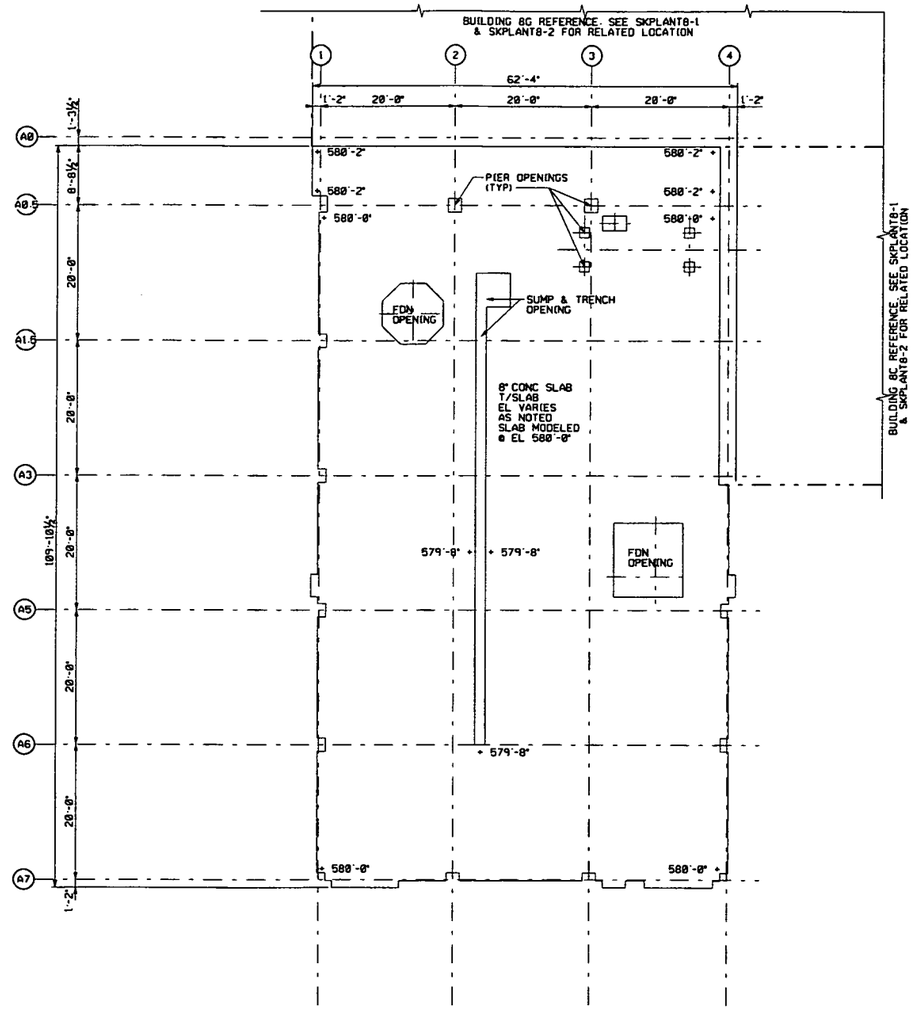
EXISTING STRUCTURES OR COMPONENTS SHOWN ON THIS DRAWING ARE UNDER CONFIGURATION MANAGEMENT CONTROL. USE NOTED.

COGNIZANT ENGINEER DATE

TASK ORDER NO.	OPTIONAL NO.	SCALE	
060	N/A	⅛" = 1'-0"	
		DRAWN BY K. L. RABBITT	DATE 01/19/92
RES NO. 4327	FOF PROJECT NO. 20810	TECHNICAL LEAD N/A	DATE N/A
		CHECKED BY DOREEN REED	DATE 02/11/92
DRAWING INDEX CODE NO. 08X-5900-S-03741		SHEET NO. S0001	REV. NO. 0

SEAL





SLAB PLAN

4' 0' 4' 8' 12' 16' 20'
GRAPHIC SCALE: ⅛"=1'-0"

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION DRAWINGS AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.
2. SEE EXISTING REFERENCED DRAWINGS FOR CONSTRUCTION DETAILS AND/OR ISOMETRIC DRAWING SK88H-1.

4831

REF DWG NO.	DRAWING TITLE
08J-3900-S-02777	DRUM RECONDITIONING FOUNDATION LOCATION PLAN - SHEET 1
08J-3900-S-02778	DRUM RECONDITIONING FOUNDATION LOCATION PLAN - SHEET 2
08J-3900-S-02780	DRUM RECONDITIONING SUMP AND FLOOR DRAIN DETAILS
08J-3900-S-02782	DRUM RECONDITIONING FOUNDATION LOCATION PLAN - SHEET 2
08J-3900-S-02783	DRUM RECONDITIONING FOUNDATION LOCATION PLAN - SHEET 3
SKPLANT8-1	PLANT 8 - BLDG'S 8A, 8B, 8C, 8D, 8G, 8H, 18H, 74C, 74Q & 80 - FOUNDATION ISOMETRIC VIEW
SKPLANT8-2	PLANT 8 - BLDG'S 8A, 8B, 8C, 8D, 8G, 8H, 18H, 74C, 74Q & 80 - FOUNDATION AND SLAB ISOMETRIC VIEW

000350

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	REW BY
0	ISSUED FOR TECHNICAL REFERENCE ONLY.	N/A	KG 10/28/02	LNH 10/28/02

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
PARSONS I & T GROUP
CINCINNATI, OHIO

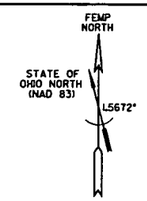
PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 20 - TECHNICAL REFERENCE DRAWING

DRAWING TITLE
BUILDING 8H
SLAB PLAN
WITHOUT HIDDEN LINES

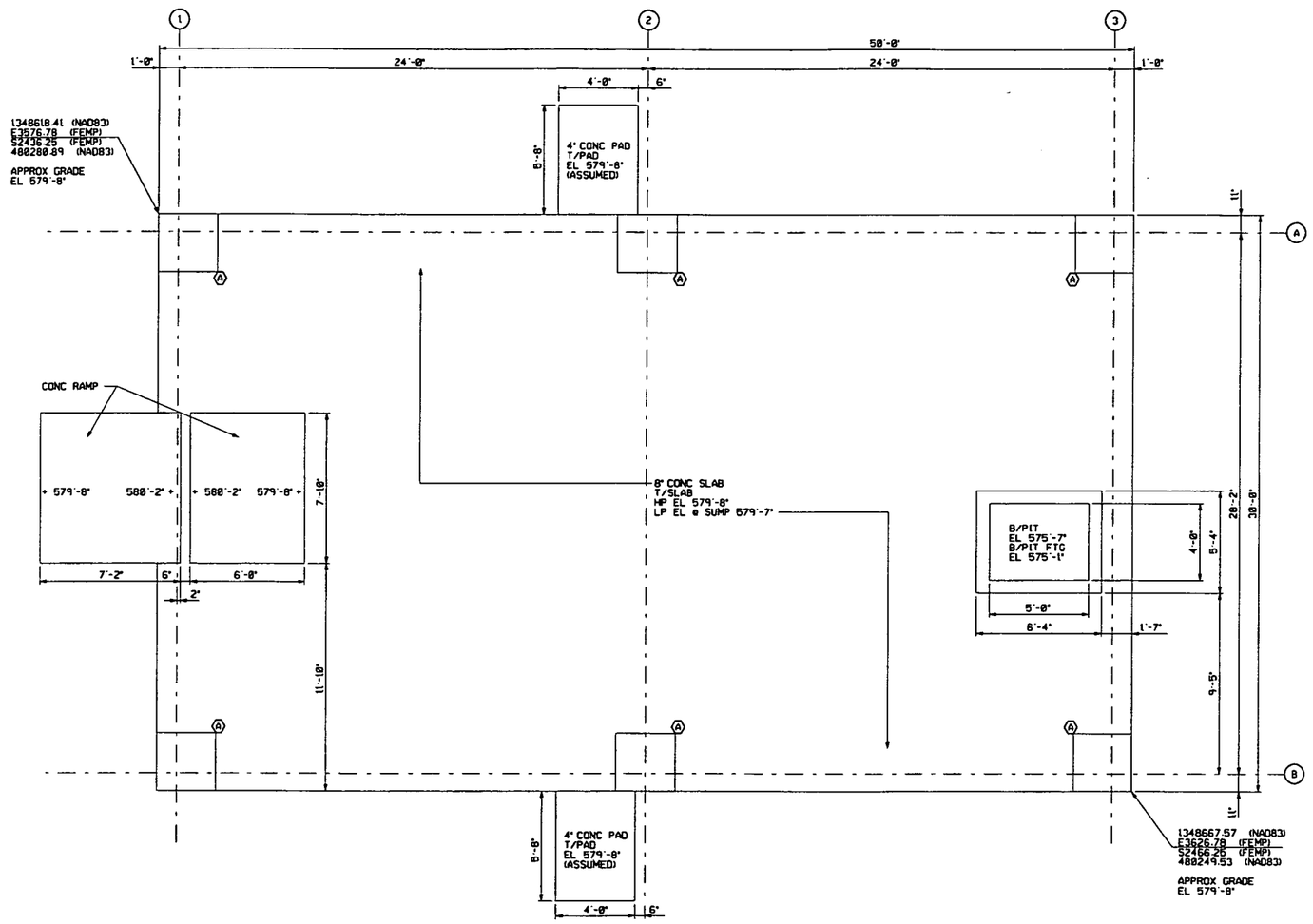
CONFIGURATION MANAGEMENT DRAWING
EXISTING ATTACHED OR COMPOSITE DRAWING IS THE REFERENCE FOR CONFIGURATION MANAGEMENT CONTROL. SEE NOTES.

TASK ORDER NO.	OPTIONAL NO.	SCALE ⅛" = 1'-0"	
060	N/A	DRAWN BY K. L. RABBITT	DATE 08/19/02
RES NO. 4327	FDF PROJECT NO. 20810	TECHNICAL LEAD N/A	DATE N/A
		CHECKED BY DOREEN REED	DATE 02/11/02
COGNIZANT ENGINEER	DATE	DRAWING INDEX CODE NO. 08X-5900-S-03742	SHEET NO. S0002 / REV. NO. 0

SEAL



FOOTING SCHEDULE						
MARK	LENGTH N/S	WIDTH E/W	HEIGHT	B/FTG EL	COL PIER	REMARKS
(A)	3'-0"	3'-0"	3'-6"	576'-02"	N/A	



FOUNDATION AND SLAB PLAN

GRAPHIC SCALE: 3/8"=1'-0"

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION DRAWINGS AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.
2. SEE EXISTING REFERENCED DRAWINGS FOR CONSTRUCTION DETAILS AND/OR ISOMETRIC DRAWING SK18H-1.
3. SEE SKPLANT8-1 & SKPLANT8-2 FOR BUILDING RELATED LOCATION.

4831

REF DWG NO.	DRAWING TITLE
18D-5500-S-00995	DEWATERING BLDG FDN & PAD - DETAIL SHEET 1
18D-5500-S-00996	DEWATERING BLDG SECTION & DETAILS
SKPLANT8-1	PLANT 8 - BLDG'S 8A, 8B, 8C, 8D, 8G, 8H, 18H, 74C, 74Q, & 80 - FOUNDATION ISOMETRIC VIEW
SKPLANT8-2	PLANT 8 - BLDG'S 8A, 8B, 8C, 8D, 8G, 8H, 18H, 74C, 74Q, & 80 - FOUNDATION AND SLAB ISOMETRIC VIEW

000351

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	NEW BY
0	ISSUED FOR TECHNICAL REFERENCE ONLY.	N/A	KG 10/28/92	LNH 10/28/92

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
PARSONS I & T GROUP
CINCINNATI, OHIO

PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 20 - TECHNICAL REFERENCE DRAWING

DRAWING TITLE
BUILDING 18H
FOUNDATION AND SLAB PLAN
WITHOUT HIDDEN LINES

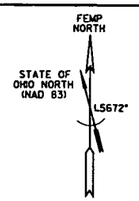
CONFIGURATION MANAGEMENT DRAWING — YES / NO
EXISTING STRUCTURES OR COMPONENTS DEPICTED ON THIS DRAWING ARE UNDER CONFIGURATION MANAGEMENT CONTROL. SEE NOTES.

COGNIZANT ENGINEER — DATE

TASK ORDER NO.	OPTIONAL NO.	SCALE	
060	N/A	3/8" = 1'-0"	
		DRAWN BY: K. L. RABBITT	DATE: 01/23/92
RES NO.: 4327	FOF PROJECT NO.: 20810	TECHNICAL LEAD: N/A	DATE: N/A
		CHECKED BY: DOREEN REED	DATE: 02/11/92

DRAWING INDEX CODE NO.: 18D-5900-S-01418 — SHEET NO.: S0001 — REV. NO.: 0

SEAL

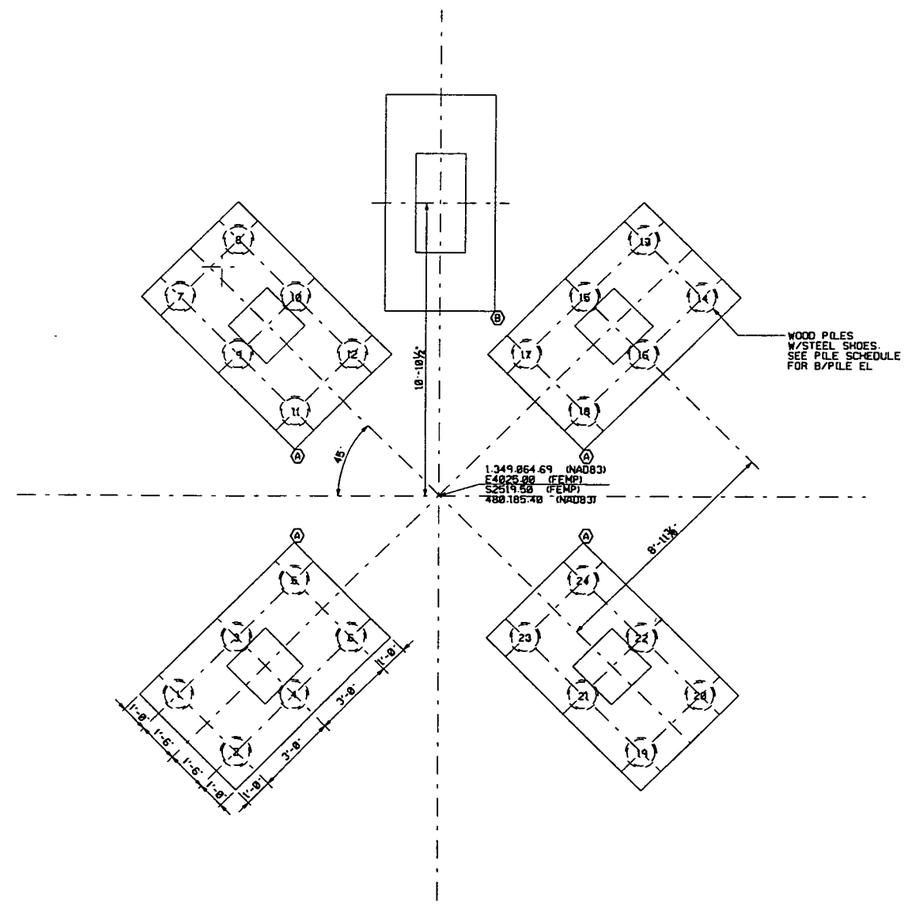


FOOTING SCHEDULE

MARK	LENGTH N/S	WIDTH E/W	HEIGHT	B/FTG EL	COL PIER	REMARKS
(A)	8'-0"	5'-0"	2'-0"	575'-6"	2'-0" SQ	T/PIER EL 580'-0"
(B)	8'-0"	4'-0"	1'-0"	577'-6"	3'-8"x1'-10"	T/PIER EL 579'-11¾"

PILE SCHEDULE

NO.	DIA.	T/PILE EL	B/PILE EL	PILE LENGTH
1	1'-0"	575'-9"	556'-9"	19'-0"
2	1'-0"	575'-9"	557'-9"	18'-0"
3	1'-0"	575'-9"	556'-1"	19'-8"
4	1'-0"	575'-9"	555'-9"	20'-0"
5	1'-0"	575'-9"	555'-3"	20'-6"
6	1'-0"	575'-9"	556'-2"	19'-7"
7	1'-0"	575'-9"	556'-9"	19'-0"
8	1'-0"	575'-9"	556'-9"	19'-0"
9	1'-0"	575'-9"	555'-10"	19'-11"
10	1'-0"	575'-9"	554'-6"	21'-3"
11	1'-0"	575'-9"	557'-9"	18'-0"
12	1'-0"	575'-9"	556'-1"	19'-8"
13	1'-0"	575'-9"	555'-9"	20'-0"
14	1'-0"	575'-9"	558'-9"	17'-0"
15	1'-0"	575'-9"	557'-9"	18'-0"
16	1'-0"	575'-9"	556'-9"	19'-0"
17	1'-0"	575'-9"	556'-9"	19'-0"
18	1'-0"	575'-9"	557'-9"	18'-0"
19	1'-0"	575'-9"	557'-7"	18'-2"
20	1'-0"	575'-9"	557'-5"	18'-4"
21	1'-0"	575'-9"	558'-3"	17'-6"
22	1'-0"	575'-9"	559'-3"	16'-6"
23	1'-0"	575'-9"	558'-9"	17'-0"
24	1'-0"	575'-9"	557'-9"	18'-0"



FOUNDATION PLAN

GRAPHIC SCALE: ½"=1'-0"

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION DRAWINGS AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.
2. SEE EXISTING REFERENCED DRAWINGS FOR CONSTRUCTION DETAILS AND/OR ISOMETRIC DRAWING SK74C-1.
3. SEE SKPLANT8-1 & SKPLANT8-2 FOR BUILDING RELATED LOCATION.

4831

REF DWG NO.	DRAWING TITLE
08X-5500-S-01649	CONCRETE - SILO PIERS AND FOOTINGS AND DETAILS
SKPLANT8-1	PLANT 8 - BLDG'S 8A, 8B, 8C, 8D, 8G, 8H, 18H, 74C, 74Q, & 80 - FOUNDATION ISOMETRIC VIEW
SKPLANT8-2	PLANT 8 - BLDG'S 8A, 8B, 8C, 8D, 8G, 8H, 18H, 74C, 74Q, & 80 - FOUNDATION AND SLAB ISOMETRIC VIEW

000352

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	REVIEW BY
0	ISSUED FOR TECHNICAL REFERENCE ONLY.	N/A	KG 03/26/82	LNH 03/26/82

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
PARSONS I & T GROUP
CINCINNATI, OHIO

PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 20 - TECHNICAL REFERENCE DRAWING

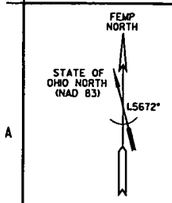
DRAWING TITLE
BUILDING 74C
FOUNDATION PLAN
WITH HIDDEN LINES

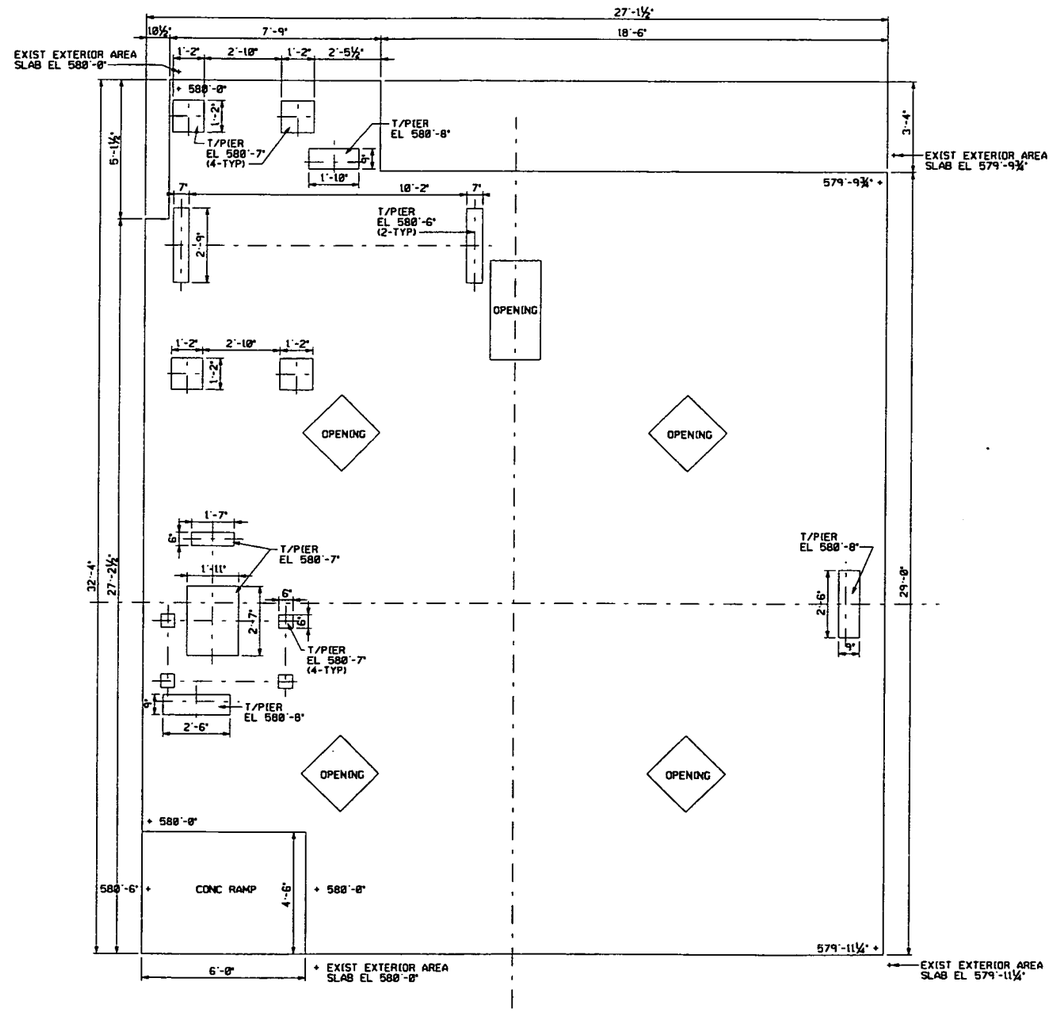
CONFIGURATION MANAGEMENT DRAWING — CMD / NCMD
STATUS: ATTACHED ON COMPUTER CONFIGURATION MANAGEMENT CONTROL. SEE NOTES.

TASK ORDER NO.	OPTIONAL NO.	SCALE ½" = 1'-0"
060	N/A	DRAWN BY L. N. HAGAMAN — DATE 01/31/82
RES NO. 4327	F/F PROJECT NO. 20810	TECHNICAL LEAD N/A — DATE N/A
		CHECKED BY DOREEN REED — DATE 02/11/82
DRAWING INDEX CODE NO. 74D-5900-S-00079		SHEET NO. S0001 — REV. NO. 0

COGNIZANT ENGINEER — DATE

SEAL





SLAB PLAN

GRAPHIC SCALE: ½"=1'-0"

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION DRAWINGS AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.
2. SEE EXISTING REFERENCED DRAWINGS FOR CONSTRUCTION DETAILS AND/OR ISOMETRIC DRAWING SK74C-1.
3. SEE SKPLANT8-1 & SKPLANT8-2 FOR BUILDING RELATED LOCATION.

4831

REF DWG NO.	DRAWING TITLE
08X-5500-S-01649	CONCRETE - SILO PIERS AND FOOTINGS AND DETAILS
SKPLANT8-1	PLANT 8 - BLDG'S 8A, 8B, 8C, 8D, 8G, 8H, 18H, 74C, 74Q, & 80 - FOUNDATION ISOMETRIC VIEW
SKPLANT8-2	PLANT 8 - BLDG'S 8A, 8B, 8C, 8D, 8G, 8H, 18H, 74C, 74Q, & 80 - FOUNDATION AND SLAB ISOMETRIC VIEW

000353

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	REVIS BY
0	ISSUED FOR TECHNICAL REFERENCE ONLY.	N/A	KG 10/28/92	LNH 10/28/92

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
PARSONS I & T GROUP
CINCINNATI, OHIO

PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 20 - TECHNICAL REFERENCE DRAWING

DRAWING TITLE
BUILDING 74C
SLAB PLAN
WITHOUT HIDDEN LINES

CONFIGURATION MANAGEMENT DRAWING
EXISTING STRUCTURES OR COMPONENTS SHOWN ON THIS DRAWING ARE UNDER CONFIGURATION MANAGEMENT CONTROL. SEE NOTES.
COGNIZANT ENGINEER DATE

TASK ORDER NO.	OPTIONAL NO.	SCALE ½" = 1'-0"	
060	N/A	DRAWN BY L. N. HAGAMAN	DATE 10/31/92
RES NO. 4327	FOR PROJECT NO. 20810	TECHNICAL LEAD N/A	DATE N/A
		CHECKED BY DOREEN REED	DATE 10/11/92
DRAWING INDEX CODE NO. 74D-5900-S-00080		SHEET NO. S0002	REV. NO. 0

SEAL

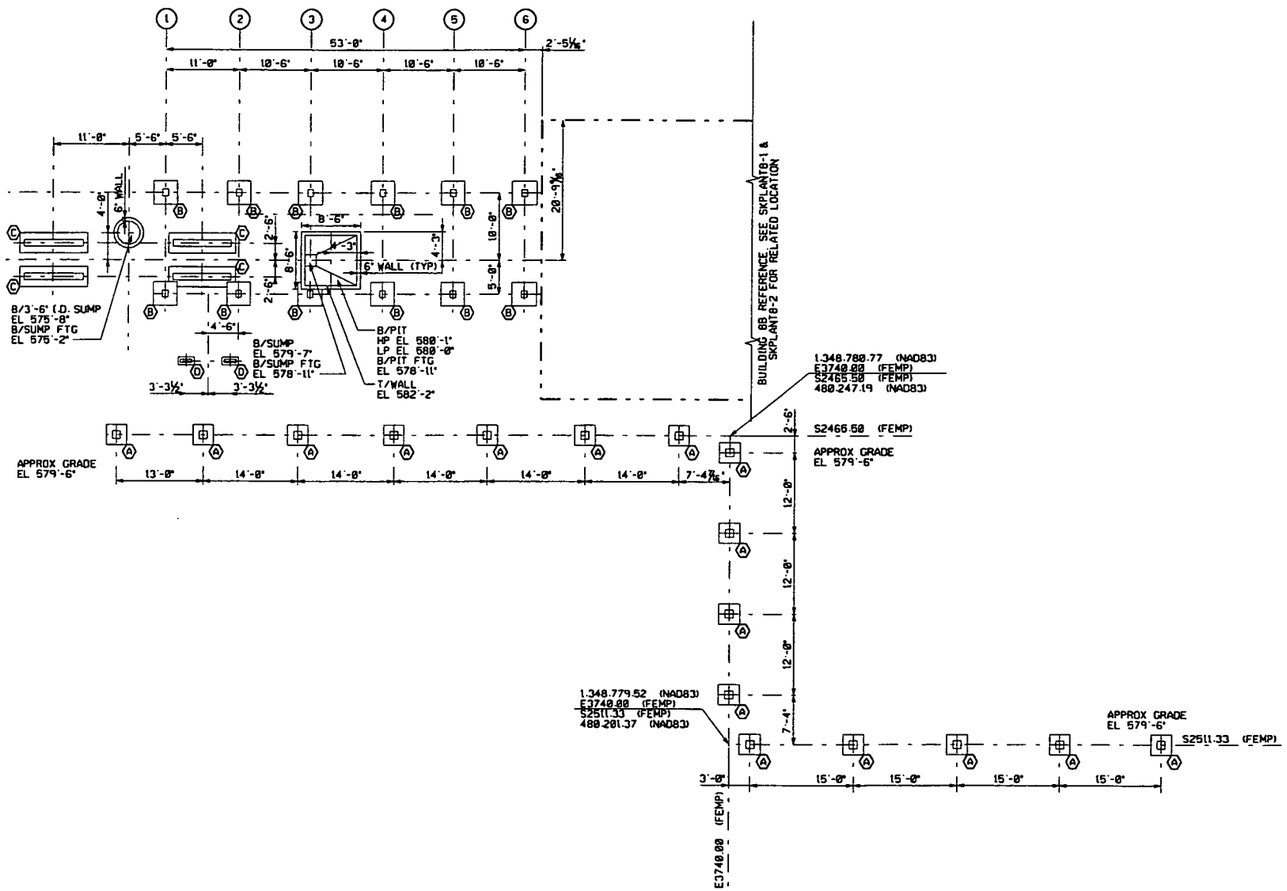
FEMP NORTH

STATE OF OHIO NORTH (NAD 83)

L5672°

FOOTING SCHEDULE

MARK	LENGTH N/S	WIDTH E/W	HEIGHT	B/FTG EL	COL PIER	REMARKS
(A)	3'-0"	3'-0"	1'-0"	575'-11"	1'-2" SQ	T/PIER EL 579'-11"
(B)	3'-6"	3'-6"	1'-0"	577'-0"	1'-0"x0-10"	T/PIER EL 580'-0"
(C)	3'-0"	10'-0"	1'-0"	577'-0"	1'-0"x8'-8"	T/PIER EL 582'-6"
(D)	1'-2"	2'-6"	1'-0"	576'-6"	6'-6"x1'-10"	T/PIER EL 581'-0"



FOUNDATION PLAN

4' 0' 4' 8' 12' 16' 20'
GRAPHIC SCALE: 1/8"=1'-0"

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION DRAWINGS AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.
2. SEE EXISTING REFERENCED DRAWINGS FOR CONSTRUCTION DETAILS AND/OR ISOMETRIC DRAWING SK740-1.

4831

REF DWG NO.	DRAWING TITLE
088-5500-S-01673	CONCRETE - PLAN, SECTIONS & DETAILS
088-5500-S-01877	CONCRETE & COVERING PLAN - SECTIONS - DETAILS
088-5500-S-01878	HCL METAL DISSOLVER EXTENSION PAD - WASH POOL - SECTIONS & DETAILS
088-5500-S-01880	HCL METAL DISSOLVER EXTENSION PAD - CONCRETE & ACID BRICK FLOOR LAYOUT
088-5500-S-01882	HCL METAL DISSOLVER EXTENSION PAD - CONCRETE & ACID BRICK FLOOR PLAN
088-5500-S-01883	HCL METAL DISSOLVER EXTENSION PAD - CONCRETE & ACID BRICK FLOOR SECT. & DETAILS SHEET #1
088-5500-S-01884	HCL METAL DISSOLVER EXTENSION PAD - CONCRETE & ACID BRICK FLOOR SECT. & DETAILS SHEET #2
088-5500-S-01885	HCL METAL DISSOLVER EXTENSION PAD - CONCRETE & ACID BRICK FLOOR SECT. & DETAILS SHEET #3
088-5500-S-01886	HCL METAL DISSOLVER EXTENSION PAD - CONCRETE & ACID BRICK FLOOR SECT. & DETAILS SHEET #4
088-5500-S-01887	HCL METAL DISSOLVER EXTENSION PAD - CONCRETE & ACID BRICK FLOOR SECT. & DETAILS SHEET #5
08X-5500-S-01674	CONCRETE PIER FOUNDATIONS FOR YARD PIPING - PLAN
SKPLANT8-1	PLANT 8 - BLDG'S 8A, 8B, 8C, 8D, 8G, 8H, 18H, 74C, 74Q, & 80 - FOUNDATION ISOMETRIC VIEW
SKPLANT8-2	PLANT 8 - BLDG'S 8A, 8B, 8C, 8D, 8G, 8H, 18H, 74C, 74Q, & 80 - FOUNDATION AND SLAB ISOMETRIC VIEW

~~000354~~

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	RCVD BY
0	ISSUED FOR TECHNICAL REFERENCE ONLY.	N/A	KG 03/26/92	LNH 03/26/92

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
PARSONS I & T GROUP
CINCINNATI, OHIO

PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 20 - TECHNICAL REFERENCE DRAWING

DRAWING TITLE
BUILDING 74Q
FOUNDATION PLAN
WITHOUT HIDDEN LINES

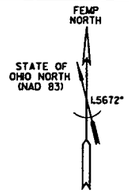
CONFIGURATION MANAGEMENT DRAWING

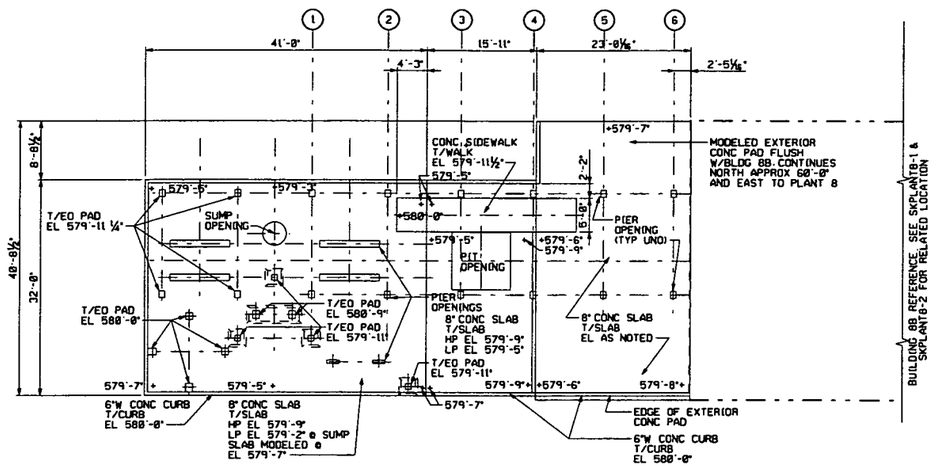
EXISTING STRUCTURE OR COMPONENTS SHOWN AS NOT DESIGNED ARE SHOWN FOR REFERENCE ONLY. CONTROL TOP LEVEL.

COGNIZANT ENGINEER DATE

TASK ORDER NO.	OPTIONAL NO.	SCALE	
060	N/A	1/8" = 1'-0"	
		DRAWN BY K. L. RABBITT	DATE 02/01/92
RCS NO. 4327	FOF PROJECT NO. 20810	TECHNICAL LEAD N/A	DATE N/A
		CHECKED BY DOREEN REED	DATE 02/11/92
DRAWING INDEX CODE NO. 74D-5900-S-00081		SHEET NO. S0001	REV. NO. 0

SEAL





SLAB PLAN

GRAPHIC SCALE: 1/8"=1'-0"

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION DRAWINGS AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.
2. SEE EXISTING REFERENCED DRAWINGS FOR CONSTRUCTION DETAILS AND/OR ISOMETRIC DRAWING SK74Q-1.

4831

REF DWG NO.	DRAWING TITLE
088-5500-S-01673	CONCRETE - PLAN, SECTIONS & DETAILS
088-5500-S-01877	CONCRETE & COVERING PLAN - SECTIONS - DETAILS
088-5500-S-01878	HCL METAL DISSOLVER EXTENSION PAD - WASH POOL - SECTIONS & DETAILS
088-5500-S-01880	HCL METAL DISSOLVER EXTENSION PAD - CONCRETE & ACID BRICK FLOOR LAYOUT
088-5500-S-01882	HCL METAL DISSOLVER EXTENSION PAD - CONCRETE & ACID BRICK FLOOR PLAN
088-5500-S-01883	HCL METAL DISSOLVER EXTENSION PAD - CONCRETE & ACID BRICK FLOOR SECT.& DETAILS SHEET #1
088-5500-S-01884	HCL METAL DISSOLVER EXTENSION PAD - CONCRETE & ACID BRICK FLOOR SECT.& DETAILS SHEET #2
088-5500-S-01885	HCL METAL DISSOLVER EXTENSION PAD - CONCRETE & ACID BRICK FLOOR SECT.& DETAILS SHEET #3
088-5500-S-01886	HCL METAL DISSOLVER EXTENSION PAD - CONCRETE & ACID BRICK FLOOR SECT.& DETAILS SHEET #4
088-5500-S-01887	HCL METAL DISSOLVER EXTENSION PAD - CONCRETE & ACID BRICK FLOOR SECT.& DETAILS SHEET #5
08X-5500-S-01674	CONCRETE PIER FOUNDATIONS FOR YARD PIPING - PLAN
SKPLANT8-1	PLANT 8 - BLDG'S 8A, 8B, 8C, 8D, 8G, 8H, 18H, 74C, 74Q & 80 - FOUNDATION ISOMETRIC VIEW
SKPLANT8-2	PLANT 8 - BLDG'S 8A, 8B, 8C, 8D, 8G, 8H, 18H, 74C, 74Q & 80 - FOUNDATION AND SLAB ISOMETRIC VIEW

~~000355~~

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	REVD BY
0	ISSUED FOR TECHNICAL REFERENCE ONLY.	N/A	KG 10/28/92	LNH 10/28/92

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
PARSONS I & T GROUP
CINCINNATI, OHIO

PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 20 - TECHNICAL REFERENCE DRAWING

DRAWING TITLE
BUILDING 74Q
SLAB PLAN
WITH HIDDEN LINES

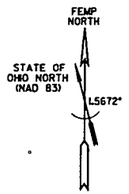
CONFIGURATION MANAGEMENT DRAWING

EXISTING ATTACHED OR COMPONENTS SHOWN AS NOT SHOWN ARE UNDER CONFIGURATION MANAGEMENT CONTROL. SEE NOTES.

COGNIZANT ENGINEER DATE

TASK ORDER NO.	OPTIONAL NO.	SCALE	
060	N/A	1/8" = 1'-0"	
		DRAWN BY: K. L. RABBITT	DATE 02/01/92
RES NO. 4327	FOF PROJECT NO. 20810	TECHNICAL LEAD N/A	DATE N/A
		CHECKED BY DOREEN REED	DATE 02/11/92
DRAWING INDEX CODE NO. 74D-5900-S-00082		SHEET NO. S0002	REV. NO. 0

SEAL



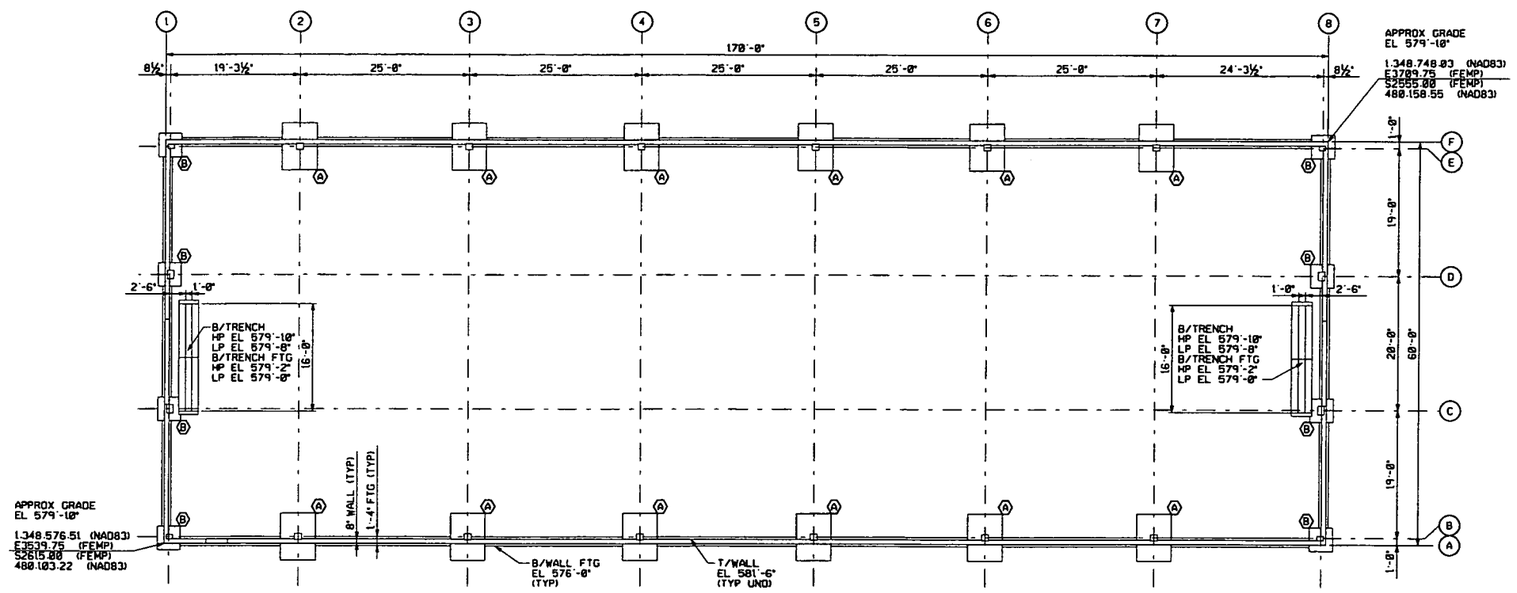
FOOTING SCHEDULE

MARK	LENGTH N/S	WIDTH E/W	HEIGHT	B/FTG EL	COL PIER	REMARKS
A	7'-0"	5'-0"	1'-0"	576'-0"	1'-6"x1'-0"	T/PIER EL 580'-6"
B	3'-6"	3'-6"	1'-0"	576'-0"	1'-3½" SQ	T/PIER EL 580'-6"

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION DRAWINGS AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.
2. SEE EXISTING REFERENCED DRAWINGS FOR CONSTRUCTION DETAILS AND/OR ISOMETRIC DRAWING SK80-1.
3. SEE SKPLANT8-1 & SKPLANT8-2 FOR BUILDING RELATED LOCATION.

4831



FOUNDATION PLAN

GRAPHIC SCALE: 1/8"=1'-0"

REF DWG NO.	DRAWING TITLE
750-5500-G-00019	GRID 20 - EXISTING SITE PLAN
80X-4445-A-00003	WAREHOUSE PLANT 8 - FOUNDATION PLAN & DETAILS
SKPLANT8-1	PLANT 8 - BLDG'S 8A, 8B, 8C, 8D, 8G, 8H, 18H, 74C, 74Q, & 80 - FOUNDATION ISOMETRIC VIEW
SKPLANT8-2	PLANT 8 - BLDG'S 8A, 8B, 8C, 8D, 8G, 8H, 18H, 74C, 74Q, & 80 - FOUNDATION AND SLAB ISOMETRIC VIEW

000356

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	REVW BY
0	ISSUED FOR TECHNICAL REFERENCE ONLY.	N/A	KG 03/26/02	LNH 03/26/02

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
PARSONS I & T GROUP
CINCINNATI, OHIO

PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 20 - TECHNICAL REFERENCE DRAWING

DRAWING TITLE
BUILDING 80
FOUNDATION PLAN
WITHOUT HIDDEN LINES

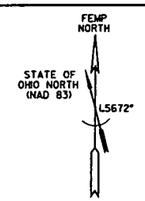
CONFIGURATION MANAGEMENT DRAWING — REF. ONLY

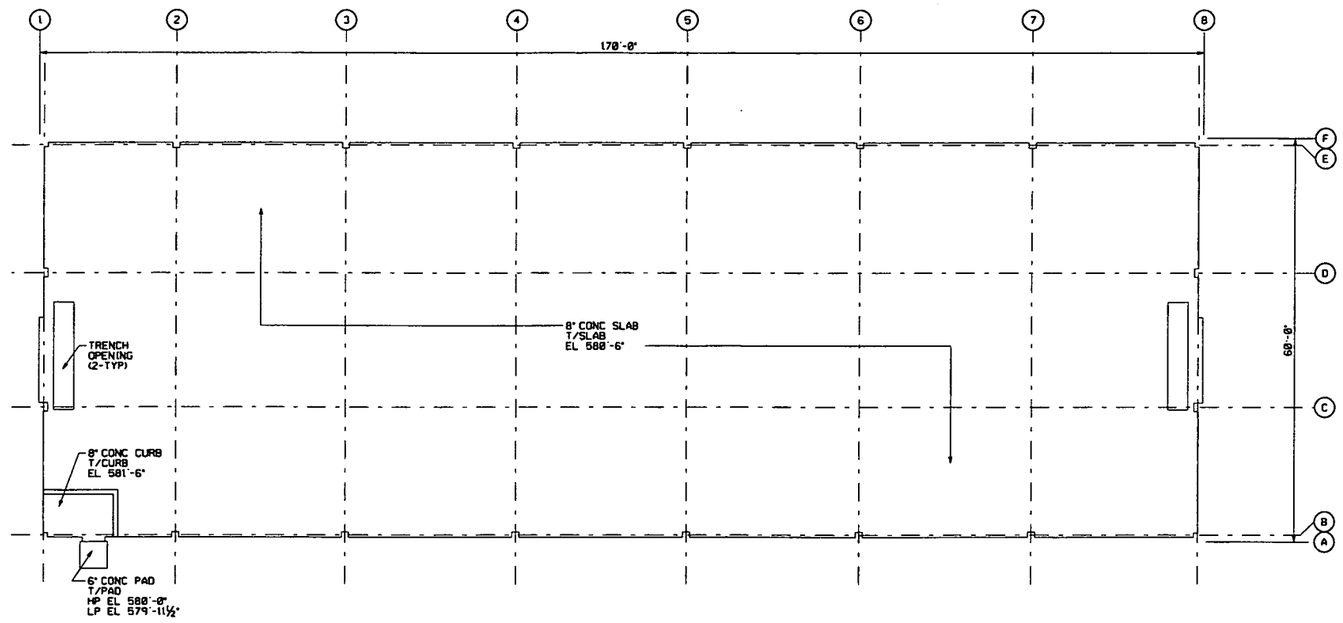
EXISTING STRUCTURES OR COMPONENTS LOCATED AS PER DRAWINGS AND/OR FIELD SURVEYS. MANAGEMENT CONTROL SEE NOTES.

COGNIZANT ENGINEER — DATE

TASK ORDER NO.	OPTIONAL NO.	SCALE 1/8" = 1'-0"	
060	N/A	DRAWN BY K. L. RABBITT	DATE 02/23/02
WES NO. 4327	FOF PROJECT NO. 20810	TECHNICAL LEAD N/A	DATE N/A
		CHECKED BY DOREEN REED	DATE 02/11/02
DRAWING INDEX CODE NO. 80X-5900-S-00049		SHEET NO. S0001	REV. NO. 0

SEAL





SLAB PLAN

GRAPHIC SCALE: 1/8"=1'-0"

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION DRAWINGS AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.
2. SEE EXISTING REFERENCED DRAWINGS FOR CONSTRUCTION DETAILS AND/OR ISOMETRIC DRAWING SK80-1.
3. SEE SKPLANT8-1 & SKPLANT8-2 FOR BUILDING RELATED LOCATION.

4831

REF DWG NO.	DRAWING TITLE
750-5500-G-00019	GRID 20 - EXISTING SITE PLAN
80X-4445-A-00003	WAREHOUSE PLANT 8 - FOUNDATION PLAN & DETAILS
SKPLANT8-1	PLANT 8 - BLDG'S 8A, 8B, 8C, 8D, 8G, 8H, 18H, 74C, 74Q, & 80 - FOUNDATION ISOMETRIC VIEW
SKPLANT8-2	PLANT 8 - BLDG'S 8A, 8B, 8C, 8D, 8G, 8H, 18H, 74C, 74Q, & 80 - FOUNDATION AND SLAB ISOMETRIC VIEW

000357

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	REVD BY
0	ISSUED FOR TECHNICAL REFERENCE ONLY.	N/A	KG 10/28/92	LNH 10/28/92

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
PARSONS I & T GROUP
CINCINNATI, OHIO

PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 20 - TECHNICAL REFERENCE DRAWING

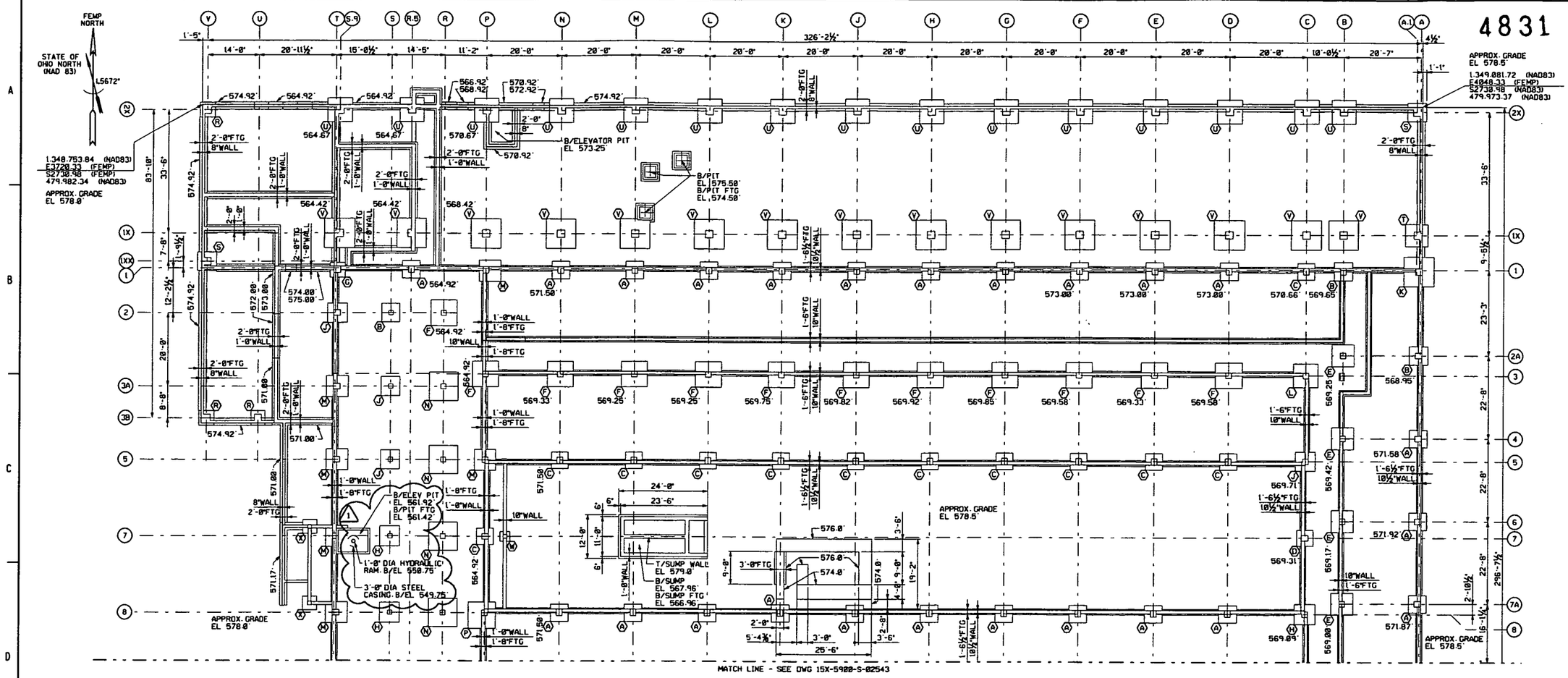
DRAWING TITLE
BUILDING 80
SLAB PLAN
WITHOUT HIDDEN LINES

CONFIGURATION MANAGEMENT DRAWING

STATUS: STATUS-SET OR CONFIRMED ACTIVE ON THIS DRAWING AS LISTED IN CONFIGURATION MANAGEMENT CONTROL SYSTEM.

TASK ORDER NO. 060	OPTIONAL NO. N/A	SCALE 1/8" = 1'-0"	
		DRAWN BY K. L. RABBITT	DATE 01/23/92
RES NO. 4327	FOR PROJECT NO. 20810	TECHNICAL LEAD N/A	DATE N/A
		CHECKED BY DOREEN REED	DATE 02/11/92
COGNIZANT ENGINEER	DATE	DRAWING INDEX CODE NO. 80X-5900-S-00050	SHEET NO. S0002 / REV. NO. 0

SEAL



FOUNDATION PLAN - NORTH

FOOTING SCHEDULE

MARK	LENGTH N/S	WIDTH E/W	HEIGHT	B/FTG EL	COL PIER	REMARKS
A	4'-9"	4'-9"	1'-6"	574.00' (UNO)	VARIES	SEE NOTE 2
B	5'-0"	5'-0"	1'-3"	565.17' (UNO)	VARIES	SEE NOTE 2
C	4'-6"	4'-6"	1'-6"	574.00' (UNO)	VARIES	SEE NOTE 2
D	4'-4"	4'-4"	1'-6"	SEE PLAN	VARIES	SEE NOTE 2
E	6'-0"	6'-0"	1'-3"	SEE PLAN	VARIES	SEE NOTE 2
F	7'-0"	7'-0"	1'-6"	569.50' (UNO)	VARIES	SEE NOTE 2
G	4'-0"	4'-0"	1'-6"	564.92' (UNO)	VARIES	SEE NOTE 2
H	5'-6"	5'-6"	1'-3"	565.17' (UNO)	VARIES	SEE NOTE 2
J	5'-3"	5'-3"	1'-3"	565.17' (UNO)	VARIES	SEE NOTE 2
K	8'-0"	8'-0"	1'-6"	568.50'	VARIES	SEE NOTE 2
L	6'-6"	6'-6"	1'-3"	569.69'	VARIES	SEE NOTE 2
M	5'-9"	5'-9"	1'-3"	565.17'	VARIES	SEE NOTE 2
N	7'-9"	7'-9"	1'-8"	564.75'	VARIES	SEE NOTE 2
P	7'-3"	7'-3"	1'-6"	564.92'	VARIES	SEE NOTE 2
R	4'-0"	4'-0"	1'-0"	574.92'	VARIES	SEE NOTE 2
S	5'-0"	5'-0"	1'-0"	574.92'	VARIES	SEE NOTE 2
T	6'-0"	6'-0"	1'-3"	574.67'	VARIES	SEE NOTE 2
U	6'-6"	6'-6"	1'-3"	574.67' (UNO)	VARIES	SEE NOTE 2
V	8'-0"	8'-0"	1'-6"	576.50' (UNO)	2'-0"x2'-0"	SLAB HAUNCH
W	2'-8"	2'-8"	1'-0"	565.50'	12"x12"	
X	3'-9"	3'-9"	1'-4"	567.50'	12"x12"	
Y	4'-0"	4'-0"	2'-0"	572.50'	3'-0"x3'-0"	
Z	5'-0"	19'-3"	1'-9"	564.67'	VARIES	SEE NOTE 2

FOOTING SCHEDULE

MARK	LENGTH N/S	WIDTH E/W	HEIGHT	B/FTG EL	COL PIER	REMARKS
AA	5'-0"	19'-10"	1'-9"	564.67'	VARIES	SEE NOTE 2
AB	6'-4'	6'-4'	1'-6'	564.92'	1'-6' SQ	
AC	3'-0"	3'-0"	1'-3"	565.17'	VARIES	SEE NOTE 2
AD	3'-6"	3'-6"	1'-3"	565.17'	VARIES	SEE NOTE 2
AE	SEE PLAN	SEE PLAN	2'-6"	563.92'	VARIES	SEE NOTE 2
AF	6'-0"	6'-0"	1'-3"	572.67' (UNO)	VARIES	SEE NOTE 2
AG	5'-0"	7'-0"	1'-3"	572.67'	2'-0" SQ	
AH	5'-6"	5'-6"	1'-3"	571.50' (UNO)	VARIES	SEE NOTE 2
AJ	5'-0"	5'-0"	1'-3"	574.00' (UNO)	VARIES	SEE NOTE 2
AK	6'-6"	6'-6"	1'-3"	574.00'	VARIES	SEE NOTE 2
AL	7'-6"	7'-6"	1'-3"	574.00'	1'-6" SQ	
AM	5'-6"	6'-6"	1'-3"	574.00'	VARIES	SEE NOTE 2
AN	11'-6"	5'-0"	1'-3"	574.00'	(2) 1'-6" SQ	
AP	11'-6"	5'-6"	1'-3"	574.00'	(4) 1'-6"x1'-4"	
AR	6'-0"	6'-0"	1'-6"	561.42'(UNO)	VARIES	SEE NOTE 2
AS	5'-6"	5'-6"	1'-6"	563.75'		SEE NOTE 2
AT	7'-6"	7'-6"	1'-6"	561.50'		SEE NOTE 2
AU	8'-0"	8'-0"	1'-6"	561.50' (UNO)	VARIES	SEE NOTE 2
AV	6'-6"	6'-6"	1'-6"	561.50' (UNO)	1'-6" SQ	
AW	9'-6"	9'-6"	1'-9"	SEE PLAN	VARIES	SEE NOTE 2
AX	8'-6"	8'-6"	1'-6"	SEE PLAN	VARIES	SEE NOTE 2
AY	7'-0"	7'-0"	1'-6"	SEE PLAN	VARIES	SEE NOTE 2
AZ	14'-0"	5'-6"	1'-3"	567.00'	(2) 1'-6" SQ	

REF DWG NO.	DRAWING TITLE
15X-1450-S-00002	FOUNDATION PLAN
15X-1450-S-00034	DETAILS OF SUMP LIQUOR TANKS
15X-3115-S-00165	EAST HALF - FOUND. PLAN
15X-3115-S-00166	WEST HALF - FOUND. PLAN
15X-5500-A-00455	ELEVATOR - PLAN & SECTIONS
15X-5500-G-00024	GRID 21 - EXISTING SITE PLAN
15X-5500-S-00495	PLAN, ELEVATIONS, SECTIONS & DETAILS
15X-5500-S-00528	CONCRETE PLAN - SECTIONS 1-1 & 2-2
15X-5500-S-00529	MISCELLANEOUS DETAILS - SHEET NO.1
15X-5500-S-00530	MISCELLANEOUS DETAILS - SHEET NO.2
15X-5500-S-01261	FOUNDATION PLAN
15X-5500-S-01285	FOUNDATION PLAN
15X-5500-S-01669	FOUNDATION PLAN
15X-7000-S-00109	FOUNDATION PLAN - WEST SIDE
15X-7000-S-00110	FOUNDATION PLAN - EAST SIDE
15X-7000-S-00111	FOUNDATION DETAILS - SHEET #1
15X-7000-S-00112	FOUNDATION DETAILS - SHEET #2
15X-7000-S-00113	FOUNDATION DETAILS - SHEET #3
15X-7000-S-00132	BASEMENT WALLS - SECTIONS & DETAILS
15X-7000-S-00133	GROUND FLOOR DETAILS - SHEET 2
15X-7000-S-00146	PLANS & DETAILS
15X-8600-S-02162	FOUNDATION PLAN
15X-8600-S-02163	FOUNDATION ELEVATIONS & DETAILS
15X-8600-S-02166	CONCRETE SECTIONS AND DETAILS
15X-8600-S-02169	SCHEDULES AND DETAILS

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION DRAWINGS AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.
2. SEE EXISTING REFERENCED DRAWINGS FOR CONSTRUCTION DETAILS AND/OR ISOMETRIC DRAWING SK15A-1.
3. ALL FOUNDATION WALL STRIP FOOTINGS BETWEEEN COLUMNS ARE TYPICALLY FLUSH WITH BOTTOM OF COLUMN FOOTING ELEVATION, EXCEPT AS NOTED.

GRAPHIC SCALE: 8' 0' 8' 16' 24' — 3/32" = 1'-0"

000358

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	REVD BY	DETAILS AND DATE
1	CHANGED PIT, RAM, AND CASING ELEVATIONS. ISSUED FOR TECHNICAL REFERENCE ONLY.	N/A	KG 12/28/92	KLR 12/28/92	
0	ISSUED FOR TECHNICAL REFERENCE ONLY.	N/A	KG 10/29/92	KLR 10/29/92	

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
PARSONS I & T GROUP
CINCINNATI, OHIO

PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 21 - TECHNICAL REFERENCE DRAWING

DRAWING TITLE
BUILDING 15A
FOUNDATION PLAN - NORTH
WITHOUT HIDDEN LINES

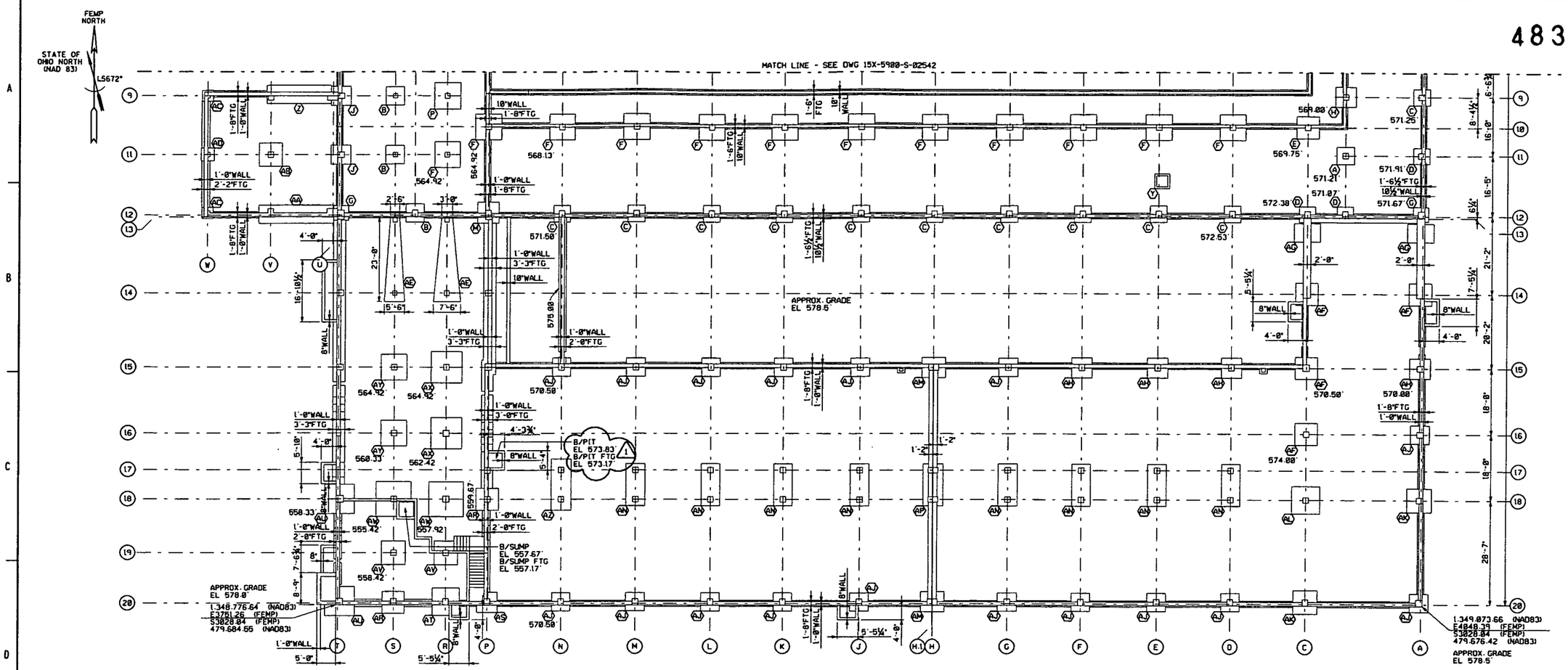
CONFIGURATION MANAGEMENT DRAWING

EXISTING ATTACHMENT OR COMPONENTS SHOWN ON THIS DRAWING ARE UNDER CONFIGURATION MANAGEMENT CONTROL. SEE NOTES.

TASK ORDER NO.	OPTIONAL NO.	SCALE 3/32" = 1'-0"
060	N/A	DRAWN BY K. L. RABBITT — DATE 12/16/92
RES NO. 4327	FDF PROJECT NO. 20810	TECHNICAL LEAD N/A — DATE N/A
		CHECKED BY DOREEN REED — DATE 12/30/92
COGNIZANT ENGINEER	DATE	DRAWING INDEX CODE NO. 15X-5900-S-02542 — SHEET NO. S0001 — REV. NO. 1

SEAL

4831



FOUNDATION PLAN - SOUTH

FOOTING SCHEDULE

MARK	LENGTH N/S	WIDTH E/W	HEIGHT	B/FTG EL	COL PIER	REMARKS
A	4'-9"	4'-9"	1'-6"	574.00' (UNO)	VARIES	SEE NOTE 2
B	5'-0"	5'-0"	1'-3"	565.17' (UNO)	VARIES	SEE NOTE 2
C	4'-6"	4'-6"	1'-6"	574.00' (UNO)	VARIES	SEE NOTE 2
D	4'-4"	4'-4"	1'-6"	SEE PLAN	VARIES	SEE NOTE 2
E	6'-0"	6'-0"	1'-3"	SEE PLAN	VARIES	SEE NOTE 2
F	7'-0"	7'-0"	1'-6"	569.50' (UNO)	VARIES	SEE NOTE 2
G	4'-0"	4'-0"	1'-6"	564.92' (UNO)	VARIES	SEE NOTE 2
H	5'-6"	5'-6"	1'-3"	565.17' (UNO)	VARIES	SEE NOTE 2
J	5'-3"	5'-3"	1'-3"	565.17' (UNO)	VARIES	SEE NOTE 2
K	8'-0"	8'-0"	1'-6"	568.50'	VARIES	SEE NOTE 2
L	6'-6"	6'-6"	1'-3"	569.69'	VARIES	SEE NOTE 2
M	5'-9"	5'-9"	1'-3"	565.17'	VARIES	SEE NOTE 2
N	7'-9"	7'-9"	1'-8"	564.75'	VARIES	SEE NOTE 2
P	7'-3"	7'-3"	1'-6"	564.92'	VARIES	SEE NOTE 2
R	4'-0"	4'-0"	1'-0"	574.92'	VARIES	SEE NOTE 2
S	5'-0"	5'-0"	1'-0"	574.92'	VARIES	SEE NOTE 2
T	6'-0"	6'-0"	1'-3"	574.67'	VARIES	SEE NOTE 2
U	6'-6"	6'-6"	1'-3"	574.67' (UNO)	VARIES	SEE NOTE 2
V	8'-0"	8'-0"	1'-6"	576.50' (UNO)	2'-0"x2'-0"	SLAB HAUNCH
W	2'-8"	2'-8"	1'-0"	565.50'	12"x12"	
X	3'-9"	3'-9"	1'-4"	567.50'	12"x12"	
Y	4'-0"	4'-0"	2'-0"	572.50'	3'-0"x3'-0"	
Z	5'-0"	19'-3"	1'-9"	564.67'	VARIES	SEE NOTE 2

FOOTING SCHEDULE

MARK	LENGTH N/S	WIDTH E/W	HEIGHT	B/FTG EL	COL PIER	REMARKS
AA	5'-0"	19'-10"	1'-9"	564.67'	VARIES	SEE NOTE 2
AB	6'-4"	6'-4"	1'-6"	564.92'	1'-6" SQ	
AC	3'-0"	3'-0"	1'-3"	565.17'	VARIES	SEE NOTE 2
AD	3'-6"	3'-6"	1'-3"	565.17'	VARIES	SEE NOTE 2
AE	SEE PLAN	SEE PLAN	2'-6"	563.92'	VARIES	SEE NOTE 2
AF	6'-0"	6'-0"	1'-3"	572.67' (UNO)	VARIES	SEE NOTE 2
AG	5'-0"	7'-0"	1'-3"	572.67'	2'-0" SQ	
AH	5'-6"	5'-6"	1'-3"	571.50' (UNO)	VARIES	SEE NOTE 2
AJ	5'-0"	5'-0"	1'-3"	574.00' (UNO)	VARIES	SEE NOTE 2
AK	6'-6"	6'-6"	1'-3"	574.00'	VARIES	SEE NOTE 2
AL	7'-6"	7'-6"	1'-3"	574.00'	1'-6" SQ	
AM	5'-6"	6'-6"	1'-3"	574.00'	VARIES	SEE NOTE 2
AN	11'-6"	5'-0"	1'-3"	574.00'	(2) 1'-6" SQ	
AP	11'-6"	5'-6"	1'-3"	574.00'	(4) 1'-6"x1'-4"	
AR	6'-0"	6'-0"	1'-6"	561.42'(UNO)	VARIES	SEE NOTE 2
AS	5'-6"	5'-6"	1'-6"	563.75'		SEE NOTE 2
AT	7'-6"	7'-6"	1'-6"	561.50'		SEE NOTE 2
AU	8'-0"	8'-0"	1'-6"	561.50' (UNO)	VARIES	SEE NOTE 2
AV	6'-6"	6'-6"	1'-6"	561.50' (UNO)	1'-6" SQ	
AW	9'-6"	9'-6"	1'-9"	SEE PLAN	VARIES	SEE NOTE 2
AX	8'-6"	8'-6"	1'-6"	SEE PLAN	VARIES	SEE NOTE 2
AY	7'-0"	7'-0"	1'-6"	SEE PLAN	VARIES	SEE NOTE 2
AZ	14'-0"	5'-6"	1'-3"	567.00'	(2) 1'-6" SQ	

REF DWG NO.	DRAWING TITLE
15X-1450-S-00002	FOUNDATION PLAN
15X-1450-S-00034	DETAILS OF SUMP LIQUOR TANKS
15X-3115-S-00165	EAST HALF - FOUND. PLAN
15X-3115-S-00166	WEST HALF - FOUND. PLAN
15X-5500-A-00455	ELEVATOR - PLAN & SECTIONS
15X-5500-G-00024	GRID 21 - EXISTING SITE PLAN
15X-5500-S-00495	PLAN, ELEVATIONS, SECTIONS & DETAILS
15X-5500-S-00528	CONCRETE PLAN - SECTIONS 1-1 & 2-2
15X-5500-S-00529	MISCELLANEOUS DETAILS - SHEET NO.1
15X-5500-S-00530	MISCELLANEOUS DETAILS - SHEET NO.2
15X-5500-S-01261	FOUNDATION PLAN
15X-5500-S-01285	FOUNDATION PLAN
15X-5500-S-01669	FOUNDATION PLAN
15X-7000-S-00109	FOUNDATION PLAN - WEST SIDE
15X-7000-S-00110	FOUNDATION PLAN - EAST SIDE
15X-7000-S-00111	FOUNDATION DETAILS - SHEET #1
15X-7000-S-00112	FOUNDATION DETAILS - SHEET #2
15X-7000-S-00113	FOUNDATION DETAILS - SHEET #3
15X-7000-S-00132	BASEMENT WALLS - SECTIONS & DETAILS
15X-7000-S-00133	GROUND FLOOR DETAILS - SHEET 2
15X-7000-S-00146	PLANS & DETAILS
15X-8600-S-02162	FOUNDATION PLAN
15X-8600-S-02163	FOUNDATION ELEVATIONS & DETAILS
15X-8600-S-02166	CONCRETE SECTIONS AND DETAILS
15X-8600-S-02169	SCHEDULES AND DETAILS

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION DRAWINGS AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.
2. SEE EXISTING REFERENCED DRAWINGS FOR CONSTRUCTION DETAILS AND/OR ISOMETRIC DRAWING SK15A-1.
3. ALL FOUNDATION WALL STRIP FOOTINGS BETWEEEN COLUMNS ARE TYPICALLY FLUSH WITH BOTTOM OF COLUMN FOOTING ELEVATION, EXCEPT AS NOTED.

GRAPHIC SCALE: 1/32" = 1'-0"

000359

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	ADM BY
1	CHANGED B/SUMP TO B/PIT. ISSUED FOR TECHNICAL REFERENCE ONLY.	N/A	KG 10/26/92	KLR 10/26/92
0	ISSUED FOR TECHNICAL REFERENCE ONLY.	N/A	KG 10/29/92	KLR 10/29/92

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
PARSONS I & T GROUP
CINCINNATI, OHIO

PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 21 - TECHNICAL REFERENCE DRAWING

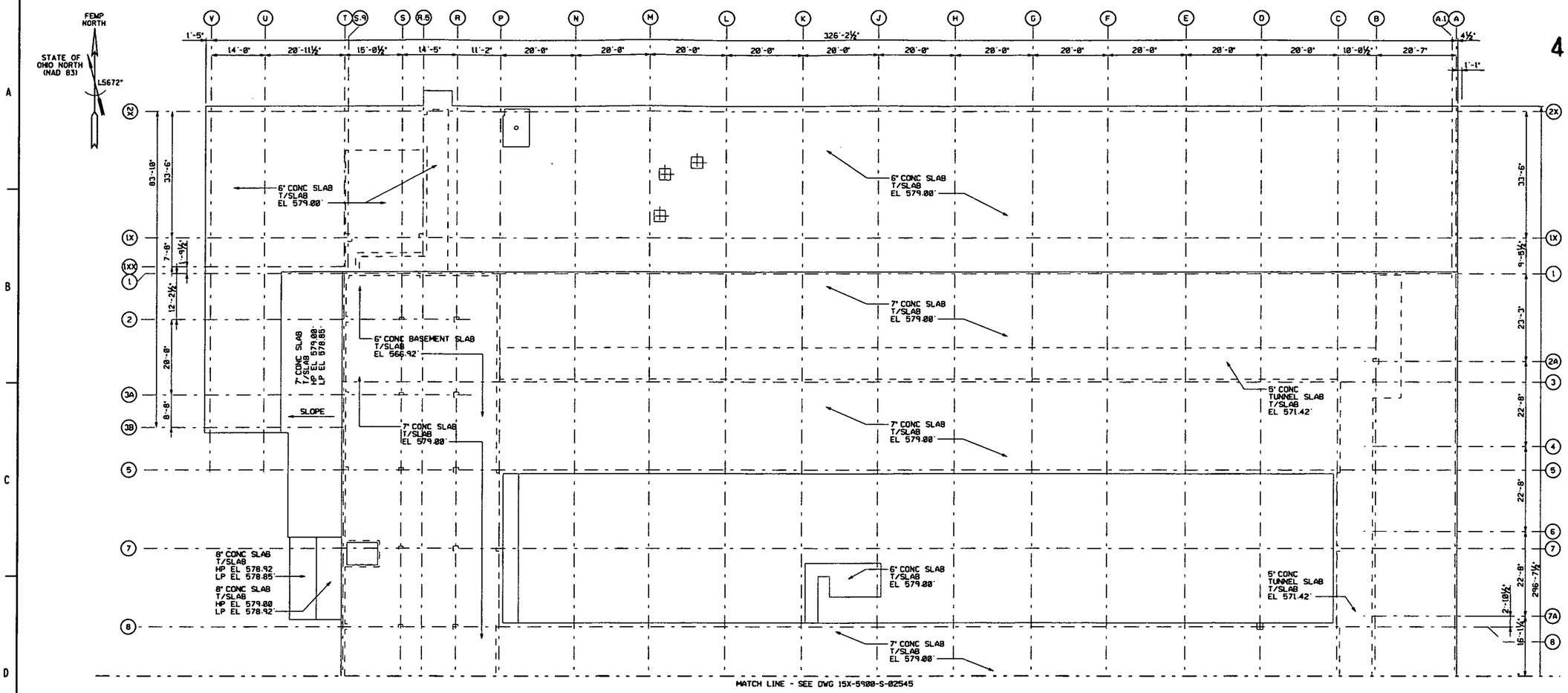
DRAWING TITLE
BUILDING 15A
FOUNDATION PLAN - SOUTH
WITHOUT HIDDEN LINES

CONFIGURATION MANAGEMENT DRAWING
EXISTING ULTIMATE DRAWING NO. CONFIRMED CURRENT AS OF DATE ENTERED IN FERNALD CONFIGURATION MANAGEMENT CONTROL. SEE NOTES.
COGNIZANT ENGINEER DATE

TASK ORDER NO.	OPTIONAL NO.	SCALE
060	N/A	1/32" = 1'-0"
DRAWN BY K.L. RABBITT		DATE 12/06/91
RES NO. 4327	FOF PROJECT NO. 20810	TECHNICAL LEAD N/A
		DATE N/A
CHECKED BY DOREEN REED		DATE 12/31/91
DRAWING INDEX CODE NO. 15X-5900-S-02543	SHEET NO. S0002	REV. NO. 1

SEAL

4831



SLAB PLAN - NORTH

REF DWG NO.	DRAWING TITLE
15X-1450-S-00002	FOUNDATION PLAN
15X-1450-S-00034	DETAILS OF SUMP LIQUOR TANKS
15X-3115-S-00165	EAST HALF - FOUND. PLAN
15X-3115-S-00166	WEST HALF - FOUND. PLAN
15X-5500-A-00455	ELEVATOR - PLAN & SECTIONS
15X-5500-G-00024	GRID 21 - EXISTING SITE PLAN
15X-5500-S-00495	PLAN, ELEVATIONS, SECTIONS & DETAILS
15X-5500-S-00528	CONCRETE PLAN - SECTIONS 1-1 & 2-2
15X-5500-S-00529	MISCELLANEOUS DETAILS - SHEET NO.1
15X-5500-S-00530	MISCELLANEOUS DETAILS - SHEET NO.2
15X-5500-S-01261	FOUNDATION PLAN
15X-5500-S-01285	FOUNDATION PLAN
15X-5500-S-01669	FOUNDATION PLAN
15X-7000-S-00109	FOUNDATION PLAN - WEST SIDE
15X-7000-S-00110	FOUNDATION PLAN - EAST SIDE
15X-7000-S-00111	FOUNDATION DETAILS - SHEET #1
15X-7000-S-00112	FOUNDATION DETAILS - SHEET #2
15X-7000-S-00113	FOUNDATION DETAILS - SHEET #3
15X-7000-S-00132	BASEMENT WALLS - SECTIONS & DETAILS
15X-7000-S-00133	GROUND FLOOR DETAILS - SHEET 2
15X-7000-S-00146	PLANS & DETAILS
15X-8600-S-02162	FOUNDATION PLAN
15X-8600-S-02163	FOUNDATION ELEVATIONS & DETAILS
15X-8600-S-02166	CONCRETE SECTIONS AND DETAILS
15X-8600-S-02169	SCHEDULES AND DETAILS

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION DRAWINGS AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.
2. SEE EXISTING REFERENCED DRAWINGS FOR CONSTRUCTION DETAILS AND/OR ISOMETRIC DRAWING SK15A-1.

GRAPHIC SCALE: 3/32" = 1'-0"

000360

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	REVIEW BY
0	ISSUED FOR TECHNICAL REFERENCE ONLY.	N/A	KG 10/29/02	KLR 10/29/02

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
PARSONS I & T GROUP
CINCINNATI, OHIO

PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 21 - TECHNICAL REFERENCE DRAWING

DRAWING TITLE
BUILDING 15A
SLAB PLAN - NORTH
WITH HIDDEN LINES

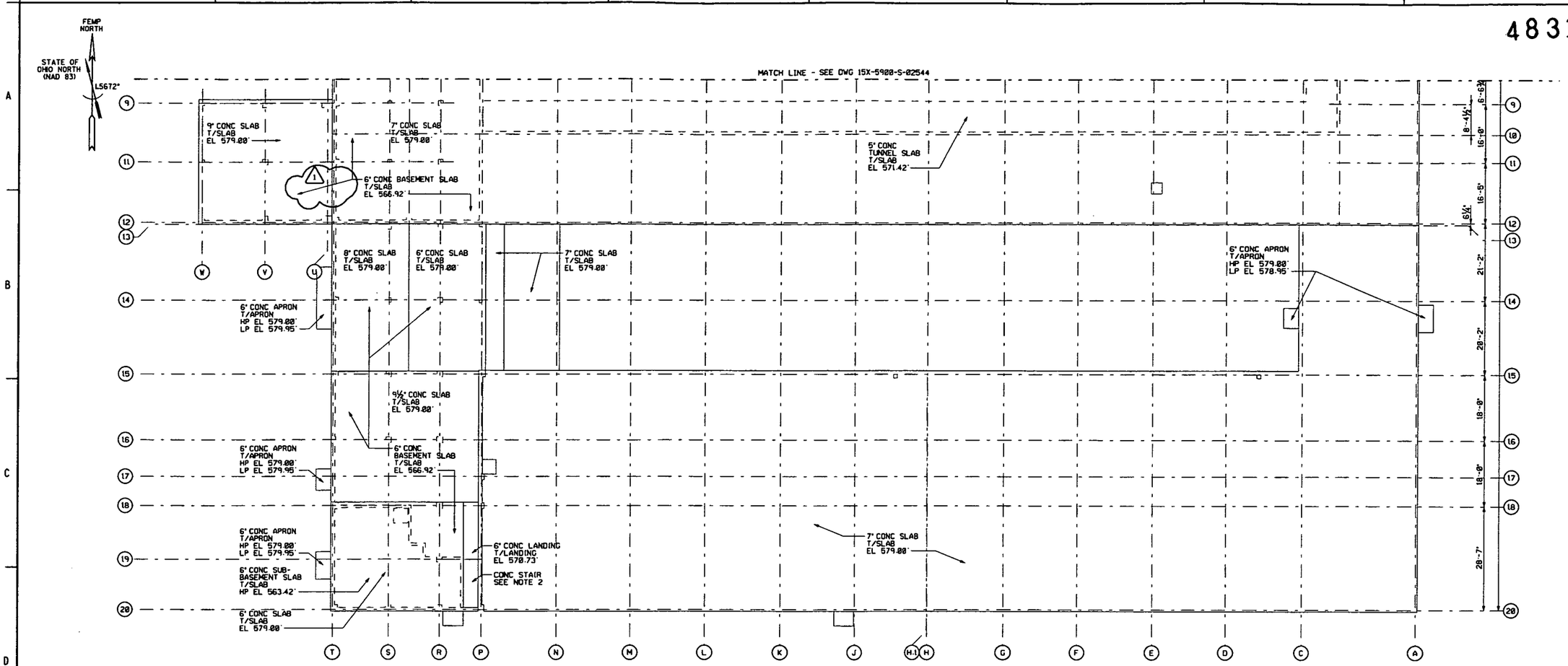
CONFIGURATION MANAGEMENT DRAWING
USE
DATE
EXISTING STRUCTURES OR COMPONENTS MAY NOT BE IN ACCORDANCE WITH CONFIGURATION MANAGEMENT CONTROL DOCUMENTS.

COGNIZANT ENGINEER DATE

TASK ORDER NO.	OPTIONAL NO.	SCALE 3/32" = 1'-0"
060	N/A	DRAWN BY K. L. RABBITT — DATE 12/06/01
RES NO. 4327	FOF PROJECT NO. 20810	TECHNICAL LEAD N/A — DATE N/A
		CHECKED BY DOREEN REED — DATE 12/31/01
DRAWING INDEX CODE NO. 15X-5900-S-02544		SHEET NO. S0003 — REV. NO. 0

SEAL

4831



SLAB PLAN - SOUTH

REF DWG NO.	DRAWING TITLE
15X-1450-S-00002	FOUNDATION PLAN
15X-1450-S-00034	DETAILS OF SUMP LIQUOR TANKS
15X-3115-S-00165	EAST HALF - FOUND. PLAN
15X-3115-S-00166	WEST HALF - FOUND. PLAN
15X-5500-A-00455	ELEVATOR - PLAN & SECTIONS
15X-5500-G-00024	GRID 21 - EXISTING SITE PLAN
15X-5500-S-00495	PLAN, ELEVATIONS, SECTIONS & DETAILS
15X-5500-S-00528	CONCRETE PLAN - SECTIONS 1-1 & 2-2
15X-5500-S-00529	MISCELLANEOUS DETAILS - SHEET NO.1
15X-5500-S-00530	MISCELLANEOUS DETAILS - SHEET NO.2
15X-5500-S-01261	FOUNDATION PLAN
15X-5500-S-01285	FOUNDATION PLAN
15X-5500-S-01669	FOUNDATION PLAN
15X-7000-S-00109	FOUNDATION PLAN - WEST SIDE
15X-7000-S-00110	FOUNDATION PLAN - EAST SIDE
15X-7000-S-00111	FOUNDATION DETAILS - SHEET #1
15X-7000-S-00112	FOUNDATION DETAILS - SHEET #2
15X-7000-S-00113	FOUNDATION DETAILS - SHEET #3
15X-7000-S-00132	BASEMENT WALLS - SECTIONS & DETAILS
15X-7000-S-00133	GROUND FLOOR DETAILS - SHEET 2
15X-7000-S-00146	PLANS & DETAILS
15X-8600-S-02162	FOUNDATION PLAN
15X-8600-S-02163	FOUNDATION ELEVATIONS & DETAILS
15X-8600-S-02166	CONCRETE SECTIONS AND DETAILS
15X-8600-S-02169	SCHEDULES AND DETAILS

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION DRAWINGS AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.
2. SEE EXISTING REFERENCED DRAWINGS FOR CONSTRUCTION DETAILS AND/OR ISOMETRIC DRAWING SK15A-1.

GRAPHIC SCALE: 3/32" = 1'-0"

000361

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	REVW BY
		INITIALS AND DATE		
1	ADDED LEADER TO BASEMENT SLAB. ISSUED FOR TECHNICAL REFERENCE ONLY.	N/A	KG 10/28/02	KLR 10/29/02
0	ISSUED FOR TECHNICAL REFERENCE ONLY.	N/A	KG 10/29/02	KLR 10/29/02

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
PARSONS I & T GROUP
CINCINNATI, OHIO

PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 21 - TECHNICAL REFERENCE DRAWING

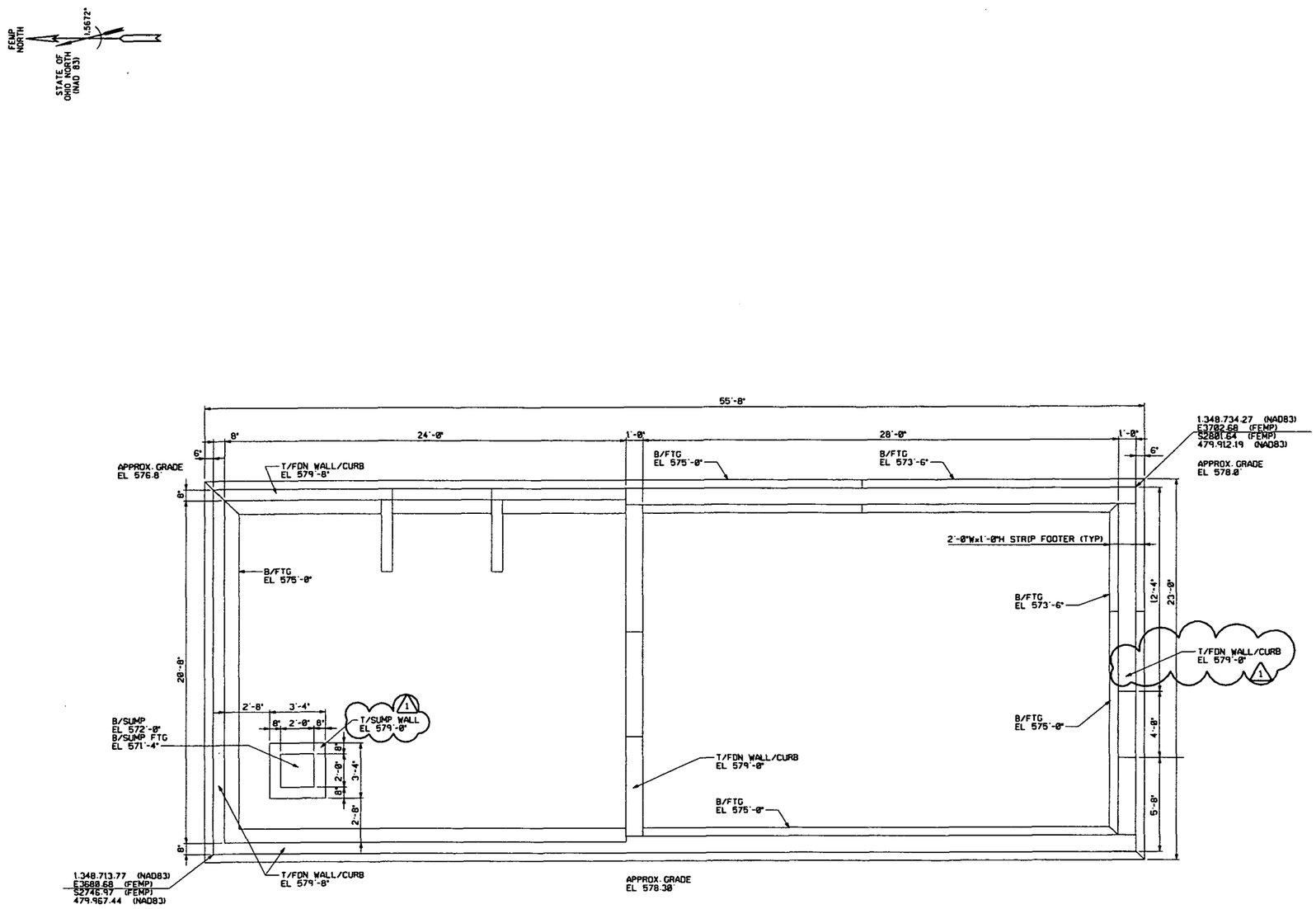
DRAWING TITLE
BUILDING 15A
SLAB PLAN - SOUTH
WITH HIDDEN LINES

CONFIGURATION MANAGEMENT DRAWING
EXISTING DRAWINGS OR COMPONENTS REFERENCED ON THIS DRAWING ARE LISTED IN THE CONFIGURATION MANAGEMENT CONTROL LIST (CCL).

COGNIZANT ENGINEER DATE

TASK ORDER NO.	OPTIONAL NO.	SCALE
060	N/A	3/32" = 1'-0"
RES NO.	FDF PROJECT NO.	DRAWN BY: K. L. RABBITT — DATE 12/05/01
4327	20810	TECHNICAL LEAD: N/A — DATE N/A
		CHECKED BY: DOREEN REED — DATE 12/31/01
DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
15X-5900-S-02545	S0004	1

SEAL



FOUNDATION PLAN

GRAPHIC SCALE: 3/8"=1'-0"

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION DRAWINGS AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.
2. SEE EXISTING REFERENCED DRAWINGS FOR CONSTRUCTION DETAILS AND/OR ISOMETRIC DRAWING SK15B-1.

4831

REF DWG NO.	DRAWING TITLE
15A-4445-A-02431	LAB PAD & CHEMICAL BLDG
15A-5500-A-02454	FLOOR PLAN

000362

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	DCM BY
1	CHANGED SUMP WALL NOTE AND FDN WALL ELEV ISSUED FOR TECHNICAL REFERENCE ONLY.	N/A	KG 02/28/02	KLR 02/28/02
0	ISSUED FOR TECHNICAL REFERENCE ONLY.	N/A	KG 01/24/02	KLR 01/24/02

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
PARSONS I & T GROUP
CINCINNATI, OHIO

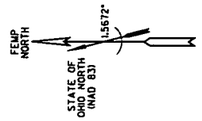
PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 21 - TECHNICAL REFERENCE DRAWING

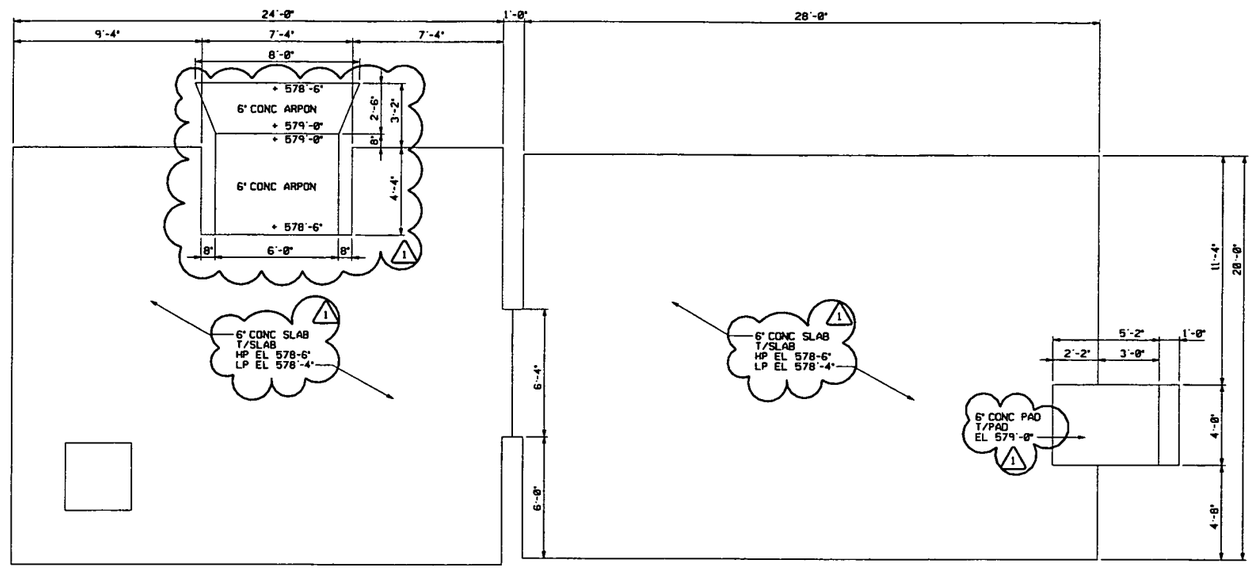
DRAWING TITLE
BUILDING 15B
FOUNDATION PLAN
WITHOUT HIDDEN LINES

CONFIGURATION MANAGEMENT DRAWING
EXISTING ATTACHMENTS OR CONTROLS MADE TO THIS DRAWING FOLLOW CONFIGURATION MANAGEMENT CONTROL. SEE NOTES.

TASK ORDER NO.	OPTIONAL NO.	SCALE 3/8" = 1'-0"	
060	N/A	DRAWN BY L. N. HAGAMAN	DATE 12/19/01
RES NO. 4327	FDF PROJECT NO. 20810	TECHNICAL LEAD N/A	DATE N/A
		CHECKED BY DOREEN REED	DATE 12/31/01
COGNIZANT ENGINEER	DATE	DRAWING INDEX CODE NO. 15X-5900-S-02546	SHEET NO. S0001 / REV. NO. 1

SEAL





SLAB PLAN

GRAPHIC SCALE: 3/8"=1'-0"

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION DRAWINGS AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.
2. SEE EXISTING REFERENCED DRAWINGS FOR CONSTRUCTION DETAILS AND/OR ISOMETRIC DRAWING SK15B-1.

4831

REF DWG NO.	DRAWING TITLE
15A-4445-A-02431	LAB PAD & CHEMICAL BLDG
15A-5500-A-02454	FLOOR PLAN

000363

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	REVIW BY
		INITIALS AND DATE		
1	ADDED APRON&PAD EL. CHANGED PAD TO SLAB, ISSUED FOR TECHNICAL REFERENCE ONLY.	N/A	KG 12/28/12	KLR 12/28/12
0	ISSUED FOR TECHNICAL REFERENCE ONLY.	N/A	KG 11/29/12	KLR 11/29/12

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
PARSONS I & T GROUP
CINCINNATI, OHIO

PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 21 - TECHNICAL REFERENCE DRAWING

DRAWING TITLE
BUILDING 15B
SLAB PLAN
WITHOUT HIDDEN LINES

CONFIGURATION MANAGEMENT DRAWING
USE ONLY
USE WITH
ALTERING STRUCTURES OR COMPONENTS LISTED ON THIS DRAWING MUST FOLLOW CONFIGURATION MANAGEMENT CONTROL. SEE WITH.

COGNIZANT ENGINEER DATE

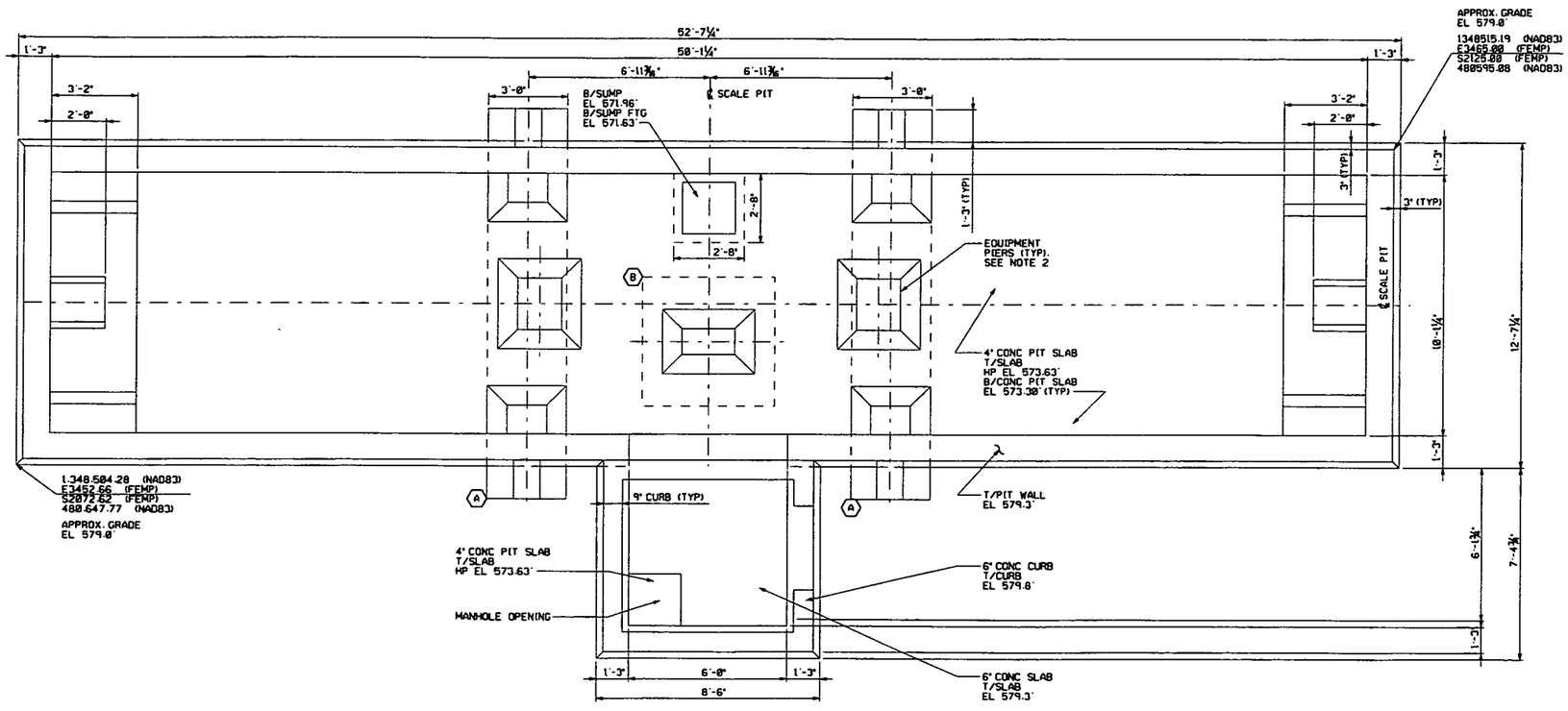
TASK ORDER NO.	OPTIONAL NO.	SCALE 3/8" = 1'-0"	
060	N/A	DRAWN BY L. N. HAGAMAN	DATE 12/19/01
REV. NO. 4327	FOF PROJECT NO. 20810	TECHNICAL LEAD N/A	DATE N/A
		CHECKED BY DOREEN REED	DATE 12/31/01
DRAWING INDEX CODE NO. 15X-5900-S-02547		SHEET NO. S0002	REV. NO. 1

SEAL

FEMP NORTH — 1.5672° — STATE OF OHIO NORTH (NAD 83)

FOOTING SCHEDULE

MARK	LENGTH N/S	WIDTH E/W	HEIGHT	B/FTG EL	COL PIER	REMARKS
(A)	3'-0"	15'-1¼"	0'-8"	572'-7½"	N/A	
(B)	5'-0"	5'-0"	2'-0"	571'-3⅝"	N/A	



FOUNDATION AND SLAB PLAN

GRAPHIC SCALE: ½"=1'-0"

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION DRAWINGS AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.
2. SEE EXISTING REFERENCED DRAWINGS FOR CONSTRUCTION DETAILS AND/OR ISOMETRIC DRAWING SK220-1.

4831

REF DWG NO.	DRAWING TITLE
220-1450-S-00126	PLANS & DETAILS OF TRUCK SCALE PIT

000364

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	REVW BY
0	ISSUED FOR TECHNICAL REFERENCE ONLY.	N/A	KG 11/29/01	KLR 11/29/01

DETAILS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
PARSONS I & T GROUP
CINCINNATI, OHIO

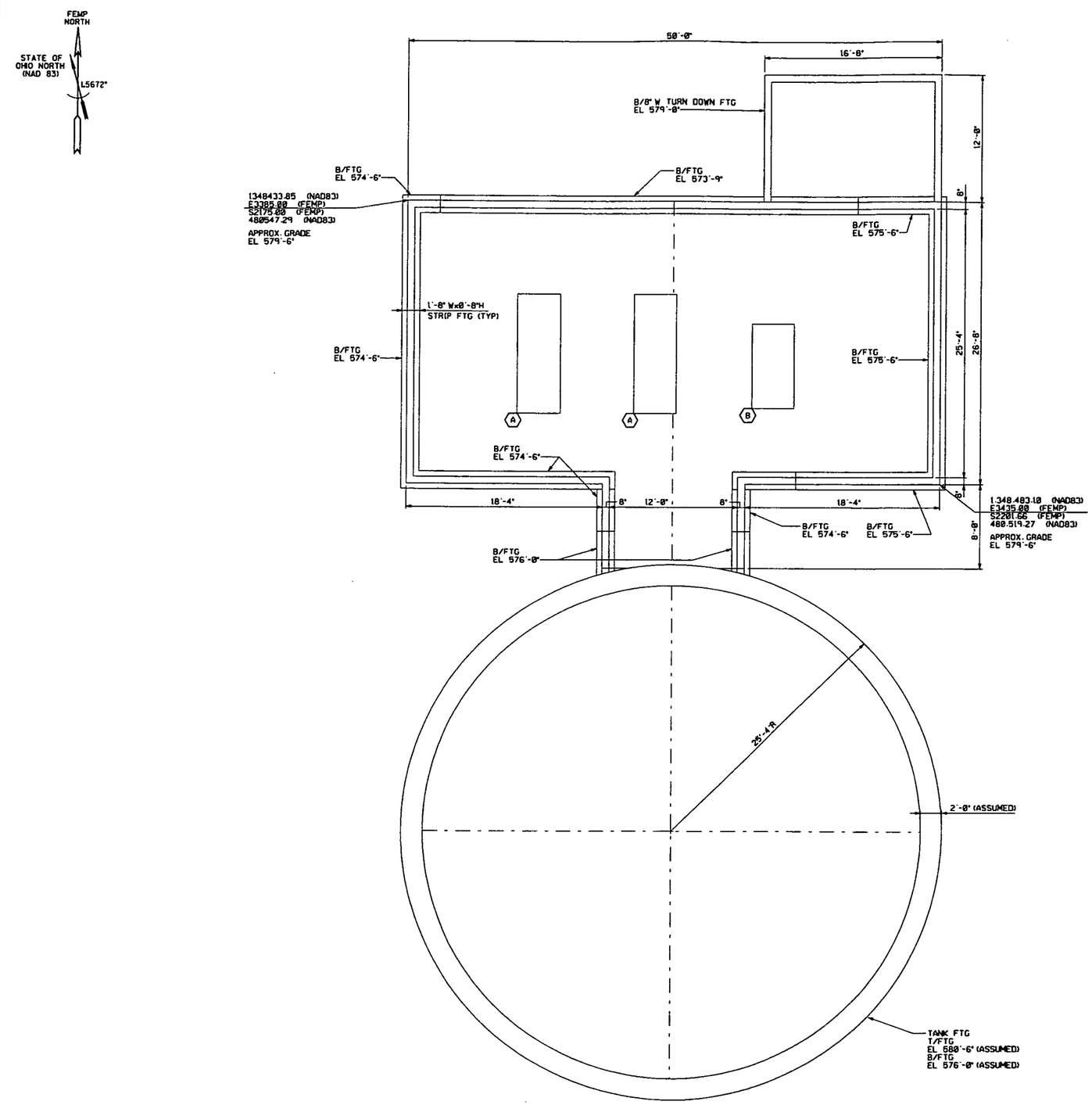
PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 25 - TECHNICAL REFERENCE DRAWING

DRAWING TITLE
SCALE 22D
FOUNDATION AND SLAB PLAN
WITH HIDDEN LINES

CONFIGURATION MANAGEMENT DRAWING

TASK ORDER NO.	OPTIONAL NO.	SCALE ½" = 1'-0"	
060	N/A	DRAWN BY K.L. RABBITT	DATE 11/29/01
RES NO. 4327	FSF PROJECT NO. 20810	TECHNICAL LEAD N/A	DATE N/A
		CHECKED BY D. REED	DATE 12/21/01
DRAWING INDEX CODE NO. 22D-5900-S-00979		SHEET NO. S0001	REV. NO. 0

COGNIZANT ENGINEER — DATE — SEAL



FOOTING SCHEDULE

MARK	LENGTH N/S	WIDTH E/W	HEIGHT	B/FTG EL	COL PIER	REMARKS
(A)	11'-3"	4'-0"	1'-8"	579'-6"	N/A	T/FTG EL 581'-2"
(B)	8'-0"	4'-0"	1'-8"	579'-6"	N/A	T/FTG EL 581'-2"

FOUNDATION PLAN

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

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION DRAWINGS AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.
2. SEE EXISTING REFERENCED DRAWINGS FOR CONSTRUCTION DETAILS AND/OR ISOMETRIC DRAWING SK26A-1.

4831

REF DWG NO.	DRAWING TITLE
26A-5500-A-00127	FLOOR PLAN
26A-4445-A-00020	ELEVATIONS & SECTIONS
22D-5500-X-00755	LAYOUT AND DETAILS

000365

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	REVIS BY
0	ISSUED FOR TECHNICAL REFERENCE ONLY.	N/A	KG 01/29/02	KLR 01/29/02

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
PARSONS I & T GROUP
CINCINNATI, OHIO

PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 25 - TECHNICAL REFERENCE DRAWING

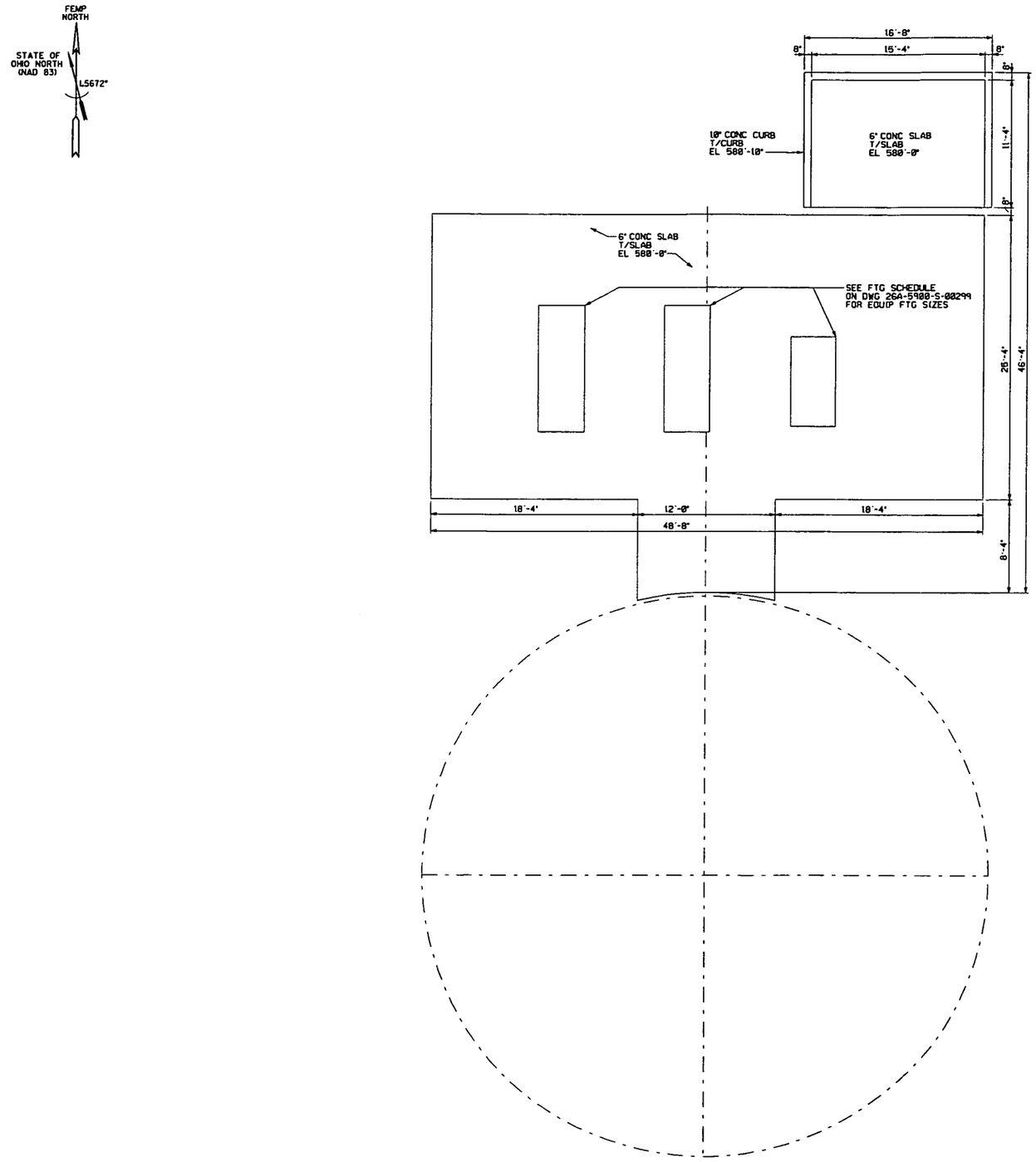
DRAWING TITLE
BUILDING 26A
FOUNDATION PLAN
WITHOUT HIDDEN LINES

CONFIGURATION MANAGEMENT DRAWING

TASK ORDER NO.	OPTIONAL NO.	SCALE 1/4" = 1'-0"
060	N/A	
DRAWN BY K.L. RABBITT		DATE 12/03/01
RES NO. 4327	FDF PROJECT NO. 20810	TECHNICAL LEAD N/A
		DATE N/A
		CHECKED BY D. REED
		DATE 12/21/01
DRAWING INDEX CODE NO. 26A-5900-S-00299		SHEET NO. S0001
		REV. NO. 0

COGNIZANT ENGINEER DATE

SEAL



SLAB PLAN

2' 0' 2' 4' 6' 8' 10'
GRAPHIC SCALE: 1/4"=1'-0"

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION DRAWINGS AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.
2. SEE EXISTING REFERENCED DRAWINGS FOR CONSTRUCTION DETAILS AND/OR ISOMETRIC DRAWING SK26A-1.

4831

REF DWG NO.	DRAWING TITLE
26A-5500-A-00127	FLOOR PLAN
26A-4445-A-00020	ELEVATIONS & SECTIONS
22D-5500-X-00755	LAYOUT AND DETAILS

000366

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	IL	PM	SCHV BY
0	ISSUED FOR TECHNICAL REFERENCE ONLY.	N/A	KG 11/29/82	KLR 11/29/82

INITIALS AND DATE

UNITED STATES
DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
PARSONS I & T GROUP
CINCINNATI, OHIO

PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 25 - TECHNICAL REFERENCE DRAWING

DRAWING TITLE
BUILDING 26A
SLAB PLAN
WITHOUT HIDDEN LINES

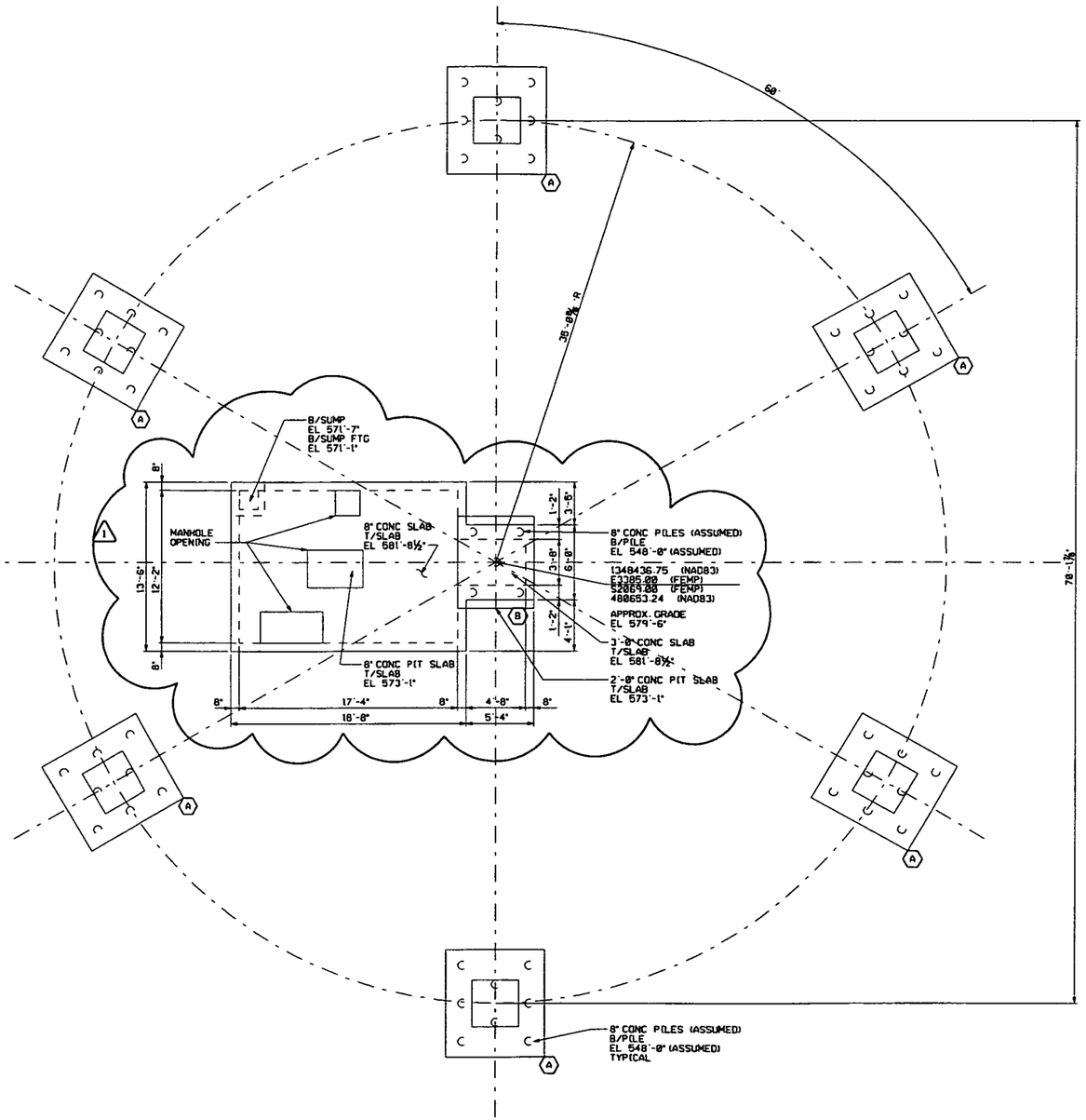
CONFIGURATION MANAGEMENT DRAWING
USE ONLY
NOT USE

USING STRUCTURES OR COMPONENTS CONTRARY TO THE ORIGINAL DESIGN REQUIRES CONFIGURATION MANAGEMENT CONTROL. SEE NOTES.

TASK ORDER NO.	OPTIONAL NO.	SCALE	
060	N/A	1/4" = 1'-0"	
		DRAWN BY K.L. RABBITT	DATE 11/28/81
RES NO. 4327	FOP PROJECT NO. 20810	TECHNICAL LEAD N/A	DATE N/A
		CHECKED BY D. REED	DATE 12/21/81
COGNIZANT ENGINEER	DATE	DRAWING INDEX CODE NO. 26A-5900-S-00300	SHEET NO. S0002 / REV. NO. 0

SEAL

FOOTING SCHEDULE						
MARK	LENGTH N/S	WIDTH E/W	HEIGHT	B/FTG EL	COL PIER	REMARKS
(A)	8'-6"	7'-9"	2'-2"	573'-8½"	3'-8" SQ	T/PIER EL 581'-8½"
(B)	7'-4"	6'-0"	2'-0"	571'-1"	N/A	



FOUNDATION AND SLAB PLAN

GRAPHIC SCALE: ¼"=1'-0"

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION DRAWINGS AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.
2. SEE EXISTING REFERENCED DRAWINGS FOR CONSTRUCTION DETAILS AND/OR ISOMETRIC DRAWING SK26B-1.
3. ASSUMED PILES CAST IN PLACE TO ELEVATION 548'-0" (TOP OF GREAT MIAMI AQUIFER SAND AND GRAVEL STRATUM). COULD NOT BE VERIFIED BY ANY DRAWING OR HISTORICAL DOCUMENT.

4831

REF DWG NO.	DRAWING TITLE
26B-5500-S-00239	FOUNDATION PLAN
26B-5500-S-00240	CENTER PIER & VALVE PIT

000367

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	REVW BY
		INITIALS AND DATE		
1	ADDED PIT DIMS AND NOTES. ISSUED FOR TECHNICAL REFERENCE ONLY.	N/A	KG 10/26/92	KLR 10/26/92
0	ISSUED FOR TECHNICAL REFERENCE ONLY.	N/A	KG 10/24/92	KLR 10/24/92

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
PARSONS I & T GROUP
CINCINNATI, OHIO

PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 25 - TECHNICAL REFERENCE DRAWING

DRAWING TITLE
ELEVATED WATER STORAGE TANK 26B
FOUNDATION AND SLAB PLAN
WITH HIDDEN LINES

CONFIGURATION MANAGEMENT DRAWING — USER / REF

EXISTING STRUCTURES ON CONTROLLED DRAWINGS MUST BE VERIFIED BY CONFIGURATION MANAGEMENT CONTROL-LED DATA.

COGNIZANT ENGINEER — DATE

TASK ORDER NO.	OPTIONAL NO.	SCALE
060	N/A	¼" = 1'-0"
RES NO. 4327	FOR PROJECT NO. 20810	DRAWN BY K.L. RABBITT — DATE 11/26/92
		TECHNICAL LEAD N/A — DATE N/A
		CHECKED BY D. REED — DATE 12/21/92
DRAWING INDEX CODE NO. 26B-5900-S-00301		SHEET NO. S0001 — REV. NO. 0

SEAL

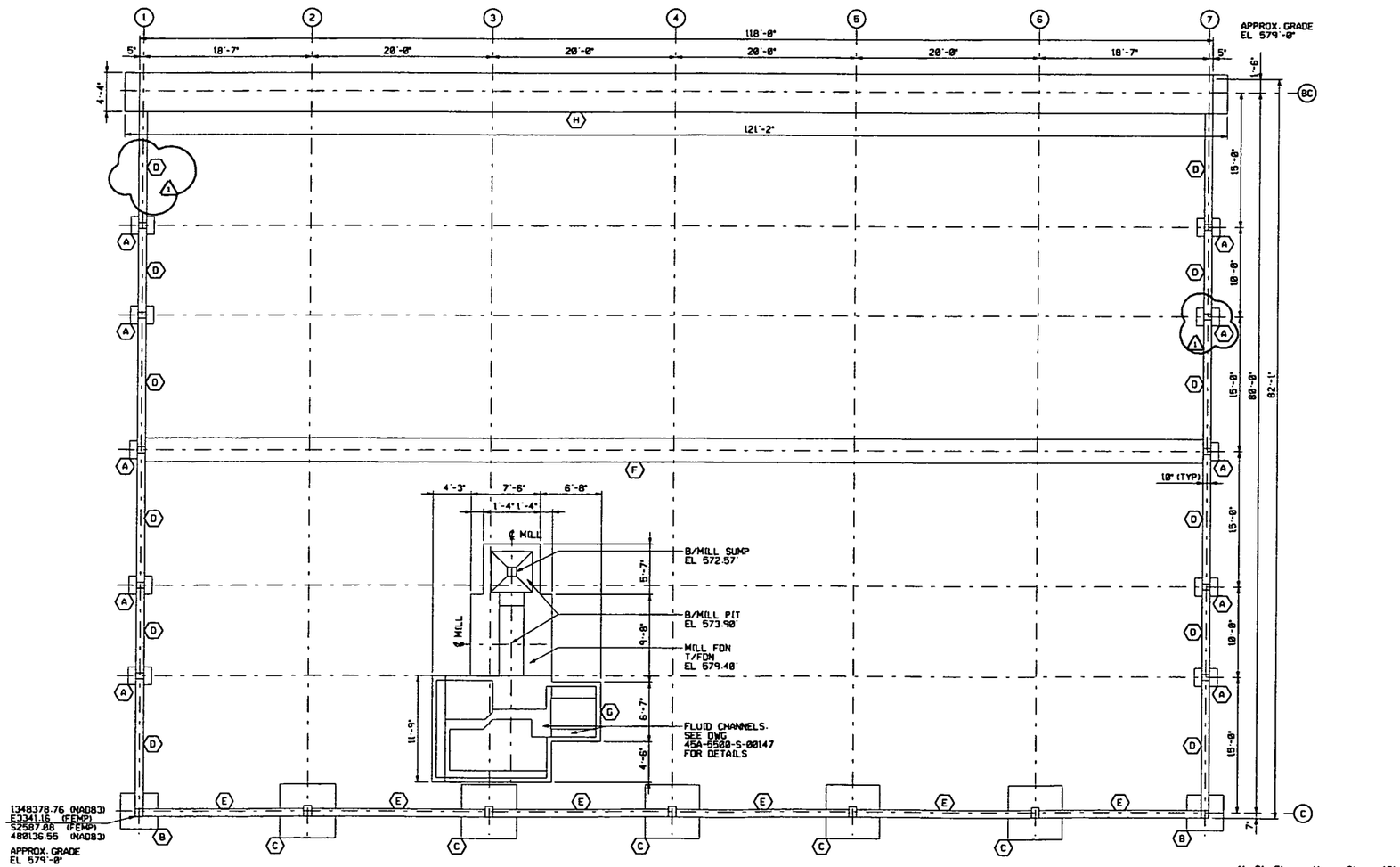
FEMP NORTH

STATE OF OHIO NORTH (NAD 83)

L5672°

FOOTING SCHEDULE

MARK	LENGTH N/S	WIDTH E/W	HEIGHT	B/FTG EL	COL PIER	REMARKS
A	2'-0"	2'-6"	0'-10"	576.40'	8"x10"	
B	4'-0"	4'-0"	0'-10"	576.40'	10"x10"	
C	6'-0"	6'-0"	1'-0"	576.40'	1'-2"x10"	
D	SEE PLAN	0'-10"	1'-0"	578.40'	N/A	
E	0'-10"	SEE PLAN	1'-0"	578.40'	N/A	
F	2'-0" @ TOP 2'-0" @ BOTTOM		0'-4"	578.40'	N/A	
G	SEE PLAN	SEE PLAN	VARIES	571.90'	N/A	SEE NOTE 2
H	SEE PLAN	SEE PLAN	VARIES	576.40'	N/A	SEE NOTE 2



FOUNDATION PLAN

GRAPHIC SCALE: 3/16"=1'-0"

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION DRAWINGS AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.
2. SEE EXISTING REFERENCED DRAWINGS FOR CONSTRUCTION DETAILS AND/OR ISOMETRIC DRAWING SK45A-1.

4831

REF DWG NO.	DRAWING TITLE
45A-5500-S-00087	FOUNDATION PLAN & DETAILS
45A-5500-X-00086	BLDG AREA COMPOSITE PLAN
45A-5500-S-00147	FOUNDATION PLAN & SECTIONS

000368

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	REVIS BY
1	ADDED FOOTER MARKS. ISSUED FOR TECHNICAL REFERENCE ONLY.	N/A	KG 02/28/02	KLR 02/28/02
0	ISSUED FOR TECHNICAL REFERENCE ONLY.	N/A	KG 01/29/02	KLR 01/29/02

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
PARSONS I & T GROUP
CINCINNATI, OHIO

PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 25 - TECHNICAL REFERENCE DRAWING

DRAWING TITLE
BUILDING 45A
FOUNDATION PLAN
WITHOUT HIDDEN LINES

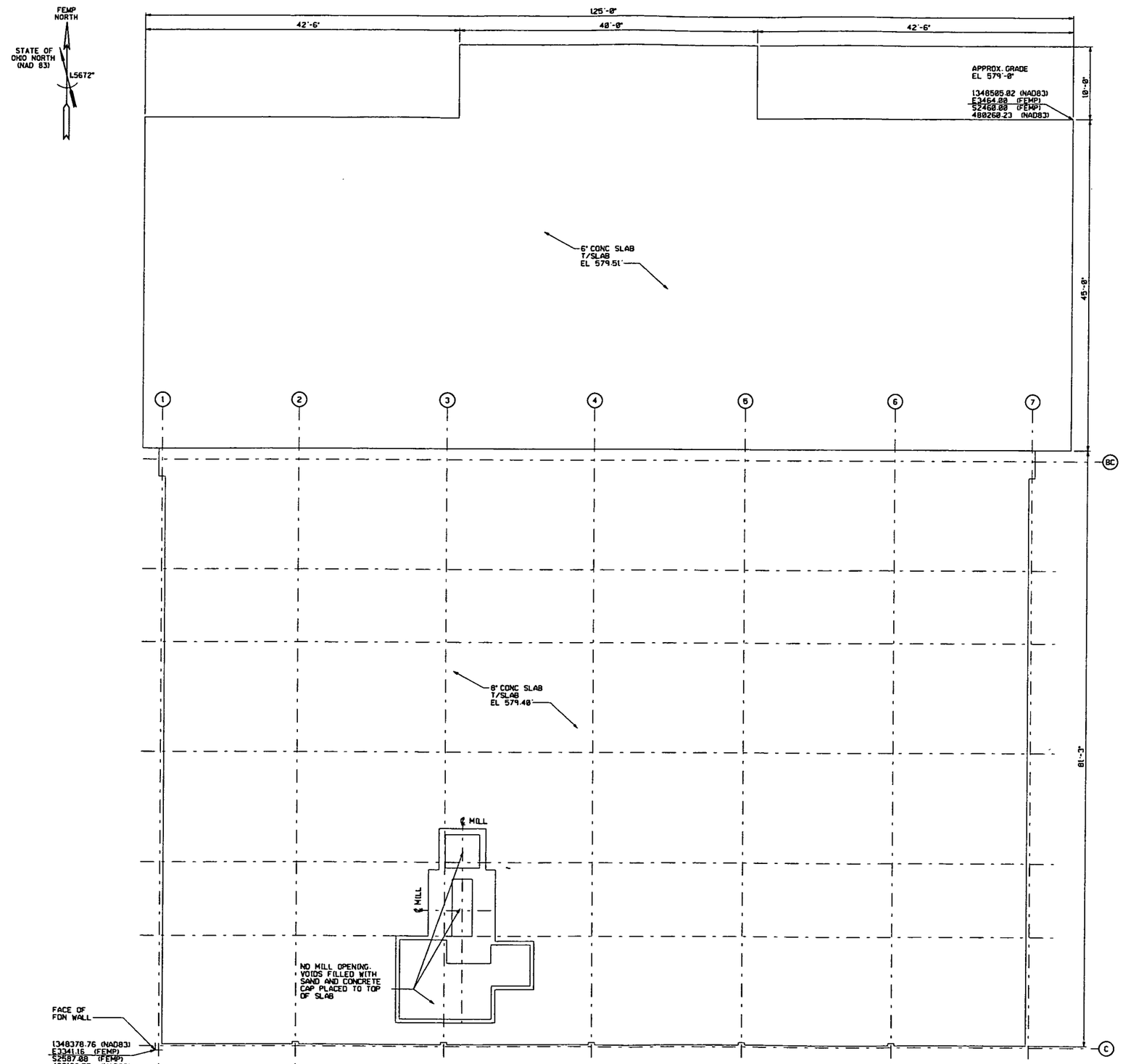
CONFIGURATION MANAGEMENT DRAWING

EXISTING ATTRIBUTES OR COMPONENTS SHOWN ON THIS DRAWING ARE UNDER CONFIGURATION MANAGEMENT CONTROL. SEE NOTES.

COGNIZANT ENGINEER DATE

TASK ORDER NO.	OPTIONAL NO.	SCALE 3/16" = 1'-0"
060	N/A	DRAWN BY K.L. RABBITT — DATE 12/04/01
RES NO. 4327	FOR PROJECT NO. 20810	TECHNICAL LEAD N/A — DATE N/A
		CHECKED BY D. REED — DATE 12/21/01
DRAWING INDEX CODE NO. 45X-5900-S-00265	SHEET NO. S0001	REV. NO. 0

SEAL



SLAB PLAN

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION DRAWINGS AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.
2. SEE EXISTING REFERENCED DRAWINGS FOR CONSTRUCTION DETAILS AND/OR ISOMETRIC DRAWING SK45A-1.

4831

REF DWG NO.	DRAWING TITLE
45A-5500-S-00087	FOUNDATION PLAN & DETAILS
45A-5500-X-00086	BLDG AREA COMPOSITE PLAN
45A-5500-S-00147	FOUNDATION PLAN & SECTIONS

000369

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	REVW BY
0	ISSUED FOR TECHNICAL REFERENCE ONLY.	N/A	KG 01/29/02	KLR 01/29/02

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
PARSONS I & T GROUP
CINCINNATI, OHIO

PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 25 - TECHNICAL REFERENCE DRAWING

DRAWING TITLE
BUILDING 45A
SLAB PLAN
WITHOUT HIDDEN LINES

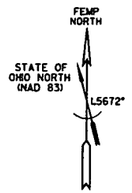
CONFIGURATION MANAGEMENT DRAWING — YES / NO

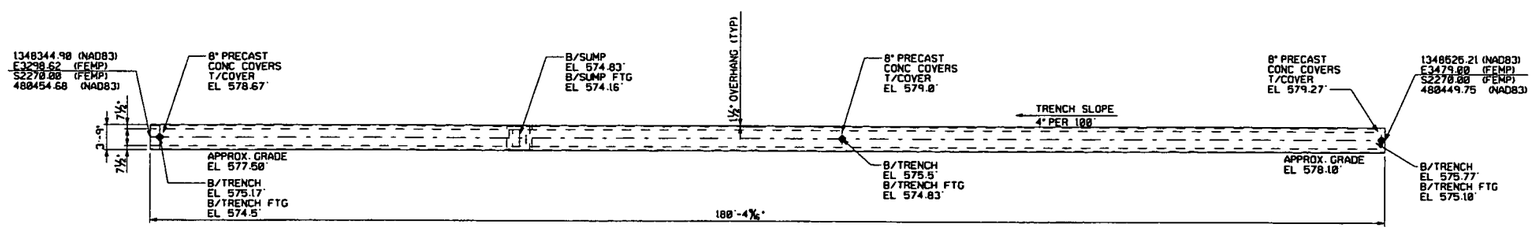
STATUS: ALL REVISIONS, OR CONFLICTS RESULTING FROM REVISIONS, HAVE BEEN COORDINATED VIA CONFIGURATION MANAGEMENT CONTROL. SEE NOTES.

COGNIZANT ENGINEER — DATE

TASK ORDER NO.	OPTIONAL NO.	SCALE	
060	N/A	3/16" = 1'-0"	
		DRAWN BY: K.L. RABBITT	DATE: 12/04/01
RES NO.: 4327	F&F PROJECT NO.: 20810	TECHNICAL LEAD: N/A	DATE: N/A
		CHECKED BY: D. REED	DATE: 12/21/01
DRAWING INDEX CODE NO.: 45X-5900-S-00266		SHEET NO.: S0002	REV. NO.: 0

SEAL





FOUNDATION AND SLAB PLAN

4' 0" 4' 8' 12' 16' 20'
GRAPHIC SCALE: 1/8"=1'-0"

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION DRAWINGS AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.
2. SEE EXISTING REFERENCED DRAWINGS FOR CONSTRUCTION DETAILS AND/OR ISOMETRIC DRAWING SK65-1.

4831

REF DWG NO.	DRAWING TITLE
34X-3115-S-00078	SLURRY TRENCH

000370

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	REVD BY
0	ISSUED FOR TECHNICAL REFERENCE ONLY.	N/A	KG 01/29/02	KLR 01/29/02

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
PARSONS I & T GROUP
CINCINNATI, OHIO

PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 25 - TECHNICAL REFERENCE DRAWING

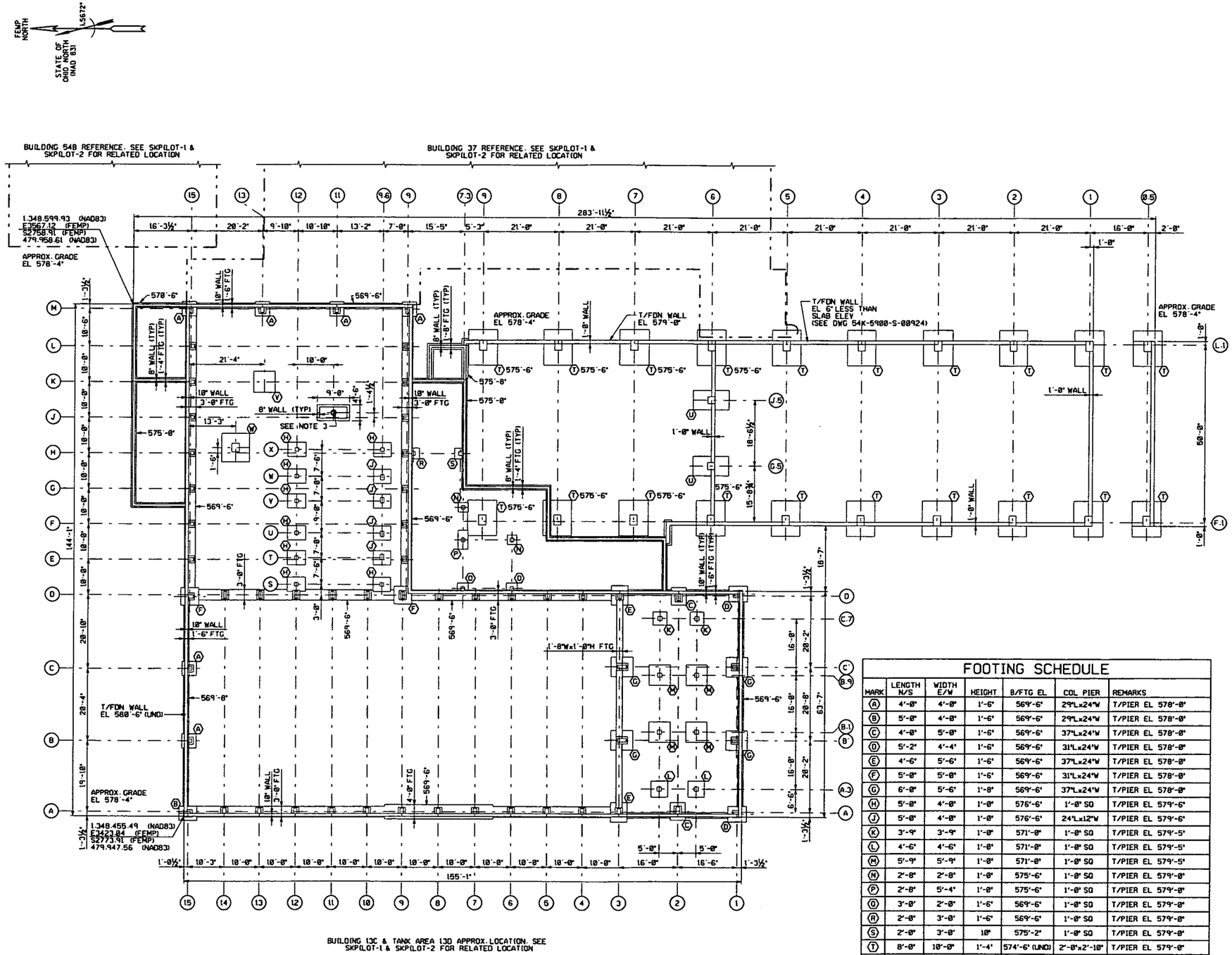
DRAWING TITLE
K65 TRENCH
FOUNDATION AND SLAB PLAN
WITH HIDDEN LINES

CONFIGURATION MANAGEMENT DRAWING
YES / NO
STATUS: STRUCTURES OR COMPONENTS SHOWN ARE NOT SUBJECT TO CONFIGURATION MANAGEMENT CONTROL. SEE NOTES.

COGNIZANT ENGINEER DATE

TASK ORDER NO.	OPTIONAL NO.	SCALE 1/8" = 1'-0"	
060	N/A	DRAWN BY K.L. RABBITT	DATE 12/05/01
RES NO. 4327	FOF PROJECT NO. 20810	TECHNICAL LEAD N/A	DATE N/A
		CHECKED BY D. REED	DATE 12/21/01
DRAWING INDEX CODE NO. 34X-5900-S-00150		SHEET NO. S0001	REV. NO. 0

SEAL



FOUNDATION PLAN

GRAPHIC SCALE: 3/32" = 1'-0"

FOOTING SCHEDULE

MARK	LENGTH N/S	WIDTH E/W	HEIGHT	B/FTG EL	COL PIER	REMARKS
A	4'-0"	4'-0"	1'-6"	569'-6"	29"L x 24"W	T/PIER EL 578'-0"
B	5'-0"	4'-0"	1'-6"	569'-6"	29"L x 24"W	T/PIER EL 578'-0"
C	4'-0"	5'-0"	1'-6"	569'-6"	37"L x 24"W	T/PIER EL 578'-0"
D	5'-2"	4'-4"	1'-6"	569'-6"	31"L x 24"W	T/PIER EL 578'-0"
E	4'-6"	5'-6"	1'-6"	569'-6"	37"L x 24"W	T/PIER EL 578'-0"
F	5'-0"	5'-0"	1'-6"	569'-6"	31"L x 24"W	T/PIER EL 578'-0"
G	6'-0"	5'-6"	1'-8"	569'-6"	37"L x 24"W	T/PIER EL 578'-0"
H	5'-0"	4'-0"	1'-0"	576'-6"	1'-0" SQ	T/PIER EL 579'-6"
J	5'-0"	4'-0"	1'-0"	576'-6"	24"L x 12"W	T/PIER EL 579'-6"
K	3'-9"	3'-9"	1'-0"	571'-0"	1'-0" SQ	T/PIER EL 579'-5"
L	4'-6"	4'-6"	1'-0"	571'-0"	1'-0" SQ	T/PIER EL 579'-5"
M	5'-9"	5'-9"	1'-0"	571'-0"	1'-0" SQ	T/PIER EL 579'-5"
N	2'-8"	2'-8"	1'-0"	575'-6"	1'-0" SQ	T/PIER EL 579'-0"
P	2'-8"	5'-4"	1'-0"	575'-6"	1'-0" SQ	T/PIER EL 579'-0"
Q	3'-0"	2'-0"	1'-6"	569'-6"	1'-0" SQ	T/PIER EL 579'-0"
R	2'-0"	3'-0"	1'-6"	569'-6"	1'-0" SQ	T/PIER EL 579'-0"
S	2'-0"	3'-0"	10"	575'-2"	1'-0" SQ	T/PIER EL 579'-0"
T	8'-0"	10'-0"	1'-4"	574'-6" (UNO)	2'-0" x 2'-10"	T/PIER EL 579'-0"
U	10'-0"	5'-6"	3'-6"	573'-4"	2'-0" SQ	T/PIER EL 579'-0"
V	6'-0"	6'-0"	3'-6"	575'-3½"	N/A	T/PIER EL 579'-0"
W	8'-0"	8'-0"	1'-4"	576'-3½"	2'-3"W x 2'-5½"L	T/PIER EL 578'-9½"

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION DRAWINGS AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.
2. SEE EXISTING REFERENCED DRAWINGS FOR CONSTRUCTION DETAILS AND/OR ISOMETRIC DRAWING SK54A-1.
3. 18" I.D. WELL CASING, B/CASING EL 553'-3½". ASSUMED 12" DIA. HYDRAULIC CYLINDER B/CYLINDER EL 553'-7½". B/CONC CASING SEAL EL 552'-9½".

4831

REF DWG NO.	DRAWING TITLE
05E-7000-M-00139	INSTALLATION OF FURNACE RAMS - SHEET NO.1
13X-1450-S-00002	FOUNDATION PLAN & DETAILS
13X-1450-S-00003	FOUNDATION PLAN & DETAILS AT ELEV 579 & 591
13X-3115-A-00146	ARCHITECTURAL LAYOUT
13X-3115-S-00145	FOUNDATION PLAN
13X-3115-S-00578	FOUNDATION PLAN
13X-5500-A-00761	FLOOR PLAN
37A-5500-S-00621	JOLTER FOUNDATION & DETAILS
37X-5500-A-00443	WOMENS RESTROOM - PILOT PLANT
37X-5500-P-00799	PLAN & VIEWS
54X-1910-S-00350	AUTOCLAVE BLDG FOUNDATION AND GROUND FLOOR PLAN
54X-1910-S-00356	DISSOCIATOR SHED PLANS AND MISC FOUNDATION PLAN
SKPILOT-1	OLD PILOT PLANT - BLDG'S 13A B C & D, 37, 54A B & C, 68, & 74U - FOUNDATION ISOMETRIC VIEW
SKPILOT-2	OLD PILOT PLANT - BLDG'S 13A B C & D, 37, 54A B & C, 68, & 74U - FOUNDATION AND SLAB ISOMETRIC VIEW

000371

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	RDB BY
0	ISSUED FOR TECHNICAL REFERENCE ONLY.	N/A	KG 10/28/92	LNH 10/28/92

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
PARSONS I & T GROUP
CINCINNATI, OHIO

PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 26 - TECHNICAL REFERENCE DRAWING

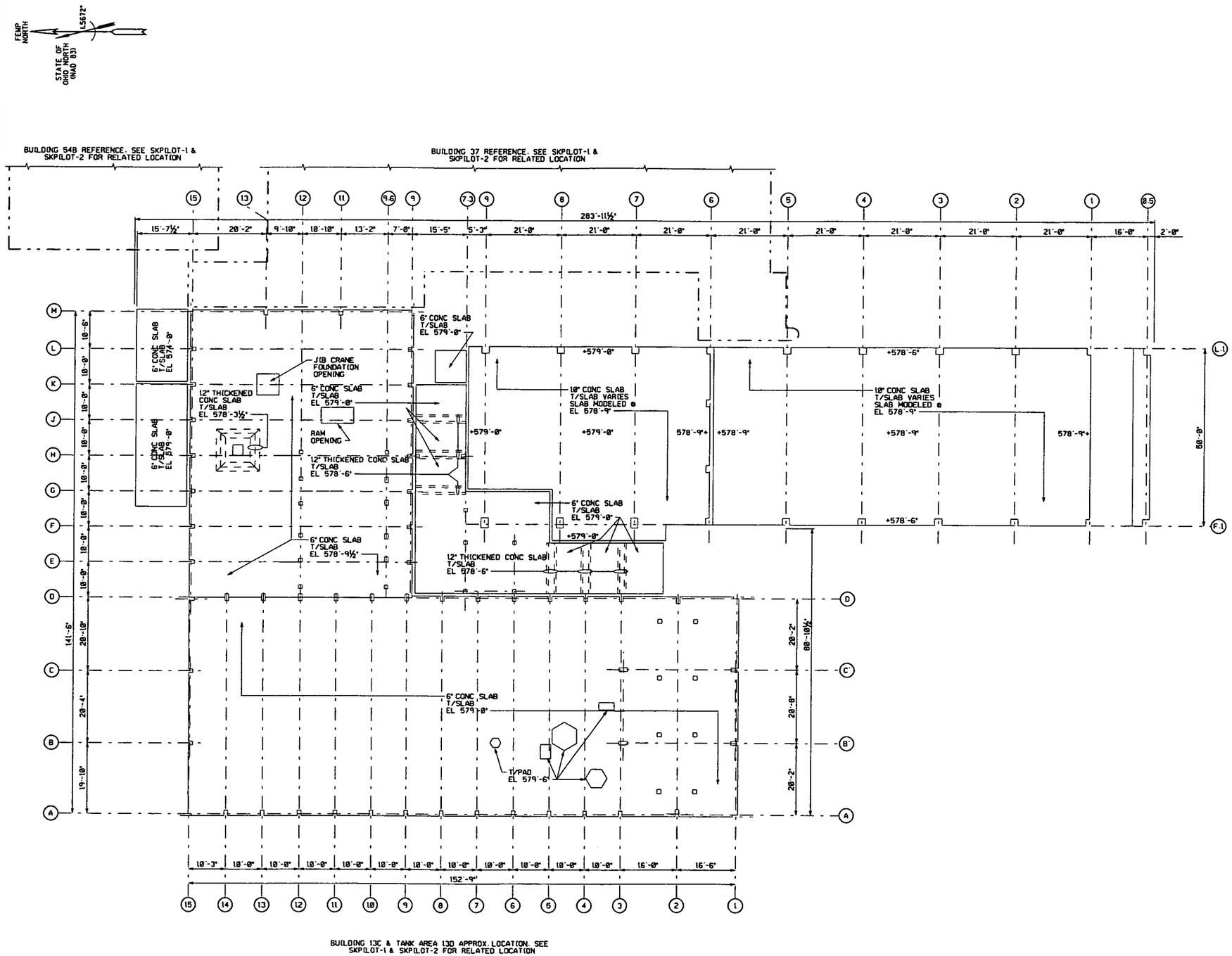
DRAWING TITLE
BUILDING 13A, 54A, & 74U
FOUNDATION PLAN
WITHOUT HIDDEN LINES

CONFIGURATION MANAGEMENT DRAWING

TASK ORDER NO.	OPTIONAL NO.	SCALE 3/32" = 1'-0"
060	N/A	DRAWN BY K.L. RABBITT — DATE 10/18/92
REV NO. 4327	FOF PROJECT NO. 20810	TECHNICAL LEAD N/A — DATE N/A
		CHECKED BY DOREEN REED — DATE 10/17/92
DRAWING INDEX CODE NO. 54X-5900-S-00923		SHEET NO. S0001 — REV. NO. 0

COGNIZANT ENGINEER — DATE

SEAL



SLAB PLAN

GRAPHIC SCALE: 3/32" = 1'-0"

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION DRAWINGS AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.
2. SEE EXISTING REFERENCED DRAWINGS FOR CONSTRUCTION DETAILS AND/OR ISOMETRIC DRAWING SK54A-1.

4831

REF DWG NO.	DRAWING TITLE
85E-7000-M-00139	INSTALLATION OF FURNACE RAMS - SHEET NO.1
13X-1450-S-00002	FOUNDATION PLAN & DETAILS
13X-1450-S-00003	FOUNDATION PLAN & DETAILS AT ELEV 579 & 591
13X-3115-A-00146	ARCHITECTURAL LAYOUT
13X-3115-S-00145	FOUNDATION PLAN
13X-3115-S-00578	FOUNDATION PLAN
13X-5500-A-00761	FLOOR PLAN
37A-5500-S-00621	JOLTER FOUNDATION & DETAILS
37X-5500-A-00443	WOMENS RESTROOM - PILOT PLANT
37X-5500-P-00799	PLAN & VIEWS
54X-1910-S-00350	AUTOCLAVE BLDG FOUNDATION AND GROUND FLOOR PLAN
54X-1910-S-00356	DISSOCIATOR SHED PLANS AND MISC FOUNDATION PLAN
SKPILOT-1	OLD PILOT PLANT - BLDG'S 13A B C & D, 37, 54A B & C, 68, & 74U - FOUNDATION ISOMETRIC VIEW
SKPILOT-2	OLD PILOT PLANT - BLDG'S 13A B C & D, 37, 54A B & C, 68, & 74U - FOUNDATION AND SLAB ISOMETRIC VIEW

000372

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	REVIW BY
0	ISSUED FOR TECHNICAL REFERENCE ONLY.	N/A	KG 03/28/02	LNH 03/28/02

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
PARSONS I & T GROUP
CINCINNATI, OHIO

PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 26 - TECHNICAL REFERENCE DRAWING

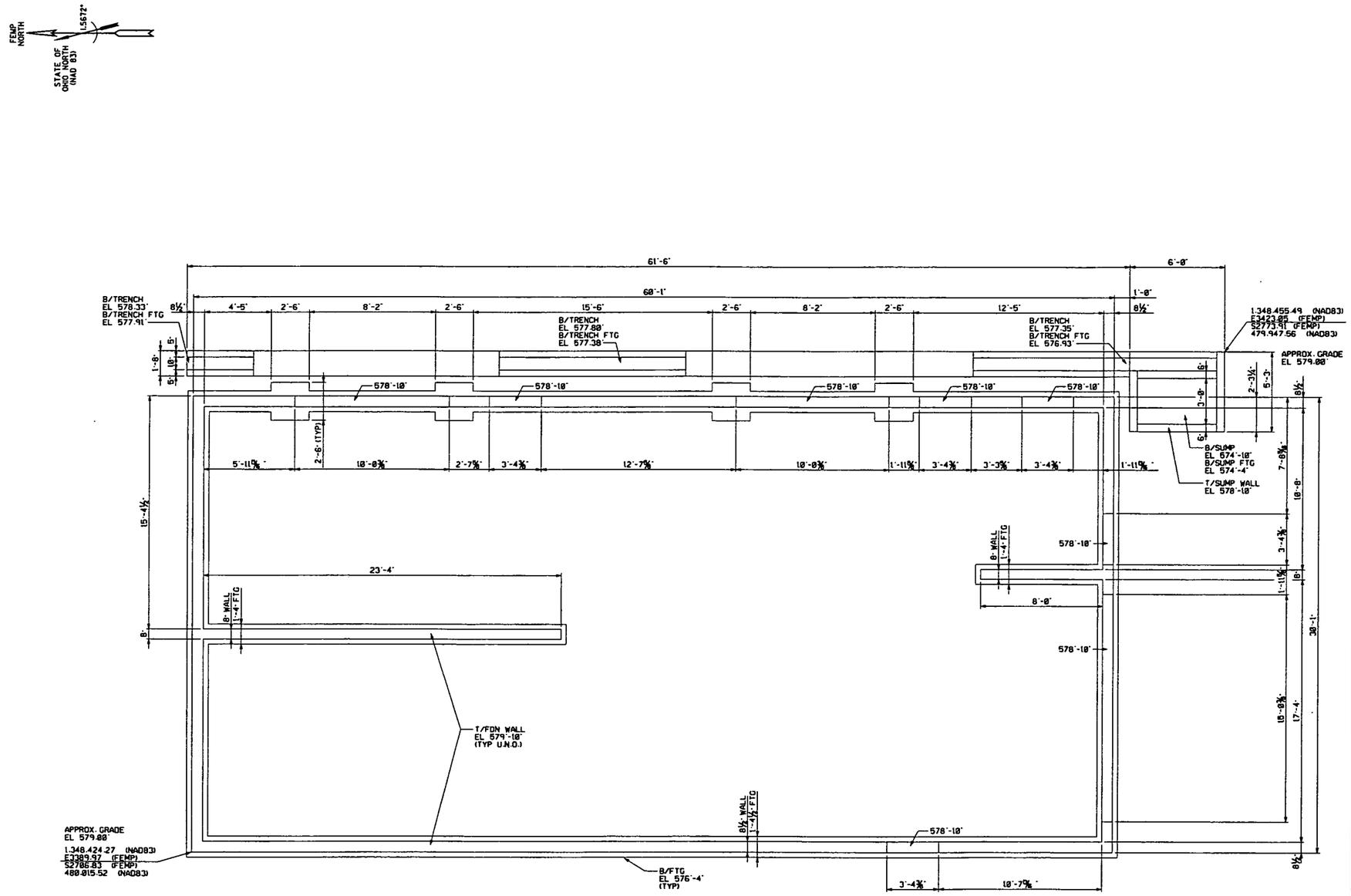
DRAWING TITLE
BUILDING 13A, 54A, & 74U
SLAB PLAN
WITH HIDDEN LINES

CONFIGURATION MANAGEMENT DRAWING

TASK ORDER NO.	OPTIONAL NO.	SCALE 3/32" = 1'-0"
060	N/A	DRAWN BY K. L. RABBITT — DATE 01/18/02
RES NO. 4327	FDF PROJECT NO. 20810	TECHNICAL LEAD N/A — DATE N/A
		CHECKED BY DOREEN REED — DATE 01/17/02
DRAWING INDEX CODE NO. 54X-5900-S-00924		SHEET NO. S0002 — REV. NO. 0

COGNIZANT ENGINEER — DATE

SEAL



FOUNDATION PLAN

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION DRAWINGS AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.
2. SEE EXISTING REFERENCED DRAWINGS FOR CONSTRUCTION DETAILS AND/OR ISOMETRIC DRAWING SK138-1.

4831

REF DWG NO.	DRAWING TITLE
13C-5500-A-00251	PLANS & SECTIONS

000373

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	PL	PM	REVW BY
0	ISSUED FOR TECHNICAL REFERENCE ONLY.	N/A	KG 03/28/02	LNH 03/28/02

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
PARSONS I & T GROUP
CINCINNATI, OHIO

PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 26 - TECHNICAL REFERENCE DRAWING

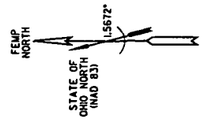
DRAWING TITLE
BUILDING 13B
FOUNDATION PLAN
WITHOUT HIDDEN LINES

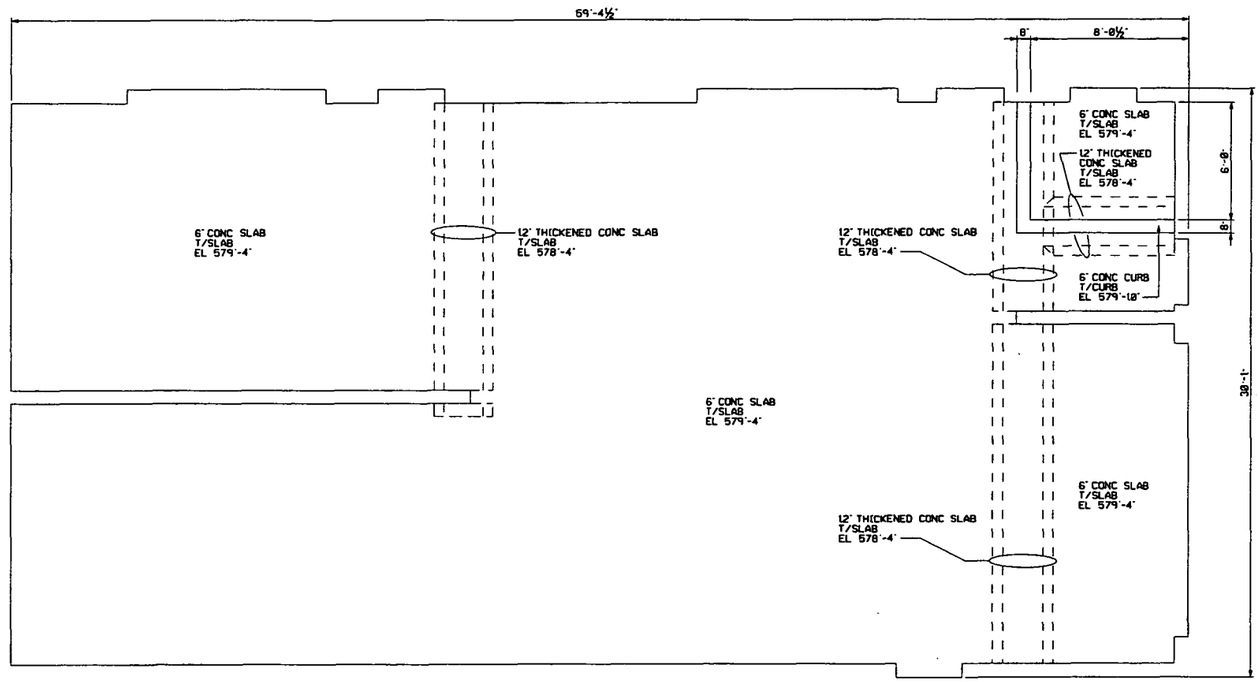
CONFIGURATION MANAGEMENT DRAWING

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

TASK ORDER NO.	OPTIONAL NO.	SCALE	
060	N/A	⅜" = 1'-0"	
		DRAWN BY: K. L. RABBITT	DATE: 01/05/02
RES NO.: 4327	FOR PROJECT NO.: 20810	TECHNICAL LEAD: N/A	DATE: N/A
		CHECKED BY: DOREEN REED	DATE: 01/17/02
COGNIZANT ENGINEER / DATE	DRAWING INDEX CODE NO.: 13X-5900-S-00781	SHEET NO.: S0001	REV. NO.: 0

SEAL





SLAB PLAN

2' 1' 0' 2' 4' 6'
GRAPHIC SCALE: ⅜"=1'-0"

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION DRAWINGS AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.
2. SEE EXISTING REFERENCED DRAWINGS FOR CONSTRUCTION DETAILS AND/OR ISOMETRIC DRAWING SK13B-1.

-4831

REF DWG NO.	DRAWING TITLE
13C-5500-A-00251	PLANS & SECTIONS

000374

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	REVR BY
0	ISSUED FOR TECHNICAL REFERENCE ONLY.	N/A	KG 03/28/92	LNH 03/28/92

DETAILS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
PARSONS I & T GROUP
CINCINNATI, OHIO

PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 26 - TECHNICAL REFERENCE DRAWING

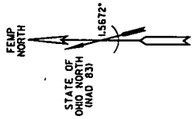
DRAWING TITLE
BUILDING 13B
SLAB PLAN
WITH HIDDEN LINES

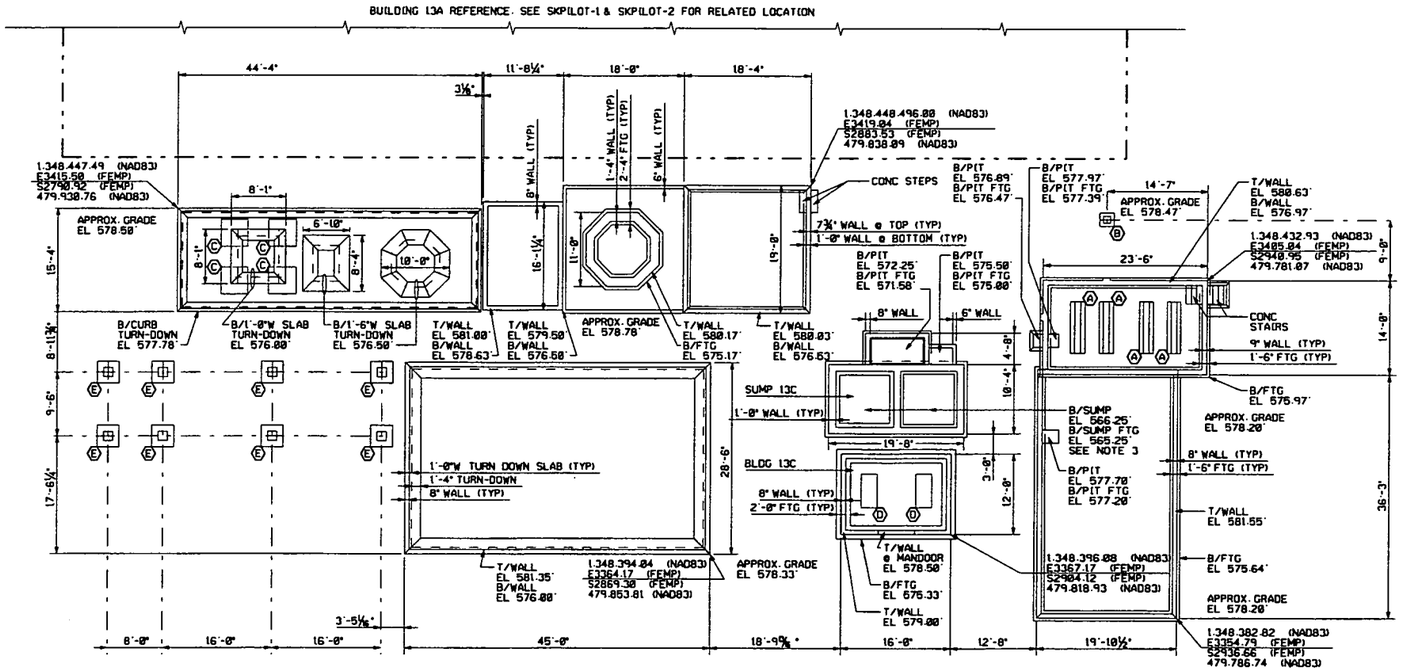
CONFIGURATION MANAGEMENT DRAWING — YES / NO
EXISTING ATTRIBUTES AS CONTROLLED BY THE FEMP CONFIGURATION MANAGEMENT CONTROL. SEE NOTES.

TASK ORDER NO.	OPTIONAL NO.	SCALE	
060	N/A	⅜" = 1'-0"	
		DRAWN BY K.L. RABBITT	DATE 01/05/92
RES NO. 4327	FOP PROJECT NO. 20810	TECHNICAL LEAD N/A	DATE N/A
		CHECKED BY DOREEN REED	DATE 01/17/92
DRAWING WBS CODE NO. 13X-5900-S-00782		SHEET NO. S0002	REV. NO. 0

COGNIZANT ENGINEER DATE

SEAL





FOOTING SCHEDULE

MARK	LENGTH N/S	WIDTH E/W	HEIGHT	B/FTG EL	COL PIER	REMARKS
Ⓐ	2'-0"	7'-8"	1'-0"	575.13'	0'-10"x7'-8"	T/PIER EL 579.13'
Ⓑ	2'-0"	2'-0"	1'-0"	574.47'	1'-0" SQ	T/PIER EL 578.55'
Ⓒ	4'-0"	4'-0"	1'-6"	571.00'	1'-0" SQ	T/PIER EL 575'-10 7/16'
Ⓓ	2'-4"	5'-0"	1'-4"	578.00'	N/A	T/FTG EL 579.33'
Ⓔ	3'-3"	3'-3"	0'-8"	575.42'	1'-4" SQ	T/PIER EL 579.00'

FOUNDATION PLAN

GRAPHIC SCALE: ⅛"=1'-0"

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION DRAWINGS AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.
2. SEE EXISTING REFERENCED DRAWINGS FOR CONSTRUCTION DETAILS AND/OR ISOMETRIC DRAWING SK13CD-1.
3. BOTTOM OF PIT & SUMP ELEVATIONS SHOWN WERE TAKEN FROM ORIGINAL PIT & SUMP DESIGN DRAWINGS. FOR MODIFIED BOTTOM OF PIT & SUMP ELEVATIONS (WHICH SLOPE), SEE DRAWING 13X-5500-S-00397.

4831

REF DWG NO.	DRAWING TITLE
13A-5500-P-00268	PLAN, ELEVATION, SECTIONS, & DETAILS
13A-5500-S-00269	CONCRETE FOUNDATIONS PLAN, SECTIONS AND DETAILS
13C-5500-A-00250	PILOT PLAN
13X-3115-S-00123	REINFORCING DETAILS
13X-1450-A-00126	PLAN & SECTIONS
13X-1450-S-00139	NITRIC ACID STORAGE TANKS & FLUME ABSORPTION COL. FDNS. - PILOT PLANT
13X-5500-P-00202	SOLVENT STORAGE SYSTEM LAYOUT
13X-5500-S-00280	ACID PROOF PAD FOR EXISTING HNO3 TANKS PLANS & SECTIONS
13X-5500-S-00397	PLAN & SECTIONS
13X-5500-S-00403	CONCRETE FOUNDATION PLAN AND ELEVATION
13X-5500-S-00607	CONCRETE WORK PLAN & SECTIONS
13X-5500-S-00608	DIKE PAD #4 PLAN-SECTIONS & DETAILS
13X-5500-S-00609	DIKED PAD #3 PLAN-SECTIONS & DETAILS
13X-5500-S-00739	PLAN - SECTIONS & DETAILS
SKPILOT-1	OLD PILOT PLANT - BLDG'S 13A B C & D, 37, 54A B & C, 68, & 74U - FOUNDATION ISOMETRIC VIEW
SKPILOT-2	OLD PILOT PLANT - BLDG'S 13A B C & D, 37, 54A B & C, 68, & 74U - FOUNDATION AND SLAB ISOMETRIC VIEW

000375

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	RCVD BY
0	ISSUED FOR TECHNICAL REFERENCE ONLY.	N/A	KG 01/28/92	LNH 01/28/92

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
PARSONS I & T GROUP
CINCINNATI, OHIO

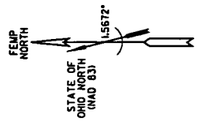
PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 26 - TECHNICAL REFERENCE DRAWING

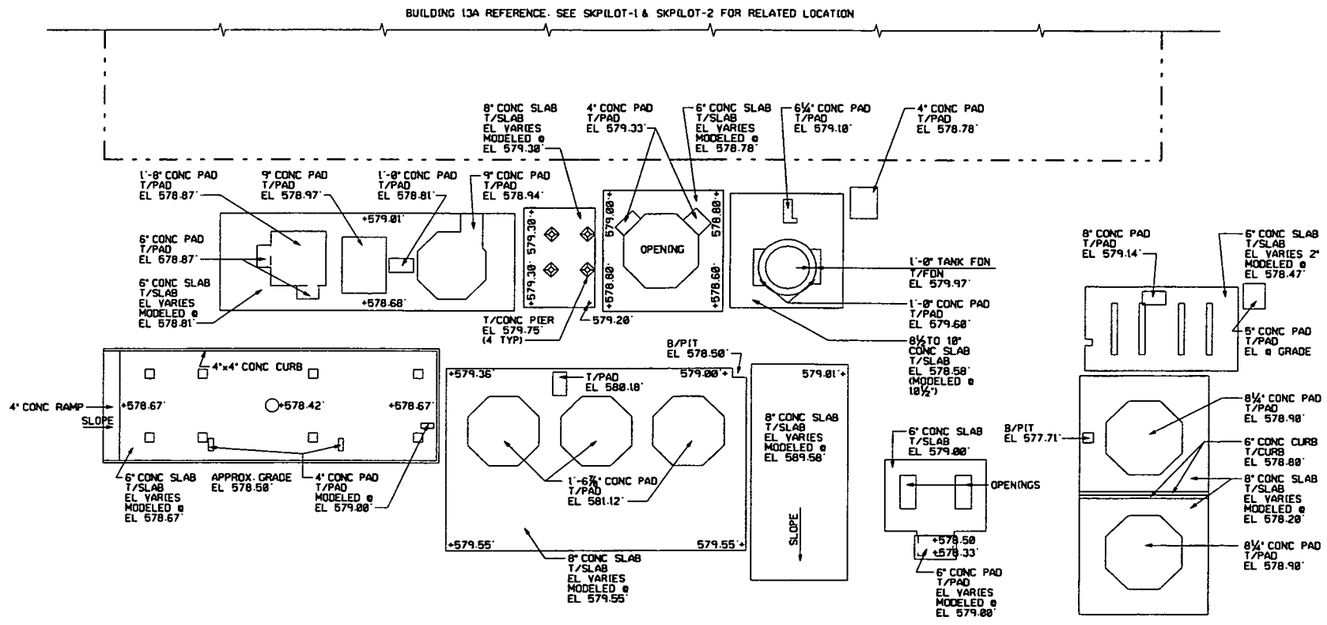
DRAWING TITLE
TANK AREA 13C & 13D
FOUNDATION PLAN
WITH HIDDEN LINES

CONFIGURATION MANAGEMENT DRAWING
EXISTING STATUS OR CONTROLS ACTIVITY IS NOT DRAWING "ON" UNDER CONFIGURATION MANAGEMENT CONTROL. SEE NOTES.
COGNIZANT ENGINEER DATE

TASK ORDER NO.	OPTIONAL NO.	SCALE ⅛" = 1'-0"	
060	N/A	DRAWN BY L.M. HAGAMAN	DATE 01/12/92
ACS NO. 4327	FDF PROJECT NO. 20810	TECHNICAL LEAD N/A	DATE N/A
		CHECKED BY DOREEN REED	DATE 01/17/92
DRAWING INDEX CODE NO. 13X-5900-S-00779		SHEET NO. S0001	REV. NO. 0

SEAL





SLAB PLAN

GRAPHIC SCALE: 1/8"=1'-0"

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION DRAWINGS AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.
2. SEE EXISTING REFERENCED DRAWINGS FOR CONSTRUCTION DETAILS AND/OR ISOMETRIC DRAWING SK13CD-1.
3. SPOT ELEVATION FOR EXTERIOR PADS AND GRADE GIVEN IN DECIMAL, EXAMPLE (578.01').

4831

REF DWG NO.	DRAWING TITLE
13A-5500-P-00268	PLAN, ELEVATION, SECTIONS, & DETAILS
13A-5500-S-00269	CONCRETE FOUNDATIONS PLAN, SECTIONS AND DETAILS
13C-5500-A-00250	PILOT PLAN
13X-3115-S-00123	REINFORCING DETAILS
13X-1450-A-00126	PLAN & SECTIONS
13X-1450-S-00139	NITRIC ACID STORAGE TANKS & FLUME ABSORPTION COL. FDNS. - PILOT PLANT
13X-5500-P-00202	SOLVENT STORAGE SYSTEM LAYOUT
13X-5500-S-00280	ACID PROOF PAD FOR EXISTING HNO3 TANKS PLANS & SECTIONS
13X-5500-S-00397	PLAN & SECTIONS
13X-5500-S-00403	CONCRETE FOUNDATION PLAN AND ELEVATION
13X-5500-S-00607	CONCRETE WORK PLAN & SECTIONS
13X-5500-S-00608	DIKE PAD #4 PLAN-SECTIONS & DETAILS
13X-5500-S-00609	DIKED PAD #3 PLAN-SECTIONS & DETAILS
13X-5500-S-00739	PLAN - SECTIONS & DETAILS
SKPILOT-1	OLD PILOT PLANT - BLDG'S 13A B C & D, 37, 54A B & C, 68, & 74U - FOUNDATION ISOMETRIC VIEW
SKPILOT-2	OLD PILOT PLANT - BLDG'S 13A B C & D, 37, 54A B & C, 68, & 74U - FOUNDATION AND SLAB ISOMETRIC VIEW

000376

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	REVD BY
0	ISSUED FOR TECHNICAL REFERENCE ONLY.	N/A	KG 03/26/82	LNH 03/26/82

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
PARSONS I & T GROUP
CINCINNATI, OHIO

PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 26 - TECHNICAL REFERENCE DRAWING

DRAWING TITLE
TANK AREA 13C & 13D
SLAB PLAN
WITH HIDDEN LINES

CONFIGURATION MANAGEMENT DRAWING
SYSTEMS, STRUCTURES OR COMPONENTS SHOWN ON THIS DRAWING ARE UNDER CONFIGURATION MANAGEMENT CONTROL (CI) LEVEL.

COGNIZANT ENGINEER DATE

TASK ORDER NO.	OPTIONAL NO.	SCALE 3/16" = 1'-0"	
060	N/A	DRAWN BY L. N. HAGAMAN	DATE 01/12/82
RES NO. 4327	F&F PROJECT NO. 20810	TECHNICAL LEAD N/A	DATE N/A
		CHECKED BY DOREEN REED	DATE 01/17/82
DRAWING INDEX CODE NO. 13X-5900-S-00780		SHEET NO. S0002	REV. NO. 0

SEAL

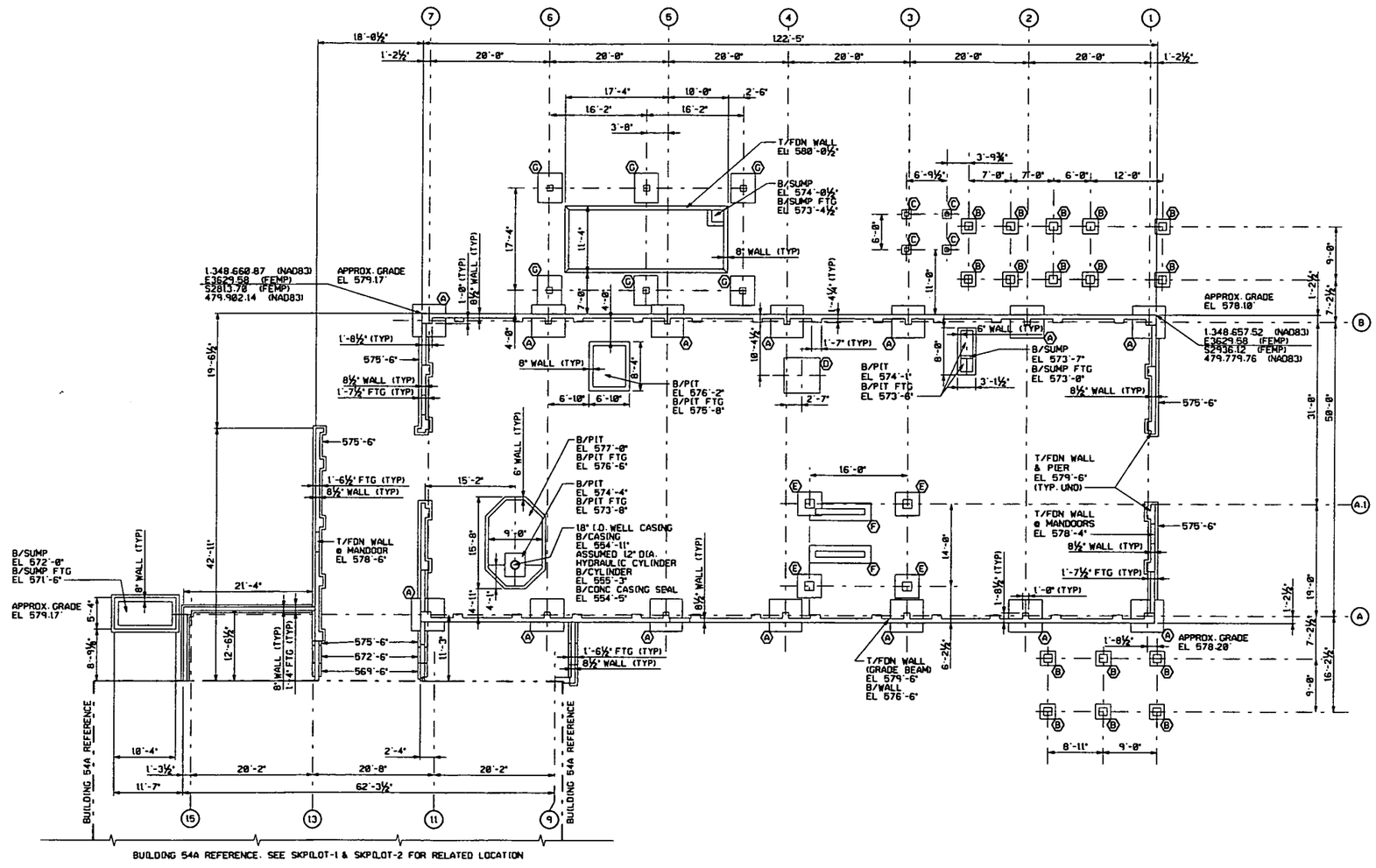
FOOTING SCHEDULE

MARK	LENGTH N/S	WIDTH E/W	HEIGHT	B/FTG EL	COL PIER	REMARKS
A	5'-6"	5'-6"	1'-0"	575'-6"	SEE PLAN	SEE NOTE 2
B	2'-6"	2'-6"	0'-9"	575'-7"	1'-4" SQ	T/PIER EL 579'-11"
C	1'-6"	1'-6"	0'-8"	576'-9"	0'-8" SQ	T/PIER EL 579'-6"
D	6'-0"	6'-0"	3'-6"	575'-6"	N/A	
E	4'-0"	4'-0"	1'-0"	576'-0"	1'-6" SQ	T/PIER EL 579'-3"
F	10'-0"	3'-0"	1'-0"	576'-0"	6'-0"x1'-0"	T/PIER EL 579'-4"
G	4'-0"	5'-0"	1'-0"	573'-6"	1'-0" SQ	T/PIER EL 578'-4"

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION DRAWINGS AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.
2. SEE EXISTING REFERENCED DRAWINGS FOR CONSTRUCTION DETAILS AND/OR ISOMETRIC DRAWING SK37-1.

4831



FOUNDATION PLAN

GRAPHIC SCALE: 1/8"=1'-0"

REF DWG NO.	DRAWING TITLE
37A-5500-A-00552	FOUNDATION PLAN
37A-5500-A-00553	FOUNDATION DETAILS
37A-5500-P-00570	COOLING WATER SUMP LAYOUT
37A-5500-S-00562	FOUNDATION & ANCHOR BOLTS LAYOUT & SECTIONS
37A-5500-S-00571	COOLING WATER SUMP LAYOUT SECTIONS & DETAILS
37A-5500-S-00638	CONCRETE PIERS & DRAINAGE PADS
37A-5500-S-00733	CONCRETE PIERS & DRAINAGE PADS
37A-5500-S-00817	PLAN & ELEVATIONS
37A-5500-S-00820	PIT DETAILS
37A-5500-S-00932	MISCELLANEOUS DETAILS
37A-5500-X-00668	GENERAL EQUIPMENT ARRANGEMENT
37A-5500-X-00930	PLAN & ELEVATIONS
37A-5508-S-00651	PLAN, SECTIONS, & ELEVATIONS
SKPILOT-1	OLD PILOT PLANT - BLDG'S 13A B C & D, 37, 54A B & C, 68, & 74U - FOUNDATION ISOMETRIC VIEW
SKPILOT-2	OLD PILOT PLANT - BLDG'S 13A B C & D, 37, 54A B & C, 68, & 74U - FOUNDATION AND SLAB ISOMETRIC VIEW

000377

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	REVW BY
0	ISSUED FOR TECHNICAL REFERENCE ONLY.	N/A	KG 03/28/02	LNH 03/28/02

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
PARSONS I & T GROUP
CINCINNATI, OHIO

PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 26 - TECHNICAL REFERENCE DRAWING

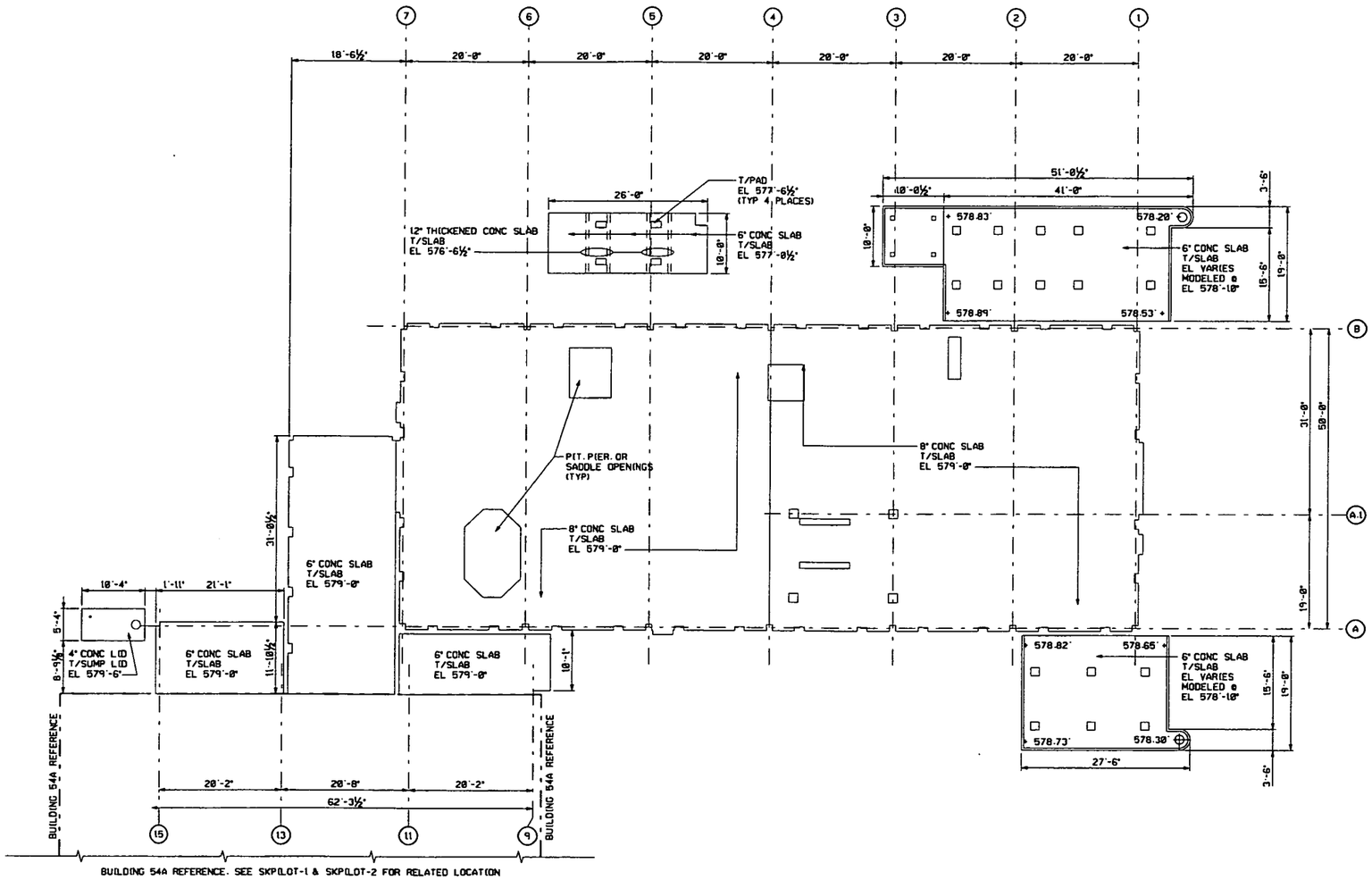
DRAWING TITLE
BUILDING 37
FOUNDATION PLAN
WITHOUT HIDDEN LINES

CONFIGURATION MANAGEMENT DRAWING

TASK ORDER NO.	OPTIONAL NO.	SCALE	
060	N/A	1/8" = 1'-0"	
		DRAWN BY: K. L. RABBITT	DATE: 01/18/02
RES NO.: 4327	FSF PROJECT NO.: 20810	TECHNICAL LEAD: N/A	DATE: N/A
		CHECKED BY: DOREEN REED	DATE: 01/17/02
DRAWING INDEX CODE NO.: 37X-5900-S-01303		SHEET NO.: S0001	REV. NO.: 0

COGNIZANT ENGINEER DATE

SEAL



SLAB PLAN

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION DRAWINGS AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.
2. SEE EXISTING REFERENCED DRAWINGS FOR CONSTRUCTION DETAILS AND/OR ISOMETRIC DRAWING SK37-1.
3. SPOT ELEVATION FOR EXTERIOR PADS AND GRADE GIVEN IN DECIMAL, EXAMPLE (578.01').

4831

REF DWG NO.	DRAWING TITLE
37A-5500-A-00552	FOUNDATION PLAN
37A-5500-A-00553	FOUNDATION DETAILS
37A-5500-P-00570	COOLING WATER SUMP LAYOUT
37A-5500-S-00562	FOUNDATION & ANCHOR BOLTS LAYOUT & SECTIONS
37A-5500-S-00571	COOLING WATER SUMP LAYOUT SECTIONS & DETAILS
37A-5500-S-00638	CONCRETE PIERS & DRAINAGE PADS
37A-5500-S-00733	CONCRETE PIERS & DRAINAGE PADS
37A-5500-S-00817	PLAN & ELEVATIONS
37A-5500-S-00820	PIT DETAILS
37A-5500-S-00932	MISCELLANEOUS DETAILS
37A-5500-X-00668	GENERAL EQUIPMENT ARRANGEMENT
37A-5500-X-00930	PLAN & ELEVATIONS
37A-5500-S-00651	PLAN, SECTIONS, & ELEVATIONS
SKPILOT-1	OLD PILOT PLANT - BLDG'S 13A B C & D, 37, 54A B & C, 68, & 74U - FOUNDATION ISOMETRIC VIEW
SKPILOT-2	OLD PILOT PLANT - BLDG'S 13A B C & D, 37, 54A B & C, 68, & 74U - FOUNDATION AND SLAB ISOMETRIC VIEW

000378

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	RCW BY
0	ISSUED FOR TECHNICAL REFERENCE ONLY.	N/A	KG 03/28/92	LNH 03/28/92

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
PARSONS I & T GROUP
CINCINNATI, OHIO

PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 26 - TECHNICAL REFERENCE DRAWING

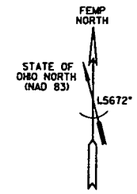
DRAWING TITLE
BUILDING 37
SLAB PLAN
WITH HIDDEN LINES

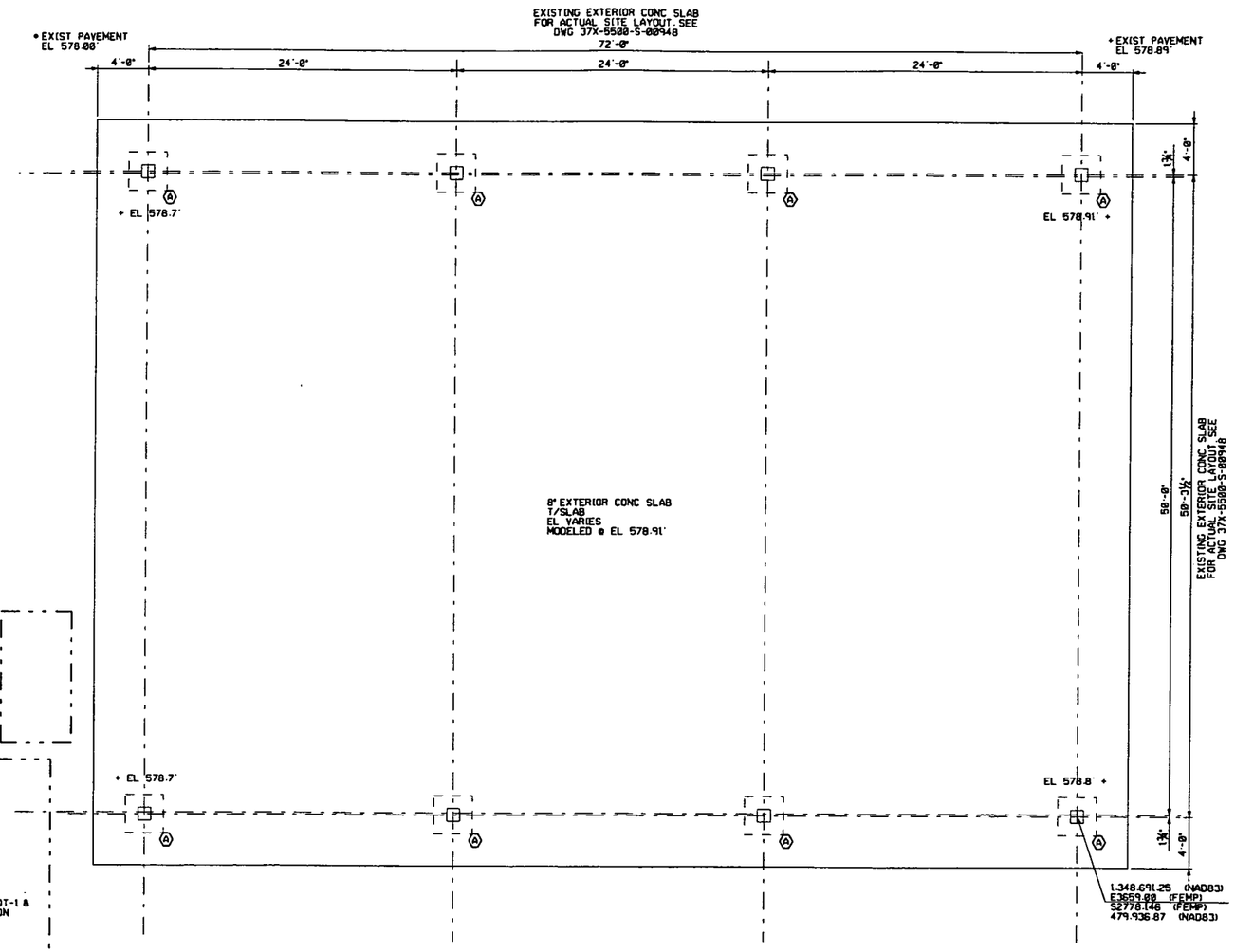
CONFIGURATION MANAGEMENT DRAWING
EXISTING ATTACHED OR COMPONENTS MODIFIED BY THIS DRAWING ARE LISTED ON CONFIGURATION MANAGEMENT CONTROL. SEE NOTES.

TASK ORDER NO.	OPTIONAL NO.	SCALE	
060	N/A	1/8" = 1'-0"	
		DRAWN BY K. L. RABBITT	DATE 01/18/92
RES NO. 4327	FOR PROJECT NO. 20810	TECHNICAL LEAD N/A	DATE N/A
		CHECKED BY DOREEN REED	DATE 01/17/92
COGNIZANT ENGINEER	DATE	DRAWING INDEX CODE NO. 37X-5900-S-01304	SHEET NO. S0002 / REV. NO. 0

SEAL

FOOTING SCHEDULE						
MARK	LENGTH N/S	WIDTH E/W	HEIGHT	B/FTG EL	COL PIER	REMARKS
(A)	3'-0"	3'-0"	1'-0"	577'-3"	12" SQ	T/PIER EL 580'-3"





FOUNDATION AND SLAB PLAN

GRAPHIC SCALE: ¼"=1'-0"

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION DRAWINGS AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.
2. SEE EXISTING REFERENCED DRAWINGS FOR CONSTRUCTION DETAILS AND/OR ISOMETRIC DRAWING SK54B-1.

4831

REF DWG NO.	DRAWING TITLE
37X-5500-S-00948	WEATHER SHELTER - PLAN
37X-5500-S-00949	ROOF PLAN, ELEVATION & SECTION
SKPILOT-1	OLD PILOT PLANT - BLDG'S 13A B C & D, 37, 54A B & C, 68, & 74U - FOUNDATION ISOMETRIC VIEW
SKPILOT-2	OLD PILOT PLANT - BLDG'S 13A B C & D, 37, 54A B & C, 68, & 74U - FOUNDATION AND SLAB ISOMETRIC VIEW

000379

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	REVIS BY / DETAILS AND DATE
0	ISSUED FOR TECHNICAL REFERENCE ONLY.	N/A	KG 10/25/02	LNH 10/25/02

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
PARSONS I & T GROUP
CINCINNATI, OHIO

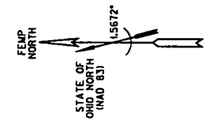
PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 26 - TECHNICAL REFERENCE DRAWING

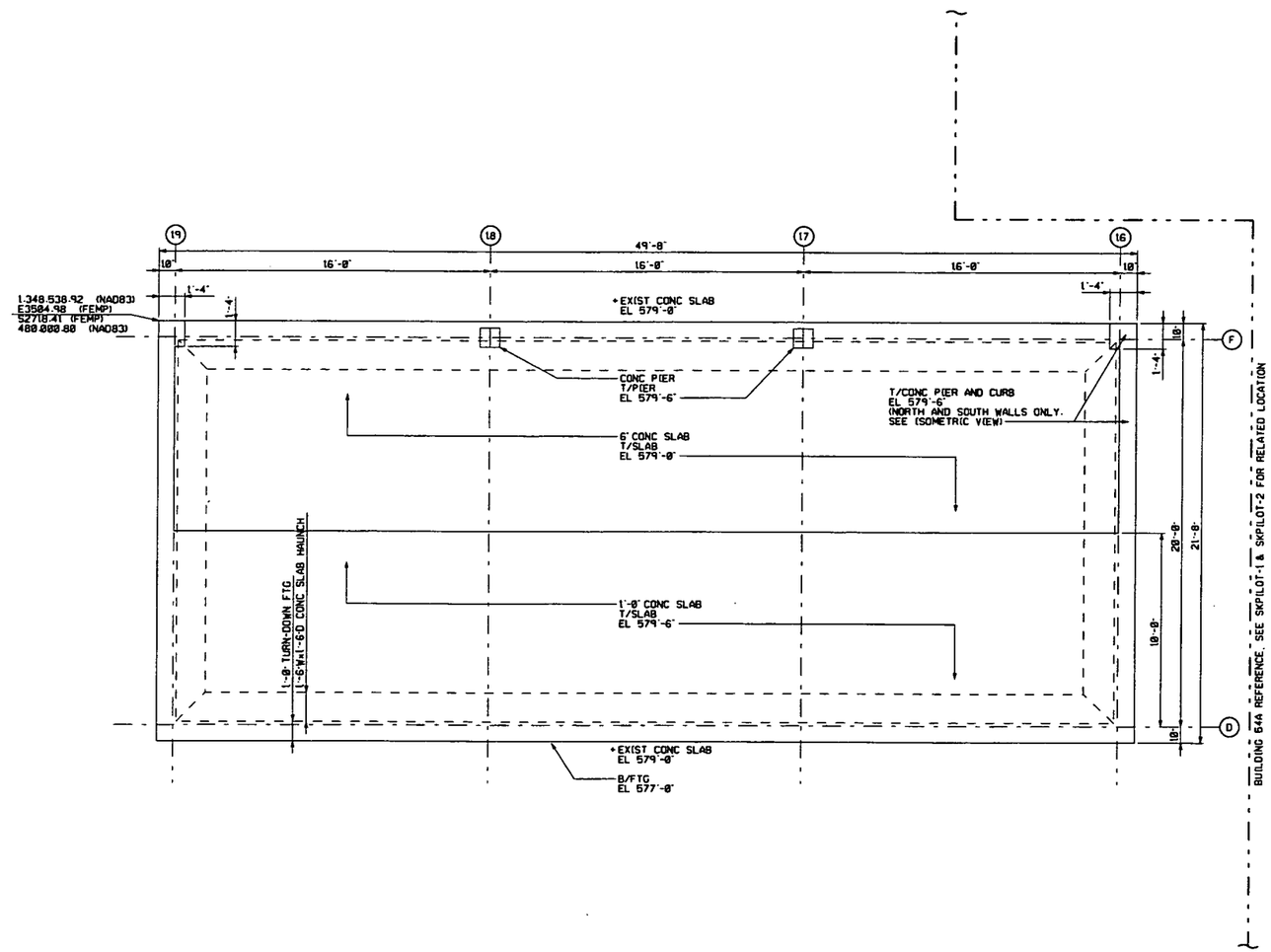
DRAWING TITLE
BUILDING 54B
FOUNDATION AND SLAB PLAN
WITH HIDDEN LINES

CONFIGURATION MANAGEMENT DRAWING
EXISTING STRUCTURES AS CONTRACT DRAWINGS AND MAY NOT REPRESENT CONFIGURATION MANAGEMENT CONTROL. SEE NOTES.
COGNIZANT ENGINEER DATE

TASK ORDER NO.	OPTIONAL NO.	SCALE	
060	N/A	¼" = 1'-0"	
		DRAWN BY K.L. RABBITT	DATE 01/04/02
RES NO. 4327	FDF PROJECT NO. 20810	TECHNICAL LEAD N/A	DATE N/A
		CHECKED BY DOREEN REED	DATE 01/17/02
DRAWING INDEX CODE NO. 54D-5900-S-00925		SHEET NO. S0001	REV. NO. 0

SEAL





FOUNDATION AND SLAB PLAN

GRAPHIC SCALE: 3/8"=1'-0"

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION DRAWINGS AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.
2. SEE EXISTING REFERENCED DRAWINGS FOR CONSTRUCTION DETAILS AND/OR ISOMETRIC DRAWING SK54C-1.

4831

REF DWG NO.	DRAWING TITLE
54X-1910-S-00356	DISSOCIATOR SHED PLANS AND MISC FOUNDATION PLANS
SKPILOT-1	OLD PILOT PLANT - BLDG'S 13A B C & D, 37, 54A B & C, 68, & 74U - FOUNDATION ISOMETRIC VIEW
SKPILOT-2	OLD PILOT PLANT - BLDG'S 13A B C & D, 37, 54A B & C, 68, & 74U - FOUNDATION AND SLAB ISOMETRIC VIEW

C0380

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	REVW BY
0	ISSUED FOR TECHNICAL REFERENCE ONLY.	N/A	KG 03/28/92	LNH 03/28/92

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
PARSONS I & T GROUP
CINCINNATI, OHIO

PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 26 - TECHNICAL REFERENCE DRAWING

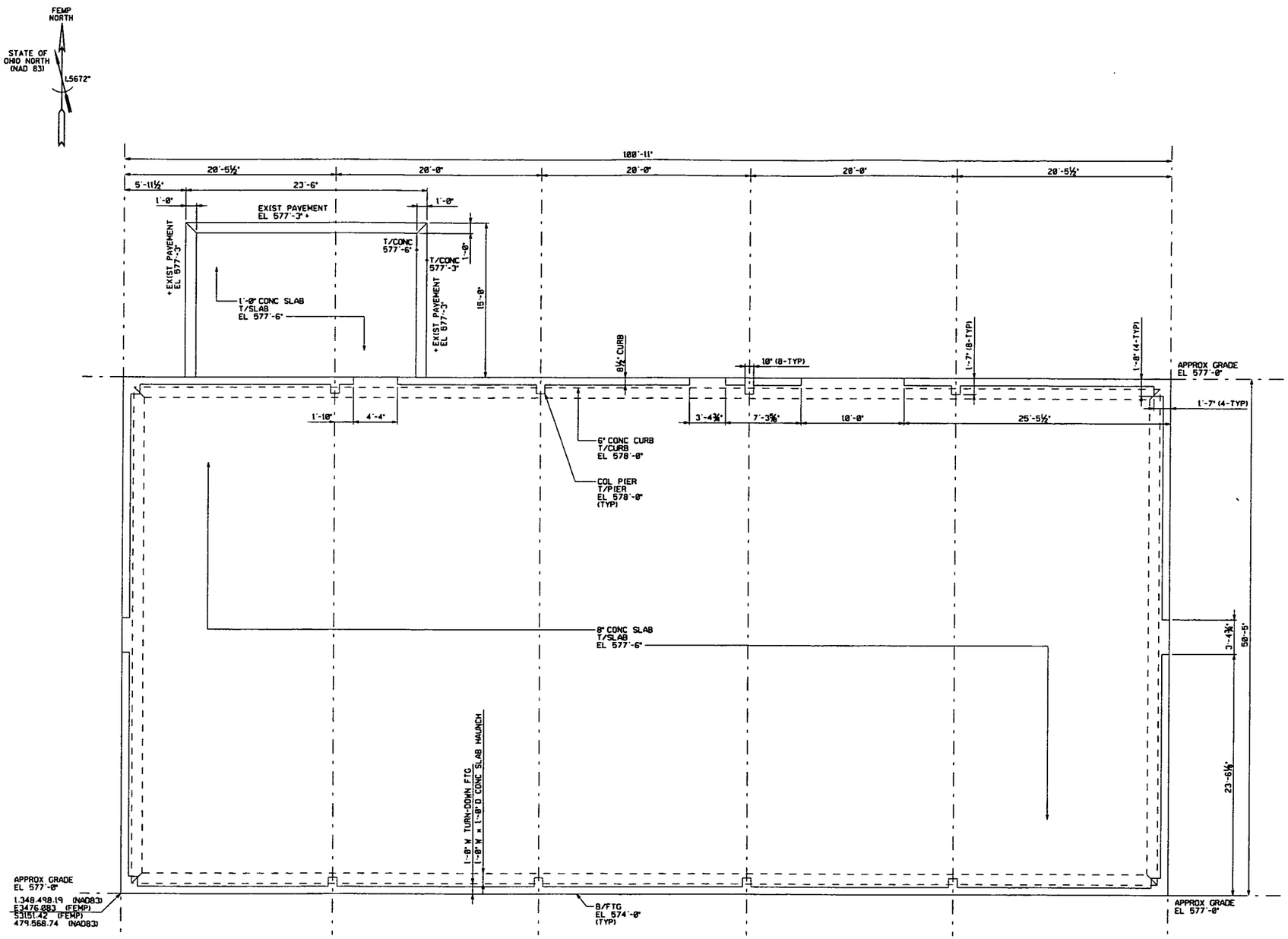
DRAWING TITLE
BUILDING 54C
FOUNDATION AND SLAB PLAN
WITH HIDDEN LINES

CONFIGURATION MANAGEMENT DRAWING — YES / NO
STATION ATTACHED DRAWING AND COMPUTER DATA FILE ARE UNDER CONFIGURATION MANAGEMENT CONTROL. (SEE NOTES)

COGNIZANT ENGINEER — DATE

TASK ORDER NO.	OPTIONAL NO.	SCALE	
060	N/A	3/8" = 1'-0"	
		DRAWN BY: K. L. RABBITT	DATE: 03/27/92
RES NO.: 4327	FDF PROJECT NO.: 20810	TECHNICAL LEAD: N/A	DATE: N/A
		CHECKED BY: DOREEN REED	DATE: 03/17/92
DRAWING INDEX CODE NO.: 54X-5900-S-00926		SHEET NO.: S0001	REV. NO.: 0

SEAL



FOUNDATION AND SLAB PLAN

GRAPHIC SCALE: ¼"=1'-0"

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION DRAWINGS AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.
2. SEE EXISTING REFERENCED DRAWINGS FOR CONSTRUCTION DETAILS AND/OR ISOMETRIC DRAWING SK68-1.

4831

REF DWG NO.	DRAWING TITLE
68X-5500-S-00007	LAYOUT AND DETAILS

000381

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	RCB BY
0	ISSUED FOR TECHNICAL REFERENCE ONLY.	N/A	KG 03/26/02	LMH 03/26/02

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
PARSONS I & T GROUP
CINCINNATI, OHIO

PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 26 - TECHNICAL REFERENCE DRAWING

DRAWING TITLE
BUILDING 68
FOUNDATION AND SLAB PLAN
WITH HIDDEN LINES

CONFIGURATION MANAGEMENT DRAWING — YES / NO

SYSTEMS, STRUCTURES OR COMPONENTS DESIGNATED AS HAZARDOUS TO NUCLEAR SAFETY MANAGEMENT CONTROL (SS MCHS).

COGNIZANT ENGINEER — DATE

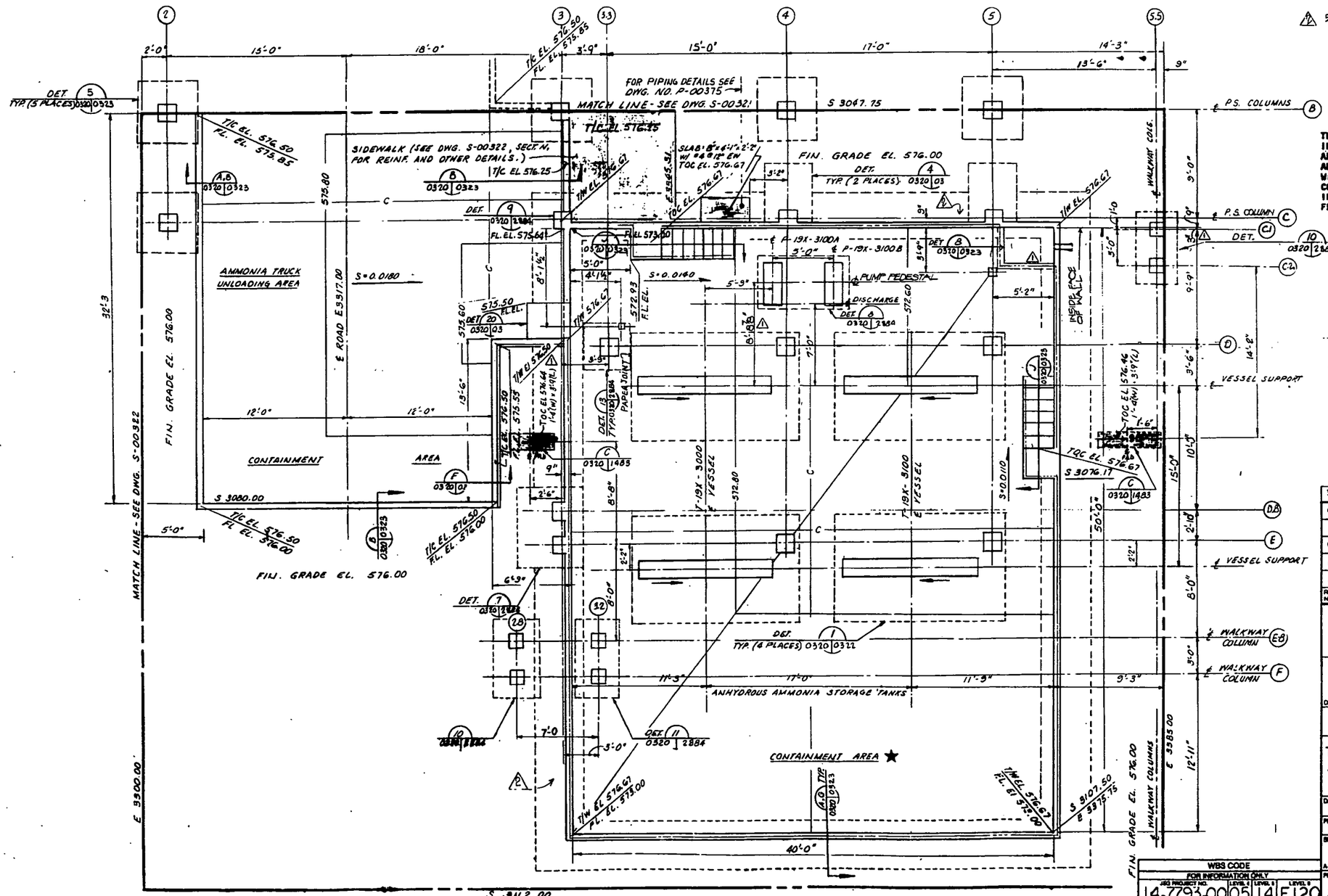
TASK ORDER NO.	OPTIONAL NO.	SCALE ¼" = 1'-0"
060	N/A	DRAWN BY K. L. RABBITT — DATE 01/05/02
RES NO. 4327	FOF PROJECT NO. 20810	TECHNICAL LEAD N/A — DATE N/A
		CHECKED BY DOREEN REED — DATE 01/17/02
DRAWING INDEX CODE NO. 68X-5900-S-00091		SHEET NO. S0001 — REV. NO. 0

SEAL

GENERAL NOTES 4831

1. THIS DRAWING WAS PREPARED ACCORDING TO THE GRADING AND DRAINAGE SHOWN ON SANDERS & THOMAS' SITE PLAN NO. SIX-1910-G-00005.
2. FINISH GRADE IS TO CONFORM WITH THIS DRAWING, WHERE SOIL CONDITIONS ARE DISTURBED DURING CONSTRUCTION.
3. SEE PIPING DWG P-00375 FOR UNDERGROUND PIPING.
4. THE SYMBOL "C" DENOTES A CONTRACTION JOINT PER DETAIL D ON DWG. S-00323.
5. FOR HANDRAIL AND ANCHORAGE, SEE DWGS S-01457 AND S-01458. THE SYMBOL ———— DENOTES HANDRAILS ON THE PLAN.

THE "SS" IN THIS DRAWING REVISION NUMBER BLOCK INDICATES THAT THIS DRAWING DEPICTS A SAFETY SYSTEM AND/OR DESIGN FEATURE FOR SAFETY THAT MAY NOT BE ALTERED OR CHANGED EITHER FUNCTIONALLY OR PHYSICALLY WITHOUT WRITTEN AUTHORIZATION FROM THE WNCO ISA COMMITTEE. THE STAR SYMBOL (★) ON THIS DRAWING INDICATES A CRITICAL COMPONENT OF THE SYSTEM AND/OR FEATURE.



FOR INFORMATION ONLY
CADD SERVICES

REF. DWG.
DOX-3900-S-01483
028-3900-S-02884
19X-3900-S-00323

DO NOT SCALE REDUCED DRAWINGS

000382

REV NO	ISSUE OR REVISION PURPOSE - DESCRIPTION	A-E	OPER	DOE
S	UP DATED			
Q	ADDED AS BUILT HANDRAILS DR. KAW			
I	GENERAL REVISIONS DR. KAW			
O	CERTIFIED FOR CONSTRUCTION			
B	ISSUED FOR 100% DESIGN REVIEW			
A	ISSUED FOR 50% DESIGN REVIEW			

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY

JACOBS ENGINEERING GROUP INC.
PASADENA, CALIFORNIA

DOE CONTRACT NO DE-AC05-850R21462 A-E NO. 3900

PROJECT NAME
PRODUCTIVITY & RADIOLOGICAL IMPROVEMENTS

DRAWING TITLE
TANK FARM PROJECT PLANT 19
AMMONIA STORAGE AREA
FOUNDATION LOCATION PLAN
AND FINISH GRADING PLAN

DRAWN BY	DATE	DESIGNED, CHECKED BY	DATE	CHECKED BY	DATE
D. RHODES	12-3-85	D. RHODES	2-5-86	D. RHODES	4-16-86

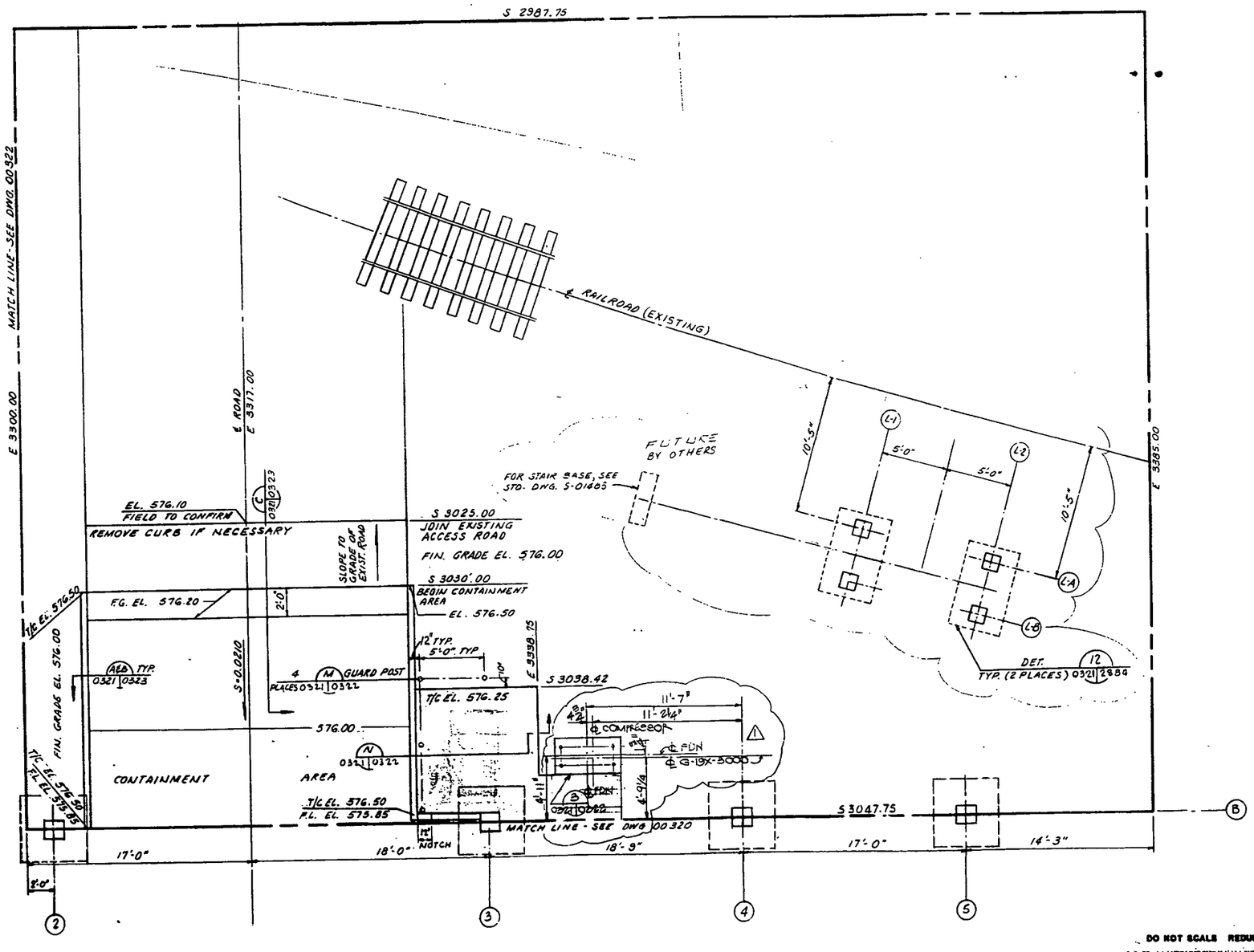
PLANT	BLDG.	FLOOR	SCALE	CLASS
FMPC			1/16"=1'-0"	

SUBMITTED FOR APPROVAL — A-E DATE 3-15-86
APPROVAL RECOMMENDED — Q. W. HELMES 4-1-86 — OPER CONTRACTOR DATE
DRAWING APPROVED — P. STUMPO FOR M. A. PAGLIA — DOE DATE 4-1-86

WBS CODE (FOR INFORMATION ONLY)								
JEG PROJECT NO.	LEVEL 4	LEVEL 5	LEVEL 6	PROJECT NO.	DRAWING NUMBER			REV. NO.
14-7793-00	05	14	F120	85-D-140	19X	3900	S	00320 SS

GENERAL NOTES

1. FOR GENERAL NOTES, SEE DWG. S-00320.



FOR INFORMATION ONLY
CADD SERVICES

000383

REV NO	ISSUE OR REVISION PURPOSE - DESCRIPTION	A-E INITIALS AND DATE	OPER	DOE
1	GENERAL REVISION. KRW		AF 10-23-86	
0	CERTIFIED FOR CONSTRUCTION	ARC KRW SAT		
B	ISSUED FOR 100% DESIGN REVIEW		2-6-86	-
A	ISSUED FOR 50% DESIGN REVIEW		12-19-85	

UNITED STATES DEPARTMENT OF ENERGY

JACOBS ENGINEERING GROUP INC.
PASADENA, CALIFORNIA

DOE CONTRACT NO DE-AC05-850R21462 A-E NO. 3900

PROJECT NAME
PRODUCTIVITY & RADIOLOGICAL IMPROVEMENTS

DRAWING TITLE
TANK FARM PROJECT PLANT 19
AMMONIA STORAGE AREA
FOUNDATION LOCATION PLAN
AND FINISH GRADING PLAN

DRAWN BY D. RHODES DATE 12-9-85 | DESIGNED, CHECKED BY D. RHODES DATE 2-5-86 | CHECKED BY RHODES DATE 3-16-86

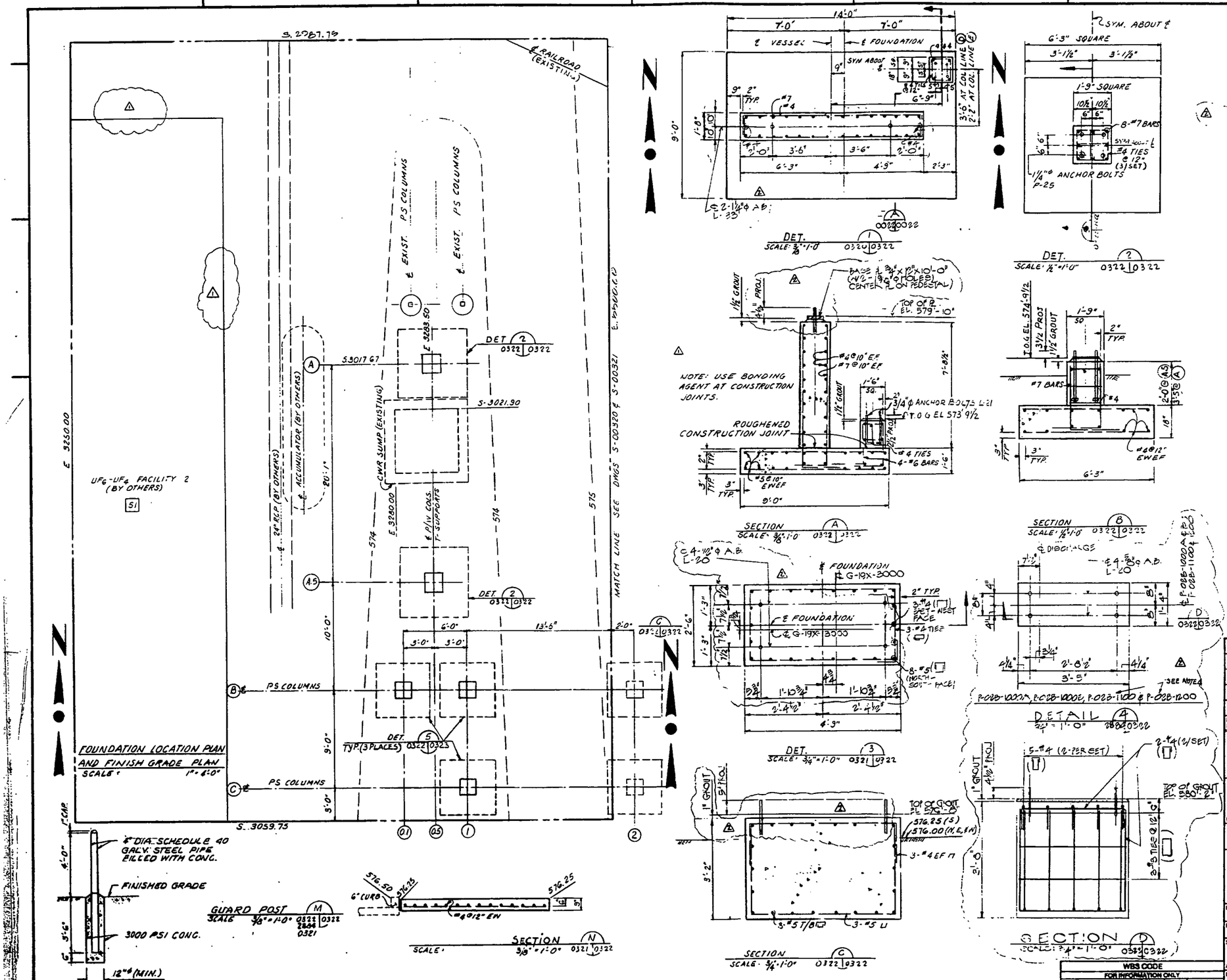
PLANT FMPC | BLDG. | FLOOR | SCALE 1/4"=1'-0" | CLASS

SUBMITTED FOR APPROVAL A-E DATE 3-17-86 | APPROVAL RECOMMENDED R.W. HOLMES OPER CONTRACTOR DATE 4-1-86 | DRAWING APPROVED P. STUMBO PROG. M.A. PARKER DOE DATE 4-1-86

PROJECT NO. 85 D 140 | DRAWING NUMBER 19X 3900 S 00321 | REV. NO. 1

DO NOT SCALE REDUCED DRAWING

WBS CODE
FOR INFORMATION ONLY
AEG PROJECT NO. 14-7793-0005 | LEVEL 4 14 | LEVEL 5 F121



GENERAL NOTES

1. FOR STRUCTURAL NOTES, SEE DWG. S-00323.
2.
3. DASHED LINE DENOTES CONTOUR OF EQUAL ELEVATION
4. FOR ORIENTATION OF P-02B-1100 & P-02B-1200 SEE DWG. S-02834.

FOR INFORMATION ONLY
CADD SERVICES

000384

DO NOT SCALE REDUCED DRAWING

REV NO	ISSUE OR REVISION PURPOSE - DESCRIPTION	A-E	OPER	DOE
2	REMOVED HOLD ON EQUIPMENT LOCATIONS			
1	GENERAL REVISIONS			
0	CERTIFIED FOR CONSTRUCTION			
B	ISSUED FOR 100% DESIGN REVIEW			
A	ISSUED FOR 50% DESIGN REVIEW			

INITIALS AND DATE

UNITED STATES DEPARTMENT OF DENERGY

JACOBS ENGINEERING GROUP INC.
PASADENA, CALIFORNIA

DOE CONTRACT NO DE-AC05-85OR21462 A-E NO. 3900

PROJECT NAME: **PRODUCTIVITY & RADIOLOGICAL IMPROVEMENTS**

DRAWING TITLE: TANK FARM PROJECT — PLANT 19
AMMONIA STORAGE AREA
FOUNDATION LOCATION PLAN, FINISH GRADING PLAN, AND DETAILS

DRAWN BY	DATE	DESIGNED, CHECKED BY	DATE	CHECKED BY	DATE
D. RHODES	12-3-85	D. RHODES	2-3-86	D. RHODES	3-16-86

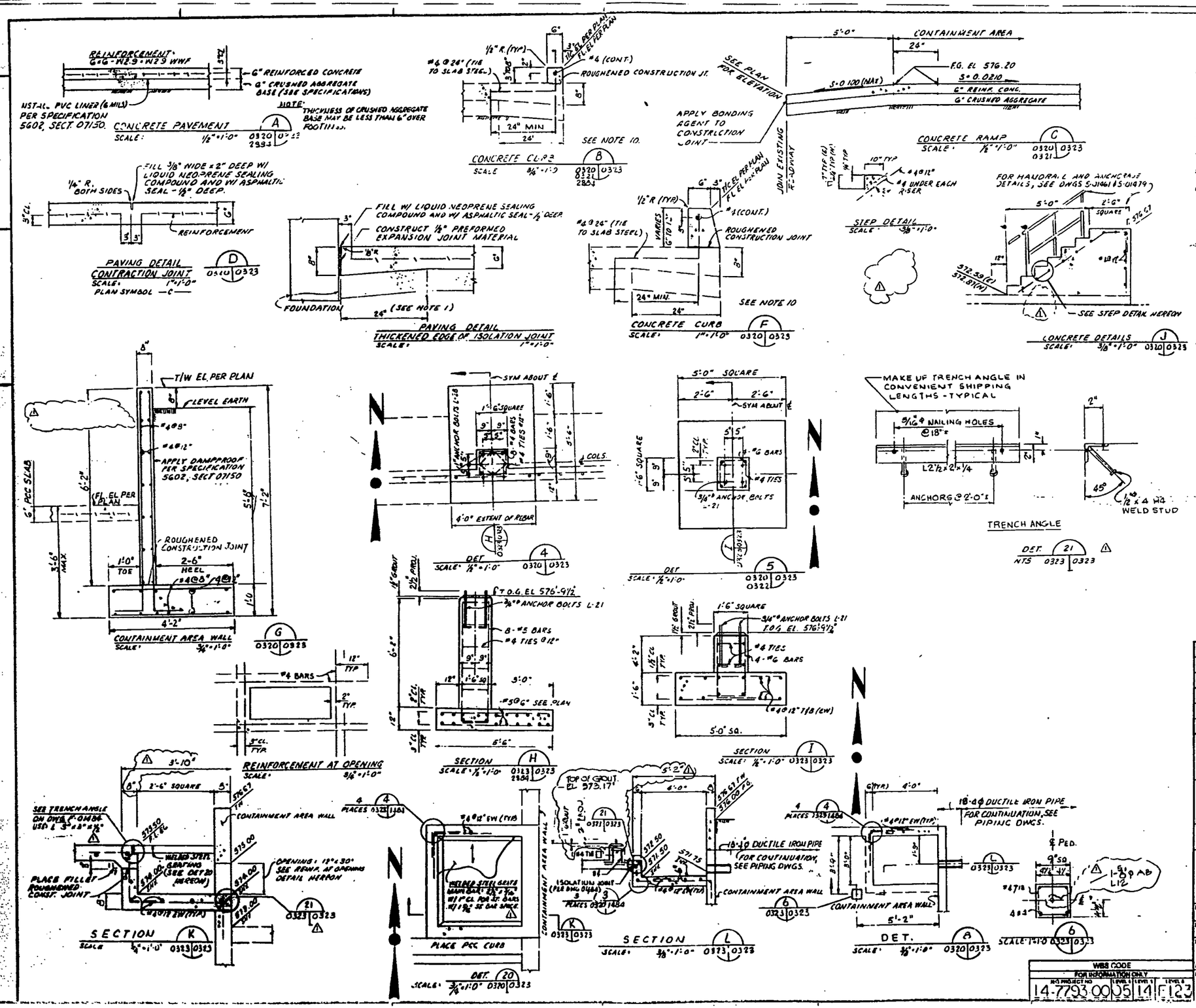
PLANT	BLDG.	FLOOR	SCALE	CLASS
FMPC			NOTED	

SUBMITTED FOR APPROVAL: A-E DATE 3-17-86
APPROVAL RECOMMENDED: R.W. HELMES, OPER CONTRACTOR DATE 4-1-86
DRAWING APPROVED: R. STUMBO, DOE DATE 4-1-86

WBS CODE — FOR INFORMATION ONLY

JEG PROJECT NO.	LEVEL 4	LEVEL 3	LEVEL 2
14-7793-00	05	14	F122

PROJECT NO.	DRAWING NUMBER				REV. NO.
85 D 140	19X	3900	S	00322	2



GENERAL NOTES

1. ISOLATION JOINTS SHALL BE CONSTRUCTED AROUND ALL FOUNDATIONS, MANHOLES, CATCH BASINS, OR OTHER PROTRUSIONS THROUGH THE CONCRETE PAVEMENT.
2. CONCRETE: SEE SECTION 03310.
3. REBAR.: ASTM A-615, GRADE 60
4. ⟷ INDICATES DIRECTION OF SPAN FOR GRATING.
5. CHAMFER EXPOSED EDGES OF CONCRETE 3/4" x 45°
6. LOCATION OF ANCHOR BOLTS ARE EXACT. ADJUST REINFORCING BARS AS NECESSARY.
7. APPLY BONDING AGENT TO ALL CONSTRUCTION JOINTS
8. △
9. CONTRACTOR TO FIELD CHECK AND VERIFY ALL DIMENSIONS AND NOTIFY COMPANY OF DISCREPANCIES PRIOR TO THE INSTALLATION OF TANKS AND EQUIPMENT.
10. SLOPE COMPACTED EARTH IN CUT OR FILL FROM TOP OF CURB OF ROADWAYS AT A SLOPE OF 2 HORIZONTAL ON 1 VERTICAL.

FOR INFORMATION ONLY
CADD SERVICES

SEP 3 2002

000385

DO NOT SCALE REDUCED DRAWING

REV NO	ISSUE OR REVISION PURPOSE - DESCRIPTION	A-E	OPER	CODE
1	GENERAL REVISIONS			
0	CERTIFIED FOR CONSTRUCTION			
B	ISSUED FOR 100% DESIGN REVIEW			
A	ISSUED FOR 50% DESIGN REVIEW			

UNITED STATES DEPARTMENT OF ENERGY

JACOBS ENGINEERING GROUP INC.
PASADENA, CALIFORNIA

DOE CONTRACT NO. DE-AC05-85OR21462 A-E NO. 3900

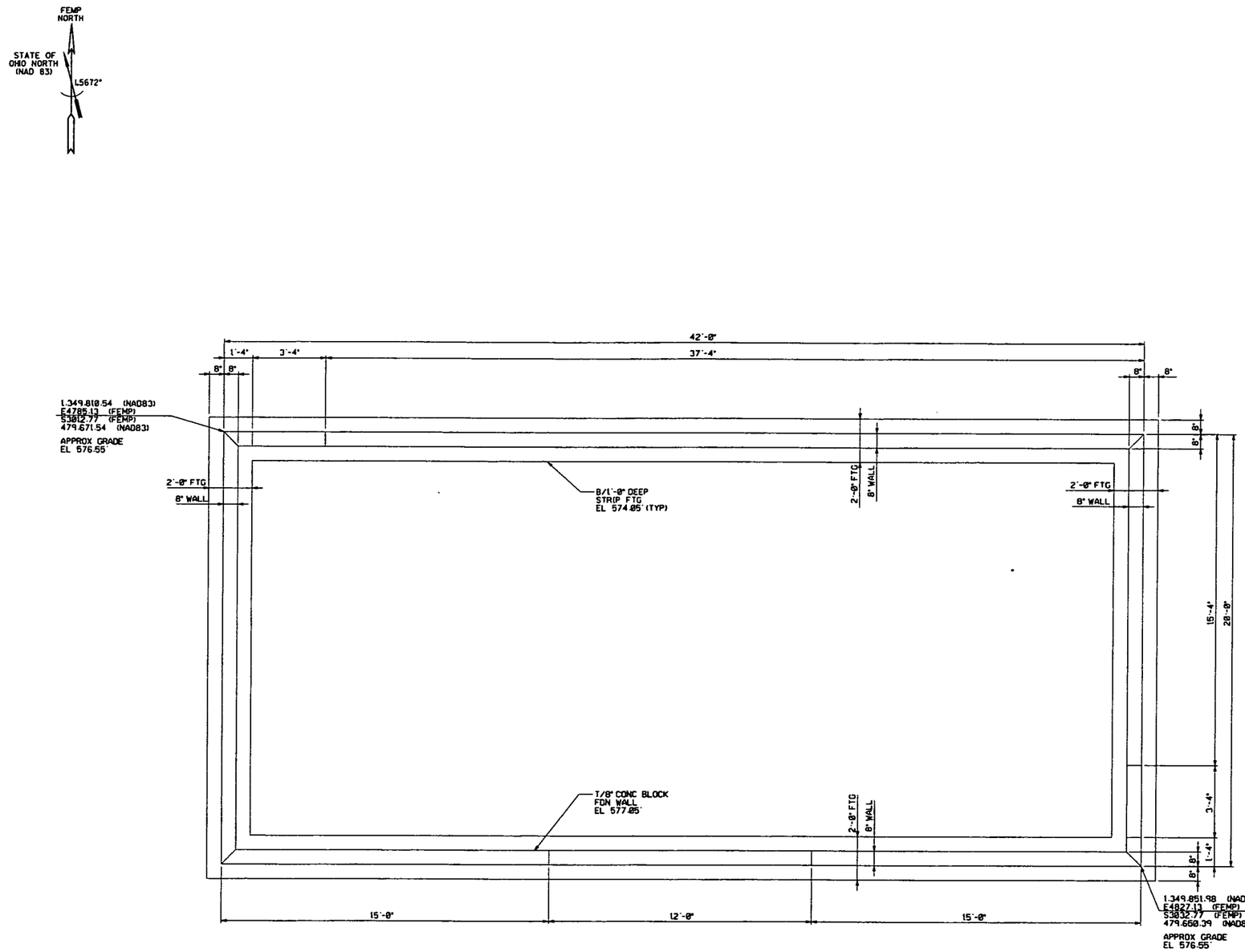
PROJECT NAME: PRODUCTIVITY & RADIOLOGICAL IMPROVEMENTS

DRAWING TITLE: TANK FARM PROJECT AMMONIA STORAGE AREA SUMP SECTIONS AND DETAILS — PLANT 19

DRAWN BY: D. R. MODES
PLANT: FMPO

WBS CODE (FOR INFORMATION ONLY): 14-7793.00 | 05 | 14 | F123

PROJECT NO: 85-D-140 | 19X | 3900 | S | 00323 | 1



FOUNDATION PLAN

GRAPHIC SCALE: ½"=1'-0"

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION DRAWINGS AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.
2. SEE EXISTING REFERENCED DRAWINGS FOR CONSTRUCTION DETAILS AND/OR ISOMETRIC DRAWING SK168-1.

4831

REF DWG NO.	DRAWING TITLE
75H-5500-G-00025	EXISTING SITE PLAN
16H-5500-A-00089	FLOOR PLAN
16H-1900-A-00047	FLOOR PLAN, ELEVATIONS, & DETAILS
16H-1900-A-00048	SECTIONS ADN DETAILS

000386

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	REVD BY
0	ISSUED FOR TECHNICAL REFERENCE ONLY.	N/A	KG 03/28/02	LNH 03/28/02

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
PARSONS I & T GROUP
CINCINNATI, OHIO

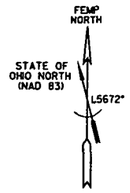
PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 14 - TECHNICAL REFERENCE DRAWING

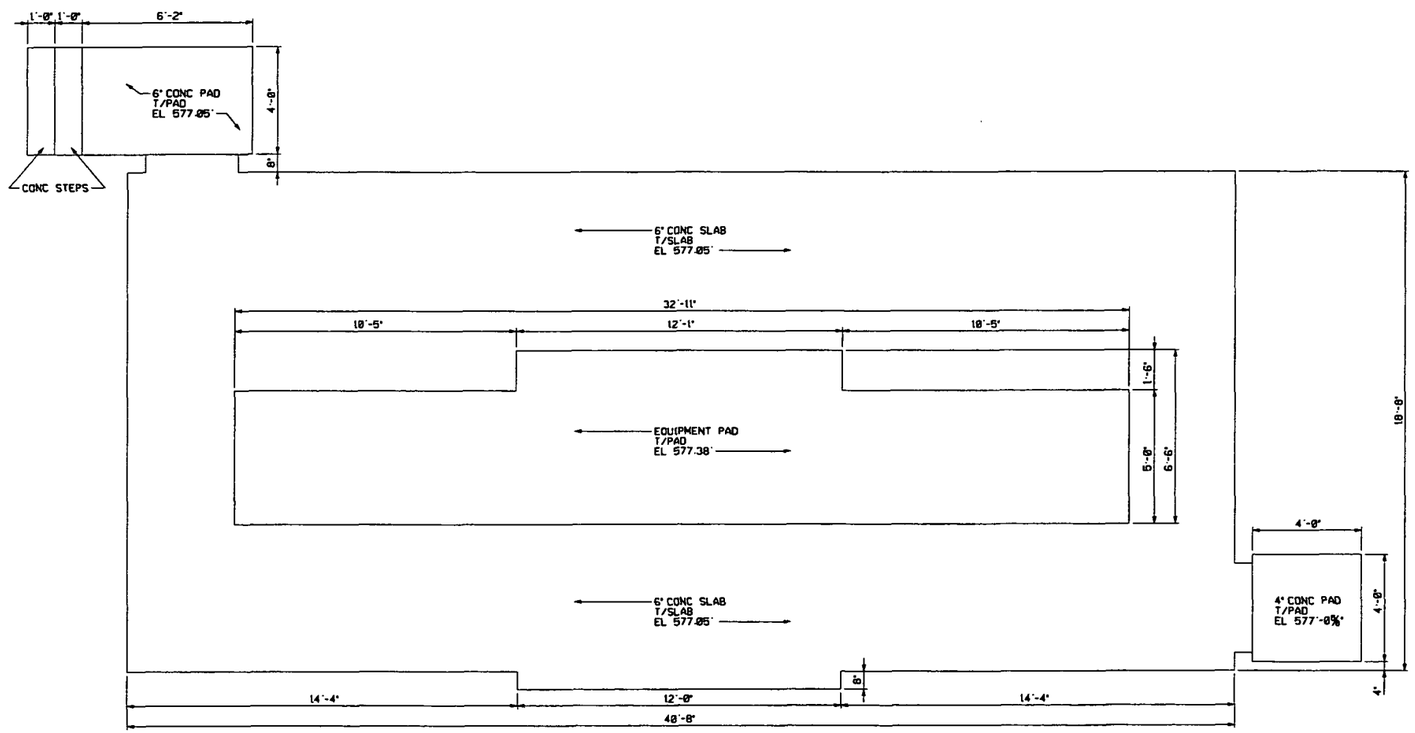
DRAWING TITLE
BUILDING 16B
FOUNDATION PLAN
WITHOUT HIDDEN LINES

CONFIGURATION MANAGEMENT DRAWING
EXISTING STRUCTURES OR CONTRACTOR DEPICTED ON THIS DRAWING ARE UNDER CONFIGURATION MANAGEMENT CONTROL. SEE NOTES.

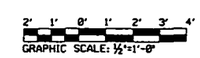
TASK ORDER NO.	OPTIONAL NO.	SCALE ½" = 1'-0"	
060	N/A	DRAWN BY L. N. HAGAMAN	DATE 12/23/01
RES NO. 4327	FOF PROJECT NO. 20810	TECHNICAL LEAD N/A	DATE N/A
		CHECKED BY DOREEN REED	DATE 01/11/02
COGNIZANT ENGINEER	DATE	DRAWING INDEX CODE NO. 16H-5900-S-00114	SHEET NO. S0001 / REV. NO. 0

SEAL





SLAB PLAN



NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION DRAWINGS AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.
2. SEE EXISTING REFERENCED DRAWINGS FOR CONSTRUCTION DETAILS AND/OR ISOMETRIC DRAWING SK16B-1.

4831

REF DWG NO.	DRAWING TITLE
75H-5500-C-00025	EXISTING SITE PLAN
16H-5500-A-00089	FLOOR PLAN
16H-1900-A-00047	FLOOR PLAN, ELEVATIONS, & DETAILS
16H-1900-A-00048	SECTIONS ADN DETAILS

000387

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	REVIS BY
0	ISSUED FOR TECHNICAL REFERENCE ONLY.	N/A	KG 03/28/02	LNH 03/28/02

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
PARSONS I & T GROUP
CINCINNATI, OHIO

PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 14 - TECHNICAL REFERENCE DRAWING

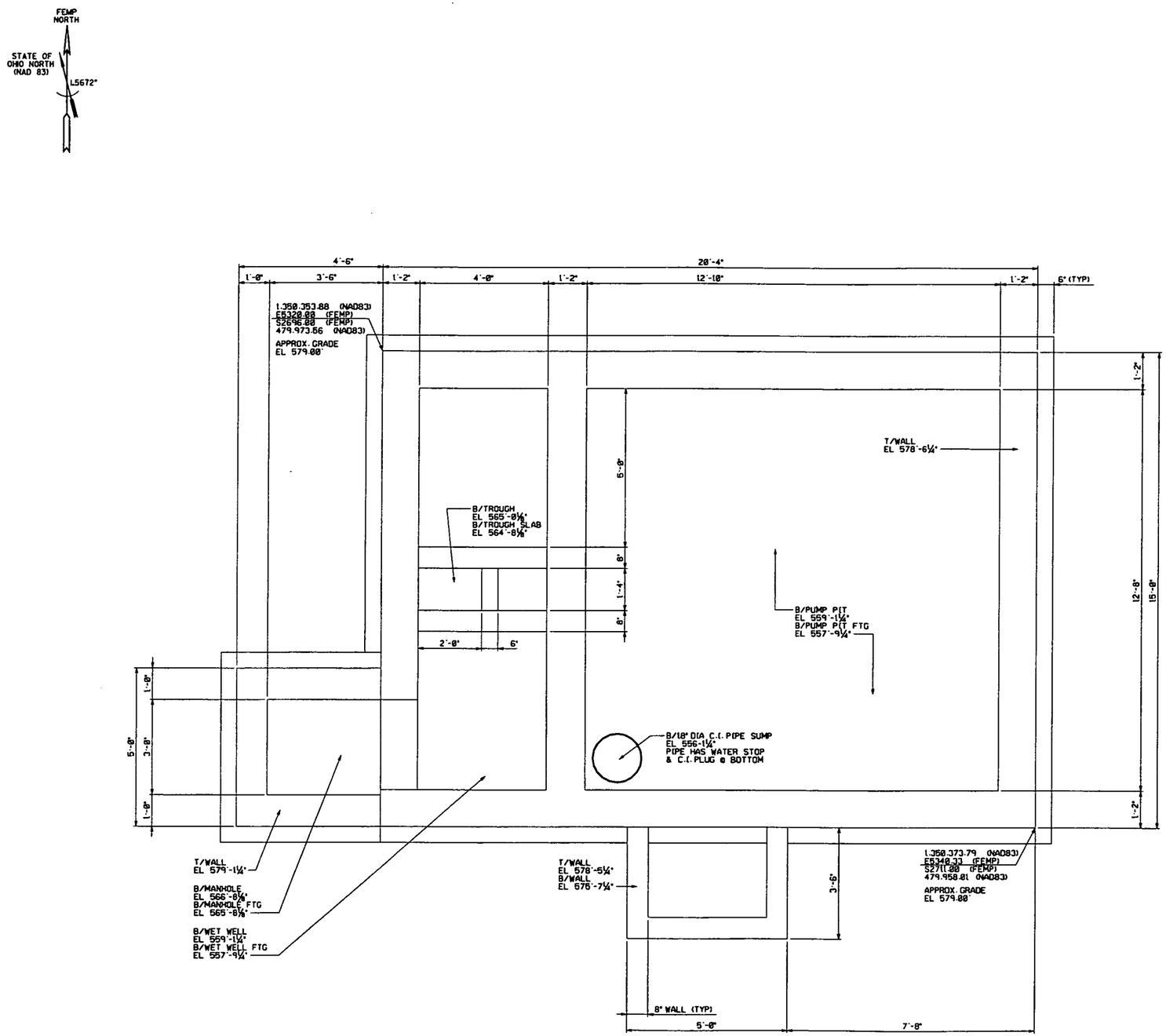
DRAWING TITLE
BUILDING 16B
SLAB PLAN
WITHOUT HIDDEN LINES

CONFIGURATION MANAGEMENT DRAWING — TYPE: REF

EXISTING STRUCTURES AS CONSTRUCTED SHOWN ON THIS DRAWING ARE UNDER CONFIGURATION MANAGEMENT CONTROL. SEE NOTES.

TASK ORDER NO.	OPTIONAL NO.	SCALE	
060	N/A	½" = 1'-0"	
		DRAWN BY: L. N. HAGAMAN	DATE: 12/23/01
JES NO. 4327	FOR PROJECT NO. 20810	TECHNICAL LEAD: N/A	DATE: N/A
		CHECKED BY: DOREEN REED	DATE: 03/11/02
COGNIZANT ENGINEER	DATE	DRAWING INDEX CODE NO. 16H-5900-S-00115	SHEET NO. S0002 / REV. NO. 0

SEAL



FOUNDATION PLAN

GRAPHIC SCALE: ¾"=1'-0"

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION DRAWINGS AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.
2. SEE EXISTING REFERENCED DRAWINGS FOR CONSTRUCTION DETAILS AND/OR ISOMETRIC DRAWING SK25C-1.

4831

REF DWG NO.	DRAWING TITLE
25H-1450-S-00015	SANITARY SEWERS LIFT STATION

000388

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	RDW BY
0	ISSUED FOR TECHNICAL REFERENCE ONLY.	N/A	KG 03/28/02	LNH 03/28/02

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
PARSONS I & T GROUP
CINCINNATI, OHIO

PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 7 - TECHNICAL REFERENCE DRAWING

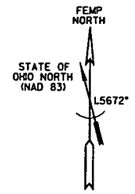
DRAWING TITLE
BUILDING 25C
FOUNDATION PLAN
WITHOUT HIDDEN LINES

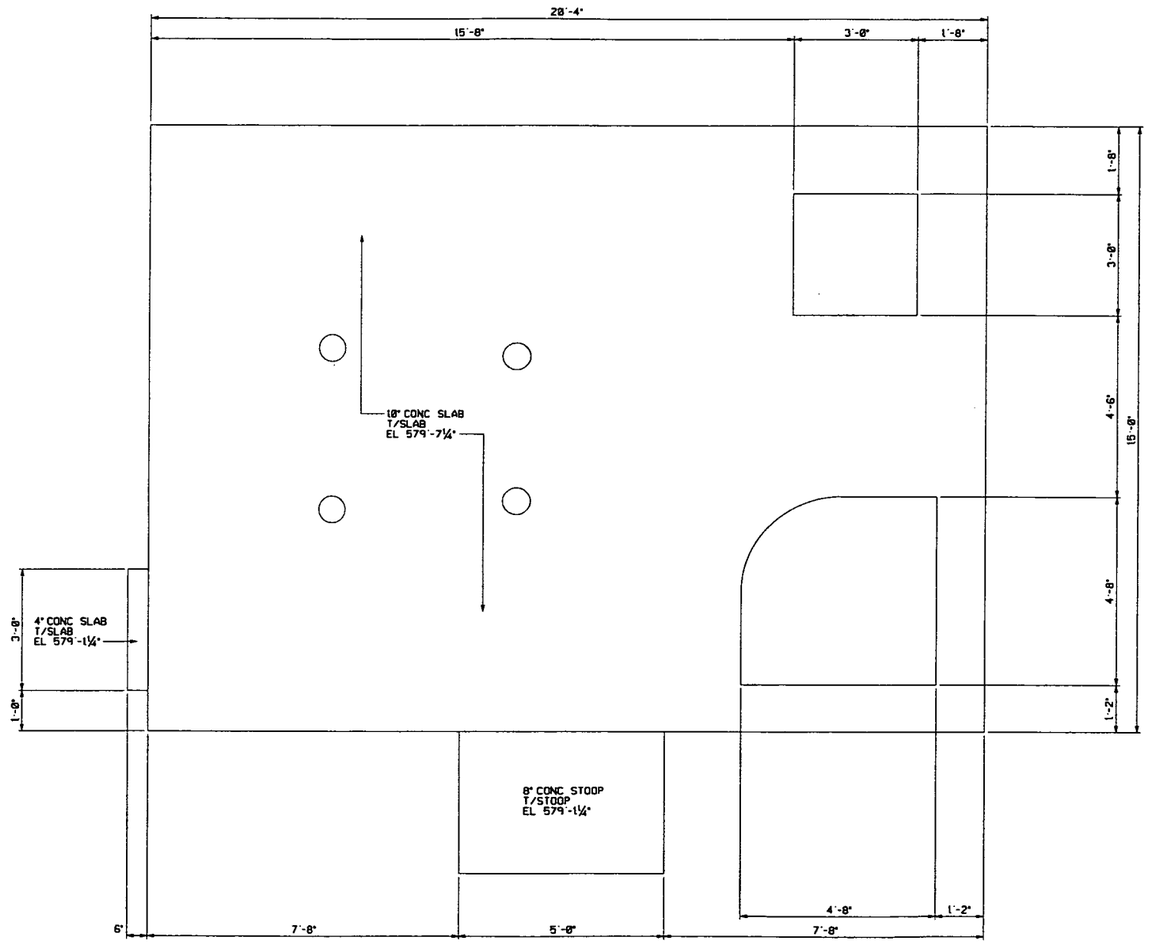
CONFIGURATION MANAGEMENT DRAWING
EXISTING ATTACHMENTS AS COMPONENTS OF THIS DRAWING ARE CONTROLLED BY CONFIGURATION MANAGEMENT CONTROL (CC) NOTES.

TASK ORDER NO.	OPTIONAL NO.	SCALE ¾" = 1'-0"
060	N/A	DRAWN BY K. L. RABBITT — DATE 01/15/02
RES NO. 4327	FOF PROJECT NO. 20810	TECHNICAL LEAD N/A — DATE N/A
		CHECKED BY DOREEN REED — DATE 01/24/02
DRAWING INDEX CODE NO. 25H-5900-S-00227	SHEET NO. S0001	REV. NO. 0

COGNIZANT ENGINEER DATE

SEAL





SLAB PLAN

1' 0" 1' 2' 3'
GRAPHIC SCALE: ¾"=1'-0"

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION DRAWINGS AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.
2. SEE EXISTING REFERENCED DRAWINGS FOR CONSTRUCTION DETAILS AND/OR ISOMETRIC DRAWING SK25C-1.

4831

REF DWG NO.	DRAWING TITLE
25H-1450-S-00015	SANITARY SEWERS LIFT STATION

000389

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	REVD BY
0	ISSUED FOR TECHNICAL REFERENCE ONLY.	N/A	KG 03/28/02	LNH 03/28/02
		DETAILS AND DATE		

UNITED STATES
DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
PARSONS I & T GROUP
CINCINNATI, OHIO

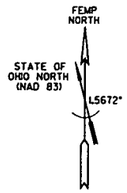
PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 7 - TECHNICAL REFERENCE DRAWING

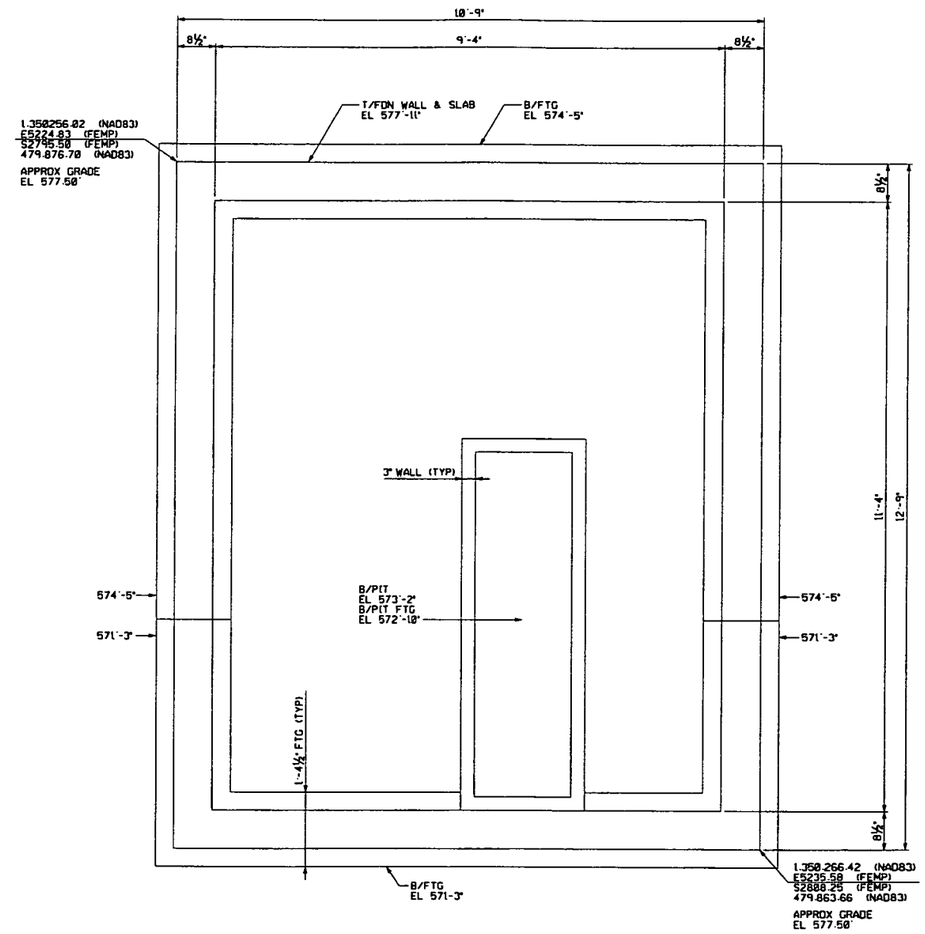
DRAWING TITLE
BUILDING 25C
SLAB PLAN
WITHOUT HIDDEN LINES

CONFIGURATION MANAGEMENT DRAWING
EXISTING STRUCTURES OR COMPONENTS CONTAINED ON THIS DRAWING ARE UNDER CONFIGURATION MANAGEMENT CONTROL. SEE NOTES.

TASK ORDER NO.	OPTIONAL NO.	SCALE ¾" = 1'-0"	
060	N/A	DRAWN BY K. L. RABBITT	DATE 01/15/02
RES NO. 4327	FDF PROJECT NO. 20810	TECHNICAL LEAD N/A	DATE N/A
		CHECKED BY DOREEN REED	DATE 01/24/02
COGNIZANT ENGINEER	DATE	DRAWING INDEX CODE NO. 25H-5900-S-00228	SHEET NO. S0002 / REV. NO. 0

SEAL





FOUNDATION PLAN

GRAPHIC SCALE: 1"=1'-0"

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION DRAWINGS AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.
2. SEE EXISTING REFERENCED DRAWINGS FOR CONSTRUCTION DETAILS AND/OR ISOMETRIC DRAWING SK26C-1.

4831

REF DWG NO.	DRAWING TITLE
16X-5500-A-00033	MAIN ELECTRICAL SUB-STATION - STRAINER HOUSE FOR NEW FOG SPRAY SYSTEM - TRANS 1 & 2

000390

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	DESIG BY
0	ISSUED FOR TECHNICAL REFERENCE ONLY.	N/A	KG 10/28/92	LMH 10/28/92

INITIALS AND DATE

UNITED STATES
DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
PARSONS I & T GROUP
CINCINNATI, OHIO

PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 7 - TECHNICAL REFERENCE DRAWING

DRAWING TITLE
BUILDING 26C
FOUNDATION PLAN
WITHOUT HIDDEN LINES

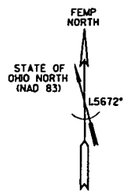
CONFIGURATION MANAGEMENT DRAWING YES NO

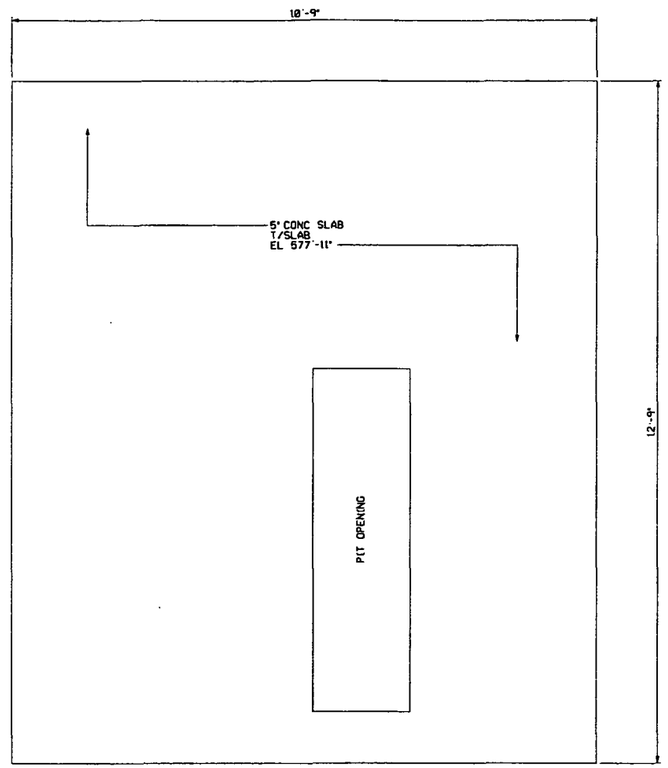
SYSTEMS, STRUCTURES OR COMPONENTS CONTROLLED ON THIS DRAWING ARE UNDER CONFIGURATION MANAGEMENT CONTROL. SEE NOTES.

TASK ORDER NO.	OPTIONAL NO.	SCALE 1" = 1'-0"
060	N/A	DRAWN BY K. L. RABBITT — DATE 01/15/92
RES NO. 4327	FDF PROJECT NO. 20810	TECHNICAL LEAD N/A — DATE N/A
		CHECKED BY DOREEN REED — DATE 01/24/92
DRAWING INDEX CODE NO. 16X-5900-S-00117		SHEET NO. S0001 — REV. NO. 0

COGNIZANT ENGINEER DATE

SEAL





SLAB PLAN

GRAPHIC SCALE: 1"=1'-0"

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION DRAWINGS AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.
2. SEE EXISTING REFERENCED DRAWINGS FOR CONSTRUCTION DETAILS AND/OR ISOMETRIC DRAWING SK26C-1.

4831

REF DWG NO.	DRAWING TITLE
16X-5500-A-00033	MAIN ELECTRICAL SUB-STATION - STRAINER HOUSE FOR NEW FOG SPRAY SYSTEM - TRANS 1 & 2

000391

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	IL	PM	REVW BY
0	ISSUED FOR TECHNICAL REFERENCE ONLY.	N/A	KG 10/28/02	LNH 10/28/02

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
PARSONS I & T GROUP
CINCINNATI, OHIO

PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 7 - TECHNICAL REFERENCE DRAWING

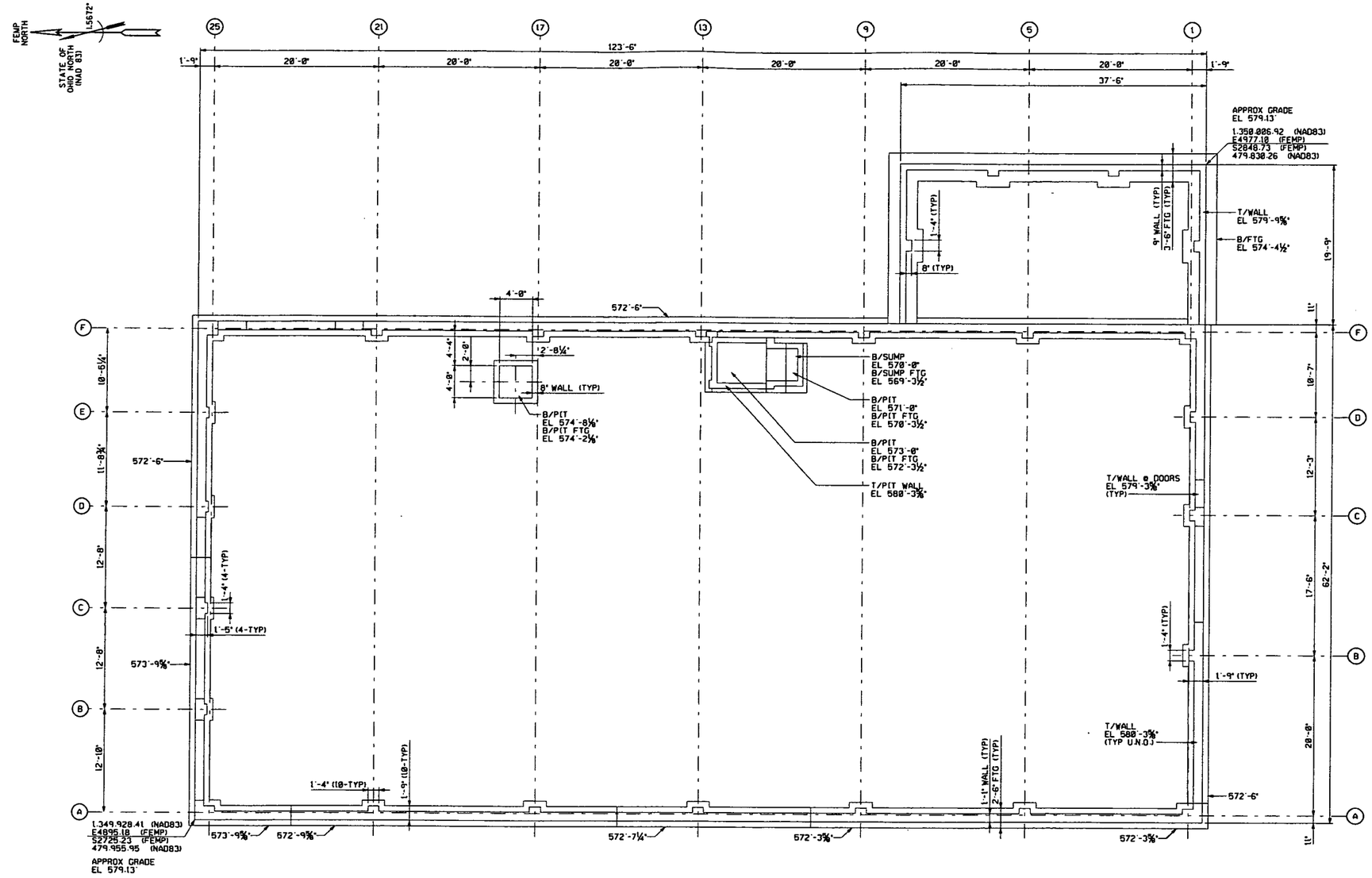
DRAWING TITLE
BUILDING 26C
SLAB PLAN
WITHOUT HIDDEN LINES

CONFIGURATION MANAGEMENT DRAWING YES NO
EXISTING ATTRIBUTES ARE CONTROLLED BY THE CONFIGURATION MANAGEMENT CONTROL DIV NOTES.

COGNIZANT ENGINEER DATE

TASK ORDER NO.	OPTIONAL NO.	SCALE 1" = 1'-0"	
060	N/A	DRAWN BY K.L. RABBITT	DATE 01/15/02
RES NO. 4327	FDF PROJECT NO. 20810	TECHNICAL LEAD N/A	DATE N/A
		CHECKED BY DOREEN REED	DATE 01/24/02
DRAWING INDEX CODE NO. 16X-5900-S-00118		SHEET NO. S0002	REV. NO. 0

SEAL



FOUNDATION PLAN

GRAPHIC SCALE: 3/16" = 1'-0"

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION DRAWINGS AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.
2. SEE EXISTING REFERENCED DRAWINGS FOR CONSTRUCTION DETAILS AND/OR ISOMETRIC DRAWING SK31AB-1.

4831

REF DWG NO.	DRAWING TITLE
22H-5500-S-00527	TRUCK WEIGH SCALES INSTALLATION & DETAILS
31X-3115-A-00013	GARAGE C 31 ARCHITECTURAL LAYOUT
31X-3115-S-00011	REINFORCING DETAILS FOR THE GARAGE BUILDING
31X-5500-A-00023	TRANSPORTATION OFFICE
31X-5500-E-00048	TRANSPORTATION OFFICE
31X-5900-S-00019	TRANSPORTATION OFFICE FOOTING REVISIONS
75H-5500-G-00026	GRID 7 - EXISTING SITE PLAN

000392

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	REVIS BY
0	ISSUED FOR TECHNICAL REFERENCE ONLY.	N/A	KG 03/28/02	LNH 03/28/02

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
PARSONS I & T GROUP
CINCINNATI, OHIO

PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 7 - TECHNICAL REFERENCE DRAWING

DRAWING TITLE
BUILDING 31A & 31B
FOUNDATION PLAN
WITHOUT HIDDEN LINES

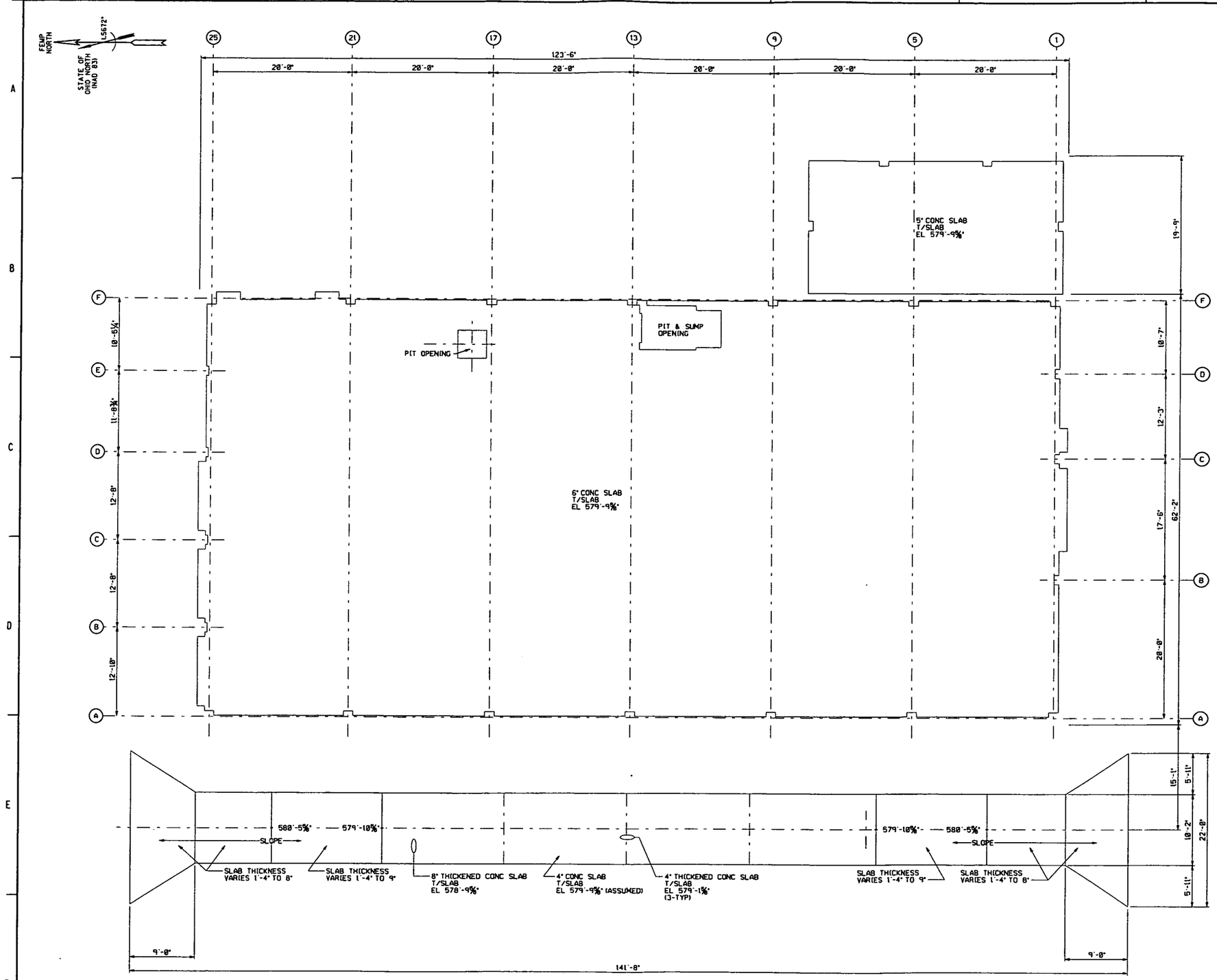
CONFIGURATION MANAGEMENT DRAWING — YES / NO

EXISTING STRUCTURES OR COMPONENTS SHOWN ON THIS DRAWING ARE UNDER CONFIGURATION MANAGEMENT CONTROL. SEE NOTES.

TASK ORDER NO.	OPTIONAL NO.	SCALE	DRAWN BY	DATE
060	N/A	3/16" = 1'-0"	K. L. RABBITT	01/16/02
RES NO.	FOF PROJECT NO.		TECHNICAL LEAD	DATE
4327	20810		N/A	N/A
			CHECKED BY DOREEN REED	DATE 01/24/02

COGNIZANT ENGINEER | DATE | SEAL

DRAWING INDEX CODE NO. 31X-5900-S-00059 | SHEET NO. S0001 | REV. NO. 0



SLAB PLAN

GRAPHIC SCALE: 3/16"=1'-0"

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION DRAWINGS AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.
2. SEE EXISTING REFERENCED DRAWINGS FOR CONSTRUCTION DETAILS AND/OR ISOMETRIC DRAWING SK31AB-1.

4831

REF DWG NO.	DRAWING TITLE
22H-5500-S-00527	TRUCK WEIGH SCALES INSTALLATION & DETAILS
31X-3115-A-00013	GARAGE C 31 ARCHITECTURAL LAYOUT
31X-3115-S-00011	REINFORCING DETAILS FOR THE GARAGE BUILDING
31X-5500-A-00023	TRANSPORTATION OFFICE
31X-5500-E-00048	TRANSPORTATION OFFICE
31X-5900-S-00019	TRANSPORTATION OFFICE FOOTING REVISIONS
75H-5500-C-00026	GRID 7 - EXISTING SITE PLAN

000393

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	RCD BY
0	ISSUED FOR TECHNICAL REFERENCE ONLY.	N/A	KG 10/28/92	LNH 10/28/92

INITIALS AND DATE

UNITED STATES
DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
PARSONS I & T GROUP
CINCINNATI, OHIO

PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 7 - TECHNICAL REFERENCE DRAWING

DRAWING TITLE
BUILDING 31A & 31B
SLAB PLAN
WITHOUT HIDDEN LINES

CONFIGURATION MANAGEMENT DRAWING

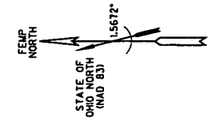
EXISTING STRUCTURES OR COMPONENTS SHOWN ON THIS DRAWING ARE UNDER CONFIGURATION MANAGEMENT CONTROL. DO NOT MODIFY.

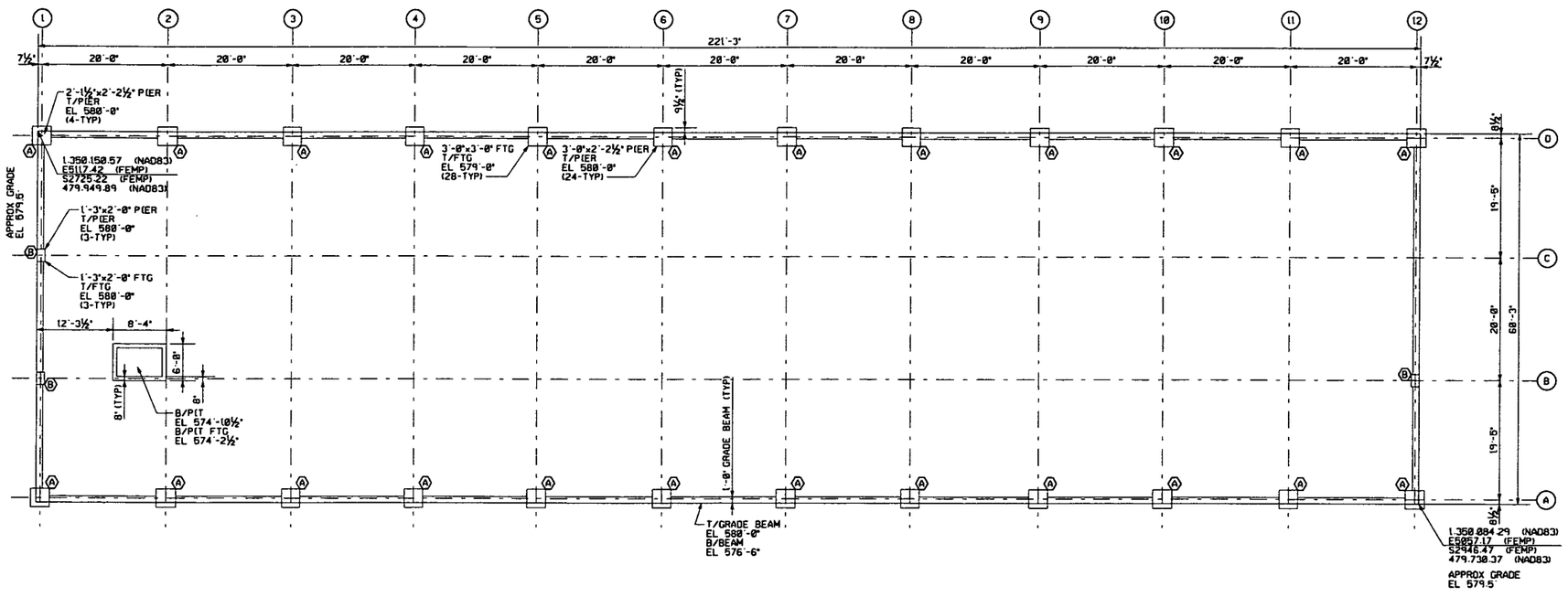
COGNIZANT ENGINEER DATE

TASK ORDER NO.	OPTIONAL NO.	SCALE 3/16" = 1'-0"
060	N/A	DRAWN BY K. L. RABBITT — DATE 10/16/92
RES NO. 4327	FDF PROJECT NO. 20810	TECHNICAL LEAD N/A — DATE N/A
		CHECKED BY DOREEN REED — DATE 10/24/92
DRAWING INDEX CODE NO. 31X-5900-S-00060		SHEET NO. S0002 — REV. NO. 0

SEAL

FOOTING SCHEDULE						
MARK	LENGTH N/S	WIDTH E/W	HEIGHT	B/FTG EL	COL PIER	REMARKS
(A)	3'-0"	3'-0"	2'-6"/3'-6"	576'-6"	SEE PLAN	SEE NOTE 2
(B)	1'-3"	2'-0"	3'-6"	576'-6"	SEE PLAN	SEE NOTE 2





FOUNDATION PLAN

GRAPHIC SCALE: 1/8"=1'-0"

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION DRAWINGS AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.
2. SEE EXISTING REFERENCED DRAWINGS FOR CONSTRUCTION DETAILS AND/OR ISOMETRIC DRAWING SK46ABC-1.

4831

REF DWG NO.	DRAWING TITLE
46X-3115-A-00001	REPAIR SHOP - BLDG. K
46X-5500-A-00039	HEAVY EQUIPMENT BUILDING FLOOR PLAN
75H-5500-G-00026	GRID 7 - EXISTING SITE PLAN

00394

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	REVIS BY
0	ISSUED FOR TECHNICAL REFERENCE ONLY.	N/A	KG 03/28/02	LNH 03/28/02

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
PARSONS I & T GROUP
CINCINNATI, OHIO

PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 7 - TECHNICAL REFERENCE DRAWING

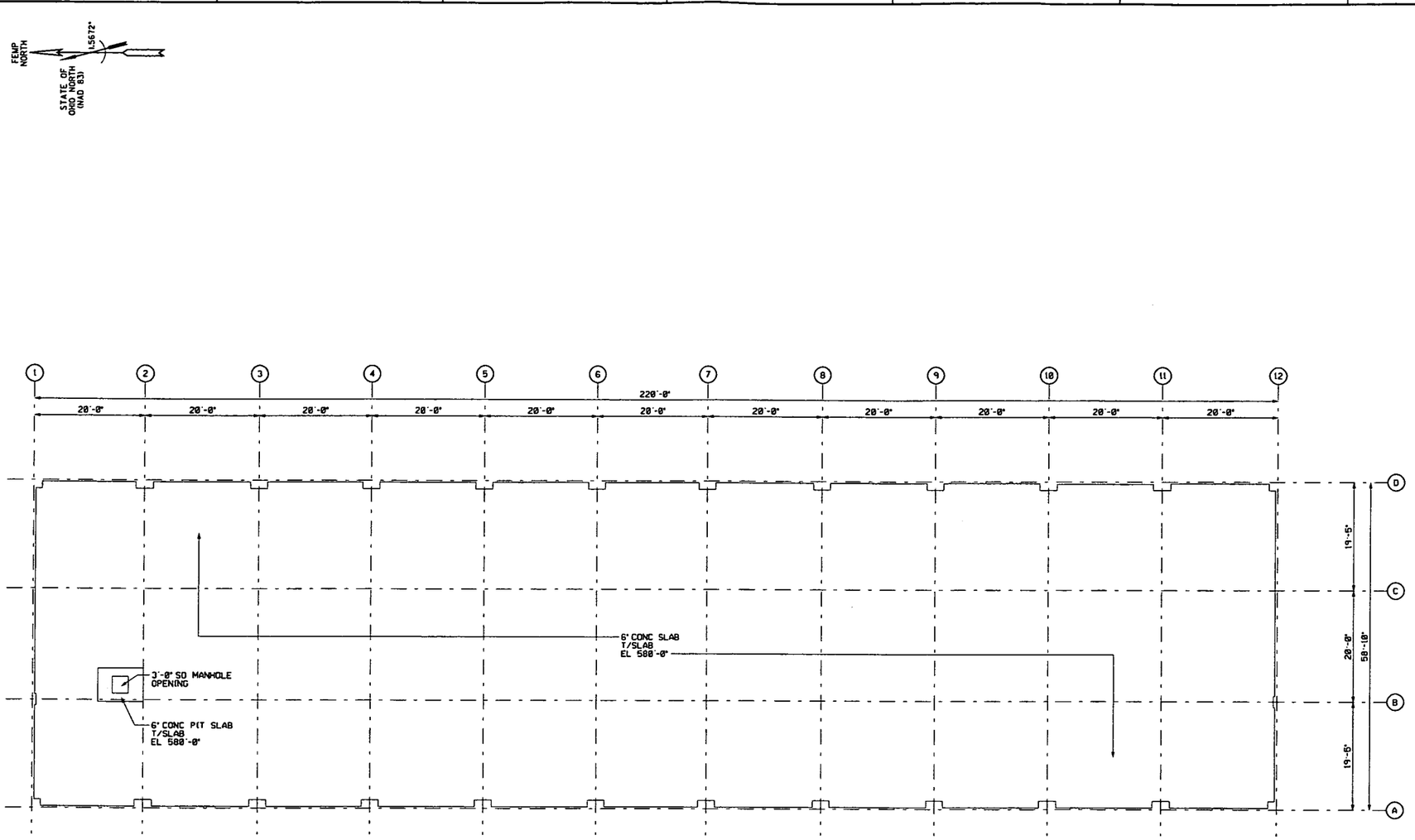
DRAWING TITLE
BUILDING 46A, 46B, & 46C
FOUNDATION PLAN
WITHOUT HIDDEN LINES

CONFIGURATION MANAGEMENT DRAWING
YES / NO
EXISTING STRUCTURES OR COMPONENTS AFFECTED BY THIS DRAWING ARE LISTED IN CONFIGURATION MANAGEMENT CONTROL SEE NOTES.

TASK ORDER NO.	OPTIONAL NO.	SCALE	
060	N/A	1/8" = 1'-0"	
RES NO.	FOF PROJECT NO.	DRAWN BY K. L. RABBITT	DATE 01/15/02
4327	20810	TECHNICAL LEAD N/A	DATE N/A
		CHECKED BY DOREEN REED	DATE 01/24/02
DRAWING INDEX CODE NO.		SHEET NO.	REV. NO.
46X-5900-S-00068		S0001	0

COGNIZANT ENGINEER DATE

SEAL



SLAB PLAN

GRAPHIC SCALE: 1/8"=1'-0"

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION DRAWINGS AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.
2. SEE EXISTING REFERENCED DRAWINGS FOR CONSTRUCTION DETAILS AND/OR ISOMETRIC DRAWING SK46ABC-1.

4831

REF DWG NO.	DRAWING TITLE
46X-3115-A-00001	REPAIR SHOP - BLDG. K
46X-5500-A-00039	HEAVY EQUIPMENT BUILDING FLOOR PLAN
75H-5500-G-00026	GRID 7 - EXISTING SITE PLAN

000395

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	REVR BY
0	ISSUED FOR TECHNICAL REFERENCE ONLY.	N/A	KG 03/29/82	LNH 03/29/82

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
PARSONS I & T GROUP
CINCINNATI, OHIO

PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 7 - TECHNICAL REFERENCE DRAWING

DRAWING TITLE
BUILDING 46A, 46B, & 46C
SLAB PLAN
WITHOUT HIDDEN LINES

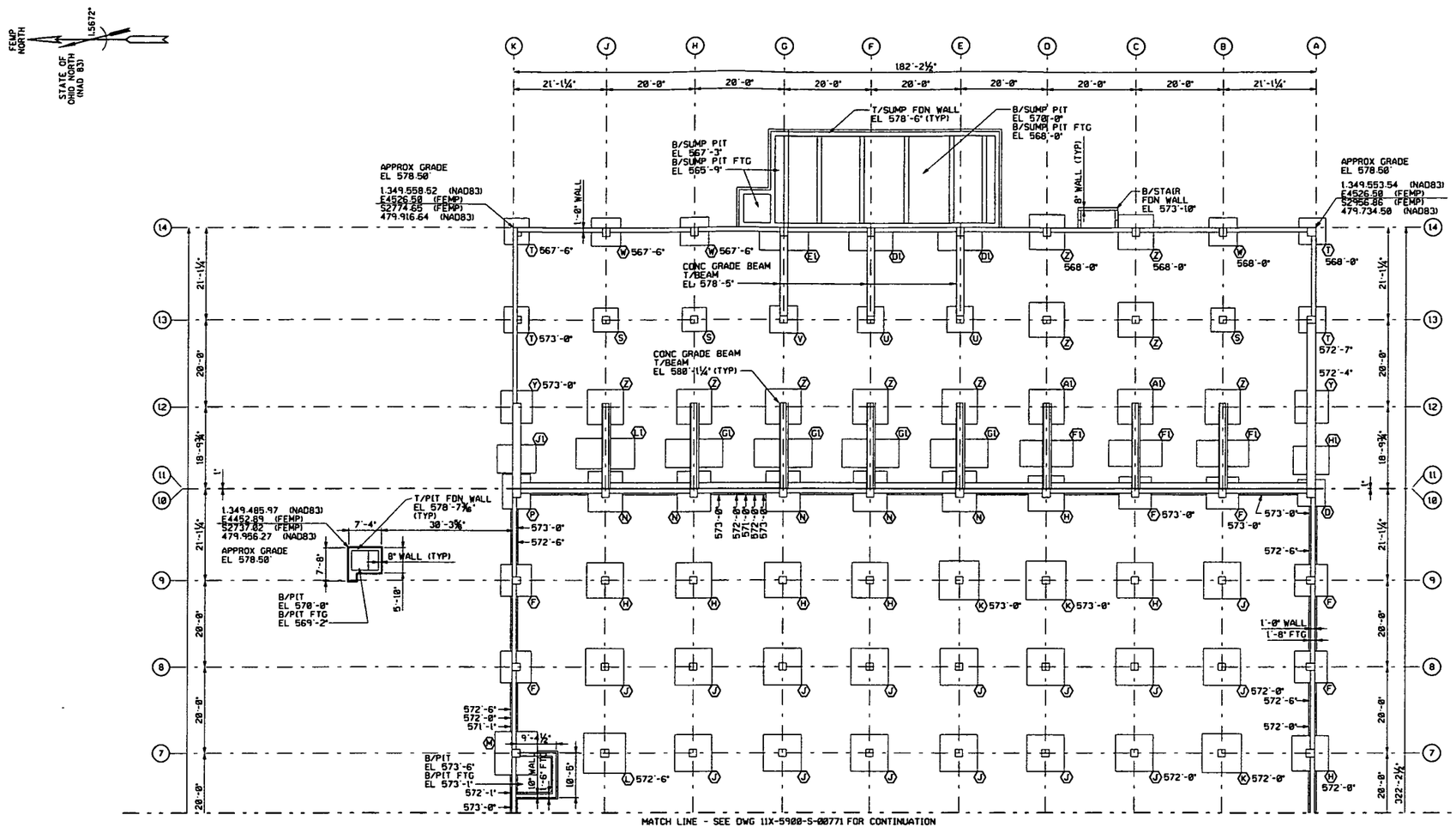
CONFIGURATION MANAGEMENT DRAWING

EXISTING STRUCTURES OR COMPONENTS SHOWN ON THIS DRAWING ARE LOCATED PER CONFIGURATION MANAGEMENT CONTROL SEE NOTES.

COORDINATOR ENGINEER DATE

TASK ORDER NO.	OPTIONAL NO.	SCALE 1/8" = 1'-0"	
060	N/A	DRAWN BY K. L. RABBITT	DATE 01/15/82
RES NO. 4327	FOF PROJECT NO. 20810	TECHNICAL LEAD N/A	DATE N/A
		CHECKED BY DOREEN REED	DATE 01/24/82
DRAWING INDEX CODE NO. 46X-5900-S-00069		SHEET NO. S0002	REV. NO. 0

SEAL



FOUNDATION PLAN - EAST

FOOTING SCHEDULE

MARK	LENGTH N/S	WIDTH E/W	HEIGHT	B/FTG EL	COL PIER	REMARKS
A	4'-2"	4'-2"	1'-3"	571'-6"	1'-11¼" SQ	
B	4'-10"	4'-10"	1'-3"	571'-6"	VARIES	SEE NOTE 2
C	5'-2"	5'-2"	1'-3"	571'-6" (UNO)	1'-8" SQ	
D	6'-2"	6'-2"	1'-3"	573'-0"	1'-11¼" SQ	
E	6'-8"	6'-8"	1'-3"	SEE PLAN	VARIES	SEE NOTE 2
F	7'-4"	7'-4"	1'-6"	572'-6" (UNO)	VARIES	SEE NOTE 2
G	7'-8"	7'-8"	1'-6"	571'-6" (UNO)	1'-8" SQ	
H	8'-2"	8'-2"	1'-6"	573'-0"	VARIES	SEE NOTE 2
J	8'-6"	8'-6"	1'-6"	572'-6" (UNO)	VARIES	SEE NOTE 2
K	9'-0"	9'-0"	1'-8"	571'-6" (UNO)	VARIES	SEE NOTE 2
L	9'-4"	9'-4"	1'-8"	572'-0" (UNO)	VARIES	SEE NOTE 2
M	10'-0"	10'-0"	2'-0"	SEE PLAN	VARIES	SEE NOTE 2
N	7'-8"	9'-4"	1'-6"	573'-0"	1'-8"x1'-11¼"	
P	6'-8"	8'-0"	1'-3"	573'-0"	1'-11¼" SQ	
Q	5'-6"	7'-4"	1'-3"	571'-6" (UNO)	1'-8"x1'-11¼"	

FOOTING SCHEDULE

MARK	LENGTH N/S	WIDTH E/W	HEIGHT	B/FTG EL	COL PIER	REMARKS
R	5'-4"	6'-4"	1'-3"	570'-6"	1'-11¼" SQ	
S	5'-6"	5'-6"	1'-3"	573'-0"	1'-8" SQ	
T	6'-0"	6'-0"	1'-3"	SEE PLAN	VARIES	SEE NOTE 2
U	6'-0"	6'-0"	1'-6"	570'-0"	1'-8" SQ	
V	6'-3"	6'-3"	1'-6"	568'-5"	1'-8" SQ	
W	6'-6"	6'-6"	1'-3"	571'-6" (UNO)	VARIES	SEE NOTE 2
X	7'-0"	7'-0"	1'-6"	570'-0" (UNO)	VARIES	SEE NOTE 2
Y	7'-6"	7'-6"	1'-6"	570'-0" (UNO)	VARIES	SEE NOTE 2
Z	8'-0"	8'-0"	1'-6"	570'-0" (UNO)	VARIES	SEE NOTE 2
A1	9'-0"	9'-0"	1'-6"	573'-0"	1'-8" SQ	
B1	3'-0"	5'-0"	1'-3"	571'-6"	VARIES	SEE NOTE 2 & 3
C1	6'-0"	5'-0"	1'-3"	570'-6"	1'-11¼"x1'-8"	
D1	10'-0"	5'-3"	1'-6"	568'-0"	1'-8"x1'-11¼"	
E1	11'-0"	5'-3"	1'-6"	565'-9"	1'-8"x1'-11¼"	
F1	12'-0"	6'-0"	1'-9"	573'-0"	N/A	

FOOTING SCHEDULE

MARK	LENGTH N/S	WIDTH E/W	HEIGHT	B/FTG EL	COL PIER	REMARKS
G1	13'-0"	6'-6"	1'-9"	573'-0"	N/A	
H1	8'-0"	6'-6"	1'-6"	573'-0"	N/A	
J1	9'-3"	6'-6"	1'-6"	573'-0"	N/A	
K1	8'-0"	7'-6"	1'-6"	570'-0"	1'-11¼"x1'-8"	
L1	13'-0"	7'-0"	1'-9"	573'-0"	N/A	
M1	4'-3"	4'-3"	1'-0"	576'-0"	1'-9¼" SQ	
N1	3'-10"	3'-10"	1'-0"	577'-0"	1'-4" SQ	
P1	4'-9"	4'-9"	1'-0"	576'-0"	1'-9¼" SQ	
Q1	4'-6"	4'-6"	1'-0"	576'-0"	VARIES	SEE NOTE 2
R1	4'-0"	4'-0"	1'-0"	576'-0"	VARIES	SEE NOTE 2
S1	3'-10"	3'-10"	1'-0"	576'-0"	VARIES	SEE NOTE 2
T1	4'-6"	4'-6"	1'-0"	576'-0"	1'-9¼" SQ	

GRAPHIC SCALE: 1/32" = 1'-0"

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION DRAWINGS AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.
2. SEE EXISTING REFERENCED DRAWINGS FOR CONSTRUCTION DETAILS AND/OR ISOMETRIC DRAWING SK11-1.

4831

REF DWG NO.	DRAWING TITLE
11C-4445-S-00471	FOUNDATION PLAN & DETAILS
11X-1450-A-00007	ELEVATOR & DUMBWAITER SHAFTS
11X-1450-S-00013	FOUNDATION PLAN
11X-1450-S-00622	SERVICE BUILDING RECEIVING SUMP
11X-5500-S-00705	PLAN, SECTIONS & DETAILS
11X-7000-S-00053	FOUNDATION PLAN
11X-7000-S-00078	FOUNDATION DETAILS SHEET #1
11X-7000-S-00083	FOUNDATION DETAILS SHEET #2
11X-7000-S-00084	FOUNDATION DETAILS SHEET #3

000396

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	REVD BY
0	ISSUED FOR TECHNICAL REFERENCE ONLY.	N/A	KG 03/28/02	LNH 03/28/02

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
PARSONS I & T GROUP
CINCINNATI, OHIO

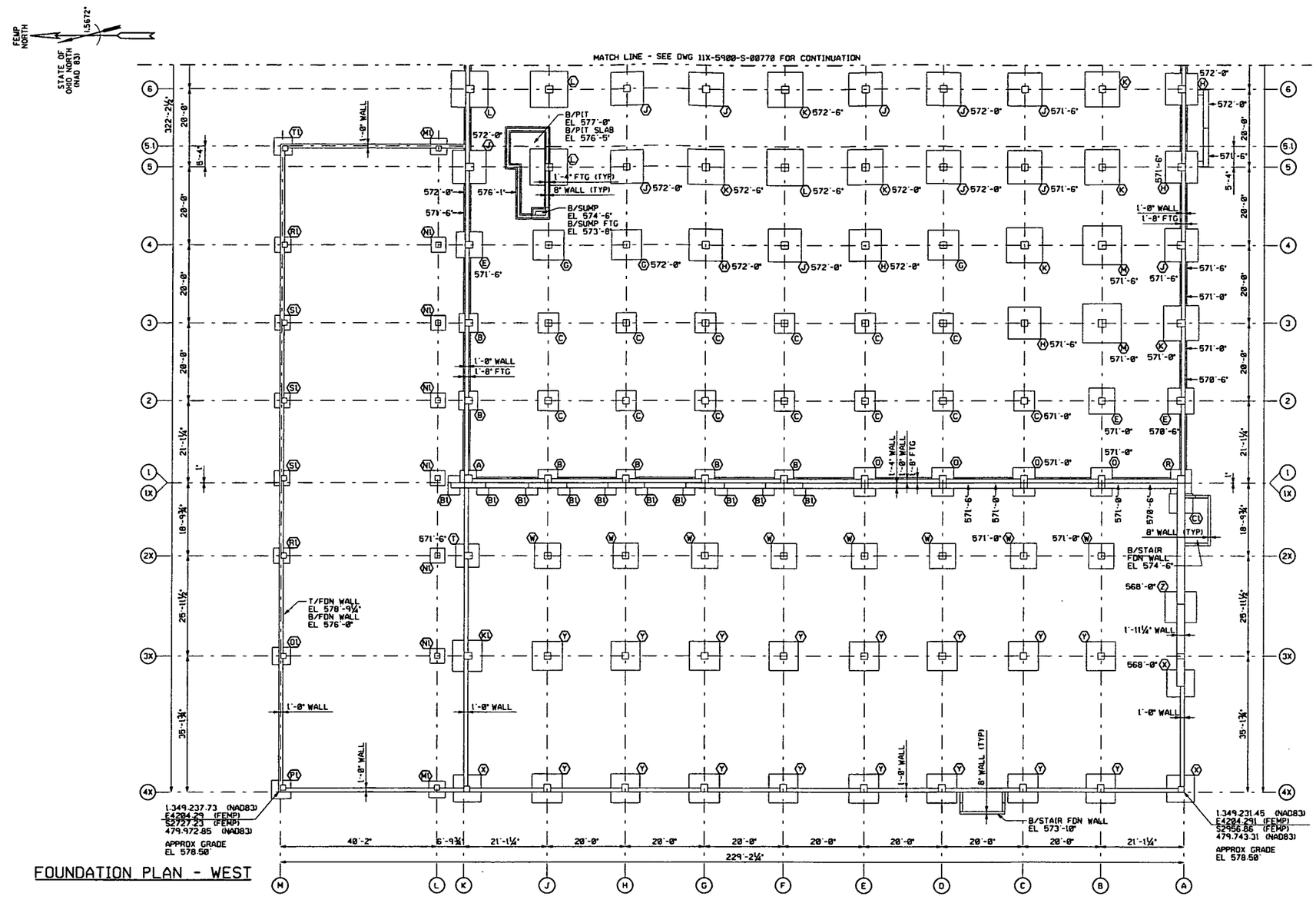
PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 14 - TECHNICAL REFERENCE DRAWING

DRAWING TITLE
BUILDING 11
FOUNDATION PLAN - EAST
WITHOUT HIDDEN LINES

CONFIGURATION MANAGEMENT DRAWING
TASK / DOCK
EXISTING ATTACHED BY ON COMPONENTS DOCKED AS THIS DRAWING AND UNDER CONFIGURATION MANAGEMENT CONTROL DO NOTED.
COGNIZANT ENGINEER DATE

TASK ORDER NO.	OPTIONAL NO.	SCALE
060	N/A	1/32" = 1'-0"
DRAWN BY: L. HAGAMAN/K. RABBIT		DATE: 12/31/01
HES NO. 4327	FOP PROJECT NO. 20810	TECHNICAL LEAD: N/A; DATE: N/A
		CHECKED BY: DOREEN REED; DATE: 01/11/02
DRAWING INDEX CODE NO. 11X-5900-S-00770	SHEET NO. S0001	REV. NO. 0

SEAL



FOUNDATION PLAN - WEST

FOOTING SCHEDULE

MARK	LENGTH N/S	WIDTH E/W	HEIGHT	B/FTG EL	COL PIER	REMARKS
A	4'-2"	4'-2"	1'-3"	571'-6"	1'-11¼" SQ	
B	4'-10"	4'-10"	1'-3"	571'-6"	VARIES	SEE NOTE 2
C	5'-2"	5'-2"	1'-3"	571'-6" (UNO)	1'-8" SQ	
D	6'-2"	6'-2"	1'-3"	573'-0"	1'-11¼" SQ	
E	6'-8"	6'-8"	1'-3"	SEE PLAN	VARIES	SEE NOTE 2
F	7'-4"	7'-4"	1'-6"	572'-6" (UNO)	VARIES	SEE NOTE 2
G	7'-8"	7'-8"	1'-6"	571'-6" (UNO)	1'-8" SQ	
H	8'-2"	8'-2"	1'-6"	573'-0"	VARIES	SEE NOTE 2
J	8'-6"	8'-6"	1'-6"	572'-6" (UNO)	VARIES	SEE NOTE 2
K	9'-0"	9'-0"	1'-8"	571'-6" (UNO)	VARIES	SEE NOTE 2
L	9'-4"	9'-4"	1'-8"	572'-0" (UNO)	VARIES	SEE NOTE 2
M	10'-0"	10'-0"	2'-0"	SEE PLAN	VARIES	SEE NOTE 2
N	7'-8"	9'-4"	1'-6"	573'-0"	1'-8"x1'-11¼"	
P	6'-8"	8'-0"	1'-3"	573'-0"	1'-11¼" SQ	
Q	5'-6"	7'-4"	1'-3"	571'-6" (UNO)	1'-8"x1'-11¼"	

FOOTING SCHEDULE

MARK	LENGTH N/S	WIDTH E/W	HEIGHT	B/FTG EL	COL PIER	REMARKS
R	5'-4"	6'-4"	1'-3"	570'-6"	1'-11¼" SQ	
S	5'-6"	5'-6"	1'-3"	573'-0"	1'-8" SQ	
T	6'-0"	6'-0"	1'-3"	SEE PLAN	VARIES	SEE NOTE 2
U	6'-0"	6'-0"	1'-6"	570'-0"	1'-8" SQ	
V	6'-3"	6'-3"	1'-6"	568'-5"	1'-8" SQ	
W	6'-6"	6'-6"	1'-3"	571'-6" (UNO)	VARIES	SEE NOTE 2
X	7'-0"	7'-0"	1'-6"	570'-0" (UNO)	VARIES	SEE NOTE 2
Y	7'-6"	7'-6"	1'-6"	570'-0" (UNO)	VARIES	SEE NOTE 2
Z	8'-0"	8'-0"	1'-6"	570'-0" (UNO)	VARIES	SEE NOTE 2
A1	9'-0"	9'-0"	1'-6"	573'-0"	1'-8" SQ	
B1	3'-0"	5'-0"	1'-3"	571'-6"	VARIES	SEE NOTE 2 & 3
C1	6'-0"	5'-0"	1'-3"	570'-6"	1'-11¼"x1'-8"	
D1	10'-0"	5'-3"	1'-6"	568'-0"	1'-8"x1'-11¼"	
E1	11'-0"	5'-3"	1'-6"	565'-9"	1'-8"x1'-11¼"	
F1	12'-0"	6'-0"	1'-9"	573'-0"	N/A	

FOOTING SCHEDULE

MARK	LENGTH N/S	WIDTH E/W	HEIGHT	B/FTG EL	COL PIER	REMARKS
G1	13'-0"	6'-6"	1'-9"	573'-0"	N/A	
H1	8'-0"	6'-6"	1'-6"	573'-0"	N/A	
J1	9'-3"	6'-6"	1'-6"	573'-0"	N/A	
K1	8'-0"	7'-6"	1'-6"	570'-0"	1'-11¼"x1'-8"	
L1	13'-0"	7'-0"	1'-9"	573'-0"	N/A	
M1	4'-3"	4'-3"	1'-0"	576'-0"	1'-9¼" SQ	
N1	3'-10"	3'-10"	1'-0"	577'-0"	1'-4" SQ	
P1	4'-9"	4'-9"	1'-0"	576'-0"	1'-9¼" SQ	
Q1	4'-6"	4'-6"	1'-0"	576'-0"	VARIES	SEE NOTE 2
R1	4'-0"	4'-0"	1'-0"	576'-0"	VARIES	SEE NOTE 2
S1	3'-10"	3'-10"	1'-0"	576'-0"	VARIES	SEE NOTE 2
T1	4'-6"	4'-6"	1'-0"	576'-0"	1'-9¼" SQ	

GRAPHIC SCALE: 3/32" = 1'-0"

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION DRAWINGS AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.
2. SEE EXISTING REFERENCED DRAWINGS FOR CONSTRUCTION DETAILS AND/OR ISOMETRIC DRAWING SK11-1.
3. FOOTERS DESIGNATED BY MARK B1 ARE BUTTED AGAINST COLUMN LINE 1 FOOTERS.

4831

REF DWG NO.	DRAWING TITLE
11C-4445-S-00471	FOUNDATION PLAN & DETAILS
11X-1450-A-00007	ELEVATOR & DUMBWAITER SHAFTS
11X-1450-S-00013	FOUNDATION PLAN
11X-1450-S-00622	SERVICE BUILDING RECEIVING SUMP
11X-5500-S-00705	PLAN, SECTIONS & DETAILS
11X-7000-S-00053	FOUNDATION PLAN
11X-7000-S-00078	FOUNDATION DETAILS SHEET #1
11X-7000-S-00083	FOUNDATION DETAILS SHEET #2
11X-7000-S-00084	FOUNDATION DETAILS SHEET #3

000397

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	FL	PM	REVIS BY
0	ISSUED FOR TECHNICAL REFERENCE ONLY.	N/A	KG 10/28/92	LNH 10/28/92

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
PARSONS I & T GROUP
CINCINNATI, OHIO

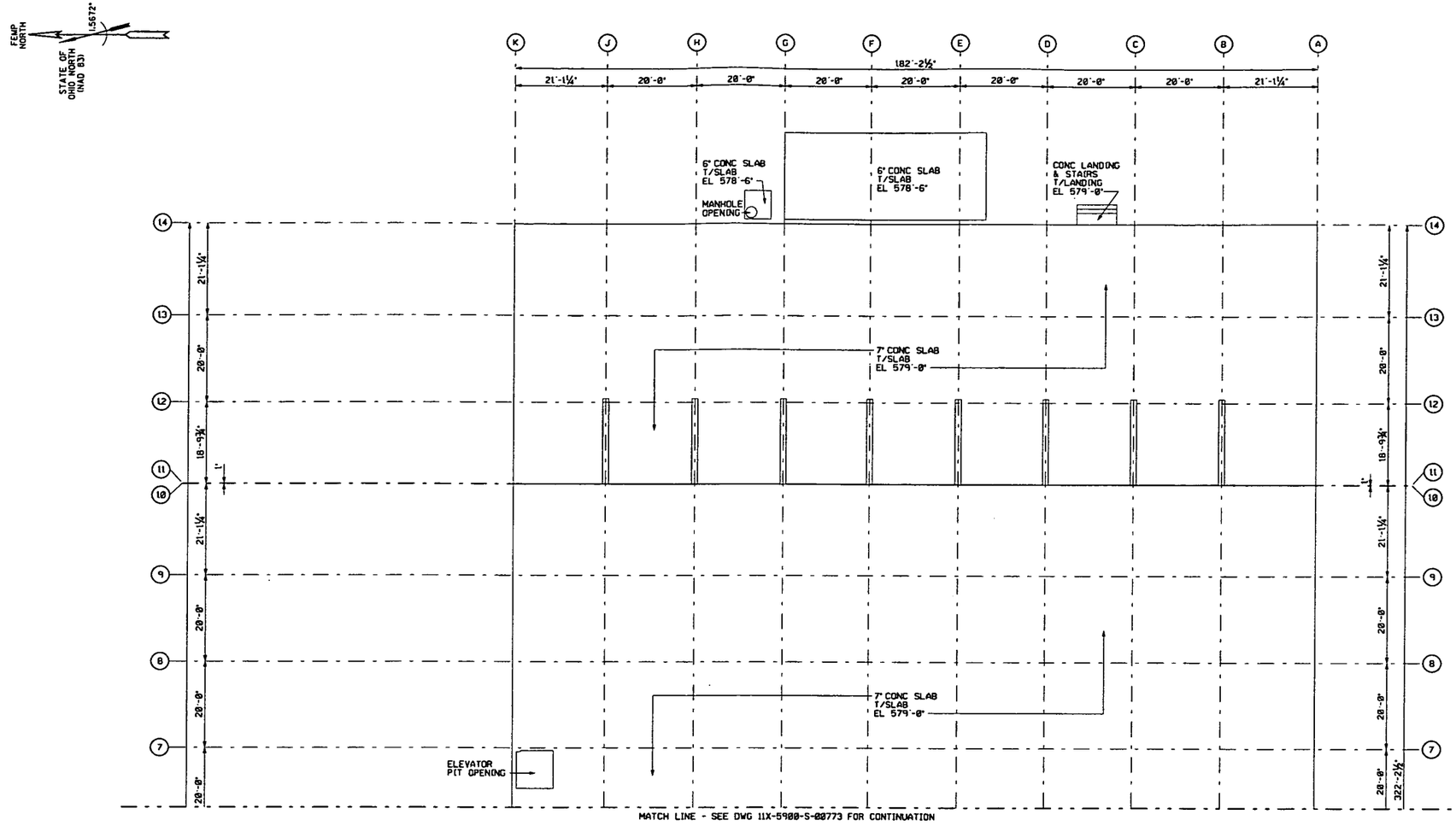
PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 14 - TECHNICAL REFERENCE DRAWING

DRAWING TITLE
BUILDING 11
FOUNDATION PLAN- WEST
WITHOUT HIDDEN LINES

CONFIGURATION MANAGEMENT DRAWING
USE
REF
ENTITIES ATTACHED ON COMPONENTS LISTED ON THIS DRAWING ARE NOT CONFIGURATION MANAGEMENT CONTROL. SEE NOTES.
COGNIZANT ENGINEER DATE

TASK ORDER NO.	OPTIONAL NO.	SCALE	
060	N/A	3/32" = 1'-0"	
		DRAWN BY: L. HAGAMAN/K. RABBIT	DATE: 12/31/91
RES NO.: 4327	FOR PROJECT NO.: 20810	TECHNICAL LEAD: N/A	DATE: N/A
		CHECKED BY: DOREEN REED	DATE: 10/11/92
DRAWING INDEX CODE NO.: 11X-5900-S-00771		SHEET NO.: S0002	REV. NO.: 0

SEAL



SLAB PLAN - EAST

8' 0' 8' 16' 24'
GRAPHIC SCALE: 3/32" = 1'-0"

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION DRAWINGS AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.
2. SEE EXISTING REFERENCED DRAWINGS FOR CONSTRUCTION DETAILS AND/OR ISOMETRIC DRAWING SK11-1.

4831

REF DWG NO.	DRAWING TITLE
11C-4445-S-00471	FOUNDATION PLAN & DETAILS
11X-1450-A-00007	ELEVATOR & DUMBWAITER SHAFTS
11X-1450-S-00013	FOUNDATION PLAN
11X-1450-S-00622	SERVICE BUILDING RECEIVING SUMP
11X-5500-S-00705	PLAN, SECTIONS & DETAILS
11X-7000-S-00053	FOUNDATION PLAN
11X-7000-S-00078	FOUNDATION DETAILS SHEET #1
11X-7000-S-00083	FOUNDATION DETAILS SHEET #2
11X-7000-S-00084	FOUNDATION DETAILS SHEET #3

000398

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	REVIS BY
0	ISSUED FOR TECHNICAL REFERENCE ONLY.	N/A	KG 03/29/02	LNH 03/29/02

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
PARSONS I & T GROUP
CINCINNATI, OHIO

PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 14 - TECHNICAL REFERENCE DRAWING

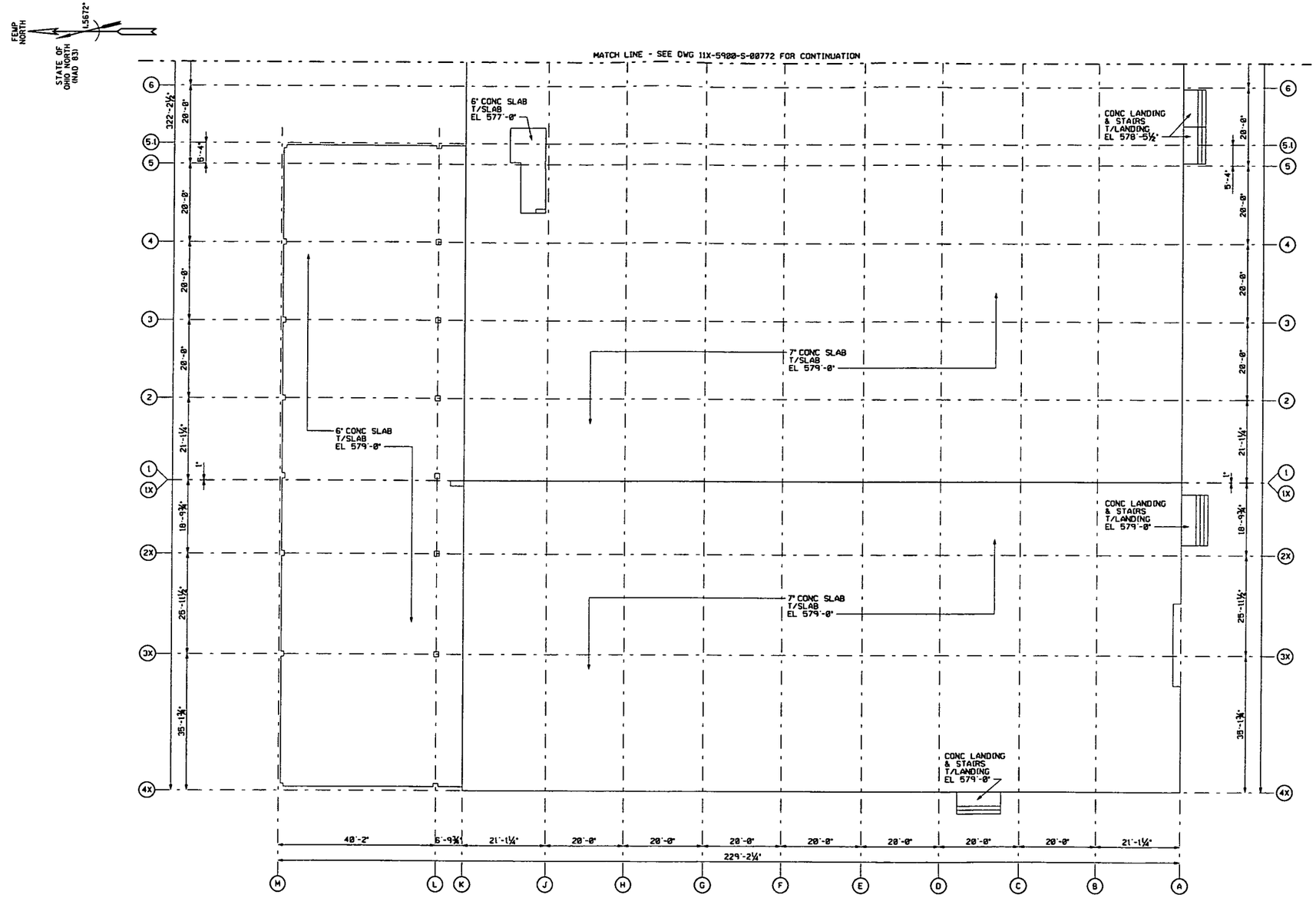
DRAWING TITLE
BUILDING 11
SLAB PLAN - EAST
WITHOUT HIDDEN LINES

CONFIGURATION MANAGEMENT DRAWING — YES / NO
EXISTING ATTACHED DRAWINGS OR COMPONENTS CONFORM TO THE CONFIGURATION MANAGEMENT CONTROL-LED NOTES.

COGNIZANT ENGINEER — DATE

TASK ORDER NO.	OPTIONAL NO.	SCALE	
060	N/A	3/32" = 1'-0"	
		DRAWN BY: L. HAGAMAN/K. RABBIT	DATE 12/31/01
RCS NO. 4327	FOF PROJECT NO. 20810	TECHNICAL LEAD N/A	DATE N/A
		CHECKED BY DOREEN REED	DATE 01/11/02
DRAWING INDEX CODE NO. 11X-5900-S-00772		SHEET NO. S0003	REV. NO. 0

SEAL



SLAB PLAN - WEST

GRAPHIC SCALE: 3/32" = 1'-0"

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION DRAWINGS AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.
2. SEE EXISTING REFERENCED DRAWINGS FOR CONSTRUCTION DETAILS AND/OR ISOMETRIC DRAWING SK11-1.

4831

REF DWG NO.	DRAWING TITLE
11C-4445-S-00471	FOUNDATION PLAN & DETAILS
11X-1450-A-00007	ELEVATOR & DUMBWAITER SHAFTS
11X-1450-S-00013	FOUNDATION PLAN
11X-1450-S-00622	SERVICE BUILDING RECEIVING SUMP
11X-5500-S-00705	PLAN, SECTIONS & DETAILS
11X-7000-S-00053	FOUNDATION PLAN
11X-7000-S-00078	FOUNDATION DETAILS SHEET #1
11X-7000-S-00083	FOUNDATION DETAILS SHEET #2
11X-7000-S-00084	FOUNDATION DETAILS SHEET #3

000399

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	REVIB BY
0	ISSUED FOR TECHNICAL REFERENCE ONLY.	N/A	KG 03/28/02	LNH 03/28/02

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
PARSONS I & T GROUP
CINCINNATI, OHIO

PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 14 - TECHNICAL REFERENCE DRAWING

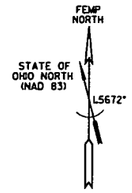
DRAWING TITLE
BUILDING 11
SLAB PLAN - WEST
WITHOUT HIDDEN LINES

CONFIGURATION MANAGEMENT DRAWING
EXISTING ATTACHED OR CONTROLLED DRAWING SHOWN. CONTROLLED BY CONFIGURATION MANAGEMENT CONTROL. SEE NOTES.

COGNIZANT ENGINEER DATE

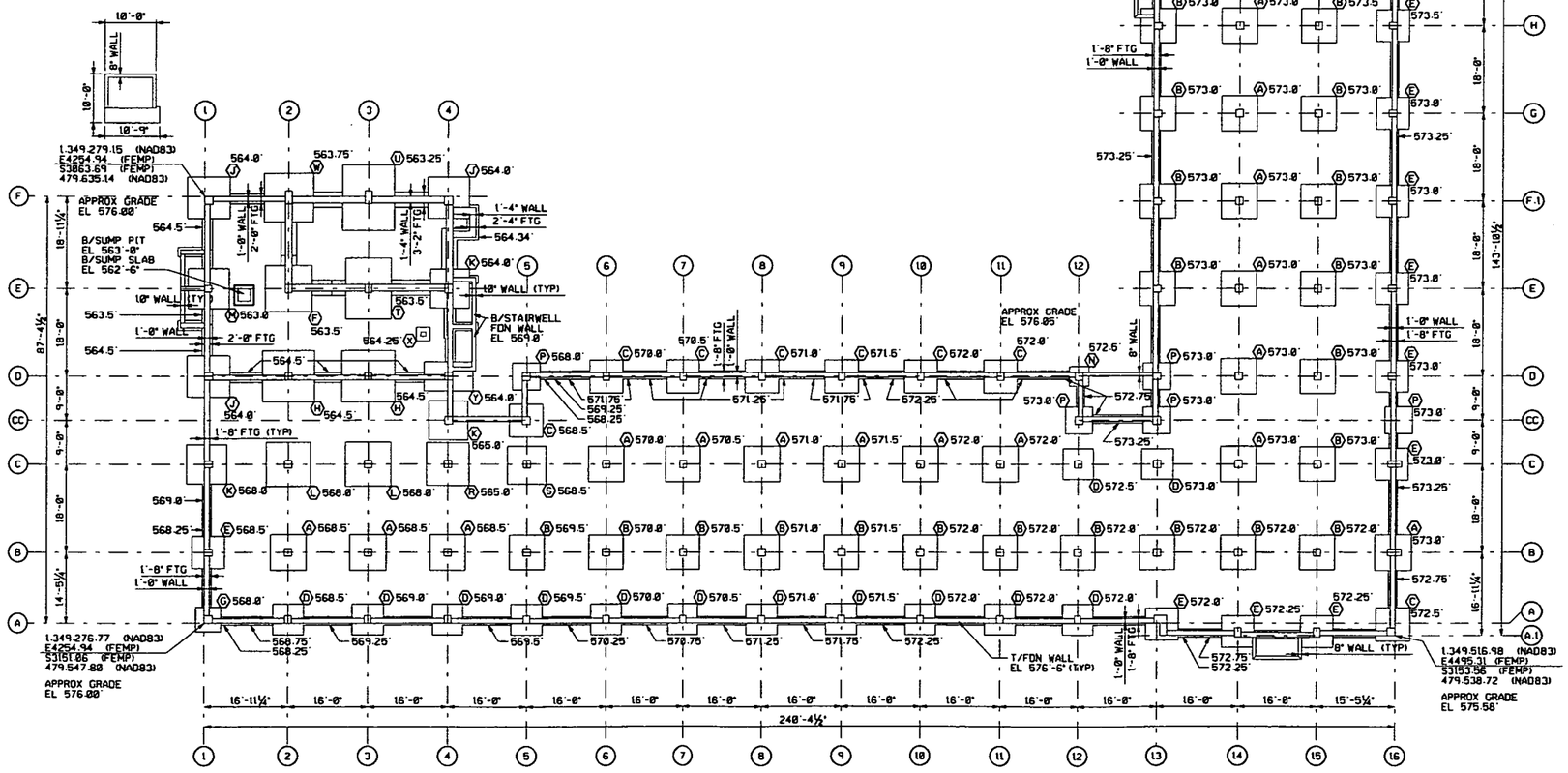
TASK ORDER NO.	OPTIONAL NO.	SCALE	
060	N/A	3/32" = 1'-0"	
		DRAWN BY: L. HAGAMAN/K. RABBIT	DATE: 12/21/01
RES NO.: 4327	FDF PROJECT NO.: 20810	TECHNICAL LEAD: N/A	DATE: N/A
		CHECKED BY: DOREEN REED	DATE: 01/11/02
DRAWING INDEX CODE NO.: 11X-5900-S-00773		SHEET NO.: S0004	REV. NO.: 0

SEAL



FOOTING SCHEDULE

MARK	LENGTH N/S	WIDTH E/W	HEIGHT	B/FTG EL	COL PIER	REMARKS
A	7'-3"	7'-3"	1'-3"	SEE PLAN	18"x18"	SEE NOTE 2
B	7'-0"	7'-0"	1'-3"	SEE PLAN	18"x18"	SEE NOTE 2
C	6'-9"	6'-9"	1'-3"	SEE PLAN	VARIES	SEE NOTE 2
D	6'-3"	6'-3"	1'-3"	SEE PLAN	VARIES	SEE NOTE 2
E	6'-6"	6'-6"	1'-3"	SEE PLAN	VARIES	SEE NOTE 2
F	9'-6"	9'-6"	1'-6"	SEE PLAN	VARIES	SEE NOTE 2
G	5'-0"	5'-0"	1'-3"	SEE PLAN	VARIES	SEE NOTE 2
H	10'-6"	10'-6"	1'-9"	SEE PLAN	VARIES	SEE NOTE 2
J	8'-6"	8'-6"	1'-6"	SEE PLAN	VARIES	SEE NOTE 2
K	8'-0"	8'-0"	1'-6"	SEE PLAN	VARIES	SEE NOTE 2
L	9'-0"	9'-0"	1'-6"	SEE PLAN	18"x18"	SEE NOTE 2
M	8'-3"	8'-3"	1'-6"	SEE PLAN	VARIES	SEE NOTE 2
N	4'-0"	4'-0"	1'-3"	572.5'	19" x19"	
P	5'-6"	5'-6"	1'-3"	SEE PLAN	VARIES	SEE NOTE 2
R	8'-9"	8'-9"	1'-6"	565.0'	18"x18"	
S	7'-9"	7'-9"	1'-3"	568.5'	18"x18"	
T	12'-6"	9'-0"	2'-0"	563.5'	16"x19"	
U	13'-6"	10'-3"	2'-3"	563.25'	16"x14"	
W	10'-0"	10'-0"	1'-9"	563.75	16"x14"	
X	2'-9"	2'-9"	1'-3"	564.25'	12"x18"	
Y	6'-0"	10'-0"	1'-6"	564.0'	19"x19"	



FOUNDATION PLAN

GRAPHIC SCALE: 3/32" = 1'-0"

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION DRAWINGS AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.
2. SEE EXISTING REFERENCED DRAWINGS FOR CONSTRUCTION DETAILS AND/OR ISOMETRIC DRAWING SK14AB-1.

4831

REF DWG NO.	DRAWING TITLE
75H-5500-G-00025	EXISTING SITE PLAN
14X-1450-S-00008	FOUNDATION PLAN

000400

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	EL.	PM	DRWN BY
0	ISSUED FOR TECHNICAL REFERENCE ONLY.	N/A	KG 10/25/82	LNH 10/25/82

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
PARSONS I & T GROUP
CINCINNATI, OHIO

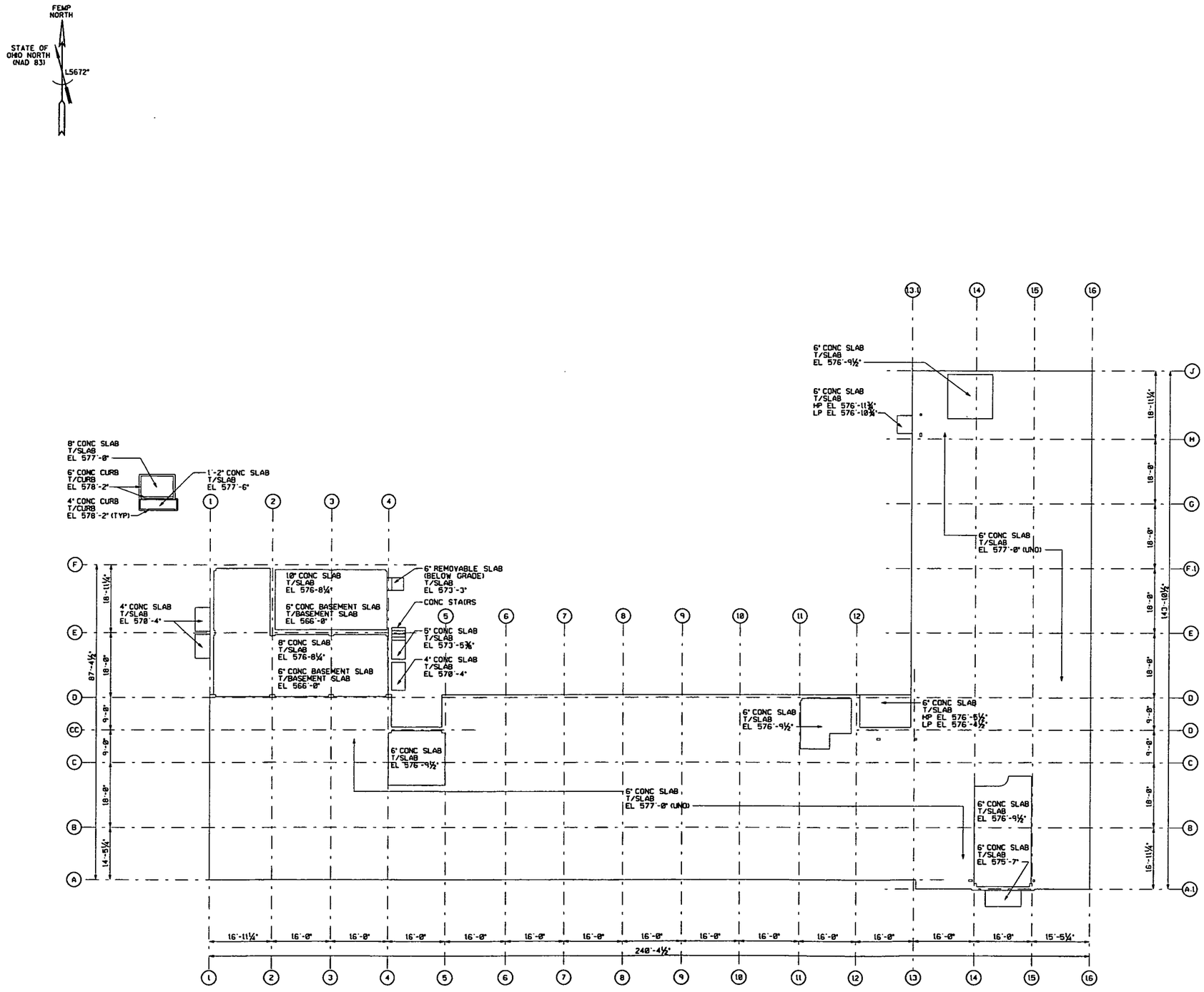
PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 14 - TECHNICAL REFERENCE DRAWING

DRAWING TITLE
BUILDING 14A & 14B
FOUNDATION PLAN
WITHOUT HIDDEN LINES

CONFIGURATION MANAGEMENT DRAWING
EXISTING STRUCTURES OR COMPONENTS SHOWN ON THIS DRAWING ARE UNDER CONFIGURATION MANAGEMENT CONTROL. DO NOT MODIFY.
COGNIZANT ENGINEER DATE

TASK ORDER NO.	OPTIONAL NO.	SCALE	
060	N/A	3/32" = 1'-0"	
		DRAWN BY L. N. HAGAMAN	DATE 12/25/82
RES NO. 4327	FDF PROJECT NO. 20810	TECHNICAL LEAD N/A	DATE N/A
		CHECKED BY DOREEN REED	DATE 01/11/82
DRAWING INDEX CODE NO. 14X-5900-S-00531		SHEET NO. S0001	REV. NO. 0

SEAL



SLAB PLAN

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION DRAWINGS AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.
2. SEE EXISTING REFERENCED DRAWINGS FOR CONSTRUCTION DETAILS AND/OR ISOMETRIC DRAWING SK14AB-1.

4831

REF DWG NO.	DRAWING TITLE
75H-5500-G-00025	EXISTING SITE PLAN
14X-1450-S-00008	FOUNDATION PLAN

000401

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	REVD BY
0	ISSUED FOR TECHNICAL REFERENCE ONLY.	N/A	KG 10/28/02	LNH 10/28/02

INITIALS AND DATE

UNITED STATES
DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
PARSONS I & T GROUP
CINCINNATI, OHIO

PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 14 - TECHNICAL REFERENCE DRAWING

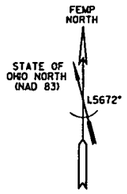
DRAWING TITLE
BUILDING 14A & 14B
SLAB PLAN
WITHOUT HIDDEN LINES

CONFIGURATION MANAGEMENT DRAWING
YES / NO
SYSTEMS, STRUCTURES OR COMPONENTS SHOWN ON THIS DRAWING ARE UNDER CONFIGURATION MANAGEMENT CONTROL. SEE NOTES.

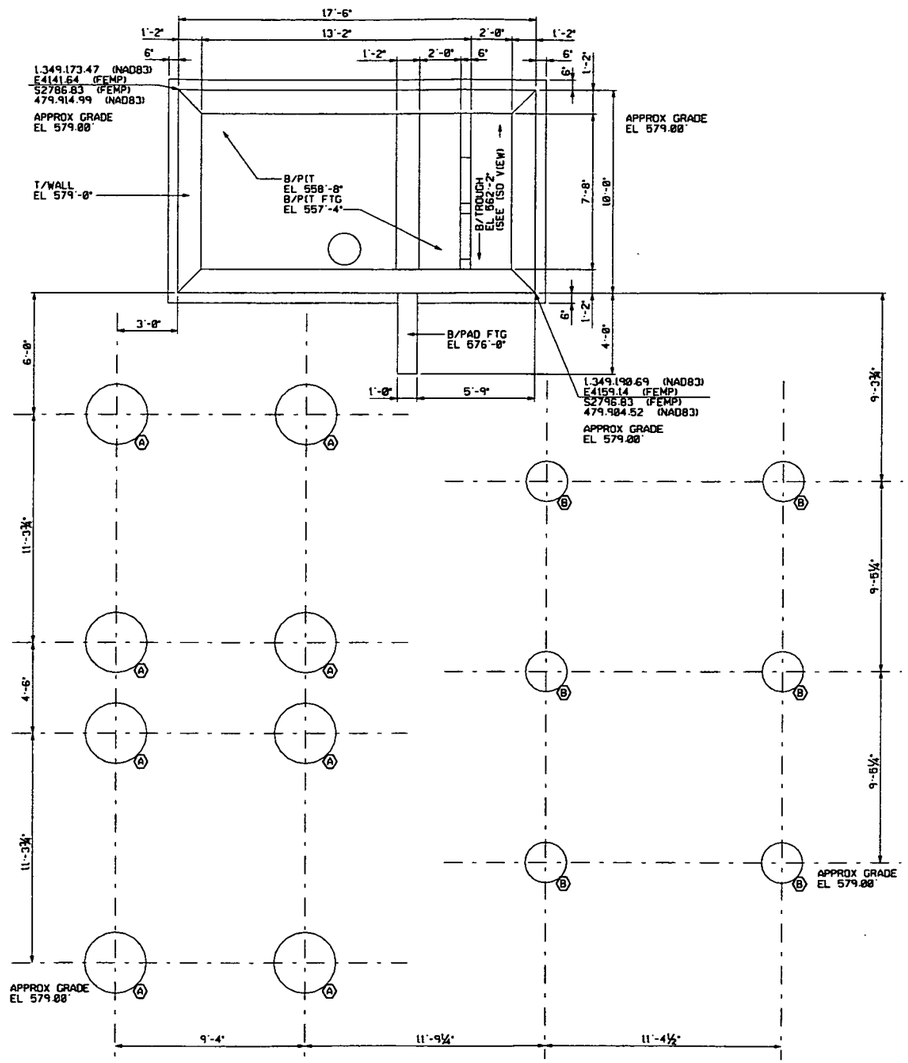
COGNIZANT ENGINEER | DATE

TASK ORDER NO.	OPTIONAL NO.	SCALE 3/32" = 1'-0"	
060	N/A	DRAWN BY L. N. HAGAMAN	DATE 12/26/01
RES NO. 4327	FIF PROJECT NO. 20810	TECHNICAL LEAD N/A	DATE N/A
		CHECKED BY DOREEN REED	DATE 01/11/02
DRAWING INDEX CODE NO. 14X-5900-S-00532		SHEET NO. S0002	REV. NO. 0

SEAL



FOOTING SCHEDULE						
MARK	LENGTH N/S	WIDTH E/W	HEIGHT	B/FTG EL	COL PIER	REMARKS
(A)	3'-0" DIA	3'-0" DIA	4'-0"	576'-0"	N/A	T/FTG EL 580'-0"
(B)	2'-0" DIA	2'-0" DIA	4'-0"	575'-6"	N/A	T/FTG EL 579'-6"



FOUNDATION PLAN

GRAPHIC SCALE: ⅜"=1'-0"

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION DRAWINGS AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.
2. SEE EXISTING REFERENCED DRAWINGS FOR CONSTRUCTION DETAILS AND/OR ISOMETRIC DRAWING SK228-1.

4831

REF DWG NO.	DRAWING TITLE
75H-5500-G-00025	EXISTING SITE PLAN
14X-5500-E-00396	ELECTRICAL - PLANS & DETAILS
14X-5500-S-00497	E.O.C. GENERATOR DIKE, DETAILS
22G-5500-S-00426	STRUCTURAL DETAILS

000402

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	REVR BY
0	ISSUED FOR TECHNICAL REFERENCE ONLY.	N/A	KG 10/28/02	LNH 10/28/02

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
PARSONS I & T GROUP
CINCINNATI, OHIO

PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 14 - TECHNICAL REFERENCE DRAWING

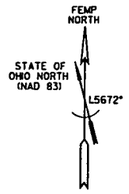
DRAWING TITLE
BUILDING 22B
FOUNDATION PLAN
WITHOUT HIDDEN LINES

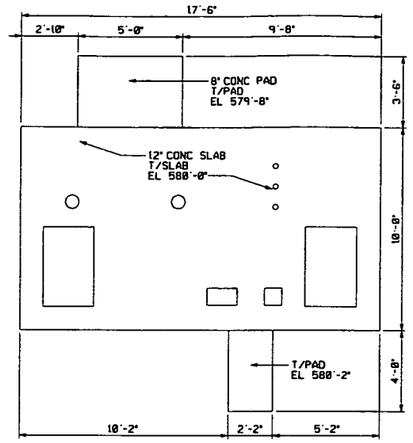
CONFIGURATION MANAGEMENT DRAWING
STATUS: STRUCTURE OR COMPONENTS SHOWN ON THIS DRAWING ARE UNDER CONFIGURATION MANAGEMENT CONTROL. SEE NOTES.

COGNIZANT ENGINEER DATE

TASK ORDER NO.	OPTIONAL NO.	SCALE	
060	N/A	⅜" = 1'-0"	
		DRAWN BY: L. N. HAGAMAN	DATE: 12/23/02
RES NO.: 4327	FOR PROJECT NO.: 20810	TECHNICAL LEAD: N/A	DATE: N/A
		CHECKED BY: DOREEN REED	DATE: 01/11/02
DRAWING INDEX CODE NO.: 22G-5900-S-00980		SHEET NO.: S0001	REV. NO.: 0

SEAL





SLAB PLAN

GRAPHIC SCALE: 3/8"=1'-0"

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION DRAWINGS AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.
2. SEE EXISTING REFERENCED DRAWINGS FOR CONSTRUCTION DETAILS AND/OR ISOMETRIC DRAWING SK22B-1.

4831

REF DWG NO.	DRAWING TITLE
75H-5500-G-00025	EXISTING SITE PLAN
14X-5500-E-00396	ELECTRICAL - PLANS & DETAILS
14X-5500-S-00497	E.O.C. GENERATOR DIKE, DETAILS
22G-5500-S-00426	STRUCTURAL DETAILS

000403

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	REVIW BY
0	ISSUED FOR TECHNICAL REFERENCE ONLY.	N/A	KG 03/25/92	LNH 03/25/92

INITIALS AND DATE

UNITED STATES
DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
PARSONS I & T GROUP
CINCINNATI, OHIO

PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 14 - TECHNICAL REFERENCE DRAWING

DRAWING TITLE
BUILDING 22B
SLAB PLAN
WITHOUT HIDDEN LINES

CONFIGURATION MANAGEMENT DRAWING

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

COGNIZANT ENGINEER DATE

TASK ORDER NO.	OPTIONAL NO.	SCALE	
060	N/A	3/8" = 1'-0"	
		DRAWN BY: L. N. HAGAMAN	DATE: 12/23/91
RES NO.: 4327	FOF PROJECT NO.: 20810	TECHNICAL LEAD: N/A	DATE: N/A
		CHECKED BY: DOREEN REED	DATE: 01/11/92
DRAWING INDEX CODE NO.: 22G-5900-S-00981		SHEET NO.: S0002	REV. NO.: 0

SEAL

FOOTING SCHEDULE

MARK	LENGTH N/S	WIDTH E/W	HEIGHT	B/FTG EL	COL PIER	REMARKS
A	4'-9"	4'-9"	1'-3"	575'-11"	1'-4" SQ	T/PIER EL 577'-8"
B	4'-3"	4'-3"	1'-3"	573'-6" (UNO)	1'-4"x1'-7¼"	T/PIER EL 577'-8"
C	4'-3"	4'-3"	1'-3"	572'-6" (UNO)	1'-7¼"x1'-4"	T/PIER EL 577'-8"
D	3'-6"	3'-6"	1'-3"	574'-0"	1'-7¼"x1'-7¼"	T/PIER EL 577'-8"
E	8'-0"	9'-0"	1'-4"	573'-2"	2'-8"x2'-2"	T/PIER EL 577'-8"
F	8'-0"	9'-0"	1'-4"	573'-6"	2'-8"x2'-5¼"	T/PIER EL 577'-8"
G	5'-0"	5'-0"	1'-3"	573'-2"	1'-4" SQ	T/PIER EL 577'-8"
H	3'-6"	3'-6"	1'-3"	573'-6"	1'-7¼"x1'-7¼"	T/PIER EL 577'-8"
J	13'-0"	8'-0"	0'-6"	573'-2"	N/A	
K	5'-6"	5'-6"	1'-0"	573'-0"	1'-3"x1'-6"	T/PIER EL 577'-8"
L	5'-0"	2'-1"	1'-0"	573'-6"	SEE NOTE 2	T/PIER EL 577'-8"

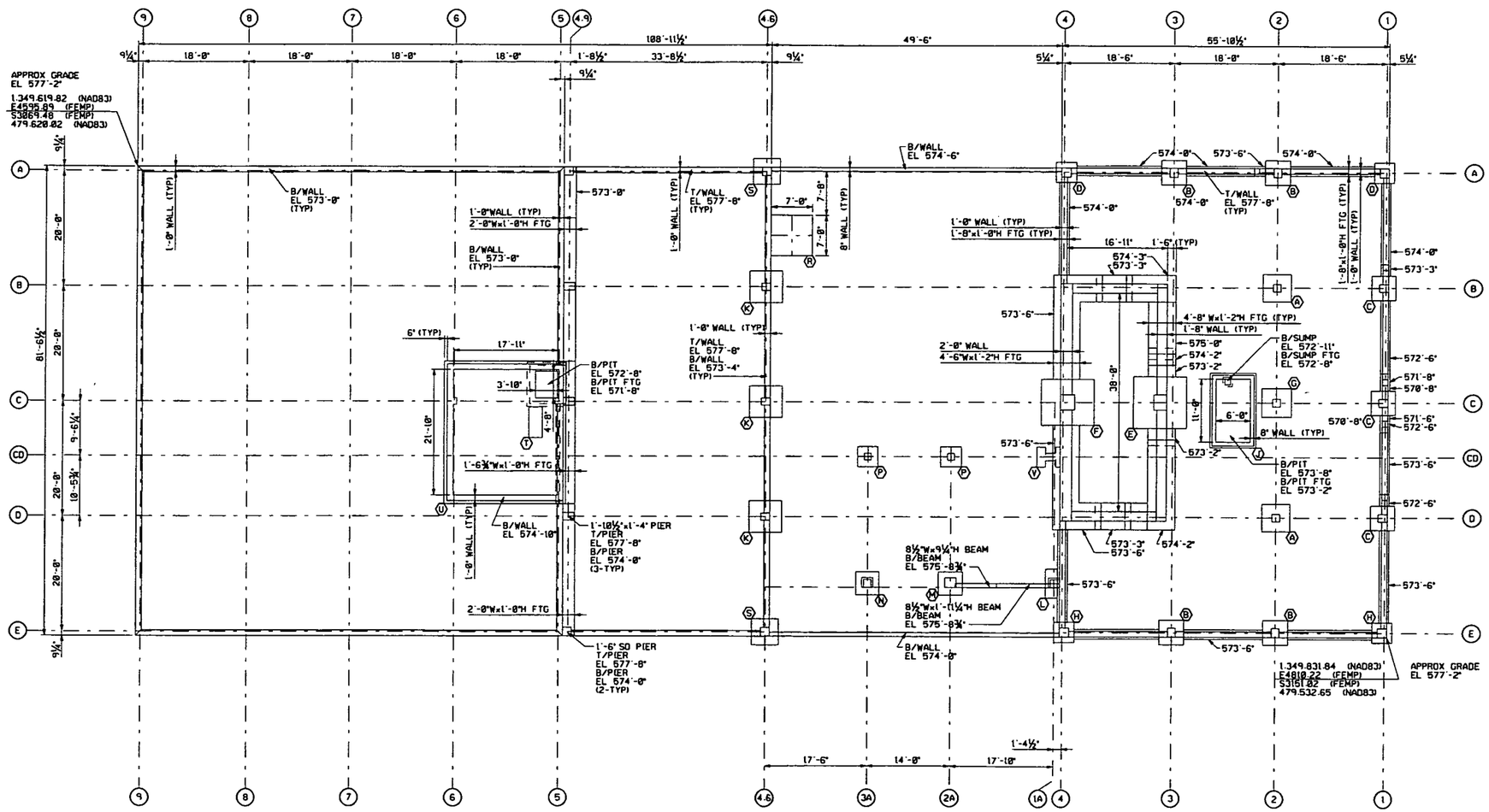
FOOTING SCHEDULE

MARK	LENGTH N/S	WIDTH E/W	HEIGHT	B/FTG EL	COL PIER	REMARKS
M	4'-0"	4'-0"	1'-0"	573'-0"	1'-8"x1'-10¾"	T/PIER EL 576'-6"
N	4'-0"	4'-0"	1'-0"	573'-0"	1'-8"x1-10¾" 1'-4½"x1'-3¾"	T/PIER EL 577'-0"
P	3'-6"	3'-6"	1'-0"	573'-6"	1'-2" SQ	T/PIER EL 577'-0"
R	7'-0"	7'-0"	4'-0"	573'-0"	N/A	T/FTG EL 577'-0"
S	4'-6"	4'-6"	1'-0"	573'-0"	1'-6" SQ	T/PIER EL 577'-8"
T	5'-4"	2'-4"	3'-4"	571'-8"	N/A	
U	24'-10"	20'-10¼"	1'-2"	573'-8"	N/A	
V	3'-6" IRR	4'-0" IRR	3'-2" IRR	573'-6"	N/A	

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION DRAWINGS AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.
2. SEE EXISTING REFERENCED DRAWINGS FOR CONSTRUCTION DETAILS AND/OR ISOMETRIC DRAWING SK28AB-1.

4831



FOUNDATION PLAN

GRAPHIC SCALE: 1/8"=1'-0"

REF DWG NO.	DRAWING TITLE
28A-1450-S-00004	ROOF FRAMING & FOUNDATION PLAN GUARD HOUSE C28-1
28A-5500-A-00210	PERSONNEL & SECURITY BLDG. FLOOR PLAN
28A-5500-E-00147	GUARD HOUSE RADIO ANTENNA TOWERS PLAN - ELEV - DETAILS
28A-5500-E-00162	GUARD HOUSE RADIO ANTENNA TOWERS DETAIL SHEET #1
28B-5500-S-00223	FOUNDATION PLAN SECTIONS AND DETAILS
28B-7000-S-00030	PERSONNEL & SECURITY BLDG. GROUND FL & FOUNDATION PLANS & SECTIONS
28B-7000-S-00032	PERSONNEL & SECURITY BLDG. FOUNDATION & GROUND FLOOR PLAN
28B-7000-S-00033	PERSONNEL & SECURITY BLDG. FOUNDATION DETAILS

000404

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PW	RCD BY
0	ISSUED FOR TECHNICAL REFERENCE ONLY.	N/A	KG 03/26/92	LNH 03/26/92

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
PARSONS I & T GROUP
CINCINNATI, OHIO

PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 14 - TECHNICAL REFERENCE DRAWING

DRAWING TITLE
BUILDING 28A & B
FOUNDATION PLAN
WITH HIDDEN LINES

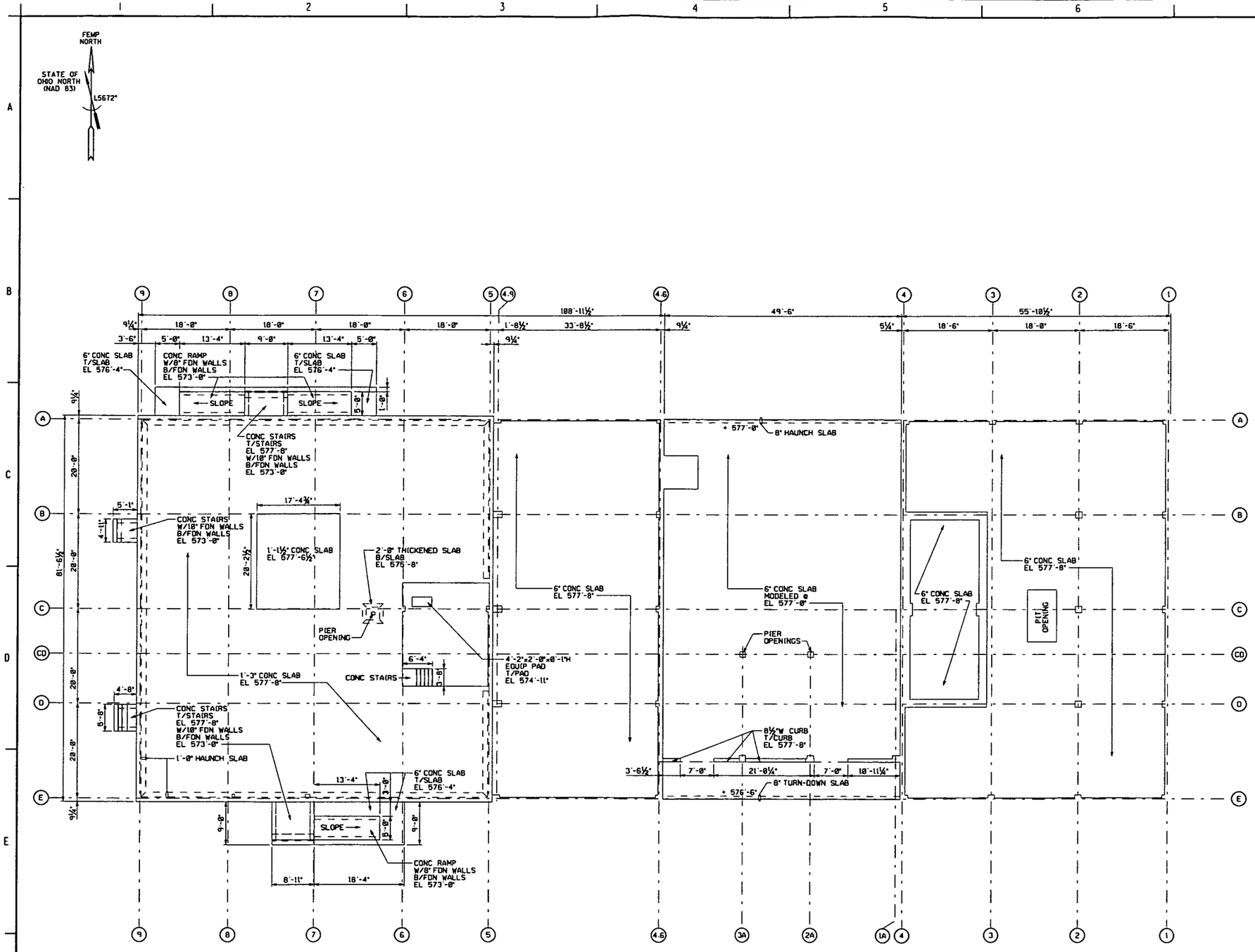
CONFIGURATION MANAGEMENT DRAWING — YES / NO

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

COGNIZANT ENGINEER — DATE

TASK ORDER NO.	OPTIONAL NO.	SCALE	
060	N/A	1/8" = 1'-0"	
		DRAWN BY: L. N. HAGAMAN	DATE: 02/11/92
RES NO.: 4327	FDF PROJECT NO.: 20810	TECHNICAL LEAD: N/A	DATE: N/A
		CHECKED BY: DOREEN REED	DATE: 03/11/92
DRAWING INDEX CODE NO.: 28B-5900-S-00345		SHEET NO.: S0001	REV. NO.: 0

SEAL



SLAB PLAN

GRAPHIC SCALE: ⅛"=1'-0"

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION DRAWINGS AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.
2. SEE EXISTING REFERENCED DRAWINGS FOR CONSTRUCTION DETAILS AND/OR ISOMETRIC DRAWING SK28AB-1.

4831

REF DWG NO.	DRAWING TITLE
28A-1450-S-00004	ROOF FRAMING & FOUNDATION PLAN GUARD HOUSE C28-1
28A-5500-A-00210	PERSONNEL & SECURITY BLDG. FLOOR PLAN
28A-5500-E-00147	GUARD HOUSE RADIO ANTENNA TOWERS PLAN - ELEV - DETAILS
28A-5500-E-00162	GUARD HOUSE RADIO ANTENNA TOWERS DETAIL SHEET #1
28B-5500-S-00223	FOUNDATION PLAN SECTIONS AND DETAILS
28B-7000-S-00030	PERSONNEL & SECURITY BLDG. GROUND FL & FOUNDATION PLANS & SECTIONS
28B-7000-S-00032	PERSONNEL & SECURITY BLDG. FOUNDATION & GROUND FLOOR PLAN
28B-7000-S-00033	PERSONNEL & SECURITY BLDG. FOUNDATION DETAILS

000405

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	REVW BY
0	ISSUED FOR TECHNICAL REFERENCE ONLY.	N/A	KG 03/25/92	LNH 03/25/92
		INITIALS AND DATE		

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
PARSONS I & T GROUP
CINCINNATI, OHIO

PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 14 - TECHNICAL REFERENCE DRAWING

DRAWING TITLE
BUILDING 28A & B
SLAB PLAN
WITH HIDDEN LINES

CONFIGURATION MANAGEMENT DRAWING

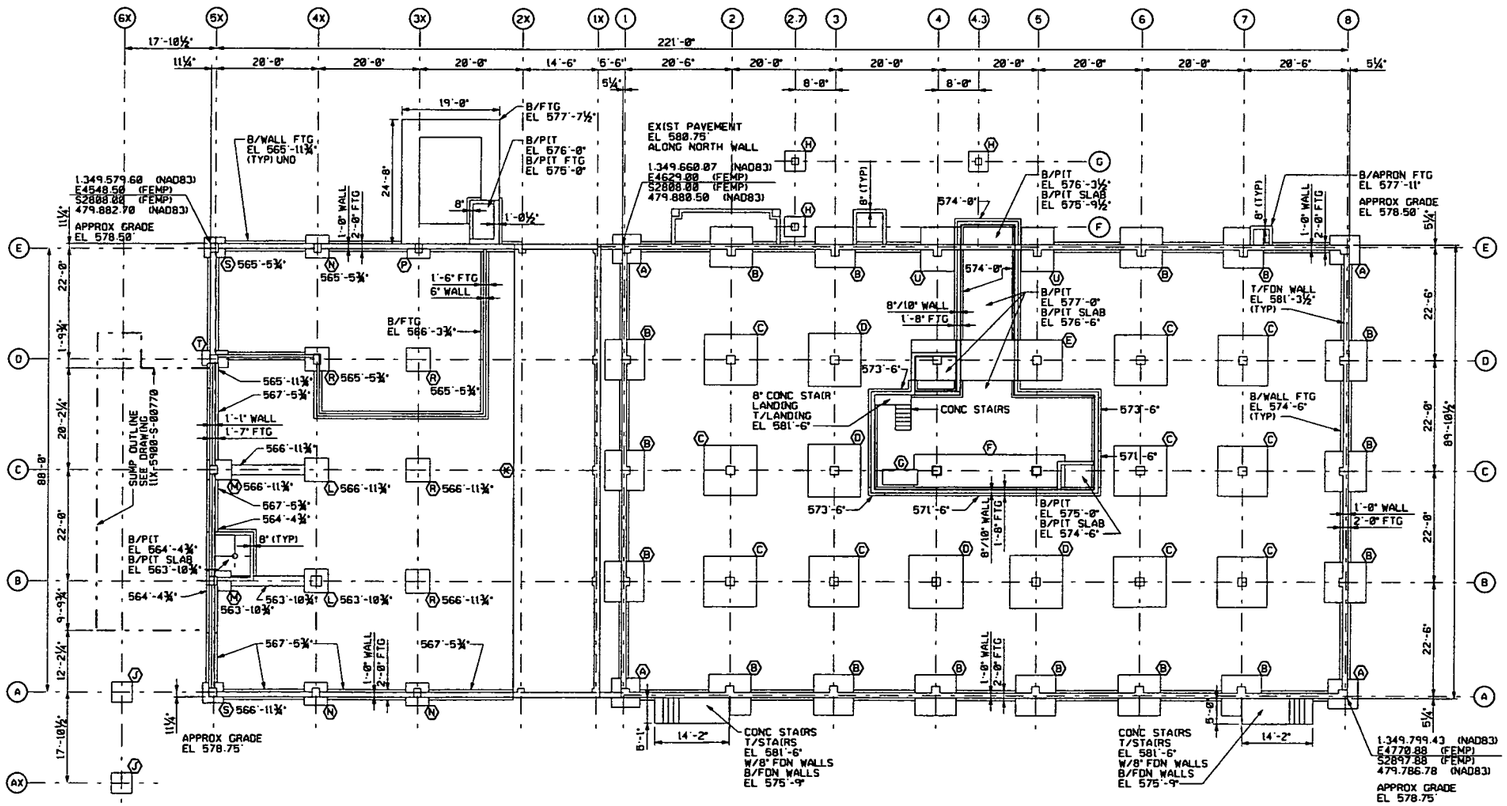
EXISTING STRUCTURES OR COMPONENTS LOCATED BY FIELD MEASUREMENT OR FROM CONSTRUCTION MANAGEMENT CONTROL. SEE NOTES.

TASK ORDER NO.	OPTIONAL NO.	SCALE ⅛" = 1'-0"	
060	N/A	DRAWN BY L. N. HAGAMAN	DATE 02/11/92
RES NO. 4327	FOP PROJECT NO. 20810	TECHNICAL LEAD N/A	DATE N/A
		CHECKED BY DOREEN REED	DATE 02/11/92
COGNIZANT ENGINEER	DATE	DRAWING INDEX CODE NO. 28B-5900-S-00346	SHEET NO. S0002 / REV. NO. 0

SEAL

FOOTING SCHEDULE

MARK	LENGTH N/S	WIDTH E/W	HEIGHT	B/FTG EL	COL PIER	REMARKS
A	5'-9"	5'-9"	1'-2"	574'-4"	1'-8¾" SQ	
B	8'-0"	8'-0"	1'-6"	574'-0"	VARIES	SEE NOTE 2
C	10'-0"	10'-0"	1'-10"	573'-8"	1'-8" SQ	
D	10'-6"	10'-6"	1'-10"	573'-8"	1'-8" SQ	
E	8'-0"	30'-0"	2'-0"	573'-6"	(2) 1'-8" SQ	
F	6'-6"	30'-0"	2'-0"	571'-6"	(2) 1'-10" SQ	
G	3'-0"	6'-9"	5'-11"	571'-6"	N/A	
H	4'-0"	4'-0"	1'-0"	578'-0"	1'-4" SQ	
J	4'-0"	4'-0"	1'-6"	576'-6"	N/A	
K	89'-10½"	10'-8"	1'-6"	566'-11¾"	N/A	1'-0"W x 2'-0"H KEY B/KEY EL 564'-11¾"
L	4'-8"	4'-8"	1'-6"	SEE PLAN	N/A	2'-0" SQ PIER @ COL B/4X
M	4'-0"	4'-0"	1'-6"	SEE PLAN	VARIES	SEE NOTE 2
N	4'-6"	4'-6"	1'-6"	SEE PLAN	1'-9"x1'-4"	SEE NOTE 2
P	4'-6"	4'-6"	1'-6"	565'-5¾"	VARIES	SEE NOTE 2
R	4'-8"	4'-8"	1'-6"	SEE PLAN	N/A	
S	4'-0"	4'-0"	1'-6"	SEE PLAN	VARIES	SEE NOTE 2
T	3'-4"	5'-0"	1'-6"	565'-5¾"	VARIES	SEE NOTE 2
U	8'-9"	6'-6"	1'-6"	574'-0"	VARIES	SEE NOTE 2



FOUNDATION PLAN

GRAPHIC SCALE: 1/32" = 1'-0"

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION DRAWINGS AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.
2. SEE EXISTING REFERENCED DRAWINGS FOR CONSTRUCTION DETAILS AND/OR ISOMETRIC DRAWING SK53A-1.

4831

REF DWG NO.	DRAWING TITLE
75H-5500-G-00025	EXISTING SITE PLAN
53X-7000-S-00014	FOUNDATION PLAN & DETAILS
53X-7000-S-00018	GROUND FLOOR PLAN & DETAILS
53X-7000-S-00039	GROUND FLOOR DETAILS
53B-8600-S-00304	STRUCTURAL PLANS & DETAILS
53B-8600-A-00290	SECTIONS & DETAILS
53B-8600-S-00295	FOUNDATION PLAN
53B-8600-S-00299	FOUNDATION DETAILS
53B-8600-S-00300	STRUCTURAL SECTIONS
53B-8600-S-00301	STRUCTURAL DETAILS

000406

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	REVIS BY
0	ISSUED FOR TECHNICAL REFERENCE ONLY.	N/A	KG 10/28/92	LNH 10/28/92

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
PARSONS I & T GROUP
CINCINNATI, OHIO

PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 14 - TECHNICAL REFERENCE DRAWING

DRAWING TITLE
BUILDING 53A
FOUNDATION PLAN
WITHOUT HIDDEN LINES

CONFIGURATION MANAGEMENT DRAWING — YES / NO
STATUS: ATTACHED OR COMMODITY ADDED ON THIS DRAWING ARE UNDER CONFIGURATION MANAGEMENT CONTROL. SEE NOTES.

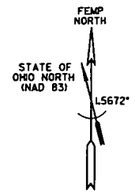
COGNIZANT ENGINEER — DATE

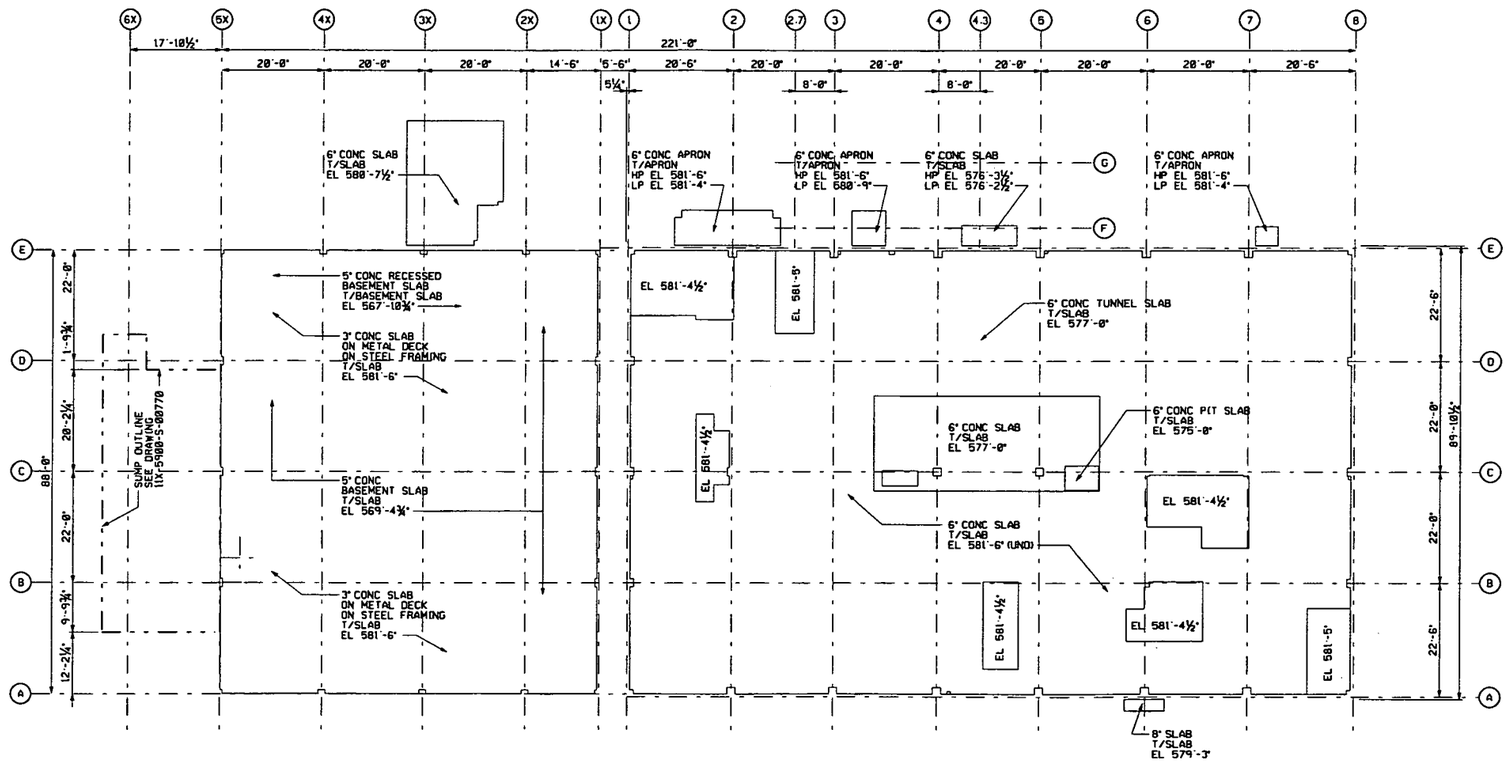
TASK ORDER NO.	OPTIONAL NO.	SCALE
060	N/A	1/32" = 1'-0"

DRAWN BY K. L. RABBITT		DATE 12/26/91	
RES NO. 4327	FDF PROJECT NO. 20810	TECHNICAL LEAD N/A	DATE N/A
		CHECKED BY DOREEN REED	DATE 02/11/92

DRAWING INDEX CODE NO. 53B-5900-S-00431 | SHEET NO. S0001 | REV. NO. 0

SEAL





SLAB PLAN

GRAPHIC SCALE: 3/32"=1'-0"

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION DRAWINGS AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.
2. SEE EXISTING REFERENCED DRAWINGS FOR CONSTRUCTION DETAILS AND/OR ISOMETRIC DRAWING SK53A-1.

4831

REF DWG NO.	DRAWING TITLE
75H-5500-G-00025	EXISTING SITE PLAN
53X-7000-S-00014	FOUNDATION PLAN & DETAILS
53X-7000-S-00018	GROUND FLOOR PLAN & DETAILS
53X-7000-S-00039	GROUND FLOOR DETAILS
538-8600-S-00304	STRUCTURAL PLANS & DETAILS
538-8600-A-00298	SECTIONS & DETAILS
538-8600-S-00295	FOUNDATION PLAN
538-8600-S-00299	FOUNDATION DETAILS
538-8600-S-00300	STRUCTURAL SECTIONS
538-8600-S-00301	STRUCTURAL DETAILS

000407

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	NCWD BY
0	ISSUED FOR TECHNICAL REFERENCE ONLY.	N/A	KG 10/29/92	LMH 10/29/92

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
PARSONS I & T GROUP
CINCINNATI, OHIO

PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 14 - TECHNICAL REFERENCE DRAWING

DRAWING TITLE
BUILDING 53A
SLAB PLAN
WITHOUT HIDDEN LINES

CONFIGURATION MANAGEMENT DRAWING
SYSTEMS, STRUCTURES OR COMPONENTS CONTROLLED BY THIS DRAWING MUST COMPLY WITH MANAGEMENT CONTROL SEE NOTES.

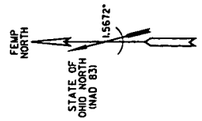
COGNIZANT ENGINEER DATE

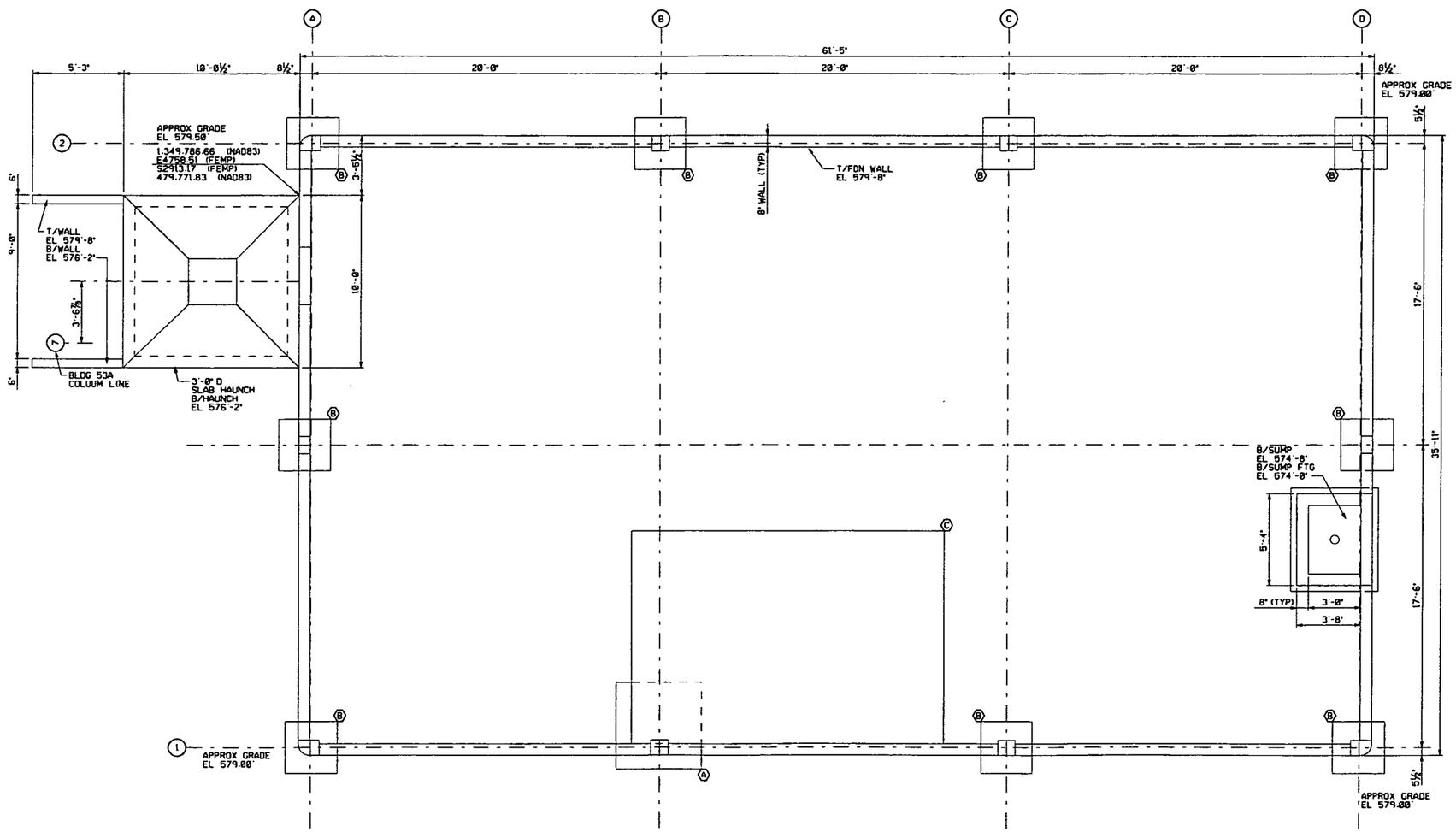
TASK ORDER NO.	OPTIONAL NO.	SCALE 3/32" = 1'-0"
060	N/A	DRAWN BY K. L. RABBITT — DATE 12/26/91
RES NO. 4327	FDF PROJECT NO. 20810	TECHNICAL LEAD N/A — DATE N/A
		CHECKED BY DOREEN REED — DATE 01/11/92
DRAWING INDEX CODE NO. 53B-5900-S-00432		SHEET NO. S0002 — REV. NO. 0

SEAL

FOOTING SCHEDULE

MARK	LENGTH N/S	WIDTH E/W	HEIGHT	B/FTG EL	COL PIER	REMARKS
A	5'-0"	5'-0"	1'-0"	576'-2"	VARIES	SEE NOTE 2
B	3'-0"	3'-0"	1'-0"	576'-2"	VARIES	SEE NOTE 2
C	17'-11½"	12'-3½"	1'-6"	577'-11"	N/A	T/FTG EL 579'-5"





FOUNDATION PLAN

GRAPHIC SCALE: ⅜"=1'-0"

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION DRAWINGS AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.
2. SEE EXISTING REFERENCED DRAWINGS FOR CONSTRUCTION DETAILS AND/OR ISOMETRIC DRAWING SK53B-1.

4831

REF DWG NO.	DRAWING TITLE
53C-8600-S-00194	FOUNDATION AND FLOOR SLAB PLAN
53C-8600-S-00195	STRUCTURAL SECTIONS AND DETAILS

000408

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	REVIS BY
0	ISSUED FOR TECHNICAL REFERENCE ONLY.	N/A	KG 03/28/02	LNH 03/28/02

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
PARSONS I & T GROUP
CINCINNATI, OHIO

PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 14 - TECHNICAL REFERENCE DRAWING

DRAWING TITLE
BUILDING 53B
FOUNDATION PLAN
WITH HIDDEN LINES

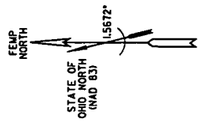
CONFIGURATION MANAGEMENT DRAWING
YES / NO

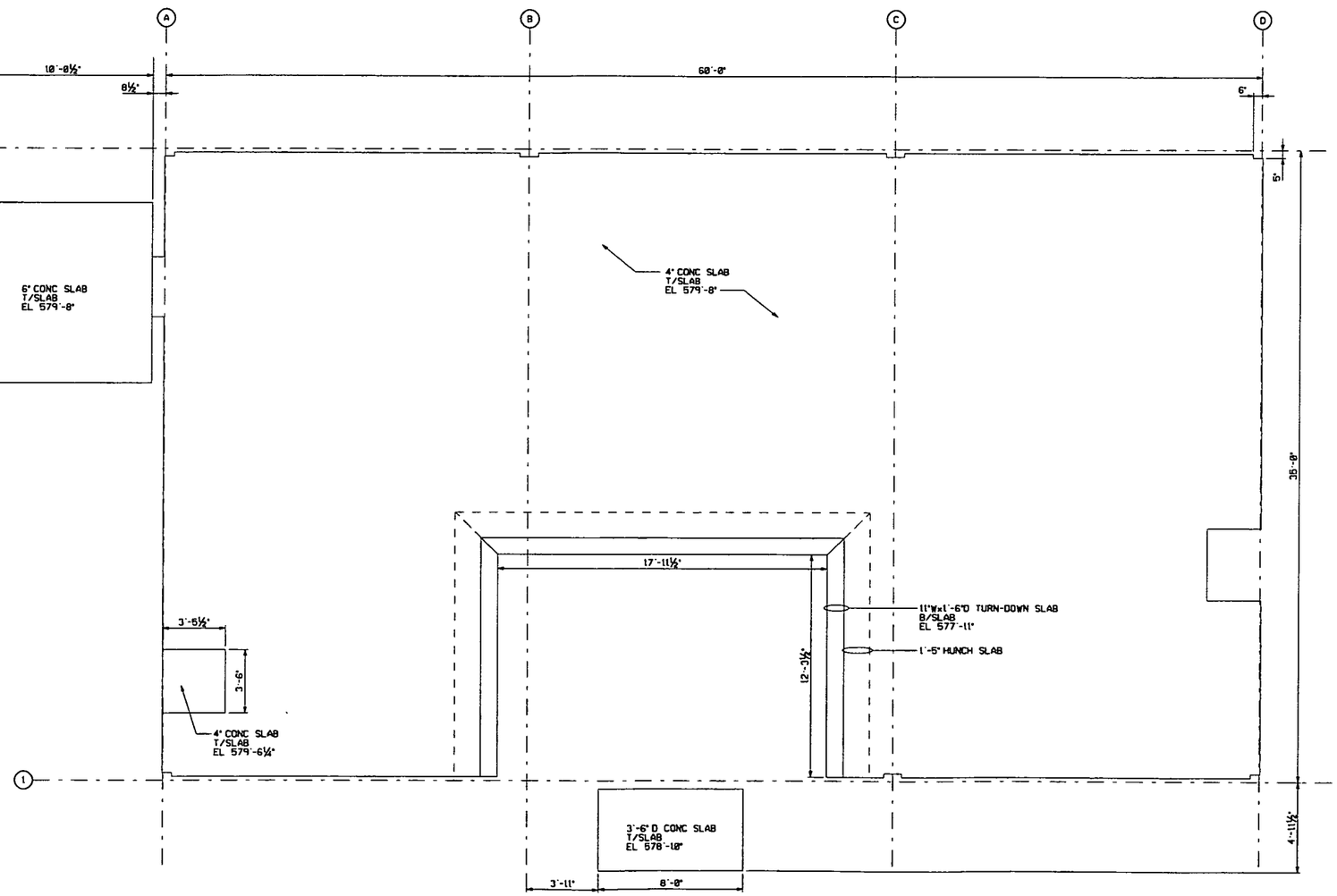
USTORS, STRUCTURES OR COMPONENTS SHOWN ON THIS DRAWING ARE UNDER CONFIGURATION MANAGEMENT CONTROL. SEE NOTES.

COGNIZANT ENGINEER | DATE

TASK ORDER NO.	OPTIONAL NO.	SCALE
060	N/A	⅜" = 1'-0"
DRAWN BY: L. N. HAGAMAN		DATE: 12/23/01
RES NO.: 4327	FOP PROJECT NO.: 20810	TECHNICAL LEAD: N/A — DATE: N/A
		CHECKED BY: DOREEN REED — DATE: 03/11/02
DRAWING INDEX CODE NO.: 53C-5900-S-00433	SHEET NO.: S0001	REV. NO.: 0

SEAL





SLAB PLAN

GRAPHIC SCALE: ⅜"=1'-0"

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION DRAWINGS AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.
2. SEE EXISTING REFERENCED DRAWINGS FOR CONSTRUCTION DETAILS AND/OR ISOMETRIC DRAWING SK538-1.

-4831

REF DWG NO.	DRAWING TITLE
53C-8600-S-00194	FOUNDATION AND FLOOR SLAB PLAN
53C-8600-S-00195	STRUCTURAL SECTIONS AND DETAILS

000409

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	REVD BY
0	ISSUED FOR TECHNICAL REFERENCE ONLY.	N/A	KG 10/28/92	LNH 10/28/92

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
PARSONS I & T GROUP
CINCINNATI, OHIO

PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 14 - TECHNICAL REFERENCE DRAWING

DRAWING TITLE
BUILDING 53B
SLAB PLAN
WITH HIDDEN LINES

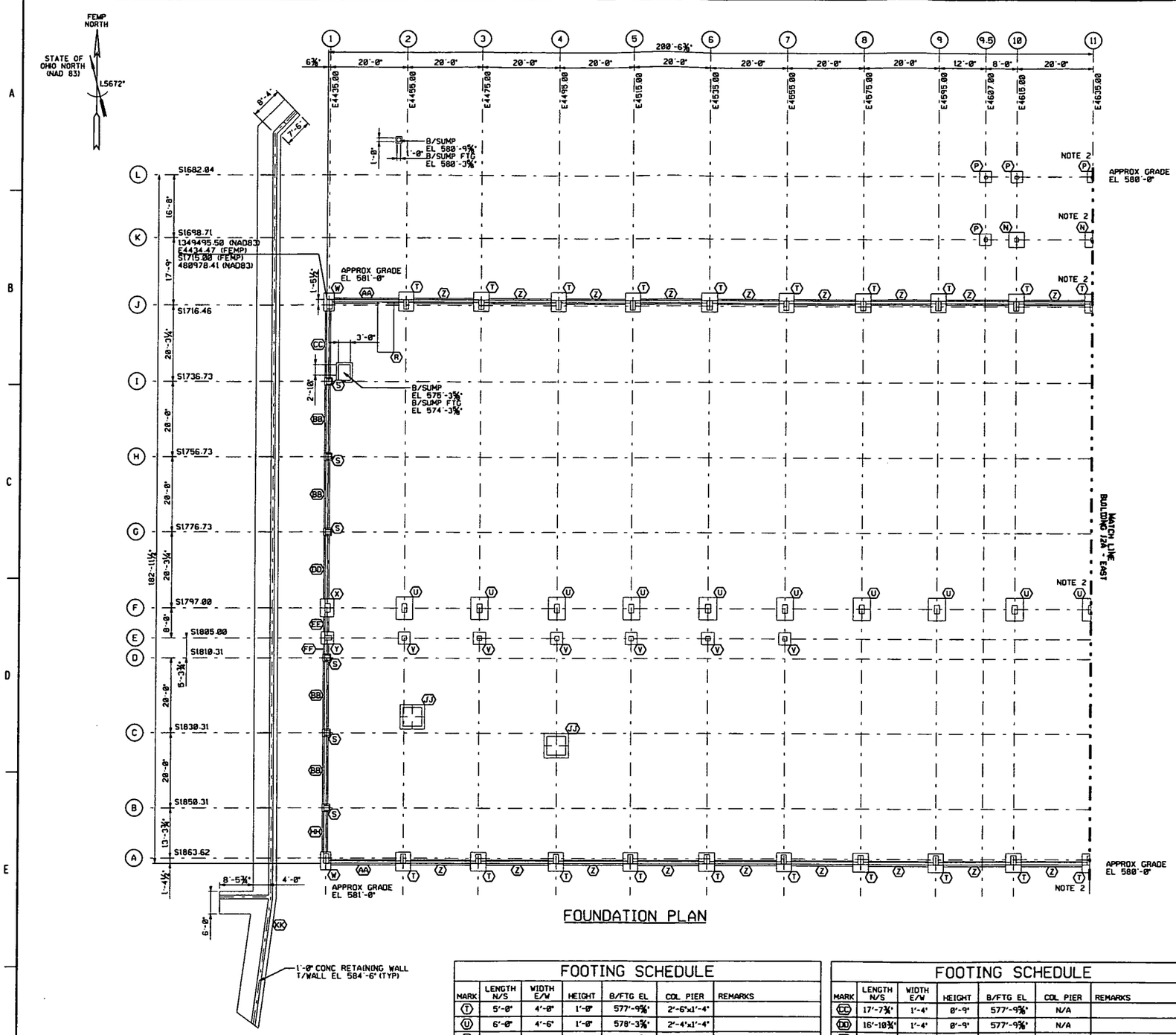
CONFIGURATION MANAGEMENT DRAWING — YES / NO

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

COGNIZANT ENGINEER — DATE

TASK ORDER NO.	OPTIONAL NO.	SCALE	
060	N/A	⅜" = 1'-0"	
		DRAWN BY: L.N. HAGAMAN	DATE: 12/23/91
RES NO.: 4327	FOP PROJECT NO.: 20810	TECHNICAL LEAD: N/A	DATE: N/A
		CHECKED BY: DOREEN REED	DATE: 01/11/92
DRAWING INDEX CODE NO.: 53C-5900-S-00434		SHEET NO.: S0002	REV. NO.: 0

SEAL



FOUNDATION PLAN

FOOTING SCHEDULE

MARK	LENGTH N/S	WIDTH E/W	HEIGHT	B/FTG EL	COL PIER	REMARKS
N	4'-0"	4'-0"	1'-6"	579'-5⅝"	1'-0" SQ	
P	3'-0"	3'-0"	3'-0"	577'-11⅝"	8'-9"x1'-0" @ L10,11,12 1'-0"x0'-9" @ K9.5,13 9" SQ @ L9.5,13	
R	13'-3"	4'-2"	3'-6"	578'-3⅜"		

FOOTING SCHEDULE

MARK	LENGTH N/S	WIDTH E/W	HEIGHT	B/FTG EL	COL PIER	REMARKS
T	5'-0"	4'-0"	1'-0"	577'-9⅝"	2'-6"x1'-4"	
U	6'-0"	4'-6"	1'-0"	578'-3⅝"	2'-4"x1'-4"	
V	3'-3"	3'-3"	1'-0"	577'-9⅝"	1'-2" SQ	
W	4'-9"	2'-8"	1'-0"	577'-9⅝"	2'-6"x1'-4"	
X	4'-9"	3'-6"	1'-0"	577'-9⅝"	2'-4"x1'-4"	
Y	3'-3"	3'-3"	1'-0"	577'-9⅝"	1'-2"x1'-9"	
Z	1'-4"	16'-0"	1'-0"	577'-9⅝"	N/A	
AA	1'-4"	16'-8"	1'-0"	577'-9⅝"	N/A	
BB	18'-0"	1'-4"	0'-9"	577'-9⅝"	N/A	
S	2'-0"	2'-0"	0'-9"	577'-9⅝"	1'-4" SQ	

FOOTING SCHEDULE

MARK	LENGTH N/S	WIDTH E/W	HEIGHT	B/FTG EL	COL PIER	REMARKS
CC	17'-7¾"	1'-4"	0'-9"	577'-9⅝"	N/A	
DD	16'-10¾"	1'-4"	0'-9"	577'-9⅝"	N/A	
EE	4'-0"	1'-4"	1'-0"	577'-9⅝"	N/A	
FF	2'-8¼"	1'-4"	0'-9"	577'-9⅝"	N/A.	
HH	10'-8¼"	1'-4"	0'-9"	577'-9⅝"	N/A	
JJ	6'-6"	6'-6"	1'-0"	576'-3⅝"	5'-0" SQ	
KK	259'-0"	6'-0"	1'-0"	575'-0"	N/A	T/RETAIN WALL 584'-6'

GRAPHIC SCALE: 1/32" = 1'-0"

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION DRAWINGS AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.
2. ONE-HALF OF ITEM SHOWN. REFERENCE MATCH LINE OF DRAWING 12X-5900-S-00476 FOR CONTINUATION.

4831

REF DWG NO.	DRAWING TITLE
12X-1450-S-00014	FOUNDATION AND ANCHOR BOLT PLAN
12X-1450-S-00015	FOUNDATION AND ANCHOR BOLT DETAILS
12B-5500-S-00287	LOADING RAMP & DETAILS
12B-5500-S-00296	RECEIVING & SHIPPING BLDG
12B-5500-S-00297	DETAILS
12X-5500-G-00306	PLOT PLAN AND UNDERGROUND SERVICES
12X-5500-S-00307	FOOTING LAYOUT & DETAILS
12X-5500-A-00309	ELEVATION & SECTIONS
12X-5500-S-00311	TYPICAL WALL SECTIONS
12X-5500-A-00417	FLOOR PLAN
12X-5500-S-00428	DRUM CONTAINMENT LAYOUT

000410

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	REVW BY
0	ISSUED FOR TECHNICAL REFERENCE ONLY	N/A	JJG 8/13/99	LNH 8/13/99

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
PARSONS I & T GROUP
CINCINNATI, OHIO

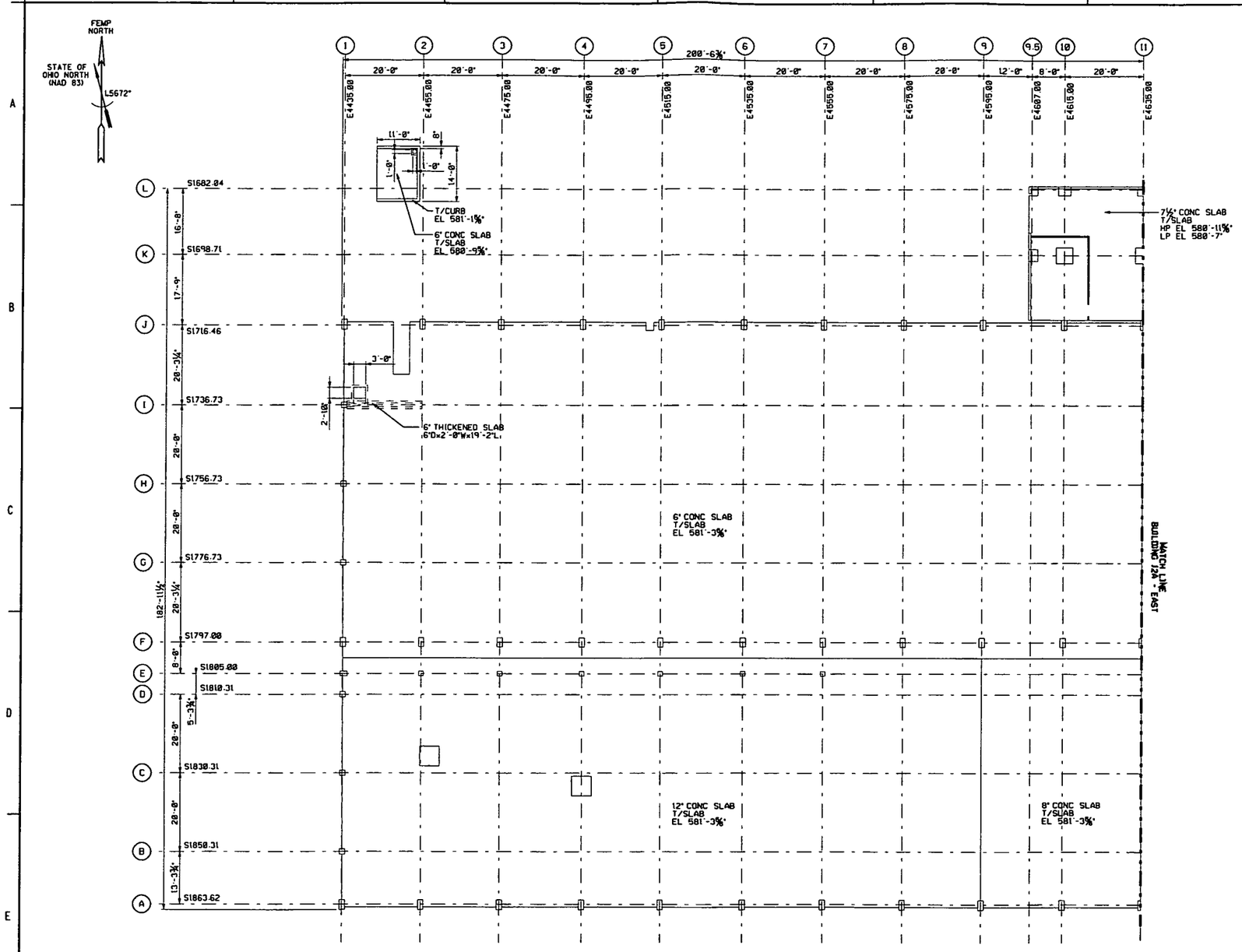
PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 11 - TECHNICAL REFERENCE DRAWING

DRAWING TITLE
BUILDING 12A - WEST
FOUNDATION PLAN

CONFIGURATION MANAGEMENT DRAWING
CHECK BOX
EDITED STRUCTURES ON COMPUTER SYSTEM ARE MAINTAINED UNDER CONFIGURATION MANAGEMENT CONTROL. SEE NOTES.
COGNIZANT ENGINEER DATE

TASK ORDER NO.	OPTIONAL NO.	SCALE	
025	N/A	3/32" = 1'-0"	
		DRAWN BY HAGAMAN	DATE 06/23/99
RES NO. 3769	FOR PROJECT NO. N/A	TECHNICAL LEAD N/A	DATE N/A
		CHECKED BY RJACHAV	DATE 07/26/99
DRAWING INDEX CODE NO. 12X-5900-S-00477		SHEET NO. S0001	REV. NO. 0

SEAL



SLAB PLAN

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION DRAWINGS AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.

4831

REF DWG NO.	DRAWING TITLE
12X-1450-S-00014	FOUNDATION AND ANCHOR BOLT PLAN
12X-1450-S-00015	FOUNDATION AND ANCHOR BOLT DETAILS
12B-5500-S-00287	LOADING RAMP & DETAILS
12B-5500-S-00296	RECEIVING & SHIPPING BLDG
12B-5500-S-00297	DETAILS
12X-5500-G-00306	PLOT PLAN AND UNDERGROUND SERVICES
12X-5500-S-00307	FOOTING LAYOUT & DETAILS
12X-5500-A-00309	ELEVATION & SECTIONS
12X-5500-S-00311	TYPICAL WALL SECTIONS
12X-5500-A-00417	FLOOR PLAN
12X-5500-S-00428	DRUM CONTAINMENT LAYOUT

000411

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	REVW BY
0	ISSUED FOR TECHNICAL REFERENCE ONLY	N/A	JJG 8/13/99	LNH 8/13/99

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
PARSONS I & T GROUP
CINCINNATI, OHIO

PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 11 - TECHNICAL REFERENCE DRAWING

DRAWING TITLE
BUILDING 12A - WEST
SLAB PLAN

CONFIGURATION MANAGEMENT DRAWING

TASK ORDER NO.	OPTIONAL NO.	SCALE 3/32" = 1'-0"
025	N/A	DRAWN BY HAGAMAN — DATE 05/23/99
RES NO. 3769	FDF PROJECT NO. N/A	TECHNICAL LEAD N/A — DATE N/A
		CHECKED BY RJADHAV — DATE 07/26/99

COGNIZANT ENGINEER DATE

DRAWING INDEX CODE NO. 12X-5900-S-00479 — SHEET NO. S0002 — REV. NO. 0

SEAL

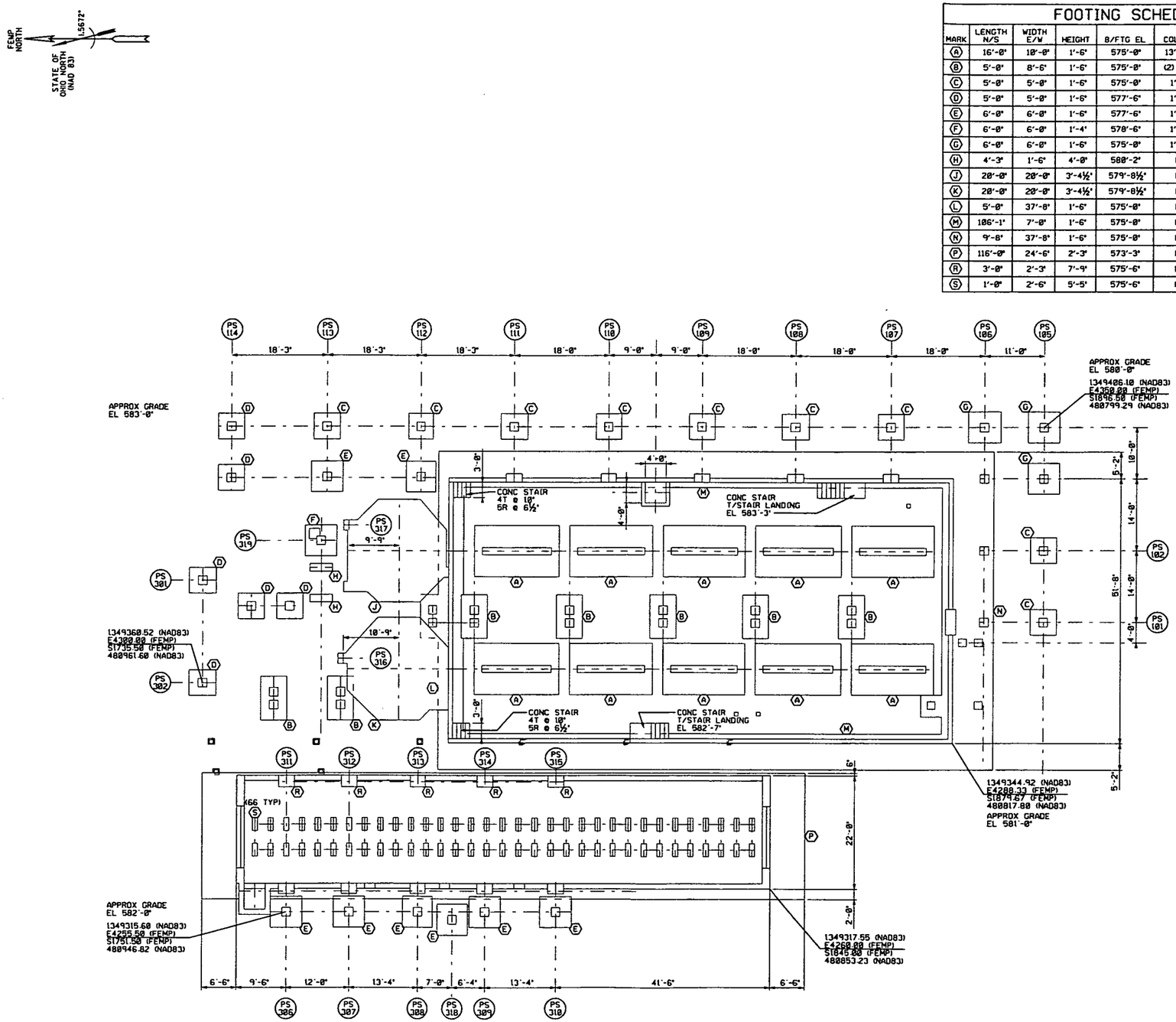
FOOTING SCHEDULE

MARK	LENGTH N/S	WIDTH E/W	HEIGHT	B/FTG EL	COL PIER	REMARKS
A	16'-0"	10'-0"	1'-6"	575'-0"	13'-0"x2'-1"	
B	5'-0"	8'-6"	1'-6"	575'-0"	(2) 1'-8" SQ	
C	5'-0"	5'-0"	1'-6"	575'-0"	1'-8" SQ	
D	5'-0"	5'-0"	1'-6"	577'-6"	1'-8" SQ	
E	6'-0"	6'-0"	1'-6"	577'-6"	1'-8" SQ	
F	6'-0"	6'-0"	1'-4"	578'-6"	1'-8" SQ	2'-0" SQ PEDESTAL NE OF PIER
G	6'-0"	6'-0"	1'-6"	575'-0"	1'-8" SQ	
H	4'-3"	1'-6"	4'-0"	580'-2"	N/A	
J	20'-0"	20'-0"	3'-4½"	579'-8½"	N/A	OCTAGON TANK PAD
K	20'-0"	20'-0"	3'-4½"	579'-8½"	N/A	OCTAGON TANK PAD
L	5'-0"	37'-8"	1'-6"	575'-0"	N/A	STRIP FOOTING
M	106'-1"	7'-0"	1'-6"	575'-0"	N/A	STRIP FOOTING
N	9'-8"	37'-8"	1'-6"	575'-0"	N/A	STRIP FOOTING
P	116'-0"	24'-6"	2'-3"	573'-3"	N/A	
R	3'-0"	2'-3"	7'-9"	575'-6"	N/A	PILASTERS SIT ON MAT FOOTING
S	1'-0"	2'-6"	5'-5"	575'-6"	N/A	PIERS SIT ON MAT FOOTING

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION DRAWINGS AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.

4831



FOUNDATION PLAN

REF DWG NO.	DRAWING TITLE
19X-3900-G-00304	FINISH GRADING PLAN
19X-3900-G-00306	FINISH GRADING PLAN
19X-3900-S-00308	FOUNDATION LOCATION PLAN
19X-3900-S-00311	TANK FARM AREA FOUNDATIONS SECTIONS & DETAILS - SH. 1
19X-3900-S-00312	TANK FARM AREA FOUNDATIONS SECTIONS & DETAILS - SH. 2
19X-3900-S-00314	FOUNDATION LOCATION PLAN
19X-3900-S-00316	MISCELLANEOUS EQUIPMENT FOUNDATIONS & SUMPS
19X-3900-S-00319	MISCELLANEOUS FOUNDATIONS
19X-3900-S-00382	TANK FARM AREA FOUNDATIONS SECTIONS & DETAILS

000412

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PW	REVIEW BY
0	ISSUED FOR TECHNICAL REFERENCE ONLY	N/A	JJG 8/13/99	LMH 8/13/99

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
PARSONS I & T GROUP
CINCINNATI, OHIO

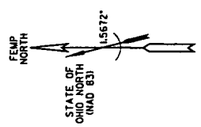
PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 11 - TECHNICAL REFERENCE DRAWING

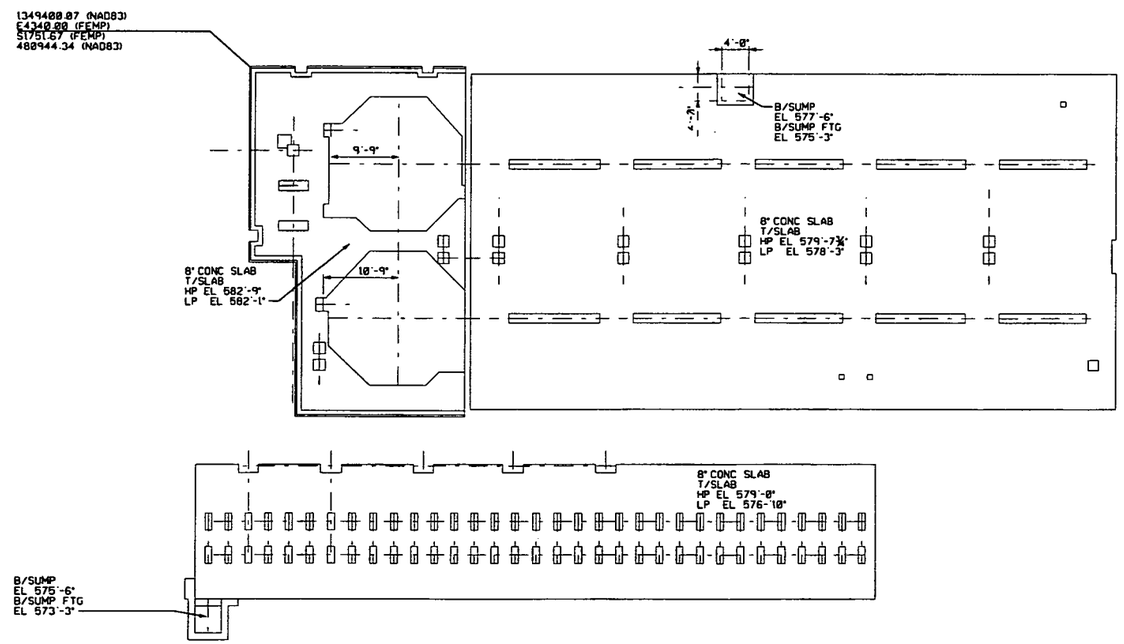
DRAWING TITLE
TANK FARM 19A
FOUNDATION PLAN

CONFIGURATION MANAGEMENT DRAWING — YES / NO
EXISTING ATTACHED OR COMPONENTS CONFIGURATION MANAGEMENT CONTROL. SEE NOTES.
COGNIZANT ENGINEER — DATE

TASK ORDER NO.	OPTIONAL NO.	SCALE ⅛" = 1'-0"	
025	N/A	DRAWN BY HAGAMAN/WHITTLE	DATE 05/24/99
RES NO. 3769	FOF PROJECT NO. N/A	TECHNICAL LEAD N/A	DATE N/A
		CHECKED BY R.JADHAV	DATE 07/26/99
DRAWING INDEX CODE NO. 19X-5900-S-00696		SHEET NO. S0001	REV. NO. 0

SEAL





SLAB PLAN

GRAPHIC SCALE: 1/8"=1'-0"

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION DRAWINGS AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.

4831

REF DWG NO.	DRAWING TITLE
19X-3900-G-00304	FINISH GRADING PLAN
19X-3900-G-00306	FINISH GRADING PLAN
19X-3900-S-00308	FOUNDATION LOCATION PLAN
19X-3900-S-00311	TANK FARM AREA FOUNDATIONS SECTIONS & DETAILS - SH. 1
19X-3900-S-00312	TANK FARM AREA FOUNDATIONS SECTIONS & DETAILS - SH. 2
19X-3900-S-00314	FOUNDATION LOCATION PLAN
19X-3900-S-00316	MISCELLANEOUS EQUIPMENT FOUNDATIONS & SUMPS
19X-3900-S-00319	MISCELLANEOUS FOUNDATIONS
19X-3900-S-00382	TANK FARM AREA FOUNDATIONS SECTIONS & DETAILS

000413

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	REVD BY
0	ISSUED FOR TECHNICAL REFERENCE ONLY	N/A	JJG 8/13/99	LNH 8/13/99

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
PARSONS I & T GROUP
CINCINNATI, OHIO

PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 11 - TECHNICAL REFERENCE DRAWING

DRAWING TITLE
TANK FARM 19A
SLAB PLAN

CONFIGURATION MANAGEMENT DRAWING
YES / NO
SYSTEMS, STRUCTURES OR COMPONENTS DESIGNATED ON THIS DRAWING ARE SUBJECT TO CONFIGURATION MANAGEMENT CONTROL. SEE NOTES.

COGNIZANT ENGINEER DATE

TASK ORDER NO.	OPTIONAL NO.	SCALE	
025	N/A	1/8" = 1'-0"	
		DRAWN BY: HAGAMAN/WHITTLE	DATE: 06/24/99
RES NO. 3769	FDF PROJECT NO. N/A	TECHNICAL LEAD: N/A	DATE: N/A
		CHECKED BY: RJACHAV	DATE: 07/26/99
DRAWING INDEX CODE NO. 19X-5900-S-00697		SHEET NO. S0002	REV. NO. 0

SEAL

PAD SCHEDULE

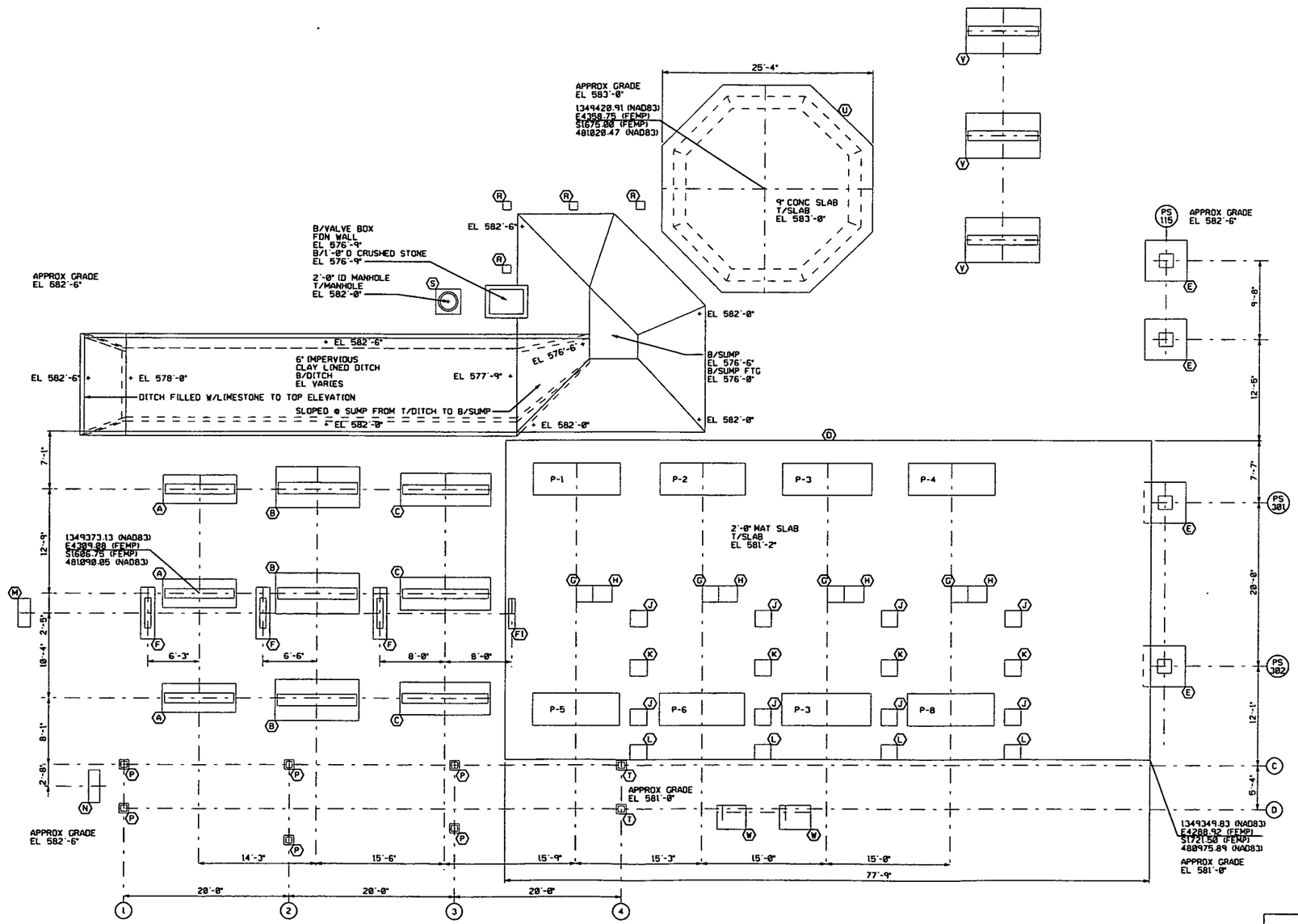
EQ PAD #	LENGTH N/S	WIDTH E/W	HEIGHT	T/CONC EL	REMARKS
P-1	10'-6"	3'-11"	1'-8½"	582'-10½"	
P-2	10'-6"	3'-11"	1'-8½"	582'-10½"	
P-3	10'-6"	3'-11"	1'-8½"	582'-10½"	
P-4	10'-6"	3'-11"	1'-8½"	582'-10½"	
P-5	10'-6"	3'-11"	1'-8½"	582'-10½"	
P-6	10'-6"	3'-11"	1'-8½"	582'-10½"	
P-7	10'-6"	3'-11"	1'-8½"	582'-10½"	
P-8	10'-6"	3'-11"	1'-8½"	582'-10½"	

FOOTING SCHEDULE

MARK	LENGTH N/S	WIDTH E/W	HEIGHT	B/FTG EL	COL PIER	REMARKS
A	9'-0"	3'-6"	1'-0"	579'-6"	8'-6"x1'-2"	
B	10'-0"	5'-0"	1'-0"	579'-6"	9'-6"x1'-5"	
C	11'-0"	4'-0"	1'-0"	579'-6"	10'-6"x1'-2"	
D	77'-9"	39'-0"	2'-0"	579'-2"	N/A	
E	5'-0"	5'-0"	1'-6"	577'-6"	1'-8" SQ	
F	1'-8"	6'-4"	1'-0"	579'-6"	0'-9"x3'-8"	
F1	N/A	N/A	1'-7"	581'-2"	0'-9"x3'-8"	PIER ONLY
G	2'-0"	2'-0"	2'-1½"	581'-2"	N/A	PIER ONLY
H	2'-4"	2'-0"	1'-8½"	581'-2"	N/A	PIER ONLY
J	2'-0"	2'-0"	4'-10¼"	581'-2"	N/A	PIER ONLY
K	2'-0"	2'-0"	1'-11¾"	581'-2"	N/A	PIER ONLY
L	2'-0"	1'-10"	1'-11¾"	581'-2"	N/A	PIER ONLY

FOOTING SCHEDULE

MARK	LENGTH N/S	WIDTH E/W	HEIGHT	B/FTG EL	COL PIER	REMARKS
M	1'-6"	3'-6"	3'-5⅞"	579'-6"	N/A	
N	1'-6"	4'-0"	3'-7"	579'-6"	N/A	
P	1'-9"	1'-9"	1'-0"	579'-6"	0'-9" SQ	
R	1'-0"	1'-0"	1'-4"	582'-8"	N/A	
S	3'-1"	3'-1"	0'-9¼"	574'-2¾"	N/A	
T	1'-2"	1'-2"	1'-0"	579'-2"	0'-9" SQ	
U	SEE PLAN	SEE PLAN	2'-9"	579'-6"	N/A	STRIP FOOTING
V	9'-6"	5'-6"	1'-0"	579'-2"	8'-6"x1'-2"	
W	3'-7"	2'-11"	3'-7¼"	579'-6"	N/A	



FOUNDATION AND SLAB PLAN

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION DRAWINGS AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.

4831

REF DWG NO.	DRAWING TITLE
19X-1450-S-00001	PLOT PLAN
19X-1450-S-00002	FOUNDATION DETAILS
19X-1450-G-00043	PLAN DRAINAGE DITCH & SUMP
19X-7000-S-00050	FOUNDATION PLAN
19X-7000-S-00065	SECTIONS & DETAILS
19X-3115-S-00133	FOUNDATIONS
19X-5500-G-00209	EXISTING TANK FARM LAYOUT
19X-3900-S-00319	MISCELLANEOUS FOUNDATIONS

000414

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	REVW BY
0	ISSUED FOR TECHNICAL REFERENCE ONLY	N/A	JJG 8/13/99	LNH 8/13/99

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
PARSONS I & T GROUP
CINCINNATI, OHIO

PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 11 - TECHNICAL REFERENCE DRAWING

DRAWING TITLE
TANK FARM 19D
FOUNDATION AND SLAB PLAN

CONFIGURATION MANAGEMENT DRAWING — YES / NO
EXISTING STRUCTURES OR COMPONENTS DEPICTED ON THIS DRAWING ARE UNDER CONFIGURATION MANAGEMENT CONTROL. SEE NOTES.

COGNIZANT ENGINEER — DATE

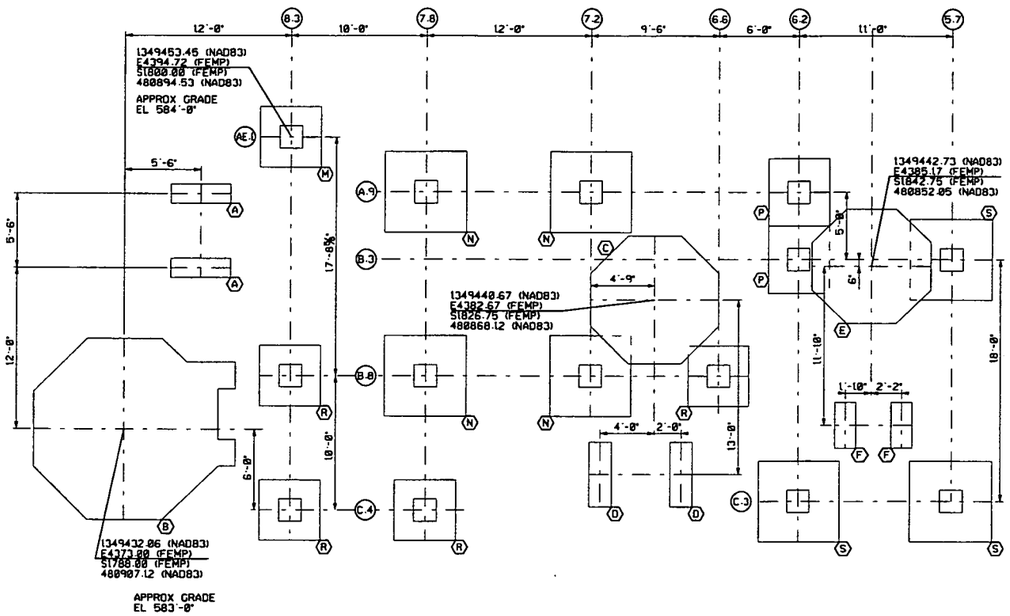
TASK ORDER NO.	OPTIONAL NO.	SCALE	
025	N/A	3/16" = 1'-0"	
		DRAWN BY HAGAMAN/WHITTLE	DATE 06/25/99
RES NO. 3769	FOP PROJECT NO. N/A	TECHNICAL LEAD N/A	DATE N/A
		CHECKED BY RJADHAV	DATE 07/26/99
DRAWING INDEX CODE NO. 19X-5900-S-00699		SHEET NO. S0001	REV. NO. 0

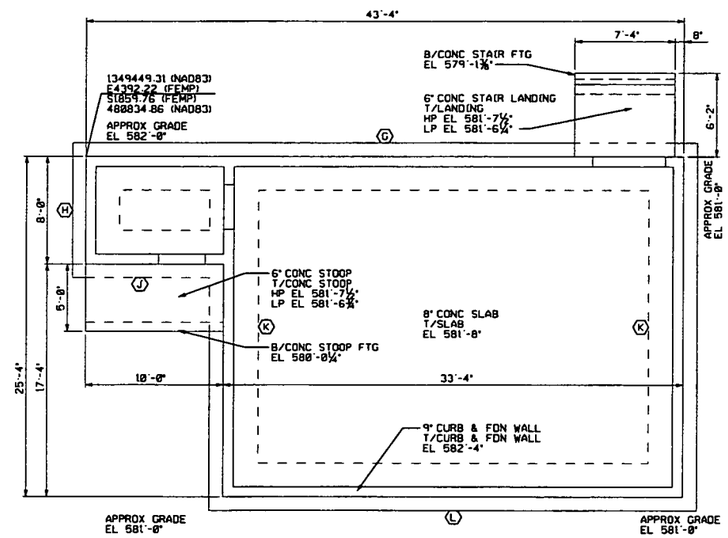
SEAL

FEMP NORTH
STATE OF OHIO NORTH (NAD 83)
L5672°

FOOTING SCHEDULE

MARK	LENGTH N/S	WIDTH E/W	HEIGHT	B/FTG EL	COL PIER	REMARKS
A	4'-3"	1'-5"	2'-8"	581'-2"	N/A	
B	13'-6"	13'-6"	3'-8"	580'-0"	N/A	OCTAGON TANK PAD
C	9'-6"	9'-6"	3'-10"	579'-6"	N/A	OCTAGON TANK PAD
D	1'-8"	4'-10"	2'-8"	580'-5⅞"	N/A	
E	8'-6"	8'-6"	3'-10"	578'-10"	N/A	OCTAGON TANK PAD
F	1'-6"	3'-5"	3'-0"	580'-10¾"	N/A	
G	45'-4"	3'-6"	1'-3"	576'-9"	N/A	
H	3'-6"	3'-0"	1'-3"	576'-9"	N/A	
J	10'-0"	3'-6"	1'-3"	576'-9"	N/A	
K	3'-6"	20'-4"	1'-3"	576'-9"	N/A	
L	35'-4"	3'-6"	1'-3"	576'-9"	N/A	
M	4'-6"	4'-6"	1'-6"	577'-9"	1'-8" SQ	
N	6'-0"	6'-0"	1'-6"	576'-6"	1'-8" SQ	
P	4'-6"	5'-0"	1'-6"	576'-6"	1'-8" SQ	
R	4'-6"	4'-6"	1'-6"	576'-6"	1'-8" SQ	
S	6'-0"	6'-0"	1'-6"	576'-6"	1'-8" SQ	





FOUNDATION AND SLAB PLAN

GRAPHIC SCALE: ¼"=1'-0"

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION DRAWINGS AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.

4831

0415

REF DWG NO.	DRAWING TITLE
19X-3900-G-00306	FINISH GRADING PLAN
19X-3900-S-00308	FOUNDATION LOCATION PLAN
19X-3900-S-00310	MISCELLANEOUS FOUNDATIONS
19X-3900-S-00315	CONTROL HOUSE FOUNDATION PLAN
19X-3900-S-00319	MISCELLANEOUS FOUNDATIONS

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	TL	PM	RDW BY
0	ISSUED FOR TECHNICAL REFERENCE ONLY	N/A	JJG 8/13/99	LNH 8/13/99

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
PARSONS I & T GROUP
CINCINNATI, OHIO

PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 11 - TECHNICAL REFERENCE DRAWING

DRAWING TITLE
BUILDING 19C AND TANK FARM 19E
FOUNDATION AND SLAB PLAN

CONFIGURATION MANAGEMENT DRAWING
STATUS: STRUCTURES AND COMPONENTS SHOWN ON THIS DRAWING ARE CONTROLLED IN THE DRAWING AND CHANGE CONTROL MANAGEMENT CONTROL SET WITH.

COGNIZANT ENGINEER DATE

TASK ORDER NO.	OPTIONAL NO.	SCALE	
025	N/A	¼" = 1'-0"	
RES NO.	FDF PROJECT NO.	DRAWN BY HAGAMAN/WHITTLE	DATE 06/24/99
3769	N/A	TECHNICAL LEAD N/A	DATE N/A
		CHECKED BY RJJACHAY	DATE 07/26/99
DRAWING INDEX CODE NO. 19X-5900-S-00698		SHEET NO. S0001	REV. NO. 0

SEAL

FEMP NORTH
STATE OF OHIO NORTH (NAD 83)
15°12'

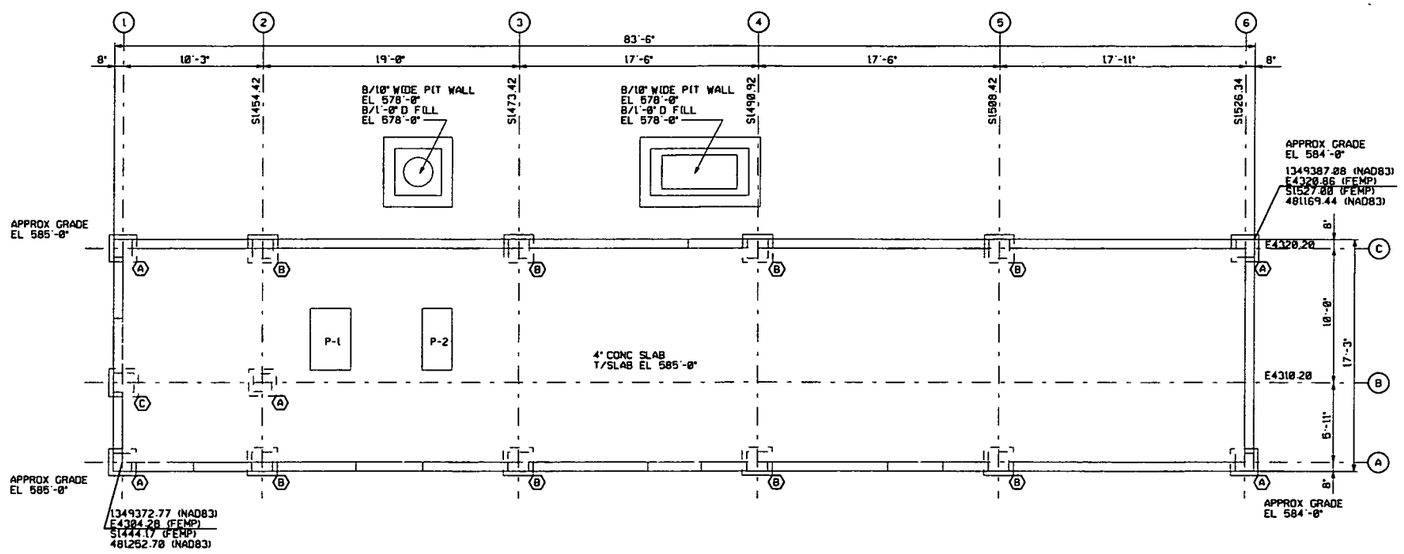
FOOTING SCHEDULE						
MARK	LENGTH N/S	WIDTH E/W	HEIGHT	B/FTG EL	COL PIER	REMARKS
A	2'-0"	2'-0"	0'-8"	580'-8"	1'-4" SQ	
B	2'-2"	2'-1"	0'-8"	580'-8"	1'-6"x1'-5"	
C	2'-1"	2'-2"	0'-8"	580'-8"	1'-5"x1'-6"	

PAD SCHEDULE					
EQ PAD #	LENGTH N/S	WIDTH E/W	HEIGHT	T/CONC EL	REMARKS
P-1	3'-1"	4'-7"	2'-9"	585'-5"	
P-2	2'-3"	4'-7"	2'-9"	585'-5"	

NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING WAS COMPILED FROM EXISTING CONSTRUCTION DRAWINGS AND MAY NOT REPRESENT ACTUAL FIELD CONDITIONS.

4831



FOUNDATION AND SLAB PLAN

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

REF DWG NO.	DRAWING TITLE
20X-5500-A-00432	PUMP HOUSE & POWER CENTER PHOTO LOCATIONS
20X-5500-A-00405	FLOOR PLAN
20B-3115-S-00173	FOUNDATION DETAILS

0416

FOR INFORMATION ONLY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	EL.	PM	REVD BY
0	ISSUED FOR TECHNICAL REFERENCE ONLY	N/A	JJG 8/13/99	LMH 8/13/99

DETAILS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
PARSONS I & T GROUP
CINCINNATI, OHIO

PROJECT NAME
LOCATION OF BELOW GRADE STRUCTURES
GRID 11 - TECHNICAL REFERENCE DRAWING

DRAWING TITLE
BUILDING 20A
FOUNDATION AND SLAB PLAN

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

TASK ORDER NO.	OPTIONAL NO.	SCALE	
025	N/A	1/4" = 1'-0"	
RES NO.	FOF PROJECT NO.	DRAWN BY HAGAMAN/RABBITT	DATE 05/12/99
3769	N/A	TECHNICAL LEAD N/A	DATE N/A
		CHECKED BY RJACHAY	DATE 07/26/99
DRAWING INDEX CODE NO. 20B-5900-S-00456		SHEET NO. S0001	REV. NO. 0

COGNIZANT ENGINEER DATE

SEAL