

History of Construction Dolet Hills Ash Basin 1



CLECO Corporation

**Dolet Hills Power Station
Project No. 90965**

**Revision 0
10/13/2016**

History of Construction Dolet Hills Ash Basin 1

prepared for

**CLECO Corporation
Dolet Hills Power Station
DeSoto Parish, Louisiana**

Project No. 90965

**Revision 0
10/13/2016**

prepared by

**Burns & McDonnell Engineering Company, Inc.
Kansas City, Missouri**

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INDEX AND CERTIFICATION

CLECO Corporation
History of Construction
Dolet Hills Ash Basin 1
Project No. 90965

Report Index

<u>Chapter Number</u>	<u>Chapter Title</u>	<u>Number of Pages</u>
1.0	Introduction	1
2.0	Plan Objectives	1
3.0	History of Construction	2

Certification

I hereby certify, as a Professional Engineer in the state of Louisiana, that the information in this document was assembled under my direct personal charge. This report is not intended or represented to be suitable for reuse by the CLECO Corporation or others without specific verification or adaptation by the Engineer.



Randell L Sedlacek, P.E.
Louisiana License #38408

Date: 10/13/16

TABLE OF CONTENTS

	<u>Page No.</u>
1.0 INTRODUCTION.....	1-1
2.0 PLAN OBJECTIVES	2-1
3.0 HISTORY OF CONSTRUCTION.....	3-1
APPENDIX A - USGS TOPOGRAPHICAL MAP	
APPENDIX B - AREA-CAPACITY CURVE	
APPENDIX C - GEOLOGIC DATA	
APPENDIX D - DESIGN DOCUMENTS	
APPENDIX E - DIVERSION DESIGN FEATURES	
APPENDIX F - INSTRUMENTATION	

LIST OF ABBREVIATIONS

<u>Abbreviation</u>	<u>Term/Phrase/Name</u>
BMcD	Burns & McDonnell
CCR	Coal Combustion Residual
CFR	Code of Federal Regulations
CLECO	CLECO Corporation
CY	Cubic Yards
Dolet Hills	Dolet Hills Power Station
EPA	Environmental Protection Agency
GPM	Gallons per Minute
HUC	Hydrologic Unit Code
LSU	Louisiana State University
U.S.C	United States Code
USGS	United States Geological Survey

1.0 INTRODUCTION

On April 17, 2015, the Environmental Protection Agency (EPA) issued the final version of the federal Coal Combustion Residual (CCR) Rule to regulate the disposal of CCR materials generated at coal-fired units. The rule will be administered as part of the Resource Conservation and Recovery Act [RCRA, 42 United States Code (U.S.C.) §6901 et seq.], using the Subtitle D approach.

The existing CCR units at CLECO Corporation's (CLECO's) Dolet Hills Power Station (Dolet Hills) are subject to the CCR Rule, and as such CLECO must compile a History of Construction for each of the units per 40 CFR §257.73(c). This report serves as the History of Construction for Ash Basin 1 at Dolet Hills.

This history of construction is in addition to, not in place of, any other applicable site permits, environmental standards, or work safety practices.

2.0 PLAN OBJECTIVES

Per 40 CFR §257.73(c), the History of Construction must contain, to the extent feasible, the following items:

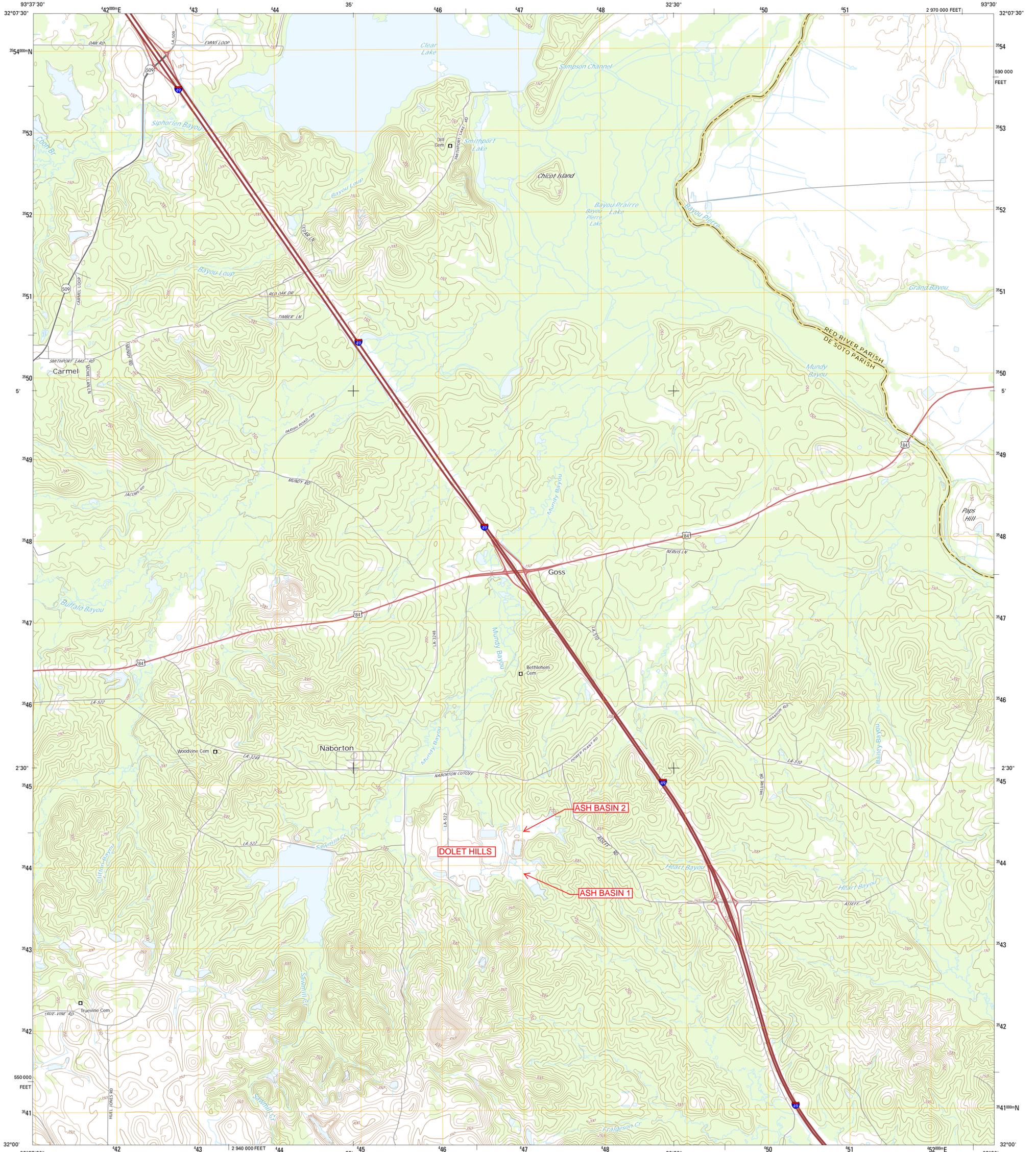
- The name and address of the owner/operator of the CCR unit, the name of the CCR unit, and the identification number of the CCR unit
- The location of the CCR unit on most recent United States Geological Survey (USGS) 7½ minute or 15 minute topographical map
- A statement of the purpose for which the CCR unit is being used
- The name and size of watershed within which the CCR unit is located
- A description of the physical and engineering properties of the foundation and abutment materials on which the CCR unit is constructed
- A statement of the type, size, range, and physical and engineering properties of the materials used in constructing each zone or stage of the CCR unit; the method of site preparation and construction of each zone or stage of the CCR unit; and the approximate dates of construction of each successive stage of construction of the CCR unit.
- Detailed dimensional drawings of the CCR Unit, including the following:
 - Plan view and cross sections of the length and width of the CCR unit
 - Foundation improvements
 - Drainage provisions, spillways, diversion ditches, outlets
 - Instrumentation locations
 - Slope protection
 - Normal operating pool surface elevation
 - Maximum pool surface elevation following peak discharge from the inflow design flood
 - Expected maximum depth of CCR within the unit
 - Any identifiable natural or manmade features that could adversely affect operation of the CCR unit due to malfunction or mis-operation
- A description of the type, purpose, and location of existing instrumentation
- Area-capacity curves for the CCR unit
- A description of each spillway and diversion design features and capacities and calculations used in their determination
- The construction specifications and provisions for surveillance, maintenance, and repair of the CCR unit
- Any record or knowledge of structural instability of the CCR unit

3.0 HISTORY OF CONSTRUCTION

Section	CCR Rule Description	Included	Information	Source
40 CFR §257.73 (c)(1) (i)	Name and address of the owner/operator of the CCR unit	Y	Cleco Corporation 2030 Donahue Ferry Road P.O. Box 5000 Pineville, LA 71361-5000	Owner
	Name of the CCR units	Y	Ash Basin 1	Owner
	Identification number of the CCR unit	Y	P-0037 (permit number)	Owner
40 CFR §257.73 (c)(1) (ii)	Location of the CCR unit on most recent United States Geological Survey (USGS) 7½ minute or 15 minute topographical map	Y	See Appendix A	USGS Map
40 CFR §257.73 (c)(1) (iii)	Statement of the purpose for which the CCR unit is being used	Y	Receives primarily bottom ash sluice water, as well as other plant inflows including Sanitary Sewage Treatment Plant and demineralizer flush effluent. Basins 1 and 2 are designed to be alternately filled and cleaned with only one in service at a time.	Permit
40 CFR §257.73 (c)(1) (iv)	Name and size of watershed within which the CCR unit is located	Y	HUC12 = 111402060602 Bayou Pierre Lake Watershed Area = 18,174 acres Only approximately 122 acres of this overall watershed actually contributes runoff to Ash Basin 1.	HUC 12 Mapping LSU AGCenter.com
40 CFR §257.73 (c)(1) (v)	Description of the physical and engineering properties of the foundation and abutment materials on which the CCR unit is constructed	Y	Foundation soils consist of stiff silty clay with isolated areas of dense silty sand. Isolated areas of higher permeability materials were covered with cohesive material having a permeability no greater than 1×10^{-7} cm/s. See Appendix C	Permit
40 CFR §257.73 (c)(1) (vi)	Statement of the type, size, range, and physical and engineering properties of the materials used in constructing each zone or stage of the CCR unit	Y	Embankments and linings were constructed of on-site clay from the Secondary Pond and Ash Basin areas, as well as elsewhere on site. In-situ cohesive materials varied between liquid limit of 29-74 and plasticity index of 10-51. See Appendix C	Permit
	The method of site preparation and construction of each zone or stage of the CCR unit	Y	Pond constructed in cross-valley configuration. Embankments compacted to a min 90% modified Proctor dry density per ASTM D1557. See Appendix C	Permit
	The approximate dates of construction of each successive stage of construction of the CCR unit	Y	Permit received Nov. 1985, operational in 1986 No major construction modifications have been made since.	Permit Drawings / Owner
40 CFR §257.73 (c)(1) (vii)	Detailed dimensional drawings including the following: Plan view and cross sections of the length and width of the CCR unit Foundation improvements	Y N	See Appendix D N/A	Permit

Section	CCR Rule Description	Included	Information	Source
	Drainage provisions, spillways, diversion ditches, outlets	Y	See Appendix E	Permit
	Instrumentation locations	Y	See Appendix F	Permit
	Slope protection	Y	Exterior Slope: 3:1, Vegetated Interior Slope: 3:1, Vegetated above EL 254 and riprap 3' above and below EL 251	Permit / Design Drawings
	Normal operating pool surface elevation	Y	Maximum operating level at EL 251. Normal operating level not found in records review.	Permit / Design Drawings / Owner
	Maximum pool surface elevation following peak discharge from the inflow design flood	Y	See Appendix D Maximum pool surface level at EL 254.9 following peak discharge from the inflow design flood, assuming pond is 50% full of ash to top of dike and initial water level of EL 251.	Inflow Design Flood Control System Plan, Oct. 2016
	Expected maximum depth of CCR within the unit	Y	Maximum ash level at EL 251. Depth of CCR is approximately 31 feet.	Permit / Design Drawings
	Any identifiable natural or manmade features that could adversely affect operation of the CCR unit due to malfunction or mis-operation	N	See Appendix D N/A	
40 CFR §257.73 (c)(1) (viii)	Description of the type, purpose, and location of existing instrumentation	Y	Monitoring Wells - background and compliance monitoring. See Appendix F for locations. Surface water level gauge (measured manually at weir box location)	Permit / Owner
40 CFR §257.73 (c)(1) (ix)	Area-capacity curves for the CCR unit	Y	See Appendix B	Measured in CAD based on Construction Drawings / aerial imagery
40 CFR §257.73 (c)(1) (x)	Description of each spillway and diversion design features and capacities and calculations used in their determination	Y	Auxiliary Spillway - EL 253.5 ft (designed for excess rainfall from the 100-yr flood) Weir Box - conveys overflow from normal operating procedures to Secondary Pond See Appendix E for details	Permit
40 CFR §257.73 (c)(1) (xi)	Construction specifications	N	Not found in records review	
	Provisions for surveillance, maintenance, and repair of the CCR unit	Y	Weekly and Annual Inspections per 40 CFR §257.83.	
40 CFR §257.73 (c)(1) (xii)	Any record or knowledge of structural instability of the CCR unit	N	N/A	

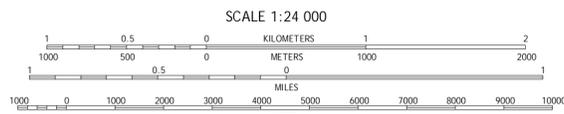
APPENDIX A - USGS TOPOGRAPHICAL MAP



Produced by the United States Geological Survey
North American Datum of 1983 (NAD83)
World Geodetic System of 1984 (WGS84) Projection and
1 000-meter grid; Universal Transverse Mercator, Zone 15S
10 000-foot ticks; Louisiana Coordinate System of 1983 (north
zone)

This map is not a legal document. Boundaries may be
generalized for this map scale. Private lands within government
reservations may not be shown. Obtain permission before
entering private lands.

Imagery NAIP, July 2013
Names HERE, ©2013 - 2014
Roads GNIS, 2015
Hydrography National Hydrography Dataset, 2013
Contours National Elevation Dataset, 2011
Boundaries Multiple sources; see metadata file 1972 - 2015
Public Land Survey System BLM, 2015



CONTOUR INTERVAL 10 FEET
NORTH AMERICAN VERTICAL DATUM OF 1988

This map was produced to conform with the
National Geospatial Program US Topo Product Standard, 2011.
A metadata file associated with this product is draft version 0.6.18



1	2	3
4	5	6
7	8	9

ADJACENT QUADRANGLES

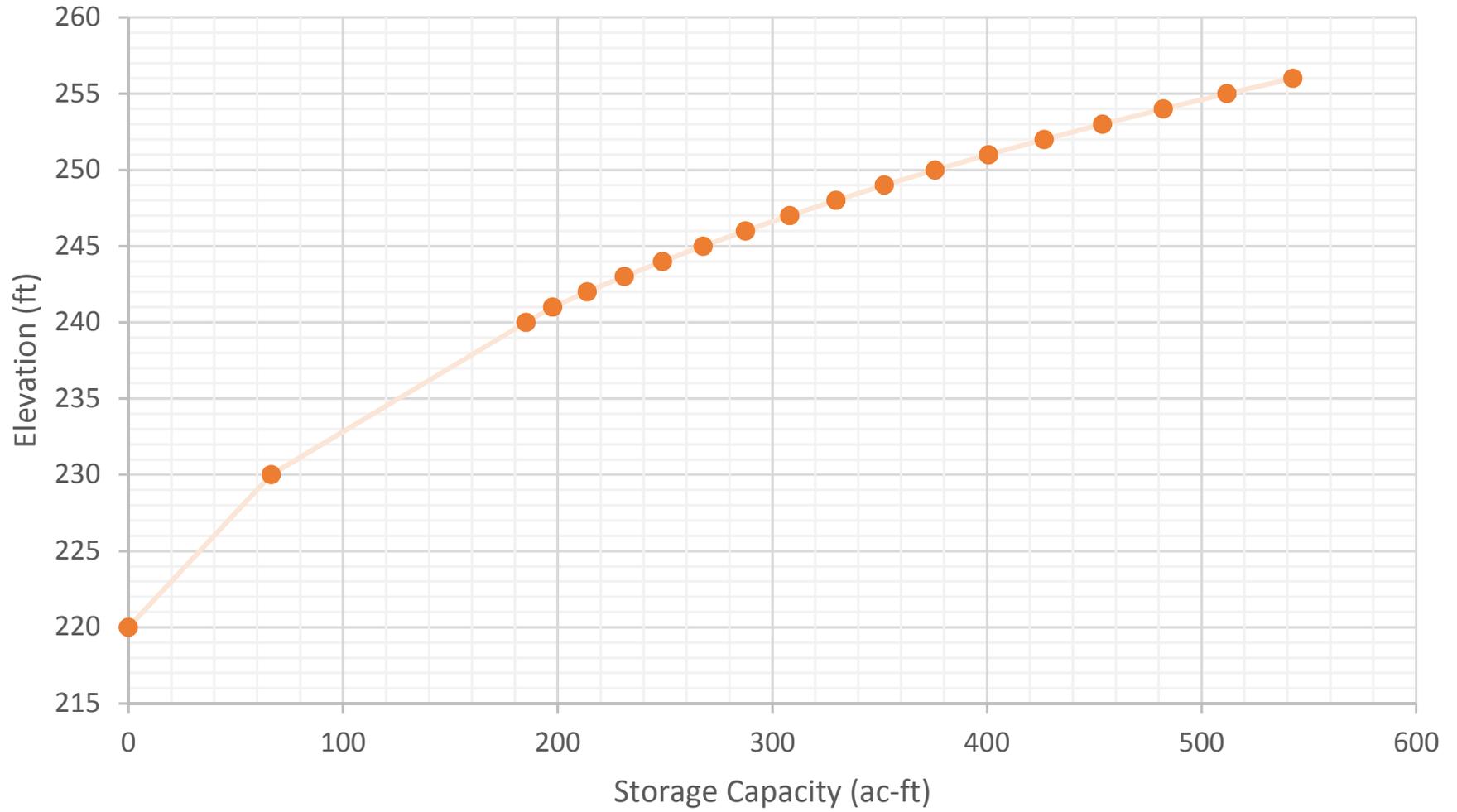
- 1 Holly
- 2 Clear Lake
- 3 East Point
- 4 Mansfield
- 5 Harmon
- 6 Trenton
- 7 Pelican
- 8 Evelyn

BAYOU PIERRE LAKE, LA
2015



APPENDIX B - AREA-CAPACITY CURVE

Dolet Hills - Ash Basin 1



APPENDIX C - GEOLOGIC DATA

of the spillway. Consequently, the pond is not subject to inundation due to backflow through the spillway during periods of high flow in exterior ditches.

c. Site rainfall data are as follows:

10-year, 24-hour rainfall	7.4 inches
25-year, 24-hour rainfall	8.6 inches
100-year, 24-hour rainfall	10.7 inches

Source: Technical Paper 40, Rainfall Frequency Atlas of the United States, U.S. Weather Bureau, 1961.

d. Excess liquid collected in the Secondary Pond is removed by pumping as described in Paragraph 6.4.3.D.2.b.

6.4.3.B.4 Geological Characteristics: The location and a general layout of the Ash Basins and Secondary Pond are shown in Exhibit 6.4.3.A.2-1.

Ash Basin No. 1

- a. A plan view and cross sections through the dikes of the basins and pond are shown in Exhibits ABS 6.4.3.B.1-1 through ABS 6.4.3.B.1-3. These exhibits include illustration of soil types and other general features in the area of Ash Basin No. 1.
- b. Fourteen soil borings, P-22, B-1, B-2, B-43 through B-50, E-6, E-7, and E-8, were drilled in the Ash Basin No. 1 area. The locations of these borings are shown in Exhibit ABS 6.4.3.B.1-1, and the corresponding boring logs are included in Appendix A. Bore holes were plugged by backfilling with cement bentonite grout which has a permeability of 1×10^{-10} cm/sec.
- c. Laboratory test results related to the soil samples from this Ash Basin area are tabulated in Table ABS 6.4.3.B.4-1. Based on review of boring logs and laboratory test results, most of

Table ABS 6.4.3.B.4-1 (Page 1 of 2)
 SUMMARY OF LABORATORY TEST RESULTS OF
 SOIL BORING SAMPLES RELATED TO ASH BASIN - 1

Boring Number	Sample Number	Sample Depth (Ft)	Particle Size Analysis (% Passing)				Atterberg Limits			Unified Soil Classification System	Water Content (%)	Dry Unit Weight (Pcf)	Laboratory Permeability (k, cm/sec)	Unconfined Compressive Strength (ksf)
			No. 4 Sieve	No. 10 Sieve	No. 40 Sieve	No. 200 Sieve	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)					
P-22	ST-1	1.0-3.0				73	38	18	20	CL	21.6	104		1.9
	ST-2	3.0-5.0			100	61	32	17	15	CL	19.4	109	3.1x10 ⁻⁸ ; 1.8x10 ⁻⁸	1.3
	ST-3	5.0-7.0		100	44	31	38	22	16	SC	20.1	114		
	ST-4	7.0-9.0				100	47	23	24	CL	26.7	113		
B-1	PIT-6	13.0-15.0				100	47	24	23	CL	23.2	104	6.5x10 ⁻⁸ ; 1.7x10 ⁻⁸	11.0
	SS-10	33.5-35.0					51	24	27	CH	24.9	102		
	SS-12	48.5-50.0				25				SM	25.8	101		
	SS-2	14.5-16.0				19				SM	21.3			
B-43	SS-4	21.5-23.0				96	49	18	31	CL	18.9	108	0.8x10 ⁻⁸	
	ST-2	2.0-4.0			100	73	31	18	13	CL	19.7	111		
B-44	SS-1	0-1.5				96	45	20	25	CL	16.6	105		
	ST-2	2.0-4.0		98	96	34				SC	25.4			
	SS-7	18.5-20.0			100	3				SP	24.8			

Table ABS 6.4.3.B.4-1 (Page 2 of 2)
 SUMMARY OF LABORATORY TEST RESULTS OF
 SOIL BORING SAMPLES RELATED TO ASH BASIN - 1

Boring Number	Sample Number	Sample Depth (Ft)	Particle Size Analysis (% Passing)				Atterberg Limits			Unified Soil Classification System	Water Content (%)	Dry Unit Weight (Pcf)	Laboratory Permeability (k, cm/sec)	Unconfined Compressive Strength q _u (Ksf)
			No. 4 Sieve	No. 10 Sieve	No. 40 Sieve	No. 200 Sieve	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)					
B-45	SS-2	2.5-4.0	100	97	75	49	20	29	CL	19.0	89	2.0x10 ⁻⁸		
	ST-3	4.0-6.0							CL	32.0				
B-46	SS-1	0-1.5				29	19	10	CL	14.7				
	PB-8	23.0-25.5				59	19	40	CH	22.0	100		11.9	
B-47	ST-2	2.0-4.0		99	95	71	20	51	CH	25.8	97			
	ST-4	6.0-8.0		100	99	54	21	33	CH	28.3	95	3.7x10 ⁻⁸		
B-49	SS-10	33.5-35.0		96	65				ML	33.0				
	SS-1	0-1.5				30	19	11	CL	7.6				
B-50	ST-2	2.0-4.0				66	20	46	CH	19.0	105		11.7	
	SS-6	13.5-15.0		99	17				SM	22.8				
E-6	PB-9	28.0-30.0			100	49	20	29	CL	21.0	97		12.1	
	SS-2	2.5-4.0		100	25				SC	9.4				
E-7	SS-7	18.5-20.0				43	20	23	CL	30.3				
	FB-13	48.0-50.0				61	22	39	CH	15.0	107	2.0x10 ⁻⁸	11.2	
E-8	ST-2	2.0-4.0	100	99	54	45	20	25	CL	17.0	104	2.6x10 ⁻⁸		
	ST-3	4.0-6.0		100	32				SM	14.1	103			
E-8	ST-3	4.0-6.0		100	93	74	23	51	CH	24.0	102	0.3x10 ⁻⁸		
	ST-3	4.0-6.0			79	37	20	17	CL	17.0	106	3.8x10 ⁻⁸		

Ash Basin No. 1 is located over stiff silty clay deposits which, in some isolated areas, are interbedded with dense silty sand layers. These silty clay deposits in some locations are overlain by approximately 2' of red expansive silty to sandy clays. The above surface soils in the Ash Basin No. 1 area are underlain by hard, silty clay soils of Porters Creek Formation which is approximately 800' thick.

As described above, the entire basin is located over impermeable cohesive soil deposits except at a few isolated locations such as at boring locations B-44 and B-50. The log of Boring B-44 shows only 2' of clay material at the surface and the log of Boring B-50 shows no clay at the surface.

Boring B-44 is along the dike alignment (see Exhibits ABS 6.4.3.B.1-1 and ABS 6.4.3.B.1-2). The logs of the nearest borings, E-8 and B-46, indicate a 12' thick clay (CL) deposit at the surface. Therefore, the surface soil condition at Boring B-44 is an isolated condition. In addition, this area will be covered with cohesive material when the dike is constructed.

Boring B-50 is along the dike alignment (see Exhibits ABS 6.4.3.B.1-1 and ABS 6.4.3.B.1-2). Even though there is no CL material at the surface in this area, the nearest Boring B-49 indicates 7' of CL at the surface. Therefore, the surface soil condition at Boring B-50 is an isolated condition. In addition, this area will be covered with cohesive material when the dike is constructed.

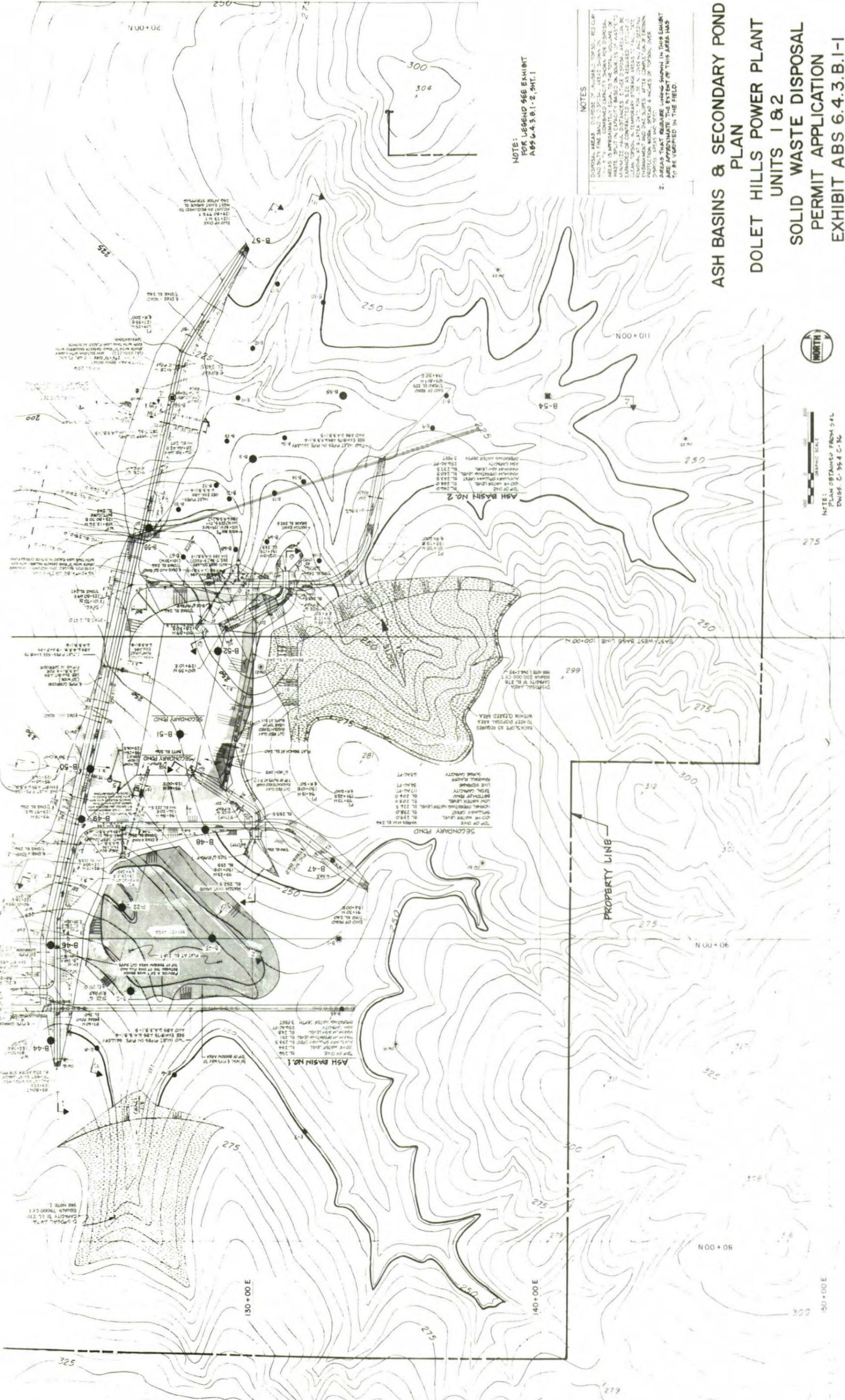
The fill material required for construction of the dike with side slopes of three horizontal to one vertical, will be obtained from the excavation for the Secondary Pond and from suitable borrow areas within the Ash Basins. The dike fill will be compacted to a minimum 90% of modified Proctor maximum dry density per ASTM D1557.

Laboratory permeability tests on ten cohesive soil samples from the basin area were performed, and the results are summarized in Table ABS 6.4.3.B-4.1. The liquid limit and the plasticity indices of in situ cohesive soils in the Ash Basin No. 1 area vary from 29 to 74 and 10 to 51, respectively, and the results are included in Table ABS 6.4.3.B.4-1.

Ash Basin No. 2

- a. A plan view and cross-sections through the dike and the basin are shown in Exhibits ABS 6.4.3.B.1-1 and ABS 6.4.3.B.1-2. These exhibits include illustration of soil types and other general features of Ash Basin No. 2.
- b. Twenty-two soil borings, B-3, B-53 through B-57, B-67 through B-76, and E-9 through E-14, were drilled in the Ash Basin No. 2 area. The locations of these borings are shown in Exhibit ABS 6.4.3.B.1-1 and the logs of these borings are presented in Appendix A.
- c. Laboratory tests were performed on soil samples obtained from this basin area and the results are summarized in Table ABS 6.4.3.B.4-2. Based on the information obtained from the boring logs and laboratory test results, the subsurface conditions in the basin area consist of stiff silty clay underlain by dense silty sand or hard silty clays. These silty clay deposits, in some locations, are overlain by approximately 2' of red, expansive silty to sandy clays. These surface soil deposits are underlain by hard, silty clays of the Porters Creek Formation which is approximately 800' thick.

As described above, the entire basin is located over impermeable cohesive soil deposits except in a few isolated instances. The log of Boring B-53 shows only one foot of clay material at the surface and the logs of Borings B-69 and B-71 show no clay at the surface.



NOTE:
FOR LEGEND SEE EXHIBIT
ABS 6.4.3.B.1-2, 5MT.1

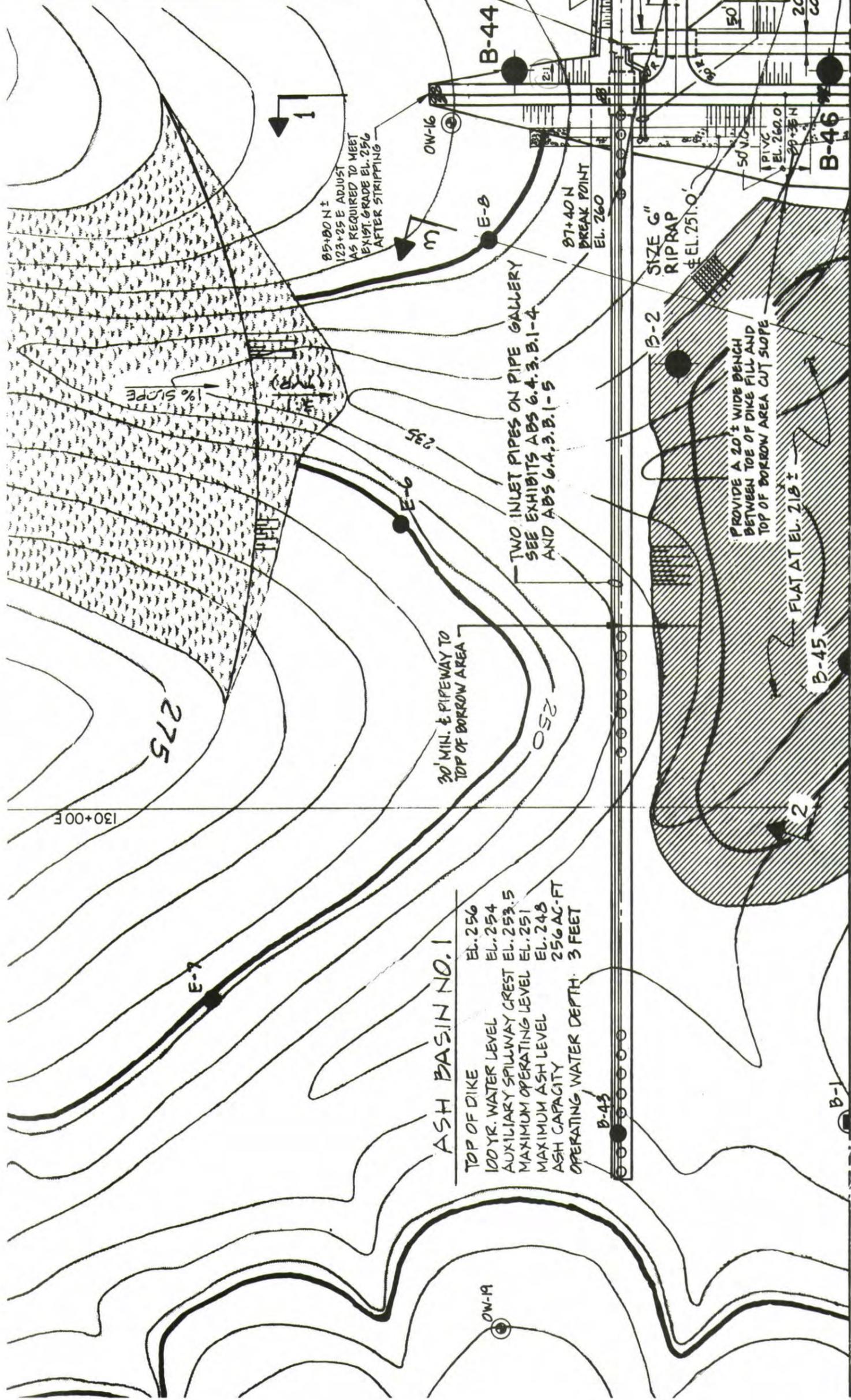
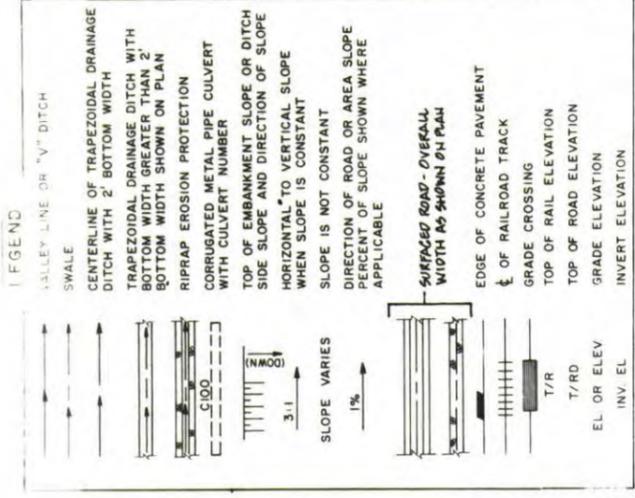
NOTES

- DISPOSAL AREAS (D) PROPOSED TO BE LOCATED IN AREAS OF RED CLAY AND SILTY FINE SAND. DISPOSAL AREAS SHOWN ON THIS PLAN ARE APPROXIMATELY EQUAL TO THE TOTAL VOLUME OF WASTE SPLIT IN CAPACITY BASED ON SOLIDS OF ABOUT 20% MINIMUM OF CONCENTRATION. DISPOSAL AREAS WILL BE CLEAN TOPSOIL. A TEMPORARY STORAGE AREA WILL BE MAINTAINED AT A LATER DATE FOR THE STORAGE AND PROTECTION OF TOPSOIL. SPREAD 4 INCHES OF TOPSOIL OVER PROTECTION WORK.
- AREAS THAT REQUIRE LINING SHOWN IN THIS EXHIBIT ARE APPROXIMATE TO THE EXTENT OF THIS AREA HAS TO BE VERIFIED IN THE FIELD.



GRAPHIC SCALE
NOTE:
PLAN OBTAINED FROM 541
DWG# C-354 C-36

**ASH BASINS & SECONDARY POND
PLAN**
**DOLEET HILLS POWER PLANT
UNITS 1 & 2**
**SOLID WASTE DISPOSAL
PERMIT APPLICATION**
EXHIBIT ABS 6.4.3.B.1-1



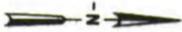
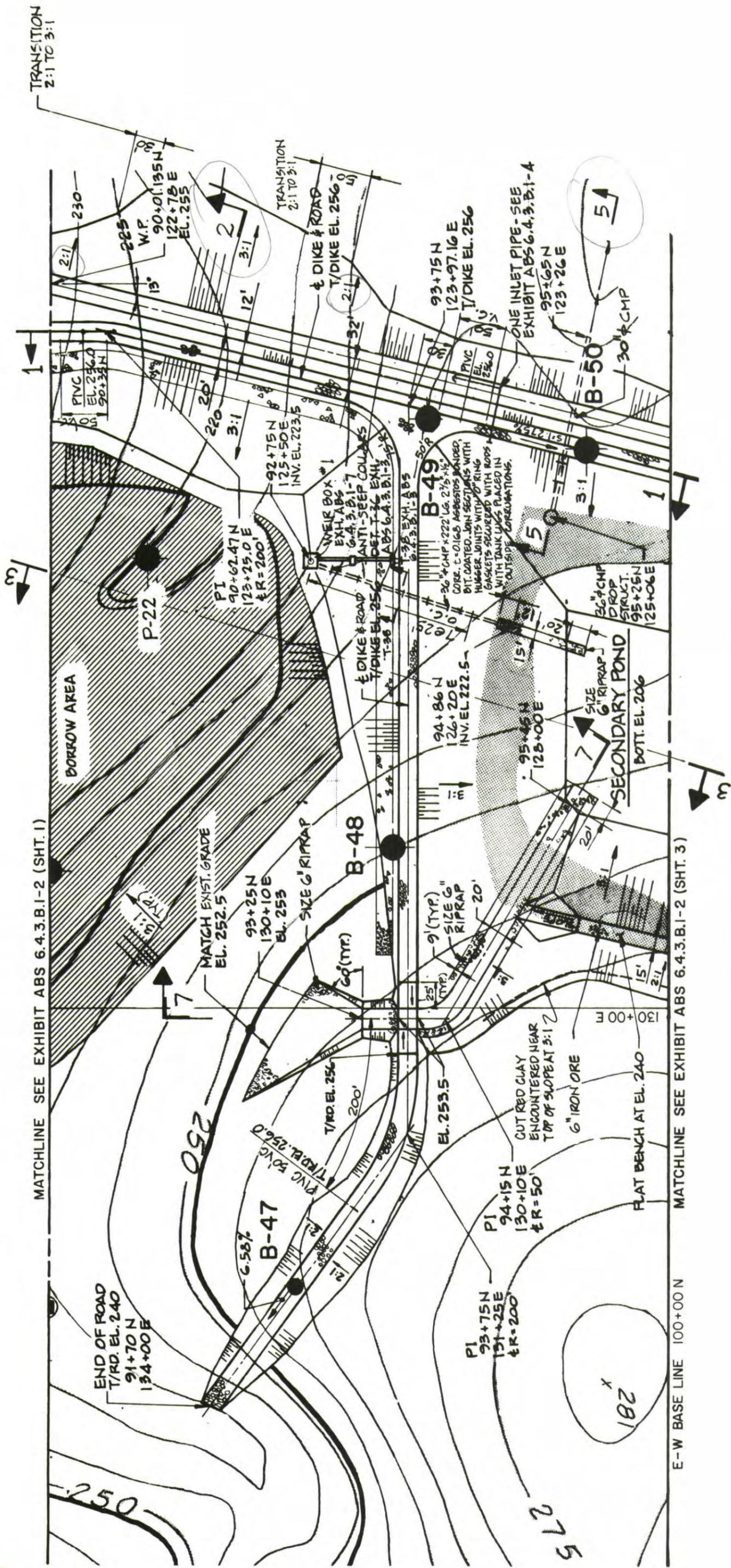
ASH BASINS & SECONDARY POND ENLARGED PLAN (SHEET 1 OF 4)
 DOLET HILLS POWER PLANT UNITS 1 & 2
 SOLID WASTE DISPOSAL PERMIT APPLICATION
 EXHIBIT ABS 6.4.3.B.1-2



MATCHLINE SEE EXHIBIT ABS 6.4.3.B.1-2 (SHT. 2)

ASH BASINS & SECONDARY POND ENLARGED PLAN (SHEET 1 OF 4)
 DOLET HILLS POWER PLANT UNITS 1 & 2
 SOLID WASTE DISPOSAL PERMIT APPLICATION
 EXHIBIT ABS 6.4.3.B.1-2

ABS-3

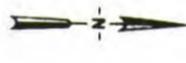
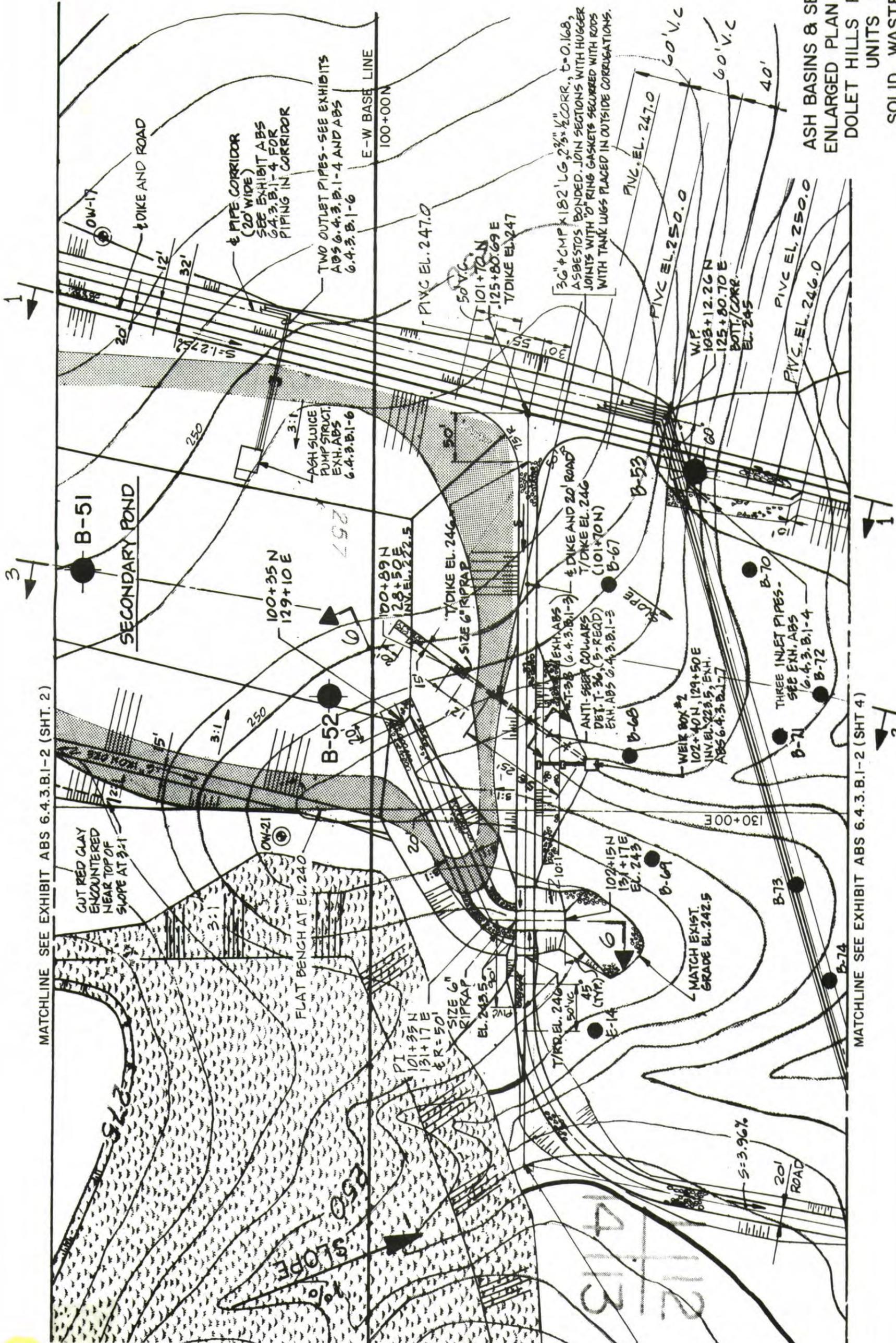


ASH BASINS & SECONDARY POND
 ENLARGED PLAN (SHEET 2 OF 4)
 DOLET HILLS POWER PLANT
 UNITS 1&2
 SOLID WASTE DISPOSAL
 PERMIT APPLICATION
 EXHIBIT ABS 6.4.3.B.1-2

ABS-4

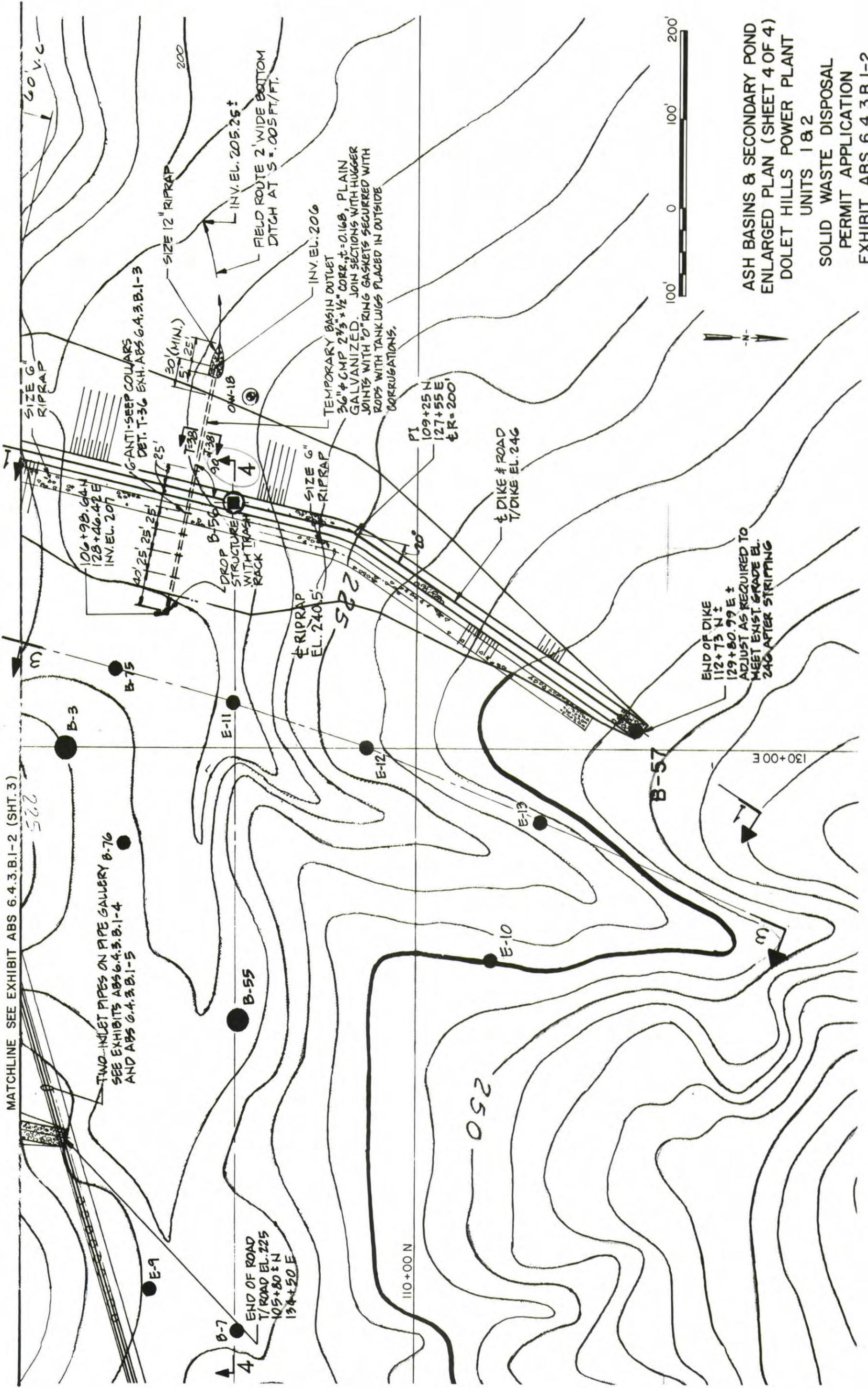
MATCHLINE SEE EXHIBIT ABS 6.4.3.B.1-2 (SHT. 2)

MATCHLINE SEE EXHIBIT ABS 6.4.3.B.1-2 (SHT 4)



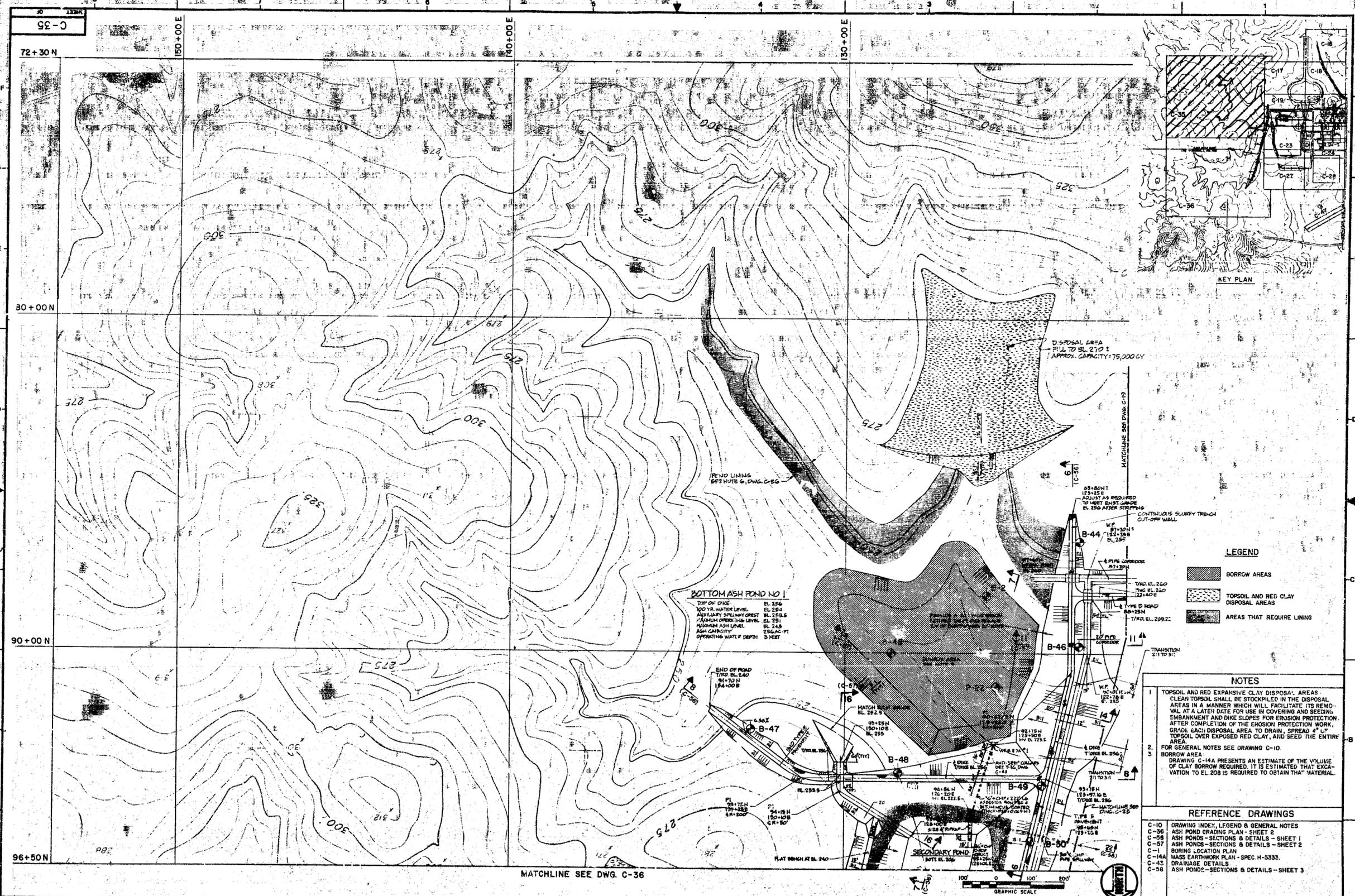
ASH BASINS & SECONDARY POND
 ENLARGED PLAN (SHEET 3 OF 4)
 DOLET HILLS POWER PLANT
 UNITS 1 & 2
 SOLID WASTE DISPOSAL
 PERMIT APPLICATION
 EXHIBIT ABS 6.4.3.B.1-2

MATCHLINE SEE EXHIBIT ABS 6.4.3.B.1-2 (SHT. 3)



ASH BASINS & SECONDARY POND
 ENLARGED PLAN (SHEET 4 OF 4)
 DOLET HILLS POWER PLANT
 UNITS 1 & 2
 SOLID WASTE DISPOSAL
 PERMIT APPLICATION
 EXHIBIT ABS 6.4.3.B.1-2
 ABS-6

APPENDIX D - DESIGN DOCUMENTS



- LEGEND**
- BORROW AREAS
 - TOPSOIL AND RED CLAY DISPOSAL AREAS
 - AREAS THAT REQUIRE LINING
- NOTES**
1. TOPSOIL AND RED EXPANSIVE CLAY DISPOSAL AREAS: CLEAN TOPSOIL SHALL BE STOCKPILED IN THE DISPOSAL AREAS IN A MANNER WHICH WILL FACILITATE ITS REMOVAL AT A LATER DATE FOR USE IN COVERING AND SEEDING. EMBANKMENT AND DIKE SLOPES FOR EROSION PROTECTION AFTER COMPLETION OF THE EROSION PROTECTION WORK, GRADE EACH DISPOSAL AREA TO DRAIN, SPREAD 4" OF TOPSOIL OVER EXPOSED RED CLAY, AND SEED THE ENTIRE AREA.
 2. FOR GENERAL NOTES SEE DRAWING C-10.
 3. BORROW AREA: DRAWING C-14A PRESENTS AN ESTIMATE OF THE VOLUME OF CLAY BORROW REQUIRED. IT IS ESTIMATED THAT EXCAVATION TO EL. 208 IS REQUIRED TO OBTAIN THAT MATERIAL.

- REFERENCE DRAWINGS**
- C-10 DRAWING INDEX, LEGEND & GENERAL NOTES
 - C-36 ASH POND GRADING PLAN - SHEET 2
 - C-38 ASH PONDS - SECTIONS & DETAILS - SHEET 1
 - C-37 ASH PONDS - SECTIONS & DETAILS - SHEET 2
 - C-1 BORROW LOCATION PLAN
 - C-14A MASS EARTHWORK PLAN - SPEC. H-5333
 - C-43 DRAINAGE DETAILS
 - C-58 ASH PONDS - SECTIONS & DETAILS - SHEET 3

REV.	DATE	BY	CHKD.	APPROVED	PURPOSE
1	11-1-81	AT/SLA			FOR BID REFERENCE, SPEC. H-5370

REV.	DATE	BY	CHKD.	APPROVED	PURPOSE

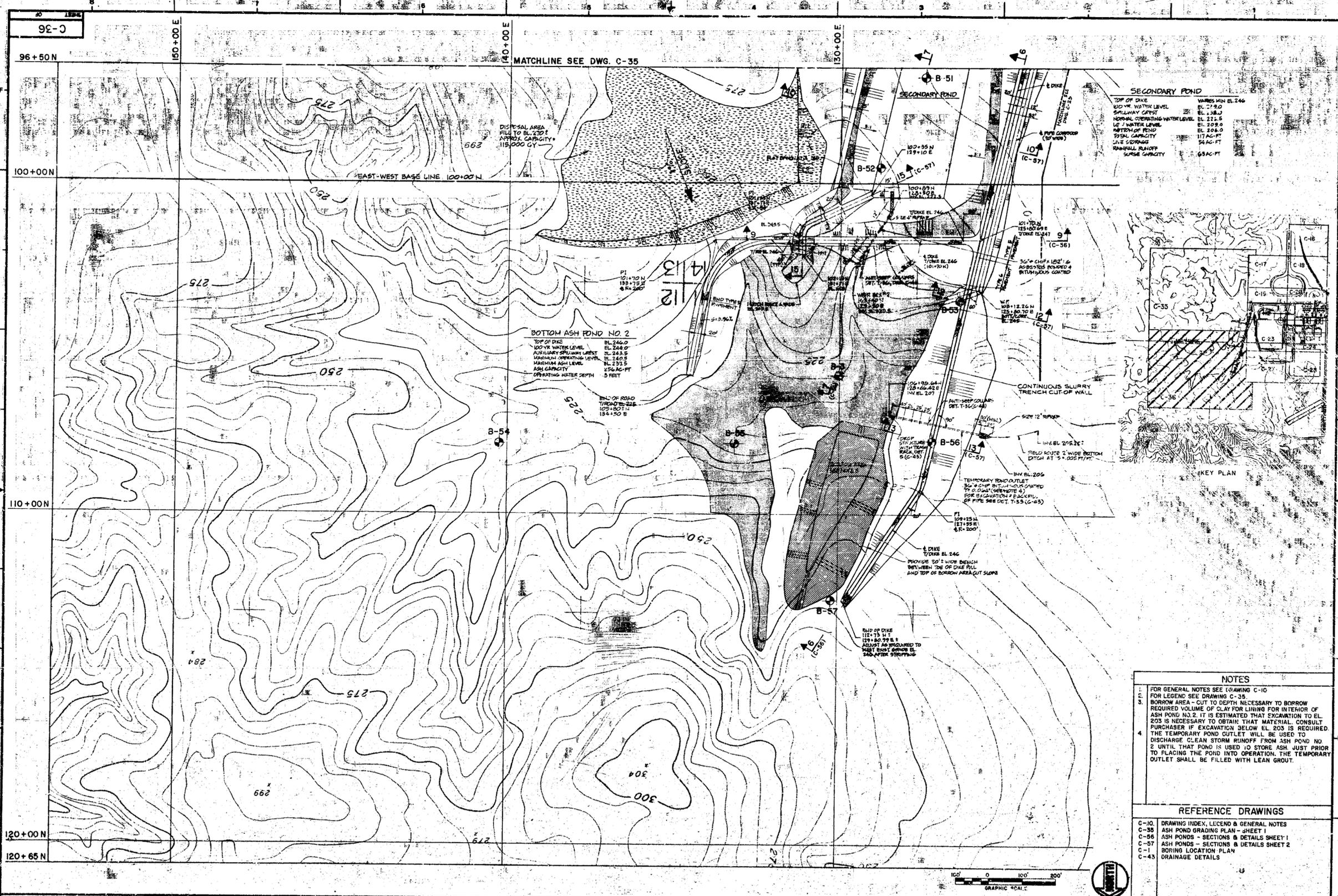
ASH POND GRADING
PLAN - SHEET 1
DOLET HILLS POWER PLANT UNIT NO. 1
SOUTHWESTERN ELECT. POWER CO.
CENTRAL LOUISIANA ELECT. CO., INC.
NABORTON, LOUISIANA

SCALE
1" = 100'-0"
PROJECT NUMBER
5803-03

SARGENT & LUNDY
ENGINEERS
CHICAGO

DRAWING NO. **C-35**
REV. **A**

SHEET **1** OF **1**

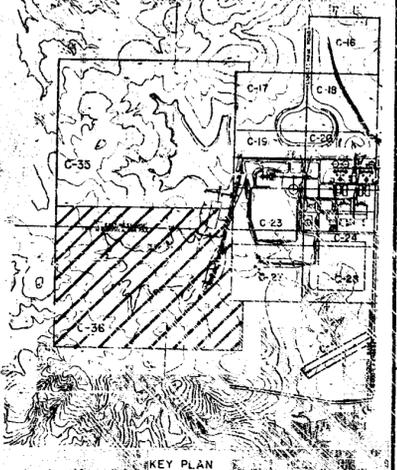


SECONDARY POND

TOP OF DIKE	VARIES MIN EL. 246
100% WATER LEVEL	EL. 239.0
SPILLWAY CREST	EL. 238.0
NORMAL OPERATING WATER LEVEL	EL. 225.5
1% FLOODING LEVEL	EL. 224.0
BOTTOM OF POND	EL. 204.0
TOTAL CAPACITY	117 AC-FT
USE STORAGE	54 AC-FT
RAINFALL RUNOFF SURGE CAPACITY	63 AC-FT

BOTTOM ASH POND NO. 2

TOP OF DIKE	EL. 246.0
100% WATER LEVEL	EL. 248.0
SPILLWAY CREST	EL. 243.5
NORMAL OPERATING LEVEL	EL. 240.5
1% FLOODING LEVEL	EL. 237.5
ASH CAPACITY	556 AC-FT
OPERATING WATER DEPTH	3 FEET



- NOTES**
- FOR GENERAL NOTES SEE DRAWING C-10
 - FOR LEGEND SEE DRAWING C-35
 - BORROW AREA - CUT TO DEPTH NECESSARY TO BORROW REQUIRED VOLUME OF CLAY FOR LINING FOR INTERIOR OF ASH POND NO. 2. IT IS ESTIMATED THAT EXCAVATION TO EL. 203 IS NECESSARY TO OBTAIN THAT MATERIAL. CONSULT PURCHASER IF EXCAVATION BELOW EL. 203 IS REQUIRED.
 - THE TEMPORARY POND OUTLET WILL BE USED TO DISCHARGE CLEAN STORM RUNOFF FROM ASH POND NO. 2 UNTIL THAT POND IS USED TO STORE ASH. JUST PRIOR TO PLACING THE POND INTO OPERATION, THE TEMPORARY OUTLET SHALL BE FILLED WITH LEAN GROUT.

- REFERENCE DRAWINGS**
- C-10 DRAWING INDEX, LEGEND & GENERAL NOTES
 - C-35 ASH POND GRADING PLAN - SHEET 1
 - C-56 ASH PONDS - SECTIONS & DETAILS SHEET 1
 - C-57 ASH PONDS - SECTIONS & DETAILS SHEET 2
 - C-11 BORROW LOCATION PLAN
 - C-43 DRAINAGE DETAILS

DRAWING RELEASE RECORD					DRAWING RELEASE RECORD				
REV.	DATE	FIELD	PREPARED	APPROVED	REV.	DATE	FIELD	PREPARED	APPROVED
					A	11-1-81		M. S. G.	
									FOR B.D. REFERENCE, SPEC. H-537C

SCALE: 1" = 100'-0"

PROJECT NUMBER: 3803-03

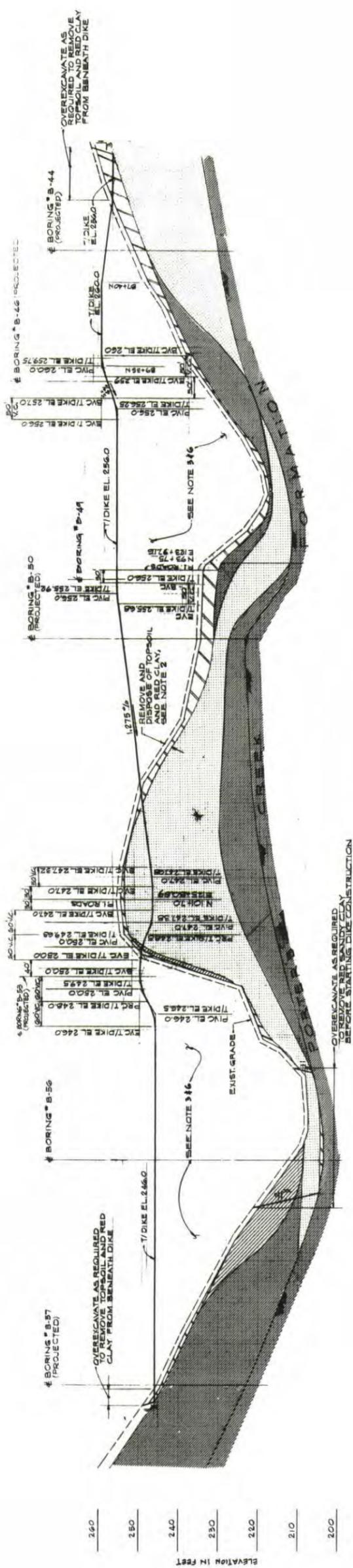
ASH POND GRADING PLAN - SHEET 2

DOLET HILLS POWER PLANT UNIT NO. 1
SOUTHWESTERN ELECT. POWER CO. INC.
CENTRAL LOUISIANA ELECT. CO., INC.
NABORTON, LOUISIANA

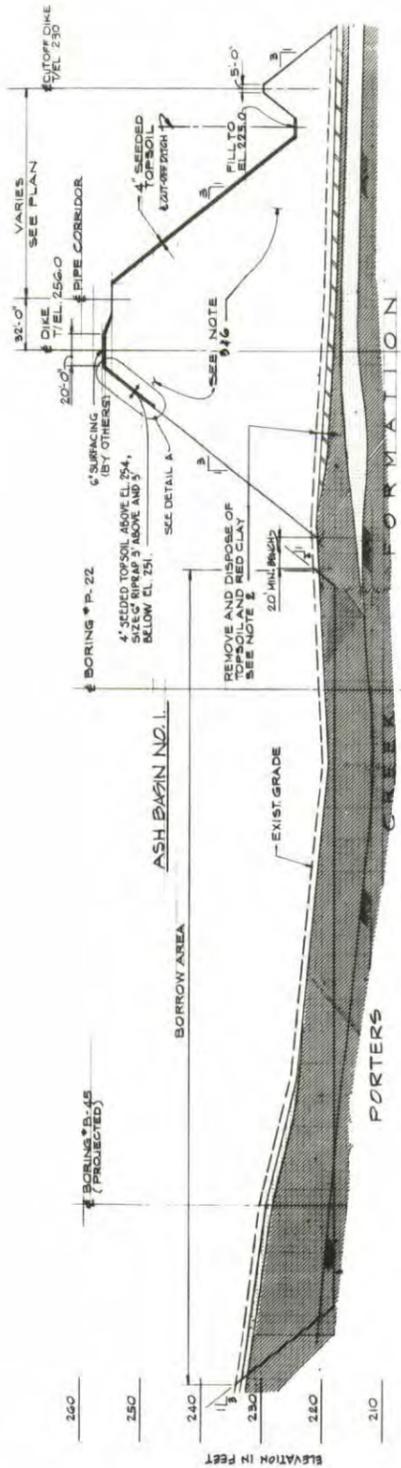
BARGENT & LUNDY
CHICAGO

DRAWING NO. C-36
REV. A

SHEET OF



SECTION 1



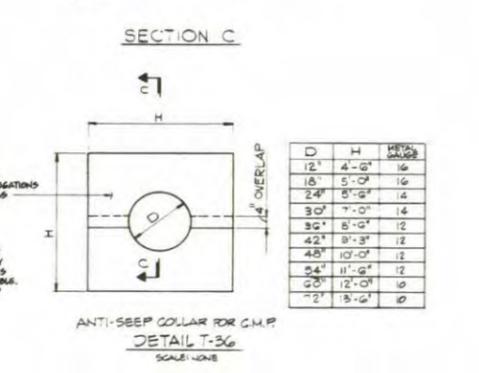
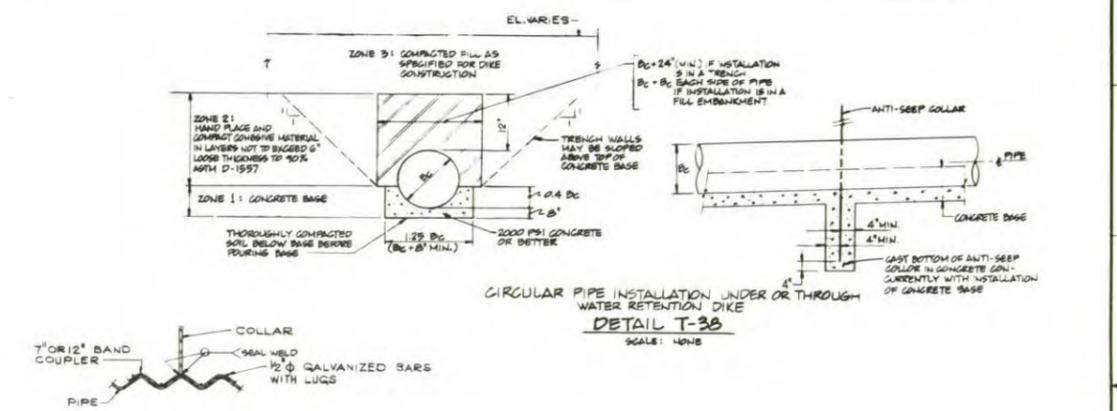
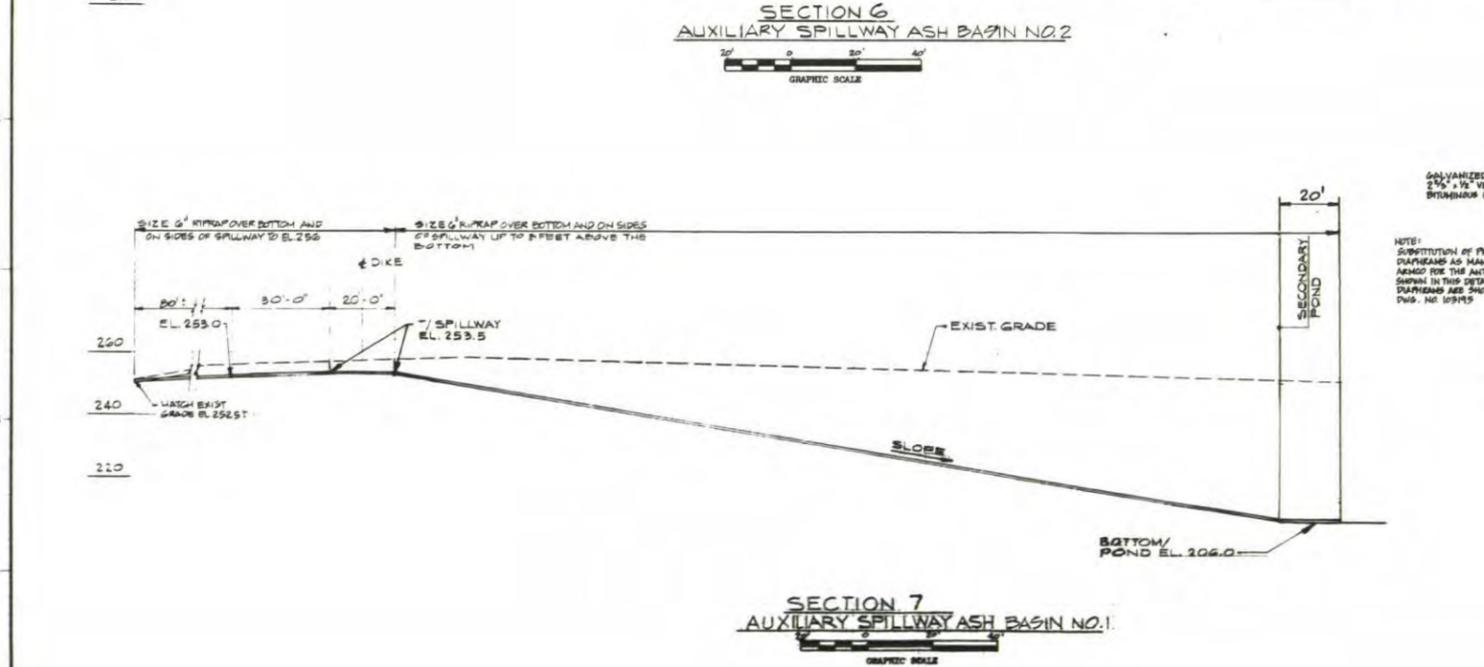
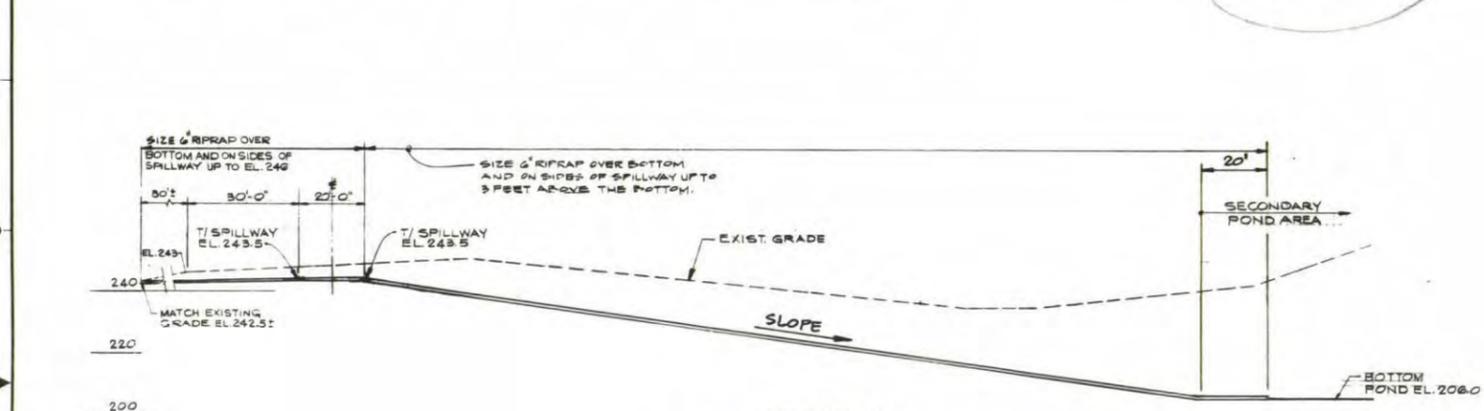
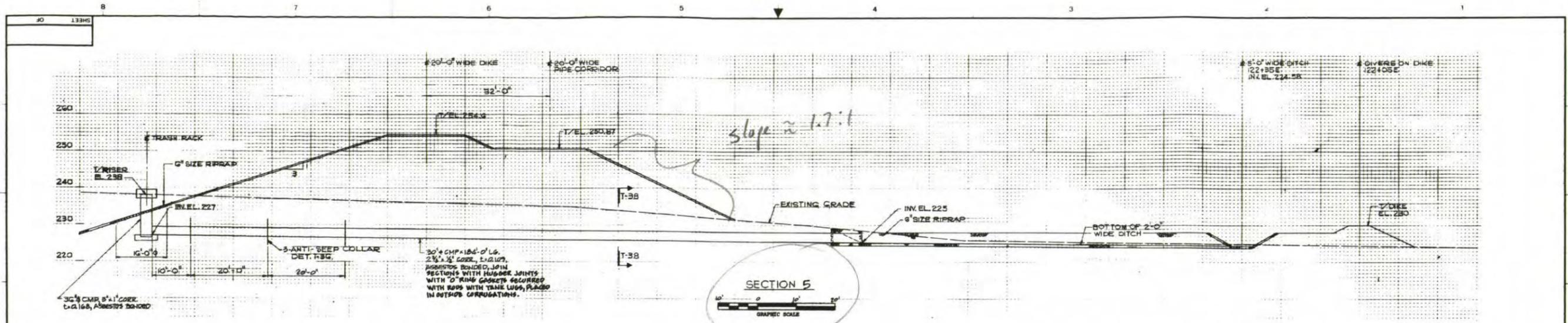
SECTION 2

- NOTES**
- SUBSURFACE CONDITIONS SHOWN IN SECTION 1 AND THE SUBSURFACE CONDITIONS SHOULD BE VERIFIED IN THE FIELD BY THE CONTRACTOR.
 - TOPSOIL AND RED CLAY SPILLS AND RED CLAY SPILLS ARE SHOWN ON **DWG. ABS 6.4.3.B.1-1**.
 - COHESIVE SOILS FOR DIKE CONSTRUCTION AND LININGS COHESIVE SOIL USED FOR DIKE CONSTRUCTION AND FOR PROPERTIES LINGS SHALL HAVE THE FOLLOWING:
 - U.S. STANDARD SIEVE 50% MIN-MUM PERCENT PASSING NO. 200
 - MINIMUM LIQUIDITY INDEX 15%
 - MINIMUM PLASTICITY INDEX 15%
 - COEF. OF PERMEABILITY $< 1 \times 10^{-7}$ CM/SEC MAX.
 - IMPERVIOUS LINER - INSIDE SECONDARY POND A MINIMUM OF 3' IMPERVIOUS LINER TO BE INSTALLED AS AN IMPERVIOUS LINER TO **CANTON**. SEEPAGE FROM WITHIN THE SECONDARY POND INSTALLATION OF THE IMPERVIOUS LINER SHALL BE THE RESPONSIBILITY OF THE LINER MANUFACTURER. THE INSIDERS OF THE IMPERVIOUS LINER SHALL BE DETERMINED BY THE PURCHASER AND/OR THE CONSULTING ENGINEER. NO DELETED SHALL BE OMITTED UNLESS APPROVED IN ADVANCE.
 - FOR ADDITIONAL NOTES SEE **DWG. ABS 6.4.3.B.1-3**, SHEET 2.

NOTE:
SECTIONS OBTAINED FROM S/L
DWGS. C-50 & C-57

**ASH BASINS & SECONDARY POND
SECTIONS AND DETAILS (SHEET 1 OF 3)
DOLET HILLS POWER PLANT
UNITS 1 & 2
SOLID WASTE DISPOSAL
PERMIT APPLICATION
EXHIBIT ABS 6.4.3.B.1-3**

APPENDIX E - DIVERSION DESIGN FEATURES



NOTE:
FOR LEGEND SEE EXHIBIT ABS 6.4.3.B.1-3 (SHT. 1)

Note:
See Plan locations in Appendix D

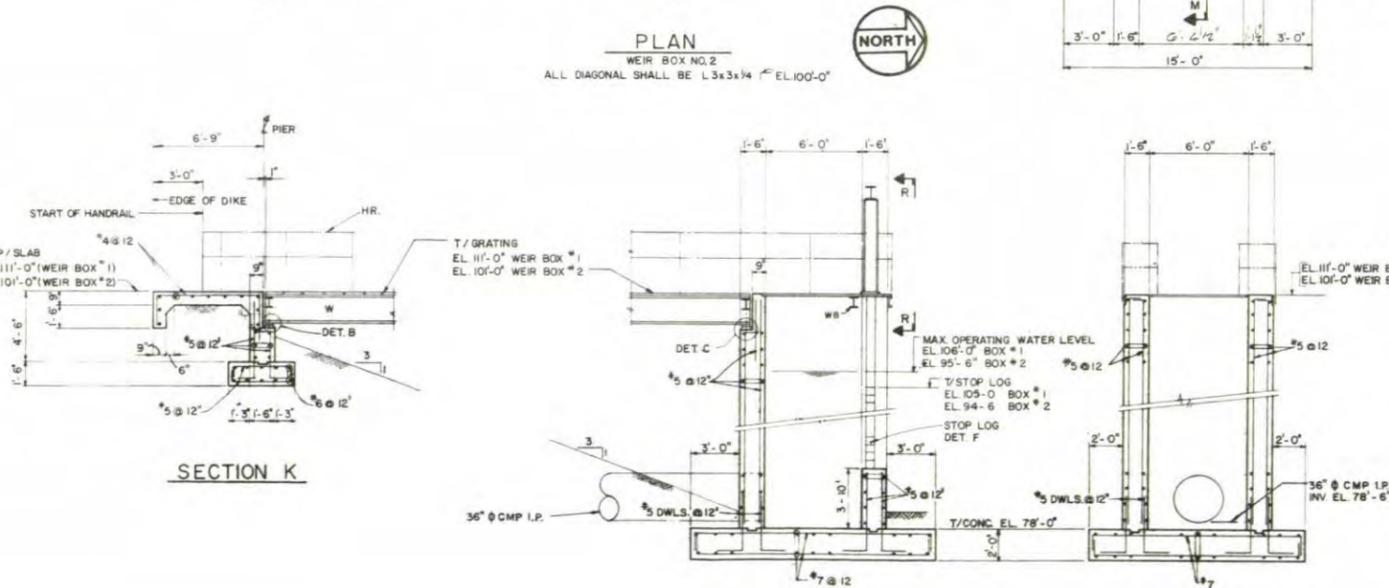
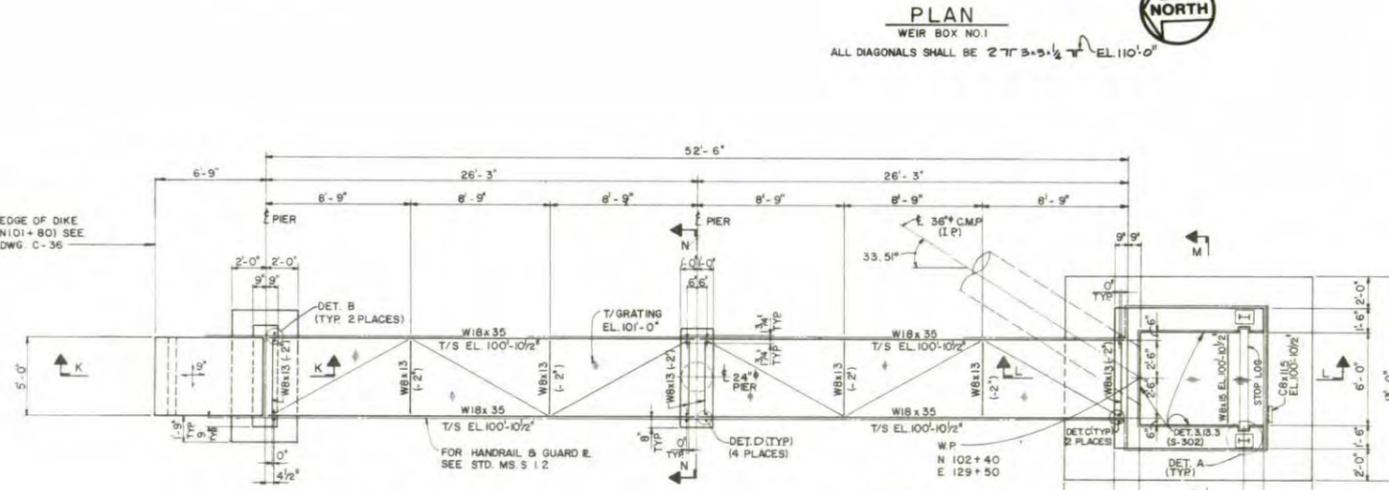
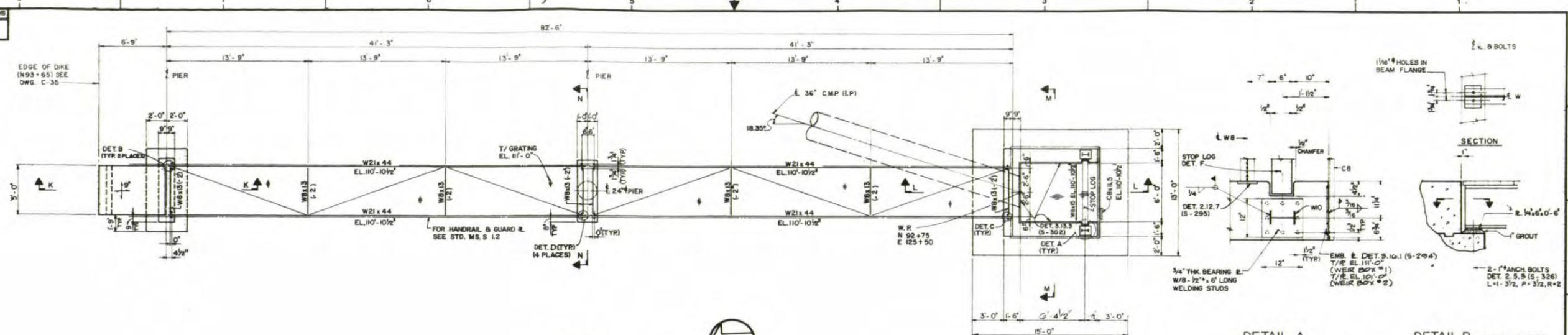
DRAWING RELEASE RECORD					DRAWING RELEASE RECORD					SCALE		PROJECT NUMBER		SHEET OF	
REV.	DATE	RELD.	PREPARED	REVIEWED	APPROVED	PURPOSE	FILM	REV.	DATE	RELD.	PREPARED	REVIEWED	APPROVED	PURPOSE	FILM

ASH BASINS & SECONDARY POND SECTIONS AND DETAILS (SHEET 3 OF 3)
DOLET HILLS POWER PLANT UNITS 1 & 2
SOLID WASTE DISPOSAL PERMIT APPLICATION
EXHIBIT ABS 6.4.3.B.1-3

SARGENT & LUNDY
ENGINEERS ARCHITECTS
CHICAGO

DRAWING NO. _____ REV. _____

ABS-9



NOTE:
ADD 145' TO ELEVATION SHOWN ON PLAN TO OBTAIN COMPARABLE MEAN SEA LEVEL ELEVATION.

- NOTES**
- FOR GENERAL NOTES SEE S-310
 - ALL STRUCTURAL STEEL, GRATING, GUARD PLATES, EMBEDDED PLATES AND ANCHOR BOLTS SHALL BE GALVANIZED.
 - ALL WORK SHOWN ON THIS DRAWING SHALL BE FURNISHED AND INSTALLED BY THE GENERAL WORK CONTRACTOR PER SPECIFICATION H-5370 UNLESS OTHERWISE NOTED.

- REFERENCE DRAWINGS**
- C-35 ASH POND GRADING PLAN - SH. 1
 - C-36 ASH POND GRADING PLAN - SH. 2

DRAWING RELEASE RECORD					DRAWING RELEASE RECORD									
REV.	DATE	RELD.	PREPARED	APPROVED	PURPOSE	FILM	REV.	DATE	RELD.	PREPARED	REVIEWED	APPROVED	PURPOSE	FILM
A	11-01-81				BD, SPEC. H-5370									
B	08-24-82				CONSTRUCTION, SPEC. H-5370									
C	09-01-83				RECORD REVISION, SPEC. H-5370									
D	09-15-83				RECORD REVISION, SPEC. H-5370; REV. 1800 SECT. N, DELETE W/SD									

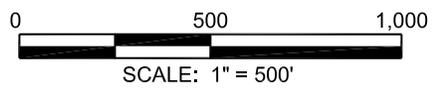
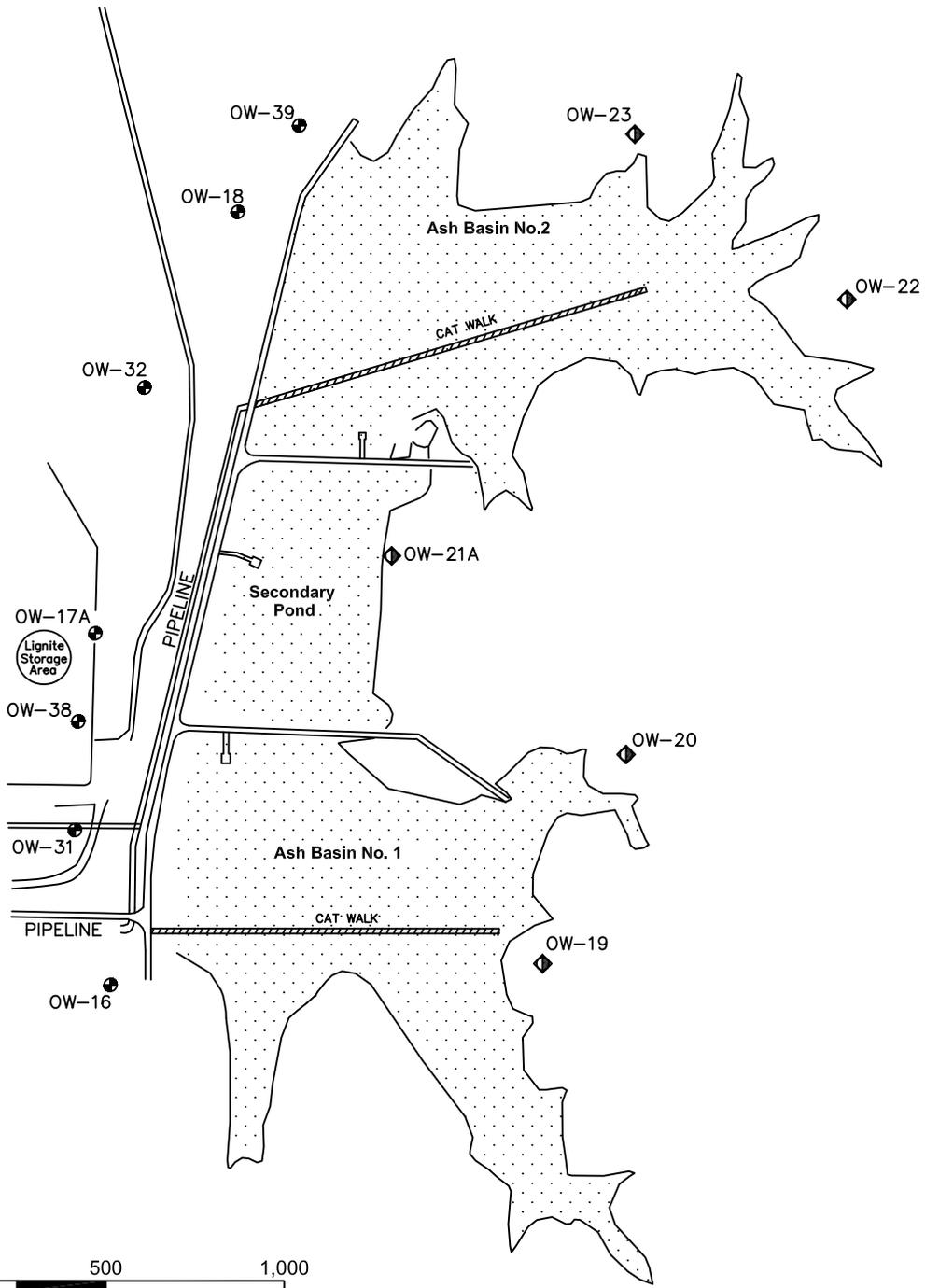
STATE OF LOUISIANA
REGISTERED PROFESSIONAL ENGINEER
SARGENT & LUNDY
CHICAGO

SCALE: 1/4" = 1'-0"
PROJECT NUMBER: 5803-00

ASH BASIN WEIR BOXES SECTIONS AND DETAILS
DOLET HILLS POWER PLANT
UNITS 1 & 2
SOLID WASTE DISPOSAL PERMIT APPLICATION
EXHIBIT ABS 6.4.3.B.1-7

DRAWING NO. S-466
SHEET OF 1

APPENDIX F - INSTRUMENTATION



Legend

- OW-16 Zone 4 Compliance Monitoring Well Location
- OW-23 Zone 4 Background Monitoring Well Location
- Permitted Facility


 Dolet Hills Power Station

Zone 4 Monitoring Wells Location Map

DeSoto Parish, Louisiana



Drawn:	JP
Checked:	JM
Approved:	JM
Date:	10/4/16
Dwg. No.:	01-16-0159-A004

Figure 2



CREATE AMAZING.

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