A. B. Brown History of Construction
40 CFR § 257.73 (c)

(i.) Owner Name: Southern Indiana Gas and Electric Company dba Vectren Power Supply
Owner Address: One Vectren Square, PO Box 209, Evansville, IN 47708
CCR Unit Name: A. B. Brown Ash Pond
Identification Number: not applicable

(ii.) Location: West Franklin Quadrangle, Posey County, Indiana;
Section 24, Township 7S, Range 12W

(iii.) Purpose of CCR Unit:
The A. B. Brown Ash Pond receives the discharge from the Physical-Chemical Waste Water Treatment System which processes waters from landfill run-off and wash water used to spray off the filter cake belt filter and filter cake truck loading bays from both scrubbers; south side runoff pond water consisting of coal pile run-off, boiler water pretreatment system, reverse osmosis reject, water treatment filter & softener backwash, boiler blow down, precipitator & ash pit area floor drains, air heater wash, the hopper seal & ash hopper overflow, storm water, coal trestle dust suppression system, coal handling French drain, coal handling and sanitary waste from the coal handling area and SIMI building, and the East Ditch Drain; storm water; water from plant floor drains; bottom ash; and intermittently fly ash.

The ash pond has a further purpose of serving as the source water for the cleaning of the filter cake belt filter and truck loading bays. These waters recirculate back to the ash pond after passing through the aforementioned physical-chemical treatment system. Additionally, the Hydroveyor system used to move dry fly ash to the load out facility at the river requires a vacuum which is created by the flow of water which is created by recirculating water in the ash pond.

(iv.) Watershed size and name: The drainage area is 242.4 acres. The pond is located within the Ohio River watershed. (2016 Inflow Design Plan)

(v.) Foundation Properties:
The foundation soils consist of interbedded stiff to very stiff clay and loose to medium dense silt soils (2016 Structural Stability Assessment). The dam was constructed across a western end of a natural valley. (see ABB Civil Plan_1974 in section vii)

(vi.) CCR Unit Construction:
Construction drawings required the embankment be compacted to 95% of the Standard Proctor maximum dry density (ASTM D 698). Based on geotechnical field evaluations, the dam embankment consists of stiff to very stiff clayey soils that have consistency and strength indicative of well-compacted materials. The soil buttress that exists against the downstream slope of the dam was constructed in 8-inch loose lifts and was mechanically compacted to at least 95% Standard Proctor maximum dry density. (2016 Structural Stability Assessment) In 2003, an Emergency Spillway was added to the far southern end of the dam to supplement the original Principal Spillway. The emergency spillway was cut into native soils to an elevation of 447 ft and protected by riprap (see ABB

Lower Dam Emergency Spillway_2003 in section vii). The pond was created by damming a natural valley and the base of the pond is native soils. The ABB Pre Plant 1957 Topo listed below shows original natural contours.

(vii.) Construction Drawings:
Drawings of the original dam construction and modifications are listed below.

ABB Site 1974 Civil Plan
ABB 1974 Lower Dam Engineering Plan
ABB Lower Dam Profile and Storage Curve
ABB Lower Dam Principal Spillway
ABB Lower Dam Construction Drawing
ABB 2003 Emergency Spillway
ABB Lower Dam 2016 Post Buttress Plan and Cross Section
ABB Pre Plant 1957 Topo

(viii.) Instrumentation: No instrumentation is present.

(ix.) Area Capacity Curve: The original storage capacity curve is listed on the ABB Lower Dam Profile and Storage Curve drawing identified above.

(x.) Spillway Description:
The principal spillway is a 36" reinforced concrete pipe with an invert elevation of 444 ft. Peak flow rate during a 1000 year, 24-hour storm event is 38.8 cfs. Calculations to determine the flowrate can be found in the 2016 Inflow Design Flood Control System Plan posted on the A. B Brown CCR webpage. The construction is further described on the ABB Lower Dam Principal Spillway drawing listed above.

The emergency spillway is a 30' wide trapezoidal channel cut into native soils and lined with rip rap for erosion protection. Based on calculations from the 2016 Inflow Design Flood Control System Plan posted on the A. B Brown CCR webpage, the design storm event will not reach the elevation of the emergency spillway and therefore the peak flow rate is 0 cfs. The construction is further described on the ABB Lower Dam Emergency Spillway_2003 drawing listed above.

(xi.) Surveillance, Maintenance and Repair:
The dam is inspected weekly as required by the CCR regulation 40 CFR § 257.83(a)(i). Deficiencies are either identified as requiring additional observation or entered into a Work Order request to trigger repairs. Water surface elevation is remotely monitored through a level indicator which is set to alarm in the Control Room if the water level is within 0.5 ft of the Principal Spillway elevation. The system also alarms if the water level drops below 440.5 ft. The plant routinely monitors weather forecasts to prepare the pond for predicted high precipitation events. Video cameras or other surveillance technologies are not present.

(xii.) Record of Structural Instability:
Extensive information on the stability of the dam and foundation can be found in the 2016 Structural Stability Assessment and 2016 Safety Factor Assessment documents posted on the A. B. Brown CCR webpage. In 2016, a 190,000 cy yd stabilizing buttress was constructed against the downstream slope of the dam to address potential seismic consideration. The buttress crest is up to 200 ft wide and varies in elevation from 432 ft

to 444 ft. The buttress was installed to insure Safety Factor criteria were met and was not in response to a suspected instability.

NOTE: Information in the History of Construction is based on information that was reasonably and readily available. The CCR rule does not require owners of existing surface impoundments to generate new information or provide anecdotal or speculative information regarding the design or construction history. (Final Rule Preamble, Fed Reg 80, page 21380)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

STATE OF INDIANA
INDIANA DEPARTMENT OF CONSERVATION
INDIANAPOLIS, INDIANA

STATE OF KENTUCKY
DEPARTMENT OF ECONOMIC DEVELOPMENT

WEST FRANKLIN QUADRANGLE
INDIANA–KENTUCKY
7.5 MINUTE SERIES (TOPOGRAPHIC)
NW/4 HENDERSON 15' QUADRANGLE

3460 III SE (WADESVILLE)
3460 II SW (KASSON)
3460 II SE (EVANSVILLE NORTH)

87°45'
38°00'
310 000 FEET (IND.)
3.5 MI. TO U.S. 460
42'30"
R. 12 W.
R. 11 W.
40'
1 450 000 FEET (KY.)
1.3 MI. TO U.S. 460
87°37'30"
180 000 FEET (IND.)
610 000 FEET (KY.)
Upper Little Creek
MT VERNON
St Peters Ch
St Philip
Belknap
POSEY CO
VANDERBURGH CO
COUNTY LINE ROAD
LOUISVILLE
Wolf Creek
MIDDLE MT VERNON ROAD
Martin Sch
St Marks Ch
West Terrace Sch
Boehne Hospital
Corpus Christi Sch
Perry Heights Sch
Pusman Cem
NASHVILLE
Carpenter Creek
RED BANK ROAD
Red Bank
P E R R Y
FELSTEAD ROAD
St Pauls Ch
Mud Center
57'30"
T. 6 S.
T. 7 S.
M A R S
CABORN 2.9 MI.
MOUNT VERNON (JUNC. IND. 69) 8.3 MI.
3459 IV NE (CABORN)
HOWELL 0.6 MI.
EVANSVILLE (JUNC. U.S. 41) 5.9 MI.
Lawrence Sch
Salem Ch
Heusler
NURRENBERN ROAD
Dove Chapel
LOWER MT VERNON ROAD
CYPRESS
Woodland Lake
Bayou Creek
Twin Lake
EISTERHOLD ROAD
EDMOND DITCH
CYPRESS DALE ROAD
PLEASANT
Twp Sch
Dogtown
Light
LOUISVILLE
HENDERSON
OLD
NASHVILLE ROAD
PERRY
(EVANSVILLE)
HOWELL (JUNC. IND. 62) 1.3 MI.
3459 I NE
OHIO RIVER
NORMAL POOL ELEVATION 338
KENTUCKY
INDIANA
HENDERSON CO
VANDERBURGH CO
55'
Franklin Sch
Welborn
BARNETT DITCH
U N I O N
ROTH ROAD
Cem
Vaughan
CAMP DUESNER DITCH ROAD
9.8 MI. TO LOCK AND DAM NO. 48
Sorvel Lake
West Franklin
RIVER
HENDERSON CO
NORMAL POOL ELEVATION 331
INDIANA
KENTUCKY
OHIO
Horse Pond Slough
Cypress Bend
Diamond Island
Big Pond Slough
Cypress Slough
Deep Slim Pond Slough
HOPPE AND
HOPPE
Hendricks Lane
HELFRICH
SEMINARY
GOOSE POND DITCH
RAHM VICKERY DITCH
Lousdon-Stroud Branch
570 000 FEET (KY.)
140 000 FEET (IND.)
37°52'30"
87°45'
1 430 000 FEET (KY.)
42'30"
(WILSON) 3459 I SW
40'
3.5 MI. TO LOCK AND DAM NO. 48
INTERIOR—GEOLOGICAL SURVEY, WASHINGTON, D. C.—1965
340 000 FEET (IND.)
87°37'30"

(SMITH MILLS) 3459 IV SE

Mapped, edited, and published by the Geological Survey

Control by USGS, USC&GS, and USCE

Culture and drainage in part compiled from aerial photographs taken 1950 (Kentucky) and 1956 (Indiana). Indiana topography by photogrammetric methods and planetable surveys 1957. Kentucky topography by planetable surveys 1952. Revised 1957

Polyconic projection. 1927 North American datum
10,000-foot grids based on Indiana coordinate system, west zone, and Kentucky coordinate system, south zone 1000-meter Universal Transverse Mercator grid ticks, zone 16, shown in blue

The state boundary as shown represents the approximate position of the low waterline as determined from U. S. Department of the Army, Corps of Engineers, Ohio River charts, surveyed 1912, and supplementary information

Fine red dashed lines indicate selected fence and field lines visible on aerial photographs. This information is unchecked

All wells shown are oil wells

UTM GRID AND 1957 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

0°25' 7 MILS — 3½° 62 MILS

SCALE 1:24 000

1 MILE — 7000 FEET — 1 KILOMETER

CONTOUR INTERVAL 10 FEET
DATUM IS MEAN SEA LEVEL

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U. S. GEOLOGICAL SURVEY, WASHINGTON, D. C. 20242,
INDIANA DEPARTMENT OF CONSERVATION, INDIANAPOLIS, INDIANA,
KENTUCKY GEOLOGICAL SURVEY, LEXINGTON, KENTUCKY,
AND KENTUCKY DEPARTMENT OF COMMERCE, FRANKFORT, KENTUCKY
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

INDIANA
QUADRANGLE LOCATION

ROAD CLASSIFICATION

Heavy-duty — Light-duty
Medium-duty — Unimproved dirt
State Route

(HENDERSON) 3459 I SE

WEST FRANKLIN, IND.–KY.
NW/4 HENDERSON 15' QUADRANGLE
N3752.5—W8737.5/7.5

1957

AMS 3459 I NW—SERIES V851

G-1003-5

SALEM UNITED CHURCH OF CHRIST CEMETERY

EXISTING RESERVOIR

EXISTING ROAD

PIPELINE CORRIDOR

RANNEY COLLECTOR WELL
N-144,533.92
E-312,551.43

PLANT ENTRANCE ROAD

SO_2 WASTE STORAGE AREA

PARKING LOT

STORM BASIN

ADMIN. BUILDING

MAINT. SHOP & WAREHOUSE

CHIMNEY

FUEL OIL STORAGE

SWITCH-YARD

UNIT 1

UNIT 2

RAILROAD

ASH POND

CEMETERY

HENDERSON COUNTY

POSEY COUNTY

COAL UNLOADING TRESTLE

COAL STORAGE AREA

ASH POND RECIRC. BLDG.

SOUTHSIDE RUN OFF POND

WEST FRANKLIN ROAD

WEST FRANKLIN

RANNEY RIVER INTAKE
N-143,350
E-317,590

RIVER DOCK
N-143,692.46
E-317,030.12

Ohio River

E-313,000 E-314,000 E-315,000 E-316,000 E-317,000 E-318,000 E-319,000 E-320,000 E-321,000 E-322,000

N-151,000 N-150,000 N-149,000 N-148,000 N-147,000 N-146,000 N-145,000 N-144,000

SCALE 1/16" = 1'-0"

SCALE 1/8" = 1'-0"

SCALE 1/4" = 1'-0"

LINEAR SCALE

NO.	DATE	REVISION	BY	CHK.	APP.
6	06-16-83	ADDED RIVER INTAKE & RIVER DOCK ET. AL.	MMB		
5	2-25-82	REVISED BASINS	MMB		
4	10-21-81	REVISED AS NOTED FOR UNIT NO. 2	RFS		
3	3-20-81	ISS. FOR CONSTRUCTION PER MV LTR GIS ELR	MM	RJ	
2	5-23-80	ADDED UNIT #2 / ISSUED FOR BLD'G PERMIT	MMB	MIMI	KN
1	5-2-80	REV. AS BUILT - UNIT #1	MIMI	RJ	KN
0	5-2-77	ISSUED FOR CONSTRUCTION	WTB	RAD	

DRAWN J. Bauchheimer
CHECKED R.A. DIRKSEN
APPROVED J.K. Pettibone 5-2-77
CUSTOMER APP.

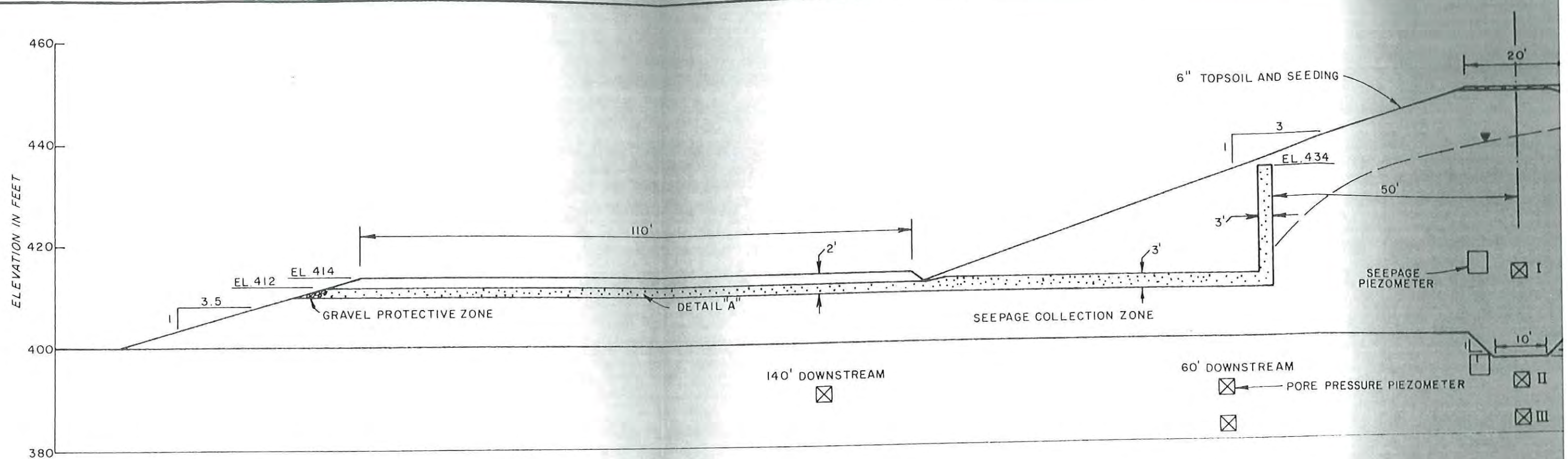
TOM L. PETTIBONE REGISTERED No. 13359 STATE OF INDIANA PROFESSIONAL ENGINEER

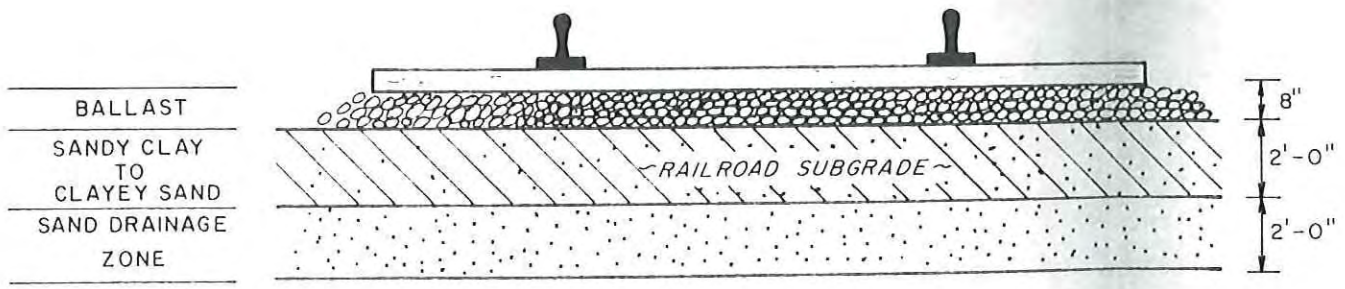
MID-VALLEY, INC.
ENGINEERS - CONSTRUCTORS
OAK BROOK, ILLINOIS

SOUTHERN INDIANA GAS & ELECTRIC CO.
EVANSVILLE, INDIANA
A.B. BROWN STATION
UNIT NO. 1&2

DRAWING TITLE
CIVIL
SITE PLAN

CONTRACT NO. CP-0013
DATE: MAY 1, 1976
SCALE: 1"=300'
DRAWING NO. G-1003-6

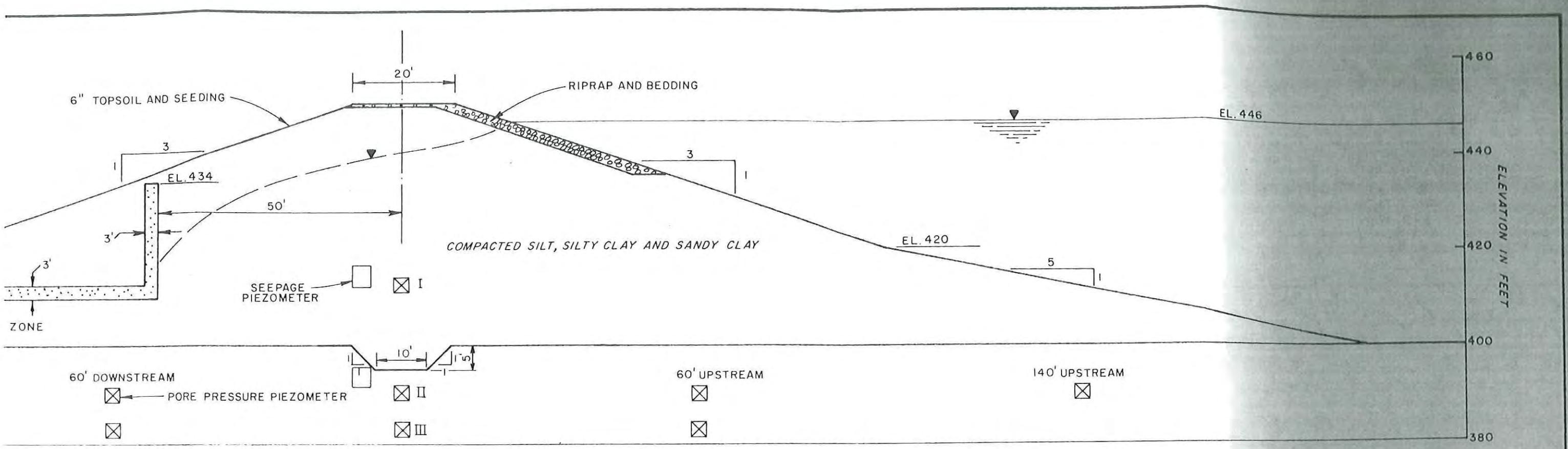




DETAIL "A"

NOTES:

1. Compact embankment fill to at least 92 of maximum standard density
2. Compact railroad subgrade above sand drainage zone to 95% modified maximu density
3. Compact horizontal sand drainage zone 6 passes of 25 ton rubber tired roller ap to each 12 inch lift. Compact vertical zone with hand tampers
4. Sand drainage zone should be nonplasti graded and have less than 10% passing sieve
5. Slope sand drainage zone to daylight a slope in areas where berm is not requir downstream surface grade is above El.
6. Sand drainage zone not required for em sections where downstream surface grad above El. 430.



NOTES:

1. Compact embankment fill to at least 92% of maximum standard density

2. Compact railroad subgrade above sand drainage zone to 95% modified maximum density

3. Compact horizontal sand drainage zone with 6 passes of 25 ton rubber tired roller applied to each 12 inch lift. Compact vertical sand zone with hand tampers

4. Sand drainage zone should be nonplastic, well graded and have less than 10% passing No. 200 sieve

5. Slope sand drainage zone to daylight at toe of slope in areas where berm is not required or downstream surface grade is above El. 414

6. Sand drainage zone not required for embankment sections where downstream surface grade is at or above El. 430.

Pore Pressure Piezometers

Type	Tip Elevation
I	400
II	380
III	10' below top of shale

Locate three systems or nine piezometers in valley area with surface grade at or below El. 410.

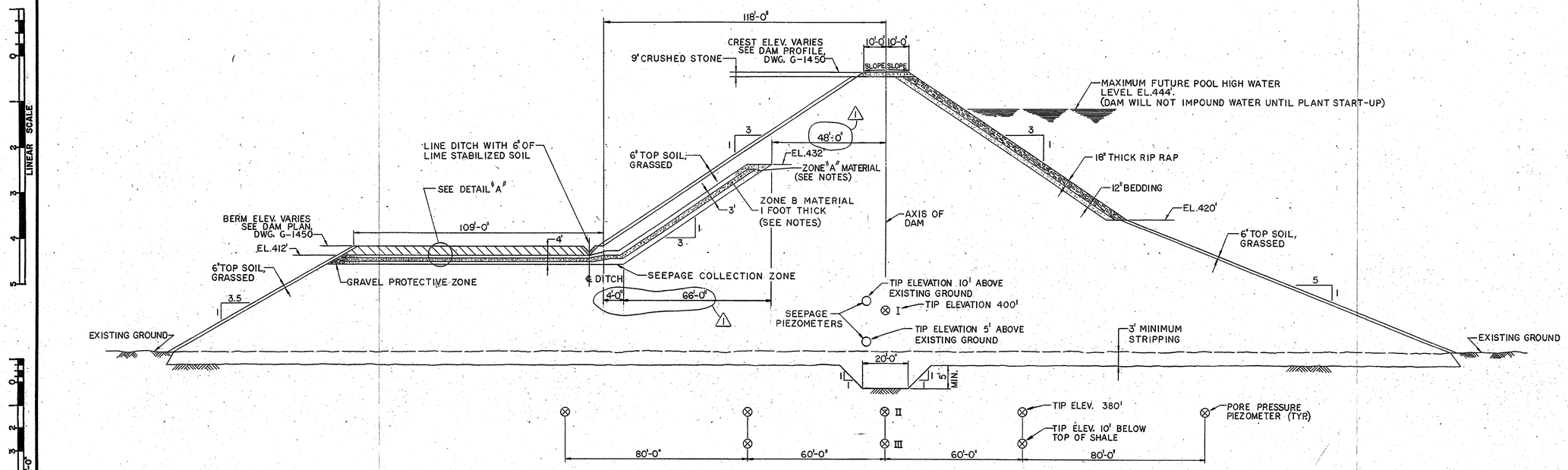
Seepage Piezometers

Type	Tip Elevation
I	5' above natural grade
II	10' below natural grade

Locate three system of two piezometers in valley area with surface grade at or below El. 410.

TYPICAL EMBANKMENT SECTION

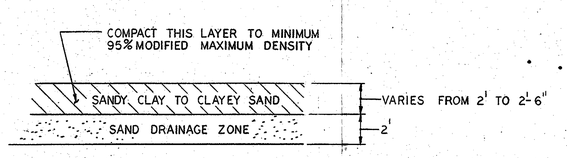
G-1452-1



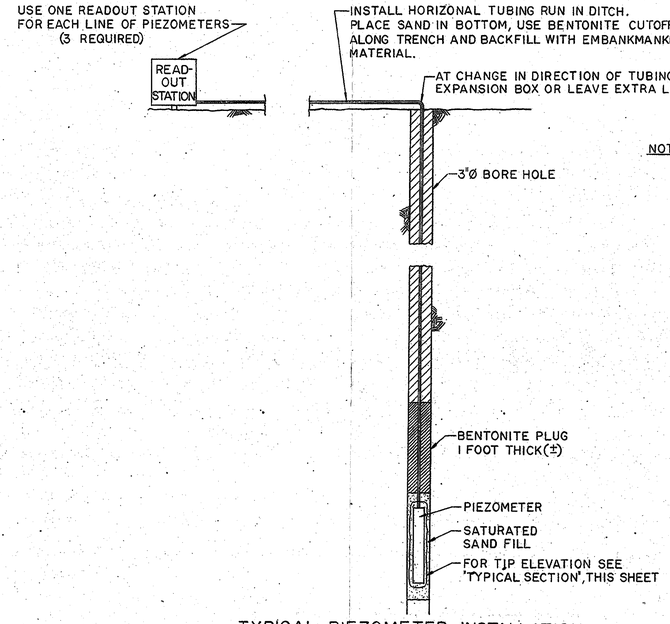
TYPICAL CROSS SECTION

SCALE
HORIZONTAL: 1"=20'-0"
VERTICAL: 1"=10'-0"

NOTE:
FOR LOCATION OF PIEZOMETERS ALONG ℄ OF DAM, SEE DWG. G-1050



DETAIL "A"



NOTES:

1. PIEZOMETERS SHALL BE HYDRAULICALLY FLUSHABLE, THREE TUBE PNEUMATIC MODEL P-1020 AS MANUFACTURED BY TERRA TECHNOLOGY OF SEATTLE, WASHINGTON OR ENGINEER APPROVED EQUAL.
2. PLACE PIEZOMETER IN POROUS BAG FILL WITH MOIST SAND AND PLACE ASSEMBLY IN BORE HOLE.
3. ALL TUBING RUNS SHALL HAVE 10% SLACK TO ALLOW FOR DAM SETTLEMENT AND TO PREVENT TUBES FROM STRETCHING.

TYPICAL PIEZOMETER INSTALLATION

SCALE: 1 1/2"=1'-0"

NOTES

1. EMBANKMENT MATERIAL SHALL CONSIST OF CLAY, SILTY CLAY, AND SANDY CLAY UNLESS OTHERWISE NOTED.
2. COMPACT EMBANKMENT TO MINIMUM OF 95% MAXIMUM STANDARD DENSITY AS DETERMINED BY ASTM DESIGNATION D 698 UNLESS OTHERWISE NOTED.
3. RIP RAP SHALL CONFORM TO MID-VALLEY, INC. SPECIFICATION C-127 —G
4. SEEDING SHALL CONFORM TO MID-VALLEY, INC. SPECIFICATION C-127.1
5. CRUSHED STONE ON CREST SHALL CONFORM TO GRADING NO.53 OF THE INDIANA STATE HIGHWAY STANDARD SPECIFICATION COMPACTED TO 95% MAXIMUM STANDARD DENSITY
6. WHERE EXISTING GROUND CONTOUR HAS LESS SLOPE THAN THOSE SHOWN, LEAVE THE EXISTING SLOPE.
7. SAND OR CRUSHED STONE FOR USE IN THE SEEPAGE COLLECTION ZONE SHALL BE CLEAN, WELL GRADED, & NON PLASTIC. —F
8. ZONE "A" MATERIAL SHALL BE ASPHALT SAND CONFORMING TO ASTM DESIGNATION D 1073, GRADING #1:

SIEVE SIZE	% PASS (AMOUNT FINER BY WEIGHT)
3/8"	100
NO.4	95-100
8	70-100
16	40-80
30	20-65
50	7-40
100	2-20
200	0-10

9. ZONE "B" MATERIAL SHALL HAVE A UNIFORM GRADING MEETING THE FOLLOWING GRAIN SIZE REQUIREMENTS: —E
   D15 = 1.75 MM ± 1MM
   D50 = 6 MM ± 2 MM
   D85 = 15 MM ± 2 MM
   100% PASS 3/4" SIEVE
   MAX 2% PASS #100 SIEVE
10. A SIEVE ANALYSIS OF THE AGGREGATES PROPOSED FOR USE IN THE SEEPAGE COLLECTION ZONE SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO THEIR USE. THE SIEVE ANALYSIS SHALL CONFORM TO THE REQUIREMENTS OF ASTM DESIGNATION C-136 AND SHALL BE REPORTED ON THE BASIS OF TOTAL PERCENTAGE OF MATERIAL PASSING EACH SIEVE. —D
11. COMPACT THE HORIZONTAL SEEPAGE COLLECTION ZONE WITH 6 PASSES OF A 25 TON RUBBER TIRED ROLLER FOR EACH LIFT. COMPACT VERTICAL COLLECTION ZONE WITH HAND TAMPERS.
12. EXTREME CARE SHALL BE TAKEN TO PREVENT MIXING EMBANKMENT MATERIAL WITH THE DRAINAGE ZONE. THE COLLECTION ZONE SHALL BE COMPLETELY FREE OF FOREIGN MATERIALS.
13. SLOPE SEEPAGE COLLECTION ZONE TO DAYLIGHT AT THE TOE OF THE SLOPE IN AREAS WHERE THE RAILROAD BERM IS NOT REQUIRED OR WHERE THE DOWNSTREAM SURFACE GRADE IS ABOVE ELEVATION 414.0' —C
14. THE SEEPAGE COLLECTION ZONE IS NOT REQUIRED FOR DAM SECTIONS WHERE THE DOWNSTREAM SURFACE GRADE IS AT OR ABOVE ELEVATION 430.0'
15. STRIP UNSUITABLE MATERIAL AND COMPACT FOUNDATION BEFORE PLACING EMBANKMENT.
16. ELEVATIONS OF PIEZOMETERS ARE NOT SHOWN TO SCALE
17. CLEARING AND GRUBBING HAS BEEN COMPLETED BY OTHERS.
18. PLACE CLAYEY MATERIAL IN CORE AREA AND UPSTREAM FACE AS DIRECTED BY THE GENERAL CONTRACTOR'S REPRESENTATIVE. —B
19. CRUSHED STONE ON CREST TO HAVE 1/4" PER FOOT CROWN.
20. LIME STABILIZED SOIL TO HAVE 4% LIME BY WEIGHT. —A

REFERENCE DRAWINGS

1. G-1450 DAM PLAN AND PROFILE
2. G-1451 DAM SPILLWAY SECTIONS & DETAILS
3. G-1453 DAM DETAILS

DRAWING NUMBER WAS G-1052-1

NO.	DATE	REVISION	BY	CHK.	APP.
1	12-20-95	REVISED DIMEN. PER AS BUILT	RRR	RJ	.111
	2-13-75	ISSUED TO INDIANA DEPT. OF NATURAL RESOURCES FOR APPROVAL	W.T.B.	M.T.G	

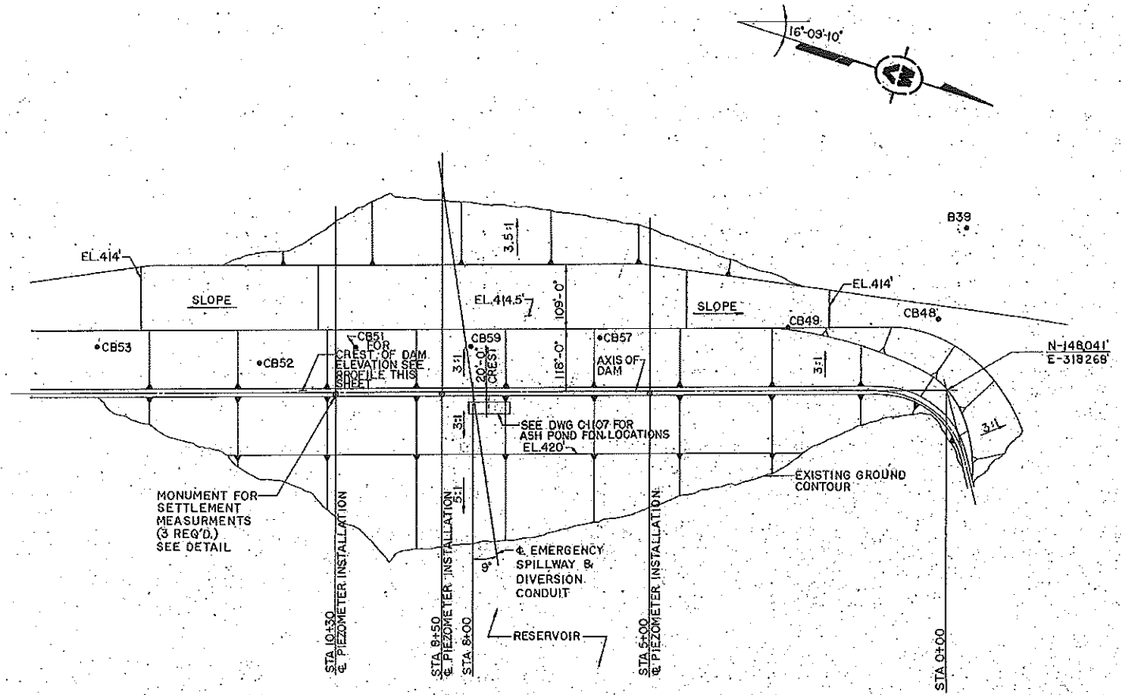
DRAWN: BARABAS, WALTER T.
CHECKED: M. Garlich
APPROVED:
CUSTOMER APP.

MID-VALLEY, INC.
ENGINEERS - CONSTRUCTORS
OAK BROOK, ILLINOIS

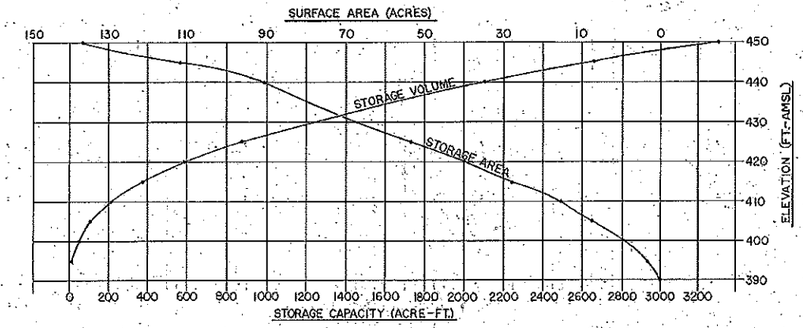
SOUTHERN INDIANA GAS & ELECTRIC CO.
EVANSVILLE, INDIANA
A.B. BROWN STATION
UNIT NO. 1&2

DRAWING TITLE
CIVIL
DAM
SECTIONS & DETAILS

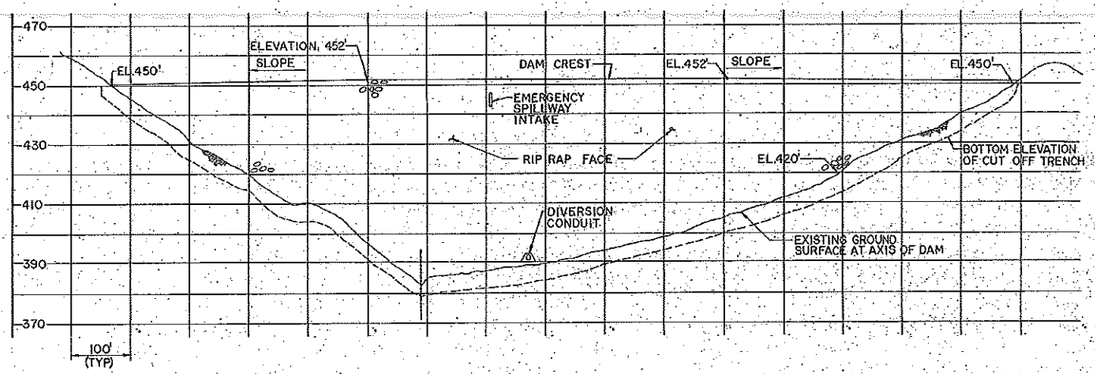
CONTRACT NO. CP-0013
DATE: JAN. 24, 1975
SCALE: AS SHOWN
DRAWING NO. G-1452-1



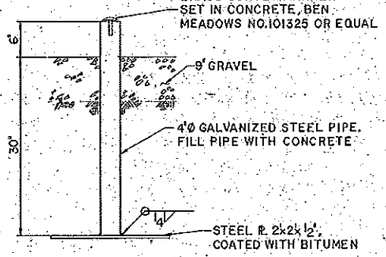
DAM PLAN
SCALE 1"=100'-0"



STORAGE DEPTH CURVES



DAM PROFILE
SCALE
HORIZONTAL 1"=100'-0"
VERTICAL 1"=20'-0"



SETTLEMENT MONUMENT DETAIL
SCALE: 1"=1'-0"

LEGEND

1. ▣ SETTLEMENT MONUMENT
2. ● BORING LOCATION

NOTES

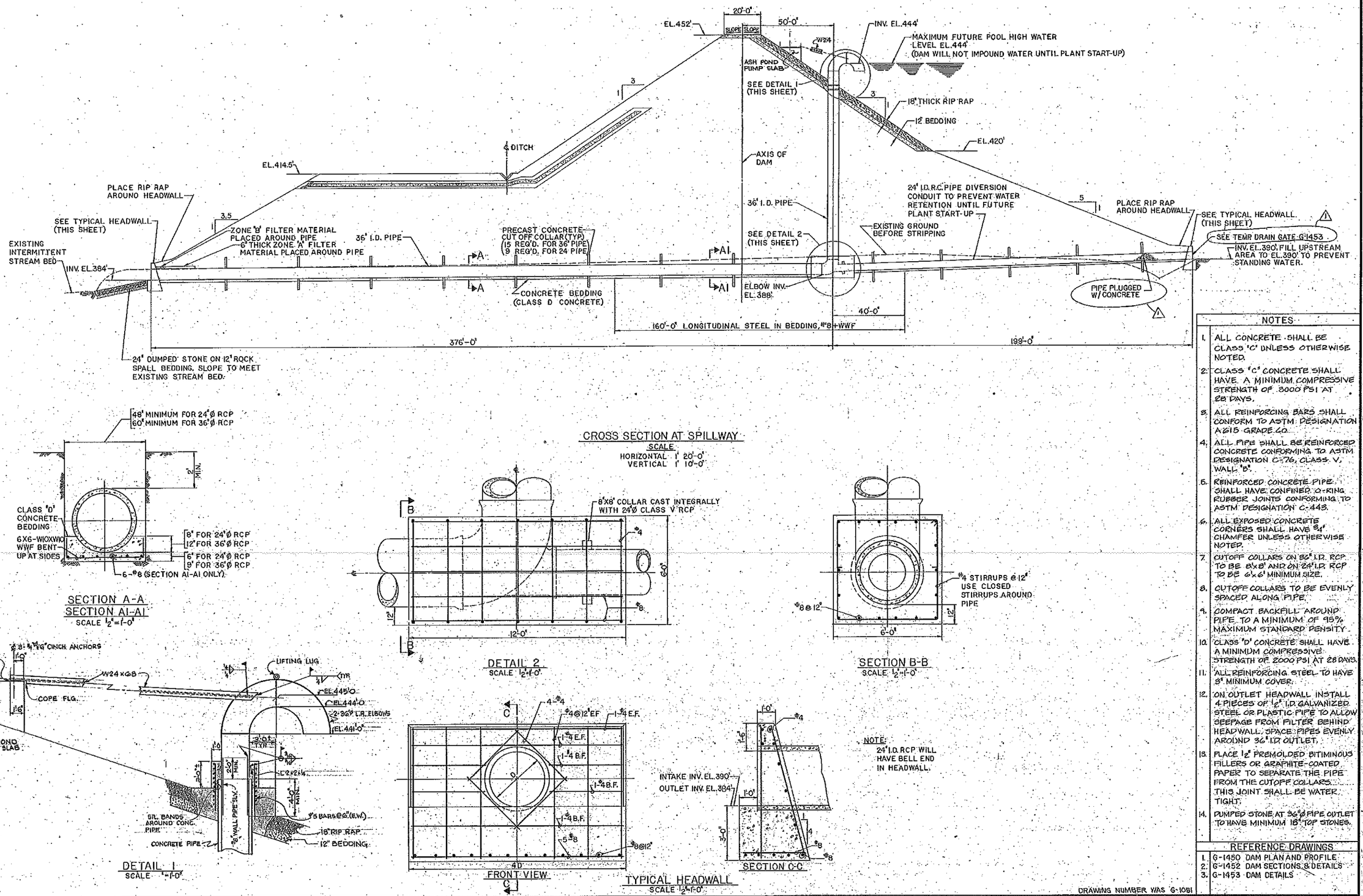
1. ELEVATIONS SHOWN ARE BASED ON MEAN SEA LEVEL DATUM AS ESTABLISHED BY THE UNITED STATES COAST AND GEODETIC SURVEY.
2. GRID COORDINATES ARE BASED ON THE INDIANA COORDINATE SYSTEM, WEST ZONE.
3. NORTH ARROW IS GRID NORTH.
4. CONTOUR LINES, ELEVATIONS, AND THE EXTENT OF SLOPES ARE APPROXIMATE.
5. PLACE ALIGNMENT STAKES AT TOE OF SLOPES FOR OBSERVATION OF POSSIBLE MOVEMENT.
6. FOR BORING LOCATIONS AND BORING LOG SEE DRAWING G-1002.

REFERENCE DRAWINGS

1. G-1002 SOIL BORING LOCATION PLAN AND SOIL PROFILES
2. G-1451 DAM SPILLWAY SECTIONS & DETAILS
3. G-1452 DAM SECTIONS & DETAILS
4. G-1453 DAM DETAILS

DRAWING NUMBER WAS G-1050

DRAWN BARABAS, WALTER T.	MID-VALLEY, INC. ENGINEERS - CONSTRUCTORS	SOUTHERN INDIANA GAS & ELECTRIC CO. EVANSVILLE, INDIANA	DRAWING TITLE CIVIL DAM
CHECKED M. Gaal			CONTRACT NO. CP-0013
APPROVED			DATE: JAN. 16, 1975
			SCALE: AS SHOWN



SECTION A-A
SECTION A1-A1
SCALE 1/2"=1'-0"

CROSS SECTION AT SPILLWAY
SCALE
HORIZONTAL 1" 20'-0"
VERTICAL 1" 10'-0"

DETAIL 2
SCALE 1/2"=1'-0"

SECTION B-B
SCALE 1/2"=1'-0"

DETAIL 1
SCALE 1"=1'-0"

TYPICAL HEADWALL
SCALE 1/2"=1'-0"

NOTE:
24" I.D. RCP WILL HAVE BELL END IN HEADWALL.

NOTES

1. ALL CONCRETE SHALL BE CLASS 'C' UNLESS OTHERWISE NOTED.
2. CLASS 'C' CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI AT 28 DAYS.
3. ALL REINFORCING BARS SHALL CONFORM TO ASTM DESIGNATION A615 GRADE 40.
4. ALL PIPE SHALL BE REINFORCED CONCRETE CONFORMING TO ASTM DESIGNATION C-76, CLASS V, WALL 'B'.
5. REINFORCED CONCRETE PIPE SHALL HAVE CONFINED O-RING RUBBER JOINTS CONFORMING TO ASTM DESIGNATION C-443.
6. ALL EXPOSED CONCRETE CORNERS SHALL HAVE 3/4" CHAMFER UNLESS OTHERWISE NOTED.
7. CUTOFF COLLARS ON 36" I.D. RCP TO BE 8'X8' AND ON 24" I.D. RCP TO BE 6'x6' MINIMUM SIZE.
8. CUTOFF COLLARS TO BE EVENLY SPACED ALONG PIPE.
9. COMPACT BACKFILL AROUND PIPE TO A MINIMUM OF 95% MAXIMUM STANDARD DENSITY.
10. CLASS 'D' CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 2000 PSI AT 28 DAYS.
11. ALL REINFORCING STEEL TO HAVE 3" MINIMUM COVER.
12. ON OUTLET HEADWALL INSTALL 4 PIECES OF 1/2" I.D. GALVANIZED STEEL OR PLASTIC PIPE TO ALLOW SEEPAGE FROM FILTER BEHIND HEADWALL. SPACE PIPES EVENLY AROUND 36" I.D. OUTLET.
13. PLACE 1/2" PREMOLDED BITIMINOUS FILLERS OR GRAPHITE-COATED PAPER TO SEPARATE THE PIPE FROM THE CUTOFF COLLARS. THIS JOINT SHALL BE WATER TIGHT.
14. PUMPED STONE AT 36"Ø PIPE OUTLET TO HAVE MINIMUM 18" TOP STONES.

REFERENCE DRAWINGS

1. G-1450 DAM PLAN AND PROFILE
2. G-1452 DAM SECTIONS & DETAILS
3. G-1453 DAM DETAILS

DRAWING NUMBER WAS G-1051

2	10-21-83	REVISED DET. "1"	BJ	KH
1	10-22-82	REVISED PER AS BUILT	BJR	RD

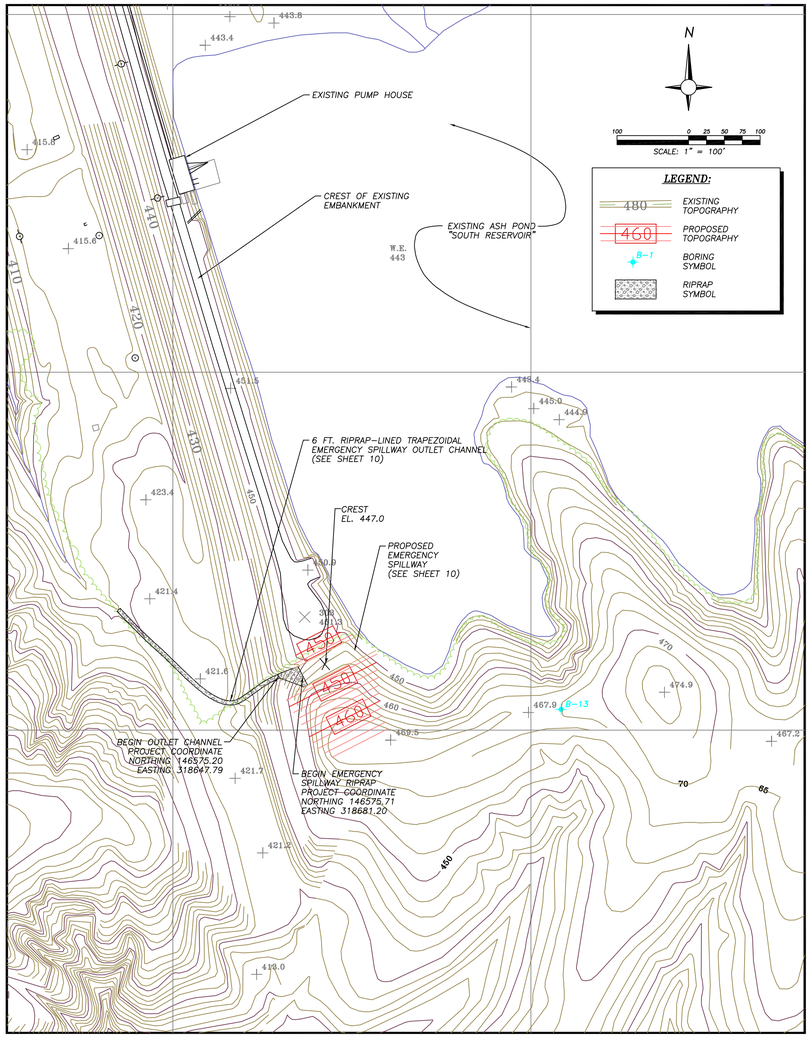
DRAWN BARABAS, WALTER T.
CHECKED
APPROVED

MID-VALLEY, INC.
ENGINEERS - CONSTRUCTORS

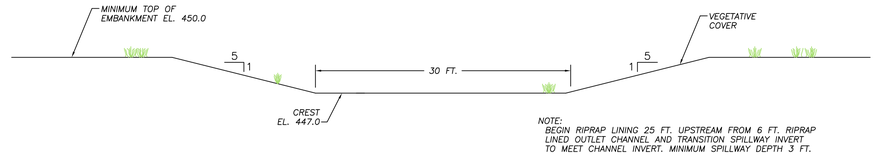
SOUTHERN INDIANA GAS & ELECTRIC CO.
EVANSVILLE, INDIANA
A.B. BROWN STATION

DRAWING TITLE
CIVIL
DAM

CONTRACT NO. CP-0013
DATE: JAN. 22, 1975
SCALE: AS SHOWN
DRAWING NO.

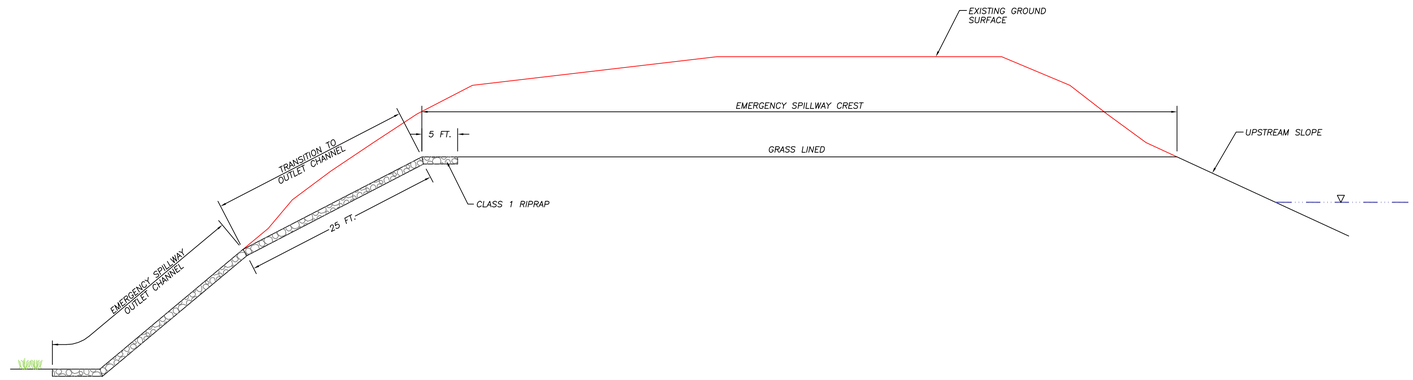


LOCATION OF NEW EMERGENCY SPILLWAY FOR EXISTING EMBANKMENT



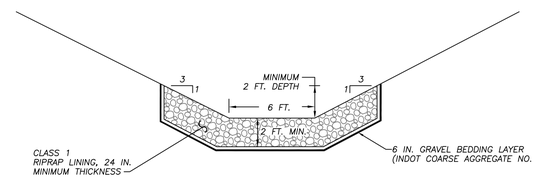
SOUTH IMPOUNDMENT EMERGENCY SPILLWAY

(NOT TO SCALE)



TYPICAL EMERGENCY SPILWAY PROFILE

(NOT TO SCALE)



EMERGENCY SPILLWAY OUTLET CHANNEL FOR NORTH AND SOUTH IMPOUNDMENTS AND DOWNSTREAM OF PRINCIPAL SPILLWAY OUTLET

(NOT TO SCALE)

NOTES:

TRANSITION 30 FT. CREST WIDTH THROUGH EMBANKMENTS INTO 6 FT. WIDE RIPRAP-LINED TRAPEZOIDAL DITCH ALONG DOWNSTREAM EMBANKMENT SLOPE: AS NOTED ON TYPICAL EMERGENCY PROFILE.

FOR SOUTH IMPOUNDMENT, EXTEND RIPRAP-LINED DITCH SECTION TO TRANSITION INTO EXISTING VEGETATED DITCH AS SHOWN ON THE DESIGN DRAWINGS.

Revision: 1/03

Project Number: 86.33159.0030
Drawing File: DETAIL2
Date: 1/03
Scale:
Drn. By: CR
Ckd. By: TC
Appr'd By:

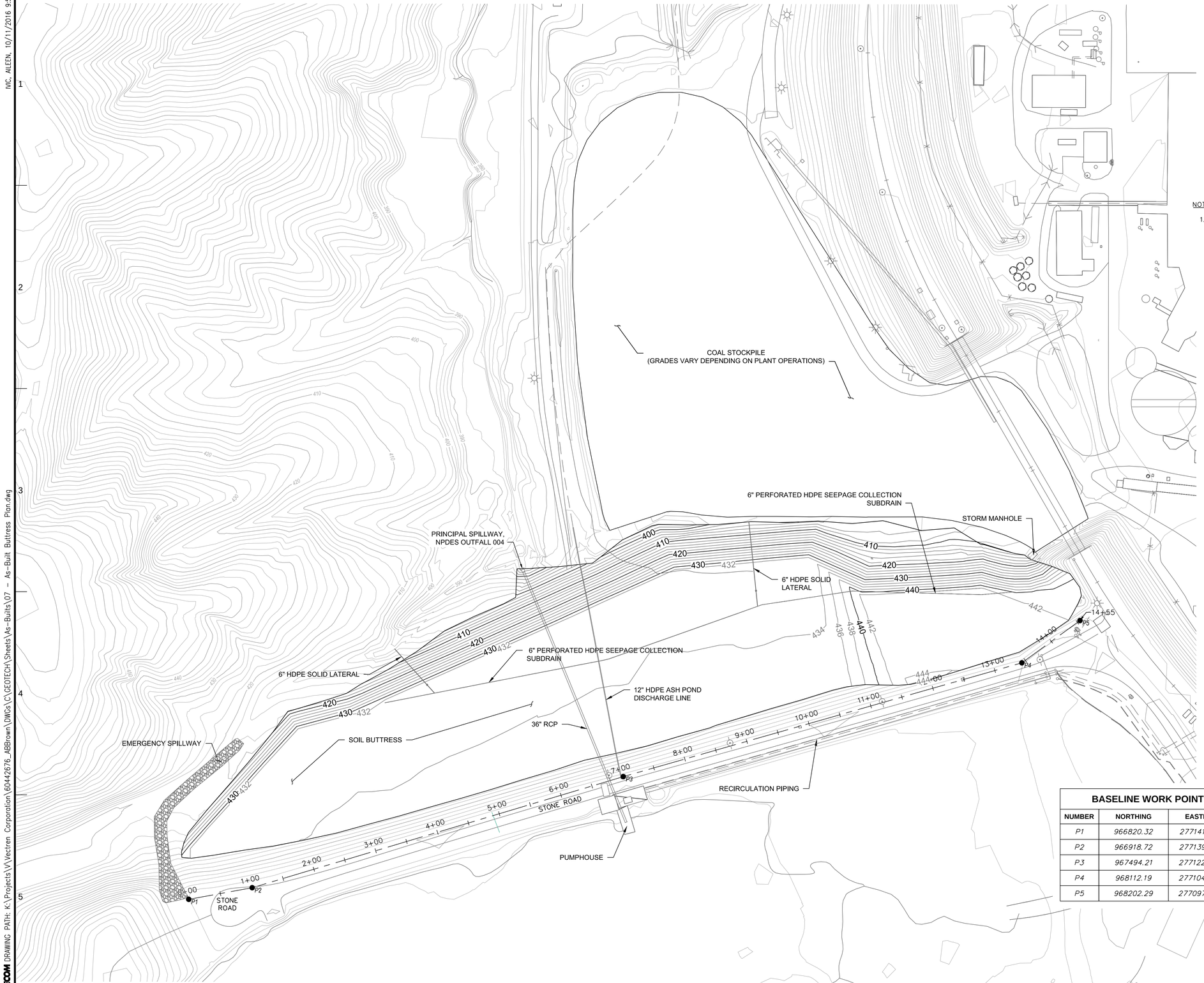
Company Name: SOUTHERN INDIANA GAS AND ELECTRIC COMPANY

ATC ASSOCIATES INC.
7988 Centerpoint Drive, Suite 100
Indianapolis, Indiana 46256-3345
317.849.4990, Fax 317.849.4278, www.atc-enviro.com

Drawing Title: NEW EMERGENCY SPILLWAY OF EXISTING EMBANKMENT A.B. BROWN GENERATING STATION WEST FRANKLIN, INDIANA

Sheet: 10

H:\2003\33159\0030



NOTES

1. NORMAL OPERATING POOL IS 441.5 FT; MAX POOL PER INFLOW DESIGN FLOOD IS 446.8 FT.

BASELINE WORK POINT COORDINATES

NUMBER	NORTHING	EASTING	STATION
P1	966820.32	2771411.20	0+00.00
P2	966918.72	2771393.15	1+00.00
P3	967494.21	2771220.89	7+00.76
P4	968112.19	2771044.44	13+43.44
P5	968202.29	2770978.94	14+54.83

RECORD DRAWING

AECOM
1300 E. 9TH STREET
SUITE 500
CLEVELAND, OH
216-622-2300 (PHONE)

VECTREN
Live Smart
P.O.BOX 209
EVANSVILLE, IN 47702
1-800-227-1376

A.B. BROWN GENERATING STATION POSEY COUNTY, IN

LOWER DAM STABILIZING BUTTRESS

IKRAM K. GAUTAM
REGISTERED
No. PE11600291
STATE OF INDIANA
PROFESSIONAL ENGINEER
10/11/16

ISSUED FOR BIDDING	-	3/28/16 VKG	-
		DATE BY	
ISSUED FOR CONSTRUCTION		5/12/16 VKG	
		DATE BY	

REVISIONS

NO.	DESCRIPTION	DATE
0	ISSUED FOR CONSTRUCTION	5/12/16
1	REVISION 1	7/11/16
2	AS-BUILT DRAWINGS	10/11/16

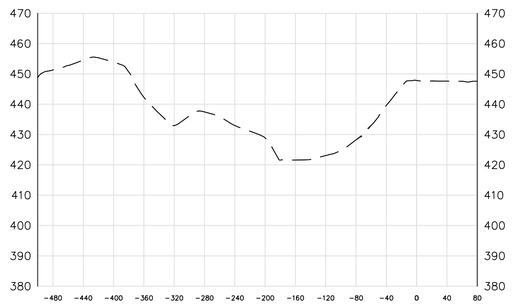
AECOM PROJECT NO:	60442676
DRAWN BY:	ACI
DESIGNED BY:	ACI
CHECKED BY:	VKG
DATE CREATED:	10/05/2016
PLOT DATE:	10/05/2016
SCALE:	AS SHOWN
ACAD VER:	AUTOCAD CIVIL 3D 2014

SHEET TITLE

BUTTRESS PLAN

C-200

SHEET 07 OF 25



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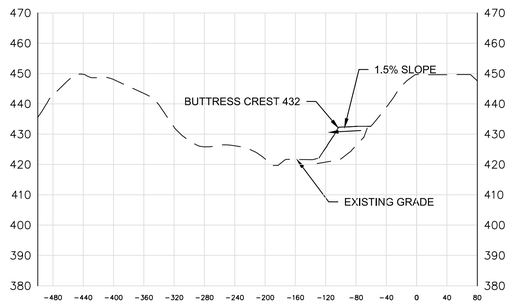

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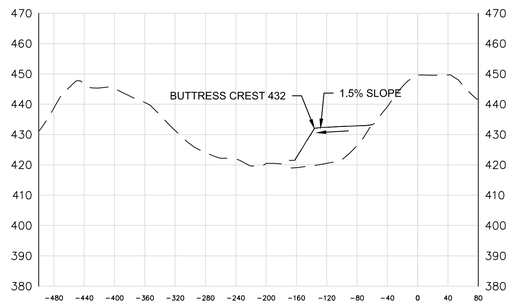

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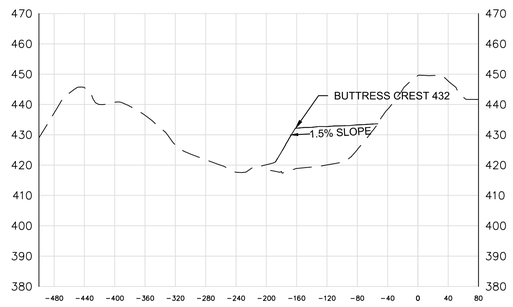

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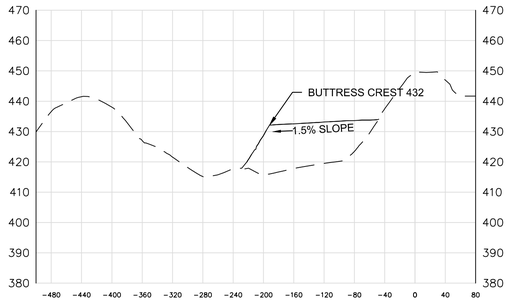

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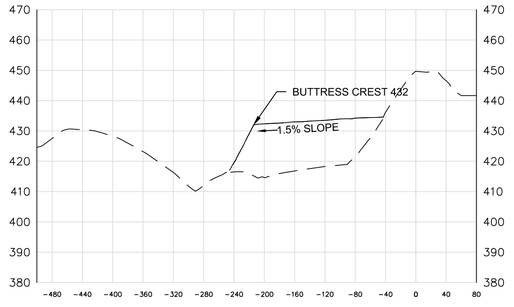

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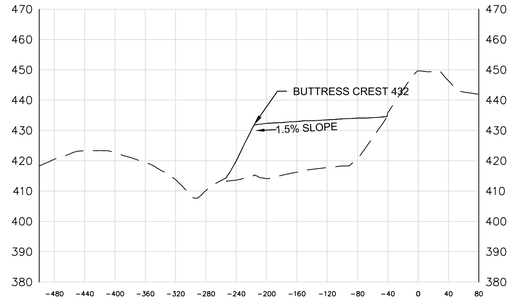

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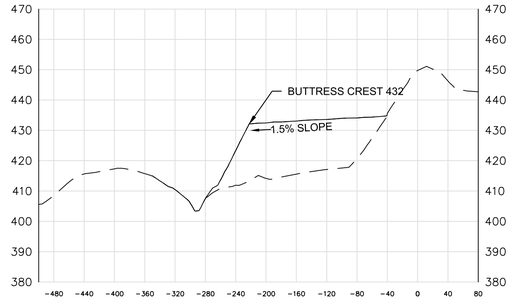

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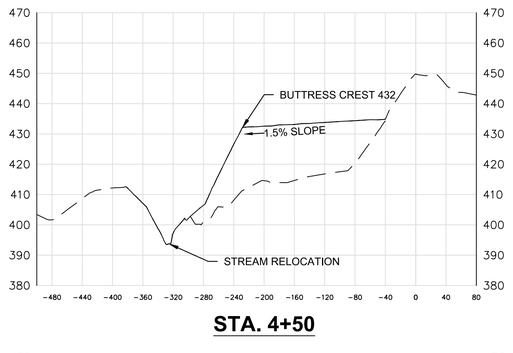

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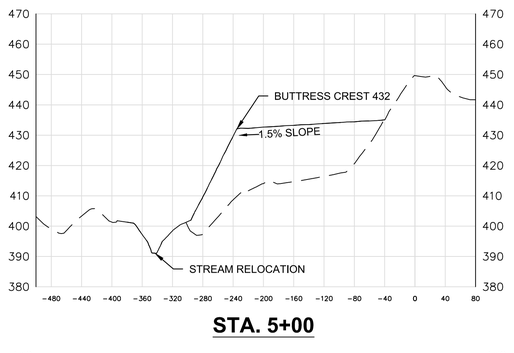

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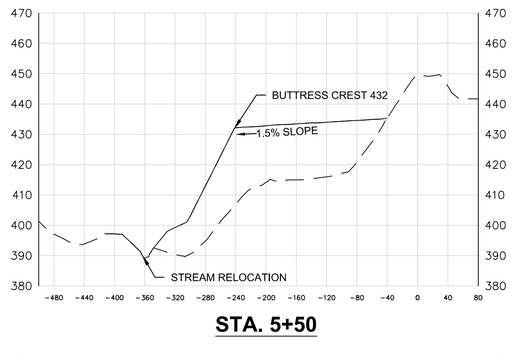

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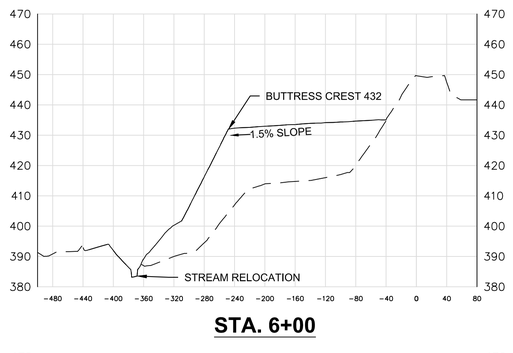

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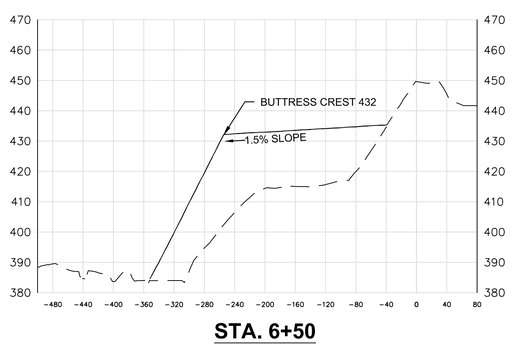

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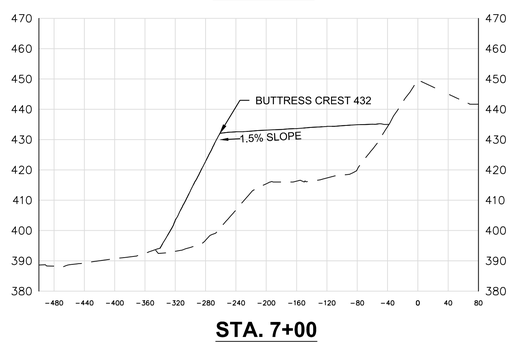

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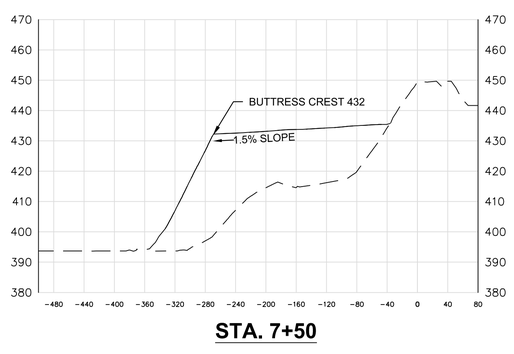

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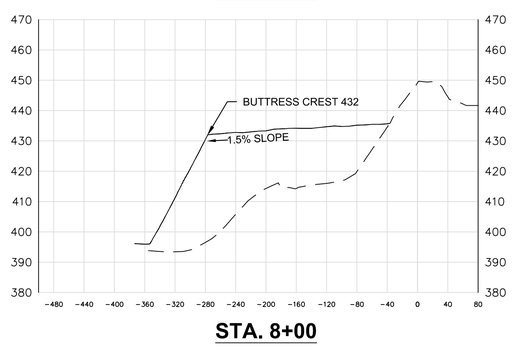

STA. 8+00

RECORD DRAWING

AECOM
1300 E. 9TH STREET
SUITE 500
CLEVELAND, OH
216-622-2300 (PHONE)

VECTREN Live Smart
P.O.BOX 209
EVANSVILLE, IN 47702
1-800-227-1376

A.B. BROWN GENERATING STATION
POSEY COUNTY, IN

LOWER DAM STABILIZING BUTTRESS

ISSUED FOR BIDDING	-	3/28/16	VKG -
		DATE	BY
ISSUED FOR CONSTRUCTION		5/12/16	VKG
		DATE	BY

REVISIONS

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0	ISSUED FOR CONSTRUCTION	5/12/16
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AECOM PROJECT NO:	60442676
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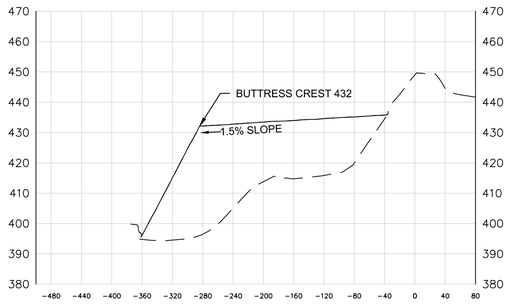
DESIGNED BY:	ACI
CHECKED BY:	VKG
DATE CREATED:	10/06/2016
PLOT DATE:	10/06/2016
SCALE:	AS SHOWN
ACAD VER:	AUTOCAD CIVIL 3D 2014

SHEET TITLE

CROSS SECTIONS - SOIL BUTTRESS

C-201

SHEET 08 OF 25



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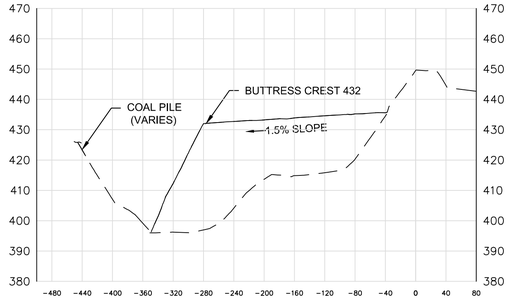

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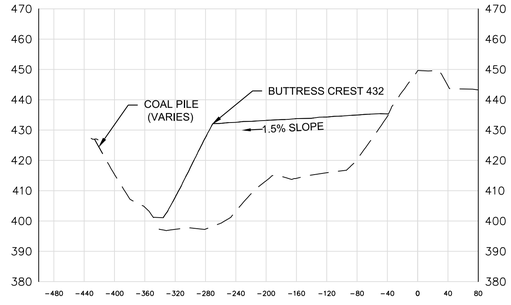

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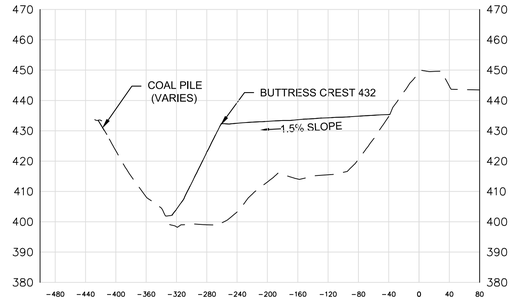

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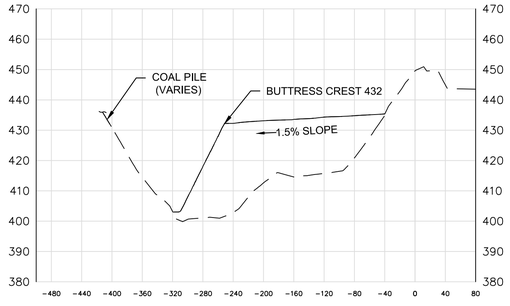

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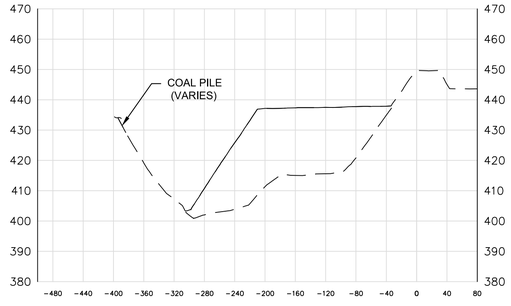

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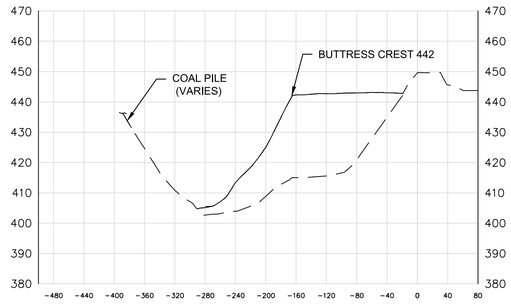

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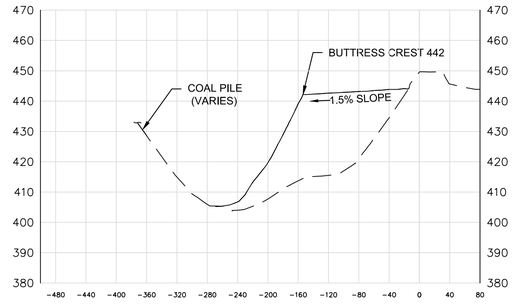

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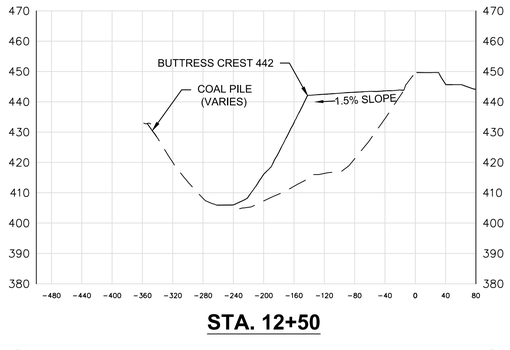

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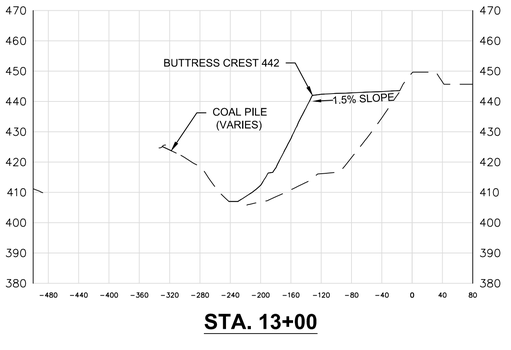

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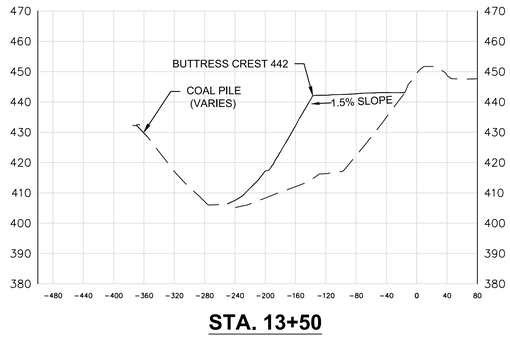

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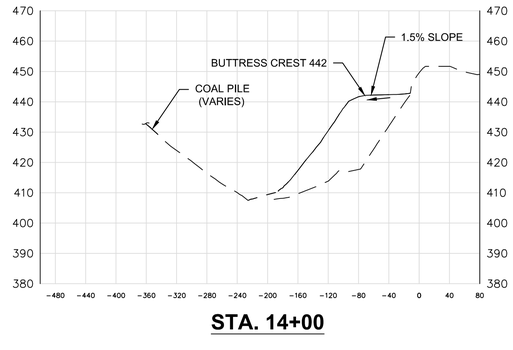

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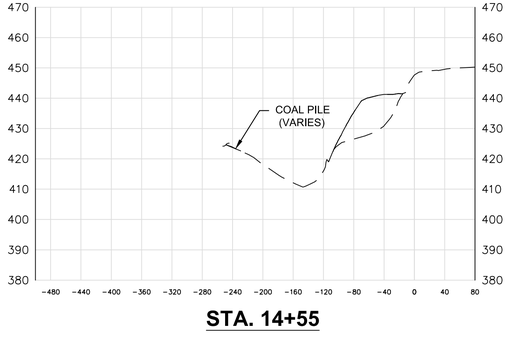

STA. 14+55

RECORD
DRAWING

AECOM
1300 E. 9TH STREET
SUITE 500
CLEVELAND, OH
216-622-2300 (PHONE)

VECTREN
Live Smart
P.O.BOX 209
EVANSVILLE, IN 47702
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STABILIZING
BUTTRESS

VIKRAM K. GAUTAM
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		DATE	BY	
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REVISIONS

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SCALE:	AS SHOWN
ACAD VER:	AUTOCAD CIVIL 3D 2014

SHEET TITLE

CROSS
SECTIONS - SOIL
BUTTRESS II

C-202

SHEET 09 OF 25