AECOM

October 2016

Illinois Power Resources Generating, LLC
7800 South Cilco Lane
Bartonville, IL 61607

RE: History of Construction
USEPA Final CCR Rule, 40 CFR § 257.73(c)
Edwards Power Station
Bartonville, Illinois

On behalf of Illinois Power Resources Generating, LLC, AECOM has prepared the following history of construction for the Ash Pond at the Edwards Power Station in accordance with 40 CFR § 257.73(c).

BACKGROUND

40 CFR § 257.73(c)(1) requires the owner or operator of an existing coal combustion residual (CCR) surface impoundment that either (1) has a height of five feet or more and a storage volume of 20 acre-feet or more, or (2) has a height of 20 feet or more to compile a history of construction by October 17, 2016 that contains, to the extent feasible, the information specified in 40 CFR § 257.73(c)(1)(i)–(xii).

The history of construction presented herein was compiled based on existing documentation, to the extent that it is reasonably and readily available (see 80 Fed. Reg. 21302, 21380 [April 17, 2015]), and AECOM's site experience. AECOM's document review included record drawings, geotechnical investigations, operation and maintenance information, etc. for Ash Pond at the Edwards Power Station.

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HISTORY OF CONSTRUCTION

§ 257.73(c)(1)(i): The name and address of the person(s) owning or operating the CCR unit; the name associated with the CCR unit; and the identification number of the CCR unit if one has been assigned by the state.

Owner: Illinois Power Resources Generating, LLC

Address: 1500 Eastport Plaza Drive
Collinsville, IL 62234

CCR Units: Ash Pond

The Ash Pond does not have a state assigned identification number.

§ 257.73(c)(1)(ii): The location of the CCR unit identified on the most recent USGS $7^1/_2$ or 15 minute topographic quadrangle map or a topographic map of equivalent scale if a USGS map is not available.

The location of the Ash Pond has been identified on an USGS 7-1/2 minute topographic quadrangle map in **Appendix A**.

§ 257.73(c)(1)(iii): A statement of the purpose for which the CCR unit is being used.

The Ash Pond is being used to store and dispose of sluiced bottom ash and fly ash and to clarify water, including non-CCR station process wastewaters, prior to discharge in accordance with the station's NPDES permit.

§ 257.73(c)(1)(iv): The name and size in acres of the watershed where the CCR unit is located.

The Ash Pond and the Edwards Power Station are located in the Illinois River Watershed with a 12-digit Hydrologic Unit Code (HUC) of 071300030304 and a drainage area of 8,3821 acres (USGS, 2016).

§ 257.73(c)(1)(v): A description of the physical and engineering properties of the foundation and abutment materials on which the CCR unit is constructed.

The foundation materials consist of native alluvial clay underlain by bedrock. The physical properties of the native alluvial clay are described as lean clay with zones of fat clay. The consistency of the clay varies from soft to stiff. The bedrock is classified as weathered to slightly weathered shale. An available summary of the engineering properties of the foundation and abutment materials is presented in **Table 1** below. The engineering properties are based on previous geotechnical explorations and laboratory testing.

Table 1. Summary of Foundation and Abutment Material Engineering Properties

Material	Unit Weight (pcf)	Effective (drained) Shear Strength Parameters		Total (undrained) Shear Strength Parameters	
		c' (psf)	Φ' (°)	c (psf)	Φ (°)
Native Clay Crust	120	200	27.5	1250	0
Native Clay 1	117	100	26	650	0
Native Clay 2	105	200	26	700	0
Native Clay 3	105	200	26	900	0
Bedrock - Shale	140	1000	36	1000	36

The Ash Pond is an enclosed impoundment with embankments and does not have abutments.

§ 257.73(c)(1)(vi): 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 of the CCR unit; and the approximate dates of construction of each successive stage of construction of the CCR unit.

The Ash Pond original embankments were constructed with soils excavated from within the limits of the proposed pond. Physical properties for the original embankment construction are described as lean clay with trace sand and shells. The consistency of the original embankment material varies from soft to stiff, with a general consistency of stiff. The original embankment was later modified for construction of a new rail loop. The modifications were constructed by adding new material to widen the downstream side of the embankment and occasionally raising the crest elevation of the embankment by as much as 12 feet. Physical characteristics for the new embankment material are described as fly ash, classified as silt to poorly-graded silty sand with gravel. The consistency of the new embankment material varies from soft to very stiff, with a general consistency of stiff to very stiff. Construction of the new rail loop also cut off the southern portion of the pond by the construction of a new dike across the interior of the pond. The new dike material consists of medium dense, fine to coarse, crushed stone gravel with sand, classified as poorly graded gravel. The cut off area to the south was filled in with ash and capped by topsoil. An available summary of the engineering properties of the construction materials is presented in **Table 2** below. The engineering properties are based on previous geotechnical explorations and laboratory testing.

Table 2. Summary of Construction Material Engineering Properties

Material	Unit Weight (pcf)	Effective (drained) Shear Strength Parameters		Total (undrained) Shear Strength Parameters	
		c' (psf)	Φ' (°)	c (psf)	Φ (°)
Old Embankment 1	125	200	28	2500	0
Old Embankment 2	125	100	29	1250	0
New Embankment	115	200	30	2500	0
New Embankment (Crushed Stone - Sandy Gravel)	120	0	32	0	32

The method of site preparation of the Ash Pond is not reasonably and readily available.

The approximate dates of construction of each successive stage of construction of the Ash Pond are provided in **Table 3** below.

Table 3. Approximate dates of construction of each successive stage of construction.

Date	Event
1960	Construction of the original embankments
2004	Construction of the rail loop that modified the original embankments and cut-off the southern portion of the Ash Pond

§ 257.73(c)(1)(vii): At a scale that details engineering structures and appurtenances relevant to the design, construction, operation, and maintenance of the CCR unit, detailed dimensional drawings of the CCR unit, including a plan view and cross sections of the length and width of the CCR unit, showing all zones, foundation improvements, drainage provisions, spillways, diversion ditches, outlets, instrument locations, and slope protection, in addition to the normal operating pool surface elevation and the maximum pool surface elevation following peak discharge from the inflow design flood, the expected maximum depth of CCR within the CCR surface impoundment, and any identifiable natural or manmade features that could adversely affect operation of the CCR unit due to malfunction or mis-operation.

Drawings that contain items pertaining to the requested information for the Ash Pond are listed in **Table 4** below. Items marked as "Not Available" are items not found during a review of the reasonably and readily available record documentation.

Table 4. List of drawings containing items pertaining to the information requested in § 257.73(c)(1)(vii).

	Ash Pond
Dimensional plan view (all zones)	C175-G1906-3 to 4 03057-PL, 03057-1
Dimensional cross sections	C175-G1906-4, 03057-1X
Foundation Improvements	Not Applicable
Drainage Provisions	Not Applicable
Spillways and Outlets	C175-G1921-1 to 3
Diversion Ditches	Not Found
Instrument Locations	Plate 2, Figure 2A
Slope Protection	Not Available
Normal Operating Pool Elevation	Not Available
Maximum Pool Elevation	Not Available
Approximate Maximum Depth of CCR in 2016	71 feet

All drawings referenced in **Table 4** above can be found in **Appendix B and Appendix C**.

A 6-inch diameter sanitary sewer force main was also identified and is buried at a shallow depth within the Ash Pond. Drawings of the sanitary sewer force main are presented in **Appendix B**.

Based on the review of the drawings listed above, no natural or manmade features that could adversely affect operation of the CCR unit due to malfunction or mis-operation were identified.

§ 257.73(c)(1)(viii): A description of the type, purpose, and location of existing instrumentation.

Existing instrumentation at the Ash Pond consist of open-standpipe piezometers. The purpose of the piezometers is to measure the pore water pressures within the embankment. One (1) open-standpipe piezometer (B-2) was installed in 2010 and the location is presented on Plate 2 in **Appendix C**. Four (4) open-standpipe piezometers (EDW-P001 to P004) were installed in 2015 and the locations are presented on Figure 2A in **Appendix C**.

§ 257.73(c)(1)(ix): Area-capacity curves for the CCR unit.

Area-capacity curves for the Ash Pond are not reasonably and readily available.

§ 257.73(c)(1)(x): A description of each spillway and diversion design features and capacities and calculations used in their determination.

The spillway system for the Ash Pond includes a morning glory spillway structure that consists of vertically stacked 36-inch diameter (dia.) pipe sections seated on a concrete drop inlet structure and pad. The spillway structure discharges clarified plant process water and CCR contact stormwater through a 36-inch dia. corrugated metal pipe (CMP) and into the Illinois River in accordance with the station's NPDES permit. In 2016, the Ash Pond's discharge capability was evaluated using HydroCAD 10 software modeling a 1,000-year, 24-hour rainfall event. The results of the HydroCAD analysis are presented below in **Table 5**.

There are three separate sub-basins within the Ash Pond: the Process Water Pond, the Fly Ash Pond, and the Clarification Pond. The first sub-basin is the Process Water Pond and is located at the northwestern end of the Ash Pond. The second sub-basin is the Fly Ash Pond. The third sub-basin is the Clarification Pond, which is located furthest downstream at the southern end of the Ash Pond. During normal plant operations, bottom ash is sluiced into the Ash Pond. The settling channels located within the Fly Ash Pond discharge into the Clarification Pond through internal culvert pipes. However, during the design storm, rainfall discharge through these channels exceed the capacity of the culvert pipes, and will likely overtop or wash out the small interior splitter dikes and discharge directly into the Clarification Pond. Therefore, the storage potential of the Fly Ash Pond was considered insignificant and rainfall that would normally be collected within the Fly Ash Pond was modeled to discharge directly into the Clarification Pond.

Table 5. Results of HydroCAD 10 analyses

	Ash Pond - Process Water Pond	Ash Pond - Clarification Pond
Approximate Minimum Berm Elevation[1] (ft)	458.8	459.6
Approximate Emergency Spillway Elevation1 (ft)	N/A	N/A
Starting Pool Elevation[1] (ft)	449.5	447.2
Peak Elevation[1] (ft)	457.8	457.4
Time to Peak (hr)	14.4	48.0
Surface Area (ac)	11.4	28.9
Storage [2] (ac-ft)	52.6	265.0

Note: 1. Elevations are based on NAVD88 datum.
2. Storage given is from Starting Pool Elevation to Peak Elevation.

§ 257.73(c)(1)(xi): The construction specifications and provisions for surveillance, maintenance, and repair of the CCR unit.

The construction specifications for the Ash Pond are not reasonably and readily available.

The provisions for surveillance, maintenance, and repair of the Ash Pond are located in *Edwards Power Station; Operation and Maintenance Manual for Ash Ponds and Levees* (presented in **Appendix D**). The operations and maintenance plan for the Ash Pond is currently being revised by Illinois Power Resources Generating, LLC.

§ 257.73(c)(1)(xii): Any record or knowledge of structural instability of the CCR unit.

In early 2009, a minor surficial movement was observed along the northern end of the downstream slope of the west embankment. After the slide was repaired, a second surficial movement occurred in the same area in late 2009. In early 2010, the second movement was repaired with covered stone and the water level in the Process Water Pond area was lowered by approximately 3.5 feet. Annual inspections since 2011 have not identified an issue in the repaired areas. Photos of the 2009 surficial movement area are presented in **Appendix E**.

There is no record or knowledge of any other structural instability of the Ash Pond at Edwards Power Station.

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LIMITATIONS

The signature of AECOM's authorized representative on this document represents that to the best of AECOM's knowledge, information and belief in the exercise of its professional judgment, it is AECOM's professional opinion that the aforementioned information is accurate as of the date of such signature. Any recommendation, opinion or decisions by AECOM are made on the basis of AECOM's experience, qualifications and professional judgment and are not to be construed as warranties or guaranties. In addition, opinions relating to environmental, geologic, and geotechnical conditions or other estimates are based on available data and that actual conditions may vary from those encountered at the times and locations where data are obtained, despite the use of due care.

Sincerely,

Claudia Prado
Project Manager

Victor Modeer, P.E., D.GE
Senior Project Manager

REFERENCES

United States Environmental Protection Agency (USEPA). (2015). *Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals From Electric Utilities; Final Rule.* 40 CFR Parts 257 and 261, 80 Fed. Reg. 21302, 21380 April 17, 2015.

United States Geological Survey (USGS). (2016). The National Map Viewer. http://viewer.nationalmap.gov/viewer/. USGS data first accessed in March of 2016.

APPENDICES

Appendix A: History of Construction Vicinity Map
Appendix B: Edwards Power Station Drawings
Appendix C: Edwards Power Station Piezometer Locations
Appendix D: Operation and Maintenance Manual for Ash Ponds and Levees
Appendix E: Photos of 2009 Surficial Movement

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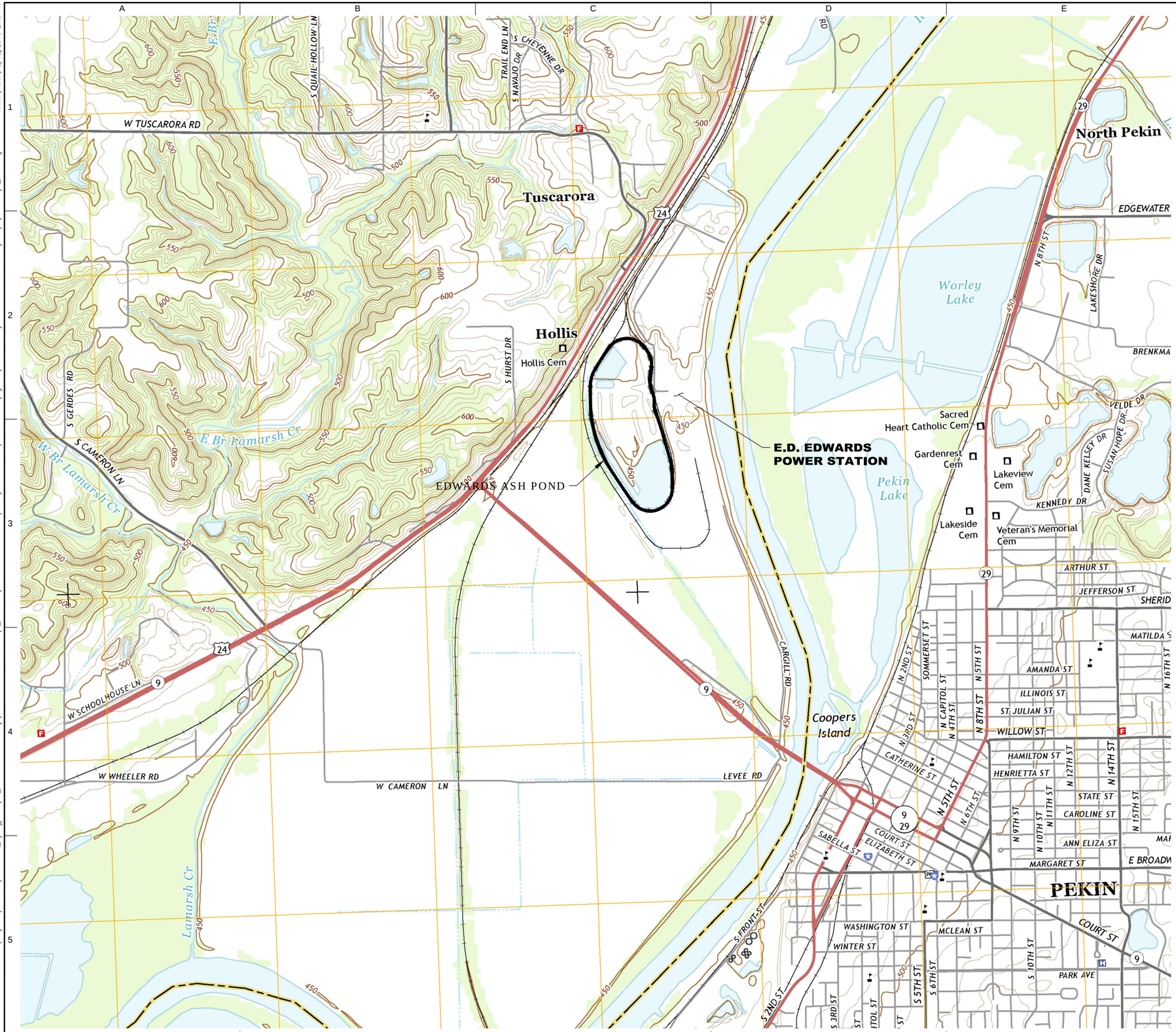
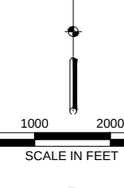
Appendix A: History of Construction Vicinity Map



LEGEND

CCR UNITS

SOURCE:
MAP PROVIDED FROM ELECTRONIC USGS DIGITAL RASTER GRAPHIC 7.5 MINUTE TOPOGRAPHIC MAP OF PEKIN ILLINOIS, REVISED 2015.



QUADRANGLE LOCATION

N

0 1000 2000 3000

SCALE IN FEET

AECOM
1001 Highlands Plaza Drive, Suite 300
St. Louis, Mo. 63110
314 429-0100 (phone)
314-429-0462 (fax)

ILLINOIS POWER RESOURCES, GENERATING, L.L.C.

7800 South Cilco Ln.,
Bartonville, Illinois

HISTORY OF CONSTRUCTION

EDWARDS POWER STATION
BARTONVILLE, ILLINOIS

	DATE	BY
ISSUED FOR BIDDING		
ISSUED FOR CONSTRUCTION		

REVISIONS

NO.	DESCRIPTION	DATE
△		
△		
△		
△		
△		

AECOM PROJECT NO:	60489731
DRAWN BY:	DJD
DESIGNED BY:	DJD
CHECKED BY:	MN
DATE CREATED:	2016-04-13
PLOT DATE:	
SCALE:	1" = 1000'
ACAD VER:	2014

SHEET TITLE

HISTORY OF CONSTRUCTION VICINITY MAP

01

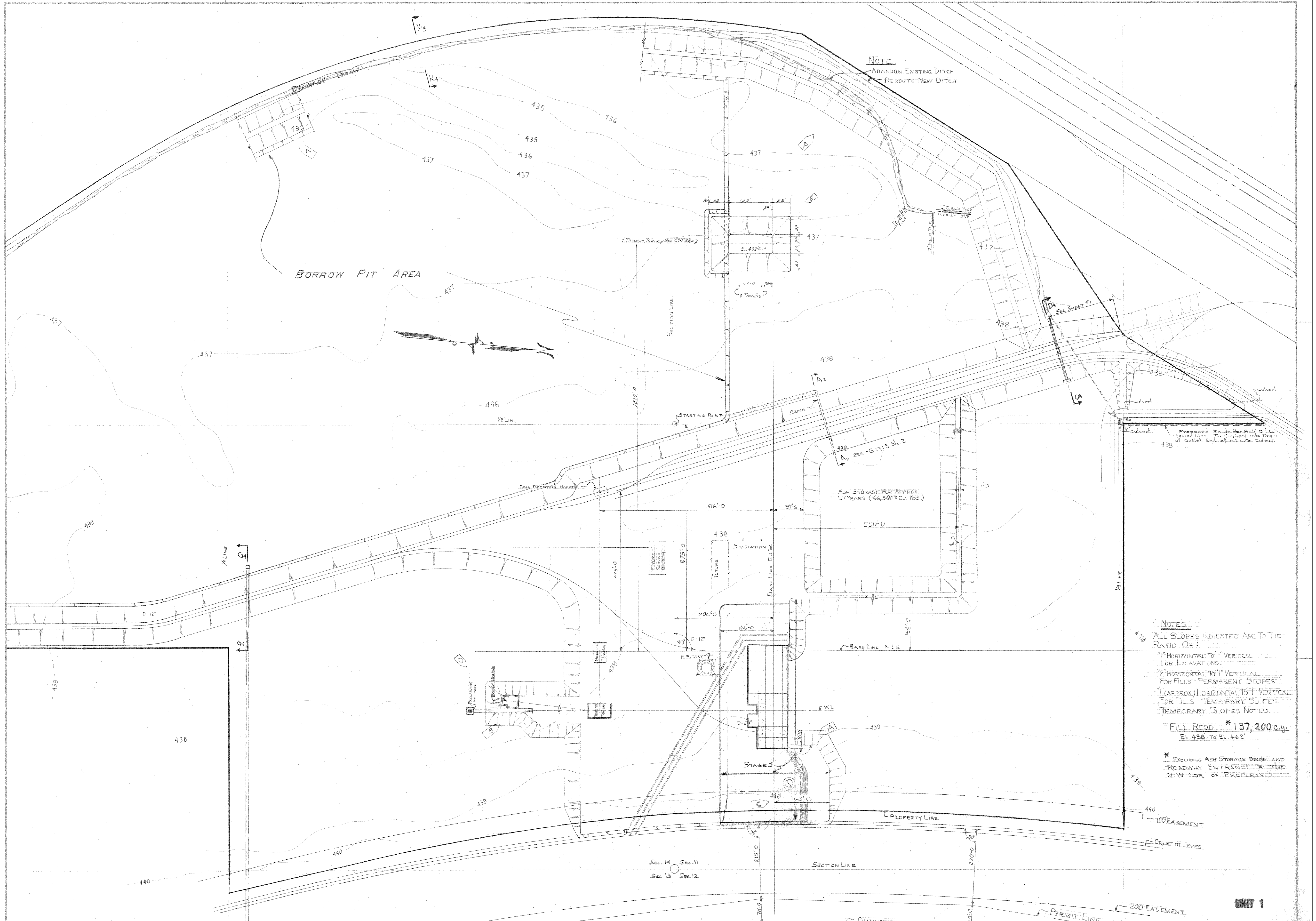
DRAWING PATH: P:\Projects\Geotech\60428794_DynegyCCR\13_Construction History\04 Technical Production\7_Edwards\Reference Documents\Vicinity Location Map References\Figures\C-01 History of Construction Vicinity Map (Edwards) _MJN.dwg NANAK, MATT, 8/12/2016 2:43 PM

Appendix B: Edwards Power Station Drawings

1. “Plant Site Fill, Stage 3 – Final Arrgt.”, Drawing No. C175-G1906-3, Revision F, 1 July, 1960, Commonwealth Associates Inc.
2. “Plant Site Fill, Stage 1 Continuation – Final Arrgt.”, Drawing No. C175-G1906-4, Revision C, 4 March, 1958, Commonwealth Associates Inc.
3. “Construction Thru Levee, Ash Pond Drainage Duct”, Drawing No. C175-G1921-1, Revision C, 26 March, 1975, Commonwealth Associates Inc.
4. “Construction Thru Levee, Ash Pond Drainage Duct Details”, Drawing No. C175-G1921-2, Revision D, 15 February, 1960, Commonwealth Associates Inc.
5. “Construction Thru Levee, Ash Pond Drainage Duct, Cofferdam & Other Details.”, Drawing No. C175-G1921-3, Revision B, 15 June, 1959, Commonwealth Associates Inc.
6. “Proposed 150 Car Loop Track, General Plan”, Drawing No. 03057-PL, Revision 1, 20 November, 2003, Design Nine, Inc.
7. “Proposed 150 Car Loop Track, Plan/Profile - Loop/Wye Track Loop Sta. 0+00 to Sta. 29+00”, Drawing No. 03057-1 (Sheet 6), Revision 2, 3 December, 2003, Design Nine, Inc.
8. “Proposed 150 Car Loop Track, Plan/Profile - Loop Track Sta. 29+00 to Sta. 60+00”, Drawing No. 03057-1 (Sheet 7), Revision 1, 20 November, 2003, Design Nine, Inc.
9. “Proposed 150 Car Loop Track, Plan/Profile - Loop Track Sta. 60+00 to Sta. 91+00”, Drawing No. 03057-1 (Sheet 8), Revision 2, 3 December, 2003, Design Nine, Inc.
10. “Proposed 150 Car Loop Track, Plan/Profile - Loop Track Sta. 91+00 to Sta. 101+22.23”, Drawing No. 03057-1 (Sheet 9), Revision 2, 3 December, 2003, Design Nine, Inc.
11. “Proposed 150 Car Loop Track, Detail of Merchants Track Area”, Drawing No. 03057-1 (Sheet 10), Revision 2, 3 December, 2003, Design Nine, Inc.
12. “Proposed 150 Car Loop Track, Cross Sections - Loop Track Sta. 0+00 to Sta. 7+20.79”, Drawing No. 03057-1X (Sheet 11), Revision 2, 3 December, 2003, Design Nine, Inc.
13. “Proposed 150 Car Loop Track, Cross Sections - Loop Track Sta. 8+00 to Sta. 13+00”, Drawing No. 03057-1X (Sheet 12), Revision 1, 20 November, 2003, Design Nine, Inc.
14. “Proposed 150 Car Loop Track, Cross Sections - Loop Track Sta. 14+00 to Sta. 20+00”, Drawing No. 03057-1X (Sheet 13), Revision 2, 3 December, 2003, Design Nine, Inc.
15. “Proposed 150 Car Loop Track, Cross Sections - Loop Track Sta. 21+03.74 to Sta. 27+00”, Drawing No. 03057-1X (Sheet 14), Revision 2, 3 December, 2003, Design Nine, Inc.
16. “Proposed 150 Car Loop Track, Cross Sections - Loop Track Sta. 27+52 to Sta. 34+00”, Drawing No. 03057-1X (Sheet 15), Revision 2, 3 December, 2003, Design Nine, Inc.
17. “Proposed 150 Car Loop Track, Cross Sections - Loop Track Sta. 35+00 to Sta. 42+00”, Drawing No. 03057-1X (Sheet 16), Revision 1, 20 November, 2003, Design Nine, Inc.
18. “Proposed 150 Car Loop Track, Cross Sections - Loop Track Sta. 42+95.47 to Sta. 50+00”, Drawing No. 03057-1X (Sheet 17), Revision 1, 20 November, 2003, Design Nine, Inc.
19. “Proposed 150 Car Loop Track, Cross Sections - Loop Track Sta. 50+42.36 to Sta. 57+00”, Drawing No. 03057-1X (Sheet 18), Revision 2, 3 December, 2003, Design Nine, Inc.
20. “Proposed 150 Car Loop Track, Cross Sections - Loop Track Sta. 58+00 to Sta. 64+49.7”, Drawing No. 03057-1X (Sheet 19), Revision 2, 3 December, 2003, Design Nine, Inc.

Appendix B: Edwards Power Station Drawings (continued)

21. “Proposed 150 Car Loop Track, Cross Sections - Loop Track Sta. 65+00 to Sta. 70+00”, Drawing No. 03057-1X (Sheet 20), Revision 2, 3 December, 2003, Design Nine, Inc.
22. “Proposed 150 Car Loop Track, Cross Sections - Loop Track Sta. 80+79.67 to Sta. 87+37.4”, Drawing No. 03057-1X (Sheet 21), Revision 1, 20 November, 2003, Design Nine, Inc.
23. “Proposed 150 Car Loop Track, Cross Sections - Loop Track Sta. 87+77.4 to Sta. 94+00”, Drawing No. 03057-1X (Sheet 22), Revision 2, 3 December, 2003, Design Nine, Inc.
24. “Proposed 150 Car Loop Track, Cross Sections - Loop Track Sta. 94+65.41 to Sta. 99+00”, Drawing No. 03057-1X (Sheet 23), Revision 2, 3 December, 2003, Design Nine, Inc.
25. “Proposed 150 Car Loop Track, Cross Sections - Wye Track Sta. 94+00 to Sta. 99+00”, Drawing No. 03057-1X (Sheet 24), Revision 2, 3 December, 2003, Design Nine, Inc.
26. “Proposed 150 Car Loop Track, Cross Sections - Runaround Track Sta. 1+23.8 to Sta. 6+86.72”, Drawing No. 03057-1X (Sheet 25), Revision 2, 3 December, 2003, Design Nine, Inc.



Rev.	Date	Description	By	Approved
F	7/1/60	Roadway Entrance Grades at N. West Cor. of Property added.	H.S.F.	H.S.F.
E	8/5/59	Added Fill At Transmission Tower	W.E.R.	H.S.F.

Rev.	Date	Description	By	Approved
D	1/9/59	Fill Revised @ N.E. Corner; 165'-0 & 10'-0 Dim. Added; - Ash Storage Levee Relocated; - Fill Around Boom House Revised.	R.G.D.	H.S.F.
C	7/24/58	Relocated Fill @ N.E. Corner - Added 130'-0 Min. Dimension	R.G.D.	H.S.F.
B	7/23/58	Added Additional Ash Storage & Ash Storage Drain - Removed Roadway By Levee - Revised Coal Handling Area.	R.G.D.	H.S.F.
A	3/4/58	Added Ash Retaining Dike - Relocated Fill @ N.E. Corner	R.G.D.	H.S.F.

Design and Drafting: R.G.D. Date 8-27-57
H.S.F. Date 10-2-57
H.S. Fenwick Reg. P.E. Date 10-2-57
Approved: H.B. Schieling Date 5-6-58

(Seal)

Prepared under responsible supervision of
H. S. FENWICK
Michigan Professional Registration No. 3954
Illinois Structural Registration No. 81-2416
At offices of
COMMONWEALTH ASSOCIATES INC.
209 E. Washington Ave., Jackson, Mich.

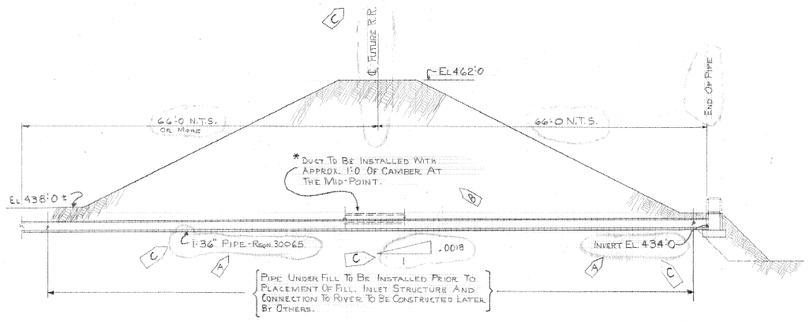
Owner and Location
E.D. EDWARDS STATION
CENTRAL ILLINOIS LIGHT CO.
PEORIA, ILLINOIS

Title: PLANT SITE FILL
STAGE 3 — FINAL ARRG'T.

Scale: 1"=100'-0
2-20-118-1
Drawing No. C175-G1906 | Rev. F | Sheet 3

O.K. TO FILE

* FIELD INCREASE IF EXPERIENCE INDICATES THAT A GREATER SETTLEMENT MAY OCCUR.



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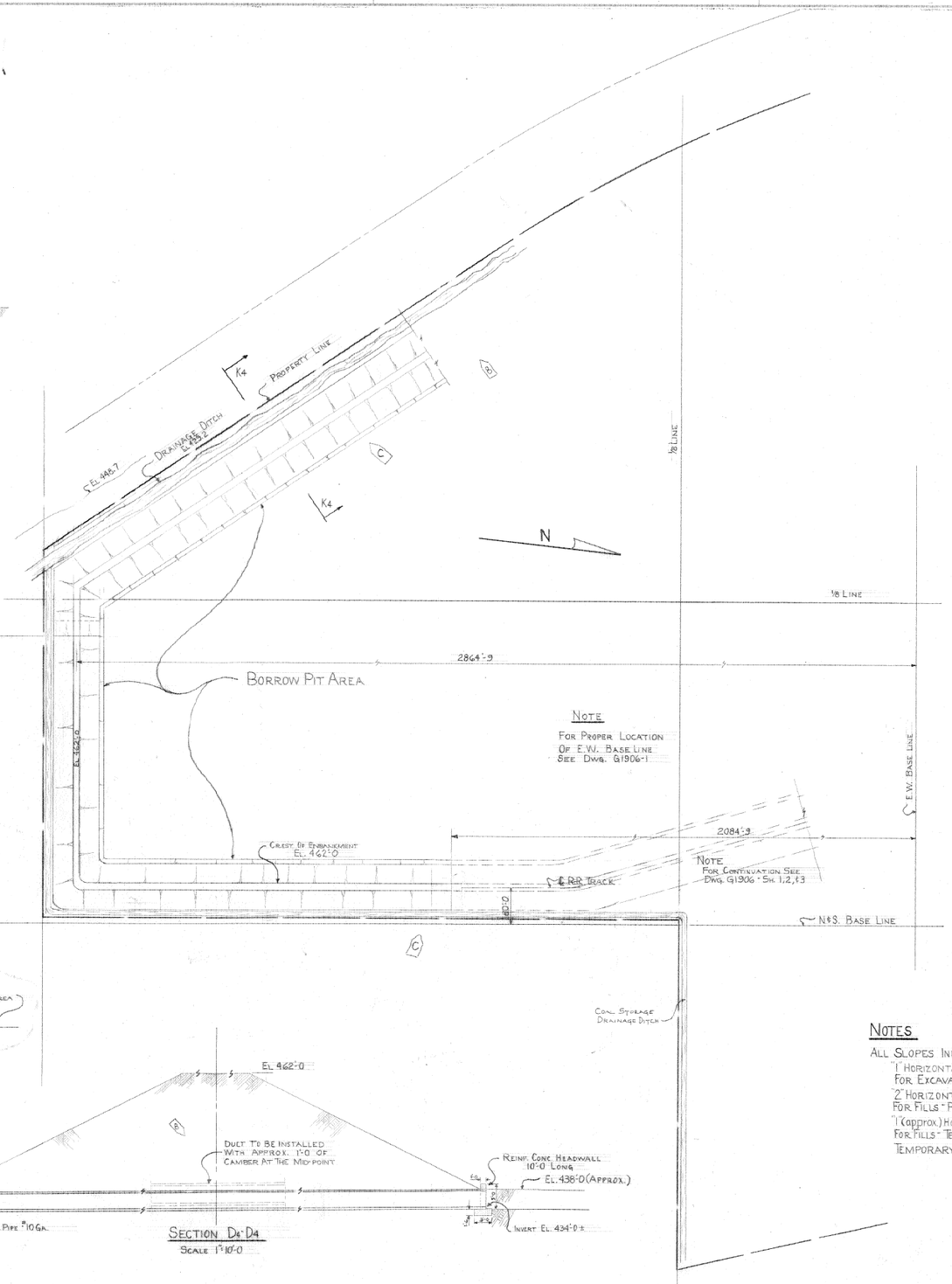
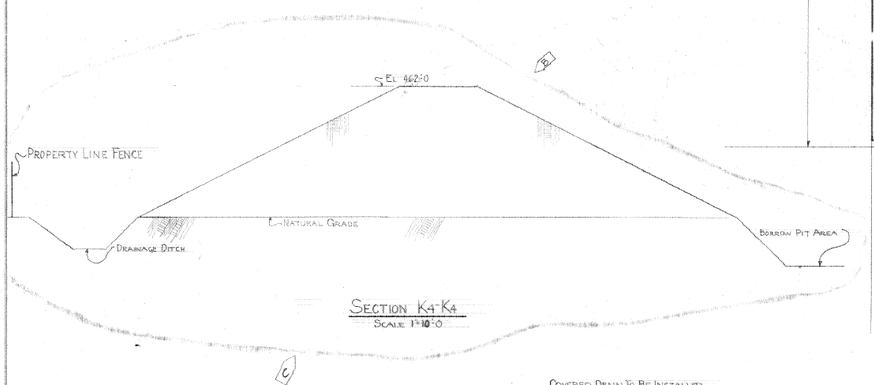


NOTE
FOR PROPER LOCATION OF E.W. BASE LINE SEE DWG. G1906-1

NOTE
FOR CONTINUATION SEE DWG. G1906 - SH. 1,2,&3



SECTION K4-K4
SCALE 1"=10'-0

SECTION D4-D4
SCALE 1"=10'-0

NOTES

ALL SLOPES INDICATED ARE TO THE RATIO OF:
"1" HORIZONTAL TO "1" VERTICAL FOR EXCAVATIONS.
"2" HORIZONTAL TO "1" VERTICAL FOR FILLS - PERMANENT SLOPES.
"1" (APPROX.) HORIZONTAL TO "1" VERTICAL FOR FILLS - TEMPORARY SLOPES.
TEMPORARY SLOPES NOTED.

UNIT 1

REV.	DATE	DESCRIPTION	BY	APPROVED
C	3-4-58	REVISED SECTION K1-K4 & G4-G4, REVISED ATH PIPE ON PLAN ADDED FOR STORAGE DRAINAGE DITCH	R.G. DUNN	H.S.F.
B.	10-31-57	REVISED SECTION K1-K4 - ADDED CAMBER NOTES - REVISED PLAN #K4-K4	R.G. DUNN	H.S.F.
A.	10-3-57	ADDED INVERT EL. @ SEC. G4-G4 - CHANGED PIPE MAT.	R.G. DUNN	H.S.F.

DESIGN AND DRAFTING (SEAL)
R.G. DUNN DATE 9-25-57
H.S.F. DATE 10-2-57
H.S. Fenwick, REG. P.E. DATE 10-3-57
APPROVED W.D. Schilling DATE 5-6-58

PREPARED UNDER RESPONSIBLE SUPERVISION OF
H. S. FENWICK
MICHIGAN PROFESSIONAL REGISTRATION NO. 3934
ILLINOIS STRUCTURAL REGISTRATION NO. 81-20-16
OF OFFICES OF
COMMONWEALTH ASSOCIATES INC.
2200 E. WASHINGTON AVE., JACKSON, MICH.

OWNER AND LOCATION
E.D. EDWARDS STATION
CENTRAL ILLINOIS LIGHT CO.
PEORIA, ILLINOIS

TITLE
PLANT SITE FILL
STAGE #1 CONTINUATION

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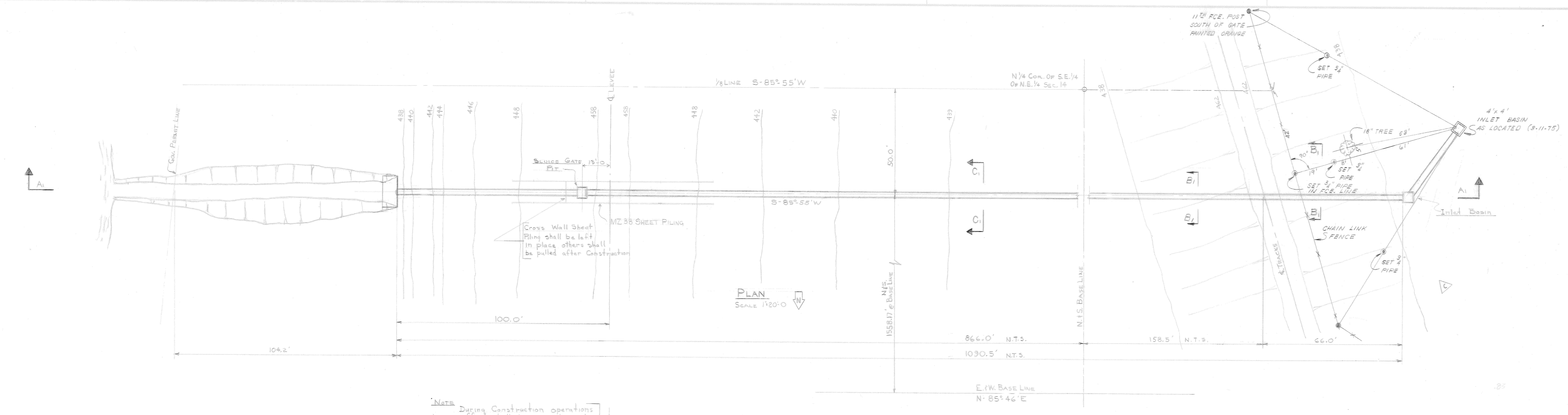
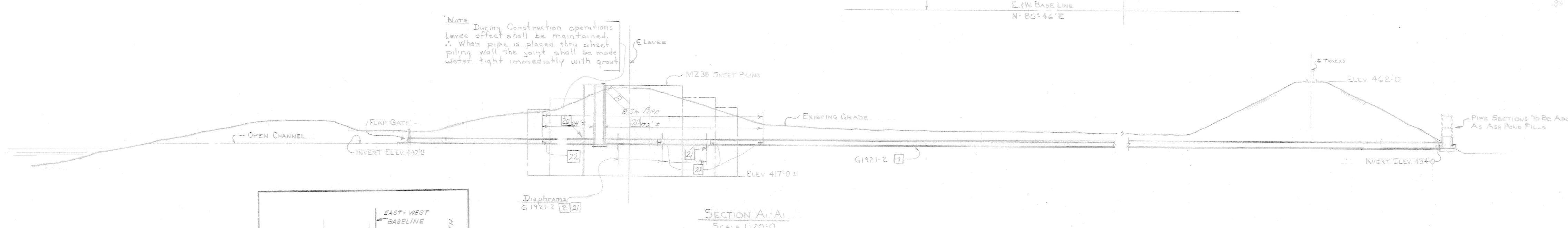
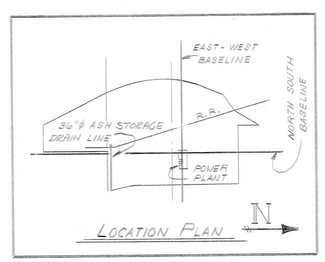
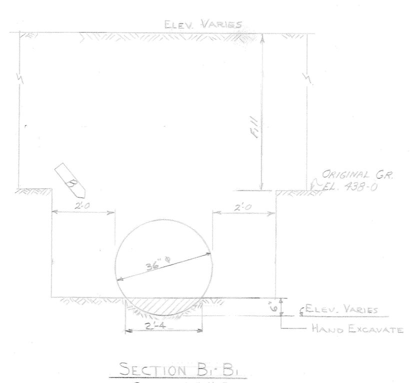
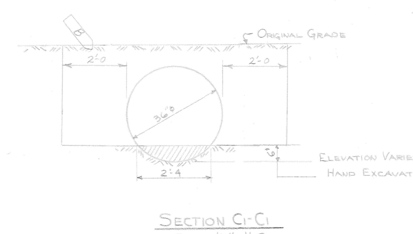
2-20-118-1			











PIPE MATERIALS & HANDLING

1. DRAIN PIPE SHALL BE 36"φ, 14GA. & 8GA., CORRUGATED PIPE CULVERT CONFORMING TO FEDERAL SPECIFICATIONS QQ-C-806 FOR "CULVERTS"; IRON OR STEEL, ZINC COATED, TYPE I, OF PURE IRON, COPPER BEARING PURE IRON, COPPER IRON, OR COPPER MOLYBDENUM IRON; AND THE PIPE SHALL BE COATED AS FOLLOWS:

   THE PIPE SHALL BE COATED ON THE INSIDE & OUTSIDE WITH ASBESTOS FIBERS & A BITUMINOUS MATERIAL SIMILAR AND EQUAL TO THAT USED ON "FREE FLOW" DRAINAGE PIPE MANUFACTURED BY REPUBLIC STEEL CO., YOUNGSTOWN, OHIO OR TO THAT USED ON ARMCO "SMOOTH FLO" ASBESTOS BONDED DRAINAGE PIPE MANUFACTURED BY AMERICAN ROLLING MILL CO. MIDDLETOWN, OHIO.

2. THE PIPE SHALL BE LAID, ON ORIGINAL EARTH HAND EXCAVATED THE LAST 6" OF DEPTH TO FIT THE PERIPHERY OF THE PIPE, TO THE ESTABLISHED GRADIENT AND ALIGNMENT, WITH HORIZONTAL SEAMS OF JOINING SECTIONS AT QUARTER POINTS. PIPE SHALL BE FULL-CIRCLED, FREE FROM DENTS AND OTHER DEFECTS, AND SHALL BE CLEANED AND LOWERED INTO THE TRENCH IN SUCH MANNER AS TO AVOID UNNECESSARY HANDLING AND INJURY TO THE PIPE. CONNECTIONS BETWEEN SECTIONS OF PIPE SHALL BE CAREFULLY ADJUSTED AND CONNECTING BANDS SHALL LAP EQUAL DISTANCES ON THE SECTIONS CONNECTED. IMMEDIATELY PRIOR TO CONNECTING, THE LAPPED PORTIONS OF PIPE AND THE CONNECTING BAND SHALL BE GIVEN A 1/16-INCH COATING OF APPROVED BITUMINOUS MATERIAL SIMILAR TO THAT USED FOR COATING THE PIPE. THE BAND SHALL BE DRAWN UP TIGHT TO INSURE A WATER-TIGHT JOINT UNDER AN INTERNAL PRESSURE HEAD OF 24.5 FT. (10.65#/□")

3. AFTER CONNECTIONS HAVE BEEN COMPLETED AND BACKFILL TAMPED INTO PLACE, ALL JOINTS SHALL BE CAULKED ON THE INSIDE WITH APPROVED BITUMINOUS MATERIAL SIMILAR TO THAT USED FOR COATING THE PIPE, SO MELTED AND APPLIED AS TO FILL THE GAP BETWEEN SECTIONS OF PIPE COMPLETELY AND SEAL THE JOINT EFFECTIVELY. AT ANY PLACE WHERE THE BITUMINOUS COATING HAS BECOME BROKEN SUFFICIENTLY TO EXPOSE THE METAL, PRIOR TO ACCEPTANCE, SUCH DEFECT SHALL BE REMEDIED BY THE APPLICATION OF A NEW COATING.

4. EACH PIPE CULVERT SHALL BE PROVIDED WITH THREE METAL DIAPHRAGMS, LOCATED SYMMETRICALLY ABOUT CENTERLINE OF PIPE AND SPACED 20 FEET ON CENTERS, TIGHTLY AND SECURELY JOINED TO THE PIPE IN SUCH MANNER AS TO PREVENT ANY SEEPAGE BETWEEN PIPE AND DIAPHRAGM. DIAPHRAGMS SHALL BE 8 FEET BY 8 FEET IN SIZE AND MADE FROM 12-GAUGE SHEETS CONFORMING TO FEDERAL SPECIFICATION QQ-I-716 FOR "IRON AND STEEL; SHEET, BLACK AND ZINC-COATED (GALVANIZED)," TYPE III WITH CLASS C ZINC COATING; AND BASE METAL SHALL BE PURE IRON, COPPER BEARING IRON, COPPER IRON, OR COPPER MOLYBDENUM IRON, AND MADE BY THE OPEN-HEARTH PROCESS. ALL DIAPHRAGM FITTINGS SHALL BE ZINC-COATED. DIAPHRAGMS SHALL BE COATED WITH AN APPROVED BITUMINOUS MATERIAL, NOT LESS THAN 0.03 INCH IN THICKNESS, SIMILAR TO THAT USED FOR COATING THE CULVERT PIPE, AND AFTER PLACING, ALL SEAMS AND JOINTS SHALL BE THOROUGHLY CAULKED WITH SUCH MATERIAL.

5. A 36-INCH CIRCULAR CAST-IRON AUTOMATIC DRAINAGE GATE SIMILAR AND EQUAL TO CALCO MODEL Nº 50C OF THE ARMCO CULVERT MANUFACTURERS' ASSOCIATION, OR TYTON SLUICE GATE OF THE TONCAN CULVERT MANUFACTURERS' ASSOCIATION, SHALL BE PROPERLY CONNECTED TO THE OUTSIDE-DISTRICT END OF EACH CULVERT PIPE. THE SECTION OF PIPE TO WHICH THE GATE IS CONNECTED SHALL BE NOT LESS THAN 20 FEET IN LENGTH. AFTER PLACING, ALL SEAMS AND JOINTS SHALL BE THOROUGHLY CAULKED WITH APPROVED BITUMINOUS MATERIAL SIMILAR TO THAT USED FOR COATING THE PIPE.

6. A 36"φ CAST IRON SLIDE GATE SIMILAR & EQUAL TO ARMCO DRAINAGE & METAL CO. MODEL 30-05C

EXCAVATION & BACKFILL

1. EXCAVATION OF THE LAST 6" OF MATERIAL SHALL BE HAND EXCAVATED TO FIT THE PERIPHERY OF THE PIPE.

2. BACKFILL THRU LEVEE SHALL BE IMPERVIOUS FILL MATERIAL COMPACTED TO A MINIMUM OF 90% STANDARD PROCTOR AT 4% ABOVE & 2% BELOW OPTIMUM MOISTURE CONTROL.

UNIT 1

REV.	DATE	DESCRIPTION	BY	APPROVED
C	3-26-75	ADDED EXTENSION TO EXISTING ASH POND DRAINAGE SYSTEM PER R. SCHULER SKETCH.	D. ALEXANDER	[signature]
B	6/12/59	ADD 8GA. PIPE, ADD 1 SEEPAGE COLLAR, INCREASE TRENCH WIDTH, REVISE BACKFILL SPECIFICATIONS	L.G. MILLER	H.S.F.
A	6/17/58	ISSUED FOR CONSTRUCTION	L.G. MILLER	L.G.M.

DESIGN AND DRAFTING: J. WILCOX, R.G. DUNN — DATE 5-7-58
CHKD: L.G. MILLER — DATE 6-7-58
H.S. Fenwick, REG. P.E. — DATE 6-10-58
APPROVED: H.D. Schuiling — DATE 6-17-58

(SEAL)

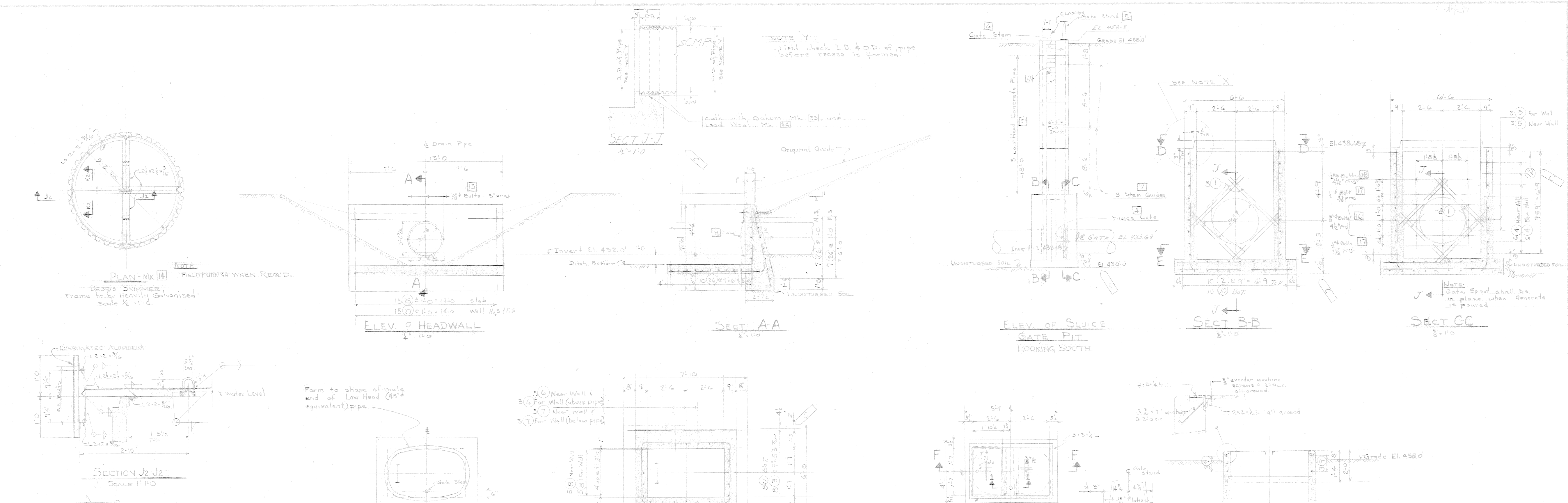
PREPARED UNDER RESPONSIBLE SUPERVISION OF H.S. FENWICK
MICHIGAN PROFESSIONAL REGISTRATION NO. 3934
ILLINOIS STRUCTURAL REGISTRATION NO. 81-2416
AT OFFICES OF COMMONWEALTH ASSOCIATES INC.
209 E. WASHINGTON AVE. JACKSON, MICH.

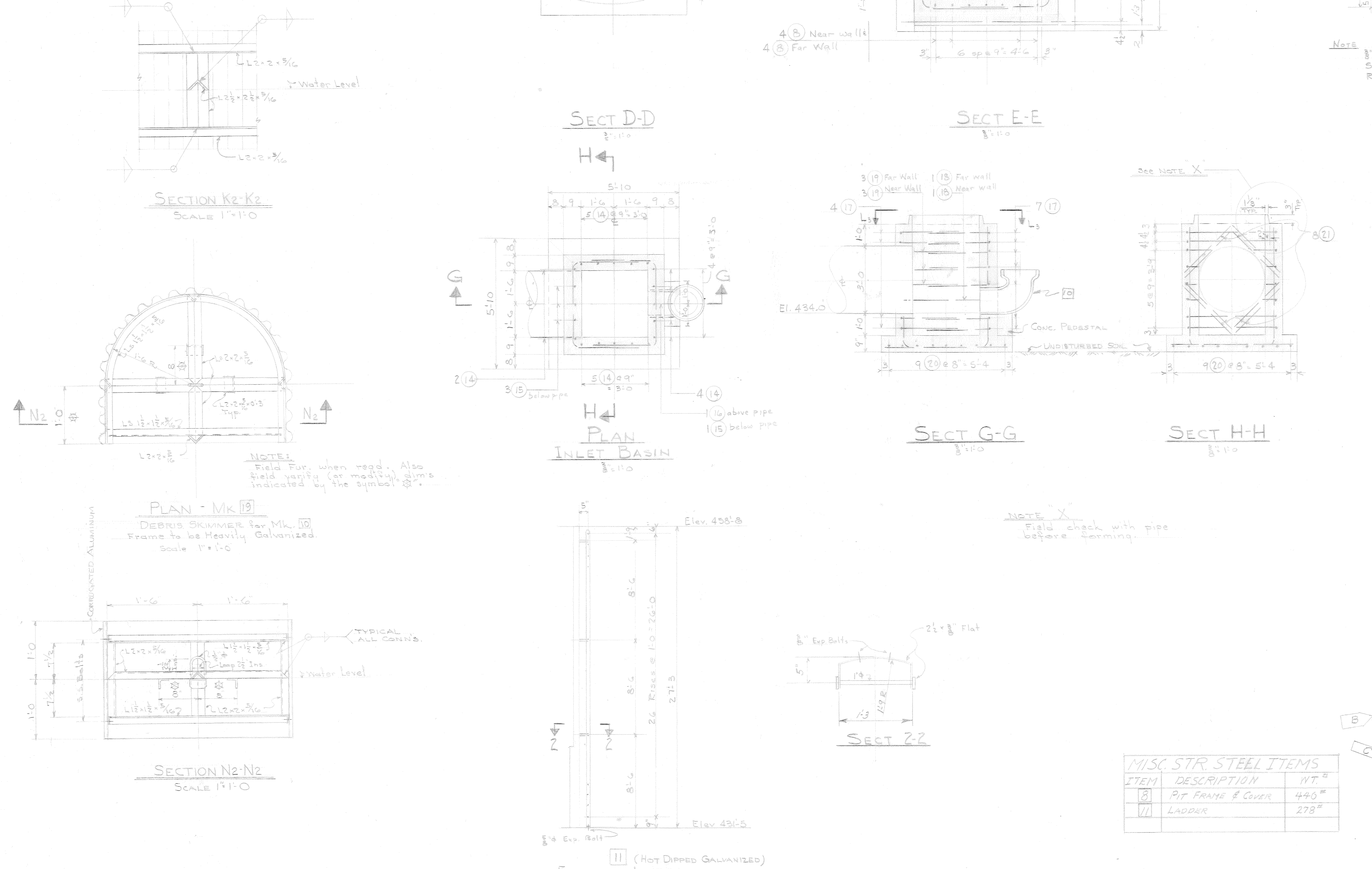
OWNER AND LOCATION
E.D. EDWARDS STATION
CENTRAL ILLINOIS LIGHT CO.
PEORIA, ILLINOIS

TITLE: CONSTRUCTION THRU LEVEE
ASH POND
DRAINAGE DUCT

SCALE: As Noted
2-20-118-1
DRAWING NO. C175-G1921
REV. C
SHEET 1

PRINTS SENT OUT: A 6-23-58 — C 8-13-76 Info — C 9-15-76 Info — C 11-5-76 Const — C 1-7-77 Const





Bar Summary			
Size	Str.	Bent	Weight
7	408	882	1290
5	576	94	670
4	88	178	266
Total	1072	1154	2226

Bill of Miscellaneous Mat'l

Location	Item No.	Quan.	Description	Purch Local	Req'n No.
G 1921-1	G1921-2 [1]	1088'	36"Φ Corr. Metal Pipe Asphalt & Asbestos Lined		30065
"	[2]	2	8'-0 sq. 12ga. Galv. Diaphrams		30065
G 1921-2	[3]	1	36"Φ Flap Gate Armco Model 50c or Equal (W/C.I. Seating Face & Flat Back)		30104
"	[4]	1	Sluice Gate - 36"Φ Armco Model 30-05c or Equal with C.I. Seating Surfaces & Spigot Back		
"	[5]	1	Sluice Gate Stand Armco Model #C.P.E.-2 or Equal		
"	[6]	1	Sluice Gate Stem 1½"Φ Hot Rolled Steel (2 pc's with splice @ mid length		
"	[7]	3	Sluice Gate Stem Guides Armco Type #1 or Equal for 1½"Φ Stem		30104
"	[8]	1	Sluice Gate Pit Frame & Cover		30088
"	[9]	3	6'-0 Sections of 48"Φ Equivalent Lo-head Concrete pipe (ASTM C76-2 Class II)	C	30087
"	[10]	1	12"Φ Conc. Bell Spig Elbow		30087
"	[11]	1	Ladder As Detailed		30088
G1921-3	[12]	Lot	Sheet Piling		30080
"	[13]	Lot	Wales & Braces See List on G1921-3		30090
G1921-2	[14]	1	Debris Skimmer		Field Furn.
"	[15]	4	7/8"x12" Galv. Stl. Anchor Bolts W/2 Nuts		30104
"	[16]	6	5/8x12½" Anchor Bolts		30104
"	[17]	2	½"x9" Anchor Bolts		30104
"	[18]	2	5/8"x12" Anchor Bolts		30104
"	[19]	1	Debris Skimmer/12" Pipe		Field Furn.
G1921-1	G1921-2 [20]	96'	36" Dia. Corr. Metal Pipe 8Ga, Asphalt & Asbestos Lined.		30386
"	G1921-2 [21]	1	8' Sq. 12Ga. Galv. Diaphram.		30386
"	" [22]	4	Asbestos Zinc Clad, Asphalt Coated, 36" Dia Jt Conn. Bands - 24" Lg. W/4 Silo Rods & Lugs W/Asphalt Sealing Compound Fed. Spec. (QQ-C-306).		30386
G1921-2	[23]	Lot	Oakum - Tarred & Oiled		Field Furn.
"	[24]	Lot	Lead Wool		" "

Req'n 30015 M/C 15

Bar List (Deformed Bars)

Location	Mark	No. Req'd	Size	Shape	Lg'th	Wt.	Bend. Diag.
Gate Pit	1	16	7	Str.	4'-9	155	
" "	2	10	"	"	5'-6	112	
" "	3	8	"	"	6'-4	104	
" "	4	12	"	Bnt	11'-10	314	
" "	5	6	"	"	6'-4	78	
" "	6	6	"	Str.	3'-0	37	
" "	7	6	"	Bnt.	3'-3	40	
" "	8	18	"	"	9'-9	285	
" "	9	6	"	"	13'-6	165	
" "	10	10	7	STR	5'-6	112	Field Furnish
" "	11	8	7	STR	7'-6	120	Field Furnish
	12	2	7	BNT	11'-10	55	Field Furnish
Inlet Basin	14	16	4	Bnt	7'-3	78	
" "	15	4	"	"	3'-3	9	
" "	16	1	"	Str.	2'-9	2	
" "	17	11	"	Bnt	9'-8	71	
" "	18	2	"	"	5'-6	7	
" "	19	6	"	"	3'-4	13	
" "	20	18	"	Str.	5'-10	70	
	21	8	"	"	3'-0	16	
Headwall	25	15	5	Bnt	6'-0	94	
"	26	24	5	Str.	14'-4	356	
"	27	30	5	Str.	7'-0	220	

Note: Bars shall be tagged with Dwg. No., Sh. No. & Mk. No. — Example: G-1921-1 ①

Misc. Str. Steel Items

Item	Description	Wt. #
[8]	Pit Frame & Cover	440#
[11]	Ladder	278#

All concrete shall attain a compression strength of 3000#/□" after 28 days

UNIT 1

Rev.	Date	Description	By	Approved
D	3/15/60	Debris Skimmers Mk [14] & Mk [19] released.	H.S.F.	H.S.F.
C	6/15/59	Add [20][21][22]; Add ⑩ ⑪ & ⑫ And Increase Thickness of Pit Slab to 12", Add Sect JJ	L.G.M.	H.S.F.
B	10/16/58	Items [14] Thru [19] Added - Section L3-L3 Added	R.G.D.	H.S.F.
A	6/10/58	Items added to B/M	J.I. Becking	L.G.M.

Design and Drafting: John W. Wilcok, Date 5-22-58
Chk'd: L.G. Miller, Date 6-7-58
H.S. Fenwick, Reg. P.E., Date 6-10-58
Approved: H.B. Schimling, Date 6-17-58

(SEAL)

Prepared under responsible supervision of H. S. FENWICK
Michigan Professional Registration No. 3954
Illinois Structural Registration No. 81-2416
At offices of COMMONWEALTH ASSOCIATES INC.
209 E. Washington Ave., Jackson, Mich.

Owner and Location: E.D. EDWARDS STATION, CENTRAL ILLINOIS LIGHT CO., PEORIA, ILLINOIS

Title: Construction Thru Levee — Ash Pond — Drainage Duct Details

Scale: 2-20-118-1
Drawing No.: C175-G1921 Rev. D Sheet 2

Prints sent out: A 6-23-58; C 8-6-59; D 2-16-60

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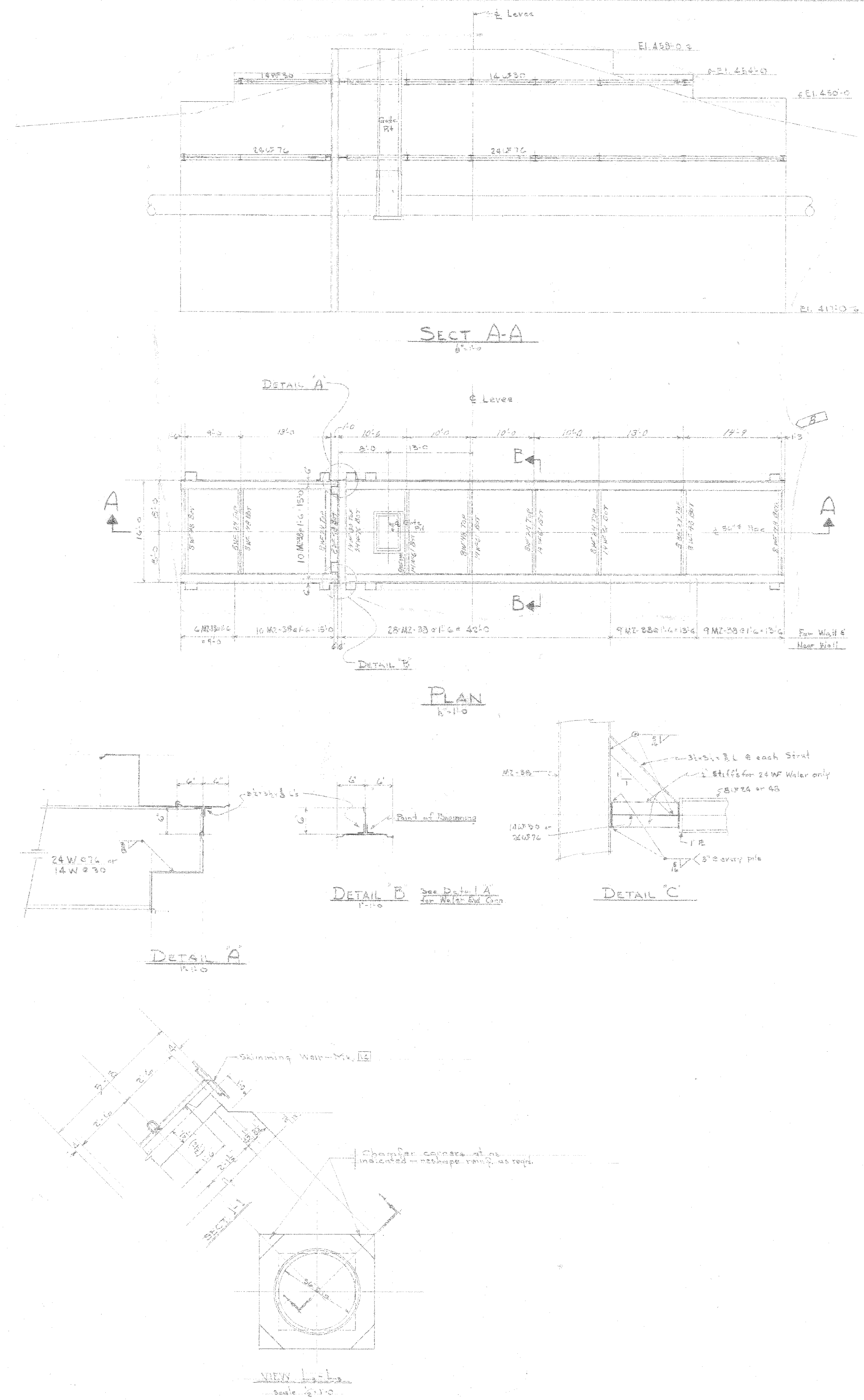

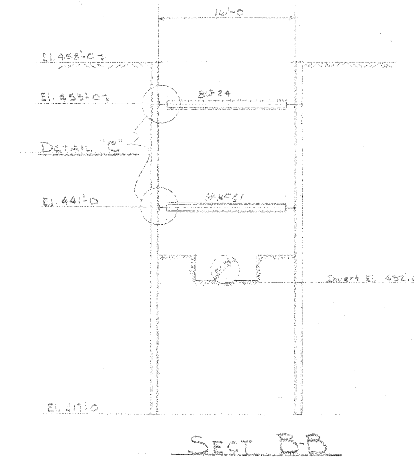

SEE ITEM [13] B/M G1921-2

	MATERIALS LIST BRACES AND WALES
1	5 PCS. 8WF24 BRACES 13'-9" LONG
2	7 PCS. 8WF48 " 12'-1" "
3	1 PC. 24 WF 76 WALE 16'-0" "
4	4 PCS. 24 WF 76 " 34'-0" "
5	2 PCS. 24 WF 76 " 24'-9" "
6	1 PC. 14 WF 30 " 16'-0" "
7	2 PCS. 14 WF 30 " 15'-0" "
8	2 PCS. 14 WF 30 " 22'-0" "
9	2 PCS 14 WF 30 " 34'-0" "
10	24 PCS L 3½ x 3½ x ⅜ BRACES 2'-0" "
	APPROX. WT. 13 TONS
11	4 PCS. 14 WF 61 WALE 12'-1 LONG (SALVAGE FROM SC. HSE. COFFERDAM) SEE DWG C1923-1 ITEM [18]

UNIT 1

REV.	DATE	DESCRIPTION	BY	APPROVED
B	4/18/59	REVISE STRUT SPACING, ADD 14 WF 61 STRUTS	L.G.M.	H.S.F.
A	6/17/58	ISSUED FOR CONSTRUCTION	L.G. MILLER	

DESIGN AND DRAFTING John W. Wilcox DATE 5-28-58
CHKD L. G. MILLER DATE 6-7-58
H.S. Fenwick REG. P.E. DATE 6-10-58
APPROVED H.B. Scheiling DATE 6-17-58

PREPARED UNDER RESPONSIBLE SUPERVISION OF H. S. FENWICK
MICHIGAN PROFESSIONAL REGISTRATION NO. 3854
ILLINOIS STRUCTURAL REGISTRATION NO. 81-5416
AT OFFICES OF COMMONWEALTH ASSOCIATES INC.
209 E. WASHINGTON AVE. JACKSON, MICH.

OWNER AND LOCATION
E.D. EDWARDS STATION
CENTRAL ILLINOIS LIGHT CO
PEORIA, ILLINOIS

TITLE
CONSTRUCTION THRU LEVEE
ASH POND DRAINAGE DUCT
COFFERDAM & OTHER DETAILS

SCALE As Noted
C-175-G1921 B 3

PRINT DIST.

REVISIONS		
REV.	W.O.	
0		11/05/03 PRELIMINARY FOR APPROVAL
1		11/20/03 ISSUED FOR CONSTRUCTION

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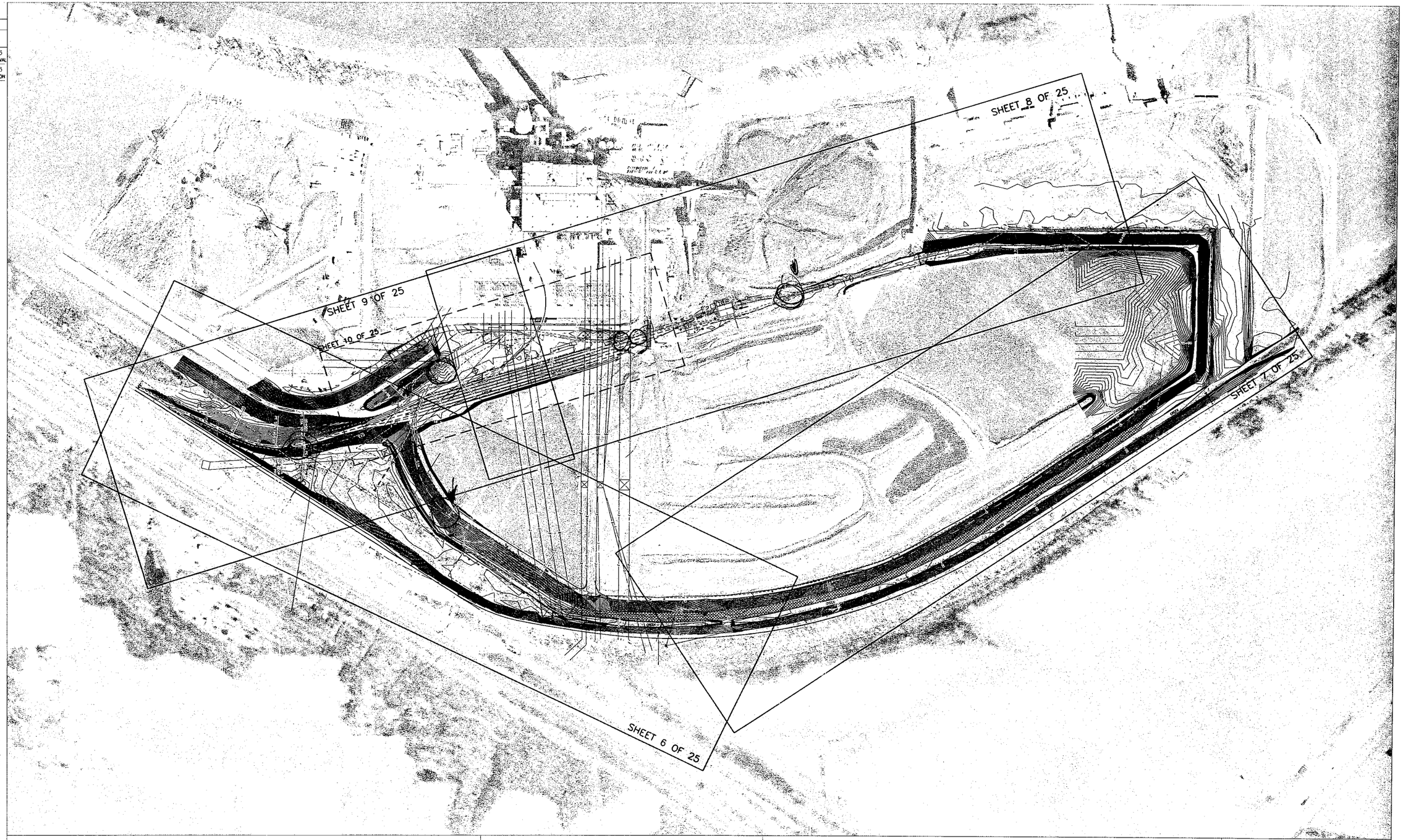

LEGEND:

- EXISTING GROUND CONTOURS
- CL EXISTING TRACK
- EXISTING OVERHEAD POWER LINE
- CL EXISTING TRACK TO BE REMOVED
- EXISITING POINT OF SWITCH (P.SW.)
- CL PROPOSED TRACK
- PROPOSED GRADING LIMITS
- PROPOSED POINT OF SWITCH (P.SW.)

0 100 200 400
SCALE 1"=200'

ISSUED FOR CONSTRUCTION

NOTICE OF LIMITED RESPONSIBILITY

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DESIGN NINE, INC.
ENGINEERING SERVICES FOR RAILROADS AND INDUSTRY
ST. LOUIS, MO.

PREPARED FOR AmerenCILCO

DRAWN	SPH	PROPOSED 150 CAR LOOP TRACK FOR EDWARDS POWER PLANT BARTONVILLE, ILLINOIS		
CHKD	GTH			
SUPV.				
APPD		LOCATION		CLASS
		GENERAL PLAN		
AmerenCILCO	ST. LOUIS, MISSOURI	DRAWING NO	SHEET NO	REV.
		03057-PL	5 OF 25	1

PRINT DIST.

REVISIONS		
REV.	W.O.	
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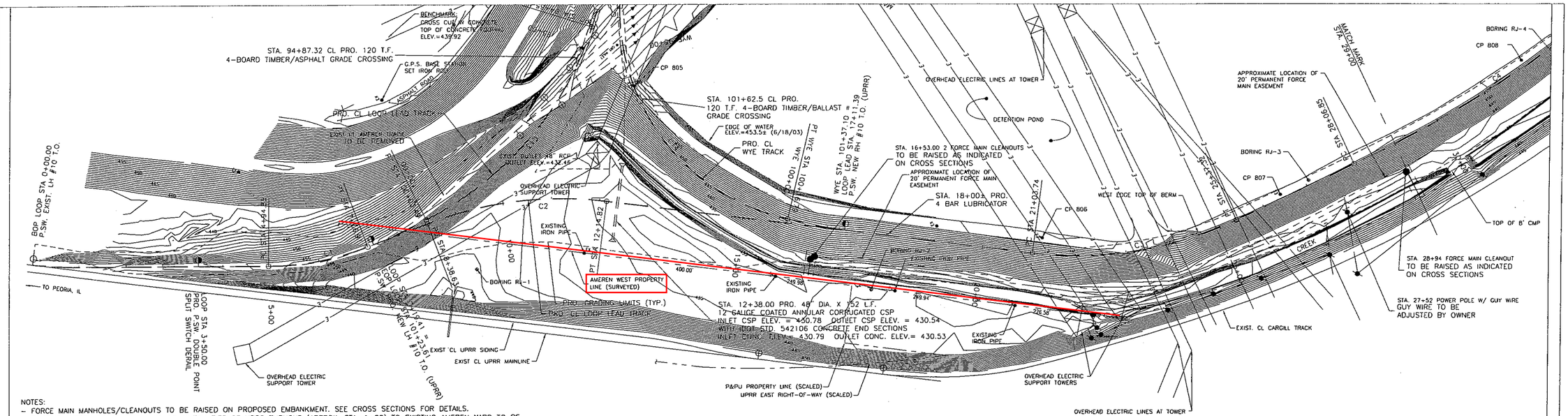
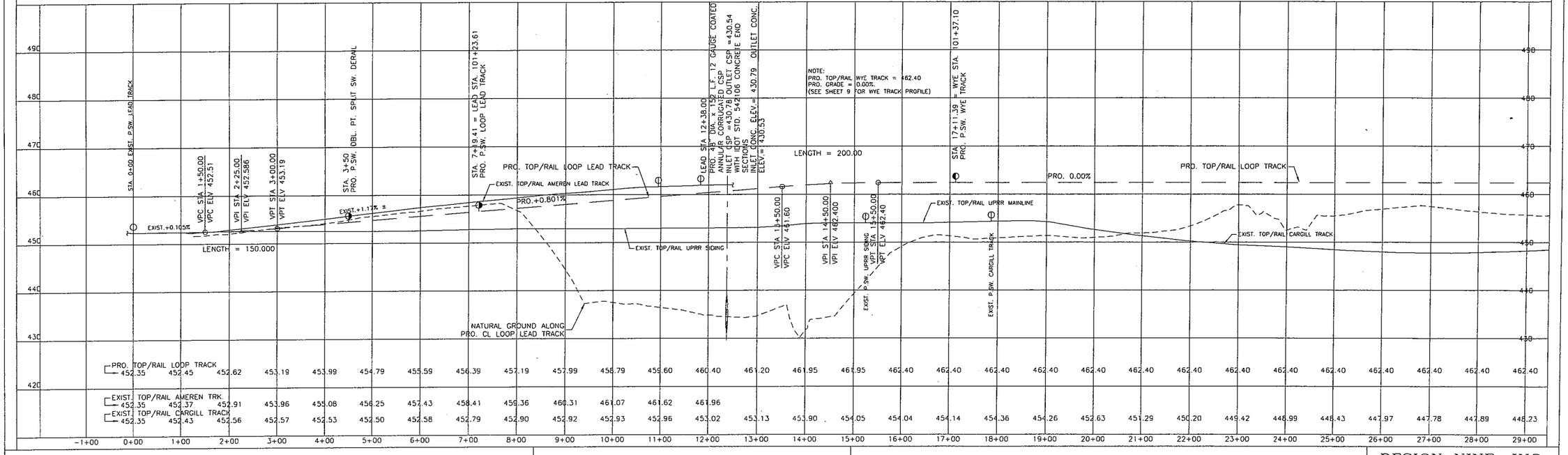
1		11/20/03 ISSUED FOR CONSTRUCTION
2		12/03/03 ISSUED FOR CONSTRUCTION



NOTES:
- FORCE MAIN MANHOLES/CLEANOUTS TO BE RAISED ON PROPOSED EMBANKMENT. SEE CROSS SECTIONS FOR DETAILS.
- EXISTING AMEREN TRACK FROM END OF SWITCH TIES OF UPRR TURNOUT (APPROX. STA. 1+20) TO EXISTING AMEREN YARD TO BE REMOVED. GRADING PERFORMED & SUBBALLAST PLACED (SEE CROSS SECTIONS) DURING DUMP HOUSE WORK OUTAGE.
- EXISTING YARD LEAD TURNOUTS TO BE REMOVED, REHABILITATED AS REQUIRED AND REINSTALLED AT PROPOSED LOCATIONS. EXTRA TURNOUTS TO BE DISMANTLED WITH SALVAGEABLE MATERIALS STOCKPILED ON SITE AS DESIGNATED BY OWNER. SCRAP MATERIALS TO BE REMOVED AND PROPERLY DISPOSED OF OFF SITE.
- EXISTING LEAD TRACK AND YARD TRACK TO BE REMOVED TO THE LIMITS REQUIRED BY THE PROPOSED WORK. SALVAGEABLE MATERIALS TO BE STOCKPILED ON SITE AS DESIGNATED BY OWNER. SCRAP MATERIALS TO BE REMOVED AND PROPERLY DISPOSED OF OFF SITE.
- EMBANKMENT CONSTRUCTION DETAILED ON CROSS SECTIONS PURSUANT TO REITZ & JENS, INC.
- DESIGN TOP/RAIL TO DESIGN TOP/SUBBALLAST IS 2.21' WITH 136# RAIL.

LEAD C1	LEAD C2	LEAD C3	LEAD C4	LEAD C13	WYE C14
D = 10°00'00"	D = 7°30'00"	D = 7°30'00"	D = 2°15'00"	D = 8°30'00"	D = 12°45'00"
R = 573.69'	R = 764.49'	R = 764.49'	R = 2546.64'	R = 674.69'	R = 450.31'
Δ = 21°10'44"	Δ = 28°11'38"	Δ = 32°29'45"	Δ = 33°29'31"	Δ = 45°41'42"	Δ = 102°31'42"
T = 107.25'	T = 191.98'	T = 222.80'	T = 766.25'	T = 284.27'	T = 561.36'
Lc = 211.79'	Lc = 375.92'	L = 433.28'	Lc = 1488.53'	Lc = 537.59'	Lc = 804.14'
Lo = 212.06'	Lo = 376.19'	Lo = 433.56'	Lo = 1488.62'	Lo = 538.08'	Lo = 805.81'
E = 9.94'	E = 23.74'	E = 31.80'	E = 112.78'	E = 57.44'	E = 269.34'



LEGEND:
- EXISTING GROUND CONTOURS
- CL EXISTING TRACK
- EXISTING OVERHEAD POWER LINE
- EXISTING PROPERTY LINE
- CL EXISTING TRACK TO BE REMOVED
- EXISITING POINT OF SWITCH (P.SW.)
- CL PROPOSED TRACK
- PROPOSED GRADING LIMITS
- PROPOSED POINT OF SWITCH (P.SW.)

0 50 100 200
SCALE: 1"=100'

ISSUED FOR CONSTRUCTION

NOTICE OF LIMITED RESPONSIBILITY
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DESIGN NINE, INC.
ENGINEERING SERVICES FOR RAILROADS AND INDUSTRY
ST. LOUIS, MO.

PREPARED FOR AmerenCILCO

DRAWN	SPH
CHKD.	GTH
SUPV.	
APPD.	

PROPOSED 150 CAR LOOP TRACK FOR EDWARDS POWER PLANT BARTONVILLE, ILLINOIS

LOCATION	PLAN/PROFILE - LOOP/WYE TRACK LOOP STA. 0+00 TO STA. 29+00	CLASS
ST. LOUIS, MISSOURI AmerenCILCO	DRAWING NO. 03057-1	SHEET NO. 6 OF 25	REV. 2

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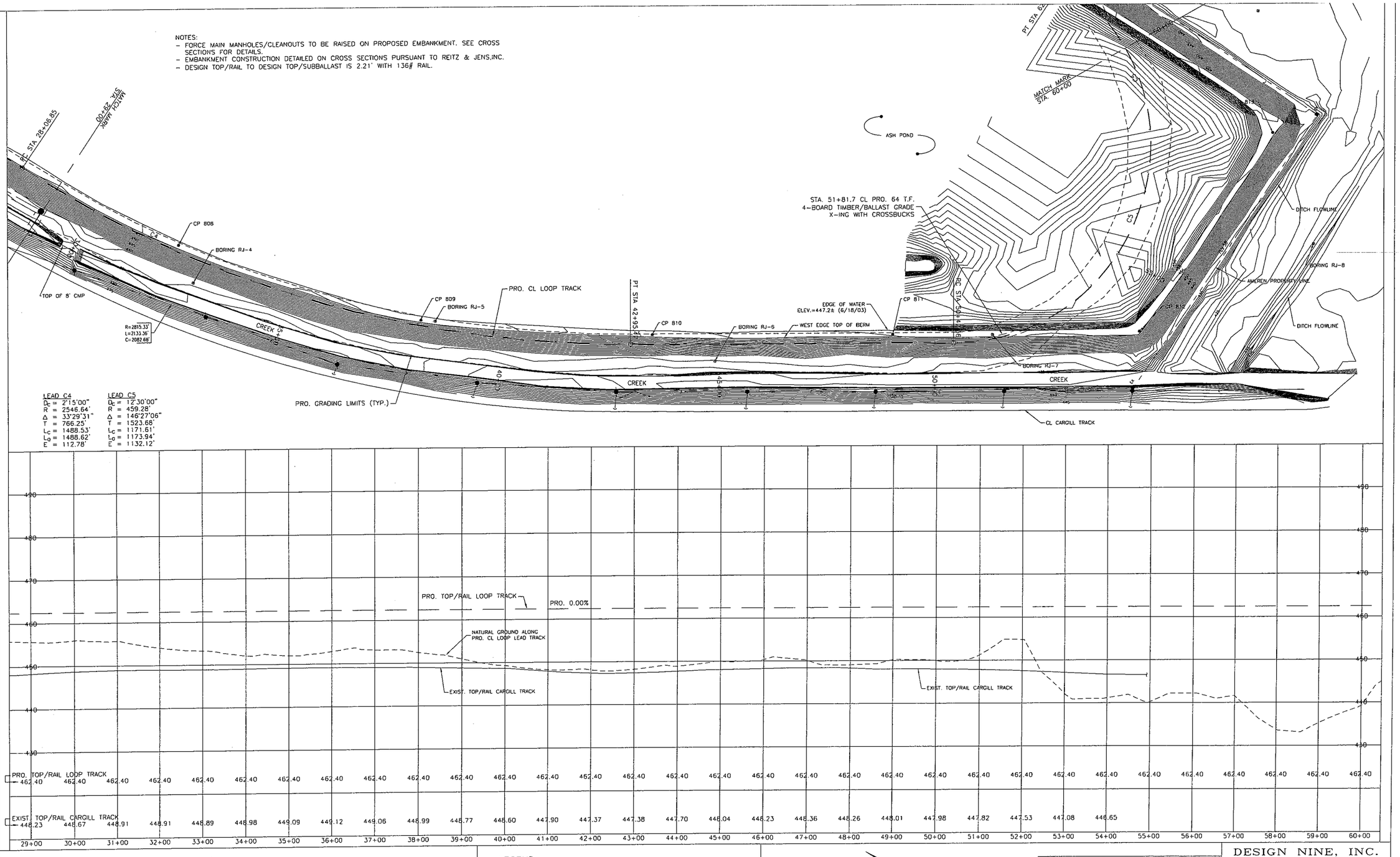
REVISIONS	
REV.	W.O.
0	11/05/03
PRELIMINARY FOR APPROVAL	
1	11/20/03
ISSUED FOR CONSTRUCTION	

NOTES:
- FORCE MAIN MANHOLES/CLEANOUTS TO BE RAISED ON PROPOSED EMBANKMENT. SEE CROSS SECTIONS FOR DETAILS.
- EMBANKMENT CONSTRUCTION DETAILED ON CROSS SECTIONS PURSUANT TO REITZ & JENS,INC.
- DESIGN TOP/RAIL TO DESIGN TOP/SUBBALLAST IS 2.21' WITH 136# RAIL.



LEAD C4
D_C = 2°15'00"
R = 2546.64'
Δ = 33°29'31"
T = 766.25'
L_C = 1488.53'
L_d = 1488.62'
E = 112.78'

LEAD C5
D_C = 12°30'00"
R = 459.28'
Δ = 146°27'06"
T = 1523.68'
L_C = 1171.61'
L_d = 1173.94'
E = 1132.12'

LEGEND:
- EXISTING GROUND CONTOURS
- CL EXISTING TRACK
- EXISTING OVERHEAD POWER LINE
- EXISTING PROPERTY LINE
- CL EXISTING TRACK TO BE REMOVED
- EXISISTING POINT OF SWITCH (P.SW.)
- CL PROPOSED TRACK
- PROPOSED GRADING LIMITS
- PROPOSED POINT OF SWITCH (P.SW.)

0 50 100 200
SCALE: 1"=100'

ISSUED FOR CONSTRUCTION

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DESIGN NINE, INC.
ENGINEERING SERVICES FOR RAILROADS AND INDUSTRY
ST. LOUIS, MO.

PREPARED FOR AmerenCILCO

DRAWN	SPH	PROPOSED 150 CAR LOOP TRACK FOR EDWARDS POWER PLANT BARTONVILLE, ILLINOIS	
CHKD.	GTH		
SUPV.			
APPD.		LOCATION	PLAN/PROFILE - LOOP TRACK STA. 29+00 TO STA. 60+00
		ST. LOUIS, MISSOURI	CLASS
AmerenCILCO		DRAWING NO. 03057-1	SHEET NO. 7 OF 25
			REV. 1

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PRINT DIST.		
REVISIONS		
REV.	W.O.	
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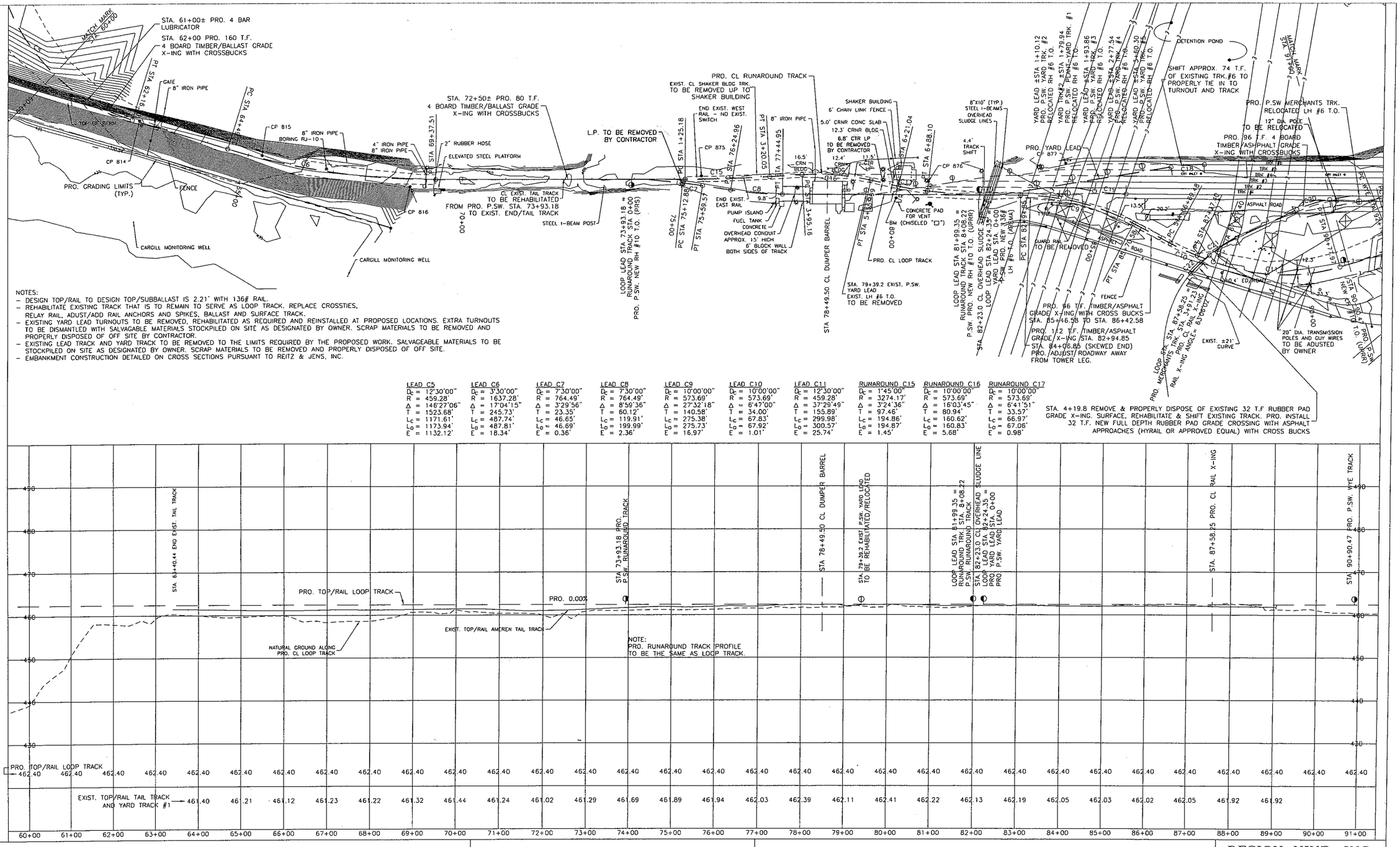
1 ISSUED FOR CONSTRUCTION	11/20/03	
2 ISSUED FOR CONSTRUCTION	12/03/03	



NOTES:
- DESIGN TOP/RAIL TO DESIGN TOP/SUBBALLAST IS 2.21' WITH 136# RAIL.
- REHABILITATE EXISTING TRACK THAT IS TO REMAIN TO SERVE AS LOOP TRACK. REPLACE CROSSTIES, RELAY RAIL, ADJUST/ADD RAIL ANCHORS AND SPIKES, BALLAST AND SURFACE TRACK.
- EXISTING YARD LEAD TURNOUTS TO BE REMOVED, REHABILITATED AS REQUIRED AND REINSTALLED AT PROPOSED LOCATIONS. EXTRA TURNOUTS TO BE DISMANTLED WITH SALVAGABLE MATERIALS STOCKPILED ON SITE AS DESIGNATED BY OWNER. SCRAP MATERIALS TO BE REMOVED AND PROPERLY DISPOSED OF OFF SITE BY CONTRACTOR.
- EXISTING LEAD TRACK AND YARD TRACK TO BE REMOVED TO THE LIMITS REQUIRED BY THE PROPOSED WORK. SALVAGEABLE MATERIALS TO BE STOCKPILED ON SITE AS DESIGNATED BY OWNER. SCRAP MATERIALS TO BE REMOVED AND PROPERLY DISPOSED OF OFF SITE.
- EMBANKMENT CONSTRUCTION DETAILED ON CROSS SECTIONS PURSUANT TO REITZ & JENS, INC.

LEAD C5	LEAD C6	LEAD C7	LEAD C8	LEAD C9	LEAD C10	LEAD C11	RUNAROUND C15	RUNAROUND C16	RUNAROUND C17
D_C = 12°30'00"	D_C = 3°30'00"	D_C = 7°30'00"	D_C = 7°30'00"	D_C = 10°00'00"	D_C = 10°00'00"	D_C = 12°30'00"	D_C = 14°00'00"	D_C = 10°00'00"	D_C = 10°00'00"
R = 459.28'	R = 1637.28'	R = 764.49'	R = 764.49'	R = 573.69'	R = 573.69'	R = 459.28'	R = 3274.17'	R = 573.69'	R = 573.69'
Δ = 146°27'06"	Δ = 17°04'15"	Δ = 3°29'56"	Δ = 8°59'36"	Δ = 27°32'18"	Δ = 6°47'00"	Δ = 37°29'49"	Δ = 3°24'36"	Δ = 16°03'45"	Δ = 6°41'51"
T = 1523.68'	T = 245.73'	T = 23.35'	T = 60.12'	T = 140.58'	T = 34.00'	T = 155.89'	T = 97.46'	T = 80.94'	T = 33.57'
L_C = 1171.61'	L_C = 487.74'	L_C = 46.65'	L_C = 119.91'	L_C = 275.38'	L_C = 67.83'	L_C = 299.98'	L_C = 194.86'	L_C = 160.62'	L_C = 66.97'
L_O = 1173.94'	L_O = 487.81'	L_O = 46.69'	L_O = 199.99'	L_O = 275.73'	L_O = 67.92'	L_O = 300.57'	L_O = 194.87'	L_O = 160.83'	L_O = 67.06'
E' = 1132.12'	E' = 18.34'	E' = 0.36'	E' = 2.36'	E' = 16.97'	E' = 1.01'	E' = 25.74'	E' = 1.45'	E' = 5.68'	E' = 0.98'

LEGEND:
- EXISTING GROUND CONTOURS
- CL EXISTING TRACK
- EXISTING OVERHEAD POWER LINE
- EXISTING PROPERTY LINE
- CL EXISTING TRACK TO BE REMOVED
- EXISITING POINT OF SWITCH (P.S.W.)
- CL PROPOSED TRACK
- PROPOSED GRADING LIMITS
- PROPOSED POINT OF SWITCH (P.S.W.)

0 50 100 200
SCALE: 1"=100'

ISSUED FOR CONSTRUCTION

NOTICE OF LIMITED RESPONSIBILITY
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DESIGN NINE, INC.
ENGINEERING SERVICES FOR RAILROADS AND INDUSTRY
ST. LOUIS, MO.

PREPARED FOR AmerenCILCO

DRAWN	SPH
CHKD.	GTH
SUPV.	-
APPD.	-

PROPOSED 150 CAR LOOP TRACK
FOR EDWARDS POWER PLANT
BARTONVILLE, ILLINOIS

LOCATION	PLAN/PROFILE - LOOP TRACK STA. 60+00 TO STA. 91+00	CLASS
ST. LOUIS, MISSOURI	DRAWING NO. 03057-1	SHEET NO. 8 OF 25
AmerenCILCO		REV. 2

T:\2003\AmerenEdwards\Design-off ROW & pond\030057-1.dwg, Plan-Prof 100' (3), 12/5/2003 1:29:46 PM, SPH

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REVISIONS		
REV.	W.O.	
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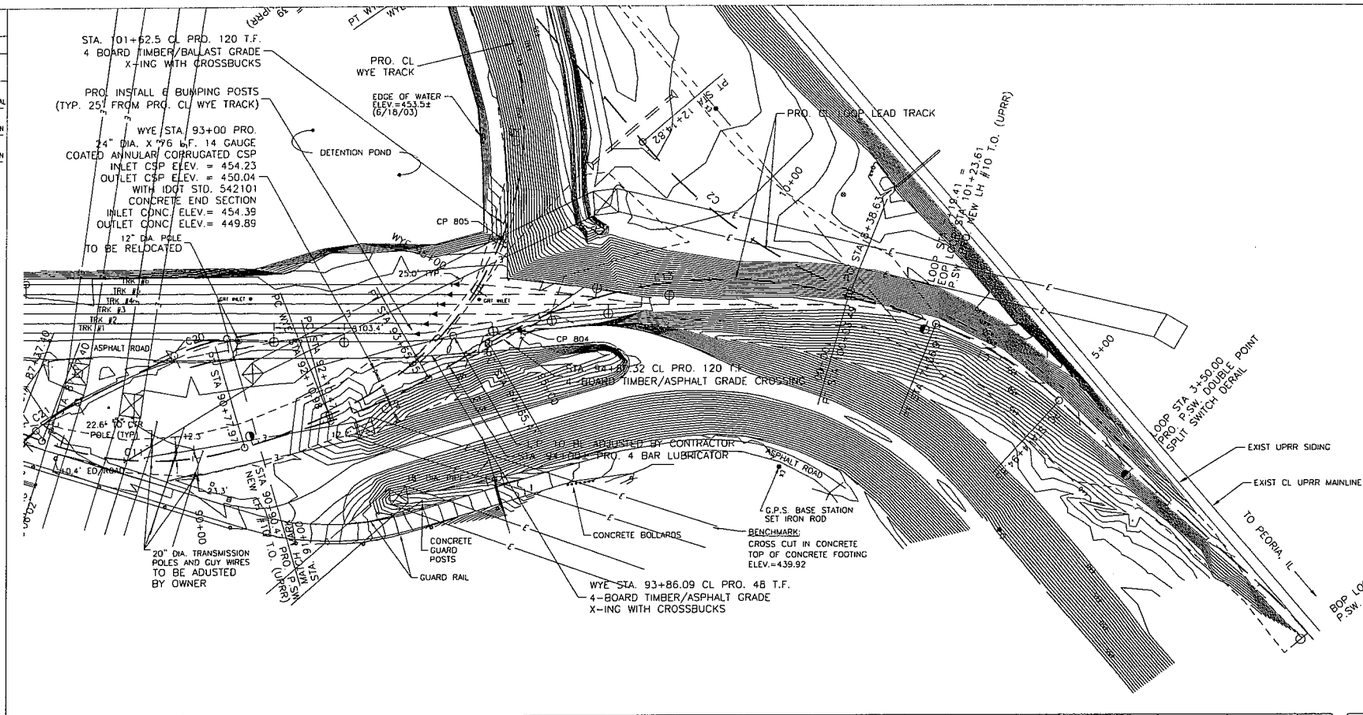
1		11/20/03 ISSUED FOR CONSTRUCTION
2		12/03/03 ISSUED FOR CONSTRUCTION



NOTES:
- EXISTING AMEREN TRACK FROM END OF SWITCH TIES OF UPRR TURNOUT (APPROX. STA. 1+20) TO EXISTING AMEREN YARD TO BE REMOVED, GRADING PERFORMED & SUBBALLAST PLACED (SEE CROSS SECTIONS) DURING DUMP HOUSE WORK OUTAGE.
- EXISTING YARD LEAD TURNOUTS TO BE REMOVED, REHABILITATED AS REQUIRED AND REINSTALLED AT PROPOSED LOCATIONS. EXTRA TURNOUTS TO BE DISMANTLED WITH SALVAGEABLE MATERIALS STOCKPILED ON SITE AS DESIGNATED BY OWNER. SCRAP MATERIALS TO BE REMOVED AND PROPERLY DISPOSED OF OFF SITE.
- EXISTING LEAD TRACK AND YARD TRACK TO BE REMOVED TO THE LIMITS REQUIRED BY THE PROPOSED WORK. SALVAGEABLE MATERIALS TO BE STOCKPILED ON SITE AS DESIGNATED BY OWNER. SCRAP MATERIALS TO BE REMOVED AND PROPERLY DISPOSED OF OFF SITE.
- EMBANKMENT & CONSTRUCTION DETAILED ON CROSS SECTIONS PURSUANT TO RENTZ & JENS, INC.
- DESIGN TOP/RAIL TO DESIGN TOP/SUBBALLAST IS 2.21' WITH 136# RAIL.

LEAD C1
D_C = 10°00'00"
R = 573.69'
Δ = 21°10'44"
T = 107.25'
L_C = 211.79'
L_O = 212.06'
E = 9.94'

LEAD C2
D_C = 7°30'00"
R = 764.49'
Δ = 28°11'38"
T = 191.98'
L_C = 375.92'
L_O = 376.19'
E = 23.74'

LEAD C9
D_C = 10°00'00"
R = 573.69'
Δ = 27°32'18"
T = 140.58'
L_C = 275.38'
L_O = 275.73'
E = 16.97'

LEAD C10
D_C = 10°00'00"
R = 573.69'
Δ = 6°47'00"
T = 34.00'
L_C = 67.83'
L_O = 67.92'
E = 1.01'

LEAD C11
D_C = 12°30'00"
R = 459.28'
Δ = 37°29'49"
T = 155.89'
L_C = 299.98'
L_O = 300.57'
E = 25.74'

LEAD C12
D_C = 8°45'00"
R = 655.45'
Δ = 13°35'29"
T = 78.11'
L_C = 155.33'
L_O = 155.48'
E = 4.64'

LEAD C13
D_C = 8°30'00"
R = 674.69'
Δ = 45°41'42"
T = 284.27'
L_C = 537.59'
L_O = 538.08'
E = 57.44'

WYE C14
D_C = 12°45'00"
R = 450.31'
Δ = 102°31'42"
T = 561.36'
L_C = 804.14'
L_O = 805.81'
E = 269.34'

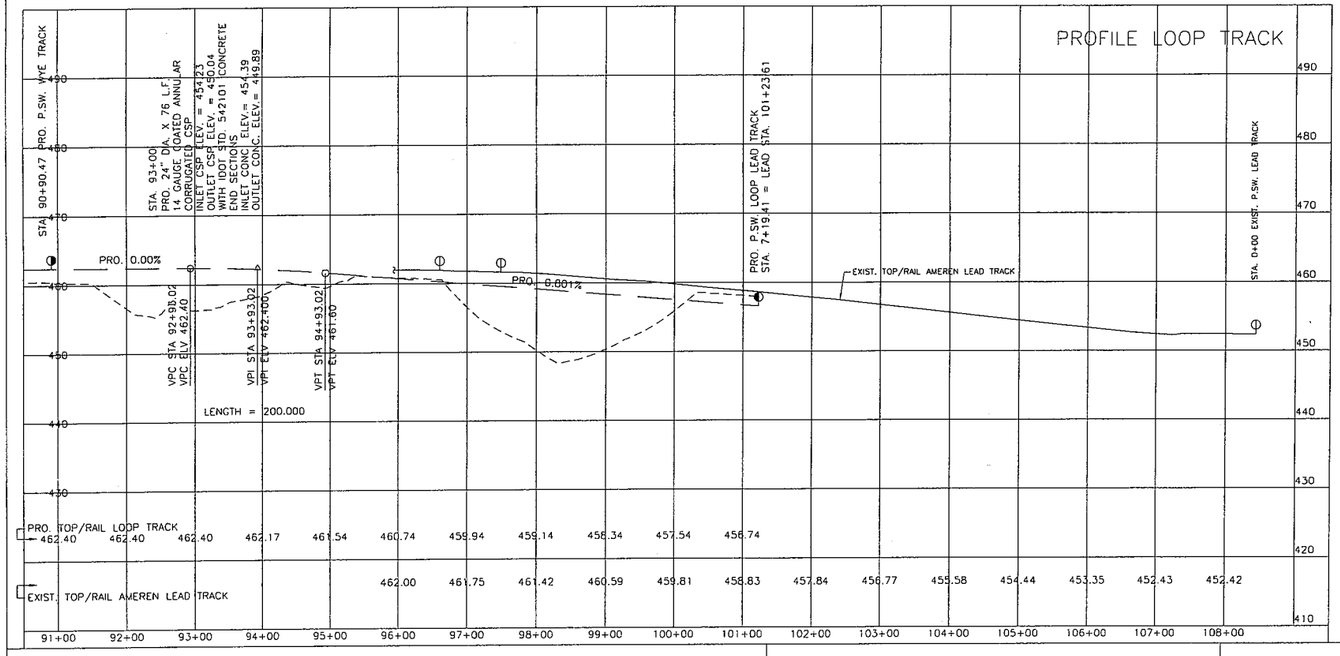
YARD C18
D_C = 12°30'00"
R = 459.28'
Δ = 9°39'05"
T = 38.77'
L_C = 77.21'
L_O = 77.37'
E = 1.63'

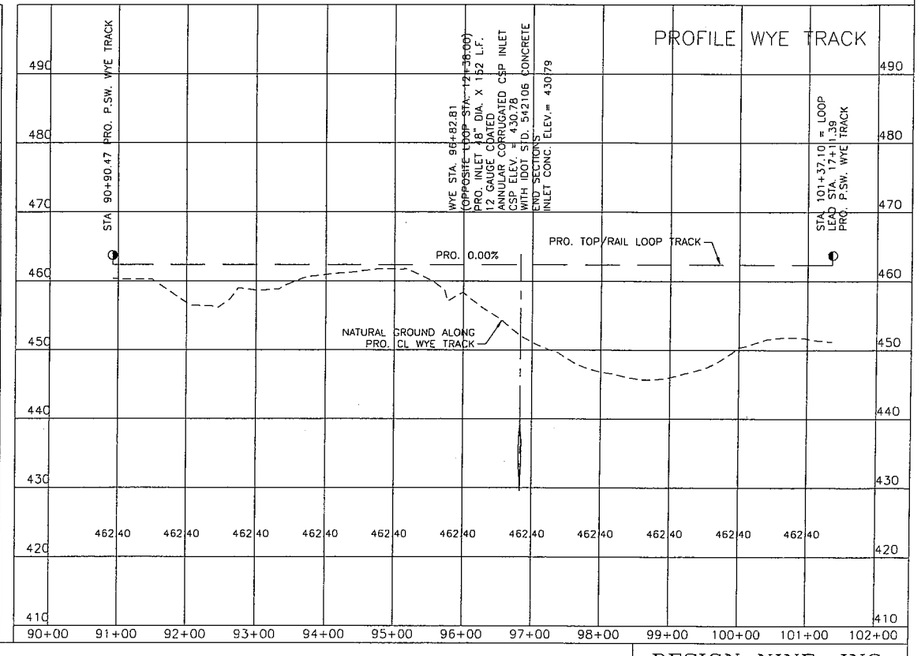
YARD C19
D_C = 12°30'00"
R = 459.28'
Δ = 9°21'00"
T = 37.56'
L_C = 74.80'
L_O = 74.95'
E = 1.53'

PLANT C20
D_C = 20°00'00"
R = 287.94'
Δ = 16°08'24"
T = 40.83'
L_C = 80.70'
L_O = 81.11'
E = 2.88'

PLANT C21
D_C = 23°00'00"
R = 250.79'
Δ = 16°46'12"
T = 36.97'
L_C = 72.91'
L_O = 73.41'
E = 2.71'

PLANT C22
D_C = 22°59'47"
R = 250.83'
Δ = 8°10'55"
T = 17.94'
L_C = 35.58'
L_O = 35.82'
E = 0.64'





LEGEND:
- EXISTING GROUND CONTOURS
- CL EXISTING TRACK
- EXISTING OVERHEAD POWER LINE
- EXISTING PROPERTY LINE
- CL EXISTING TRACK TO BE REMOVED
- EXISITING POINT OF SWITCH (P.SW.)
- CL PROPOSED TRACK
- PROPOSED GRADING LIMITS
- PROPOSED POINT OF SWITCH (P.SW.)

0 50 100 200
SCALE: 1"=100'

ISSUED FOR CONSTRUCTION

NOTICE OF LIMITED RESPONSIBILITY
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DESIGN NINE, INC.
ENGINEERING SERVICES FOR RAILROADS AND INDUSTRY
ST. LOUIS, MO.

PREPARED FOR AmerenCILCO

DRAWN	SPH
CHKD.	GTH
SUPV.	
APPD.	

PROPOSED 150 CAR LOOP TRACK
FOR EDWARDS POWER PLANT
BARTONVILLE, ILLINOIS

LOCATION	PLAN/PROFILE - LOOP/WYE TRACK LOOP STA. 91+00 TO STA. 101+22.23	CLASS
ST. LOUIS, MISSOURI	DRAWING NO. 03057-1	SHEET NO. 9 OF 25
AmerenCILCO		REV. 2

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REVISIONS		
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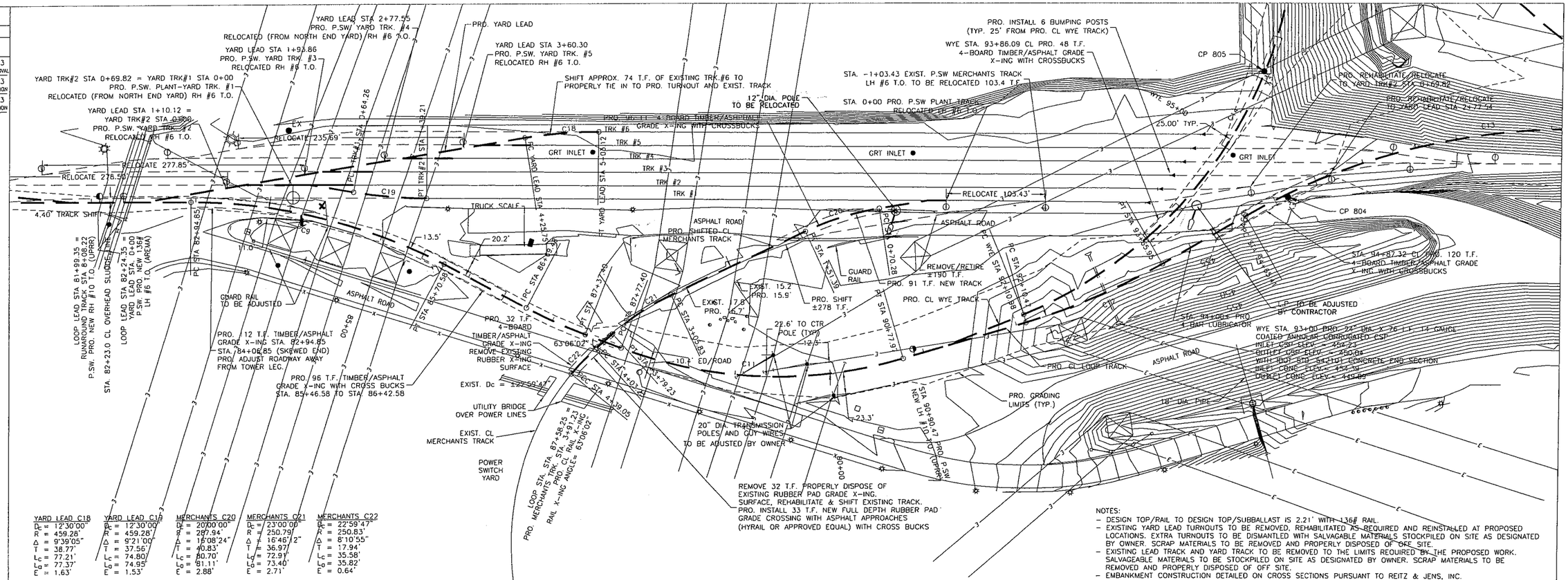
1		11/20/03 ISSUED FOR CONSTRUCTION
2		12/03/03 ISSUED FOR CONSTRUCTION



MERCHANTS TRACK PROFILE

YARD LEAD C18	YARD LEAD C19	MERCHANTS C20	MERCHANTS C21	MERCHANTS C22
D_C = 12°30'00"	D_C = 12°30'00"	D_C = 20°00'00"	D_C = 23°00'00"	D_C = 22°59'47"
R = 459.26'	R = 459.28'	R = 287.94'	R = 250.79'	R = 250.83'
Δ = 9°39'05"	Δ = 9°21'00"	Δ = 15°08'24"	Δ = 16°45'12"	Δ = 8°10'55"
T = 38.77'	T = 37.56'	T = 40.83'	T = 36.97'	T = 17.94'
L_C = 77.21'	L_C = 74.80'	L_C = 80.70'	L_C = 72.91'	L_C = 35.58'
L_O = 77.37'	L_O = 74.95'	L_O = 81.11'	L_O = 73.40'	L_O = 35.82'
E = 1.63'	E = 1.53'	E = 2.88'	E = 2.71'	E = 0.64'

NOTES:
- DESIGN TOP/RAIL TO DESIGN TOP/SUBBALLAST IS 2.21' WITH 136# RAIL.
- EXISTING YARD LEAD TURNOUTS TO BE REMOVED, REHABILITATED AS REQUIRED AND REINSTALLED AT PROPOSED LOCATIONS. EXTRA TURNOUTS TO BE DISMANTLED WITH SALVAGABLE MATERIALS STOCKPILED ON SITE AS DESIGNATED BY OWNER. SCRAP MATERIALS TO BE REMOVED AND PROPERLY DISPOSED OF OFF SITE.
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- EMBANKMENT CONSTRUCTION DETAILED ON CROSS SECTIONS PURSUANT TO REITZ & JENS, INC.

LEGEND:

- EXISTING GROUND CONTOURS
- CL EXISTING TRACK
- EXISTING OVERHEAD POWER LINE
- EXISTING PROPERTY LINE
- CL EXISTING TRACK TO BE REMOVED
- EXISITING POINT OF SWITCH (P.SW.)
- CL PROPOSED TRACK
- PROPOSED GRADING LIMITS
- PROPOSED POINT OF SWITCH (P.SW.)

0 25 50 100
SCALE: 1"=50'

ISSUED FOR CONSTRUCTION

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DESIGN NINE, INC.
ENGINEERING SERVICES FOR RAILROADS AND INDUSTRY
ST. LOUIS, MO.

PREPARED FOR AmerenCILCO

DRAWN	SPH
CHKD.	GTH
SUPV.	
APPD.	

PROPOSED 150 CAR LOOP TRACK FOR EDWARDS POWER PLANT BARTONVILLE, ILLINOIS

LOCATION	DETAIL OF MERCHANTS TRACK AREA	CLASS
ST. LOUIS, MISSOURI	DRAWING NO. 03057-1	SHEET NO. 10 OF 25
AmerenCILCO		REV. 2

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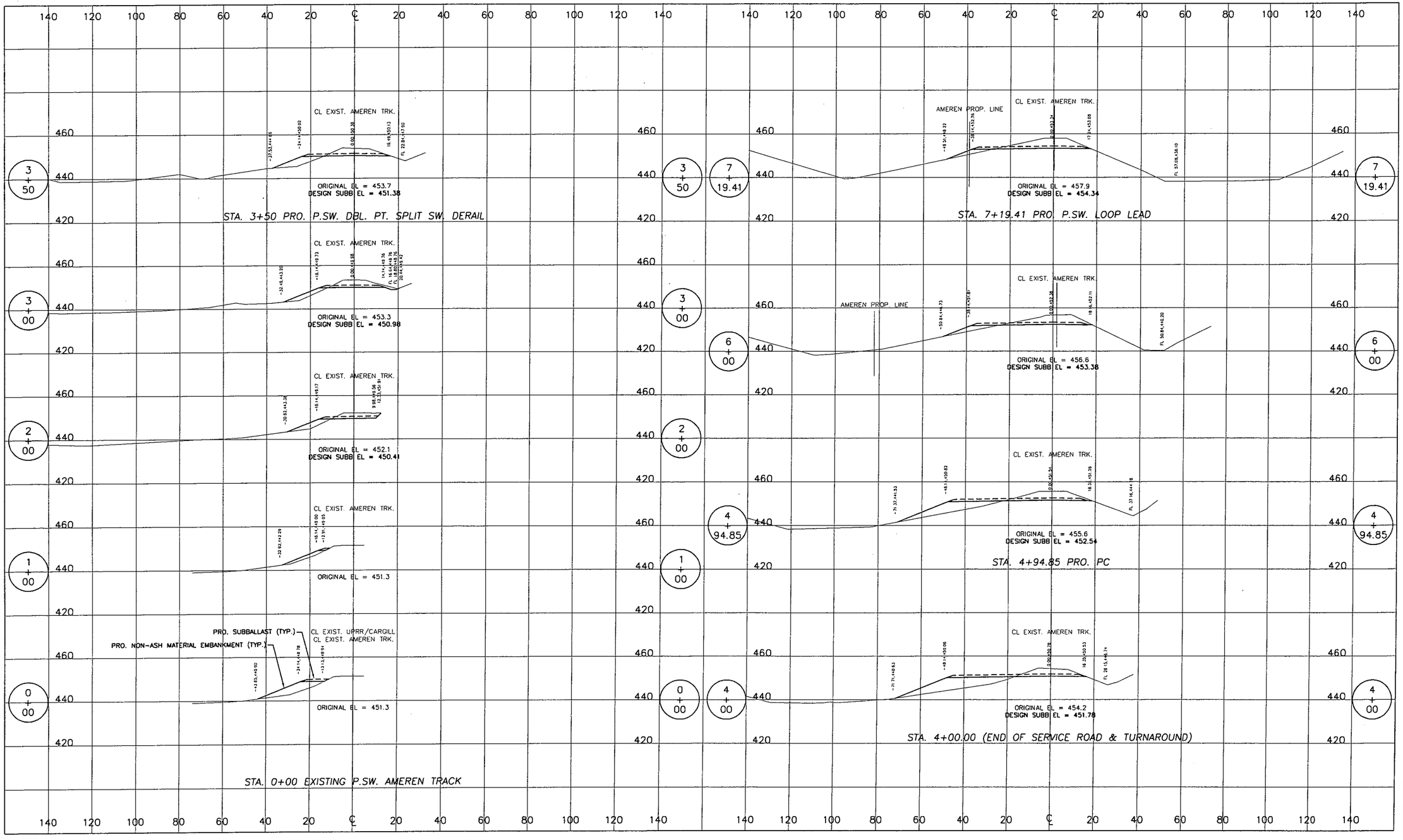

LEGEND:

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ENGINEERING SERVICES FOR RAILROADS AND INDUSTRY
ST. LOUIS, MO.

PREPARED FOR AmerenCILCO

DRAWN	SPH
CHKD.	GTH
SUPV.	
APPD.	

PROPOSED 150 CAR LOOP TRACK
FOR EDWARDS POWER PLANT
BARTONVILLE, ILLINOIS

LOCATION	CROSS SECTIONS - LOOP TRACK STA. 0+00 TO STA. 7+20.79	CLASS
ST. LOUIS, MISSOURI	DRAWING NO. 03057-1X	SHEET NO. 11 OF 25
AmerenCILCO		REV. 2

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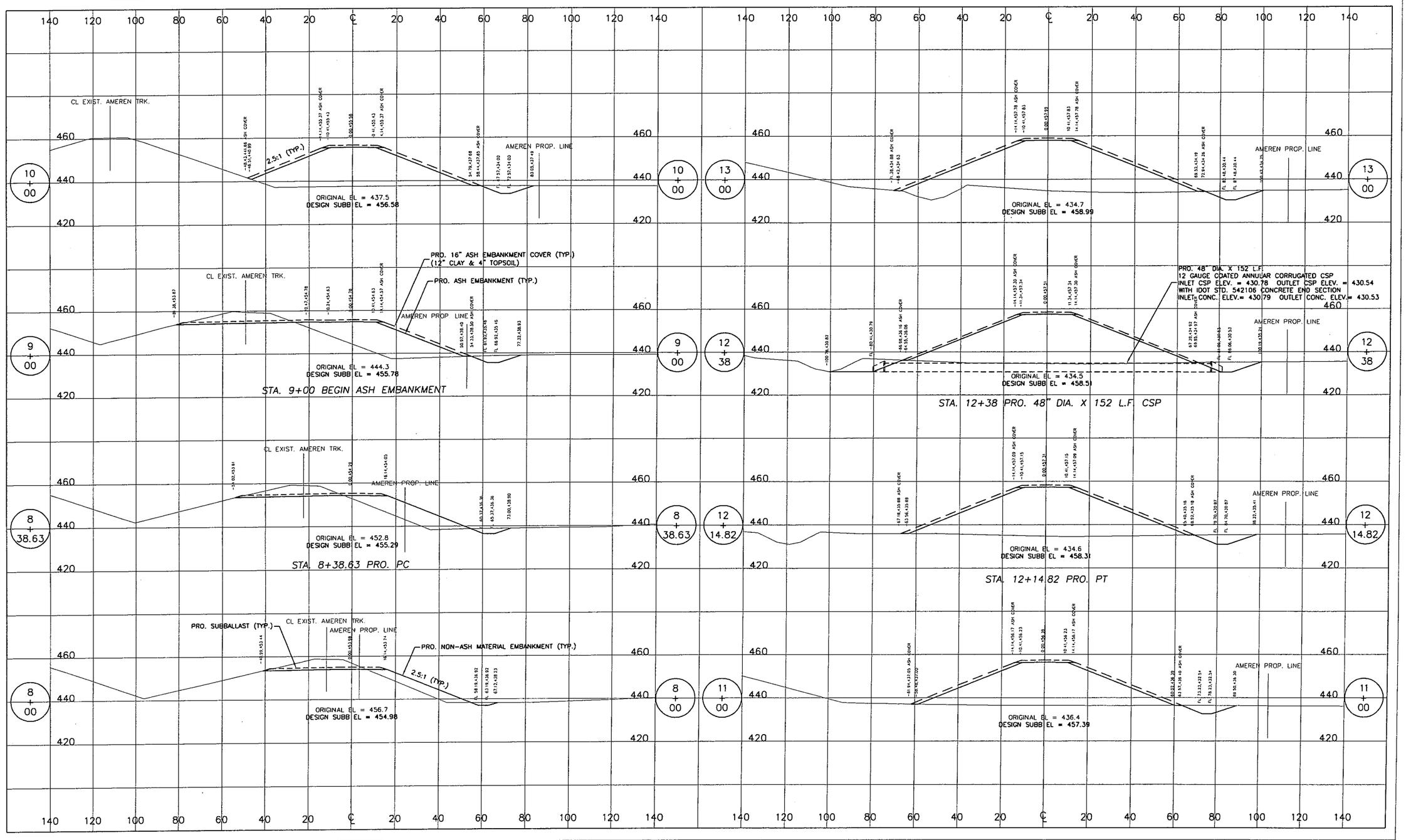

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ST. LOUIS, MO.

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SUPV.	
APPD.	

PROPOSED 150 CAR LOOP TRACK
FOR EDWARDS POWER PLANT
BARTONVILLE, ILLINOIS

LOCATION	CROSS SECTIONS - LOOP TRACK STA. 8+00 TO STA. 13+00	CLASS
ST. LOUIS, MISSOURI AmerenCILCO	DRAWING NO. 03057-1X	SHEET NO. 12 OF 25
		REV. 1

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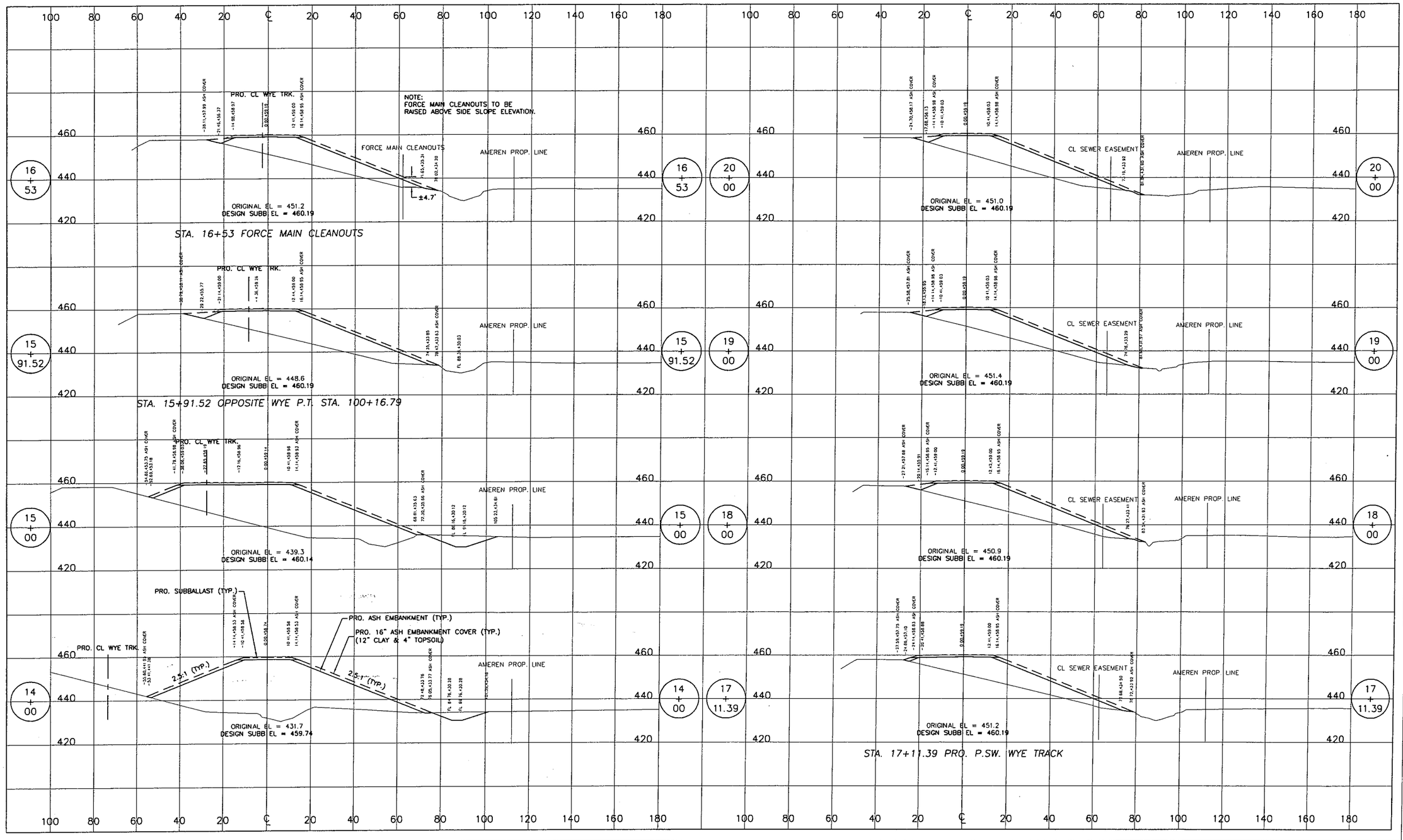

LEGEND:

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ST. LOUIS, MO.

PREPARED FOR AmerenCILCO

DRAWN	SPH
CHKD.	GTH
SUPV.	
APPD.	

PROPOSED 150 CAR LOOP TRACK
FOR EDWARDS POWER PLANT
BARTONVILLE, ILLINOIS

LOCATION	CROSS SECTIONS – LOOP TRACK STA. 14+00 TO STA. 20+00	CLASS
ST. LOUIS, MISSOURI	DRAWING NO. 03057-1X	SHEET NO. 13 OF 25
AmerenCILCO		REV. 2

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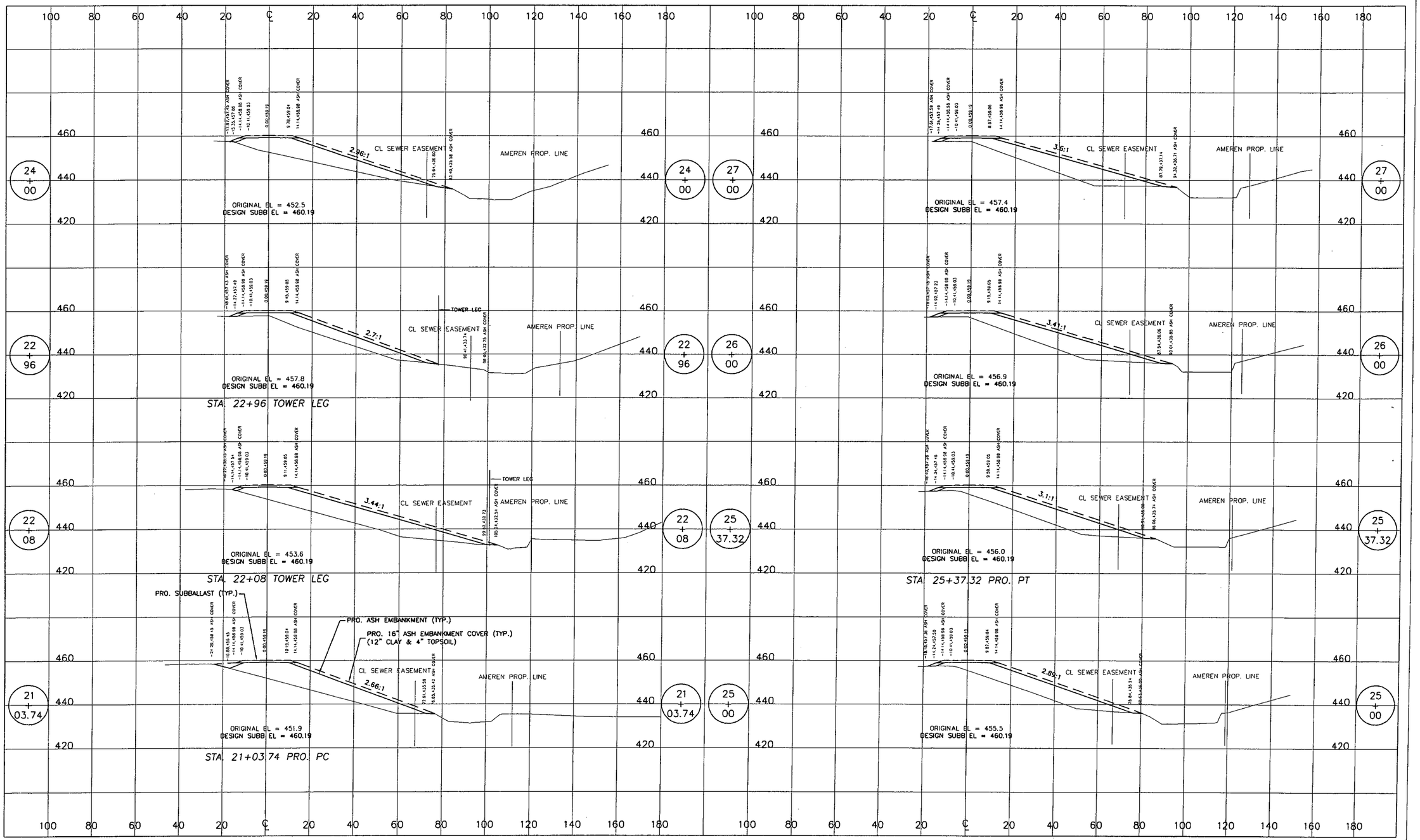

LEGEND:

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ST. LOUIS, MO.

PREPARED FOR AmerenCILCO

DRAWN	SPH
CHKD.	GTH
SUPV.	-
APPD.	-

PROPOSED 150 CAR LOOP TRACK
FOR EDWARDS POWER PLANT
BARTONVILLE, ILLINOIS

LOCATION	CROSS SECTIONS - LOOP TRACK STA. 21+03.74 TO STA. 27+00	CLASS
ST. LOUIS, MISSOURI	DRAWING NO. 03057-1X	SHEET NO. 14 OF 25
AmerenCILCO		REV. 2

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REVISIONS		
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2		12/03/03 ISSUED FOR CONSTRUCTION

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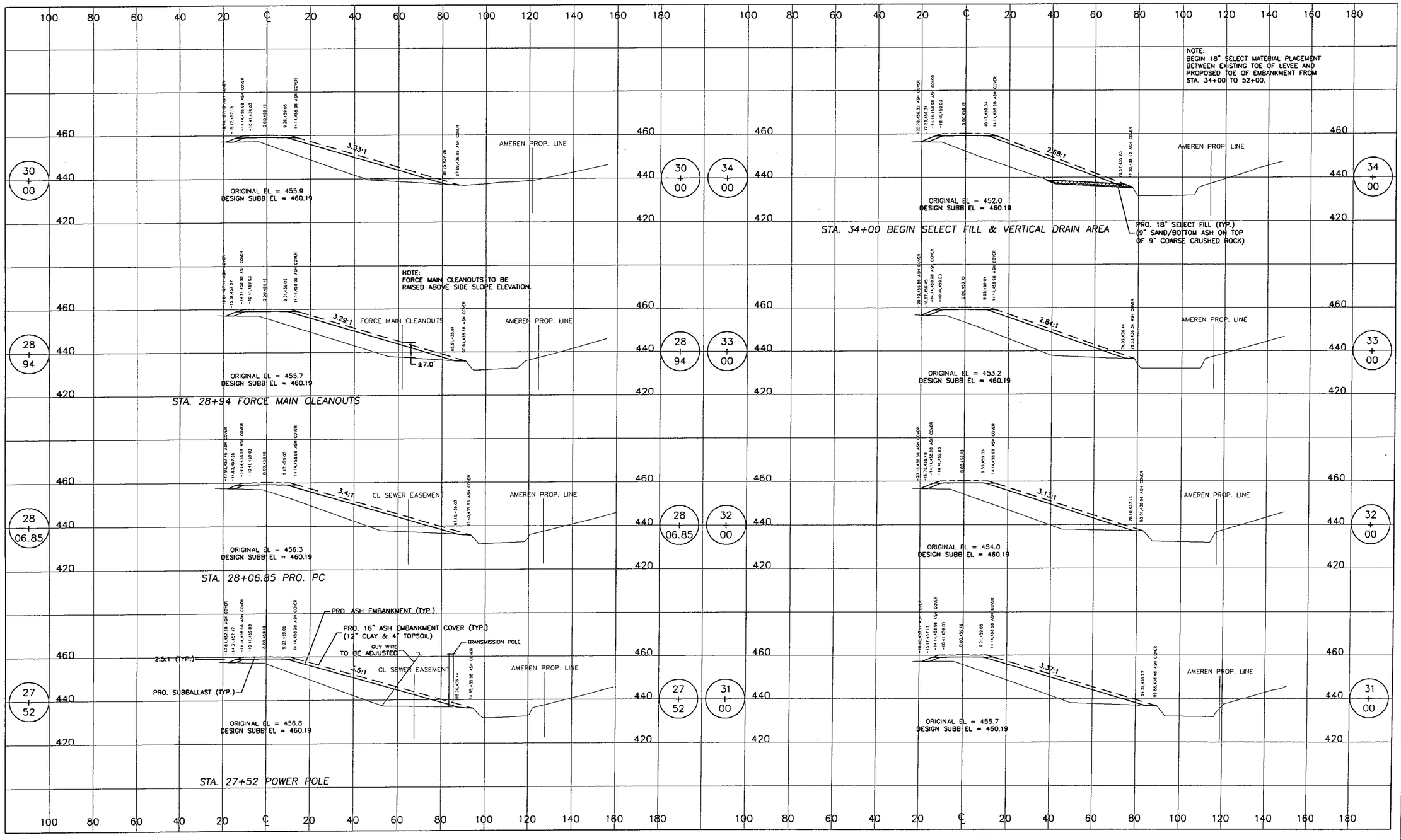

LEGEND:

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CHKD.	GTH
SUPV.	
APPD.	

PROPOSED 150 CAR LOOP TRACK
FOR EDWARDS POWER PLANT
BARTONVILLE, ILLINOIS

LOCATION	CROSS SECTIONS - LOOP TRACK STA. 27+52 TO STA. 34+00	CLASS
ST. LOUIS, MISSOURI	DRAWING NO. 03057-1X	SHEET NO. 15 OF 25
AmerenCILCO		REV. 2

PRINT DIST.

REVISIONS		
REV.	W.O.	
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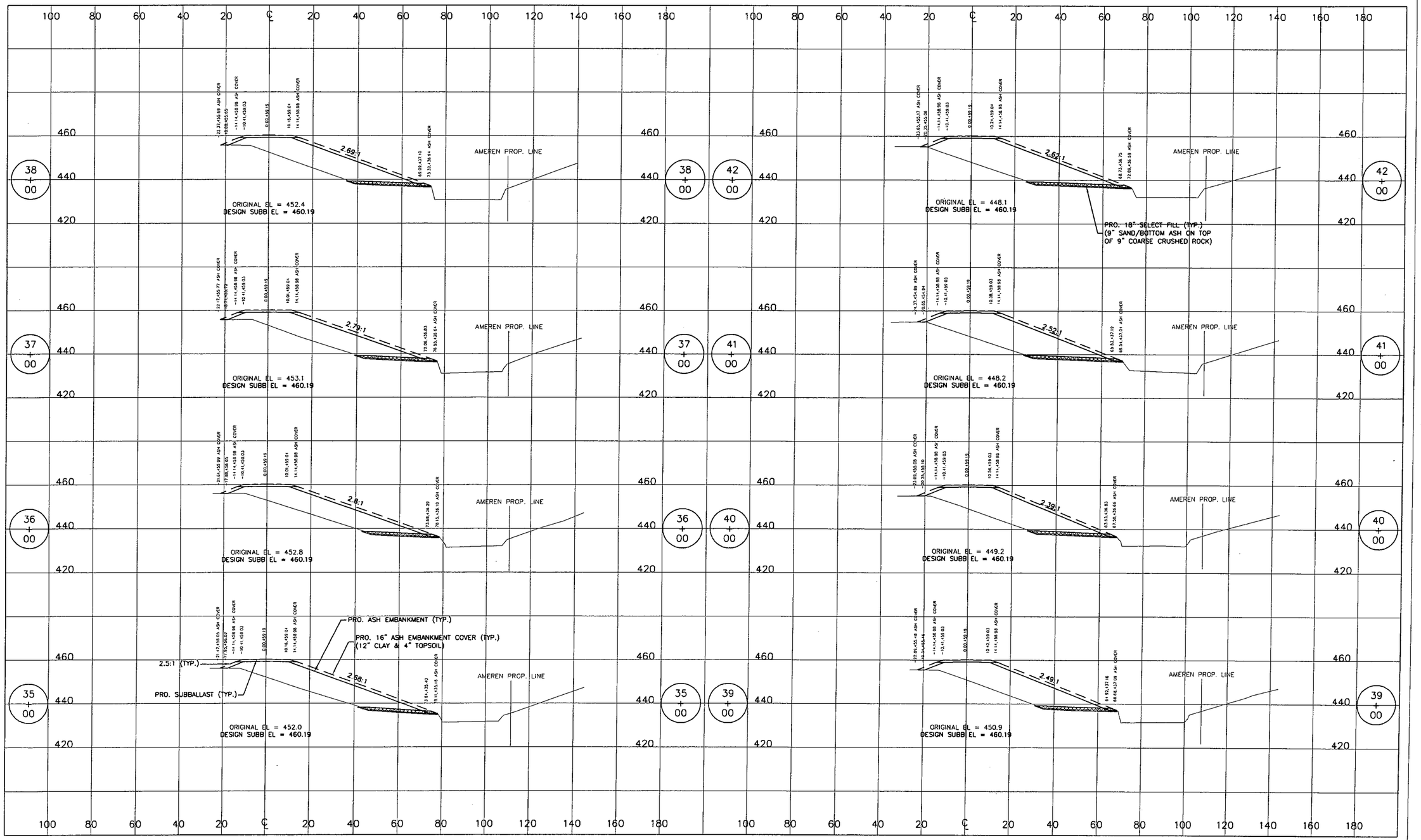

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ENGINEERING SERVICES FOR RAILROADS AND INDUSTRY
ST. LOUIS, MO.

PREPARED FOR AmerenCILCO

DRAWN	SPH
CHKD.	GTH
SUPV.	
APPD.	

PROPOSED 150 CAR LOOP TRACK
FOR EDWARDS POWER PLANT
BARTONVILLE, ILLINOIS

LOCATION	CROSS SECTIONS – LOOP TRACK STA. 35+00 TO STA. 42+00	CLASS
ST. LOUIS, MISSOURI	DRAWING NO. 03057-1X	SHEET NO. 16 OF 25
AmerenCILCO		REV. 1

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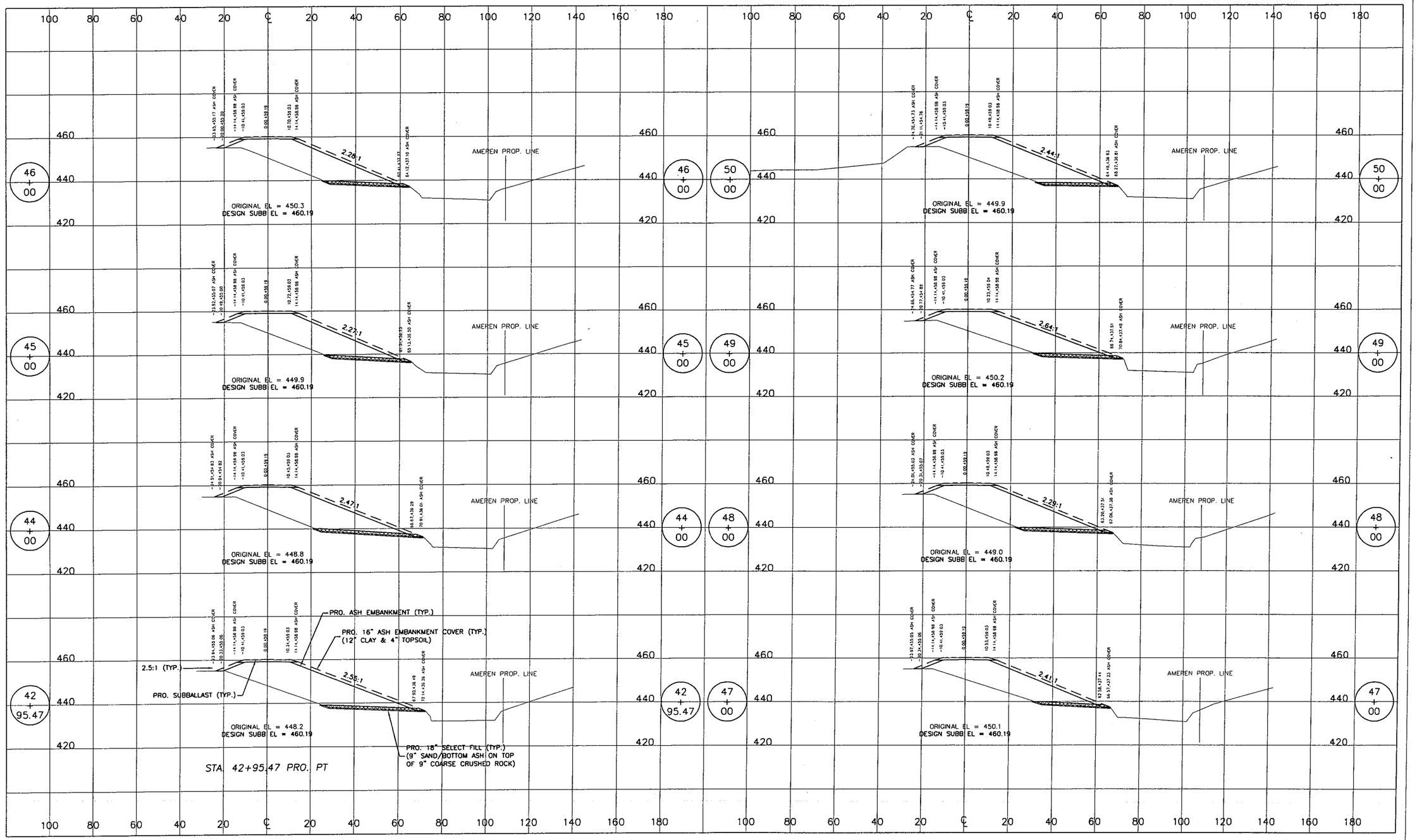

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DESIGN NINE, INC.
ENGINEERING SERVICES FOR RAILROADS AND INDUSTRY
ST. LOUIS, MO.

PREPARED FOR AmerenCILCO

DRAWN	SPH
CHKD.	GTH
SUPV.	
APPD.	

PROPOSED 150 CAR LOOP TRACK
FOR EDWARDS POWER PLANT
BARTONVILLE, ILLINOIS

LOCATION	CROSS SECTIONS - LOOP TRACK STA. 42+95.47 TO STA. 50+00	CLASS
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		REV. 1

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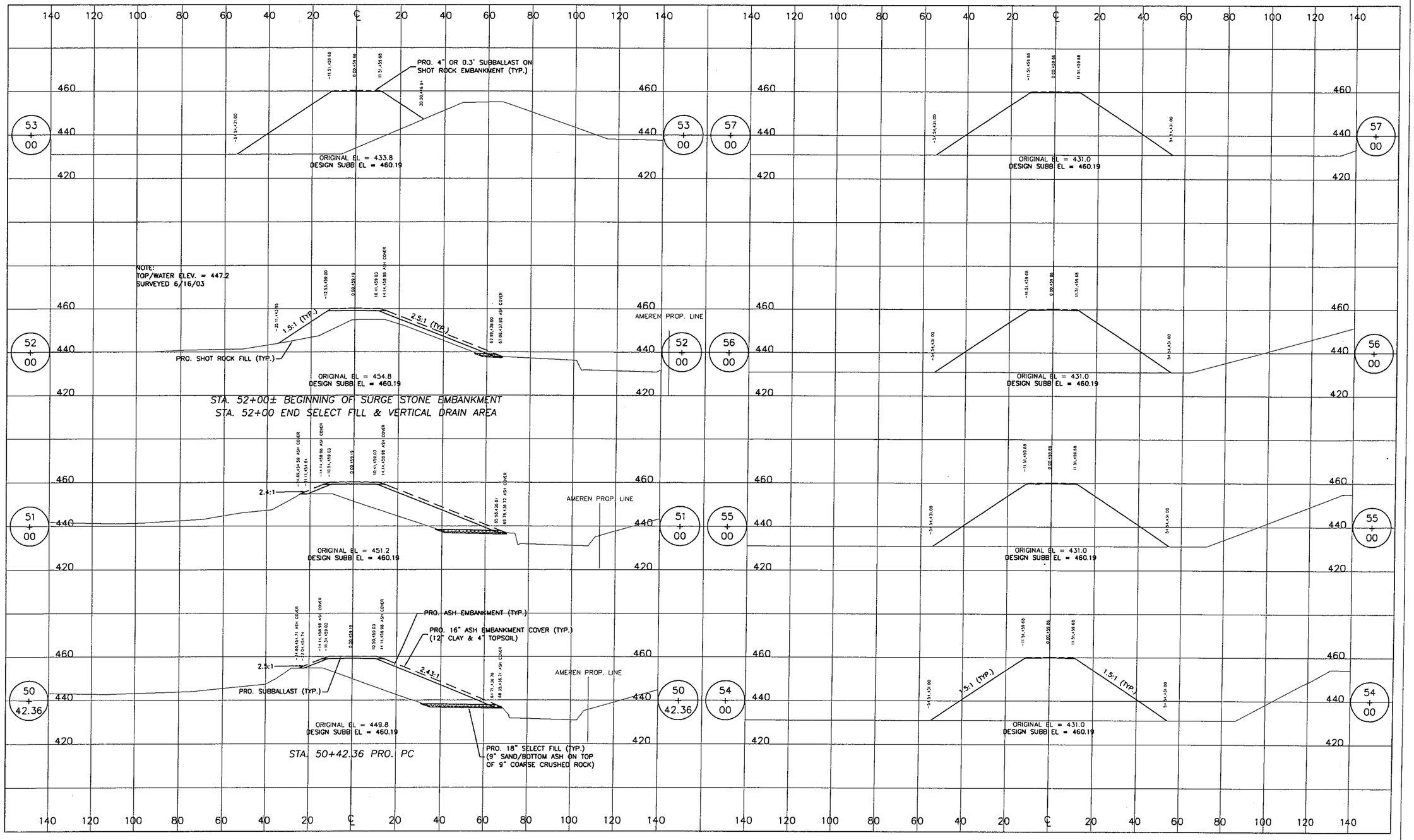
2		12/03/03 ISSUED FOR CONSTRUCTION



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DESIGN NINE, INC.
ENGINEERING SERVICES FOR RAILROADS AND INDUSTRY
ST. LOUIS, MO.

PREPARED FOR AmerenCILCO

DRAWN	SPH
CHKD.	GTH
SUPV.	-
APPD.	-

PROPOSED 150 CAR LOOP TRACK
FOR EDWARDS POWER PLANT
BARTONVILLE, ILLINOIS

LOCATION	CROSS SECTIONS - LOOP TRACK STA. 50+42.36 TO STA. 57+00	CLASS
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		REV. 2

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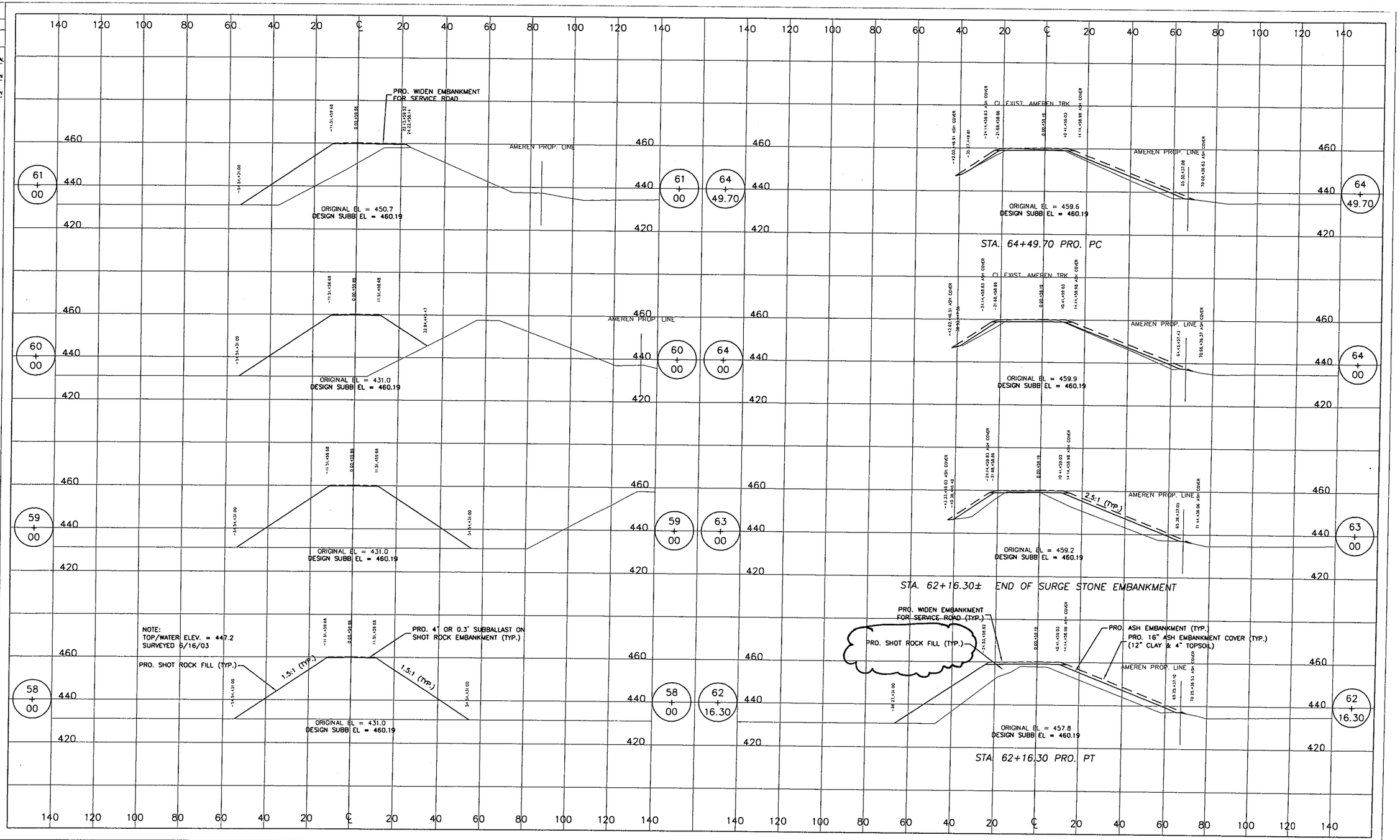

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ENGINEERING SERVICES FOR RAILROADS AND INDUSTRY
ST. LOUIS, MO.

PREPARED FOR AmerenCILCO

DRAWN	SPH
CHKD.	GTH
SUPV.	
APPD.	

PROPOSED 150 CAR LOOP TRACK
FOR EDWARDS POWER PLANT
BARTONVILLE, ILLINOIS

LOCATION	CROSS SECTIONS – LOOP TRACK STA. 58+00 TO STA. 64+49.7	CLASS
ST. LOUIS, MISSOURI	DRAWING NO. 03057-1X	SHEET NO. 19 OF 25
AmerenCILCO		REV. 2

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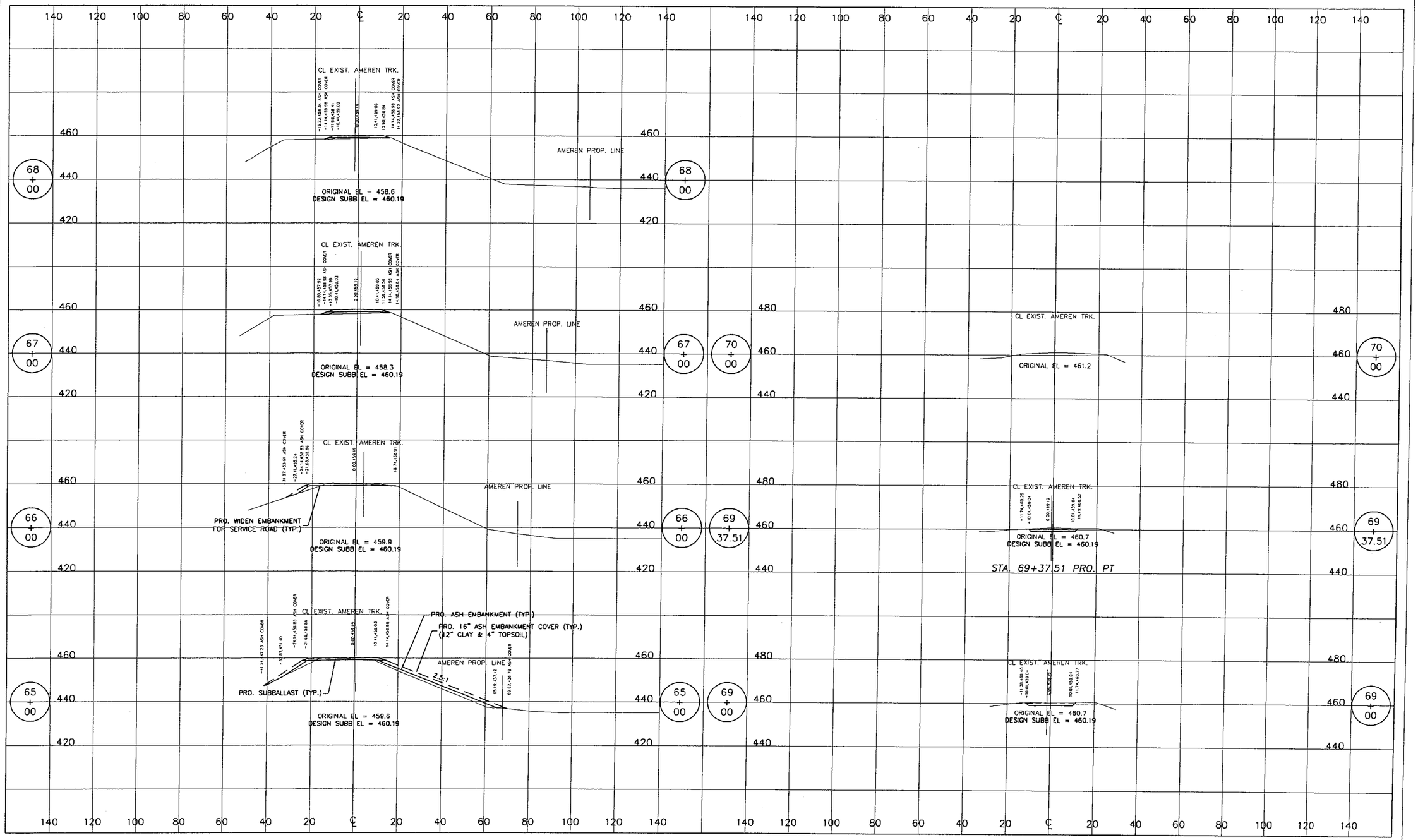

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DESIGN NINE, INC.
ENGINEERING SERVICES FOR RAILROADS AND INDUSTRY
ST. LOUIS, MO.

PREPARED FOR AmerenCILCO

DRAWN	SPH	PROPOSED 150 CAR LOOP TRACK FOR EDWARDS POWER PLANT BARTONVILLE, ILLINOIS		
CHKD.	GTH			
SUPV.				
APPD.		LOCATION: CROSS SECTIONS - LOOP TRACK STA. 65+00 TO STA. 70+00		CLASS
AmerenCILCO ST. LOUIS, MISSOURI		DRAWING NO. 03057-1X	SHEET NO. 20 OF 25	REV. 2

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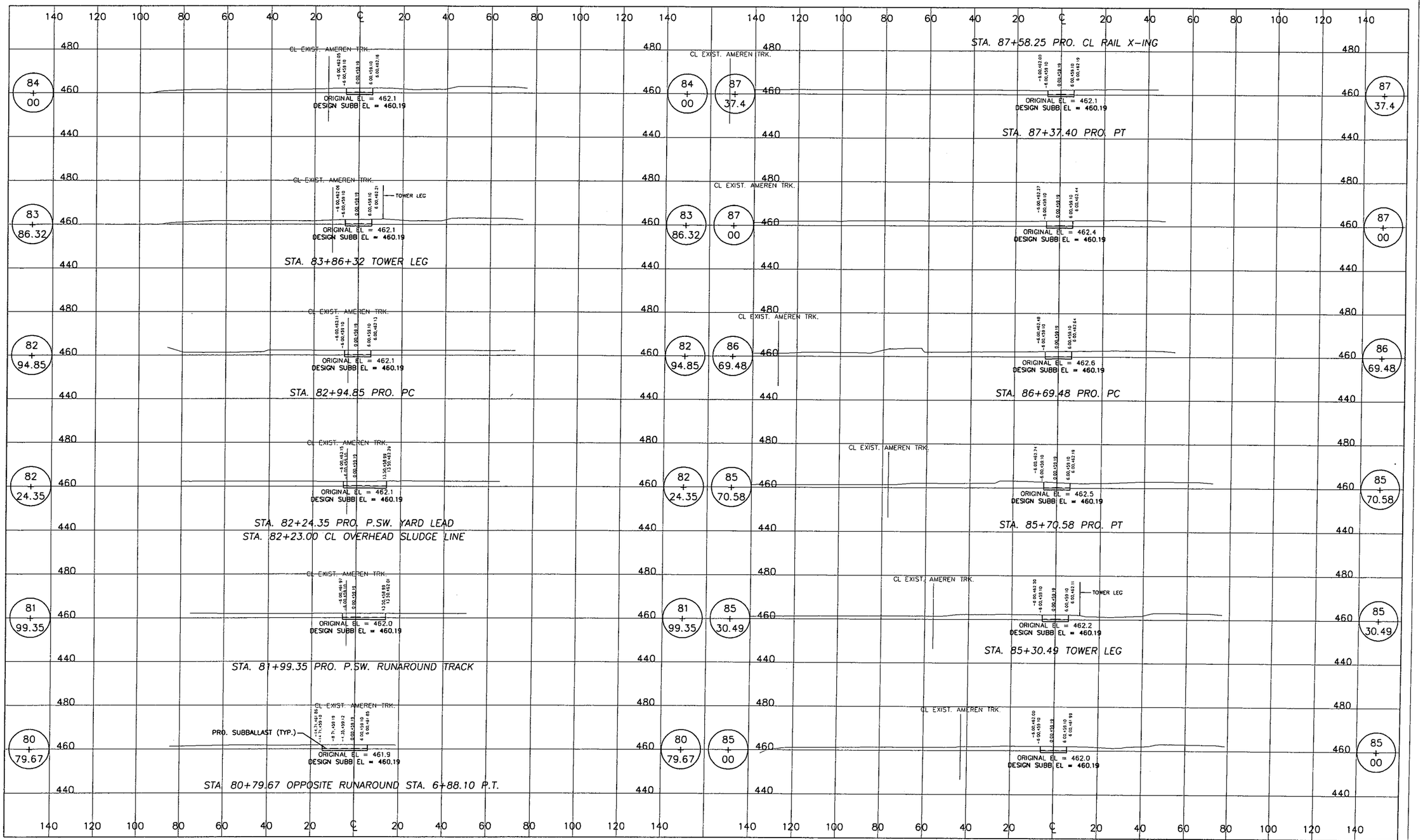

LEGEND:

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DESIGN NINE, INC.
ENGINEERING SERVICES FOR RAILROADS AND INDUSTRY
ST. LOUIS, MO.

PREPARED FOR AmerenCILCO

DRAWN	SPH
CHKD.	GTH
SUPV.	.
APPD.	.

PROPOSED 150 CAR LOOP TRACK
FOR EDWARDS POWER PLANT
BARTONVILLE, ILLINOIS

LOCATION	CROSS SECTIONS - LOOP TRACK STA. 80+79.67 TO STA. 87+37.4	CLASS
ST. LOUIS, MISSOURI	DRAWING NO. 03057-1X	SHEET NO. 21 OF 25
AmerenCILCO		REV. 1

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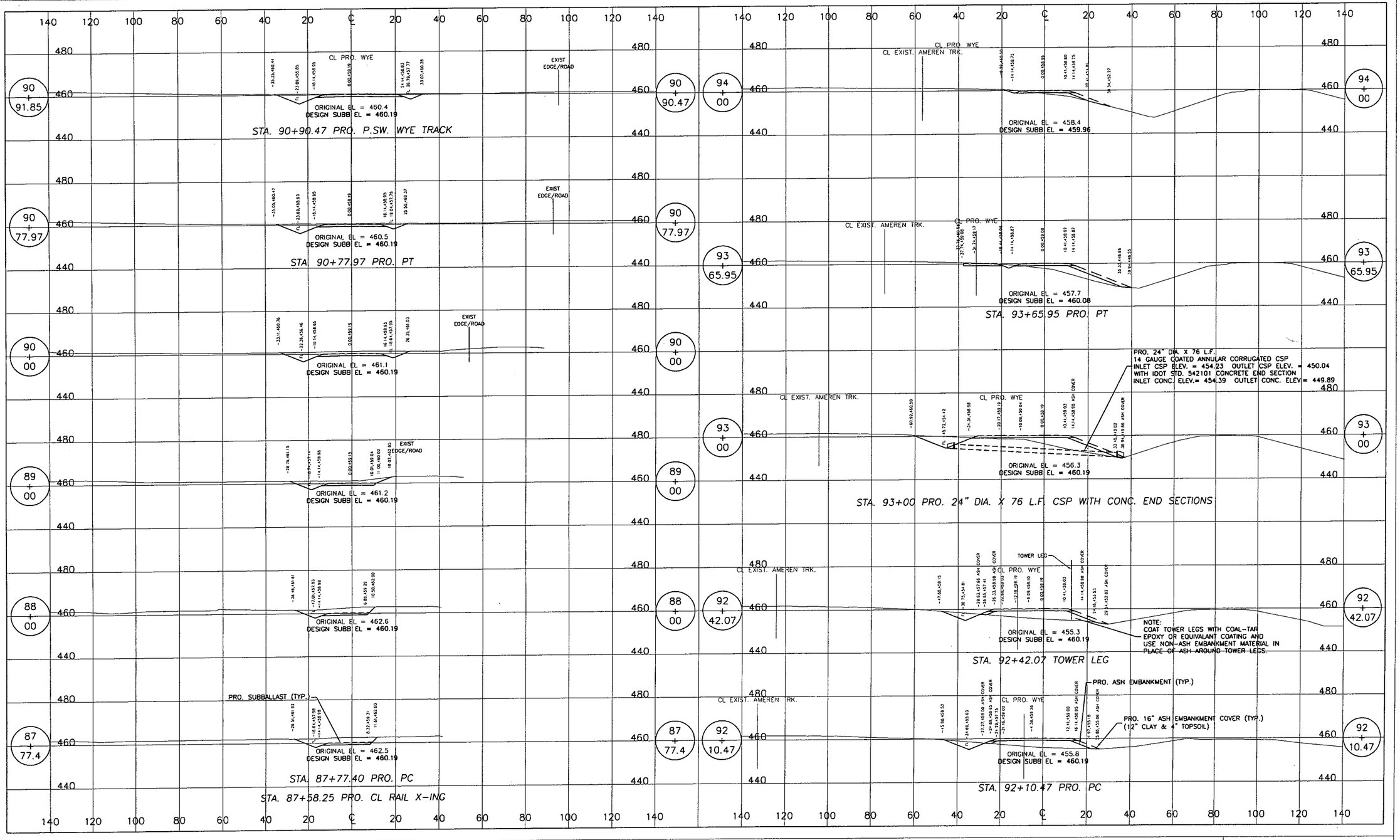
2	12/03/03 ISSUED FOR CONSTRUCTION



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ENGINEERING SERVICES FOR RAILROADS AND INDUSTRY
ST. LOUIS, MO.

PREPARED FOR AmerenCILCO

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SUPV.	
APPD.	

PROPOSED 150 CAR LOOP TRACK
FOR EDWARDS POWER PLANT
BARTONVILLE, ILLINOIS

LOCATION	CROSS SECTIONS - LOOP TRACK STA. 87+77.4 TO STA. 94+00	CLASS
ST. LOUIS, MISSOURI	DRAWING NO. 03057-1X	SHEET NO. 22 OF 25	REV. 2

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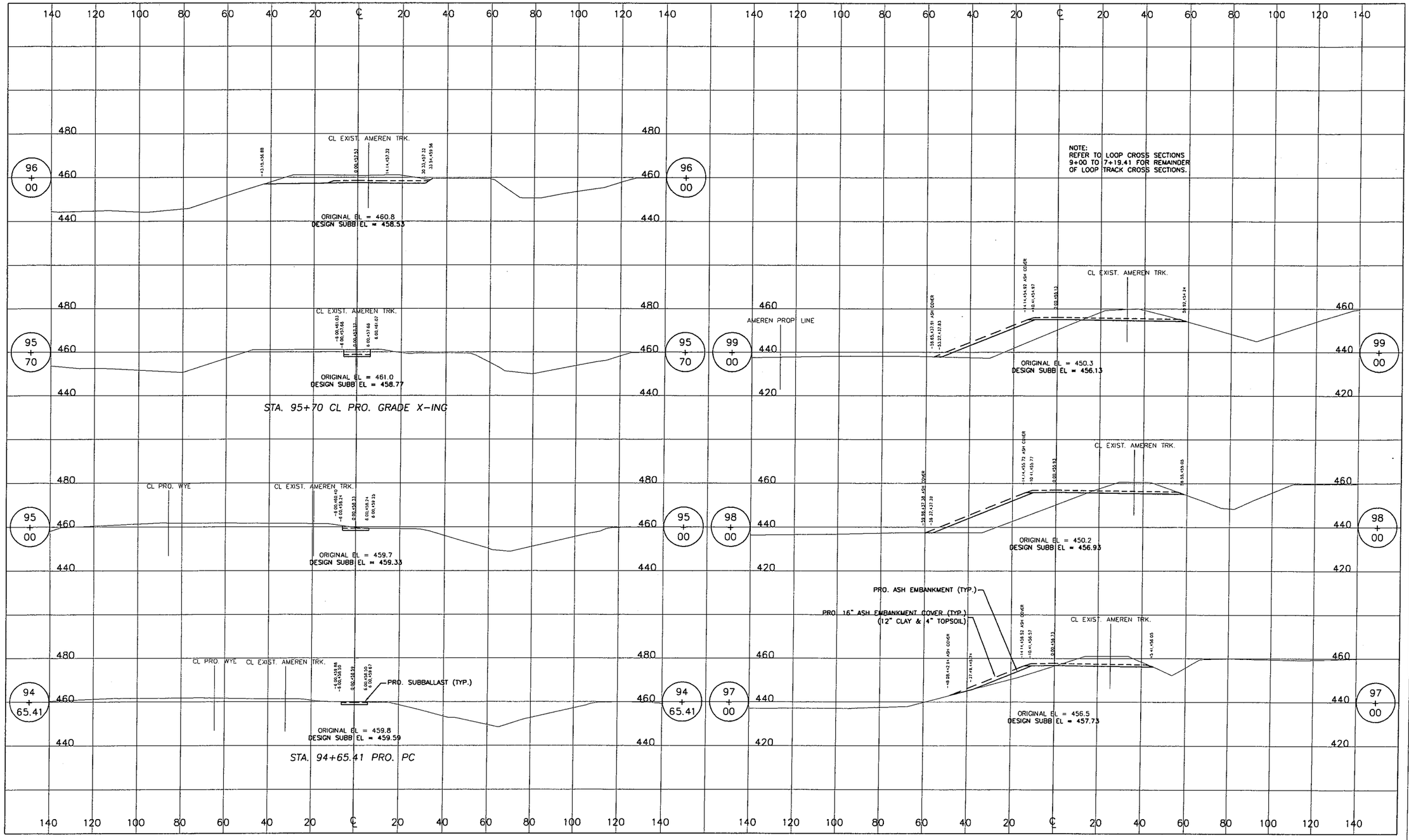

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ST. LOUIS, MO.

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CHKD.	GTH
SUPV.	
APPD.	

PROPOSED 150 CAR LOOP TRACK
FOR EDWARDS POWER PLANT
BARTONVILLE, ILLINOIS

LOCATION	CROSS SECTIONS - LOOP TRACK STA. 94+65.41 TO STA. 99+00	CLASS
ST. LOUIS, MISSOURI	DRAWING NO. 03057-1X	SHEET NO. 23 OF 25	REV. 2

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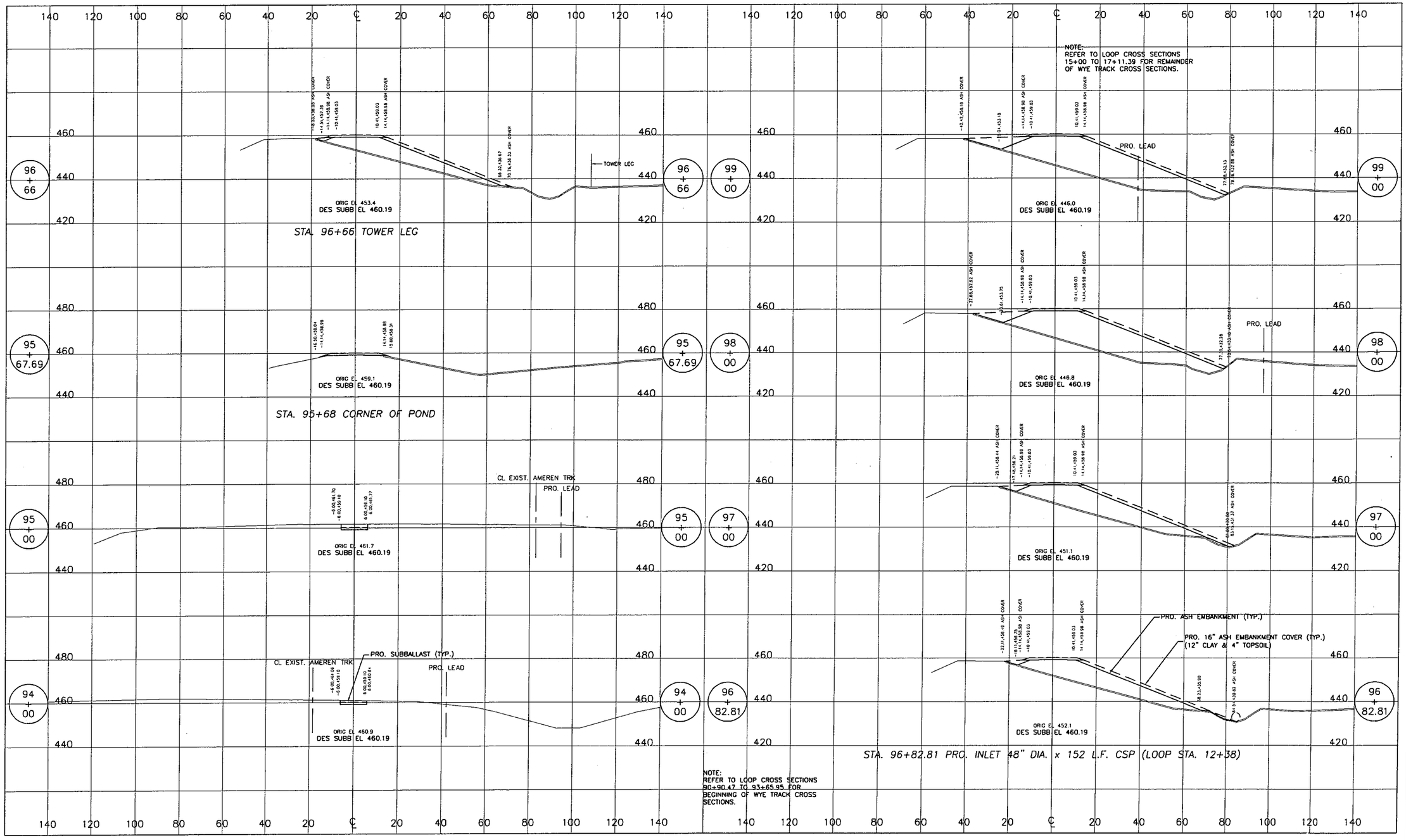

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ENGINEERING SERVICES FOR RAILROADS AND INDUSTRY
ST. LOUIS, MO.

PREPARED FOR AmerenCILCO

DRAWN	SPH
CHKD.	GTH
SUPV.	-
APPD.	-

PROPOSED 150 CAR LOOP TRACK
FOR EDWARDS POWER PLANT
BARTONVILLE, ILLINOIS

LOCATION	CROSS SECTIONS - WYE TRACK STA. 94+00 TO STA. 99+00	CLASS
ST. LOUIS, MISSOURI AmerenCILCO	DRAWING NO. 03057-1X	SHEET NO. 24 OF 25
		REV. 2

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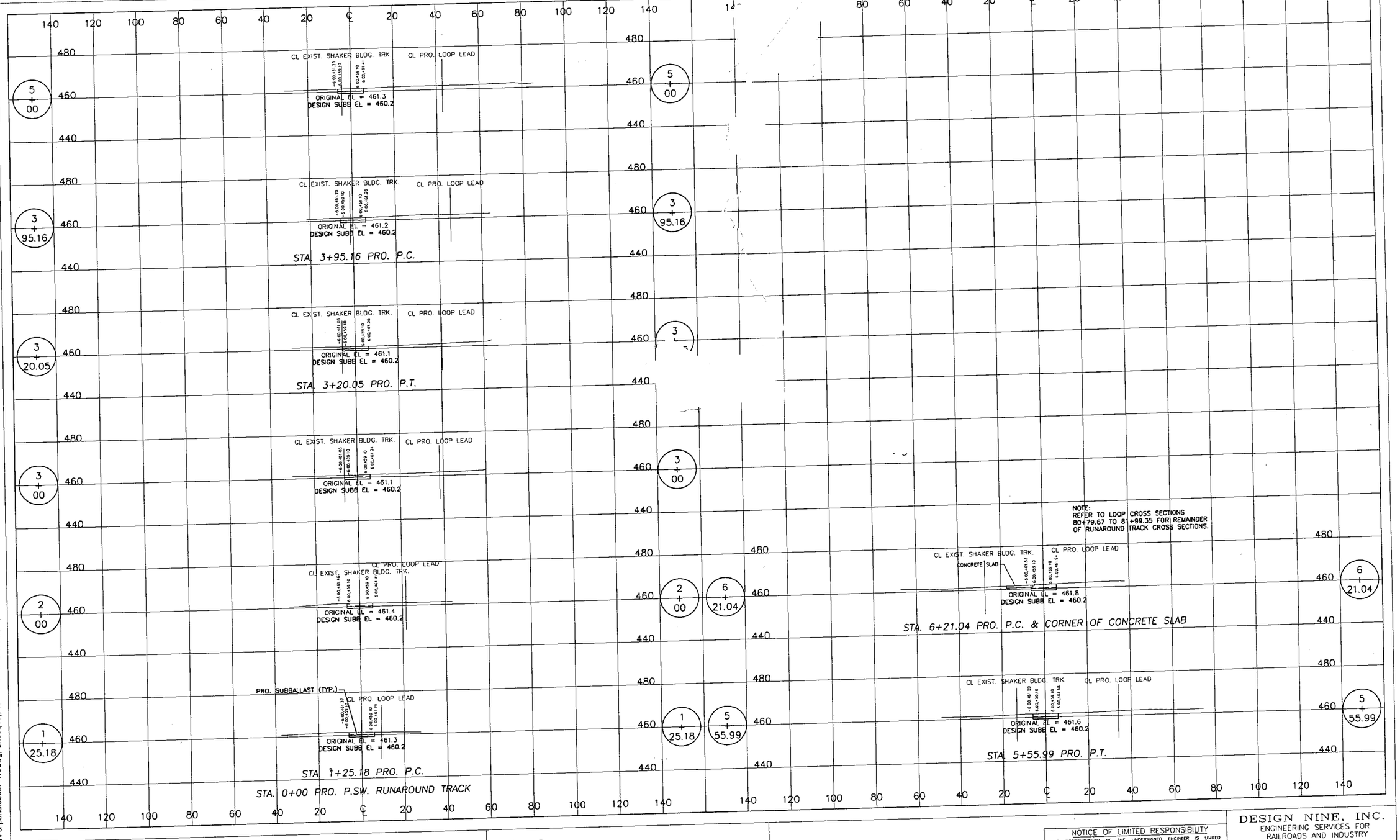

NOTE:
REFER TO LOOP CROSS SECTIONS 80+79.67 TO 81+99.35 FOR REMAINDER OF RUNAROUND TRACK CROSS SECTIONS.

LEGEND:

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ENGINEERING SERVICES FOR RAILROADS AND INDUSTRY
ST. LOUIS, MO.

PREPARED FOR AmerenCILCO

DRAWN	SPH
CHKD.	GTH
SUPV.	
APPD.	

PROPOSED 150 CAR LOOP TRACK
FOR EDWARDS POWER PLANT
BARTONVILLE, ILLINOIS

LOCATION	CROSS SECTIONS -- RUNAROUND TRACK STA. 1+23.8 TO STA. 6+86.72	CLASS
ST. LOUIS, MISSOURI AmerenCILCO	DRAWING NO. 03057-1X	SHEET NO. 25 OF 25	REV. 2

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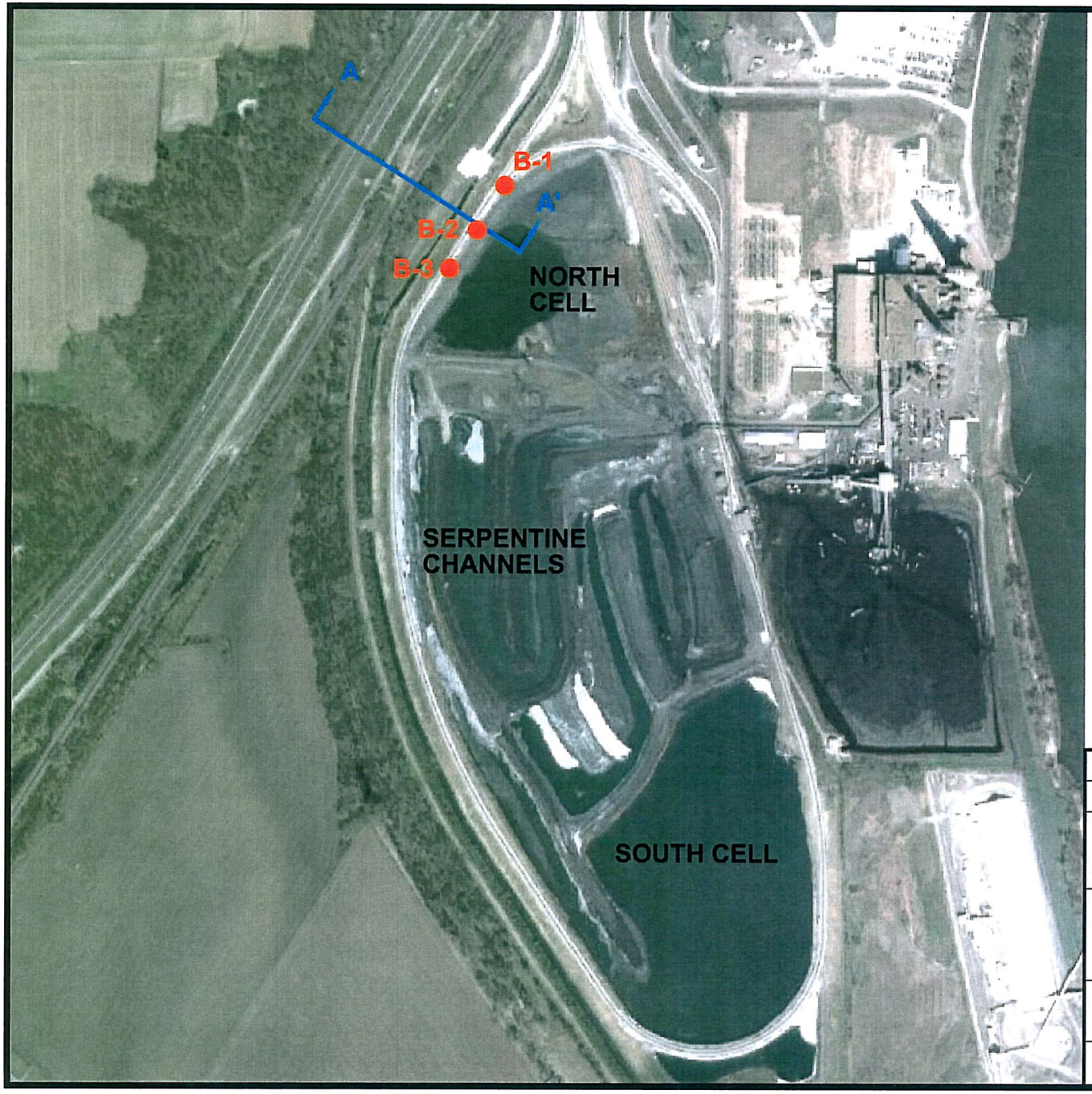
AECOM

Appendix C: Edwards Power Station Piezometer Locations



NOTES

1. Plan adapted from an aerial drawing courtesy of Google Earth, dated May 14, 2004.

LEGEND

- Boring Location
- Slope Stability Cross Section

N

0 1000 2000

SCALE IN FEET

Drawn By: SLC	Ck'd By: SA	App'vd By: DJW
Date: 11-09-10	Date: 12/2/10	Date: 1/4/11

GEOTECHNOLOGY INC.
ENGINEERING AND ENVIRONMENTAL SERVICES
ST. LOUIS • COLLINSVILLE • KANSAS CITY

E. D. Edwards Power Station
Bartonville, Illinois

AERIAL PHOTOGRAPH OF SITE AND BORING LOCATIONS

Project Number J017150.01	PLATE 2

EXPLORATION METHOD (B=BORING, C=CPT, P=PIEZOMETER)

XXX-X###

ID NUMBER

STATION ABBREVIATION

SOURCE:
MAP PROVIDED BY GOOGLE EARTH PRO 2015

LEGEND

PIEZOMETER LOCATION

CCR UNIT BERM ALIGNMENT

N

0 400

APPROXIMATE SCALE FEET

Illinois Power Resources Generating, LLC

PROJECT NO. 60440202

AECOM

DRN. BY: djd October 2015
DSGN. BY: eg
CHKD. BY: eg

Edwards Ash Pond Piezometer Locations

FIG. NO. 2A

File: P:\PROJECTS\GEOTECH\60428794_DYNEGYCCR\Q4TASKS\00 PROGRAM TASKS\1.0 TASK 1 INITIAL UNIT ASSESSMENT\CCR FACT SHEETS\SITE MAPS\FIGURE 2A PIEZOMETER LOCATION PLAN (EDWARDS ASH POND).DWG Last edited: NOV. 04, 15 @ 09:32 a.m. by: david_deguire

AECOM

Appendix D: Operation and Maintenance Manual for Ash Ponds and Levees

Edwards Power Station

Operational Procedure

x-xxx-xxxx--xxx

Operation & Maintenance Manual for Ash Ponds and Levees

Effective Date: xx/xx/xxxx

Reason for Change: New Procedure

Approved By: *x* Date: xx/xx/xxxx

x
Greg Russell

Responsible Department: Edwards Power Station, Technical Services Department

- ☐ This entire document shall be in the field during procedure performance.
- ☐ The following portions of this procedure shall be in the field during procedure performance: _____
- ☐ _____ from this procedure shall be in the field during procedure performance.
- ☐ No part of this procedure is required to be in the field during procedure performance.

Table of Contents

1.0 Purpose

1.1 This procedure is intended to ensure the safe and environmentally responsible operation and use of all water impoundment and levee structures at Edwards Power Station facility. The primary purpose of the Edwards Fly Ash Pond is for the storage of fly ash and treatment of fly ash sluice water to meet NPDES Permit Conditions. The primary purpose of the Pekin-Lamarsh Levee is flood prevention. This procedure then assures:

1.1.1 The embankment structures and flow regulating structures are properly operated and maintained.

1.1.2 Inspections of these structures are conducted.

1.1.3 A maintenance program will be performed.

1.1.4 Communication takes place with the Dam Safety Staff regarding the structures' condition and operation.

2.0 Scope

2.1 This procedure applies to all onsite personnel and the Dam Safety Group staff.

3.0 Responsibilities

3.1 On-site Technical Services – Conducts ash pond and levee embankment and structure observations and completes the inspections, reporting any undesirable conditions to the Supervising Engineer, Dam Safety.

3.2 On-site personnel – Operates the facilities as described in this Operational Procedure. Reports any conditions noted during routine activities to the shift supervisor. Coordinates scheduling of maintenance as required to maintain proper operations of the ash pond facility.

3.3 Shift Supervisor (SS) - Calls Technical Service personnel when structure concerns are reported. Make entries into the shift log book indicating the concern and actions taken.

3.4 Supervising Engineer, Dam Safety - Conducts annual detailed dam safety inspections and provides a report with findings and recommendations.

4.0 Historical Information

4.1 Plant construction started in 1959. The original ash pond was located north of Unit 1 in the area of the current switch yard. In the 1960's, the current

ash pond was opened. Original plans show the top of berm elevation to be constructed at 462'. Site surveys and geotechnical borings show the height of the berm to be 455± and the clay core at 452±. In 2004, the top berm was raised and outer embankment thickened to allow for construction of a railroad loop for coal train unloading. The south end of the pond was cut-off by the rail loop embankment and was subsequently filled in with ash, then covered with a topsoil cap. Specifications for the construction of the original ash pond berm are not available.

4.2 The Pekin-Lamarsh Levee was constructed by the Pekin & Lamarsh Drainage and Levee District. The U.S. Army Corps of Engineers inspects the levee annually and sends the reports to the levee district. The levee district requested that the ash pond outlet pipe be inspected after the Corps inspection in 2008. Due to high water in the Illinois River, the inspection was not completed until December, 2009. The inspection report is on file in the Dam Safety office. Plans of the outlet pipe construction are on file as listed in the table below.

5.0 Flow Regulating Structures

5.1 Embankments

- North Levee (Pekin-Lamarsh Levee District)
  The North Levee is approximately 1300' long with a top elevation of 458'±. This levee was built prior to construction of the plant. There are no known levee penetrations in this portion of levee. Construction of the power plant broke the continuous section of levee into two parts. At the plant, the landside area has been filled to the top of levee. Nature of the fill is not known.

- South Levee (Pekin-Lamarsh Levee District)
  The South levee is approximately 2200' long with a top elevation of 458'±. The levee was constructed prior to construction of the plant. Penetrations thru the south levee include the ash pond drainage pipe and slide gate, cooling water intake, and cooling water discharge piping. Plans for construction of the ash pond drainage pipe, cooling water discharge duct, and cooling water intake pipe/screen house are on file. We currently do not have copies of the original levee drawings on file.

- Ash Pond (Bottom Ash / Fly Ash)
  Top of ash pond berm elevation was originally designed at Elevation 462.00, but the berm was not constructed to this elevation. See attached design plans (1960) and site surveys (2003). From boring logs done in 2003, the top of clay core is approximately 452±. This top of clay elevation

varies around the embankment. In 2004, the east and south berms were modified to accommodate the rail loop. Currently, the top of rail is at elevation 462.40 with top of subgrade being 2.2' below top of rail, or 460.20.

The ash pond is divided into several components: 1.) Fly ash settling basin on the south; 2.) Serpentine channels in the center; and 3.) Bottom ash/Process water basin on the north. The basins are separated by interior dikes constructed of ash. Elevations of the interior dikes are slightly above the exterior embankments at the serpentine channels. Water level in the pond should always be kept 2 feet below the level of the clay core (452.00) in the embankment. Therefore, normal high pool elevation is 450.00. This allows for 2.9 feet of storage depth over the top of the ash pond outlet structure; or approximately 116 acre-ft storage or 37,850,000 gallons (45% of 89 acres times 2.9' deep).

5.2 Structures

- Ash Pond Outlet Structure - The water level in the pond is regulated by the pond outlet structure on the east side of the pond. Plans showing the outlet structure and walkway are on file. The pond outlet structure shall be checked regularly (at least weekly or more often if there are excessive rain events) to ensure proper pond discharge. Elevation of the top of the structure is 447.1'446.1. Elevation of the walkway is 456.4'455.4. Normal depth of flow over the drop structure is 3 to 4 inches during non-rainfall discharge. A 36-inch diameter CMP exits the outlet structure.
- Outlet Pipe Slide Gate – A 36-inch diameter cast iron slide gate regulates flow from the ash pond to the Illinois River. In flood conditions, this gate is closed to prevent flood water from backing up into the pond. The gate is located on the south end of the Pekin-Lamarsh Levee. It is a positively seating gate (flood condition). The gate is actuated by a manual wheel operator at the top of the structure. Depth of the gate is approximately 25'. Plans showing the construction details of the slide gate structure are on file.
- Outlet Pipe Flap Gate – A 36-inch diameter circular cast-iron automatic drainage flap gate is located at the end of the ash pond outlet pipe, 90 feet downstream of the slide gate. This is a general purpose flap gate to keep debris and flow from entering the outlet pipe. The flap gate is 36" diameter. Plans showing notes relating to the flap gate construction are on file.
- Bottom Ash/Process Water Culvert Pipe – This culvert regulates the level of water in north basin of the Ash Pond. This pipe is located in a berm

constructed from ash. Flowline elevations of the pipe are 449.38' inlet and 448.30' outlet.

- Fly Ash Culvert Pipes – Two culvert pipes are located near the sluice pipe outlet to deliver flow into either of two serpentine channels. Each serpentine channel is constructed of ash and used to settle-out the majority of ash prior to the flow entering the south basin. The two serpentine channels are alternated as the ash accumulates and is excavated or dredged from the channel.

6.0 Operations Requirements

Normal Operation - Plant personnel shall monitor the level of all ash pond basins within the perimeter ash pond berm on a daily basis. If levels within any of the basins exceed the prescribed maximum levels, action shall be taken immediately to remedy the situation.

Normal Operating Levels	
Ash Pond Outlet Structure	447.1'
South Pond Water Level	447.3'
North Pond Process Water Culvert Pipe	449.38
North Basin Water Level	449.5'

Illinois River Flood Stage – Plant personnel shall monitor the Illinois River level when approaching and exceeding flood stage on a daily basis. When river level equals the ash pond water level and the river is rising, the slide gate at the Pekin-LaMarsh levee should be closed. Ash pond water levels and river levels should then be monitored on a daily basis to determine when the slide gate should be opened to allow flow from the pond to the river. At no time should water from the river be allowed to flow into the pond.

Emergency Conditions – If a condition arises where there is a possibility of an embankment failure, then the following procedures will be followed:

1. Notify the Supervising Engineer Dam Safety immediately.
2. The pond level will be lowered by portable pumps. Monitor the embankment for changed conditions.

7.0 Maintenance Requirements

7.1 Maintenance Program - The plant's impoundment and flood prevention structures shall be inspected and maintained in a manner to ensure safe and environmentally responsible operations. A regular maintenance program shall be performed and shall consist of the following inspection items:

1. Earth embankments: Walk the crest, side slopes, and downstream toe of the dam concentrating on surface erosion, seepage, cracks,

settlement, slumps, slides, and animal burrows. Frequency of inspection: Quarterly.

2. Vegetation: Grass should be a thick vigorous growth to stabilize the earth embankment soils and prevent erosion form occurring. Note the height of the grass; if greater than one foot a mowing of the area should be scheduled before the next inspection. There should be NO trees on the earth embankment and none within a minimum of 20 feet of the embankment toe or other structures. Frequency of inspection: Quarterly.
3. Pond Outlet Structure: Check for any debris or other obstructions around the concrete inlet which may block or restrict the flow of water. Check for the development of any rusty areas on the concrete, and seepage, cracking, breaking, or spalling of concrete. Check for settlement or cracking in the walkway structure. Frequency of inspection: Quarterly.
4. Outlet Pipe Slide Gate: Check the structure for development of any rusty areas on the concrete, and seepage, cracking, breaking, or spalling of concrete. Check the slide gate stem, grease the stem, and operate the slide gate through its full range of motion to ensure proper operation. Check for buildup of debris in the manhole. Frequency of inspection: Quarterly.
5. Pond/Levee Perimeter: Check the perimeter of the embankment and levee for a distance of at least 100 feet from the toe for signs of seepage or boils. Inspection frequency for levee will be determined by Dam Safety Engineer during flood events. Frequency of ash pond embankment inspection: Quarterly for ash pond embankment.
6. Special Inspections – Special inspections of the levees and ash pond berms shall be performed after earthquakes, floods, water level exceedance in the ponds, or heavy rainfall events. Inspection and report shall be equal to an annual inspection level of detail. Water level in the pond should be noted after a heavy rainfall. Dam Safety staff shall accompany plant personnel on special inspections. Frequency: As required.

8.0 Maintenance Logs

8.1 Plant personnel shall maintain an up-to-date log of operations (water levels, gate adjustments, inlet and outlet flows, serpentine channels, etc.), visual observations, unusual occurrences, and maintenance performed. The log book shall be reviewed during the Annual Engineering Inspection. Logs shall be kept for the life of the plant.

9.0 Contact Numbers

Plant Environmental Supervisor: Mark Davis / 309-633-2861
Plant Operations Office: 309-633-2409
Plant Control Room: 309-633-2428 / 309-633-2425
Supervising Engineer Dam Safety: Steve Bluemner / 314-554-6298
Dam Safety Staff Contact: Mike Wagstaff / 314-554-6296

10.0 References

10.1 AER - DSP-004, "Dam Safety Program for Non-Illinois Department of Natural Resources (non-IDNR) Regulated Facilities"

10.2 Drawings

Drawing Number	Sheet Name	Date
C175-G1915 Rev 2 Sheet A	Corps Permit Applications (Pekin-Lamarsh Levee Penetrations)	6-30-1960
C175-G3902 Rev. Sheet 3	Edwards Plant Site Layout	2-21-1986
C175-G3903 Rev. W Sheet 1	Plant Yard Layout	7-1-1969
C175-G3902 Rev. 0 Sheet 1	Plant Site Survey and Layout	8-7-1967
C175-G1913 Rev. C Sheet 2	Yard Drainage Details	7-31-1958
C175-G1913 Rev. Sheet 3	Yard Drainage Details – Catch Basins and Manholes	4-22-1958
C175-G1906 Rev. A Sheet 5	Plant Site Fill – Depressions Infill for Yard Foundations	5-14-1958
CSK-010 Rev. 0 Sheet	Sanitary Sewer Force Main Plan	2-19-2007
03057-	Proposed 150 Car Loop Track	12-3-2003
C175-G1906 Rev. D Sheet 1	Plant Site Fill – Phase #1	5-6-1958
C175-G1906 Rev. C Sheet 4	Plant Site Fill – Phase #1	5-6-1958
C175-G1906 Rev. B Sheet 2	Plant Site Fill – Phase #2	5-6-1958
C175-G1906 Rev. F Sheet 3	Plant Site Fill – Phase #3	5-6-1958
C175-G1921 Rev. D Sheet 2	Construction Thru Levee / Ash Pond Drainage Duct Detail	6-17-1958
201032 S-1 Rev 1	Overflow Pipe Area Site Plan / Ash Pond Floating Boom Replacement	7-23-2004
201032 S-2 Rev 1	Access Bridge Steel Framing / Ash Pond Floating Boom Replacement	7-23-2004
201032 S-3 Rev 1	Ash Pond Floating Boom Replacement / Hardboom and Stiff Arm Details	7-23-2004
C175-G3077 Rev. C Sheet 2	Site Equipment & Piping Layout	9-10-1976

10.3 Easements: Executed Easement Agreement dated 7 August 1957, between Pekin & Lamarsh Drainage and Levee District and Central Illinois Light

Company, for an easement in perpetuity for the maintenance of the levee. A copy of this document resides in the Dam Safety files.

11.0 Records

	Record Type	Responsible Person	Retention Period	Location
11.1	Copies of weekly inspections	Plant Technical Services	Life of plant	Onsite Environmental Supervisor and Dam Safety Department office
11.2	Copies of Quarterly inspections	Plant Technical Services	Life of plant	Onsite Environmental Supervisor and Dam Safety Department office
11.3	Log Book	Plant Technical Services	Life of plant	Onsite Environmental Supervisor office

AECOM

Appendix E: Photos of 2009 Surficial Movement

Figure E.1: Photo of 2009 Surficial Movement

Figure E.2: Photo of 2009 Surficial Movement

Figure E.3: Photo of Surficial Movement Area after Repairs

Figure E.4: Photo of Surficial Movement Area after Repairs