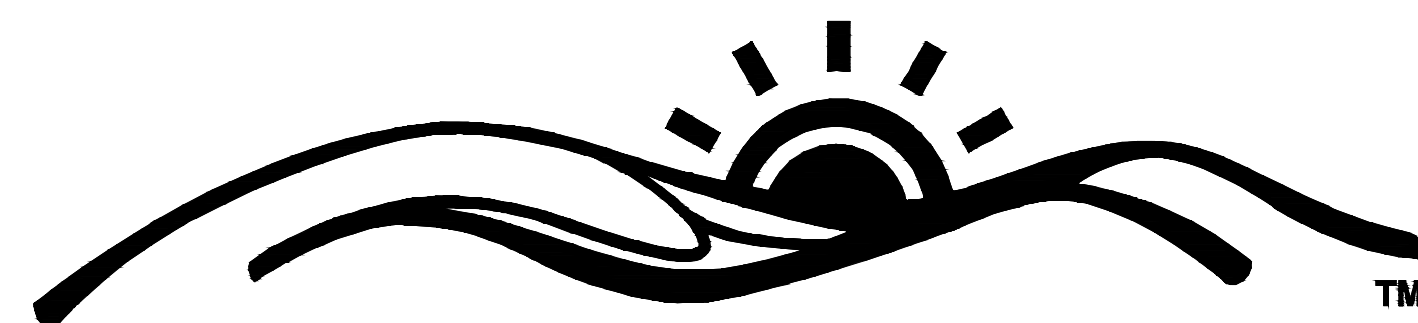


INSTALL PEDESTRIAN BRIDGE AT PLEASANT HILL OVER UNION PACIFIC RAILROAD

KATY TRAIL STATE PARK

PLEASANT HILL, MISSOURI



**MISSOURI
STATE PARKS**

*Missouri State Parks is a division of the
Missouri Department of Natural Resources*

1659 EAST ELM ST (65101)
PO Box 176
JEFFERSON CITY, MO 65101
PROGRAM TELEPHONE: 573-526-1699
PROGRAM FAX: 573-526-4395

OWNER: STATE OF MISSOURI
MICHAEL L. PARSON, GOVERNOR

DEPARTMENT OF
NATURAL RESOURCES
DIVISION OF STATE PARKS

PROJECT
MANAGEMENT: OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES MANAGEMENT,
DESIGN AND CONSTRUCTION

DESIGNER: THOUVENOT, WADE &
MOERCHEN, INC.
3316 LEMONE INDUSTRIAL BLVD,
SUITE 2
COLUMBIA, MISSOURI 65201

PROJECT NUMBER: X2311-01

SITE NUMBER: 5501

FACILITY NUMBER: 7815501070

THOUVENOT,
WADE &
MOERCHEN, INC.

3316 LEMONE INDUSTRIAL BLVD, SUITE 2
COLUMBIA, MO 65201



CONSULTING ENGINEERING
GEOSPATIAL SERVICES

TEL (573) 442-6474

MO. CERTIFICATE OF AUTHORITY: 001528

BID DOCUMENT SUBMITTAL 6/14/2024

SHEET NUMBER:

G-001

1 OF 47 SHEETS
6/14/2024

INDEX OF SHEETS

TOTAL SHEETS	SHEET NUMBER	DESCRIPTION
--------------	--------------	-------------

GENERAL

1	G-001	COVER SHEET
2	G-100	SITE MAP & INDEX OF DRAWINGS
3	G-101	GENERAL NOTES

CIVIL

4	V-001	HORIZONTAL ALIGNMENT
5	V-002	SURVEY CONTROL
6	C-101	PLAN AND PROFILE (OVERALL LAYOUT)
7	C-102	PLAN AND PROFILE - STA. 15+50 TO STA. 21+00
8	C-103	PLAN AND PROFILE - STA. 21+00 TO STA. 27+00
9	C-104	PLAN AND PROFILE - STA. 27+00 TO STA. 29+50
10	C-201	EROSION AND SEDIMENT CONTROL
11-23	C-301 TO C-313	CROSS SECTIONS
24	C-401	STORMWATER DRAINAGE
25	C-501	DETAILS - TYPICAL EMBANKMENT SECTIONS
26	C-502	DETAILS - EROSION AND SEDIMENT CONTROL

STRUCTURAL

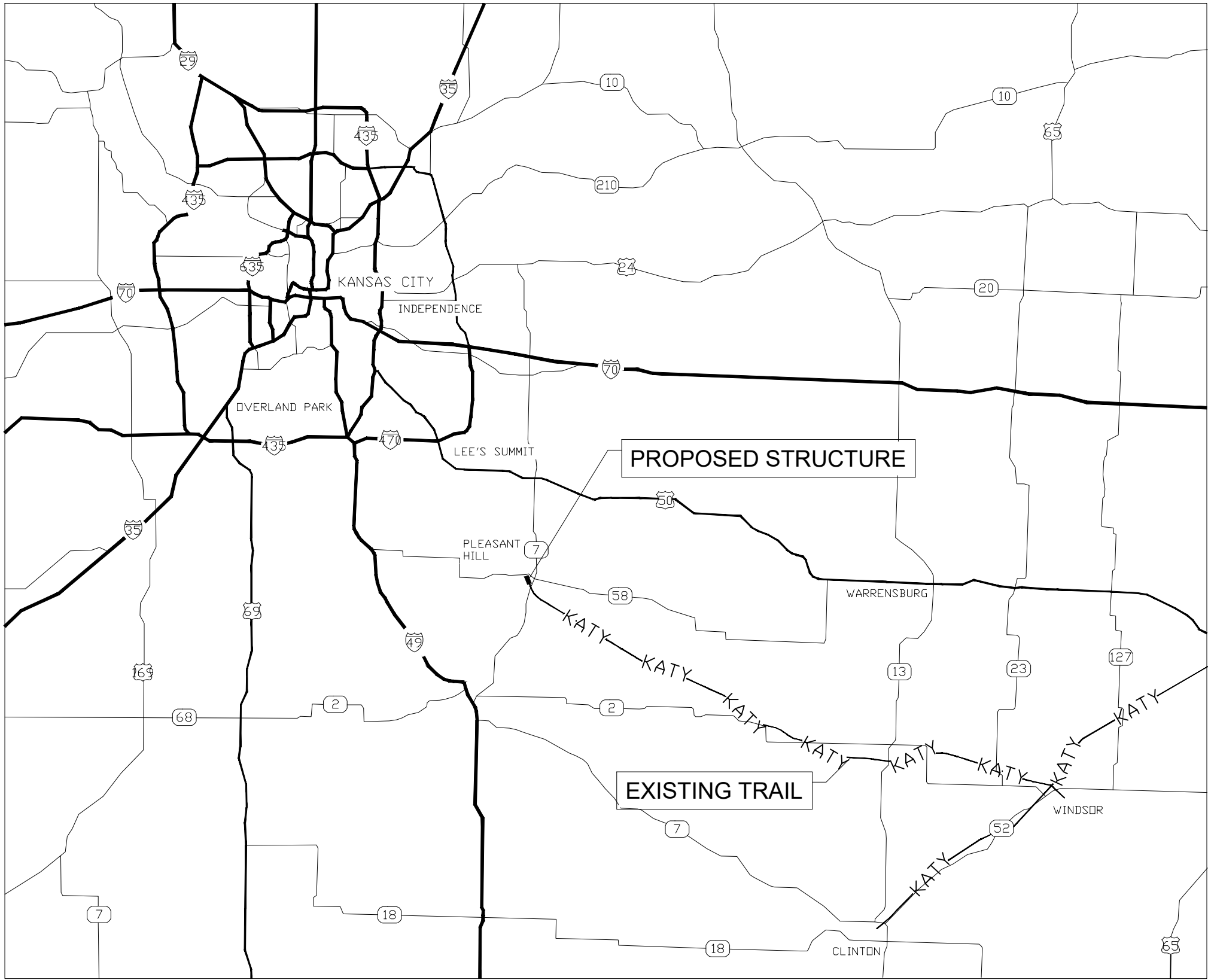
27	S-101	GENERAL PLAN AND ELEVATION
28	S-102	GENERAL PLAN AND ELEVATION STA. 15+50 TO STA. 20+25
29	S-103	GENERAL PLAN AND ELEVATION STA. 20+25 TO STA. 25+00
30	S-104	GENERAL PLAN AND ELEVATION STA. 25+00 TO STA. 29+50
31	S-105	GENERAL NOTES AND FOUNDATION DATA
32	S-106	GENERAL SITE PLAN & TRACK STATIONING
33	S-107	RAILROAD REQUIREMENTS & TRACK PROFILE
34	S-108	FUTURE PIER PROTECTION REQUIREMENTS
35	S-109	BRIDGE DECK DRAINAGE PLAN
36	S-110	ABUTMENT DETAILS
37	S-111	PIER DETAILS (HP PILE - OPTION A)
38	S-112	PIER DETAILS (HP PILE - OPTION A)
39	S-113	PIER DETAILS (SHELL PILE - OPTION B)
40	S-114	PIER DETAILS (SHELL PILE - OPTION B)
41	S-115	APPROACH SLAB AND ABUTMENT DRAIN DETAILS
42	S-116	BRIDGE RAILING DETAILS
43	S-117	APPROACH RAILING DETAILS
44	S-118	APPROACH RAILING DETAILS
45	S-119	BILL OF REINFORCING STEEL
46	S-120	SITE ACCESS (NORTH) AND WETLAND IMPACTS
47	S-121	SITE ACCESS (SOUTH) AND WETLAND IMPACTS

LEGEND

EX. CENTER LINE	-----	SIGNS	⏏
EX. EASEMENT	-----	TREES, GENERAL	⊗
EX. OVERHEAD ELECTRIC	--- OHE --- OHE ---	ELECTRIC BOX	⊞
EX. UNDERGROUND ELECTRIC	--- UE --- UE --- UE ---	LIGHT POLE	⊗
EX. FIBER OPTIC	--- FO --- FO --- FO ---	POWER POLE	⊞
EX. FENCE	X X X X X	SANITARY SEWER MANHOLE	⊙
EX. GAS LINE	--- G --- G --- G ---	WATER VALVE	⊗
EX. RIGHT-OF-WAY	=====	WATER METER	⊙
EX. STORM SEWER LINE	=====	FIRE HYDRANT	⊗
EX. UNDERGROUND TELEPHONE	--- UT --- UT --- UT ---	GAS VALVE	⊙
EX. TREE LINE	~~~~~	GAS METER	⊙
EX. WATER LINE	--- W --- W --- W ---	TELEPHONE MANHOLE	⊙
PR. FENCE	X X X X X	DITCH CHECK	⏏
PR. SILT FENCE	○ ○ ○ ○ ○		
PR. STORM SEWER LINE	=====		

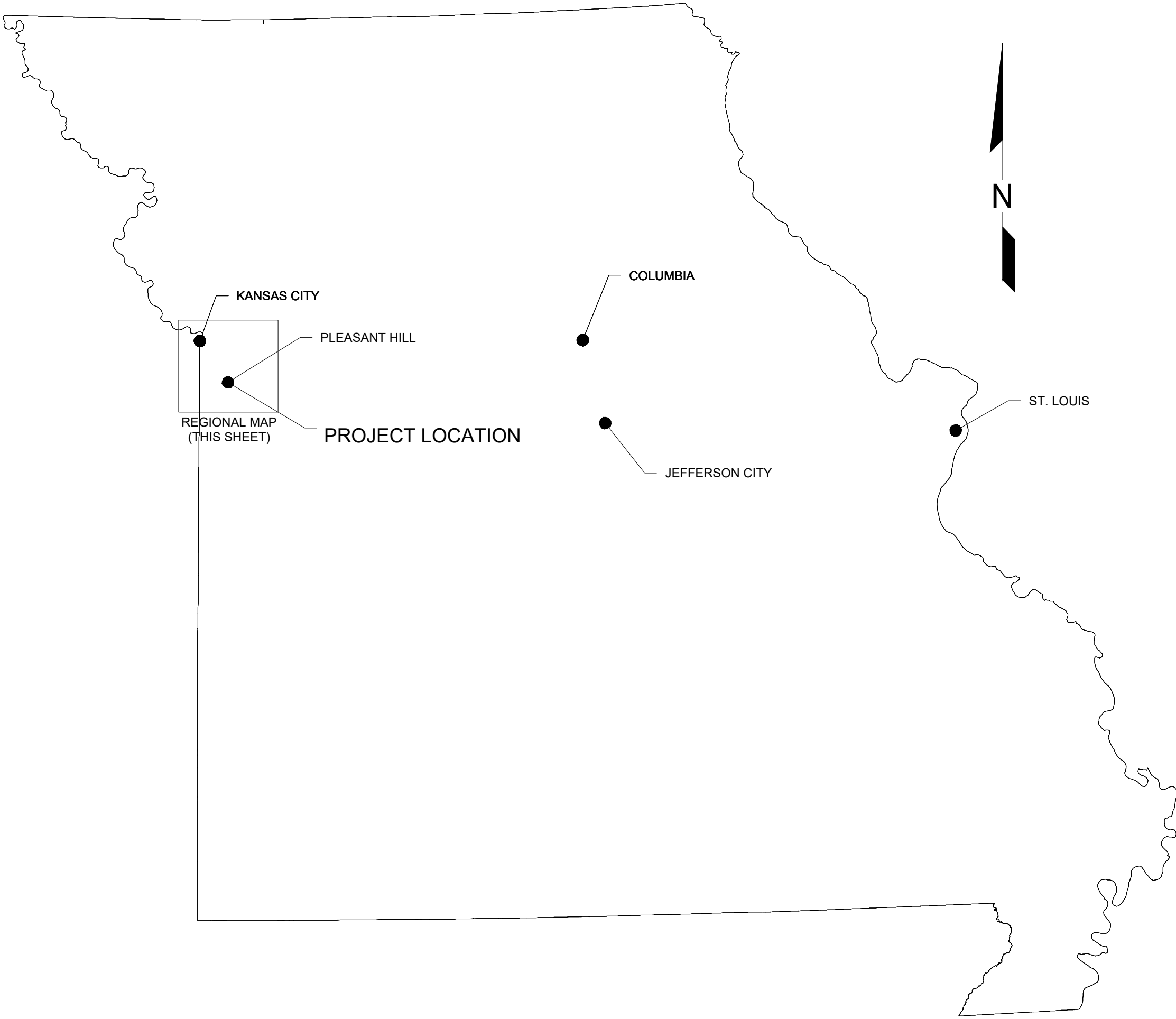
ABBREVIATIONS

ASPHALT	ASPH.	PROFILE GRADE LINE	PGL
ADJUST TO GRADE	ATG	POWER POLE	PP
ADJUST TO GRADE BY OTHERS	ATGBO	PROPOSED	PR. OR PROP.
BEARING	BRG.	PAVEMENT	PVMT.
BITUMINOUS	BIT.	RADIUS OR REMOVE	R
BACK OF CURB	BOC	REINFORCED CONCRETE PIPE	RCP
BEGINNING OF PROJECT	BOP	RIGHT HAND FORWARD	RHF
CENTERLINE	C.L.	ROAD	RD
CENTERS	CTS.	REMOVED AND REPLACED	R&R
CENTER TO CENTER	C-C	RIGHT OF WAY	R/W OR ROW
CLEAR	CL.	SHOULDER	SHLDR.
CONCRETE	CONC.	SPACED	SPA.
CORRUGATED METAL PIPE	CMP	SQUARE FEET	S.F.
CUBIC YARDS	C.Y.	STATION	STA.
DO NOT DISTURB	DND	STORM SEWER	STM
DRIVE	DR	TEMP. CONSTRUCTION EASEMENT	T.C.E.
DOWN STREAM	D.S.	TO BE ABANDONED	TBA
EACH	EA.	TO BE REMOVED	TBR
ELEVATION	ELEV. OR EL.	TO BE REM'D AND REPLACED BY OTHERS	TBRBO
END OF PROJECT	EOP	TO BE REM'D AND REPLACED BY CONTRACTOR	TBRR
EDGE OF PAVEMENT	EOP	TO BE REM'D AND RELOCATED (BY CONTRACTOR)	TBR+R
EASEMENT	ESM'T.	TEMPORARY	TEMP.
EXISTING	EX. OR EXIST.	TYPICAL	TYP.
FLARED END SECTION	FES	USE IN PLACE	UIP
GAS VALVE	GV	UP STREAM	U.S.
GATE POST	GP	VITRIFIED CLAY PIPE	VCP
HYDRAULIC GRADE LINE	HGL	VERIFY IN THE FIELD	VIF
INFLOW	INF.	WATER VALVE	WV
INVERT	INV.	WATER METER	WM
LEFT HAND FORWARD	LHF		
MANHOLE	MH		
MEET EXISTING	MIN.		
MINIMUM	MIN.		
NOT TO SCALE	NTS		



REGIONAL MAP

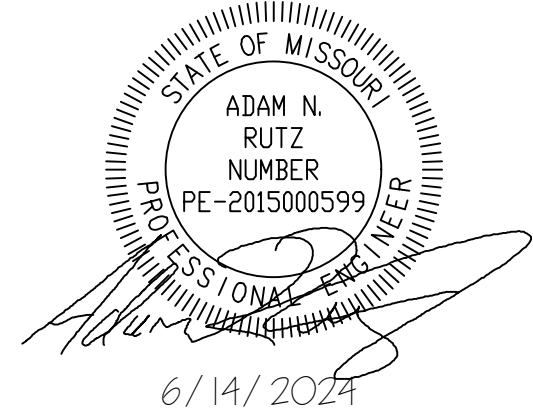
SCALE: NTS



STATE MAP

SCALE: NTS

STATE OF MISSOURI
MICHAEL L. PARSON,
GOVERNOR



CONSULTING ENGINEERING
GEOSPATIAL SERVICES

ILLINOIS	SWANSEA COLUMBIA PEORIA GLEN CARBON DECATUR ST. CHARLES ST. LOUIS COLUMBIA CHATTANOOGA NASHVILLE
MISSOURI	
TENNESSEE	

THOUVENOT, WADE
& MOERCHEN, INC.

COLUMBIA OFFICE
3316 LEMONE INDUSTRIAL BLVD SUITE 2
COLUMBIA, MISSOURI 65201
(573) 442-6474
WWW.TWM-INC.COM
MO. CERTIFICATE OF AUTHORITY: 001528

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES
MANAGEMENT,
DESIGN AND CONSTRUCTION

DEPARTMENT OF
NATURAL RESOURCES
MISSOURI STATE PARKS

INSTALL PEDESTRIAN BRIDGE
AT PLEASANT HILL OVER
UNION PACIFIC RAILROAD

KATY TRAIL STATE PARK
PLEASANT HILL, MO

PROJECT # X2311-01
SITE # 5501
FACILITY # 7815501070

REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
ISSUE DATE: 6/14/2024

CAD DWG FILE: _____
DRAWN BY: MAL _____
CHECKED BY: ANR _____
DESIGNED BY: MAL _____

SHEET TITLE:
SITE MAP &
INDEX OF DRAWINGS

SHEET NUMBER:
G-100
2 OF 47 SHEETS
6/14/2024

GENERAL NOTES:

1.

PRIOR TO COMMENCEMENT OF ANY WORK OR ORDERING ANY MATERIALS, THE CONTRACTOR SHALL REVIEW ALL PLANS, SPECIFICATIONS, AND THE PROJECT SITE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING THE OWNER AND THE ENGINEER WHO PREPARED THE PLANS OF ANY DISCREPANCIES THAT MAY REQUIRE MODIFICATION TO THESE PLANS OR OF ANY FIELD CONFLICTS.
2.

SHOULD IT APPEAR THAT THE WORK TO BE PERFORMED OR ANY MATTER RELATIVE THERETO IS NOT SUFFICIENTLY DETAILED OR EXPLAINED ON THESE PLANS, THE CONTRACTOR SHALL CONTACT THE ENGINEER FOR SUCH FURTHER EXPLANATIONS AS MAY BE NECESSARY.
3.

THESE PLANS AND SPECIFICATIONS ARE SUBJECT TO MODIFICATIONS DURING CONSTRUCTION WHEN CONDITIONS DEVELOP THAT WERE NOT APPARENT DURING THE DESIGN AND PREPARATION OF THE PLANS AND SPECIFICATIONS. ALL MODIFICATIONS MUST BE APPROVED BY ALL PERTINENT AGENCIES HAVING JURISDICTION OVER THIS PROJECT PRIOR TO CONSTRUCTION AND/OR IMPLEMENTATION OF ANY PROPOSED CHANGES.
4.

IN THE EVENT OF ANY DISCREPANCY BETWEEN ANY DRAWING OR ANY DRAWING AND SPECIFICATION AND FIGURES WRITTEN THEREON, THE CONTRACTOR SHALL NOTIFY THE ENGINEER FOR WRITTEN CLARIFICATION OF THE DISCREPANCY PRIOR TO COMMENCING THE WORK IN QUESTION.
5.

THE CONTRACTOR AGREES THAT IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, THE CONTRACTOR WILL BE REQUIRED TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR PROJECT SITE(S) CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THE PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY. THIS REQUIREMENT SHALL BE MADE TO APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS. THE CONTRACTOR FURTHER AGREES TO DEFEND, INDEMNIFY, AND HOLD THE OWNER AND DESIGN PROFESSIONAL HARMLESS OF ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT.
6.

THE OWNER AND ENGINEER SHALL NOT BE RESPONSIBLE FOR OR HAVE CONTROL OVER CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES IN CONNECTION WITH THE WORK, INCLUDING SITE SAFETY.
7.

ALL WORKMANSHIP, EQUIPMENT, MATERIALS, AND TESTING SHALL CONFORM TO THE PERTINENT MUNICIPAL, COUNTY, STATE, AND FEDERAL JURISDICTIONS AND AGENCIES HAVING AUTHORITY OVER THIS PROJECT. IN ADDITION, ALL WORKMANSHIP, EQUIPMENT, MATERIALS, AND TESTING SHALL CONFORM TO THE RESPECTIVE UTILITY COMPANY REQUIREMENTS. ALL EQUIPMENT, MATERIALS, AND PRODUCTS SHALL BE OF THE LATEST MANUFACTURE AND COMPLY WITH THE MOST UP TO DATE SPECIFICATIONS AT THE TIME OF BIDDING OF THE PROJECT.
8.

REMOVE ALL WASTE MATERIALS, INCLUDING EXCAVATED MATERIAL, TRASH AND DEBRIS WITHIN PROJECT LIMITS, AND DISPOSE OF IT IN ACCORDANCE WITH SOLID WASTE LAW OFF-SITE.
9.

CONTRACTOR SHALL REPLACE ALL FENCES, SIGNS, ETC. DAMAGED BY THIS CONSTRUCTION. PROVIDE PROTECTION NECESSARY TO PREVENT DAMAGE TO EXISTING CONDITIONS, TREES, ETC.
10.

CONTRACTOR IS RESPONSIBLE FOR THE PROTECTION OF WORK UNTIL SUBSTANTIAL COMPLETION OR PARTIAL OCCUPANCY. SITE SECURITY IS THE CONTRACTOR'S RESPONSIBILITY.
11.

THE CONTRACTOR SHALL CONFINE HIS/HER OPERATIONS TO THE AREA LOCATED WITHIN THE CONSTRUCTION RIGHT OF WAY LINES, AS SHOWN ON PLANS. ANY AREA DISTURBED BEYOND THESE LIMITS SHALL BE RESTORED TO ITS ORIGINAL CONDITION AT THE CONTRACTOR'S EXPENSE.
12.

IT IS NOT WARRANTED THAT THIS DOCUMENT CONTAINS COMPLETE INFORMATION REGARDING EASEMENTS, RESERVATIONS, RESTRICTIONS, RIGHT-OF-WAYS, BUILDING LINE SETBACKS, AND OTHER ENCUMBRANCES. FOR COMPLETE INFORMATION, A TITLE OPINION OR COMMITMENT FOR TITLE INSURANCE SHOULD BE OBTAINED AND THOROUGHLY REVIEWED.
13.

IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO MAINTAIN POSITIVE DRAINAGE THROUGHOUT CONSTRUCTION. THIS INCLUDES ALL LABOR AND MATERIALS USED BEYOND WHAT IS SPECIFIED IN THE PLANS. ITEMS DEEMED NECESSARY FOR MAINTAINING DRAINAGE ARE CONSIDERED TO BE THE RESPONSIBILITY OF THE CONTRACTOR AND WILL NOT BE PAID SEPARATELY.
14.

THE ENTIRE PROJECT AREA WILL BE ACCESSIBLE TO CONTRACTOR DURING CONSTRUCTION, HOWEVER, THE OWNER, ALONG WITH POTENTIALLY OTHER CONTRACTORS, WILL BE WORKING IN CONJUNCTION ON PORTIONS OF THE TRAIL. CONTRACTOR WILL HAVE TO COORDINATE WORK WITH OTHERS. SEE SPEC SECTION 013100.

ROADWAY AND DRIVEWAY / PRIVATE CROSSING NOTES:

1.

ANY PAVEMENT REMOVED OR DAMAGE BY CONTRACTOR'S CONSTRUCTION ACCESS SHALL BE REPLACED, "IN KIND" AT THE WHOLE COST AND EXPENSE OF THE CONTRACTOR.
2.

THE CONTRACTOR SHALL KEEP ALL ROADWAYS (INCLUDING SHOULDERS) AND DRIVEWAY / PRIVATE CROSSINGS CLEAR OF DIRT, MUD, DEBRIS, TRAIL ROCK, EQUIPMENT AND MATERIALS AT TIMES.
3.

CONTRACTOR SHALL NOTIFY PROPERTY OWNERS 24 HOURS IN ADVANCE OF ANY DISRUPTED ACCESS TO THEIR DRIVEWAY / PRIVATE CROSSING.
4.

ALL LANE CLOSURES MUST BE APPROVED IN ADVANCE BY THE RESPECTIVE CITY, COUNTY, OR MoDOT.

TRAFFIC CONTROL AND SIGNAGE:

1.

CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR PROVIDING AND INSTALLING ANY AND ALL TRAFFIC BARRICADES, MARKERS, SIGNS, FLAGMEN, TRAFFIC POLICE, AND/OR OTHER FACILITIES AS MAY BE REQUIRED BY THE VARIOUS JURISDICTIONS HAVING AUTHORITY OVER THIS PROJECT TO PROTECT THE GENERAL PUBLIC. SIGNS AND PROTECTIVE DEVICES SHALL CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS. THE CONTRACTOR SHALL HAVE THE RESPONSIBILITY OF NOTIFYING THE STATE AND LOCAL POLICE, EMERGENCY SERVICES AGENCIES, AMBULANCE SERVICES, POSTAL SERVICE AND FIRE DEPARTMENTS OF ANY PROPOSED TRAFFIC DIVERSION.
2.

ALL TRAFFIC CONTROL INCLUDING BUT NOT LIMITED TO, WORK ZONE, TEMPORARY, AND PERMANENT, SHALL BE FURNISHED, INSTALLED, MAINTAINED, RELOCATED, AND/OR REMOVED IN ACCORDANCE WITH SECTION 616 OF THE LATEST EDITION OF THE MODOT ENGINEERING POLICY GUIDE AND THE LATEST EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
3.

TRAIL SIGNAGE NOT SHOWN ON THE PLANS FOR CLARITY. TRAIL SIGNAGE WILL BE INSTALLED BY THE OWNER.

EXISTING UTILITIES AND FACILITIES:

1.

NOTIFY UTILITY OFFICES THAT ARE AFFECTED BY CONSTRUCTION OPERATIONS AT LEAST 72 HOURS IN ADVANCE. UNDER NO CIRCUMSTANCES EXPOSE ANY UTILITY WITHOUT FIRST OBTAINING PERMISSION FROM THE APPROPRIATE AGENCY. CONTRACTOR IS RESPONSIBLE FOR CONTACTING MISSOURI ON-CALL PRIOR TO PERFORMING CONSTRUCTION ACTIVITIES.
2.

CONTRACTOR IS RESPONSIBLE FOR COMPLIANCE WITH ALL ASPECTS OF MISSOURI UNDERGROUND FACILITY SAFETY AND DAMAGE PREVENTION STATUTE RSMO 319.015 TO 319.050.
3.

THE TYPE, SIZE AND LOCATION OF UTILITIES AS DELINEATED ON THE PLANS AND SPECIFICATIONS HAVE BEEN DETERMINED BY REVIEW OF AVAILABLE EXISTING "AS-BUILT," OR "RECORD" DRAWINGS; FIELD SURVEY OF ONE CALL MARKED UTILITIES; OR FIELD SURVEY OF ABOVE GROUND SURFACE UTILITY FEATURES. THE OWNER AND ENGINEER HAVE NOT UNDERTAKEN SURFACE OR SUB-SURFACE EXPLORATORY INVESTIGATIONS TO CONFIRM OR VERIFY THE LOCATION OF UTILITIES ON THE PROJECT SITE. THEREFORE ALL UTILITY LOCATIONS, SIZE, AND FUNCTION MUST BE CONSIDERED APPROXIMATE AND THE CONTRACTOR MUST VERIFY ALL UTILITIES IN THE FIELD.
4.

THE ENGINEER AND OWNER FURTHER DO NOT WARRANT THAT ALL UTILITIES HAVE BEEN ILLUSTRATED ON THE PLANS. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR CONTACTING MISSOURI ONE CALL AND/OR THE PERTINENT UTILITY FOR FIELD VERIFICATION OF ALL UTILITIES ON THE SITE PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION OPERATIONS. IF THE CONTRACTOR DETERMINES THAT SUBSTANTIAL DISCREPANCY EXISTS BETWEEN FIELD VERIFIED UTILITIES AND THESE PLANS WHICH WOULD SIGNIFICANTLY AFFECT THE FUNCTION, COST, OR PERFORMANCE OF THE PROJECT, THE CONTRACTOR SHALL IMMEDIATELY CONTACT THE ENGINEER FOR CLARIFICATION AND PROJECT DESIGN COORDINATION.
5.

ANY RELOCATION OF PUBLIC OR PRIVATE UTILITIES SHALL BE UNDERTAKEN IN ACCORDANCE WITH ALL REQUIREMENTS OF THE UTILITY COMPANY AND WITH REGARD TO THE REQUIRED FEES, BONDS, PERMITS, AGREEMENTS, WORKING CONDITIONS, ETC. OF SAID COMPANY OR JURISDICTION. THE CONTRACTOR SHALL NOTIFY ALL UTILITY COMPANIES AND JURISDICTIONS A MINIMUM OF FORTY-EIGHT (48) HOURS PRIOR TO COMMENCEMENT OF WORK TO ALLOW THE UTILITIES TO MARK THEIR LINES OR TO ALLOW THE PERTINENT JURISDICTIONS TIME TO COORDINATE THEIR STAFF, MATERIALS, AND EQUIPMENT TO CONDUCT INSPECTION.
6.

THE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR ANY AND ALL DAMAGE TO EXISTING STRUCTURES, AND/OR UTILITIES DURING CONSTRUCTION. THE CONTRACTOR SHALL CONTACT THE APPROPRIATE UTILITY OR JURISDICTION TO PROPERLY REPAIR ANY FACILITIES DAMAGED IN THE COURSE OF THE WORK.
7.

ANY FACILITIES OR APPURTENANCES, WHICH ARE THE PROPERTY OF ANY PUBLIC UTILITY LOCATED WITHIN THE LIMITS OF CONSTRUCTION, SHALL BE RELOCATED OR ADJUSTED BY THEIR RESPECTIVE OWNERS. THE CONTRACTOR SHALL NOTIFY AND COOPERATE WITH THE OWNERS OF ANY SUCH FACILITY IN THEIR REMOVAL/ADJUSTMENTS AND ADJUST HIS OPERATIONS IN ORDER THAT, THE UTILITY'S OPERATIONS AND THE CONSTRUCTION OF THE PROJECT MAY PROGRESS IN A REASONABLE MANNER.
8.

ANY SUBSURFACE UTILITY WITHIN THE PROJECT LIMITS IS TO BE VERIFIED FOR ACTIVITY WITH RESPECTIVE UTILITY OWNER.
9.

ALL UTILITIES INCLUDING BUT NOT LIMITED TO FIRE HYDRANTS, VALVE PIT COVERS, VALVE BOXES, CURB STOP BOXES, FIRE OR POLICE CALL BOXES, TRAFFIC CONTROL SIGNALS, OR OTHER UTILITY CONTROLS SHALL BE UNOBSTRUCTED AND ACCESSIBLE DURING THE CONSTRUCTION PERIOD.
10.

WHERE CONTRACTOR'S OPERATIONS COULD CAUSE DAMAGE OR INCONVENIENCE TO RAILWAY, TELEPHONE, TELEVISION, POWER, OIL, GAS, WATER OR SEWER SYSTEMS, THE CONTRACTOR SHALL MAKE ARRANGEMENTS NECESSARY FOR THE PROTECTION OF THESE UTILITIES AND SERVICES. REPLACE EXISTING UTILITIES REMOVED OR DAMAGED DURING CONSTRUCTION UNLESS OTHERWISE PROVIDED FOR IN THESE CONTRACT DOCUMENTS. CONTRACTOR SHALL BE SOLELY AND DIRECTLY RESPONSIBLE TO THE OWNER AND OPERATOR OF SUCH PROPERTIES FOR DAMAGE, INJURY, EXPENSE, LOSS, INCONVENIENCE, DELAY, SUITS, ACTIONS, OR CLAIMS OF ANY CHARACTER BROUGHT BECAUSE OF INJURIES OR DAMAGE WHICH MAY RESULT FROM CONSTRUCTION OPERATIONS UNDER THIS CONTRACT.
11.

IN THE EVENT OF INTERRUPTION TO DOMESTIC WATER, SEWER, STORM DRAIN, OR OTHER UTILITY SERVICES AS A RESULT OF ACCIDENTAL DAMAGE DUE TO CONSTRUCTION OPERATIONS, PROMPTLY NOTIFY THE PROPER AUTHORITY. COOPERATE WITH SAID AUTHORITY IN RESTORATION AS PROMPTLY AS POSSIBLE AND PAY FOR REPAIR. PREVENT INTERRUPTION OF UTILITY SERVICE UNLESS GRANTED BY THE UTILITY OWNER.

RESTORATION NOTES:

1.

CONTRACTOR TO SEED AND MULCH ALL NON-PAVED / ROCKED AREAS DISTURBED BY THE CONSTRUCTION UNLESS OTHERWISE SPECIFIED ON THE PLANS AND SPECIFICATIONS. THE AREA OF DISTURBANCE SHALL BE MINIMIZED TO REDUCE SEEDING AND MULCH.
2.

RESTORATION OF THE SITE SHALL BE MADE WITH "IN KIND" MATERIALS.
3.

REPLACE DAMAGE TO OWNER OR PRIVATE PROPERTY WHERE NECESSARY TO MATCH PRE-CONSTRUCTION CONDITIONS.

CROSS SECTION NOTES (C-300 SERIES DRAWINGS)

1.

THE TRAIL SECTIONS (C-300 SERIES DRAWINGS) PROVIDED IN THE PLANS FOLLOW THE TYPICAL SECTIONS SHOWN ON THE DETAIL SHEETS. ANTICIPATED DEVIATIONS FROM THE TYPICAL SECTIONS ARE IDENTIFIED ON THE SECTION SHEETS.

GENERAL PROJECT SPECIFICATIONS

1.

THE CONTRACTOR IS RESPONSIBLE FOR CONFORMING TO ALL MISSOURI DNR STORM WATER PERMIT REQUIREMENTS AND FOR COMPLETING THE STORM WATER POLLUTION PREVENTION PLAN FOR THE PROJECT SITE.
2.

GENERAL PERMIT FOR STORM WATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITY (LAND DISTURBANCE GENERAL PERMIT NO. MO-R100038) HAS BEEN ISSUED FOR THE PROJECT AND IS PROVIDED IN THE PROJECT SPECIFICATIONS.
3.

FLOOD PLAIN MAP 29037C0069F, DATED 01-02-2013 PER HYDRAULIC STUDY, THE PROJECT IMPROVEMENTS ARE LOCATED IN ZONE AE REGULATORY FLOODWAY. USACE 404 PERMIT AND STATE OF MISSOURI FLOODPLAIN DEVELOPMENT PERMIT APPROVAL IS REQUIRED AND WILL BE PROVIDED BY THE STATE.
4.

IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE ALL TEMPORARY EROSION CONTROL MEASURES NECESSARY TO CONTROL POLLUTION, SEDIMENTATION, AND/OR EROSION CAUSED BY THE CONTRACTOR'S ACTIVITIES. WORK UNDER THIS ITEM SHALL CONFORM TO THE APPLICABLE PROVISIONS. THE TEMPORARY POLLUTION CONTROL PROVISIONS CONTAINED HEREIN SHALL BE COORDINATED WITH THE PERMANENT EROSION CONTROL FEATURES SPECIFIED ELSEWHERE IN THE CONTRACT TO THE EXTENT PRACTICAL TO ASSURE ECONOMICAL, EFFECTIVE, AND CONTINUOUS EROSION CONTROL THROUGHOUT THE CONSTRUCTION AND POST-CONSTRUCTION PERIODS. THE CONTRACTOR SHALL INCORPORATE ALL PERMANENT EROSION CONTROL FEATURES INTO THE PROJECT AT THE EARLIEST PRACTICAL TIME DURING CONSTRUCTION.
5.

ALL ITEMS DESIGNATED FOR REMOVAL SHALL BE DISPOSED OF OFF-SITE BY THE CONTRACTOR IN COMPLIANCE WITH ALL CITY, STATE, AND FEDERAL ENVIRONMENTAL REGULATIONS. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO REMOVE FROM THE SITE ANY AND ALL CONSTRUCTION MATERIALS AND DEBRIS RESULTING FROM THE CONSTRUCTION OPERATIONS.
6.

ALL WORK, MATERIALS, AND INSTALLATION SHALL NOT BE DEEMED SATISFACTORY UNTIL SUCH TIME THAT APPROVAL IS OBTAINED FROM THE AGENCY HAVING JURISDICTION OVER THE PROJECT.
7.

THE CONTRACTOR SHALL PROCEED AT HIS OWN RISK IN PERFORMING ANY WORK PRIOR TO VERIFYING OR RECEIVING ALL NECESSARY PERMITS.
8.

WHERE SECTION OR SUBSECTION SURVEY MONUMENTS ARE ENCOUNTERED, THE CONTRACTOR SHALL PROTECT AND CAREFULLY PRESERVE ALL PROPERTY MARKERS AND MONUMENTS UNTIL THE OWNER AND AUTHORIZED SURVEYOR OR AGENT, HAVE WITNESSED OR OTHERWISE REFERENCED THEIR LOCATION.
9.

TREE CLEARING SHALL BE RESTRICTED TO THE PERIOD BETWEEN NOVEMBER 1 AND MARCH 31 TO PREVENT ANY INCIDENTAL TAKE OF FEDERAL ENDANGERED BATS. IF TREE CLEARING IS PLANNED OUTSIDE OF THE ABOVE DATES, THE CONTRACTOR MUST PERFORM A BAT SURVEY IN ACCORDANCE WITH CONSULTATION WITH THE U.S. FISH AND WILDLIFE SERVICE.
10.

EXISTING WETLANDS ARE PRESENT ONSITE, HOWEVER, NO PERMANENT IMPACTS ARE PLANNED OR ANTICIPATED AS PART OF CONSTRUCTION FOR THIS PROJECT. SITE ACCESS AND ANTICIPATED TEMPORARY IMPACTS ARE SHOWN ON SHEET S-120 AND S-121. USACE NATIONWIDE PERMIT APPROVAL IS REQUIRED AND WILL BE PROVIDED BY THE STATE. CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORATION OF TEMPORARY IMPACTED WETLANDS AS DESCRIBED IN THE APPROVED PERMIT.
11.

CONTRACTOR IS RESPONSIBLE FOR ALL RAILROAD COORDINATION, OBTAINING A RIGHT-OF-ENTRY AGREEMENT, FLAGGING / PROTECTION FOR WORK ACTIVITIES ON OR NEAR RAILROAD PROPERTY, AND COMPLETING AND SUBMITTING ALL REQUIRED CONSTRUCTION SUBMITTALS NECESSARY TO COMPLETE THEIR WORK ON UNION PACIFIC PROPERTY. "UNION PACIFIC RAILROAD PUBLIC PROJECTS MANUAL" AND "UNION PACIFIC RAILROAD - BNSF RAILWAY GUIDELINES FOR RAILROAD GRADE SEPARATION PROJECTS" APPLY TO THIS PROJECT AND ARE AVAILABLE TO THE CONTRACTOR AT UNION PACIFIC'S WEBSITE.

UNION PACIFIC RAILROAD PUBLIC PROJECTS MANUAL
https://www.up.com/cs/groups/public/@uprr/@corprel/documents/up_pdf_nativedocs/pdf_up_public_projects_manual.pdf
UNION PACIFIC RAILROAD - BNSF RAILWAY GUIDELINES FOR RAILROAD GRADE SEPARATION PROJECTS
<https://www.bnsf.com/bnsf-resources/pdf/in-the-community/uprr-bnsf-joint-guidelines-railroad-grade-separation-projects.pdf>

RIGHT-OF-ENTRY AGREEMENT SHALL BE REQUESTED BY THE CONTRACTOR FROM UNION PACIFIC'S CONSTRUCTION REPRESENTATIVE FOR THIS PROJECT. DO NOT DOWNLOAD AND SUBMIT A BLANK FORM FROM UNION PACIFIC'S WEBSITE.

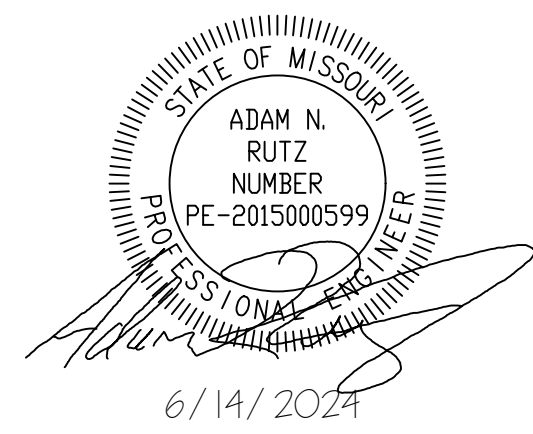
FLAGGING / PROTECTION FOR WORK ACTIVITIES ON OR NEAR RAILROAD PROPERTY SHALL BE PROVIDED BY THE CONTRACTOR WHEN NEEDED AND AS REQUIRED BY SECTION 13 OF "UNION PACIFIC RAILROAD PUBLIC PROJECTS MANUAL". A COPY OF THIS SECTION HAS BEEN PROVIDED AS APPENDIX D IN THE PROJECT SPECIFICATIONS.

CONSTRUCTION MONITORING SUBMITTALS SHALL BE SUBMITTED IN ACCORDANCE WITH SECTION 013300 OF THE PROJECT SPECIFICATIONS AND SECTION 14 OF THE "UNION PACIFIC RAILROAD PUBLIC PROJECTS MANUAL." A COPY OF THIS SECTION HAS BEEN PROVIDED AS APPENDIX E IN THE PROJECT SPECIFICATIONS.

THIS LINE IS OWNED BY UNION PACIFIC RAILROAD, BUT IS LEASED AND OPERATED BY A THIRD PARTY SHORTLINE. RAILROAD CONTACT INFORMATION IS BELOW.

MISSOURI & NORTHERN ARKANSAS RAILROAD (MNA)
<http://www.gwrr.com/>
greg.feyerabend@gwrr.com
(385) 505-7782

STATE OF MISSOURI
MICHAEL L. PARSON,
GOVERNOR



CONSULTING ENGINEERING
GEOSPATIAL SERVICES

ILLINOIS

SWANSEA
COLUMBIA
PEORIA
GLEN CARBON
DECATUR
ST. CHARLES
ST. LOUIS
COLUMBIA
CHATTANOOGA
NASHVILLE

MISSOURI

TENNESSEE

THOUVENOT, WADE
& MOERCHEN, INC.

COLUMBIA OFFICE
3316 LEMONE INDUSTRIAL BLVD SUITE 2
COLUMBIA, MISSOURI 65201
(573) 442-6474
WWW.TWM-INC.COM
MO. CERTIFICATE OF AUTHORITY: 001528

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES
MANAGEMENT,
DESIGN AND CONSTRUCTION
DEPARTMENT OF
NATURAL RESOURCES
MISSOURI STATE PARKS

INSTALL PEDESTRIAN BRIDGE
AT PLEASANT HILL OVER
UNION PACIFIC RAILROAD

KATY TRAIL STATE PARK
PLEASANT HILL, MO

PROJECT # X2311-01
SITE # 5501
FACILITY # 7815501070

REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
ISSUE DATE: 6/14/2024

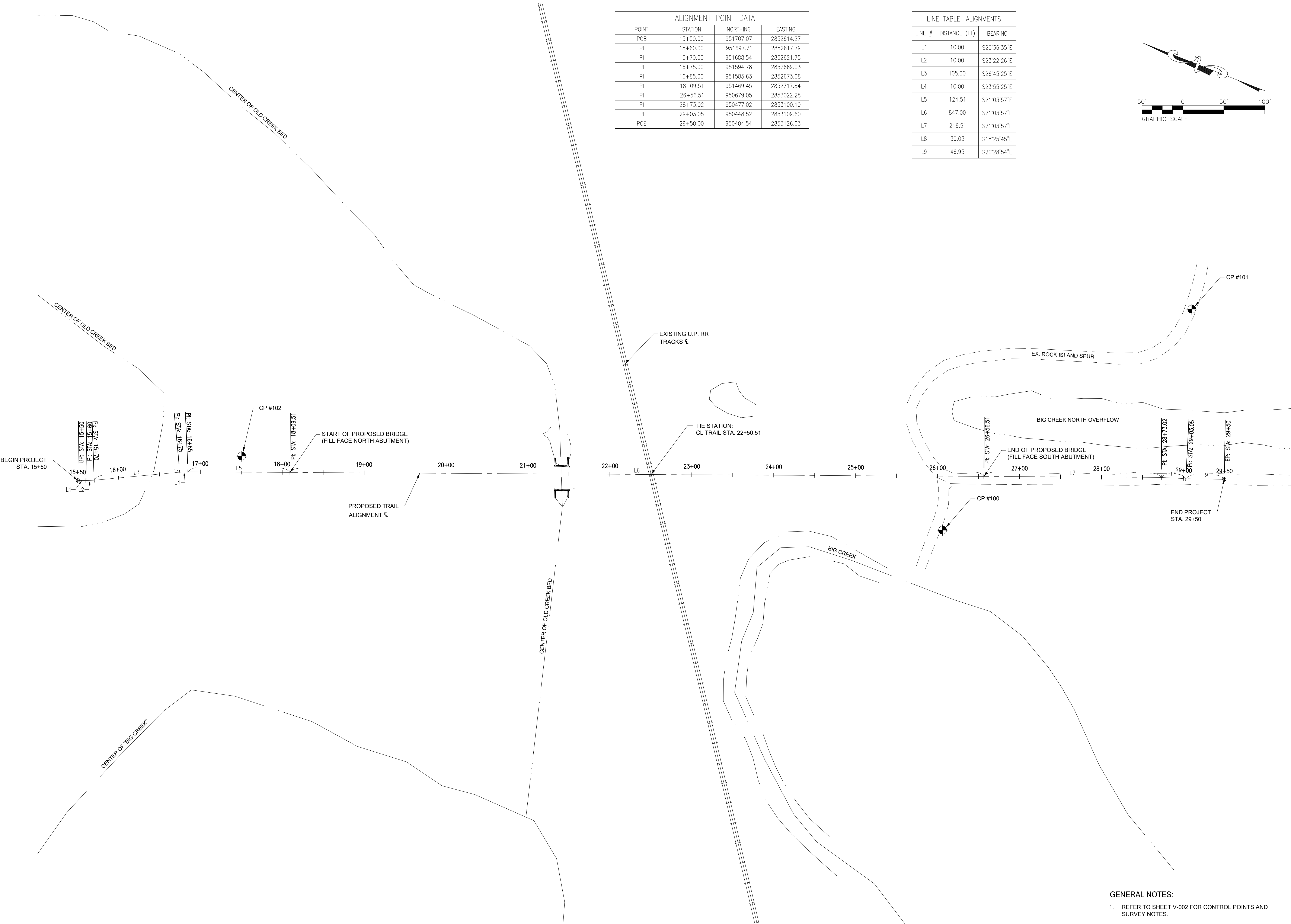
CAD DWG FILE: _____
DRAWN BY: MAL _____
CHECKED BY: ANR _____
DESIGNED BY: MAL _____

SHEET TITLE:

GENERAL NOTES

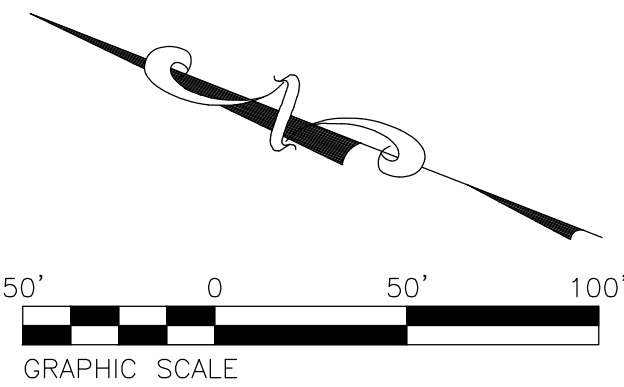
SHEET NUMBER:

G-101



ALIGNMENT POINT DATA			
POINT	STATION	NORTHING	EASTING
POB	15+50.00	951707.07	2852614.27
PI	15+60.00	951697.71	2852617.79
PI	15+70.00	951688.54	2852621.75
PI	16+75.00	951594.78	2852669.03
PI	16+85.00	951585.63	2852673.08
PI	18+09.51	951469.45	2852717.84
PI	26+56.51	950679.05	2853022.28
PI	28+73.02	950477.02	2853100.10
PI	29+03.05	950448.52	2853109.60
POE	29+50.00	950404.54	2853126.03

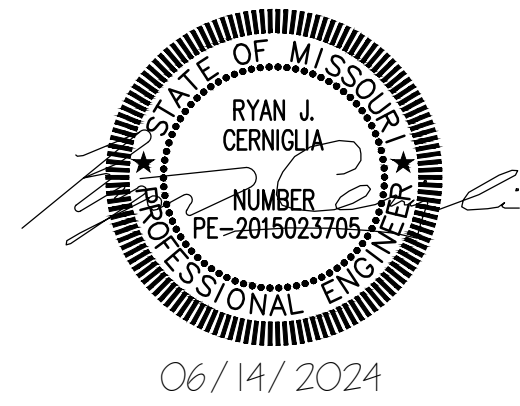
LINE TABLE: ALIGNMENTS		
LINE #	DISTANCE (FT)	BEARING
L1	10.00	S20°36'35"E
L2	10.00	S23°22'26"E
L3	105.00	S26°45'25"E
L4	10.00	S23°55'25"E
L5	124.51	S21°03'57"E
L6	847.00	S21°03'57"E
L7	216.51	S21°03'57"E
L8	30.03	S18°25'45"E
L9	46.95	S20°28'54"E



GENERAL NOTES:

1. REFER TO SHEET V-002 FOR CONTROL POINTS AND SURVEY NOTES.

STATE OF MISSOURI
MICHAEL L. PARSON,
GOVERNOR



CONSULTING ENGINEERING
GEOSPATIAL SERVICES

ILLINOIS SWANSEA
COLUMBIA
PEORIA
GLEN CARBON
MISSOURI DECATUR
ST. CHARLES
ST. LOUIS
TENNESSEE COLUMBIA
CHATTANOOGA
NASHVILLE

THOUVENOT, WADE
& MOERCHEN, INC.

COLUMBIA OFFICE
3316 LEMONE INDUSTRIAL BLVD SUITE 2
COLUMBIA, MISSOURI 65201
(573) 442-6474
WWW.TWM-INC.COM
MO. CERTIFICATE OF AUTHORITY: 001528

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES
MANAGEMENT,
DESIGN AND CONSTRUCTION
DEPARTMENT OF
NATURAL RESOURCES
MISSOURI STATE PARKS

INSTALL PEDESTRIAN BRIDGE
AT PLEASANT HILL OVER
UNION PACIFIC RAILROAD

KATY TRAIL STATE PARK
PLEASANT HILL, MO

PROJECT # X2311-01
SITE # 5501
FACILITY # 7815501070

REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
ISSUE DATE: 06/14/2024

CAD DWG FILE: _____
DRAWN BY: MGB
CHECKED BY: ANR
DESIGNED BY: RJC

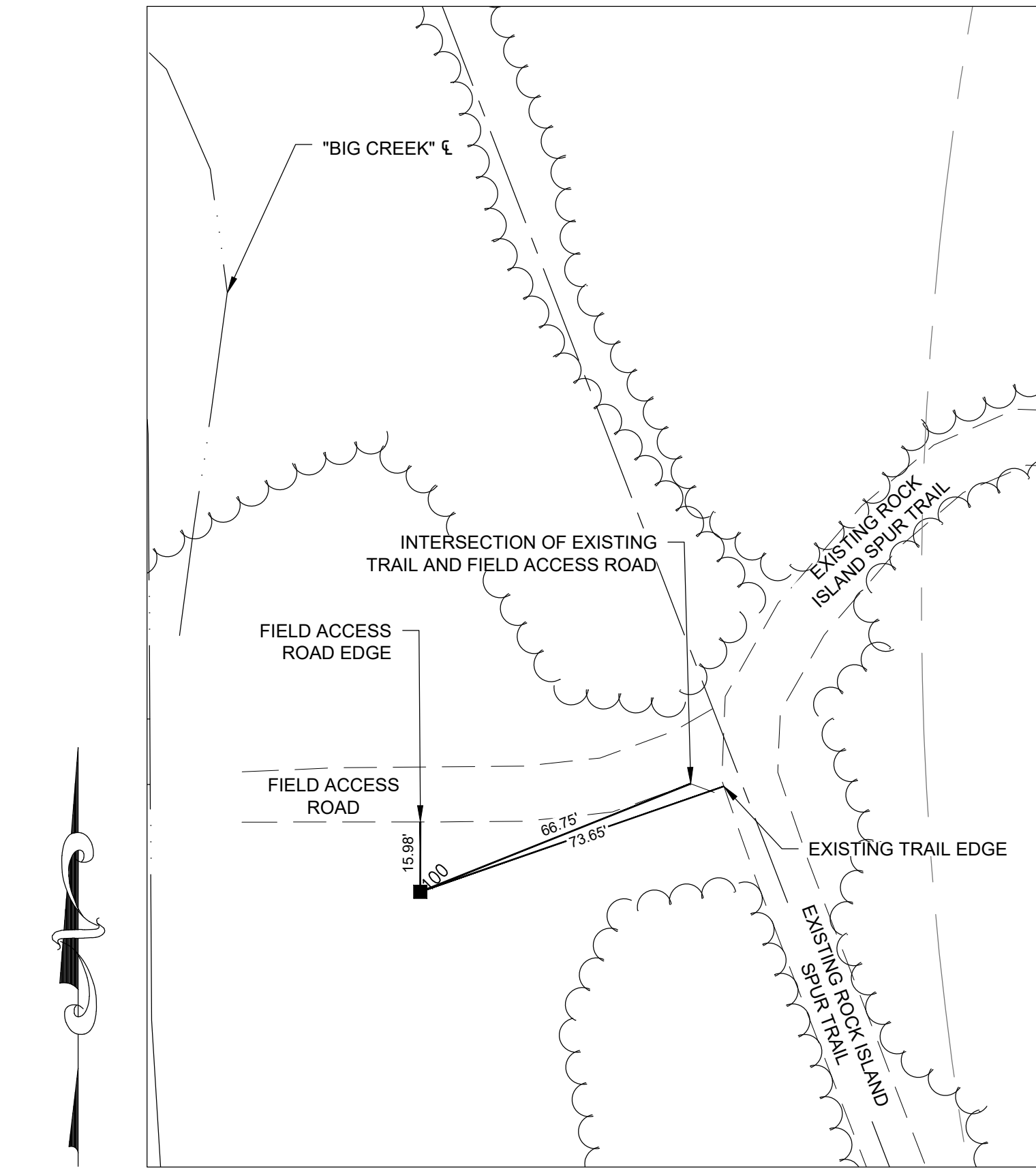
SHEET TITLE:

HORIZONTAL
ALIGNMENT

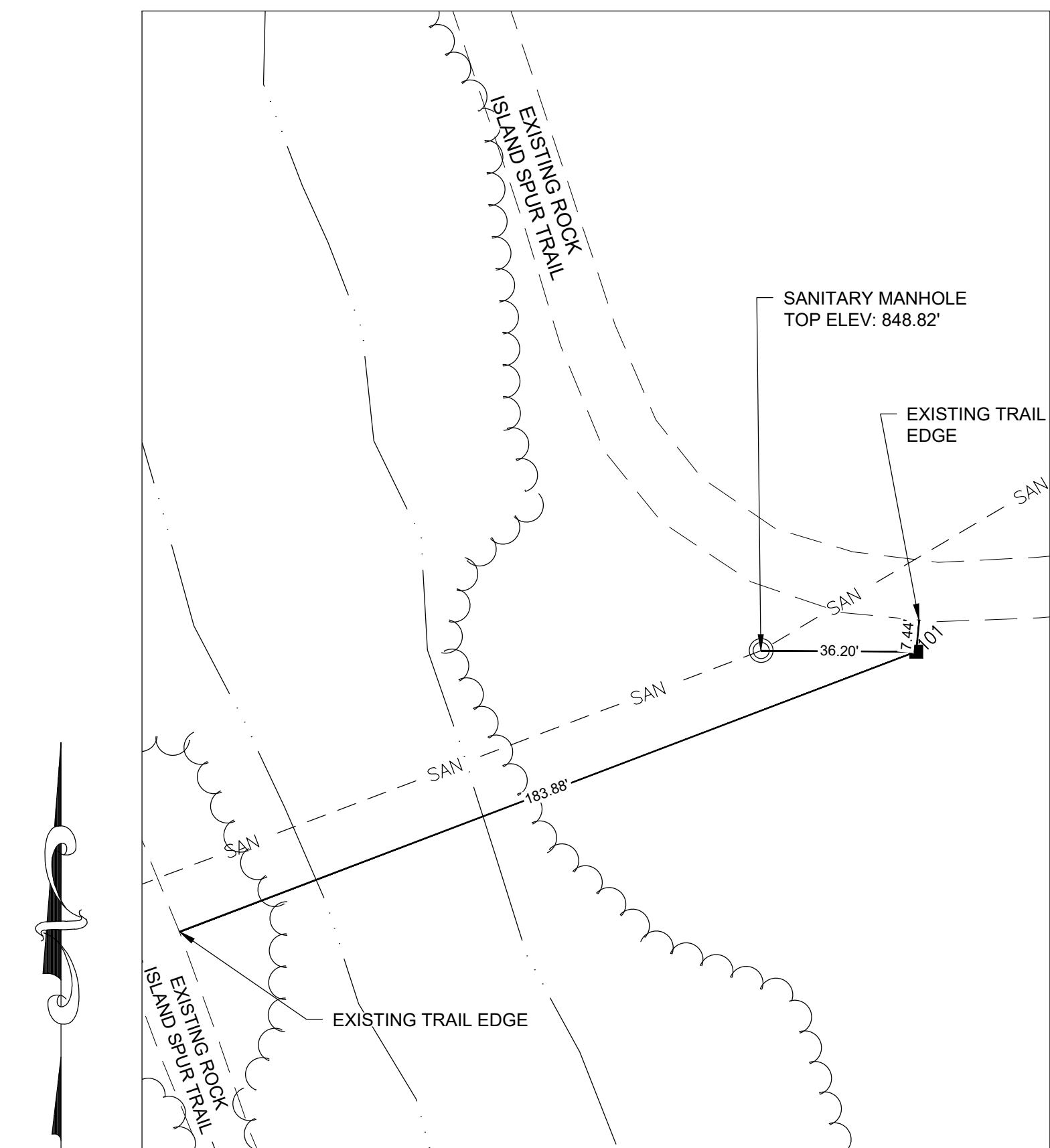
SHEET NUMBER:

V-001

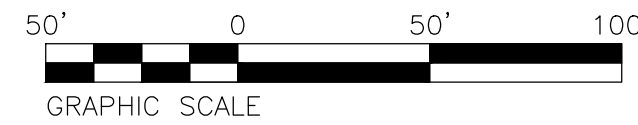
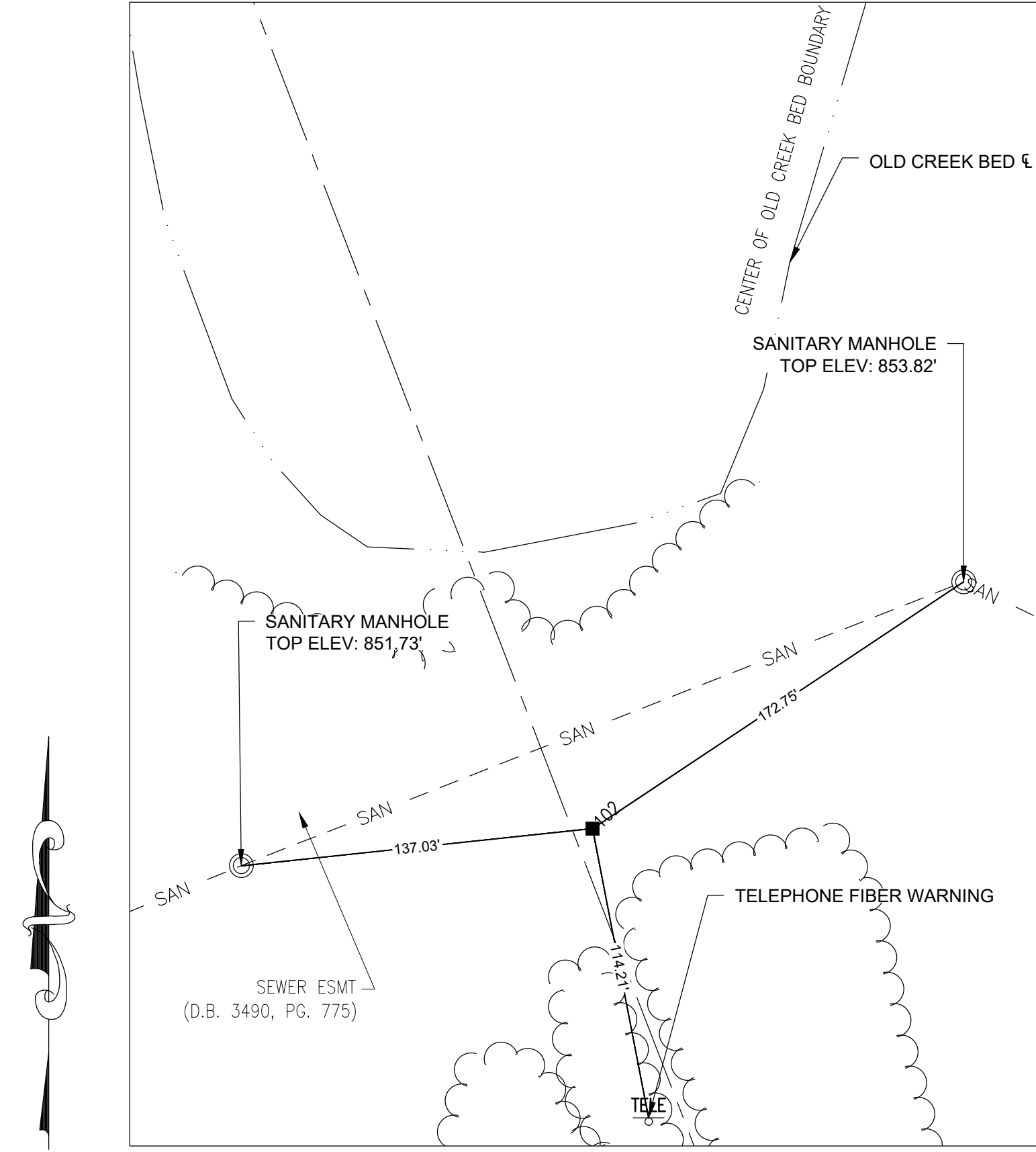
4 OF 47 SHEETS
06/14/2024



REFERENCE TIE
CONTROL POINT #100
IRON ROD W/CAP SET
N 950688.4390
E 2852930.2900
ELEV 848.73



REFERENCE TIE
CONTROL POINT #101
IRON ROD W/CAP SET
N 950504.8100
E 2853292.6060
ELEV 847.26



REFERENCE TIE
CONTROL POINT #102
IRON ROD W/CAP SET
N 951517.7280
E 2852702.0270
ELEV 854.18

SURVEY CONTROL / COORDINATE POINT TABLE				
POINT NUMBER	NORTHING	EASTING	ELEVATION	DESCRIPTION
100	950688.4390	2852930.2900	848.73	GPS CONTROL POINT IRCS
101	950504.8100	2853292.6060	847.26	GPS CONTROL POINT IRCS
102	951517.7280	2852702.0270	854.18	GPS CONTROL POINT IRCS

SURVEY CONTROL NOTES:

- SURVEY IS VALID ONLY TO ORIGINAL PURCHASER. IT IS NOT TRANSFERABLE TO ADDITIONAL INSTITUTIONS OR SUBSEQUENT OWNERS.
- ALL BUILDINGS, SURFACE AND SUBSURFACE IMPROVEMENTS ON AND ADJACENT TO THE SITE ARE NOT NECESSARILY SHOWN.
- BASIS OF BEARINGS AND COORDINATES: ALL DISTANCES AND COORDINATES ARE GROUND (GRID SCALED) VALUES, REFERENCED TO MISSOURI STATE PLANE COORDINATE SYSTEM, WEST ZONE 2401.

STATION: MODOT HARSONVILE CORS ARP
CORS ID: MOHV
PID: DM4676
NORTHING: 271,082.902 (M)
EASTING: 865,655.871 (M)

TO CONVERT TO GRID, MULTIPLY BY A COMBINED SCALE FACTOR OF 0.99990612

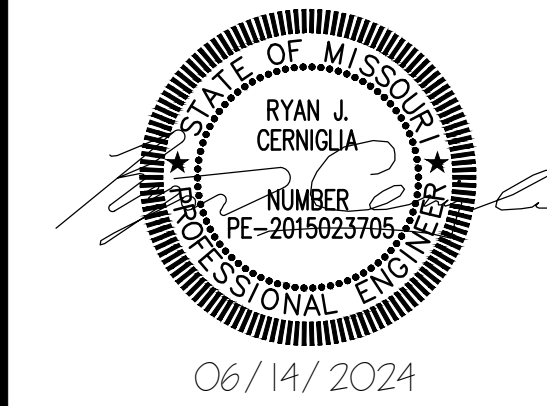
LINEAR UNIT: US SURVEY FEET (SFT)
GEODETIC DATUM: NAD 83 (2011)
VERTICAL DATUM: NAVD 88 (GEOID 18)

PROJECT LOCATION:
LATITUDE: 38°46'39.02788"N
LONGITUDE: 94°16'28.03835"W
HEIGHT: 757.065 FT
NORTHING: 950704.761 SFT
EASTING: 2853006.249 SFT
ELEV: 863.501 SFT

CM SCALE FACTOR: 1.0000902319

THE UNDERGROUND UTILITIES SHOWN HEREIN WERE PLOTTED FROM AVAILABLE INFORMATION AND DO NOT NECESSARILY REFLECT THE ACTUAL EXISTENCE, NONEXISTENCE, SIZE, TYPE, NUMBER, OR LOCATION OF THESE OR OTHER UTILITIES. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE ACTUAL LOCATION OF ALL UNDERGROUND UTILITIES, SHOWN OR NOT SHOWN, AND SHALL LOCATE THE UTILITIES IN THE FIELD PRIOR TO ANY GRADING, EXCAVATION, OR CONSTRUCTION IMPROVEMENTS.

STATE OF MISSOURI
MICHAEL L. PARSON,
GOVERNOR



CONSULTING ENGINEERING
GEOSPATIAL SERVICES

ILLINOIS SWANSEA
COLUMBIA
PEORIA
GLEN CARBON
MISSOURI DECATUR
ST. CHARLES
ST. LOUIS
COLUMBIA
TENNESSEE CHATTANOOGA
NASHVILLE

THOUVENOT, WADE
& MOERCHEN, INC.

COLUMBIA OFFICE
3316 LEMONE INDUSTRIAL BLVD SUITE 2
COLUMBIA, MISSOURI 65201
(573) 442-6474
WWW.TWM-INC.COM
MO. CERTIFICATE OF AUTHORITY: 001528

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES
MANAGEMENT,
DESIGN AND CONSTRUCTION
DEPARTMENT OF
NATURAL RESOURCES
MISSOURI STATE PARKS

INSTALL PEDESTRIAN BRIDGE
AT PLEASANT HILL OVER
UNION PACIFIC RAILROAD

KATY TRAIL STATE PARK
PLEASANT HILL, MO

PROJECT # X2311-01
SITE # 5501
FACILITY # 7815501070

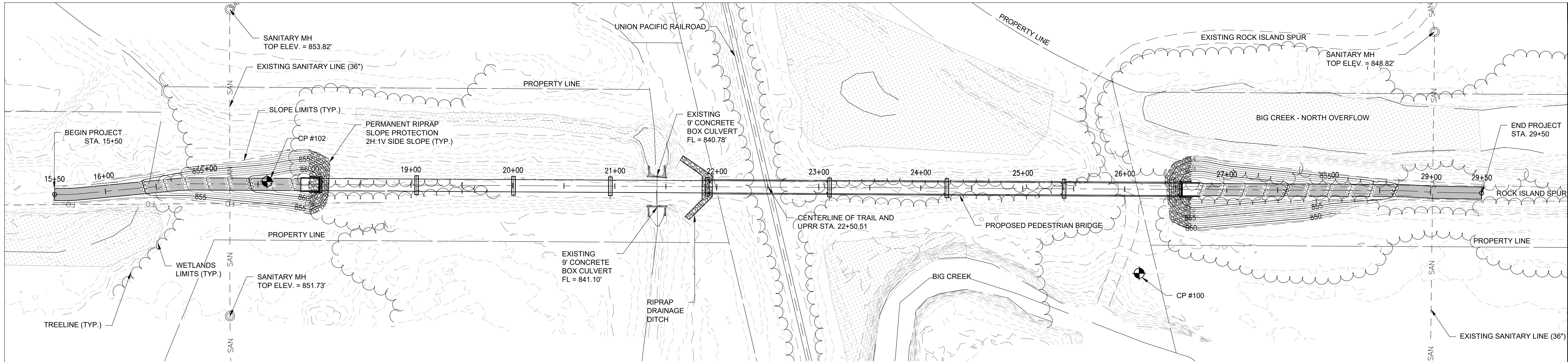
REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
ISSUE DATE: 06/14/2024

CAD DWG FILE: _____
DRAWN BY: MGB
CHECKED BY: ANR
DESIGNED BY: RJC

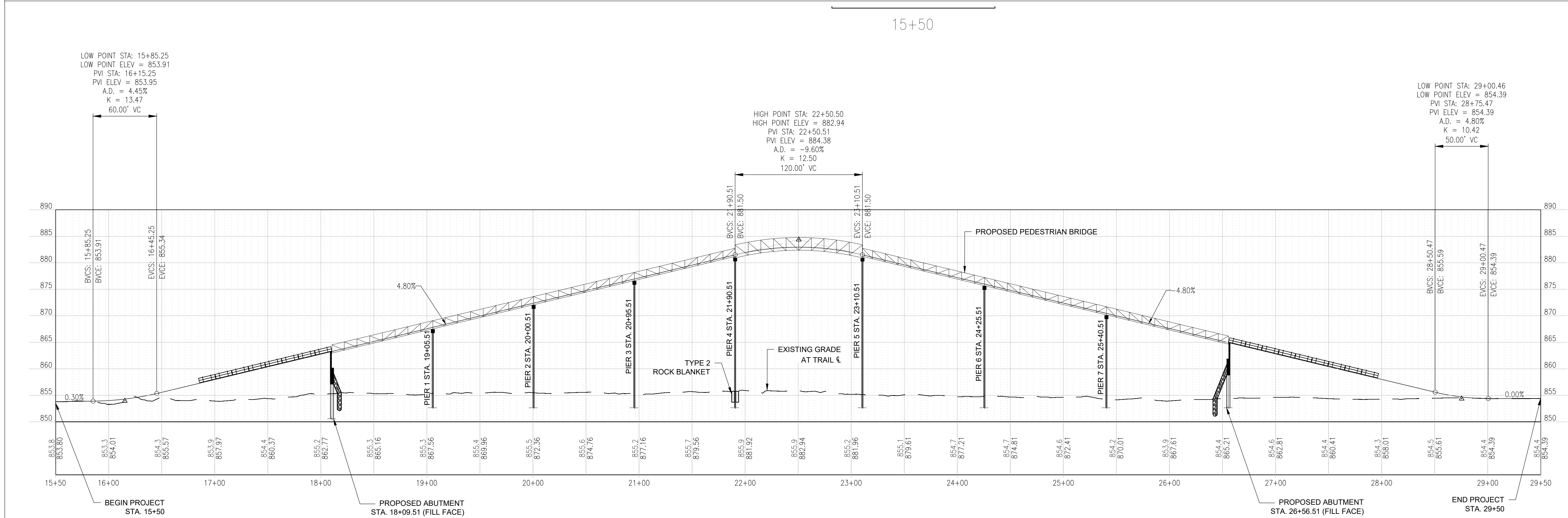
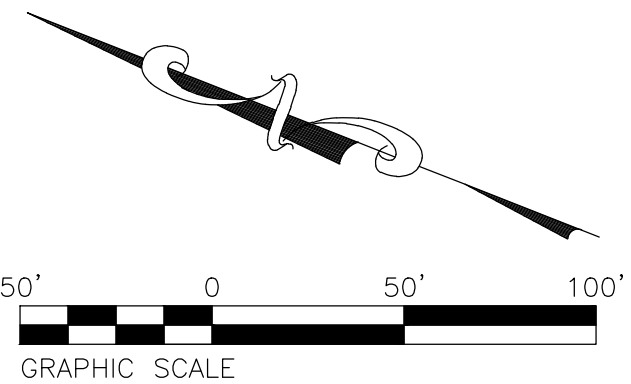
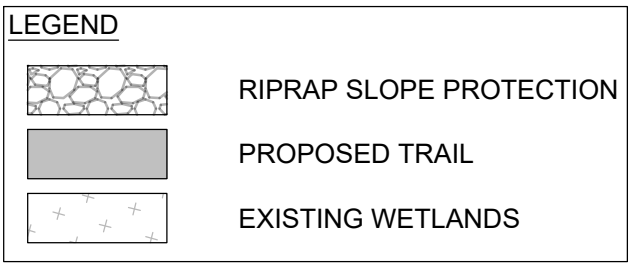
SHEET TITLE:
SURVEY CONTROL

SHEET NUMBER:
V-002

5 OF 47 SHEETS
06/14/2024



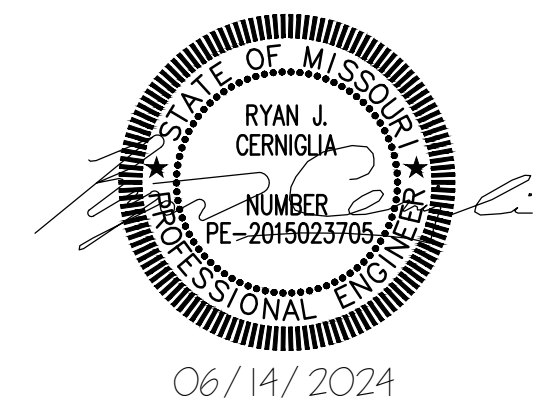
PLAN - STA. 15+50 to STA. 29+50
(OVERALL)



PROFILE - STA. 15+50 to STA. 29+50

SCALE 1" = 50' H, 1" = 5' V

STATE OF MISSOURI
MICHAEL L. PARSON,
GOVERNOR



CONSULTING ENGINEERING
GEOSPATIAL SERVICES

ILLINOIS SWANSEA
COLUMBIA
PEORIA
GLEN CARBON
MISSOURI DECATUR
ST. CHARLES
ST. LOUIS
COLUMBIA
TENNESSEE CHATTANOOGA
NASHVILLE

THOUVENOT, WADE
& MOERCHEN, INC.

COLUMBIA OFFICE
3316 LEMONE INDUSTRIAL BLVD SUITE 2
COLUMBIA, MISSOURI 65201
(573) 442-6474
WWW.TWM-INC.COM
MO. CERTIFICATE OF AUTHORITY: 001528

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES
MANAGEMENT,
DESIGN AND CONSTRUCTION
DEPARTMENT OF
NATURAL RESOURCES
MISSOURI STATE PARKS

INSTALL PEDESTRIAN BRIDGE
AT PLEASANT HILL OVER
UNION PACIFIC RAILROAD

KATY TRAIL STATE PARK
PLEASANT HILL, MO

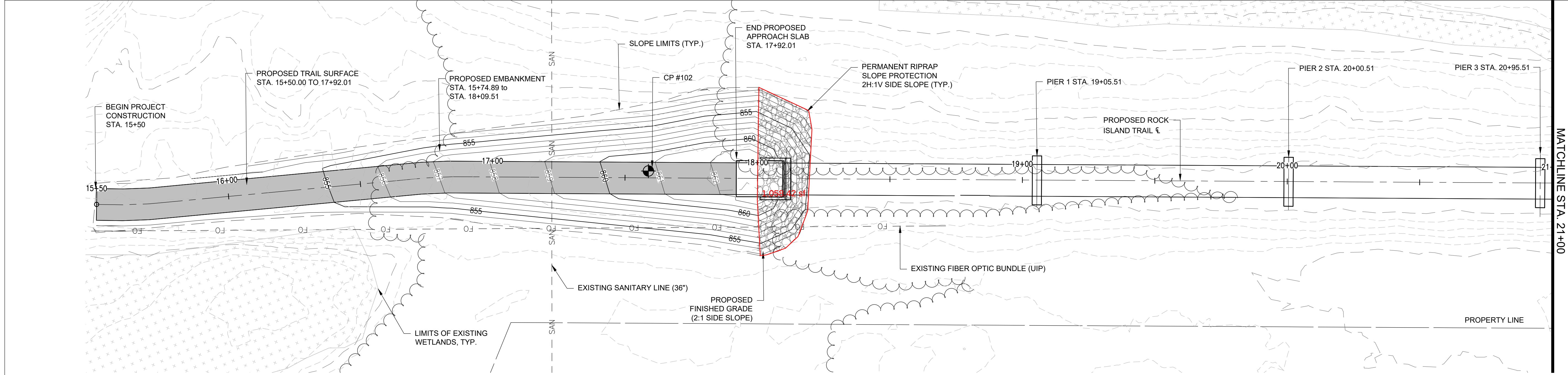
PROJECT # X2311-01
SITE # 5501
FACILITY # 7815501070

REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
ISSUE DATE: 06/14/2024

CAD DWG FILE: _____
DRAWN BY: MGB
CHECKED BY: ANR
DESIGNED BY: RJC

SHEET TITLE:
PLAN AND PROFILE
(OVERALL LAYOUT)

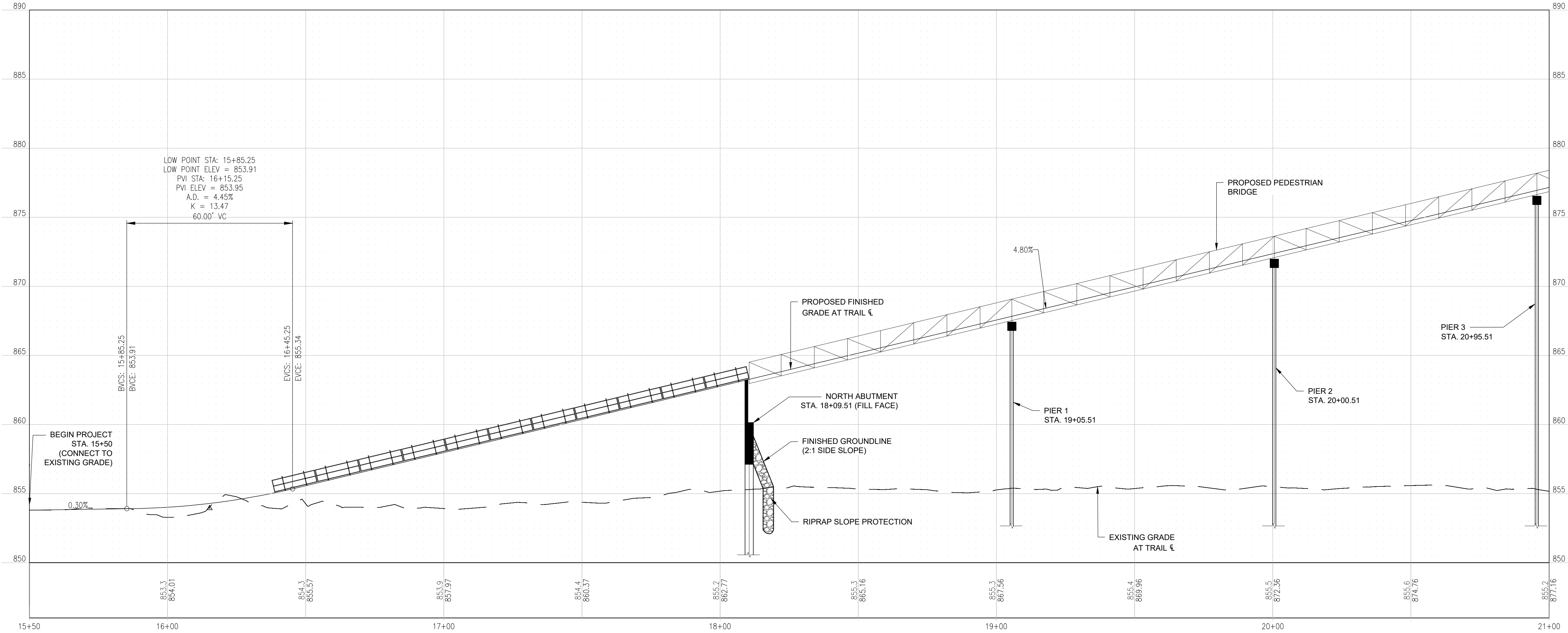
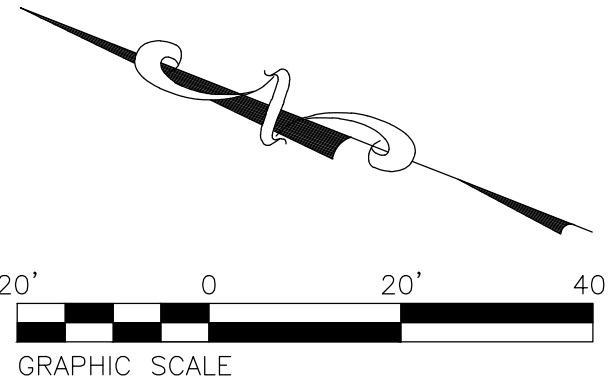
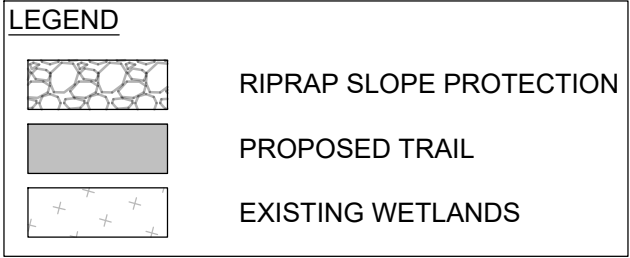
SHEET NUMBER:
C-101
6 OF 47 SHEETS
06/14/2024



PLAN - STA. 15+50 to STA. 21+00

SCALE 1" = 20'

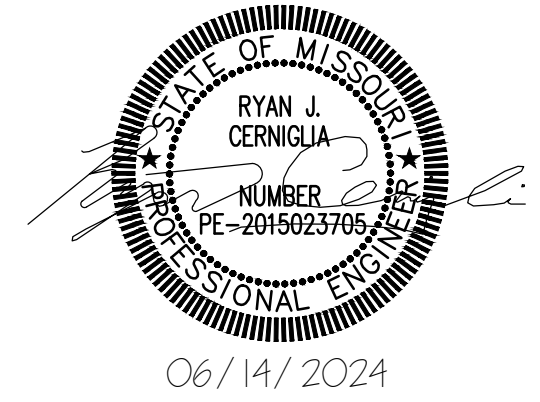
THE UNDERGROUND UTILITIES SHOWN HEREIN WERE PLOTTED FROM AVAILABLE INFORMATION AND DO NOT NECESSARILY REFLECT THE ACTUAL EXISTENCE, NONEXISTENCE, SIZE, TYPE, NUMBER, OR LOCATION OF THESE OR OTHER UTILITIES. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE ACTUAL LOCATION OF ALL UNDERGROUND UTILITIES, SHOWN OR NOT SHOWN, AND SHALL LOCATE THE UTILITIES IN THE FIELD PRIOR TO ANY GRADING, EXCAVATION, OR CONSTRUCTION IMPROVEMENTS.



PROFILE - STA. 15+50 to STA. 21+00

SCALE 1" = 50' H, 1" = 5' V

STATE OF MISSOURI
MICHAEL L. PARSON,
GOVERNOR



CONSULTING ENGINEERING
GEOSPATIAL SERVICES

ILLINOIS SWANSEA
COLUMBIA
PEORIA
MISSOURI GLEN CARBON
ST. CHARLES
ST. LOUIS
TENNESSEE COLUMBIA
CHATTANOOGA
NASHVILLE

THOUVENOT, WADE
& MOERCHEN, INC.

COLUMBIA OFFICE
3316 LEMONE INDUSTRIAL BLVD SUITE 2
COLUMBIA, MISSOURI 65201
(573) 442-6474
WWW.TWM-INC.COM
MO. CERTIFICATE OF AUTHORITY: 001528

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES
MANAGEMENT,
DESIGN AND CONSTRUCTION
DEPARTMENT OF
NATURAL RESOURCES
MISSOURI STATE PARKS

INSTALL PEDESTRIAN BRIDGE
AT PLEASANT HILL OVER
UNION PACIFIC RAILROAD

KATY TRAIL STATE PARK
PLEASANT HILL, MO

PROJECT # X2311-01
SITE # 5501
FACILITY # 7815501070

REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
ISSUE DATE: 06/14/2024

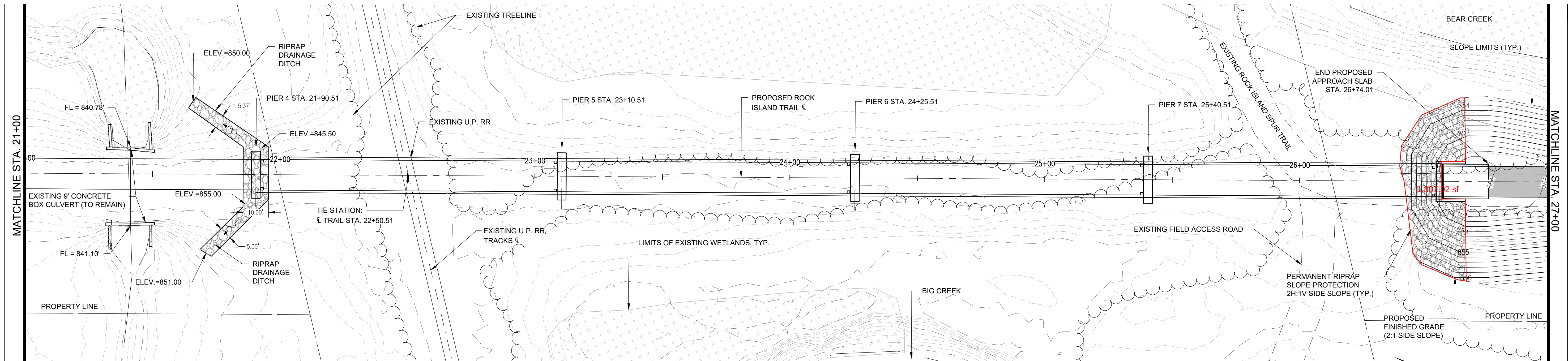
CAD DWG FILE: _____
DRAWN BY: MGB
CHECKED BY: ANR
DESIGNED BY: RJC

SHEET TITLE:
PLAN AND PROFILE
STA. 15+50 to STA. 21+00

SHEET NUMBER:

C-102

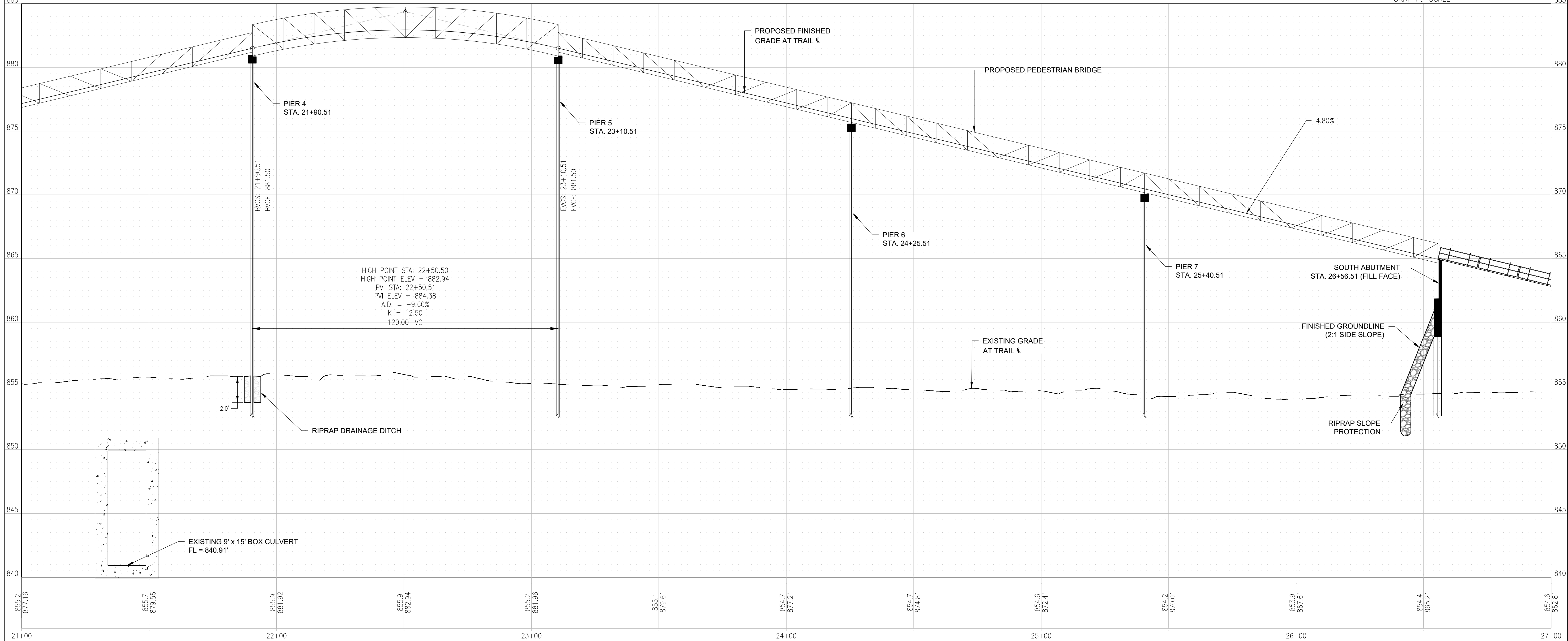
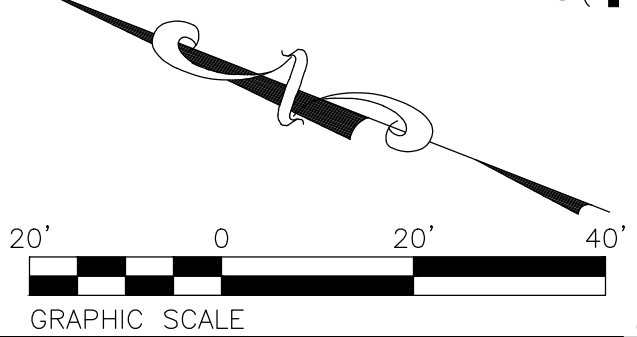
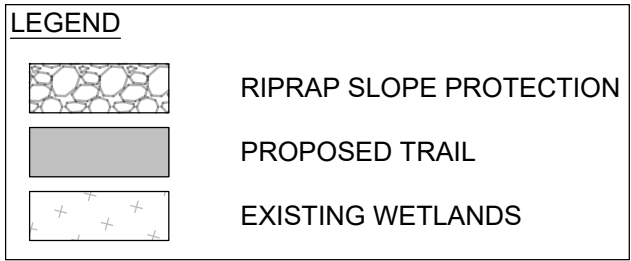
7 OF 47 SHEETS
06/14/2024



PLAN - STA. 21+00 to STA. 27+00

SCALE 1" = 20'

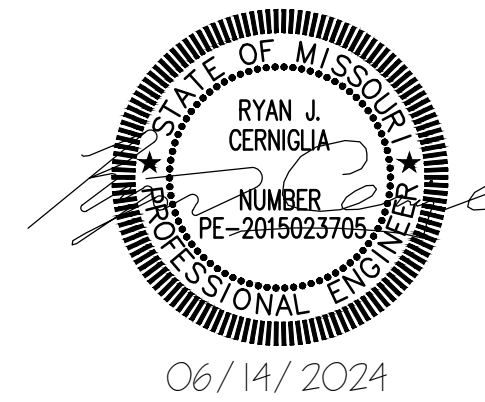
THE UNDERGROUND UTILITIES SHOWN HEREIN WERE PLOTTED FROM AVAILABLE INFORMATION AND DO NOT NECESSARILY REFLECT THE ACTUAL EXISTENCE, NONEXISTENCE, SIZE, TYPE, NUMBER, OR LOCATION OF THESE OR OTHER UTILITIES. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE ACTUAL LOCATION OF ALL UNDERGROUND UTILITIES, SHOWN OR NOT SHOWN, AND SHALL LOCATE THE UTILITIES IN THE FIELD PRIOR TO ANY GRADING, EXCAVATION, OR CONSTRUCTION IMPROVEMENTS.



PROFILE - STA. 21+00 to STA. 27+00

SCALE 1" = 50' H, 1" = 5' V

STATE OF MISSOURI
MICHAEL L. PARSON,
GOVERNOR



CONSULTING ENGINEERING
GEOSPATIAL SERVICES

ILLINOIS SWANSEA
COLUMBIA
PEORIA
GLEN CARBON
MISSOURI DECATUR
ST. CHARLES
ST. LOUIS
COLUMBIA
TENNESSEE CHATTANOOGA
NASHVILLE

THOUVENOT, WADE
& MOERCHEN, INC.

COLUMBIA OFFICE
3316 LEMONE INDUSTRIAL BLVD SUITE 2
COLUMBIA, MISSOURI 65201
(573) 442-6474
WWW.TWM-INC.COM
MO. CERTIFICATE OF AUTHORITY: 001528

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES
MANAGEMENT,
DESIGN AND CONSTRUCTION
DEPARTMENT OF
NATURAL RESOURCES
MISSOURI STATE PARKS

INSTALL PEDESTRIAN BRIDGE
AT PLEASANT HILL OVER
UNION PACIFIC RAILROAD

KATY TRAIL STATE PARK
PLEASANT HILL, MO

PROJECT # X2311-01
SITE # 5501
FACILITY # 7815501070

REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
ISSUE DATE: 06/14/2024

CAD DWG FILE: _____
DRAWN BY: MGB
CHECKED BY: ANR
DESIGNED BY: RJC

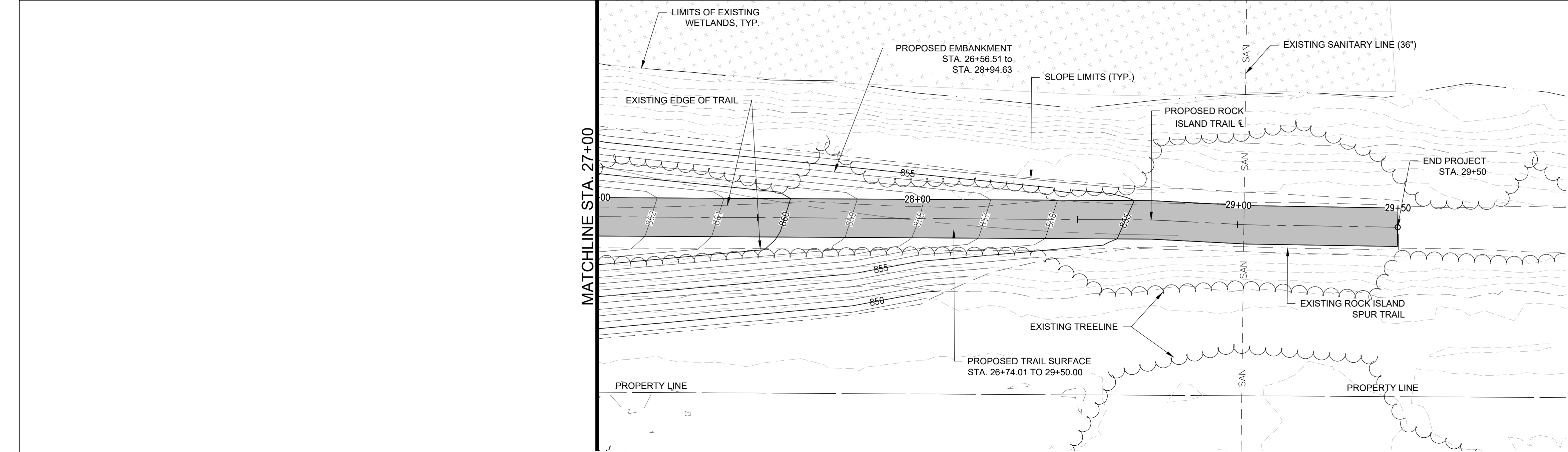
SHEET TITLE:

PLAN AND PROFILE
STA. 21+00 to STA. 27+00

SHEET NUMBER:

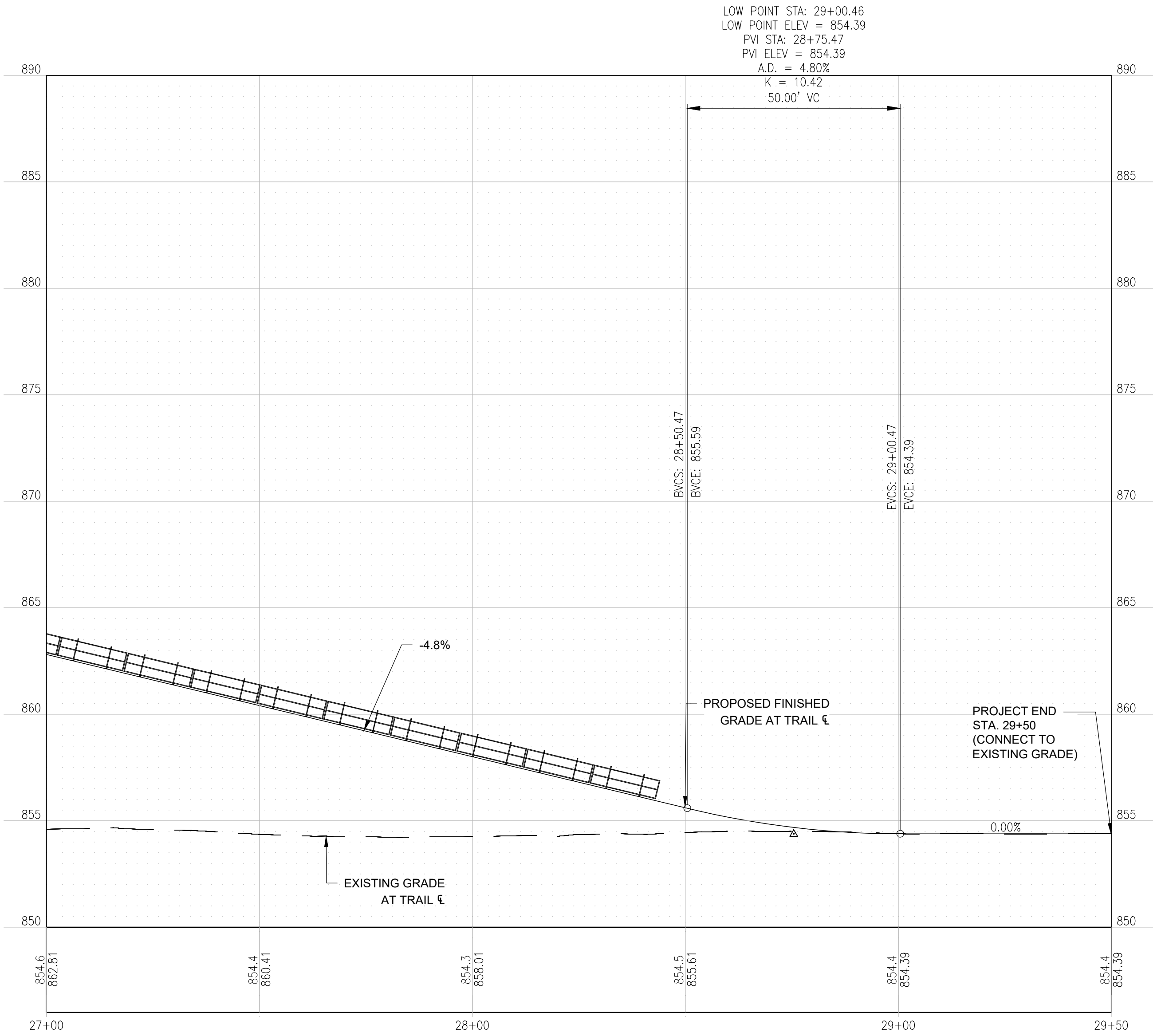
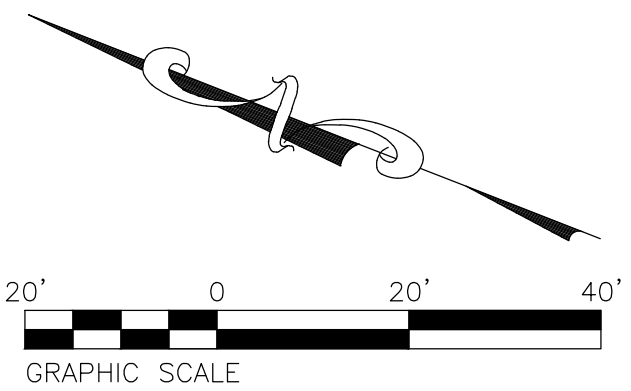
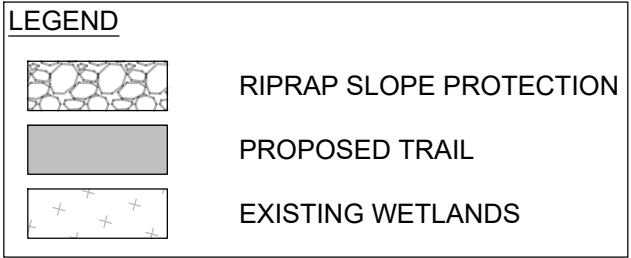
C-103

8 OF 47 SHEETS
06/14/2024



PLAN - STA. 27+00 to STA. 29+50

SCALE 1" = 20'

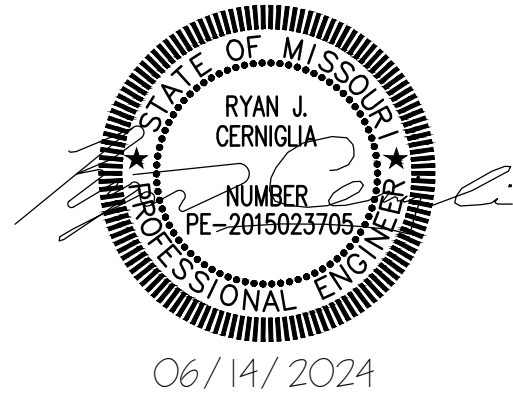


PROFILE - STA. 27+00 to STA. 29+50

SCALE 1" = 50' H, 1" = 5' V

THE UNDERGROUND UTILITIES SHOWN HEREIN WERE PLOTTED FROM AVAILABLE INFORMATION AND DO NOT NECESSARILY REFLECT THE ACTUAL EXISTENCE, NONEXISTENCE, SIZE, TYPE, NUMBER, OR LOCATION OF THESE OR OTHER UTILITIES. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE ACTUAL LOCATION OF ALL UNDERGROUND UTILITIES, SHOWN OR NOT SHOWN, AND SHALL LOCATE THE UTILITIES IN THE FIELD PRIOR TO ANY GRADING, EXCAVATION, OR CONSTRUCTION IMPROVEMENTS.

STATE OF MISSOURI
MICHAEL L. PARSON,
GOVERNOR



CONSULTING ENGINEERING
GEOSPATIAL SERVICES

ILLINOIS SWANSEA
COLUMBIA
PEORIA
MISSOURI GLEN CARBON
DECATUR
ST. CHARLES
ST. LOUIS
TENNESSEE COLUMBIA
CHATTANOOGA
NASHVILLE

THOUVENOT, WADE
& MOERCHEN, INC.

COLUMBIA OFFICE
3316 LEMONE INDUSTRIAL BLVD SUITE 2
COLUMBIA, MISSOURI 65201
(573) 442-6474
WWW.TWM-INC.COM
MO. CERTIFICATE OF AUTHORITY: 001528

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES
MANAGEMENT,
DESIGN AND CONSTRUCTION
DEPARTMENT OF
NATURAL RESOURCES
MISSOURI STATE PARKS

INSTALL PEDESTRIAN BRIDGE
AT PLEASANT HILL OVER
UNION PACIFIC RAILROAD

KATY TRAIL STATE PARK
PLEASANT HILL, MO

PROJECT # X2311-01
SITE # 5501
FACILITY # 7815501070

REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
ISSUE DATE: 06/14/2024

CAD DWG FILE: _____
DRAWN BY: MGB
CHECKED BY: ANR
DESIGNED BY: RJC

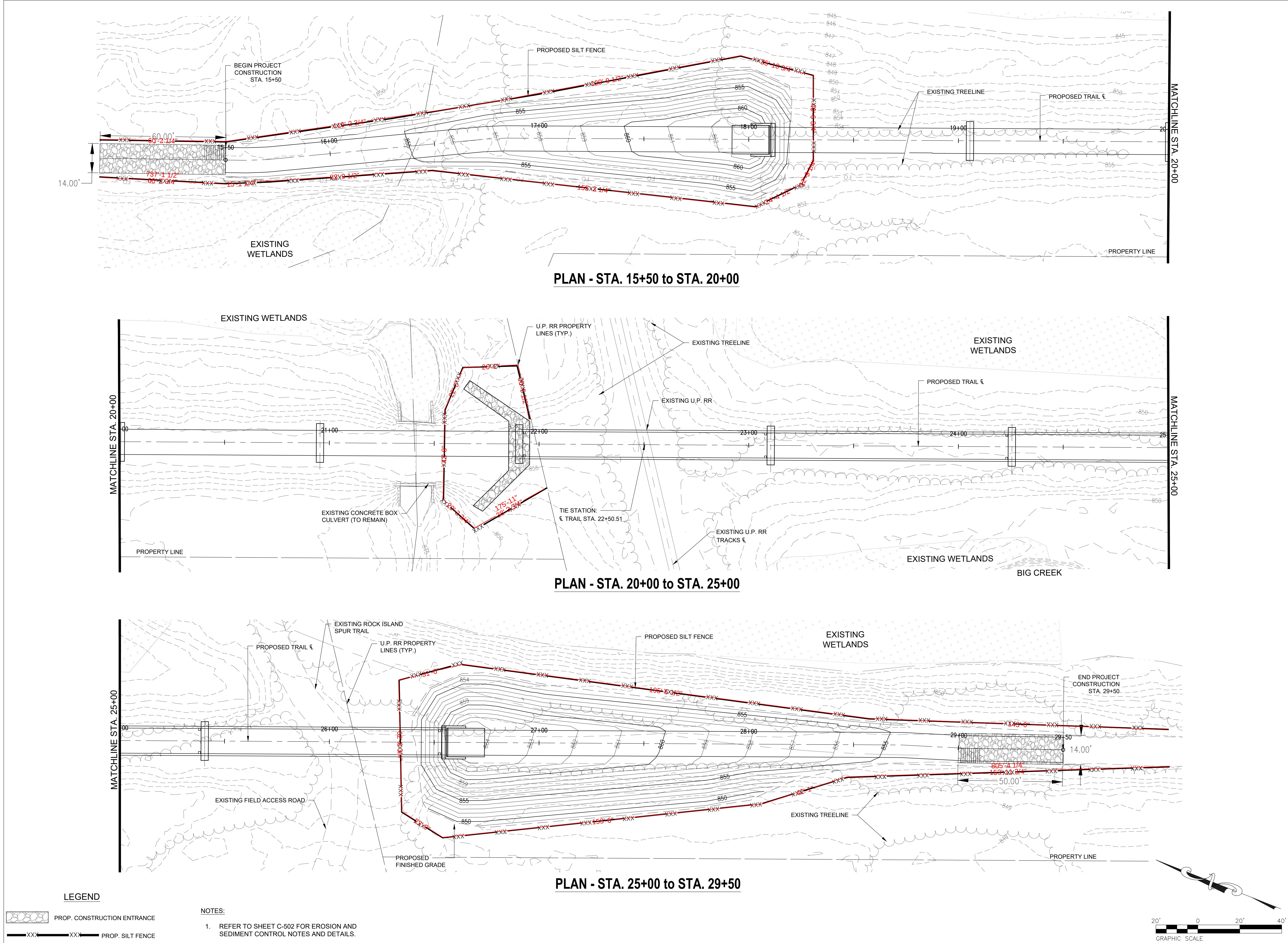
SHEET TITLE:

PLAN AND PROFILE
STA. 27+00 to STA. 29+50

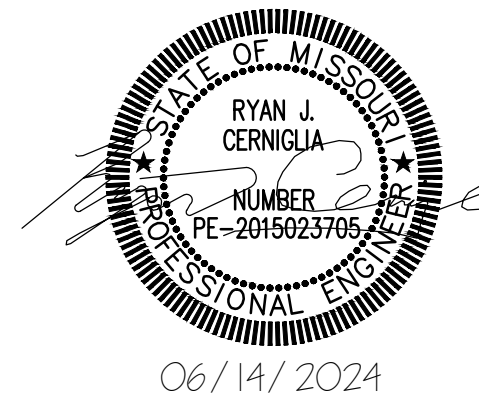
SHEET NUMBER:

C-104

9 OF 47 SHEETS
06/14/2024



STATE OF MISSOURI
MICHAEL L. PARSON,
GOVERNOR



CONSULTING ENGINEERING
GEOSPATIAL SERVICES

ILLINOIS SWANSEA
COLUMBIA
PEORIA
GLEN CARBON
MISSOURI DECATUR
ST. CHARLES
ST. LOUIS
TENNESSEE COLUMBIA
CHATTANOOGA
NASHVILLE

THOUVENOT, WADE
& MOERCHEN, INC.

COLUMBIA OFFICE
3316 LEMONE INDUSTRIAL BLVD SUITE 2
COLUMBIA, MISSOURI 65201
(573) 442-6474
WWW.TWM-INC.COM
MO. CERTIFICATE OF AUTHORITY: 001528

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES
MANAGEMENT,
DESIGN AND CONSTRUCTION
DEPARTMENT OF
NATURAL RESOURCES
MISSOURI STATE PARKS

INSTALL PEDESTRIAN BRIDGE
AT PLEASANT HILL OVER
UNION PACIFIC RAILROAD

KATY TRAIL STATE PARK
PLEASANT HILL, MO

PROJECT # X2311-01
SITE # 5501
FACILITY # 7815501070

REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
ISSUE DATE: 06/14/2024

CAD DWG FILE:
DRAWN BY: MGB
CHECKED BY: ANR
DESIGNED BY: RJC

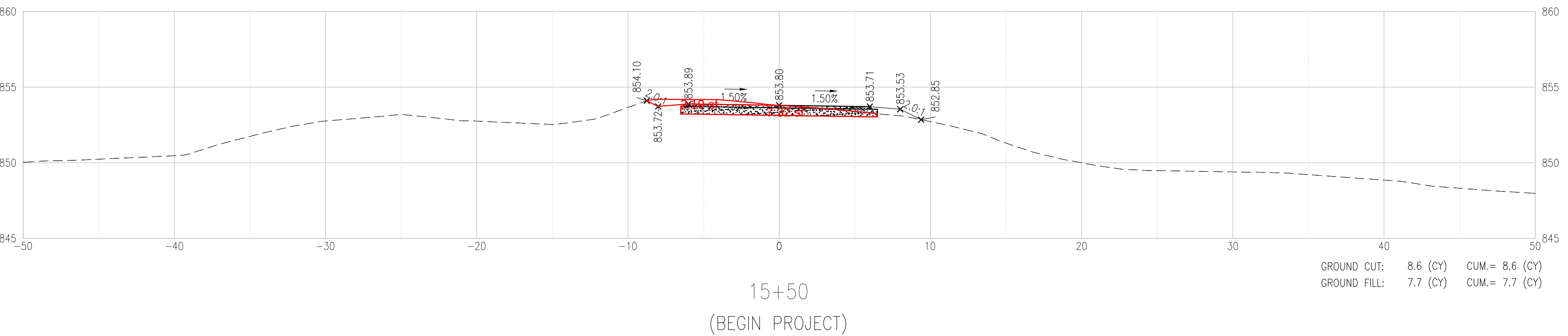
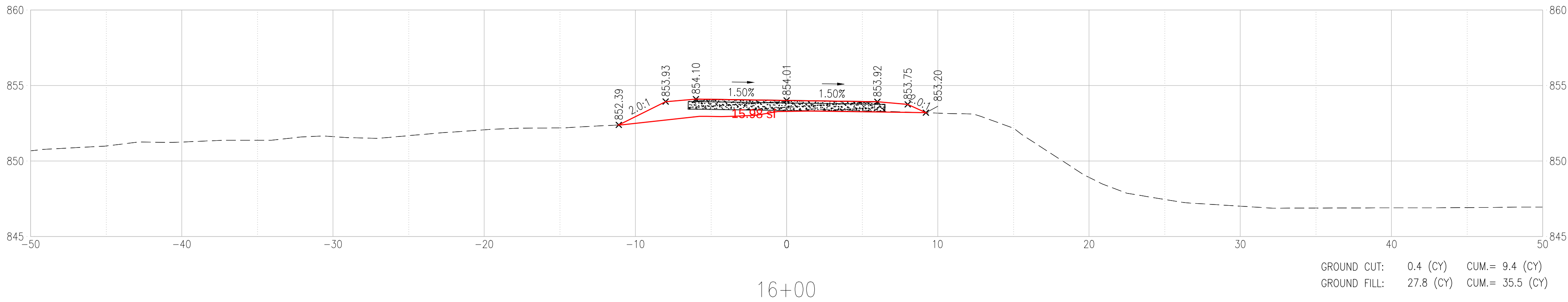
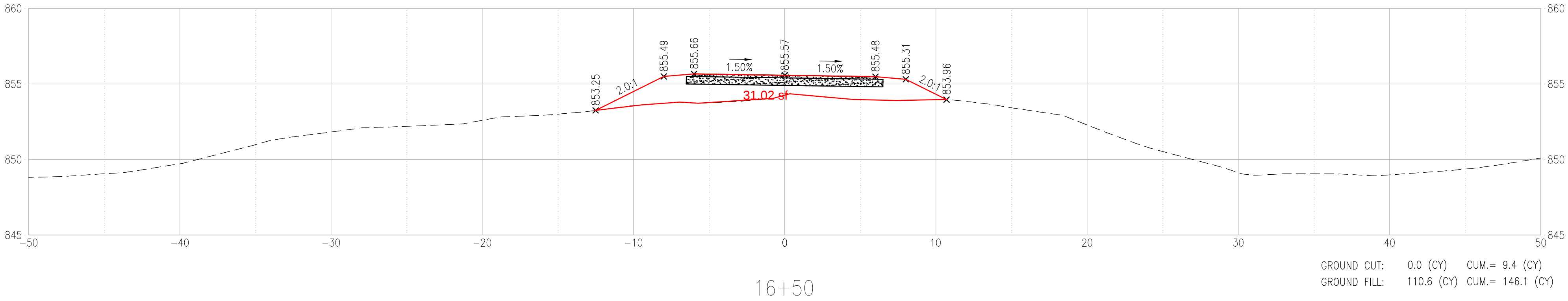
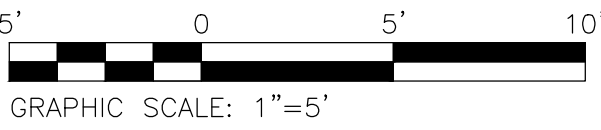
SHEET TITLE:
EROSION AND
SEDIMENT CONTROL

SHEET NUMBER:

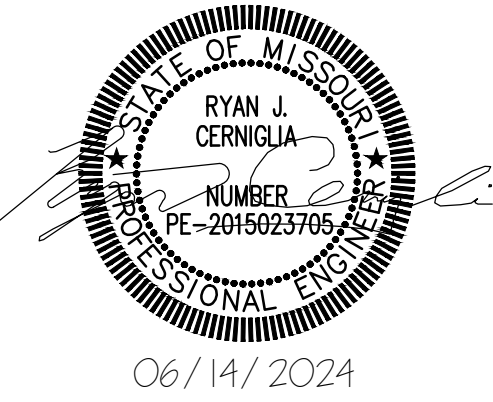
C-201

10 OF 47 SHEETS
06/14/2024

SECTIONS – ROCK ISLAND TRAIL



STATE OF MISSOURI
MICHAEL L. PARSON,
GOVERNOR



CONSULTING ENGINEERING
GEOSPATIAL SERVICES

ILLINOIS SWANSEA
COLUMBIA
PEORIA
GLEN CARBON
MISSOURI DECATUR
ST. CHARLES
ST. LOUIS
TENNESSEE COLUMBIA
CHATTANOOGA
NASHVILLE

THOUVENOT, WADE
& MOERCHEN, INC.

COLUMBIA OFFICE
3316 LEMONE INDUSTRIAL BLVD SUITE 2
COLUMBIA, MISSOURI 65201
(573) 442-6474
WWW.TWM-INC.COM
MO. CERTIFICATE OF AUTHORITY: 001528

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES
MANAGEMENT,
DESIGN AND CONSTRUCTION
DEPARTMENT OF
NATURAL RESOURCES
MISSOURI STATE PARKS

INSTALL PEDESTRIAN BRIDGE
AT PLEASANT HILL OVER
UNION PACIFIC RAILROAD

KATY TRAIL STATE PARK
PLEASANT HILL, MO

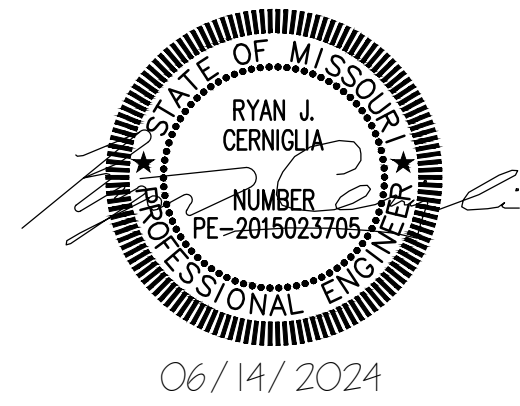
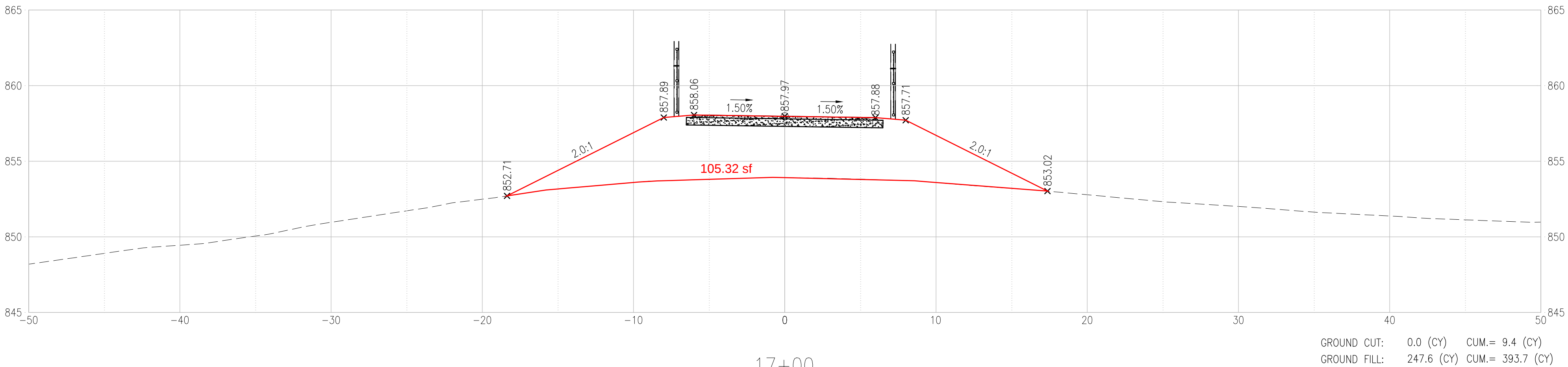
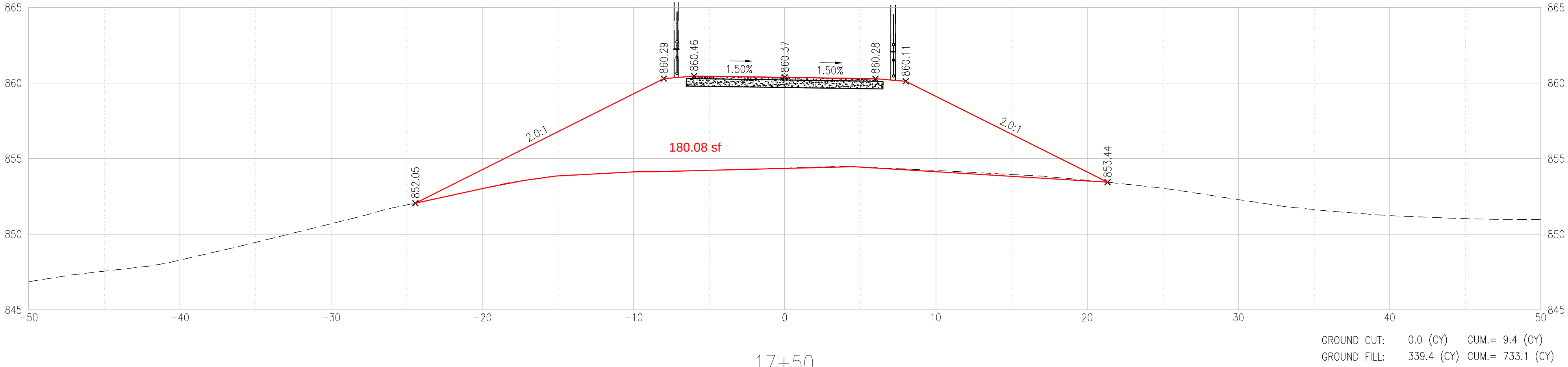
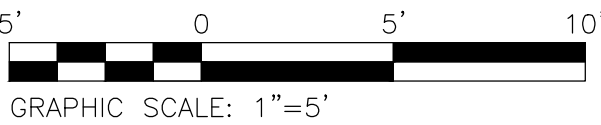
PROJECT # X2311-01
SITE # 5501
FACILITY # 7815501070

REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
ISSUE DATE: 06/14/2024

CAD DWG FILE: _____
DRAWN BY: MGB
CHECKED BY: ANR
DESIGNED BY: RJC

SHEET TITLE:
CROSS SECTIONS

SHEET NUMBER:
C-301
11 OF 47 SHEETS
06/14/2024





**CONSULTING ENGINEERING
GEOSPATIAL SERVICES**

ILLINOIS SWANSEA
COLUMBIA
PEORIA
GLEN CARBON
MISSOURI DECATUR
ST. CHARLES
ST. LOUIS
TENNESSEE COLUMBIA
CHATTANOOGA
NASHVILLE

**THOUVENOT, WADE
& MOERCHEN, INC.**

COLUMBIA OFFICE
3316 LEMONE INDUSTRIAL BLVD SUITE 2
COLUMBIA, MISSOURI 65201
(573) 442-6474
WWW.TWM-INC.COM
MO. CERTIFICATE OF AUTHORITY: 001528

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES
MANAGEMENT,
DESIGN AND CONSTRUCTION
DEPARTMENT OF
NATURAL RESOURCES
MISSOURI STATE PARKS

INSTALL PEDESTRIAN BRIDGE
AT PLEASANT HILL OVER
UNION PACIFIC RAILROAD

KATY TRAIL STATE PARK
PLEASANT HILL, MO

PROJECT # X2311-01
SITE # 5501
FACILITY # 7815501070

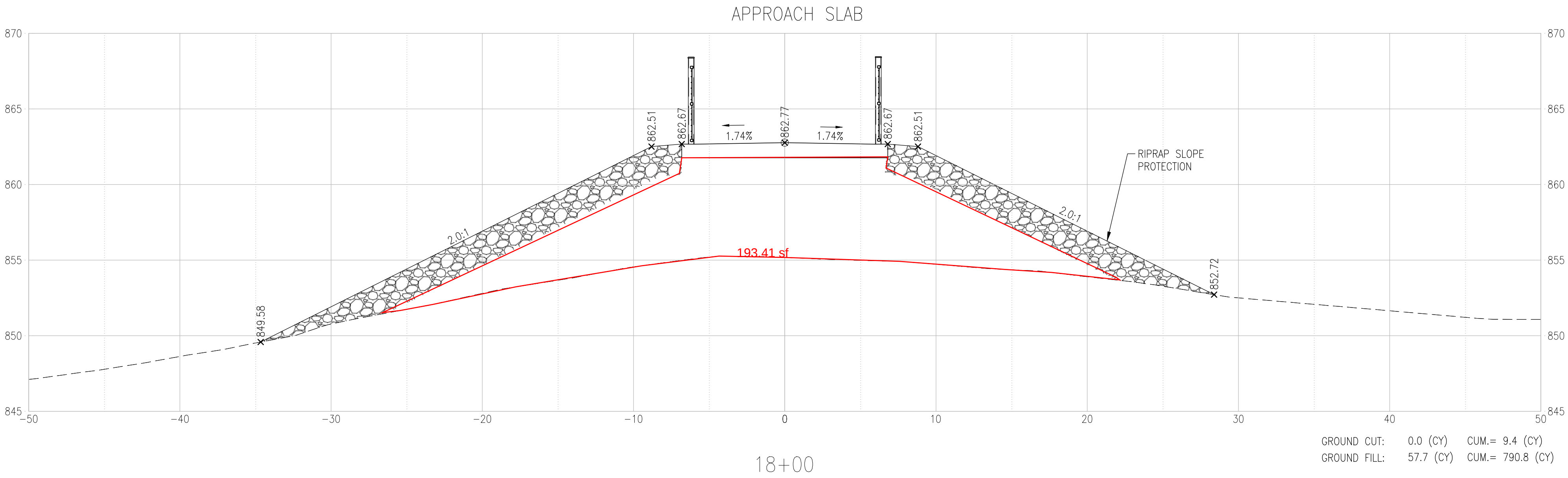
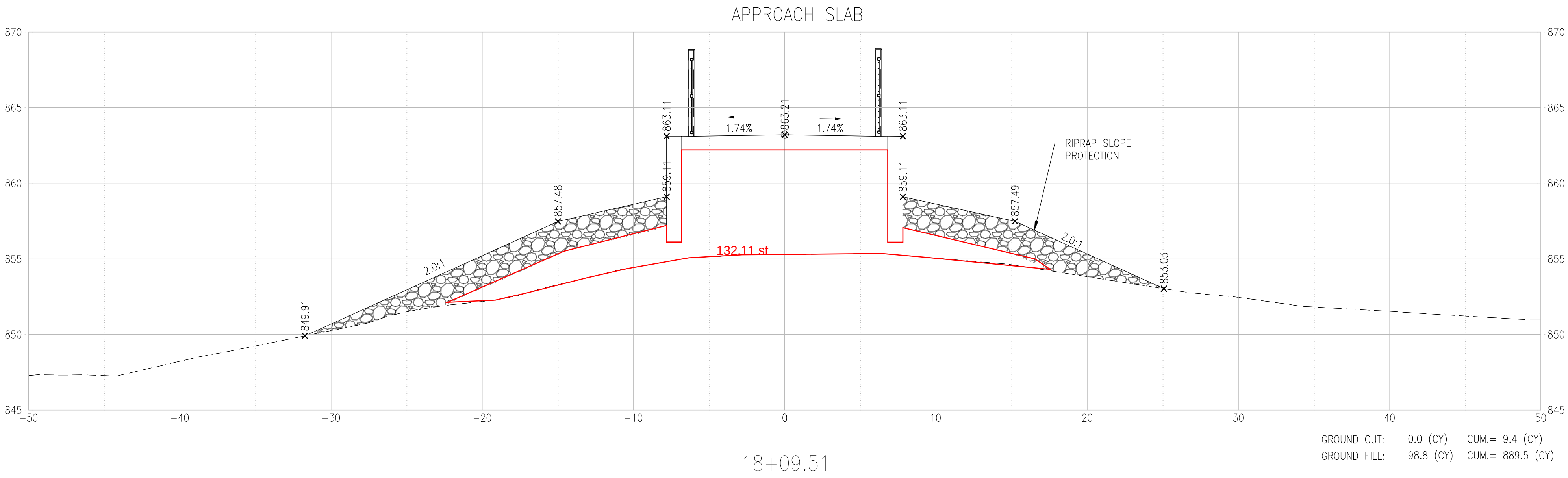
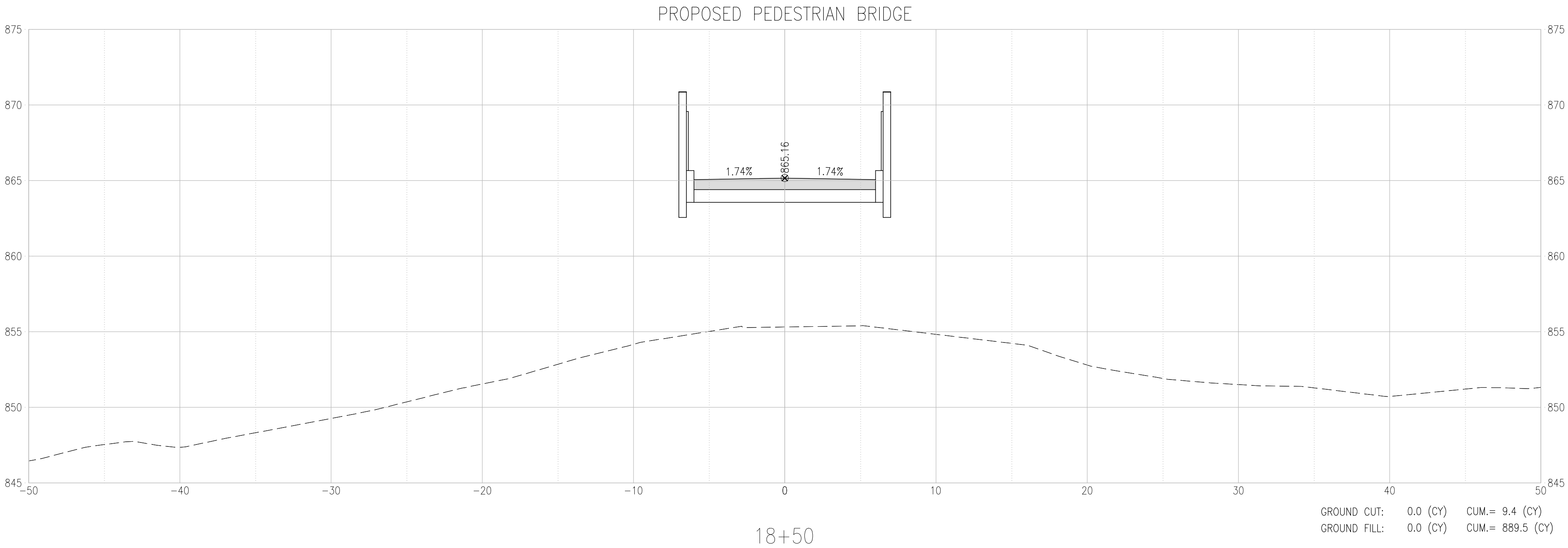
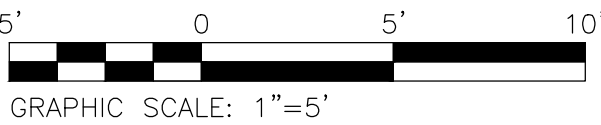
REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
ISSUE DATE: 06/14/2024

CAD DWG FILE: _____
DRAWN BY: MGB
CHECKED BY: ANR
DESIGNED BY: RJC

SHEET TITLE:
CROSS SECTIONS

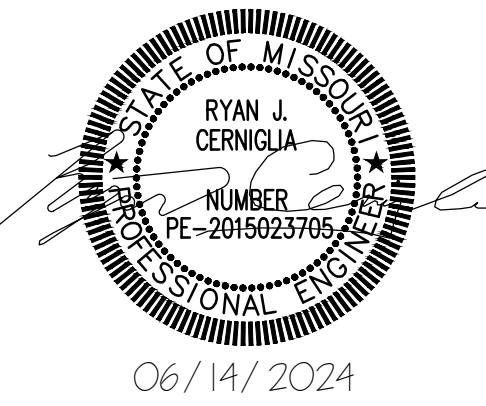
SHEET NUMBER:

C-302



NOTE: VOLUMES SHOWN ARE BASED ON END AREA CALCULATIONS

STATE OF MISSOURI
MICHAEL L. PARSON,
GOVERNOR



CONSULTING ENGINEERING
GEOSPATIAL SERVICES

ILLINOIS SWANSEA
COLUMBIA
PEORIA
GLEN CARBON
MISSOURI DECATUR
ST. CHARLES
ST. LOUIS
TENNESSEE COLUMBIA
CHATTANOOGA
NASHVILLE

THOUVENOT, WADE
& MOERCHEN, INC.

COLUMBIA OFFICE
3316 LEMONE INDUSTRIAL BLVD SUITE 2
COLUMBIA, MISSOURI 65201
(573) 442-6474
WWW.TWM-INC.COM
MO. CERTIFICATE OF AUTHORITY: 001528

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES
MANAGEMENT,
DESIGN AND CONSTRUCTION
DEPARTMENT OF
NATURAL RESOURCES
MISSOURI STATE PARKS

INSTALL PEDESTRIAN BRIDGE
AT PLEASANT HILL OVER
UNION PACIFIC RAILROAD

KATY TRAIL STATE PARK
PLEASANT HILL, MO

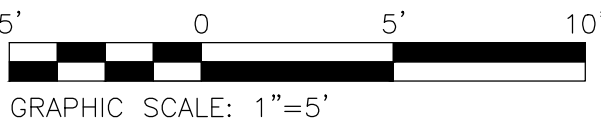
PROJECT # X2311-01
SITE # 5501
FACILITY # 7815501070

REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
ISSUE DATE: 06/14/2024

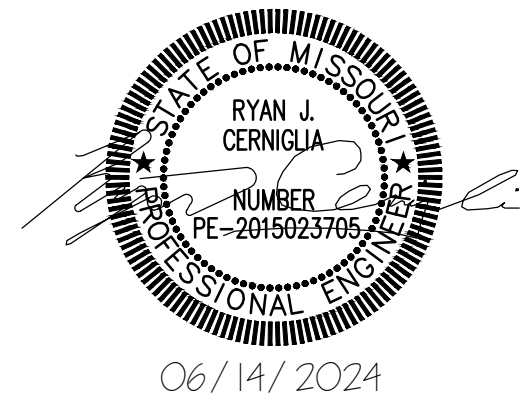
CAD DWG FILE: _____
DRAWN BY: MGB
CHECKED BY: ANR
DESIGNED BY: RJC

SHEET TITLE:
CROSS SECTIONS

SHEET NUMBER:
C-303
13 OF 47 SHEETS
06/14/2024



STATE OF MISSOURI
MICHAEL L. PARSON,
GOVERNOR



CONSULTING ENGINEERING
GEOSPATIAL SERVICES

ILLINOIS SWANSEA
COLUMBIA
PEORIA
GLEN CARBON
MISSOURI DECATUR
ST. CHARLES
ST. LOUIS
TENNESSEE COLUMBIA
CHATTANOOGA
NASHVILLE

THOUVENOT, WADE
& MOERCHEN, INC.

COLUMBIA OFFICE
3316 LEMONE INDUSTRIAL BLVD SUITE 2
COLUMBIA, MISSOURI 65201
(573) 442-6474
WWW.TWM-INC.COM
MO. CERTIFICATE OF AUTHORITY: 001528

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES
MANAGEMENT,
DESIGN AND CONSTRUCTION
DEPARTMENT OF
NATURAL RESOURCES
MISSOURI STATE PARKS

INSTALL PEDESTRIAN BRIDGE
AT PLEASANT HILL OVER
UNION PACIFIC RAILROAD

KATY TRAIL STATE PARK
PLEASANT HILL, MO

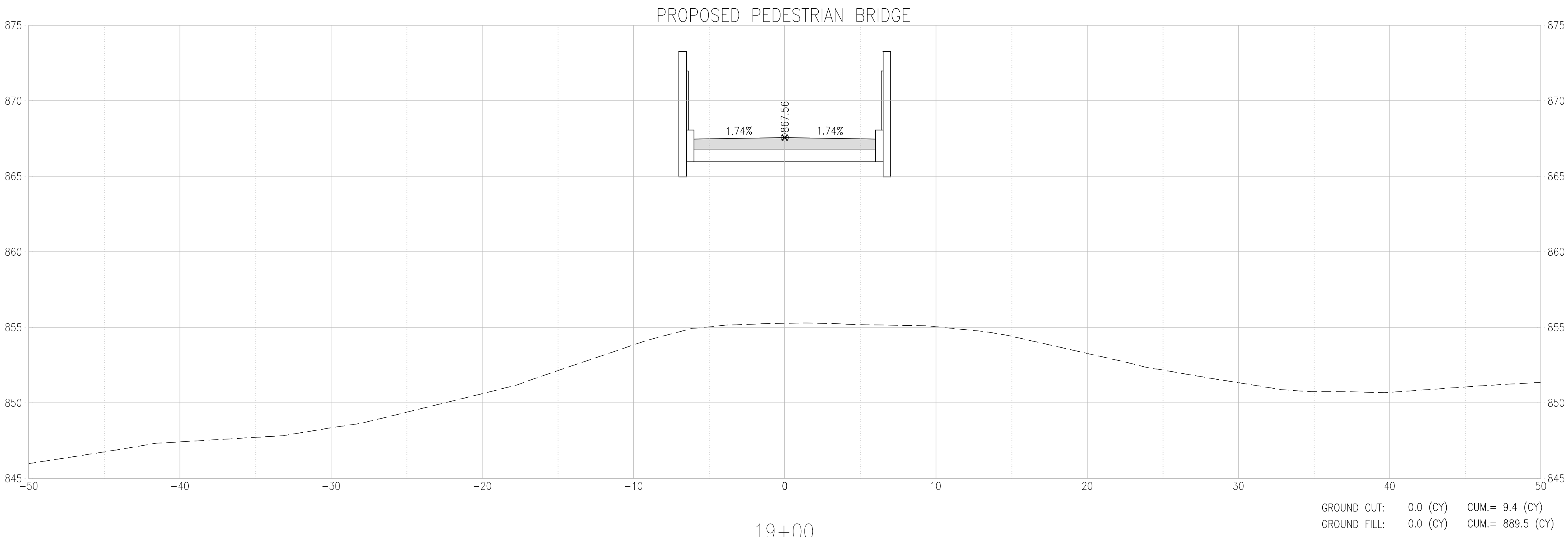
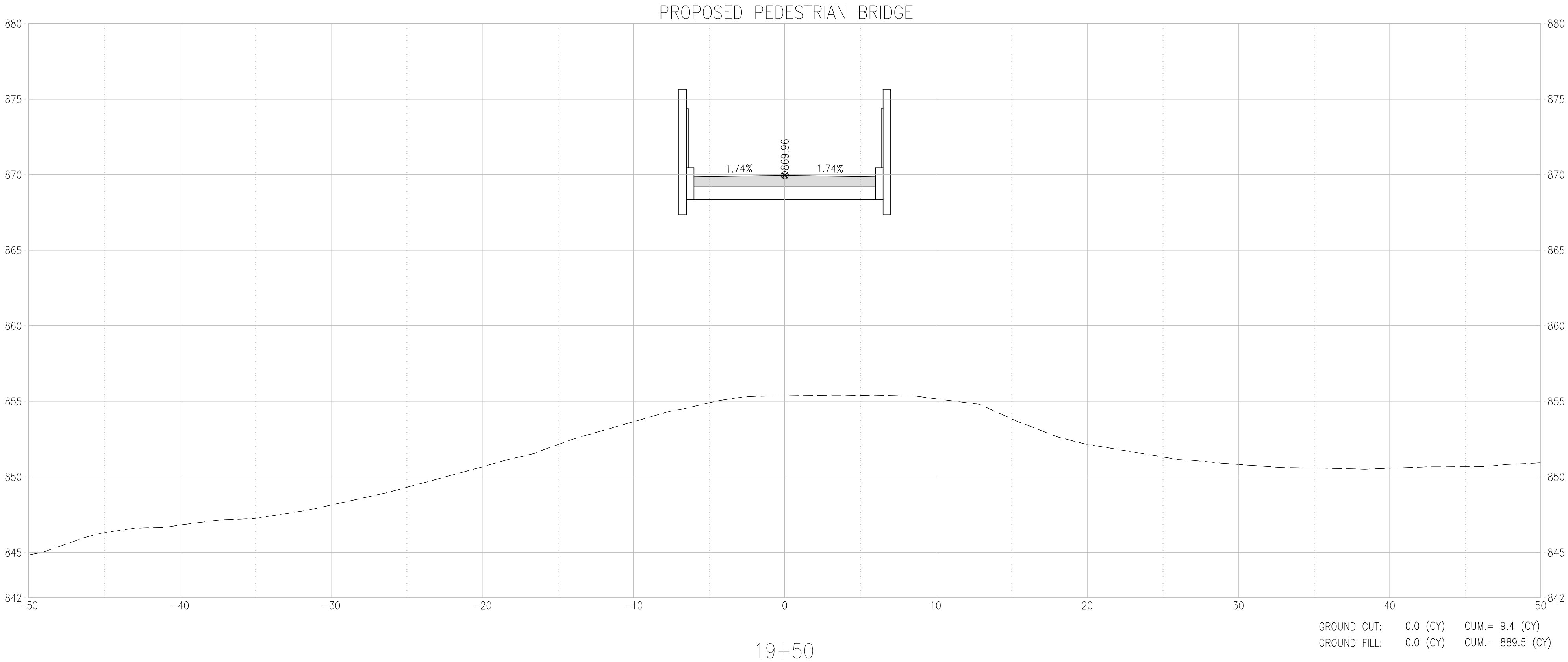
PROJECT # X2311-01
SITE # 5501
FACILITY # 7815501070

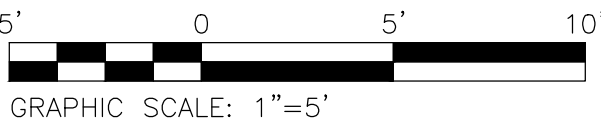
REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
ISSUE DATE: 06/14/2024

CAD DWG FILE: _____
DRAWN BY: MGB
CHECKED BY: ANR
DESIGNED BY: RJC

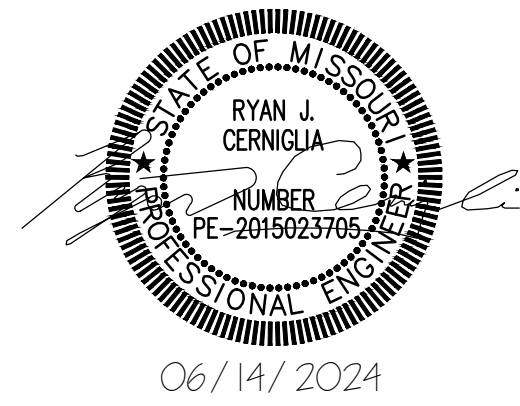
SHEET TITLE:
CROSS SECTIONS

SHEET NUMBER:
C-304
14 OF 47 SHEETS
06/14/2024





STATE OF MISSOURI
MICHAEL L. PARSON,
GOVERNOR



CONSULTING ENGINEERING
GEOSPATIAL SERVICES

ILLINOIS SWANSEA
COLUMBIA
PEORIA
GLEN CARBON
MISSOURI DECATUR
ST. CHARLES
ST. LOUIS
COLUMBIA
TENNESSEE CHATTANOOGA
NASHVILLE

THOUVENOT, WADE
& MOERCHEN, INC.

COLUMBIA OFFICE
3316 LEMONE INDUSTRIAL BLVD SUITE 2
COLUMBIA, MISSOURI 65201
(573) 442-6474
WWW.TWM-INC.COM
MO. CERTIFICATE OF AUTHORITY: 001528

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES
MANAGEMENT,
DESIGN AND CONSTRUCTION
DEPARTMENT OF
NATURAL RESOURCES
MISSOURI STATE PARKS

INSTALL PEDESTRIAN BRIDGE
AT PLEASANT HILL OVER
UNION PACIFIC RAILROAD

KATY TRAIL STATE PARK
PLEASANT HILL, MO

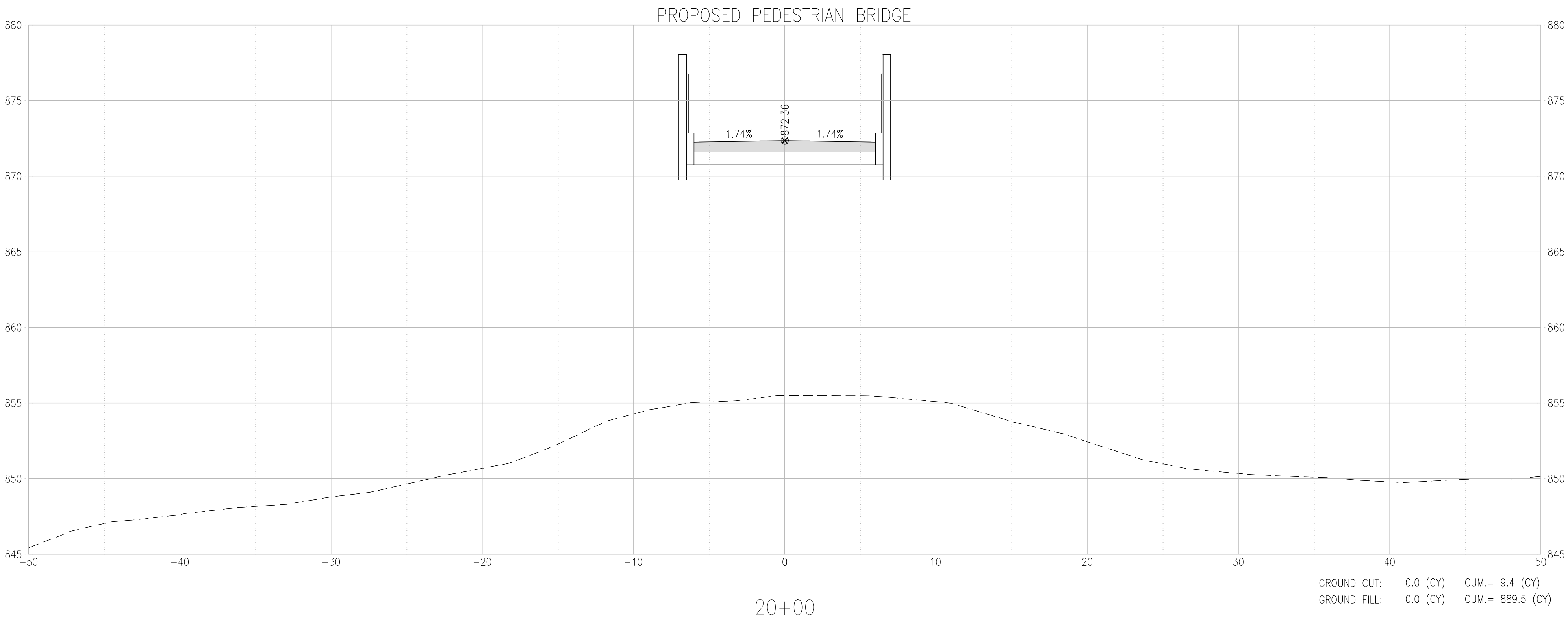
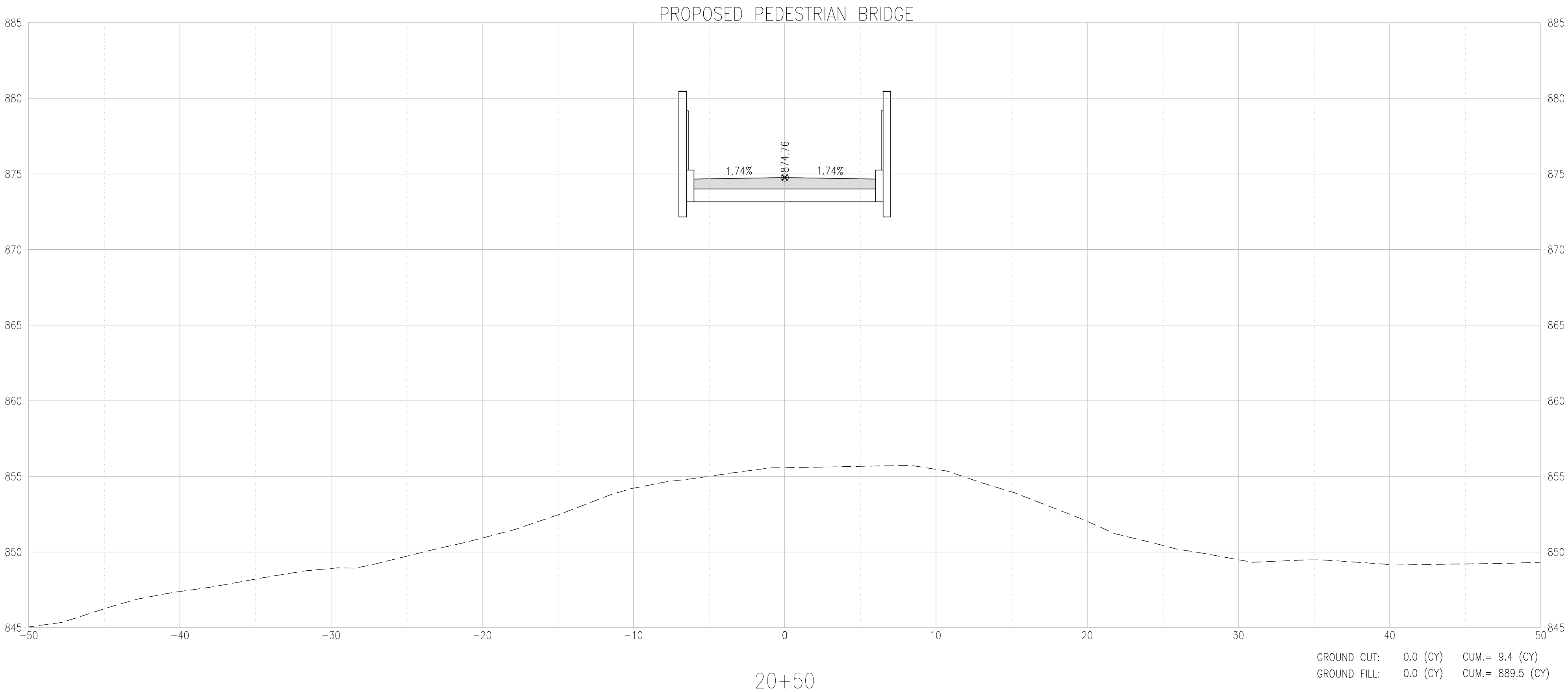
PROJECT # X2311-01
SITE # 5501
FACILITY # 7815501070

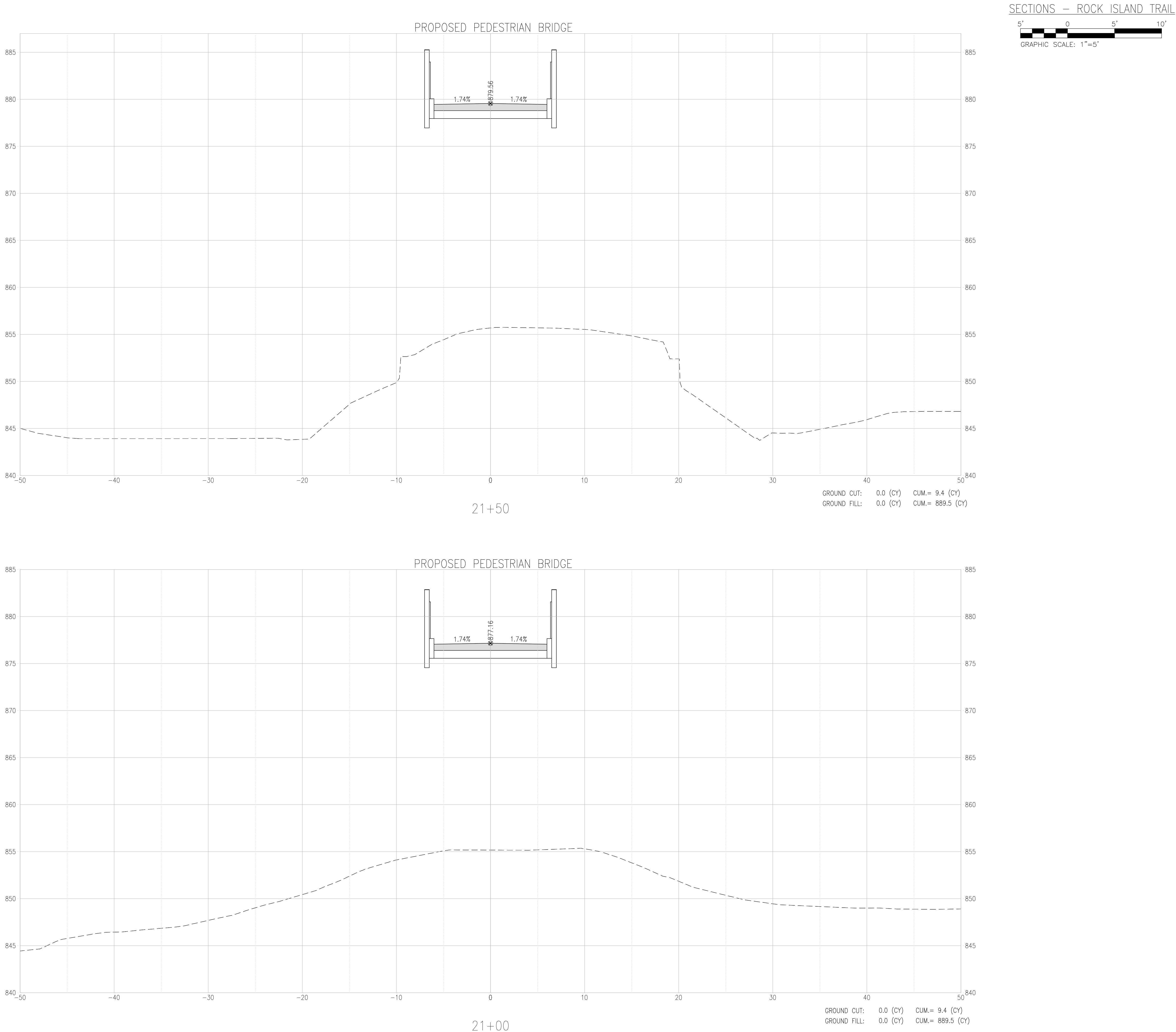
REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
ISSUE DATE: 06/14/2024

CAD DWG FILE: _____
DRAWN BY: MGB
CHECKED BY: ANR
DESIGNED BY: RJC

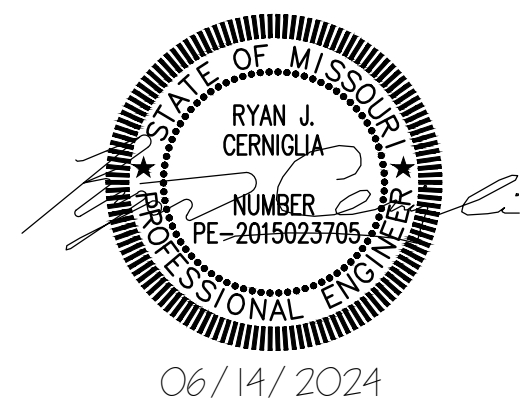
SHEET TITLE:
CROSS SECTIONS

SHEET NUMBER:
C-305
15 OF 47 SHEETS
06/14/2024





STATE OF MISSOURI
MICHAEL L. PARSON,
GOVERNOR



CONSULTING ENGINEERING
GEOSPATIAL SERVICES

ILLINOIS SWANSEA
COLUMBIA
PEORIA
GLEN CARBON
MISSOURI DECATUR
ST. CHARLES
ST. LOUIS
COLUMBIA
TENNESSEE CHATTANOOGA
NASHVILLE

THOUVENOT, WADE
& MOERCHEN, INC.

COLUMBIA OFFICE
3316 LEMONE INDUSTRIAL BLVD SUITE 2
COLUMBIA, MISSOURI 65201
(573) 442-6474
WWW.TWM-INC.COM
MO. CERTIFICATE OF AUTHORITY: 001528

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES
MANAGEMENT,
DESIGN AND CONSTRUCTION
DEPARTMENT OF
NATURAL RESOURCES
MISSOURI STATE PARKS

INSTALL PEDESTRIAN BRIDGE
AT PLEASANT HILL OVER
UNION PACIFIC RAILROAD

KATY TRAIL STATE PARK
PLEASANT HILL, MO

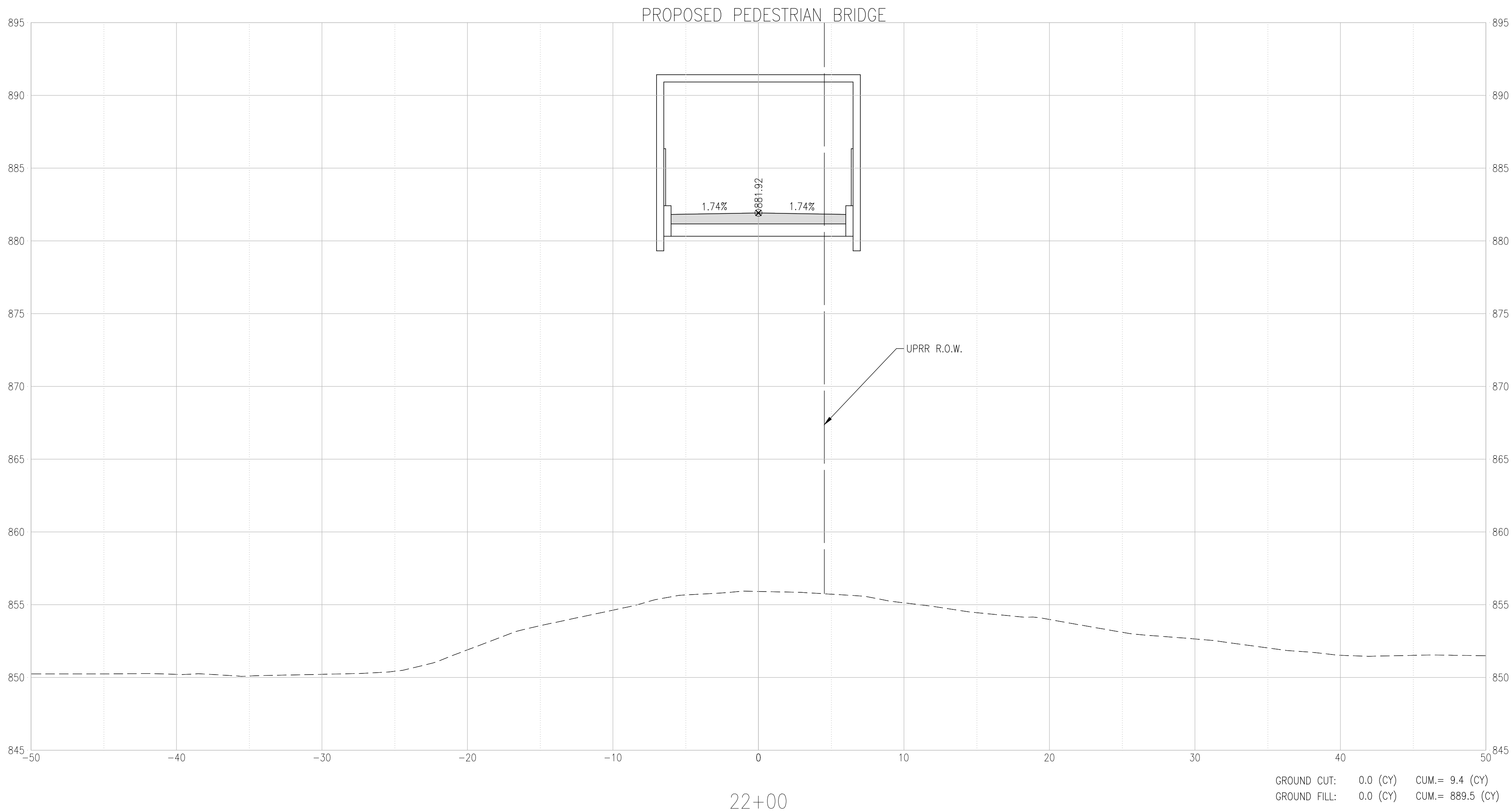
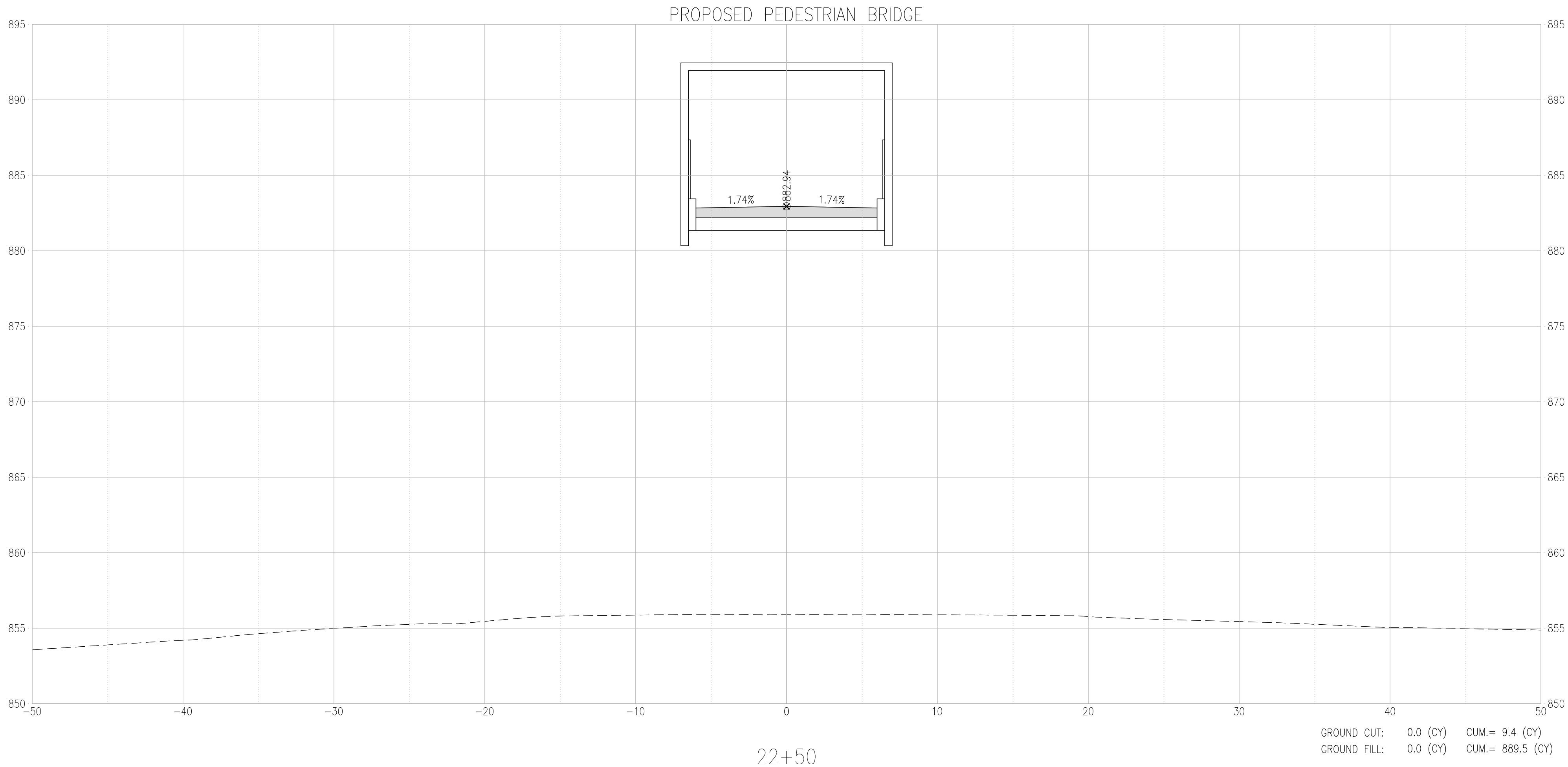
PROJECT # X2311-01
SITE # 5501
FACILITY # 7815501070

REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
ISSUE DATE: 06/14/2024

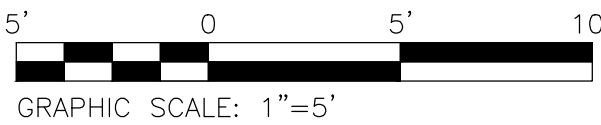
CAD DWG FILE: _____
DRAWN BY: MGB
CHECKED BY: ANR
DESIGNED BY: RJC

SHEET TITLE:
CROSS SECTIONS

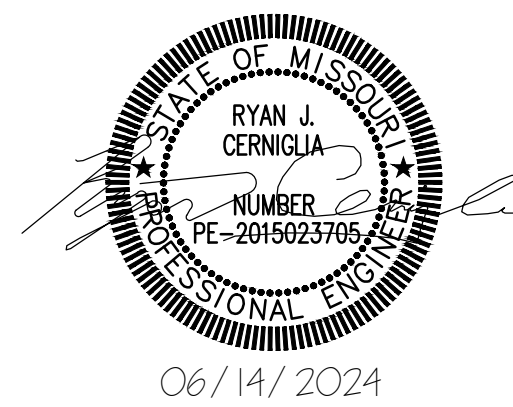
SHEET NUMBER:
C-306
16 OF 47 SHEETS
06/14/2024



SECTIONS — ROCK ISLAND TRAIL



STATE OF MISSOURI
MICHAEL L. PARSON,
GOVERNOR



CONSULTING ENGINEERING
GEOSPATIAL SERVICES

ILLINOIS

SWANSEA
COLUMBIA
PEORIA
GLEN CARBON
DECATUR
ST. CHARLES
ST. LOUIS
COLUMBIA
CHATTANOOGA
NASHVILLE

MISSOURI

TENNESSEE

THOUVENOT, WADE
& MOERCHEN, INC.

COLUMBIA OFFICE
3316 LEMONE INDUSTRIAL BLVD SUITE 2
COLUMBIA, MISSOURI 65201
(573) 442-6474
WWW.TWM-INC.COM
MO. CERTIFICATE OF AUTHORITY: 001528

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES
MANAGEMENT,
DESIGN AND CONSTRUCTION
DEPARTMENT OF
NATURAL RESOURCES
MISSOURI STATE PARKS

INSTALL PEDESTRIAN BRIDGE
AT PLEASANT HILL OVER
UNION PACIFIC RAILROAD

KATY TRAIL STATE PARK
PLEASANT HILL, MO

PROJECT # X2311-01
SITE # 5501
FACILITY # 7815501070

REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
ISSUE DATE: 06/14/2024

CAD DWG FILE: _____
DRAWN BY: MGB
CHECKED BY: ANR
DESIGNED BY: RJC

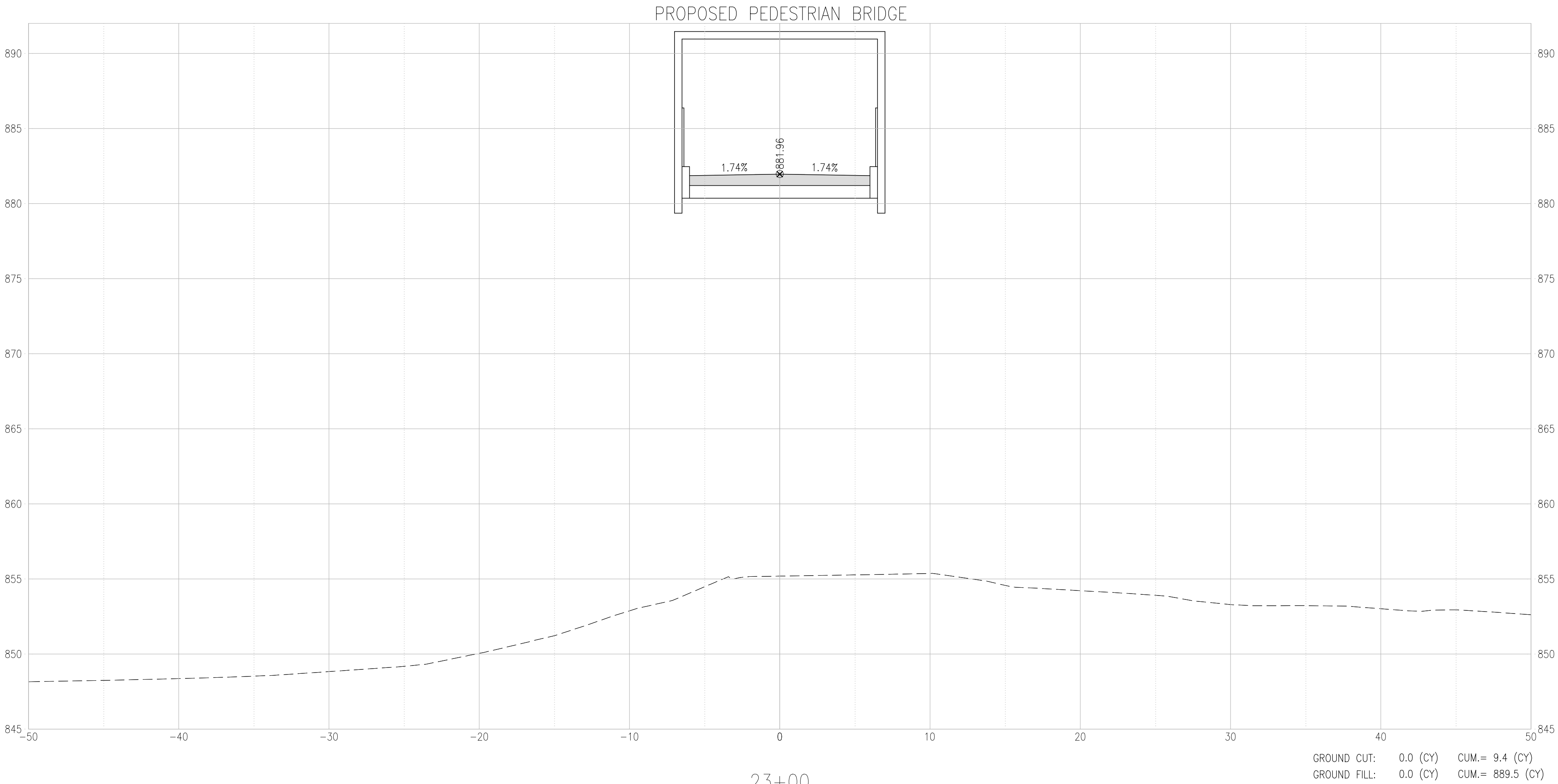
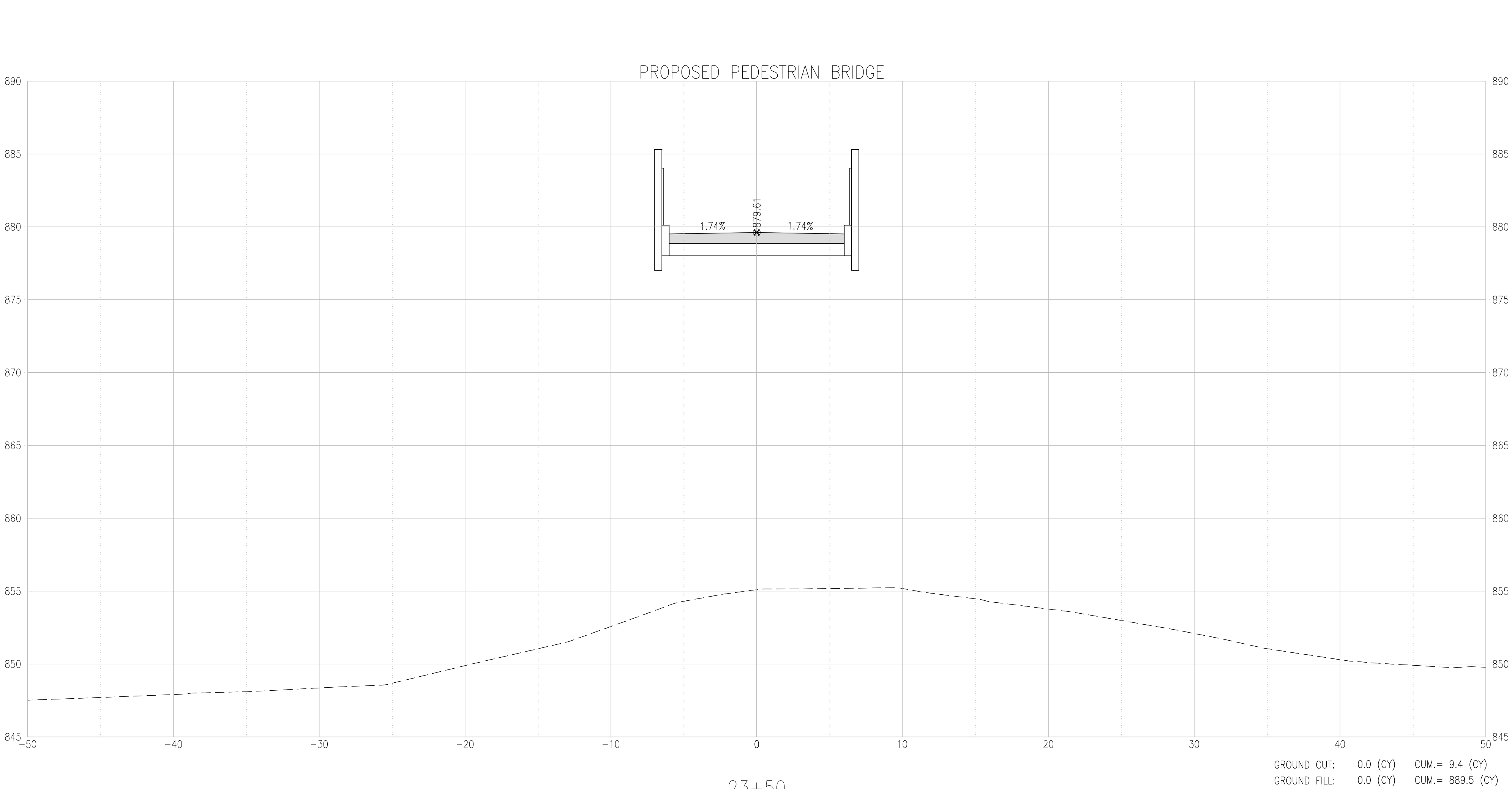
SHEET TITLE:

CROSS SECTIONS

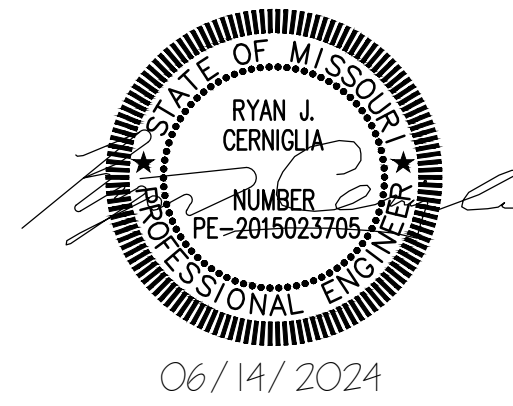
SHEET NUMBER:

C-307

17 OF 47 SHEETS
06/14/2024



STATE OF MISSOURI
MICHAEL L. PARSON,
GOVERNOR



CONSULTING ENGINEERING
GEOSPATIAL SERVICES

ILLINOIS SWANSEA
COLUMBIA
PEORIA
GLEN CARBON
MISSOURI DECATUR
ST. CHARLES
ST. LOUIS
COLUMBIA
TENNESSEE CHATTANOOGA
NASHVILLE

THOUVENOT, WADE
& MOERCHEN, INC.

COLUMBIA OFFICE
3316 LEMONE INDUSTRIAL BLVD SUITE 2
COLUMBIA, MISSOURI 65201
(573) 442-6474
WWW.TWM-INC.COM
MO. CERTIFICATE OF AUTHORITY: 001528

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES
MANAGEMENT,
DESIGN AND CONSTRUCTION
DEPARTMENT OF
NATURAL RESOURCES
MISSOURI STATE PARKS

INSTALL PEDESTRIAN BRIDGE
AT PLEASANT HILL OVER
UNION PACIFIC RAILROAD

KATY TRAIL STATE PARK
PLEASANT HILL, MO

PROJECT # X2311-01
SITE # 5501
FACILITY # 7815501070

REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
ISSUE DATE: 06/14/2024

CAD DWG FILE: _____
DRAWN BY: MGB
CHECKED BY: ANR
DESIGNED BY: RJC

SHEET TITLE:
CROSS SECTIONS

SHEET NUMBER:
C-308
18 OF 47 SHEETS
06/14/2024



ILLINOIS	SWANSEA COLUMBIA PEORIA GLEN CARBON
MISSOURI	DECATUR ST. CHARLES ST. LOUIS
TENNESSEE	COLUMBIA CHATTANOOGA NASHVILLE

COLUMBIA OFFICE
3316 LEMONE INDUSTRIAL BLVD SUITE 2
COLUMBIA, MISSOURI 65201
(573) 442-6474
WWW.TWM-INC.COM
MO. CERTIFICATE OF AUTHORITY: 001528

**OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES
MANAGEMENT,
DESIGN AND CONSTRUCTION
DEPARTMENT OF
NATURAL RESOURCES
MISSOURI STATE PARKS**

KATY TRAIL STATE PARK
PLEASANT HILL, MO

PROJECT # X2311-01
SITE # 5501
FACILITY # 7815501070

REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
ISSUE DATE: 06/14/2024

CAD DWG FILE: _____
 DRAWN BY: MGB
 CHECKED BY: ANR
 DESIGNED BY: RJC

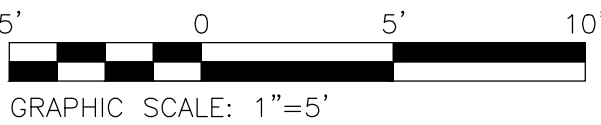
SHEET TITLE:
CROSS SECTIONS

SHEET NUMBER:

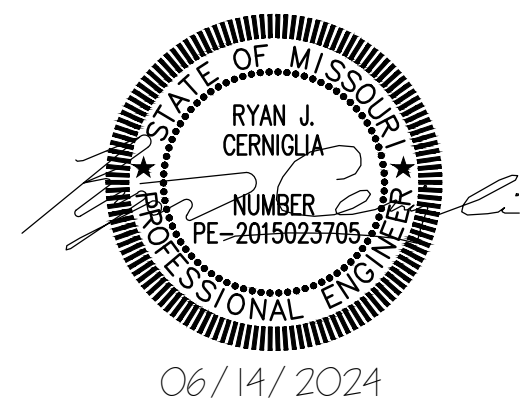
C-309

19 OF 47 SHEETS
06/14/2024

NOTE: VOLUMES SHOWN ARE BASED ON END AREA CALCULATIONS



STATE OF MISSOURI
MICHAEL L. PARSON,
GOVERNOR



CONSULTING ENGINEERING
GEOSPATIAL SERVICES

ILLINOIS SWANSEA
COLUMBIA
PEORIA
GLEN CARBON
MISSOURI DECATUR
ST. CHARLES
ST. LOUIS
COLUMBIA
TENNESSEE CHATTANOOGA
NASHVILLE

THOUVENOT, WADE
& MOERCHEN, INC.

COLUMBIA OFFICE
3316 LEMONE INDUSTRIAL BLVD SUITE 2
COLUMBIA, MISSOURI 65201
(573) 442-6474
WWW.TWM-INC.COM
MO. CERTIFICATE OF AUTHORITY: 001528

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES
MANAGEMENT,
DESIGN AND CONSTRUCTION
DEPARTMENT OF
NATURAL RESOURCES
MISSOURI STATE PARKS

INSTALL PEDESTRIAN BRIDGE
AT PLEASANT HILL OVER
UNION PACIFIC RAILROAD

KATY TRAIL STATE PARK
PLEASANT HILL, MO

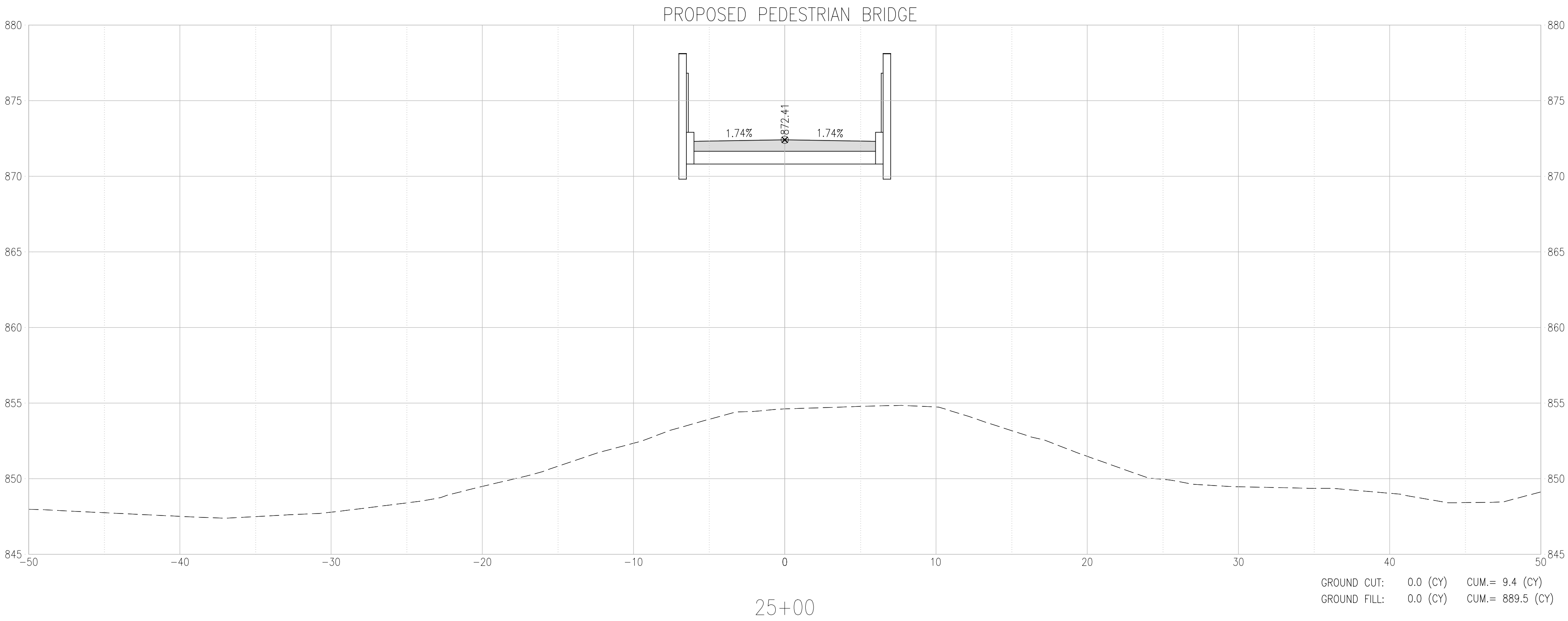
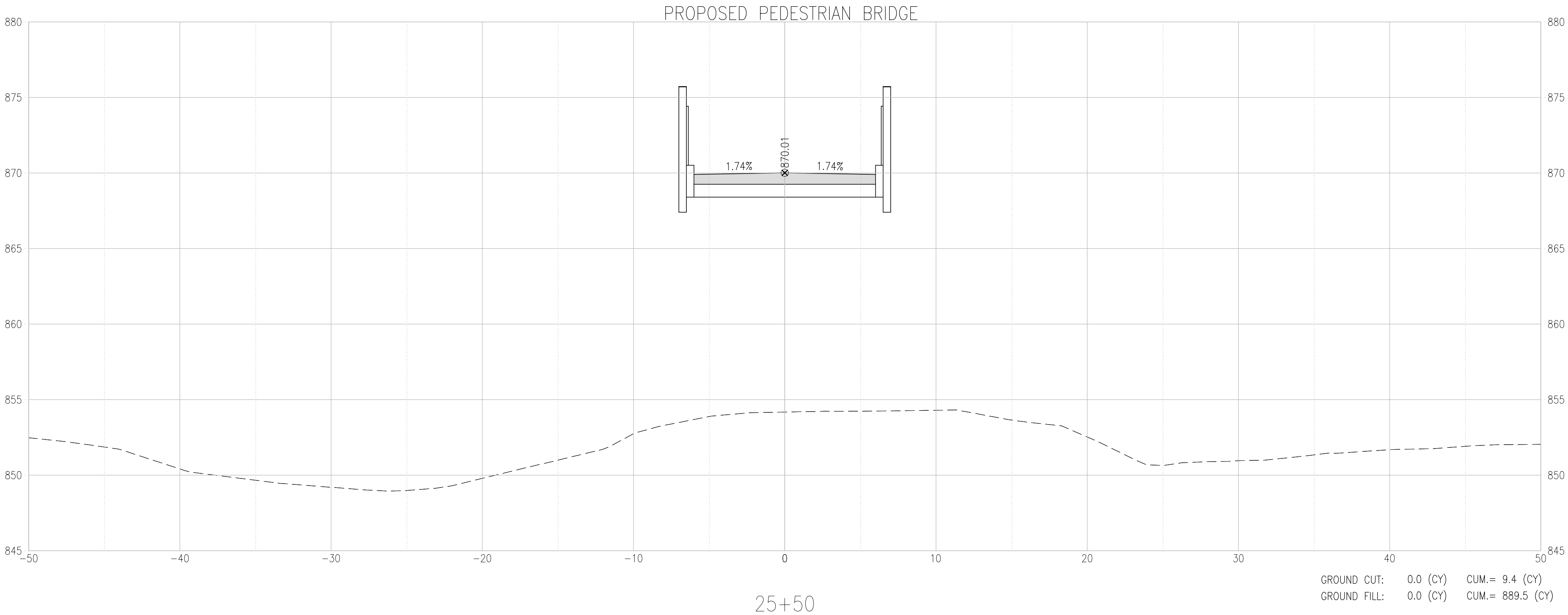
PROJECT # X2311-01
SITE # 5501
FACILITY # 7815501070

REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
ISSUE DATE: 06/14/2024

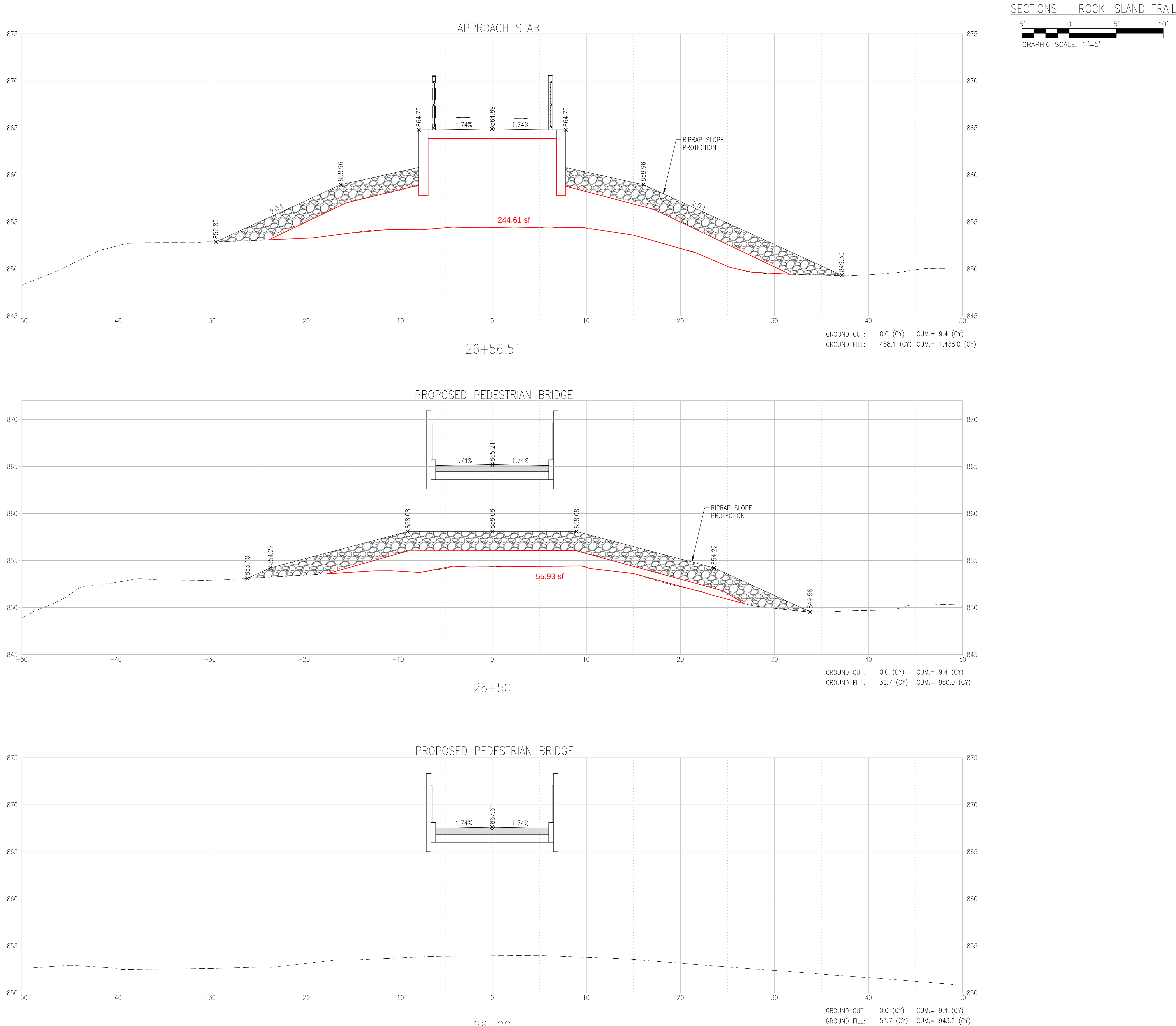
CAD DWG FILE: _____
DRAWN BY: MGB
CHECKED BY: ANR
DESIGNED BY: RJC

SHEET TITLE:
CROSS SECTIONS

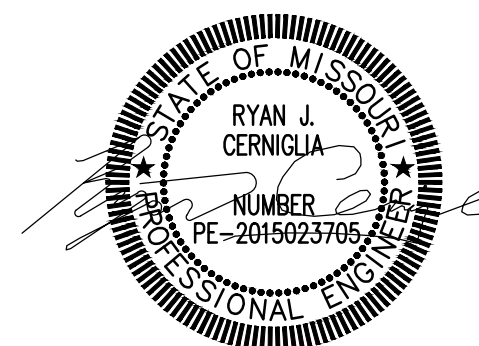
SHEET NUMBER:
C-310
20 OF 47 SHEETS
06/14/2024



NOTE: VOLUMES SHOWN ARE BASED ON END AREA CALCULATIONS



STATE OF MISSOURI
MICHAEL L. PARSON,
GOVERNOR



06/14/2024



CONSULTING ENGINEERING
GEOSPATIAL SERVICES

ILLINOIS

SWANSEA

COLUMBIA

PEORIA

GLEN CARBON

MISSOURI

DECATUR

ST. LOUIS

TENNESSEE

COLUMBIA

CHATTANOOGA

NASHVILLE

THOUVENOT, WADE
& MOERCHEN, INC.

COLUMBIA OFFICE

3316 LEMONE INDUSTRIAL BLVD SUITE 2

COLUMBIA, MISSOURI 65201

(573) 442-6474

WWW.TWM-INC.COM

MO. CERTIFICATE OF AUTHORITY: 001528

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES
MANAGEMENT,
DESIGN AND CONSTRUCTION
DEPARTMENT OF
NATURAL RESOURCES
MISSOURI STATE PARKS

INSTALL PEDESTRIAN BRIDGE
AT PLEASANT HILL OVER
UNION PACIFIC RAILROAD

KATY TRAIL STATE PARK
PLEASANT HILL, MO

PROJECT # X2311-01

SITE # 5501

FACILITY # 7815501070

REVISION: _____

DATE: _____

REVISION: _____

DATE: _____

REVISION: _____

DATE: _____

ISSUE DATE: 06/14/2024

CAD DWG FILE: _____

DRAWN BY: MGB

CHECKED BY: ANR

DESIGNED BY: RJC

SHEET TITLE:

CROSS SECTIONS

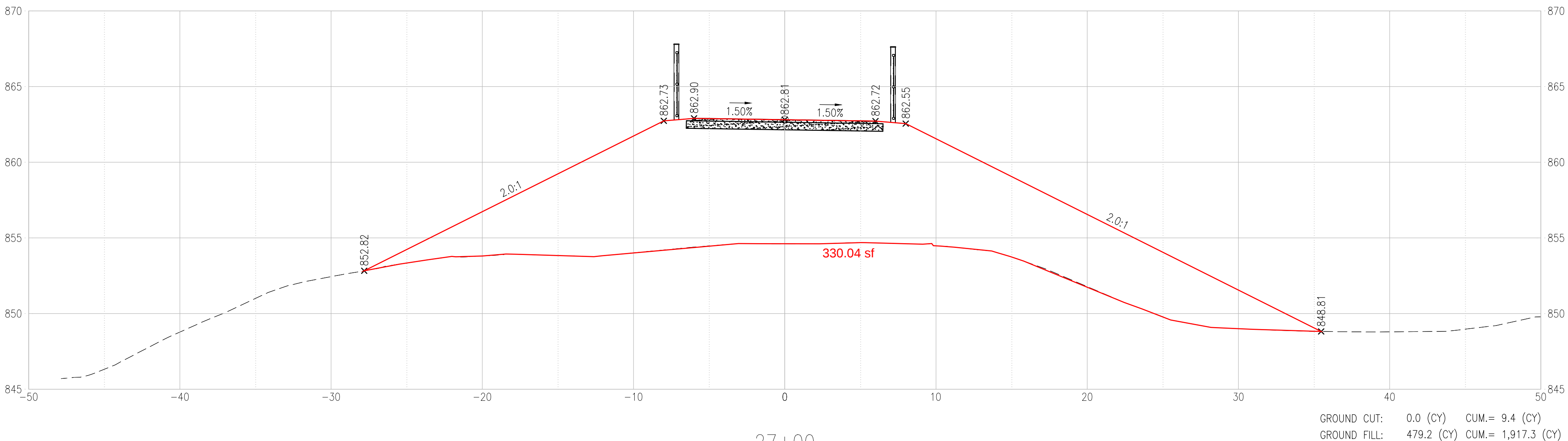
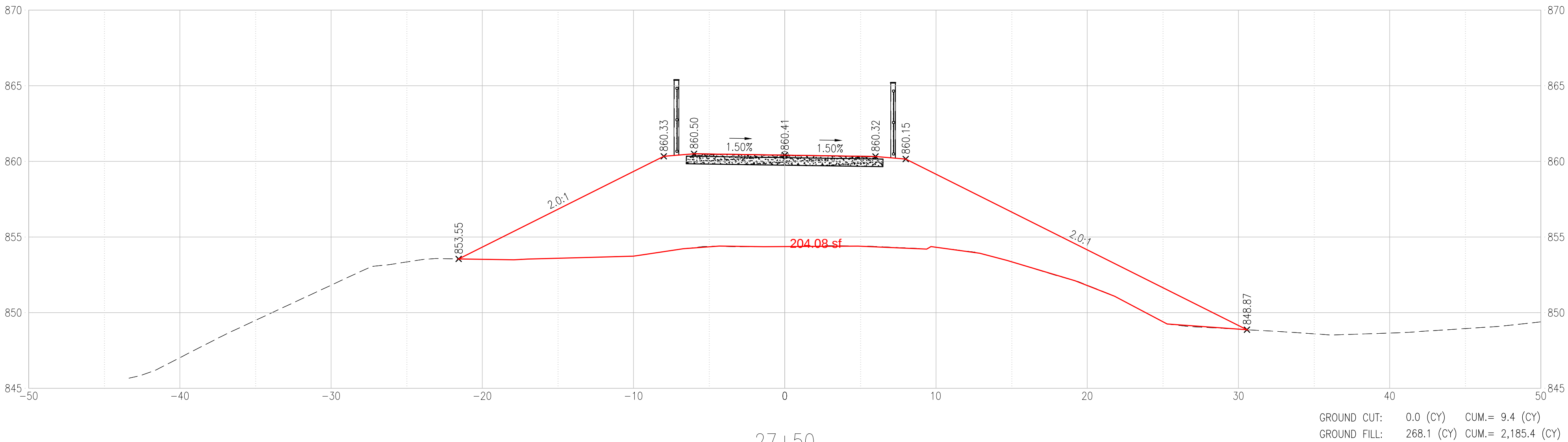
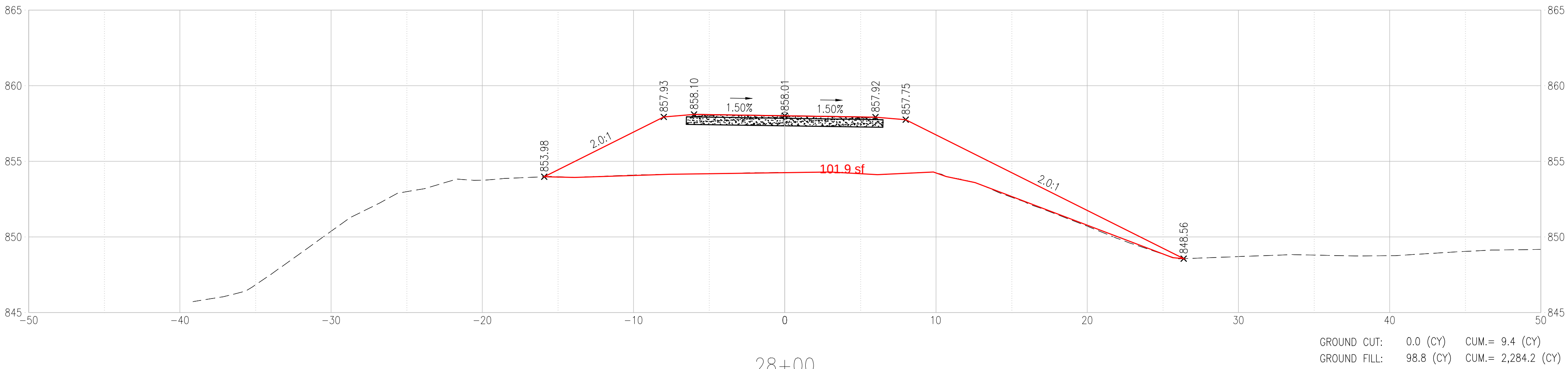
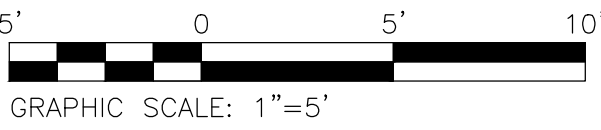
SHEET NUMBER:

C-311

21 OF 47 SHEETS

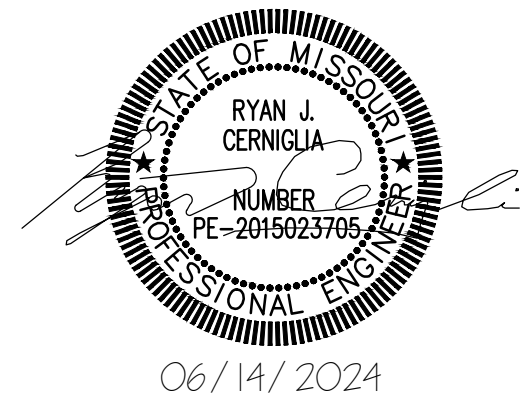
06/14/2024

SECTIONS — ROCK ISLAND TRAIL



NOTE: VOLUMES SHOWN ARE BASED ON END AREA CALCULATIONS

STATE OF MISSOURI
MICHAEL L. PARSON,
GOVERNOR



TWM

CONSULTING ENGINEERING
GEOSPATIAL SERVICES

ILLINOIS SWANSEA
COLUMBIA
PEORIA
GLEN CARBON
MISSOURI DECATUR
ST. CHARLES
ST. LOUIS
TENNESSEE COLUMBIA
CHATTANOOGA
NASHVILLE

**THOUVENOT, WADE
& MOERCHEN, INC.**

COLUMBIA OFFICE
3316 LEMONE INDUSTRIAL BLVD SUITE 2
COLUMBIA, MISSOURI 65201
(573) 442-6474
WWW.TWM-INC.COM
MO. CERTIFICATE OF AUTHORITY: 001528

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES
MANAGEMENT,
DESIGN AND CONSTRUCTION
DEPARTMENT OF
NATURAL RESOURCES
MISSOURI STATE PARKS

INSTALL PEDESTRIAN BRIDGE
AT PLEASANT HILL OVER
UNION PACIFIC RAILROAD

KATY TRAIL STATE PARK
PLEASANT HILL, MO

PROJECT # X2311-01
SITE # 5501
FACILITY # 7815501070

REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
ISSUE DATE: 06/14/2024

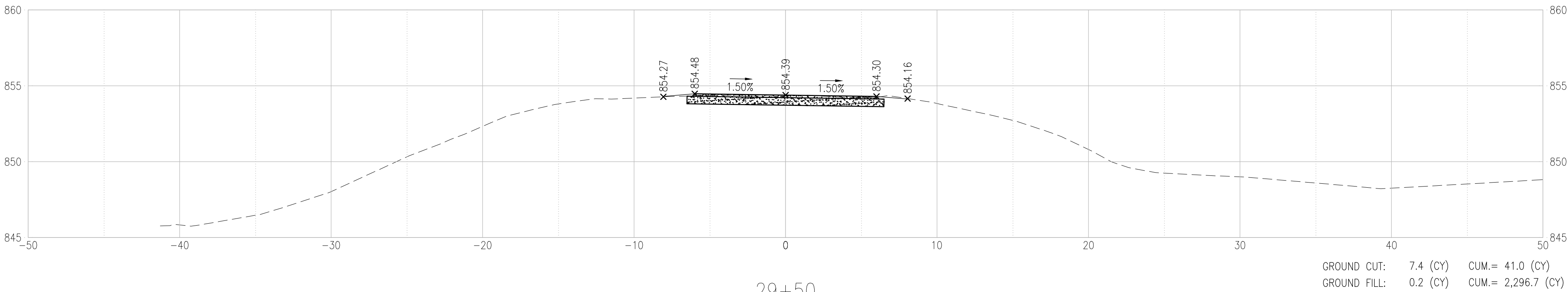
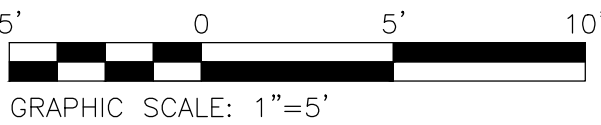
CAD DWG FILE: _____
DRAWN BY: MGB
CHECKED BY: ANR
DESIGNED BY: RJC

SHEET TITLE:
CROSS SECTIONS

SHEET NUMBER:

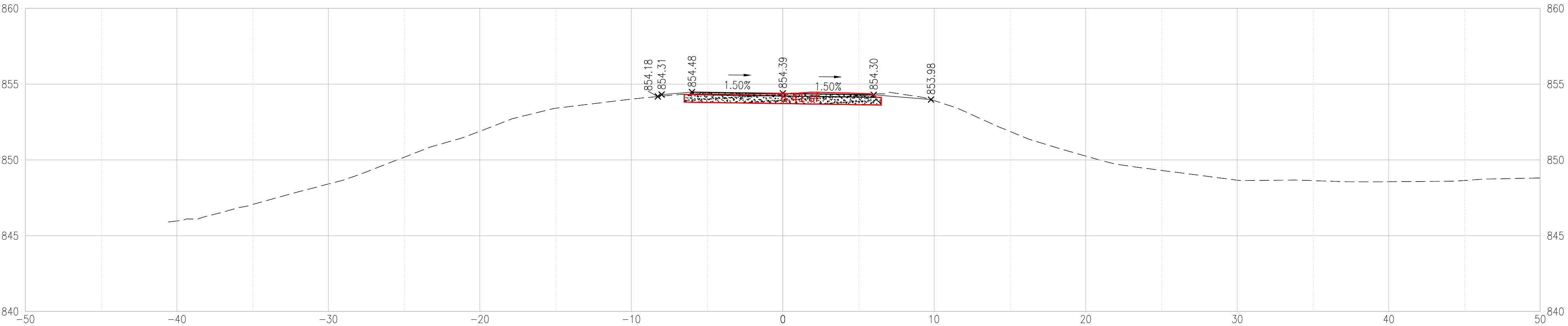
C-312

22 OF 47 SHEETS
06/14/2024

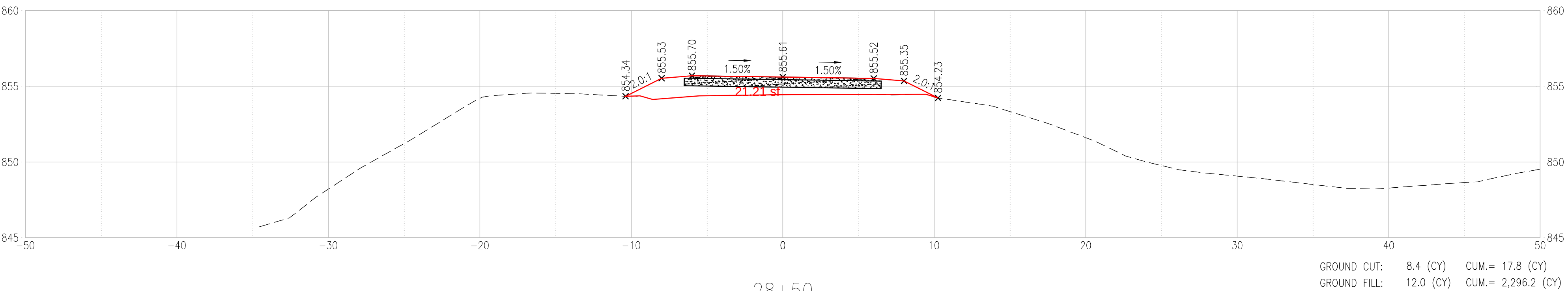


29+50

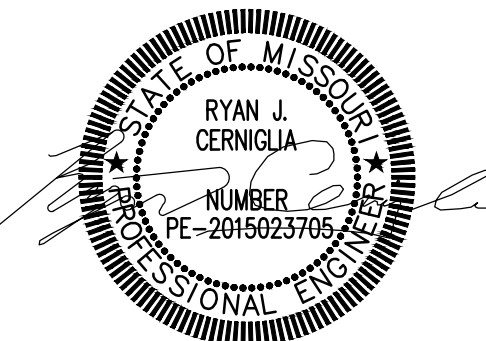
(END PROJECT)



29+00



28+50



06/14/2024



CONSULTING ENGINEERING
GEOSPATIAL SERVICES

ILLINOIS SWANSEA
COLUMBIA
PEORIA
GLEN CARBON
MISSOURI DECATUR
ST. CHARLES
ST. LOUIS
TENNESSEE COLUMBIA
CHATTANOOGA
NASHVILLE

THOUVENOT, WADE
& MOERCHEN, INC.

COLUMBIA OFFICE
3316 LEMONE INDUSTRIAL BLVD SUITE 2
COLUMBIA, MISSOURI 65201
(573) 442-6474
WWW.TWM-INC.COM
MO. CERTIFICATE OF AUTHORITY: 001528

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES
MANAGEMENT,
DESIGN AND CONSTRUCTION
DEPARTMENT OF
NATURAL RESOURCES
MISSOURI STATE PARKS

INSTALL PEDESTRIAN BRIDGE
AT PLEASANT HILL OVER
UNION PACIFIC RAILROAD

KATY TRAIL STATE PARK
PLEASANT HILL, MO

PROJECT # X2311-01
SITE # 5501
FACILITY # 7815501070

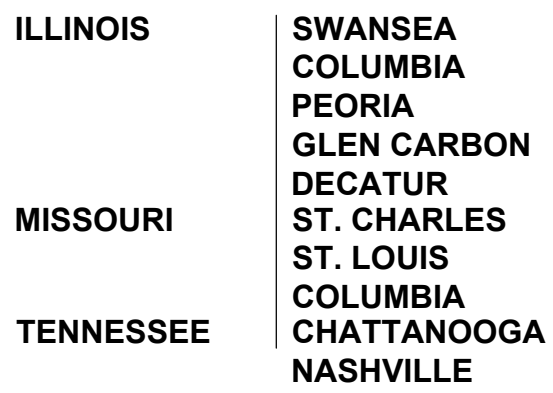
REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
ISSUE DATE: 06/14/2024

CAD DWG FILE: _____
DRAWN BY: MGB
CHECKED BY: ANR
DESIGNED BY: RJC

SHEET TITLE:
CROSS SECTIONS

SHEET NUMBER:

C-313



COLUMBIA OFFICE
3316 LEMONE INDUSTRIAL BLVD SUITE 2
COLUMBIA, MISSOURI 65201
(573) 442-6474
WWW.TWM-INC.COM
MO. CERTIFICATE OF AUTHORITY: 001528

INSTALL PEDESTRIAN BRIDGE AT PLEASANT HILL OVER UNION PACIFIC RAILROAD

PROJECT # X2311-01
SITE # 5501
FACILITY # 7815501070

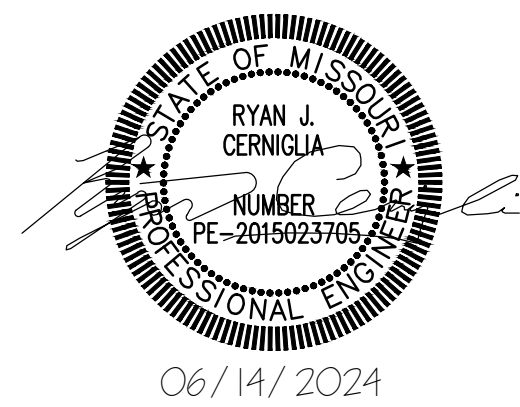
REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
ISSUE DATE: 06/14/2024

CAD DWG FILE: _____
 DRAWN BY: MGB
 CHECKED BY: ANR
 DESIGNED BY: RJC

SHEET NUMBER:

24 OF 47 SHEETS
06/14/2024





CONSULTING ENGINEERING
GEOSPATIAL SERVICES

ILLINOIS SWANSEA
COLUMBIA
PEORIA
GLEN CARBON
MISSOURI DECATUR
ST. LOUIS
COLUMBIA
TENNESSEE CHATTANOOGA
NASHVILLE

THOUVENOT, WADE
& MOERCHEN, INC.

COLUMBIA OFFICE
3316 LEMONE INDUSTRIAL BLVD SUITE 2
COLUMBIA, MISSOURI 65201
(573) 442-6474
WWW.TWM-INC.COM
MO. CERTIFICATE OF AUTHORITY: 001528

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES
MANAGEMENT,
DESIGN AND CONSTRUCTION
DEPARTMENT OF
NATURAL RESOURCES
MISSOURI STATE PARKS

INSTALL PEDESTRIAN BRIDGE
AT PLEASANT HILL OVER
UNION PACIFIC RAILROAD

KATY TRAIL STATE PARK
PLEASANT HILL, MO

PROJECT # X2311-01
SITE # 5501
FACILITY # 7815501070

REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
ISSUE DATE: 06/14/2024

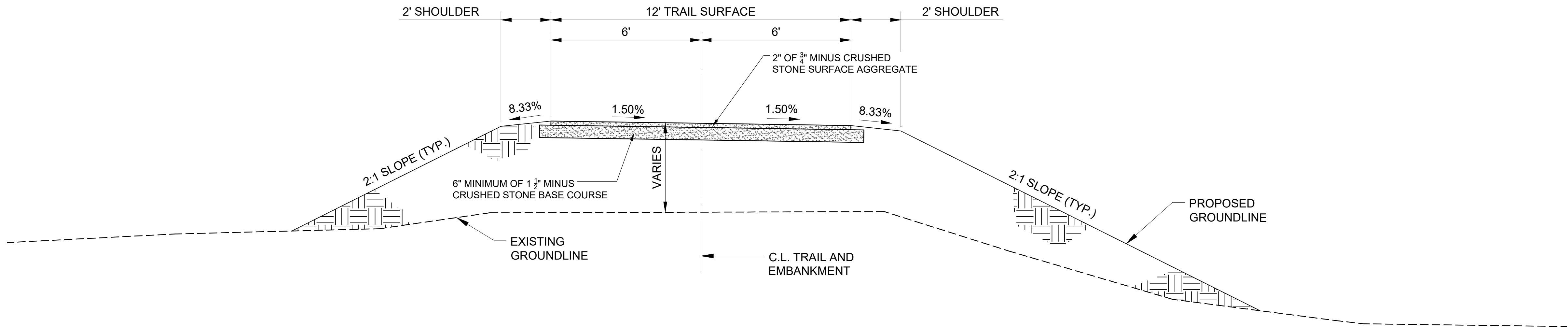
CAD DWG FILE: _____
DRAWN BY: MGB
CHECKED BY: ANR
DESIGNED BY: RJC

SHEET TITLE:
DETAILS
TYPICAL SECTIONS
EMBANKMENT

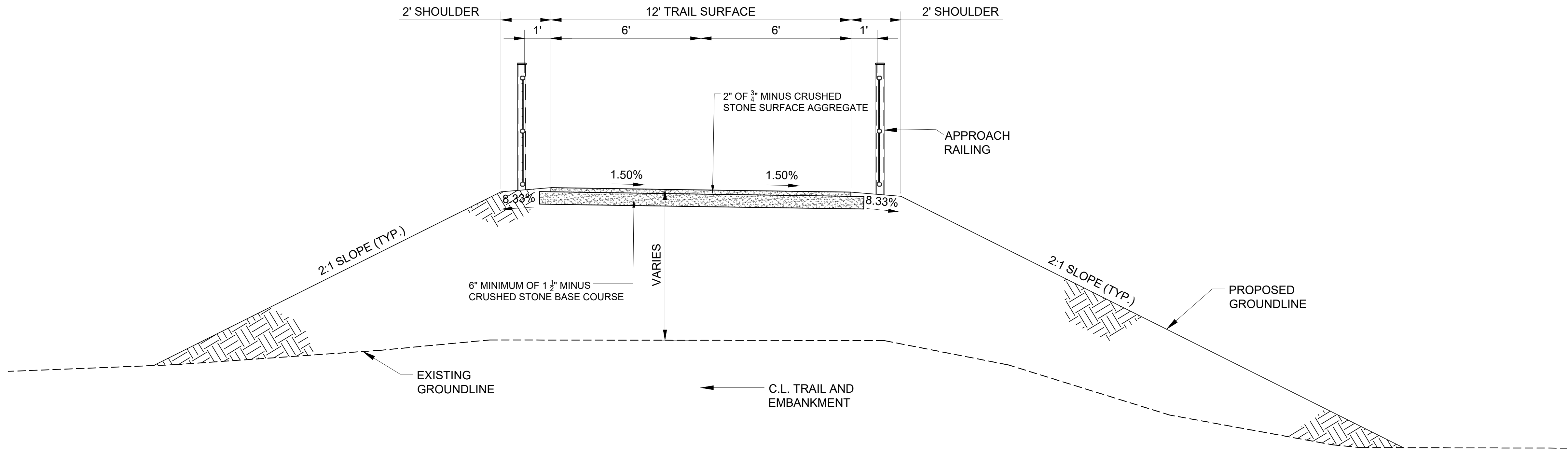
SHEET NUMBER:

C-501

25 OF 47 SHEETS
06/14/2024



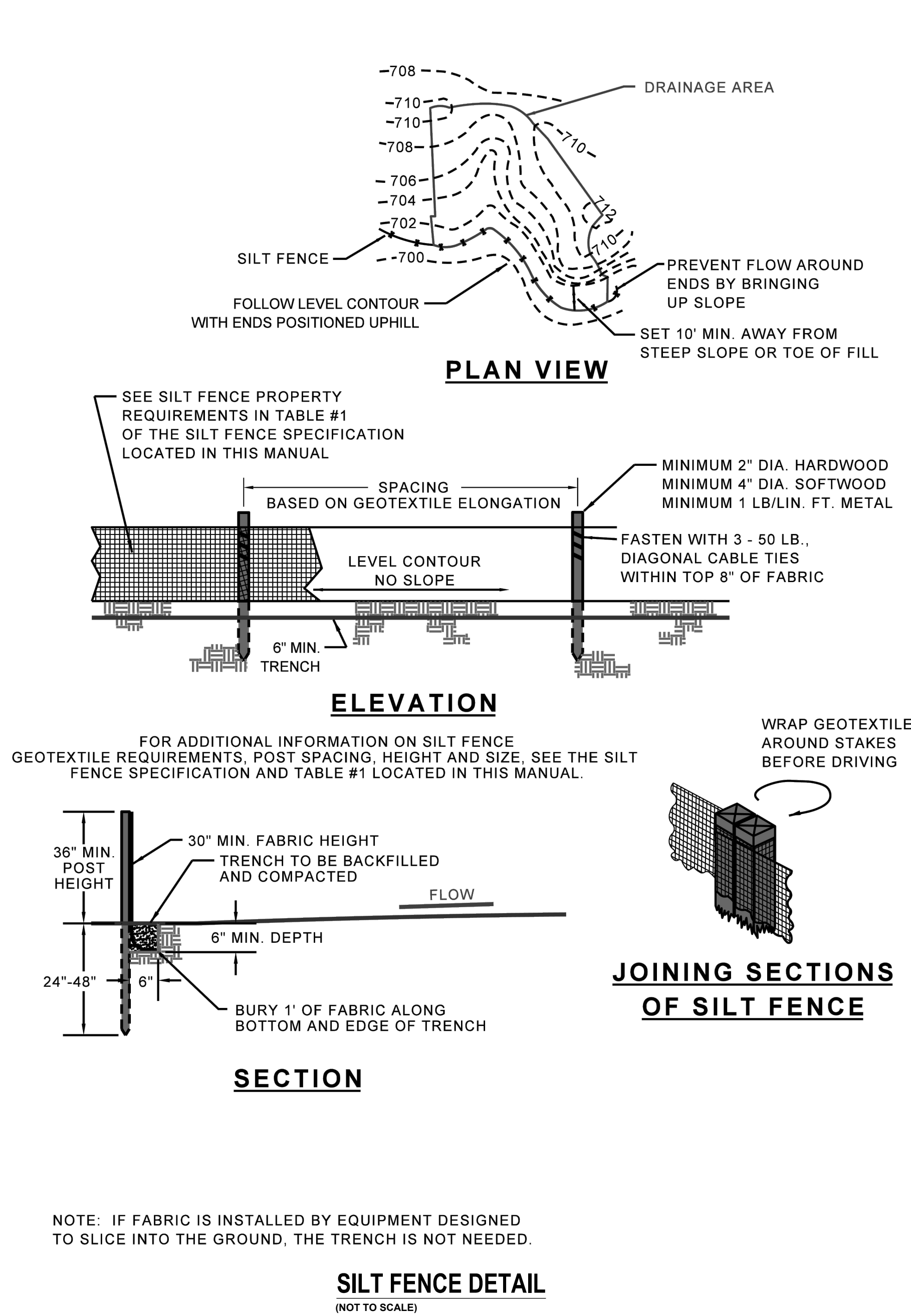
TYPICAL SECTION THRU EMBANKMENT
STA. 15+50.00 TO 16+89.75 & STA. 27+93.50 TO STA. 29+50.00
NOT TO SCALE



TYPICAL SECTION THRU EMBANKMENT
STA. 16+89.75 TO STA. 17+92.01 & STA. 26+74.01 TO STA. 27+93.50
NOT TO SCALE

NOTES:

- EMBANKMENT SIDE SLOPES SHALL BE SEEDED WITH NATIVE GRASSES.
- FOR TYPICAL SECTIONS BETWEEN STA. 18+09.51 TO STA. 26+56.51, REFER TO STRUCTURAL SHEET S-101.



EROSION AND SEDIMENT CONTROL NOTES

ALL WORK SHALL BE COMPLETED IN ACCORDANCE WITH THE MISSOURI DEPARTMENT OF NATURAL RESOURCE'S GENERAL PERMIT.

ADDITIONAL SILTATION CONTROL SHALL BE INSTALLED AS REQUIRED BY THE OFFICE OF ADMINISTRATION.

ALL DISTURBED AREAS SHALL BE RESTORED AFTER CLEARING AND GRUBBING WHEN NO ACTIVITY WILL OCCUR WITHIN THIRTY (30) DAYS.

ALL DISTURBED AREAS SHALL BE SODDED, PLANTED, CONCRETED, PAVED OR OTHERWISE SURFACED WITHIN FOURTEEN (14) DAYS OF COMPLETION OF EACH PHASE OF WORK.

ALL DISTURBED AREAS SHALL BE RESTORED AS DIRECTED BY THE OFFICE OF ADMINISTRATION.

ANY DISTURBED PROPERTY SHALL BE REPLACED, IN KIND, AT THE CONTRACTOR'S EXPENSE.

ALL MUD, DUST, DIRT, AND DEBRIS SHALL BE CONTAINED ON SITE AND KEPT OFF STREETS, CURBS, SIDEWALKS, OR ANY OTHER AREAS WITHIN RIGHT-OF-WAY. ANY INSTANCES WHERE THIS DOES NOT OCCUR SHALL BE RECTIFIED IMMEDIATELY.

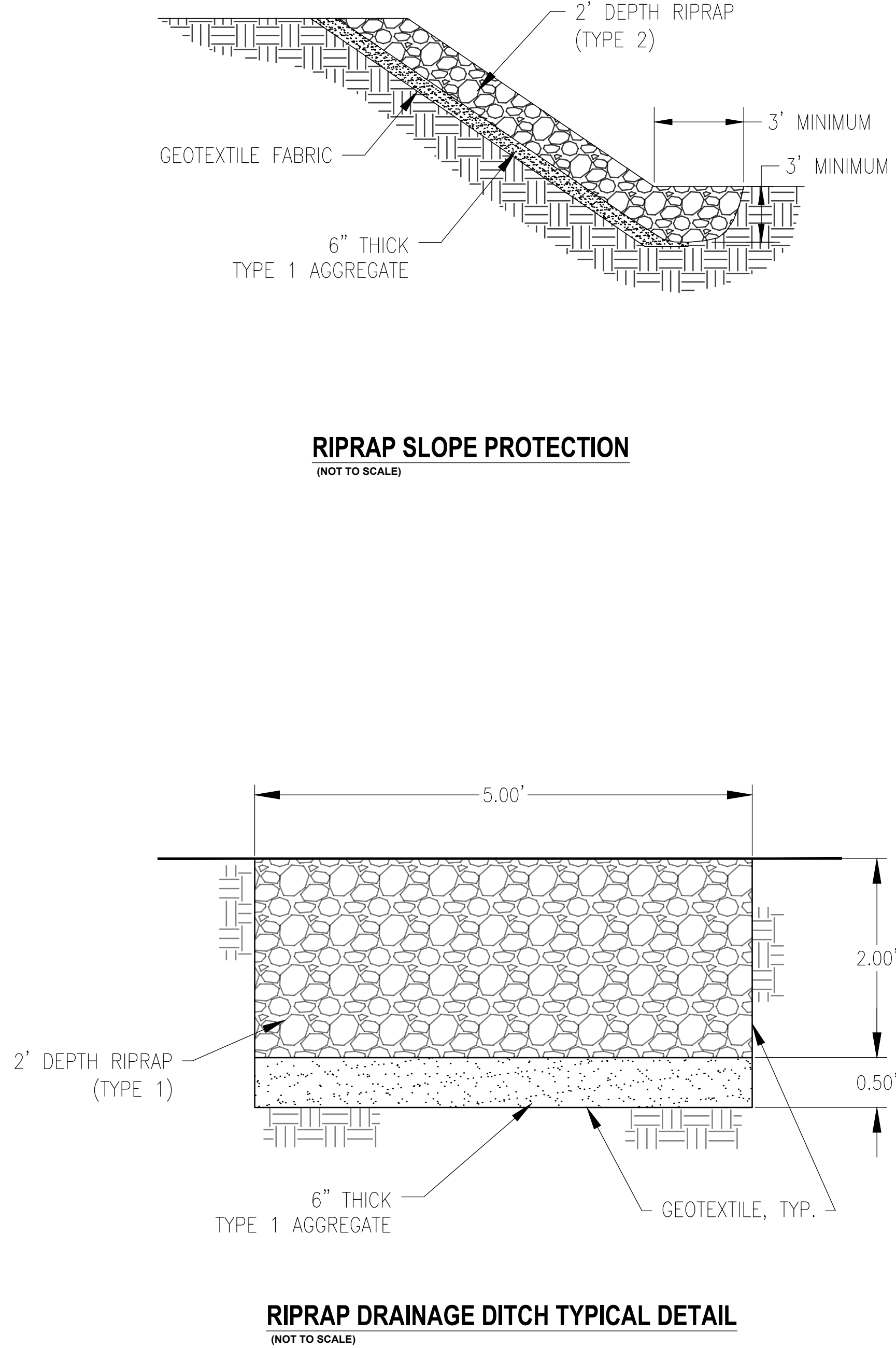
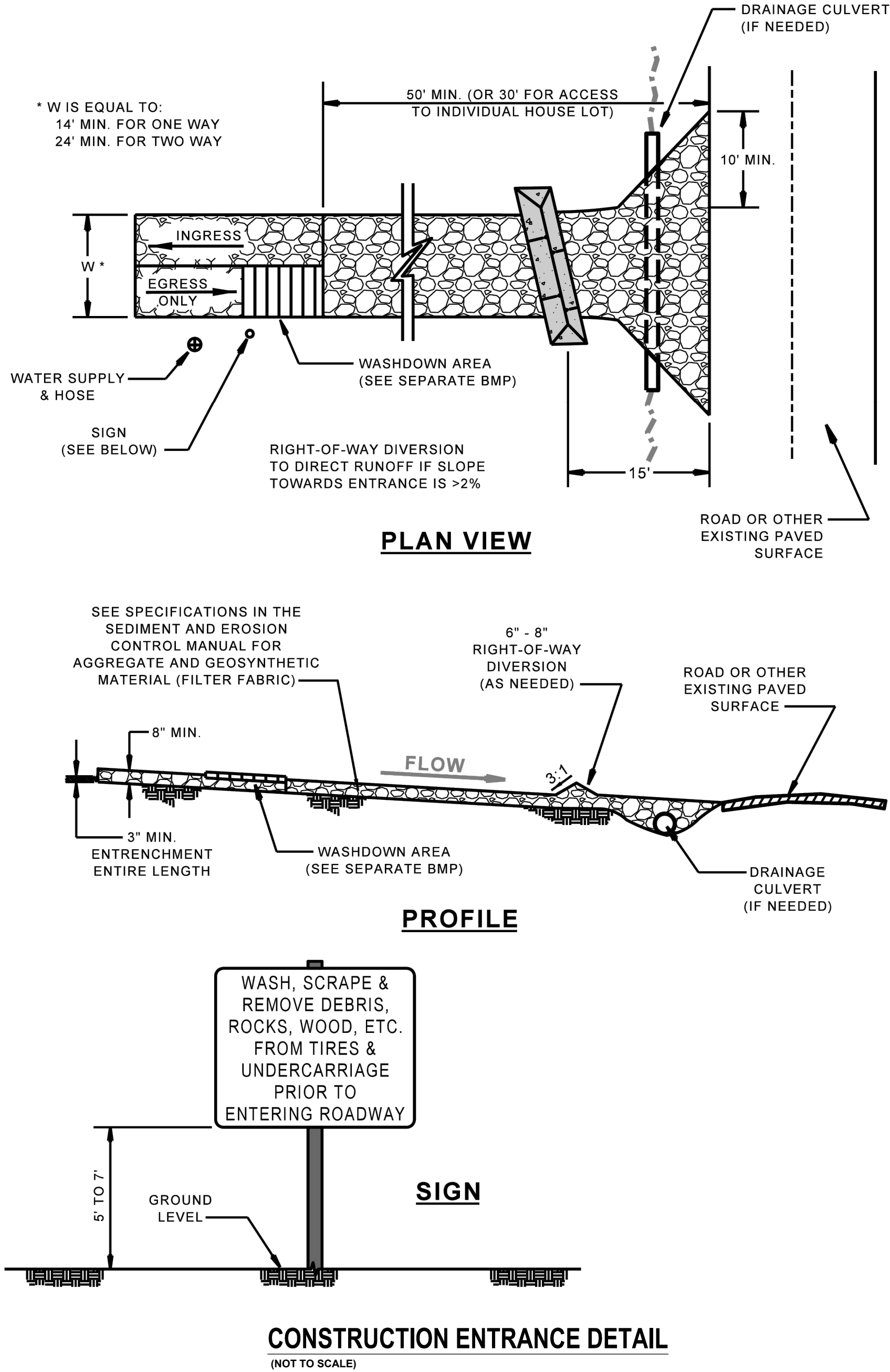
ALL SILTATION CONTROL DEVICES AND SWPPP APPROVED BEST MANAGEMENT PRACTICES (BMP) SHALL BE INSPECTED BY A QUALIFIED INSPECTOR. INSPECTION SHALL OCCUR ON A WEEKLY BASIS AND WITHIN TWENTY-FOUR (24) HOURS OF A RAINFALL EVENT OF HALF (½) INCH OR MORE.

A WRITTEN REPORT OF EACH INSPECTION AND THE CORRECTIVE ACTIONS TAKEN SHALL BE KEPT. THE REPORT SHALL INCLUDE THE FOLLOWING MINIMUM INFORMATION: INSPECTOR'S NAME, DATE OF INSPECTIONS, OBSERVATIONS RELATIVE TO THE EFFECTIVENESS OF THE SILTATION CONTROL AND BMP'S, ACTIONS TAKEN OR NECESSARY TO CORRECT DEFICIENCIES, AND LISTING OF AREAS WHERE LAND DISTURBANCE OPERATIONS HAVE PERMANENTLY OR TEMPORARILY STOPPED. THE REPORT SHALL BE SIGNED BY THE INSPECTOR AND SUBMITTED TO THE OFFICE OF ADMINISTRATION WITHIN FIVE (5) BUSINESS DAYS OF THE INSPECTION.

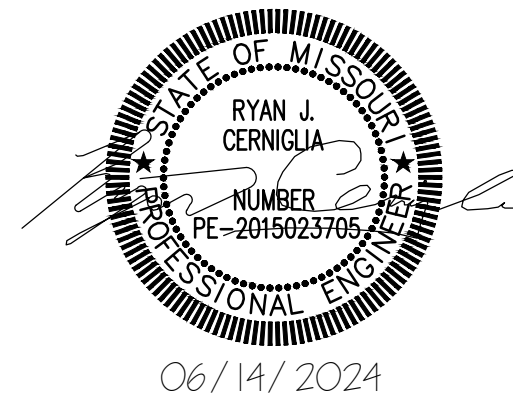
SILTATION CONTROL DEVICE AND BMP DEFICIENCIES SHALL BE CORRECTED WITHIN ONE (1) CALENDAR DAY IN EMERGENCY CONDITIONS AND FOUR (4) CALENDAR DAYS FOR ROUTINE MAINTENANCE. THE OFFICE OF ADMINISTRATION, AT ITS SOLE DISCRETION, WILL MAKE THE DETERMINATION BETWEEN EMERGENCY AND ROUTINE MAINTENANCE CONDITIONS WHERE NEEDED.

THE CONTRACTOR SHALL PROVIDE THE OFFICE OF ADMINISTRATION VISUAL DOCUMENTATION, SUCH AS VIDEO AND/OR PHOTOGRAPHS, OF THE EXISTING CONDITION OF THE STREETS, CURBS, SIDEWALKS, OR ANY OTHER AREAS WITHIN RIGHT-OF-WAY TO BE USED NO LESS THAN FIVE (5) DAYS PRIOR TO COMMENCING WORK.

THE CONTRACTOR SHALL PROVIDE THE OFFICE OF ADMINISTRATION WITH HAUL ROUTE INFORMATION AT LEAST TWO (2) DAYS PRIOR TO COMMENCING WORK. HAUL ROUTES TO BE REVIEWED AND APPROVED BY THE OFFICE OF ADMINISTRATION PRIOR TO START OF HAULING OPERATIONS.



STATE OF MISSOURI
MICHAEL L. PARSON,
GOVERNOR



CONSULTING ENGINEERING
GEOSPATIAL SERVICES

ILLINOIS SWANSEA
COLUMBIA
PEORIA
GLEN CARBON
MISSOURI DECATUR
ST. CHARLES
ST. LOUIS
COLUMBIA
TENNESSEE CHATTANOOGA
NASHVILLE

THOUVENOT, WADE
& MOERCHEN, INC.

COLUMBIA OFFICE
3316 LEMONE INDUSTRIAL BLVD SUITE 2
COLUMBIA, MISSOURI 65201
(573) 442-6474
WWW.TWM-INC.COM
MO. CERTIFICATE OF AUTHORITY: 001528

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES
MANAGEMENT,
DESIGN AND CONSTRUCTION
DEPARTMENT OF
NATURAL RESOURCES
MISSOURI STATE PARKS

INSTALL PEDESTRIAN BRIDGE
AT PLEASANT HILL OVER
UNION PACIFIC RAILROAD

KATY TRAIL STATE PARK
PLEASANT HILL, MO

PROJECT # X2311-01
SITE # 5501
FACILITY # 7815501070

REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
ISSUE DATE: 06/14/2024

CAD DWG FILE: _____
DRAWN BY: MGB
CHECKED BY: ANR
DESIGNED BY: RJC

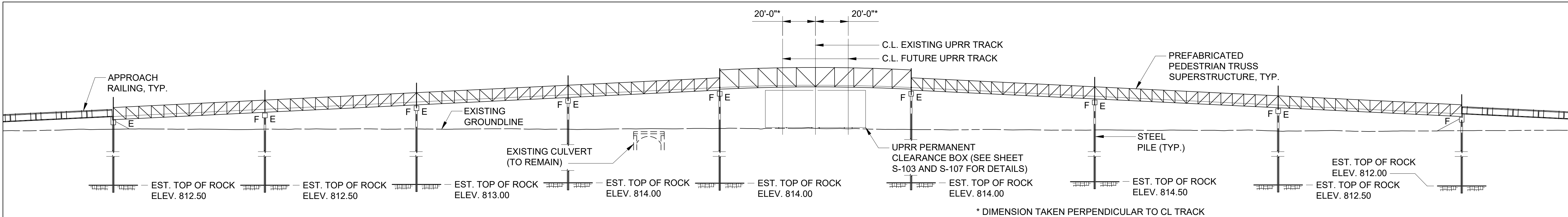
SHEET TITLE:

DETAILS
EROSION AND
SEDIMENT CONTROL

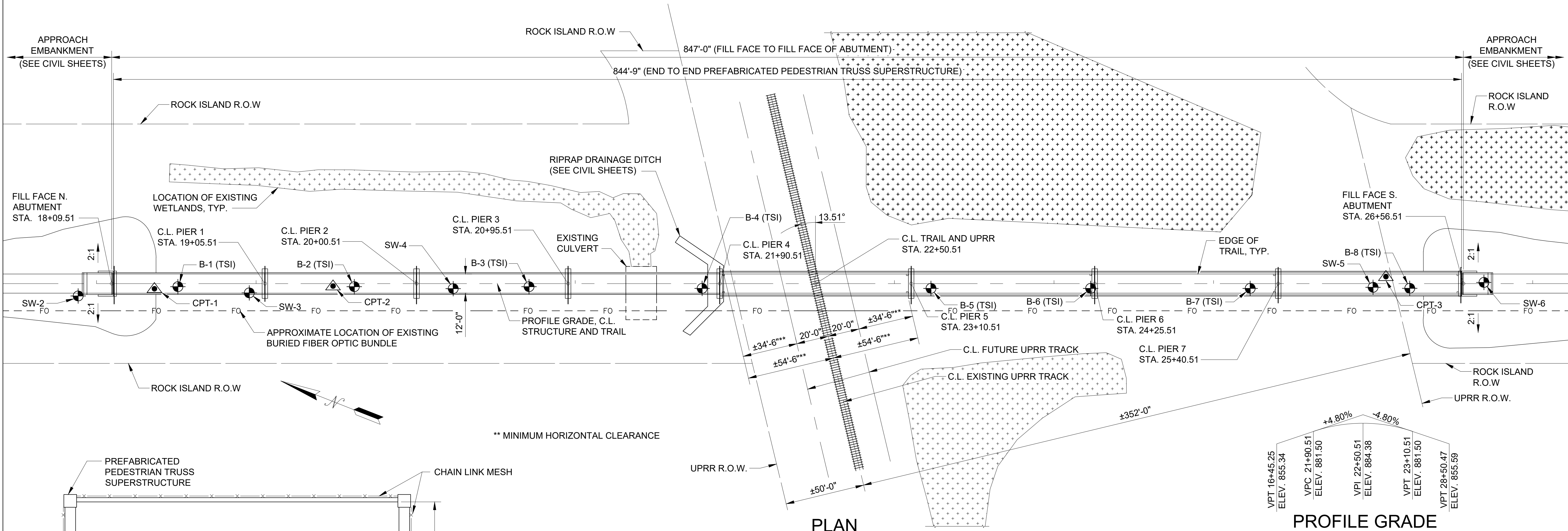
SHEET NUMBER:

C-502

26 OF 47 SHEETS
06/14/2024

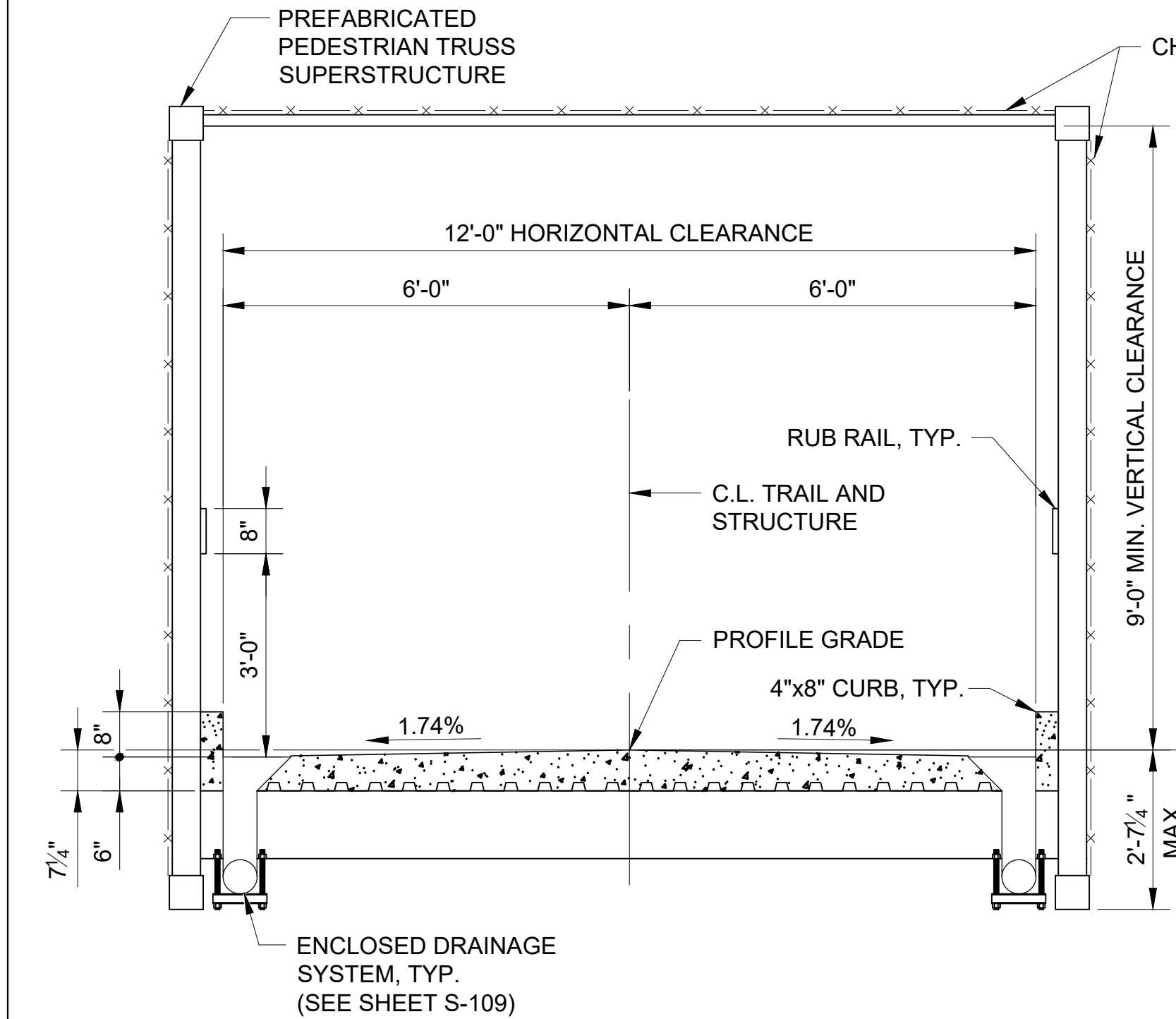


ELEVATION
SCALE: 1/32" = 1'-0"

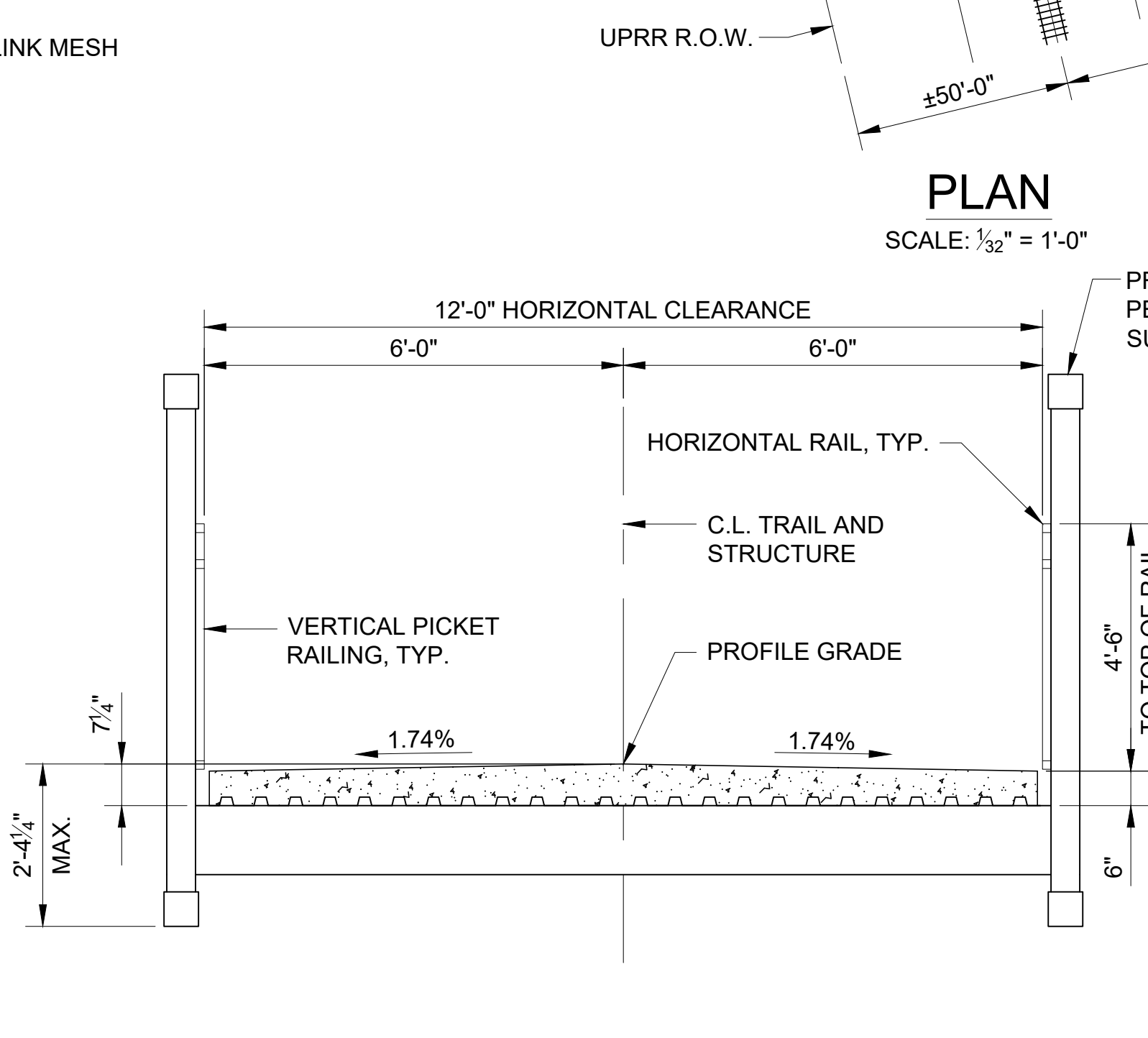


PLAN
SCALE: 1/32" = 1'-0"

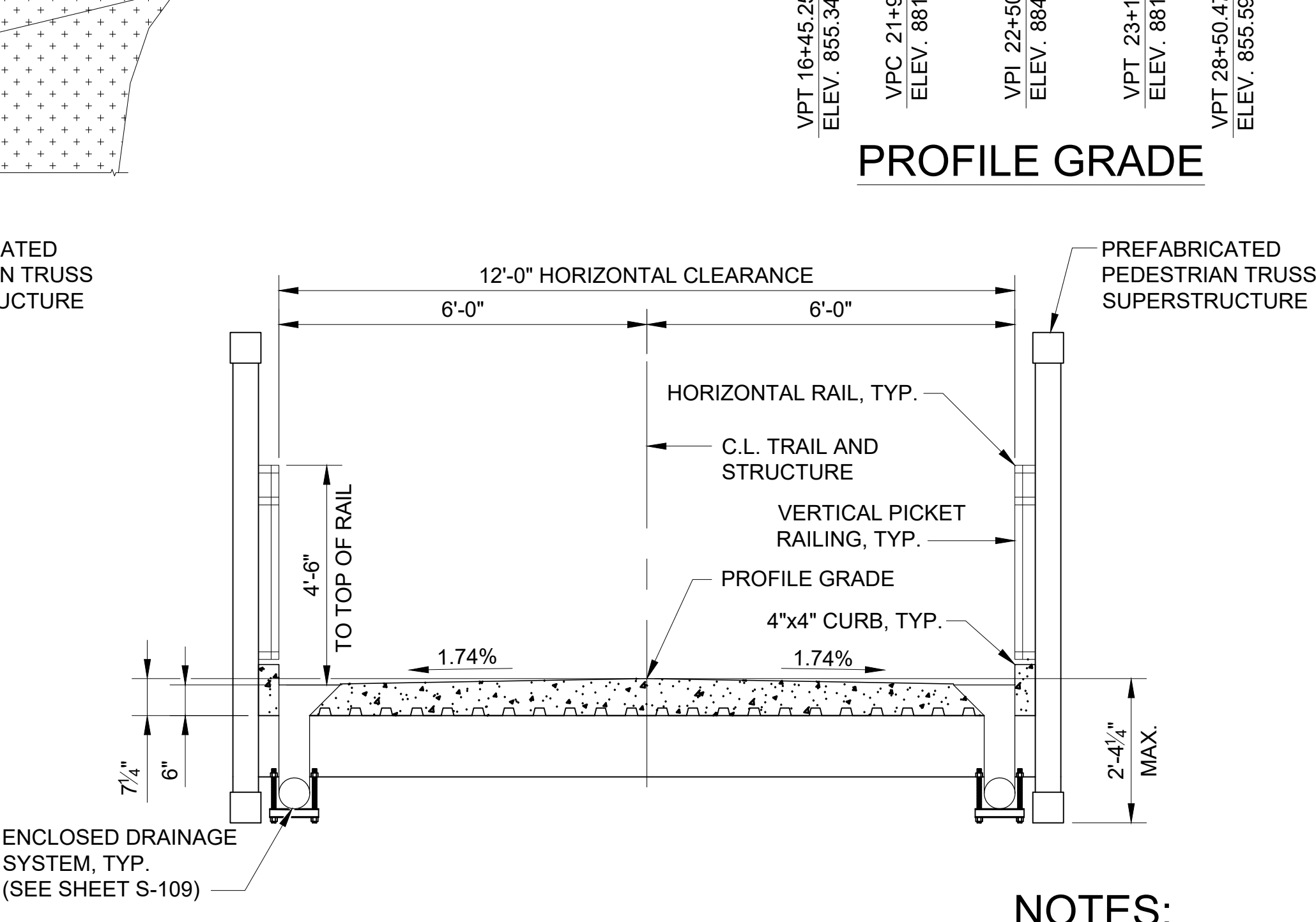
PROFILE GRADE



CROSS SECTION (SPAN 5)
SCALE: 1/2" = 1'-0"



CROSS SECTION (SPAN 1-4)
SCALE: 1/2" = 1'-0"

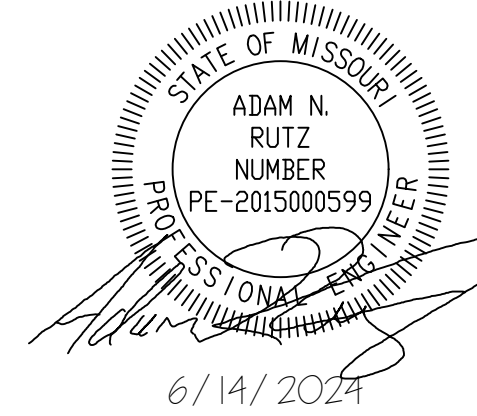


CROSS SECTION (SPAN 6-8)
SCALE: 1/2" = 1'-0"

NOTES:

- 1) PROPOSED STRUCTURE LOCATED AT THE FOLLOWING APPROX. COORDINATES:
LATITUDE 38.77848°
LONGITUDE -94.27493

STATE OF MISSOURI
MICHAEL L. PARSON,
GOVERNOR



CONSULTING ENGINEERING
GEOSPATIAL SERVICES

ILLINOIS

SWANSEA
COLUMBIA
PEORIA
GLEN CARBON
DECATUR
ST. CHARLES
ST. LOUIS
COLUMBIA
CHATTANOOGA
NASHVILLE

MISSOURI

TENNESSEE

THOUVENOT, WADE
& MOERCHEN, INC.

COLUMBIA OFFICE
3316 LEMONE INDUSTRIAL BLVD SUITE 2
COLUMBIA, MISSOURI 65201
(573) 442-6474
WWW.TWM-INC.COM
MO. CERTIFICATE OF AUTHORITY: 001528

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES
MANAGEMENT,
DESIGN AND CONSTRUCTION

DEPARTMENT OF
NATURAL RESOURCES
MISSOURI STATE PARKS

INSTALL PEDESTRIAN BRIDGE
AT PLEASANT HILL OVER
UNION PACIFIC RAILROAD

KATY TRAIL STATE PARK
PLEASANT HILL, MO

PROJECT # X2311-01
SITE # 5501
FACILITY # 7815501070

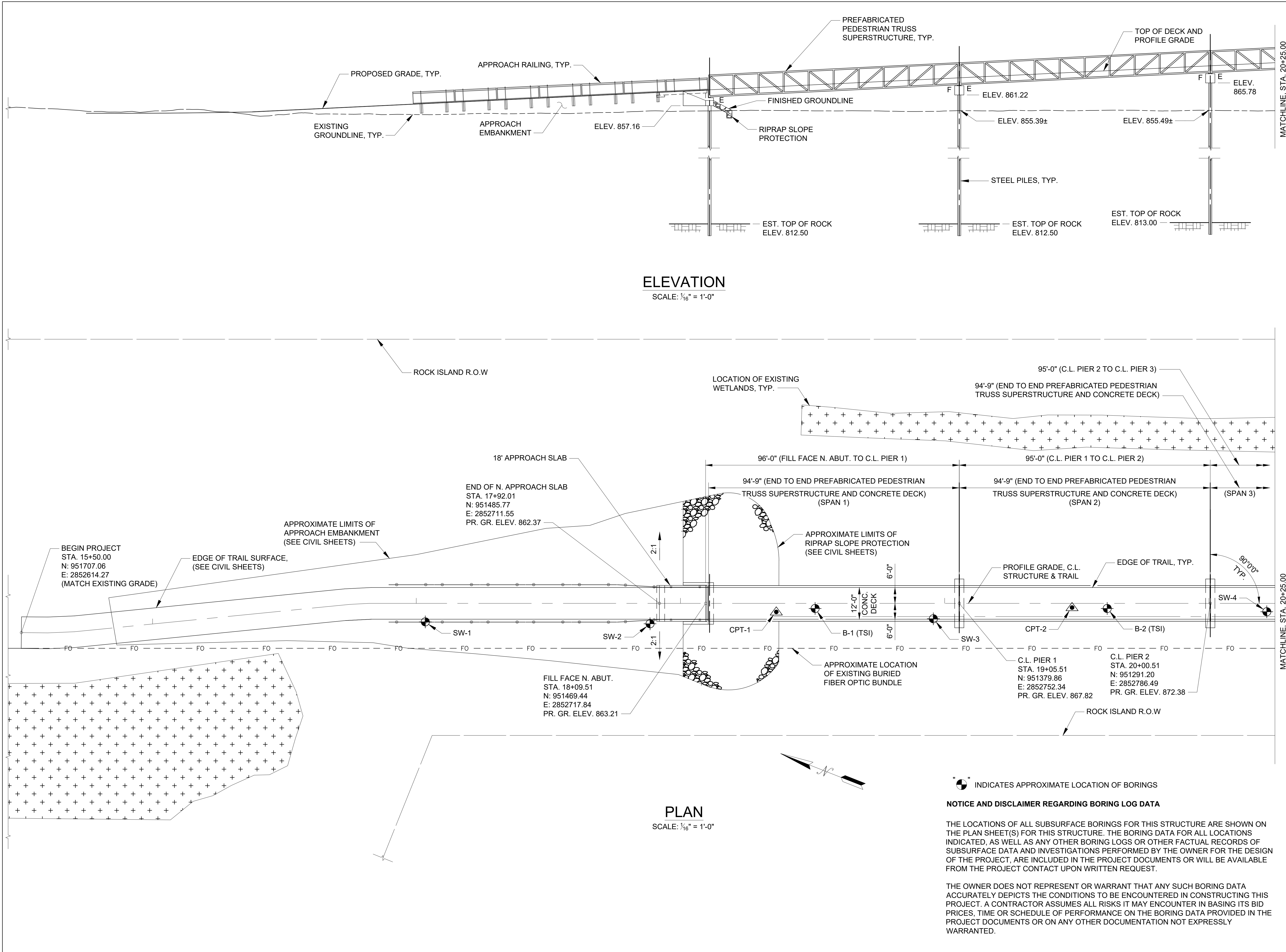
REVISION:
DATE:
REVISION:
DATE:
REVISION:
DATE:
ISSUE DATE: 6/14/2024

CAD DWG FILE:
DRAWN BY: MAL
CHECKED BY: ANR
DESIGNED BY: MAL

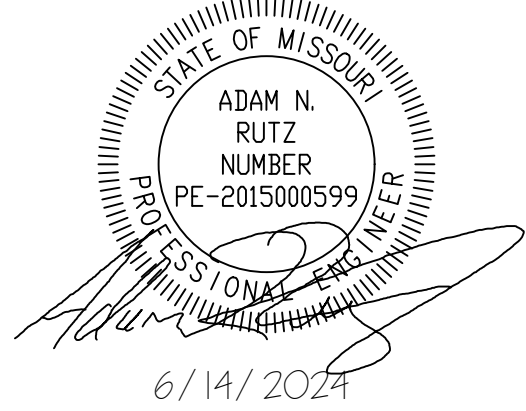
SHEET TITLE:
GENERAL PLAN
AND ELEVATION

SHEET NUMBER:

S-101
27 OF 47 SHEETS
6/14/2024



STATE OF MISSOURI
MICHAEL L. PARSON,
GOVERNOR



CONSULTING ENGINEERING
GEOSPATIAL SERVICES

ILLINOIS SWANSEA
COLUMBIA
PEORIA
GLEN CARBON
DECATUR
ST. CHARLES
ST. LOUIS
MISSOURI COLUMBIA
TENNESSEE CHATTANOOGA
NASHVILLE

THOUVENOT, WADE
& MOERCHEN, INC.

COLUMBIA OFFICE
3316 LEMONE INDUSTRIAL BLVD SUITE 2
COLUMBIA, MISSOURI 65201
(573) 442-6474
WWW.TWM-INC.COM
MO. CERTIFICATE OF AUTHORITY: 001528

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES
MANAGEMENT,
DESIGN AND CONSTRUCTION

DEPARTMENT OF
NATURAL RESOURCES
MISSOURI STATE PARKS

INSTALL PEDESTRIAN BRIDGE
AT PLEASANT HILL OVER
UNION PACIFIC RAILROAD

KATY TRAIL STATE PARK
PLEASANT HILL, MO

PROJECT # X2311-01
SITE # 5501
FACILITY # 7815501070

REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
ISSUE DATE: 6/14/2024

CAD DWG FILE: _____
DRAWN BY: MAL
CHECKED BY: ANR
DESIGNED BY: MAL

SHEET TITLE:
GENERAL PLAN AND
ELEVATION - STA.
15+50 TO STA. 20+25

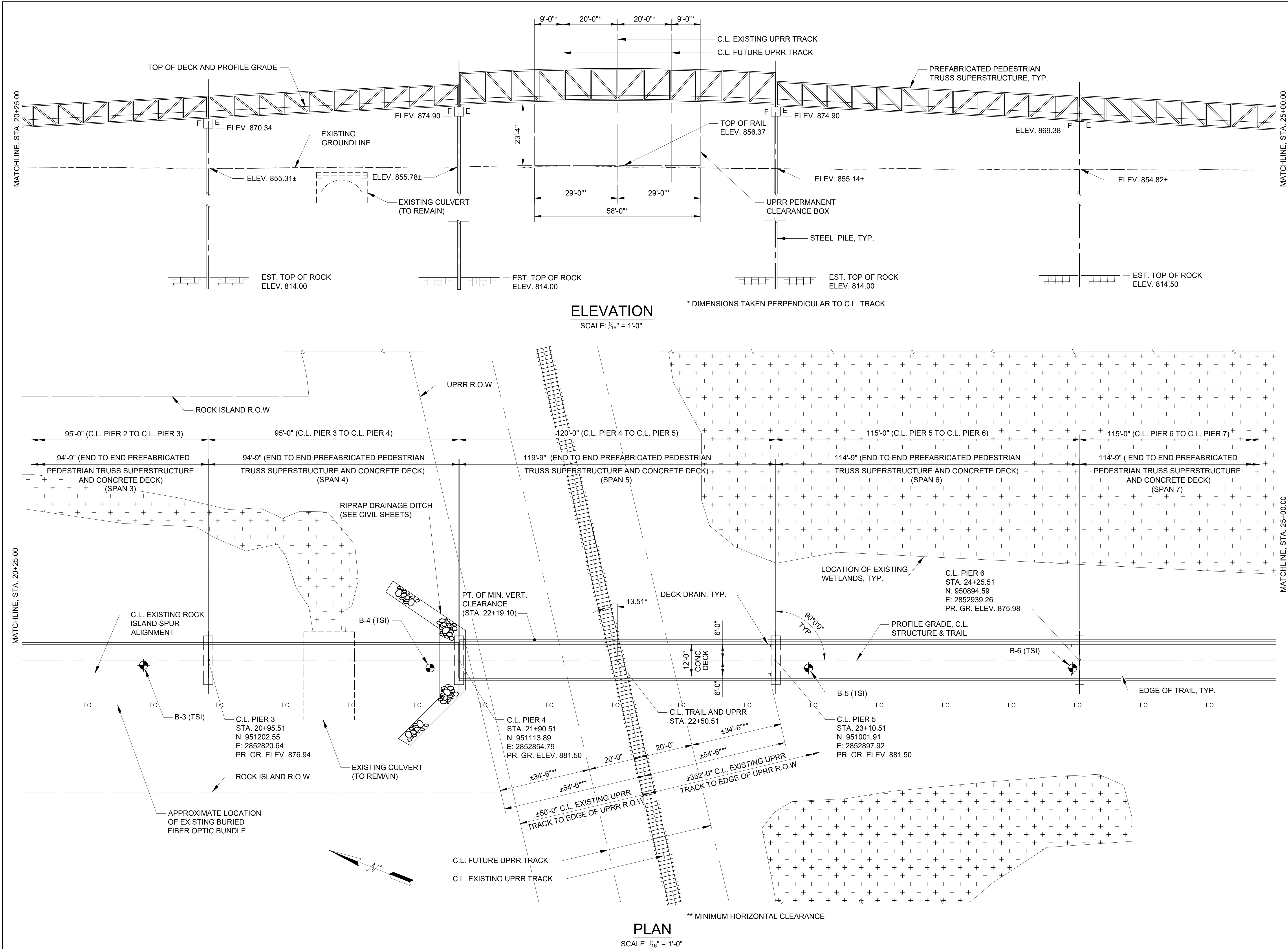
SHEET NUMBER:
S-102
28 OF 47 SHEETS
6/14/2024

INDICATES APPROXIMATE LOCATION OF BORINGS

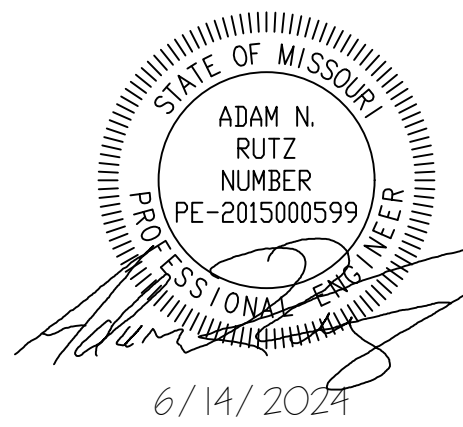
NOTICE AND DISCLAIMER REGARDING BORING LOG DATA

THE LOCATIONS OF ALL SUBSURFACE BORINGS FOR THIS STRUCTURE ARE SHOWN ON THE PLAN SHEET(S) FOR THIS STRUCTURE. THE BORING DATA FOR ALL LOCATIONS INDICATED, AS WELL AS ANY OTHER BORING LOGS OR OTHER FACTUAL RECORDS OF SUBSURFACE DATA AND INVESTIGATIONS PERFORMED BY THE OWNER FOR THE DESIGN OF THE PROJECT, ARE INCLUDED IN THE PROJECT DOCUMENTS OR WILL BE AVAILABLE FROM THE PROJECT CONTACT UPON WRITTEN REQUEST.

THE OWNER DOES NOT REPRESENT OR WARRANT THAT ANY SUCH BORING DATA ACCURATELY DEPICTS THE CONDITIONS TO BE ENCOUNTERED IN CONSTRUCTING THIS PROJECT. A CONTRACTOR ASSUMES ALL RISKS IT MAY ENCOUNTER IN BASING ITS BID PRICES, TIME OR SCHEDULE OF PERFORMANCE ON THE BORING DATA PROVIDED IN THE PROJECT DOCUMENTS OR ON ANY OTHER DOCUMENTATION NOT EXPRESSLY WARRANTED.



STATE OF MISSOURI
MICHAEL L. PARSON,
GOVERNOR



CONSULTING ENGINEERING
GEOSPATIAL SERVICES

ILLINOIS

SWANSEA
COLUMBIA
PEORIA
GLEN CARBON
DECATUR
ST. CHARLES
ST. LOUIS
COLUMBIA
CHATTANOOGA
NASHVILLE

MISSOURI

TENNESSEE

THOUVENOT, WADE
& MOERCHEN, INC.

COLUMBIA OFFICE
3316 LEMONE INDUSTRIAL BLVD SUITE 2
COLUMBIA, MISSOURI 65201
(573) 442-6474
WWW.TWM-INC.COM
MO. CERTIFICATE OF AUTHORITY: 001528

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES
MANAGEMENT,
DESIGN AND CONSTRUCTION

DEPARTMENT OF
NATURAL RESOURCES
MISSOURI STATE PARKS

INSTALL PEDESTRIAN BRIDGE
AT PLEASANT HILL OVER
UNION PACIFIC RAILROAD

KATY TRAIL STATE PARK
PLEASANT HILL, MO

PROJECT # X2311-01
SITE # 5501
FACILITY # 7815501070

REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
ISSUE DATE: 6/14/2024

CAD DWG FILE: _____
DRAWN BY: MAL _____
CHECKED BY: ANR _____
DESIGNED BY: MAL _____

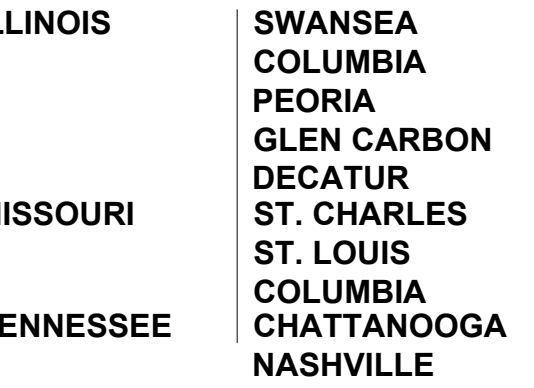
SHEET TITLE:

GENERAL PLAN AND
ELEVATION - STA.
20+25 TO STA. 25+00

SHEET NUMBER:

S-103

29 OF 47 SHEETS
6/14/2024



COLUMBIA OFFICE
316 LEMONE INDUSTRIAL BLVD SUITE 2
COLUMBIA, MISSOURI 65201
(573) 442-6474
WWW.TWM-INC.COM
O. CERTIFICATE OF AUTHORITY: 001528

DEPARTMENT OF
NATURAL RESOURCES
MISSOURI STATE PARKS

KATY TRAIL STATE PARK
PLEASANT HILL, MO

PROJECT # X2311-01
SITE # 5501
FACILITY # 7815501070

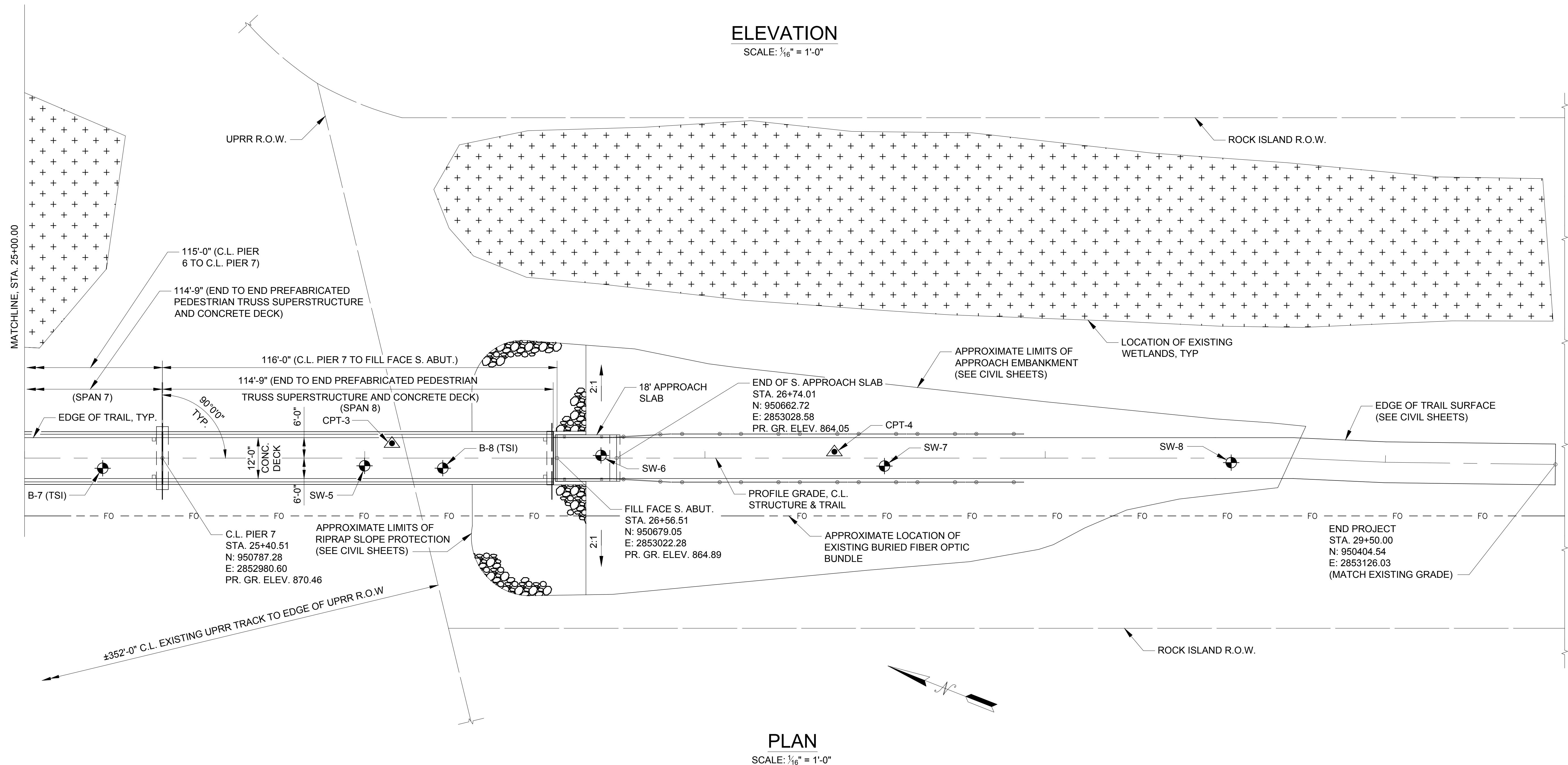
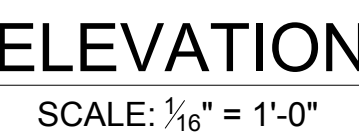
EVISION: _____
 DATE: _____
 EVISION: _____
 DATE: _____
 EVISION: _____
 DATE: _____
 ISSUE DATE: 6/14/2024

AD DWG FILE: _____
 RAWN BY: MAL
 HECKED BY: ANR
 ESIGNED BY: MAL

GENERAL PLAN AND ELEVATION - STA. 5+00 TO STA. 29+50

S-104

OF 47 SHEETS
14/2024



GENERAL NOTES

GENERAL REQUIREMENTS

1.

THE CONTRACTOR SHALL NOTIFY THE STRUCTURAL ENGINEER IF THE CONTRACTOR DETERMINES OR SUSPECTS THAT ANY DETAILS, MATERIALS, OR NOTES INCLUDED IN THE STRUCTURAL SPECIFICATIONS OR STRUCTURAL DRAWINGS ARE INCORRECT, NEED TO BE CHANGED, INADEQUATE, INFEASIBLE OR DETRIMENTAL TO THE COMPLETED CONSTRUCTION. NOTIFICATION SHALL BE MADE AT THE EARLIEST POSSIBLE TIME AND, WHEN POSSIBLE, PRIOR TO ORDERING MATERIALS OR COMMENCING WORK.
2.

DEVIATION FROM THE STRUCTURAL SPECIFICATIONS AND STRUCTURAL DRAWINGS SHALL NOT BE MADE WITHOUT APPROVAL FROM THE STRUCTURAL ENGINEER.
3.

DO NOT SCALE DIMENSIONS FROM STRUCTURAL DRAWINGS, WHEN SCALES ARE NOT SHOWN. WHEN SCALES AND DIMENSIONS ARE BOTH SHOWN FOR A DETAIL OR SHEET, DIMENSIONS SHALL TAKE PRECEDENCE WHEN IN CONFLICT WITH SCALE. ANY CONFLICT DISCOVERED BY THE CONTRACTOR SHALL BE REPORTED IN ACCORDANCE WITH NOTE 1. OF THESE GENERAL REQUIREMENTS.
4.

NEITHER THE PRESENCE NOR LACK OF CONSTRUCTION OBSERVATION SHALL RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OF COMPLETING WORK IN FULL COMPLIANCE WITH THE STRUCTURAL SPECIFICATIONS AND STRUCTURAL DRAWINGS.
5.

PLANS AND SPECIFICATIONS REFERENCING "MODOT STANDARD SPEC" REFER TO THE 2023 MISSOURI STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION. ANY REFERENCE IN THE MODOT STANDARD SPECIFICATIONS REGARDING METHOD OF MEASUREMENT OR BASIS OF PAYMENT DOES NOT APPLY TO THIS PROJECT.
6.

FOR GEOTECHNICAL INFORMATION REFER TO THE "GEOTECHNICAL REPORT" PREPARED BY SHANNON & WILSON, DATED JANUARY 9, 2024, AS WELL AS PAST BORINGS FROM TSI, DATED DECEMBER 14, 2011. THE USE OF MSE WALLS WERE EVALUATED DURING DESIGN, BUT NOT SELECTED FOR USE ON THE PROJECT. ANY REFERENCES OR CONSTRUCTION REQUIREMENTS FOR MSE WALLS DO NOT APPLY.

PREFABRICATED PEDESTRIAN TRUSS SUPERSTRUCTURE

1.

THE PREFABRICATED PEDESTRIAN TRUSS SUPERSTRUCTURE SHALL CONFORM TO THE FOLLOWING CONFIGURATION.

1.1.

END TO END LENGTH: SPAN 1 THRU 4 = 94'-9"
SPAN 5 = 119'-9"
SPAN 6 THRU 8 = 114'-9"
- 1.2.

CLEAR WIDTH = 12'-0"
- 1.3.

RAILING AND CONCRETE DECK SHALL BE AS SHOWN IN THE CROSS SECTIONS ON SHEET S-101.
2.

TRUSS MANUFACTURER SHALL CAMBER ALL TRUSS SPANS FOR DEAD LOAD DEFLECTIONS. SPAN 5 SHALL ALSO BE CAMBERED TO MAINTAIN PROFILE GRADE AND TO PROVIDE REQUIRED MINIMUM LOW CHORD ELEVATION OVER RAILROAD SHOWN ON SHEETS S-103 AND S-107.
3.

BEARINGS AND ANCHOR BOLTS SHALL BE AS SPECIFIED BY THE TRUSS MANUFACTURER. TRUSS MANUFACTURER IS RESPONSIBLE FOR THE DESIGN OF THE BEARINGS AND ANCHOR BOLTS AND/OR ANY OTHER CONNECTIONS TO THE SUBSTRUCTURE UNITS (ABUTMENTS AND PIERS).
4.

TRUSS MANUFACTURER IS RESPONSIBLE FOR THE DESIGN OF THE CONCRETE DECK AND DECK REINFORCING FOR THE LOADS SPECIFIED. CONTRACTOR SHALL SUPPLY DECK REINFORCING TO CONSTRUCT THE CONCRETE BRIDGE DECK ACCORDING TO MANUFACTURER SUPPLIED DETAILS AND SPECIFICATIONS. TOP OF DECK SHALL BE FINISHED WITH A BROOM FINISH.
5.

PIER CAP ELEVATIONS, ABUTMENT ELEVATIONS, AND BACKWALL HEIGHTS SHALL BE COORDINATED WITH TRUSS MANUFACTURER DURING SHOP DRAWING PREPARATION AND SHALL BE REVIEWED AND APPROVED BY THE ENGINEER.
6.

CONTRACTOR SHALL NOT BEGIN CONSTRUCTION OF PIERS OR ABUTMENTS UNTIL TRUSS SHOP DRAWINGS HAVE BEEN APPROVED.
7.

THE DESIGN OF THE SUBSTRUCTURE IS BASED ON THE SUPERSTRUCTURE REACTIONS SHOWN IN THE ASSUMED TRUSS REACTION TABLES ON THIS SHEET. IF THE ACTUAL REACTIONS FROM THE SELECTED PREFABRICATED PEDESTRIAN TRUSS SUPERSTRUCTURE EXCEED THE VALUES LISTED, THE ENGINEER SHALL BE CONTACTED TO VERIFY THE DESIGN OF THE SUBSTRUCTURE.
8.

PREFABRICATED PEDESTRIAN TRUSS SUPERSTRUCTURE SHALL MEET THE REQUIREMENTS AS DETAILED IN THE PROJECT SPECIFICATIONS.

CONTROL OF MATERIAL

1.

THE OWNER WILL PROVIDE MATERIAL TESTING AND SPECIAL INSPECTIONS AS DESCRIBED IN SPEC. SECTION 014535. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING AND SCHEDULING TESTING WITH OWNER OR OWNER'S REPRESENTATIVE.
2.

ALL MATERIAL NOT IN ACCORDANCE WITH WITH THE SPECIFICATION, WHEN INSPECTED OR TESTED, WILL BE CONSIDERED DEFECTIVE, AND SUCH MATERIAL, WHETHER IN PLACE OR NOT, WILL BE REJECTED AND UNLESS REMEDIED, SHALL BE REMOVED FROM THE SITE OF THE WORK. DEFECTIVE MATERIAL SHALL BE REPAIRED OR RECONDITIONED, AS APPROVED BY THE ENGINEER, BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE.
3.

FINAL ACCEPTANCE OF MATERIAL, WORK OR PROCESS WILL BE BASED ON THE ENGINEER'S ACCEPTANCE OF SAMPLING, TESTING AND ASSESSMENT.

DESIGN SPECIFICATIONS

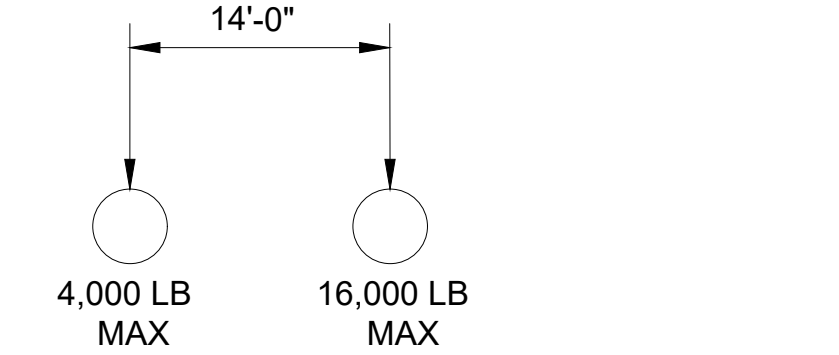
2009 AASHTO LRFD GUIDE SPECIFICATIONS FOR THE DESIGN OF PEDESTRIAN BRIDGES AND 2015 INTERIM REVISIONS.

2020 AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS (9th Ed.)

BRIDGE LOADING

PEDESTRIAN LIVE LOAD = 90 PSF AND APPLIED ACCORDING TO ARTICLE 3.1 OF THE GUIDE SPECIFICATIONS

H10 VEHICLE LOADING:
20,000 LB GROSS VEHICLE WITH THE FOLLOWING AXLE LOAD CONFIGURATION:



DESIGN STRESSES

CLASS B CONCRETE (SUBSTRUCTURE)

$f_c = 3,000$ psi

CLASS B-2 CONCRETE (SUPERSTRUCTURE)

$f_c = 4,000$ psi

REINFORCING STEEL (GRADE 60)

$f_y = 60,000$ psi

STRUCTURAL STEEL HP PILE (ASTM A709 GRADE 50S)

$f_y = 50,000$ psi

C12 PILE BRACING (ASTM A709 GRADE 36)

$f_y = 36,000$ psi

STRUCTURAL STEEL SHELL PILE (ASTM 252 GRADE 3)

$f_y = 45,000$ psi

ASSUMED TRUSS REACTIONS (SPANS 1 THRU 4)

	P (LBS)	H (LBS)	L (LBS)
DEAD LOAD	+30,445		
UNIFORM LIVE LOAD (90 PSF)	+27,085		
VEHICLE LOAD (H10)	+12,800		
WIND UPLIFT 20 PSF	-9,975		
WIND	±8,675	+17,425	+1,175
THERMAL			+5,870

"+" - DOWNWARD LOAD
"-" - UPWARD LOAD
"P" - VERTICAL LOAD EACH BASE PLATE (4 PER SPAN)
"H" - HORIZONTAL LOAD EACH ABUTMENT (2 PER SPAN)
"L" - LONGITUDINAL LOAD EACH BASE PLATE (4 PER SPAN)
LOADS ARE UNFACTORED

ASSUMED TRUSS REACTIONS (SPAN 5)

	P (LBS)	H (LBS)	L (LBS)
DEAD LOAD	+44,150		
UNIFORM LIVE LOAD (90 PSF)	+34,210		
VEHICLE LOAD (H10)	+12,800		
WIND UPLIFT 20 PSF	-12,605		
WIND	±18,100	+27,130	+1,850
THERMAL			+8,800

"+" - DOWNWARD LOAD
"-" - UPWARD LOAD
"P" - VERTICAL LOAD EACH BASE PLATE (4 PER SPAN)
"H" - HORIZONTAL LOAD EACH ABUTMENT (2 PER SPAN)
"L" - LONGITUDINAL LOAD EACH BASE PLATE (4 PER SPAN)
LOADS ARE UNFACTORED

ASSUMED TRUSS REACTIONS (SPANS 6 THRU 8)

	P (LBS)	H (LBS)	L (LBS)
DEAD LOAD	+36,850		
UNIFORM LIVE LOAD (90 PSF)	+32,785		
VEHICLE LOAD (H10)	+12,800		
WIND UPLIFT 20 PSF	-12,080		
WIND	±10,500	+17,425	+1,175
THERMAL			+7,100

"+" - DOWNWARD LOAD
"-" - UPWARD LOAD
"P" - VERTICAL LOAD EACH BASE PLATE (4 PER SPAN)
"H" - HORIZONTAL LOAD EACH ABUTMENT (2 PER SPAN)
"L" - LONGITUDINAL LOAD EACH BASE PLATE (4 PER SPAN)
LOADS ARE UNFACTORED

FOUNDATION DATA (HP PILE - OPTION A)

TYPE	DESIGN DATA	BENT								
		N. ABUT	PIER 1	PIER 2	PIER 3	PIER 4	PIER 5	PIER 6	PIER 7	S. ABUT
LOAD BEARING PILE	PILE TYPE AND SIZE	HP 14X117	HP 14X117	HP 14X117	HP 14X117	HP 14X117	HP 14X117	HP 14X117	HP 14X117	HP 14X117
	NUMBER EA	2	3	3	3	3	3	3	3	2
	APPROXIMATE LENGTH PER EACH FT	49	53	57	61	65	65	59	56	51
	PILE POINT REINFORCEMENT EA	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL
	MINIMUM TIP PENETRATION (ELEV)	841.00	816.00	816.00	816.00	816.00	816.00	816.00	816.00	841.0
	CRITERIA FOR MINIMUM TIP PENETRATION	TENSION OR UPLIFT RESISTANCE	TENSION OR UPLIFT RESISTANCE	TENSION OR UPLIFT RESISTANCE	TENSION OR UPLIFT RESISTANCE	TENSION OR UPLIFT RESISTANCE	TENSION OR UPLIFT RESISTANCE	TENSION OR UPLIFT RESISTANCE	TENSION OR UPLIFT RESISTANCE	TENSION OR UPLIFT RESISTANCE
	PILE DRIVING VERIFICATION METHOD	DT	DF	DF	DF	DF	DF	DF	DF	DT
	RESISTANCE FACTOR	0.65	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.65
	MINIMUM NOMINAL AXIAL COMPRESSIVE RESISTANCE KIP	*591	424	424	424	424	511	511	511	*591

FOUNDATION DATA (SHELL PILE - OPTION B)

TYPE	DESIGN DATA	BENT								
		N. ABUT	PIER 1	PIER 2	PIER 3	PIER 4	PIER 5	PIER 6	PIER 7	S. ABUT
LOAD BEARING PILE	PILE TYPE AND SIZE	HP 14X117	20X0.5 SHELL	20X0.5 SHELL	20X0.5 SHELL	20X0.5 SHELL	20X0.5 SHELL	20X0.5 SHELL	20X0.5 SHELL	HP 14X117
	NUMBER EA	2	2	2	2	3	3	2	2	2
	APPROXIMATE LENGTH PER EACH FT	49	53	57	61	65	65	59	56	51
	PILE POINT REINFORCEMENT EA	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL
	MINIMUM TIP PENETRATION (ELEV)	841.00	830.00	830.00	830.00	824.00	824.00	830.00	830.00	841.0
	CRITERIA FOR MINIMUM TIP PENETRATION	TENSION OR UPLIFT RESISTANCE	TENSION OR UPLIFT RESISTANCE	TENSION OR UPLIFT RESISTANCE	TENSION OR UPLIFT RESISTANCE	TENSION OR UPLIFT RESISTANCE	TENSION OR UPLIFT RESISTANCE	TENSION OR UPLIFT RESISTANCE	TENSION OR UPLIFT RESISTANCE	TENSION OR UPLIFT RESISTANCE
	PILE DRIVING VERIFICATION METHOD	DT	DT	DT	DT	DT	DT	DT	DT	DT
	RESISTANCE FACTOR	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65
	MINIMUM NOMINAL AXIAL COMPRESSIVE RESISTANCE KIP	*591	396	396	396	302	357	479	479	*591

DF = FHWA - MODIFIED GATES DYNAMIC PILE FORMULA

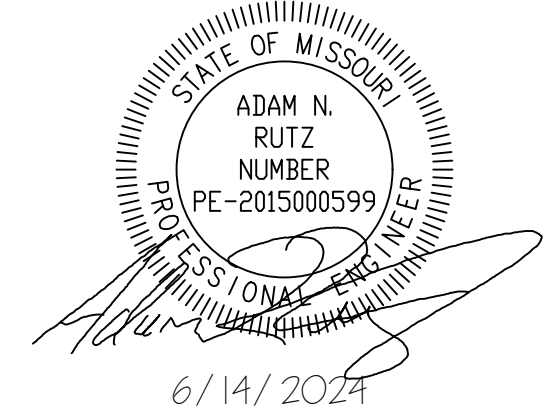
DT = DYNAMIC TESTING

MINIMUM NOMINAL AXIAL COMPRESSIVE RESISTANCE = $\frac{\text{MAXIMUM FACTORED LOAD}}{\text{RESISTANCE FACTOR}}$

PILES ARE ANTICIPATED TO BE DRIVEN TO REFUSAL ON ROCK. REVIEW ALL BORINGS FOR DEPTH OF ROCK AND RESTRICT DRIVING AS APPROPRIATE TO COMPLY WITH HARD ROCK DRIVING CRITERIA IN ACCORDANCE WITH MODOT STANDARD SPEC SEC 702.

*INCLUDES DOWNDRAG

STATE OF MISSOURI
MICHAEL L. PARSON,
GOVERNOR



CONSULTING ENGINEERING
GEOSPATIAL SERVICES

ILLINOIS

MISSOURI

TENNESSEE

SWANSEA
COLUMBIA
PEORIA
GLEN CARBON
DECATUR
ST. CHARLES
COLUMBIA
CHATTANOOGA
NASHVILLE

THOUVENOT, WADE
& MOERCHEN, INC.

COLUMBIA OFFICE
3316 LEMONE INDUSTRIAL BLVD SUITE 2
COLUMBIA, MISSOURI 65201
(573) 442-6474
WWW.TWM-INC.COM
MO. CERTIFICATE OF AUTHORITY: 001528

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES
MANAGEMENT,
DESIGN AND CONSTRUCTION
DEPARTMENT OF
NATURAL RESOURCES
MISSOURI STATE PARKS

INSTALL PEDESTRIAN BRIDGE
AT PLEASANT HILL OVER
UNION PACIFIC RAILROAD

KATY TRAIL STATE PARK
PLEASANT HILL, MO

PROJECT # X2311-01
SITE # 5501
FACILITY # 7815501070

REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
ISSUE DATE: 6/14/2024

CAD DWG FILE: _____
DRAWN BY: MAL
CHECKED BY: ANR
DESIGNED BY: MAL

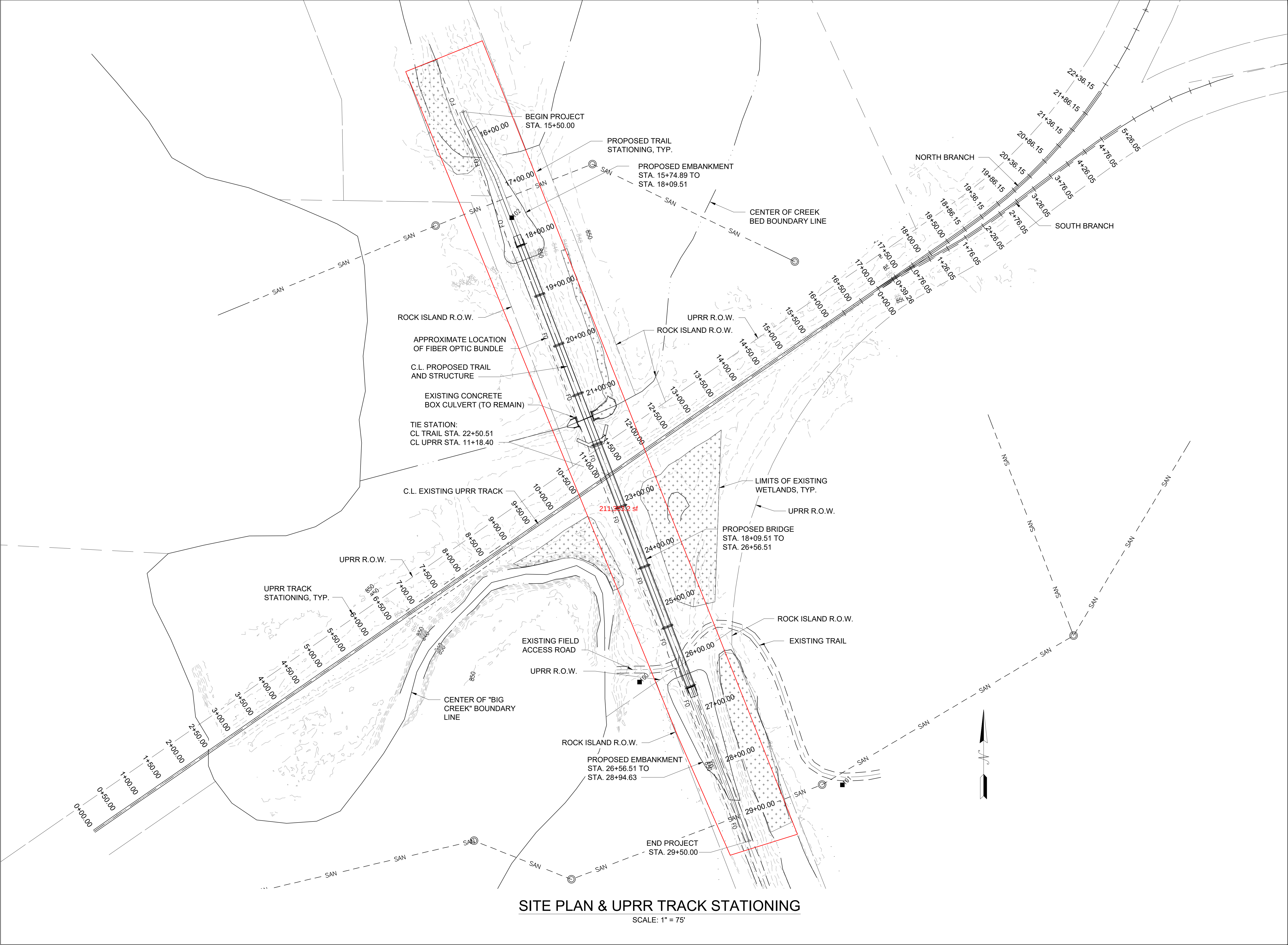
SHEET TITLE:

GENERAL NOTES
AND FOUNDATION
DATA

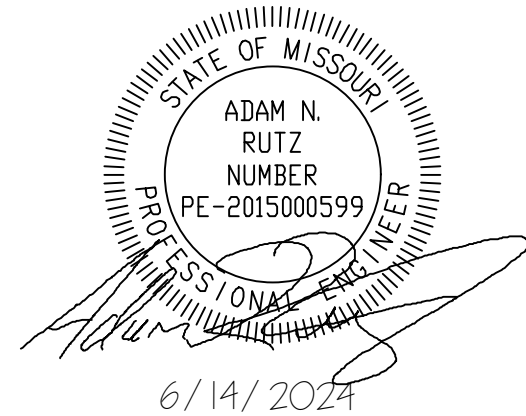
SHEET NUMBER:

S-105

31 OF 47 SHEETS
6/14/2024



STATE OF MISSOURI
MICHAEL L. PARSON,
GOVERNOR



CONSULTING ENGINEERING
GEOSPATIAL SERVICES

ILLINOIS SWANSEA
COLUMBIA
PEORIA
GLEN CARBON
DECATUR
ST. CHARLES
MISSOURI ST. LOUIS
COLUMBIA
TENNESSEE CHATTANOOGA
NASHVILLE

THOUVENOT, WADE
& MOERCHEN, INC.

COLUMBIA OFFICE
3316 LEMONE INDUSTRIAL BLVD SUITE 2
COLUMBIA, MISSOURI 65201
(573) 442-6474
WWW.TWM-INC.COM
MO. CERTIFICATE OF AUTHORITY: 001528

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES
MANAGEMENT,
DESIGN AND CONSTRUCTION
DEPARTMENT OF
NATURAL RESOURCES
MISSOURI STATE PARKS

INSTALL PEDESTRIAN BRIDGE
AT PLEASANT HILL OVER
UNION PACIFIC RAILROAD

KATY TRAIL STATE PARK
PLEASANT HILL, MO

PROJECT # X2311-01
SITE # 5501
FACILITY # 7815501070

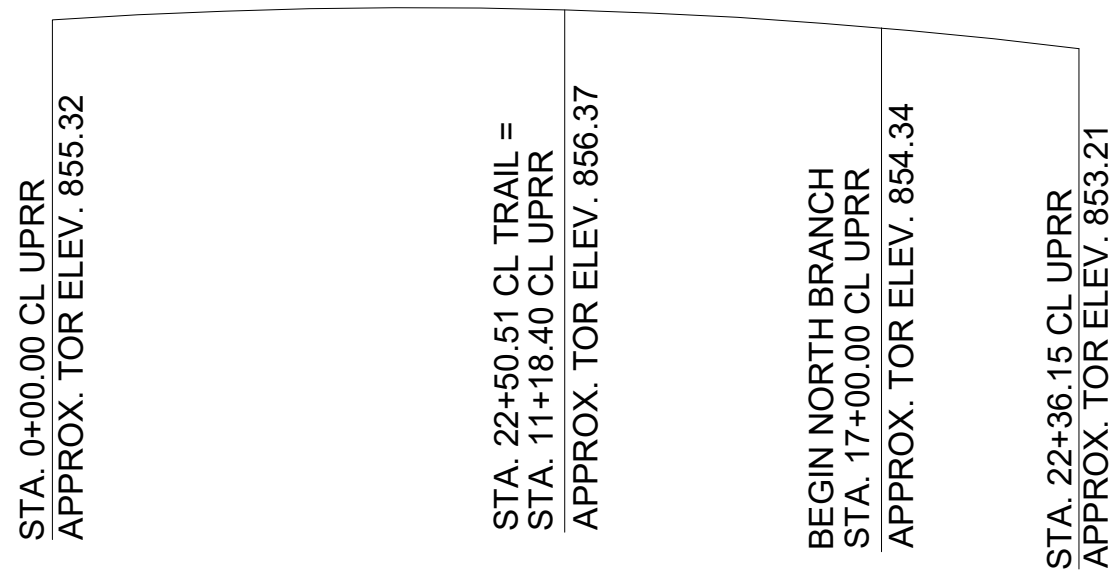
REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
ISSUE DATE: 6/14/2024

CAD DWG FILE: _____
DRAWN BY: MAL
CHECKED BY: ANR
DESIGNED BY: MAL

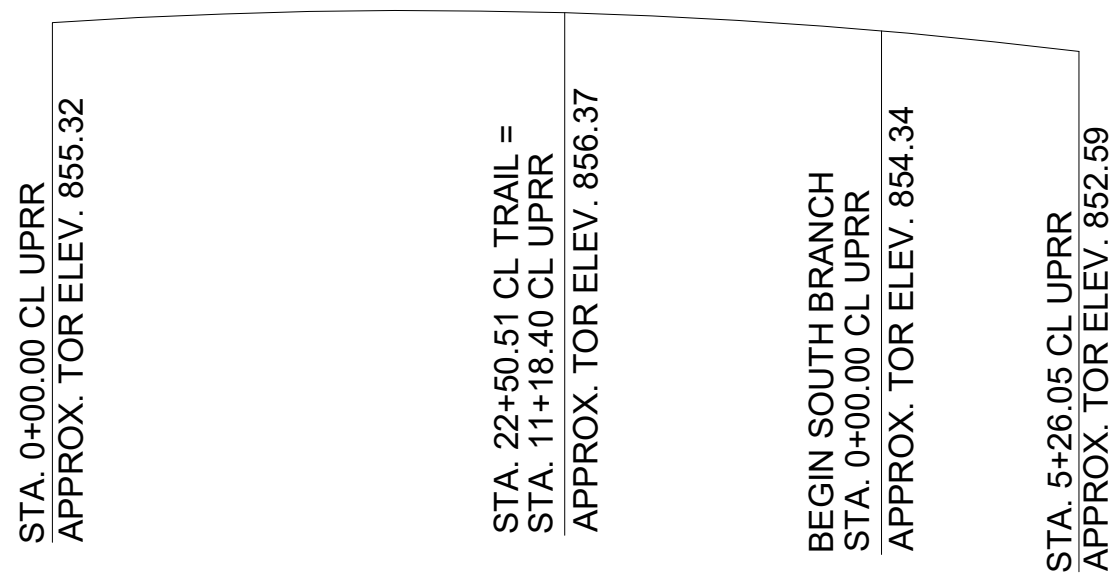
SHEET TITLE:
GENERAL SITE
PLAN & TRACK
STATIONING

SHEET NUMBER:
S-106

32 OF 47 SHEETS
6/14/2024



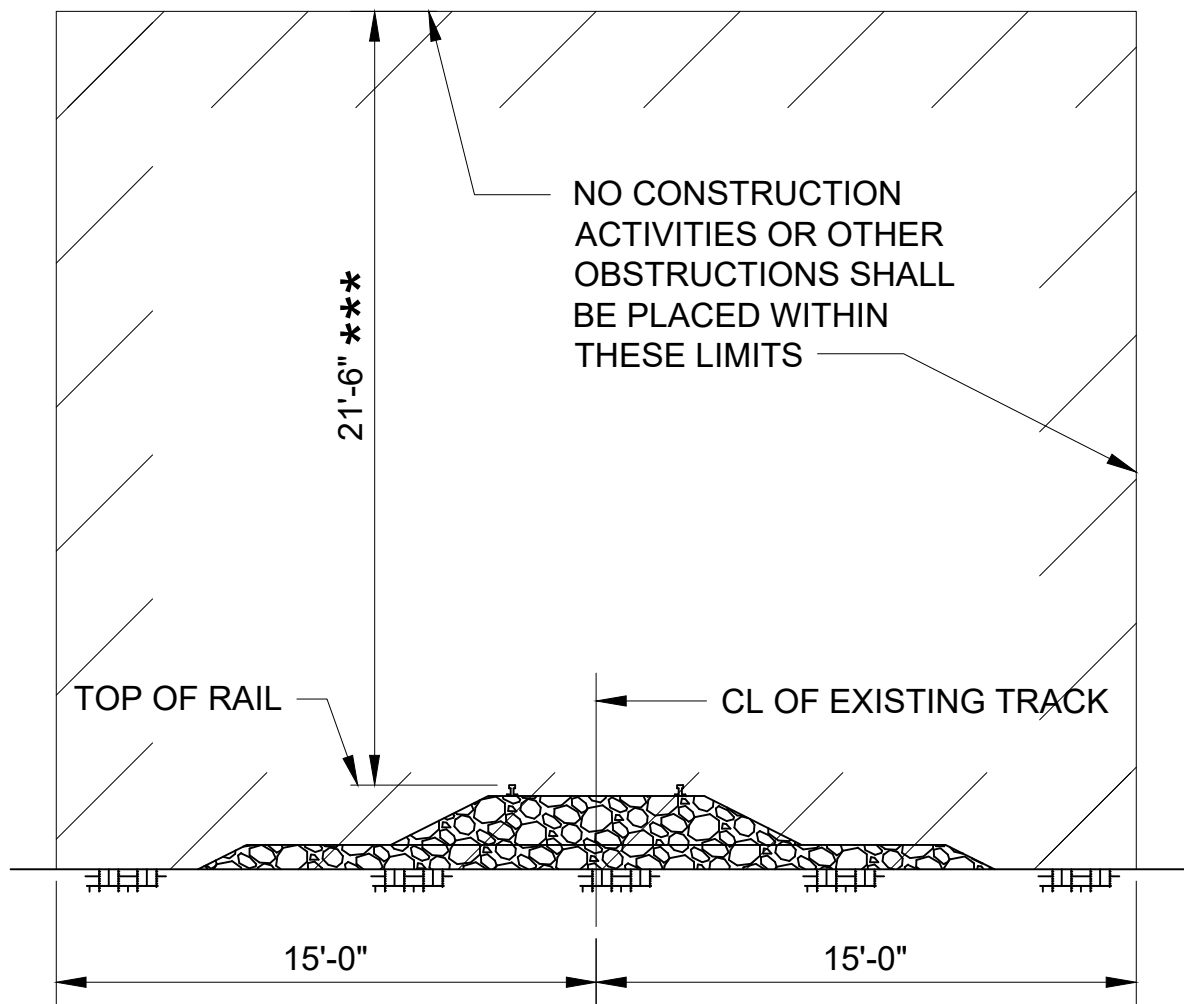
TRACK PROFILE
(SHOWING HIGH RAIL ALONG
NORTH BRANCH)



TRACK PROFILE
(SHOWING HIGH RAIL ALONG
SOUTH BRANCH)

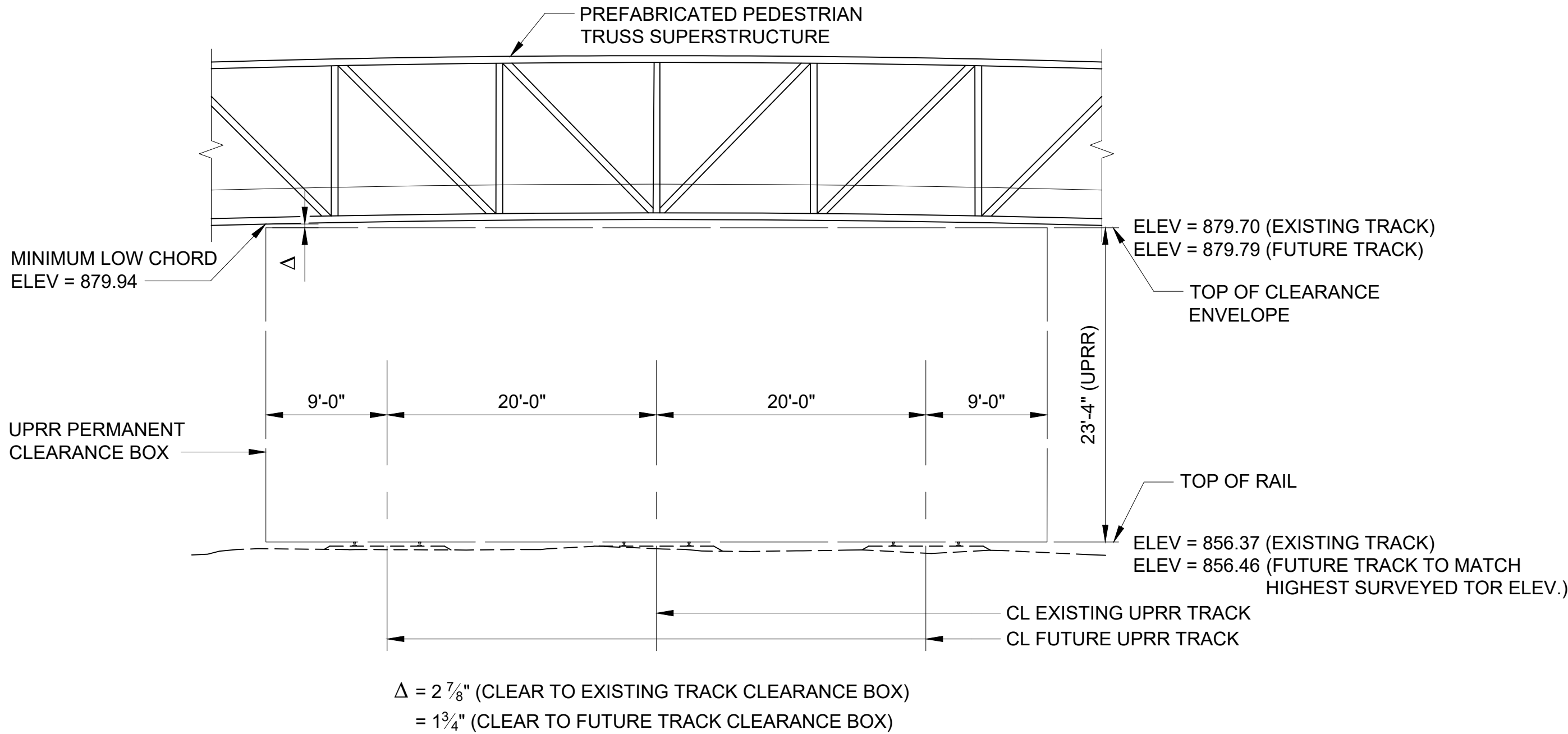
UPRR SURVEY POINTS "TOP OF RAIL"			
STATION	ELEVATION	STATION	ELEVATION
0+00.00	855.32		
0+50.00	855.42		
1+00.00	855.55		
1+50.00	855.62		
2+00.00	855.79		
2+50.00	855.84		
3+00.00	855.79		
3+50.00	855.73		
4+00.00	855.76		
4+50.00	855.86		
5+00.00	855.85		
5+50.00	855.92		
6+00.00	856.02		
6+50.00	856.07		
7+00.00	856.15		
7+50.00	856.21		
8+00.00	856.27		
8+50.00	856.33		
9+00.00	856.32		
9+50.00	856.32		
10+00.00	856.41		
10+50.00 **	856.46 **		
11+00.00	856.42		
11+18.40 *	856.37 *		
11+50.00	856.29		
12+00.00	856.10		
12+50.00	855.89		
13+00.00	855.77		
13+50.00	855.51		
14+00.00	855.37		
14+50.00	855.20		
15+00.00	855.01		
15+50.00	854.84		
16+00.00	854.68		
16+50.00	854.46		
NORTH BRANCH		SOUTH BRANCH	
17+00.00	854.34	0+00.00	854.34
17+50.00	854.12	0+39.26	854.21
18+00.00	853.84	0+76.05	854.00
18+50.00	853.69	1+26.05	853.66
18+86.15	853.55	1+76.05	853.40
19+36.15	853.59	2+26.05	853.28
19+86.15	853.36	2+76.05	853.14
20+36.15	853.45	3+26.05	852.96
20+86.15	853.39	3+76.05	852.85
21+36.15	853.35	4+26.05	852.88
21+86.15	853.26	4+76.05	852.83
22+36.15	853.21	5+26.05	852.59

* TIE STATION WITH CL OF ROCK ISLAND SPUR TRAIL
** HIGHEST EXISTING RAIL ELEVATION ALONG TRACK PROFILE



MINIMUM CONSTRUCTION
CLEARANCE ENVELOPE
(NORMAL TO RAILROAD)
SCALE: NTS

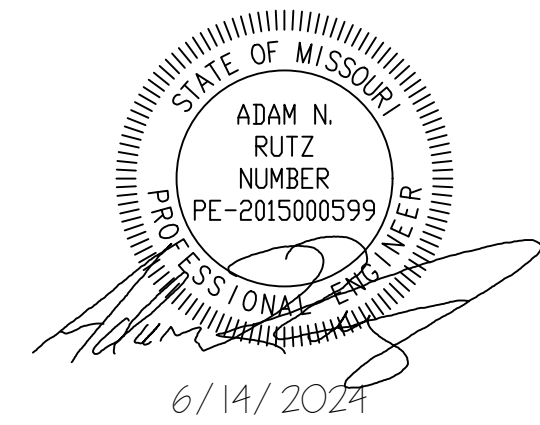
*** MEASURED FROM
HIGH RAIL



PERMANENT CLEARANCE ENVELOPE
(NORMAL TO RAILROAD)
SCALE: NTS

- CONSTRUCTION NOTES:
- CONSTRUCTION WITHIN THE RAILROAD'S RIGHT-OF-WAY SHALL BE DESIGNED TO CAUSE NO INTERRUPTION TO THE RAILROAD'S OPERATIONS, ENABLING THE TRACK TO REMAIN OPEN TO TRAFFIC PER THE RAILROAD'S REQUIREMENTS.
 - RAILROAD REQUIREMENTS DO NOT ALLOW WORK WITHIN 50 FEET OF TRACK CENTERLINE WHEN A TRAIN PASSES THE WORK SITE AND ALL PERSONNEL MUST CLEAR THE AREA WITHIN 25 FEET OF THE TRACK CENTERLINE AND SECURE ALL EQUIPMENT.
 - ERECTION OVER THE RAILROAD RIGHT-OF-WAY SHALL BE DESIGNED TO CAUSE NO INTERRUPTION TO ALL RAILROAD OPERATIONS ENABLING THE TRACK TO REMAIN OPEN TO TRAFFIC PER THE RAILROAD'S REQUIREMENTS. THE METHOD OF ERECTION PERMISSIBLE IS DEPENDENT UPON THE AVAILABILITY OF TRACK WINDOWS, IF ANY.
 - THE ELEVATION OF THE EXISTING TOP-OF-RAIL PROFILE SHALL BE VERIFIED BEFORE BEGINNING CONSTRUCTION. ALL DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE RAILROAD PRIOR TO CONSTRUCTION.
 - THE PROPOSED GRADE SEPARATION PROJECT SHALL NOT CHANGE THE QUANTITY AND/OR CHARACTERISTICS OF THE FLOW IN THE RAILROAD DITCHES AND/OR DRAINAGE STRUCTURES.
 - THE CONTRACTOR MUST SUBMIT A PROPOSED METHOD OF EROSION AND SEDIMENT CONTROL AND HAVE THE METHOD APPROVED BY THE RAILROAD PRIOR TO BEGINNING GRADING ON THE SITE.
 - FOR RAILROAD COORDINATION PLEASE REFER TO THE RAILROAD'S COORDINATION REQUIREMENTS AS PART OF THE SPECIFICATIONS OR SPECIAL PROVISIONS OF THE PROJECT.
 - TEMPORARY CONSTRUCTION CLEARANCES, INCLUDING FALSEWORK CLEARANCES, SHALL COMPLY WITH THE MINIMUM CONSTRUCTION CLEARANCE ENVELOPE. SEE FIGURE FOR TEMPORARY CONSTRUCTION CLEARANCES.
 - ALL PERMANENT CLEARANCES SHALL BE VERIFIED BEFORE PROJECT CLOSEOUT. ALL DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE RAILROAD.
 - EMAIL BEFORE YOU DIG. PRIOR TO EXCAVATION, DISRUPTING, OR WORKING ON THE RAILROAD PROPERTY THE CONTRACTOR SHALL LOCATE AND PROTECT UPRR FACILITIES. SEND REQUESTS TO THE UPRR "CALL BEFORE YOU DIG" (CBUD) EMAIL. GUIDANCE CAN BE FOUND AT THE FOLLOWING WEB ADDRESS: www.up.com/CBUD

STATE OF MISSOURI
MICHAEL L. PARSON,
GOVERNOR



CONSULTING ENGINEERING
GEOSPATIAL SERVICES

ILLINOIS SWANSEA
COLUMBIA
PEORIA
GLEN CARBON
MISSOURI DECATUR
ST. CHARLES
ST. LOUIS
COLUMBIA
TENNESSEE CHATTANOOGA
NASHVILLE

THOUVENOT, WADE
& MOERCHEN, INC.

COLUMBIA OFFICE
3316 LEMONE INDUSTRIAL BLVD SUITE 2
COLUMBIA, MISSOURI 65201
(573) 442-6474
WWW.TWM-INC.COM
MO. CERTIFICATE OF AUTHORITY: 001528

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES
MANAGEMENT,
DESIGN AND CONSTRUCTION
DEPARTMENT OF
NATURAL RESOURCES
MISSOURI STATE PARKS

INSTALL PEDESTRIAN BRIDGE
AT PLEASANT HILL OVER
UNION PACIFIC RAILROAD

KATY TRAIL STATE PARK
PLEASANT HILL, MO

PROJECT # X2311-01
SITE # 5501
FACILITY # 7815501070

REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
ISSUE DATE: 6/14/2024

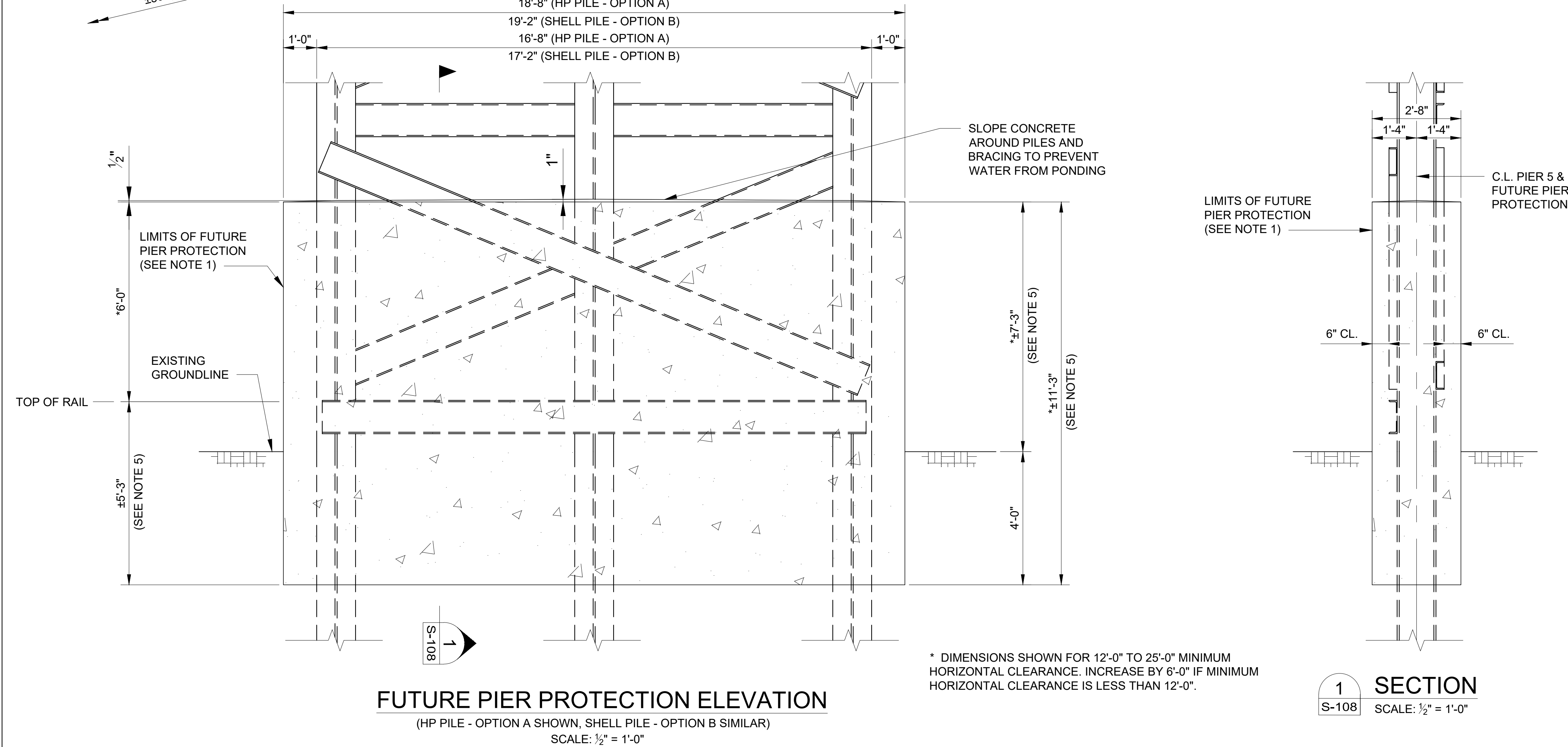
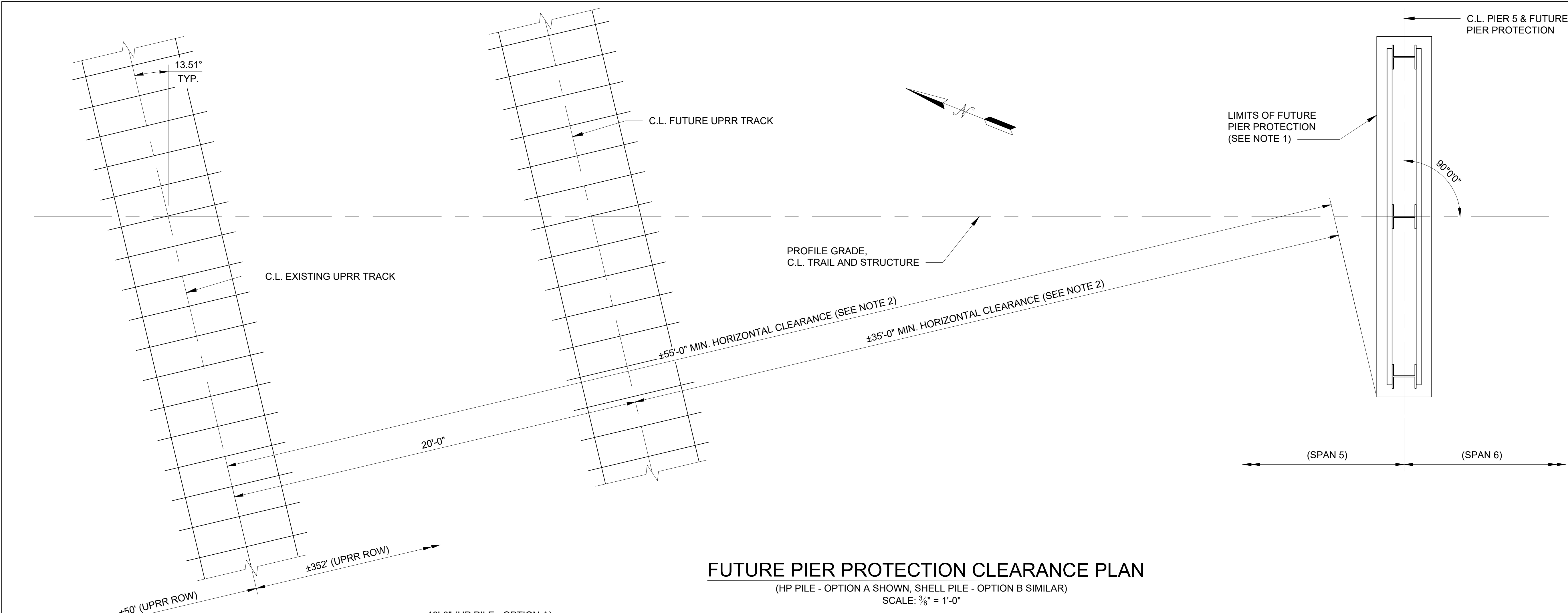
CAD DWG FILE: _____
DRAWN BY: MAL
CHECKED BY: ANR
DESIGNED BY: MAL

SHEET TITLE:
RAILROAD
REQUIREMENTS &
TRACK PROFILE

SHEET NUMBER:

S-107

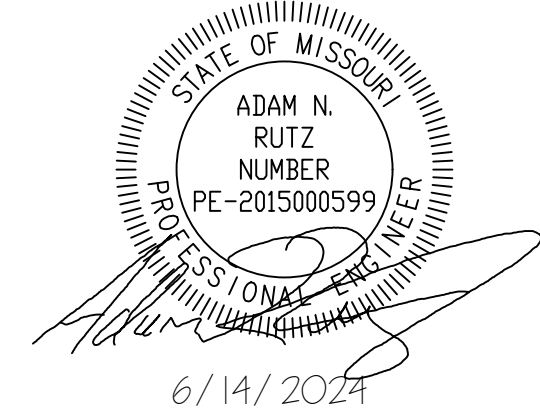
33 OF 47 SHEETS
6/14/2024



- NOTES:
- 1) FUTURE PIER PROTECTION SHOWN ON THIS SHEET IS CONCEPTUAL AND **NOT FOR CONSTRUCTION UNDER THIS CONTRACT**. THE INTENT OF THIS SHEET IS TO OUTLINE THE REQUIREMENTS OF FUTURE PIER PROTECTION AND CONVEY CURRENT HORIZONTAL CLEARANCE AND DESIGN IMPACTS OF THE FUTURE PIER PROTECTION IF EVER REQUIRED.
 - 2) PIERS 5, 6, AND 7 ARE CURRENTLY WITHIN THE LIMITS OF UPRR ROW BUT HAVE BEEN LAID OUT TO EXCEED 25 FEET OF CLEARANCE FROM THE CENTERLINE OF BOTH THE EXISTING TRACK AND NEAREST FUTURE TRACK. FUTURE PIER PROTECTION SHALL BE INSTALLED IF ADDITIONAL TRACKAGE IS TO BE CONSTRUCTED BY THE RAILROAD IN ADDITION TO THE FUTURE TRACK SHOWN, RESULTING IN A MINIMUM HORIZONTAL CLEARANCE OF LESS THAN 25'-0".
 - 3) PIERS 5, 6, AND 7 HAVE BEEN DESIGNED FOR THE ADDITIONAL DEAD LOAD OF THE FUTURE PIER PROTECTION AS SHOWN WITH NORMAL WEIGHT REINFORCED CONCRETE. REINFORCEMENT IN PIER PROTECTION TO BE DESIGNED BY OTHERS.
 - 4) CONCEPT IS SHOWN PER CURRENT UPRR GUIDELINES FOR RAILROAD GRADE SEPARATION PROJECTS, DATED 1/05/16. ALL REQUIREMENTS OF THESE GUIDELINES SHALL BE FOLLOWED WHEN INSTALLING FUTURE PIER PROTECTION.
 - 5) DIMENSIONS TO BE VERIFIED WITH EXISTING GRADE AND TOP OF RAIL ELEVATIONS AT THE TIME OF CONSTRUCTION.
 - 6) FUTURE PIER PROTECTION SHALL BE CONSTRUCTED AT NO COST TO THE RAILROAD.

**FOR INFORMATION ONLY -
NOT FOR CONSTRUCTION**

STATE OF MISSOURI
MICHAEL L. PARSON,
GOVERNOR



CONSULTING ENGINEERING
GEOSPATIAL SERVICES

ILLINOIS SWANSEA
COLUMBIA
PEORIA
GLEN CARBON
DECATUR
ST. CHARLES
MISSOURI ST. LOUIS
COLUMBIA
CHATTANOOGA
TENNESSEE NASHVILLE

**THOUVENOT, WADE
& MOERCHEN, INC.**

COLUMBIA OFFICE
3316 LEMONE INDUSTRIAL BLVD SUITE 2
COLUMBIA, MISSOURI 65201
(573) 442-6474
WWW.TWM-INC.COM
MO. CERTIFICATE OF AUTHORITY: 001528

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES
MANAGEMENT,
DESIGN AND CONSTRUCTION
DEPARTMENT OF
NATURAL RESOURCES
MISSOURI STATE PARKS

INSTALL PEDESTRIAN BRIDGE
AT PLEASANT HILL OVER
UNION PACIFIC RAILROAD

KATY TRAIL STATE PARK
PLEASANT HILL, MO

PROJECT # X2311-01
SITE # 5501
FACILITY # 7815501070

REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
ISSUE DATE: 6/14/2024

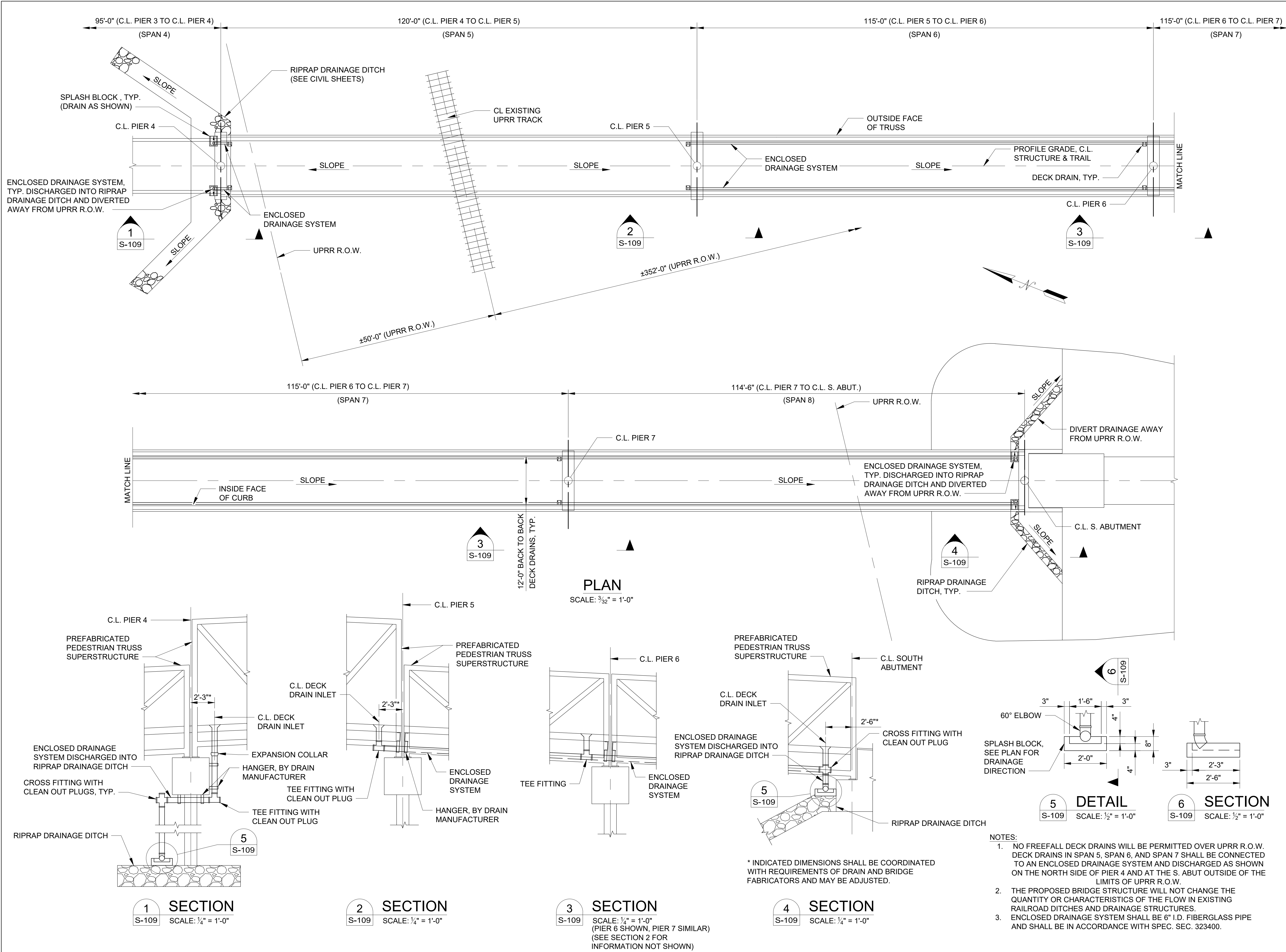
CAD DWG FILE: _____
DRAWN BY: MAL
CHECKED BY: ANR
DESIGNED BY: MAL

SHEET TITLE:
**FUTURE PIER
PROTECTION
REQUIREMENTS**

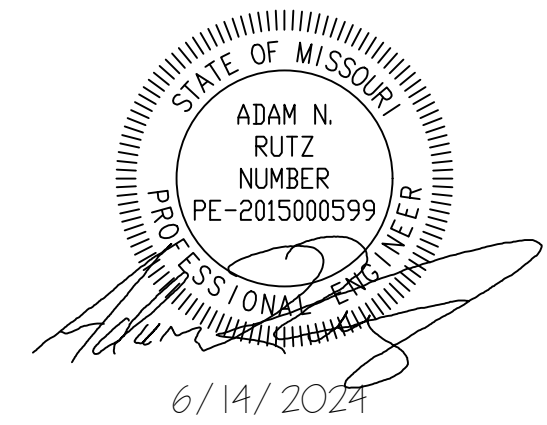
SHEET NUMBER:

S-108

34 OF 47 SHEETS
6/14/2024



STATE OF MISSOURI
MICHAEL L. PARSON,
GOVERNOR



CONSULTING ENGINEERING
GEOSPATIAL SERVICES

ILLINOIS SWANSEA
COLUMBIA
PEORIA
GLEN CARBON
DECATUR
ST. CHARLES
MISSOURI ST. LOUIS
COLUMBIA
CHATTANOOGA
TENNESSEE NASHVILLE

THOUVENOT, WADE
& MOERCHEN, INC.

COLUMBIA OFFICE
3316 LEMONE INDUSTRIAL BLVD SUITE 2
COLUMBIA, MISSOURI 65201
(573) 442-6474
WWW.TWM-INC.COM
MO. CERTIFICATE OF AUTHORITY: 001528

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES
MANAGEMENT,
DESIGN AND CONSTRUCTION
DEPARTMENT OF
NATURAL RESOURCES
MISSOURI STATE PARKS

INSTALL PEDESTRIAN BRIDGE
AT PLEASANT HILL OVER
UNION PACIFIC RAILROAD

KATY TRAIL STATE PARK
PLEASANT HILL, MO

PROJECT # X2311-01
SITE # 5501
FACILITY # 7815501070

REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
ISSUE DATE: 6/14/2024

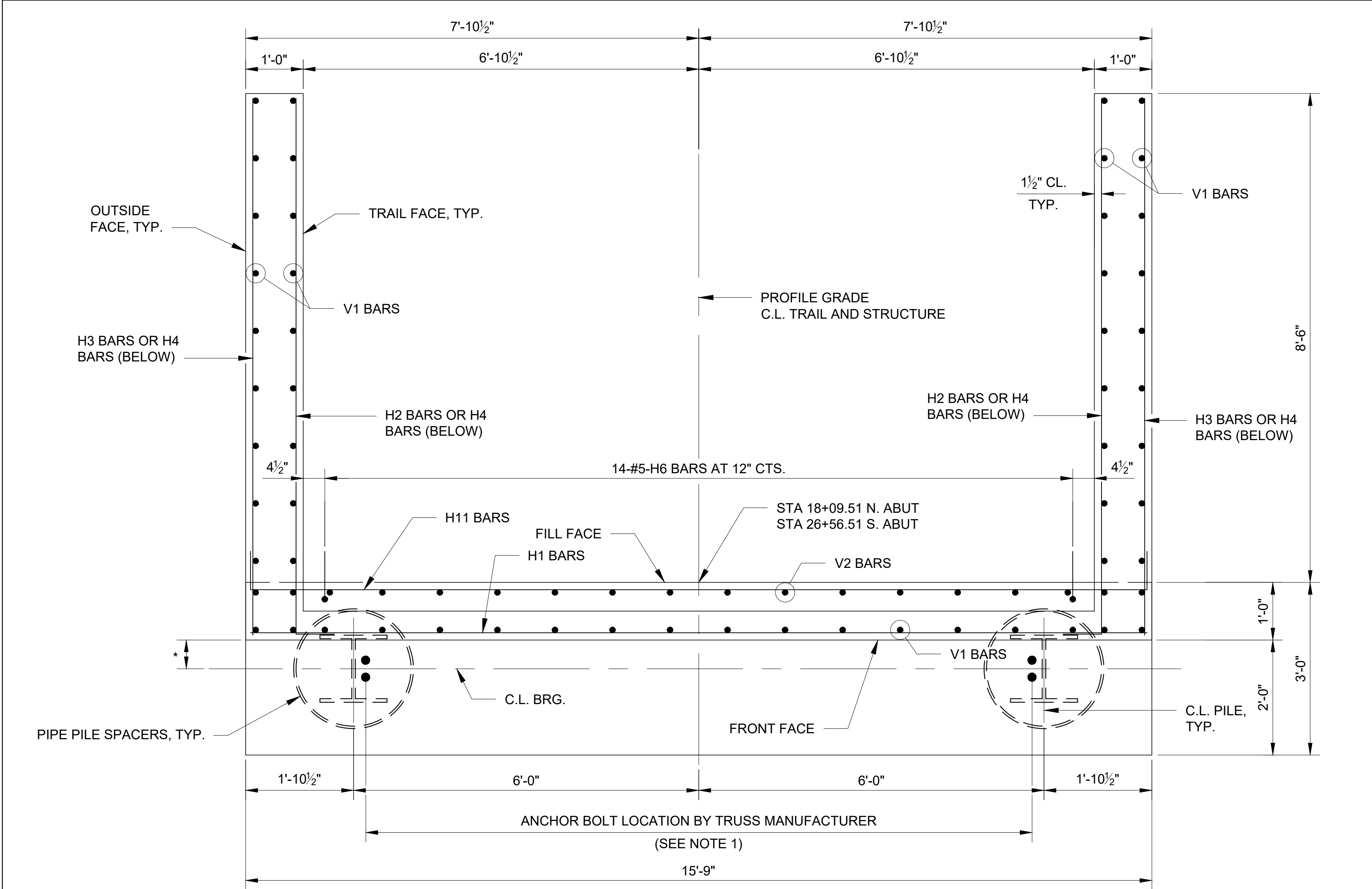
CAD DWG FILE: _____
DRAWN BY: MAL
CHECKED BY: ANR
DESIGNED BY: MAL

SHEET TITLE:
**BRIDGE DECK
DRAINAGE PLAN**

SHEET NUMBER:

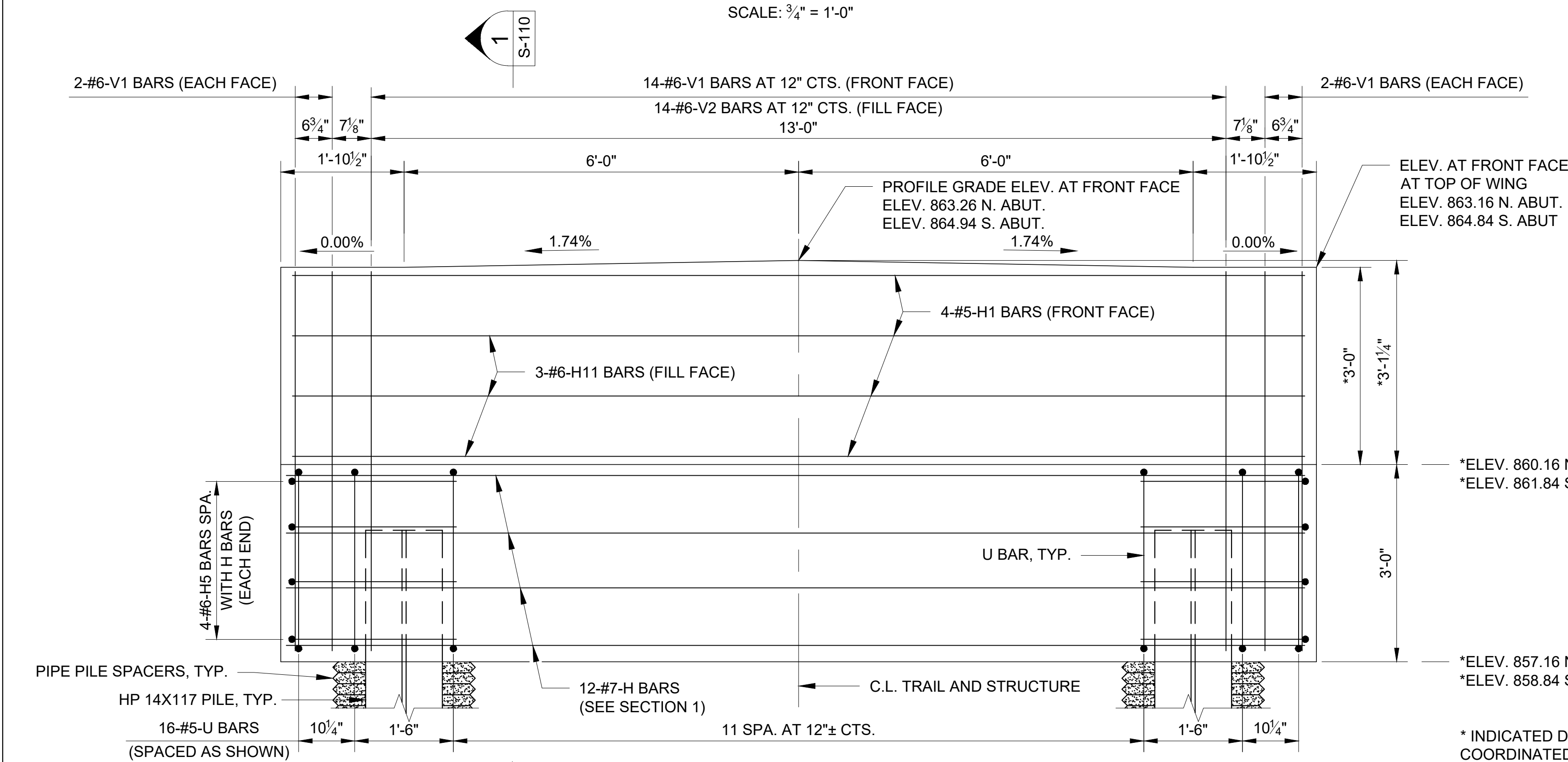
S-109

35 OF 47 SHEETS
6/14/2024



ABUTMENT PLAN

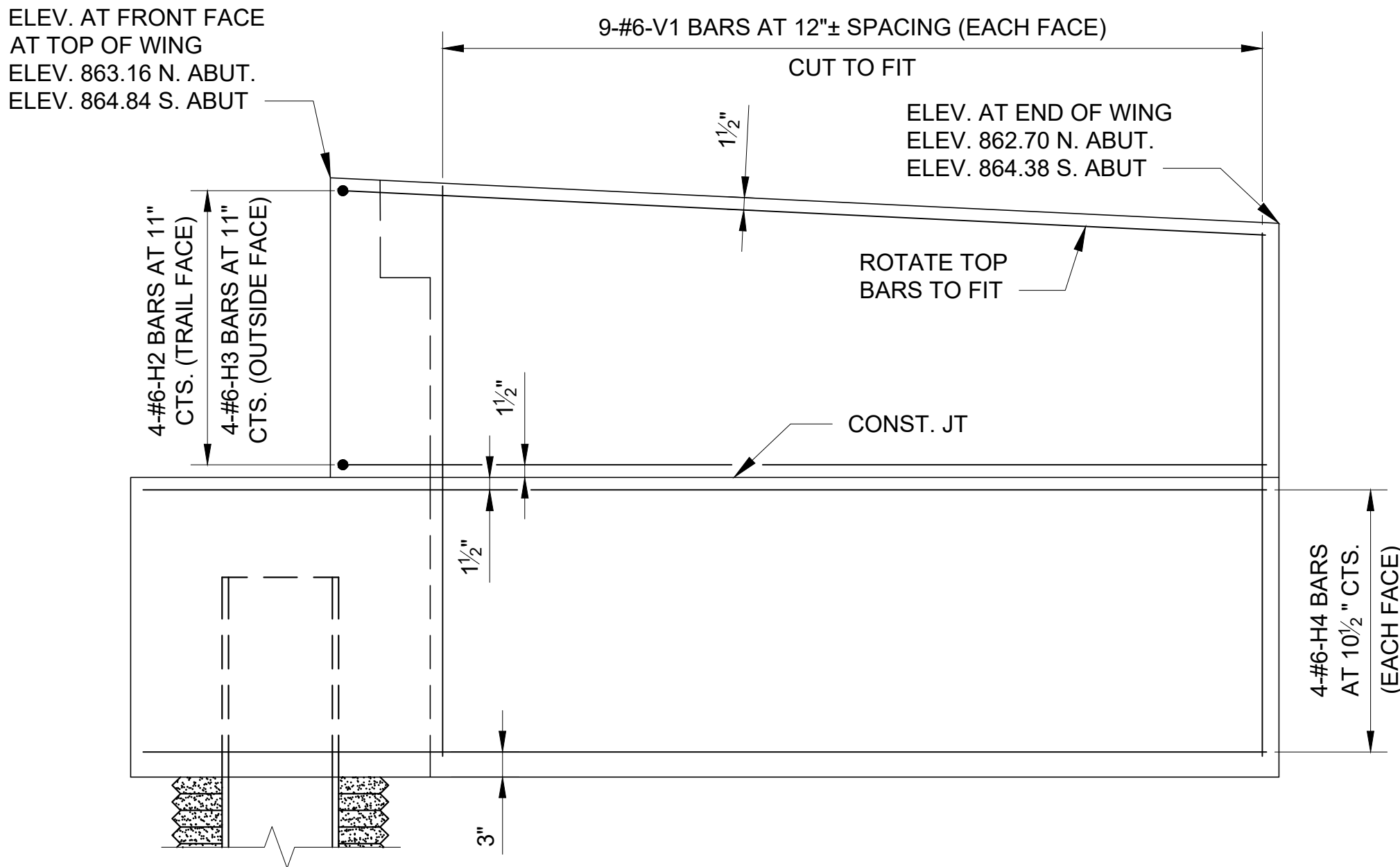
SCALE: 3/4" = 1'-0"



ELEVATION

SCALE: 3/4" = 1'-0"

* INDICATED DIMENSIONS AND ELEVATIONS SHALL BE COORDINATED WITH REQUIREMENTS OF BRIDGE FABRICATOR. ESTIMATED QUANTITIES AND BAR DIMENSIONS ARE BASED ON DIMENSIONS SHOWN.

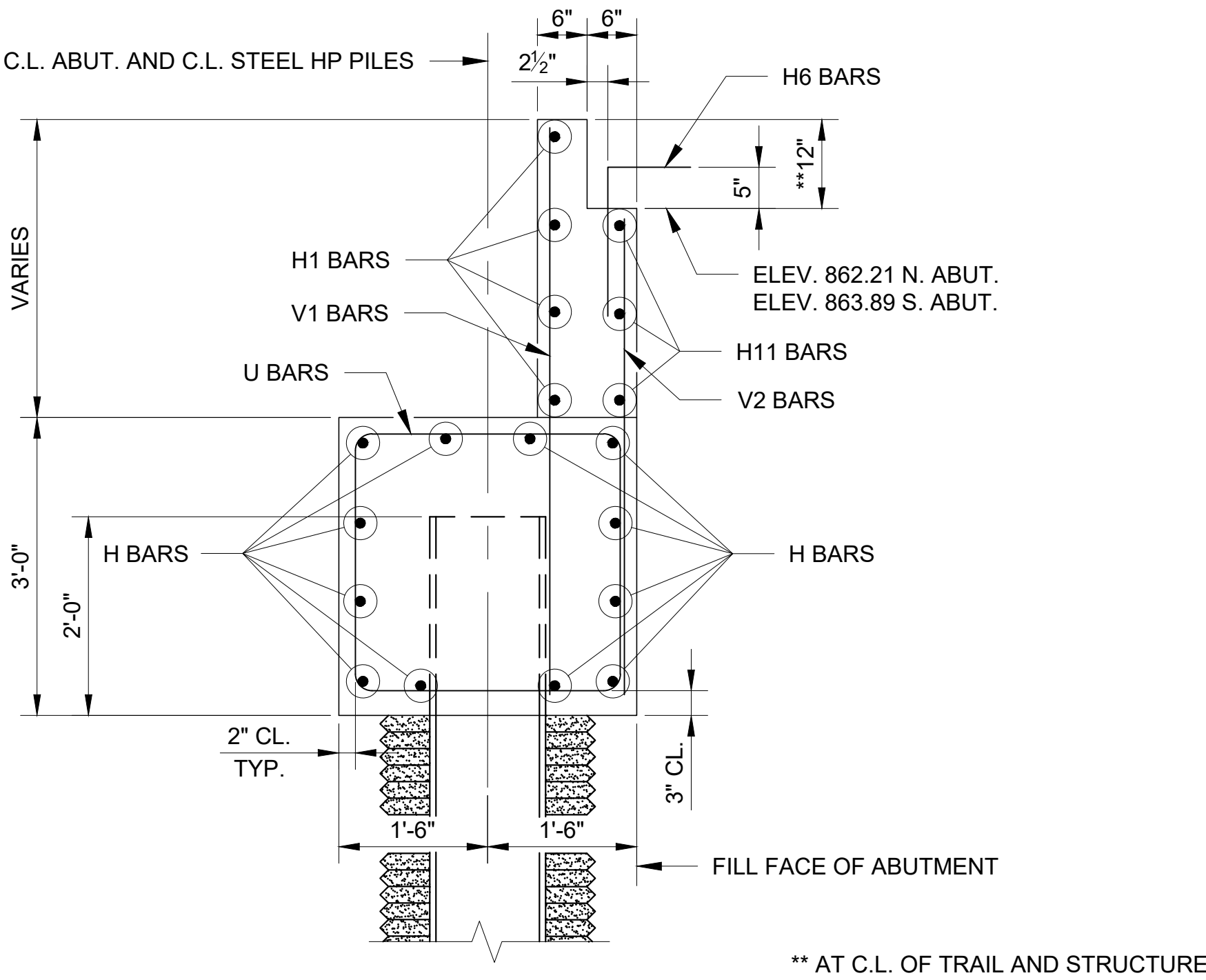


END ELEVATION OF ABUTMENT

(BEAM CAP AND BACKWALL REINFORCEMENT NOT SHOWN FOR CLARITY)

SCALE: 3/4" = 1'-0"

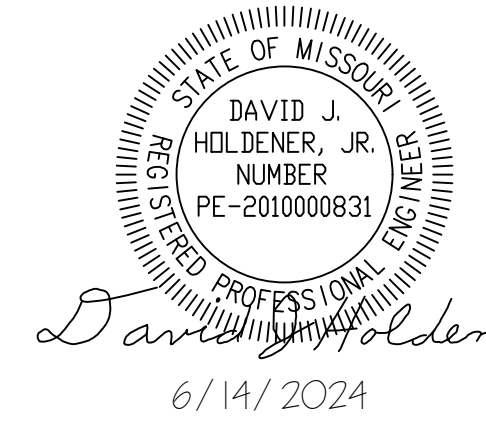
- NOTES:
- 1) SPACING OF PILE CAP REINFORCEMENT SHALL BE MODIFIED TO AVOID ANCHOR BOLTS. SIZE, NUMBER, AND LOCATION OF ANCHOR BOLTS ARE TO BE BASED ON THE APPROVED SHOP DRAWINGS FOR THE PREFABRICATED PEDESTRIAN TRUSS SUPERSTRUCTURE.
 - 2) ELEVATION AND SLOPE OF ABUTMENT BACKWALL SHALL MATCH TOP OF CONCRETE BRIDGE DECK.
 - 3) ABUTMENT CONCRETE SHALL BE IN ACCORDANCE WITH SPEC. SEC. 033000.
 - 4) REINFORCING STEEL SHALL BE IN ACCORDANCE WITH SPEC. SEC. 032100.
 - 5) HP PILES AND PILE SPACERS SHALL BE IN ACCORDANCE WITH SPEC. SEC. 316319.
 - 6) SEE SHEET S-115 FOR APPROACH SLAB AND ABUTMENT DRAIN DETAILS.
 - 7) SEE SHEET S-119 FOR BILL OF REINFORCING STEEL.



SECTION 1

SCALE: 3/4" = 1'-0"

STATE OF MISSOURI
MICHAEL L. PARSON,
GOVERNOR



CONSULTING ENGINEERING
GEOSPATIAL SERVICES

ILLINOIS SWANSEA
COLUMBIA
PEORIA
GLEN CARBON
DECATUR
ST. CHARLES
ST. LOUIS
MISSOURI COLUMBIA
TENNESSEE CHATTANOOGA
NASHVILLE

THOUVENOT, WADE
& MOERCHEN, INC.

COLUMBIA OFFICE
3316 LEMONE INDUSTRIAL BLVD SUITE 2
COLUMBIA, MISSOURI 65201
(573) 442-6474
WWW.TWM-INC.COM
MO. CERTIFICATE OF AUTHORITY: 001528

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES
MANAGEMENT,
DESIGN AND CONSTRUCTION
DEPARTMENT OF
NATURAL RESOURCES
MISSOURI STATE PARKS

INSTALL PEDESTRIAN BRIDGE
AT PLEASANT HILL OVER
UNION PACIFIC RAILROAD

KATY TRAIL STATE PARK
PLEASANT HILL, MO

PROJECT # X2311-01
SITE # 5501
FACILITY # 7815501070

REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
ISSUE DATE: 6/14/2024

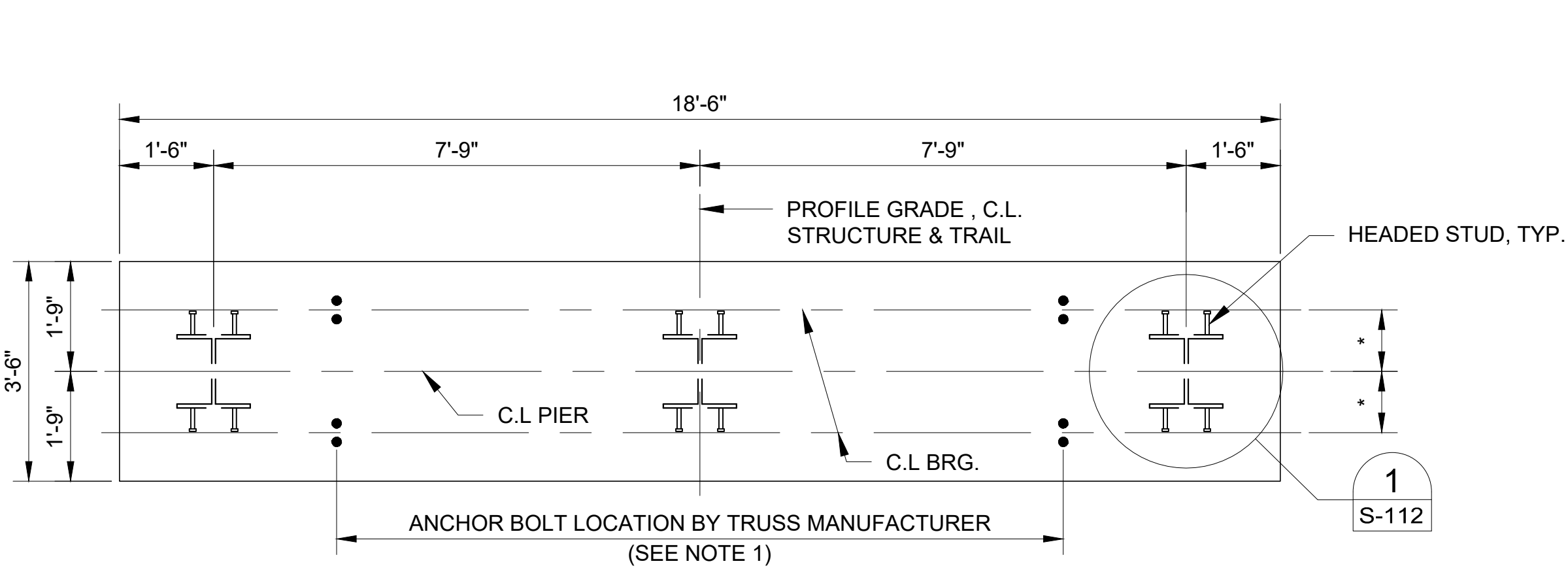
CAD DWG FILE: _____
DRAWN BY: MAL
CHECKED BY: DJH
DESIGNED BY: MAL

SHEET TITLE:
ABUTMENT
DETAILS

SHEET NUMBER:

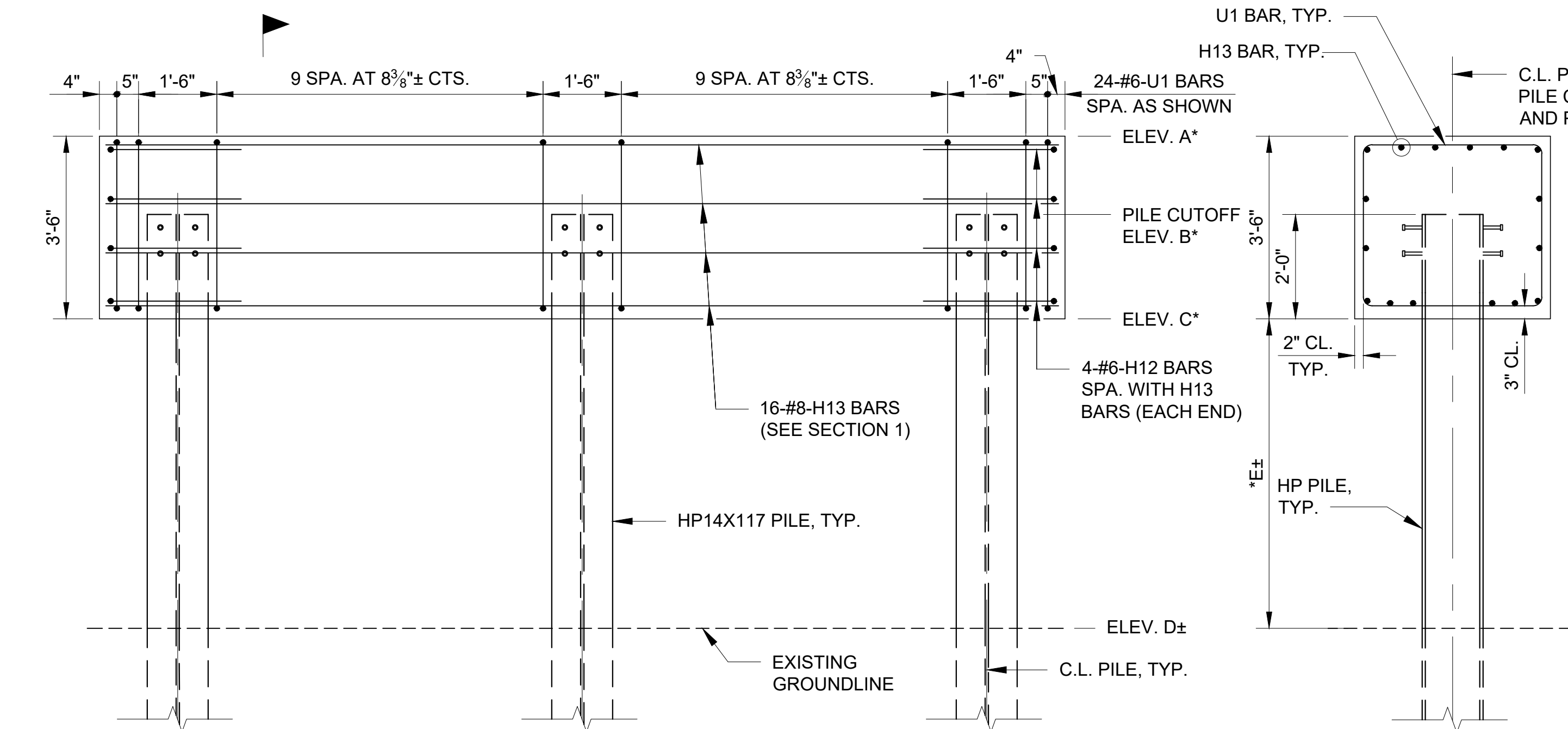
S-110

36 OF 47 SHEETS
6/14/2024



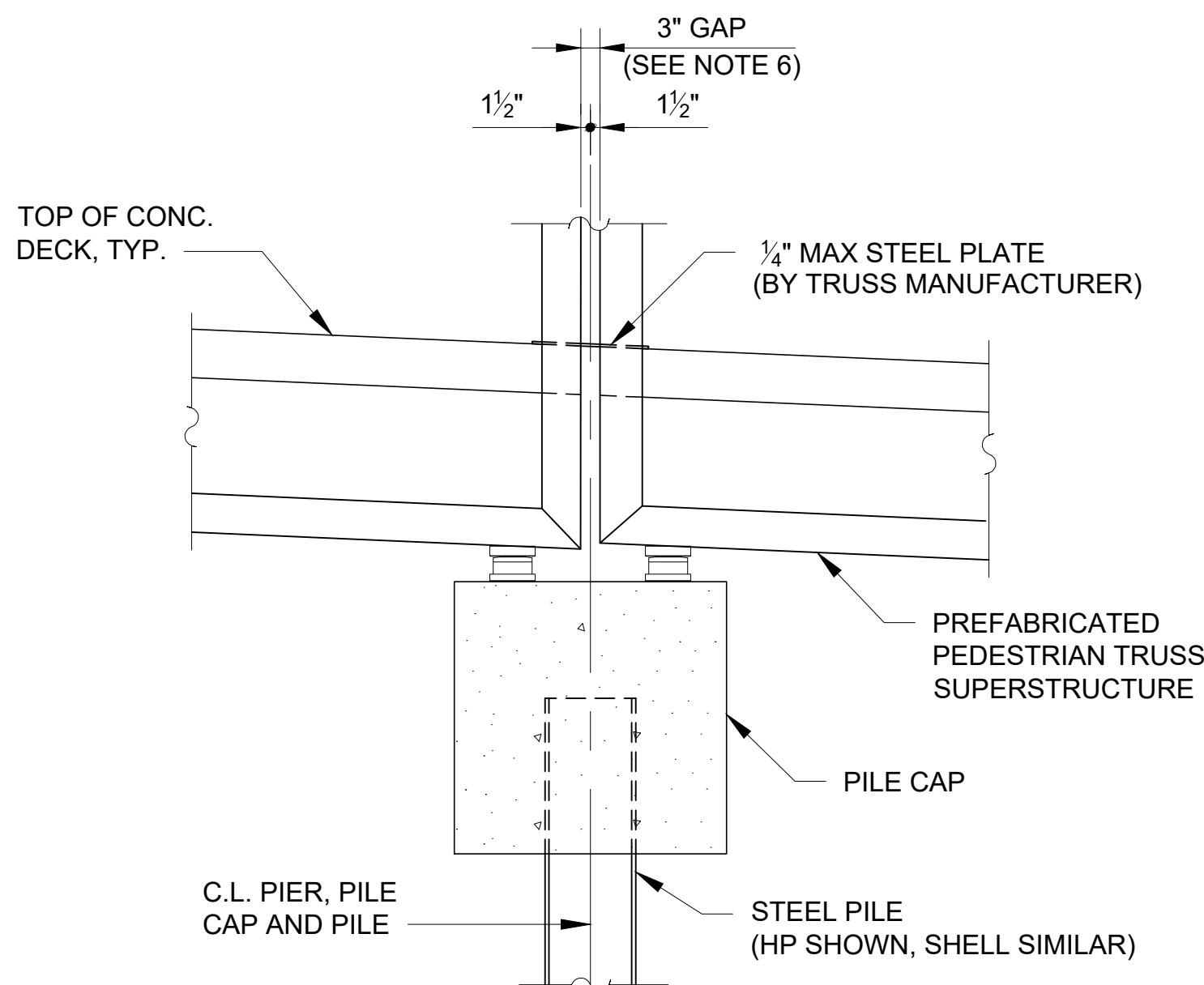
TYPICAL PIER PLAN

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



TYPE 1 PIER ELEVATION

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



SECTION THRU PROPOSED PIER

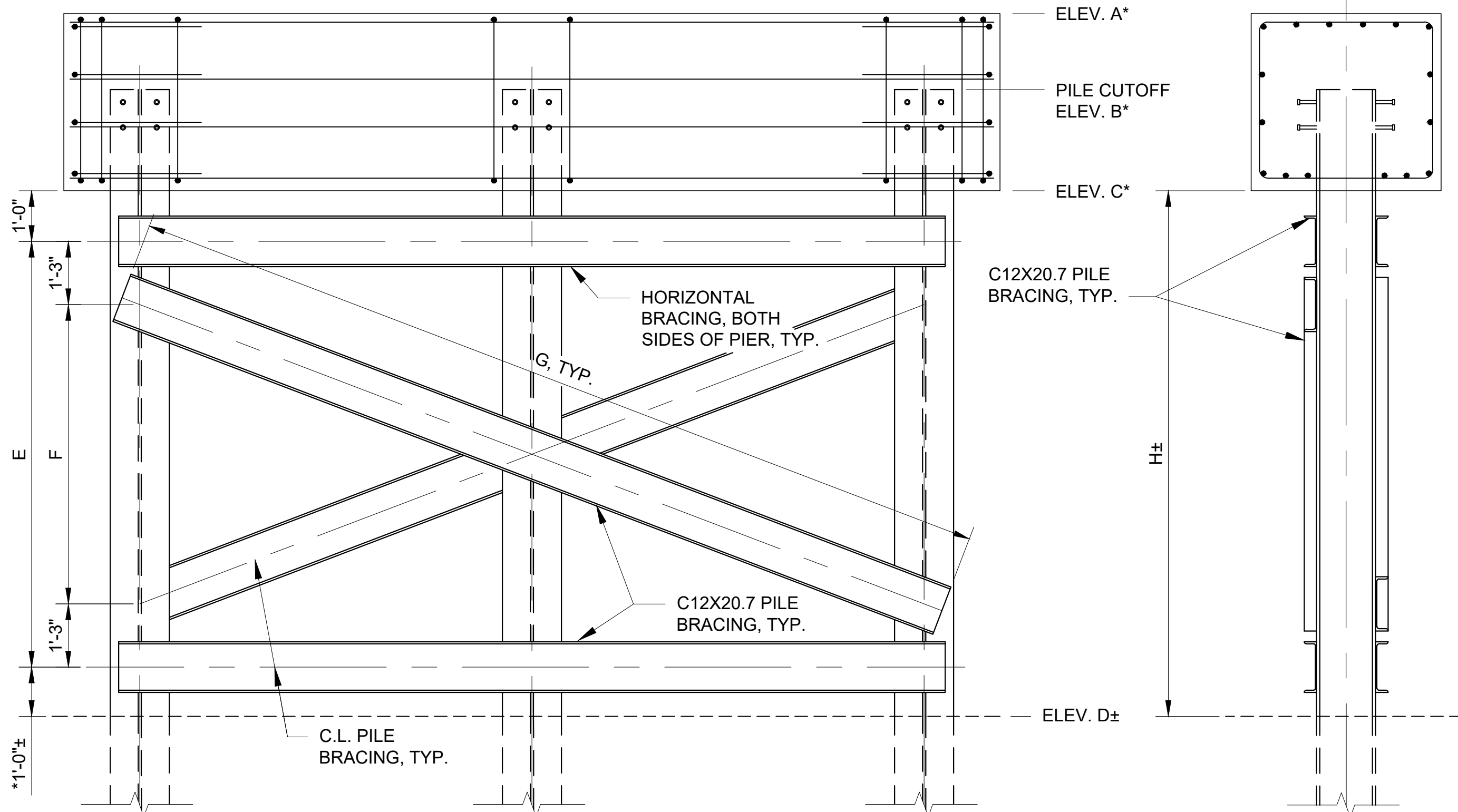
SCALE: 1/2" = 1'-0"
(TYPICAL ALL PIERS)

TYPE 1 PIER

	BENT
	PIER 1
A	864.72
B	863.22
C	861.22
D	855.39
E	5'-10"

TYPE 2 PIER

	BENT	
	PIER 2	PIER 7
A	869.28	867.36
B	867.78	865.86
C	865.78	863.86
D	855.49	854.17
E	8'-3"	7'-8"
F	5'-9"	5'-2"
G	17'-2 1/2"	17'-0 1/2"
H	10'-3"	9'-8"



TYPE 2 PIER ELEVATION

SCALE: 1/2" = 1'-0"
(SEE TYPE 1 PIER ELEVATION FOR
INFORMATION NOT SHOWN)

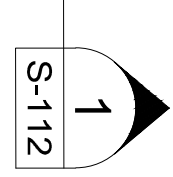
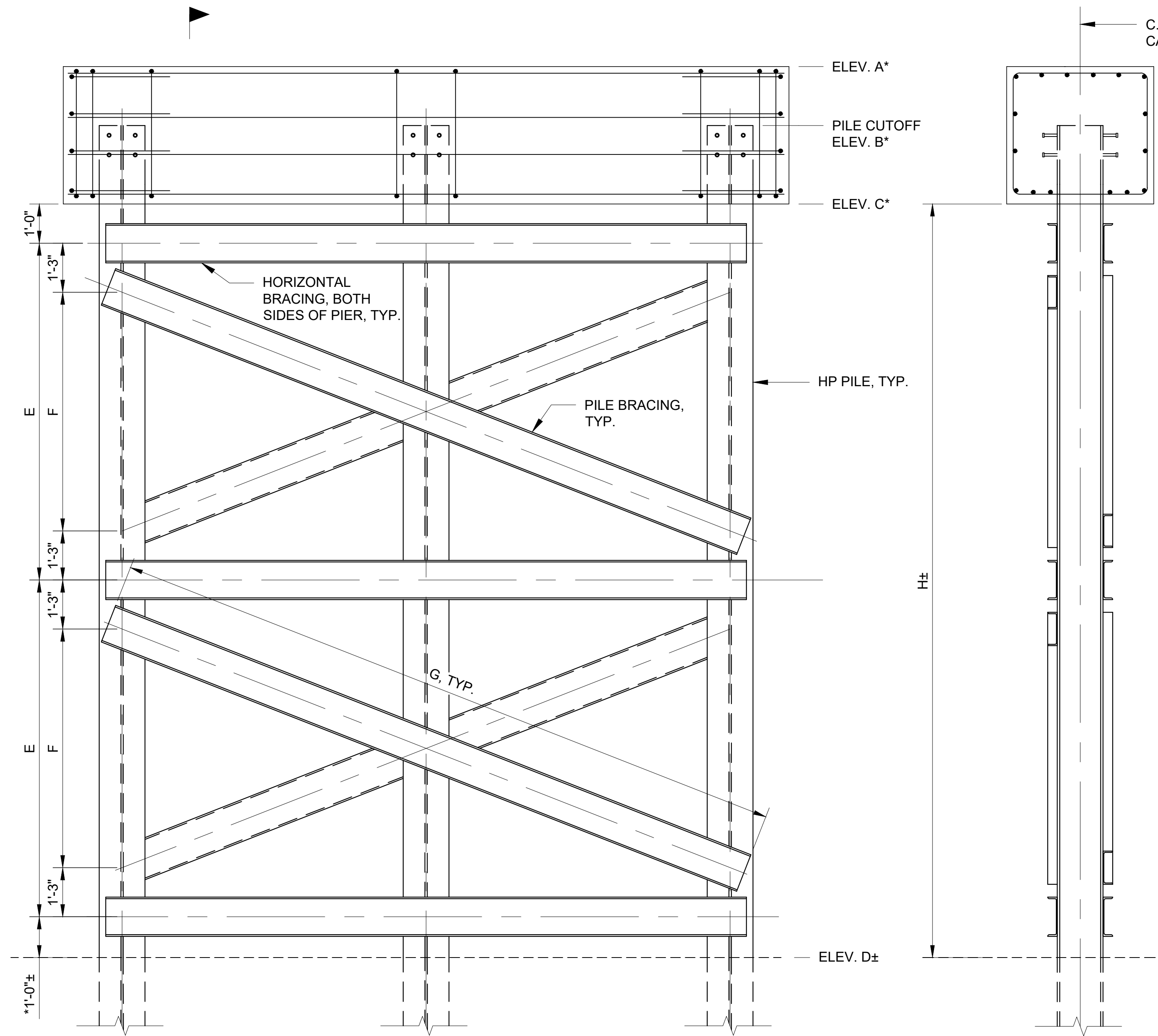
SECTION

SCALE: 1/2" = 1'-0"
(SEE SECTION 1 FOR
INFORMATION NOT SHOWN)

* INDICATED DIMENSIONS AND ELEVATIONS SHALL BE COORDINATED WITH REQUIREMENTS OF BRIDGE FABRICATOR. ESTIMATED QUANTITIES AND BAR DIMENSIONS ARE BASED ON DIMENSIONS SHOWN.

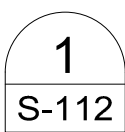
NOTES:

- 1) SPACING OF PILE CAP REINFORCEMENT SHALL BE MODIFIED TO AVOID ANCHOR BOLTS. SIZE, NUMBER, AND LOCATION OF ANCHOR BOLTS ARE TO BE BASED ON THE APPROVED SHOP DRAWINGS FOR THE PREFABRICATED PEDESTRIAN TRUSS SUPERSTRUCTURE.
- 2) PILE CAP CONCRETE SHALL BE IN ACCORDANCE WITH SPEC. SEC. 033000.
- 3) REINFORCING STEEL SHALL BE IN ACCORDANCE WITH SPEC. SEC. 032100.
- 4) HP PILES, PILE BRACING AND HEADED STUDS SHALL BE IN ACCORDANCE WITH SPEC. SEC. 316319.
- 5) SEE SHEET S-112 FOR TYPICAL HP PILE BRACING CONNECTION AND HP PILE SPLICE DETAIL.
- 6) EXPANSION GAP SHALL BE SET PER TRUSS MANUFACTURER'S APPROVED SHOP DRAWINGS.
- 7) SEE SHEET S-119 FOR BILL OF REINFORCING STEEL.



TYPE 3 PIER ELEVATION

SCALE: 1/2" = 1'-0"
(SEE TYPE 1 PIER 1 ELEVATION ON SHEET S-111 FOR INFORMATION NOT SHOWN)

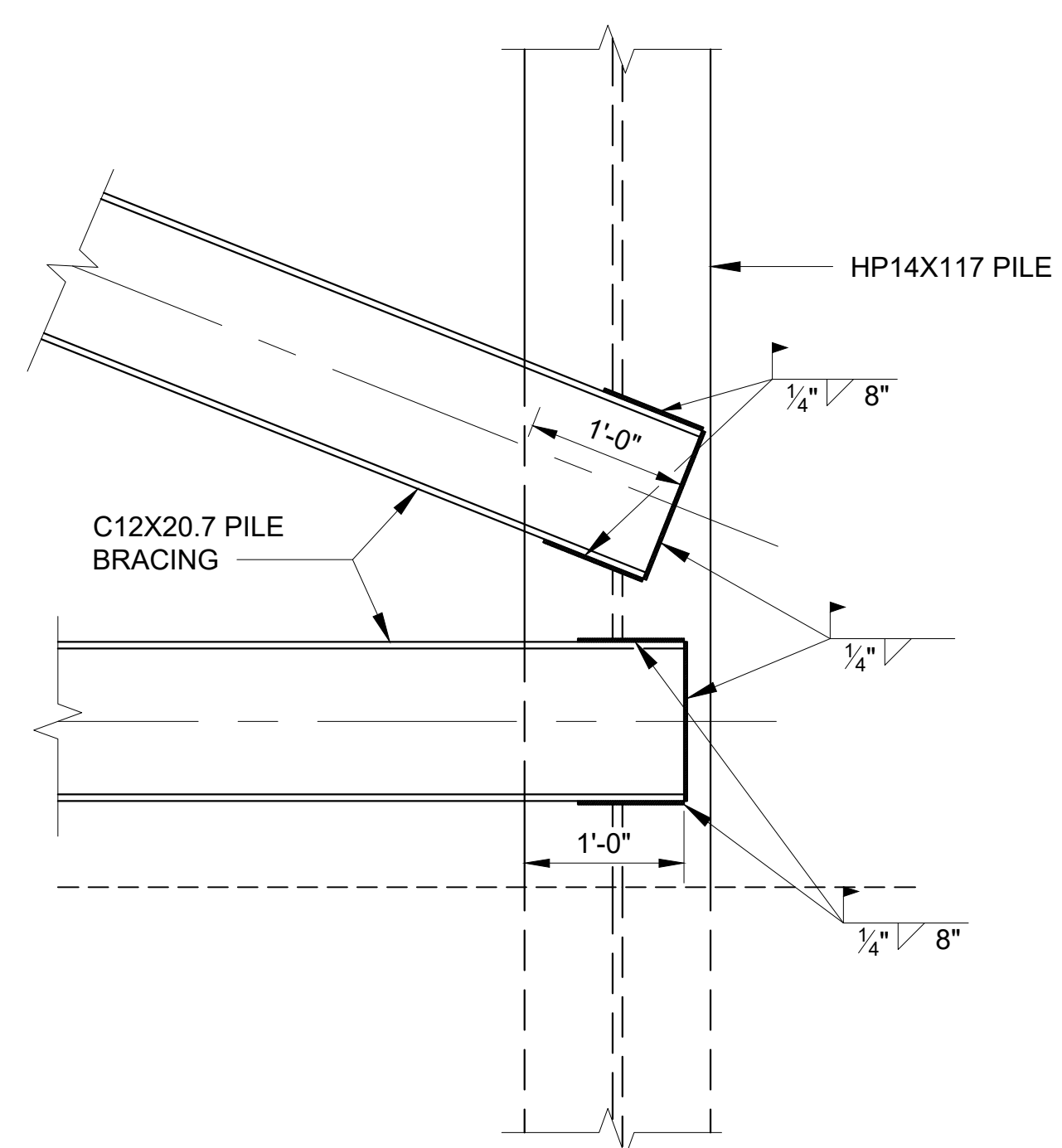


SECTION

SCALE: 1/2" = 1'-0"
(SEE SECTION 1 ON SHEET S-111 FOR INFORMATION NOT SHOWN)

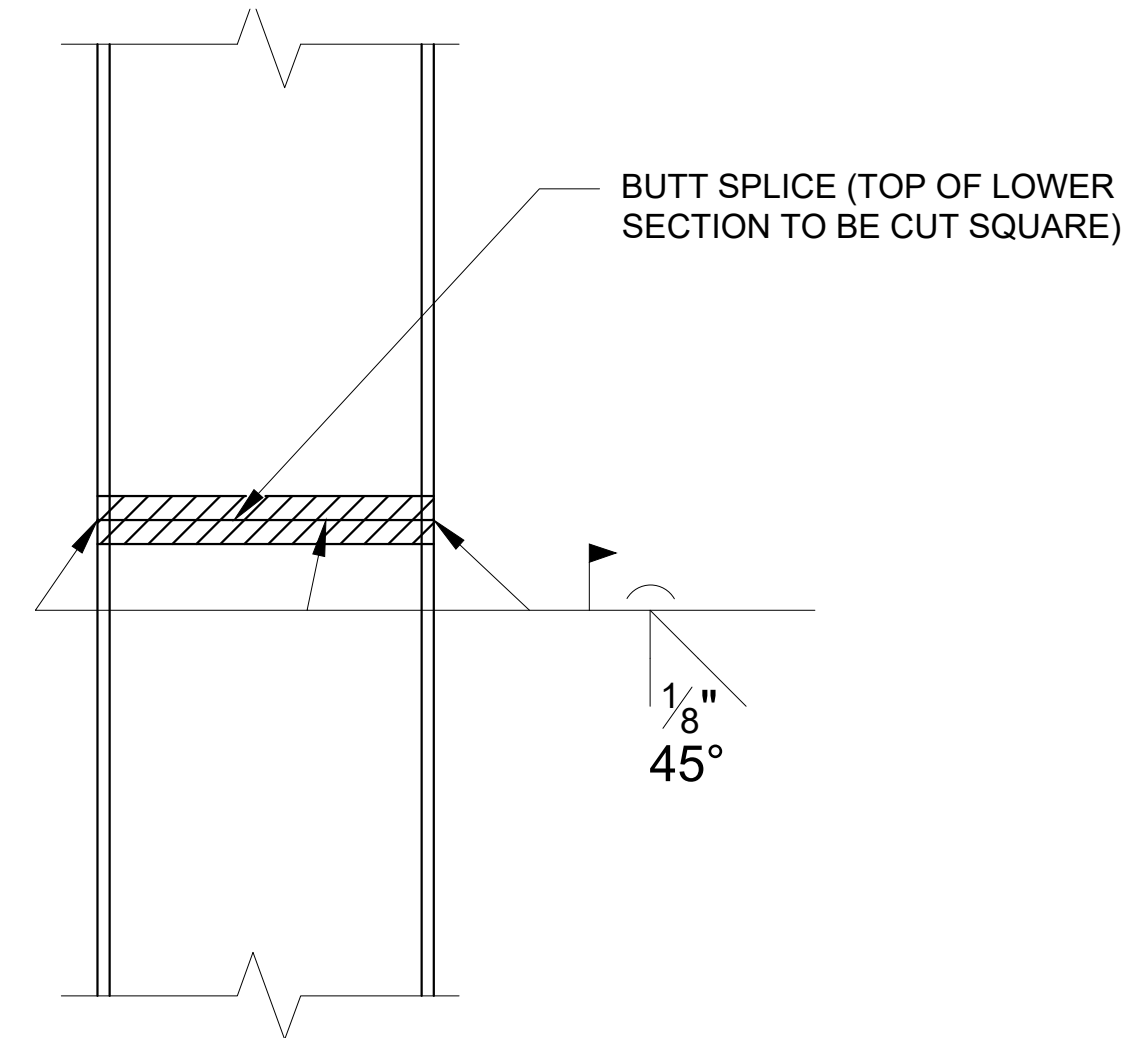
	TYPE 3 PIER			
	BENT			
	PIER 3	PIER 4	PIER 5	PIER 6
A	873.84	878.40	878.40	872.88
B	872.34	876.90	876.90	871.38
C	870.34	874.90	874.90	869.38
D	855.31	855.78	855.14	854.82
E	6'-6"	8'-7"	8'-10 1/2"	6'-3 1/2"
F	4'-0"	6'-1"	6'-4 1/2"	3'-9 1/2"
G	16'-8 3/4"	17'-4"	17'-5"	16'-8 1/4"
H	15'-0"	19'-2"	19'-9"	14'-7"

* INDICATED DIMENSIONS AND ELEVATIONS SHALL BE COORDINATED WITH REQUIREMENTS OF BRIDGE FABRICATOR. ESTIMATED QUANTITIES AND BAR DIMENSIONS ARE BASED ON DIMENSIONS SHOWN.



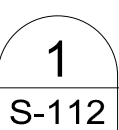
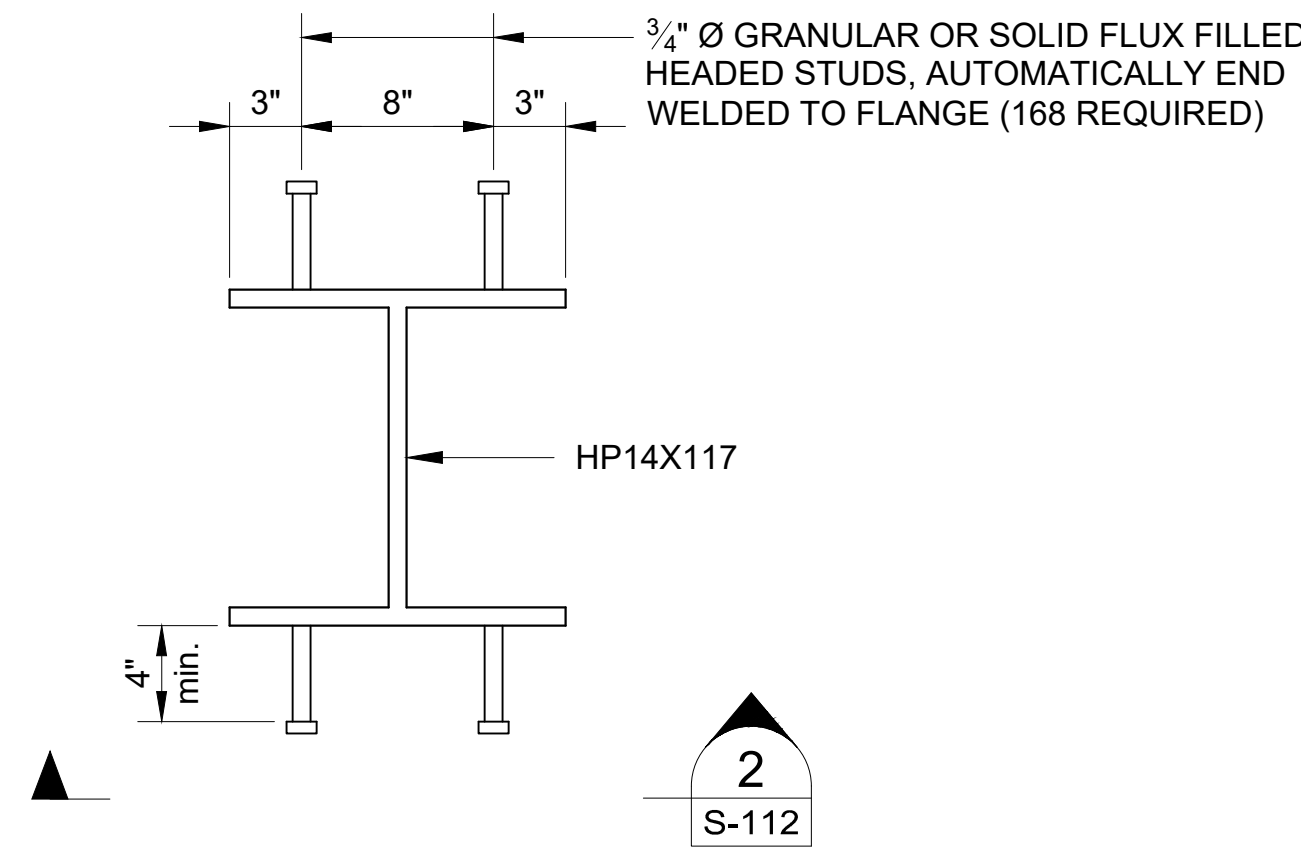
TYPICAL HP PILE BRACING CONNECTION

SCALE: 1" = 1'-0"



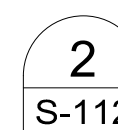
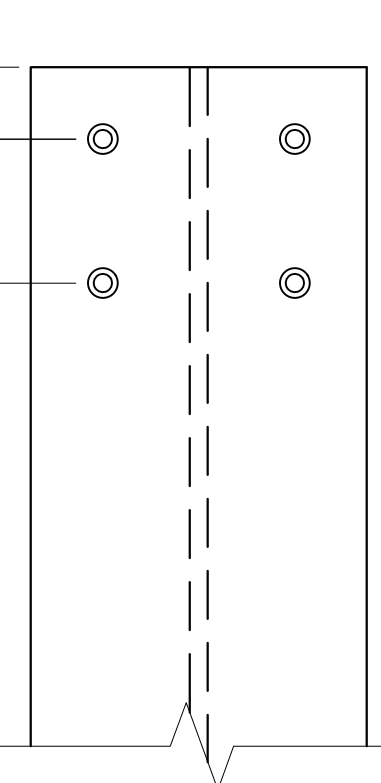
HP PILE SPLICE

SCALE: 1 1/2" = 1'-0"
(IF REQUIRED)



DETAIL

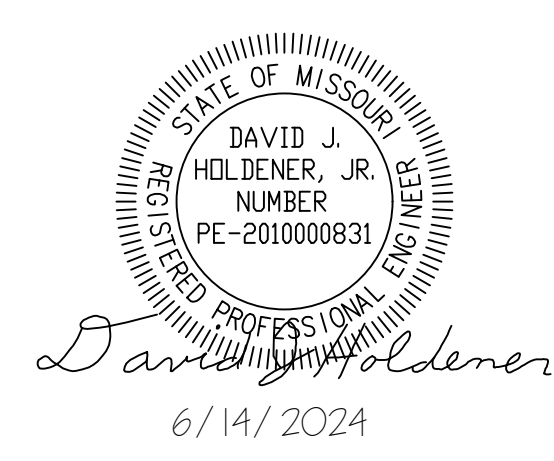
SCALE: 1 1/2" = 1'-0"



SECTION

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

NOTES:
1) SEE NOTES AND TYPICAL PIER PLAN ON SHEET S-111.



CONSULTING ENGINEERING
GEOSPATIAL SERVICES

ILLINOIS SWANSEA
COLUMBIA
PEORIA
GLEN CARBON
MISSOURI DECATUR
ST. LOUIS
COLUMBIA
TENNESSEE CHATTANOOGA
NASHVILLE

**THOUVENOT, WADE
& MOERCHEN, INC.**

COLUMBIA OFFICE
3316 LEMONE INDUSTRIAL BLVD SUITE 2
COLUMBIA, MISSOURI 65201
(573) 442-6474
WWW.TWM-INC.COM
MO. CERTIFICATE OF AUTHORITY: 001528

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES
MANAGEMENT,
DESIGN AND CONSTRUCTION
DEPARTMENT OF
NATURAL RESOURCES
MISSOURI STATE PARKS

INSTALL PEDESTRIAN BRIDGE
AT PLEASANT HILL OVER
UNION PACIFIC RAILROAD

KATY TRAIL STATE PARK
PLEASANT HILL, MO

PROJECT # X2311-01
SITE # 5501
FACILITY # 7815501070

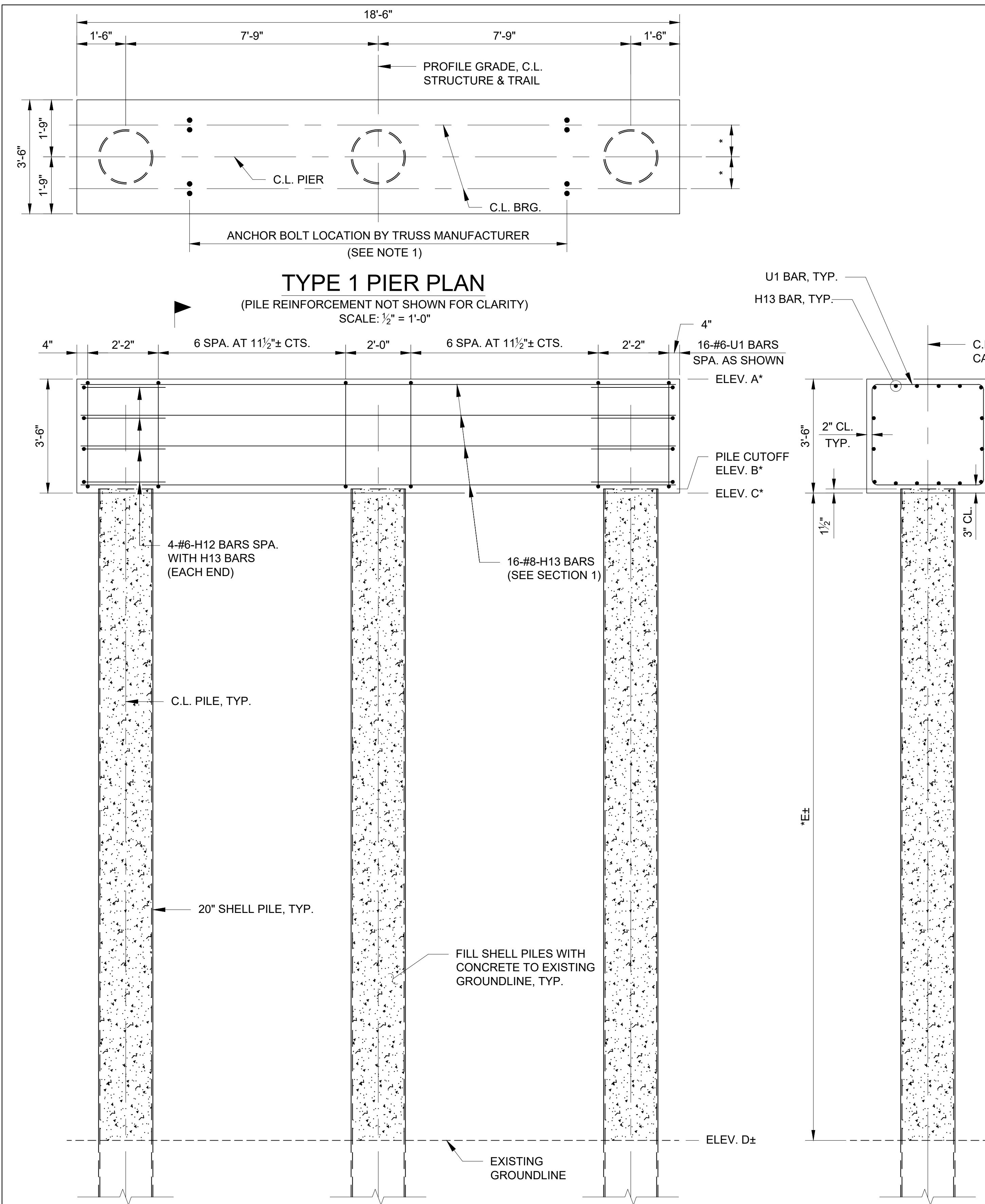
REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
ISSUE DATE: 6/14/2024

CAD DWG FILE:
DRAWN BY: MAL
CHECKED BY: DJH
DESIGNED BY: MAL

SHEET TITLE:
**PIER DETAILS
(HP PILE -
OPTION A)**

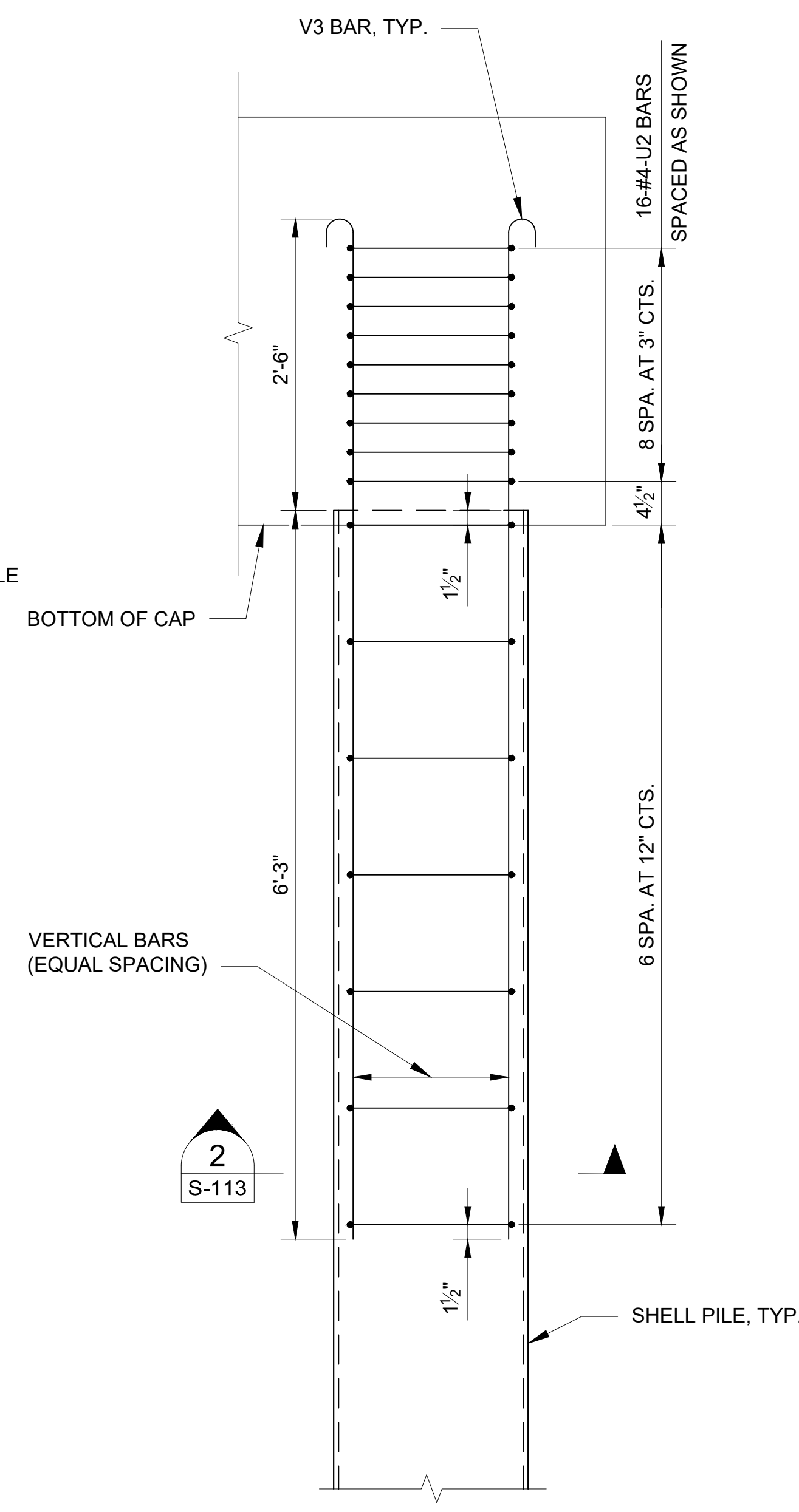
SHEET NUMBER:

S-112



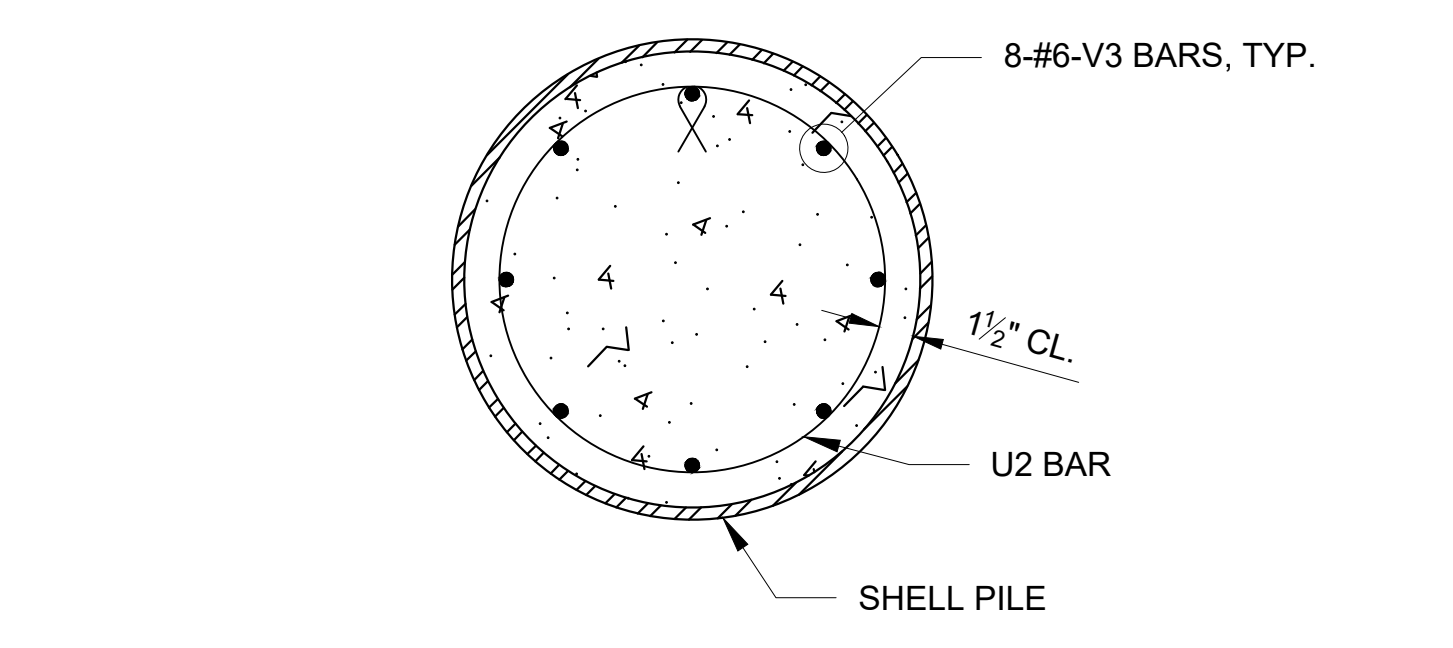
TYPE 1 PIER ELEVATION
(PILE REINFORCEMENT NOT SHOWN FOR CLARITY)
SCALE: 1/2" = 1'-0"

	BENT	
	PIER 4	PIER 5
A	878.40	878.40
B	875.03	875.03
C	874.90	874.90
D	855.78	855.14
E	19'-2"	19'-9"

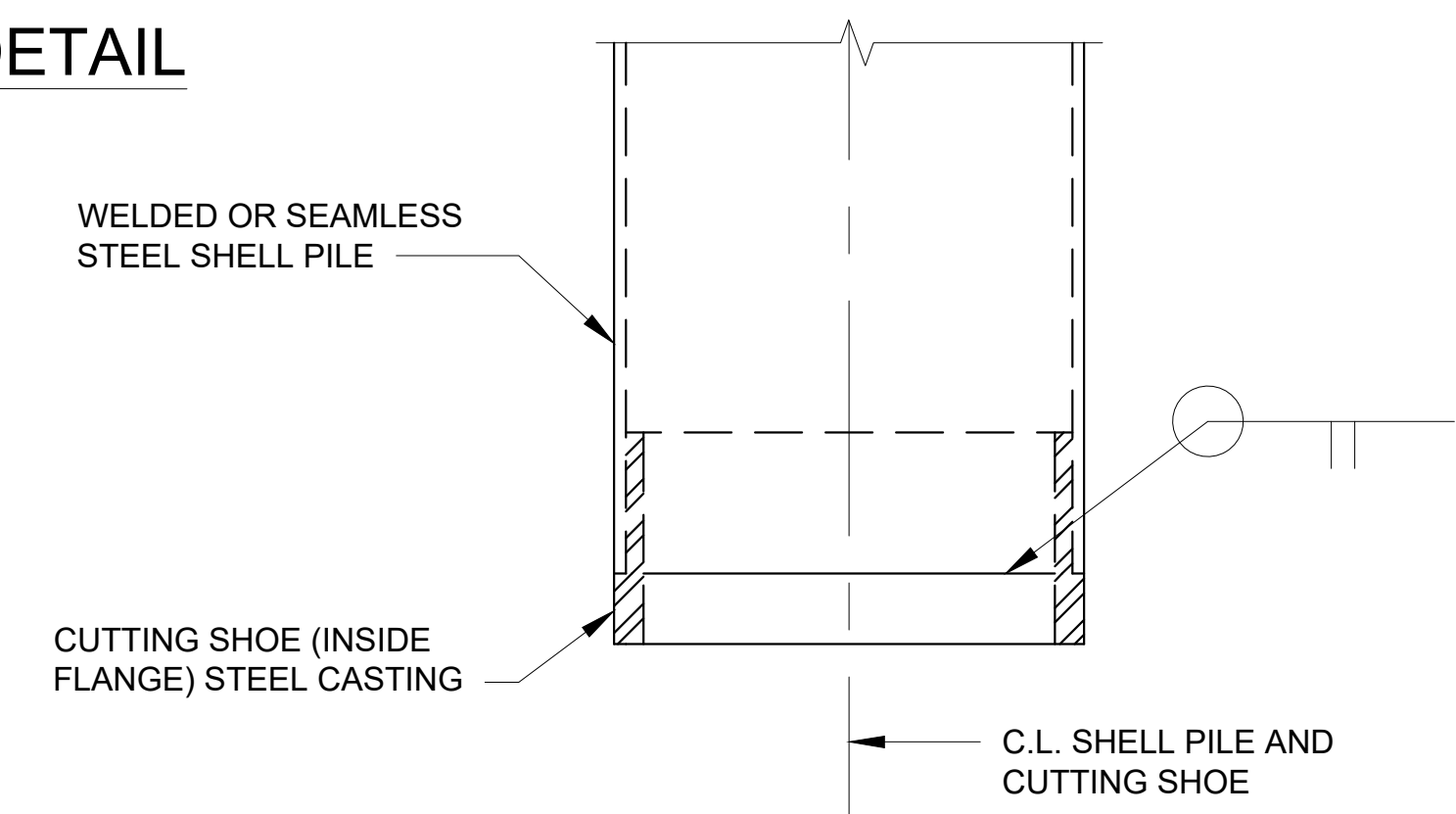


SHELL PILE REINFORCEMENT DETAIL
SCALE: 1" = 1'-0"

* INDICATED DIMENSIONS AND ELEVATIONS SHALL BE COORDINATED WITH REQUIREMENTS OF BRIDGE FABRICATOR. ESTIMATED QUANTITIES AND BAR DIMENSIONS ARE BASED ON DIMENSIONS SHOWN.



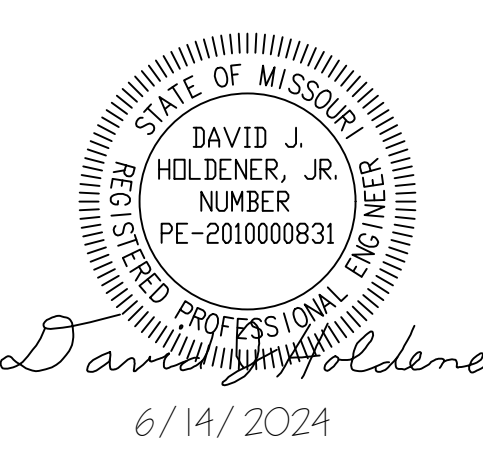
SHELL PILE SPLICE
SCALE: 1/2" = 1'-0"



SHELL PILE CUTTING SHOE DETAIL
SCALE: 1/2" = 1'-0"

- NOTES:
- 1) SPACING OF PILE CAP REINFORCEMENT SHALL BE MODIFIED TO AVOID ANCHOR BOLTS. SIZE, NUMBER, AND LOCATION OF ANCHOR BOLTS ARE TO BE BASED ON THE APPROVED SHOP DRAWINGS FOR THE PREFABRICATED PEDESTRIAN TRUSS SUPERSTRUCTURE.
 - 2) PILE CAP CONCRETE AND CONCRETE FOR STEEL PILES SHALL BE IN ACCORDANCE WITH SPEC. SEC. 033000.
 - 3) REINFORCING STEEL SHALL BE IN ACCORDANCE WITH SPEC. SEC. 032100.
 - 4) SHELL PILES SHALL BE IN ACCORDANCE WITH SPEC. SEC. 316319.
 - 5) SEE SHEET S-119 FOR BILL OF REINFORCING STEEL.

STATE OF MISSOURI
MICHAEL L. PARSON,
GOVERNOR



CONSULTING ENGINEERING
GEOSPATIAL SERVICES
ILLINOIS SWANSEA
COLUMBIA
PEORIA
GLEN CARBON
DECATUR
ST. CHARLES
ST. LOUIS
MISSOURI COLUMBIA
CHATTANOOGA
TENNESSEE NASHVILLE

**THOUVENOT, WADE
& MOERCHEN, INC.**

COLUMBIA OFFICE
3316 LEMONE INDUSTRIAL BLVD SUITE 2
COLUMBIA, MISSOURI 65201
(573) 442-6474
WWW.TWM-INC.COM
MO. CERTIFICATE OF AUTHORITY: 001528

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES
MANAGEMENT,
DESIGN AND CONSTRUCTION
DEPARTMENT OF
NATURAL RESOURCES
MISSOURI STATE PARKS

INSTALL PEDESTRIAN BRIDGE
AT PLEASANT HILL OVER
UNION PACIFIC RAILROAD

KATY TRAIL STATE PARK
PLEASANT HILL, MO

PROJECT # X2311-01
SITE # 5501
FACILITY # 7815501070

REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
ISSUE DATE: 6/14/2024

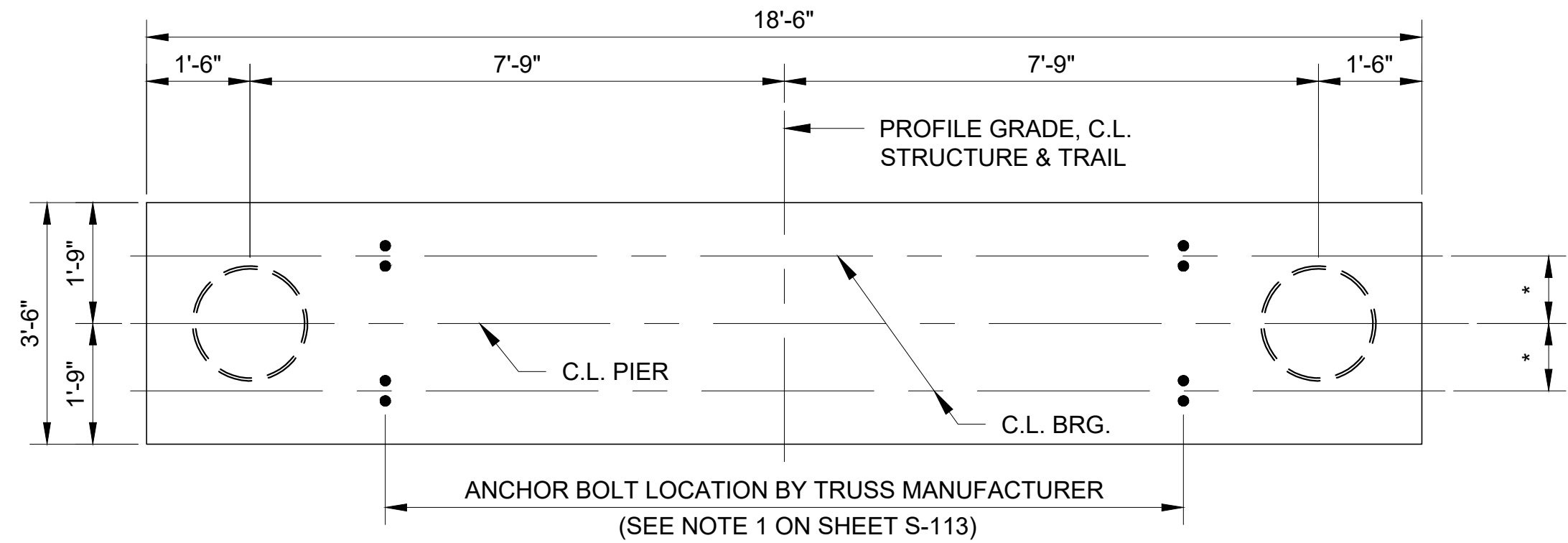
CAD DWG FILE: _____
DRAWN BY: MAL
CHECKED BY: DJH
DESIGNED BY: MAL

SHEET TITLE:
**PIER DETAILS
(SHELL PILE -
OPTION B)**

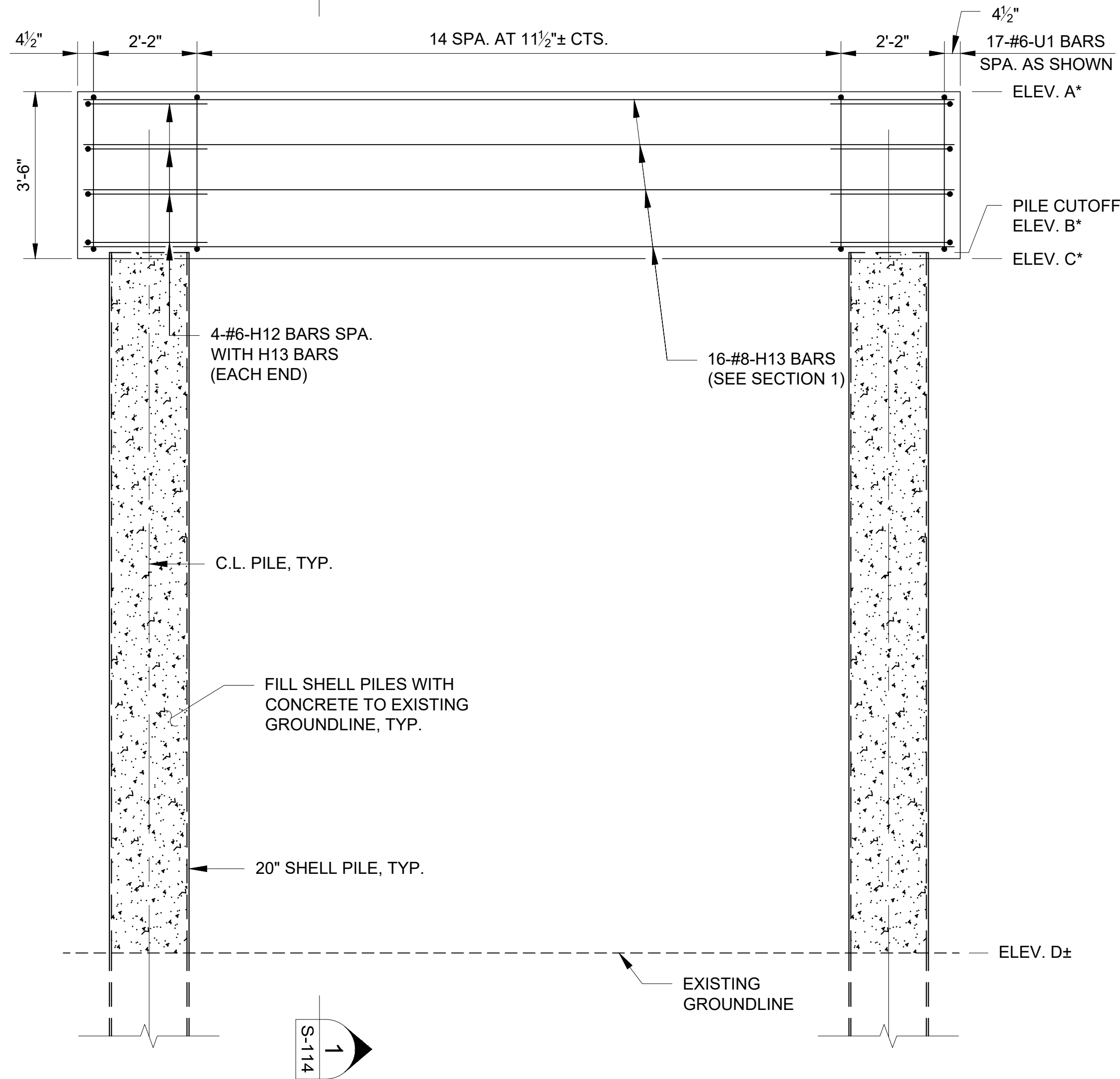
SHEET NUMBER:

S-113

39 OF 47 SHEETS
6/14/2024

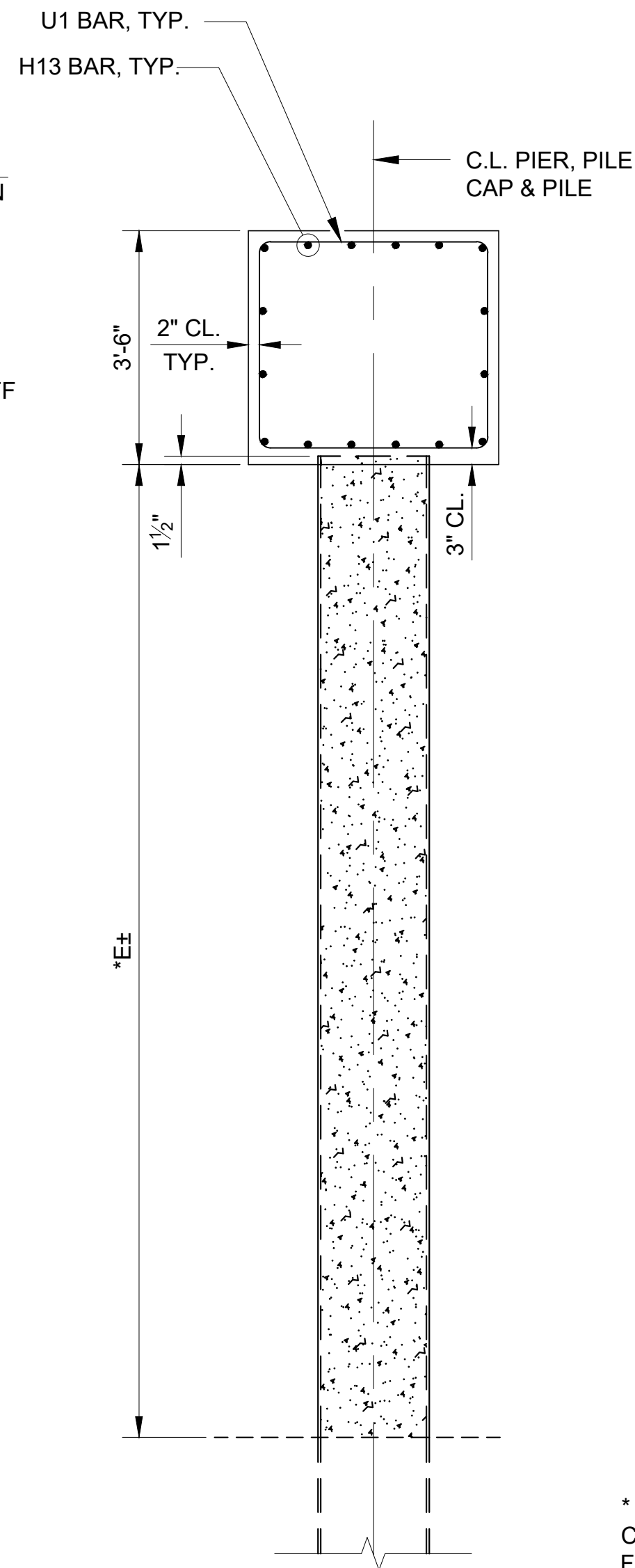


TYPE 2 PIER PLAN
(PILE REINFORCEMENT NOT SHOWN FOR CLARITY)
SCALE: 1/2" = 1'-0"



TYPE 2 PIER ELEVATION
(PILE REINFORCEMENT NOT SHOWN FOR CLARITY)
SCALE: 1/2" = 1'-0"

TYPE 2 PIER					
	BENT				
	PIER 1	PIER 2	PIER 3	PIER 6	PIER 7
A	864.72	869.28	873.84	872.88	867.36
B	861.35	865.91	870.47	869.51	863.99
C	861.22	865.78	870.34	869.38	863.86
D	855.39	855.49	855.31	854.82	854.17
E	5'-10"	10'-3"	15'-0"	14'-7"	9'-8"

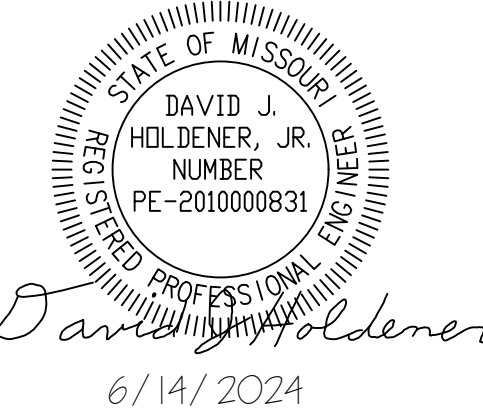


SECTION 1
SCALE: 1/2" = 1'-0"

* INDICATED DIMENSIONS AND ELEVATIONS SHALL BE COORDINATED WITH REQUIREMENTS OF BRIDGE FABRICATOR. ESTIMATED QUANTITIES AND BAR DIMENSIONS ARE BASED ON DIMENSIONS SHOWN.

- NOTES:
- 1) SEE NOTES ON SHEET S-113.
 - 2) SEE SHEET S-113 FOR SHELL PILE REINFORCEMENT DETAIL, SHELL PILE SPLICE DETAIL AND SHELL PILE CUTTING SHOE DETAIL.
 - 3) SEE SHEET S-119 FOR BILL OF REINFORCING STEEL.

STATE OF MISSOURI
MICHAEL L. PARSON,
GOVERNOR



TWM
CONSULTING ENGINEERING
GEOSPATIAL SERVICES
ILLINOIS SWANSEA
COLUMBIA
PEORIA
GLEN CARBON
MISSOURI DECATUR
ST. CHARLES
ST. LOUIS
COLUMBIA
TENNESSEE CHATTANOOGA
NASHVILLE

**THOUVENOT, WADE
& MOERCHEN, INC.**

COLUMBIA OFFICE
3316 LEMONE INDUSTRIAL BLVD SUITE 2
COLUMBIA, MISSOURI 65201
(573) 442-6474
WWW.TWM-INC.COM
MO. CERTIFICATE OF AUTHORITY: 001528

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES
MANAGEMENT,
DESIGN AND CONSTRUCTION
DEPARTMENT OF
NATURAL RESOURCES
MISSOURI STATE PARKS

INSTALL PEDESTRIAN BRIDGE
AT PLEASANT HILL OVER
UNION PACIFIC RAILROAD

KATY TRAIL STATE PARK
PLEASANT HILL, MO

PROJECT # X2311-01
SITE # 5501
FACILITY # 7815501070

REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
ISSUE DATE: 6/14/2024

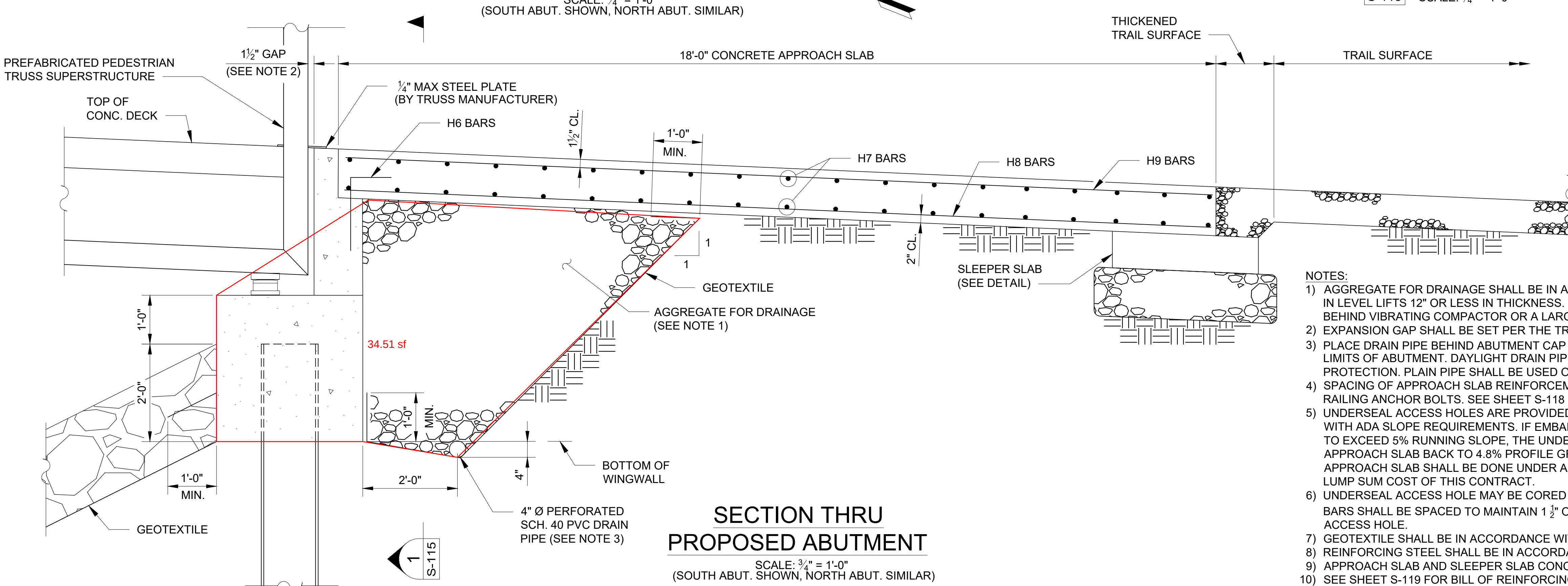
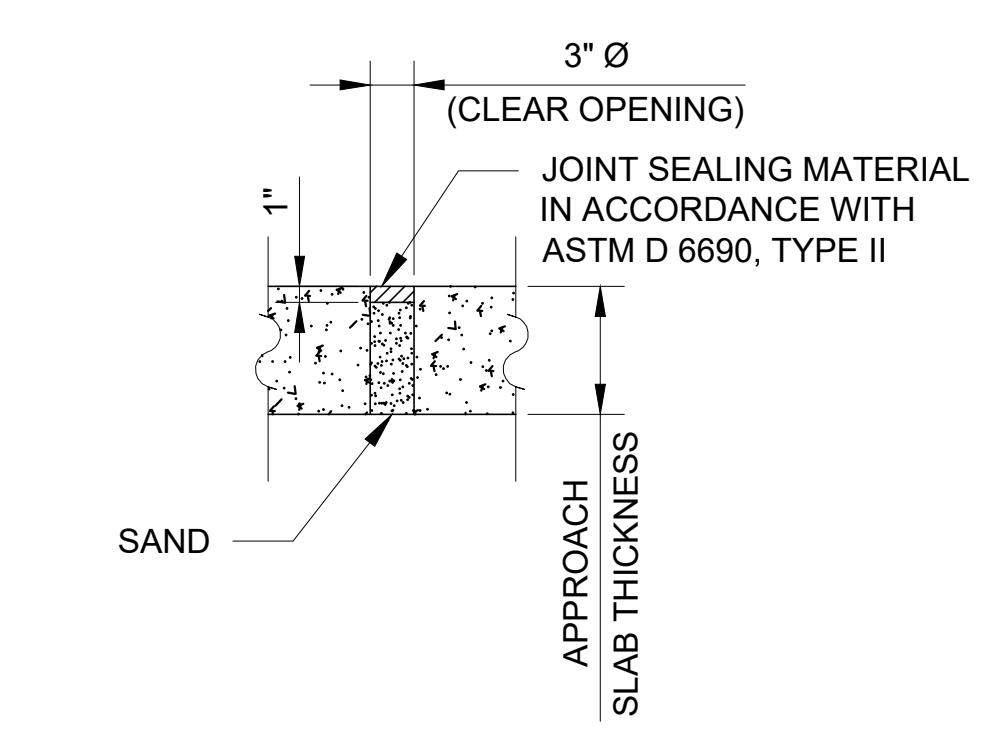
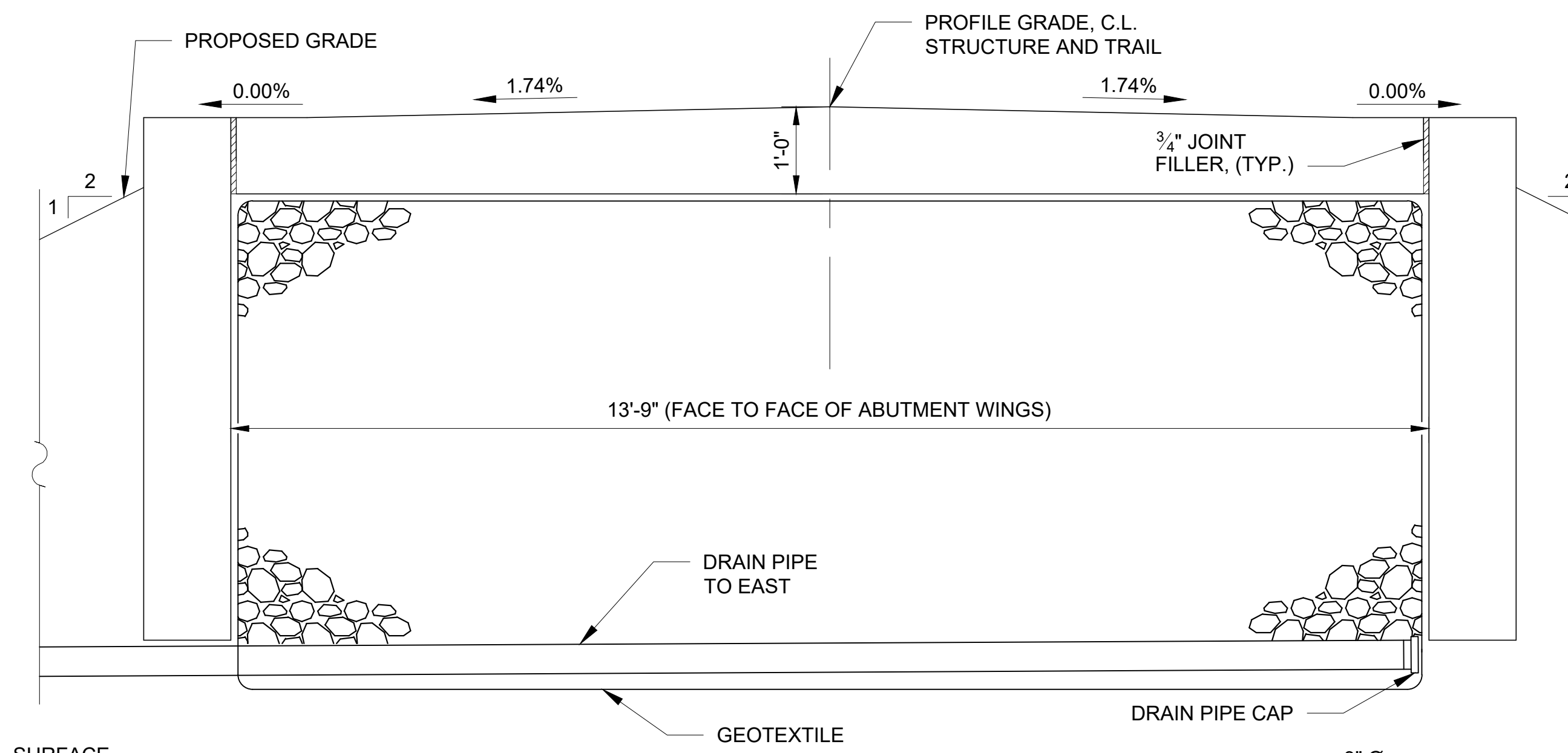
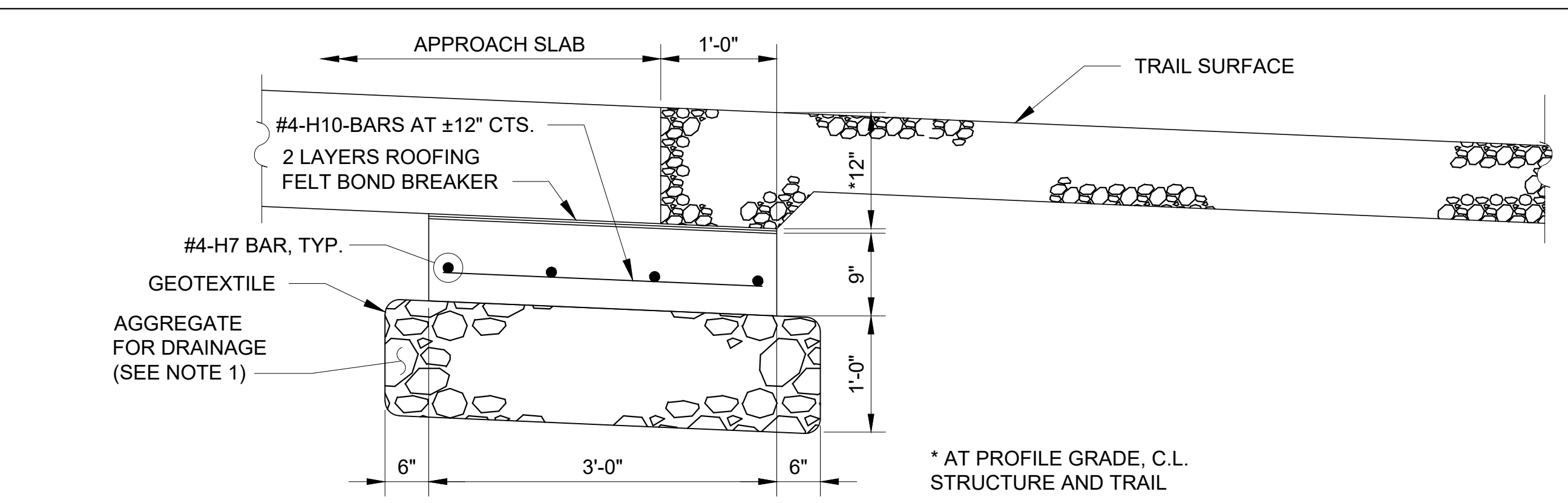
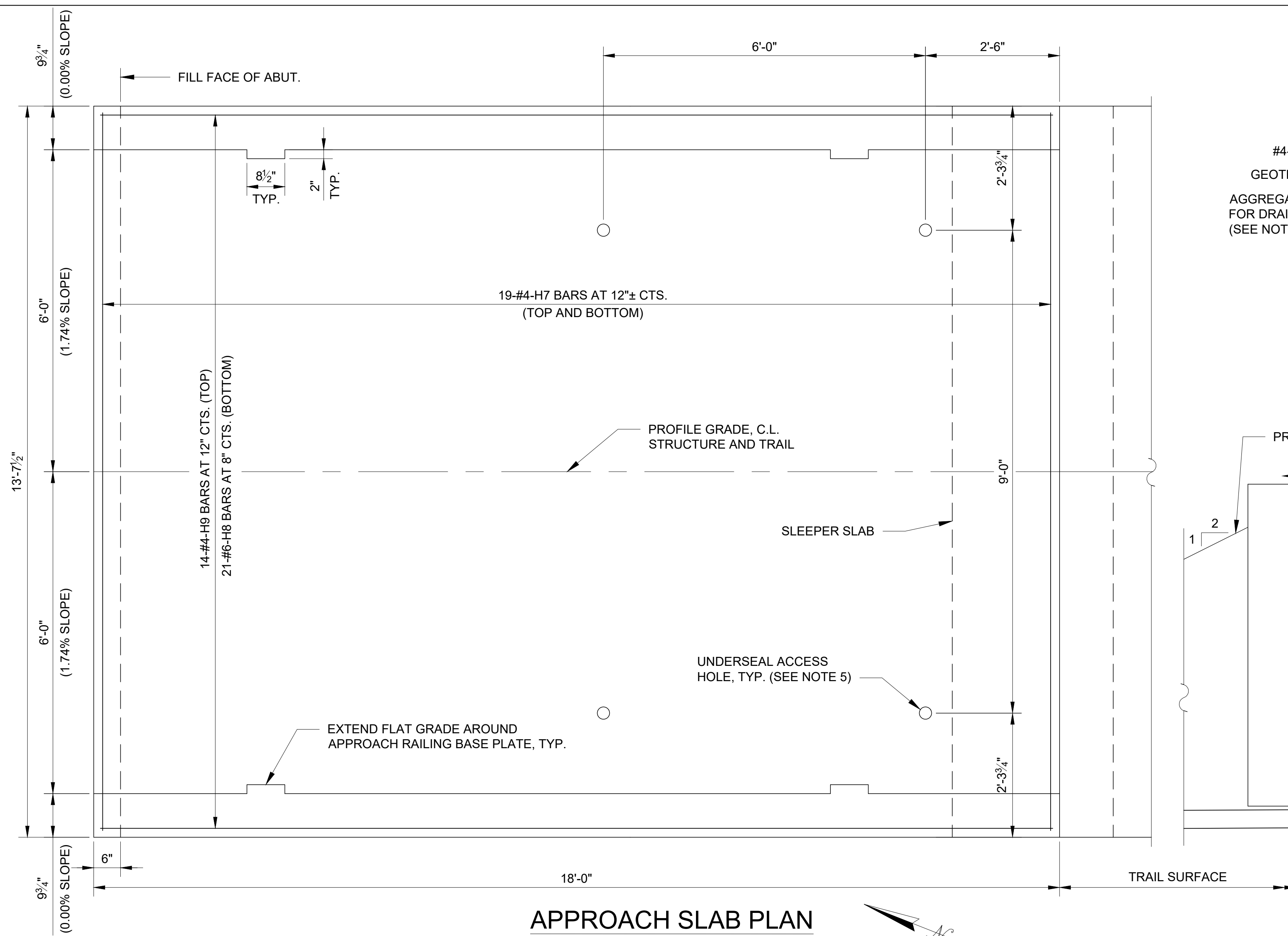
CAD DWG FILE: _____
DRAWN BY: MAL
CHECKED BY: DJH
DESIGNED BY: MAL

SHEET TITLE:
**PIER DETAILS
(SHELL PILE -
OPTION B)**

SHEET NUMBER:

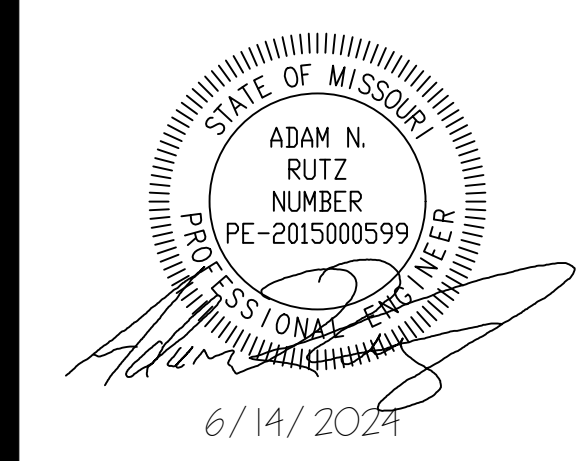
S-114

40 OF 47 SHEETS
6/14/2024



- NOTES:
- 1) AGGREGATE FOR DRAINAGE SHALL BE IN ACCORDANCE WITH SPEC. SEC. 321123.23 AND SHALL BE PLACED IN LEVEL LIFTS 12" OR LESS IN THICKNESS. EACH LIFT SHALL BE COMPACTED BY 3 PASSES OF A WALK BEHIND VIBRATING COMPACTOR OR A LARGER PIECE OF EQUIPMENT APPROVED BY THE ENGINEER.
 - 2) EXPANSION GAP SHALL BE SET PER THE TRUSS MANUFACTURER'S APPROVED SHOP DRAWINGS.
 - 3) PLACE DRAIN PIPE BEHIND ABUTMENT CAP AS SHOWN AND SLOPE 1/8" PER FOOT TO THE EAST BEYOND LIMITS OF ABUTMENT. DAYLIGHT DRAIN PIPE ALONG SPILL SLOPE WITHIN THE LIMITS OF THE RIPRAP SLOPE PROTECTION. PLAIN PIPE SHALL BE USED OUTSIDE THE LIMITS OF THE ABUTMENT.
 - 4) SPACING OF APPROACH SLAB REINFORCEMENT SHALL BE ADJUSTED AS NEEDED TO AVOID APPROACH RAILING ANCHOR BOLTS. SEE SHEET S-118 FOR ANCHOR BOLT DETAILS.
 - 5) UNDERSEAL ACCESS HOLES ARE PROVIDED FOR LONG TERM MAINTENANCE TO MAINTAIN COMPLIANCE WITH ADA SLOPE REQUIREMENTS. IF EMBANKMENT INDUCED SETTLEMENT CAUSES THE APPROACH SLAB TO EXCEED 5% RUNNING SLOPE, THE UNDERSEAL ACCESS HOLES SHALL BE USED TO MUD JACK THE APPROACH SLAB BACK TO 4.8% PROFILE GRADE SHOWN ON SHEET S-101. IF NEEDED, MUD JACKING OF APPROACH SLAB SHALL BE DONE UNDER A SEPARATE CONTRACT AND IS NOT INCLUDED IN THE BASE BID LUMP SUM COST OF THIS CONTRACT.
 - 6) UNDERSEAL ACCESS HOLE MAY BE CORED OR FORMED AT THE CONTRACTOR'S OPTION. REINFORCING BARS SHALL BE SPACED TO MAINTAIN 1 1/2" OR GREATER HORIZONTAL CLEARANCE TO EDGE OF UNDERSEAL ACCESS HOLE.
 - 7) GEOTEXTILE SHALL BE IN ACCORDANCE WITH SPEC. SEC. 313519.16.
 - 8) REINFORCING STEEL SHALL BE IN ACCORDANCE WITH SPEC. SEC. 032100.
 - 9) APPROACH SLAB AND SLEEPER SLAB CONCRETE SHALL BE IN ACCORDANCE WITH SPEC. SEC. 033000.
 - 10) SEE SHEET S-119 FOR BILL OF REINFORCING STEEL.

STATE OF MISSOURI
MICHAEL L. PARSON,
GOVERNOR



CONSULTING ENGINEERING
GEOSPATIAL SERVICES

ILLINOIS SWANSEA
COLUMBIA
PEORIA
GLEN CARBON
MISSOURI DECATUR
ST. CHARLES
COLUMBIA
TENNESSEE CHATTANOOGA
NASHVILLE

THOUVENOT, WADE
& MOERCHEN, INC.

COLUMBIA OFFICE
3316 LEMONE INDUSTRIAL BLVD SUITE 2
COLUMBIA, MISSOURI 65201
(573) 442-6474
WWW.TWM-INC.COM
MO. CERTIFICATE OF AUTHORITY: 001528

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES
MANAGEMENT,
DESIGN AND CONSTRUCTION
DEPARTMENT OF
NATURAL RESOURCES
MISSOURI STATE PARKS

INSTALL PEDESTRIAN BRIDGE
AT PLEASANT HILL OVER
UNION PACIFIC RAILROAD

KATY TRAIL STATE PARK
PLEASANT HILL, MO

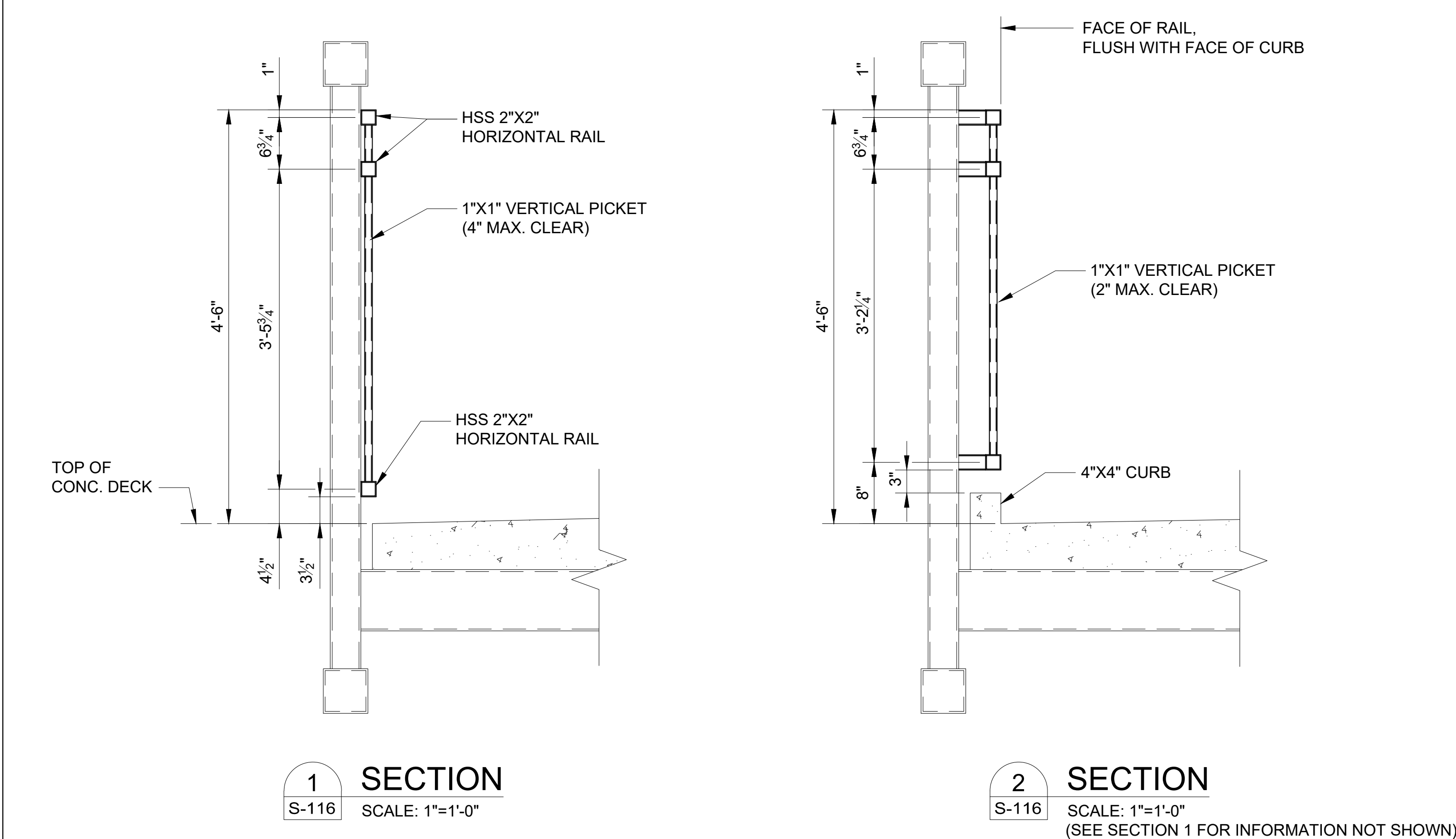
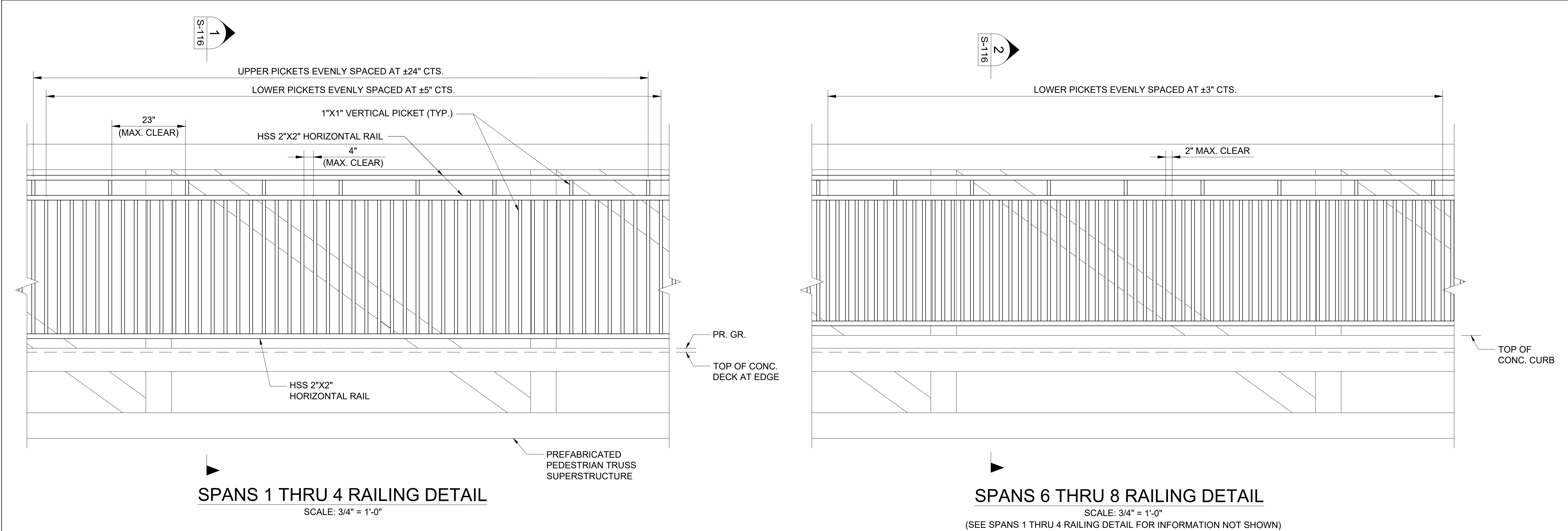
PROJECT # X2311-01
SITE # 5501
FACILITY # 7815501070

REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
ISSUE DATE: 6/14/2024

CAD DWG FILE: _____
DRAWN BY: MAL
CHECKED BY: ANR
DESIGNED BY: MAL

SHEET TITLE:
APPROACH SLAB
AND ABUTMENT
DRAIN DETAILS

SHEET NUMBER:
S-115
41 OF 47 SHEETS
6/14/2024



NOTES:
1. MEMBER SIZES SHOWN ARE CONCEPTUAL, TRUSS MANUFACTURER IS RESPONSIBLE FOR THE DESIGN AND DETERMINING FINAL MEMBER SIZES FOR THE BRIDGE RAILING. MAX CLEAR SPACING SHALL BE MAINTAINED.
2. EXPANSION JOINT OPENINGS AND DETAILS, IF REQUIRED, SHALL BE DETERMINED BY THE TRUSS MANUFACTURER.
3. SEE CROSS SECTIONS ON SHEET S-101 FOR INFORMATION NOT SHOWN.

STATE OF MISSOURI
MICHAEL L. PARSON,
GOVERNOR

6/14/2024

CONSULTING ENGINEERING
GEOSPATIAL SERVICES

ILLINOIS SWANSEA
COLUMBIA
PEORIA
GLEN CARBON
DECATUR
MISSOURI ST. CHARLES
ST. LOUIS
COLUMBIA
TENNESSEE CHATTANOOGA
NASHVILLE

THOUVENOT, WADE
& MOERCHEN, INC.

COLUMBIA OFFICE
3316 LEMONE INDUSTRIAL BLVD SUITE 2
COLUMBIA, MISSOURI 65201
(573) 442-6474
WWW.TWM-INC.COM
MO. CERTIFICATE OF AUTHORITY: 001528

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES
MANAGEMENT,
DESIGN AND CONSTRUCTION
DEPARTMENT OF
NATURAL RESOURCES
MISSOURI STATE PARKS

INSTALL PEDESTRIAN BRIDGE
AT PLEASANT HILL OVER
UNION PACIFIC RAILROAD

KATY TRAIL STATE PARK
PLEASANT HILL, MO

PROJECT # X2311-01
SITE # 5501
FACILITY # 7815501070

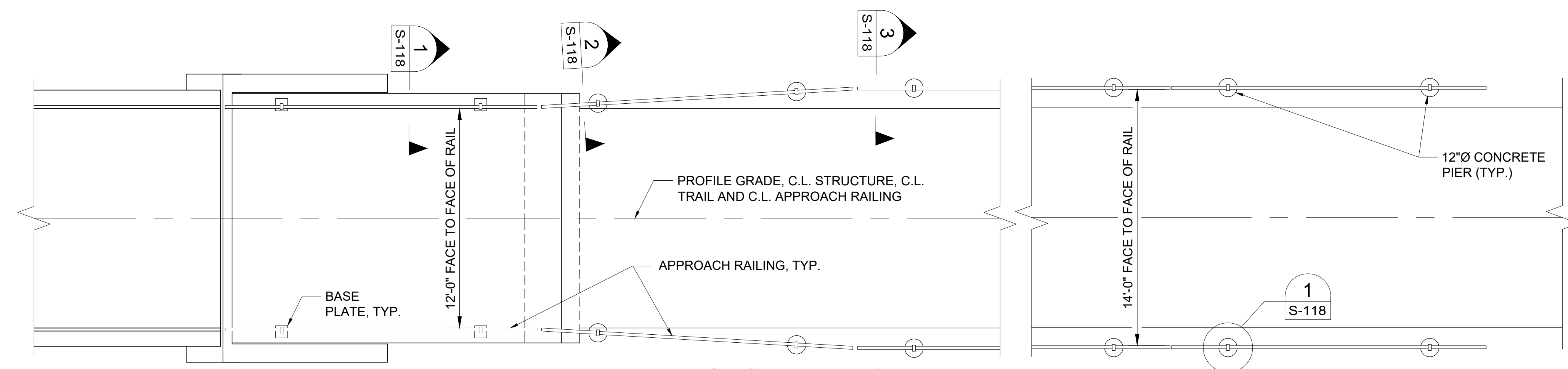
REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
ISSUE DATE: 6/14/2024

CAD DWG FILE: _____
DRAWN BY: MAL
CHECKED BY: ANR
DESIGNED BY: MAL

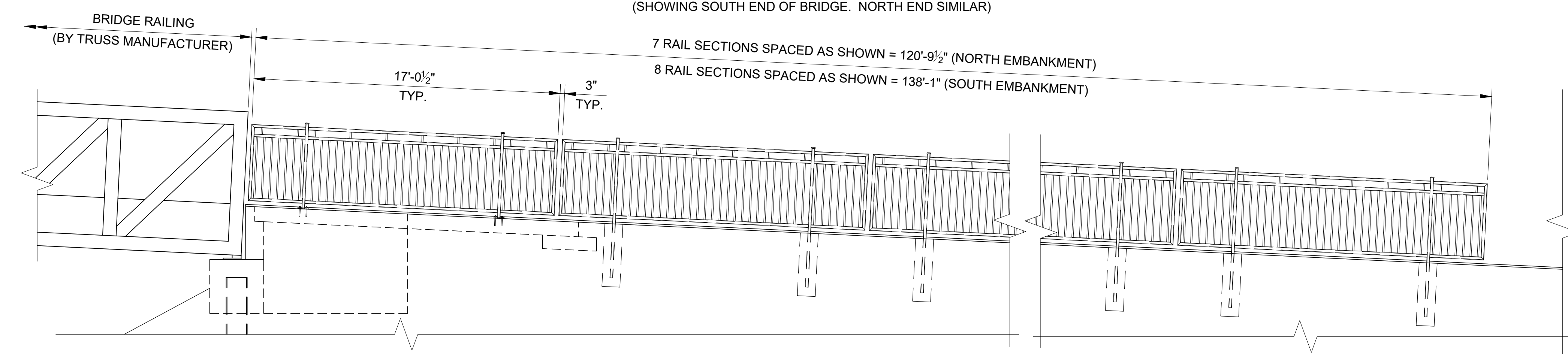
SHEET TITLE:
BRIDGE RAILING
DETAILS

SHEET NUMBER:
S-116

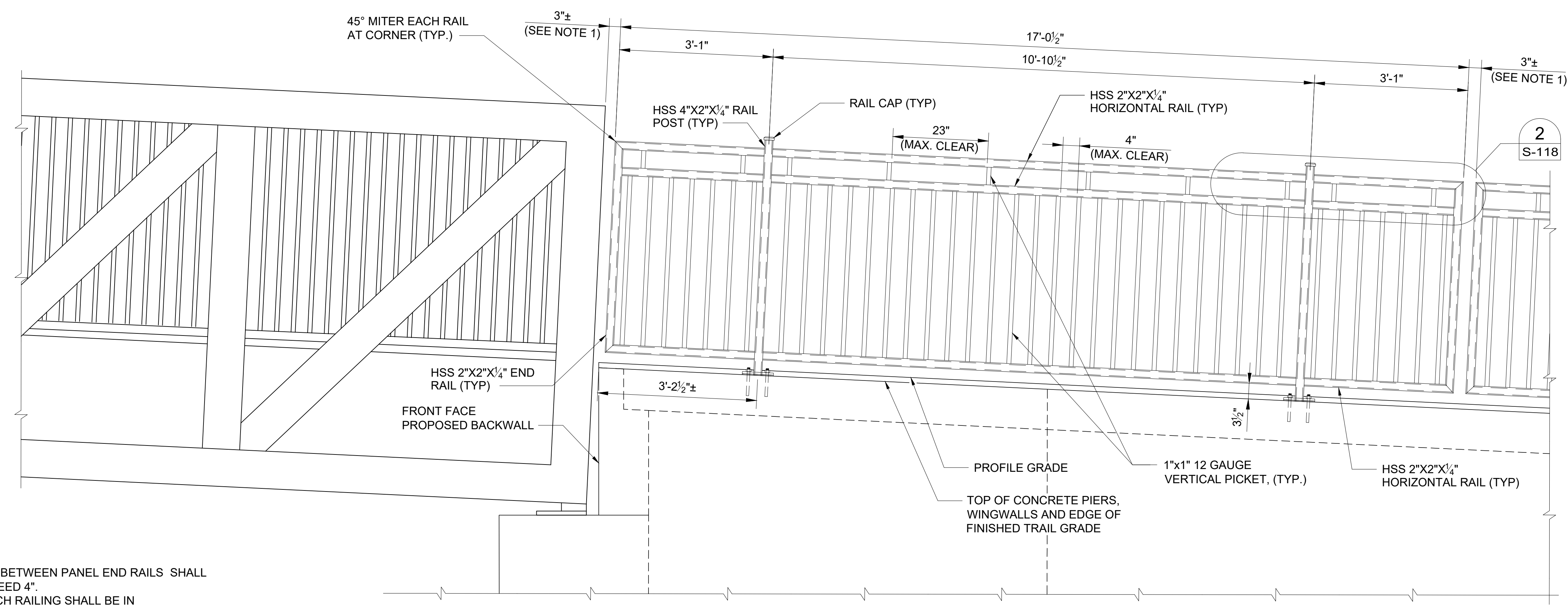
42 OF 47 SHEETS
6/14/2024



APPROACH RAILING PLAN
SCALE: 1/4" = 1'-0"
(SHOWING SOUTH END OF BRIDGE. NORTH END SIMILAR)



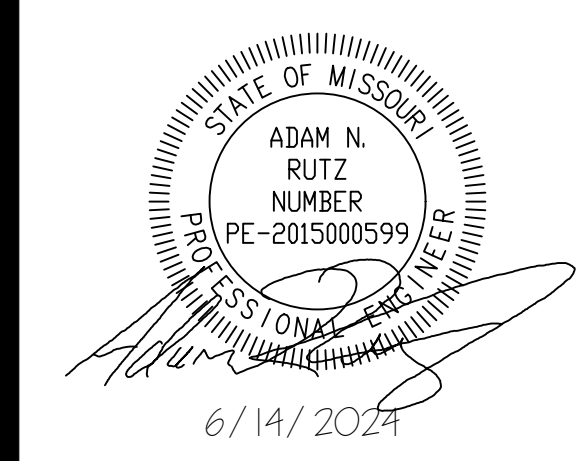
APPROACH RAILING ELEVATION
SCALE: 1/4" = 1'-0"
(SHOWING SOUTH END OF BRIDGE. NORTH END SIMILAR)



APPROACH RAILING DETAIL
SCALE: 3/4" = 1'-0"
(SHOWING SOUTH END OF BRIDGE. NORTH END SIMILAR)

- NOTES:
1) THE GAP BETWEEN PANEL END RAILS SHALL NOT EXCEED 4".
2) APPROACH RAILING SHALL BE IN ACCORDANCE WITH SPEC. SEC. 055200

STATE OF MISSOURI
MICHAEL L. PARSON,
GOVERNOR



CONSULTING ENGINEERING
GEOSPATIAL SERVICES

ILLINOIS SWANSEA
COLUMBIA
PEORIA
GLEN CARBON
DECATUR
ST. LOUIS
MISSOURI COLUMBIA
CHATTANOOGA
TENNESSEE NASHVILLE

**THOUVENOT, WADE
& MOERCHEN, INC.**

COLUMBIA OFFICE
3316 LEMONE INDUSTRIAL BLVD SUITE 2
COLUMBIA, MISSOURI 65201
(573) 442-6474
WWW.TWM-INC.COM
MO. CERTIFICATE OF AUTHORITY: 001528

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES
MANAGEMENT,
DESIGN AND CONSTRUCTION
DEPARTMENT OF
NATURAL RESOURCES
MISSOURI STATE PARKS

INSTALL PEDESTRIAN BRIDGE
AT PLEASANT HILL OVER
UNION PACIFIC RAILROAD

KATY TRAIL STATE PARK
PLEASANT HILL, MO

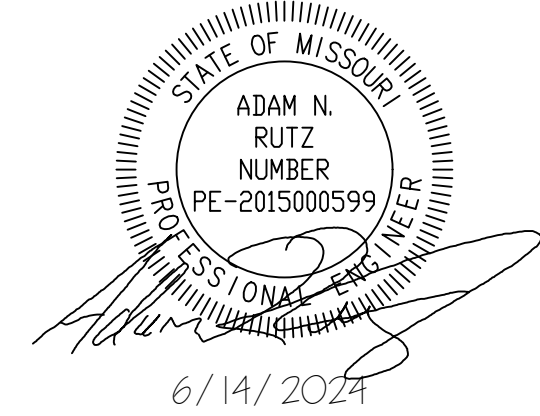
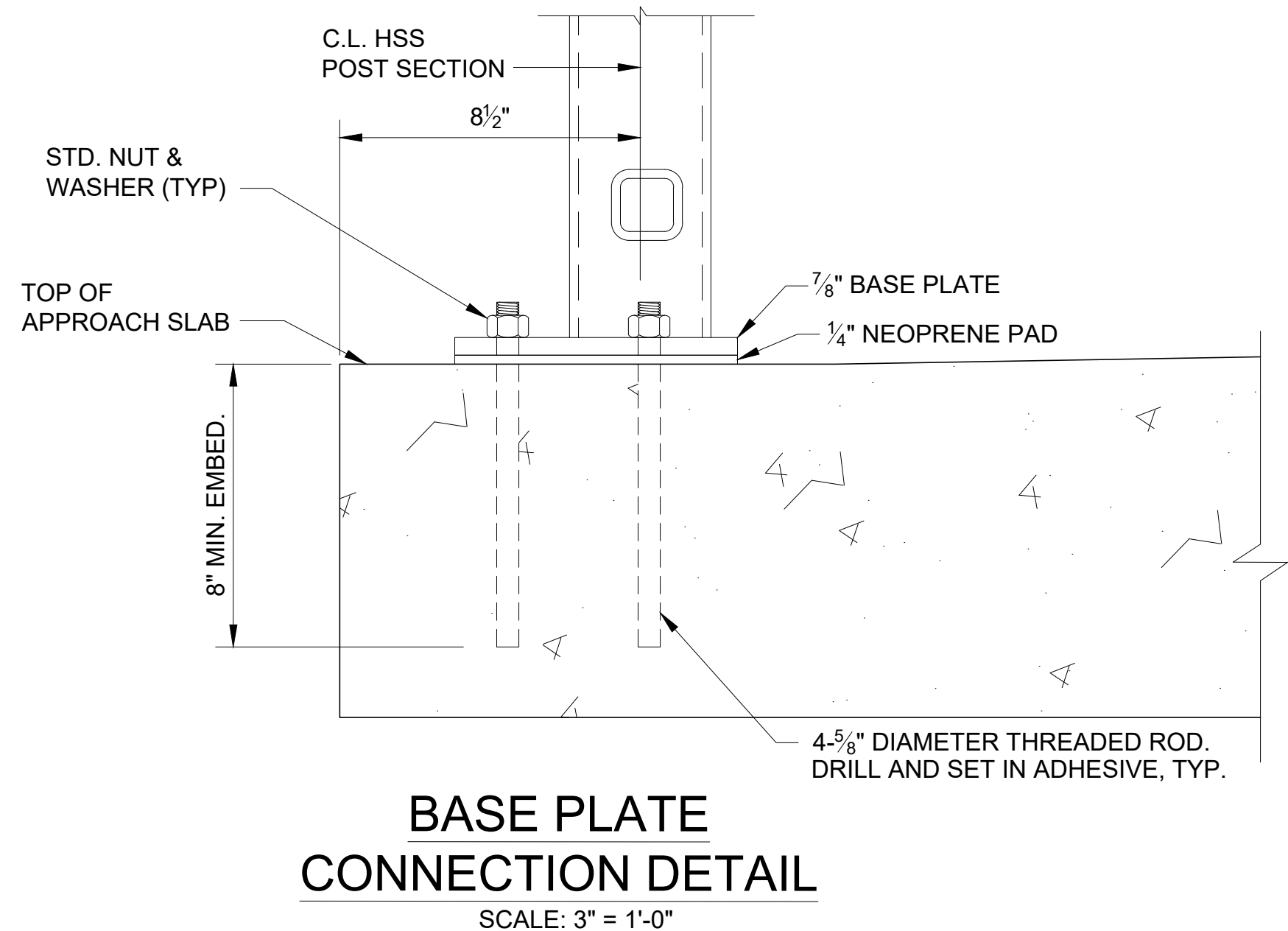
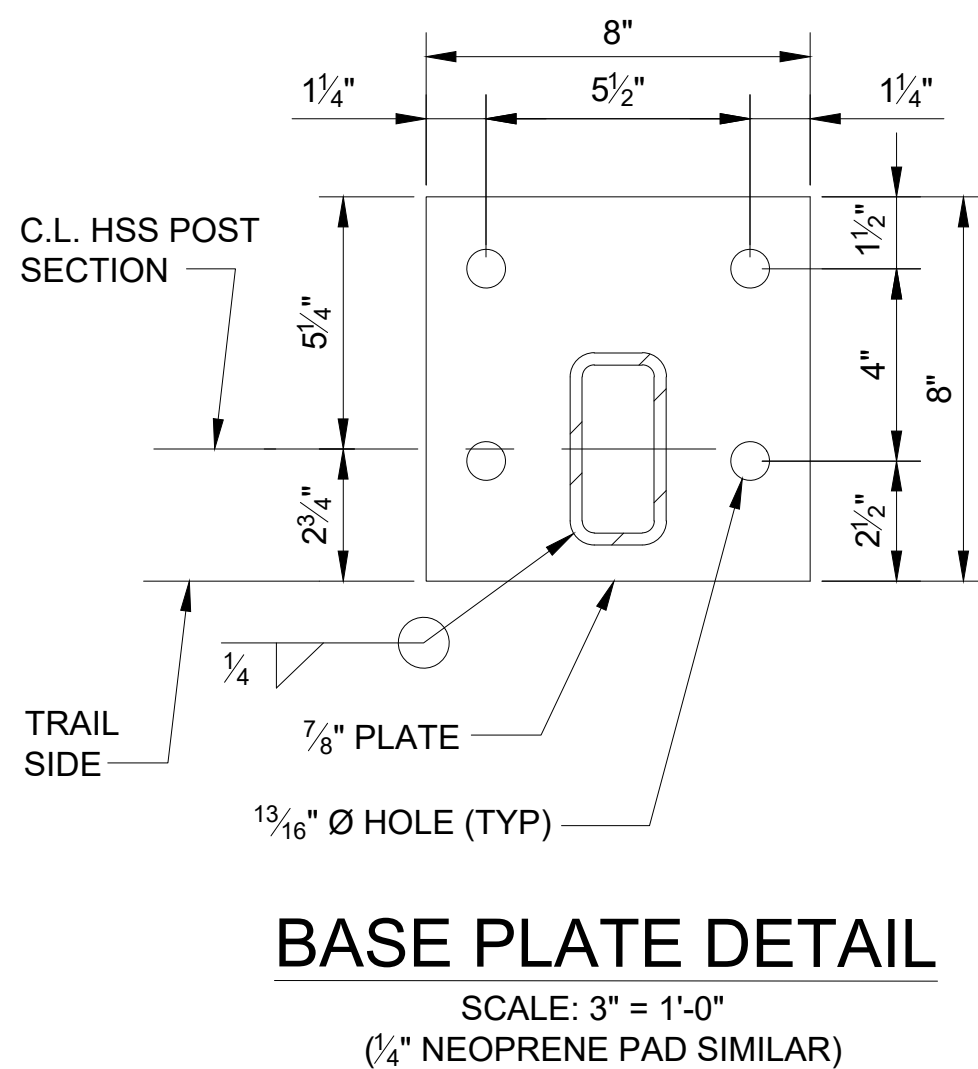
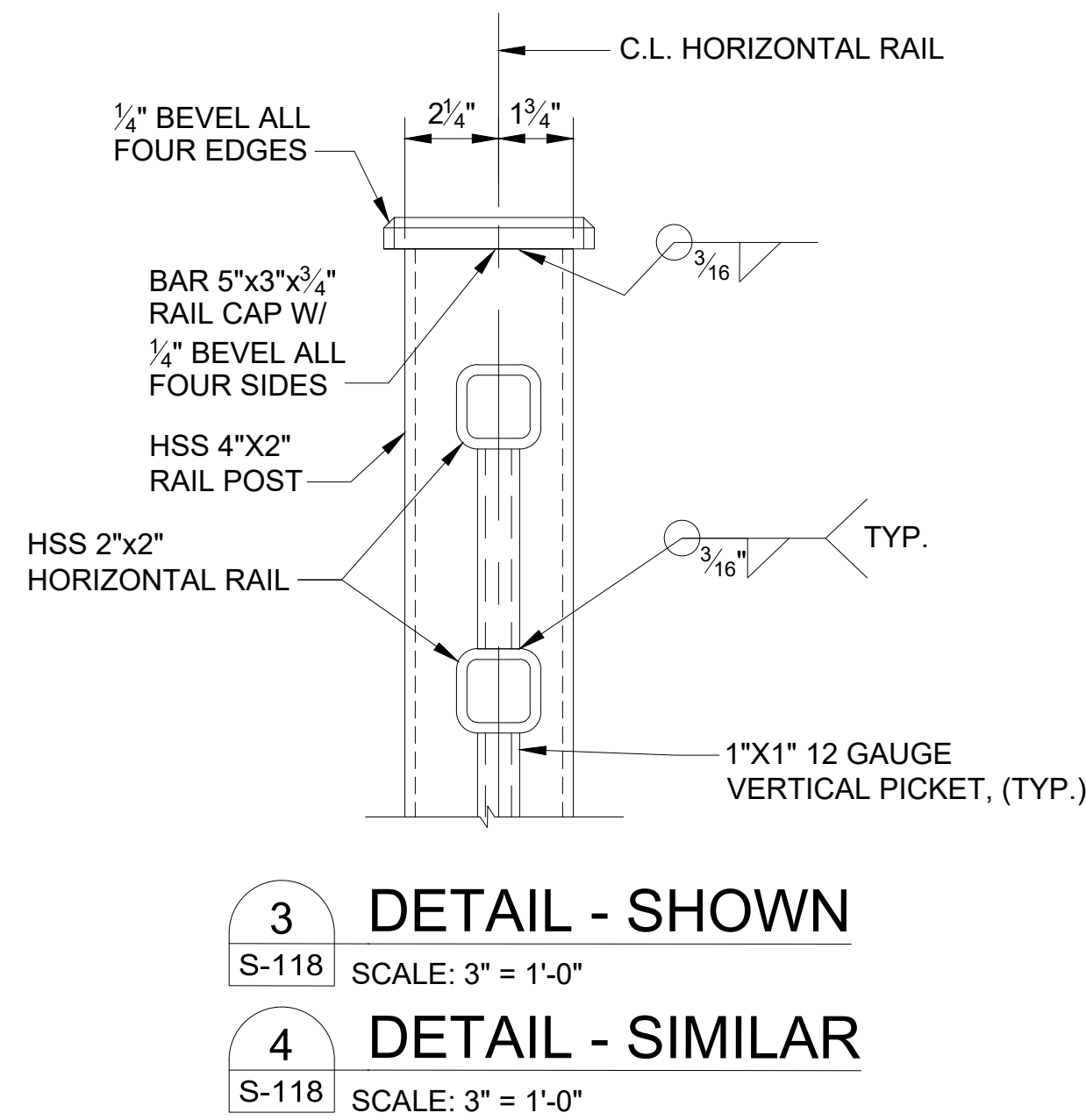
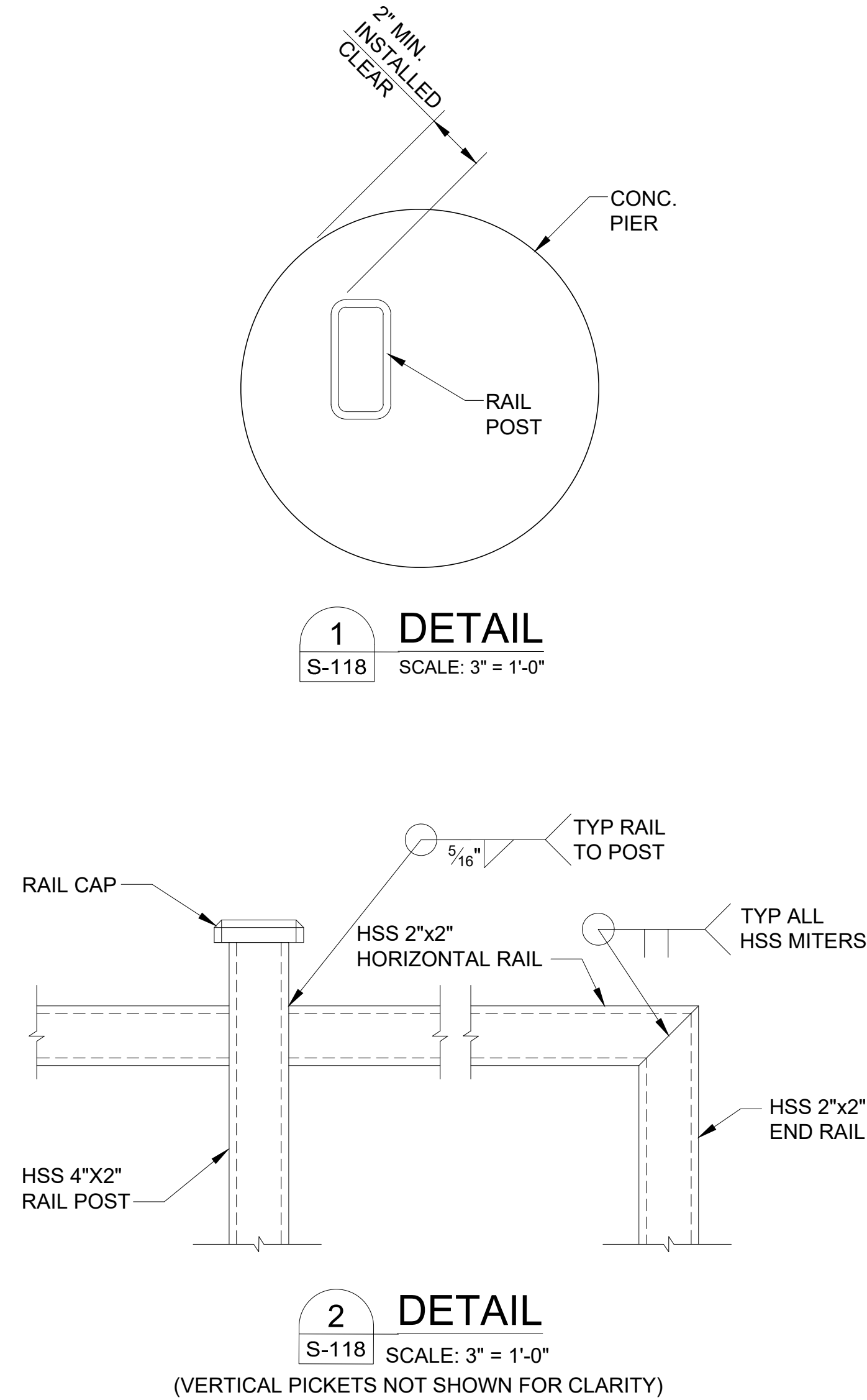
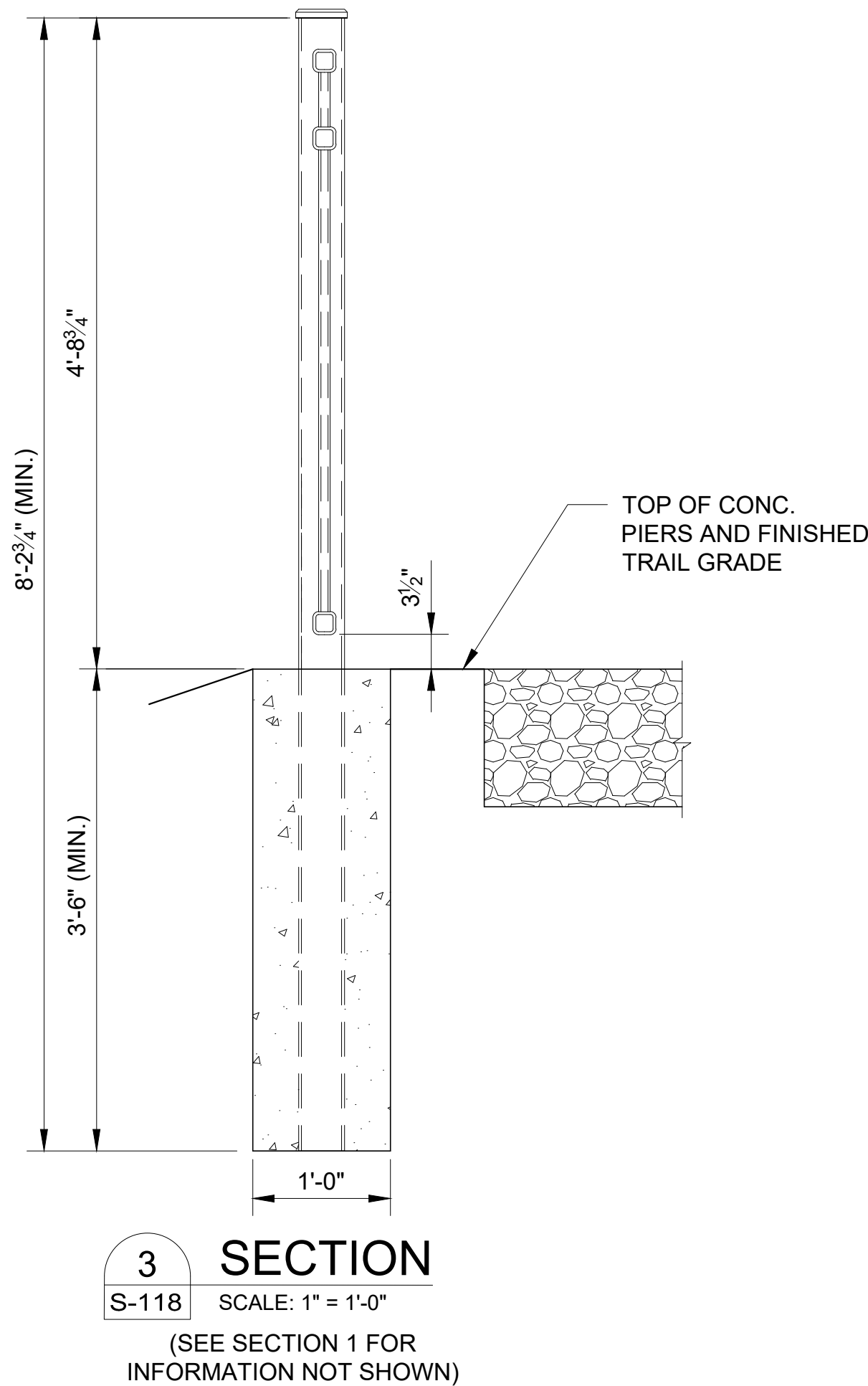
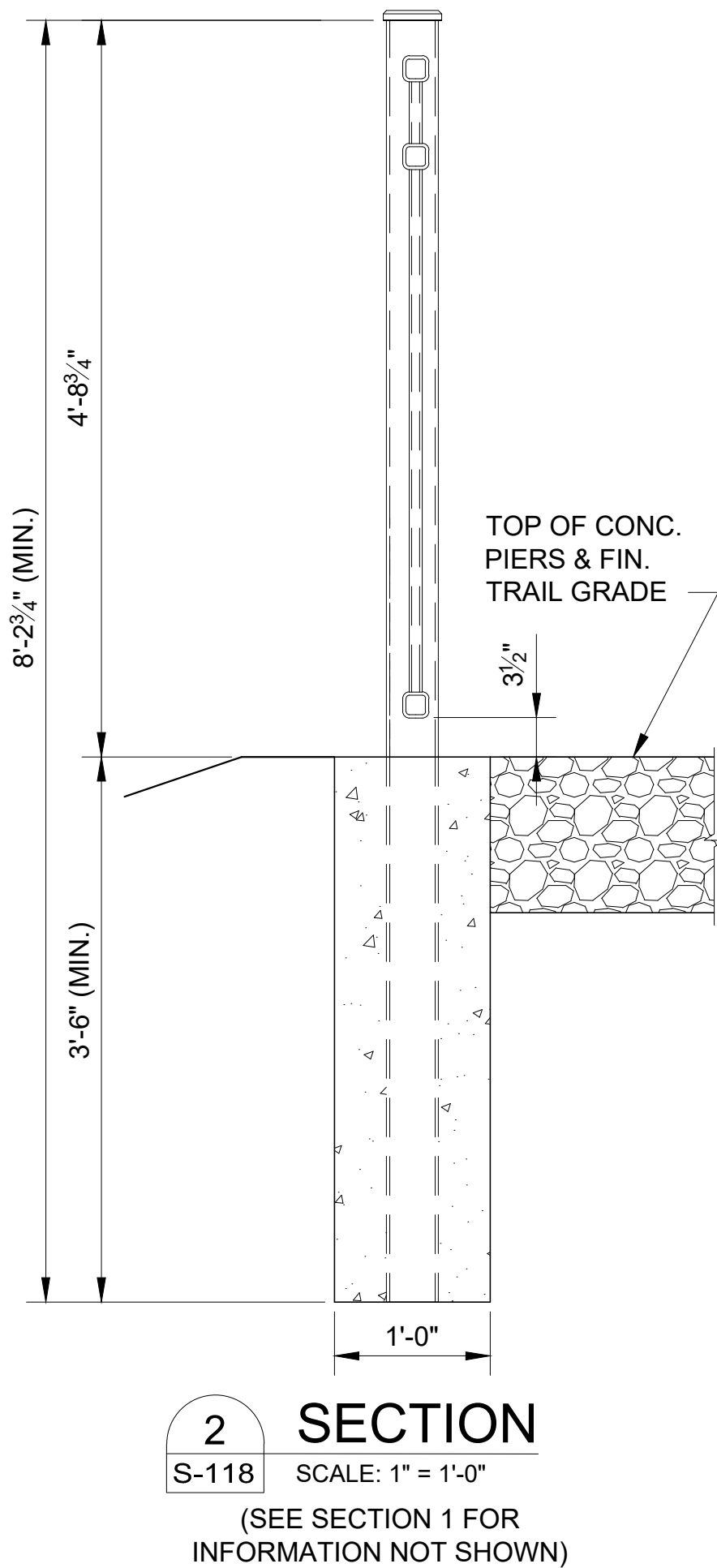
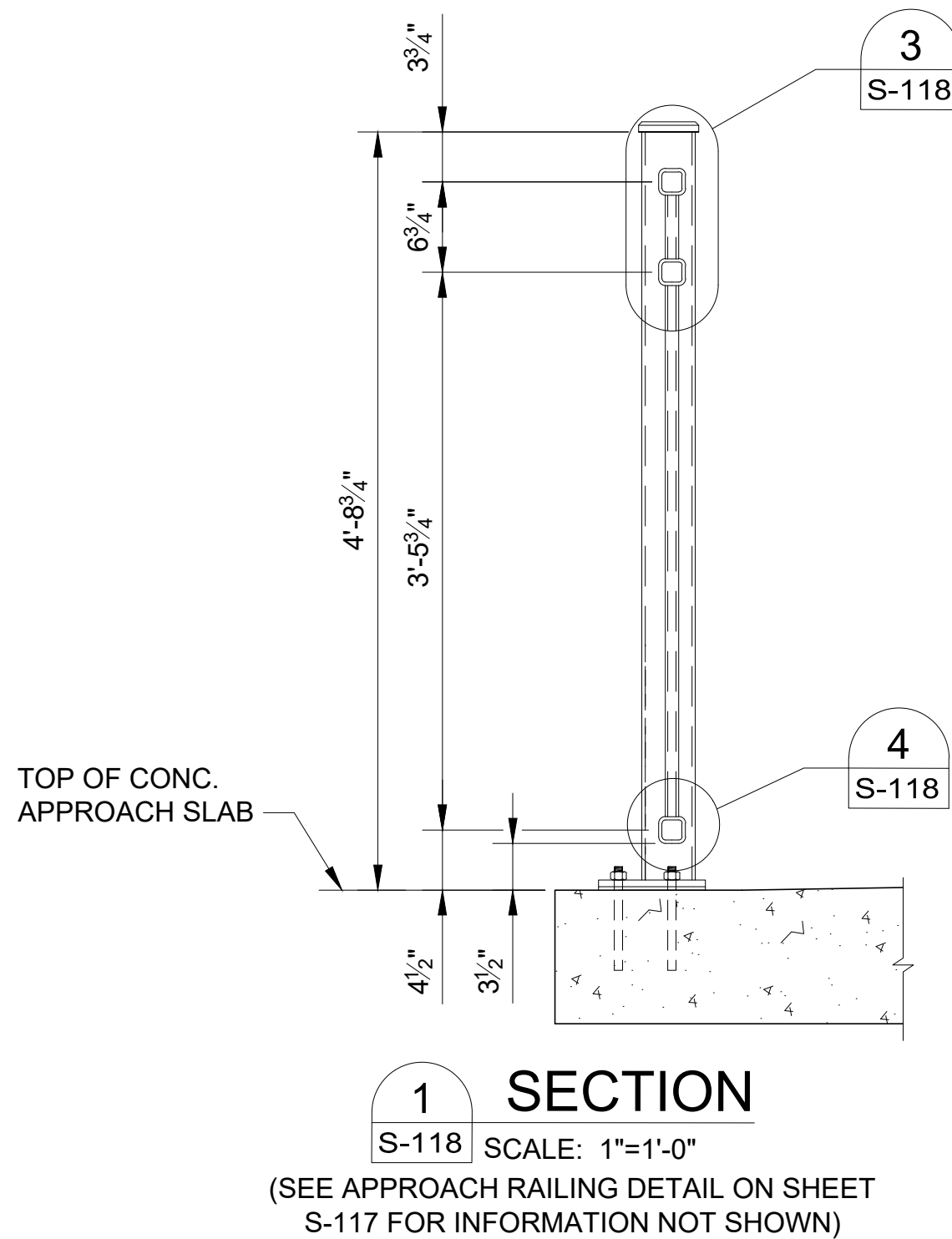
PROJECT # X2311-01
SITE # 5501
FACILITY # 7815501070

REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
ISSUE DATE: 6/14/2024

CAD DWG FILE: _____
DRAWN BY: MAL
CHECKED BY: ANR
DESIGNED BY: MAL

SHEET TITLE:
**APPROACH RAILING
DETAILS**

SHEET NUMBER:
S-117
43 OF 47 SHEETS
6/14/2024



CONSULTING ENGINEERING
GEOSPATIAL SERVICES

ILLINOIS SWANSEA
COLUMBIA
PEORIA
GLEN CARBON
MISSOURI DECATUR
ST. CHARLES
ST. LOUIS
COLUMBIA
TENNESSEE CHATTANOOGA
NASHVILLE

**THOUVENOT, WADE
& MOERCHEN, INC.**

COLUMBIA OFFICE
3316 LEMONE INDUSTRIAL BLVD SUITE 2
COLUMBIA, MISSOURI 65201
(573) 442-6474
WWW.TWM-INC.COM
MO. CERTIFICATE OF AUTHORITY: 001528

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES
MANAGEMENT,
DESIGN AND CONSTRUCTION
DEPARTMENT OF
NATURAL RESOURCES
MISSOURI STATE PARKS

INSTALL PEDESTRIAN BRIDGE
AT PLEASANT HILL OVER
UNION PACIFIC RAILROAD

KATY TRAIL STATE PARK
PLEASANT HILL, MO

PROJECT # X2311-01
SITE # 5501
FACILITY # 7815501070

REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
ISSUE DATE: 6/14/2024

CAD DWG FILE: _____
DRAWN BY: MAL
CHECKED BY: ANR
DESIGNED BY: MAL

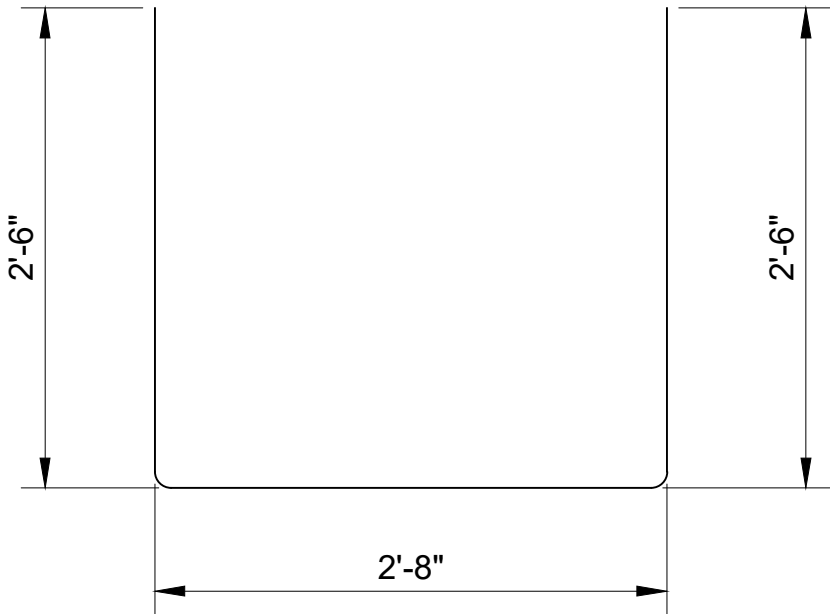
SHEET TITLE:
**APPROACH RAILING
DETAILS**

SHEET NUMBER:

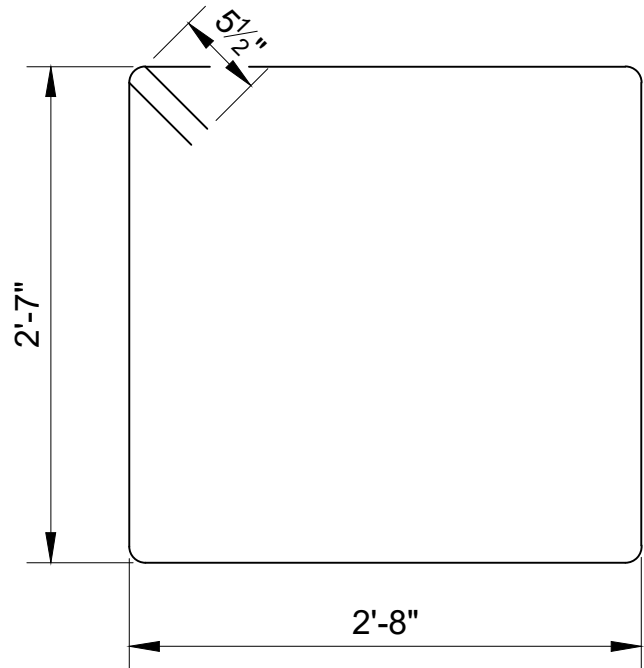
S-118

BARBILL - 2 ABUTMENTS
AND APPROACH SLAB

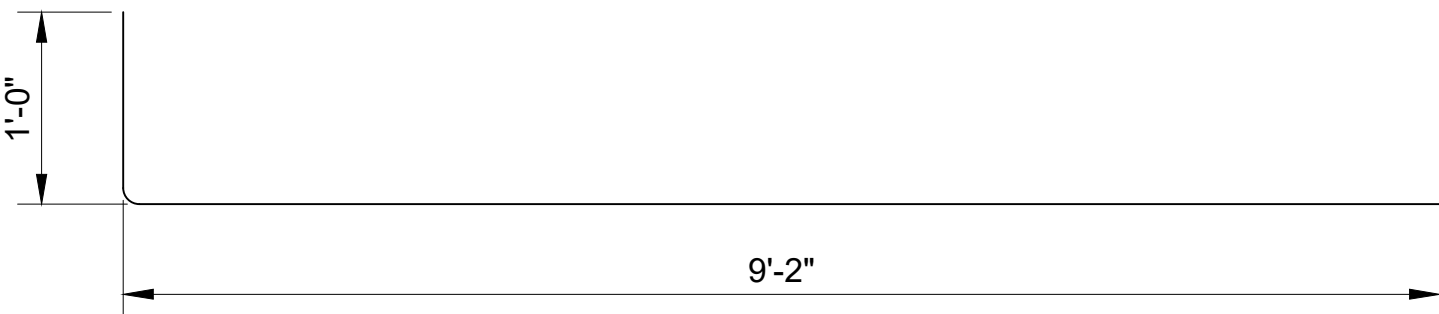
BAR	NO.	SIZE	LENGTH	SHAPE
H	24	#7	15'-5"	=====
H1	8	#5	15'-5"	=====
H2	16	#6	10'-2"	┌=====
H3	16	#6	9'-2"	=====
H4	32	#6	11'-2"	=====
H5	16	#6	7'-8"	┐=====
H6	28	#5	2'-11"	└=====
H7	84	#4	13'-3"	=====
H8	42	#6	17'-8"	=====
H9	28	#4	17'-8"	=====
H10	28	#4	2'-8"	=====
H11	6	#6	17'-5"	┌=====┐
V1	116	#6	5'-8"	=====
V2	28	#6	4'-7"	=====
U	32	#5	11'-5"	□=====



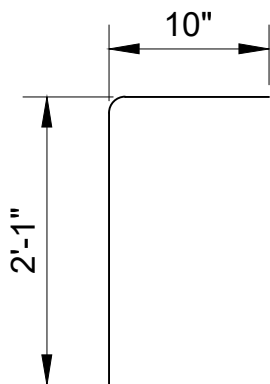
H5 BAR
SCALE: NTS



U BAR
SCALE: NTS



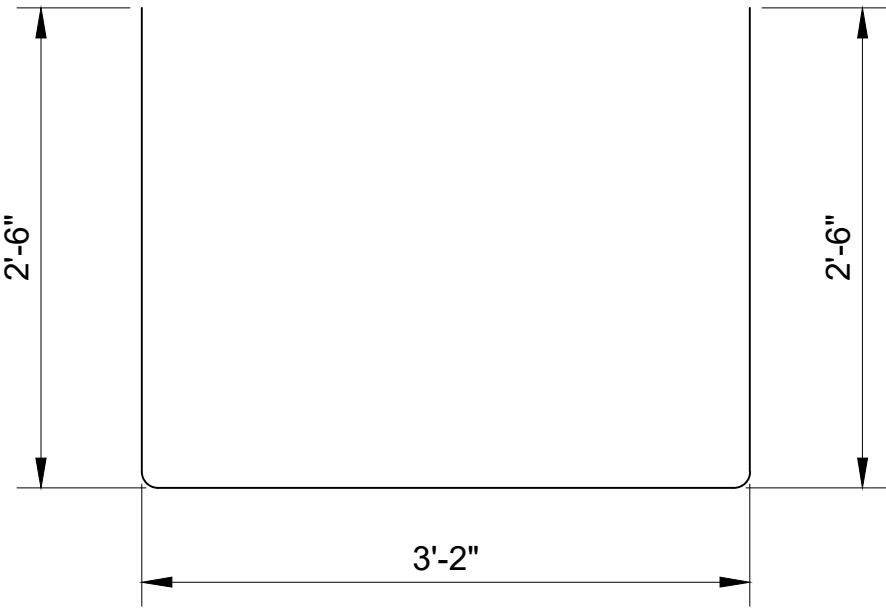
H2 BAR
SCALE: NTS



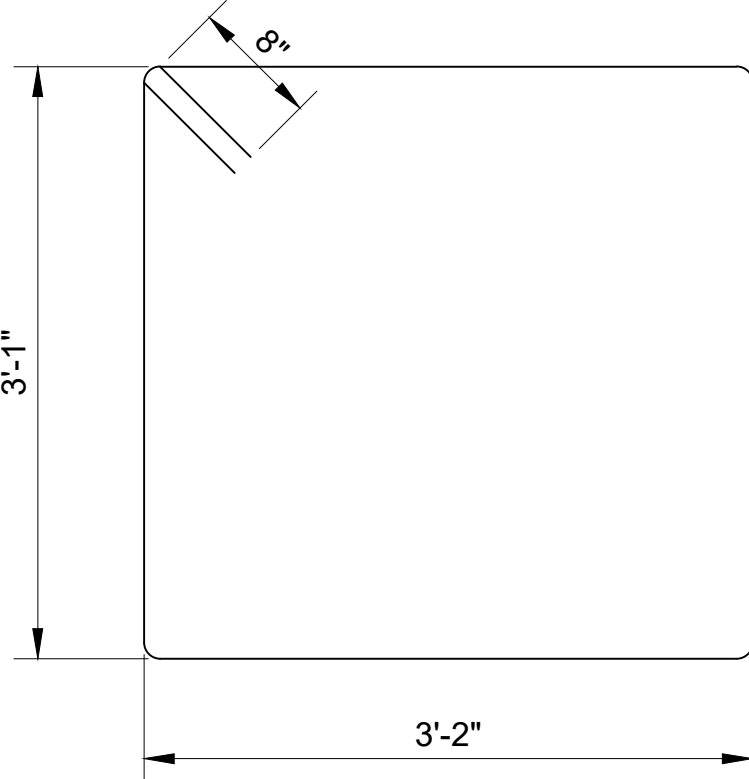
H6 BAR
SCALE: NTS

BARBILL - 7 PIERS -
HP-PILE - OPTION A

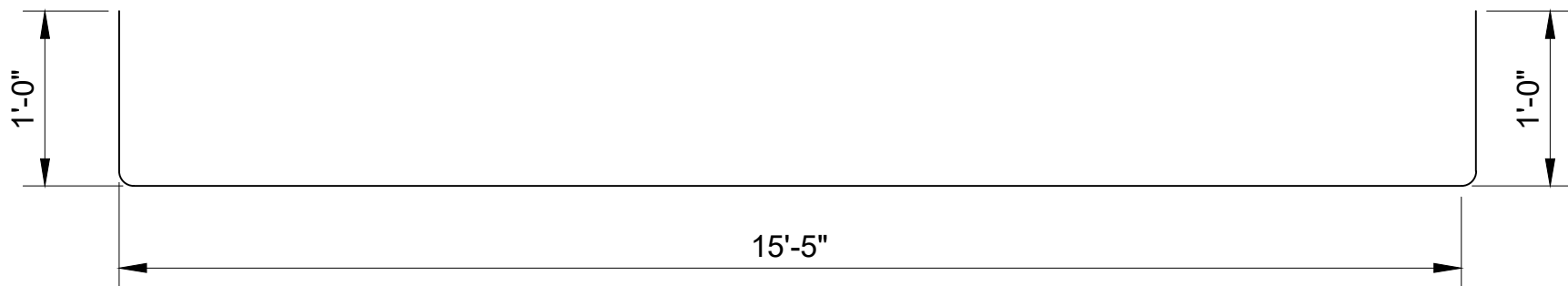
BAR	NO.	SIZE	LENGTH	SHAPE
H12	56	#6	8'-2"	┐=====
H13	112	#8	18'-2"	=====
U1	168	#6	13'-10"	□=====



H12 BAR
SCALE: NTS



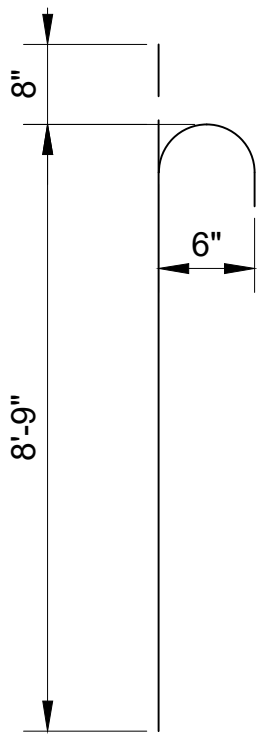
U1 BAR
SCALE: NTS



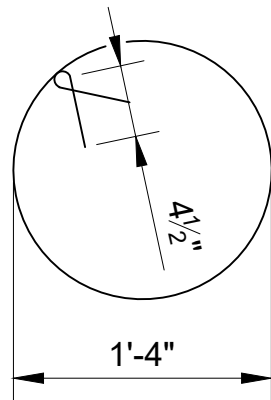
H11 BAR
SCALE: NTS

BARBILL - 7 PIERS -
SHELL PILE - OPTION B

BAR	NO.	SIZE	LENGTH	SHAPE
H12	56	#6	8'-2"	┐=====
H13	112	#8	18'-2"	=====
V3	128	#6	9'-5"	┐=====
U1	117	#6	13'-10"	□=====
U2	256	#4	5'-0"	○=====

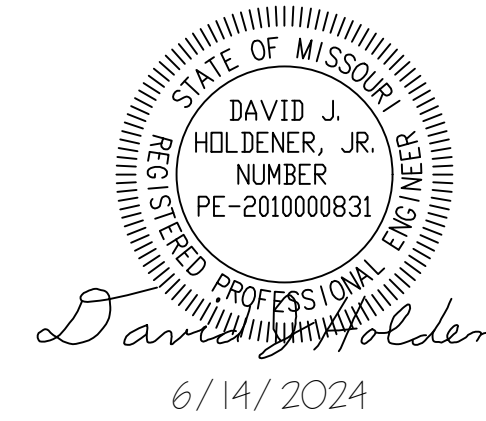


V3 BAR
SCALE: NTS



U2 BAR
SCALE: NTS

STATE OF MISSOURI
MICHAEL L. PARSON,
GOVERNOR



CONSULTING ENGINEERING
GEOSPATIAL SERVICES

ILLINOIS SWANSEA
COLUMBIA
PEORIA
GLEN CARBON
DECATUR
ST. CHARLES
MISSOURI ST. LOUIS
COLUMBIA
TENNESSEE CHATTANOOGA
NASHVILLE

THOUVENOT, WADE
& MOERCHEN, INC.

COLUMBIA OFFICE
3316 LEMONE INDUSTRIAL BLVD SUITE 2
COLUMBIA, MISSOURI 65201
(573) 442-6474
WWW.TWM-INC.COM
MO. CERTIFICATE OF AUTHORITY: 001528

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES
MANAGEMENT,
DESIGN AND CONSTRUCTION
DEPARTMENT OF
NATURAL RESOURCES
MISSOURI STATE PARKS

INSTALL PEDESTRIAN BRIDGE
AT PLEASANT HILL OVER
UNION PACIFIC RAILROAD

KATY TRAIL STATE PARK
PLEASANT HILL, MO

PROJECT # X2311-01
SITE # 5501
FACILITY # 7815501070

REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
ISSUE DATE: 6/14/2024

CAD DWG FILE: _____
DRAWN BY: MAL
CHECKED BY: ANR/DJH
DESIGNED BY: MAL

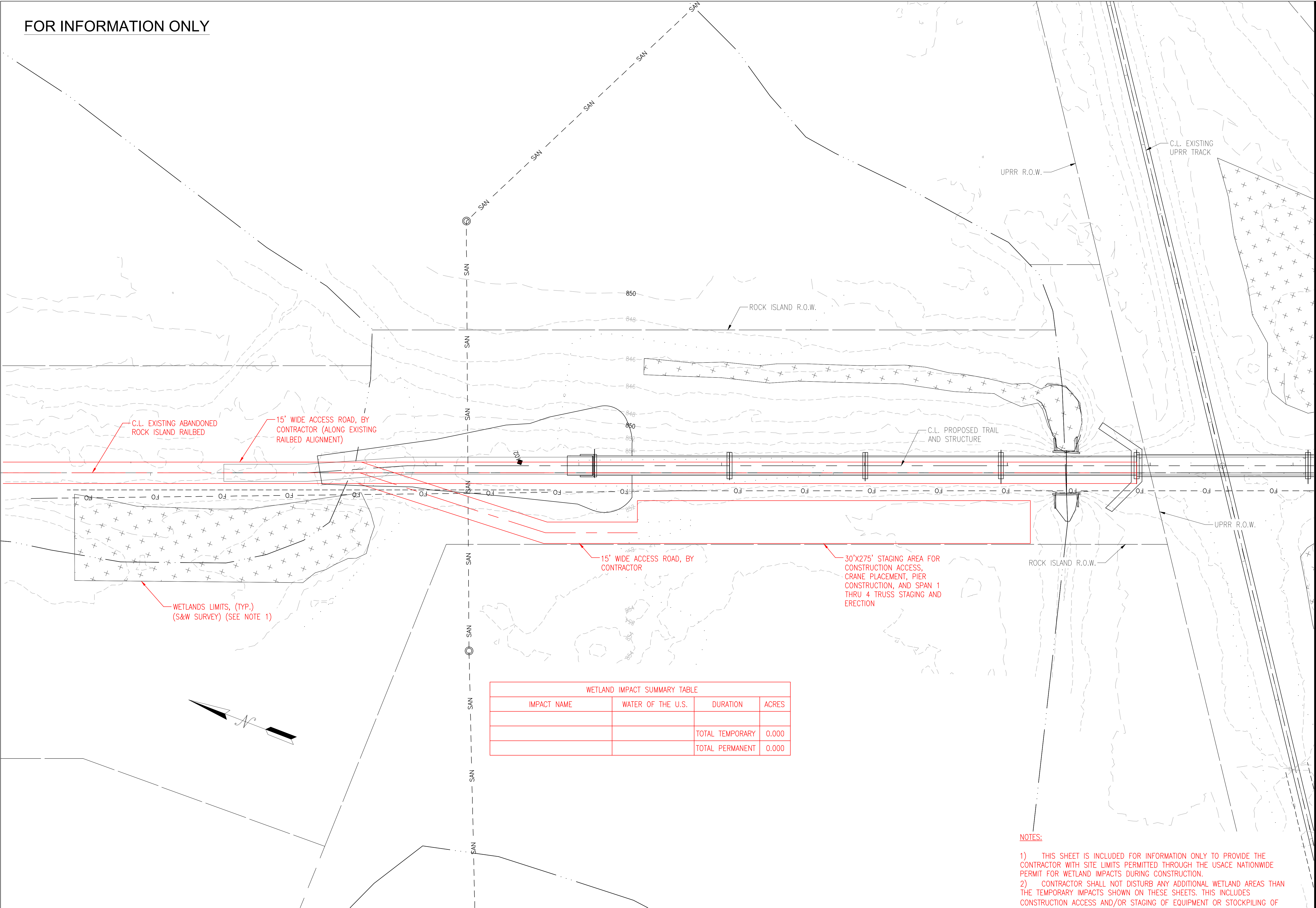
SHEET TITLE:
BILL OF
REINFORCING
STEEL

SHEET NUMBER:

S-119

45 OF 47 SHEETS
6/14/2024

FOR INFORMATION ONLY



WETLAND IMPACT SUMMARY TABLE			
IMPACT NAME	WATER OF THE U.S.	DURATION	ACRES
		TOTAL TEMPORARY	0.000
		TOTAL PERMANENT	0.000

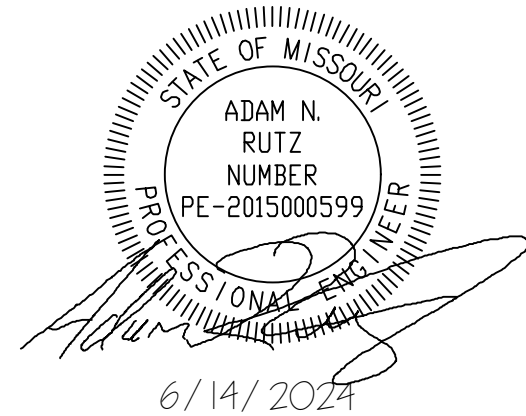
SITE ACCESS AND WETLAND IMPACTS PLAN

SCALE: 1" = 30'

NOTES:

- THIS SHEET IS INCLUDED FOR INFORMATION ONLY TO PROVIDE THE CONTRACTOR WITH SITE LIMITS PERMITTED THROUGH THE USACE NATIONWIDE PERMIT FOR WETLAND IMPACTS DURING CONSTRUCTION.
- CONTRACTOR SHALL NOT DISTURB ANY ADDITIONAL WETLAND AREAS THAN THE TEMPORARY IMPACTS SHOWN ON THESE SHEETS. THIS INCLUDES CONSTRUCTION ACCESS AND/OR STAGING OF EQUIPMENT OR STOCKPILING OF MATERIALS.
- TEMPORARY ACCESS ROADS AND STAGING AREAS TO BE CONSTRUCTED BY CONTRACTOR DURING CONSTRUCTION AND SHALL BE COMPRISED OF A STONE BASE WITH AGGREGATE TOPPING. ALL MATERIALS SHALL BE REMOVED ONCE CONSTRUCTION IS COMPLETE AND THE SITE SHALL BE RESTORED TO ITS EXISTING CONDITION.

STATE OF MISSOURI
MICHAEL L. PARSON,
GOVERNOR



CONSULTING ENGINEERING
GEOSPATIAL SERVICES

ILLINOIS

SWANSEA
COLUMBIA
PEORIA
GLEN CARBON
DECATUR
ST. CHARLES
ST. LOUIS
COLUMBIA
CHATTANOOGA
NASHVILLE

MISSOURI

TENNESSEE

THOUVENOT, WADE
& MOERCHEN, INC.

COLUMBIA OFFICE
3316 LEMONE INDUSTRIAL BLVD SUITE 2
COLUMBIA, MISSOURI 65201
(573) 442-6474
WWW.TWM-INC.COM
MO. CERTIFICATE OF AUTHORITY: 001528

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES
MANAGEMENT,
DESIGN AND CONSTRUCTION
DEPARTMENT OF
NATURAL RESOURCES
MISSOURI STATE PARKS

INSTALL PEDESTRIAN BRIDGE
AT PLEASANT HILL OVER
UNION PACIFIC RAILROAD

KATY TRAIL STATE PARK
PLEASANT HILL, MO

PROJECT # X2311-01
SITE # 5501
FACILITY # 7815501070

REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
ISSUE DATE: 6/14/2024

CAD DWG FILE: _____
DRAWN BY: MAL
CHECKED BY: ANR
DESIGNED BY: MAL

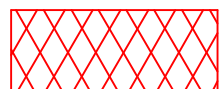
SHEET TITLE:

SITE ACCESS
(NORTH) AND
WETLAND IMPACTS

SHEET NUMBER:

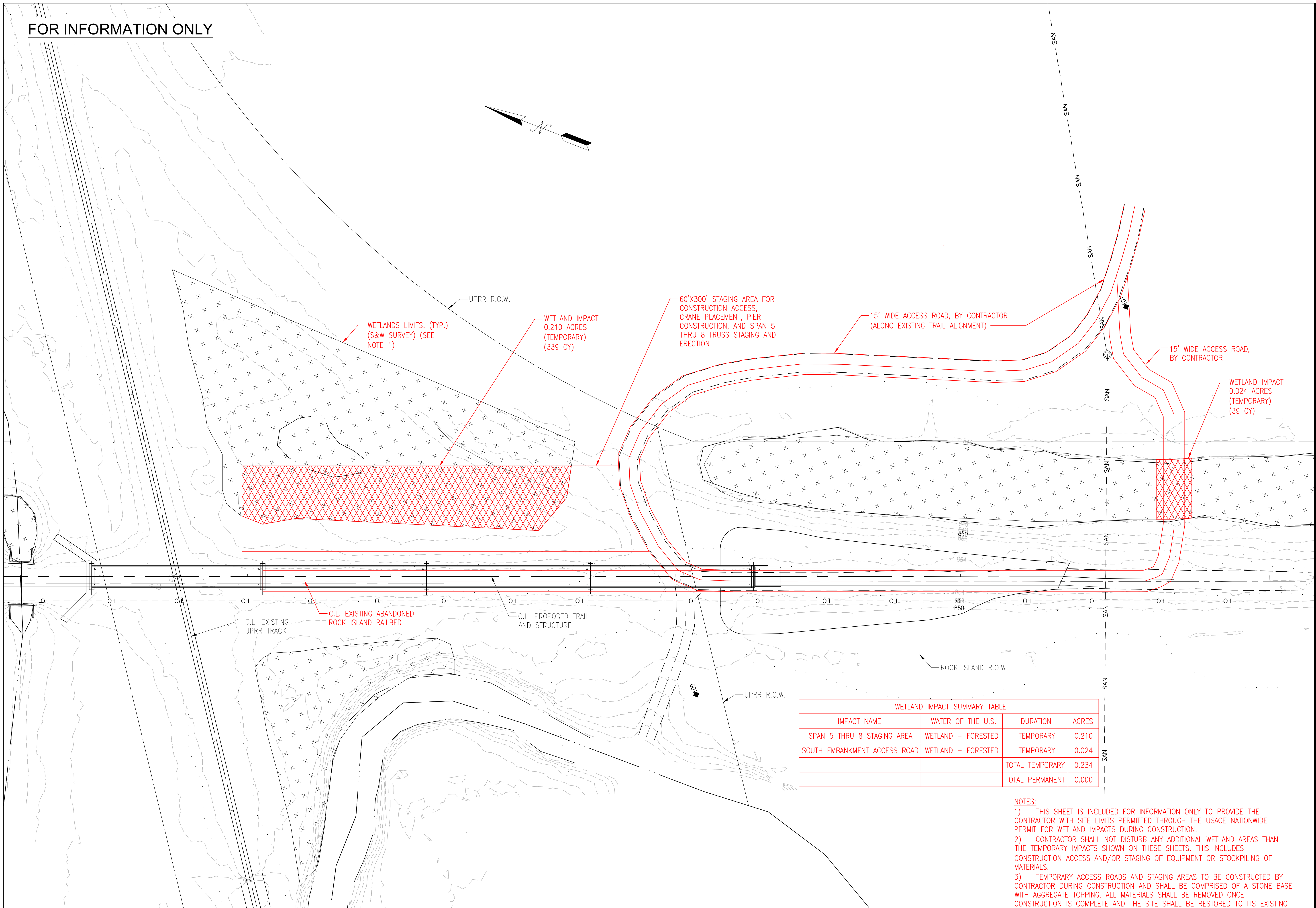
S-120

46 OF 47 SHEETS
6/14/2024



WETLANDS IMPACTS

FOR INFORMATION ONLY



SITE ACCESS AND WETLAND IMPACTS PLAN

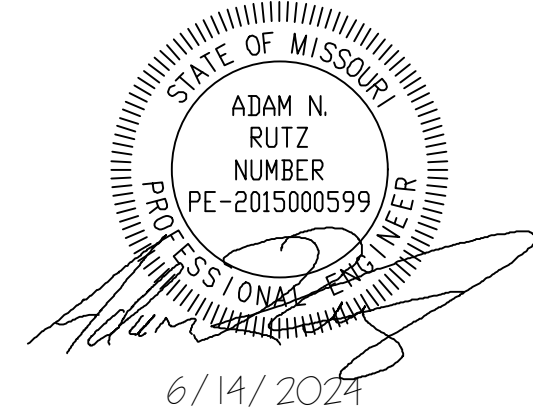
SCALE: 1" = 30'

WETLANDS IMPACTS

WETLAND IMPACT SUMMARY TABLE			
IMPACT NAME	WATER OF THE U.S.	DURATION	ACRES
SPAN 5 THRU 8 STAGING AREA	WETLAND - FORESTED	TEMPORARY	0.210
SOUTH EMBANKMENT ACCESS ROAD	WETLAND - FORESTED	TEMPORARY	0.024
		TOTAL TEMPORARY	0.234
		TOTAL PERMANENT	0.000

- NOTES:
- THIS SHEET IS INCLUDED FOR INFORMATION ONLY TO PROVIDE THE CONTRACTOR WITH SITE LIMITS PERMITTED THROUGH THE USACE NATIONWIDE PERMIT FOR WETLAND IMPACTS DURING CONSTRUCTION.
 - CONTRACTOR SHALL NOT DISTURB ANY ADDITIONAL WETLAND AREAS THAN THE TEMPORARY IMPACTS SHOWN ON THESE SHEETS. THIS INCLUDES CONSTRUCTION ACCESS AND/OR STAGING OF EQUIPMENT OR STOCKPILING OF MATERIALS.
 - TEMPORARY ACCESS ROADS AND STAGING AREAS TO BE CONSTRUCTED BY CONTRACTOR DURING CONSTRUCTION AND SHALL BE COMPRISED OF A STONE BASE WITH AGGREGATE TOPPING. ALL MATERIALS SHALL BE REMOVED ONCE CONSTRUCTION IS COMPLETE AND THE SITE SHALL BE RESTORED TO ITS EXISTING CONDITION.
 - WETLAND AREAS TEMPORARILY IMPACTED BY CONSTRUCTION SHALL BE REMOVED AND RESTORED BACK TO THEIR ORIGINAL CONDITION ONCE CONSTRUCTION IS COMPLETE. ANY TREES REMOVED WITHIN THE LIMITS OF THE WETLANDS SHALL BE CUT OFF AT GROUND LEVEL, LEAVING THE ROOT BALLS BELOW GRADE.

STATE OF MISSOURI
MICHAEL L. PARSON,
GOVERNOR



CONSULTING ENGINEERING
GEOSPATIAL SERVICES

ILLINOIS SWANSEA
COLUMBIA
PEORIA
GLEN CARBON
DECATUR
ST. CHARLES
MISSOURI ST. LOUIS
COLUMBIA
TENNESSEE CHATTANOOGA
NASHVILLE

THOUVENOT, WADE
& MOERCHEN, INC.

COLUMBIA OFFICE
3316 LEMONE INDUSTRIAL BLVD SUITE 2
COLUMBIA, MISSOURI 65201
(573) 442-6474
WWW.TWM-INC.COM
MO. CERTIFICATE OF AUTHORITY: 001528

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES
MANAGEMENT,
DESIGN AND CONSTRUCTION
DEPARTMENT OF
NATURAL RESOURCES
MISSOURI STATE PARKS

INSTALL PEDESTRIAN BRIDGE
AT PLEASANT HILL OVER
UNION PACIFIC RAILROAD

KATY TRAIL STATE PARK
PLEASANT HILL, MO

PROJECT # X2311-01
SITE # 5501
FACILITY # 7815501070

REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
ISSUE DATE: 6/14/2024

CAD DWG FILE: _____
DRAWN BY: MAL
CHECKED BY: ANR
DESIGNED BY: MAL

SHEET TITLE:

SITE ACCESS
(SOUTH) AND
WETLAND IMPACTS

SHEET NUMBER:

S-121

47 OF 47 SHEETS
6/14/2024