JEFFERSON COUNTY MISSOURI

JASON JONAS, P.E.
DIRECTOR OF PUBLIC WORKS
HEADS CREEK ROAD
BRIDGE REPLACEMENT
OVER TRIBUTARY TO HEADS CREEK
SECTION 13 TOWNSHIP T42N, RANGE 4E
CDG PROJECT NO. 18013
COUNTY PROJECT NO. PW19135BXC

FINAL PLANS

LOCAL UTILITY COMPANIES

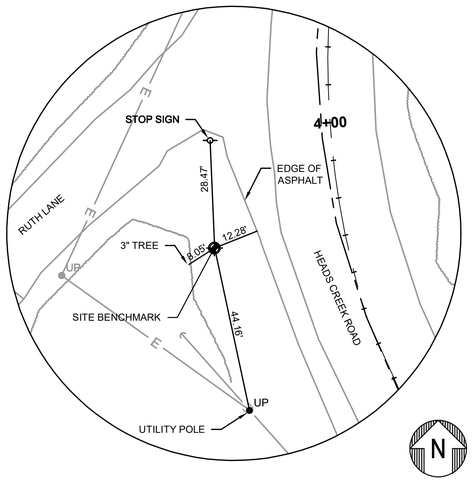
ELECTRIC
AMEREN MISSOURI
WILLIAM ROSENER
6450 HWY MM
HOUSE SPRINGS, MO 63051
636-671-6152
wrosener@ameren.com

TELEPHONE
AT&T DISTRIBUTION
GLENN HOGENMILLER
122 NORTH SECOND ST.
FESTUS, MO 63028
636-931-7525
gh5805@att.com

NOTE: NO OTHER KNOWN UTILITIES.
UTILITY LOCATE: 1-800-DIG-RITE

SITE BENCHMARK

ELEVATION = 555.20 FEET



SITE BENCHMARK - LG NAIL w/ WASHER
SCALE: 1" = 20'

BENCHMARK DATA

SITE BENCHMARK
LARGE NAIL w/ WASHER
ELEVATION - 555.20 (NAVD 88 DATUM)

THE LARGE NAIL IS SET ON THE RIGHT SHOULDER OF HEADS CREEK ROAD BETWEEN RUTH LANE AND HEADS CREEK ROAD; WITHIN THE GRASS AREA. WHICH IS LOCATED APPROXIMATELY 138.00 FEET SOUTH OF THE BOX CULVERT.

VERTICAL CONTROL STATEMENT

THE ELEVATIONS SHOWN HEREON ARE BASED ON THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).

HORIZONTAL CONTROL STATEMENT

THE DATA SHOWN HEREON WAS TIED TO THE NATIONAL GEODETIC SURVEY (NGS) CONTINUOUSLY OPERATING REFERENCE STATION (CORS) NETWORK USING REAL TIME KINEMATIC GPS METHODS. GPS DATA BASED ON THE MODOT GNSS NETWORK SERVICE OPERATED BY MODOT WITHIN THE 1983 EAST ZONE (NAD83).

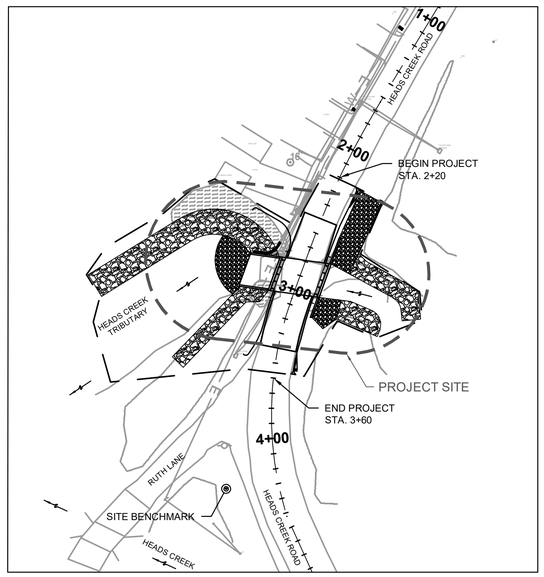
THE SITE GPS SCALE FACTOR IS 0.999916630

LEGEND:

= SITE BENCHMARK

N: = NORTHING COORDINATE

E: = EASTING COORDINATE



PROJECT SITE MAP
SCALE: 1" = 1:50'

DESIGN CRITERIA

1. A POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS (AASHTO "GREEN BOOK" EDITION 2011)
2. 2018 MISSOURI STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION
3. MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) EDITION 2009
4. MODOT ENGINEERING POLICY GUIDE

DESIGN DESIGNATION

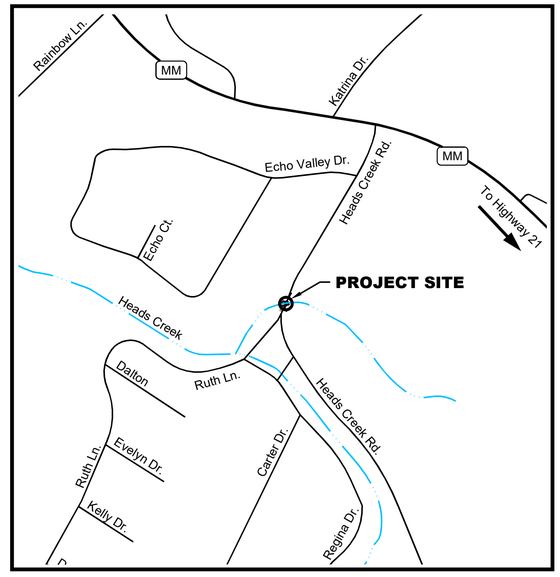
FUNCTIONAL CLASSIFICATION	LOCAL / RURAL COLLECTOR
CURRENT POSTED SPEED	30 MPH
DESIGN SPEED	30 MPH

LENGTH OF PROJECT

BEGINNING STATION	2+20
ENDING STATION	3+60
NET LENGTH OF PROJECT	140 FEET (0.02 MI)

SHEET INDEX

DRAWING NUMBER	DESCRIPTION
ROADWAY	
T-001	TITLE SHEET
T-002	GENERAL NOTES
T-003	SUMMARY OF QUANTITY (2A & 2B)
C-101	CULVERT PLAN & PROFILE
C-301	TYPICAL DETAILS
C-401	SITE GRADING PLAN
C-501	DETOUR PLAN
R-101	RIGHT-OF-WAY PLAN
BRIDGE	
B-101	GENERAL PLAN & ELEVATION
B-102	CULVERT PLAN, ELEVATIONS & SECTIONS
B-103	CULVERT ELEVATION & DETAILS
B-104	RETAINING WALL NO. 1
B-105	RETAINING WALL NO. 2
B-106	CULVERT PLAN - BOTTOM SLAB REINFORCEMENT
B-107	CULVERT PLAN - TOP SLAB REINFORCEMENT
B-108	BRIDGE GUARDRAIL W-BEAM DETAILS
B-109	BILL OF REINFORCING STEEL



VICINITY MAP
NOT TO SCALE

APPROVED BY
JEFFERSON COUNTY, MISSOURI

SIGNATURE 1-23-2019 DATE

JASON JONAS, P.E.
DIRECTOR OF PUBLIC WORKS

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.

REV.	DATE	DESCRIPTION	APPROVED
0	01/22/19	ISSUED FOR CONSTRUCTION	TRN

CDG ENGINEERS
One Campbell Plaza
St. Louis, Missouri 63139
T: 314 781 7770
F: 314 781 9075
Missouri State Certificate of Authority # 1271

JEFFERSON COUNTY MISSOURI

STATE OF MISSOURI
MATTHEW M. VOSS
NUMBER PE-2011015812
PROFESSIONAL ENGINEER
1-23-2019

MATTHEW M. VOSS
PE-2011015812

Tnugent
January 28, 2019

COVER SHEET
COUNTY PROJECT NO. PW19135BXC
HEADS CREEK ROAD BRIDGE
JEFFERSON COUNTY, MISSOURI

CDG PROJECT NO.
18013

DRAWING NO.
T-001

T:\Working\18013 - JeffCo - Heads Creek Bridge\Drawings\T-001 COVER SHEET.dwg Printed by: TNUGENT Plot scale = 0.386863

T:\Working\18013 - JeffCo - Heads Creek Bridge\Drawings\T-001 COVER SHEET.dwg
tnugent 01/28/19-11:03

PLOT SCALE FACTOR 1

GENERAL NOTES:

1. REMOVE ALL WASTE MATERIALS, INCLUDING EXCAVATED MATERIAL, TRASH, AND DEBRIS, AND DISPOSE OF IT PROPERLY OFF-SITE.
2. CONTRACTOR SHALL REPLACE ALL FENCES, SIGNS, ETC. DAMAGED BY THIS CONSTRUCTION. PROVIDE PROTECTION NECESSARY TO PREVENT DAMAGE TO EXISTING CONDITIONS, TREES, ETC.
3. CONTRACTOR SHALL COORDINATE AND COOPERATE WITH OTHER CONTRACTORS AND OTHER COUNTY MAINTENANCE CREWS PERFORMING ROAD WORK.
4. A COPY OF ALL LOAD TICKETS SHALL BE TURNED IN DAILY TO THE DIRECTOR OF PUBLIC WORKS OR THE DIRECTOR OF PUBLIC WORKS DESIGNATED REPRESENTATIVE.
5. CATCHLINES APPROXIMATE LIMITS OF DISTURBANCE.
6. SAWCUT EXISTING PAVEMENT (FULL DEPTH) AS NECESSARY TO INSTALL PROPOSED IMPROVEMENTS WITH 1" MAXIMUM OVERDIG. (COST INCIDENTAL TO OTHER ITEMS).

INFORMATION ON SITE CONDITIONS:

1. GENERAL: INFORMATION OBTAINED BY THE OWNER REGARDING SITE CONDITIONS, TOPOGRAPHY AND SUBSURFACE INFORMATION OBTAINED BY THE ENGINEER'S INVESTIGATION OF SURFACE AND SUBSURFACE CONDITIONS, SHALL BE CONSIDERED PART OF THE CONTRACT DOCUMENTS. NEITHER THE ENGINEER NOR THE COUNTY ASSUMES ANY RESPONSIBILITY FOR ITS ACCURACY OR COMPLETENESS OR FOR THE INTERPRETATION OF SUCH INFORMATION.
2. EXISTING ELEVATIONS: ELEVATIONS ARE EXPECTED TO VARY +/- 0.1 FEET FROM THE ELEVATIONS SHOWN. THE COUNTY SHALL VERIFY EXISTING ELEVATIONS PRIOR TO START OF NEW WORK.

EXISTING UTILITIES AND FACILITIES:

1. 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 CONTRACTOR SHALL BE RESPONSIBLE FOR THE 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.
2. CONTRACTOR TO NOTIFY AND COORDINATE WITH UTILITY COMPANIES TWO WEEKS PRIOR TO COMMENCEMENT OF PROJECT.
3. ALL UTILITIES, EITHER SHOWN OR NOT SHOWN, IN DIRECT CONFLICT WITH THIS CONSTRUCTION SHALL BE RELOCATED BY OTHERS (RESPECTIVE UTILITY COMPANY). CONTRACTOR SHALL COORDINATE THE WORK WITH EACH UTILITY COMPANY AFFECTED.
4. CONTRACTOR TO VERIFY LOCATIONS OF ALL GAS AND WATER SERVICE VALVES, SEWER VENTS, AND WATER METERS BEFORE BEGINNING WORK.
5. CONTRACTOR TO VERIFY THE EXISTENCE OF ANY CABLE AND ALL OTHER UTILITY SYSTEMS BEFORE COMMENCING WORK.
6. CONTRACTOR TO COORDINATE THE ADJUSTMENT OF UTILITY MAIN LINE VALVE COVERS WITH THE CORRESPONDING UTILITY OWNER. THIS WORK SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT.
7. ALL POWER POLES WITHIN THE LIMITS OF DISTURBANCE TO BE USED IN PLACE.
8. KNOWN UTILITIES AND FACILITIES ADJACENT TO OR WITHIN THE WORK AREA ARE SHOWN ON THE DRAWINGS. THE LOCATIONS SHOWN ARE TAKEN FROM EXISTING RECORDS AND THE BEST INFORMATION AVAILABLE FROM EXISTING UTILITY PLANS; HOWEVER, IT IS EXPECTED THAT THERE MAY BE SOME DISCREPANCIES AND OMISSIONS IN THE LOCATIONS AND QUANTITIES SHOWN. THOSE SHOWN ARE FOR THE CONVENIENCE OF THE CONTRACTOR ONLY, AND NO RESPONSIBILITY IS ASSUMED BY EITHER THE OWNER OR THE ENGINEER FOR THEIR ACCURACY OR COMPLETENESS.
9. NEITHER OWNER NOR ITS OFFICERS OR AGENTS SHALL BE RESPONSIBLE TO CONTRACTOR FOR DAMAGES AS A RESULT OF THE CONTRACTOR'S FAILURE TO PROTECT UTILITIES ENCOUNTERED IN THE WORK.
10. CONTRACTOR SHALL EXERCISE REASONABLE CARE AND COORDINATE WITH THE COUNTY AND THE UTILITY COMPANY TO VERIFY LOCATIONS OF UTILITIES AND FACILITIES SHOWN ON THE DRAWINGS AND TO DETERMINE THE PRESENCE OF THOSE NOT SHOWN. IMMEDIATE AND ADJACENT AREAS WHERE EXCAVATIONS ARE TO BE MADE SHALL BE THOROUGHLY CHECKED BY VISUAL EXAMINATION FOR INDICATIONS OF UNDERGROUND FACILITIES, AND ALSO CHECKED WITH ELECTRONIC METAL AND PIPE DETECTION EQUIPMENT. WHERE THERE IS REASONABLE CAUSE TO VERIFY THE PRESENCE OR ABSENCE OF AN UNDERGROUND FACILITY, MAKE EXPLORATORY EXCAVATIONS PRIOR TO PROCEEDING WITH MAJOR EXCAVATION IN THE AREA.
11. CONTRACTOR IS RESPONSIBLE FOR COMPLIANCE WITH ALL ASPECTS OF MISSOURI UNDERGROUND FACILITY SAFETY AND DAMAGE PREVENTION STATUTE RSMO 319.015 TO 319.050. CALL 1-800-DIG-RITE.

PRECONSTRUCTION SURVEY AND MONITORING:

1. AFTER THE CONTRACT IS AWARDED AND BEFORE STARTING THE WORK, THE CONTRACTOR SHALL PERFORM A PRECONSTRUCTION SURVEY OF THE SITE. MAKE A THOROUGH EXAMINATION, PROVIDING COLOR PHOTOGRAPHS AND A COLOR VIDEO OF ALL EXISTING BUILDINGS, STRUCTURES AND OTHER IMPROVEMENTS WHICH MIGHT BE DAMAGED BY THE CONTRACTOR'S OPERATIONS. THE EXAMINATION SHALL BE MADE JOINTLY BY REPRESENTATIVES OF THE CONTRACTOR, THE OWNER, AND THE ENGINEER. THE SCOPE OF THE EXAMINATION AND PHOTOGRAPHS SHALL INCLUDE CRACKS IN STRUCTURES, SETTLEMENT, LEAKAGE, AND SIMILAR CONDITIONS. THE COUNTY SHALL BE RESPONSIBLE FOR ELECTRONIC DOCUMENTATION OF THE PRECONSTRUCTION SURVEY, INCLUDING VIDEO, PHOTOS, ETC.
2. THE CONTRACTOR SHALL ESTABLISH VERTICAL AND HORIZONTAL SURVEY CONTROL POINTS ON ALL STRUCTURES AND IMPROVEMENTS LOCATED IN THE VICINITY OF THE WORK PRIOR TO BEGINNING WORK. THE CONTRACTOR SHALL FURNISH THE COUNTY WITH COPIES OF THE SURVEY NOTES FOR EACH SURVEY AND A COPY OF THE LAYOUT OF THE SURVEY CONTROL POINTS.
3. COPIES OF ALL ELECTRONIC DOCUMENTATION SHALL BE PROVIDED TO THE OWNER AND THE ENGINEER.
4. THE ABOVE RECORDS AND PHOTOGRAPHS ARE INTENDED FOR USE AS EVIDENCE IN ASCERTAINING THE EXTENT OF ANY DAMAGE WHICH MAY OCCUR AS A RESULT OF THE CONTRACTOR'S OPERATIONS AND ARE FOR THE PROTECTION OF THE CONTRACTOR AND THE OWNER. THE RECORDS WILL PROVIDE A MEANS OF DETERMINING WHETHER AND TO WHAT EXTENT DAMAGE MAY HAVE OCCURRED AS A RESULT OF THE CONTRACTOR'S OPERATIONS. THE RECORDS WILL ALSO BE UTILIZED TO GUIDE THE RESTORATION PHASE OF THIS PROJECT.

CONTRACTOR'S RESPONSIBILITIES:

1. WHERE CONTRACTOR'S OPERATIONS COULD CAUSE DAMAGE OR INCONVENIENCE TO RAILWAY OR PUBLIC/PRIVATE UTILITY SYSTEMS, THE CONTRACTOR SHALL MAKE ARRANGEMENTS NECESSARY FOR THE PROTECTION OF THESE UTILITIES AND SERVICES. REPAIR OR REPLACE EXISTING UTILITIES REMOVED OR DAMAGED DURING CONSTRUCTION, UNLESS OTHERWISE PROVIDED FOR IN THESE CONTRACT DOCUMENTS.
2. NOTIFY UTILITY OFFICES THAT ARE AFFECTED BY CONSTRUCTION OPERATIONS AT LEAST 72 HOURS IN ADVANCE. UNDER NO CIRCUMSTANCES SHALL ANY UTILITY BE EXPOSED WITHOUT FIRST OBTAINING PERMISSION FROM THE APPROPRIATE AGENCY. ONCE PERMISSION HAS BEEN GRANTED, LOCATE, EXPOSE, AND PROVIDE TEMPORARY SUPPORT FOR THE UTILITIES AS REQUIRED.
3. CONTRACTOR SHALL BE SOLELY AND DIRECTLY RESPONSIBLE TO 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.
4. IN 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.
5. IN THE EVENT THE CONTRACTOR ENCOUNTERS WATER SERVICE LINES THAT INTERFERE WITH TRENCHING, OBTAIN PRIOR APPROVAL OF THE WATER UTILITY, CUT THE SERVICE, DIG THROUGH, AND RESTORE SERVICE TO PREVIOUS CONDITIONS USING EQUAL MATERIALS.

INTERFERING STRUCTURES:

1. TAKE NECESSARY PRECAUTIONS TO PREVENT DAMAGE TO EXISTING STRUCTURES TO REMAIN WHETHER ON THE SURFACE, ABOVEGROUND, OR UNDERGROUND. AN ATTEMPT HAS BEEN MADE TO SHOW MAJOR STRUCTURES ON THE DRAWINGS. WHILE THE INFORMATION HAS BEEN COMPILED FROM THE BEST AVAILABLE SOURCES, ITS COMPLETENESS AND ACCURACY CANNOT BE GUARANTEED.
2. PROTECT EXISTING STRUCTURES TO REMAIN FROM DAMAGE, WHETHER OR NOT THEY LIE WITHIN LIMITS OF EASEMENTS OBTAINED BY THE OWNER. WHERE EXISTING FENCES, GATES, BARNS, SHEDS, BUILDINGS, OR OTHER STRUCTURE MUST BE REMOVED TO PROPERLY CARRY OUT WORK, OR ARE DAMAGED DURING THE WORK, RESTORE THEM TO ORIGINAL CONDITION AND TO THE SATISFACTION OF PROPERTY OWNER.
3. CONTRACTOR MAY REMOVE AND REPLACE IN EQUAL OR BETTER THAN ORIGINAL CONDITION, SMALL STRUCTURES SUCH AS FENCES, AND SIGNPOSTS THAT INTERFERE WITH CONTRACTOR'S OPERATIONS. THIS WORK SHALL BE COORDINATED WITH THE OWNER. THIS WORK SHALL BE INCIDENTAL TO THE PROJECT.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND PROTECTING IRRIGATION SYSTEMS. SYSTEMS DAMAGED BY THE COUNTY CREW SHALL BE REPAIRED WITHIN FIVE (5) DAYS.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND PROTECTING ELECTRONIC DOG FENCES. FENCES DAMAGED BY THE COUNTY CREW SHALL BE REPAIRED WITH IN FIVE (5) DAYS.
6. MAILBOXES SHALL BE MOVED TO A NEW LOCATION AND KEPT IN OPERATION DURING CONSTRUCTION. MAILBOXES SHALL BE RESTORED TO THEIR ORIGINAL LOCATION OR A SUITABLE PERMANENT LOCATION AFTER CONSTRUCTION OF NEW PAVEMENT. THIS WORK SHALL BE INCIDENTAL TO THE PROJECT. NO DIRECT PAYMENT WILL BE MADE FOR THIS WORK.
7. EXISTING TREES TO REMAIN SHALL BE PROTECTED AT ALL TIMES. DAMAGED TREES SHALL BE REPAIRED OR REPLACED IN ACCORDANCE WITH COUNTY INSTRUCTIONS.
8. ANY EXISTING SIGNS WHICH MAY INTERFERE WITH CONSTRUCTION ACTIVITIES MAY BE REMOVED AND SHALL BE REPLACED AFTER PROJECT COMPLETION AT THE CONTRACTOR'S EXSPENSE. SIGNAGE IS TO BE APPROVED BY THE COUNTY.
9. CONTRACTOR IS RESPONSIBLE FOR REMOVAL, PROTECTION, AND FINAL PLACEMENT OF ALL EXISTING SIGNAGE WITHIN THE LIMITS OF THIS PROJECT. ALL EXISTING SIGNAGE SHALL BE RE-ERECTED IN ITS ORIGINAL LOCATION UNLESS OTHERWISE DIRECTED BY THE COUNTY. SIGNS DAMAGED DURING CONSTRUCTION SHALL BE REPLACED TO THE COUNTY'S SATISFACTION AT THE CONTRACTOR'S EXPENSE. CONTRACTOR SHALL BE RESPONSIBLE FOR DOCUMENTATION OF CONDITIONS OF SIGNS BEFORE CONSTRUCTION BEGINS. THIS WORK SHALL BE INCIDENTAL TO THE PROJECT.

CONNECTING TO EXISTING FACILITIES:

1. UNLESS OTHERWISE SHOWN OR SPECIFIED, DETERMINE METHODS OF CONNECTING NEW WORK TO EXISTING FACILITIES, AND OBTAIN ENGINEER'S REVIEW AND ACCEPTANCE OF PROPOSED CONNECTIONS.
2. DETERMINE LOCATION, ELEVATION, NATURE, MATERIALS, DIMENSIONS, AND CONFIGURATIONS OF EXISTING FACILITIES WHERE NECESSARY FOR CONNECTING NEW WORK.
3. INSPECT EXISTING RECORD DRAWINGS AND SHOP DRAWINGS, CONDUCT EXPLORATORY EXCAVATIONS AND FIELD INSPECTIONS, AND CONDUCT SIMILAR ACTIVITIES AS NEEDED.
4. SHUTDOWN OF OWNER'S EXISTING FACILITIES PRIOR TO CONNECTION, IF NECESSARY, SHALL BE BY OWNER OR AS SPECIFIED.
5. PRIOR TO BEGINNING CONNECTION WORK, THE CONTRACTOR SHALL MEET ALL STATED, REGULATORY, AND STATUTORY NOTICE REQUIREMENTS.

RESTORATION NOTES:

1. CONTRACTOR SHALL SEED ALL GRASS AREAS DISTURBED BY THE CONSTRUCTION UNLESS OTHERWISE SPECIFIED, (SEE PLANS AND SPECIFICATION FOR DETAILS), AREA OF DISTURBANCE SHALL BE MINIMIZED TO REDUCE SEEDING.
2. RESTORATION OF THE SITE SHALL BE MADE WITH "IN KIND" MATERIALS.
3. DAMAGED COUNTY OR PRIVATE PROPERTY SHALL BE REPAIRED OR REPLACED TO MATCH PRECONSTRUCTION CONDITIONS.
4. CLEAN UP OF JOB SITE AT END OF EACH DAY.
5. MAINTAIN PROPER STORAGE OF HAZARDOUS MATERIALS, IF ANY, ONSITE.

PAVEMENT AND DRIVEWAY NOTES:

1. PAVEMENT STRIPING, IF PRESENT, SHALL BE REPLACED TO MATCH PRECONSTRUCTION CONDITIONS UNLESS OTHERWISE INDICATED ON THE PLANS.
2. ALL PAVEMENT REMOVED OR DAMAGED BY THIS CONSTRUCTION IN EXCESS OF THAT INDICATED ON THE PLANS SHALL BE REPLACED, "IN KIND" AT THE CONTRACTOR'S EXPENSE.
3. THE CONTRACTOR SHALL KEEP ALL PAVEMENTS CLEAN AND FREE OF MUD, ROCK, AND DEBRIS DURING CONSTRUCTION. COST SHALL BE CONSIDERED INCIDENTAL TO OTHER ITEMS.
4. CONTRACTOR SHALL NOTIFY PROPERTY OWNERS (PREFERABLY IN PERSON) 24 HOURS IN ADVANCE OF ANY DISRUPTED ACCESS TO THEIR DRIVEWAY.
5. CONTRACTOR SHALL NOT DISRUPT ACCESS TO A RESIDENT'S DRIVEWAY FOR MORE THAN ONE (1) DAY NOR FOR A TOTAL OF SIX (6) DAYS THROUGHOUT THE LIFE OF THE PROJECT. ONE DAY SHALL BE CONSIDERED A PERIOD OF TIME OF EIGHT (8) CONSECUTIVE HOURS TO 24 CONSECUTIVE HOURS.

LEGEND:

EXISTING TREE
BENCHMARK
CRASHWORTHY END TERMINAL
MAILBOX
POWER POLE
POWER POLE & GUY WIRE
ROAD SIGN (EXISTING)
ROAD SIGN (PROPOSED)
STREET SIGN
TELEPHONE BOX
PROPOSED CULVERT
CONCRETE PCC
EXISTING ASPHALTIC SURFACE
EXISTING BUILDING
CONCRETE RUBBLE & DEBRIS
ROCK EMBANKMENT, B36 "CREEK BANKS"
ROCK BACKFILL, R18 "SCOUR HOLE" & "ROAD DITCHES"
CABLE LINE
CENTER LINE
EXISTING CONTOUR
EXISTING FENCE LINE
HYDRAULIC GRADE LINE
HYDRAULIC GRADE LINE
LIMITS OF DISTURBANCE
OVERHEAD ELECTRIC LINE
PROPERTY LINE
PROPOSED CONTOURS
PROPOSED FENCE LINE
PERMANENT DRAINAGE
PERMANENT ROAD
TEMPORARY CONSTRUCTION
TREELINE
SECTION LINE
SILT FENCE
RIGHT OF WAY LINE (EXISTING)
RIGHT OF WAY LINE (PROPOSED)

ADT	AVERAGE DAILY TRAFFIC
BOP	BEGINNING OF PROJECT
BK	BOOK
BM	BENCHMARK
BRG	BEARING
CL	CENTERLINE
CMP	CORRUGATED METAL PIPE
CP	CONTROL POINT
D	DIAMETER
d	DEPTH
DND	DO NOT DISTURV
DWG	DRAWING
E	EASTING
EOP	END OF PROJECT
EL, ELEV	ELEVATION
HGL	HYDRAULIC GRADE LINE
HORIZ	HORIZONTAL
INCR	INCREASING
INT	INTERMEDIATE
LHF	LEFT HAND FORWARD
LF	LINEAR FEET
LPA	LOCAL PUBLIC AGENCY
LT	LEFT
ML	MAINLINE
N	NORTHING
O.D.	OUTSIDE DIAMETER
O/S	OFFSET
PC	POINT OF CURVE
PDE	PERMANENT DRAINAGE EASEMENT
PG	PAGE
PI	POINT OF INTERSECTION
PL	PROPERTY LINE
PRE	PERMANENT ROAD EASEMENT
PT	POINT OF TANGENT
Q	FLOW (CFS)
RCP	REINFORCED CONCRETE PIPE
RDWY	ROADWAY
RHF	RIGHT HAND FORWARD
ROW, R/W	RIGHT-OF-WAY
RT	RIGHT
STA	STATION
TBA	TO BE ABANDONED
TCE	TEMPORARY CONSTRUCTION EASEMENT
TBP	TO BE PROTECTED
TBR	TO BE REMOVED
TBR&R	TO BE REMOVED & RELOCATED
TYP	TYPICAL
UIP	USE IN PLACE
U.P.	UTILITY POLE
UNO	UNLESS NOTED OTHERWISE
VERT	VERTICAL
VPC	VERTICAL POINT OF CURVE
VPI	VERTICAL POINT OF INTERSECTION
VPT	VERTICAL POINT OF TANGENT

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.

REV.	DATE	DESCRIPTION	APPROVED
0	01/22/19	ISSUED FOR CONSTRUCTION	TRN

CDG ENGINEERS
One Campbell Plaza
St. Louis, Missouri 63139
T. 314 781 7770
F. 314 781 9075
Missouri State Certificate of Authority # 1271

STATE OF MISSOURI
MATTHEW M. VOSS
NUMBER PE-2011015812
PROFESSIONAL ENGINEER
4-23-2019

MATTHEW M. VOSS
PE-2011015812

Mvoss
January 22, 2019

GENERAL NOTES
COUNTY PROJECT NO. PW19135BXC
HEADS CREEK ROAD BRIDGE
JEFFERSON COUNTY, MISSOURI

CDG PROJECT NO.
18013

DRAWING NO.
T-002

QUANTITY SUMMARY TABLES:

ITEM DESCRIPTION		ESTIMATED QUANTITY	UNIT	FINAL QUANTITY
ROADWAY				
2013000	Clearing and Grubbing	0.5	AC	
2022010	Removal of Improvements	1	LS	
2022019	Sawcutting	47	LF	
2035000	Unclassified Excavation	454	CY	
2035500	Embankment in Place	110	CY	
2036000	Compacting Embankment	110	CY	
3040504	Type 5 Aggregate for Base (4" Thick) (Roadway)	191	SY	
3040514	Type 5 Aggregate for Base (14" Thick) (Shoulders)	44	SY	
4011209	Bituminous Pavement Mixture PG64-22, (BP-1) (Roadway & Shoulders)	30.6	TON	
4013000	Bituminous Pavement Mixture PG64-22, (Base) (Roadway & Shoulders)	123.6	TON	
4071005	Tack Coat	10	Gal	
6061060	MGS Guardrail	75	LF	
6063015	Crashworthy End Terminal (50' System Length)	2	EA	
6066610	End Anchor (End Shoe Guardrail) (12.5' System Length)	2	EA	
JSP	Furnishing Rock Backfill, R18	153	CY	
JSP	Placing Rock Backfill, R18	153	CY	
JSP	Furnishing Rock Boulders, B36 (30"-42")	703	CY	
JSP	Placing Rock Boulders, B36 (30"-42")	703	CY	
JSP	12" Flexible Storm Pipe & Banding	20	LF	
6161097	Traffic Control (All Inclusive)	1	LS	
6181000	Mobilization	1	LS	
6274000	Contractor Furnished Surveying and Staking (MoDOT Spec.)	1	LS	
8051000A	Seeding & Mulching	0.2	AC	
8061019	Silt Fence	371	LF	
8065599	SWPPP Design, Installation, Maintenance, & Removal	1	LS	
8080099	Restoration	1	LS	

* SEE B-101 FOR BRIDGE QUANTITIES

QUANTITY SUMMARY (2B)

ITEM NO.	BID ITEM	DESCRIPTION	SHEET	STATION	LOCATION	QUANITITY	UNIT
ROADWAY							
1	2013000	Clearing and Grubbing	C-101	Project	LT & RT	0.5	AC
TOTAL						**0.5**	**AC**
2	2022010	Removal of Improvements	C-101	Project	-	1	LS
TOTAL						**1**	**LS**
3	2022019	Sawcutting	C-101	Sta 2+50	LT & RT	24	LF
3	2022019	Sawcutting	C-101	Sta 3+40	LT & RT	23	LF
TOTAL						**47**	**LF**
4	2035000	Unclassified Excavation	C-101	Project	LT & RT	454	CY
TOTAL						**454**	**CY**
5	2035500	Embankment in Place	C-101	Project	LT & RT	110	CY
TOTAL						**110**	**CY**
6	2036000	Compacting Embankment	C-101	Project	LT & RT	110	CY
TOTAL						**110**	**CY**
7	3040504	Type 5 Aggregate for Base (4" Thick) (Roadway)	C-101	Sta 2+50 - 2+79	LT & RT	84	SY
7	3040504	Type 5 Aggregate for Base (4" Thick) (Roadway)	C-101	Sta 3+03 - 3+40	LT & RT	107	SY
TOTAL						**191**	**SY**
8	3040514	Type 5 Aggregate for Base (14" Thick) (Shoulders)	C-101	Sta 2+50 - 2+79	LT & RT	19	SY
8	3040514	Type 5 Aggregate for Base (14" Thick) (Shoulders)	C-101	Sta 3+03 - 3+40	LT & RT	25	SY
TOTAL						**44**	**SY**
9	4011209	Bituminous Pavement Mixture PG64-22, (BP-1) (Roadway & Shoulders)	C-101	Sta 2+50 - 3+40	LT & RT	30.6	TON
TOTAL						**30.6**	**TON**
10	4013000	Bituminous Pavement Mixture PG64-22, (Base) (Roadway & Shoulders)	C-101	Sta 2+50 - 3+40	LT & RT	123.6	TON
TOTAL						**123.6**	**TON**
11	4071005	Tack Coat	C-101	Sta 2+79 - 3+03	LT & RT	10	Gal
TOTAL						**10**	**Gal**
12	6061060	MGS Guardrail	C-101	@ Bridge	NE	0.0	LF
12	6061060	MGS Guardrail	C-101	@ Bridge	NW	37.5	LF
12	6061060	MGS Guardrail	C-101	@ Bridge	SE	0.0	LF
12	6061060	MGS Guardrail	C-101	@ Bridge	SW	37.5	LF
TOTAL						**75**	**LF**
13	6063015	Crashworthy End Terminal (50' System Length)	C-101	Sta 2+25	LT	1	EA
13	6063015	Crashworthy End Terminal (50' System Length)	C-101	Sta 3+53	LT	1	EA
TOTAL						**2**	**EA**
14	6066610	End Anchor (End Shoe Guardrail) (12.5' System Length)	C-101	Sta 2+59	RT	1	EA
14	6066610	End Anchor (End Shoe Guardrail) (12.5' System Length)	C-101	Sta 3+47	RT	1	EA
TOTAL						**2**	**EA**

ITEM NO.	BID ITEM	DESCRIPTION	SHEET	STATION	LOCATION	QUANITITY	UNIT
ROADWAY							
15	JSP	Furnishing Rock Backfill, R18	C-401	Project	LT & RT	153	CY
TOTAL						**153**	**CY**
16	JSP	Placing Rock Backfill, R18	C-401	Project	LT & RT	153	CY
TOTAL						**153**	**CY**
17	JSP	Furnishing Rock Boulders, B36 (30"-42")	C-401	Project	LT & RT	703	CY
TOTAL						**703**	**CY**
18	JSP	Placing Rock Boulders, B36 (30"-42")	C-401	Project	LT & RT	703	CY
TOTAL						**703**	**CY**
19	JSP	12" Flexible Storm Pipe & Banding	C-101 & C-401	Sta 2+74 - 2+86	RT	20	LF
TOTAL						**20**	**LF**
20	6161097	Traffic Control (All Inclusive)	C-501	Project	-	1	LS
TOTAL						**1**	**LS**
21	6181000	Mobilization	C-101	Project	-	1	LS
TOTAL						**1**	**LS**
22	6274000	Contractor Furnished Surveying and Staking (MoDOT Spec.)	C-101	Project	-	1	LS
TOTAL						**1**	**LS**
23	8051000A	Seeding & Mulching	C-101	Project	LT & RT	0.2	AC
TOTAL						**0.2**	**AC**
24	8061019	Silt Fence	C-401	Project	LT & RT	371	LF
TOTAL						**371**	**LF**
25	8065599	SWPPP Design, Installation, Maintenance, & Removal	C-401	Project	-	1	LS
TOTAL						**1**	**LS**
26	8080099	Restoration	C-401	Project	-	1	LS
TOTAL						**1**	**LS**

* SEE B-101 FOR BRIDGE QUANTITIES

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.

REV.	DATE	DESCRIPTION	APPROVED
0	01/22/19	ISSUED FOR CONSTRUCTION	TRN

T:\Working\18013 - JeffCo - Heads Creek Bridge\Drawings\T-003 SUMMARY OF QUANTITY.dwg
mvoss 01/22/19-12:59

PLOT SCALE FACTOR 1

T:\Working\18013 - JeffCo - Heads Creek Bridge\Drawings\T-003 SUMMARY OF QUANTITY.dwg Printed by: MVOSS Plot scale = 0.386863

CDG ENGINEERS
One Campbell Plaza
St. Louis, Missouri 63139
T. 314 781 7770
F. 314 781 9075
Missouri State Certificate of Authority # 1271

MATTHEW M. VOSS
PE-2011015812

Mvoss
January 22, 2019

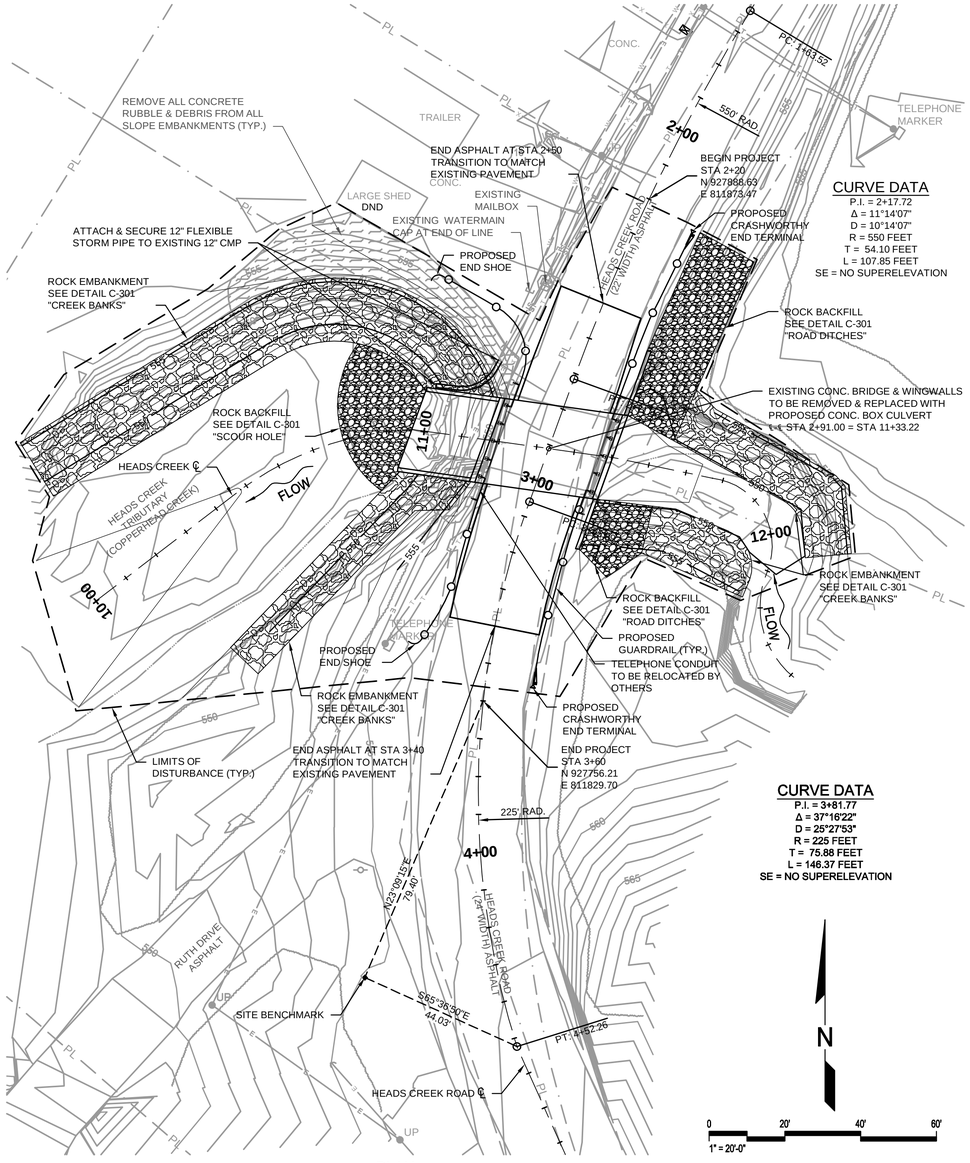
SUMMARY OF QUANTITY (2A & 2B)
COUNTY PROJECT NO. PW19135BXC
HEADS CREEK ROAD BRIDGE
JEFFERSON COUNTY, MISSOURI

CDG PROJECT NO.
18013

DRAWING NO.
T-003

GENERAL NOTES:

1. CONTRACTOR CONSTRUCTION FORCES TO FOLLOW PLANS, SPECIFICATIONS AND DETAILS FOR ALL WORK.
2. CONTRACTOR TO USE MODOT GUIDELINES FOR ROADWAY IMPROVEMENT ITEMS WITHIN COUNTY JURISDICTION UNLESS OTHERWISE NOTED.
3. CONTRACTOR TO HAUL CONCRETE RUBBLE, GUARDRAIL, DEBRIS, ETC. OFF-SITE AND DISPOSE OF IN AN APPROPRIATE MANNER. REMOVAL ITEMS MAY BE SALVAGED.
4. CONTRACTOR TO ENSURE POSITIVE DRAINAGE ON ALL DRAINAGE STRUCTURES, PIPES, DITCHES, CHANNELS, AND GRADING, ETC.



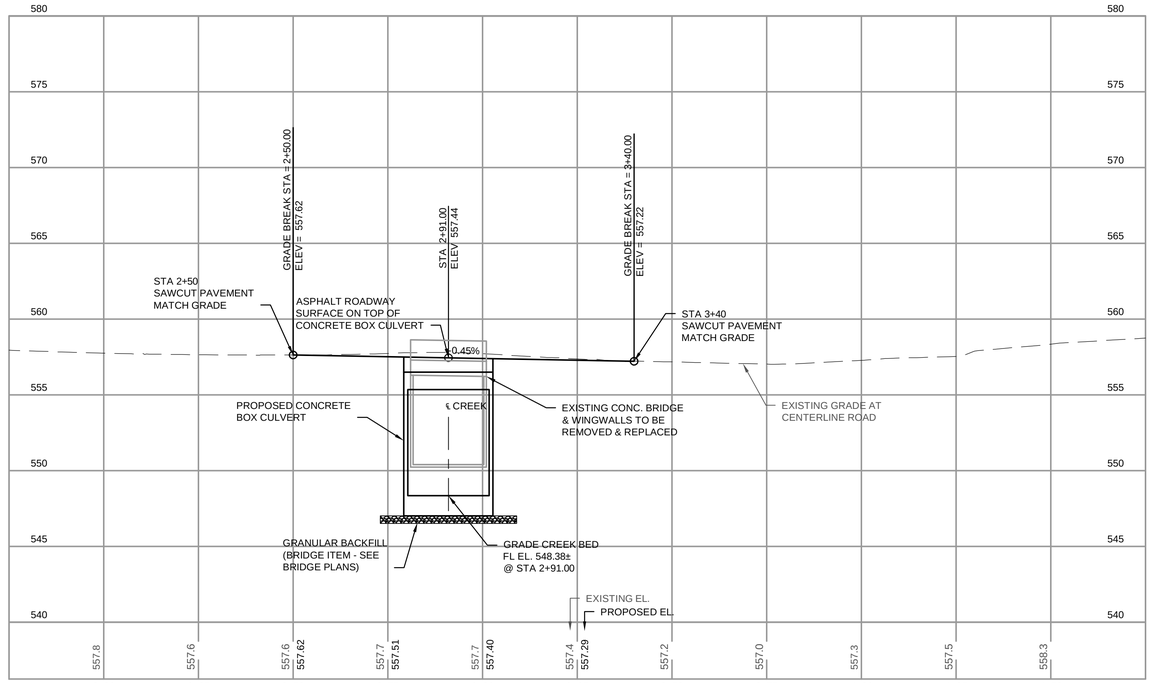
CURVE DATA
P.I. = 2+17.72
Δ = 11°14'07"
D = 10°14'07"
R = 550 FEET
T = 54.10 FEET
L = 107.85 FEET
SE = NO SUPERELEVATION

CURVE DATA
P.I. = 3+81.77
Δ = 37°16'22"
D = 25°27'53"
R = 225 FEET
T = 75.88 FEET
L = 146.37 FEET
SE = NO SUPERELEVATION

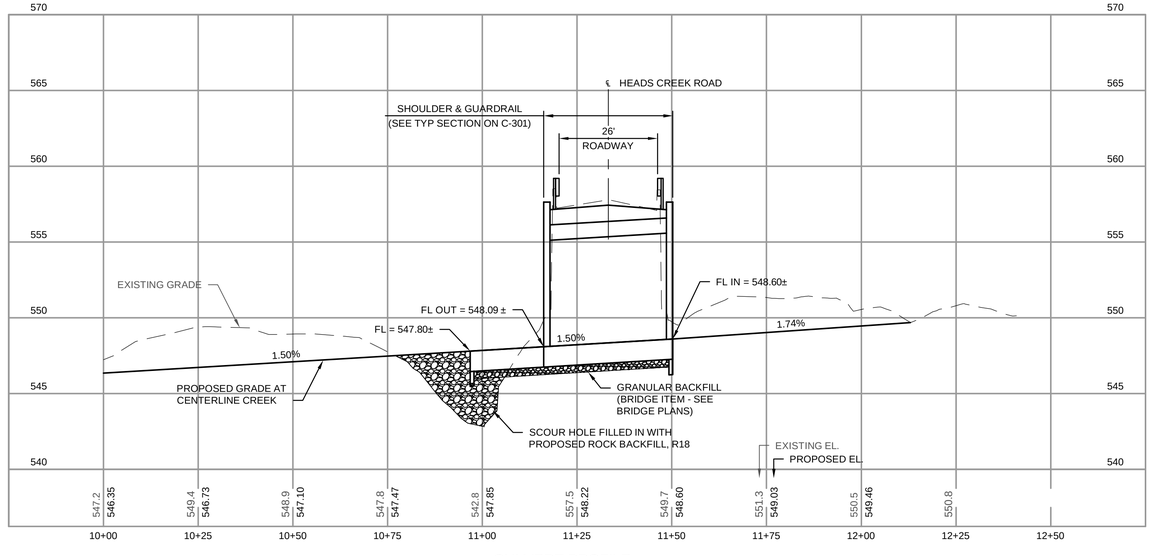
N

0 20' 40' 60'
1" = 20'-0"

PLAN
SCALE: 1" = 20'



ROADWAY PROFILE
HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 5'



CULVERT PROFILE
HORIZONTAL SCALE: 1" = 20
VERTICAL SCALE: 1" = 5'

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.				
	0	01/22/19	ISSUED FOR CONSTRUCTION	TRN
	REV.	DATE	DESCRIPTION	APPROVED

PLOT SCALE FACTOR 1

T:\Working\18013 - JeffCo - Heads Creek Bridge\Drawings\C-101 CULVERT PLAN & PROFILES.dwg
mvoss 01/22/19-15:38

T:\Working\18013 - JeffCo - Heads Creek Bridge\Drawings\C-101 CULVERT PLAN & PROFILES.dwg Printed by: MVOSS Plot scale = 0.386863

CDG ENGINEERS
One Campbell Plaza
St. Louis, Missouri 63139
T. 314 781 7770
F. 314 781 9075
Missouri State Certificate of Authority # 1271

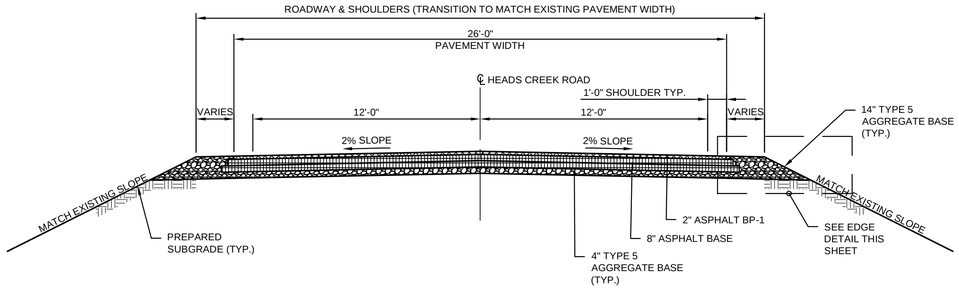
MATTHEW M. VOSS
PE-2011015812

Mvoss
January 22, 2019

CULVERT PLAN & PROFILES
COUNTY PROJECT NO. PW19135BXC
HEADS CREEK ROAD BRIDGE
JEFFERSON COUNTY, MISSOURI

CDG PROJECT NO.
18013

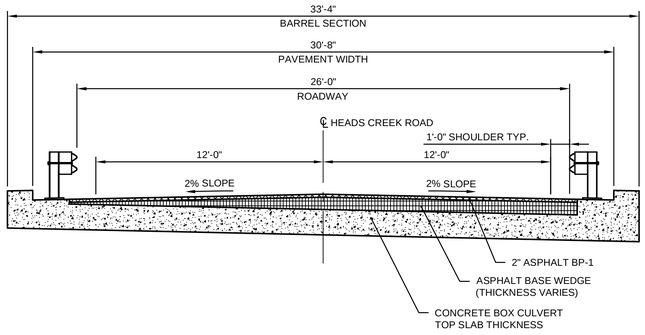
DRAWING NO.
C-101



TYPICAL SECTION - ROADWAY

SCALE: 1"= 4'-0"

STA 2+50 THRU 2+79
STA 3+03 THRU 3+40

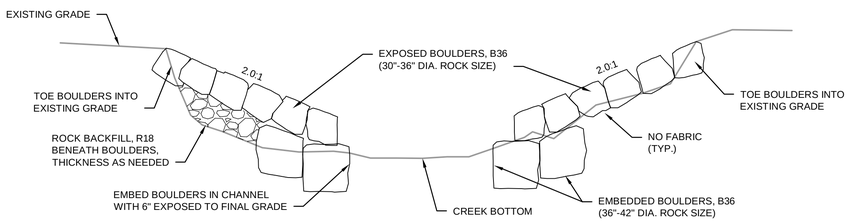


TYPICAL SECTION - ON STRUCTURE

SCALE: 1"= 4'-0"

STA 2+79 THRU 3+03

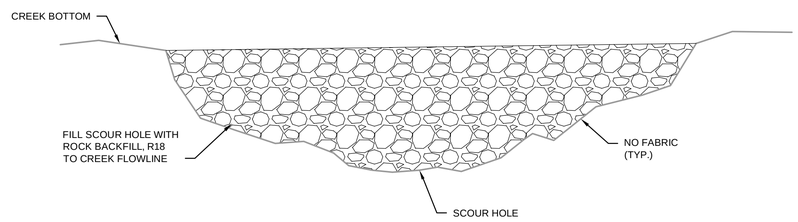
(PERPENDICULAR TO ROADWAY CENTERLINE)
(VIEW LOOKING SOUTH AT CENTERLINE STRUCTURE)
* SEE BRIDGE PLANS FOR CULVERT DETAILS



TYPICAL SECTION - CREEK BANKS

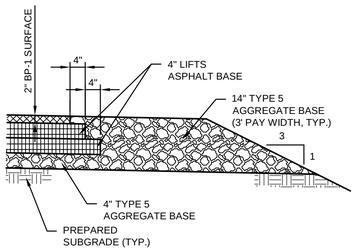
NOT TO SCALE

* BOULDERS WILL BE PAID UNDER BID ITEMS
"FURNISHING & PLACING ROCK BOULDERS 30"-42""



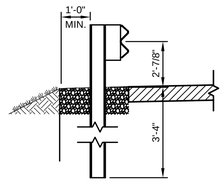
TYPICAL SECTION - SCOUR HOLE

NOT TO SCALE



TYPICAL PAVEMENT - EDGE DETAIL

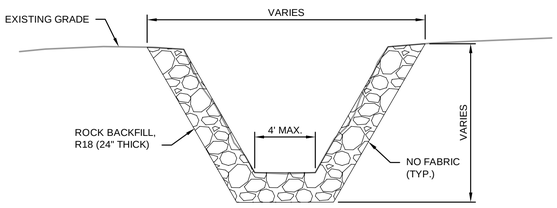
NOT TO SCALE



GUARD RAIL NOTES:
1. INSTALL GUARDRAIL PER SPECIFICATIONS.
2. INSTALL POST PER SPECIFICATIONS.

TYPICAL DETAIL - MGS GUARDRAIL

NOT TO SCALE

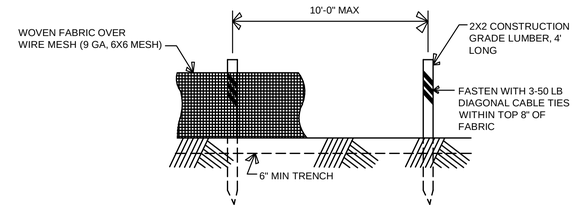


TYPICAL SECTION - ROAD DITCHES

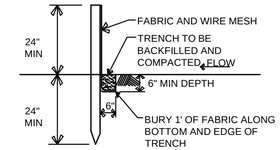
NOT TO SCALE

NOTE:

* IF LARGE BOULDERS ARE NOT READILY AVAILABLE, CONTRACTOR MAY SUBSTITUTE ARMAMENT OF CREEK BANKS WITH AN ALTERNATE NATURAL MATERIAL (NON-RUBBLE), WHICH CAN WITHSTAND EROSIONAL SCOURING POTENTIAL AND FLOW VELOCITIES UP TO 15 FT/S. CONTRACTOR MUST GAIN COUNTY APPROVAL PRIOR TO CONSTRUCTION OF SAID MATERIAL.



ELEVATION



SECTION

SILT FENCE DETAIL

NOT TO SCALE

GENERAL NOTES:

1. UNLESS OTHERWISE NOTED ON THE PLANS OR IN THE SPECIFICATIONS, ALL IMPROVEMENTS WITHIN LIMITS OF CONSTRUCTION TO BE REMOVED.
2. REMOVE TO FULL DEPTH ALL EXISTING ROADBED WITHIN LIMITS OF WORK.
3. CLEARING & GRUBBING / SEEDING & MULCHING SHALL OCCUR AND BE MINIMIZED WITHIN THE CONSTRUCTION AREA.

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.

REV.	DATE	DESCRIPTION	APPROVED
0	01/22/19	ISSUED FOR CONSTRUCTION	TRN

PLOT SCALE FACTOR 1

T:\Working\18013 - JeffCo - Heads Creek Bridge\Drawings\C-301 TYPICAL DETAILS.dwg
mvoss 01/22/19-12:33

T:\Working\18013 - JeffCo - Heads Creek Bridge\Drawings\C-301 TYPICAL DETAILS.dwg Printed by: MVOSS Plot scale = 0.386863

CDG ENGINEERS
One Campbell Plaza
St. Louis, Missouri 63139
T. 314 781 7770
F. 314 781 9075
Missouri State Certificate of Authority # 1271

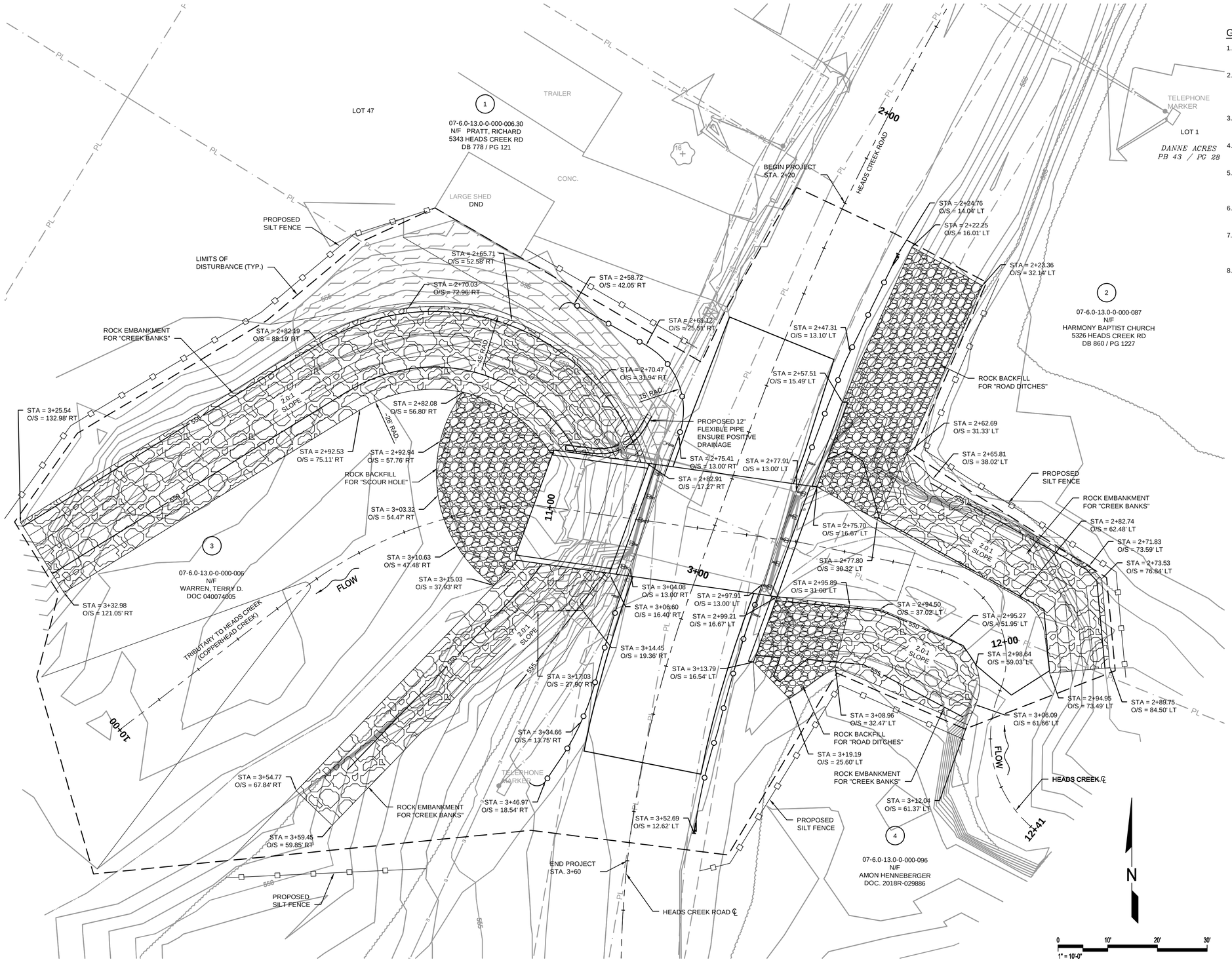
MATTHEW M. VOSS
PE-2011015812

Mvoss
January 22, 2019

TYPICAL DETAILS
COUNTY PROJECT NO. PW19135BXC
HEADS CREEK ROAD BRIDGE
JEFFERSON COUNTY, MISSOURI

CDG PROJECT NO.
18013

DRAWING NO.
C-301



GRADING & SITE PLAN

SCALE: 1" = 10'

GENERAL NOTES:

1. ALL EXISTING IMPROVEMENTS AND EXISTING TREES AND SHRUBS ARE TO REMAIN UNLESS OTHERWISE NOTED.
2. CONTRACTOR SHALL DESIGN, INSTALL, MAINTAIN, EROSION CONTROL MEASURES DURING CONSTRUCTION AS NECESSARY TO CONTROL AND PREVENT POLLUTION OF STORMWATER AND ADJUST AS DIRECTED.
3. PLACE WASHDOWN STATION AT THE CONSTRUCTION SITE ENTRANCE TO THE PROJECT SITE.
4. EROSION CONTROL METHODS SHALL BE INSPECTED WEEKLY AND AFTER RAINFALL EVENTS OF 1 INCH OR MORE.
5. EROSION CONTROL MEASURES SHALL BE REMOVED ONCE VEGETATION HAS BEEN FULLY ESTABLISHED AFTER THE COMPLETION OF THE PROJECT.
6. SEEDING SHALL OCCUR UPON THE IMMEDIATE COMPLETION OF GRADING ACTIVITIES.
7. THIS PLAN IS GIVEN AS A GUIDE TO THE CONTRACTOR FOR PLACEMENT OF EROSION CONTROL. CONTRACTOR MAY ALTER EROSION CONTROL AS NEEDED.
8. CONTRACTOR TO TAKE CAREFUL MEASURES THAT TREES ARE NOT TO BE DAMAGED DURING CONSTRUCTION ACTIVITIES. TREES ARE SUITABLE HABITATS AND/OR PROTECT AGAINST BANK SCOURING.

LEGEND:

- EXIST. CONCRETE RUBBLE & DEBRIS
- ROCK EMBANKMENT, B36 "CREEK BANKS"
- ROCK BACKFILL, R18 "SCOUR HOLE"
- ROCK BACKFILL, R18 "ROAD DITCHES"
- SILT FENCE

NOTE:

* IF LARGE BOULDERS ARE NOT READILY AVAILABLE, CONTRACTOR MAY SUBSTITUTE ARMAMENT OF CREEK BANKS WITH AN ALTERNATE NATURAL MATERIAL (NON-RUBBLE), WHICH CAN WITHSTAND EROSIONAL SCOURING POTENTIAL AND FLOW VELOCITIES UP TO 15 FT/S. CONTRACTOR MUST GAIN COUNTY APPROVAL PRIOR TO CONSTRUCTION OF SAID MATERIAL.

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.

REV.	DATE	DESCRIPTION	APPROVED
0	01/22/19	ISSUED FOR CONSTRUCTION	TRN

CDG ENGINEERS
One Campbell Plaza
St. Louis, Missouri 63139
T. 314 781 7770
F. 314 781 9075
Missouri State Certificate of Authority # 1271

MATTHEW M. VOSS
PE-2011015812

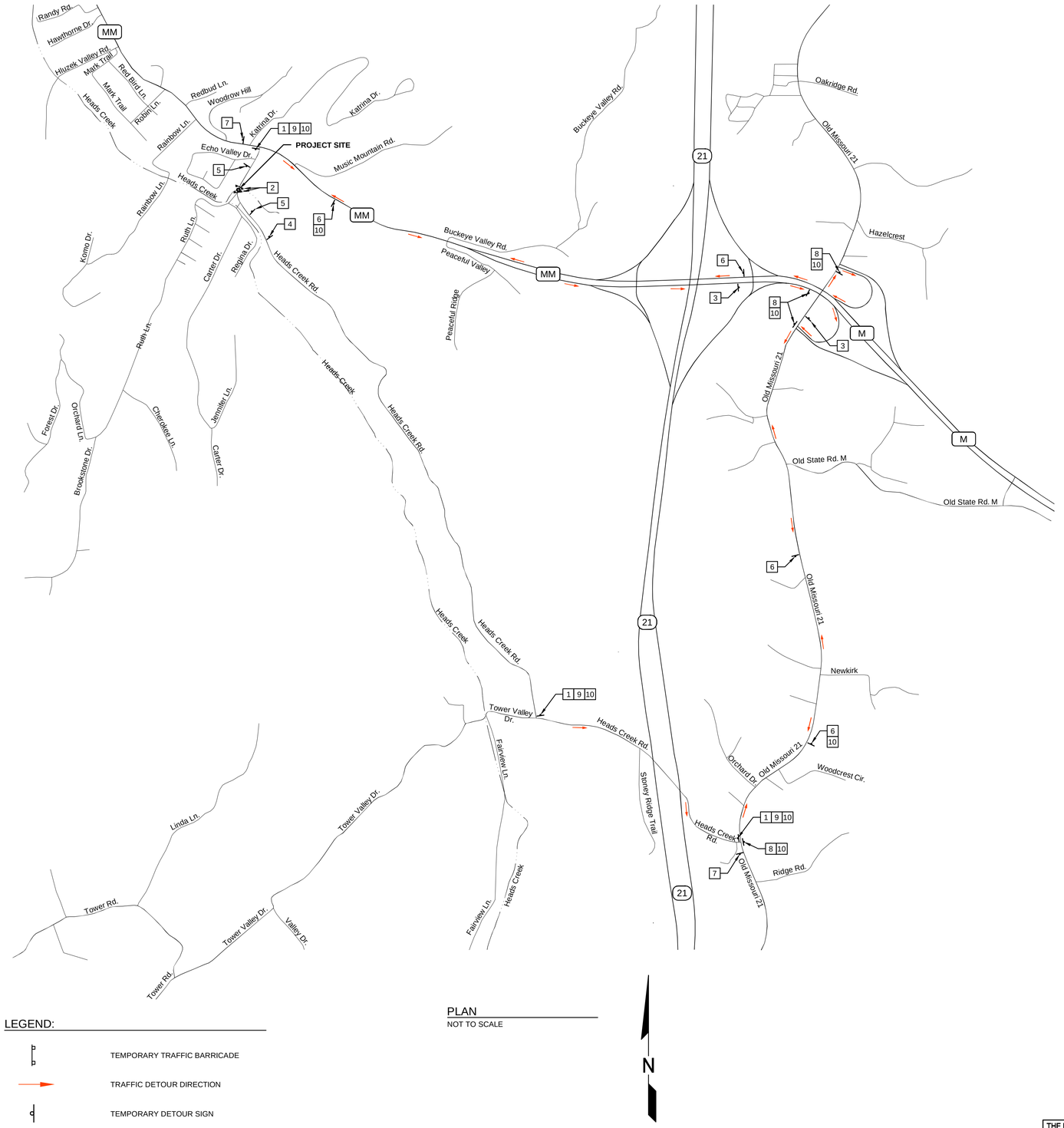
Mvoss
January 22, 2019

SITE GRADING PLAN
COUNTY PROJECT NO. PW19135BXC
HEADS CREEK ROAD BRIDGE
JEFFERSON COUNTY, MISSOURI

CDG PROJECT NO.
18013

DRAWING NO.
C-401

T:\Working\18013 - JeffCo - Heads Creek Bridge\Drawings\C-401 SITE GRADING PLAN.dwg Printed by: MVOSS Plot scale = 0.386863
T:\Working\18013 - JeffCo - Heads Creek Bridge\Drawings\C-401 SITE GRADING PLAN.dwg
mvoss 01/22/19-15:52
PLOT SCALE FACTOR 1



PLAN
NOT TO SCALE

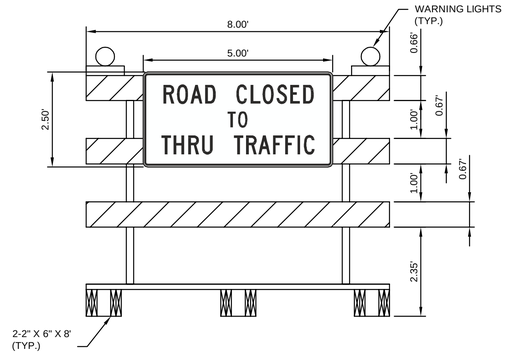
LEGEND:

- TEMPORARY TRAFFIC BARRICADE
- TRAFFIC DETOUR DIRECTION
- TEMPORARY DETOUR SIGN

GENERAL NOTES:

1. CONTRACTOR TO MAINTAIN TRAFFIC CONTROL DURING CONSTRUCTION.
2. TRAFFIC CONTROL MAY BE REVISED BY CONTRACTOR PER PUBLIC WORKS DEPARTMENT APPROVAL.
3. LOCAL RESIDENTS SHALL HAVE ACCESS TO THEIR DRIVEWAY THROUGHOUT CONSTRUCTION. MAINTAIN ACCESS FOR ALL LOCAL PROPERTY OWNERS DURING CONSTRUCTION.
4. ALL SIGNS SHALL BE SIZED FOR CONVENTIONAL ROAD, UNLESS NOTED OTHERWISE.
5. ALL SIGNS SHALL CONFORM TO THE CURRENT EDITION OF THE MUTCD.
6. CONTRACTOR TO COORDINATE WITH COUNTY BEFORE SIGN PLACEMENT. DISTANCES FOR R11-3b SIGN TO BE DETERMINED BEFORE SIGN PLACEMENT.
7. ARROW SIGNS (M4-9 & M4-10) SHALL BE SELECTED (LEFT OR RIGHT OR STRAIGHT AHEAD) IN THE CORRECT DIRECTION OF THE DETOUR ROUTE.
8. CHANGEABLE MESSAGE SIGN MAY BE USED AS REQUESTED BY THE COUNTY.

R11-3b
60" x 30"
(3 EA)
1



TYPE 3 MOVABLE BARRICADE
R11-4
(6 EA.)
2

W20-2
36" x 36"
(2 EA)
3

W20-3
36" x 36"
(1 EA)
4

W20-3
36" x 36"
(2 EA)
5

M4-8
24" x 12"
(4 EA)
6

M4-8a
24" x 18"
(2 EA)
7

M4-9
30" x 24"
(3 EA)
8

M4-10
48" x 18"
(3 EA)
9

D3-1
24" x 12"
(8 EA)
10

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.

REV.	DATE	DESCRIPTION	APPROVED
0	01/22/19	ISSUED FOR CONSTRUCTION	TRN

CDG ENGINEERS
One Campbell Plaza
St. Louis, Missouri 63139
T. 314 781 7770
F. 314 781 9075
Missouri State Certificate of Authority # 1271

MATTHEW M. VOSS
PE-2011015812

Mvoss
December 21, 2018

DETOUR PLAN
CIVIL DRAWINGS
HEADS CREEK ROAD BRIDGE
JEFFERSON COUNTY, MISSOURI

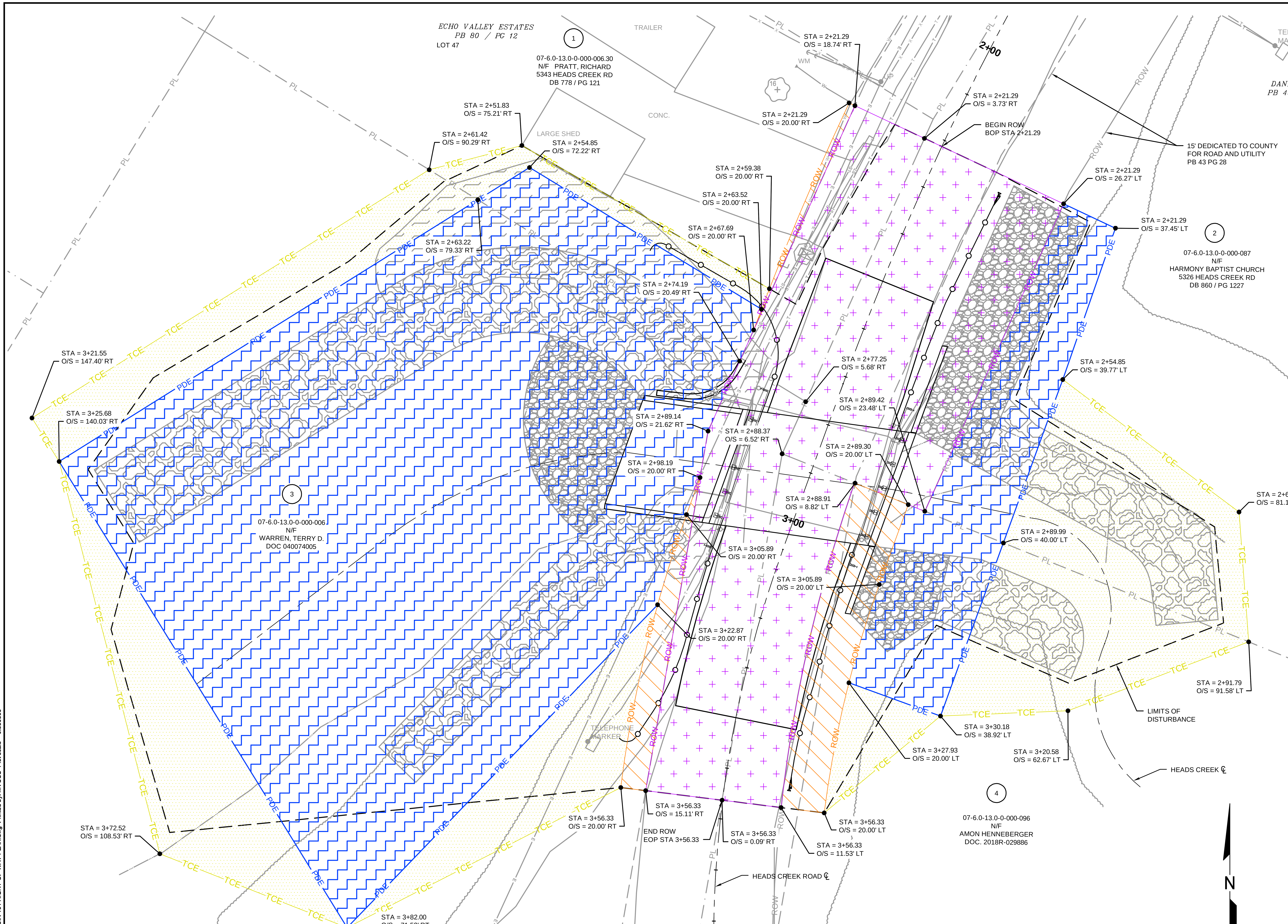
CDG PROJECT NO.
18013

DRAWING NO.
C-501

T:\Working\18013 - JeffCo - Heads Creek Bridge\Drawings\C-501 DETOUR PLAN.dwg
mvoss 01/18/19-09:45

PLOT SCALE FACTOR 1

T:\Working\18013 - JeffCo - Heads Creek Bridge\Drawings\C-501 DETOUR PLAN.dwg Printed by: MVOSS Plot scale = 0.386863



GENERAL NOTES:

1. CLEARING & GRUBBING / SEEDING & MULCHING SHALL OCCUR AND BE MINIMIZED WITHIN EASEMENTS (TCE & PDE) AND PROPOSED RIGHT-OF-WAY AREAS.

LEGEND:

- NEW RIGHT OF WAY (ROW)
- NEW RIGHT OF WAY OVER EXISTING PRESCRIPTIVE ROAD EASEMENT (PRE)
- PERMANENT DRAINAGE EASEMENT (PDE)
- TEMPORARY CONSTRUCTION EASEMENT (TCE)

0 10' 20' 30'
1" = 10'-0"

PARCEL #	N/F OWNER NAME	ADDRESS	PARCEL ID	DEED	TOTAL ACRES	ROW	ROW OVER EXISTING PRE	PDE	TCE ACQUISITION	REMAINDER
1	RICHARD PRATT	5343 HEADS CREEK ROAD	07-6.0-13.0-000-006.30	BK: 778 / PG: 121	0.18 AC.	47 SQ.FT. / 0.00 AC.	833 SQ.FT. / 0.02 AC.	608 SQ.FT. / 0.01 AC.	297 SQ.FT. / 0.01 AC.	0.16 AC.
2	HARMONY BAPTIST CHURCH	5326 HEADS CREEK ROAD	07-6.0-13.0-0-000-087	BK: 860 / PG: 1227	5.30 AC.	0 SQ.FT. / 0.00 AC.	2001 SQ.FT. / 0.05 AC.	913 SQ.FT. / 0.02 AC.	1287 SQ.FT. / 0.03 AC.	5.25 AC.
3	TERRY D. WARREN	457 COUNTY ROAD 46, MIDLAND, AL	07-6.0-13.0-0-000-006	DOC.#: 040074005	1.57 AC.	231 SQ.FT. / 0.01 AC.	1245 SQ.FT. / 0.03 AC.	10097 SQ.FT. / 0.23 AC.	3036 SQ.FT. / 0.07 AC.	1.54 AC.
4	AMON HENNEBERGER	5555 HEADS CREEK ROAD	07-6.0-13.0-0-000-096	DOC.#: 2018R-029886	16.98 AC.	621 SQ.FT. / 0.01 AC.	807 SQ.FT. / 0.02 AC.	719 SQ.FT. / 0.02 AC.	1326 SQ.FT. / 0.03 AC.	16.95 AC.

RIGHT-OF-WAY & EASEMENT PLAN

SCALE: 1" = 10'

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.

REV.	DATE	DESCRIPTION	APPROVED
0	01/22/19	ISSUED FOR CONSTRUCTION	TRN

PLOT SCALE FACTOR 1

T:\Working\18013 - JeffCo - Heads Creek Bridge\Drawings\R-101 RIGHT-OF-WAY PLAN.dwg
mvoss 01/18/19-09:49

T:\Working\18013 - JeffCo - Heads Creek Bridge\Drawings\R-101 RIGHT-OF-WAY PLAN.dwg Printed by: MVOSS Plot scale = 0.386863

CDG ENGINEERS
One Campbell Plaza
St. Louis, Missouri 63139
T. 314 781 7770
F. 314 781 9075
Missouri State Certificate of Authority # 1271

JEFFERSON COUNTY MISSOURI 1818

STATE OF MISSOURI
MATTHEW M. VOSS
NUMBER
PE-2011015812
PROFESSIONAL ENGINEER

MATTHEW M. VOSS
PE-2011015812

Mvoss
October 30, 2018

RIGHT-OF-WAY PLAN
COUNTY PROJECT NO. PW19135BXC
HEADS CREEK ROAD BRIDGE
JEFFERSON COUNTY, MISSOURI

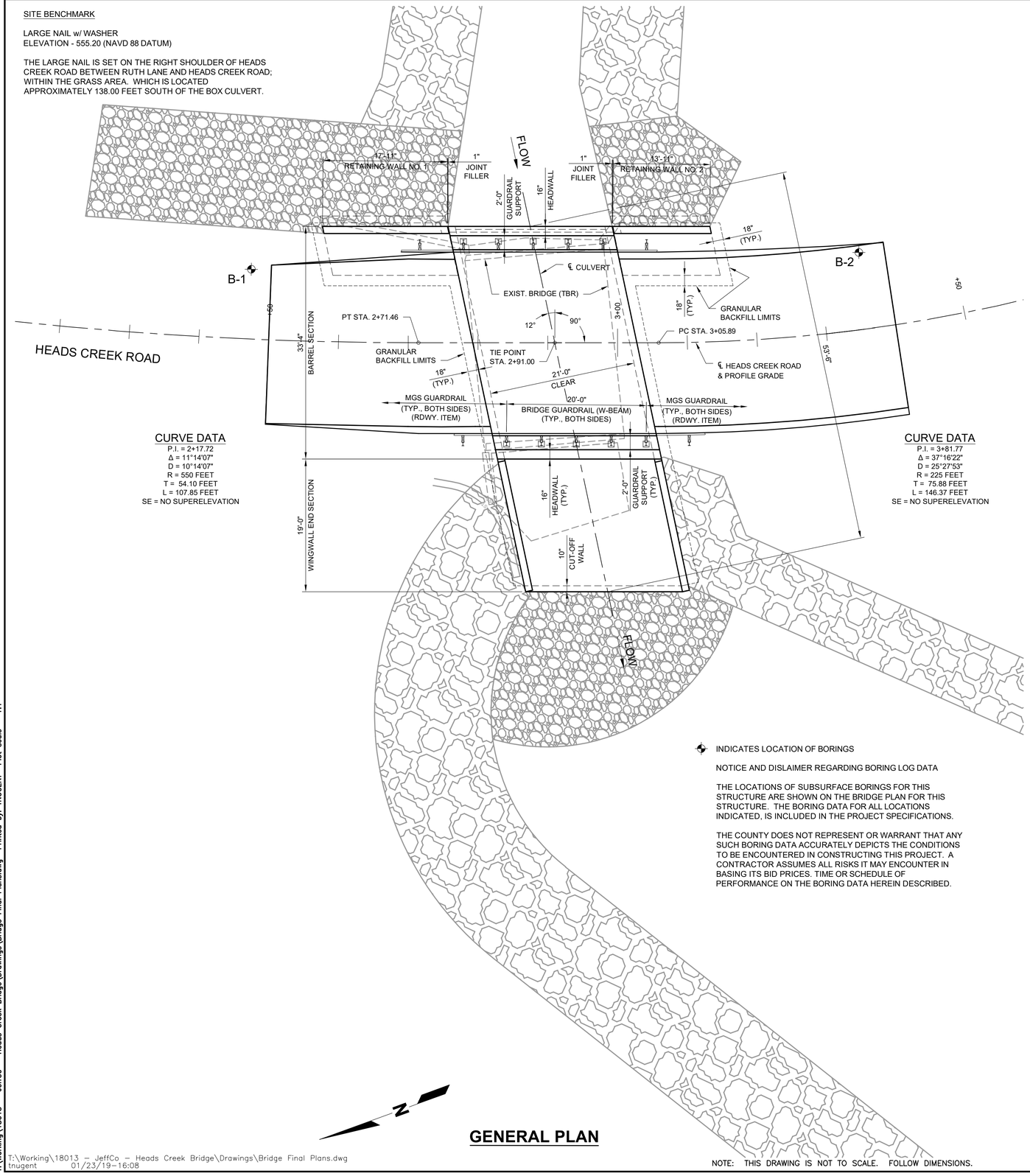
CDG PROJECT NO.
18013

DRAWING NO.
R-101

SITE BENCHMARK

LARGE NAIL w/ WASHER
ELEVATION - 555.20 (NAVD 88 DATUM)

THE LARGE NAIL IS SET ON THE RIGHT SHOULDER OF HEADS CREEK ROAD BETWEEN RUTH LANE AND HEADS CREEK ROAD; WITHIN THE GRASS AREA. WHICH IS LOCATED APPROXIMATELY 138.00 FEET SOUTH OF THE BOX CULVERT.



CURVE DATA

P.I. = 2+17.72
Δ = 11°14'07"
D = 10°14'07"
R = 550 FEET
T = 54.10 FEET
L = 107.85 FEET
SE = NO SUPERELEVATION

CURVE DATA

P.I. = 3+81.77
Δ = 37°16'22"
D = 25°27'53"
R = 225 FEET
T = 75.88 FEET
L = 146.37 FEET
SE = NO SUPERELEVATION

INDICATES LOCATION OF BORINGS

NOTICE AND DISLAIMER REGARDING BORING LOG DATA

THE LOCATIONS OF SUBSURFACE BORINGS FOR THIS STRUCTURE ARE SHOWN ON THE BRIDGE PLAN FOR THIS STRUCTURE. THE BORING DATA FOR ALL LOCATIONS INDICATED, IS INCLUDED IN THE PROJECT SPECIFICATIONS.

THE COUNTY 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 HEREIN DESCRIBED.

GENERAL PLAN

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

GENERAL NOTES:

DESIGN SPECIFICATIONS:
2012 - AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS (6th EDITION) AND 2013 INTERIM REVISIONS

DESIGN LOADING:
VEHICULAR = HL-93 MINUS LANE LOAD
EARTH 120 LB/CF
EQUIVALENT FLUID PRESSURE 69 LB/CFT (RETAINING WALLS)
EQUIVALENT FLUID PRESSURE 30 LB/CF (MIN.), 69 LB/CF (MAX) (BOX CULVERT)

DESIGN UNIT STRESSES:

CLASS B-1 CONCRETE (BOX CULVERT)	f'c = 4,000 psi
CLASS B-1 CONCRETE (RETAINING WALLS)	f'c = 4,000 psi
REINFORCING STEEL (GRADE 60)	fy = 60,000 psi

MATERIALS:
REINFORCING STEEL: MINIMUM CLEARANCE TO REINFORCING STEEL SHALL BE 1 1/2", UNLESS OTHERWISE SHOWN. THE USE OF AUTOMATIC TIE GUNS SHALL NOT BE PERMITTED. ALL STEEL SHALL BE TIED 100%.

JOINT FILLER:
ALL JOINT FILLER SHALL BE IN ACCORDANCE WITH SEC 1057 FOR PREFORMED SPONGE RUBBER EXPANSION AND PARTITION JOINT FILLER, EXCEPT AS NOTED.

MISCELLANEOUS:
WHEN ALTERNATE PRECAST CONCRETE BOX CULVERT SECTIONS ARE USED, THE MINIMUM DISTANCE FROM INSIDE FACE OF HEADWALLS TO PRECAST SECTIONS MEASURED ALONG THE SHORTEST WALL SHALL BE 3 FEET. REINFORCEMENT AND DIMENSIONS FOR WINGS AND HEADWALLS SHALL BE IN ACCORDANCE WITH MISSOURI STANDARD PLANS EXCEPT AS OTHERWISE SHOWN HEREIN.

SHEET B-102 (SECTION THRU BARREL) SHOWS A SINGLE CELL RECTANGULAR BOX CULVERT WITH A CLEAR WIDTH OF 21'-0" AND A CLEAR HEIGHT OF 7'-0". ALTERNATE SINGLE CELL BOX CULVERT CONFIGURATIONS USING CORNER HAUNCHES AND PROVIDING THE SAME EFFECTIVE WATERWAY OPENING WILL BE ALLOWED. THE CONTRACTOR SHALL SUBMIT DRAWINGS, DESIGN CALCULATIONS AND LOAD RATING CALCULATIONS, SIGNED AND SEALED BY A MISSOURI REGISTERED PROFESSIONAL ENGINEER, A MINIMUM OF 3 WEEKS PRIOR TO FABRICATION OF THE BOX CULVERT TO THE COUNTY FOR REVIEW AND APPROVAL.

ANY CHANGES TO THE PROJECT DESIGN OR DETAILS NECESSARY TO ACCOMMODATE THE CONTRACTOR'S ALTERNATE STRUCTURE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. NO ADDITIONAL COMPENSATION WILL BE ALLOWED FOR THIS CHANGE. COMPENSATION WILL BE MADE AT THE CONTRACT UNIT PRICES FOR THE ORIGINAL PAY ITEMS AND QUANTITIES SHOWN IN THE PLANS UNLESS ERRORS ARE FOUND OR OTHER ADJUSTMENTS ARE APPROVED BY THE COUNTY.

FILL MATERIAL UNDER THE SLAB SHALL BE FIRMLY TAMPED BEFORE THE SLAB IS POURED.

IF UNSUITABLE MATERIAL IS ENCOUNTERED, EXCAVATION OF UNSUITABLE MATERIAL AND FURNISHING AND PLACING OF GRANULAR BACKFILL SHALL BE IN ACCORDANCE WITH SEC 206.

CHANNEL BOTTOM SHALL BE GRADED FOR TRANSITION OF CHANNEL BED TO CULVERT OPENINGS. CHANNEL BANKS SHALL BE TAPERED TO MATCH CULVERT OPENINGS. (RDWY. ITEM).

SEC REFERS TO SECTIONS IN THE MISSOURI STANDARD AND SUPPLEMENTAL SPECIFICATIONS FOR HIGHWAY CONSTRUCTION UNLESS SPECIFIED OTHERWISE.

TRAFFIC HANDLING: ROAD CLOSED DURING CONSTRUCTION. SEE ROADWAY PLANS FOR TRAFFIC CONTROL.

CONSTRUCTION SPECIFICATIONS:
THE 2018 EDITION OF THE MoDOT'S "MISSOURI STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION" AND THE JOB SPECIFICATIONS SHALL GOVERN.

HYDROLOGIC DATA

DRAINAGE AREA = 2.8 SQ. MILES
DESIGN DISCHARGE = 2860 CU. FT. / SEC. (100 YEAR)
U/S DESIGN H.W. ELEVATION = 560.01 (100 YEAR)

TABLE OF ESTIMATED STRUCTURE QUANTITIES

ITEM	UNIT	ESTIMATED	FINAL
CLASS 4 EXCAVATION	CU. YARD	350	
GRANULAR BACKFILL	CU. YARD	61	
REMOVAL OF BRIDGES	LUMP SUM	1	
CLASS B-1 CONCRETE (RETAINING WALLS)	CU. YARD	28.1	
CLASS B-1 CONCRETE (CULVERTS-BRIDGE)	CU. YARD	131.4	
REINFORCING STEEL (CULVERTS-BRIDGE)	POUND	12430	
REINFORCING STEEL (RETAINING WALLS)	POUND	5520	
REINFORCING STEEL (EPOXY COATED)	POUND	8830	
BRIDGE GUARDRAIL (W-BEAM)	LIN. FOOT	40	

PLOT SCALE FACTOR 1

REV.	DATE	DESCRIPTION	APPROVED
0	01/23/19	ISSUED FOR CONSTRUCTION	TRN

CDG ENGINEERS
One Campbell Plaza
St. Louis, Missouri 63139
T. 314 781 7770
F. 314 781 9075

JEFFERSON COUNTY MISSOURI 1848

STATE OF MISSOURI
TIMOTHY R. NUGENT
NUMBER PE-2003001080
01-23-19
TIMOTHY R. NUGENT, P.E.
MO# PE-2003001080

Tnugent
January 23, 2019

GENERAL PLAN & ELEVATION
COUNTY PROJECT NO. PW19135BXC
HEADS CREEK ROAD BRIDGE
JEFFERSON COUNTY, MISSOURI

CDG PROJECT NO.
18013

DRAWING NO.
B-101

T:\Working\18013 - JeffCo - Heads Creek Bridge\Drawings\Bridge Final Plans.dwg Printed by: TNUGENT Plot scale = 1:1

T:\Working\18013 - JeffCo - Heads Creek Bridge\Drawings\Bridge Final Plans.dwg
tnugent 01/23/19-16:08

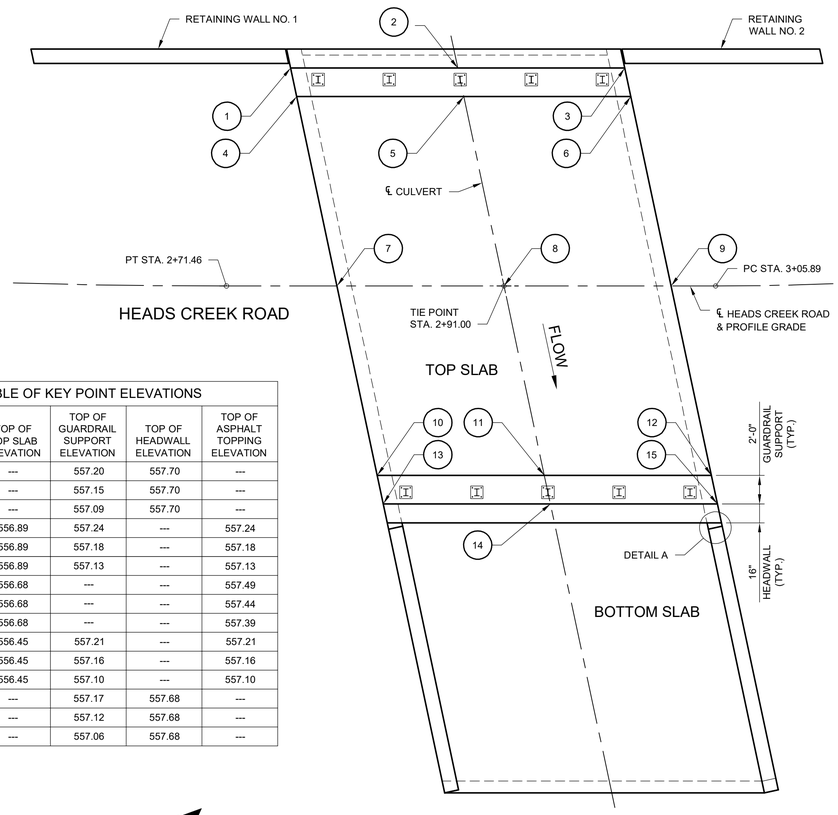
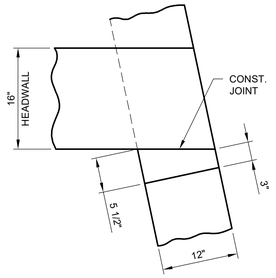
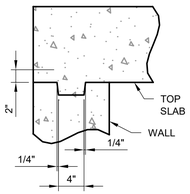


TABLE OF KEY POINT ELEVATIONS				
POINT NUMBER	TOP OF TOP SLAB ELEVATION	TOP OF GUARDRAIL SUPPORT ELEVATION	TOP OF HEADWALL ELEVATION	TOP OF ASPHALT TOPPING ELEVATION
1	---	557.20	557.70	---
2	---	557.15	557.70	---
3	---	557.09	557.70	---
4	556.89	557.24	---	557.24
5	556.89	557.18	---	557.18
6	556.89	557.13	---	557.13
7	556.68	---	---	557.49
8	556.68	---	---	557.44
9	556.68	---	---	557.39
10	556.45	557.21	---	557.21
11	556.45	557.16	---	557.16
12	556.45	557.10	---	557.10
13	---	557.17	557.68	---
14	---	557.12	557.68	---
15	---	557.06	557.68	---

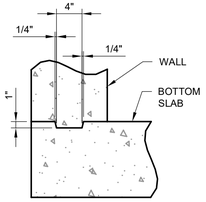
PLAN SHOWING KEY POINT ELEVATIONS



DETAIL A



KEYED JOINT AT TOP SLAB



KEYED JOINT AT BOTTOM SLAB

CONSTRUCTION JOINT DETAILS

NOTES:

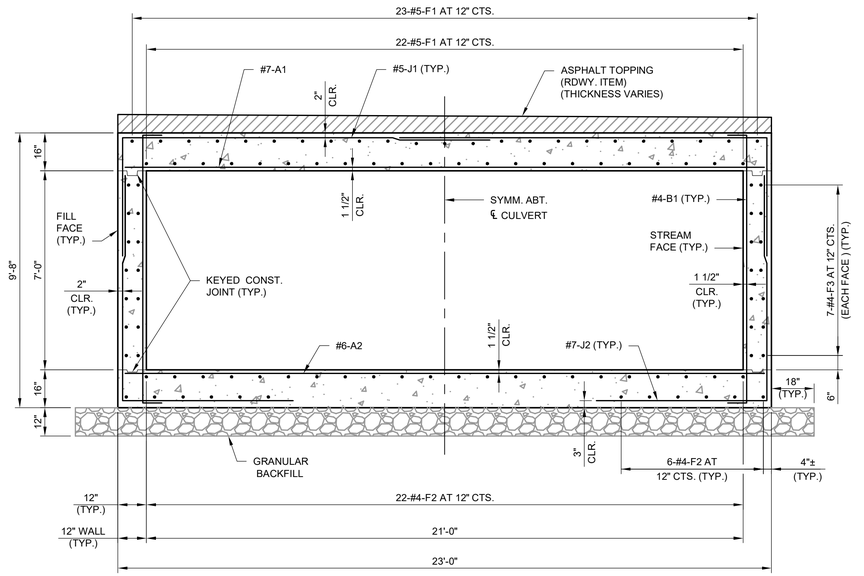
SEE DRAWING B-103 CULVERT ELEVATION.AND SECTION THRU WINGWALL END SECTION.

SEE DRAWINGS B-104 & B-105 FOR DETAILS OF RETAINING WALLS NO. 1 & 2.

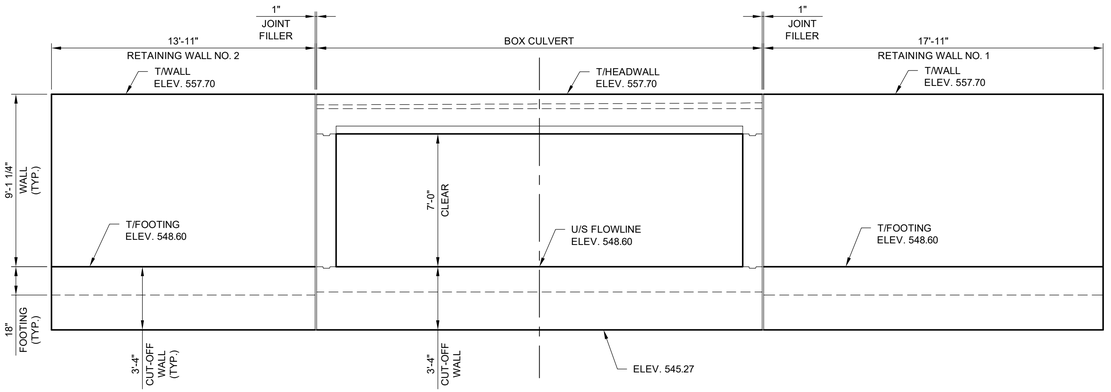
SEE DRAWING B-106 FOR PLAN SHOWING BOTTOM SLAB REINFORCEMENT.

SEE DRAWING B-107 FOR PLAN SHOWING TOP SLAB REINFORCEMENT.

SEE DRAWING B-108 FOR GUARDRAIL POST LOCATIONS AND DETAILS.

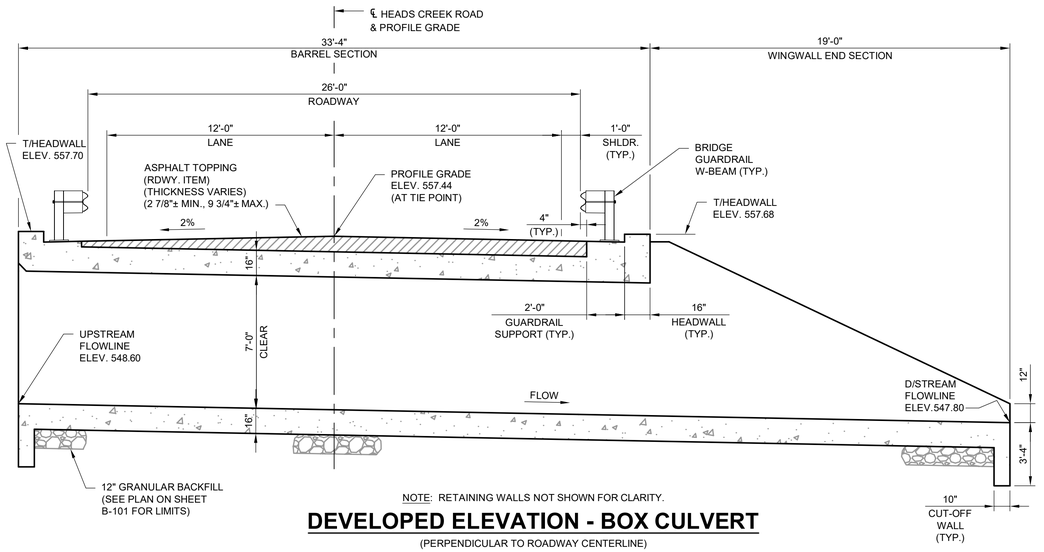


SECTION THRU BARREL



ELEVATION AT UPSTREAM FACE

(LOOKING WEST)



NOTE: RETAINING WALLS NOT SHOWN FOR CLARITY.

DEVELOPED ELEVATION - BOX CULVERT

(PERPENDICULAR TO ROADWAY CENTERLINE)

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

PLOT SCALE FACTOR 1

REV.	DATE	DESCRIPTION	APPROVED
0	01/23/19	ISSUED FOR CONSTRUCTION	TRN

CDG ENGINEERS
One Campbell Plaza
St. Louis, Missouri 63139
T. 314.781.7770
F. 314.781.9075

JEFFERSON COUNTY, MISSOURI

STATE OF MISSOURI
TIMOTHY R. NUGENT
NUMBER PE-2003001080
PROFESSIONAL ENGINEER
01-23-19

TIMOTHY R. NUGENT, P.E.
MO# PE-2003001080

Tnugent
January 23, 2019

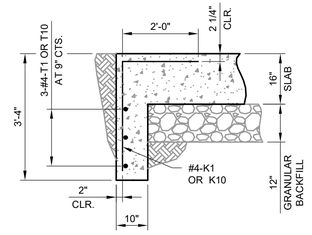
CULVERT PLAN, ELEVATIONS & SECTIONS
COUNTY PROJECT NO. PW19135BXC
HEADS CREEK ROAD BRIDGE
JEFFERSON COUNTY, MISSOURI

CDG PROJECT NO.
18013

DRAWING NO.
B-102

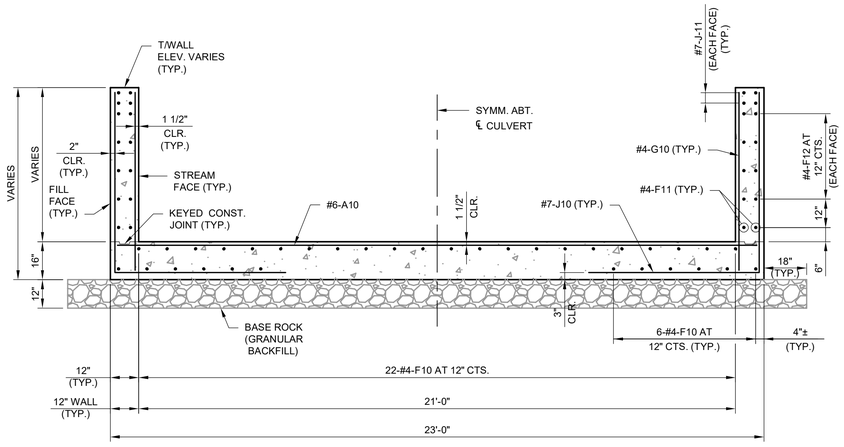
T:\Working\18013 – JeffCo – Heads Creek Bridge\Drawings\Bridge Final Plans.dwg Printed by: TNUGENT Plot scale = 1:1

T:\Working\18013 – JeffCo – Heads Creek Bridge\Drawings\Bridge Final Plans.dwg
tnugent 01/23/19–16:08

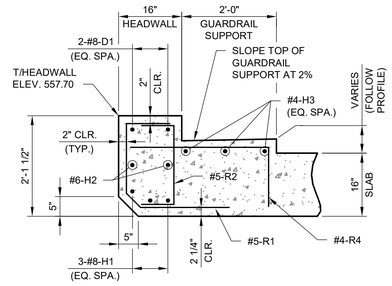


NOTE: BASE SLAB REINFORCEMENT NOT SHOWN FOR CLARITY.

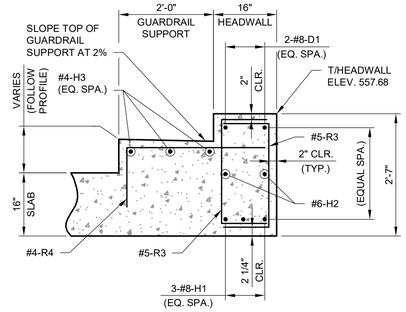
CUT-OFF WALL DETAIL



SECTION THRU WINGWALL END SECTION



UPSTREAM HEADWALL DETAIL



DOWNSTREAM HEADWALL DETAIL

NOTES:

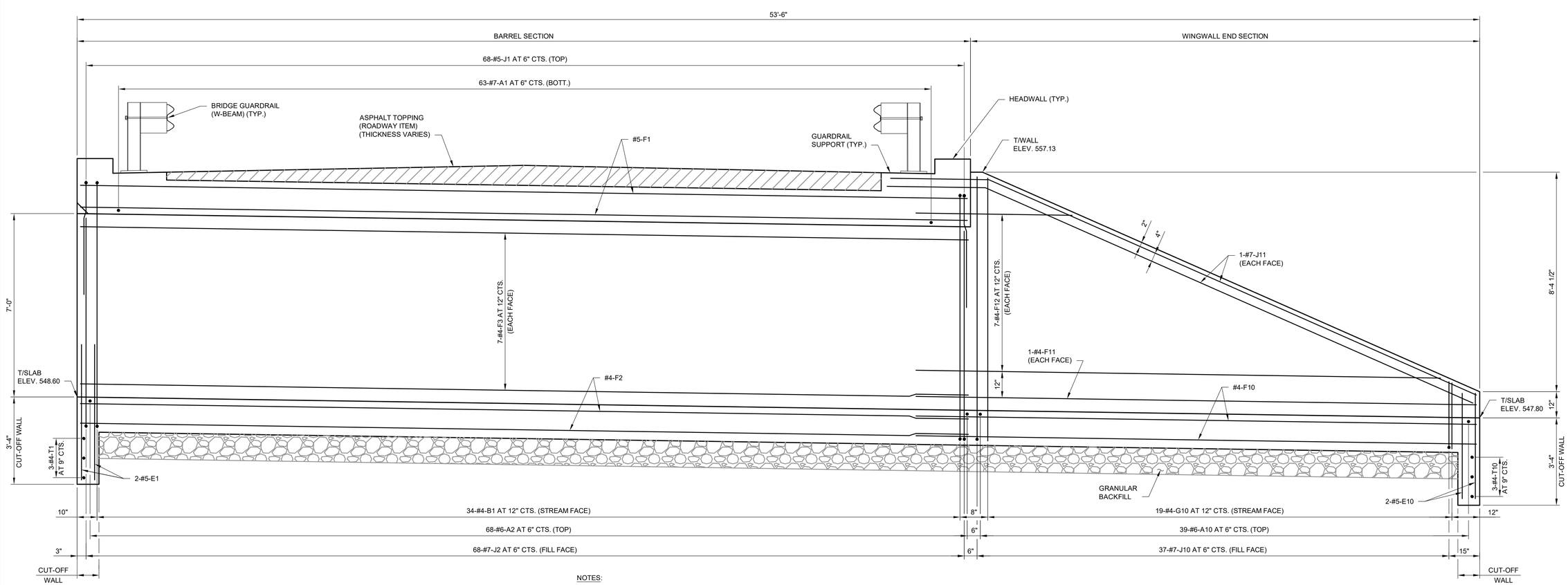
SEE DRAWING B-102 FOR PLAN SHOWING KEY POINT ELEVATIONS FOR TOP OF TOP SLAB, TOP OF HEADWALL AND TOP OF GUARDRAIL SUPPORT ELEVATIONS.

SEE DRAWING B-102 FOR SECTION THRU BARREL AND CONSTRUCTION JOINT DETAILS.

SEE DRAWING B-106 FOR PLAN SHOWING BOTTOM SLAB REINFORCEMENT.

SEE DRAWING B-107 FOR PLAN SHOWING TOP SLAB REINFORCEMENT.

SEE DRAWING B-108 FOR GUARDRAIL POST LOCATIONS AND DETAILS.



NOTES:

HEADWALL AND GUARDRAIL SUPPORT REINFORCEMENT NOT SHOWN FOR CLARITY (SEE HEADWALL DETAILS THIS SHEET).

K1 & K10 BARS IN CUT-OFF WALL NOT SHOWN FOR CLARITY (SEE CUT-OFF WALL DETAIL THIS SHEET).

ELEVATION

(ALONG CENTERLINE CULVERT)

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

PLOT SCALE FACTOR 1

REV.	DATE	DESCRIPTION	APPROVED
0	01/23/19	ISSUED FOR CONSTRUCTION	TRN

CDG ENGINEERS
One Campbell Plaza
St. Louis, Missouri 63139
T. 314 781 7770
F. 314 781 9075

JEFFERSON COUNTY MISSOURI 1848

STATE OF MISSOURI
TIMOTHY R. NUGENT
NUMBER PE-2003001080
01-23-19

TIMOTHY R. NUGENT, P.E.
MO# PE-2003001080

Tnugent
January 23, 2019

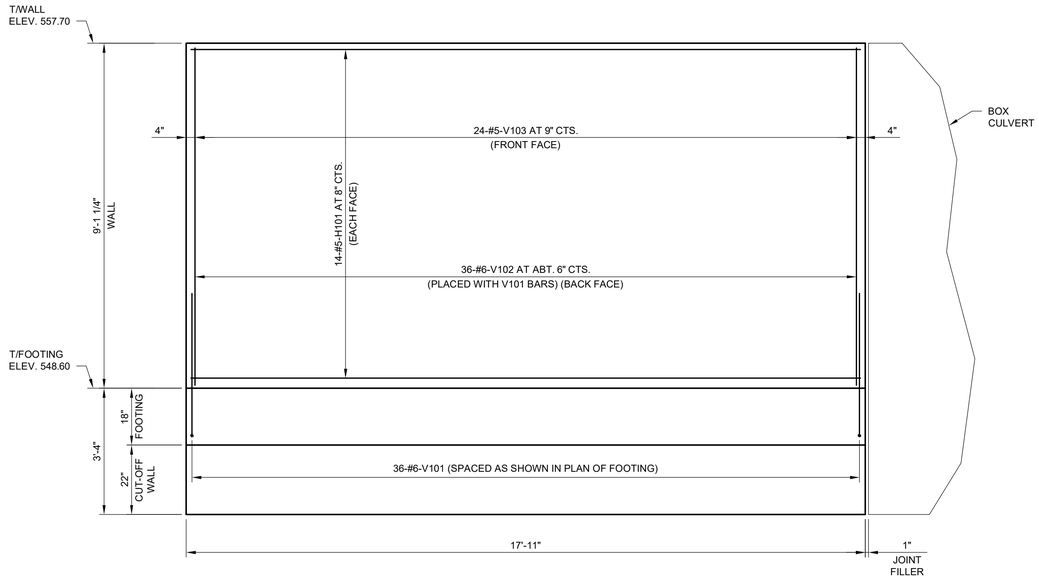
CULVERT ELEVATION & DETAILS
COUNTY PROJECT NO. PW19135BXC
HEADS CREEK ROAD BRIDGE
JEFFERSON COUNTY, MISSOURI

CDG PROJECT NO.
18013

DRAWING NO.
B-103

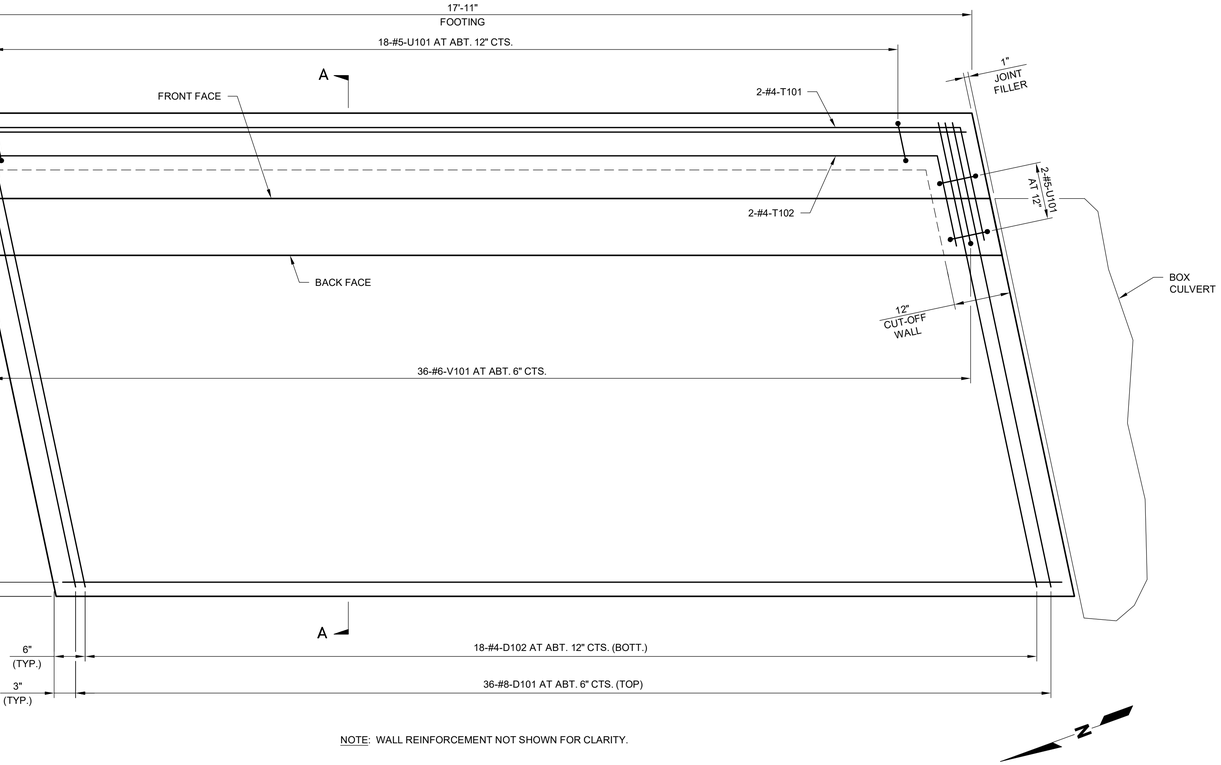
T:\Working\18013 – JeffCo – Heads Creek Bridge\Drawings\Bridge Final Plans.dwg Printed by: TNUGENT Plot scale = 1:1

T:\Working\18013 – JeffCo – Heads Creek Bridge\Drawings\Bridge Final Plans.dwg
tnugent 01/23/19–16:08



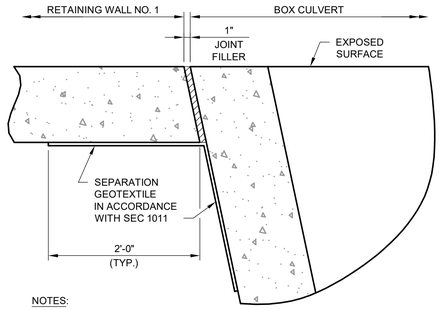
NOTE: FOOTING AND CUT-OFF WALL REINFORCEMENT NOT SHOWN FOR CLARITY.

RETAINING WALL NO. 1 - ELEVATION SHOWING WALL REINFORCEMENT



NOTE: WALL REINFORCEMENT NOT SHOWN FOR CLARITY.

RETAINING WALL NO. 1 - PLAN OF FOOTING SHOWING REINFORCEMENT



NOTES:

RETAINING WALL NO. 1 SHOWN, JOINT AT RETAINING WALL NO. 2 SIMILAR.

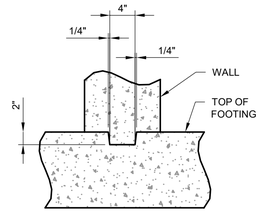
COST OF ALL MATERIALS, LABOR AND EQUIPMENT TO INSTALL FILTER CLOTH AND JOINT FILLER SHALL BE CONSIDERED INCLUDED WITH OTHER ITEMS.

JOINT AT BOX CULVERT AND RETAINING WALL

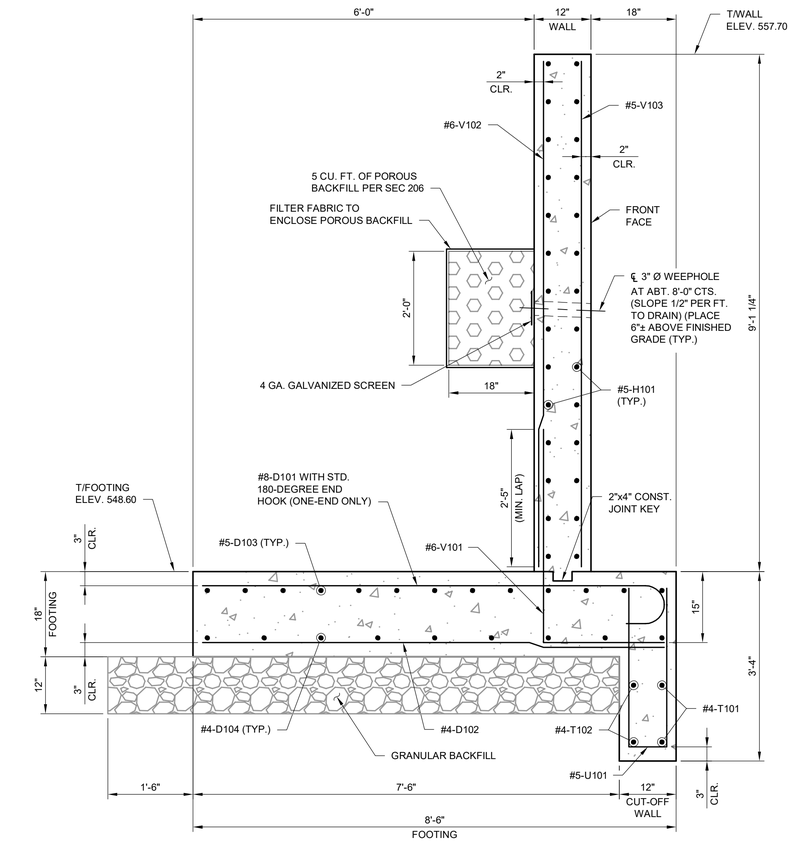
NOTES:

PAYMENT FOR FURNISHING AND INSTALLING THE 3-INCH DIAMETER WEEPHOLES INCLUDING POROUS BACKFILL, 4 GAUGE GALVANIZED SCREENS, ALL LABOR AND EQUIPMENT, AND ANY OTHER INCIDENTAL WORK NECESSARY FOR A COMPLETE INSTALLATION WILL BE CONSIDERED COMPLETELY COVERED BY THE CONTRACT UNIT PRICE FOR OTHER ITEMS.

SEPARATION GEOTEXTILE SHALL BE APPLIED TO THE JOINTS BETWEEN THE RETAINING WALLS AND THE BOX CULVERT. THE EDGES SHALL BE SEALED WITH A MASTIC OR TWO-SIDED TAPE. THE COST FOR FURNISHING AND INSTALLING THE SEPARATION GEOTEXTILE WILL BE CONSIDERED COMPLETELY COVERED BY THE CONTRACT UNIT PRICE FOR OTHER ITEMS.



CONSTRUCTION JOINT DETAIL



SECTION A-A

REV.	DATE	DESCRIPTION	APPROVED
0	01/23/19	ISSUED FOR CONSTRUCTION	TRN

PLOT SCALE FACTOR 1

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

T:\Working\18013 – JeffCo – Heads Creek Bridge\Drawings\Bridge Final Plans.dwg
tnugent 01/23/19–16:08

T:\Working\18013 – JeffCo – Heads Creek Bridge\Drawings\Bridge Final Plans.dwg Printed by: TNUGENT Plot scale = 1:1

CDG ENGINEERS
One Campbell Plaza
St. Louis, Missouri 63139
T. 314.781.7770
F. 314.781.9075

JEFFERSON COUNTY MISSOURI 1845

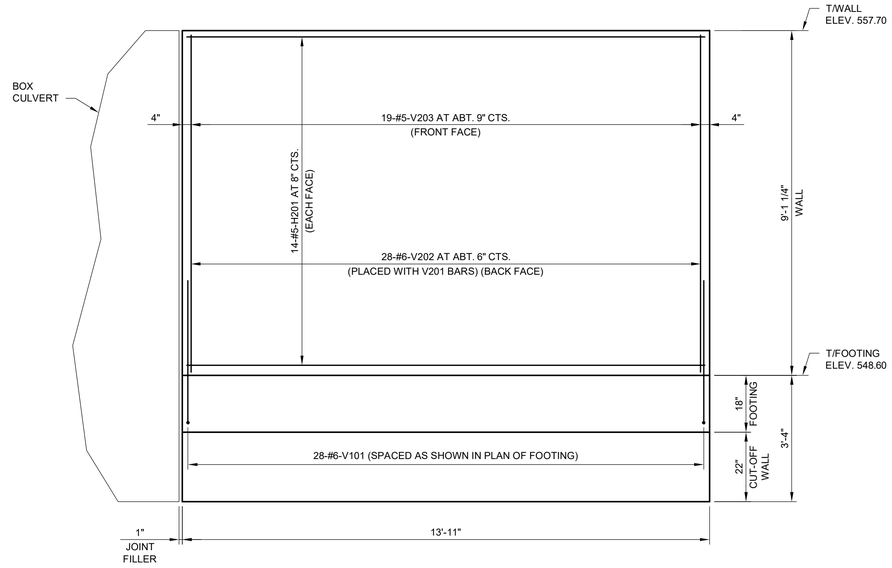
STATE OF MISSOURI
TIMOTHY
R. NUGENT
NUMBER
PE-2003001080
01-23-19
TIMOTHY R. NUGENT, P.E.
MO# PE-2003001080

Tnugent
January 23, 2019

RETAINING WALL NO.1
COUNTY PROJECT NO. PW19135BXC
HEADS CREEK ROAD BRIDGE
JEFFERSON COUNTY, MISSOURI

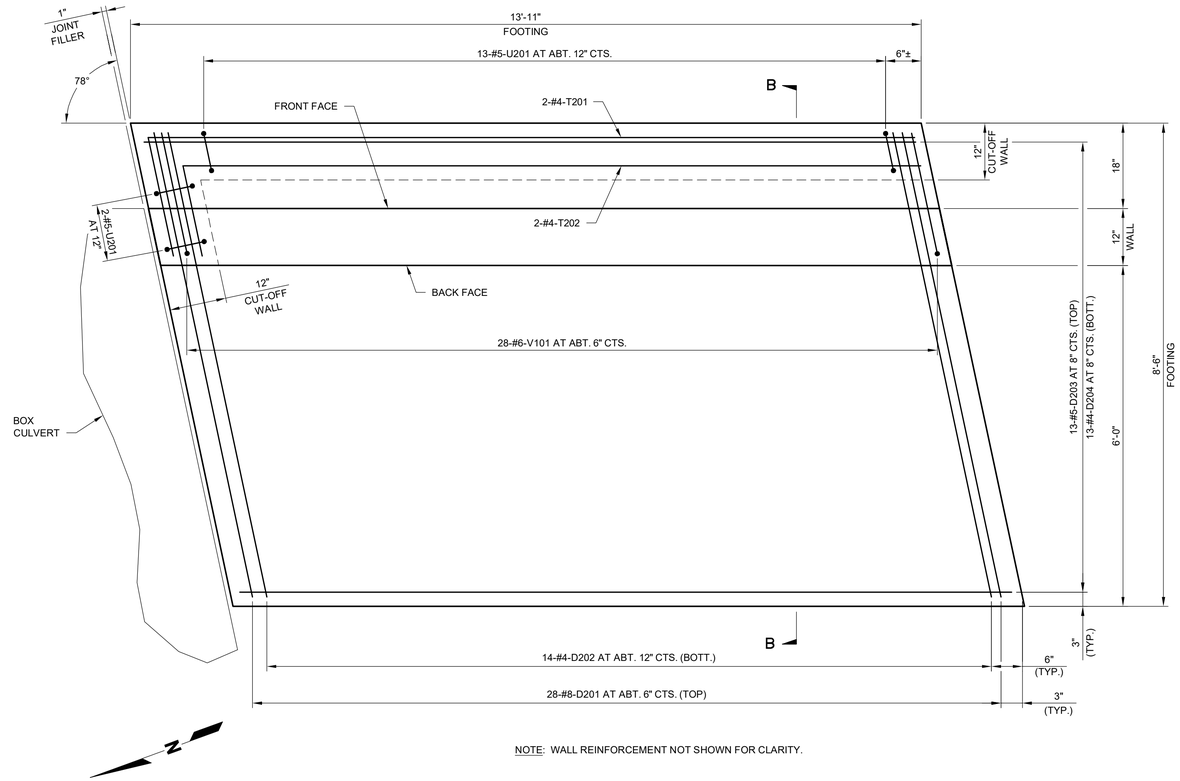
CDG PROJECT NO.
18013

DRAWING NO.
B-104



NOTE: FOOTING AND CUT-OFF WALL REINFORCEMENT NOT SHOWN FOR CLARITY.

RETAINING WALL NO. 2 - ELEVATION SHOWING WALL REINFORCEMENT



NOTE: WALL REINFORCEMENT NOT SHOWN FOR CLARITY.

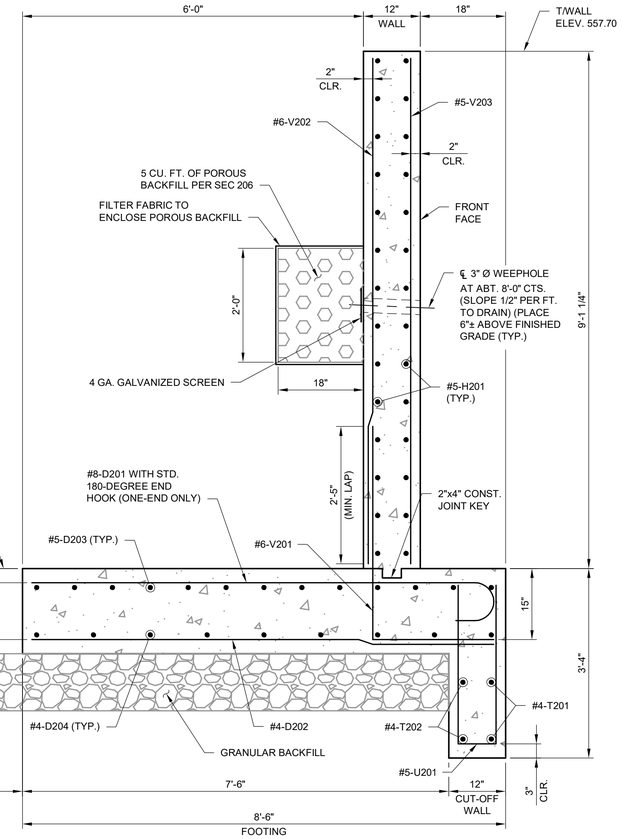
RETAINING WALL NO. 2 - PLAN OF FOOTING SHOWING REINFORCEMENT

NOTES:

SEE DRAWING B-104 FOR CONSTRUCTION JOINT DETAIL AND DETAIL AT BOX CULVERT AND RETAINING WALL.

PAYMENT FOR FURNISHING AND INSTALLING THE 3-INCH DIAMETER WEEPHOLES INCLUDING POROUS BACKFILL, 4 GAUGE GALVANIZED SCREENS, ALL LABOR AND EQUIPMENT, AND ANY OTHER INCIDENTAL WORK NECESSARY FOR A COMPLETE INSTALLATION WILL BE CONSIDERED COMPLETELY COVERED BY THE CONTRACT UNIT PRICE FOR OTHER ITEMS.

SEPARATION GEOTEXTILE SHALL BE APPLIED TO THE JOINTS BETWEEN THE RETAINING WALLS AND THE BOX CULVERT. THE EDGES SHALL BE SEALED WITH A MASTIC OR TWO-SIDED TAPE. THE COST FOR FURNISHING AND INSTALLING THE SEPARATION GEOTEXTILE WILL BE CONSIDERED COMPLETELY COVERED BY THE CONTRACT UNIT PRICE FOR OTHER ITEMS.



SECTION B-B

REV.	DATE	DESCRIPTION	APPROVED
0	01/23/19	ISSUED FOR CONSTRUCTION	TRN

PLOT SCALE FACTOR 1

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

CDG ENGINEERS
One Campbell Plaza
St. Louis, Missouri 63139
T. 314 781 7770
F. 314 781 9075

JEFFERSON COUNTY MISSOURI 1848

STATE OF MISSOURI
TIMOTHY R. NUGENT
NUMBER PE-2003001080
01-23-19

TIMOTHY R. NUGENT, P.E.
MO# PE-2003001080

Tnugent
January 23, 2019

RETAINING WALL NO. 2
COUNTY PROJECT NO. PW19135BXC
HEADS CREEK ROAD BRIDGE
JEFFERSON COUNTY, MISSOURI

CDG PROJECT NO.
18013

DRAWING NO.
B-105

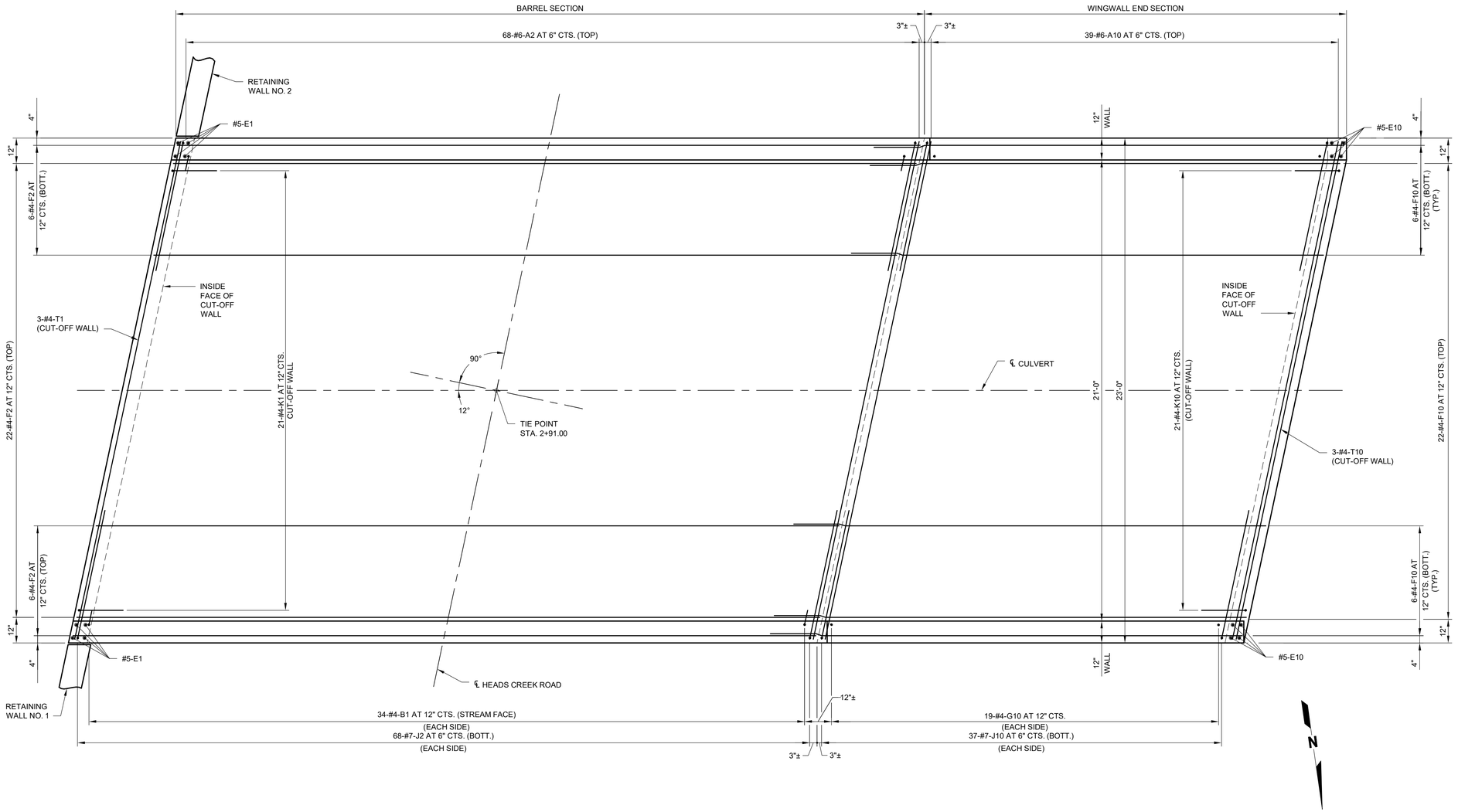
T:\Working\18013 – JeffCo – Heads Creek Bridge\Drawings\Bridge Final Plans.dwg Printed by: TNUGENT Plot scale = 1:1

T:\Working\18013 – JeffCo – Heads Creek Bridge\Drawings\Bridge Final Plans.dwg
tnugent 01/23/19–16:08

NOTES:

SEE DRAWING B-102 FOR SECTION THRU BOX CULVERT AND MISCELLANEOUS DETAILS.

SEE DRAWING B-103 FOR ELEVATION SHOWING WALL REINFORCEMENT, SECTION THRU WINGWALL END SECTION AND CUT-OFF WALL DETAIL.



PLAN SHOWING BOTTOM SLAB REINFORCEMENT

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

PLOT SCALE FACTOR 1

REV.	DATE	DESCRIPTION	APPROVED
0	01/23/19	ISSUED FOR CONSTRUCTION	TRN

CDG ENGINEERS
One Campbell Plaza
St. Louis, Missouri 63139
T. 314.781.7770
F. 314.781.9075

JEFFERSON COUNTY MISSOURI 1848

STATE OF MISSOURI
TIMOTHY R. NUGENT
NUMBER PE-2003001080
01-23-19

TIMOTHY R. NUGENT, P.E.
MO# PE-2003001080

Tnugent
January 23, 2019

CULVERT PLAN - BOTTOM SLAB REINFORCEMENT
COUNTY PROJECT NO. PW19135BXC
HEADS CREEK ROAD BRIDGE
JEFFERSON COUNTY, MISSOURI

CDG PROJECT NO.
18013

DRAWING NO.
B-106

T:\Working\18013 – JeffCo – Heads Creek Bridge\Drawings\Bridge Final Plans.dwg
tnugent 01/23/19–16:08

T:\Working\18013 – JeffCo – Heads Creek Bridge\Drawings\Bridge Final Plans.dwg Printed by: TNUGENT Plot scale = 1:1

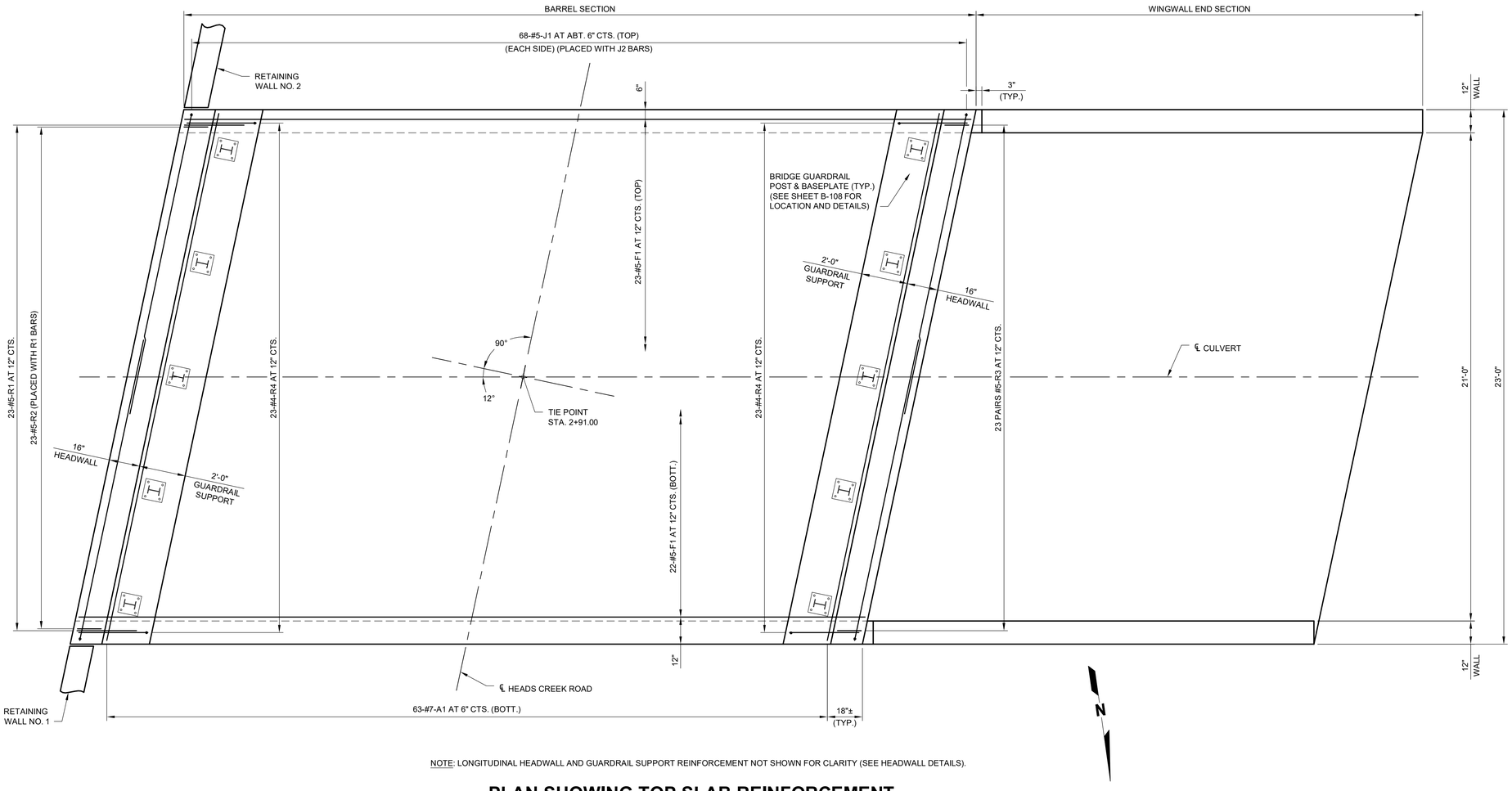
NOTES:

SEE DRAWING B-102 FOR SECTION THRU BOX CULVERT AND MISCELLANEOUS DETAILS.

SEE DRAWING B-103 FOR ELEVATION SHOWING WALL REINFORCEMENT AND SECTION THRU WINGWALL END SECTION.

SEE DRAWING B-103 FOR DETAILS AND REINFORCEMENT OF UPSTREAM AND DOWNSTREAM HEADWALLS AND GUARDRAIL SUPPORTS NOT SHOWN.

SEE DRAWING B-108 FOR GUARDRAIL POST LOCATIONS AND DETAILS.



NOTE: LONGITUDINAL HEADWALL AND GUARDRAIL SUPPORT REINFORCEMENT NOT SHOWN FOR CLARITY (SEE HEADWALL DETAILS).

PLAN SHOWING TOP SLAB REINFORCEMENT

REV.	DATE	DESCRIPTION	APPROVED
0	01/23/19	ISSUED FOR CONSTRUCTION	TRN

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

PLOT SCALE FACTOR 1

CDG ENGINEERS
One Campbell Plaza
St. Louis, Missouri 63139
T. 314 781 7770
F. 314 781 9075

JEFFERSON COUNTY 1845

STATE OF MISSOURI
TIMOTHY R. NUGENT
NUMBER PE-2003001080
PROFESSIONAL ENGINEER
01-23-19

TIMOTHY R. NUGENT, P.E.
MO# PE-2003001080

Tnugent
January 23, 2019

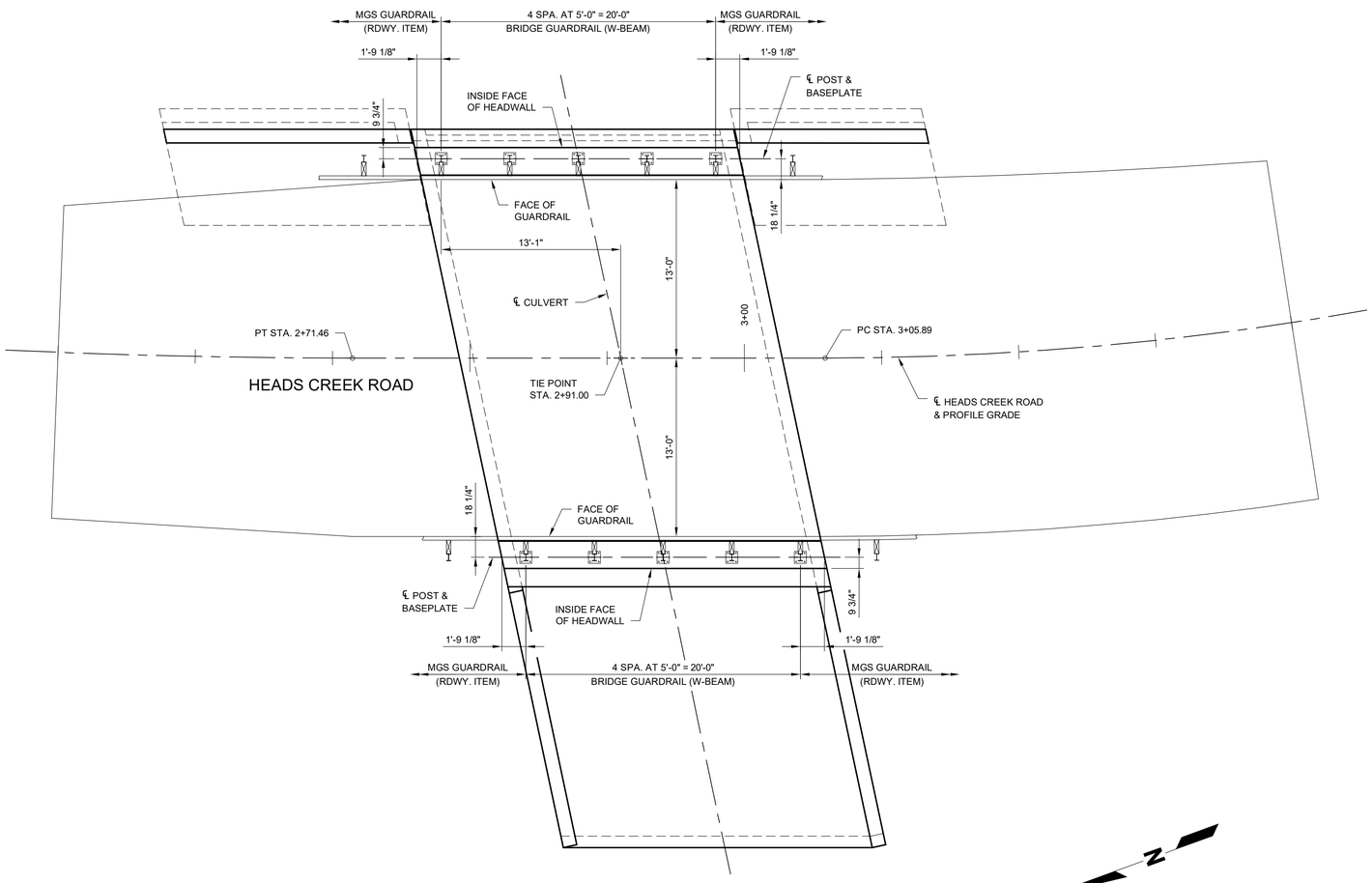
CULVERT PLAN - TOP SLAB REINFORCEMENT
COUNTY PROJECT NO. PW19135BXC
HEADS CREEK ROAD BRIDGE
JEFFERSON COUNTY, MISSOURI

CDG PROJECT NO.
18013

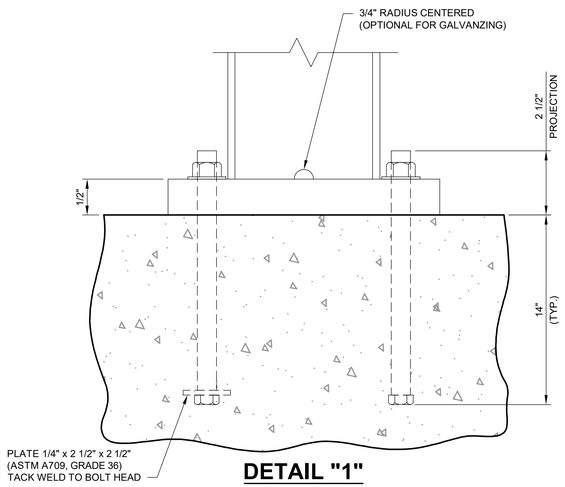
DRAWING NO.
B-107

T:\Working\18013 – JeffCo – Heads Creek Bridge\Drawings\Bridge Final Plans.dwg
Tnugent 01/23/19-16:08

T:\Working\18013 – JeffCo – Heads Creek Bridge\Drawings\Bridge Final Plans.dwg Printed by: TNUGENT Plot scale = 1:1

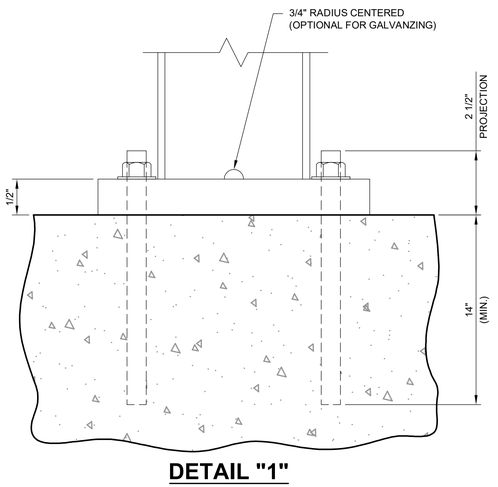


PLAN SHOWING GUARDRAIL POST LOCATIONS



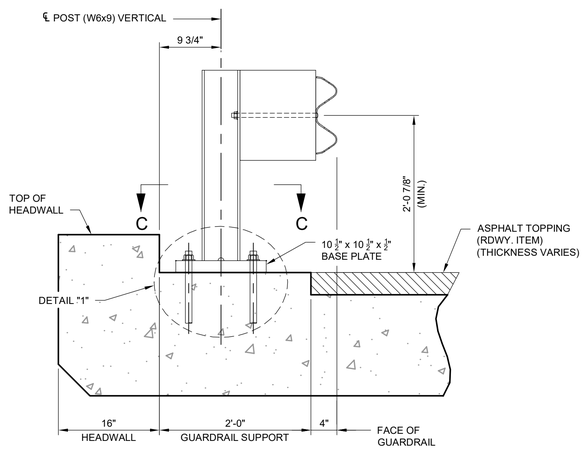
DETAIL "1"

PRE-INSTALLED ANCHOR BOLTS



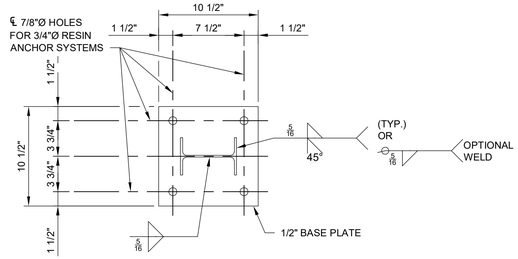
DETAIL "1"

POST-INSTALLED ANCHOR BOLTS



NOTE: GUARDRAIL AT LEFT (UPSTREAM) SIDE SHOWN, RIGHT (DOWNSTREAM) SIDE SIMILAR.

PART SECTION AT RAIL POST



SECTION C-C

GUARDRAIL NOTES:

FURNISHING AND INSTALLING POSTS AND GUARDRAIL ON CULVERT AS SHOWN ON THIS SHEET WILL BE CONSIDERED COMPLETELY COVERED BY THE CONTRACT UNIT PRICE FOR BRIDGE GUARDRAIL (W-BEAM).

FURNISHING AND INSTALLING POSTS AND GUARDRAIL ON CULVERT SHALL BE IN ACCORDANCE WITH SECTION 606 OF THE MISSOURI STANDARD SPECIFICATIONS EXCEPT AS SHOWN.

ALL BOLTS, NUTS, WASHERS, PLATES AND ELASTOMERIC MATERIALS WILL CONSIDERED COMPLETELY COVERED BY THE CONTRACT UNIT PRICE FOR BRIDGE GUARDRAIL (W-BEAM).

ALL STEEL CONNECTING BOLTS AND FASTENERS FOR POSTS AND RAILING AND ALL ANCHOR BOLTS, NUTS, WASHERS AND PLATES SHALL BE GALVANIZED AFTER FABRICATION. PROTECTIVE COATING AND MATERIAL REQUIREMENTS OF STEEL RAILING SHALL BE IN ACCORDANCE WITH SECTION 1040 OF THE MISSOURI STANDARD SPECIFICATIONS.

RAIL POSTS SHALL BE SEATED ON ELASTOMERIC PADS HAVING THE SAME DIMENSIONS AS THE POST BASE PLATE AND 1/16" THICKNESS. SUCH PADS MAY BE ANY ELASTOMERIC MATERIAL, PLAIN OR FIBERED, HAVING A HARDNESS (DUROMETER) OF 50 OR ABOVE, AS CERTIFIED BY THE MANUFACTURER. ADDITIONAL PADS OR HALF PADS MAY BE USED IN SHIMMING FOR ALIGNMENT. POST HEIGHTS SHOWN WILL INCREASE BY THE THICKNESS OF THE PAD.

GUARDRAIL POSTS AND BASE PLATES SHALL BE FABRICATED FROM ASTM A709 GRADE 50 STEEL AND GALVANIZED.

FABRICATION OF STRUCTURAL STEEL SHALL BE IN ACCORDANCE WITH SECTION 1080 OF THE MISSOURI STANDARD SPECIFICATIONS.

ANCHOR BOLTS SHALL BE ASTM A-307 BOLTS AND GALVANIZED.

ANCHOR BOLTS SHALL BE SECURED BY CASTING INTO CONCRETE (PRE-INSTALLED) OR BY DRILLING AND ANCHORING INTO THE CONCRETE USING A RESIN ANCHOR SYSTEM (POST-INSTALLED), CONTRACTOR'S OPTION

REINFORCING STEEL SHALL BE SHIFTED TO CLEAR GUARDRAIL ANCHOR BOLTS BY AT LEAST 1/2".

CONTRACTOR OR PRECAST MANUFACTURER SHALL PROPOSE AND OBTAIN APPROVAL OF METHOD TO BE USED TO ATTACH THE GUARDRAIL POST BASE PLATES TO ENSURE NO CONFLICT WITH REINFORCING STEEL AT ALL ANCHOR BOLT LOCATIONS. HOLES TO BE FIELD DRILLED SHALL BE CLEARLY MARKED BY THE MANUFACTURER ON THE TOPS OF THE PRECAST MEMBERS AT ALL ANCHOR BOLT LOCATIONS.

SEE THIS SHEET FOR RAIL POST SPACING.

SEE MISSOURI STANDARD PLANS DRAWING 606.00 FOR DETAILS NOT SHOWN.

RESIN ANCHOR SYSTEM NOTES:

THE CONTRACTOR SHALL USE ONE OF THE QUALIFIED RESIN ANCHOR SYSTEMS IN ACCORDANCE WITH SECTION 1039 OF THE MISSOURI STANDARD SPECIFICATIONS FOR POST-INSTALLED ANCHOR BOLTS.

COST OF FURNISHING AND INSTALLING THE RESIN ANCHOR SYSTEMS, COMPLETE IN PLACE, WILL BE CONSIDERED COMPLETELY COVERED IN THE CONTRACT UNIT PRICE FOR BRIDGE GUARDRAIL (W-BEAM).

THE MINIMUM EMBEDMENT DEPTH IN CONCRETE WITH f'c = 4,000 PSI FOR THE RESIN ANCHOR SYSTEMS SHALL BE THAT REQUIRED TO MEET THE MINIMUM ULTIMATE PULLOUT STRENGTH IN ACCORDANCE WITH SECTION 1039 BUT SHALL NOT BE LESS THAN 14".

REV.	DATE	DESCRIPTION	APPROVED
0	01/23/19	ISSUED FOR CONSTRUCTION	TRN

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

PLOT SCALE FACTOR 1

CDG ENGINEERS
One Campbell Plaza
St. Louis, Missouri 63139
T. 314 781 7770
F. 314 781 9075

JEFFERSON COUNTY MISSOURI

STATE OF MISSOURI
TIMOTHY R. NUGENT
NUMBER PE-2003001080
01-23-19

TIMOTHY R. NUGENT, P.E.
MO# PE-2003001080

Tnugent
January 23, 2019

BRIDGE GUARDRAIL W-BEAM DETAILS
COUNTY PROJECT NO. PW19135BXC
HEADS CREEK ROAD BRIDGE
JEFFERSON COUNTY, MISSOURI

CDG PROJECT NO.
18013

DRAWING NO.
B-108

T:\Working\18013 - JeffCo - Heads Creek Bridge\Drawings\Bridge Final Plans.dwg Printed by: TNUGENT Plot scale = 1:1

T:\Working\18013 - JeffCo - Heads Creek Bridge\Drawings\Bridge Final Plans.dwg
tnugent 01/23/19-16:08

BILL OF REINFORCING STEEL

NO. REQ'D.	MARK NO. SIZE	MARK NO. MARK	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	DIMENSIONS B FT IN	C FT IN	D FT IN	E FT IN	F FT IN	H FT IN	K FT IN	NOMINAL LENGTH FT IN	ACTUAL LENGTH FT IN	WEIGHT LBS
REINFORCING STEEL (CULVERTS-BRIDGE)																			
			BARREL SECTION																
63	7	A1	TOP SLAB	E	20					23 1.000							23 1	23 1	2972
68	6	A2	BOTTOM SLAB		20					23 1.000							23 1	23 1	2358
68	4	B1	BOTT SLAB / WALL	E	10						8.000	9 3.000					10 7	10 5	473
4	8	D1	HEADWALL	E	20					23 1.000							23 1	23 1	247
8	5	E1	CUT-OFF WALL		20					5 2.000							5 2	5 2	43
45	5	F1	TOP SLAB	E	20					33 9.000							33 9	33 9	1584
34	4	F2	BOTTOM SLAB		20					33 9.000							33 9	33 9	767
28	4	F3	WALL		20					33 10.000							33 10	33 10	633
6	8	H1	HEADWALL	E	20					23 1.000							23 1	23 1	370
4	6	H2	HEADWALL	E	20					23 1.000							23 1	23 1	139
6	4	H3	GRDRL SUPPORT	E	20					23 1.000							23 1	23 1	93
136	5	J1	TOP SLAB / WALL	E	19					4 2.000	13 2.000						17 4	17 2	2435
136	7	J2	BOTT SLAB / WALL		19					8 0.000	6 0.000						14 0	13 10	3845
21	4	K1	CUT-OFF WALL		19	S				2 10.000	2 0.000						4 10	4 9	67
23	5	R1	HEADWALL	E	27	S				1 0.000	1 5.625	5.000	2 0.000		3.625	3.625	4 11	4 9	114
23	5	R2	HEADWALL	E	6	S					1 0.000	1 9.250	9.000				3 6	3 4	80
46	5	R3	HEADWALL	E	10	S					1 0.000	2 2.750					4 3	4 0	192
46	4	R4	GRDRL SUPPORT	E	19	S				1 3.000	2 11.000						4 2	4 1	125
3	4	T1	CUT-OFF WALL		20					23 1.000							23 1	23 1	46
																	REINFORCING STEEL (CULVERTS-BRIDGE) - SUBTOTAL		7759
																	REINFORCING STEEL (EPOXY COATED) - SUBTOTAL		8824
			WINGWALL END SECTION																
39	6	A10	BOTTOM SLAB		20					23 1.000							23 1	23 1	1352
8	5	E10	CUT-OFF WALL		20					4 0.000							4 0	4 0	33
34	4	F10	BOTT SLAB		20					21 6.000							21 6	21 6	488
4	4	F11	WALL		20					21 6.000							21 6	21 6	57
28	4	F12	WALL		20					6 0.000							6 0	6 0	
			INCR. = 28"					V	4	20 0.000							20 0	20 0	243
38	4	G10	BOTT SLAB/WALL		20					2 5.000							2 5	2 5	
			INCR. = 5.125"					V	2	10 1.250							10 1	10 1	159
74	7	J10	BOTT SLAB / WALL		19					2 5.000	6 0.000						8 5	8 3	
			INCR. = 2.5625"					V	2	10 1.250	6 0.000						16 1	15 11	1828
8	7	J11	WALL		14						20 4.000	3 9.000			1 5.625	3 5.375	24 1	24 1	394
21	4	K10	CUT-OFF WALL		19					2 10.000	2 0.000						4 10	4 9	67
3	4	T10	CUT-OFF WALL		20					23 1.000							23 1	23 1	46
																	REINFORCING STEEL (CULVERTS-BRIDGE) - SUBTOTAL		4667
																	REINFORCING STEEL (EPOXY COATED) - SUBTOTAL		0
																	REINFORCING STEEL (CULVERTS-BRIDGE) - TOTAL		12426
																	REINFORCING STEEL (EPOXY COATED) - TOTAL		8824

BILL OF REINFORCING STEEL

NO. REQ'D.	MARK NO. SIZE	MARK NO. MARK	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	DIMENSIONS B FT IN	C FT IN	D FT IN	E FT IN	F FT IN	H FT IN	K FT IN	NOMINAL LENGTH FT IN	ACTUAL LENGTH FT IN	WEIGHT LBS
REINFORCING STEEL (RETAINING WALLS)																			
			RETAINING WALL NO. 1																
36	8	D101	FOOTING		17					8 5.000							9 4	9 4	897
18	4	D102	FOOTING		20					8 5.000							8 5	8 5	101
13	5	D103	FOOTING		20					17 8.000							17 8	17 8	240
13	4	D104	FOOTING		20					17 8.000							17 8	17 8	153
28	5	H101	WALL		20					17 8.000							17 8	17 8	516
2	4	T101	CUT-OFF WALL		21					2 2.000		17 6.000		21.375	5.375		19 8	19 7	26
2	4	T102	CUT-OFF WALL		21					1 7.000		17 0.000		1 6.625	4.000		18 7	18 6	25
20	5	U101	CUT-OFF WALL		10		S				8.000	2 10.000					6 4	6 2	129
36	6	V101	WALL		19					3 9.000	2 2.000						5 11	5 9	311
36	6	V102	WALL		20					8 11.000							8 11	8 11	482
24	5	V103	WALL		20					8 11.000							8 11	8 11	223
																	REINFORCING STEEL (RETAINING WALLS) - SUBTOTAL		3103
			RETAINING WALL NO. 2																
28	8	D201	FOOTING		17					8 5.000							9 4	9 4	698
14	4	D202	FOOTING		20					8 5.000							8 5	8 5	79
13	5	D203	FOOTING		20					13 8.000							13 8	13 8	185
13	4	D204	FOOTING		20					13 8.000							13 8	13 8	119
28	5	H101	WALL		20					13 8.000							13 8	13 8	399
2	4	T201	CUT-OFF WALL		21					2 2.000	13 6.000			2 1.375	5.375		15 8	15 6	21
2	4	T202	CUT-OFF WALL		21					1 7.000	12 11.000			1 6.625	4.000		14 6	14 4	19
15	5	U201	CUT-OFF WALL		10		S				8.000	2 10.000					6 4	6 2	96
28	6	V201	WALL		19					3 9.000	2 2.000						5 11	5 9	242
28	6	V202	WALL		20					8 11.000							8 11	8 11	375
19	5	V203	WALL		20					8 11.000							8 11	8 11	177
																	REINFORCING STEEL (RETAINING WALLS) - SUBTOTAL		2410
																	REINFORCING STEEL (RETAINING WALLS) - TOTAL		5513

SHAPE 6 SHAPE 7 SHAPE 8

SHAPE 9 SHAPE 10 SHAPE 11

SHAPE 12 SHAPE 13 SHAPE 14

SHAPE 15 SHAPE 16 SHAPE 17 SHAPE 18 SHAPE 20

SHAPE 19 SHAPE 21 SHAPE 22

SHAPE 23 SHAPE 24

SHAPE 25 SHAPE 26 SHAPE 27

SHAPE 28 SHAPE 29 SHAPE 31

SHAPE 30 SHAPE 32 SHAPE 33

SHAPE 34 SHAPE 35 SHAPE 36 SHAPE 37 SHAPE 38

BENDING DIAGRAMS

6d FOR #4 AND #5, 12d FOR #6

90° STIRRUP 135° STIRRUP

STIRRUP HOOK DIMENSIONS			
GRADES 40 – 50 – 60 KSI			
BAR SIZE	D (IN.)	90° HOOK: HOOK A OR G	135° HOOK: HOOK A OR G	135° HOOK: APPROX. H
#4	2"	4 1/2"	4 1/2"	3"
#5	2 1/2"	6"	5 1/2"	3 3/4"
#6	4 1/2"	12"	8"	4 1/2"

NOTE: UNLESS OTHERWISE NOTED DIAMETER "D" IS THE SAME FOR ALL BENDS AND HOOKS ON A BAR.

90° 4d OR 2 1/2" MIN. 180° 4d OR 2 1/2" MIN.

END HOOK DIMENSIONS				
BAR SIZE	D (IN.)	ALL GRADES: 180° HOOKS: A OR G	ALL GRADES: 180° HOOKS: J	ALL GRADES: 90° HOOKS: A OR G
#3	2 1/4"	5"	3"	6"
#4	3"	6"	4"	8"
#5	3 3/4"	7"	5"	10"
#6	4 1/2"	8"	6"	12"
#7	5 1/4"	10"	7"	14"
#8	6"	11"	8"	16"
#9	9 1/2"	15"	11 3/4"	19"
#10	10 3/4"	17"	13 1/4"	22"
#11	12"	19"	14 3/4"	2'-0"
#14	18 1/4"	2'-3"	21 3/4"	2'-7"

NOTE:

ALL STANDARD HOOKS AND BENDS OTHER THAN 180 DEGREE ARE TO BE BENT WITH SAME PROCEDURE AS FOR 90 DEGREE STANDARD HOOKS.

HOOKS AND BENDS SHALL BE IN ACCORDANCE WITH THE PROCEDURES AS SHOWN ON THIS SHEET.

E = EPOXY COATED REINFORCEMENT.

S = STIRRUP.

V = BAR DIMENSIONS VARY IN EQUAL INCREMENTS BETWEEN DIMENSIONS SHOWN ON THIS LINE AND THE FOLLOWING LINE. (SHAPE 35 SHALL BE A DEFORMED OR PLAIN SPIRAL BAR OR WIRE.)

NO. EA. = NUMBER OF BARS OF EACH LENGTH.

NOMINAL LENGTHS ARE BASED ON OUT TO OUT DIMENSIONS SHOWN IN BENDING DIAGRAMS AND ARE LISTED FOR FABRICATION USE. (NEAREST INCH)

ACTUAL LENGTHS ARE MEASURED ALONG CENTERLINE BAR TO THE NEAREST INCH.

PAYWEIGHTS ARE BASED ON ACTUAL LENGTHS.

REINFORCING STEEL (GRADE 60) fy = 60,000 PSI.

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

PLOT SCALE FACTOR 1

REV.	DATE	DESCRIPTION	APPROVED
0	01/23/19	ISSUED FOR CONSTRUCTION	TRN

CDG ENGINEERS
One Campbell Plaza
St. Louis, Missouri 63139
T. 314 781 7770
F. 314 781 9075
Missouri State Certificate of Authority # 1271

JEFFERSON COUNTY MISSOURI SEAL 1848

STATE OF MISSOURI TIMOTHY R. NUGENT NUMBER PE-2003001080 PROFESSIONAL ENGINEER 01-23-19

Timothy R. Nugent, P.E.
MO# PE-2003001080

Tnugent
January 23, 2019

BILL OF REINFORCING STEEL
COUNTY PROJECT NO. PW19135BXC
HEADS CREEK ROAD BRIDGE
JEFFERSON COUNTY, MISSOURI

CDG PROJECT NO.
18013

DRAWING NO.
B-109

T:\Working\18013 – JeffCo – Heads Creek Bridge\Drawings\B-108 BILL OF REINFORCING STEEL.dwg Printed by: TNUGENT Plot scale = 0.386863

T:\Working\18013 – JeffCo – Heads Creek Bridge\Drawings\B-108 BILL OF REINFORCING STEEL.dwg
tnugent 01/23/19–10:03