SHARED USE PATH DESIGN SPEED = 20 MPH

HORIZONTAL CURVE IS LESS THAN AASHTO BICYCLE DESIGN GUIDE FOR A 20 MPH CURVE. THE CURVE DOES MEET A 16 MPH DESIGN CRITERIA. STATION 10+45.79, STATION 10+94.94 AND STATION 37+28.02.

HORIZONTAL CURVE IS LESS THAN AASHTO BICYCLE DESIGN GUIDE FOR A 20 MPH CURVE. THE CURVE DOES MEET A 12 MPH DESIGN CRITERIA. STATION 38+25.00 AND STATION 41+48.97.

HORIZONTAL CURVE IS LESS THAN AASHTO BICYCLE DESIGN GUIDE FOR A 20 MPH CURVE. THE CURVE DOES MEET A 10 MPH DESIGN CRITERIA. STATION 27+88.08, STATION 39+43.75 AND STATION 40+43.45.

### **GENERAL NOTES**

- 1. All construction to be in accordance with "City of Columbia Street, Storm and Sanitary Specifications" (Current edition).
- Known underground utilities are shown in their approximate locations. Other utilities may exist.
- 3. All removal of driveway pavements should be verified by field engineer.
- 4. All excavation to be in accordance with Sections 319.010—319.050, Revised Statutes of the State of Missouri. Such compliance shall not, however, excuse any person making any excavation from doing so in a careful and prudent manner, nor shall it excuse such person from liability for any damage or injury to underground utilities resulting from the excavation.
- 5. All RCP is Class III unless otherwise indicated.
- 6. All disturbed earth areas shall be restored as per TS-\_\_ Seeding and TS-\_\_ Erosion Control.
- Remove all pavement surfaces, inlets, pipes and sidewalks within the construction limits as per TS-\_\_, except those noted to remain. The field inspector shall verify removal of all driveway pavement.
- Removal of trees and bushes shall be verified by field inspectors. Exercise caution
  when working near the construction limits to minimize disturbance to adjacent
  trees and shrubs that are not being removed by construction activities.
- 9. Backfill of reinforced concrete pipe shall be 1 inch clean rock or soil compacted to 90 percent of standard proctor density as per TS- $\_$ .
- 10. No open trenches will be allowed overnight outside of the "road closed" area. Asphaltic "cold mix" shall be used as a temporary patch overnight. Temporary patching shall be considered incidental to the work.

# City of Columbia, Missouri

Department of Public Works



# SHEPARD TO ROLLINS TRAIL CONNECTION

CPP - 9999 (523) R 164-14

## UTILITY COMPANIES:

TELEPHONE CenturyLink 625 Cherry Street Columbia, MO 65205 573—886—3505

NATURAL GAS Ameren Missouri 2001 Maguire Boulevard Columbia, MO 65201 573-239-6165 (N of 1-70) 573-876-3030 (S of 1-70)

CABLE TELEVISION Mediacom 901 N. College Avenue Columbia, MO 65201 573-443-1536 ext 354

LOCATES Missouri One Call Inc. 1022 B Northeast Drive Jefferson City, MO 65109 1-800-344-7483 WATER City of Columbia P.O. Box 6015 Water & Light Department Columbia, MO 65205 573—874—7301

ELECTRIC City of Columbia P.O. Box 6015 Water & Light Department Columbia, MO 65205 573-874-7301

SANITARY SEWER City of Columbia P.O. Box 6015 Public Works Department Columbia, MO 65205 573-874-7250

ELECTRIC (county) Boone Electric Cooperative 1413 Range Line Street Columbia, MO 65201 573-449-4181 ext 231

# INDEX OF SHEETS Description Sheet No. Cover Sheet 1 Coordinate Reference Points 2 Typical Sections, Alignment Tabulation, and General Notes 3 Plan and Profile 4 - 7 Storm Drainage Profiles 8 Bridge Plan 9 Traffic Control Details 10 Cross Sections 11 - 18

# LEGEND OF SYMBOLS

POWER POLE	-O-				
TELEPHONE POLE	•				
GUY ANCHOR					
GUY POLE	<del></del>				
STREET LIGHT POLE	ğ				
YARD LIGHT (SOLAR)	<u>×</u>				
WATER METER					
GAS METER					
GAS VALVE	Ф				
WATER VALVE	×				
FIRE HYDRANT	O F.H.				
PIPE BREAKLINE	$\sim$				
SANITARY MANHOLE	о_м.н.				
SANITARY CLEANOUT	<b>ø</b> c.o.				
SANITARY LATERAL CLEANOUT	o C.O.				
TRAVERSE POINT	△T.P.				
MoDOT ROW MARKER	•				
BENCHMARK	<b>+</b>				
SIGN	Д				
MAIL BOX					
PROPERTY IRON	○ <sup>IP</sup> or ○ <sup>RE</sup> or ○ <sup>RO</sup>				
BUSH	$\Box$				
STUMP	⇔ ÷ <del>X</del> -stump				
TREE REMOVAL	∅ *				
TREE	DECIDUOUS CONIFER				
TREE LINE					
SILT FENCE/TREE PROTECT					
EXISTING PUBLIC SANITARY SEWER	SAN SAN				
EXISTING SANITARY SEWER LATERAL	LAT LAT				
EXISTING SANITARY SEWER TO BE ABANDONED	<del>/////</del> /\$#\\//////\$#\/////				
PROPOSED SEWER MAIN AND LATERALS					
FENCE	xx				
CABLE TELEVISION	c or utv				
TELEPHONE	T or IIT				
ELECTRIC	E orUGE				
TELEPHONE OR ELECTRIC MANHOLE	T or E				
WATER MAIN					
GAS MAIN	G G				
FIBER OPTIC	F0F0				
FLOW LINE					
PROPERTY LINE					
LOT LINE					
EXISTING RIGHT OF WAY LINE	EXIST. ROW				
EXISTING RIGHT OF WAT LINE					
PERMANANT UTILITY EASEMENT					
PROPOSED SANITARY SEWER EASEMENT					
PROPOSED PERMANENT DRAINAGE EASEMENT	PDE				
PROPOSED RIGHT OF WAY TEMPORARY ACCESS EASEMENT					
TEMPORARY CONSTRUCTION EASEMENT					
GRADING LIMIT	0 0 0				

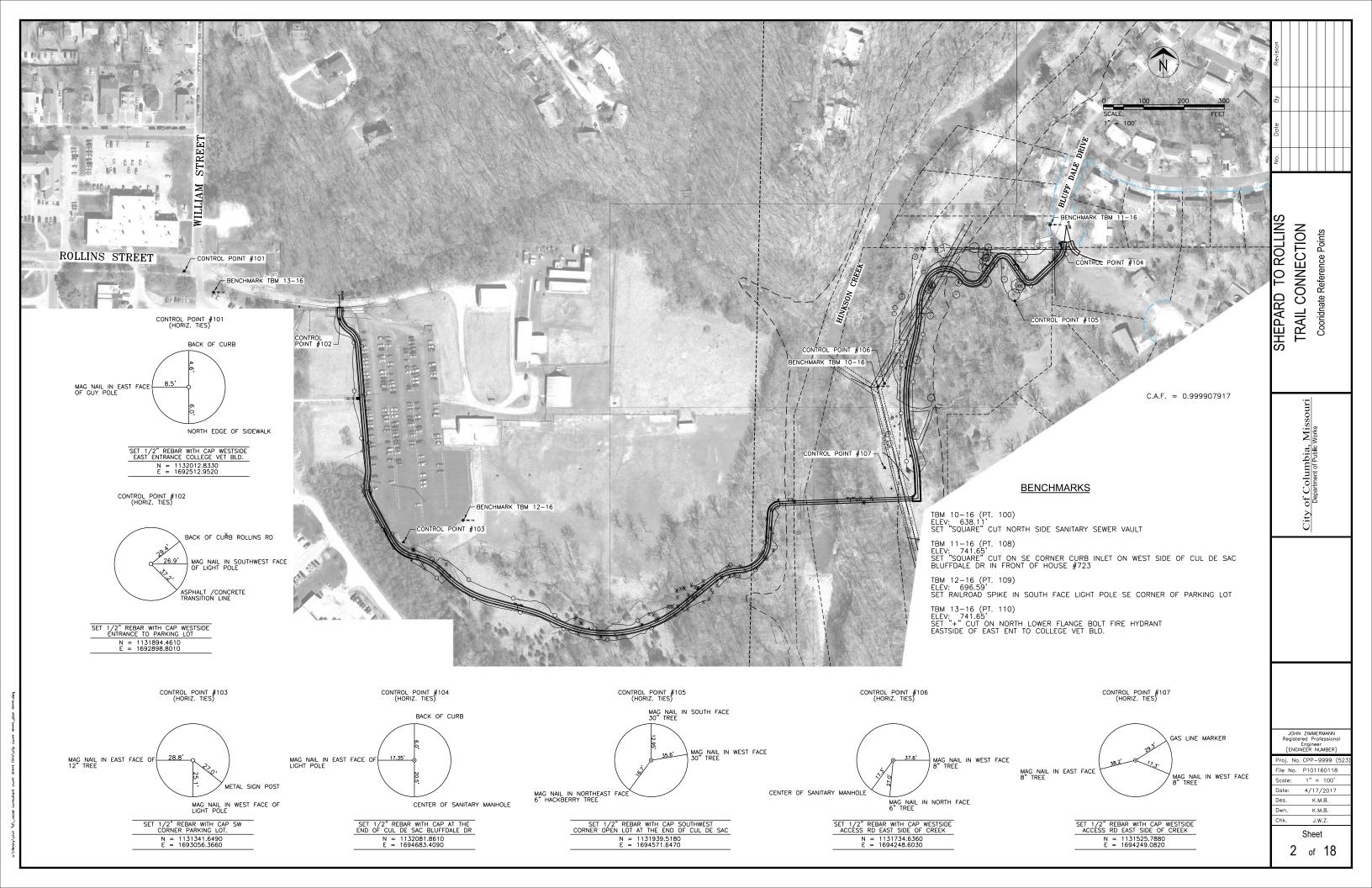
# City of Columbia, Missouri Department of Public Works No. Date By Revision File No. 32–XX–XX Des. K.M.B. Scale: None Dwn. K.M.B. Date: 9/6/2016 Chk. J.W.Z. Scale: 9/6/2016 Chk. J.W.Z.

# SHEPARD TO ROLLINS TRAIL CONNECTION

Approved By

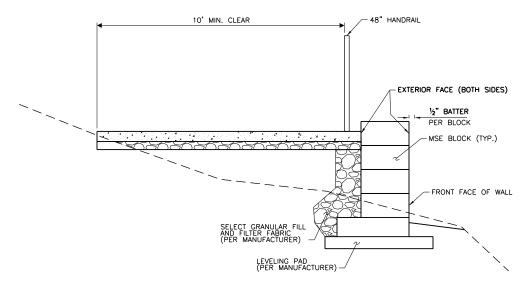
Director of Public Works

Date



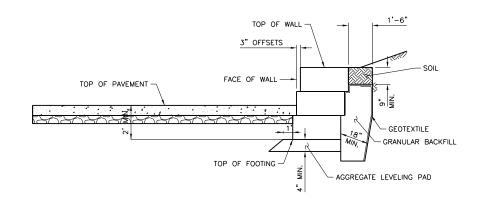
# TRAIL TYPICAL SECTION

STA. 10+29.76 TO STA. 31+49.00 (EXCEPT BRDIGE), W =  $10^{\circ}$  STA. 31+44.00 TO STA. 33+05.00, W =  $11^{\circ}$  STA. 33+05.00 TO STA. 42+01.50, W =  $10^{\circ}$ 



# MSE RETAINING WALL SECTION

STA. 31+40.86 TO STA. 33+05.00, LT. & RT. (NO. 3 & 4)



# STACKED LIMESTONE RETAINING WALL SECTION

STA. 15+86.15 TO STA. 16+66.60, RT. (NO. 1) STA. 27+10.00 TO STA. 28+14.00, LT. (NO. 2)

# **GENERAL NOTES**

- "GUIDE FOR THE DEVELOPMENT OF BICYCLE FACILITIES", 2012, AASHTO IS HEREBY INCORPORATED, EXCEPT AS OTHERWISE SHOWN.
- ALL SIGNAGE TO CONFORM TO "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS" (MUTCD), LATEST RELEASE AND EDITIONS. POSTS TO BE 1 3/4" SQUARE 14 GAUGE.
- 3. TRAIL ALIGNMENTS MAY BE ADJUSTED TO MEET FIELD CONDITIONS AS APPROVED BY THE ENGINEER
- UTILITIES SHOWN MEET FHWA SUBSURFACE UTILITY ENGINEERING QUALITY LEVEL B. UNDERGROUND LOCATIONS SHOWN, AS FURNISHED BY THEIR LESSORS, ARE APPROXIMATE AND SHOULD BE VERIFIED IN THE FIELD AT THE TIME OF CONSTRUCTION. FOR ACTUAL FIELD LOCATIONS OF UNDERGROUND UTILITIES, CALL 1 –800 –344–7233. LAW REQUIRES 48 HOURS NOTICE. UNDERGROUND UTILITY LOCATIONS SHALL BE DETERMINED IN THE FIELD BY EACH UTILITY COMPANY AT THE REQUEST OF THE CONTRACTOR WHERE NECESSARY. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO AS CERTAIN WHETHER ANY ADDITIONAL FACILITIES OTHER THAN THOSE SHOWN ON THE PLANS MAY BE PRESENT AND THEIR EXACT HORIZONTAL AND VERTICAL LOCATIONS AS NEEDED.
- 5. ALL NECESSARY UTILITY RELOCATIONS AND SERVICE LINE RECONNECTIONS SHALL BE PERFORMED PRIOR TO OR CONCURRENTLY WITH CONSTRUCTION. CONTRACTOR SHALL BE REQUIRED TO COOPERATE AND SCHEDULE WITH UTILITY COMPANIES TO FACILITATE RELOCATIONS DURING CONSTRUCTION.
- 6. ALL TREES, STUMPS, SHRUBS, BUSHES, AND BRUSH WITHIN THE CONSTRUCTION LIMITS OF THE PROJECT SHALL BE REMOVED BY THE CONTRACTOR SHALL CONDUCT HIS CONSTRUCTION ACTIVITIES TO MINIMIZE THE AMOUNT OF CLEARING AND GRUBBING. LARGE TREES THAT ARE NOT SHOWN ON THE PLANS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO DISTURBANCE AND SHALL BE SPARED, BY ADJUSTING THE PROJECT CONSTRUCTION LIMITS DURING CONSTRUCTION OR REMOVED, AS DIRECTED BY THE ENGINEER.
- 7. TREES AND SHRUBS ADJACENT TO CONSTRUCTION AREAS SHALL BE PROTECTED BY THE CONTRACTOR. DAMAGE OR CUT SURFACE AREAS ON TREES OR SHRUBS SHALL BE PAINTED WITH AN ACCEPTED PRUNING PAINT SPECIALLY FORMULATED FOR HORTICULTURE APPLICATION. ALL TREES AND BRUSH, WHICH MUST BE REMOVED FOR PROPER EXECUTION OF THE WORK, SHALL BE REMOVED BY CONTRACTOR.
- 8. ALL WORK SHALL BE CONFINED WITHIN THE EASEMENTS AND/OR CONSTRUCTION LIMITS. ANY DISTURBANCE OF EXISTING CONDITIONS OUTSIDE THE GRADING LIMITS SHALL BE REPAIRED PROMPTLY TO THE ORIGINAL CONDITION AT THE CONTRACTOR'S EXPENSE, UNLESS OTHER WRITTEN ARRANGEMENTS HAVE BEEN MADE.
- 9. ALL DEBRIS AND WASTE SHALL BE REMOVED FROM THE JOB SITE IMMEDIATELY AND DISPOSED OF AT A SITE FURNISHED BY THE CONTRACTOR. NO STOCKPILING ON SITE WILL BE ALLOWED.
- 10. ALL DISTURBED AREAS SHALL BE SEEDED OR SODDED AS SOON AS FINISH GRADING IS COMPLETED OR AS OTHERWISE DIRECTED BY THE ENGINEER.
- 11. THE CONTRACTOR SHALL MAINTAIN THE CONSTRUCTION SITE IN A CLEAN, ORDERLY AND SAFE CONDITION AT ALL TIMES DURING THE COURSE OF THE PROJECT.
- 12. THE CONTRACTOR SHALL CONTROL THE EROSION AND SILTATION DURING ALL PHASES OF CONSTRUCTION, AND SHALL KEEP ALL STREETS CLEAN OF MUD AND DEBRIS.

# TRAIL NOTES

- ALL CONCRETE JOINTS SHALL BE AT RIGHT ANGLES TO THE ALIGNMENT OF THE TRAIL AND MEET THE REQUIREMENTS INDICATED BELOW.
  THE CONTRACTOR SHALL LAYOUT THE JOINTS FOR APPROVAL BY THE ENGINEER PRIOR TO SAW CUTTING. CONTRACTION JOINTS SHALL BE
  SAW CUT IN CONCRETE TO CREATE SOUARE PANELS, MATCHING THE WIDTH OF THE TRAIL. CONTRACTION JOINTS SHALL BE ONE—EIGHTH
  (1/8) INCH WIDE BY ONE (1) INCH DEEP. TOOLED JOINTS ARE NOT ALLOWED.
- 2. ONE—HALF (1/2) INCH THICK EXPANSION JOINTS SHALL BE PLACED WHERE THE TRAIL ABUTS OTHER STRUCTURES AND AT 250 FOOT INTERVALS ALONG THE TRAIL. EXPANSION JOINTS SPACING MAY BE INCREASED TO 300 FOOT INTERVALS FOR MACHINE LAID TRAILS IF 3/4" JOINT FILLER. IS USED. EXPANSION JOINTS SHALL BE FORMED BY PREFORMED JOINT FILLER, EXTENDING THE FULL DEPTH OF THE SLAB, AND SECURED SO THAT THEY ARE NOT MOVED BY DEPOSITING AND COMPACTION OF CONCRETE.
- 3. CONCRETE FINISHING: MEDIUM TRANSVERSE BROOM FINISH WITH NO EDGE TOOLING VISIBLE AFTER BROOM FINISH. SURFACE TO BE FREE OF DEFECTS, DISCOLORATION, AND DAMAGE FROM VANDALISM.
- 4. CROSS-SLOPES CONSTRUCTED STEEPER THAN 2% ARE NOT COMPLIANT WITH THE AMERICANS WITH DISABILITIES ACT AND MUST BE MADE COMPLIANT AT THE CONTRACTOR'S EXPENSE. CONTRACTOR MUST REPLACE THE NONCOMPLIANT SECTIONS AT THE NEAREST JOINTS.
- 5. ALL CONCRETE SHALL BE 4,000 PSI.

# TRAIL ALIGNMENT

CURVE	P.C. STA.	NORTH.	EAST.	DELTA	FOR. BEAR.	TAN.	RAD.
TRAIL-1	10+45.79	1,131,908.02	1,692,898.17	56° 19' 11.67" LT	S 56° 55' 37.08" E	26.76'	50.00'
TRAIL-2	10+94.94	1,131,866.65	1,692,920.88	52° 15' 42.72" RT	S 4° 39' 54.36" E	24.53'	50.00'
TRAIL-3	14+43.98	1,131,526.38	1,692,968.11	14° 50' 52.40" RT	S 10° 10' 58.04" W	15.64	120.00'
TRAIL-4	14+75.08	1,131,495.41	1,692,966.61	39° 04' 46.49" LT	S 28° 53' 48.46" E	28.39'	80.00'
TRAIL-5	16+42.74	1,131,343.59	1,693,029.97	49° 19' 22.06" LT	S 78" 13' 10.51" E	34.43'	75.00'
TRAIL-6	17+07.31	1,131,306.42	1,693,080.32	34° 02' 07.95" RT	S 44° 11' 02.57" E	45.91'	150.00'
TRAIL-7	17+96.41	1,131,264.12	1,693,157.26	31° 19' 25.10" LT	S 75° 30' 27.67" E	70.09'	250.00'
TRAIL-8	20+24.94	1,131,173.33	1,693,362.91	13° 09' 39.14" RT	S 62° 20' 48.53" E	34.61'	300.00*
TRAIL-9	20+93.85	1,131,148.61	1,693,427.07	67° 10' 43.79" LT	N 50° 28' 27.68" E	192.60'	290.00'
TRAIL-10	25+38.82	1,131,248.58	1,693,827.17	37* 53' 01.25" RT	N 88° 21' 28.93" E	34.32'	100.00*
TRAIL-11	26+04.94	1,131,271.40	1,693,887.95	84° 47' 52.88" LT	N 3° 33' 36.05" E	68.48'	75.00'
TRAIL-12	27+88.08	1,131,413.72	1,693,965.13	84° 23' 07.41" RT	N 87° 56' 43.45" E	22.66'	25.00'
TRAIL-13	32+17.95	1,131,499.43	1,694,330.21	13° 19' 07.07" LT	N 15° 22' 23.62" W	35.03'	300.00*
TRAIL-14	32+87.68	1,131,568.20	1,694,319.67	31° 15' 23.21" RT	N 15° 52' 59.59" E	134.27'	480.00'
TRAIL-15	35+49.54	1,131,826.82	1,694,320.82	15° 34' 25.95" LT	N 0° 18' 33.64" E	51.28'	375.00'
TRAIL-16	36+51.47	1,131,927.42	1,694,335.13	36° 33' 09.30" RT	N 36° 51' 42.94" E	39.63'	120.00'
TRAIL-17	37+28.02	1,131,998.76	1,694,359.12	111° 07' 59.43" RT	S 32° 00' 17.63" E	72.93'	50.00'
TRAIL-18	38+25.00	1,131,995.27	1,694,441.52	112° 59' 42.37" LT	N 35* 00' 00.00" E	45.32'	30.00'
TRAIL-19	39+43.75	1,132,042.77	1,694,525.71	110° 00' 00.00" RT	S 35° 00' 00.00" E	28.57'	20.00'
TRAIL-20	40+43.45	1,131,992.56	1,694,593.64	99° 09' 15.64" LT	N 45° 50' 44.36" E	23.48'	20.00'
TRAIL-21	41+56.51	1,132,044.33	1,694,680.24	38° 35' 42.79" LT	N 7° 15' 01.58" E	14.01	40.00'

No. Date By Revision

SHEPARD TO ROLLINS TRAIL CONNECTION

> City of Columbia, Missouri Department of Public Works

JOHN ZIMMERMANN Registered Professional Engineer [ENGINEER NUMBER]

Proj. No. CPP-9999 (
File No. P101160118
Scale: No Scale
Date: 4/17/2017
Des. K.M.B.
Dwn. K.M.B.

J.w.z. Sheet

3 of 18

