

DEER CREEK FLOOD MITIGATION PROJECT - PHASE 2

60% DRAWINGS

CITY OF BRENTWOOD, MISSOURI

MSD NOTE:

NO WORK CONCERNING LATERALS, EXISTING, SEWERS OR GRADING SHALL COMMENCE WITHOUT MSD PLAN APPROVAL.

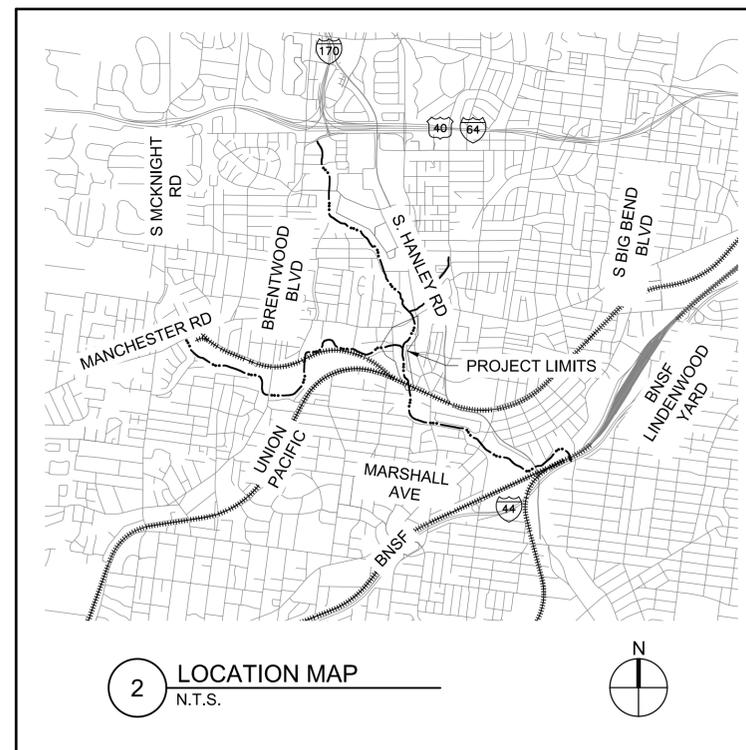
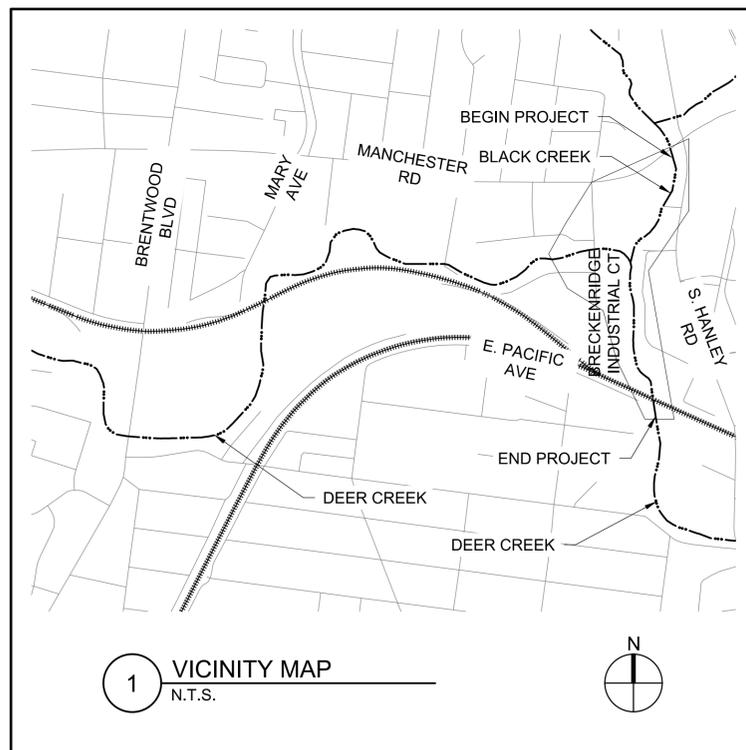
CONTROL POINT / BENCHMARK INFORMATION:

#14498 NAVD88 ELEV = 458.80

CUT "U" ON SOUTH SIDE OF ROUND CONCRETE BASE FOR THE WESTERNMOST OVERHEAD LAMP POST IN GRASS AREA BETWEEN THE SIDEWALK ALONG THE SOUTH SIDE OF MANCHESTER ROAD AND THE PARKING LOT FOR DEAN TEAM USED CAR LOT AT #8154 MANCHESTER ROAD; ROUGHLY 40 FEET SOUTH OF THE CENTERLINE OF MANCHESTER ROAD AND 340 FEET MORE OR LESS WEST OF THE CENTERLINE OF MERCANTILE DRIVE.

#14499 NAVD88 ELEV = 448.69

ALUMINUM TABLE STAMPED METROLINK 514 AND SET IN MASS OF CONCRETE WITHIN AND COVERED BY AN AREA LANDSCAPED WITH GRAVEL, SOUTH OF MANCHESTER ROAD IN FRONT OF COMMERCIAL BUILDING ADDRESSED AS #8044 MANCHESTER ROAD; ROUGHLY 3 FEET SOUTH OF THE INTERSECTION OF THE SOUTH SIDE OF MANCHESTER ROAD SIDEWALK WITH THE WEST CURB ROUNDING OF COMMERCIAL DRIVE AND PARKING, AND 42 FEET NORTHWEST OF THE NORTHEAST CORNER OF THE AFORESAID COMMERCIAL BUILDING



DEER CREEK FLOOD MITIGATION

TOTAL AREA	=	XXX AC
EXISTING IMPERVIOUS AREA	=	XXX AC
EXISTING PERVIOUS AREA	=	XXX AC
EXISTING Q	=	XXX CFS
PROPOSED IMPERVIOUS AREA	=	XXX AC
PROPOSED PERVIOUS AREA	=	XXX AC
PROPOSED Q	=	XXX CFS
IMPERVIOUS PI FACTOR*	=	XXX CFS/AC
PERVIOUS PI FACTOR*	=	XXX CFS/AC
DIFFERENTIAL Q = XXX CFS - XXX CFS	=	XXX CFS

STORMWATER MANAGEMENT FUTURE NOTE:

PROJECT DISTURBANCE = XXX ACRES
PROJECT RUNOFF DIFFERENTIAL = XXX CFS

15-YEAR, 20-MINUTE DURATION PI USED FOR CALCULATIONS.

ANY FUTURE LAND DISTURBANCE AND/OR INCREASE IN IMPERVIOUS AREA ON THIS SITE MAY REQUIRE ADDITIONAL STORM WATER MANAGEMENT PER MSD REGULATIONS IN PLACE AT THAT TIME (INCLUDING TOTAL LAND DISTURBANCE AND/OR IMPERVIOUSNESS ADDED ON THIS PLAN).

NOTICE TO CONTRACTOR:

THIS PROJECT INCLUDES RELOCATION, ALTERATION, OR RECONSTRUCTION OF EXISTING MSD FACILITIES. IN ACCORDANCE WITH MSD RESOLUTION 3263, THE DISTRICT REQUIRES THE WAGE RATE TO BE AT LEAST EQUAL TO THE MISSOURI PREVAILING WAGE RATE AT THE TIME OF CONSTRUCTION START. AN AFFIDAVIT CERTIFYING THAT THE MISSOURI PREVAILING WAGE RATE AT THE TIME OF CONSTRUCTION START HAS BEEN PAID FOR ALL WORK RELATED TO RELOCATION, ALTERATION, OR RECONSTRUCTION OF EXISTING MSD FACILITIES IS REQUIRED PRIOR TO MSD CONSTRUCTION APPROVAL OF THIS PROJECT.

CONTRACTORS INSURANCE (OFFSITE):

PRIOR TO OBTAINING A CONSTRUCTION PERMIT FROM THE METROPOLITAN ST. LOUIS SEWER DISTRICT, THE CONTRACTOR SHALL BE REQUIRED TO PROVIDE THE DISTRICT WITH A COPY OF AN EXECUTED CERTIFICATE OF INSURANCE INDICATING THAT THE PERMITTEE HAS OBTAINED AND WILL CONTINUE TO CARRY COMMERCIAL GENERAL LIABILITY AND COMPREHENSIVE AUTO LIABILITY INSURANCE. THE REQUIREMENTS AND LIMITS SHALL BE AS STATED IN THE RULES AND REGULATIONS AND ENGINEERING DESIGN REQUIREMENTS FOR SANITARY AND STORMWATER DRAINAGE FACILITIES, SECTION 10.090. (ADDENDUM)



Jacobs
JACOBS ENGINEERING GROUP INC.
501 NORTH BROADWAY
ST. LOUIS, MISSOURI 63102-2131
PHONE: 314-335-4000
CERTIFICATE OF AUTHORITY: 000704
EXPIRATION DATE: DECEMBER 31, 2020

HORNER SHIFRIN
401 S. 18TH ST., STE. 400 SAINT LOUIS, MO 63117
314-531-4321 • FAX 314-531-6966 • WWW.HORNERSHIFRIN.COM
DISCIPLINE: PROFESSIONAL ENGINEERING
CERTIFICATE OF AUTHORITY: 000159
EXPIRATION DATE: DECEMBER 31, 2020

PDS
Planning Design Studio
P.O. BOX 179279 SAINT LOUIS, MO 63117
314-241-3600 FAX 314-241-3601
DISCIPLINE: LANDSCAPE ARCHITECTURE
CERTIFICATE OF AUTHORITY: LAC-2006001845
EXPIRATION DATE: DECEMBER 31, 2020

NO.	DATE	REVISION

DATE: 31 AUGUST 2020

DESIGNED: XXX
DRAWN: XXX
CHECKED: XXX

HS JOB NO. 1815600
JACOBS JOB NO. 707841CH

SHEET 1 OF 67

COVER

DWG: C:\pwworking\jacobs_bk\fig_ex-d\cd\cd\252525\FW252500-G-002_Phase2.dwg
 SAVE DATE: 8/31/2020 5:48:35 PM
 PLOT DATE: 8/31/2020 6:27:35 PM
 OPERATOR: ADOKIC

Sheet List Table		
SHEET COUNT	DRAWING NUMBER	DRAWING TITLE
1	COVER	COVER
2	G-001	INDEX
3	G-002	GENERAL NOTES
4	G-003	LEGEND
5	S-001	SURVEY TIES
6	C-001	KEY MAP
7	CD-101	EXISTING CONDITIONS & DEMOLITION PLAN
8	CD-102	EXISTING CONDITIONS & DEMOLITION PLAN
9	CD-103	EXISTING CONDITIONS & DEMOLITION PLAN
10	CD-104	EXISTING CONDITIONS & DEMOLITION PLAN
11	CD-105	EXISTING CONDITIONS & DEMOLITION PLAN
12	CG-101	GRADING PLAN
13	CG-102	GRADING PLAN
14	CG-103	GRADING PLAN
15	CG-104	GRADING PLAN
16	CG-105	GRADING PLAN
17	CR-101	BRECKENRIDGE INDUSTRIAL COURT PLAN & PROFILE 1
18	CR-102	BRECKENRIDGE INDUSTRIAL COURT PLAN & PROFILE 2
19	CR-103	BRENTWOOD INDUSTRIAL DRIVE PLAN & PROFILE
20	CR-104	MSD ACCESS ROAD PLAN & PROFILE
21	CR-105	PROFILE - MULTI-USE PATH
22	CR-106	TYPICAL SECTIONS - BRECKENRIDGE INDUSTRIAL COURT
23	CR-107	TYPICAL SECTIONS - BRECKENRIDGE INDUSTRIAL COURT
24	CR-108	TYPICAL SECTIONS - BRENTWOOD, MSD ACCESS ROAD, & MULTI-USE PATH
25	CS-101	CIVIL SITE PLAN
26	CS-102	CIVIL SITE PLAN
27	CS-103	CIVIL SITE PLAN
28	CS-104	CIVIL SITE PLAN
29	CS-105	CIVIL SITE PLAN
30	SR-101	CREEK RESTORATION - GRADING PLAN & PROFILE
31	SR-102	CREEK RESTORATION TYPICAL CROSS SECTIONS
32	LP-101	LANDSCAPE PLAN
33	LP-102	LANDSCAPE PLAN
34	LP-103	LANDSCAPE PLAN
35	LP-104	LANDSCAPE PLAN
36	LP-105	LANDSCAPE PLAN
37	LD-101	LANDSCAPE DETAILS
38	LD-102	LANDSCAPE DETAILS

39	LD-103	LANDSCAPE SCHEDULE
40	LD-104	LANDSCAPE SCHEDULE
41	BR-101	GENERAL PLAN AND ELEVATION
42	BR-102	GENERAL NOTES AND ESTIMATED QUANTITIES
43	BR-103	GENERAL NOTES AND ESTIMATED QUANTITIES
44	BR-104	DETAILS OF END BENT NO. 1
45	BR-105	DETAILS OF END BENT NO. 1
46	BR-106	DETAILS OF END BENT NO. 1
47	BR-107	VERTICAL DRAIN AT END BENTS
48	BR-108	DETAILS OF INTERMEDIATE BENT NO. 2
49	BR-109	DETAILS OF INTERMEDIATE BENT NO. 2
50	BR-110	DETAILS OF END BENT NO. 3
51	BR-111	DETAILS OF END BENT NO. 3
52	BR-112	DETAILS OF END BENT NO. 3
53	BR-113	GIRDER DETAILS
54	BR-114	ALTERNATE BAR REINFORCING STEEL DETAILS
55	BR-115	DETAILS OF DIAPHRAGM INTERMEDIATE BENT NO. 2
56	BR-116	CAMBER AND BOTTOM OF SLAB ELEVATIONS
57	BR-117	PLAN OF SLAB SHOWING REINFORCEMENT
58	BR-118	SLAB DETAILS
59	BR-119	CONVENTIONAL-FORMED SAFETY BARRIER CURB
60	BR-120	CONVENTIONAL-FORMED SAFETY BARRIER CURB AT END BENTS
61	BR-121	OPTIONAL SLIP-FORMED SAFETY BARRIER CURB
62	BR-122	DETAILS OF BRIDGE APPROACH SLAB (MINOR ROAD)
63	BR-123	DECORATIVE PEDESTRIAN FENCE DETAILS
64	BR-124	BILL OF REINFORCEMENT STEEL
65	BR-125	BILL OF REINFORCING STEEL
66	BR-126	BILL OF REINFORCING STEEL
67	BR-127	AS BUILT PILE DATA



DEER CREEK FLOOD MITIGATION
PROJECT - PHASE 2

INDEX



P.O. BOX 179279, SAINT LOUIS, MO 63117
 314-241-3600 FAX 314-241-3601
 DISCIPLINE: LANDSCAPE ARCHITECTURE
 CERTIFICATE OF AUTHORITY: LAC-2006001845
 EXPIRATION DATE: DECEMBER 31, 2020

NO.	DATE	REVISION

THE PROFESSIONALS WHOSE SIGNATURES AND SEALS APPEAR HERE, ASSUME RESPONSIBILITY FOR WHAT APPEARS ON THIS SHEET ONLY. ALL OTHER PLANS, SPECIFICATIONS, REPORTS AND OTHER DOCUMENTS, DESIGN OR REVISIONS BY CONTRACTORS, OWNER OR OTHERS ARE NOT PART OF THE PROJECT FOR WHICH THIS SEAL INDICATES RESPONSIBILITY.

DATE: 31 AUGUST 2020

DESIGNED: AD
 DRAWN: AD
 CHECKED: CFW

HS JOB NO. 1815600
 JACOBS JOB NO. 707841CH

SHEET 2 OF 67

G-001

Project #:

Basemap #: 21K

GENERAL NOTES	
1.	DO NOT SCALE DRAWINGS. USE DIMENSIONS SHOWN. ANY DISCREPANCY SHALL BE REPORTED IMMEDIATELY TO THE PROJECT ENGINEER.
2.	THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS TO ACCOMPLISH THIS WORK EXCEPT FOR PERMITS ALREADY OBTAINED BY OWNER AS DESCRIBED IN THE PROJECT SPECIFICATIONS. THE COST OF PERMITS OBTAINED BY CONTRACTOR SHALL BE INCLUDED IN THE CONTRACT AMOUNT. COST OF COMPLYING WITH CONDITIONS REQUIRED BY ALL PERMITS OBTAINED SHALL BE INCLUDED IN THE CONTRACT AMOUNT.
3.	THE CONTRACTOR SHALL LAYOUT/STAKE THEIR OWN WORK AND SHALL BE RESPONSIBLE FOR ALL WORK EXECUTED UNDER THIS CONTRACT. THE CONTRACTOR SHALL VERIFY ALL FIGURES AND ELEVATIONS BEFORE PROCEEDING WITH THE WORK AND WILL BE RESPONSIBLE FOR ANY ERROR RESULTING FROM ITS FAILURE TO DO SO.
4.	CONTRACTOR SHALL PROTECT AND CAREFULLY PRESERVE ALL SURVEY OR PROPERTY MARKERS AND MONUMENTS. ANY MARKERS OR MONUMENTS THAT ARE REMOVED OR DISTURBED BY THE CONTRACTOR'S ACTIONS SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE BY A REGISTERED LAND SURVEYOR IN THE STATE OF MISSOURI.
5.	DO NOT DISTURB ANY UTILITIES UNLESS NOTED OTHERWISE.
6.	USE OF EXPLOSIVES AND BURNING ON-SITE WILL NOT BE PERMITTED.
7.	CONSTRUCTION SIGNS, LIGHTS, AND BARRICADES SHALL BE INSTALLED AT LOCATIONS NECESSARY TO MAINTAIN A SAFE WORK SITE CONDITION AS DIRECTED/APPROVED BY THE CITY AND IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (M.U.T.C.D.), LATEST EDITION.
8.	ALL CONSTRUCTION ACTIVITIES SHALL COMPLY WITH APPLICABLE OSHA REGULATIONS.
9.	ALL GROUND SURFACES DISTURBED BY CONSTRUCTION THAT ARE NOT INTENDED TO BE IMPACTED BY THE PROJECT SHALL BE RESTORED TO THEIR ORIGINAL CONDITION OR BETTER.
10.	HORIZONTAL AND VERTICAL CONTROL POINTS REMOVED OR DISTURBED DURING CONSTRUCTION SHALL BE RESET BY A LAND SURVEYOR REGISTERED IN THE STATE OF MISSOURI AT THE CONTRACTOR'S EXPENSE.
11.	CONTRACTOR SHALL CONTROL DUST BY SPRINKLING OF WATER OR ANY OTHER NECESSARY MEANS APPROVED BY THE PROJECT ENGINEER.
12.	IF HAZARDOUS MATERIALS ARE ENCOUNTERED DURING CONSTRUCTION THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY. COMPLY WITH APPLICABLE REGULATIONS, LAWS AND ORDINANCES CONCERNING REMOVAL, HANDLING NAD PROTECTION AGAINST EXPOSURE OR ENVIRONMENTAL POLLUTION.

DEMOLITION NOTES	
1.	DEMOLITION PLANS ARE GENERAL IN NATURE AND ARE NOT INTENDED TO BE ALL ENCOMPASSING OR EXHAUSTIVE IN DEPICTING EACH INDIVIDUAL ITEM TO BE REMOVED OR DEMOLISHED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VISITING THE PROJECT SITE AND VERIFYING EXISTING CONDITIONS AND FAMILIARIZING HIMSELF WITH THE PROJECT REQUIREMENTS PRIOR TO BIDDING. ITEMS INTERFERING WITH OR OF NO USE OR VALUE TO THE COMPLETED PROJECT SHALL BE REMOVED.
2.	COMPLY WITH GOVERNING REGULATIONS PERTAINING TO ENVIRONMENTAL PROTECTION AND DISPOSAL TECHNIQUES AND DUMP LOCATIONS. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR COMPLYING WITH ALL REGULATORY REQUIREMENTS.
3.	IN REMOVING PAVEMENT, CURB, GUTTER, SIDEWALKS AND OTHER SIMILAR IMPROVEMENTS AND WHERE A PORTION OF SUCH IMPROVEMENTS ARE TO BE LEFT IN PLACE, THEY SHALL BE REMOVED TO AN EXISTING JOINT OR SAWCUT AT LIMITS OF REMOVAL.
4.	ALL EXISTING SIGNAGE SHALL BE PROTECTED, OR REMOVED AND REINSTALLED AT ITS ORIGINAL LOCATION UNLESS NOTED OTHERWISE ON THE PLANS. THE ENGINEER SHALL APPROVE THE FINAL LOCATION OF ALL SIGNAGE. THE CONTRACTOR SHALL REPLACE, AT HIS EXPENSE, ANY SIGNS DAMAGED OR LOST DURING REMOVAL, STORAGE AND RESETTING.
5.	ANY TRAFFIC CONTROL SIGNS SUCH AS STOP, YIELD, OR SLOW REMOVED AND STORED WHILE A STREET REMAINS OPEN TO TRAFFIC SHALL BE REPLACED WITH SIMILAR TEMPORARY SIGNS IN ACCORDANCE WITH THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (M.U.T.C.D.), LATEST EDITION.
6.	ALL CONDUIT, DUCTS, FITTINGS, VALVES, AND OTHER DEBRIS RESULTING FROM THE DEMOLITION OF UTILITIES SHALL BE REMOVED AND DISPOSED OF OFF SITE.
7.	ALL DEBRIS RESULTING FROM THE DEMOLITION OF RIGID PAVEMENTS, CURBING, STRUCTURES, FOUNDATIONS AND FOOTINGS SHALL BE REMOVED FROM THE SITE AND LEGALLY DISPOSED OF UNLESS NOTED OTHERWISE IN THE PROJECT SPECIFICATIONS.
8.	ALL EXISTING ABOVE AND BELOW GRADE IMPROVEMENTS SHALL BE PROTECTED FROM CONSTRUCTION ACTIVITIES UNLESS NOTED OTHERWISE ON THE PLANS.
9.	COORDINATE PAVEMENT AND SIDEWALK REMOVAL LIMITS WITH PROPOSED PAVEMENT AND SIDEWALK.
10.	SAWCUT PAVEMENT TO FULL DEPTH. COORDINATE LIMITS OF PAVEMENT REMOVAL WITH DIMENSIONS.

UTILITY NOTES	
1.	THE UTILITY COMPANIES LISTED ON THIS SHEET ARE KNOWN TO HAVE FACILITIES WITHIN THE CONSTRUCTION AREA. THE CONTRACTOR SHALL COORDINATE WITH THE APPROPRIATE AGENCY PRIOR TO THE COMMENCEMENT OF ANY WORK WHICH WILL AFFECT ANY EXISTING UTILITY. THERE MAY BE OTHER UTILITIES IN THE PROJECT AREA THAT ARE NOT LISTED.
2.	UNDERGROUND UTILITIES HAVE BEEN PLOTTED FROM AVAILABLE INFORMATION AND THEREFORE THEIR LOCATIONS SHALL BE CONSIDERED APPROXIMATE ONLY. THE VERIFICATION OF THE LOCATION OF ALL UNDERGROUND UTILITIES, EITHER SHOWN OR NOT SHOWN ON THESE PLANS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THIS WORK SHALL BE COMPLETED PRIOR TO ANY DEMOLITION OR CONSTRUCTION ACTIVITIES. IT WILL BE THE CONTRACTOR'S RESPONSIBILITY TO PROTECT ALL SUCH UNDERGROUND UTILITIES DURING ALL PHASES OF WORK.
3.	LOCATE EXISTING UNDERGROUND UTILITIES AND SEWERS IN THE AREAS OF WORK BEFORE STARTING CONSTRUCTION. WHEN UTILITIES OR SEWERS ARE TO REMAIN IN PLACE, PROVIDE ADEQUATE MEANS OF PROTECTION DURING CONSTRUCTION. SHOULD UNCHARTED, OR INCORRECTLY CHARTED, PIPING OR OTHER UTILITIES BE ENCOUNTERED DURING EXCAVATION, CONSULT THE PROJECT ENGINEER AND UTILITY OWNER IMMEDIATELY FOR DIRECTIONS. COOPERATE WITH THE SERVICES AND FACILITIES IN OPERATION. REPAIR DAMAGED UTILITIES TO THE SATISFACTION OF THE UTILITY OWNER. REMOVALS OR RELOCATIONS BY UTILITY COMPANIES ARE TO BE INITIATED AND COORDINATED BY THE CONTRACTOR.
4.	DESIGN OF SHORING FOR UTILITY AND SEWER TRENCHES IS THE RESPONSIBILITY OF THE CONTRACTOR.

MSD NOTES	
ABANDONMENT/PERMITS: MSD PERMITS ARE REQUIRED PRIOR TO THE ABANDONMENT OR REMOVAL OF EXISTING SEWERS. TO RECEIVE MSD PERMITS THE PROJECT MUST HAVE MSD PLAN APPROVAL. NOTIFY MSD 48 HOURS PRIOR TO SEWER ABANDONMENT AND/OR REMOVAL.	
C-900 SANITARY PIPE: PVC GRAVITY SANITARY SEWER PIPE SIZES 4" THROUGH 15" SHALL BE AWWA C-900, CLASS 15 WITH DR18. PIPE TO BE LAID IN 20 FOOT LENGTHS WITH JOINTS WRAPPED 3 TIMES WITH FILTER FABRIC. EXTEND FILTER FABRIC 3 FEET EACH SIDE OF THE JOINT. ALL FITTINGS FOR PVC PIPE SHALL BE OF THE SAME MATERIAL AND STRENGTH REQUIREMENTS AS THE SEWER PIPE.	
COMPACTED FILL REQUIREMENTS: A REGISTERED PROFESSIONAL GEOTECHNICAL ENGINEER WILL VERIFY THAT ALL COMPRESSIBLE MATERIAL HAS BEEN REMOVED PRIOR TO FILL PLACEMENT AND THAT ALL FILL, AND FILLED AREAS, INCLUDING TRENCH BACKFILLS, UNDER BUILDINGS AND UNDER SANITARY AND STORM SEWER LINES CONSTRUCTED ABOVE THE ORIGINAL GROUND SURFACE, HAS BEEN COMPACTED TO 90% MODIFIED PROCTOR. FILL IS TO BE PLACED IN A MAXIMUM OF NINE-INCH (9") LIFTS. TESTS SHALL BE TAKEN AT A MAXIMUM OF FIFTY-FEET (50') WIDE INTERVALS ALONG THE ROUTE OF THE PIPE, AT A MAXIMUM INTERVAL, OF TWO FEET (2'), VERTICALLY AND LATERALLY ON EACH SIDE OF THE PIPE, AT A DISTANCE EQUAL TO THE DEPTH OF FILL OVER THE PIPE. A COPY OF THESE RESULTS WILL BE SUBMITTED TO MSD PRIOR TO PLACEMENT OF THE SEWER PIPE.	
CONSTRUCTION SITE RUNOFF: CONSTRUCTION SITE RUNOFF SHALL NOT FLOW INTO BMP AREAS. ALL STORMWATER FLOW TO BMP AREAS SHALL BE DIVERTED, PLUGGED OR DISCONNECTED UNTIL THE CONSTRUCTION SITE IS STABLE AND THE MSD INSPECTOR PROVIDES APPROVAL TO PLACE THE BMP ON-LINE	
CONTRACTOR'S INSURANCE (OFFSITE): PRIOR TO OBTAINING A CONSTRUCTION PERMIT FROM THE METROPOLITAN ST. LOUIS SEWER DISTRICT, THE CONTRACTOR SHALL BE REQUIRED TO PROVIDE THE DISTRICT WITH A COPY OF AN EXECUTED CERTIFICATE OF INSURANCE INDICATING THAT THE PERMITTEE HAS OBTAINED AND WILL CONTINUE TO CARRY COMMERCIAL GENERAL LIABILITY AND COMPREHENSIVE AUTO LIABILITY INSURANCE. THE REQUIREMENTS AND LIMITS SHALL BE AS STATED IN THE RULES AND REGULATIONS AND ENGINEERING DESIGN REQUIREMENTS FOR SANITARY AND STORMWATER DRAINAGE FACILITIES, SECTION 10.090. (ADDENDUM)	
DETAIL DRAWINGS: THE DETAIL DRAWINGS SHOWN HERE ARE ONLY FOR PRIVATE CONSTRUCTION THAT IS NOT UNDER MSD PERMITS. REFER TO MSD SPECIFICATIONS AND STANDARD DETAILS FOR PUBLIC SEWER CONSTRUCTION OR PRIVATE CONSTRUCTION UNDER MSD PERMITS.	
FILL OR REMOVE ABANDONED SEWER: ABANDONED SEWERS SHALL BE REMOVED OR COMPLETELY FILLED WITH GROUT UNLESS OTHERWISE DIRECTED IN THE DRAWINGS.	
LIMITS OF DISTURBANCE: THE CONTRACTOR SHALL STAY WITHIN THE LIMITS OF DISTURBANCE AS SHOWN ON THE PLANS AND MINIMIZE DISTURBANCE WITHIN THE WORK AREA WHEREVER POSSIBLE.	
PIPE JOINTS WITH ADAPTERS AND COUPLINGS NOTE: NOTE - PIPE JOINTS WITH ADAPTERS AND COUPLINGS SHALL BE SUPPLIED AND INSTALLED WITH 316 STAINLESS STEEL NUT AND BOLT CLAMPS (T-BOLT) CONFIGURATION; AND WITH STAINLESS STEEL SHEAR BANDS, BEING A MINIMUM OF TWELVE (12) MILS (MSD STD. CONST. SPECS. PT. 2, SUBSECTION H_11). WORM DRIVE HOSE CLAMPS AND CONCRETE BACKFILLING (CAUSTICITY) WILL NO LONGER BE ALLOWED AT THOSE JOINTS. GRANULAR BACKFILL SHOULD BE USED. IF FLOWABLE FILL IS REQUIRED, THE CONTRACTOR SHALL WRAP AND TAPE THE ADAPTERS AND COUPLINGS WITH A SIX (6) MIL POLYETHYLENE SHEET.	
PUBLIC SEWER MAINTENANCE: MAINTENANCE OF THE SEWERS DESIGNATED "PUBLIC" SHALL BE THE RESPONSIBILITY OF THE METROPOLITAN ST. LOUIS SEWER DISTRICT UPON DEDICATION OF THE SEWERS TO THE DISTRICT.	
REMOVE REPLACE OR REHAB NOTE: THE REMOVAL AND REPLACEMENT, OR REHABILITATION OF THE EXISTING STRUCTURE WILL BE DETERMINED BY THE MSD FIELD INSPECTOR. IF THE STRUCTURE IS DETERMINED TO REMAIN IN PLACE, THEN THE TOP SHALL BE ADJUSTED TO GRADE, IF NEEDED.	
SEDIMENTATION BASIN - TEMPORARY: DURING CONSTRUCTION; IF SITE RUNOFF FLOWS INTO A TEMPORARY SEDIMENT BASIN THAT WILL BE CONVERTED TO A PERMANENT BMP AREA, THEN AFTER THE TRIBUTARY AREA IS COMPLETELY STABLE THE SEDIMENT BASIN WILL NEED TO BE CLEANED OF ALL SILT, SEDIMENT, AND TRASH THAT HAS ACCUMULATED WITHIN IT. OVER EXCAVATE AS NEEDED TO ALLOW FULL DEPTH OF THE BMP SECTION. BMP PLANTING, IF APPLICABLE, CAN BE INSTALLED ONLY AFTER THIS HAS BEEN DONE AND THE MSD INSPECTOR PROVIDES APPROVAL TO PLACE THE PLANTINGS.	
SHOP DRAWINGS: THE PROJECT ENGINEER SHALL PROVIDE SHOP DRAWINGS SIGNED AND SEALED BY A PROFESSIONAL ENGINEER LICENSED IN MISSOURI FOR APPROVAL TO MSD PRIOR TO CONSTRUCTION OF THESE STRUCTURES. STRUCTURES SHALL BE DESIGNED TO SUSTAIN HS-20 LOADS. PLEASE CONTACT THE DISTRICT'S CONSTRUCTION MANAGEMENT DIVISION AT (314) 335-2072 FOR QUESTIONS.	
STANDARD CONSTRUCTION: ALL STORM AND SANITARY SEWER STRUCTURES AND APPURTENANCES TO BE DEDICATED TO MSD, OR TO BE PRIVATE UNDER MSD INSPECTION, SHALL CONFORM TO THE METROPOLITAN ST. LOUIS SEWER DISTRICT, STANDARD CONSTRUCTION SPECIFICATIONS FOR SEWERS AND DRAINAGE FACILITIES, 2009. THAT WILL INCLUDE STANDARD DETAILS SHOWN THEREIN, AND SHALL INCLUDE ALL SUBSEQUENT CHANGES MADE THERETO.	
SOME RECENT CHANGES CONCERN PLASTIC PIPE MATERIALS AND PIPE FIELD TESTING AND PERFORMANCE, AND INCLUDE THE FOLLOWING:	
PART 2 - MATERIALS OF CONSTRUCTION HIGH DENSITY POLYETHYLENE (HDPE) PIPE IS NOT ALLOWED FOR GRAVITY SEWERS FOR STORM, COMBINED, OR SANITARY SEWERS THAT ARE "PUBLIC" OR "PRIVATE UNDER MSD INSPECTION".	
POLYPROPYLENE (PP) PIPE IS ALLOWED AS FOLLOWS FOR GRAVITY SEWERS THAT ARE "PUBLIC" OR "PRIVATE UNDER MSD INSPECTION:	
FOR USE IN SANITARY AND COMBINED SEWERS 12 TO 60 INCHES IN DIAMETER IT SHALL CONFORM TO THE REQUIREMENTS OF ASTM F2764 "STANDARD SPECIFICATION FOR 6 TO 60 IN. POLYPROPYLENE (PP) CORRUGATED DOUBLE AND TRIPLE WALL PIPE AND FITTINGS FOR NON- PRESSURE SANITARY SEWER APPLICATIONS."	
FOR USE IN STORM SEWERS 12 TO 24 INCHES IN DIAMETER IT SHALL CONFORM TO THE REQUIREMENTS OF ASTM F2881 "STANDARD SPECIFICATION FOR 12 TO 60 IN. POLYPROPYLENE (PP) DUAL WALL PIPE AND FITTINGS FOR NON-PRESSURE STORM SEWER APPLICATIONS;" OR FOR USE IN STORM SEWERS 12 TO 60 INCHES IN DIAMETER IT SHALL CONFORM TO THE REQUIREMENTS OF ASTM F2764 "STANDARD SPECIFICATION FOR 6 TO 60 IN. POLYPROPYLENE (PP) CORRUGATED DOUBLE AND TRIPLE WALL PIPE AND FITTINGS FOR NON- PRESSURE SANITARY SEWER APPLICATIONS."	
PART 4 - PIPE SEWER CONSTRUCTION SECTION B, PIPE FIELD TESTS, PARAGRAPH 2, REACH INTEGRITY TESTING - DELETE THE FIRST SENTENCE AND THE FOLLOWING REPLACEMENT APPLIES:	
ALL SANITARY AND COMBINED SEWERS SHALL SUSTAIN A MAXIMUM LEAKAGE LIMIT OF 100	

GALLONS/INCH OF PIPE DIAMETER/MILE OF LINE/DAY, AS REQUIRED BY THE MISSOURI DEPARTMENT OF NATURAL RESOURCES SPECIFICATIONS.
SECTION B, PIPE FIELD TESTS, PARAGRAPH 2, REACH INTEGRITY TESTING, SUBPARAGRAPH C, INFILTRATION/EXFILTRATION TESTING - DELETE THE SIXTH SENTENCE, CONCERNING LEAKAGE LIMITS, AND THE FOLLOWING REPLACEMENT APPLIES:
THE MEASUREMENT OF LEAKAGE SHALL NOT EXCEED 100 GALLONS/INCH OF PIPE DIAMETER/MILE OF LINE/DAY, AS REQUIRED BY THE MISSOURI DEPARTMENT OF NATURAL RESOURCES SPECIFICATIONS.
SECTION B, PIPE FIELD TESTS, PARAGRAPH 4, MANHOLE TESTING, SUBPARAGRAPH A, VACUUM TESTING - AFTER THE FIRST SENTENCE, THE FOLLOWING ADDITION APPLIES:
THE VACUUM TEST MUST BE PERFORMED PRIOR TO BACKFILLING AROUND THE MANHOLE UNLESS THE CONTRACTOR PROVIDES DOCUMENTATION FROM THE PRECAST MANHOLE MANUFACTURER STATING THAT THE MANHOLE MAY BE VACUUM TESTED AFTER BACKFILLING HAS TAKEN PLACE.
THE CONTRACTOR MUST SUBMIT THIS DOCUMENTATION PRIOR TO BACKFILLING AROUND ANY MANHOLE.
SECTION B, PIPE FIELD TESTS, PARAGRAPH 4, MANHOLE TESTING, SUBPARAGRAPH B, EXFILTRATION TESTING - DELETE THE SECOND SENTENCE, CONCERNING LEAKAGE LIMITS, AND THE FOLLOWING ADDITION APPLIES:
FOR EXFILTRATION TESTING, THE ALLOWABLE LEAKAGE LIMIT IS 100 GALLONS/INCH OF PIPE DIAMETER/MILE OF LINE/DAY WHEN THE AVERAGE HEAD ON THE TEST SECTION IS THREE FEET (3') OR LESS.
IF REINFORCED CONCRETE PIPE IS USED FOR SANITARY OR COMBINED SEWERS LARGER THAN 27", ALL PIPE AND JOINTS SHALL CONFORM TO ASTM C 361. IN ADDITION, IF THE DIAMETER IS LARGER THAN 48", THE JOINT TYPE MUST INCLUDE A GASKET THAT IS CONFINED IN A GROOVE IN THE SPIGOT OF THE PIPE.
NOTES:
1. ELEVATION OF EXISTING SEWERS ARE FROM AVAILABLE PLANS, RECORD DRAWINGS AND/OR SURVEYS. ACTUAL ELEVATIONS MAY VARY FROM THOSE SHOWN. THE CONTRACTOR SHALL VERIFY LOCATIONS AND ELEVATIONS OF EXISTING SEWERS PRIOR TO COMMENCING CONSTRUCTION.
2. EXISTING INLETS, MANHOLES AND SEWERS TO BE ABANDONED (T.B.A.) SHALL BE ABANDONED IN ACCORDANCE WITH THE METROPOLITAN ST. LOUIS SEWER DISTRICTS "STANDARD CONSTRUCTION SPECIFICATIONS", 2009 EDITION AND ANY REVISIONS OR AS DIRECTED IN THE DRAWINGS. THE CONTRACTOR SHALL CAREFULLY COORDINATE SEWER ABANDONMENT TO ENSURE THAT ACTIVE SEWERS ARE NOT DAMAGED OR FILLED.
3. TOPS OF ALL MANHOLES AND INLETS TO REMAIN IN PLACE SHALL BE ADJUSTED TO PROPER FINISH GRADE ELEVATION, IN ACCORDANCE WITH REQUIREMENTS OF MSD. MANHOLES SHALL BE RAISED USING COURSES OF BRICK OR APPROVED GRADE RING(S), PROVIDED THE TOTAL ADJUSTMENT OF THE MANHOLE DOES NOT EXCEED 12 INCHES (INCLUDING EXISTING RINGS OR COURSES OF BRICK). FOR MANHOLES WHICH EXCEED THE MAXIMUM OF 12 INCHES, THE TRANSITION SECTION OF THE STRUCTURE SHALL BE REMOVED AND THE BOTTOM SECTION RAISED USING THE SAME MATERIAL AS THE EXISTING STRUCTURE.
4. MANHOLES SHALL BE LOWERED BY REMOVING THE TRANSITION SECTION, AND LOWERING THE EXISTING BOTTOM SECTION BY SAWCUTTING THE EXISTING CAST-IN-PLACE CONCRETE, REMOVING THE REQUIRED COURSES OF BRICK, OR REMOVING THE PRECAST RISER SECTION AS APPROPRIATE.
5. WATER JETTING UTILITY OR SEWER TRENCH BACKFILL SHALL NOT BE PERMITTED.
6. FOR SEWER PIPE (STORM, SANITARY AND COMBINED) WITH A DESIGN GRADE LESS THAN ONE PERCENT (1%), VERIFICATION OF THE PIPE GRADE WILL BE REQUIRED FOR EACH INSTALLED REACH OF SEWER, PRIOR TO ANY SURFACE RESTORATION OR INSTALLATION OF ANY SURFACE IMPROVEMENTS. THE CONTRACTOR'S FIELD SUPERVISOR WILL BE REQUIRED TO PROVIDE DAILY DOCUMENTATION VERIFYING THAT THE AS-BUILT PIPE GRADE MEETS THE DESIGN GRADE THROUGH THE SUBMITTAL OF SIGNED CUT SHEETS TO THE MSD INSPECTOR UPON REQUEST.
7. FIELD SURVEYED VERIFICATION MUST BE MADE UNDER THE DIRECTION OF A LICENSED LAND SURVEYOR OR REGISTERED ENGINEER. THE CONTRACTOR WILL BE REQUIRED TO REMOVE AND REPLACE ANY SEWER REACH HAVING AN AS-BUILT GRADE WHICH IS FLATTER THAN THE DESIGN GRADE BY MORE THAN 0.1%. SEWERS WITH GRADES GREATER THAN THE DESIGN SLOPE MAY BE LEFT IN PLACE, PROVIDED NO OTHER SEWER GRADE IS REDUCED BY THIS VARIANCE IN THE AS-BUILT GRADE.
8. MSD ALSO RESERVES THE RIGHT TO REQUIRE THE CONTRACTOR TO REMOVE AND REPLACE ANY SEWER AT ANY TIME PRIOR TO CONSTRUCTION APPROVAL FOR WHICH THE AS-BUILT GRADE DOES NOT COMPLY WITH THE GRADE TOLERANCE STATED ABOVE.
9. THE SEWER CONTRACTOR SHALL BE RESPONSIBLE FOR ANY COSTS ASSOCIATED WITH THE FIELD VERIFICATION OF THE SEWER GRADE, OR REMOVAL AND REPLACEMENT OF THE SEWER PIPE OR ASSOCIATED APPURTENANCES.
10. MAINTENANCE OF THE SEWERS DESIGNATED AS "PUBLIC" SHALL BE THE RESPONSIBILITY OF THE METROPOLITAN ST. LOUIS SEWER DISTRICT UPON DEDICATION OF THE SEWERS TO THE DISTRICT.

EXCAVATION/GRADING NOTES	
1.	DAMAGE TO OFF-SITE STREETS AND PROPERTIES DUE TO SOIL EROSION OR SILTATION SHALL BE PREVENTED BY ERECTING SILT BARRIERS OR BASINS, OR BY UTILIZING SIMILAR DEVICES TO EFFECT SOIL STABILIZATION. INSPECTION OF AND NECESSARY REPAIRS TO THE EROSION CONTROL MEASURES MUST BE MADE DAILY FOLLOWING PERIODS OF PRECIPITATION, AND/OR AS DIRECTED BY THE CITY ENGINEER. ADDITIONAL EROSION CONTROL MEASURES SHALL BE INSTALLED BY THE CONTRACTOR IF DIRECTED.
2.	ALL TRENCHES UNDER, OR ADJACENT TO PROPOSED PAVEMENT OR SIDEWALKS SHALL BE BACKFILLED TO SUBGRADE ELEVATION WITH COMPACTED 3/4" MINUS CRUSHED LIMESTONE. CRUSHED LIMESTONE SHALL BE PLACED AND COMPACTED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.
3.	ELEVATIONS SHOWN ARE TO TOP OF FINISHED GROUND OR PAVED SURFACE, UNLESS NOTED OTHERWISE.
4.	ALL TRASH, DEBRIS, ORGANIC MATERIAL, REFUSE, FROZEN EARTH, ETC., SHALL BE REMOVED FROM FILL AREAS PRIOR TO THE PLACEMENT OF CONTROLLED FILL. ALL FILLS AND BACKFILLS SHALL BE MADE OF SELECTED EARTH MATERIALS, FREE FROM BROKEN MASONRY, ROCK, FROZEN EARTH, RUBBISH, ORGANIC MATERIAL AND DEBRIS.
5.	CARE SHALL BE EXERCISED IN COMPACTION OF BACKFILL MATERIALS OVER THE TOP OF STRUCTURES OR PIPES IN ORDER TO PREVENT DAMAGE TO WATERPROOFING MEMBRANES, JOINTS, SEALS, AND/OR THE PIPES AND STRUCTURES THEMSELVES.
6.	SILTATION CONTROL DEVICES SHALL BE PLACED AT ALL DISCHARGE POINTS TO PROTECT ADJACENT PROPERTY AND RIGHT-OF-WAYS. UPON COMPLETION OF STORM SEWERS, SILT BARRIERS SHALL BE PLACED ON ALL SIDES OF INLET STRUCTURES TO KEEP SILT OUT OF STORM SEWER. SILTATION CONTROL DEVICES SHALL BE SECURELY ANCHORED AND PROPERLY MAINTAINED UNTIL ALL DISTURBED AREAS ARE PAVED OR TURF HAS BEEN ESTABLISHED.

PROJECT INFO	
PROJECT OWNER:	CITY OF BRENTWOOD
WATERSHED:	DEER CREEK
FIRE DISTRICT:	BRENTWOOD
SCHOOL DISTRICT:	BRENTWOOD
UTILITY CONTACTS:	AMEREN 1901 CHOUTEAU AVENUE ST. LOUIS, MO 63116 (314) 554-5154
	METROPOLITAN ST. LOUIS SEWER DISTRICT 2350 MARKET STREET ST. LOUIS, MO 63103 (314) 768-6200
	AT&T 12851 MANCHESTER RD. DES PERES, MO 63131 (636) 402-7027
	SPIRE 700 MARKET STREET ST. LOUIS, MO 63101 (800) 887-4173
	MISSOURI AMERICAN WATER 727 CRAIG ROAD ST. LOUIS, MO 63141 (866) 430-0820
	CHARTER SPECTRUM 6524 MANCHESTER AVE ST. LOUIS, MO 63139 (866) 874-2389



Brentwood Bound
Building a Bright Future

DEER CREEK FLOOD MITIGATION PROJECT - PHASE 2

GENERAL NOTES



JACOBS ENGINEERING GROUP INC.
501 NORTH BROADWAY
ST. LOUIS, MISSOURI 63102-2131
PHONE: 314-335-4000
CERTIFICATE OF AUTHORITY: 000704
EXPIRATION DATE: DECEMBER 31, 2020



HORNIER SHIFRIN

401 S. 18TH ST., STE. 400 SAINT LOUIS, MO 63103-2296
314-531-4321 • FAX 314-531-6966 • WWW.HORNERSHIFRIN.COM
DISCIPLINE: PROFESSIONAL ENGINEERING
CERTIFICATE OF AUTHORITY: 000159
EXPIRATION DATE: DECEMBER 31, 2020



PDS
Planning Design Studio

P.O. BOX 179279, SAINT LOUIS, MO 63117
314-241-3600 FAX 314-241-3601
DISCIPLINE: LANDSCAPE ARCHITECTURE
CERTIFICATE OF AUTHORITY: LAC-2006001845
EXPIRATION DATE: DECEMBER 31, 2020

NO.	DATE	REVISION

THE PROFESSIONALS WHOSE SIGNATURES AND SEALS APPEAR HERE, ASSUME RESPONSIBILITY FOR WHAT APPEARS ON THIS SHEET ONLY. ALL OTHER PLANS, SPECIFICATIONS, REPORTS, AND OTHER DOCUMENTS, DESIGN OR REVISIONS BY CONTRACTORS, OWNER OR OTHERS ARE NOT PART OF THE PROJECT FOR WHICH THIS SEAL INDICATES RESPONSIBILITY.

DATE:	31 AUGUST 2020	
DESIGNED:	AD	
DRAWN:	AD	
CHECKED:	CFW	
HS JOB NO.	1815600	
JACOBS JOB NO.	707841CH	
SHEET	3	OF 67
G-002		

LEGEND

	PROPERTY LINE
	EXISTING EASEMENT
	NEW EASEMENT
	SPOT ELEVATION
	FLOW DIRECTION
	MAJOR CONTOUR
	MINOR CONTOUR
	EXISTING MAJOR CONTOUR
	EXISTING MINOR CONTOUR
	PROPOSED STORM
	PROPOSED WATER
	PROPOSED GAS
	PROPOSED ELECTRICAL
	PROPOSED STORM SEWER STRUCTURE NO.
	PROPOSED SANITARY SEWER STRUCTURE NO.
	100 YEAR FLOODPLAIN LIMIT
	MANHOLE
	INLET MANHOLE
	GRATE INLET
	GRATE MANHOLE
	PIPE 6" THRU 18"
	PIPE 21" THRU 108"
	FENCE
	UNDERGROUND UTILITIES
	OVERHEAD UTILITIES
	HAND RAIL
	TREE
	SHRUB
	POWER POLE
	GUY POLE
	POWER POLE & GUY WIRE
	STREET SIGN
	LIGHT STANDARD
	MAILBOX
	PHONE CABLE BOX
	CLEAN OUT
	YARD DRAIN
	DOWNSPOUT
	YARD LIGHT
	POST / BOLLARD
	TRAFFIC SIGNAL
	FIRE HYDRANT
	GAS METER
	GAS VALVE
	GAS DRIP

	WATER METER
	WATER VALVE
	WATER MANHOLE
	ELECTRIC MANHOLE
	TELEPHONE MANHOLE
	ELEC BREAKER/OUTLET BOX
	ELEC METER
	CABLE BOX
	TELEPHONE BOX
	CONTROL POINT
	BOREHOLE LOCATION

ABBREVIATIONS

ASPH	ASPHALT
CONC	CONCRETE
FL	FLOWLINE
PVMT	PAVEMENT
OHE	OVERHEAD ELECTRIC
G	GAS
W	WATER
AI	AREA INLET
CI	CURB INLET
DCI	DOUBLE CURB INLET
MH	MANHOLE
CO	CLEAN OUT
(TYP.)	TYPICAL
IP	IRON PIPE
IR	IRON ROD
PK	PK NAIL
CS	COTTON SPINDLE
PP	POWER POLE
EX	EXISTING
ELEC	ELECTRIC
AC	AIR CONDITIONER
W/	WITH
UG	UNDERGROUND
C	UNDERGROUND CABLE TV
T	UNDERGROUND TELEPHONE
DIA	DIAMETER
LS	LANDSCAPE (TIMBERS)
CNO	COULD NOT OPEN
TRANSF	TRANSFORMER
WOB	WALK OUT BASEMENT
FF	FINISH FLOOR
(UIP)	USE IN PLACE
(DND)	DO NOT DISTURB
(TBR)	TO BE REPLACED
(TBA)	TO BE ABANDONED
(ATG)	ADJUST TO GRADE
(TBA&F)	TO BE ABANDONED & FILLED



DEER CREEK FLOOD MITIGATION PROJECT - PHASE 2

LEGEND

Jacobs
 JACOBS ENGINEERING GROUP INC.
 501 NORTH BROADWAY
 ST. LOUIS, MISSOURI 63102-2131
 PHONE: 314-335-4000
 CERTIFICATE OF AUTHORITY: 000704
 EXPIRATION DATE: DECEMBER 31, 2020

HORNER SHIFRIN
 401 S. 18TH ST., STE. 400 SAINT LOUIS, MO 63103-2296
 314-531-4321 • FAX 314-531-6966 • WWW.HORNERSHIFRIN.COM
 DISCIPLINE: PROFESSIONAL ENGINEERING
 CERTIFICATE OF AUTHORITY: 000159
 EXPIRATION DATE: DECEMBER 31, 2020

PDS
 Planning Design Studio
 P.O. BOX 179279, SAINT LOUIS, MO 63117
 314-241-3600 FAX 314-241-3601
 DISCIPLINE: LANDSCAPE ARCHITECTURE
 CERTIFICATE OF AUTHORITY: LAC-2006001845
 EXPIRATION DATE: DECEMBER 31, 2020

NO.	DATE	REVISION

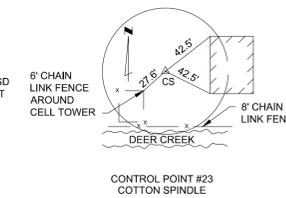
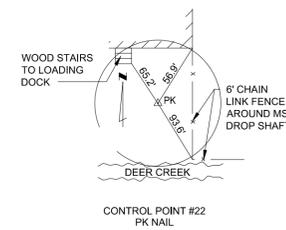
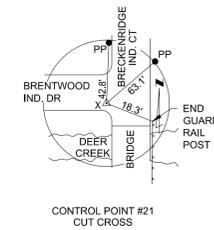
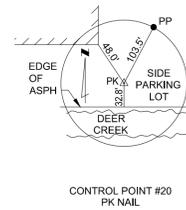
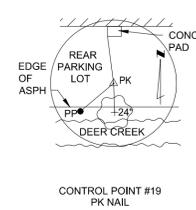
THE PROFESSIONALS WHOSE SIGNATURES AND SEALS APPEAR HERE, ASSUME RESPONSIBILITY FOR WHAT APPEARS ON THIS SHEET ONLY. ALL OTHER PLANS, SPECIFICATIONS, REPORTS AND OTHER DOCUMENTS, DESIGN OR REVISIONS BY CONTRACTORS, OWNER OR OTHERS ARE NOT PART OF THE PROJECT FOR WHICH THIS SEAL INDICATES RESPONSIBILITY.

DATE:	31 AUGUST 2020
DESIGNED:	AD
DRAWN:	AD
CHECKED:	CFW
HS JOB NO.	1815600
JACOBS JOB NO.	707841CH
SHEET	4 OF 67

G-003

DWG: C:\pwworking\jacobs_bk\fig_ev\dcd\cd\250505\F3\W250505-G-002_Phase2.dwg
 SAVE DATE: 8/28/20 4:58:14 PM
 PLOT DATE: 8/31/2020 5:44:26 PM
 OPERATOR: ADOKIC

REFERENCE TIE POINT TABLE				
POINT #	ELEVATION	NORTHING	EASTING	DESCRIPTION
19	447.84	1011011.92	866449.07	PK NAIL
20	446.86	1011060.91	866701.17	PK NAIL
21	441.92	1011120.00	866963.07	CROSS
22	439.94	1011210.74	867233.87	PK NAIL
23	444.09	1011282.37	867412.97	COTTON SPINDLE



Jacobs
JACOBS ENGINEERING GROUP INC.
501 NORTH BROADWAY
ST. LOUIS, MISSOURI 63102-2131
PHONE: 314-335-4000
CERTIFICATE OF AUTHORITY: 000704
EXPIRATION DATE: DECEMBER 31, 2020

HORNER SHIFRIN
401 S. 18TH ST., STE. 400 SAINT LOUIS, MO 63103-2296
314-531-4321 • FAX 314-531-6966 • WWW.HORNERSHIFRIN.COM
DISCIPLINE: PROFESSIONAL ENGINEERING
CERTIFICATE OF AUTHORITY: 000159
EXPIRATION DATE: DECEMBER 31, 2020

PDS
Planning Design Studio

P.O. BOX 179279, SAINT LOUIS, MO 63117
314-241-3600 FAX 314-241-3601
DISCIPLINE: LANDSCAPE ARCHITECTURE
CERTIFICATE OF AUTHORITY: LAC-2006001845
EXPIRATION DATE: DECEMBER 31, 2020

NO.	DATE	REVISION

THE PROFESSIONALS WHOSE SIGNATURES AND SEALS APPEAR HERE, ASSUME RESPONSIBILITY FOR WHAT APPEARS ON THIS SHEET ONLY. ALL OTHER PLANS, SPECIFICATIONS, REPORTS, AND OTHER DOCUMENTS, DESIGN OR REVISIONS BY CONTRACTORS, OWNER OR OTHERS ARE NOT PART OF THE PROJECT FOR WHICH THIS SEAL INDICATES RESPONSIBILITY.

DATE: 31 AUGUST 2020

DESIGNED: AD
DRAWN: AD
CHECKED: CFW

HS JOB NO. 1815600
JACOBS JOB NO. 707841CH

SHEET 5 OF 67

S-001

DEER CREEK FLOOD MITIGATION
PROJECT - PHASE 2

KEY MAP

Jacobs
JACOBS ENGINEERING GROUP INC.
501 NORTH BROADWAY
ST. LOUIS, MISSOURI 63102-2131
PHONE: 314-335-4000
CERTIFICATE OF AUTHORITY: 000704
EXPIRATION DATE: DECEMBER 31, 2020

HORNER SHIFRIN
401 S. 18TH ST., STE. 400 SAINT LOUIS, MO 63103-2296
314-531-4321 • FAX 314-531-6966 • WWW.HORNERSHIFRIN.COM
DISCIPLINE: PROFESSIONAL ENGINEERING
CERTIFICATE OF AUTHORITY: 000159
EXPIRATION DATE: DECEMBER 31, 2020

PDS
Planning Design Studio
P.O. BOX 179279, SAINT LOUIS, MO 63117
314-241-3600 FAX 314-241-3601
DISCIPLINE: LANDSCAPE ARCHITECTURE
CERTIFICATE OF AUTHORITY: LAC-2006001845
EXPIRATION DATE: DECEMBER 31, 2020

NO.	DATE	REVISION

THE PROFESSIONALS WHOSE SIGNATURES AND SEALS APPEAR HERE, ASSUME RESPONSIBILITY FOR WHAT APPEARS ON THIS SHEET ONLY. ALL OTHER PLANS, SPECIFICATIONS, REPORTS, AND OTHER DOCUMENTS, DESIGN OR REVISIONS BY CONTRACTORS, OWNER OR OTHERS ARE NOT PART OF THE PROJECT FOR WHICH THIS SEAL INDICATES RESPONSIBILITY.

DATE:	31 AUGUST 2020
DESIGNED:	AD
DRAWN:	AD
CHECKED:	CFW
HS JOB NO.	1815600
JACOBS JOB NO.	707841CH
SHEET	6 OF 67

Project #: Basemap #: 21K

C-001



© 2020 Microsoft Corporation © 2020 Maxar ©CNES (2020) Distribution Airbus DS

1 PROJECT KEY MAP
1" = 150'



D:\GIS_C\m\work\proj\pds_bk\img_ex-dbl\cad\250505\FW\250505-C-001_Phase2.dwg
 SAVE DATE: 8/27/2020 5:33:28 PM
 PLOT DATE: 8/31/2020 5:47:56 PM
 OPERATOR: ADOKIC



1 EXISTING CONDITIONS AND DEMOLITION PLAN
1" = 30'

DEMOLITION PLAN NOTES

- SEE SHEET G-002 FOR ADDITIONAL NOTES, LEGEND, AND ABBREVIATIONS.
- UNDERGROUND FACILITIES, STRUCTURES AND UTILITIES HAVE BEEN PLOTTED FROM AVAILABLE SURVEYS AND RECORDS, AND THEREFORE THEIR LOCATIONS MUST BE CONSIDERED APPROXIMATE ONLY. IT IS POSSIBLE THERE MAY BE OTHERS. THE EXISTENCE OF WHICH IS PRESENTLY NOT KNOWN OR SHOWN. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THEIR EXISTENCE AND EXACT LOCATION AND TO AVOID DAMAGE THERETO. DIG RITE TO BE CONTACTED TO LOCATE PUBLIC UTILITIES.
- STORM AND SANITARY SEWERS, IF ABANDONED OR REMOVED, SHALL BE DONE SO IN ACCORDANCE WITH MSD'S STANDARD CONSTRUCTION SPECIFICATIONS FOR SEWERS AND DRAINAGE FACILITIES, LATEST EDITION.
- CONTRACTOR TO PROTECT TREES THAT ARE TO REMAIN. INSTALL TEMPORARY FENCING AROUND AREAS THAT HAVE TREES TO REMAIN PRIOR TO BEGINNING CONSTRUCTION.
- CONTRACTOR TO PROVIDE A MAINTENANCE OF TRAFFIC PLAN APPROVED BY THE CITY OF BRENTWOOD PRIOR TO DEMOLITION IN THE RIGHT OF WAY.
- COORDINATE UTILITY SHUTDOWN AND SEQUENCE OF DEMOLITION AND CONSTRUCTION WITH UTILITY OWNER.

DEMOLITION PLAN LEGEND

DESCRIPTION	SYMBOL
PROPERTY LINE	---
CHANNEL CENTERLINE	---
LINEAR ITEM TO BE REMOVED	---
EXISTING CONTOURS	////
PROPOSED GRADING LIMITS	- - - - 450
REMOVE TREE	X
CONCRETE PAVEMENT REMOVAL	[Cross-hatched pattern]
ASPHALT PAVEMENT REMOVAL	[Diagonal hatched pattern]
BRIDGE REMOVAL	[Stippled pattern]
GRAVEL REMOVAL	[Dotted pattern]

DEMOLITION PLAN LEGEND

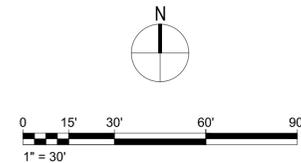
ADJUST TO GRADE	(ATG)
ARBORIST TREE PROTECTION	(ATP)
DO NOT DISTURB	(DND)
TO BE ABANDONED	(TBA)
TO BE ABANDONED AND FILLED	(TBA&F)
TO BE REMOVED	(TBR)
UTILIZE IN PLACE	(UIP)

HOLD IT ! CALL BEFORE YOU DIG !

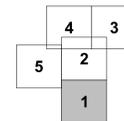
PHONE DIG RITE
CONTRACTOR TO CONTACT UTILITIES PRIOR TO ANY EXCAVATION OR DEMOLITION FOR THE LOCATION OF ANY PIPES, CABLES, LINES OR MAINS. THE CONTRACTOR SHALL ALSO COORDINATE ANY DISCONNECTION REQUIRED WITH THE VARIOUS UTILITY COMPANIES AND/OR GOVERNMENTAL AGENCIES SERVING THE SITE.
TOLL FREE 800-344-7483
800-DIG-RITE

UNDERGROUND CABLE

SCALES



KEY PLAN



DEER CREEK FLOOD MITIGATION PROJECT - PHASE 2
EXISTING CONDITIONS & DEMOLITION PLAN



P.O. BOX 179279, SAINT LOUIS, MO 63117
314-241-3600 FAX 314-241-3601
DISCIPLINE: LANDSCAPE ARCHITECTURE
CERTIFICATE OF AUTHORITY: LAC-2006001845
EXPIRATION DATE: DECEMBER 31, 2020

NO.	DATE	REVISION

DATE: 31 AUGUST 2020
DESIGNED: AD
DRAWN: AD
CHECKED: CFW
HS JOB NO. 1815600
JACOBS JOB NO. 707841CH
SHEET 7 OF 67
CD-101

DWG: C:\pwworking\jacobs_bk\img_ex-dbl\cd101\Phase2.dwg
PLOT DATE: 8/31/2020 5:51:19 PM
OPERATOR: ADKOC
SAVE DATE: 8/31/2020 1:51:12 PM

DEMOLITION PLAN NOTES

- SEE SHEET G-002 FOR ADDITIONAL NOTES, LEGEND, AND ABBREVIATIONS.
- UNDERGROUND FACILITIES, STRUCTURES AND UTILITIES HAVE BEEN PLOTTED FROM AVAILABLE SURVEYS AND RECORDS, AND THEREFORE THEIR LOCATIONS MUST BE CONSIDERED APPROXIMATE ONLY. IT IS POSSIBLE THERE MAY BE OTHERS. THE EXISTENCE OF WHICH IS PRESENTLY NOT KNOWN OR SHOWN. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THEIR EXISTENCE AND EXACT LOCATION AND TO AVOID DAMAGE THERETO. DIG RITE TO BE CONTACTED TO LOCATE PUBLIC UTILITIES.
- STORM AND SANITARY SEWERS, IF ABANDONED OR REMOVED, SHALL BE DONE SO IN ACCORDANCE WITH MSD'S STANDARD CONSTRUCTION SPECIFICATIONS FOR SEWERS AND DRAINAGE FACILITIES, LATEST EDITION.
- CONTRACTOR TO PROTECT TREES THAT ARE TO REMAIN. INSTALL TEMPORARY FENCING AROUND AREAS THAT HAVE TREES TO REMAIN PRIOR TO BEGINNING CONSTRUCTION.
- CONTRACTOR TO PROVIDE A MAINTENANCE OF TRAFFIC PLAN APPROVED BY THE CITY OF BRENTWOOD PRIOR TO DEMOLITION IN THE RIGHT OF WAY.
- COORDINATE UTILITY SHUTDOWN AND SEQUENCE OF DEMOLITION AND CONSTRUCTION WITH UTILITY OWNER.

DEMOLITION PLAN LEGEND

DESCRIPTION	SYMBOL
PROPERTY LINE	---
CHANNEL CENTERLINE	- - - - -
LINEAR ITEM TO BE REMOVED	
EXISTING CONTOURS	~~~~~
PROPOSED GRADING LIMITS	- - - - - 450
REMOVE TREE	X
CONCRETE PAVEMENT REMOVAL	[Cross-hatch pattern]
ASPHALT PAVEMENT REMOVAL	[Diagonal hatch pattern]
BRIDGE REMOVAL	[Wavy hatch pattern]
GRAVEL REMOVAL	[Stippled pattern]

DEMOLITION PLAN LEGEND

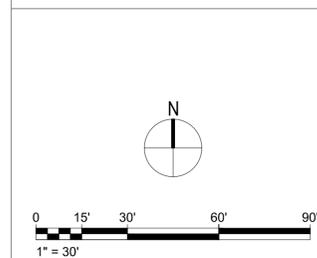
ADJUST TO GRADE	(ATG)
ARBORIST TREE PROTECTION	(ATP)
DO NOT DISTURB	(DND)
TO BE ABANDONED	(TBA)
TO BE ABANDONED AND FILLED	(TBA&F)
TO BE REMOVED	(TBR)
UTILIZE IN PLACE	(UIP)

HOLD IT ! CALL BEFORE YOU DIG !

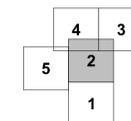
PHONE DIG RITE
 CONTRACTOR TO CONTACT UTILITIES PRIOR TO ANY EXCAVATION OR DEMOLITION FOR THE LOCATION OF ANY PIPES, CABLES, LINES OR MAINS. THE CONTRACTOR SHALL ALSO COORDINATE ANY DISCONNECTION REQUIRED WITH THE VARIOUS UTILITY COMPANIES AND/OR GOVERNMENTAL AGENCIES SERVING THE SITE.
 TOLL FREE 800-344-7483
 800-DIG-RITE

UNDERGROUND CABLE

SCALES



KEY PLAN



Project #: Basemap #: 21K



DEER CREEK FLOOD MITIGATION PROJECT - PHASE 2
 EXISTING CONDITIONS & DEMOLITION PLAN



JACOBS ENGINEERING GROUP INC.
 501 NORTH BROADWAY
 ST. LOUIS, MISSOURI 63102-2131
 PHONE: 314-335-4000
 CERTIFICATE OF AUTHORITY: 000704
 EXPIRATION DATE: DECEMBER 31, 2020



401 S. 18TH ST., STE. 400 SAINT LOUIS, MO 63103-2296
 314-531-4321 • FAX 314-531-6966 • WWW.HORNORSHIFRIN.COM
 DISCIPLINE: PROFESSIONAL ENGINEERING
 CERTIFICATE OF AUTHORITY: 000159
 EXPIRATION DATE: DECEMBER 31, 2020



P.O. BOX 179279, SAINT LOUIS, MO 63117
 314-241-3600 FAX 314-241-3601
 DISCIPLINE: LANDSCAPE ARCHITECTURE
 CERTIFICATE OF AUTHORITY: LAC-2006001845
 EXPIRATION DATE: DECEMBER 31, 2020

NO.	DATE	REVISION

THE PROFESSIONALS WHOSE SIGNATURES AND SEALS APPEAR HERE, ASSUME RESPONSIBILITY FOR WHAT APPEARS ON THIS SHEET ONLY. ALL OTHER PLANS, SPECIFICATIONS, REPORTS, AND OTHER DOCUMENTS, DESIGN OR REVISIONS BY CONTRACTORS, OWNER OR OTHERS ARE NOT PART OF THE PROJECT FOR WHICH THIS SEAL INDICATES RESPONSIBILITY.

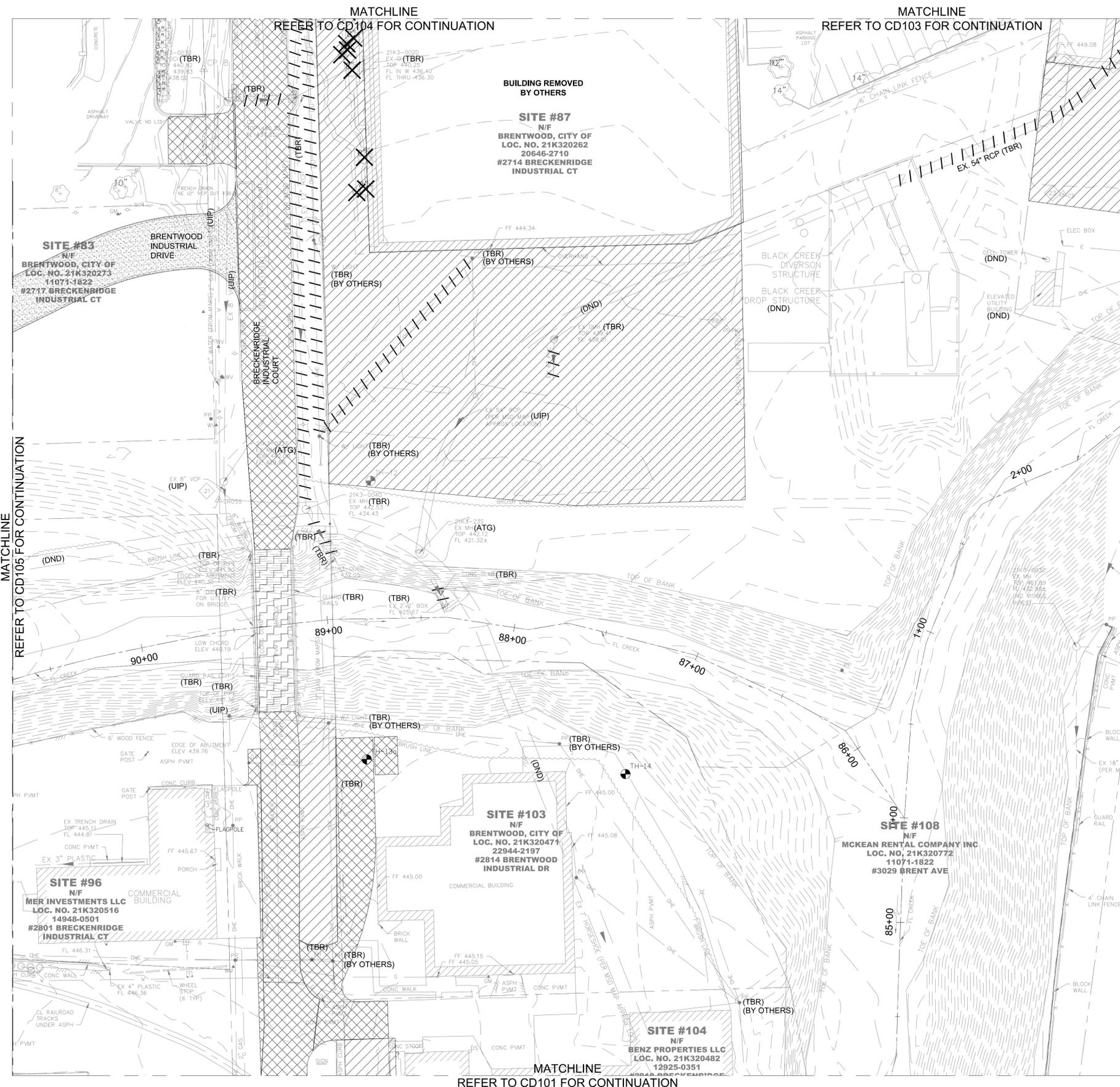
DATE: 31 AUGUST 2020

DESIGNED: AD
 DRAWN: AD
 CHECKED: CFW

HS JOB NO. 1815600
 JACOBS JOB NO. 707841CH

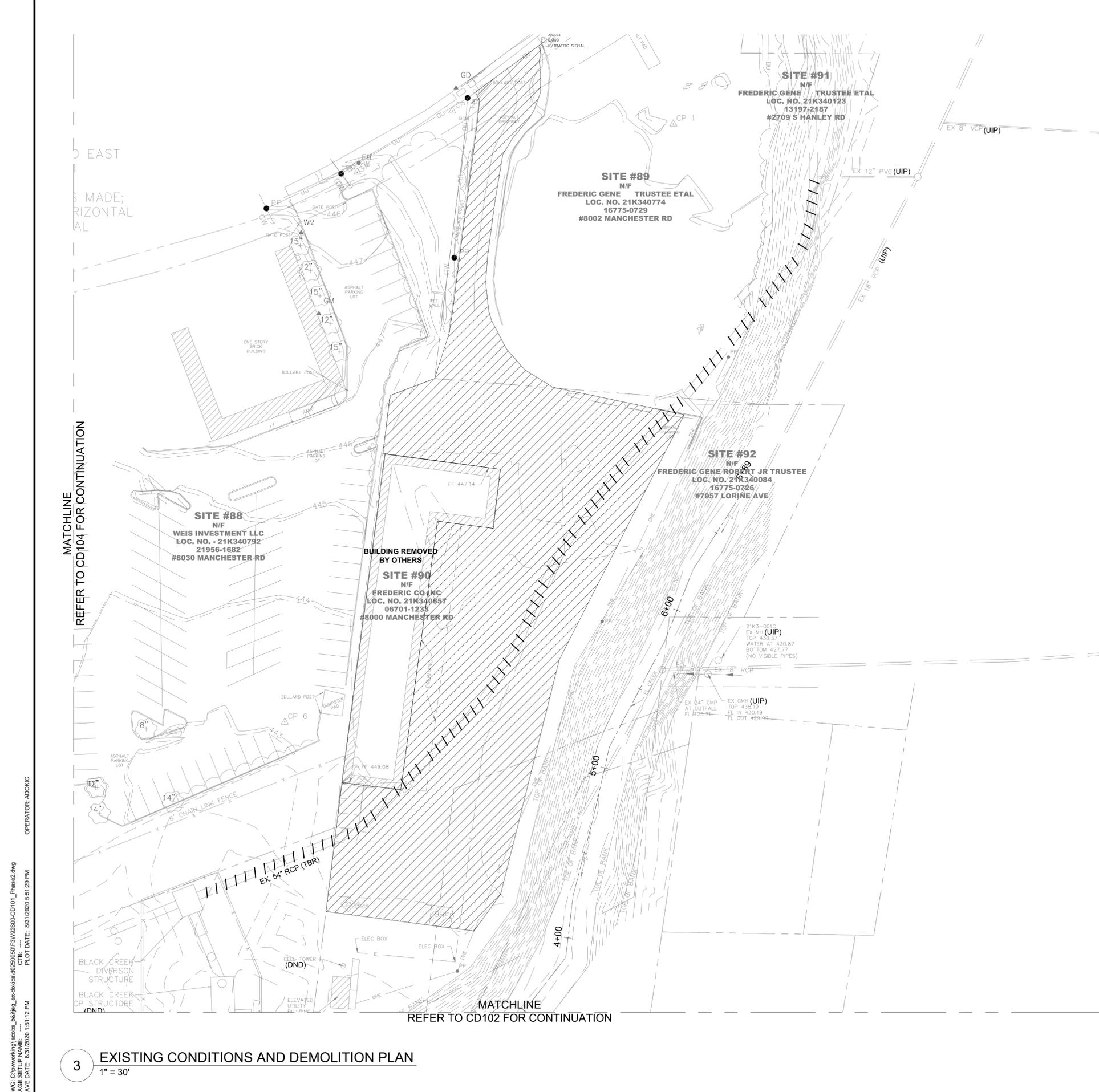
SHEET 7 OF 67

CD-102



2 EXISTING CONDITIONS AND DEMOLITION PLAN
 1" = 30'

DWG: C:\pwworking\jacob\proj\1815112\1815112.dwg
 PLOT DATE: 8/31/2020 5:51:24 PM
 OPERATOR: ADKDK



DEMOLITION PLAN NOTES

- SEE SHEET G-002 FOR ADDITIONAL NOTES, LEGEND, AND ABBREVIATIONS.
- UNDERGROUND FACILITIES, STRUCTURES AND UTILITIES HAVE BEEN PLOTTED FROM AVAILABLE SURVEYS AND RECORDS, AND THEREFORE THEIR LOCATIONS MUST BE CONSIDERED APPROXIMATE ONLY. IT IS POSSIBLE THERE MAY BE OTHERS, THE EXISTENCE OF WHICH IS PRESENTLY NOT KNOWN OR SHOWN. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THEIR EXISTENCE AND EXACT LOCATION AND TO AVOID DAMAGE THERETO. DIG RITE TO BE CONTACTED TO LOCATE PUBLIC UTILITIES.
- STORM AND SANITARY SEWERS, IF ABANDONED OR REMOVED, SHALL BE DONE SO IN ACCORDANCE WITH MSD'S STANDARD CONSTRUCTION SPECIFICATIONS FOR SEWERS AND DRAINAGE FACILITIES, LATEST EDITION.
- CONTRACTOR TO PROTECT TREES THAT ARE TO REMAIN. INSTALL TEMPORARY FENCING AROUND AREAS THAT HAVE TREES TO REMAIN PRIOR TO BEGINNING CONSTRUCTION.
- CONTRACTOR TO PROVIDE A MAINTENANCE OF TRAFFIC PLAN APPROVED BY THE CITY OF BRENTWOOD PRIOR TO DEMOLITION IN THE RIGHT OF WAY.
- COORDINATE UTILITY SHUTDOWN AND SEQUENCE OF DEMOLITION AND CONSTRUCTION WITH UTILITY OWNER.

DEMOLITION PLAN LEGEND

DESCRIPTION	SYMBOL
PROPERTY LINE	---
CHANNEL CENTERLINE	---
LINEAR ITEM TO BE REMOVED	
EXISTING CONTOURS	-----
PROPOSED GRADING LIMITS	----- 450
REMOVE TREE	---
CONCRETE PAVEMENT REMOVAL	[Cross-hatched pattern]
ASPHALT PAVEMENT REMOVAL	[Diagonal hatched pattern]
BRIDGE REMOVAL	[Stippled pattern]
GRAVEL REMOVAL	[Dotted pattern]

DEMOLITION PLAN LEGEND

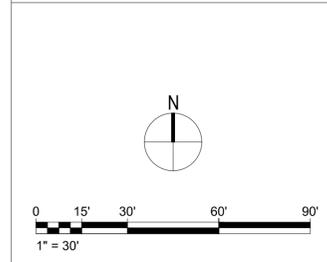
ADJUST TO GRADE	(ATG)
ARBORIST TREE PROTECTION	(ATP)
DO NOT DISTURB	(DND)
TO BE ABANDONED	(TBA)
TO BE ABANDONED AND FILLED	(TBA&F)
TO BE REMOVED	(TBR)
UTILIZE IN PLACE	(UIP)

HOLD IT ! CALL BEFORE YOU DIG !

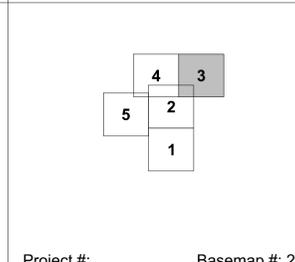
PHONE DIG RITE
 CONTRACTOR TO CONTACT UTILITIES PRIOR TO ANY EXCAVATION OR DEMOLITION FOR THE LOCATION OF ANY PIPES, CABLES, LINES OR MAINS. THE CONTRACTOR SHALL ALSO COORDINATE ANY DISCONNECTION REQUIRED WITH THE VARIOUS UTILITY COMPANIES AND/OR GOVERNMENTAL AGENCIES SERVING THE SITE.
 TOLL FREE 800-344-7483
 800-DIG-RITE

UNDERGROUND CABLE

SCALES



KEY PLAN



DEER CREEK FLOOD MITIGATION PROJECT - PHASE 2
EXISTING CONDITIONS & DEMOLITION PLAN

Jacobs
 JACOBS ENGINEERING GROUP INC.
 501 NORTH BROADWAY
 ST. LOUIS, MISSOURI 63102-2131
 PHONE: 314-335-4000
 CERTIFICATE OF AUTHORITY: 000704
 EXPIRATION DATE: DECEMBER 31, 2020

HORNER SHIFRIN
 401 S. 18TH ST., STE. 400 SAINT LOUIS, MO 63103-2296
 314-531-4321 • FAX 314-531-6966 • WWW.HORNERSHIFRIN.COM
 DISCIPLINE: PROFESSIONAL ENGINEERING
 CERTIFICATE OF AUTHORITY: 000159
 EXPIRATION DATE: DECEMBER 31, 2020

PDS
 Planning Design Studio
 P.O. BOX 179279, SAINT LOUIS, MO 63117
 314-241-3600 FAX 314-241-3601
 DISCIPLINE: LANDSCAPE ARCHITECTURE
 CERTIFICATE OF AUTHORITY: LAC-2006001845
 EXPIRATION DATE: DECEMBER 31, 2020

NO.	DATE	REVISION

DATE: 31 AUGUST 2020
 DESIGNED: AD
 DRAWN: AD
 CHECKED: CFW
 HS JOB NO. 1815600
 JACOBS JOB NO. 707841CH
 SHEET 8 OF 67

Project #: Basemap #: 21K
CD-103

DWG: C:\pwworking\jacobs\working\ex-dbd\cd103\Phase2\CD103_Phase2.dwg
 PLOT DATE: 8/31/2020 5:51:29 PM
 OPERATOR: ADKDKC
 SAVE DATE: 8/31/2020 1:51:12 PM

NO.	DATE	REVISION

THE PROFESSIONALS WHOSE SIGNATURES AND SEALS APPEAR HERE, ASSUME RESPONSIBILITY FOR WHAT APPEARS ON THIS SHEET ONLY. ALL OTHER PLANS, SPECIFICATIONS, REPORTS, AND OTHER DOCUMENTS, DESIGN OR REVISIONS BY CONTRACTORS, OWNER OR OTHERS ARE NOT PART OF THE PROJECT FOR WHICH THIS SEAL INDICATES RESPONSIBILITY.

DATE: 31 AUGUST 2020
DESIGNED: AD
DRAWN: AD
CHECKED: CFW
HS JOB NO. 1815600
JACOBS JOB NO. 707841CH
SHEET 9 OF 67

DEMOLITION PLAN NOTES

- SEE SHEET G-002 FOR ADDITIONAL NOTES, LEGEND, AND ABBREVIATIONS.
- UNDERGROUND FACILITIES, STRUCTURES AND UTILITIES HAVE BEEN PLOTTED FROM AVAILABLE SURVEYS AND RECORDS, AND THEREFORE THEIR LOCATIONS MUST BE CONSIDERED APPROXIMATE ONLY. IT IS POSSIBLE THERE MAY BE OTHERS, THE EXISTENCE OF WHICH IS PRESENTLY NOT KNOWN OR SHOWN. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THEIR EXISTENCE AND EXACT LOCATION AND TO AVOID DAMAGE THERETO. DIG RITE TO BE CONTACTED TO LOCATE PUBLIC UTILITIES.
- STORM AND SANITARY SEWERS, IF ABANDONED OR REMOVED, SHALL BE DONE SO IN ACCORDANCE WITH MSD'S STANDARD CONSTRUCTION SPECIFICATIONS FOR SEWERS AND DRAINAGE FACILITIES, LATEST EDITION.
- CONTRACTOR TO PROTECT TREES THAT ARE TO REMAIN. INSTALL TEMPORARY FENCING AROUND AREAS THAT HAVE TREES TO REMAIN PRIOR TO BEGINNING CONSTRUCTION.
- CONTRACTOR TO PROVIDE A MAINTENANCE OF TRAFFIC PLAN APPROVED BY THE CITY OF BRENTWOOD PRIOR TO DEMOLITION IN THE RIGHT OF WAY.
- COORDINATE UTILITY SHUTDOWN AND SEQUENCE OF DEMOLITION AND CONSTRUCTION WITH UTILITY OWNER.

DEMOLITION PLAN LEGEND

DESCRIPTION	SYMBOL
PROPERTY LINE	---
CHANNEL CENTERLINE	- - - -
LINEAR ITEM TO BE REMOVED	
EXISTING CONTOURS	~~~~~
PROPOSED GRADING LIMITS	----- 450
REMOVE TREE	X
CONCRETE PAVEMENT REMOVAL	[Cross-hatch pattern]
ASPHALT PAVEMENT REMOVAL	[Diagonal hatch pattern]
BRIDGE REMOVAL	[Stair-step pattern]
GRAVEL REMOVAL	[Dotted pattern]

DEMOLITION PLAN LEGEND

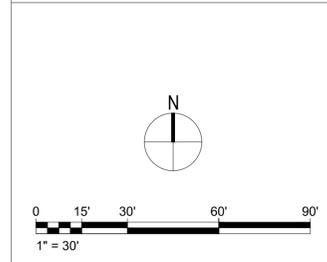
ADJUST TO GRADE	(ATG)
ARBORIST TREE PROTECTION	(ATP)
DO NOT DISTURB	(DND)
TO BE ABANDONED	(TBA)
TO BE ABANDONED AND FILLED	(TBA&F)
TO BE REMOVED	(TBR)
UTILIZE IN PLACE	(UIP)

HOLD IT ! CALL BEFORE YOU DIG !

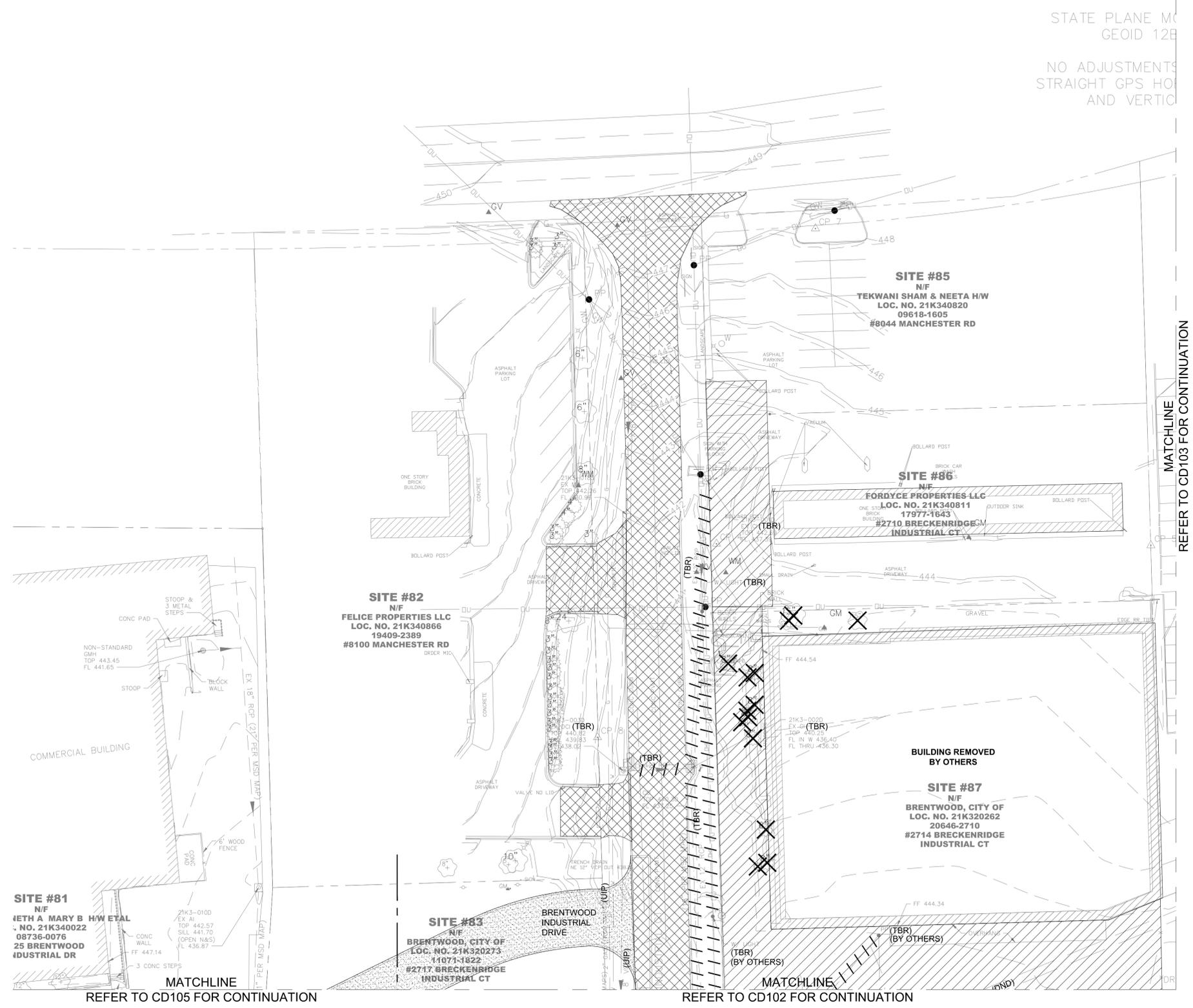
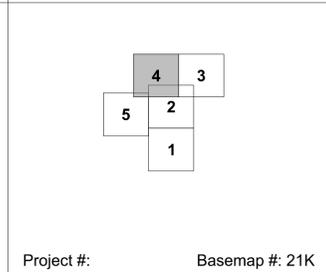
PHONE DIG RITE
CONTRACTOR TO CONTACT UTILITIES PRIOR TO ANY EXCAVATION OR DEMOLITION FOR THE LOCATION OF ANY PIPES, CABLES, LINES OR MAINS. THE CONTRACTOR SHALL ALSO COORDINATE ANY DISCONNECTION REQUIRED WITH THE VARIOUS UTILITY COMPANIES AND/OR GOVERNMENTAL AGENCIES SERVING THE SITE.
TOLL FREE 800-344-7483
800-DIG-RITE

UNDERGROUND CABLE

SCALES

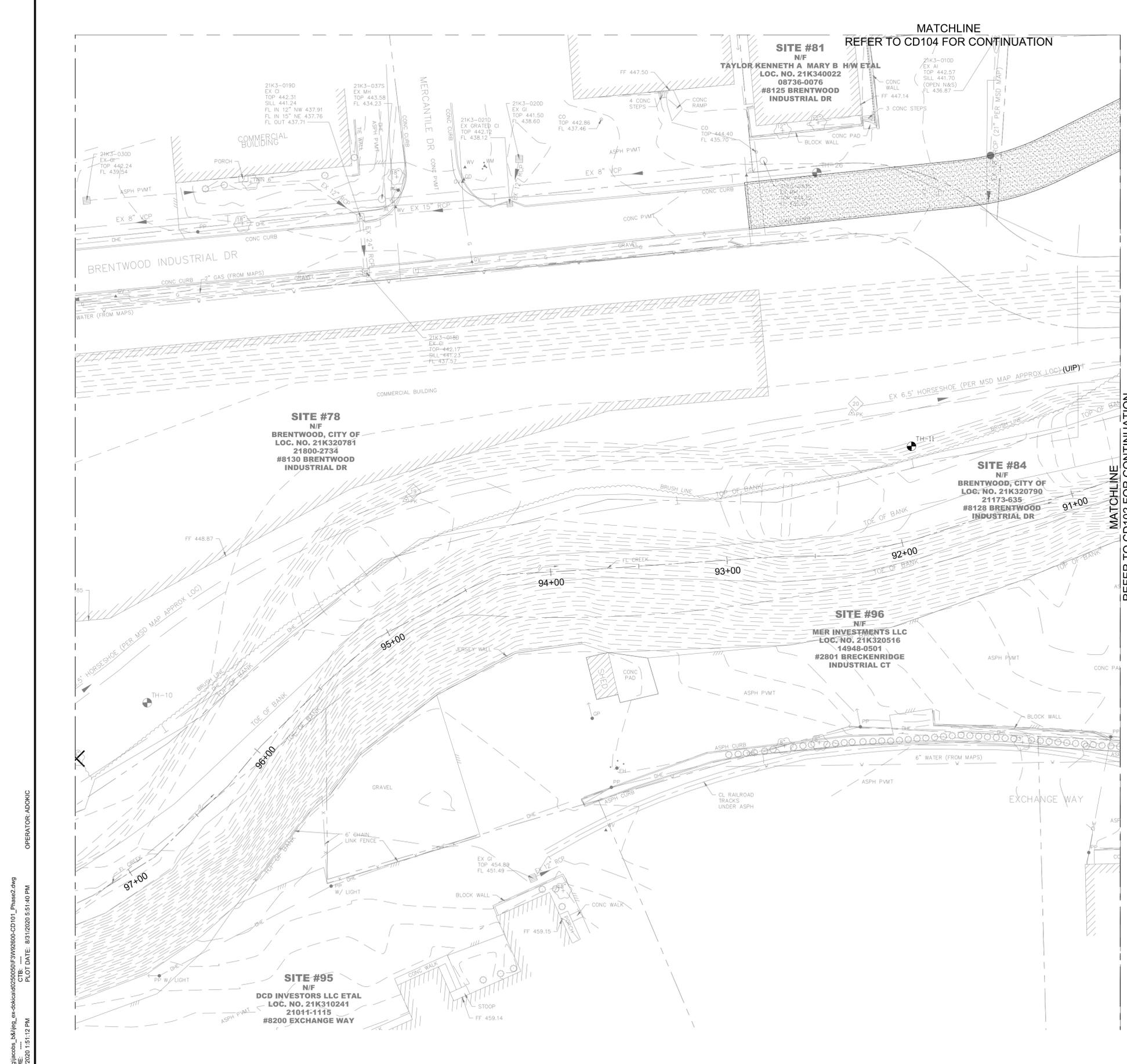


KEY PLAN



4 EXISTING CONDITIONS AND DEMOLITION PLAN
1" = 30'

DWG: C:\pwworking\jacobs_bk\img_ex-d\cd104\CD104-Phase2.dwg
PLOT DATE: 8/31/2020 5:51:35 PM
OPERATOR: ADKDC



DEMOLITION PLAN NOTES

- SEE SHEET G-002 FOR ADDITIONAL NOTES, LEGEND, AND ABBREVIATIONS.
- UNDERGROUND FACILITIES, STRUCTURES AND UTILITIES HAVE BEEN PLOTTED FROM AVAILABLE SURVEYS AND RECORDS, AND THEREFORE THEIR LOCATIONS MUST BE CONSIDERED APPROXIMATE ONLY. IT IS POSSIBLE THERE MAY BE OTHERS. THE EXISTENCE OF WHICH IS PRESENTLY NOT KNOWN OR SHOWN. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THEIR EXISTENCE AND EXACT LOCATION AND TO AVOID DAMAGE THERETO. DIG RITE TO BE CONTACTED TO LOCATE PUBLIC UTILITIES.
- STORM AND SANITARY SEWERS, IF ABANDONED OR REMOVED, SHALL BE DONE SO IN ACCORDANCE WITH MSD'S STANDARD CONSTRUCTION SPECIFICATIONS FOR SEWERS AND DRAINAGE FACILITIES, LATEST EDITION.
- CONTRACTOR TO PROTECT TREES THAT ARE TO REMAIN. INSTALL TEMPORARY FENCING AROUND AREAS THAT HAVE TREES TO REMAIN PRIOR TO BEGINNING CONSTRUCTION.
- CONTRACTOR TO PROVIDE A MAINTENANCE OF TRAFFIC PLAN APPROVED BY THE CITY OF BRENTWOOD PRIOR TO DEMOLITION IN THE RIGHT OF WAY.
- COORDINATE UTILITY SHUTDOWN AND SEQUENCE OF DEMOLITION AND CONSTRUCTION WITH UTILITY OWNER.

DEMOLITION PLAN LEGEND

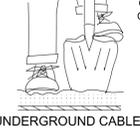
DESCRIPTION	SYMBOL
PROPERTY LINE	---
CHANNEL CENTERLINE	---
LINEAR ITEM TO BE REMOVED	---
EXISTING CONTOURS	////
PROPOSED GRADING LIMITS	---450---
REMOVE TREE	TH-11
CONCRETE PAVEMENT REMOVAL	[Cross-hatched pattern]
ASPHALT PAVEMENT REMOVAL	[Diagonal hatched pattern]
BRIDGE REMOVAL	[Stippled pattern]
GRAVEL REMOVAL	[Dotted pattern]

DEMOLITION PLAN LEGEND

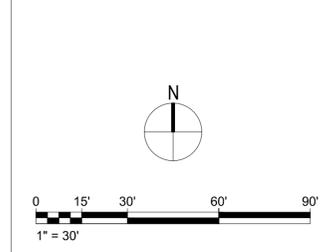
ADJUST TO GRADE	(ATG)
ARBORIST TREE PROTECTION	(ATP)
DO NOT DISTURB	(DND)
TO BE ABANDONED	(TBA)
TO BE ABANDONED AND FILLED	(TBA&F)
TO BE REMOVED	(TBR)
UTILIZE IN PLACE	(UIP)

HOLD IT ! CALL BEFORE YOU DIG !

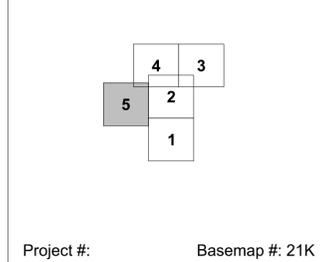
PHONE DIG RITE
 CONTRACTOR TO CONTACT UTILITIES PRIOR TO ANY EXCAVATION OR DEMOLITION FOR THE LOCATION OF ANY PIPES, CABLES, LINES OR MAINS. THE CONTRACTOR SHALL ALSO COORDINATE ANY DISCONNECTION REQUIRED WITH THE VARIOUS UTILITY COMPANIES AND/OR GOVERNMENTAL AGENCIES SERVING THE SITE.
 TOLL FREE 800-344-7483
 800-DIG-RITE



SCALES



KEY PLAN



DEER CREEK FLOOD MITIGATION PROJECT - PHASE 2
 EXISTING CONDITIONS & DEMOLITION PLAN



P.O. BOX 179279, SAINT LOUIS, MO 63117
 314-241-3600 FAX 314-241-3601
 DISCIPLINE: LANDSCAPE ARCHITECTURE
 CERTIFICATE OF AUTHORITY: LAC-2006001845
 EXPIRATION DATE: DECEMBER 31, 2020

NO.	DATE	REVISION

DATE: 31 AUGUST 2020
 DESIGNED: AD
 DRAWN: AD
 CHECKED: CFW
 HS JOB NO. 1815600
 JACOBS JOB NO. 707841CH

SHEET 10 OF 67
 Project #: Basemap #: 21K
CD-105

DWG: C:\pwworking\jacobs_bk\img_ex-dbl\cd105\20200831\FW20200831-CD101_Phase2.dwg
 PLOT DATE: 8/31/2020 5:51:40 PM
 OPERATOR: ADKDKC
 SAVE DATE: 8/31/2020 1:51:12 PM

5 EXISTING CONDITIONS AND DEMOLITION PLAN
 1" = 30'

GRADING NOTES

1. UNDERGROUND FACILITIES, STRUCTURES AND UTILITIES HAVE BEEN PLOTTED FROM AVAILABLE SURVEYS AND RECORDS; AND THEREFORE THEIR LOCATIONS MUST BE CONSIDERED APPROXIMATE ONLY. IT IS POSSIBLE THERE MAY BE OTHERS, THE EXISTENCE OF WHICH IS PRESENTLY NOT KNOWN OR SHOWN. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THEIR EXISTENCE AND EXACT LOCATION AND TO AVOID DAMAGE THERETO. DIG RITE TO BE CONTACTED TO LOCATE PUBLIC UTILITIES.



DEER CREEK FLOOD MITIGATION PROJECT - PHASE 2

GRADING PLAN



JACOBS ENGINEERING GROUP INC.
501 NORTH BROADWAY
ST. LOUIS, MISSOURI 63102-2131
PHONE: 314-335-4000
CERTIFICATE OF AUTHORITY: 000704
EXPIRATION DATE: DECEMBER 31, 2020



401 S. 18TH ST., STE. 400 SAINT LOUIS, MO 63103-2296
314-531-4321 • FAX 314-531-6966 • WWW.HORNERSHIFRIN.COM
DISCIPLINE: PROFESSIONAL ENGINEERING
CERTIFICATE OF AUTHORITY: 000159
EXPIRATION DATE: DECEMBER 31, 2020

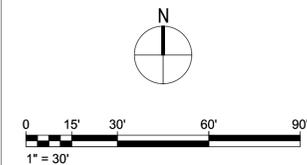


P.O. BOX 179279, SAINT LOUIS, MO 63117
314-241-3600 FAX 314-241-3601
DISCIPLINE: LANDSCAPE ARCHITECTURE
CERTIFICATE OF AUTHORITY: LAC-2006001845
EXPIRATION DATE: DECEMBER 31, 2020

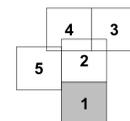
LEGEND

- TW / XXX.XX SPOT ELEVATION
- FG / XXX.XX FLOW DIRECTION
- 4.0% FLOW DIRECTION
- 500 MAJOR CONTOUR
- MINOR CONTOUR
- EXISTING CONTOUR
- DRAINAGE SWALE
- 300 STORM SEWER STRUCTURE NO.

SCALES



KEY PLAN



Project #: Basemap #: 21K

DATE: 31 AUGUST 2020

DESIGNED: AD
DRAWN: AD
CHECKED: CFW

HS JOB NO. 1815600
JACOBS JOB NO. 707841CH

SHEET 12 OF 67

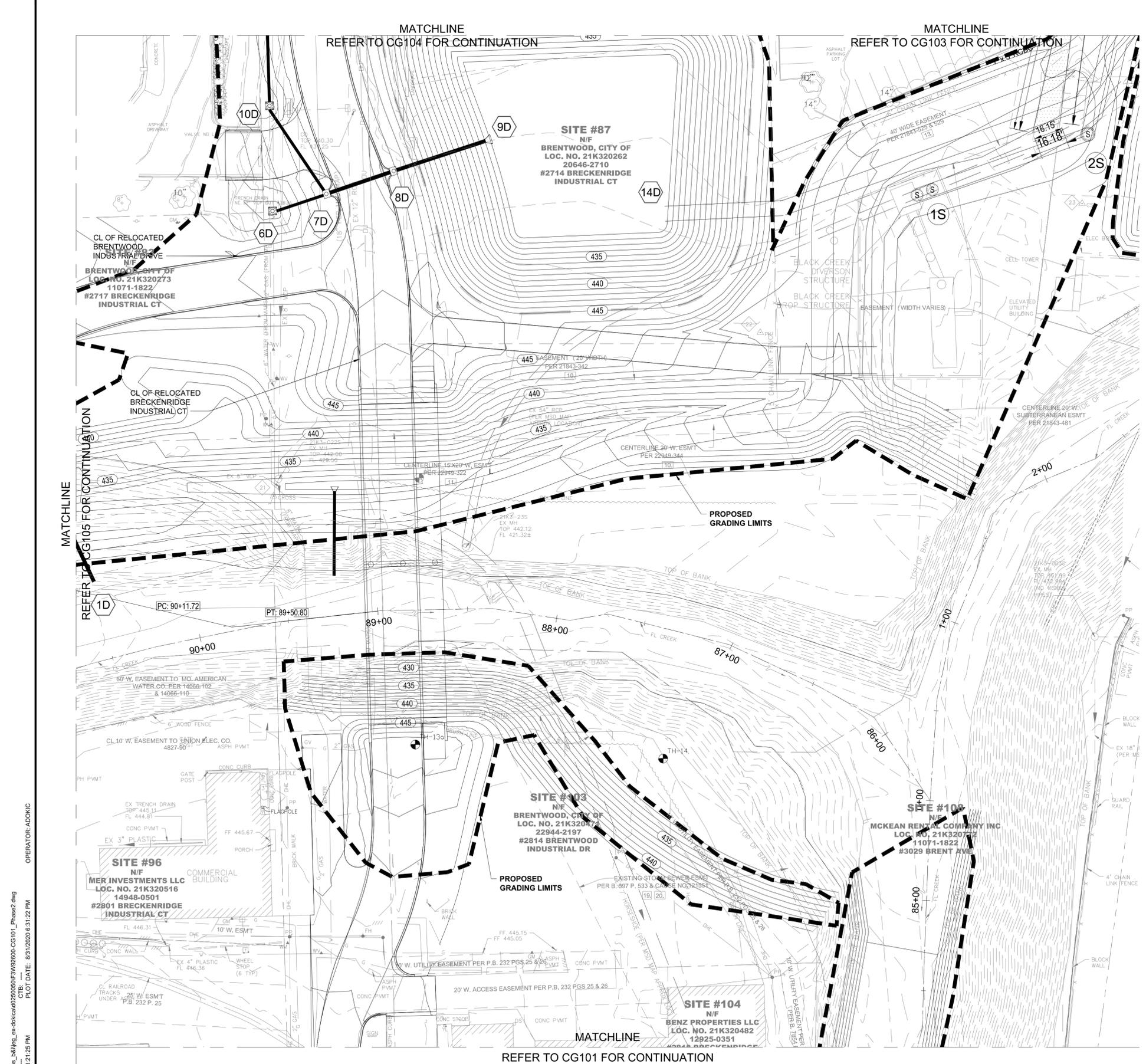
CG-101

MATCHLINE
REFER TO CG102 FOR CONTINUATION



1 GRADING PLAN
1" = 30'

DWG: C:\pwworking\jacobs_bk\img_ex-dbl\cadd\250505\FW\250505-CG101_Phase2.dwg
 PLOT DATE: 8/31/2020 6:31:12 PM
 SAVE DATE: 8/31/2020 3:21:25 PM
 OPERATOR: ADOCK



GRADING NOTES

- UNDERGROUND FACILITIES, STRUCTURES AND UTILITIES HAVE BEEN PLOTTED FROM AVAILABLE SURVEYS AND RECORDS; AND THEREFORE THEIR LOCATIONS MUST BE CONSIDERED APPROXIMATE ONLY. IT IS POSSIBLE THERE MAY BE OTHERS, THE EXISTENCE OF WHICH IS PRESENTLY NOT KNOWN OR SHOWN. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THEIR EXISTENCE AND EXACT LOCATION AND TO AVOID DAMAGE THERETO. DIG RITE TO BE CONTACTED TO LOCATE PUBLIC UTILITIES.



DEER CREEK FLOOD MITIGATION PROJECT - PHASE 2

GRADING PLAN

Jacobs
 JACOBS ENGINEERING GROUP INC.
 501 NORTH BROADWAY
 ST. LOUIS, MISSOURI 63102-2131
 PHONE: 314-335-4000
 CERTIFICATE OF AUTHORITY: 000704
 EXPIRATION DATE: DECEMBER 31, 2020

HORNER SHIFRIN
 401 S. 18TH ST., STE. 400 SAINT LOUIS, MO 63103-2296
 314-531-4321 • FAX 314-531-6966 • WWW.HORNERSHIFRIN.COM
 DISCIPLINE: PROFESSIONAL ENGINEERING
 CERTIFICATE OF AUTHORITY: 000159
 EXPIRATION DATE: DECEMBER 31, 2020

PDS
 Planning Design Studio
 P.O. BOX 179279, SAINT LOUIS, MO 63117
 314-241-3600 FAX 314-241-3601
 DISCIPLINE: LANDSCAPE ARCHITECTURE
 CERTIFICATE OF AUTHORITY: LAC-2006001845
 EXPIRATION DATE: DECEMBER 31, 2020

LEGEND

	SPOT ELEVATION
	FLOW DIRECTION
	MAJOR CONTOUR
	MINOR CONTOUR
	EXISTING CONTOUR
	DRAINAGE SWALE
	STORM SEWER STRUCTURE NO.

SCALES

0 15' 30' 60' 90'
 1" = 30'

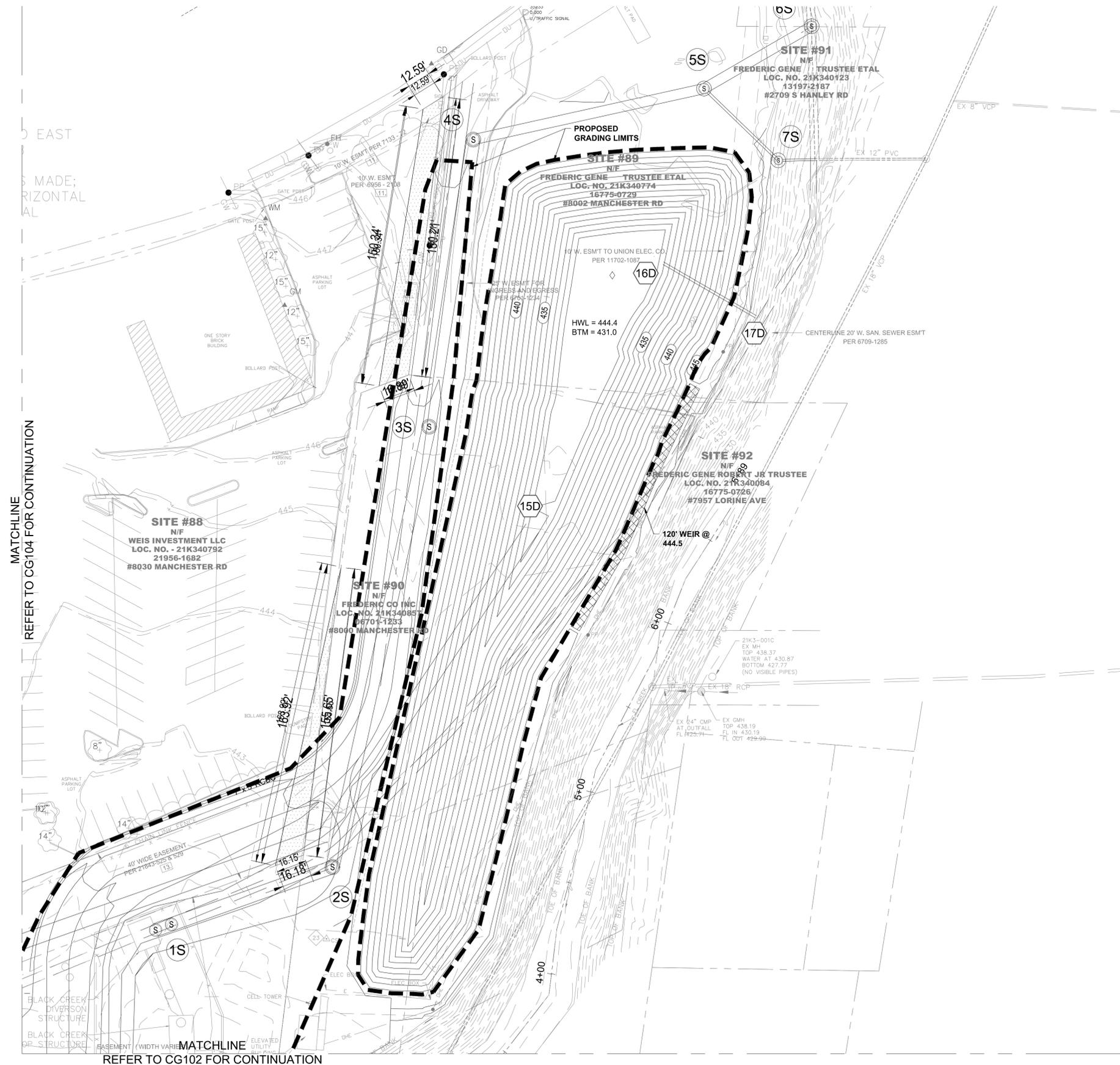
KEY PLAN

Project #: Basemap #: 21K

NO.	DATE	REVISION

DATE: 31 AUGUST 2020
 DESIGNED: AD
 DRAWN: AD
 CHECKED: CFW
 HS JOB NO. 1815600
 JACOBS JOB NO. 707841CH
 SHEET 12 OF 67

DWG: C:\pwworking\jacobs_bk\proj\ex-dbd\cadd\20200801\FW20200801-CG101_Phase2.dwg
 PLOT DATE: 8/31/2020 6:31:22 PM
 OPERATOR: ADOKIC
 SAVE DATE: 8/31/2020 3:21:25 PM



GRADING NOTES

1. UNDERGROUND FACILITIES, STRUCTURES AND UTILITIES HAVE BEEN PLOTTED FROM AVAILABLE SURVEYS AND RECORDS; AND THEREFORE THEIR LOCATIONS MUST BE CONSIDERED APPROXIMATE ONLY. IT IS POSSIBLE THERE MAY BE OTHERS, THE EXISTENCE OF WHICH IS PRESENTLY NOT KNOWN OR SHOWN. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THEIR EXISTENCE AND EXACT LOCATION AND TO AVOID DAMAGE THERETO. DIG RITE TO BE CONTACTED TO LOCATE PUBLIC UTILITIES.



DEER CREEK FLOOD MITIGATION PROJECT - PHASE 2

GRADING PLAN



JACOBS ENGINEERING GROUP INC.
501 NORTH BROADWAY
ST. LOUIS, MISSOURI 63102-2131
PHONE: 314-335-4000
CERTIFICATE OF AUTHORITY: 000704
EXPIRATION DATE: DECEMBER 31, 2020



401 S. 18TH ST., STE. 400 SAINT LOUIS, MO 63103-2296
314-531-4321 • FAX 314-531-6966 • WWW.HORNERSHIFRIN.COM
DISCIPLINE: PROFESSIONAL ENGINEERING
CERTIFICATE OF AUTHORITY: 000159
EXPIRATION DATE: DECEMBER 31, 2020

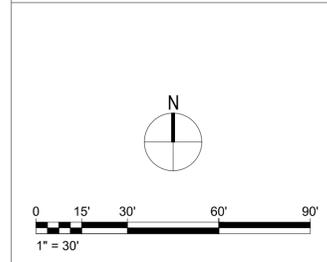


P.O. BOX 179279, SAINT LOUIS, MO 63117
314-241-3600 FAX 314-241-3601
DISCIPLINE: LANDSCAPE ARCHITECTURE
CERTIFICATE OF AUTHORITY: LAC-2006001845
EXPIRATION DATE: DECEMBER 31, 2020

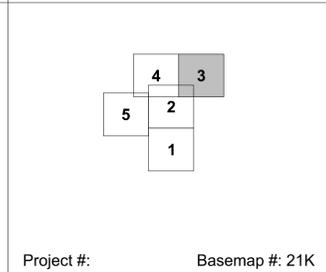
LEGEND

- TW / XXX.XX + SPOT ELEVATION
- FG / XXX.XX
- 4.0% FLOW DIRECTION
- 500 MAJOR CONTOUR
- MINOR CONTOUR
- EXISTING CONTOUR
- DRAINAGE SWALE
- 300 STORM SEWER STRUCTURE NO.

SCALES



KEY PLAN



MATCHLINE REFER TO CG104 FOR CONTINUATION

MATCHLINE REFER TO CG102 FOR CONTINUATION

3 GRADING PLAN
1" = 30'

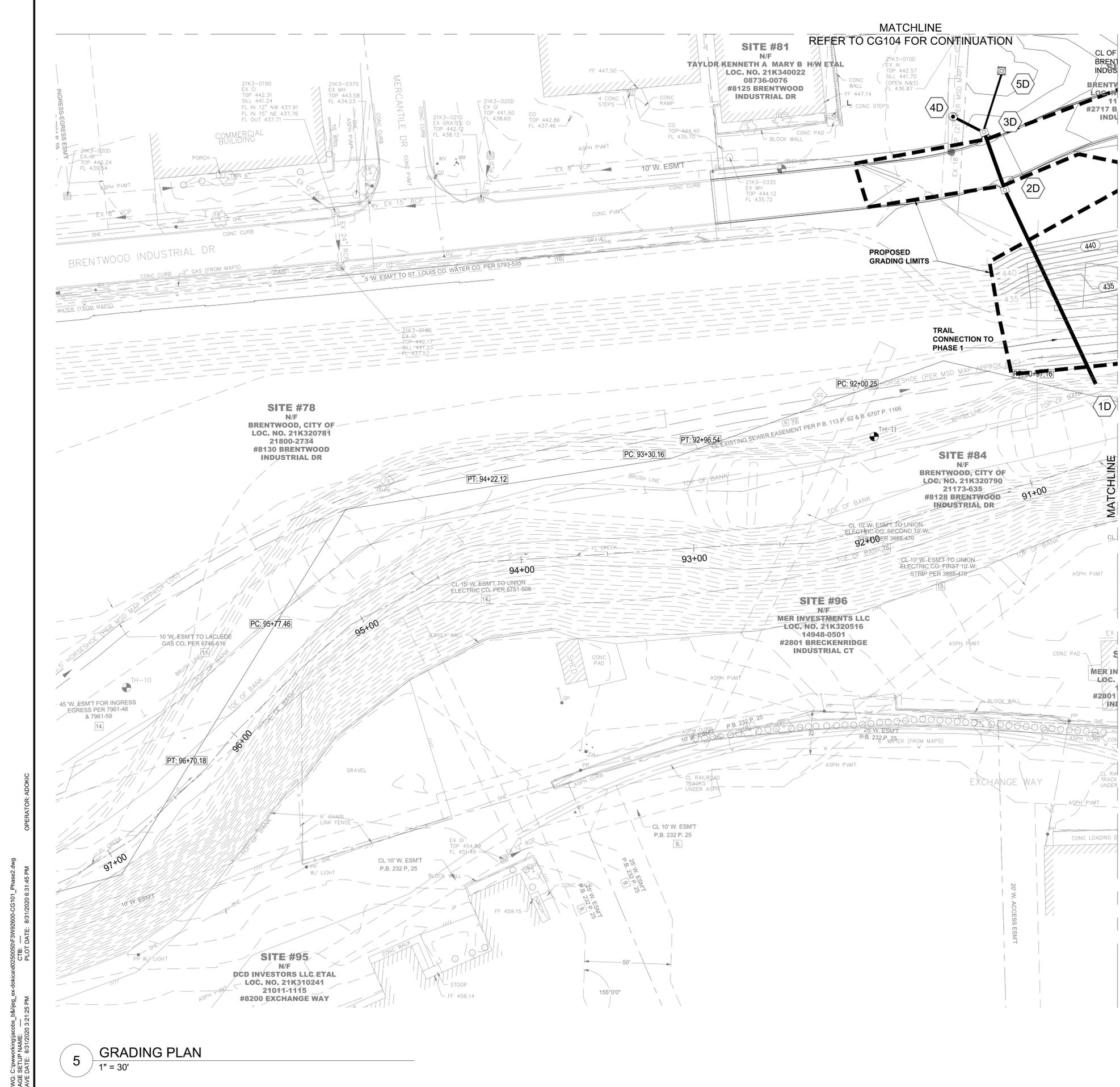
NO.	DATE	REVISION

THE PROFESSIONALS WHOSE SIGNATURES AND SEALS APPEAR HERE, ASSUME RESPONSIBILITY FOR WHAT APPEARS ON THIS SHEET ONLY. ALL OTHER PLANS, SPECIFICATIONS, REPORTS, AND OTHER DOCUMENTS, DESIGN OR REVISIONS BY CONTRACTORS, OWNER OR OTHERS ARE NOT PART OF THE PROJECT FOR WHICH THIS SEAL INDICATES RESPONSIBILITY.

DATE: 31 AUGUST 2020
DESIGNED: AD
DRAWN: AD
CHECKED: CFW
HS JOB NO. 1815600
JACOBS JOB NO. 707841CH
SHEET 13 OF 67

Project #: Basemap #: 21K **CG-103**

D:\S:\C:\pwworking\jacobs_bk\img_ex-dbl\cadd\20200805\FW\20200805-CG101_Phase2.dwg
PLOT DATE: 8/31/2020 6:58:46 PM
OPERATOR: ADOKIC
SAVE DATE: 8/31/2020 3:21:25 PM



GRADING NOTES

1. UNDERGROUND FACILITIES, STRUCTURES AND UTILITIES HAVE BEEN PLOTTED FROM AVAILABLE SURVEYS AND RECORDS; AND THEREFORE THEIR LOCATIONS MUST BE CONSIDERED APPROXIMATE ONLY. IT IS POSSIBLE THERE MAY BE OTHERS, THE EXISTENCE OF WHICH IS PRESENTLY NOT KNOWN OR SHOWN. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THEIR EXISTENCE AND EXACT LOCATION AND TO AVOID DAMAGE THERETO. DIG RITE TO BE CONTACTED TO LOCATE PUBLIC UTILITIES.

LEGEND

- TW / XXX.XX + SPOT ELEVATION
- FG / XXX.XX
- 4.0% FLOW DIRECTION
- 500 MAJOR CONTOUR
- MINOR CONTOUR
- EXISTING CONTOUR
- DRAINAGE SWALE
- 300 STORM SEWER STRUCTURE NO.

SCALES

0 15' 30' 60' 90'

1" = 30'

KEY PLAN

Project #: Basemap #: 21K



DEER CREEK FLOOD MITIGATION PROJECT - PHASE 2

GRADING PLAN

Jacobs

JACOBS ENGINEERING GROUP INC.
501 NORTH BROADWAY
ST. LOUIS, MISSOURI 63102-2131
PHONE: 314-335-4000
CERTIFICATE OF AUTHORITY: 000704
EXPIRATION DATE: DECEMBER 31, 2020

HORNER SHIFRIN

401 S. 18TH ST., STE. 400 SAINT LOUIS, MO 63103-2296
314-531-4321 • FAX 314-531-6966 • WWW.HORNERSHIFRIN.COM
DISCIPLINE: PROFESSIONAL ENGINEERING
CERTIFICATE OF AUTHORITY: 000159
EXPIRATION DATE: DECEMBER 31, 2020

PDS
Planning Design Studio

P.O. BOX 179279, SAINT LOUIS, MO 63117
314-241-3600 FAX 314-241-3601
DISCIPLINE: LANDSCAPE ARCHITECTURE
CERTIFICATE OF AUTHORITY: LAC-2006001845
EXPIRATION DATE: DECEMBER 31, 2020

NO.	DATE	REVISION

THE PROFESSIONALS WHOSE SIGNATURES AND SEALS APPEAR HERE, ASSUME RESPONSIBILITY FOR WHAT APPEARS ON THIS SHEET ONLY. ALL OTHER PLANS, SPECIFICATIONS, REPORTS, AND OTHER DOCUMENTS, DESIGN OR REVISIONS BY CONTRACTORS, OWNER OR OTHERS ARE NOT PART OF THE PROJECT FOR WHICH THIS SEAL INDICATES RESPONSIBILITY.

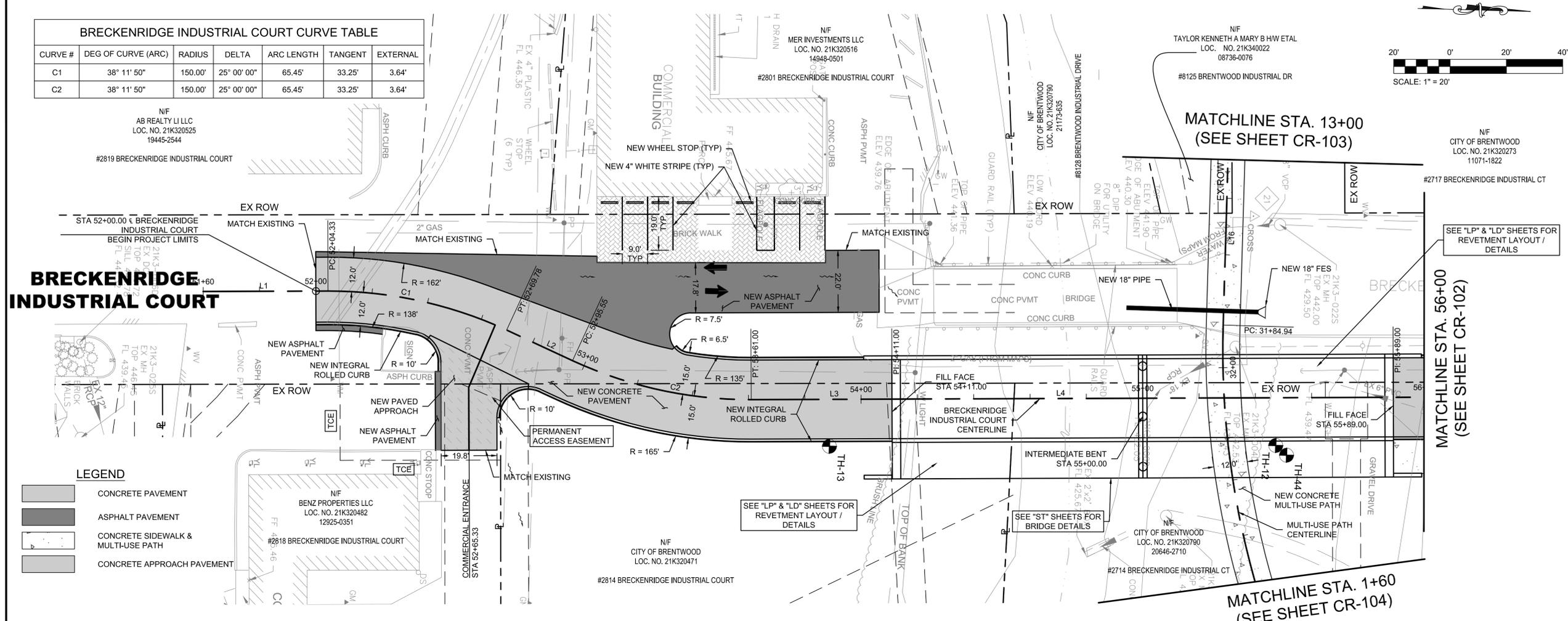
DATE: 31 AUGUST 2020
DESIGNED: AD
DRAWN: AD
CHECKED: CFW
HS JOB NO. 1815600
JACOBS JOB NO. 707841CH
SHEET 15 OF 67
CG-105

DWG: C:\pwworking\jacobs_bk\img_ex-dbl\cadd\250505\FW\250505-CG101_Phase2.dwg
 PLOT DATE: 8/31/2020 6:31:46 PM
 OPERATOR: ADKDC
 SAVE DATE: 8/31/2020 3:21:25 PM

5 GRADING PLAN
1" = 30'

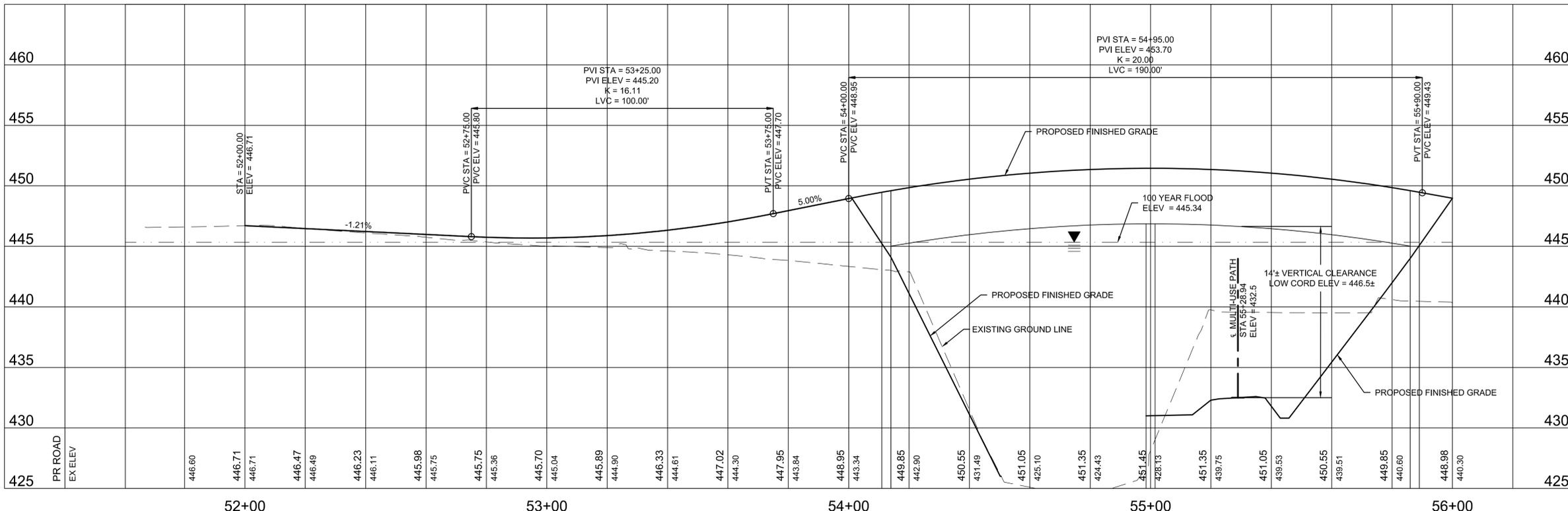
BRECKENRIDGE INDUSTRIAL COURT CURVE TABLE						
CURVE #	DEG OF CURVE (ARC)	RADIUS	DELTA	ARC LENGTH	TANGENT	EXTERNAL
C1	38° 11' 50"	150.00'	25° 00' 00"	65.45'	33.25'	3.64'
C2	38° 11' 50"	150.00'	25° 00' 00"	65.45'	33.25'	3.64'

BRECKENRIDGE INDUSTRIAL COURT



LEGEND

- CONCRETE PAVEMENT
- ASPHALT PAVEMENT
- CONCRETE SIDEWALK & MULTI-USE PATH
- CONCRETE APPROACH PAVEMENT



BRECKENRIDGE INDUSTRIAL COURT

HORZ. 1" = 20'
VERT. 1" = 5'

Project #: Basemap #: 21K



DEER CREEK FLOOD MITIGATION PROJECT - PHASE 2

PLAN & PROFILE

BRECKENRIDGE INDUSTRIAL COURT



JACOBS ENGINEERING GROUP INC.
501 NORTH BROADWAY
ST. LOUIS, MISSOURI 63102-2131
PHONE: 314-335-4000
CERTIFICATE OF AUTHORITY: 000704
EXPIRATION DATE: DECEMBER 31, 2020



401 S. 18TH ST., STE. 400 SAINT LOUIS, MO 63103-2296
314-531-4321 • FAX 314-531-6966 • WWW.HORNERSHIFRIN.COM
DISCIPLINE: PROFESSIONAL ENGINEERING
CERTIFICATE OF AUTHORITY: 000159
EXPIRATION DATE: DECEMBER 31, 2020



P.O. BOX 179279, SAINT LOUIS, MO 63117
314-241-3600 FAX 314-241-3601
DISCIPLINE: LANDSCAPE ARCHITECTURE
CERTIFICATE OF AUTHORITY: LAC-2006001845
EXPIRATION DATE: DECEMBER 31, 2020

NO.	DATE	REVISION

THE PROFESSIONALS' WHOSE SIGNATURES AND SEALS APPEAR HERE, ASSUME RESPONSIBILITY FOR WHAT APPEARS ON THIS SHEET ONLY. ALL OTHER PLANS, SPECIFICATIONS, REPORTS, AND OTHER DOCUMENTS, DESIGN OR REVISIONS BY CONTRACTORS, OWNER OR OTHERS ARE NOT PART OF THE PROJECT FOR WHICH THIS SEAL INDICATES RESPONSIBILITY.

DATE: 31 AUGUST 2020

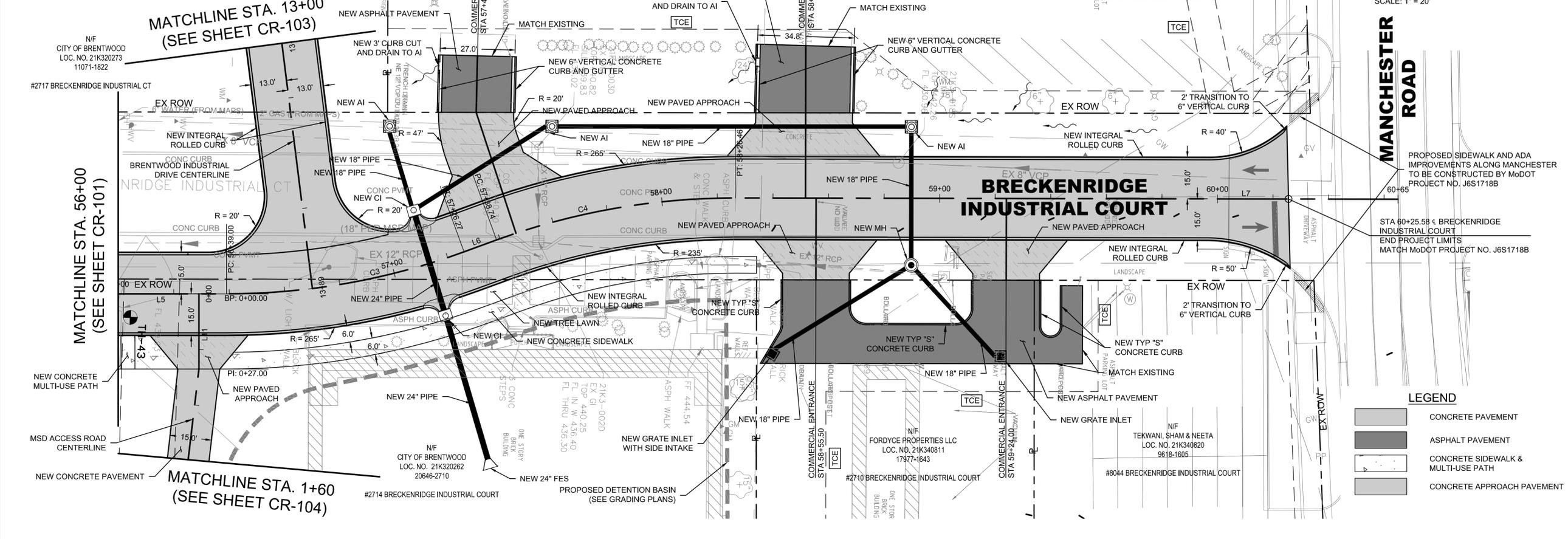
DESIGNED: JAH
DRAWN: JAH
CHECKED: RDA

HS JOB NO. 1815600
JACOBS JOB NO. 707841CH

SHEET 17 OF 67

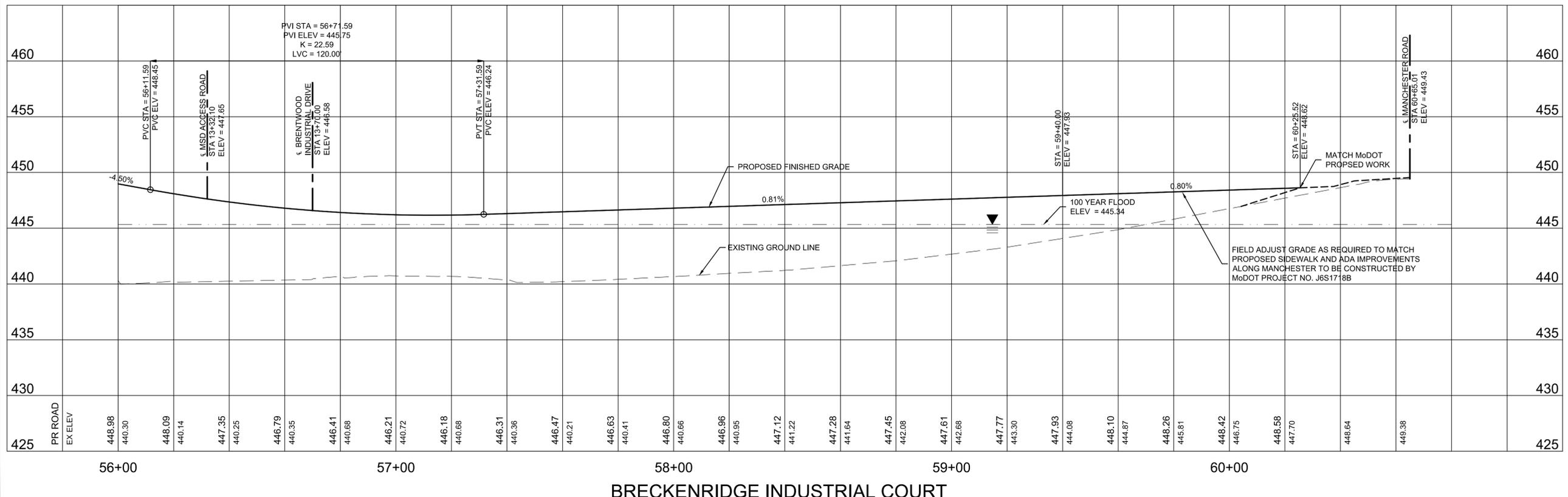
CR-101

CURVE #	DEG OF CURVE (ARC)	RADIUS	DELTA	ARC LENGTH	TANGENT	EXTERNAL
C3	22° 55' 06"	250.00'	20° 00' 00"	87.27'	44.08'	3.86'
C4	22° 55' 06"	250.00'	20° 06' 18"	87.72'	44.32'	3.90'



LEGEND

- CONCRETE PAVEMENT
- ASPHALT PAVEMENT
- CONCRETE SIDEWALK & MULTI-USE PATH
- CONCRETE APPROACH PAVEMENT



BRECKENRIDGE INDUSTRIAL COURT

HORIZ. 1" = 20'
VERT. 1" = 5'

Project #: Basemap #: 21K



**DEER CREEK FLOOD MITIGATION
PROJECT - PHASE 2**

PLAN & PROFILE
BRECKENRIDGE INDUSTRIAL COURT



JACOBS ENGINEERING GROUP INC.
501 NORTH BROADWAY
ST. LOUIS, MISSOURI 63102-2131
PHONE: 314-335-4000
CERTIFICATE OF AUTHORITY: 000704
EXPIRATION DATE: DECEMBER 31, 2020



401 S. 18TH ST., STE. 400 SAINT LOUIS, MO 63103-2296
314-531-4321 • FAX 314-531-6966 • WWW.HORNERSHIFRIN.COM
DISCIPLINE: PROFESSIONAL ENGINEERING
CERTIFICATE OF AUTHORITY: 000159
EXPIRATION DATE: DECEMBER 31, 2020



P.O. BOX 179279, SAINT LOUIS, MO 63117
314-241-3600 FAX 314-241-3601
DISCIPLINE: LANDSCAPE ARCHITECTURE
CERTIFICATE OF AUTHORITY: LAC-2006001845
EXPIRATION DATE: DECEMBER 31, 2020

NO.	DATE	REVISION

THE PROFESSIONALS WHOSE SIGNATURES AND SEALS APPEAR HERE, ASSUME RESPONSIBILITY FOR WHAT APPEARS ON THIS SHEET ONLY. ALL OTHER PLANS, SPECIFICATIONS, REPORTS, AND OTHER DOCUMENTS, DESIGN OR REVISIONS BY CONTRACTORS, OWNER OR OTHERS ARE NOT PART OF THE PROJECT FOR WHICH THIS SEAL INDICATES RESPONSIBILITY.

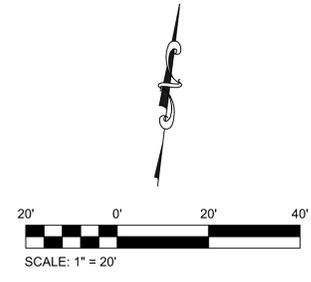
DATE: 31 AUGUST 2020
DESIGNED: JAH
DRAWN: JAH
CHECKED: RDA
HS JOB NO. 1815600
JACOBS JOB NO. 707841CH
SHEET 18 OF 67

CR-102

DWG: C:\pwworking\jacobs_bk\img_ex\cd\cd\25776\Roadway Plans (H&S) 1815610.DWG
 OPERATOR: ADOCK
 PLOT DATE: 8/31/2020 6:10:58 PM
 SAVE DATE: 8/31/2020 6:02:11 PM

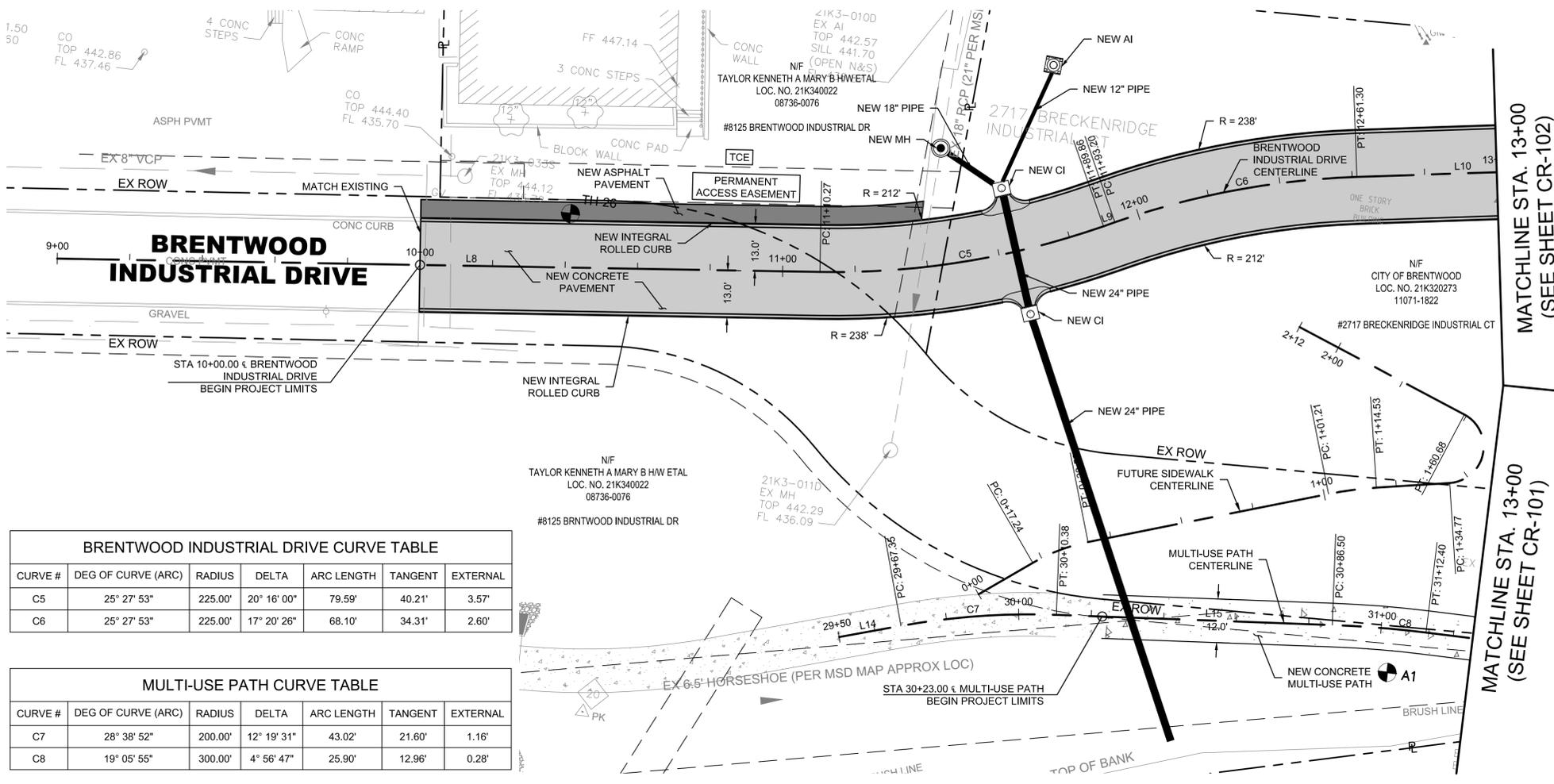
DEER CREEK FLOOD MITIGATION
PROJECT - PHASE 2

PLAN & PROFILE
BRENTWOOD INDUSTRIAL DRIVE



LEGEND

	CONCRETE PAVEMENT
	ASPHALT PAVEMENT
	CONCRETE SIDEWALK & MULTI-USE PATH
	CONCRETE APPROACH PAVEMENT

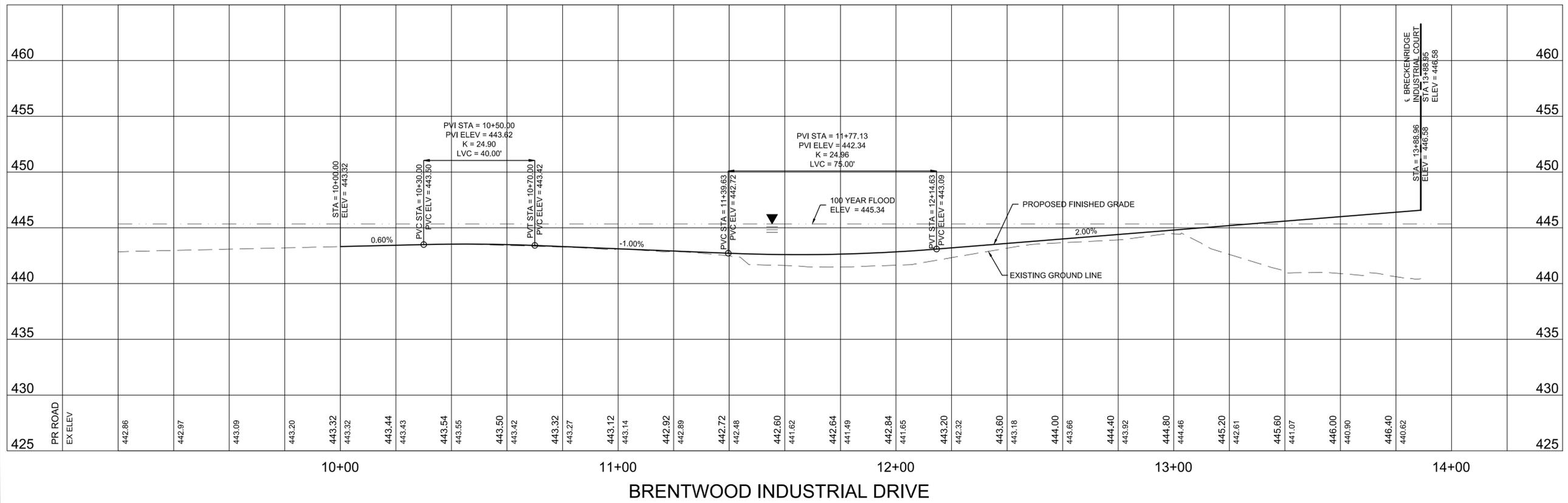


BRENTWOOD INDUSTRIAL DRIVE CURVE TABLE

CURVE #	DEG OF CURVE (ARC)	RADIUS	DELTA	ARC LENGTH	TANGENT	EXTERNAL
C5	25° 27' 53"	225.00'	20° 16' 00"	79.59'	40.21'	3.57'
C6	25° 27' 53"	225.00'	17° 20' 26"	68.10'	34.31'	2.60'

MULTI-USE PATH CURVE TABLE

CURVE #	DEG OF CURVE (ARC)	RADIUS	DELTA	ARC LENGTH	TANGENT	EXTERNAL
C7	28° 38' 52"	200.00'	12° 19' 31"	43.02'	21.60'	1.16'
C8	19° 05' 55"	300.00'	4° 56' 47"	25.90'	12.96'	0.28'



HORIZ. 1" = 20'
VERT. 1" = 5'

JACOBS
JACOBS ENGINEERING GROUP INC.
501 NORTH BROADWAY
ST. LOUIS, MISSOURI 63102-2131
PHONE: 314-335-4000
CERTIFICATE OF AUTHORITY: 000704
EXPIRATION DATE: DECEMBER 31, 2020

HORNER SHIFRIN
401 S. 18TH ST., STE. 400 SAINT LOUIS, MO 63103-2296
314-531-4321 • FAX 314-531-6966 • WWW.HORNERSHIFRIN.COM
DISCIPLINE: PROFESSIONAL ENGINEERING
CERTIFICATE OF AUTHORITY: LAC-2006001845
EXPIRATION DATE: DECEMBER 31, 2020

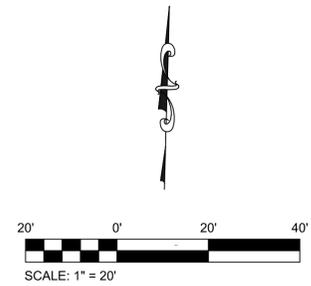
PDS
Planning Design Studio
P.O. BOX 179279, SAINT LOUIS, MO 63117
314-241-3600 FAX 314-241-3601
DISCIPLINE: LANDSCAPE ARCHITECTURE
CERTIFICATE OF AUTHORITY: LAC-2006001845
EXPIRATION DATE: DECEMBER 31, 2020

NO.	DATE	REVISION

DATE: 31 AUGUST 2020
DESIGNED: JAH
DRAWN: JAH
CHECKED: RDA
HS JOB NO. 1815600
JACOBS JOB NO. 707841CH
SHEET 19 OF 67

Project #: Basemap #: 21K
CR-103

DWG: C:\pwworking\jacobs_bk\img_ex-d\cadd\2025776\Roadway Plans (H&S 1815610).DWG
OPERATOR: ADOCK
PLOT DATE: 8/31/2020 6:11:11 PM
SAVE DATE: 8/31/2020 6:02:11 PM

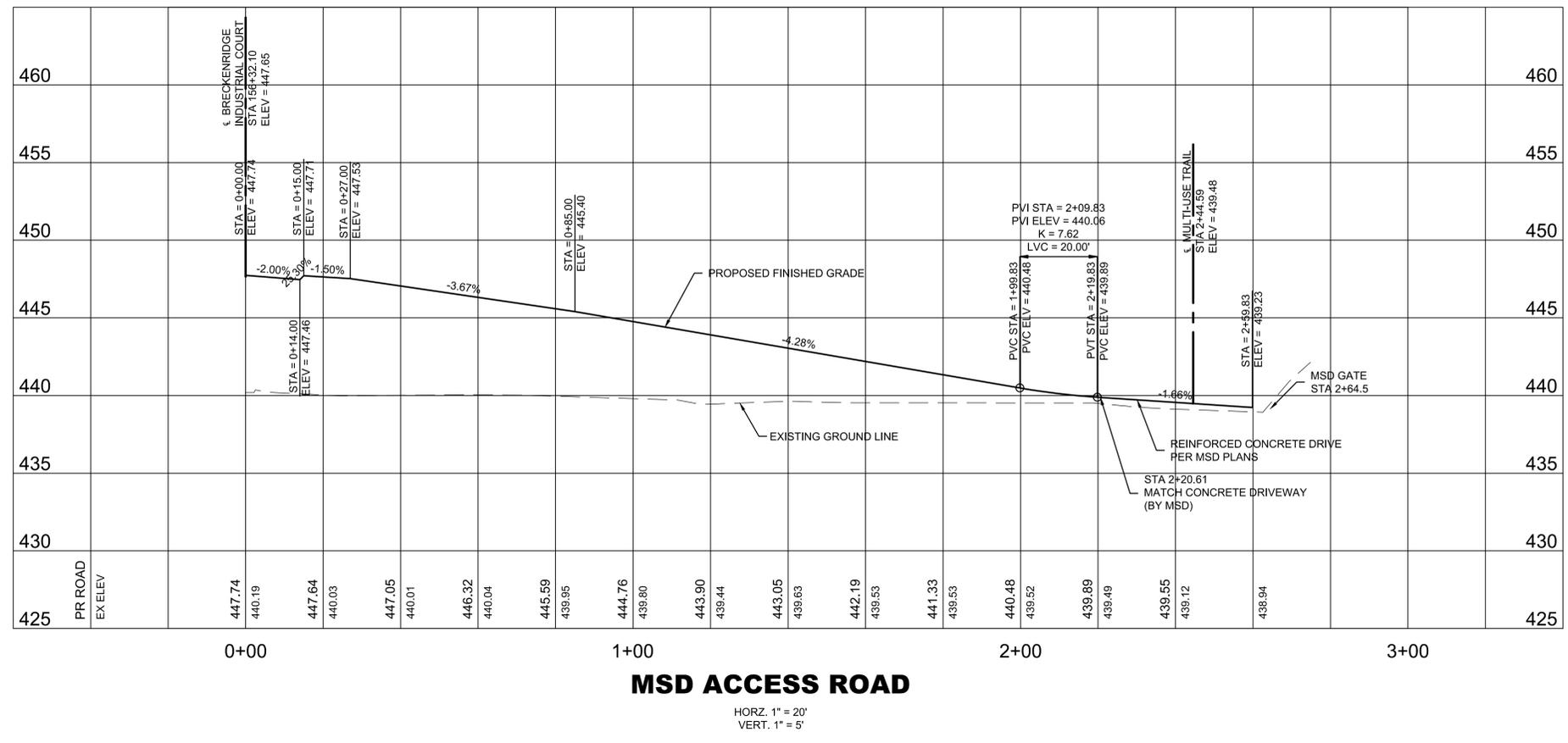
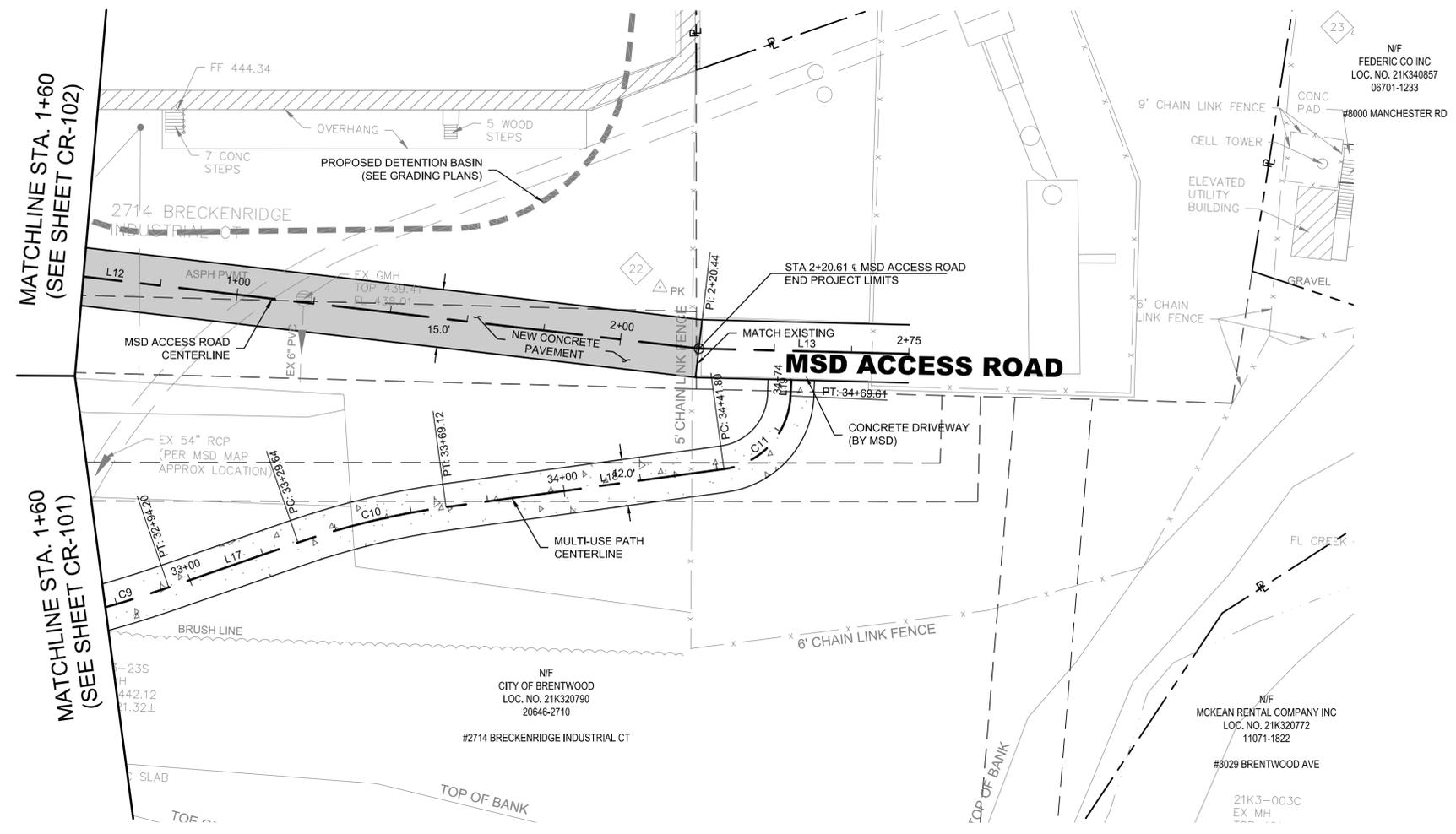


LEGEND

	CONCRETE PAVEMENT
	ASPHALT PAVEMENT
	CONCRETE SIDEWALK & MULTI-USE PATH
	CONCRETE APPROACH PAVEMENT

MULTI-USE PATH CURVE TABLE

CURVE #	DEG OF CURVE (ARC)	RADIUS	DELTA	ARC LENGTH	TANGENT	EXTERNAL
C9	19° 05' 55"	300.00'	20° 51' 55"	109.25'	55.24'	5.04'
C10	28° 38' 52"	200.00'	11° 18' 34"	39.48'	19.80'	0.98'
C11	286° 28' 44"	20.00'	79° 40' 14"	27.81'	16.68'	6.05'



PWS: C:\pwworking\jacobs_bk\img_ex-d\cadd\252778\Roadway Plans (H&S 1815610).DWG
 OPERATOR: ADOCK
 PLOT DATE: 8/31/2020 6:11:22 PM
 SAVE DATE: 8/31/2020 6:02:11 PM



DEER CREEK FLOOD MITIGATION PROJECT - PHASE 2

PLAN & PROFILE
MSD ACCESS ROAD



JACOBS ENGINEERING GROUP INC.
501 NORTH BROADWAY
ST. LOUIS, MISSOURI 63102-2131
PHONE: 314-335-4000
CERTIFICATE OF AUTHORITY: 000704
EXPIRATION DATE: DECEMBER 31, 2020



401 S. 18TH ST., STE. 400 SAINT LOUIS, MO 63103-2296
314-531-4321 • FAX 314-531-6966 • WWW.HORNERSHIFRIN.COM
DISCIPLINE: PROFESSIONAL ENGINEERING
CERTIFICATE OF AUTHORITY: 000159
EXPIRATION DATE: DECEMBER 31, 2020



P.O. BOX 179279, SAINT LOUIS, MO 63117
314-241-3600 FAX 314-241-3601
DISCIPLINE: LANDSCAPE ARCHITECTURE
CERTIFICATE OF AUTHORITY: LAC-2006001845
EXPIRATION DATE: DECEMBER 31, 2020

NO.	DATE	REVISION

THE PROFESSIONALS WHOSE SIGNATURES AND SEALS APPEAR HERE, ASSUME RESPONSIBILITY FOR WHAT APPEARS ON THIS SHEET ONLY. ALL OTHER PLANS, SPECIFICATIONS, REPORTS, AND OTHER DOCUMENTS, DESIGN OR REVISIONS BY CONTRACTORS, OWNER OR OTHERS ARE NOT PART OF THE PROJECT FOR WHICH THIS SEAL INDICATES RESPONSIBILITY.

DATE:	31 AUGUST 2020
DESIGNED:	JAH
DRAWN:	JAH
CHECKED:	RDA
HS JOB NO.	1815600
JACOBS JOB NO.	707841CH
SHEET	20 OF 67

CR-104

Project #: Basemap #: 21K

HORZ. 1" = 20'
VERT. 1" = 5'

DEER CREEK FLOOD MITIGATION
PROJECT - PHASE 2

PROFILE
MULTI-USE PATH

Jacobs

JACOBS ENGINEERING GROUP INC.
501 NORTH BROADWAY
ST. LOUIS, MISSOURI 63102-2131
PHONE: 314-335-4000
CERTIFICATE OF AUTHORITY: 000704
EXPIRATION DATE: DECEMBER 31, 2020

HORNER SHIFRIN

401 S. 18TH ST., STE. 400 SAINT LOUIS, MO 63117
314-531-4321 • FAX 314-531-6966 • WWW.HORNERSHIFRIN.COM
DISCIPLINE: PROFESSIONAL ENGINEERING
CERTIFICATE OF AUTHORITY: 000159
EXPIRATION DATE: DECEMBER 31, 2020

PDS
Planning Design Studio

P.O. BOX 179279, SAINT LOUIS, MO 63117
314-241-3600 FAX 314-241-3601
DISCIPLINE: LANDSCAPE ARCHITECTURE
CERTIFICATE OF AUTHORITY: LAC-2006001845
EXPIRATION DATE: DECEMBER 31, 2020

NO.	DATE	REVISION

THE PROFESSIONALS WHOSE SIGNATURES AND SEALS APPEAR HERE, ASSUME RESPONSIBILITY FOR WHAT APPEARS ON THIS SHEET ONLY. ALL OTHER PLANS, SPECIFICATIONS, REPORTS, AND OTHER DOCUMENTS, DESIGN OR REVISIONS BY CONTRACTORS, OWNER OR OTHERS ARE NOT PART OF THE PROJECT FOR WHICH THIS SEAL INDICATES RESPONSIBILITY.

DATE: 31 AUGUST 2020

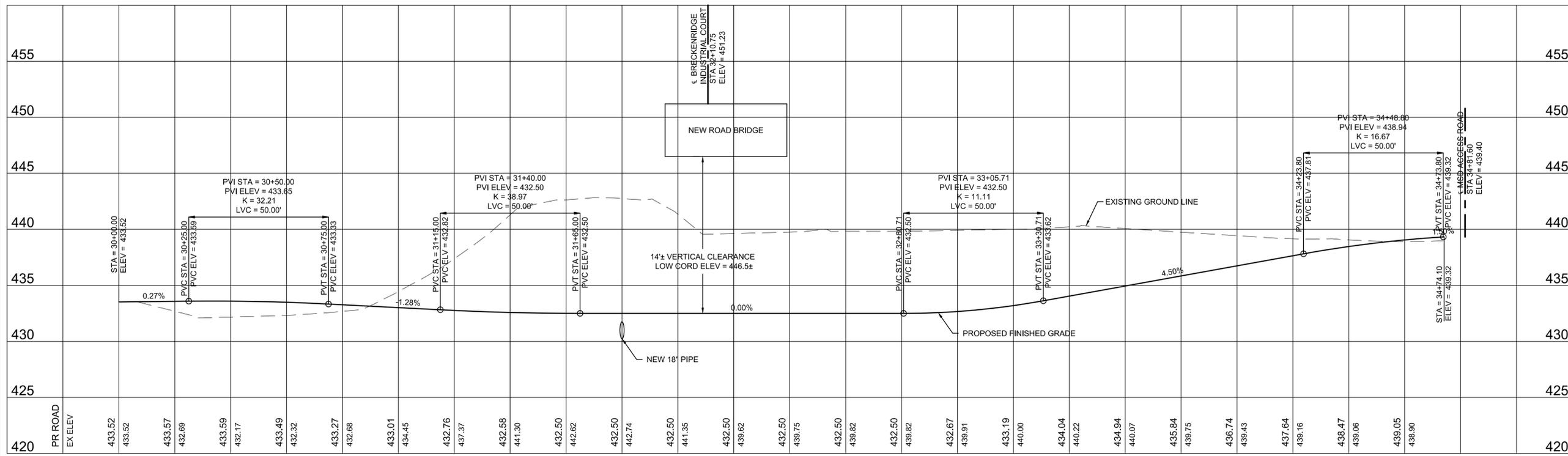
DESIGNED: JAH
DRAWN: JAH
CHECKED: RDA

HS JOB NO. 1815600
JACOBS JOB NO. 707841CH

SHEET 21 OF 67

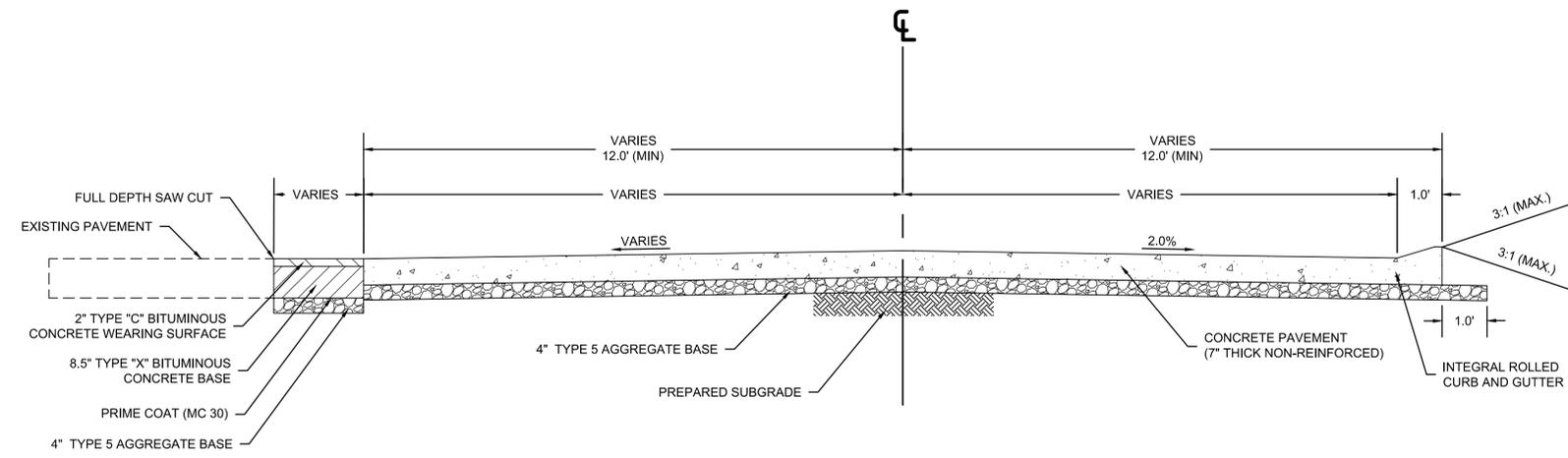
CR-105

Project #: Basemap #: 21K

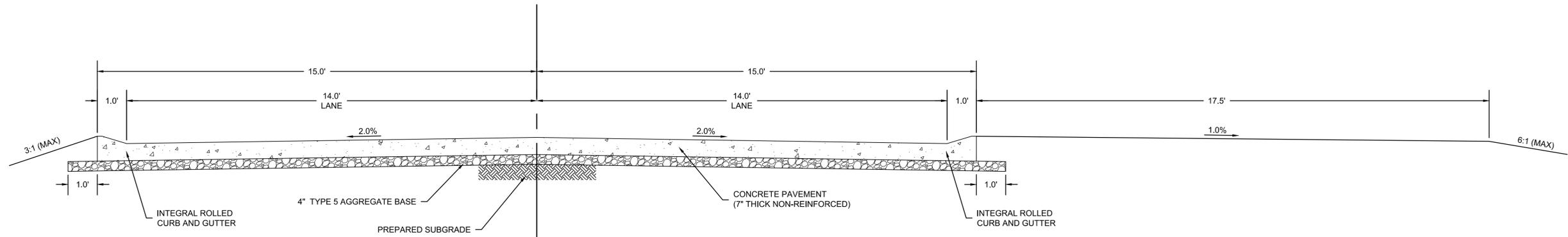


MULTI-USE PATH

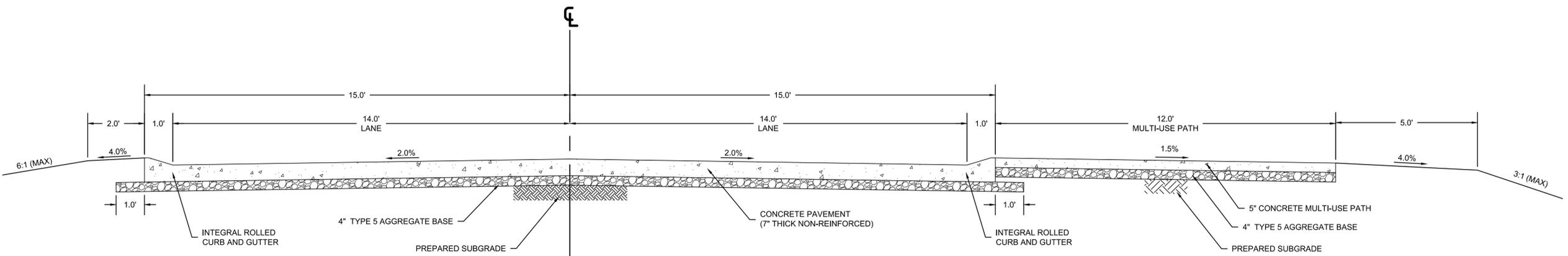
HORZ. 1" = 20'
VERT. 1" = 5'



TYPICAL SECTION - BRECKENRIDGE INDUSTRIAL COURT
STA 52+00.00 TO STA 52+80.00
(NOT TO SCALE)



TYPICAL SECTION - BRECKENRIDGE INDUSTRIAL COURT
STA 52+80.00 TO STA 54+11.00
(NOT TO SCALE)



TYPICAL SECTION - BRECKENRIDGE INDUSTRIAL COURT
STA 55+89.00 TO STA 56+29.00
(NOT TO SCALE)

Jacobs
JACOBS ENGINEERING GROUP INC.
501 NORTH BROADWAY
ST. LOUIS, MISSOURI 63102-2131
PHONE: 314-335-4000
CERTIFICATE OF AUTHORITY: 000704
EXPIRATION DATE: DECEMBER 31, 2020

HORNER SHIFRIN
401 S. 18TH ST., STE. 400 SAINT LOUIS, MO 63117
314-531-4321 • FAX 314-531-6966 • WWW.HORNERSHIFRIN.COM
DISCIPLINE: PROFESSIONAL ENGINEERING
CERTIFICATE OF AUTHORITY: 000159
EXPIRATION DATE: DECEMBER 31, 2020

PDS
Planning Design Studio
P.O. BOX 179279, SAINT LOUIS, MO 63117
314-241-3600 FAX 314-241-3601
DISCIPLINE: LANDSCAPE ARCHITECTURE
CERTIFICATE OF AUTHORITY: LAC-2006001845
EXPIRATION DATE: DECEMBER 31, 2020

NO.	DATE	REVISION

THE PROFESSIONALS WHOSE SIGNATURES AND SEALS APPEAR HERE, ASSUME RESPONSIBILITY FOR WHAT APPEARS ON THIS SHEET ONLY. ALL OTHER PLANS, SPECIFICATIONS, REPORTS, AND OTHER DOCUMENTS, DESIGN OR REVISIONS BY CONTRACTORS, OWNER OR OTHERS ARE NOT PART OF THE PROJECT FOR WHICH THIS SEAL INDICATES RESPONSIBILITY.

DATE: 31 AUGUST 2020

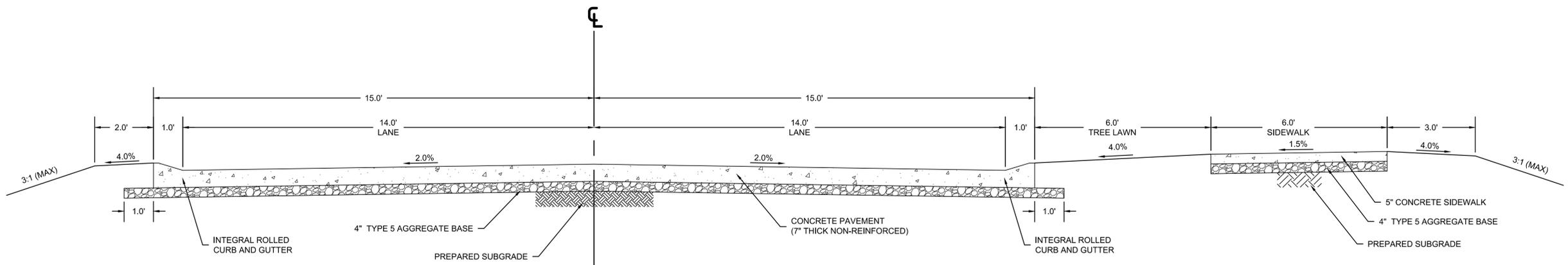
DESIGNED: JAH
DRAWN: JAH
CHECKED: RDA

HS JOB NO. 1815600
JACOBS JOB NO. 707841CH

SHEET 22 OF 67

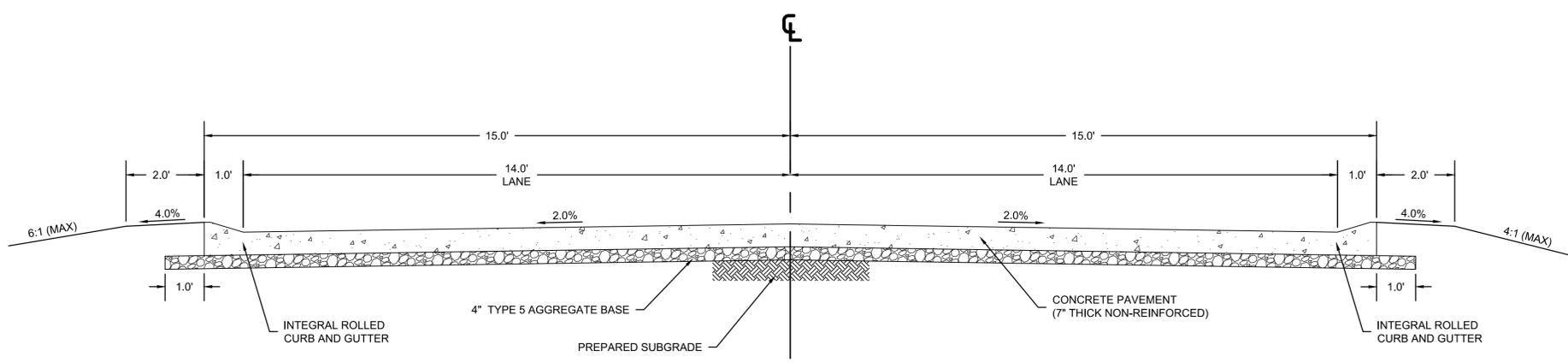
CR-106

Project #: Basemap #: 21K



TYPICAL SECTION - BRECKENRIDGE INDUSTRIAL COURT

STA 56+29.00 TO STA 58+34.14
(NOT TO SCALE)



TYPICAL SECTION - BRECKENRIDGE INDUSTRIAL COURT

STA 58+34.13 TO STA 60+44.00
(NOT TO SCALE)

Jacobs

JACOBS ENGINEERING GROUP INC.
501 NORTH BROADWAY
ST. LOUIS, MISSOURI 63102-2131
PHONE: 314-335-4000
CERTIFICATE OF AUTHORITY: 000704
EXPIRATION DATE: DECEMBER 31, 2020

HORNER SHIFRIN

401 S. 18TH ST., STE. 400 SAINT LOUIS, MO 63117
314-531-4321 • FAX 314-531-6966 • WWW.HORNERSHIFRIN.COM
DISCIPLINE: PROFESSIONAL ENGINEERING
CERTIFICATE OF AUTHORITY: 000159
EXPIRATION DATE: DECEMBER 31, 2020

PDS
Planning Design Studio

P.O. BOX 179279, SAINT LOUIS, MO 63117
314-241-3600 FAX 314-241-3601
DISCIPLINE: LANDSCAPE ARCHITECTURE
CERTIFICATE OF AUTHORITY: LAC-2006001845
EXPIRATION DATE: DECEMBER 31, 2020

NO.	DATE	REVISION

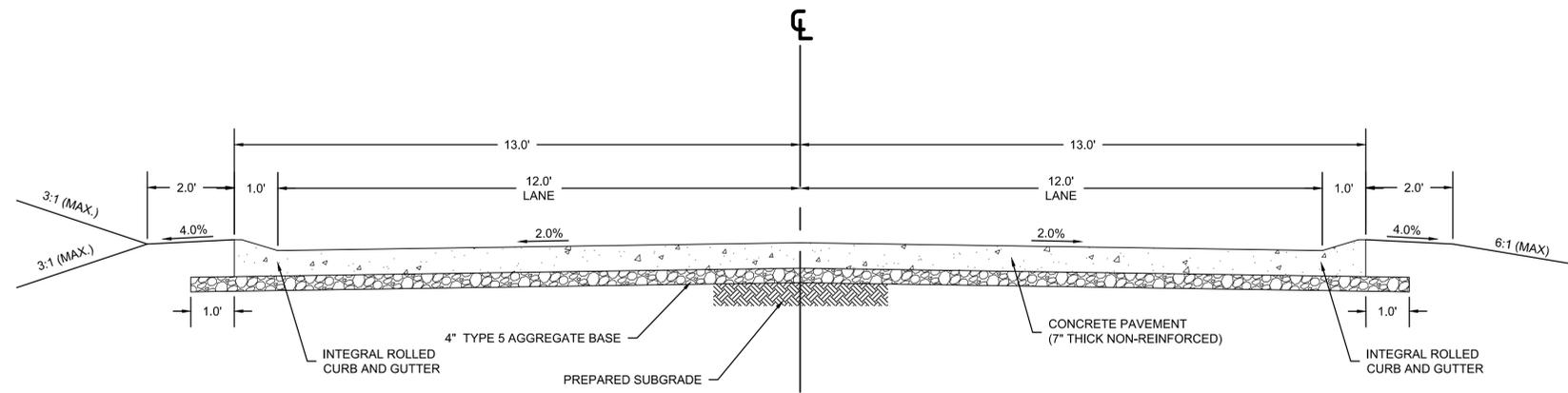
THE PROFESSIONALS WHOSE SIGNATURES AND SEALS APPEAR HERE, ASSUME RESPONSIBILITY FOR WHAT APPEARS ON THIS SHEET ONLY. ALL OTHER PLANS, SPECIFICATIONS, REPORTS, AND OTHER DOCUMENTS, DESIGN OR REVISIONS BY CONTRACTORS, OWNER OR OTHERS ARE NOT PART OF THE PROJECT FOR WHICH THIS SEAL INDICATES RESPONSIBILITY.

DATE: 31 AUGUST 2020
DESIGNED: JAH
DRAWN: JAH
CHECKED: RDA
HS JOB NO. 1815600
JACOBS JOB NO. 707841CH

SHEET 23 OF 67

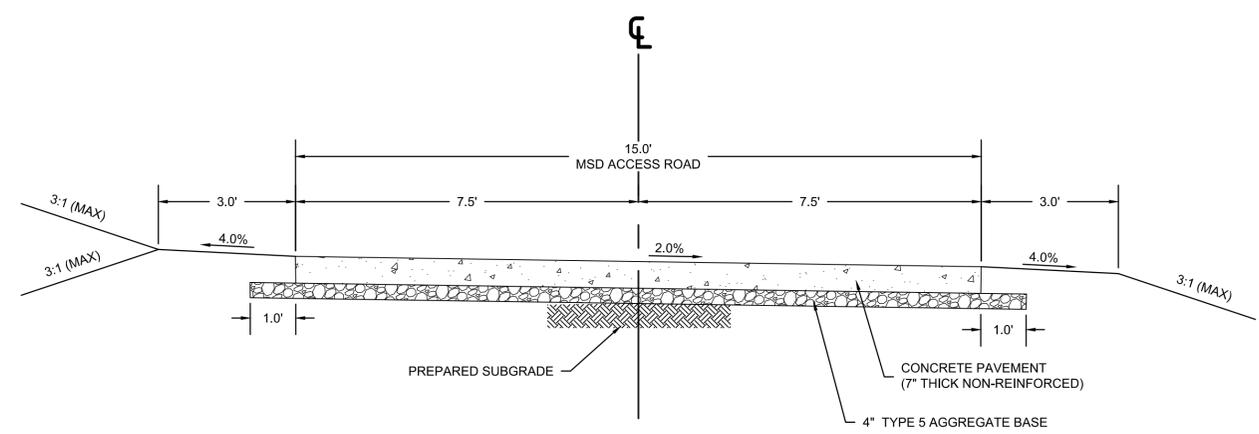
CR-107

Project #: Basemap #: 21K



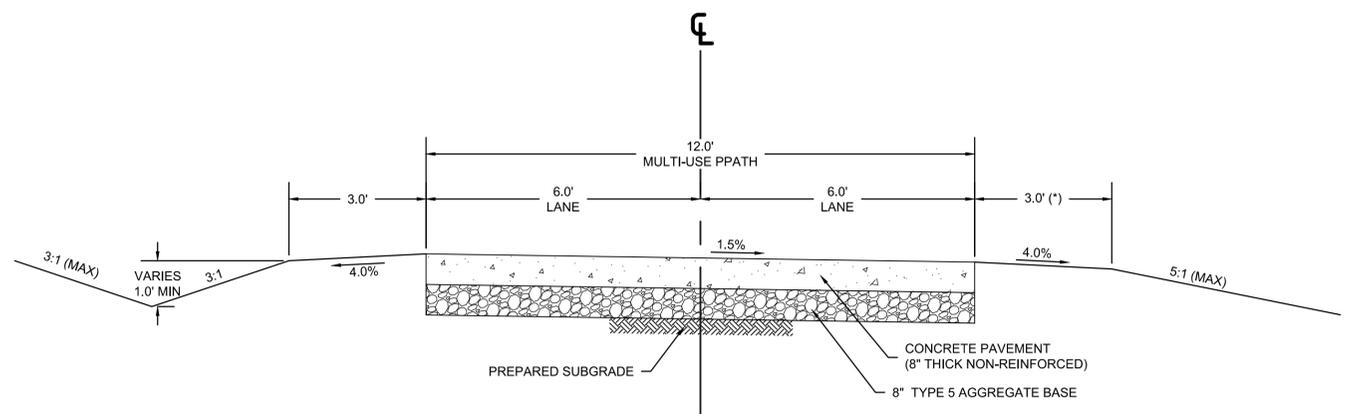
TYPICAL SECTION - BRENTWOOD INDUSTRIAL DRIVE

STA 10+00 TO STA 13+75
(NOT TO SCALE)



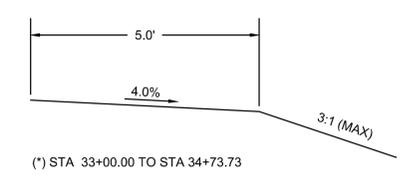
TYPICAL SECTION - MSD ACCESS ROAD

STA 0+27.00 TO STA 2+20.44
(NOT TO SCALE)



TYPICAL SECTION - MULTI-USE PATH

STA 30+23.00 TO STA 34+73.73
(NOT TO SCALE)



NO.	DATE	REVISION

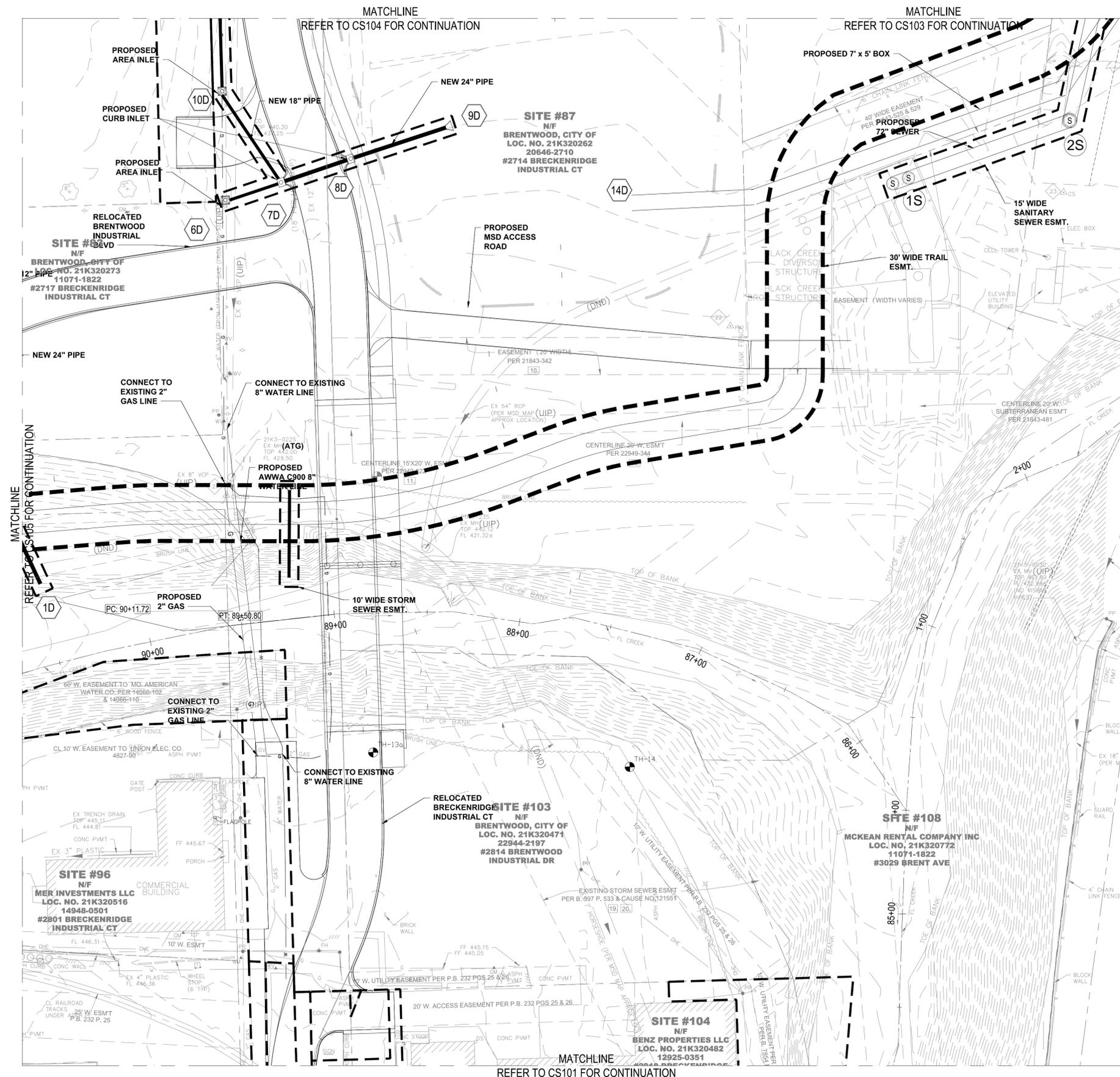
THE PROFESSIONALS WHOSE SIGNATURES AND SEALS APPEAR HERE, ASSUME RESPONSIBILITY FOR WHAT APPEARS ON THIS SHEET ONLY. ALL OTHER PLANS, SPECIFICATIONS, REPORTS, AND OTHER DOCUMENTS, DESIGN OR REVISIONS BY CONTRACTORS, OWNER OR OTHERS ARE NOT PART OF THE PROJECT FOR WHICH THIS SEAL INDICATES RESPONSIBILITY.

DATE:	31 AUGUST 2020
DESIGNED:	JAH
DRAWN:	JAH
CHECKED:	RDA
HS JOB NO.	1815600
JACOBS JOB NO.	707841CH
SHEET	24 OF 67

CR-108

Project #: Basemap #: 21K

DWG: C:\pwworking\jacobs_bk\img_lev\dcd\cd\253778\Roadway Plans (H&S) 1815610.DWG
 SAVE DATE: 8/31/2020 6:11:44 PM
 PLOT DATE: 8/31/2020 6:11:44 PM
 PLOT: DATE: 8/31/2020 6:11:44 PM
 OPERATOR: ADOKIC



NOTES

1. ALL WATER LINES AND APPURTENANCES SHALL BE CONSTRUCTED IN ACCORDANCE WITH MAWC STANDARD SPECIFICATIONS AND DETAILS.
2. ALL STORM SEWERS, SANITARY SEWERS, AND STRUCTURES SHALL BE CONSTRUCTED IN ACCORDANCE WITH MSD STANDARD SPECIFICATIONS AND DETAILS.
3. ALL MANHOLES ADJUSTED TO GRADE SHALL USE WATER TIGHT MANHOLE FRAME & COVER SEALS.
4. RESTRICT CONSTRUCTION TRAFFIC ACROSS MSD HORSESHOE SEWER TO AREAS OF TEMPORARY SEWER REINFORCEMENT.
5. P.U.M.I. = PRIVATE UNDER MSD INSPECTION



DEER CREEK FLOOD MITIGATION PROJECT - PHASE 2

CIVIL SITE PLAN



JACOBS ENGINEERING GROUP INC.
501 NORTH BROADWAY
ST. LOUIS, MISSOURI 63102-2131
PHONE: 314-335-4000
CERTIFICATE OF AUTHORITY: 000704
EXPIRATION DATE: DECEMBER 31, 2020



401 S. 18TH ST., STE. 400 SAINT LOUIS, MO 63103-2296
314-531-4321 • FAX 314-531-6966 • WWW.HORNERSHIFRIN.COM
DISCIPLINE: PROFESSIONAL ENGINEERING
CERTIFICATE OF AUTHORITY: 000159
EXPIRATION DATE: DECEMBER 31, 2020

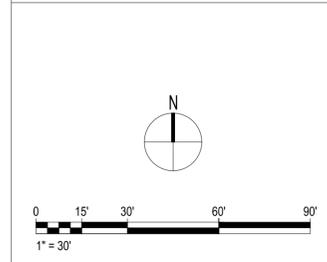


P.O. BOX 179279, SAINT LOUIS, MO 63117
314-241-3600 FAX 314-241-3601
DISCIPLINE: LANDSCAPE ARCHITECTURE
CERTIFICATE OF AUTHORITY: LAC-2006001845
EXPIRATION DATE: DECEMBER 31, 2020

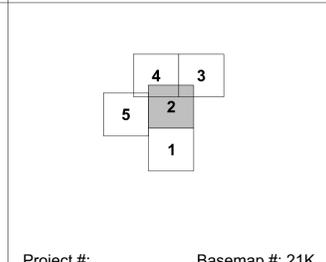
NO.	DATE	REVISION

DATE: 31 AUGUST 2020
DESIGNED: AD
DRAWN: AD
CHECKED: CFW
HS JOB NO. 1815600
JACOBS JOB NO. 707841CH
SHEET 26 OF 67

SCALES



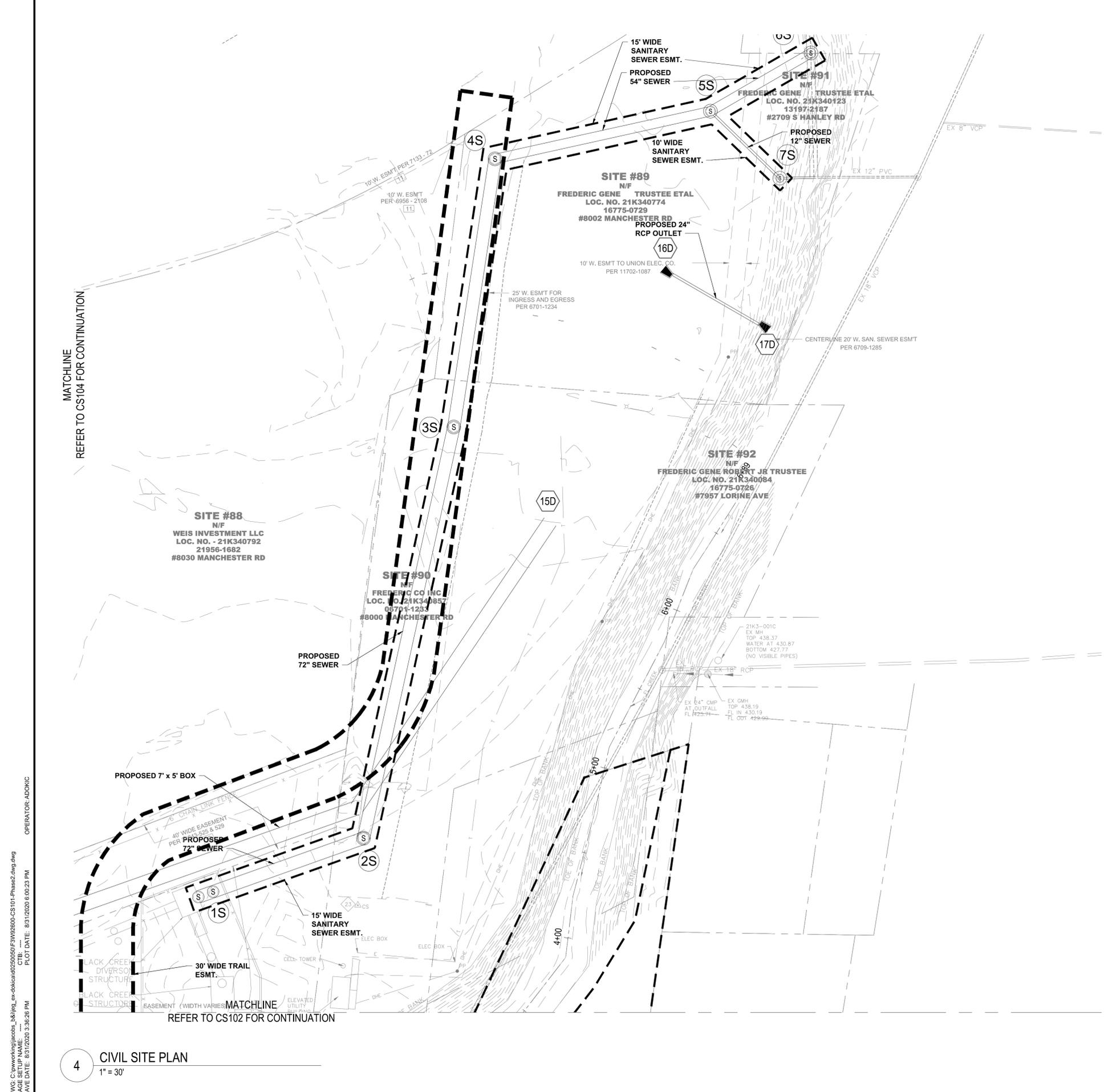
KEY PLAN



3 CIVIL SITE PLAN
1" = 30'

Project #: Basemap #: 21K **CS-102**

DWG: C:\pwworking\jacobs_bk\proj\ex-dbd\civil\20200801\20200801-Phase2.dwg
 PLOT DATE: 8/31/2020 6:00:13 PM
 SAVE DATE: 8/31/2020 3:36:26 PM
 OPERATOR: ADKDC



NOTES

1. ALL WATER LINES AND APPURTENANCES SHALL BE CONSTRUCTED IN ACCORDANCE WITH MAWC STANDARD SPECIFICATIONS AND DETAILS.
2. ALL STORM SEWERS, SANITARY SEWERS, AND STRUCTURES SHALL BE CONSTRUCTED IN ACCORDANCE WITH MSD STANDARD SPECIFICATIONS AND DETAILS.
3. ALL MANHOLES ADJUSTED TO GRADE SHALL USE WATER TIGHT MANHOLE FRAME & COVER SEALS.
4. RESTRICT CONSTRUCTION TRAFFIC ACROSS MSD HORSESHOE SEWER TO AREAS OF TEMPORARY SEWER REINFORCEMENT.
5. P.U.M.I. = PRIVATE UNDER MSD INSPECTION



DEER CREEK FLOOD MITIGATION PROJECT - PHASE 2

CIVIL SITE PLAN



JACOBS ENGINEERING GROUP INC.
 501 NORTH BROADWAY
 ST. LOUIS, MISSOURI 63102-2131
 PHONE: 314-335-4000
 CERTIFICATE OF AUTHORITY: 000704
 EXPIRATION DATE: DECEMBER 31, 2020



401 S. 18TH ST., STE. 400 SAINT LOUIS, MO 63103-2296
 314-531-4321 • FAX 314-531-6966 • WWW.HORNERSHIFRIN.COM
 DISCIPLINE: PROFESSIONAL ENGINEERING
 CERTIFICATE OF AUTHORITY: 000159
 EXPIRATION DATE: DECEMBER 31, 2020

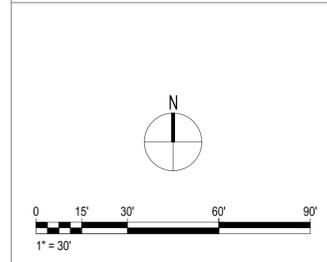


P.O. BOX 179279, SAINT LOUIS, MO 63117
 314-241-3600 FAX 314-241-3601
 DISCIPLINE: LANDSCAPE ARCHITECTURE
 CERTIFICATE OF AUTHORITY: LAC-2006001845
 EXPIRATION DATE: DECEMBER 31, 2020

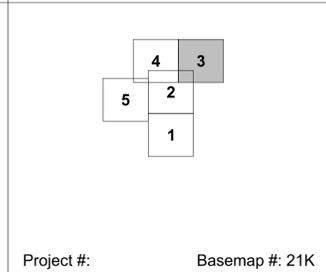
NO.	DATE	REVISION

THE PROFESSIONALS WHOSE SIGNATURES AND SEALS APPEAR HERE, ASSUME RESPONSIBILITY FOR WHAT APPEARS ON THIS SHEET ONLY. ALL OTHER PLANS, SPECIFICATIONS, REPORTS, AND OTHER DOCUMENTS, DESIGN OR REVISIONS BY CONTRACTORS, OWNER OR OTHERS ARE NOT PART OF THE PROJECT FOR WHICH THIS SEAL INDICATES RESPONSIBILITY.

SCALES



KEY PLAN



4 CIVIL SITE PLAN
 1" = 30'

DATE: 31 AUGUST 2020
 DESIGNED: AD
 DRAWN: AD
 CHECKED: CFW
 HS JOB NO. 1815600
 JACOBS JOB NO. 707841CH
 SHEET 27 OF 67
CS-103

DWG: C:\pwworking\jacobson_bk\img_ex-dbl\cadd\250620\250620-CS101-Phase2.dwg
 PLOT DATE: 8/31/2020 6:00:23 PM
 OPERATOR: ADOKIC
 SAVE DATE: 8/31/2020 3:36:26 PM

NO.	DATE	REVISION

THE PROFESSIONALS WHOSE SIGNATURES AND SEALS APPEAR HERE, ASSUME RESPONSIBILITY FOR WHAT APPEARS ON THIS SHEET ONLY. ALL OTHER PLANS, SPECIFICATIONS, REPORTS, AND OTHER DOCUMENTS, DESIGN OR REVISIONS BY CONTRACTORS, OWNER OR OTHERS ARE NOT PART OF THE PROJECT FOR WHICH THIS SEAL INDICATES RESPONSIBILITY.

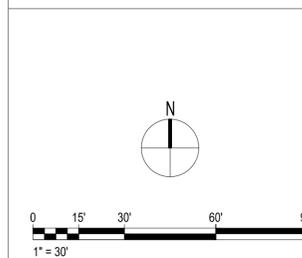
DATE:	31 AUGUST 2020
DESIGNED:	AD
DRAWN:	AD
CHECKED:	CFW
HS JOB NO.	1815600
JACOBS JOB NO.	707841CH
SHEET	28 OF 67

CS-104

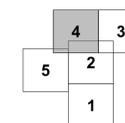
NOTES

1. ALL WATER LINES AND APPURTENANCES SHALL BE CONSTRUCTED IN ACCORDANCE WITH MAWC STANDARD SPECIFICATIONS AND DETAILS.
2. ALL STORM SEWERS, SANITARY SEWERS, AND STRUCTURES SHALL BE CONSTRUCTED IN ACCORDANCE WITH MSD STANDARD SPECIFICATIONS AND DETAILS.
3. ALL MANHOLES ADJUSTED TO GRADE SHALL USE WATER TIGHT MANHOLE FRAME & COVER SEALS.
4. RESTRICT CONSTRUCTION TRAFFIC ACROSS MSD HORSESHOE SEWER TO AREAS OF TEMPORARY SEWER REINFORCEMENT.
5. P.U.M.I. = PRIVATE UNDER MSD INSPECTION

SCALES

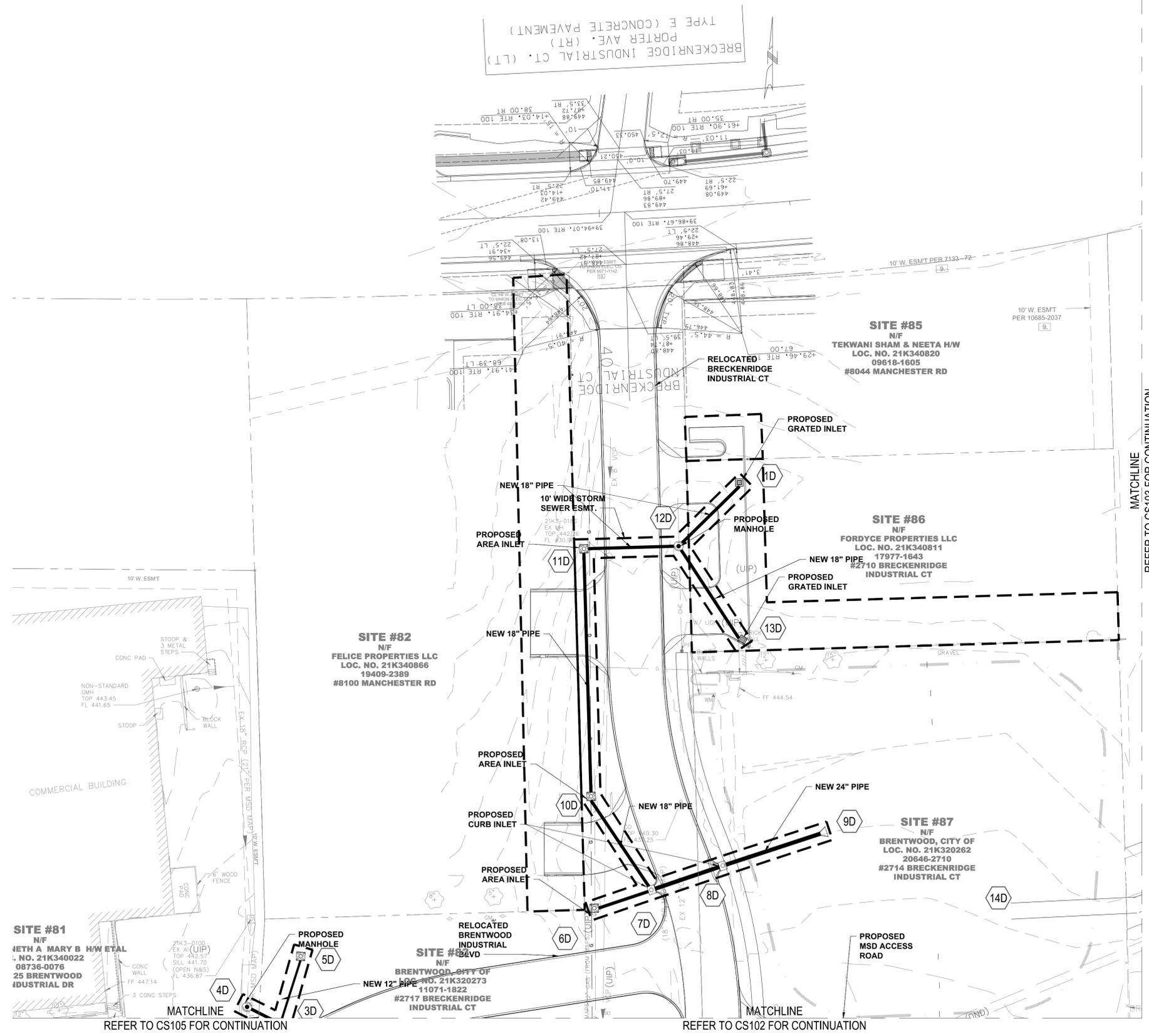


KEY PLAN



Project #:

Basemap #: 21K



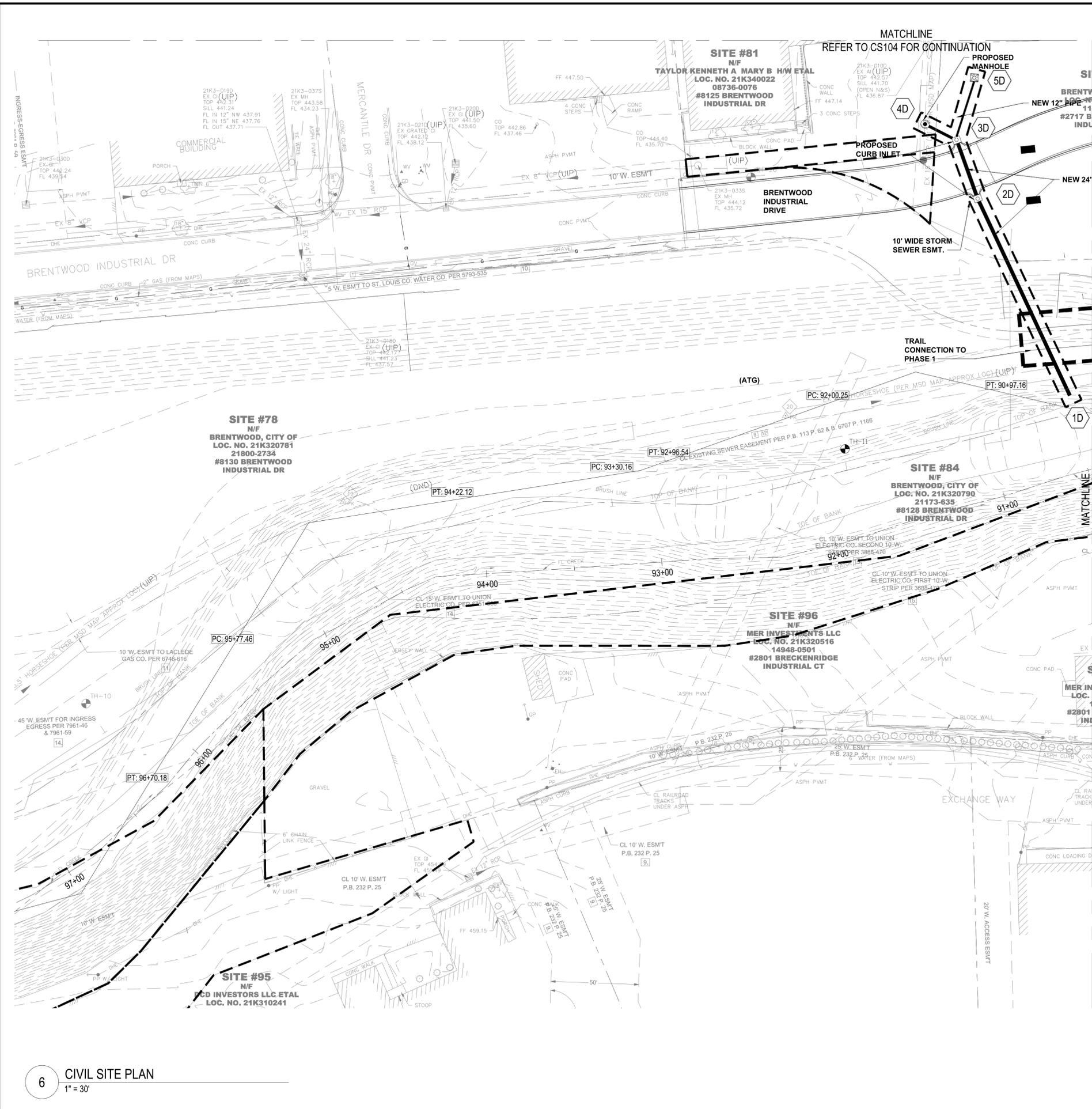
MATCHLINE REFER TO CS103 FOR CONTINUATION

MATCHLINE REFER TO CS105 FOR CONTINUATION

MATCHLINE REFER TO CS102 FOR CONTINUATION

5 CIVIL SITE PLAN
1" = 30'

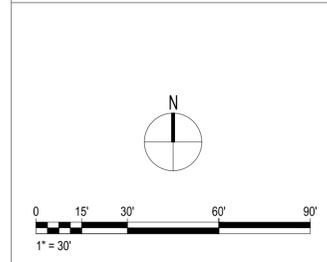
DWG: C:\pwworking\jacobs_bk\img_ex\dbs\lca\2020\2020-08-31\Phase2.dwg
PLOT DATE: 8/31/2020 6:00:33 PM
OPERATOR: ADKDC
SAVE DATE: 8/31/2020 3:36:26 PM



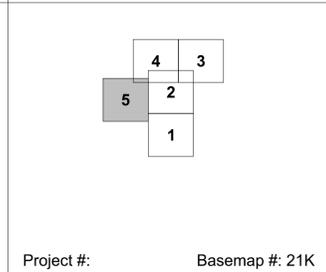
NOTES

1. ALL WATER LINES AND APPURTENANCES SHALL BE CONSTRUCTED IN ACCORDANCE WITH MAWC STANDARD SPECIFICATIONS AND DETAILS.
2. ALL STORM SEWERS, SANITARY SEWERS, AND STRUCTURES SHALL BE CONSTRUCTED IN ACCORDANCE WITH MSD STANDARD SPECIFICATIONS AND DETAILS.
3. ALL MANHOLES ADJUSTED TO GRADE SHALL USE WATER TIGHT MANHOLE FRAME & COVER SEALS.
4. RESTRICT CONSTRUCTION TRAFFIC ACROSS MSD HORSESHOE SEWER TO AREAS OF TEMPORARY SEWER REINFORCEMENT.
5. P.U.M.I. = PRIVATE UNDER MSD INSPECTION

SCALES



KEY PLAN



DEER CREEK FLOOD MITIGATION PROJECT - PHASE 2

CIVIL SITE PLAN



JACOBS ENGINEERING GROUP INC.
501 NORTH BROADWAY
ST. LOUIS, MISSOURI 63102-2131
PHONE: 314-335-4000
CERTIFICATE OF AUTHORITY: 000704
EXPIRATION DATE: DECEMBER 31, 2020



401 S. 18TH ST., STE. 400 SAINT LOUIS, MO 63103-2296
314-531-4321 • FAX 314-531-6966 • WWW.HORNERSHIFRIN.COM
DISCIPLINE: PROFESSIONAL ENGINEERING
CERTIFICATE OF AUTHORITY: 000159
EXPIRATION DATE: DECEMBER 31, 2020



P.O. BOX 179279, SAINT LOUIS, MO 63117
314-241-3600 FAX 314-241-3601
DISCIPLINE: LANDSCAPE ARCHITECTURE
CERTIFICATE OF AUTHORITY: LAC-2006001845
EXPIRATION DATE: DECEMBER 31, 2020

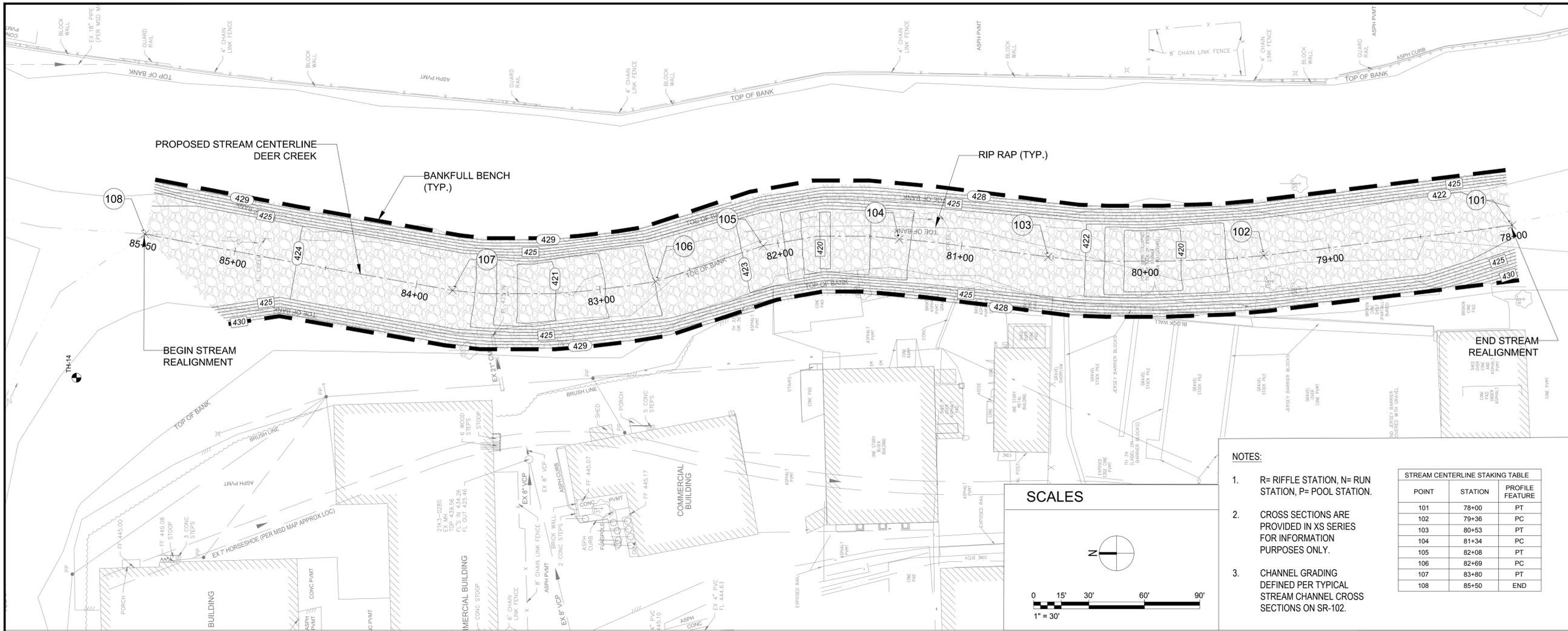
NO.	DATE	REVISION

DATE: 31 AUGUST 2020
DESIGNED: AD
DRAWN: AD
CHECKED: CFW
HS JOB NO. 1815600
JACOBS JOB NO. 707841CH
SHEET 29 OF 67

Project #: Basemap #: 21K
CS-105

DWG: C:\pwworking\jacobs_bk\img_ex-dbl\cadd\250505\FW\250505-CS101-Phase2.dwg
 PLOT DATE: 8/31/2020 6:00:43 PM
 OPERATOR: ADKDC
 SAVE DATE: 8/31/2020 3:36:26 PM

DEER CREEK FLOOD MITIGATION PROJECT - PHASE 2
CREEK RESTORATION GRADING PLAN AND PROFILE



NO.	DATE	REVISION

THE PROFESSIONALS WHOSE SIGNATURES AND SEALS APPEAR HERE, ASSUME RESPONSIBILITY FOR WHAT APPEARS ON THIS SHEET ONLY. ALL OTHER PLANS, SPECIFICATIONS, REPORTS, AND OTHER DOCUMENTS, DESIGN OR REVISIONS BY CONTRACTORS, OWNER OR OTHERS ARE NOT PART OF THE PROJECT FOR WHICH THIS SEAL INDICATES RESPONSIBILITY.

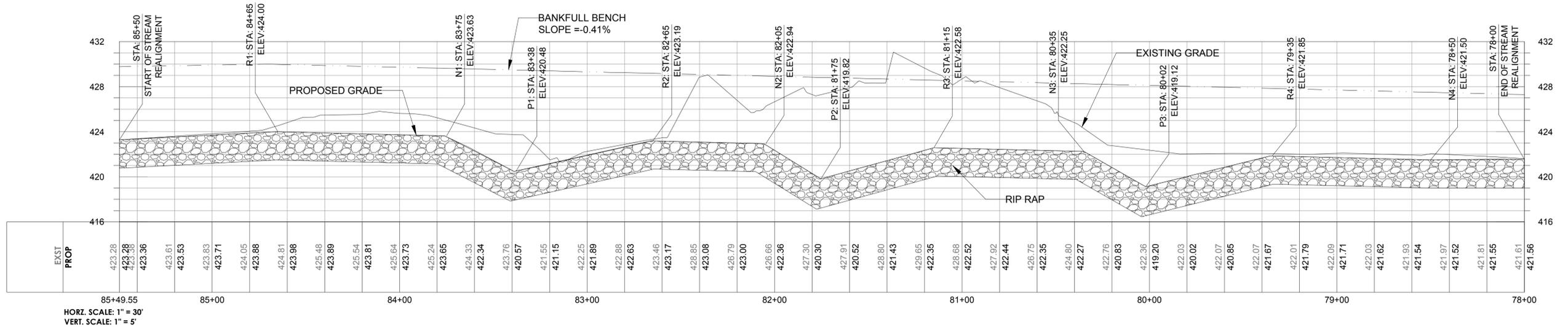
DATE: 31 AUGUST 2020

DESIGNED: JD
DRAWN: AF
CHECKED: KH

HS JOB NO. 1815600
JACOBS JOB NO. 707841CH

SHEET 30 OF 67

SR-101



HORIZ. SCALE: 1" = 30'
VERT. SCALE: 1" = 5'

NO.	DATE	REVISION

THE PROFESSIONALS WHOSE SIGNATURES AND SEALS APPEAR HERE, ASSUME RESPONSIBILITY FOR WHAT APPEARS ON THIS SHEET ONLY. ALL OTHER PLANS, SPECIFICATIONS, REPORTS, AND OTHER DOCUMENTS, DESIGN OR REVISIONS BY CONTRACTORS, OWNER OR OTHERS ARE NOT PART OF THE PROJECT FOR WHICH THIS SEAL INDICATES RESPONSIBILITY.

DATE: 31 AUGUST 2020

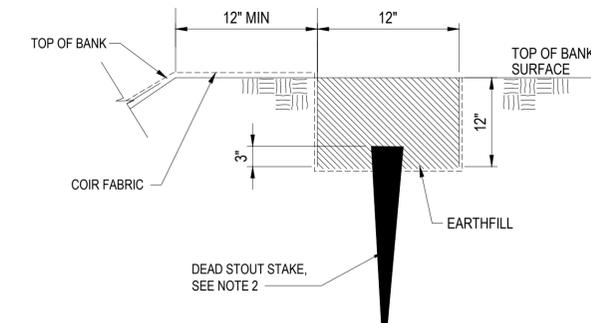
DESIGNED: MLM
DRAWN: MLM
CHECKED: SK

HS JOB NO. 1815600
JACOBS JOB NO. 707841CH

SHEET 31 OF 67

Project #: Basemap #: 21K

SR-102



- NOTE:
1. DETAIL IS SHOWN FOR RIGHT BANK (LOOKING DOWNSTREAM) INSTALLATION. REVERSE FOR LEFT BANK INSTALLATION. EARTHFILL BACKFILL SHALL BE USED TO SECURE DEAD STOUT STAKES AND COIR FABRIC INTO THE SOIL.
 2. DEAD STOUT STAKES TO BE USED FOR SECURING COIR FABRIC SHALL HAVE MINIMUM DIMENSIONS OF 1" X 1.25" X 18" AND SHALL BE FASHIONED FROM UNTREATED PINE OR HARDWARE, SUCH AS 2"X4" BOARDS CUT ON A BIAS.

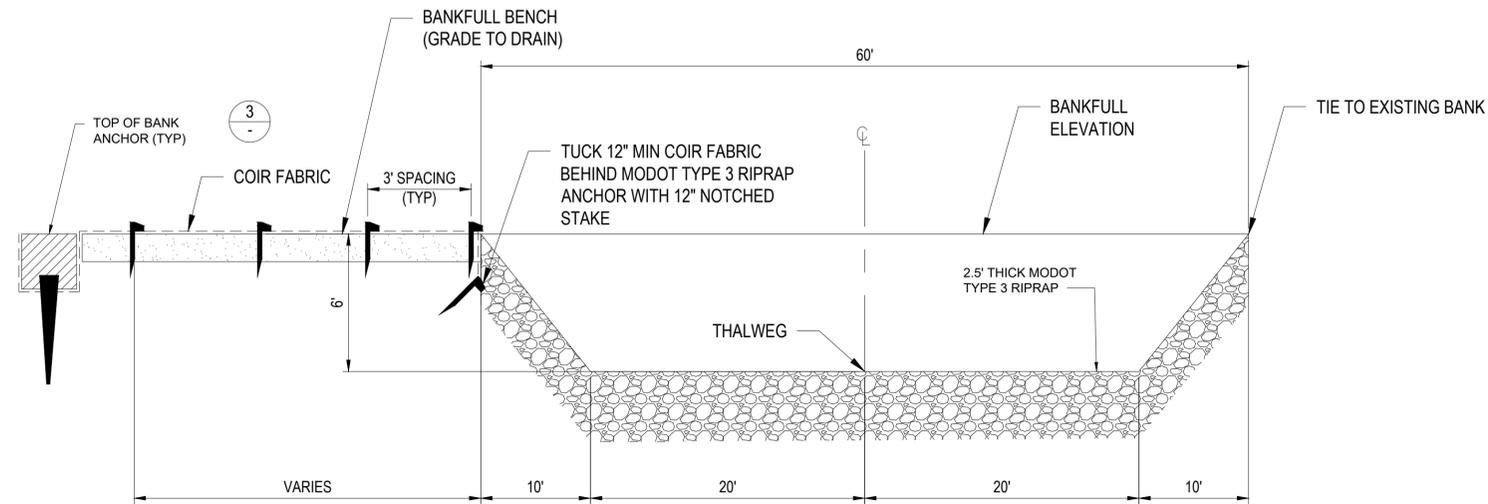
3 TOP OF BANK ANCHORS
NTS

TYPICAL SECTION NOTES:

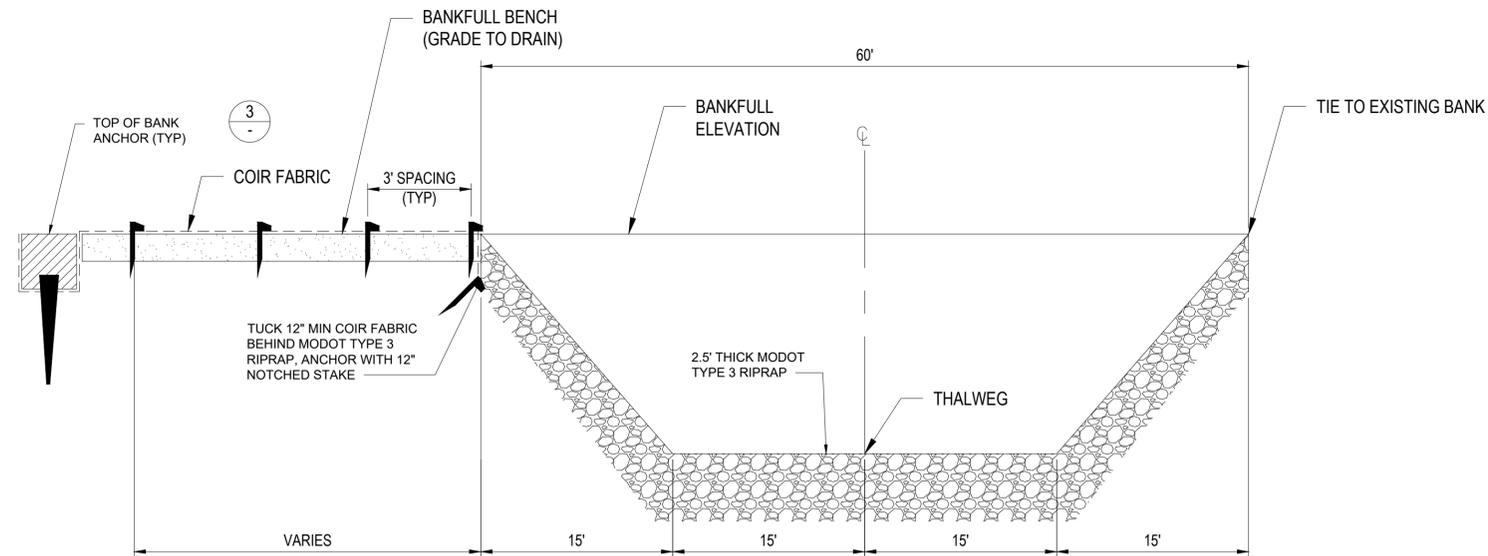
1. TYPICAL CROSS SECTION VERTICAL CONTROL SHALL BE ABOUT THE THALWEG POINT PER THE CHANNEL PROFILE.
2. TYPICAL CROSS SECTIONS VIEWS ARE LOOKING DOWNSTREAM.
3. TYPICAL RIFFLE SECTIONS SHALL BE LOCATED FROM THE "R" STATION TO THE RUN "N" STATION AND TYPICAL POOL SECTIONS SHALL BE LOCATED AT THE "P" STATIONS. CONTRACTOR TO MAKE SMOOTH TRANSITIONS BETWEEN ALL SECTIONS.
4. TYPICAL SECTIONS SHALL BE CONSTRUCTED USING EARTHFILL AND FINISHED WITH 6" TOPSOIL AS SHOWN TO MEET FINAL GRADE ON ALL SURFACES.

COIR FABRIC NOTES:

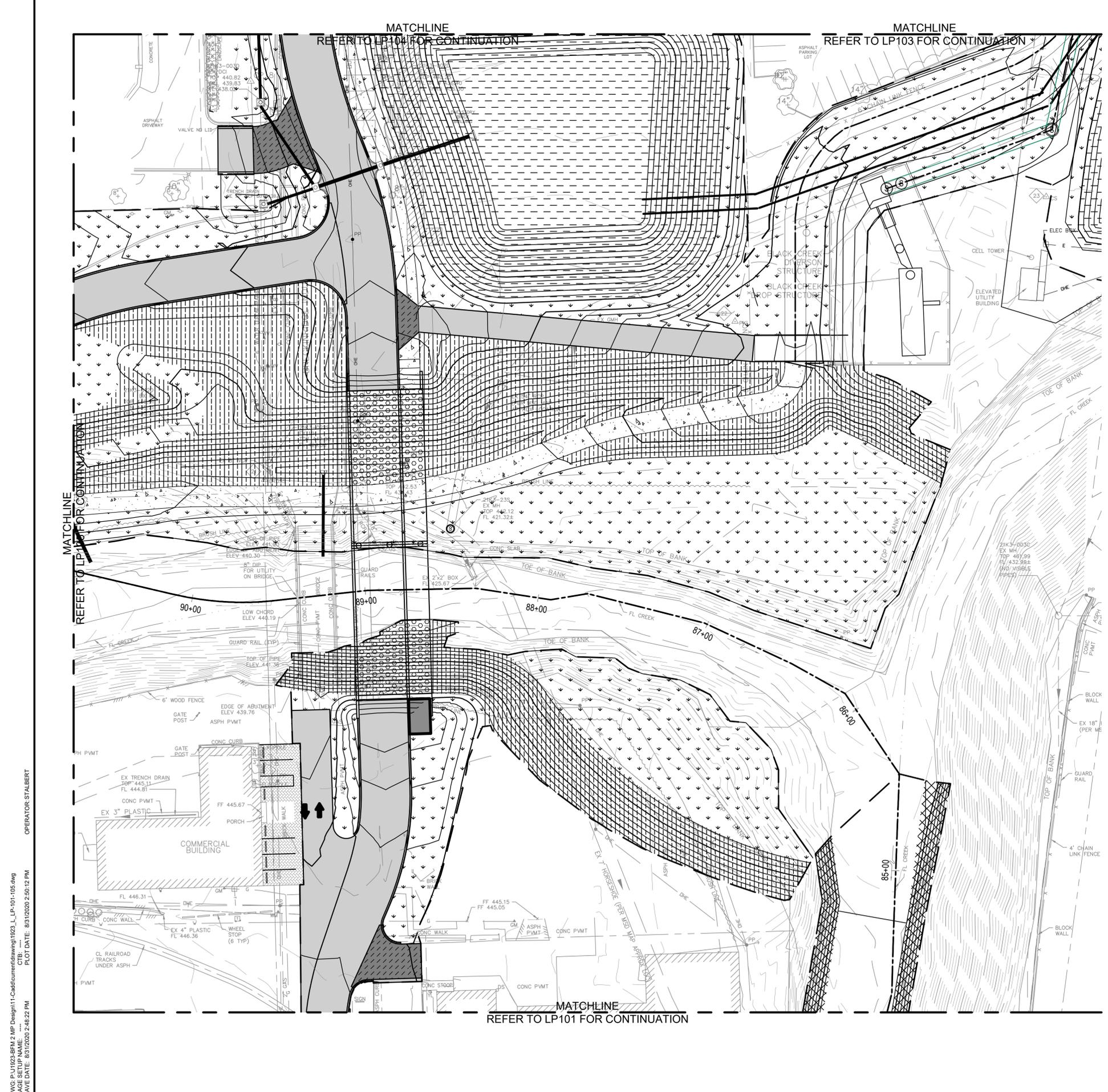
1. COIR FABRIC SHALL BE ROLANKA BIOD-MAT 90 OR APPROVED EQUAL ON BANKFULL BENCH AND SLOPES AS SHOWN.
2. INSTALL COIR FABRIC IN LOCATIONS INDICATED IMMEDIATELY AFTER GRADING, ON PREPARED AND SEEDED SOIL. REFER TO LD SERIES FOR SOIL PREPARATION AND SEEDING.
3. REFER TO MANUFACTURER S RECOMMENDATIONS FOR COIR FABRIC INSTALLATION. TYPICALLY, LAY FABRIC LOOSELY TO CONFORM TO SURFACE IRREGULARITIES. PLACE FABRIC PERPENDICULAR TO THE DIRECTION OF FLOW, SHINGLED WITH THE UPSTREAM PIECE OVERLAPPING THE DOWNSTREAM PIECE BY 6" MIN.
4. SECURE COIR FABRIC USING 12" NOTCHED WOOD STAKES (1.25" X 1.25" X 12", TYPICAL) AND 18" DEAD STOUT STAKES IN TOP OF BANK AND TOE OF BANK ANCHORS. ALL STAKES SHALL BE SPACED 3' OC TYPICAL.



1 RIFFLE TYPICAL SECTION
NOT TO SCALE



2 POOL TYPICAL SECTION
NOT TO SCALE



LANDSCAPE NOTES

- REFER TO DEMOLITION PLAN FOR REMOVAL OF EXISTING VEGETATION.
- UNLESS OTHERWISE NOTED, ALL NATURAL VEGETATION SHALL BE MAINTAINED WHERE IT DOES NOT INTERFERE WITH CONSTRUCTION. PROTECT EXISTING UTILITIES, STRUCTURES OR VEGETATION FROM DAMAGE. CONTRACTOR SHALL MAINTAIN AND SECURE THE PROJECT SITE TO PROTECT THE PUBLIC FROM INJURY DUE TO WORK AND RELATED MATERIAL.
- UNDERGROUND FACILITIES, STRUCTURES AND UTILITIES MUST BE CONSIDERED APPROXIMATE ONLY. THERE MAY BE OTHERS NOT PRESENTLY KNOWN OR SHOWN. LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE TO DETERMINE AND VERIFY THE EXISTENCE OF AND EXACT LOCATION OF ALL UTILITIES.
- LANDSCAPE CONTRACTOR IS ADVISED TO STUDY THE PLANS AND VISIT THE SITE TO BECOME FAMILIAR WITH THE EXISTING CONDITIONS. REPORT ANY DISCREPANCIES IMMEDIATELY TO THE OWNER'S REPRESENTATIVE.
- LANDSCAPE CONTRACTOR SHALL STAKE THE LOCATIONS OF ALL PROPOSED PLANT MATERIAL AND PLANTING BED EDGES FOR APPROVAL BY THE OWNER'S REPRESENTATIVE PRIOR TO INSTALLATION.
- ALL PLANT MATERIAL SHALL BE WARRANTED FOR A PERIOD OF 12 MONTHS AFTER ACCEPTANCE BY OWNER.
- CONTRACTOR SHALL STAKE AND BRACE TREES IMMEDIATELY FOLLOWING INSTALLATION ACCORDING TO PLANS, DETAILS, AND SPECIFICATIONS.
- ALL PLANTING BED EDGES SHALL BE SPADE CUT UNLESS OTHERWISE INDICATED.
- CONTRACTOR TO SEED ALL AREAS DISTURBED DUE TO CONSTRUCTION ACTIVITIES.
- ALL PLANT MATERIAL SHALL BE TAGGED OR OTHERWISE APPROVED BY THE OWNER'S REPRESENTATIVE. APPROVAL IN THE NURSERY DOES NOT INDICATE FINAL ACCEPTANCE.
- ITEMS SHOWN ON THESE DRAWINGS TAKE PRECEDENCE OVER THE MATERIAL LIST. LANDSCAPE CONTRACTOR SHALL VERIFY ALL QUANTITIES AND CONDITIONS PRIOR TO BIDDING AND IMPLEMENTATION OF THE PLAN. NO SUBSTITUTIONS OF TYPES OR SIZE OF PLANT MATERIAL WILL BE ACCEPTED WITHOUT WRITTEN APPROVAL BY OWNER'S REPRESENTATIVE.
- ALL PLANT MATERIAL SHALL CONFORM TO UPPER RANGE LIMITS FOR CALIPER, HEIGHT AND ROOT BALL DIMENSIONS LISTED IN ANSI Z60.1-2014.
- TOPSOIL SHALL BE SPREAD TO A DEPTH OF 4" TO ALL AREAS INDICATED TO RECEIVE SEEDING AND ANY AREA DISTURBED BY CONSTRUCTION THAT WILL RECEIVE RESTORATION SEEDING.
- NO TREES (LIVE STAKED, BALLED AND BURLAPPED, OR RPM) SHOULD BE PLANTED OVER OR WITHIN 25 FEET OF THE EXISTING 6.5 FOOT HORSESHOE SEWER LINE.
- NO TREES (LIVE STAKED, BALLED AND BURLAPPED, OR RPM) SHALL BE PLANTED OVER OR WITHIN THE 30 FOOT EASEMENT FOR THE EXISTING/PROPOSED HORSESHOE SEWER.
- TWO ROWS OF LIVE STAKE PLANTING AT 2' O.C. ARE ALSO REQUIRED ABOVE THE ORDINARY HIGH WATER MARK AS SHOWN ON TYPICAL SECTION 4.
- SOIL NAILING AREA TO BE HYDROSEEDED WITH STREAMBANK STABILIZATION SEED MIX ONLY. NO TREES OR SHRUBS TO BE INSTALLED IN THIS AREA.

LANDSCAPE LEGEND

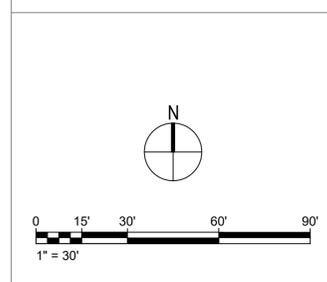
DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL
ZONE 1 - CREEK BANK PLANTING		BALL & BURLAP TREE	
ZONE 2 - CREEK EDGE PLANTING - SEE LANDSCAPE NOTE 16		RPM S3-3 CONSERV. GRADE TREE	
ZONE 3 - FLOOD BENCH TURF SEEDING		DECORATIVE BOULDERS	
ZONE 4 - CHANNEL SIDE SLOPE PLANTING		STORAGE POND SEEDING	
		LIMITS OF DISTURBANCE	

HOLD IT ! CALL BEFORE YOU DIG !

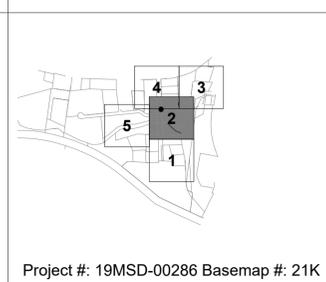
PHONE DIG RITE
 CONTRACTOR TO CONTACT UTILITIES PRIOR TO ANY EXCAVATION OR DEMOLITION FOR THE LOCATION OF ANY PIPES, CABLES, LINES OR MAINS. THE CONTRACTOR SHALL ALSO COORDINATE ANY DISCONNECTION REQUIRED WITH THE VARIOUS UTILITY COMPANIES AND/OR GOVERNMENTAL AGENCIES SERVING THE SITE.
 TOLL FREE 800-344-7483
 800-DIG-RITE

UNDERGROUND CABLE

SCALES



KEY PLAN



DEER CREEK FLOOD MITIGATION PROJECT - PHASE 2

LANDSCAPE PLAN



JACOBS ENGINEERING GROUP INC.
 501 NORTH BROADWAY
 ST. LOUIS, MISSOURI 63102-2131
 PHONE: 314-335-4000
 CERTIFICATE OF AUTHORITY: 000704
 EXPIRATION DATE: DECEMBER 31, 2020



401 S. 18TH ST., STE. 400 SAINT LOUIS, MO 63103-2296
 314-531-4321 • FAX 314-531-6966 • WWW.HORNERSHIFRIN.COM
 DISCIPLINE: PROFESSIONAL ENGINEERING
 CERTIFICATE OF AUTHORITY: 000159
 EXPIRATION DATE: DECEMBER 31, 2020



P.O. BOX 178279 SAINT LOUIS, MO 63117
 314-241-3600 • WWW.PLANNINGDESIGNSTUDIO.COM
 DISCIPLINE: LANDSCAPE ARCHITECT
 CERTIFICATE OF AUTHORITY: LAC-2006001845
 EXPIRATION DATE: DECEMBER 31, 2020

NO.	DATE	REVISION

PRELIMINARY
 NOT FOR CONSTRUCTION

DATE: 31 AUGUST 2020

DESIGNED: L. FRANKE
 DRAWN: S. TALBERT
 CHECKED: L. FRANKE

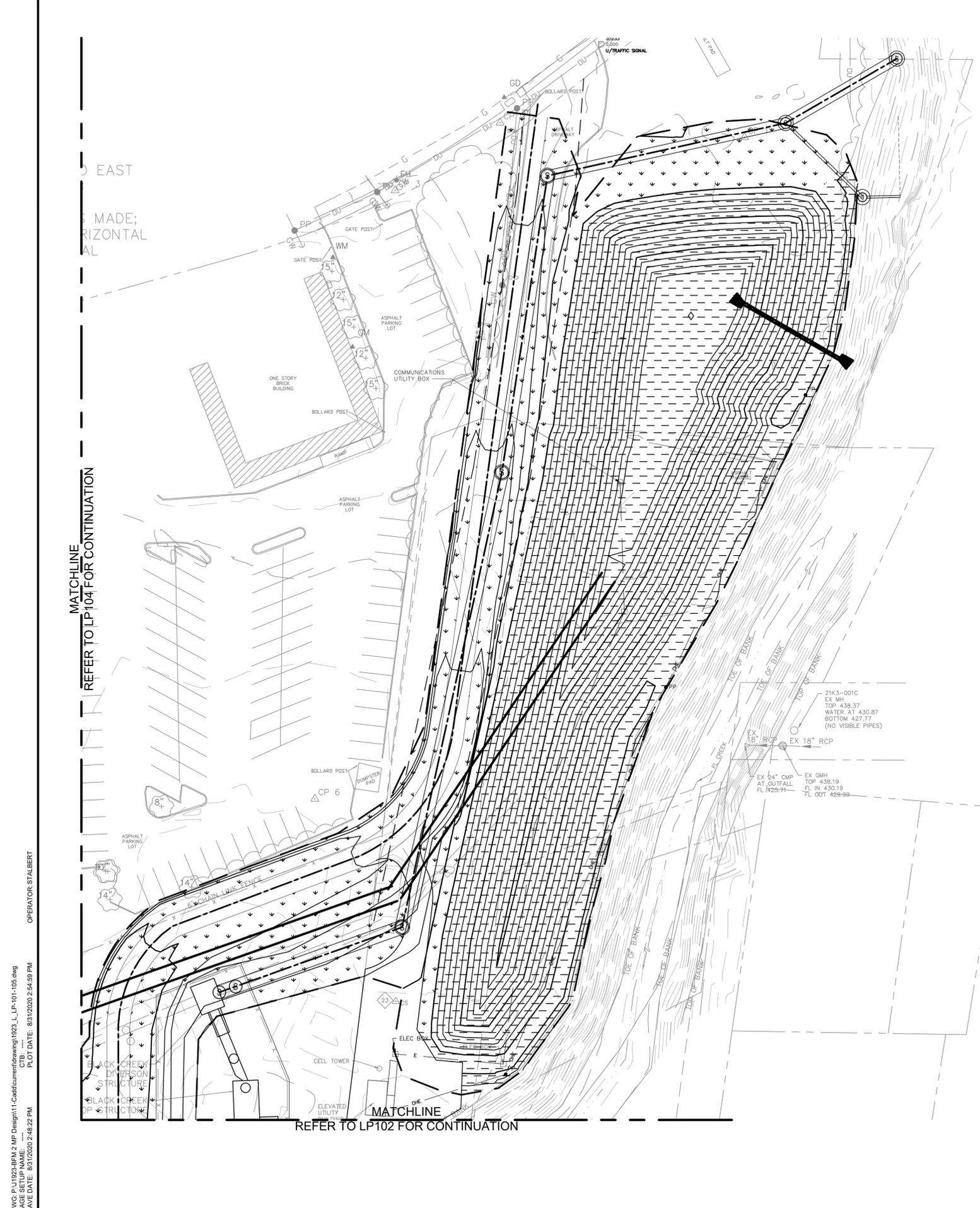
HS JOB NO. 1815600
 JACOBS JOB NO. 707841CH

SHEET 33 OF 67

LP-102

Project #: 19MSD-00286 Basemap #: 21K

DWG: P:\1925\BEM_2\MP Design\11-Cadd\Cadd\drawing\1923_LP-101-105.dwg
 PLOT DATE: 8/31/2020 2:50:12 PM
 OPERATOR: STALBERT
 SAVE DATE: 8/31/2020 2:48:22 PM



LANDSCAPE NOTES

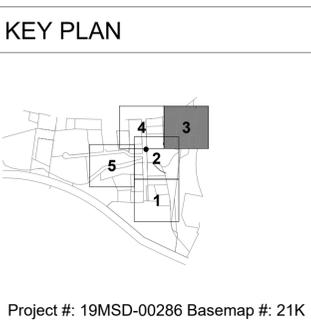
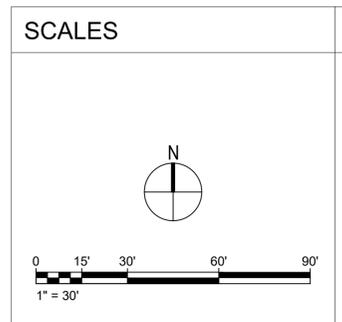
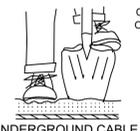
- REFER TO DEMOLITION PLAN FOR REMOVAL OF EXISTING VEGETATION.
- UNLESS OTHERWISE NOTED, ALL NATURAL VEGETATION SHALL BE MAINTAINED WHERE IT DOES NOT INTERFERE WITH CONSTRUCTION. PROTECT EXISTING UTILITIES, STRUCTURES OR VEGETATION FROM DAMAGE. CONTRACTOR SHALL MAINTAIN AND SECURE THE PROJECT SITE TO PROTECT THE PUBLIC FROM INJURY DUE TO WORK AND RELATED MATERIAL.
- UNDERGROUND FACILITIES, STRUCTURES AND UTILITIES MUST BE CONSIDERED APPROXIMATE ONLY. THERE MAY BE OTHERS NOT PRESENTLY KNOWN OR SHOWN. LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE TO DETERMINE AND VERIFY THE EXISTENCE OF AND EXACT LOCATION OF ALL UTILITIES.
- LANDSCAPE CONTRACTOR IS ADVISED TO STUDY THE PLANS AND VISIT THE SITE TO BECOME FAMILIAR WITH THE EXISTING CONDITIONS. REPORT ANY DISCREPANCIES IMMEDIATELY TO THE OWNER'S REPRESENTATIVE.
- LANDSCAPE CONTRACTOR SHALL STAKE THE LOCATIONS OF ALL PROPOSED PLANT MATERIAL AND PLANTING BED EDGES FOR APPROVAL BY THE OWNER'S REPRESENTATIVE PRIOR TO INSTALLATION.
- ALL PLANT MATERIAL SHALL BE WARRANTED FOR A PERIOD OF 12 MONTHS AFTER ACCEPTANCE BY OWNER.
- CONTRACTOR SHALL STAKE AND BRACE TREES IMMEDIATELY FOLLOWING INSTALLATION ACCORDING TO PLANS, DETAILS, AND SPECIFICATIONS.
- ALL PLANTING BED EDGES SHALL BE SPADE CUT UNLESS OTHERWISE INDICATED.
- CONTRACTOR TO SEED ALL AREAS DISTURBED DUE TO CONSTRUCTION ACTIVITIES.
- ALL PLANT MATERIAL SHALL BE TAGGED OR OTHERWISE APPROVED BY THE OWNER'S REPRESENTATIVE. APPROVAL IN THE NURSERY DOES NOT INDICATE FINAL ACCEPTANCE.
- ITEMS SHOWN ON THESE DRAWINGS TAKE PRECEDENCE OVER THE MATERIAL LIST. LANDSCAPE CONTRACTOR SHALL VERIFY ALL QUANTITIES AND CONDITIONS PRIOR TO BIDDING AND IMPLEMENTATION OF THE PLAN. NO SUBSTITUTIONS OF TYPES OR SIZE OF PLANT MATERIAL WILL BE ACCEPTED WITHOUT WRITTEN APPROVAL BY OWNER'S REPRESENTATIVE.
- ALL PLANT MATERIAL SHALL CONFORM TO UPPER RANGE LIMITS FOR CALIPER, HEIGHT AND ROOT BALL DIMENSIONS LISTED IN ANSI Z60.1-2014.
- TOPSOIL SHALL BE SPREAD TO A DEPTH OF 4" TO ALL AREAS INDICATED TO RECEIVE SEEDING AND ANY AREA DISTURBED BY CONSTRUCTION THAT WILL RECEIVE RESTORATION SEEDING.
- NO TREES (LIVE STAKED, BALLED AND BURLAPPED, OR RPM) SHOULD BE PLANTED OVER OR WITHIN 25 FEET OF THE EXISTING 6.5 FOOT HORSESHOE SEWER LINE.
- NO TREES (LIVE STAKED, BALLED AND BURLAPPED, OR RPM) SHALL BE PLANTED OVER OR WITHIN THE 30 FOOT EASEMENT FOR THE EXISTING/PROPOSED HORSESHOE SEWER.
- TWO ROWS OF LIVE STAKE PLANTING AT 2' O.C. ARE ALSO REQUIRED ABOVE THE ORDINARY HIGH WATER MARK AS SHOWN ON TYPICAL SECTION 4.
- SOIL NAILING AREA TO BE HYDROSEEDING WITH STREAMBANK STABILIZATION SEED MIX ONLY. NO TREES OR SHRUBS TO BE INSTALLED IN THIS AREA.

LANDSCAPE LEGEND

DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL
ZONE 1 - CREEK BANK PLANTING		BALL & BURLAP TREE	
ZONE 2 - CREEK EDGE PLANTING - SEE LANDSCAPE NOTE 16		RPM S3-3 CONSERV. GRADE TREE	
ZONE 3 - FLOOD BENCH TURF SEEDING		DECORATIVE BOULDERS	
ZONE 4 - CHANNEL SIDE SLOPE PLANTING		STORAGE POND SEEDING	
		LIMITS OF DISTURBANCE	

HOLD IT ! CALL BEFORE YOU DIG !

PHONE DIG RITE
 CONTRACTOR TO CONTACT UTILITIES PRIOR TO ANY EXCAVATION OR DEMOLITION FOR THE LOCATION OF ANY PIPES, CABLES, LINES OR MAINS. THE CONTRACTOR SHALL ALSO COORDINATE ANY DISCONNECTION REQUIRED WITH THE VARIOUS UTILITY COMPANIES AND/OR GOVERNMENTAL AGENCIES SERVING THE SITE.
 TOLL FREE 800-344-7483
 800-DIG-RITE



DEER CREEK FLOOD MITIGATION PROJECT - PHASE 2

LANDSCAPE PLAN

Jacobs
 JACOBS ENGINEERING GROUP INC.
 501 NORTH BROADWAY
 ST. LOUIS, MISSOURI 63102-2131
 PHONE: 314-335-4000
 CERTIFICATE OF AUTHORITY: 000704
 EXPIRATION DATE: DECEMBER 31, 2020

HORNER SHIFRIN
 401 S. 18TH ST., STE. 400 SAINT LOUIS, MO 63103-2296
 314-531-4321 • FAX 314-531-6966 • WWW.HORNERSHIFRIN.COM
 DISCIPLINE: PROFESSIONAL ENGINEERING
 CERTIFICATE OF AUTHORITY: 000159
 EXPIRATION DATE: DECEMBER 31, 2020

PDS
 Planning Design Studio
 P.O. BOX 178279 SAINT LOUIS, MO 63117
 314-241-3600 • WWW.PLANNINGDESIGNSTUDIO.COM
 DISCIPLINE: LANDSCAPE ARCHITECT
 CERTIFICATE OF AUTHORITY: LAC-2006001845
 EXPIRATION DATE: DECEMBER 31, 2020

NO.	DATE	REVISION

PRELIMINARY
 NOT FOR CONSTRUCTION

DATE: 31 AUGUST 2020
 DESIGNED: L. FRANKE
 DRAWN: S. TALBERT
 CHECKED: L. FRANKE
 HS JOB NO. 1815600
 JACOBS JOB NO. 707841CH
 SHEET 34 OF 67
LP-103

DWG: P:\1925\BEM_2_MP_Design\11-Cadd\currendrawing\1925_LP-103.dwg
 PLOT DATE: 8/31/2020 2:54:59 PM
 OPERATOR: STALBERT
 SAVE DATE: 8/31/2020 2:48:22 PM

NO.	DATE	REVISION

THE PROFESSIONALS WHOSE SIGNATURES AND SEALS APPEAR HERE, ASSUME RESPONSIBILITY FOR WHAT APPEARS ON THIS SHEET ONLY. ALL OTHER PLANS, SPECIFICATIONS, REPORTS, AND OTHER DOCUMENTS, DESIGN OR REVISIONS BY CONTRACTORS, OWNER OR OTHERS ARE NOT PART OF THE PROJECT FOR WHICH THIS SEAL INDICATES RESPONSIBILITY.

PRELIMINARY
NOT FOR CONSTRUCTION

DATE: 31 AUGUST 2020

DESIGNED: L. FRANKE
DRAWN: S. TALBERT
CHECKED: L. FRANKE

HS JOB NO. 1815600
JACOBS JOB NO. 707841CH

SHEET 35 OF 67

LP-104

LANDSCAPE NOTES

- REFER TO DEMOLITION PLAN FOR REMOVAL OF EXISTING VEGETATION.
- UNLESS OTHERWISE NOTED, ALL NATURAL VEGETATION SHALL BE MAINTAINED WHERE IT DOES NOT INTERFERE WITH CONSTRUCTION. PROTECT EXISTING UTILITIES, STRUCTURES OR VEGETATION FROM DAMAGE. CONTRACTOR SHALL MAINTAIN AND SECURE THE PROJECT SITE TO PROTECT THE PUBLIC FROM INJURY DUE TO WORK AND RELATED MATERIAL.
- UNDERGROUND FACILITIES, STRUCTURES AND UTILITIES MUST BE CONSIDERED APPROXIMATE ONLY. THERE MAY BE OTHERS NOT PRESENTLY KNOWN OR SHOWN. LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE TO DETERMINE AND VERIFY THE EXISTENCE OF AND EXACT LOCATION OF ALL UTILITIES.
- LANDSCAPE CONTRACTOR IS ADVISED TO STUDY THE PLANS AND VISIT THE SITE TO BECOME FAMILIAR WITH THE EXISTING CONDITIONS. REPORT ANY DISCREPANCIES IMMEDIATELY TO THE OWNER'S REPRESENTATIVE.
- LANDSCAPE CONTRACTOR SHALL STAKE THE LOCATIONS OF ALL PROPOSED PLANT MATERIAL AND PLANTING BED EDGES FOR APPROVAL BY THE OWNER'S REPRESENTATIVE PRIOR TO INSTALLATION.
- ALL PLANT MATERIAL SHALL BE WARRANTED FOR A PERIOD OF 12 MONTHS AFTER ACCEPTANCE BY OWNER.
- CONTRACTOR SHALL STAKE AND BRACE TREES IMMEDIATELY FOLLOWING INSTALLATION ACCORDING TO PLANS, DETAILS, AND SPECIFICATIONS.
- ALL PLANTING BED EDGES SHALL BE SPADE CUT UNLESS OTHERWISE INDICATED.
- CONTRACTOR TO SEED ALL AREAS DISTURBED DUE TO CONSTRUCTION ACTIVITIES.
- ALL PLANT MATERIAL SHALL BE TAGGED OR OTHERWISE APPROVED BY THE OWNER'S REPRESENTATIVE. APPROVAL IN THE NURSERY DOES NOT INDICATE FINAL ACCEPTANCE.
- ITEMS SHOWN ON THESE DRAWINGS TAKE PRECEDENCE OVER THE MATERIAL LIST. LANDSCAPE CONTRACTOR SHALL VERIFY ALL QUANTITIES AND CONDITIONS PRIOR TO BIDDING AND IMPLEMENTATION OF THE PLAN. NO SUBSTITUTIONS OF TYPES OR SIZE OF PLANT MATERIAL WILL BE ACCEPTED WITHOUT WRITTEN APPROVAL BY OWNER'S REPRESENTATIVE.
- ALL PLANT MATERIAL SHALL CONFORM TO UPPER RANGE LIMITS FOR CALIPER, HEIGHT AND ROOT BALL DIMENSIONS LISTED IN ANSI Z60.1-2014.
- TOPSOIL SHALL BE SPREAD TO A DEPTH OF 4" TO ALL AREAS INDICATED TO RECEIVE SEEDING AND ANY AREA DISTURBED BY CONSTRUCTION THAT WILL RECEIVE RESTORATION SEEDING.
- NO TREES (LIVE STAKED, BALLED AND BURLAPPED, OR RPM) SHOULD BE PLANTED OVER OR WITHIN 25 FEET OF THE EXISTING 6.5 FOOT HORSESHOE SEWER LINE.
- NO TREES (LIVE STAKED, BALLED AND BURLAPPED, OR RPM) SHALL BE PLANTED OVER OR WITHIN THE 30 FOOT EASEMENT FOR THE EXISTING/PROPOSED HORSESHOE SEWER.
- TWO ROWS OF LIVE STAKE PLANTING AT 2' O.C. ARE ALSO REQUIRED ABOVE THE ORDINARY HIGH WATER MARK AS SHOWN ON TYPICAL SECTION 4.
- SOIL NAILING AREA TO BE HYDROSEEDDED WITH STREAMBANK STABILIZATION SEED MIX ONLY. NO TREES OR SHRUBS TO BE INSTALLED IN THIS AREA.

LANDSCAPE LEGEND

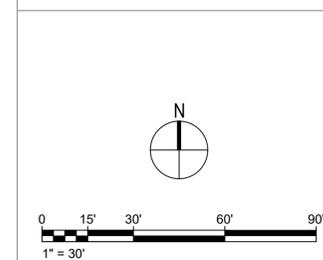
DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL
ZONE 1 - CREEK BANK PLANTING		BALL & BURLAP TREE	
ZONE 2 - CREEK EDGE PLANTING - SEE LANDSCAPE NOTE 16		RPM S3-3 CONSERV. GRADE TREE	
ZONE 3 - FLOOD BENCH TURF SEEDING		DECORATIVE BOULDERS	
ZONE 4 - CHANNEL SIDE SLOPE PLANTING		STORAGE POND SEEDING	
		LIMITS OF DISTURBANCE	

HOLD IT ! CALL BEFORE YOU DIG !

PHONE DIG RITE
CONTRACTOR TO CONTACT UTILITIES PRIOR TO ANY EXCAVATION OR DEMOLITION FOR THE LOCATION OF ANY PIPES, CABLES, LINES OR MAINS. THE CONTRACTOR SHALL ALSO COORDINATE ANY DISCONNECTION REQUIRED WITH THE VARIOUS UTILITY COMPANIES AND/OR GOVERNMENTAL AGENCIES SERVING THE SITE.
TOLL FREE 800-344-7483
800-DIG-RITE

UNDERGROUND CABLE

SCALES

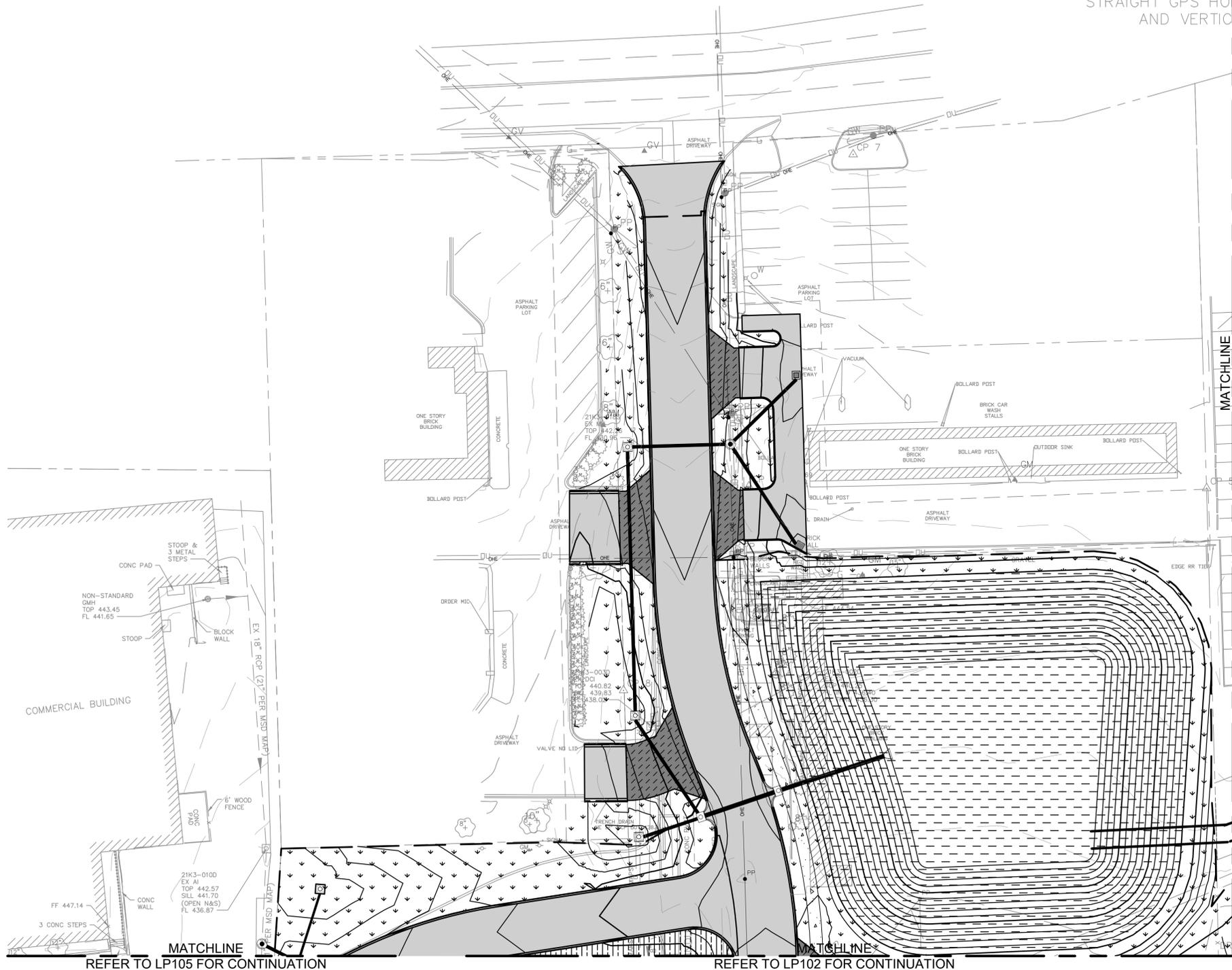


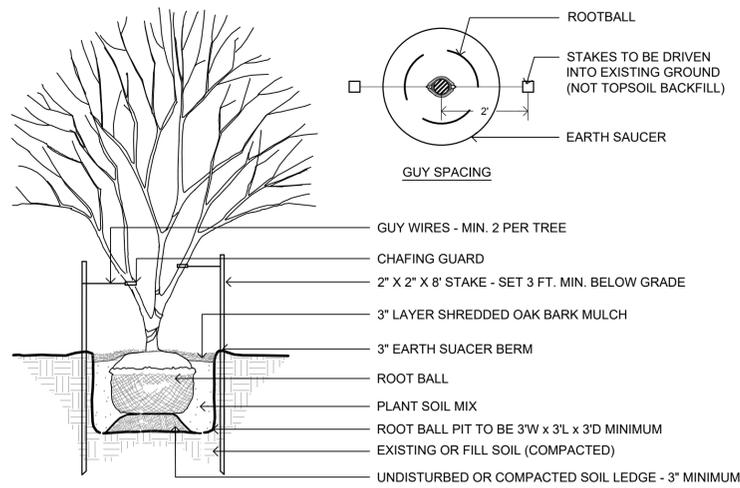
KEY PLAN



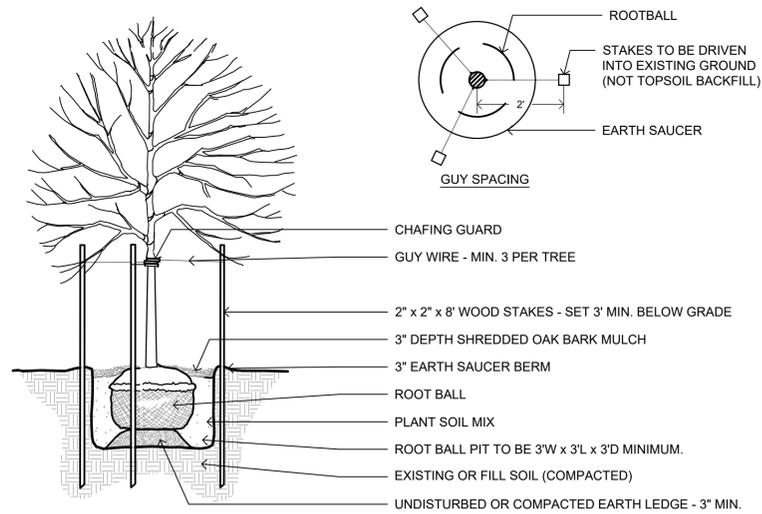
Project #: 19MSD-00286 Basemap #: 21K

STATE PLANE MO
GEOID 12E
NO ADJUSTMENTS
STRAIGHT GPS HO
AND VERTIC

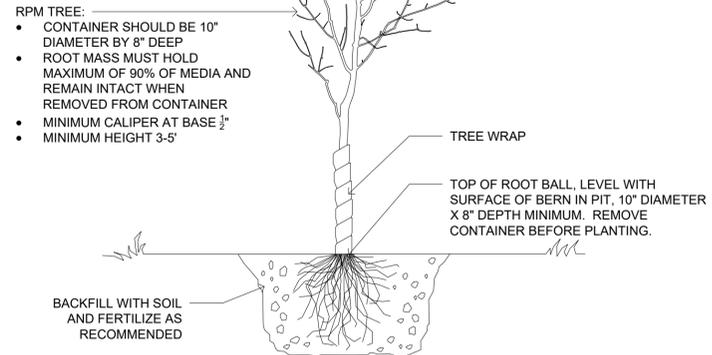




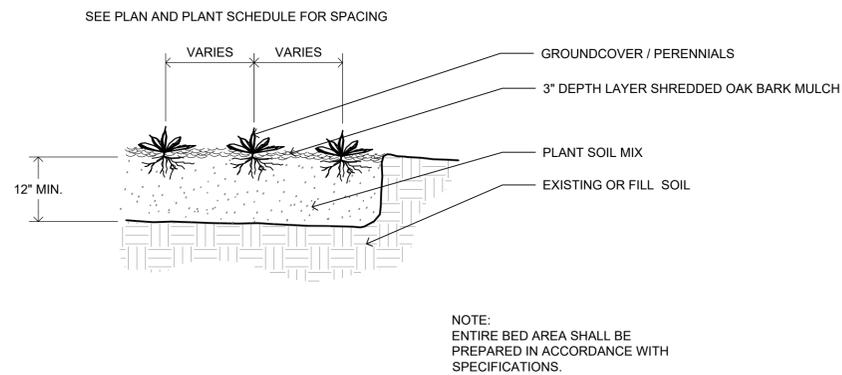
1 ORNAMENTAL TREE PLANTING - BALLED AND BURLAPPED
NTS



2 CANOPY TREE PLANTING - BALLED AND BURLAPPED
NTS



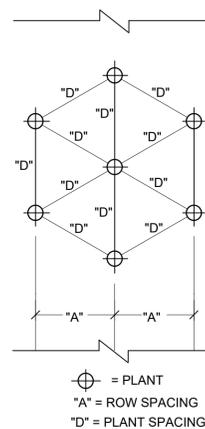
3 TYPICAL RPM TREE PLANTING
NTS



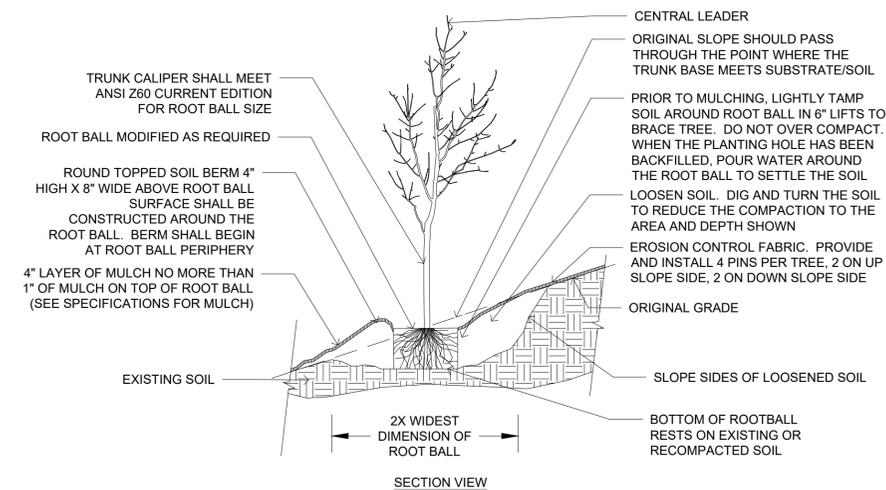
4 GROUNDCOVER AND PERENNIAL PLANTING
NTS

FOR USE WITH ALL PLANT TYPES SPACED EQUIDISTANTLY

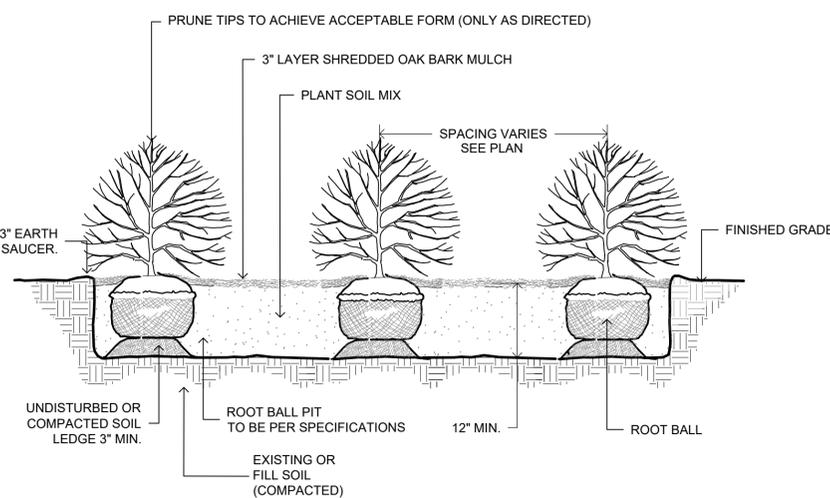
SPACING "D"	ROW "A"	NO. OF PLANTS	AREA UNIT
10" O.C.	8.66"	1.66	1 sq. ft.
12" O.C.	10.4"	1.15	
15" O.C.	13.0"	7.38	10 sq. ft.
18" O.C.	15.6"	5.12	
24" O.C.	20.8"	2.9	
30" O.C.	26.0"	1.85	
36" O.C.	30.0"	1.28	
4' O.C.	4.33'	4.61	100 sq. ft.
6' O.C.	5.2'	3.2	
8' O.C.	6.93'	1.8	
10' O.C.	8.66'	1.16	



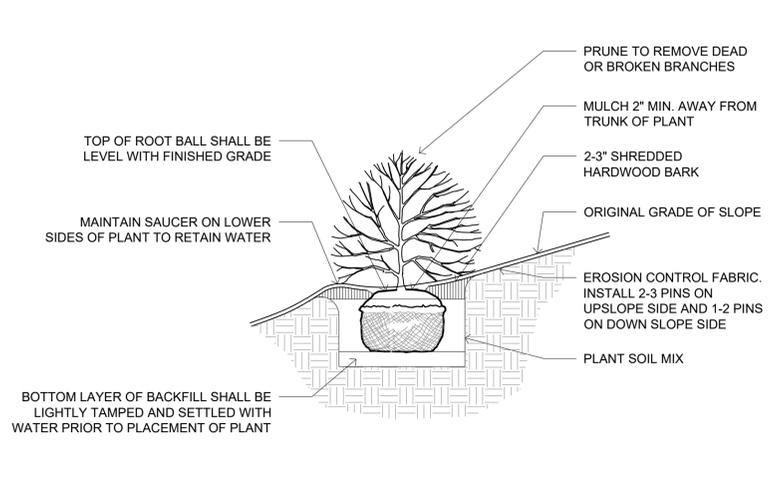
5 PLANT SPACING
NTS



- NOTES:
- ALL PLANT MATERIAL SHALL BE IN ACCORDANCE WITH THE AMERICAN STANDARDS FOR NURSERY STOCK (ANSI Z60.1-2004). PLANT ACCORDING TO ANSI A300 PART 6.
 - DIG THE PLANTING HOLE A MINIMUM OF 2X WIDTH OF ROOT BALL FOR AT LEAST THE FIRST 12 INCHES OF DEPTH. BELOW 12 INCHES, DIG HOLE WIDE ENOUGH TO PERMIT ADJUSTING. DO NOT DIG THE HOLE DEEPER THAN ROOT BALL DEPTH.
 - SCARIFY THE SUBGRADE AND SIDES OF THE PLANTING HOLE WHEN PLANTING IN CLAY SOILS (MORE THAN 15% CLAY).
 - LIFT AND SET THE TREE BY ROOT BALL ONLY. DO NOT LIFT USING THE TREE TRUNK AND DO NOT USE TREE TRUNK AS A LEVER.
 - SET THE TOP OF THE ROOT BALL LEVEL WITH THE SOIL SURFACE OR SLIGHTLY HIGHER IF THE SOIL IS PRONE TO SETTLING.
 - AFTER THE TREE IS SET IN PLACE, REMOVE BURLAP, WIRE AND STRAPS FROM AT LEAST THE UPPER 1/3 OF THE ROOT BALL.
 - BACKFILL WITH EXISTING SOIL THAT HAS BEEN WELL-TILLED OR BROKEN UP. DO NOT ADD AMENDMENTS TO THE BACKFILL SOIL. AMEND THE SURFACE WITH MULCH.
 - USE THREE 2"x2" WOOD STAKES DRIVEN INTO UNDISTURBED SOIL A MINIMUM OF 16 INCHES. SPACE STAKES EQUALLY AROUND THE TREE.
 - ATTACHED 3/4" NYLON WEBBING TO CONNECT THE TREE TO STAKES. ATTACHED WEBBING AT 1/3 THE TREE HEIGHT.
 - APPLY A 2-3" (SETTLED) DEPTH OF BARK MULCH TO THE PLANTING SURFACE. LEAVE A 2" SPACE AROUND THE TRUNK FOR AIR CIRCULATION.
 - PRUNING SHALL BE LIMITED TO DEAD, DISEASED, OR BROKEN LIMBS ONLY AND SHALL BE IN ACCORDANCE WITH ANSI A300 SPECIFICATIONS.
 - REMOVE ANY TRUNK WRAP REMAINING AT TIME OF PLANTING. NO WRAPS SHALL BE PLACED ON TRUNK.
 - FOR PLANTING RPM TREES ON SLOPES 5% TO 50%, UTILIZE A TECHNIQUE SIMILAR TO PLANTING BALLED AND BURLAPPED TREES ON A SLOPE. THE WIDTH OF THE EXCAVATION SHALL BE 2 TIMES THE WIDTH OF THE CONTAINER. ROOTS WHICH ARE PLIABLE MAY BE ADJUSTED TO ACCOMMODATE THE DESIGNED SLOPE.



6 DECIDUOUS SHRUB PLANTING
NTS



7 SHRUB PLANTING ON SLOPE
NTS

8 TREE PLANTING ON SLOPE
NTS

NO.	DATE	REVISION

PRELIMINARY
NOT FOR CONSTRUCTION

DATE: 31 AUGUST 2020
DESIGNED: L. FRANKE
DRAWN: S. TALBERT
CHECKED: L. FRANKE
HS JOB NO. 1815600
JACOBS JOB NO. 707841CH
SHEET 38 OF 67

DWG: P:\1925\BREM 2 MP Design\11-Cad\Cad\Cad\dwg\1923_L1D-101-104.dwg
 OPERATOR: STALBERT
 PLOT DATE: 8/31/2020 3:08:07 PM
 SAVE DATE: 8/27/2020 9:12:49 PM

LANDSCAPE SCHEDULE

ZONE 1 - CREEK BANK PLANTING				QUANTITY					
COMMON NAME	BOTANICAL NAME	PLANTING RATE	TYPE	LP-101	LP-102	LP-103	LP-104	LP-105	TOTAL
STREAMBANK STABILIZATION SEED MIX - SEE TABLE SHEET LD-104		76 LBS/AC	SQUARE YARDS						
LIVE STAKES									
BUTTONBUSH	CEPHALANTHUS OCCIDENTALIS	2' OC	4' TALL						
SILKY DOGWOOD	CORNUS OBLIQUA	2' OC	4' TALL						
REDOSIER DOGWOOD	CORNUS SERICEA	2' OC	4' TALL						
COMMON NINEBARK	PHYSOCARPUS OPULIFOLIUS	2' OC	4' TALL						
AMERICAN SYCAMORE	PLATANUS OCCIDENTALIS	2' OC	4' TALL						
PEACH LEAVED WILLOW	SALIX AMYGDALOIDES	2' OC	4' TALL						
SANDBAR WILLOW	SALIX EXIGUA SSP. INTERIOR	2' OC	4' TALL						
BLACK WILLOW	SALIX NIGRA	2' OC	4' TALL						

ZONE 2 - CREEK EDGE PLANTING				QUANTITY					
COMMON NAME	BOTANICAL NAME	PLANTING RATE	TYPE	LP-101	LP-102	LP-103	LP-104	LP-105	TOTAL
STREAMBANK STABILIZATION SEED MIX - SEE TABLE SHEET LD-104		76 LBS/AC	SQUARE YARDS						
SHRUBS									
WITCH HAZEL	HAMAMELIS VIRGINIANA	10' OC	3 GAL						
ELDERBERRY	SAMBUCUS CANADENSIS	10' OC	3 GAL						
SPICEBUSH	LINDERA BENZOIN	10' OC	3 GAL						
WINTERBERRY	ILEX VERTICILLATA	10' OC	3 GAL						
GRAY DOGWOOD	CORNUS RACEMOSA	10' OC	3 GAL						
FRAGRANT SUMAC	RHUS AROMATICA	10' OC	3 GAL						
BLACKHAW VIBURNAM	VIBURNUM PRUNIFOLIUM	10' OC	3 GAL						
ROUGH DOGWOOD	CORNUS DRUMMONDII	10' OC	3 GAL						
SHRUBBY ST. JOHN'S WORT	HYPERICUM PROLIFICUM	10' OC	3 GAL						
COMMON NINEBARK	PHYSOCARPUS OPULIFOLIUS	10' OC	3 GAL						
SHENANDOAH SWITCHGRASS	PANICUM VIRGATUM	10' OC	1 GAL						
BUTTERFLY WEED	ASCLEPIAS TUBEROSA	10' OC	1 GAL						
SKY BLUE ASTER	ASTER OBLONGIFOLIUS	10' OC	1 GAL						
LITTLE BLUESTEM	SCHIZACHYRIUM SCOPARIUM	10' OC	1 GAL						
PURPLE PRAIRIE CLOVER	DALEA PURPUREA	10' OC	1 GAL						
SIDE-OATS GRAMA	BOUTELOUA CURTIPENDULA	10' OC	1 GAL						
WHITE WILD INDIGO	BAPTISIA LEUCANTHA (ALBA)	10' OC	1 GAL						
PRAIRIE WILLOW	SALIX HUMILIS	10' OC	1 GAL						
LIVE STAKES									
BUTTONBUSH	CEPHALANTHUS OCCIDENTALIS	2' OC	4' TALL						
SILKY DOGWOOD	CORNUS OBLIQUA	2' OC	4' TALL						
REDOSIER DOGWOOD	CORNUS SERICEA	2' OC	4' TALL						
COMMON NINEBARK	PHYSOCARPUS OPULIFOLIUS	2' OC	4' TALL						
AMERICAN SYCAMORE	PLATANUS OCCIDENTALIS	2' OC	4' TALL						
PEACH LEAVED WILLOW	SALIX AMYGDALOIDES	2' OC	4' TALL						
SANDBAR WILLOW	SALIX EXIGUA SSP. INTERIOR	2' OC	4' TALL						
BLACK WILLOW	SALIX NIGRA	2' OC	4' TALL						

ZONE 3 - FLOOD BENCH TURF SEEDING (INCLUDES BOTH MOWED AND UNMOWED)				QUANTITY					
COMMON NAME	BOTANICAL NAME	PLANTING RATE	TYPE	LP-101	LP-102	LP-103	LP-104	LP-105	TOTAL
SEE TURF SEEDING SPECIFICATIONS									
TREES									
AMERICAN PERSIMMON	DIOSPYROS VIRGINIANA	VARIABLES- SEE PLANS	RPM TREES S3-3 CONSERV. GRADE						
AMERICAN PERSIMMON	DIOSPYROS VIRGINIANA	VARIABLES- SEE PLANS	2" CAL BALL & BURLAP TREE						
RED MAPLE	ACER RUBRUM	VARIABLES- SEE PLANS	RPM TREES S3-3 CONSERV. GRADE						
RED MAPLE	ACER RUBRUM	VARIABLES- SEE PLANS	2" CAL BALL & BURLAP TREE						
WILLOW OAK	QUERCUS PHELLOS	VARIABLES- SEE PLANS	RPM TREES S3-3 CONSERV. GRADE						
WILLOW OAK	QUERCUS PHELLOS	VARIABLES- SEE PLANS	2" CAL BALL & BURLAP TREE						
AMERICAN SYCAMORE	PLATANUS OCCIDENTALIS	VARIABLES- SEE PLANS	RPM TREES S3-3 CONSERV. GRADE						
AMERICAN SYCAMORE	PLATANUS OCCIDENTALIS	VARIABLES- SEE PLANS	2" CAL BALL & BURLAP TREE						
TULIP POPLAR	LIRIODENDRON TULIPIFERA	VARIABLES- SEE PLANS	RPM TREES S3-3 CONSERV. GRADE						
TULIP POPLAR	LIRIODENDRON TULIPIFERA	VARIABLES- SEE PLANS	2" CAL BALL & BURLAP TREE						
BITTERNUT HICKORY	CARYA CORDIFORMIS	VARIABLES- SEE PLANS	RPM TREES S3-3 CONSERV. GRADE						
BITTERNUT HICKORY	CARYA CORDIFORMIS	VARIABLES- SEE PLANS	2" CAL BALL & BURLAP TREE						

NOTE:
PLANT ONLY STREAMBANK STABILIZATION SEED MIX IN REVETMAX AREA - DO NOT PLANT SHRUBS OR LIVE STAKES

DWG: P:\1925\BEM_2_MP_Design\1-Cadd\Cadd\mtdrawing\1925_LLD-101-104.dwg
PLOT DATE: 8/27/2020 9:12:49 PM
OPERATOR: STALBERT



DEER CREEK FLOOD MITIGATION PROJECT - PHASE 2
LANDSCAPE SCHEDULE



P.O. BOX 179279 SAINT LOUIS, MO 63117
314-241-3600 • WWW.PLANNINGDESIGNSTUDIO.COM
DISCIPLINE: LANDSCAPE ARCHITECT
CERTIFICATE OF AUTHORITY: LAC-2006001845
EXPIRATION DATE: DECEMBER 31, 2020

NO.	DATE	REVISION

THE PROFESSIONALS WHOSE SIGNATURES AND SEALS APPEAR HERE, ASSUME RESPONSIBILITY FOR WHAT APPEARS ON THIS SHEET ONLY. ALL OTHER PLANS, SPECIFICATIONS, REPORTS, AND OTHER DOCUMENTS, DESIGN OR REVISIONS BY CONTRACTORS, OWNER OR OTHERS ARE NOT PART OF THE PROJECT FOR WHICH THIS SEAL INDICATES RESPONSIBILITY.

PRELIMINARY
NOT FOR CONSTRUCTION

DATE: 31 AUGUST 2020
DESIGNED: L. FRANKE
DRAWN: S. TALBERT
CHECKED: L. FRANKE
HS JOB NO. 1815600
JACOBS JOB NO. 707841CH
SHEET 39 OF 67

LD-103

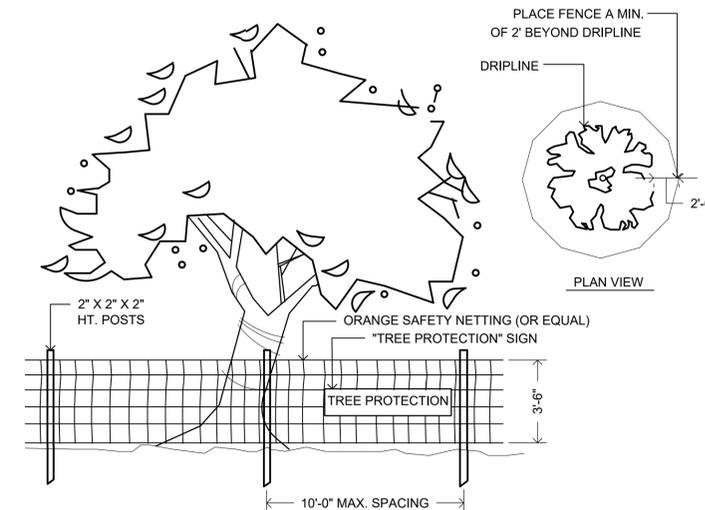
LANDSCAPE SCHEDULE

ZONE 4 - CHANNEL SIDE SLOPE PLANTING				QUANTITY					
COMMON NAME	BOTANICAL NAME	PLANTING RATE	TYPE	LP-101	LP-102	LP-103	LP-104	LP-105	TOTAL
LO PRO MESIC PRAIRIE WITH FLOWERS SEED MIX (SEE TABLE THIS SHEET)		13 LBS/AC	SQUARE YARDS						
SHRUBS									
WITCH HAZEL	HAMAMELIS VIRGINIANA	10' OC	3 GAL						
ELDERBERRY	SAMBUCUS CANADENSIS	10' OC	3 GAL						
SPICEBUSH	LINDERA BENZOIN	10' OC	3 GAL						
WINTERBERRY	ILEX VERTICILLATA	10' OC	3 GAL						
GRAY DOGWOOD	CORNUS RACEMOSA	10' OC	3 GAL						
FRAGRANT SUMAC	RHUS AROMATICA	10' OC	3 GAL						
BLACKHAW VIBURNAM	VIBURNUM PRUNIFOLIUM	10' OC	3 GAL						
ROUGH DOGWOOD	CORNUS DRUMMONDII	10' OC	3 GAL						
SHRUBBY ST. JOHN'S WORT	HYPERICUM PROLIFICUM	10' OC	3 GAL						
COMMON NINEBARK	PHYSOCARPUS OPULIFOLIUS	10' OC	3 GAL						
SHENANDOAH SWITCHGRASS	PANICUM VIRGATUM	10' OC	1 GAL						
BUTTERFLY WEED	ASCLEPIAS TUBEROSA	10' OC	1 GAL						
SKY BLUE ASTER	ASTER OBLONGIFOLIUS	10' OC	1 GAL						
LITTLE BLUESTEM	SCHIZACHYRIUM SCOPARIUM	10' OC	1 GAL						
PURPLE PRAIRIE CLOVER	DALEA PURPUREA	10' OC	1 GAL						
SIDE-OATS GRAMA	BOUTELOUA CURTIPENDULA	10' OC	1 GAL						
WHITE WILD INDIGO	BAPTISIA LEUCANTHA (ALBA)	10' OC	1 GAL						
PRAIRIE WILLOW	SALIX HUMILIS	10' OC	1 GAL						
TREES									
AMERICAN PERSIMMON	DIOSPYROS VIRGINIANA	SEE NOTE	RPM TREES S3-3 CONSERV. GRADE						
AMERICAN PERSIMMON	DIOSPYROS VIRGINIANA	SEE NOTE	2" CAL BALL & BURLAP TREE						
RED MAPLE	ACER RUBRUM	SEE NOTE	RPM TREES S3-3 CONSERV. GRADE						
RED MAPLE	ACER RUBRUM	SEE NOTE	2" CAL BALL & BURLAP TREE						
WILLOW OAK	QUERCUS PHELLOS	SEE NOTE	RPM TREES S3-3 CONSERV. GRADE						
WILLOW OAK	QUERCUS PHELLOS	SEE NOTE	2" CAL BALL & BURLAP TREE						
AMERICAN SYCAMORE	PLATANUS OCCIDENTALIS	SEE NOTE	RPM TREES S3-3 CONSERV. GRADE						
AMERICAN SYCAMORE	PLATANUS OCCIDENTALIS	SEE NOTE	2" CAL BALL & BURLAP TREE						
TULIP POPLAR	LIRIODENDRON TULIPIFERA	SEE NOTE	RPM TREES S3-3 CONSERV. GRADE						
TULIP POPLAR	LIRIODENDRON TULIPIFERA	SEE NOTE	2" CAL BALL & BURLAP TREE						
BITTERNUT HICKORY	CARYA CORDIFORMIS	SEE NOTE	RPM TREES S3-3 CONSERV. GRADE						
BITTERNUT HICKORY	CARYA CORDIFORMIS	SEE NOTE	2" CAL BALL & BURLAP TREE						

STREAMBANK STABILIZATION SEED MIX		
A HEAVY MIX OF BROADER SPECTRUM NATIVE GRASSES, SEDGES, RUSHES, AND FLOWERS PLUS COVER CROP FOR USE WITH NETTING IN STREAM BANK STABILIZATION. FULL SUN. SEED AS NECESSARY FOR EROSION CONTROL, BUT BEST IN SPRING.		
BOTANICAL NAME	COMMON NAME	LB/AC
ALISMA SUBCORDATUM	COMMON WATER PLANTAIN	0.250
ANDROPOGON GERARDII	BIG BLUESTEM	5.000
BOUTELOUA CURTIPENDULA	SIDE OATS GRAMMA	5.000
CAREX VULPINOIDEA	FOX SEDGE	0.500
ELEOCHARIS PALUSTRIS MAJOR (E SMALLI)	MARSH SPIKERUSH	0.125
ELYMUS CANADENSIS	CANADA RYE	8.000
ELYMUS VILLOSUS	SILKY RYE	4.000
ELYMUS VIRGINICUS	VIRGINIA RYE	8.000
GLYCERIA STRIATA	FOWL MANNA GRASS	1.000
HELENIUM AUTUMNALE	SNEEZEWEED	0.125
JUNCUS DUDLEYI	DUDLEY'S RUSH	0.125
LEERSIA ORYZOIDES	RICE CUT GRASS	1.000
PANICUM VIRGATUM	SWITCH GRASS	1.000
SCHIZACHYRIUM SCOPARIUM (ANDROPOGON S)	LITTLE BLUESTEM	5.000
SCHOENOPLECTUS TABERNAEMONTANI (SCIRPUS VALIDUS)	GREAT BULRUSH	0.125
SORGHASTRUM NUTANS	INDIAN GRASS	10.0000
SPARTINA PECTINATA	PRAIRIE CORD GRASS	0.500
SYMPHYOTRICHUM NOVAE-ANGLIAE (ASTER N)	NEW ENGLAND ASTER	0.125
SYMPHYOTRICHUM PILOSUM (ASTER P)	FROST ASTER	0.125
NURSE CROPS		
AGROSTIS GIGANTEA (A ALBA)	RED TOP GRASS	1.000
AVENA SATIVA	SEED OATS	20.000
LOLIUM MULTIFLORUM	ITALIAN RYE	5.000
TOTAL		
TOTAL LESS NURSE CROP (NATIVE MATRIX)		50.000

LO PRO MESIC PRAIRIE WITH FLOWERS MIX		
A SHORTER GRASS, SEDGE, AND FORB MIX FOR AVERAGE TO GOOD SOILS. BEST DORMANT SEEDED.		
BOTANICAL NAME	COMMON NAME	LB/AC
AMORPHA CANESCENS	LEADPLANT	0.063
BAPTISIA LACTEA (B ALBA MACROPHYLLA)	WHITE INDIGO	0.063
BOUTELOUA CURTIPENDULA	SIDE OATS GRAMMA	3.000
CAREX ANNECTENS	YELLOW-FRUITED SEDGE	0.063
CAREX BICKNELLII	BICKNELLS SEDGE	0.125
CAREX BREVIOR	SHORTER SEDGE	0.125
CAREX MOLESTA	FIELD OVAL SEDGE	0.125
CHAMAECRISTA FASCICULATA (CASSIA F)	PARTRIDGE PEA	0.125
DALEA PURPUREA (PETALOSTEMUM P)	PURPLE PRAIRIE CLOVER	0.063
DRYMOCALLIS ARGUTA (POTENTILLA A)	PRAIRIE CINQUEFOIL	0.063
ECHINACEA PALLIDA	PALE PURPLE CONEFLOWER	0.281
ELYMUS CANADENSIS	CANADA RYE	1.000
ELYMUS TRACHYCAULUS (AGROPYRON T)	SLENDER WHEATGRASS	1.000
ERYNGIUM YUCCIFOLIUM	RATTLESNAKE MASTER	0.188
HELIOPSIS HELIANTHOIDES	EARLY SUNFLOWER	0.125
HYPERICUM ASCYRON (H PYRAMIDATUM)	GREAT ST JOHN'SWORT	0.125
LESPEDEZA CAPITATA	ROUNDHEAD BUSHCLOVER	0.125
LIATRIS ASPERA	BUTTON BLAZING STAR	0.125
LIATRIS PYCNOSTACHYA	PRAIRIE BLAZINGSTAR	0.188
MONARDA FISTULOSA	BERGAMONT	0.031
OLIGONEURON RIDDELLII (SOLIDAGO R)	RIDDELLS GOLDENROD	0.125
OLIGONEURON RIGIDUM (SOLIDAGO R)	STIFF GOLDENROD	0.125
PANICUM VIRGATUM	SWITCH GRASS	0.063
PARTHENIUM INTEGRIFOLIUM	WILD QUININE	0.188
PENSTEMON DIGITALIS	FOXGLOVE BEARDTONGUE	0.125
PHYSOSTEGIA VIRGINIANA	FALSE DRAGONHEAD	0.063
PYCNANTHEMUM TENUIFOLIUM	SLENDER MT MINT	0.063
RATIBIDA PINNATA	YELLOW CONEFLOWER	0.125
ROSA BLANDA	EARLY WILD ROSE	0.031
RUDBECKIA HIRTA	BLACKEYED SUSAN	0.500
RUDBECKIA SUBTOMENTOSA	SWEET CONEFLOWER	0.125
SCHIZACHYRIUM SCOPARIUM (ANDROPOGON S)	LITTLE BLUESTEM	3.000
SILPHIUM INTEGRIFOLIUM	ROSWINEED	0.188
SOLIDAGO NEMORALIS	OLDFIELD GOLDENROD	0.125
SPOROBOLUS HETEROLEPIS	PRAIRIE DROPSEED	0.250
SYMPHYOTRICHUM LAEVE (ASTER L)	SMOOTH BLUE ASTER	0.063

SYMPHYOTRICHUM NOVAE-ANGLIAE (ASTER N)	NEW ENGLAND ASTER	0.063
SYMPHYOTRICHUM OOLENTANGIENSE (ASTER AZUREUS)	SKY BLUE ASTER	0.063
TRADESCANTIA OHIENSIS	OHIO SPIDERWORT	0.125
VERBENA STRICTA	HOARY VERVAIN	0.125
VERNONIA FASCICULATA	COMMON IRONWEED	0.188
VERNONIA MISSURICA	MISSOURI IRONWEED	0.063
VERONICASTRUM VIRGINICUM	CULVERS PHYSIC	0.006
TOTAL		12.791
PERMANENT MATRIX		12.791



1 TREE PROTECTION
NTS



DEER CREEK FLOOD MITIGATION PROJECT - PHASE 2

LANDSCAPE SCHEDULE



NO.	DATE	REVISION

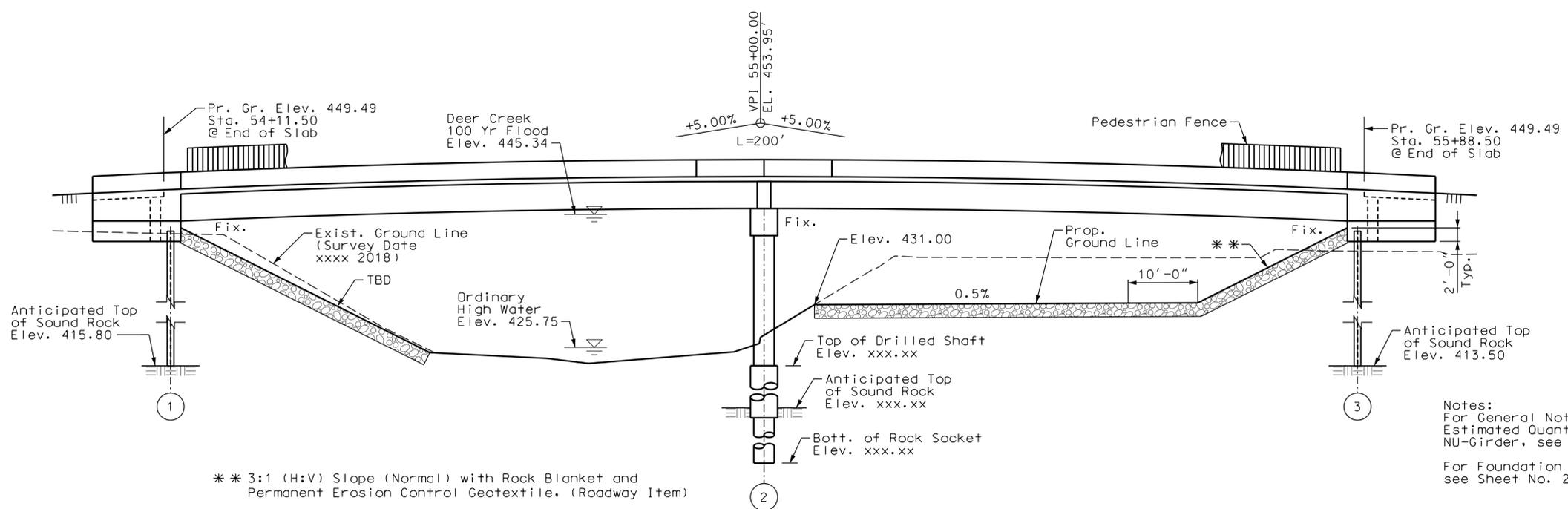
THE PROFESSIONALS WHOSE SIGNATURES AND SEALS APPEAR HERE, ASSUME RESPONSIBILITY FOR WHAT APPEARS ON THIS SHEET ONLY. ALL OTHER PLANS, SPECIFICATIONS, REPORTS, AND OTHER DOCUMENTS, DESIGN OR REVISIONS BY CONTRACTORS, OWNER OR OTHERS ARE NOT PART OF THE PROJECT FOR WHICH THIS SEAL INDICATES RESPONSIBILITY.

PRELIMINARY
NOT FOR CONSTRUCTION

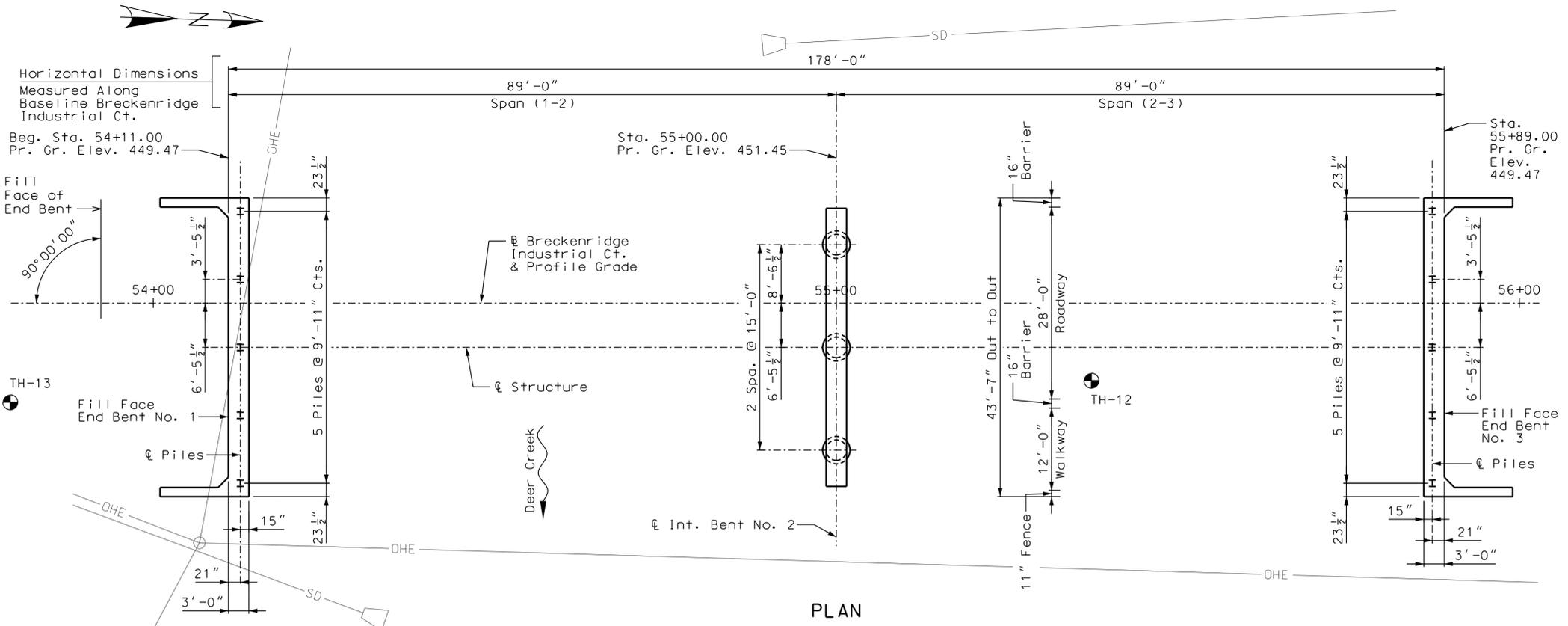
DATE: 31 AUGUST 2020
DESIGNED: L. FRANKE
DRAWN: S. TALBERT
CHECKED: L. FRANKE
HS JOB NO. 1815600
JACOBS JOB NO. 707841CH
SHEET 40 OF 67

LD-104

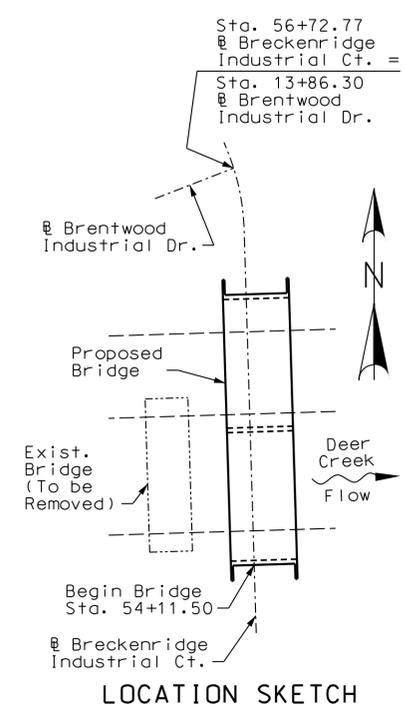
(89.0' - 89.0') PRESTRESSED CONCRETE NU-GIRDER SPANS



ELEVATION



PLAN



LOCATION SKETCH

Note: All bents are perpendicular to the baseline

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 department for the design of the project, are shown on Sheet(s) No. 28 - 29 or will be available from the Project Contact upon written request. No greater significance or weight should be given to the boring data depicted on the plan sheets than is given to the subsurface data available from the city or elsewhere.

The City 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 depicted here or those available from the district, or on any other documentation not expressly warranted, which the contractor may obtain from the Commission.

⊕ Indicates location of borings.

Notes:
For General Notes, Estimated Quantities, Estimated Quantities for Slab on Concrete NU-Girder, see Sheet No. 2
For Foundation Data and Hydrologic Data, see Sheet No. 2

JACOBS ENGINEERING GROUP INC.
531 NORTH BROADWAY
ST. LOUIS, MISSOURI 63102-2131
PHONE: 314-335-4000
CERTIFICATE OF AUTHORITY: 000704
EXPIRATION DATE: DECEMBER 31, 2020

401 S. 18TH ST., STE. 400 SAINT LOUIS, MO 63103-2296
314-531-4321 • FAX 314-531-6966 • WWW.HORNERSHIFRIN.COM
DISCIPLINE: PROFESSIONAL ENGINEERING
CERTIFICATE OF AUTHORITY: 000159
EXPIRATION DATE: DECEMBER 31, 2020

P.O. BOX 179279 SAINT LOUIS, MO 63117
314-241-3600 • WWW.PLANNINGDESIGNSTUDIO.COM
DISCIPLINE: LANDSCAPE ARCHITECT
CERTIFICATE OF AUTHORITY: LAC-2006001845
EXPIRATION DATE: DECEMBER 31, 2020

NO.	DATE	REVISION

PRELIMINARY
NOT FOR
CONSTRUCTION

DATE: 31 AUGUST 2020

DESIGNED: M. MUENKS
DRAWN: M. MEYER
CHECKED: S. HOFFMAN

HS JOB NO. 1815600
JACOBS JOB NO. 707841CH

SHEET 41 OF 67

DWG: C:\Users\schuett\Desktop\Brentwood\BR101\BR101.dwg
 PLOT DATE: 10/16/2018 8:05:14 AM
 OPERATOR: SCHUETT
 SAVE DATE: 4/23/2020 10:27:41 AM

NO.	DATE	REVISION

THE PROFESSIONALS WHOSE SIGNATURES AND SEALS APPEAR HERE, ASSUME RESPONSIBILITY FOR WHAT APPEARS ON THIS SHEET ONLY. ALL OTHER PLANS, SPECIFICATIONS, REPORTS, AND OTHER DOCUMENTS, DESIGN OR REVISIONS BY CONTRACTORS, OWNER OR OTHERS ARE NOT PART OF THE PROJECT FOR WHICH THIS SEAL INDICATES RESPONSIBILITY.

**PRELIMINARY
NOT FOR
CONSTRUCTION**

DATE: 31 AUGUST 2020

 DESIGNED: M. MUENKS
 DRAWN: M. MEYER
 CHECKED: S. HOFFMAN

 HS JOB NO. 1815600
 JACOBS JOB NO. 707841CH

SHEET 42 OF 67

BR-102

Estimated Quantities				
Item		Substr.	Superstr.	Total
Class 1 Excavation	cu. yard	15		15
Removal of Bridges	lump sum			1
Bridge Approach Slab (Minor Road)	sq. yard		194	194
(72") Pedestrian Fence (Structure)	linear foot		177	177
Drilled Shafts (3 ft. 6 in. Dia.)	linear foot	35.3		35.3
Rock Socket (3 ft. 0 in. Dia.)	linear foot	30		30
Video Camera Inspection	each	3		3
Foundation Inspection Holes	linear foot	60		60
Sonic Logging Testing	each	3		3
Galvanized Structural Steel Piles (12in)	linear foot	290		290
Pile Point Reinforcement	each	10		10
Class B Concrete (Substructure)	cu. yard	75.5		75.5
* Safety Barrier Curb (Bridges, Cast-In-Place)	linear foot		354	354
Slab on Concrete NU-Girder	sq. yard		857	857
Prestressed Concrete Members, NU-Girders	linear foot		874	874
Reinforcing Steel (Bridges)	pounds			14,280
Vertical Drain at End Bents	each			2
Plain Neoprene Bearing Pad	each			10
Laminated Neoprene Bearing Pad	each			10

All concrete above the construction joint in the end bents is included in the Estimated Quantities for Slab on Concrete NU-Girder.

All reinforcement in the end bents is included in the Estimated Quantities for Slab on Concrete NU-Girder.

All reinforcement in the intermediate bent concrete diaphragms except reinforcement embedded in the beam cap is included in the Estimated Quantities for Slab on Concrete NU-Girder.

All concrete above the intermediate beam cap is included in the Estimated Quantities for Slab on Concrete NU-Girder.

Cost of L4x4 ASTM A709 Grade 36 HP pile anchors and 3/4-inch diameter ASTM F3125 Grade A325 bolts, complete in place, will be considered completely covered by the contract unit price for Galvanized Structural Steel Piles (12 in.).

* Safety barrier curb shall be cast-in-place option or slip-form option.

Estimated Quantities for Slab on Concrete NU-Girder		
Item		Total
Class B-2 Concrete	cu. yard	261
Reinforcing Steel (Epoxy Coated)	pound	46,980
Reinforcing Steel (Bridges)	pound	5,220

The table of Estimated Quantities for Slab on Concrete NU-Girder represents the quantities used by the County in preparing the cost estimate for concrete slabs. The area of the concrete slab will be measured to the nearest square yard longitudinally from end of slab to end of slab and transversely from out to out of bridge slab (or with the horizontal dimensions as shown on the plan of slab). Payment for Stay-in-place corrugated steel forms, conventional forms, all concrete, and epoxy coated reinforcing steel will be considered completely covered by the contract unit price for the slab. Variations may be encountered in the estimated quantities but the variations cannot be used for an adjustment in the contract unit price.

Method of forming the slab shall be as shown on the plans and in accordance with Sec 703. All hardware for forming the slab to be left in place as a permanent part of the structure shall be coated in accordance with ASTM A123 or ASTM B633 with a thickness class SC 4 and a finish type I, II or III.

Slab shall be cast-in-place with conventional forms or stay-in-place corrugated steel forms. Precast prestressed panels will not be permitted.

GENERAL NOTES:
Design Specifications:

2014 - AASHTO LRFD Bridge Design Specifications (7th ed.)
 2011 - AASHTO Guide Specifications for LRFD Seismic Bridge Design (2nd Ed.) and 2014 Interim Revisions (Seismic Details)
 Seismic Design Category = (LRFD Zone 2)
 Design earthquake response spectral acceleration coefficient at 1.0 second period, SD1 = 0.296
 Acceleration Coefficient (effective peak ground acceleration coefficient), As = 0.296

Design Loading:

HL-93
 75#/Sq. Ft. Pedestrian
 75#/Sq. Ft. Future Wearing Surface
 Earth 120 #/Cu. Ft.
 Equivalent Fluid Pressure 45#/Cu. Ft.
 Superstructure: Simply supported, non composite for dead load, composite for live load.

Design Unit Stresses:

Class B Concrete (Substructure, Except Drilled Shafts and Rock Sockets) f'c = 3,000 psi
 Class B-2 Concrete (Drilled Shafts & Rock Sockets) f'c = 4,000 psi
 Class B-2 Concrete (Superstructure except prestressed girders and safety barrier curb) f'c = 4,000 psi
 Class B-1 Concrete (Safety Barrier Curb) f'c = 4,000 psi
 Reinforcing Steel (Grade 60) fy = 60,000 psi
 Steel HP Pile (ASTM A709 Grade 50) fy = 50,000 psi
 For Prestressed Girder Stresses see Sheet No. 16.

Neoprene Pads:

Plain Neoprene Bearing Pads shall be 60 Durometer and shall be in accordance with Sec. 716

Joint Filler:

All joint filler shall be in accordance with Sec 1057 for preformed spong rubber expansion and partition joint filler, except as noted.

Reinforcing Steel:

Minimum clearance to reinforcing steel shall be 1 1/2", unless otherwise shown.
 Minimum clearance between galvanized piles and uncoated (plain) reinforcing steel including bar supports shall be 1 1/2".
 Nylon, PVC, or polyethylene spacers shall be used to maintain clearance. Nylon cable ties shall be used to bind the spacers to the reinforcement.

Traffic Handling:

Structure to be closed during construction. Traffic to be maintained on existing structure during construction. See roadway plans for traffic control

Concrete Protective Coatings:

Sacrificial graffiti protective coating shall be applied on all exposed concrete surfaces at End Bent 3 in accordance with Sec 711.

Miscellaneous:

Remove existing Bridge in accordance with Sec. 2166.

Stay-In-Place Forms:

Corrugated steel forms, supports, closure elements and accessories shall be in accordance with grade requirement and coating designation G165 of ASTM A653. Complete shop drawings of the permanent steel deck forms shall be required in accordance with Sec 1080.

Corrugations of stay-in-place forms shall be filled with an expanded polystyrene material. The polystyrene material shall be placed in the forms with an adhesive in accordance with the manufacturer's recommendations.

Form sheets shall not rest directly on the top of girder flanges. Sheets shall be securely fastened to form supports with a minimum bearing length of one inch on each end. Form supports shall be placed in direct contact with the flange. Welding on or drilling holes in the girder flanges will not be permitted. All steel fabrication and construction shall be in accordance with Secs 1080 and 712. Certified field welders will not be required for welding of the form supports.

The design of stay-in-place corrugated steel forms is per manufacturer which shall be in accordance with Sec 703 for false work and forms. Maximum actual weight of corrugated steel forms allowed shall be 4 psf assumed for girder loading.

**DEER CREEK FLOOD MITIGATION
PROJECT - PHASE 2**

**GENERAL NOTES AND
ESTIMATED QUANTITIES**

Foundation Data				
Type	Design Data	Bent Number		
		1	2	3
Load Bearing Pile	Pile Type and Size	HP 10x42		HP 10x42
	Number	ea 5		5
	Approximate Length per Each	ft xx		xx
	Pile Point Reinforcement	ea All		All
	Min. Galvanized Penetration (Elev.)	ft 415.8		413.50
	Min. Tip Penetration (Elev.)	ft 415.8		413.50
	Criteria for Min. Tip Penetration	Min. Embed.		Min. Embed.
	Pile Driving Verification Method	DF		DF
	Resistance Factor	0.65		0.65
	Min. Nominal Axial Compressive Resistance	kip xxx		xxx
Rock Socket	Number	ea	3	
	Foundation Material		Rock	
	Elevation Range	ft	xxx-xxx	
	Minimum Nominal Axial Compressive Resistance (Side Resistance)	ksf	xx.x	
	Foundation Material		Rock	
	Elevation Range	ft	xxx-xxx	
	Minimum Nominal Axial Compressive Resistance (Side Resistance)	ksf	xx.x	
	Minimum Nominal Axial Compressive Resistance (Tip Resistance)	ksf	xx.x	

DF = FHWA-modified Gates Dynamic Formula

Load Bearing Piles:
 Minimum Nominal Axial Compressive Resistance = Maximum Factored Loads/Resistance Factor

Manufactured pile point reinforcement shall be used on all piles in this structure.

All piles shall be driven to practical refusal.

Prebore for piles at End Bents No. 1 and 2 to elevations xxx.xx and xxx.xx respectively.

All piles shall be galvanized down to the minimum galvanized penetration (elevation).

Pile Point reinforcing need not to be galvanized. Shop drawings will not be required for pile point reinforcement.

Rock Socket (Drilled Shafts):
 Minimum Nominal Axial Compressive Resistance (Side + Tip Resistance) = Maximum Factored Loads/Resistance Factor

Sonic logging testing shall be performed on all drilled shafts and rock sockets.

Hydrologic Data	
Drainage Area =	26.36 mi ²
Base Flood Elevation =	445.34 ft
Base Flood Discharge =	13,400 cfs
Average Velocity thru Opening =	4.2 ft/sec
Estimated Backwater =	0.49 ft
No roadway overtopping during base flood	



JACOBS ENGINEERING GROUP INC.
 5311 NORTH BROADWAY
 ST. LOUIS, MISSOURI 63102-2131
 PHONE: 314-335-4000
 CERTIFICATE OF AUTHORITY: 000704
 EXPIRATION DATE: DECEMBER 31, 2020



401 S. 18TH ST., STE. 400 SAINT LOUIS, MO 63103-2296
 314-531-4321 • FAX 314-531-6966 • WWW.HORNERSHIFRIN.COM
 DISCIPLINE: PROFESSIONAL ENGINEERING
 CERTIFICATE OF AUTHORITY: 000159
 EXPIRATION DATE: DECEMBER 31, 2020



P.O. BOX 179279 SAINT LOUIS, MO 63117
 314-241-3600 • WWW.PLANNINGDESIGNSTUDIO.COM
 DISCIPLINE: LANDSCAPE ARCHITECT
 CERTIFICATE OF AUTHORITY: LAC-2006001845
 EXPIRATION DATE: DECEMBER 31, 2020

NO.	DATE	REVISION

THE PROFESSIONALS WHOSE SIGNATURES AND SEALS APPEAR HERE, ASSUME RESPONSIBILITY FOR WHAT APPEARS ON THIS SHEET ONLY. ALL OTHER PLANS, SPECIFICATIONS, REPORTS, AND OTHER DOCUMENTS, DESIGN OR REVISIONS BY CONTRACTORS, OWNER OR OTHERS ARE NOT PART OF THE PROJECT FOR WHICH THIS SEAL INDICATES RESPONSIBILITY.

**PRELIMINARY
NOT FOR
CONSTRUCTION**

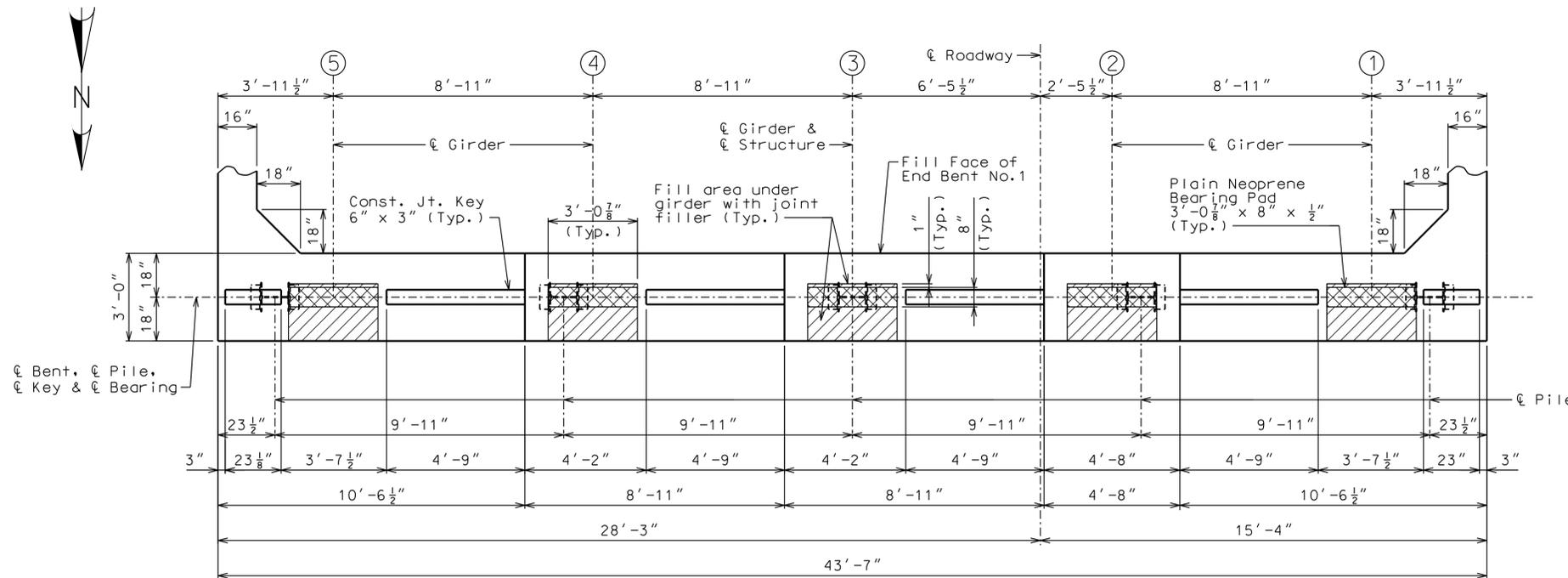
DATE: 31 AUGUST 2020

DESIGNED: M. MUENKS
 DRAWN: M. MEYER
 CHECKED: S. HOFFMAN

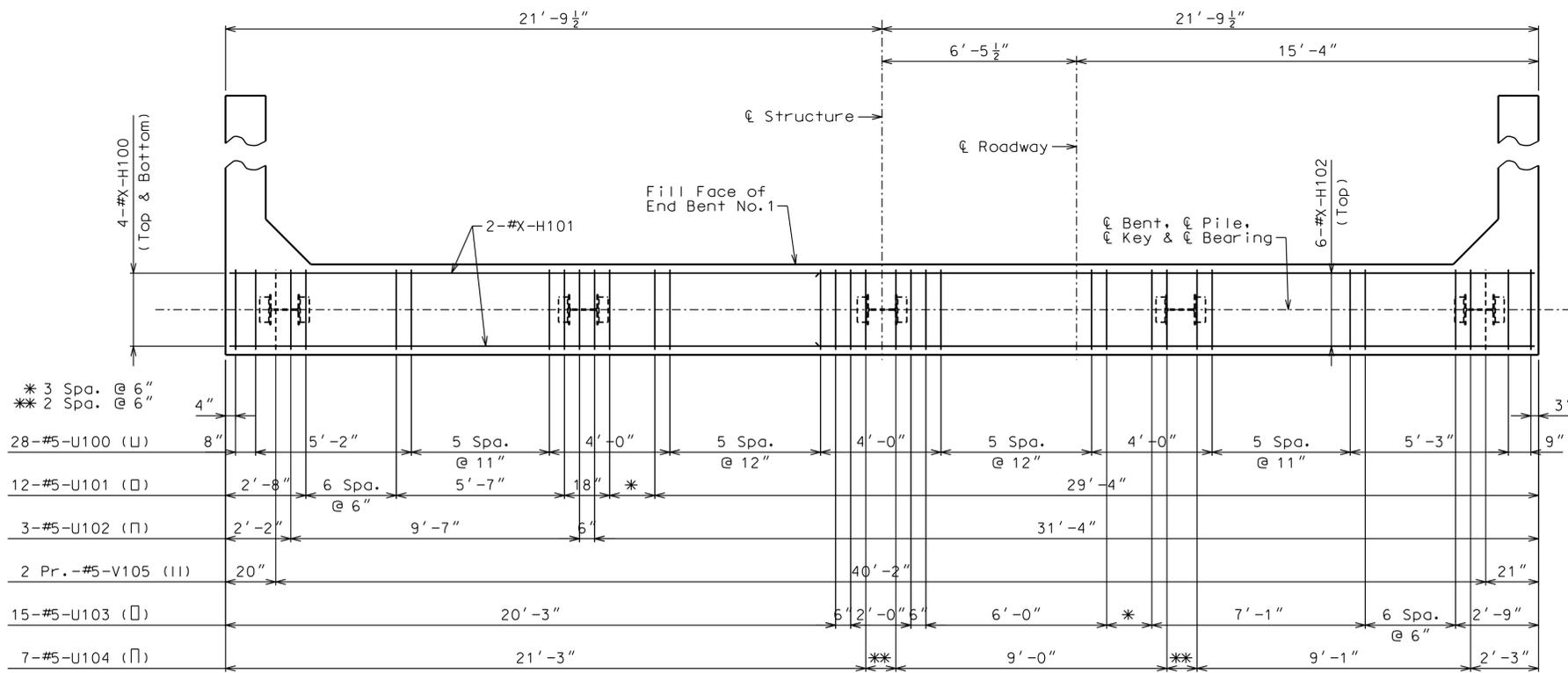
HS JOB NO. 1815600
 JACOBS JOB NO. 707841CH

SHEET 43 OF 67

BR-103

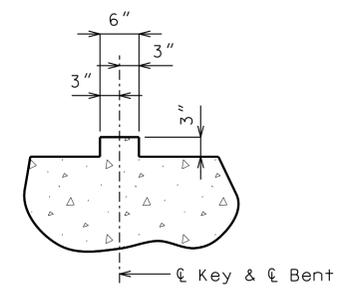


PART PLAN OF BEAM SHOWING DIMENSIONS

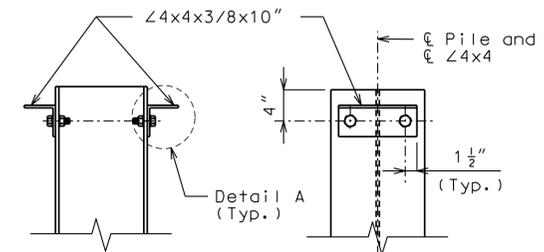


PART PLAN OF BEAM SHOWING REINFORCEMENT

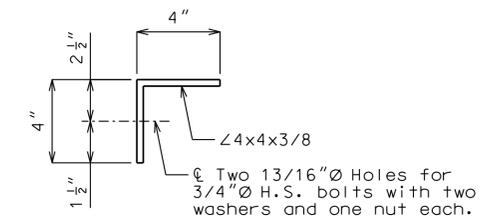
Note: Keys, steps not shown for clarity.



SECTION THRU KEY

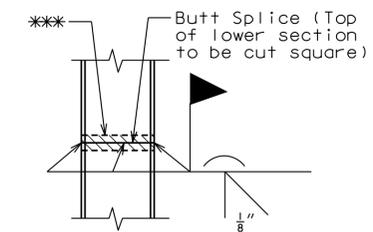


DETAILS OF HP PILE ANCHORS



DETAIL A

Galvanizing 4x4, 3/4" diameter high strength bolts, washers and nuts will not be required.



STEEL PILE SPLICE (If required)

Galvanizing material shall be omitted or removed 1 inch clear of weld locations in accordance with Sec 702.

- Notes:
- All U-bars and Pr. V-bars shall be placed parallel to Centerline Roadway.
 - Reinforcing steel shall be shifted to clear piles. U bars shall clear piles by at least 1 1/2".
 - For details of End Bent No. 1 not shown, see Sheets No. xx & xx.
 - For Substructure Quantity Table for Bent No. 1 see Sheet No. x.
 - For details of Vertical Drain at End Bents, see Sheet No. xx.
 - For details of Bridge Approach Slab, see Sheet No. xx.

Jacobs
JACOBS ENGINEERING GROUP INC.
531 NORTH BROADWAY
ST. LOUIS, MISSOURI 63102-2131
PHONE: 314-335-4000
CERTIFICATE OF AUTHORITY: 000704
EXPIRATION DATE: DECEMBER 31, 2020

HORNER SHIFRIN
401 S. 18TH ST., STE. 400 SAINT LOUIS, MO 63103-2296
314-531-4321 • FAX 314-531-6966 • WWW.HORNERSHIFRIN.COM
DISCIPLINE: PROFESSIONAL ENGINEERING
CERTIFICATE OF AUTHORITY: 000159
EXPIRATION DATE: DECEMBER 31, 2020

PDS
Planning Design Studio
P.O. BOX 179279 SAINT LOUIS, MO 63117
314-241-3600 • WWW.PLANNINGDESIGNSTUDIO.COM
DISCIPLINE: LANDSCAPE ARCHITECT
CERTIFICATE OF AUTHORITY: LAC-2006001845
EXPIRATION DATE: DECEMBER 31, 2020

NO.	DATE	REVISION

PRELIMINARY
NOT FOR
CONSTRUCTION

DATE:	31 AUGUST 2020
DESIGNED:	M. MUENKS
DRAWN:	M. MEYER
CHECKED:	S. HOFFMAN
HS JOB NO.	1815600
JACOBS JOB NO.	707841CH
SHEET	44 OF 67

DWG: C:\Users\schuie\Desktop\BentDetail\F3W92600-GR5-TB.dwg
 PLOT DATE: 4/29/20 10:27:41 AM
 OPERATOR: SCHUETD
 10/16/2018 8:05:14 AM

NO.	DATE	REVISION

THE PROFESSIONALS WHOSE SIGNATURES AND SEALS APPEAR HERE, ASSUME RESPONSIBILITY FOR WHAT APPEARS ON THIS SHEET ONLY. ALL OTHER PLANS, SPECIFICATIONS, REPORTS, AND OTHER DOCUMENTS, DESIGN OR REVISIONS BY CONTRACTORS, OWNER OR OTHERS ARE NOT PART OF THE PROJECT FOR WHICH THIS SEAL INDICATES RESPONSIBILITY.

PRELIMINARY
NOT FOR
CONSTRUCTION

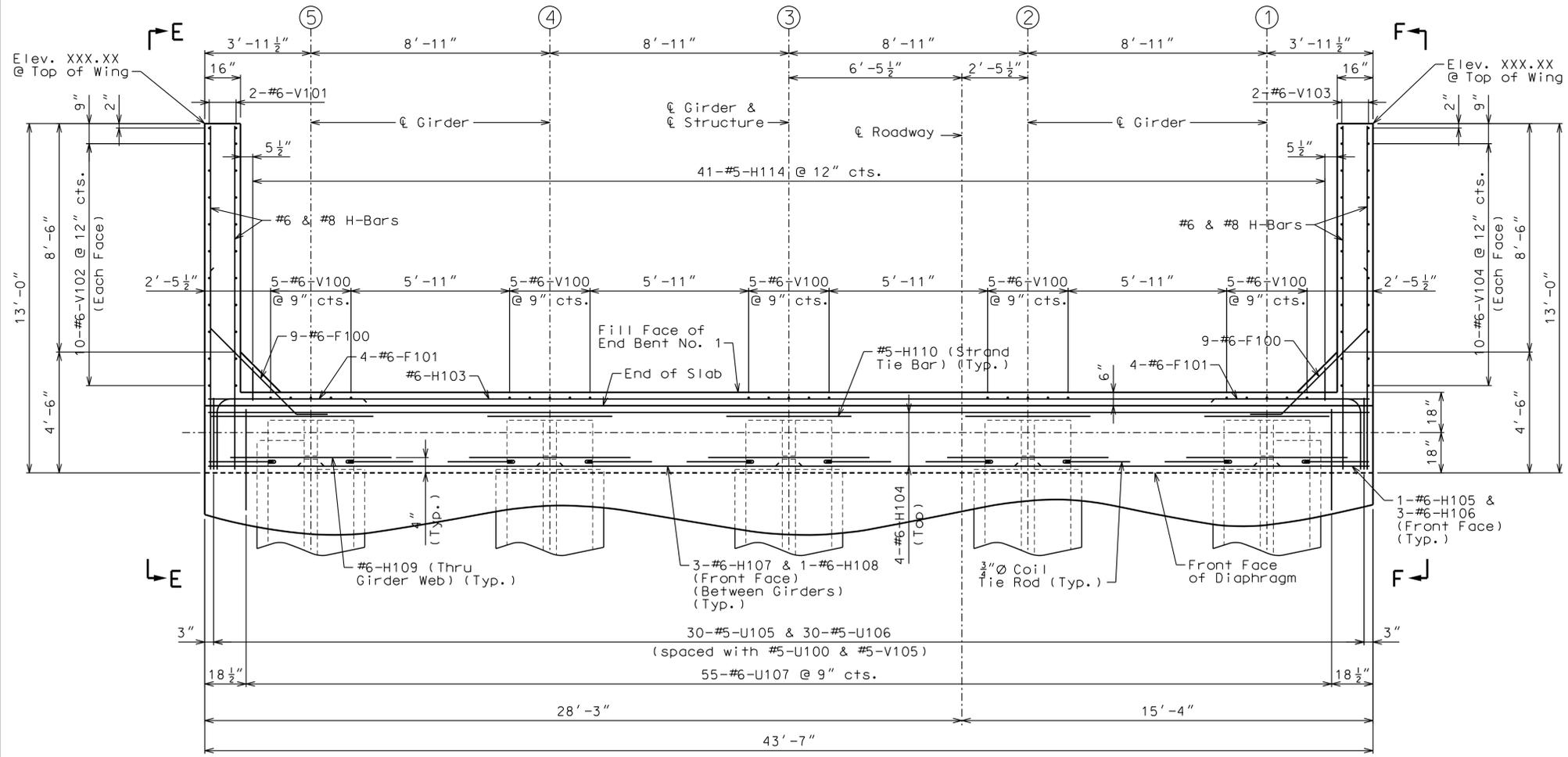
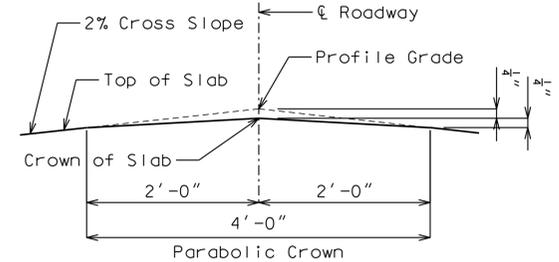
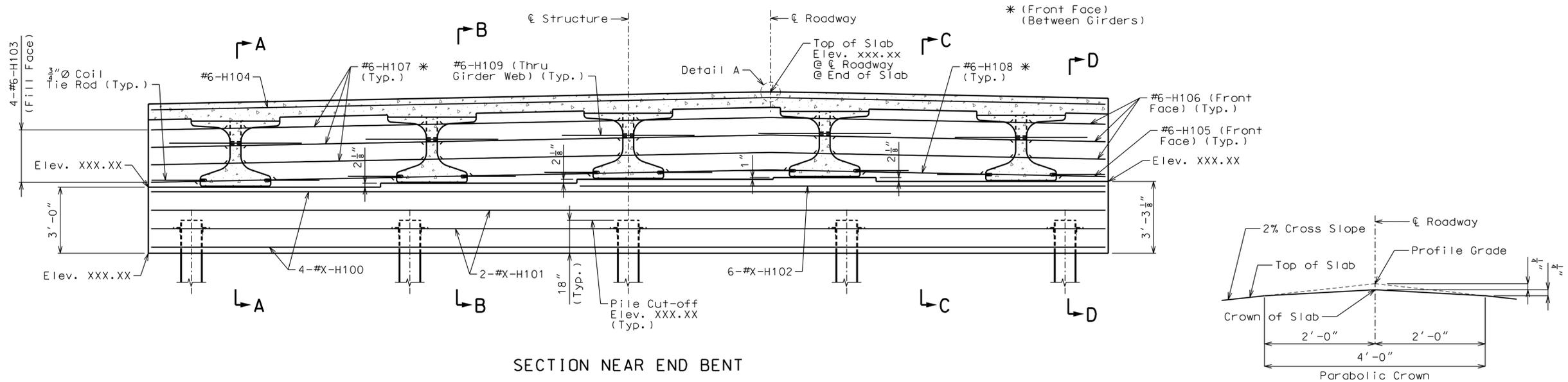
DATE: 31 AUGUST 2020

DESIGNED: M. MUENKS
DRAWN: M. MEYER
CHECKED: S. HOFFMAN

HS JOB NO. 1815600
JACOBS JOB NO. 707841CH

SHEET 45 OF 67

BR-105



Notes:

All concrete in the End Bent above top of beam and below top of slab shall be Class B-2.

Bend F100 bars in field to clear Prestressed Girders.

Strands at end of girders shall be field bent or, if necessary, cut in field to maintain 1 1/2" minimum clearance to fill face of end bent.

For location of Coil Tie Rods & Strand Tie Bar, see Sheet Nos. x & x.

For details of End Bent No. 1 not shown, see Sheet Nos. x.

For Elevations E-E & F-F, Sections A-A, B-B, C-C & D-D, and Section Thru Wing, see Sheet No. x.

For notes on HP piles, see Foundation Data Table on Sheet No. x.

Substructure Quantity Table for Bent No. 1

Item	Quantity
Class 1 Excavation	cu. yard 15
Galvanized Structural Steel Pile (12 in.)	linear foot 150
Pre-Bore for Piling	linear foot 150
Pile Point Reinforcement	each 5
Class B Concrete (Substructure)	cu. yard 17.5
Reinforcing Steel (Bridges)	pound 2,100

These quantities are included in the Estimated Quantities table on Sheet No. _.

DWG: C:\Users\schuie\Desktop\BentDetail\F3W92600-GR5-TR.dwg
 PLOT DATE: 10/16/2018 8:05:14 AM
 SAVE DATE: 4/29/2020 10:27:41 AM
 OPERATOR: SCHUETD

NO.	DATE	REVISION

THE PROFESSIONALS WHOSE SIGNATURES AND SEALS APPEAR HERE, ASSUME RESPONSIBILITY FOR WHAT APPEARS ON THIS SHEET ONLY. ALL OTHER PLANS, SPECIFICATIONS, REPORTS, AND OTHER DOCUMENTS, DESIGN OR REVISIONS BY CONTRACTORS, OWNER OR OTHERS ARE NOT PART OF THE PROJECT FOR WHICH THIS SEAL INDICATES RESPONSIBILITY.

PRELIMINARY
NOT FOR
CONSTRUCTION

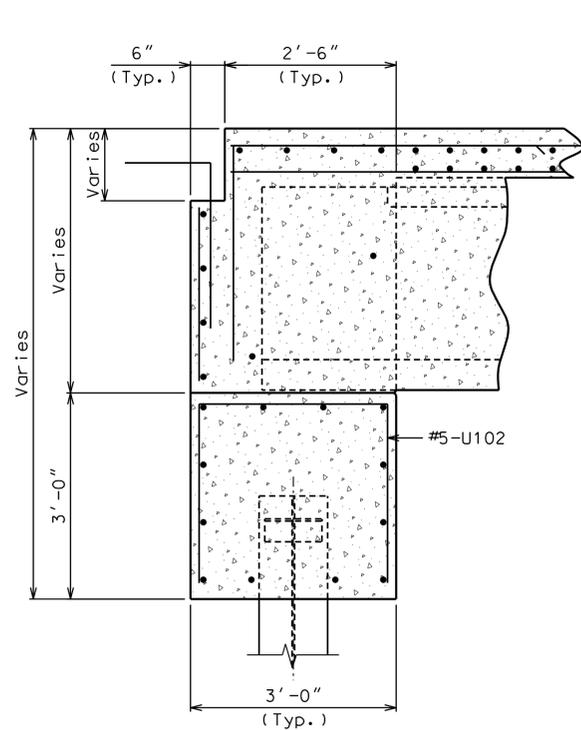
DATE: 31 AUGUST 2020

DESIGNED: M. MUENKS
DRAWN: M. MEYER
CHECKED: S. HOFFMAN

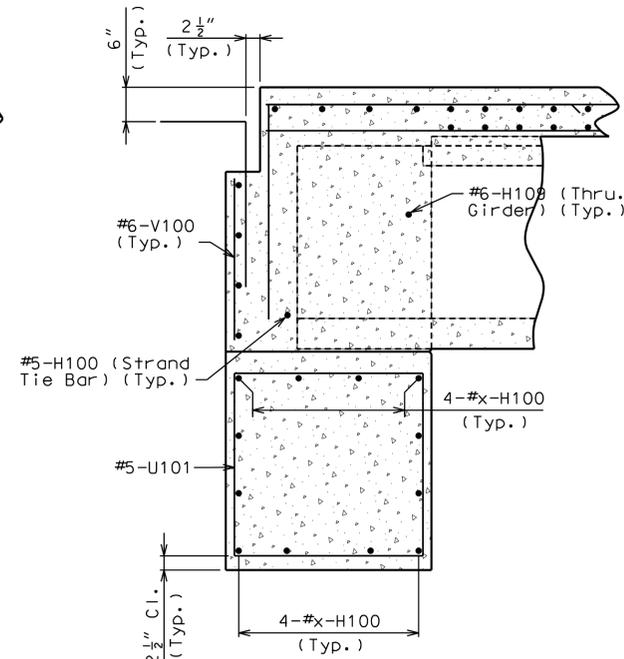
HS JOB NO. 1815600
JACOBS JOB NO. 707841CH

SHEET 46 OF 67

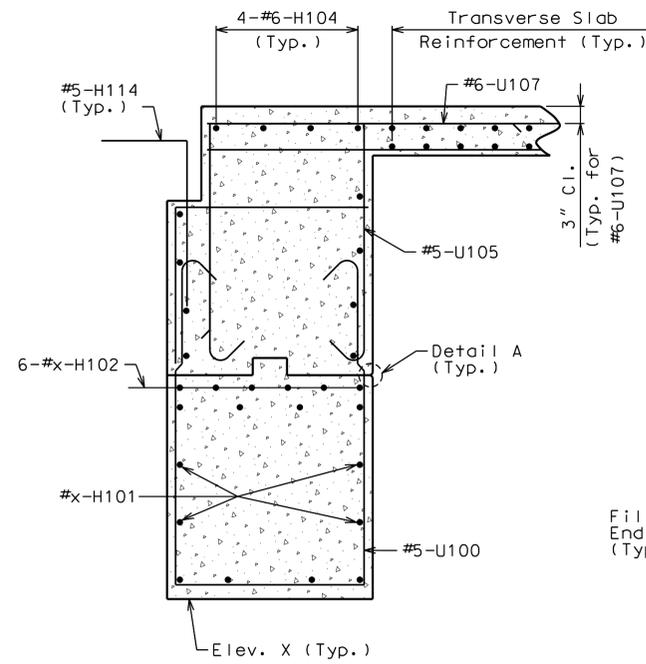
BR-106



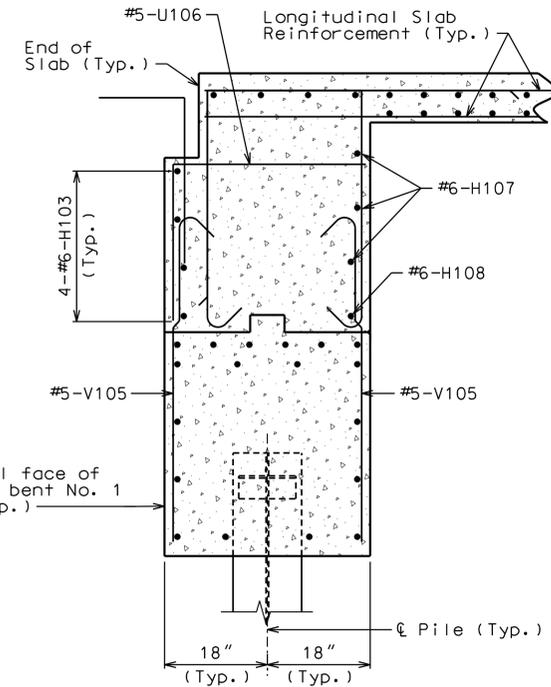
SECTION A-A



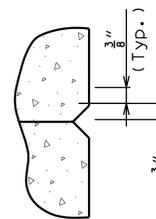
SECTION B-B



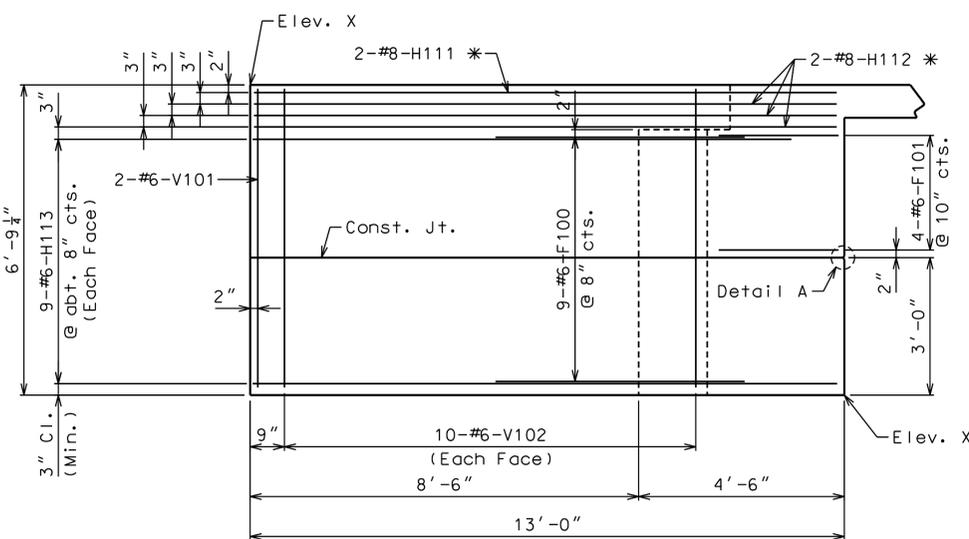
SECTION C-C



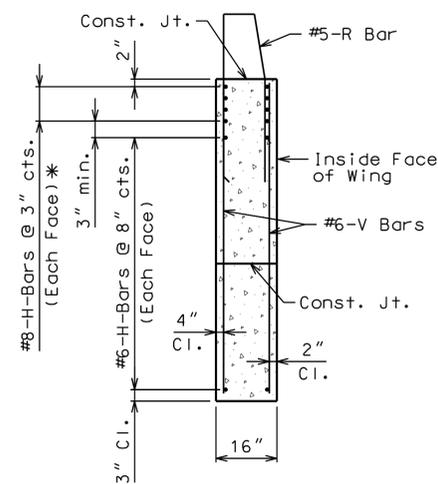
SECTION D-D



DETAIL A

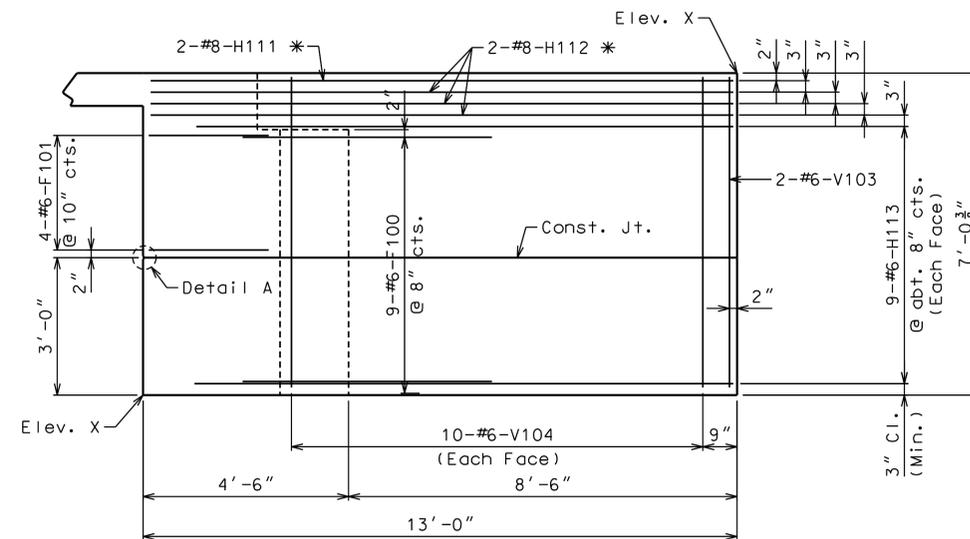


ELEVATION D-D



TYPICAL SECTION THRU WING

* Placed with Grade



ELEVATION E-E

Note:

For reinforcement of Safety barrier curb, see Sheet No. x.

NO.	DATE	REVISION

THE PROFESSIONALS WHOSE SIGNATURES AND SEALS APPEAR HERE, ASSUME RESPONSIBILITY FOR WHAT APPEARS ON THIS SHEET ONLY. ALL OTHER PLANS, SPECIFICATIONS, REPORTS, AND OTHER DOCUMENTS, DESIGN OR REVISIONS BY CONTRACTORS, OWNER OR OTHERS ARE NOT PART OF THE PROJECT FOR WHICH THIS SEAL INDICATES RESPONSIBILITY.

**PRELIMINARY
NOT FOR
CONSTRUCTION**

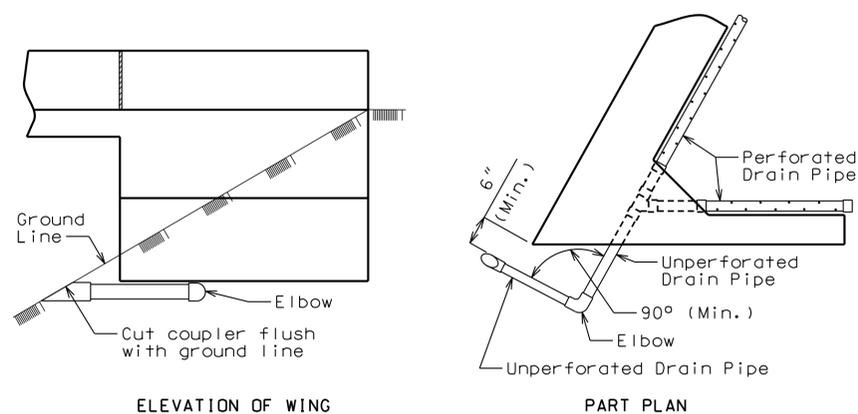
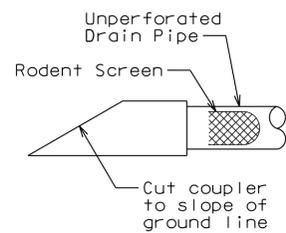
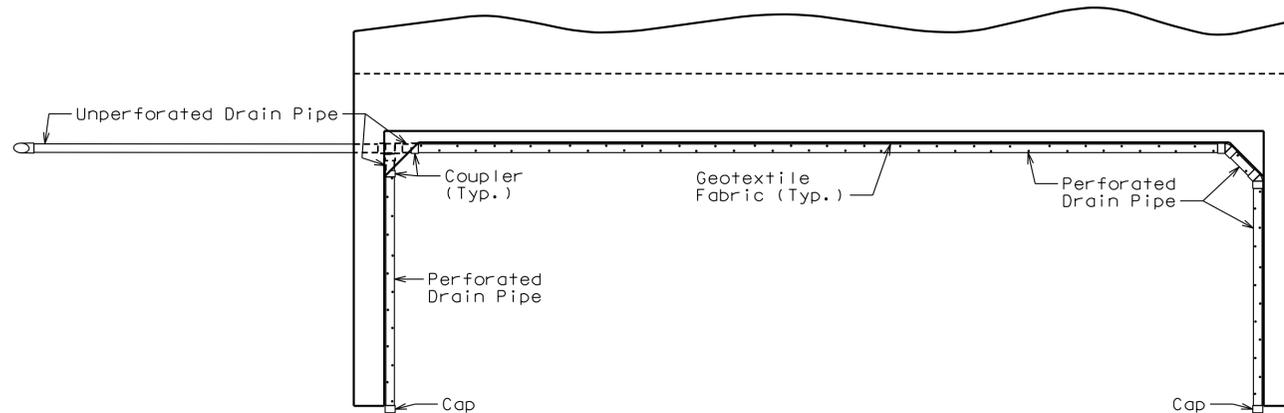
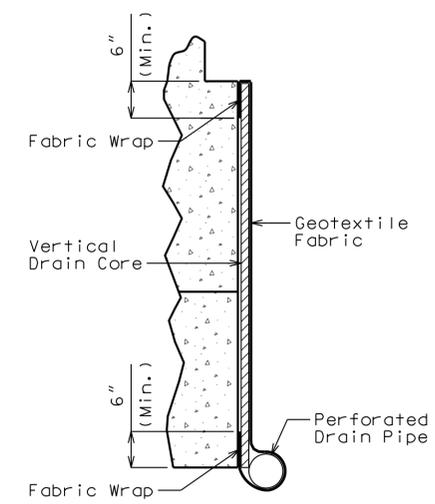
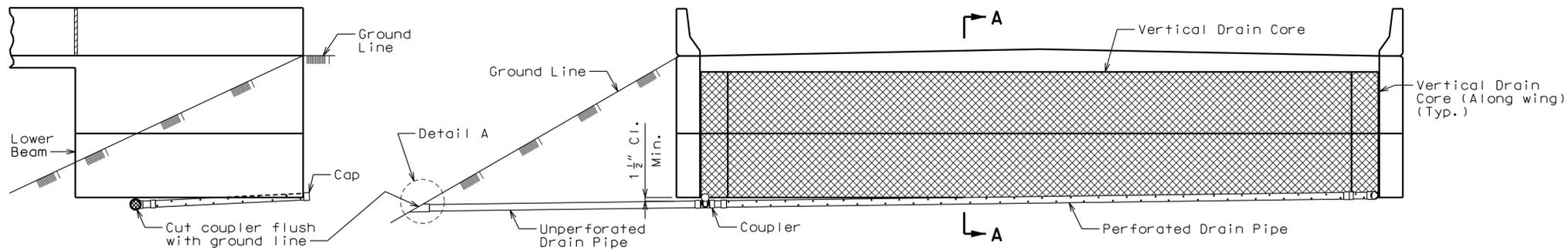
DATE: 31 AUGUST 2020

DESIGNED: M. MUENKS
DRAWN: M. MEYER
CHECKED: S. HOFFMAN

HS JOB NO. 1815600
JACOBS JOB NO. 707841CH

SHEET 47 OF 67

BR-107



OPTIONAL TURNED DRAIN
(Only if rock is encountered outside of wing)

General Notes:

All drain pipe shall be sloped 1 to 2 percent.

Drain pipe may be either 6-inch diameter corrugated metallic-coated steel pipe underdrain, 4-inch diameter corrugated polyvinyl chloride (PVC) drain pipe, or 4-inch diameter corrugated polyethylene (PE) drain pipe.

Drain pipe shall be placed at fill face of end bent and inside face of wings. The pipe shall slope to lowest grade of ground line, also missing the lower beam of end bent by a minimum of 1 1/2 inches.

Perforated pipe shall be placed at fill face side and inside face of wings at the bottom of end bent and plain pipe shall be used where the vertical drain ends to the exit at ground line.

DEER CREEK FLOOD MITIGATION
PROJECT - PHASE 2

DETAILS OF INTERMEDIATE
BENT NO. 2

Jacobs

JACOBS ENGINEERING GROUP INC.
5511 NORTH BROADWAY
ST. LOUIS, MISSOURI 63102-2131
PHONE: 314-335-4000
CERTIFICATE OF AUTHORITY: 000704
EXPIRATION DATE: DECEMBER 31, 2020

HORNER SHIFRIN

401 S. 18TH ST., STE. 400 SAINT LOUIS, MO 63103-2296
314-531-4321 • FAX 314-531-6966 • WWW.HORNERSHIFRIN.COM
DISCIPLINE: PROFESSIONAL ENGINEERING
CERTIFICATE OF AUTHORITY: 000159
EXPIRATION DATE: DECEMBER 31, 2020

PDS
Planning Design Studio

P.O. BOX 179279 SAINT LOUIS, MO 63117
314-241-3600 • WWW.PLANNINGDESIGNSTUDIO.COM
DISCIPLINE: LANDSCAPE ARCHITECT
CERTIFICATE OF AUTHORITY: LAC-2006001845
EXPIRATION DATE: DECEMBER 31, 2020

NO.	DATE	REVISION

PRELIMINARY
NOT FOR
CONSTRUCTION

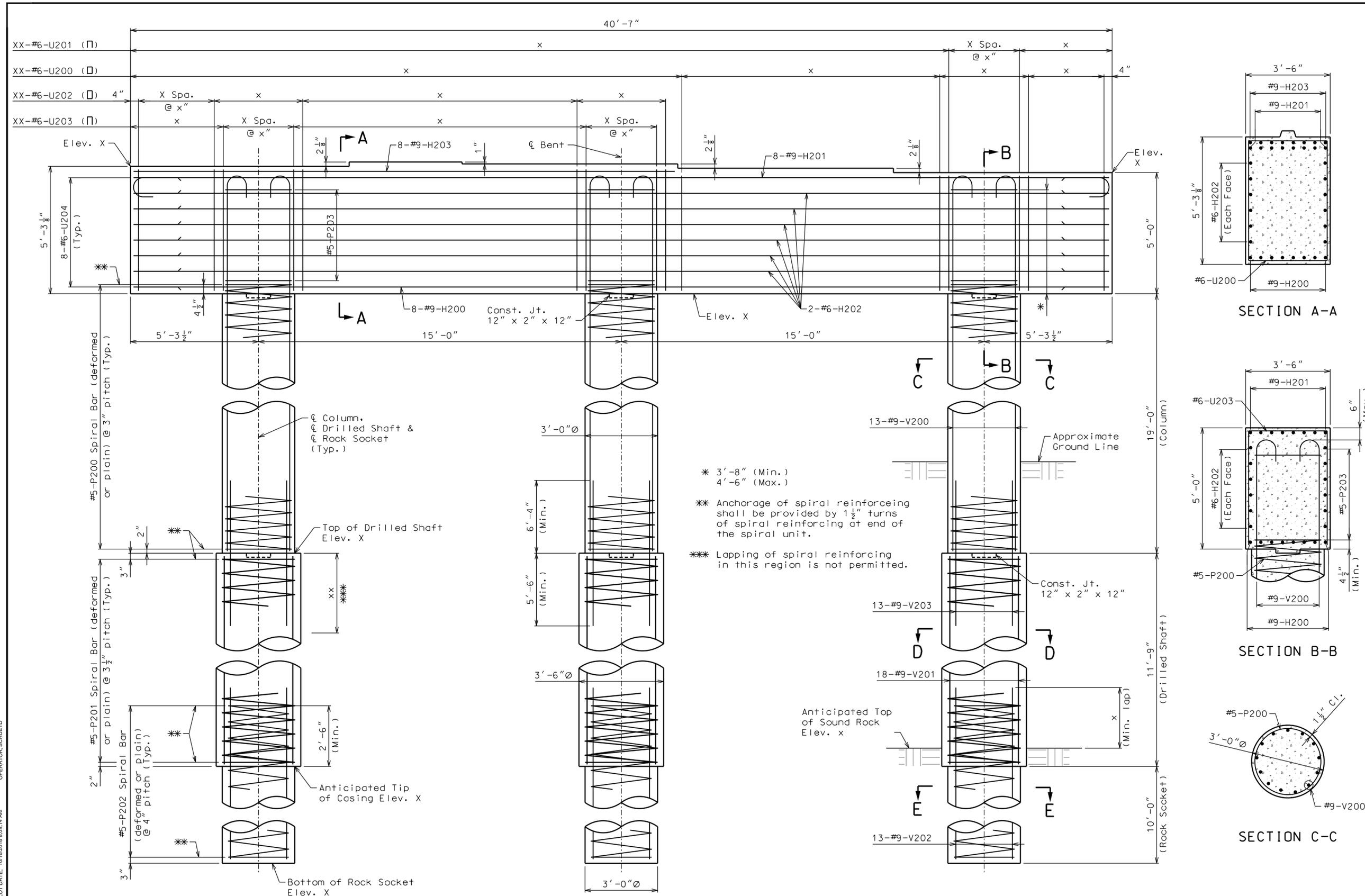
DATE: 31 AUGUST 2020

DESIGNED: M. MUENKS
DRAWN: M. MEYER
CHECKED: S. HOFFMAN

HS JOB NO. 1815600
JACOBS JOB NO. 707841CH

SHEET 48 OF 67

BR-108



ELEVATION

Note: Keys on beam not shown for clarity.

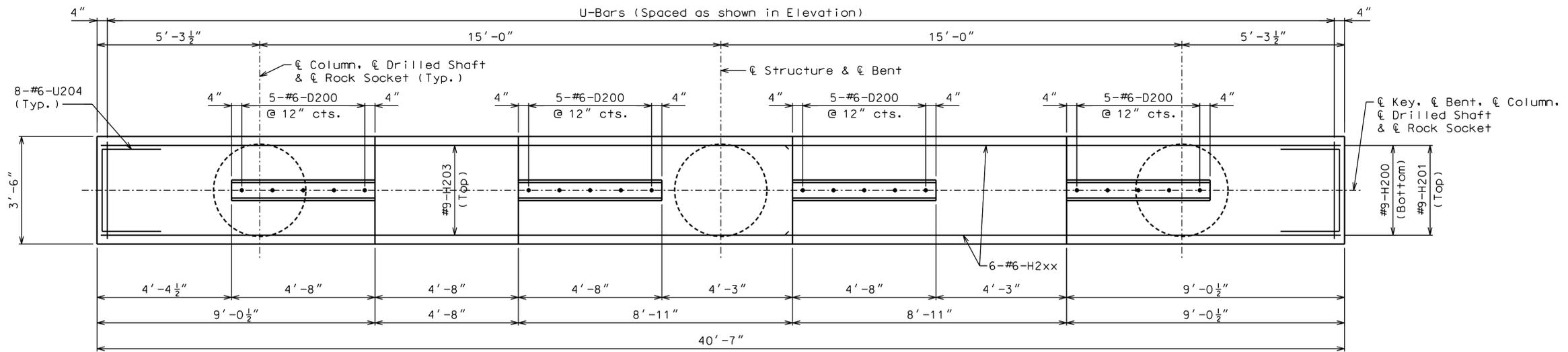
- * 3'-8" (Min.)
4'-6" (Max.)
- * Anchorage of spiral reinforcing shall be provided by 1½ turns of spiral reinforcing at end of the spiral unit.
- ** Lapping of spiral reinforcing in this region is not permitted.

Notes:

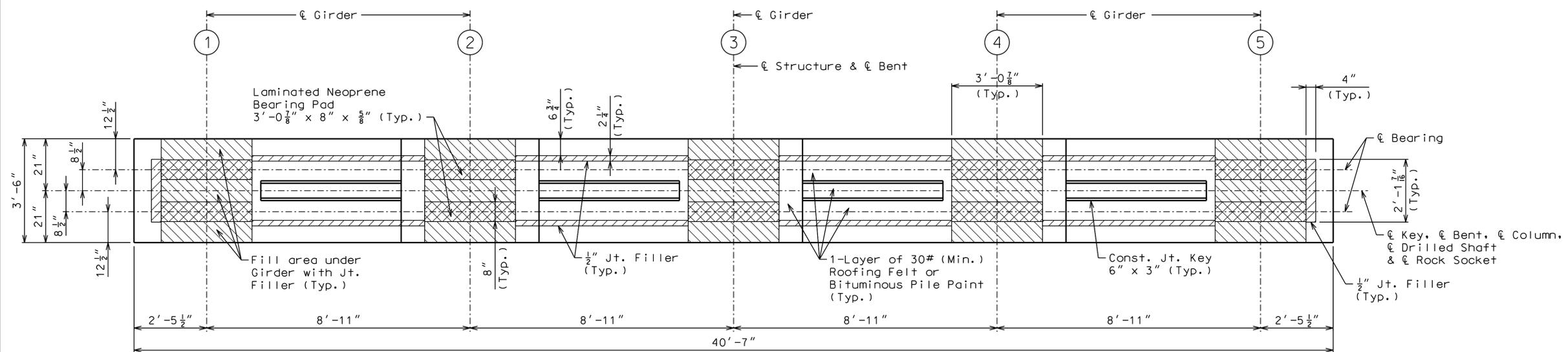
For steps 2" or more, use 2¼" x ½" joint filler up vertical face.

For details & sections of Intermediate Bent No. 2 not shown, see Sheet No. xx.

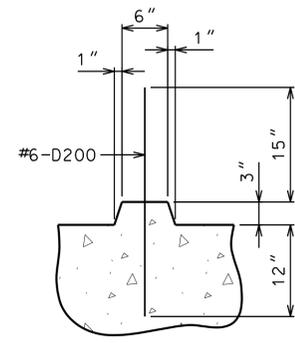
DWG: C:\Users\schuie\OneDrive\BentDetail\F3W92600-GR6-T6.dwg
 PLOT DATE: 4/29/2020 10:27:41 AM
 OPERATOR: SCHUIED



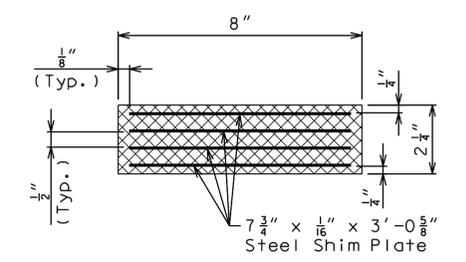
PLAN OF BEAM SHOWING REINFORCEMENT



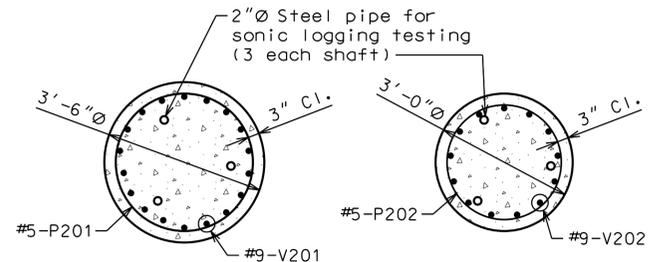
PLAN OF BEAM



SECTION THRU KEY



TYPICAL SECTION THRU LAMINATED NEOPRENE BEARING PAD 3'-0 7/8" X 8" X 2 1/2"
10 required



SECTION D-D

SECTION E-E

Substructure Quantity Table for Bent No. 2		
Item	Quantity	
Drilled Shaft (3 ft. 6 in. Dia.)	linear foot	35.3
Rock Socket (3 ft. 0 in. Dia.)	linear foot	30
Video Camera Inspection	each	3
Foundation Inspection Holes	linear foot	60
Sonic Logging Testing	each	3
Class B Concrete (Substructure)	cu. yard	40.5
Reinforcing Steel (Bridges)	pound	4,860

These quantities are included in the Estimated Quantities table on Sheet No. _.

Notes:

All reinforcement in drilled shafts & rock sockets is included in the Substructure Quantities.

For details & sections of Intermediate Bent No. 2 not shown, see Sheet No. xx.

For additional notes on drilled shafts, see Foundation Data Table on Sheet No. x.

Jacobs
JACOBS ENGINEERING GROUP INC.
5311 NORTH BROADWAY
ST. LOUIS, MISSOURI 63102-2131
PHONE: 314-335-4000
CERTIFICATE OF AUTHORITY: 000704
EXPIRATION DATE: DECEMBER 31, 2020

HORNER SHIFRIN
401 S. 18TH ST., STE. 400 SAINT LOUIS, MO 63103-2296
314-531-4321 • FAX 314-531-6966 • WWW.HORNERSHIFRIN.COM
DISCIPLINE: PROFESSIONAL ENGINEERING
CERTIFICATE OF AUTHORITY: 000159
EXPIRATION DATE: DECEMBER 31, 2020

PDS
Planning Design Studio
P.O. BOX 179279 SAINT LOUIS, MO 63117
314-241-3600 • WWW.PLANNINGDESIGNSTUDIO.COM
DISCIPLINE: LANDSCAPE ARCHITECT
CERTIFICATE OF AUTHORITY: LAC-2006001845
EXPIRATION DATE: DECEMBER 31, 2020

NO.	DATE	REVISION

THE PROFESSIONALS WHOSE SIGNATURES AND SEALS APPEAR HERE, ASSUME RESPONSIBILITY FOR WHAT APPEARS ON THIS SHEET ONLY. ALL OTHER PLANS, SPECIFICATIONS, REPORTS, AND OTHER DOCUMENTS, DESIGN OR REVISIONS BY CONTRACTORS, OWNER OR OTHERS ARE NOT PART OF THE PROJECT FOR WHICH THIS SEAL INDICATES RESPONSIBILITY.

PRELIMINARY
NOT FOR
CONSTRUCTION

DATE: 31 AUGUST 2020

DESIGNED: M. MUENKS
DRAWN: M. MEYER
CHECKED: S. HOFFMAN

HS JOB NO. 1815600
JACOBS JOB NO. 707841CH

SHEET 49 OF 67

BR-109

NO.	DATE	REVISION

THE PROFESSIONALS WHOSE SIGNATURES AND SEALS APPEAR HERE, ASSUME RESPONSIBILITY FOR WHAT APPEARS ON THIS SHEET ONLY. ALL OTHER PLANS, SPECIFICATIONS, REPORTS, AND OTHER DOCUMENTS, DESIGN OR REVISIONS BY CONTRACTORS, OWNER OR OTHERS ARE NOT PART OF THE PROJECT FOR WHICH THIS SEAL INDICATES RESPONSIBILITY.

PRELIMINARY
NOT FOR
CONSTRUCTION

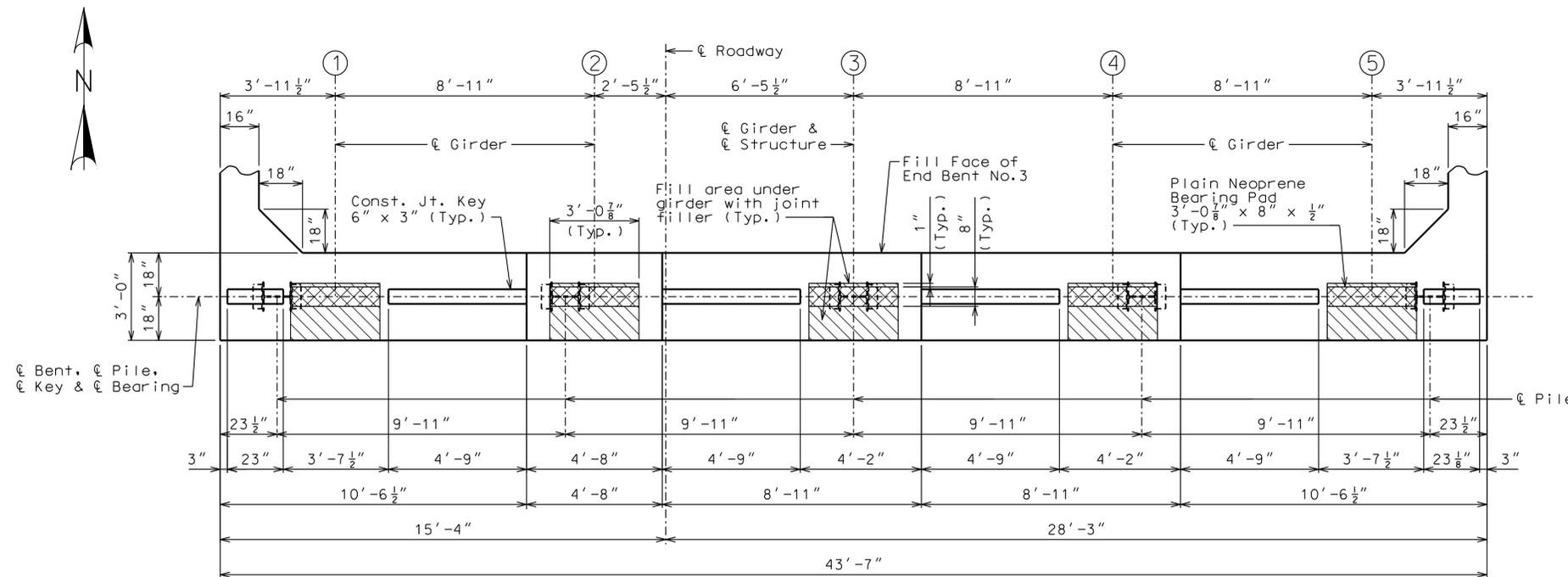
DATE: 31 AUGUST 2020

DESIGNED: M. MUENKS
DRAWN: M. MEYER
CHECKED: S. HOFFMAN

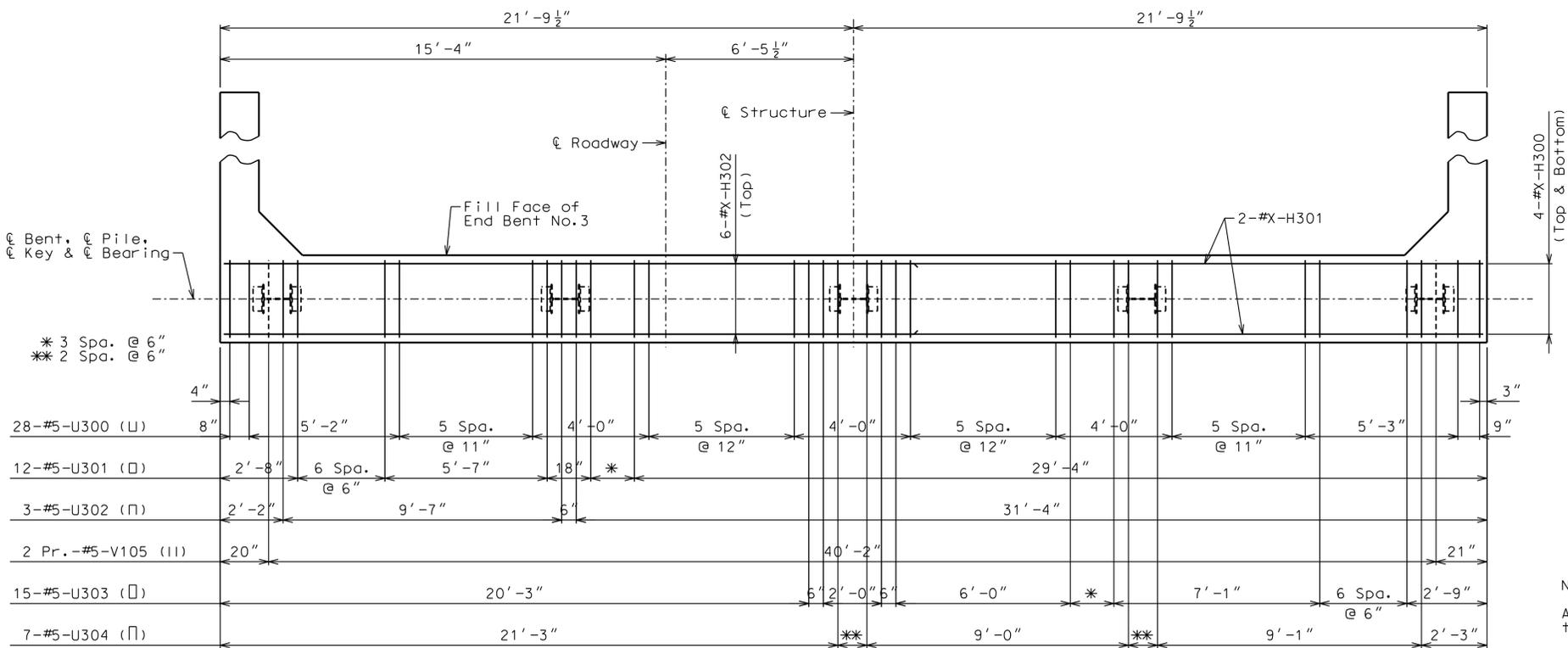
HS JOB NO. 1815600
JACOBS JOB NO. 707841CH

SHEET 50 OF 67

BR-110

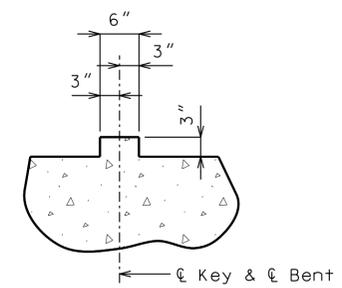


PART PLAN OF BEAM SHOWING DIMENSIONS

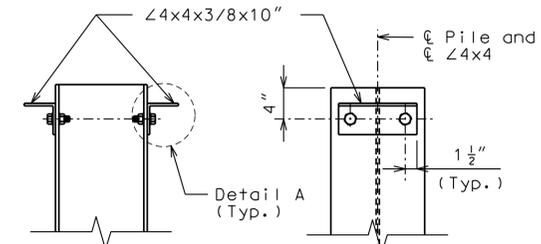


PART PLAN OF BEAM SHOWING REINFORCEMENT

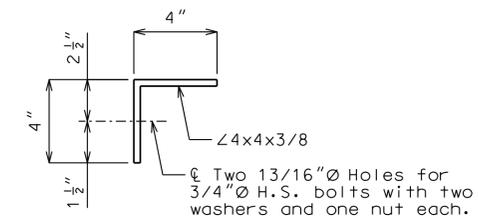
Note: Keys, steps not shown for clarity.



SECTION THRU KEY

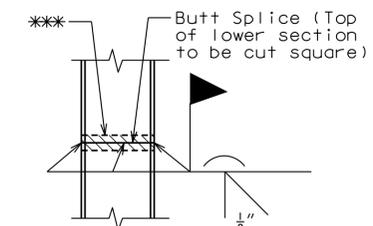


DETAILS OF HP PILE ANCHORS



DETAIL A

Galvanizing 4x4, 3/4" diameter high strength bolts, washers and nuts will not be required.



STEEL PILE SPLICE
(If required)

*** Galvanizing material shall be omitted or removed 1 inch clear of weld locations in accordance with Sec 702.

Notes:

All U-bars and Pr. V-bars shall be placed parallel to Centerline Roadway.

Reinforcing steel shall be shifted to clear piles. U bars shall clear piles by at least 1 1/2".

For details of End Bent No. 3 not shown, see Sheets No. xx & xx.
For Substructure Quantity Table for Bent No. 3 see Sheet No. x.

For details of Vertical Drain at End Bents, see Sheet No. xx.

For details of Bridge Approach Slab, see Sheet No. xx.

NO.	DATE	REVISION

THE PROFESSIONALS WHOSE SIGNATURES AND SEALS APPEAR HERE, ASSUME RESPONSIBILITY FOR WHAT APPEARS ON THIS SHEET ONLY. ALL OTHER PLANS, SPECIFICATIONS, REPORTS, AND OTHER DOCUMENTS, DESIGN OR REVISIONS BY CONTRACTORS, OWNER OR OTHERS ARE NOT PART OF THE PROJECT FOR WHICH THIS SEAL INDICATES RESPONSIBILITY.

PRELIMINARY
NOT FOR
CONSTRUCTION

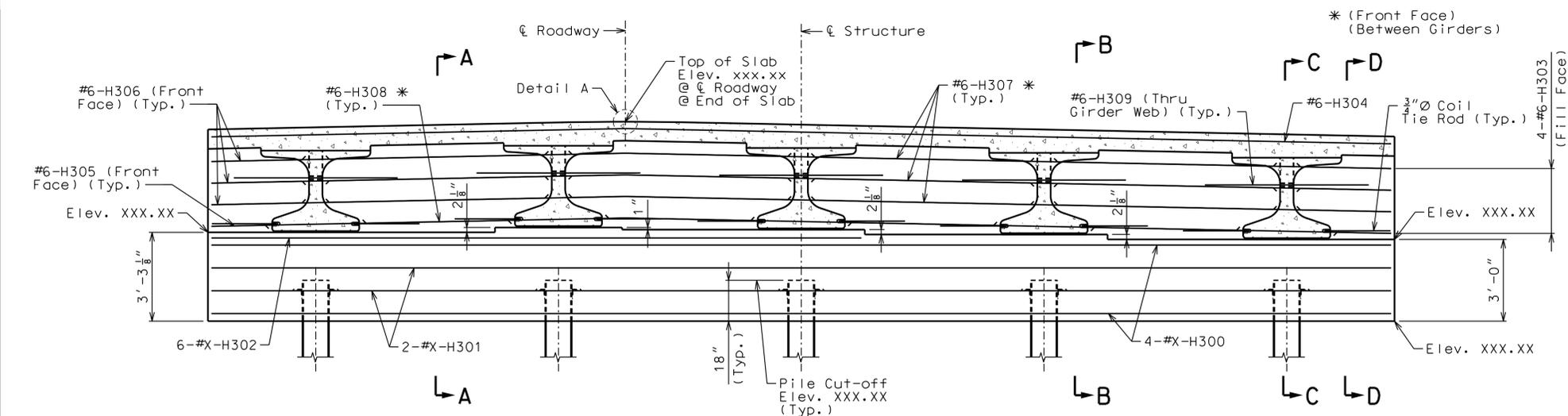
DATE: 31 AUGUST 2020

DESIGNED: M. MUENKS
DRAWN: M. MEYER
CHECKED: S. HOFFMAN

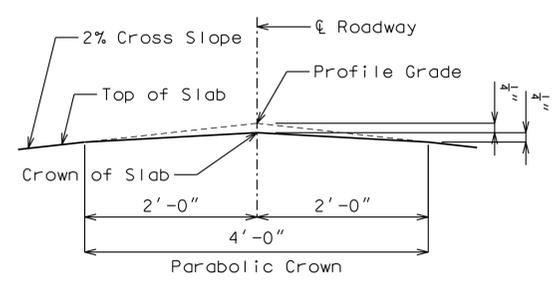
HS JOB NO. 1815600
JACOBS JOB NO. 707841CH

SHEET 51 OF 67

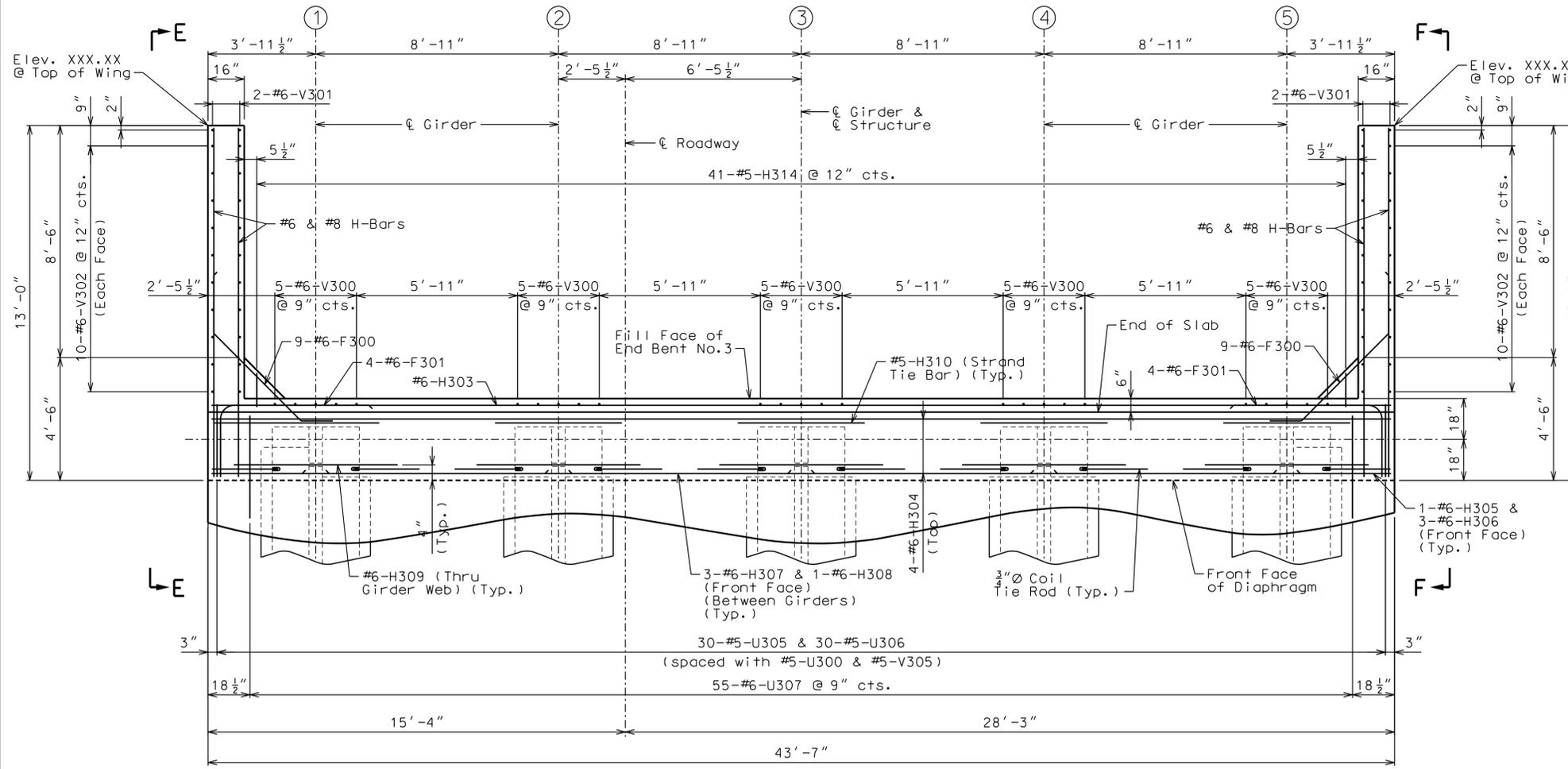
BR-111



SECTION NEAR END BENT



DETAIL A



PART PLAN

Notes:

- All concrete in the End Bent above top of beam and below top of slab shall be Class B-2.
- Bend F300 bars in field to clear Prestressed Girders.
- Strands at end of girders shall be field bent or, if necessary, cut in field to maintain 1 1/2" minimum clearance to fill face of end bent.
- For location of Coil Tie Rods & Strand Tie Bar, see Sheet Nos. x & x.
- For details of End Bent No. 3 not shown, see Sheet Nos. x.
- For Elevations E-E & F-F, Sections A-A, B-B, C-C & D-D, and Section Thru Wing, see Sheet No. x.
- For notes on HP piles, see Foundation Data Table on Sheet No. x.

Substructure Quantity Table for Bent No. 3

Item	Quantity
Class 1 Excavation	cu. yard 0
Galvanized Structural Steel Pile (12 in.)	linear foot 140
Pre-Bore for Piling	linear foot 140
Pile Point Reinforcement	each 5
Class B Concrete (Substructure)	cu. yard 17.5
Reinforcing Steel (Bridges)	pound 2,100

These quantities are included in the Estimated Quantities table on Sheet No. .

DWG: C:\Users\schuie\Desktop\BentDetail\F300\200-GR5-T6.dwg
 PLOT DATE: 10/16/2018 8:05:14 AM
 SAVE DATE: 4/29/2020 10:27:41 AM
 OPERATOR: SCHUIED

NO.	DATE	REVISION

THE PROFESSIONALS WHOSE SIGNATURES AND SEALS APPEAR HERE, ASSUME RESPONSIBILITY FOR WHAT APPEARS ON THIS SHEET ONLY. ALL OTHER PLANS, SPECIFICATIONS, REPORTS, AND OTHER DOCUMENTS, DESIGN OR REVISIONS BY CONTRACTORS, OWNER OR OTHERS ARE NOT PART OF THE PROJECT FOR WHICH THIS SEAL INDICATES RESPONSIBILITY.

PRELIMINARY
NOT FOR
CONSTRUCTION

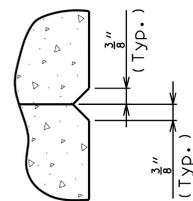
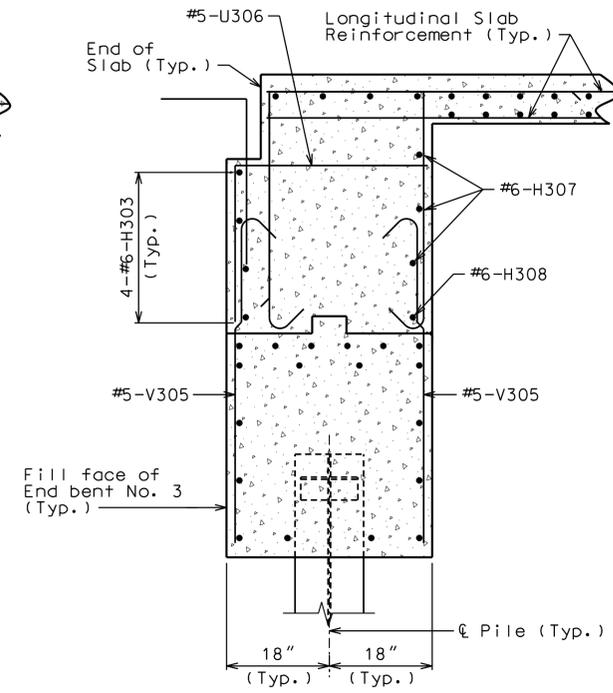
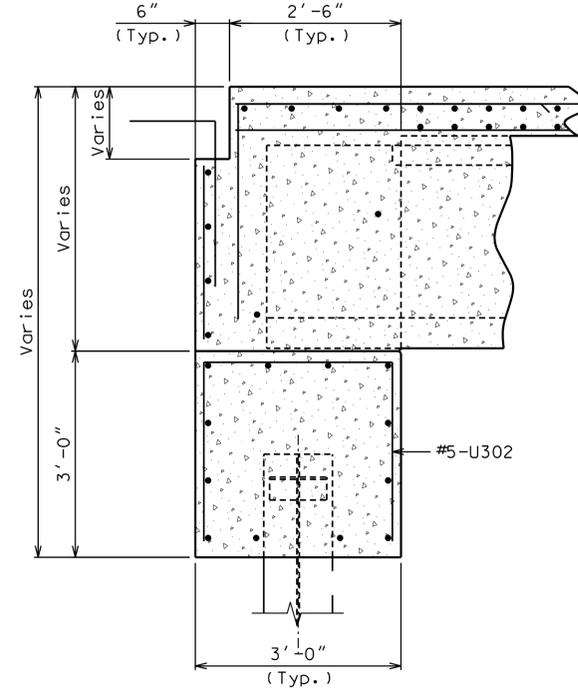
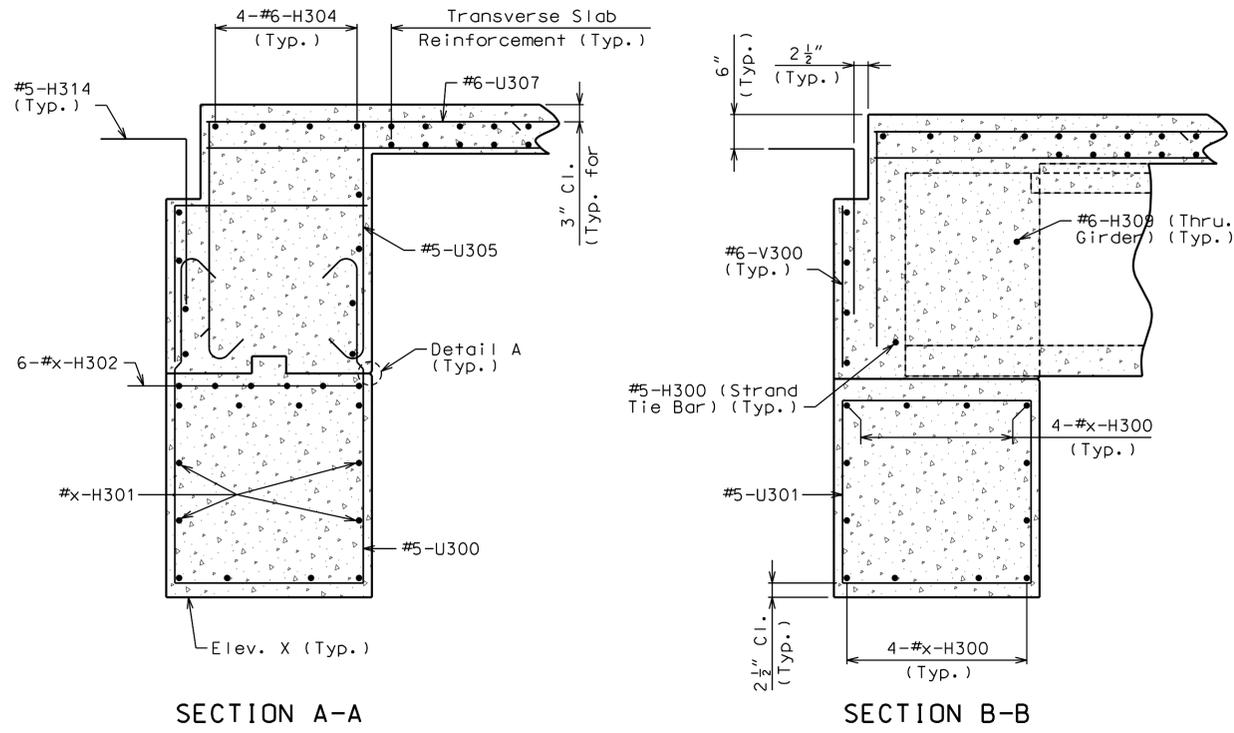
DATE: 31 AUGUST 2020

DESIGNED: M. MUENKS
DRAWN: M. MEYER
CHECKED: S. HOFFMAN

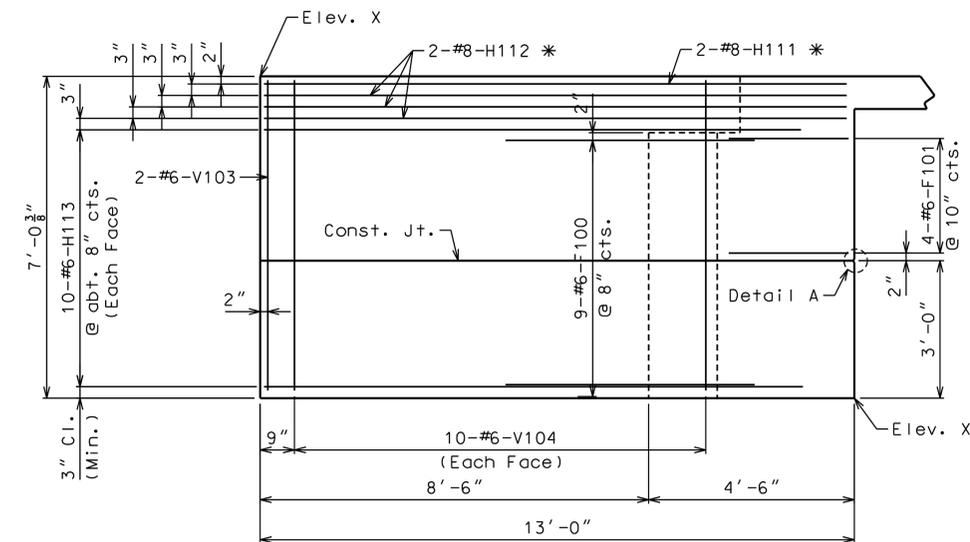
HS JOB NO. 1815600
JACOBS JOB NO. 707841CH

SHEET 52 OF 67

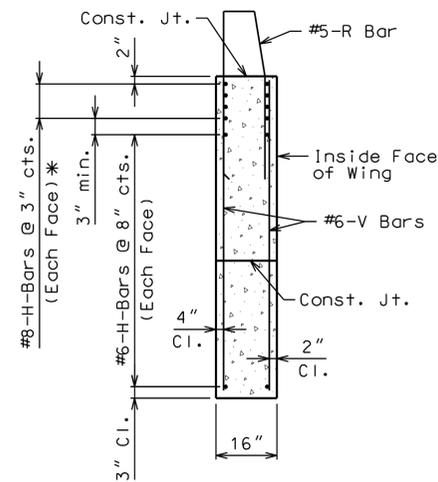
BR-112



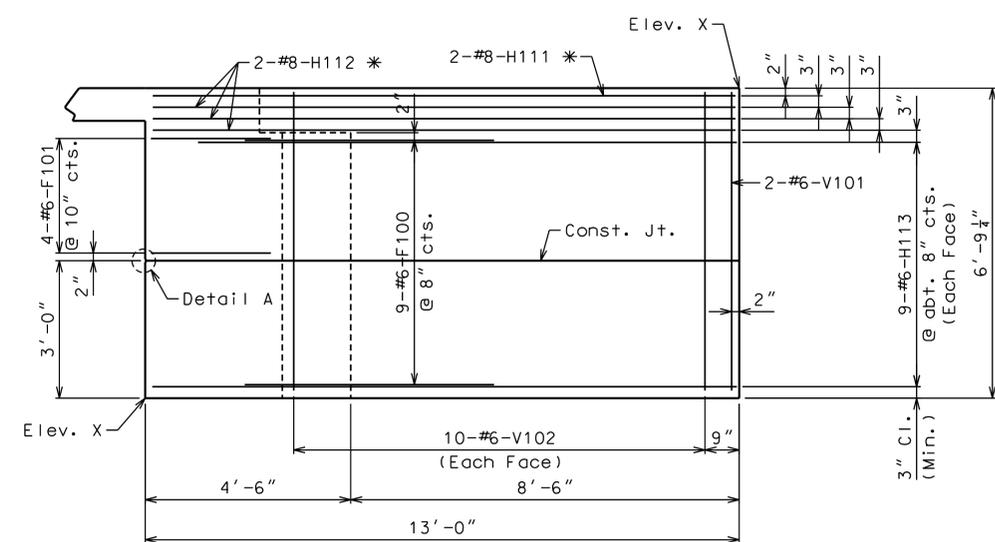
DETAIL A



ELEVATION E-E



TYPICAL SECTION THRU WING
* Placed with Grade



ELEVATION F-F

Note:

For reinforcement of Safety barrier curb, see Sheet No. x.

Concrete for prestressed girders shall be Class A-1 with $f'c = 8000$ psi and $f'ci = 6500$ psi.

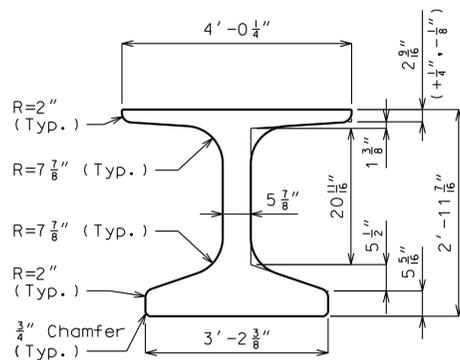
(+) indicates prestressing strand.

Use strands with an initial prestress force of _____ kips.

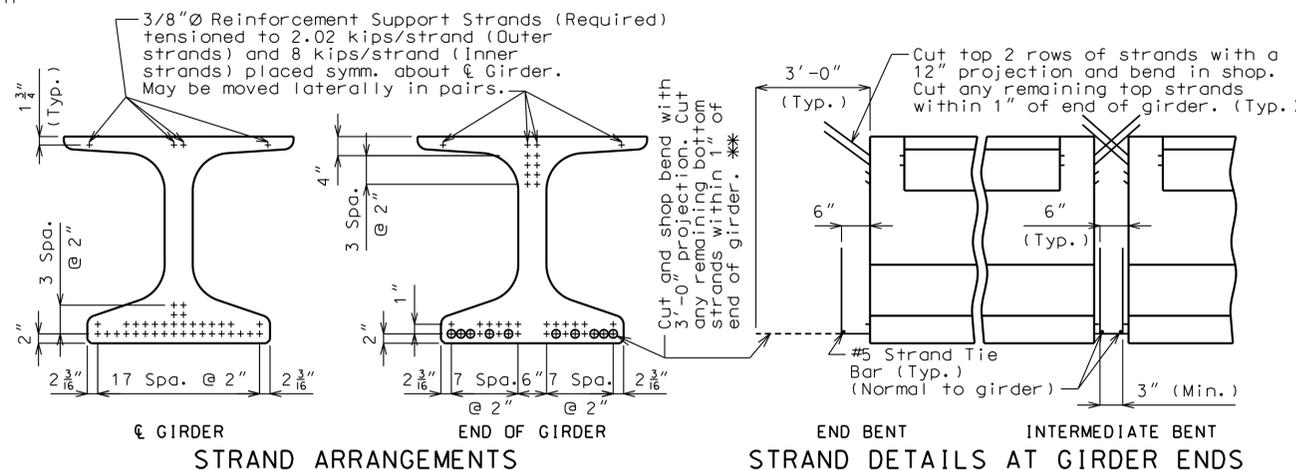
Prestressing tendons shall be uncoated, seven-wire, low-relaxation strands, 0.6 inch diameter in accordance with AASHTO M 203, Grade 270. Pretensioned members shall be in accordance with Sec 1029.

Fabricator shall be responsible for location and design of lifting devices.

At the contractor's option the location for bent-up strands may be varied from that shown for fully bonded strands only. The total number of bent-up strands shall not be changed. One strand tie bar is required for each layer of bent-up strands except at end bents which require one bar on the bottom layer of strands only. No additional payment will be made if additional strand tie bars are required.



DIMENSIONS

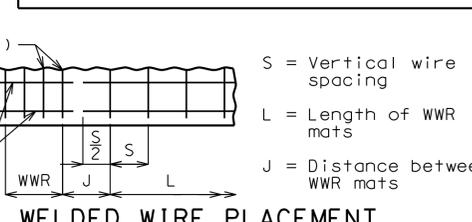
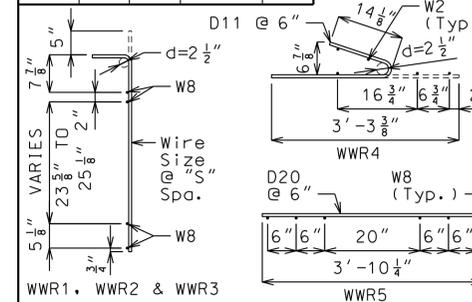


STRAND ARRANGEMENTS
END OF GIRDER
END BENT
INTERMEDIATE BENT
STRAND DETAILS AT GIRDER ENDS

BILL OF REINFORCING STEEL - EACH GIRDER			
NO.	SIZE & MARK	ACTUAL LENGTH	SHAPE
88	3 G1	2'-10"	8
8	5 G2	3'-9"	11
2	4 G3	X'-X"	20
2	4 G4	2'-1"	20
2	4 G5	X'-X"	20

G4 and G5 not required for interior girders. Half no. of G3, G4, G5 and G6 not required for ext. girders of end spans.

WELDED WIRE REINFORCEMENT - EACH GIRDER			
MARK	WIRE SIZE	S	J
WWR1	d20	4"	16'-0"
WWR2	d20	8"	15'-4"
WWR3	d20	16"	21'-4"



WELDED WIRE PLACEMENT

General Notes:
Reinforcing Steel:
All dimensions are out to out.

Hooks and bends shall be in accordance with the CRSI Manual of Standard Practice for Detailing Reinforced Concrete Structures, Stirrup and Tie Dimensions.

Actual bar lengths are measured along centerline of bar to the nearest inch.

Minimum clearance to reinforcing shall be 1", unless otherwise shown.

All bar reinforcement shall be Grade 60.

Welded Wire Reinforcement (WWR) shall be in accordance with AASHTO M 221. WWR shall not be epoxy coated.

Miscellaneous:
Cost of 3/4" coil tie rods placed in diaphragms will be considered completely covered by the contract unit price for Prestressed Concrete NU-Girder.

Coil ties shall be held in place in the forms by slotted wire-setting-studs projecting thru forms. Studs are to be left in place or replaced with temporary plugs until girders are erected, then replaced by coil tie rods.

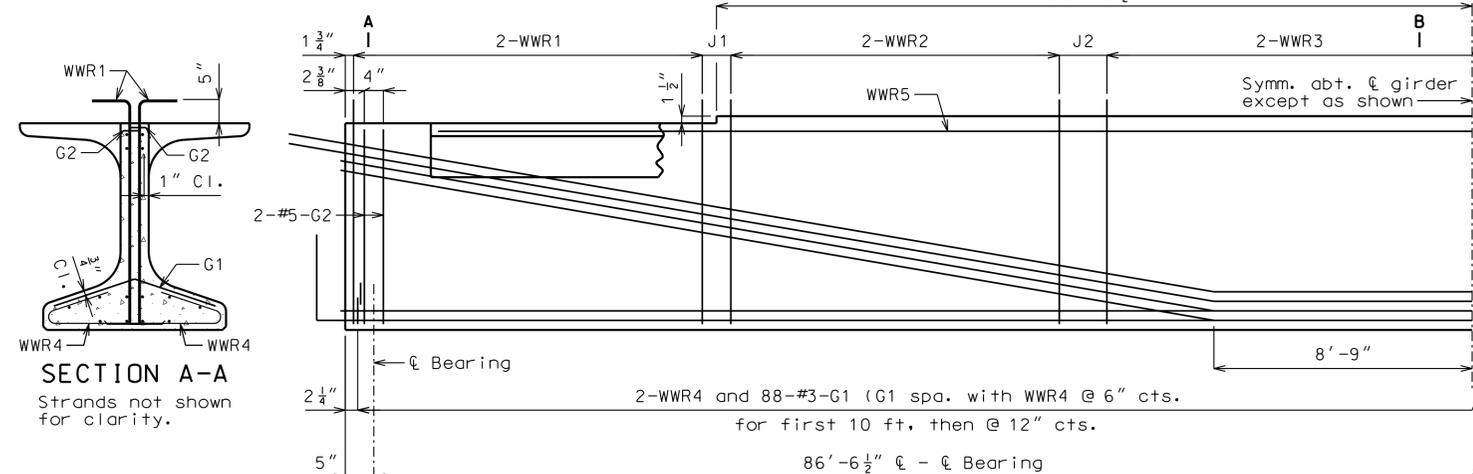
The contractor shall provide bracing necessary for lateral and torsional stability of the girders during construction of the concrete slab and remove the bracing after the slab has attained 75% design strength. Contractor shall not drill holes in the girders. The cost for furnishing, installing, and removing bracing will be considered completely covered by the contract unit price for Prestressed Concrete NU-Girder.

For location of coil inserts at slab drains, see Sheet No. _____

For location of coil ties and #6 bars at concrete bent diaphragms, see Sheets No. _____ and _____

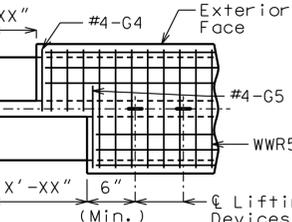
For Girder Camber Diagram, see Sheet No. _____

Alternate bar reinforcing steel details are provided and may be used. The same type of reinforcing steel shall be used for all girders in all spans.

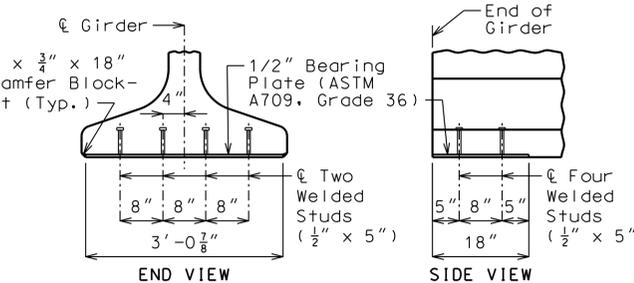


HALF ELEVATION OF GIRDER SPAN (1-2)
GIRDER SPAN (2-3) SAME

Exterior and interior girders are the same, except for coil ties, and top flange breakout and coil inserts for slab drains. Reinforcement support strands not shown for clarity.



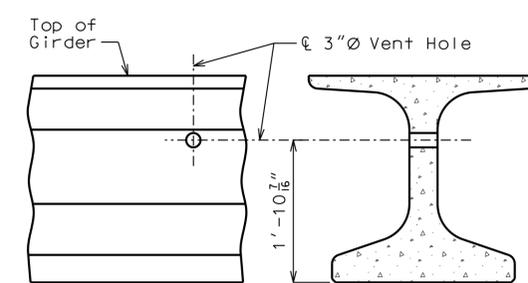
SECTION A-A
Strands not shown for clarity.



BEARING PLATE DETAILS

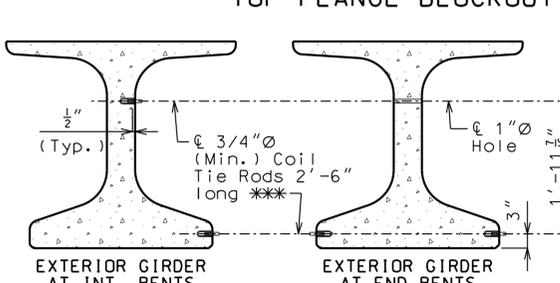
Galvanize the 1/2" bearing plate (ASTM A709 Grade 36) in accordance with ASTM A123.

Cost of furnishing, galvanizing, and installing the 1/2" bearing plate (ASTM A709 Grade 36) and welded studs in the prestressed girder will be considered completely covered by the contract unit price for Prestressed Concrete NU-Girder.



DETAILS OF VENT HOLE

Place vent holes at or near upgrade 1/3 point of girders and clear reinforcing steel or strands by 1 1/2" minimum.



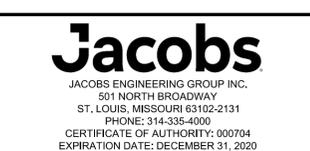
DETAILS OF COIL TIES

Cast 1" hole horizontally in girder for #6 bar 5'-6" long and clear reinforcing steel or strands by 1 1/2" minimum.

Length of coil tie rods at exterior face of exterior girders at end bents = _____



DEER CREEK FLOOD MITIGATION
PROJECT - PHASE 2
GIRDER DETAILS



NO.	DATE	REVISION

PRELIMINARY
NOT FOR
CONSTRUCTION

DATE: 31 AUGUST 2020
DESIGNED: M. MUENKS
DRAWN: M. MEYER
CHECKED: S. HOFFMAN
HS JOB NO. 1815600
JACOBS JOB NO. 707841CH
SHEET 53 OF 67
BR-113

DWG: C:\Users\schuett\Desktop\BentBar\F3W92600-GR5-TB.dwg
 PLOT DATE: 10/16/2018 8:05:14 AM
 OPERATOR: SCHUETT
 SAVE DATE: 4/29/2020 10:27:41 AM

Concrete for prestressed girders shall be Class A-1 with $f'c = 8000$ psi and $f'ci = 6500$ psi.

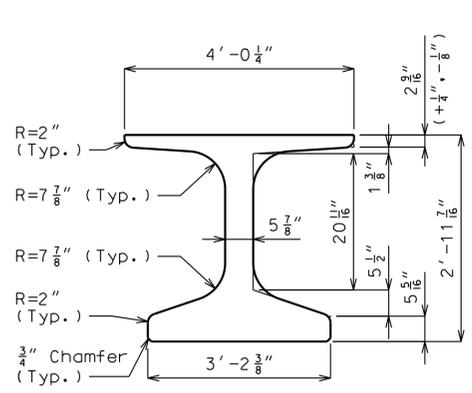
(+) indicates prestressing strand.

Use strands with an initial prestress force of _____ kips.

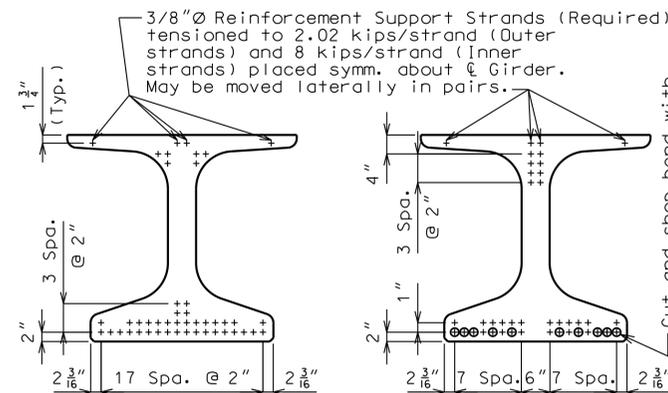
Prestressing tendons shall be uncoated, seven-wire, low-relaxation strands, 0.6 inch diameter in accordance with AASHTO M 203, Grade 270. Pretensioned members shall be in accordance with Sec 1029.

Fabricator shall be responsible for location and design of lifting devices.

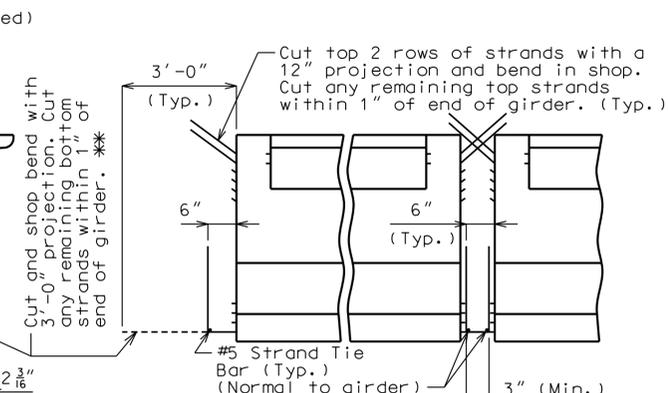
*** At the contractor's option the location for bent-up strands may be varied from that shown for fully bonded strands only. The total number of bent-up strands shall not be changed. One strand tie bar is required for each layer of bent-up strands except at end bents which require one bar on the bottom layer of strands only. No additional payment will be made if additional strand tie bars are required.



DIMENSIONS



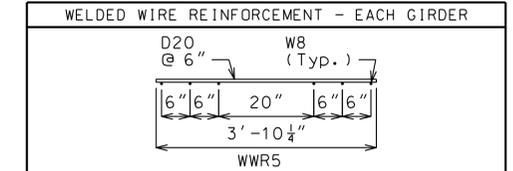
STRAND ARRANGEMENTS



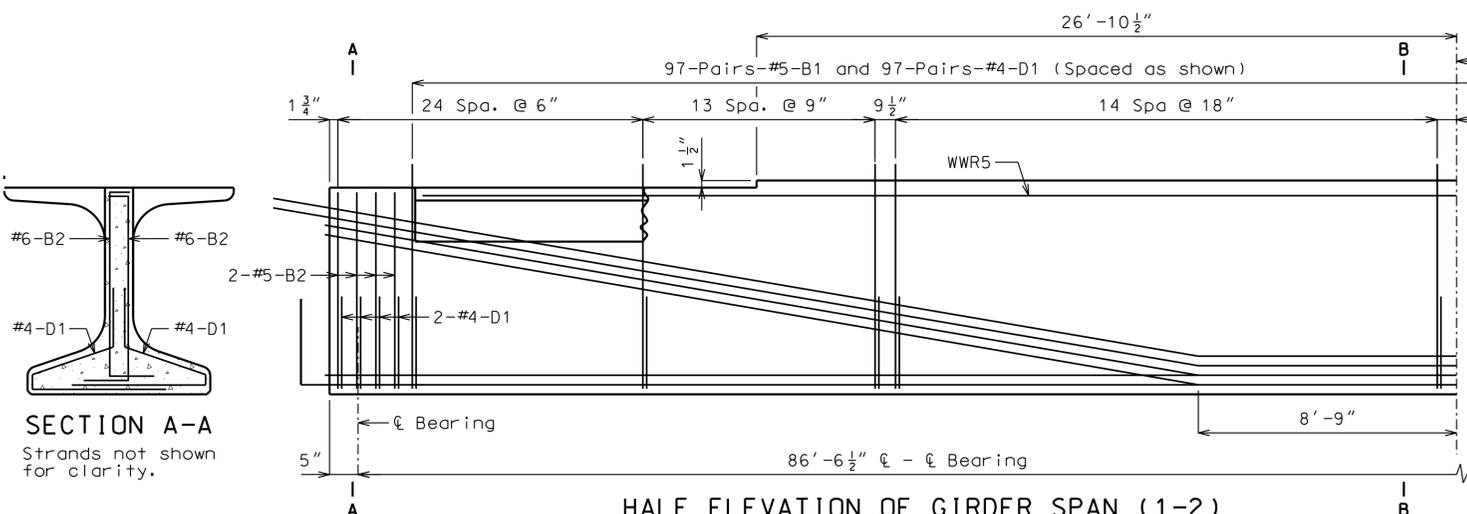
STRAND DETAILS AT GIRDER ENDS

BILL OF REINFORCING STEEL - EACH GIRDER			
NO.	SIZE & MARK	ACTUAL LENGTH	SHAPE
194	5 B1	2'-10"	11
16	5 B2	3'-9"	11
202	4 D1	4'-0"	9
2	4 G3	X'-X"	20
2	4 G4	2'-1"	20
2	4 G5	X'-X"	20

G4 and G5 not required for interior girders. Half no. of G3, G4, G5 and G6 not required for ext. girders of end spans.

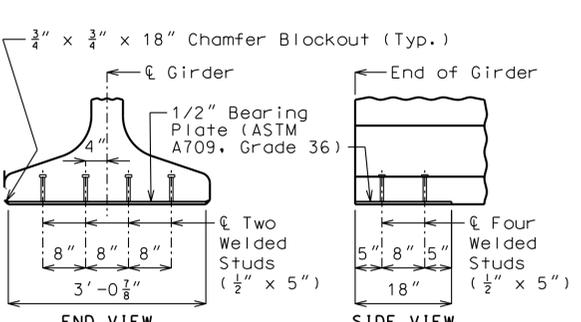


WELDED WIRE REINFORCEMENT - EACH GIRDER



HALF ELEVATION OF GIRDER SPAN (1-2)

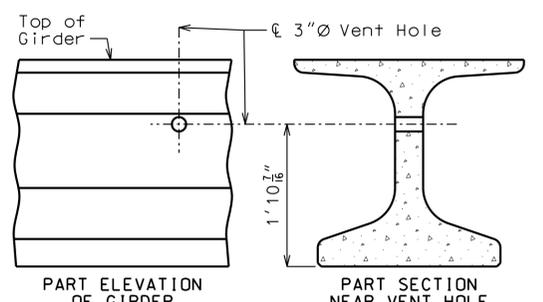
Exterior and interior girders are the same, except for coil ties, and top flange blockout and coil inserts for slab drains. Reinforcement support strands not shown for clarity.



BEARING PLATE DETAILS

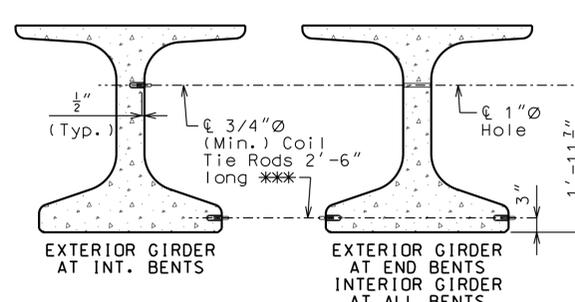
Galvanize the 1/2" bearing plate (ASTM A709 Grade 36) in accordance with ASTM A123.

Cost of furnishing, galvanizing, and installing the 1/2" bearing plate (ASTM A709 Grade 36) and welded studs in the prestressed girder will be considered completely covered by the contract unit price for Prestressed Concrete NU-Girder.



DETAILS OF VENT HOLE

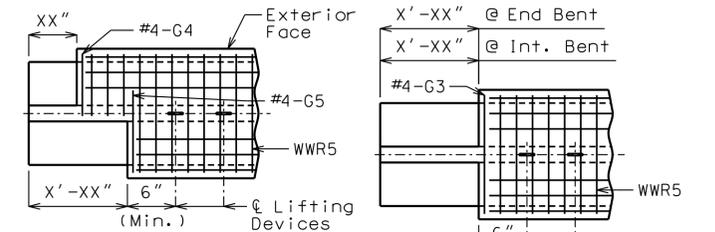
Place vent holes at or near upgrade 1/3 point of girders and clear reinforcing steel or strands by 1 1/2" minimum.



DETAILS OF COIL TIES

Cast 1" hole horizontally in girder for #6 bar 5'-6" long and clear reinforcing steel or strands by 1 1/2" minimum.

*** Length of coil tie rods at exterior face of exterior girders at end bents = 1' - 1 1/2".



LEFT EXTERIOR GIRDER AT INTERMEDIATE BENT (ROTATE 180° FOR RIGHT EXTERIOR) INTERIOR GIRDER AT ALL BENTS & EXTERIOR GIRDER AT END BENT TOP FLANGE BLOCKOUT

General Notes:

Reinforcing Steel:

All dimensions are out to out.

Hooks and bends shall be in accordance with the CRSI Manual of Standard Practice for Detailing Reinforced Concrete Structures, Stirrup and Tie Dimensions.

Actual bar lengths are measured along centerline of bar to the nearest inch.

Minimum clearance to reinforcing shall be 1".

All bar reinforcement shall be Grade 60.

Welded Wire Reinforcement (WWR) shall be in accordance with AASHTO M 221.

The two D1 bars may be furnished as one bar at the fabricator's option.

All B1 bars shall be epoxy coated.

Miscellaneous:

Cost of 3/4" coil tie rods placed in diaphragms will be considered completely covered by the contract unit price for Prestressed Concrete NU-Girder.

Coil ties shall be held in place in the forms by slotted wire-setting-studs projecting thru forms. Studs are to be left in place or replaced with temporary plugs until girders are erected, then replaced by coil tie rods.

The contractor shall provide bracing necessary for lateral and torsional stability of the girders during construction of the concrete slab and remove the bracing after the slab has attained 75% design strength. Contractor shall not drill holes in the girders. The cost for furnishing, installing, and removing bracing will be considered completely covered by the contract unit price for Prestressed Concrete NU-Girder.

For location of coil inserts at slab drains, see Sheet No. ...

For location of coil ties and #6 bars at concrete bent diaphragms, see Sheets No. ... and ...

For Girder Camber Diagram, see Sheet No. ...

Alternate bar reinforcing steel details are provided and may be used. The same type of reinforcing steel shall be used for all girders in all spans.



DEER CREEK FLOOD MITIGATION PROJECT - PHASE 2
 ALTERNATE BAR REINFORCING STEEL DETAILS



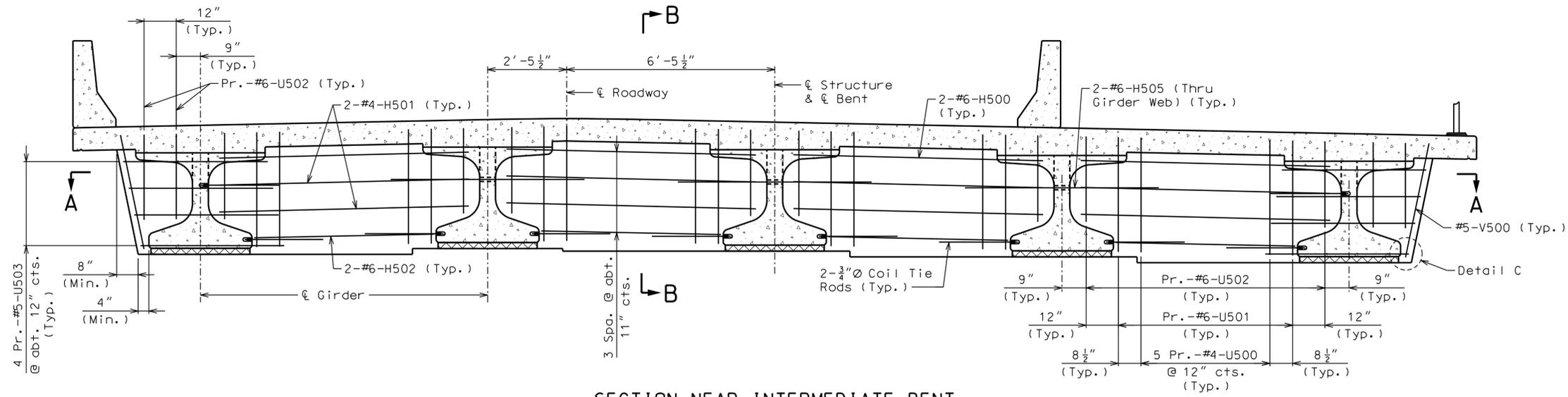
NO.	DATE	REVISION

PRELIMINARY NOT FOR CONSTRUCTION

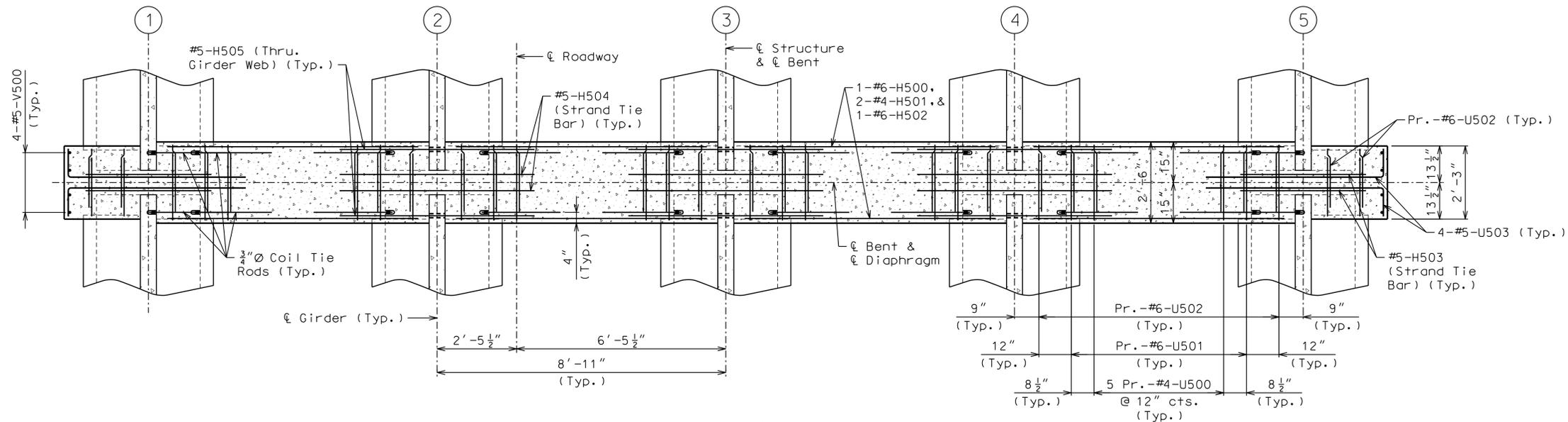
DATE:	31 AUGUST 2020
DESIGNED:	M. MUENKS
DRAWN:	M. MEYER
CHECKED:	S. HOFFMAN
HS JOB NO.	1815600
JACOBS JOB NO.	707841CH
SHEET	54 OF 67

BR-114

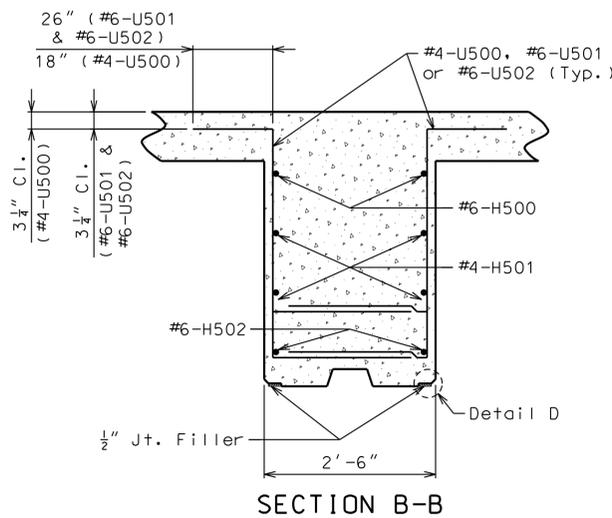
DWG: CUUsers\schuett\Drawings\BentBar\FW92600-GR5-TB.dwg
 PLOT DATE: 10/16/2018 8:05:14 AM
 OPERATOR: SCHUETT
 SAVE DATE: 4/29/2020 10:27:41 AM



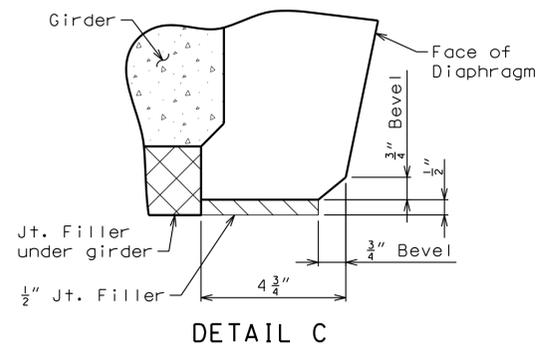
SECTION NEAR INTERMEDIATE BENT
(Normal to Roadway)



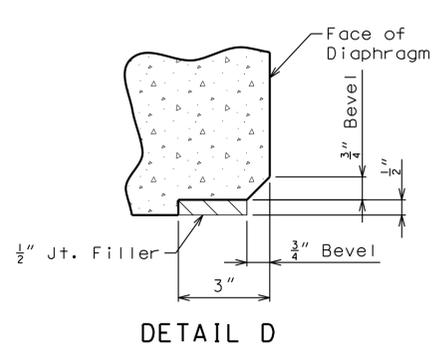
SECTION A-A
(looking ahead station)



SECTION B-B



DETAIL C



DETAIL D

Notes:

- Diaphragms at intermediate bents shall be built vertical.
- For location of Strand Tie Bars, see Sheet Nos. xx & xx.
- For location of details of coil ties, see Sheet Nos. xx & xx.
- All U-bars in diaphragms are to be placed parallel to Roadway.

NO.	DATE	REVISION

THE PROFESSIONALS WHOSE SIGNATURES AND SEALS APPEAR HERE, ASSUME RESPONSIBILITY FOR WHAT APPEARS ON THIS SHEET ONLY. ALL OTHER PLANS, SPECIFICATIONS, REPORTS, AND OTHER DOCUMENTS, DESIGN OR REVISIONS BY CONTRACTORS, OWNER OR OTHERS ARE NOT PART OF THE PROJECT FOR WHICH THIS SEAL INDICATES RESPONSIBILITY.

PRELIMINARY
NOT FOR
CONSTRUCTION

DATE: 31 AUGUST 2020

DESIGNED: M. MUENKS
DRAWN: M. MEYER
CHECKED: S. HOFFMAN

HS JOB NO. 1815600
JACOBS JOB NO. 707841CH

SHEET 55 OF 67

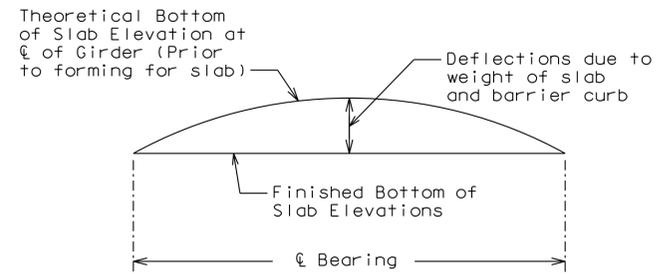
BR-115

Girder No. 1	1"	2 1/8"	1 5/8"	2 3/8"	2 7/8"	3"	2 7/8"	2 3/8"	1 5/8"	2 1/8"	1"
Girder No. 2	1"	2 1/8"	1 5/8"	2 3/8"	2 7/8"	3"	2 7/8"	2 3/8"	1 5/8"	2 1/8"	1"
Girder No. 3	1"	2 1/8"	1 5/8"	2 3/8"	2 7/8"	3"	2 7/8"	2 3/8"	1 5/8"	2 1/8"	1"
Girder No. 4	1"	2 1/8"	1 5/8"	2 3/8"	2 7/8"	3"	2 7/8"	2 3/8"	1 5/8"	2 1/8"	1"
Girder No. 5	1"	2 1/8"	1 5/8"	2 3/8"	2 7/8"	3"	2 7/8"	2 3/8"	1 5/8"	2 1/8"	1"

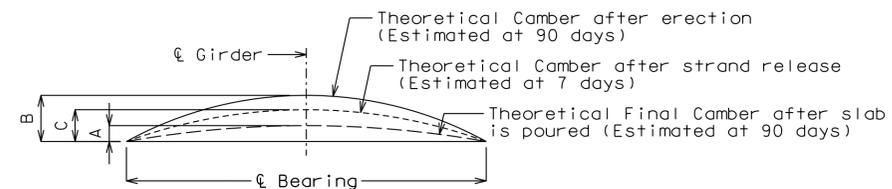
THEORETICAL SLAB HAUNCHING DIAGRAM (ESTIMATED AT 90 DAYS)

If girder camber is different from that shown in the camber diagram, in order to maintain minimum slab thickness, an adjustment of the slab haunches, an increase in slab thickness or a raise in grade uniformly throughout the structure shall be necessary. No payment will be made for additional labor or materials required for variation in haunching, slab thickness or grade adjustment.

Concrete in the slab haunches is included in the Estimated Quantities for Slab on Concrete NU-Girder.



TYPICAL SLAB ELEVATIONS DIAGRAM



Girder	Span (1-2)			Span (2-3)		
	A	B	C	A	B	C
Exterior Girders 1 & 5	2 1/4"	4 1/2"	2 1/2"	2 1/4"	4 1/2"	2 1/2"
Interior Girders 2 thru 4	2 1/8"	4 1/2"	2 1/2"	2 1/8"	4 1/2"	2 1/2"

GIRDER CAMBER DIAGRAM

Conversion Factors for Girder Camber (Estimated at 90 days):

- 0.1 pt. = 0.314 x 0.5 pt.
- 0.2 pt. = 0.593 x 0.5 pt.
- 0.3 pt. = 0.813 x 0.5 pt.
- 0.4 pt. = 0.952 x 0.5 pt.

Theoretical Bottom of Slab Elevations at Centerline of Girder (Prior to forming for slab) (Estimated at 90 days)											
Girder Number	Span (1-2) (86'-6 1/2" Bearing - Bearing)										
	Centerline	.10	.20	.30	.40	.50	.60	.70	.80	.90	Centerline
1	448.59	449.01	449.39	449.72	449.99	450.21	450.37	450.48	450.54	450.55	450.51
2	448.77	449.19	449.57	449.90	450.18	450.40	450.56	450.67	450.72	450.73	450.69
3	448.69	449.11	449.49	449.82	450.10	450.32	450.48	450.59	450.64	450.65	450.61
4	448.51	448.93	449.31	449.64	449.92	450.14	450.30	450.41	450.47	450.47	450.43
5	448.33	448.75	449.13	449.46	449.73	449.95	450.12	450.23	450.28	450.29	450.26

Girder Number	Span (2-3) (86'-6 1/2" Bearing - Bearing)										
	Centerline	.10	.20	.30	.40	.50	.60	.70	.80	.90	Centerline
1	450.51	450.55	450.54	450.49	450.38	450.21	449.99	449.71	449.39	449.01	448.59
2	450.69	450.73	450.73	450.67	450.56	450.40	450.18	449.90	449.57	449.19	448.77
3	450.61	450.65	450.65	450.59	450.48	450.32	450.10	449.82	449.49	449.11	448.69
4	450.43	450.47	450.47	450.41	450.14	450.14	449.92	449.64	449.31	448.93	448.51
5	450.26	450.29	450.28	450.23	450.12	449.95	449.73	449.46	449.13	448.75	448.33

Elevations are based on a constant slab thickness of 8 1/2" and include allowance for theoretical dead load deflections due to weight of slab (including precast panel) and barrier curb.

NO.	DATE	REVISION

THE PROFESSIONALS WHOSE SIGNATURES AND SEALS APPEAR HERE, ASSUME RESPONSIBILITY FOR WHAT APPEARS ON THIS SHEET ONLY. ALL OTHER PLANS, SPECIFICATIONS, REPORTS, AND OTHER DOCUMENTS, DESIGN OR REVISIONS BY CONTRACTORS, OWNER OR OTHERS ARE NOT PART OF THE PROJECT FOR WHICH THIS SEAL INDICATES RESPONSIBILITY.

PRELIMINARY
NOT FOR
CONSTRUCTION

DATE: 31 AUGUST 2020

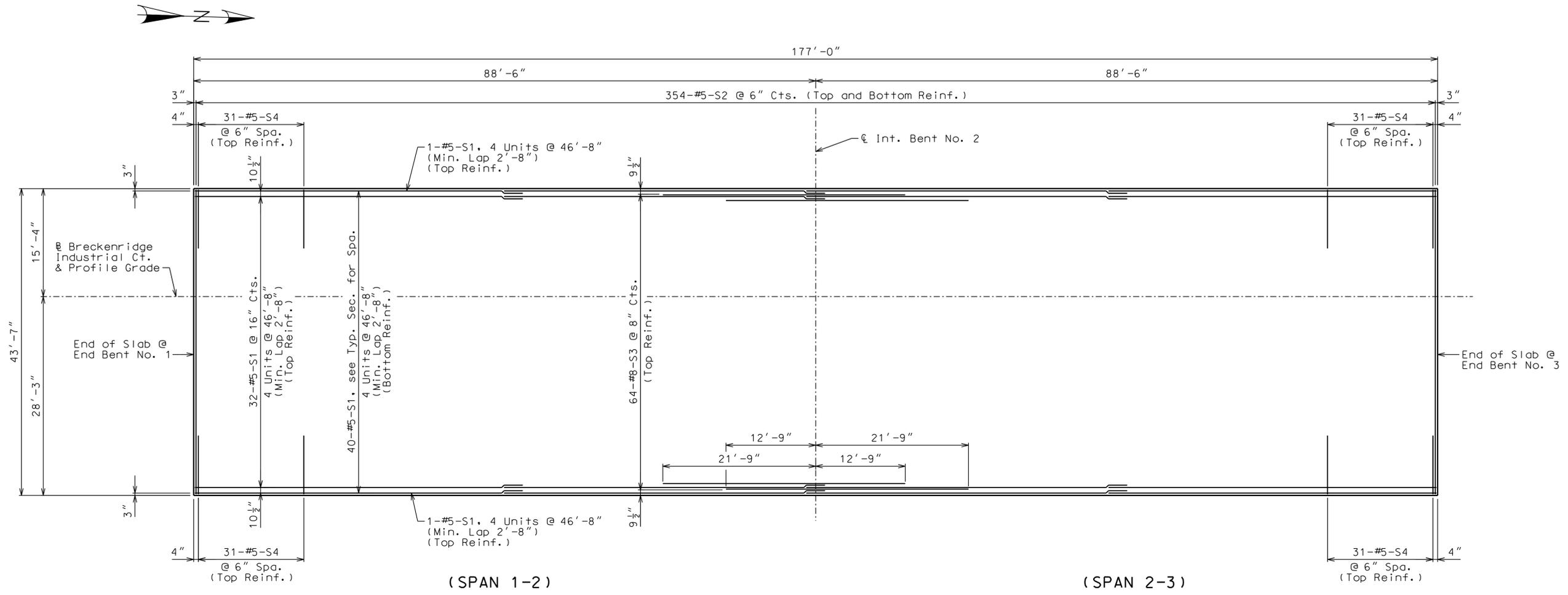
DESIGNED: M. MUENKS
DRAWN: M. MEYER
CHECKED: S. HOFFMAN

HS JOB NO. 1815600
JACOBS JOB NO. 707841CH

SHEET 56 OF 67

BR-116

DEER CREEK FLOOD MITIGATION PROJECT - PHASE 2
PLAN OF SLAB SHOWING REINFORCEMENT



Jacobs
JACOBS ENGINEERING GROUP INC.
5311 NORTH BROADWAY
ST. LOUIS, MISSOURI 63102-2131
PHONE: 314-335-4000
CERTIFICATE OF AUTHORITY: 000704
EXPIRATION DATE: DECEMBER 31, 2020

HORNER SHIFRIN
401 S. 18TH ST., STE. 400 SAINT LOUIS, MO 63103-2206
314-531-4321 • FAX 314-531-6966 • WWW.HORNERSHIFRIN.COM
DISCIPLINE: PROFESSIONAL ENGINEERING
CERTIFICATE OF AUTHORITY: 000159
EXPIRATION DATE: DECEMBER 31, 2020

PDS
Planning Design Studio
P.O. BOX 179279 SAINT LOUIS, MO 63117
314-241-3600 • WWW.PLANNINGDESIGNSTUDIO.COM
DISCIPLINE: LANDSCAPE ARCHITECT
CERTIFICATE OF AUTHORITY: LAC-2006001845
EXPIRATION DATE: DECEMBER 31, 2020

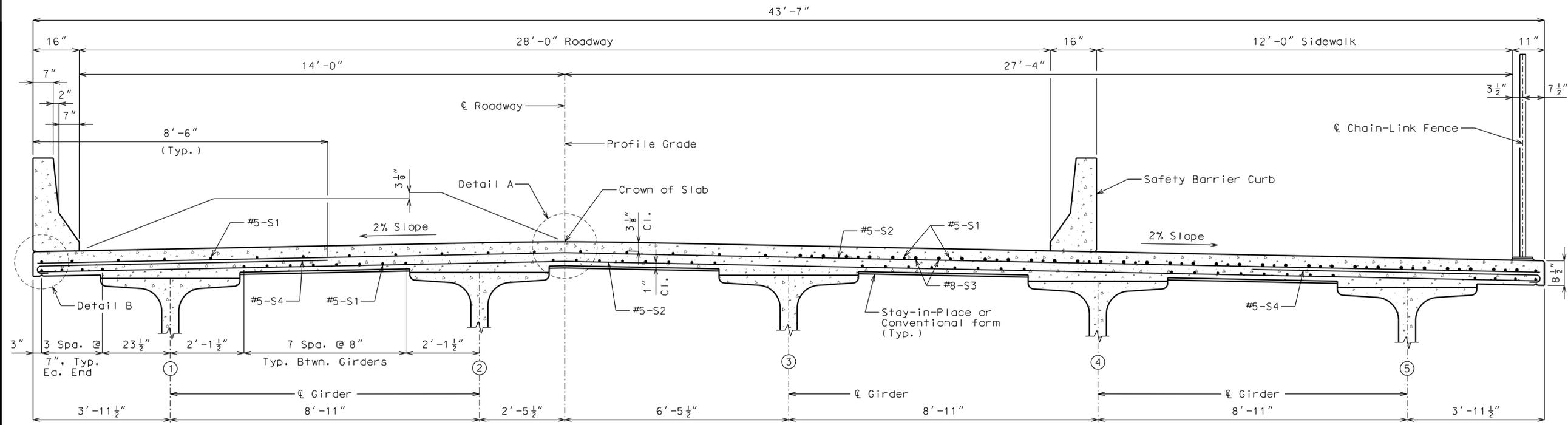
NO.	DATE	REVISION

THE PROFESSIONALS WHOSE SIGNATURES AND SEALS APPEAR HERE, ASSUME RESPONSIBILITY FOR WHAT APPEARS ON THIS SHEET ONLY. ALL OTHER PLANS, SPECIFICATIONS, REPORTS, AND OTHER DOCUMENTS, DESIGN OR REVISIONS BY CONTRACTORS, OWNER OR OTHERS ARE NOT PART OF THE PROJECT FOR WHICH THIS SEAL INDICATES RESPONSIBILITY.

PRELIMINARY NOT FOR CONSTRUCTION

DATE: 31 AUGUST 2020
DESIGNED: M. MUENKS
DRAWN: M. MEYER
CHECKED: S. HOFFMAN
HS JOB NO. 1815600
JACOBS JOB NO. 707841CH
SHEET 57 OF 67
BR-117

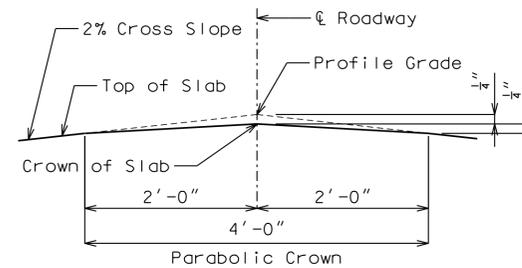
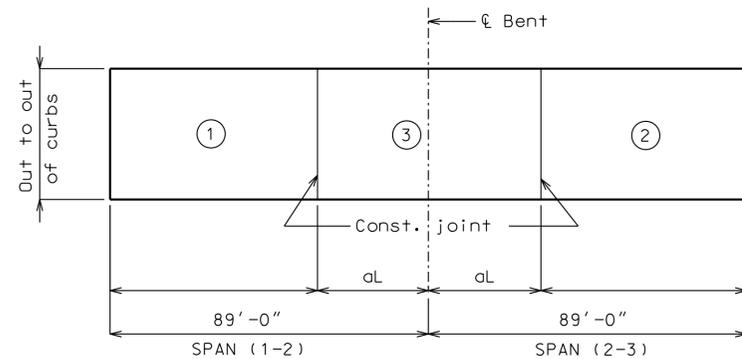
Notes:
Longitudinal slab dimensions are measured horizontally.
For Typical Section through slab, see Sheet No. 21.
For details and reinforcement of Barrier Curb not shown, see Sheet Nos. 22 thru 23.
For Theoretical Slab Haunching diagram and Theoretical Bottom of Slab Elevations, see Sheet No. 18



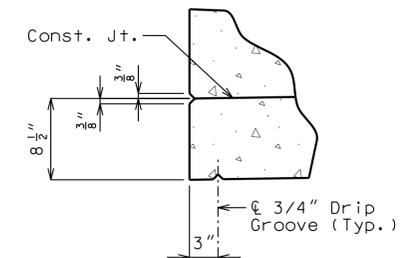
HALF SECTION NEAR MIDSPAN

HALF SECTION NEAR INTERMEDIATE BENT

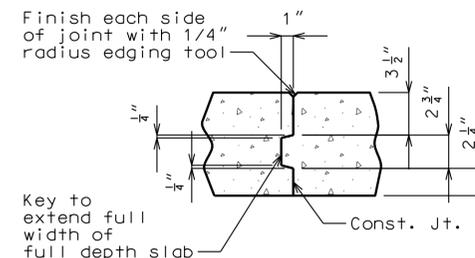
SECTION THRU SLAB



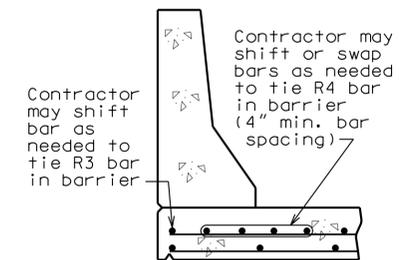
DETAIL A



DETAIL B



SLAB CONSTRUCTION JOINT



OPTIONAL SHIFTING TOP BARS AT BARRIER

	Sequence of Pours			Min. rate of pour cu. yds./hr.	
	1	2	3	With retarder	No retarder
Basic sequence	Either direction			25	25
Alternate pours to the basic skip sequence are subject to the approval of the engineer in accordance with Sec 703.					
Alternate "A" pours	1 + 3 + 2		3 + 2		
	End to 3		1 to end		
Alternate "B" pours	1 + 3 + 2				
	End to end				

Note: The contractor shall pour and satisfactorily finish the slab pours at the rate given. Retarder, if used, shall be an approved type and retard the set of concrete to 2.5 hours.

SLAB POURING SEQUENCE

Notes:

- For reinforcement of safety barrier curb not shown, see Sheet No. . . .
- For Theoretical Bottom of Slab Elevations, Girder Camber Diagram and Theoretical Slab Haunching Diagram, see Sheet No. . . .
- For Plan of Slab Showing Reinforcement, see Sheet No. . . .
- For details of Chain-Link Fence, see Sheet No. . . .

Jacobs
JACOBS ENGINEERING GROUP INC.
5311 NORTH BROADWAY
ST. LOUIS, MISSOURI 63102-2131
PHONE: 314-335-4000
CERTIFICATE OF AUTHORITY: 000704
EXPIRATION DATE: DECEMBER 31, 2020

HORNER SHIFRIN
401 S. 18TH ST., STE. 400 SAINT LOUIS, MO 63103-2296
314-531-4321 • FAX 314-531-6966 • WWW.HORNERSHIFRIN.COM
DISCIPLINE: PROFESSIONAL ENGINEERING
CERTIFICATE OF AUTHORITY: 000159
EXPIRATION DATE: DECEMBER 31, 2020

PDS
Planning Design Studio
P.O. BOX 179279 SAINT LOUIS, MO 63117
314-241-3600 • WWW.PLANNINGDESIGNSTUDIO.COM
DISCIPLINE: LANDSCAPE ARCHITECT
CERTIFICATE OF AUTHORITY: LAC-2006001845
EXPIRATION DATE: DECEMBER 31, 2020

NO.	DATE	REVISION

PRELIMINARY
NOT FOR
CONSTRUCTION

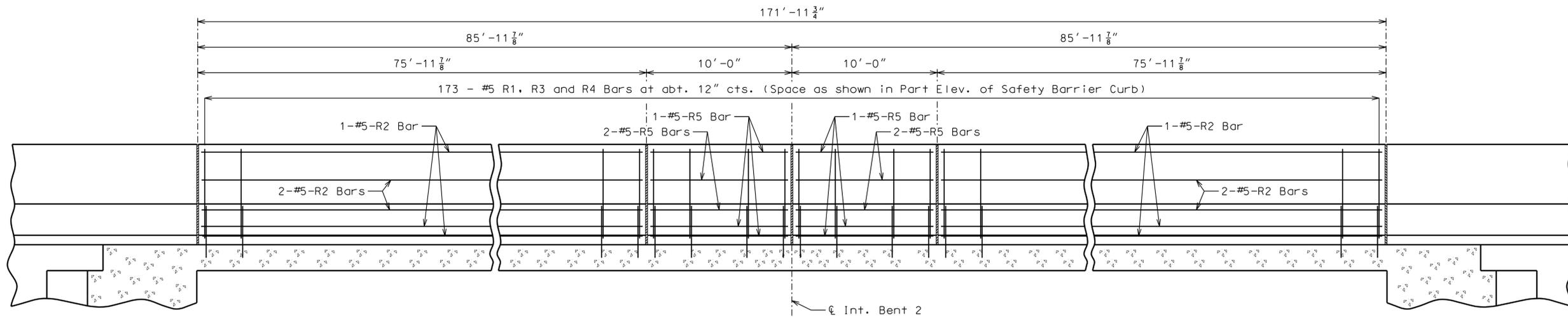
DATE: 31 AUGUST 2020

DESIGNED: M. MUENKS
DRAWN: M. MEYER
CHECKED: S. HOFFMAN

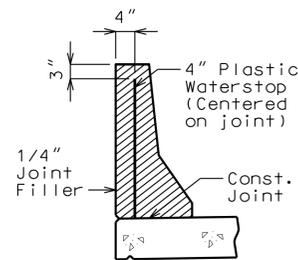
HS JOB NO. 1815600
JACOBS JOB NO. 707841CH

SHEET 58 OF 67

BR-118



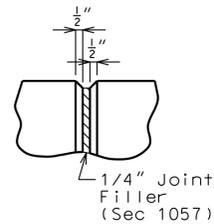
ELEVATION OF SAFETY BARRIER CURB
(Left barrier curb shown, right barrier curb similar)
Longitudinal dimensions are horizontal.



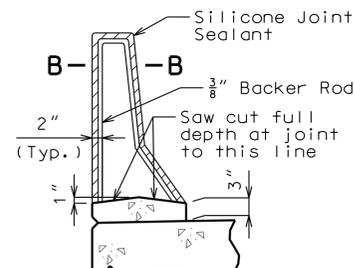
WATERSTOP DETAIL

Plastic waterstop shall be placed in all formed joints, except structures with super-elevation, use on lower joints only.

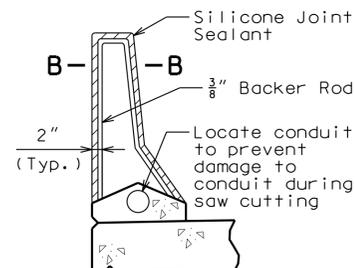
Cost of plastic waterstop, complete in place, will be considered completely covered by the contract unit price for Safety Barrier Curb.



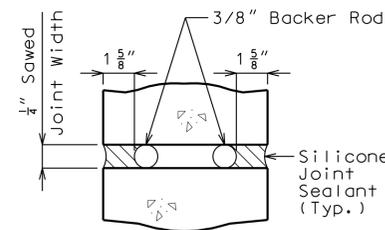
PART ELEVATION AT FORMED JOINT



SECTION THRU SAW CUT JOINT



SECTION THRU SAW CUT JOINT
(Use when conduit is required)



SECTION B-B

General Notes

Top of safety barrier curb shall be built parallel to grade with barrier curb joints (except at end bents) normal to grade.

All exposed edges of safety barrier curb shall have either a 1/2-inch radius or a 3/8-inch bevel, unless otherwise noted.

Payment for all concrete and reinforcement, complete in place, will be considered completely covered by the contract unit price for Safety Barrier Curb per linear foot.

Concrete in the safety barrier curb shall be Class B-1.

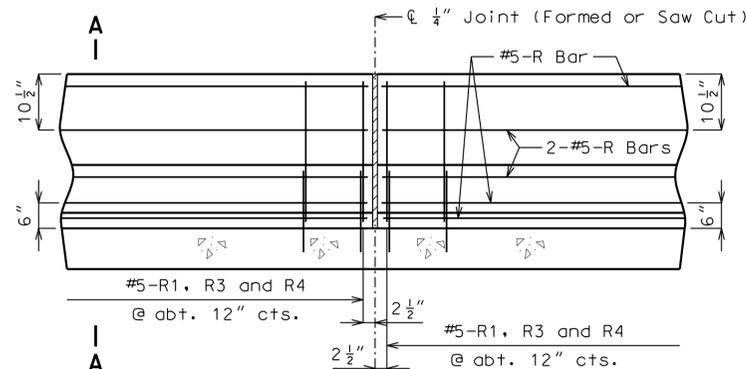
Measurement of safety barrier curb is to the nearest linear foot for each structure, measured along the outside top of slab from end of wing to end of wing.

Concrete traffic barrier delineators shall be placed on top of the safety barrier curb as shown on Missouri Standard Plans 617.10 and in accordance with Sec 617. Delineators on bridges with two-lane, two-way traffic shall have retroreflective sheeting on both sides. Concrete traffic barrier delineators will be considered completely covered by the contract unit price for Safety Barrier Curb.

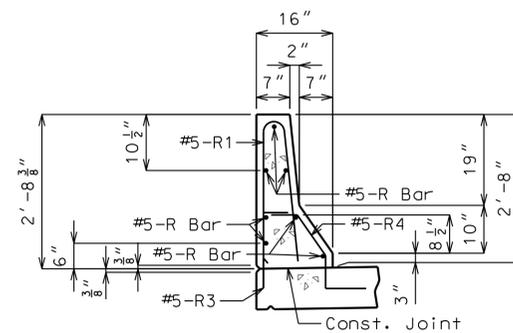
Joint sealant and backer rods shall be in accordance with Sec 717 for silicone joint sealant for saw cut and formed joints.

Plastic waterstop shall not be used with saw cut joints.

DWG: C:\Users\schuett\Desktop\Bentier\FW302600-GR5-TB.dwg
PLOT DATE: 10/16/2018 8:05:14 AM
OPERATOR: SCHUETT
SAVE DATE: 4/23/20 10:27:41 AM



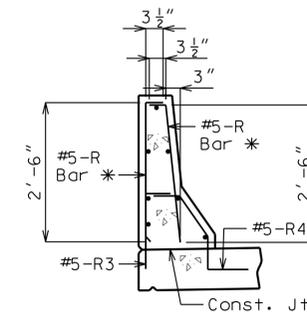
PART ELEVATION OF SAFETY BARRIER CURB



SECTION A-A

Use a minimum lap of 3'-1" for #5 horizontal safety barrier curb bars.

The cross-sectional area above the slab = 2.27 sq. ft.



R-BAR PERMISSIBLE ALTERNATE SHAPE

* The R1 bar may be separated into two bars as shown, at the contractor's option, only when slip forming is not used. (All dimensions are out to out.)

NO.	DATE	REVISION

THE PROFESSIONALS WHOSE SIGNATURES AND SEALS APPEAR HERE, ASSUME RESPONSIBILITY FOR WHAT APPEARS ON THIS SHEET ONLY. ALL OTHER PLANS, SPECIFICATIONS, REPORTS, AND OTHER DOCUMENTS, DESIGN OR REVISIONS BY CONTRACTORS, OWNER OR OTHERS ARE NOT PART OF THE PROJECT FOR WHICH THIS SEAL INDICATES RESPONSIBILITY.

**PRELIMINARY
NOT FOR
CONSTRUCTION**

DATE: 31 AUGUST 2020

DESIGNED: M. MUENKES
DRAWN: M. MEYER

CHECKED: S. HOFFMAN

HS JOB NO. 1815600

JACOBS JOB NO. 707841CH

SHEET 59 OF 67

BR-119

NO.	DATE	REVISION

THE PROFESSIONALS WHOSE SIGNATURES AND SEALS APPEAR HERE, ASSUME RESPONSIBILITY FOR WHAT APPEARS ON THIS SHEET ONLY. ALL OTHER PLANS, SPECIFICATIONS, REPORTS, AND OTHER DOCUMENTS, DESIGN OR REVISIONS BY CONTRACTORS, OWNER OR OTHERS ARE NOT PART OF THE PROJECT FOR WHICH THIS SEAL INDICATES RESPONSIBILITY.

PRELIMINARY
NOT FOR
CONSTRUCTION

DATE: 31 AUGUST 2020

DESIGNED: M. MUENKS
DRAWN: M. MEYER

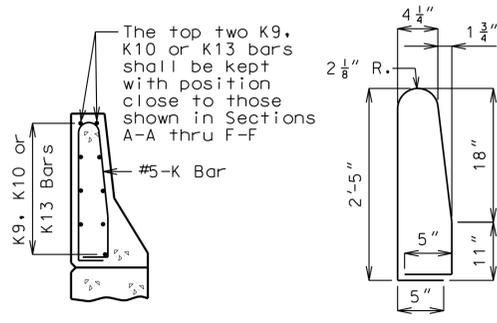
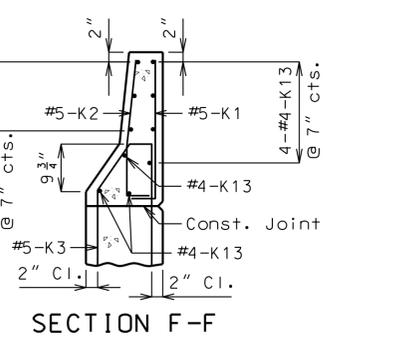
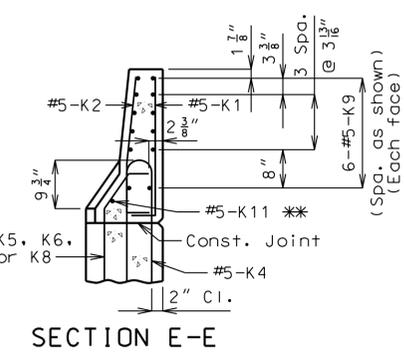
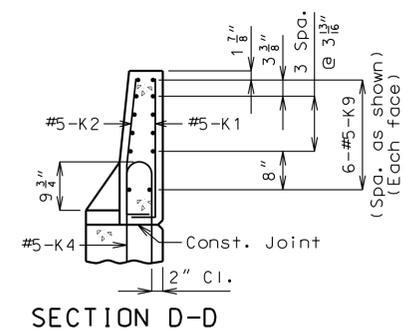
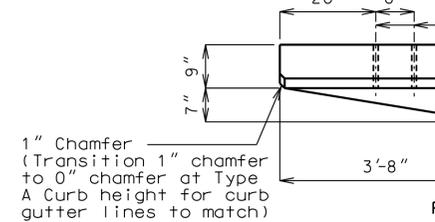
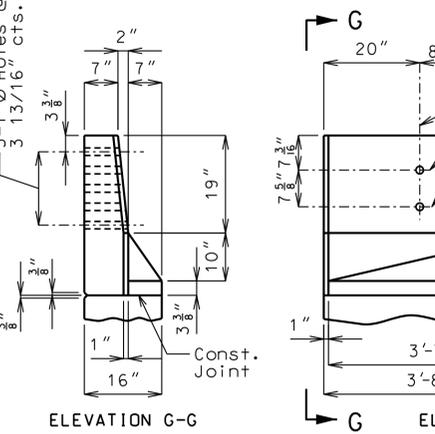
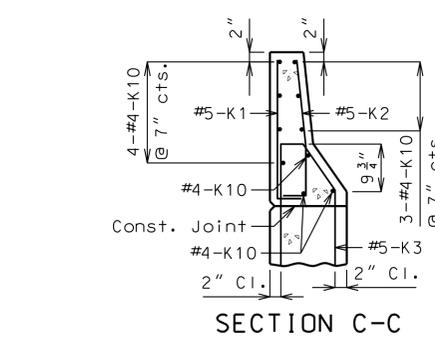
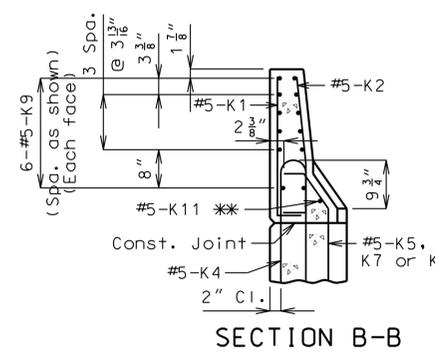
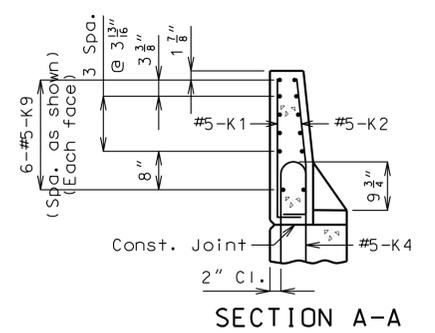
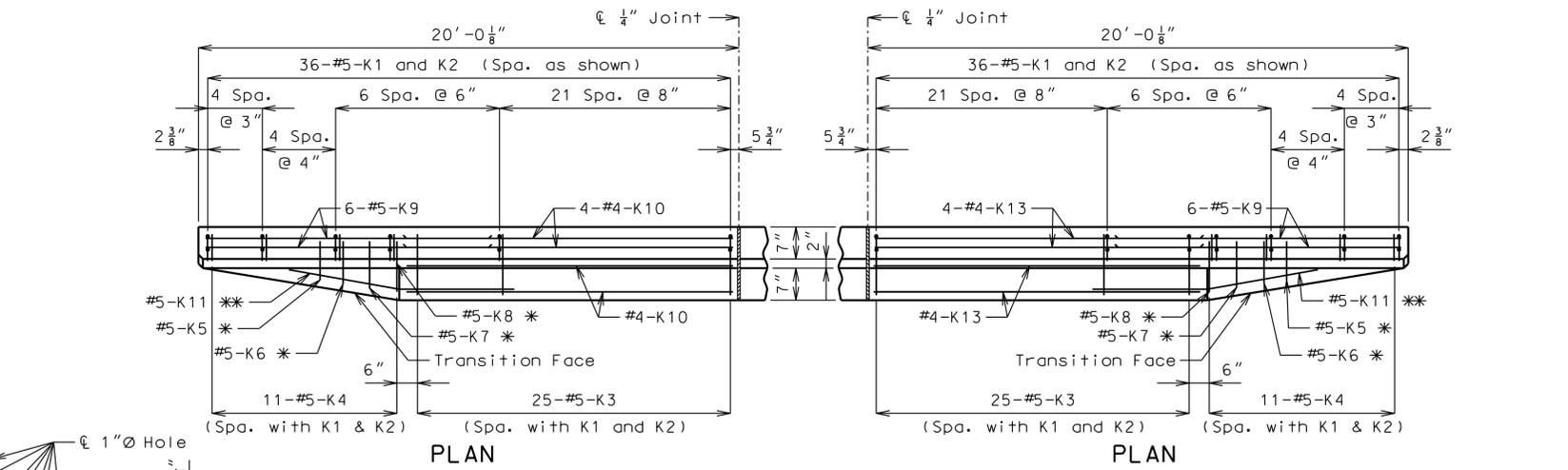
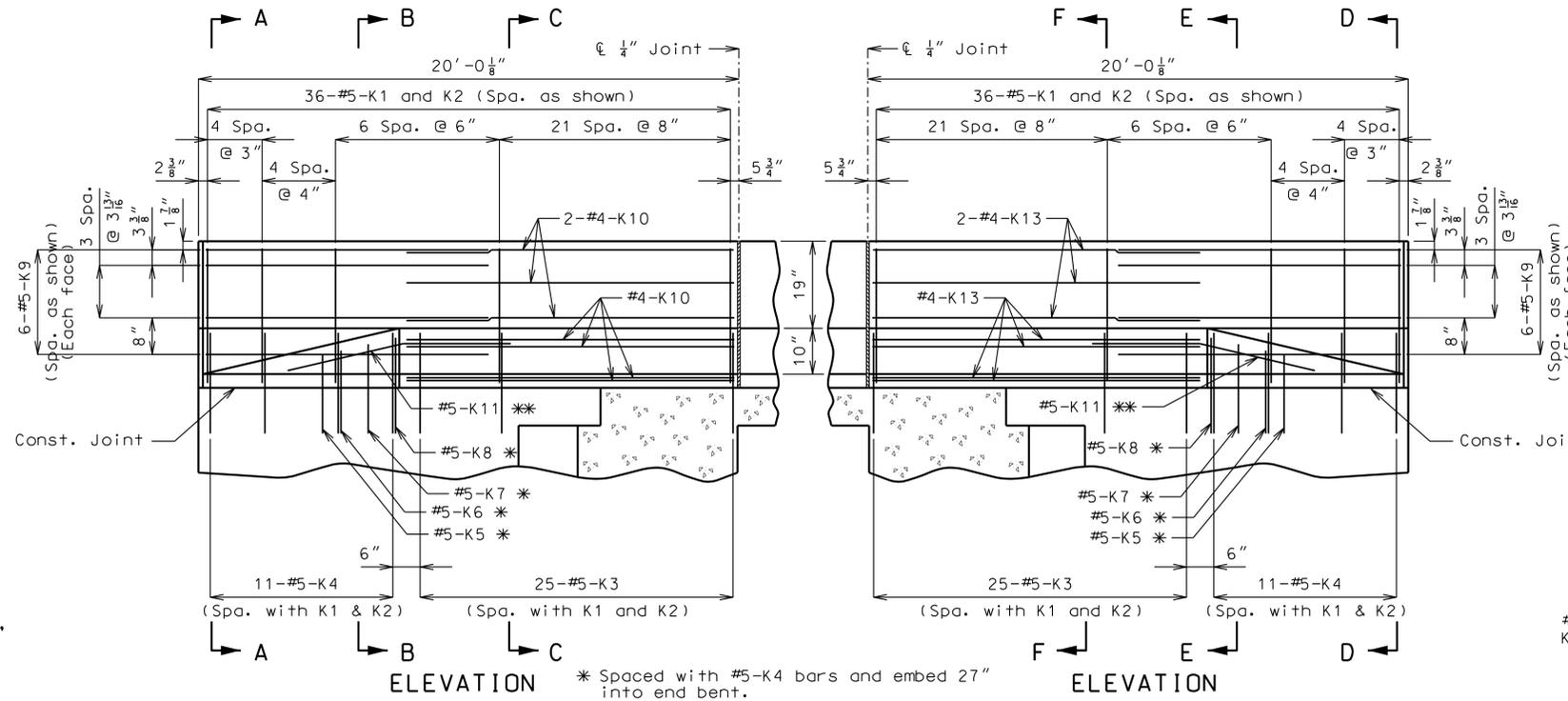
CHECKED: S. HOFFMAN

HS JOB NO. 1815600

JACOBS JOB NO. 707841CH

SHEET 60 OF 67

BR-120



K1-K2 BAR PERMISSIBLE ALTERNATE SHAPE
(K3 or K4 thru K8 bars not shown for clarity)
The K1 and K2 bar combination may be furnished as one bar as shown, at the contractor's option.

General Notes

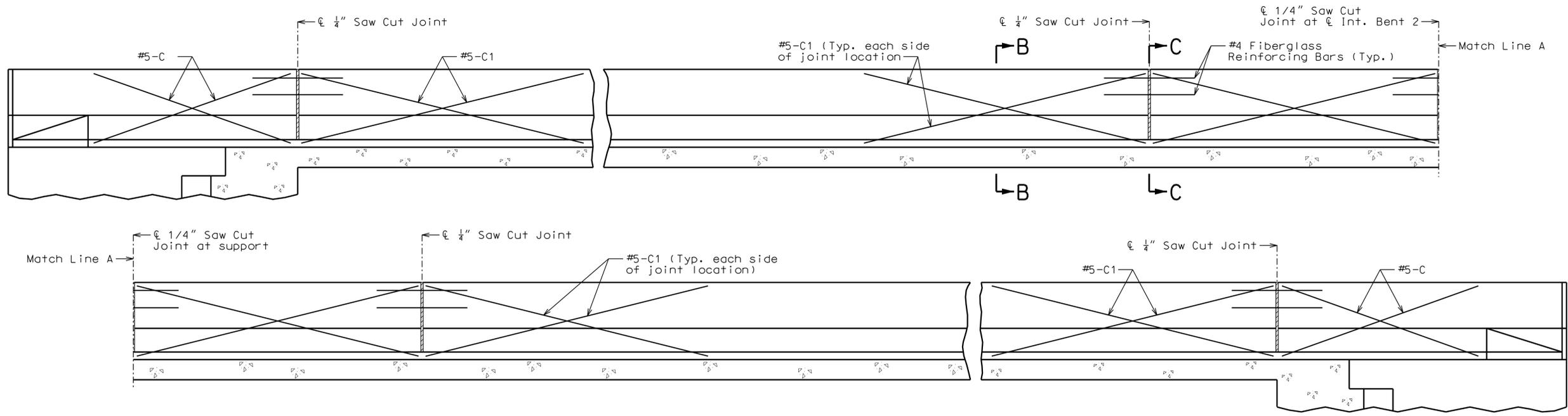
Concrete traffic barrier delineators shall be placed on top of the safety barrier curb as shown on Missouri Standard Plans 617.10 and in accordance with Sec 617. Delineators on bridges with two-lane, two way traffic shall have retroreflective sheeting on both sides. Concrete traffic barrier delineators will be considered completely covered by the contract unit price for Safety Barrier Curb.

Reinforcing Steel:

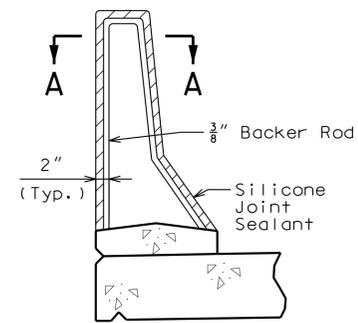
Minimum clearance to reinforcing steel shall be 1 1/2" except as shown for bars embedded into end bent.
Use a minimum lap of 2'-7" between K9 and K10 or K13 bars.

(Left barrier curb shown, right barrier curb similar)

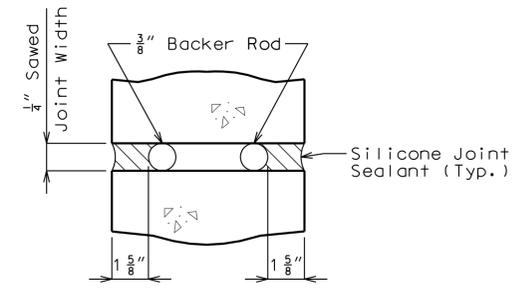
DWG: CUUsers\schuett\Desktop\Border\FW1926200-GR5-TB.dwg
 OPERATOR: SCHUETT
 PLOT DATE: 10/16/2018 8:05:14 AM
 SAVE DATE: 4/23/2020 10:27:41 AM



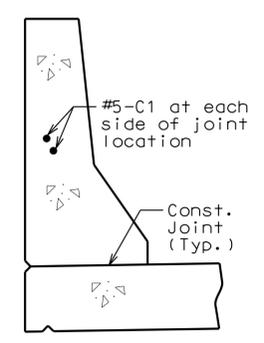
TYPICAL ELEVATION OF SAFETY BARRIER CURB AT SUPPORT LOCATIONS



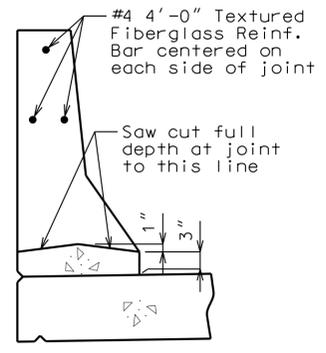
SECTION THRU SAW CUT JOINT



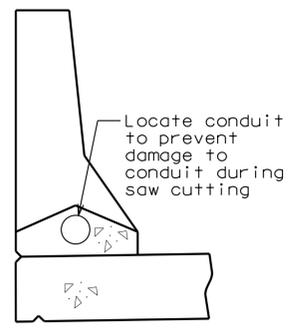
SECTION A-A



SECTION B-B



SECTION C-C



SECTION C-C
(Use when conduit is required)

General Notes:

Top of safety barrier curb shall be built parallel to grade with barrier curb joints (except at end bents) normal to grade.

All exposed edges of safety barrier curb shall have either a 1/2-inch radius or a 3/8-inch bevel, unless otherwise noted.

Payment for all concrete and reinforcement, complete in place, will be considered completely covered by the contract unit price for Safety Barrier Curb per linear foot.

Concrete in the safety barrier curb shall be Class B-1.

Measurement of safety barrier curb is to the nearest linear foot for each structure, measured along the outside top of slab from end of wing to end of wing.

Concrete traffic barrier delineators shall be placed on top of the safety barrier curb as shown on Missouri Standard Plans 617.10 and in accordance with Sec 617. Delineators on bridges with two-lane, two-way traffic shall have retroreflective sheeting on both sides. Concrete traffic barrier delineators will be considered completely covered by the contract unit price for Safety Barrier Curb.

Joint sealant and backer rods shall be in accordance with Sec 717 for silicone joint sealant for saw cut and formed joints.

Plastic waterstop shall not be used with saw cut joints.

For slip-formed option, all sides of the safety barrier curb shall have a vertically broomed finish and the curb top shall have a transversely broomed finish.

Jacobs
JACOBS ENGINEERING GROUP INC.
531 NORTH BROADWAY
ST. LOUIS, MISSOURI 63102-2131
PHONE: 314-335-4000
CERTIFICATE OF AUTHORITY: 000704
EXPIRATION DATE: DECEMBER 31, 2020

HORNER SHIFRIN
401 S. 18TH ST., STE. 400 SAINT LOUIS, MO 63117
314-531-4321 • FAX 314-531-6966 • WWW.HORNERSHIFRIN.COM
DISCIPLINE: PROFESSIONAL ENGINEERING
CERTIFICATE OF AUTHORITY: 000159
EXPIRATION DATE: DECEMBER 31, 2020

PDS
Planning Design Studio
P.O. BOX 179279 SAINT LOUIS, MO 63117
314-241-3600 • WWW.PLANNINGDESIGNSTUDIO.COM
DISCIPLINE: LANDSCAPE ARCHITECT
CERTIFICATE OF AUTHORITY: LAC-2006001845
EXPIRATION DATE: DECEMBER 31, 2020

NO.	DATE	REVISION

**PRELIMINARY
NOT FOR
CONSTRUCTION**

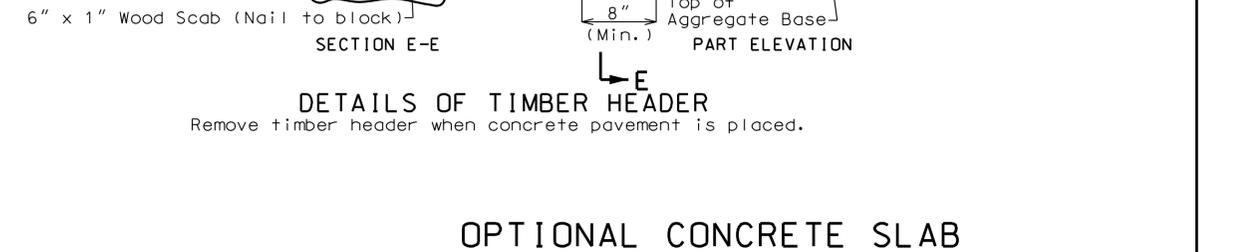
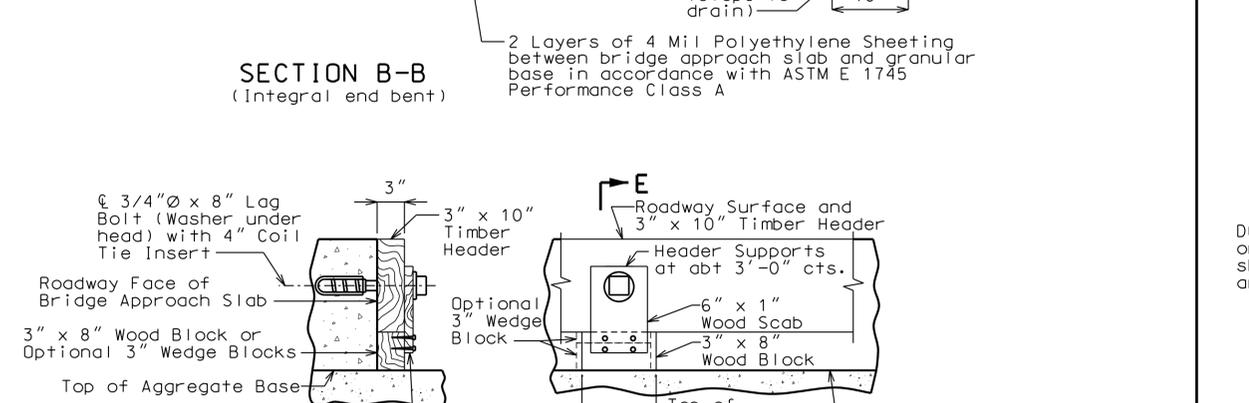
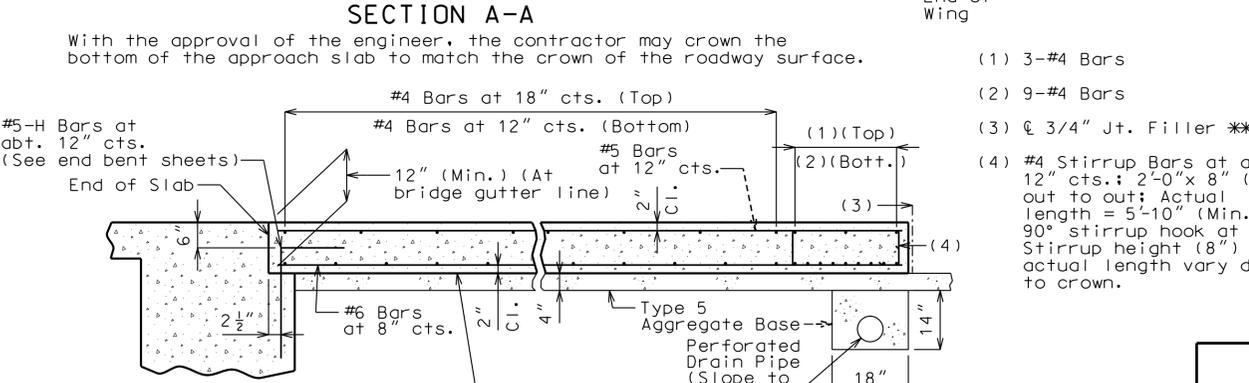
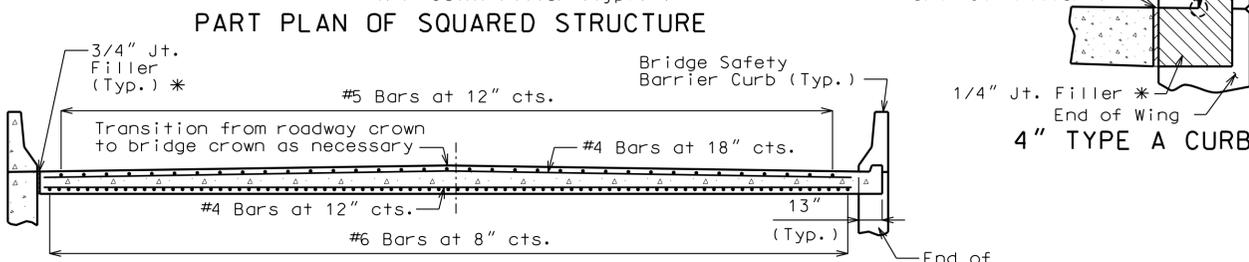
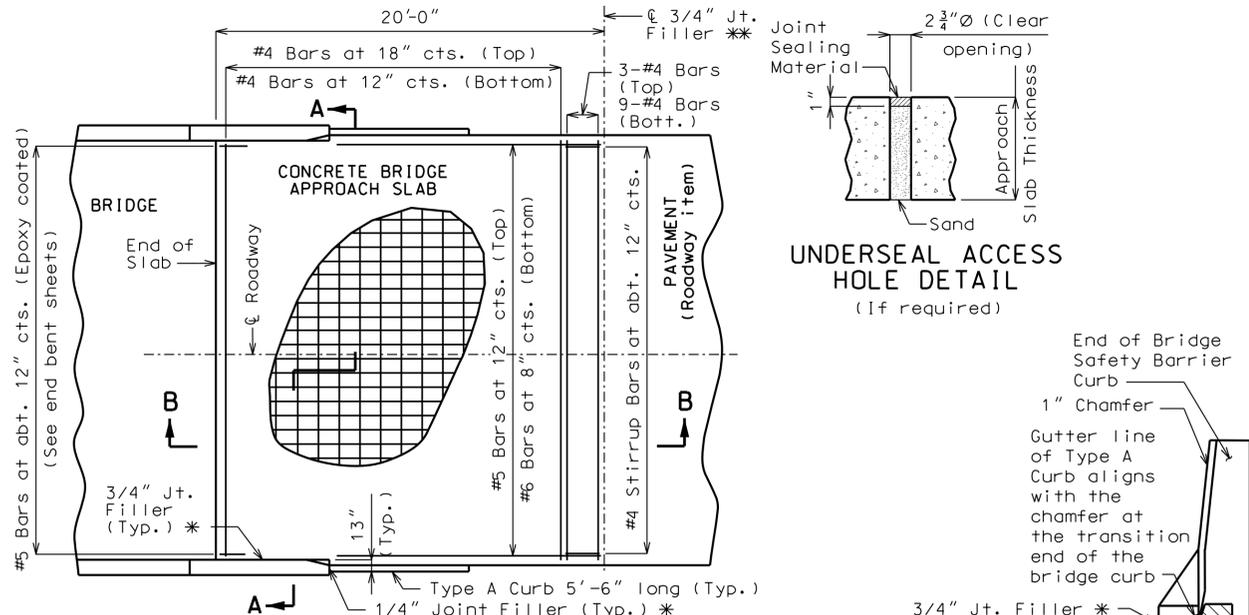
DATE: 31 AUGUST 2020

DESIGNED:	M. MUENKS
DRAWN:	M. MEYER
CHECKED:	S. HOFFMAN
HS JOB NO.	1815600
JACOBS JOB NO.	707841CH
SHEET	61 OF 67

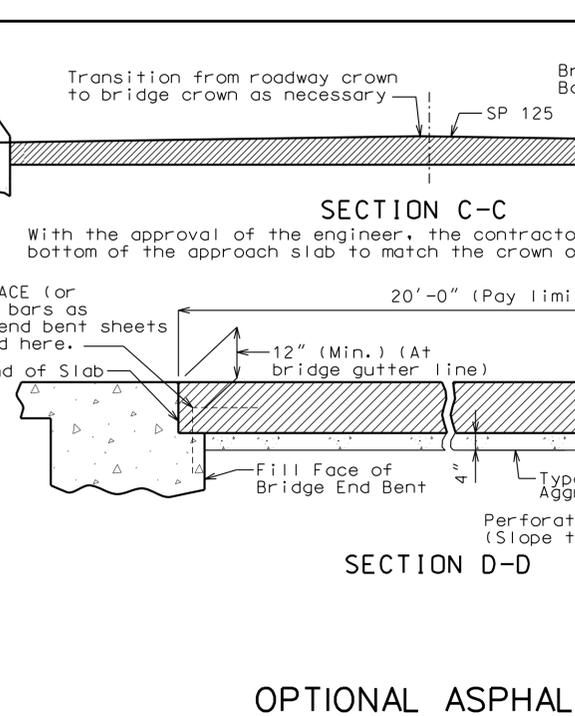
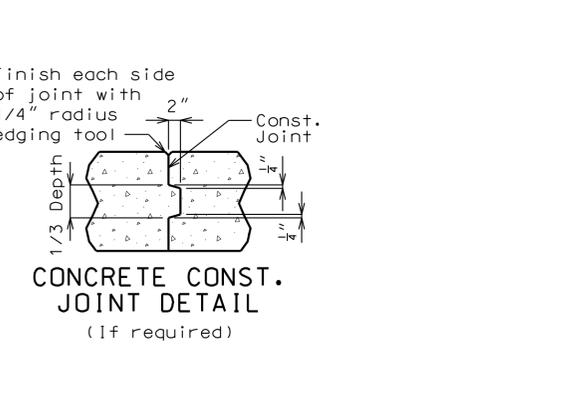
BR-121

Use R bars and K bars similarly as shown for conventional-formed safety barrier curb.

DWG: C:\Users\schuie\OneDrive\Desktop\Border\FW92600-GRS-TB.dwg
 PLOT DATE: 10/16/2018 8:05:14 AM
 OPERATOR: SCHUIETD
 SAVE DATE: 4/29/2020 10:27:41 AM

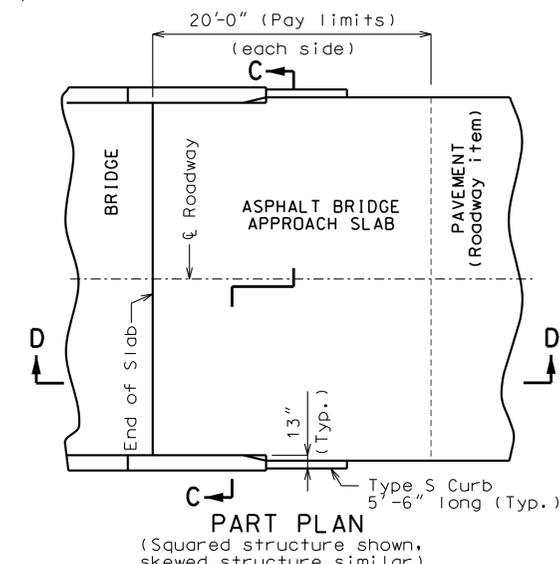


Notes For Concrete Slab Only:
All concrete for the bridge approach slab shall be in accordance with Sec 503 (f'c = 4,000 psi).
The reinforcing steel in the bridge approach slab shall be epoxy coated Grade 60 with fy = 60,000 psi.
Longitudinal construction joints in bridge approach slab shall be aligned with longitudinal construction joints in bridge slab.
Minimum clearance to reinforcing steel shall be 1 1/2", unless otherwise shown.
The reinforcing steel in the bridge approach slab shall be continuous. The transverse reinforcing steel may be made continuous by lap splicing the #4 bars 23".
All joint filler shall be in accordance with Sec 1057 for preformed fiber expansion joint filler except as noted.
Payment for furnishing all materials, labor and excavation necessary to construct the concrete bridge approach slab, including the timber header, underdrain, Type 5 aggregate base, joint filler, and all other appurtenances and incidental work as shown on this sheet, complete in place, will be considered completely covered by the contract unit price for Bridge Approach Slab (Minor Road) per square yard.
See Missouri Standard Plans Drawing 609.00 for details of Type A Curb.
* Seal joint between vertical face of bridge approach slab and wing with "Silicone Joint Sealant for Saw Cut and Formed Joints" in accordance with Sec 717.
** Except not allowed with asphalt pavement.



General Notes:
Contractor shall have the option to construct either slab except as noted.
The contractor shall pour and satisfactorily finish the bridge slab before placing the bridge approach slab.
Drain pipe may be either 6" diameter corrugated metallic-coated pipe underdrain, 4" diameter corrugated polyvinyl chloride (PVC) drain pipe, or 4" diameter corrugated polyethylene (PE) drain pipe.
MoDOT Construction personnel will indicate the bridge approach slab used for this structure:
 Concrete Bridge Approach Slab
 Asphalt Bridge Approach Slab

Notes For Asphalt Slab Only:
Payment for furnishing all materials, labor and excavation necessary to construct the asphalt bridge approach slab, including tack, curb, underdrain and Type 5 aggregate base within the pay limits shown, complete in place, will be considered completely covered by the contract unit price for Bridge Approach Slab (Minor Road) per square yard.
Application of tack is required between lifts per Sec 403.



NO.	DATE	REVISION

PRELIMINARY NOT FOR CONSTRUCTION

DATE: 31 AUGUST 2020
DESIGNED: M. MUENKS
DRAWN: M. MEYER
CHECKED: S. HOFFMAN
HS JOB NO. 1815600
JACOBS JOB NO. 707841CH
SHEET 62 OF 67
BR-122

DWG: C:\Users\schuett\Desktop\Brentwood\BR-122\BR-122.dwg
PLOT DATE: 10/16/2018 8:05:14 AM
OPERATOR: SCHUETT
SAVE DATE: 4/29/2020 10:27:41 AM

NO.	DATE	REVISION

THE PROFESSIONALS WHOSE SIGNATURES AND SEALS APPEAR HERE, ASSUME RESPONSIBILITY FOR WHAT APPEARS ON THIS SHEET ONLY. ALL OTHER PLANS, SPECIFICATIONS, REPORTS, AND OTHER DOCUMENTS, DESIGN OR REVISIONS BY CONTRACTORS, OWNER OR OTHERS ARE NOT PART OF THE PROJECT FOR WHICH THIS SEAL INDICATES RESPONSIBILITY.

PRELIMINARY
NOT FOR
CONSTRUCTION

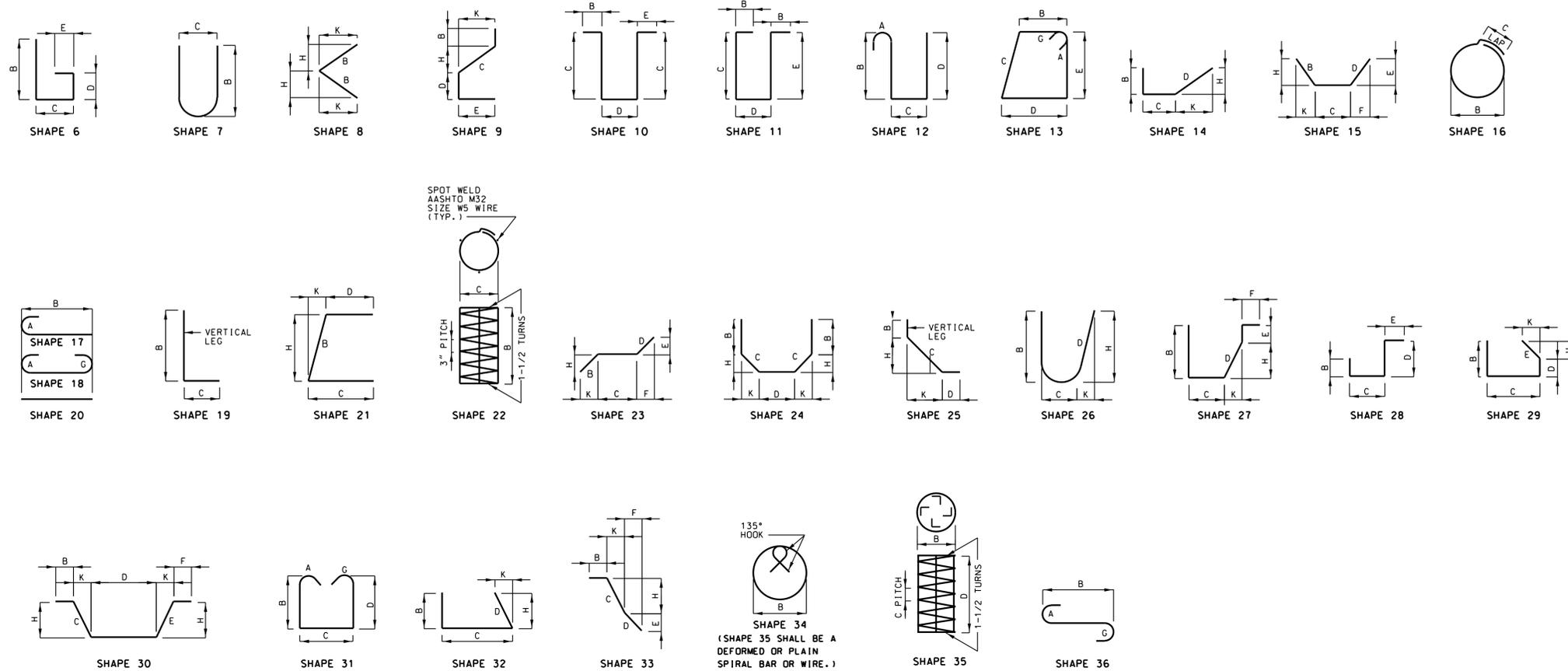
DATE: 31 AUGUST 2020

DESIGNED: M. MUENKS
DRAWN: M. MEYER
CHECKED: S. HOFFMAN

HS JOB NO. 1815600
JACOBS JOB NO. 707841CH

SHEET 66 OF 67

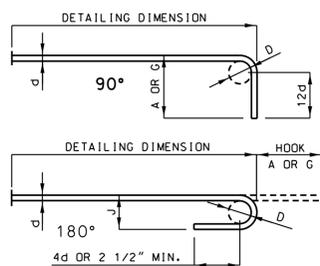
BR-126



BENDING DIAGRAMS

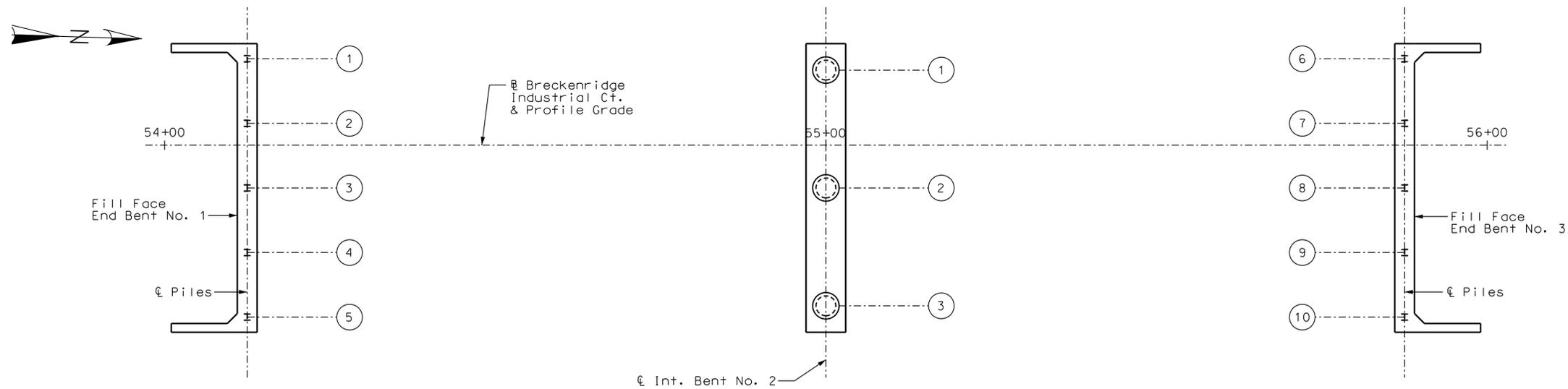
STIRRUP HOOK DIMENSIONS				
GRADES 40 - 50 - 60 KSI				
BAR SIZE	D (IN.)	90° HOOK		135° HOOK
		A OR G	A OR G	APPROX. H
#4	2"	4 1/2"	4 1/2"	3"
#5	2 1/2"	6"	5 1/2"	3 3/4"
#6	4 1/2"	12"	8"	4 1/2"

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



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

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.
X = BAR IS INCLUDED IN SUBSTRUCTURE QUANTITIES.
V = BAR DIMENSIONS VARY IN EQUAL INCREMENTS BETWEEN DIMENSIONS SHOWN ON THIS LINE AND THE FOLLOWING LINE.
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 FABRICATORS USE. (NEAREST INCH)
ACTUAL LENGTHS ARE MEASURED ALONG CENTERLINE BAR TO THE NEAREST INCH.
PAYWEIGHTS ARE BASED ON ACTUAL LENGTHS.
FOUR ANGLE OR CHANNEL SPACERS ARE REQUIRED FOR EACH COLUMN SPIRAL. SPACERS ARE TO BE PLACED ON INSIDE OF SPIRALS. LENGTH AND WEIGHT OF COLUMN SPIRALS DO NOT INCLUDE SPLICES OR SPACERS.
REINFORCING STEEL (GRADE 60) FY = 60,000 PSI.



PART PLAN SHOWING PILE AND DRILLED SHAFT NUMBERING FOR RECORDING AS-BUILT PILE AND DRILLED SHAFT DATA

As-Built Pile Data			
Pile No.	Length in Place (ft)	Computed Nominal Axial Compressive Resistance (kips)	Remarks
			End Bent No. 1
1			
2			
3			
4			
5			

As-Built Drilled Shaft Data				
Shaft No.	Top of Sound Rock (Elev.)	Tip of Casing (Elev.)	Bottom of Rock Socket (Elev.)	Remarks
				Intermediate Bent 2
1				
2				
3				

As-Built Pile Data			
Pile No.	Length in Place (ft)	Computed Nominal Axial Compressive Resistance (kips)	Remarks
			End Bent No. 3
6			
7			
8			
9			
10			

Indicate in remarks column:
A. Pile type and grade
B. Batter
C. Driven to practical refusal

This sheet to be completed by City of Brentwood construction personnel.

Jacobs
JACOBS ENGINEERING GROUP INC.
501 NORTH BROADWAY
ST. LOUIS, MISSOURI 63102-2131
PHONE: 314-335-4000
CERTIFICATE OF AUTHORITY: 000704
EXPIRATION DATE: DECEMBER 31, 2020

HORNER SHIFRIN
401 S. 18TH ST., STE. 400 SAINT LOUIS, MO 63103-2296
314-531-4321 • FAX 314-531-6966 • WWW.HORNERSHIFRIN.COM
DISCIPLINE: PROFESSIONAL ENGINEERING
CERTIFICATE OF AUTHORITY: 000159
EXPIRATION DATE: DECEMBER 31, 2020

PDS
Planning Design Studio
P.O. BOX 179279 SAINT LOUIS, MO 63117
314-241-3600 • WWW.PLANNINGDESIGNSTUDIO.COM
DISCIPLINE: LANDSCAPE ARCHITECT
CERTIFICATE OF AUTHORITY: LAC-2006001845
EXPIRATION DATE: DECEMBER 31, 2020

NO.	DATE	REVISION

PRELIMINARY
NOT FOR
CONSTRUCTION

DATE: 31 AUGUST 2020

DESIGNED: M. MUENKS
DRAWN: M. MEYER
CHECKED: S. HOFFMAN

HS JOB NO. 1815600
JACOBS JOB NO. 707841CH

SHEET 67 OF 67

BR-127

DWS: C:\Users\schuett\Desktop\BentPlan\FW302600-GRS-TB.dwg
 PLOT DATE: 4/29/20 10:27:41 AM
 OPERATOR: SCHUETT
 PLOT DATE: 10/16/2018 8:05:14 AM