

GENERAL CONSTRUCTION NOTES:

1. PERMITTING: ALL CONSTRUCTION SHALL BE COMPLETED IN COMPLIANCE WITH THE CONDITIONS OF THE U.S. ARMY CORPS OF ENGINEERS NATIONWIDE PERMIT (NWP) 13, ISSUED: FEBRUARY 25, 2022 - EXPIRES: MARCH 14, 2026. THE CONTRACTOR IS REQUIRED TO MAINTAIN A COPY OF THE PERMIT ONSITE THROUGHOUT THE DURATION OF THE CONSTRUCTION PERIOD.
2. THE CONTRACTOR MUST REMAIN WITHIN THE DETERMINED ACCESS AND CONSTRUCTION EASEMENTS.
3. THE CONTRACTOR IS TO GRADE THE SITE TO PROVIDE POSITIVE DRAINAGE TO THE RIVER.
4. ALL DISTURBED AREAS MUST BE STABILIZED AS SOON AS POSSIBLE UPON COMPLETION OF GRADING—SEE THE EROSION AND SEDIMENT CONTROL PLAN.
5. THE PROJECT IS WITHIN A FEMA FLOODPLAIN AND FLOODWAY AND NO FILL SHALL BE PLACED IN ADDITION TO THAT SHOWN ON THE CONSTRUCTION PLAN.
6. ALL MATERIALS MUST BE PROVIDED PER PROJECT SPECIFICATIONS AND THE SUPPLIER GUIDELINES. CONTRACTOR SHALL PROVIDE COMPLETE AND PROPER FUNCTION OF ALL MATERIAL INSTALLATIONS.
7. THE CONTRACTOR IS TO MAINTAIN MUD AND SEDIMENT ON THE SITE AND SHALL CLEAN MUD OFF ROADS AT LEAST ONCE DAILY.
8. THE CONTRACTOR MUST VERIFY FIELD CONDITIONS AND NOTIFY THE ENGINEER AND OWNER OF SIGNIFICANT DIFFERENCES FROM THE PLANS.
9. THE CONTRACTOR IS RESPONSIBLE TO COMPLY WITH ALL GREENE COUNTY CODES AND PERMITS.
10. THE CONTRACTOR MUST INSTALL EROSION AND SEDIMENT CONTROL MEASURES PRIOR TO BEGINNING CONSTRUCTION.
11. EXCAVATION: MISSOURI LAW REQUIRES THAT ANY PERSON MAKING OR BEGINNING ANY EXCAVATION NOTIFY ALL UNDERGROUND FACILITY OWNER/OPERATORS WHICH MAY BE AFFECTED BY SAID EXCAVATION AT LEAST THREE BUT NOT MORE THAN TEN WORKING DAYS IN ADVANCE. TO MAKE THIS NOTIFICATION AND LOCATE ALL UTILITIES AT THE SITE OR ON INGRESS AND EGRESS ROADS PRIOR TO EXCAVATION, CONTACT MISSOURI ONE CALL SYSTEM AT 800-344-7483 (1-800-DIG-RITE) 811 AND SUBMIT A LOCATE REQUEST.
12. TRANSPORTATION: THE CONTRACTOR SHALL COORDINATE WITH THE COUNTY ROAD DISTRICT TO ENSURE HAUL ROUTES AND LOADS CONFORM TO TONNAGE LIMITATIONS ON LOCAL BRIDGES.
13. JOBSITE SAFETY: THE CONTRACTOR AND ALL SUBCONTRACTORS SHALL PERFORM WORK ON THE JOBSITE IN COMPLIANCE WITH APPLICABLE OSHA STANDARDS AND ABIDE BY ALL LOCAL, STATE AND FEDERAL REGULATIONS.
14. TECHNICAL ASSISTANCE: FOR TECHNICAL ASSISTANCE CONCERNING THE PLAN SET, CONTACT: TODD WAGNER, P.E. - WAGNER & ASSOCIATES, LLC 417.522.3293

- INDEX
1. COVER
 2. EXISTING TOPOGRAPHY
 3. PLAN
 4. DETAILS
 5. EROSION CONTROL

BANK STABILIZATION

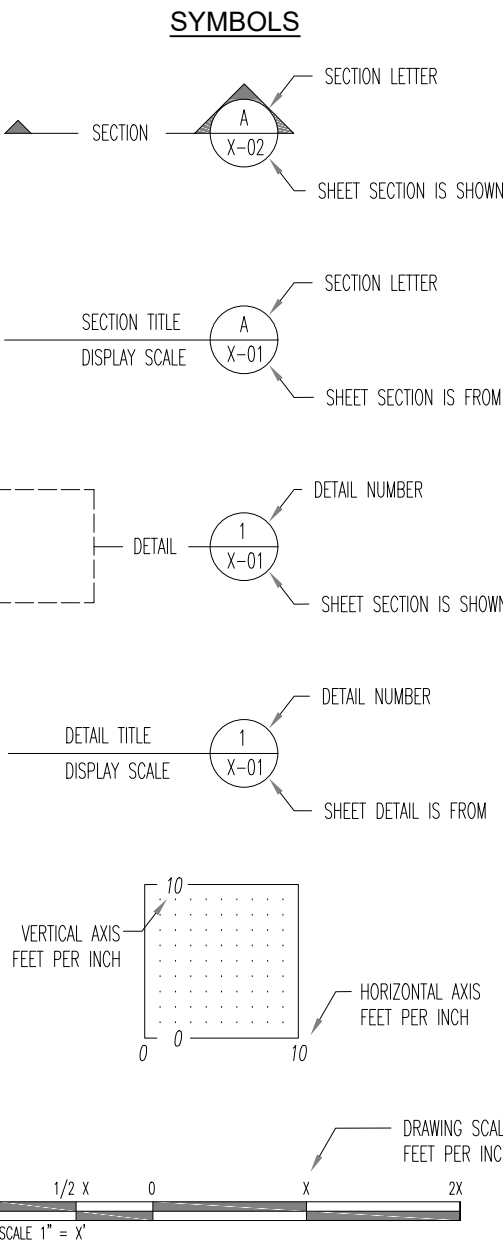
UPPER JAMES RIVER AT HEDGPETH SITE - FR 134
GREENE COUNTY, MISSOURI

PROPERTY ADDRESS: FARM ROAD 134, STRAFFORD, MO
PROPERTY OWNER: DWIGHT HEDGPETH, ADDRESS
PROJECT AND SECTION 319 GRANT ADMINISTRATOR:
WATERSHED COMMITTEE OF THE OZARKS



ESTIMATED PROJECT QUANTITIES

DESCRIPTION	DESIGN LENGTH	QUANTITY
ROCK RIPRAP BLANKET	---LF	---TN
GRAVEL FILL	--	--
SEEDING AND MULCHING	--	--

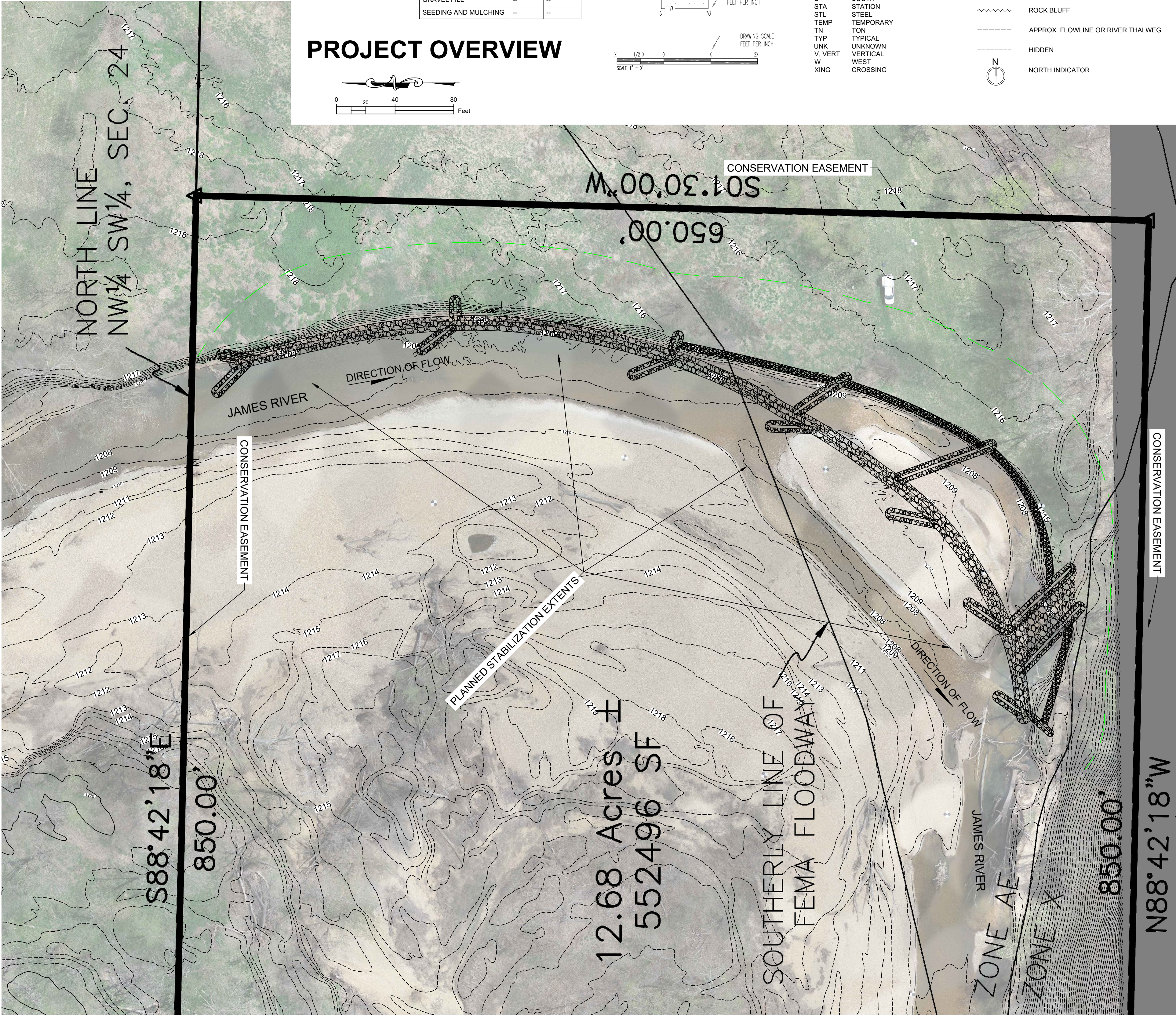


ABBREVIATIONS

BOP	BEGINNING OF PROJECT
CC	CENTER TO CENTER
CL	CUBIC FEET
CF	CENTERLINE
CY	CUBIC YARD
DIA.Ø	DIAMETER
EA	EACH
EOP	END OF PROJECT
EL. ELEV	ELEVATION
FL	FLOW LINE
FT.	FOOT, FEET
GA	GAUGE
GALV	GALVANIZED
H. HORZ	HORIZONTAL
HDWL	HEADWALL
HWY	HIGHWAY
ID	INSIDE DIAMETER
IN.	INCH
LPSTP	LONGITUDINAL PEAKED STONE TOE PROTECTION
LT	LEFT
MAX	MAXIMUM
MIN	MINIMUM
MODOT	MISSOURI DEPARTMENT OF TRANSPORTATION
N	NORTH
NTS	NOT TO SCALE
OC	ON CENTER
OD	OUTSIDE DIAMETER
PSI	POUNDS PER SQUARE INCH
PVMT	PAVEMENT
R	RADIUS
RCP	REINFORCED CONCRETE PIPE
RT	RIGHT
STA	STATION
STL	STEEL
TEMP	TEMPORARY
TN	TON
TYP	TYPICAL
UNK	UNKNOWN
V. VERT	VERTICAL
W	WEST
XING	CROSSING

LEGEND

	EXISTING TREES
	EXISTING FENCE
	PLANNED FENCE
	PIPE CULVERT (OPENING DIAMETER)
	BOX CULVERT (OPENING WIDTH X HEIGHT)
	EXISTING UTILITY POLE
	EXISTING UNDERGROUND UTILITY MARKER
	ROCK RIPRAP
	ONSITE EXCAVATED SPOIL
	MULCH
	GRAVEL
	STABLE BASE
	EXISTING GROUNDLINE
	CENTERLINE
	DEPRESSION
	ROCK BLUFF
	APPROX. FLOWLINE OR RIVER THALWEG
	HIDDEN
	NORTH INDICATOR



ROCK RIPRAP MATERIAL SOURCE AND SELECTION:

1. ROCK RIPRAP SHALL BE OBTAINED FROM A MODOT APPROVED SOURCE FOR BULK ROCK AGGREGATE, AND CONSIST OF INDIVIDUAL ROCK FRAGMENTS THAT ARE DENSE, SOUND, AND FREE FROM CRACKS, SEAMS AND OTHER DEFECTS CONDUCTIVE TO ACCELERATED WEATHERING. ROCK FRAGMENTS SHALL BE ANGULAR TO SUBROUNDED, WITH THE LEAST DIMENSION OF AN INDIVIDUAL ROCK FRAGMENT NOT LESS THAN 1/3 THE GREATEST DIMENSION OF THE FRAGMENT.
2. UNLESS OTHERWISE SPECIFIED, ROCK RIPRAP SHALL HAVE A GRADATION IN ACCORDANCE WITH MODOT MATERIAL SPECIFICATION #609.60.2.4, TYPE 4 ROCK DITCH LINER, CONSISTING OF MATERIAL WITH A PREDOMINANT ROCK SIZE OF 19 INCHES (475 MM), A MAXIMUM ROCK SIZE OF 28" (700 MM) AND A GRADATION SUCH THAT NO MORE THAN 15 PERCENT WILL BE LESS THAN 6 INCHES (150 MM).
3. ROCK RIPRAP WILL CONSIST OF CLEAN, UNCONTAMINATED MATERIALS FREE FROM DIRT, CLAY, SAND, ROCK FINES AND OTHER MATERIALS NOT MEETING THE REQUIRED GRADATION LIMITS TO MINIMIZE EXCESSIVE TURBIDITY BY LEACHING OF FINES, AS WELL AS TO PRECLUDE THE ENTRANCE OF DELETERIOUS AND/OR TOXIC MATERIALS INTO THE WATERS OF THE UNITED STATES BY NATURAL RUNOFF OR BY LEACHING.
4. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL IDENTIFY THE SOURCE QUARRY AND OBTAIN DOCUMENTATION AS TO THE QUALITY (BULK SPECIFIC GRAVITY, ABSORPTION, SOUNDNESS) OF THE SOURCE MATERIAL. ONLY THOSE MATERIALS APPROVED BY THE ENGINEER SHALL BE USED IN CONSTRUCTION.

ROCK RIPRAP SUBGRADE PREPARATION:

1. THE SUBGRADE SURFACES ON WHICH THE ROCK RIPRAP IS TO BE PLACED SHALL BE REASONABLY SMOOTH, THE CONDITION AND DEPTHS OF WHICH DOCUMENTED BY FIELD NOTES, PHOTOGRAPH, OR SIMILAR METHOD PRIOR TO ROCK PLACEMENT.
2. DURING CONSTRUCTION, EXCESS SPOIL WILL BE STOCKPILED AWAY FROM CONCENTRATED FLOW AREAS. AFTER MAJOR CONSTRUCTION OPERATIONS ARE COMPLETED, EXCESS SPOIL SHALL BE SPREAD UNIFORMLY IN DESIGNATED AREAS AND ALONG THE TOE OF THE ROCK RIPRAP EROSION CONTROL MEASURES.
3. THE ROCK RIPRAP SHALL BE PLACED TO THE DEPTHS SPECIFIED AND SHALL BE CONSTRUCTED TO THE FULL COURSE THICKNESS IN ONE OPERATION IN SUCH A MANNER AS TO AVOID SERIOUS DISPLACEMENT OF THE UNDERLYING MATERIALS. LARGER ROCK SHALL BE PLACED AT THE TOE OF THE ROCK PROTECTION MEASURES TO FORM A STABLE BASE.
4. ROCK SHALL BE PLACED IN A MANNER THAT WILL ENSURE THAT LARGER ARE ROCKS UNIFORMLY DISTRIBUTED AND FIRMLY IN CONTACT ONE TO ANOTHER WITH THE SMALLER ROCKS FILLING THE VOIDS BETWEEN THE LARGER ROCKS. ALL PLACED ROCK SHALL REQUIRE MECHANICAL COMPACTION EFFORTS TO ENHANCE IN-PLACE CONSOLIDATION.

ROCK STABILIZATION DESCRIPTION:

1. THE LONGITUDINAL PEAKED STONE TOE PROTECTION (LPSTP) SHALL BE COMPRISED OF CONSOLIDATED ROCK RIPRAP THAT IS A MINIMUM OF FOUR (4) VERTICAL FEET UP THE BANK WITH A BLANKET THICKNESS OF 30 INCHES AND AT A BANK SLOPE NO GREATER THAN 1.75H TO 1.0V. AS SHOWN ON SHEET C-03. THIS STABILIZATION MEASURE SHALL BE PLACED WITH SUFFICIENT DENSITY TO REQUIRE APPROXIMATELY 1.5 TONS OF ROCK PER LINEAR FOOT TO CONSTRUCT.
2. ROCK WEIRS SHALL CONSIST OF CONSOLIDATED ROCK THAT IS 3 FEET TALL AND 8 FEET WIDE AT THE BASE AND 10 FEET LONG, AT AN ANGLE OF 30° OFF THE BANK AND AT A SLOPE NO GREATER THAN 1.75H TO 1.0V. CORRECTLY PLACED, THIS STABILIZATION MEASURE REQUIRES APPROXIMATELY 2.5 TONS OF ROCK PER LINEAR FOOT TO CONSTRUCT. ROCK LARGER THAN MODOT TYPE 4 IS AUTHORIZED TO FORM THE BASE OF THIS STABILIZATION MEASURE TO IMPROVE EROSION RESISTANCE.
3. THE ASSUMED ROCK WEIGHT TO VOLUME CONVERSION IS 1.5 TN TO 1.0 CY. REFER TO CROSS-SECTION DETAILS LISTED ON SHEET C-03 FOR ADDITIONAL DETAILS ON ROCK STABILIZATION DIMENSIONS.

PRESERVATION AND MANAGEMENT OF WOODY VEGETAION:

1. TREES AND OTHER VEGETATION DESIGNATION TO REMAIN UNDISTURBED SHALL BE PROTECTED FROM DAMAGE THROUGHOUT THE DURATION OF THE CONSTRUCTION PERIOD. ANY DAMAGES RESULTING FROM THE CONTRACTOR'S OPERATION OR NEGLECT SHALL BE REPAIRED BY THE CONTRACTOR.
2. ANY CLEARED VEGETATION OR IN-CHANNEL POST-FLOOD VEGETATIVE DEBRIS (TREES, LOGS, BRUSH) THAT MUST BE REMOVED TO ENABLE PLACEMENT OF STABILIZATION WORKS SHALL BE RELOCATED AS INDICATED IN THE PLANS OR DISPOSED IN AN APPROVED LOCATION AWAY FROM THE PROJECT SITE.
3. IF BANK STABILIZATION MEASURES ARE REIMBURSED IN WHOLE OR PART BY A LOCAL SOIL AND WATER CONSERVATION DISTRICT, FENCING MAY BE REQUIRED TO DENY ANIMAL ACCESS TO A 50 FOOT VEGETATIVE ZONE ADJACENT TO THE STREAMBANK. OVER TIME THIS ZONE WILL NATURALLY DEVELOP INTO A PROTECTIVE RIPARIAN CORRIDOR.

ACCESS AND EGRESS:

1. THE CONTRACTOR SHALL PROVIDE A PLAN OF EQUIPMENT INGRESS/EGRESS AS WELL AS EQUIPMENT STAGING AREAS WITHIN THE WORK LIMITS TO THE MCDONALD COUNTY COMMISSION PRIOR TO MOBILIZATION TO THE SITE TO MINIMIZE DISTURBANCES TO ADJACENT BUSINESSES AND PRIVATE RESIDENCES.
2. THE CONTRACTOR SHALL, AT HIS/HER OWN EXPENSE, REMOVE AND REPLACE ALL FENCES, POST, CULVERTS, STREET SIGNS AND THE LIKE AS REQUIRED WITHIN THE WORK LIMITS AS SHOWN ON SHEET C-01.

DESIGNED BY: TW
DRAWN BY: MVE
REVIEWED BY: TW
CHECKED BY: TW
APPROVED BY: TW

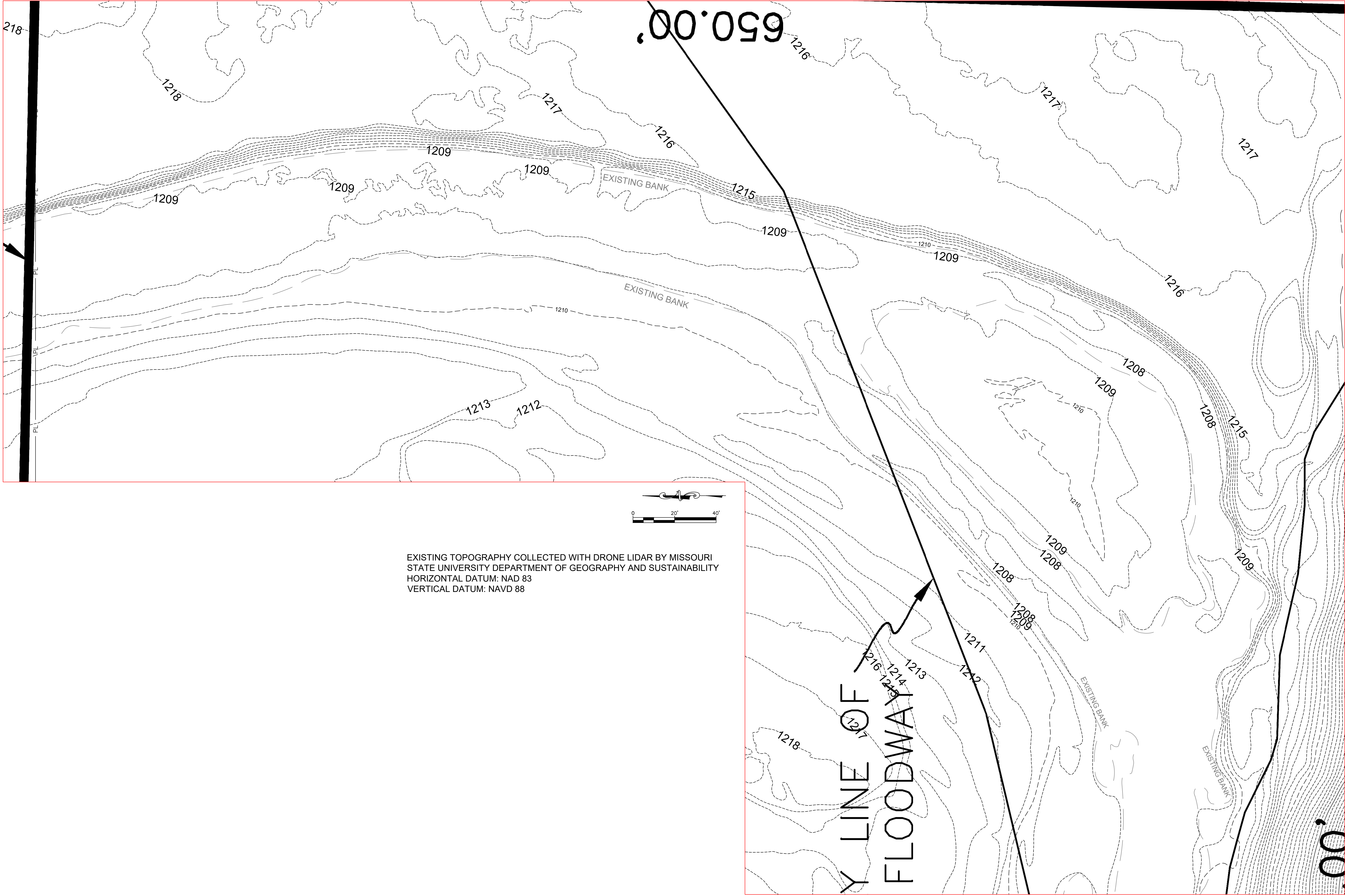
DATE	REVISION	NO.



Wagner & Associates, LLC
Civil • Water • Environment
Todd Wagner, PE 417-522-3293 wagnerwater.com



STREAMBANK STABILITY PROJECT	SHEET 1 OF 5
HEDGPETH SITE ON THE UPPER JAMES RIVER	
WATERSHED COMMITTEE OF THE OZARKS	
COVER	



EXISTING TOPOGRAPHY COLLECTED WITH DRONE LIDAR BY MISSOURI
STATE UNIVERSITY DEPARTMENT OF GEOGRAPHY AND SUSTAINABILITY
HORIZONTAL DATUM: NAD 83
VERTICAL DATUM: NAVD 88

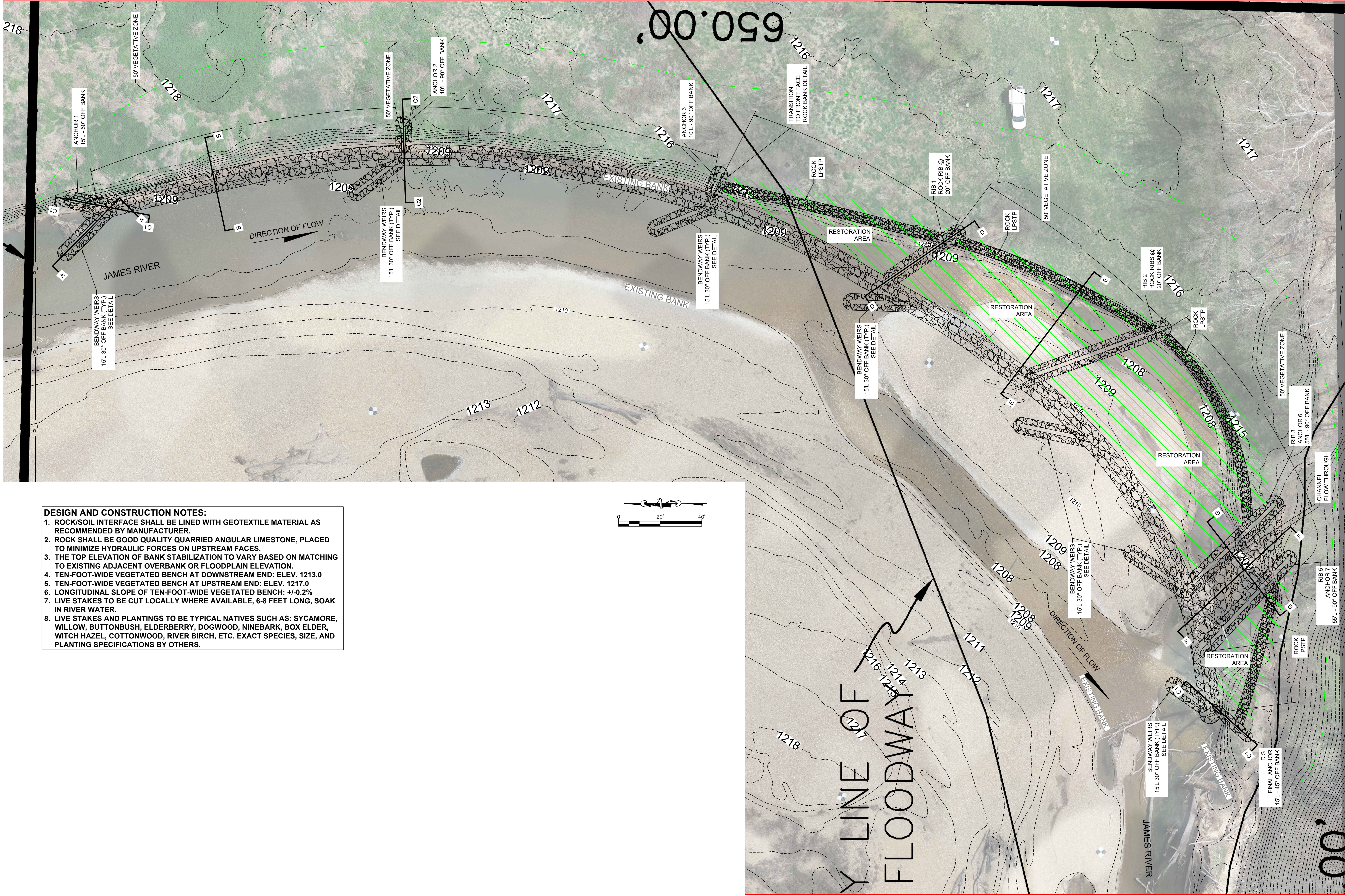
DESIGNED BY: TW		DATE	
DRAWN BY: MVE			
REVIEWED BY: TW			
CHECKED BY: TW			
APPROVED BY: TW			

STATE OF MISSOURI	
TODD G. WAGNER	
E-25668	
08/14/26	
PROFESSIONAL ENGINEER	

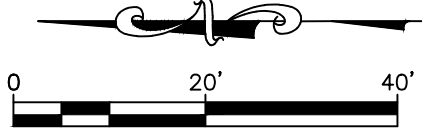
Wagner & Associates, LLC	
Civil • Water • Environment	
Todd Wagner, PE	417-522-3293
wagnerwater.com	

STREAMBANK STABILITY PROJECT	
HEDGPETH SITE ON THE UPPER JAMES RIVER	
WATERSHED COMMITTEE OF THE OZARKS	
EXISTING TOPOGRAPHY	

SHEET	
2	OF 5



- DESIGN AND CONSTRUCTION NOTES:**
1. ROCK/SOIL INTERFACE SHALL BE LINED WITH GEOTEXTILE MATERIAL AS RECOMMENDED BY MANUFACTURER.
 2. ROCK SHALL BE GOOD QUALITY QUARRIED ANGULAR LIMESTONE, PLACED TO MINIMIZE HYDRAULIC FORCES ON UPSTREAM FACES.
 3. THE TOP ELEVATION OF BANK STABILIZATION TO VARY BASED ON MATCHING TO EXISTING ADJACENT OVERBANK OR FLOODPLAIN ELEVATION.
 4. TEN-FOOT-WIDE VEGETATED BENCH AT DOWNSTREAM END: ELEV. 1213.0
 5. TEN-FOOT-WIDE VEGETATED BENCH AT UPSTREAM END: ELEV. 1217.0
 6. LONGITUDINAL SLOPE OF TEN-FOOT-WIDE VEGETATED BENCH: +/-0.2%
 7. LIVE STAKES TO BE CUT LOCALLY WHERE AVAILABLE, 6-8 FEET LONG, SOAK IN RIVER WATER.
 8. LIVE STAKES AND PLANTINGS TO BE TYPICAL NATIVES SUCH AS: SYCAMORE, WILLOW, BUTTONBUSH, ELDERBERRY, DOGWOOD, NINEBARK, BOX ELDER, WITCH HAZEL, COTTONWOOD, RIVER BIRCH, ETC. EXACT SPECIES, SIZE, AND PLANTING SPECIFICATIONS BY OTHERS.



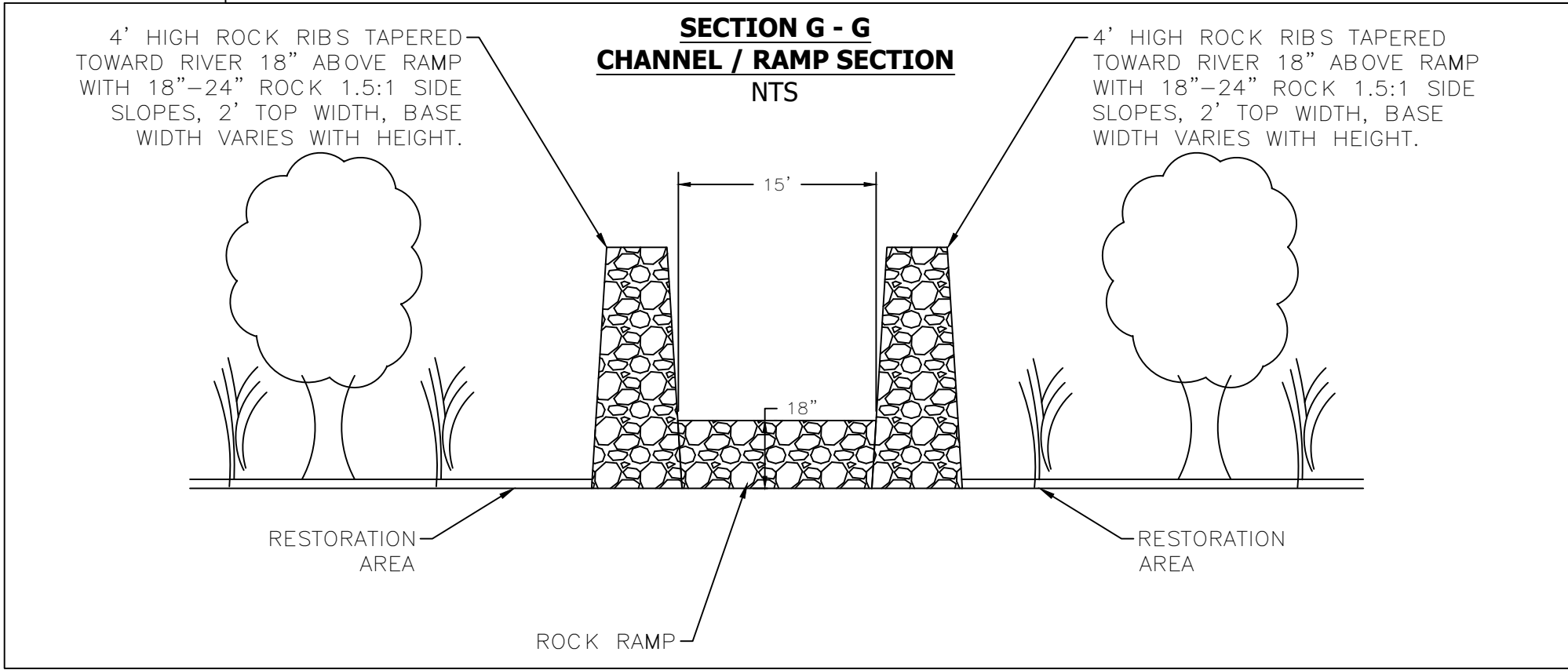
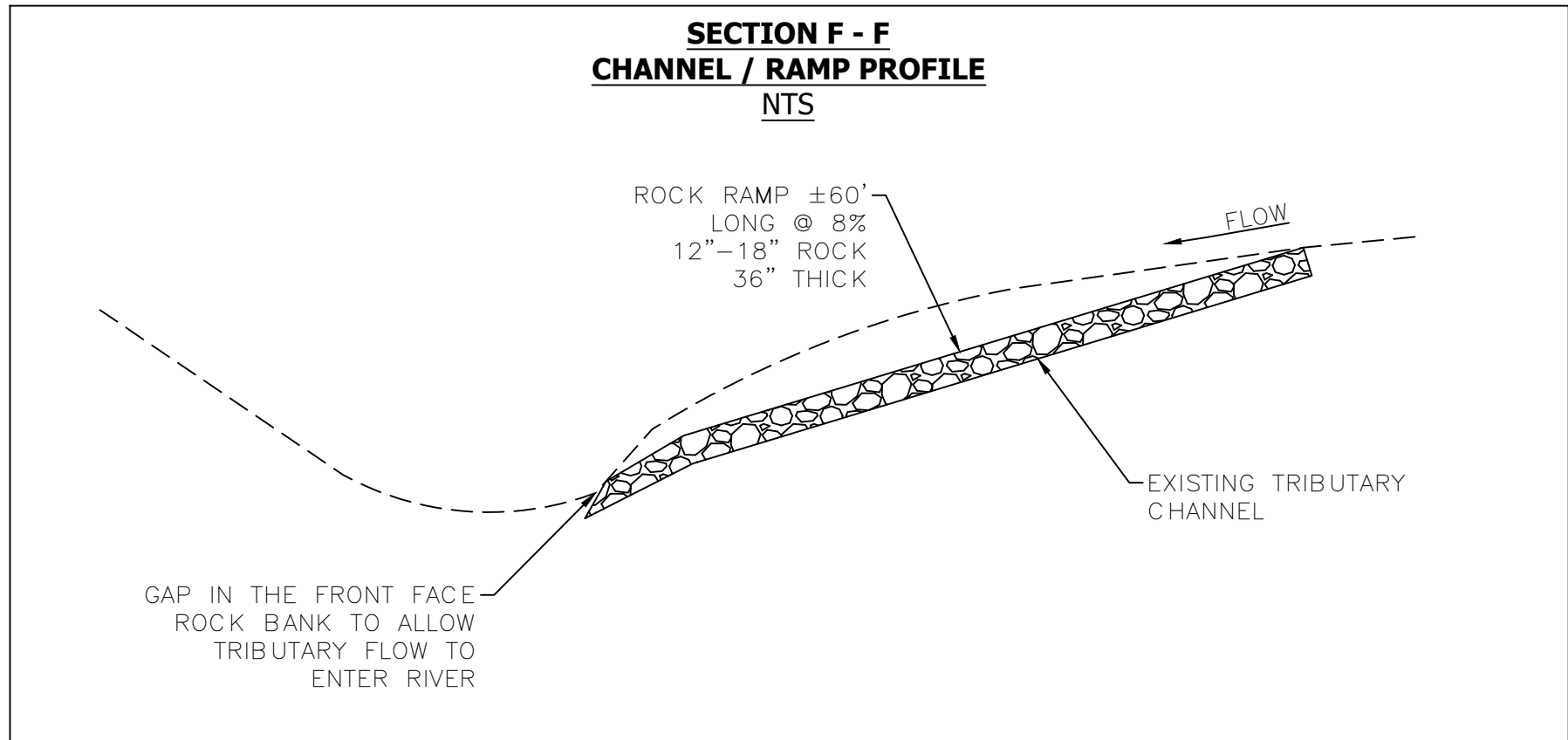
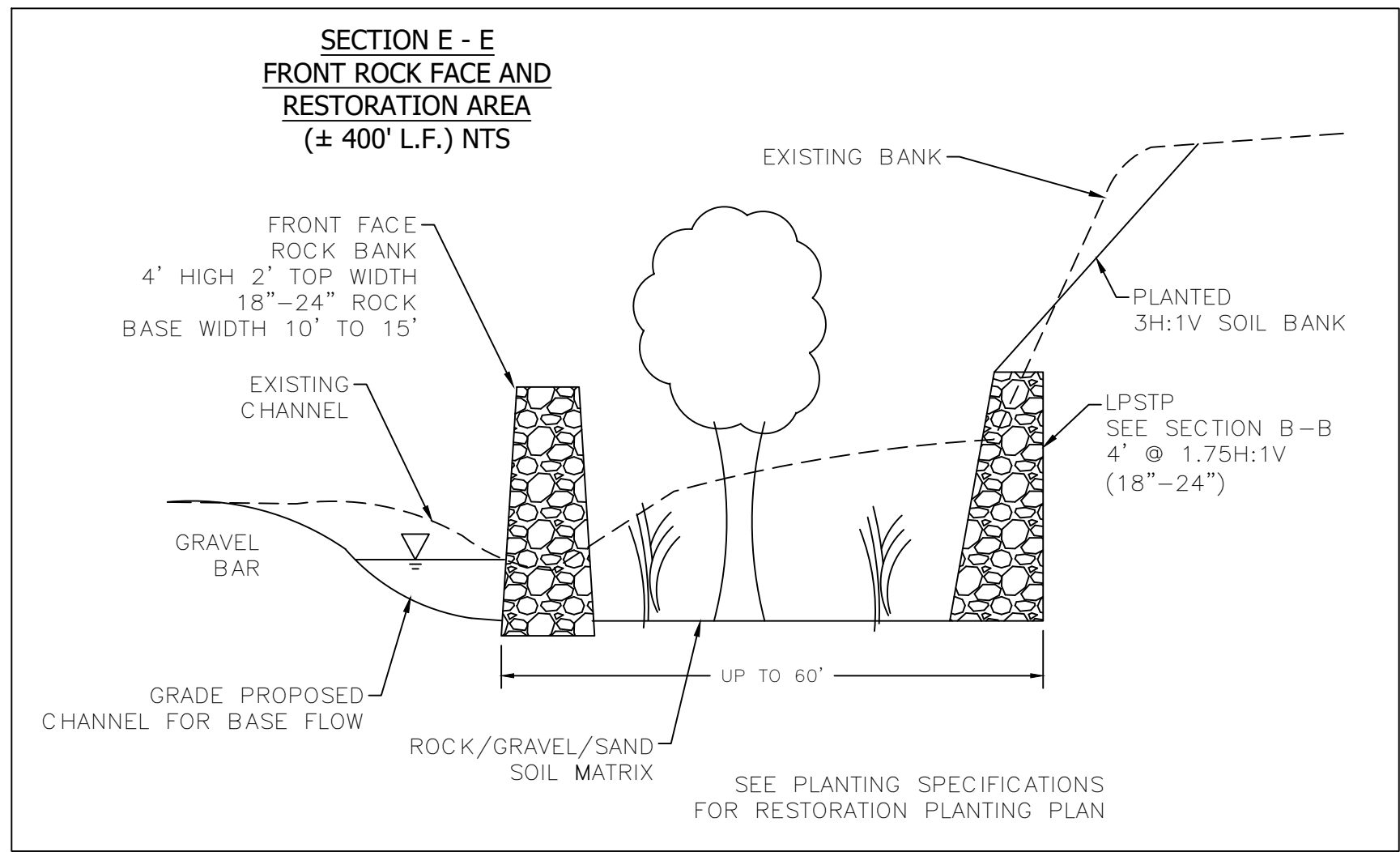
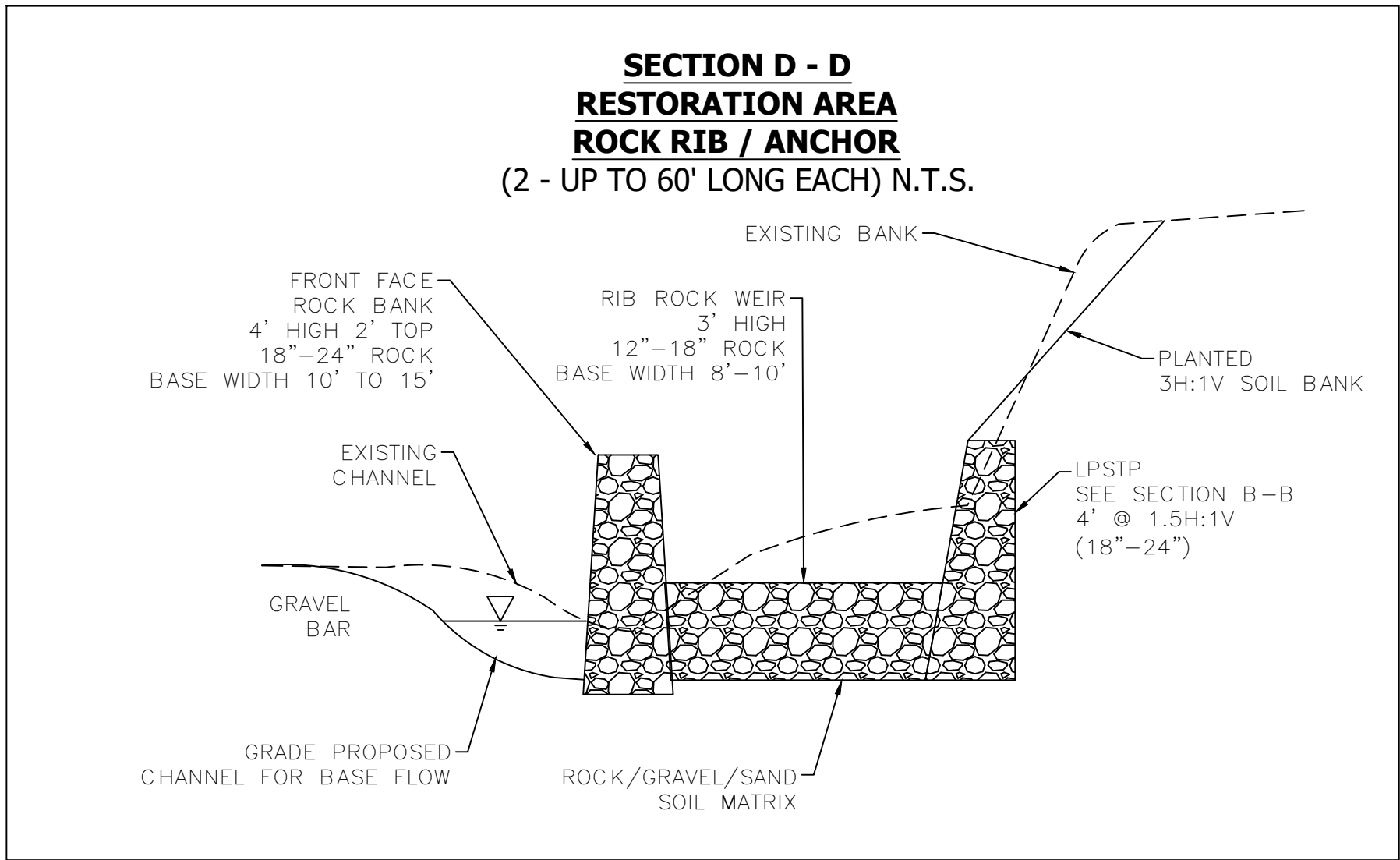
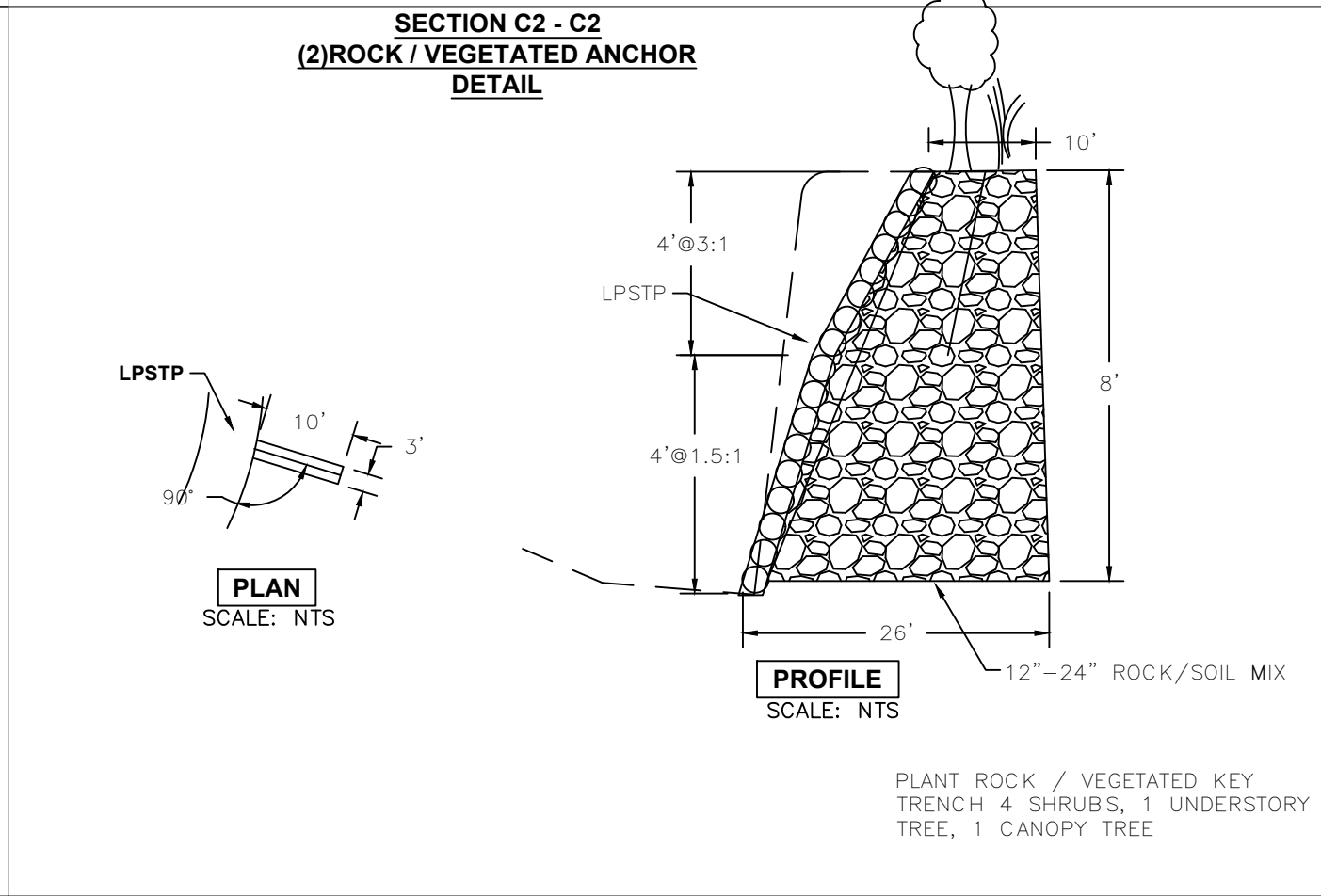
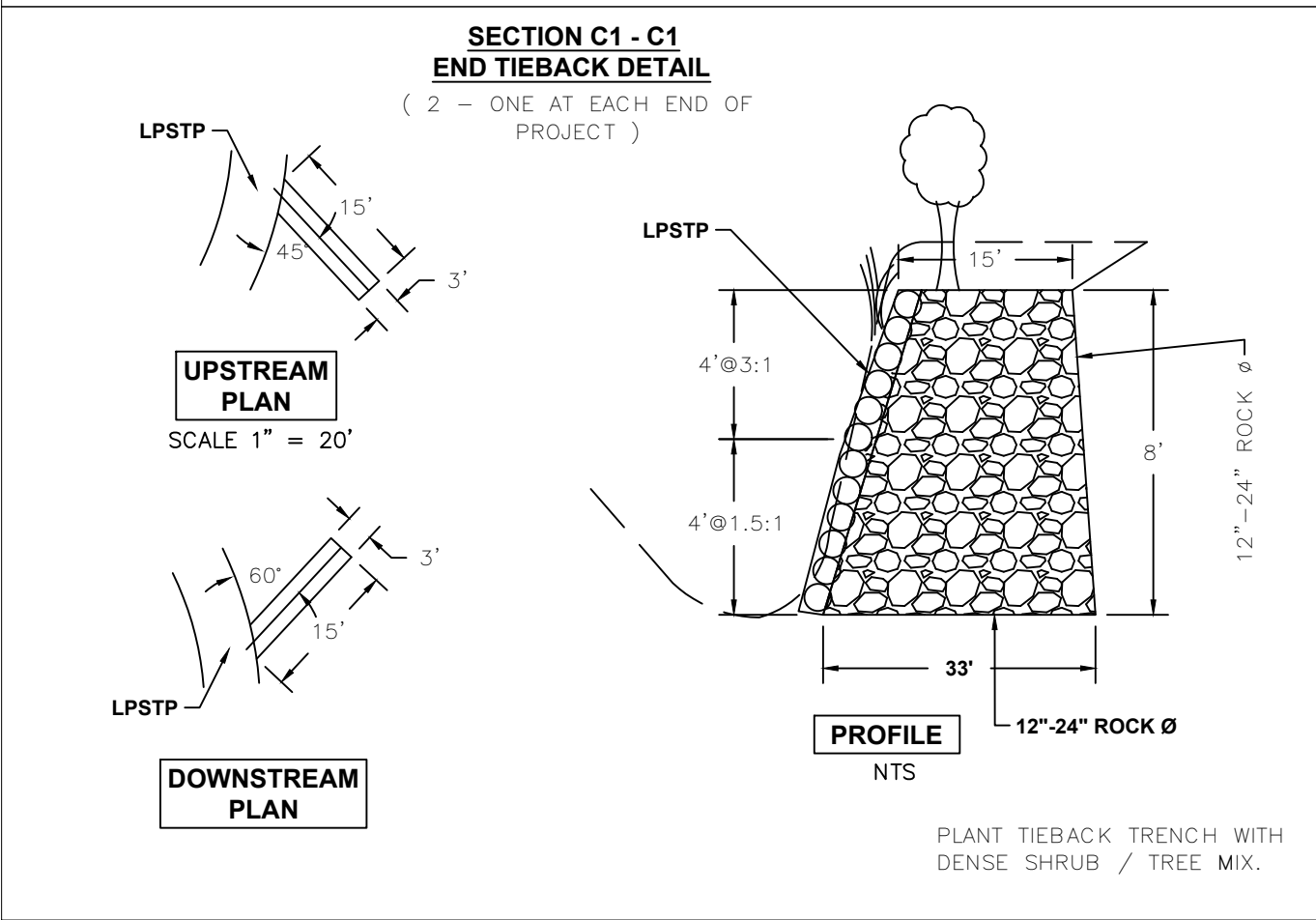
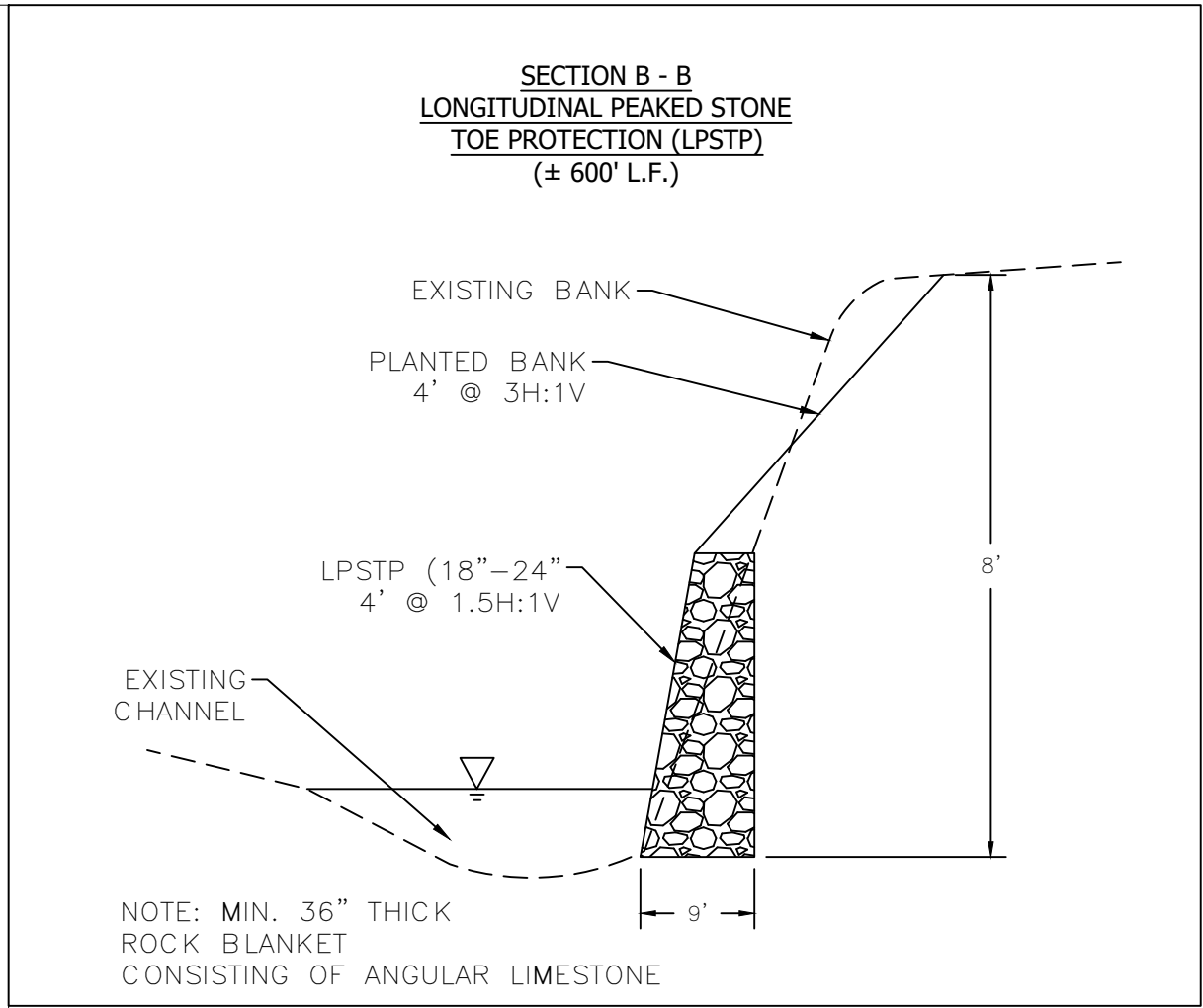
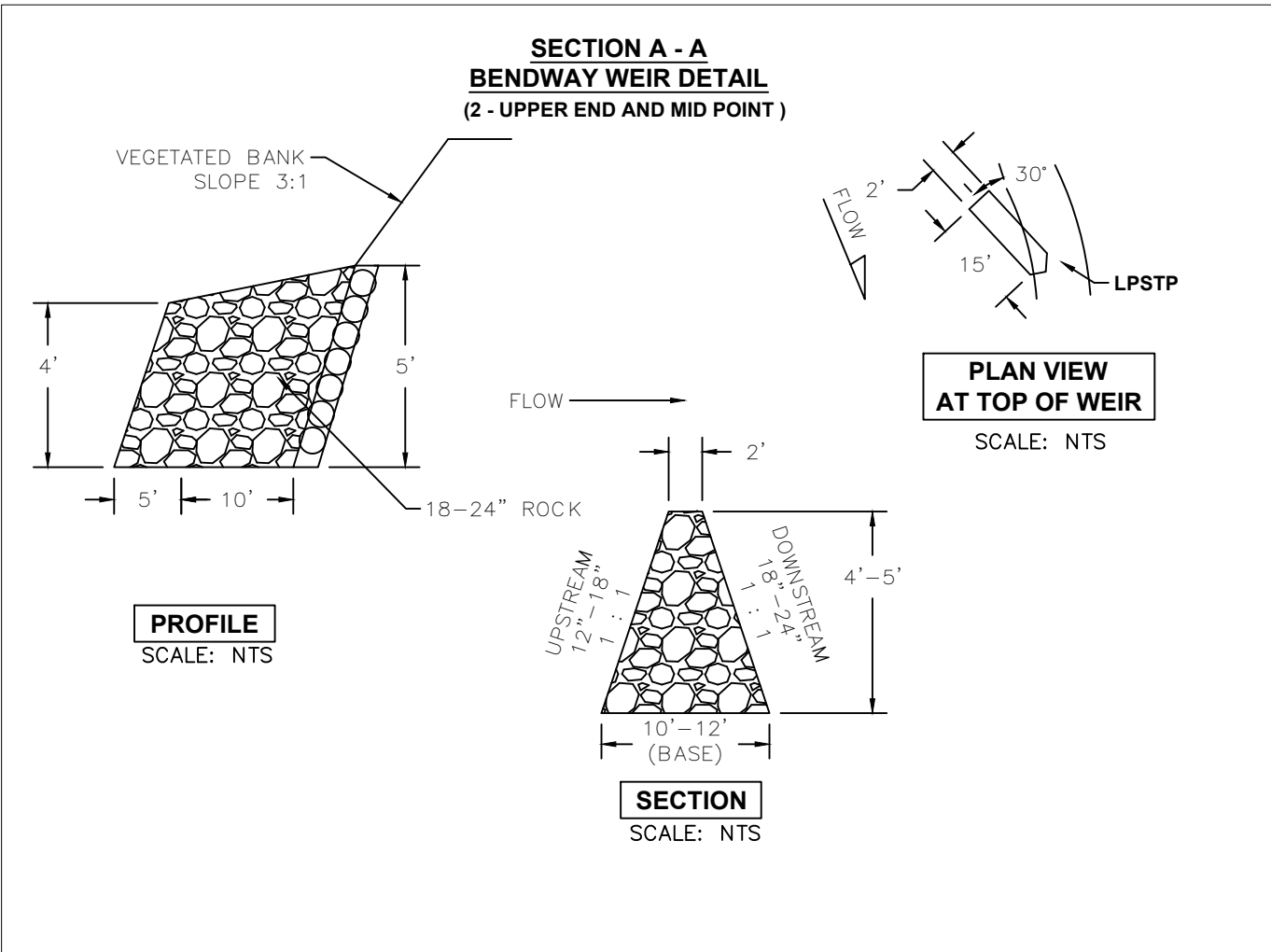
STREAMBANK STABILITY PROJECT		SHEET 3 OF 5	
HEDGPETH SITE ON THE UPPER JAMES RIVER		WATERSHED COMMITTEE OF THE OZARKS	
PLAN		PLAN	

Wagner & Associates, LLC
Civil • Water • Environment
Todd Wagner, PE 417-522-3293 wagnerwater.com

DESIGNED BY: TW
DRAWN BY: MVE
REVIEWED BY: TW
CHECKED BY: TW
APPROVED BY: TW

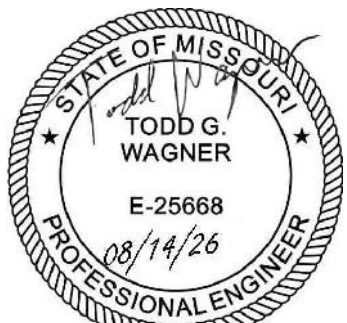
DATE: _____
REVISION: _____
NO: _____

STATE OF MISSOURI
TODD G. WAGNER
E-25668
08/14/26
PROFESSIONAL ENGINEER



DESIGNED BY: TW
DRAWN BY: MVE
CHECKED BY: JTW
APPROVED BY: TW

NO.	REVISION	DATE



Wagner & Associates, LLC

Civil • Water • Environment

Todd Wagner, PE 417-522-3293 wagnerwater.com

