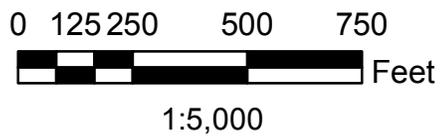
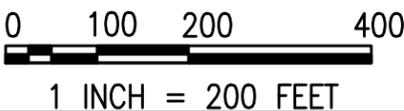
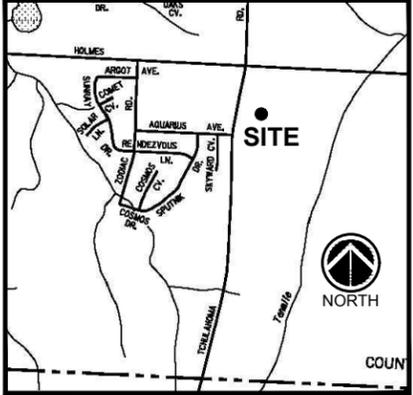
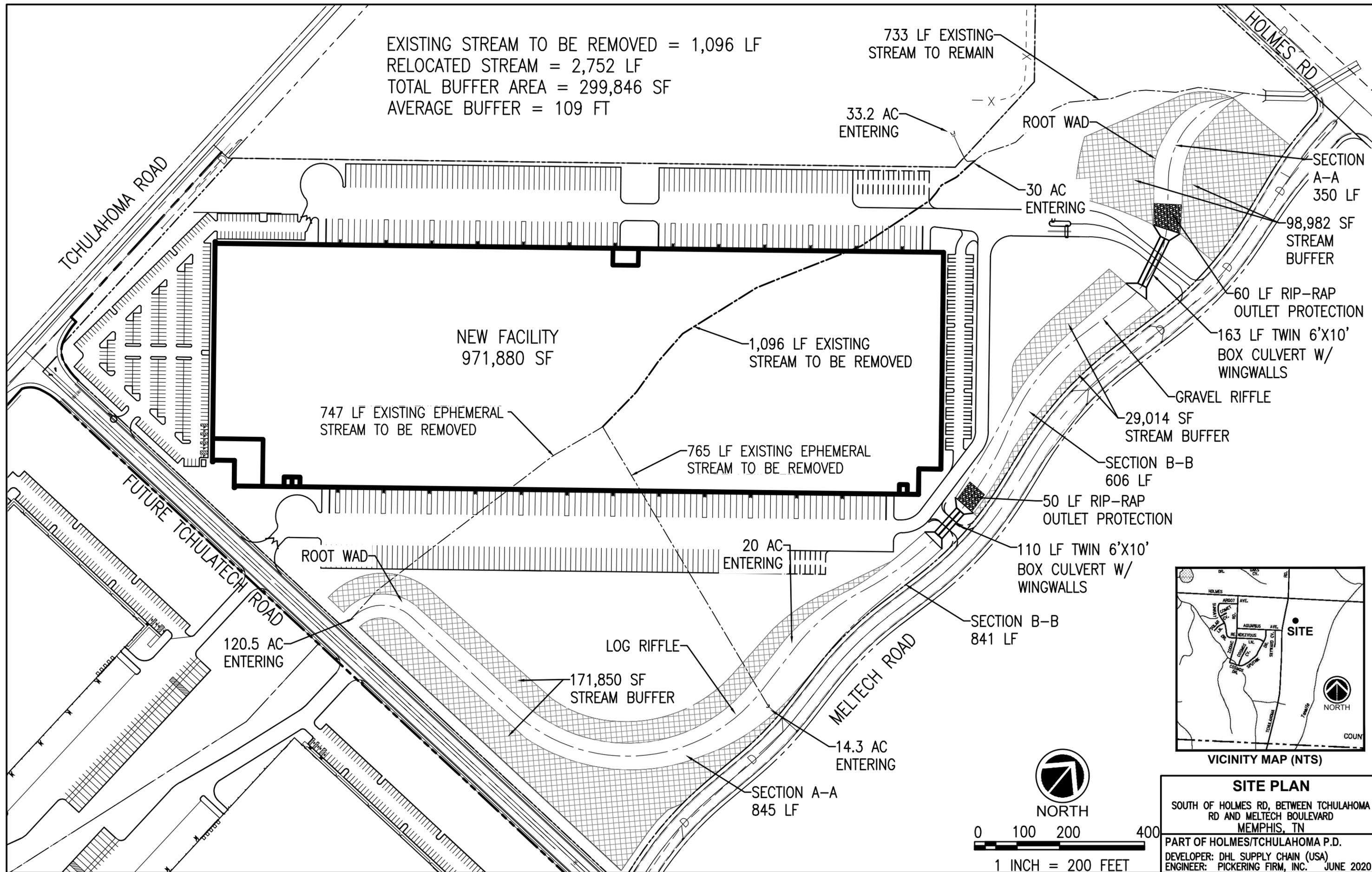


DHL Meltech Features Map



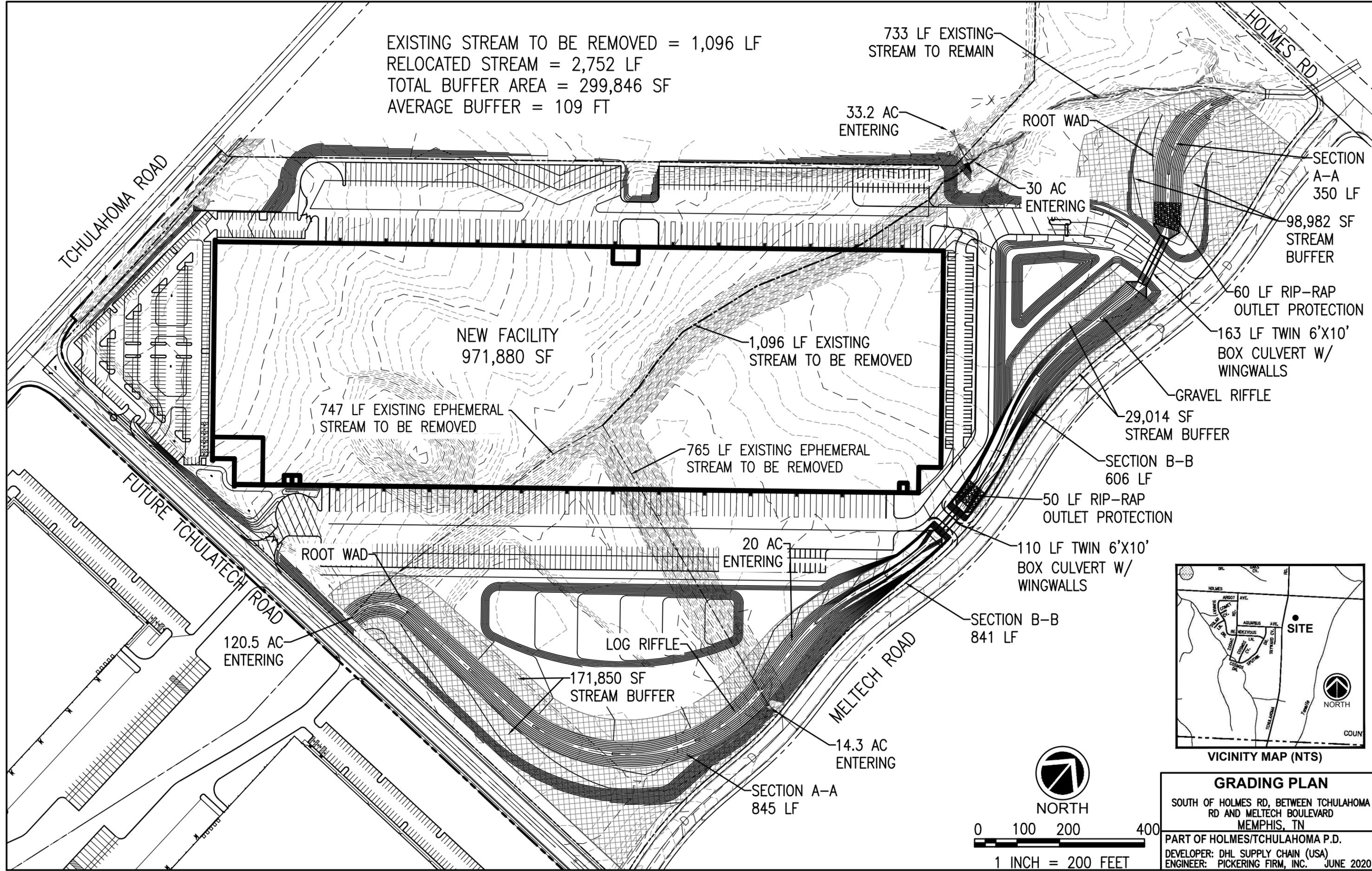
-  Project Area
-  Intermittent Stream
-  Ephemeral Watercourse

EXISTING STREAM TO BE REMOVED = 1,096 LF
 RELOCATED STREAM = 2,752 LF
 TOTAL BUFFER AREA = 299,846 SF
 AVERAGE BUFFER = 109 FT



SITE PLAN
 SOUTH OF HOLMES RD, BETWEEN TCHULAHOMA
 RD AND MELTECH BOULEVARD
 MEMPHIS, TN
 PART OF HOLMES/TCHULAHOMA P.D.
 DEVELOPER: DHL SUPPLY CHAIN (USA)
 ENGINEER: PICKERING FIRM, INC. JUNE 2020

EXISTING STREAM TO BE REMOVED = 1,096 LF
 RELOCATED STREAM = 2,752 LF
 TOTAL BUFFER AREA = 299,846 SF
 AVERAGE BUFFER = 109 FT



VICINITY MAP (NTS)

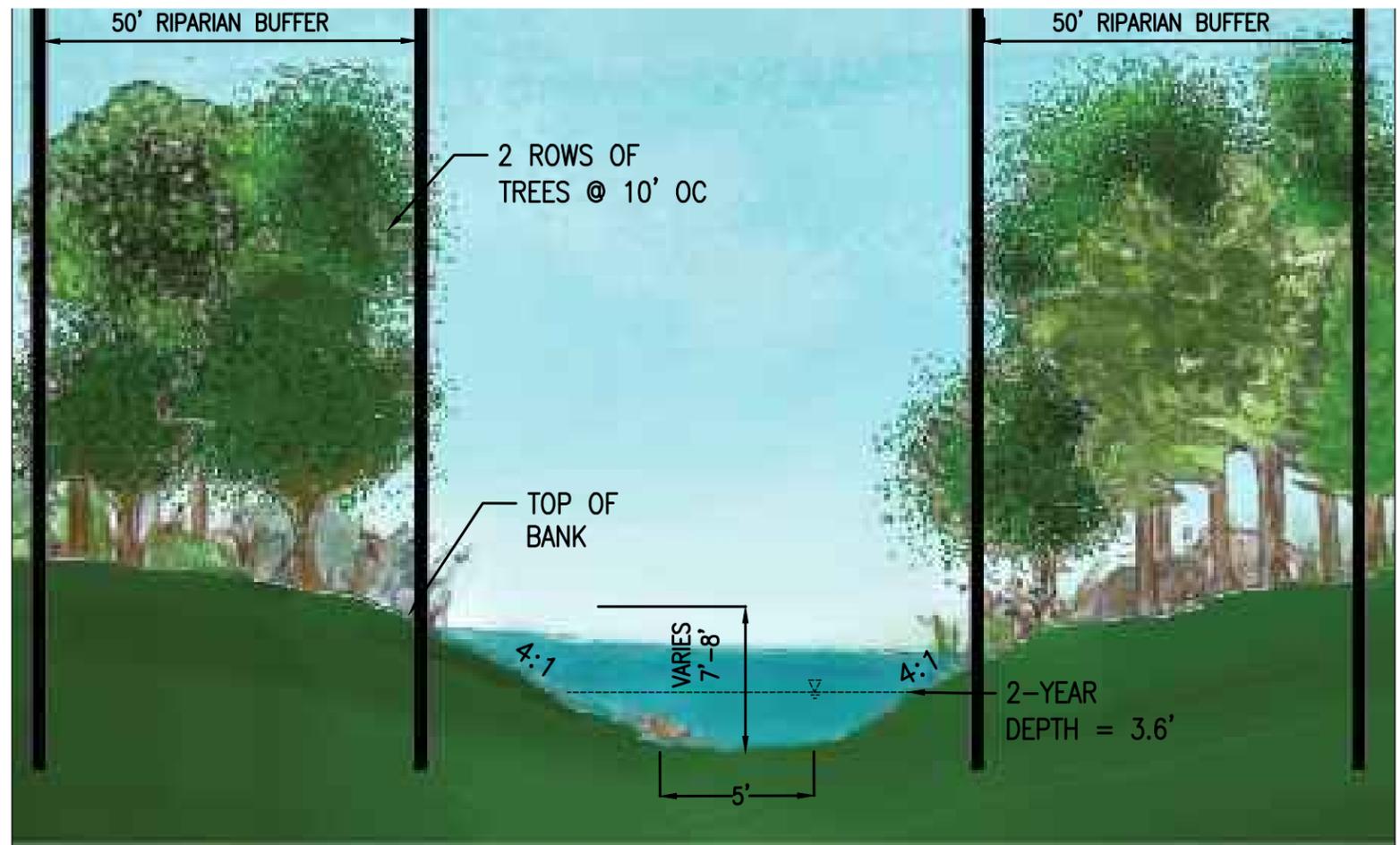
GRADING PLAN
 SOUTH OF HOLMES RD, BETWEEN TCHULAHOMA RD AND MELTECH BOULEVARD
 MEMPHIS, TN
 PART OF HOLMES/TCHULAHOMA P.D.
 DEVELOPER: DHL SUPPLY CHAIN (USA)
 ENGINEER: PICKERING FIRM, INC. JUNE 2020



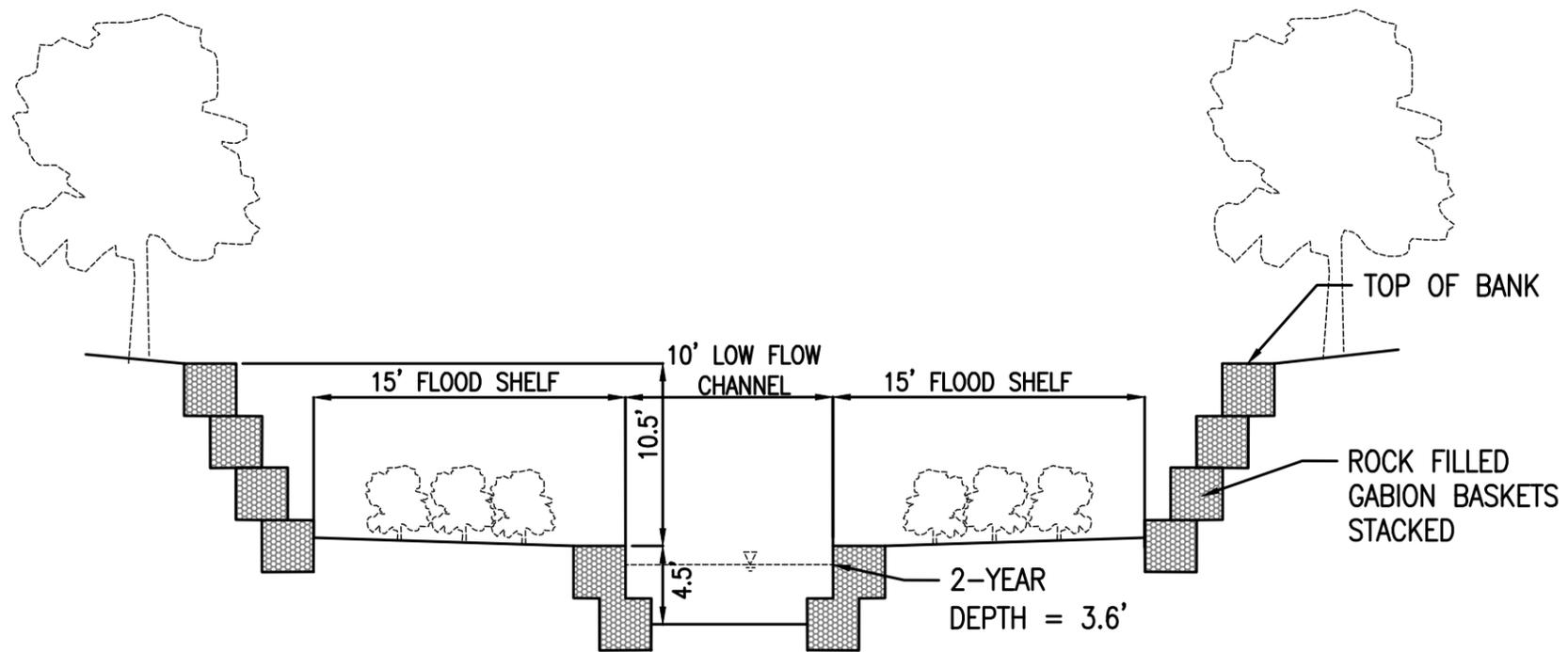
NORTH



1 INCH = 200 FEET



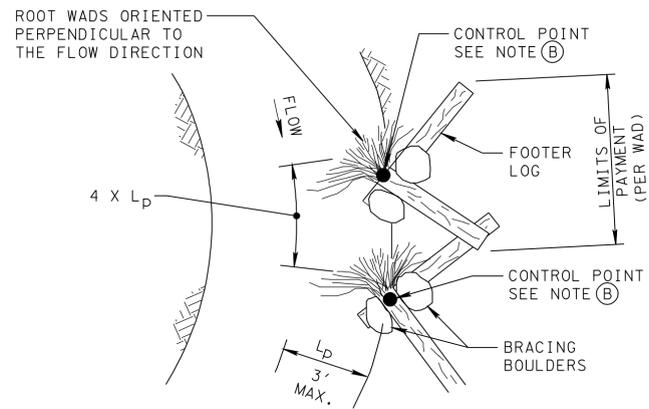
TYPICAL SECTION A-A
N.T.S.



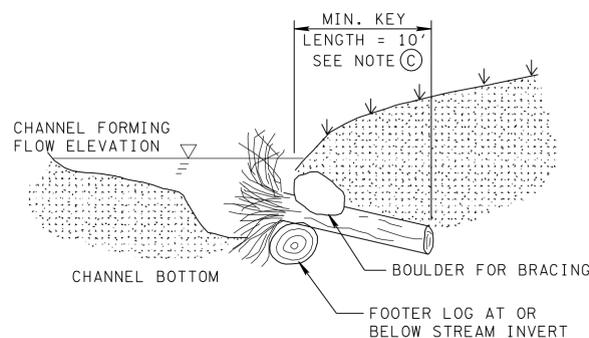
TYPICAL SECTION B-B
N.T.S.

TYPICAL SECTIONS
SOUTH OF HOLMES RD, BETWEEN TCHULAHOMA RD AND MELTECH BOULEVARD MEMPHIS, TN
PART OF HOLMES/TCHULAHOMA P.D. DEVELOPER: DHL SUPPLY CHAIN (USA) ENGINEER: PICKERING FIRM, INC. JUNE 2020

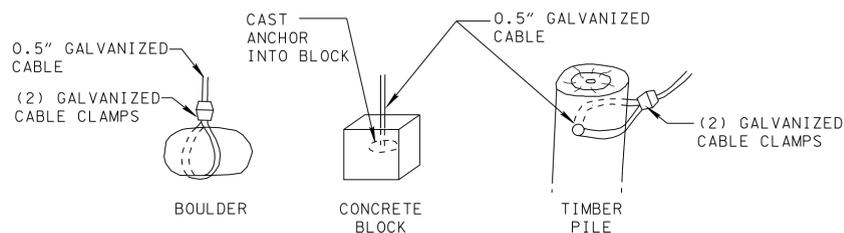
ROOT WAD



PLAN VIEW
ROOT WAD REVETMENT

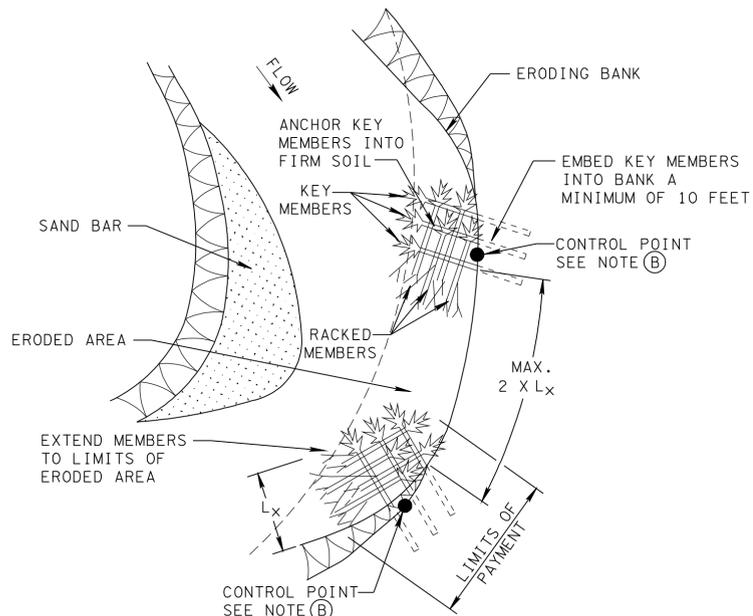


SECTION VIEW
ROOT WAD



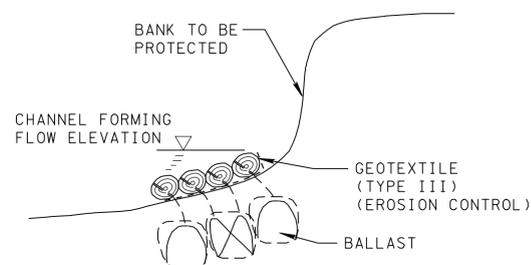
BALLAST TYPES FOR ANCHORS

RACK STRUCTURE

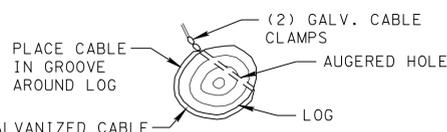


PLAN VIEW
RACK STRUCTURES

LOG REVETMENT

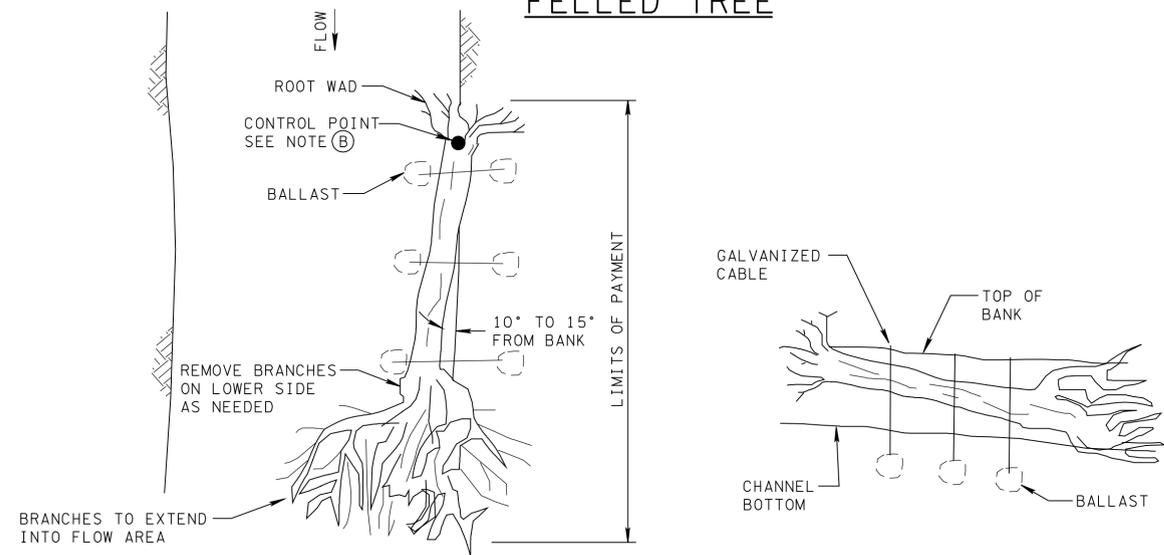


SECTION VIEW
LOG REVETMENT

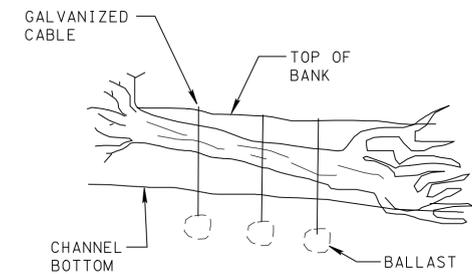


ANCHOR CONNECTION
LOG REVETMENT

FELLED TREE



PLAN VIEW
FELLED TREE



TREE PLACEMENT
ON BANK

LARGE WOODY DEBRIS GENERAL NOTES

- (A) LARGE WOODY DEBRIS MAY HAVE A VARIETY OF CONFIGURATIONS BASED ON THE PURPOSE OF THE INSTALLATION. ROOT WADS, LOG REVETMENTS AND FELLED TREES MAY BE USED TO PREVENT EROSION ON AN OUTSIDE CHANNEL BEND WHILE ALSO PROVIDING HABITAT OPPORTUNITIES. RACK STRUCTURES CAN PREVENT EROSION AND ALSO HELP ENCOURAGE THE DEPOSITION OF SEDIMENT TO REBUILD AN ERODED BANK. LARGE WOODY DEBRIS SHOULD NOT BE PLACED ON STREAMS THAT DO NOT ALREADY HAVE SIGNIFICANT RIPARIAN TREE COVER.
- (B) STATIONS, OFFSETS AND REQUIRED ANCHOR STRENGTH FOR LARGE WOODY DEBRIS INSTALLATIONS WILL BE PROVIDED IN THE STREAM MITIGATION DATA TABLE IN THE PROJECT PLANS. CONSTRUCT AS INDICATED ON THE PLANS OR AS DIRECTED BY THE ENGINEER. CONSTRUCT LARGE WOODY DEBRIS STRUCTURES WITH LOCALLY AVAILABLE ROT RESISTANT TREE SPECIES SUCH AS CEDAR OR WHITE OAK.
- (C) ROOT WADS SHALL BE PLACED SO THAT THE ROOT FAN IS NO MORE THAN 3 FEET FROM THE BANK. WHERE THE CHANNEL WIDTH IS LESS THAN 15 FEET, THE TRUNK SHOULD BE KEYED INTO THE BANK A MINIMUM DISTANCE OF 10 FEET. IN LARGER STREAMS, THE KEY LENGTH SHOULD BE INCREASED TO 20 FEET. CONSTRUCT KEYS BY EXCAVATING A TRENCH IN THE STREAM BANK AND BURYING THE TRUNK. ROOT WADS SHOULD BE SUPPORTED ON FOOTER LOGS PLACED IN A TRENCH AT THE BANK LINE. LARGE BOULDERS MAY BE PLACED ON TOP OF THE LOG TO PROVIDE INCREASED STABILITY.
- (D) RACK STRUCTURES SHALL BE USED ONLY WHERE THE UNDERLYING SOILS OFFER SUFFICIENT STRENGTH TO FIRMLY HOLD THE ANCHORS. THE KEY MEMBERS SHOULD BE KEYED INTO THE BANK AS DESCRIBED IN NOTE (C) WITH THE ROOT FANS FACING THE CHANNEL. RACKED MEMBERS SHOULD INTERLOCK WITH THE KEY MEMBERS WITH ROOT FANS FACING UPSTREAM. THE ENTIRE STRUCTURE SHOULD BE ANGLED SO THAT THE FLOW INTERSECTS THE RACKED MEMBERS AT AN ANGLE OF 15 DEGREES. THE STRUCTURE SHALL ALSO BE ANCHORED AS DESCRIBED IN NOTE (E). THE TOP OF THE STRUCTURE SHOULD BE AT THE CHANNEL FORMING FLOW ELEVATION WHILE THE LOWEST MEMBERS SHOULD BE BELOW THE ANTICIPATED SCOUR DEPTH.
- (E) EACH LOG IN A LOG REVETMENT SHALL BE SECURED AT BOTH ENDS BY APPROPRIATE ANCHORS AS DESCRIBED IN NOTE (G). ANCHORS SHOULD BE PLACED THROUGH HOLES BORED IN THE LOGS AND TIED WITH TWO GALVANIZED CABLE CLAMPS. LOGS SHALL BE PLACED ON GEOTEXTILE FABRIC (TYPE III) (EROSION CONTROL). ONLY GEOTEXTILE (TYPE III) LISTED ON THE QUALIFIED PRODUCTS LIST SHALL BE USED.
- (F) FELLED TREES SHALL BE PLACED SO THAT THE ROOT FAN IS NEAR THE TOP OF BANK. THE TRUNK SHOULD BE PLACED AT AN ANGLE OF 10 TO 15 DEGREES WITH THE BANK LINE SO THAT THE BRANCHES EXTEND INTO THE ACTIVE FLOW OF THE STREAM. BRANCHES MAY BE REMOVED AS NEEDED FROM THE UNDERSIDE OF THE TREE TO FACILITATE PLACEMENT IN THE CHANNEL. BRANCH REMOVAL SHALL BE KEPT TO A MINIMUM.
- (G) ANCHORS SHALL CONSIST OF GALVANIZED CABLE. THE GAUGE OF CABLE, TYPE OF BALLAST AND CLAMPS SHALL BE SELECTED BY THE CONTRACTOR BASED ON THE REQUIRED ANCHOR TENSILE STRENGTH SHOWN IN THE STREAM MITIGATION TABLE IN THE PROJECT PLANS. ANCHORS SHALL BE BALLASTED BY MEANS OF BOULDERS, CONCRETE BLOCKS OR TIMBER PILES BURIED IN WELL COMPACTED SOILS AT A LEVEL BELOW THE EXPECTED SCOUR DEPTH.
- (H) LARGE WOODY DEBRIS SHALL BE PAID FOR UNDER THE FOLLOWING ITEM NUMBERS:

209-03.62	STREAM MITIGATION - ROOT WAD (SIZE) PER EACH
209-03.63	STREAM MITIGATION - RACK STRUCTURE (SIZE) PER EACH
209-03.64	STREAM MITIGATION - FELLED TREE (SIZE) PER EACH
209-03.65	STREAM MITIGATION - LOG REVETMENTS (DESCRIPTION) PER LINEAR FOOT

NOTE: SIZE IS DEFINED BY THE AVERAGE DIAMETER OF THE TREE TRUNK.

PAYMENT SHALL INCLUDE ALL MATERIALS AND LABOR NECESSARY FOR CONSTRUCTION OF THE SPECIFIED WOODY DEBRIS STRUCTURE.

- (I) ALL HARDWARE SHALL BE LISTED ON THE QUALIFIED PRODUCT LIST OR APPROVED BY TDOT IN ADVANCE OF IT'S USE AND INTENDED PURPOSE.

STREAM MITIGATION PLAN LEGEND: LOG REVETMENT

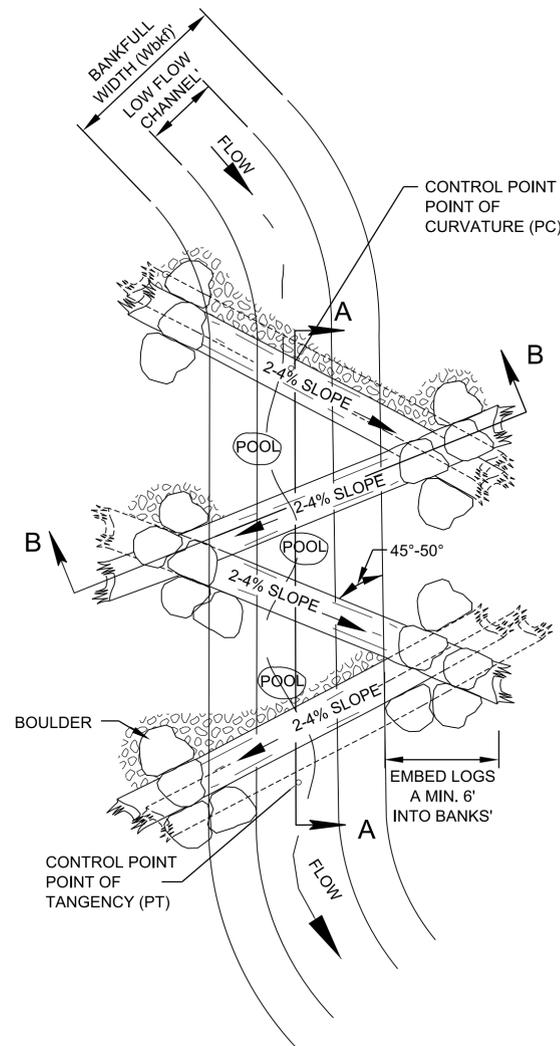
STREAM MITIGATION PLAN LEGEND: RACK STRUCTURE

STREAM MITIGATION PLAN LEGEND: ROOT WAD

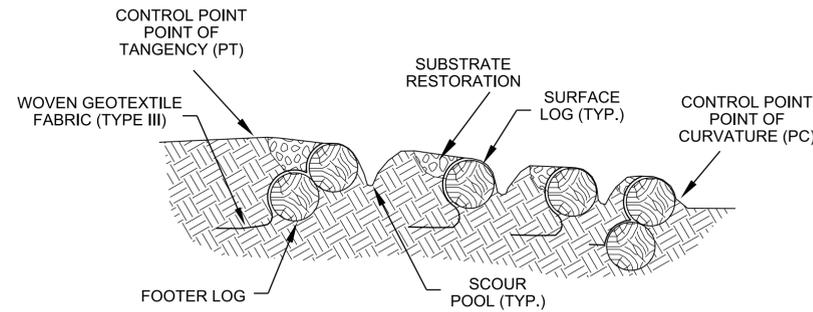
STREAM MITIGATION PLAN LEGEND: FELLED TREE

LOG RIFFLES NOTES

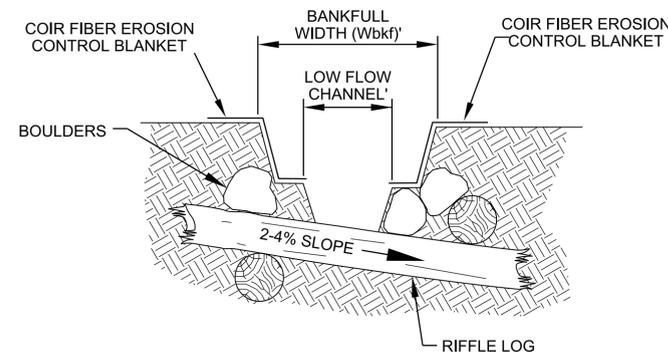
- (A) LOG AND BOULDER RIFFLES ARE GRADE CONTROL AND HABITAT ENHANCEMENT MEASURES THAT ARE USED TO MAINTAIN GRADE OF UPSTREAM POOLS, OXYGENATE WATER, AND PROVIDE HABITAT FOR EPIFAUNA AND FISH. THESE STRUCTURES ARE TYPICALLY USED IN LOWER GRADIENT STREAMS WITH SLOPES LESS THAN 3%. THIS DETAIL CAN BE USED FOR CONSTRUCTING RIFFLES USING BOULDERS, LOGS, OR A COMBINATION OF BOULDERS AND LOGS.
- (B) LOG AND BOULDER RIFFLES SHOULD BE PLACED AT THE STATIONS, OFFSETS, ELEVATIONS, AND GEOMORPHIC POSITIONS INDICATED ON THE STREAM MITIGATION DATA TABLE IN THE PROJECT PLANS, STREAM MITIGATION PLAN, OR AS DIRECTED BY THE ENGINEER. AT A MINIMUM, THE BANKFULL WIDTH, MINIMUM LOG AND/OR BOULDER DIMENSIONS, INVERT ELEVATIONS, AND SELECT MATERIAL CLASSIFICATION SHOULD BE SPECIFIED IN THE STREAM MITIGATION DATA TABLE.
- (C) REFER TO D-NSD-37 "SPECIAL NOTES FOR NATURAL STREAM DESIGN".
- (D) LOGS SHALL BE RELATIVELY STRAIGHT, RECENTLY HARVESTED AND DECAY RESISTANT SPECIES SUCH AS CEDAR, WHITE OAK, ETC.
- (E) BOULDERS PRESENT IN THE EXISTING STREAM MEETING THE SPECIFIED TYPE AND SIZE SHOULD BE USED IN THE RESTORED CHANNEL SEGMENT.
- (F) LOCATE LOG OR BOULDER RIFFLE STRUCTURES (RIFFLE LOGS AND BOULDER MINI-VANES) AT EQUALLY SPACED INTERVALS IN THE STRAIGHT SECTIONS OF THE CHANNEL BETWEEN MEANDER BENDS (I.E., BETWEEN UPSTREAM POINT OF TANGENCY AND DOWNSTREAM POINT OF CURVATURE), AS INDICATED ON THE STREAM MITIGATION PLANS.
- (G) THE MAXIMUM AMOUNT OF DROP IN INVERT FROM ONE RIFFLE LOG OR BOULDER MINI-VANE TO THE NEXT SHALL BE NO GREATER THAN 0.10 FOOT. THE COMBINED AMOUNT OF DROP OVER ALL THE MINI-VANES SHALL NOT EXCEED THE TOTAL AMOUNT OF FALL IN THE RIFFLE SLOPE. THE INVERT IN RIFFLE LOGS AND MINI-VANES SHALL ALTERNATE LEFT AND RIGHT OF CENTERLINE TO PRODUCE A MEANDERING FLOW PATTERN IN THE RIFFLE.
- (H) CONSTRUCT LOG RIFFLE STRUCTURES BY:
 - (1) SHAPE THE CHANNEL AND FLOODPLAIN TO THE SPECIFIED GRADES AND DIMENSIONS.
 - (2) LOG RIFFLE STRUCTURES ARE BUILT STARTING WITH THE DOWNSTREAM LOG AND PROCEEDING UPSTREAM. LOGS ARE SLOPED DOWN TWO PERCENT (2%) TO FOUR PERCENT (4%) AT THEIR UPSTREAM END.
 - (3) RIFFLE LOGS SHALL OVERLAP IN THE STREAM BANK, WITH THE DOWNSTREAM END OF THE UPSTREAM LOG PLACED ON TOP OF THE UPSTREAM END OF THE DOWNSTREAM LOG, THEREBY HELPING TO ANCHOR THE DOWNSTREAM LOG. ADDITIONALLY, THE RIFFLE LOGS ARE ANCHORED WITHIN THE BANKS BY PINCHING BOTH SIDES OF THE LOG WITH BOULDERS.
 - (4) EXCAVATE ENOUGH BED AND BANK MATERIAL TO PLACE THE RIFFLE LOGS, ANCHOR BOULDERS, NON-WOVEN GEOTEXTILE FABRIC (TYPE III), AND ALLUVIUM OR SELECT MATERIAL BACKFILL. SURFACE AND FOOTER LOGS SHOULD EXTEND A MINIMUM OF SIX FEET INTO EACH BANK.
 - (5) THE UPSTREAM RIFFLE LOG IS BUILT WITH A LOG FOOTER. THE DOWNSTREAM RIFFLE LOGS ARE INSTALLED WITHOUT FOOTERS.
 - (6) LOG RIFFLES SHALL ALL BE DESIGNED TO BE SUBMERGED OR COVERED AT LOW FLOWS TO REDUCE THE RATE OF WOOD DECOMPOSITION. INSTALL LOGS AT THE INVERTS SPECIFIED IN THE PLANS AND THEN CHECK THE ELEVATIONS OF THE INVERTS WITH SURVEY EQUIPMENT. PLACE THE FOOTER AND SURFACE LOGS AT THE UPSTREAM END OF THE RIFFLE TO MINIMIZE VOIDS AND TO PRODUCE A SMOOTH COMPACT SURFACE.
 - (7) ONCE THE INVERTS HAVE BEEN ESTABLISHED, FILL THE VOIDS BETWEEN THE UPSTREAM FOOTER AND SURFACE LOG ON THE UPSTREAM SIDE WITH COARSE ALLUVIUM OR SPECIFIED SELECT MATERIAL.
 - (8) PLACE NON-WOVEN GEOTEXTILE FABRIC (TYPE III) ALONG THE ENTIRE UPSTREAM FACE OF EACH RIFFLE LOG. THE GEOTEXTILE SHALL EXTEND FROM THE BOTTOM OF THE FOOTER (WHERE PRESENT) TO THE FINISHED GRADE ELEVATION OF THE SURFACE LOG. ONLY GEOTEXTILE FABRIC (TYPE III) LISTED ON THE QUALIFIED PRODUCTS LIST SHALL BE USED. NAIL GEOTEXTILE FABRIC (TYPE III) TO THE SURFACE LOG APPROXIMATELY ONE QUARTER OF THE CIRCUMFERENCE DOWN FROM THE TOP OF THE SURFACE LOG USING TWO-INCH GALVANIZED ROOFING NAILS ON ONE-FOOT SPACING ALONG THE ENTIRE LENGTH OF THE LOG.
 - (9) BACKFILL STRUCTURE AND NON-WOVEN GEOTEXTILE FABRIC (TYPE III) WITH EXCAVATED ON-SITE STREAM ALLUVIUM (IF AVAILABLE), OTHERWISE USE THE SPECIFIED SELECT MATERIAL. SOIL SHALL BE COMPACTED WELL AROUND BURIED PORTIONS OF THE STRUCTURE. TRIM ANY EXPOSED NON-WOVEN GEOTEXTILE FABRIC (TYPE III).
- (I) THE SURFACE OF LOG AND BOULDER RIFFLES SHALL BE FINISHED TO A NEAT AND COMPACT SURFACE IN ACCORDANCE WITH THE LINES, GRADES AND CROSS-SECTIONS OR ELEVATIONS SHOWN ON THE PLANS. THE DEGREE OF FINISH FOR INVERT ELEVATIONS SHALL BE WITHIN 0.10 FOOT OF THE GRADES AND ELEVATIONS INDICATED, OR AS DIRECTED BY THE ENGINEER. ALL GAPS OR VOIDS BETWEEN FOOTER AND SURFACE BOULDERS AND LOGS SHALL BE PLUGGED WITH SELECT MATERIAL TO FORM A TIGHT-FITTING SEAL.
- (J) RE-DRESSING OF CHANNEL AND BANKFULL BENCH/FLOODPLAIN WILL LIKELY BE REQUIRED FOLLOWING INSTALLATION OF IN-STREAM STRUCTURES AND SHALL BE CONSIDERED INCIDENTAL TO CONSTRUCTION.
- (K) A MIXTURE OF SELECT MATERIALS, AS SPECIFIED ON THE STREAM MITIGATION PLAN SHEETS, SHOULD BE USED FOR SUBSTRATE RESTORATION IN RIFFLE AND RUN HABITATS AND TO FILL GAPS BETWEEN LOGS. COARSE ALLUVIUM EXCAVATED FROM THE EXISTING STREAM BED, WHICH MEETS THE SPECIFIED SIZE CLASSIFICATION, IS THE PREFERRED MATERIAL TO USE FOR SUBSTRATE RESTORATION. REFER TO D-NSD-30 AND D-NSD-37 FOR ADDITIONAL SUBSTRATE RESTORATION INFORMATION.
- (L) COIR FIBER EROSION CONTROL BLANKET SHALL BE INSTALLED ABOVE THE INNER-BERM STAGE AND NOT IN THE LOW-FLOW CHANNEL OF THE RIFFLE. SEE TYPICAL CROSS-SECTION DATA IN STREAM MITIGATION PLANS FOR INNER BERM INFORMATION.
- (M) ALL MATERIALS ARE TO BE APPROVED BY ENGINEER OR ENGINEER'S ON-SITE CONSTRUCTION OBSERVER.



LOG RIFFLE
PLAN VIEW

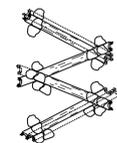


SECTION A-A



SECTION B-B

STREAM MITIGATION PLAN LEGEND:



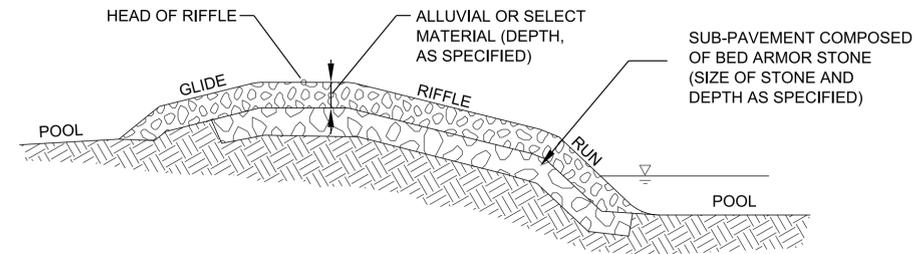
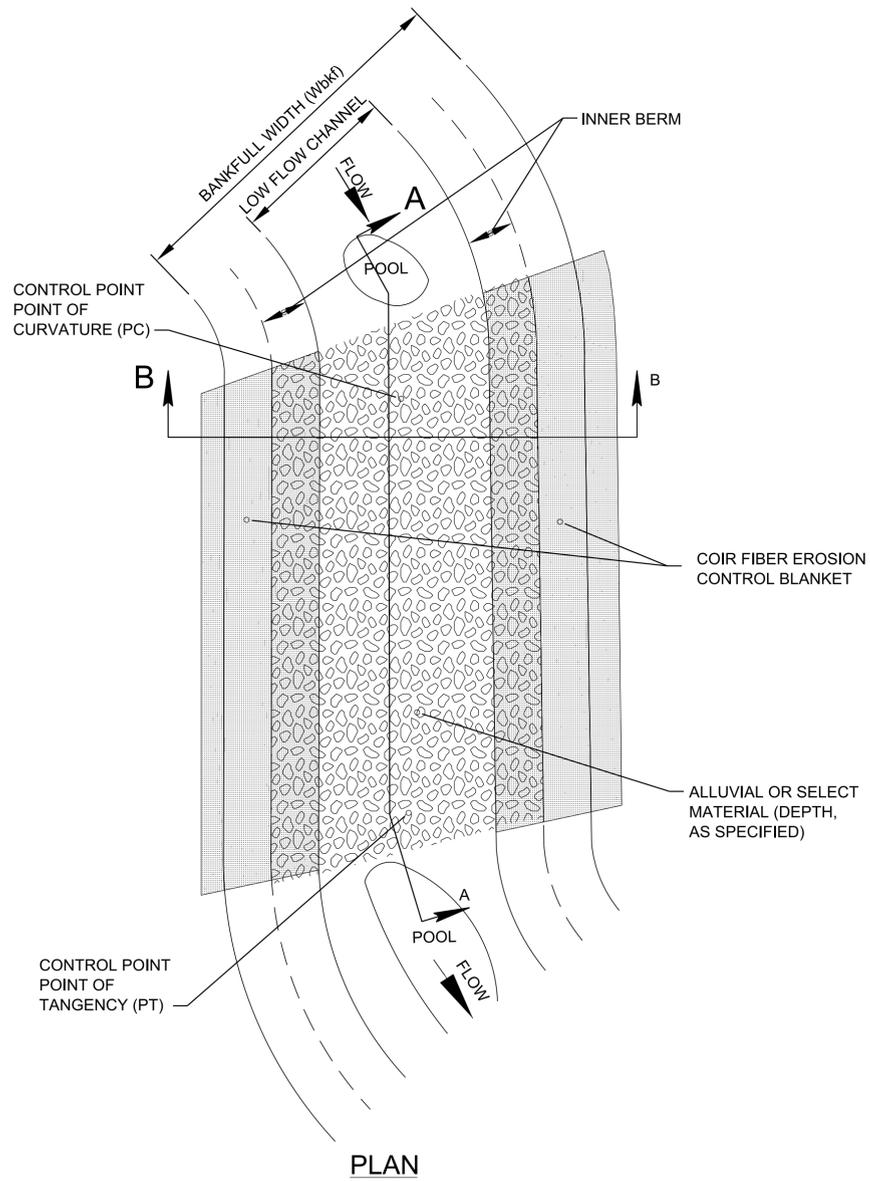
LOG RIFFLE

MATERIAL SHOWN ARE ONLY A GRAPHICAL REPRESENTATION AND DO NOT DEPICT THE ACTUAL DEPTH OR QUANTITY OF MATERIALS TO APPROPRIATELY CONSTRUCT OR STABILIZE THE CHANNEL.

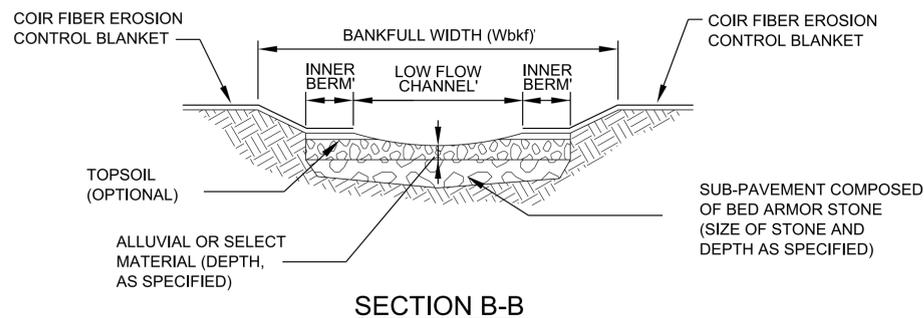
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STATE OF TENNESSEE
DEPARTMENT OF
TRANSPORTATION

LOG RIFFLES



SECTION A-A



SECTION B-B

STREAM MITIGATION PLAN LEGEND:



CONSTRUCTED ALLUVIAL RIFFLE

CONSTRUCTED ALLUVIAL RIFFLE NOTES

- (A) CONSTRUCTED ALLUVIAL RIFFLES ARE GRADE CONTROL AND HABITAT ENHANCEMENT MEASURES THAT ARE USED TO MAINTAIN GRADE OF UPSTREAM POOLS, OXYGENATE WATER, AND PROVIDE HABITAT FOR EPIFAUNA AND FISH. THESE STRUCTURES ARE TYPICALLY USED IN LOWER GRADIENT STREAMS WITH OVERALL SLOPES LESS THAN 2% THIS DETAIL CAN BE USED FOR CONSTRUCTING RIFFLES USING NATURAL ALLUVIUM CONSISTING OF BOULDERS, COBBLES, AND GRAVEL OR SPECIFIED SELECT MATERIAL.
- (B) CONSTRUCTED ALLUVIAL RIFFLES SHOULD BE PLACED AT THE STATIONS, OFFSETS, ELEVATIONS, AND GEOMORPHIC POSITIONS INDICATED ON THE STREAM MITIGATION DATA TABLE IN THE PROJECT PLANS, STREAM MITIGATION PLAN, OR AS DIRECTED BY THE ENGINEER. AT A MINIMUM, THE BANKFULL, INNER BERM, AND LOW-FLOW CHANNEL WIDTHS; INVERT ELEVATIONS AT HEAD AND BOTTOM OF RIFFLE; ESTIMATED ROCK THRESHOLD SIZE; AND ALLUVIUM OR SELECT MATERIAL CLASSIFICATION AND DEPTH SHOULD BE SPECIFIED IN THE STREAM MITIGATION DATA TABLE.
- (C) REFER TO D-NSD-37 "SPECIAL NOTES FOR STREAM DESIGN".
- (D) CONSTRUCTED ALLUVIAL RIFFLES ARE PLACED IN THE STRAIGHT SECTIONS OF THE CHANNEL BETWEEN MEANDER BENDS (I.E., BETWEEN UPSTREAM POINT OF TANGENCY AND DOWNSTREAM POINT OF CURVATURE), AS INDICATED ON THE STREAM MITIGATION PLANS.
- (E) ALLUVIUM OR SELECT MATERIAL FOR CONSTRUCTED RIFFLES SHALL CONSIST OF COARSE SUBSTRATE (GRAVEL, COBBLE, AND BOULDER). A MIXTURE OF SIZES OF ALLUVIUM OR SELECT MATERIALS, AS SPECIFIED ON THE STREAM MITIGATION PLAN SHEETS, SHOULD BE USED FOR SUBSTRATE IN RIFFLE AND RUN HABITATS. COARSE ALLUVIUM EXCAVATED FROM THE EXISTING STREAM BED, WHICH MEETS THE SPECIFIED SIZE CLASSIFICATION, IS THE PREFERRED MATERIAL TO USE FOR SUBSTRATE RESTORATION. REFER TO D-NSD-30 AND D-NSD-37 FOR ADDITIONAL SUBSTRATE RESTORATION INFORMATION.
- (F) CONSTRUCT ALLUVIAL RIFFLES BY:
 - (1) SHAPE THE CHANNEL AND FLOODPLAIN TO THE SPECIFIED GRADES AND DIMENSIONS.
 - (2) EXCAVATE ENOUGH BED MATERIAL TO PLACE SUBPAVEMENT ARMOR STONE, AND COARSE ALLUVIUM OR SELECT MATERIAL FOR THE RIFFLE TO ACHIEVE THE SPECIFIED INVERT ELEVATIONS. IF THE CHANNEL IS DESIGNED WITH AN INNER BERM, KEY THE COARSE ALLUVIUM OR SELECT MATERIAL INTO THE BANKS EXTENDING ENTIRELY UNDER THE INNER BERM. IF THE CHANNEL LACKS AN INNER BERM, KEY THE COARSE ALLUVIUM OR SELECT MATERIAL INTO THE BANKS EXTENDING TO HALF BANKFULL.
 - (3) PLACE THE COARSE ALLUVIUM OR SELECT MATERIAL IN SIX-INCH LIFTS AND COMPACT EACH LIFT WITH THE BUCKET OF THE EXCAVATOR.
 - (4) INSTALL THE ALLUVIAL RIFFLE AT THE INVERTS SPECIFIED IN THE PLANS AND THEN CHECK THE ELEVATIONS OF THE INVERTS WITH SURVEY EQUIPMENT.
 - (5) PLACE SOIL OVER THE TOP OF THE COARSE ALLUVIUM OR SELECT MATERIAL KEYED INTO THE INNER BERM OR STREAM BANK AND GRADE THE INNER BERM/BANKS TO THE SPECIFIED ELEVATIONS.
- (G) THE CONSTRUCTED ALLUVIAL RIFFLE MATERIAL SHALL BE FINISHED TO CREATE A SMOOTH PROFILE, WITHOUT AN ABRUPT JUMP/TRANSITION BETWEEN THE UPSTREAM POOL-GLIDE AND THE RIFFLE, OR AN ABRUPT DROP/TRANSITION BETWEEN THE RIFFLE AND THE DOWNSTREAM RUN-POOL. THE FINISHED CROSS SECTION OF THE RIFFLE MATERIAL SHALL GENERALLY MATCH THE SHAPE AND DIMENSIONS SHOWN ON THE RIFFLE TYPICAL SECTION WITH SOME VARIABILITY OF THE THALWEG LOCATION AS A RESULT OF PLACEMENT OF LARGER SUBSTRATE, SUCH AS BOULDERS.
- (H) THE END OF RIFFLE CONTROL POINT MAY TIE IN TO A DRAINAGE STRUCTURE OR OTHER IN-STREAM STRUCTURE (E.G. - J-HOOK VANE, LOG OR BOULDER SILL, ETC.).
- (I) RE-DRESSING OF CHANNEL AND BANKFULL BENCH/FLOODPLAIN WILL LIKELY BE REQUIRED FOLLOWING INSTALLATION OF IN-STREAM STRUCTURES AND SHALL BE CONSIDERED INCIDENTAL TO CONSTRUCTION.
- (J) COIR FIBER EROSION CONTROL BLANKET SHALL BE INSTALLED ABOVE THE INNER-BERM STAGE AND NOT IN THE LOW-FLOW CHANNEL OF THE RIFFLE. SEE TYPICAL CROSS-SECTION DATA IN STREAM MITIGATION PLANS FOR INNER BERM INFORMATION.
- (K) ALL MATERIALS ARE TO BE APPROVED BY ENGINEER OR ENGINEER'S ON-SITE CONSTRUCTION OBSERVER.
- (L) CONSTRUCTED ALLUVIAL RIFFLES SHALL BE PAID FOR UNDER THE FOLLOWING ITEM NUMBER:
 709-05.81 ROCK RIFFLES PER LUMP SUM
 PAYMENT SHALL INCLUDE ALL MATERIALS, EQUIPMENT, AND LABOR TO CONSTRUCT THE ALLUVIAL RIFFLE.

MATERIAL SHOWN ARE ONLY A GRAPHICAL REPRESENTATION AND DO NOT DEPICT THE ACTUAL DEPTH OR QUANTITY OF MATERIALS TO APPROPRIATELY CONSTRUCT OR STABILIZE THE CHANNEL.

NOT TO SCALE

STATE OF TENNESSEE
DEPARTMENT OF
TRANSPORTATION

CONSTRUCTED
ALLUVIAL
RIFFLE