FLOOD PROTECTION PROJECT
BLUE RIVER BASIN
KANSAS CITY, MISSOURI

**BLUE RIVER CHANNEL MODIFICATIONS**

# BRUSH CREEK TO 53RD STREET ENVIRONMENTAL ENHANCEMENT PLANS

**DATE: AUGUST 2008**
NOT FOR CONSTRUCTION

**W912DQ-08-C-0008**
**PREFINAL PLANS**

**US Army Corps of Engineers**
Kansas City District
*You Matter - We Care*

DESIGNER OF RECORD APPROVAL

Work Product: Environmental Enhancement Plans
Submittal Stage: Prefinal Plans
Discipline: Environmental
Designer of Record: Thomas James Kimes

Signature:_____
Date: _____

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US Army Corps of Engineers
Kansas City District

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| 1 | PRELIMINARY - FOR REVIEW | 07/31/08 | |

Designed by:
Date: AUGUST 2008
Drawn by: MLW
Drawing code:
Checked by: MWJ, JJJ
Plot scale:
Submitted by: TJK
CADD File Name: BRCHGI002EEI.DGN

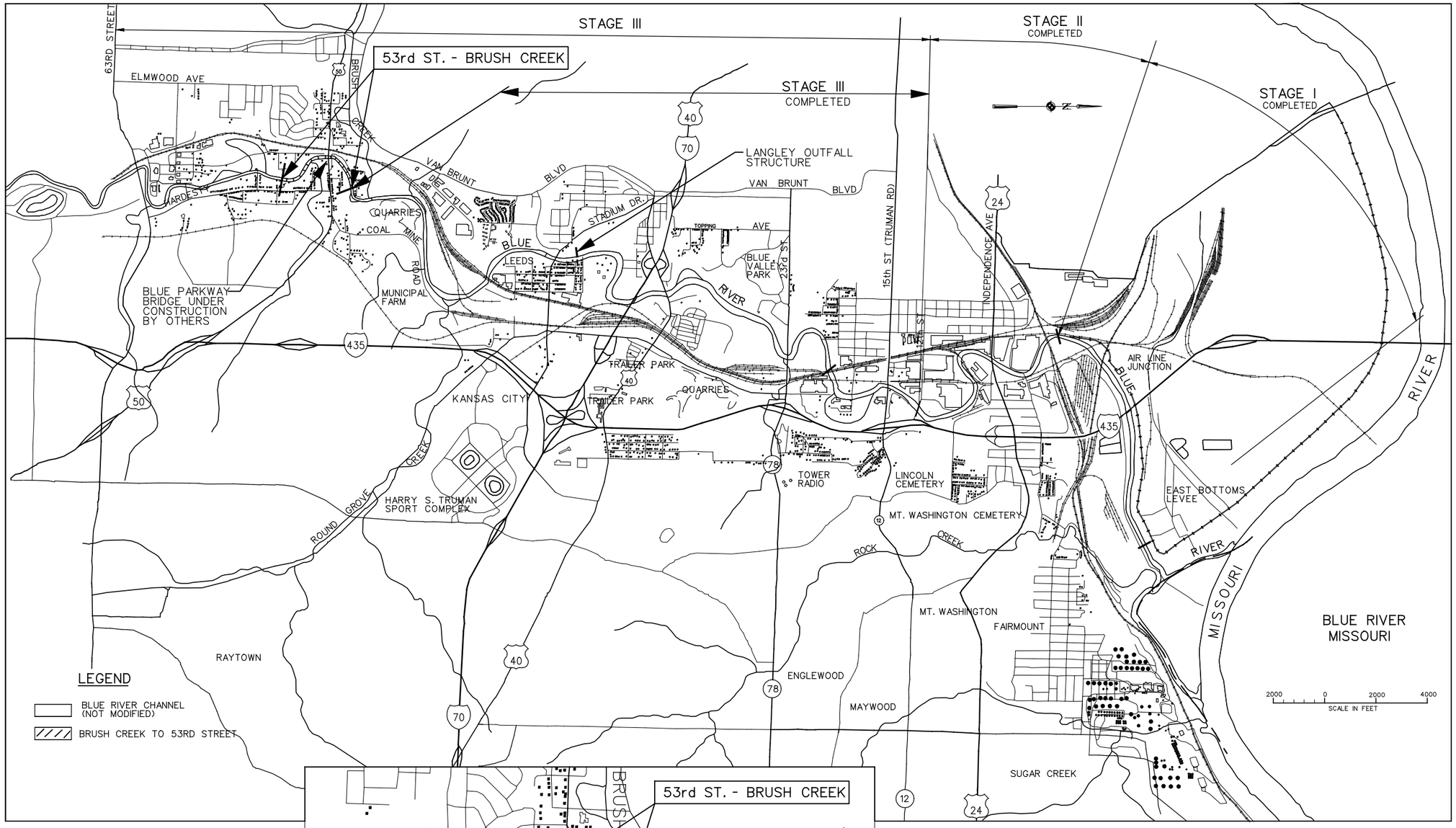
U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
KANSAS CITY, MISSOURI

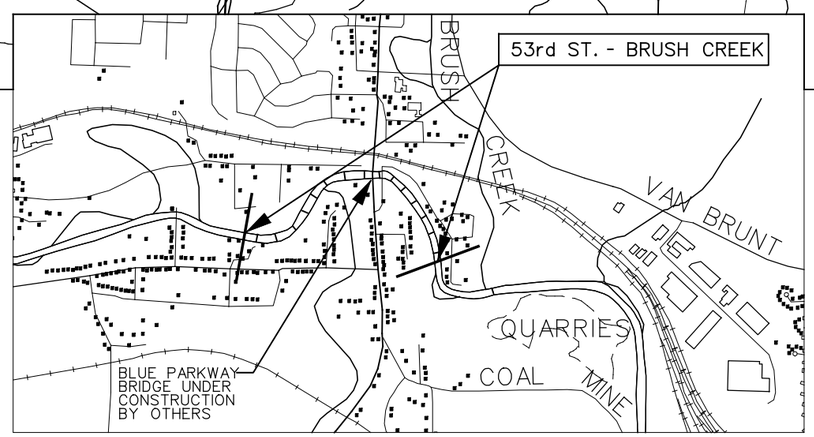
HDR Engineering, Inc.

FLOOD PROTECTION PROJECT
BLUE RIVER CHANNEL
KANSAS CITY, MISSOURI
BRUSH CREEK TO 53RD STREET

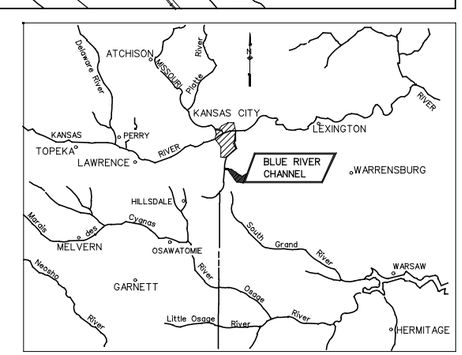
INDEX

Sheet Reference Number:
G1.2




LOCATION




LOCATION

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KANSAS CITY, MISSOURI
BRUSH CREEK TO 53RD STREET

LOCATION AND VICINITY

Sheet Reference Number:
G1.4

SHEET 04 OF 30

## A

| | |
|---|---|
| ABOUT | ABT |
| ACCESS DOOR | AD |
| ACCESS PANEL | AP |
| ACOUSTIC | ACST |
| ACOUSTICAL TILE CEILING | ATC |
| ABOVE FINISH FLOOR | AFF |
| AQUEOUS FILM-FORMING FOAM | AFFF |
| AGGREGATE | AGG |
| AIR CONDITIONING | A/C |
| AIR HANDLING UNIT | AHU |
| ALTERNATE | ALT |
| ALTERNATING CURRENT | AC |
| ALUMINUM | AL |
| ALUMINUM CONDUCTOR STEEL REINFORCED | ACSR |
| AMERICAN WIRE GAUGE | ASWG |
| AMPERE | AMP |
| AMPS INTERRUPTING CAPACITY (SYM RMS) | AIC |
| ANCHOR BOLT | AB |
| ANGLE | L |
| APPROVED | APPD |
| APPROXIMATE | APPROX |
| ARCHITECTURAL | ARCH |
| AREA DRAIN | AD |
| AREA INLET | AI |
| ASPHALT | ASPH |
| AUTOMATIC | AUTO |
| AT | @ |
| AVENUE | AVE |
| AVERAGE | AVG |

## B

| | |
|---|---|
| BACK OF CURB | BOC |
| BALL AND BURLAP | B & B |
| BATTEN INSULATION | BATT INSUL |
| BEAM | BM |
| BEARING | BRG |
| BENCH MARK | B.M. |
| BENT | BT |
| BITUMINOUS | BIT |
| BLOCK | BLK |
| BLOCKING | BLKG |
| BOARD | BD |
| BOTTOM | BOT |
| BOTTOM OF FOOTING | BOF |
| BOTTOM OF STEEL | BOS |
| BOUNDARY | BDY |
| BOULEVARD | BLVD |
| BRACING | BRCG |
| BRACKET | BRKT |
| BRICK | BRK |
| BRIDGING | BRDG |
| BRITISH THERMAL UNIT | BTU |
| BTU PER HOUR | BTUH |
| BUILDING | BLDG |
| BUILDING DIRECTORY | BLDG. DIR |
| BUILDING LINE | BL |
| BULLETIN BOARD | BB |
| BURIED ELECTRIC | BE |

## C

| | |
|---|---|
| CABINET | CAB |
| CABINET UNIT HEATER | CUH |
| CALKING | CLKG |
| CAPACITY | CAP |
| CARRIAGE | CRG |
| CASEMENT | CSMT |
| CAST IRON | C.I. |
| CATCH BASIN | CB |
| CEILING | CLG |
| CEILING SCUTTLE | CS |
| CEILING VENT | CV |
| CEMENT | CEM |
| CEMENT PLASTER | CPL |
| CENTER | CTR |
| CENTER LINE | ℄,CL,C/L |
| CENTER TO CENTER | C TO C |
| CERAMIC MOSAIC TILE | CMT |
| CERAMIC TILE | CT |
| CERAMIC TILE UNGLAZED | CTU |
| CHAIN LINK FENCE | CLF |
| CHILLED WATER SUPPLY | CWS |
| CHILLED WATER RETURN | CWR |
| CHILLED WATER REVERSE RETURN | CWRR |
| CHECKED | CKD |
| CIRCUIT | CKT |
| CIRCUIT BREAKER | CKT BKR |
| CIRCULAR | CIR |
| CIRCLE | CR |
| CLEANOUT | CO |
| CLEAR WIRE GLASS | CL WG |
| CLOSED | CLOS |
| CLOSET | CLO |
| COLD WATER | CW |
| COLUMN | COL |
| COMBINATION | COMB |
| COMBINATION SEWER OUTFLOW | CSO |
| COMBUSTION | COMB. |
| COMMON | COM |
| COMPOSITION FLOORING | COMPF |
| COMPRESSIBLE | COMP |
| CONCRETE | CONC |
| CONCRETE MASONRY UNITS | CMU |
| CONDENSING UNIT | CU |
| CONDUIT (for raceway) | C. OR CND |
| CONNECTION | CONN |
| CONSTRUCTION | CONSTR |
| CONSTRUCTION JOINT | CJ |
| CONTRACTING OFFICER REPRESENTATIVE | C.O.R. |
| CONTINUOUS | CONT. |
| CONTROL | CTRL |
| CORNER | COR |
| CORNER GUARD | CG |
| CORPS OF ENGINEERS | C.O.E. |
| CORRIDOR | CORR |
| CORROSIVE RESISTANT STEEL | CRES |
| CORRUGATED METAL PIPE | CMP |
| COUNTER | CNTR |
| COUNTERSUNK | CSK |
| COURSE | CRS |
| COVERED | COV |
| COVER ELEVATION | CE |
| CUBIC FEET PER MINUTE | CFM |
| CUBIC YARDS | CU YD |
| CURB INLET | CI |
| CURB & GUTTER | C&G OR CG |
| CYCLES PER SECOND | CPS or |
| CYLINDER | CYL |

## D

| | |
|---|---|
| DAMPPROOFING | DP |
| DATUM OR DRYER | D |
| DOMESTIC COLD WATER | DCW |
| DEGREE | DEG |
| DEPARTMENT | DEPT |
| DEPRESSION | DEPR |
| DETAIL | DTL |
| DOMESTIC HOT WATER SUPPLY | DHWS |
| DOMESTIC HOT WATER RETURN | DHWR |
| DIAGONAL | DIAG |
| DIAMETER | DIA OR ~ |
| DIAPHRAGM | DIAPH |
| DIMENSION | DIM |
| DIRECT CURRENT | DC |
| DISTRIBUTION | DISTR |
| DISTANCE | DIST |
| DOWELS | DWLS |
| DOWELED CONTROL JOINT | D.C.J. |
| DOOR | DR |
| DOOR CLOSER | DCL |
| DOOR OPENING | DO |
| DOUBLE | D OR DBL |
| DOUBLE ACTING | DA |
| DOUBLE HUNG | DH |
| DOWN | DN |
| DOWN SPOUT | DS |
| DRAIN | DR |
| DRAWING | DWG |
| DRESSED & MATCHED | D & M |
| DRINKING FOUNTAIN | DF |
| DRINKING WATER DISPENSER | DWD |
| DRIVE | DR |
| DROP INLET | DI |
| DRY BULB | DB |
| DUCTILE IRON | D.I. |
| DUMMY CONTROL JOINT | DCJT |
| DOOR OPERATOR MOTOR | DOM |

## E

| | |
|---|---|
| EACH | EA |
| EACH WAY | EW |
| EACH FACE | EF |
| EAST | E |
| EDGE OF CURB | EOC |
| EDGE OF PAVENMENT | EP |
| ELECTRICAL OR ELECTRIC | ELEC |
| ELECTRICAL LINE | E |
| ELEVATION-GRADE or BLDG | EL OR ELEV. |
| ELECTRIC WATER COOLER | E.W.C. |
| ENCLOSURE | ENCL |
| ENGINEERING | ENG. |
| ENTRANCE | ENT |
| EQUATION | EQN. |
| EQUAL | EQ |
| EQUIPMENT | EQUIP |
| ESTIMATE | EST |
| ESTIMATED MAXIMUM DEMAND | EMD |
| EXCAVATE | EXC |
| EXHAUST FAN | EF |
| EXHAUST GRILL | EG |
| EXHAUST REGISTER | ER |
| EXISTING | EXIST. |
| EXPANSION | EXPN |
| EXPANSION JOINT | EJ |
| EXPOSED | EXP |
| EXTERIOR | EXT |

## F

| | |
|---|---|
| FACING | FCG |
| FAN COIL UNIT | FC |
| FAHRENHEIT | F |
| FAR SIDE | F.S. |
| FEET OR FINNED TUBE | FT |
| FEET PER MINUTE | F.P.M. |
| FLUSH FLR. CLEAN OUT | FFCO |
| FIGURE | FIG |
| FINISH | FIN. |
| FINISH FLOOR | FF |
| FIRE EXTINGUISHER CABINET | FEC |
| FIRE HOSE CABINET | FHC |
| FIRE HYDRANT | FH |
| FIRE PROOF | FPRF |
| FIRE PROTECTION | FP |
| FIXTURE | FIX. |
| FLARED END SECTION | FES |
| FLASHING | FLASH. |
| FLOOR | FLR OR FL |
| FLOOR DRAIN OR FIRE DAMPER | FD |
| FLOWLINE | F/L |
| FLOORING | FLG |
| FLUORESCENT | FLUOR |
| FOOT CANDLE | FC |
| FOOTING | FTG |
| FOUNDATION | FDN |
| FRAME | FR |
| FRESH AIR | FA |
| FULL SIZE | F.S. |
| FURRING | FURR'G |

## G

| | |
|---|---|
| GAUGE | GA |
| GALLON | GAL |
| GALLONS PER MINUTES | GPM |
| GALVANIZED | GALV |
| GALVANIZED IRON | GI |
| GARBAGE DISPOSER | GD |
| GAS | G |
| GAS VALVE | GV |
| GATE VALVE | G.V. |
| GENERAL | GEN |
| GLASS | GL |
| GLAZED WALL TILE | GWT |
| GOVERNMENT | GOVT. |
| GRADE | GR |
| GRAVEL | GRVL |
| GRATING | GRTG |
| GROUND CLEANOUT | G.C.O. |
| GROUND | GND OR GRND |
| GYPSUM | GYP |
| GYPSUM WALLBOARD | GWB OR GYP. BD. |

## H

| | |
|---|---|
| HANDRAIL | HDR |
| HARDBOARD | HBD |
| HARDWARE | HDW |
| HEAD | HD |
| HEADER | HDR |
| HEATER | HTR |
| HEATING | HTG |
| HEIGHT | HT |
| HIGH POINT | H.PT. |
| HIGH PRESSURE WASHER | HPW |
| HIGH STRENGTH BOLT | HSB |
| HIGH-STRENGTH GYPSUM PLASTER | HSGYP |
| HOT WATER SUPPLY | HWS |
| HOT WATER RETURN | HWR |
| HOT WATER | HW |
| HOT WATER REVERSE RETURN | HWRR |
| HIGH STRENGTH | H.S. |
| HORIZONTAL ELLIPTICAL PIPE | HEP |
| HOLLOW METAL | HM |
| HORSE POWER | HP |
| HOSE BIBB | HB |
| HOT WATER | HW |
| HOT WATER HEATER | HWH |
| HOUR | HR |
| HYDRAULIC | HYD |

## I

| | |
|---|---|
| IN ACCORDANCE WITH | IAW |
| ILLUMINATING ENG. SOCIETY | IES |
| INDUSTRIAL SEWER | IS |
| INCH | IN |
| INFRA-RED HEATER | IRH |
| INSIDE DIAMETER | I.D. |
| INSULATION | INSUL. |
| INTERCOM | IC |
| INTERIOR | INT |
| INTERNATIONAL BUILDING CODE | IBC |
| INVERT ELEVATION | IE |
| INVERT | IN OR INV. |
| IRON | I OR FE |
| IRON PIPE | I.P. |

## J

| | |
|---|---|
| JANITOR CLOSET | JC |
| JOINT | JT |
| JOIST | JST |
| JUNCTION | JCT |
| JUNCTION BOX | JB |

## K

| | |
|---|---|
| KEY | K |
| KEY LOCK | KL |
| KICK PLATE | KP |
| KILOVOLTS | KV |
| KILOVOLT AMPERES | KVA |
| KILOVOLT AMPERES REACTIVE | KVAR |
| KILOWATTS | KW |
| KITCHEN | KIT |
| KIPS/SQUARE INCH | KSI |
| KIPS/SQUARE FOOT | KSF |
| KILOWATT HOUR METER | KWH |

## L

| | |
|---|---|
| LANDING | LDG |
| LAUNDRY | LAU |
| LAVATORY | LAV |
| LAWN IRRIGATION SYSTEM | LIS |
| LEFT | L |
| LENGTH | LG |
| LIGHT | LT |
| LIGHTING | LTG |
| LIGHT PROOF SHADE | LPS |
| LIGHT WEIGHT | LT. WT. |
| LINEAR | LIN |
| LINTEL | LNTL |
| LOAD | LD |
| LOADING | LDG |
| LONGITUDINAL | LONG |
| LONG - LEG HORIZONTAL | LLH |
| LONG - LEG VERTICAL | LLV |
| LOW POINT | LP |
| LUMBER | LBR |
| LUMEN | L |

## M

| | |
|---|---|
| MACHINE | MACH |
| MAHOGANY | MHGY |
| MANHOLE | MH |
| MANUFACTURE | MFR |
| MANUFACTURING | MFG |
| MASONRY | MSNRY or MAS |
| MASONRY OPENING | MO |
| MASONRY UNIT | MU |
| MASTIC | MSTC |
| MATCH EXISTING | ME |
| MATCHED & BEADED | M & B |
| MATERIAL | MAT or MATL |
| MAXIMUM | MAX |
| MECHANICAL | MECH |
| MEDICINE CABINET | MC |
| MESH WIRE | MW |
| METAL | MET. |
| METAL LATH | ML |
| METAL THRESHOLD | MT |
| METER | M,m |
| MILLIMETER | MM,mm |
| MINIMUM | MIN |
| MISSOURI | MO |
| MISSOURI DEEPARTMENT OF TRANSPORTATION | MODOT |
| MONITORING WELL | MW |
| MONOLITHIC | MONO |
| MONUMENT | MON |
| MOTOR | MOT |
| MOTOR GENERATOR | MG |
| MOULDING | MLDG |
| MOUNTED | MTD |
| MOUNTAIN | MTN |

## N

| | |
|---|---|
| NATIONAL ELECTRICAL CODE | NEC |
| NATIONAL ELECTRICAL MANUFACTURERS' ASSOCATION | NEMA |
| NATIONAL GEODETIC VERTICAL DATUM | N.G.V.D. |
| NEAR SIDE | NS |
| NORTH | N |
| NOT IN CONTRACT | NIC |
| NOT TO SCALE | NTS,N.T.S. |
| NUMBER | NO. |

## O

| | |
|---|---|
| OBJECT | OBJ |
| OBSCURE | OBSC |
| OBSCURE GLASS | OBGL |
| OBSCURE WIRE GLASS | OB WG |
| OFFICE | OFF. |
| OIL WATER SEPARATOR | OWS |
| ON CENTERS | OC |
| OPENING | OPNG |
| OPPOSITE | OPP |
| OPPOSITE HAND | OPP. HD. |
| OPERATIONS | OPS |
| OUTSIDE AIR | OA |
| OUTSIDE DIMENSION | OD |
| OVERHEAD | OVHD,OH |

## P

| | |
|---|---|
| PAINTED | PTD |
| PAIR | PR |
| PANEL | PNL |
| PANEL BOARD | PNL BD |
| PANIC BOLT | PAN. B |
| PARAPET | PRPT |
| PARTITION | PTN |
| PARK | PK |
| PARKWAY | PKWY |
| PAVEMENT DRAIN | PD |
| PENNY (as in nail-10d) | d |
| PERFORATED | PERF |
| PHASE | PH OR 0 |
| PIECE | PC |
| PILING | PLG |
| PLASTER | PLAS |
| PLASTIC LAMINATE | P. LAM. |
| PLATE | PL OR P |
| PLATFORM | PLATF |
| PLUMBING | PLBG |
| PLYWOOD | PLY WD |
| POINT | PT |
| POINT OF INTERSECTION | PI |
| POINT OF TANGENCY | POT |
| POLE | P |
| POLISH | POL |
| PORCELAIN | PORC |
| POST INDICTOR VALVE | PIV |
| POUNDS | LBS |
| POUNDS/SQUARE FOOT | PSF |
| POUNDS/SQUARE INCH | PSI |
| POWER LINE | PL |
| POWER POLE | PP |
| PREFABRICATED | PREFAB |
| PRE - ENGINEERED METAL BUILDING | PEMB |
| PRESSURE REGULATING VALVE | PRV |
| PRESTRESSED | P/S |
| PRESTRESSED CONCRETE CYLINDER PIPE | PCCP |
| PROJECTION | PROJ |
| PROPOSED | PROP |
| PUBLIC ADDRESS | PA |
| PUSH BUTTON STATION | PBS |

## Q

| | |
|---|---|
| QUARRY TILE | Q.T. |
| QUART | QT |
| QUARTER ROUND | ¼RD |
| QUARTERS | QTERS |

## R

| | |
|---|---|
| RADIATOR CONVECTOR | RC |
| RADIUS | RAD OR R |
| RANGE | RGE |
| RECEIVER | RCVR |
| RECEPTACLE | RECP |
| RECREATION | RECR |
| REFERENCE | REF OR REF |
| REFRIGERATOR | REFR |
| REGISTER | REG |
| REGULAR | REG |
| REINFORCED CONCRETE BOX | RCB |
| REINFORCED CONCRETE PIPE | RCP |
| REINFORCEMENT | REINF |
| REINFORCED CONCRETE | RC |
| REMOTE CONTROL | RC |
| REMOVABLE | REM |
| REQUIRED | REQ'D |
| RETURN AIR | RA |
| REVISIONS | REV |
| RIDGE | RDGE |
| RISER | R |
| RIGHT | R |
| RIGHT OF WAY | ROW |
| ROAD | RD |
| ROOF DRAIN | R.D. |
| ROOFING | RFG |
| ROOM | RM |
| ROUGH | RGH |
| ROUND | RD OR ⌀ |
| RUBBER | RUB |
| RUBBER BASE | RB |
| RIGHT OF WAY | R/W |

## S

| | |
|---|---|
| SANITARY SEWER | SS |
| SANITARY SEWER MANHOLE | SSMH |
| SOUTHWESTERN BELL COMMUNICATIONS | SBC |
| SCHEDULE | SCH |
| SCREW | SCR |
| SCUTTLE | SCUT |
| SECRETARY | SECY |
| SECTION | SECT |
| SEQUENCE | SEQ |
| SHALE | SH |
| SHEATHING | SHTHG |
| SHEET | SHT |
| SHEET METAL | SH MET OR SM |
| SIDEWALK | S/W |
| SIGNAL LIGHT | SGL |
| SIMILAR | SIM |
| SLOPE | S |
| SOUNDPROOF | SPF |
| SOUTH | S |
| SOUTHWEST | SW |
| SOUTHWESTERN BELL TELEPHONE | SWBT |
| SPACE HEATER | SPH |
| SPACING | SP OR SPA |
| SPEAKER | SPKR |
| SPECIAL | SPL |
| SPECIFICATIONS | SPEC |
| SPRAR UNIT | SU |
| SPLASH BLOCK | SB |
| SQUARE | SQ OR I |
| SQUADRON | SQUAD |
| STAINLESS STEEL | S.ST. |
| STAIRWAY | STWY |
| STANDARD | STD |
| STATION | STA |
| STEEL | STL |
| STIFFENER | STF |
| STONE | STN |
| STORAGE | STOR |
| STORM DRAIN | SD |
| STORM DRAIN MANHOLE | SDMH |
| STORM SEWER | S |
| STREET LIGHT | SL |
| STRINGER | STGR |
| STRUCTURAL | STR |
| STRUCTURAL CLAY TILE | SCT |
| STRUCTURAL FACING UNIT | SFU |
| STREET | ST |
| SUB FLOOR | SUB FL |
| SUPPLY AIR | SA |
| SUPPLY AIR FAN | SAF |
| SUPPLY DIFFUSER | S.D. |
| SUPPLY REGISTER | SR |
| SUSPENDED | SUSP |
| SWITCH | SW |
| SWITCHBOARD | SWBD |
| SYMMETRICAL | SYMM |

## T

| | |
|---|---|
| TACK BOARD | TBD |
| TANGENT | TAN. |
| TANK | T |
| TELEPHONE | TEL |
| TELEVISION | TV |
| TEMPERATURE | TEMP |
| TERMINAL | TERM |
| TERRAZZO | TER |
| THERMOSTAT | THERMO |
| THICK | THK |
| THOUSAND | M |
| THOUSAND CIRCULAR MILLS | MCM |
| THRESHOLD | TH |
| TO BE REMOVED AND REPLACED | TBR&R |
| TOGGLE | TGL |
| TOILET | TOIL. |
| TOP AND BOTTOM | TAB |
| TOP OF | T.O. |
| TOP OF BANK | TOB |
| TOP OF CONCRETE | TOC |
| TOP OF STEEL | TOS |
| TOPOGRAPHY | TOPO |
| TRAINING | TRNG |
| TRAINING AREA | TA |
| TRANSFER DUCT | TD |
| TRANSFORMER | XFMR |
| TRANSVERSE | TRANSV |
| TREAD | T |
| TYPICAL | TYP |

## U

| | |
|---|---|
| UNDERGROUND ELECTRIC | UGE |
| UNDERGROUND | UG |
| UNDERWRITERS' LABORATORIES | UL |
| UNEXCAVATED | UNEX |
| UNFINISHED | UNFIN |
| UNLESS NOTED OTHERWISE | UNO |
| UNIT COOLER | UC |
| UNIT HEATER | UH |
| UNIT VENTILATOR | UV |
| UNITED STATES | U.S. |
| URINAL | UR |
| USE IN PLACE | UIP |
| UTILITY | UT, UTIL |

## V

| | |
|---|---|
| VARIES | VAR |
| VENTILATION | VENT |
| VENTILATOR | VENT |
| VENT STACK | VS |
| VENT THRU ROOF | VTR |
| VERTICAL | VERT |
| VESTIBULE | VEST |
| VINYL COMPOSITION TILE | VCT |
| VINYL BASE | VB |
| VINYL-WALL COVERING | VC |
| VITRIFIED CLAY PIPE | VCP |
| VOLT | V |
| VOLUME | VOL |

## W

| | |
|---|---|
| WALL HYDRANT | WH |
| WARDROBE | WRB |
| WASHER | W |
| WASTE STACK | WS |
| WATER CLOSET | WC |
| WATER ELEVATION | W.E. |
| WATER LINE | WL |
| WATER PROOF | WPF |
| WATER PROOFING | WPFG |
| WATER VALVE | WV |
| WATTHOUR METER | WHM |
| WEAPON STORAGE AREA | WSA |
| WEATHER PROOF | WP |
| WEATHER STRIPPING | WS |
| WEIGHT | WT |
| WELDED WIRE FABRIC | WWF |
| WEST | W |
| WET BULB | WB |
| WHITE | WHT |
| WIDE FLANGE | WF |
| WINDOW | WDW |
| WINDOW DIMENSION | WDW DIM |
| WITH | W/ |
| WITHIN | W/I |
| WITHOUT | W/O |
| WOOD | WD |
| WOOD BLOCKING | WD. BLK. |
| WOOD DOOR | W. DR. |
| WOOD THRESHOLD | WD. TH. |
| WORK SHOP | WKS |
| WROUGHT IRON | W.I. |

## Y

| | |
|---|---|
| YARD | YD |
| YARD DRAIN | Y.D. |

US Army Corps of Engineers
Kansas City District

| Symbol | Description | Date | Appr. |
|---|---|---|---|
| 1 | PRELIMINARY - FOR REVIEW | 07/31/08 | |

Designed by:
Date: AUGUST 2008
Drawn by: MLW
Drawing code:
Checked by: MWJ, JJJ
Plot scale:
Submitted by: TJK
CADD File Name: BRCHGD04E2.DGN

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
KANSAS CITY, MISSOURI

HDR
HDR Engineering, Inc.

FLOOD PROTECTION PROJECT
BLUE RIVER CHANNEL
KANSAS CITY, MISSOURI
BRUSH CREEK TO 53RD STREET

ABBREVIATIONS

Sheet Reference Number:
G1.3

## BLUE RIVER CHANNEL CENTERLINE ALIGNMENT DATA

| PI | LATITUDE | DEPARTURE | DIST. | AZIMUTH FROM S. | P.I. STA. | P.C. STA. | P.T. STA | Δ | D | T | R | L | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 | 1,041,805.00 | 492,980.00 | | | 79+64.84 | 75+88.06 | 83+37.33 | 14° 59'07" | 2.00 | 376.78 | 2864.79 | 749.27 | |
| | | | 1294.96 | 198° 13'30" | | | | | | | | | |
| 4 | 1,043,035.00 | 493,385.00 | | | 92+55.50 | 87+13.62 | 96+41.41 | 74° 13'23" | 8.00 | 541.88 | 716.20 | 927.79 | |
| | | | 989.93 | 124° 00'07" | | | | | | | | | |
| 5 | 1,043,588.59 | 492,564.33 | | | 100+89.46 | 98+47.65 | 102+88.61 | 58° 25'38" | 13.25 | 241.81 | 432.42 | 440.96 | |
| | | | 856.63 | 182° 25'46" | | | | | | | | | |
| 6 | 1,044,444.45 | 492,600.64 | | | 109+03.43 | 105+28.59 | 112+12.78 | 58° 09'22" | 8.50 | 374.84 | 674.07 | 684.19 | |
| | | | 1817.46 | 240° 35'08" | | | | | | | | | |
| 7 | 1,045,337.05 | 494,183.81 | | | 126+75.45 | 122+89.16 | 129+60.95 | 65° 10'26" | 10.00 | 366.24 | 572.96 | 651.74 | EQ. STA. 122+89.16 BK = STA. 123+09.21 AHD |
| | | | 1671.67 | 175° 24'42" | | | | | | | | | |
| 8 | 1,047,003.36 | 494,050.08 | | | 142+66.38 | | | | | | | | |

## BLUE RIVER PHOTOGRAMMETRIC CONTROL
BRUSH CREEK TO 53RD STREET

| POINT ID | NORTHING | EASTING | ELEVATION |
|---|---|---|---|
| 3T-11 | 1045569.402 | 494455.347 | 752.72 |
| 3T-13 | 1044302.463 | 492882.129 | 758.96 |
| ROSE | 1042215.812 | 493768.907 | 767.62 |
| T-7B | 1044333.386 | 494737.348 | 773.40 |
| | | | |

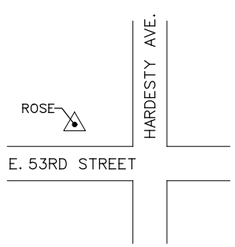
MISSOURI STATE PLANE COORDINATE SYSTEM
MERCATOR PROJECTION NAD-27 MISSOURI WEST ZONE

ELEVATIONS BASED ON NGVD 1929

GENERAL NOTES:

1. THE CONTRACTOR SHALL ADHERE TO THE CHANNEL ALIGNMENT AND PROFILE SHOWN WITHIN THE PLAN SET UNLESS A MODIFICATION IS APPROVED BY THE CONTRACTING OFFICER.

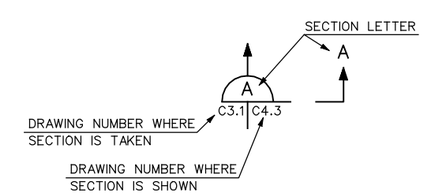
2. TOPOGRAPHY BY COE STANDARD PHOTOGRAMMETRIC PROCESS FROM AERIAL PHOTOS TAKEN BY WESTERN AIR MAPS DATED 1995. AERIAL PHOTOS SUPPLEMENTED BY GROUND SURVEYS BY KAW VALLEY ENGINEERING, CIRCA 2002.




CONTROL POINT "ROSE": NEAR THE N.E. 1/16 COR. SEC. 35, T-49-N, R-33-W, JACKSON CO., MISSOURI. A STD. C.E. BRASS CAP STAMPED "ROSE 1974" IN CONC. POST 0.2' BELOW GROUND SURFACE, 53' W. OF ℄ HARDESTY AVE. AND 15.5' N. OF E. 53RD STREET.

7.23' N. TO SHINER IN POWER POLE
42.10' S. TO SHINER IN 18" WALNUT
87.31' E.N.E. TO "+" ON STEEL CAMP POLE.
73.97' S.W. TO SHINER IN 8" HACKBERRY.

CONTROL POINT "ROSE"




SYMBOL IDENTIFICATION

US Army Corps of Engineers
Kansas City District

| Symbol | Description | Date | Appr. |
|---|---|---|---|
| 1 | PRELIMINARY - FOR REVIEW | 07/31/08 | |

Designed by: TJK
Date: AUGUST 2008
Drawn by: MLW
Drawing code:
Checked by: MWJ, JJJ
Plot scale:
Submitted by: TJK
CADD File Name: BRCHGDSESC.DGN

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
KANSAS CITY, MISSOURI

HDR
HDR Engineering, Inc.

FLOOD PROTECTION PROJECT
BLUE RIVER CHANNEL
KANSAS CITY, MISSOURI
BRUSH CREEK TO 53RD STREET

CENTERLINE ALIGNMENT AND SURVEY DATA

Sheet Reference Number:
V1.1

AREA 1 SEE SHEETS L4.3, L4.3A & L4.5

BLUE RANKES AVE.

SEE SHEET L1.3 FOR IN-STREAM STRUCTURES
SEE SHEET L1.7 FOR PLANTING PLAN
SEE SHEET L4.9 FOR PROPERTY OWNERSHIP

PERMANENT R/W

BRIGHTON AVE

CONSTRUCTION R/W

AREA 2 SEE SHEET L4.6

BLUE PARKWAY

MATCH LINE STA. 115+00

MATCH LINE STA. 103+80

PERMANENT R/W

NATIVE VEGETATION SWALE SEE SHEET L4.1

NATIVE VEGETATION SWALE SEE SHEET L4.2

CONSTRUCTION R/W

BUFF ST.

SEE SHEET L1.2 FOR IN-STREAM STRUCTURES
SEE SHEET L1.6 FOR PLANTING PLAN
SEE SHEET L4.8 FOR PROPERTY OWNERSHIP

PRESERVATION AREA
SEE SHEET L4.4

SEE SHEET L1.4 FOR IN-STREAM STRUCTURES
SEE SHEET L1.8 FOR PLANTING PLAN
SEE SHEET L4.10 FOR PROPERTY OWNERSHIP

END PROJECT
STA. 123+09.21

HARDISTY

STA. 86+00
BEGIN PROJECT

SEE SHEET L1.1 FOR IN-STREAM STRUCTURES
SEE SHEET L1.5 FOR PLANTING PLAN
SEE SHEET L4.7 FOR PROPERTY OWNERSHIP

MATCH LINE STA. 90+80

NOTES:

1. WHEN SAND DRAINS OR OTHER OBSTRUCTIONS ARE NEEDED AND/OR CONFLICT WITH IN-STREAM/ BIOENGINEERED STRUCTURE LOCATIONS, CONTRACTOR SHALL BE ALLOWED TO MOVE STRUCTURES TO ALTERNATIVE LOCATIONS.
2. CONTRACTOR SHALL BE ALLOWED TO SUBSTITUTE IN-STREAM/ BIOENGINEERED STRUCTURES WITH A/E APPROVED COMPARABLE ALTERNATIVES.

LEGEND - PLANTING ZONES & IN-STREAM STRUCTURES

- RIPRAP
- UPLAND PLANTINGS
- SWALE PLANTINGS
- ROOT WAD
- BOULDER CLUSTER
- HYDROPHYTIC TRANSITION PLANTINGS
- LIVE STAKING
- WETLAND PLANTINGS
- LOCKED LOG CLUSTER
- RCP LUNKER
- NEWBURY STRUCTURE

SCALE: 1" = 100'-0"

US Army Corps of Engineers
Kansas City District

| Symbol | Description | Date | Appr. |
|---|---|---|---|
| 1 | PRELIMINARY - FOR REVIEW | 07/31/08 | |

Designed by: MJS
Drawn by: MLW
Checked by: MWJ, JJJ
Submitted by: TJK
Date: AUGUST 2008
Drawing code:
Plot scale: 1" = 100'-0"
CADD File Name: BRCH-CS-01-LOCATION

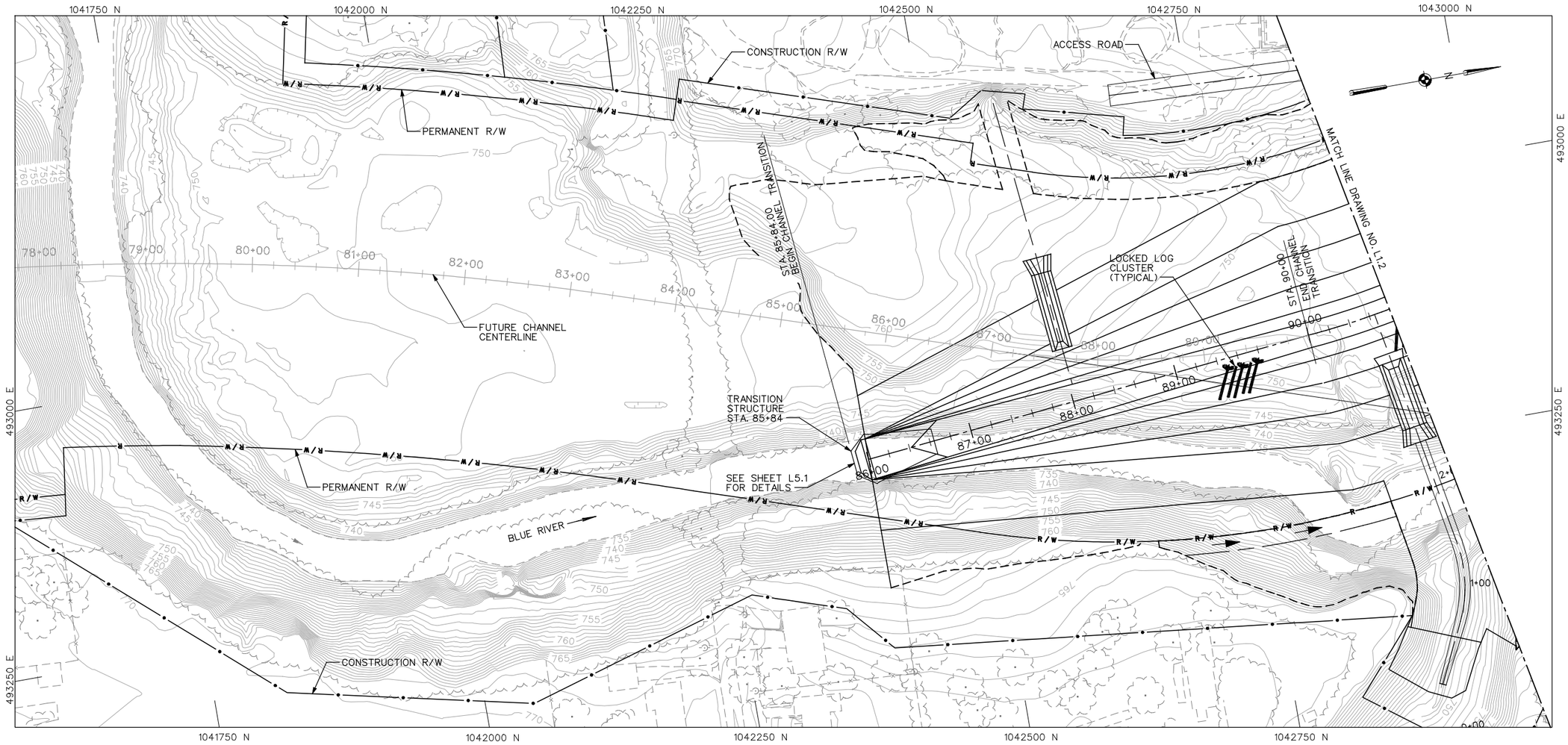
U.S. ARMY ENGINEER DISTRICT
KANSAS CITY, KANSAS CITY
KANSAS CITY, MISSOURI

HDR Engineering, Inc.

FLOOD PROTECTION PROJECT
BLUE RIVER CHANNEL
KANSAS CITY, MISSOURI
BRUSH CREEK TO 53RD STREET

ENVIRONMENTAL ENHANCEMENTS
GENERAL LOCATION PLAN

Sheet Reference Number:
L1.0




PLAN

LEGEND - IN-STREAM STRUCTURES

- ROOT WAD
- BOULDER CLUSTER
- LOCKED LOG CLUSTER
- RCP LUNKER
- NEWBURY STRUCTURE

NOTES:

1. FOR RIPRAP AND PLANTING DETAILS, SEE SHEETS L1.5 THROUGH L1.8
2. FOR LOCKED LOG CLUSTER DETAILS, SEE SHEET L5.4.

50 10 0 50 100

SCALE: 1" = 50'-0"

US Army Corps of Engineers
Kansas City District

| Symbol | Description | Date | Appr. |
|---|---|---|---|
| 1 | PREFINAL - FOR REVIEW | 07/31/08 | |

Designed by: M.S. TMF
Drawn by: M.W.
Checked by: MWJ, JJJ
Submitted by: TJK
Date: AUGUST 2008
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Plot scale: 1" = 50'-0"
CADD File Name: BRCHCSTRSSDGN

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KANSAS CITY, MISSOURI

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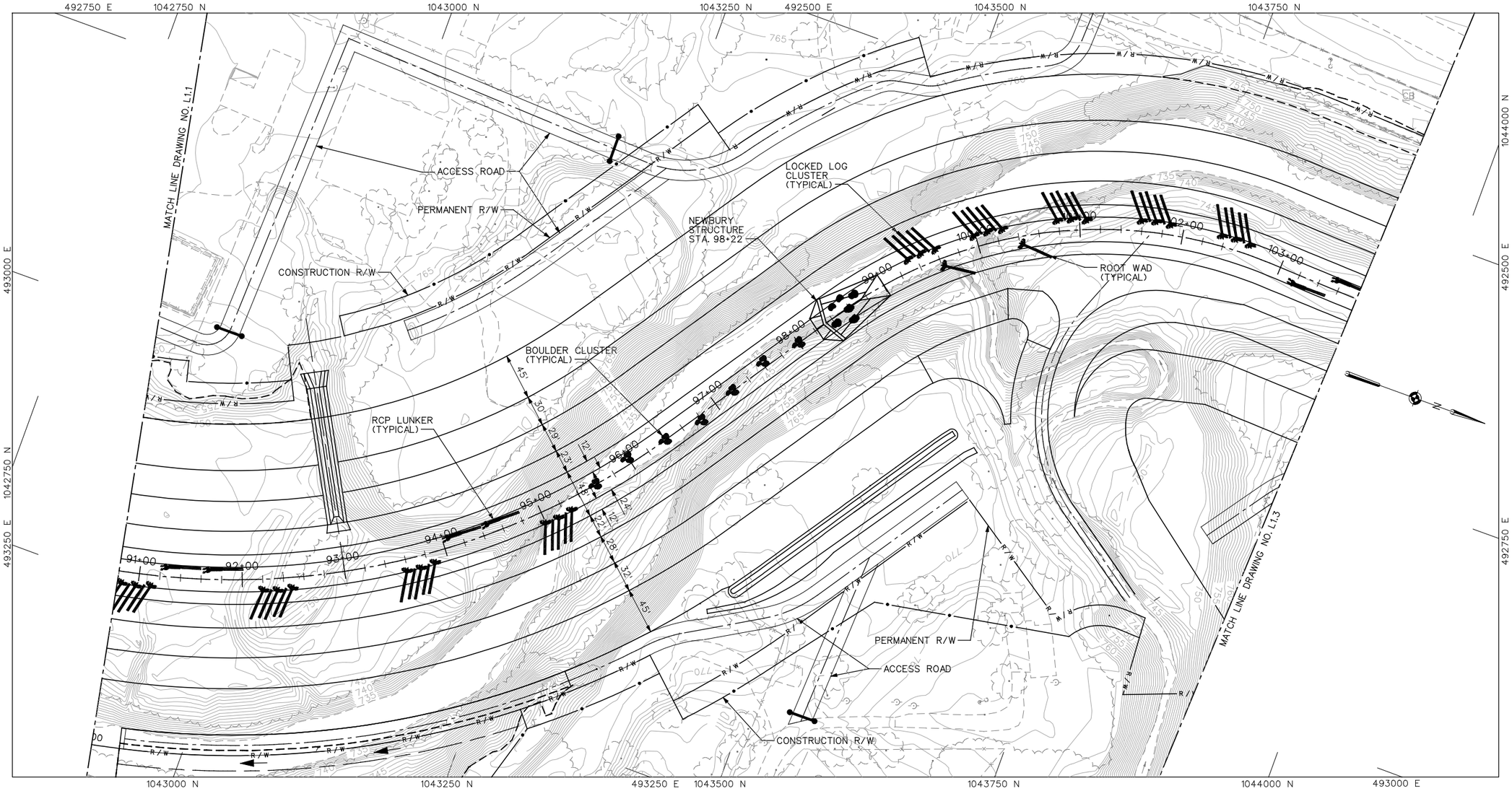
FLOOD PROTECTION PROJECT
BLUE RIVER CHANNEL
KANSAS CITY, MISSOURI
BRUSH CREEK TO 53RD STREET

IN-STREAM STRUCTURES
STA. 86+00 TO STA. 90+80

Sheet Reference Number:
L1.1




PLAN

LEGEND - IN-STREAM STRUCTURES

- ROOT WAD
- BOULDER CLUSTER
- LOCKED LOG CLUSTER
- RCP LUNKER
- NEWBURY STRUCTURE

NOTES:

1. FOR RIPRAP AND PLANTING DETAILS, SEE SHEETS L1.5 THROUGH L1.8.
2. FOR RCP LUNKER DETAILS, SEE SHEET L5.3.
3. FOR BOULDER CLUSTER DETAILS, SEE SHEET L5.2.
4. FOR NEWBURY STRUCTURE DETAILS, SEE SHEET L5.1.
5. FOR LOCKED LOG CLUSTER DETAILS, SEE SHEET L5.4.
6. FOR ROOT WAD DETAILS, SEE SHEET L5.3

50 10 0 50 100

SCALE: 1" = 50'-0"

US Army Corps of Engineers
Kansas City District

| Symbol | Description | Date | Appr. |
|---|---|---|---|
| 1 | PREFINAL - FOR REVIEW | 07/31/08 | |

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Submitted by: TJK
Date: AUGUST 2008
Drawing code:
Plot scale: 1" = 50'-0"
CADD File Name: BRCHCS102ISS.DGN

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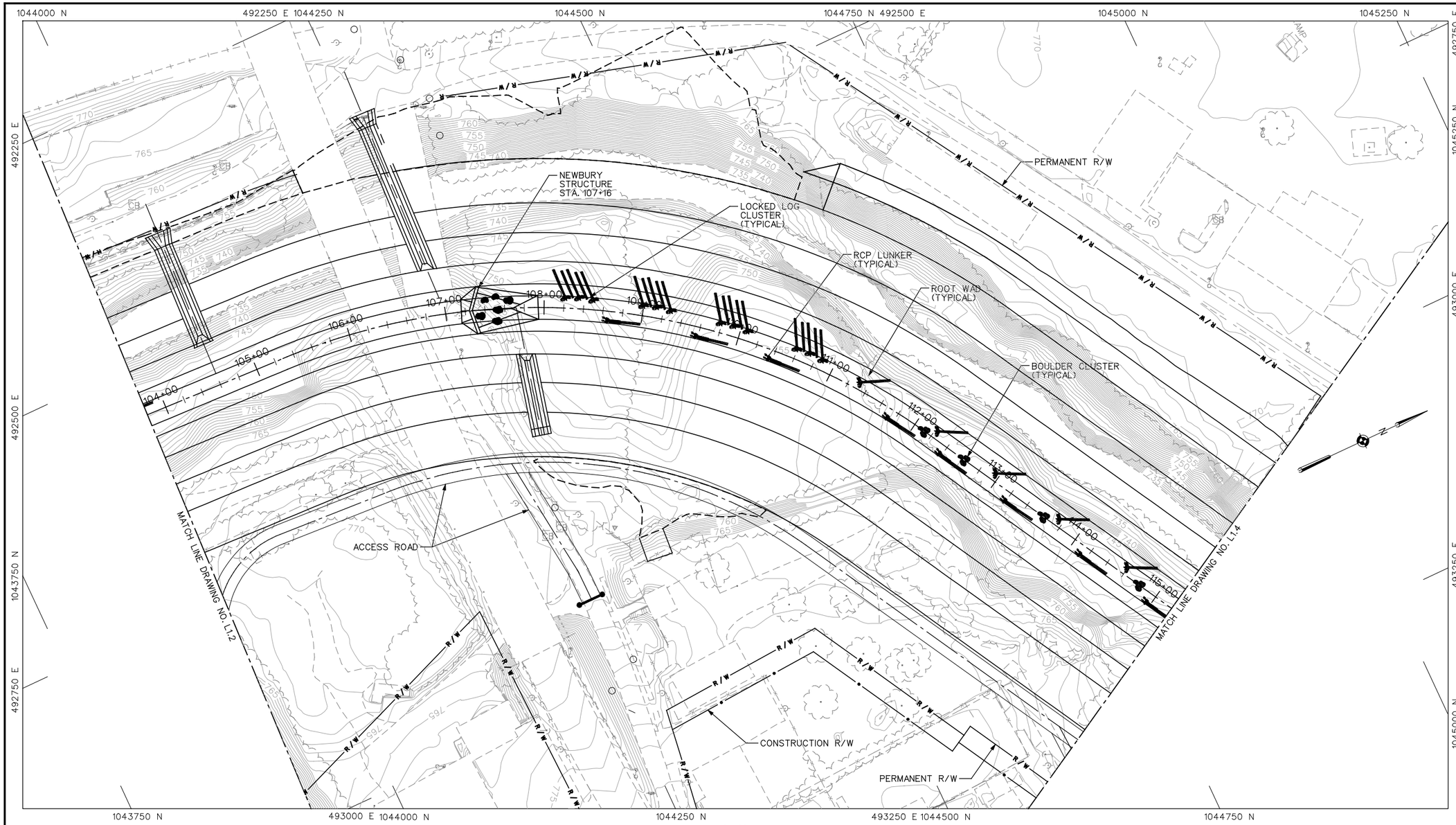
FLOOD PROTECTION PROJECT
BLUE RIVER CHANNEL
KANSAS CITY, MISSOURI
BRUSH CREEK TO 53RD STREET

IN-STREAM STRUCTURES
STA. 90+80 TO STA. 103+80

Sheet Reference Number:
L1.2




PLAN

LEGEND - IN-STREAM STRUCTURES

- ROOT WAD
- RCP LUNKER
- BOULDER CLUSTER
- NEWBURY STRUCTURE
- LOCKED LOG CLUSTER

NOTES:

1. FOR RIPRAP AND PLANTING DETAILS, SEE SHEETS L1.5 THROUGH L1.8.
2. FOR RCP LUNKER DETAILS, SEE SHEET L5.3.
3. FOR BOULDER CLUSTER DETAILS, SEE SHEET L5.2.
4. FOR NEWBURY STRUCTURE DETAILS, SEE SHEET L5.1.
5. FOR LOCKED LOG CLUSTER DETAILS, SEE SHEET L5.4.
6. FOR ROOT WAD DETAILS, SEE SHEET L5.3

50 10 0 50 100
SCALE: 1" = 50'-0"

US Army Corps of Engineers
Kansas City District

| Symbol | Description | Date | Appr. |
|---|---|---|---|
| 1 | PREFINAL - FOR REVIEW | 07/31/08 | |

Designed by: MJS, TMF
Date: AUGUST 2008
Drawn by: MLW
Drawing code:
Checked by: MWJ, JJJ
Plot scale: 1" = 50'-0"
Submitted by: TJK
CADD File Name: BRCHCSISSDSIGN

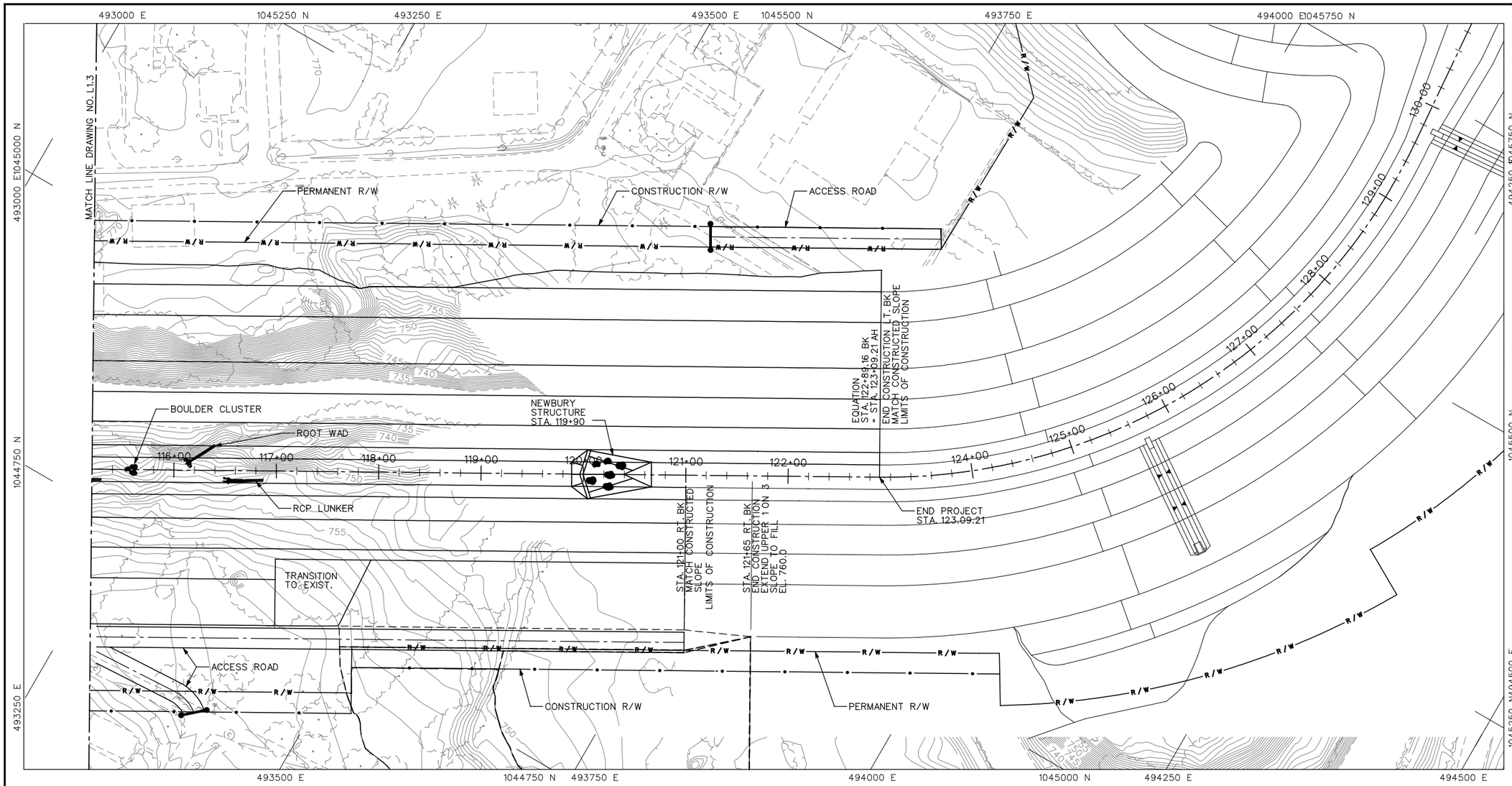
U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
KANSAS CITY, MISSOURI

HDR Engineering, Inc.

FLOOD PROTECTION PROJECT
BLUE RIVER CHANNEL
KANSAS CITY, MISSOURI
BRUSH CREEK TO 53RD STREET

IN-STREAM STRUCTURES
STA. 103+80 TO STA. 115.20

Sheet Reference Number:
L1.3




PLAN

LEGEND - IN-STREAM STRUCTURES

- ROOT WAD
- BOULDER CLUSTER
- LOCKED LOG CLUSTER
- RCP LUNKER
- NEWBURY STRUCTURE

NOTES:

1. FOR RIPRAP AND PLANTING DETAILS, SEE SHEETS L1.5 THROUGH L1.8
2. FOR RCP LUNKER DETAILS, SEE SHEET L5.3.
3. FOR BOULDER CLUSTER DETAILS, SEE SHEET L5.2.
4. FOR NEWBURY STRUCTURE DETAILS, SEE SHEET L5.1.

50 10 0 50 100
HORIZONTAL SCALE: 1" = 50'-0"

US Army Corps of Engineers
Kansas City District

| Symbol | Description | Date | Appr. |
|---|---|---|---|
| 1 | PREFINAL - FOR REVIEW | 07/31/08 | |

Designed by: MJS, TMF
Drawn by: MLW
Checked by: MWJ, JJJ
Submitted by: TJK
Date: AUGUST 2008
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Plot scale: 1" = 50'-0"
CADD File Name: BRCHCS104ISS.DGN

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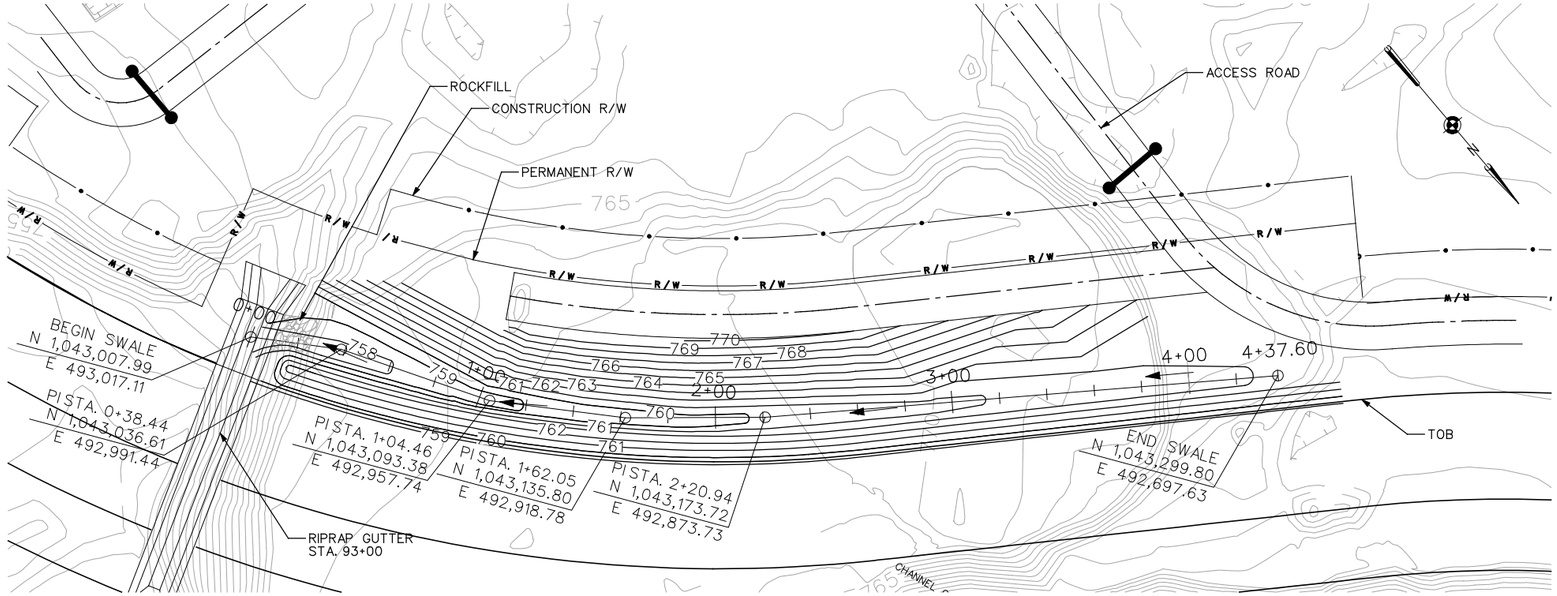
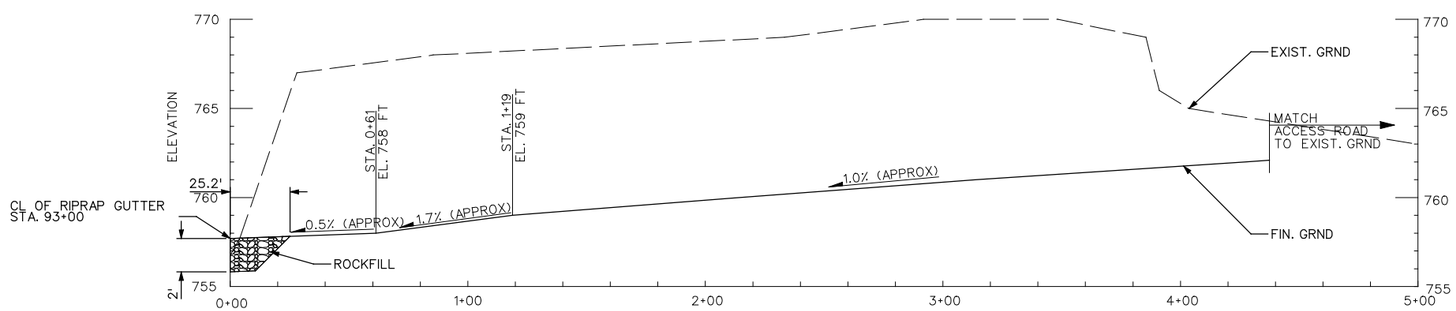
FLOOD PROTECTION PROJECT
BLUE RIVER CHANNEL
KANSAS CITY, MISSOURI
BRUSH CREEK TO 53RD STREET

IN-STREAM STRUCTURES
STA. 115+20 TO STA. 122+16

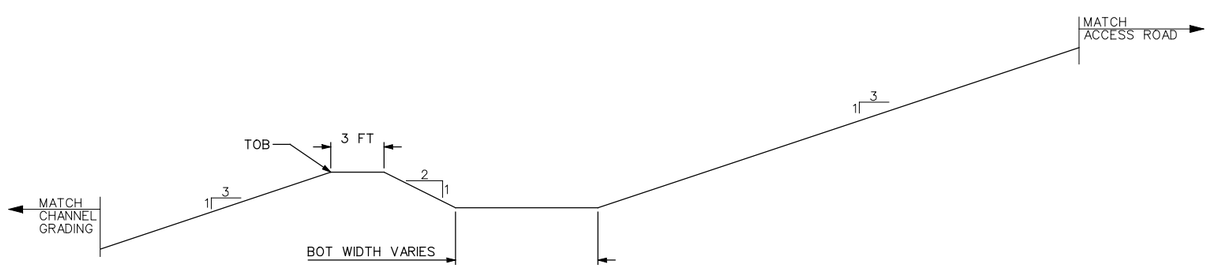
Sheet Reference Number:
L1.4




PLAN




PROFILE




TYPICAL SECTION

| NATIVE VEGETATION SWALE SECTIONS | | |
|---|---|---|
| STA. | BOT WIDTH | BOT ELEV |
| 1+00 | 5.6 FT | 758.7 FT |
| 2+00 | 4.7 FT | 759.9 FT |
| 3+00 | 5.2 FT | 760.9 FT |
| 4+00 | 10.9 FT | 761.8 FT |

NOTE:
1. SEE SHEETS C7.2 & C7.3 FOR CHANNEL GRADING AND MATCHLINES INTO EXISTING CONDITIONS.

PLAN AND PROFILE HORIZ: 30 10 0 30 60 SCALE: 1" = 30'-0"

VERT: 4 2 1 0 4 8 SCALE: 1/4" = 1'-0"

SECTION HORIZ/VERT: 4 2 1 0 4 8 SCALE: 1/4" = 1'-0"

US Army Corps of Engineers
Kansas City District

| Symbol | Description | Date | Appr. |
|---|---|---|---|
| 1 | PREFINAL - FOR REVIEW | 07/31/08 | |

Designed by: MLL
Date: AUGUST 2008
Drawn by: RJJ, MLL
Drawing code:
Checked by: MWJ, JJJ
Plot scale: 1" = 30'-0"
Submitted by: VK
CADD File Name: BRCHCS4TEMP.DGN

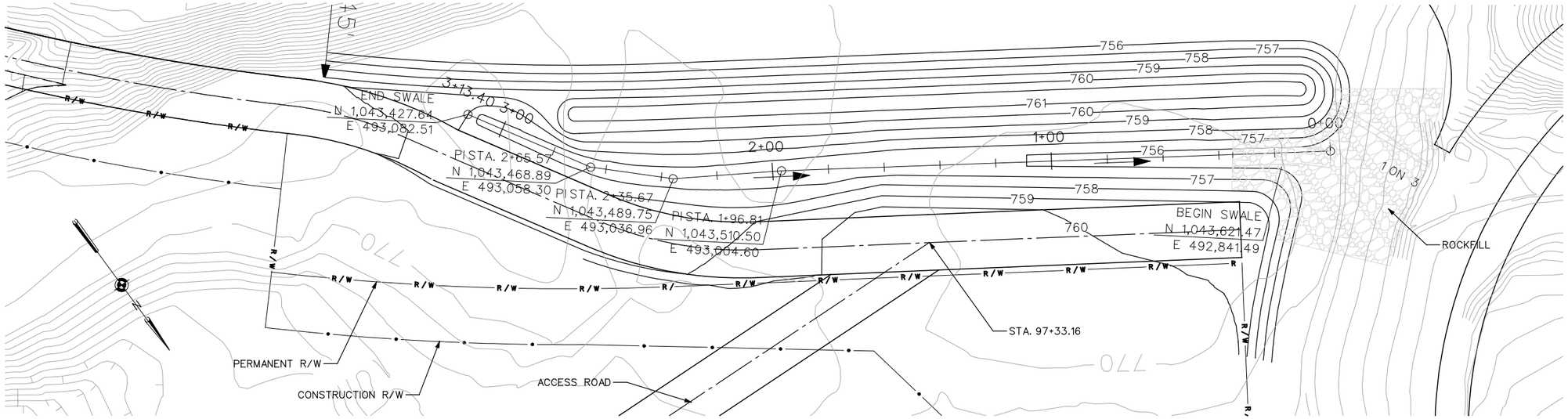
U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
KANSAS CITY, MISSOURI

HDR Engineering, Inc.

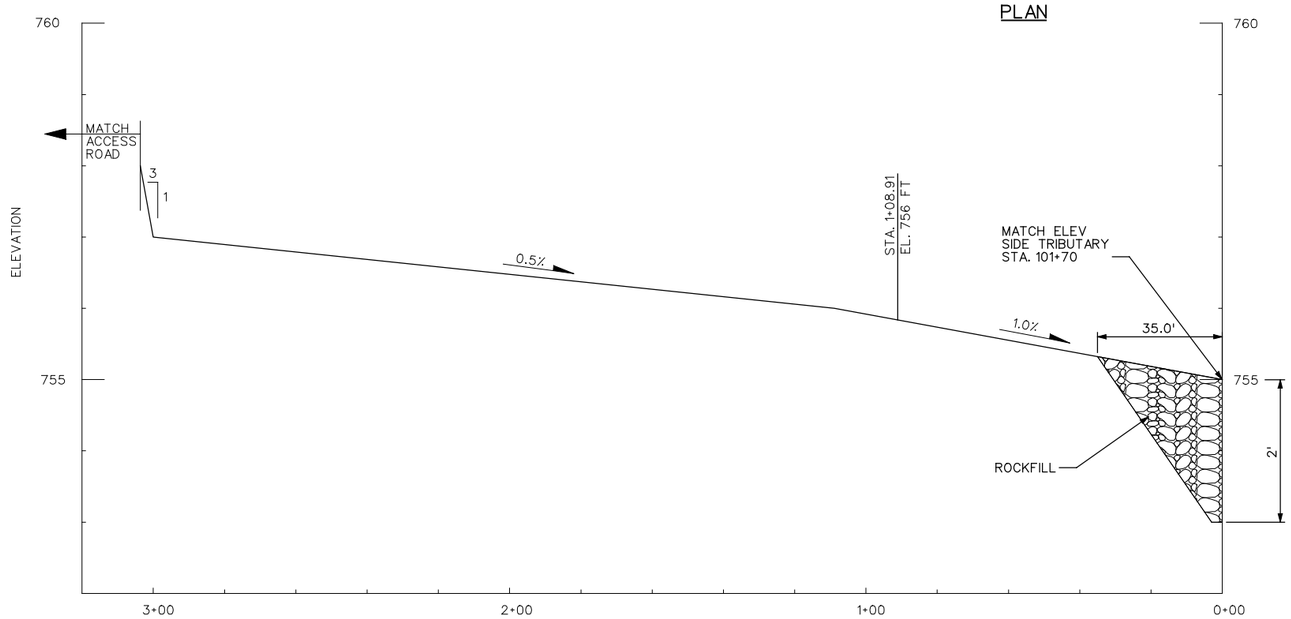
FLOOD PROTECTION PROJECT
BLUE RIVER CHANNEL
KANSAS CITY, MISSOURI
BRUSH CREEK TO 53RD STREET

NATIVE VEGETATION SWALE
STA. 93+00 TO STA. 98+60
LEFT BANK

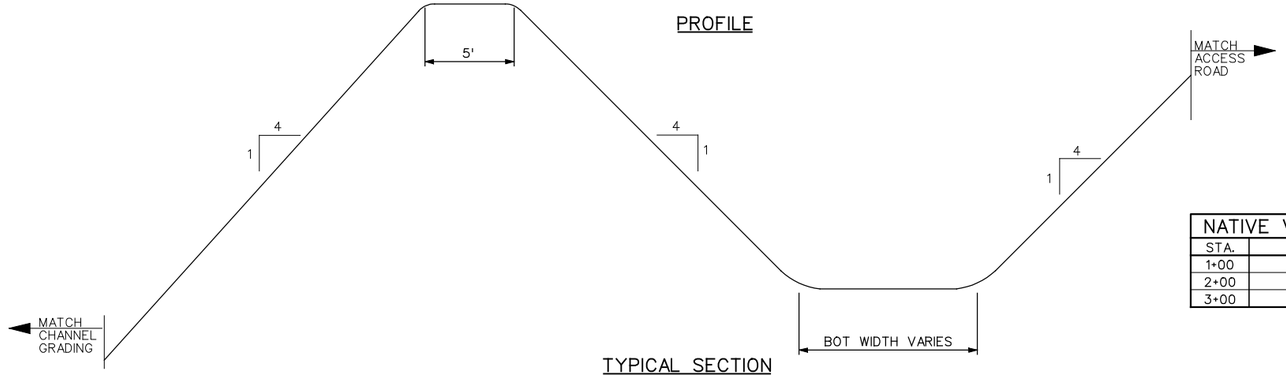
Sheet Reference Number:
L4.1




PLAN




PROFILE




TYPICAL SECTION

PLAN AND PROFILE HORIZ: 20 10 0 20 40 SCALE: 1" = 20'-0"

VERT: 1 6 0 1 2 SCALE: 1" = 1'-0"

NOTES:
1. APPROXIMATE ELEVATION OF EXISTING GROUND 770 TO 772.
2. SEE SHEETS C7.2 & C7.3 FOR CHANNEL GRADING AND MATCHLINES INTO EXISTING CONDITIONS.

SECTION HORIZ: 4 2 1 0 4 8 SCALE: 1/4" = 1'-0"

VERT: 1 6 0 1 2 SCALE: 1" = 1'-0"

NATIVE VEGETATION SWALE SECTIONS

| STA. | BOT WIDTH | BOT ELEV |
|---|---|---|
| 1+00 | 4.3 FT | 755.9 FT |
| 2+00 | 9.8 FT | 756.5 FT |
| 3+00 | 4.5 FT | 756.4 FT |

US Army Corps of Engineers
Kansas City District

| Symbol | Description | Date | Appr. |
|---|---|---|---|
| 1 | PREFINAL - FOR REVIEW | 07/31/08 | |

Designed by: MLL
Drawn by: RJJ, MLL
Checked by: MWJ, JJJ
Submitted by: TJK
Date: AUGUST 2008
Drawing code:
Plot scale: 1" = 20'-0"
CADD File Name: BRCHCS403BMP.DGN

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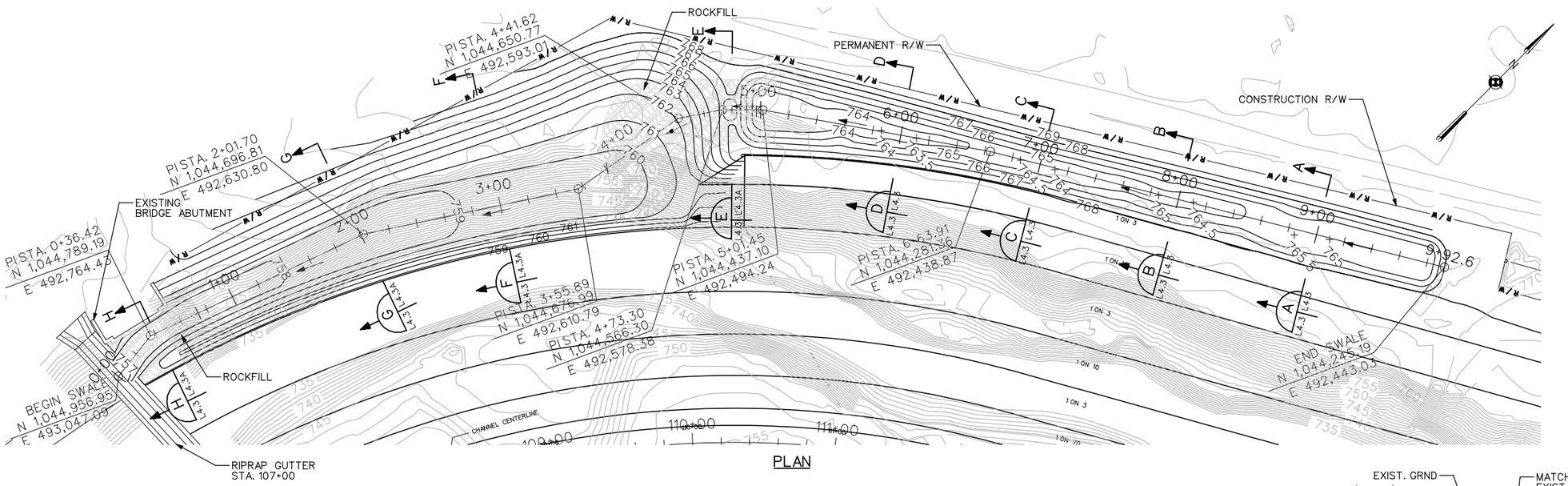
CORPS OF ENGINEERS
KANSAS CITY, MISSOURI

HDR Engineering, Inc.

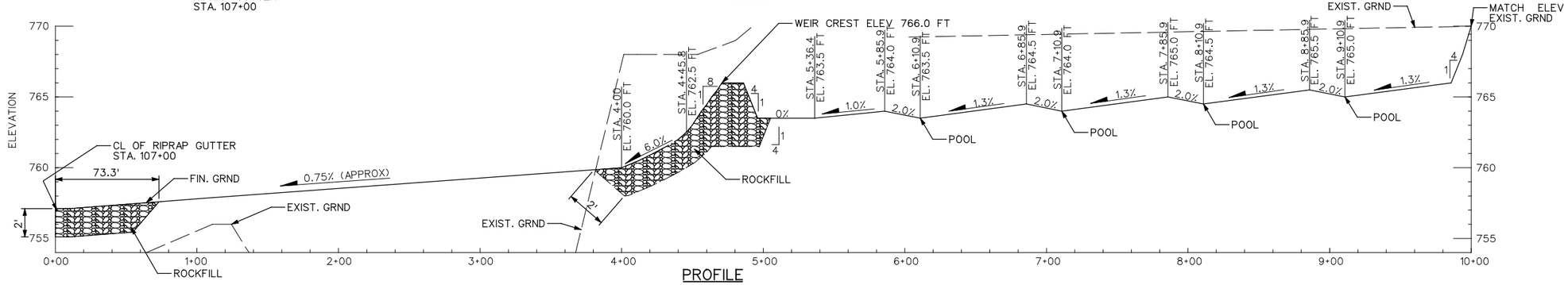
FLOOD PROTECTION PROJECT
BLUE RIVER CHANNEL
KANSAS CITY, MISSOURI
BRUSH CREEK TO 53RD STREET

NATIVE VEGETATION SWALE
STA. 95+40 TO STA. 99+60
RIGHT BANK

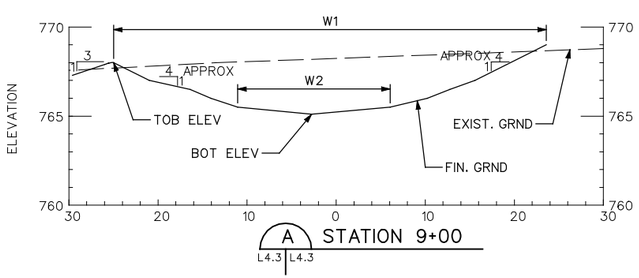
Sheet Reference Number:
L4.2



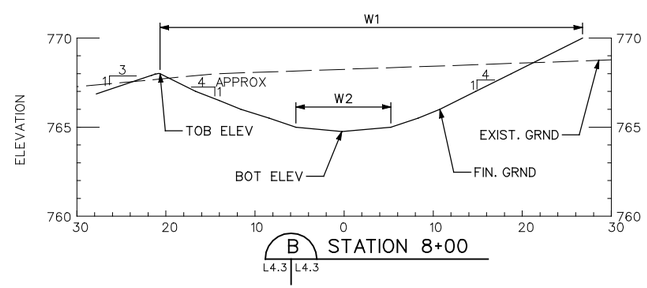

PLAN




PROFILE




A STATION 9+00

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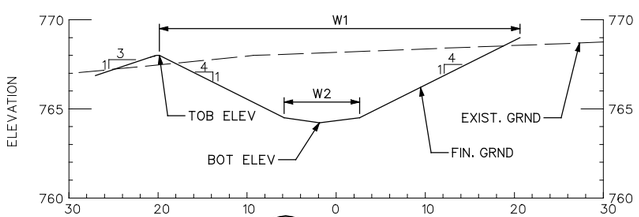
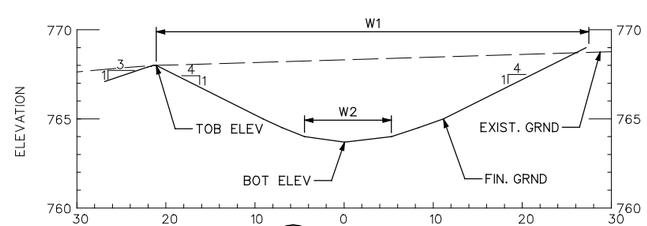



C STATION 7+00




D STATION 6+00

PLAN AND PROFILE HORIZ: SCALE: 1" = 40'-0"

VERT: SCALE: 1/4" = 1'-0"

NOTE:
1. SEE SHEETS C7.2 & C7.3 FOR CHANNEL GRADING AND MATCHLINES INTO EXISTING CONDITIONS.

| WETLAND SWALE SECTIONS | | | | |
|---|---|---|---|---|
| CROSS-SECTION | W1 | W2 | TOB ELEV | BOT ELEV |
| A-A | 48.6 FT | 17.1 FT | 768.0 FT | 765.2 FT |
| B-B | 47.4 FT | 10.7 FT | 768.0 FT | 764.7 FT |
| C-C | 40.5 FT | 8.5 FT | 768.0 FT | 764.2 FT |
| D-D | 48.6 FT | 9.8 FT | 768.0 FT | 763.7 FT |

SECTION HORIZ: SCALE: 1/8" = 1'-0"

VERT: SCALE: 1/4" = 1'-0"

US Army Corps of Engineers
Kansas City District

| Symbol | Description | Date | Appr. |
|---|---|---|---|
| 1 | PRELIMINARY - FOR REVIEW | 07/31/08 | |

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Date: AUGUST 2008
Drawn by: RJJ, MLL
Drawing code:
Checked by: MWJ, JJJ
Plot scale: 1" = 40'-0"
Submitted by: TJK
CADD File Name: BRCHCS-6128MP.DGN

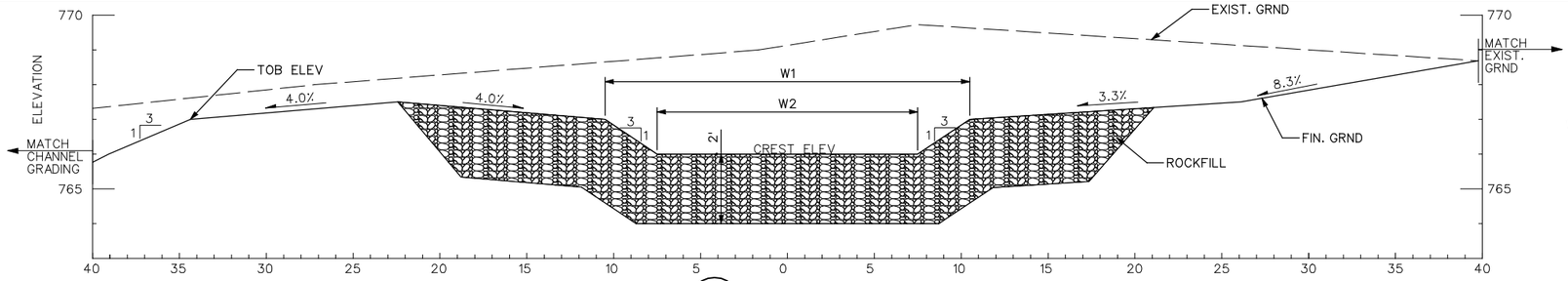
U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
KANSAS CITY, MISSOURI

HDR Engineering, Inc.

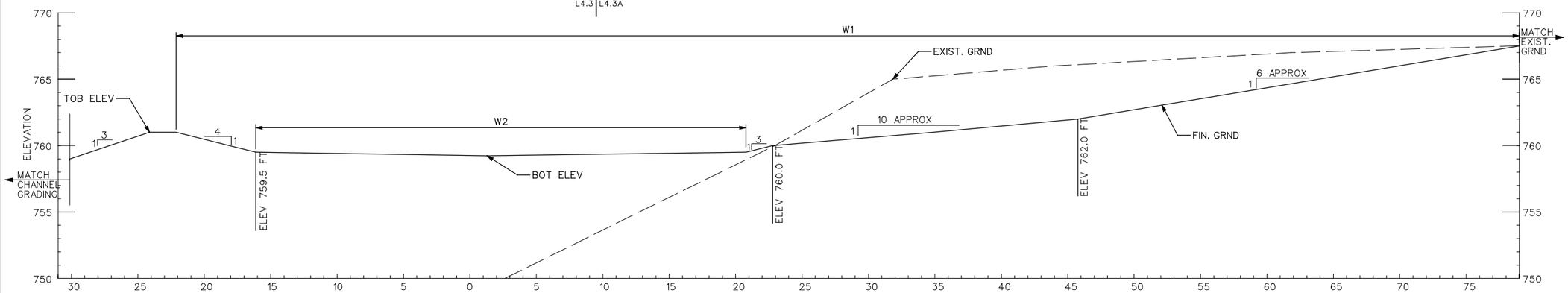
FLOOD PROTECTION PROJECT
BLUE RIVER CHANNEL
KANSAS CITY, MISSOURI
BRUSH CREEK TO 53RD STREET

AREA 1 GRADING PLAN & DETAILS
STA. 107+00 TO STA. 114+80
RIGHT BANK

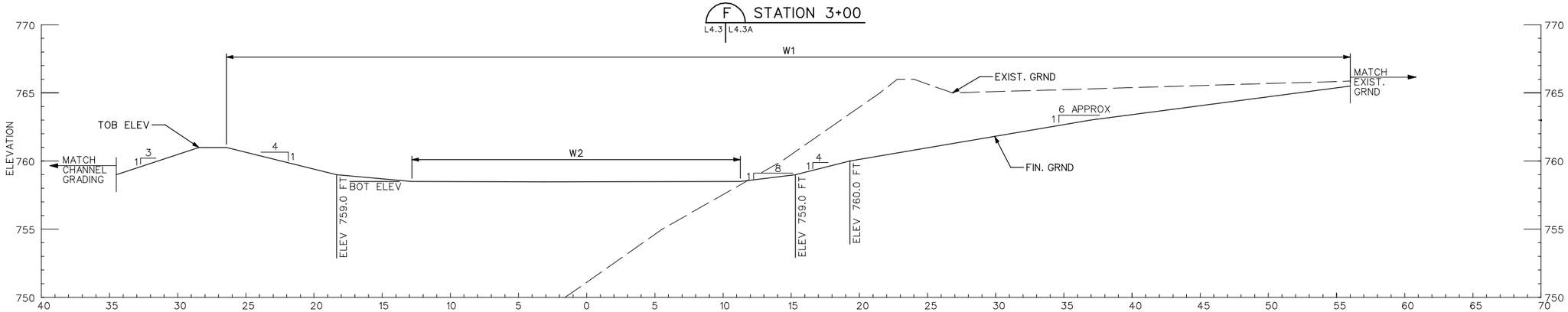
Sheet Reference Number:
L4.3



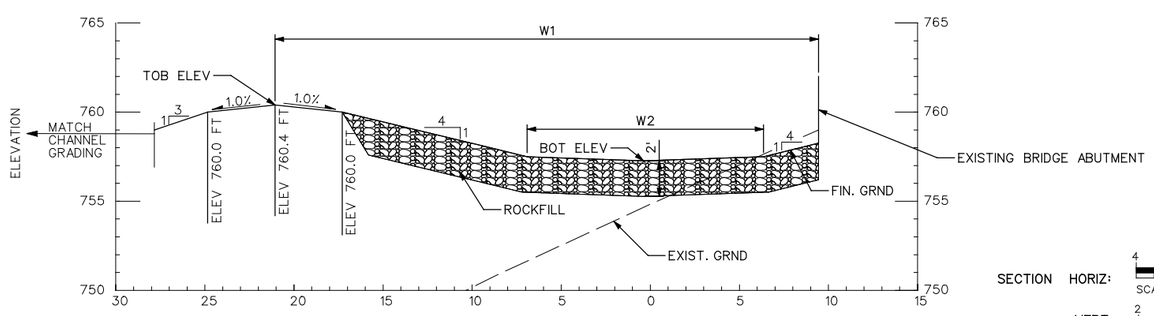

E WEIR SECTION STATION 4+80
L4.3 L4.3A




F STATION 3+00
L4.3 L4.3A




G STATION 2+00
L4.3 L4.3A




H STATION 0+40
L4.3 L4.3A

WEIR HORIZ: SCALE: 1/4" = 1'-0"

VERT: SCALE: 1/2" = 1'-0"

SECTION HORIZ: SCALE: 1/4" = 1'-0"

VERT: SCALE: 1/2" = 1'-0"

| WIER SECTION | | | | |
|---|---|---|---|---|
| CROSS-SECTION | W1 | W2 | TOB ELEV | BOT ELEV |
| E-E | 21.0 FT | 15.0 FT | 767.0 FT | 765.2 FT |

| NATIVE VEGETATION SWALE SECTIONS | | | | |
|---|---|---|---|---|
| CROSS-SECTION | W1 | W2 | TOB ELEV | BOT ELEV |
| E-E | 101.1 FT | 36.9 FT | 761.0 FT | 759.2 FT |
| G-G | 82.4 FT | 24.1 FT | 761.0 FT | 758.3 FT |
| H-H | 30.5 FT | 13.3 FT | 760.4 FT | 757.2 FT |

US Army Corps of Engineers
Kansas City District

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|---|---|---|---|
| 1 | PREFINAL - FOR REVIEW | 07/31/08 | |

Designed by: MLL
Date: AUGUST 2008
Drawn by: RJJ, MLL
Drawing code:
Checked by: MWL, JJJ
Plot scale: 1" = 40'-0"
Submitted by: TJK
CADD File Name: BRCHCS-F02A01.DGN

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
KANSAS CITY, MISSOURI

HDR
HDR Engineering, Inc.

FLOOD PROTECTION PROJECT
BLUE RIVER CHANNEL
KANSAS CITY, MISSOURI
BRUSH CREEK TO 53RD STREET
AREA 1
SECTIONS & DETAILS
STA. 107+00 TO STA. 114+80

Sheet Reference Number:
L4.3A

NOTES:

1. KANSAS CITY, MISSOURI SHALL REMOVE WASTE TIRES. CONTRACTOR SHALL REMOVE ALL VISIBLE SURFACE SOLID WASTE FROM THE PRESERVATION AREA.A
2. CONTRACTOR TO PERFORM INVASIVE PLANT REMOVAL FOLLOWING SPECIFICATIONS FOR CUTTING/CHEMICAL TREATMENT.
3. INVASIVE PLANT REMOVAL SHALL INCLUDE PLANTS LISTED IN THE MISSOURI DEPARTMENT OF CONSERVATION: MISSOURI VEGETATION MANUAL, OCTOBER 1997, THAT ARE IDENTIFIABLE DURING TIME OF INVASIVE PLANT REMOVAL.
4. INVASIVE PLANT REMOVAL IS LIMITED TO A ONE TIME CHEMICAL TREATMENT/CUTTING.

30 10 0 30 60

SCALE: 1" = 30'-0"

US Army Corps of Engineers
Kansas City District

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Checked by: MWJ, JJJ
Submitted by: TJK
Date: AUGUST 2008
Drawing code:
Plot scale: 1" = 30'-0"
CADD File Name: BRCHCS-6-PRESVDN

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
KANSAS CITY, MISSOURI

HDR Engineering, Inc.

FLOOD PROTECTION PROJECT
BLUE RIVER CHANNEL
KANSAS CITY, MISSOURI
BRUSH CREEK TO 53RD STREET

PRESERVATION AREA

Sheet Reference Number:

L4.4

LEGEND - PLANTING ZONES

- RIPRAP
- HYDROPHYTIC PLANTINGS
- SWALE PLANTINGS
- UPLAND PLANTINGS
- LIVE POLE STAKING (SEE NOTE 2)
- WETLAND PLANTINGS

GENERAL NOTES:

1. PLANTING ZONES AS SHOWN REPRESENT PLANTING LIMITS ONLY. CONTRACTOR SHALL REFER TO SPECIFICATIONS FOR SPECIES, PLANTING DENSITIES, SITE PREPARATION, AND SEASONAL LIMITATIONS.
2. SEE SHEET L3.1 FOR LIVE POLE STAKING DETAIL.
3. NO SEEDING SHALL TAKE PLACE ON THE LOWER 1 ON 70 BENCH. AREA WILL BE ALLOWED TO RE-VEGETATE NATURALLY.
4. ALL DISTURBED AREAS OTHER THAN THOSE SHOWN FOR ENHANCEMENT PURPOSES SHALL BE SEEDED PER GOVERNMENT PROVIDED SEEDING AND MULCHING - DESIGN/BUILD (SECTION 01 23 00.00 23) SPECIFICATIONS WITH "PERMANENT SEED MIXTURE FOR OTHER AREAS".

50 10 0 50 100
SCALE: 1" = 50'-0"

US Army Corps of Engineers
Kansas City District

| Symbol | Description | Date | Appr. |
|---|---|---|---|
| 1 | PREFINAL - FOR REVIEW | 07/31/08 | |

Designed by: MJS
Drawn by: JAS
Checked by: MWJ, JJJ
Submitted by: TJK
Date: AUGUST 2008
Drawing code:
Plot scale: 1" = 50'-0"
CADD File Name: BRCHCS101LPP.DGN

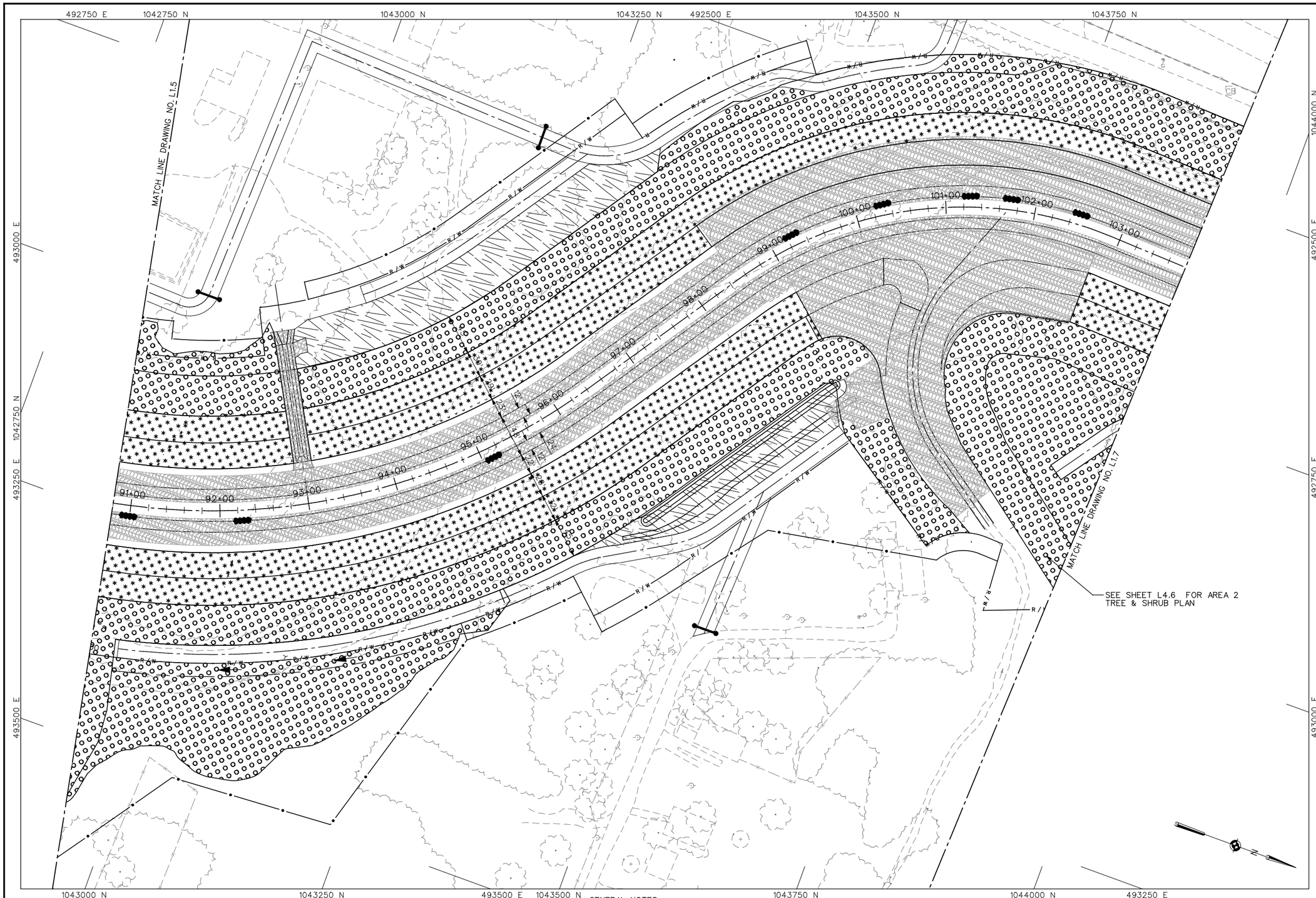
U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
KANSAS CITY, MISSOURI

HDR Engineering, Inc.

FLOOD PROTECTION PROJECT
BLUE RIVER CHANNEL
KANSAS CITY, MISSOURI
BRUSH CREEK TO 53RD STREET

PLANTING PLAN
STA. 86+00 TO STA. 90+80

Sheet Reference Number:
L1.5




LEGEND - PLANTING ZONES

- RIPRAP
- HYDROPHYTIC PLANTINGS
- SWALE PLANTINGS
- UPLAND PLANTINGS
- LIVE POLE STAKING (SEE NOTE 2)
- WETLAND PLANTINGS

GENERAL NOTES:

1. PLANTING ZONES AS SHOWN REPRESENT PLANTING LIMITS ONLY. CONTRACTOR SHALL REFER TO SPECIFICATIONS FOR SPECIES, PLANTING DENSITIES, SITE PREPARATION, AND SEASONAL LIMITATIONS.
2. SEE SHEET L3.1 FOR LIVE POLE STAKING DETAIL.
3. NO SEEDING SHALL TAKE PLACE ON THE LOWER 1 ON 70 BENCH. AREA WILL BE ALLOWED TO RE-VEGETATE NATURALLY.
4. AREA 2 INDICATES UPLAND, TREE AND SHRUB PLANTINGS.
5. ALL DISTURBED AREAS OTHER THAN THOSE SHOWN FOR ENHANCEMENT PURPOSES SHALL BE SEEDED PER GOVERNMENT PROVIDED SEEDING AND MULCHING - DESIGN/BUILD (SECTION 01 23 00.00 23) SPECIFICATIONS WITH "PERMANENT SEED MIXTURE FOR OTHER AREAS".

50 10 0 50 100
SCALE: 1" = 50'-0"

US Army Corps of Engineers
Kansas City District

| Symbol | Description | Date | Appr. |
|---|---|---|---|
| 1 | PREFINAL - FOR REVIEW | 07/31/08 | |

Designed by: MJS
Drawn by: JAS
Checked by: MWJ, JJJ
Submitted by: TJK
Date: AUGUST 2008
Drawing code:
Plot scale: 1" = 50'-0"
CADD File Name: BRCHCS102LPP.DGN

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
KANSAS CITY, MISSOURI

HDR Engineering, Inc.

FLOOD PROTECTION PROJECT
BLUE RIVER CHANNEL
KANSAS CITY, MISSOURI
BRUSH CREEK TO 53RD STREET

PLANTING PLAN
STA. 90+80 TO STA. 103+80

Sheet Reference Number:
L1.6

LEGEND - PLANTING ZONES

- RIPRAP
- HYDROPHYTIC PLANTINGS
- SWALE PLANTINGS
- UPLAND PLANTINGS
- LIVE POLE STAKING (SEE NOTE 2)
- WETLAND PLANTINGS

GENERAL NOTES:

1. PLANTING ZONES AS SHOWN REPRESENT PLANTING LIMITS ONLY. CONTRACTOR SHALL REFER TO SPECIFICATIONS FOR SPECIES, PLANTING DENSITIES, SITE PREPARATION, AND SEASONAL LIMITATIONS.
2. SEE SHEET L3.1 FOR LIVE POLE STAKING DETAIL.
3. NO SEEDING SHALL TAKE PLACE ON THE LOWER 1 ON 70 BENCH. AREA WILL BE ALLOWED TO RE-VEGETATE NATURALLY.
4. AREA 2 INDICATES UPLAND, TREE AND SHRUB PLANTINGS.
5. ALL DISTURBED AREAS OTHER THAN THOSE SHOWN FOR ENHANCEMENT PURPOSES SHALL BE SEEDED PER GOVERNMENT PROVIDED SEEDING AND MULCHING - DESIGN/BUILD (SECTION 01 23 00.00 23) SPECIFICATIONS WITH "PERMANENT SEED MIXTURE FOR OTHER AREAS".

50 10 0 50 100

SCALE: 1" = 50'-0"

US Army Corps of Engineers
Kansas City District

| Symbol | Description | Date | Appr. |
|---|---|---|---|
| 1 | PREFINAL - FOR REVIEW | 07/31/08 | |

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Checked by: MWJ, JJJ
Submitted by: TJK
Date: AUGUST 2008
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Plot scale: 1" = 50'-0"
CADD File Name: BRCHCS103LPP.DGN

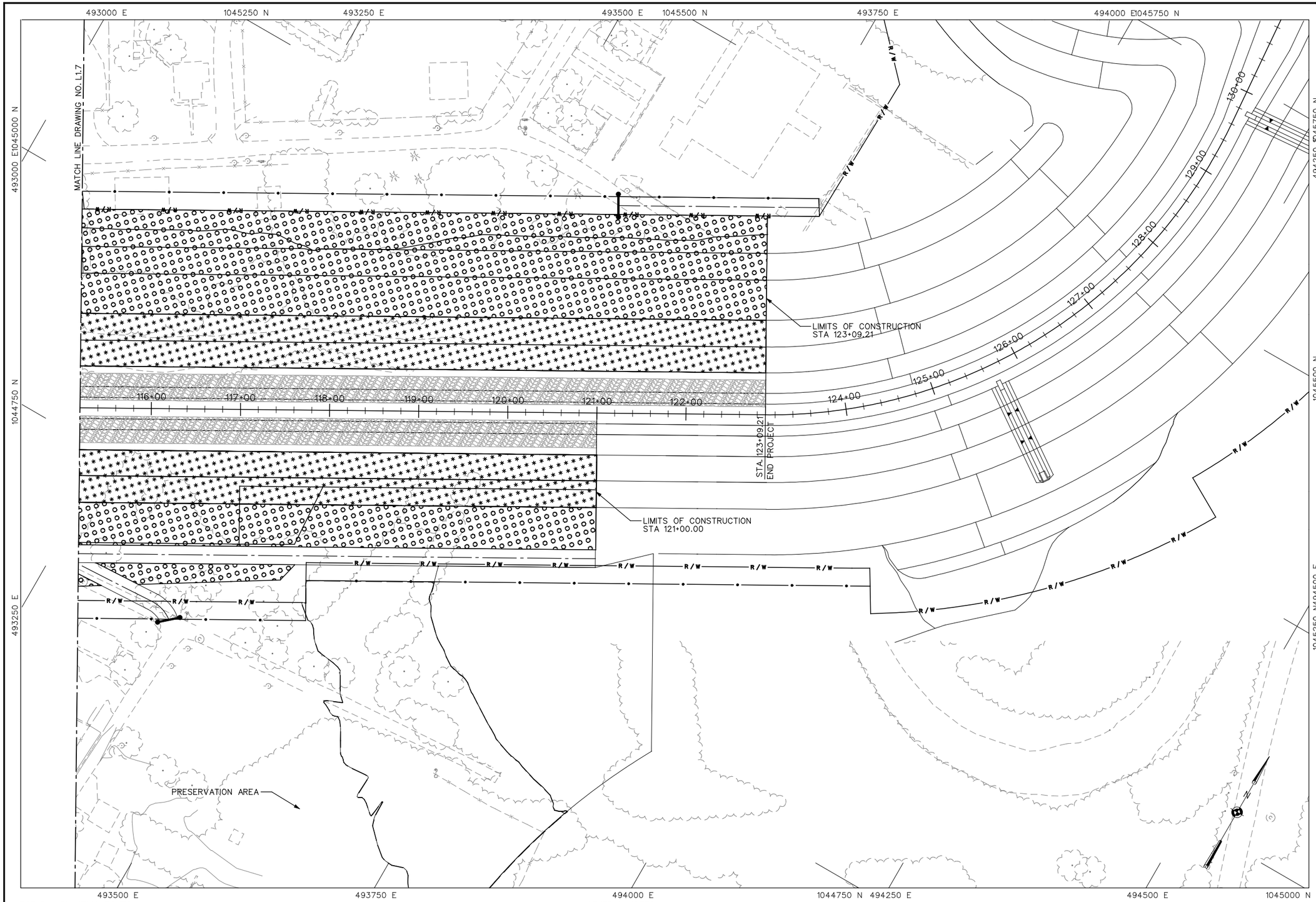
U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
KANSAS CITY, MISSOURI

HDR Engineering, Inc.

FLOOD PROTECTION PROJECT
BLUE RIVER CHANNEL
KANSAS CITY, MISSOURI
BRUSH CREEK TO 53RD STREET

PLANTING PLAN
STA. 103+80 TO STA. 115.20

Sheet Reference Number:
L1.7




LEGEND - PLANTING ZONES

- RIPRAP
- HYDROPHYTIC PLANTINGS
- SWALE PLANTINGS
- UPLAND PLANTINGS
- LIVE POLE STAKING (SEE NOTE 2)
- WETLAND PLANTINGS

GENERAL NOTES:

1. PLANTING ZONES AS SHOWN REPRESENT PLANTING LIMITS ONLY. CONTRACTOR SHALL REFER TO SPECIFICATIONS FOR SPECIES, PLANTING DENSITIES, SITE PREPARATION, AND SEASONAL LIMITATIONS.
2. SEE SHEET L3.1 FOR LIVE POLE STAKING DETAIL.
3. NO SEEDING SHALL TAKE PLACE ON THE LOWER 1 ON 70 BENCH. AREA WILL BE ALLOWED TO RE-VEGETATE NATURALLY.
4. ALL DISTURBED AREAS OTHER THAN THOSE SHOWN FOR ENHANCEMENT PURPOSES SHALL BE SEEDED PER GOVERNMENT PROVIDED SEEDING AND MULCHING - DESIGN/BUILD (SECTION 01 23 00.00 23) SPECIFICATIONS WITH "PERMANENT SEED MIXTURE FOR OTHER AREAS".

50 10 0 50 100
SCALE: 1" = 50'-0"

US Army Corps of Engineers
Kansas City District

| Symbol | Description | Date | Appr. |
|---|---|---|---|
| 1 | PREFINAL - FOR REVIEW | 07/31/08 | |

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Checked by: MWJ, JJJ
Submitted by: TJK
Date: AUGUST 2008
Drawing code:
Plot scale: 1" = 50'-0"
CADD File Name: BRCHCS104LPP.DGN

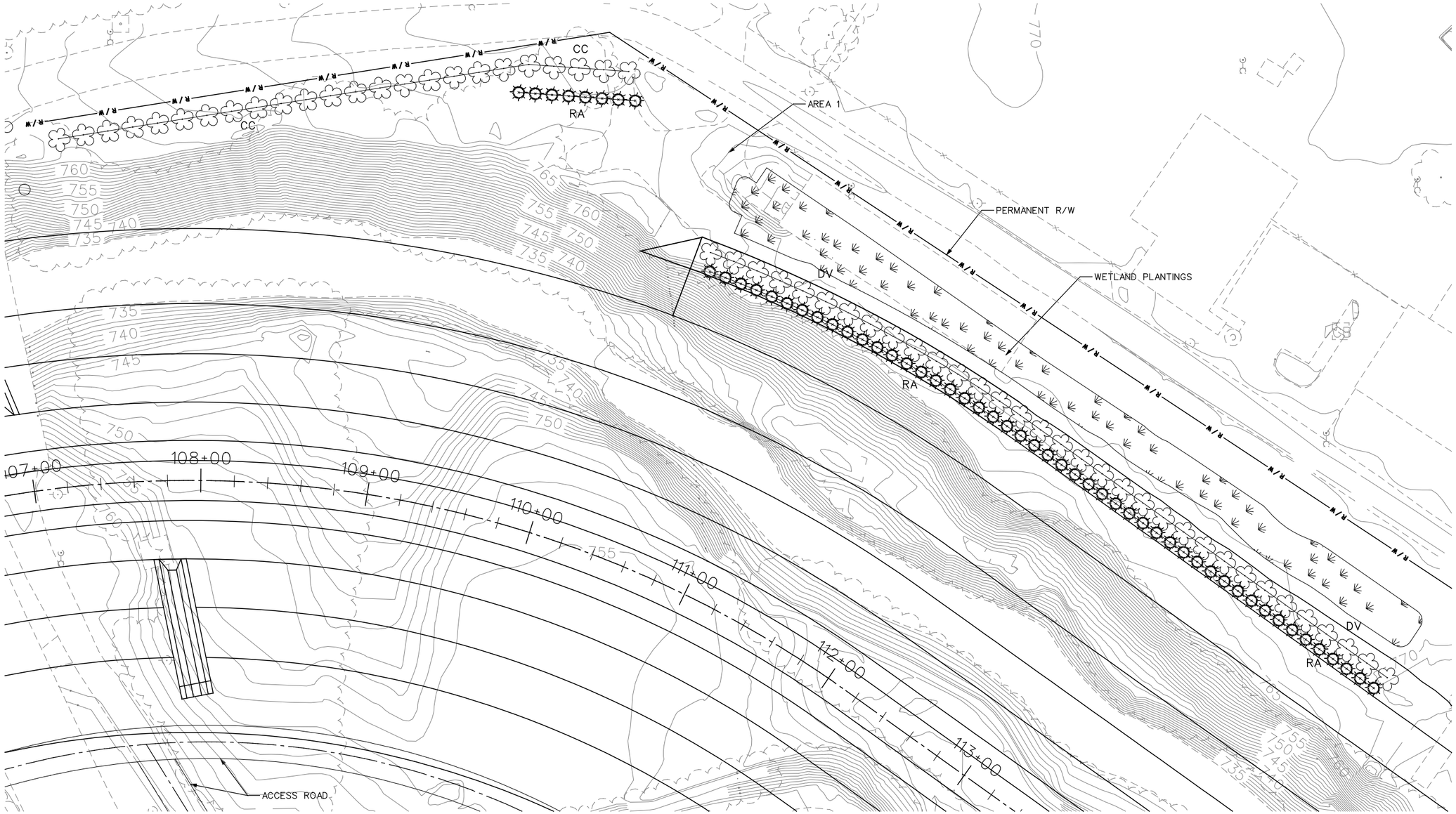
U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
KANSAS CITY, MISSOURI

HDR Engineering, Inc.

FLOOD PROTECTION PROJECT
BLUE RIVER CHANNEL
KANSAS CITY, MISSOURI
BRUSH CREEK TO 53RD STREET

PLANTING PLAN
STA. 115+20 TO STA. 122+16

Sheet Reference Number:
L1.8

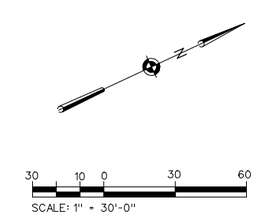



| WETLAND LIVE MATERIAL | | | |
|---|---|---|---|
| MATERIAL TYPE | LATIN NAME | COMMON NAME | DCP OR EQUIVALENT |
| GRASS | SPARTINA PECTINATA | PRIARIE CORDGRASS | 3 INCH |
| GRASS | SCIRPUS ATROVIRENS | GREEN BULRUSH | 3 INCH |
| SEDGE | CAREX HYALINEO LEPIS | SHORELINE SEDGE | 3 INCH |
| SEDGE | CAREX MOLESTA | TROUBLESOME SEDGE | 3 INCH |
| FORB | BOLTONIA ASTEROIDES | FALSE ASTER | 3 INCH |
| FORB | RUDBECKIA LANINATA | CUTLEAF CONEFLOWER | 3 INCH |
| FORB | ASCLEPIAS INCARNATA | MARSH MILKWEED | 3 INCH |
| FORB | PHYSISTEGIA VIRINIANA | OBEOIENT PLANT | 3 INCH |
| FORB | ACORUS CALAMUS | SWEETFLAG | 3 INCH |
| FORB | PYCNANTHEMUM VIRINIANUM | VIRGINIA MOUNTAIN MINT | 3 INCH |

| TREE AND SHRUB LIVE MATERIAL | | | | | |
|---|---|---|---|---|---|
| MATERIAL TYPE | SYMBOL | LATIN NAME | COMMON NAME | RPM OR APM | QUANTITY |
| TREE | CC | CERCIS CANADENSIS | EASTERN REDBUD | 3 GAL | 24 |
| TREE | DV | DIOSPYROS VIRGINIANA | PERSIMMON | 3 GAL | 33 |
| SHRUB | RA | RHUS AROMATICA | FRAGRANT SUMAC | 3 GAL | 56 |

GENERAL NOTES:

1. PLANTING ZONES AS SHOWN REPRESENT PLANTING LIMITS ONLY.
2. TREE PLANTING AS SHOWN APPROXIMATELY 15' CENTERS.
3. SHRUB PLANTING AS SHOWN APPROXIMATELY 10' CENTERS.
4. REFER TO SPECIFICATIONS FOR INSTALLATION REQUIREMENTS.
5. CONTRACTOR SHALL USE A MINIMUM OF 3 GRASS/SEDGE SPECIES, AND 3 FORB SPECIES. NO SPECIES WILL MAKE UP MORE THAN 16% OF THE ENTIRE PLANTING SET.
6. SPACING OF WETLAND PLUGS SHALL BE 2' BY 2'. ARRANGEMENT OF SPECIES SHALL BE FIELD DETERMINED BY INSTALLATION CONTRACTOR BASED ON SITE HYDROLOGIC CONDITIONS.
7. DAMAGE TO TREES AND SHRUBS NOT WITHIN CONTRACTORS CONTROL SHALL NOT REQUIRE REPAIR OR REPLACEMENT.
8. ALL DISTURBED AREAS OTHER THAN THOSE SHOWN FOR ENHANCEMENT PURPOSES SHALL BE SEEDED PER GOVERNMENT PROVIDED SEEDING AND MULCHING - DESIGN/BUILD (SECTION 01 23 00.00 23) SPECIFICATIONS WITH "PERMANENT SEED MIXTURE FOR OTHER AREAS".




US Army Corps of Engineers
Kansas City District

| Symbol | Description | Date | Appr. |
|---|---|---|---|
| 1 | PREFINAL - FOR REVIEW | 07/31/08 | |

Designed by: MJS, TMF
Drawn by: JAS
Checked by: MWJ, JJJ
Submitted by: TJK
Date: AUGUST 2008
Drawing code:
Plot scale:
CADD File Name: BRCHCS401LPP.DGN

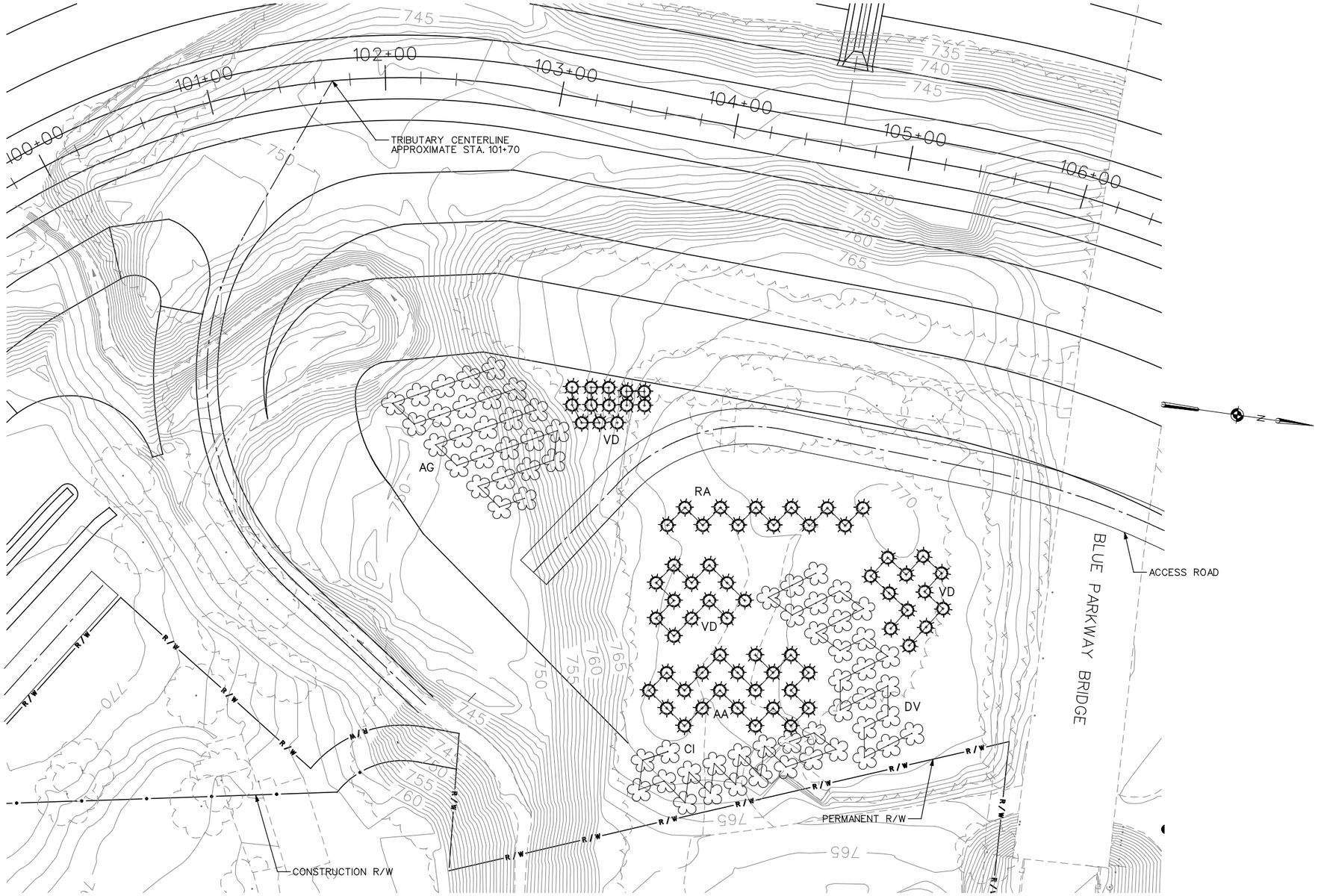
U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
KANSAS CITY, MISSOURI

HDR Engineering, Inc.

FLOOD PROTECTION PROJECT
BLUE RIVER CHANNEL
KANSAS CITY, MISSOURI
BRUSH CREEK TO 53RD STREET

AREA 1
PLANTING PLAN

Sheet Reference Number:
L4.5




| TREE AND SHRUB LIVE MATERIAL | | | | | |
|---|---|---|---|---|---|
| MATERIAL TYPE | SYMBOL | LATIN NAME | COMMON NAME | RPM OR APM | QUANTITY |
| TREE | AG | AESCULUS GLABRA | OHIO BUCKEYE | 3 GAL | 26 |
| TREE | DV | DIOSPYROS VIRGINIANA | PERSIMMON | 3 GAL | 22 |
| TREE | CI | CARYA ILLINOENSIS | PECAN | 3 GAL | 17 |
| SHRUB | AA | AMELANCHIER ARBOREA | SERVICEBERRY | 3 GAL | 21 |
| SHRUB | VD | VIBURNUM DENTATUM | ARROWWOOD VIBURNUM | 3 GAL | 37 |
| SHRUB | RA | RHUS AROMATICA | FRAGRANT SUMAC | 3 GAL | 12 |

GENERAL NOTES:

1. PLANTING ZONES AS SHOWN REPRESENT PLANTING LIMITS ONLY.
2. TREE PLANTING AS SHOWN APPROXIMATELY 15' CENTERS.
3. SHRUB PLANTING AS SHOWN APPROXIMATELY 10' CENTERS.
4. REFER TO SPECIFICATIONS FOR INSTALLATION REQUIREMENTS.
5. DAMAGE TO TREES AND SHRUBS NOT WITHIN CONTRACTORS CONTROL SHALL NOT REQUIRE REPAIR OR REPLACEMENT.
6. ALL DISTURBED AREAS OTHER THAN THOSE SHOWN FOR ENHANCEMENT PURPOSES SHALL BE SEEDED PER GOVERNMENT PROVIDED SEEDING AND MULCHING - DESIGN/BUILD (SECTION 01 23 00.00 23) SPECIFICATIONS WITH "PERMANENT SEED MIXTURE FOR OTHER AREAS".

30 10 0 30 60
SCALE: 1" = 30'-0"

US Army Corps of Engineers
Kansas City District

| Symbol | Description | Date | Appr. |
|---|---|---|---|
| 1 | PREFINAL - FOR REVIEW | 07/31/08 | |

Designed by: MJS, TMF
Drawn by: JAS
Checked by: MWJ, JJJ
Submitted by: TJK
Date: AUGUST 2008
Drawing code:
Plot scale: 1" = 30'-0"
CADD File Name: BRCHCS-EDMR2.DGN

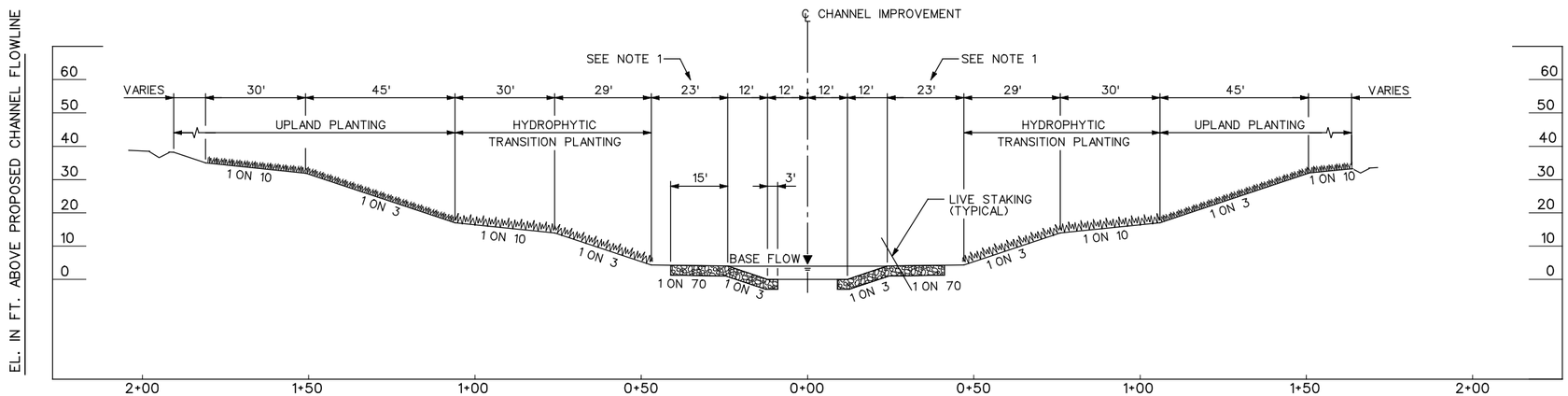
U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
KANSAS CITY, MISSOURI

HDR
HDR Engineering, Inc.

FLOOD PROTECTION PROJECT
BLUE RIVER CHANNEL
KANSAS CITY, MISSOURI
BRUSH CREEK TO 53RD STREET

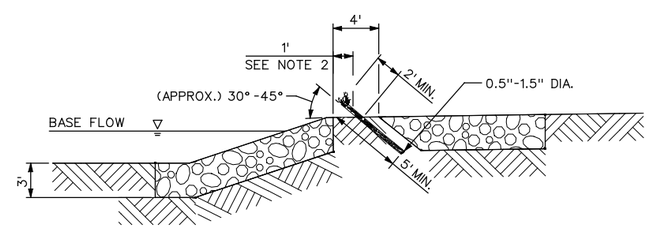
AREA 2
PLANTING PLAN

Sheet Reference Number:
L4.6




TYPICAL CHANNEL SECTION

| LIVE STAKING LIVE MATERIAL | | | |
|---|---|---|---|
| LATIN NAME | COMMON NAME | LENGTH | DIAMETER |
| SALIX NIGRA | BLACK WILLOW | 7 ft | 0.5-1.5 INCHES |
| SALIX INTERIOR | SANDBAR WILLOW | 7 ft | 0.5-1.5 INCHES |




TYPICAL LIVE STAKING DETAIL

NTS

NOTES:

1. NO SEEDING SHALL TAKE PLACE ON THE LOWER 1 ON 70 BENCH. AREA WILL BE ALLOWED TO RE-VEGETATE NATURALLY.
2. CONTRACTOR SHALL ADJUST DISTANCE OF LIVE POLE STAKING FROM TOP OF BANK AS FIELD CONDITIONS WARRANT.
3. TOTAL QUANTITY OF REQUIRED STAKES = 112. QUANTITIES PER SPECIES DETERMINED BY CONTRACTOR AND BASED ON AVAILABILITY OF SPECIES.
4. CITY OF KANSAS CITY SHALL PROVIDE CONTRACTOR ACCESS TO CITY OWNED PROPERTY ALONG THE BLUE RIVER TO HARVEST LIVE STAKING MATERIAL. CONTRACTOR ACCESS TO MATERIALS LIMITED TO 53RD STREET TO THE MISSOURI RIVER.
5. REFER TO SPECIFICATION SECTION 31 32 39 FOR LIVE STAKING HARVEST AND STORAGE REQUIREMENTS.

US Army Corps of Engineers
Kansas City District

| Symbol | Description | Date | Appr. |
|---|---|---|---|
| 1 | PREFINAL - FOR REVIEW | 07/31/08 | |

Designed by: MJS
Drawn by: JAS
Checked by: RWG, JJJ
Submitted by: TJK
Date: AUGUST 2008
Drawing code:
Plot scale: 1" = 20'-0"
CADD File Name: BRCHXS301.DGN

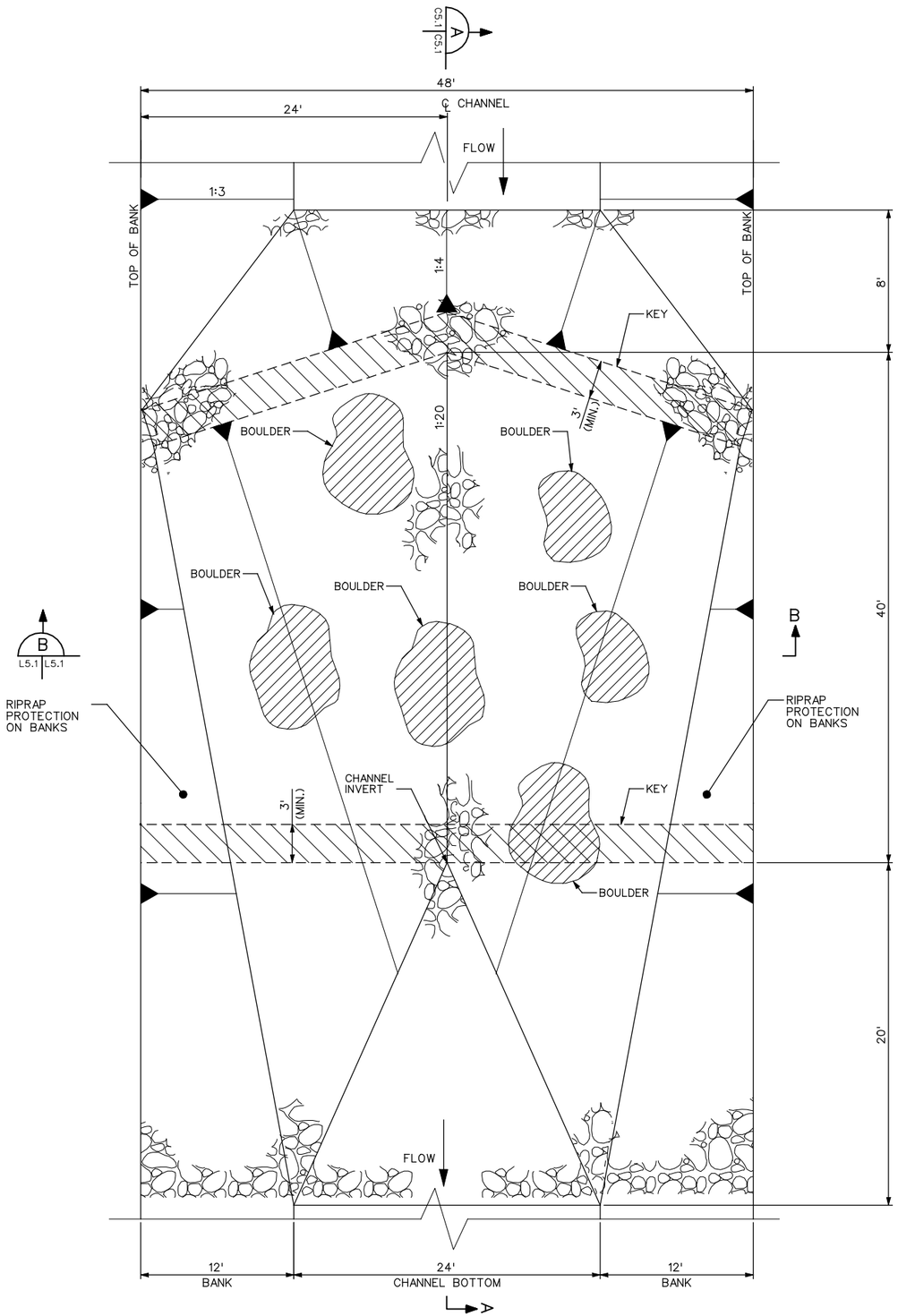
U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
KANSAS CITY, MISSOURI

HDR Engineering, Inc.

FLOOD PROTECTION PROJECT
BLUE RIVER CHANNEL
KANSAS CITY, MISSOURI
BRUSH CREEK TO 53RD STREET

TYPICAL CROSS-SECTION

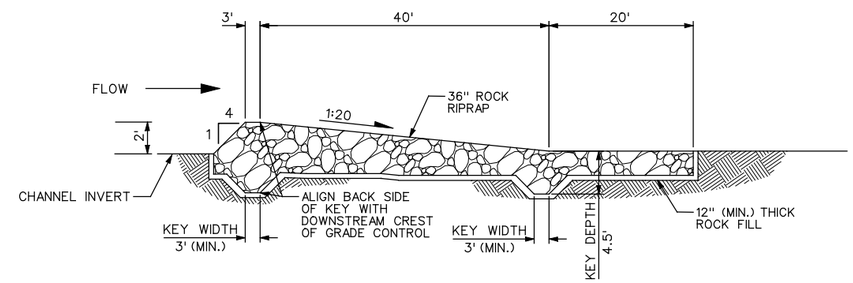
Sheet Reference Number:
L3.1




PLAN

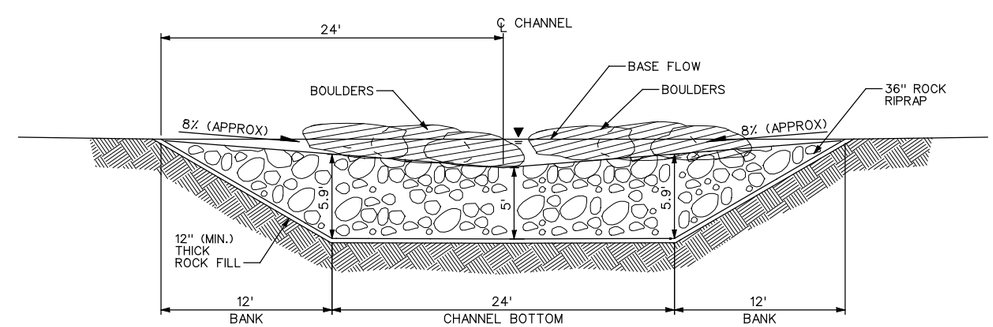
SCALE: NTS

| NEWBURY STRUCTURE LOCATIONS |
|---|
| STATION |
| 86+00 |
| 98+20 |
| 107+15 |
| 119+90 |




A L5.1 L5.1 SECTION THROUGH THALWEG

SCALE: NTS




B L5.1 L5.1 SECTION LOOKING UPSTREAM

SCALE: NTS

US Army Corps of Engineers
Kansas City District

| Symbol | Description | Date | Appr. |
|---|---|---|---|
| 1 | PREFINAL - FOR REVIEW | 07/31/08 | |

Designed by: T.K., RD
Date: AUGUST 2008
Drawn by: RD
Drawing code:
Checked by: MMS, JJJ
Plot scale:
Submitted by: T.K.
CADD File Name: BRCHLD15GSD1.DGN

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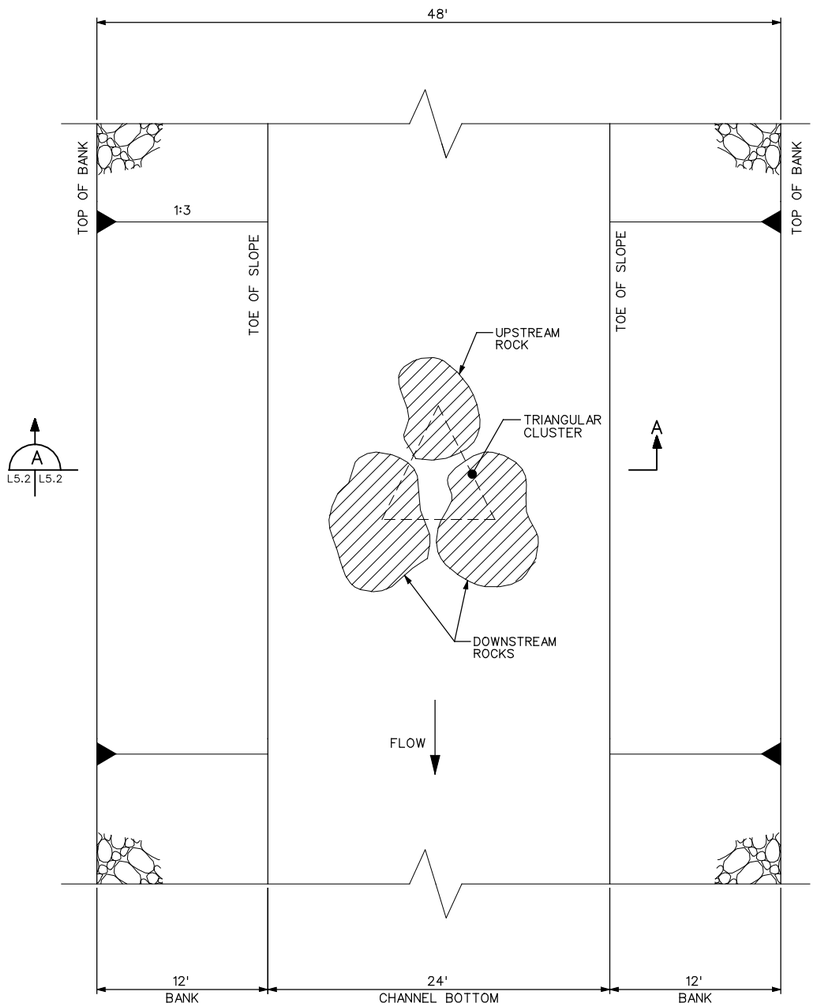
FLOOD PROTECTION PROJECT
BLUE RIVER LEVEE
KANSAS CITY, MISSOURI
BRUSH CREEK TO 53RD STREET

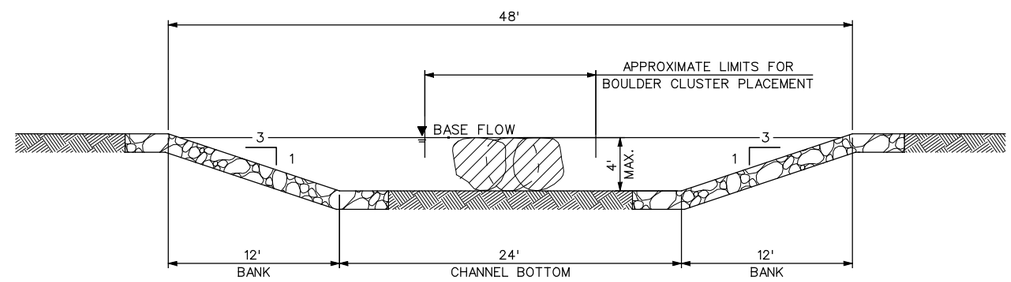
TYPICAL NEWBURY STRUCTURE DETAIL

Sheet Reference Number:
L5.1

NOTES:
1. ROCK SHALL HAVE A MAXIMUM DIMENSION OF 5' AND MINIMUM DIMENSION OF 2'. MASS~3000 LB/EA.
2. CLUSTER LOCATIONS MAY VARY WITHIN THE MIDDLE TWO QUARTERS OF THE CHANNEL BOTTOM.
3. SPACING BETWEEN ROCKS SHALL BE MAXIMUM OF 2'.
4. ROCKS SHALL BE PLACED IN TRIANGULAR CLUSTER WITH ONE LEAD ROCK UPSTREAM AND 2 DOWNSTREAM ROCKS.




PLAN
SCALE: NTS




A SECTION LOOKING UPSTREAM
L5.2 L5.2
SCALE: NTS

| BOULDER CLUSTER LOCATIONS |
|---|
| STATION |
| 95+60 |
| 96+00 |
| 96+40 |
| 96+80 |
| 97+20 |
| 97+60 |
| 98+00 |
| 112+15 |
| 112+60 |
| 113+60 |
| 114+80 |
| 115+60 |

US Army Corps of Engineers
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| 1 | PREFINAL - FOR REVIEW | 07/31/08 | |

Designed by: TJK, MJS
Drawn by: JAS
Checked by: MWJ, JJJ
Submitted by: TJK
Date: AUGUST 2008
Drawing code:
Plot scale:
CADD File Name: BRCHDT506DT.DGN

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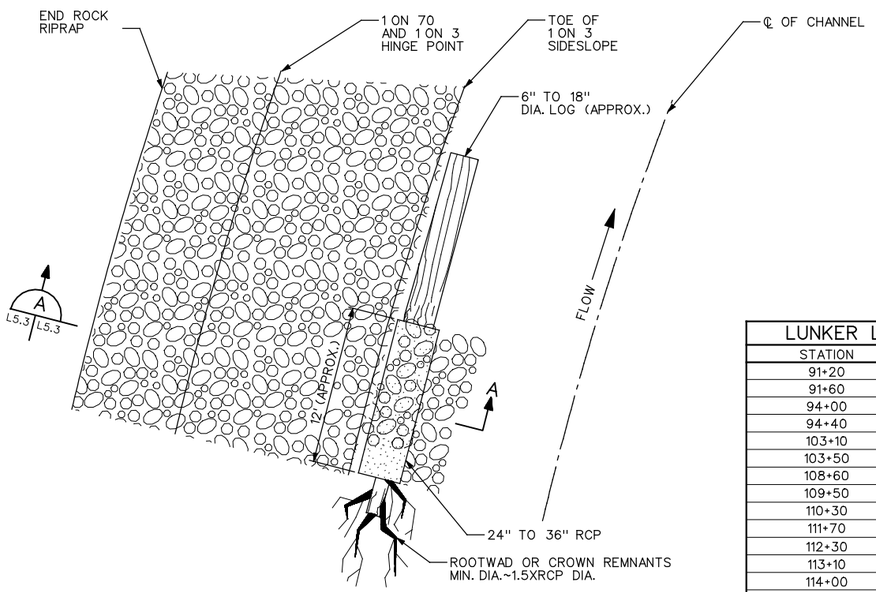
FLOOD PROTECTION PROJECT
BLUE RIVER CHANNEL
KANSAS CITY, MISSOURI
BRUSH CREEK TO 53RD STREET

TYPICAL BOULDER CLUSTER DETAILS

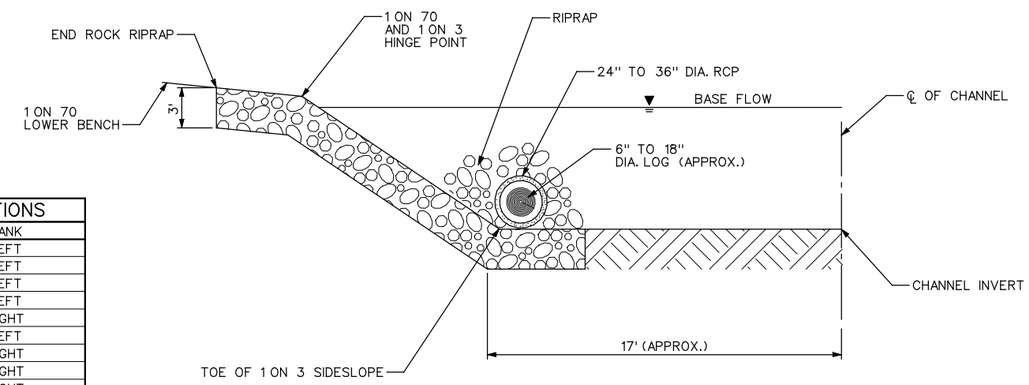
Sheet Reference Number:
L5.2




## LUNKER LOG PLAN

SCALE: NTS

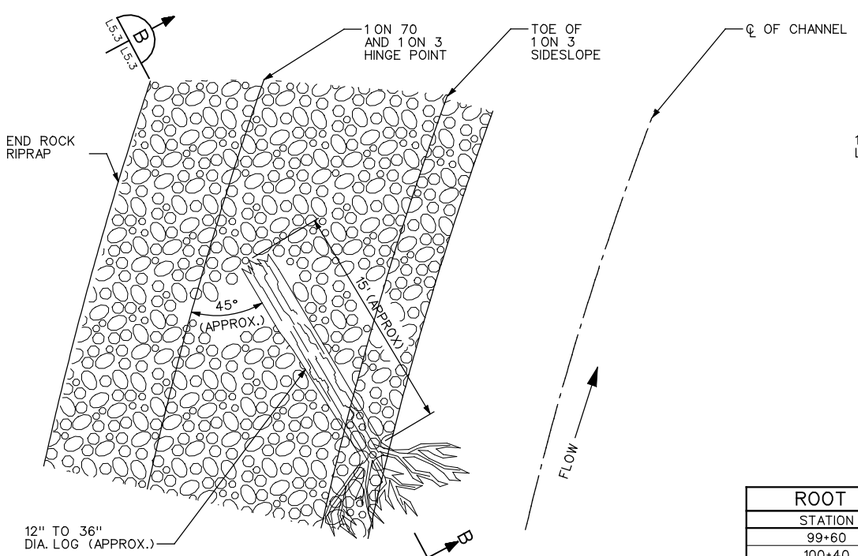
NOTE:
1. CONTRACTOR MAY USE NEW OR USED RCP, WHICH MAY HAVE SURFACE DAMAGE.




## A SECTION THROUGH LUNKER LOG

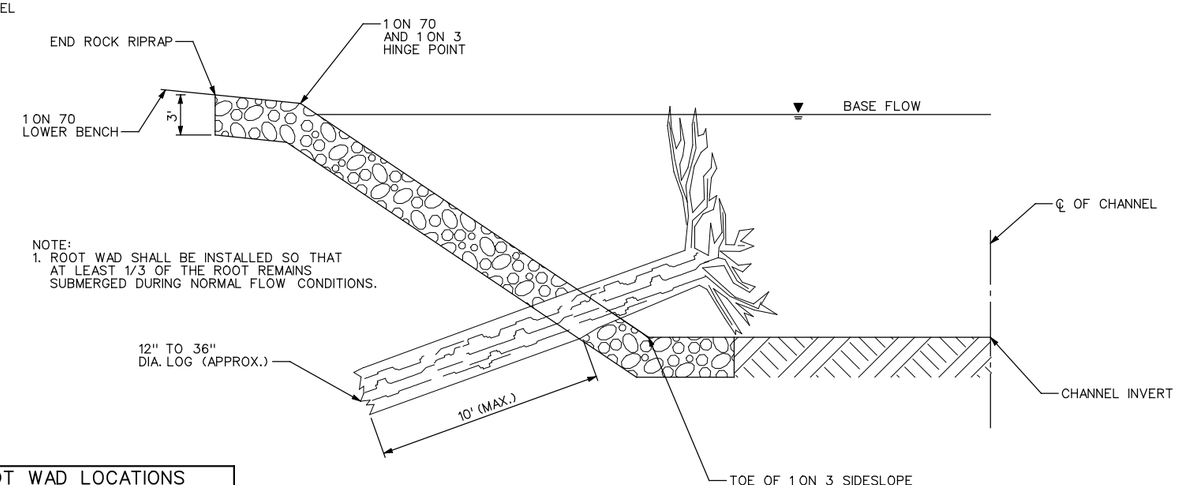
L5.3 L5.3 SCALE: NTS

| LUNKER LOG LOCATIONS | |
|---|---|
| STATION | BANK |
| 91+20 | LEFT |
| 91+60 | LEFT |
| 94+00 | LEFT |
| 94+40 | LEFT |
| 103+10 | RIGHT |
| 103+50 | LEFT |
| 108+60 | RIGHT |
| 109+50 | RIGHT |
| 110+30 | RIGHT |
| 111+70 | RIGHT |
| 112+30 | RIGHT |
| 113+10 | RIGHT |
| 114+00 | RIGHT |
| 114+90 | RIGHT |
| 116+50 | RIGHT |




## ROOT WAD PLAN

SCALE: NTS




NOTE:
1. ROOT WAD SHALL BE INSTALLED SO THAT AT LEAST 1/3 OF THE ROOT REMAINS SUBMERGED DURING NORMAL FLOW CONDITIONS.

## B SECTION THROUGH ROOT WAD

L5.3 L5.3 SCALE: NTS

| ROOT WAD LOCATIONS | |
|---|---|
| STATION | BANK |
| 99+60 | RIGHT |
| 100+40 | RIGHT |
| 111+30 | LEFT |
| 112+20 | LEFT |
| 112+90 | LEFT |
| 113+00 | LEFT |
| 113+70 | LEFT |
| 114+60 | LEFT |
| 116+10 | LEFT |

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| Symbol | Description | Date | Appr. |
|---|---|---|---|
| 1 | PREFINAL - FOR REVIEW | 07/31/08 | |

Designed by: TMF, RD
Date: AUGUST 2008
Drawn by: RD
Drawing code:
Plot scale:
Checked by: MWJ, JJJ
CADD File Name: BRCHLD15070.DGN
Submitted by: TJK

U.S. ARMY ENGINEER DISTRICT
KANSAS CITY, MISSOURI

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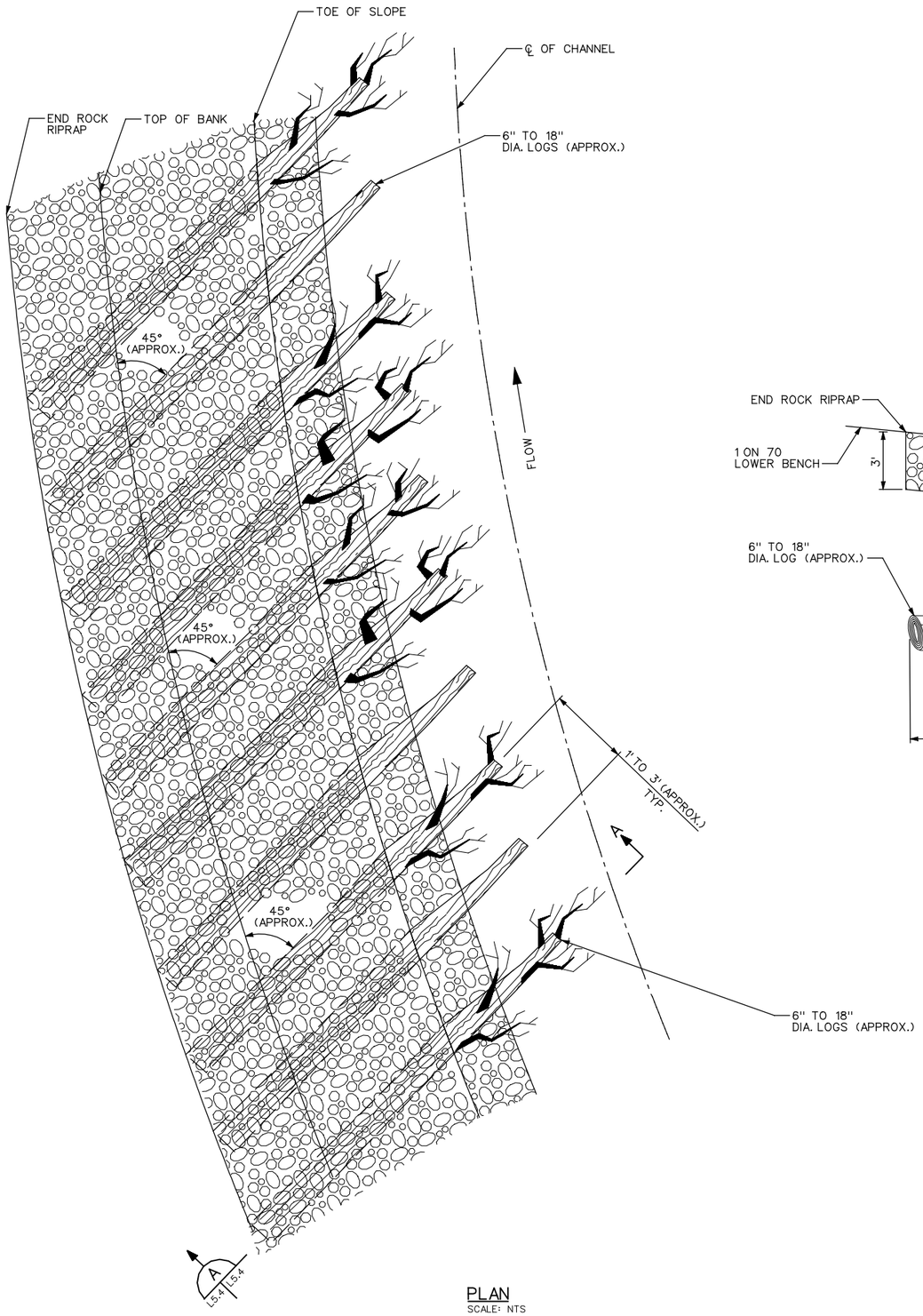
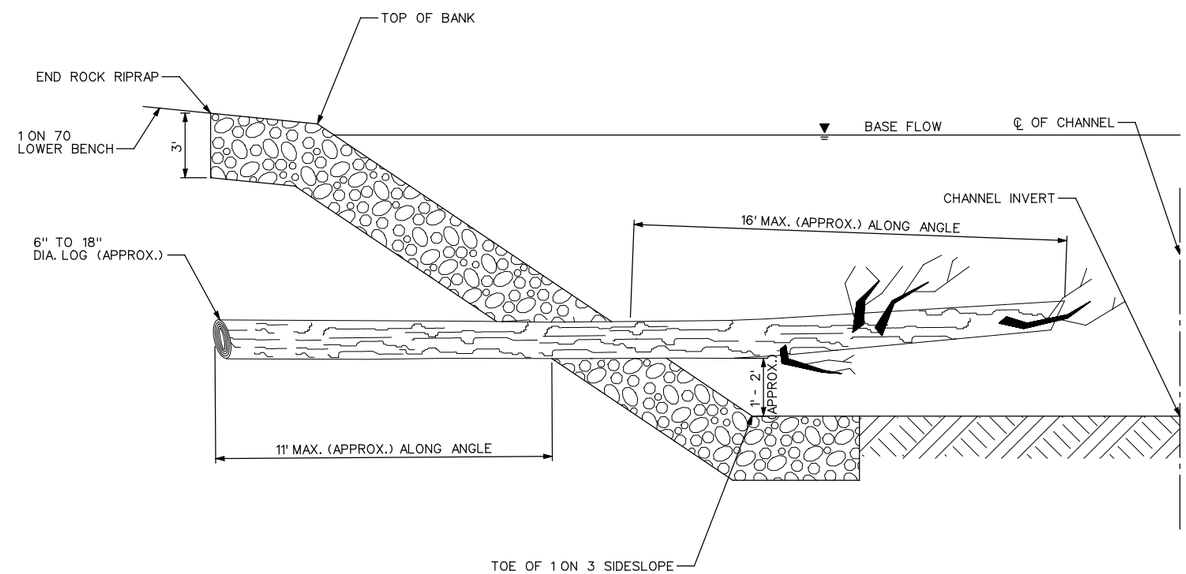
FLOOD PROTECTION PROJECT
BLUE RIVER CHANNEL
KANSAS CITY, MISSOURI
BRUSH CREEK TO 53RD STREET

TYPICAL LUNKER LOG & ROOT WAD DETAILS

Sheet Reference Number:
L5.3




PLAN
SCALE: NTS




A SECTION THROUGH LOCKED LOG
L5.4 L5.4
SCALE: NTS

| ROOT WAD LOCATIONS | | |
|---|---|---|
| STATION | BANK | NUMBER OF LOGS |
| 89+40 | RIGHT | 10 |
| 90+80 | RIGHT | 10 |
| 92+20 | RIGHT | 10 |
| 93+60 | RIGHT | 10 |
| 95+00 | RIGHT | 10 |
| 99+30 | LEFT | 10 |
| 100+00 | LEFT | 10 |
| 100+80 | LEFT | 10 |
| 101+60 | LEFT | 10 |
| 102+40 | LEFT | 10 |
| 108+20 | LEFT | 10 |
| 109+00 | LEFT | 10 |
| 109+80 | LEFT | 10 |
| 110+60 | LEFT | 10 |

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| Symbol | Description | Date | Appr. |
|---|---|---|---|
| 1 | PREFINAL - FOR REVIEW | 07/31/08 | |

Designed by: TMF, RD
Drawn by: RD
Checked by: MWJ, JJJ
Submitted by: TJK
Date: AUGUST 2008
Drawing code:
Plot scale:
CADD File Name: BRCHDT508DT.DGN

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
KANSAS CITY, MISSOURI

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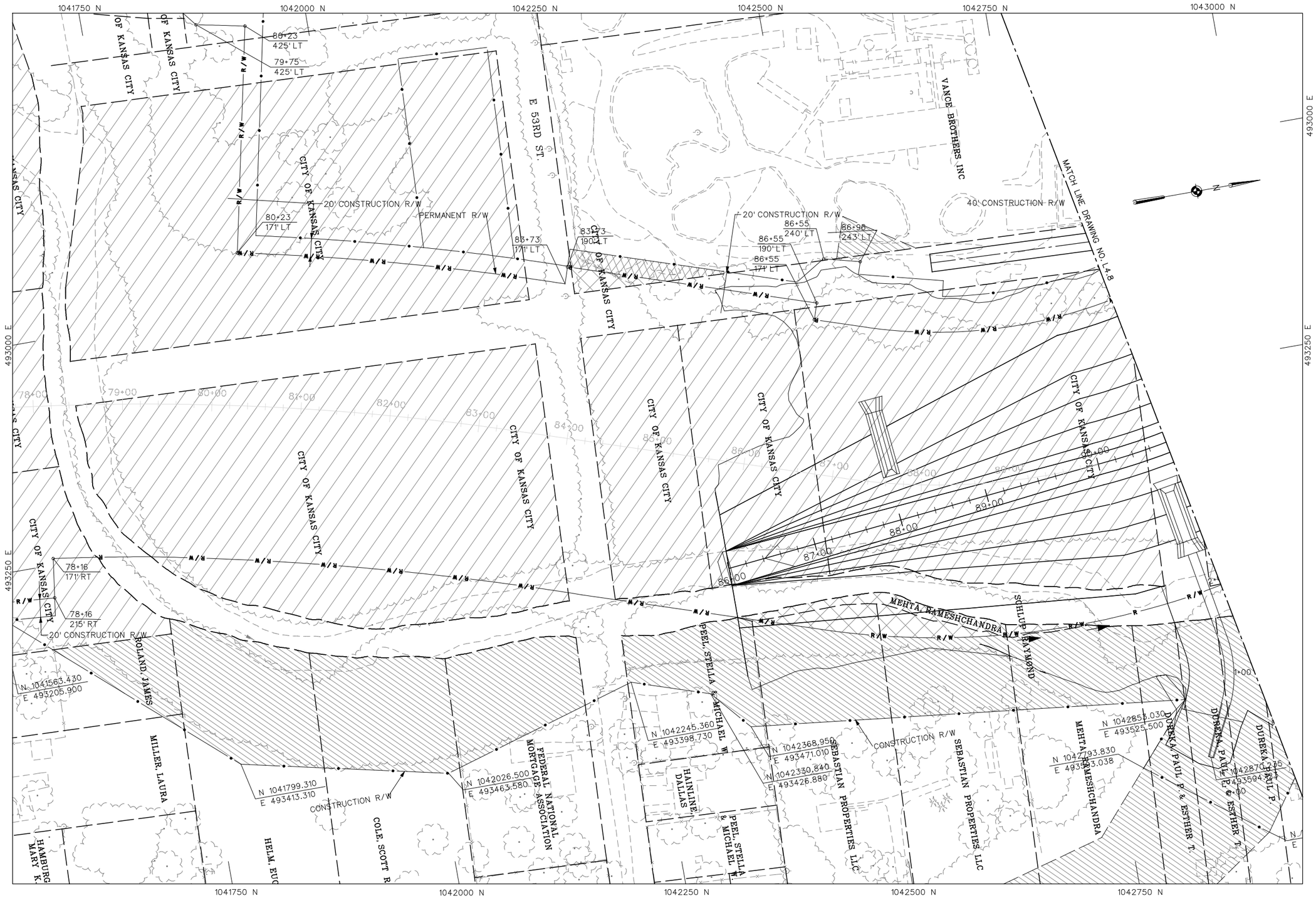
FLOOD PROTECTION PROJECT
BLUE RIVER CHANNEL
KANSAS CITY, MISSOURI
BRUSH CREEK TO 53RD STREET

TYPICAL LOCKED LOG CLUSTER DETAILS

Sheet Reference Number:
L5.4




LEGEND:

| | |
|---|---|
| OWNED BY CITY OF KANSAS CITY | TEMPORARY CONSTRUCTION EASEMENT |
| PERMANENT RIGHT OF WAY | TEMPORARY FILL EASEMENT |

NOTE:
SHEET PROVIDED BY OTHERS

50 10 0 50 100
SCALE: 1" = 50'-0"

US Army Corps of Engineers
Kansas City District

| Symbol | Description | Date | Appr. |
|---|---|---|---|
| 1 | PREFINAL - FOR REVIEW | 07/31/08 | |

Designed by:
Drawn by: MLW
Checked by: MWJ, JJJ
Submitted by: TJK
Date: AUGUST 2008
Drawing code:
Plot scale: 1" = 50'-0"
CADD File Name: BRCHCS401PO.DGN

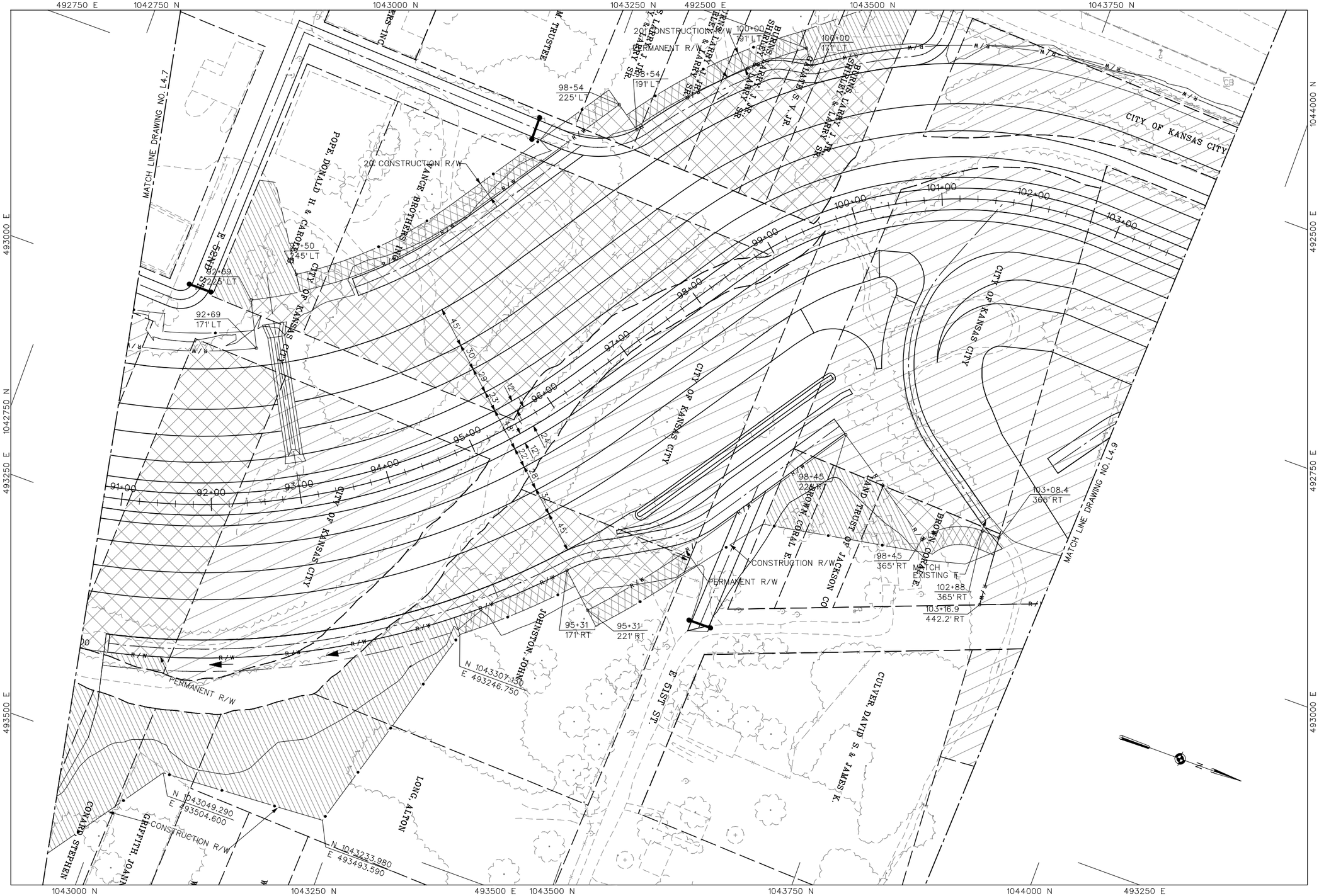
U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
KANSAS CITY, MISSOURI

HDR Engineering, Inc.

FLOOD PROTECTION PROJECT
BLUE RIVER CHANNEL
KANSAS CITY, MISSOURI
BRUSH CREEK TO 53RD STREET

PROPERTY OWNERSHIP
STA. 86+00 TO STA. 90+80

Sheet Reference Number:
L4.7




## LEGEND:

- OWNED BY CITY OF KANSAS CITY
- PERMANENT RIGHT OF WAY
- TEMPORARY CONSTRUCTION EASEMENT
- TEMPORARY FILL EASEMENT

NOTE:
SHEET PROVIDED BY OTHERS

SCALE: 1" = 50'-0"

US Army Corps of Engineers
Kansas City District

| Symbol | Description | Date | Appr. |
|---|---|---|---|
| 1 | PRELIMINARY - FOR REVIEW | 07/31/08 | |

Designed by:
Date: AUGUST 2008
Drawn by: MLW
Drawing code:
Checked by: MWJ, JJJ
Plot scale: 1" = 50'-0"
Submitted by: VK
CADD File Name: BRCHCS-402PO.DGN

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
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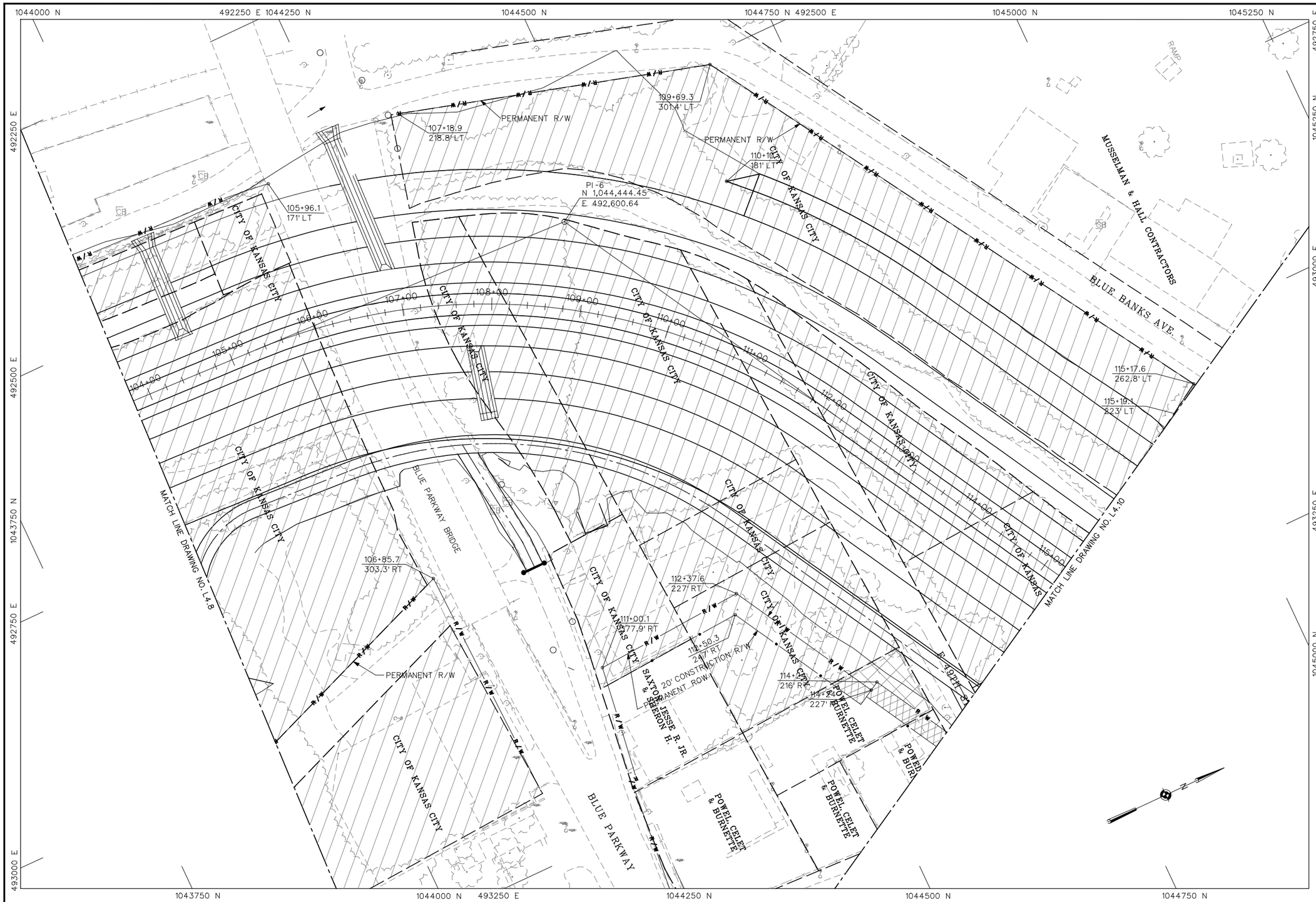
FLOOD PROTECTION PROJECT
MISSOURI RIVER CHANNEL
KANSAS CITY, MISSOURI
BRUSH CREEK TO 53RD STREET

# PROPERTY OWNERSHIP
## STA. 90+80 TO STA. 103+80

Sheet Reference Number:
L4.8




LEGEND:

- OWNED BY CITY OF KANSAS CITY
- PERMANENT RIGHT OF WAY
- TEMPORARY CONSTRUCTION EASEMENT
- TEMPORARY FILL EASEMENT

NOTE:
SHEET PROVIDED BY OTHERS

50 10 0 50 100
SCALE: 1" = 50'-0"

US Army Corps of Engineers
Kansas City District

| Symbol | Description | Date | Appr. |
|---|---|---|---|
| 1 | PREFINAL - FOR REVIEW | 07/31/08 | |

Designed by:
Drawn by: MLW
Checked by: MWJ, JJU
Submitted by: TJK
Date: AUGUST 2008
Drawing code:
Plot scale: 1" = 50'-0"
CADD File Number: BRCHC-S-3R2-DGN

U.S. ARMY ENGINEER DISTRICT
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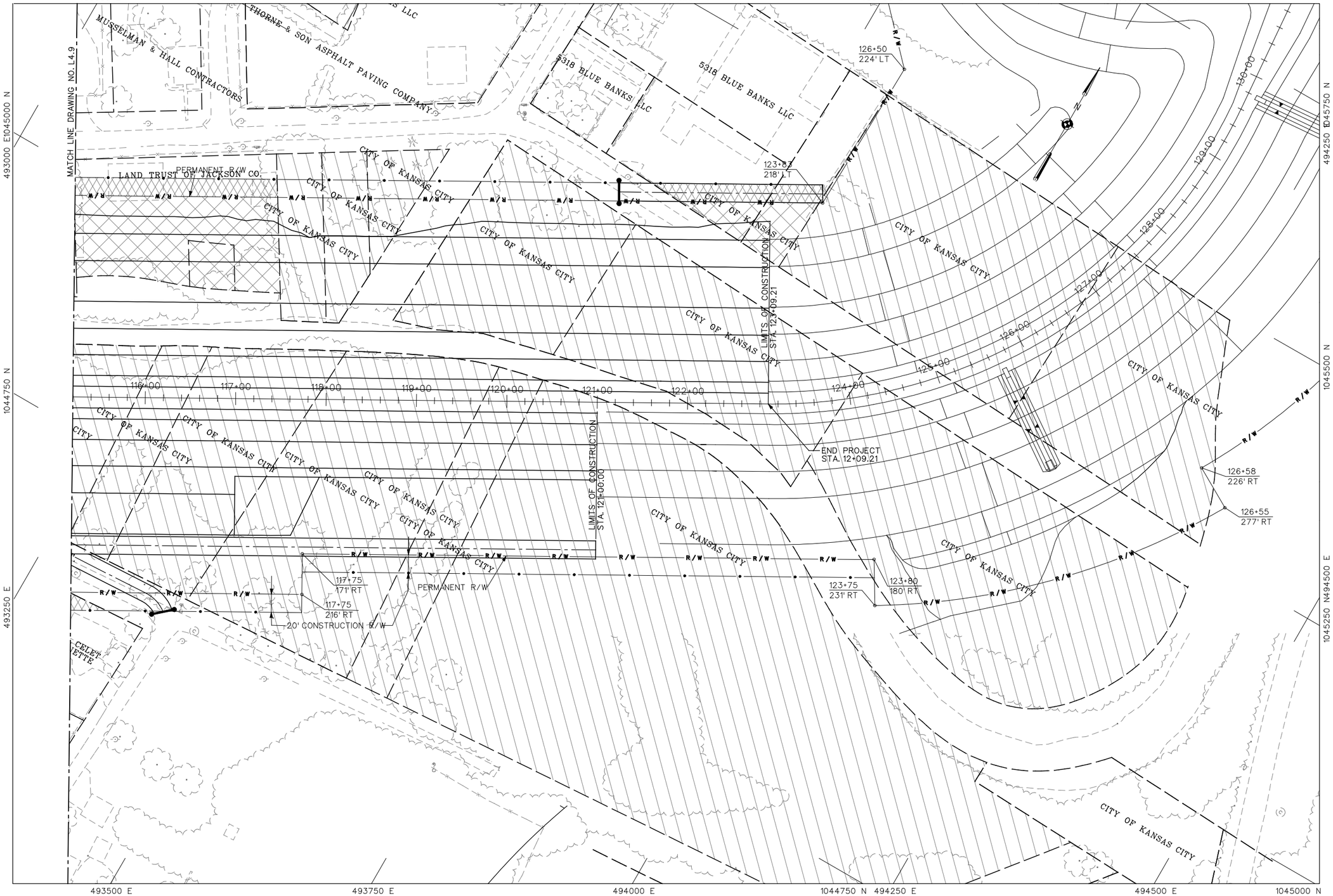
FLOOD PROTECTION PROJECT
BLUE RIVER CHANNEL
KANSAS CITY, MISSOURI
BRUSH CREEK TO 53RD STREET

PROPERTY OWNERSHIP
STA. 103+80 TO STA. 115.20

Sheet Reference Number:
L4.9




LEGEND:

- OWNED BY CITY OF KANSAS CITY
- PERMANENT RIGHT OF WAY
- TEMPORARY CONSTRUCTION EASEMENT
- TEMPORARY FILL EASEMENT

NOTE:
SHEET PROVIDED BY OTHERS

50 10 0 50 100
SCALE: 1" = 50'-0"

US Army Corps of Engineers
Kansas City District

| Symbol | Description | Date | Appr. |
|---|---|---|---|
| 1 | PRELIMINAL - FOR REVIEW | 07/31/08 | |

Date: AUGUST 2008
Drawing code:
Plot scale: 1" = 50'-0"
CADD File Name: BRCHCS4L4P0.DGN

Designed by:
Drawn by: ADW
Checked by: MWJ, JJJ
Submitted by: TJK

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BLUE RIVER CHANNEL
KANSAS CITY, MISSOURI
BRUSH CREEK TO 53RD STREET

PROPERTY OWNERSHIP
STA. 115+20 TO STA. 122+16

Sheet Reference Number:
L4.10