

## NCDOT PROJECT B-5180 WATERLINE RELOCATION

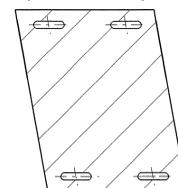
**NOTE TO CONTRACTORS:** BIDDERS SHALL SUBMIT PROPOSALS FOR THIS PROJECT BASED ON A LUMP SUM PRICE CONTRACT. THE FOLLOWING LIST OF MATERIAL QUANTITIES ARE TO BE USED BY BIDDERS AS AN AID IN ESTIMATING (REFERENCE ONLY) AND DOES NOT RELIEVE CONTRACTOR'S RESPONSIBILITY TO REVIEW PLANS OR INVESTIGATE SITE PRIOR TO SUBMITTING BID. ALL PROPOSED 10" WATER PIPE (INCLUDING PIPE JOINT GASKETS) WILL BE FURNISHED BY THE CITY OF HENDERSONVILLE. CONTRACTOR SHALL PROVIDE ALL OTHER MATERIALS, LABOR, AND TRAFFIC CONTROL REQUIRED FOR WATER PIPE INSTALLATION. NCDOT FORCES SHALL PROVIDE PAVEMENT MARKINGS (I.E. RE-PAINTING DOUBLE-YELLOW CENTERLINE).

- \* 90° COMPACT MECHANICAL JOINT FITTING...1 EA
- \* 45° COMPACT MECHANICAL JOINT FITTING...10 EA
- \* 11° COMPACT MECHANICAL JOINT FITTING...4 EA
- \* MECHANICAL JOINT RESTRAINT...25 EA
  - ...."MEGALUG" OR APPROVED EQUAL USED ON ALL PIPE JOINTS
- \* RIP-RAP, CLASS-B...10 TON
  - ....SLOPE STABILIZATION AT END OF 36" CMP...CREEK SIDE
- \* GEOTEXTILE FABRIC...10 SQYD
  - ....SLOPE STABILIZATION AT END OF 36" CMP...CREEK SIDE
- \* 59'-0" LONG STEEL BEAM (W12x65)...1 EA
  - ....SUPPORTS WATER PIPE OVER CREEK
- \* 2'-6" LONG STEEL BEAM (W12x65)...1 EA
  - ....SUPPORTS WATER PIPE AT RETAINING WALL
- \* STEEL PLATES (3/4" THICK)...6 EA (SHOWN ON THIS SHEET)
- \* WATER PIPE CRADLE...8 EA
  - ....MOUNTS WATER PIPE ON STEEL BEAM
  - ....SEE SECTION A-A AND NOTE #11
- \* NON-METALLIC WEAR PAD...8 EA
  - ....PROTECT WATER PIPE ON TOP OF PIPE CRADLES
  - ....SEE SECTION A-A AND NOTE #11
- \* FLOWABLE FILL...8 CUYD
  - ....FILL EXISTING 36" CMP AFTER PROPOSED 10" WATER PIPE IS INSTALLED
- \* 4"x6" TREATED WOOD BLOCK (2' LONG)...8 EA
  - ....USE METAL STRAPS TO SECURE BLOCKS TO WATER PIPE
- \* END-SEAL (FOR 36" CMP ENCASMENT)...2 EA
  - \* USE BRICK MASONRY OR OTHER METHOD APPROVED BY ENGINEER
- \* 3/4" DIA x 8" LONG GALVANIZED THREADED ROD...10 EA
- \* CONCRETE ADHESIVE ANCHOR BOLT SYSTEM...10 ANCHOR LOCATIONS
- \* ASPHALT PAVEMENT REPAIR...10 SQYD
  - \* ROAD (SOUTHEAST OF BRIDGE)
- \* ASPHALT PAVEMENT REPAIR...20 SQYD
  - \* ROAD (NORTHWEST OF BRIDGE)
- \* CONCRETE SLAB REPAIR...10 SQYD
  - \* DRIVEWAY APRON/GUTTER PAN (SOUTHEAST OF BRIDGE)
  - \* 4000 PSI CONCRETE, 6" THICK/NON-REINFORCED SLAB (NO WIRE MESH)
  - \* REMOVE EXISTING SLAB PORTIONS BETWEEN EXISTING JOINTS (IF POSSIBLE)
  - \* IF NEW JOINTS ARE CUT IN SLAB, LOCATIONS TO BE APPROVED BY ENGINEER
  - \* PLACE 1/2" EXPANSION JOINT (FILLER) BETWEEN OLD AND NEW CONCRETE SLABS
- \* CONCRETE CURB AND GUTTER REPAIR...15 LF
  - \* 2' WIDE CURB AND GUTTER (NORTHWEST OF BRIDGE)
  - \* PLACE 1/2" EXPANSION JOINT (FILLER) BETWEEN OLD AND NEW C&G SECTIONS
- \* TRAFFIC CONTROL...LUMP SUM

### STEEL PLATE PROJECT SUMMARY/TOTAL

ALL STEEL PLATES TO BE FABRICATED FROM 3/4" THICK STOCK  
SEE SHEETS UC-3, UC-4, UC-5 FOR BOLT HOLE LOCATIONS  
AND PLATE DIMENSIONS

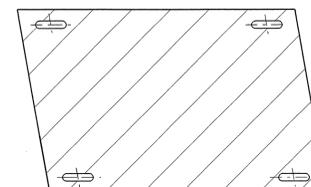
PIER CAP-PLATE #1  
(STA 0+42)



BEAM BASE-PLATE #1  
(STA 0+42)



PIER CAP-PLATE #2  
(STA 1+00)



BEAM BASE-PLATE #2  
(STA 1+00)

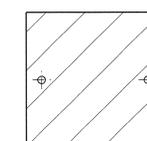


WALL-COLLAR  
(STA 0+41)



THIS PLATE TO BE ROLLED INTO SHAPE OF COLLAR... SEE DETAIL #9 (SHT UC-4)

WALL-PLATE  
(STA 1+06)



PROJECT REFERENCE NO. <b>B-5180</b>	SHEET NO. <b>UC-0</b>
DESIGNED BY: <b>EWH</b>	
DRAWN BY: <b>EWH</b>	
CHECKED BY: <b>RBW</b>	
APPROVED BY: <b>RBW</b>	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	
UTILITY CONSTRUCTION PLANS ONLY	

### UTILITY CONSTRUCTION

### NCDOT PROJECT B-5180 WATER LINE RELOCATION

PROJECT LOCATION:  
TOWN OF HENDERSONVILLE  
HENDERSON COUNTY

TYPE OF WORK:  
WATER LINE INSTALLATION  
ADJACENT TO BRIDGE #205  
OVER MUD CREEK ON SR-1764  
(OLD SPARTANBURG HIGHWAY)

WATER LINE OWNER:  
CITY OF HENDERSONVILLE

OWNER CONTACT:  
PAUL WILLIAMS  
OFFICE: 828-697-3073  
CELL: 828-243-3739

### INDEX OF SHEETS

- UC-0...TITLE SHEET
- UC-1...PLAN SHEET
- UC-2...PROFILE SHEET
- UC-3...TYPICAL SECTIONS
- UC-4...DETAIL SHEET
- UC-5...DETAIL SHEET

PROJECT REFERENCE NO.	SHEET NO.
<b>B-5180</b>	<b>UC-1</b>
DESIGNED BY: <b>EWH</b>	
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APPROVED BY: <b>RBW</b>	
REVISED:	
	
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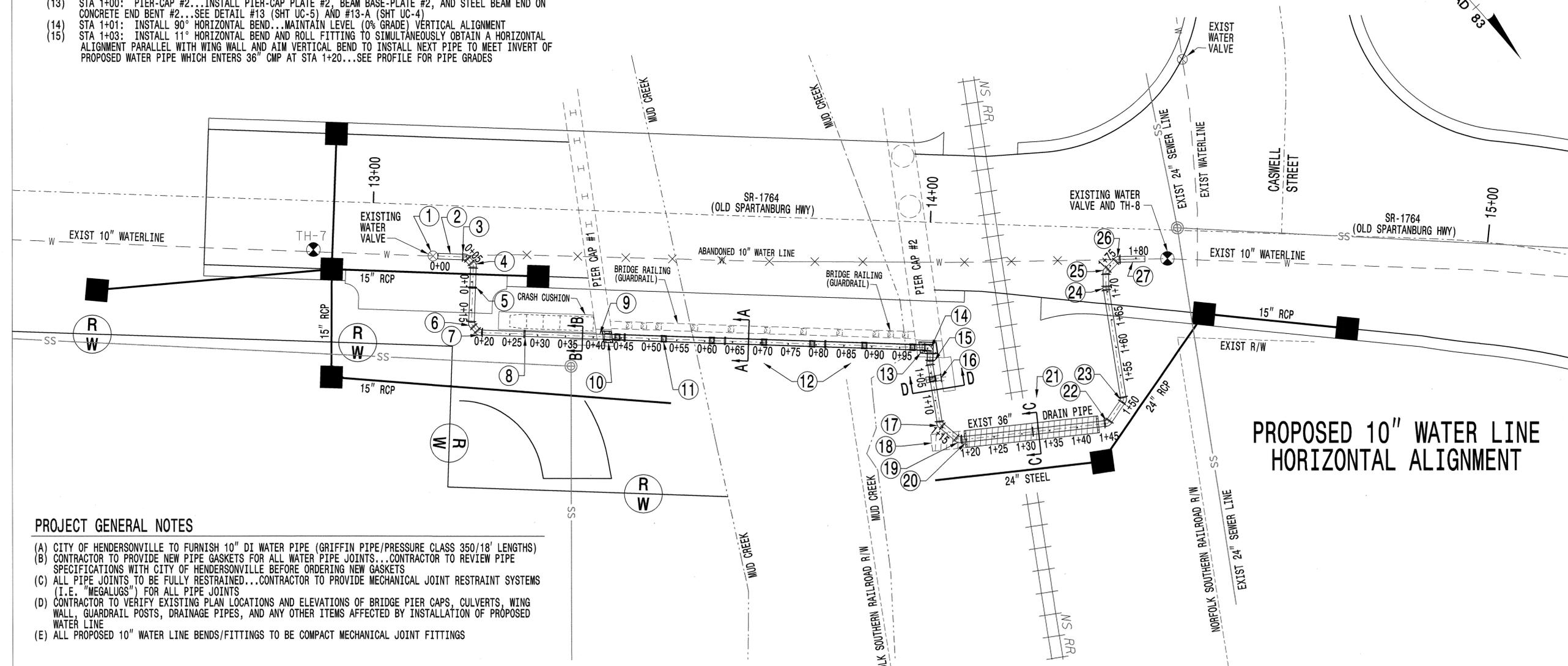
### UTILITY CONSTRUCTION

### PROPOSED 10" WATER LINE PLAN AND PROFILE NOTES

- (1) STA 0+00: EXISTING 10" WATER VALVE TO REMAIN...CONTRACTOR TO VERIFY VALVE IS ADEQUATELY RESTRAINED BEFORE REMOVING EXISTING WATER PIPE LOCATED ON CREEK SIDE OF VALVE
- (2) STA 0+00 TO STA 0+05: REMOVE EXISTING 10" WATER PIPE AND INSTALL PROPOSED 10" WATER PIPE
- (3) STA 0+05: INSTALL 45° BEND AND ROLL FITTING TO SIMULTANEOUSLY OBTAIN A 45° HORIZONTAL BEND AND A 45° VERTICAL BEND TO LOWER ELEVATION OF NEXT WATER PIPE BELOW EXISTING 15" RCP DRAIN PIPE
- (4) STA 0+07: INSTALL 45° BEND AND ROLL FITTING TO SIMULTANEOUSLY OBTAIN A 45° HORIZONTAL BEND AND A 45° VERTICAL BEND TO INSTALL NEXT WATER PIPE IN A LEVEL (I.E. 0% GRADE) POSITION UNDER EXISTING 15" RCP DRAIN PIPE TO OBTAIN 18" CLEARANCE (MIN) BETWEEN PROPOSED WATER PIPE AND EXISTING DRAIN PIPE
- (5) STA 0+11: INSTALL 11° VERTICAL BEND AND AIM NEXT WATER PIPE VERTICALLY TO MEET ELEVATION OF PROPOSED WATER PIPE JOINT AT STA 0+28 (APPROX INV = 2085.5') WITH NO CHANGE IN HORIZONTAL ALIGNMENT
- (6) STA 0+17: INSTALL 45° HORIZONTAL BEND...MAINTAIN VERTICAL GRADE BETWEEN STA 0+11 AND STA 0+28
- (7) STA 0+20: INSTALL 45° HORIZONTAL BEND...MAINTAIN VERTICAL GRADE BETWEEN STA 0+11 AND STA 0+28
- (8) STA 0+28: INSTALL 11° VERTICAL BEND (APPROX INV = 2085.5') WITH NO CHANGE IN HORIZONTAL ALIGNMENT
- (9) STA 0+41: REMOVE PORTION OF EXIST 12" THICK CONCRETE BACK WALL TO ACCOMMODATE PROPOSED WATER PIPE AND REINFORCE CONCRETE WALL (PORTION JUST REMOVED) WITH STEEL COLLAR...SEE DETAIL #9 (SHT UC-4)
- (10) STA 0+42: PIER-CAP #1...INSTALL PIER-CAP PLATE #1, BEAM BASE-PLATE #1, AND STEEL BEAM END ON CONCRETE END BENT #1...SEE DETAIL #10 (SHT UC-5) AND DETAIL #10-A (SHT UC-4)
- (11) STA 0+44, STA 0+53, STA 0+62, STA 0+71, STA 0+80, STA 0+89, STA 0+98: INSTALL WATER PIPE CRADLES WITHIN 2' OF PIPE JOINT (BELL END OF PIPE) AND ONE CRADLE CENTERED BETWEEN PIPE JOINTS
- (12) STA 0+28 TO STA 1+00: INSTALL FULL-LENGTH (18' LONG) WATER PIPE SECTIONS...SEE SHEET UC-2 FOR DETAIL OF STATION LOCATIONS OF PIPE JOINTS AND PIPE CRADLES ON STEEL BEAM
- (13) STA 1+00: PIER-CAP #2...INSTALL PIER-CAP PLATE #2, BEAM BASE-PLATE #2, AND STEEL BEAM END ON CONCRETE END BENT #2...SEE DETAIL #13 (SHT UC-5) AND #13-A (SHT UC-4)
- (14) STA 1+01: INSTALL 90° HORIZONTAL BEND...MAINTAIN LEVEL (0% GRADE) VERTICAL ALIGNMENT
- (15) STA 1+03: INSTALL 11° HORIZONTAL BEND AND ROLL FITTING TO SIMULTANEOUSLY OBTAIN A HORIZONTAL ALIGNMENT PARALLEL WITH WING WALL AND AIM VERTICAL BEND TO INSTALL NEXT PIPE TO MEET INVERT OF PROPOSED WATER PIPE WHICH ENTERS 36" CMP AT STA 1+20...SEE PROFILE FOR PIPE GRADES

### NOTES...CONTINUED

- (16) STA 1+06: INSTALL STEEL BEAM AND WALL PLATE ON WING WALL WITH BEAM FASTENED TO WALL AT ELEVATION IN-LINE WITH PIPE ELEVATIONS BETWEEN STA 1+03 AND STA 1+20...SEE SECTION D-D
- (17) STA 1+14: INSTALL 45° BEND AND ROLL FITTING TO SIMULTANEOUSLY OBTAIN A 45° HORIZONTAL BEND WHILE MAINTAINING THE VERTICAL GRADE OF PIPE FROM STA 1+03 TO STA 1+20
- (18) CUT AND REMOVE TOP PORTION (APPX. 6'-8' LONG SECTION) OF EXISTING 36" CMP DRAIN PIPE TO ACCOMMODATE INSTALLATION OF PROPOSED WATER LINE (INCLUDING END SEAL AND RIP-RAP)
- (19) STA 1+20: INSTALL 45° BEND AND ROLL FITTING TO SIMULTANEOUSLY OBTAIN A 45° HORIZONTAL BEND WHILE MAINTAINING THE VERTICAL GRADE OF PIPE FROM STA 1+03 TO STA 1+20
- (20) STA 1+20 AND STA 1+44: AFTER PROPOSED WATER PIPE IS INSTALLED, SEAL 36" CMP PIPE AT BOTH ENDS SEE DETAIL #20 (SHT UC-4)
- (21) STA 1+20 TO STA 1+44: INSTALL PROPOSED WATER PIPE (SUPPORTED BY WOOD BLOCKS STRAPPED TO WATER PIPE) INSIDE EXISTING 36" CMP DRAIN PIPE WITH ONLY ONE WATER PIPE JOINT (WITH MECHANICAL JOINT RESTRAINT) CENTERED INSIDE CMP DRAIN PIPE
- (22) STA 1+45: INSTALL 45° HORIZONTAL BEND AND MAINTAIN LEVEL (0% GRADE) VERTICAL ALIGNMENT
- (23) STA 1+50: INSTALL 45° HORIZONTAL BEND AND MAINTAIN LEVEL (0% GRADE) VERTICAL ALIGNMENT
- (24) STA 1+70: INSTALL 11° HORIZONTAL BEND AND MAINTAIN LEVEL (0% GRADE) VERTICAL ALIGNMENT
- (25) STA 1+73: INSTALL 45° HORIZONTAL BEND AND MAINTAIN LEVEL (0% GRADE) VERTICAL ALIGNMENT
- (26) STA 1+77: INSTALL 45° HORIZONTAL BEND AND MAINTAIN LEVEL (0% GRADE) VERTICAL ALIGNMENT
- (27) STA 1+77 TO STA 1+82: INSTALL SECTION OF NEW WATER PIPE...CONTRACTOR AND TOWN OF HENDERSONVILLE TO DETERMINE BEST LOCATION AND METHOD (I.E. SLEEVE EXISTING PIPE OR CONNECT NEW WATER PIPE DIRECTLY TO EXISTING VALVE) TO USE FOR CONNECTING NEW WATER PIPE TO EXISTING WATER PIPE OR VALVE.



### PROPOSED 10" WATER LINE HORIZONTAL ALIGNMENT

### PROJECT GENERAL NOTES

- (A) CITY OF HENDERSONVILLE TO FURNISH 10" DI WATER PIPE (GRIFFIN PIPE/PRESSURE CLASS 350/18' LENGTHS)
- (B) CONTRACTOR TO PROVIDE NEW PIPE GASKETS FOR ALL WATER PIPE JOINTS...CONTRACTOR TO REVIEW PIPE SPECIFICATIONS WITH CITY OF HENDERSONVILLE BEFORE ORDERING NEW GASKETS
- (C) ALL PIPE JOINTS TO BE FULLY RESTRAINED...CONTRACTOR TO PROVIDE MECHANICAL JOINT RESTRAINT SYSTEMS (I.E. "MEGALUGS") FOR ALL PIPE JOINTS
- (D) CONTRACTOR TO VERIFY EXISTING PLAN LOCATIONS AND ELEVATIONS OF BRIDGE PIER CAPS, CULVERTS, WING WALL, GUARDRAIL POSTS, DRAINAGE PIPES, AND ANY OTHER ITEMS AFFECTED BY INSTALLATION OF PROPOSED WATER LINE
- (E) ALL PROPOSED 10" WATER LINE BENDS/FITTINGS TO BE COMPACT MECHANICAL JOINT FITTINGS

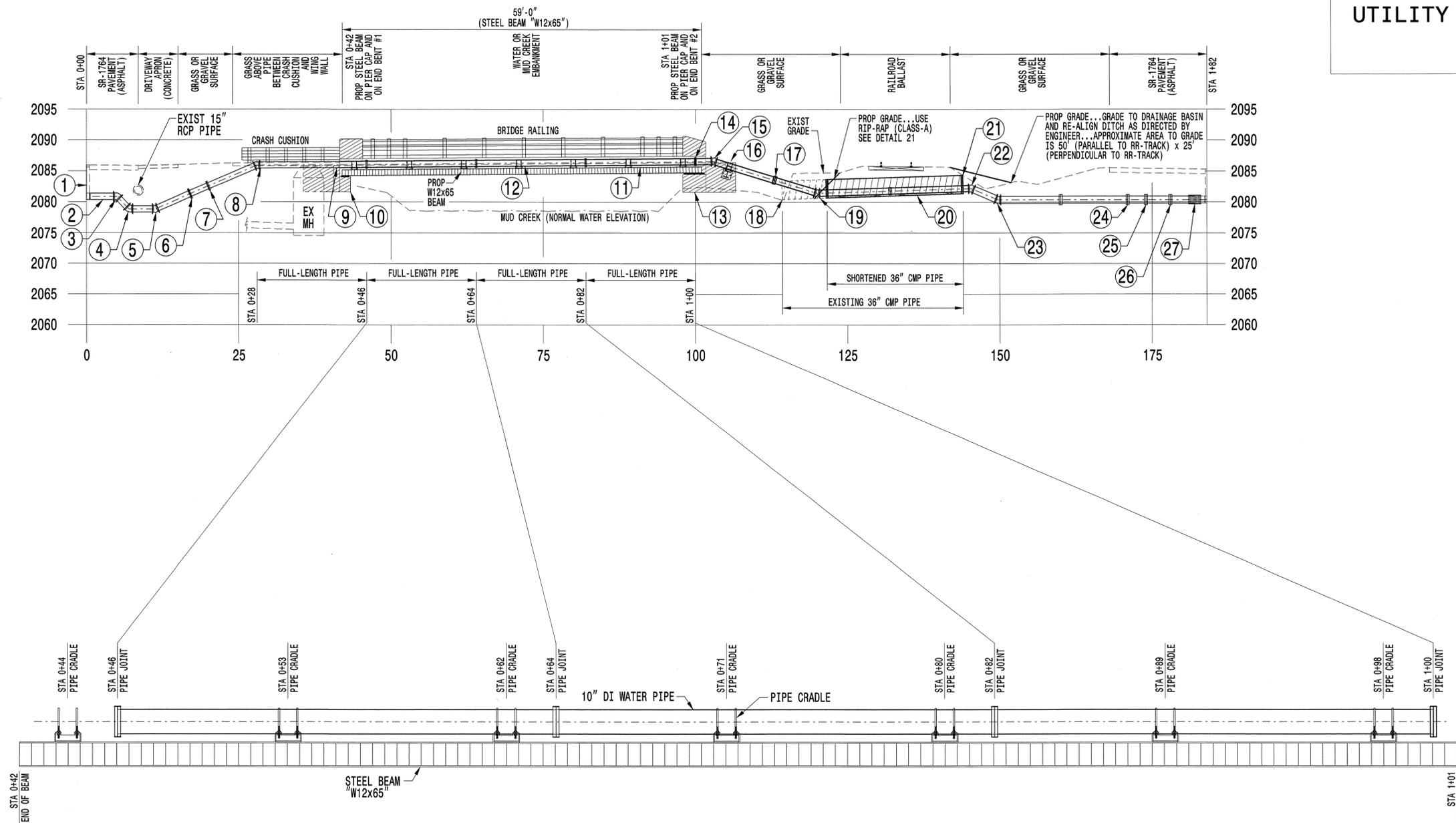
PLAN SCALE:  
 FULL-SIZE: 1"=10'  
 HALF-SIZE: 1"=20'

PROJECT REFERENCE NO.	SHEET NO.
<b>B-5180</b>	<b>UC-2</b>
DESIGNED BY: <b>EWH</b>	
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### UTILITY CONSTRUCTION

SEE SHEET UC-1 FOR NOTE CONTENTS (#1-#27).  
 PROFILE NOTES (#1-#27) ON THIS SHEET ARE  
 SAME AS PLAN NOTES (#1-#27) SHOWN ON UC-1

## PROPOSED 10" WATER LINE VERTICAL ALIGNMENT/PROFILE



AT CONTRACTOR'S DISCRETION, WATER PIPE CRADLE/SUPPORTS MAY BE ATTACHED TO BEAM PRIOR TO SETTING BEAM ON PIER CAPS, BUT CONTRACTOR IS NOT ALLOWED TO SECURE WATER PIPE TO BEAM (USING CRADLE/SUPPORTS) UNTIL BEAM IS SET AND BOLTED DOWN TO PIER CAPS IN ITS FINAL CONFIGURATION

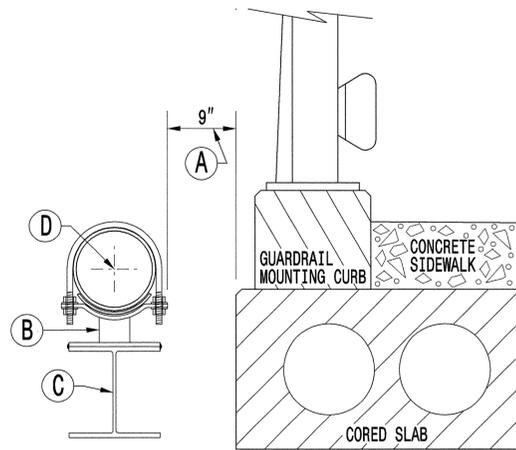
STATION LOCATIONS FOR WATER PIPE JOINTS AND PIPE CRADLES TO BE WELDED TO STEEL BEAM

PROJECT REFERENCE NO.	SHEET NO.
B-5180	UC-3
DESIGNED BY: EWH	
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APPROVED BY: RBW	
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UTILITY CONSTRUCTION

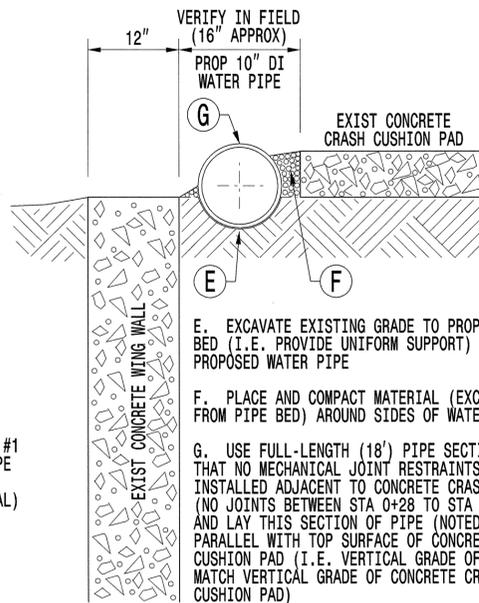
TYPICAL SECTIONS  
PROPOSED 10" WATER LINE

SEC A-A  
TYPICAL SECTION OF WATER PIPE  
SUSPENDED OVER MUD CREEK



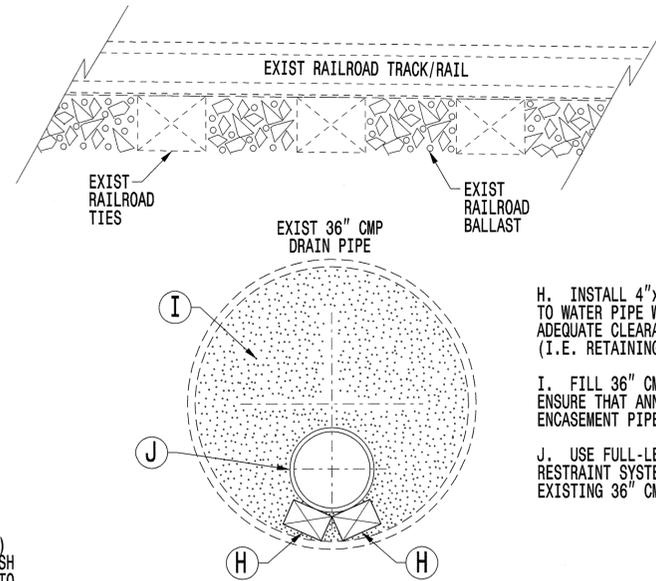
- A. PLANNED CLEARANCE (APPROX. 9") BETWEEN EDGE OF WATER PIPE AND EDGE OF CORED SLAB. ACTUAL CLEARANCE DETERMINED BY LATERAL PLACEMENT OF BEAM ENDS ON PIER CAPS
- B. USE PIPE CRADLE AND NON-METALLIC WEAR PAD FROM "PIPING TECHNOLOGY & PRODUCTS, INC" OR APPROVED EQUAL...SEE FIGURES #182 AND #700 ON INTERNET BY GOING TO "WWW.PIPINGTECH.COM"
- C. USE FULL-LENGTH (59') I-BEAM (W12x65) TO SPAN FROM PIER CAP-TO-PIER CAP WITH PIPE CRADLE SUPPORTS WELDED ON TOP FLANGE
- D. USE ONLY FULL-LENGTH (18') PIPE SECTIONS ON STEEL BEAM BETWEEN PIER CAPS WITH PIPE LAYOUT BEGINNING ON PIER CAP #2 AT NORTHEAST END OF BRIDGE (STA 1+00) AND WORKING BACK TO PIER CAP #1 AT SOUTHEAST END OF BRIDGE (STA 0+46)...ALL PIPE JOINTS TO BE FULLY RESTRAINED WITH MECHANICAL JOINT RESTRAINTS (I.E. MEGALUG OR APPROVED EQUAL)

SEC B-B  
TYPICAL SECTION OF WATER PIPE  
SET ON GROUND BETWEEN WING WALL  
AND CONCRETE CRASH CUSHION PAD



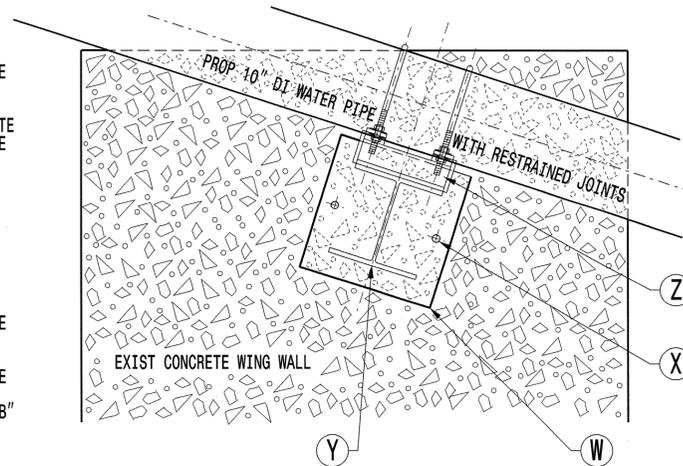
- E. EXCAVATE EXISTING GRADE TO PROPERLY BED (I.E. PROVIDE UNIFORM SUPPORT) UNDER PROPOSED WATER PIPE
- F. PLACE AND COMPACT MATERIAL (EXCAVATED FROM PIPE BED) AROUND SIDES OF WATER PIPE
- G. USE FULL-LENGTH (18') PIPE SECTION SO THAT NO MECHANICAL JOINT RESTRAINTS ARE INSTALLED ADJACENT TO CONCRETE CRASH PAD (NO JOINTS BETWEEN STA 0+28 TO STA 0+46) AND LAY THIS SECTION OF PIPE (NOTED ABOVE) PARALLEL WITH TOP SURFACE OF CONCRETE CRASH CUSHION PAD (I.E. VERTICAL GRADE OF PIPE TO MATCH VERTICAL GRADE OF CONCRETE CRASH CUSHION PAD)

SEC C-C  
TYPICAL SECTION OF WATER PIPE  
INSTALLED INSIDE EXISTING 36" CMP



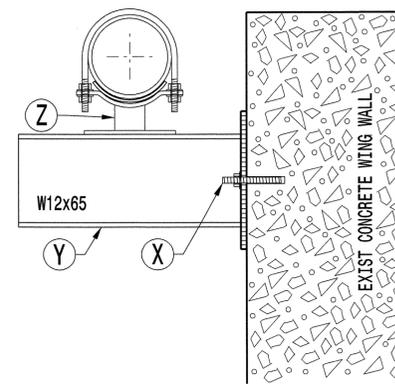
- H. INSTALL 4"x6" TREATED WOOD BLOCKS (2'-3' LONG, STRAPPED TO WATER PIPE WITHIN 2' OF PIPE JOINTS/COLLARS) TO PROVIDE ADEQUATE CLEARANCE FOR MECHANICAL JOINT RESTRAINT COMPONENTS (I.E. RETAINING GLANDS AND BOLTS)
- I. FILL 36" CMP ENCASEMENT PIPE WITH FLOWABLE FILL OR GROUT... ENSURE THAT ANNULAR VOID (BETWEEN 10" WATER PIPE AND 36" CMP ENCASEMENT PIPE) IS COMPLETELY FILLED
- J. USE FULL-LENGTH (18') PIPE SECTIONS WITH MECHANICAL JOINT RESTRAINT SYSTEMS (I.E. MEGALUG OR APPROVED EQUAL) THROUGH EXISTING 36" CMP (ENCASEMENT)

SEC D-D  
BRACKET ASSEMBLY FOR SUPPORTING  
WATER PIPE ON CONCRETE WING WALL

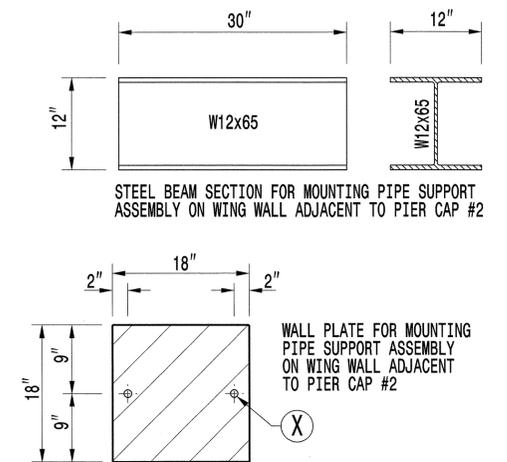


- W. LOCATION AND ORIENTATION OF PIPE SUPPORTS AND WALL PLATE SHOWN ON WALL IS APPROXIMATE...ACTUAL LOCATION AND ORIENTATION OF WALL PLATE, SUPPORT BEAM, PIPE CRADLE/SUPPORT, AND WATER PIPE (ON WING WALL) IS DETERMINED BY LINEAR CONNECTION OF WATER PIPE BETWEEN PIER CAP #2 AND POINT WHERE WATER PIPE ENTERS EXISTING 36" CMP DRAIN PIPE...ONLY REQUIREMENT FOR PLACEMENT OF WALL PLATE ON WING WALL IS TO ENSURE NO HOLES WILL BE DRILLED INTO CONCRETE WALL WITH LESS THAN 9" FROM TOP OR SIDE EDGES OF WALL
- X. 3/4" DIAMETER x 8" LONG THREADED ROD...DRILL HOLES IN CONCRETE WALL TO ACCEPT THREADED RODS...USE ACRYLIC ADHESIVE (I.E. NOT MECHANICAL/SLEEVE TYPE ANCHORS...DRILL PROPER SIZE HOLE TO ACCEPT 3/4" THREADED ROD WITH DIAMETER AND DEPTH OF HOLE AS PER MANUFACTURER'S DIRECTION...SUGGESTED CONCRETE ANCHORING SYSTEM TO USE IS "SIKADUR ANCHORFIX-1" ACRYLIC ANCHOR SYSTEM BY SIKA CORPORATION OR APPROVED EQUAL...IF THIS SYSTEM IS USED, DRILL 1/8" DIAMETER AND 5" DEEP HOLES IN CONCRETE PIER CAP TO ENSURE 4 1/2" (MIN) EMBEDMENT DEPTH OF THREADED ROD
- Y. 30" LONG SECTION OF STEEL BEAM (W12x65) WELDED TO WALL PLATE
- Z. PIPE CRADLE WELDED TO TOP FLANGE OF STEEL BEAM...SEE NOTE "B"

SEC D-D  
SECTION OF BRACKET ASSEMBLY  
(PERPENDICULAR TO WATER PIPE)



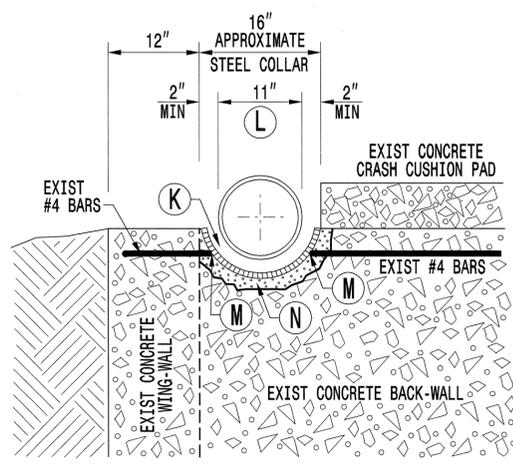
SEC D-D  
BEAM AND WALL PLATE DIMENSIONS





### DETAIL #9 (REF: STA 0+41)

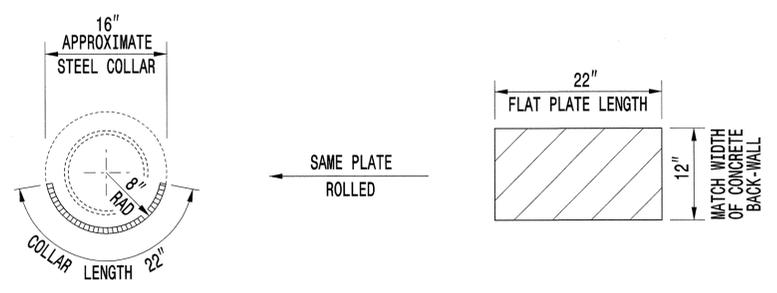
CUT-OUT PORTION OF 12" THICK EXISTING CONCRETE BACK-WALL TO ACCOMMODATE INSTALLATION OF PROPOSED 10" WATER PIPE



- K. REMOVE PORTION OF EXISTING CONCRETE BACK-WALL TO ACCOMMODATE PROPOSED STEEL COLLAR... PROVIDE APPROXIMATELY 2" CLEARANCE BETWEEN INSIDE FACE OF COLLAR AND OUTSIDE WALL OF WATER PIPE... ENSURE PIPE MAINTAINS 2" CLEARANCE FROM STEEL COLLAR AFTER BACK-FILL AND FINAL GRADING
- L. PROPOSED 10" DI WATER PIPE... NO PIPE JOINTS TO BE INSTALLED IN AREA WHERE PROPOSED WATER PIPE CROSSES OVER/THROUGH EXISTING CONCRETE BACK-WALL
- M. CUT AND REMOVE SECTIONS (APPROX. 14" LONG) OF TWO EXISTING (#4) REINFORCING BARS AS NECESSARY TO ACCOMMODATE INSTALLATION OF STEEL COLLAR... WELD EXISTING BARS TO PROPOSED COLLAR (TWO EXISTING BARS EACH SIDE OF COLLAR REQUIRES FOUR CUTS AND FOUR WELDS)
- N. AFTER PROPOSED STEEL COLLAR HAS BEEN INSTALLED (I.E. WELDED TO EXISTING REINFORCING BARS), FILL ANNULAR SPACE BETWEEN STEEL COLLAR AND CONCRETE WALL WITH NON-SHRINK GROUT

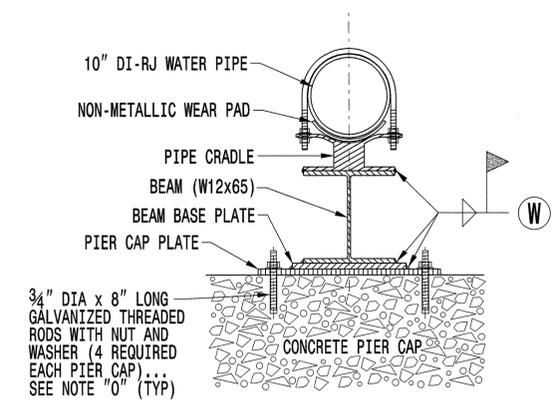
### DETAIL #9 (REF: STA 0+41)

PROPOSED STEEL COLLAR DIMENSIONS (3/4" ROLLED PLATE)



### DETAIL #10-A (REF: STA 0+42) DETAIL #13-A (REF: STA 0+98)

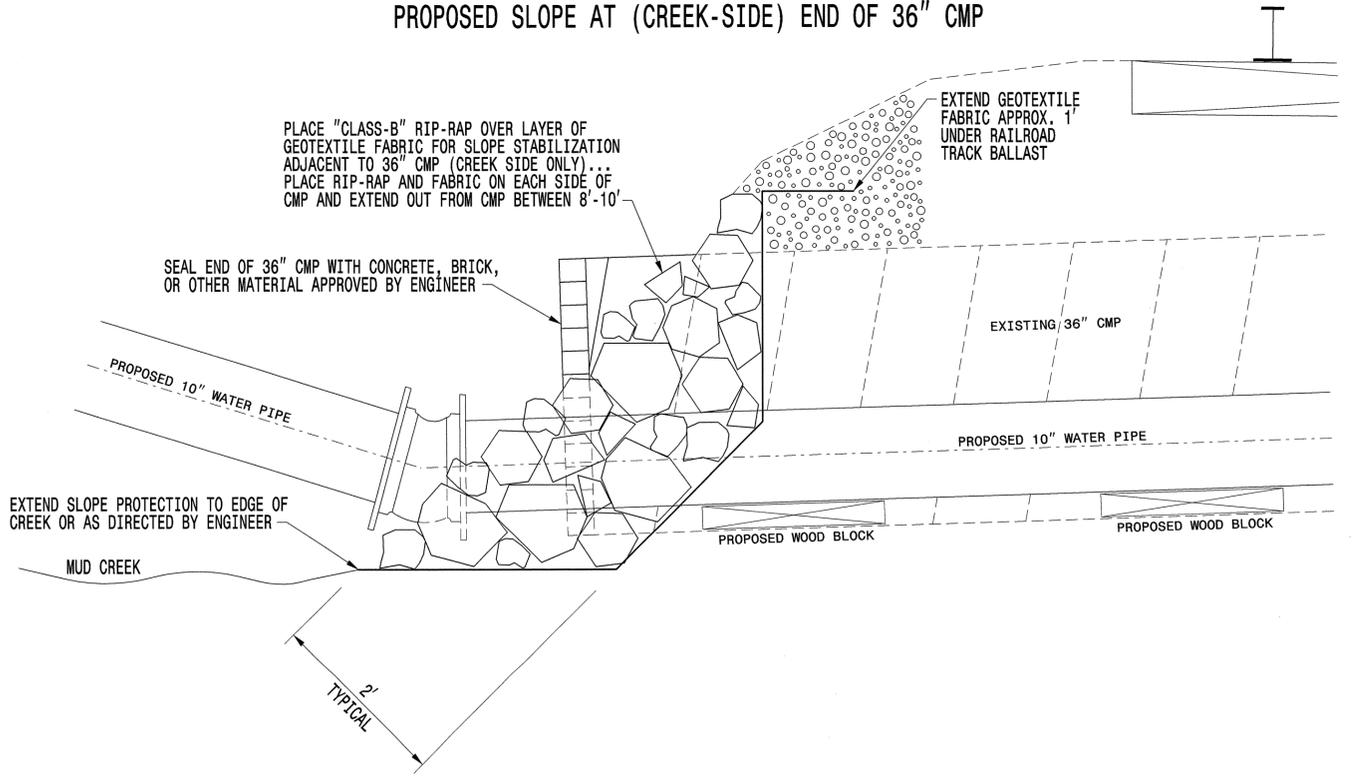
PIER CAPS #1 AND #2  
PLATE AND BEAM STACK PROFILE



W. WELD (FULL-LENGTH, ALONG SIDES OF) BEAM BASE PLATE TO PIER CAP PLATE AND BOTTOM FLANGE OF BEAM... AND WELD (FULL-LENGTH, ALONG SIDES OF) CRADLE/SUPPORT TO TOP FLANGE OF BEAM

### DETAIL #20 (REF: STA 1+15 TO STA 1+20)

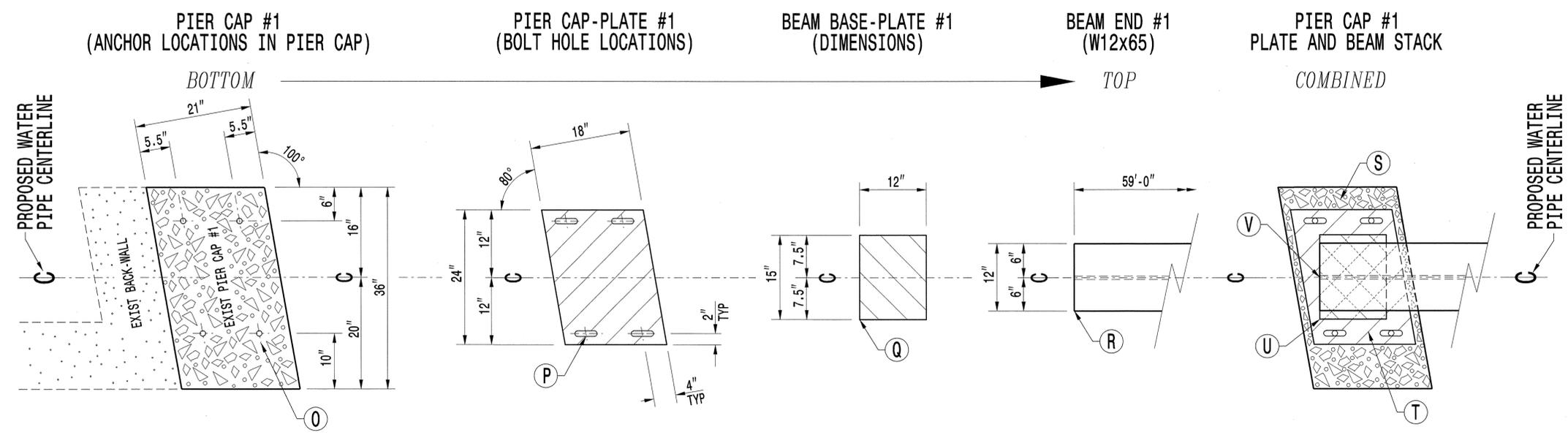
PROPOSED SLOPE AT (CREEK-SIDE) END OF 36" CMP



8/17/99  
 14-AUC-2013 11:50  
 C:\Users\ewh\Documents\B5180\B-5180\REV-1\_UC-4.dgn  
 \$\$\$USERNAME\$\$\$

PROJECT REFERENCE NO.	SHEET NO.
B-5180	UC-5
DESIGNED BY: EWH	
DRAWN BY: EWH	
CHECKED BY: RBW	
APPROVED BY: RBW	
REVISED:	
	
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UTILITY CONSTRUCTION PLANS ONLY	

### DETAIL #10 (PLAN VIEWS OF PIER CAP #1)

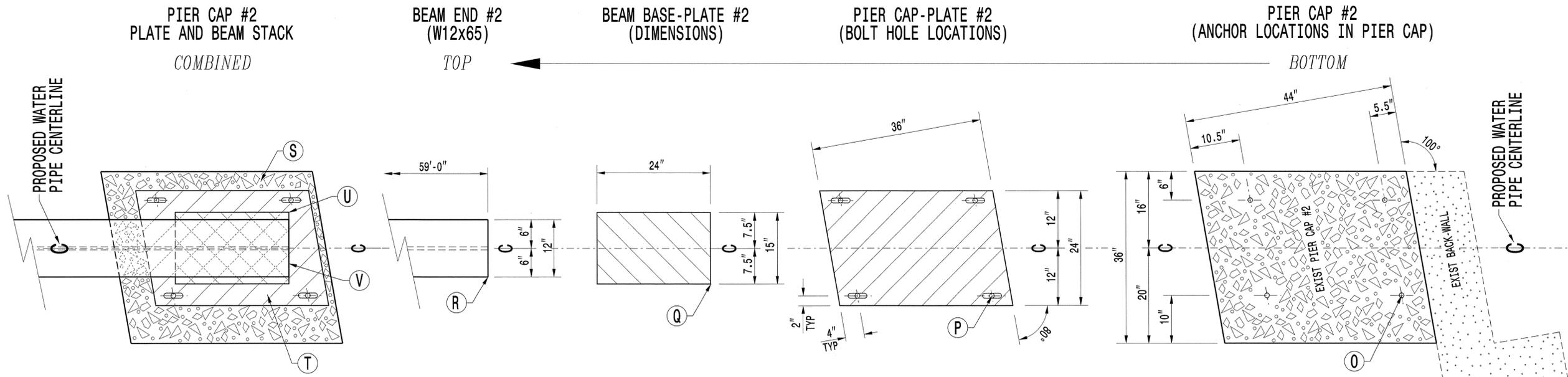


- O. DRILL HOLES IN EXISTING CONCRETE TO ACCEPT THREADED RODS. USE ACRYLIC ADHESIVE (I.E. NOT MECHANICAL/SLEEVE TYPE ANCHORS). DRILL PROPER SIZE HOLE TO ACCEPT 3/4" THREADED ROD WITH DIAMETER AND DEPTH OF HOLE AS PER MANUFACTURER'S DIRECTION...SUGGESTED CONCRETE ANCHORING SYSTEM TO USE IS "SIKADUR ANCHORFIX-1" ACRYLIC ANCHOR SYSTEM BY SIKA CORPORATION OR APPROVED EQUAL...IF THIS SYSTEM IS USED, DRILL 1/8" DIAMETER AND 5" DEEP HOLES IN CONCRETE PIER CAP TO ENSURE 4 1/2" (MIN) EMBEDMENT DEPTH OF THREADED ROD
- P. BOLT HOLES TO BE OVERSIZE/LONG SLOTTED HOLES (1" DIAMETER x 3" LONG)...FOUR LOCATIONS AS SHOWN
- Q. BASE PLATE TO BE WELDED TO BOTTOM FLANGE OF W12x65 BEAM... SET BASE PLATE #1 FLUSH WITH END OF BEAM
- R. BOTTOM FLANGE OF W12x65 BEAM TO HAVE BASE PLATE WELDED ON... SET END OF BEAM FLUSH WITH END OF BASE PLATE #1
- S. EXISTING PIER CAP: DRILL BOLT HOLES IN CONCRETE
- T. PIER CAP-PLATE: BOLT CAP-PLATE DOWN TO PIER CAP
- U. BEAM BASE-PLATE: WELD BASE-PLATE TO BOTTOM OF BEAM
- V. BEAM END: WELD BEAM BASE-PLATE TO PIER CAP-PLATE

NOTE: ALL PLATES SPECIFIED FOR THIS PROJECT TO BE FABRICATED FROM 3/4" THICK STEEL PLATE

NOTE: SEE DETAIL #10-A FOR PROFILE OF PLATE AND BEAM STACK  
NOTE: SEE DETAIL #13-A FOR PROFILE OF PLATE AND BEAM STACK

### DETAIL #13 (PLAN VIEWS OF PIER CAP #2)



- S. EXISTING PIER CAP: DRILL BOLT HOLES IN CONCRETE
- T. PIER CAP-PLATE: BOLT CAP-PLATE DOWN TO PIER CAP
- U. BEAM BASE-PLATE: WELD BASE-PLATE TO BOTTOM OF BEAM
- V. BEAM END: WELD BEAM BASE-PLATE TO PIER CAP-PLATE
- R. BOTTOM FLANGE OF W12x65 BEAM TO HAVE BASE PLATE WELDED ON... SET END OF BEAM FLUSH WITH END OF BASE PLATE #2
- Q. BASE PLATE TO BE WELDED TO BOTTOM FLANGE OF W12x65 BEAM... SET BASE PLATE #2 FLUSH WITH END OF BEAM
- P. BOLT HOLES TO BE OVERSIZE/LONG SLOTTED HOLES (1" DIAMETER x 3" LONG)...TYPICAL, FOUR LOCATIONS
- O. DRILL HOLES IN EXISTING CONCRETE TO ACCEPT THREADED RODS. USE ACRYLIC ADHESIVE (I.E. NOT MECHANICAL/SLEEVE TYPE ANCHORS). DRILL PROPER SIZE HOLE TO ACCEPT 3/4" THREADED ROD WITH DIAMETER AND DEPTH OF HOLE AS PER MANUFACTURER'S DIRECTION...SUGGESTED CONCRETE ANCHORING SYSTEM TO USE IS "SIKADUR ANCHORFIX-1" ACRYLIC ANCHOR SYSTEM BY SIKA CORPORATION OR APPROVED EQUAL...IF THIS SYSTEM IS USED, DRILL 1/8" DIAMETER AND 5" DEEP HOLES IN CONCRETE PIER CAP TO ENSURE 4 1/2" (MIN) EMBEDMENT DEPTH OF THREADED ROD