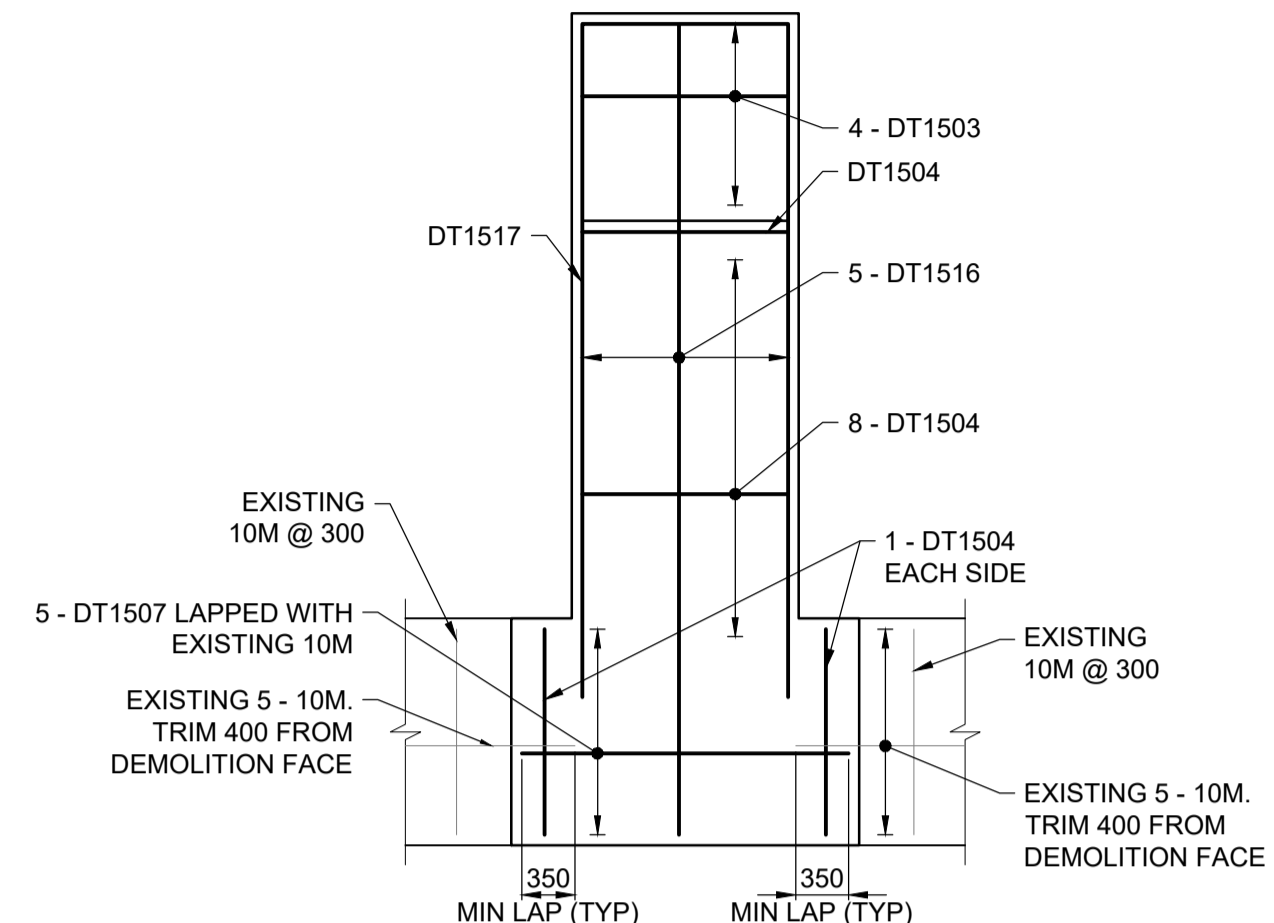
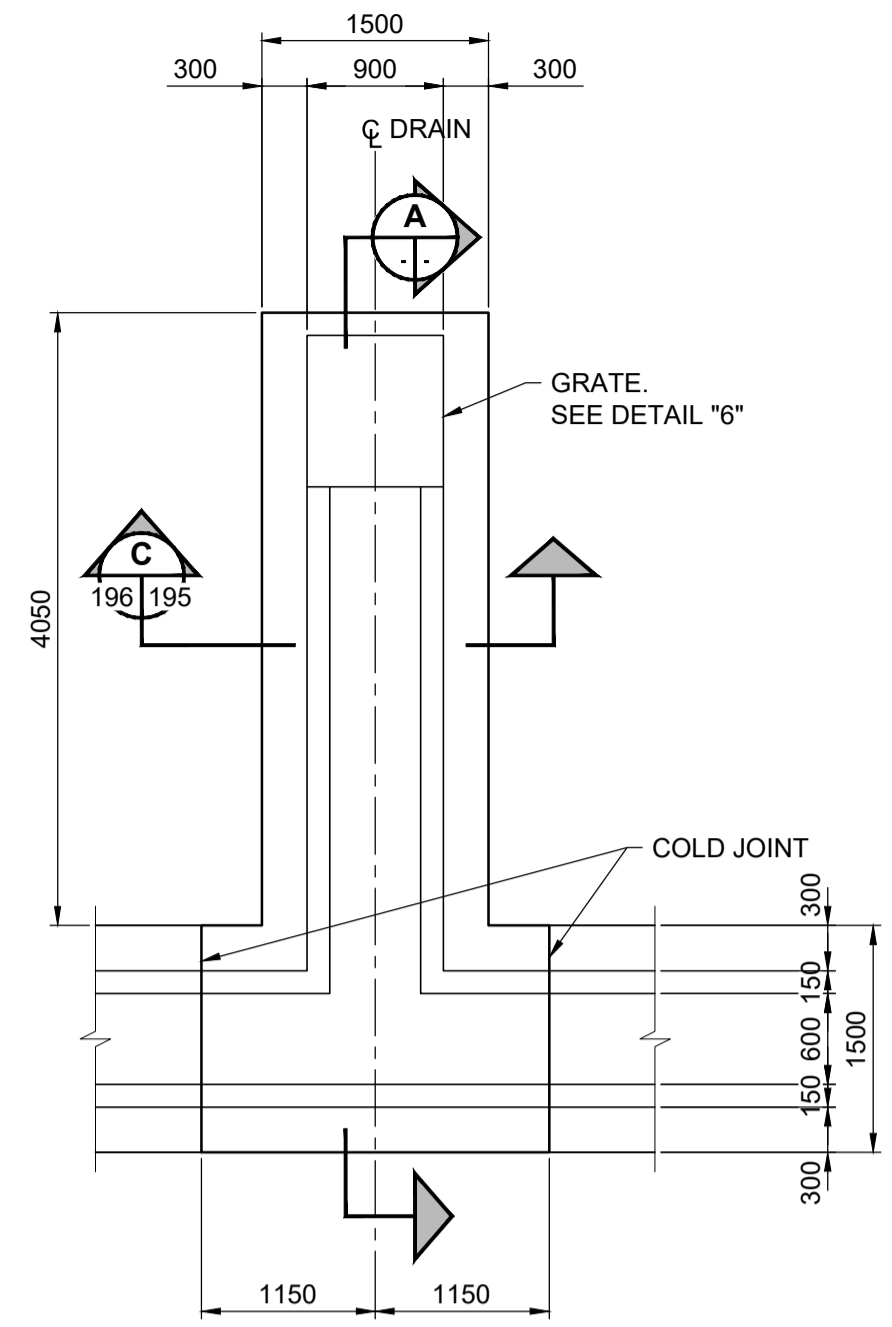
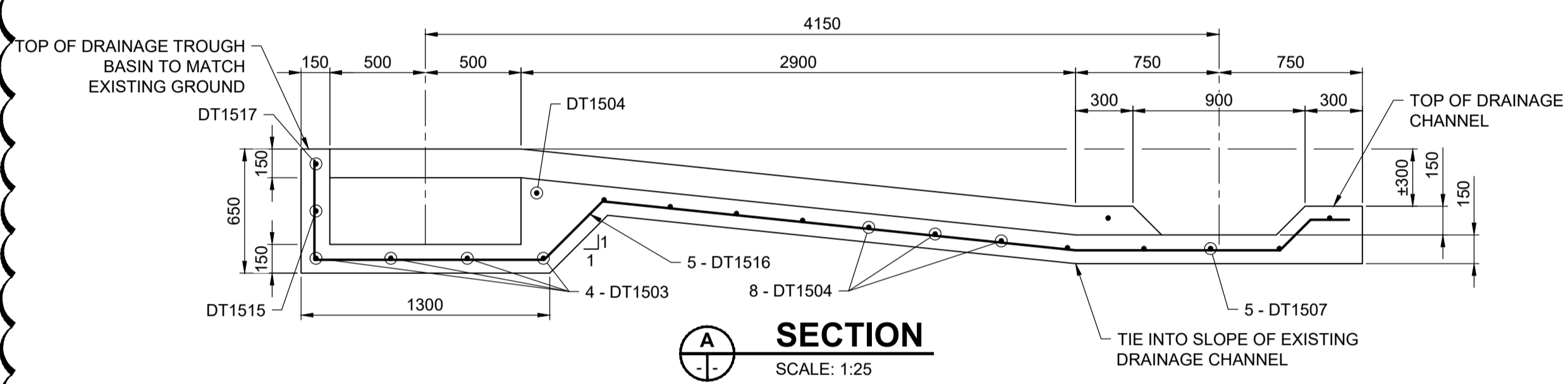


ISO A1 - 594mm x 841mm
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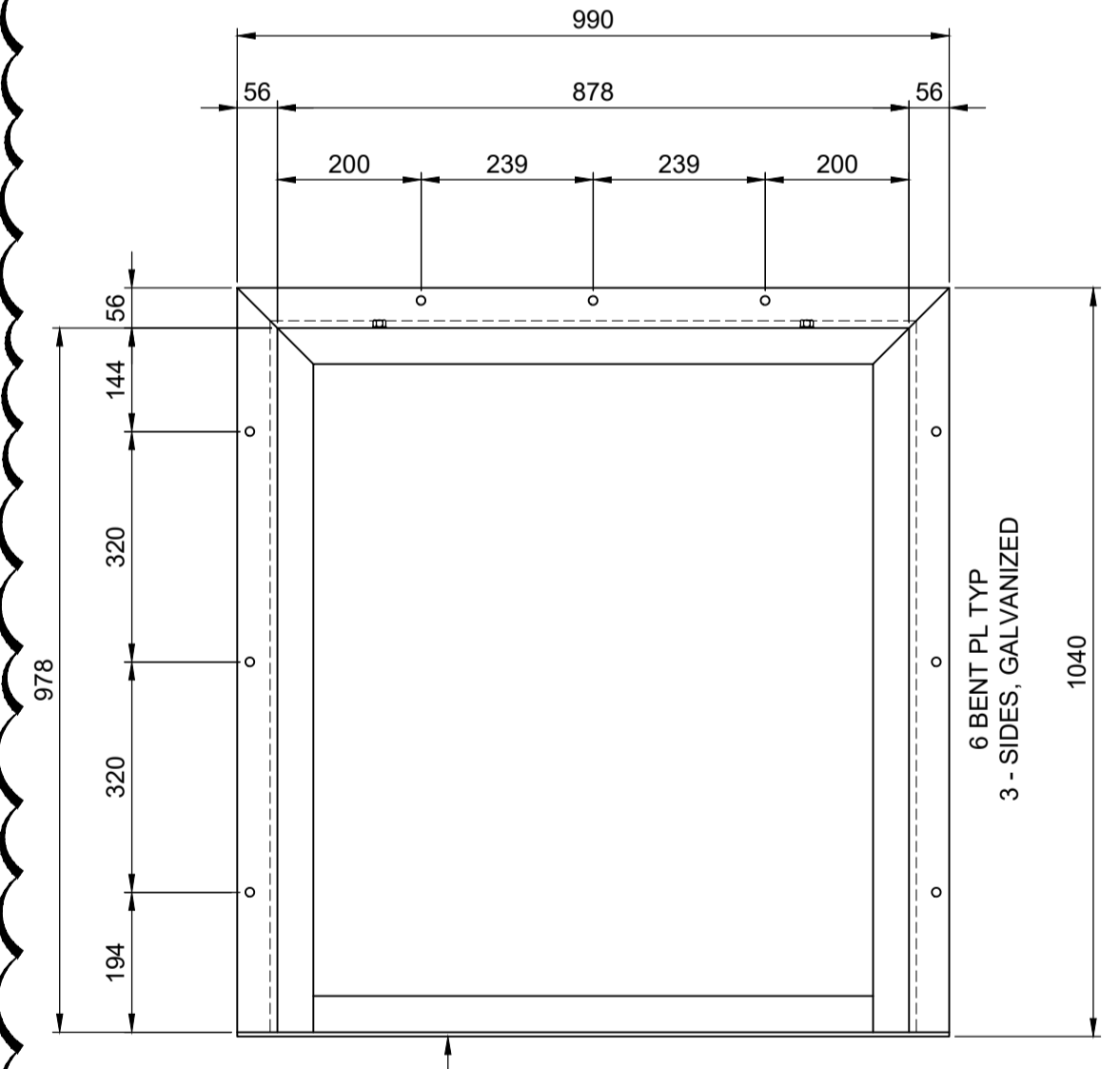


DETAIL "5"
SCALE: 1:50

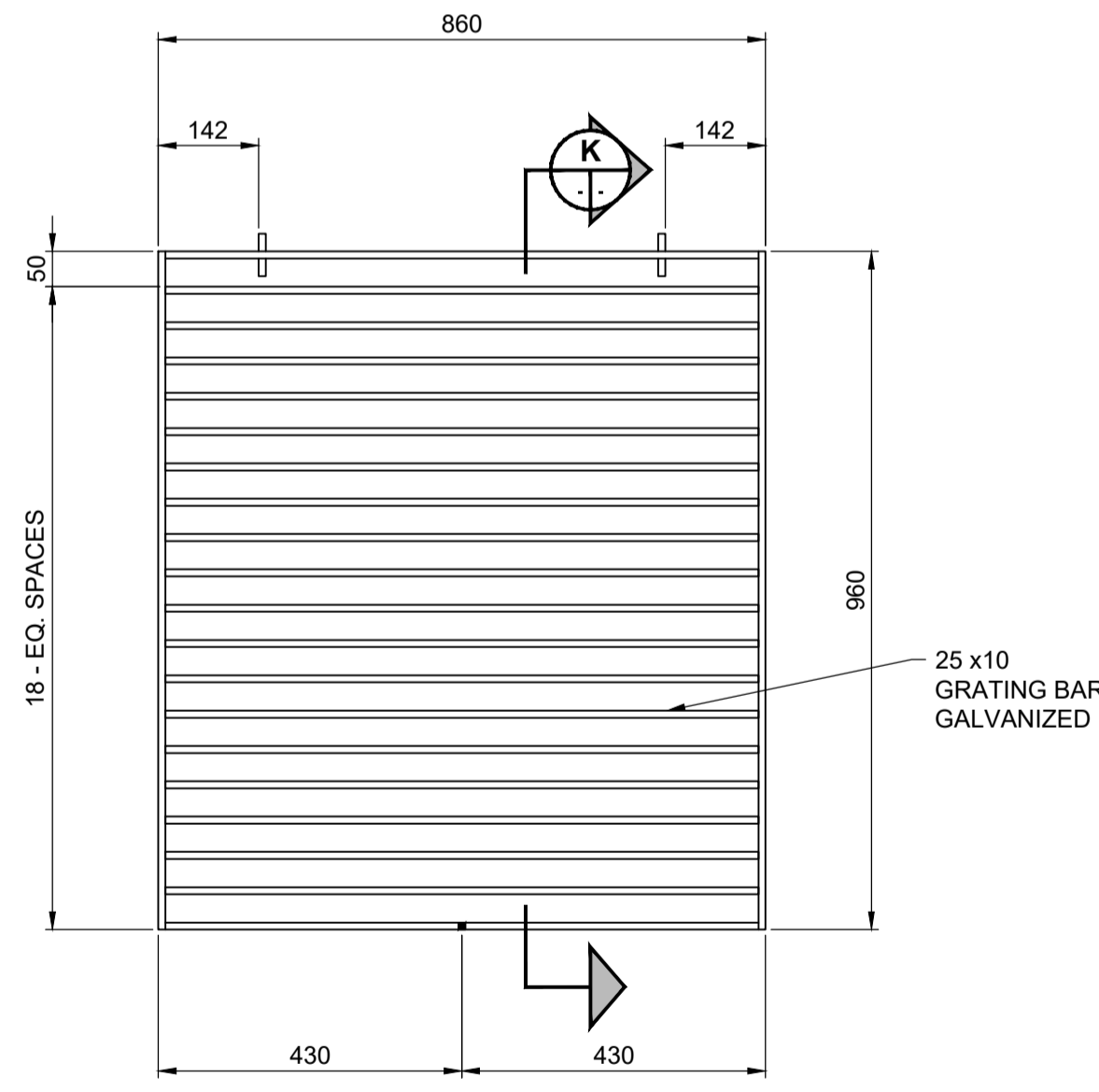
REBAR PLAN
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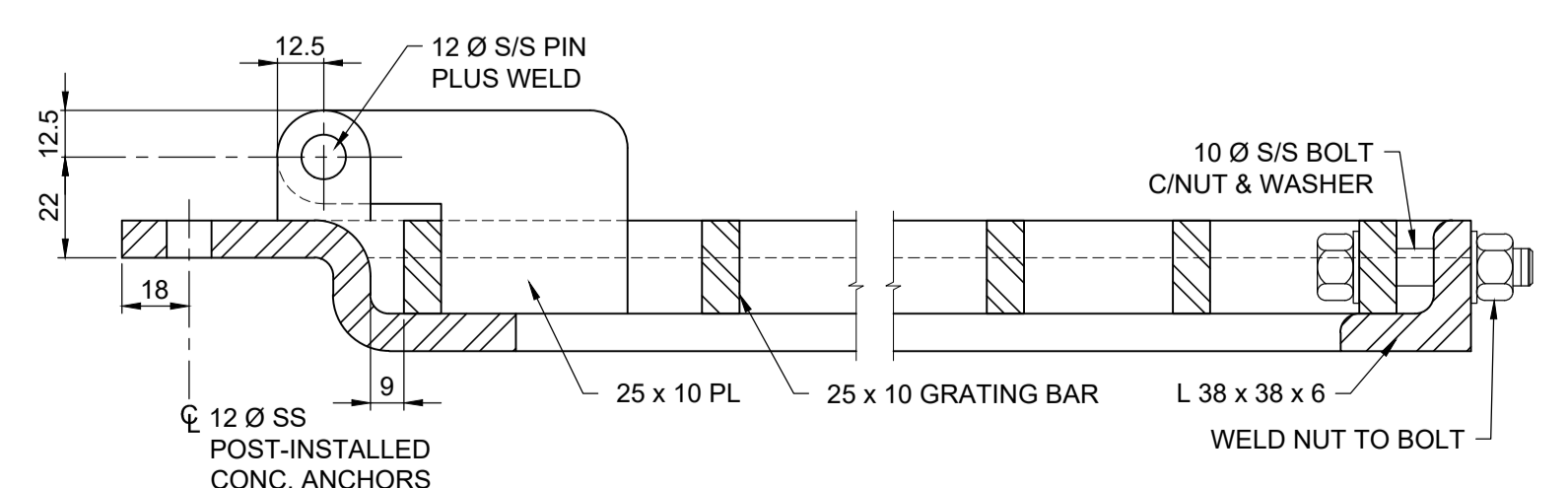
SECTION
SCALE: 1:25



FRAMING



GRATING



DETAIL "6"
SCALE: 1:10

SECTION
SCALE: N.T.S

METRIC
WHOLE NUMBERS INDICATE MILLIMETRES
DECIMALIZED NUMBERS INDICATE METRES

LOCATION APPROVED
UNDERGROUND STRUCTURES

DATE _____

NOTE:
LOCATION OF UNDERGROUND STRUCTURES AS SHOWN ARE BASED ON THE BEST INFORMATION AVAILABLE BUT NO GUARANTEE IS GIVEN THAT ALL EXISTING UTILITIES ARE SHOWN OR THAT THE GIVEN LOCATIONS ARE EXACT. CONFIRMATION OF EXISTENCE AND EXACT LOCATION OF ALL SERVICES MUST BE OBTAINED FROM THE INDIVIDUAL UTILITIES BEFORE PROCEEDING WITH CONSTRUCTION.

BIM	54-006	Tbl. in S. face of E. Conc. pier in 1st row of Conc. piers
ELEV	228.166 m	N. of S. end of St. Vital Bridge over Red River, N. of Kingston Row, 5 m W. of E. end of Pier.
NO.	REVISIONS	DATE
1	REVISED FOR ADDENDUM 3	23/01/13 BAP
0	ISSUED FOR TENDER	22/11/24 BAP

MORRISON HERSHFIELD

DESIGNED BY: BAP
 CHECKED BY: BE
 DRAWN BY: JH
 APPROVED BY: BE

HOR SCALE: AS SHOWN
 VERT SCALE: AS SHOWN

DATE: NOV 24, 2022

PROFESSIONAL'S SEAL

PROVINCE OF MANITOBA
B.A.F. PHILLIPS
 Member
 32723
 2023-01-13
 REGISTERED PROFESSIONAL ENGINEER

CONSULTANT FILE NAME
 2103510-SVB-DD-BR-TROUGH03.dwg

THE CITY OF WINNIPEG
 PUBLIC WORKS DEPARTMENT
 ENGINEERING DIVISION

**ST. VITAL TWIN BRIDGE OVER THE RED RIVER
 REHABILITATION AND RELATED WORKS**

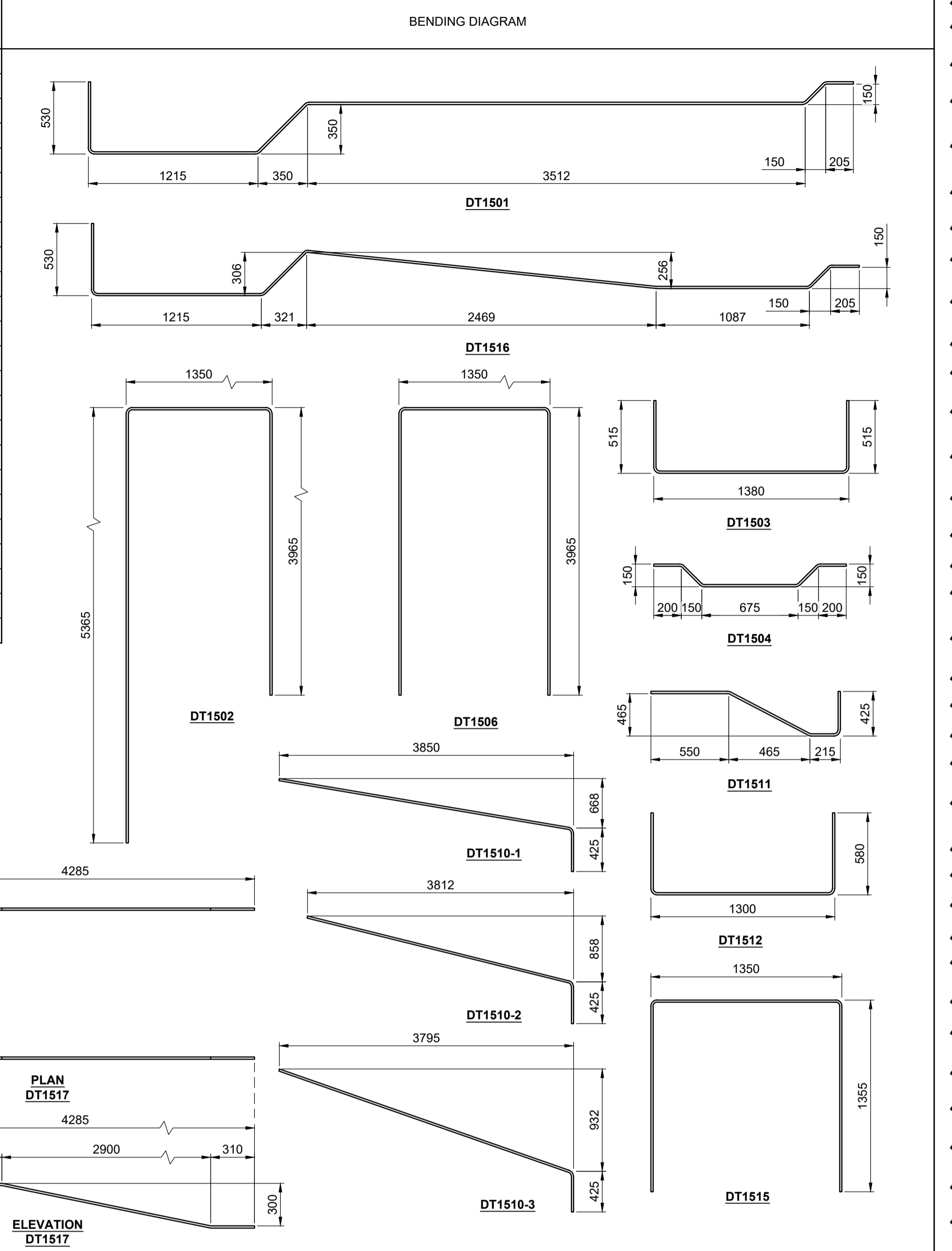
CITY FILE NUMBER: B116-24-110
 SHEET OF: 196 OF 244
 DRAWING NUMBER: 196

**BRIDGE REHABILITATION
 DRAINAGE TROUGH MODIFICATION DETAILS 2 OF 2**

TENDER No. 615-2022

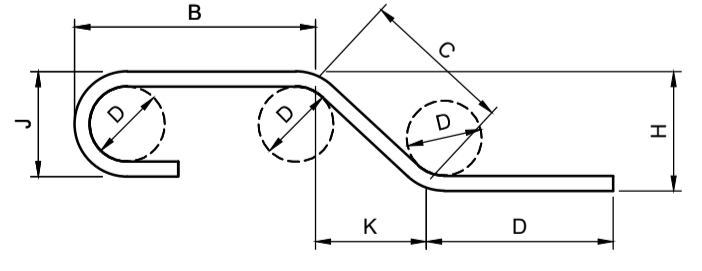
BILL OF REINFORCING STEEL (BLACK STEEL)

MARK	TYPE	PIN DIAMETER	LENGTH (mm)	NO. BARS	MASS
DT1501	BENT	90	6165	60	580.74
DT1502	BENT	90	10680	2	33.54
DT1503	BENT	90	2410	52	196.75
DT1504	BENT	90	1505	328	775.01
DT1505	STR	-	1790	10	28.10
DT1506	BENT	90	9280	10	145.70
DT1507	STR	-	2160	55	186.52
DT1508	STR	-	3160	5	24.81
DT1509-1	BENT	90	1475	5	11.58
DT1509-2	BENT	90	1475	5	11.58
DT1509-3	BENT	90	1475	5	11.58
DT1509-4	BENT	90	1475	5	11.58
DT1510-1	BENT	90	4335	10	68.06
DT1510-2	BENT	90	4335	5	34.03
DT1510-3	BENT	90	4335	5	34.03
DT1511	BENT	90	1845	20	57.93
DT1512	BENT	90	2460	8	30.90
DT1513	STR	-	10500	10	164.85
DT1514	STR	-	14550	5	114.22
DT1515	BENT	90	4060	13	82.86
DT1516	BENT	90	6175	5	48.47
DT1517	BENT	90	9950	1	15.62
DT1518	STR	-	8970	5	70.41
TOTAL REINFORCING STEEL MASS (kg):					2738.87



NOTES:

- ALL DIMENSIONS GIVEN IN BENDING DIAGRAM ARE OUT-TO-OUT, EXCEPT RADII AND EXTENSIONS ON 90°, 135° & 180° HOOKS. EXTENSIONS ON 90°, 135° & 180° HOOKS ARE THE "A" OR "G" DIMENSIONS FOR THE STANDARD 90°, 135° & 180° HOOKS REFERENCED FROM THE RSIC "MANUAL OF STANDARD PRACTICE". RADII ARE INSIDE DIMENSIONS. ALL REINFORCING STEEL SHALL CONFORM TO THE LATEST EDITION OF CAN/CSA-S6 CLAUSE 8.14 "DETAILS OF REINFORCEMENT AND SPECIAL DETAILING PROVISIONS", UNLESS NOTED OTHERWISE IN THE BILL OF REINFORCING STEEL.
- ALL REINFORCING STEEL SHALL BE DEFORMED STEEL, UNLESS NOTED OTHERWISE IN THE BILL OF REINFORCING STEEL.
- ALL REINFORCING WITH SUFFIX "SS" SHALL BE STAINLESS STEEL CONFORMING TO THE REQUIREMENTS OF ASTM A955M, 300 SERIES, MINIMUM GRADE 420, OF ONE OF THE FOLLOWING UNS DESIGNATIONS: S31653, S31803, OR S32304.
- ALL REINFORCING STEEL SHALL CONFORM TO THE LATEST EDITION OF CAN/CSA G30.18 "CARBON STEEL BARS FOR CONCRETE REINFORCEMENT" GRADE 400W, UNLESS NOTED OTHERWISE.
- LIKE BARS SHALL BE BUNDLED, SECURELY TIED AND IDENTIFIED AS TO MARK AND SITE NO. BY APPROPRIATE MEANS. ALL OTHER ITEMS TO BE IDENTIFIED IN A SIMILAR FASHION.
- UNLESS OTHERWISE NOTED DIAMETER "D" IS THE SAME ALL HOOKS AND BENDS ON A BAR. WHERE SLOPE DIFFERS FROM 45° DIMENSIONS "H" AND "K" MUST BE SHOWN.
- BILL OF REINFORCING AND BENDING DIAGRAMS DO NOT INCLUDE CHANGES MADE DURING CONSTRUCTION. RECORD DRAWING REINFORCEMENT CHANGES ARE INCLUDED IN THE RESPECTIVE REINFORCING DETAILS.



ENLARGED VIEW BAR BENDING DETAILS

**ENGINEERS
 GEOSCIENTISTS
 MANITOBA**

Certificate of Authorization
 MORRISON HERSHFIELD
 No. 1736