

| FHWA<br>REG<br>NO. | STATE  | PROJECT NO.  | YEAR | SHEET<br>NO | TOTAL<br>SHEETS |
|--------------------|--------|--------------|------|-------------|-----------------|
| 7                  | KANSAS | 87 N-0203-01 | 2002 | 16          | 48              |

GENERAL NOTES

LOADING: MS18-44 AASHTO Specifications, 1996 Edition.

UNIT STRESSES: Concrete;  $f'_c = 28$  MPa  
Reinforcing Steel (Grade 420);  $f_y = 420$  MPa

FILL HEIGHT: Unless otherwise noted, the Design Fill Height is measured from the riding surface at the culvert and shall include the surfacing.

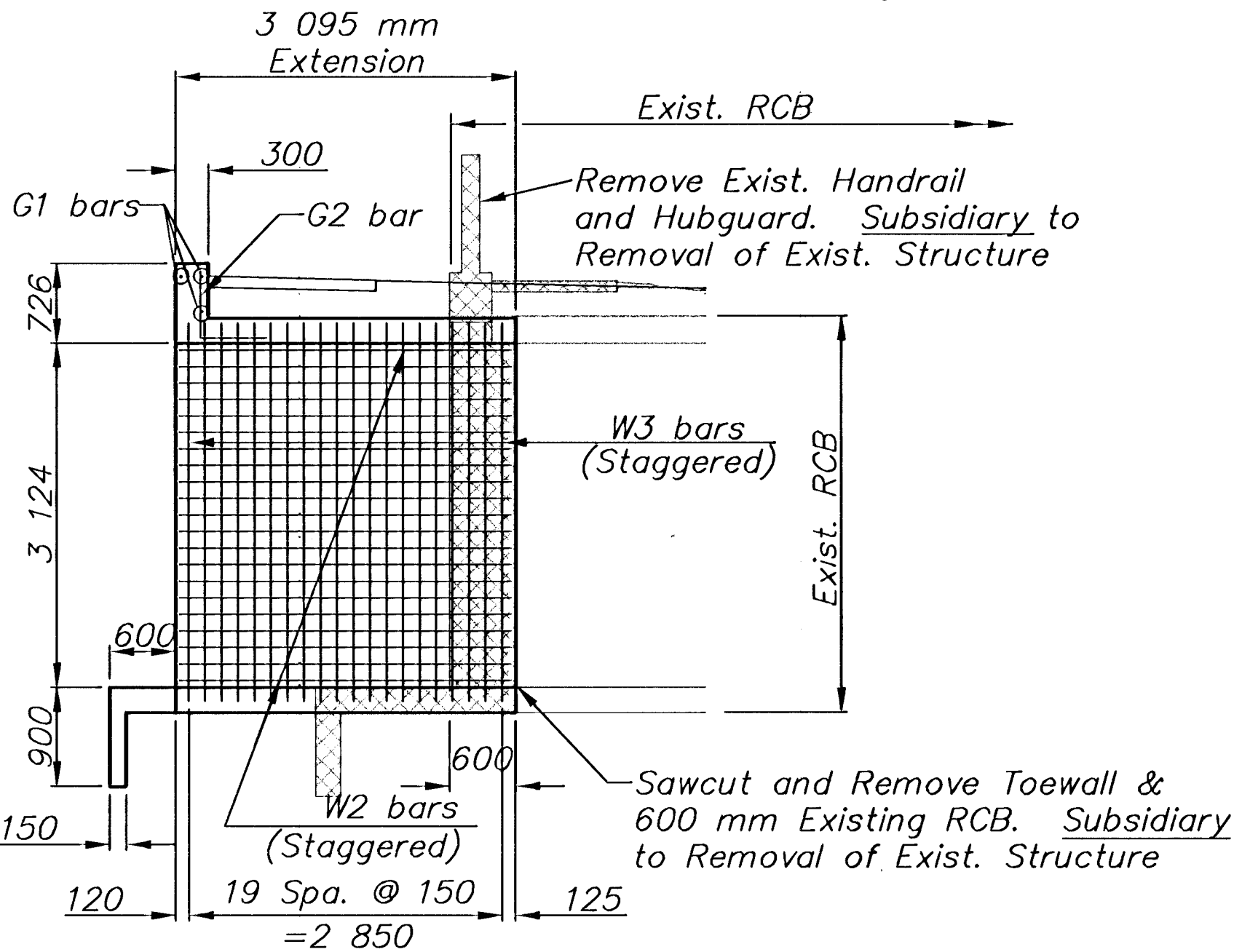
CONCRETE: Class AAA Concrete shall be used throughout. Bevel all exposed edges with a 20 mm triangular moulding. Where Class AAA Concrete (AE) is specified, it shall be placed in the top slab above the Construction Joint.

REINFORCING: All reinforcing shall conform to ASTM A615M, Grade 420, Epoxy Coated. All dimensions relative to reinforcing steel shall be to centerline of bar unless otherwise noted.

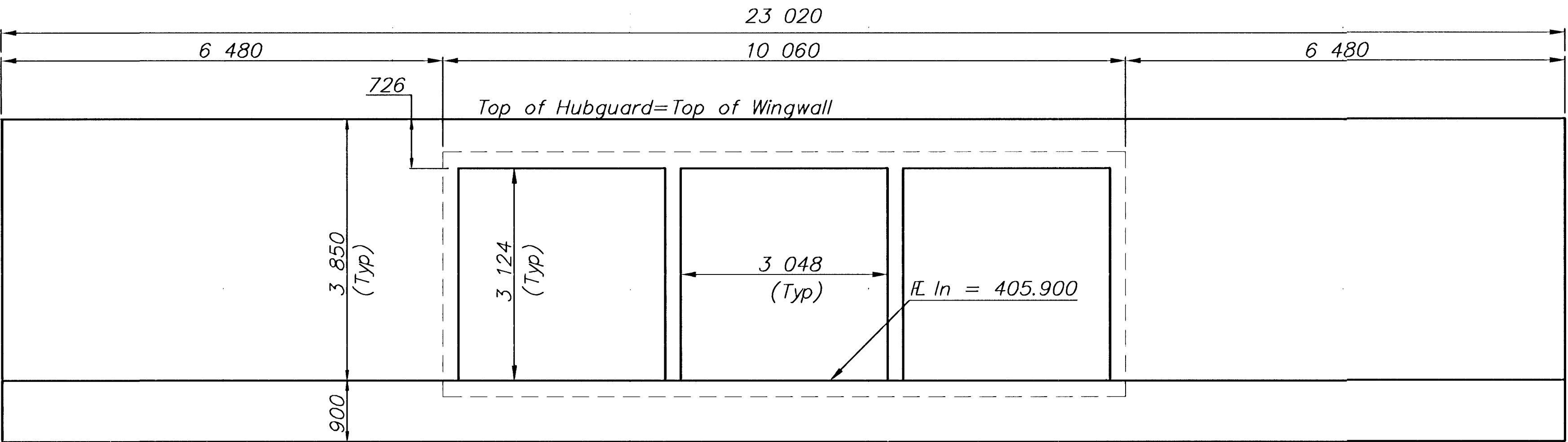
QUANTITIES: The quantities shown in the Culvert Summary include apron and/or soil saver quantities when their construction is required by the plans. Payment for additional quantities that result from including seal course and/or floating apron, as a change in original plans, shall be made at the Unit Price bid for the various items involved.

GRANULAR BACKFILL (WINGWALLS): Special backfill procedures may be required at the direction of the Engineer. See Auxiliary Details Sheet.

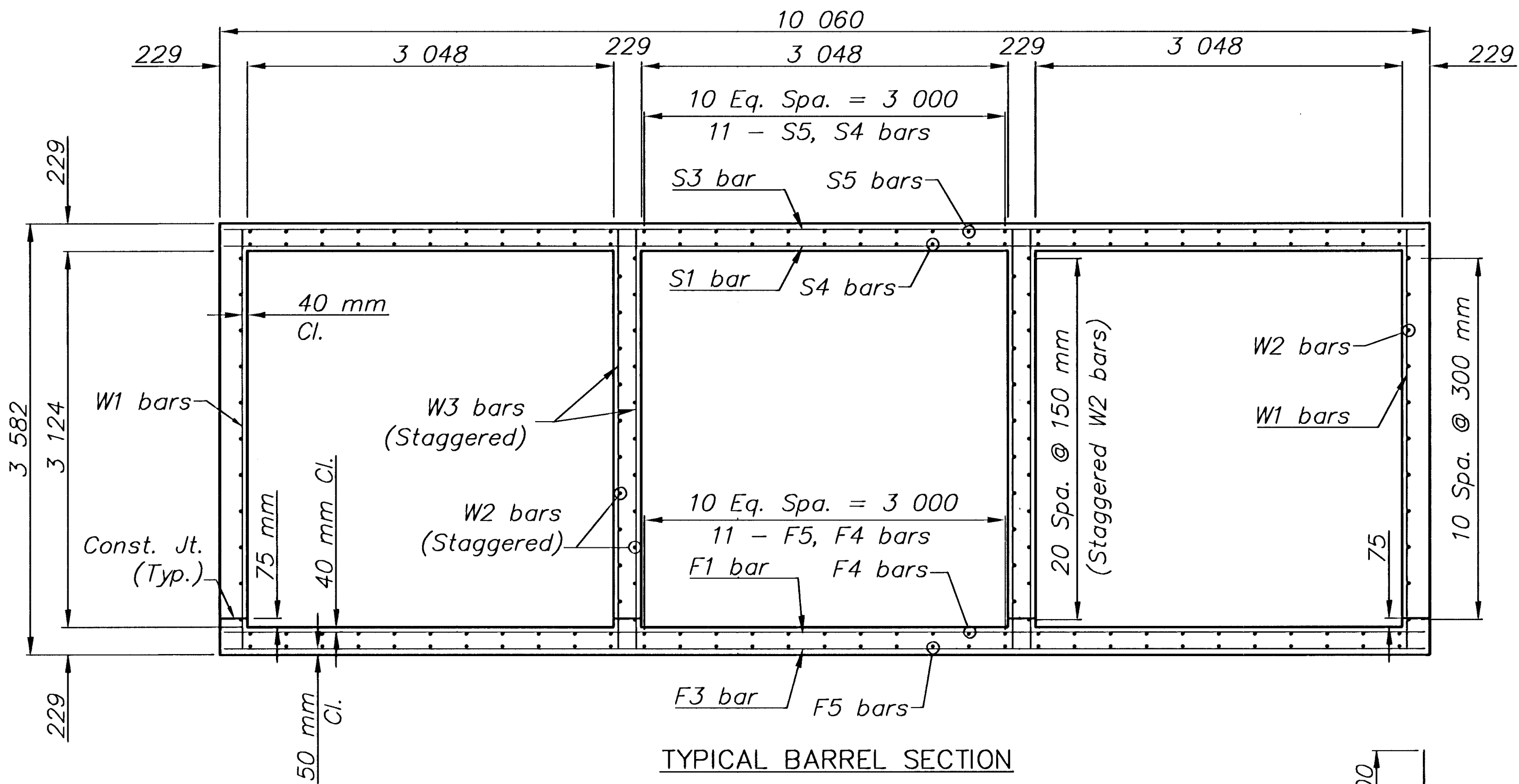
CONCRETE ENCASEMENT: All materials and labor to construct the concrete encasement for the proposed sanitary sewer shall be Subsidiary to Class AAA Concrete. Coordinate all concrete encasement construction with Sanitary Sewer Contractor.



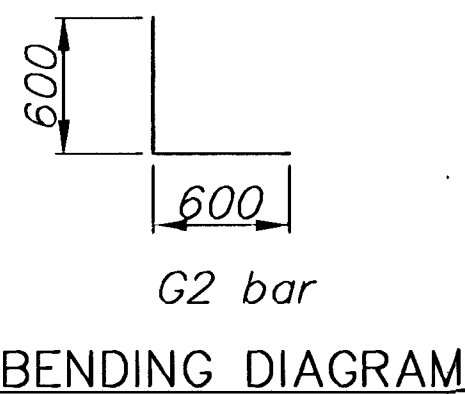
NORTH END LONGITUDINAL SECTION



NORTH END ELEVATION



TYPICAL BARREL SECTION



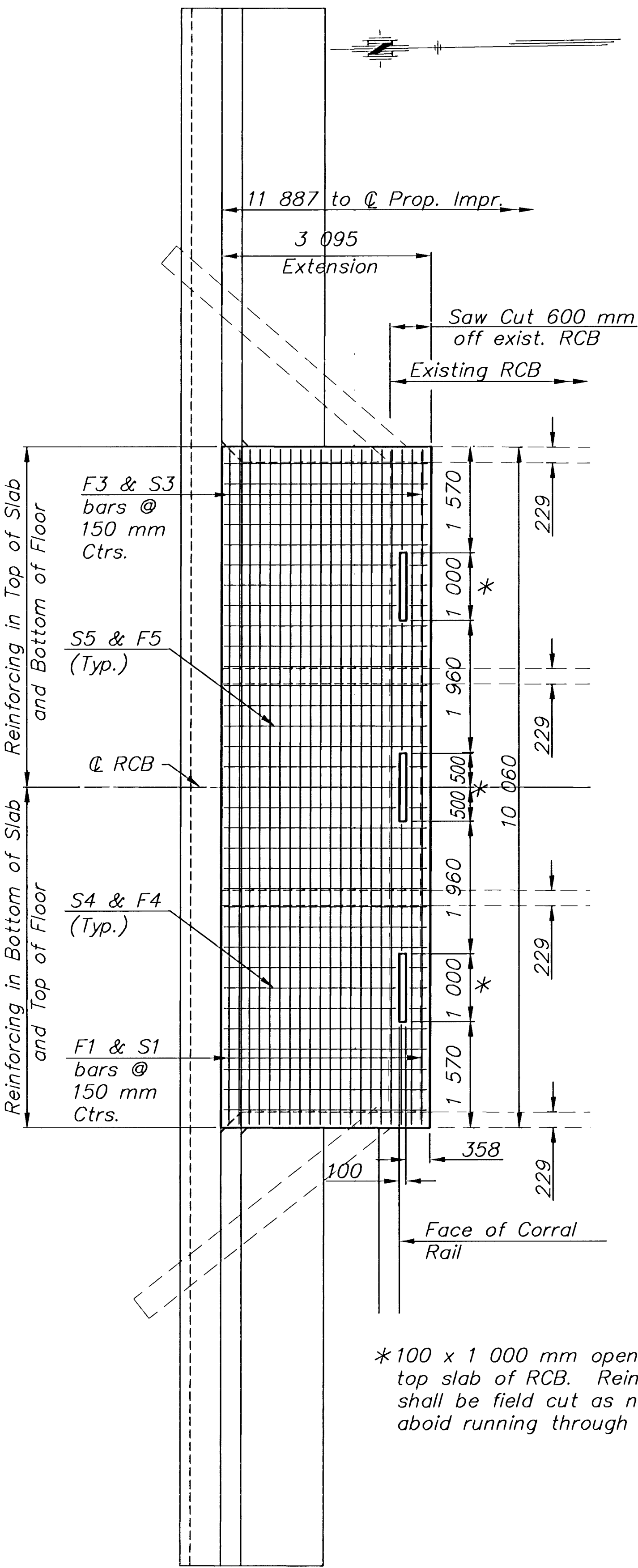
BENDING DIAGRAM

| Minimum Splice Lengths |        |  |
|------------------------|--------|--|
| #10                    | 400 mm |  |
| #13                    | 500 mm |  |
| #16                    | 600 mm |  |

| SUMMARY OF QUANTITIES                     |        |                |
|-------------------------------------------|--------|----------------|
| (Includes Barrel and Wingwalls)           |        |                |
| Class AAA Concrete (AE)                   | 134.4  | m <sup>3</sup> |
| Reinforcing Steel (Gr. 420)(Epoxy Coated) | 12,738 | kg             |

| 2                                   | 1   | NO.         | DATE      | REVISIONS      | BY | APP'D |
|-------------------------------------|-----|-------------|-----------|----------------|----|-------|
|                                     |     |             |           |                |    |       |
| KANSAS DEPARTMENT OF TRANSPORTATION |     |             |           |                |    |       |
| TRIPLE 3.048 x 3.124 m              |     |             |           |                |    |       |
| NORTH END (0° SKEW)                 |     |             |           |                |    |       |
| PROJ. NO. 87 N-0141-01 SEDGWICK CO. |     |             |           |                |    |       |
| MKEC ENGINEERING CONSULTANTS, INC.  |     |             |           |                |    |       |
| WICHITA, KANSAS                     |     |             |           |                |    |       |
| DESIGNED BY:                        | KJS | CHECKED BY: | KJS       |                |    |       |
| DRAWN BY:                           | RSB | DATE:       | JAN. 2003 | SHEET 16 OF 48 |    |       |

|         | BAR SCHEDULE |      |     |        |      |      |     |        |         |      |     |        |      |      |        |        |      |      |        |        |         |      |     |        |
|---------|--------------|------|-----|--------|------|------|-----|--------|---------|------|-----|--------|------|------|--------|--------|------|------|--------|--------|---------|------|-----|--------|
|         | F1           |      |     |        | F3   |      |     |        | F4 & F5 |      |     |        | S1   |      |        |        | S3   |      |        |        | S4 & S5 |      |     |        |
|         | Size         | Spa. | No. | Length | Size | Spa. | No. | Length | Size    | Spa. | No. | Length | Size | Spa. | No.    | Length | Size | Spa. | No.    | Length | Size    | Spa. | No. | Length |
| Ext.Rt. | 22           | 150  | 43  | 9980   | 19   | 150  | 43  | 9980   | 13      | 300  | 33  | 6300   | 22   | 150  | 43     | 9980   | 19   | 150  | 43     | 9980   | 13      | 300  | 33  | 6300   |
| Ext.Lt. | 22           | 150  | 21  | 9980   | 19   | 150  | 21  | 9980   | 13      | 300  | 33  | 3000   | 22   | 150  | 21     | 9980   | 19   | 150  | 21     | 9980   | 13      | 300  | 33  | 3000   |
|         | W1           |      |     |        | W2   |      |     |        | W3      |      |     |        | G1   |      |        | G2     |      |      |        |        |         |      |     |        |
|         | Size         | Spa. | No. | Length | Size | Spa. | No. | Length | Size    | Spa. | No. | Length | Size | No.  | Length | Size   | Spa. | No.  | Length |        |         |      |     |        |
| Ext.Rt. | 16           | 150  | 84  | 3480   | 13   | 300  | 64  | 6300   | 13      | 300  | 84  | 3480   | 16   | 3    | 9980   | 16     | 300  | 33   | 1200   |        |         |      |     |        |
| Ext.Lt. | 16           | 150  | 40  | 3480   | 13   | 300  | 64  | 3000   | 13      | 300  | 40  | 3480   | 16   | 3    | 22900  | 16     | 300  | 76   | 1200   |        |         |      |     |        |



NORTH END PLAN

\*100 x 1 000 mm opening through top slab of RCB. Reinforcing steel shall be field cut as necessary to avoid running through opening.