

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

MINISTRY OF SETTLEMENT AND REGIONAL DEVELOPMENT  
THE REPUBLIC OF INDONESIA

**THE DETAILED DESIGN  
OF  
FLOOD CONTROL, URBAN DRAINAGE AND  
WATER RESOURCES DEVELOPMENT IN  
SEMARANG IN THE REPUBLIC OF INDONESIA**

**FINAL REPORT**

最終報告書  
セマランの都市排水・水資源開発計画

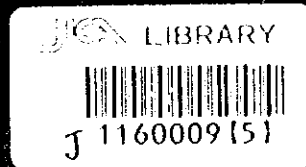
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AUGUST 2000

CTI ENGINEERING CO INTERNATIONAL., LTD.  
IN ASSOCIATION WITH  
PACIFIC CONSULTANTS INTERNATIONAL  
AND  
PASCO INTERNATIONAL INC.



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MINISTRY OF SETTLEMENT AND REGIONAL DEVELOPMENT  
THE REPUBLIC OF INDONESIA

FLOOD CONTROL, URBAN DRAINAGE AND  
WATER RESOURCES DEVELOPMENT IN SEMARANG  
COMPONENT C: URBAN DRAINAGE SYSTEM IMPROVEMENT

**BIDDING DOCUMENTS**

**PACKAGE 3:**

**BANDARHARJO DRAINAGE SYSTEM IMPROVEMENT**

**VOLUME 3**

**DRAWINGS**

**AUGUST 2000**



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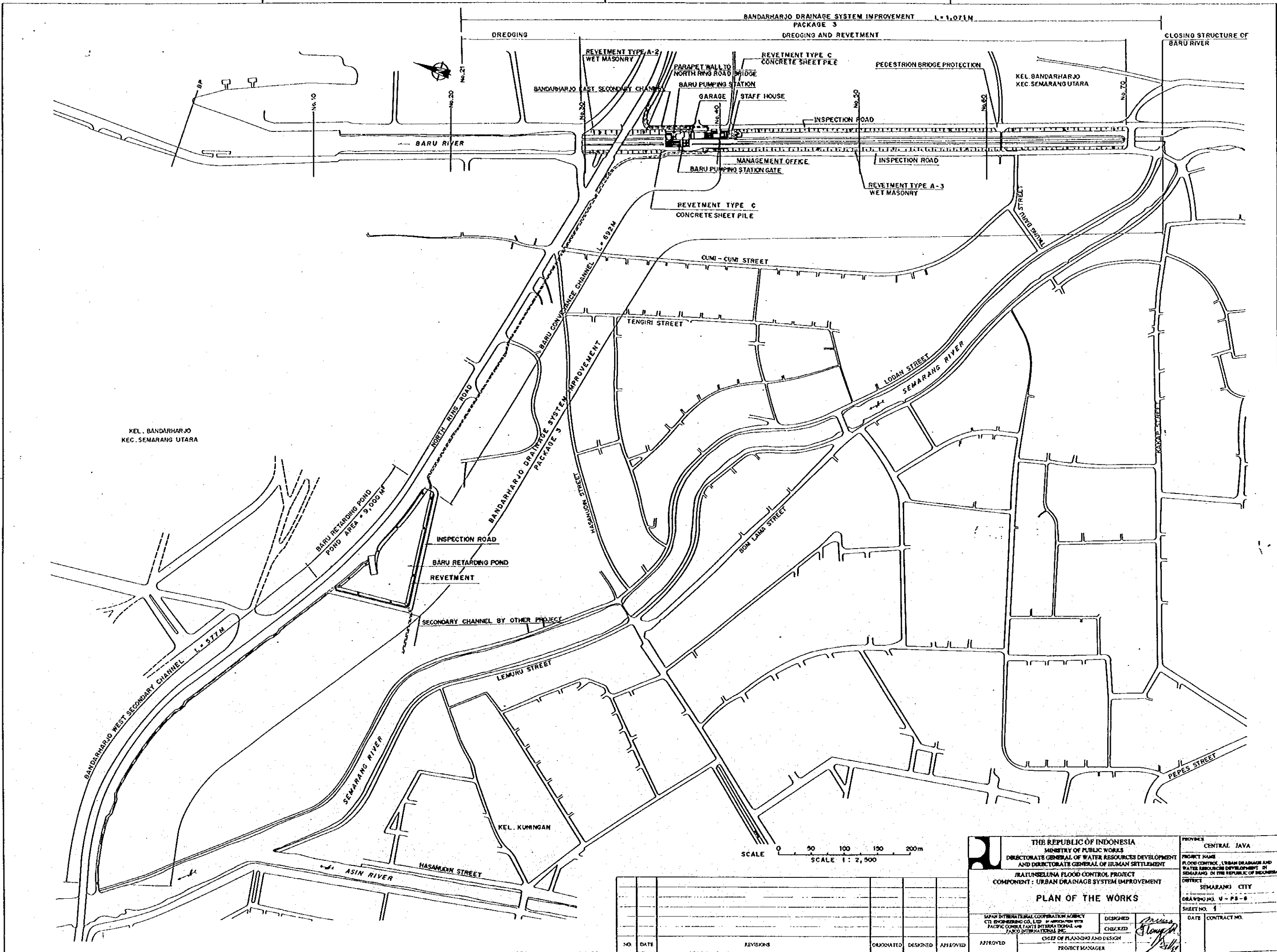
| SHEET No                          | DRAWING No  | TITLE OF DRAWING             |   |   |
|-----------------------------------|-------------|------------------------------|---|---|
|                                   |             | 1 <sup>st</sup> LINE         | 2 <sup>nd</sup> LINE                            | 3 <sup>rd</sup> LINE  |
| <b>GENERAL (G)</b>                |             |                              |   |   |
| 1                                 | UP3 G       | PLAN OF THE WORKS            |   |   |
| <b>BARU RIVER IMPROVEMENT (B)</b> |             |                              |   |   |
| 2                                 | UP3 B P-1   | BARU RIVER                   | KEY PLAN  |   |
| 3                                 | UP3 B P-2   | BARU RIVER                   | PLAN (1/2)                                      |   |
| 4                                 | UP3 B P-3   | BARU RIVER                   | PLAN (2/2)                                      |   |
| 5                                 | UP3 B Cr-1  | BARU RIVER                   | LONGITUDINAL PROFILE                            |   |
| 6                                 | UP3 B Cr-1  | BARU RIVER                   | CROSS SECTION (1/12)                            |   |
| 7                                 | UP3 B Cr-2  | BARU RIVER                   | CROSS SECTION (2/12)                            |   |
| 8                                 | UP3 B Cr-3  | BARU RIVER                   | CROSS SECTION (3/12)                            |   |
| 9                                 | UP3 B Cr-4  | BARU RIVER                   | CROSS SECTION (4/12)                            |   |
| 10                                | UP3 B Cr-5  | BARU RIVER                   | CROSS SECTION (5/12)                            |   |
| 11                                | UP3 B Cr-6  | BARU RIVER                   | CROSS SECTION (6/12)                            |   |
| 12                                | UP3 B Cr-7  | BARU RIVER                   | CROSS SECTION (7/12)                            |   |
| 13                                | UP3 B Cr-8  | BARU RIVER                   | CROSS SECTION (8/12)                            |   |
| 14                                | UP3 B Cr-9  | BARU RIVER                   | CROSS SECTION (9/12)                            |   |
| 15                                | UP3 B Cr-10 | BARU RIVER                   | CROSS SECTION (10/12)                           |   |
| 16                                | UP3 B Cr-11 | BARU RIVER                   | CROSS SECTION (11/12)                           |   |
| 17                                | UP3 B Cr-12 | BARU RIVER                   | CROSS SECTION (12/12)                           |   |
| 18                                | UP3 B Rv-1  | BARU RIVER                   | REVEIMENT (1/2)                                 | PLAN (TYPE A-3)   |
| 19                                | UP3 B Rv-2  | BARU RIVER                   | REVEIMENT (2/2)                                 | SECTION AND DETAILS (TYPE A-3)  |
| 20                                | UP3 B Rd-1  | BARU RIVER                   | INSPECTION ROAD                                 |   |
| 21                                | UP3 B M-1   | BARU RIVER                   | CLOSING STRUCTURE                               | PLAN AND SECTION  |
| 22                                | UP3 B M-2   | BARU RIVER                   | CLOSING STRUCTURE                               | REINFORCING BAR ARRANGEMENT   |
| 23                                | UP3 B M-3   | BARU RIVER                   | SECONDARY CHANNEL OUTLET RECONSTRUCTION         |   |
| 24                                | UP3 B M-4   | BARU RIVER                   | BRIDGE PROTECTION                               |   |
| <b>BARU PUMPING STATION (P)</b>   |             |                              |   |   |
| 25                                | UP3 P G-1   | BARU PUMPING STATION         | GENERAL LAYOUT                                  |   |
| 26                                | UP3 P G-2   | BARU PUMPING STATION         | REVEIMENT AND TRANSITION TREATMENT (1/3)        | PLAN AND DETAIL 1   |
| 27                                | UP3 P G-3   | BARU PUMPING STATION         | REVEIMENT AND TRANSITION TREATMENT (2/3)        | DETAIL 2  |
| 28                                | UP3 P G-4   | BARU PUMPING STATION         | REVEIMENT AND TRANSITION TREATMENT (3/3)        | DETAIL 3 AND 4  |
| 29                                | UP3 P G-5   | BARU PUMPING STATION         | BARU CONVEYANCE CHANNEL OUTLET (1/4)            | PLAN AND SECTION  |
| 30                                | UP3 P G-6   | BARU PUMPING STATION         | BARU CONVEYANCE CHANNEL OUTLET (2/4)            | DETAIL OF REINFORCEMENT - 1   |
| 31                                | UP3 P G-7   | BARU PUMPING STATION         | BARU CONVEYANCE CHANNEL OUTLET (3/4)            | DETAIL OF REINFORCEMENT - 2   |
| 32                                | UP3 P G-8   | BARU PUMPING STATION         | BARU CONVEYANCE CHANNEL OUTLET (4/4)            | BAR BENDING SCHEDULE AND BAR WEIGHT   |
| 33                                | UP3 P G-9   | BARU PUMPING STATION         | BANDARHARJO EAST SECONDARY CHANNEL OUTLET (1/3) | PLAN AND SECTION  |
| 34                                | UP3 P G-10  | BARU PUMPING STATION         | BANDARHARJO EAST SECONDARY CHANNEL OUTLET (2/3) | REINFORCING BAR ARRANGEMENT OF BOX CULVERT                                    |
| 35                                | UP3 P G-11  | BARU PUMPING STATION         | BANDARHARJO EAST SECONDARY CHANNEL OUTLET (3/3) | REINFORCING BAR ARRANGEMENT OF WINGWALL                                       |
| 36                                | UP3 P C-1   | BARU PUMPING STATION         | GENERAL ARRANGEMENT                             | PLAN AND SECTIONS   |
| 37                                | UP3 P C-2   | BARU PUMPING STATION         | GENERAL ARRANGEMENT                             | PROFILE AND WATER LEVEL   |
| 38                                | UP3 P C-3   | BARU PUMPING STATION         | PILE ARRANGEMENTS AND DETAILS                   |   |
| 39                                | UP3 P C-4   | BARU PUMPING STATION         | STAFF GAUGE                                     |   |
| 40                                | UP3 P C-5   | BARU PUMPING STATION         | SAFETY HANDRAIL OF PUMPING STATION              |   |
| 41                                | UP3 P C-6   | BARU PUMPING STATION         | SAFETY HANDRAIL OF INSPECTION BRIDGE            |   |
| 42                                | UP3 P C-7   | BARU PUMPING STATION         | REINFORCING BAR ARRANGEMENT                     | INTAKE, PUMP WELL, TROUGH AND OUTLET (1/3)                                    |
| 43                                | UP3 P C-8   | BARU PUMPING STATION         | REINFORCING BAR ARRANGEMENT                     | INTAKE, PUMP WELL, TROUGH AND OUTLET (2/3)                                    |
| 44                                | UP3 P C-9   | BARU PUMPING STATION         | REINFORCING BAR ARRANGEMENT                     | INTAKE, PUMP WELL, TROUGH AND OUTLET (3/3) - REINFORCING BAR BENDING SCHEDULE |
| 45                                | UP3 P C-10  | BARU PUMPING STATION         | REINFORCING BAR ARRANGEMENT                     | CONNECTION BAR FOR BUILDING   |
| 46                                | UP3 P C-11  | BARU PUMPING STATION         | REINFORCING BAR ARRANGEMENT                     | INSPECTION BRIDGE NO. 1   |
| 47                                | UP3 P C-12  | BARU PUMPING STATION         | REINFORCING BAR ARRANGEMENT                     | INSPECTION BRIDGE NO. 2   |
| 48                                | UP3 P M-1   | BARU PUMPING STATION         | SCREW PUMP                                      | GENERAL ARRANGEMENT   |
| 49                                | UP3 P M-2   | BARU PUMPING STATION         | SCREW PUMP                                      | MAIN PUMP INSTALLATION  |
| 50                                | UP3 P M-3   | BARU PUMPING STATION         | AUXILIARY PUMP                                  |   |
| 51                                | UP3 P M-4   | BARU PUMPING STATION         | DIESEL ENGINE                                   |   |
| 52                                | UP3 P M-5   | BARU PUMPING STATION         | FUEL SUPPLY SYSTEM                              |   |
| 53                                | UP3 P M-6   | BARU PUMPING STATION         | STOP LOGS                                       |   |
| 54                                | UP3 P E-1   | BARU PUMPING STATION         | ELECTRIC WIRING PLAN                            |   |
| 55                                | UP3 P E-2   | BARU PUMPING STATION         | POWER SUPPLY AND CONTROL SYSTEM DIAGRAM - 1     |   |
| 56                                | UP3 P E-3   | BARU PUMPING STATION         | POWER SUPPLY AND CONTROL SYSTEM DIAGRAM - 2     |   |
| 57                                | UP3 P M-1   | FUEL TANK                    | PLAN AND SECTIONS                               |   |
| 58                                | UP3 P M-2   | FUEL TANK                    | REINFORCING BAR ARRANGEMENT (1/4)               |   |
| 59                                | UP3 P M-3   | FUEL TANK                    | REINFORCING BAR ARRANGEMENT (2/4)               |   |
| 60                                | UP3 P M-4   | FUEL TANK                    | REINFORCING BAR ARRANGEMENT (3/4)               |   |
| 61                                | UP3 P M-5   | FUEL TANK                    | REINFORCING BAR ARRANGEMENT (4/4)               |   |
| 62                                | UP3 P M-6   | FUEL TANK                    | BAR BENDING SCHEDULE AND BAR WEIGHT             |   |
| 63                                | UP3 P B-1   | BARU PUMPING STATION COMPLEX | DRAWING LIST                                    |   |
| 64                                | UP3 P B-2   | BARU PUMPING STATION COMPLEX | GENERAL ABBREVIATION AND SYMBOL                 |   |
| 65                                | UP3 P B-3   | BARU PUMPING STATION COMPLEX | EXTERIOR FINISH SCHEDULE                        |   |
| 66                                | UP3 P B-4   | BARU PUMPING STATION COMPLEX | INTERIOR FINISH SCHEDULE                        |   |
| 67                                | UP3 P B-5   | BARU PUMPING STATION COMPLEX | FLOOR AREA TABLE                                |   |
| 68                                | UP3 P B-6   | BARU PUMPING STATION COMPLEX | SITE PLAN                                       |   |
| 69                                | UP3 P B-7   | BARU PUMPING STATION COMPLEX | FLOOR PLAN, ROOF PLAN, CEILING PLAN AND DETAIL  | PUMP CONTROL BUILDING   |

PACKAGE - 3 : URBAN DRAINAGE SYSTEM IMPROVEMENT WORKS

LIST OF DRAWINGS ( 2/3 )

| SHEET No                             | DRAWING No   | TITLE OF DRAWING             |  |   |
|--------------------------------------|--------------|------------------------------|--|---|
|                                      |              | 1 <sup>st</sup> LINE         | 2 <sup>nd</sup> LINE                             | 3 <sup>rd</sup> LINE  |
| 70                                   | U-P3-P-Bu-8  | BARU PUMPING STATION COMPLEX | ELEVATION  | PUMP CONTROL BUILDING                                       |
| 71                                   | U-P3-P-Bu-9  | BARU PUMPING STATION COMPLEX | SECTION I-I AND DETAIL SECTION                   | PUMP CONTROL BUILDING                                       |
| 72                                   | U-P3-P-Bu-10 | BARU PUMPING STATION COMPLEX | SECTION II-II INTERIOR ELEVATION AND DETAIL      | PUMP CONTROL BUILDING                                       |
| 73                                   | U-P3-P-Bu-11 | BARU PUMPING STATION COMPLEX | MISCELLANEOUS DETAIL 1                           | PUMP CONTROL BUILDING                                       |
| 74                                   | U-P3-P-Bu-12 | BARU PUMPING STATION COMPLEX | MISCELLANEOUS DETAIL 2                           | PUMP CONTROL BUILDING                                       |
| 75                                   | U-P3-P-Bu-13 | BARU PUMPING STATION COMPLEX | MISCELLANEOUS DETAIL 3                           | PUMP CONTROL BUILDING                                       |
| 76                                   | U-P3-P-Bu-14 | BARU PUMPING STATION COMPLEX | KEYPLAN AND DOOR WINDOW SCHEDULE                 | PUMP CONTROL BUILDING                                       |
| 77                                   | U-P3-P-Bu-15 | BARU PUMPING STATION COMPLEX | DRAINAGE PLAN AND DETAIL                         |   |
| 78                                   | U-P3-P-Bu-16 | BARU PUMPING STATION COMPLEX | COLUMN, TIE BEAM AND FRAMING ELEV.               | PUMP CONTROL BUILDING                                       |
| 79                                   | U-P3-P-Bu-17 | BARU PUMPING STATION COMPLEX | SECTION AND DETAIL OF COLUMN AND BEAM            | PUMP CONTROL BUILDING                                       |
| 80                                   | U-P3-P-Bu-18 | BARU PUMPING STATION COMPLEX | ROOF STRUCTURE PLAN AND TYPICAL                  | PUMP CONTROL BUILDING                                       |
| 81                                   | U-P3-P-Bu-19 | BARU PUMPING STATION COMPLEX | TYPICAL ROOF TRUSS                               | PUMP CONTROL BUILDING                                       |
| 82                                   | U-P3-P-Bu-20 | BARU PUMPING STATION COMPLEX | DETAIL ROOF STRUCTURE                            | PUMP CONTROL BUILDING                                       |
| 83                                   | U-P3-P-Bu-21 | BARU PUMPING STATION COMPLEX | LIGHTNING CONDUCTOR PLAN AND DETAIL              | PUMP CONTROL BUILDING                                       |
| 84                                   | U-P3-P-Bu-22 | BARU PUMPING STATION COMPLEX | LIGHTING PLAN AND ONE LINE ELECTRICAL DIAGRAM    |   |
| 85                                   | U-P3-P-Bu-23 | BARU PUMPING STATION COMPLEX | GENERAL LIGHTING PLAN                            |   |
| 86                                   | U-P3-P-Bu-24 | BARU PUMPING STATION COMPLEX | WATER SUPPLY DIAGRAM                             |   |
| 87                                   | U-P3-P-Bu-25 | BARU PUMPING STATION COMPLEX | BERBUL GROUND RESERVOIR                          |   |
| 88                                   | U-P3-P-Bu-26 | BARU PUMPING STATION COMPLEX | FLOOR PLAN, ROOF PLAN, CEILING PLAN              | MANAGEMENT OFFICE   |
| 89                                   | U-P3-P-Bu-27 | BARU PUMPING STATION COMPLEX | ELEVATION  | MANAGEMENT OFFICE   |
| 90                                   | U-P3-P-Bu-28 | BARU PUMPING STATION COMPLEX | SECTION AND DETAIL SECTION                       | MANAGEMENT OFFICE   |
| 91                                   | U-P3-P-Bu-29 | BARU PUMPING STATION COMPLEX | INTERIOR ELEVATION AND DETAIL                    | MANAGEMENT OFFICE   |
| 92                                   | U-P3-P-Bu-30 | BARU PUMPING STATION COMPLEX | DETAIL PLAN AND DETAIL SECTION                   | MANAGEMENT OFFICE   |
| 93                                   | U-P3-P-Bu-31 | BARU PUMPING STATION COMPLEX | KEYPLAN, DOOR WINDOW SCHEDULE                    | MANAGEMENT OFFICE   |
| 94                                   | U-P3-P-Bu-32 | BARU PUMPING STATION COMPLEX | FOUNDATION PLAN AND DETAIL                       | MANAGEMENT OFFICE   |
| 95                                   | U-P3-P-Bu-33 | BARU PUMPING STATION COMPLEX | COLUMN, TIE BEAM AND FRAMING ELEV.               | MANAGEMENT OFFICE   |
| 96                                   | U-P3-P-Bu-34 | BARU PUMPING STATION COMPLEX | ROOF STRUCTURE PLAN AND TYPICAL                  | MANAGEMENT OFFICE   |
| 97                                   | U-P3-P-Bu-35 | BARU PUMPING STATION COMPLEX | DETAIL TRUSS STRUCTURE                           | MANAGEMENT OFFICE   |
| 98                                   | U-P3-P-Bu-36 | BARU PUMPING STATION COMPLEX | FLOOR PLAN, ROOF PLAN, CEILING PLAN              | STAFF HOUSE   |
| 99                                   | U-P3-P-Bu-37 | BARU PUMPING STATION COMPLEX | SECTION  | STAFF HOUSE   |
| 100                                  | U-P3-P-Bu-38 | BARU PUMPING STATION COMPLEX | INTERIOR ELEVATION AND DETAIL PLAN               | STAFF HOUSE   |
| 101                                  | U-P3-P-Bu-39 | BARU PUMPING STATION COMPLEX | KEYPLAN, DOOR WINDOW SCHEDULE                    | STAFF HOUSE   |
| 102                                  | U-P3-P-Bu-40 | BARU PUMPING STATION COMPLEX | FOUNDATION PLAN AND DETAIL                       | STAFF HOUSE   |
| 103                                  | U-P3-P-Bu-41 | BARU PUMPING STATION COMPLEX | COLUMN, TIE BEAM AND FRAMING ELEV.               | STAFF HOUSE   |
| 104                                  | U-P3-P-Bu-42 | BARU PUMPING STATION COMPLEX | ROOF STRUCTURE PLAN AND TYPICAL                  | STAFF HOUSE   |
| 105                                  | U-P3-P-Bu-43 | BARU PUMPING STATION COMPLEX | DETAIL TRUSS STRUCTURE                           | STAFF HOUSE   |
| 106                                  | U-P3-P-Bu-44 | BARU PUMPING STATION COMPLEX | FLOOR PLAN, ROOF PLAN, CEILING PLAN              | GARAGE  |
| 107                                  | U-P3-P-Bu-45 | BARU PUMPING STATION COMPLEX | ELEVATION  | GARAGE  |
| 108                                  | U-P3-P-Bu-46 | BARU PUMPING STATION COMPLEX | SECTION AND DETAIL SECTION                       | GARAGE  |
| 109                                  | U-P3-P-Bu-47 | BARU PUMPING STATION COMPLEX | INTERIOR ELEVATION AND DETAIL                    | GARAGE  |
| 110                                  | U-P3-P-Bu-48 | BARU PUMPING STATION COMPLEX | KEYPLAN, DOOR WINDOW SCHEDULE                    | GARAGE  |
| 111                                  | U-P3-P-Bu-49 | BARU PUMPING STATION COMPLEX | FOUNDATION PLAN AND DETAIL                       | GARAGE  |
| 112                                  | U-P3-P-Bu-50 | BARU PUMPING STATION COMPLEX | COLUMN, TIE BEAM AND FRAMING ELEV.               | GARAGE  |
| 113                                  | U-P3-P-Bu-51 | BARU PUMPING STATION COMPLEX | ROOF STRUCTURE PLAN AND TYPICAL                  | GARAGE  |
| 114                                  | U-P3-P-Bu-52 | BARU PUMPING STATION COMPLEX | ROOF STRUCTURE TYPICAL AND DETAIL                | GARAGE  |
| <b>BARU PUMPING STATION GATE (G)</b> |              |                              |  |   |
| 115                                  | U-P3-G-C1    | BARU PUMPING STATION GATE    | PLAN AND SECTION                                 |   |
| 116                                  | U-P3-G-C2    | BARU PUMPING STATION GATE    | PLAN AND ELEVATION OF CONTROL HOUSE              |   |
| 117                                  | U-P3-G-C3    | BARU PUMPING STATION GATE    | DETAIL OF WINDOW AND ROOF SEALING                |   |
| 118                                  | U-P3-G-C4    | BARU PUMPING STATION GATE    | PHO-PILE AND STEEL SHEET PILE LAYOUT AND DETAILS |   |
| 119                                  | U-P3-G-C5    | BARU PUMPING STATION GATE    | REINFORCING BAR ARRANGEMENT                      | FOUNDATION AND PER (1/3)                                    |
| 120                                  | U-P3-G-C6    | BARU PUMPING STATION GATE    | REINFORCING BAR ARRANGEMENT                      | FOUNDATION AND PER (2/3)                                    |
| 121                                  | U-P3-G-C7    | BARU PUMPING STATION GATE    | REINFORCING BAR ARRANGEMENT                      | FOUNDATION AND PER (3/3) - REINFORCING BAR BENDING SCHEDULE |
| 122                                  | U-P3-G-C8    | BARU PUMPING STATION GATE    | REINFORCING BAR ARRANGEMENT                      | GATE CONTROL HOUSE (1/3)                                    |
| 123                                  | U-P3-G-C9    | BARU PUMPING STATION GATE    | REINFORCING BAR ARRANGEMENT                      | GATE CONTROL HOUSE (2/3)                                    |
| 124                                  | U-P3-G-C10   | BARU PUMPING STATION GATE    | REINFORCING BAR ARRANGEMENT                      | GATE CONTROL HOUSE (3/3) - REINFORCING BAR BENDING SCHEDULE |
| 125                                  | U-P3-G-C11   | BARU PUMPING STATION GATE    | REINFORCING BAR ARRANGEMENT                      | INSPECTION BRIDGE   |
| 126                                  | U-P3-G-M1    | BARU PUMPING STATION GATE    | GENERAL ARRANGEMENT                              | GATE  |
| 127                                  | U-P3-G-M2    | BARU PUMPING STATION GATE    | DETAIL OF GATE LEAF                              |   |
| 128                                  | U-P3-G-M3    | BARU PUMPING STATION GATE    | DETAIL OF GUIDE FRAME / LAYOUT OF HOIST          |   |
| 129                                  | U-P3-G-M4    | BARU PUMPING STATION GATE    | STOP LOGS  |   |
| 130                                  | U-P3-G-M1    | BARU PUMPING STATION GATE    | DETAIL OF STAIRWAY                               |   |
| <b>BARU RETARDING POND (RP)</b>      |              |                              |  |   |
| 131                                  | U-P3-RP-1    | BARU RETARDING POND          | PLAN   |   |
| 132                                  | U-P3-RP-1V-1 | BARU RETARDING POND          | REVERMENT (HEI MASCARY TYPE A-4)                 |   |
| 133                                  | U-P3-RP-M1   | BARU RETARDING POND          | INLET NO. 1 (1/2)                                | PLAN AND SECTION  |
| 134                                  | U-P3-RP-M2   | BARU RETARDING POND          | INLET NO. 1 (2/2)                                | REINFORCING BAR ARRANGEMENT                                 |
| 135                                  | U-P3-RP-M3   | BARU RETARDING POND          | INLET NO. 2 (1/2)                                | PLAN AND SECTION  |
| 136                                  | U-P3-RP-M4   | BARU RETARDING POND          | INLET NO. 2 (2/2)                                | REINFORCING BAR ARRANGEMENT                                 |
| 137                                  | U-P3-RP-M5   | BARU RETARDING POND          | BARU CONVEYANCE CHANNEL INLET (1/3)              | PLAN AND SECTION  |
| 138                                  | U-P3-RP-M6   | BARU RETARDING POND          | BARU CONVEYANCE CHANNEL INLET (2/3)              | BOX CULVERT REINFORCING BAR ARRANGEMENT                     |
| 139                                  | U-P3-RP-M7   | BARU RETARDING POND          | BARU CONVEYANCE CHANNEL INLET (3/3)              | WING WALL REINFORCING BAR ARRANGEMENT                       |

| SHEET  |              | DRAWING                            |  | TITLE OF DRAWING     |                                   |  |
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| No   | No           | 1 <sup>st</sup> LINE               | 2 <sup>nd</sup> LINE                     | 3 <sup>rd</sup> LINE |                                   |  |
| <b>BARU CONVEYANCE CHANNEL (CO)</b>            |              |                                    |  |                      |                                   |  |
| 140  | U-P3-CO-P1-1 | BARU CONVEYANCE CHANNEL            | PLAN (1/3)                               |                      |                                   |  |
| 141  | U-P3-CO-P1-2 | BARU CONVEYANCE CHANNEL            | PLAN (2/3)                               |                      |                                   |  |
| 142  | U-P3-CO-P1-3 | BARU CONVEYANCE CHANNEL            | PLAN (3/3)                               |                      |                                   |  |
| 143  | U-P3-CO-L1-1 | BARU CONVEYANCE CHANNEL            | LONGITUDINAL SECTION AND CROSS SECTION   |                      |                                   |  |
| 144  | U-P3-CO-C1-1 | BARU CONVEYANCE CHANNEL            | REINFORCING BAR ARRANGEMENT              |                      |                                   |  |
| 145  | U-P3-CO-C1-2 | BARU CONVEYANCE CHANNEL            | MANHOLE TYPE - A                         |                      | REINFORCING BAR ARRANGEMENT       |  |
| 146  | U-P3-CO-C1-3 | BARU CONVEYANCE CHANNEL            | MANHOLE TYPE - B                         |                      | REINFORCING BAR ARRANGEMENT (1/3) |  |
| 147  | U-P3-CO-C1-4 | BARU CONVEYANCE CHANNEL            | MANHOLE TYPE - B                         |                      | REINFORCING BAR ARRANGEMENT (2/3) |  |
| 148  | U-P3-CO-C1-5 | BARU CONVEYANCE CHANNEL            | MANHOLE TYPE - B                         |                      | REINFORCING BAR ARRANGEMENT (3/3) |  |
| 149  | U-P3-CO-C1-6 | BARU CONVEYANCE CHANNEL            | CURVE STRUCTURE                          |                      | REINFORCING BAR ARRANGEMENT (1/4) |  |
| 150  | U-P3-CO-C1-7 | BARU CONVEYANCE CHANNEL            | CURVE STRUCTURE                          |                      | REINFORCING BAR ARRANGEMENT (2/4) |  |
| 151  | U-P3-CO-C1-8 | BARU CONVEYANCE CHANNEL            | CURVE STRUCTURE                          |                      | REINFORCING BAR ARRANGEMENT (3/4) |  |
| 152  | U-P3-CO-C1-9 | BARU CONVEYANCE CHANNEL            | CURVE STRUCTURE                          |                      | REINFORCING BAR ARRANGEMENT (4/4) |  |
| <b>BANDARHARJO WEST SECONDARY CHANNEL (WS)</b> |              |                                    |  |                      |                                   |  |
| 153  | U-P3-WS-P1-1 | BANDARHARJO WEST SECONDARY CHANNEL | PLAN (1/2)                               |                      |                                   |  |
| 154  | U-P3-WS-P1-2 | BANDARHARJO WEST SECONDARY CHANNEL | PLAN (2/2)                               |                      |                                   |  |
| 155  | U-P3-WS-L1-1 | BANDARHARJO WEST SECONDARY CHANNEL | LONGITUDINAL SECTION AND TYPICAL SECTION |                      |                                   |  |
| <b>BANDARHARJO EAST SECONDARY CHANNEL (ES)</b> |              |                                    |  |                      |                                   |  |
| 156  | U-P3-ES-P1-1 | BANDARHARJO EAST SECONDARY CHANNEL | PLAN                                     |                      |                                   |  |
| 157  | U-P3-ES-L1-1 | BANDARHARJO EAST SECONDARY CHANNEL | LONGITUDINAL SECTION                     |                      |                                   |  |
| 158  | U-P3-ES-C1-1 | BANDARHARJO EAST SECONDARY CHANNEL | REINFORCING BAR ARRANGEMENT              |                      |                                   |  |
| 159  | U-P3-ES-C1-2 | BANDARHARJO EAST SECONDARY CHANNEL | MANHOLE TYPE-A                           |                      | REINFORCING BAR ARRANGEMENT       |  |
| 160  | U-P3-ES-C1-5 | BANDARHARJO EAST SECONDARY CHANNEL | CURVE STRUCTURE                          |                      | REINFORCING BAR ARRANGEMENT (1/3) |  |
| 161  | U-P3-ES-C1-6 | BANDARHARJO EAST SECONDARY CHANNEL | CURVE STRUCTURE                          |                      | REINFORCING BAR ARRANGEMENT (2/3) |  |
| 162  | U-P3-ES-C1-7 | BANDARHARJO EAST SECONDARY CHANNEL | CURVE STRUCTURE                          |                      | REINFORCING BAR ARRANGEMENT (3/3) |  |



KEL. BANDARHARJO  
KEC. SEMARANG UTARA

SCALE 0 50 100 150 200m  
SCALE 1 : 2,500

| NO | DATE | REVISIONS | ORIGINATED | DESIGNED | APPROVED |
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| THE REPUBLIC OF INDONESIA<br>MINISTRY OF PUBLIC WORKS<br>DIRECTORATE GENERAL OF WATER RESOURCES DEVELOPMENT<br>AND DIRECTORATE GENERAL OF HUMAN SETTLEMENT<br>JATUNSELUNA FLOOD CONTROL PROJECT<br>COMPONENT : URBAN DRAINAGE SYSTEM IMPROVEMENT<br><b>PLAN OF THE WORKS</b> |                         | PROVINCE<br>CENTRAL JAVA<br>PROJECT NAME<br>FLOOD CONTROL, URBAN DRAINAGE AND<br>WATER SERVICES DEVELOPMENT OF<br>SEMARANG IN THE REPUBLIC OF INDONESIA<br>DISTRICT<br>SEMARANG CITY<br>DRAWING NO. U - P3 - 8<br>SHEET NO. 1<br>DATE<br>CONTRACT NO. |
| JAPAN INTERNATIONAL COOPERATION AGENCY<br>JICA ENGINEERING CO. LTD. IN ASSOCIATION WITH<br>PACIFIC CONSULTANTS INTERNATIONAL AND<br>PACO INTERNATIONAL INC.<br>CHIEF OF PLANNING AND DESIGN<br>PROJECT MANAGER   | DESIGNED<br>CHECKED<br> | DATE<br>CONTRACT NO.  |

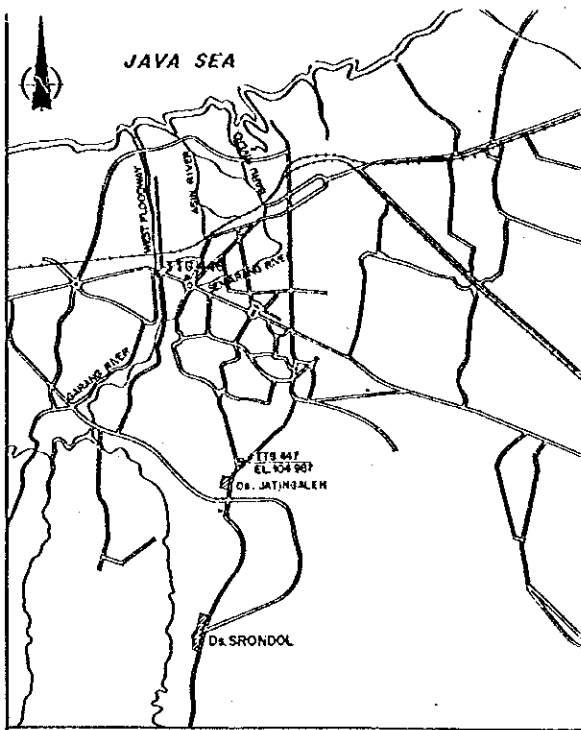
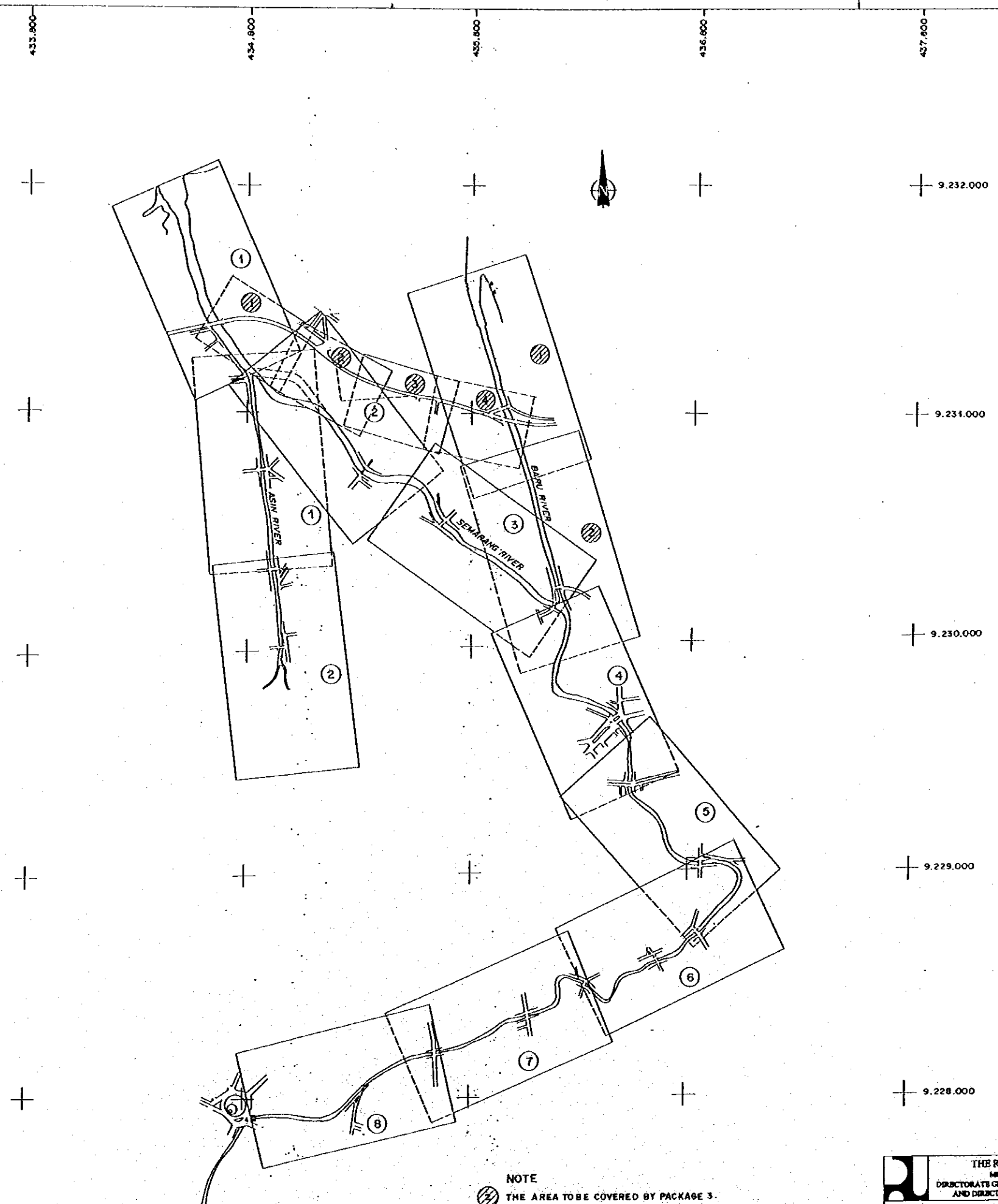


TABLE OF LOCATION AND ELEVATION OF BENCH MARK

| STATION  | LATITUDE      | LONGITUDE   | ELEVATION |
|----------|---------------|-------------|-----------|
| TTG. 446 | 9,228,004.682 | 434,777.817 | -         |
| TTG. 447 | -             | -           | 104.987   |



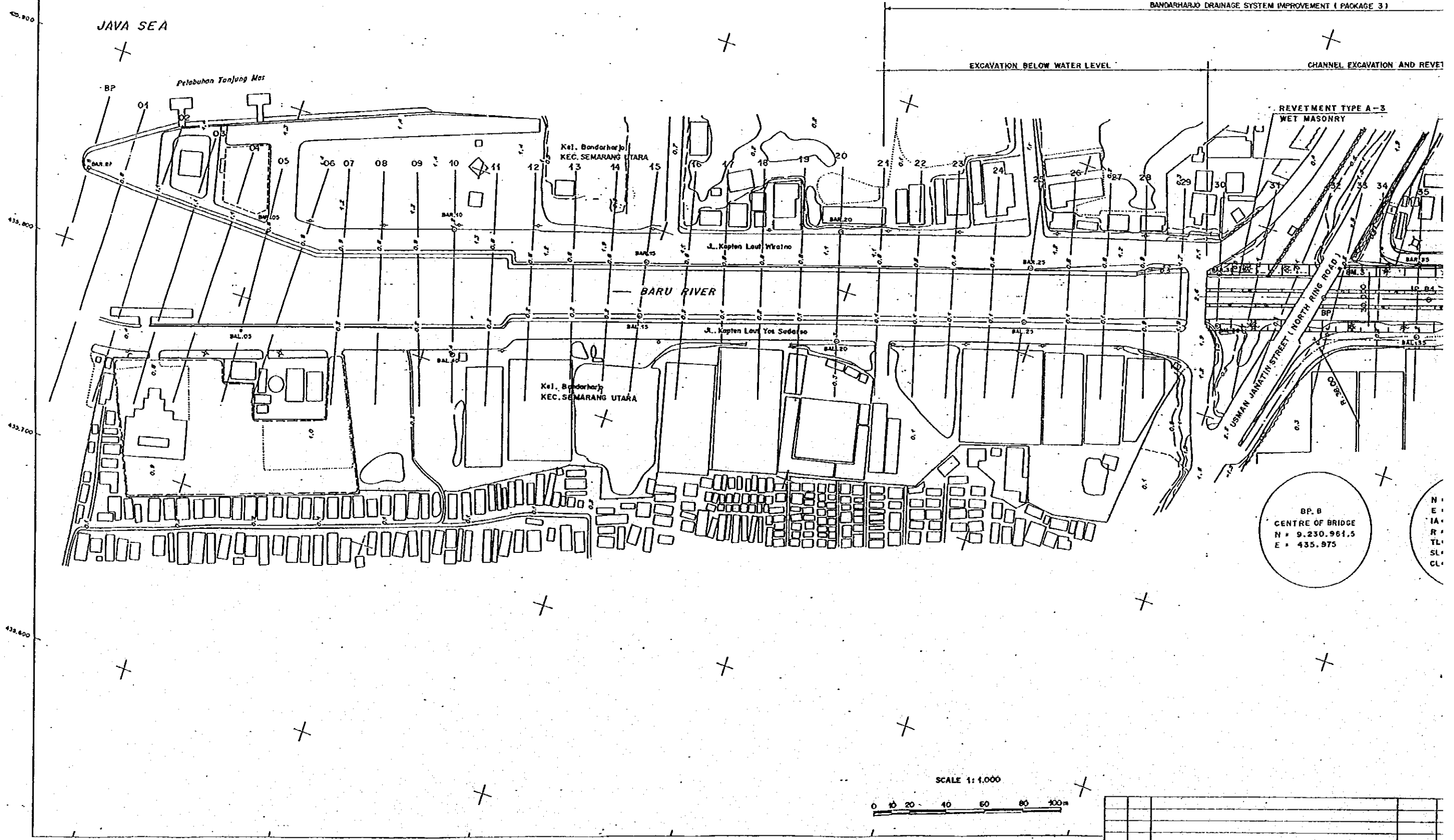
NOTE  
 (Symbol) THE AREA TO BE COVERED BY PACKAGE 3.

| NO. | DATE | REVISIONS | ORIGINATED | DESIGNED | APPROVED |
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| <b>THE REPUBLIC OF INDONESIA</b><br>MINISTRY OF PUBLIC WORKS<br>DIRECTORATE GENERAL OF WATER RESOURCES DEVELOPMENT<br>AND DIRECTORATE GENERAL OF HUMAN SETTLEMENT |  | PROVINCE<br>CENTRAL JAVA  |
| JATUNGSILUNA FLOOD CONTROL PROJECT<br>COMPONENT : URBAN DRAINAGE SYSTEM IMPROVEMENT<br><b>KEY MAP OF PLAN</b><br><b>PACKAGE 3</b>                                 |  | PROJECT NAME<br>FLOOD CONTROL, URBAN DRAINAGE AND<br>WATER RESOURCES DEVELOPMENT IN<br>SEMARANG IN THE REPUBLIC OF INDONESIA<br>DISTRICT<br>SEMARANG CITY<br>DRAWING NO. U - P3 - B - P1 - 1<br>SHEET NO. 2 |
| JAWA INTERNATIONAL COOPERATION AGENCY<br>CTE ENGINEERING CO., LTD. IN ASSOCIATION WITH<br>PACIFIC CONSULTANTS INTERNATIONAL AND<br>PASCO INTERNATIONAL INC.       | DESIGNED<br>CHECKED<br>CHIEF OF PLANNING AND DESIGN<br>PROJECT MANAGER | DATE<br>CONTRACT NO.  |



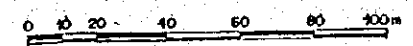
1



BP. B  
CENTRE OF BRIDGE  
N = 9.230.961.5  
E = 435.975

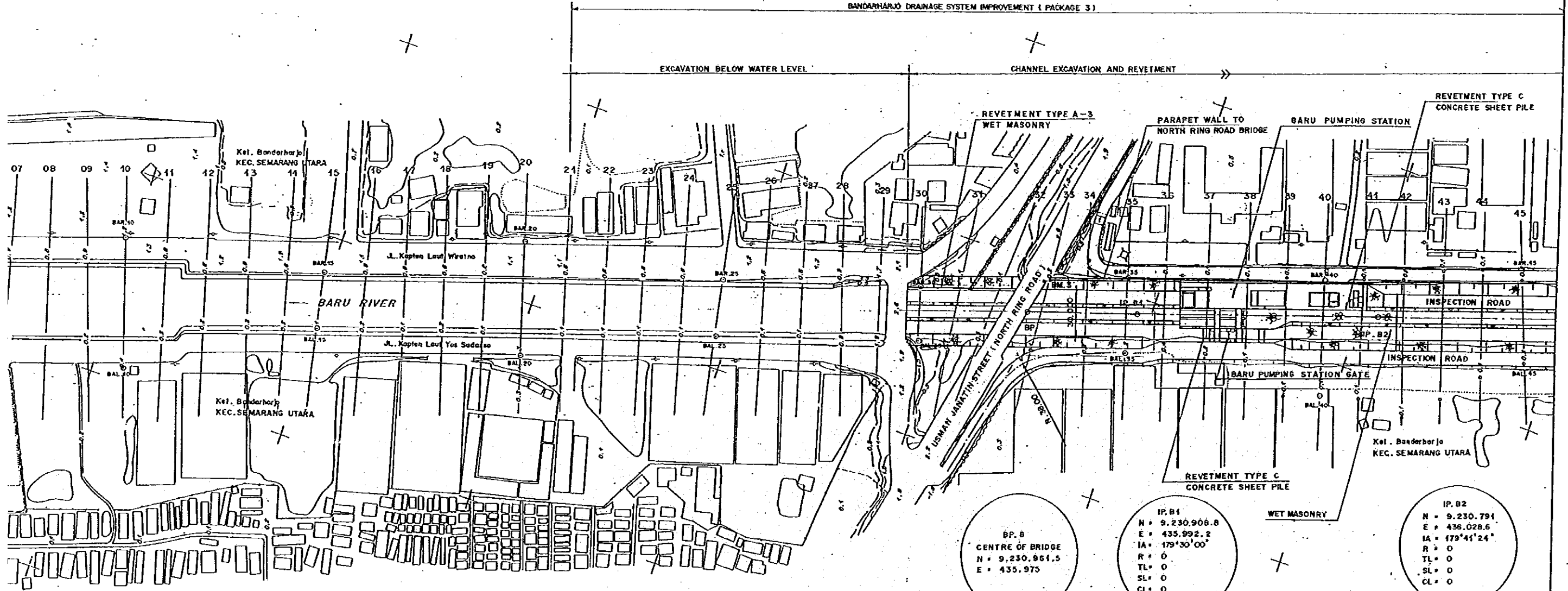
N  
E  
IA  
R  
TL  
SL  
CL

SCALE 1:1,000



| NO. | DATE | REVISIONS | ORIGINATED |
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BANDARHARJO DRAINAGE SYSTEM IMPROVEMENT ( PACKAGE 3 )



BP. B  
CENTRE OF BRIDGE  
N = 9.230.964,5  
E = 435.975

IP. B1  
N = 9.230.908,8  
E = 435.992,2  
IA = 179°30'00"  
R = 0  
TL = 0  
SL = 0  
CL = 0

IP. B2  
N = 9.230.791  
E = 436.028,6  
IA = 179°41'24"  
R = 0  
TL = 0  
SL = 0  
CL = 0

NOTE : 1) DETAIL OF REVETMENT NEAR BARU PUMPING STATION ,  
SEE DRAWING "BARU PUMPING STATION REVETMENT AND  
TRANSITION TREATMENT"  
2) REVETMENT TYPE A-3 IS APPLIED FOR PROTECTION OF  
SLOPE OF BARU RIVER

SCALE 1:1.000



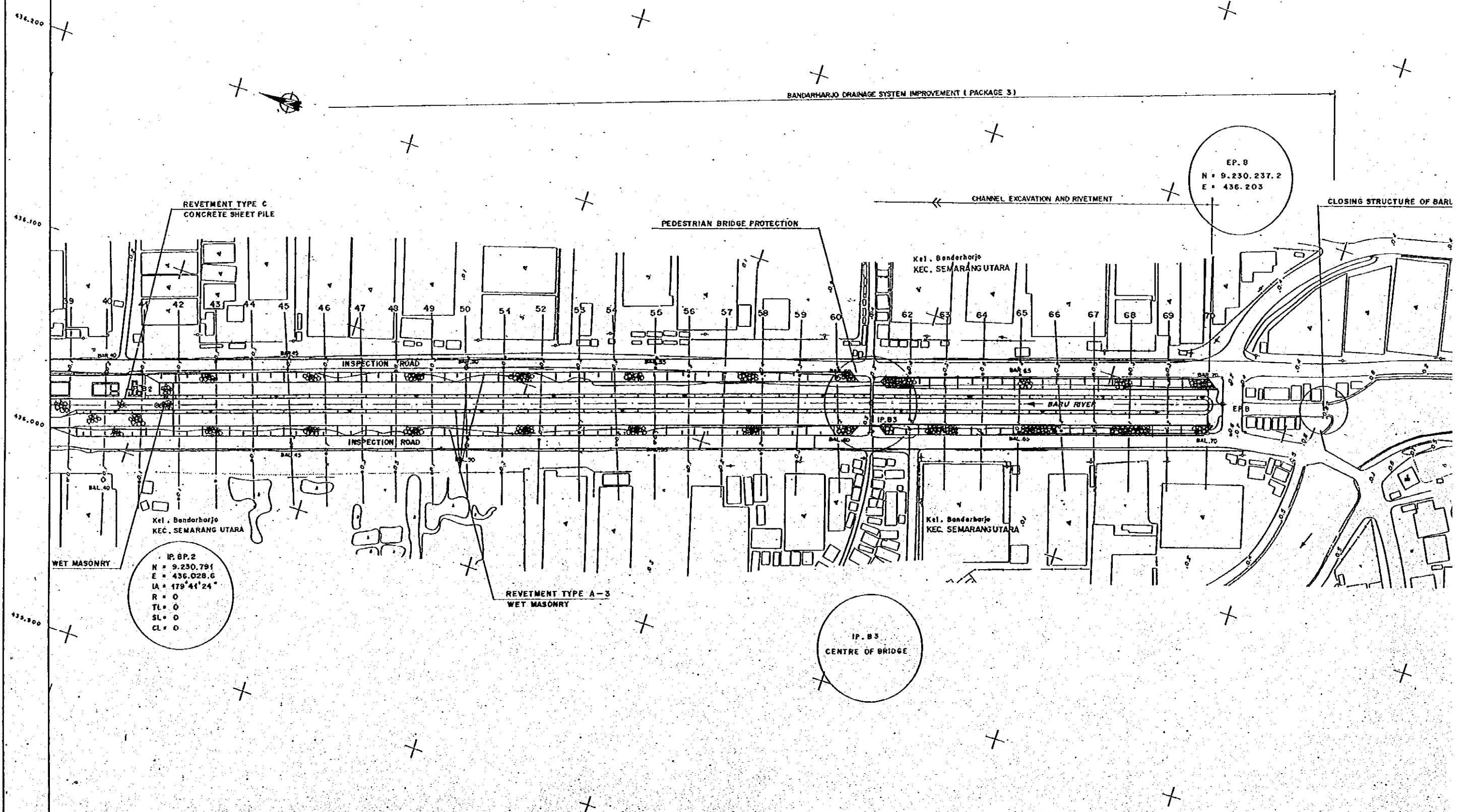
| NO. | DATE | REVISIONS | ORIGINATED | DESIGNED | APPROVED |
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| THE REPUBLIC OF INDONESIA<br>MINISTRY OF PUBLIC WORKS<br>DIRECTORATE GENERAL OF WATER RESOURCES DEVELOPMENT<br>AND DIRECTORATE GENERAL OF HUMAN SETTLEMENT   |       | PROVIDER<br>CENTRAL JAWA   |
| RIATUNSELUNA FLOOD CONTROL PROJECT<br>COMPONENT : URBAN DRAINAGE SYSTEM IMPROVEMENT<br>BARU RIVER<br>PLAN  |       | PROJECT NAME<br>FLOOD CONTROL, URBAN DRAINAGE AND<br>WATER RESOURCES DEVELOPMENT IN<br>SEMARANG IN THE REPUBLIC OF INDONESIA |
| JAPAN INTERNATIONAL COOPERATION AGENCY<br>CITY ENGINEERING CO. LTD. IN ASSOCIATION WITH<br>PACIFIC CONSULTANTS INTERNATIONAL AND<br>PASCO INTERNATIONAL ETC. |       | DISTRICT<br>SEMARANG CITY  |
| DESIGNED<br>CHECKED  | DATE  | SHEET NO.<br>3   |
| CHIEF OF PLANNING AND DESIGN<br>PROJECT MANAGER  | (1/2) | CONTRACT NO.   |

2

BANDARHARJO DRAINAGE SYSTEM IMPROVEMENT ( PACKAGE 3 )

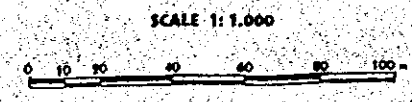
EP. 8  
N = 9.230.237.2  
E = 436.203



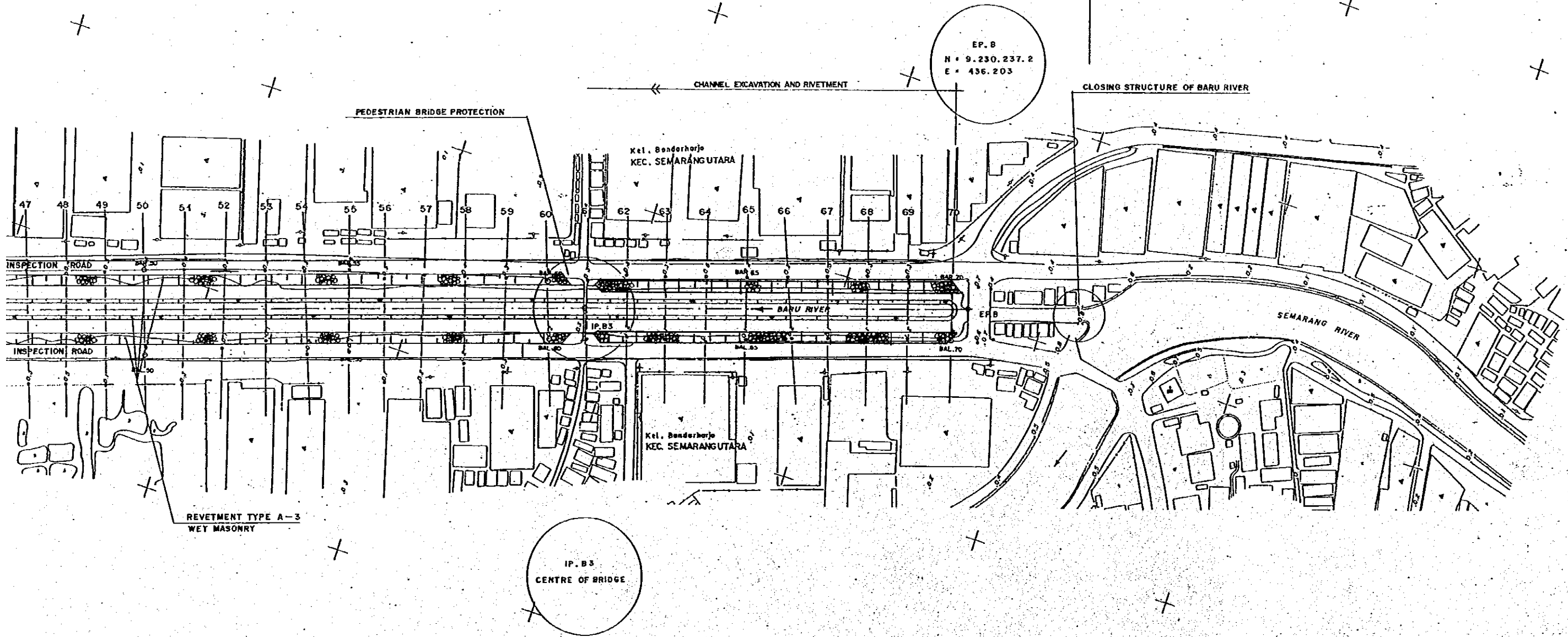
IP. BP. 2  
N = 9.230.791  
E = 436.028.6  
IA = 179°44'24"  
R = 0  
TL = 0  
SL = 0  
CL = 0

IP. B3  
CENTRE OF BRIDGE

| NAME  | NORTHING      | EASTING     | ELEVATION | NAME  | NORTHING      | EASTING     | ELEVATION |
|-------|---------------|-------------|-----------|-------|---------------|-------------|-----------|
| BAL40 | 9,230,807.087 | 436,988.704 | -0.031    | BAR40 | 9,230,822.803 | 436,036.422 | 0.215     |
| BAL50 | 9,230,680.460 | 436,060.160 | -0.080    | BAR50 | 9,230,633.149 | 436,098.828 | 0.352     |
| BAL60 | 9,230,432.453 | 436,127.059 | 0.152     | BAR60 | 9,230,441.533 | 436,152.749 | 0.242     |
| BAL70 | 9,230,240.941 | 436,186.993 | 0.162     | BAR70 | 9,230,248.472 | 436,211.525 | 0.219     |
| BALEP | 9,230,183.139 | 436,220.935 | 0.664     | BARBP | 9,230,180.132 | 436,235.069 | 0.619     |



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| NO. | DATE | REVISIONS | ORIGINATED | DESIGNED |
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| ELEVATION | NAME  | NORTHING      | EASTING     | ELEVATION |
|-----------|-------|---------------|-------------|-----------|
| -0.031    | BAR40 | 9,230,822.803 | 436,026.422 | 0.215     |
| -0.080    | BAR50 | 9,230,632.149 | 436,098.888 | 0.352     |
| 0.152     | BAR60 | 9,230,441.533 | 436,152.749 | 0.242     |
| 0.162     | BAR70 | 9,230,248.472 | 436,211.525 | 0.219     |
| 0.664     | BAR6P | 9,230,180.132 | 436,235.069 | 0.619     |

SCALE 1:1,000

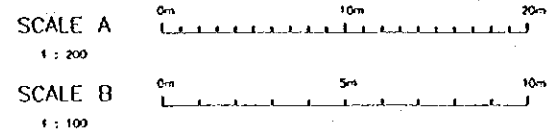
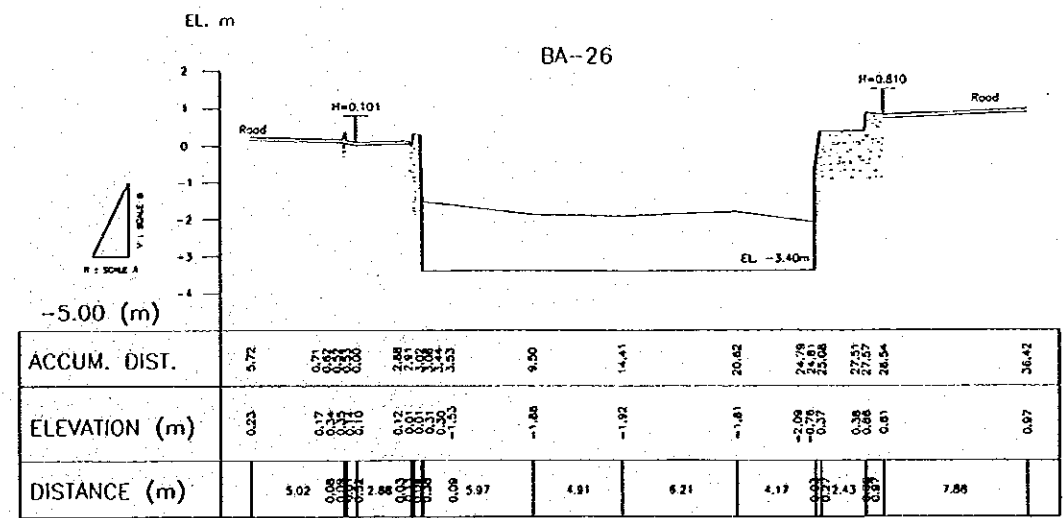
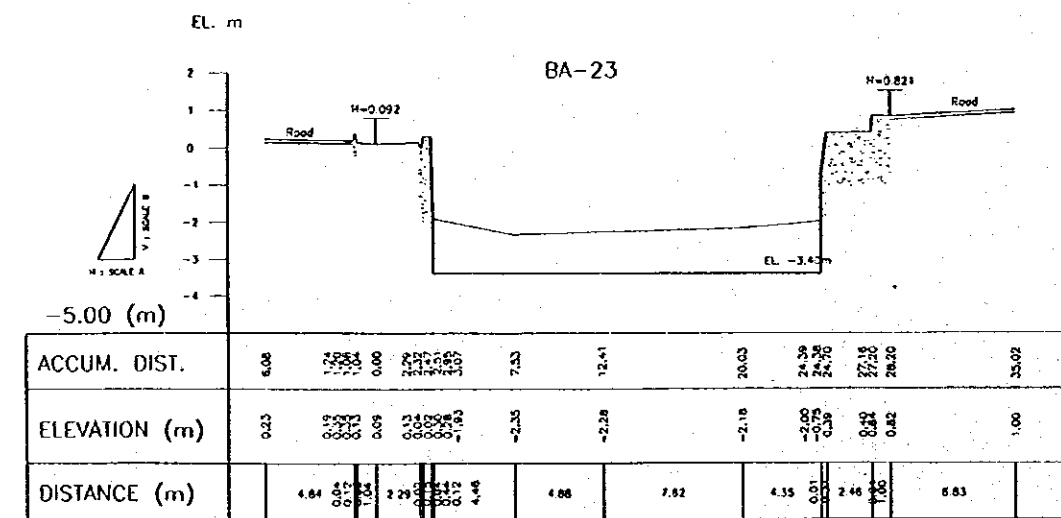
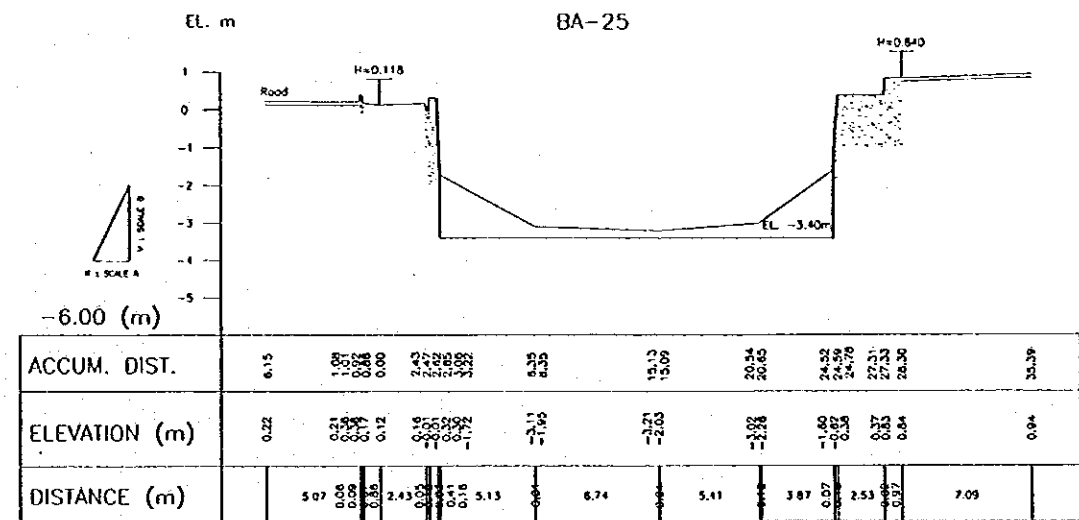
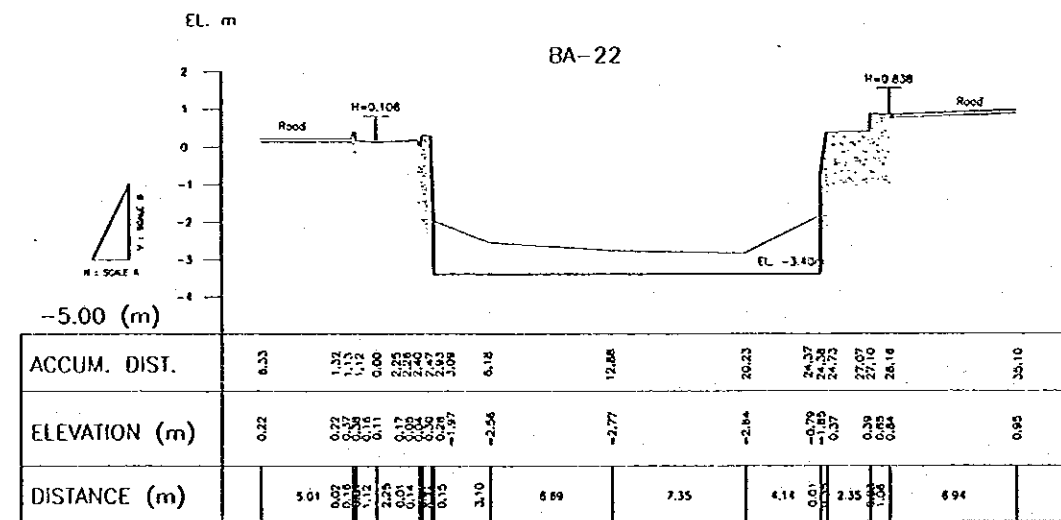
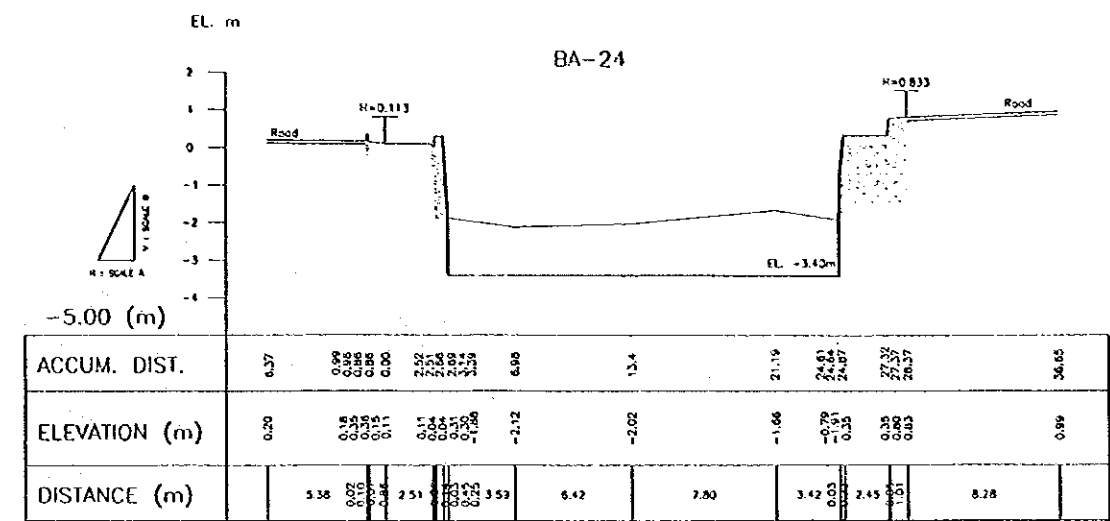
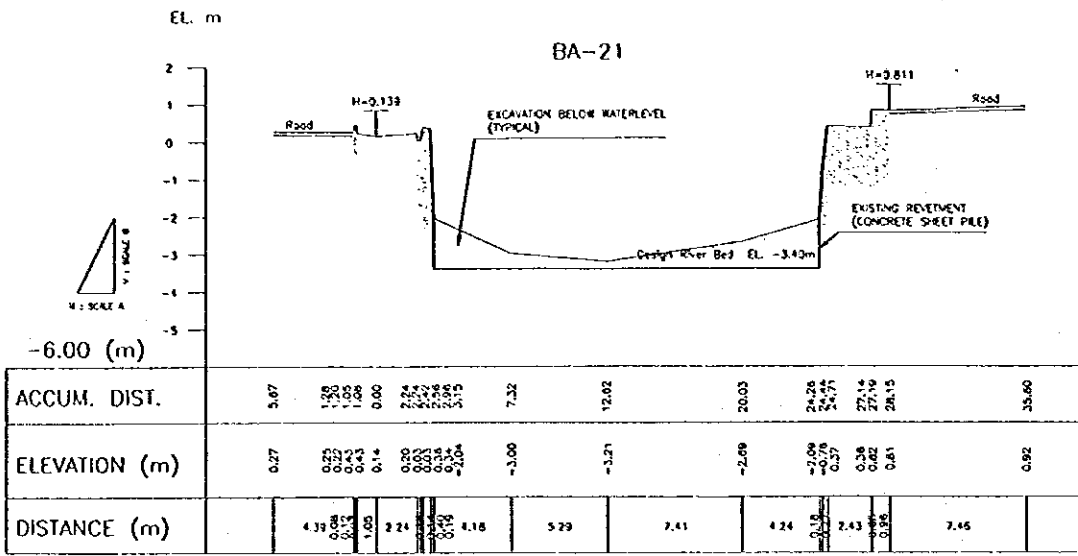


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NOTE : REVETMENT TYPE A-3 IS APPLIED FOR PROTECTION OF SLOPE OF BARU RIVER

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| THE REPUBLIC OF INDONESIA<br>MINISTRY OF PUBLIC WORKS<br>DIRECTORATE GENERAL OF WATER RESOURCES DEVELOPMENT AND DIRECTORATE GENERAL OF HUMAN SETTLEMENT        |  | PROVINCE<br>CENTRAL JAVA   |
| IRATUNSELUNA FLOOD CONTROL PROJECT<br>COMPONENT : URBAN DRAINAGE SYSTEM IMPROVEMENT<br>BARU RIVER PLAN   |  | PROJECT NAME<br>FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA |
| JAPAN INTERNATIONAL COOPERATION AGENCY<br>CITY ENGINEERING CO., LTD. IN ASSOCIATION WITH<br>PACIFIC CONSULTANTS INTERNATIONAL AND<br>JACOBS INTERNATIONAL INC. |  | DISTRICT<br>SEMARANG CITY  |
| DESIGNED<br>CHECKED  |  | DRAWING NO. U-P8-B-PL-5<br>SHEET NO. 4   |
| CHIEF OF PLANNING AND DESIGN<br>PROJECT MANAGER  |  | DATE<br>CONTRACT NO.   |





| NO. | DATE | REVISIONS | ORIGINATED | DESIGNED | APPROVED |
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THE REPUBLIC OF INDONESIA  
MINISTRY OF PUBLIC WORKS  
DIRECTORATE GENERAL OF WATER RESOURCES DEVELOPMENT  
AND DIRECTORATE GENERAL OF HUMAN SETTLEMENT

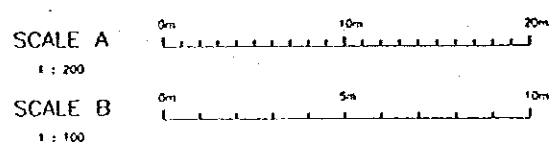
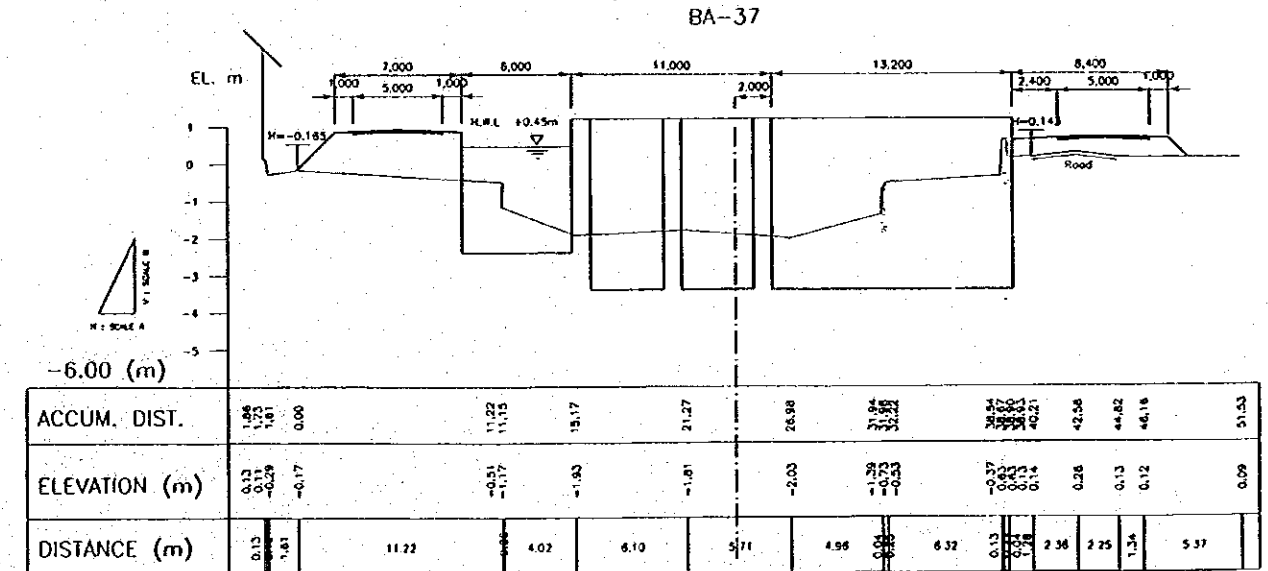
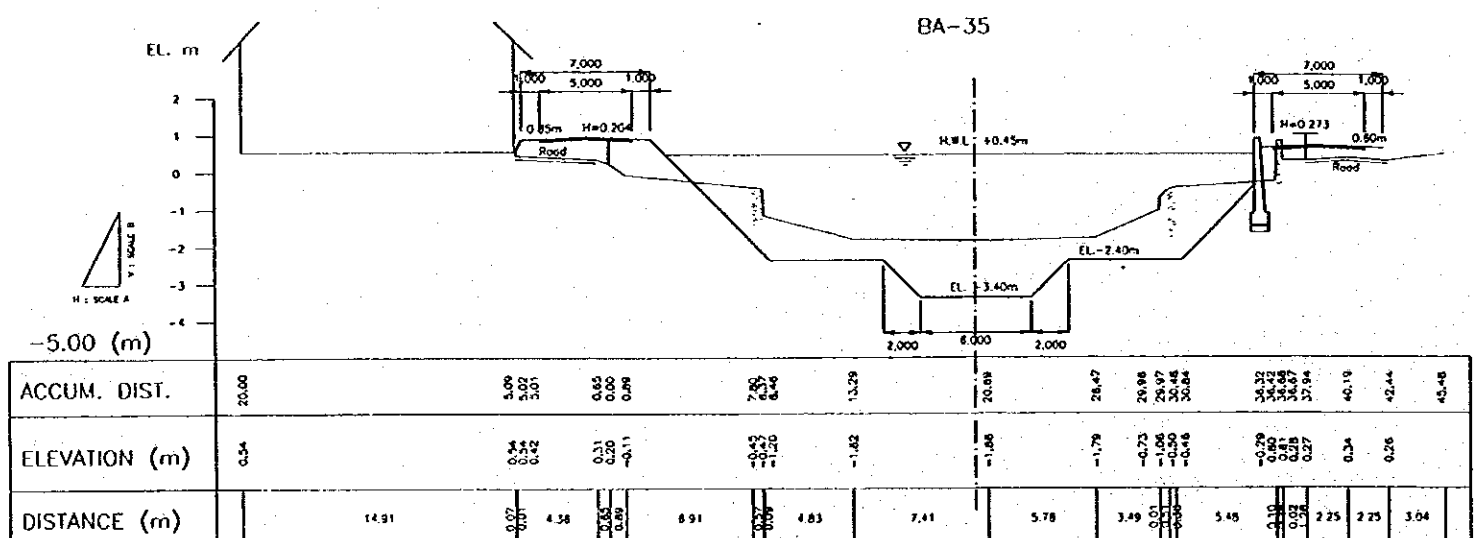
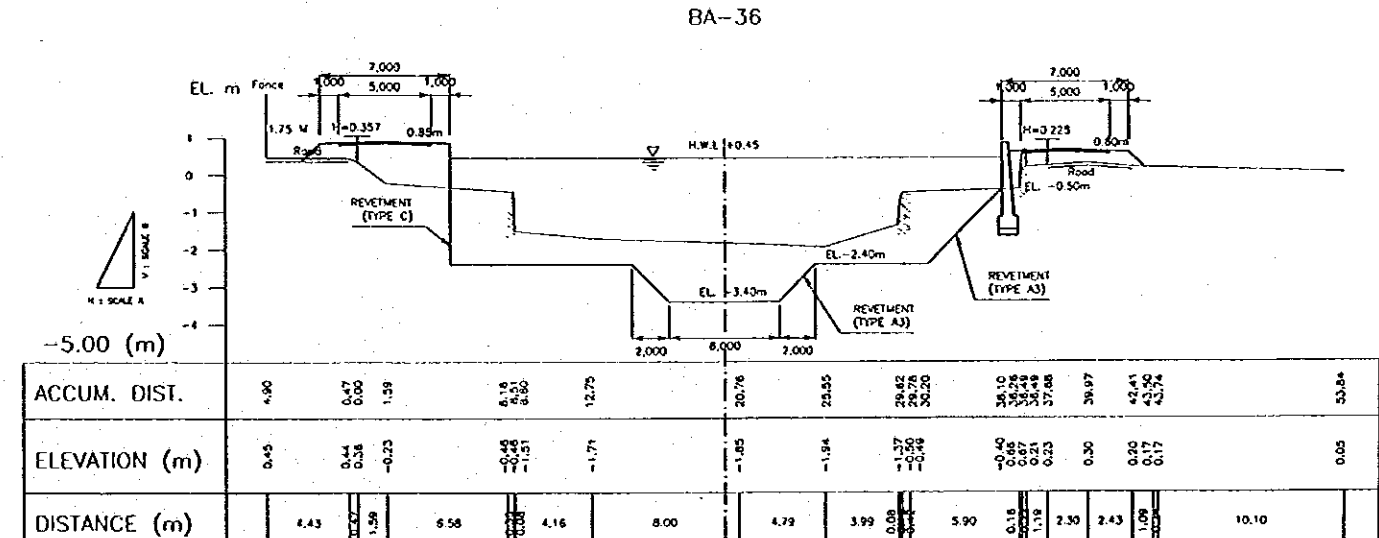
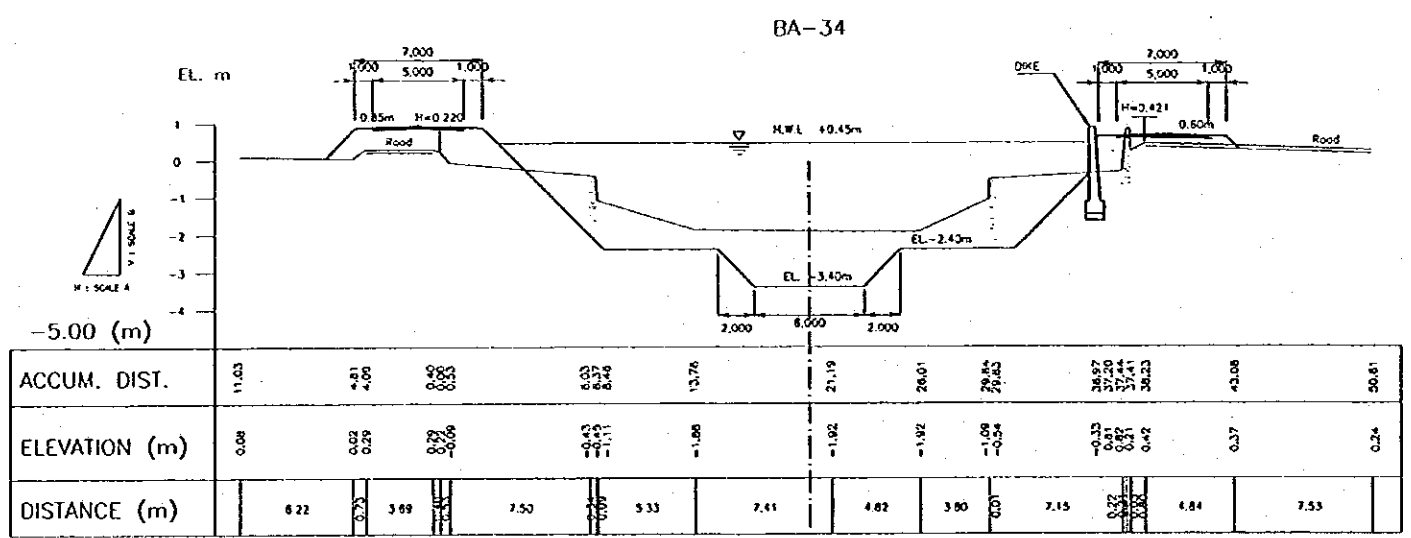
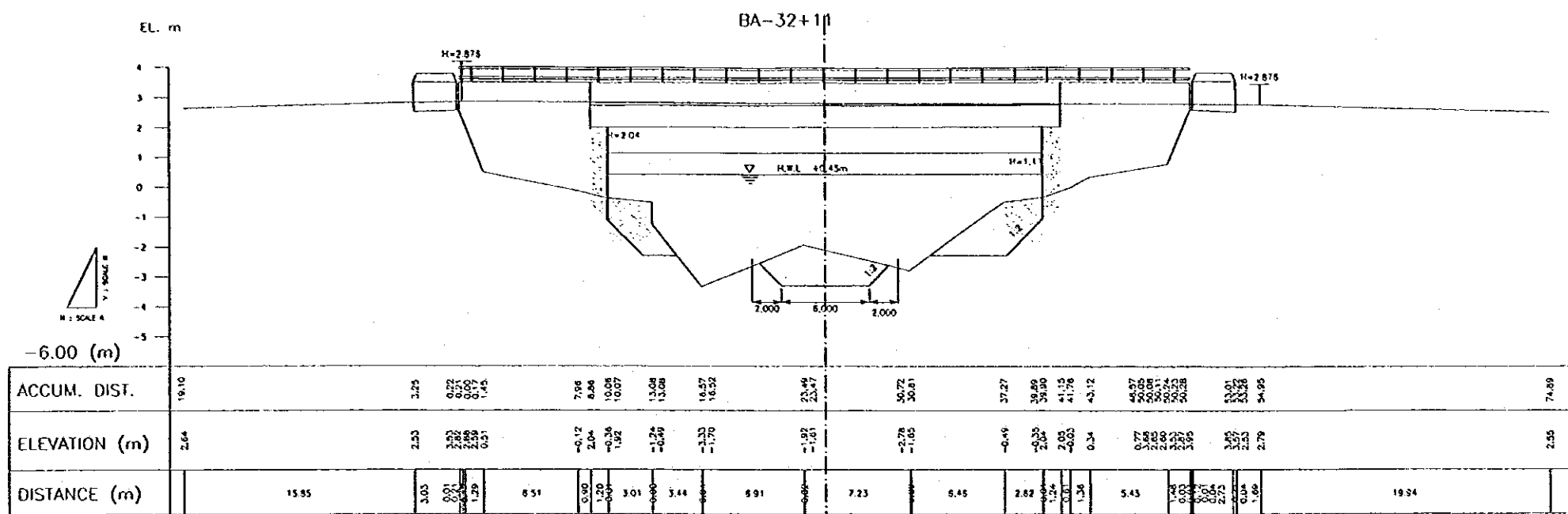
SEMARANG CITY  
BARU RIVER  
CROSS SECTION (U/13)

DATE: \_\_\_\_\_ CONTRACT NO.: \_\_\_\_\_

PROJECT MANAGER: \_\_\_\_\_







| NO. | DATE | REVISIONS | ORIGINATED | DESIGNED | APPROVED |
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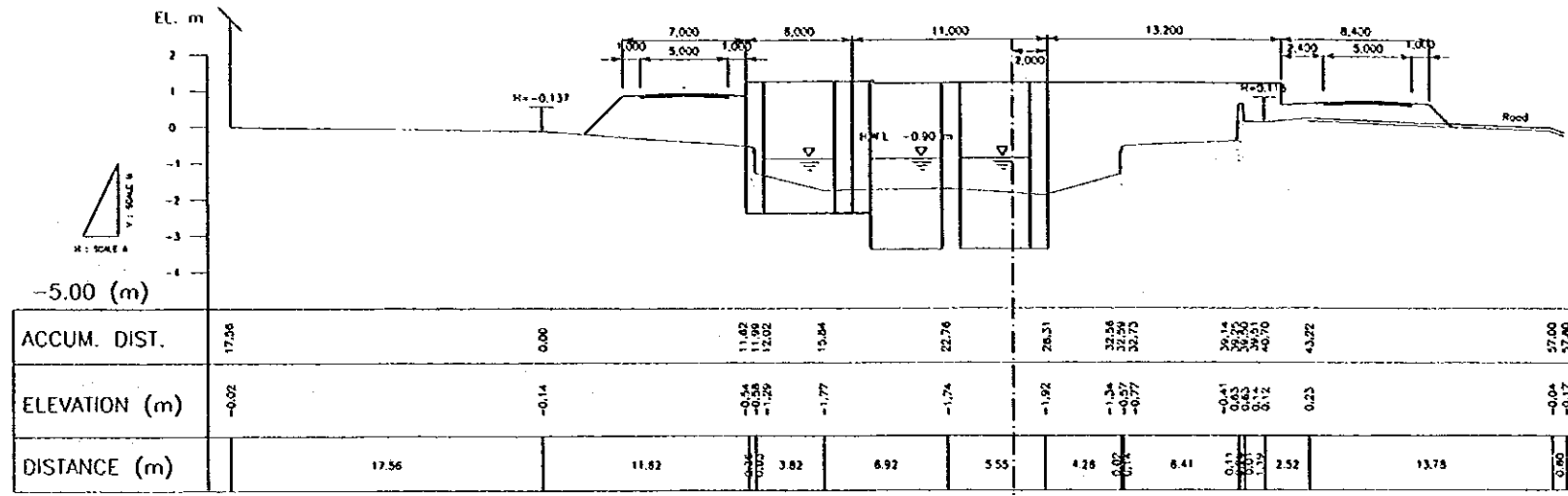
THE REPUBLIC OF INDONESIA  
 MINISTRY OF PUBLIC WORKS  
 DIRECTORATE GENERAL OF WATER RESOURCES DEVELOPMENT  
 AND DIRECTORATE GENERAL OF HUMAN SETTLEMENT

SRAGEN  
 BARU RIVER  
 CROSS SECTION (M12)

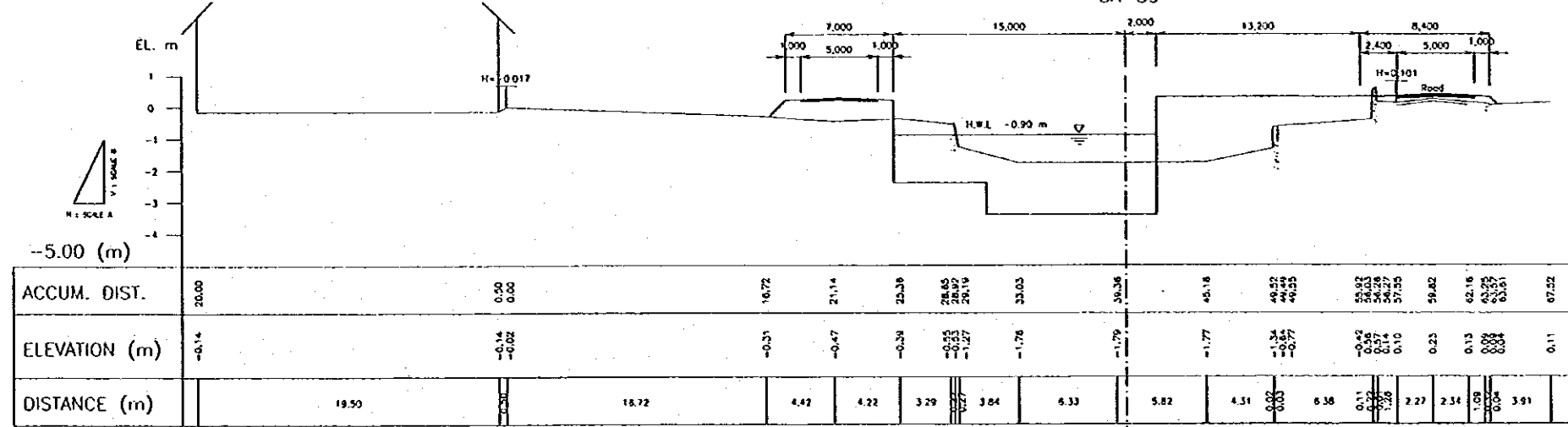
DATE: 8  
 CONTRACT NO.:



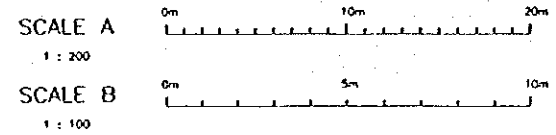
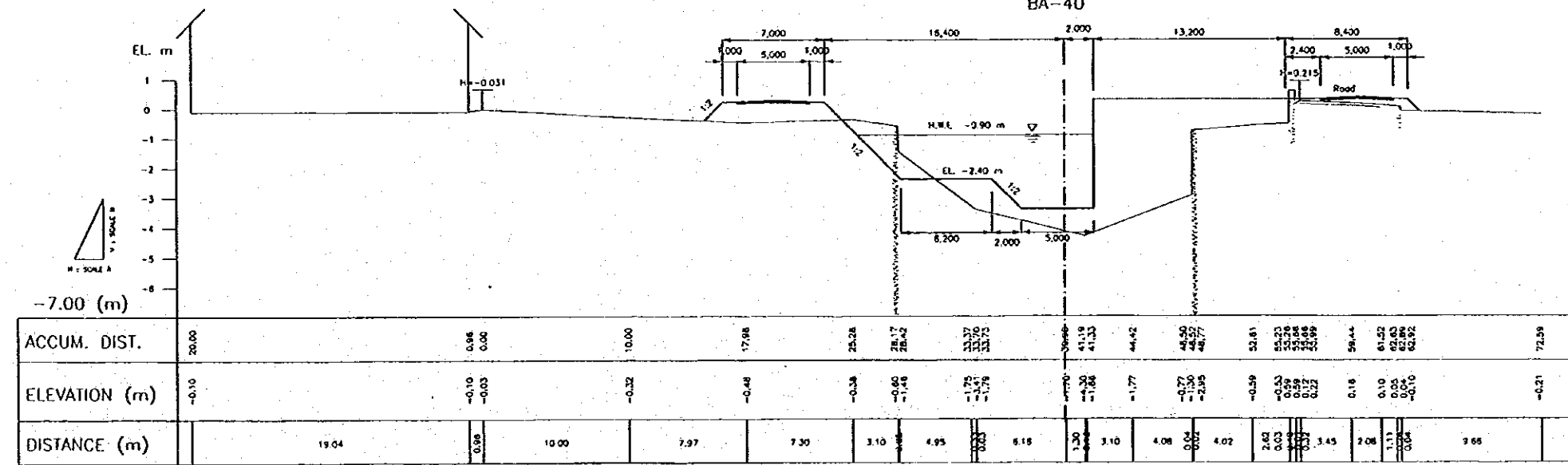
BA-38



BA-39



BA-40



| NO. | DATE | REVISION | ORIGINATOR | DESIGNER | APPROVER |
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THE REPUBLIC OF INDONESIA  
 MINISTRY OF PUBLIC WORKS  
 DIRECTORATE GENERAL OF WATER RESOURCES DEVELOPMENT AND DIRECTORATE GENERAL OF HUMAN SETTLEMENT

PROVINCE: CENTRAL JAWA  
 PROJECT NAME: FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA  
 DISTRICT: SEMARANG CITY  
 DRAWING NO.: U-P3-B-Cr-4  
 SHEET NO.: 9

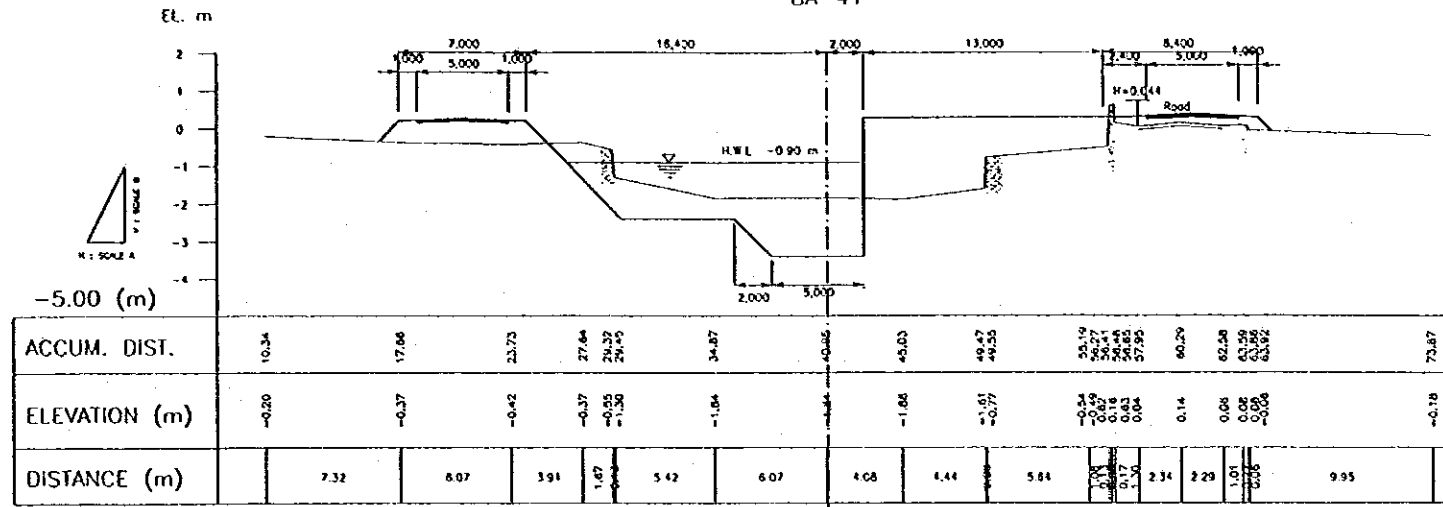
SEMARANG FLOOD CONTROL PROJECT  
 COMPONENT: URBAN DRAINAGE SYSTEM IMPROVEMENT  
 BARIU RIVER  
 CROSS SECTION (4/17)

JAPAN INTERNATIONAL COOPERATION AGENCY  
 CII (CONSULTING) CO., LTD. IN ASSOCIATION WITH  
 PACIFIC CONSULTANTS INTERNATIONAL AND  
 PACIFIC ENGINEERING CONSULTANTS

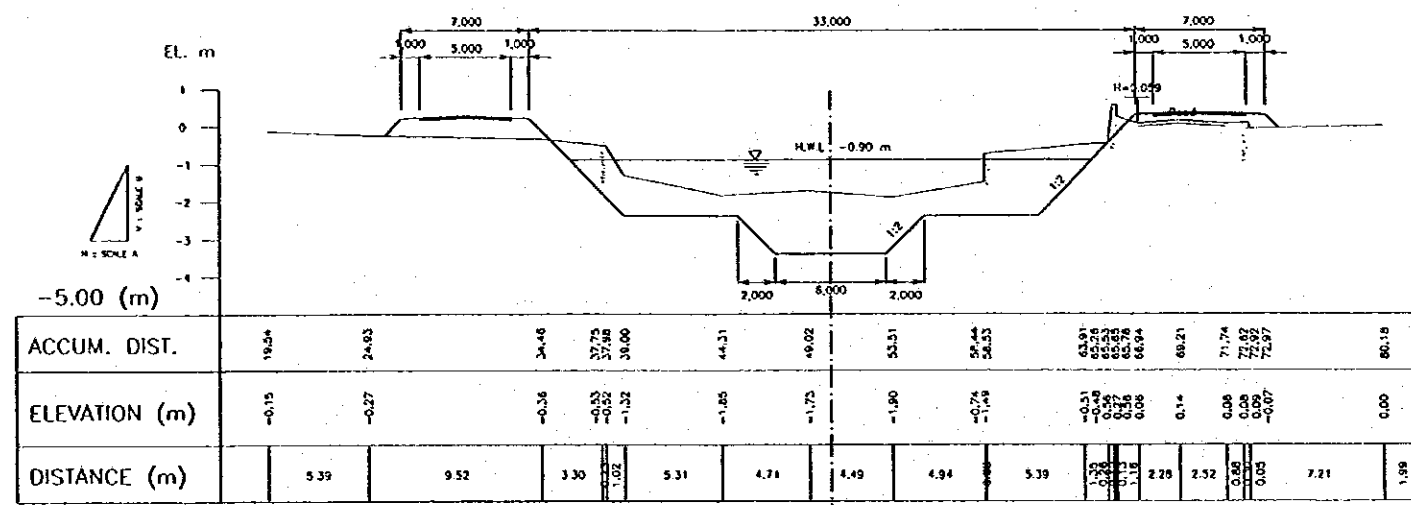
APPROVED: [Signature]  
 PROJECT MANAGER

DATE: [ ] [ ] [ ] [ ] [ ] [ ]

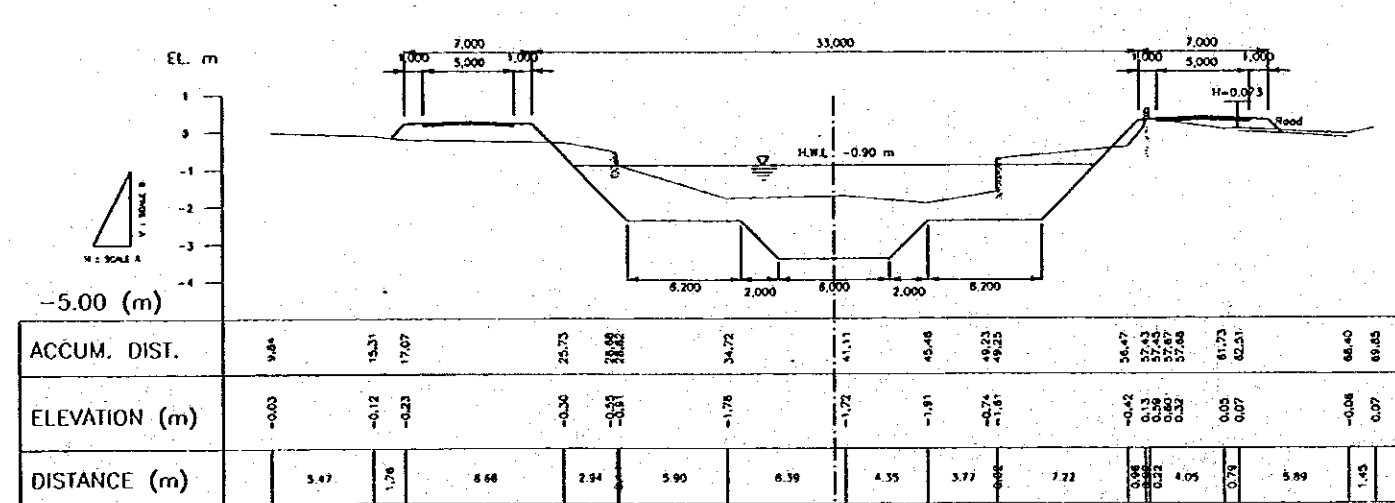
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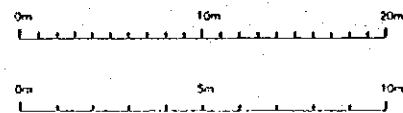
BA-42



BA-43



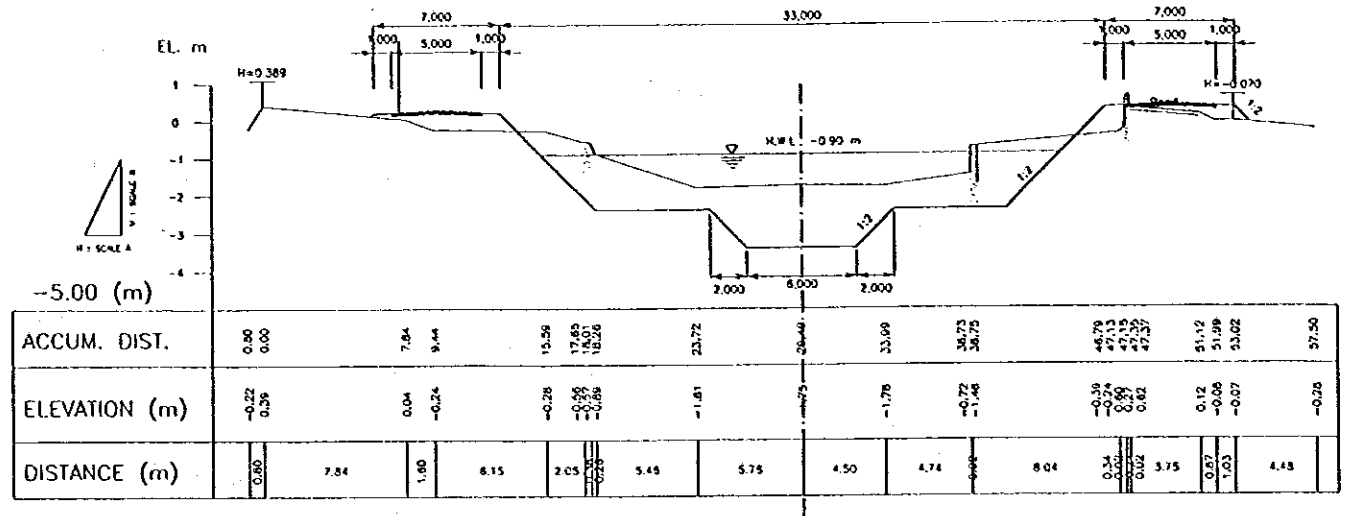
SCALE A  
1 : 200  
SCALE B  
1 : 100



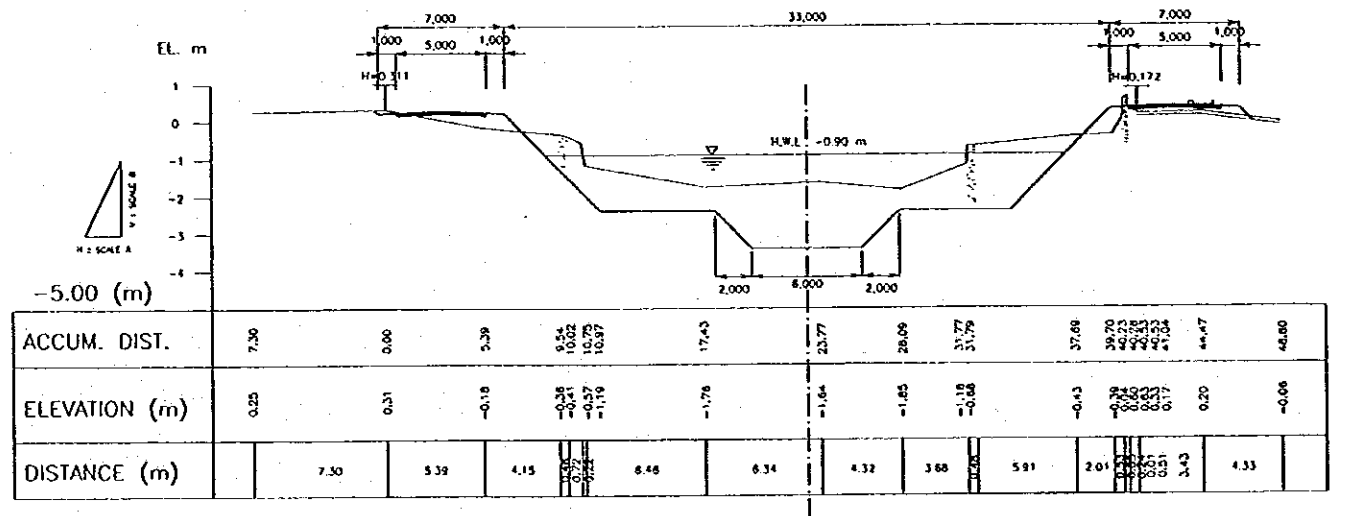
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| <b>THE REPUBLIC OF INDONESIA</b><br>MINISTRY OF PUBLIC WORKS<br>DIRECTORATE GENERAL OF WATER RESOURCES DEVELOPMENT AND DIRECTORATE GENERAL OF HUMAN SETTLEMENT |                            | PROVINCE<br>CENTRAL JAWA   |
| JAWA INTERNATIONAL CONSULTING AGENCY<br>CIL, BHOJWALD CO., LTD. IN ASSOCIATION WITH<br>PACIFIC CONSULTANTS INTERNATIONAL AND<br>JABOD INTERNATIONAL INC.       |                            | PROJECT NAME<br>FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA |
| JBATUNBELUNA FLOOD CONTROL PROJECT<br>COMPONENT : URBAN DRAINAGE SYSTEM IMPROVEMENT  |                            | OBJECT<br>SEMARANG CITY  |
| BARIJ RIVER<br>CROSS SECTION (S/12)  |                            | DRAWING NO. U-P3-B-Cr-5<br>SHEET NO. 10  |
| APPROVED<br>CHIEF OF PLANNING AND DESIGN   | CHECKED<br>PROJECT MANAGER | DATE<br>CONTRACT NO.   |

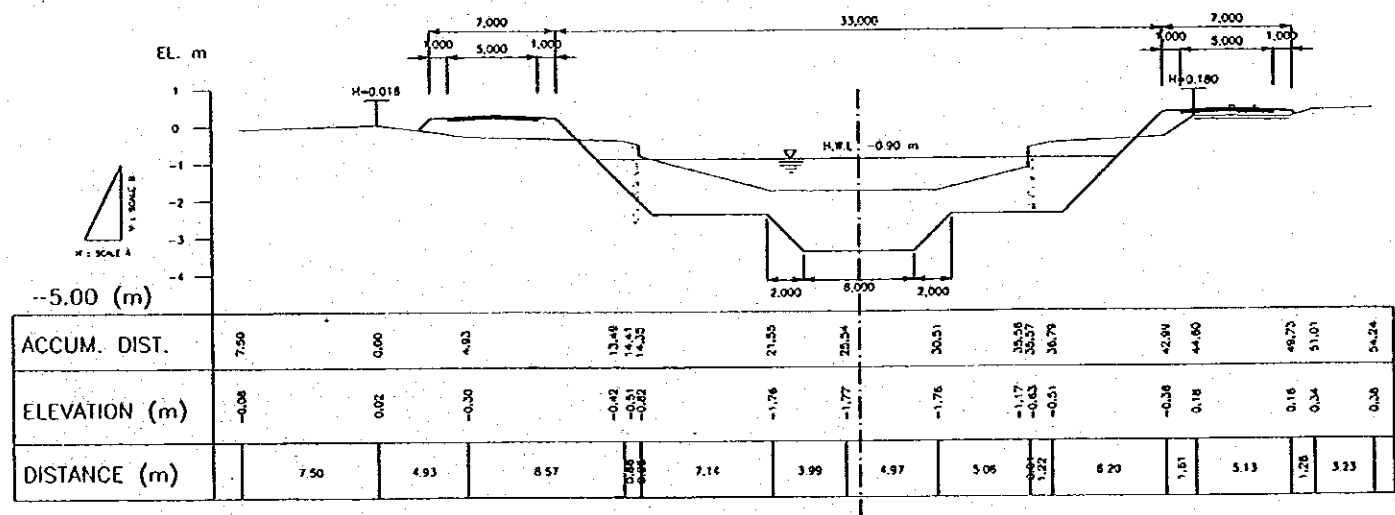
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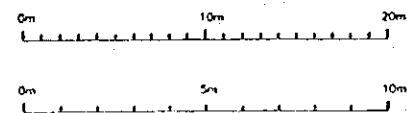
BA-45



BA-46

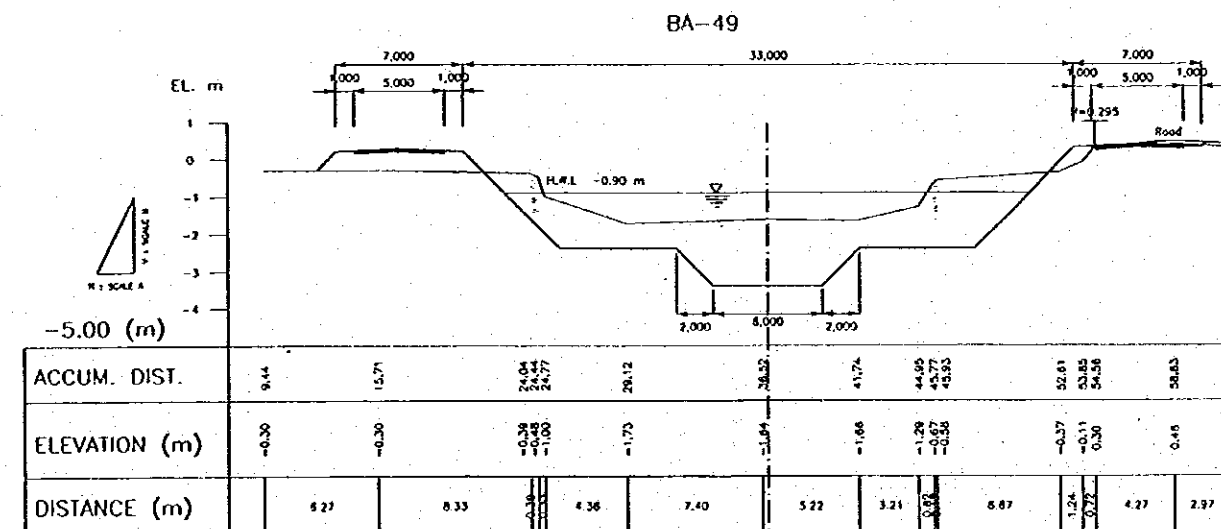
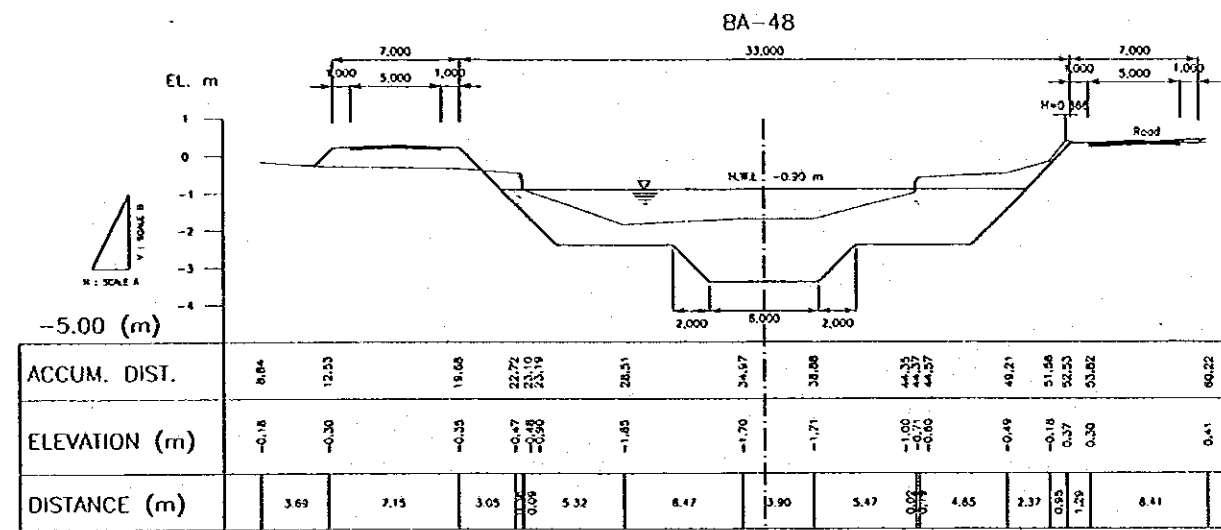
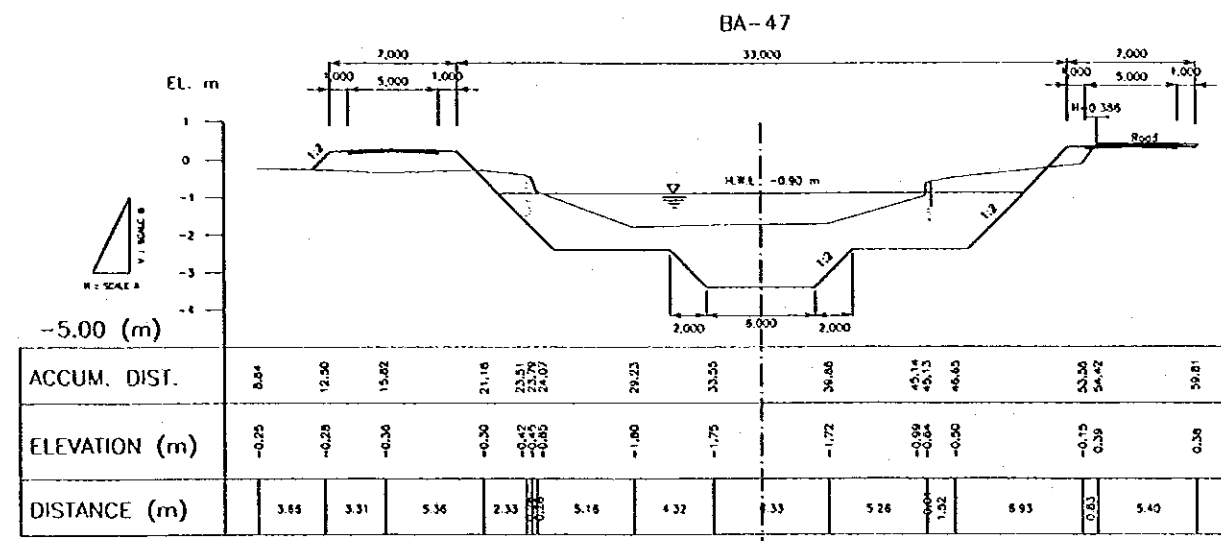


SCALE A  
1 : 200  
SCALE B  
1 : 100

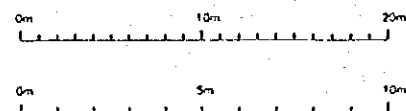


| NO. | DATE | REVISIONS | ORIGINATED | DESIGNED | APPROVED |
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| <b>THE REPUBLIC OF INDONESIA</b><br>DEPARTMENT OF PUBLIC WORKS<br>DIRECTORATE GENERAL OF WATER RESOURCES DEVELOPMENT<br>AND DIRECTORATE GENERAL OF RURAL SETTLEMENT<br>JATUMBUKURA FLOOD CONTROL PROJECT<br>COMPONENT : URBAN DRAINAGE SYSTEM IMPROVEMENT<br>BARU RIVER<br>CROSS SECTION (6/12) |   | PROVINCE<br><b>CENTRAL JAWA</b><br>PROJECT NAME<br><b>FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA</b><br>DISTRICT<br><b>SEMARANG CITY</b><br>DRAWING NO.<br><b>U-P3-B-Cr-6</b><br>SHEET NO.<br><b>11</b> |
| SAFARI INTERNATIONAL COOPERATION AGENCY<br>CIL ENGINEERING CO., LTD. IN ASSOCIATION WITH<br>PACIFIC CONSULTANTS INTERNATIONAL LP<br>JAPAN INTERNATIONAL CO.   | DIBERUBAH<br>(Signature)<br>CHIEF OF PLANNING AND DESIGN<br>PROJECT MANAGER | DATE<br>CONTRACT NO.  |



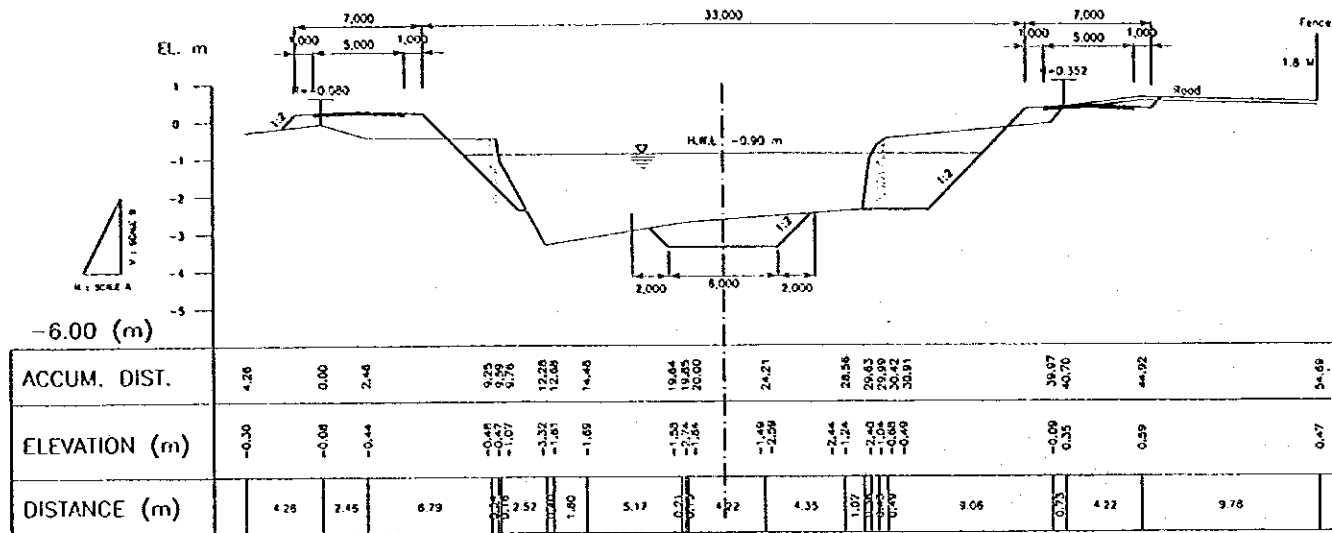
SCALE A  
1 : 200  
SCALE B  
1 : 100



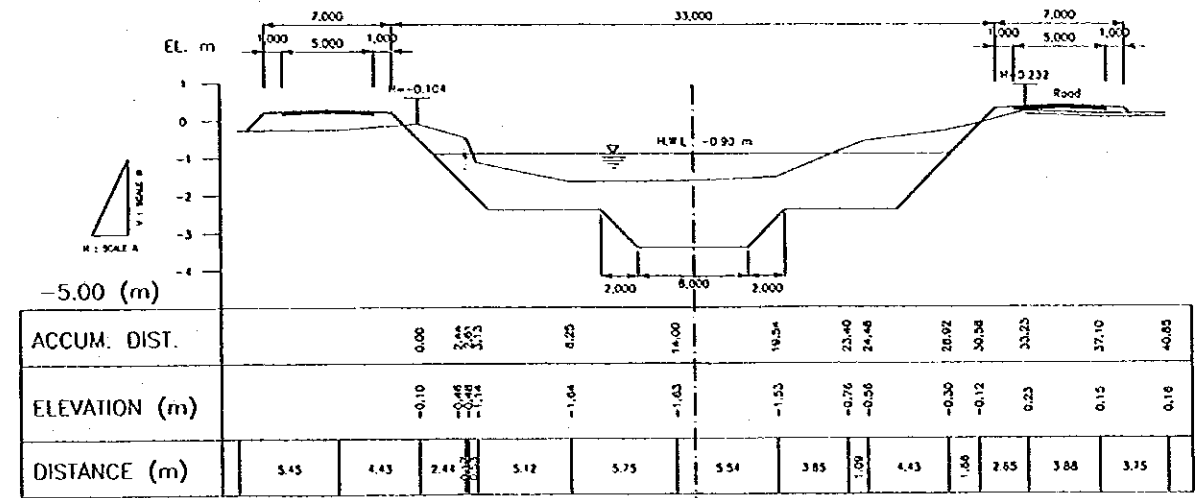
| NO. | DATE | REVISIONS | ORIGINATED | DESIGNED | APPROVED |
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| THE REPUBLIC OF INDONESIA<br>MINISTRY OF PUBLIC WORKS<br>DIRECTORATE GENERAL OF WATER RESOURCES DEVELOPMENT<br>AND DIRECTORATE GENERAL OF HUMAN SETTLEMENT  |  | PROVINCE     | CENTRAL JAVA   |
|   |  | PROJECT NAME | FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA |
| PRATUNJELINA FLOOD CONTROL PROJECT<br>COMPONENT : URBAN DRAINAGE SYSTEM IMPROVEMENT<br>BARU RIVER<br>CROSS SECTION (7/12)                                   |  | DISTRICT     | SEMARANG CITY  |
| JAPAN INTERNATIONAL COOPERATION AGENCY<br>CII ENGINEERING CO., LTD. IN ASSOCIATION WITH<br>FACETS CONSULTING INTERNATIONAL AND<br>TAMECO INTERNATIONAL INC. |  | DRAWING NO.  | U-P3-B-Cr-7  |
| CHIEF OF PLANNING AND DESIGN  |  | SHEET NO.    | 12   |
| PROJECT MANAGER   |  | DATE         |  |
| DESIGNED<br>CHECKED<br>   |  | CONTRACT NO. |  |

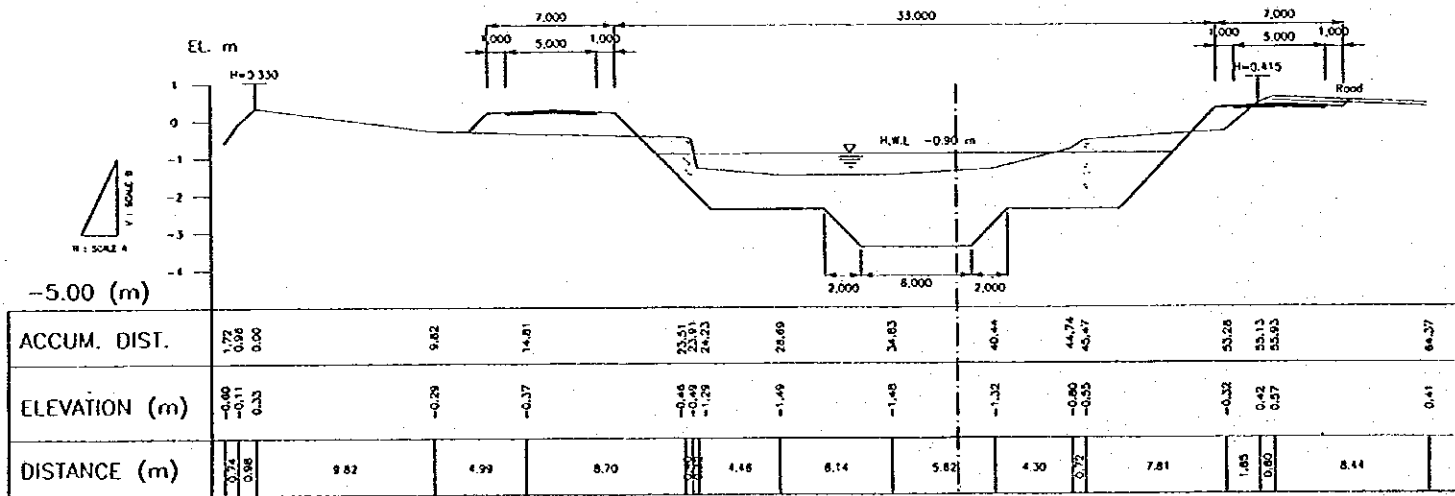
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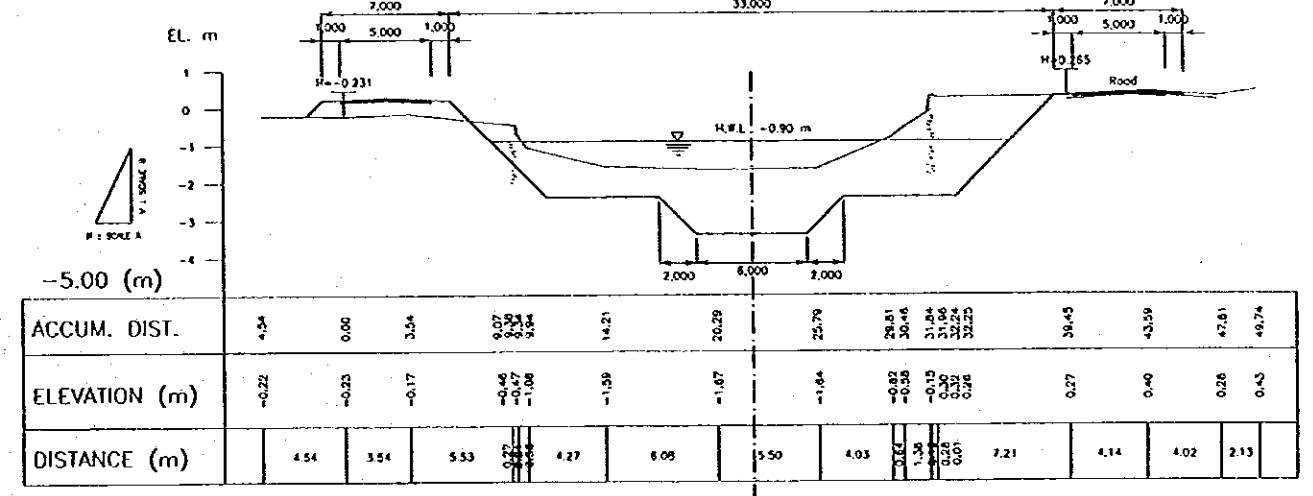
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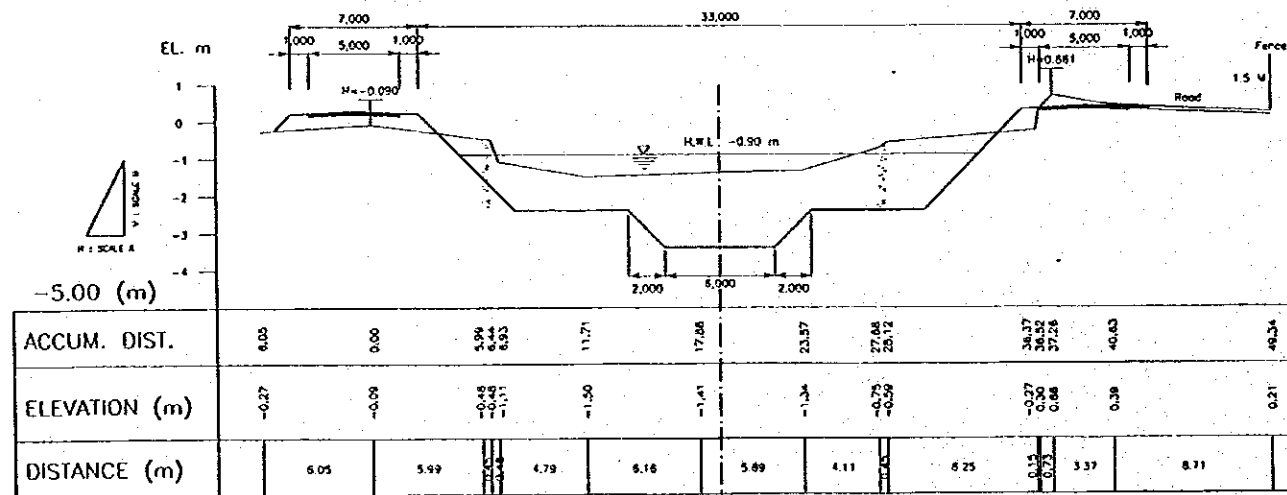
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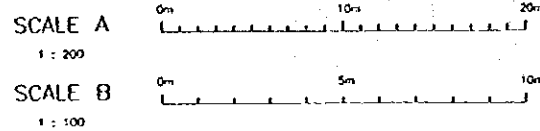
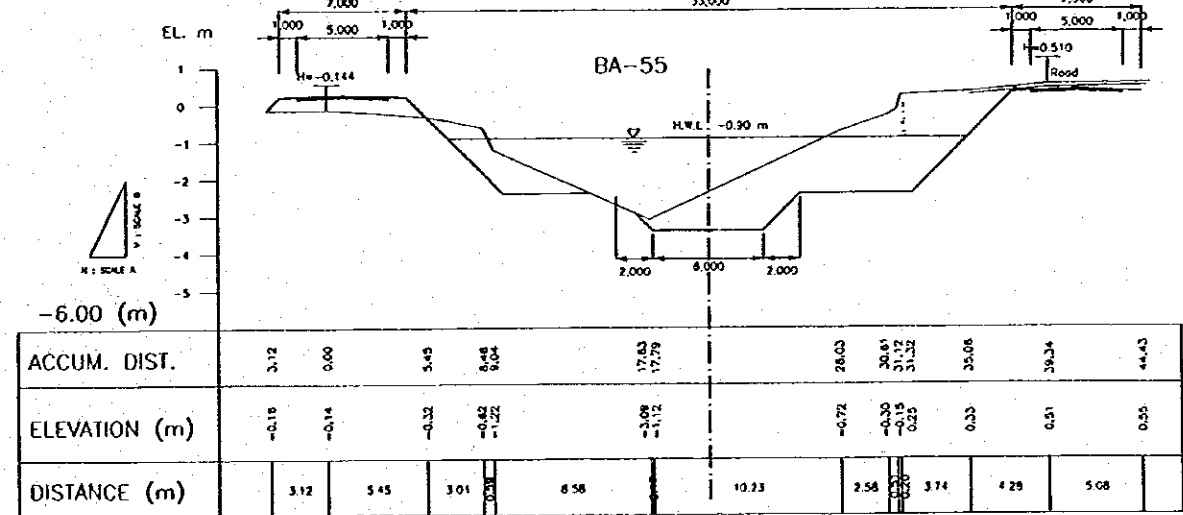
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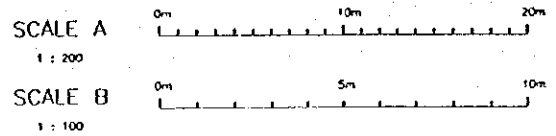
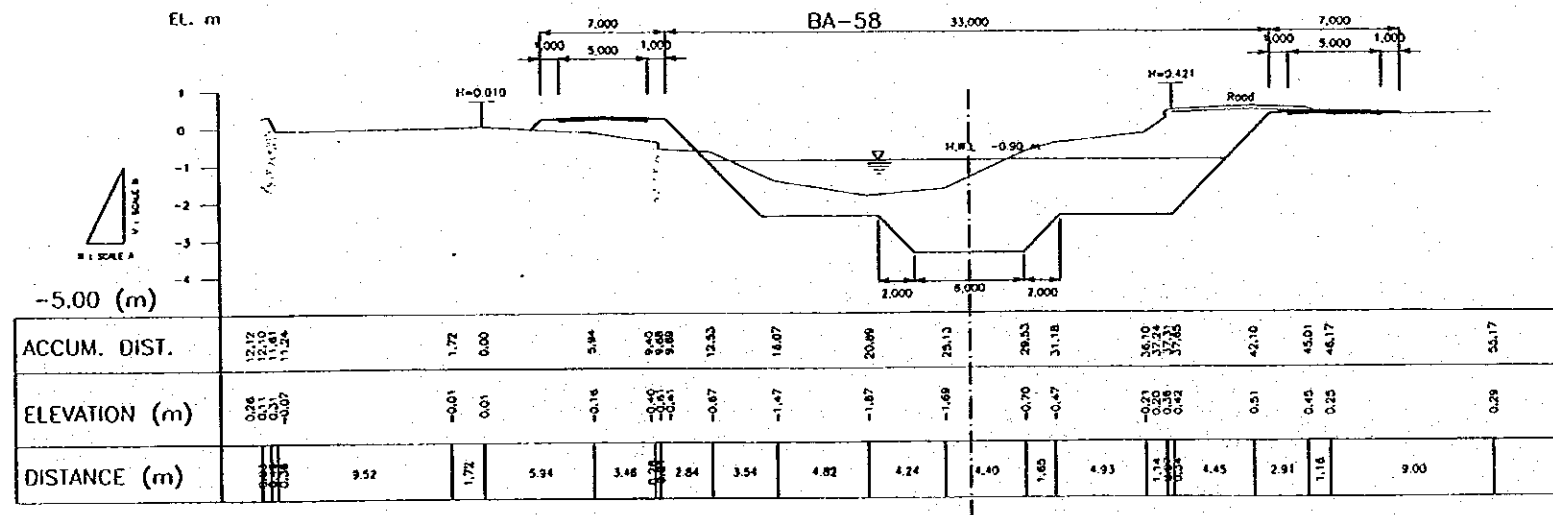
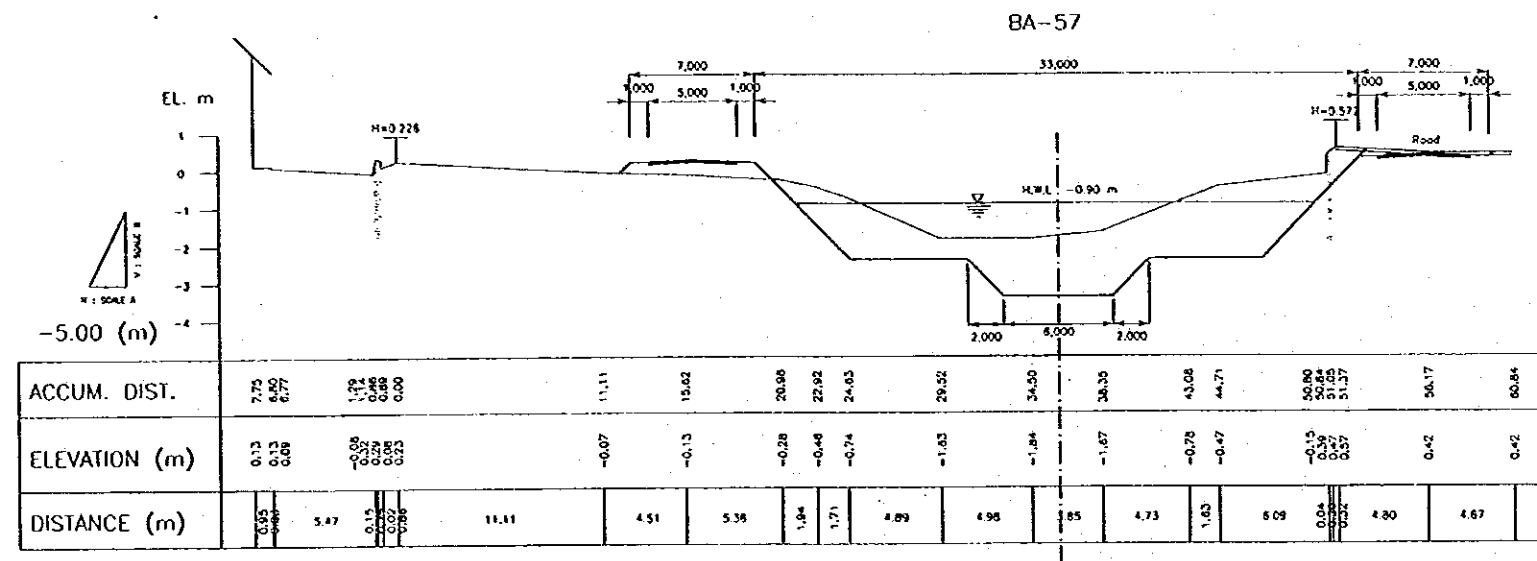
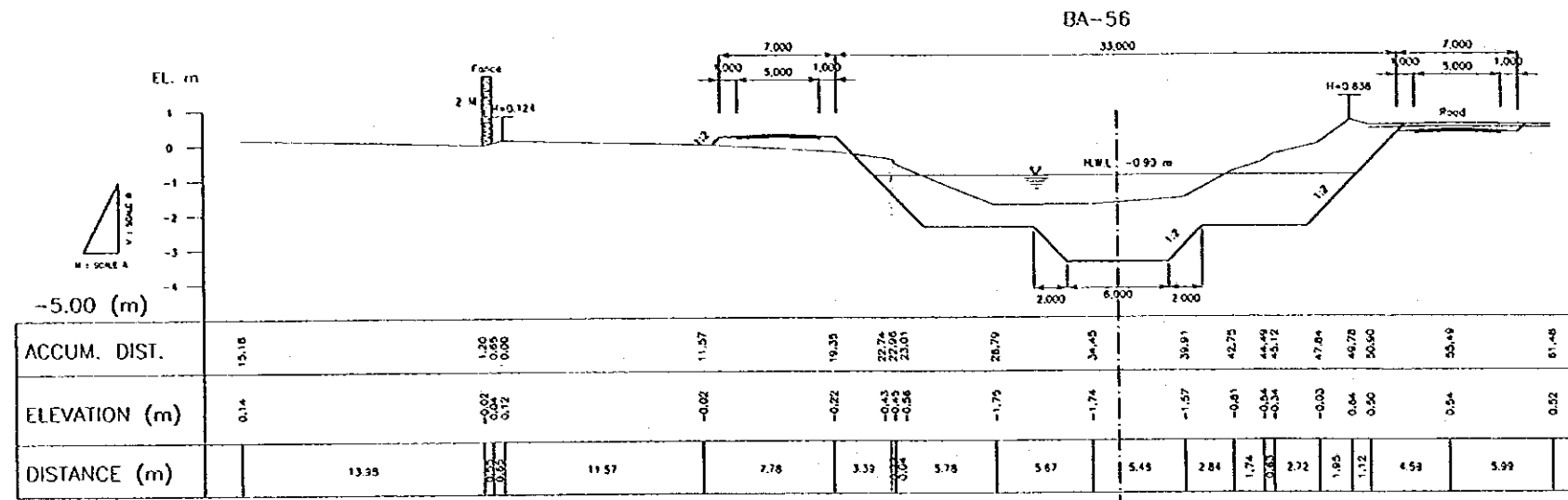
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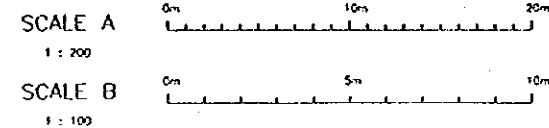
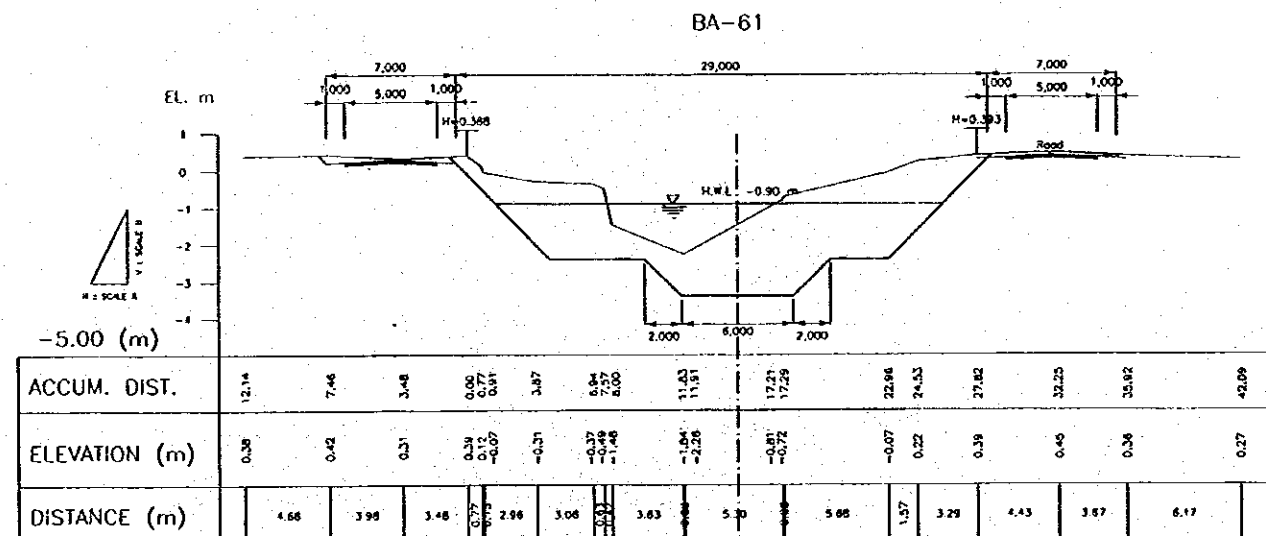
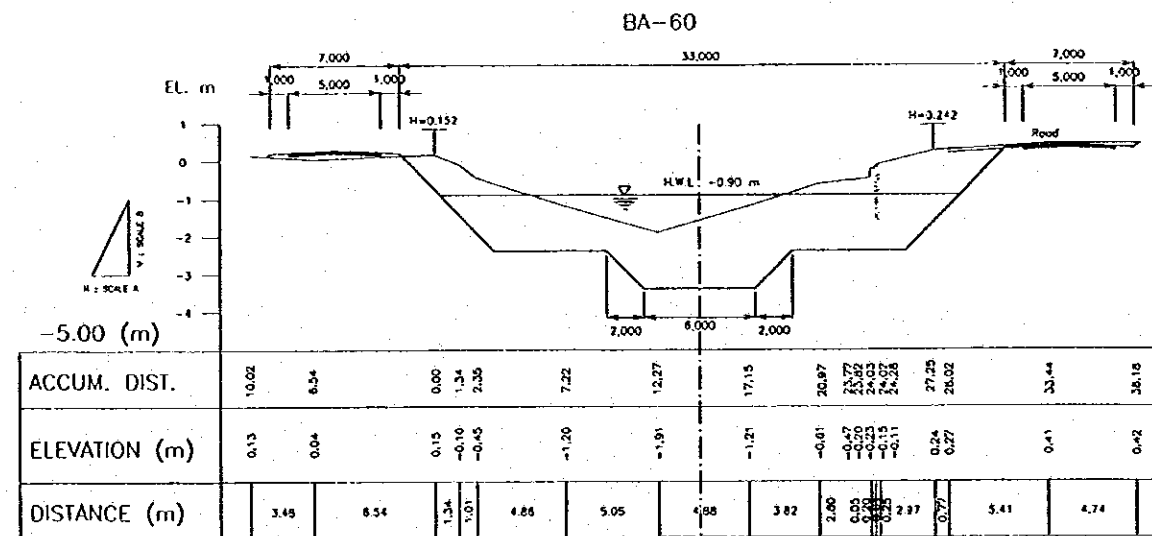
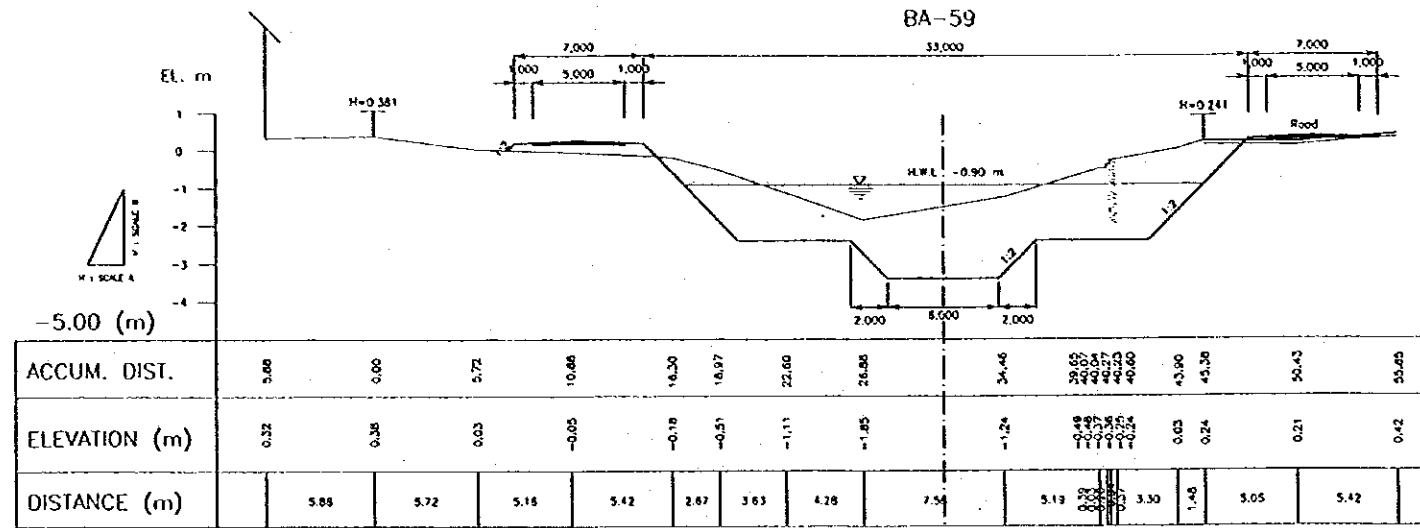
BA-55



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| <p>THE REPUBLIC OF INDONESIA<br/>         MINISTRY OF PUBLIC WORKS<br/>         DIRECTORATE GENERAL OF WATER RESOURCES DEVELOPMENT<br/>         AND DIRECTORATE GENERAL OF URBAN SETTLEMENT</p> |  |  |  |  | <p>PROVINCE<br/>         CENTRAL JAYA</p>   |  |
| <p>REATUNNELUNA FLOOD CONTROL PROJECT<br/>         COMPONENT : URBAN DRAINAGE SYSTEM IMPROVEMENT</p>  |  |  |  |  | <p>PROJECT NAME<br/>         FLOOD CONTROL, URBAN DRAINAGE AND<br/>         WATER RESOURCES DEVELOPMENT IN<br/>         SEMARANG IN THE REPUBLIC OF INDONESIA</p> |  |
| <p>BARU RIVER<br/>         CROSS SECTION (8/12)</p>   |  |  |  |  | <p>DISTRICT<br/>         SEMARANG CITY</p>  |  |
| <p>SAFARI INTERNATIONAL CONSULTING AGENCY<br/>         C/O PT. INDOREKA CO., LTD. 14 ANGGREK WING<br/>         PAKSI COMPLEKS INTERNATIONAL AND<br/>         PAKSI INTERNATIONAL INC.</p>       |  |  |  |  | <p>DRAWING NO. U-P3-B-Cr-8<br/>         SHEET NO. 13</p>  |  |
| <p>DATE: _____</p>  |  |  |  |  | <p>DATE: _____</p>  |  |
| <p>NO. DATE REVISIONS</p>   |  |  |  |  | <p>DATE CONTRACT NO.</p>  |  |
| <p>DESIGNED: <i>[Signature]</i><br/>         CHECKED: <i>[Signature]</i><br/>         APPROVED: <i>[Signature]</i></p>  |  |  |  |  | <p>PROJECT MANAGER</p>  |  |

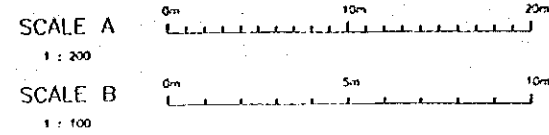
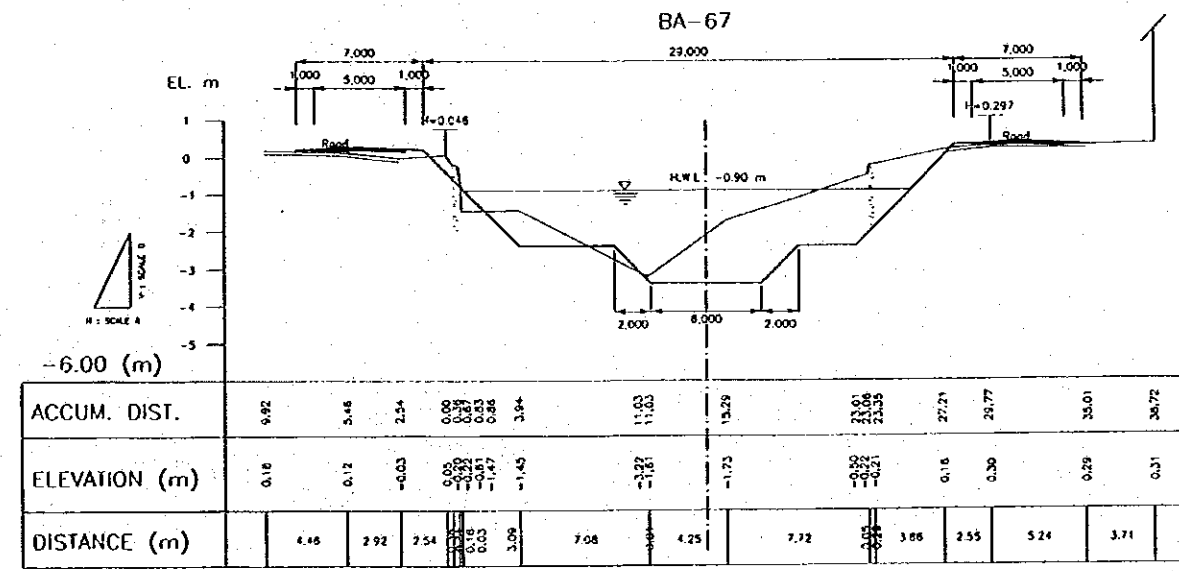
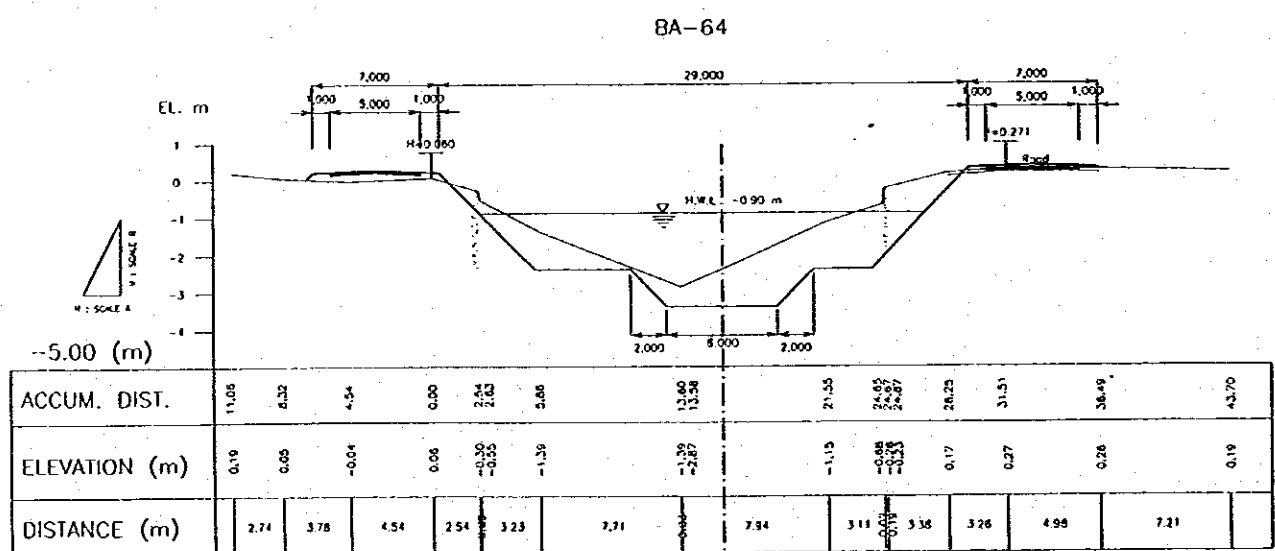
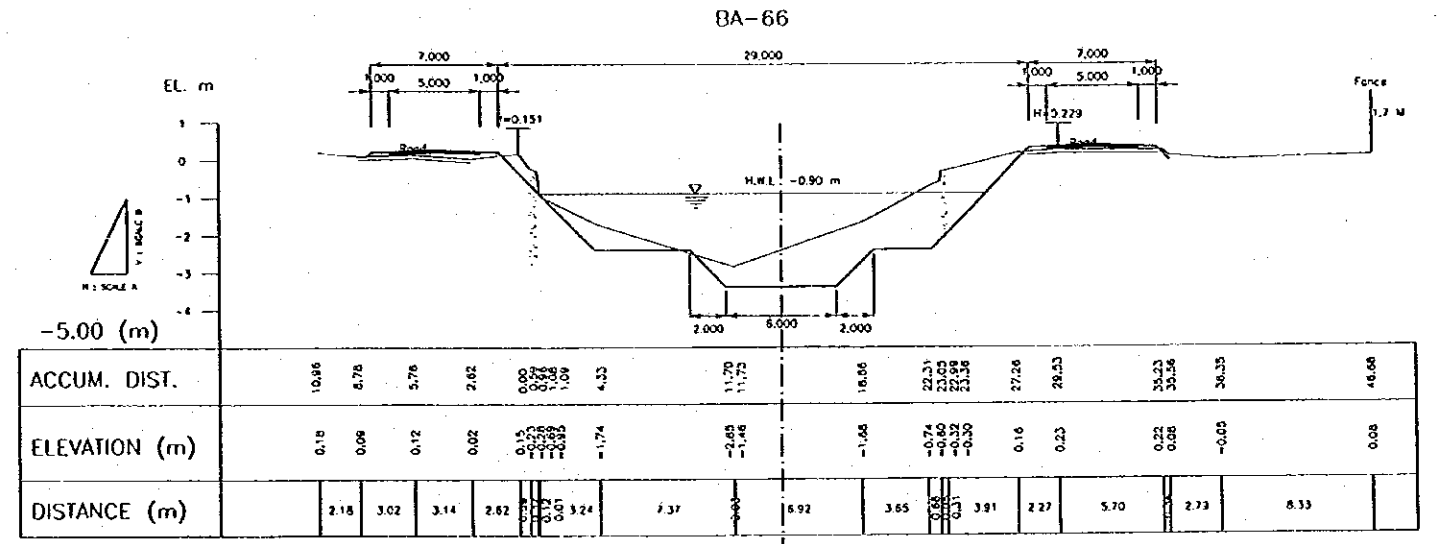
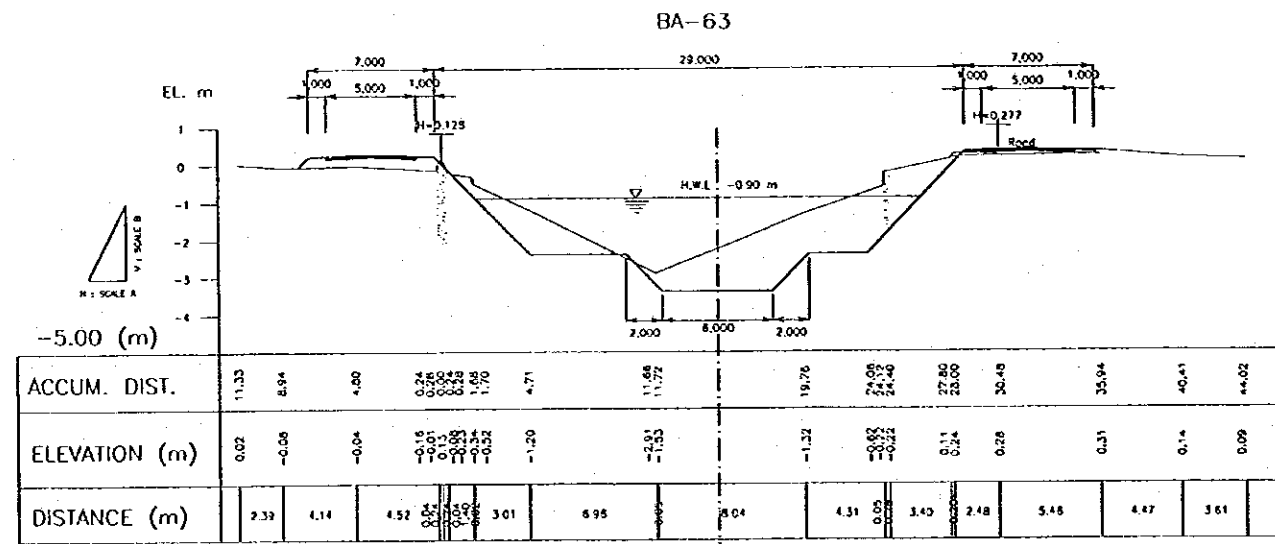
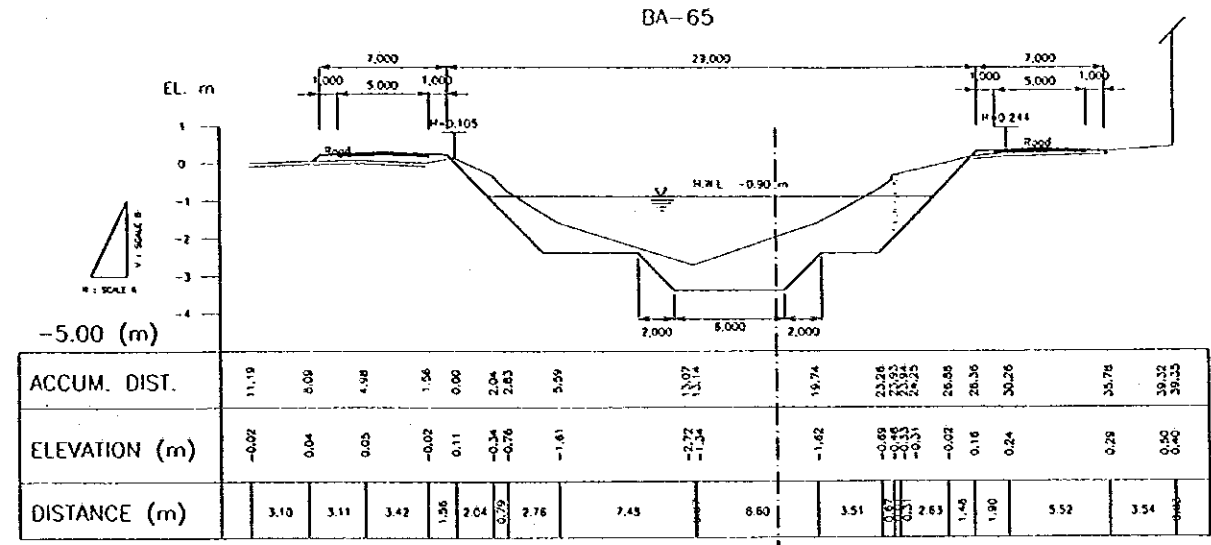
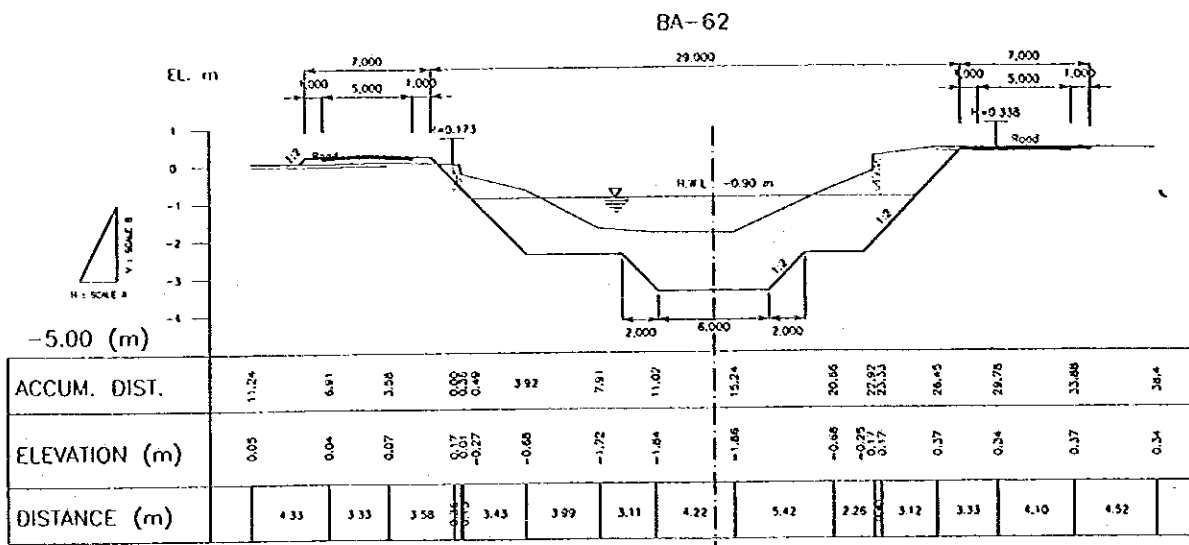


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| THE REPUBLIC OF INDONESIA<br>MINISTRY OF PUBLIC WORKS<br>DIRECTORATE GENERAL OF WATER RESOURCES DEVELOPMENT<br>AND DIRECTORATE GENERAL OF HUMAN SETTLEMENT |      | PROVINCE<br>CENTRAL JAWA   |                              |
| BATUNGLUNG FLOOD CONTROL PROJECT<br>COMPONENT: URBAN DRAINAGE SYSTEM IMPROVEMENT   |      | PROJECT NAME<br>FLOOD CONTROL, URBAN DRAINAGE AND<br>WATER RESOURCES DEVELOPMENT IN<br>BATUNGLUNG, IN THE PROVINCE OF JAWA<br>MIDLANDS |                              |
| BAKU RIVER<br>CROSS SECTION (3/12)   |      | DISTRICT<br>SEMARANG CITY  |                              |
| DRAWING NO. U-P3-B-Cr-9  |      | DATE   |                              |
| SHEET NO. 14   |      | CONTRACT NO.   |                              |
| BATUNGLUNG COOPERATION AGENCY<br>CTD ENGINEERING CO., LTD. in association with<br>PACIFIC CONSULTANTS INTERNATIONAL, INC.<br>YAKOO INTERNATIONAL, INC.     |      | CHECKED<br>  | DATE                         |
| CRUISE OF PLANNING AND DESIGN<br>PROJECT MANAGER   |      | APPROVED<br>   | CONTRACT NO.                 |
| NO.  | DATE | REVISIONS  | OPERATED, DESIGNED, APPROVED |



| NO. | DATE | SUPERVISOR | ORIGINATED | DESIGNED | APPROVED |
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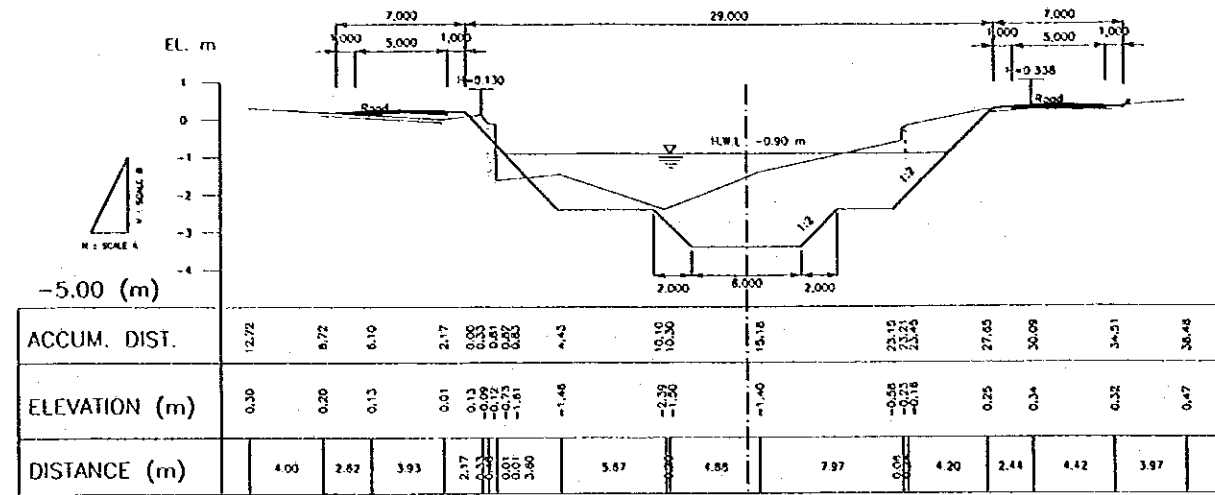
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| THE REPUBLIC OF INDONESIA<br>MINISTRY OF PUBLIC WORKS<br>DIRECTORATE GENERAL OF WATER RESOURCE DEVELOPMENT<br>AND DIRECTORATE GENERAL OF HUMAN SETTLEMENT         |  | PROVINCE<br>CENTRAL JAWA  |
| BRATUNIBLINA FLOOD CONTROL PROJECT<br>COMPONENT : URBAN DRAINAGE SYSTEM IMPROVEMENT<br>BAKU RIVER<br>CROSS SECTION (10/12)  |  | PROJECT NAME<br>FLOOD CONTROL, URBAN DRAINAGE AND<br>WATER RESOURCE DEVELOPMENT IN<br>SEMARANG IN THE REPUBLIC OF INDONESIA |
| LIPAH INTERNATIONAL COOPERATION AGENCY<br>CIBI ENGINEERING CO., LTD. IN ASSOCIATION WITH<br>PACIFIC CONSULTANTS INTERNATIONAL, INC.<br>PART OF INTERNATIONAL INC. |  | PROJECT<br>SEMARANG CITY  |
| DESIGNED<br>CHECKED<br>DATE   |  | DRAWING NO.<br>U-P3-B-Cr-10<br>SHEET NO.<br>15  |
| CHIEF OF PLANNING AND DESIGN<br>PROJECT MANAGER   |  | CONTRACT NO.  |



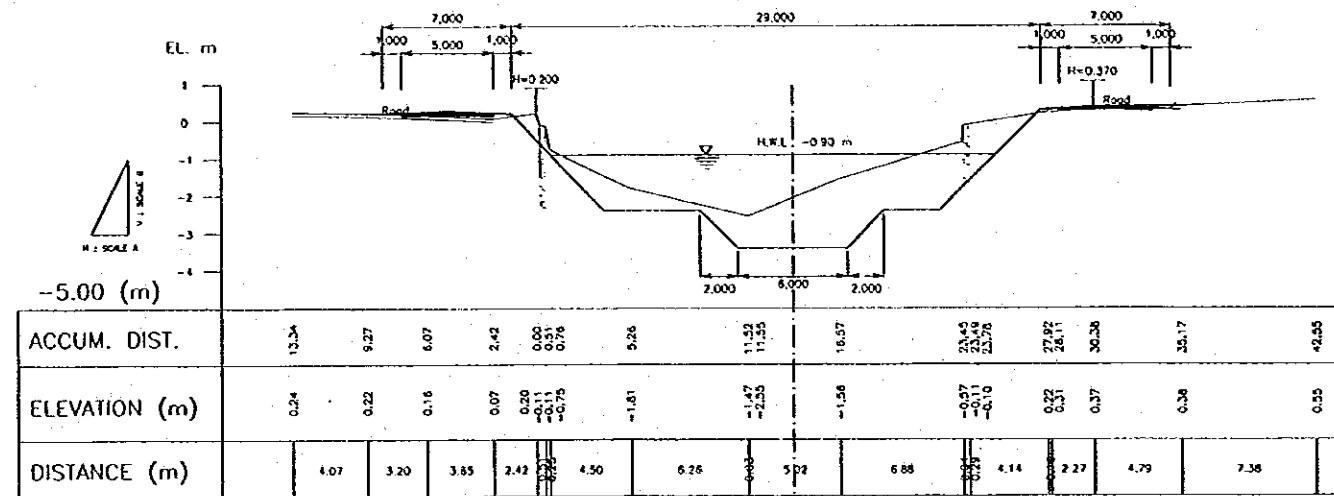
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| THE REPUBLIC OF INDONESIA<br>MINISTRY OF PUBLIC WORKS<br>DIRECTORATE GENERAL OF WATER RESOURCES DEVELOPMENT AND DIRECTORATE GENERAL OF HUMAN SETTLEMENT       |      |           | PROVINCE<br>CENTRAL JAYA  |          |          |
| IRATUNBELUMA FLOOD CONTROL PROJECT<br>COMPONENT : URBAN DRAINAGE SYSTEM IMPROVEMENT   |      |           | DISTRICT<br>SEMARANG CITY |          |          |
| BARU RIVER<br>CROSS SECTION (11/12)   |      |           | DRAWING NO. U-P3-B-Cr-11  |          |          |
| JAPAN INTERNATIONAL COOPERATION AGENCY<br>CI ENGINEERING CO., LTD. IN ASSOCIATION WITH<br>FACIFIC CONSULTANTS INTERNATIONAL AND<br>FACIFIC INTERNATIONAL INC. |      |           | SUBMIT NO. 16             |          |          |
| DESIGNED<br>CHECKED<br>APPROVED   |      |           | DATE CONTRACT NO.         |          |          |
| NO.   | DATE | REVISIONS | COORDINATED               | DESIGNED | APPROVED |



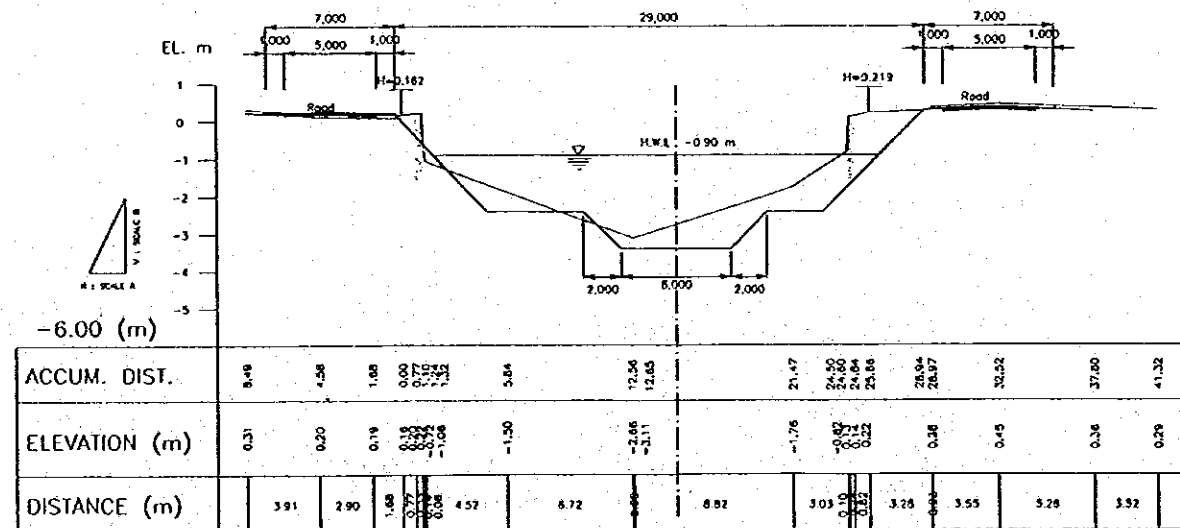
BA-68



BA-69

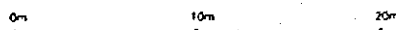


BA-70



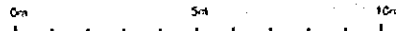
SCALE A

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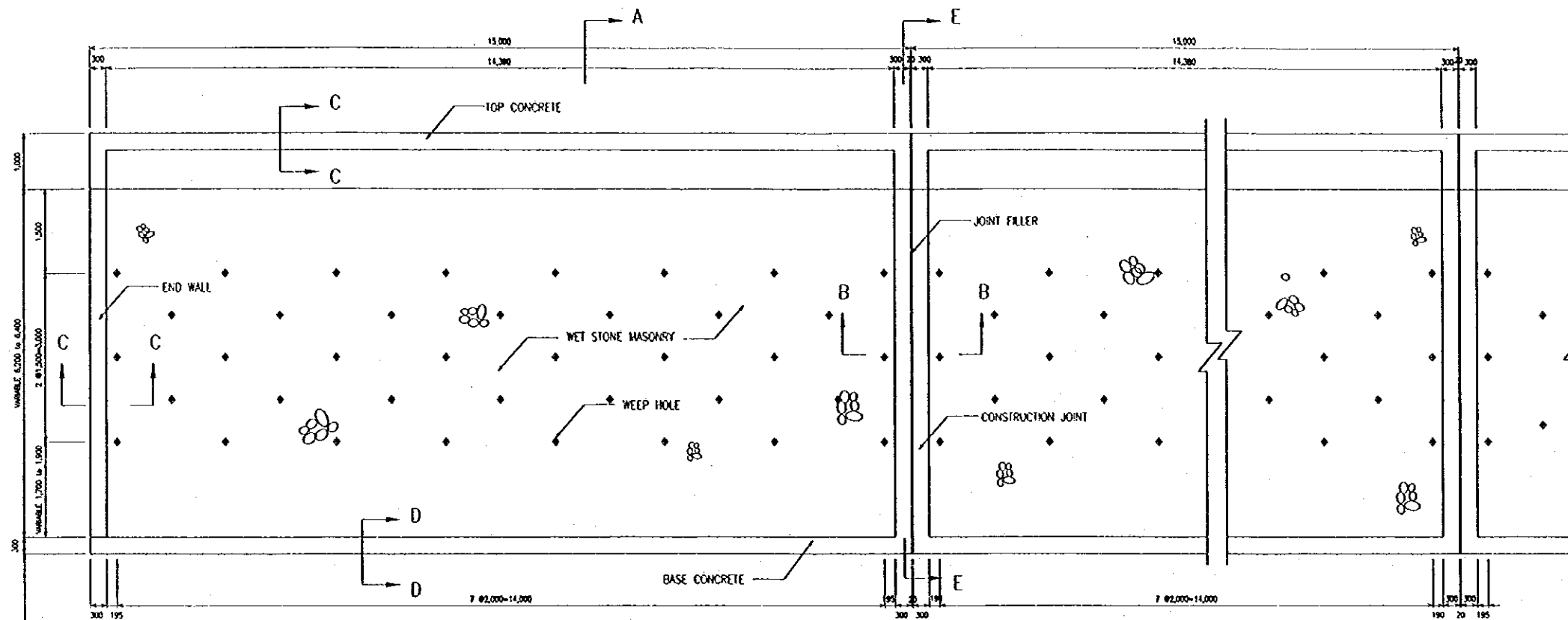
SCALE B

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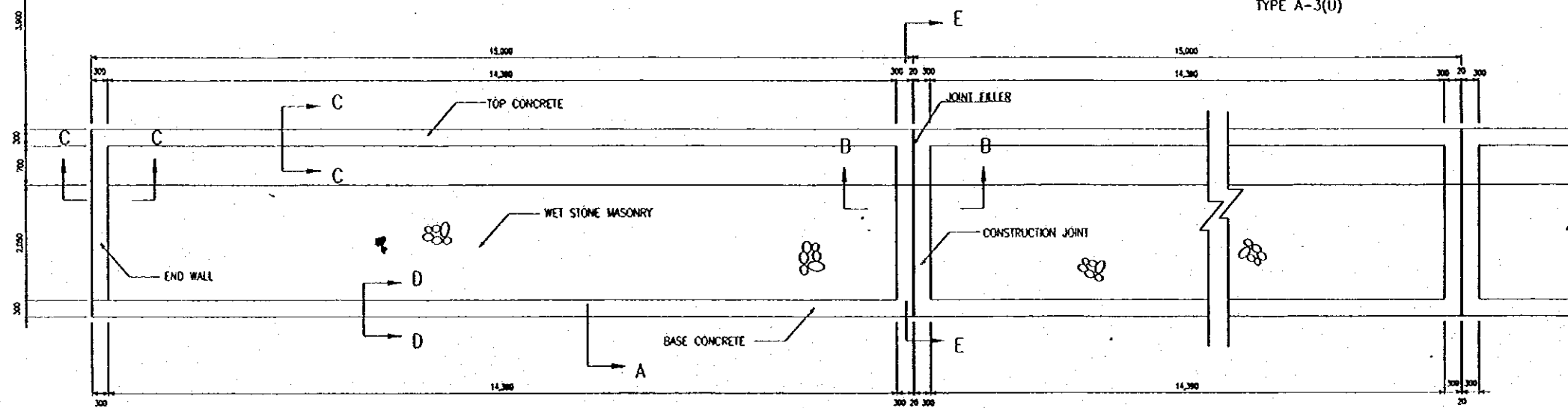


| NO. | DATE | REVISIONS | GRADUATED | DESIGNED | APPROVED |
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| THE REPUBLIC OF INDONESIA<br>MINISTRY OF PUBLIC WORKS<br>DIRECTORATE GENERAL OF WATER RESOURCES DEVELOPMENT<br>AND DIRECTORATE GENERAL OF URBAN SETTLEMENT  |                        | PROVINCE<br>CENTRAL JAWA                 |
| JATUNGLUKA FLOOD CONTROL PROJECT<br>COMPONENT : URBAN DRAINAGE SYSTEM IMPROVEMENT   |                        | DISTRICT<br>SEMARANG CITY                |
| BARU RIVER<br>CROSS SECTION (12/12)   |                        | DRAWING NO. U.P3-B-Cr-12<br>SHEET NO. 17 |
| SAFAR INTERNATIONAL CONSULTING AGENCY<br>PT. ENGINEERING CO., LTD. IN ASSOCIATION WITH<br>PACIFIC CONSULTANTS INTERNATIONAL AND<br>TARKO INTERNATIONAL INC. | CHECKED<br>[Signature] | DATE<br>CONTRACT NO.                     |
| CHIEF OF PLANNING AND DESIGN  | PROJECT MANAGER        | [Signature]                              |

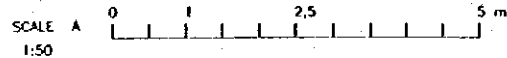


TYPE A-3(U)



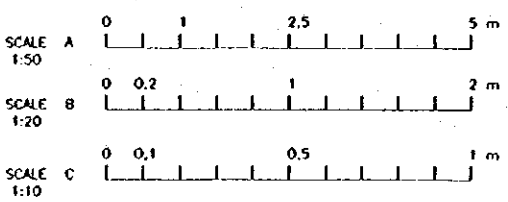
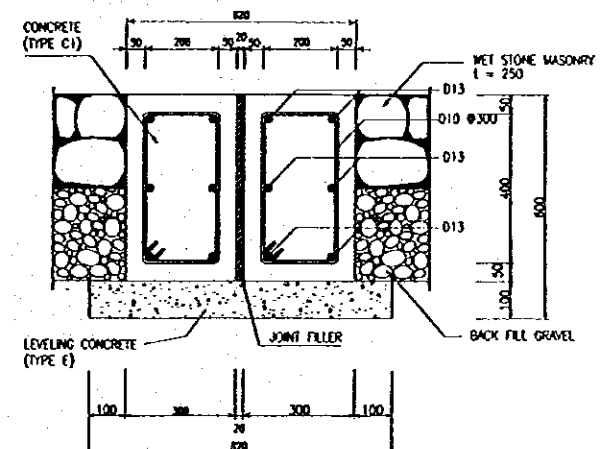
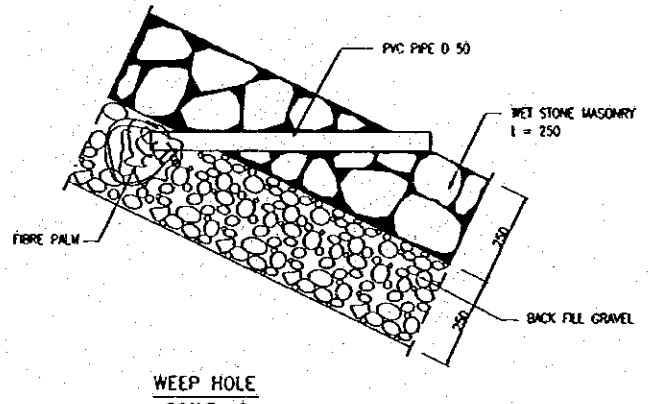
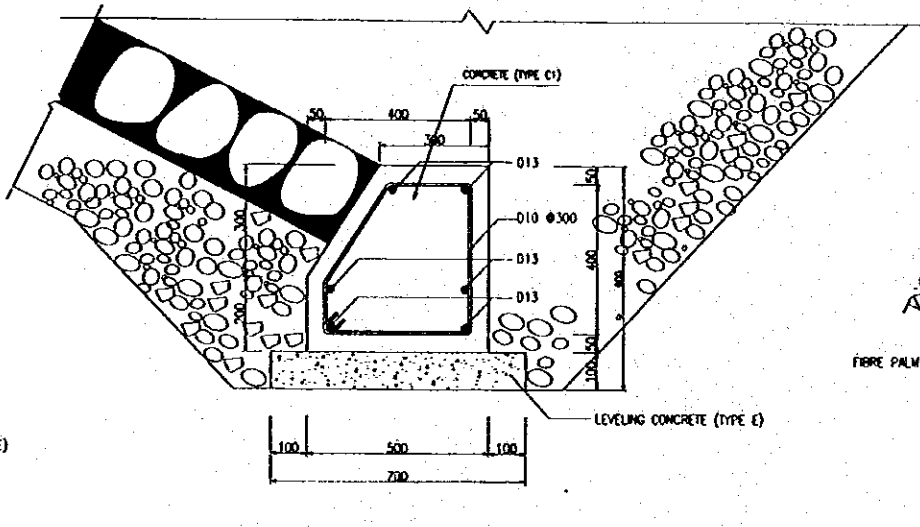
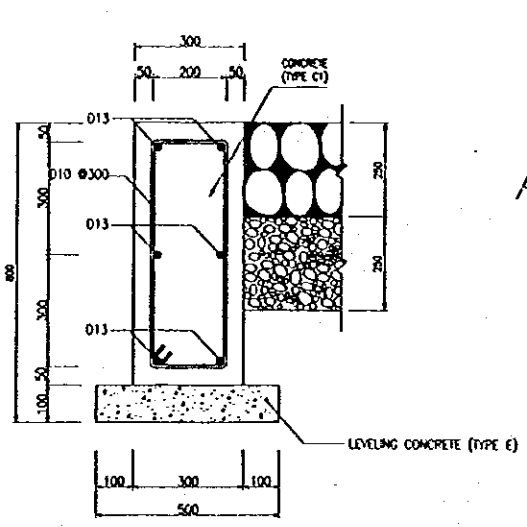
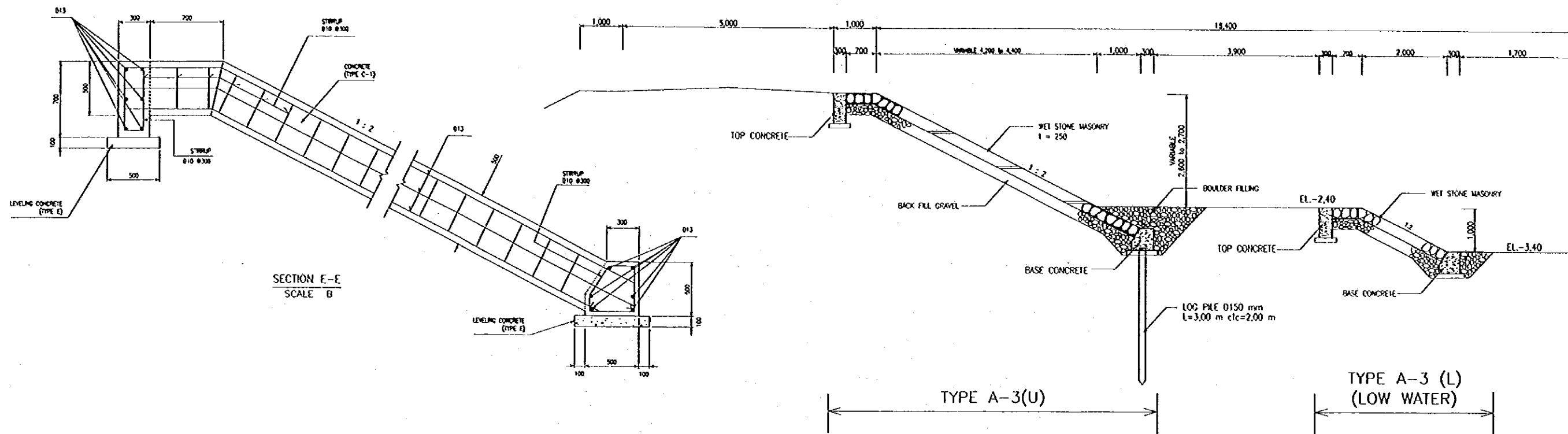
TYPE A-3(L) (LOW WATER)

REVETMENT TYPE A-3 PLAN  
SCALE A



| NO. | DATE | REVISIONS | ORIGINATED | DESIGNED | APPROVED |
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| <b>THE REPUBLIC OF INDONESIA</b><br>MINISTRY OF PUBLIC WORKS<br>DIRECTORATE GENERAL OF WATER RESOURCES DEVELOPMENT<br>AND DIRECTORATE GENERAL OF HUMAN SETTLEMENT<br>JATUNINGRUK FLOOD CONTROL PROJECT<br>COMPONENT : URBAN DRAINAGE SYSTEM IMPROVEMENT<br>BARU RIVER<br>REVETMENT (U2)<br>PLAN (TYPE A-3) |  | PROVINCE<br>CENTRAL JAVA   |
| LAYAN INTERNATIONAL COOPERATION AGENCY<br>C/O (PERSERIKATAN) CO., LTD. IN ASSOCIATION WITH<br>PACIFIC CONSULTANTS INTERNATIONAL AND<br>FALCO INTERNATIONAL INC.  |  | PROJECT NAME<br>FLOOD CONTROL, URBAN DRAINAGE AND<br>WATER RESOURCES DEVELOPMENT OF<br>SEMARANG IN THE PROVINCE OF JAWA<br>DISTRICT<br>SEMARANG CITY |
| DRAWING NO. U-P3-B-Rv-1<br>SHEET NO. 18  |  | DATE CONTRACT NO.  |
| APPROVED<br>CHIEF OF PLANNING AND DESIGN<br>PROJECT MANAGER  |  | DESIGNED<br>CHECKED<br>  |



| NO. | DATE | REVISIONS | ORIGINATED | DRAWN | APPROVED |
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THE REPUBLIC OF INDONESIA  
 MINISTRY OF PUBLIC WORKS  
 DIRECTORATE GENERAL OF WATER RESOURCES DEVELOPMENT  
 AND DIRECTORATE GENERAL OF HUMAN SETTLEMENT

SIKURMELUKA FLOOD CONTROL PROJECT  
 COMPONENT : URBAN DRAINAGE SYSTEM IMPROVEMENT  
 BARU RIVER  
 REVETMENT (2/2)  
 SECTION AND DETAILS (TYPE A-3)

JAPAN INTERNATIONAL COOPERATION AGENCY  
 CITY ENGINEERING CO. LTD. IN ASSOCIATION WITH  
 PACIFIC CONSULTANTS INTERNATIONAL AND  
 TAKI INTERNATIONAL INC.

DESIGNED  
 CHECKED

CHECKED  
 PROJECT MANAGER

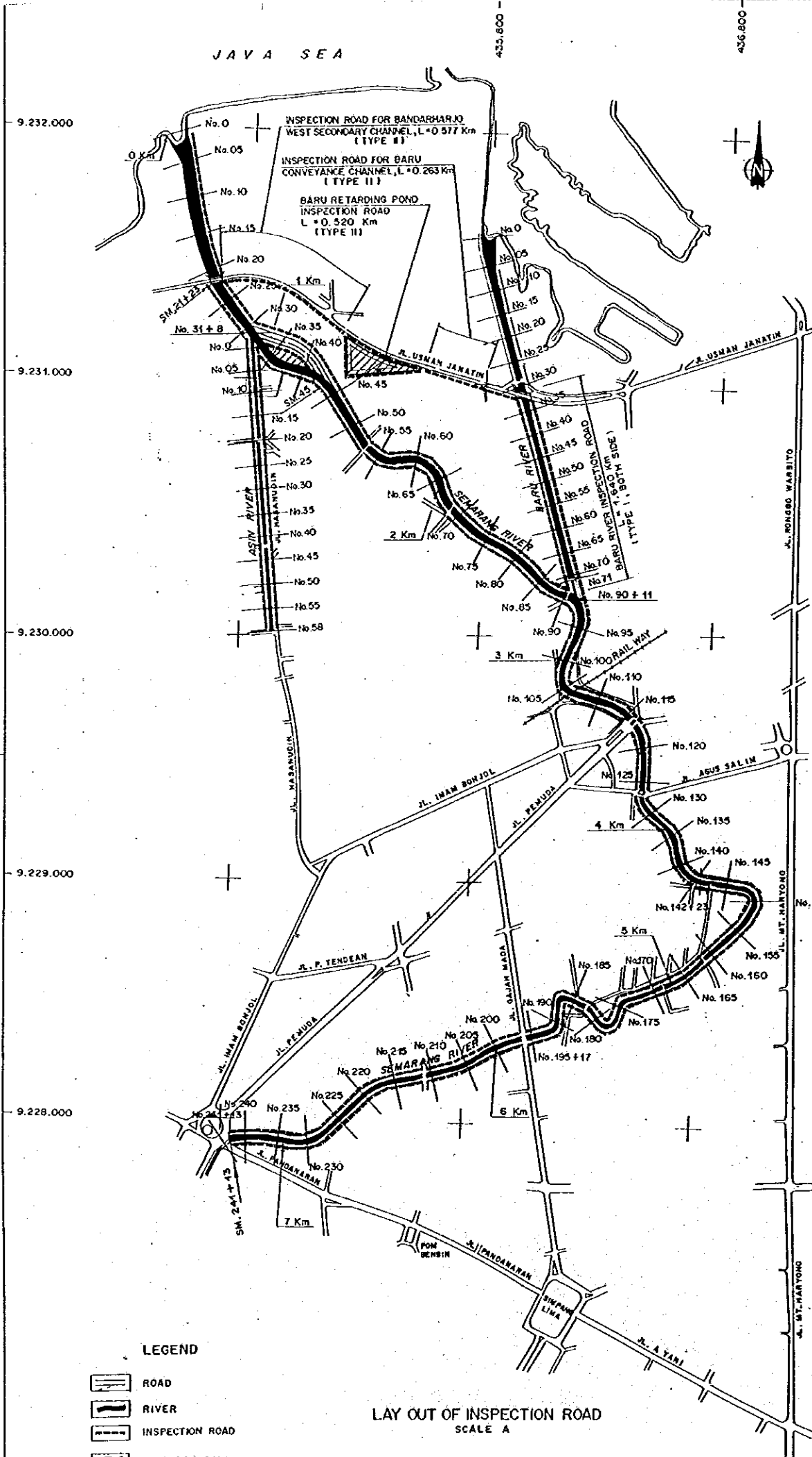
PROVINCE  
 CENTRAL JAVA

PROJECT NAME  
 FLOOD CONTROL, URBAN DRAINAGE AND  
 WATER RESOURCES DEVELOPMENT IN  
 SIKURMELUKA, BY THE REPUBLIC OF INDONESIA

DISTRICT  
 SIBARANG CITY

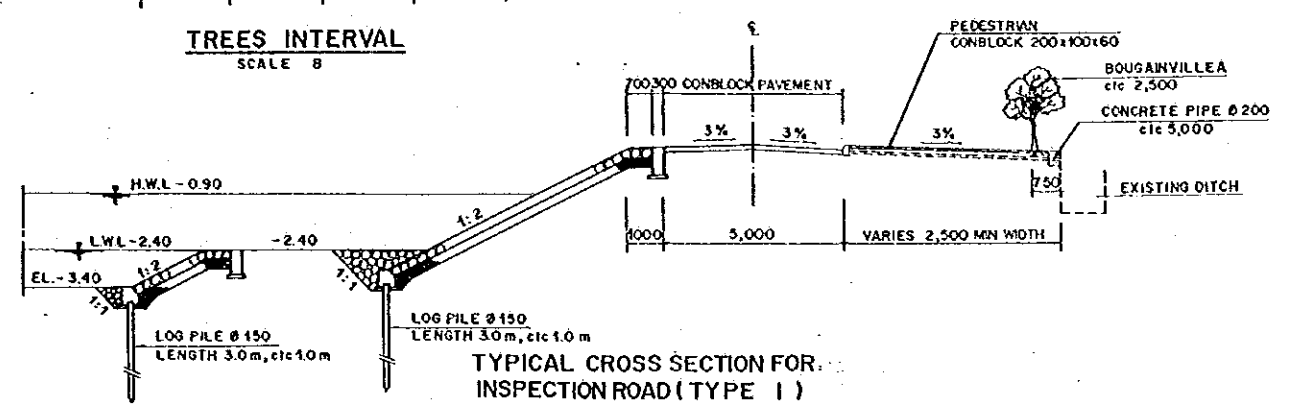
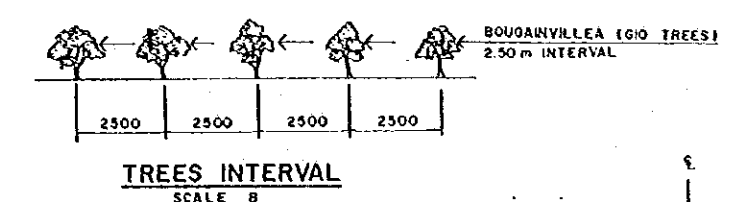
DRAWING NO. U-P3-B-Rv-2  
 SHEET NO. 19

DATE  
 CONTRACT NO.

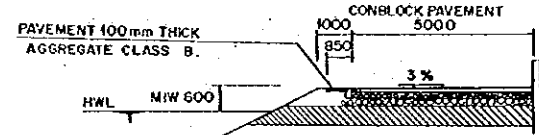


- LEGEND**
- ROAD
  - RIVER
  - INSPECTION ROAD
  - RETARDING POND

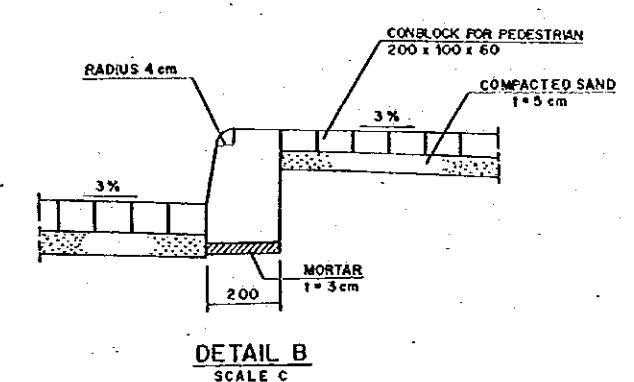
LAY OUT OF INSPECTION ROAD  
SCALE A



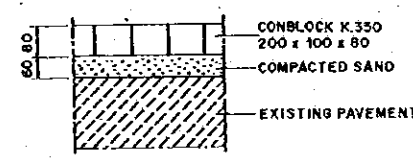
TYPICAL CROSS SECTION FOR INSPECTION ROAD (TYPE I)  
SCALE B



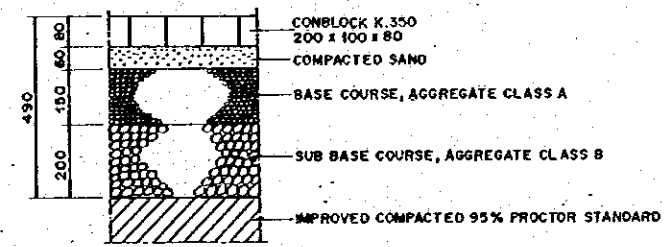
TYPICAL CROSS SECTION FOR INSPECTION ROAD (TYPE II)  
SCALE B



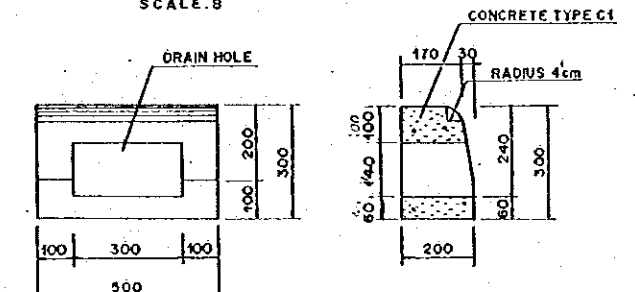
DETAIL B  
SCALE C



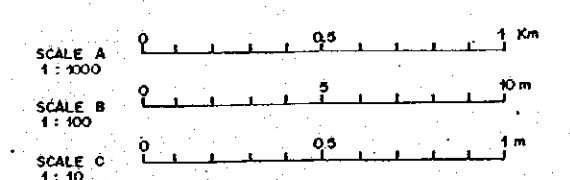
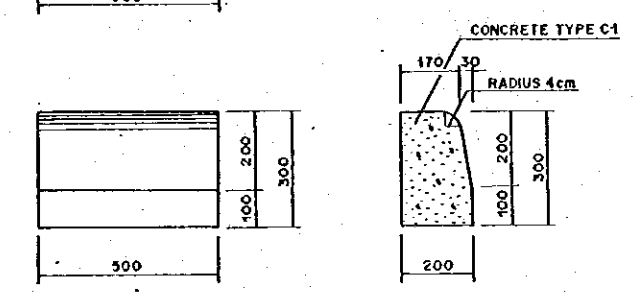
CONBLOCK PAVEMENT ON THE EXISTING PAVEMENT  
SCALE C



CONBLOCK PAVEMENT ON THE NEW EMBANKMENT  
SCALE C

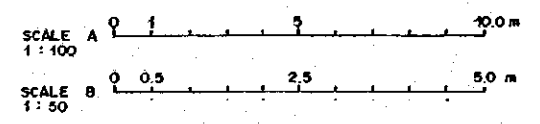
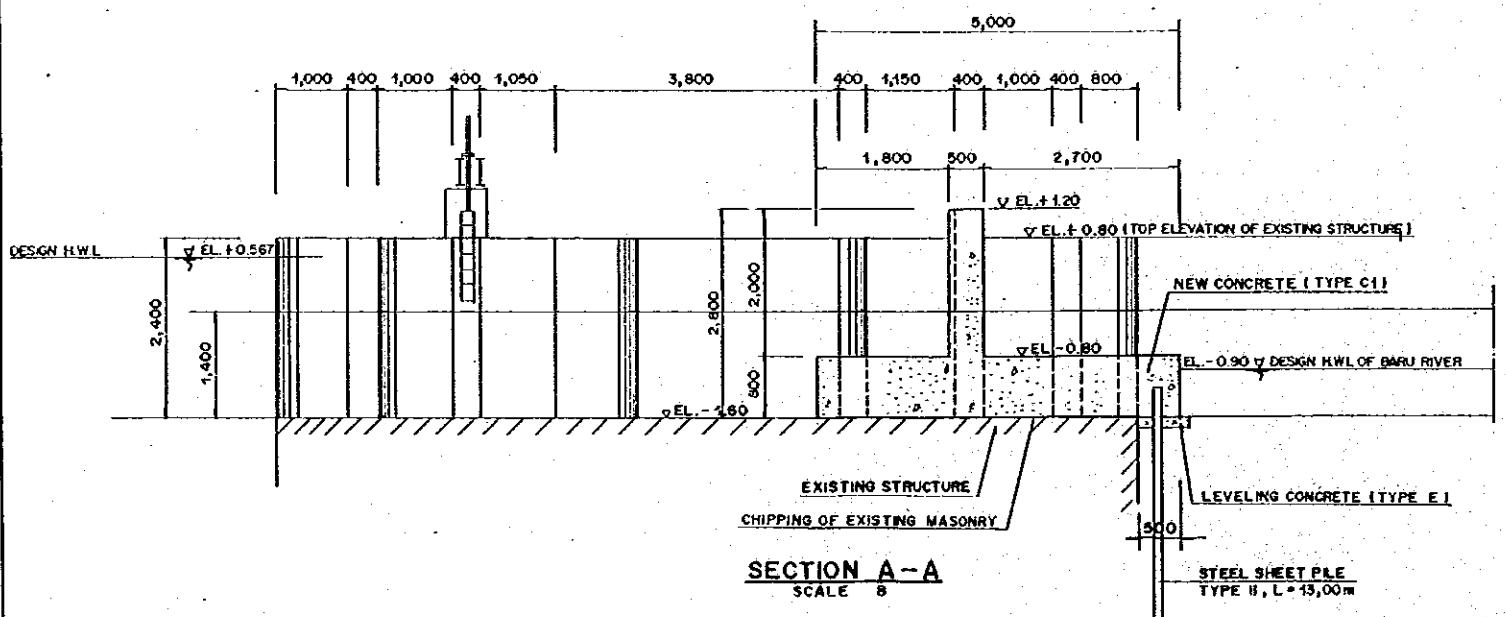
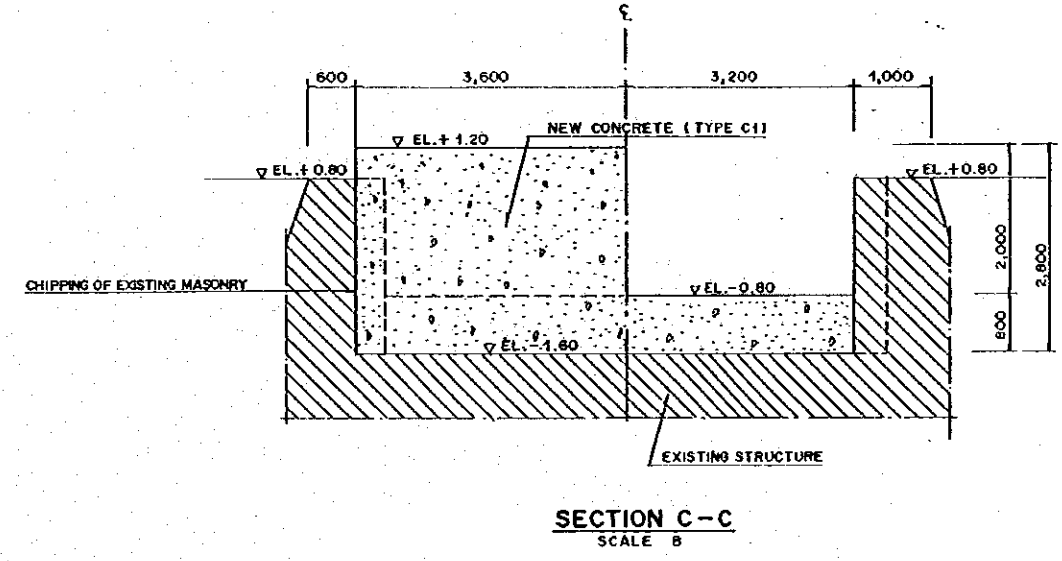
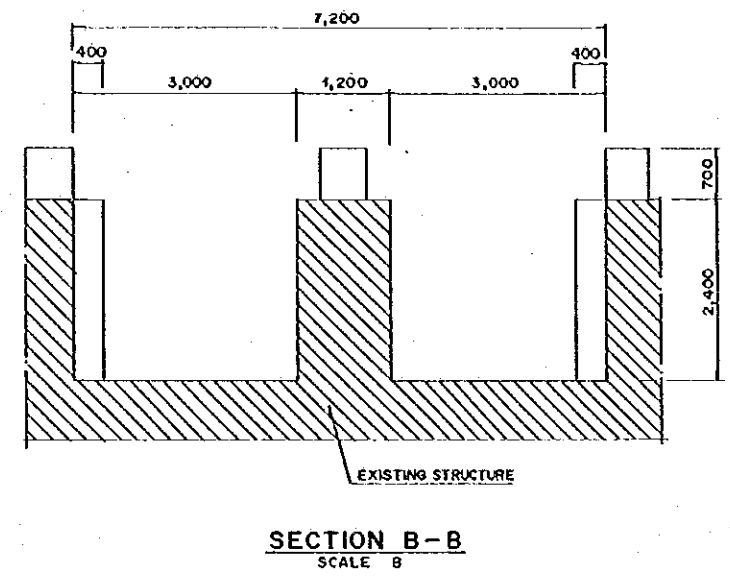
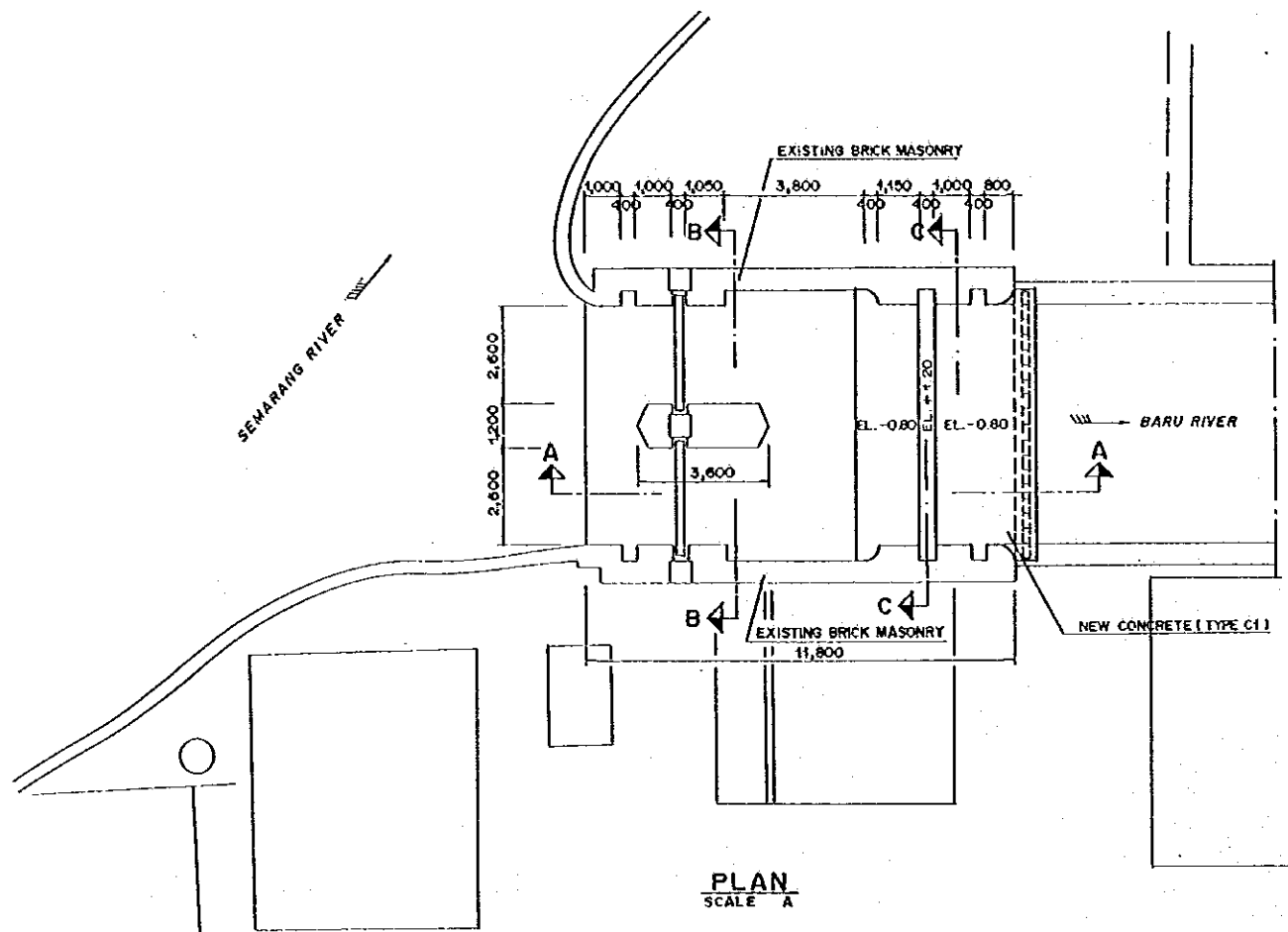


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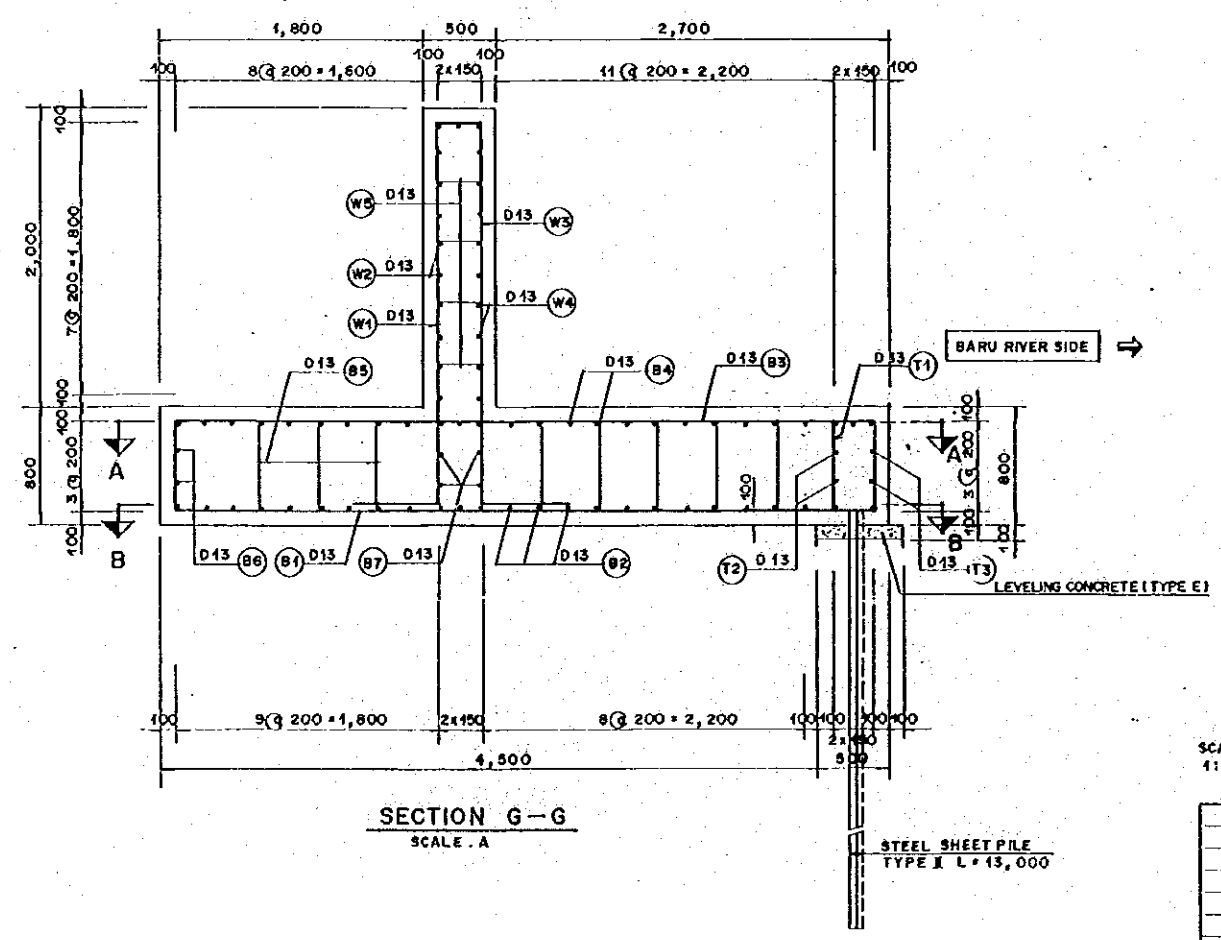
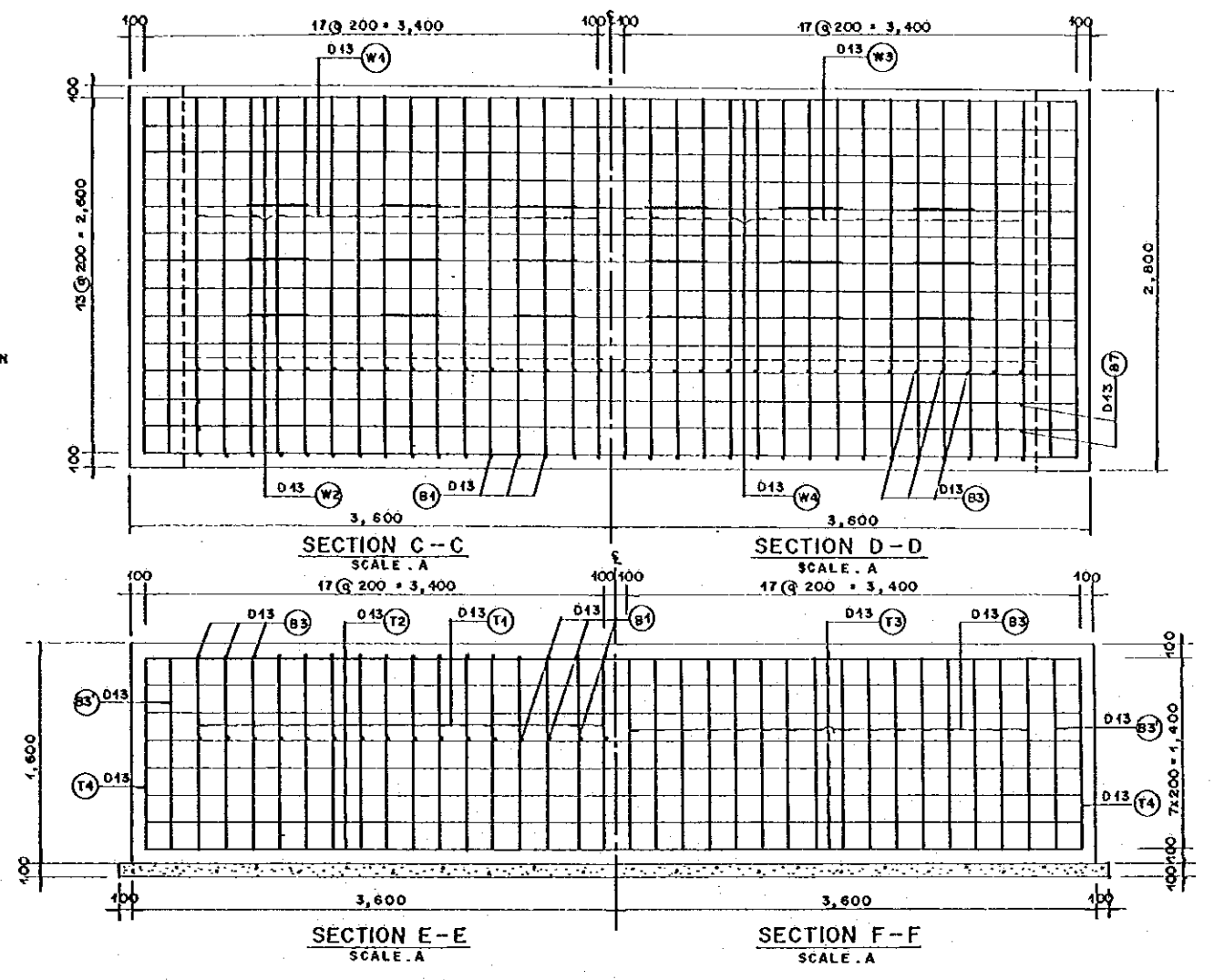
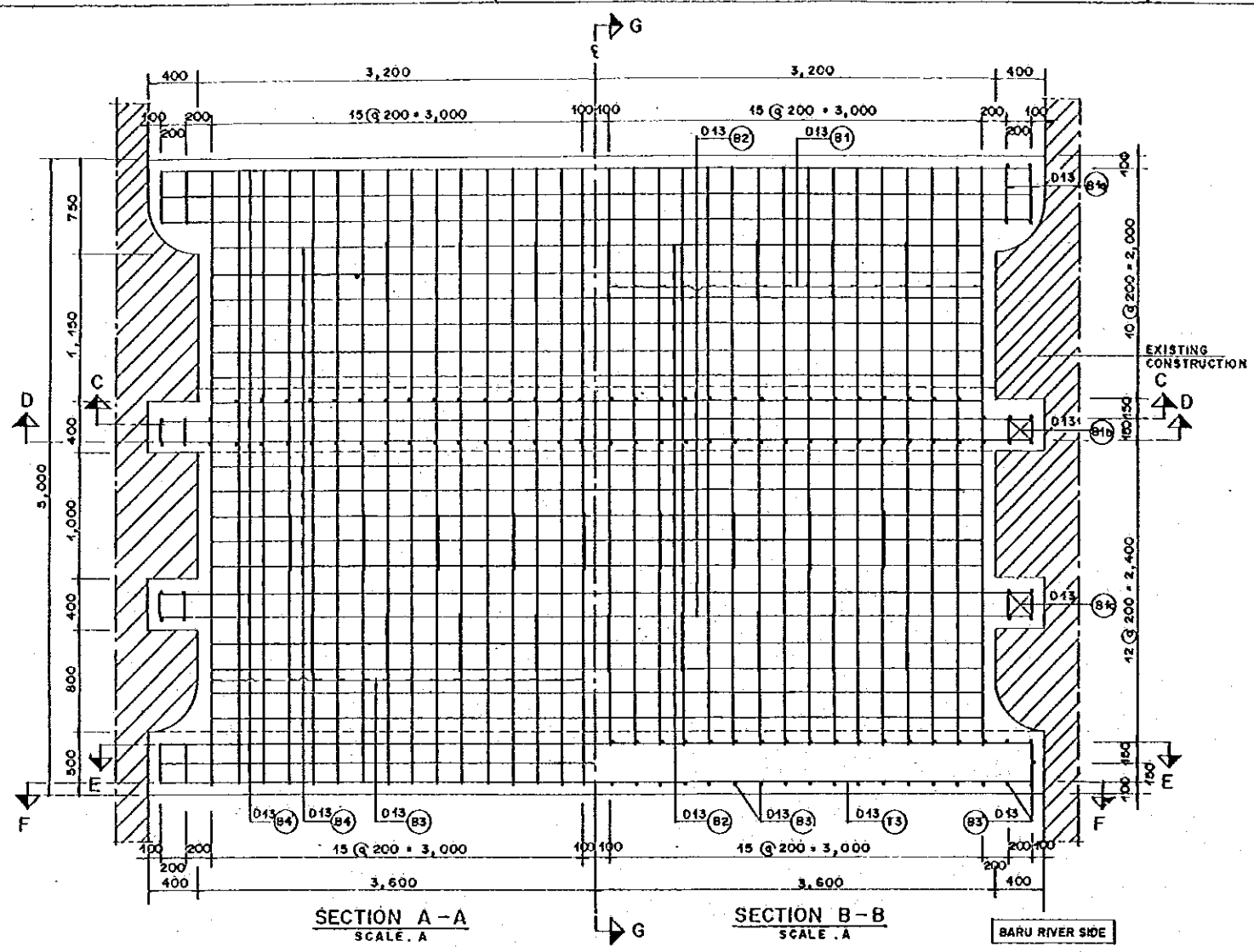
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| THE REPUBLIC OF INDONESIA<br>MINISTRY OF PUBLIC WORKS<br>DIRECTORATE GENERAL OF WATER RESOURCES DEVELOPMENT AND DIRECTORATE GENERAL OF RUMAN SETTLEMENT<br>BRATUNSELUNA FLOOD CONTROL PROJECT<br>COMPONENT: URBAN DRAINAGE SYSTEM IMPROVEMENT<br><b>BARU RIVER INSPECTION ROAD</b> |  | PROVINCE<br>CENTRAL JAVA<br>PROJECT NAME<br>FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA<br>DISTRICT<br>SEMARANG CITY<br>DRAWING NO. U-P3-B-R4-1<br>SHEET NO. 20 |
| JAPAN INTERNATIONAL COOPERATION AGENCY<br>CITI ENGINEERING CO., LTD. IN ASSOCIATION WITH<br>PACIFIC CONSULTANTS INTERNATIONAL AND<br>PABO ENGINEERING INC.   | DESIGNED<br>CHECKED<br>CHIEF OF PLANNING AND DESIGN<br>PROJECT MANAGER | DATE<br>CONTRACT NO.   |



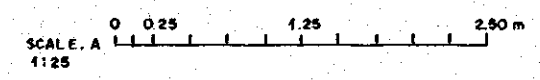
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| THE REPUBLIC OF INDONESIA<br>MINISTRY OF PUBLIC WORKS<br>DIRECTORATE GENERAL OF WATER RESOURCES DEVELOPMENT<br>AND DIRECTORATE GENERAL OF HUMAN SETTLEMENTS<br>JATUNGLORA FLOOD CONTROL PROJECT<br>COMPONENT: URBAN DRAINAGE SYSTEM IMPROVEMENT<br>BARU RIVER<br>CLOSING STRUCTURE<br>PLAN AND SECTION (1/2) |  | PROVINCE<br>CENTRAL JAVA<br>PROJECT NAME<br>FLOOD CONTROL, URBAN DRAINAGE AND<br>WATER RESOURCES DEVELOPMENT IN<br>SOERABAYA IN THE REPUBLIC OF INDONESIA<br>DISTRICT<br>SEMARANG CITY<br>DRAWING NO. U - P3 - B - M1 - 1<br>SHEET NO. 21 |
| JAWA INTERNATIONAL COOPERATION AGENCY<br>CE ENGINEERING CO. LTD. IN ASSOCIATION WITH<br>PACIFIC CONSULTANTS INTERNATIONAL AND<br>PAKO INTERNATIONAL INC.   | DESIGNED<br>CHECKED<br>APPROVED<br>CHIEF OF PLANNING AND DESIGN<br>PROJECT MANAGER | DATE<br>CONTRACT NO.  |



| REINFORCING BAR NO. | Ø (mm) | TYPE | BENDING DIMENSION (cm) |     |    |   |   | TOTAL LENGTH (m) | UNIT WEIGHT (kg/m) | WEIGHT PER BAR (kg) | NUMBER | WEIGHT (kg) | REMARK |
|---------------------|--------|------|------------------------|-----|----|---|---|------------------|--------------------|---------------------|--------|-------------|--------|
|                     |        |      | a                      | b   | c  | d | e |                  |                    |                     |        |             |        |
| B1                  | D13    | A    | 450                    | 60  |    |   |   | 5.100            | 1.040              | 5.304               | 32     | 168         |        |
| B2                  | D13    | B    | 620                    | 60  |    |   |   | 7.400            | 1.040              | 7.696               | 16     | 123         |        |
| B2'                 | D13    | B    | 700                    | 60  |    |   |   | 8.200            | 1.040              | 8.528               | 7      | 60          |        |
| B3                  | D13    | A    | 480                    | 60  |    |   |   | 5.400            | 1.040              | 5.616               | 32     | 179         |        |
| B3'                 | D13    | O    | 30                     | 140 | 10 |   |   | 3.300            | 1.040              | 3.432               | 4      | 14          |        |
| B4                  | D13    | C    | 620                    |     |    |   |   | 8.200            | 1.040              | 8.448               | 16     | 103         |        |
| B4'                 | D13    | C    | 700                    |     |    |   |   | 7.000            | 1.040              | 7.280               | 10     | 728         |        |
| B5                  | D13    | D    | 60                     | 40  | 10 |   |   | 1.100            | 1.040              | 1.144               | 27     | 31          |        |
| B6                  | D13    | B    | 700                    |     |    |   |   | 7.000            | 1.040              | 7.280               | 2      | 15          |        |
| B7                  | D13    | C    | 480                    |     |    |   |   | 4.800            | 1.040              | 4.992               | 4      | 20          |        |
| B7a                 | D13    | F    | 40                     | 60  | 10 |   |   | 2.100            | 1.040              | 2.184               | 4      | 9           |        |
| B7b                 | D13    | F    | 15                     | 240 | 10 |   |   | 5.200            | 1.040              | 5.400               | 4      | 77          |        |
| B7c                 | D13    | F    | 20                     | 60  | 10 |   |   | 1.700            | 1.040              | 1.768               | 4      | 7           |        |
| T1                  | D13    | A    | 60                     | 10  |    |   |   | 700              | 1.040              | 0.728               | 32     | 23          |        |
| T2                  | D13    | B    | 700                    | 30  |    |   |   | 7.900            | 1.040              | 7.904               | 8      | 63          |        |
| T3                  | D13    | C    | 700                    |     |    |   |   | 7.000            | 1.040              | 7.280               | 8      | 58          |        |
| T4                  | D13    | C    | 140                    |     |    |   |   | 1.400            | 1.040              | 1.456               | 2      | 3           |        |
| W1                  | D13    | E    | 280                    | 80  | 30 |   |   | 3.700            | 1.040              | 3.848               | 32     | 123         |        |
| W2                  | D13    | C    | 620                    |     |    |   |   | 6.200            | 1.040              | 6.448               | 10     | 65          |        |
| W3                  | D13    | A    | 280                    | 80  |    |   |   | 3.400            | 1.040              | 3.536               | 32     | 113         |        |
| W4                  | D13    | C    | 700                    |     |    |   |   | 7.000            | 1.040              | 7.280               | 10     | 73          |        |
| W5                  | D13    | D    | 30                     | 40  | 10 |   |   | 900              | 1.040              | 0.900               | 29     | 22          |        |
| TOTAL               |        |      |                        |     |    |   |   |                  |                    |                     | 2077   | Kg          |        |

LIST OF REINFORCING BAR OF BARU CLOSING GATE



| NO. | DATE | REVISIONS | DESIGNED | APPROVED |
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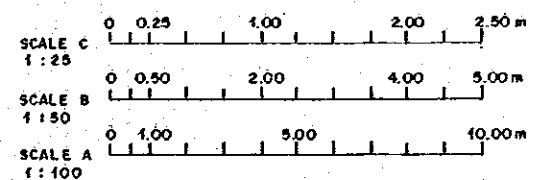
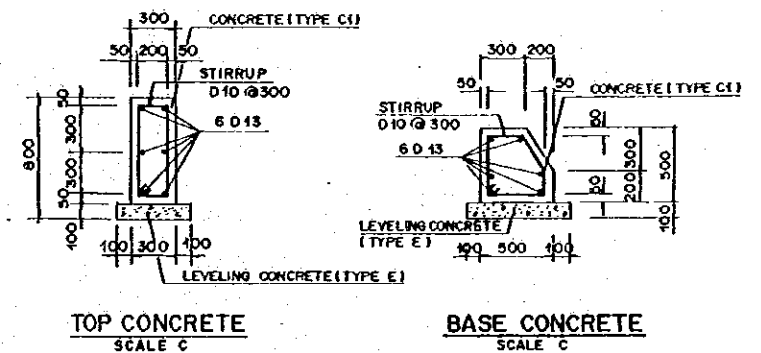
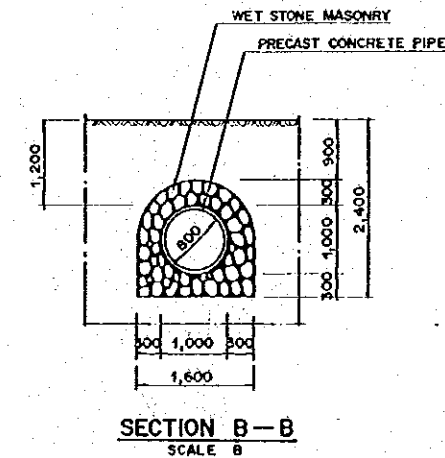
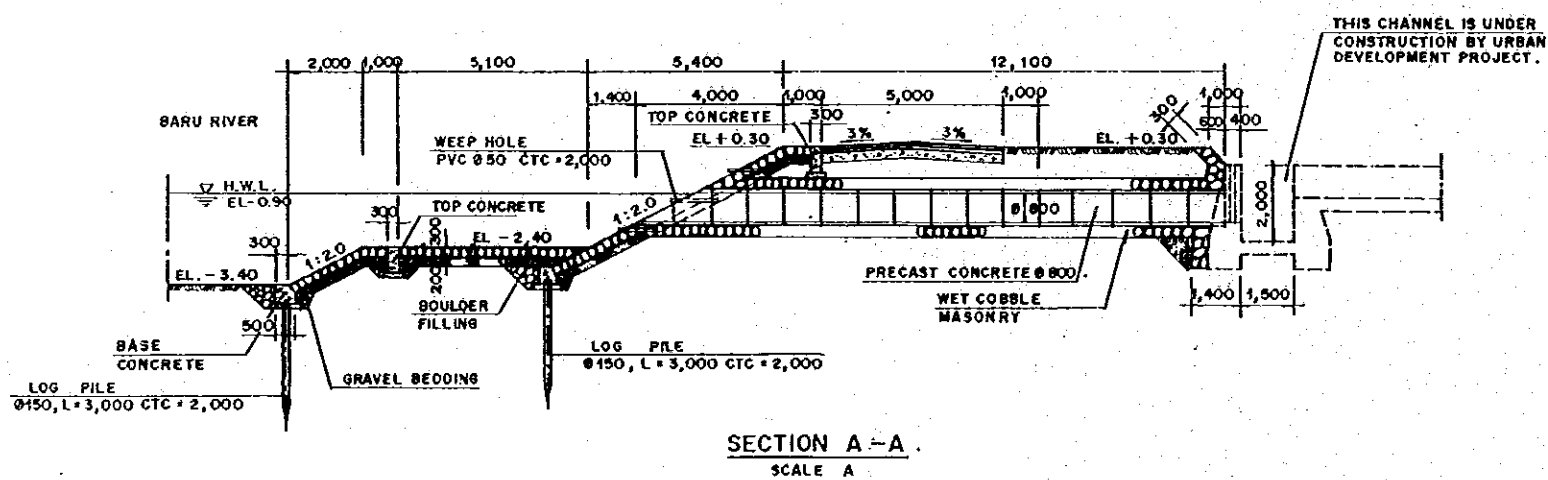
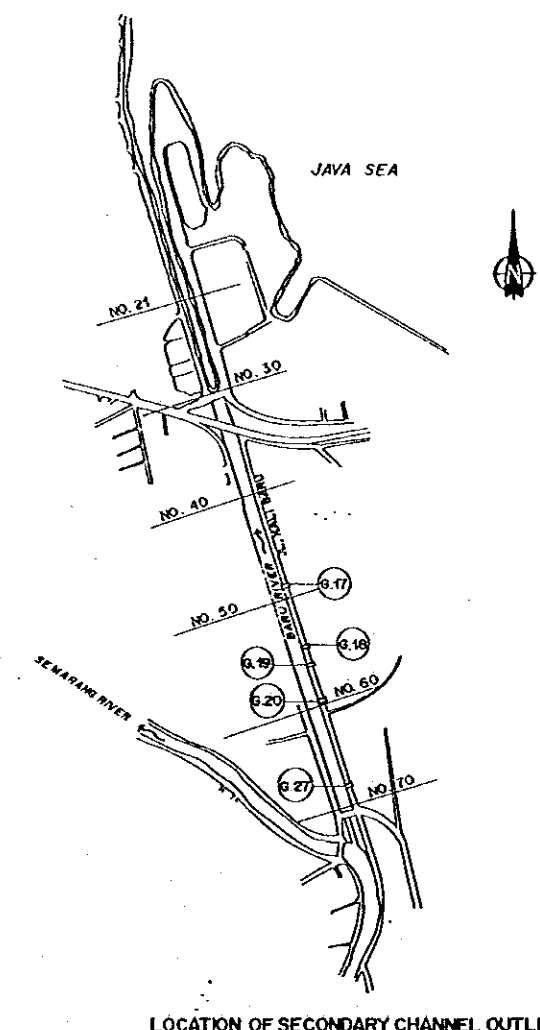
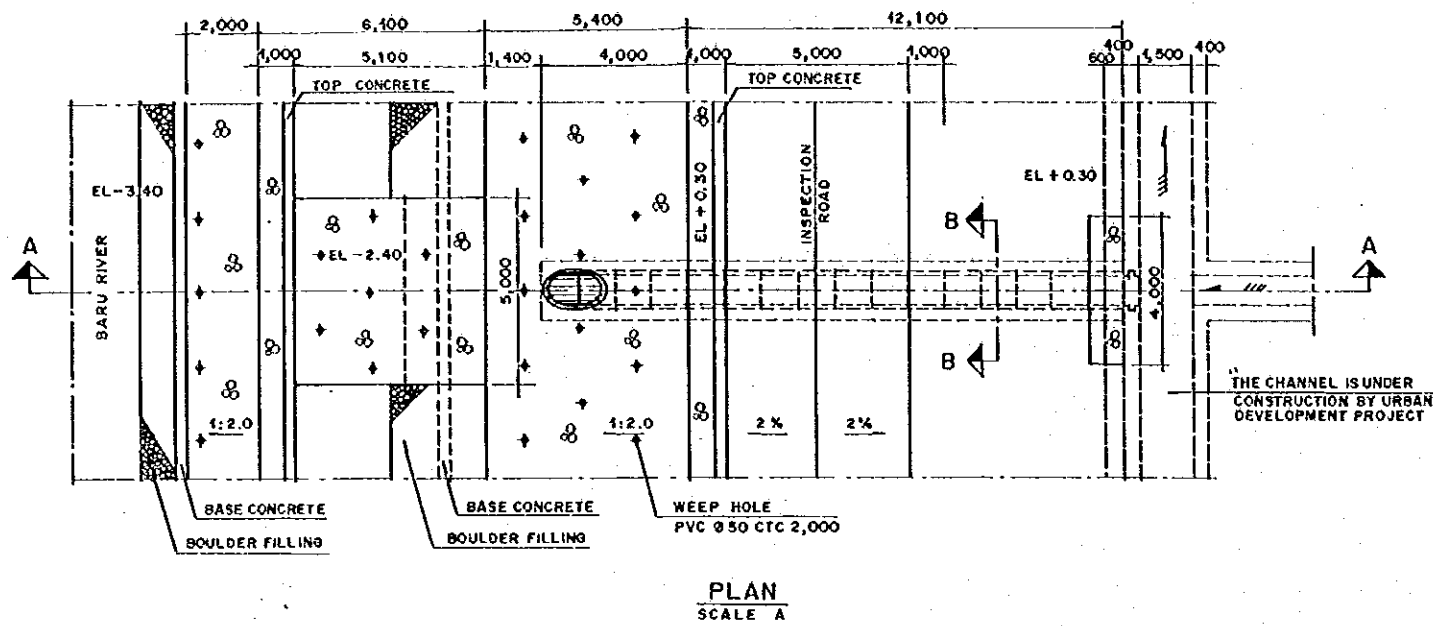
THE REPUBLIC OF INDONESIA  
MINISTRY OF PUBLIC WORKS  
DIRECTORATE GENERAL OF WATER RESOURCES DEVELOPMENT  
AND DIRECTORATE GENERAL OF HUMAN SETTLEMENT

JATUNUSUNDA FLOOD CONTROL PROJECT  
COMPONENT : URBAN DRAINAGE SYSTEM IMPROVEMENT  
BARU RIVER  
CLOSING STRUCTURE  
REINFORCING BAR ARRANGEMENT (2/2)

PROVINCE : CENTRAL JAVA  
PROJECT NAME : FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA  
DISTRICT : SEMARANG CITY  
DRAWING NO. U-PS-S-M-2  
SHEET NO. 22  
DATE :  
CONTRACT NO. :

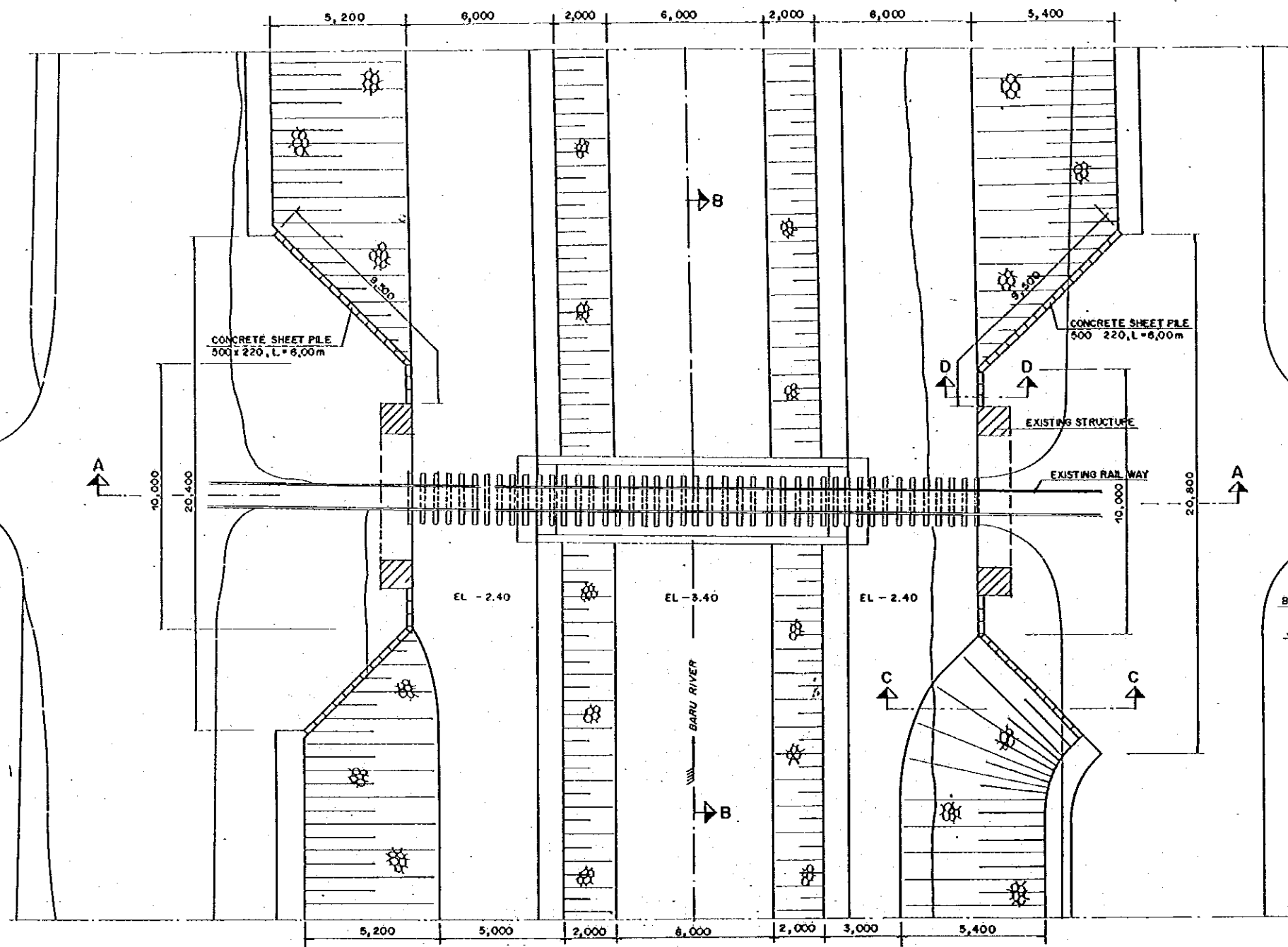
JAPAN INTERNATIONAL COOPERATION AGENCY  
CI ENGINEERING CONSULTANTS  
PACIFIC CONSULTANTS INTERNATIONAL AND  
TAKAO INTERNATIONAL INC.

DESIGNED :  
CHECKED :  
DATE :  
APPROVED :  
PROJECT MANAGER :

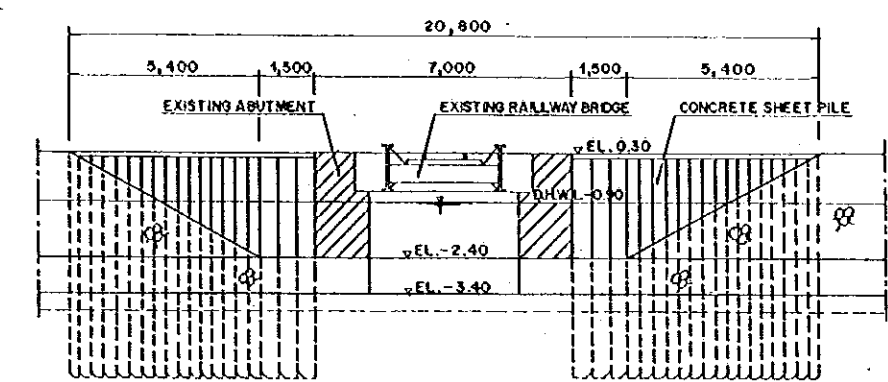


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| <b>THE REPUBLIC OF INDONESIA</b><br>MINISTRY OF PUBLIC WORKS<br>DIRECTORATE GENERAL OF WATER RESOURCES DEVELOPMENT<br>AND DIRECTORATE GENERAL OF HUMAN SETTLEMENT |  | PROVINCE<br><b>CENTRAL JAVA</b>   |
| <b>IRATUNMULIA FLOOD CONTROL PROJECT</b><br>COMPONENT : URBAN DRAINAGE SYSTEM IMPROVEMENT<br><b>BARU RIVER</b><br><b>SECONDARY CHANNEL OUTLET RECONSTRUCTION</b>  |  | PROJECT NAME<br><b>FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA</b><br>DISTRICT<br><b>SEMARANG CITY</b> |
| DWAN INTERNATIONAL COOPERATION AGENCY<br>CIVIL ENGINEERING CO., LTD. IN ASSOCIATION WITH<br>PACIFIC CONSULTANTS INTERNATIONAL AND<br>JAWA INTERNATIONAL SDC       | DESIGNED<br>CHECKED<br>CHIEF OF PLANNING AND DESIGN<br>PROJECT MANAGER | DRAWING NO. U-PS-B-MI-8<br>SHEET NO. 23<br>DATE<br>CONTRACT NO.   |

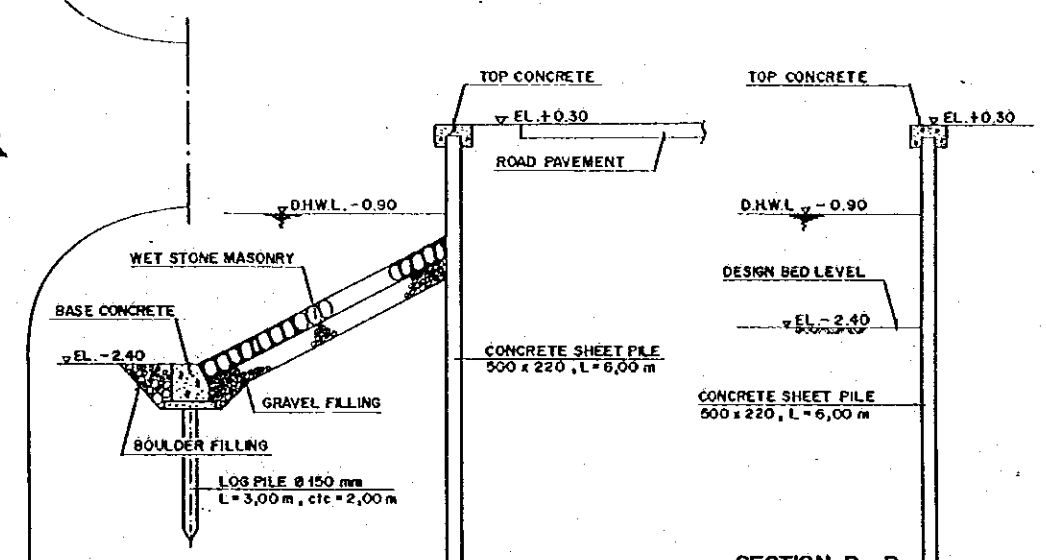
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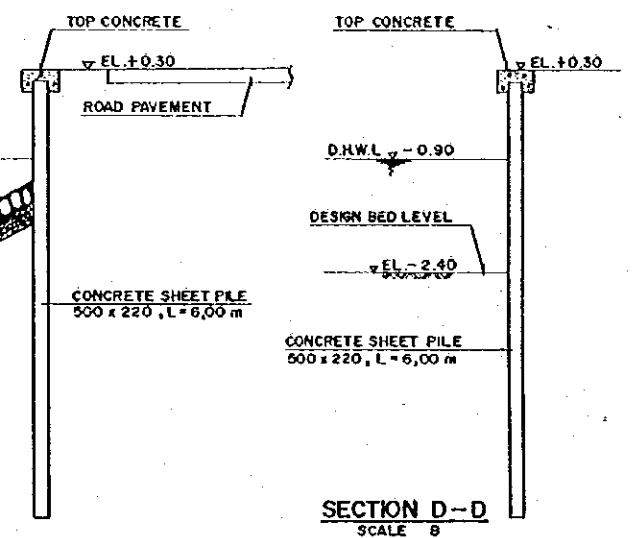
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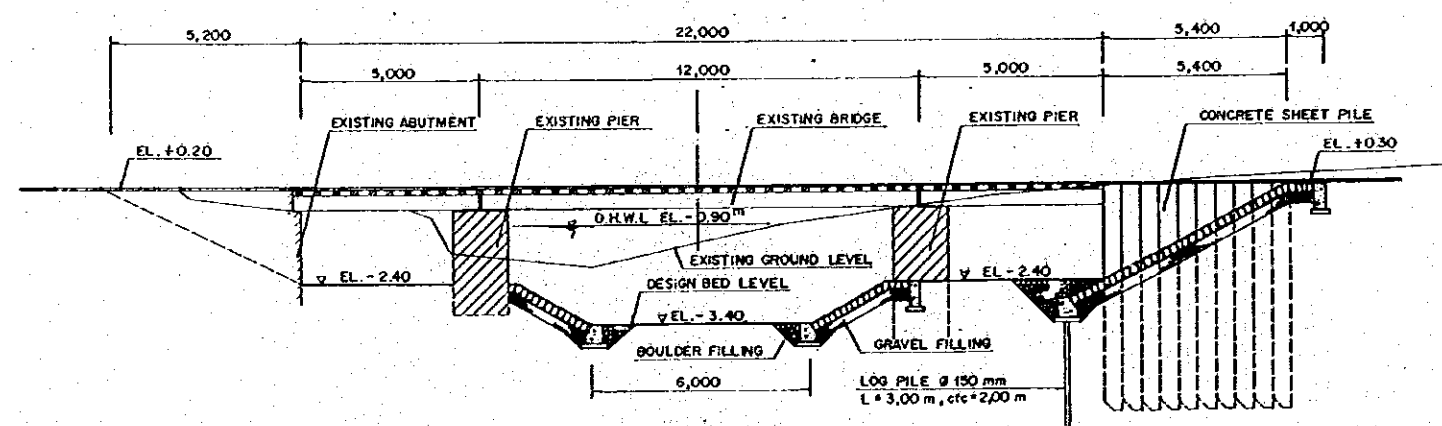
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SCALE A



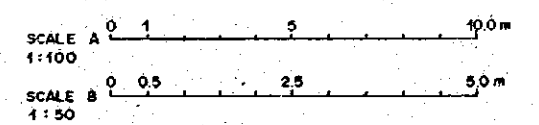
SECTION C-C  
SCALE B



SECTION D-D  
SCALE B



SECTION A-A  
SCALE A



NOTE:  
PROTECTION WORK FOR FOUNDATION OF EXISTING ABUTMENT AND PIERS IS NOT INCLUDED IN THIS CONTRACT

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|  | THE REPUBLIC OF INDONESIA<br>MINISTRY OF PUBLIC WORKS<br>DIRECTORATE GENERAL OF WATER RESOURCES DEVELOPMENT<br>AND DIRECTORATE GENERAL OF HUMAN SETTLEMENT |  | PROVINCE<br>CENTRAL JAWA   |
|  | BATUNGLUNG FLOOD CONTROL PROJECT<br>COMPONENT : URBAN DRAINAGE SYSTEM IMPROVEMENT<br>- BARU RIVER<br>- BRIDGE PROTECTION                                   |  | PROJECT NAME<br>FLOOD CONTROL, URBAN DRAINAGE AND<br>WATER RESOURCES DEVELOPMENT IN<br>SEMARANG IN THE REPUBLIC OF INDONESIA |
|  | LIPAT INTERNATIONAL COOPERATION AGENCY<br>PT. SANGHVI ENGINEERING CONSULTANTS<br>PACIFIC CONSULTANTS INTERNATIONAL AND<br>FARCO INTERNATIONAL DC.          |  | DISTRICT<br>SEMARANG CITY  |
|  | CHIEF OF PLANNING AND DESIGN<br>PROJECT MANAGER  |  | DRAWING NO. U - P.S. - B - M - 6<br>SHEET NO. 24<br>DATE CONTRACT NO.  |



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Sta. No. 41

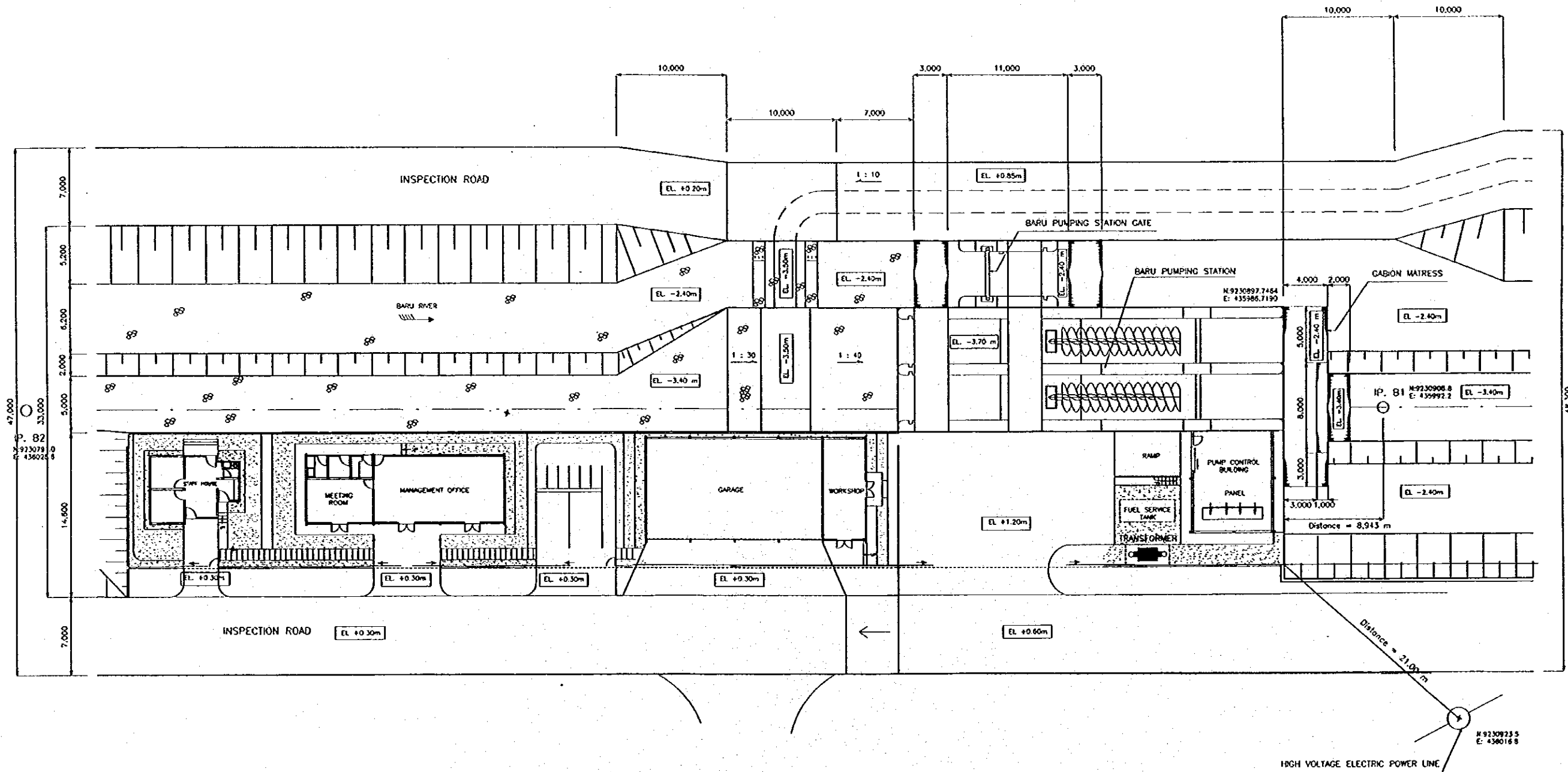
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Sta. No. 38

Sta. No. 37

Sta. No. 36



SCALE 1:100

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| <b>THE REPUBLIC OF INDONESIA</b><br>MINISTRY OF PUBLIC WORKS<br>DIRECTORATE GENERAL OF WATER RESOURCES DEVELOPMENT<br>AND DIRECTORATE GENERAL OF HUMAN SETTLEMENT |  | PROVINCE<br>CENTRAL JAYA   |
| BATUNDELIKA FLOOD CONTROL PROJECT<br>COMPONENT : URBAN DRAINAGE SYSTEM IMPROVEMENT<br><b>BARU PUMPING STATION</b><br>GENERAL LAYOUT                               |  | PROJECT NAME<br>FLOOD CONTROL, URBAN DRAINAGE AND<br>WATER RESOURCES DEVELOPMENT OF<br>SEMARANG IN THE REPUBLIC OF INDONESIA |
| JAWA INTERNATIONAL CORPORATION AGENCY<br>CITY ENGINEERING CO., LTD. IN ASSOCIATION WITH<br>PACIFIC CONSULTANTS INTERNATIONAL AND<br>TABCOR INTERNATIONAL PCL      |  | DISTRICT<br>SEMARANG CITY  |
| CHECKED<br>CHECKED<br>CROW OF PLANNING AND DESIGN<br>PROJECT MANAGER  |  | DRAWING NO.<br>U-P3-P-Ge-1<br>SHEET NO.<br>25<br>DATE<br>CONTRACT NO.  |