No.

**JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)**

**NATIONAL WATER SUPPLY AND DRAINAGE BOARD**
**MINISTRY OF HOUSING AND PLANTATION INFRASTRUCTURE**
**DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA**

# THE DETAILED DESIGN STUDY
# ON
# GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT
# IN
# THE DEMOCRATIC SOCIALIST REPUBLIC
# OF
# SRI LANKA

## (DRAFT) TENDER DOCUMENTS

## VOLUME IV 4E
## (PROCUREMENT OF PIPING MATERIALS FOR WATTEGAMA ROAD)

## MAY 2002

**NJS CONSULTANTS CO., LTD.**
**NIHON SUIDO CONSULTANTS CO., LTD.**

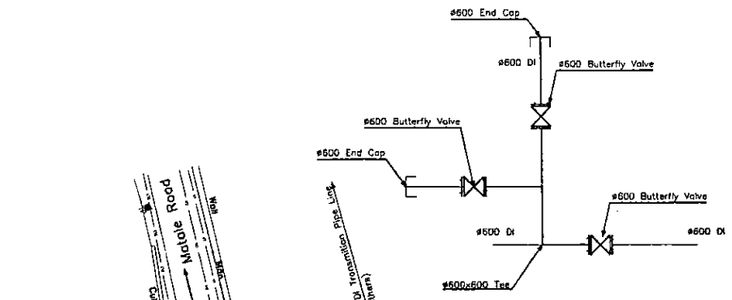
| S S S |
|---|
| CR (4) |
| 02 - 93 |

# Drawing List

| Drawing No. | Drawing Title |
|---|---|
| **20** | **Transmission Main** |
| 20-C-08-01 | Katugastota Bridge Junction To Bangalawatta Junction - Transmission Main |
| 20-C-08-02 | Katugastota Bridge Junction To Bangalawatta Junction - Transmission Main |
| 20-C-08-03 | Katugastota Bridge Junction To Bangalawatta Junction - Transmission Main |
| 20-C-08-04 | Katugastota Bridge Junction To Bangalawatta Junction - Transmission Main |
| 20-C-08-05 | Katugastota Bridge Junction To Bangalawatta Junction - Transmission Main |
| 20-C-08-06 | Katugastota Bridge Junction To Bangalawatta Junction - Transmission Main |
| 20-C-08-07 | Katugastota Bridge Junction To Bangalawatta Junction - Transmission Main |
| 20-C-08-08 | Katugastota Bridge Junction To Bangalawatta Junction - Transmission Main |
| 20-C-08-09 | Katugastota Bridge Junction To Bangalawatta Junction - Transmission Main |
| 20-C-08-10 | Katugastota Bridge Junction To Bangalawatta Junction - Transmission Main |
| 20-C-08-11 | Katugastota Bridge Junction To Bangalawatta Junction - Transmission Main |
| 20-C-08-12 | Katugastota Bridge Junction To Bangalawatta Junction - Transmission Main |
| 20-C-08-13 | Katugastota Bridge Junction To Bangalawatta Junction - Transmission Main |
| 20-C-08-14 | Katugastota Bridge Junction To Bangalawatta Junction - Transmission Main |
| 20-C-08-15 | Katugastota Bridge Junction To Bangalawatta Junction - Transmission Main |
| 20-C-08-16 | Katugastota Bridge Junction To Bangalawatta Junction - Transmission Main |
| 20-C-08-17 | Katugastota Bridge Junction To Bangalawatta Junction - Transmission Main |
| 20-C-08-18 | Katugastota Bridge Junction To Bangalawatta Junction - Transmission Main |
| 20-C-08-19 | Katugastota Bridge Junction To Bangalawatta Junction - Transmission Main Over Bridge 2/2 |
| 20-C-08-20 | Katugastota Bridge Junction To Bangalawatta Junction - Transmission Main Over Bridge 2/5 |
| 20-C-08-21 | Katugastota Bridge Junction To Bangalawatta Junction - Transmission Main Over Bridge 4/5 |
| 20-C-08-22 | Typical Drawing for Installation of Air Valve and Washout |
| 20-C-08-23 | Butterfly Valve Chamber -.600mm PN16 |
| 20-C-08-24 | Chamber for Sluice Valves .200mm-.300mm PN16 |
| 20-C-08-25 | Typical Drawing for Culvert Crossing |
| 20-C-08-26 | Typical Drawing for Culvert Crossing & Railway Crossing |
| 20-C-08-27 | Typical Drawing of Pipe Laying for Vertical Depression Point |
| 20-C-08-28 | Thrust Block Details |
| 20-C-08-29 | General Earth Works for Pipe Laying |
| | |
| 20-S-08-01 | Katugastota Junction to Balanagala Junction Over Bridge 2/2 |
| 20-S-08-02 | Katugastota Junction to Balanagala Junction Over Bridge 2/2 |
| 20-S-08-03 | Katugastota Junction to Balanagala Junction Over Bridge 2/5 |
| 20-S-08-04 | Katugastota Junction to Balanagala Junction Over Bridge 2/5 |
| 20-S-08-05 | Katugastota Junction to Balanagala Junction Over Bridge 4/5 |
| 20-S-08-06 | Katugastota Junction to Balanagala Junction Over Bridge 4/5 |
| 20-S-08-07 | Butterfly Valve Chamber -.600mm PN16- R/F Details |
| 20-S-08-08 | Chamber for Sluice Valves .200mm-.300mm PN16 - R/F Details |

| Drawing No. | Drawing Title |
|---|---|

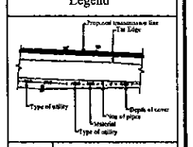
PIPE JUNCTION DETAIL - A



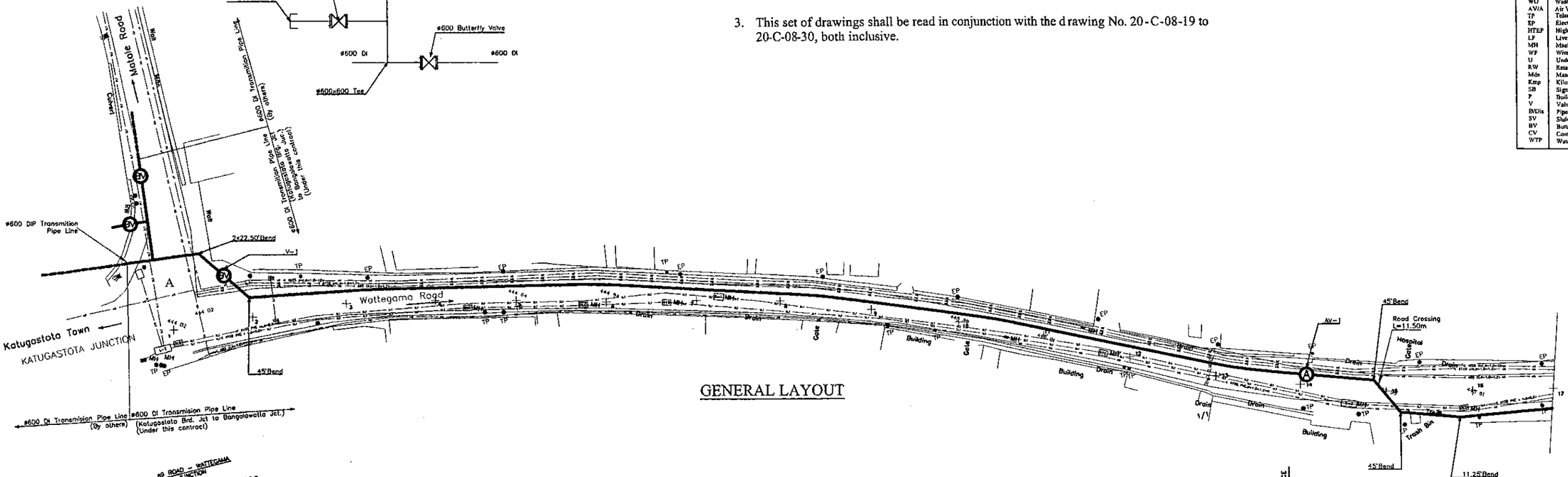

Notes:

1. Exact location for installation of valve on the pipeline shall be adjusted at site to suit the available space but without affecting its intended purpose and function.
2. The contractor shall programme his pipe laying activities including trench excavation based on this drawing and in conjunction with other related pipe line drawings for transmission, distribution, overflow and drain etc., particularly, in the vicinity of service reservoir.
3. This set of drawings shall be read in conjunction with the drawing No. 20-C-08-19 to 20-C-08-30, both inclusive.

Legend



| | |
|---|---|
| SLT | Telecom |
| WT | Water Transmission |
| WD | Water Distribution |
| ELE | Electricity |
| PVC | Polyvinyl Chloride Pipe |
| DI | Ductile Iron Pipe |
| CI | Cast Iron Pipe |
| GI | Galvanized Iron Pipe |
| WO | Wash Out |
| AV/A | Air Valve |
| TP | Telecom Post |
| EP | Electric Pan |
| HTEP | High Tension Electric Post |
| LF | Live Fence |
| MH | Manhole |
| WF | Wire Fence |
| U | Undefined Boundary |
| RW | Retaining Wall |
| Mdn | Masonry Drain |
| Kmp | Kilometer Post |
| SB | Sign Board |
| P | Building |
| V | Valve |
| ø/Dia | Pipe Diameter |
| SV | Sluice Valve |
| BV | Butterfly Valve |
| CV | Control Valve (SV/BV Types) |
| WTP | Water Treatment Plant |

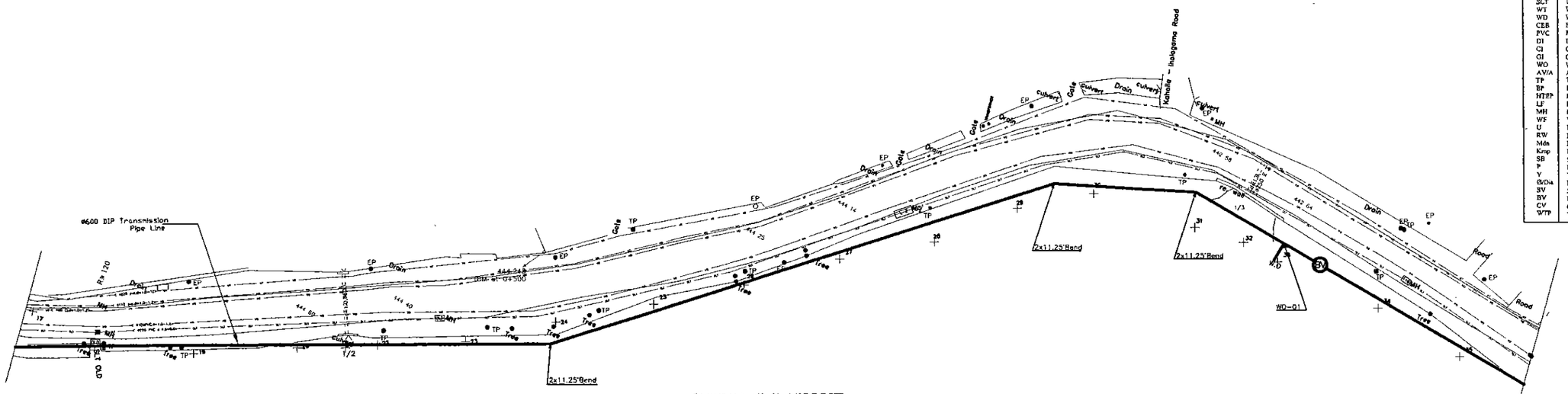



GENERAL LAYOUT

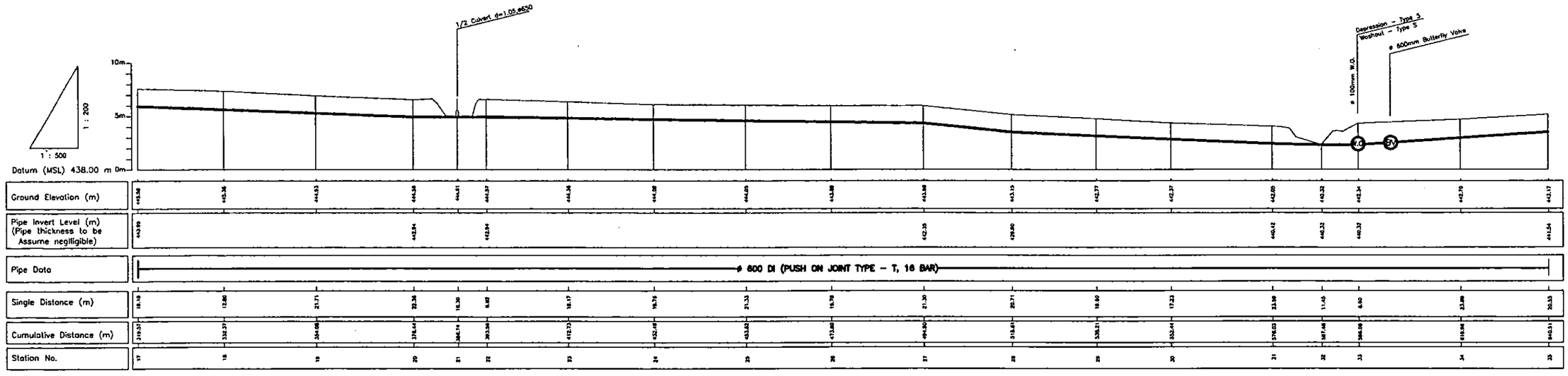
LONGITUDINAL SECTION

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT | JICA JAPAN INTERNATIONAL COOPERATION AGENCY | TITLE: KATUGASTOTA BRIDGE JUNCTION TO BANGALAWATTA JUNCTION - TRANSMISSION MAIN | | | | | | | SHEET 01 OF 18 |
| CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD | CONSULTANTS : NJS CONSULTANTS CO., LTD. - JAPAN; NIHON SUIDO CONSULTANTS CO., LTD.- JAPAN | REV. | DESCRIPTION | DATE | SIGN. | DESIGNED: Taketoshi FUJIYAMA | DRAWN: Kalinga | PM: (CONSULTANT) Ikuo MIWA | CE: (P&D) | SCALE: HORIZONTAL - 1:500 VERTICAL - 1:200 |
| | | | | | | CHECKED: DESIGN CHIEF | AGM: (P&D) | DGM: (P&D) | DATE: 31/05/2002 | DRAWING NO.: 20-C-08-01 |

DATE:24/04/2002 Wanni (CAD 1/D/ FINAL DRAWINGS/TRANSMISSION/.....



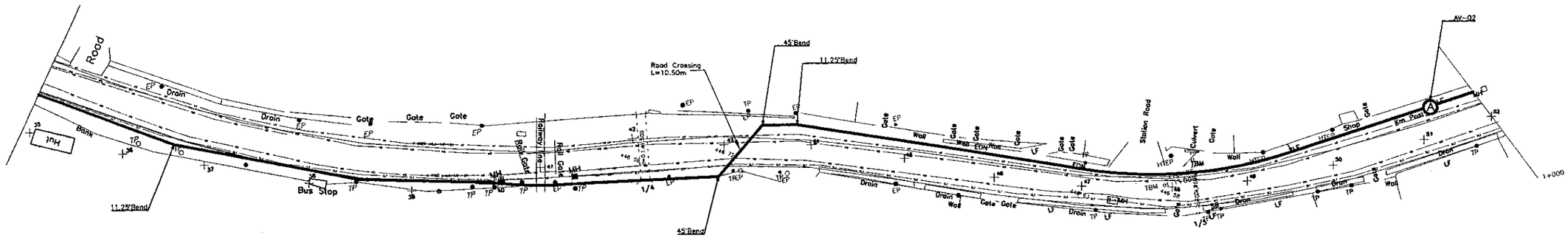

GENERAL LAYOUT



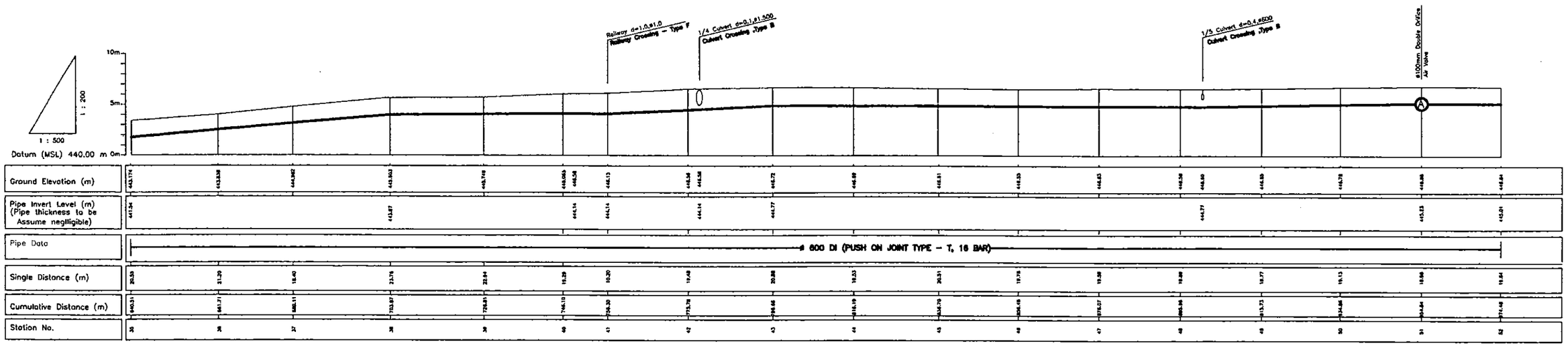

LONGITUDINAL SECTION

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT | JICA JAPAN INTERNATIONAL COOPERATION AGENCY | TITLE: KATUGASTOTA BRIDGE JUNCTION TO BANGALAWATTA JUNCTION - TRANSMISSION MAIN | | | | | SHEET 02 OF 18 |
| CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD | CONSULTANTS : NJS CONSULTANTS CO., LTD. - JAPAN; NIHON SUIDO CONSULTANTS CO., LTD.- JAPAN | REV. / DESCRIPTION / DATE / SIGN. | DESIGNED: Taketoshi FUJIYAMA | DRAWN: Kalinga | PM: (CONSULTANT) Ikuo MIWA | CE: (P&D) | SCALE: HORIZONTAL - 1:500 VERTICAL - 1:200 |
| | | | CHECKED: DESIGN CHIEF | AGM: (P&D) | DGM: (P&D) | DATE: 31/05/2002 | DRAWING NO.: 20-C-08-02 |

DATE: 24/04/2002 Wanni (CAD 1/DE/FINAL DRAWINGS/TRANSMISSION/.....




GENERAL LAYOUT



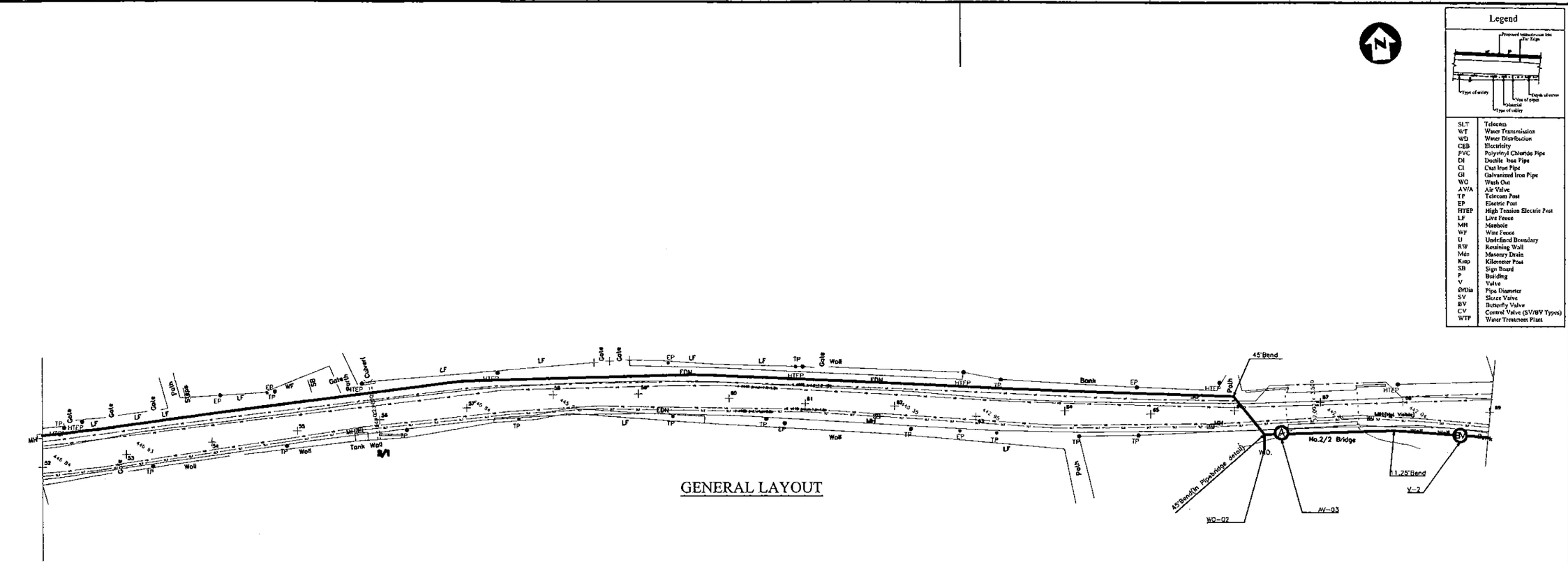

LONGITUDINAL SECTION

## Legend

| | |
|---|---|
| SLT | Telecom |
| WT | Water Transmission |
| WD | Water Distribution |
| CEB | Electricity |
| PVC | Polyvinyl Chloride Pipe |
| DI | Ductile Iron Pipe |
| CI | Cast Iron Pipe |
| GI | Galvanized Iron Pipe |
| WO | Wash Out |
| AVA | Air Valve |
| TP | Telecom Post |
| EP | Electric Post |
| HTEP | High Tension Electric Post |
| LF | Live Fence |
| MH | Manhole |
| WF | Wire Fence |
| U | Undefined Boundary |
| RW | Retaining Wall |
| Mdn | Masonry Drain |
| Kmp | Kilometer Post |
| SB | Sign Board |
| B | Building |
| V | Valve |
| ØDia | Pipe Diameter |
| SV | Sluice Valve |
| BV | Butterfly Valve |
| CV | Control Valve (SV/BV Types) |
| WTP | Water Treatment Plant |

| | | | |
|---|---|---|---|
| PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT | JAPAN INTERNATIONAL COOPERATION AGENCY | TITLE: KATUGASTOTA BRIDGE JUNCTION TO BANGALAWATTA JUNCTION - TRANSMISSION MAIN | SHEET 03 OF 18 |
| CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD | CONSULTANTS : NJS CONSULTANTS CO., LTD. - JAPAN; NIHON SUIDO CONSULTANTS CO., LTD.- JAPAN | REV. / DESCRIPTION / DATE / SIGN. | SCALE: HORIZONTAL - 1:500 VERTICAL - 1:200 |
| | | DESIGNED: Taketoshi FUJIYAMA; DRAWN: Kalinga; PM: (CONSULTANT) Ikuo MIWA; CE: (P&D) | |
| | | CHECKED: DESIGN CHIEF; AGM: (P&D); DGM: (P&D); DATE: 31/05/2002 | DRAWING NO.: 20-C-08-03 |

DATE: 24/04/2002 Wanni (CAD 1)/ FINAL DRAWINGS/TRANSMISSION/

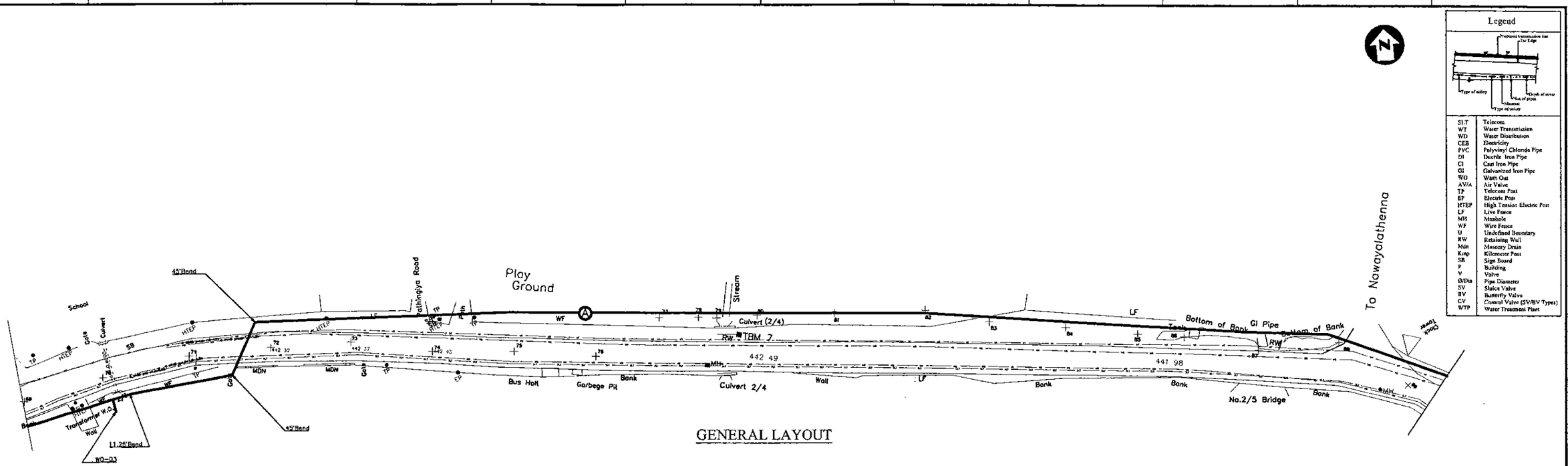



GENERAL LAYOUT

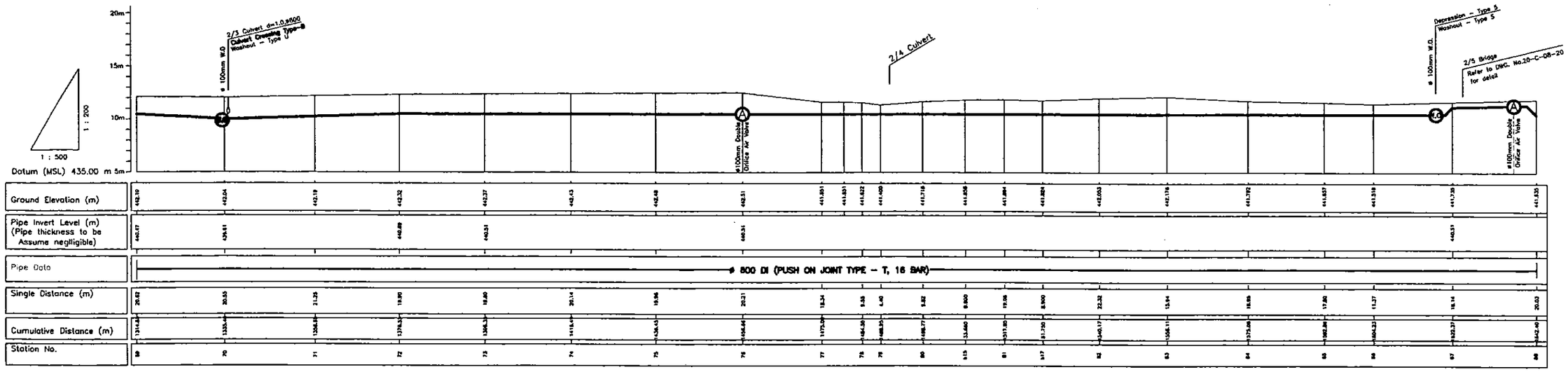
LONGITUDINAL SECTION

| | | | |
|---|---|---|---|
| PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT | JICA JAPAN INTERNATIONAL COOPERATION AGENCY | TITLE: KATUGASTOTA BRIDGE JUNCTION TO BANGALAWATTA JUNCTION - TRANSMISSION MAIN | SHEET 04 OF 18 |
| CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD | CONSULTANTS : NJS CONSULTANTS CO., LTD. - JAPAN; NIHON SUIDO CONSULTANTS CO., LTD.- JAPAN | REV. / DESCRIPTION / DATE / SIGN. | DESIGNED: Taketoshi FUJIYAMA; DRAWN: Kalinga; PM: (CONSULTANT) Ikuo MIWA; CE: (P&D); SCALE: HORIZONTAL - 1:500 VERTICAL - 1:200 |
| | | | CHECKED: DESIGN CHIEF; AGM: (P&D); DGM: (P&D); DATE: 31/05/2002; DRAWING NO.: 20-C-08-04 |

DATE: 24/04/2002 Wani (CAD 1/D) FINAL DRAWINGS/TRANSMISSION/




GENERAL LAYOUT

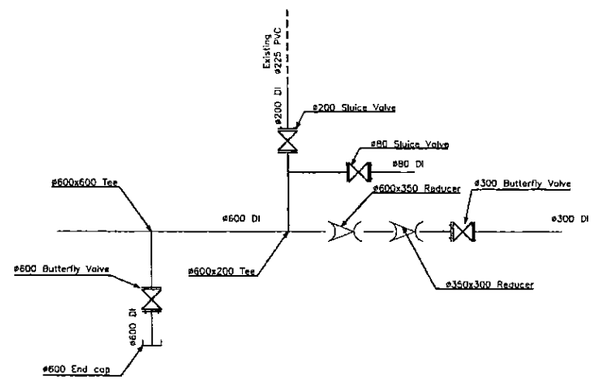


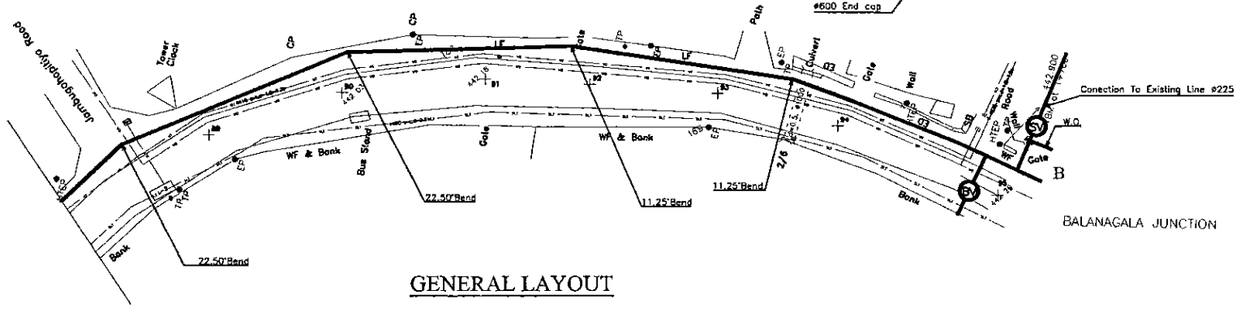

LONGITUDINAL SECTION

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT | JICA JAPAN INTERNATIONAL COOPERATION AGENCY | TITLE: KATUGASTOTA BRIDGE JUNCTION TO BANGALAWATTA JUNCTION - TRANSMISSION MAIN | | | | | SHEET 05 OF 18 |
| CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD | CONSULTANTS : NJS CONSULTANTS CO., LTD. - JAPAN; NIHON SUIDO CONSULTANTS CO., LTD.- JAPAN | REV. / DESCRIPTION / DATE / SIGN. | DESIGNED: Taketoshi FUJIYAMA | DRAWN: Kalinga | PM: (CONSULTANT) Ikuo MIWA | CE: (P&D) | SCALE: HORIZONTAL - 1:500 VERTICAL - 1:200 |
| | | | CHECKED: DESIGN CHIEF | AGM: (P&D) | DGM: (P&D) | DATE: 31/05/2002 | DRAWING NO.: 20-C-08-05 |

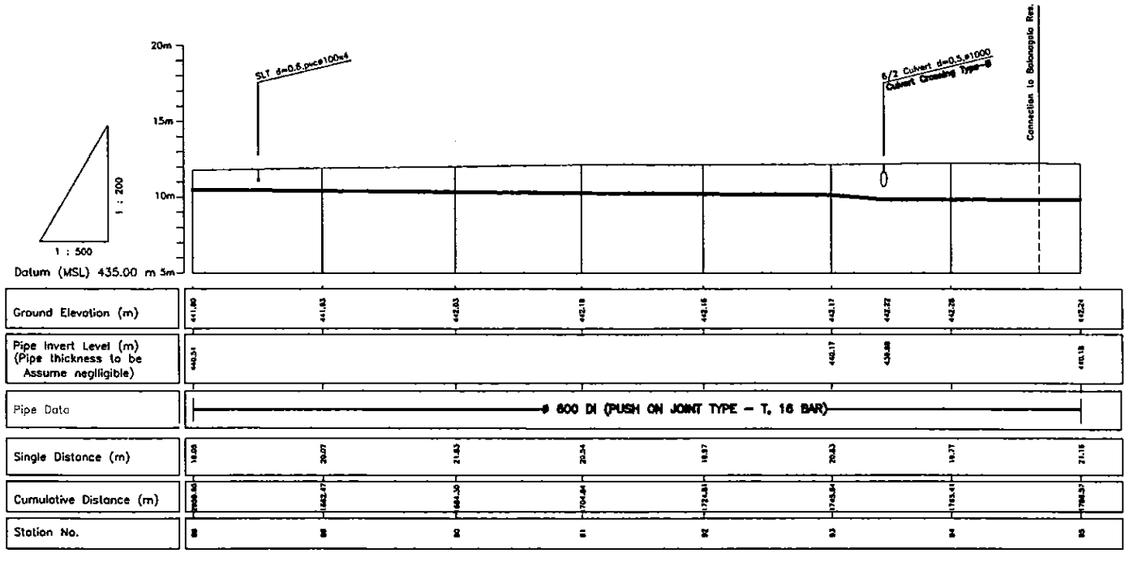
DATE: 24/04/2002 W:\anni (CAD 1/D\ FINAL DRAWINGS\TRANSMISSION\

## PIPE JUNCTION DETAIL - B



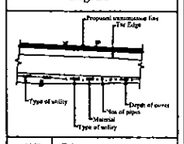




## GENERAL LAYOUT




## LONGITUDINAL SECTION

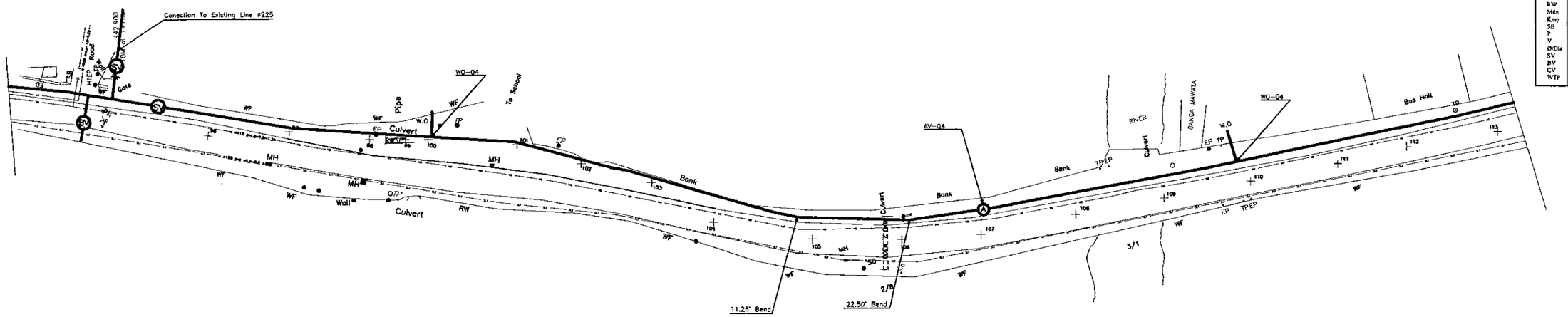
### Legend



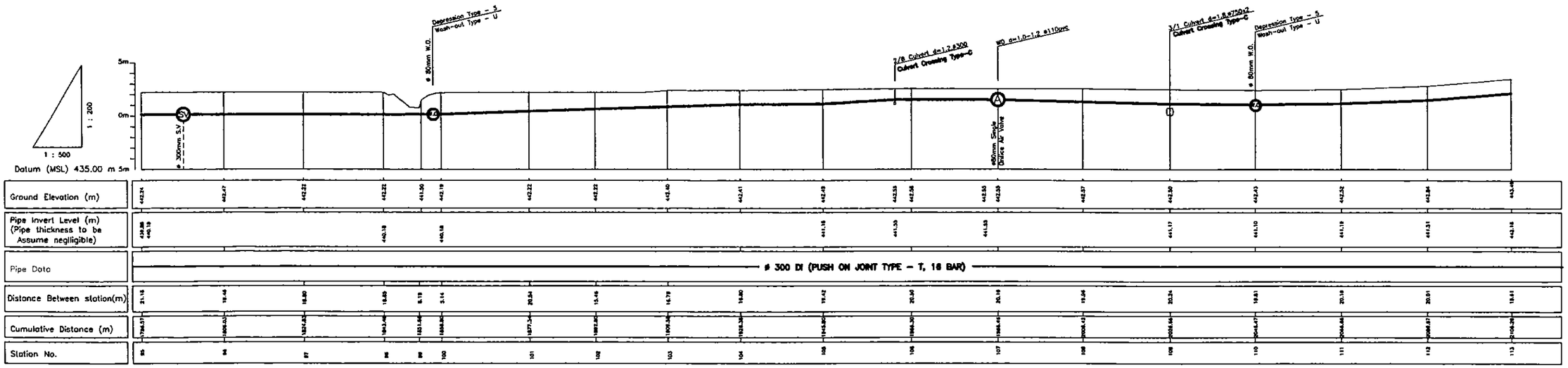

| | |
|---|---|
| SLT | Telecom |
| WT | Water Transmission |
| WD | Water Distribution |
| CEB | Electricity |
| PVC | Polyvinyl Chloride Pipe |
| DI | Ductile Iron Pipe |
| CI | Cast Iron Pipe |
| GI | Galvanized Iron Pipe |
| WO | Wash Out |
| AVFA | Air Valve |
| TP | Telecom Post |
| EP | Electric Post |
| HTEP | High Tension Electric Post |
| LF | Live Fence |
| MH | Manhole |
| WF | Wire Fence |
| U | Undefined Boundary |
| RW | Retaining Wall |
| Mdn | Masonry Drain |
| Kmp | Kilometer Post |
| SB | Sign Board |
| P | Building |
| V | Valve |
| ØDia | Pipe Diameter |
| SV | Sluice Valve |
| BV | Butterfly Valve |
| CV | Control Valve (SV/BV Types) |
| WTP | Water Treatment Plant |

| | | | |
|---|---|---|---|
| PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT | JICA JAPAN INTERNATIONAL COOPERATION AGENCY | TITLE: KATUGASTOTA BRIDGE JUNCTION TO BANGALAWATTA JUNCTION - TRANSMISSION MAIN | SHEET 06 OF 18 |
| CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD | CONSULTANTS : NJS CONSULTANTS CO., LTD. - JAPAN; NIHON SUIDO CONSULTANTS CO., LTD.- JAPAN | REV. / DESCRIPTION / DATE / SIGN. | DESIGNED: Taketoshi FUJIYAMA; DRAWN: Kalinga; PM: (CONSULTANT) Ikuo MIWA; CE: (P&D); SCALE: HORIZONTAL - 1:500 VERTICAL - 1:200 |
| | | CHECKED: DESIGN CHIEF | AGM: (P&D); DGM: (P&D); DATE: 31/05/2002; DRAWING NO.: 20-C-08-06 |

DATE: 24/04/2002 Wanni (CAD 1/D)/ FINAL DRAWINGS/TRANSMISSION/.....




GENERAL LAYOUT



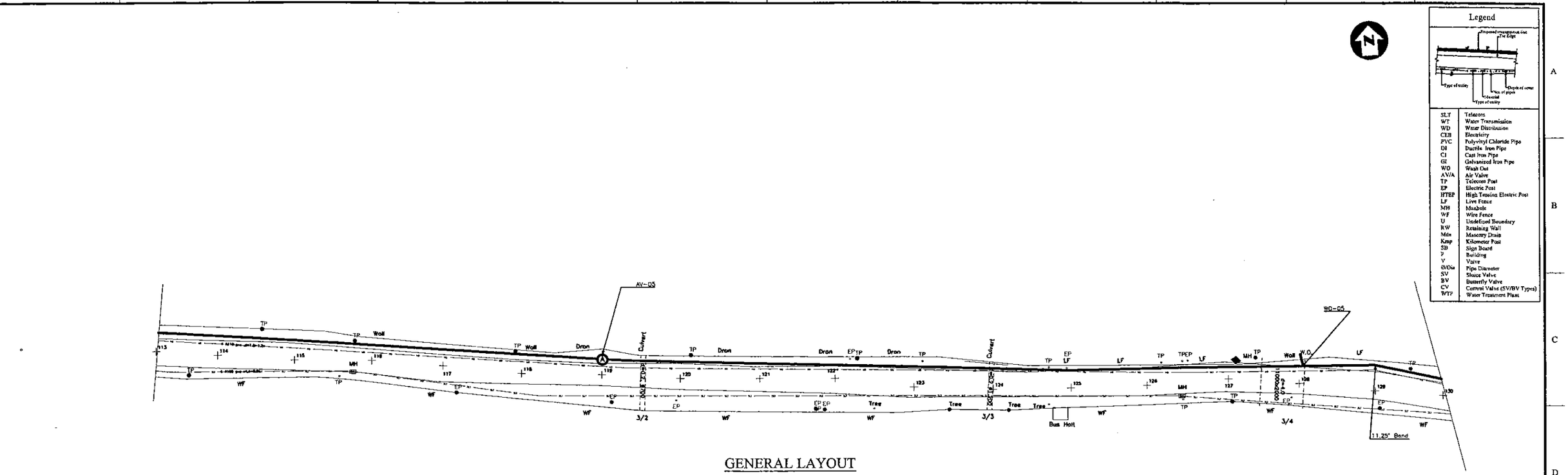

LONGITUDINAL SECTION

Legend

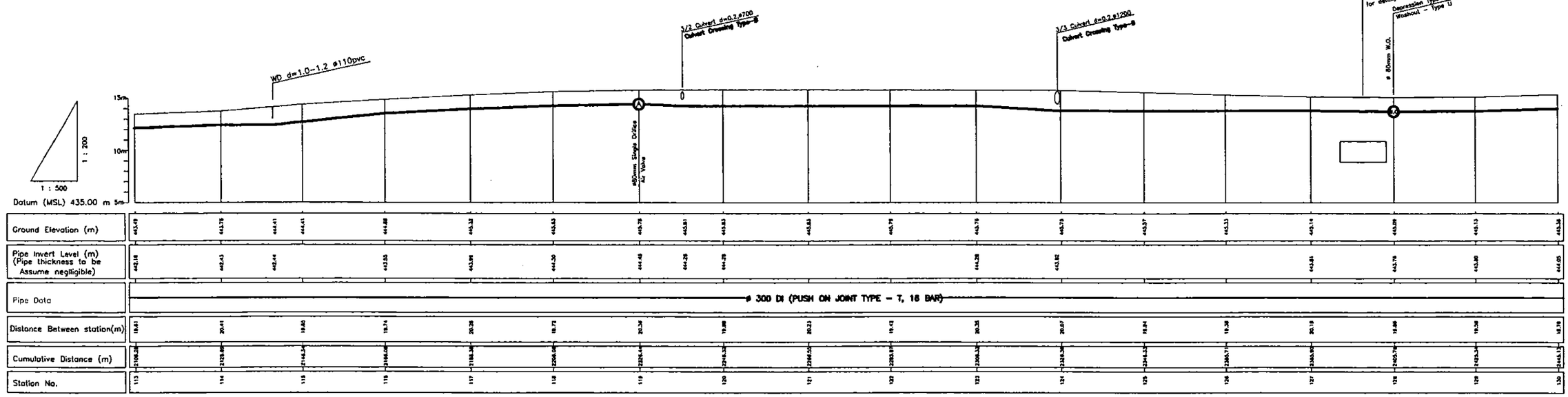
| | |
|---|---|
| SLT | Telecom |
| WT | Water Transmission |
| WD | Water Distribution |
| CEB | Electricity |
| PVC | Polyvinyl Chloride Pipe |
| DI | Ductile Iron Pipe |
| CI | Cast Iron Pipe |
| GI | Galvanized Iron Pipe |
| WO | Wash Out |
| AV/A | Air Valve |
| TP | Telecom Post |
| EP | Electric Post |
| HTEP | High Tension Electric Post |
| LF | Live Fence |
| MH | Manhole |
| WF | Wire Fence |
| U | Underfined Boundary |
| RW | Retaining Wall |
| Mdn | Masonry Drain |
| Kmp | Kilometer Post |
| SB | Sign Board |
| P | Building |
| V | Valve |
| Ø/Dia | Pipe Diameter |
| SV | Sluice Valve |
| BV | Butterfly Valve |
| CV | Control Valve (SV/BV Types) |
| WTP | Water Treatment Plant |

| | | | |
|---|---|---|---|
| PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT | JICA JAPAN INTERNATIONAL COOPERATION AGENCY | TITLE: KATUGASTOTA BRIDGE JUNCTION TO BANGALAWATTA JUNCTION - TRANSMISSION MAIN | SHEET 07 OF 18 |
| CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD | CONSULTANTS : NJS CONSULTANTS CO., LTD. - JAPAN; NIHON SUIDO CONSULTANTS CO., LTD.- JAPAN | REV. / DESCRIPTION / DATE / SIGN. | DESIGNED: Taketoshi FUJIYAMA; DRAWN: Kalinga; PM: (CONSULTANT) Ikuo MIWA; CE: (P&D); SCALE: HORIZONTAL - 1:500 VERTICAL - 1:200 |
| | | | CHECKED: DESIGN CHIEF; AGM: (P&D); DGM: (P&D); DATE: 31/05/2002; DRAWING NO.: 20-C-08-07 |

DATE: 24/04/2002 Wanni (CAD 1)\C /FINAL DRAWINGS/TRANSMISSION/



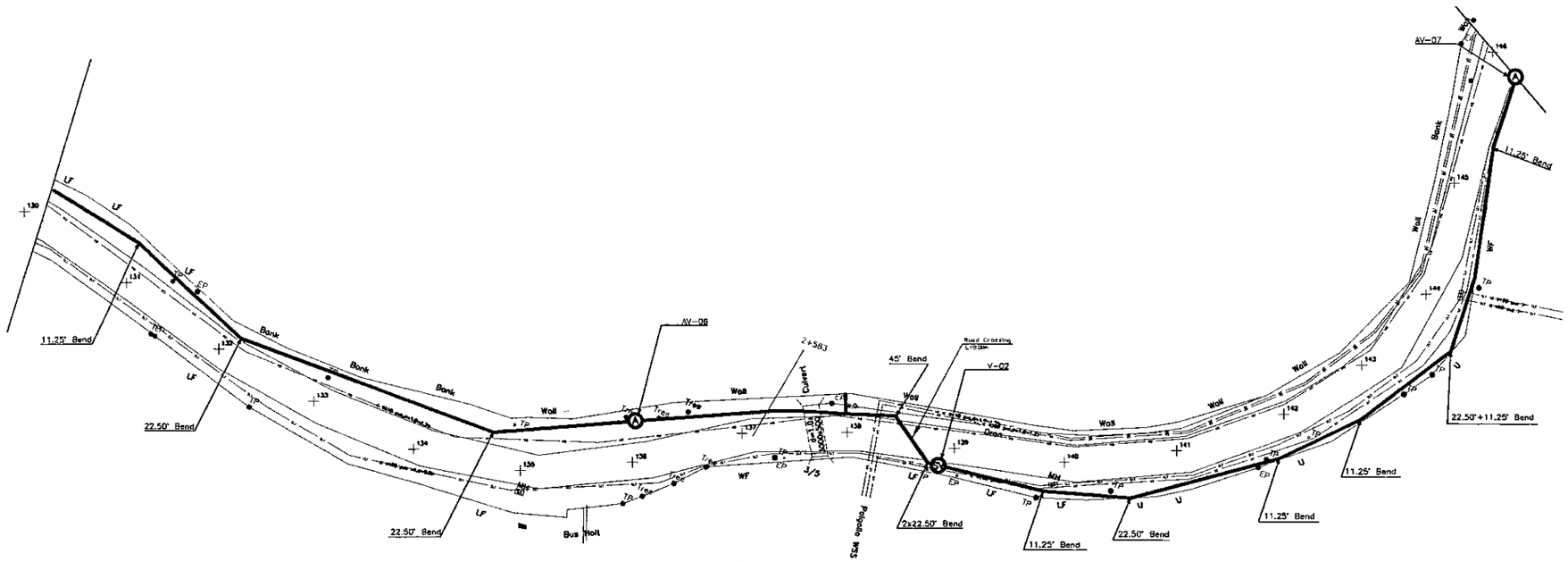

GENERAL LAYOUT




LONGITUDINAL SECTION

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT | JICA JAPAN INTERNATIONAL COOPERATION AGENCY | TITLE: KATUGASTOTA BRIDGE JUNCTION TO BANGALAWATTA JUNCTION - TRANSMISSION MAIN | | | | | SHEET 08 OF 18 |
| CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD | CONSULTANTS : NJS CONSULTANTS CO., LTD. - JAPAN; NIHON SUIDO CONSULTANTS CO., LTD.- JAPAN | REV. / DESCRIPTION / DATE / SIGN. | DESIGNED: Taketoshi FUJIYAMA | DRAWN: Kalinga | PM: (CONSULTANT) Ikuo MIWA | CE: (P&D) | SCALE: HORIZONTAL - 1:500 VERTICAL - 1:200 |
| | | | CHECKED: DESIGN CHIEF | AGM: (P&D) | DGM: (P&D) | DATE: 31/05/2002 | DRAWING NO.: 20-C-08-08 |

DATE: 24/04/2002 Wanni (CAD 1/D)/ FINAL DRAWINGS/TRANSMISSION/




GENERAL LAYOUT



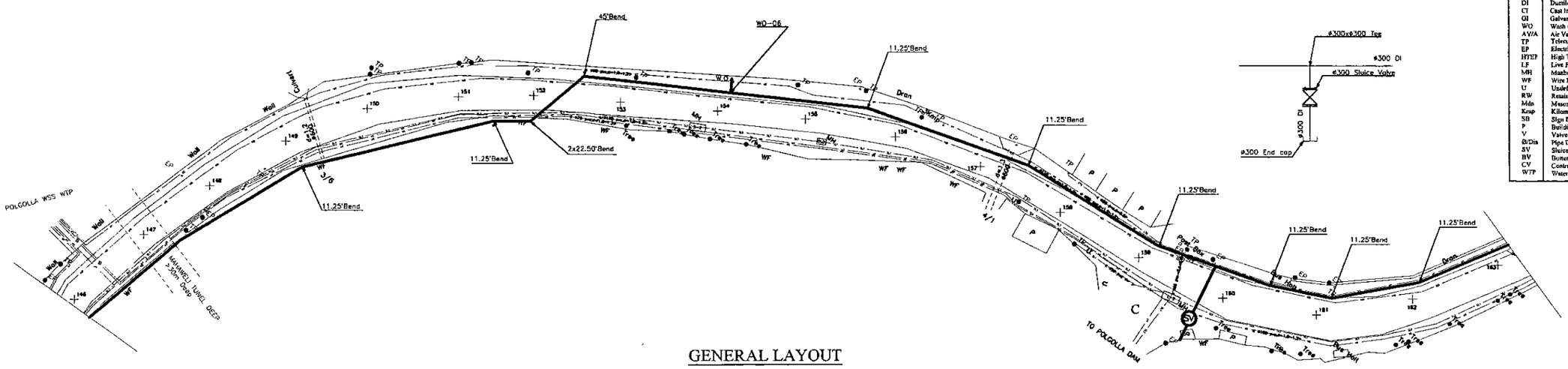

LONGITUDINAL SECTION

Legend

| | |
|---|---|
| SLT | Telecom |
| WT | Water Transmission |
| WD | Water Distribution |
| CEB | Electricity |
| PVC | Polyvinyl Chloride Pipe |
| DI | Ductile Iron Pipe |
| CI | Cast Iron Pipe |
| GI | Galvanized Iron Pipe |
| WO | Wash Out |
| AV/A | Air Valve |
| TP | Telecom Post |
| EP | Electric Post |
| HTEP | High Tension Electric Post |
| LF | Live Fence |
| MH | Manhole |
| WF | Wire Fence |
| U | Undefined Boundary |
| RW | Retaining Wall |
| Mdr | Masonry Drain |
| Kmp | Kilometer Post |
| SB | Sign Board |
| P | Building |
| V | Valve |
| Ø/Dia | Pipe Diameter |
| SV | Sluice Valve |
| BV | Butterfly Valve |
| CV | Control Valve (SV/BV Types) |
| WTP | Water Treatment Plant |

| | | | |
|---|---|---|---|
| PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT | JICA JAPAN INTERNATIONAL COOPERATION AGENCY | TITLE: KATUGASTOTA BRIDGE JUNCTION TO BANGALAWATTA JUNCTION - TRANSMISSION MAIN | SHEET 09 OF 18 |
| CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD | CONSULTANTS : NJS CONSULTANTS CO., LTD. - JAPAN; NIHON SUIDO CONSULTANTS CO., LTD.- JAPAN | REV. / DESCRIPTION / DATE / SIGN. | DESIGNED: Taketoshi FUJIYAMA; DRAWN: Kalinga; PM: (CONSULTANT) Ikuo MIWA; CE: (P&D); SCALE: HORIZONTAL - 1:500 VERTICAL - 1:200 |
| | | CHECKED: DESIGN CHIEF; AGM: (P&D); DGM: (P&D); DATE: 31/05/2002 | DRAWING NO.: 20-C-08-09 |

DATE: 24/04/2002 Wanni (CAD 1)/FINAL DRAWINGS/TRANSMISSION/



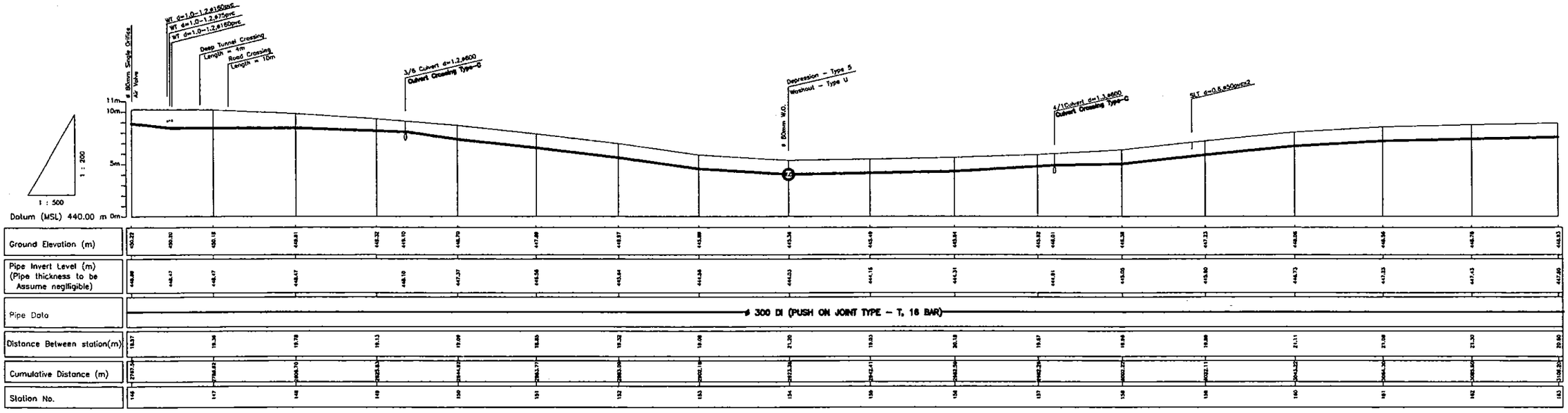

GENERAL LAYOUT

PIPE JUNCTION DETAIL - C




Legend

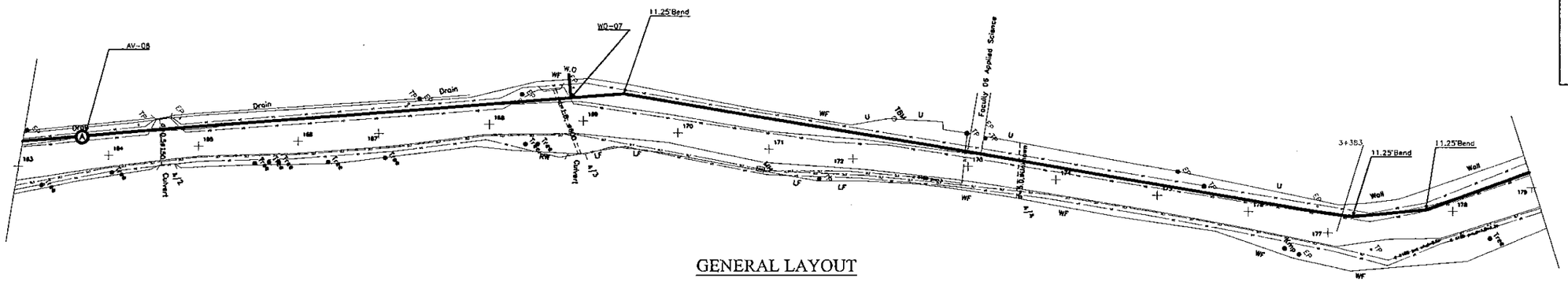
| | |
|---|---|
| SLT | Telecom |
| WT | Water Transmission |
| WD | Water Distribution |
| CEB | Electricity |
| PVC | Polyvinyl Chloride Pipe |
| DI | Ductile Iron Pipe |
| CI | Cast Iron Pipe |
| GI | Galvanized Iron Pipe |
| WO | Wash Out |
| A/V/A | Air Valve |
| TP | Telecom Post |
| EP | Electric Post |
| HTEP | High Tension Electric Post |
| LF | Live Fence |
| MH | Manhole |
| WF | Wire Fence |
| U | Undefined Boundary |
| RW | Retaining Wall |
| Mdn | Masonry Drain |
| Kmp | Kilometer Post |
| SB | Sign Board |
| P | Building |
| V | Valve |
| Ø/Dia | Pipe Diameter |
| SV | Sluice Valve |
| BV | Butterfly Valve |
| CV | Control Valve (SV/BV Types) |
| WTP | Water Treatment Plant |



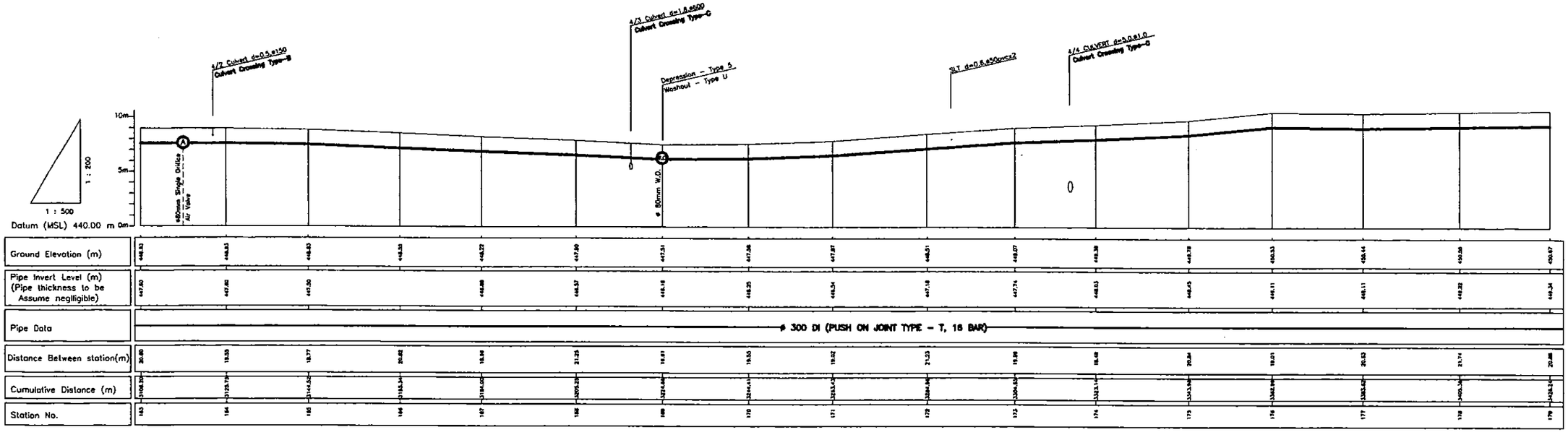

LONGITUDINAL SECTION

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT | JAPAN INTERNATIONAL COOPERATION AGENCY | TITLE: KATUGASTOTA BRIDGE JUNCTION TO BANGALAWATTA JUNCTION - TRANSMISSION MAIN | | | | | SHEET 10 OF 18 |
| CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD | CONSULTANTS : NJS CONSULTANTS CO., LTD. - JAPAN; NIHON SUIDO CONSULTANTS CO., LTD.- JAPAN | REV. / DESCRIPTION / DATE / SIGN. | DESIGNED: Taketoshi FUJIYAMA | DRAWN: Kalinga | PM: (CONSULTANT) Ikuo MIWA | CE: (P&D) | SCALE: HORIZONTAL - 1:500 VERTICAL - 1:200 |
| | | | CHECKED: DESIGN CHIEF | AGM: (P&D) | DGM: (P&D) | DATE: 31/05/2002 | DRAWING NO.: 20-C-08-10 |

DATE: 24/04/2002 Wanni (CAD 1/D/ FINAL DRAWINGS/TRANSMISSION/




GENERAL LAYOUT




LONGITUDINAL SECTION

| | | | |
|---|---|---|---|
| SLT | Telecom | | |
| WT | Water Transmission | | |
| WD | Water Distribution | | |
| CEB | Electricity | | |
| PVC | Polyvinyl Chloride Pipe | | |
| DI | Ductile Iron Pipe | | |
| CI | Cast Iron Pipe | | |
| GI | Galvanized Iron Pipe | | |
| WO | Wash Out | | |
| AV/A | Air Valve | | |
| TP | Telecom Post | | |
| EP | Electric Post | | |
| HTEP | High Tension Electric Post | | |
| LF | Live Fence | | |
| MH | Manhole | | |
| WF | Wire Fence | | |
| tf | Undefined Boundary | | |
| RW | Retaining Wall | | |
| Mde | Masonry Drain | | |
| Kmp | Kilometer Post | | |
| SB | Sign Board | | |
| P | Building | | |
| V | Valve | | |
| ø/Dia | Pipe Diameter | | |
| SV | Sluice Valve | | |
| BV | Butterfly Valve | | |
| CV | Control Valve (SV/BV Types) | | |
| WTP | Water Treatment Plant | | |

PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT

JICA JAPAN INTERNATIONAL COOPERATION AGENCY

TITLE: KATUGASTOTA BRIDGE JUNCTION TO BANGALAWATTA JUNCTION - TRANSMISSION MAIN

SHEET 11 OF 18

CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD

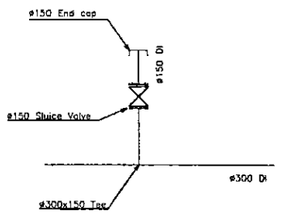
CONSULTANTS : NJS CONSULTANTS CO., LTD. - JAPAN; NIHON SUIDO CONSULTANTS CO., LTD.- JAPAN

| REV. | DESCRIPTION | DATE | SIGN. |
|---|---|---|---|
| | | | |

| DESIGNED: | DRAWN: | PM: (CONSULTANT) | CE: (P&D) | SCALE: |
|---|---|---|---|---|
| Taketoshi FUJIYAMA | Kalinga | Ikuo MIWA | | HORIZONTAL - 1:500 VERTICAL - 1:200 |
| CHECKED: DESIGN CHIEF | AGM: (P&D) | DGM: (P&D) | DATE: 31/05/2002 | DRAWING NO.: 20-C-08-11 |

DATE: 24/04/2002 Wanni (CAD_I/D)\ FINAL DRAWINGS\TRANSMISSION\

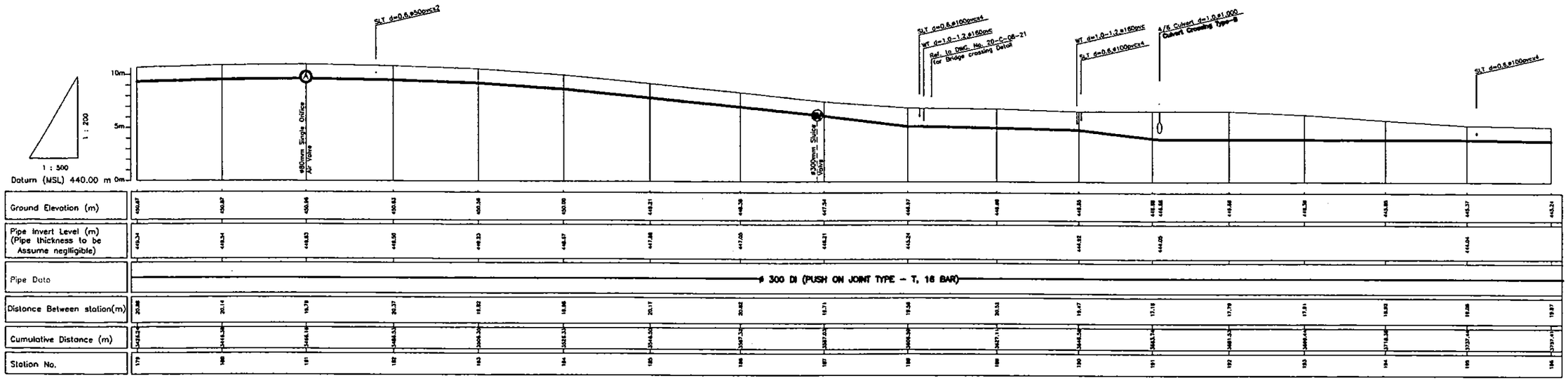
## PIPE JUNCTION DETAIL - D



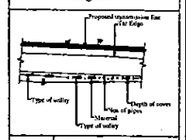

## GENERAL LAYOUT




## LONGITUDINAL SECTION



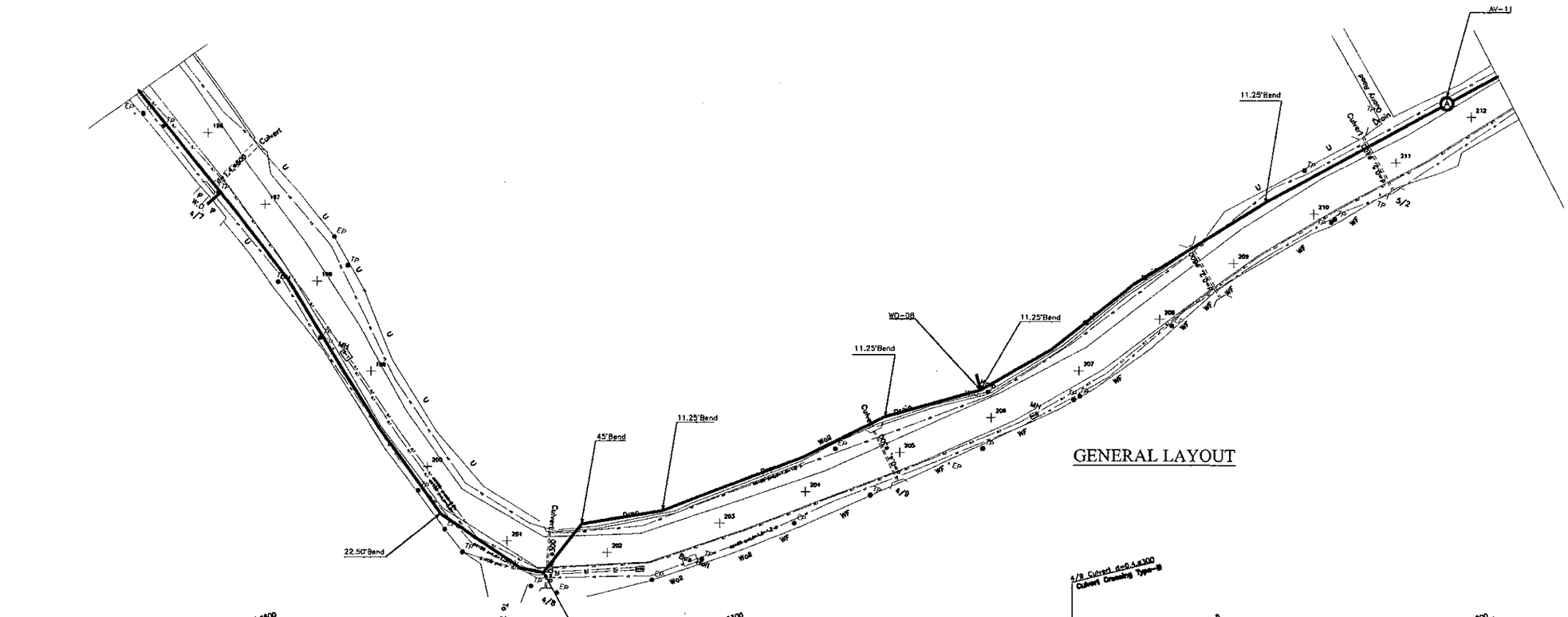

## Legend




| | |
|---|---|
| SLT | Telecom |
| WT | Water Transmission |
| WD | Water Distribution |
| CEB | Electricity |
| PVC | Polyvinyl Chloride Pipe |
| DI | Ductile Iron Pipe |
| CI | Cast Iron Pipe |
| GI | Galvanized Iron Pipe |
| WO | Wash Out |
| AVA | Air Valve |
| TP | Telecom Post |
| EP | Electric Post |
| HTEP | High Tension Electric Post |
| LF | Live Fence |
| MH | Manhole |
| WF | Wire Fence |
| U | Underlying Boundary |
| RW | Retaining Wall |
| Mdn | Masonry Drain |
| Kmp | Kilometer Post |
| SB | Sign Board |
| P | Building |
| V | Valve |
| ø/Dia | Pipe Diameter |
| SV | Sluice Valve |
| BV | Butterfly Valve |
| CV | Control Valve (SV/BV Types) |
| WTP | Water Treatment Plant |

| | | | |
|---|---|---|---|
| PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT | JICA JAPAN INTERNATIONAL COOPERATION AGENCY | TITLE: KATUGASTOTA BRIDGE JUNCTION TO BANGALAWATTA JUNCTION - TRANSMISSION MAIN | SHEET 12 OF 18 |
| CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD | CONSULTANTS : NJS CONSULTANTS CO., LTD. - JAPAN; NIHON SUIDO CONSULTANTS CO., LTD.- JAPAN | REV. / DESCRIPTION / DATE / SIGN. | DESIGNED: Taketoshi FUJIYAMA; DRAWN: Kalinga; PM: (CONSULTANT) Ikuo MIWA; CE: (P&D); SCALE: HORIZONTAL - 1:500 VERTICAL - 1:200 |
| | | | CHECKED: DESIGN CHIEF; AGM: (P&D); DGM: (P&D); DATE: 31/05/2002; DRAWING NO.: 20-C-08-12 |

DATE: 24/04/2007 Wanni (CAD 1/D/ FINAL DRAWINGS/TRANSMISSION/

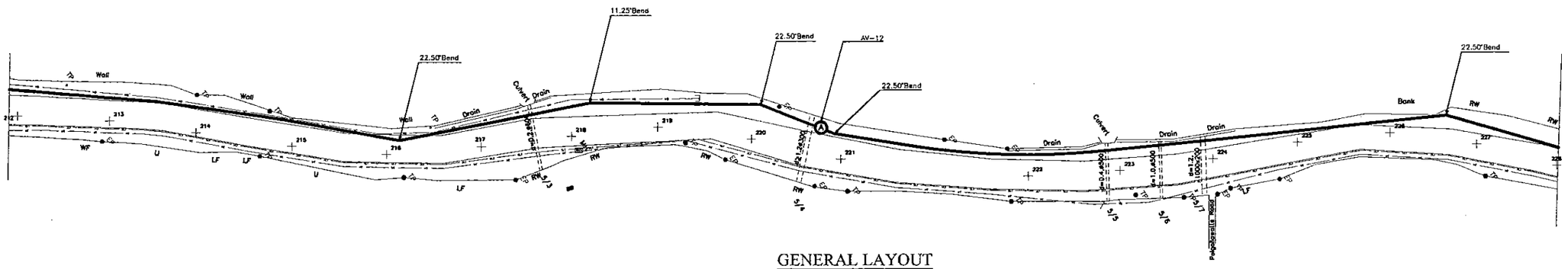



GENERAL LAYOUT

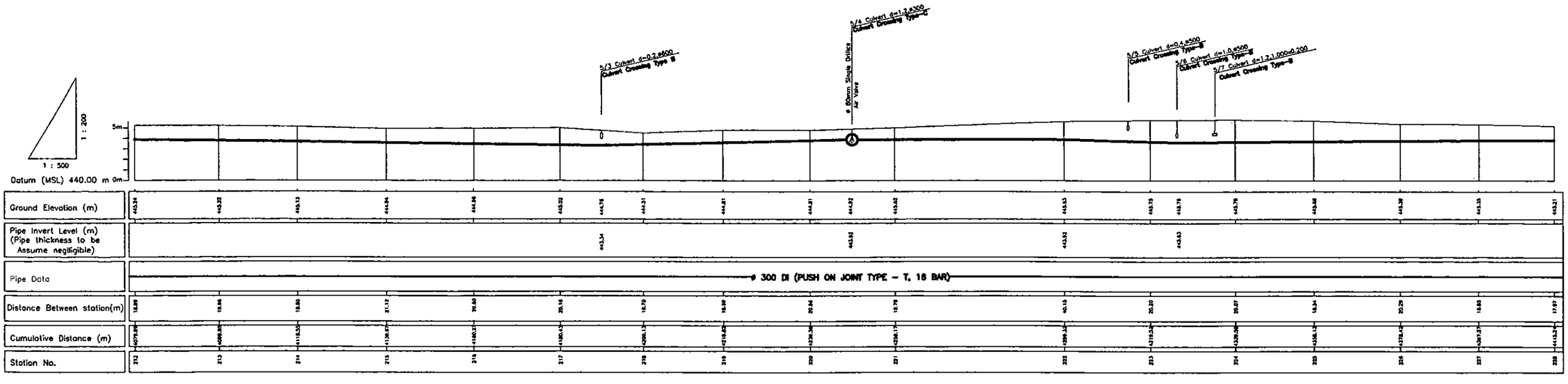
LONGITUDINAL SECTION

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT | JICA JAPAN INTERNATIONAL COOPERATION AGENCY | TITLE: KATUGASTOTA BRIDGE JUNCTION TO BANGALAWATTA JUNCTION - TRANSMISSION MAIN | | | | | SHEET 13 OF 18 |
| CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD | CONSULTANTS : NJS CONSULTANTS CO., LTD. - JAPAN; NIHON SUIDO CONSULTANTS CO., LTD.- JAPAN | REV. / DESCRIPTION / DATE / SIGN. | DESIGNED: Taketoshi FUJIYAMA | DRAWN: Kalinga | PM: (CONSULTANT) Ikuo MIWA | CE: (P&D) | SCALE: HORIZONTAL - 1:500 VERTICAL - 1:200 |
| | | | CHECKED: DESIGN CHIEF | AGM: (P&D) | DGM: (P&D) | DATE: 31/05/2002 | DRAWING NO.: 20-C-08-13 |

DATE: 24/04/2002 Wanni (CAD_1)/ FINAL DRAWINGS/TRANSMISSION/




GENERAL LAYOUT



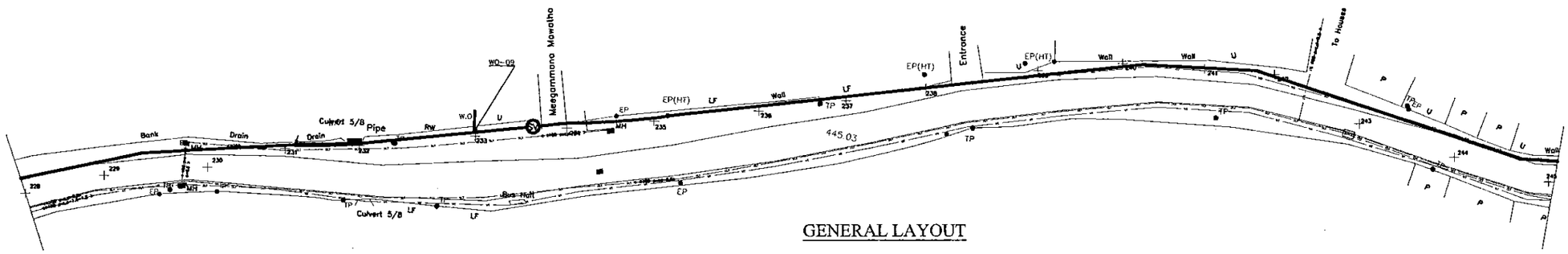

LONGITUDINAL SECTION

Legend

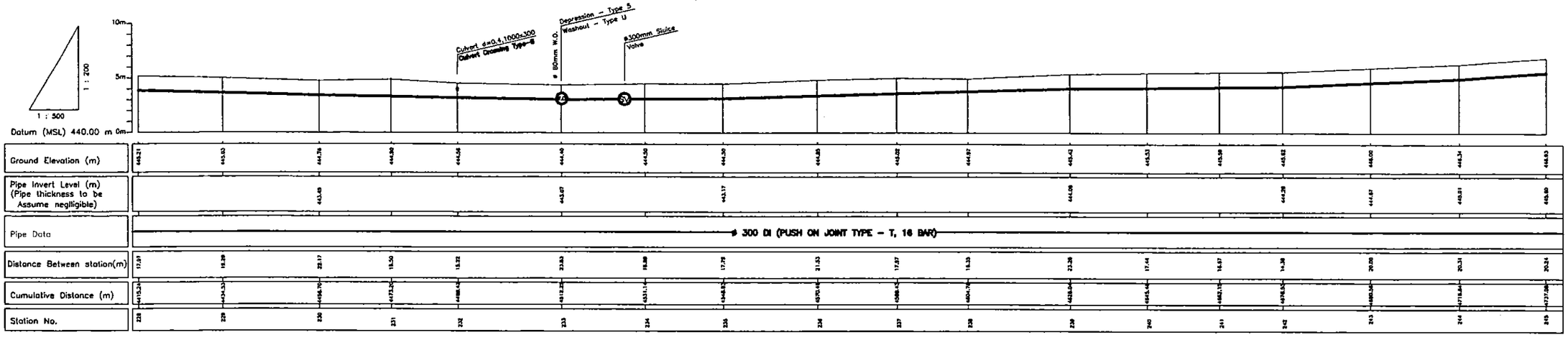
| | |
|---|---|
| SLT | Telecom |
| WT | Water Transmission |
| WD | Water Distribution |
| CEB | Electricity |
| PVC | Polyvinyl Chloride Pipe |
| DI | Ductile Iron Pipe |
| CI | Cast Iron Pipe |
| GI | Galvanized Iron Pipe |
| WO | Wash Out |
| AV/A | Air Valve |
| TP | Telecom Post |
| EP | Electric Post |
| HTEP | High Tension Electric Post |
| LF | Live Fence |
| MH | Manhole |
| WF | Wire Fence |
| U | Undefined Boundary |
| RW | Retaining Wall |
| Mdn | Masonry Drain |
| Kmp | Kilometer Post |
| SB | Sign Board |
| P | Building |
| V | Valve |
| Ø/Dia | Pipe Diameter |
| SV | Sluice Valve |
| BV | Butterfly Valve |
| CV | Control Valve (SV/BV Types) |
| WTP | Water Treatment Plant |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT | JICA JAPAN INTERNATIONAL COOPERATION AGENCY | TITLE: KATUGASTOTA BRIDGE JUNCTION TO BANGALAWATTA JUNCTION - TRANSMISSION MAIN | | | | | SHEET 14 OF 18 |
| CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD | CONSULTANTS : NJS CONSULTANTS CO., LTD. - JAPAN; NIHON SUIDO CONSULTANTS CO., LTD.- JAPAN | REV. / DESCRIPTION / DATE / SIGN. | DESIGNED: Taketoshi FUJIYAMA | DRAWN: Kalinga | PM: (CONSULTANT) Ikuo MIWA | CE: (P&D) | SCALE: HORIZONTAL - 1:500 VERTICAL - 1:200 |
| | | | CHECKED: DESIGN CHIEF | AGM: (P&D) | DGM: (P&D) | DATE: 31/05/2002 | DRAWING NO.: 20-C-08-14 |

DATE: 24/04/2002 Wanni (CAD 1/D) FINAL DRAWINGS/TRANSMISSION/.....




GENERAL LAYOUT



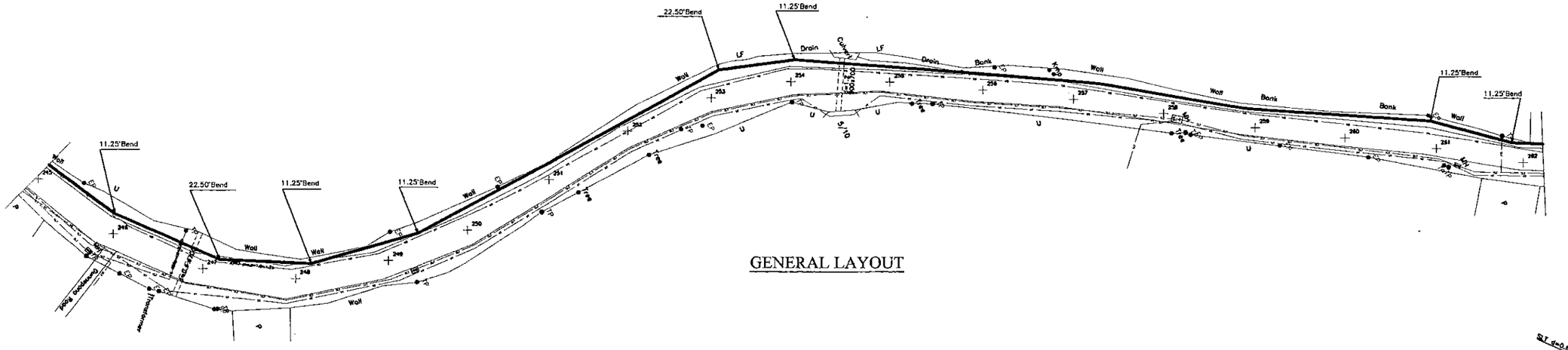

LONGITUDINAL SECTION

Legend

| | |
|---|---|
| SLT | Telecom |
| WT | Water Transmission |
| WD | Water Distribution |
| ELB | Electricity |
| PVC | Polyvinyl Chloride Pipe |
| DI | Ductile Iron Pipe |
| CI | Cast Iron Pipe |
| GI | Galvanized Iron Pipe |
| WO | Wash Out |
| AV/A | Air Valve |
| TP | Telecom Post |
| EP | Electric Post |
| HTEP | High Tension Electric Post |
| LF | Live Fence |
| MH | Manhole |
| WF | Wire Fence |
| U | Undefined Boundary |
| RW | Retaining Wall |
| Mdn | Masonry Drain |
| Kmp | Kilometer Post |
| SB | Sign Board |
| P | Building |
| V | Valve |
| ØxDia | Pipe Diameter |
| SV | Sluice Valve |
| BV | Butterfly Valve |
| CV | Control Valve (SV/BV Types) |
| WTP | Water Treatment Plant |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT | JICA JAPAN INTERNATIONAL COOPERATION AGENCY | TITLE: KATUGASTOTA BRIDGE JUNCTION TO BANGALAWATTA JUNCTION - TRANSMISSION MAIN | | | | | SHEET 15 OF 18 |
| CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD | CONSULTANTS : NJS CONSULTANTS CO., LTD. - JAPAN; NIHON SUIDO CONSULTANTS CO., LTD.- JAPAN | REV. / DESCRIPTION / DATE / SIGN. | DESIGNED: Taketoshi FUJIYAMA | DRAWN: Kalinga | PM: (CONSULTANT) Ikuo MIWA | CE: (P&D) | SCALE: HORIZONTAL - 1:500 VERTICAL - 1:200 |
| | | | CHECKED: DESIGN CHIEF | AGM: (P&D) | DGM: (P&D) | DATE: 31/05/2002 | DRAWING NO.: 20-C-08-15 |

DATE: 24/04/2002 Wanni (CAD 1)\D\ FINAL DRAWINGS\TRANSMISSION\

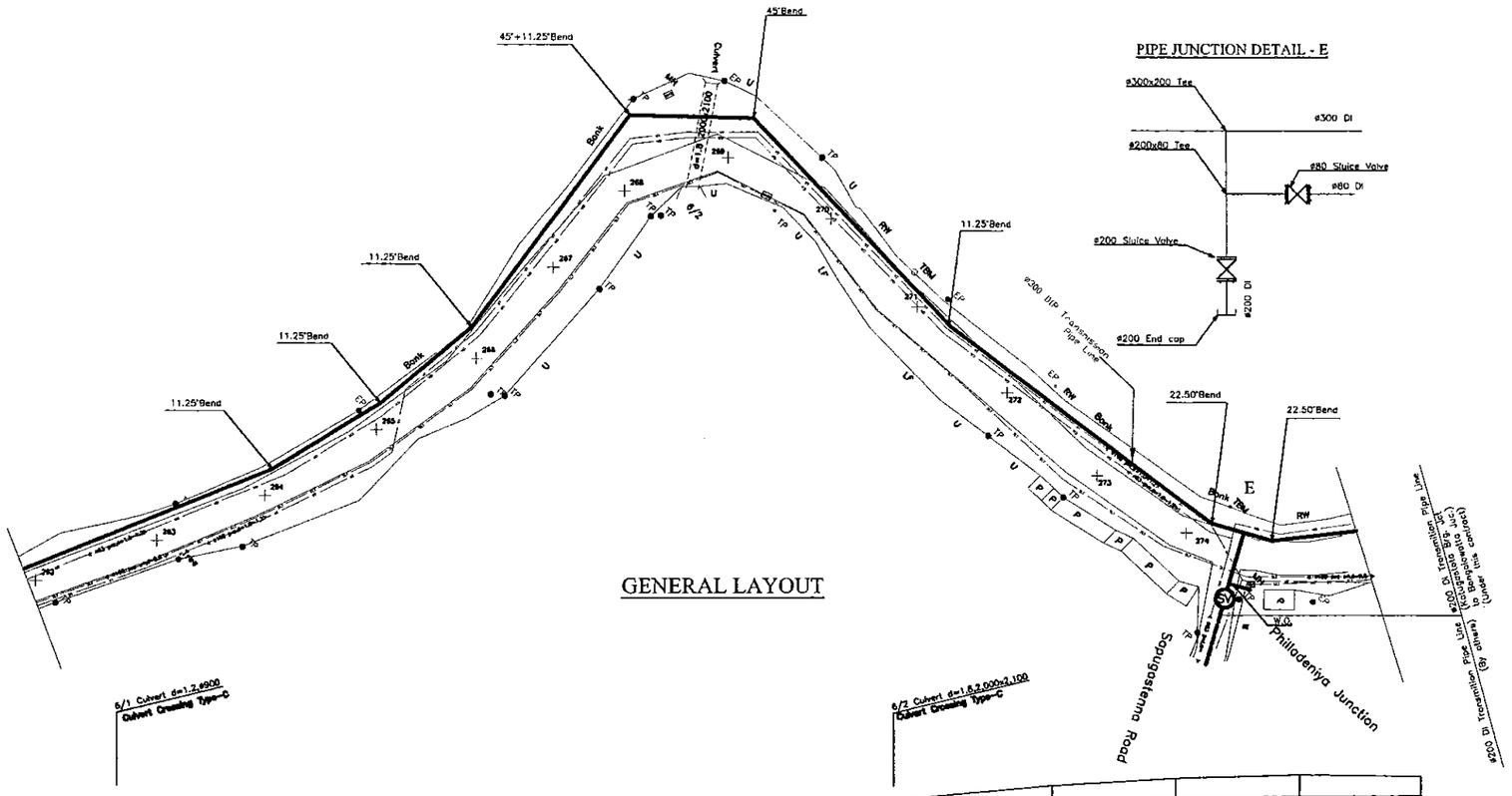



GENERAL LAYOUT

LONGITUDINAL SECTION

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT | JAPAN INTERNATIONAL COOPERATION AGENCY | TITLE: KATUGASTOTA BRIDGE JUNCTION TO BANGALAWATTA JUNCTION - TRANSMISSION MAIN | | | | | SHEET 16 OF 18 |
| CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD | CONSULTANTS : NJS CONSULTANTS CO., LTD. - JAPAN; NIHON SUIDO CONSULTANTS CO., LTD.- JAPAN | REV. / DESCRIPTION / DATE / SIGN. | DESIGNED: Taketoshi FUJIYAMA | DRAWN: Kalinga | PM: (CONSULTANT) Ikuo MIWA | CE: (P&D) | SCALE: HORIZONTAL - 1:500 VERTICAL - 1:200 |
| | | | CHECKED: DESIGN CHIEF | AGM: (P&D) | DGM: (P&D) | DATE: 31/05/2002 | DRAWING NO.: 20-C-08-16 |

DATE: 24/04/2002 Wanni (CAD 1/D)/ FINAL DRAWINGS/TRANSMISSION/...




LONGITUDINAL SECTION

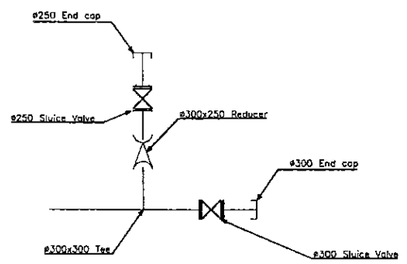
Legend

| | |
|---|---|
| SLT | Telecom |
| WT | Water Transmission |
| WD | Water Distribution |
| CEB | Electricity |
| PVC | Polyvinyl Chloride Pipe |
| DI | Ductile Iron Pipe |
| CI | Cast Iron Pipe |
| GI | Galvanized Iron Pipe |
| WO | Wash Out |
| AV/A | Air Valve |
| TP | Telecom Post |
| EP | Electric Post |
| HTEP | High Tension Electric Post |
| LF | Live Fence |
| MH | Manhole |
| WF | Wire Fence |
| U | Undefined Boundary |
| RW | Retaining Wall |
| Mdn | Masonry Drain |
| Kmp | Kilometer Post |
| SB | Sign Board |
| P | Building |
| V | Valve |
| ØxDia | Pipe Diameter |
| SV | Sluice Valve |
| BV | Butterfly Valve |
| CV | Control Valve (SV/BV Types) |
| WTP | Water Treatment Plant |

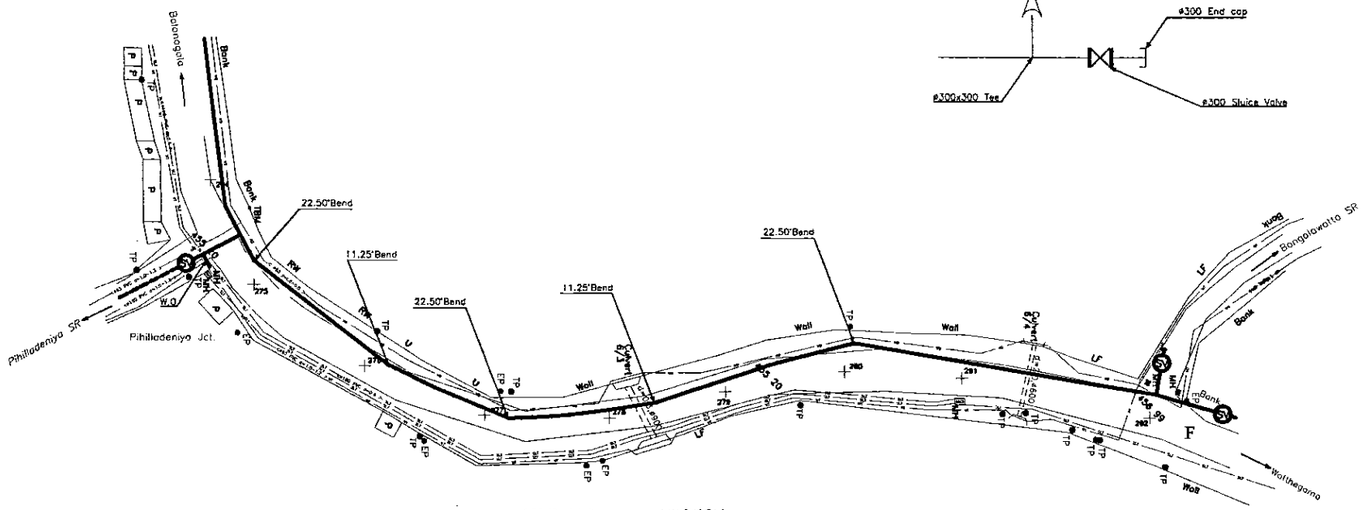
| | | | | | | |
|---|---|---|---|---|---|---|
| PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT | JICA JAPAN INTERNATIONAL COOPERATION AGENCY | TITLE: KATUGASTOTA BRIDGE JUNCTION TO BANGALAWATTA JUNCTION - TRANSMISSION MAIN | | | | SHEET 17 OF 18 |
| CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD | CONSULTANTS : NJS CONSULTANTS CO., LTD. - JAPAN; NIHON SUIDO CONSULTANTS CO., LTD.- JAPAN | REV. / DESCRIPTION / DATE / SIGN. | DESIGNED: Taketoshi FUJIYAMA | DRAWN: Kalinga | PM: (CONSULTANT) Ikuo MIWA | CE: (P&D) |
| | | | CHECKED: DESIGN CHIEF | AGM: (P&D) | DGM: (P&D) | DATE: 31/05/2002 |
| | | | | | | SCALE: HORIZONTAL - 1:500 VERTICAL - 1:200 |
| | | | | | | DRAWING NO.: 20-C-08-17 |

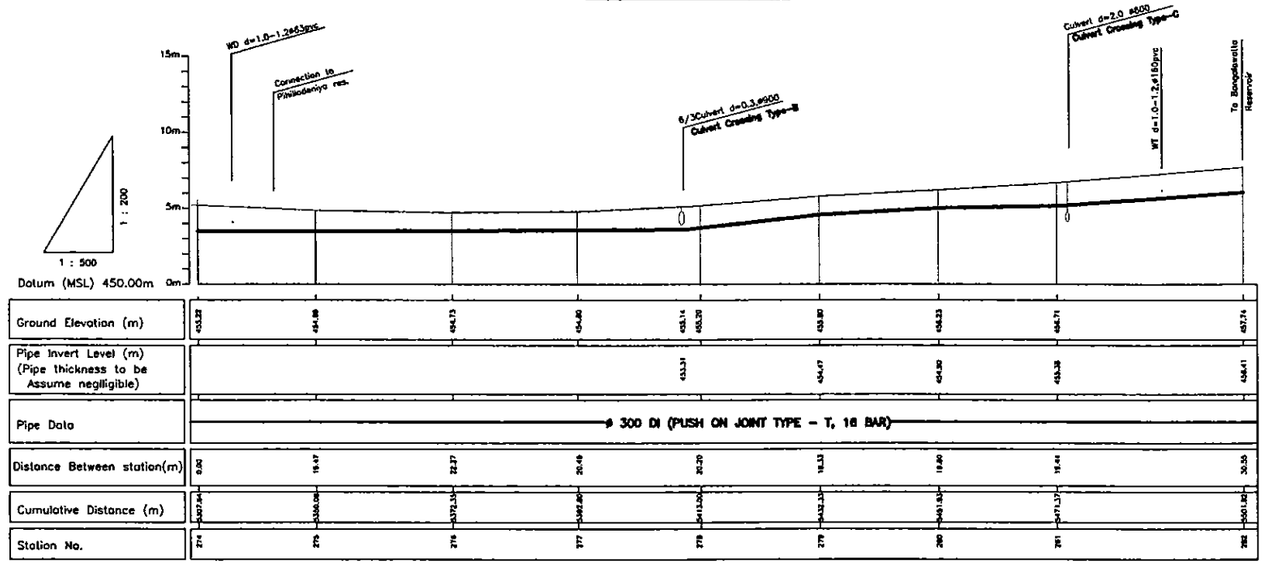
DATE: 24/04/2002 Wanni (CAD 1)/ FINAL DRAWINGS/TRANSMISSION/

## PIPE JUNCTION DETAIL - F



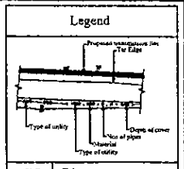

## GENERAL LAYOUT




## LONGITUDINAL SECTION

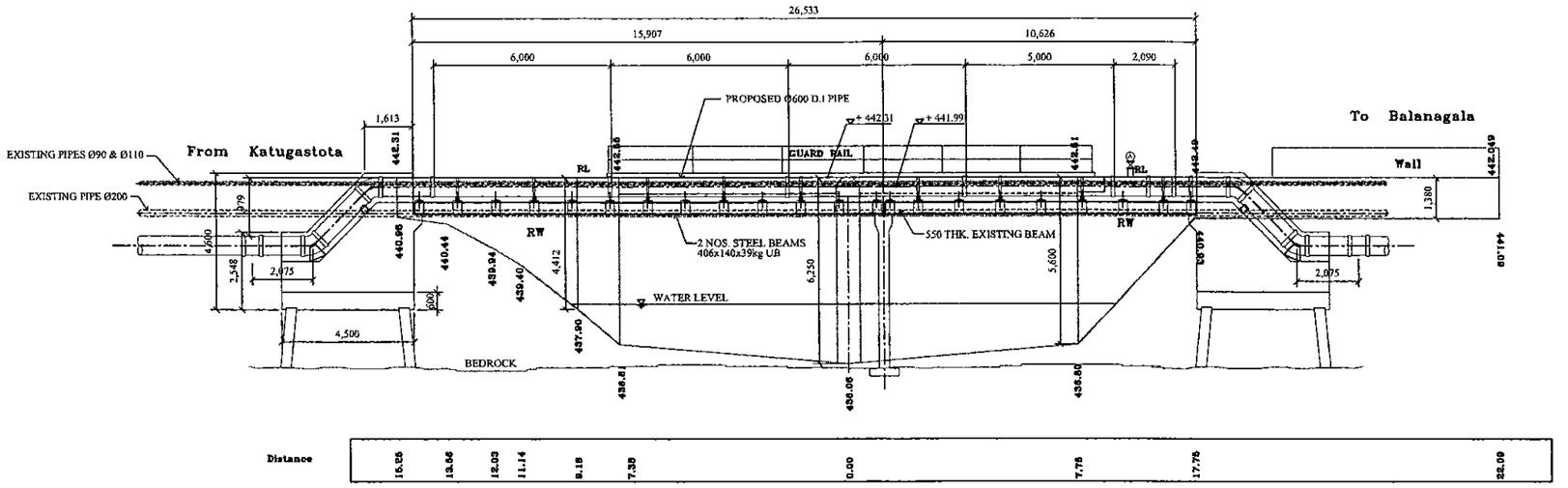
### Legend



| | |
|---|---|
| SLT | Telecom |
| WT | Water Transmission |
| WD | Water Distribution |
| CEB | Electricity |
| PVC | Polyvinyl Chloride Pipe |
| DI | Ductile Iron Pipe |
| CI | Cast Iron Pipe |
| GI | Galvanized Iron Pipe |
| WO | Wash Out |
| AV/A | Air Valve |
| TP | Telecom Post |
| EP | Electric Post |
| HTEP | High Tension Electric Post |
| LF | Live Fence |
| MH | Manhole |
| WF | Wire Fence |
| U | Undefined Boundary |
| RW | Retaining Wall |
| Mdn | Masonry Drain |
| Kmp | Kilometer Post |
| SB | Sign Board |
| P | Building |
| V | Valve |
| ø/Dia | Pipe Diameter |
| SV | Sluice Valve |
| BV | Butterfly Valve |
| CV | Control Valve (SV/BV Types) |
| WTP | Water Treatment Plant |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT | JICA JAPAN INTERNATIONAL COOPERATION AGENCY | TITLE: KATUGASTOTA BRIDGE JUNCTION TO BANGALAWATTA JUNCTION - TRANSMISSION MAIN | | | | | SHEET 18 OF 18 |
| CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD | CONSULTANTS : NJS CONSULTANTS CO., LTD. - JAPAN; NIHON SUIDO CONSULTANTS CO., LTD.- JAPAN | REV. / DESCRIPTION / DATE / SIGN. | | DESIGNED: Taketoshi FUJIYAMA | DRAWN: Kalinga | PM: (CONSULTANT) Ikuo MIWA | CE: (P&D) | SCALE: HORIZONTAL - 1:500 VERTICAL - 1:200 |
| | | | | CHECKED: DESIGN CHIEF | AGM: (P&D) | DGM: (P&D) | DATE: 31/05/2002 | DRAWING NO.: 20-C-08-18 |

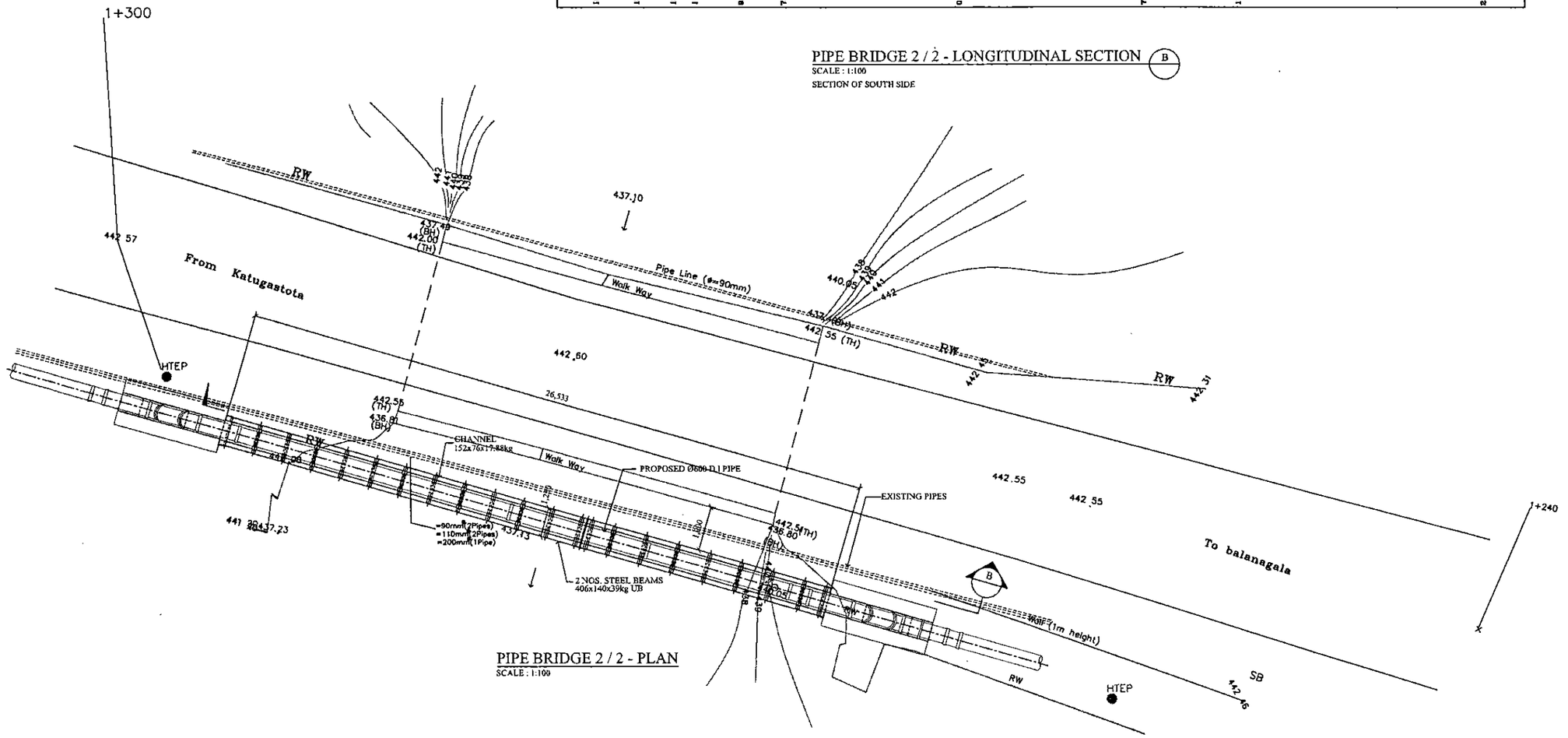
DATE:24/04/2007 Vani (CAD I/D)/ FINAL DRAWINGS/TRANSMISSION/




PIPE BRIDGE 2 / 2 - LONGITUDINAL SECTION (B)

SCALE : 1:100

SECTION OF SOUTH SIDE

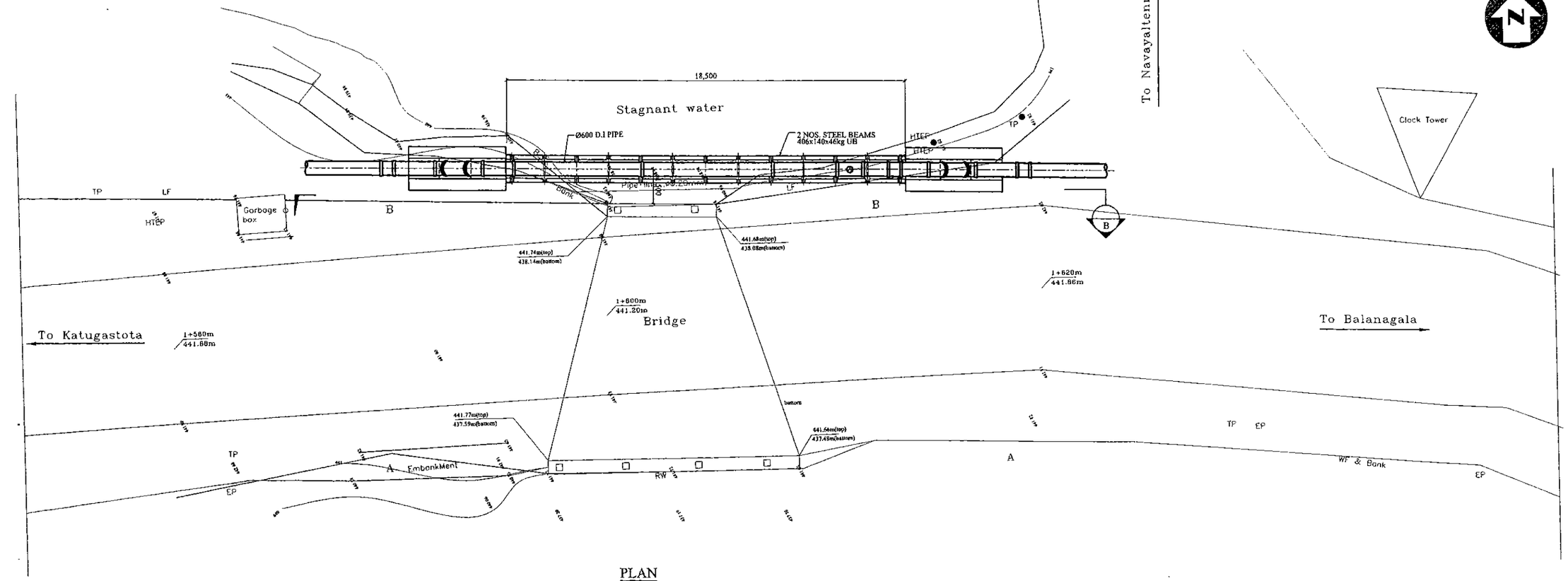



PIPE BRIDGE 2 / 2 - PLAN

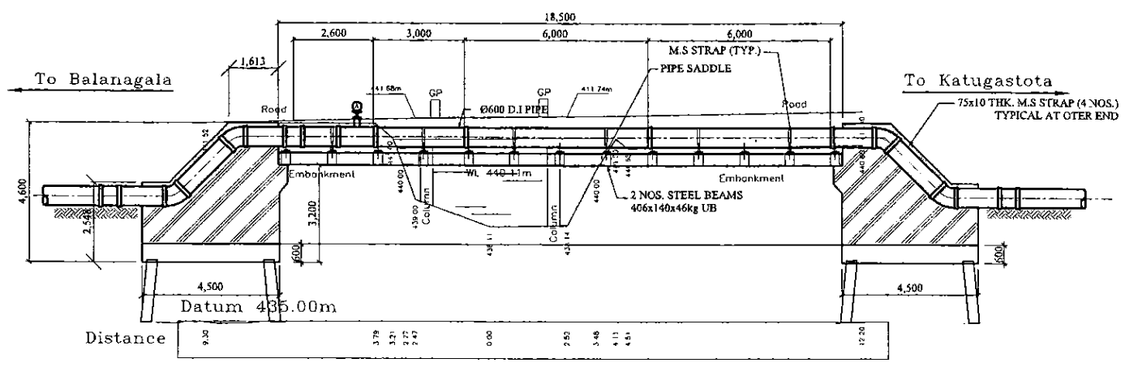
SCALE : 1:100

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT | JICA JAPAN INTERNATIONAL COOPERATION AGENCY | TITLE: KATUGASTOTA JUNCTION TO BALANAGALA JUNCTION - TRANSMISSION MAIN OVER BRIDGE 2 / 2 | | | | | | | | | |
| CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD | CONSULTANTS : NJS CONSULTANTS CO., LTD. - JAPAN; NIHON SUIDO CONSULTANTS CO., LTD.- JAPAN | REV. | DESCRIPTION | DATE | SIGN. | DESIGNED: Taketoshi FUJIYAMA | DRAWN: SAM | PM: (CONSULTANT) Ikuo MIWA | CE: (P&D) | SCALE: 1:100 | |
| | | | | | | CHECKED: DESIGN CHIEF | AGM: (P&D) | DGM: (P&D) | DATE: 31/05/2002 | DRAWING NO.: 20-C-08-19 | |

DATE: 24/04/2002 Wanni (CAD 1)/ FINAL DRAWINGS/TRANSMISSION/



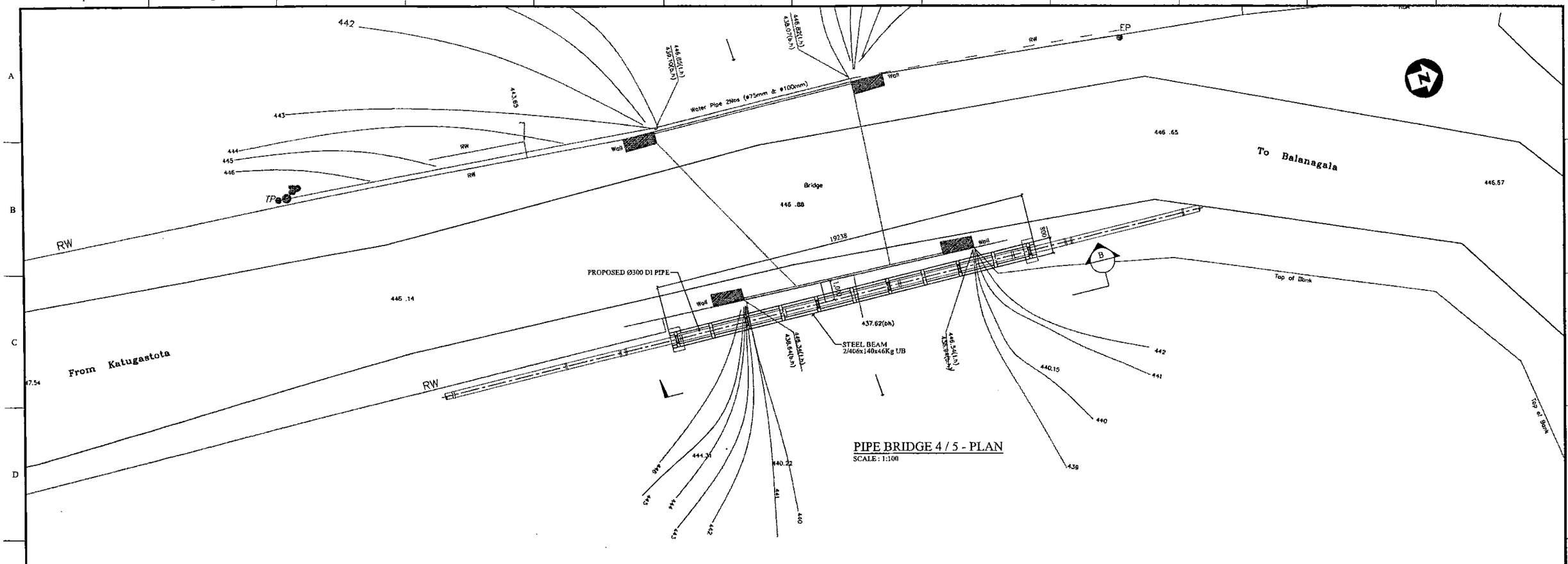

PLAN
SCALE : 1:100




LONGITUDINAL SECTION - (B)
SCALE : 1:100

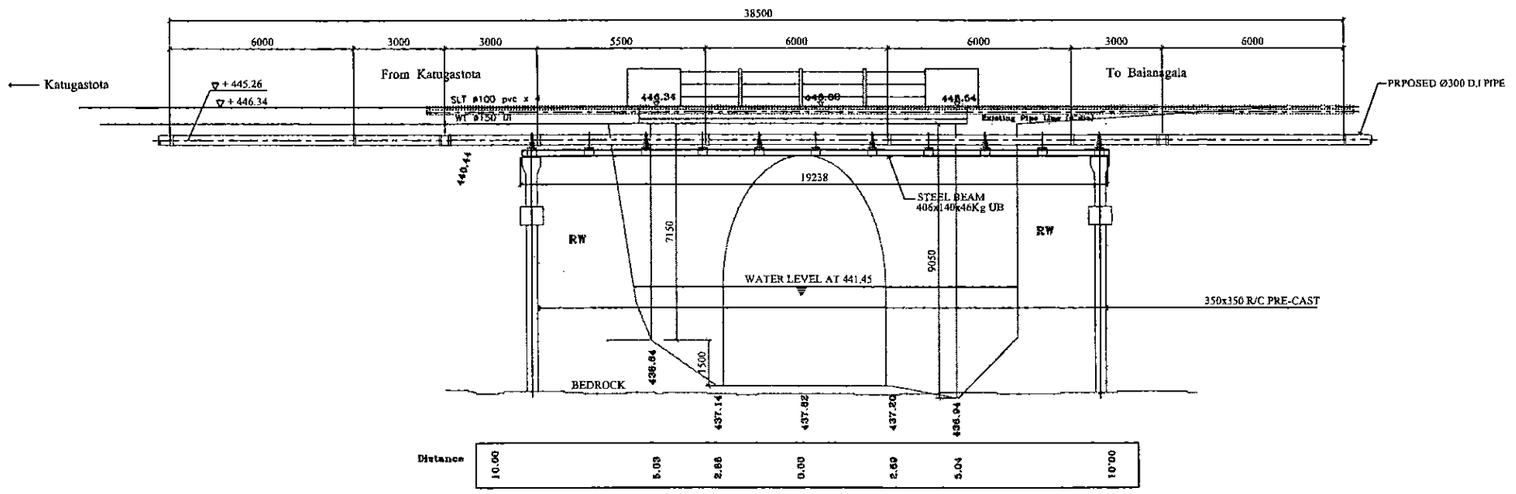
| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT | JICA JAPAN INTERNATIONAL COOPERATION AGENCY | TITLE: KATUGASTOTA BRIDGE JUNCTION TO BALANAGALA - TRANSMISSION MAIN OVER BRIDGE 2/5 | | | | | | | | | |
| CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD | CONSULTANTS : NJS CONSULTANTS CO., LTD. - JAPAN; NIHON SUIDO CONSULTANTS CO., LTD.- JAPAN | REV. | DESCRIPTION | DATE | SIGN. | DESIGNED: Taketoshi FUJIYAMA | DRAWN: SAM | PM: (CONSULTANT) Ikuo MIWA | CE: (P&D) | SCALE: 1:100 | |
| | | | | | | CHECKED: DESIGN CHIEF | AGM: (P&D) | DGM: (P&D) | DATE: 31/05/2002 | DRAWING NO.: 20-C-08-20 | |

DATE: 24/04/2002 \\Wanni (CAD 1)\c\ FINAL DRAWINGS\TRANSMISSION\




PIPE BRIDGE 4 / 5 - PLAN

SCALE : 1:100

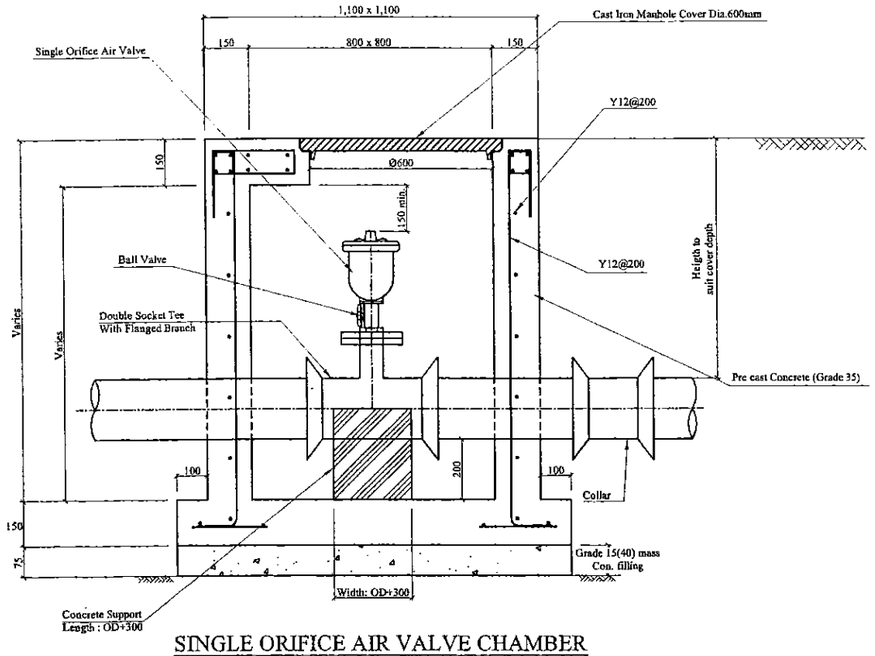



PIPE BRIDGE 4 / 5 - LONGITUDINAL SECTION (B)

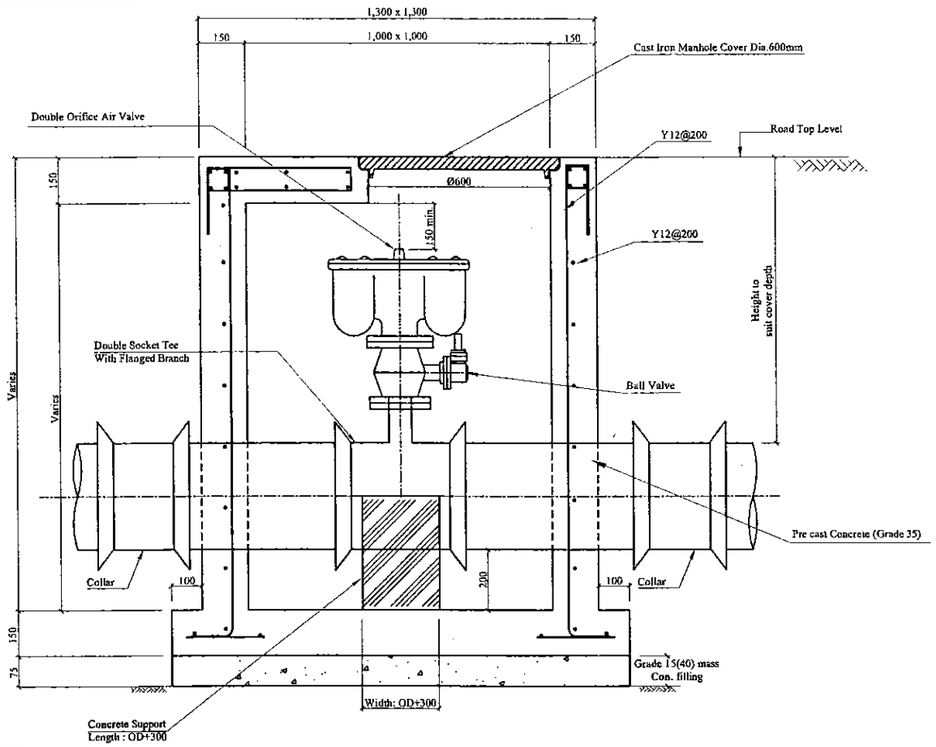
SCALE : 1:100

| | | | |
|---|---|---|---|
| PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT | JICA JAPAN INTERNATIONAL COOPERATION AGENCY | TITLE: KATUGASTOTA JUNCTION TO BALANAGALA JUNCTION - TRANSMISSION MAIN OVER BRIDGE 4 / 5 | |
| CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD | CONSULTANTS : NJS CONSULTANTS CO., LTD. - JAPAN; NIHON SUIDO CONSULTANTS CO., LTD.- JAPAN | REV. / DESCRIPTION / DATE / SIGN. | |
| DESIGNED: Taketoshi FUJIYAMA | DRAWN: SAM | PM: (CONSULTANT) Ikuo MIWA | CE: (P&D) |
| CHECKED: DESIGN CHIEF | AGM: (P&D) | DGM: (P&D) | DATE: 31/05/2002 |
| SCALE: 1:100 | DRAWING NO.: 20-C-08-21 | | |

DATE: 24/04/2002 Wanni (CAD 1/D/ FINAL DRAWINGS/TRANSMISSION/




SINGLE ORIFICE AIR VALVE CHAMBER



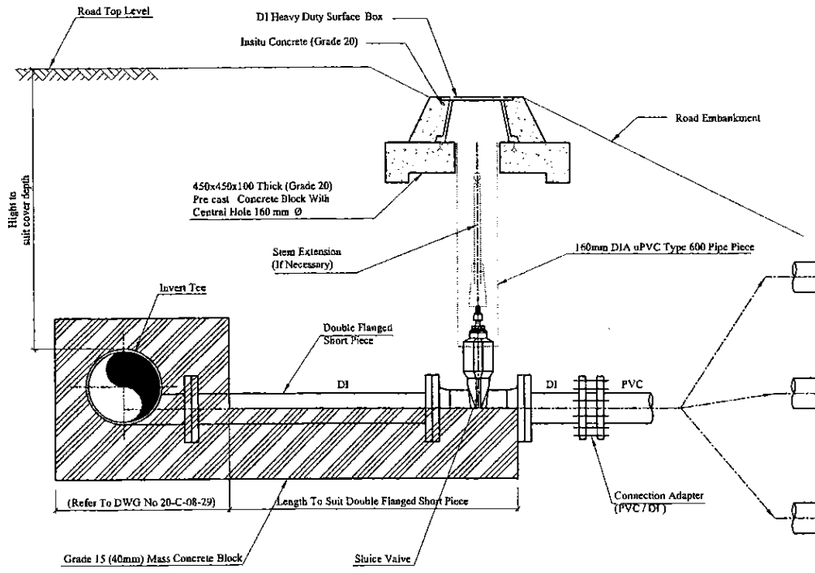

DOUBLE ORIFICE AIR VALVE CHAMBER

CRITERIA FOR AIR VALVE

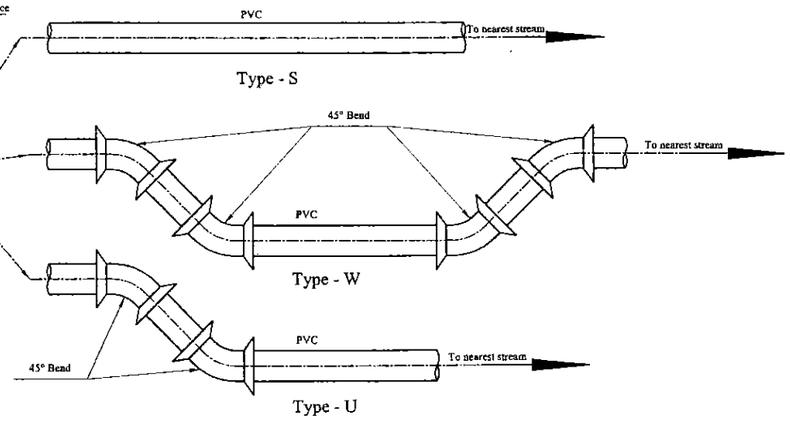
| MAIN PIPE | BRANCH PIPE | TYPE OF AIR VALVE |
|---|---|---|
| ≤Ø300 | Ø80 | SINGLE ORIFICE |
| Ø350 - Ø600 | Ø100 | DOUBLE ORIFICE |

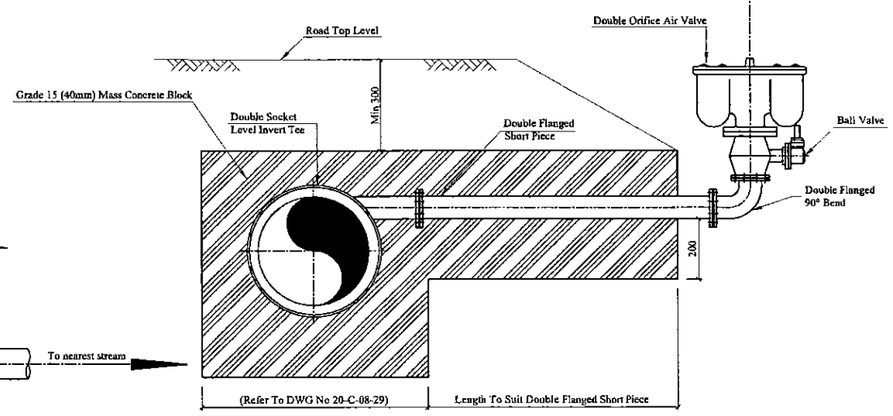
CRITERIA FOR WASH OUT

| MAIN PIPE | BRANCH PIPE |
|---|---|
| ≤Ø300 | Ø80 |
| Ø350 - Ø600 | Ø100 |




WASHOUT




AIR VALVE WITH OUT CHAMBER

**NOTE**

1. The thickness of the blinding layer specified in the drawing is for normal soil types. However,if the structure is founded on very weak soil such as peat, a ground stabilization method, as directed by the Engineer, shall be followed.
2. The Valve Boxes for Washout may be on the bank of the road.
3. The top of the Air Valve Chamber should be at the same level as the Road Top Level.
4. All sluice valves less than 150mm dia will have no chambers and will be installed seemlier to wash out valves heavy-duty surface boxes at the road level to operate them.

PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT

JICA JAPAN INTERNATIONAL COOPERATION AGENCY

TITLE: TYPICAL DRAWING FOR INSTALATION OF AIR VALVE AND WASHOUT

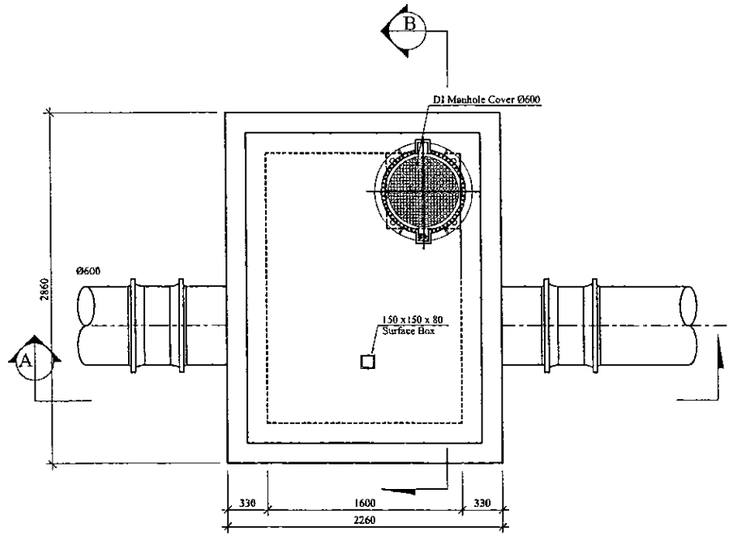
CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD

CONSULTANTS : NJS CONSULTANTS CO., LTD. - JAPAN; NIHON SUIDO CONSULTANTS CO., LTD.- JAPAN

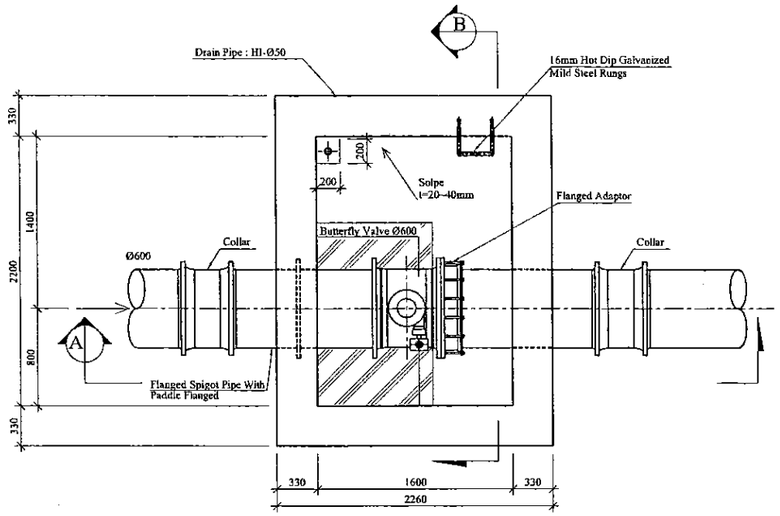
| REV. | DESCRIPTION | DATE | SIGN. |
|---|---|---|---|
| | | | |

| DESIGNED: | DRAWN: | PM: (CONSULTANT) | CE: (P&D) | SCALE: |
|---|---|---|---|---|
| Taketoshi FUJIYAMA | Kalinga | Ikuo MIWA | | AS SHOWN |
| CHECKED: DESIGN CHIEF | AGM: (P&D) | DGM: (P&D) | DATE: 31/05/2002 | DRAWING NO.: 20-C-08-22 |

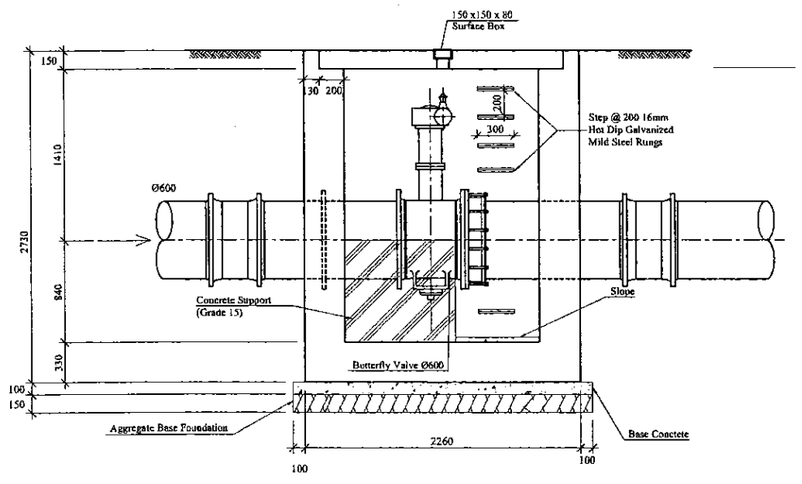
DATE: 24/04/2002 I:\...\FINAL DRAWINGS\TRANSMISSION\...



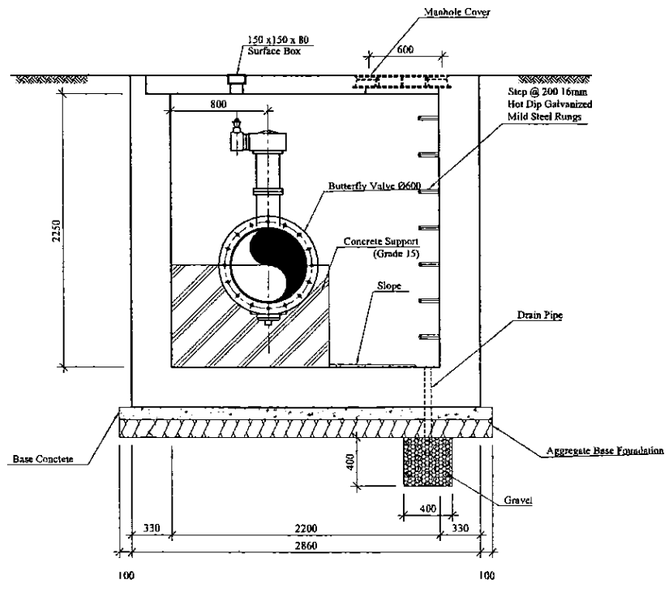

TOP PLAN
SCALE : - 1:25




SECTIONAL PLAN
SCALE : - 1:25



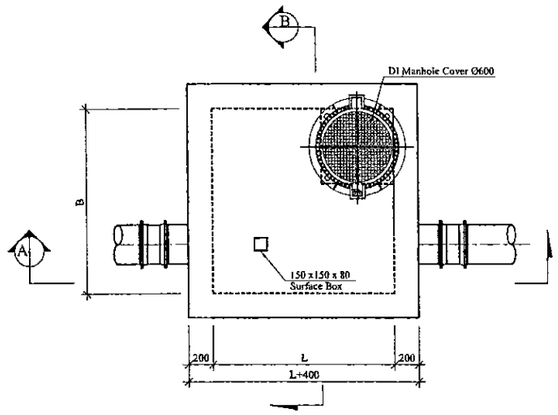

SECTION A
SCALE : - 1:25



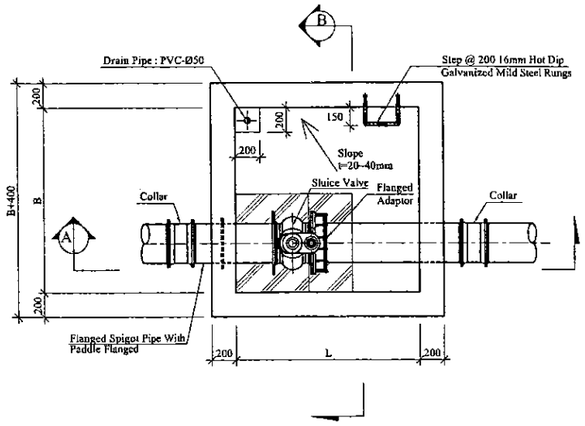

SECTION B
SCALE : - 1:25

| | | | |
|---|---|---|---|
| PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT | JICA JAPAN INTERNATIONAL COOPERATION AGENCY | TITLE: BUTTERFLY VALVE CHAMBER- Ø600mm PN16 | |
| CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD | CONSULTANTS : NJS CONSULTANTS CO., LTD. - JAPAN; NIHON SUIDO CONSULTANTS CO., LTD.- JAPAN | REV. / DESCRIPTION / DATE / SIGN. | DESIGNED: Taketoshi FUJIYAMA; DRAWN: Udita; PM: (CONSULTANT) Ikuo MIWA; CE: (P&D); SCALE: SCALE 1:25 |
| | | | CHECKED: DESIGN CHIEF; AGM: (P&D); DGM: (P&D); DATE: 31/05/2002; DRAWING NO.: 20-C-08-23 |

DATE: 24/04/2002 Wanni (CAD 1/D/ FINAL DRAWINGS/TRANSMISSION/...




TOP PLAN
SCALE : - 1:25



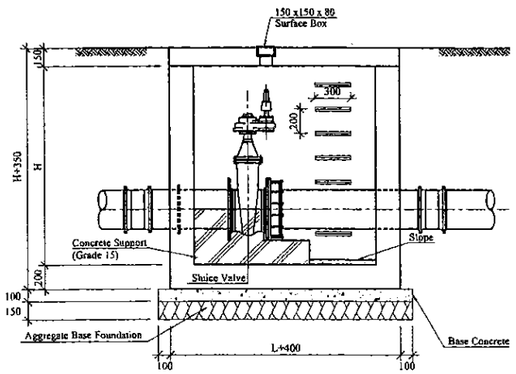

SECTIONAL PLAN (C)
SCALE : - 1:25

## DIMENSION OF VALVE CHAMBER.

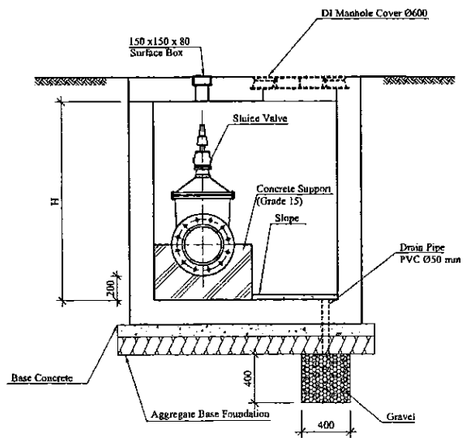
| DIA OF VALVE mm | LENGTH OF CHAMBER(L) mm | WIDTH OF CHAMBER(B) mm | HEIGHT OF CHAMBER(H) mm |
|---|---|---|---|
| 300 | 1400 | 1500 | 1850 |
| 250 | 1400 | 1500 | 1800 |
| 200 | 1400 | 1400 | 1600 |

**NOTE:-**

01. THE HEIGHT OF CHAMBER (H) MAY BE CHANGED TO SUIT SITE CONDITIONS.




SECTION (A)
SCALE : - 1:25




SECTION (B)
SCALE : - 1:25

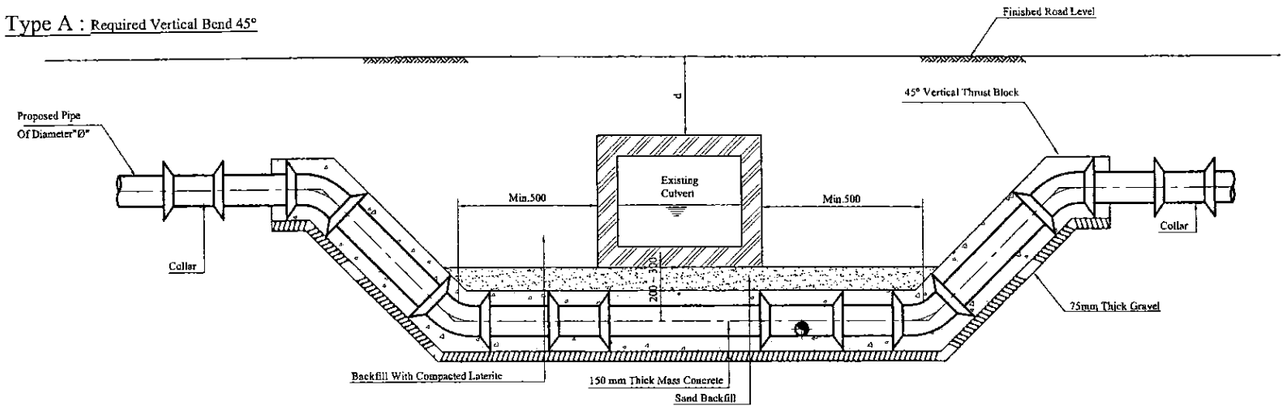
| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT | JICA JAPAN INTERNATIONAL COOPERATION AGENCY | TITLE: CHAMBERS FOR GEARED SLUICE VALVES (VERTICAL TYPE) Ø200mm~Ø300mm PN16 | | | | | | |
| CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD | CONSULTANTS : NJS CONSULTANTS CO., LTD. - JAPAN; NIHON SUIDO CONSULTANTS CO., LTD.- JAPAN | REV. / DESCRIPTION / DATE / SIGN. | DESIGNED: Taketoshi FUJIYAMA | DRAWN: Udita | PM: (CONSULTANT) Ikuo MIWA | CE: (P&D) | SCALE: SCALE 1:25 | |
| | | | CHECKED: DESIGN CHIEF | AGM: (P&D) | DGM: (P&D) | DATE: 31/05/2002 | DRAWING NO.: 20-C-08-24 | |

DATE: 24/04/2002 Wanni (CAD 1)/ FINAL DRAWINGS/TRANSMISSION/

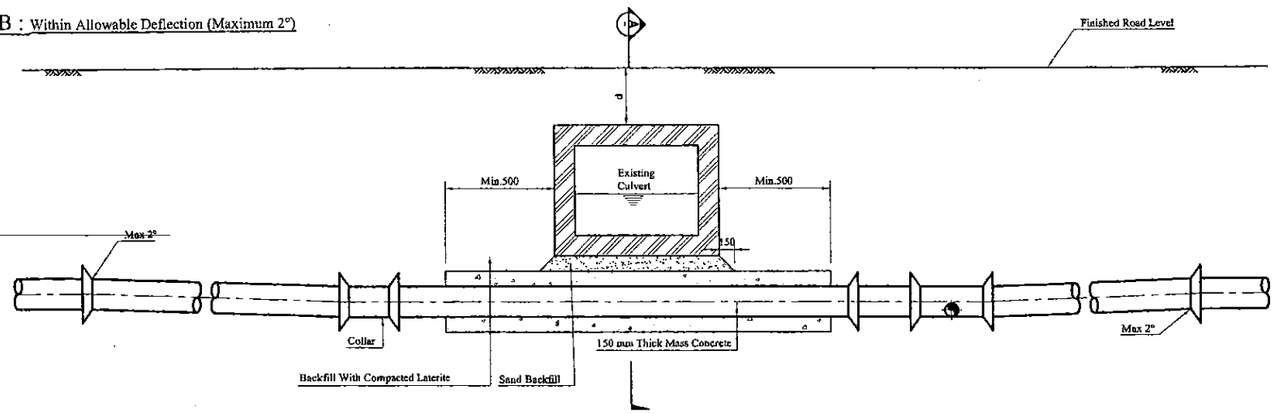
## PIPE UNDER CROSSING THE CULVERT

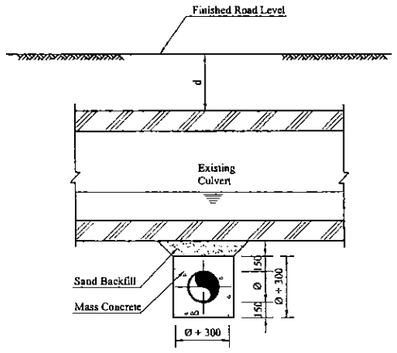
Applicable to all types of culverts - d ≤ Ø+400mm

### Type A : Required Vertical Bend 45°




### Type B : Within Allowable Deflection (Maximum 2°)



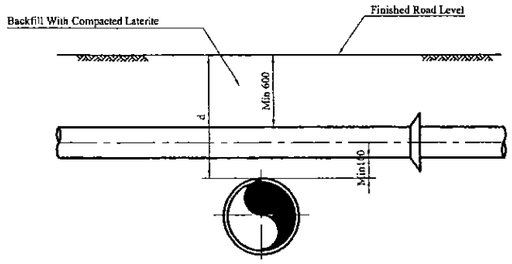




SECTION (A)

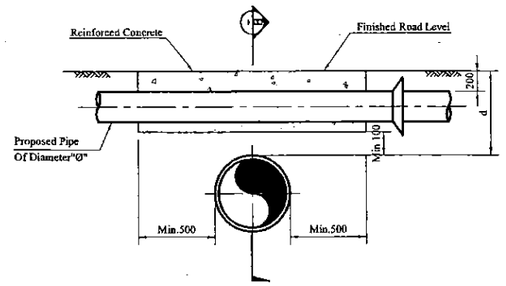
## PIPE OVER CROSSING THE CULVERT

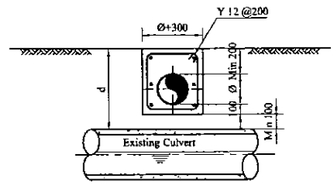
Applicable to all types of culverts

### Type C d ≥ Ø +700mm




### Type D : Ø +400mm ≤ d < Ø +700mm




SECTION (B)

NOTES :

1. THE SPACE BETWEEN INVERT OF THE CULVERT & BOTTOM OF THE TRENCH IN TYPE A,&B SHALL BE FILLED WITH SAND TO THE FULL TRENCH WIDTH.

2. FOR OVER CROSSING TYPES D, CONCRETE SURROUND THE PIPE SHALL MINIMUM OF 4 Nos. OF 12 mm TOR STEEL BARS AT EACH CORNERS & 6mm MILD LINKS AROUND MAIN BARS 200mm INTERVALS WITH A CONCRETE COVER OF 40mm GRADE 25 (20mm) CONCRETE SHOULD BE USED FOR ALL REINFORCED CONCRETE SECTIONS.

3. ALL MASS CONCRETE SHALL BE GRADE 15(40mm)

4. IN THE EVENT OF UNDER CROSSING ALL TYPES OF CULVERTS , THE CONTRACTOR SHALL BE RESPONSIBLE FOR USING AN APPROPRIATE SUPPORTING SYSTEM, AS APPROVED BY THE ENGINEER, UNDERNEASA TH THE CULVERT TO PROTECT IT FROM ANY POSSIBLE FAILURE.

5. REFER TO DRAWING NO 20-C-08-01,02 FOR THRUST BLOCK DETAIL

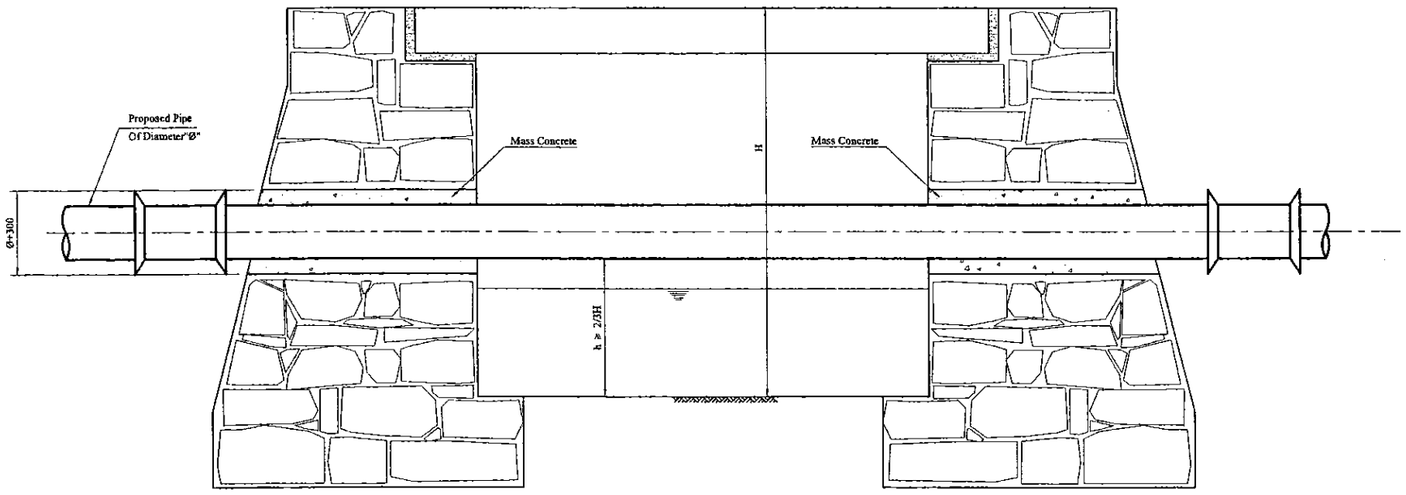
| | | | |
|---|---|---|---|
| PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT | JICA JAPAN INTERNATIONAL COOPERATION AGENCY | TITLE: TYPICAL DRAWING FOR CULVERT CROSSING | |
| CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD | CONSULTANTS : NJS CONSULTANTS CO., LTD. - JAPAN; NIHON SUIDO CONSULTANTS CO., LTD.- JAPAN | REV. / DESCRIPTION / DATE / SIGN. | DESIGNED: Taketoshi FUJIYAMA; DRAWN: Udita; PM: (CONSULTANT) Ikuo MIWA; CE: (P&D); SCALE: NOT TO SCALE |
| | | | CHECKED: DESIGN CHIEF; AGM: (P&D); DGM: (P&D); DATE: 31/05/2002; DRAWING NO.: 20-C-08-25 |

DATE: 24/04/2002 Wanni (CAD 1)/ FINAL DRAWINGS/TRANSMISSION/

## PIPE CROSSING THROUGH THE CULVERT

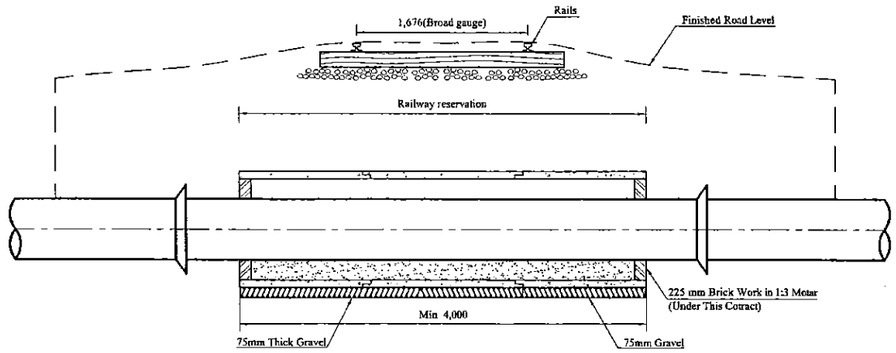
Applicable to rectangular culverts only

### Type E

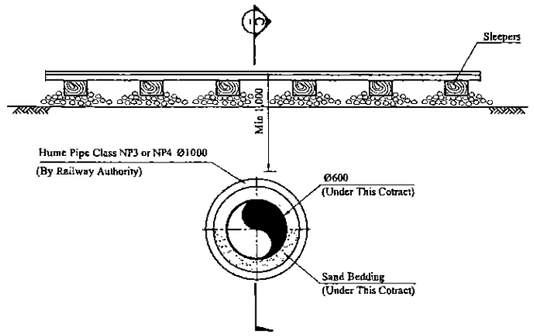



## RAILWAY CROSSING

### Type F




SECTION (C)




SECTIONAL ELEVATION

NOTES :

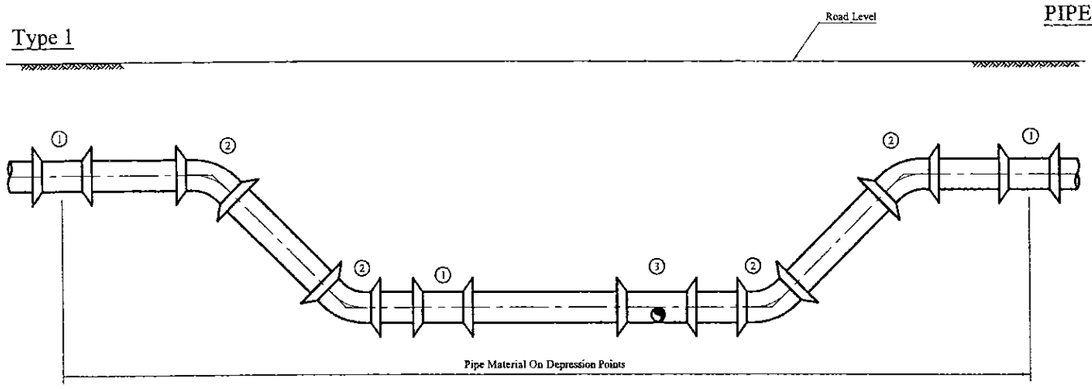
Refer to Drawing No. 20-C-08-25

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT | JAPAN INTERNATIONAL COOPERATION AGENCY | TITLE: TYPICAL DRAWING FOR CULVERT CROSSING & RAILWAY CROSSING | | | | | | | | | |
| CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD | CONSULTANTS : NJS CONSULTANTS CO., LTD. - JAPAN; NIHON SUIDO CONSULTANTS CO., LTD.- JAPAN | REV. | DESCRIPTION | DATE | SIGN. | DESIGNED: Taketoshi FUJIYAMA | DRAWN: Udita | PM: (CONSULTANT) Ikuo MIWA | CE: (P&D) | SCALE: NOT TO SCALE | |
| | | | | | | CHECKED: DESIGN CHIEF | AGM: (P&D) | DGM: (P&D) | DATE: 31/05/2002 | DRAWING NO.: 20-C-08-26 | |

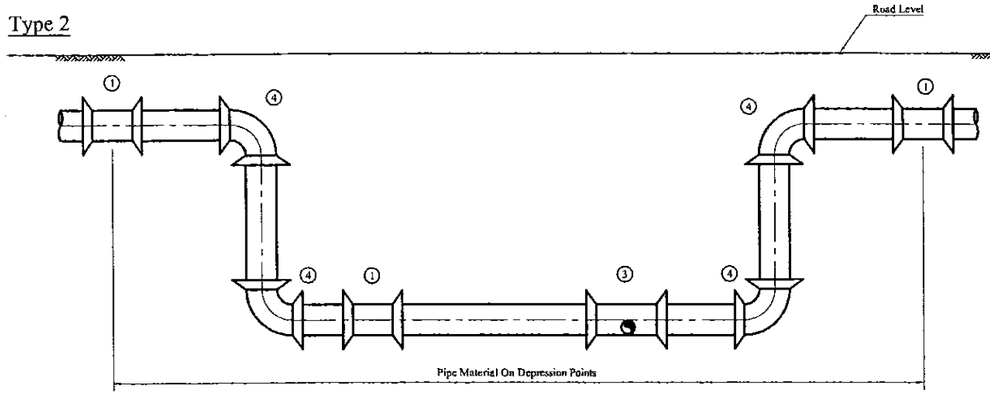
DATE: 24/04/2002 Wami (CAD I/D: FINAL DRAWINGS/TRANSMISSION/.....)

# PIPE LAYING TYPES

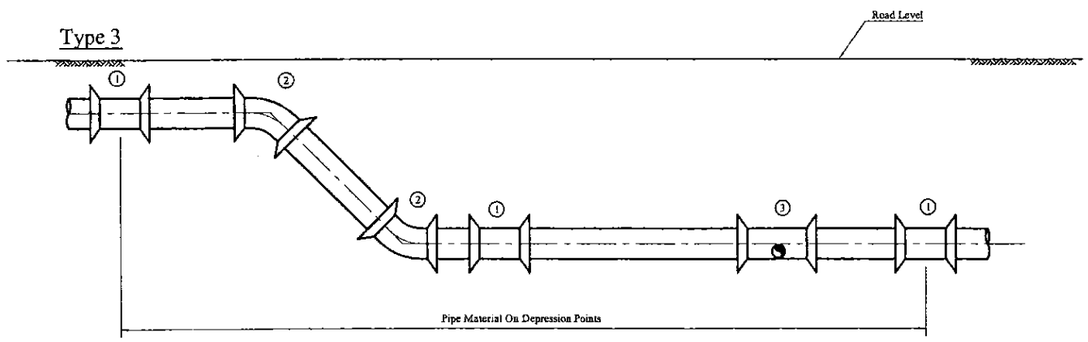
## Type 1



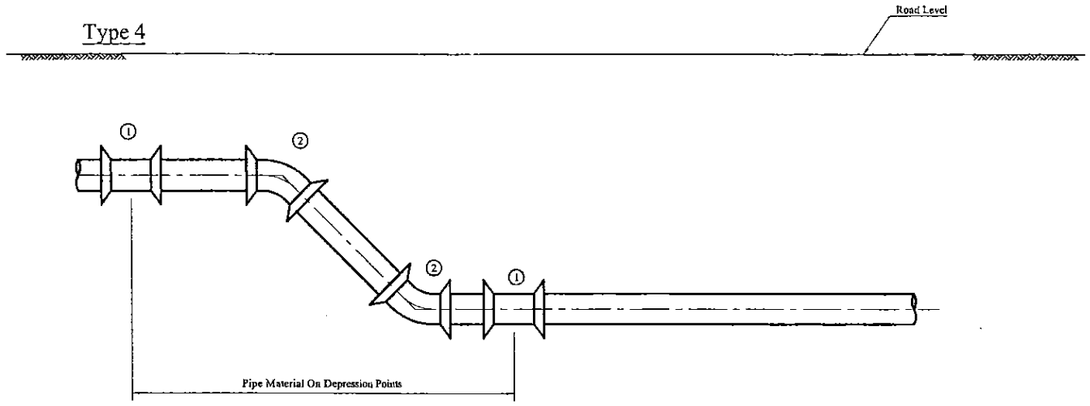

## Type 2



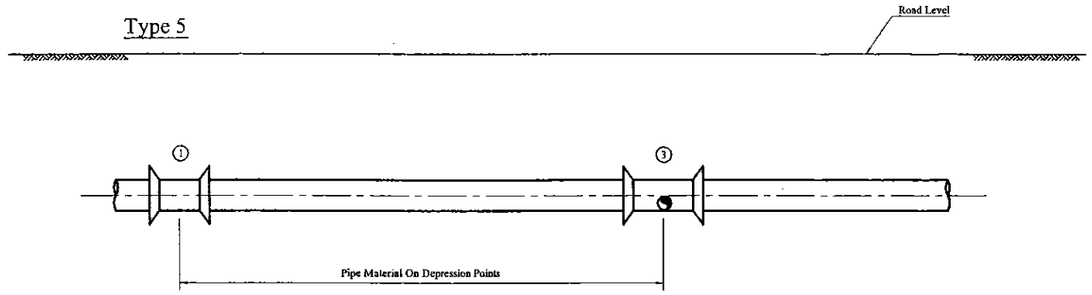

## Type 3




## Type 4




## Type 5




## LIST OF MATERIALS

| NO | PIPES | TYPE 1 | TYPE 2 | TYPE 3 | TYPE 4 | TYPE 5 |
|---|---|---|---|---|---|---|
| 1 | COLLAR | 3 | 3 | 3 | 2 | 1 |
| 2 | DOUBLE SOCKET 45° BEND | 4 | 0 | 2 | 2 | 0 |
| 3 | DOUBLE SOCKET INVERT TEE WITH FLANGED BRANCH | 1 | 1 | 1 | 0 | 1 |
| 4 | DOUBLE SOCKET 90° BEND | 0 | 4 | 0 | 0 | 0 |

PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT

JICA JAPAN INTERNATIONAL COOPERATION AGENCY

TITLE: TYPICAL DRAWING OF PIPE LAYING FOR VERTICAL DEPRESSION POINT

CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD

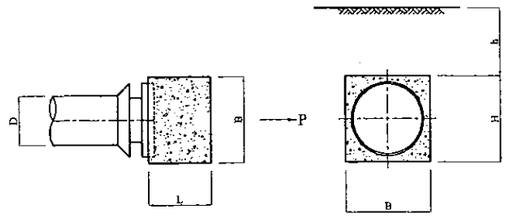
CONSULTANTS : NJS CONSULTANTS CO., LTD. - JAPAN; NIHON SUIDO CONSULTANTS CO., LTD.- JAPAN

| REV. | DESCRIPTION | DATE | SIGN. |
|---|---|---|---|

| DESIGNED: | DRAWN: | PM: (CONSULTANT) | CE: (P&D) | SCALE: |
|---|---|---|---|---|
| Taketoshi FUJIYAMA | Udita | Ikuo MIWA | | NOT TO SCALE |
| CHECKED: DESIGN CHIEF | AGM: (P&D) | DGM: (P&D) | DATE: 31/05/2002 | DRAWING NO.: 20-C-08-27 |

DATE: 24/04/2007 Wanni (CAD I/D/ FINAL DRAWINGS/TRANSMISSION/...

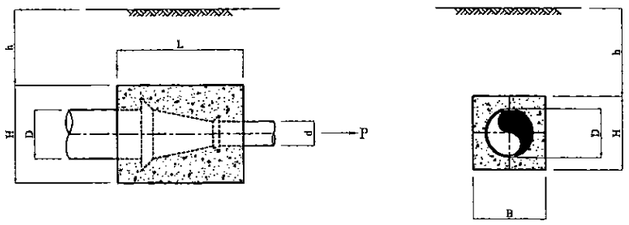
## CAP




**Plug, Cap**

| Water pressure (bar) | Pipe nominal outside D (mm) | Dimension B (m) | H (m) | L (m) | h (m) | Form Work (m2) | Volume of Concrete (m3) |
|---|---|---|---|---|---|---|---|
| 16 | 150 | 0.90 | 0.90 | 0.50 | 0.625 | 3.42 | 0.41 |
| 16 | 200 | 1.10 | 1.10 | 1.10 | 0.550 | 7.26 | 1.34 |
| 16 | 250 | 1.40 | 1.30 | 1.10 | 0.475 | 9.58 | 2.01 |
| 16 | 300 | 1.60 | 1.50 | 1.50 | 0.400 | 14.10 | 3.60 |
| 16 | 500 | 2.80 | 1.80 | 2.80 | 0.350 | 35.84 | 14.12 |
| 16 | 600 | 3.50 | 1.80 | 3.60 | 0.400 | 50.76 | 22.68 |

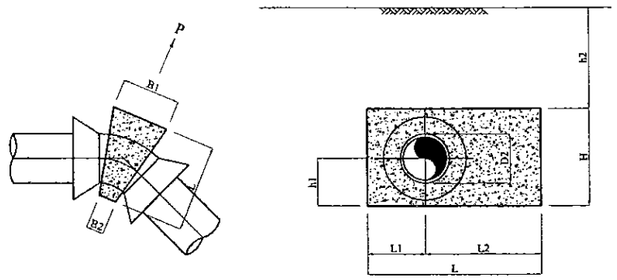
## TAPER




**Taper**

| Water pressure (bar) | Pipe nominal outside diameter Larger Pipe D (mm) | Smaller Pipe d (mm) | Dimension B (m) | H (m) | L (m) | h (m) | Form Work (m2) | Volume of Concrete (m3) |
|---|---|---|---|---|---|---|---|---|
| 16 | 200 | 150 | 0.80 | 0.70 | 0.75 | 0.75 | 0.36 | 0.34 |
| 16 | 250 | 200 | 0.90 | 0.80 | 0.75 | 0.73 | 0.36 | 0.42 |
| 16 | 300 | 250 | 1.00 | 0.90 | 0.75 | 0.70 | 0.36 | 0.51 |
| 16 | 350 | 250 | 1.40 | 1.20 | 1.26 | 0.58 | 1.02 | 1.86 |
| 16 | 600 | 350 | 2.40 | 2.00 | 2.76 | 0.30 | 4.89 | 12.09 |

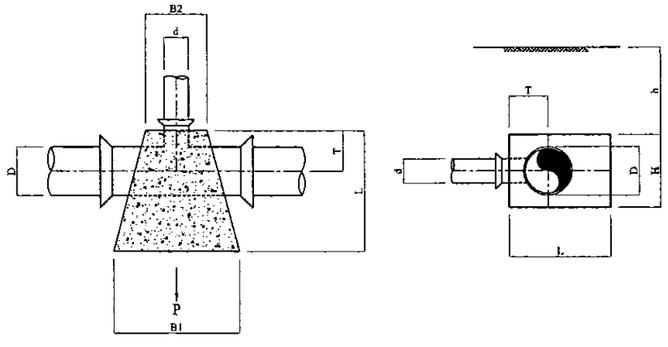
## HORIZONTAL



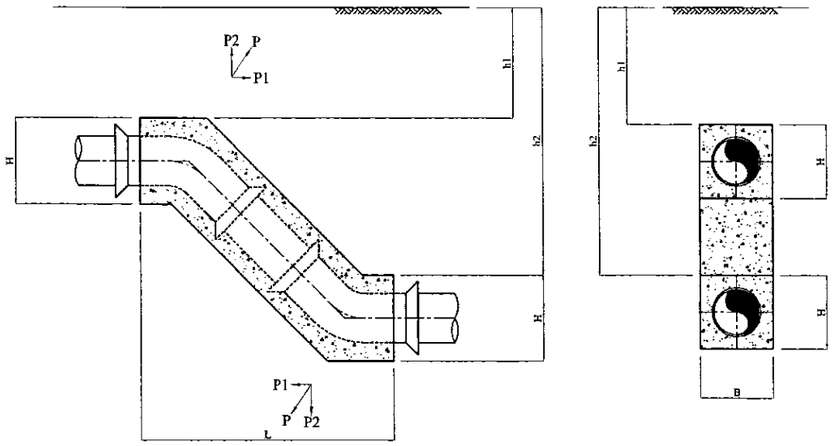

**Horizontal Bend**

| Water Pressure (bar) | Pipe nominal (mm) | Degree of bend (Deg.) | Dimension B1 (m) | B2 (m) | H (m) | L (m) | L1 (m) | L2 (m) | h1 (m) | h2 (m) | Form Work (m2) | Volume of Concrete (m3) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16 | 150 | 11.25 | 0.10 | 0.10 | 0.40 | 0.40 | 0.20 | 0.20 | 0.20 | 0.89 | 0.56 | 0.02 |
| 16 | 200 | 11.25 | 0.20 | 0.10 | 0.50 | 0.50 | 0.20 | 0.30 | 0.25 | 0.86 | 0.81 | 0.04 |
| 16 | 200 | 22.50 | 0.30 | 0.20 | 0.60 | 0.75 | 0.30 | 0.45 | 0.30 | 0.81 | 1.43 | 0.11 |
| 16 | 200 | 45.00 | 0.50 | 0.20 | 1.00 | 1.00 | 0.50 | 0.50 | 0.50 | 0.61 | 2.42 | 0.34 |
| 16 | 225 | 11.25 | 0.20 | 0.10 | 0.50 | 0.50 | 0.20 | 0.30 | 0.25 | 0.86 | 0.81 | 0.04 |
| 16 | 225 | 22.50 | 0.30 | 0.20 | 0.60 | 0.75 | 0.30 | 0.45 | 0.30 | 0.81 | 1.43 | 0.11 |
| 16 | 225 | 45.00 | 0.50 | 0.20 | 1.00 | 1.00 | 0.50 | 0.50 | 0.50 | 0.61 | 2.42 | 0.34 |
| 16 | 250 | 11.25 | 0.30 | 0.20 | 0.60 | 0.60 | 0.30 | 0.30 | 0.30 | 0.84 | 1.21 | 0.08 |
| 16 | 250 | 22.50 | 0.60 | 0.30 | 0.80 | 1.00 | 0.40 | 0.60 | 0.40 | 0.74 | 2.64 | 0.34 |
| 16 | 250 | 45.00 | 0.70 | 0.30 | 1.20 | 1.30 | 0.60 | 0.70 | 0.60 | 0.54 | 3.82 | 0.76 |
| 16 | 300 | 11.25 | 0.50 | 0.20 | 0.60 | 0.80 | 0.30 | 0.50 | 0.30 | 0.86 | 1.80 | 0.15 |
| 16 | 300 | 22.50 | 0.60 | 0.30 | 1.00 | 1.10 | 0.50 | 0.60 | 0.50 | 0.66 | 3.01 | 0.46 |
| 16 | 300 | 45.00 | 0.80 | 0.30 | 1.40 | 1.50 | 0.70 | 0.80 | 0.70 | 0.46 | 4.72 | 1.12 |
| 16 | 350 | 11.25 | 0.60 | 0.20 | 0.70 | 0.95 | 0.35 | 0.60 | 0.35 | 0.84 | 2.30 | 0.23 |
| 16 | 350 | 22.50 | 0.70 | 0.30 | 1.00 | 1.30 | 0.50 | 0.80 | 0.50 | 0.69 | 3.62 | 0.60 |
| 16 | 350 | 45.00 | 0.90 | 0.30 | 1.50 | 1.65 | 0.75 | 0.90 | 0.75 | 0.44 | 5.46 | 1.43 |
| 16 | 400 | 11.25 | 0.60 | 0.30 | 0.80 | 1.00 | 0.40 | 0.60 | 0.40 | 0.82 | 2.64 | 0.30 |
| 16 | 400 | 22.50 | 0.70 | 0.30 | 1.20 | 1.40 | 0.60 | 0.80 | 0.60 | 0.62 | 4.02 | 0.78 |
| 16 | 400 | 45.00 | 1.00 | 0.40 | 1.60 | 2.00 | 0.80 | 1.20 | 0.80 | 0.42 | 7.07 | 2.15 |
| 16 | 500 | 11.25 | 0.70 | 0.30 | 1.00 | 1.20 | 0.50 | 0.70 | 0.50 | 0.77 | 3.42 | 0.50 |
| 16 | 500 | 22.50 | 0.90 | 0.30 | 1.40 | 1.70 | 0.70 | 1.00 | 0.70 | 0.57 | 5.45 | 1.31 |
| 16 | 500 | 45.00 | 1.50 | 0.60 | 1.60 | 2.80 | 0.80 | 2.00 | 0.80 | 0.47 | 12.08 | 4.52 |
| 16 | 600 | 11.25 | 0.80 | 0.40 | 1.20 | 1.40 | 0.60 | 0.80 | 0.60 | 0.72 | 4.54 | 0.83 |
| 16 | 600 | 22.50 | 1.00 | 0.40 | 1.60 | 2.10 | 0.80 | 1.30 | 0.80 | 0.52 | 7.31 | 2.16 |
| 16 | 600 | 45.00 | 2.00 | 1.00 | 1.80 | 3.20 | 1.00 | 2.20 | 0.90 | 0.42 | 18.24 | 8.23 |
| 16 | 700 | 11.25 | 0.80 | 0.40 | 1.40 | 1.60 | 0.70 | 0.90 | 0.70 | 0.67 | 5.22 | 1.10 |
| 16 | 700 | 22.50 | 1.20 | 0.50 | 1.80 | 2.40 | 0.90 | 1.50 | 0.90 | 0.47 | 9.57 | 3.35 |
| 16 | 700 | 45.00 | 2.70 | 1.00 | 2.00 | 3.70 | 1.00 | 2.70 | 1.00 | 0.37 | 24.89 | 13.07 |

## TEE




## VERTICAL S - BEND




**Vertical S Bend**

| Water pressure (bar) | Pipe nominal outside dia. (mm) | Degree of bend (Deg.) | Dimension B (m) | H (m) | L (m) | h1 (m) | h2 (m) | Form work (m2) | Volume of Concrete (m3) |
|---|---|---|---|---|---|---|---|---|---|
| 16 | 150 | 45 | 0.80 | 0.60 | 2.80 | 0.78 | 1.78 | 8.44 | 1.47 |
| 16 | 200 | 45 | 1.00 | 0.50 | 3.20 | 0.85 | 1.85 | 7.73 | 1.67 |
| 16 | 250 | 45 | 1.00 | 0.70 | 4.00 | 0.78 | 1.78 | 13.34 | 2.83 |
| 16 | 300 | 45 | 1.00 | 0.90 | 5.00 | 0.70 | 1.70 | 21.12 | 4.43 |
| 16 | 350 | 45 | 1.30 | 0.90 | 5.00 | 0.73 | 1.73 | 21.12 | 5.73 |
| 16 | 400 | 45 | 1.50 | 0.70 | 5.00 | 0.85 | 1.85 | 16.14 | 4.91 |
| 16 | 500 | 45 | 1.80 | 0.80 | 5.60 | 0.85 | 1.85 | 20.53 | 7.33 |
| 16 | 600 | 45 | 2.20 | 0.90 | 6.00 | 0.85 | 1.85 | 24.72 | 10.67 |

**Tee for Main Line**

| Water pressure (bar) | Pipe nominal outside diameter Main Pipe D (mm) | Branch Pipe d (mm) | Dimension B1 (m) | B2 (m) | H (m) | L (m) | T (m) | h (m) | Form Work (m2) | Volume of Concrete (m3) |
|---|---|---|---|---|---|---|---|---|---|---|
| 16 | 200 | 200 | 1.50 | 1.00 | 0.60 | 1.70 | 0.60 | 0.80 | 7.47 | 1.22 |
| 16 | 250 | 200 | 1.50 | 1.00 | 0.80 | 1.50 | 0.60 | 0.70 | 7.28 | 1.42 |
| 16 | 300 | 300 | 1.70 | 1.00 | 1.40 | 1.80 | 0.70 | 0.45 | 10.48 | 3.26 |
| 16 | 350 | 300 | 1.70 | 1.00 | 1.40 | 1.80 | 0.70 | 0.45 | 10.48 | 3.22 |
| 16 | 400 | 300 | 1.70 | 1.00 | 1.40 | 1.80 | 0.70 | 0.45 | 10.48 | 3.18 |
| 16 | 500 | 500 | 3.00 | 1.00 | 1.80 | 3.10 | 0.80 | 0.35 | 22.86 | 10.71 |
| 16 | 500 | 400 | 2.20 | 0.90 | 1.80 | 2.30 | 0.80 | 0.30 | 15.11 | 6.04 |
| 16 | 600 | 600 | 3.30 | 2.00 | 2.20 | 3.40 | 0.80 | 0.20 | 33.15 | 18.94 |
| 16 | 600 | 200 | 1.20 | 0.80 | 1.00 | 1.30 | 0.50 | 0.60 | 5.92 | 1.00 |
| 16 | 700 | 600 | 3.30 | 2.00 | 2.20 | 3.40 | 0.80 | 0.20 | 33.15 | 18.70 |

**Tee for Wash Out**

| Water pressure (bar) | Pipe nominal outside diameter Main Pipe D (mm) | Branch Pipe d (mm) | Dimension B1 (m) | B2 (m) | H (m) | L (m) | T (m) | h (m) | Form Work (m2) | Volume of Concrete (m3) |
|---|---|---|---|---|---|---|---|---|---|---|
| 16 | 150 | 80 | 0.40 | 0.30 | 0.40 | 0.40 | 0.20 | 0.20 | 0.97 | 0.05 |
| 16 | 200 | 80 | 0.40 | 0.30 | 0.40 | 0.40 | 0.20 | 0.20 | 0.97 | 0.05 |
| 16 | 250 | 80 | 0.40 | 0.30 | 0.40 | 0.40 | 0.25 | 0.20 | 0.97 | 0.04 |
| 16 | 300 | 80 | 0.40 | 0.30 | 0.40 | 0.40 | 0.25 | 0.20 | 0.97 | 0.03 |
| 16 | 350 | 100 | 0.50 | 0.30 | 0.60 | 0.70 | 0.30 | 0.30 | 1.75 | 0.13 |
| 16 | 400 | 100 | 0.50 | 0.30 | 0.60 | 0.70 | 0.30 | 0.30 | 1.75 | 0.12 |
| 16 | 500 | 100 | 0.50 | 0.30 | 0.70 | 0.60 | 0.35 | 0.35 | 1.65 | 0.08 |
| 16 | 600 | 100 | 0.50 | 0.30 | 0.80 | 0.60 | 0.40 | 0.40 | 1.73 | 0.06 |

PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT

JICA JAPAN INTERNATIONAL COOPERATION AGENCY

TITLE: THRUST BLOCK DETAILS - WATTEGAMA

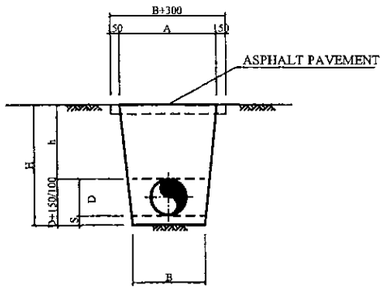
CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD

CONSULTANTS : NJS CONSULTANTS CO., LTD. - JAPAN; NIHON SUIDO CONSULTANTS CO., LTD.- JAPAN

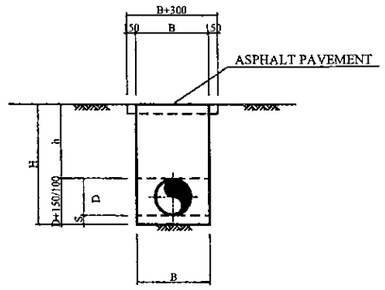
| REV. | DESCRIPTION | DATE | SIGN. |
|---|---|---|---|
| 1 | Table of Tee for Wash Out Added | 12-02-2002 | XX |

| DESIGNED: | DRAWN: | PM: (CONSULTANT) | CE: (P&D) | SCALE: |
|---|---|---|---|---|
| Taketoshi FUJIYAMA | Ravi U. | Ikuo MIWA | | NOT TO SCALE |
| CHECKED: DESIGN CHIEF | AGM: (P&D) | DGM: (P&D) | DATE: 31/05/2002 | DRAWING NO.: 20-C-08-28 |

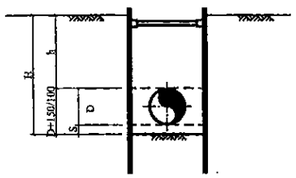
DATE: 24/04/2002 I:/D/_FINAL DRAWINGS/TRANSMISSION/...Wanni (CAD)



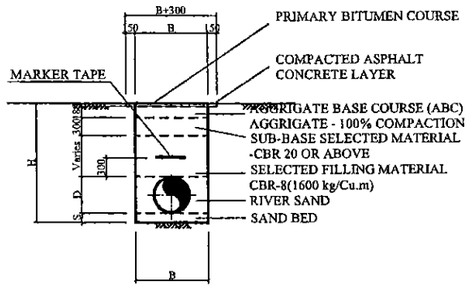

MANUAL EXCAVATION



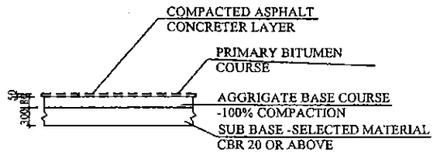

MACHINE EXCAVATION



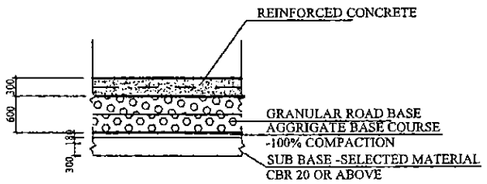

EXCAVATION WITH SHEET PILE




BACKFILL




TARRED PAVEMENT




CONCRETE PAVEMENT

NOTE :-

1. RIVER SAND MAY BE USED AS A GRANULAR FILLING DURING BACK FILLING.

**Manual Excavation**

| Pipe Material | Pipe Diameter: D (mm) | Trench Width: A (m) | Trench Width: B (m) | Sand Bed Thickness: S (m) | Depth of Cover: h (m) | Excavation Depth: H (m) |
|---|---|---|---|---|---|---|
| uPVC | 63 or Less | 0.60 | 0.50 | 0.10 | 1.00 | 1.17 |
| | 75 | | | | | 1.18 |
| | 90 | | | | | 1.19 |
| | 110 | | | | | 1.21 |
| | 140 | | | | | 1.24 |
| | 160 | | | | | 1.26 |
| | 225 | 0.80 | 0.60 | | | 1.33 |
| DIP | 200 | 0.80 | 0.60 | 0.10 | 1.00 | 1.30 |
| | 250 | | | | | 1.35 |
| | 300 | | | | | 1.40 |
| | 350 | | | 0.15 | | 1.50 |
| | 400 | 0.85 | 0.65 | | | 1.55 |
| | 450 | 0.90 | 0.75 | | | 1.60 |
| | 500 | 1.00 | 0.80 | | | 1.65 |
| | 600 | 1.10 | 0.85 | | | 1.75 |
| | 700 | 1.30 | 1.00 | | | 1.85 |
| | 800 | 1.50 | 1.10 | | | 1.95 |

**Machine Excavation**

| Pipe Material | Pipe Diameter: D (mm) | Trench Width: B (m) | Sand Bed Thickness: S (m) | Depth of Cover: h (m) | Excavation Depth: H (m) |
|---|---|---|---|---|---|
| uPVC | 63 or Less | 0.70 | 0.10 | 1.00 | 1.17 |
| | 75 | | | | 1.18 |
| | 90 | | | | 1.19 |
| | 110 | | | | 1.21 |
| | 140 | | | | 1.24 |
| | 160 | | | | 1.26 |
| | 225 | 0.80 | | | 1.33 |
| DIP | 200 | 0.80 | 0.10 | 1.00 | 1.30 |
| | 250 | | | | 1.35 |
| | 300 | | | | 1.40 |
| | 350 | | 0.15 | | 1.50 |
| | 400 | 0.90 | | | 1.55 |
| | 450 | | | | 1.60 |
| | 500 | 1.00 | | | 1.65 |
| | 600 | 1.10 | | | 1.75 |
| | 700 | 1.30 | | | 1.85 |
| | 800 | 1.50 | | | 1.95 |

**Excavation with Sheet Pile**

| Pipe Material | Pipe Diameter: D (mm) | Trench Width: B (m) | Sand Bed Thickness: S (m) | Depth of Cover: h (m) | Excavation Depth: H (m) |
|---|---|---|---|---|---|
| uPVC | 63 or Less | 0.90 | 0.10 | 1.00 | 1.17 |
| | 75 | | | | 1.18 |
| | 90 | | | | 1.19 |
| | 110 | | | | 1.21 |
| | 140 | | | | 1.24 |
| | 160 | | | | 1.26 |
| | 225 | 1.00 | | | 1.33 |
| DIP | 200 | 1.00 | 0.10 | 1.00 | 1.30 |
| | 250 | | | | 1.35 |
| | 300 | 1.05 | | | 1.40 |
| | 350 | 1.10 | 0.15 | | 1.50 |
| | 400 | 1.15 | | | 1.55 |
| | 450 | 1.20 | | | 1.60 |
| | 500 | 1.25 | | | 1.65 |
| | 600 | 1.45 | | | 1.75 |
| | 700 | 1.60 | | | 1.85 |
| | 800 | 1.70 | | | 1.95 |

PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT

JICA JAPAN INTERNATIONAL COOPERATION AGENCY

TITLE: GENERAL EARTH WORKS FOR PIPE LAYING

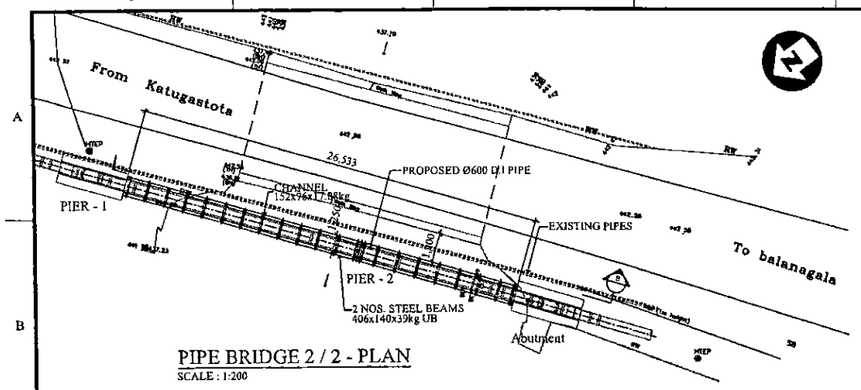
CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD

CONSULTANTS : NJS CONSULTANTS CO., LTD. - JAPAN; NIHON SUIDO CONSULTANTS CO., LTD.- JAPAN

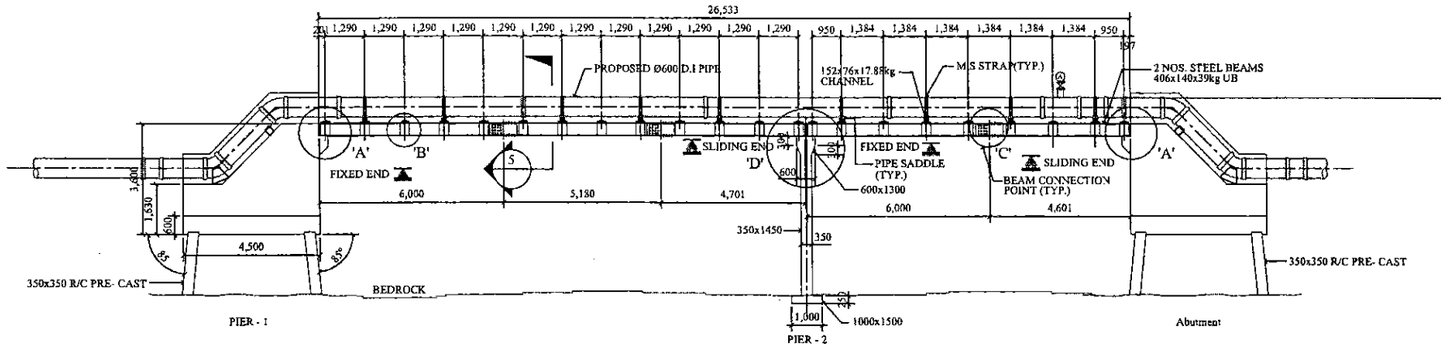
| REV. | DESCRIPTION | DATE | SIGN. |
|---|---|---|---|
| XX | XXXX | XX | XX |

| DESIGNED: | DRAWN: | PM: (CONSULTANT) | CE: (P&D) | SCALE: |
|---|---|---|---|---|
| Taketoshi FUJIYAMA | Kalinga | Ikuo MIWA | | NOT TO SCALE |
| CHECKED: DESIGN CHIEF | AGM: (P&D) | DGM: (P&D) | DATE: 31/05/2002 | DRAWING NO.: 20-C-08-29 |

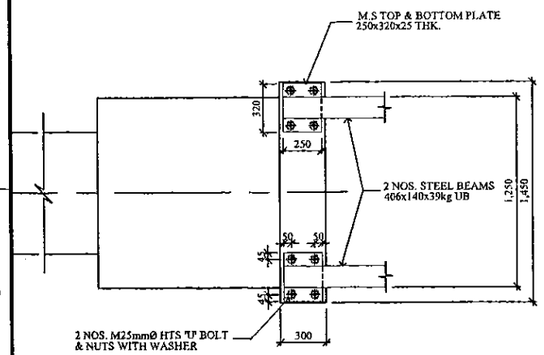
DATE: 24/04/2002 T:\anni (CAD 1/DG/ FINAL DRAWINGS/TRANSMISSION/



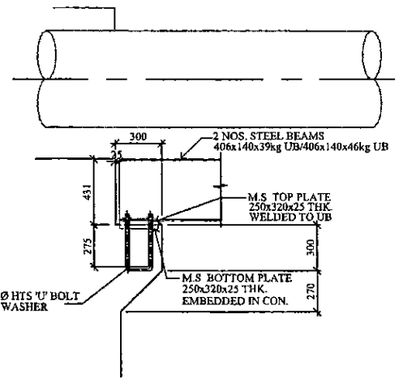

PIPE BRIDGE 2 / 2 - PLAN
SCALE : 1:200



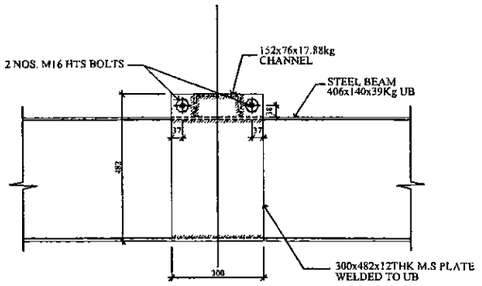

PIPE BRIDGE 2 / 2 - LONGITUDINAL SECTION (B)
SCALE : 1:100
SECTION OF SOUTH SIDE



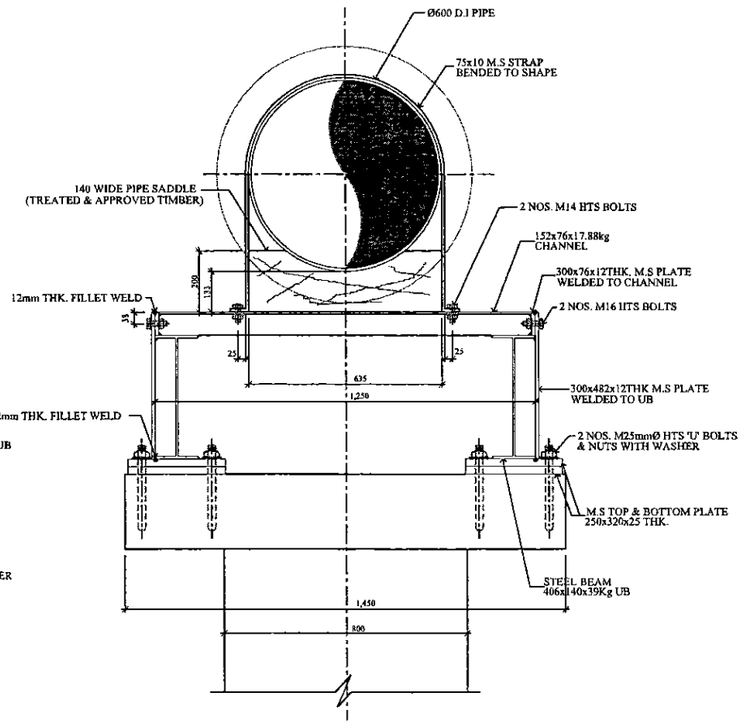

FIXED END
PLAN (A)
SCALE : 1:20



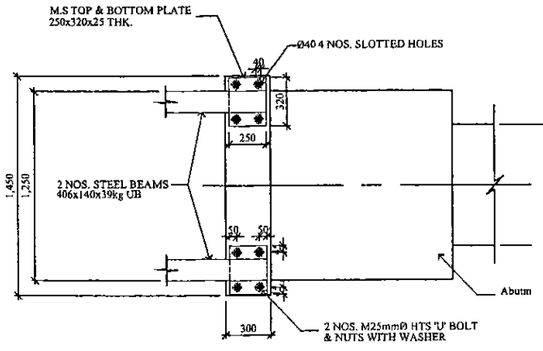

DETAIL
SCALE : 1:20 (A)



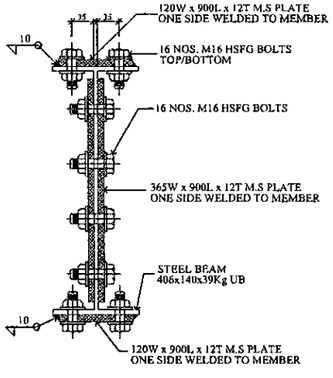

DETAIL (TYP.) (B)
SCALE : 1:10



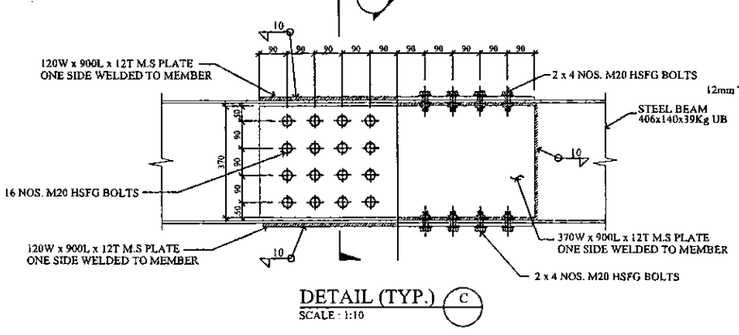

SECTION (5)
SCALE : 1:10
Please refer to DWG. No. 20-S-08-03




SLIDING END
PLAN (A)
SCALE : 1:20




SECTION (X)
SCALE : 1:5

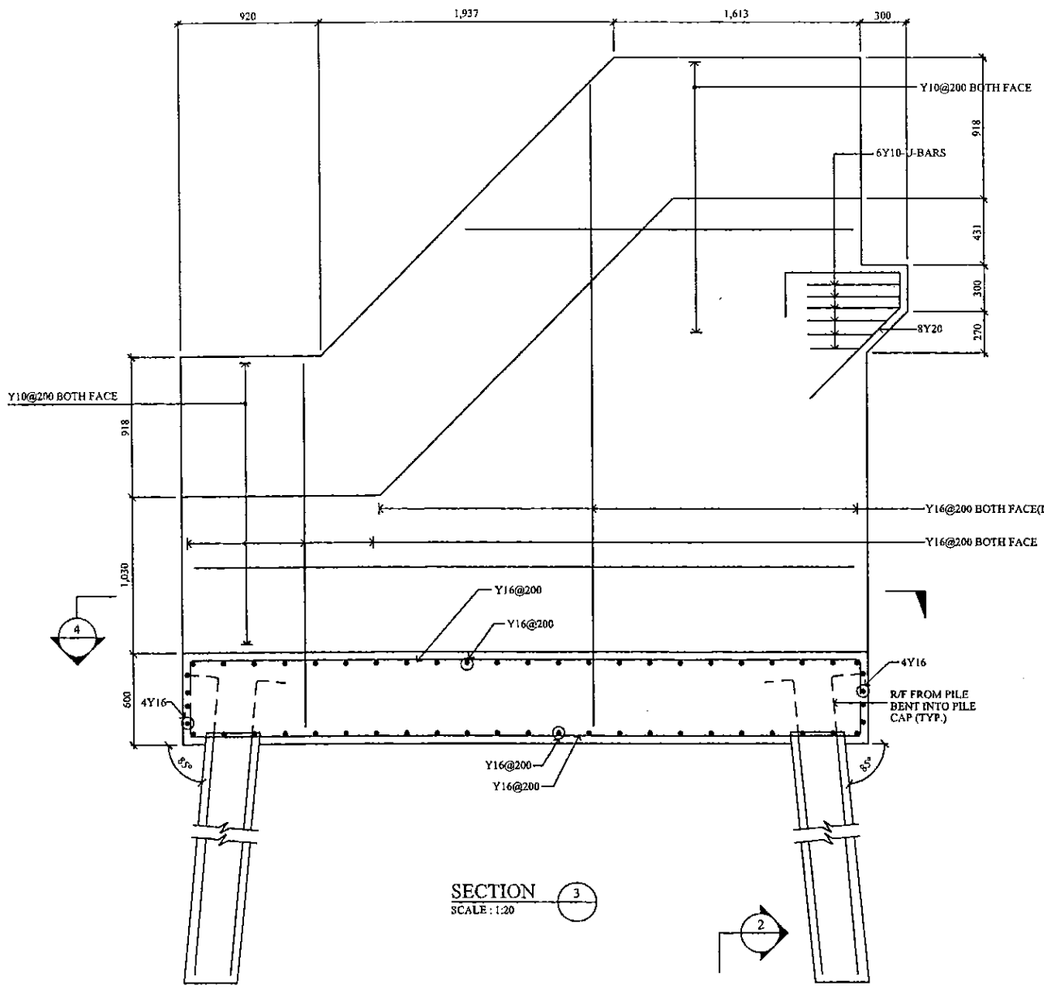



DETAIL (TYP.) (C)
SCALE : 1:10

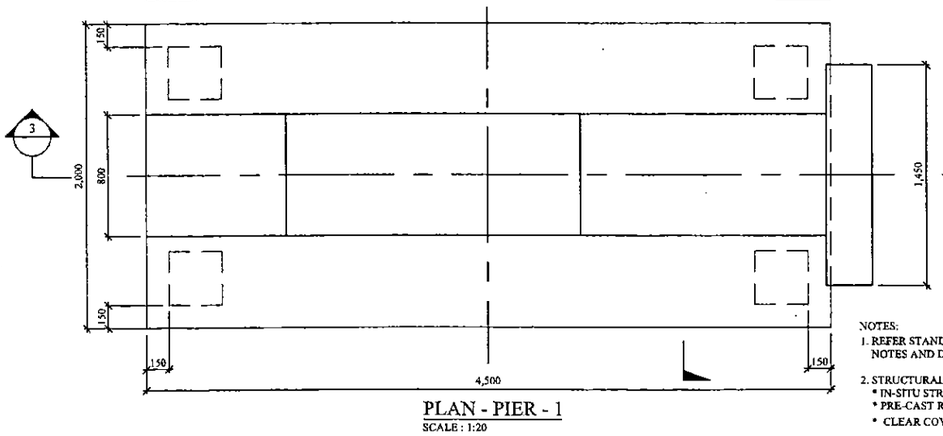
| | | | |
|---|---|---|---|
| PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT | JICA JAPAN INTERNATIONAL COOPERATION AGENCY | TITLE: KATUGASTOTA JUNCTION TO BALANAGALA JUNCTION - TRANSMISSION MAIN OVER BRIDGE 2 / 2 | |
| CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD | CONSULTANTS : NJS CONSULTANTS CO., LTD. - JAPAN; NIHON SUIDO CONSULTANTS CO., LTD.- JAPAN | REV. / DESCRIPTION / DATE / SIGN. | |

| DESIGNED: | DRAWN: | PM: (CONSULTANT) | CE: (P&D) | SCALE: |
|---|---|---|---|---|
| L. JAYAWARDENA | SAM | Ikuo MIWA | | 1:100 |
| CHECKED: DESIGN CHIEF | AGM: (P&D) | DGM: (P&D) | DATE: 31/05/2002 | DRAWING NO.: 20-S-08-01 |

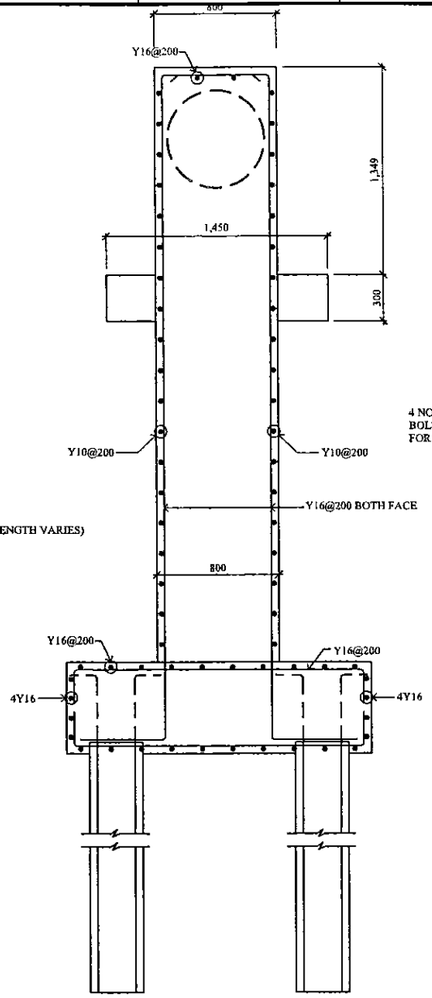
DATE: 24/04/2002 Wanni (CAD 1/D/ FINAL DRAWINGS/TRANSMISSION/



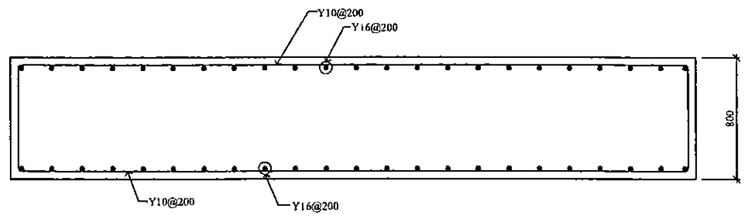

SECTION ③
SCALE : 1:20



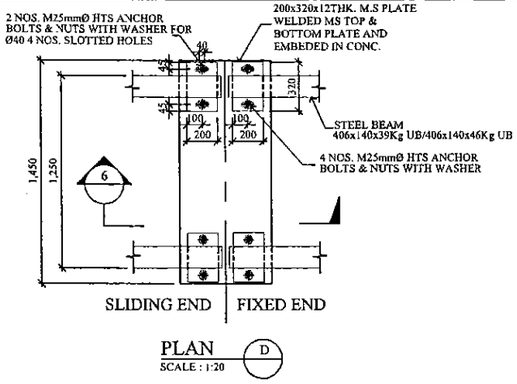

PLAN - PIER - 1
SCALE : 1:20



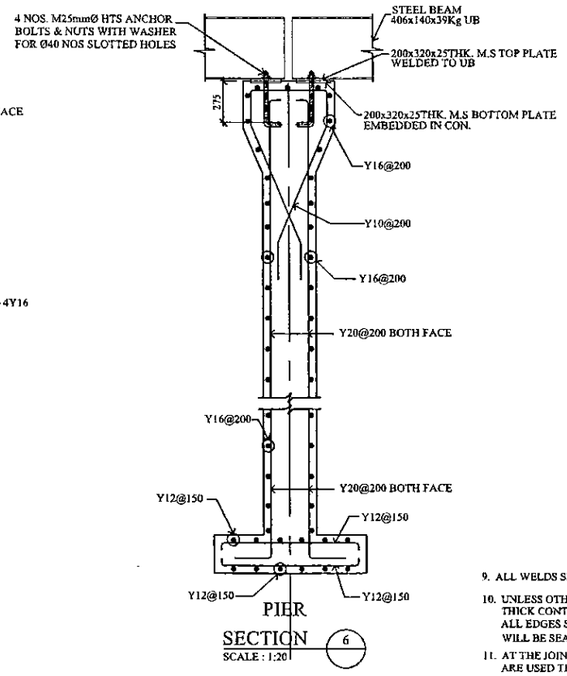

SECTION ②
SCALE : 1:20




SECTION ④
SCALE : 1:20




PLAN
SCALE : 1:20 D




PIER
SECTION ⑥
SCALE : 1:20

NOTES:

1. REFER STANDARD DRAWINGS FOR GENERAL NOTES AND DETAILS.
2. STRUCTURAL CONCRETE SHALL BE AS FOLLOWS.
   * IN-SITU STRUCTURAL CONCRETE - GRADE 25
   * PRE-CAST RE PILES-GRADE 40.
   * CLEAR COVER TO R/F - PILES & PILE CAPS = 75mm.
3. THE SAFE WORKING LOAD OF 350x350 PRE-CAST RE FRICTION BEARING PILES SHALL BE
   * 350kN IN DIRECT VERTICAL LOAD(COMPRESSION) &
   * 75kN IN DIRECT VERTICAL UPWARD(TENSION).
4. NO SITE WELDING SHALL BE PERMITTED.
* 5. AT LEAST ONE SEPARATE TEST PILE (3.0 TIMES WORKING LOAD) AND A WORKING PILE (1.5 TIMESWORKING LOAD) SHALL BE TESTED AT EACH BRIDGE LOCATION.
6. DURING ERECTION OF STEEL BEAMS 100mm PRECAMBER AT CENTER TO BE PROVIDED.
7. ALL STEEL MEMBERS SHALL BE OF GRADE 43 COMPLYING TO BS 4360.
8. ALL HIGH STRENGTH FRICTION GRIP (HSFG) BOLTS, NUTS & WASHERS SHALL COMPLY WITH BS 4395 : PART 1: 1969 - GENERAL GRADE AND SHALL BE USED COFORMING TO BS 4604 : PART 1 : 1970.
9. ALL WELDS SHALL COMPLY WITH BS 5135.
10. UNLESS OTHERWISE SHOWN, ALL WELDS SHALL BE 6mm THICK CONTINUOUS FILLET WELDS AND SHOULD BE ALONG ALL EDGES SO THAT SPACE BETWEEN THE PART IN CONTACT WILL BE SEALED.
11. AT THE JOINTS WHERE HIGH STRENGTH FRICTION GRIP BOLTS ARE USED THE SURFACES IN CONTACTSHALL CONFORM TO UNTREATED SURFACES AS PER BS 4604 : PART : 1970.
12. ALL BOLTS HOLES SHALL BE MACHIN DRILLED & HOLE DIAMETER SHALL CONFORM TO CLEARANCE HOLES AS PER BS 5950 : PART : 1990.
13. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS & OBTAIN APPROVAL BEFORE ORDERING MATERIALS OR STARTING THE FABRICATION WORK.
14. ALL STEEL MEMBERS SHALL BE TREATED WITH HOT DIP GALVANISED AS FOR SYSTEM 'A' IN SPECIFICATIONS (SPECIFICATION SECTION 09870 - COATING SYSTEM FOR FERROUS METALS)

REINFORCED CONCRETE

15. REINFORCEMENT NOTATIONS :
    R - DENOTES ROUND MILD STEEL OF fy = 250 MPa.
    Y - DENOTES DEFORMED (TYPE - 2) HIGH YIELD STEEL OF fy = 460 MPa.

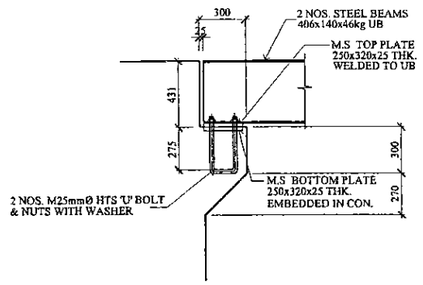
    SEQUENCE OF DESCRIPTION :
    6Y16 @ 150 DENOTES 6 No. OF DEFORMED HIGH YIELD STEEL, 16mm Ø SPACED AT 200mm c/c.
16. LAP LENGTH SHOULD BE 48 x BAR DIAMETER.

| | | | |
|---|---|---|---|
| PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT | JICA JAPAN INTERNATIONAL COOPERATION AGENCY | TITLE: KATUGASTOTA JUNCTION TO BALANAGALA JUNCTION - TRANSMISSION MAIN OVER BRIDGE 2 / 2 | |
| CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD | CONSULTANTS : NJS CONSULTANTS CO., LTD. - JAPAN; NIHON SUIDO CONSULTANTS CO., LTD.- JAPAN | | |

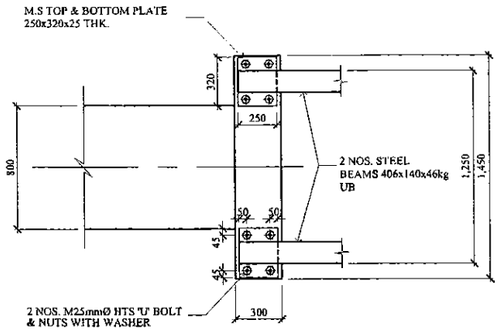
| REV. | DESCRIPTION | DATE | SIGN. |
|---|---|---|---|
| | | | |

| DESIGNED: | DRAWN: | PM: (CONSULTANT) | CE: (P&D) | SCALE: |
|---|---|---|---|---|
| L. JAYAWARDENA | SAM | Ikuo MIWA | | 1:100 |
| CHECKED: DESIGN CHIEF | AGM: (P&D) | DGM: (P&D) | DATE: 31/05/2002 | DRAWING NO.: 20-S-08-02 |

DATE: 24/04/2002 Wami (CAD I/D/ FINAL DRAWINGS/TRANSMISSION/.....

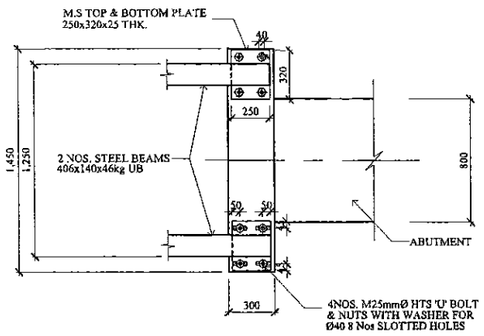



DETAIL (A)
SCALE : 1:20



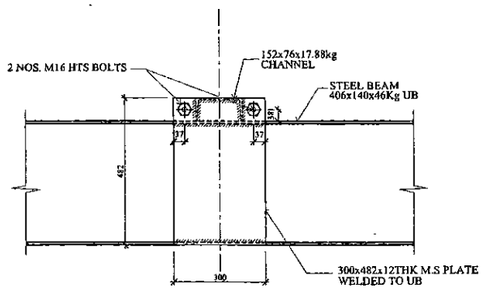

FIXED END AT ABUTMENT

PLAN (A)
SCALE : 1:20

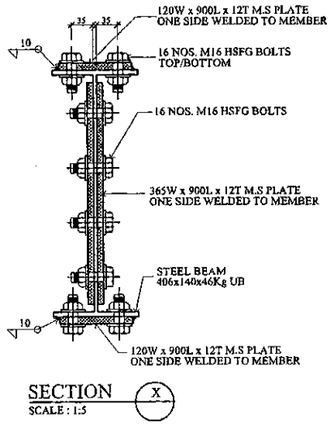



SLIDING END AT ABUTMENT

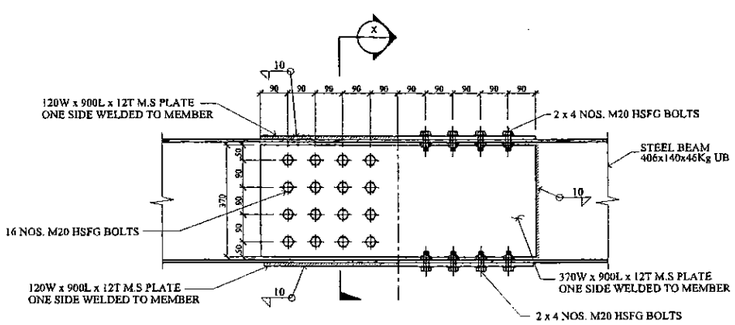
PLAN (A)
SCALE : 1:20



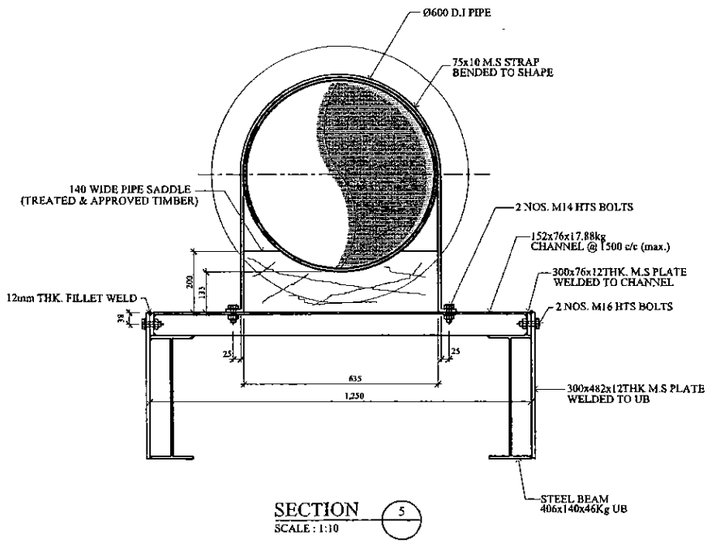

DETAIL (TYP.) (B)
SCALE : 1:10




SECTION (X)
SCALE : 1:5



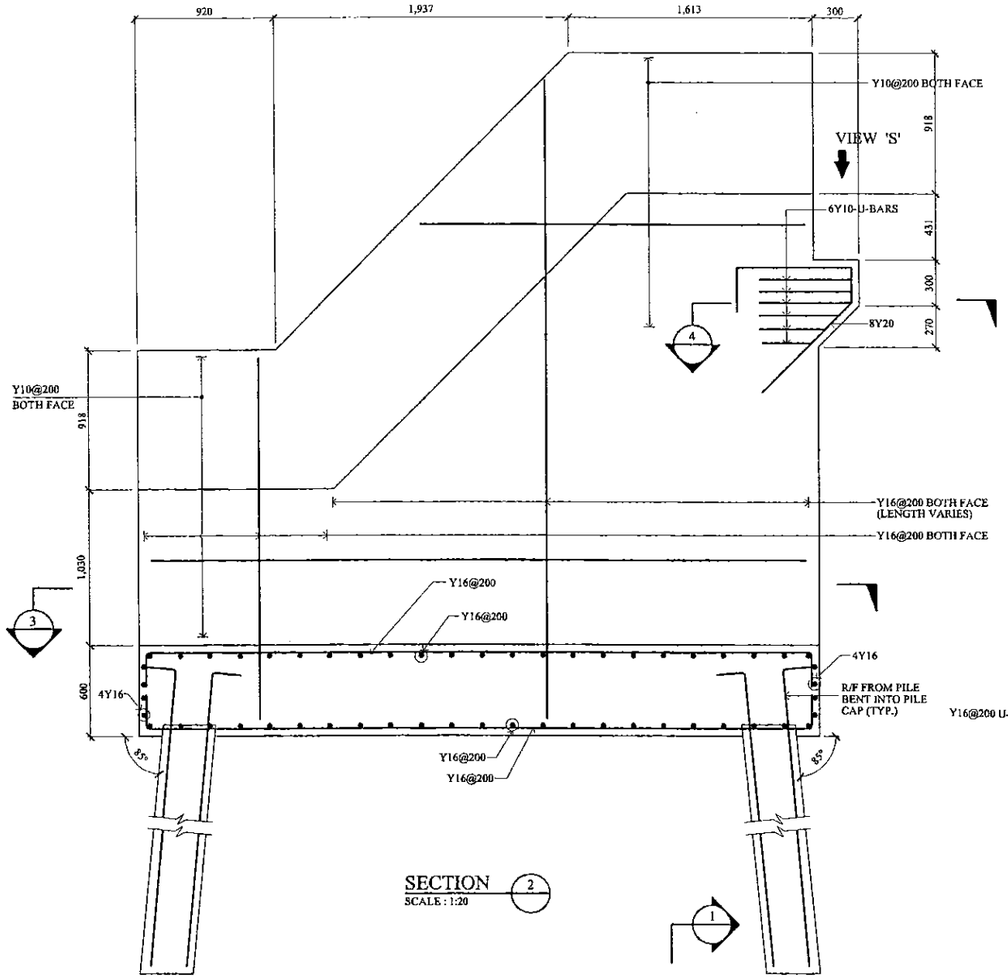

DETAIL (TYP.) (C)
SCALE : 1:10



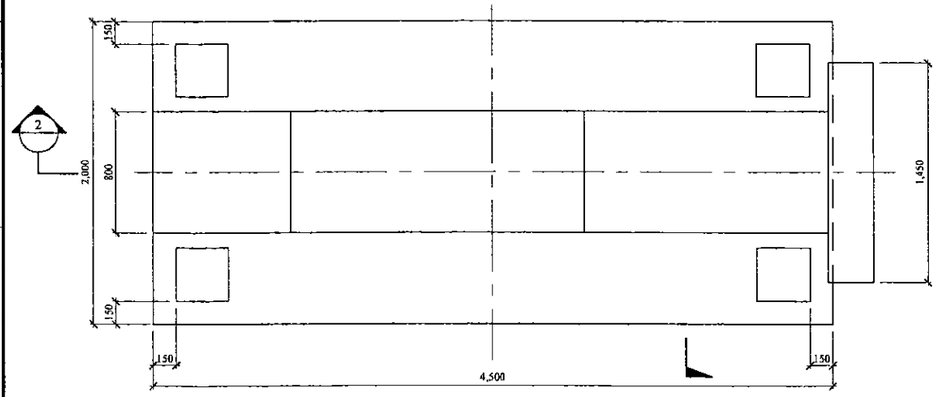

SECTION (5)
SCALE : 1:10

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT | JICA JAPAN INTERNATIONAL COOPERATION AGENCY | TITLE: KATUGASTOTA JUNCTION TO BALANAGALA JUNCTION OVER BRIDGE 2/5 | | | | | | | | | |
| CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD | CONSULTANTS : NJS CONSULTANTS CO., LTD. - JAPAN; NIHON SUIDO CONSULTANTS CO., LTD.- JAPAN | REV. | DESCRIPTION | DATE | SIGN. | DESIGNED: L. JAYAWARDENA | DRAWN: Ravi U. | PM: (CONSULTANT) Ikuo MIWA | CE: (P&D) | SCALE: 1:100 | |
| | | | | | | CHECKED: DESIGN CHIEF | AGM: (P&D) | DGM: (P&D) | DATE: 31/05/2002 | DRAWING NO.: 20-S-08-03 | |

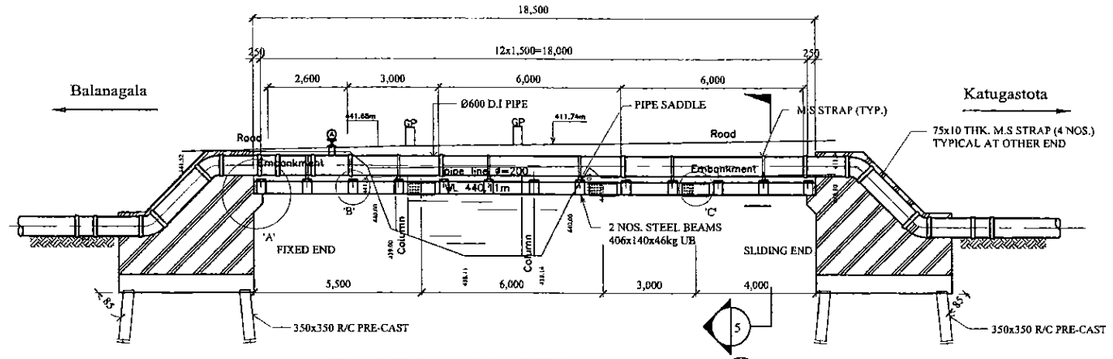
DATE: 24/04/2002 I:\Wanni (CAD 1)\DL\ FINAL DRAWINGS/TRANSMISSION/.....



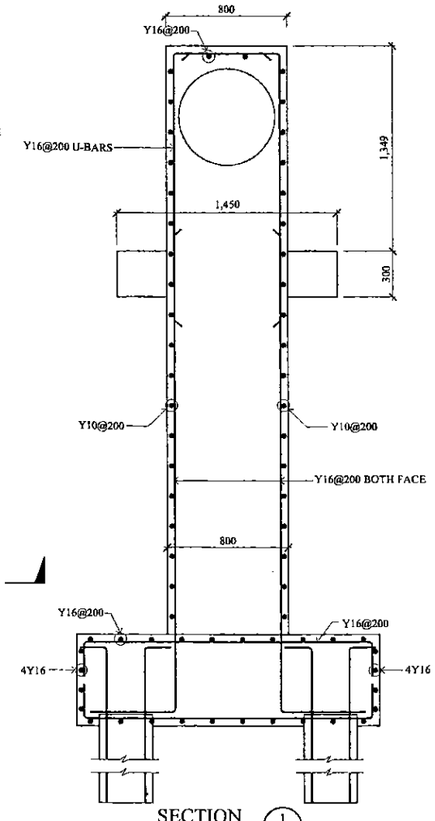

SECTION 2
SCALE : 1:20



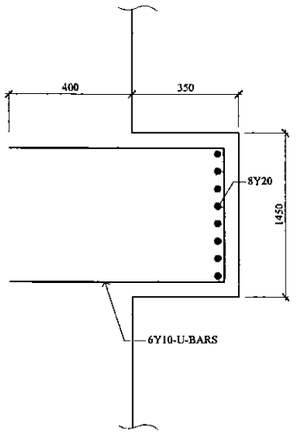

PLAN - ABUTMENT
SCALE : 1:20



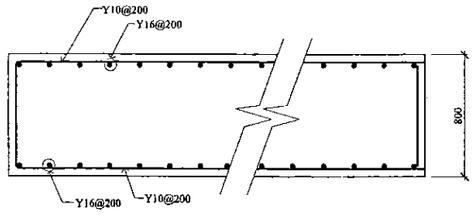

PIPE BRIDGE 2/5 LONGITUDINAL SECTION
SCALE : 1:100




SECTION 1
SCALE : 1:20




SECTION 4
NOT TO SCALE




SECTION 3
SCALE : 1:20

NOTES:
1. REFER STANDARD DRAWINGS FOR GENERAL NOTES AND DETAILS.
2. STRUCTURAL CONCRETE SHALL BE AS FOLLOWS.
   * IN-SITU STRUCTURAL CONCRETE - GRADE 25
   * PRE-CAST RE PILES-GRADE 40.
   * CLEAR COVER TO R/F - PILES & PILE CAPS = 75mm.
3. THE SAFE WORKING LOAD OF 350x350 PRE-CAST RE FRICTION BEARING PILES SHALL BE
   * 350KN IN DIRECT VERTICAL LOAD(COMPRESSION) &
   * 75KN IN DIRECT VERTICAL UPWARD(TENSION).
4. NO SITE WELDING SHALL BE PERMITTED.
5. AT LEAST ONE SEPARATE TEST PILE (3.0 TIMES WORKING LOAD) AND A WORKING PILE (1.5 TIMESWORKING LOAD) SHALL BE TESTED AT EACH BRIDGE LOCATION.
6. DURING ERECTION OF STEEL BEAMS 100mm PRECAMBER AT CENTER TO BE PROVIDED.
7. ALL STEEL MEMBERS SHALL BE OF GRADE 43 COMPLYING TO BS 4360.
8. ALL HIGH STRENGTH FRICTION GRIP (HSFG) BOLTS, NUTS & WASHERS SHALL COMPLY WITH BS 4395 : PART 1: 1969 - GENERAL GRADE AND SHALL BE USED COFORMING TO BS 4604 : PART 1 : 1970.
9. ALL WELDS SHALL COMPLY WITH BS 5135.
10. UNLESS OTHERWISE SHOWN, ALL WELDS SHALL BE 6mm THICK CONTINUOUS FILLET WELDS AND SHOULD BE ALONG ALL EDGES SO THAT SPACE BETWEEN THE PART IN CONTACT WILL BE SEALED.
11. AT THE JOINTS WHERE HIGH STRENGTH FRICTION GRIP BOLTS ARE USED THE SURFACES IN CONTACTSHALL CONFORM TO UNTREATED SURFACES AS PER BS 4604 : PART : 1970.
12. ALL BOLTS HOLES SHALL BE MACHIN DRILLED & HOLE DIAMETER SHALL CONFORM TO CLEARANCE HOLES AS PER BS 3950 : PART : 1990.
13. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS & OBTAIN APPROVAL BEFORE ORDERING MATERIALS OR STARTING THE FABRICATION WORK.
14. ALL STEEL MEMBERS SHALL BE TREATED WITH HOT DIP GALVANISED AS FOR SYSTEM 'A' IN SPECIFICATIONS (SPECIFICATION SECTION 09870 - COATING SYSTEM FOR FERROUS METALS)

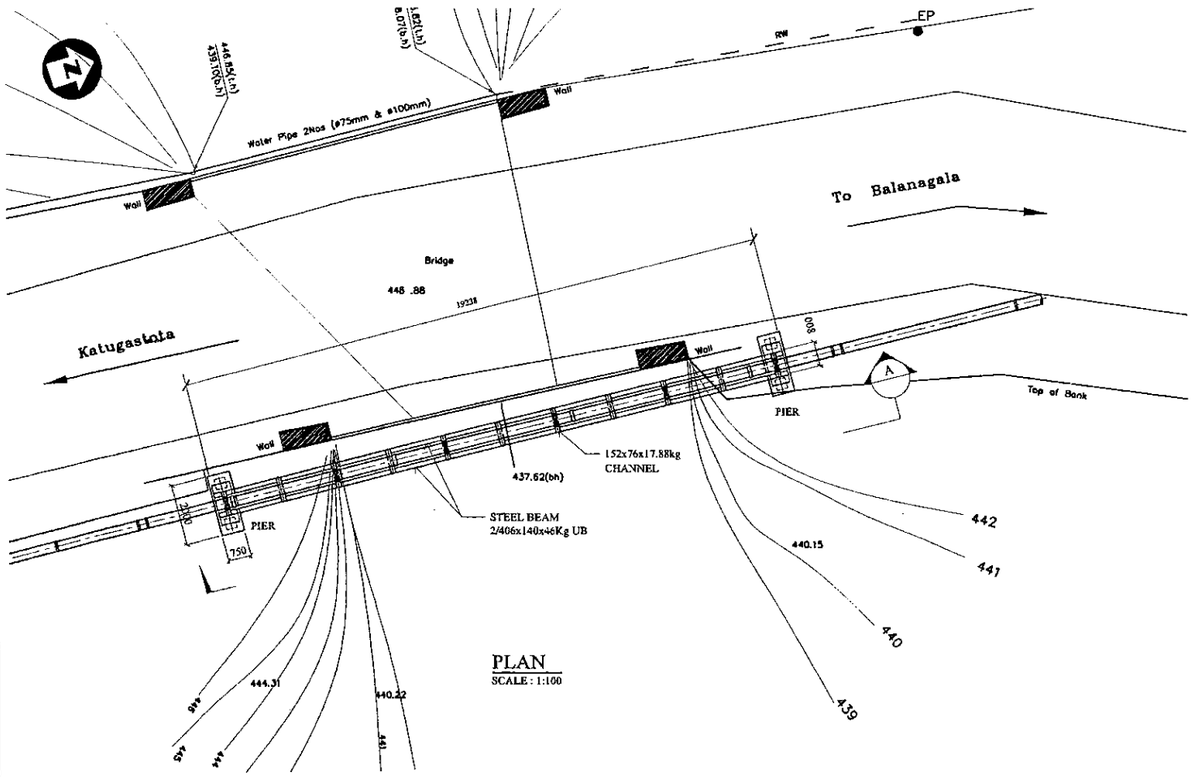
REINFORCED CONCRETE

15. REINFORCEMENT NOTATIONS :
    R - DENOTES ROUND MILD STEEL OF fy = 250 MPa.
    Y - DENOTES DEFORMED (TYPE - 2) HIGH YIELD STEEL OF fy = 460 MPa.

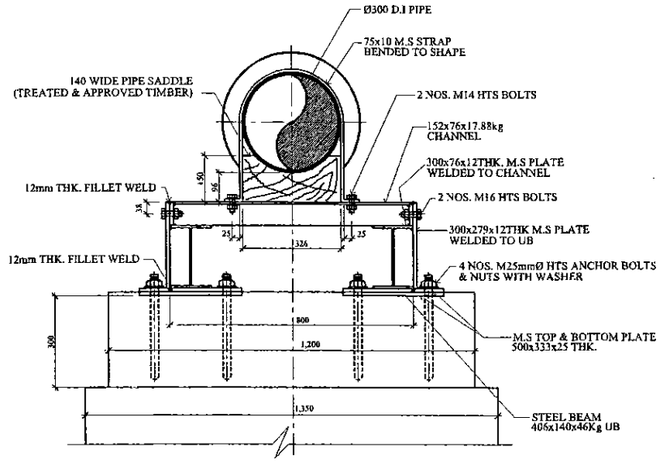
    SEQUENCE OF DESCRIPTION :
    6Y16 @ 150 DENOTES 6 No. OF DEFORMED HIGH YIELD STEEL, 16mm Ø SPACED AT 200mm c/c.
16. LAP LENGTH SHOULD BE 48 x BAR DIAMETER.

| | | | |
|---|---|---|---|
| PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT | JICA JAPAN INTERNATIONAL COOPERATION AGENCY | TITLE: KATUGASTOTA JUNCTION TO BALANAGALA JUNCTION OVER BRIDGE 2/5 | SHEET 1 OF 1 |
| CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD | CONSULTANTS : NJS CONSULTANTS CO., LTD. - JAPAN; NIHON SUIDO CONSULTANTS CO., LTD.- JAPAN | REV. / DESCRIPTION / DATE / SIGN. | DESIGNED: L. JAYAWARDENA; DRAWN: Ravi U.; PM: (CONSULTANT) Ikuo MIWA; CE: (P&D); SCALE: AS SHOWN |
| | | | CHECKED: DESIGN CHIEF; AGM: (P&D); DGM: (P&D); DATE: 31/05/2002; DRAWING NO.: 20-S-08-04 |

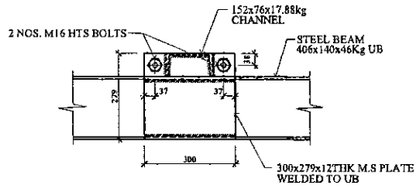
DATE: 24/04/2002 Wanni (CAD 1/0) FINAL DRAWINGS/TRANSMISSION/



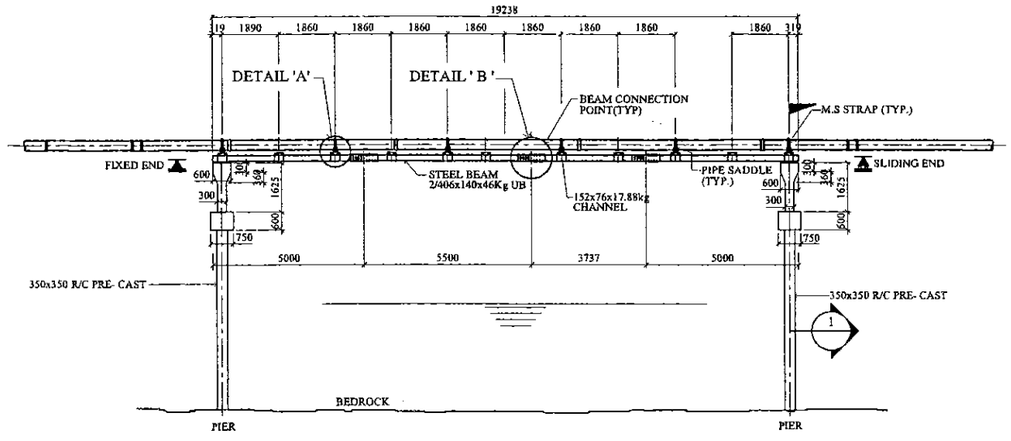

PLAN
SCALE : 1:100



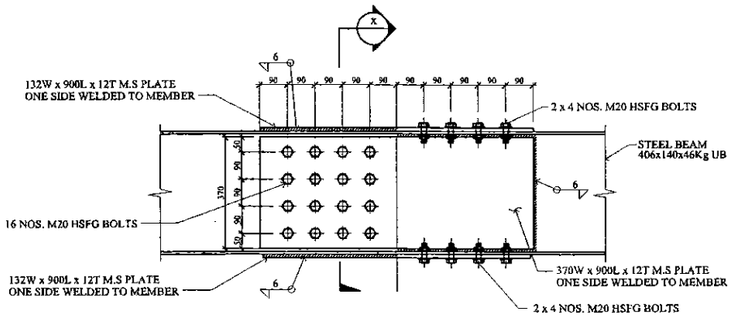

SECTION 1
SCALE : 1:10



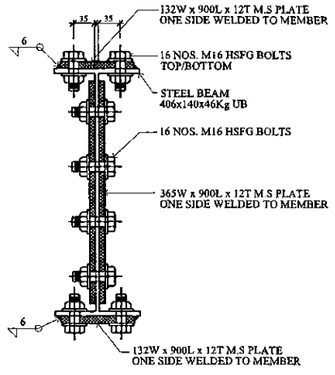

DETAIL (TYP.) A
SCALE : 1:10




LONGITUDINAL SECTION A
SCALE : 1:100



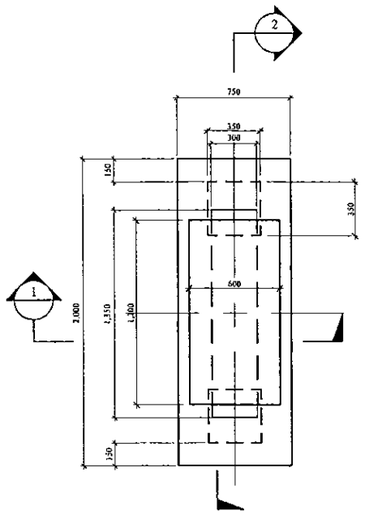

DETAIL (TYP.) B
SCALE : 1:10



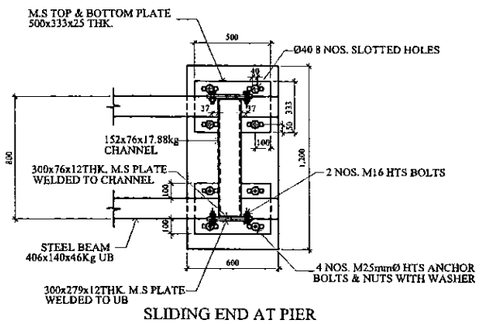

SECTION X
SCALE : 1:5

| | | | |
|---|---|---|---|
| PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT | JICA JAPAN INTERNATIONAL COOPERATION AGENCY | TITLE: KATUGASTOTA JUNCTION TO BALANAGALA JUNCTION - TRANSMISSION MAIN OVER BRIDGE 4 / 5 | |
| CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD | CONSULTANTS : NJS CONSULTANTS CO., LTD. - JAPAN; NIHON SUIDO CONSULTANTS CO., LTD.- JAPAN | REV. / DESCRIPTION / DATE / SIGN. | |
| DESIGNED: L. JAYAWARDENA | DRAWN: SAM | PM: (CONSULTANT) Ikuo MIWA | CE: (P&D) |
| CHECKED: DESIGN CHIEF | AGM: (P&D) | DGM: (P&D) | DATE: 31/05/2002 |
| SCALE: AS SHOWN | DRAWING NO.: 20-S-08-05 | | |

DATE: 24/04/2002 Wanni (CAD I/D/ FINAL DRAWINGS/TRANSMISSION/

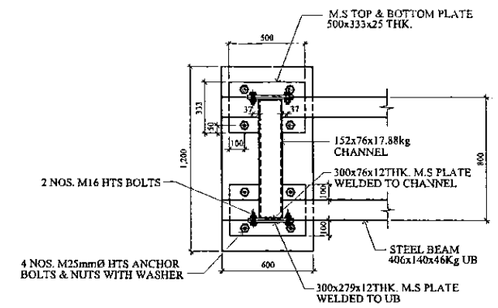



PLAN - PIER (REFER DWG. NO. 20-S-08-05
SCALE : 1:20



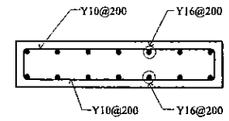

SLIDING END AT PIER

PLAN
SCALE : 1:20

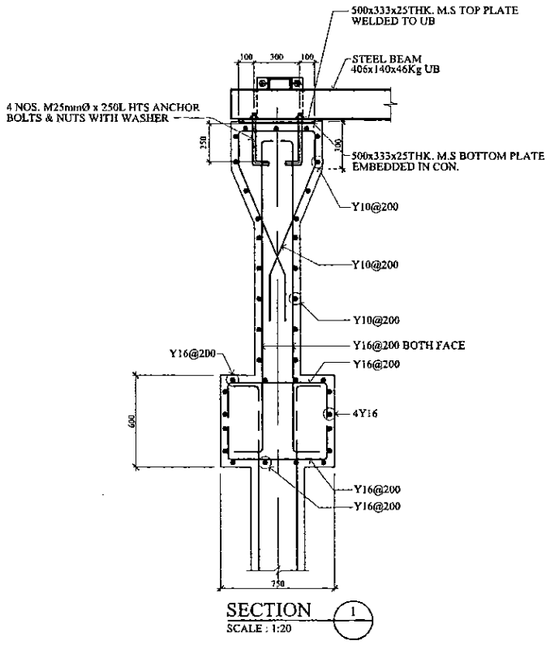



FIXED END AT PIER

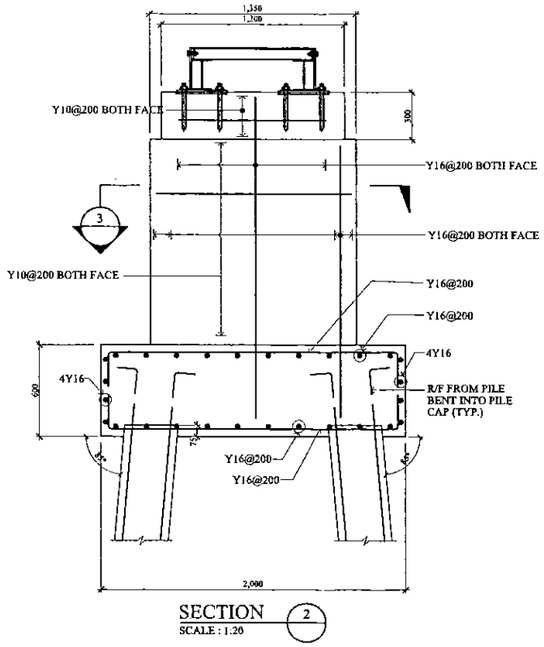
PLAN
SCALE : 1:20




SECTION 3
SCALE : 1:20




SECTION 1
SCALE : 1:20




SECTION 2
SCALE : 1:20

NOTES:

1. REFER STANDARD DRAWINGS FOR GENERAL NOTES AND DETAILS.
2. STRUCTURAL CONCRETE SHALL BE AS FOLLOWS.
   * IN-SITU STRUCTURAL CONCRETE - GRADE 25
   * PRE-CAST RE PILES-GRADE 40.
   * CLEAR COVER TO R/F - PILES & PILE CAPS = 75mm.
3. THE SAFE WORKING LOAD OF 350x350 PRE-CAST RE FRICTION BEARING PILES SHALL BE :
   * 350kN IN DIRECT VERTICAL LOAD(COMPRESSION) &
   * 75kN IN DIRECT VERTICAL UPWARD(TENSION).
4. NO SITE WELDING SHALL BE PERMITTED.
5. AT LEAST ONE SEPARATE TEST PILE (3.0 TIMES WORKING LOAD) AND A WORKING PILE (1.5 TIMESWORKING LOAD) SHALL BE TESTED AT EACH BRIDGE LOCATION.
6. DURING ERECTION OF STEEL BEAMS 100mm PRECAMBER AT CENTER TO BE PROVIDED.
7. ALL STEEL MEMBERS SHALL BE OF GRADE 43 COMPLYING TO BS 4360.
8. ALL HIGH STRENGTH FRICTION GRIP (HSFG) BOLTS, NUTS & WASHERS SHALL COMPLY WITH BS 4395 : PART 1: 1969 - GENERAL GRADE AND SHALL BE USED COFORMING TO BS 4604 : PART 1 : 1970.
9. ALL WELDS SHALL COMPLY WITH BS 5135.
10. UNLESS OTHERWISE SHOWN, ALL WELDS SHALL BE 6mm THICK CONTINUOUS FILLET WELDS AND SHOULD BE ALONG ALL EDGES SO THAT SPACE BETWEEN THE PART IN CONTACT WILL BE SEALED.
11. AT THE JOINTS WHERE HIGH STRENGTH FRICTION GRIP BOLTS ARE USED THE SURFACES IN CONTACTSHALL CONFORM TO UNTREATED SURFACES AS PER BS 4604 : PART : 1970.
12. ALL BOLTS HOLES SHALL BE MACHIN DRILLED & HOLE DIAMETER SHALL CONFORM TO CLEARANCE HOLES AS PER BS 5950 : PART : 1990.
13. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS & OBTAIN APPROVAL BEFORE ORDERING MATERIALS OR STARTING THE FABRICATION WORK.
14. ALL STEEL MEMBERS SHALL BE TREATED WITH HOT DIP GALVANISED AS FOR SYSTEM 'A' IN SPECIFICATIONS (SPECIFICATION SECTION 09870 - COATING SYSTEM FOR FERROUS METALS)

REINFORCED CONCRETE

15. REINFORCEMENT NOTATIONS :
    R - DENOTES ROUND MILD STEEL OF $f_y$ = 250 MPa.
    Y - DENOTES DEFORMED (TYPE - 2) HIGH YIELD STEEL OF $f_y$ = 460 MPa.

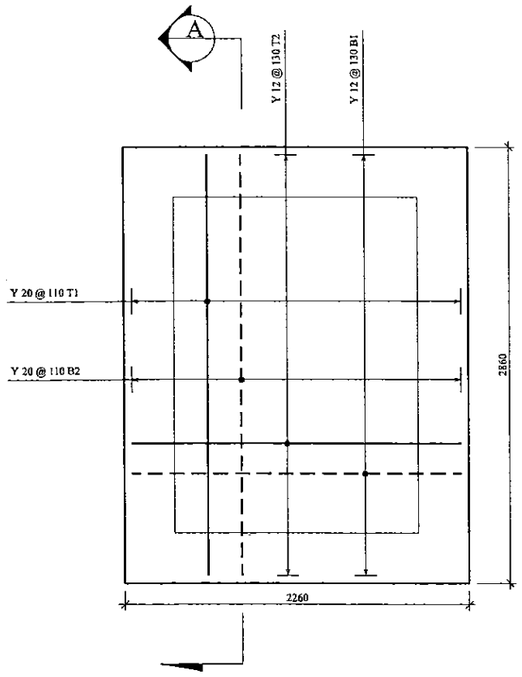
    SEQUENCE OF DESCRIPTION :
    6Y16 @ 150 DENOTES 6 No. OF DEFORMED HIGH YIELD STEEL, 16mm Ø SPACED AT 200mm c/c.
16. LAP LENGTH SHOULD BE 48 x BAR DIAMETER.

| | | | |
|---|---|---|---|
| PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT | JICA JAPAN INTERNATIONAL COOPERATION AGENCY | TITLE: KATUGASTOTA JUNCTION TO BALANAGALA JUNCTION - TRANSMISSION MAIN OVER BRIDGE 4 / 5 | |
| CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD | CONSULTANTS : NJS CONSULTANTS CO., LTD. - JAPAN; NIHON SUIDO CONSULTANTS CO., LTD.- JAPAN | | |

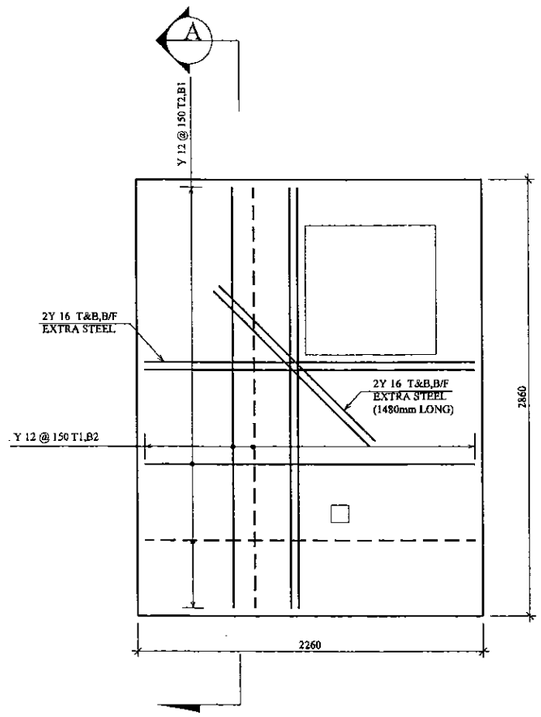
| REV. | DESCRIPTION | DATE | SIGN. |
|---|---|---|---|
| | | | |

| DESIGNED: | DRAWN: | PM: (CONSULTANT) | CE: (P&D) | SCALE: |
|---|---|---|---|---|
| L. JAYAWARDENA | SAM | Ikuo MIWA | | AS SHOWN |
| CHECKED: DESIGN CHIEF | AGM: (P&D) | DGM: (P&D) | DATE: 31/05/2002 | DRAWING NO.: 20-S-08-06 |

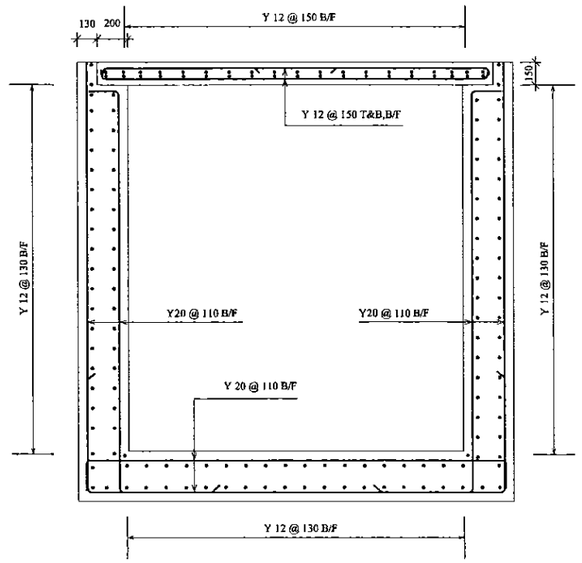
DATE: 24/04/2002 Wanni (CAD 1/DI/ FINAL DRAWINGS/TRANSMISSION/...




BASE SLAB PLAN
SCALE : - 1:20




COVER SLAB PLAN
SCALE : - 1:20




SECTION (A)
SCALE : - 1:20

NOTE :-

01. THE HEIGHT CHAMBER(H) MAY BE CHANGED TO SUITE SITE CONDITIONS.

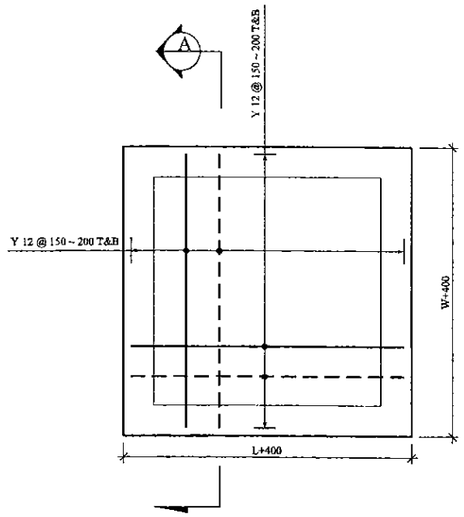
02. FOR DETAILS OF OPENINGS REFER DWG.No 00-STD-S-02.

03. ALL REINFORCED CONCRETE SHALL BE GRADE 25 (20mm) AND MASS CONCRETE MAY BE GRADE 15 (40mm).

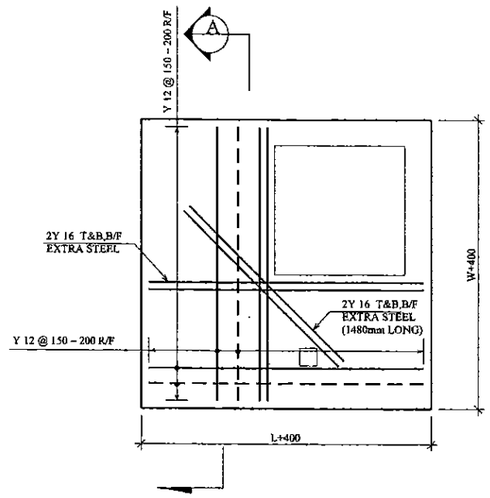
04. COVERS FOR REINFORCEMENT BARS SHALL BE 50mm.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT | JAPAN INTERNATIONAL COOPERATION AGENCY | TITLE: VALVE CHAMBER Ø600mm PN 16 - REINFORCEMENT DETAILS | | | | | |
| CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD | CONSULTANTS : NJS CONSULTANTS CO., LTD. - JAPAN; NIHON SUIDO CONSULTANTS CO., LTD.- JAPAN | REV. / DESCRIPTION / DATE / SIGN.: XX / XXXX / XX / XX | DESIGNED: L. JAYAWARDENA | DRAWN: Udita | PM: (CONSULTANT) Ikuo MIWA | CE: (P&D) | SCALE: 1:20 |
| | | | CHECKED: DESIGN CHIEF | AGM: (P&D) | DGM: (P&D) | DATE: 31/05/2002 | DRAWING NO.: 20-S-08-07 |

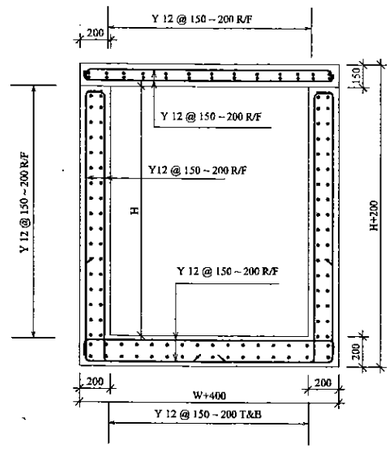
DATE: 24/04/2002 Wanni (CAD 1/D) FINAL DRAWINGS/TRANSMISSION/




BASE SLAB PLAN
SCALE : - 1:20




COVER SLAB PLAN
SCALE : - 1:20




SECTION (A)
SCALE : - 1:20

## DIMENSION OF VALVE CHAMBER & REINFORCEMENT DETAIL.

| DIA OF VALVE mm | LENGTH OF CHAMBER(L) mm | WIDTH OF CHAMBER(W) mm | HEIGHT OF CHAMBER(H) mm | VERTICAL STEEL (T&B) | HORIZONTAL STEEL (T&B) |
|---|---|---|---|---|---|
| 300 | 1400 | 1500 | 1850 | Y12 @ 150 | Y12 @ 150 |
| 250 | 1400 | 1500 | 1800 | Y12 @ 175 | Y12 @ 175 |
| 200 | 1400 | 1400 | 1600 | Y12 @ 200 | Y12 @ 200 |

**NOTE:-**

01. THE HEIGHT OF CHAMBER (H) MAY BE CHANGED TO SUIT SITE CONDITIONS.

02. FOR DETAILS OF OPENINGS REFER TO DWG.No 00-STD-S-02.

03. ALL REINFORCED CONCRETE SHALL BE GRADE 25 (20mm) AND MASS CONCRETE MAY BE GRADE 15 (40mm).

04. COVERS FOR REINFORCEMENT BARS SHALL BE 50mm.

PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT

JAPAN INTERNATIONAL COOPERATION AGENCY

TITLE: CHAMBERS FOR GEARED SLUICE VALVES (VERTICAL TYPE) Ø80mm~Ø300mm PN16 - REINFORCEMENT DETAIL

CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD

CONSULTANTS : NJS CONSULTANTS CO., LTD. - JAPAN; NIHON SUIDO CONSULTANTS CO., LTD.- JAPAN

| REV. | DESCRIPTION | DATE | SIGN. |
|---|---|---|---|
| XX | XXXX | XX | XX |

| DESIGNED: | DRAWN: | PM: (CONSULTANT) | CE: (P&D) | SCALE: |
|---|---|---|---|---|
| L. JAYAWARDENA | Udita | Ikuo MIWA | | 1:20 |
| CHECKED: DESIGN CHIEF | AGM: (P&D) | DGM: (P&D) | DATE: 31/05/2002 | DRAWING NO.: 20-S-08-08 |

DATE: 24/04/2002 Wamil (CAD 1) / FINAL DRAWINGS/TRANSMISSION/