

| LIST OF DRAWINGS | |
|------------------|---|
| SHEET NO. | DESCRIPTION |
| 1 | GENERAL LAYOUT PLAN, LOCALITY SKETCH, REFERENCE SHEETS, HYDRAULIC GRADELINE, CO-ORDINATES, DRAWING LIST & NOTES |
| 2 | LAYOUT PLAN AND LONGITUDINAL SECTION OF PROPOSED 500mm Ø STEEL WATERMAIN PI.1 TO PI.7 |
| 3 | LAYOUT PLAN AND LONGITUDINAL SECTION OF PROPOSED 500mm Ø STEEL WATERMAIN PI.7 TO PI.12 |
| 4 | LAYOUT PLAN AND LONGITUDINAL SECTION OF PROPOSED 500mm Ø STEEL WATERMAIN PI.12 TO PI.18 |
| 5 | LAYOUT PLAN AND LONGITUDINAL SECTION OF PROPOSED 500mm Ø STEEL WATERMAIN PI.18 TO PI.24 |
| 6 | LAYOUT PLAN AND LONGITUDINAL SECTION OF PROPOSED 500mm Ø STEEL WATERMAIN PI.24 TO PI.32 |
| 7 | LAYOUT PLAN AND LONGITUDINAL SECTION OF PROPOSED 500mm Ø STEEL WATERMAIN PI.32 TO PI.33 |
| 8 | LAYOUT PLAN AND LONGITUDINAL SECTION OF PROPOSED 500mm Ø STEEL WATERMAIN PI.33 TO PI.44 |
| 9 | LAYOUT PLAN AND LONGITUDINAL SECTION OF PROPOSED 500mm & 400mm Ø STEEL WATERMAIN PI.44 TO PI.57 |
| 10 | LAYOUT PLAN AND LONGITUDINAL SECTION OF PROPOSED 400mm & 300mm Ø STEEL WATERMAIN PI.57 TO PI.63 |
| 11 | LAYOUT PLAN AND LONGITUDINAL SECTION OF PROPOSED 300mm Ø STEEL WATERMAIN PI.63 TO PI.66 |
| 12 | LAYOUT PLAN AND LONGITUDINAL SECTION OF PROPOSED 300mm Ø STEEL WATERMAIN PI.66 TO PI.66B |
| 13 | LAYOUT PLAN AND LONGITUDINAL SECTION OF PROPOSED 300mm Ø STEEL WATERMAIN PI.66B TO PI.67 |
| 14 | LAYOUT PLAN AND LONGITUDINAL SECTION OF PROPOSED 300mm Ø STEEL WATERMAIN PI.67 TO PI.73 |
| 15 | LAYOUT PLAN AND LONGITUDINAL SECTION OF PROPOSED 300mm Ø STEEL WATERMAIN PI.73 TO PI.76 |
| 16 | LAYOUT PLAN AND LONGITUDINAL SECTION OF PROPOSED 300mm Ø STEEL WATERMAIN GB.1 TO GB.6 |
| 17 | TIE IN DETAILS |
| 18 | DETAILS OF 1117mm Ø JACKED CONCRETE SLEEVE FOR 500mm & 400mm Ø STEEL PIPE |
| 19 | STANDARD REFERENCE DRAWINGS No. 05, 06, 28, 31, 32, 48, 55, 117 & 118 |
| 20 | 100mm AIR VALVE DETAILS |
| 21 | 500mm/400mm/300mm FLANGED ISOLATION VALVE DETAILS |
| 22 | 150mm SCOUR VALVE DETAILS |
| 23 | STANDARD DRAWING OF GRP ACCESS LADDER & SAFETY CAGE PLAN, SECTION & DETAILS |

GENERAL NOTES:

- REMOVED VALVE COVERS, STANDARD HYDRANT & FIRE PLUGS SHOULD BE RETURNED TO STORES.
- ALL CONNECTION PIPEWORK TO BE REPLACED FROM WATERMAIN TO METER.
- THE CONTRACTOR SHALL SO EXCAVATE EACH TRENCH THAT THE WIDTH CONFORMS TO THE REQUIREMENTS OF SUBCLAUSE 5.2 OF SABS 1200 DB OR AS SHOWN IN THE DRAWING.
- ENSURE THE COMPLIANT TO (DOT) DEPARTMENT OF TRANSPORTS SPECIAL CONDITIONS PIPELINE.
- THE CONTRACTOR SHALL PREPARE THE TRENCH BOTTOM IN ACCORDANCE WITH THE REQUIREMENTS OF SUBCLAUSE 5.5 OF SABS 1200 DB.
- NO BEDDING SHALL BE LAID UNTIL THE ENGINEER HAS APPROVED THE TRENCH, MEASURED THE DEPTH IF NECESSARY AND AUTHORISED PIPE LAYING TO PROCEED.
- G.I.S RECORDS SHOWS FIBRE NETWORK CABLES IN THE VICINITY OF THE PROPOSED WORKS. CAUTION SHOULD BE TAKEN DURING CONSTRUCTION AS THE POSITION OF THE CABLES SHOWN IS APPROXIMATE ONLY.
- THE POSITION & DEPTH OF ALL SERVICES (ELECTRICITY, TELKOM, etc.) DEPICTED ON THE LAYOUTS ARE TO BE TREATED AS APPROXIMATE ONLY. ALL SERVICES ARE TO BE TRACED AND PROVED IN CONJUNCTION WITH EACH SERVICE PROVIDER NOT LESS THAN 14 WORKING DAYS PRIOR TO EXCAVATION TO AVOID CAUSING DAMAGE TO "EXISTING SERVICES".
- ENGINEER TO DETERMINE IF RELOCATION OF ELECTRICITY POLES IS REQUIRED.

- TELKOM AND ELECTRICITY DEPARTMENT TO BE INFORMED AT LEAST 14 DAYS PRIOR TO EXCAVATION DUE TO THE PRESENCE OF FIBRE OPTIC AND SUPERTENSION CABLES
TELKOM
SUBASH MANJADOW,
TEL No: 081 366 3687 - 081 348 2993
EMAIL: subashm@openserve.co.za
ELECTRICITY CONTROL
TEL No: 031 311 9383 - 031 367 0002
- DEPTH TO INVERT = 900mm+PIPE NOMINAL DIAMETER IN mm. DEPTH TO INVERT AT ROAD CROSSING = 1000mm + PIPE NOMINAL DIAMETER
- ROAD CATEGORY
• PHOENIX HWY : A
• FLANDERS DR : B
• GIPKOSTHUI RD : B
• HILLHEAD DR : B
• OLD NORTH COAST RD : B
• REDBERRY RD : C
• GREENBURY DR : B
• ROCKFORD DR : B
• RAINHAM RD : C
- ALL WATERMANS TO BE PLACED IN A SLEEVE WHEN CROSSING THE ROAD. REFER TO STANDARD DRAWING #116. FOR ROAD REINSTATEMENT, REFER TO STANDARD DRAWING #101.
- REASON REQUIRED : TO RELIEVE P1 (PHOENIX 1) RES & SECURE 48-HOUR STORAGE.
- RESERVOIR ZONE : BLACKBURN RESERVOIR

- LEVEL OF SERVICE : FULL PRESSURE
- DISCUSS ON SITE WITH THE ENGINEER REGARDING LOCALIZED BACKFILL REQUIREMENT TO DETERMINE FINAL INVERT LEVELS.
- FINAL POSITION OF AIR VALVES & SCOUR VALVES IS TO BE DETERMINED ON SITE & CONFIRMED WITH ENGINEER.
- SCOURS - HEAD WALL/JET DISPERSER TO BE DETERMINE ON SITE BY ENGINEER.

TABLE OF LENGHTS

| | |
|----------------------|-----------|
| 500mm Ø ST WATERMAIN | 3410.00 m |
| 400mm Ø ST WATERMAIN | 355.00 m |
| 300mm Ø ST WATERMAIN | 2360.00 m |

SUPERSEDES

| | |
|---------|--------------------|
| DRG No. | Portion of 4181/11 |
| | Portion of 13575 |
| | Portion of PWR7 |
| | Portion of PWR19 |
| | Portion of PWR20 |
| | Portion of PWR29 |
| | Portion of PWR126 |

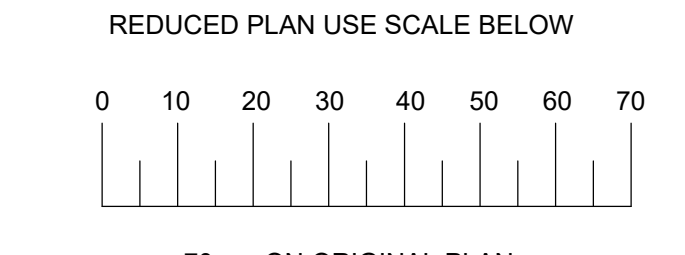
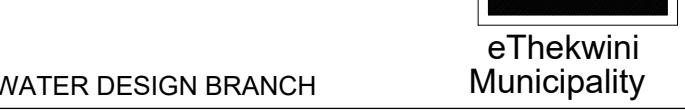
| ISOLATION VALVE Co-ORDINATE | | |
|-----------------------------|----------|------------|
| PI No. | Y | X |
| IV1 | -4901.27 | 3286088.25 |
| IV2 | -4001.96 | 3287147.18 |
| IV3 | -4003.75 | 3287368.53 |
| IV4 | -3681.40 | 3288898.41 |
| IV5 | -3612.27 | 3288696.34 |

| AIR VALVE Co-ORDINATE LIST | | |
|----------------------------|----------|------------|
| PI No. | Y | X |
| AV1 | -4539.69 | 3286278.32 |
| AV2 | -4313.50 | 3286725.99 |
| AV3 | -4021.23 | 3287040.81 |
| AV4 | -3994.51 | 3287246.38 |
| AV5 | -3965.50 | 3287441.92 |
| AV6 | -4023.12 | 3287534.61 |
| AV7 | -3798.48 | 3288410.02 |
| AV8 | -3608.32 | 3288690.49 |
| AV9 | -2530.47 | 3288694.73 |
| AV10 | -3231.96 | 3289025.11 |

| SCOUR VALVE Co-ORDINATE LIST | | |
|------------------------------|----------|------------|
| PI No. | Y | X |
| SV1 | -4641.56 | 3286214.02 |
| SV2 | -4313.32 | 3286613.16 |
| SV3 | -4044.03 | 3286985.94 |
| SV4 | -4001.96 | 3287147.18 |
| SV5 | -4003.75 | 3287368.53 |
| SV6 | -3982.33 | 3287457.47 |
| SV7 | -3806.56 | 3287578.94 |
| SV8 | -3665.40 | 3288698.26 |
| SV9 | -3571.17 | 3288693.60 |
| SV10 | -1652.25 | 3288828.89 |

| Co-ORDINATE LIST | | |
|------------------|----------|------------|
| PI No. | Y | X |
| PI.1 | -4901.27 | 3286088.25 |
| PI.2 | -4907.12 | 3286115.29 |
| PI.3 | -4643.55 | 3286218.18 |
| PI.4 | -4607.33 | 3286235.27 |
| PI.5 | -4357.04 | 3286255.87 |
| PI.6 | -4541.22 | 3286280.11 |
| PI.7 | -4512.26 | 3286307.70 |
| PI.8 | -4478.60 | 3286348.67 |
| PI.9 | -4365.93 | 3286365.03 |
| PI.10 | -4315.42 | 3286314.99 |
| PI.11 | -4353.38 | 3286529.94 |
| PI.12 | -4311.42 | 3286724.79 |
| PI.13 | -4282.42 | 3286760.86 |
| PI.14 | -4253.11 | 3286813.32 |
| PI.15 | -4182.82 | 3286967.11 |
| PI.16 | -4100.11 | 3286915.80 |
| PI.17 | -4041.98 | 3286984.51 |
| PI.18 | -4021.23 | 3287040.81 |
| PI.19 | -3988.11 | 3287107.65 |
| PI.20 | -3984.55 | 3287237.29 |
| PI.21 | -3984.67 | 3287287.29 |
| PI.22 | -3991.64 | 3287336.80 |
| PI.23 | -4003.50 | 3287376.43 |
| PI.24 | -3953.80 | 3287398.62 |
| PI.25 | -4023.42 | 3287532.35 |
| PI.26 | -4022.76 | 3287537.39 |
| PI.27 | -3988.87 | 3287563.38 |
| PI.28 | -3972.02 | 3287569.72 |
| PI.29 | -3953.36 | 3287571.41 |
| PI.30 | -3829.25 | 3287552.34 |
| PI.31 | -3827.84 | 3287562.90 |
| PI.32 | -3803.99 | 3287578.06 |
| PI.33 | -3750.82 | 3288004.03 |
| PI.34 | -3755.37 | 3288101.88 |
| PI.35 | -3779.55 | 3288173.92 |
| PI.36 | -3782.65 | 3288211.29 |
| PI.37 | -3790.88 | 3288250.37 |
| PI.38 | -3808.87 | 3288250.08 |
| PI.39 | -3798.19 | 3288266.39 |
| PI.40 | -3818.73 | 3288335.35 |
| PI.41 | -3820.47 | 3288353.06 |
| PI.42 | -3817.01 | 3288373.61 |
| PI.43 | -3808.71 | 3288392.25 |
| PI.44 | -3796.60 | 3288408.62 |
| PI.45 | -3739.67 | 3288456.87 |
| PI.46 | -3726.80 | 3288474.89 |
| PI.47 | -3723.20 | 3288468.60 |
| PI.48 | -3723.48 | 3288514.30 |
| PI.49 | -3728.62 | 3288533.02 |
| PI.50 | -3753.96 | 3288566.63 |
| PI.51 | -3758.33 | 3288614.40 |
| PI.52 | -3756.69 | 3288667.87 |
| PI.53 | -3719.49 | 3288666.02 |
| PI.54 | -3690.11 | 3288673.71 |
| PI.55 | -3669.53 | 3288674.49 |
| PI.56 | -3665.40 | 3288698.26 |
| PI.57 | -3608.32 | 3288690.49 |
| PI.58 | -3585.83 | 3288678.96 |
| PI.59 | -3429.19 | 3288687.56 |
| PI.60 | -3393.44 | 3288697.15 |
| PI.61 | -3356.31 | 3288711.50 |
| PI.62 | -3345.93 | 3288706.75 |
| PI.63 | -3310.12 | 3288732.06 |
| PI.64 | -3109.93 | 3288901.73 |
| PI.65 | -3073.08 | 3288921.88 |
| PI.66 | -3028.00 | 3288937.67 |
| PI.66B | -2642.95 | 3288976.42 |
| PI.67 | -2257.89 | 3289015.17 |
| PI.68 | -2198.15 | 3289010.72 |
| PI.69 | -2152.50 | 3289066.05 |
| PI.70 | -2103.65 | 3289064.79 |
| PI.71 | -1977.78 | 3288833.28 |
| PI.72 | -1917.35 | 3288794.33 |
| PI.73 | -1671.66 | 3288779.58 |
| PI.74 | -1636.13 | 3288774.73 |
| PI.75 | -1782.14 | 3288773.29 |
| PI.76 | -1735.84 | 3288785.16 |
| PI.77 | -1682.09 | 3288811.79 |
| PI.78 | -1535.85 | 3288907.86 |
| GB.1 | -3142.04 | 3288874.51 |
| GB.2 | -3221.61 | 3288967.94 |
| GB.3 | -3218.55 | 3288982.16 |
| GB.4 | -3234.24 | 3289024.68 |
| GB.5 | -3236.49 | 3289054.65 |
| GB.6 | -3226.16 | 3289160.39 |

ETHEKWINI WATER AND SANITATION



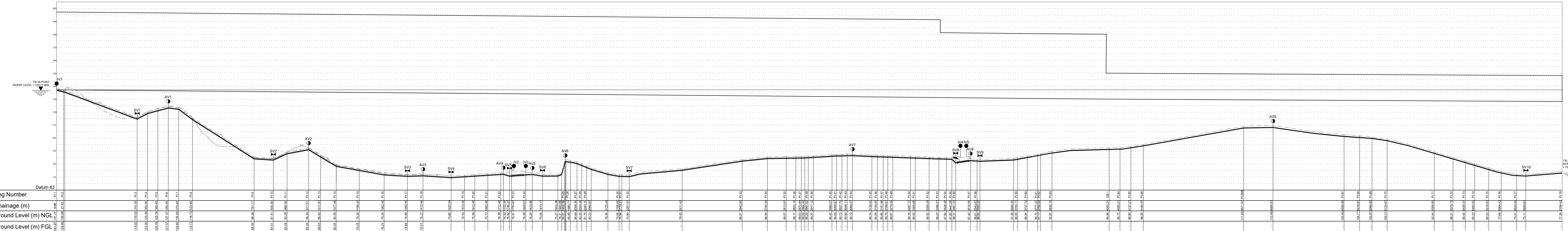
- LEGEND
- EXISTING UNDERGROUND SERVICES ARE AS SHOWN BELOW.
- NEW WATER MAIN & VALVES
- SEWERS AND M/H'S
- STORM WATER DRAINS AND M/H'S
- WATER MAINS AND VALVES
- ELECTRICITY CABLES
- TELKOM CABLES
- OIL PIPELINES

| CONSTRUCTION INFORMATION | |
|--------------------------|--|
| MAINLAYER | |
| START DATE | |
| FINISH DATE | |
| W/O NUMBER | |
| LEVEL OF SERVICE | |
| SUPERVISOR NAME | |
| CONTACT NUMBER | |
| DATE SENT TO GIS | |
| GIS INFORMATION | |
| DATE RECEIVED | |
| NAME | |



REFERENCE SHEETS & GENERAL LAYOUT PLAN

SCALE 1:8000



HYDRAULIC GRADE LINE

SCALE : N.T.S

LOCALITY PLAN, GENERAL LAYOUT PLAN, NOTES, REFERENCE SHEETS AND CO-ORDINATES LIST

Scale : AS SHOWN
Designed : L.KHOMO
Checked :
Date : AUG 2024
Drawn: S.ZULU

Area Engineer
Manager (Water Design)
Deputy Head (Engineering)

E. MSWELI - Head (W & S)
60440
Drawing No. Sheet 1 Rev. B



LAYOUT PLAN
SCALE 1 : 500

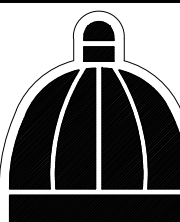
| Co-ORDINATE LIST | | |
|------------------|----------|------------|
| PI No. | Y | X |
| PI.1 | -4901.27 | 3286088.25 |
| PI.2 | -4907.12 | 3286115.29 |
| PI.3 | -4643.55 | 3286218.18 |
| PI.4 | -4607.33 | 3286235.27 |
| PI.5 | -4573.04 | 3286255.87 |
| PI.6 | -4541.22 | 3286280.11 |
| PI.7 | -4512.26 | 3286307.70 |

| AIR VALVE Co-ORDINATE LIST | | |
|----------------------------|----------|------------|
| PI No. | Y | X |
| AV1 | -4539.69 | 3286278.32 |

| ISOLATION VALVE Co-ORDINATE | | |
|-----------------------------|----------|------------|
| PI No. | Y | X |
| IV1 | -4901.27 | 3286088.25 |

| SCOUR VALVE Co-ORDINATE LIST | | |
|------------------------------|----------|------------|
| PI No. | Y | X |
| SV1 | -4641.56 | 3286214.02 |

ETHEKWINI WATER AND SANITATION



eThekweni Municipality

WATER DESIGN BRANCH

REDUCED PLAN USE SCALE BELOW

010203040506070

70mm ON ORIGINAL PLAN

LEGEND

EXISTING UNDERGROUND SERVICES ARE AS SHOWN BELOW.

NEW WATER MAIN & VALVES

SEWERS AND M.H'S

STORM WATER DRAINS AND M.H'S

WATER MAINS AND VALVES

ELECTRICITY CABLES

TELKOM CABLES

OIL PIPELINES

CONSTRUCTION INFORMATION

MAINLAYER

START DATE

FINISH DATE

W/O NUMBER

LEVEL OF SERVICE

SUPERVISOR NAME

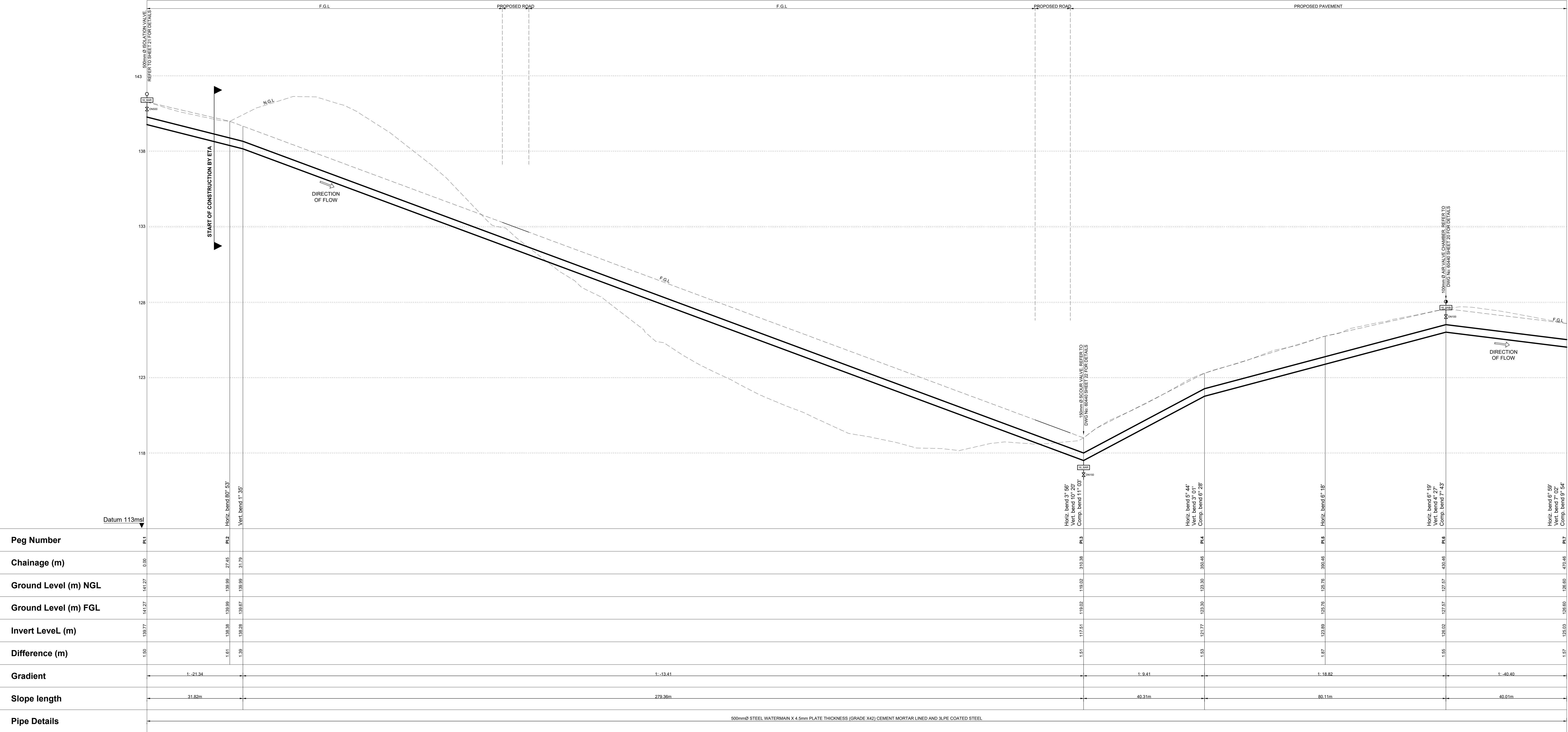
CONTACT NUMBER

DATE SENT TO GIS

GIS INFORMATION

DATE RECEIVED

NAME



| | | | | | | | |
|----------------------|--|--------|-----------|--------|----------|--------|-----------|
| Peg Number | PI.1 | PI.2 | PI.3 | PI.4 | PI.5 | PI.6 | PI.7 |
| Chainage (m) | 0.00 | 27.45 | | | | | |
| Ground Level (m) NGL | 141.27 | 139.89 | 139.89 | 139.89 | 139.89 | 139.89 | 139.89 |
| Ground Level (m) FGL | 141.27 | 139.89 | 139.89 | 139.89 | 139.89 | 139.89 | 139.89 |
| Invert Level (m) | 139.37 | 138.38 | 137.51 | 137.30 | 137.31 | 137.31 | 137.31 |
| Difference (m) | 1.90 | 1.51 | 1.38 | 1.59 | 1.58 | 1.58 | 1.58 |
| Gradient | 1: -21.34 | | 1: -13.41 | | 1: 18.82 | | 1: -40.40 |
| Slope length | 31.82m | | 279.36m | | 80.11m | | 40.01m |
| Pipe Details | 500mmØ STEEL WATERMAIN X 4.5mm PLATE THICKNESS (GRADE X42) CEMENT MORTAR LINED AND 3LPE COATED STEEL | | | | | | |

PI.1 to PI.7
LONGITUDINAL SECTION
SCALE HOR. 1 : 500 VER. 1 : 100

Revision

DATE

ISSUED FOR TENDER

ISSUED FOR SIGNATURE

NOTE: No construction work to commence until land and servitude acquisitions have been completed.

Acquisitions completed.

DATE

ENGINEER

NORTH

POINT

UNDERGROUND SERVICES CHECKED - SERVICE

DATE

SIGNATURE

S.W. DRAINS

WATERMANS

SEWERS

TELKOM CABLES

ELECTRIC CABLES

S.A.R. CABLES

E.S.C. CABLES

CL PIPE LINE

NOTE: Only underground services affected by new construction are shown. Care must be taken during excavations for road foundations, trenches etc. to avoid damage to underground services such as sewers, drains, cables, watermains and connections. Whenever possible these must be located before work begins.

Contract No.

30583-5W

Project No.

X8108

Planning Unit

MOUNT EDGECOMBE NORTH

Ward No.

35, 48 & 102

Project Title

BLACKBURN TO PHOENIX 1 LOAD SHIFT PIPELINE

Drawing Title

LAYOUT PLAN AND LONGITUDINAL SECTION OF PROPOSED 500mm Ø STEEL WATERMAIN PI.1 TO PI.7

Scale : 1:100 & 1:500

Designed : L.KHOMO

Date : AUG 2024

Checked : R.CANNY

Drawn: S.ZULU

Area Engineer

Manager (Water Design)

Deputy Head (Engineering)

E. MSWELI - Head (W & S)

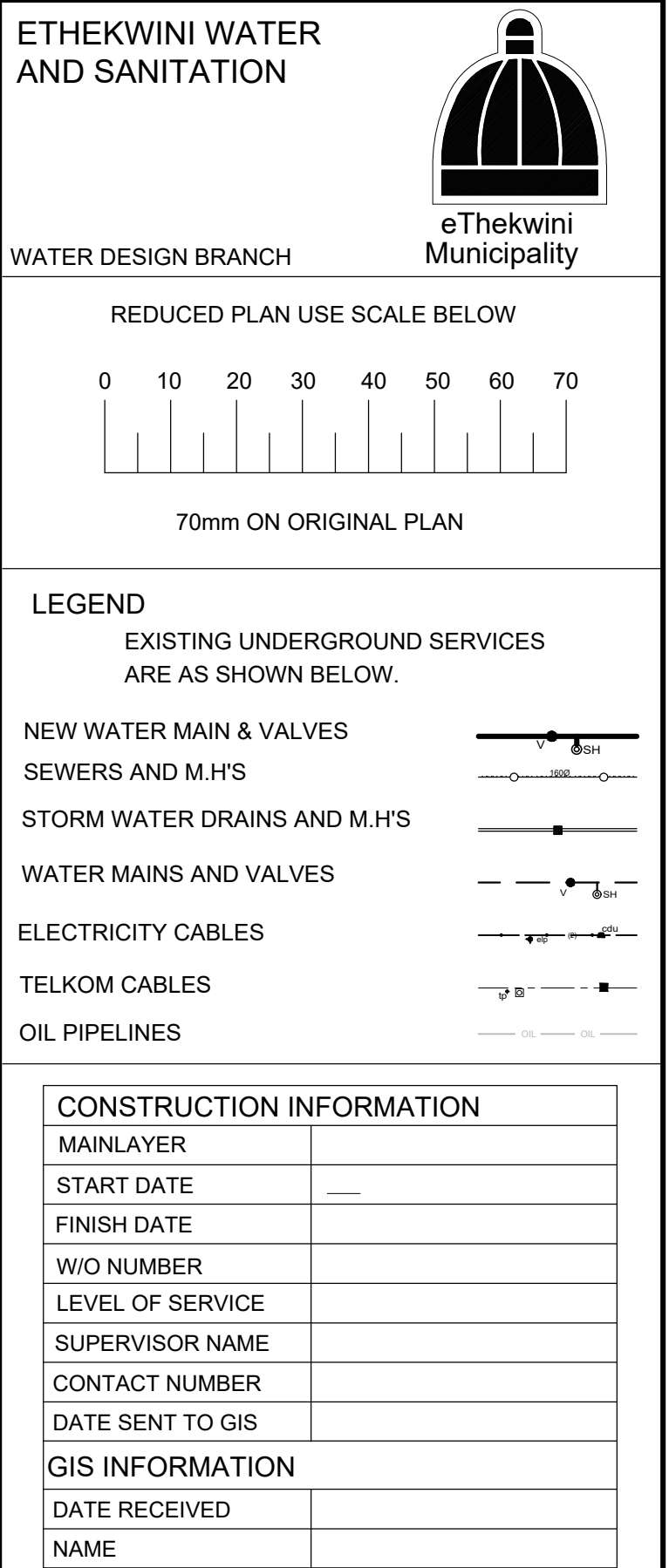
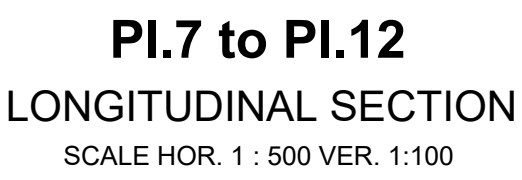
60440


Sheet 2

B

Rev.

| PI No. | Y | X |
|--------|----------|------------|
| SV2 | -4313.32 | 3286613.16 |



| | | | |
|---|----------|---|-------|
| | | | |
| | | | |
| B | MAR 2025 | ISSUED FOR TENDER | |
| A | | ISSUED FOR SIGNATURE | |
| Revision | Date | Description | |
| NOTE: No construction work to commence until land and servitude acquisitions have been completed. | | | |
| Acquisitions completed. | |  | |
| Date | Engineer | NORTH | POINT |
| UNDERGROUND SERVICES CHECKED - | | | |
| SERVICE | DATE | SIGNATURE | |
| S.W. DRAINS | | } | |
| SEWERS | | } | |
| WATERMANS | | } | |
| TELECOM CABLES | | } | |
| ELECTRIC CABLES | | | |
| S.A.P. CABLES | | | |
| E.S.P. CABLES | | | |

| | | | |
|--|--|-----------------|--|
| Contract No. | | 30583-5W | |
| Project No. | | X8108 | |
| Planning Unit | | | |
| MOUNT EDGECOMBE NORTH | | | |
| Ward No. | | | |
| 35, 48 & 102 | | | |
| Project Title | | | |
| BLACKBURN TO PHOENIX 1 LOAD SHIFT PIPELINE | | | |
| Drawing Title | | | |
| LAYOUT PLAN AND LONGITUDINAL SECTION OF PROPOSED 500mm Ø STEEL WATERMAIN PI.7 TO PI.12 | | | |
| Scale : 1:100 & 1:500 | | | |
| Designed : L.KHOMO | | Date : AUG 2024 | |
| Checked : R.CANNY | | Drawn : S.ZULU | |
| Area Engineer | | | |
| Manager (Water Design) | | | |
| Deputy Head (Engineering) | | | |
| E. MSWELI - Head (W & S) | | | |
| 60440 | | 3 | |
| Drawing No. | | Sheet | |
| B | | Rev. | |

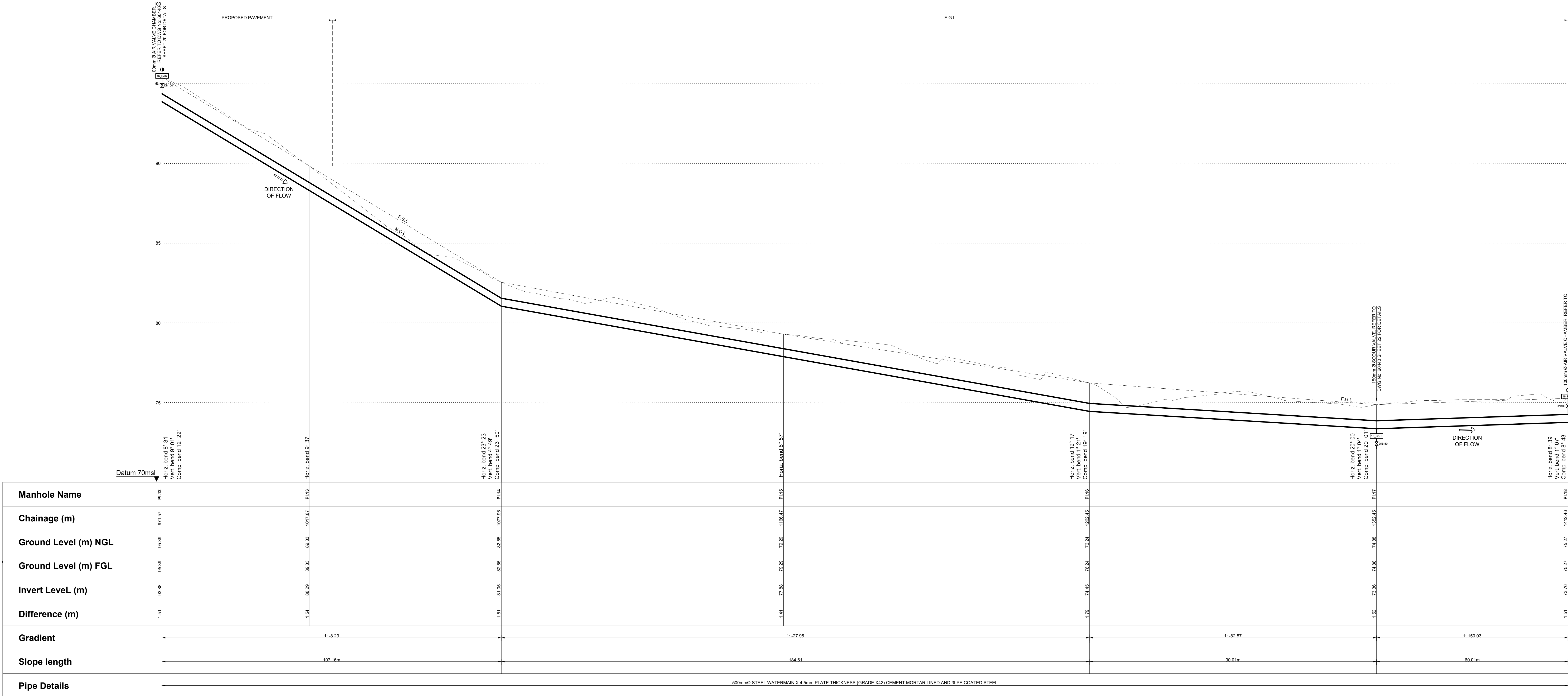


| Co-ORDINATE LIST | | |
|------------------|----------|------------|
| PI No. | Y | X |
| PI 12 | -4311.42 | 3286724.79 |
| PI 13 | -4282.42 | 3286760.86 |
| PI 14 | -4253.11 | 3286813.32 |
| PI 15 | -4182.82 | 3286867.11 |
| PI 16 | -4100.11 | 3286915.80 |
| PI 17 | -4041.98 | 3286984.51 |
| PI 18 | -4021.23 | 3287040.81 |

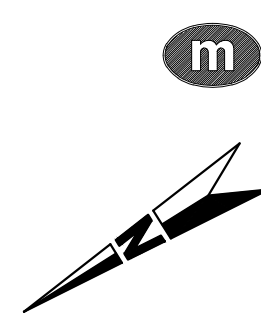
| AIR VALVE Co-ORDINATE LIST | | |
|----------------------------|----------|------------|
| PI No. | Y | X |
| AV2 | -4313.50 | 3286725.99 |
| AV3 | -4021.23 | 3287040.81 |

| SCOUR VALVE Co-ORDINATE LIST | | |
|------------------------------|----------|------------|
| PI No. | Y | X |
| SV3 | -4044.03 | 3286985.94 |

LAYOUT PLAN
SCALE 1 : 500



PI.12 to PI.18
LONGITUDINAL SECTION
SCALE HOR. 1 : 500 VER. 1:100



ETHEKWINI WATER
AND SANITATION

WATER DESIGN BRANCH

REDUCED PLAN USE SCALE BELOW

0 10 20 30 40 50 60 70

70mm ON ORIGINAL PLAN

LEGEND

EXISTING UNDERGROUND SERVICES
ARE AS SHOWN BELOW.

NEW WATER MAIN & VALVES

SEWERS AND M.H'S

STORM WATER DRAINS AND M.H'S

WATER MAINS AND VALVES

ELECTRICITY CABLES

TELKOM CABLES

OIL PIPELINES

CONSTRUCTION INFORMATION

| | |
|------------------|--|
| MAINLAYER | |
| START DATE | |
| FINISH DATE | |
| W/O NUMBER | |
| LEVEL OF SERVICE | |
| SUPERVISOR NAME | |
| CONTACT NUMBER | |
| DATE SENT TO GIS | |
| GIS INFORMATION | |
| DATE RECEIVED | |
| NAME | |

| | | |
|---|----------|----------------------|
| B | MAR 2025 | ISSUED FOR TENDER |
| A | AUG 2024 | ISSUED FOR SIGNATURE |

Revision | Date | Description

NOTE: No construction work to commence until land and servitude acquisitions have been completed.

Acquisitions completed.

DATE | ENGINEER | NORTH | POINT

UNDERGROUND SERVICES CHECKED -

| SERVICE | DATE | SIGNATURE |
|-----------------|------|-----------|
| S.W. DRAINS | | |
| WATERMANS | | |
| SEWERS | | |
| TELKOM CABLES | | |
| ELECTRIC CABLES | | |
| S.A.R. CABLES | | |
| E.S.C. CABLES | | |
| Oil PIPE LINE | | |

NOTE: Only underground services affected by new construction are shown. Care must be taken during excavations for road foundations, trenches etc. to avoid damage to underground services such as sewers, drains, cables, watermains and connections. Whenever possible these must be located before work begins.

Contract No. 30583-5W

Project No. X8108

Planning Unit
MOUNT EDGECOMBE NORTH

Ward No.
35, 48 & 102

Project Title
BLACKBURN TO PHOENIX 1
LOAD SHIFT PIPELINE

Drawing Title
LAYOUT PLAN AND
LONGITUDINAL SECTION
OF PROPOSED 500mm Ø
STEEL WATERMAIN
PI.12 TO PI.18

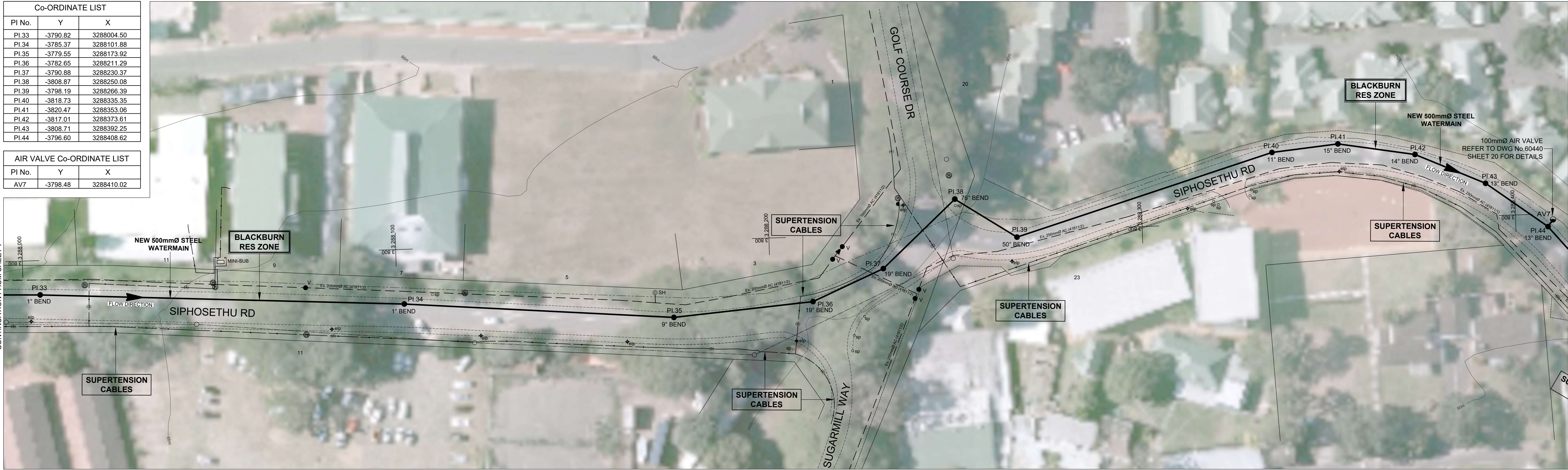
Scale : 1:100 & 1:500
Designed : L.KHOMO
Checked : R.CANNY
Area Engineer
Manager (Water Design)
Deputy Head (Engineering)

E. MSWELI - Head (W & S)

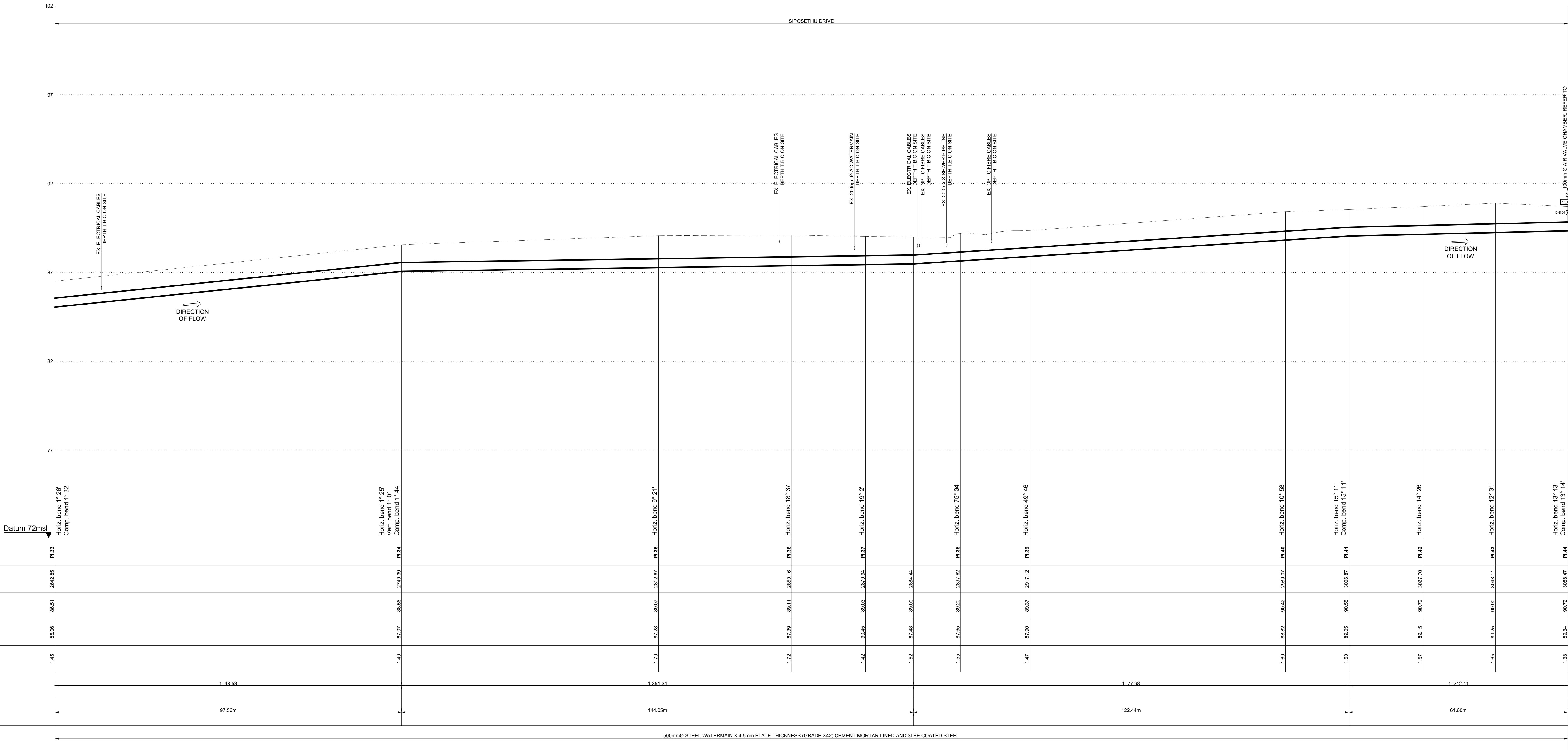
| | | |
|-------------|-------|------|
| 60440 | 4 | B |
| Drawing No. | Sheet | Rev. |

| Co-ORDINATE LIST | | |
|------------------|----------|------------|
| PI No. | Y | X |
| PI.33 | -3790.82 | 3288004.50 |
| PI.34 | -3785.37 | 3288101.88 |
| PI.35 | -3779.55 | 3288173.92 |
| PI.36 | -3782.65 | 3288211.29 |
| PI.37 | -3790.88 | 3288230.37 |
| PI.38 | -3808.87 | 3288250.08 |
| PI.39 | -3798.19 | 3288266.39 |
| PI.40 | -3818.73 | 3288335.35 |
| PI.41 | -3820.47 | 3288353.06 |
| PI.42 | -3817.01 | 3288373.61 |
| PI.43 | -3808.71 | 3288392.25 |
| PI.44 | -3796.60 | 3288408.62 |

| AIR VALVE Co-ORDINATE LIST | | |
|----------------------------|----------|------------|
| PI No. | Y | X |
| AV7 | -3798.48 | 3288410.02 |

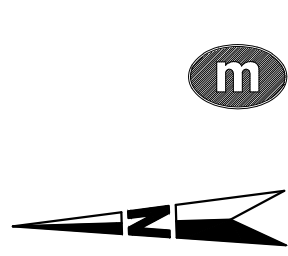


LAYOUT PLAN
SCALE 1 : 500



PI.33 to PI.44
LONGITUDINAL SECTION
SCALE HOR. 1 : 500 VER. 1:100

| | | | | | | | | | | | | |
|------------------|--|---------|----------|---------|---------|---------|---------|---------|----------|---------|---------|---------|
| Manhole Name | PI.33 | PI.34 | PI.35 | PI.36 | PI.37 | PI.38 | PI.39 | PI.40 | PI.41 | PI.42 | PI.43 | PI.44 |
| Chainage (m) | 2949.85 | 2749.39 | 2815.07 | 2869.16 | 2810.94 | 2866.44 | 2867.62 | 2817.12 | 3059.67 | 3057.70 | 3058.11 | 3059.47 |
| Ground Level (m) | 86.81 | 86.98 | 89.07 | 89.11 | 89.03 | 89.90 | 89.90 | 89.37 | 90.95 | 90.72 | 90.95 | 90.72 |
| Invert Level (m) | 85.06 | 87.07 | 87.28 | 87.39 | 88.45 | 87.48 | 87.65 | 87.90 | 88.92 | 88.15 | 88.25 | 88.34 |
| Difference (m) | 1.45 | 1.49 | 1.79 | 1.72 | 1.42 | 1.52 | 1.55 | 1.47 | 1.93 | 1.93 | 1.65 | 1.38 |
| Gradient | 1:48.53 | | 1:301.34 | | | | 1:77.98 | | 1:212.41 | | | |
| Slope length | 97.56m | | 144.05m | | | | 122.44m | | 81.60m | | | |
| Pipe Details | 500mmØ STEEL WATERMAIN X 4.5mm PLATE THICKNESS (GRADE X42) CEMENT MORTAR LINED AND 3LPE COATED STEEL | | | | | | | | | | | |



| Revision | Date | Description |
|---|----------|----------------------|
| B | MAR 2025 | ISSUED FOR TENDER |
| A | AUG 2024 | ISSUED FOR SIGNATURE |
| NOTE: No construction work to commence until land and servitude acquisitions have been completed. | | |
| Acquisitions completed: | | |
| Date | Engineer | NORTH POINT |
| UNDERGROUND SERVICES CHECKED - | | SIGNATURE |
| SERVICE | DATE | |
| S.W. DRAINS | | |
| SEWERS | | |
| WATERMANS | | |
| TELECOM CABLES | | |
| ELECTRIC CABLES | | |
| S.A.R. CABLES | | |
| E.S.C. CABLES | | |
| OIL PIPE LINE | | |
| NOTE: Only underground services affected by new construction are shown. Care must be taken during excavations for road foundations, trenches etc. to avoid damage to underground services such as sewers, drains, cables, watermains and connections. Wherever possible these must be located before work begins. | | |

| | |
|---------------|--|
| Contract No. | 30583-5W |
| Project No. | X8108 |
| Planning Unit | MOUNT EDGEcombe NORTH |
| Ward No. | 35, 48 & 102 |
| Project Title | BLACKBURN TO PHOENIX 1 LOAD SHIFT PIPELINE |

| | |
|---------------------------|---|
| Drawing Title | LAYOUT PLAN AND LONGITUDINAL SECTION OF PROPOSED 500mm Ø STEEL WATERMAIN PI.33 TO PI.44 |
| Scale | 1:100 & 1:500 |
| Designed | L.KHOMO |
| Checked | R.CANNY |
| Area Engineer | |
| Manager (Water Design) | |
| Deputy Head (Engineering) | |
| E. MSWELI - Head (W & S) | |
| Drawing No. | 60440 |
| Sheet | 8 |
| Rev. | B |

| Co-ORDINATE LIST | | |
|------------------|----------|------------|
| PI No. | Y | X |
| PI.44 | -3796.80 | 3288408.62 |
| PI.45 | -3739.67 | 3288456.87 |
| PI.46 | -3728.80 | 3288474.89 |
| PI.47 | -3723.20 | 3288496.60 |
| PI.48 | -3723.48 | 3288514.30 |
| PI.49 | -3728.62 | 3288533.02 |
| PI.50 | -3753.96 | 3288596.83 |
| PI.51 | -3758.33 | 3288614.40 |
| PI.52 | -3756.69 | 3288667.87 |
| PI.53 | -3719.49 | 3288668.02 |
| PI.54 | -3690.11 | 3288673.71 |
| PI.55 | -3669.53 | 3288674.49 |
| PI.56 | -3665.40 | 3288688.26 |
| PI.57 | -3608.32 | 3288690.49 |

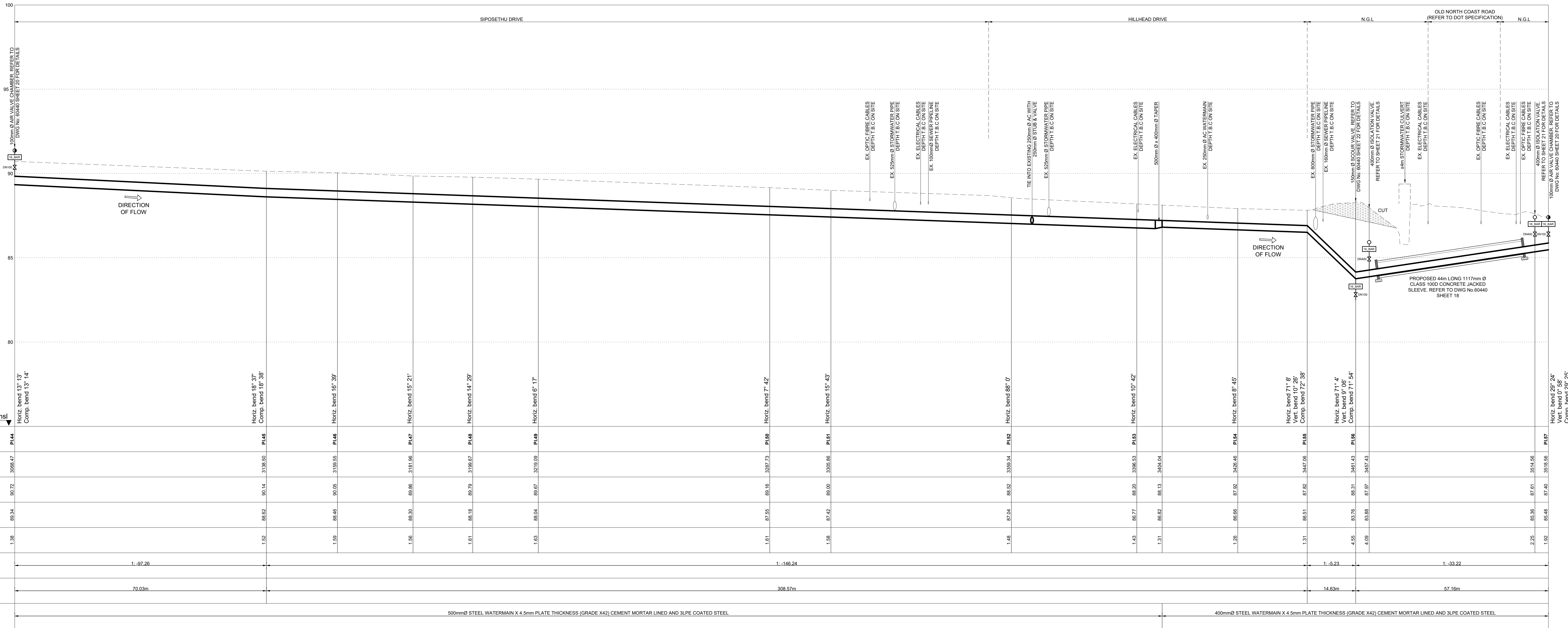
| AIR VALVE Co-ORDINATE LIST | | |
|----------------------------|----------|------------|
| PI No. | Y | X |
| AV7 | -3798.48 | 3288410.02 |
| AV8 | -3608.32 | 3288690.49 |

| SCOUR VALVE Co-ORDINATE LIST | | |
|------------------------------|----------|------------|
| PI No. | Y | X |
| SV8 | -3665.40 | 3288688.26 |

| AIR VALVE Co-ORDINATE LIST | | |
|----------------------------|----------|------------|
| PI No. | Y | X |
| IV4 | -3661.40 | 3288688.41 |
| IV5 | -3612.27 | 3288690.34 |

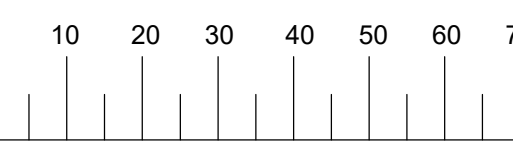
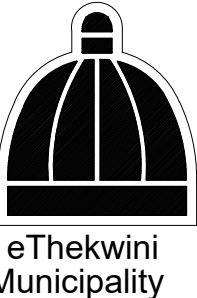


LAYOUT PLAN
SCALE 1 : 500



| Manhole Name | PI.44 | | | PI.45 | | PI.46 | | PI.47 | | PI.48 | | PI.49 | | PI.50 | | PI.51 | | PI.52 | | PI.53 | | | PI.54 | | PI.55 | | PI.56 | | | PI.57 | | | | | | | | | |
|------------------|-------|--|--|-------|---------|-------|---------|-------|---------|-------|---------|------------|---------|-------|---------|-------|---------|-------|---------|-------|---------|----------|---------|--|---------|--|--|--|---------|-------|---------|--|--|--|--|--|--|--|--|
| Chainage (m) | | 3088.47 | | | 3138.50 | | 3199.55 | | 3211.95 | | 3219.67 | | 3239.09 | | 3287.73 | | 3305.66 | | 3358.34 | | 3396.53 | | 3405.04 | | 3426.46 | | 3457.06 | | 3514.56 | | 3539.95 | | | | | | | | |
| Ground Level (m) | | 90.72 | | | 90.14 | | 90.05 | | 89.96 | | 89.98 | | 89.67 | | 89.16 | | 89.90 | | 88.52 | | 88.30 | | 88.13 | | 87.92 | | 87.97 | | 85.36 | | 85.95 | | | | | | | | |
| Invert Level (m) | | 89.34 | | | 88.62 | | 88.46 | | 88.50 | | 88.18 | | 88.04 | | 87.55 | | 87.42 | | 87.04 | | 86.77 | | 86.62 | | 86.66 | | 86.51 | | 85.36 | | 85.48 | | | | | | | | |
| Difference (m) | | 1.38 | | | 1.52 | | 1.59 | | 1.56 | | 1.61 | | 1.63 | | 1.61 | | 1.58 | | 1.48 | | 1.43 | | 1.31 | | 1.26 | | 1.31 | | 2.25 | | 1.92 | | | | | | | | |
| Gradient | | 1 : 97.28 | | | | | | | | | | 1 : 146.24 | | | | | | | | | | 1 : 5.23 | | | | | 1 : 33.22 | | | | | | | | | | | | |
| Slope length | | 70.03m | | | | | | | | | | 306.57m | | | | | | | | | | 14.63m | | | | | 57.16m | | | | | | | | | | | | |
| Pipe Details | | 500mmØ STEEL WATERMAIN X 4.5mm PLATE THICKNESS (GRADE X42) CEMENT MORTAR LINED AND 3LPE COATED STEEL | | | | | | | | | | | | | | | | | | | | | | | | | 400mmØ STEEL WATERMAIN X 4.5mm PLATE THICKNESS (GRADE X42) CEMENT MORTAR LINED AND 3LPE COATED STEEL | | | | | | | | | | | | |

PI.44 to PI.57
LONGITUDINAL SECTION
SCALE HOR. 1 : 500 VER. 1 : 100



LEGEND

EXISTING UNDERGROUND SERVICES ARE AS SHOWN BELOW.

| | |
|------------------------------|--|
| NEW WATER MAIN & VALVES | |
| SEWERS AND M.H.S | |
| STORM WATER DRAINS AND M.H.S | |
| WATER MAINS AND VALVES | |
| ELECTRICITY CABLES | |
| TELECOM CABLES | |
| OIL PIPELINES | |

CONSTRUCTION INFORMATION

| | |
|------------------|--|
| MAIN LAYER | |
| START DATE | |
| FINISH DATE | |
| W/O NUMBER | |
| LEVEL OF SERVICE | |
| SUPERVISOR NAME | |
| CONTACT NUMBER | |
| DATE SENT TO GIS | |
| GIS INFORMATION | |
| DATE RECEIVED | |
| NAME | |

| | | |
|---|----------|-------------------|
| B | MAR 2025 | ISSUED FOR TENDER |
|---|----------|-------------------|

| | | |
|---|----------|----------------------|
| A | AUG 2024 | ISSUED FOR SIGNATURE |
|---|----------|----------------------|

| | | |
|----------|------|-------------|
| Revision | Date | Description |
|----------|------|-------------|

NOTE: No construction work to commence until land and servitude acquisitions have been completed

Acquisitions completed:

| | | | |
|------|----------|-------|-----------|
| Date | Engineer | NORTH | POINT |
| | | DATE | SIGNATURE |

UNDERGROUND SERVICES CHECKED -

S.W. DRAINS

WATERMANS

TELECOM CABLES

ELECTRIC CABLES

S.A.R. CABLES

E.S.C. CABLES

NOTE: Only underground services affected by new construction are shown. Care must be taken during excavations for road foundations, trenches etc. to avoid damage to underground services such as sewers, drains, cables, watermains and connections. Wherever possible these must be located before work begins.

Contract No. 30583-5W

Project No. X8108

MOUNT EDGEcombe NORTH

Ward No.

35, 48 & 102

Project Title

BLACKBURN TO PHOENIX 1
LOAD SHIFT PIPELINE

Drawing Title

LAYOUT PLAN AND
LONGITUDINAL SECTION OF
PROPOSED 400mm Ø &
500mm Ø STEEL WATERMAIN
PI.44 TO PI.57

Scale : 1:100 & 1:500

Designed : L.KHOMO

Checked : R.CANNY

Drawn : S.ZULU

Area Engineer

Manager (Water Design)

Deputy Head (Engineering)

E. MSWELI - Head (W & S)

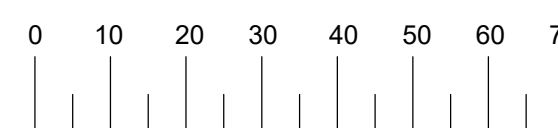
60440

Drawing No.

Sheet 9

Rev. B





LEGEND

EXISTING UNDERGROUND SERVICES ARE AS SHOWN BELOW.

NEW WATER MAIN & VALVES

SEWERS AND M.H.S

STORM WATER DRAINS AND M.H.S

WATER MAINS AND VALVES

ELECTRICITY CABLES

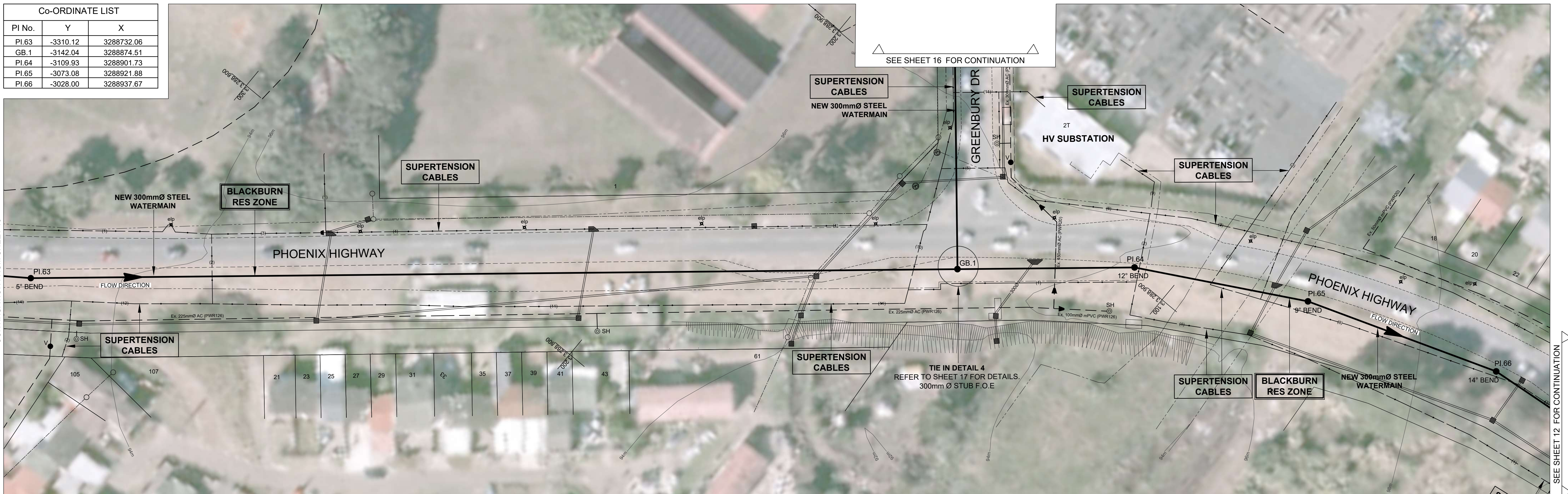
TELKOM CABLES

OIL PIPELINES

CONSTRUCTION INFORMATION

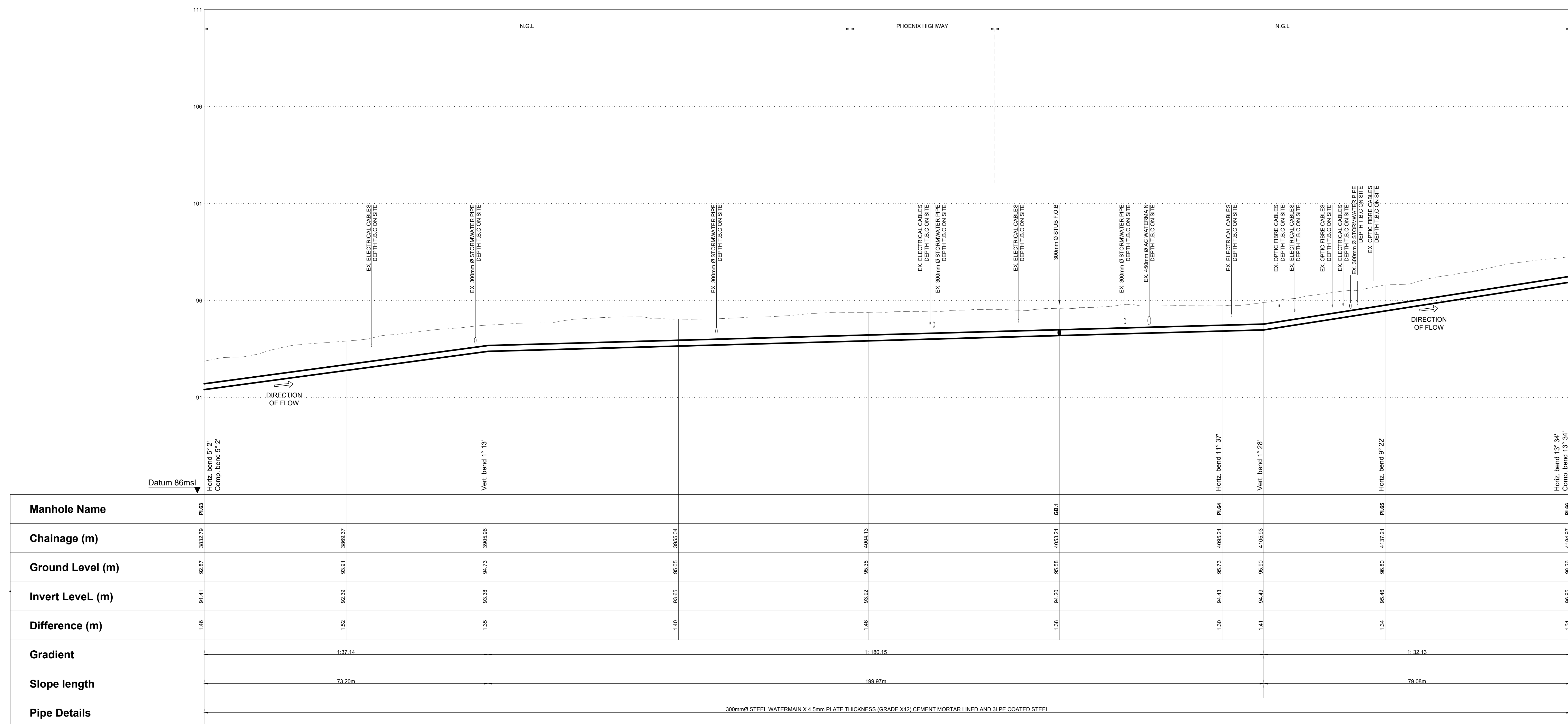
| | |
|------------------|--|
| MAIN LAYER | |
| START DATE | |
| FINISH DATE | |
| W/O NUMBER | |
| LEVEL OF SERVICE | |
| SUPERVISOR NAME | |
| CONTACT NUMBER | |
| DATE SENT TO GIS | |
| GIS INFORMATION | |
| DATE RECEIVED | |
| NAME | |

| PI No. | Y | X |
|--------|----------|-------------|
| PI.63 | -3310.12 | 3288732.06 |
| GB.1 | -3142.04 | 32888074.51 |
| PI.64 | -3109.93 | 3288901.73 |
| PI.65 | -3073.08 | 3288921.88 |
| PI.66 | -3028.00 | 3288937.67 |



LAYOUT PLAN

SCALE 1 : 500



PI.63 to PI.66

LONGITUDINAL SECTION

SCALE HOR. 1 : 500 VER. 1 : 100

| | | |
|---|----------|----------------------|
| B | MAR 2025 | ISSUED FOR TENDER |
| A | AUG 2024 | ISSUED FOR SIGNATURE |

| | | |
|----------|------|-------------|
| Revision | Date | Description |
|----------|------|-------------|

NOTE: No construction work to commence until land and servitude acquisitions have been completed.

Acquisitions completed:

Date: _____ Engineer: _____ NORTH POINT

UNDERGROUND SERVICES CHECKED -

| SERVICE | DATE | SIGNATURE |
|-----------------|------|-----------|
| S.W. DRAINS | | |
| SEWERS | | |
| WATERMANS | | |
| TELKOM CABLES | | |
| ELECTRIC CABLES | | |
| S.A.R. CABLES | | |
| E.S.C. CABLES | | |
| OIL PIPE LINE | | |

NOTE: Only underground services affected by new construction are shown. Care must be taken during excavations for road foundations, trenches etc. to avoid damage to underground services such as sewers, drains, cables, watermains and connections. Wherever possible these must be located before work begins.

Contract No. 30583-5W

Project No. X8108

Planning Unit

MOUNT EDGEcombe NORTH

Ward No.

35, 48 & 102

Project Title

BLACKBURN TO PHOENIX 1
LOAD SHIFT PIPELINE

Drawing Title

LAYOUT PLAN AND
LONGITUDINAL SECTION
OF PROPOSED 300mm Ø
STEEL WATERMAIN
PI.63 TO PI.66

Scale : 1:100 & 1:500

Designed : L.KHOMO

Checked : R.CANNY

Date : AUG 2024

Drawn : S.ZULU

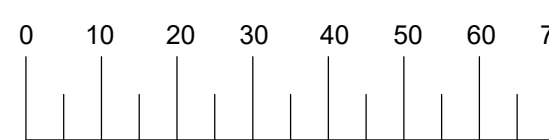
Area Engineer

Manager (Water Design)

Deputy Head (Engineering)

E. MSWELI - Head (W & S)

60440
Drawing No. Sheet 11 Rev B



LEGEND

EXISTING UNDERGROUND SERVICES ARE AS SHOWN BELOW.

NEW WATER MAIN & VALVES

SEWERS AND M.H'S

STORM WATER DRAINS AND M.H'S

WATER MAINS AND VALVES

ELECTRICITY CABLES

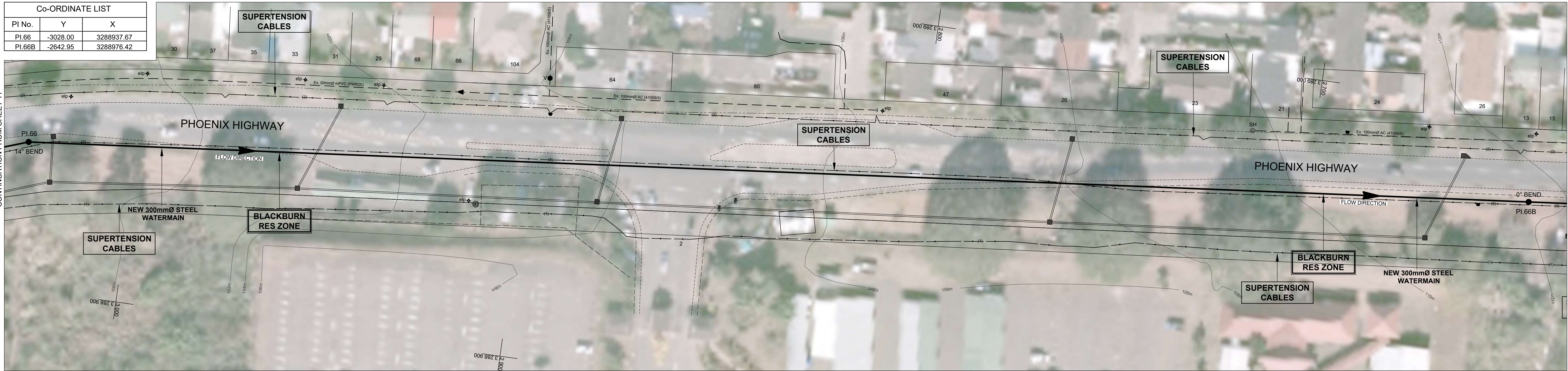
TELKOM CABLES

OIL PIPELINES

CONSTRUCTION INFORMATION

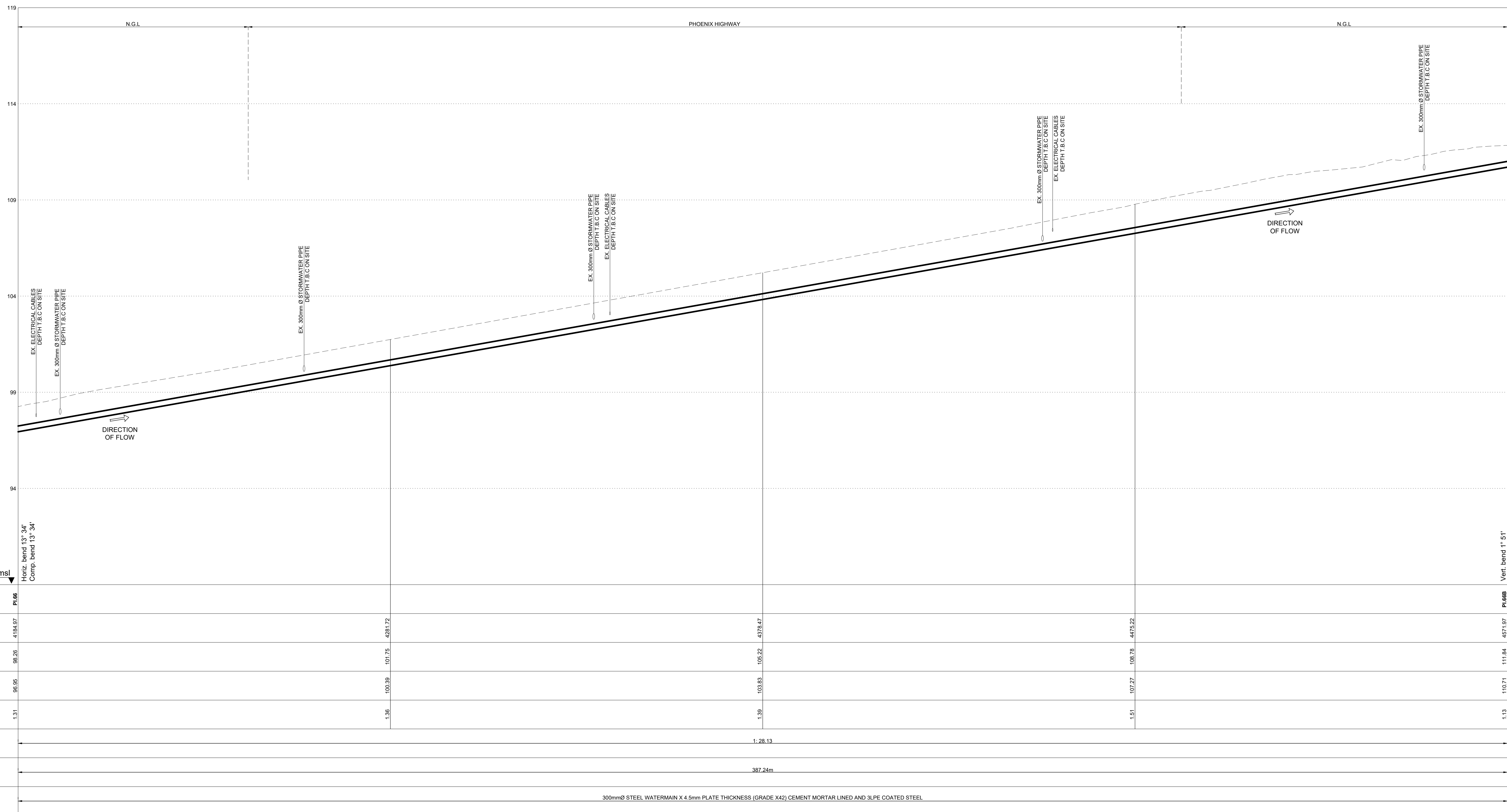
| | |
|------------------|--|
| MAIN LAYER | |
| START DATE | |
| FINISH DATE | |
| W/O NUMBER | |
| LEVEL OF SERVICE | |
| SUPERVISOR NAME | |
| CONTACT NUMBER | |
| DATE SENT TO GIS | |
| GIS INFORMATION | |
| DATE RECEIVED | |
| NAME | |

| PI No. | Y | X |
|--------|----------|------------|
| PI.66 | -3028.00 | 3288937.67 |
| PI.66B | -2642.95 | 3288975.42 |



LAYOUT PLAN

SCALE 1 : 500



| Manhole Name | PI.66 |
|------------------|---|
| Chainage (m) | 4154.97 |
| Ground Level (m) | 99.26 |
| Invert Level (m) | 98.95 |
| Difference (m) | 1.31 |
| Gradient | 1:28.13 |
| Slope length | 387.24m |
| Pipe Details | 300mm Ø STEEL WATERMAIN X 4.5mm PLATE THICKNESS (GRADE X42) CEMENT MORTAR LINED AND 3LPE COATED STEEL |

PI.66 to PI.66B
LONGITUDINAL SECTION
SCALE HOR. 1 : 500 VER. 1:100

| | | |
|---|----------|----------------------|
| B | MAR 2025 | ISSUED FOR TENDER |
| A | AUG 2024 | ISSUED FOR SIGNATURE |

| Revision | Date | Description |
|----------|------|-------------|
| | | |

NOTE: No construction work to commence until land and servitude acquisitions have been completed.

Acquisitions completed:

Date: _____ Engineer: _____

UNDERGROUND SERVICES CHECKED -

| SERVICE | DATE | SIGNATURE |
|-----------------|------|-----------|
| S.W DRAINS | | |
| SEWERS | | |
| WATERMANS | | |
| TELKOM CABLES | | |
| ELECTRIC CABLES | | |
| S.A.R CABLES | | |
| E.S.C CABLES | | |
| OIL PIPE LINE | | |

NOTE: Only underground services affected by new construction are shown. Care must be taken during excavations for road foundations, trenches etc. to avoid damage to underground services such as sewers, drains, cables, watermains and connections. Wherever possible these must be located before work begins.

Contract No. 30583-5W

Project No. X8108

Planning Unit

MOUNT EDGECOMBE NORTH

Ward No.

35, 48 & 102

Project Title

BLACKBURN TO PHOENIX 1
LOAD SHIFT PIPELINE

Drawing Title

LAYOUT PLAN AND
LONGITUDINAL SECTION
OF PROPOSED 300mm Ø
STEEL WATERMAIN
PI.66 TO PI.66B

Scale : 1:100 & 1:500

Designed : L.KHOMO

Checked : R.CANNY

Area Engineer

Manager (Water Design)

Deputy Head (Engineering)

E. MSWELI - Head (W & S)

60440

Drawing No.

12

Sheet

B

Rev.



REDUCED PLAN USE SCALE BELOW



EXISTING UNDERGROUND SERVICES
ARE AS SHOWN BELOW.

SEWERS AND M.H.'S

ACKNOWLEDGMENTS

ELECTRICITY CABLES

OIL PIPELINES

| | |
|------------------|-----|
| MAINLAYER | |
| START DATE | --- |
| FINISH DATE | |
| W/O NUMBER | |
| LEVEL OF SERVICE | |
| SUPERVISOR NAME | |
| CONTACT NUMBER | |
| DATE SENT TO GIS | |
| GIS INFORMATION | |
| DATE RECEIVED | |
| NAME | |



LAYOUT PLAN



horiz. bend 10° 1'

PI.66B to PI.67
LONGITUDINAL SECTION
SCALE HOR. 1 : 500 VER. 1:100

| | | |
|---|----------|----------------------|
| B | MAR 2025 | ISSUED FOR TENDER |
| A | AUG 2024 | ISSUED FOR SIGNATURE |

NOTE: No construction work to commence until land and servitude acquisitions have been completed.

Acquisitions completed:

NOTE: Only underground services affected by new construction are shown. Care must be taken during excavations for road foundations, trenches etc., to avoid damage to underground services such as sewers, drains, cables, watermains and connections. Wherever possible these must be located before work begins.

Project No. **X8108**

Ward No.
35, 48 & 102

LOAD SHIFT PIPELINE

LAYOUT PLAN AND
LONGITUDINAL SECTION
OF PROPOSED 300-mm ϕ

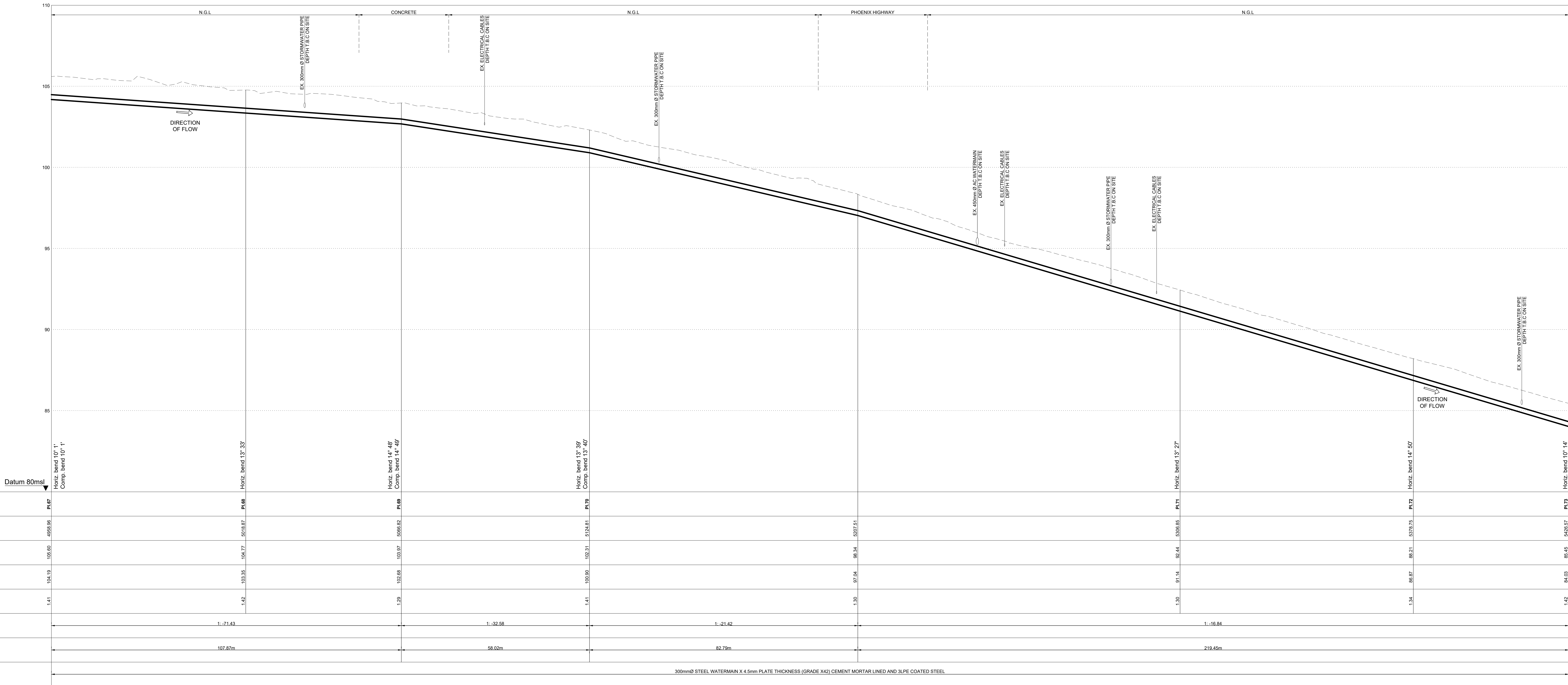
| | |
|-----------------------|------------------|
| Scale : 1:100 & 1:500 | |
| Designed : L.KHOMO | Date : AUG 2024 |
| Checked : R.CANNIX | Drawn : S.ZILILI |

| |
|---------------------------|
| Manager (Water Design) |
| Deputy Head (Engineering) |

| | | |
|-------------|-------|------|
| Drawing No. | Sheet | Rev. |
| 60440 | 13 | B |



LAYOUT PLAN
SCALE 1 : 500



PI.67 to PI.73
LONGITUDINAL SECTION
SCALE HOR. 1 : 500 VER. 1:100

ETHEKWINI WATER AND SANITATION

eThekweni Municipality

WATER DESIGN BRANCH

REDUCED PLAN USE SCALE BELOW

0 10 20 30 40 50 60 70

70mm ON ORIGINAL PLAN

LEGEND

EXISTING UNDERGROUND SERVICES ARE AS SHOWN BELOW.

NEW WATER MAIN & VALVES

SEWERS AND M.H'S

STORM WATER DRAINS AND M.H'S

WATER MAINS AND VALVES

ELECTRICITY CABLES

TELKOM CABLES

OIL PIPELINES

CONSTRUCTION INFORMATION

| MAINLAYER | START DATE | FINISH DATE | W/O NUMBER | LEVEL OF SERVICE | SUPERVISOR NAME | CONTACT NUMBER | DATE SENT TO GIS | DATE RECEIVED | NAME |
|-----------|------------|-------------|------------|------------------|-----------------|----------------|------------------|---------------|------|
| | | | | | | | | | |

Revision

| Revision | Date | Description |
|----------|----------|----------------------|
| B | MAR 2025 | ISSUED FOR TENDER |
| A | AUG 2024 | ISSUED FOR SIGNATURE |

NOTE: No construction work to commence until land and servitude acquisitions have been completed.

Acquisitions completed:

DATE

Engineer

NORTH

POINT

SERVICE

DATE

SIGNATURE

S.W DRAINS

SEWERS

WATERMANS

TELKOM CABLES

ELECTRIC CABLES

S.A.R CABLES

E.S.C CABLES

OIL PIPE LINE

NOTE: Only underground services affected by new construction are shown. Care must be taken during excavations for road foundations, trenches etc. to avoid damage to underground services such as sewers, drains, cables, watermains and connections. Wherever possible these must be located before work begins.

Contract No. 30583-5W

Project No. X8108

Planning Unit

MOUNT EDGEcombe NORTH

Ward No.

35, 48 & 102

Project Title

BLACKBURN TO PHOENIX 1 LOAD SHIFT PIPELINE

Drawing Title

LAYOUT PLAN AND LONGITUDINAL SECTION OF PROPOSED 300mm Ø STEEL WATERMAIN PI.67 TO PI.73

Scale : 1:100 & 1:500

Designed : L.KHOMO

Checked : R.CANNY

Area Engineer

Manager (Water Design)

Deputy Head (Engineering)

E. MSWELI - Head (W & S)

60440

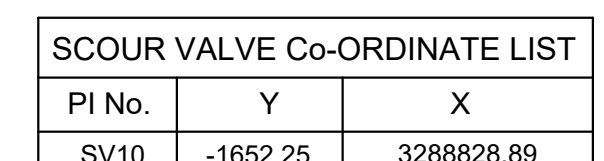
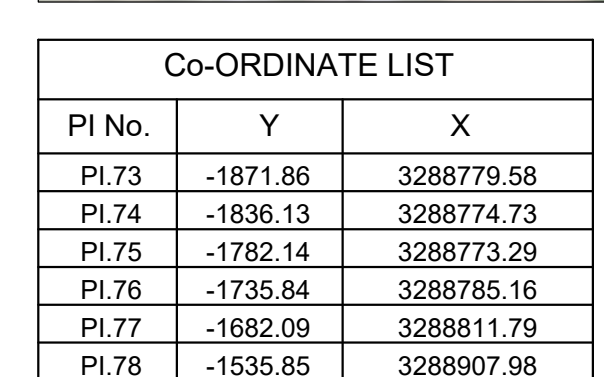
Drawing No.

Sheet

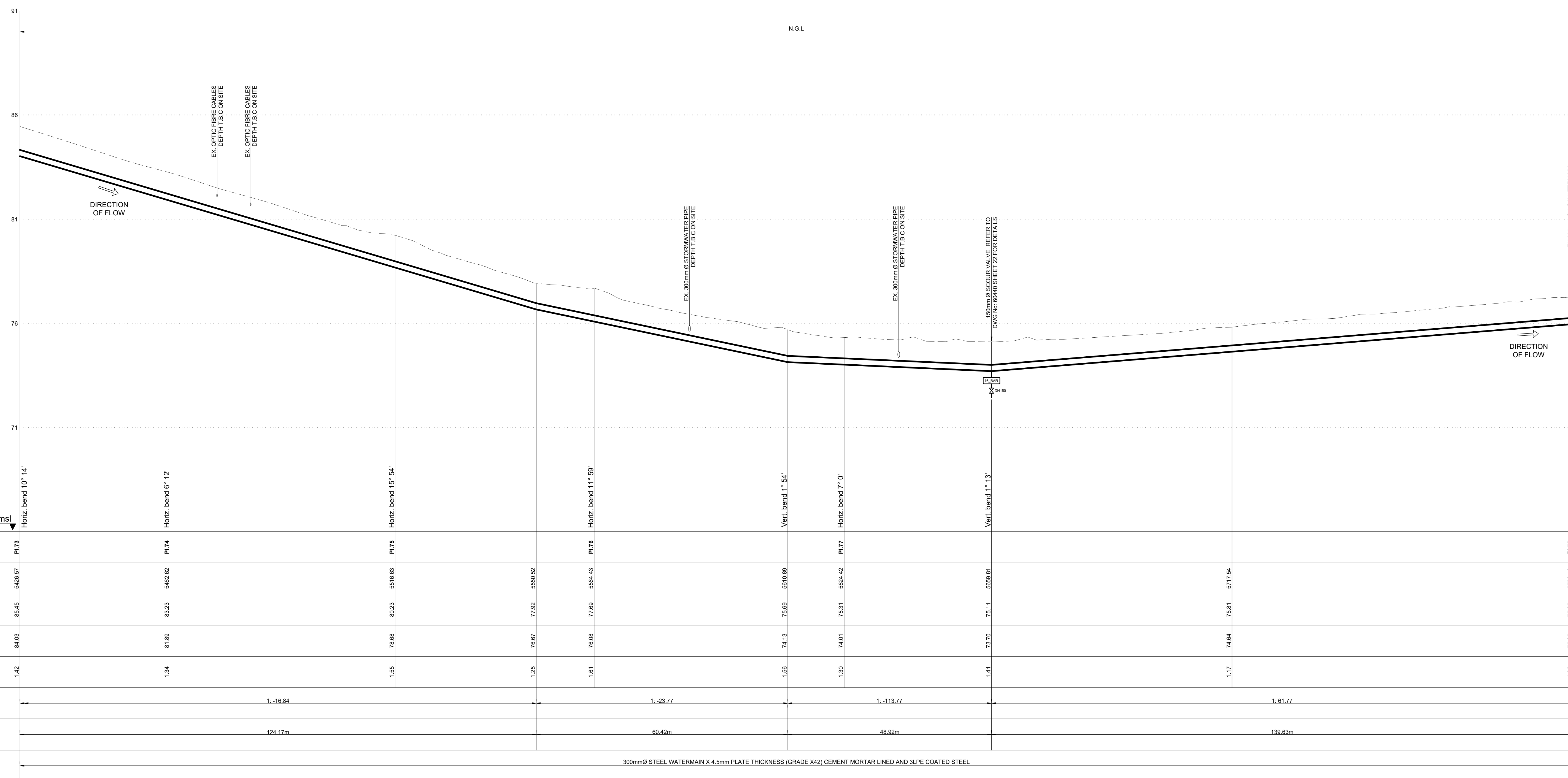
14

Rev

B



LAYOUT PLAN



Pl.73 to Pl.79
LONGITUDINAL SECTION
SCALE HOR. 1 : 500 VER. 1:100

| | | | | | | | | |
|------------------|--|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Manhole Name | Manhole 1 | Manhole 2 | Manhole 3 | Manhole 4 | Manhole 5 | Manhole 6 | Manhole 7 | Manhole 8 |
| Chainage (m) | 0+00.00 | 0+40.00 | 0+80.00 | 0+120.00 | 0+160.00 | 0+200.00 | 0+240.00 | 0+280.00 |
| Ground Level (m) | 85.45 | 85.20 | 85.10 | 85.00 | 84.90 | 84.80 | 84.70 | 84.60 |
| Invert Level (m) | 84.80 | 84.65 | 84.50 | 84.35 | 84.20 | 84.05 | 83.90 | 83.75 |
| Difference (m) | 0.65 | 0.55 | 0.60 | 0.65 | 0.70 | 0.75 | 0.80 | 0.85 |
| Gradient | 1:16.84 | | 1:23.77 | | 1:23.77 | | 1:61.77 | |
| Slope length | 124.17m | | 60.42m | | 48.92m | | 138.63m | |
| Pipe Details | 300mmØ STEEL WATERMAIN X 4.5mm PLATE THICKNESS (GRADE X42) CEMENT MORTAR LINED AND SLPE COATED STEEL | | | | | | | |

| | | |
|----------|----------|----------------------|
| | | |
| | | |
| | | |
| | | |
| | | |
| B | MAR 2025 | ISSUED FOR TENDER |
| A | AUG 2024 | ISSUED FOR SIGNATURE |
| Revision | Date | Description |

| | | |
|---|------|-------------|
| NOTE: No construction work to commence until land and servitude acquisitions have been completed | | |
| Acquisitions completed: | | |
| Date _____ Engineer _____ | | NORTH POINT |
| UNDERGROUND SERVICES CHECKED - | | |
| SERVICE | DATE | SIGNATURE |
| S.W DRAINS | | |
| SEWERS | | |
| WATERMAINS | | |
| TELEKOM CABLES | | |
| ELECTRIC CABLES | | |
| S.A.R CABLES | | |
| E.S.C CABLES | | |
| OIL PIPE LINE | | |

NOTE: Only underground services affected by new construction are shown. Care must be taken during excavations for road foundations, trenches etc., to avoid damage to underground services such as sewers, drains, cables, watermain and connections. Wherever possible these must be located before work begins.

Contract No. 30583-5WProject No. X8108

Planning Unit

MOUNT EDGECOMBE NORTH

Ward No.
35, 48 & 102

BLACKBURN TO PHOENIX LOAD SHIFT PIPELINE

| |
|---------------|
| Drawing Title |
|---------------|

LAYOUT PLAN AND
LONGITUDINAL SECTION
OF PROPOSED 300mm Ø
STEEL WATERMAIN
PI.73 TO PI.79

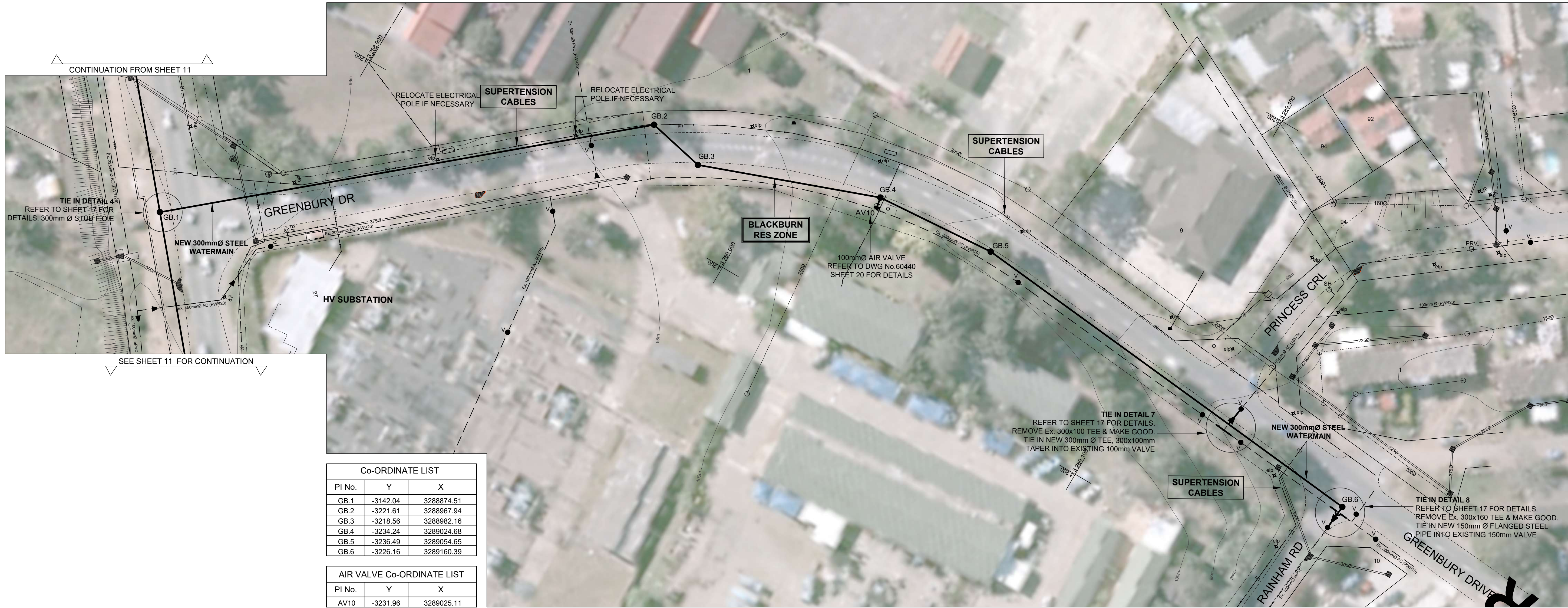
| | |
|-----------------------|-----------------|
| Scale : 1:100 & 1:500 | |
| Designed : L.KHOMO | Date : AUG 2024 |
| Checked : R.CANNY | Drawn: S.ZULU |

Area Engineer

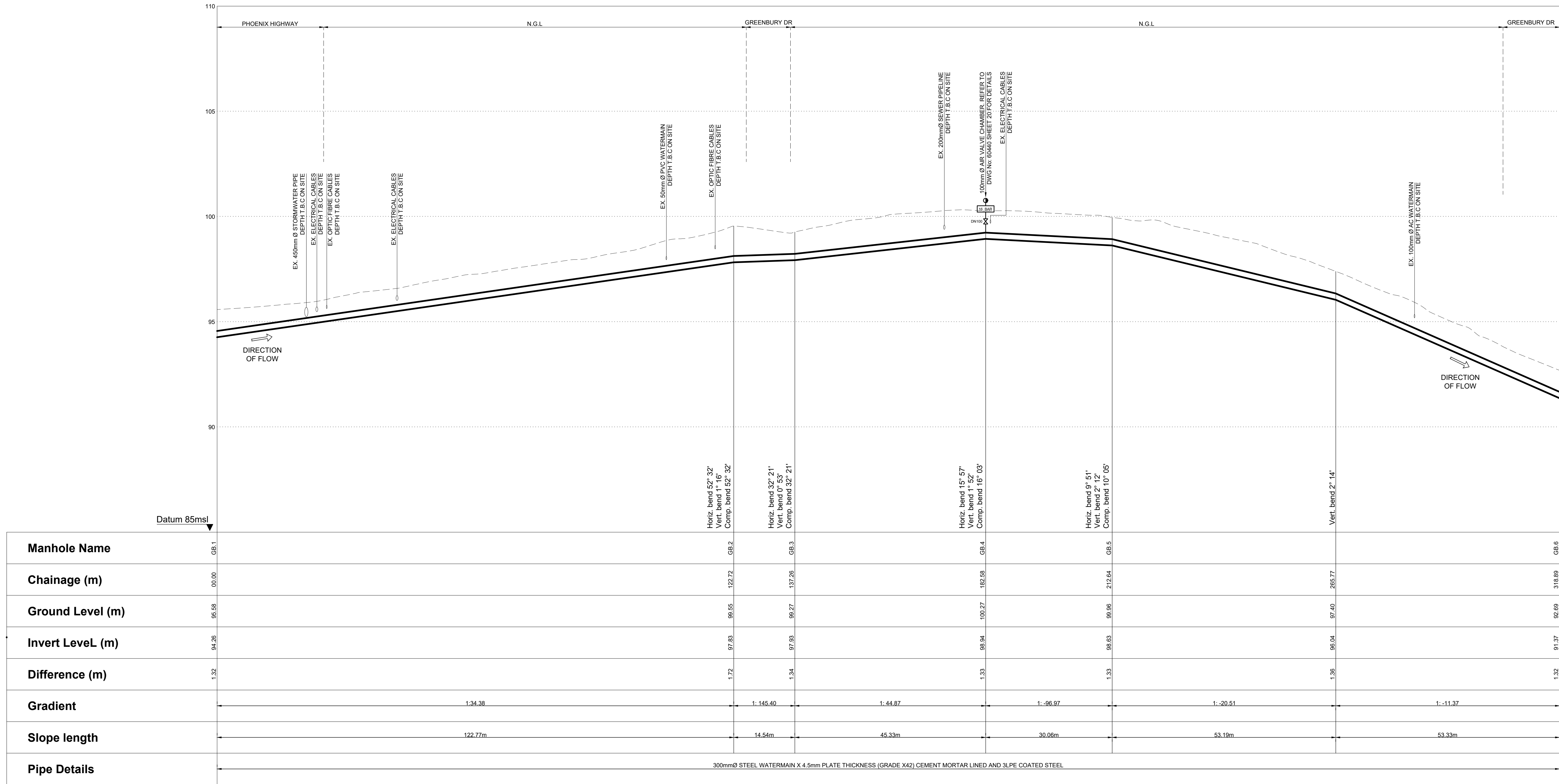
| | |
|------------------------|--|
| Manager (Water Design) | |
|------------------------|--|

E. MCWELL, Head (M.R.S.)

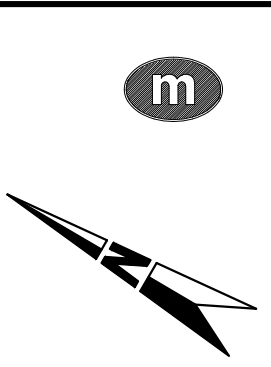
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|---------------------|-------------|----------|
| 60440 Drawing No | 15 Sheet | B Rev |
|---------------------|-------------|----------|



LAYOUT PLAN
SCALE 1 : 500



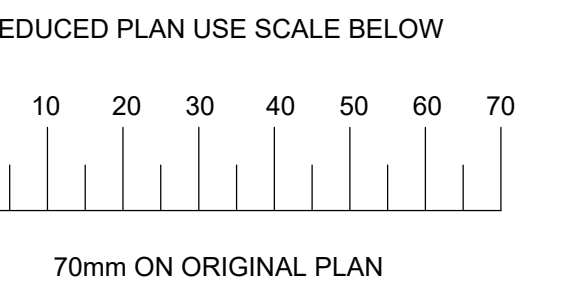
GB.1 to GB.6
LONGITUDINAL SECTION
SCALE HOR. 1 : 500 VER. 1:100



ETHEKWINI WATER
AND SANITATION



WATER DESIGN BRANCH



LEGEND

EXISTING UNDERGROUND SERVICES
ARE AS SHOWN BELOW.

NEW WATER MAIN & VALVES
SEWERS AND M.H'S
STORM WATER DRAINS AND M.H'S
WATER MAINS AND VALVES
ELECTRICITY CABLES
TELKOM CABLES
OIL PIPELINES

CONSTRUCTION INFORMATION

| | |
|------------------|--|
| MAINLAYER | |
| START DATE | |
| FINISH DATE | |
| W/O NUMBER | |
| LEVEL OF SERVICE | |
| SUPERVISOR NAME | |
| CONTACT NUMBER | |
| DATE SENT TO GIS | |
| GIS INFORMATION | |
| DATE RECEIVED | |
| NAME | |

| | | |
|---|----------|----------------------|
| B | MAR 2025 | ISSUED FOR TENDER |
| A | AUG 2024 | ISSUED FOR SIGNATURE |

| Revision | Date | Description |
|----------|------|-------------|
|----------|------|-------------|

NOTE: No construction work to commence until land and servitude acquisitions have been completed.

| Date | Engineer | NORTH | POINT |
|-----------------|----------|-----------|-------|
| SERVICE | DATE | SIGNATURE | |
| S.W. DRAINS | | | |
| SEWERS | | | |
| WATERMANS | | | |
| TELKOM CABLES | | | |
| ELECTRIC CABLES | | | |
| S.A.R. CABLES | | | |
| E.S.C. CABLES | | | |
| OIL PIPE LINE | | | |

NOTE: Only underground services affected by new construction are shown. Care must be taken during excavations for road foundations, trenches etc. to avoid damage to underground services such as sewers, drains, cables, watermains and connections. Wherever possible these must be located before work begins.

Contract No. 30583-5W

Project No. X8108

Planning Unit
MOUNT EDGECOMBE NORTH

Ward No.
35, 48 & 102

Project Title
BLACKBURN TO PHOENIX 1
LOAD SHIFT PIPELINE

Drawing Title
LAYOUT PLAN AND
LONGITUDINAL SECTION
OF PROPOSED 300mm Ø
STEEL WATERMAIN
GB.1 TO GB.6

Scale : 1:100 & 1:500
Designed : L.KHOMO
Checked : R.CANNY

Date : AUG 2024
Drawn: S.ZULU

Area Engineer

Manager (Water Design)

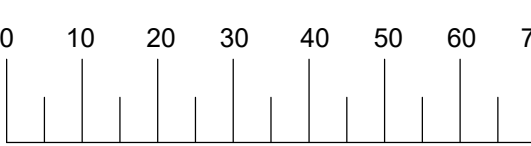
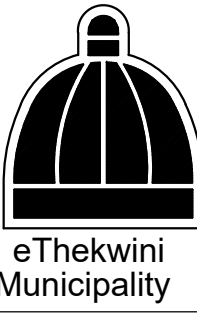
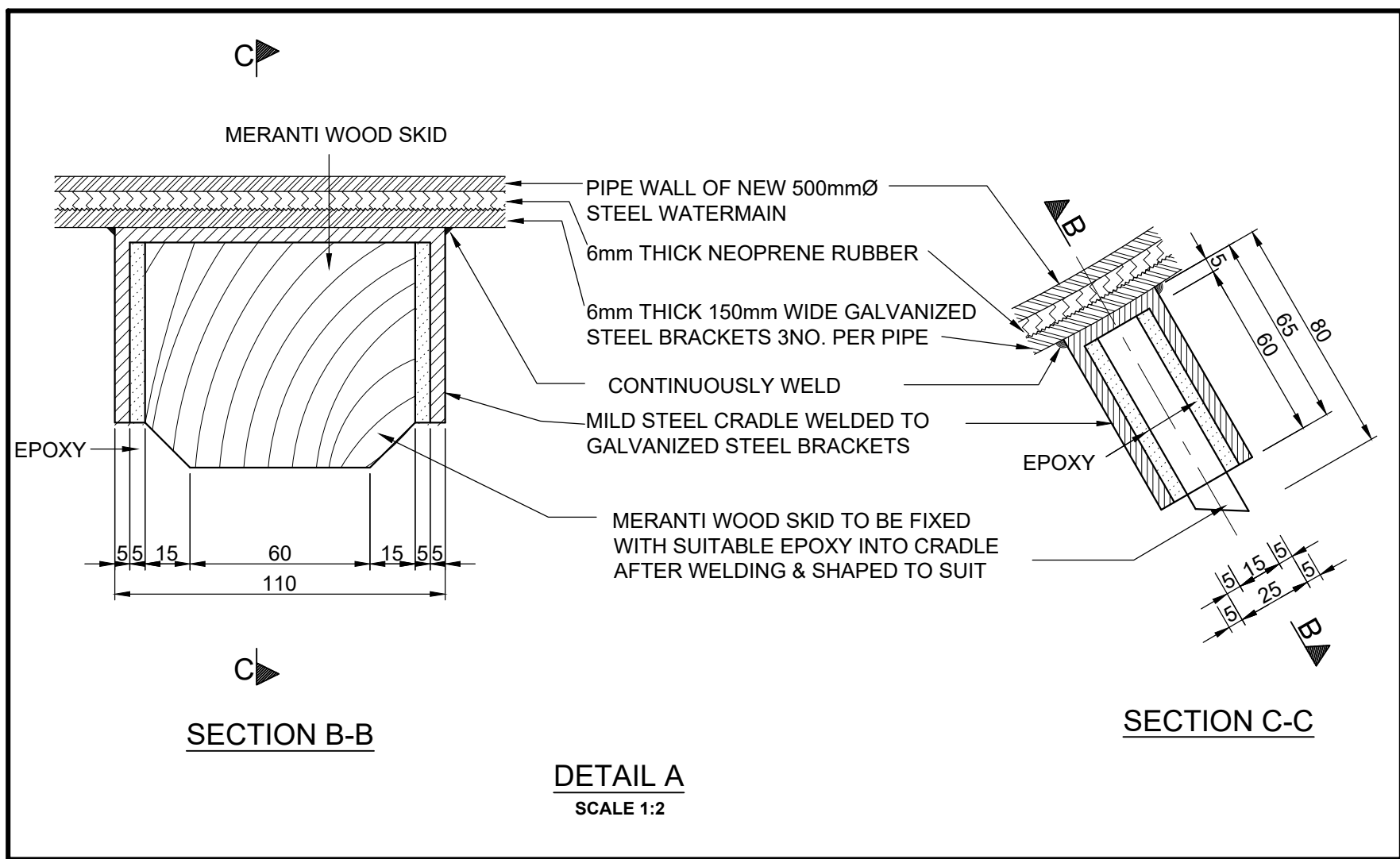
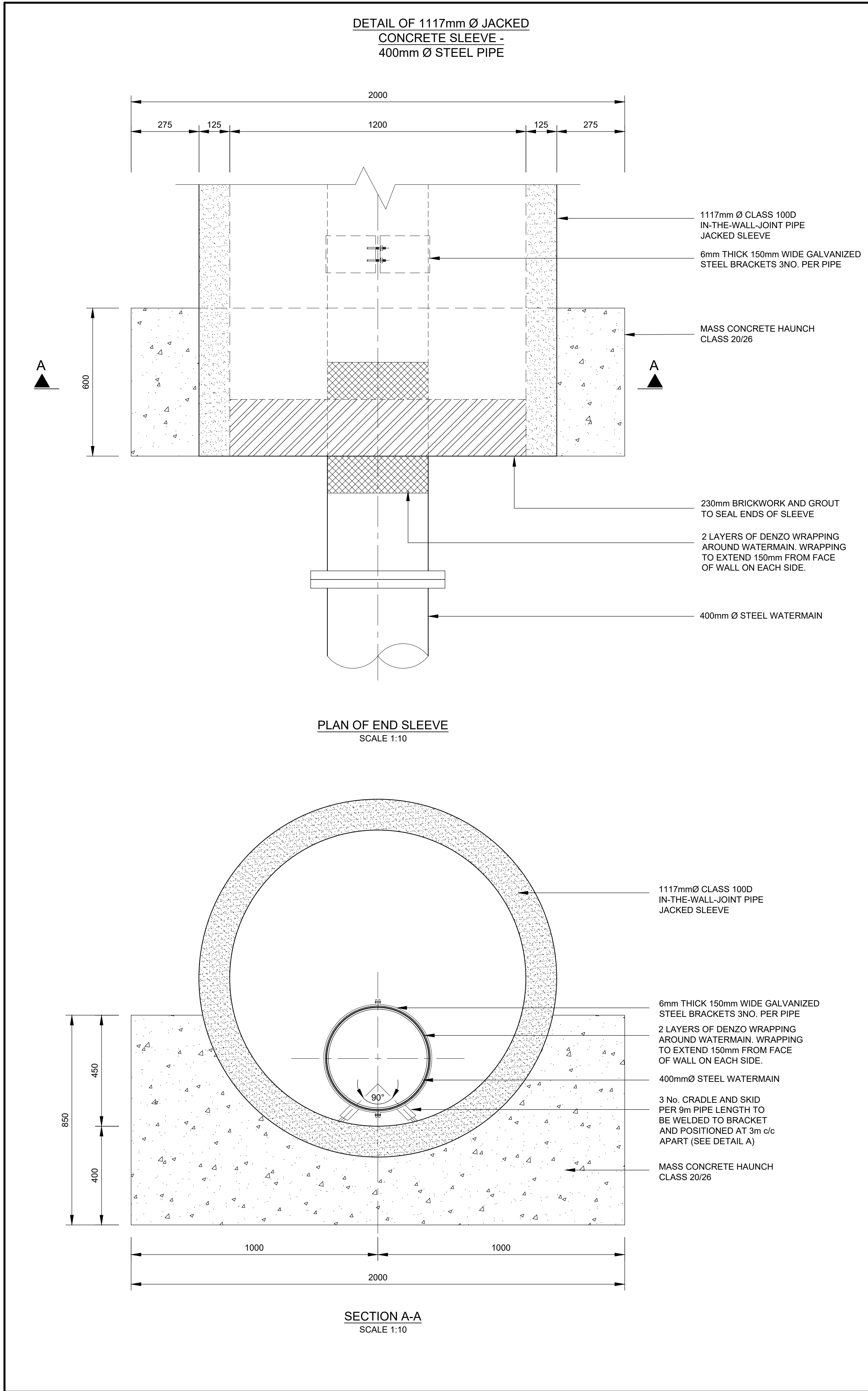
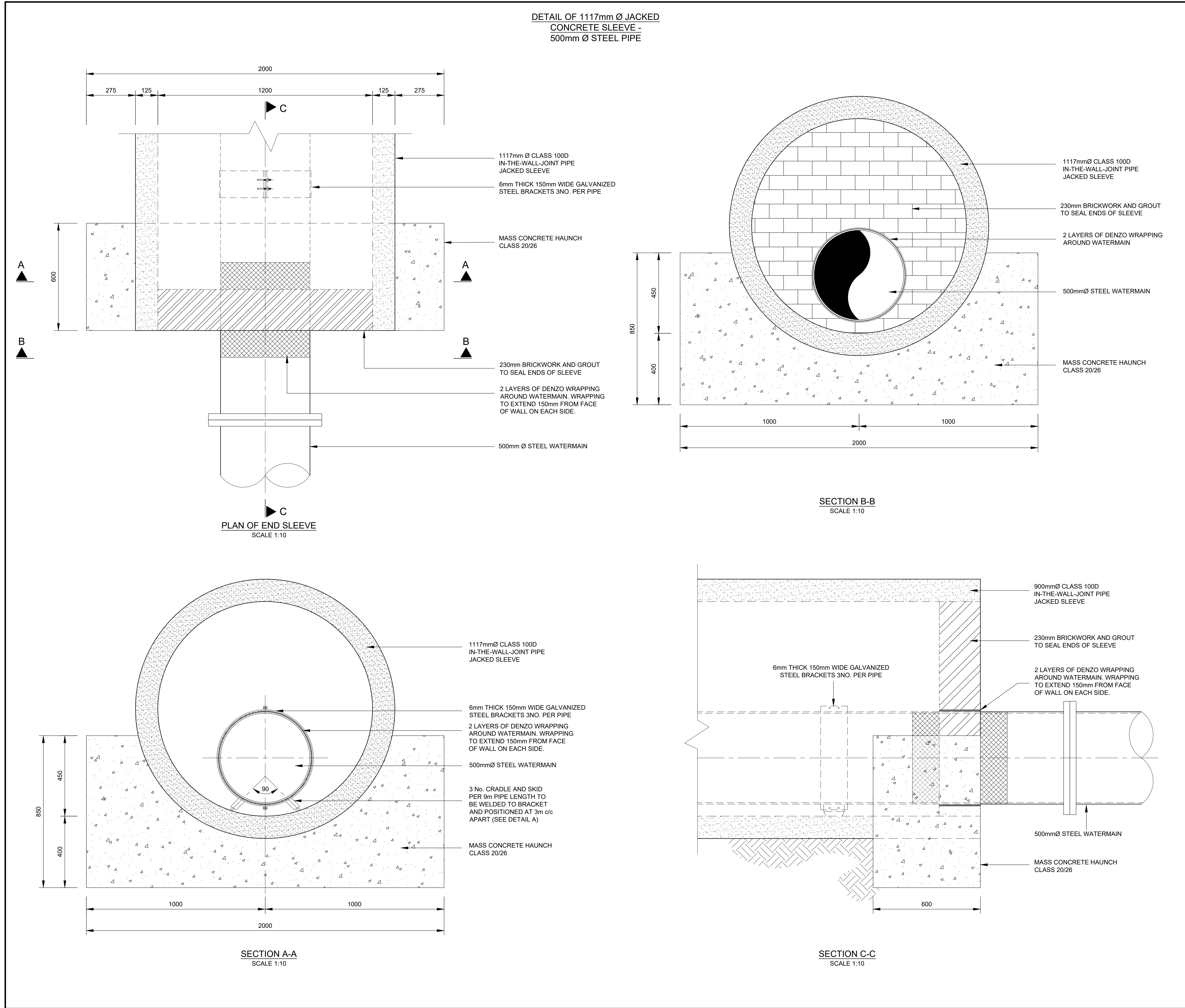
Deputy Head (Engineering)

E. MSWELI - Head (W & S)

60440
Drawing No.

16
Sheet

B
Rev.



LEGEND

EXISTING UNDERGROUND SERVICES ARE AS SHOWN BELOW.

NEW WATER MAIN & VALVES

SEWERS AND M.H.S

STORM WATER DRAINS AND M.H.S

WATER MAINS AND VALVES

ELECTRICITY CABLES

TELKOM CABLES

OIL PIPELINES

CONSTRUCTION INFORMATION

| | |
|------------------|--|
| MAINLAYER | |
| START DATE | |
| FINISH DATE | |
| W/O NUMBER | |
| LEVEL OF SERVICE | |
| SUPERVISOR NAME | |
| CONTACT NUMBER | |
| DATE SENT TO GIS | |
| GIS INFORMATION | |
| DATE RECEIVED | |
| NAME | |

B MAR 2025 ISSUED FOR TENDER

A AUG 2024 ISSUED FOR SIGNATURE

Revision Date Description

NOTE: No construction work to commence until land and servitude acquisitions have been completed

Acquisitions completed:

Date Engineer

UNDERGROUND SERVICES CHECKED -

SERVICE DATE SIGNATURE

S.W DRAINS

SEWERS

WATERMAINS

TELKOM CABLES

ELECTRIC CABLES

S.A.R CABLES

E.S.C CABLES

OIL PIPE LINE

NOTE: Only underground services affected by new construction are shown. Care must be taken during excavations for road foundations, trenches etc. to avoid damage to underground services such as sewers, drains, cables, watermain and connections. Wherever possible these must be located before work begins.

Contract No. 30583-5W

Project No. X8108

Planning Unit

MOUNT EDGECOMBE NORTH

Ward No.

35, 48 & 102

Project Title

BLACKBURN TO PHOENIX 1 LOAD SHIFT PIPELINE

Drawing Title

DETAILS OF 1117mm Ø JACKED CONCRETE SLEEVE FOR 500 & 400mm Ø STEEL PIPE

Scale: AS SHOWN

Designed: L.KHOMO

Checked: R.CANNY

Area Engineer

Manager (Water Design)

Deputy Head (Engineering)

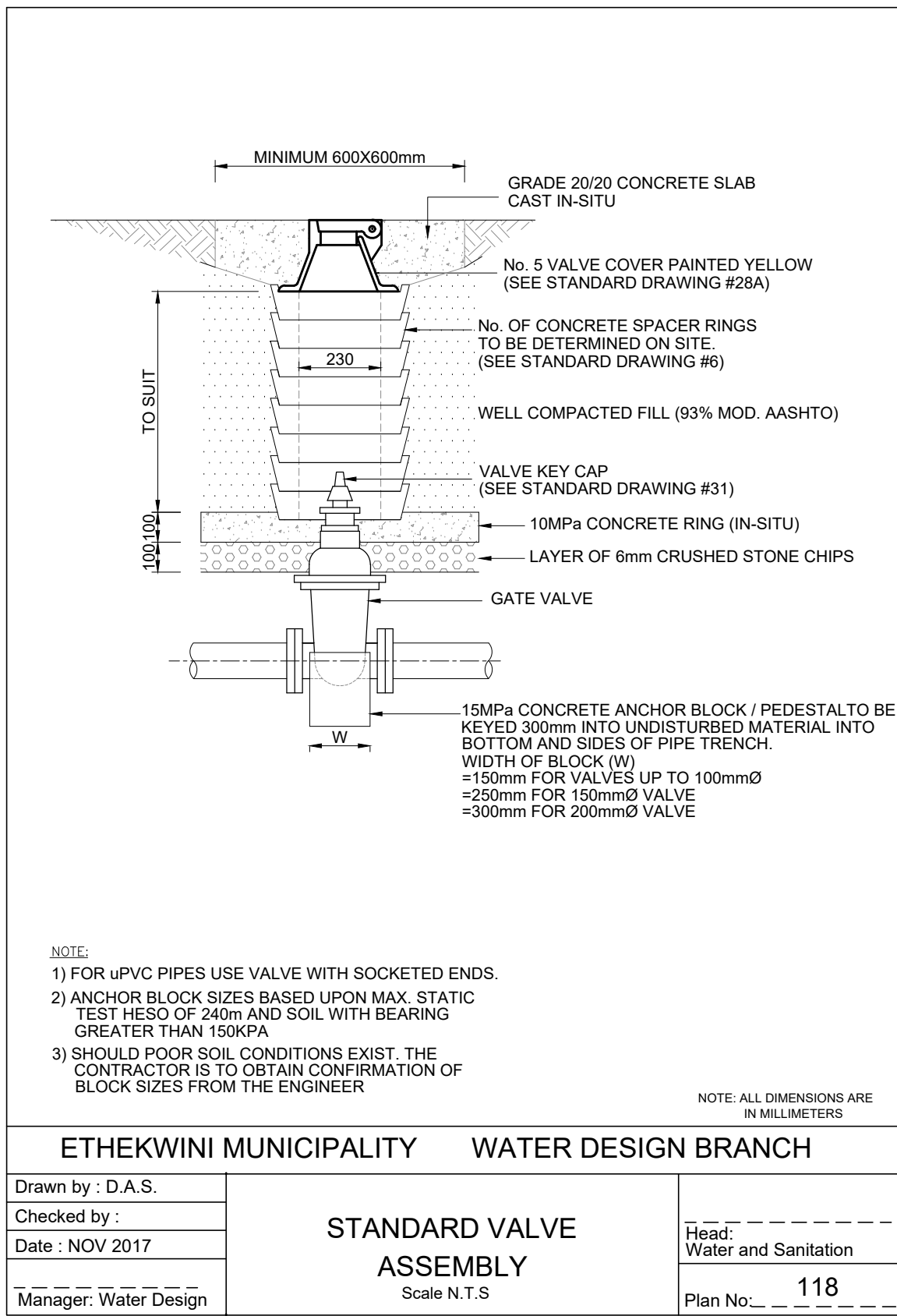
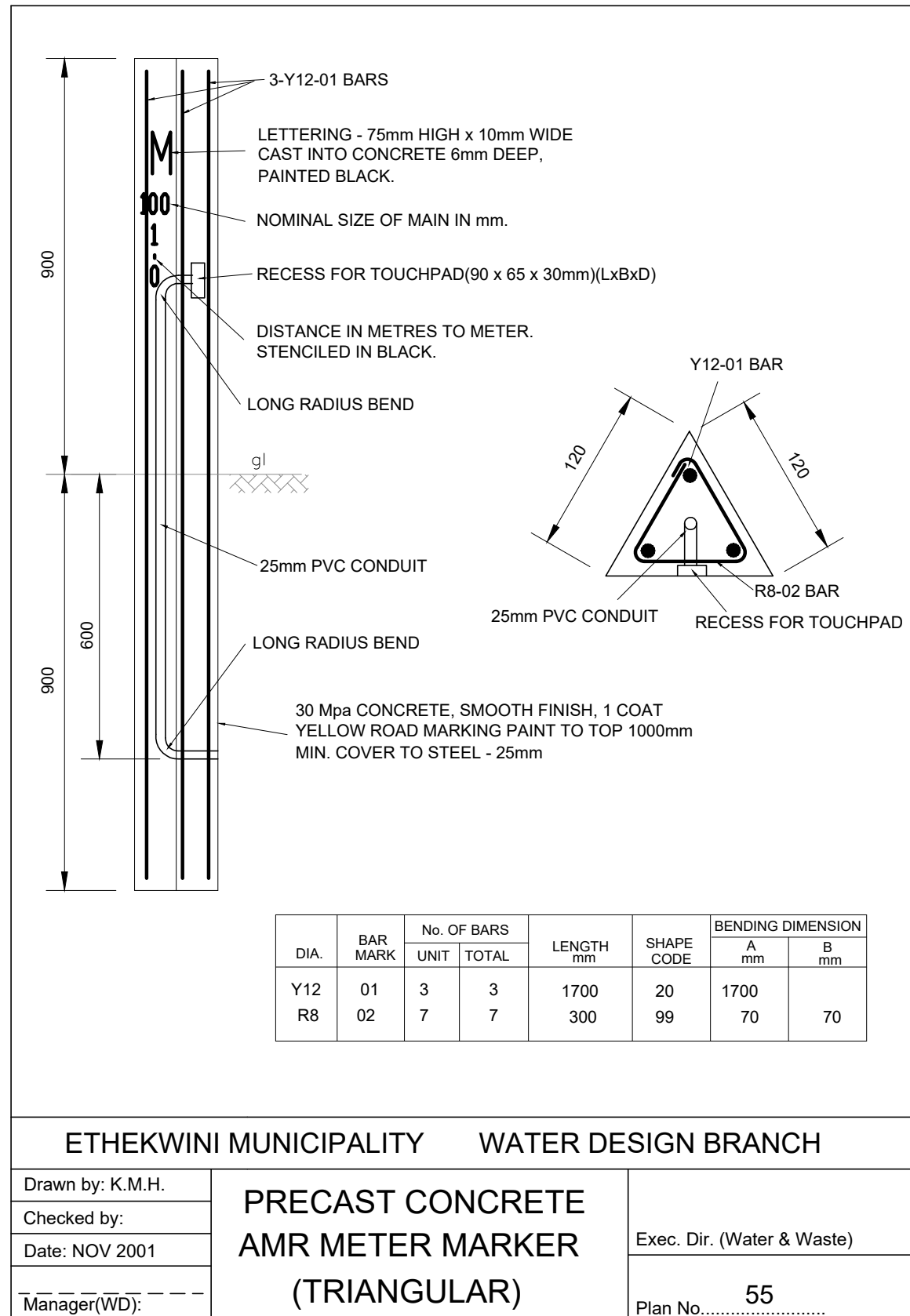
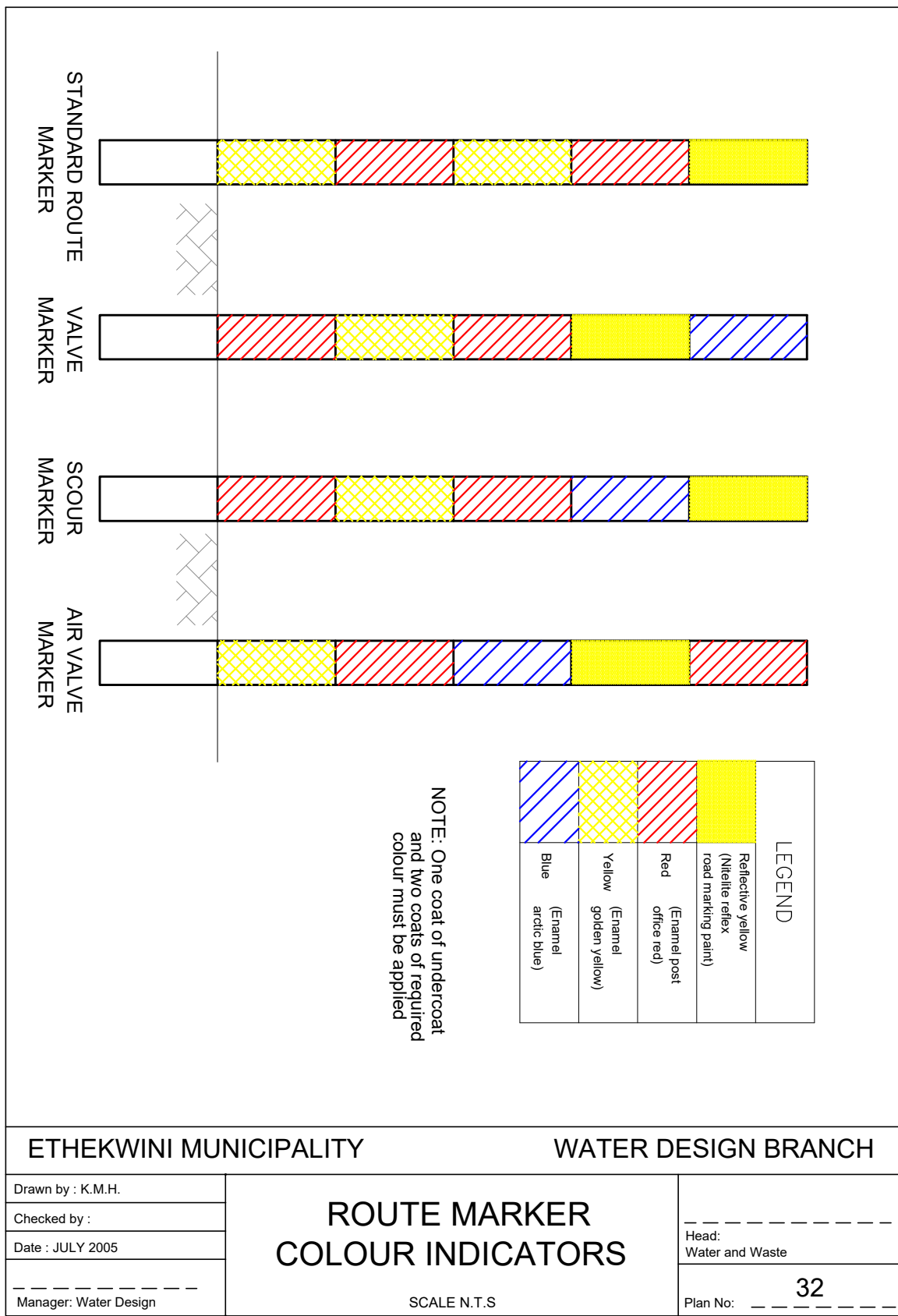
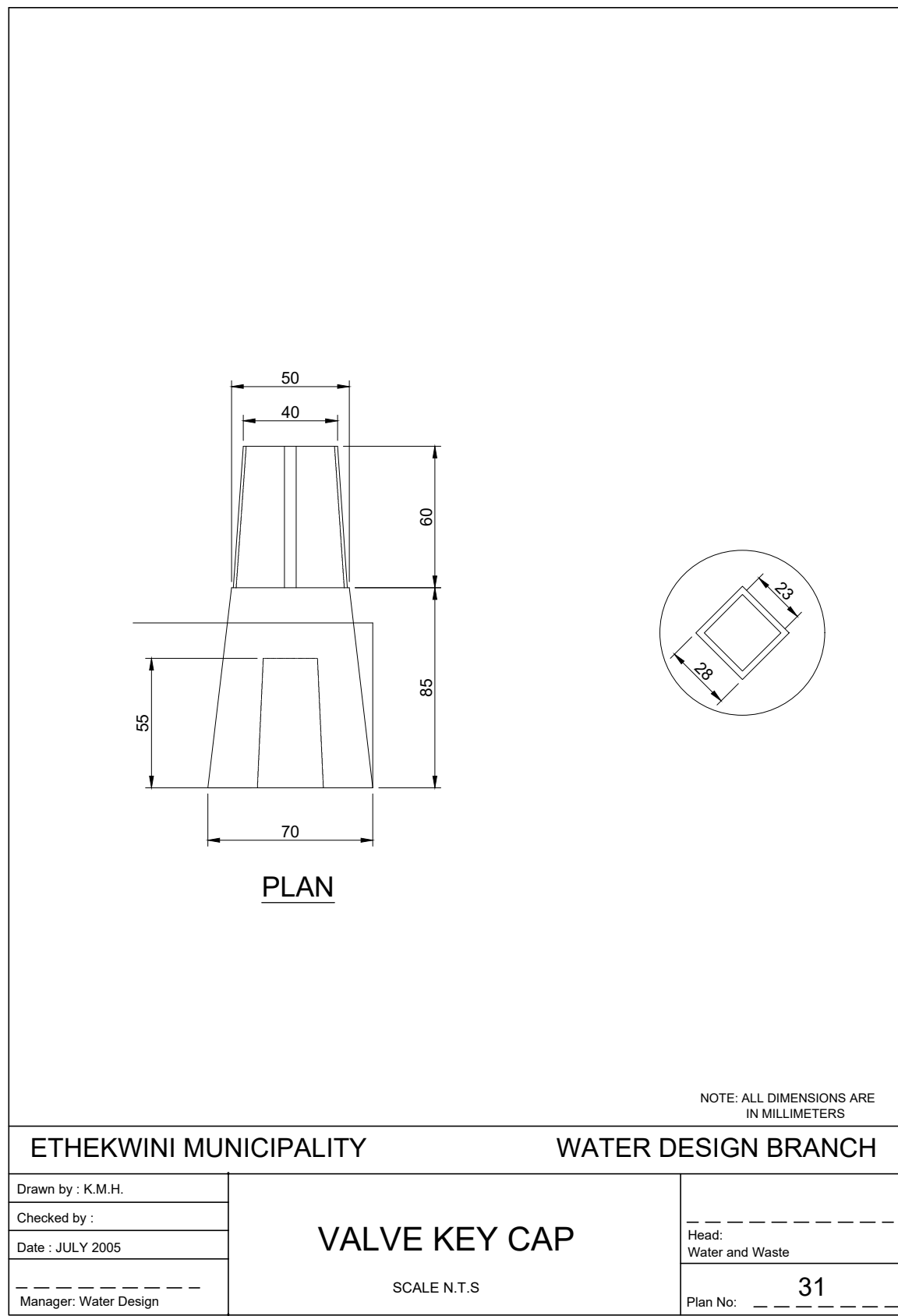
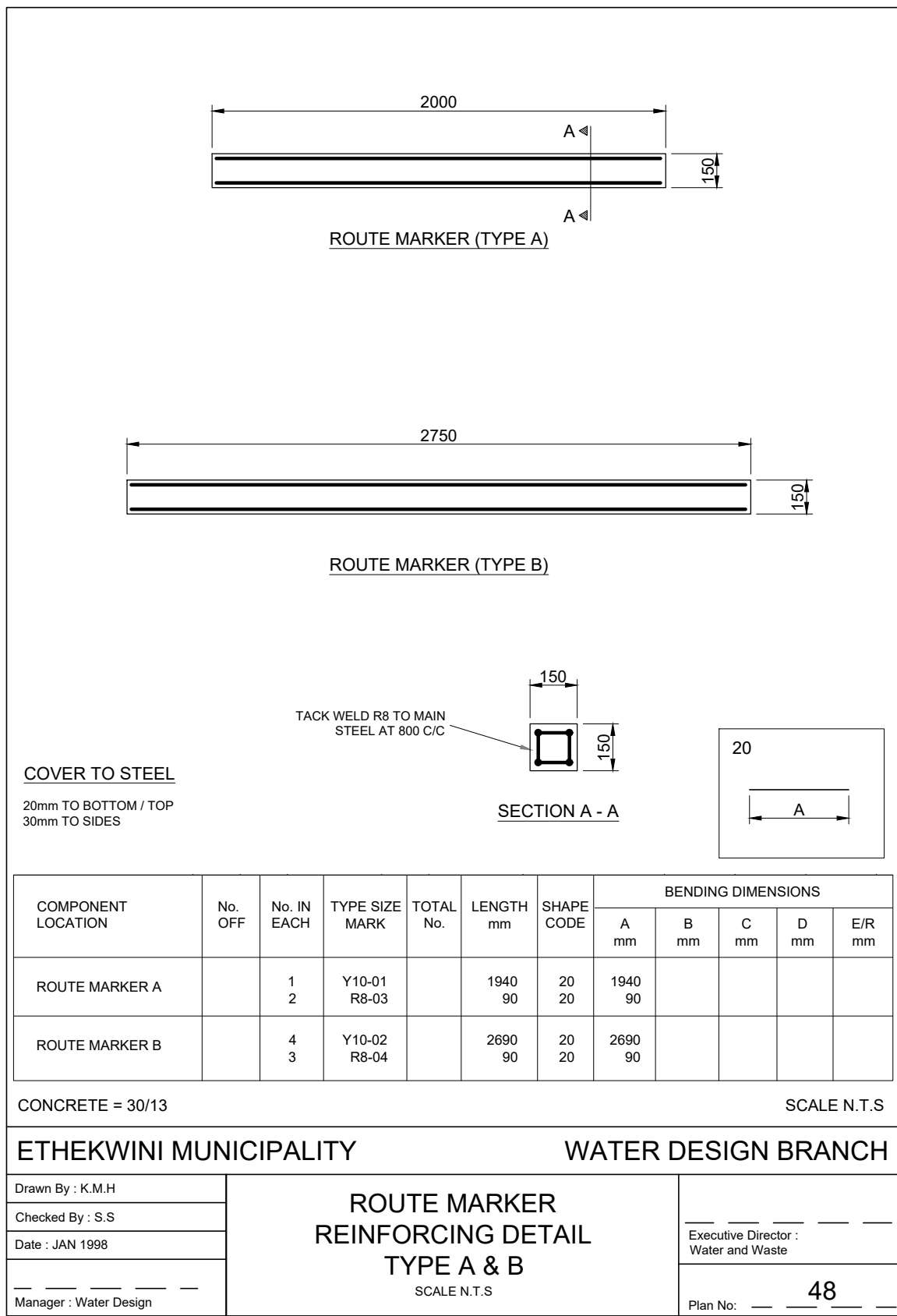
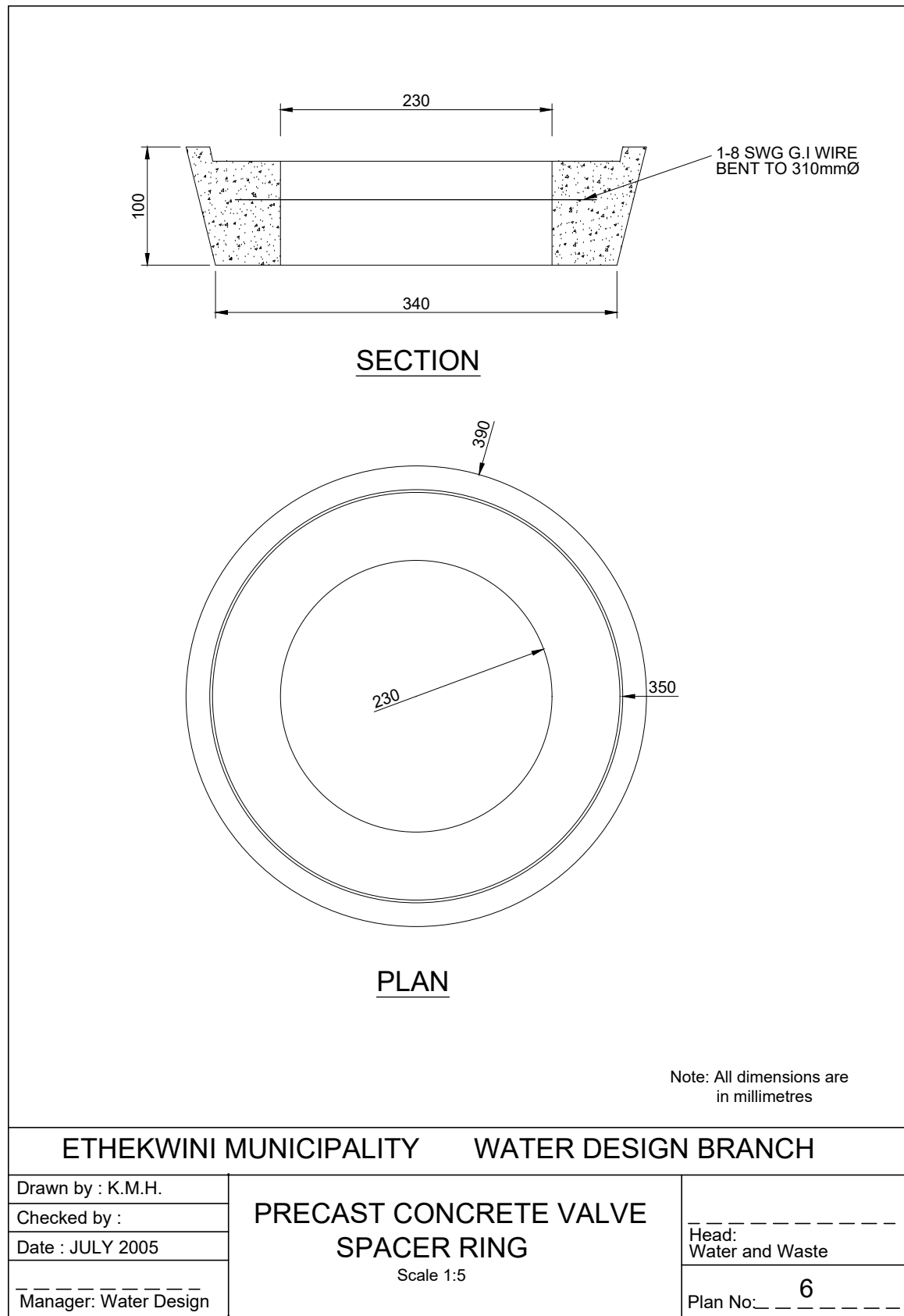
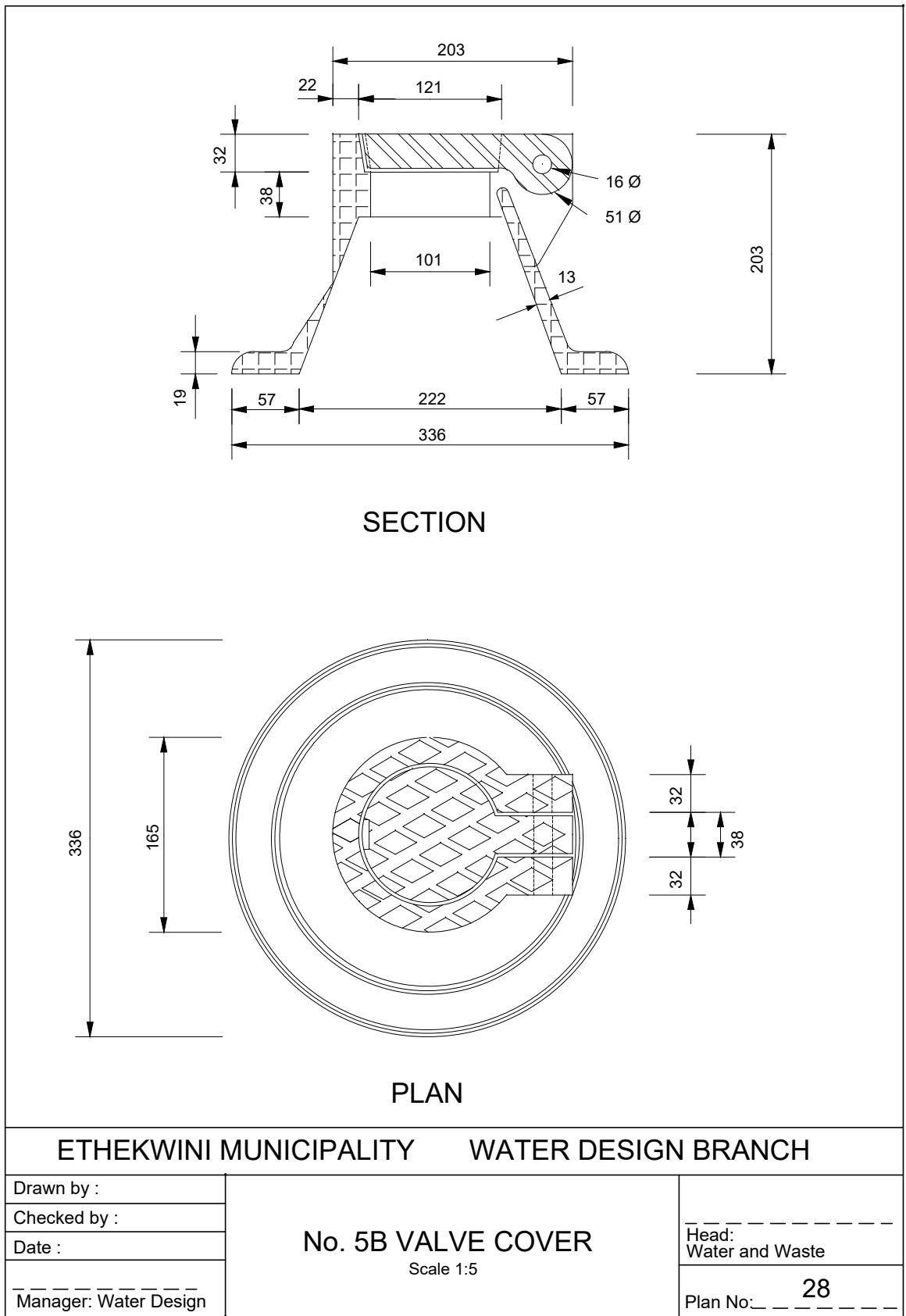
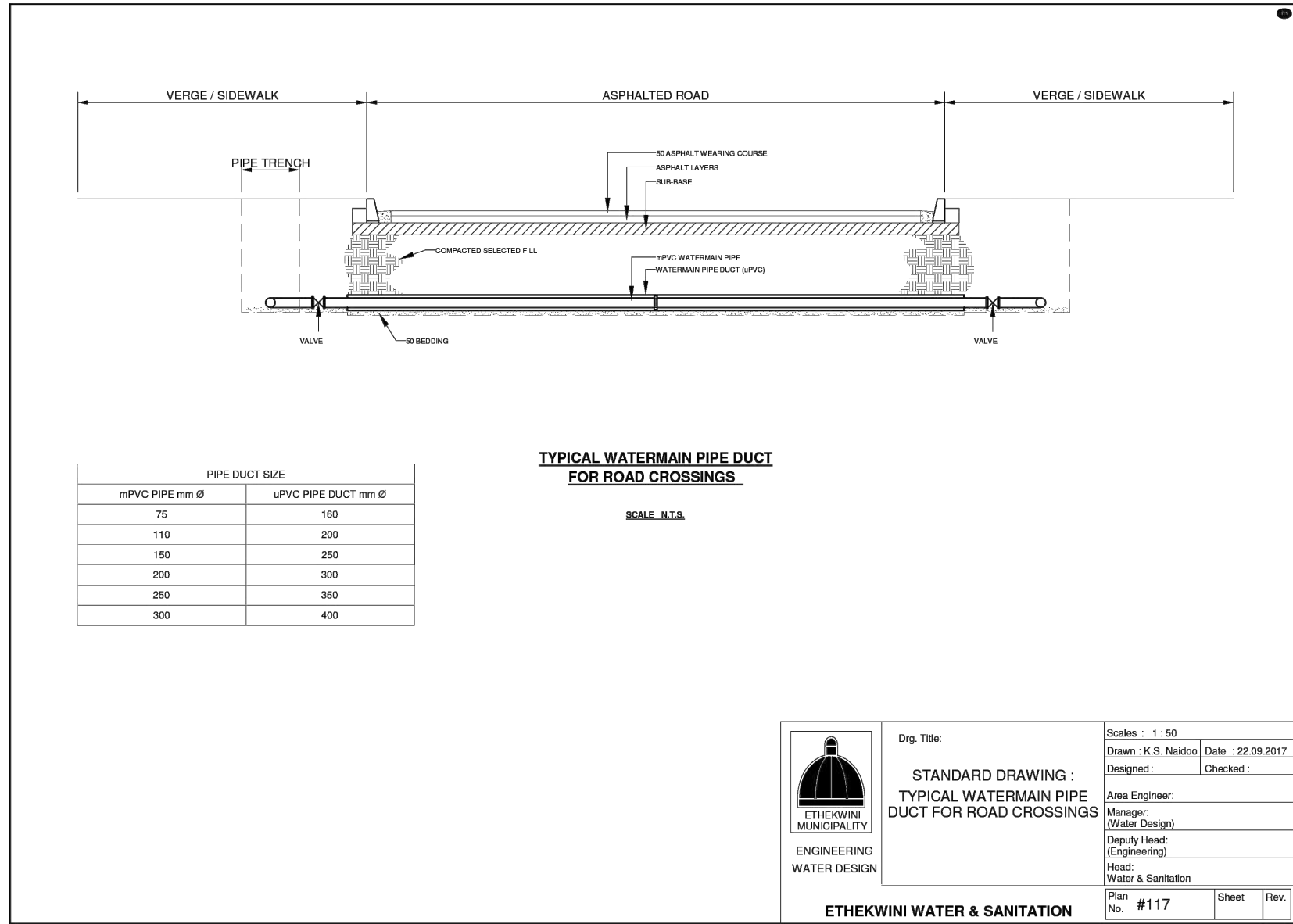
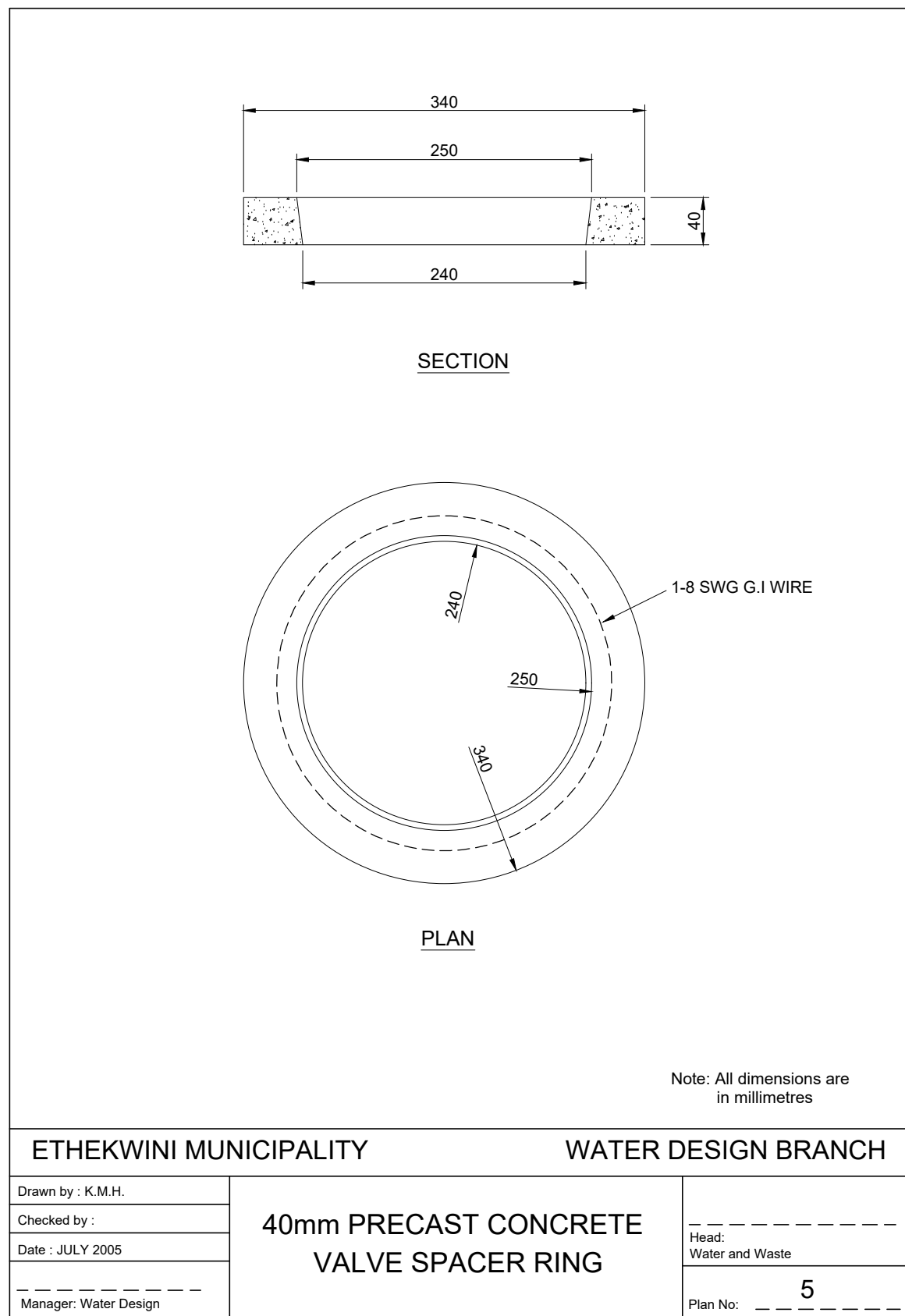
E. MSWIELI - Head (W & S)

60440

Drawing No.

Sheet 18

Rev. B

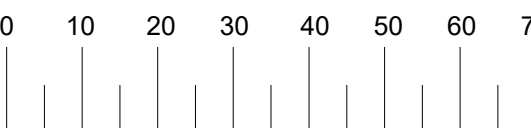


ETHEKWINI WATER AND SANITATION



WATER DESIGN BRANCH

REDUCED PLAN USE SCALE BELOW



70mm ON ORIGINAL PLAN

LEGEND

EXISTING UNDERGROUND SERVICES ARE AS SHOWN BELOW.

NEW WATER MAIN & VALVES

SEWERS AND M.H.S

STORM WATER DRAINS AND M.H.S

WATER MAINS AND VALVES

ELECTRICITY CABLES

TELKOM CABLES

OIL PIPELINES

CONSTRUCTION INFORMATION

| | |
|------------------|--|
| MAINLAYER | |
| START DATE | |
| FINISH DATE | |
| W/O NUMBER | |
| LEVEL OF SERVICE | |
| SUPERVISOR NAME | |
| CONTACT NUMBER | |
| DATE SENT TO GIS | |
| GIS INFORMATION | |
| DATE RECEIVED | |
| NAME | |

| | | |
|---|-----------|----------------------|
| B | MAR 2025 | ISSUED FOR TENDER |
| A | AUG 2024 | ISSUED FOR SIGNATURE |
| Revision | Date | Description |
| NOTE: No construction work to commence until land and servitude acquisitions have been completed | | |
| Acquisitions completed: | | |
| Date | Engineer | NORTH POINT |
| UNDERGROUND SERVICES CHECKED - SERVICE | | |
| DATE | SIGNATURE | |
| S.W DRAINS | | |
| SEWERS | | |
| WATERMANS | | |
| TELKOM CABLES | | |
| ELECTRIC CABLES | | |
| S.A.R CABLES | | |
| E.S.C CABLES | | |
| OIL PIPE LINE | | |
| NOTE: Only underground services affected by new construction are shown. Care must be taken during excavations for road foundations, trenches etc. to avoid damage to underground services such as sewers, drains, cables, watermains and connections. Wherever possible these must be located before work begins. | | |

Contract No. 30583-5W

Project No. X8108

Planning Unit MOUNT EDGEcombe NORTH

Ward No. 35, 48 & 102

Project Title

BLACKBURN TO PHOENIX 1 LOAD SHIFT PIPELINE

Drawing Title

STANDARD REFERENCE DRAWINGS No. 05, 06, 28, 31, 32, 48, 55, 117 & 118

Scale: 1:100 & 1:500

Designed: L.KHOMO

Checked: R.CANNY

Area Engineer

Manager (Water Design)

Deputy Head (Engineering)

E. MSWELI - Head (W & S)

60440 Drawing No. 19 Sheet B Rev.

NOTES:

- ALL EXPOSED EDGES TO BE CHAMFERED 20 x 20mm UNLESS OTHERWISE NOTED.
- ALL MEASUREMENTS TO BE CONFIRMED WITH THE ENGINEER IF UNKNOWN.
- EXPOSED EXTERNAL SIDES OF CHAMBER TO BE PAINTED WITH 2 COATS OF PLASTICISED PAINT COLOUR FOREST GREEN (SABS 1091, TABLE 1, GROUP H09).
- EXPOSED EXTERNAL SIDES OF ROOF SLABS, VALVE COVERS, AIR VENTS AND MANHOLE LIDS WITH CONCRETE ENCASING TO BE PAINTED WITH 2 COATS OF PLASTICISED PAINT COLOUR "GOLDEN YELLOW" (SABS 1091, TABLE 1, GROUP B49).
- ALL PIPE FITTINGS AND SPECIALS TO BE PAINTED WITH ONE COAT OF UNIVERSAL UNDERCOAT AND 2 COATS OF "NAVY BLUE" ENAMEL PAINT.
- AREA AROUND STRUCTURE TO BE SHAPED TO AVOID PONDING OF WATER AGAINST STRUCTURE. EMBANKMENTS TO BE SLOPED 1V:1.5H.
- AIR VENT ASSEMBLIES TO BE WELDED AND HOT-DIP GALVANISED.

PIPEWORK:

- ALL MATERIAL TO BE SANS APPROVED.
- ALL BOLTS SHALL BE HEAVY DUTY HOT-DIP GALVANISED TO ISO 1481 AND SANS 121.
- CONTRACTOR TO SUBMIT SHOP DRAWINGS OF ALL PIPE SPECIALS FOR APPROVAL BY ENGINEER.
- ALL PIPE FITTINGS TO BE CHECKED AGAINST CIVIL WORKS. ANY DISCREPANCIES TO BE REPORTED TO THE ENGINEER PRIOR TO MANUFACTURE.
- ALL PIPE SPECIALS SHALL BE MANUFACTURED FROM GRADE X42 OR CLASS C (SANS 719) STEEL.
- FLANGES ARE TO BE DRILLED ACCORDING TO SANS 1123 TABLE 1600. FLANGES NOT COVERED WITH SANS 1123 SHOULD COMPLY WITH ASME B16.47-2006 TABLE 31 CLASS.
- ALL MILD STEEL AND STEEL PIPEWORK TO BE LINED AND COATED WITH EPOXY/PU/SAN OR SIMILAR APPROVED TO A MINIMUM DRY FILM THICKNESS OF 300 MICRONS.

CORROSION PROTECTION:

- ALL CORROSION PROTECTION TO BE DONE IN ACCORDANCE WITH EWS SPECIFICATION.
- DAMAGED COATING AND LININGS SHALL BE REPAIRED IN ACCORDANCE WITH THE SPECIFICATIONS.
- ALL SPECIALS ENCASED IN CONCRETE TO BE WRAPPED IN "DENSE ULTRAFLEX" OR SIMILAR APPROVED, WRAPPING TO EXTEND 150mm FROM FACE OF WALL ON EACH SIDE.

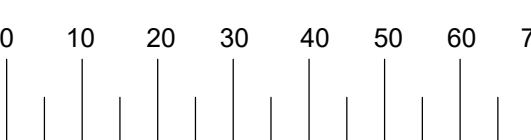
CIVIL WORK:

- CONCRETE GRADE FOR CHAMBER TO BE 30/19 (STRENGTH AT 30MPa WITH 19mm STONE AFTER 28 DAYS).
- CONTRACTOR TO RIP EXISTING SOIL AND RECOMPACT FOUNDING MATERIAL TO 95% MOD.AASHTO BEFORE CASTING BLINDING LAYER. ENGINEER TO INSPECT AND APPROVE.
- FOUNDATIONS TO HAVE 50mm THICK BLINDING LAYER OF GRADE 15/26 CONCRETE BEFORE BASE REINFORCEMENT IS PLACED.
- BACKFILL MATERIAL TO BE COMPACTED TO 90% MOD.AASHTO IN MAXIMUM 150mm LAYERS.
- REINFORCED SURFACES TO BE STEEL FLOATED.
- REINFORCING STEEL BARS TO ADHERE TO SANS 920:2011.
- COVER TO REINFORCING BARS TO BE 50mm.
- PIPEWORK AND FITTINGS TO BE INSTALLED BEFORE CONSTRUCTING THE CHAMBER.
- SURFACE PREPARATION SUCH AS CHISELING TO BE DONE BEFORE CASTING IN-SITU CONCRETE OVER GAS-BREAKER PIPE.
- DAMP PROOF MATERIAL TO BE PLACED ABOVE BLINDING LAYER AND ON EXTERIOR WALLS (SOIL FACE).
- ROOF SLAB TO BE CAST ON SHUTTERS.

ETHEKWINI WATER
AND SANITATION

WATER DESIGN BRANCH

REDUCED PLAN USE SCALE BELOW



70mm ON ORIGINAL PLAN

LEGEND:

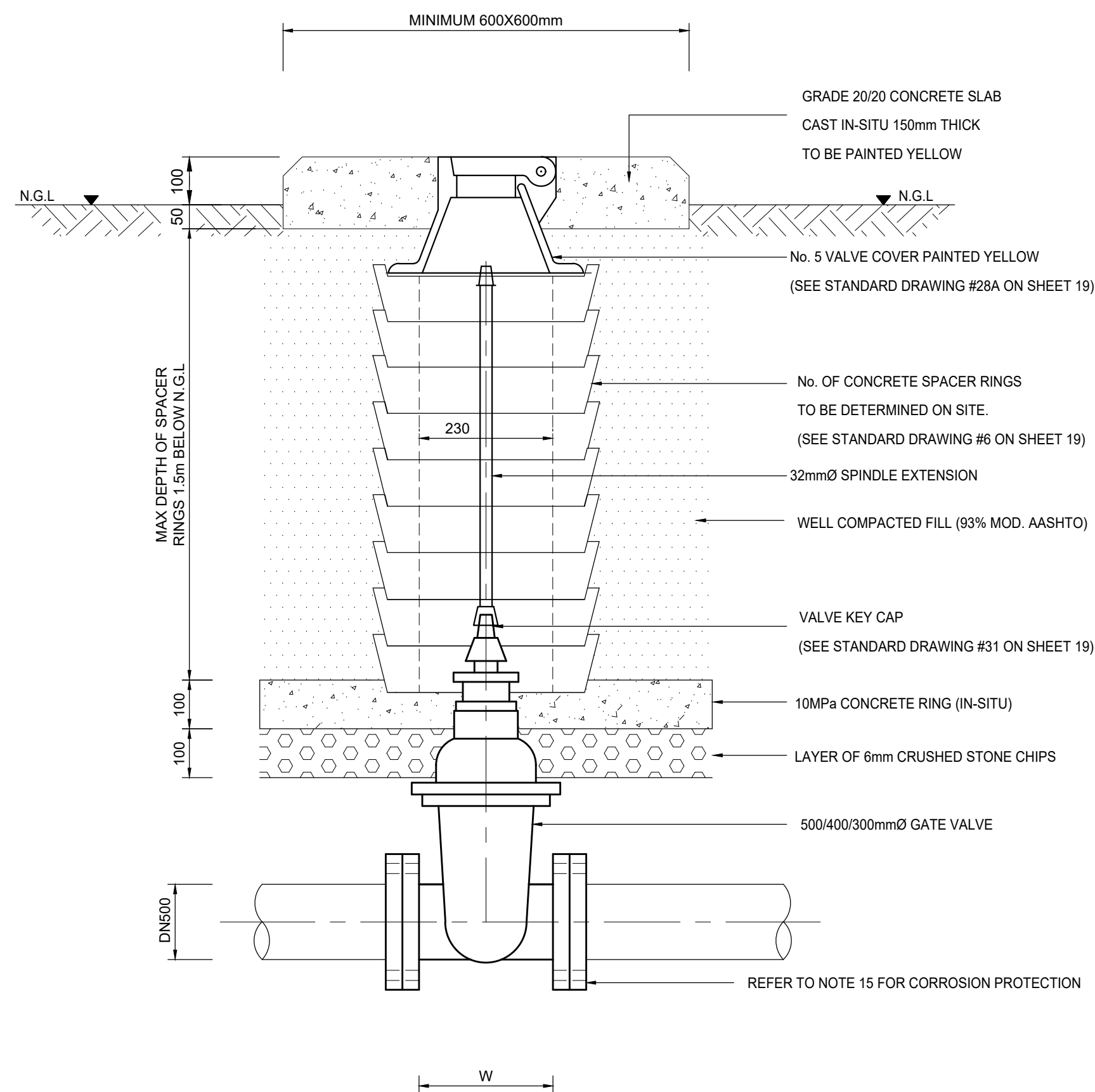
E/W - EACH WAY
E-F - EACH FACE
N-F - NEAR FACE
ALT - ALTERNATE
ABR - ALTERNATE BAR REVERSED
STO - STAGGER
TOP - TOGETHER
PRS - IN PAIRS
T - TOP
B - BOTTOM

REINFORCEMENT LAYER NUMBERS

B1 - 1ST (LOWEST) LAYER
B2 - 2ND LOWEST LAYER etc.
T1 - 1ST (TOPMOST) LAYER
T2 - 2ND LAYER DOWN etc.

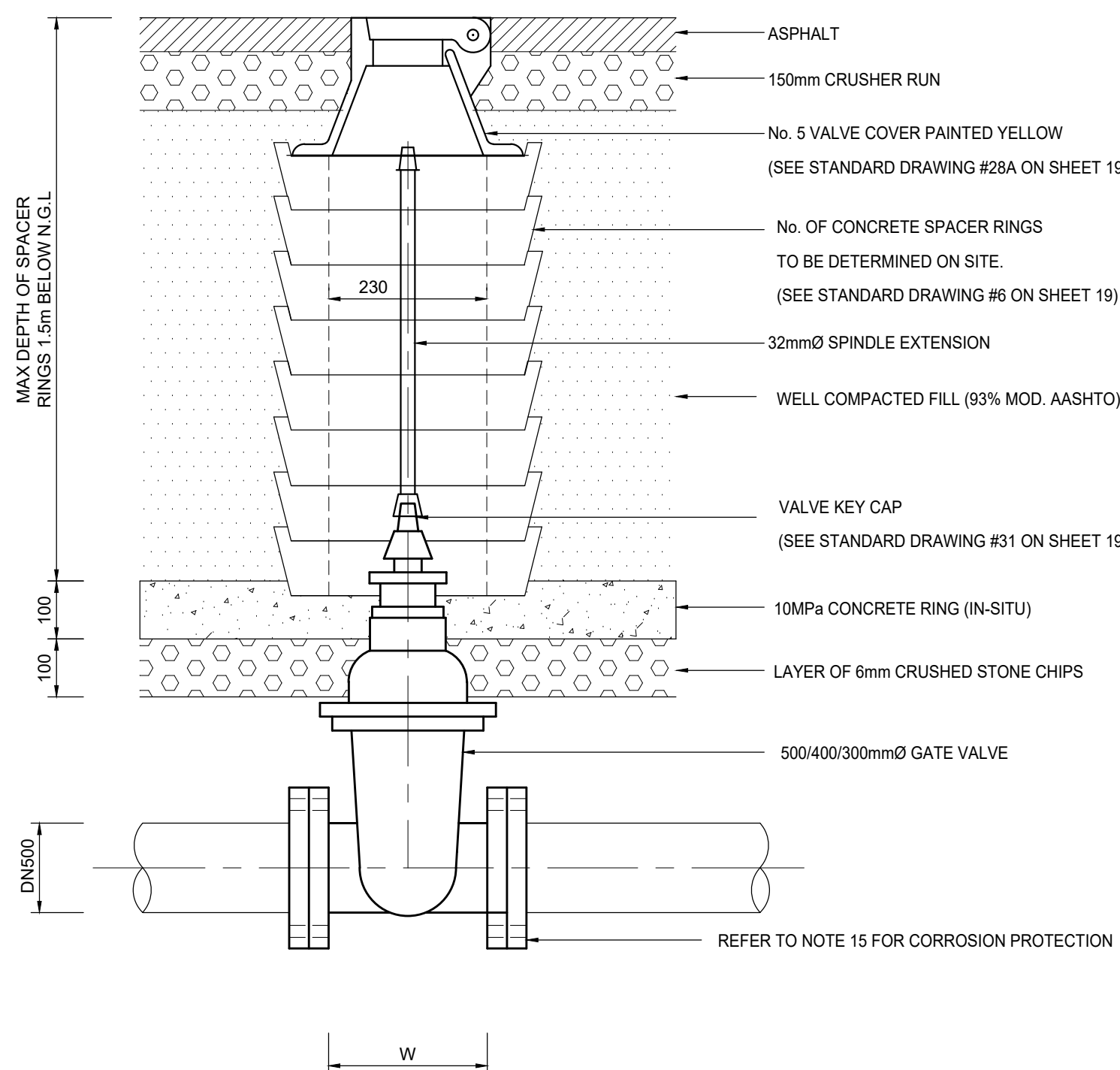
CONSTRUCTION INFORMATION

| | |
|------------------|-----|
| MAIN LAYER | |
| START DATE | --- |
| FINISH DATE | --- |
| W/O NUMBER | |
| LEVEL OF SERVICE | |
| SUPERVISOR NAME | |
| CONTACT NUMBER | |
| DATE SENT TO GIS | |
| GIS INFORMATION | |
| DATE RECEIVED | |
| NAME | |



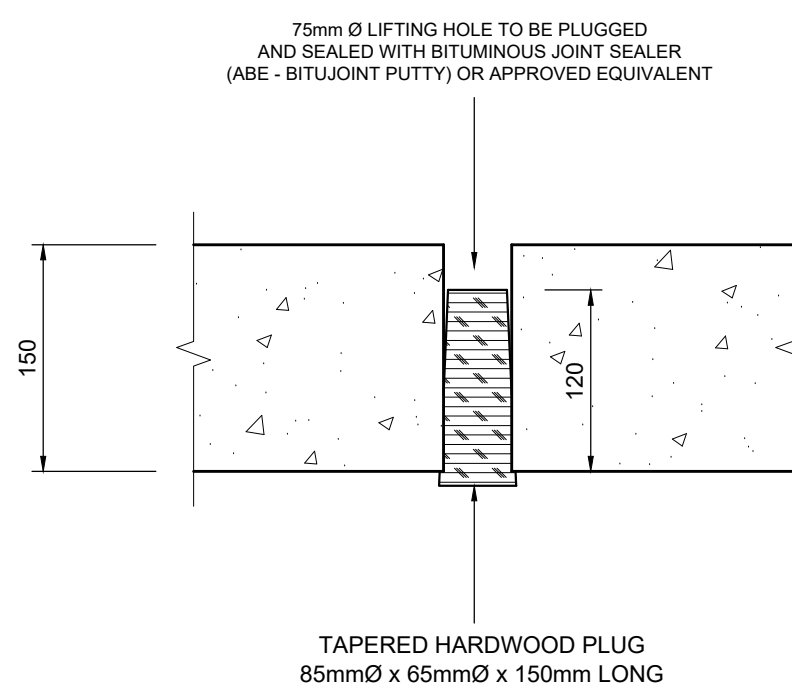
SECTIONAL ELEVATION ON
ISOLATION VALVE ASSEMBLY
"OFF ROAD" TYPE A

SCALE: NTS



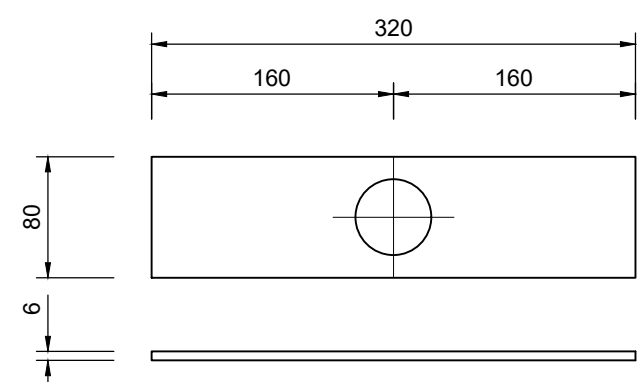
SECTIONAL ELEVATION ON
ISOLATION VALVE ASSEMBLY
"ON ROAD" TYPE A

SCALE: NTS



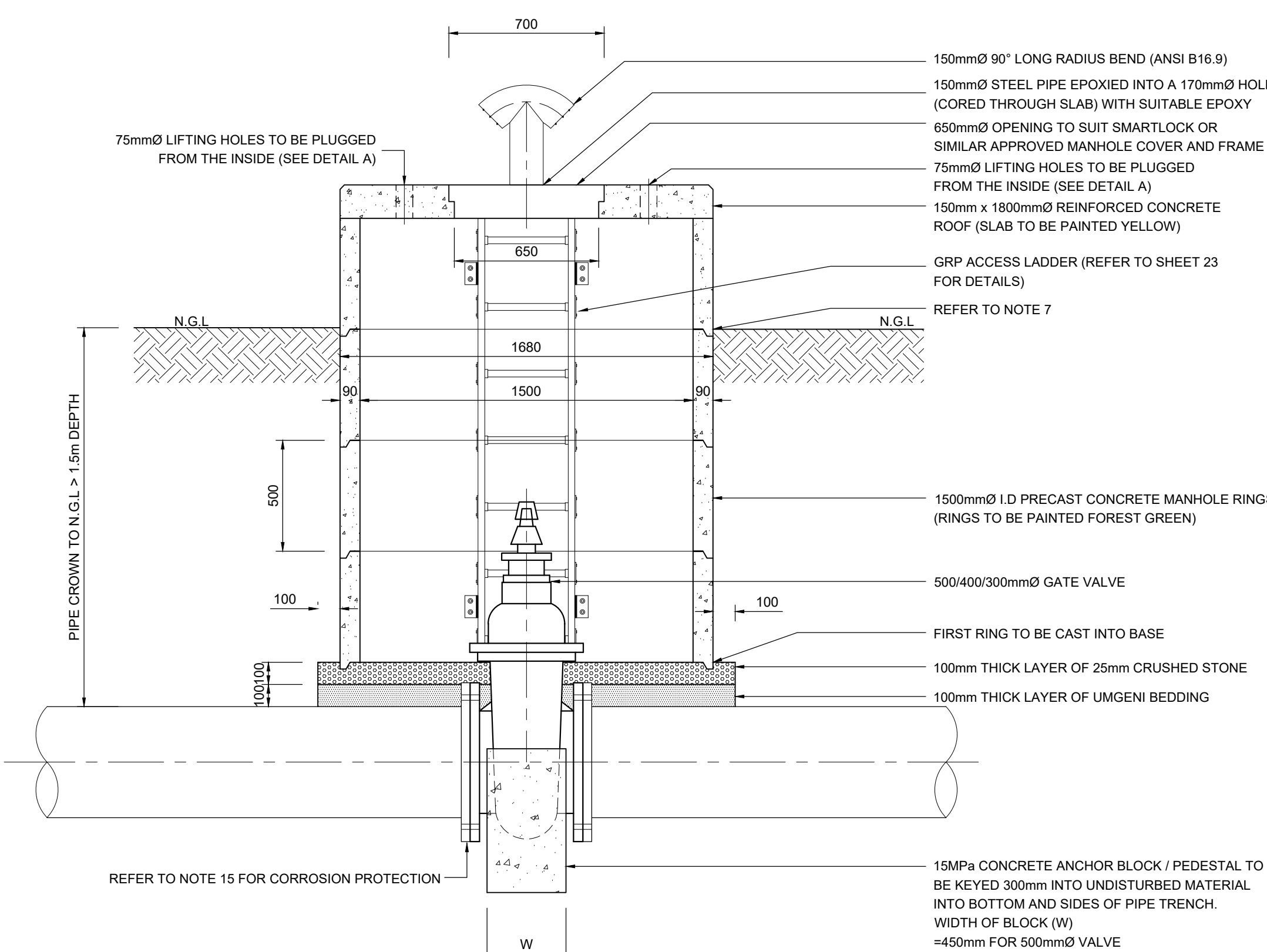
DETAIL "A"

SCALE: 1:5



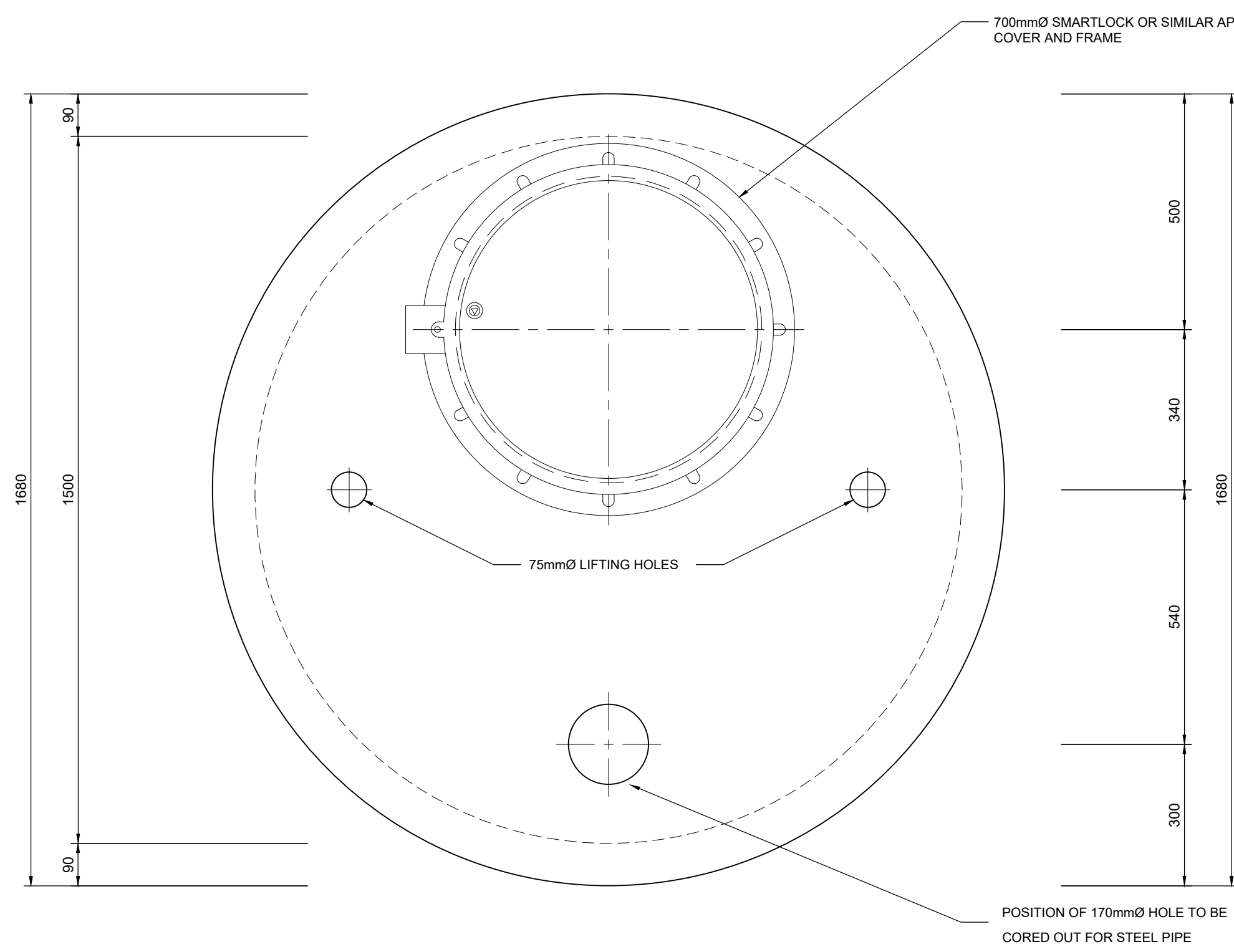
VALVE KEY EXTENSION
HOLDER PLATE

SCALE: 1:5



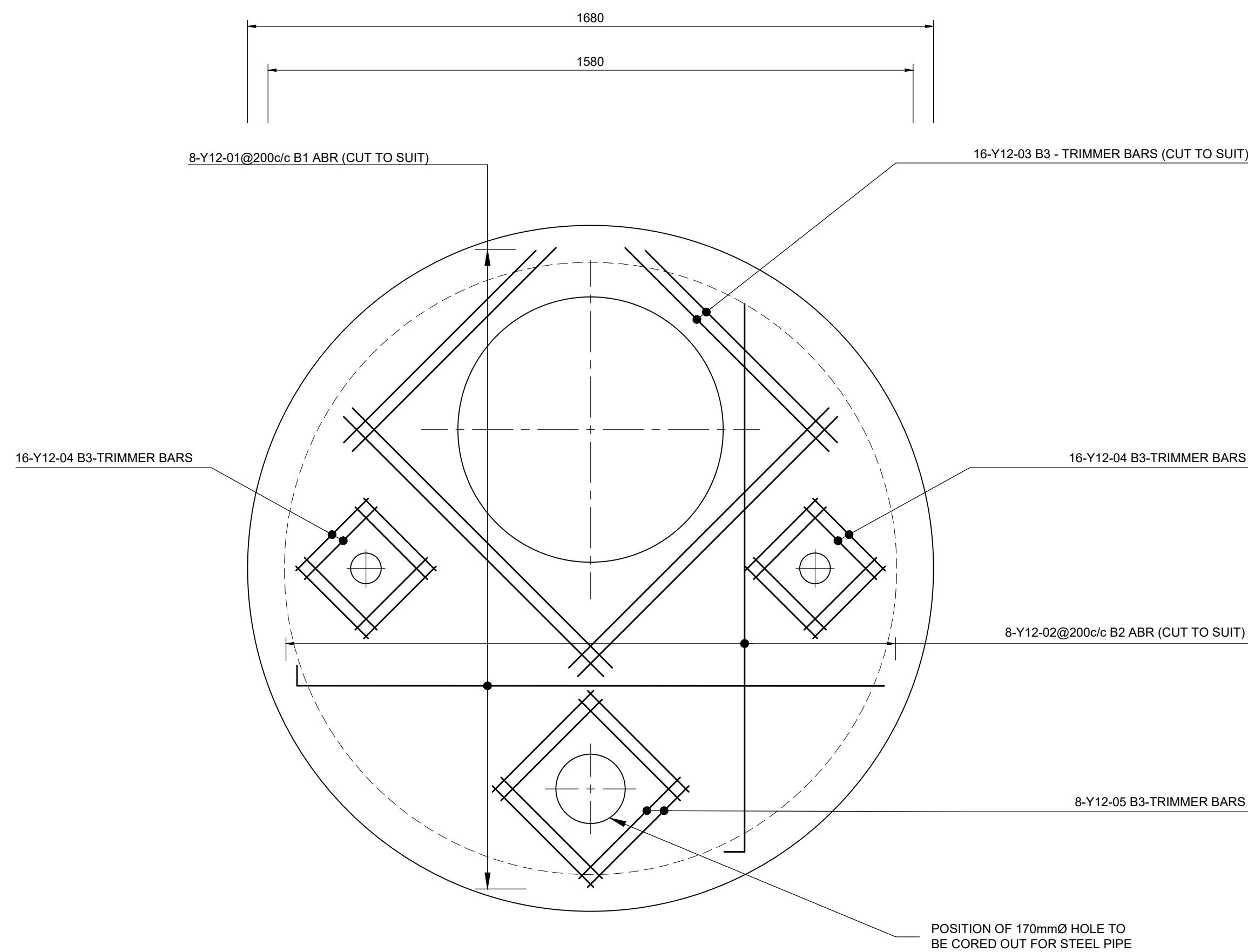
SECTIONAL ELEVATION ON
ISOLATION VALVE ASSEMBLY
"OFF ROAD" -TYPE B

SCALE: 1:20



PLAN OF REINFORCED
CONCRETE ROOF SLAB

SCALE: 1:10



REINFORCED CONCRETE
ROOF SLAB

SCALE: 1:10

| ISOLATION VALVE CHAMBER BENDING SCHEDULE | | | | | | | | | | | | |
|--|----------|-------------|-------------|---------|-----------|------------|--------------------|------|--------------|------------|------|--|
| STRUCTURAL MEMBER | BAR MARK | TYPE & SIDE | No. OF BARS | | LENGTH mm | SHAPE CODE | BENDING DIMENSIONS | | TOTAL LENGTH | TOTAL MASS | | |
| | | | No. | MEMBERS | | | A mm | B mm | | | | |
| REINFORCED CONCRETE ROOF SLAB | 1 | Y 12 | 1 | 8 | 1615 | 37 | 50 | 1580 | 12.9 | 11.5 | | |
| | 2 | Y 12 | 1 | 8 | 1615 | 37 | 50 | 1580 | 12.9 | 11.5 | | |
| | 3 | Y 12 | 1 | 16 | 900 | 20 | 900 | | 14.4 | 12.78 | | |
| | 4 | Y 12 | 2 | 8 | 16 | 250 | 20 | 250 | | 4.0 | 3.55 | |
| | 5 | Y 12 | 1 | 8 | 340 | 20 | 350 | | 2.6 | 2.3 | | |
| | | MASS (kg) | TYPE | | R32 | 41.6 | | | | 0.0 | | |
| | | | M.S. | | | | | | | 0.0 | | |
| | | | H.T. | | | | | | | 0.0 | | |
| TOTAL REINFORCING STEEL REQUIRED FOR CHAMBER | | | | | | | | | | 41.6 | | |
| MILD STEEL REINFORCEMENT (kg) | | | | | | | | | | 0.00 | | |
| HIGH TENSILE REINFORCEMENT (kg) | | | | | | | | | | 41.62 | | |

B MAR 2025 ISSUED FOR TENDER
A AUG 2024 ISSUED FOR SIGNATURE

Revision Date Description

NOTE: No construction work to commence until land and servitude acquisitions have been completed

Acquisitions completed:

Date:

Engineer:

UNDERGROUND SERVICES CHECKED -

SERVICE DATE SIGNATURE

S.W DRAINS

SEWERS

WATERMANS

TELKOM CABLES

ELECTRIC CABLES

S.A.R CABLES

E.S.C CABLES

OIL PIPE LINE

NOTE: Only underground services affected by new construction are shown. Care must be taken during excavations for road foundations, trenches etc. to avoid damage to underground services such as sewers, drain cables, watermains and connections. Wherever possible these must be located before work begins.

Contract No.

30583-5W

Project No.

X8108

Planning Unit

MOUNT EDGECOMBE NORTH

Ward No.

35, 48 & 102

Project Title

BLACKBURN TO PHOENIX 1

LOAD SHIFT PIPELINE

Drawing Title

DN500/400/300mm FLANGED

ISOLATION GATE VALVE

DETAILS

Scale - AS SHOWN

Designed - L.KHOMO

Checked - R.CANNY

Area Engineer

Manager (Water Design)

Deputy Head (Engineering)

E.MSWILI - Head (W & S)

60440

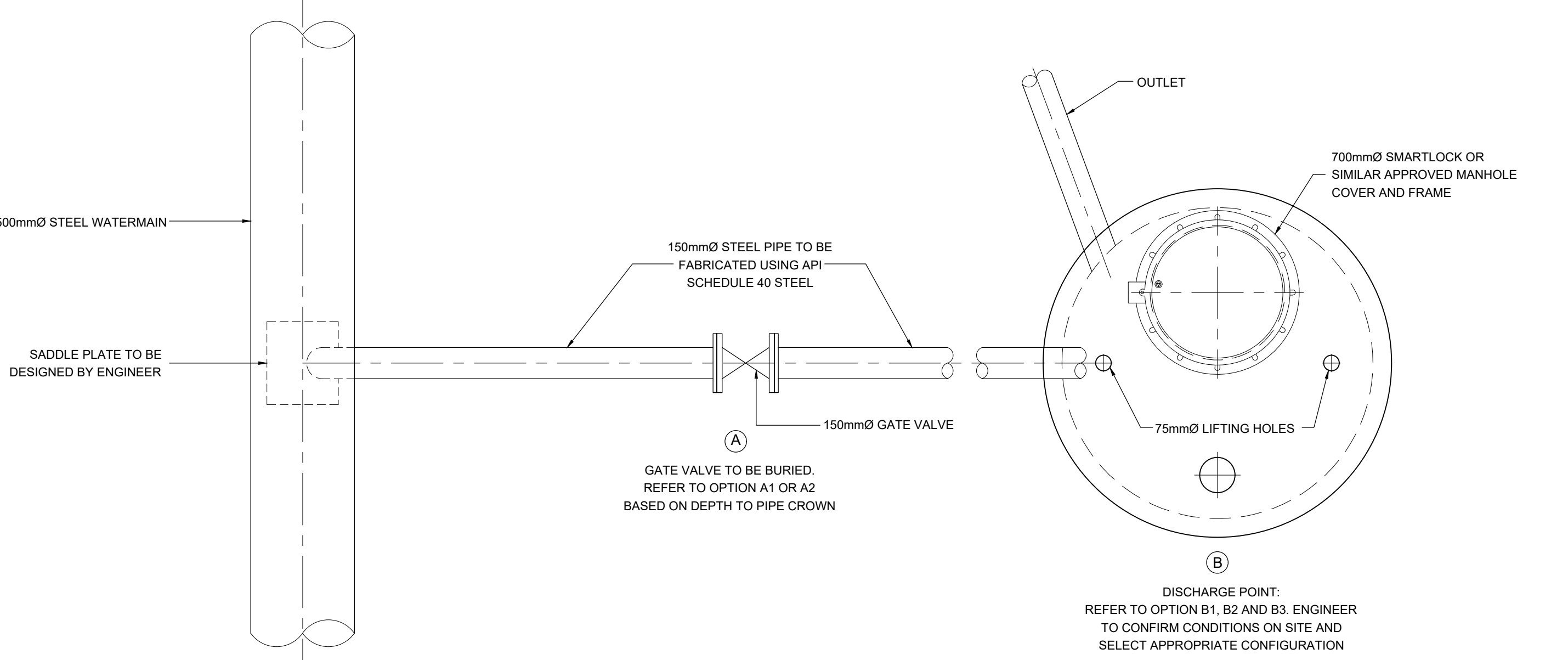
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Sheet

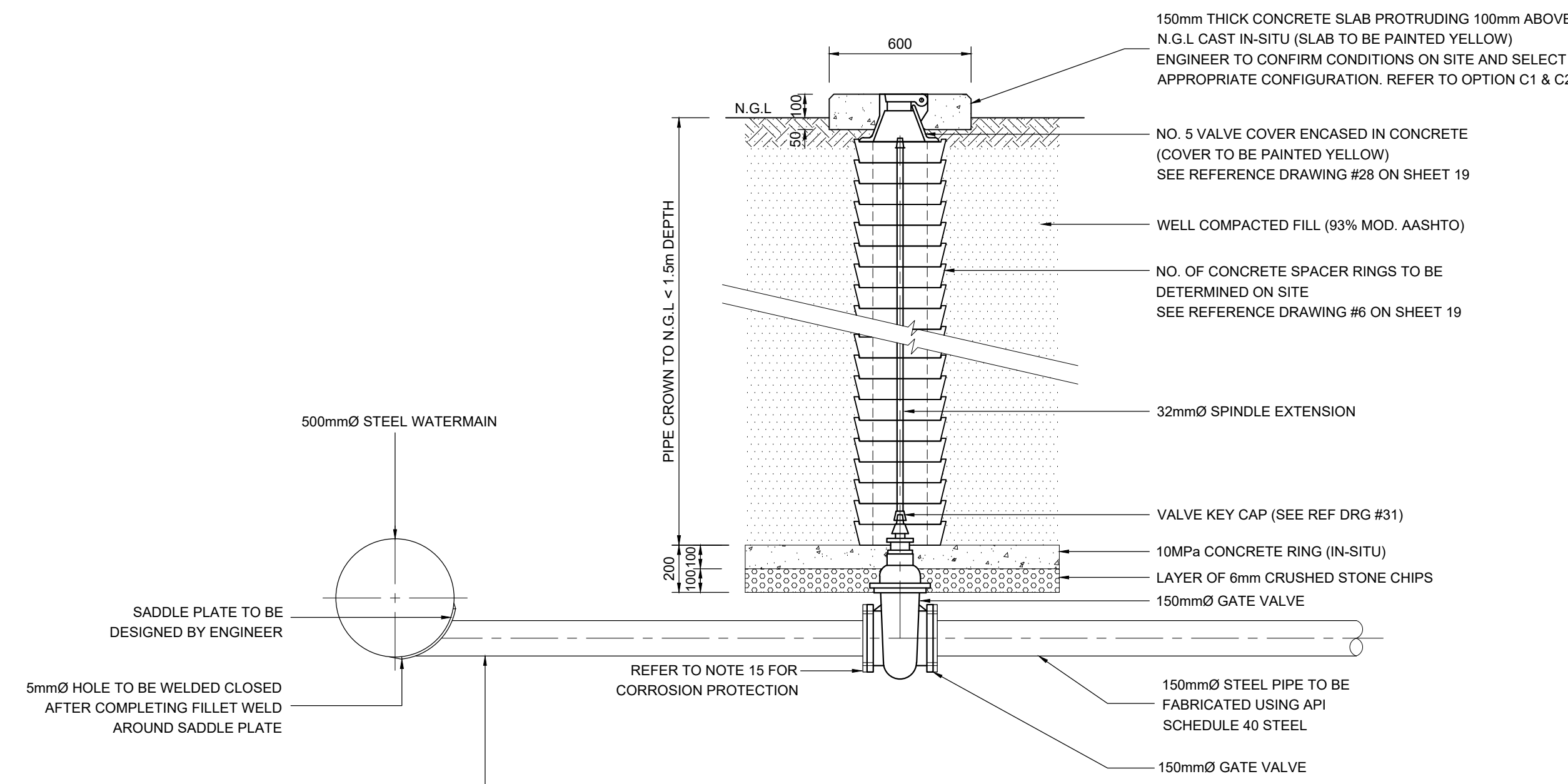
21

B

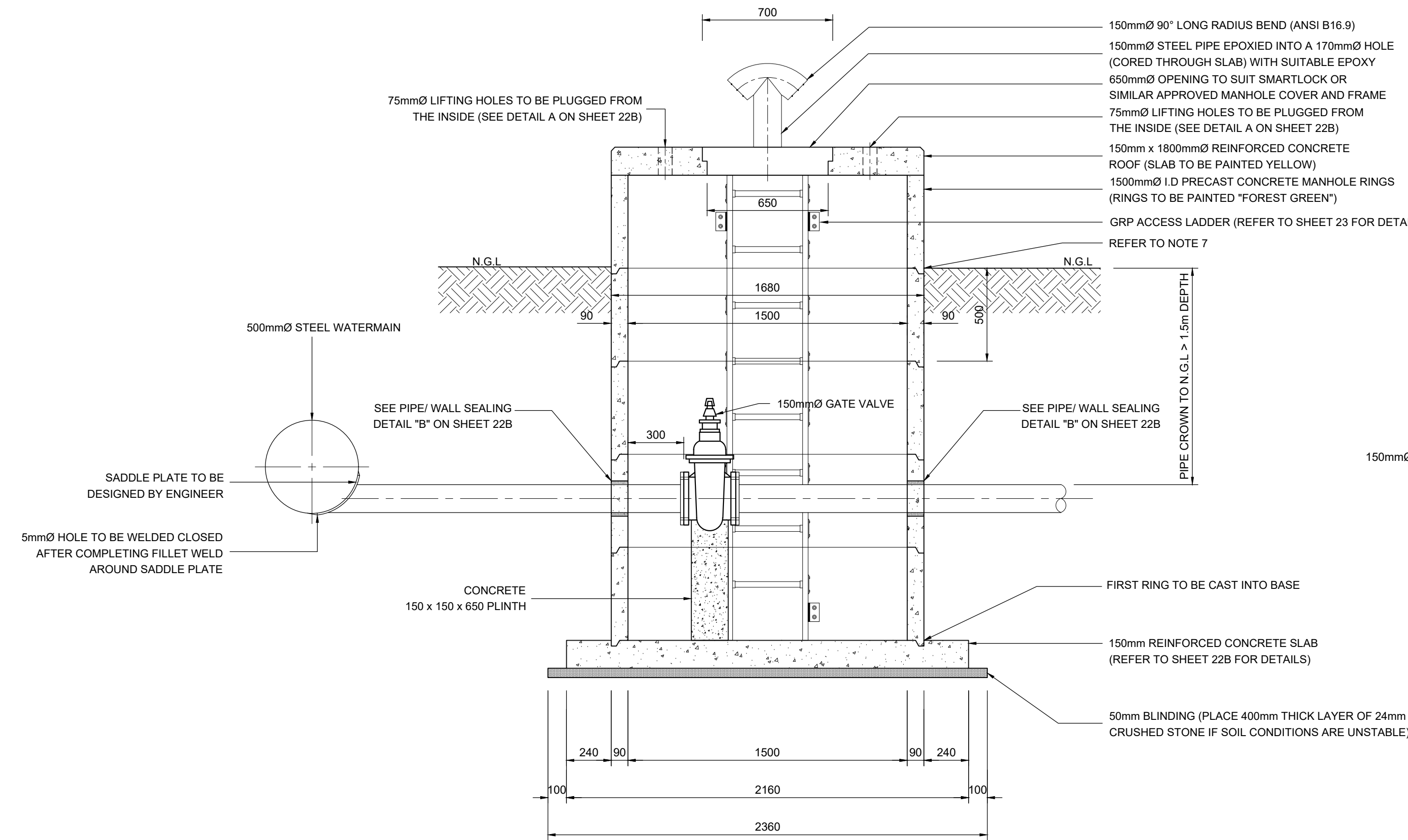
Rev.



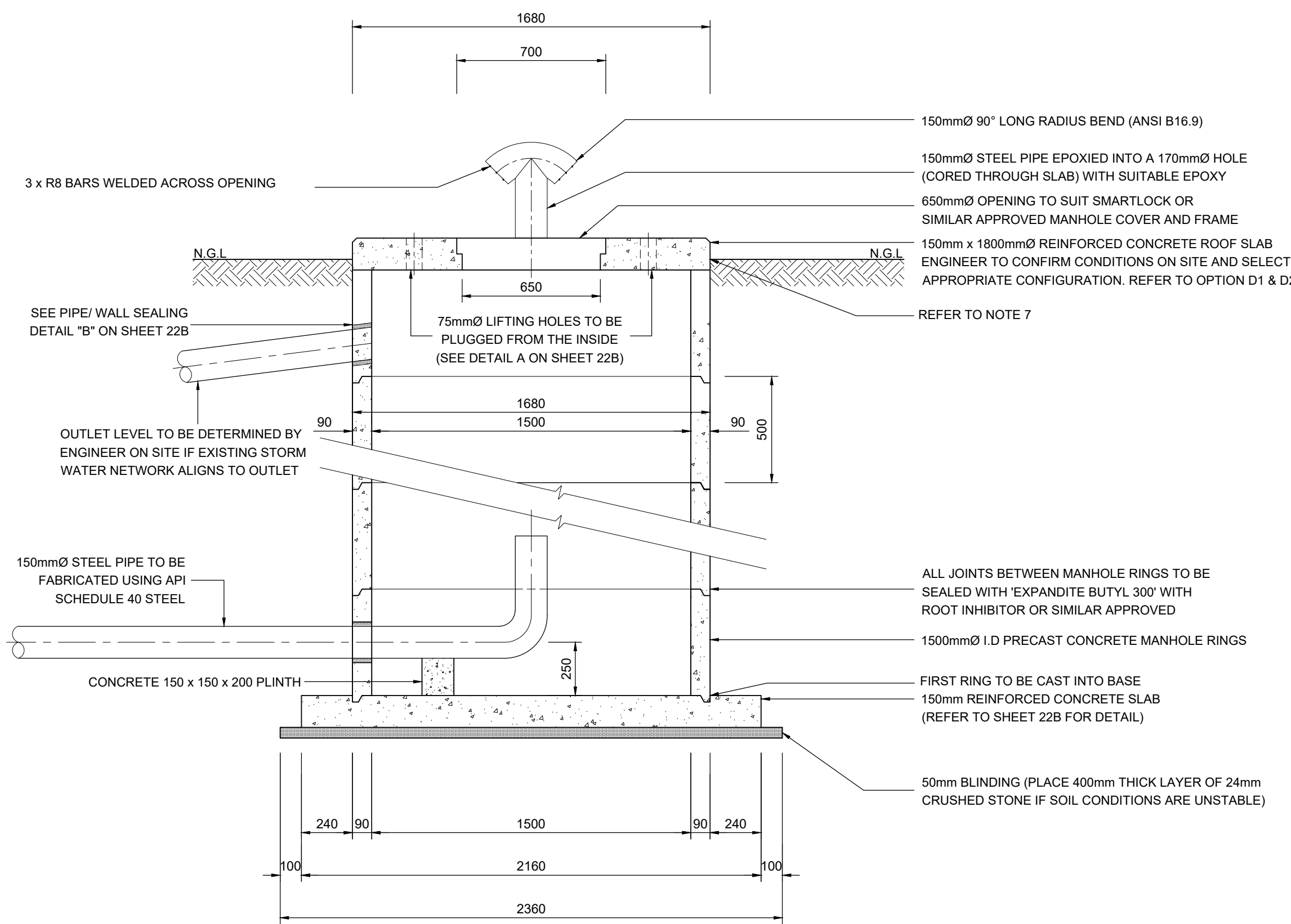
TYPICAL DETAIL OF SCOUR VALVE
SCALE 1:20



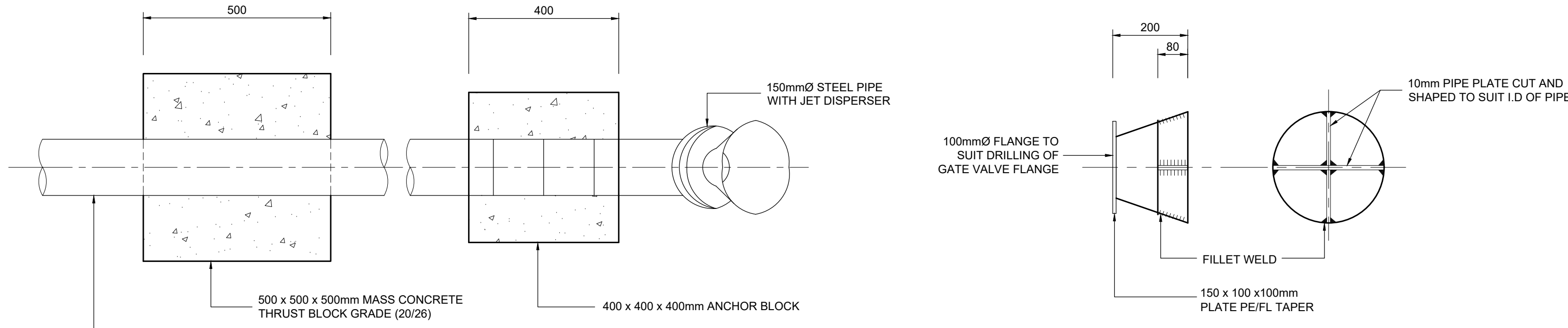
TYPICAL DETAIL OF SCOUR VALVE - TYPE A1
SCALE 1:20



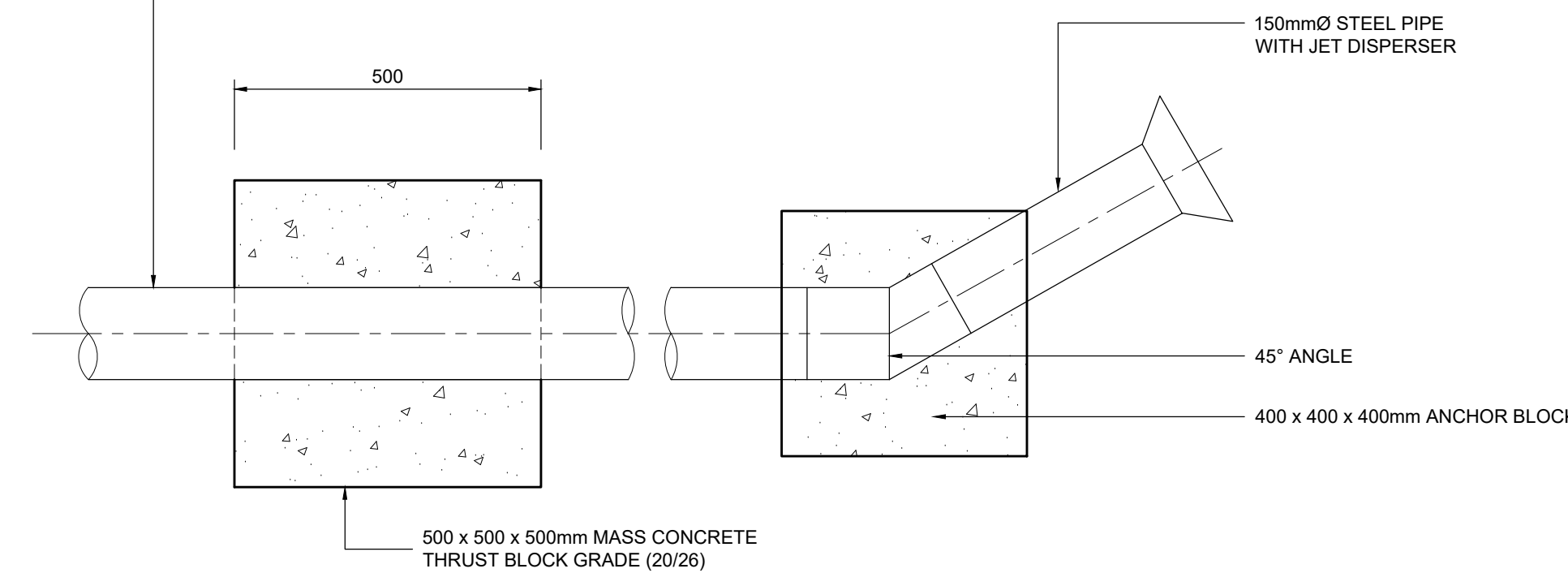
TYPICAL DETAIL OF SCOUR VALVE - TYPE A2
SCALE 1:20



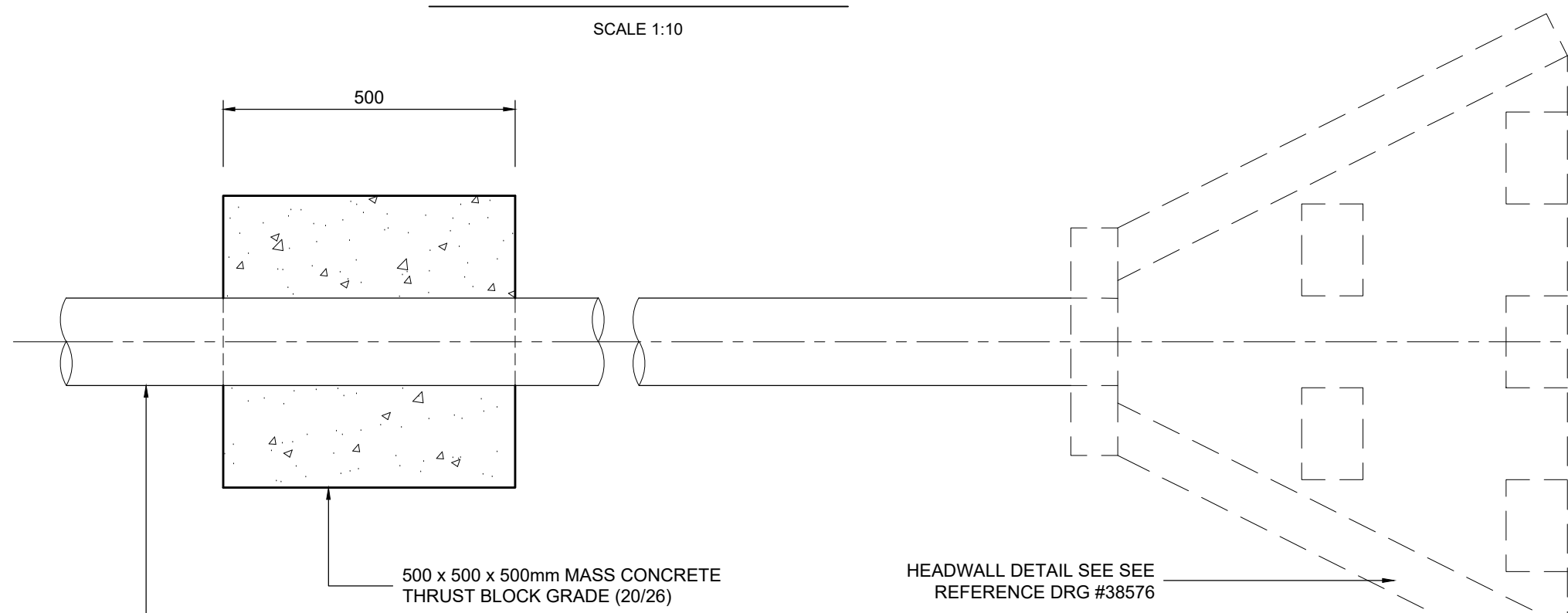
SECTIONAL VIEW OF DISCHARGE CHAMBER - TYPE B1
SCALE 1:20



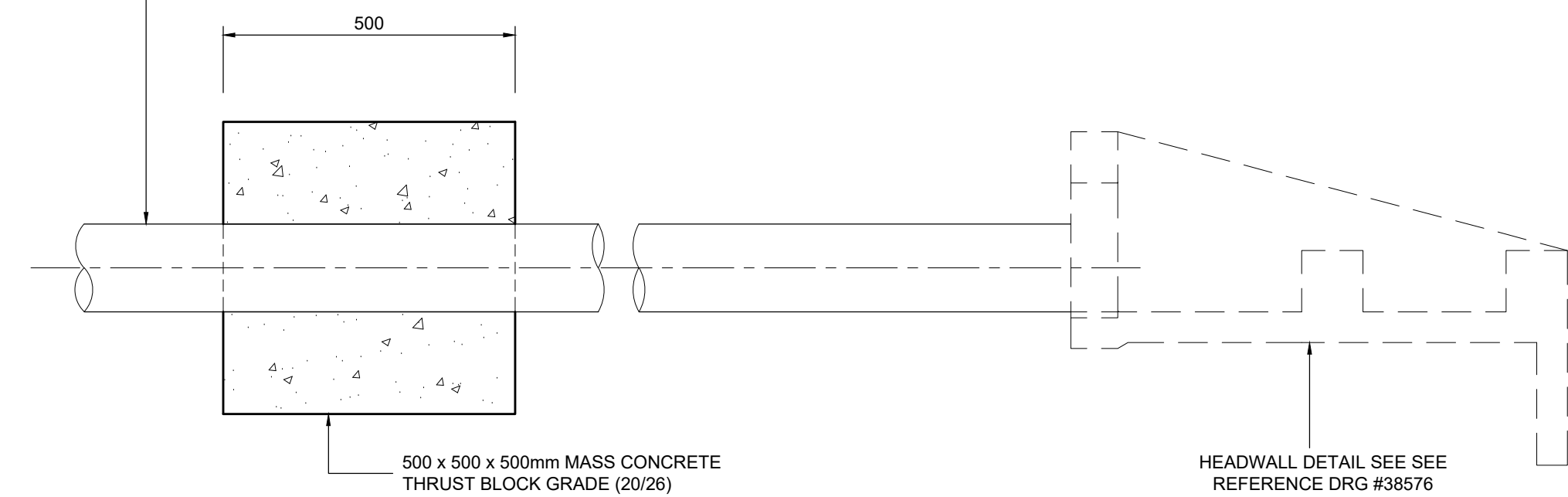
PLAN VIEW OF DISCHARGE JET DISPERSER - TYPE B2
SCALE 1:10



SECTIONAL VIEW OF DISCHARGE JET DISPERSER - TYPE B2
SCALE 1:10

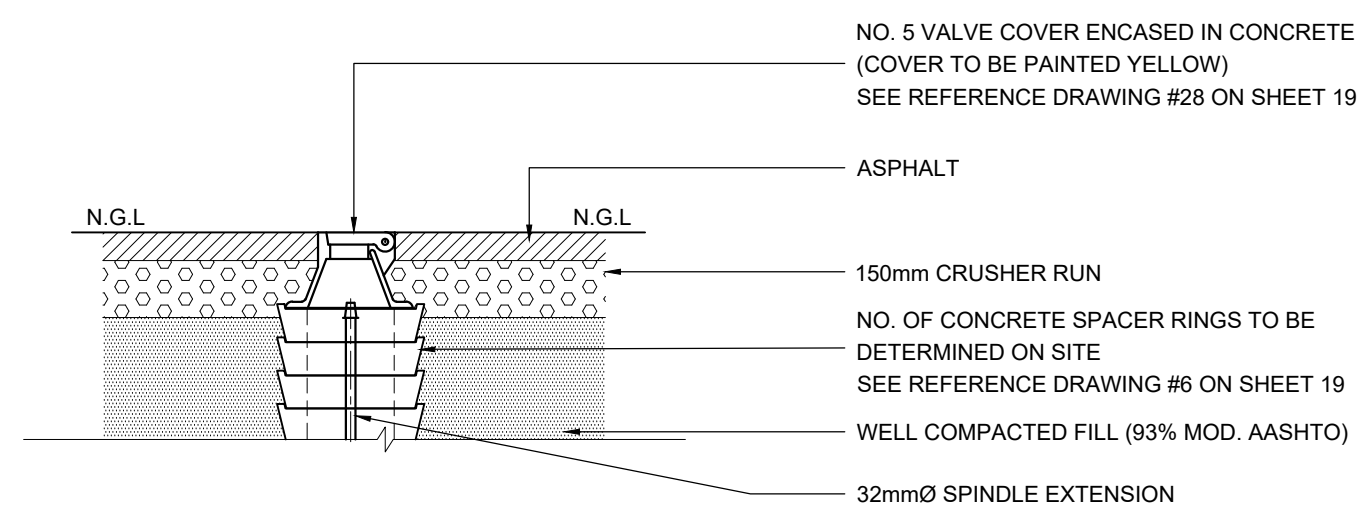


PLAN VIEW OF DISCHARGE HEADWALL - TYPE B3
SCALE 1:10

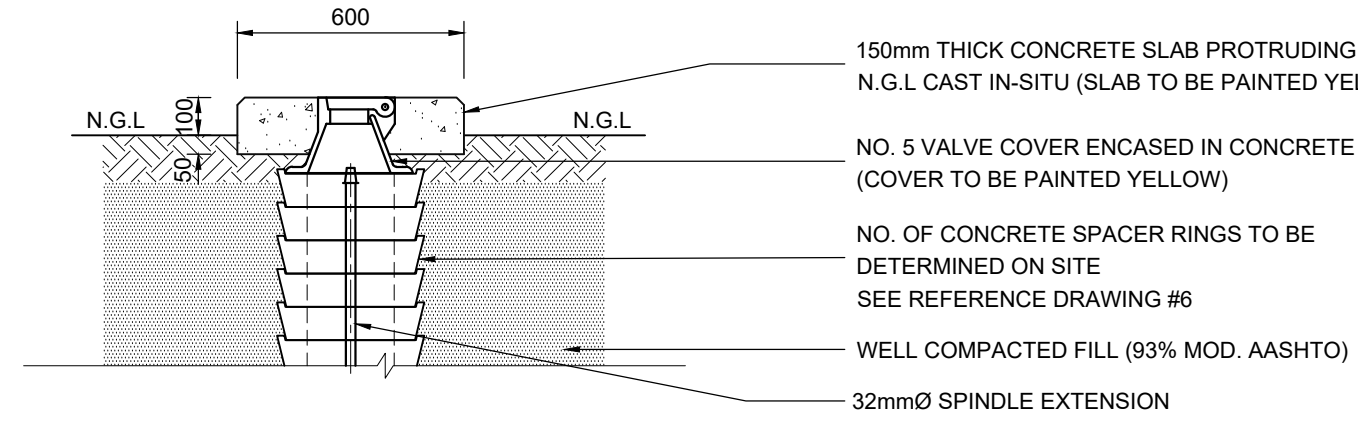


SECTIONAL VIEW OF DISCHARGE HEADWALL - TYPE B3
SCALE 1:10

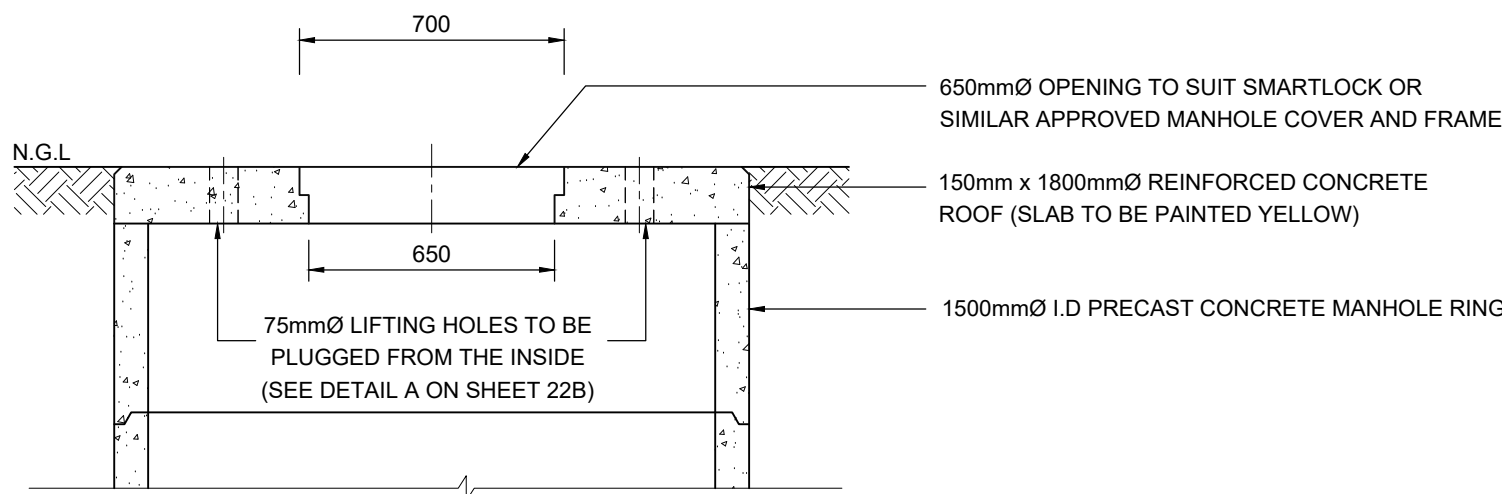
- GENERAL:**
- ALL EXPOSED EDGES TO BE CHAMFERED 20 x 20mm UNLESS OTHERWISE NOTED.
 - ALL MEASUREMENTS TO BE CONFIRMED WITH THE ENGINEER IF UNKNOWN.
 - EXPOSED EXTERNAL SIDES OF CHAMBER TO BE PAINTED WITH 3 COATS OF PLASTICISED PAINT COLOUR FOREST GREEN (SANS 1092, TABLE 1, GROUP K09).
 - EXPOSED EXTERNAL SIDES OF ROOF SLABS, VALVE COVERS, AIR VENTS AND MANHOLE LIDS WITH CONCRETE ENCASING TO BE PAINTED WITH 2 COATS OF PLASTICISED PAINT COLOUR 'GOLDEN YELLOW' (SANS 1092, TABLE 1, GROUP B49).
 - ALL PIPE FITTINGS AND SPECIALS TO BE PAINTED WITH ONE COAT OF UNIVERSAL UNDERCOAT AND 2 COATS OF 'NAVY BLUE' ENAMEL PAINT.
 - AREA AROUND STRUCTURE TO BE SHAPED TO AVOID PONDING OF WATER AGAINST STRUCTURE. EMBANKMENTS TO BE SLOPED 1V:1.5H.
 - AIR VENT ASSEMBLIES TO BE WELDED AND HOT-DIP GALVANISED.
- PIPEWORK:**
- ALL MATERIAL TO BE SANS APPROVED.
 - ALL BOLTS SHALL BE HEAVY DUTY HOT-DIP GALVANISED TO ISO 1481 AND SANS 121.
 - CONTRACTOR TO SUBMIT SHOP DRAWINGS OF ALL PIPE SPECIALS FOR APPROVAL BY ENGINEER.
 - ALL PIPE FITTINGS TO BE CHECKED AGAINST CIVIL WORKS. ANY DISCREPANCIES TO BE REPORTED TO THE ENGINEER PRIOR TO MANUFACTURE.
 - ALL PIPE SPECIALS SHALL BE MANUFACTURED FROM GRADE X42 OR CLASS C (SANS 719) STEEL.
 - FLANGES ARE TO BE DRILLED ACCORDING TO SANS 1123 TABLE 1600. FLANGES NOT COVERED WITH SANS 1123 SHOULD COMPLY WITH ASME B36.47-2006 TABLE 31 CLASS 150.
 - ALL MILD STEEL AND STEEL PIPEWORK TO BE UNED AND COATED WITH EPOXY/RISLAN OR SIMILAR APPROVED TO A MINIMUM DRY FILM THICKNESS OF 300 MICRONS.
- CORROSION PROTECTION:**
- ALL CORROSION PROTECTION TO BE DONE IN ACCORDANCE WITH EWS SPECIFICATION.
 - DAMAGED COATING AND LININGS SHALL BE REPAIRED IN ACCORDANCE WITH THE SPECIFICATIONS.
 - ALL SPECIALS ENCASED IN CONCRETE TO BE WRAPPED IN 'BENSIO ULTRAFLEX' OR SIMILAR APPROVED. WRAPPING TO EXTEND 150mm FROM FACE OF WALL ON EACH SIDE.
- CIVIL WORK:**
- CONCRETE GRADE FOR CHAMBER TO BE 30/19 (STRENGTH AT 30MPa WITH 19mm STONE AFTER 28 DAYS).
 - CONTRACTOR TO RIP EXISTING SOIL AND RECOMPACT FOUNDING MATERIAL TO 95% MOD. AASHTO BEFORE CASTING BUNDLING LAYER. ENGINEER TO INSPECT AND APPROVE.
 - FOUNDATIONS TO HAVE 50mm THICK BUNDLING LAYER OF GRADE 15/26 CONCRETE BEFORE BASE REINFORCEMENT IS PLACED.
 - BACKFILL MATERIAL TO BE COMPACTED TO 90% MOD. AASHTO IN MAXIMUM 150mm LAYERS.
 - REINFORCED SURFACES TO BE STEEL FLOATED.
 - REINFORCING STEEL BARS TO ADHERE TO SANS 920:2011.
 - COVER TO REINFORCING BARS TO BE 50mm.
 - PIPEWORK AND FITTINGS TO BE INSTALLED BEFORE CONSTRUCTING THE CHAMBER.
 - SURFACE PREPARATION SUCH AS CHISELING TO BE DONE BEFORE CASTING IN SITU CONCRETE OVER GMS BREATHING PIPE.
 - DAMP PROOF MATERIAL TO BE PLACED ABOVE BUNDLING LAYER AND ON EXTERIOR WALLS (SOIL FACE).
 - ROOF SLAB TO BE CAST ON SHUTTERS.



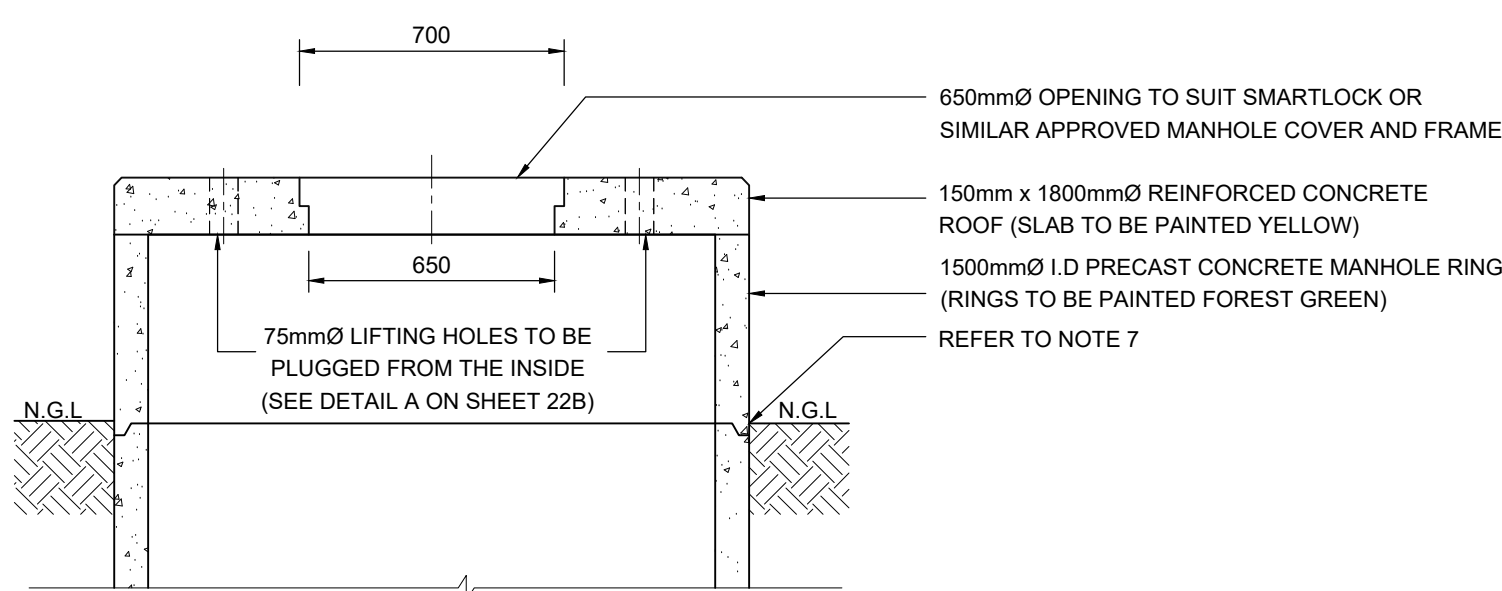
ON ROAD VALVE COVER - TYPE C1
SCALE 1:20



OFF ROAD VALVE COVER - TYPE C2
SCALE 1:20



ON ROAD CHAMBER SLAB - TYPE D1
SCALE 1:20



OFF ROAD CHAMBER SLAB - TYPE D2
SCALE 1:20

ETHEKWINI WATER AND SANITATION

WATER DESIGN BRANCH

REDUCED PLAN USE SCALE BELOW

0 10 20 30 40 50 60 70

70mm ON ORIGINAL PLAN

LEGEND:

E.W - EACH WAY
E.F - EACH FACE
N.F - NEAR FACE
ALT - ALTERNATE
ABR - ALTERNATE BAR REVERSED
STO - STAGGER
TOP - TOGETHER
PRS - IN PAIRS
T - TOP
B - BOTTOM

REINFORCEMENT LAYER NUMBERS

B1 - 1ST (LOWEST) LAYER
B2 - 2ND LOWEST LAYER etc.
T1 - 1ST (TOPMOST) LAYER
T2 - 2ND LAYER DOWN etc.

CONSTRUCTION INFORMATION

| MAIN LAYER | |
|------------------|-----|
| START DATE | --- |
| FINISH DATE | --- |
| W/O NUMBER | --- |
| LEVEL OF SERVICE | --- |
| SUPERVISOR NAME | --- |
| CONTACT NUMBER | --- |
| DATE SENT TO GIS | --- |

GIS INFORMATION

| DATE RECEIVED | NAME |
|---------------|------|
| --- | --- |

| | | |
|---|----------|----------------------|
| B | MAR 2025 | ISSUED FOR TENDER |
| A | AUG 2024 | ISSUED FOR SIGNATURE |
| Revision | Date | Description |
| NOTE: No construction work to commence until land and servitude acquisitions have been completed. | | |
| Acquisitions completed: | | |
| Date | Engineer | NORTH POINT |
| UNDERGROUND SERVICES CHECKED - | | |
| SERVICE | DATE | SIGNATURE |
| S.W DRAINS | | |
| SEWERS | | |
| WATERMANS | | |
| TELECOM CABLES | | |
| ELECTRIC CABLES | | |
| S.A.R CABLES | | |
| E.S.C CABLES | | |
| OIL PIPE LINE | | |
| NOTE: Only underground services affected by new construction are shown. Care must be taken during excavations for road foundations, trenches etc. to avoid damage to underground services such as sewers, drains, cables, watermains and connections. Whenever possible these must be located before work begins. | | |

Contract No. 30583-5W

Project No. X8108

Planning Unit
MOUNT EDGEcombe NORTH

Ward No.
35, 48 & 102

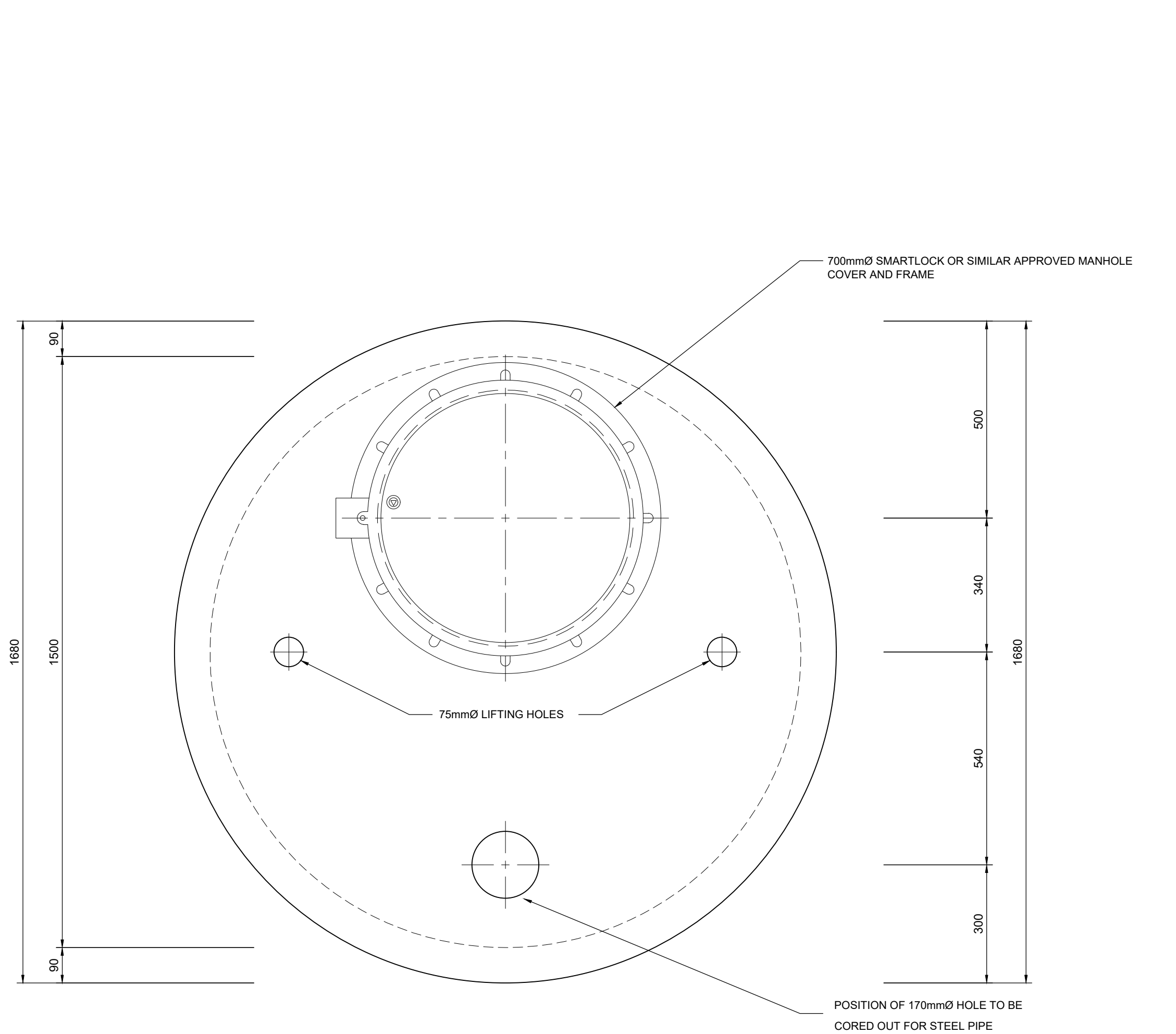
Project Title
**BLACKBURN TO PHOENIX 1
LOAD SHIFT PIPELINE**

Drawing Title
**DN150mm SCOUR VALVE
DETAILS**

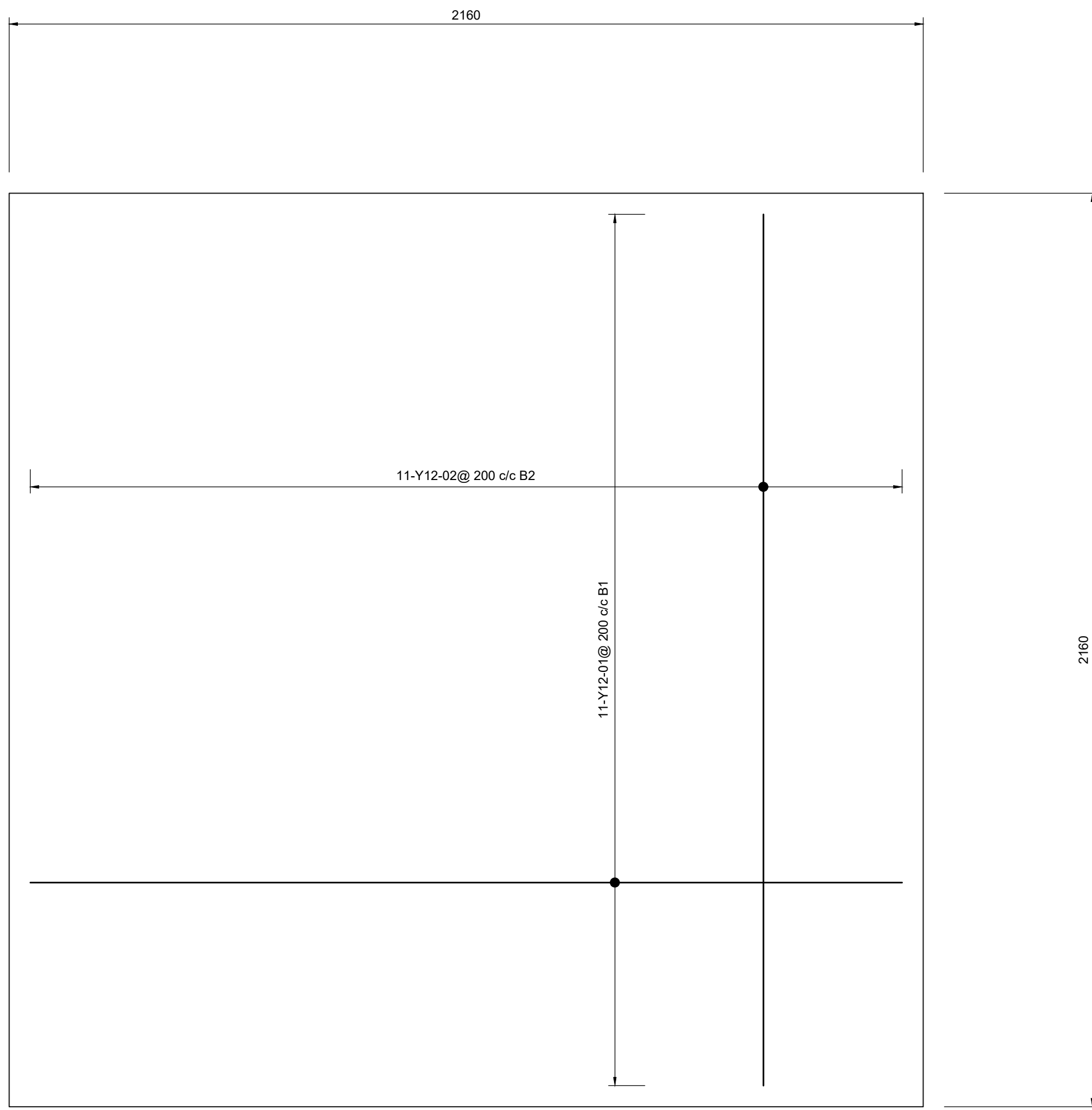
Scale - AS SHOWN
Designed - L.KHOMO
Checked - R.CANNY
Date - AUG 2024
Drawn - S.ZULU

Area Engineer
Manager (Water Design)
Deputy Head (Engineering)

E. MSWELI - Head (W & S)
Drawing No. 60440
Sheet 22A
Rev. B



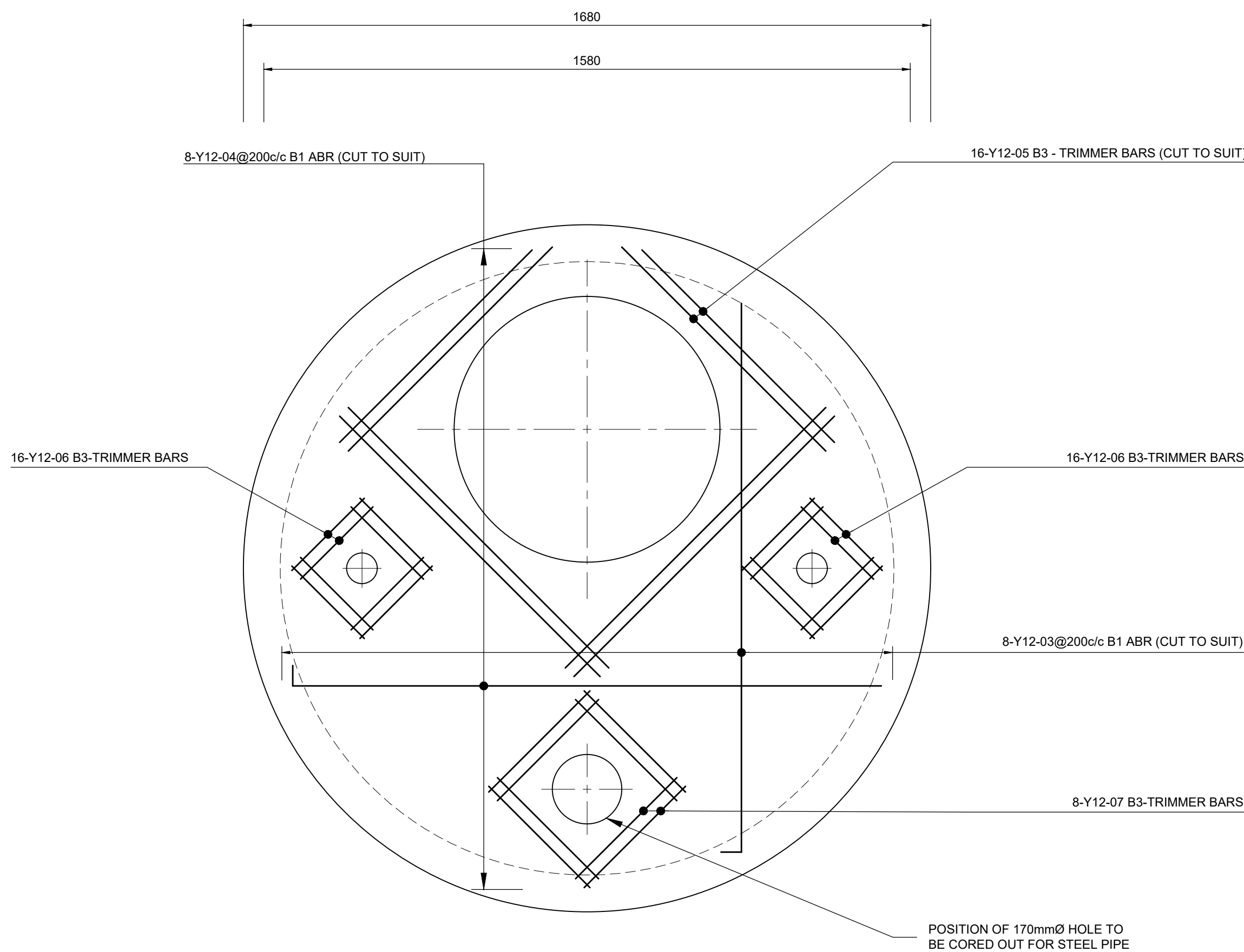
PLAN OF REINFORCED
CONCRETE ROOF SLAB
SCALE 1:10



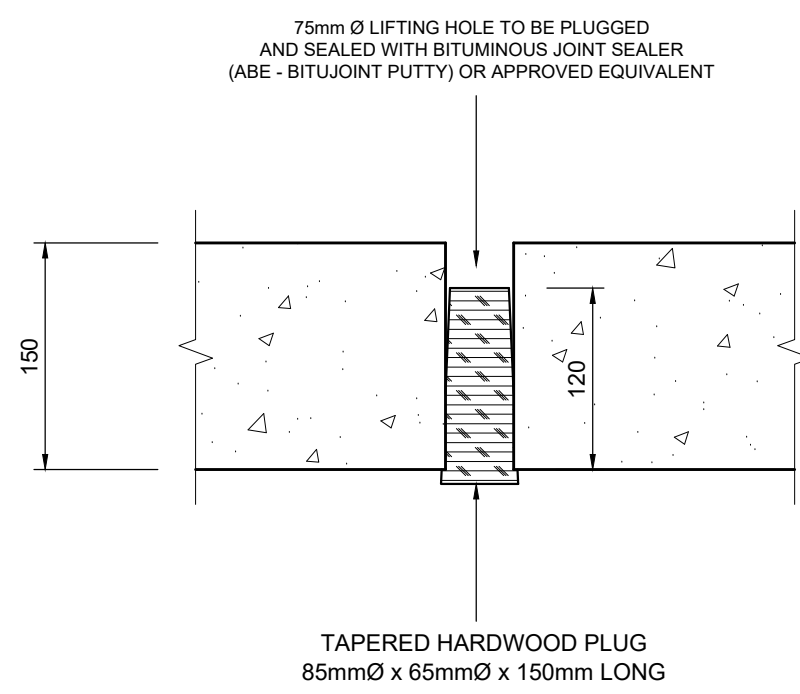
PLAN OF REINFORCING
DETAIL OF CONCRETE
FLOOR SLAB
SCALE 1:10



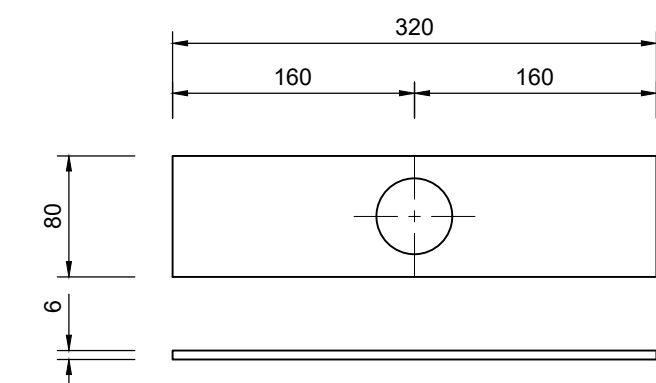
SECTIONAL VIEW OF
REINFORCING DETAIL OF
CONCRETE FLOOR SLAB
SCALE 1:10



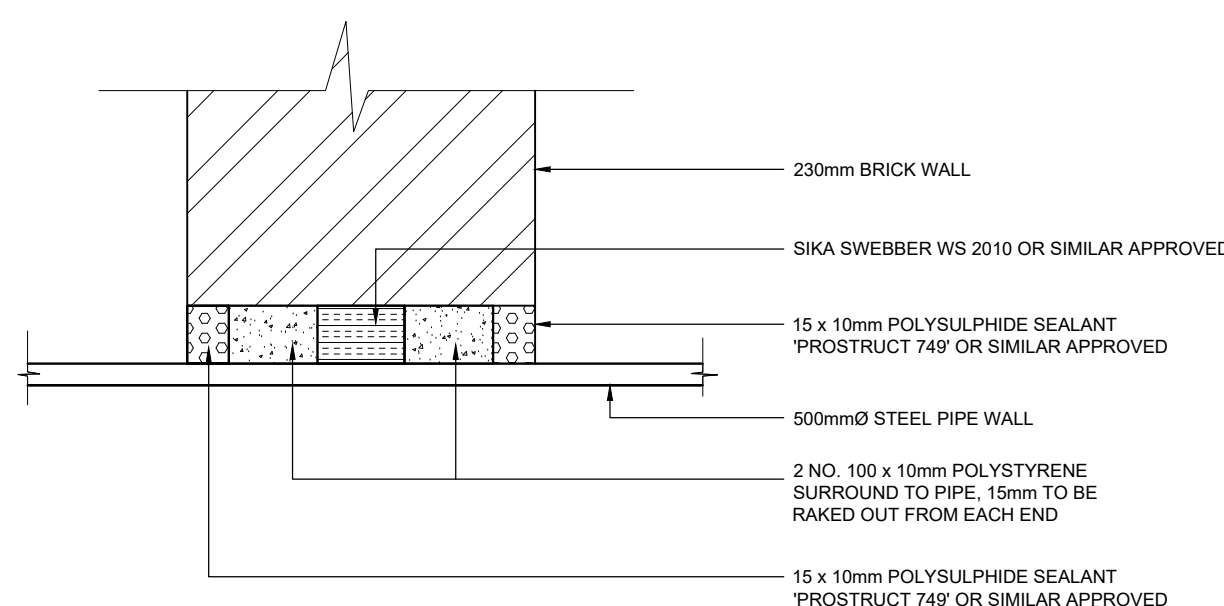
PLAN OF REINFORCED
DETAIL OF CONCRETE
ROOF SLAB
SCALE 1:10



DETAIL "A"
SCALE 1:5



VALVE KEY EXTENSION
HOLDER PLATE
SCALE 1:5



PIPE/WALL SEALING DETAIL "B"
SCALE 1:5

- GENERAL:**
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 - EXPOSED EXTERNAL SIDES OF ROOF SLABS, VALVE COVERS, AIR VENTS AND MANHOLE UDS WITH CONCRETE ENCASING TO BE PAINTED WITH 2 COATS OF PLASTICISED PAINT COLOUR GOLDEN YELLOW (SABS 1091, TABLE 1, GROUP B49).
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 - AREA AROUND STRUCTURE TO BE SHAPED TO AVOID PONDING OF WATER AGAINST STRUCTURE. EMBANKMENTS TO BE SLOPED 1v:1.5H.
 - AIR VENT ASSEMBLIES TO BE WELDED AND HOT-DIP GALVANISED.
- PIPEWORK:**
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 - FLANGES ARE TO BE DRILLED ACCORDING TO SANS 1123 TABLE 1600. FLANGES NOT COVERED WITH SANS 1123 SHOULD COMPLY WITH ASME B16.47-2006 TABLE 31 CLASS 150.
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- CORROSION PROTECTION:**
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 - CONTRACTOR TO RIP EXISTING SOIL AND RECOMPACT FOUNDING MATERIAL TO 95% MOD.AASHTO BEFORE CASTING BLINDING LAYER. ENGINEER TO INSPECT AND APPROVE.
 - FOUNDATIONS TO HAVE 50mm THICK BLINDING LAYER OF GRADE 15/26 CONCRETE BEFORE BASE REINFORCEMENT IS PLACED.
 - BACKFILL MATERIAL TO BE COMPACTED TO 90% MOD.AASHTO IN MAXIMUM 150mm LAYERS.
 - REINFORCED SURFACES TO BE STEEL FLOATED.
 - REINFORCING STEEL BARS TO ADHERE TO SANS 920:2011.
 - COVER TO REINFORCING BARS TO BE 50mm.
 - PIPEWORK AND FITTINGS TO BE INSTALLED BEFORE CONSTRUCTING THE CHAMBER.
 - SURFACE PREPARATION SUCH AS CHISELING TO BE DONE BEFORE CASTING IN-SITU CONCRETE OVER GWS BREATHING PIPE.
 - DAMP PROOF MATERIAL TO BE PLACED ABOVE BLINDING LAYER AND ON EXTERIOR WALLS (SOIL FACE).
 - ROOF SLAB TO BE CAST ON SHUTTERS.

| SCOUR VALVE TYPE A2 "DRY CHAMBER" BENDING SCHEDULE | | | | | | | | | | | |
|--|----------|-------------|-------------|-----------|-----------|------------|--------------------|------|----------------|---------------|------|
| STRUCTURAL MEMBER | BAR MARK | TYPE & SIZE | No. OF BARS | | LENGTH mm | SHAPE CODE | BENDING DIMENSIONS | | TOTAL LENGTH m | TOTAL MASS kg | |
| | | | No. MEMBERS | UNIT | | | A mm | B mm | | | |
| REINFORCED CONCRETE BASE SLAB | 1 | Y 12 | 1 | 11 | 11 | 2060 | 20 | 2060 | 22.7 | 20.1 | |
| | 2 | Y 12 | 1 | 11 | 11 | 2060 | 20 | 2060 | 22.7 | 20.1 | |
| | | | | TYPE | R12 | Y12 | | | | | |
| | | | | MASS (kg) | M.S. | H.T. | | | | | 40.2 |
| REINFORCED CONCRETE ROOF SLAB | 3 | Y 12 | 1 | 8 | 8 | 1615 | 37 | 50 | 1580 | 12.9 | 11.5 |
| | 4 | Y 12 | 1 | 8 | 8 | 1615 | 37 | 50 | 1580 | 12.9 | 11.5 |
| | 5 | Y 12 | 1 | 16 | 16 | 900 | 20 | 900 | 14.4 | 12.78 | |
| | 6 | Y 12 | 2 | 8 | 16 | 250 | 20 | 250 | 4.0 | 3.55 | |
| | 7 | Y 12 | 1 | 8 | 8 | 330 | 20 | 350 | 2.6 | 2.3 | |
| | | | | TYPE | R12 | Y12 | | | | | |
| | | | | MASS (kg) | M.S. | H.T. | | | | | 0.0 |
| TOTAL REINFORCING STEEL REQUIRED FOR CHAMBER | | | | | | | | | | 0.00 | |
| MILD STEEL REINFORCEMENT (kg) | | | | | | | | | | 0.00 | |
| HIGH TENSILE REINFORCEMENT (kg) | | | | | | | | | | 81.86 | |

| SCOUR DISCHARGE TYPE B1 "WET CHAMBER" BENDING SCHEDULE | | | | | | | | | | | |
|--|----------|-------------|-------------|-----------|-----------|------------|--------------------|------|----------------|---------------|------|
| STRUCTURAL MEMBER | BAR MARK | TYPE & SIZE | No. OF BARS | | LENGTH mm | SHAPE CODE | BENDING DIMENSIONS | | TOTAL LENGTH m | TOTAL MASS kg | |
| | | | No. MEMBERS | UNIT | | | A mm | B mm | | | |
| REINFORCED CONCRETE BASE SLAB | 1 | Y 12 | 1 | 11 | 11 | 2060 | 20 | 2060 | 22.7 | 20.1 | |
| | 2 | Y 12 | 1 | 11 | 11 | 2060 | 20 | 2060 | 22.7 | 20.1 | |
| | | | | TYPE | R12 | Y12 | | | | | |
| | | | | MASS (kg) | M.S. | H.T. | | | | | 40.2 |
| REINFORCED CONCRETE ROOF SLAB | 3 | Y 12 | 1 | 8 | 8 | 1615 | 37 | 50 | 1580 | 12.9 | 11.5 |
| | 4 | Y 12 | 1 | 8 | 8 | 1615 | 37 | 50 | 1580 | 12.9 | 11.5 |
| | 5 | Y 12 | 1 | 16 | 16 | 900 | 20 | 900 | 14.4 | 12.78 | |
| | 6 | Y 12 | 2 | 8 | 16 | 250 | 20 | 250 | 4.0 | 3.55 | |
| | 7 | Y 12 | 1 | 8 | 8 | 330 | 20 | 350 | 2.6 | 2.3 | |
| | | | | TYPE | R12 | Y12 | | | | | |
| | | | | MASS (kg) | M.S. | H.T. | | | | | 0.0 |
| TOTAL REINFORCING STEEL REQUIRED FOR CHAMBER | | | | | | | | | | 0.00 | |
| MILD STEEL REINFORCEMENT (kg) | | | | | | | | | | 0.00 | |
| HIGH TENSILE REINFORCEMENT (kg) | | | | | | | | | | 81.86 | |

ETHEKWINI WATER AND SANITATION

WATER DESIGN BRANCH

REDUCED PLAN USE SCALE BELOW

0 10 20 30 40 50 60 70

70mm ON ORIGINAL PLAN

LEGEND:

E.W - EACH WAY
E.F - EACH FACE
N.F - NEAR FACE
ALT - ALTERNATE
ABR - ALTERNATE BAR REVERSED
STO - STAGGER
TOP - TOGETHER
PRS - IN PAIRS
T - TOP
B - BOTTOM

REINFORCEMENT LAYER NUMBERS

B1 - 1ST (LOWEST) LAYER
B2 - 2ND LOWEST LAYER etc.
T1 - 1ST (TOPMOST) LAYER
T2 - 2ND LAYER DOWN etc.

CONSTRUCTION INFORMATION

| | |
|------------------|-----|
| MAIN LAYER | |
| START DATE | --- |
| W/O NUMBER | |
| LEVEL OF SERVICE | |
| SUPERVISOR NAME | |
| CONTACT NUMBER | |
| DATE SENT TO GIS | |
| GIS INFORMATION | |
| DATE RECEIVED | |
| NAME | |

Revision

| | | |
|---|----------|----------------------|
| B | MAR 2025 | ISSUED FOR TENDER |
| A | AUG 2024 | ISSUED FOR SIGNATURE |

NOTE: No construction work to commence until land and servitude acquisitions have been completed.

Acquisitions completed:

DATE **ENGINEER** **NORTH POINT**

S.W DRAINS **SEWERS** **WATERMANS** **TELECOM CABLES** **ELECTRIC CABLES** **S.A.R CABLES** **E.S.C CABLES**

OIL PIPE LINE

NOTE: Only underground services affected by new construction are shown. Care must be taken during excavations for road foundations, trenches etc. to avoid damage to underground services such as sewers, drains, cables, watermains and connections. Wherever possible these must be located before work begins.

Contract No. 30583-5W

Project No. X8108

Planning Unit
MOUNT EDGEcombe NORTH

Ward No.
35, 48 & 102

Project Title
BLACKBURN TO PHOENIX 1 LOAD SHIFT PIPELINE

Drawing Title
DN150mm SCOUR VALVE REINFORCEMENT DETAILS

Scale - AS SHOWN
Designed - L.KHOMO
Checked - R.CANNY
Date - AUG 2024
Drawn - S.ZULU

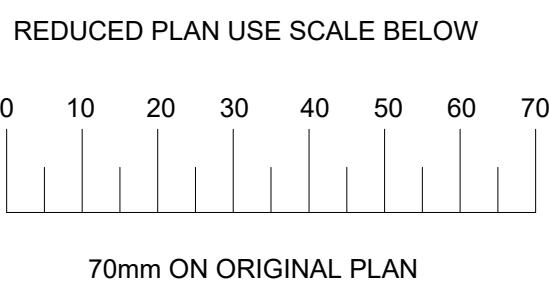
Area Engineer

Manager (Water Design)

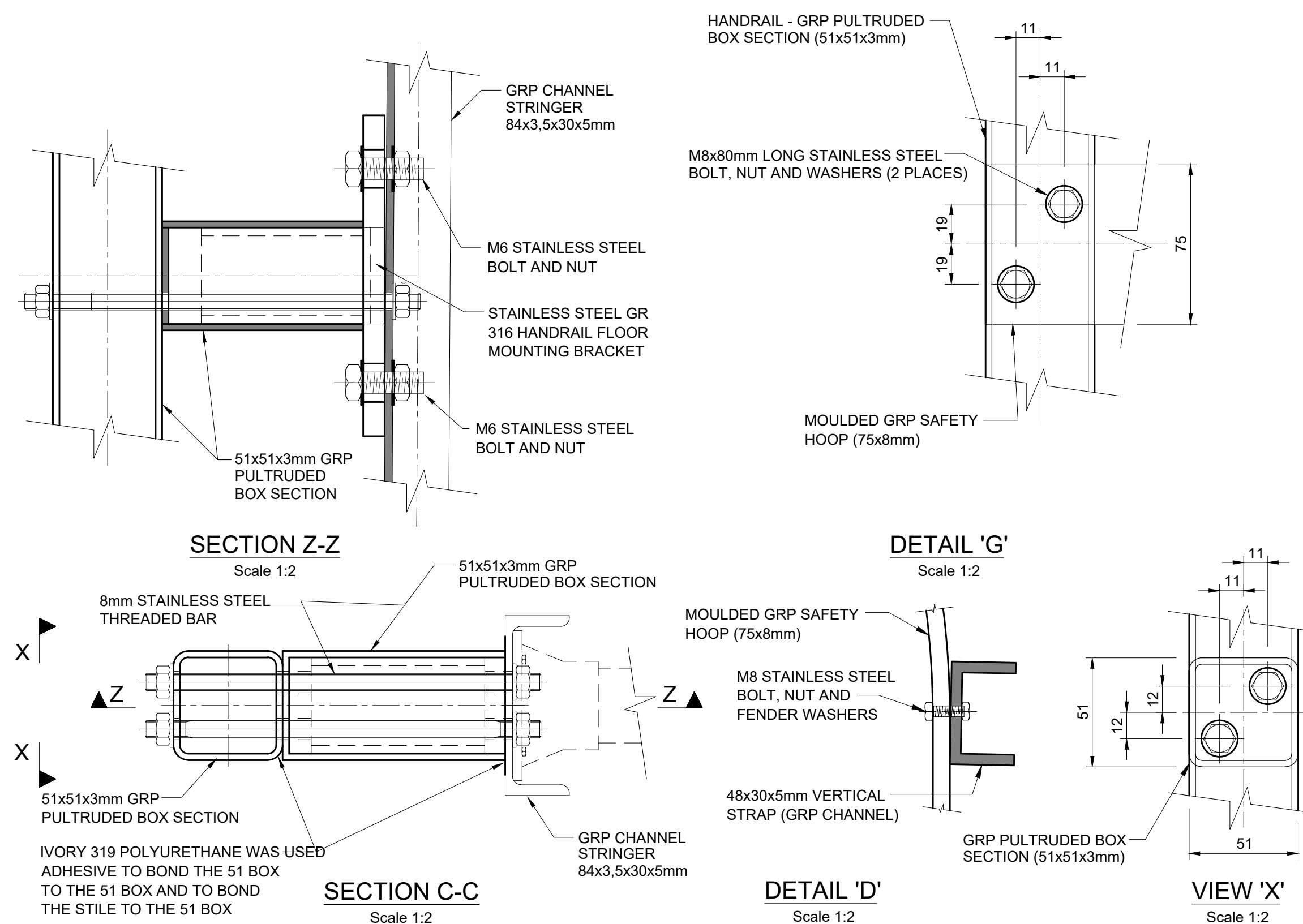
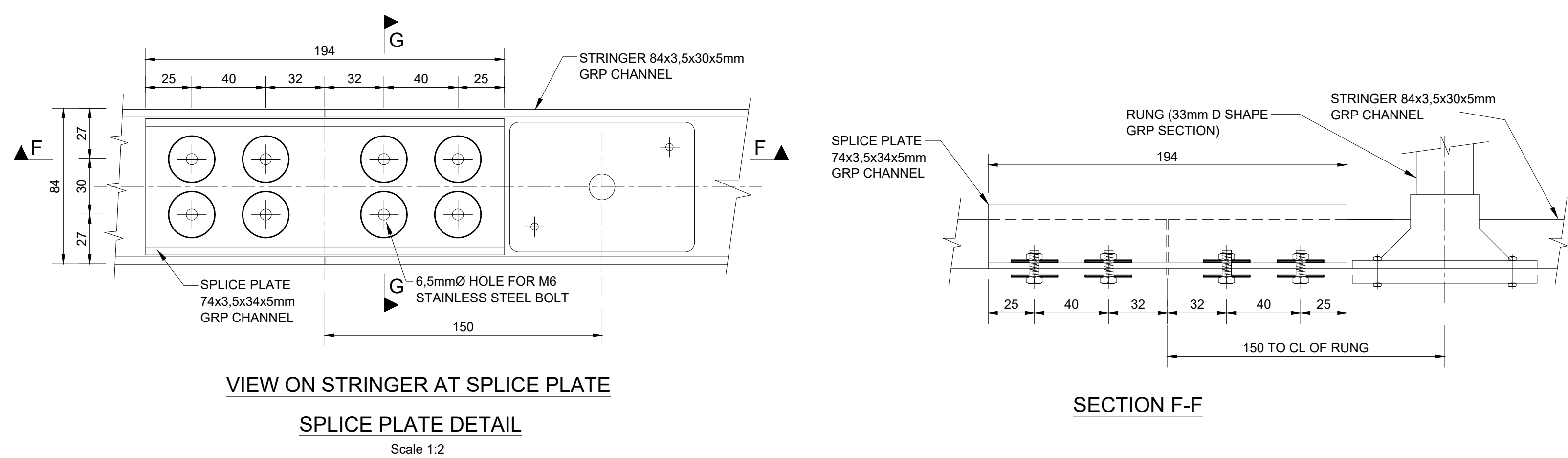
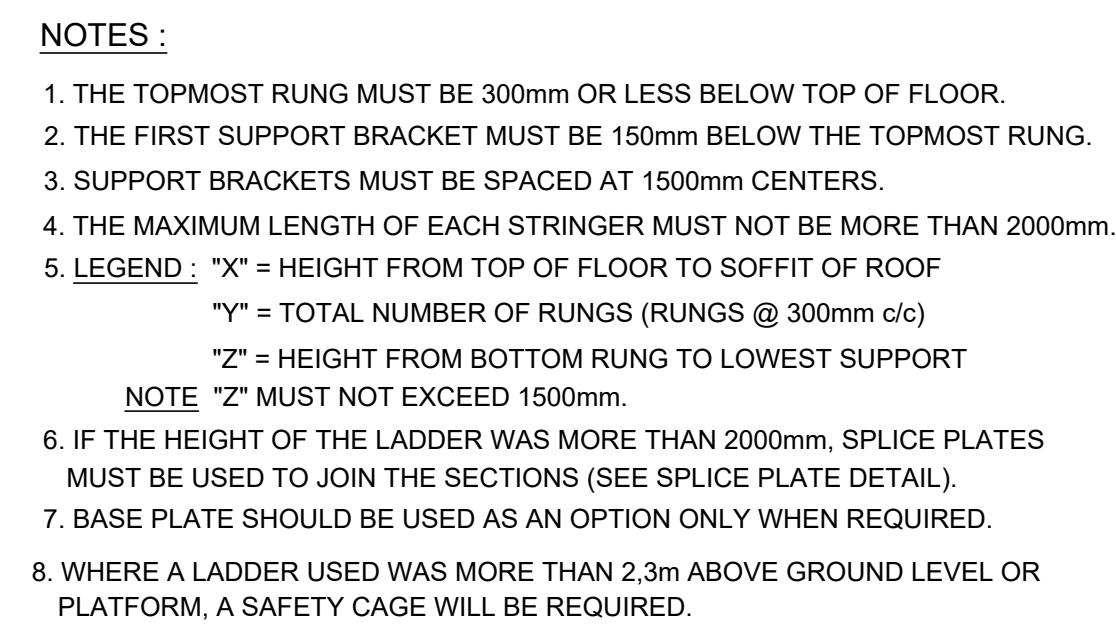
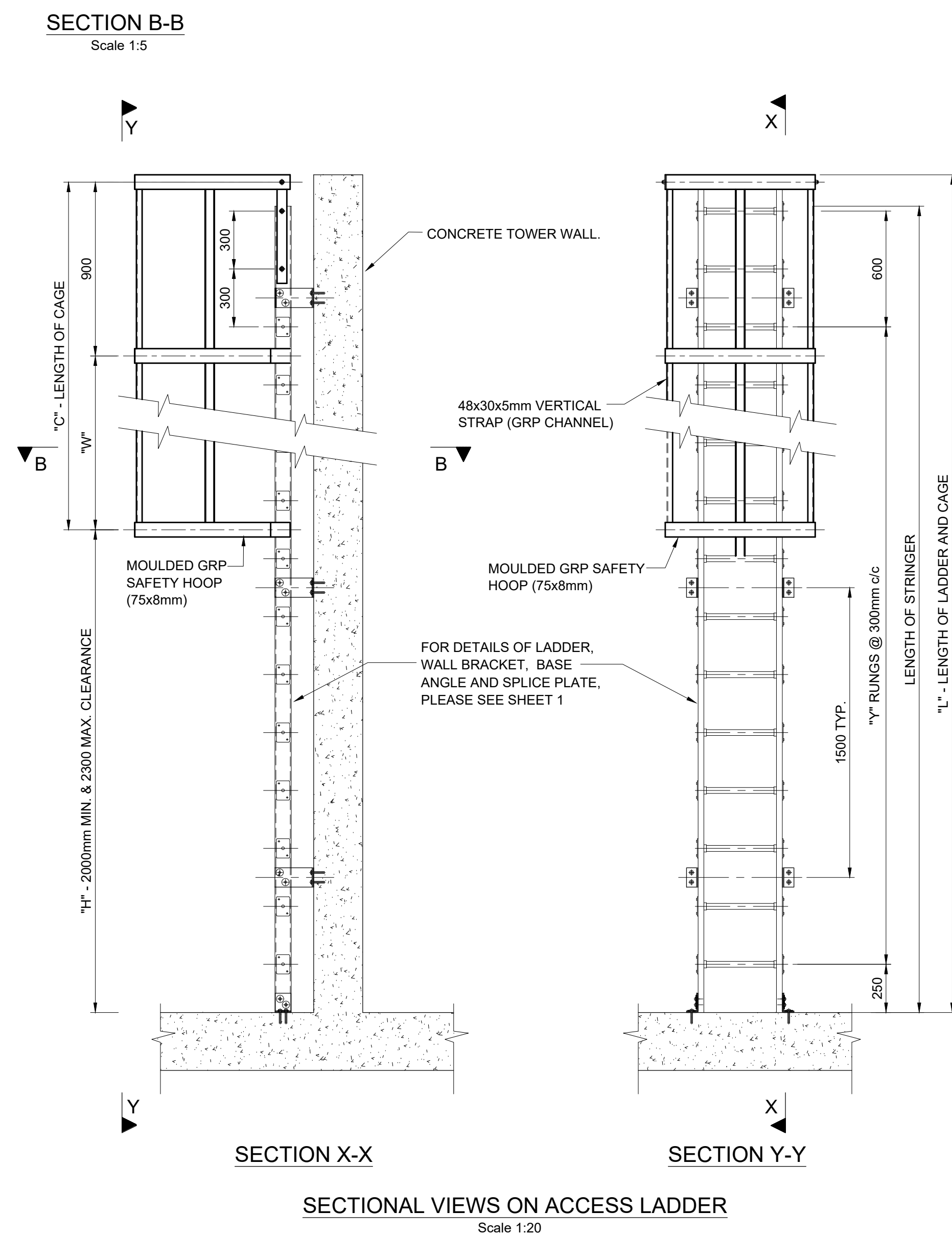
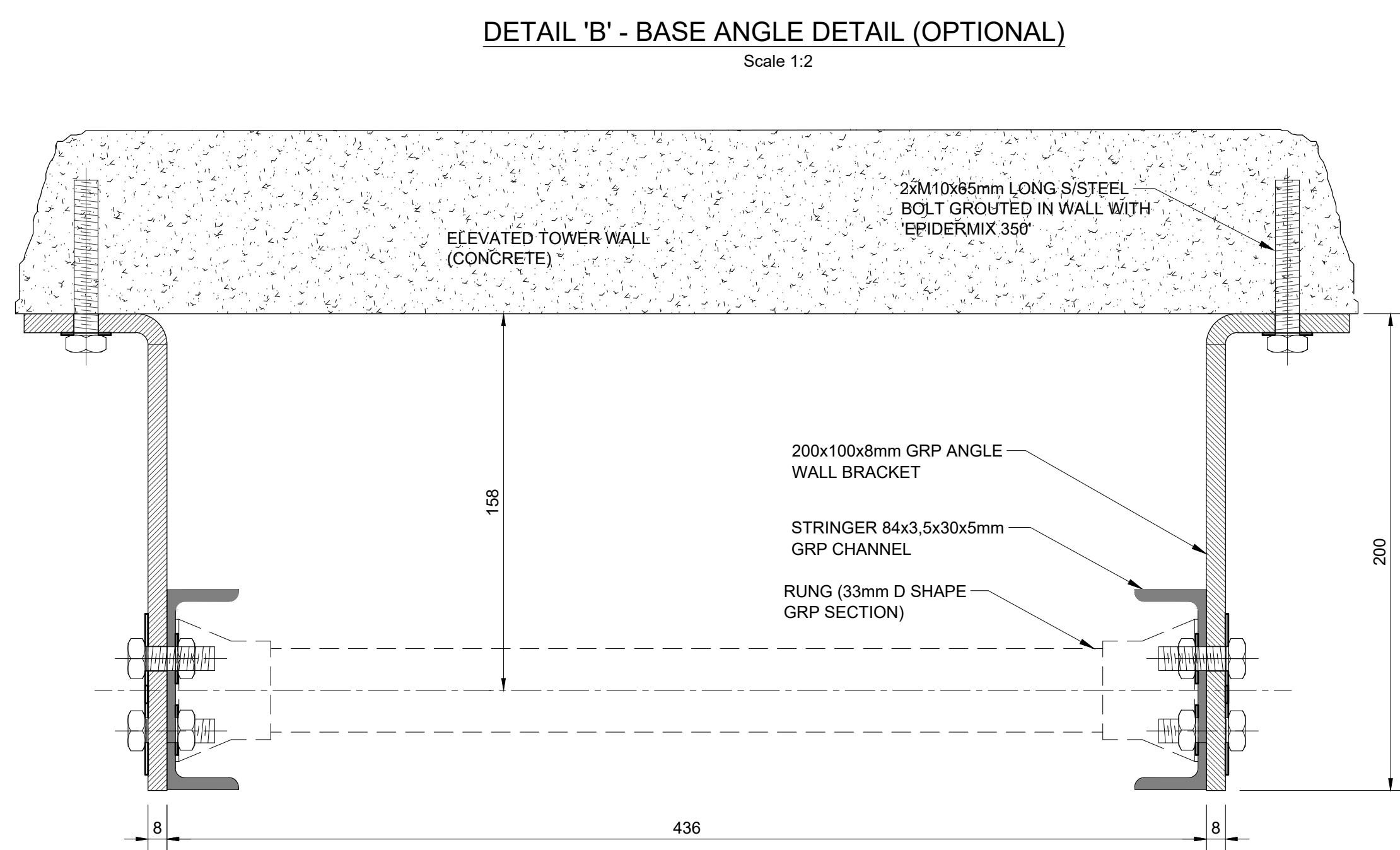
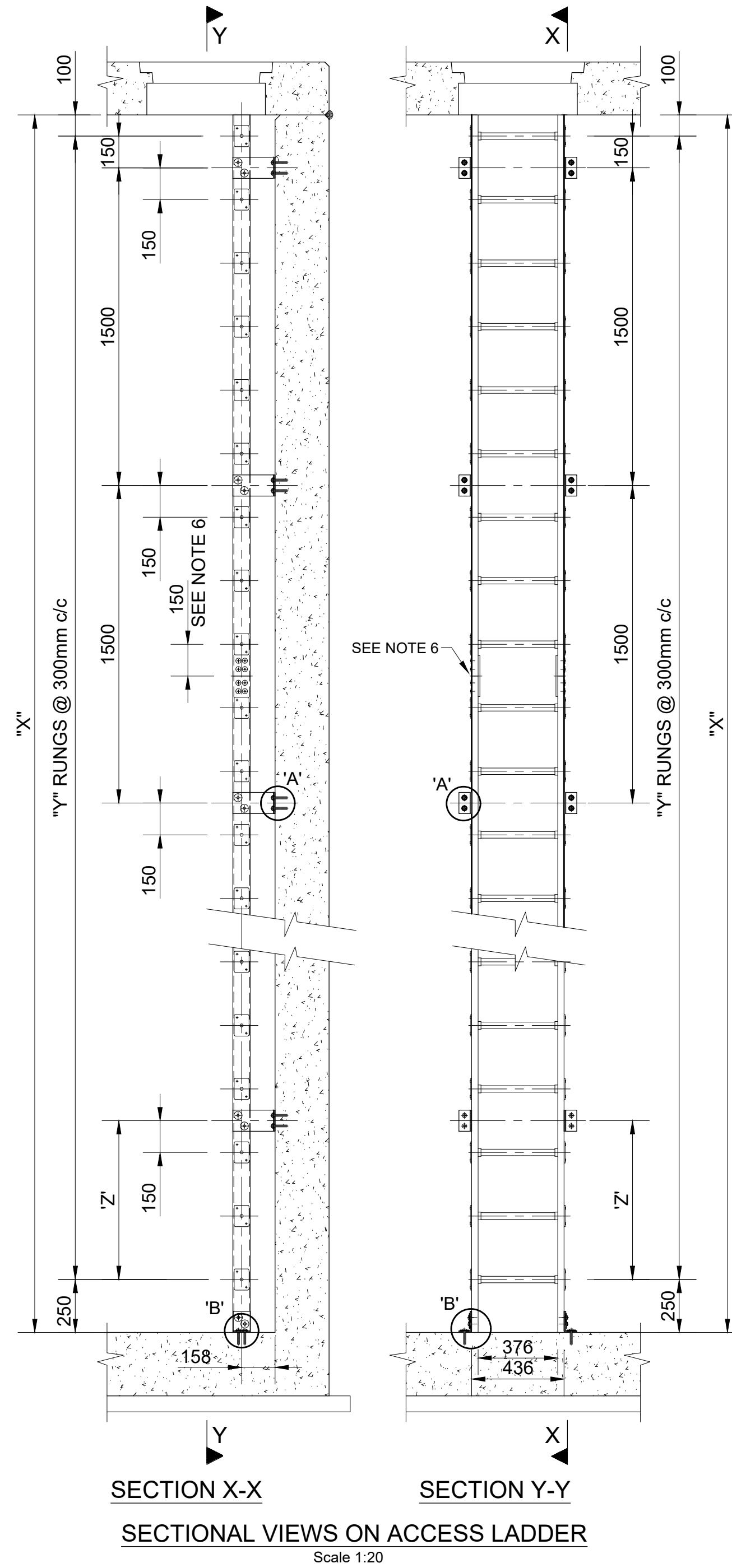
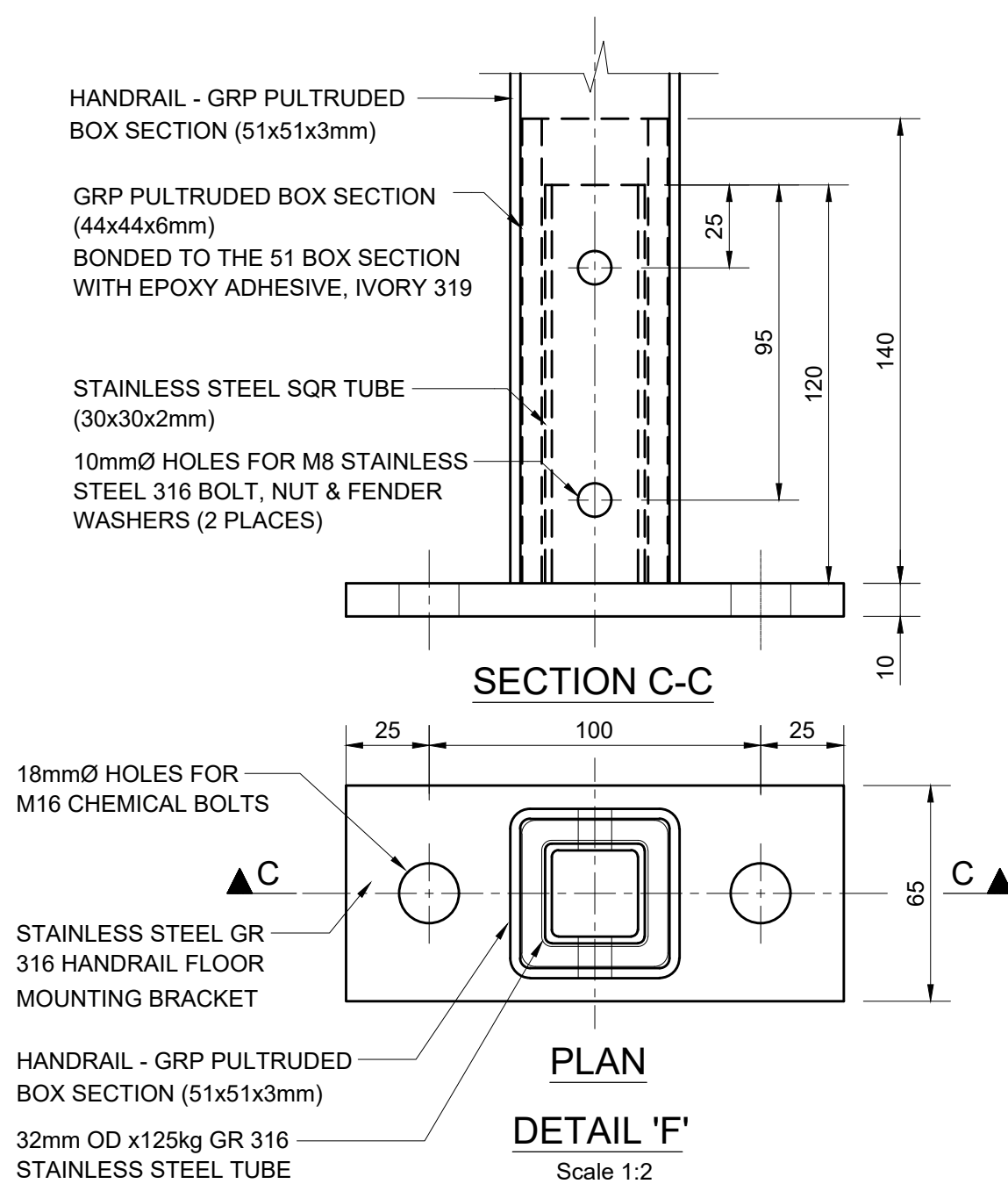
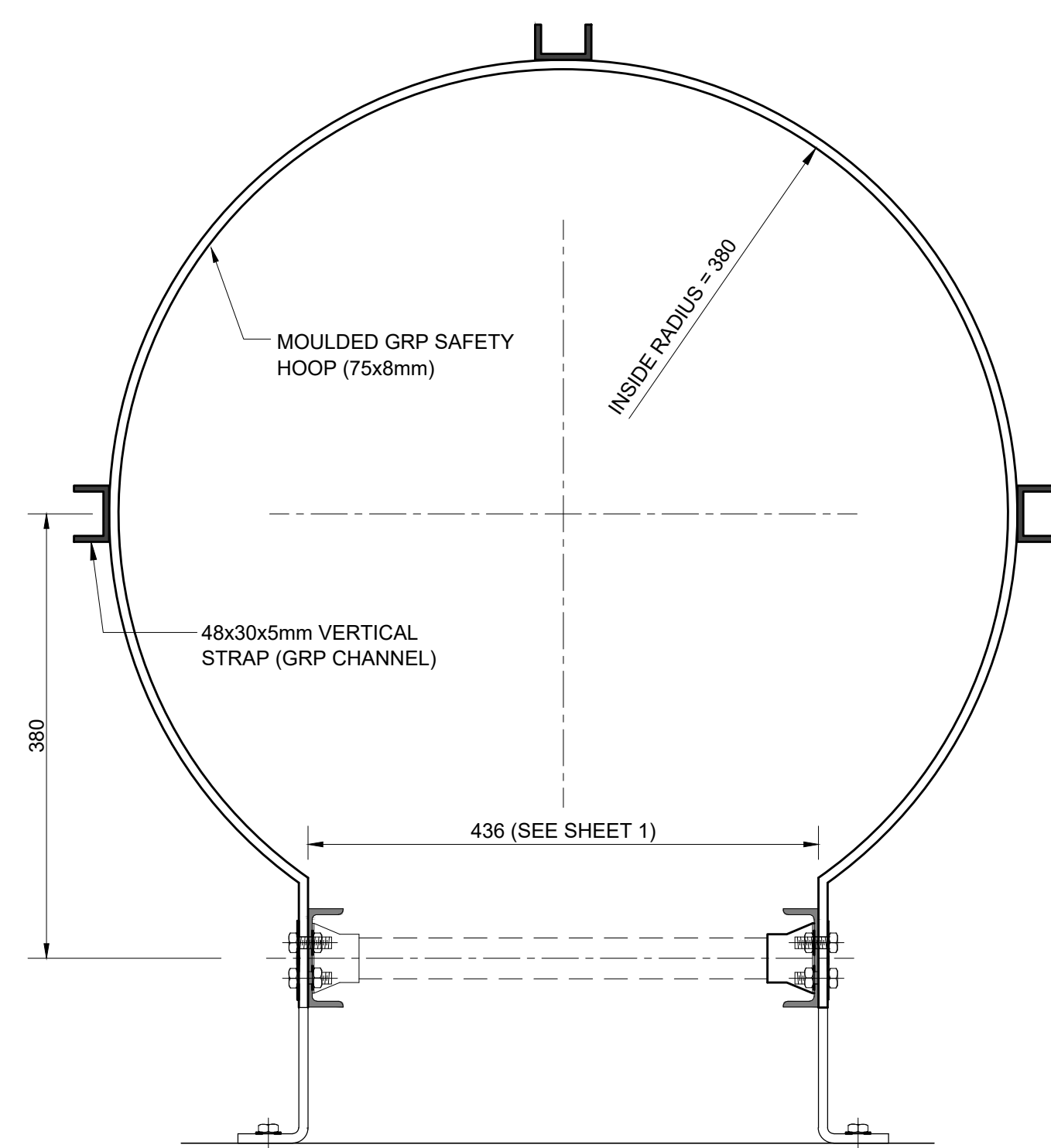
Deputy Head (Engineering)

E. MSWELI - Head (W & S)

60440
Drawing No. **22B** Sheet **B** Rev.



| | |
|---------------------------------|-------|
| CONSTRUCTION INFORMATION | |
| MAINLAYER | |
| START DATE | _____ |
| FINISH DATE | |
| W/O NUMBER | |
| LEVEL OF SERVICE | |
| SUPERVISOR NAME | |
| CONTACT NUMBER | |
| DATE SENT TO GIS | |
| GIS INFORMATION | |
| DATE RECEIVED | |
| NAME | |



- ## NOTES :
1. FOR DETAILS OF LADDER, WALL BRACKETS,BASE ANGLE AND SPLICE PLATE, SEE SAME DRAWING ON THE FAR LEFT SIDE.
 2. THE WALK-THROUGH TOP SECTION MUST BE FITTED AS DIRECTED BY THE ENGINEER.
 3. PLUTRIPOLED RESIN MUST BE MANUFACTURED WITH AN ISO POLYESTER FIBRE AND E-GLASS FIBER.
 4. THE COLOUR OF THE STILES AND CAGE HOOPS MUST BE GOLDEN YELLOW.
 5. THE COLOUR OF THE RUNGS AND THE CAGE STRAPS MUST BE CLOUD GRAY.
 6. ALL BOLTS, NUTS AND FENDER WASHERS USED TO MANUFACTURE THE PRODUCT MUST BE STAINLESS STEEL GRADE 316.
 7. LEGEND "L" = HEIGHT TO TOP OF FLOOR MIN 1228mm.
"C" = "L" - "H" WHERE "H" = 200mm MIN AND 2300mm MAX.
"W" = 600mm OR 600mm MIN. WHERE 600mm IS TYPICAL HEIGHT AND 600mm WAS USED IN ORDER TO AVOID COINCIDENCE BETWEEN SAFETY HOOPS AND WALL BRACKETS I EXCEPT FOR THE TWO TOPMOST SPACES (75mm & 600mm) WHICH HAVE FIXED HEIGHTS.
 8. THE TOTAL NUMBER OF SPACES ("V") BETWEEN SAFETY HOOPS WERE DETERMINED BY THE FOLLOWING FORMULA:

