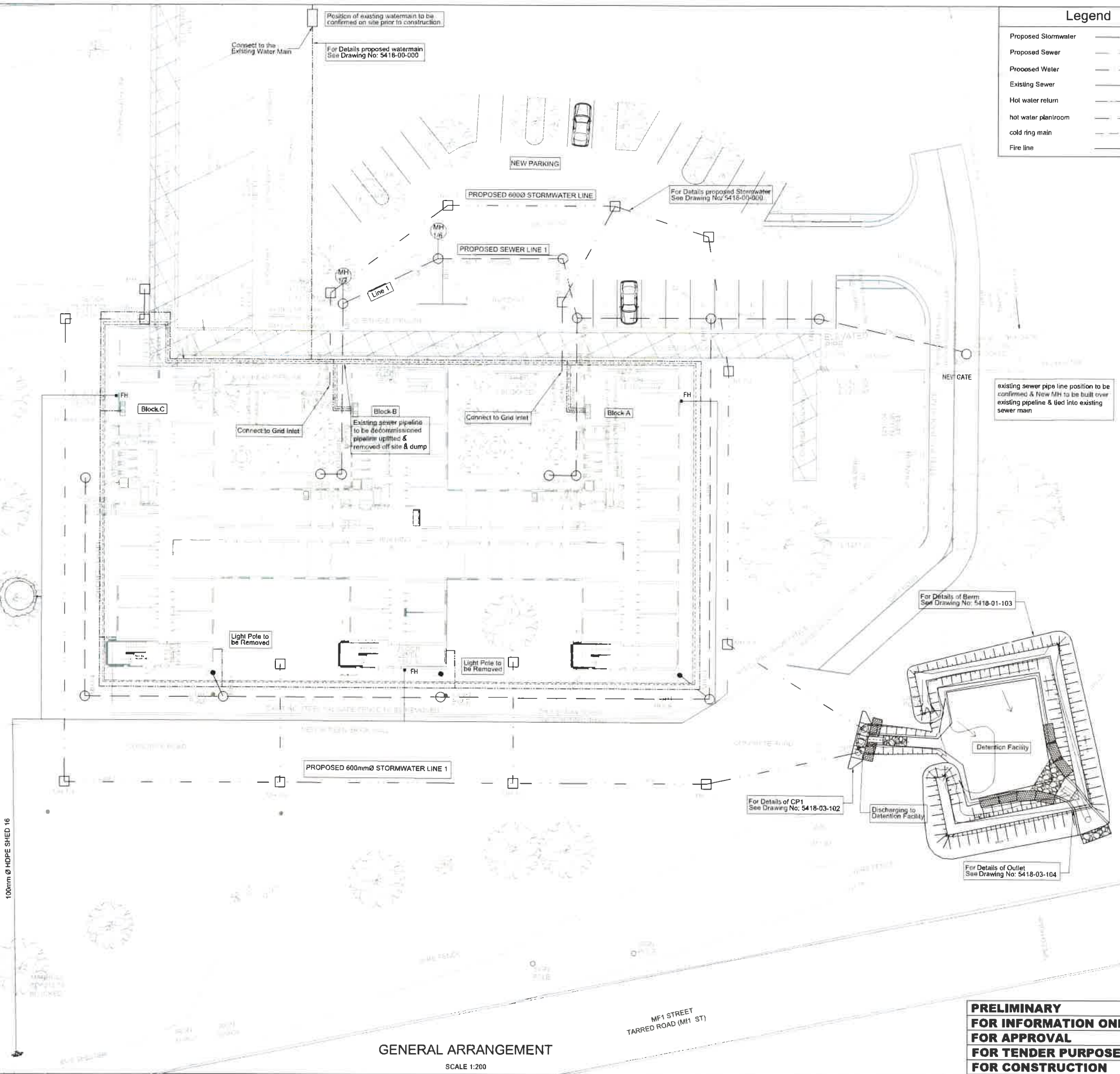


Legend

| | |
|---------------------|-----|
| Proposed Stormwater | --- |
| Proposed Sewer | --- |
| Proposed Water | --- |
| Existing Sewer | --- |
| Hot water return | --- |
| hot water planroom | --- |
| cold ring main | --- |
| Fire line | --- |



GENERAL ARRANGEMENT
SCALE 1:200

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FOR CONSTRUCTION**

| REV | DATE | DESCRIPTION | NAME |
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Umhlanga, 4320

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Tel: +27 31 201 1338

P.O. Box 1142, Hyper By The Sea, Durban, 4053



CLIENT **DEPARTMENT OF HEALTH - KZN**

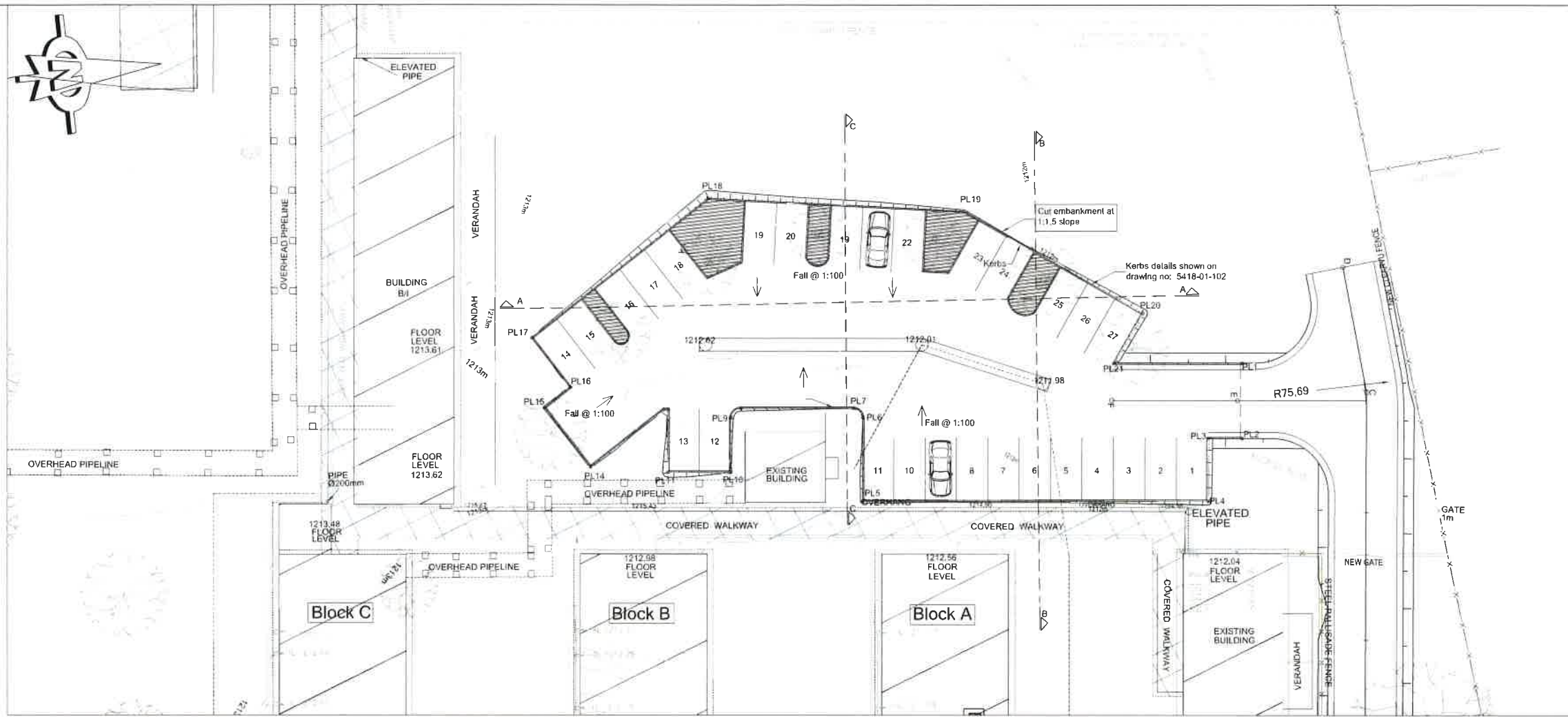
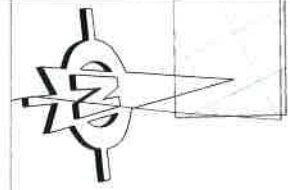
health
Department:
Health
PROVINCE OF KWAZULU-NATAL

PROJECT
PROPOSED ALTERATIONS AND REFURBISHMENTS TO EXISTING STUDENT ACCOMMODATION IN MADADENI HOSPITAL SITE 1 (HOSPITAL SITE) IN THE TOWNSHIP ON FARM SUTTLEWORTH NO. 9504

DISCIPLINE
CIVILS

DRAWING TITLE
GENERAL ARRANGEMENT

| TITLE | RESPONSIBLE PERSON | DATE | ORIGINAL SIZE |
|-------------|--------------------|---------|---------------|
| DESIGNED | S.T | APR' 21 | A1 |
| DRAWN | S.T | APR' 21 | SCALE |
| CHECKED | M.J. B | APR' 21 | AS SHOWN |
| APPROVED | M.J. B | | |
| SIGNATURE | | | PROJ No |
| ECSA No. | 930366 | | 5418 |
| DRAWING No. | 5418-01-100 | | REVISION |
| | | | 00 |



PLAN
SCALE 1:200



SECTION A-A
SCALE 1:100



SECTION B-B
SCALE 1:100



SECTION C-C
SCALE 1:100

| POINT NO. | PLATFORM LEVEL | Y | X |
|-----------|----------------|-----------|-------------|
| PL1 | 1211.750 | 93190.215 | 3072496.008 |
| PL2 | 1211.750 | 93184.250 | 3072496.704 |
| PL3 | 1211.750 | 93184.565 | 3072499.403 |
| PL4 | 1211.750 | 93179.598 | 3072499.982 |
| PL5 | 1211.710 | 93182.784 | 3072527.297 |
| PL6 | 1211.710 | 93189.394 | 3072526.526 |
| PL7 | 1211.710 | 93190.228 | 3072527.181 |
| PL8 | 1211.710 | 93191.264 | 3072536.060 |
| PL9 | 1211.710 | 93190.606 | 3072536.957 |
| PL10 | 1212.530 | 93186.301 | 3072537.459 |
| PL11 | 1212.530 | 93186.881 | 3072542.426 |
| PL12 | 1212.530 | 93191.847 | 3072541.846 |
| PL13 | 1212.530 | 93191.891 | 3072542.227 |
| PL14 | 1212.650 | 93188.011 | 3072548.545 |
| PL15 | 1212.650 | 93193.124 | 3072551.685 |
| PL16 | 1212.650 | 93194.503 | 3072549.441 |
| PL17 | 1212.650 | 93198.763 | 3072552.057 |
| PL18 | 1212.650 | 93208.155 | 3072536.785 |
| PL19 | 1211.750 | 93204.775 | 3072516.612 |
| PL20 | 1211.750 | 93195.049 | 3072503.386 |
| PL21 | 1211.750 | 93191.399 | 3072506.071 |

- EARTHWORKS AND FOUNDATIONS**
- ALL EARTHWORKS SHALL BE CARRIED OUT IN ACCORDANCE WITH SANS 1200D.
 - LEVELS OF EXCAVATIONS AND OF BASES SHALL BE CONFIRMED BY THE ENGINEER ON SITE BEFORE ANY FOUNDATION MAY BE CONSTRUCTED.
 - ALL COLUMNS AND WALLS SHALL BE PLACED SYMMETRICALLY ON FOUNDATION.
 - ENGINEERED FILL BENEATH SURFACE BEDS NOT TO EXCEED 400mm WITHOUT PRIOR APPROVAL OF THE ENGINEER.
 - COMPACTION TESTING IS REQUIRED FOR FILL BENEATH SURFACE BEDS AND ROAD LAYER WORKS. SAND REPLACEMENT AND NUCLEAR DENSITY TECHNIQUES ARE ACCEPTABLE. IF DYNAMIC CONE PENETROMETER (DCP) TESTING IS TO BE USED, THE CONTRACTOR MUST DEMONSTRATE THE CORRELATION BETWEEN SOIL DENSITY AND BLOWS/100mm USING THE PREVIOUSLY MENTIONED TECHNIQUES.
 - WHERE TREES ARE REMOVED FROM THE STRUCTURAL FOOTPRINT, THE EXCAVATION SHALL BE SUITABLY FILLED WITH ENGINEERING FILL. WHERE TREES ARE ON THE LINE OF THE FOUNDATION, THE FOOTING SHALL BE REINFORCED USING THREE Y-10 BARS EXTENDING 1500mm EITHER SIDE OF THE TREE EXCAVATION.
 - WHERE SOILCRETE IS SPECIFIED, A 1:10 MIXTURE OF CEMENT TO SELECTED MATERIAL FROM EXCAVATIONS MUST BE MIXED WITH WATER TO OBTAIN A MORTAR WITH A 100mm SLUMP. THE SOILCRETE MUST BE COMPACTED AFTER BEING PLACED.
 - WHERE BACKFILL TO OCCUR ON EXISTING SLOPE BENCHING TO TAKE PLACE. MAXIMUM BENCHING HEIGHT TO BE 400mm AND ALL LAYERS TO BE COMPACTED TO 90% MOD AASHTO AND TESTED PRIOR TO NEXT LAYER BEING BACKFILLED.
 - MINIMUM TOPSOIL LAYER TO BE REMOVED PRIOR TO BULK EARTHWORKS COMMENCING IS 100mm.
 - ALL LEVELS PRESCRIBED ARE FINISH LEVELS.

Blackbalance Project / 0318323450 Date : 17/2/2021 Time : 15:22
 Volumes for > 1000,93126,269,3072570.48, 1213.325,ss
 File 1 Madadeni Hospital Student Accommodation
 Project Description > 1000,93126,269,3072570.48, 1213.325,ss
 File 2 > 1
 Project Description >
 C:\Users\shelums\MM\BackUp\B1\2.bot
 System Settings : Southern Hemisphere - Degrees - WGS84 - LO31

VOLUME CALCULATIONS DONE ON A GRID OF 1.00 X 1.00m
 TOPSOIL OF DEPTH : 100mm REMOVED
 Calculated according to Plan area -
 TOPSOIL VOLUME OF : 98.40m³ REMOVED
 Calculated according to Surface area -
 TOPSOIL VOLUME OF : 104.63m³ REMOVED
 FINAL CUT AREA : 0.00m² | CUT VOLUME : 0.00m³
 FINAL FILL AREA : 984.00m² | FILL VOLUME : 98.40m³

| REV | DATE | DESCRIPTION | NAME |
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 Tel: +27 31 201 1338
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CLIENT: DEPARTMENT OF HEALTH - KZN



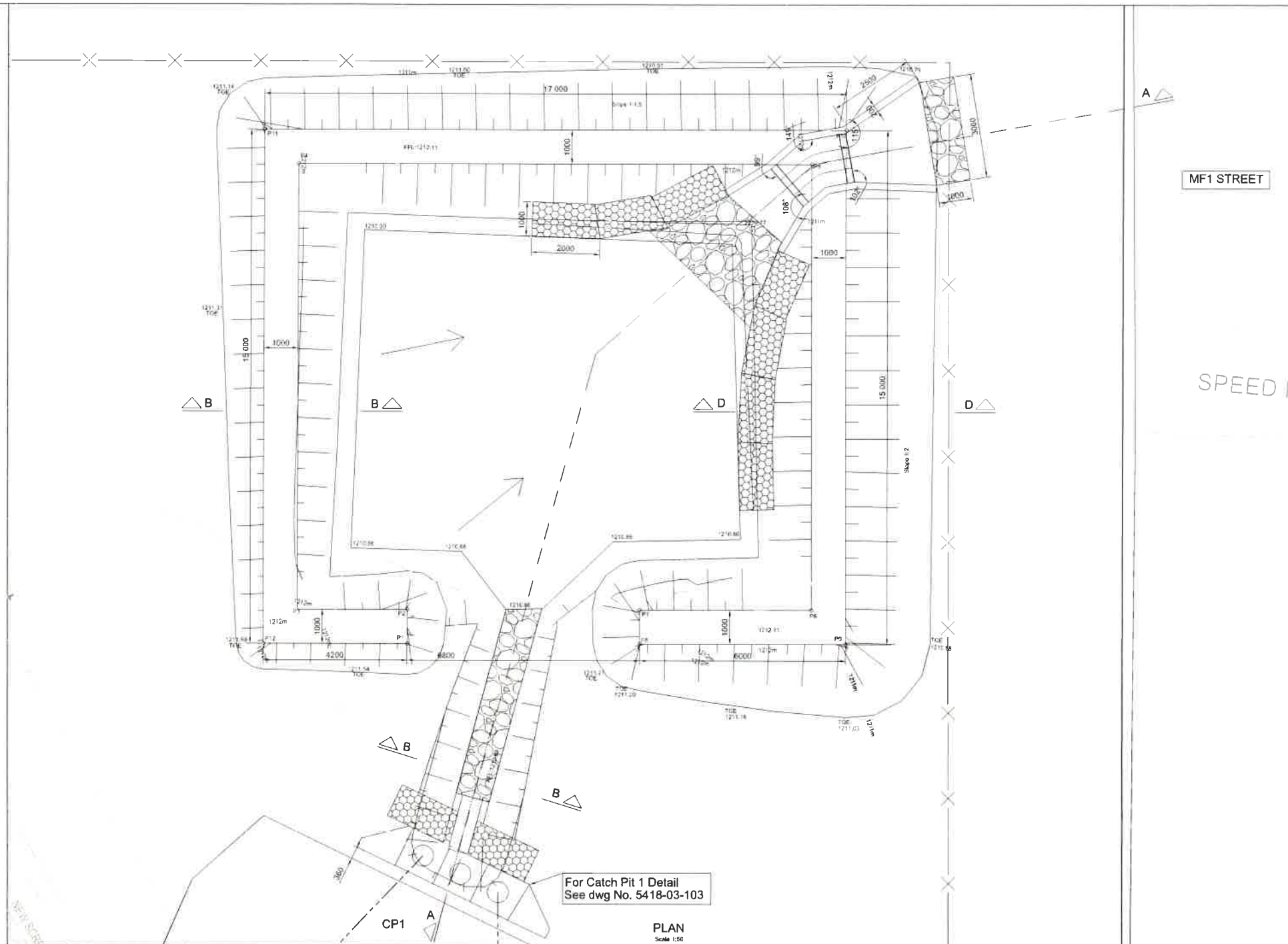
PROJECT: PROPOSED ALTERATIONS AND REFURBISHMENTS TO EXISTING STUDENT ACCOMMODATION IN MADADENI HOSPITAL SITE 1 (HOSPITAL SITE) IN THE TOWNSHIP ON FARM SUTTLEWORTH NO. 9504

DISCIPLINE: CIVILS
 DRAWING TITLE: BULK EARTHWORKS TO PARKING

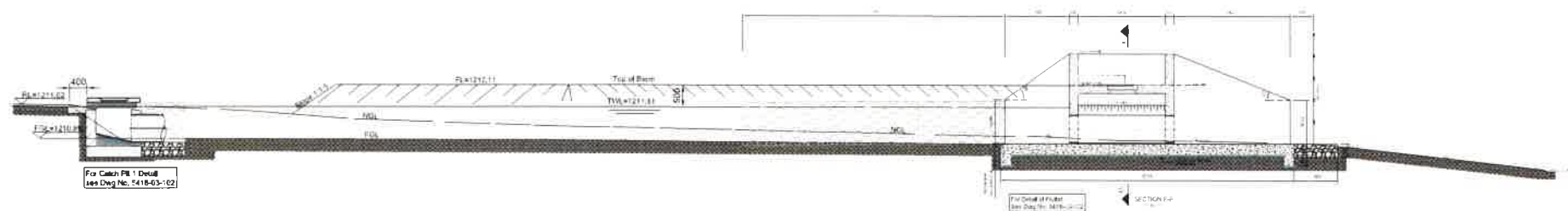
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| DRAWN | S.T | DATE | FEB '21 | SCALE | AS SHOWN |
| CHECKED | M.B | DATE | | SCALE | |
| APPROVED | | DATE | | SCALE | |
| ECSA Professional No: 930366 | | | | | |
| PROJECTS NUMBER: 5418 | | | | | |
| DRAWING No: 5418 - 01 - 101 | | | | | |
| REVISION: 00 | | | | | |

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FOR CONSTRUCTION

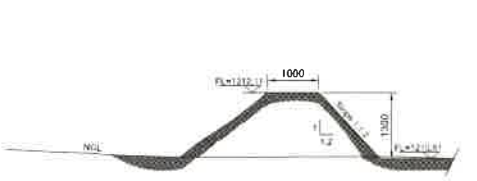
| DETENTION FACILITY - COORDINATES | | | | |
|----------------------------------|------|-----------|-------------|----------|
| No. | Name | X | Y | Z |
| 0 | P1 | 93150.191 | 3072495.532 | 1212.110 |
| 1 | P2 | 93156.278 | 3072494.536 | 1212.110 |
| 2 | P3 | 93142.466 | 3072494.815 | 1212.110 |
| 3 | P4 | 93145.598 | 3072493.864 | 1212.110 |
| 4 | P5 | 93128.555 | 3072493.558 | 1212.110 |
| 5 | P6 | 93127.523 | 3072493.598 | 1212.110 |
| 6 | P7 | 93132.504 | 3072493.944 | 1212.110 |
| 7 | P8 | 93132.417 | 3072494.240 | 1212.110 |
| 8 | P9 | 93126.460 | 3072494.418 | 1212.110 |
| 9 | P10 | 93127.746 | 3072493.875 | 1212.110 |
| 10 | P11 | 93144.682 | 3072493.555 | 1212.110 |
| 11 | P12 | 93141.375 | 3072495.896 | 1212.110 |



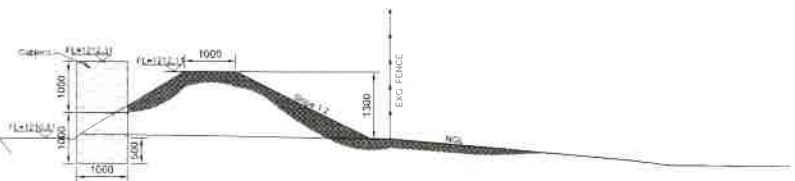
PLAN
Scale 1:50



SECTION A-A
SCALE 1:50



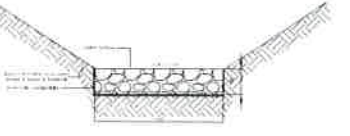
SECTION B-B
SCALE 1:50



SECTION D-D
SCALE 1:50



TYPICAL SECTION THROUGH CHANNEL
SCALE 1:50



CHANNEL BASE
SCALE 1:50

| REV | DATE | DESCRIPTION |
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 INCORPORATED IN SOUTH AFRICA
 Suite 102, 3rd Floor
 2 Potchefstroom Street
 Menlyn, Johannesburg, 2002
 Website: www.blackbalance.co.za
 Tel: +27 11 201 1338
 P.O. Box 1142, Meyer, 1214, South Africa

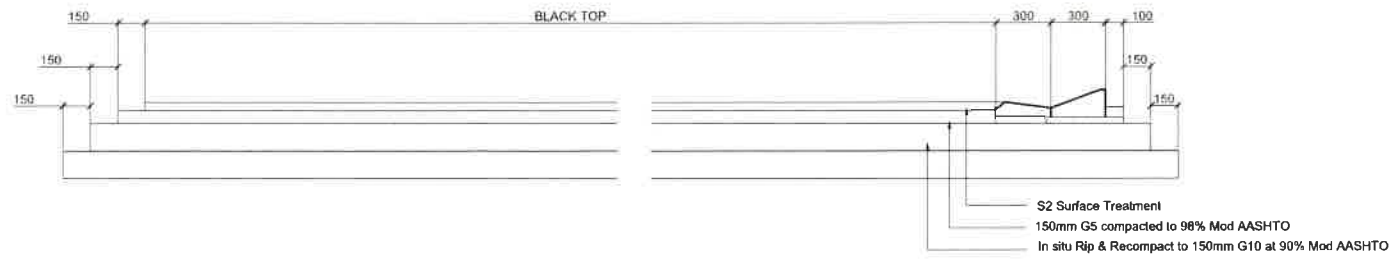
CLIENT: DEPARTMENT OF HEALTH - KZN

PROJECT: PROPOSED ALTERATIONS AND REFINISHMENTS TO EXISTING STUDENT ACCOMMODATION IN MADADENI HOSPITAL SITE 1 (HOSPITAL SITE) IN THE TOWNSHIP ON FARM SUTTLEWORTH NO. 9504

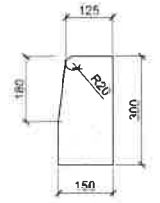
DESCRIPTION: CIVILS
 DRAWING TITLE: BULK EARTHWORKS & DETAILS FOR DETENTION FACILITY

| DESIGNED | RESPONSIBLE PERSON | DATE | PREPARED BY |
|-------------|--------------------|--------|-------------|
| M. J. B. | M. J. B. | FEB 21 | AQ |
| DRAWN | S. T. | FEB 21 | SCALE |
| CHECKED | M. J. B. | | AS SHOWN |
| APPROVED | | | |
| SIGNATURE | | | PROJ. No |
| SCALE No. | 5418 | | 5418 |
| DRAWING No. | 5418 - 01 - 102 | | REVISED |

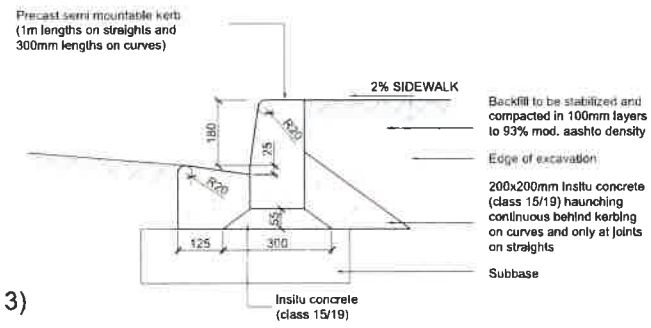
PRELIMINARY FOR APPROVAL FOR TENDER PURPOSES FOR CONSTRUCTION



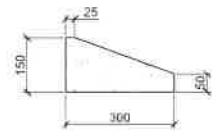
SECTION THROUGH LAYER WORKS & WIDTH
SCALE 1:20



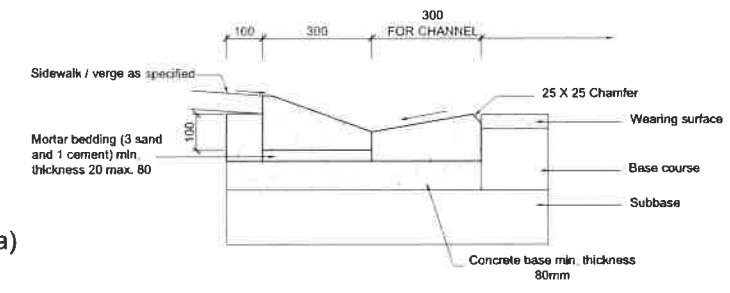
BARRIER KERB (FIGURE 3)
CAN ALSO BE USED AS MOUNTABLE KERBS



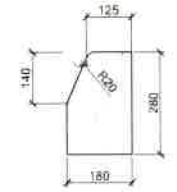
BARRIER KERB (FIGURE 3)



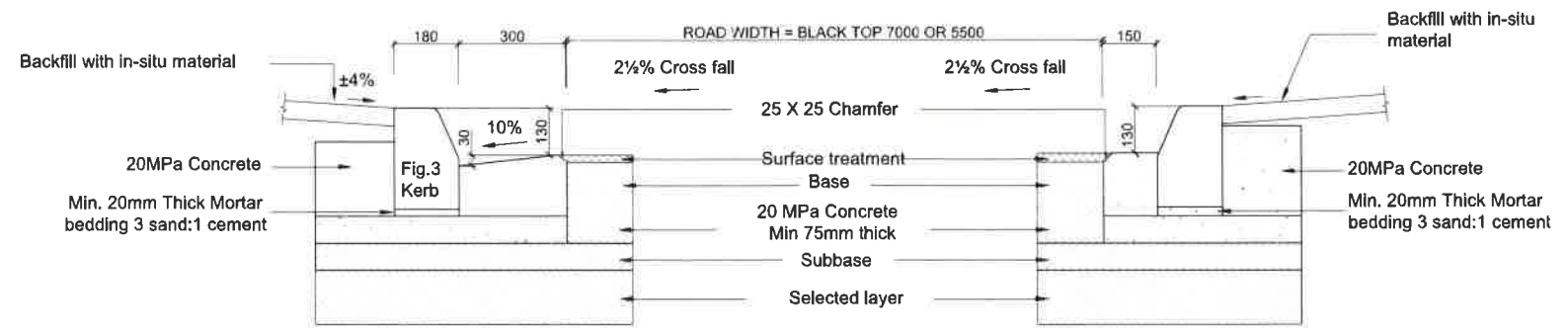
MOUNTABLE KERB (FIGURE 8a)



MOUNTABLE KERB (FIGURE 8a)



BARRIER KERB (FIGURE 3)
SCALE 1:10



BARRIER KERB FIG 3
SCALE 1:20

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| REF. DRG No. | REFERENCE DRAWING DESCRIPTION |
|--------------|-------------------------------|
| REV | DATE DESCRIPTION NAME |
| 00 | 00 DESCRIPTION NAME |

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Website: www.blackbalance.co.za
Tel: +27 31 831 3450
Fax: +27 31 202 3403
P.O. Box 1142, Hyper By The Sea, Durban, 4053

CLIENT **DEPARTMENT OF HEALTH - KZN**

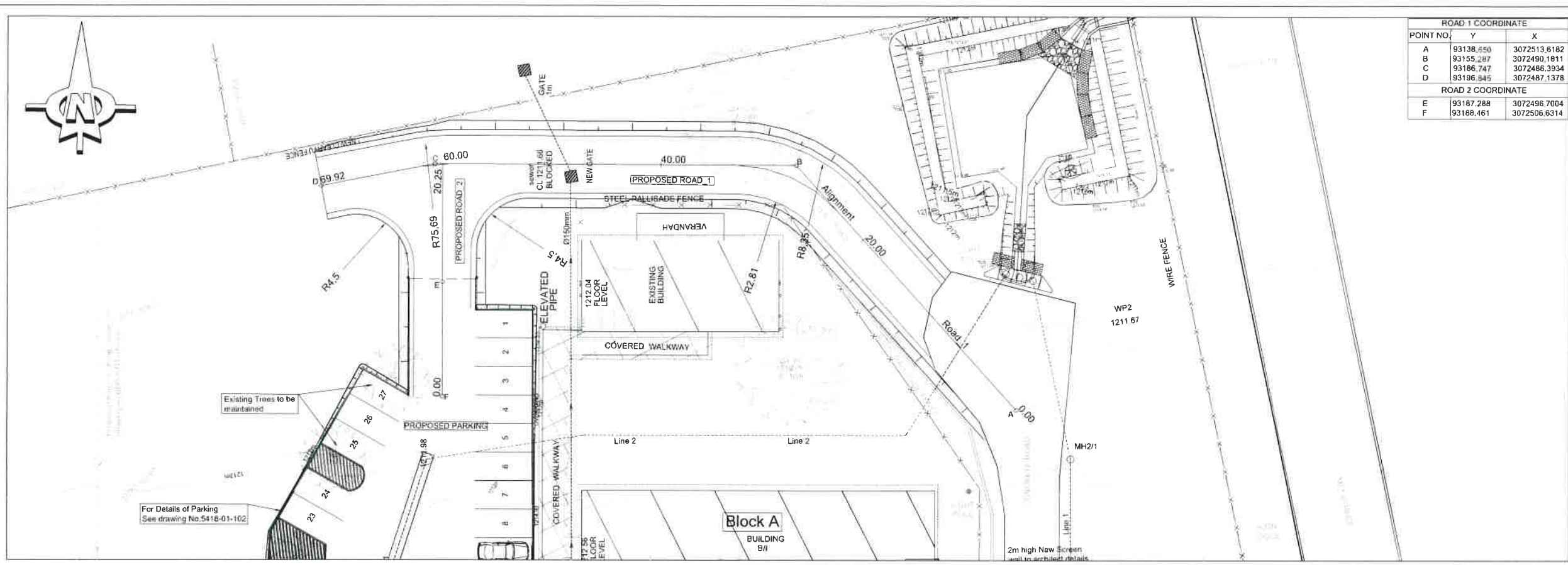


PROJECT **PROPOSED ALTERATIONS AND REFURBISHMENTS TO EXISTING STUDENT ACCOMMODATION IN MADADENI HOSPITAL SITE 1 (HOSPITAL SITE) IN THE TOWNSHIP ON FARM SUTTLEWORTH NO. 9504**

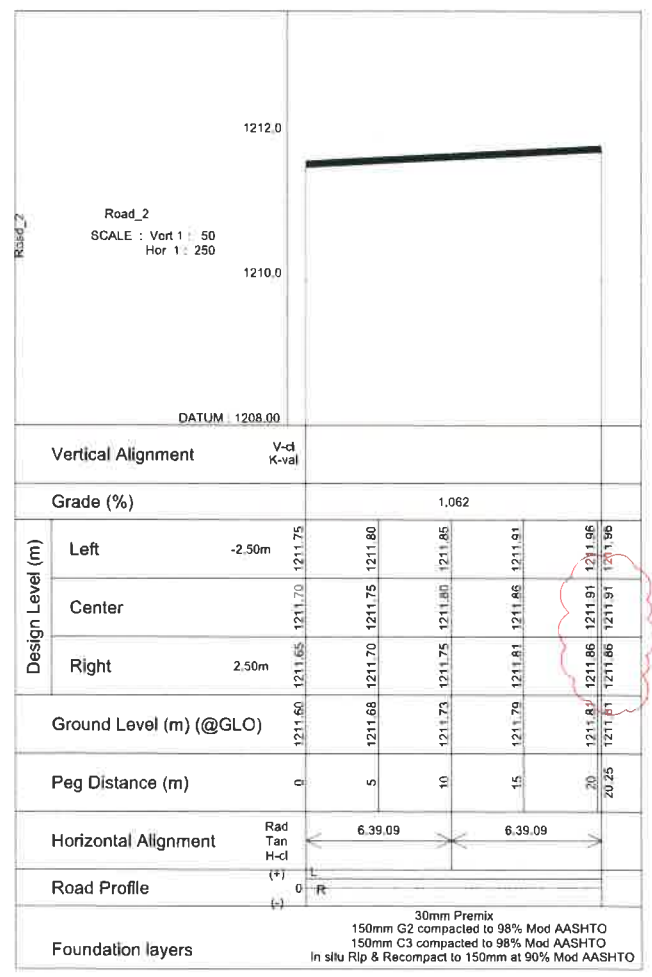
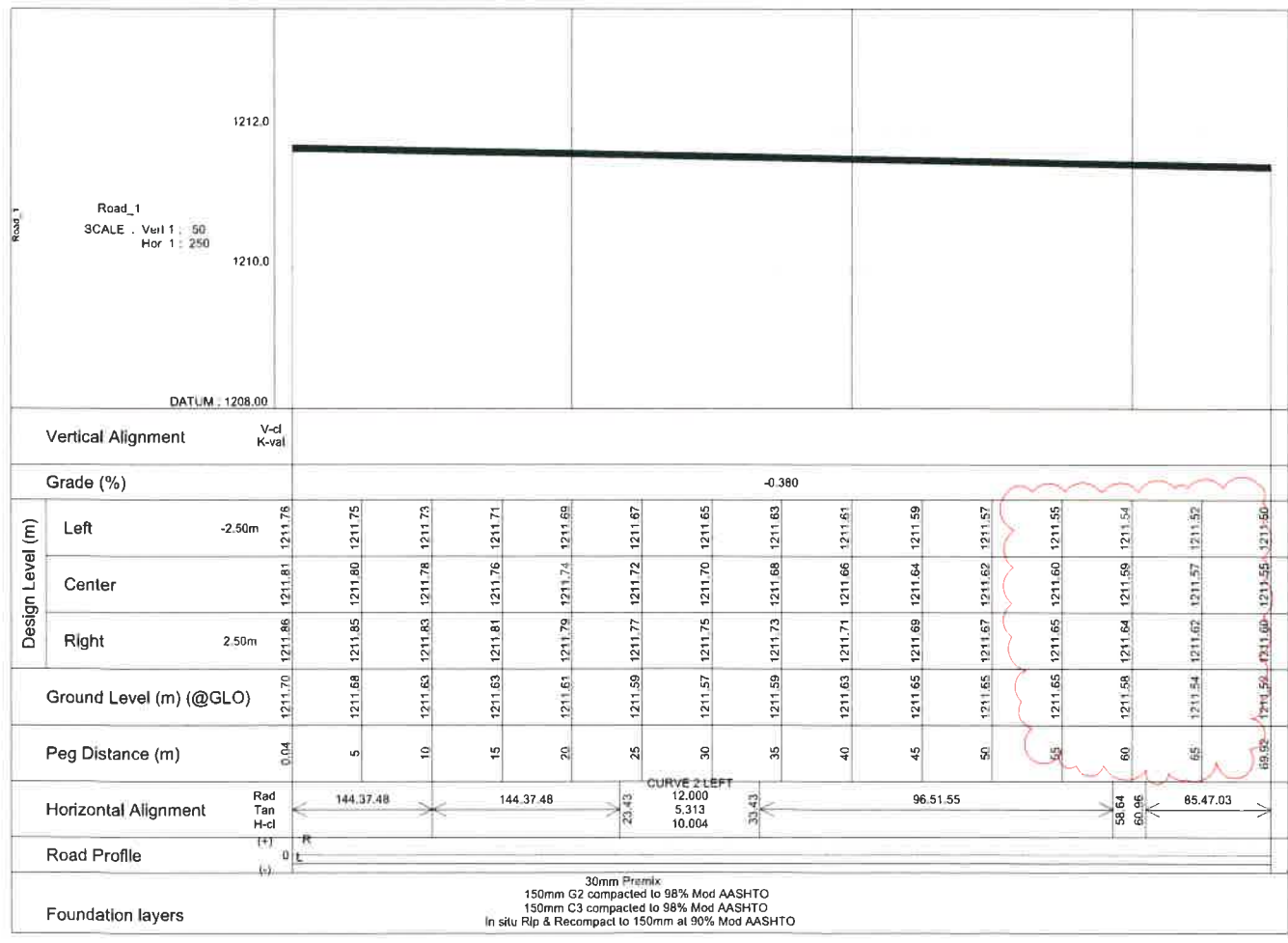
DISCIPLINE **CIVILS**

DRAWING TITLE **PARKING TYPICAL DETAILS**

| DESIGNED | RESPONSIBLE PERSON | DATE | ORIGINAL SIZE |
|-------------|--------------------|----------|---------------|
| S.T | S.T | JULY '21 | A1 |
| DRAWN | S.T | JULY '21 | SCALE |
| CHECKED | M.J.B | JULY '21 | AS SHOWN |
| APPROVED | | | |
| SIGNATURE | | | PROJ No |
| ECSA No | 930366 | | 5418 |
| DRAWING No. | 5418 - 01 - 103 | | REVISION |
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PLAN
Scale 1:200



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FOR CONSTRUCTION**

| REV | DATE | DESCRIPTION | NAME |
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Ridgeside Office Park
Umhlanga, 4320
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Tel: +27 31 201 1338
P.O. Box 1142, Hyper By The Sea, Durban, 4053

CLIENT: DEPARTMENT OF HEALTH - KZN

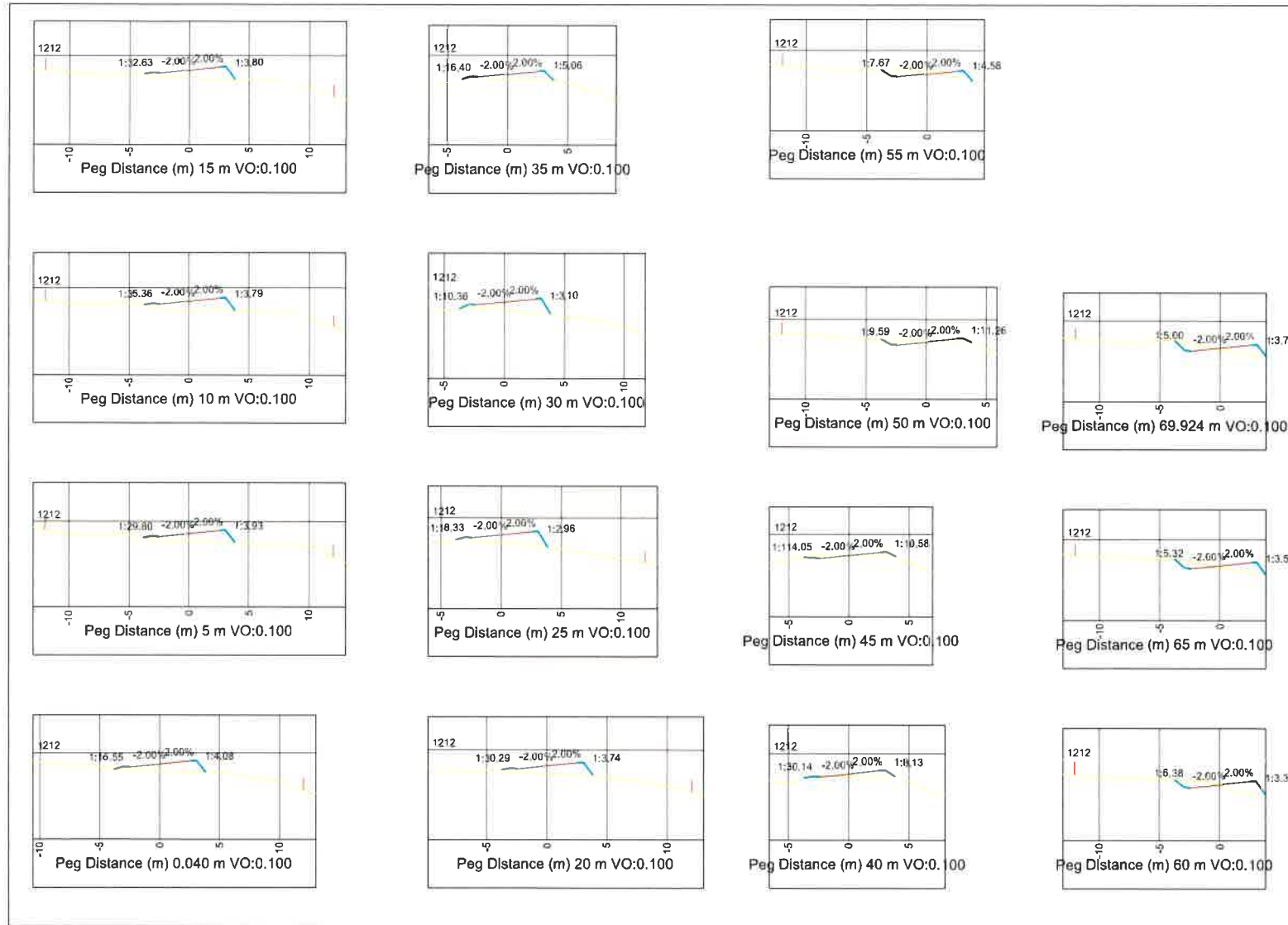
health
Department:
Health
PROVINCE OF KWAZULU-NATAL

PROJECT: PROPOSED ALTERATIONS AND REFURBISHMENTS TO EXISTING STUDENT ACCOMMODATION IN MADADENI HOSPITAL SITE 1 (HOSPITAL SITE) IN THE TOWNSHIP ON FARM SUTTLEWORTH NO. 9504

DISCIPLINE: CIVILS
DRAWING TITLE: ROAD 1 & ROAD 2 PLAN & SECTION

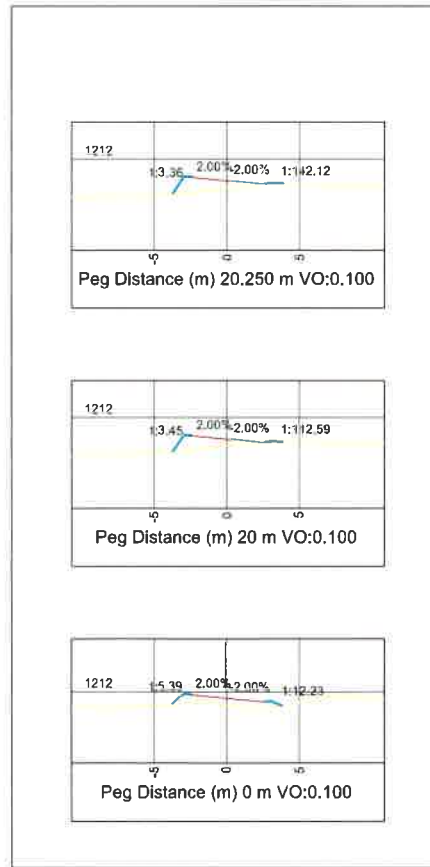
| TITLE | RESPONSIBLE PERSON | DATE | ORIGINAL SIZE |
|-------------|--------------------|---------|---------------|
| DESIGNED | S.T | FEB '21 | A1 |
| DRAWN | S.T | FEB '21 | SCALE |
| CHECKED | M.J.B | | AS SHOWN |
| APPROVED | M.J.B | | |
| SIGNATURE | | | |
| ECSA No. | 930366 | | |
| DRAWING No. | 5814 - 02 - 100 | | REVISION 00 |

ROAD_1 CROSS SECTIONS



SCALE 1: 200

ROAD_2 CROSS SECTIONS



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| REV | DATE | DESCRIPTION | NAME |
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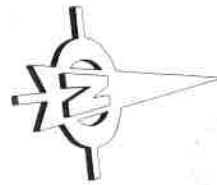
CLIENT DEPARTMENT OF HEALTH - KZN



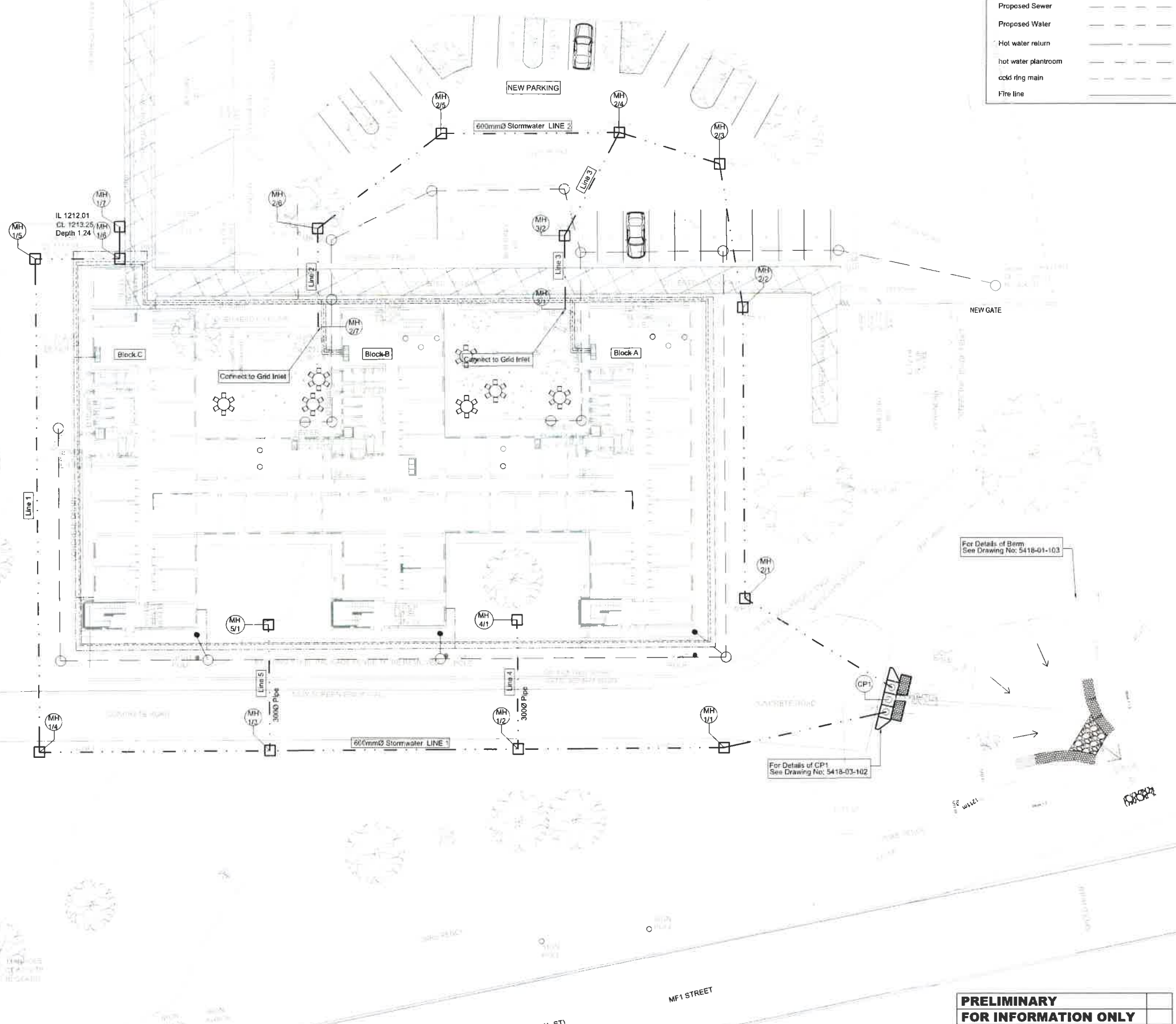
PROJECT PROPOSED ALTERATIONS AND REFURBISHMENTS TO EXISTING STUDENT ACCOMMODATION IN MADADENI HOSPITAL SITE 1 (HOSPITAL SITE) IN THE TOWNSHIP ON FARM SUTTLEWORTH NO. 9504

DISCIPLINE CIVILS
 DRAWING TITLE ROAD 1 & 2 CROSS SECTIONS

| TITLE | RESPONSIBLE PERSON | DATE | ORIGINAL SIZE |
|------------|--------------------|---------|---------------|
| DESIGNED | S.T | APR' 21 | A1 |
| DRAWN | S.T | APR' 21 | SCALE |
| CHECKED | M.J.B | APR' 21 | AS SHOWN |
| APPROVED | M.J.B | | |
| SIGNATURE | | | PROJ No |
| ECSA No | 930366 | | 5418 |
| DRAWING No | 5418 - 02 - 101 | | REVISION |
| | | | 00 |



| LEGEND | |
|---------------------|-----|
| Proposed Stormwater | --- |
| Proposed Sewer | --- |
| Proposed Water | --- |
| Hot water return | --- |
| hot water plantroom | --- |
| cold ring main | --- |
| Fire line | --- |



Pipe design data for Stormwater Line 1:

| Reference | Y | X | IL in / out | DEPTH in / out | MhType |
|-----------|-----------|-------------|-------------|----------------|---------------|
| MH1/7 | 93191.505 | 3072570.281 | 1212.000 | 1212.000 | 1.315 1.315 1 |
| MH1/6 | 93188.457 | 3072570.530 | 1212.010 | 1212.010 | 1.242 1.242 1 |
| MH1/5 | 93189.380 | 3072578.685 | 1211.950 | 1211.950 | 1.533 1.533 1 |
| MH1/4 | 93141.988 | 3072584.141 | 1211.250 | 1211.250 | 1.384 1.384 1 |
| MH1/3 | 93139.436 | 3072582.031 | 1211.100 | 1211.100 | 1.175 1.175 1 |
| MH1/2 | 93136.660 | 3072538.167 | 1210.980 | 1210.980 | 0.882 0.882 1 |
| MH1/1 | 93134.382 | 3072518.430 | 1210.950 | 1210.950 | 0.790 0.790 1 |
| CP1 | 93135.915 | 3072502.583 | 1210.890 | 1210.890 | 0.725 0.725 1 |

Pipe design data for Stormwater Line 2:

| Reference | Y | X | IL in / out | DEPTH in / out | MhType |
|-----------|-----------|-------------|-------------|----------------|---------------|
| CP1 | 93136.180 | 3072501.697 | 1210.890 | 1210.890 | 0.726 0.726 1 |
| MH2/1 | 93150.020 | 3072516.817 | 1210.900 | 1210.900 | 0.938 0.938 1 |
| MH2/2 | 93176.748 | 3072513.519 | 1210.950 | 1210.950 | 0.853 0.853 1 |
| MH2/3 | 93190.423 | 3072511.933 | 1210.960 | 1210.960 | 0.646 0.646 1 |
| MH2/4 | 93194.608 | 3072521.167 | 1210.970 | 1210.970 | 0.730 0.730 1 |
| MH2/5 | 93196.602 | 3072538.272 | 1211.236 | 1211.236 | 1.242 1.242 1 |
| MH2/6 | 93188.976 | 3072550.962 | 1211.500 | 1211.500 | 1.481 1.481 1 |
| MH2/7 | 93179.564 | 3072552.060 | 1211.577 | 1211.577 | 1.242 1.242 1 |

Pipe design data for Stormwater Line 3:

| Reference | Y | X | IL in / out | DEPTH in / out | MhType |
|-----------|-----------|-------------|-------------|----------------|---------------|
| MH3/1 | 93178.520 | 3072528.451 | 1211.500 | 1211.500 | 0.777 0.777 1 |
| MH3/2 | 93185.443 | 3072527.668 | 1211.104 | 1211.104 | 1.242 1.242 1 |
| MH2/4 | 93194.608 | 3072521.167 | 1210.970 | 1210.970 | 0.730 0.730 1 |

Pipe design data for Stormwater Line 4:

| Reference | Y | X | IL in / out | DEPTH in / out | MhType |
|-----------|-----------|-------------|-------------|----------------|---------------|
| MH4/1 | 93149.068 | 3072536.738 | 1211.200 | 1211.200 | 0.883 0.883 1 |
| MH1/2 | 93136.660 | 3072538.167 | 1210.980 | 1210.980 | 0.882 0.882 1 |

Pipe design data for Stormwater Line 5:

| Reference | Y | X | IL in / out | DEPTH in / out | MhType |
|-----------|-----------|-------------|-------------|----------------|---------------|
| MH5/1 | 93151.514 | 3072560.640 | 1211.362 | 1211.362 | 1.092 1.092 1 |
| MH1/3 | 93139.436 | 3072582.031 | 1211.100 | 1211.100 | 1.175 1.175 1 |

PLAN
Scale 1:100

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FOR CONSTRUCTION**

| REF | DATE | DESCRIPTION | NAME |
|-----|------|-------------|------|
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 INNOVATED SUSTAINABLE SOLUTIONS
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 2 Richefond Circle,
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 Website: www.blackbalance.co.za
 Tel: +27 31 201 1338
 P.O. Box 1142, Hyper By The Sea, Durban, 4053

CLIENT DEPARTMENT OF HEALTH - KZN

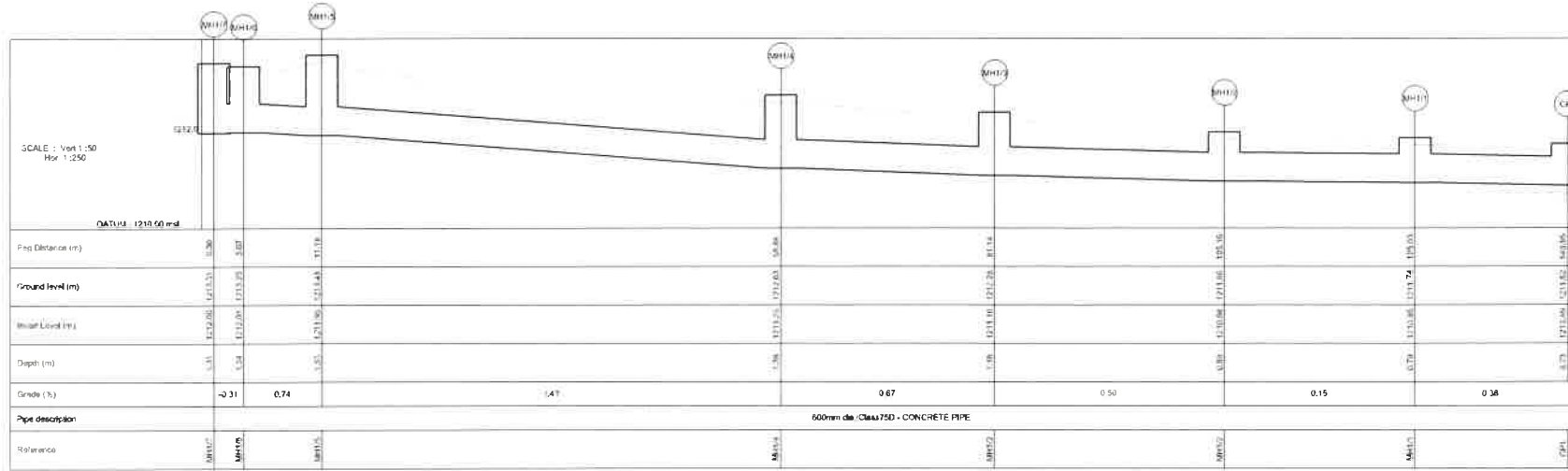


PROJECT
**PROPOSED ALTERATIONS AND
 REFURBISHMENTS TO EXISTING
 STUDENT ACCOMMODATION IN
 MADADENI HOSPITAL SITE 1
 (HOSPITAL SITE) IN THE TOWNSHIP
 ON FARM SUTTLEWORTH NO. 9504**

DISCIPLINE
CIVILS

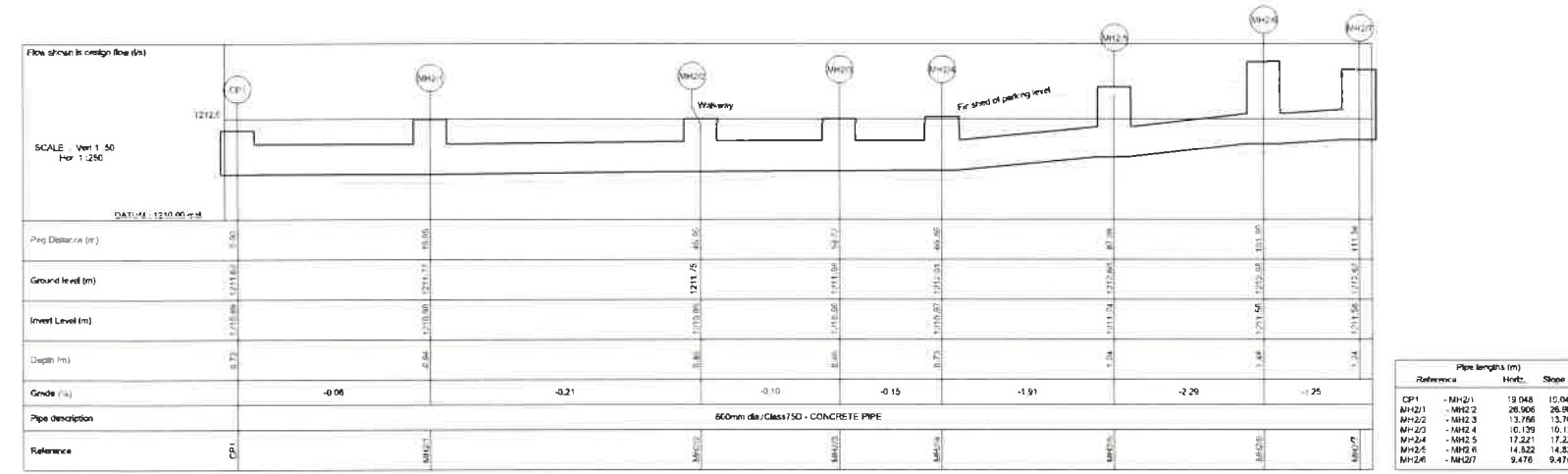
DRAWING TITLE
PROPOSED STORMWATER PIPELINE

| TITLE | RESPONSIBLE PERSON | DATE | ORIGINAL SIZE |
|-------------|--------------------|---------|---------------|
| DESIGNED | M.J.B | NOV' 20 | A1 |
| DRAWN | S.T | NOV' 20 | SCALE |
| CHECKED | M.J.B | | AS SHOWN |
| APPROVED | M.J.B | | |
| SIGNATURE | | | PROJ No |
| ECSA No. | 930366 | | 5418 |
| DRAWING No. | 5418-03-100 | | REVISION 0 |



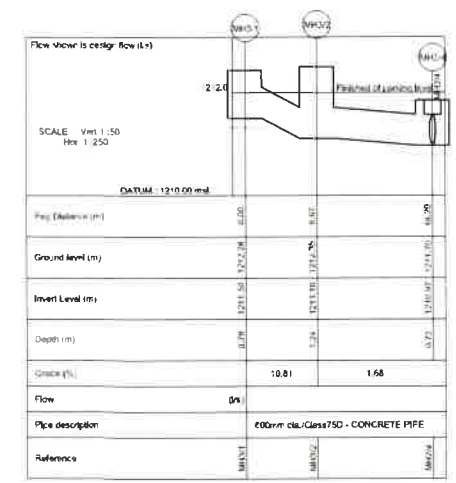
| Reference | Pipe lengths (m) | |
|-------------|------------------|-------|
| | Horiz. | Slope |
| MH17 - MH18 | 3.07 | 3.07 |
| MH18 - MH19 | 8.10 | 8.10 |
| MH19 - MH20 | 47.70 | 47.70 |
| MH20 - MH21 | 22.25 | 22.25 |
| MH21 - MH22 | 24.02 | 24.02 |
| MH22 - MH23 | 10.00 | 10.00 |
| MH23 - MH24 | 15.02 | 15.02 |

Stormwater_Line_1
STORM WATER LINE 1 LONGITUDINAL SECTION
 Horizontal Scale 1:250
 Vertical Scale 1:50



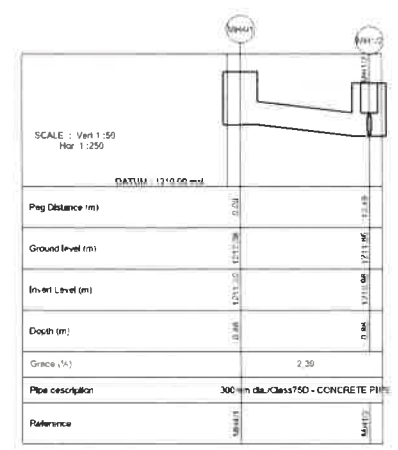
| Reference | Pipe lengths (m) | |
|-------------|------------------|-------|
| | Horiz. | Slope |
| CP1 - MH25 | 19.04 | 19.04 |
| MH25 - MH26 | 26.06 | 26.06 |
| MH26 - MH27 | 13.76 | 13.76 |
| MH27 - MH28 | 10.10 | 10.10 |
| MH28 - MH29 | 17.22 | 17.22 |
| MH29 - MH30 | 14.82 | 14.82 |
| MH30 - MH31 | 9.47 | 9.47 |

Stormwater_Line_2
STORM WATER LINE 2 LONGITUDINAL SECTION
 Horizontal Scale 1:250
 Vertical Scale 1:50



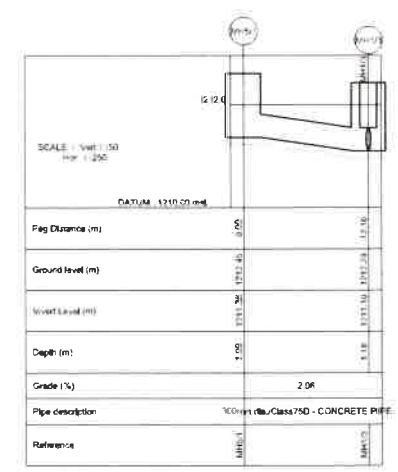
| Reference | Pipe lengths (m) | |
|-------------|------------------|-------|
| | Horiz. | Slope |
| MH34 - MH35 | 8.97 | 8.97 |
| MH35 - MH36 | 11.26 | 11.26 |

Stormwater_Line_3
STORM WATER LINE 3 LONGITUDINAL SECTION
 Horizontal Scale 1:250
 Vertical Scale 1:50



| Reference | Pipe lengths (m) | |
|-------------|------------------|-------|
| | Horiz. | Slope |
| MH37 - MH38 | 12.40 | 12.40 |

Stormwater_Line_4
STORM WATER LINE 4 LONGITUDINAL SECTION
 Horizontal Scale 1:250
 Vertical Scale 1:50



| Reference | Pipe lengths (m) | |
|-------------|------------------|-------|
| | Horiz. | Slope |
| MH39 - MH40 | 12.58 | 12.58 |

Stormwater_Line_5
STORM WATER LINE 5 LONGITUDINAL SECTION
 Horizontal Scale 1:250
 Vertical Scale 1:50

PRELIMINARY FOR INFORMATION ONLY FOR APPROVAL FOR TENDER PURPOSES FOR CONSTRUCTION

| REV. | DATE | DESCRIPTION | BY |
|------|------|-------------|----|
| | | | |

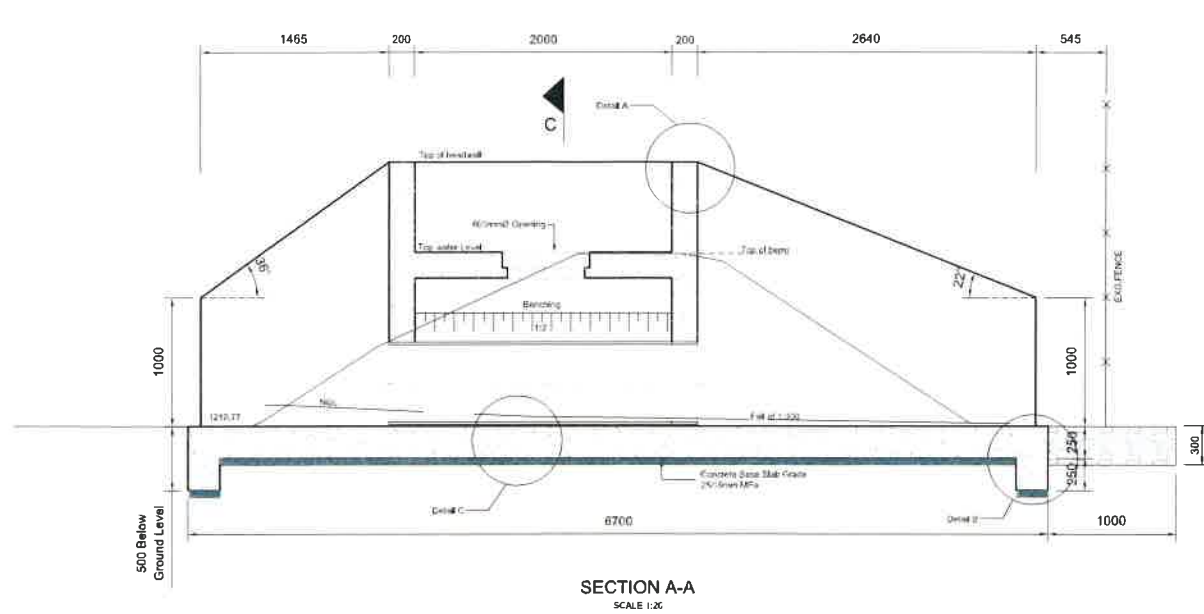
BLACK BALANCE PROJECTS (Pty) Limited
 INDEPENDENT SURVEYORS & CIVILS
 Suite 302, 2nd Floor
 2 Netherford Circle,
 Ridgeway Office Park
 Limpitanga, 4120
 Website: www.blackbalance.co.za
 Tel: +27 81 271 8338
 P.O. Box 1142 Hylton By The Sea, Durban 4051

CLIENT
 DEPARTMENT OF HEALTH - KZN

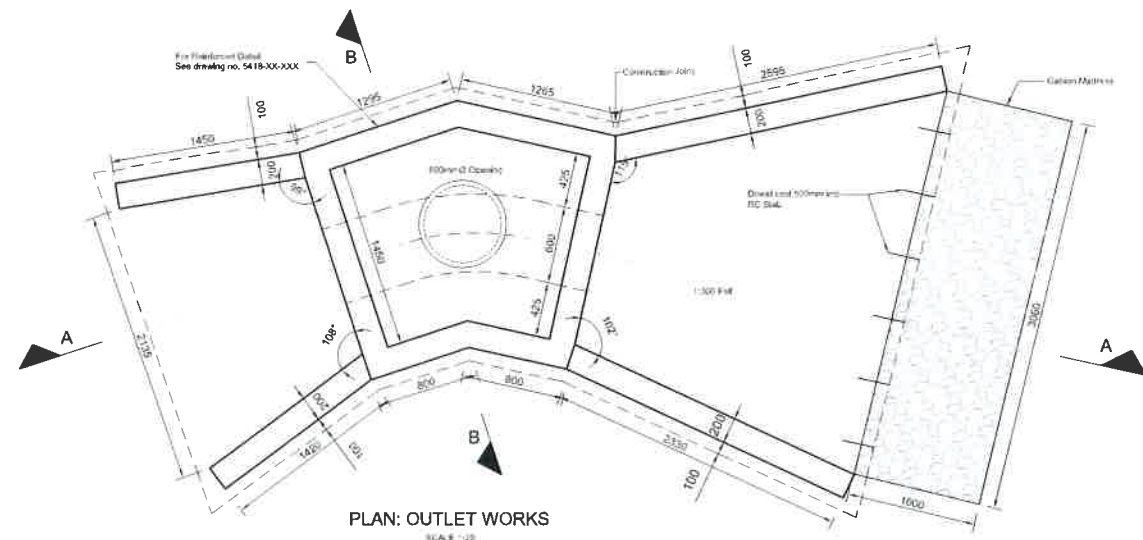
PROJECT
 PROPOSED ALTERATIONS AND REFURBISHMENTS TO EXISTING STUDENT ACCOMMODATION IN MADADDEN HOSPITAL SITE 1 (HOSPITAL SITE) IN THE TOWNSHIP ON FARM SUTTLEWORTH NO. 9504

| DESIGNED | DRAWN | CHECKED | APPROVED | SIGNATURE | DATE | SCALE | PROJ No | REVISED BY |
|----------|-------|---------|----------|-----------|--------|-------|---------|------------|
| M.B. | M.B. | M.B. | | | NOV 20 | A1 | 5418 | |
| | | | | | NOV 20 | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

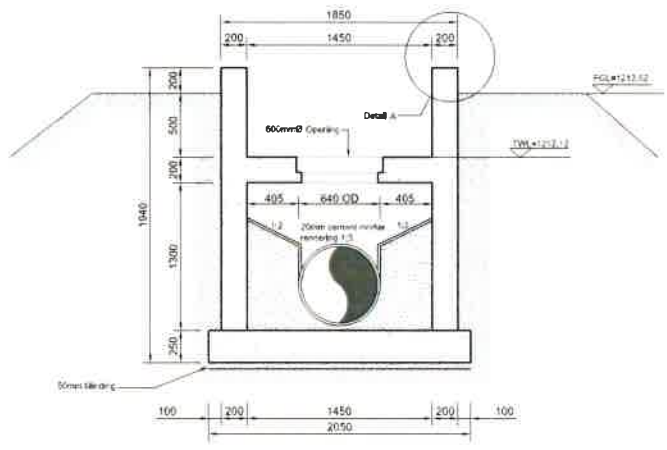
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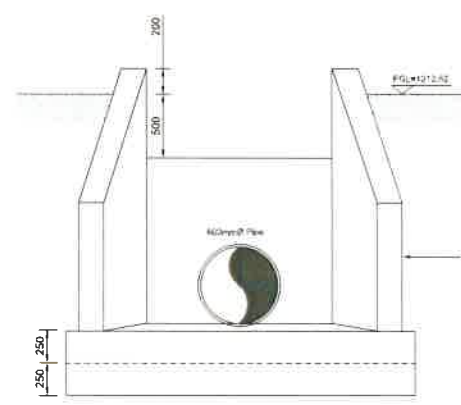
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SCALE 1:20



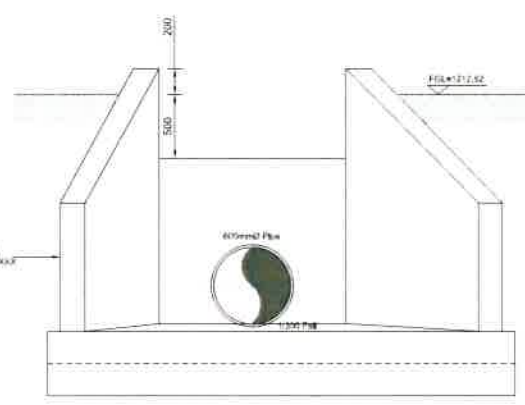
PLAN: OUTLET WORKS
SCALE 1:20



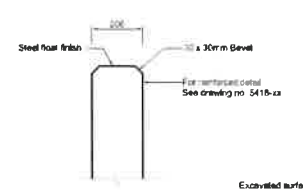
SECTION B-B
SCALE 1:20



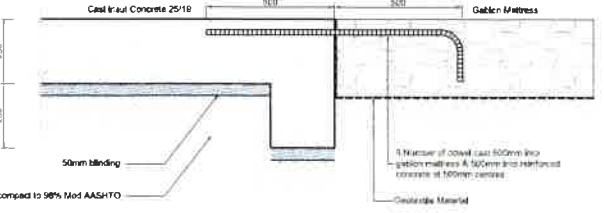
LEFT ELEVATION
SCALE 1:20



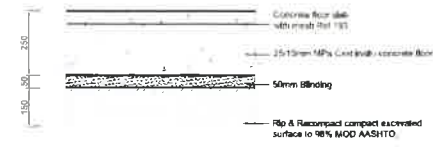
RIGHT ELEVATION
SCALE 1:20



DETAIL A
SCALE 1:10



DETAIL B
SCALE 1:10



DETAIL C
SCALE 1:10

| REV | SPECIAL | REFERENCE OR REVISION DESCRIPTION | DATE |
|-----|---------|-----------------------------------|------|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

BLACK BALANCE PROJECTS (Pty) Limited
 INNOVATED SUSTAINABLE SOLUTIONS
 Suite 302, 3rd Floor
 2 Rialto Street
 Ridgegrade Office Park
 Imbongi, 4130
 Website: www.blackbalance.co.za
 Tel: +27 31 201 3338
 P.O. Box 1142, Meyer, The Sea, Durban, 4023



CLIENT: DEPARTMENT OF HEALTH - KZN



PROJECT: PROPOSED ALTERATIONS AND REFURBISHMENTS TO EXISTING STUDENT ACCOMMODATION IN MADADENI HOSPITAL SITE 1 (HOSPITAL SITE) IN THE TOWNSHIP ON FARM SUTTLEWORTH NO. 9504

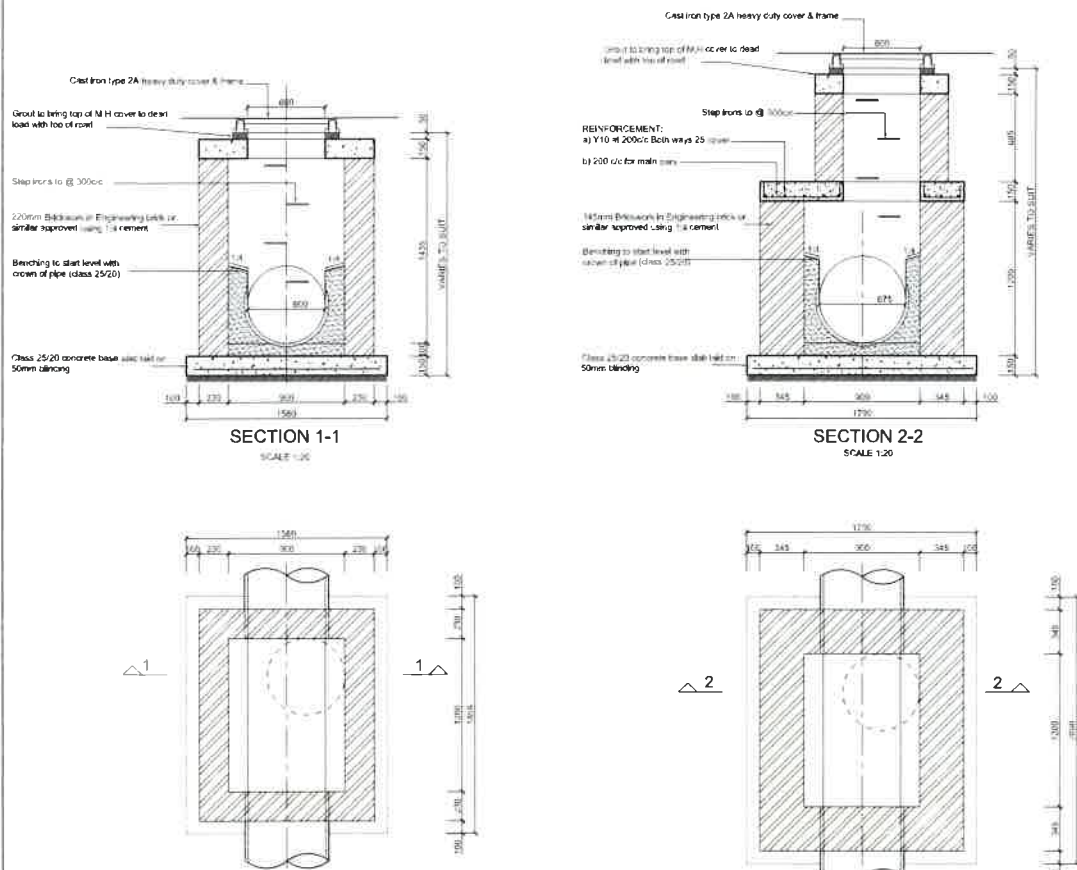
DISCIPLINE: CIVILS
 DRAWING TITLE: OUTLET WORKS TO DETECTION FACILITY

| TITLE | RESPONSIBLE PERSON | DATE | STATUS |
|----------|--------------------|--------|----------|
| DRAWN | M.J.B. | FEB 21 | AS SHOWN |
| CHECKED | M.J.B. | FEB 21 | AS SHOWN |
| APPROVED | M.J.B. | FEB 21 | AS SHOWN |
| DATE | DATE | DATE | DATE |
| | | | |

PRELIMINARY FOR INFORMATION ONLY FOR APPROVAL FOR TENDER PURPOSES FOR CONSTRUCTION

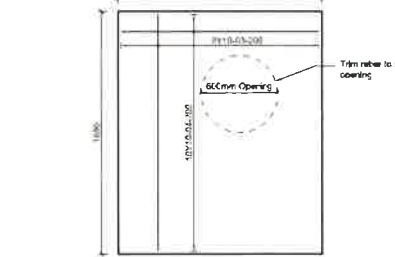
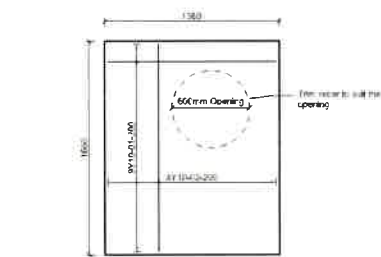
5418 - 03 - 102

NOTE:
 WIDTH - 750mm PIPES AND LESS - 500mm
 825mm PIPES AND LESS - 1200mm
 SCALE - JUNCTION MANHOLES SIZE TO BE DETERMINED ON SITE
 DEPTH - THE DEPTH INDICATED SHOULD BE INCREASED IF NECESSARY FOR ANGLE & JUNCTION MANHOLES TO PERMIT SUFFICIENT DISCHARGE
 HEAD TO BE LEVEL (SAMBON DEPTH = 1.75x WIDTH OF BRICKWORK TO BE INCREASED TO 141)



PLAN: TYPE S1 PIPES (375Ø - 750Ø)
DEPTH 0 - 2m
SCALE 1:20

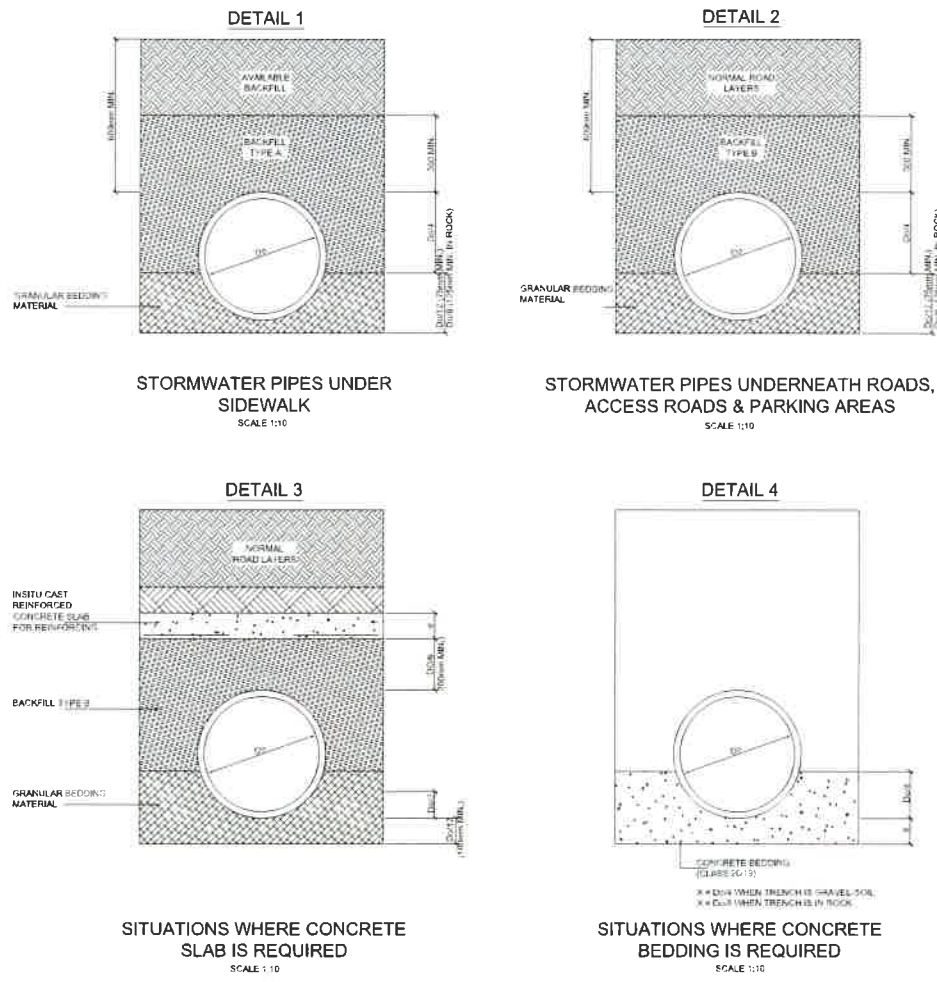
PLAN: TYPE S2; PIPES (375Ø - 750Ø)
DEPTH 2m - 4m
SCALE 1:20



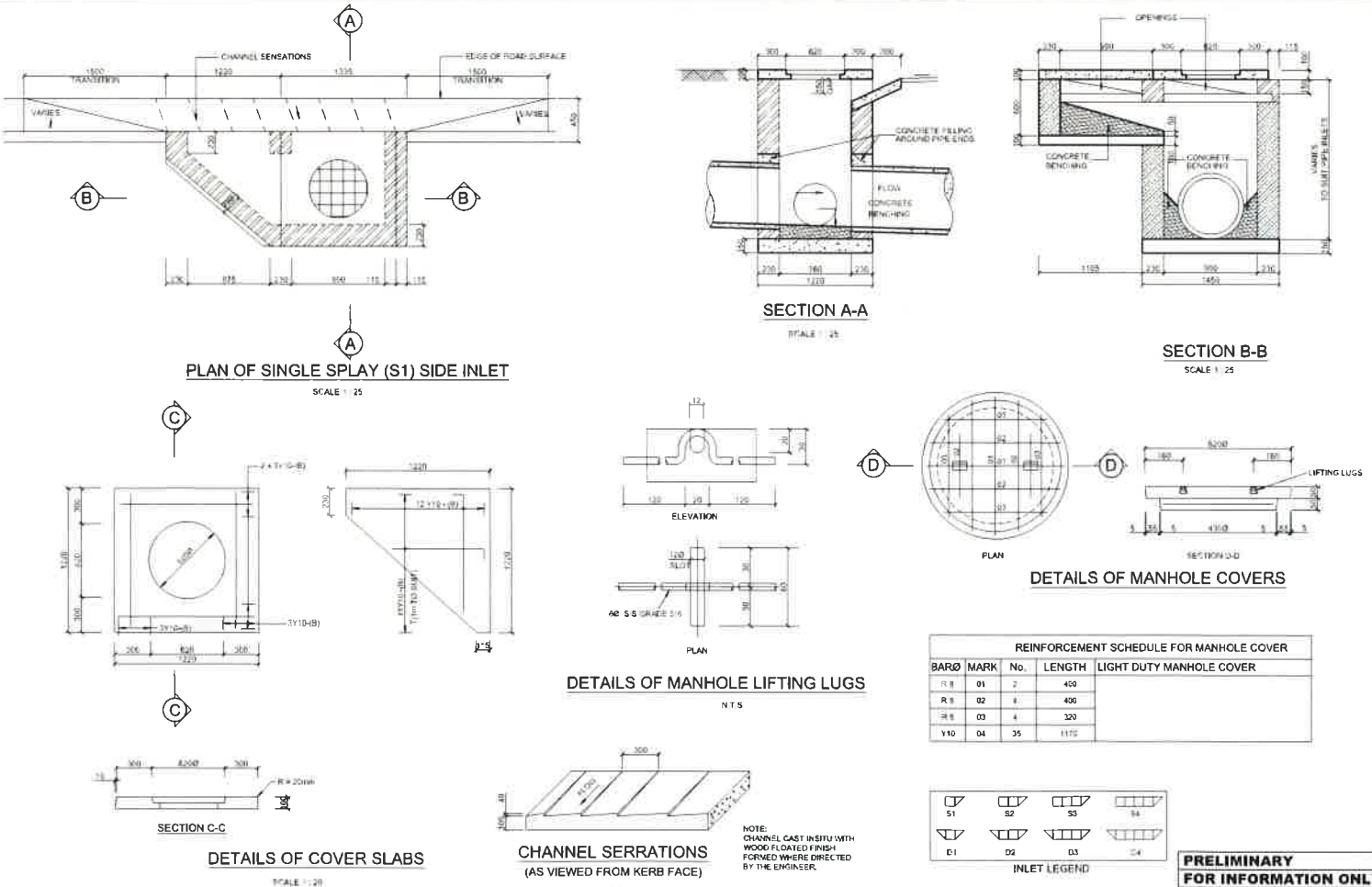
| DEPTH | NO. OF BARS | BAR SIZE | TOTAL LENGTH | WEIGHT | REMARKS |
|-------------|-------------|----------|--------------|--------|---------|
| 0.00 - 0.20 | 12 | R8 | 14.40 | 1.15 | |
| 0.20 - 0.40 | 12 | R8 | 14.40 | 1.15 | |
| 0.40 - 0.60 | 12 | R8 | 14.40 | 1.15 | |
| 0.60 - 0.80 | 12 | R8 | 14.40 | 1.15 | |
| 0.80 - 1.00 | 12 | R8 | 14.40 | 1.15 | |
| 1.00 - 1.20 | 12 | R8 | 14.40 | 1.15 | |
| 1.20 - 1.40 | 12 | R8 | 14.40 | 1.15 | |
| 1.40 - 1.60 | 12 | R8 | 14.40 | 1.15 | |
| 1.60 - 1.80 | 12 | R8 | 14.40 | 1.15 | |
| 1.80 - 2.00 | 12 | R8 | 14.40 | 1.15 | |
| TOTAL | 144 | | 172.80 | 13.80 | |

| DEPTH | NO. OF BARS | BAR SIZE | TOTAL LENGTH | WEIGHT | REMARKS |
|-------------|-------------|----------|--------------|--------|---------|
| 0.00 - 0.20 | 12 | R8 | 14.40 | 1.15 | |
| 0.20 - 0.40 | 12 | R8 | 14.40 | 1.15 | |
| 0.40 - 0.60 | 12 | R8 | 14.40 | 1.15 | |
| 0.60 - 0.80 | 12 | R8 | 14.40 | 1.15 | |
| 0.80 - 1.00 | 12 | R8 | 14.40 | 1.15 | |
| 1.00 - 1.20 | 12 | R8 | 14.40 | 1.15 | |
| 1.20 - 1.40 | 12 | R8 | 14.40 | 1.15 | |
| 1.40 - 1.60 | 12 | R8 | 14.40 | 1.15 | |
| 1.60 - 1.80 | 12 | R8 | 14.40 | 1.15 | |
| 1.80 - 2.00 | 12 | R8 | 14.40 | 1.15 | |
| TOTAL | 144 | | 172.80 | 13.80 | |

STANDARD STORMWATER MANHOLE DETAILS



TYPICAL PIPE BEDDING CONDITIONS



REINFORCEMENT SCHEDULE FOR MANHOLE COVER

| BAR# | MARK | No. | LENGTH | LIGHT DUTY MANHOLE COVER |
|------|------|-----|--------|--------------------------|
| R 8 | 01 | 2 | 400 | |
| R 8 | 02 | 4 | 400 | |
| R 8 | 03 | 4 | 300 | |
| Y10 | 04 | 35 | 1170 | |

TABLE 1

| DEPTH (m) | REINFORCING | MIN. COVER |
|------------------------------------|--------------------------|------------|
| CONCRETE SLAB CLASS 20/19 CONCRETE | | |
| Do < 900mm | REF. No. 245 WELDED MESH | 40mm |
| 900mm < Do < 1400mm | REF. No. 211 WELDED MESH | 40mm |

TABLE 2

| TRENCH WIDTH (mm) | COVER (m) | | | | | | | | | | | |
|-------------------|-----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|
| | 0.6 | 0.9 | 1.0 | 1.2 | 1.5 | 1.8 | 2.0 | 2.5 | 3.0 | 4.0 | 5.0 | 6.0 |
| 450 | 560 | 750 | 750 | 750 | 750 | 750 | 750 | 750 | 750 | 750 | 750 | 750 |
| 540 | 1020 | 750 | 750 | 750 | 750 | 750 | 750 | 750 | 750 | 750 | 750 | 750 |
| 600 | 1820 | 750 | 500 | 500 | 500 | 500 | 500 | 750 | 750 | 750 | 1000 | 1000 |
| 675 | 1710 | 750 | 750 | 750 | 750 | 750 | 750 | 750 | 750 | 750 | 1000 | 1000 |
| 750 | 1710 | 750 | 750 | 750 | 750 | 750 | 750 | 750 | 750 | 750 | 1000 | 1000 |
| 750 | 1710 | 750 | 750 | 750 | 750 | 750 | 750 | 750 | 750 | 750 | 1000 | 1000 |
| 825 | 1870 | 750 | 500 | 500 | 500 | 500 | 500 | 750 | 750 | 750 | 1000 | 1000 |
| 900 | 1950 | 750 | 500 | 500 | 500 | 500 | 750 | 750 | 750 | 750 | 1000 | 1000 |
| 1050 | 2160 | 750 | 750 | 750 | 750 | 750 | 750 | 750 | 750 | 750 | 1000 | 1000 |
| 1200 | 2280 | 750 | 500 | 500 | 500 | 500 | 500 | 500 | 500 | 750 | 750 | 1000 |
| 1350 | 2450 | 500 | 500 | 500 | 500 | 500 | 500 | 500 | 500 | 750 | 750 | 1000 |
| 1500 | 2610 | 500 | 500 | 500 | 500 | 500 | 500 | 500 | 500 | 750 | 750 | 1000 |
| 1650 | 2780 | 500 | 500 | 500 | 500 | 500 | 500 | 500 | 500 | 750 | 750 | 1000 |
| 1800 | 3060 | 500 | 500 | 500 | 500 | 500 | 500 | 500 | 500 | 750 | 750 | 1000 |

PIPE CLASSES FOR PIPES UNDER SECONDARY STREETS, LIGHT ACCESS ROADS, PARKING AREAS, PRIVATE ENTRANCES AND SIDEWALKS FOR 40 KN WHEEL LOAD WITH DUE ALLOWANCE FOR IMPACT LOADS

| TRENCH WIDTH (mm) | COVER (m) | | | | | | | | | | | |
|-------------------|-----------|-----|------|------|------|------|------|------|------|------|------|------|
| | 0.6 | 0.9 | 1.0 | 1.2 | 1.5 | 1.8 | 2.0 | 2.5 | 3.0 | 4.0 | 5.0 | 6.0 |
| 450 | 350 | 750 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| 540 | 620 | 750 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| 600 | 1710 | 750 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| 675 | 1710 | 750 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| 750 | 1710 | 750 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| 825 | 1870 | 750 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| 900 | 1950 | 750 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| 1050 | 2120 | 750 | 500 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| 1200 | 2280 | 750 | 500 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| 1350 | 2450 | 750 | 500 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| 1500 | 2610 | 750 | 500 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| 1650 | 2780 | 500 | 500 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| 1800 | 3060 | 500 | 500 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |

PIPE CLASSES FOR PIPES UNDER MAIN ROUTES FOR HEAVY WHEEL LOADS OF 80 KN WHEEL LOADS WITH DUE ALLOWANCE FOR IMPACT LOADS

| TRENCH WIDTH (mm) | COVER (m) | | | | | | | | | | | |
|-------------------|-----------|-----|------|------|------|------|------|------|------|------|------|------|
| | 0.6 | 0.9 | 1.0 | 1.2 | 1.5 | 1.8 | 2.0 | 2.5 | 3.0 | 4.0 | 5.0 | 6.0 |
| 450 | 350 | 750 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| 540 | 620 | 750 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| 600 | 1710 | 750 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| 675 | 1710 | 750 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| 750 | 1710 | 750 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| 825 | 1870 | 750 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| 900 | 1950 | 750 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| 1050 | 2120 | 750 | 500 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| 1200 | 2280 | 750 | 500 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| 1350 | 2450 | 750 | 500 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| 1500 | 2610 | 750 | 500 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| 1650 | 2780 | 500 | 500 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| 1800 | 3060 | 500 | 500 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |

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 INNOVATIVE SUSTAINABLE SOLUTIONS
 Suite 302, 3rd Floor
 2 Nicholson Circle
 Aqualand Office Park
 Umhlanga 4320
 Web: www.blackbalance.co.za
 Tel: +27 31 201 1338
 P.O. Box 1182, Hyslop Rd, The Square, Durban 4001

DEPARTMENT OF HEALTH - KZN

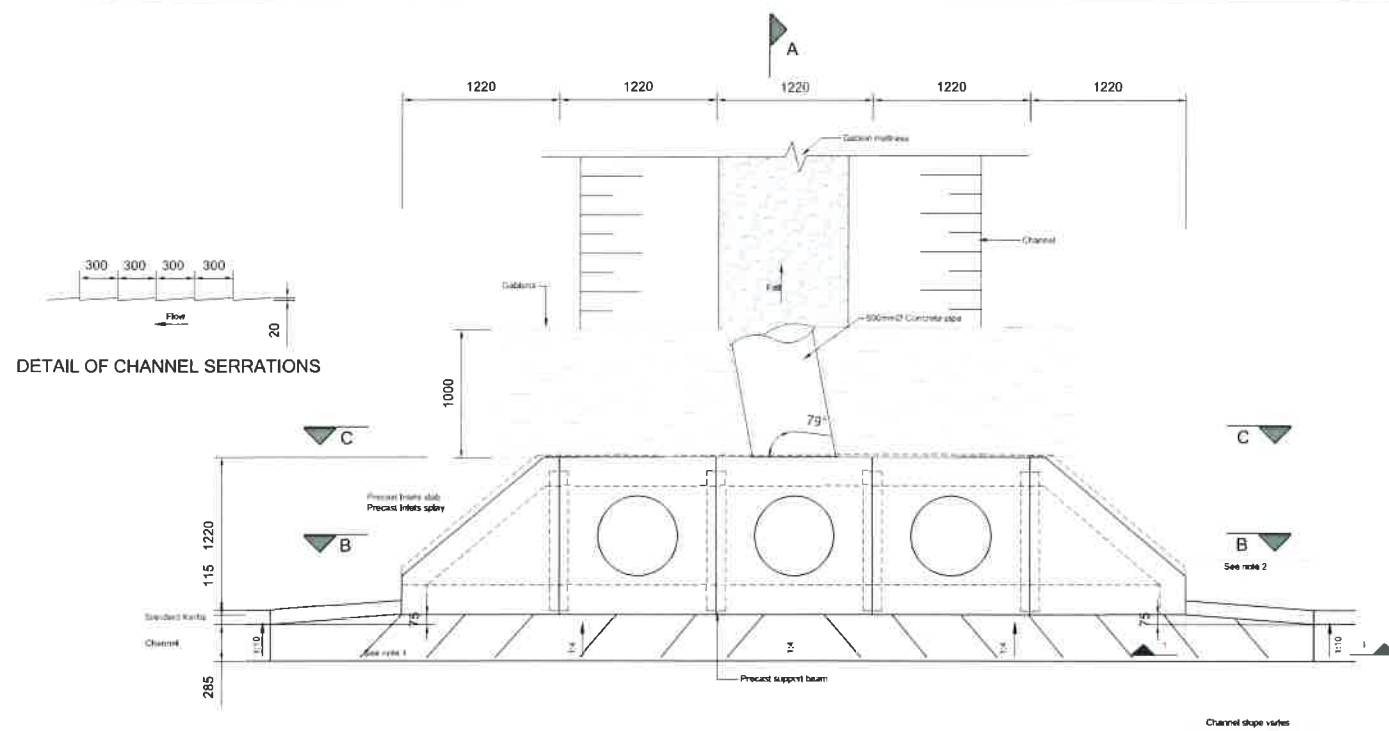
PROJECT: PROPOSED ALTERATIONS AND REFURBISHMENTS TO EXISTING STUDENT ACCOMMODATION IN MADADENI HOSPITAL SITE 1 (HOSPITAL SITE) IN THE TOWNSHIP ON FARM SUTTLEWORTH NO. 9504

CIVILS
STORMWATER TYPICAL DETAILS

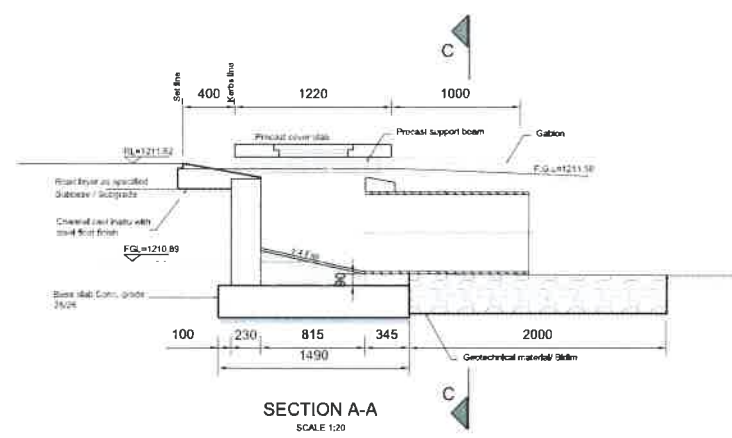
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|----------|--------------------|--------|--------------|
| DESIGNED | S.T. | FEB 21 | AD |
| CHECKED | M.L.H. | FEB 21 | AS SHOWN |
| APPROVED | M.L.H. | | |
| DRAWN | | | |
| SCALE | | | |

PRELIMINARY FOR INFORMATION ONLY FOR APPROVAL FOR TENDER PURPOSES FOR CONSTRUCTION

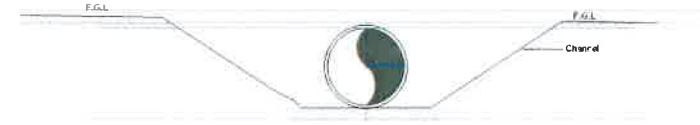
PROJ No: SA19
 5418-03-103
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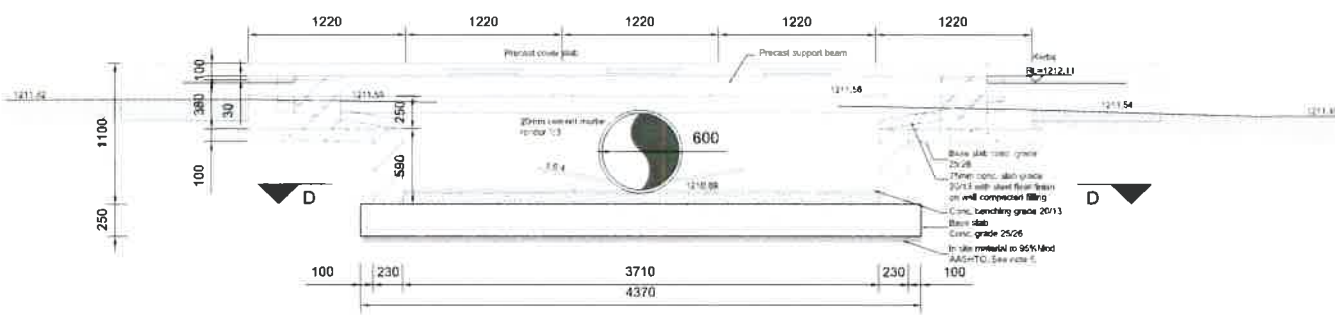
CATCH PIT 1 PLAN LAYOUT
SCALE 1:20



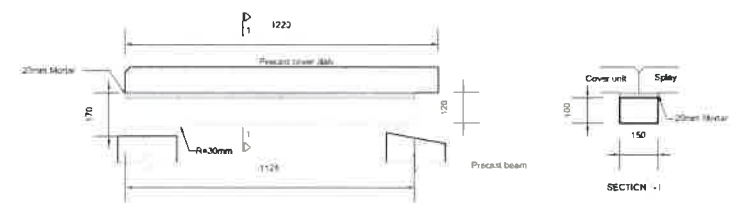
SECTION A-A
SCALE 1:20



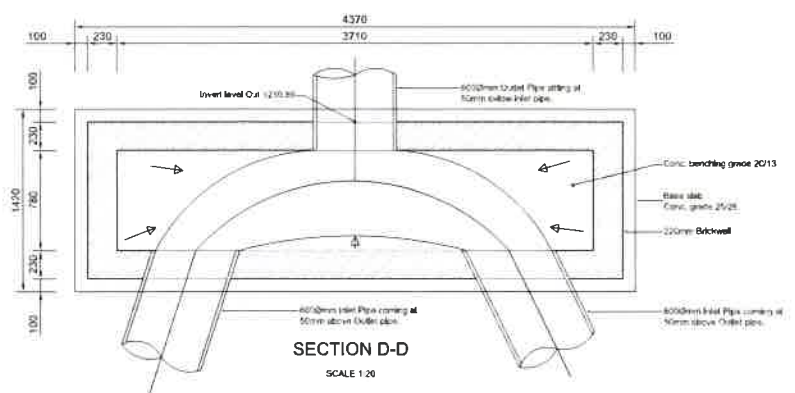
SECTION C-C
SCALE 1:20



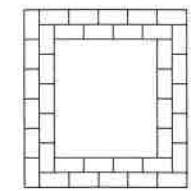
SECTION B-B
SCALE 1:20



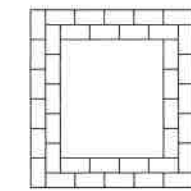
BEAM POSITION DETAILS
SCALE 1:10



SECTION D-D
SCALE 1:20



PATTERN A



PATTERN B

TO BE USED FOR THE FOLLOWING INTERNAL DIMENSIONS
80mm x 80mm
103mm x 110mm
124mm x 118mm
146mm x 151mm

1. Catchpit face to be set back 75mm from kerb line
2. 100mm transition from kerb line to catchpit line
3. Type A benching to be used for S.W. Inlet located at the head of the siphon. The benching need only be finished at grade 1:10 to the outlet.
4. Max. depth of inlet after which a manhole type structure is to be detailed.

| Inlet Type | Max. Depth (F.R.L. Invert) |
|------------|----------------------------|
| S | 2.0 |
| E | 3.0 |

5. The wall, ground shall be maintained to 10% Moisture content prior to the inlet base slab being cast. If this moisture can not be achieved the traffic material must be removed to a depth of 300mm and replaced with a selected backfill.
6. Gutter lengths: In roads without full kerb and channel, minimum gutter lengths of 1.0m are to be provided on both upstream and downstream sides. Where additional lengths are required they will not be indicated on road S.W. Drawing. Upstream gutter lengths shall not be less than the following:

| Road Grade | Upstream Gutter Lengths |
|------------|-------------------------|
| 0 - 2% | 1m |
| 2 - 4% | 2m |
| 4 - 6% | 3m |
| 6 - 8% | 4m |
| > 8% | 5m |

| REV | DATE | DESCRIPTION | BY |
|-----|------|-------------|----|
| | | | |
| | | | |
| | | | |
| | | | |

BLACK BALANCE PROJECTS (PTY) LTD
INNOVATED SUSTAINABLE SOLUTIONS
Suite 302, 3rd Floor
12 Macdonell Circle
Ridge Side Office Park
Midrand, 4120
Website: www.blackbalance.co.za
Tel: +27 11 201 1358
P.O. Box 1142, Inxhaya, The Six, Durban, 4053

CLIENT: DEPARTMENT OF HEALTH - KZN

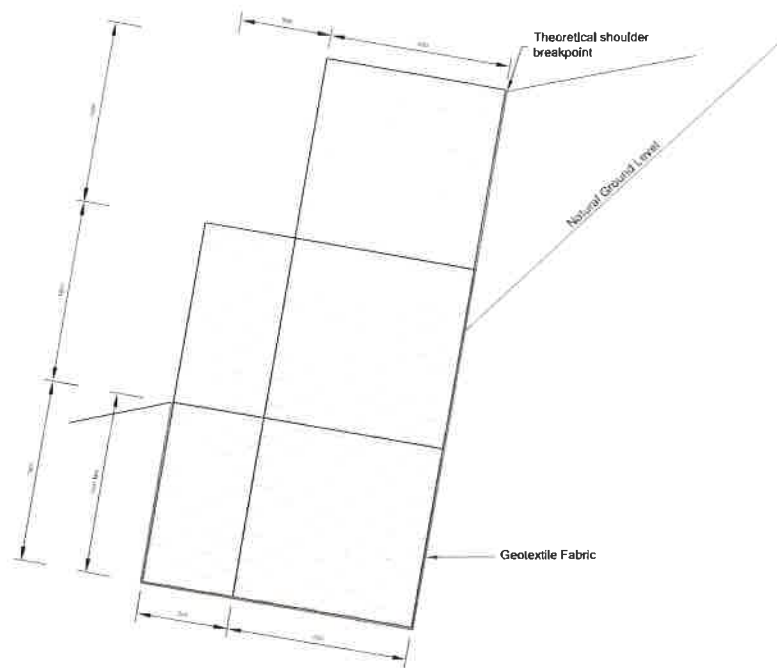
health
Department of Health
PROVINCE OF KWAZULU-NATAL

PROJECT: PROPOSED ALTERATIONS AND REFURBISHMENTS TO EXISTING STUDENT ACCOMMODATION IN MADADENI HOSPITAL SITE 1 (HOSPITAL SITE) IN THE TOWNSHIP ON FARM SUTTLEWORTH NO. 95D4

DISCIPLINE: CIVILS
DRAWING TITLE: CATCH PIT 1 TO DETECTION FACILITY

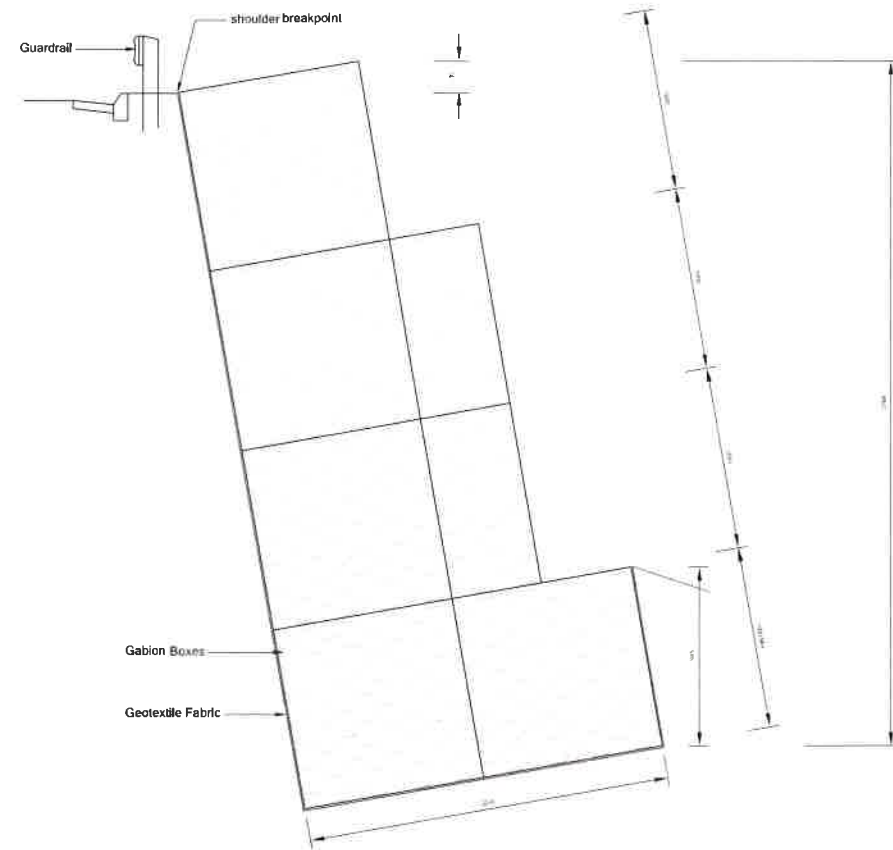
| TITLE | RESPONSIBLE PERSON | DATE | ORIGINAL NO. |
|------------|--------------------|--------|--------------|
| DESIGNED | M.J.R. | FEB 21 | AO |
| DRAWN | S.T. | FEB 21 | SCALE |
| CHECKED | M.J.B. | | AS SHOWN |
| APPROVED | | | |
| SIGNATURE | | | PROJ No |
| ECOA No | 100000 | | 5418 |
| DRAWING No | | | REVISED |
| | 5418 - 03 - 104 | | 00 |

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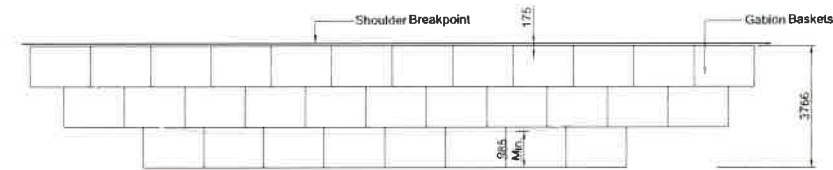


3m Gabion Retaining Wall
SCALE 1:20

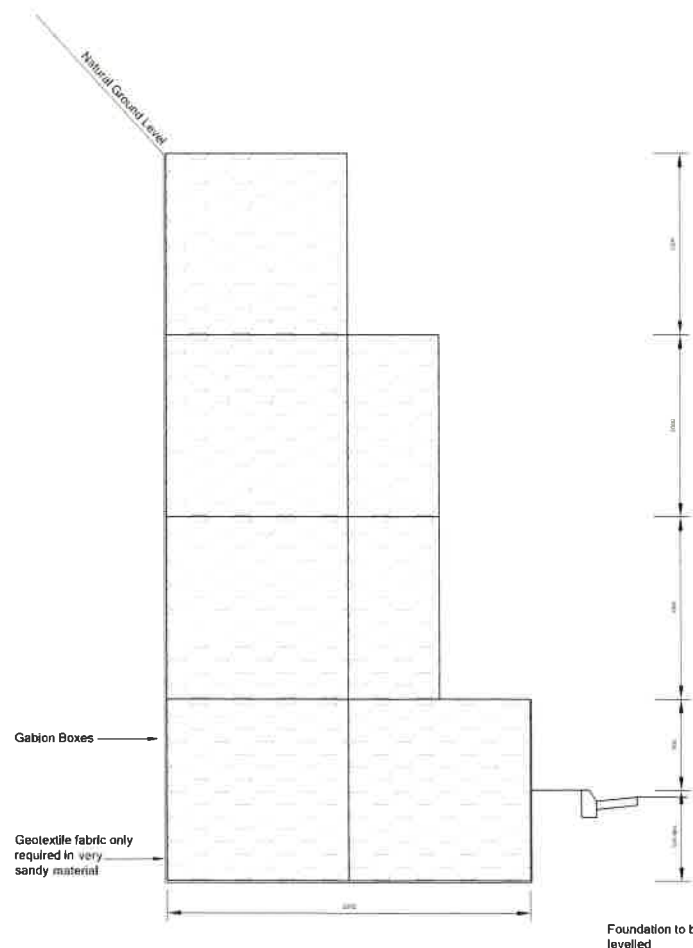
FILL CONDITION



4m Gabion Retaining Wall
SCALE 1:20

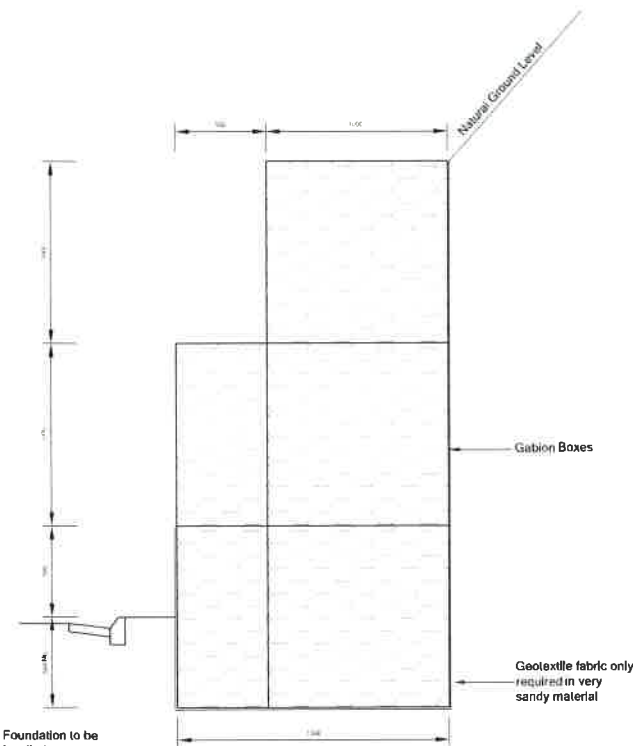


TYPICAL SIDE ELEVATION IN FILL CONDITION (4.0m WALL)
N.T.S



4m Gabion Retaining Wall
SCALE 1:20

CUT CONDITION



3m Gabion Retaining Wall
SCALE 1:20

- NOTES:**
- The gabion design shown is typical. Each application of gabion boxes shall be designed by the planning or bridge Engineer to suit the specific condition prevailing.
 - Foundations to be stepped and prepared as instructed by the Engineer. Geotextile fabric to be grade C or similar as instructed by Engineer.
 - All wire used in the making of gabions shall be galvanised in accordance with the provisions S.A.B.S. 1580:1993 for class A heavy galvanised mild-steel wire.
 - The Standard sizes of gabions are as follow
Length : 1.0m, 2.0m, 3.0m & 4.0m
Width : 1.0m, 1.5m
Depth : 0.5m & 1.0m
Diaphragm spacing : 1.0m
 - Lacing and bracing to be done in accordance with manufactures recommendations.

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FOR CONSTRUCTION**

| REF | DRG No | REFERENCE DRAWING DESCRIPTION |
|-----|--------|-------------------------------|
| REV | DATE | DESCRIPTION |
| | | NAME |

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Ridgeside Office Park
Umhlanga, 4320
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Tel: +27 31 201 1338
P.O. Box 1142, Hyper By The Sea, Durban, 4053



CLIENT: DEPARTMENT OF HEALTH - KZN

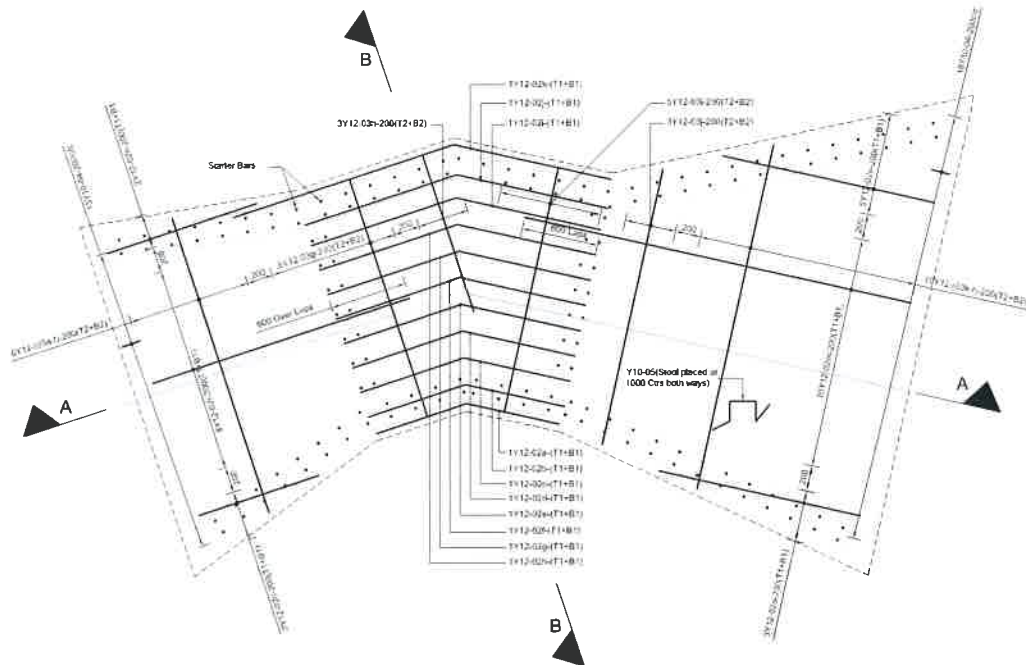


PROJECT: PROPOSED ALTERATIONS AND REFURBISHMENTS TO EXISTING STUDENT ACCOMMODATION IN MADADENI HOSPITAL SITE 1 (HOSPITAL SITE) IN THE TOWNSHIP ON FARM SUTTLEWORTH NO. 9504

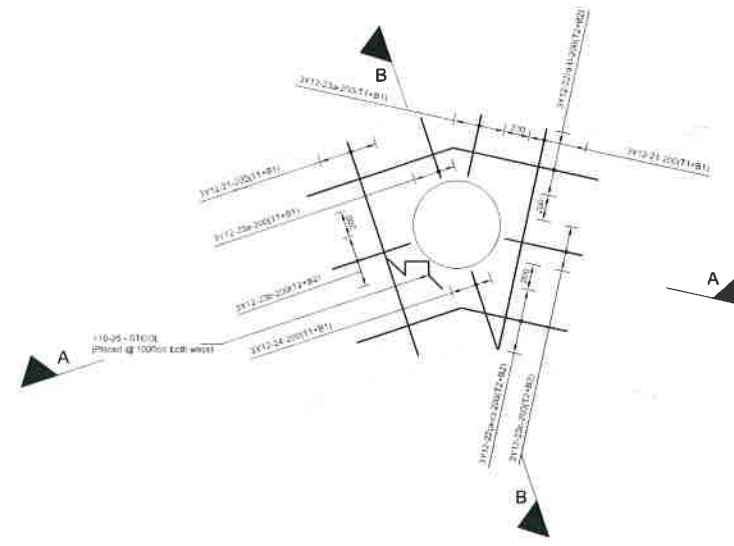
DISCIPLINE: CIVILS

DRAWING TITLE: GABION RETAINING WALL DETAILS

| TITLE | RESPONSIBLE PERSON | DATE | ORIGINAL SIZE |
|-------------|--------------------|---------|---------------|
| DESIGNED | S.T | FEB '21 | A1 |
| DRAWN | S.T | FEB '21 | SCALE |
| CHECKED | M.J.B | | AS SHOWN |
| APPROVED | | | |
| SIGNATURE | | | PROJ No |
| ECSA No | 930366 | | 5418 |
| DRAWING No. | 5418 - 03 - 105 | | REVISION |
| | | | 00 |



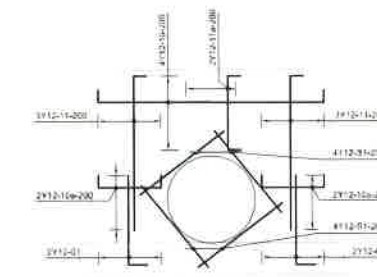
PLAN: FLOOR SLAB
(OUTLET WORKS)
SCALE 1:20



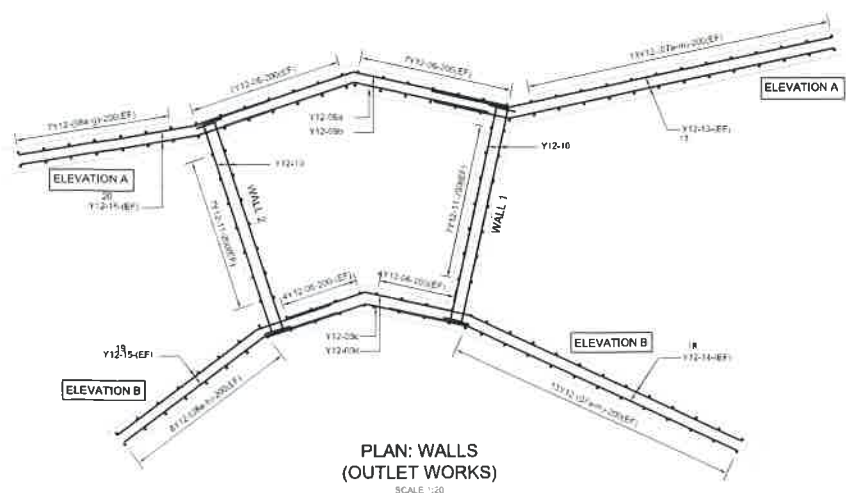
PLAN: ROOF SLAB
SCALE 1:20



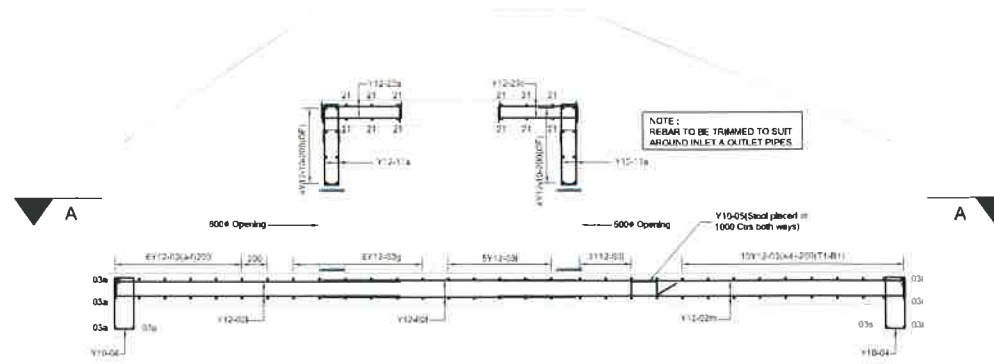
ELEVATION A
SCALE 1:20



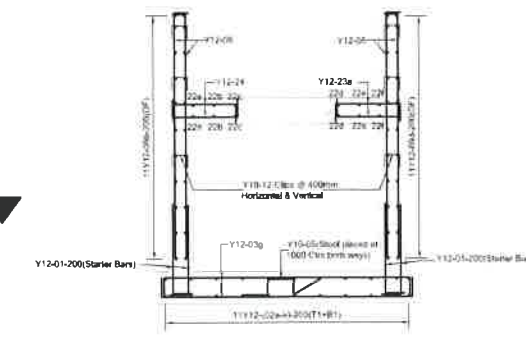
WALL 1 & 2 ELEVATION
SCALE 1:20



PLAN: WALLS
(OUTLET WORKS)
SCALE 1:20



SECTION A-A
SCALE 1:20



SECTION B-B
SCALE 1:20

- GENERAL NOTES
- This drawing to be read in conjunction with all relevant Engineers Drawings and the relevant Technical Specification.
 - Dimensions must not be scaled or assumed, after notification discrepancies or missing dimensions will be corrected in writing by the Engineer.
 - Unless otherwise noted, finish to concrete to be:
 - Foundations Cast against Earth: top steel level.
 - Slab finish to be Steel Floor (Sleek).
 - Concrete Strength at 28 days:
 - Foundation = 25 MPa
 - Floor slab = 30 MPa
 - Roof Slab = 30 MPa
 - Cover to Reinforcement:

| | |
|--------------|--------|
| Top | = 50mm |
| Bot. & Sides | = 50mm |
 - Curing to be carried out using approved SABS curing Compound or Polythene Sheeting. In extreme heat conditions >35°C, shading shall be provided by the Contractor.
 - Sealant shall be JACOBS 972 Fibre Glass (or similar approved) Polyisoprene sealant with an approved epoxy primer.
 - Cement to be OPC or PC 15.
 - Dimensions and levels to be verified by Contractor on site. Any deviation of Details from Details shown here to be reported to the Engineer immediately.
 - Unless otherwise noted in the project technical specifications, all concrete shall be comply with S.A.N.S. 1203 series of specifications.
 - All exposed concrete edges to be chamfered 20mm X 20mm unless otherwise noted.

| NO. | DATE | DESCRIPTION | BY |
|-----|------|-------------|----|
| | | | |
| | | | |
| | | | |

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 Suite 302, 3rd Floor
 2 Protea Road
 Ridgepole Office Park
 Umhlanga, 4300
 Website: www.blackbalance.co.za
 Tel: +27 31 201 1338
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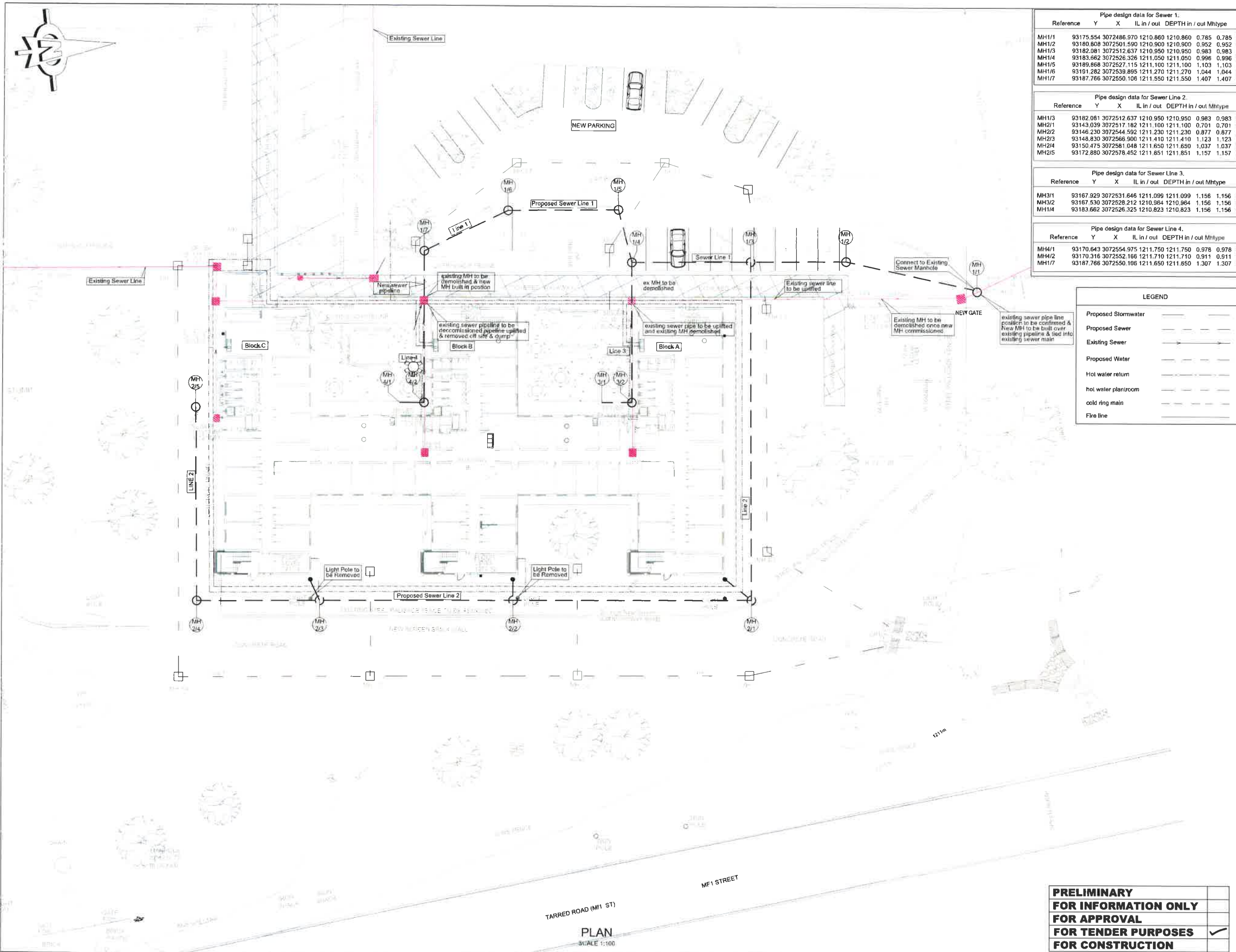

PROJECT: PROPOSED ALTERATIONS AND REFURBISHMENTS TO EXISTING STUDENT ACCOMMODATION IN MADADENI HOSPITAL SITE 1 (HOSPITAL SITE) IN THE TOWNSHIP ON FARM SUTTLEWORTH NO. 9504

DRAWING TITLE: REINFORCEMENT DETAILS TO OUTLET WORKS

| DESIGNED | RESPONSIBLE PERSON | DATE | SCALE |
|----------|--------------------|------|-------|
| | | | |
| | | | |
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| | | | | | |
|-------------|-----------------|------|--------|-------|----------|
| DESIGNED | M.J.B. | DATE | FEB 21 | SCALE | AS SHOWN |
| DRAWN | S.T. | DATE | FEB 21 | SCALE | AS SHOWN |
| CHECKED | M.J.B. | DATE | | SCALE | AS SHOWN |
| APPROVED | | DATE | | SCALE | AS SHOWN |
| SIGNATURE | | DATE | | SCALE | AS SHOWN |
| SCALE | 1:20 | DATE | | SCALE | AS SHOWN |
| DRAWING NO. | 5418 - 03 - 106 | DATE | | SCALE | AS SHOWN |



Pipe design data for Sewer Line 1.

| Reference | Y | X | IL in / out | DEPTH in / out | MhType |
|-----------|-----------|-------------|-------------|----------------|---------------|
| MH1/1 | 93175.554 | 3072486.970 | 1210.860 | 1210.860 | 0.785 0.785 1 |
| MH1/2 | 93180.808 | 3072501.590 | 1210.900 | 1210.900 | 0.952 0.952 1 |
| MH1/3 | 93182.081 | 3072512.637 | 1210.950 | 1210.950 | 0.983 0.983 1 |
| MH1/4 | 93183.662 | 3072526.326 | 1211.050 | 1211.050 | 0.996 0.996 1 |
| MH1/5 | 93189.868 | 3072527.115 | 1211.100 | 1211.100 | 1.103 1.103 1 |
| MH1/6 | 93191.282 | 3072539.895 | 1211.270 | 1211.270 | 1.044 1.044 1 |
| MH1/7 | 93187.766 | 3072550.106 | 1211.550 | 1211.550 | 1.407 1.407 1 |

Pipe design data for Sewer Line 2.

| Reference | Y | X | IL in / out | DEPTH in / out | MhType |
|-----------|-----------|-------------|-------------|----------------|---------------|
| MH1/3 | 93182.081 | 3072512.637 | 1210.950 | 1210.950 | 0.983 0.983 1 |
| MH2/1 | 93143.039 | 3072517.182 | 1211.100 | 1211.100 | 0.701 0.701 1 |
| MH2/2 | 93146.230 | 3072544.592 | 1211.230 | 1211.230 | 0.877 0.877 1 |
| MH2/3 | 93148.830 | 3072566.900 | 1211.410 | 1211.410 | 1.123 1.123 1 |
| MH2/4 | 93150.475 | 3072581.048 | 1211.650 | 1211.650 | 1.037 1.037 1 |
| MH2/5 | 93172.880 | 3072578.452 | 1211.851 | 1211.851 | 1.157 1.157 1 |

Pipe design data for Sewer Line 3.

| Reference | Y | X | IL in / out | DEPTH in / out | MhType |
|-----------|-----------|-------------|-------------|----------------|---------------|
| MH3/1 | 93167.929 | 3072531.646 | 1211.099 | 1211.099 | 1.156 1.156 1 |
| MH3/2 | 93167.530 | 3072528.212 | 1210.964 | 1210.964 | 1.156 1.156 1 |
| MH1/4 | 93183.662 | 3072526.325 | 1210.823 | 1210.823 | 1.156 1.156 1 |

Pipe design data for Sewer Line 4.

| Reference | Y | X | IL in / out | DEPTH in / out | MhType |
|-----------|-----------|-------------|-------------|----------------|---------------|
| MH4/1 | 93170.643 | 3072554.975 | 1211.750 | 1211.750 | 0.978 0.978 1 |
| MH4/2 | 93170.316 | 3072552.166 | 1211.710 | 1211.710 | 0.911 0.911 1 |
| MH1/7 | 93187.766 | 3072550.106 | 1211.650 | 1211.650 | 1.307 1.307 1 |

LEGEND

| | |
|---------------------|-----|
| Proposed Stormwater | --- |
| Proposed Sewer | --- |
| Existing Sewer | --- |
| Proposed Water | --- |
| Hot water return | --- |
| hot water plantroom | --- |
| cold ring main | --- |
| Fire line | --- |

| REF | DRG No. | REFERENCE DRAWING DESCRIPTION |
|-----|---------|-------------------------------|
| REV | DATE | DESCRIPTION |
| | | |
| | | |
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health
 Department of Health
 PROVINCE OF KWAZULU-NATAL

PROJECT
 PROPOSED ALTERATIONS AND
 REFURBISHMENTS TO EXISTING
 STUDENT ACCOMMODATION IN
 MADADENI HOSPITAL SITE 1
 (HOSPITAL SITE) IN THE TOWNSHIP
 ON FARM SUTTLEWORTH NO. 9504

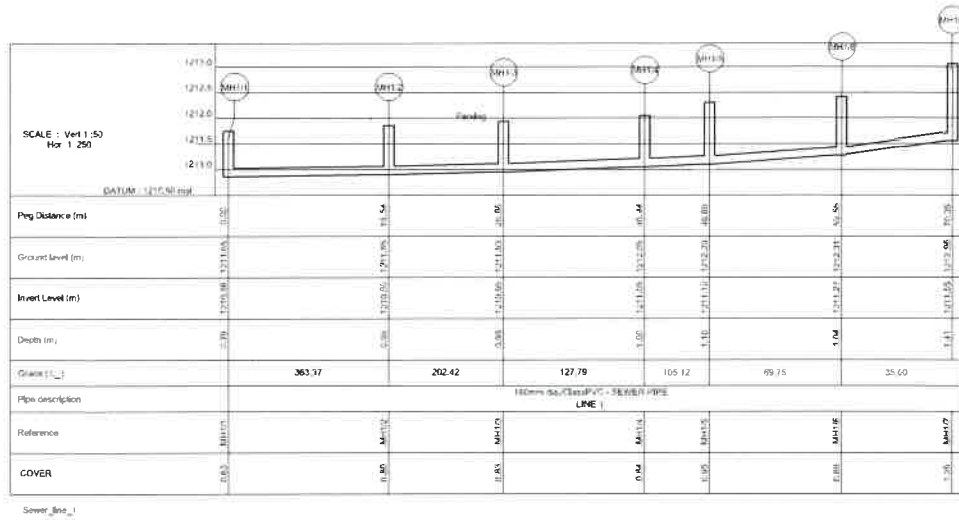
DISCIPLINE
 CIVILS

DRAWING TITLE
 SEWER PLAN LAYOUT

| TITLE | RESPONSIBLE PERSON | DATE | ORIGINAL SIZE |
|-------------|--------------------|---------|---------------|
| DESIGNED | S.T | APR' 21 | A1 |
| DRAWN | S.T | APR' 21 | SCALE |
| CHECKED | M.J.B | APR' 21 | AS SHOWN |
| APPROVED | | | |
| SIGNATURE | | | PROJ No |
| ECSA No. | 930366 | | 5418 |
| DRAWING No. | 5418 - 04 - 100 | | REVISION |
| | | | 0 |

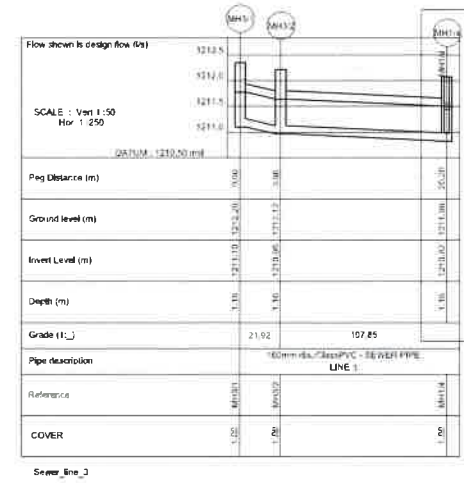
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PLAN
 SCALE 1:100



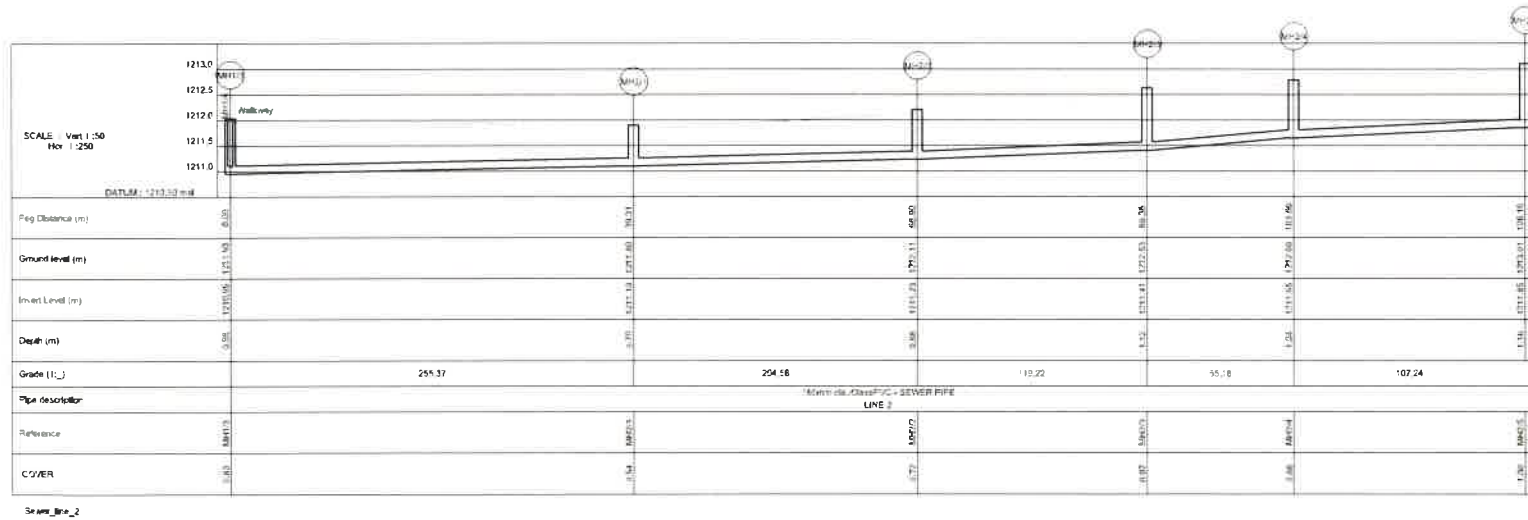
SEWER LINE 1 LONGITUDINAL SECTION
Horizontal Scale 1:250
Vertical Scale 1:50

| Reference | Horiz. | Slope |
|---------------|--------|--------|
| MH1-1 - MH1-2 | 15.535 | 15.535 |
| MH1-2 - MH1-3 | 11.121 | 11.121 |
| MH1-3 - MH1-4 | 13.779 | 13.779 |
| MH1-4 - MH1-5 | 9.736 | 6.256 |
| MH1-5 - MH1-6 | 12.858 | 12.858 |
| MH1-6 - MH1-7 | 10.799 | 10.803 |



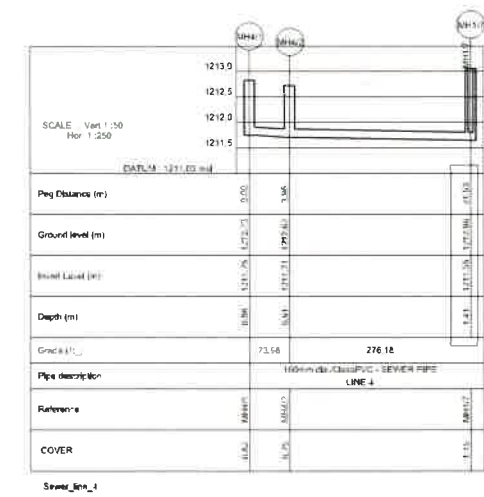
SEWER LINE 2 LONGITUDINAL SECTION
Horizontal Scale 1:250
Vertical Scale 1:50

| Reference | Horiz. | Slope |
|---------------|--------|--------|
| MH2-1 - MH2-2 | 3.959 | 3.961 |
| MH2-2 - MH2-4 | 16.243 | 16.243 |



SEWER LINE 2 LONGITUDINAL SECTION
Horizontal Scale 1:250
Vertical Scale 1:50

| Reference | Horiz. | Slope |
|---------------|--------|--------|
| MH2-1 - MH2-2 | 33.306 | 33.306 |
| MH2-2 - MH2-3 | 27.595 | 27.595 |
| MH2-3 - MH2-4 | 22.459 | 22.460 |
| MH2-4 - MH2-5 | 14.243 | 4.245 |
| MH2-5 - MH2-6 | 22.256 | 22.557 |



SEWER LINE 4 LONGITUDINAL SECTION
Horizontal Scale 1:250
Vertical Scale 1:50

| Reference | Horiz. | Slope |
|---------------|--------|--------|
| MH4-1 - MH4-2 | 3.959 | 3.960 |
| MH4-2 - MH4-3 | 17.57 | 17.571 |

| REF. | DATE | DESCRIPTION | NAME |
|------|------|-------------|------|
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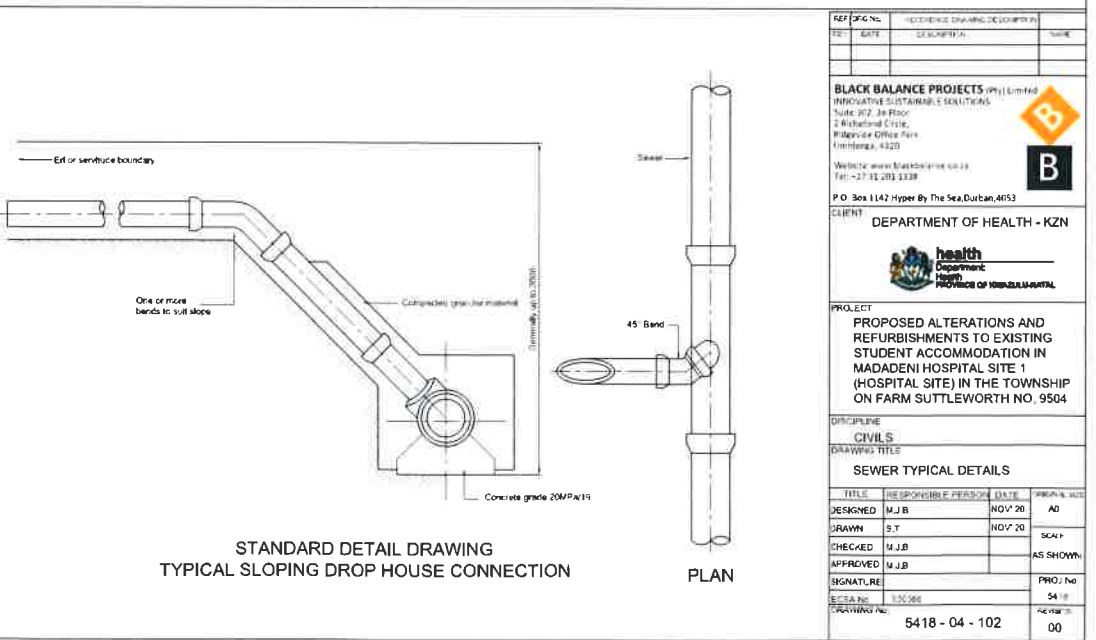
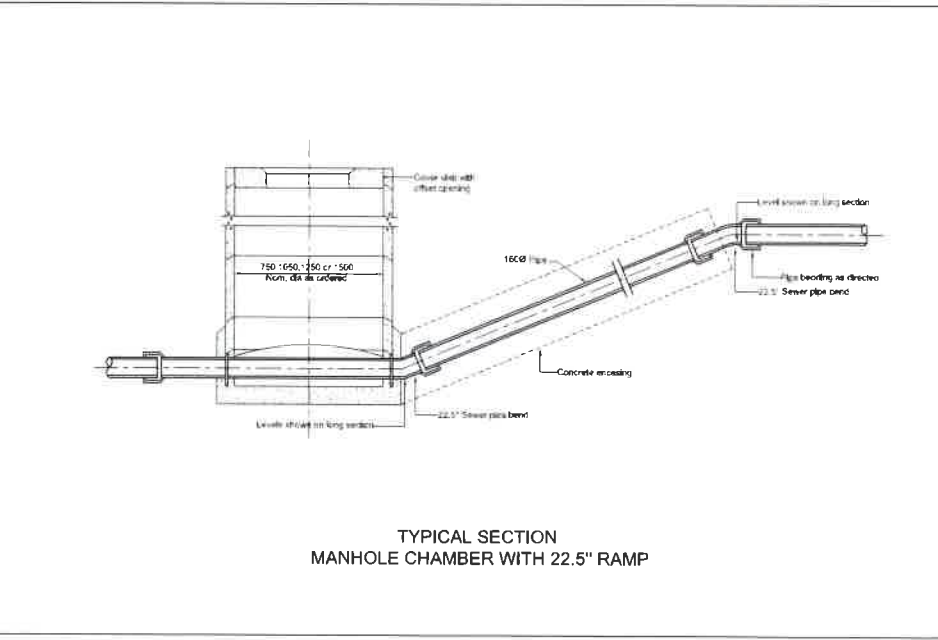
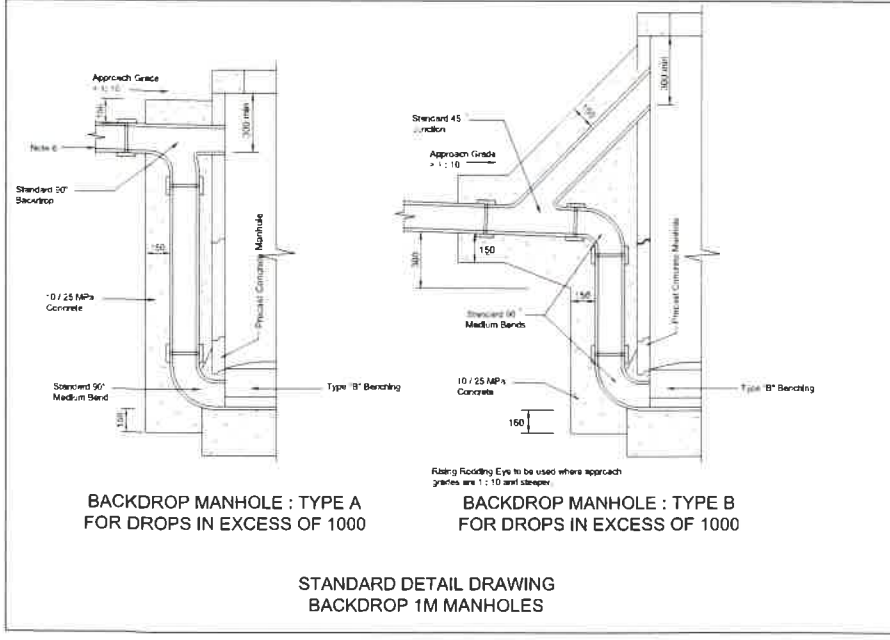
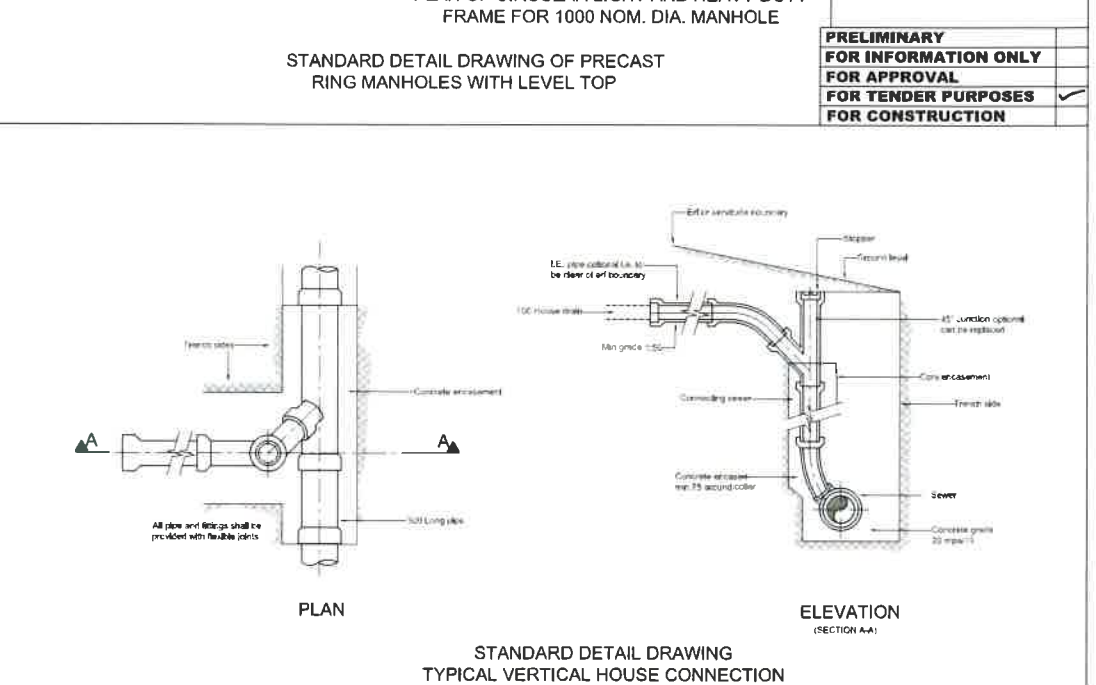
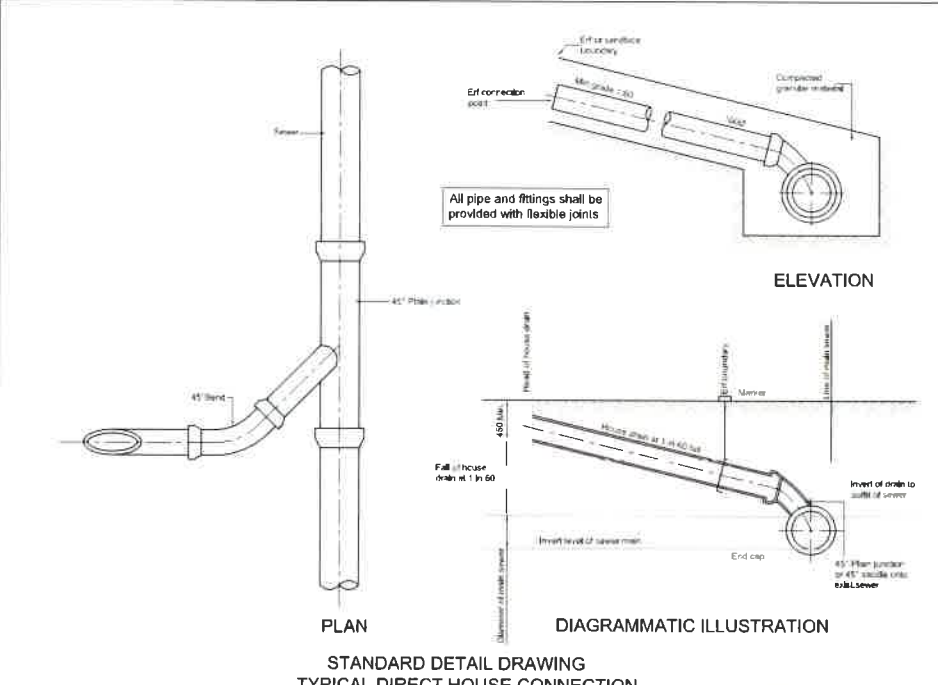
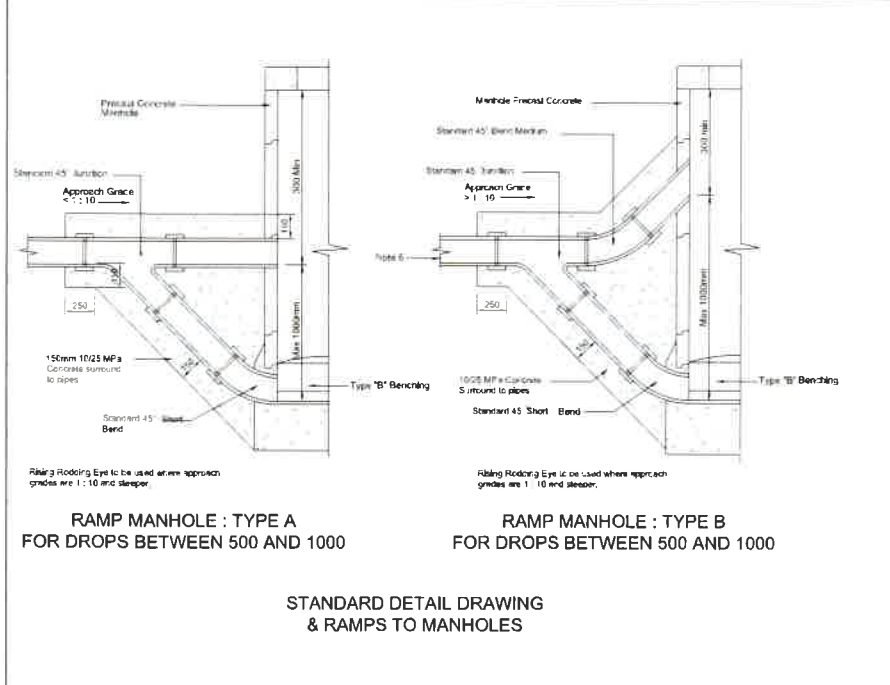
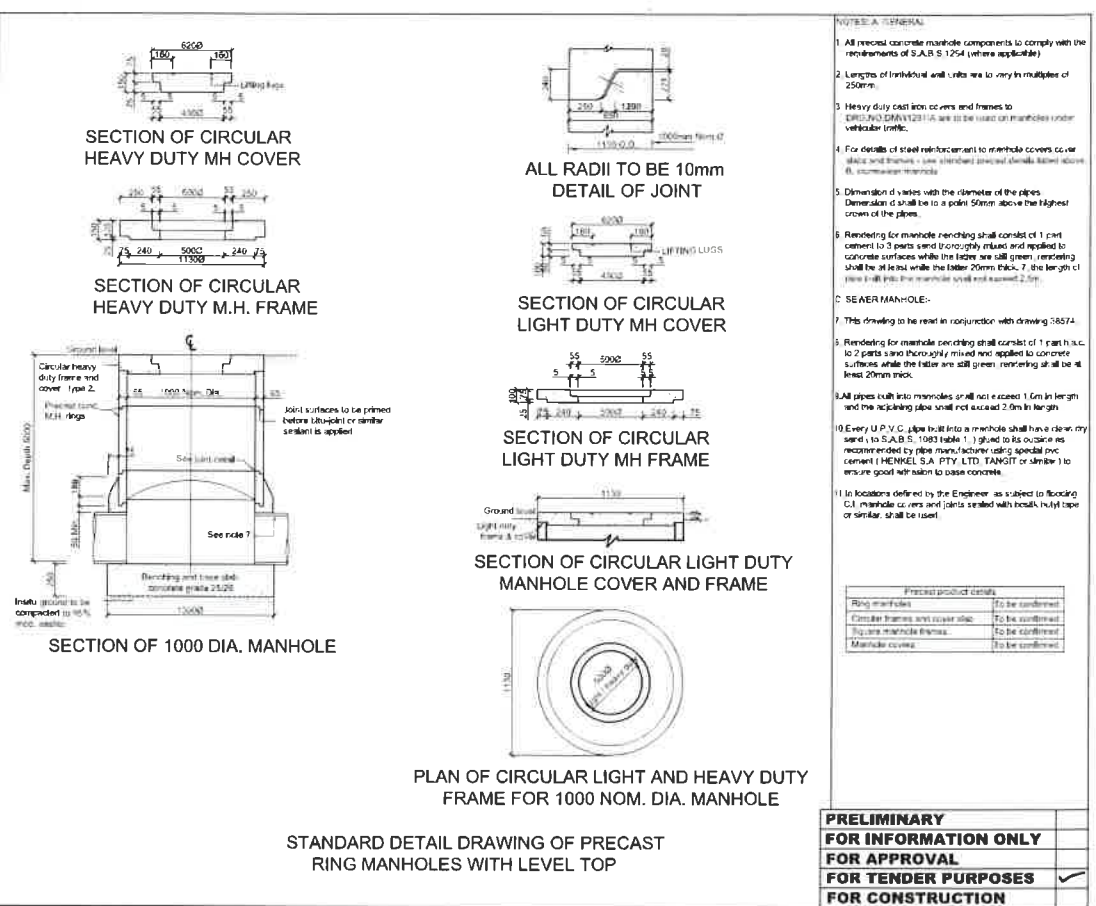
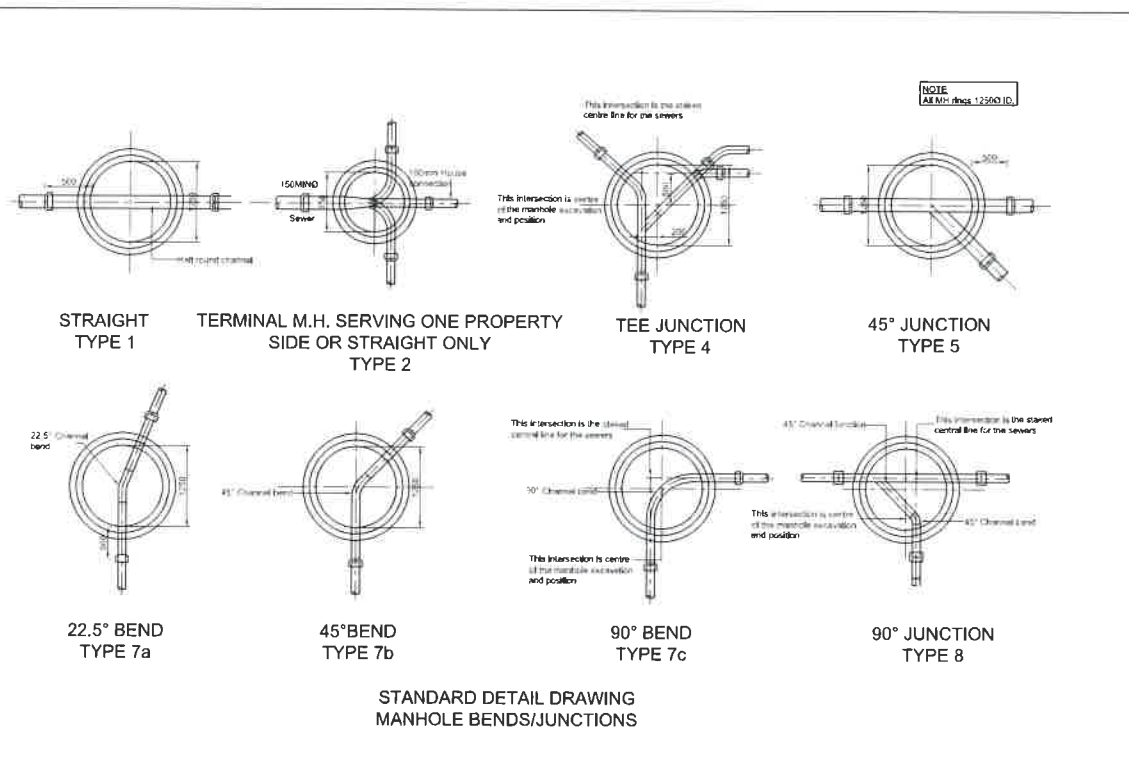
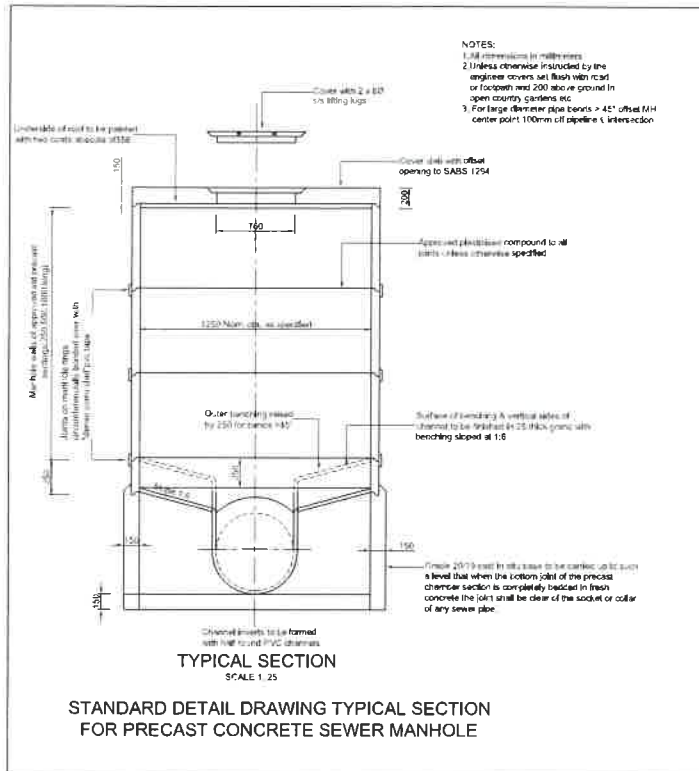
CLIENT: **DEPARTMENT OF HEALTH - KZN**

PROJECT: **PROPOSED ALTERATIONS AND REFURBISHMENTS TO EXISTING STUDENT ACCOMMODATION IN MADADENI HOSPITAL SITE 1 (HOSPITAL SITE) IN THE TOWNSHIP ON FARM SUTTLEWORTH NO. 9504**

DISCIPLINE: **CIVILS**
DRAWING'S TITLE: **SEWER LONGITUDINAL SECTIONS**

| TITLE | RESPONSIBLE PERSON | DATE | DISCIPLINE |
|-----------|--------------------|----------|------------|
| DESIGNED | S.T | APR 21 | AD |
| DRAWN | S.T | APR 21 | SCALE |
| CHECKED | M.J.B | | AS SHOWN |
| APPROVED | | | |
| SIGNATURE | | | |
| REF. NO. | 5418 - 04 - 101 | REV. NO. | 0 |

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| REF. NO. | REVISIONS | DATE | BY | CHKD. | APPD. |
|----------|-----------|------|----|-------|-------|
| | | | | | |

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 Suite 102, 3rd Floor
 2 Balfour Circle,
 Ridge-on-Glen Park
 Johannesburg, 4120
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 P.O. Box 1142 Hyper By The Sea, Durban, 4053

CLIENT
 DEPARTMENT OF HEALTH - KZN

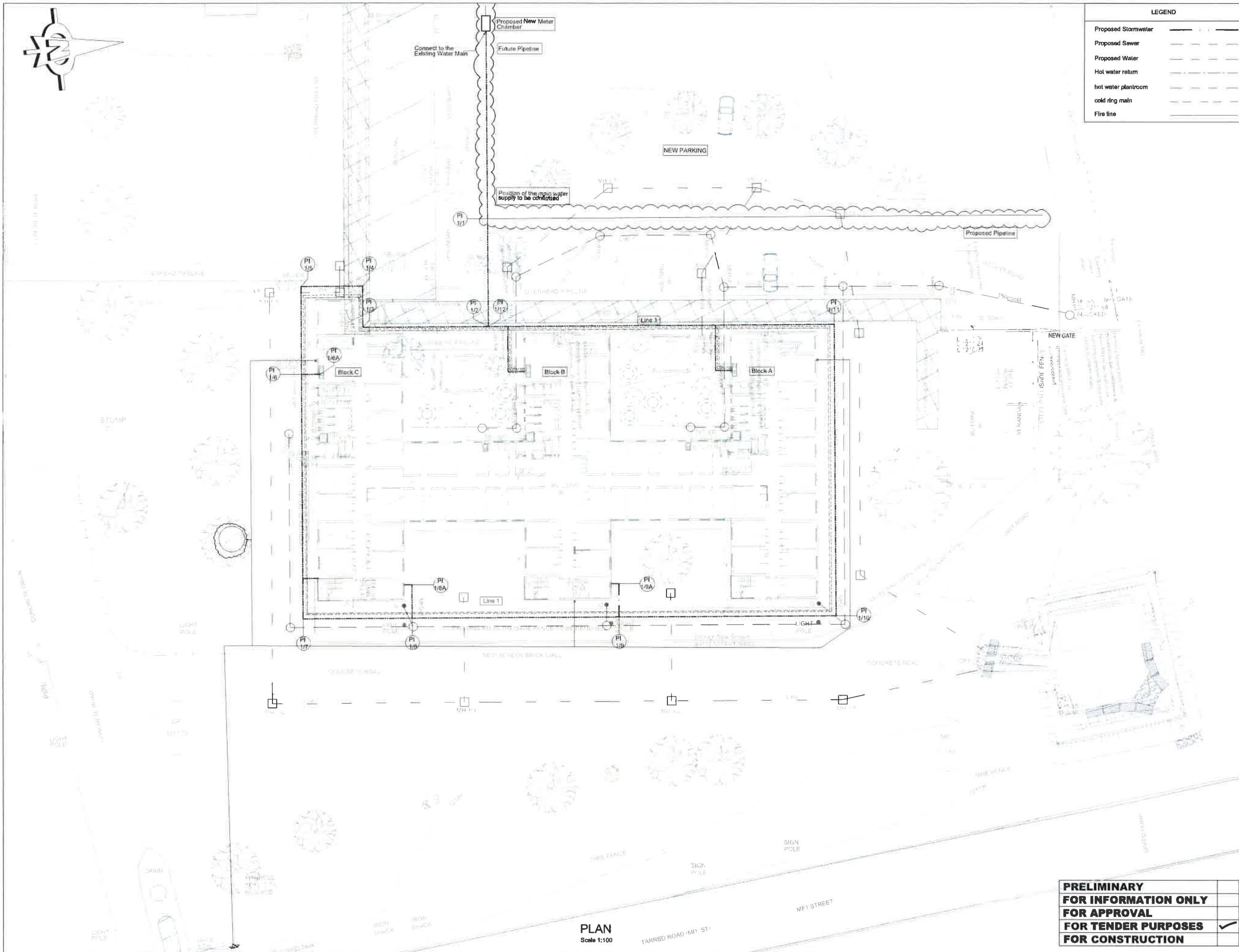
PROJECT
 PROPOSED ALTERATIONS AND REFURBISHMENTS TO EXISTING STUDENT ACCOMMODATION IN MADADEN HOSPITAL SITE 1 (HOSPITAL SITE) IN THE TOWNSHIP ON FARM SUTTLEWORTH NO. 9504

DISCIPLINE
 CIVILS

DRAWING TITLE
 SEWER TYPICAL DETAILS

| DESIGNED | RESPONSIBLE PERSON | DATE | SCALE |
|----------|--------------------|--------|----------|
| M.J.B. | | NOV'20 | A0 |
| DRAWN | S.T. | NOV'20 | SCALE |
| CHECKED | M.J.B. | | AS SHOWN |
| APPROVED | M.J.B. | | |

SIGNATURE
PROJ. NO.
SCALE
DATE
5418-04-102
00



LEGEND

| | |
|---------------------|-----------|
| Proposed Stormwater | — — — — — |
| Proposed Sewer | — — — — — |
| Proposed Water | — — — — — |
| Hot water return | — — — — — |
| hot water planroom | — — — — — |
| cold ring main | — — — — — |
| Fire line | — — — — — |

Pipe design data.

| Reference | Y | X | IL | DEPTH |
|-----------|-----------|-------------|----------|-------|
| PI1/1 | 93194.817 | 3072552.585 | 1212.153 | 0.810 |
| PI1/2 | 93181.961 | 3072554.030 | 1212.089 | 0.810 |
| PI1/3 | 93183.709 | 3072568.044 | 1212.434 | 1.250 |
| PI1/4 | 93187.874 | 3072568.554 | 1212.454 | 1.751 |
| PI1/5 | 93186.545 | 3072574.260 | 1212.418 | 0.850 |
| PI1/6 | 93173.484 | 3072575.311 | 1212.288 | 0.751 |
| PI1/7 | 93152.388 | 3072578.483 | 1211.794 | 0.850 |
| PI1/8 | 93151.025 | 3072568.754 | 1211.583 | 1.000 |
| PI1/9 | 93148.250 | 3072542.915 | 1211.300 | 0.751 |
| PI1/10 | 93145.485 | 3072519.165 | 1211.035 | 0.800 |
| PI1/11 | 93177.468 | 3072515.440 | 1211.061 | 0.751 |
| PI1/12 | 93181.961 | 3072554.030 | 1212.089 | 0.810 |

| REF DRG No. | REFERENCE DRAWING DESCRIPTION |
|-------------|-------------------------------|
| DATE | DESCRIPTION |
| | NAME |

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PROJECT
PROPOSED ALTERATIONS AND REFURBISHMENTS TO EXISTING STUDENT ACCOMMODATION IN MADADENI HOSPITAL SITE 1 (HOSPITAL SITE) IN THE TOWNSHIP ON FARM SUTTLEWORTH NO. 9504

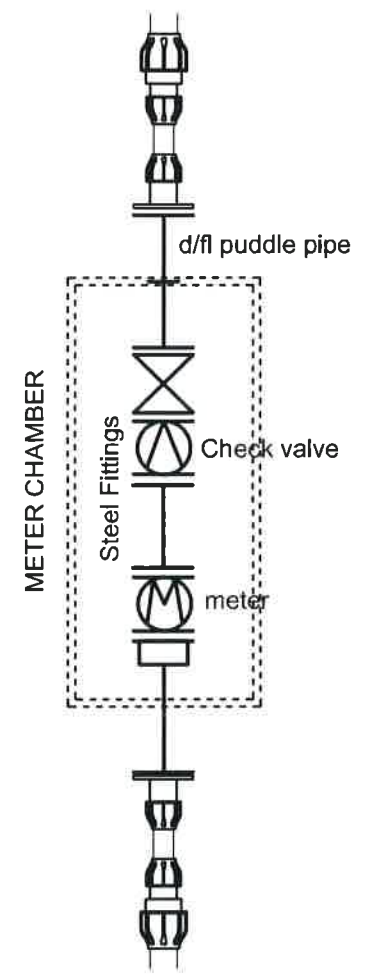
DISCIPLINE
CIVILS
 DRAWING TITLE
PROPOSED WATER PIPELINE

| TITLE | RESPONSIBLE PERSON | DATE | ORIGINAL SIZE |
|-------------|--------------------|--------|---------------|
| DESIGNED | S.T | NOV 20 | A1 |
| DRAWN | S.T | NOV 20 | SCALE |
| CHECKED | M.J. B | | AS SHOWN |
| APPROVED | M.J. B | | |
| SIGNATURE | | | PROJ No |
| ECSA No | 930366 | | 5418 |
| DRAWING No. | 5418-05-100 | | REVISION |
| | | | 0 |

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 FOR CONSTRUCTION**

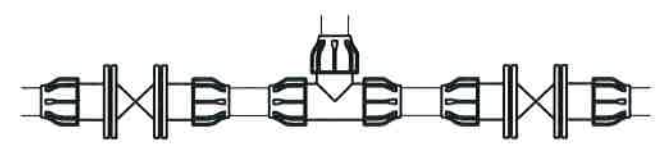
PLAN
 Scale 1:100
 TARRD ROAD - M1 ST1

PI1/1



- 4 x 160mmØ Flange adaptor
- 2 x 160mmØ - 100mmØ Reducing coupling
- 1 x 100mmØ d/f Gate Valve
- 1 x 100mmØ x 1m long d/f puddle pipe
- 1 x 100mmØ d/f wafer check valve
- 1 x 100mmØ d/f Meinecker Meter
- 1 x 100mmØ d/f pipe 750mm long

PI1/2 & PI1/12



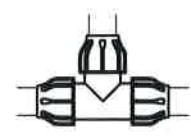
- 4 x 160mmØ Flange adaptor
- 2 x 160mmØ Double Flanged Gate valve
- 1 x 160mmØ Male threaded branch tee piece

PI1/3, PI1/4, PI1/5, PI1/7,
PI1/10 & PI1/11



- 1 x 160mmØ Male threaded 90° Elbow

PI1/6, PI1/8 & PI1/9



- 1 x 160mmØ Male threaded branch tee piece

| | |
|-----------------------------|---|
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| FOR TENDER PURPOSES | ✓ |
| FOR CONSTRUCTION | |

| REV | DATE | DESCRIPTION | NAME | DATE |
|-----|----------|-------------|------|------|
| 00 | 00/00/00 | | | |

CLIENT
DEPARTMENT OF HEALTH - KZN

health
Department:
Health
PROVINCE OF KWAZULU-NATAL

PROJECT
**MADADENI PROVINCIAL HOSPITAL
UPGRADE TO STUDENT ACCOMODATION**

DRAWING TITLE
POINT SKETCHES

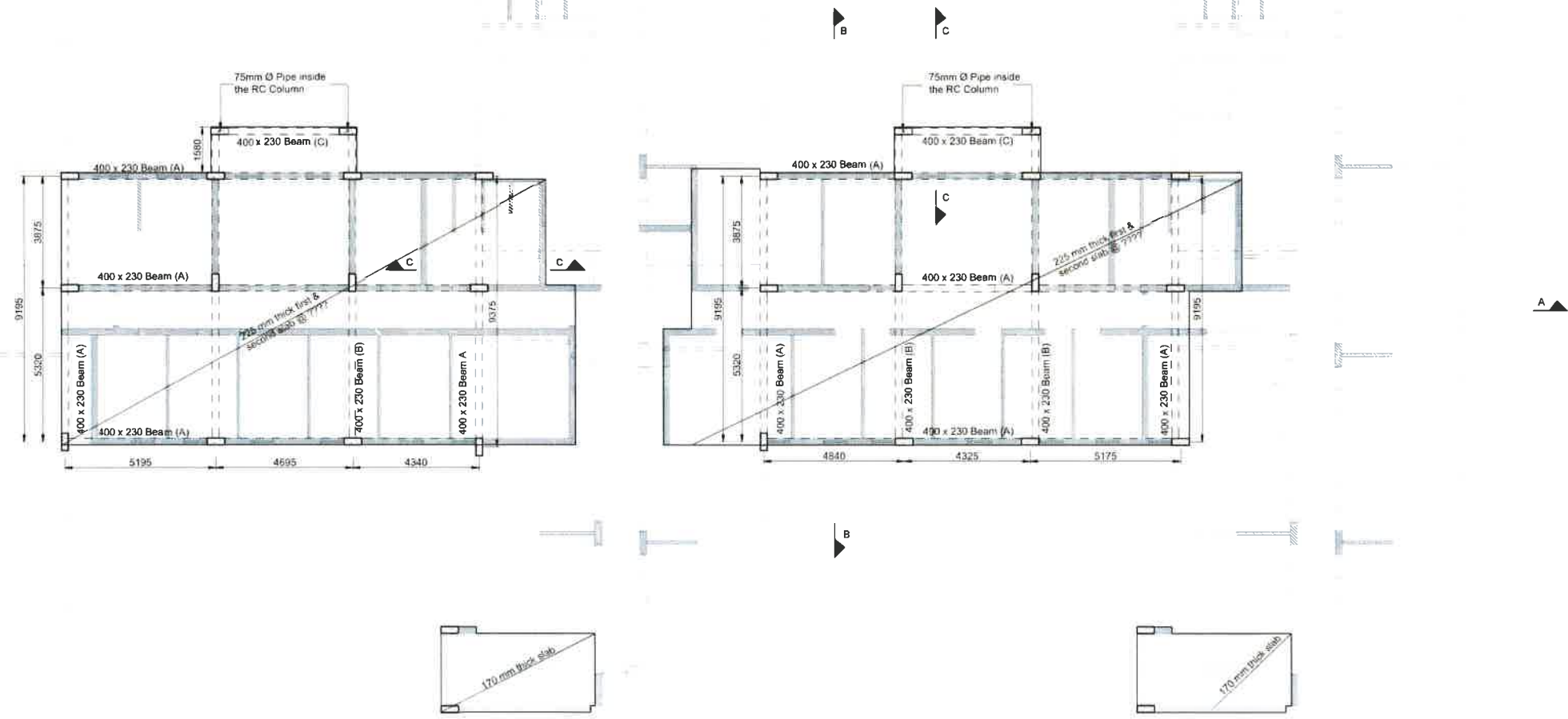
ORIGINAL SIZE
A3

SCALE
AS SHOWN

DRAWING No.
5418 - 05 - 102

REVISION
00

BLACK BALANCE PROJECTS (Pty) Limited
INNOVATIVE SUSTAINABLE SOLUTIONS
76 Richefond Circle, Ridgeside Office Park,
Umhlanga Rocks, 4320
Website: www.blackbalance.co.za
Tel: +27 31 832 3450
Fax: +27 31 202 3403
P.O. Box 1142, Hyper By The Sea, Durban, 4053



FIRST & SECOND FLOOR PLAN
SCALE: 1:100

**PRELIMINARY
FOR INFORMATION ONLY
FOR APPROVAL
FOR TENDER PURPOSES
FOR CONSTRUCTION**

| REF | DRG No | REFERENCE DRAWING DESCRIPTION |
|-----|--------|-------------------------------|
| REV | DATE | DESCRIPTION |
| | | NAME |

BLACK BALANCE PROJECTS (Pty) Limited
 INNOVATED SUSTAINABLE SOLUTIONS
 Suite 302, 3rd Floor
 2 Richefond Circle,
 Ridgside Office Park
 Umhlanga, 4320
 Website: www.blackbalance.co.za
 Tel: +27 31 201 1338
 P O Box 1142, Hyper By The Sea, Durban, 4053



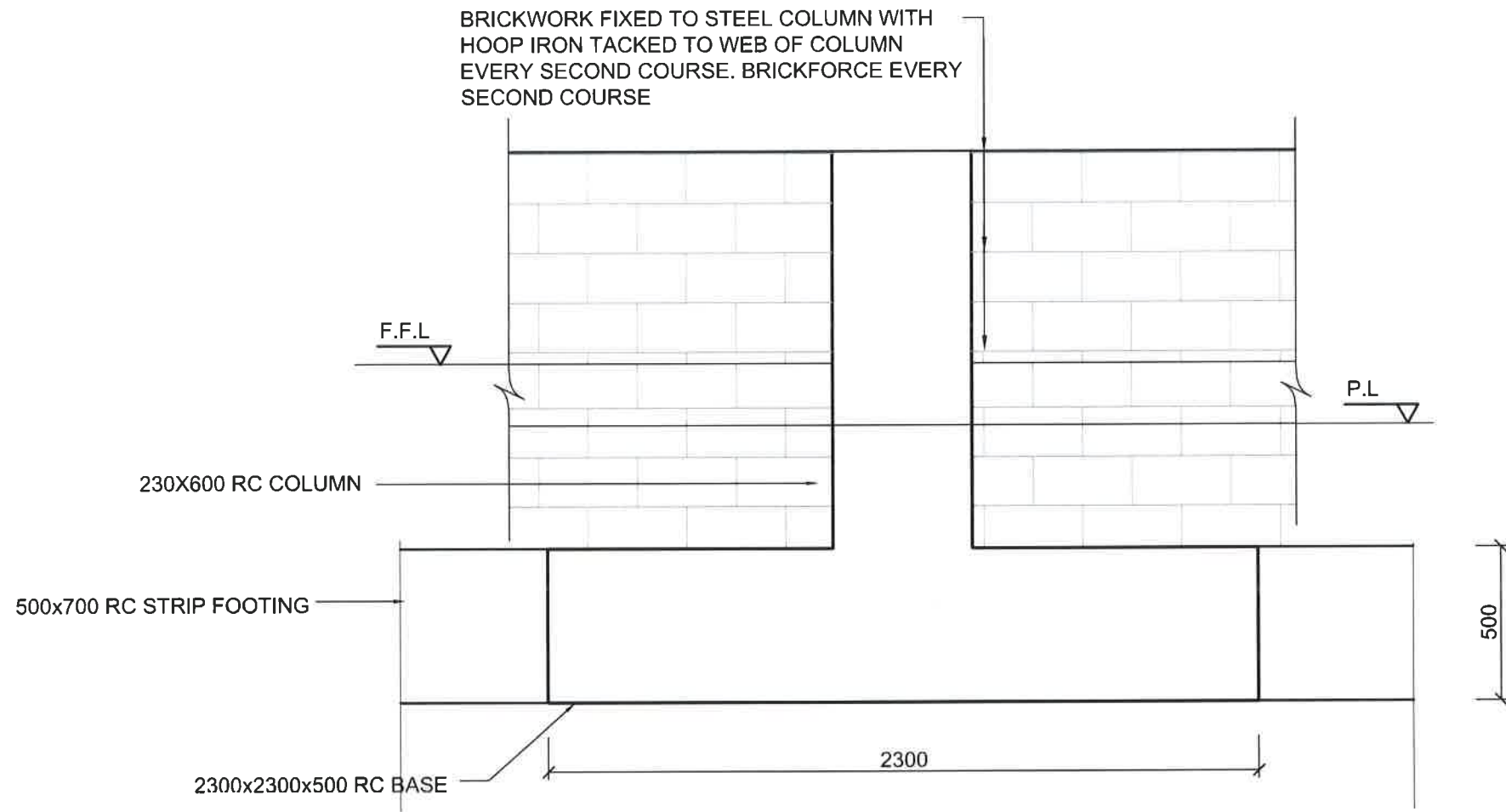
CLIENT DEPARTMENT OF HEALTH - KZN



PROJECT
 PROPOSED ALTERATIONS AND
 REFURBISHMENTS TO EXISTING
 STUDENT ACCOMMODATION IN
 MADADENI HOSPITAL SITE 1
 (HOSPITAL SITE) IN THE TOWNSHIP
 ON FARM SUTTLEWORTH NO. 9504

DISCIPLINE
 STRUCTURAL
 DRAWING TITLE
 FIRST & SECOND FLOOR SLAB
 LAYOUT PLAN

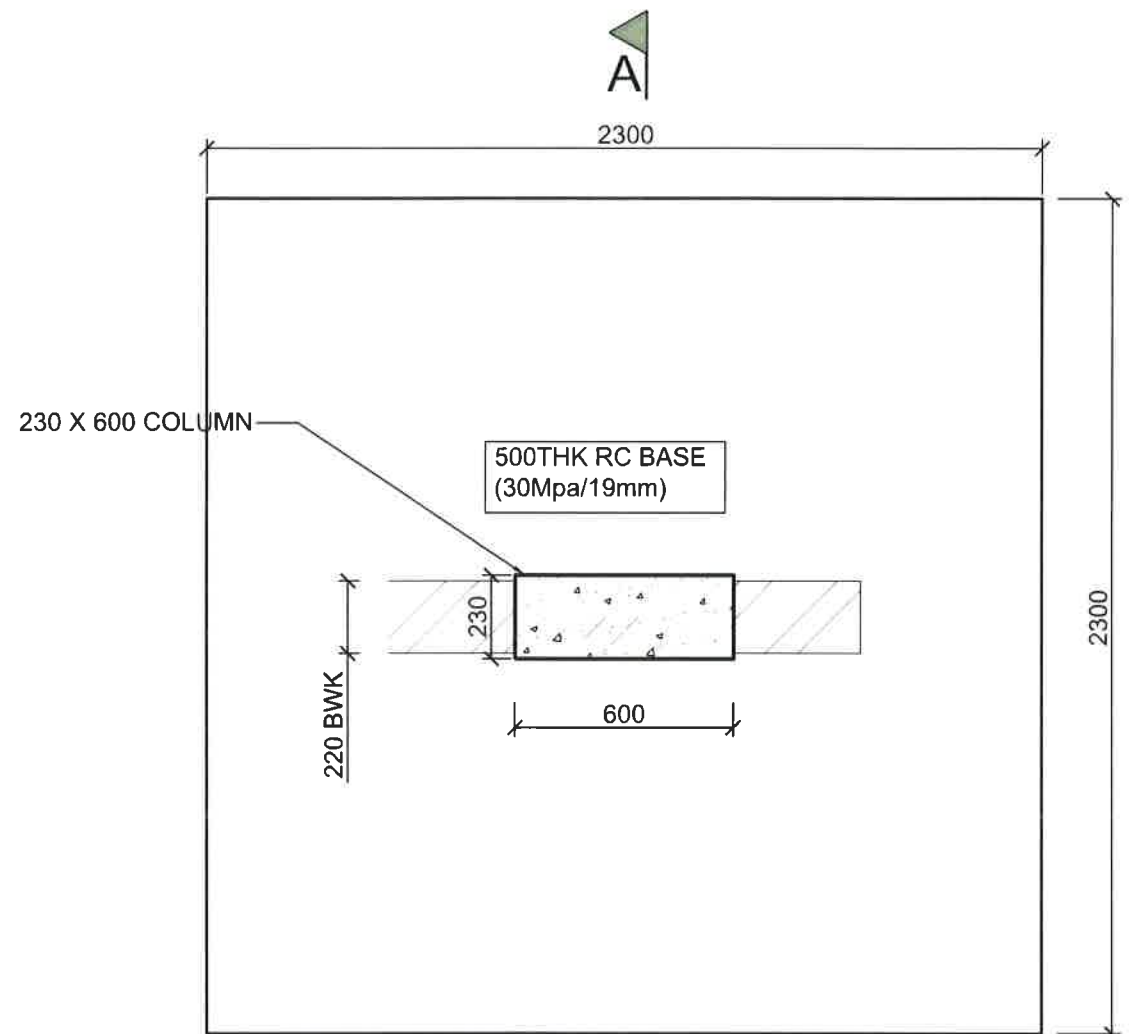
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| DRAWN | S T | APR' 21 | SCALE |
| CHECKED | M J B | | AS SHOWN |
| APPROVED | M J B | | |
| SIGNATURE | | | PROJ No |
| ECSA No | 930366 | | 5418 |
| DRAWING No | 5418 - 06 - 103 | | REVISION |
| | | | 0 |



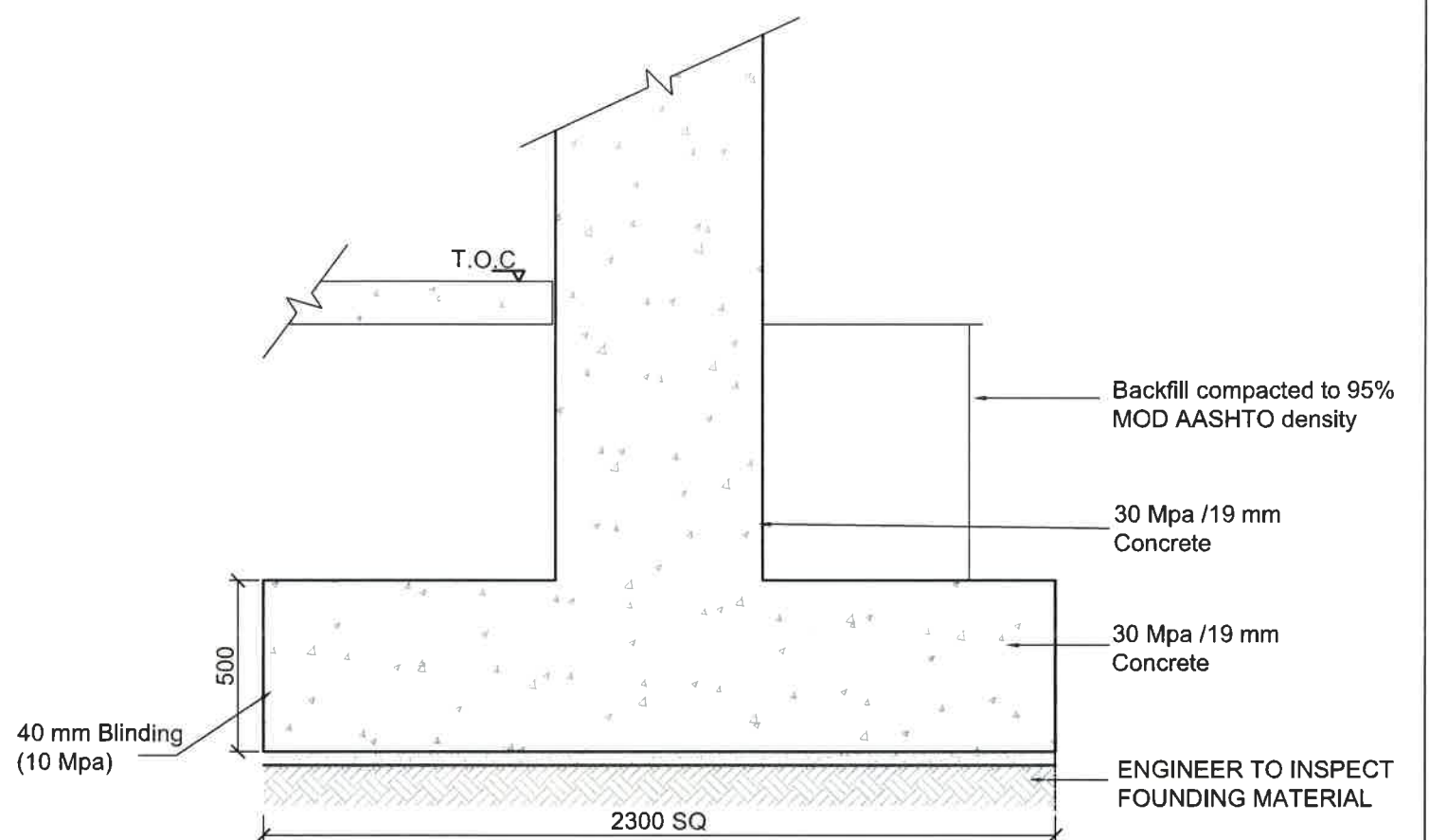
COLUMN & BASE ELEVATION
SCALE 1:20

PRELIMINARY
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FOR APPROVAL
FOR TENDER PURPOSES
FOR CONSTRUCTION ✓

| | | | | | | | | |
|----------|----------|---------------|---|--------------|-------------------------------|-----------------|---|--|
| DESIGNED | S.T | CLIENT | DEPARTMENT OF PUBLIC WORKS | | ORIGINAL SIZE | A3 | BLACK BALANCE PROJECTS (Pty) Limited INNOVATIVE SUSTAINABLE SOLUTIONS Suite 302, 3rd Floor 2 Richefond Circle, Ridgeside Office Park Umhlanga, 4320 Website: www.blackbalance.co.za Tel: +27 31 201 1338 P.O. Box 1142, Hyper By The Sea, Durban, 4053 | |
| DRAWN | S.T | PROJECT | MADADENI PROVINCIAL HOSPITAL UPGRADE TO STUDENT ACCOMODATION | | SCALE | AS SHOWN | | |
| CHECKED | M.B | DRAWING TITLE | COLUMN AND BASE ELEVATION | | DRAWING No. | 5418 - 06 - 104 | | |
| APPROVED | | DATE | | | REVISION | 00 | | |
| 00 | 00/00/00 | | NAME | REF. DRG No. | REFERENCE DRAWING DESCRIPTION | DATE | | |




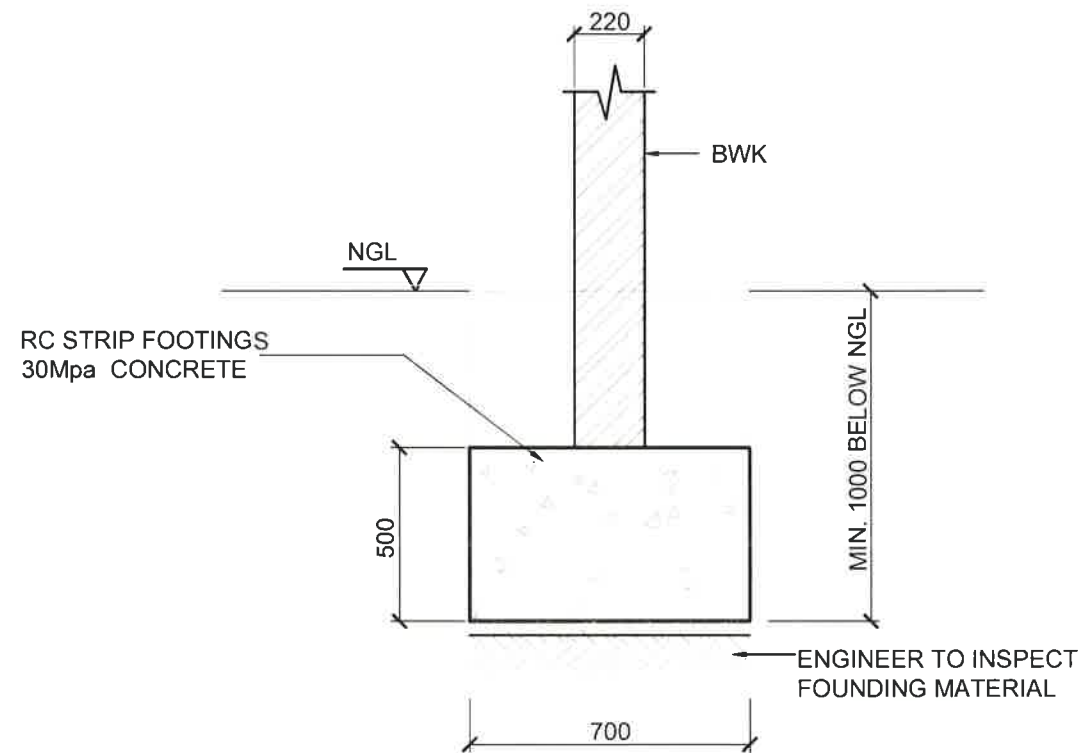
**COLUMN & BASE PLAN
(TYPE 2)**
SCALE 1:20



COLUMN & BASE SECTION
SCALE 1:20

| | |
|-----------------------------|---|
| PRELIMINARY | |
| FOR INFORMATION ONLY | |
| FOR APPROVAL | |
| FOR TENDER PURPOSES | |
| FOR CONSTRUCTION | ✓ |

| | | | | | | | |
|----------|----------|---------------|---|---------------|-------------------------------|--|---|
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| DRAWN | S.T | PROJECT | MADADENI PROVINCIAL HOSPITAL UPGRADE TO STUDENT ACCOMODATION | SCALE | AS SHOWN | | |
| CHECKED | M.B | DRAWING TITLE | COLUMN AND BASE SECTIONS | DRAWING No. | 5418 - 06 - 105 | | |
| APPROVED | | DATE | | REVISION | 00 | | |
| 00 | 00/00/00 | | | | | | |
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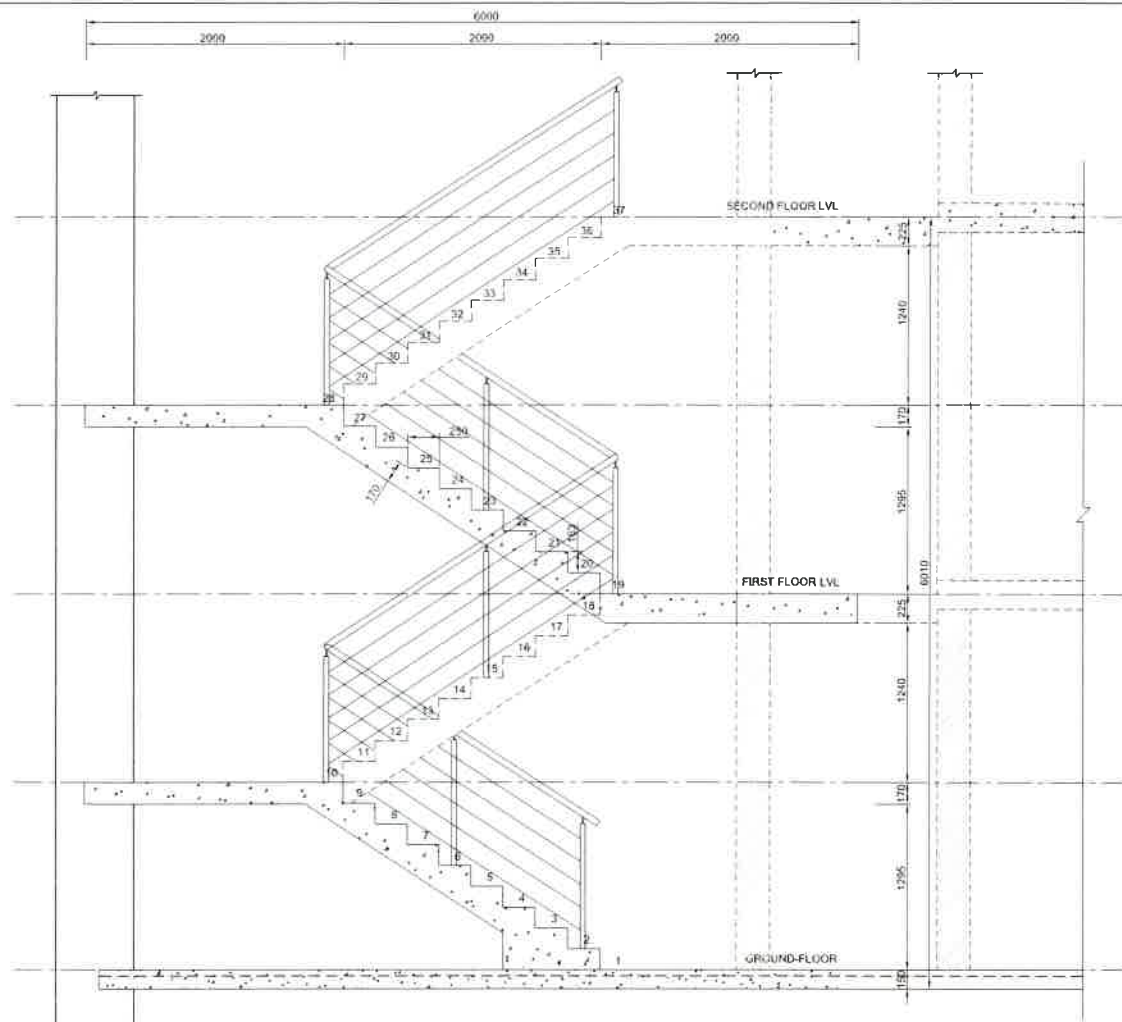


TYPICAL STRIP FOOTING SECTION

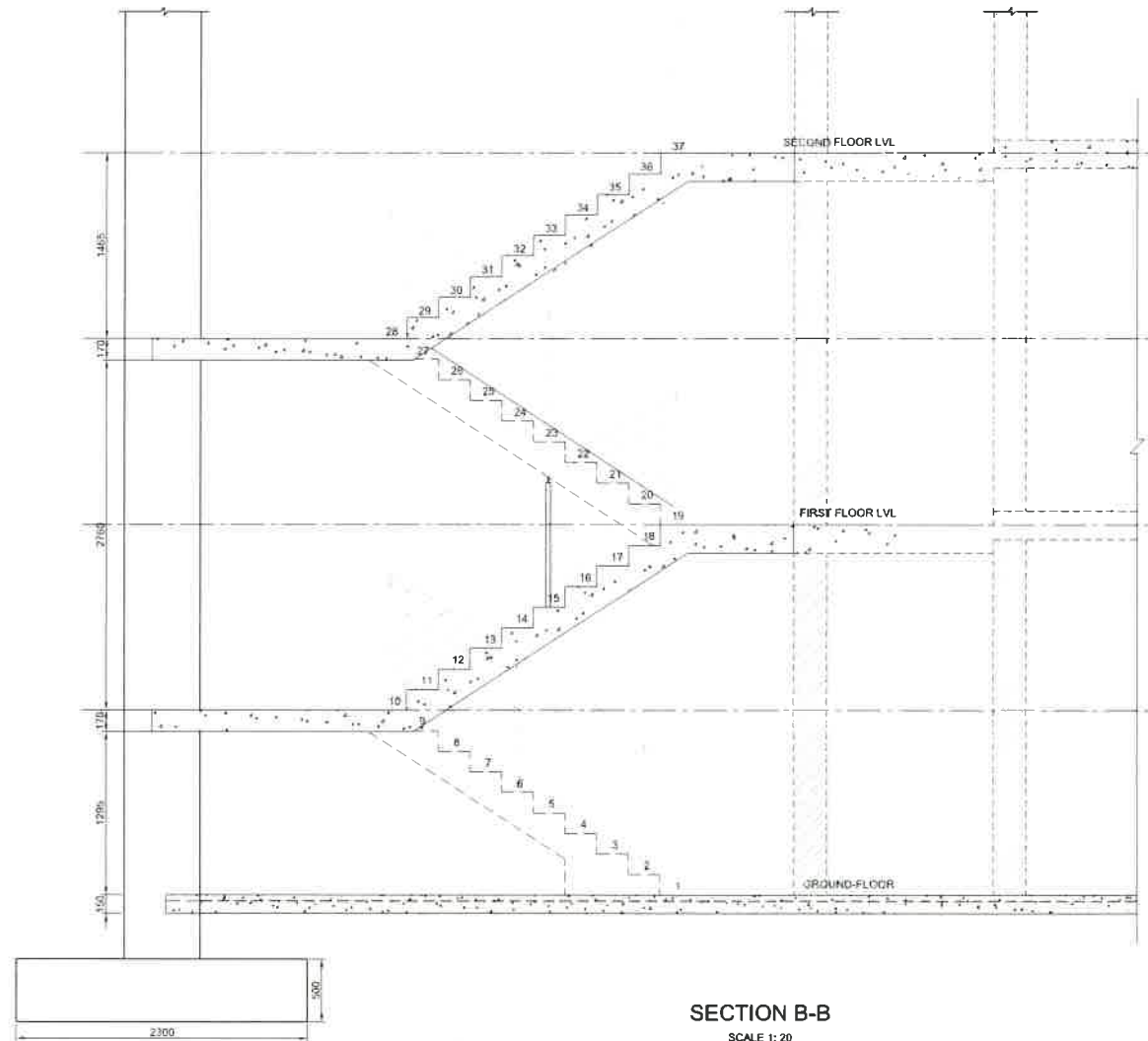
SCALE 1:20

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|-----------------------------|---|
| PRELIMINARY | |
| FOR INFORMATION ONLY | |
| FOR APPROVAL | |
| FOR TENDER PURPOSES | |
| FOR CONSTRUCTION | ✓ |

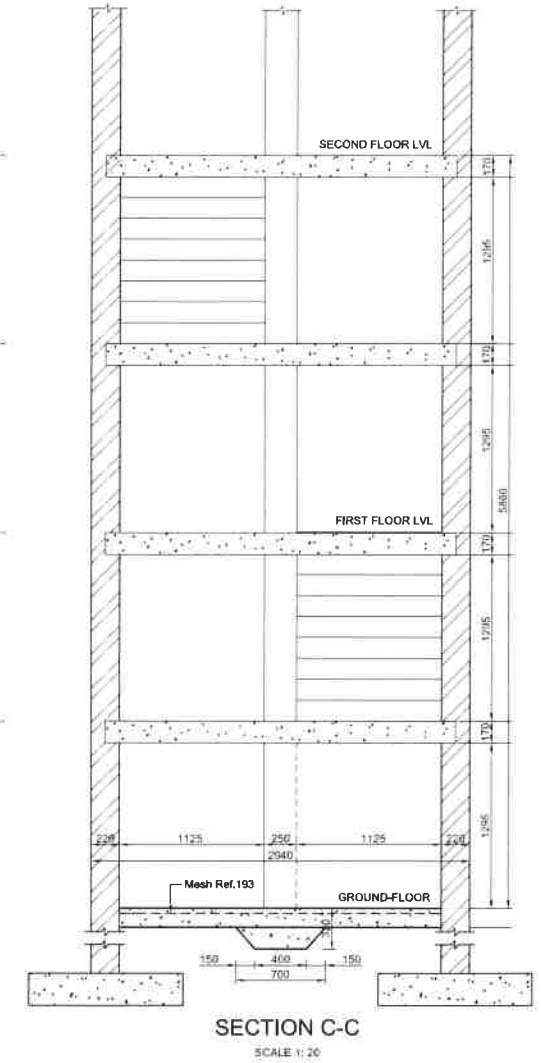
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| | | | | | | DESIGNED | S.T | CLIENT | DEPARTMENT OF PUBLIC WORKS | ORIGINAL SIZE | A3 | BLACK BALANCE PROJECTS (Pty) Limited INNOVATIVE SUSTAINABLE SOLUTIONS Suite 302, 3 rd Floor, 2 Richefond Circle, Ridgeside Office Park Umhlanga, 4320 Website: www.blackbalance.co.za Tel: +27 31 201 1338 P.O. Box 1142, Hyper By The Sea, Durban, 4053 | |
| | | | | | DRAWN | S.T | PROJECT | MADADENI PROVINCIAL HOSPITAL UPGRADE TO STUDENT ACCOMODATION | SCALE | AS SHOWN | | | |
| | | | | | CHECKED | M.J.B | DRAWING TITLE | STRIP FOOTING SECTIONS | DRAWING No. | 5418 - 06 - 106 | | | |
| | | | | | APPROVED | | DATE | | REVISION | 00 | | | |
| 00 | 00/00/00 | | | | | | | | | | | | |
| REV | DATE | DESCRIPTION | NAME | REF. DRG No. | REFERENCE DRAWING DESCRIPTION | DATE | | | | | | | |



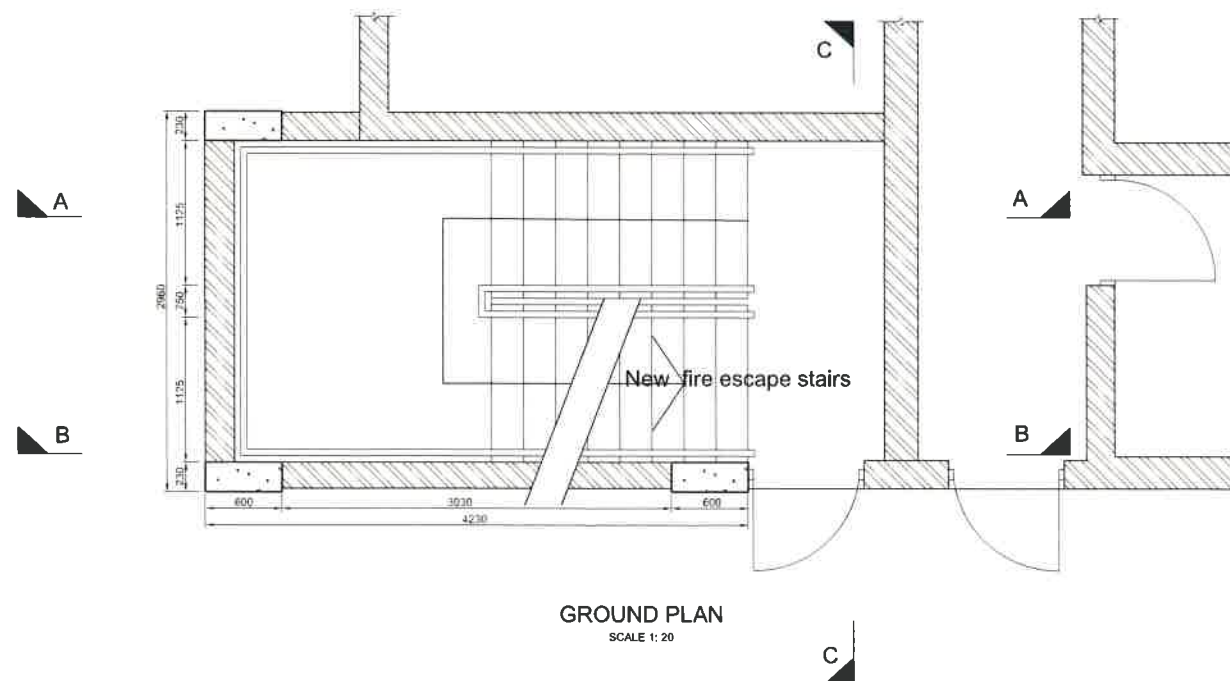
SECTION A-A
SCALE 1: 20



SECTION B-B
SCALE 1: 20



SECTION C-C
SCALE 1: 20



GROUND PLAN
SCALE 1: 20

**PRELIMINARY
FOR INFORMATION ONLY
FOR APPROVAL
FOR TENDER PURPOSES
FOR CONSTRUCTION**

| REV | DATE | DESCRIPTION | BY |
|-----|------|-------------|----|
| | | | |
| | | | |
| | | | |

BLACK BALANCE PROJECTS (Pty) Limited
 INNOVATIVE SUSTAINABLE SOLUTIONS
 Suite 202, 2nd Floor
 2 Nicholson Circle,
 Ridgeway Office Park
 Johannesburg, 2090
 Website: www.blackbalance.co.za
 Tel: +27 11 293 1338

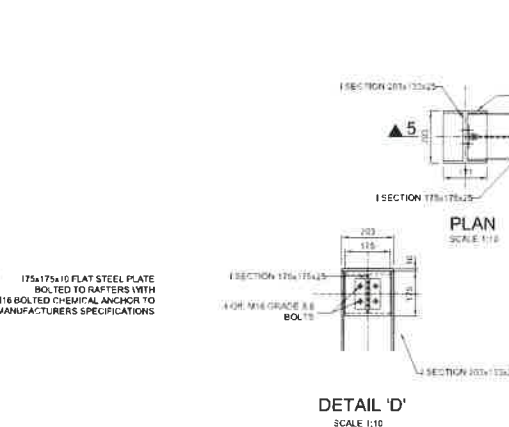
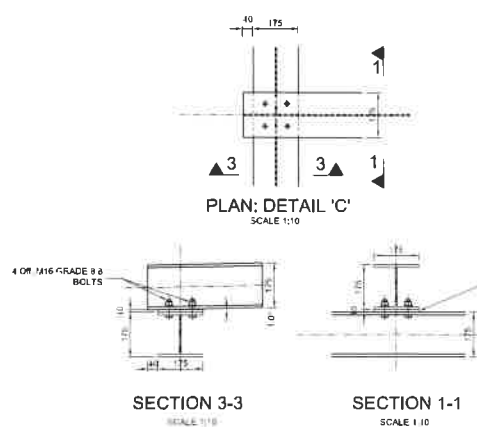
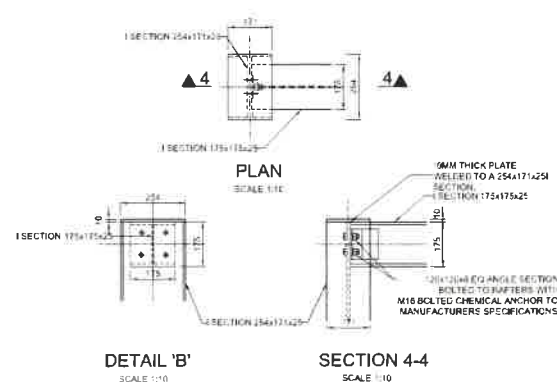
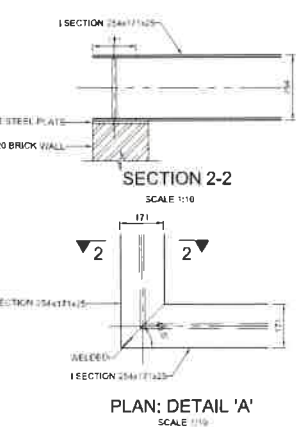
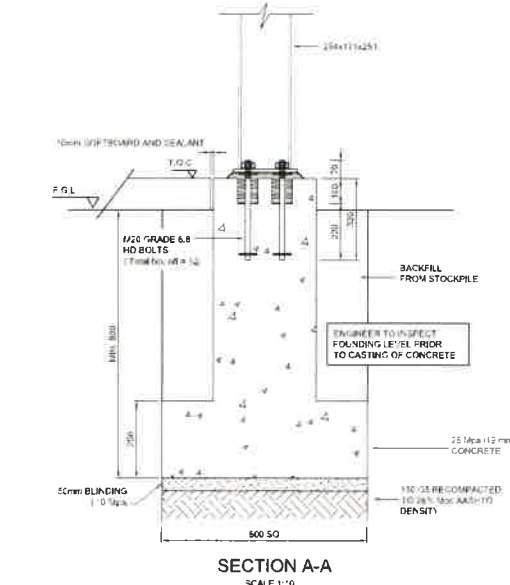
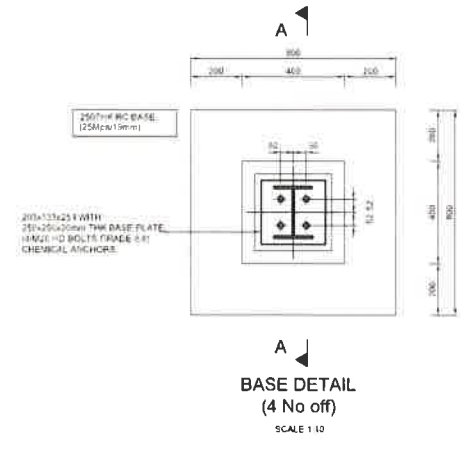
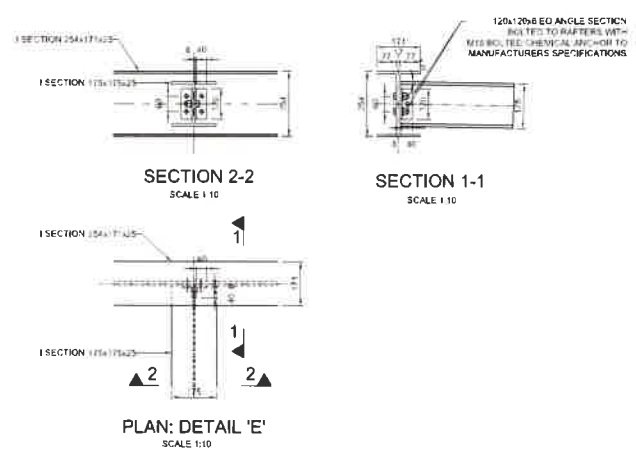
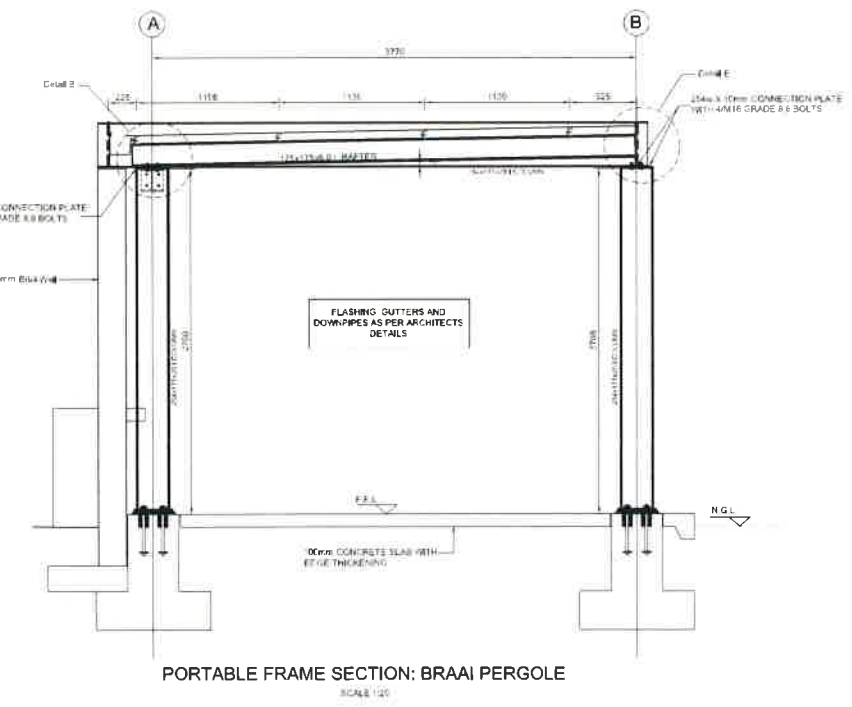
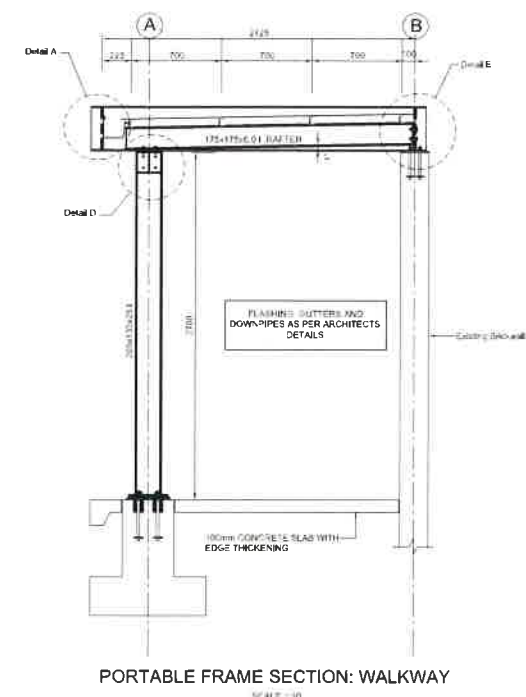
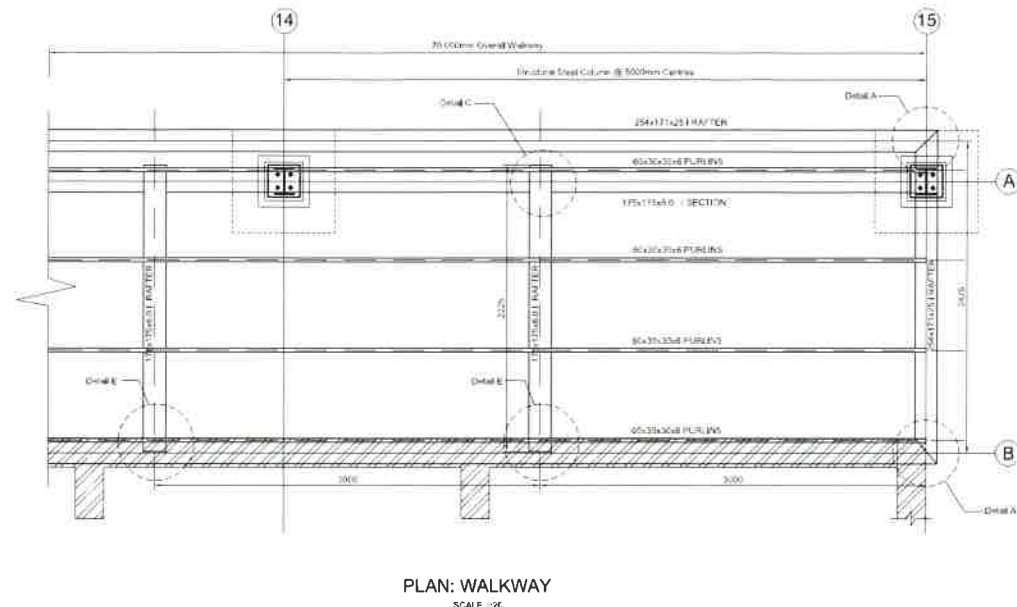
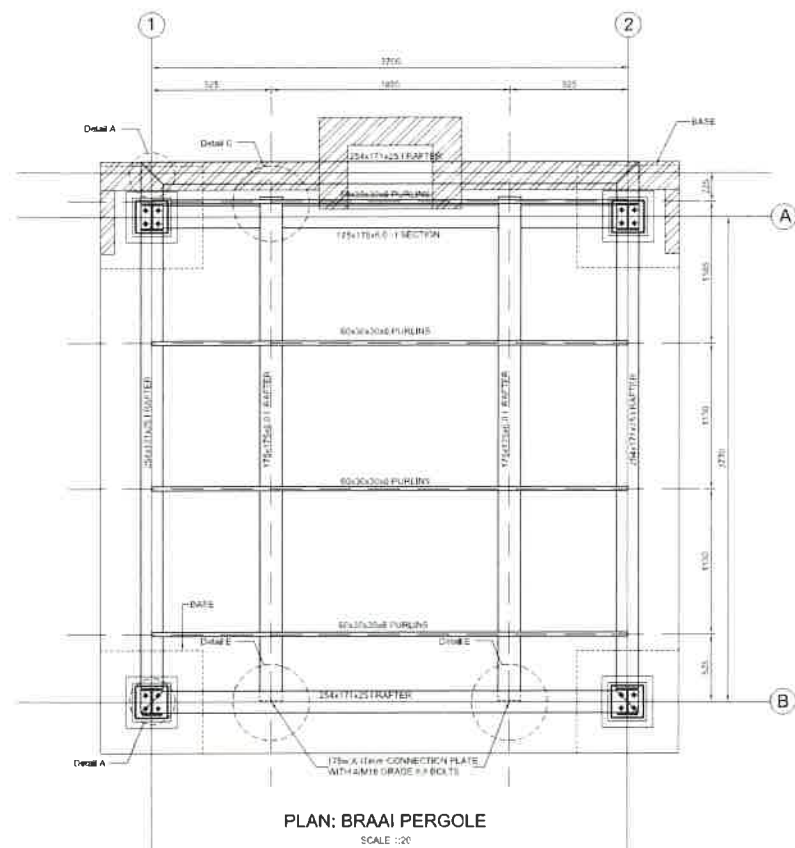


CLIENT: DEPARTMENT OF HEALTH - KZN



PROJECT: PROPOSED ALTERATIONS AND REFURBISHMENTS TO EXISTING STUDENT ACCOMMODATION IN MADADENI HOSPITAL SITE 1 (HOSPITAL SITE) IN THE TOWNSHIP ON FARM SUTTLEWORTH NO. 9504

| TITLE | RESPONSIBLE PERSON | DATE | ORIGINAL NO. |
|-------------|--------------------|-------|----------------|
| DESIGNED | S.T. | NOV20 | A1 |
| DRAWN | S.T. | NOV20 | SCALE |
| CHECKED | M.J.B. | | AS SHOWN |
| APPROVED | M.J.B. | | |
| SIGNATURE | | | PROJ. NO. 5418 |
| ECSA No. | 290366 | | REVISION 0 |
| DRAWING No. | 5418 - 06 - 107 | | |



PRELIMINARY FOR INFORMATION ONLY FOR TENDER PURPOSES FOR CONSTRUCTION

Notes:

- All dimensions to be checked on site.
- Contractor to keep a full set of drawings on site.
- Contractor is responsible for correct setting out of building on site with particular reference to boundary and building lines.
- STEELWORK NOTES:**
 - All steelwork to be in accordance with SABS 0162 & 1431. Material to be Grade 550W. All bolts to be Grade 8.8.
 - All shop drawings to be approved by the Engineer prior to fabrication.
 - Connections and welds to be full strength. All welds to be done in accordance with SABS 0162.
 - All levels and dimensions to be checked on site prior to fabrication. The setting out and location of all building work shall be checked by the Engineer prior to the commencement of any erection and any discrepancy reported to the Engineer immediately.
 - Any delay, site temporary, pending to be provided during construction of steel and concrete.
 - No site cutting, drilling or welding permitted without the prior consent of the Engineer.
 - Holding down bolts, gullies, downpipes and flashings to be supplied by the steelwork contractor.
 - Painting to be done as directed by the Engineer.
 - Foundation loading not to exceed 150kPa.
 - All work to be done in accordance with relevant sections of SANS 1200.

| REV | DATE | DESCRIPTION | BY | CHKD |
|-----|------|-------------|----|------|
| | | | | |
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BLACK BALANCE PROJECTS (Pty) Limited
 INNOVATED SUSTAINABLE SOLUTIONS
 Suite 302, 3rd Floor
 2, Zandvoort Court,
 Ridgeway Office Park,
 Umhlanga, 4120
 Website: www.blackbalance.co.za
 Tel: +27 31 201 1336
 P.O. Box 1143, Hyper By The Sea, Durban 4053

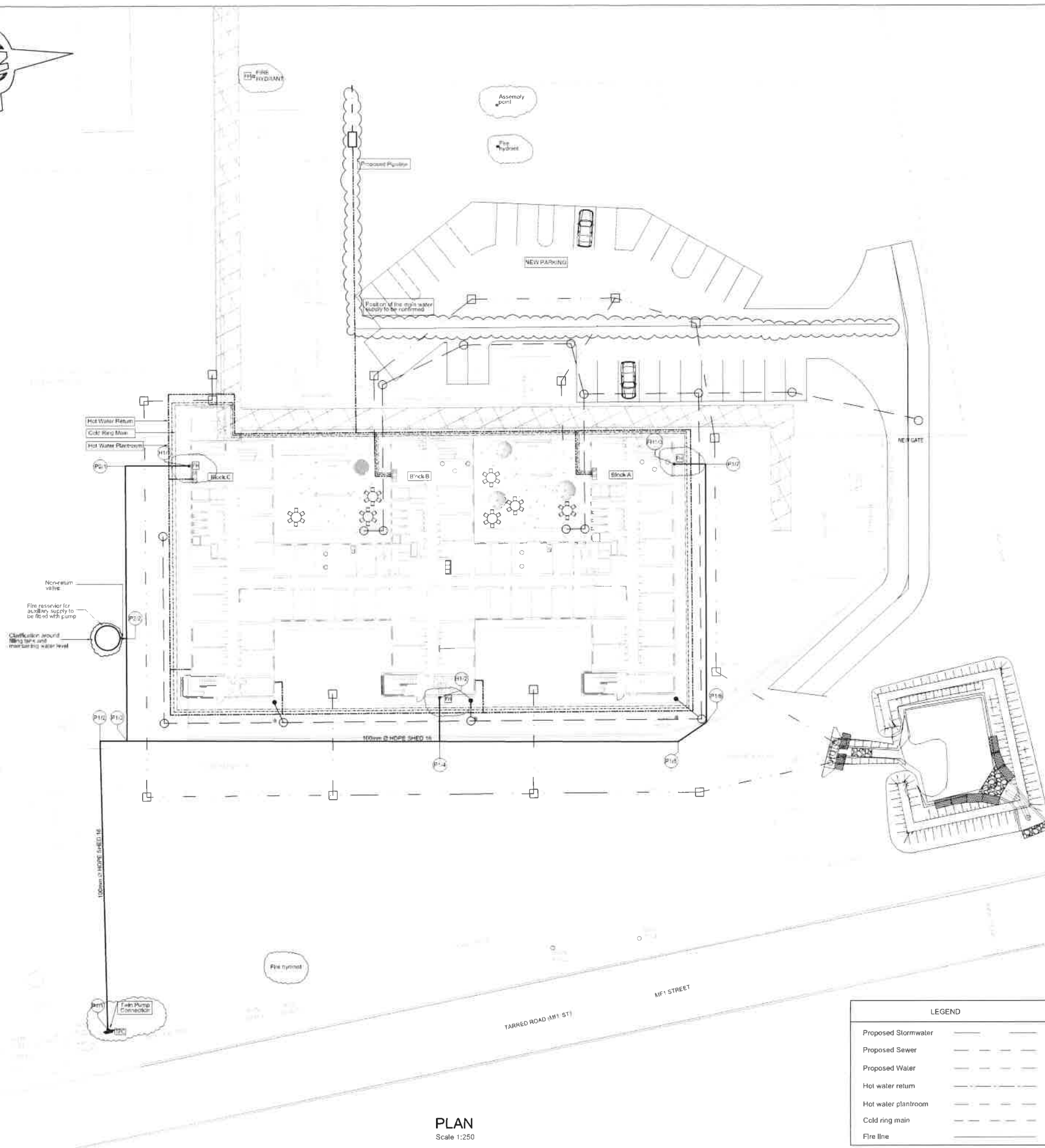
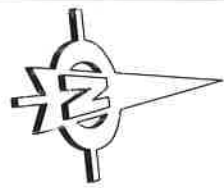
CLIENT: DEPARTMENT OF HEALTH - KZN

PROJECT: PROPOSED ALTERATIONS AND REFURBISHMENTS TO EXISTING STUDENT ACCOMMODATION IN MADADENI HOSPITAL SITE 1 (HOSPITAL SITE) IN THE TOWNSHIP ON FARM SUTTLEWORTH NO. 9504

DISCIPLINE: CIVILS
 DRAWING TITLE: STRUCTURAL STEEL BRAAI PERGOLE AND WALKWAY

| DESIGNED | BY | DATE | SCALE |
|-----------|----|--------|----------|
| S.T. | | FEB 21 | A0 |
| DRAWN | BY | DATE | SCALE |
| M.B. | | FEB 21 | AS SHOWN |
| APPROVED | BY | DATE | SCALE |
| | | | |
| PROJ. NO. | | | |
| SCALE | | | |
| REV. NO. | | | |
| REV. DATE | | | |

5418 - 06 - 108



PLAN
Scale 1:250

| LEGEND | |
|--------|---------------------|
| | Proposed Stormwater |
| | Proposed Sewer |
| | Proposed Water |
| | Hot water return |
| | Hot water plantroom |
| | Cold ring main |
| | Fire line |

FIRE PROTECTION PLAN NOTES

Occupancy classification - H2
 E3 to comply with SANS 10400 - T:2011
 E3: Other institutional (residential)
 Occupancy where groups of people who either are not fully fit or who are restricted in their movements or their ability to make decisions, reside and are cared for.

| | Applicable | Not applicable |
|---|---------------------|----------------|
| 1. Safety distances - 4.2 | | ✓ |
| 2. Division area - 4.3 | See report attached | |
| 3. Fire performance - 4.5 | See report attached | |
| 4. Fire resistance of occupancy and division separating elements as per 4.6 | See report attached | |
| 5. Structural elements and components to comply with 4.8 | See report attached | |
| 6. Partitions and partition walls - 4.9 | See report attached | |
| 7. Protection of openings - 4.10 | | ✓ |
| 8. Roof assemblies and coverings - 4.12 | | ✓ |
| 9. Floor covering as per 4.13 | See report attached | |
| 10. Floor coverings as per 4.14 | | ✓ |
| 11. Wall finishes as per 4.15 | | ✓ |
| 12. Provision of escapes to comply with 4.16 | See report attached | |
| 13. Exit doors to comply with 4.16 | See report attached | |
| 14. Feeder routes to comply with 4.18 | | ✓ |
| 15. Locks to escape and access doors to comply with 4.19 | See report attached | |
| 16. Emergency routes as per 4.19 | See report attached | |
| 17. Dimension of components of escape routes to 4.20 | See report attached | |
| 18. Width of escape routes to 4.21 | See report attached | |
| 19. Emergency lights to comply with 4.30 | See report attached | |
| 20. Markings and signposting as per 4.32 | See report attached | |
| 21. FHR's to comply with 4.33 | See report attached | |
| 22. Hydrants to be provided in accordance with 4.35 | See report attached | |
| 23. Portable fire extinguishers to comply with 4.38 | See report attached | |
| 24. Fire stopping as per 4.39 | See report attached | |
| 25. Services in structural or separating elements to 4.40 | See report attached | |
| 26. Smoke control 4.42 | See report attached | |
| 27. Air-conditioning and ventilation system to 4.43 | | ✓ |
| 28. Access for fire fighting & rescue purpose to 4.54 | See report attached | |
| 29. Water reticulation for fire to comply with w. | See report attached | |

Fire signage notes:

1. Fire signage shall comply with the requirements contained in SABS 1186
2. Minimum fire signage size = 150mm
3. All fire signage to be photo luminescent
4. The fire signage is indicative only, actual direction/orientations etc. To be determined on site.
5. Illuminated exit signs by electrical engineer
D/S = Double sided
S/S = Single sided
6. Horizontal distance between windows not to be less than 1m measured horizontally
7. Same to apply to vertical windows minimum of 1m between windows
8. All Class B Fire doors are fitted with locking device
9. Fire tank supplying emergency fire water to be proposed.

| LEGEND | |
|--------|---------------------------------------|
| | 30m FIRE HOSE REEL + 2 x 4.5kg DCP FE |
| | FIRE HYDRANT |
| | FIRE ESCAPE DIRECTION ARROW |
| | 2 HOUR FIRE WALL |
| | CLASS B FIRE DOOR |

**PRELIMINARY
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 FOR TENDER PURPOSES
 FOR CONSTRUCTION**

| REF. DRG. NO. | REFERENCE DRAWING DESCRIPTION |
|---------------|-------------------------------|
| REV | DATE DESCRIPTION NAME |

BLACK BALANCE PROJECTS (Pty) Limited
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 2 Richefond Circle,
 Ridgeside Office Park
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CLIENT DEPARTMENT OF HEALTH - KZN

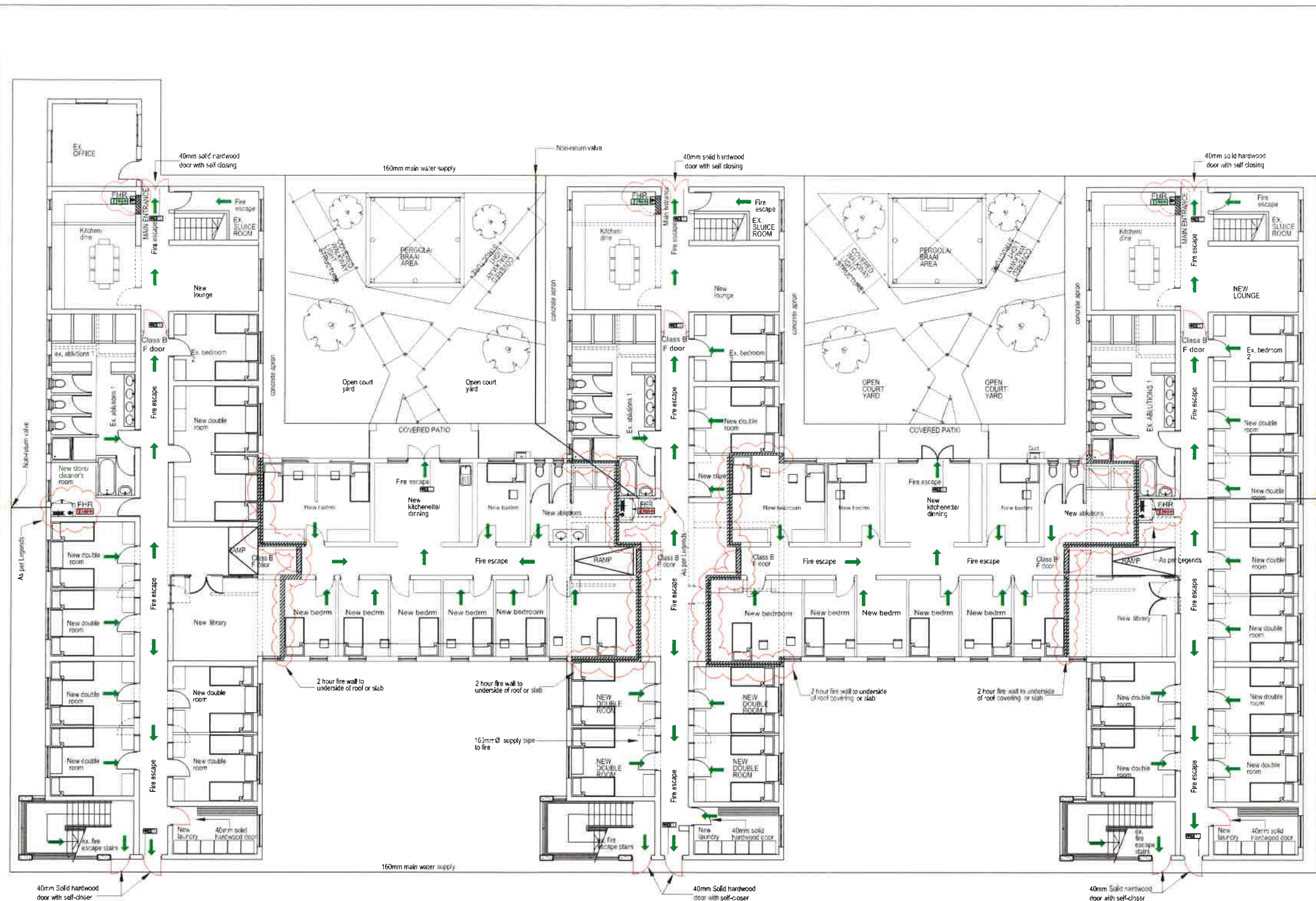


PROJECT
PROPOSED ALTERATIONS AND REFURBISHMENTS TO EXISTING STUDENT ACCOMMODATION IN MADADENI HOSPITAL SITE 1 (HOSPITAL SITE) IN THE TOWNSHIP ON FARM SUTTLEWORTH NO. 9504

DISCIPLINE
FIRE

DRAWING TITLE
PROPOSED FIRE LAYOUT PIPELINE

| TITLE | RESPONSIBLE PERSON | DATE | ORIGINAL SIZE |
|-------------|--------------------|---------|---------------|
| DESIGNED | C.M | APR' 21 | A1 |
| DRAWN | S.T | APR' 21 | SCALE |
| CHECKED | M.J.B | APR' 21 | AS SHOWN |
| APPROVED | M.J.B | | |
| SIGNATURE | | | PROJ No |
| ECSA No | 930366 | | 5418 |
| DRAWING No. | 5418 - 07 - 100 | | REVISION |
| | | | 0 |



**FIRE PROTECTION PLAN
GROUND FLOOR**
SCALE 1:100

FIRE NOTES:

- 1 OCCUPANCY CLASSIFICATION - H2
- 2 SANS 10409-1:2011
- 3 SAFETY DISTANCES - 4.2
- 4 DIVISION AREA - 4.3
- 5 FIRE PERFORMANCE - 4.5
- 6 FIRE RESISTANCE OF OCCUPANCY AND DIVISION SEPARATING ELEMENTS AS PER 4.6
- 7 STRUCTURAL ELEMENTS AND COMPONENTS TO COMPLY WITH 4.8
- 8 PARTITIONS AND PARTITION WALLS - 4.9
- 9 PROTECTION OF OPENINGS - 4.10
- 10 ROOF ASSEMBLIES AND COVERINGS - 4.12
- 11 CEILINGS TO COMPLY WITH 4.13
- 12 FLOOR COVERINGS AS PER 4.14
- 13 WALL FINISHES AS PER 4.15
- 14 PROVISION OF ESCAPES TO COMPLY WITH 4.16
- 15 EXIT DOORS TO COMPLY WITH 4.17
- 16 FEEDER ROUTES TO COMPLY WITH 4.18
- 17 LOCKS TO ESCAPE AND ACCESS DOORS TO COMPLY WITH 4.19
- 18 EMERGENCY ROUTES AS PER 4.19
- 19 DIMENSION OF COMPONENTS OF ESCAPE ROUTES TO 4.20
- 20 WIDTH OF ESCAPE ROUTES TO 4.21
- 21 EMERGENCY LIGHTS TO COMPLY WITH 4.20
- 22 MARKINGS AND SIGNPOSTING AS PER 4.32
- 23 FHS TO COMPLY WITH 4.33
- 24 HYDRANTS TO BE PROVIDED IN ACCORDANCE WITH 4.35
- 25 PORTABLE FIRE EXTINGUISHERS TO COMPLY WITH 4.38
- 26 FIRE STOPPING AS PER 4.39
- 27 SERVICES IN STRUCTURAL OR SEPARATING ELEMENTS TO 4.40
- 28 SMOKE CONTROL 4.42
- 29 AIR-CONDITIONING AND VENTILATION SYSTEM TO 4.43
- 30 ACCESS FOR FIRE FIGHTING & RESCUE PURPOSE TO 4.54
- 31 WATER RETICULATION FOR FIRE TO COMPLY WITH W

- LEGEND:**
- 30m FIRE HOSE REEL + 2 x 4 5kg DCP FE
 - FIRE HYDRANT
 - FIRE ESCAPE DIRECTION ARROW
 - 2 HOUR FIRE WALL
 - CLASS B FIRE DOOR

- FIRE SIGNAGE NOTES:**
- 1 FIRE SIGNAGE SHALL COMPLY WITH THE REQUIREMENTS CONTAINED IN SABS 1186
 - 2 MINIMUM FIRE SIGNAGE SIZE = 500mm
 - 3 ALL FIRE SIGNAGE TO BE PHOTO ILLUMINESCENT
 - 4 THE FIRE SIGNAGE IS INDICATIVE ONLY. ACTUAL DIRECTIONS/ORIENTATIONS ETC. TO BE DETERMINED ON SITE
 - 5 ILLUMINATED EXIT SIGNS BY ELECTRICAL ENGINEER
 - D/S = DOUBLE SIDED
 - S/S = SINGLE SIDED

NOTES

- 1 All supply & return ductwork to be externally lagged to specification.
- 2 Outside air duct to be uninsulated.
- 3 All toilet air ductwork to be uninsulated.
- 4 All mild steel equipment to be hot dipped galvanised after manufacture

EQUIPMENT SCHEDULE

| ITEM NO. | DESCRIPTION |
|----------|---|
| WT1 | 1 1200l water tank manufactured from 5mm mild steel plate & 8mm dome. Tank to be sandblasted and aluminium sprayed and galvanized coated. Tank to be pressure tested to 600 KPa after manufacture. Tank size Q3530x2140mmH. No elements and control panel to be provided. Contractor to forward testing certificates. |
| EPI | 1 Electrical Panel complete with starters and overloads for heat pump and pump installation. |
| P1 | 2 water recirculation pump. KSB ETA 080-085 200-2930 RPM. Motor 11 kw flow 10.5l/s @ 45m head |

NOTES

- 1 All H&C water external pipework to be Class 2 copper.
- 2 All pipeworks chased in walls to be class 2 copper with soldered fittings.
- 3 All hot water pipework chased in wall to be wrapped in kraft paper before plastering.
- 4 All hot water pipework to be insulated to specification.
- 5 All exposed hot water pipework to be aluminium clad to specification.
- 6 All planroom hot water pipework to be aluminium clad to specification.
- 7 All fire pipework above ground to be medium black & painted with red oxide. Pipework to be in accordance with SABS 62-1 or SABS 62-2 or both. Fittings to be SABS 815
- 8 All cold water underground pipework to be Class 10 polyethylene. Piping to be SABS 966.
- 9 All fire underground pipework to be Class 16 polyethylene. Piping to be SABS 966.
- 10 All pan flush masters to be senior flush masters
- 11 All urinal flush masters to be junior flush masters

| REF. DRG No. | REFERENCE DRAWING DESCRIPTION | NAME |
|--------------|-------------------------------|-------------|
| REV | DATE | DESCRIPTION |
| 00 | 00 | DESCRIPTION |

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Tel: +27 31 201 1338

P.O. Box 1142, Hyper By The Sea, Durban, 4053

CLIENT: DEPARTMENT OF HEALTH - KZN

health
Department:
PROVINCE OF KWAZULU-NATAL

PROJECT
PROPOSED ALTERATIONS AND REFURBISHMENTS TO EXISTING STUDENT ACCOMMODATION IN MADADENI HOSPITAL SITE 1 (HOSPITAL SITE) IN THE TOWNSHIP ON FARM SUTTLEWORTH NO. 9504

DISCIPLINE
FIRE

DRAWING TITLE
FIRE PROTECTION PLAN
GROUND FLOOR

| TITLE | RESPONSIBLE PERSON | DATE | ORIGINAL SIZE |
|-------------|--------------------|---------|---------------|
| DESIGNED | C.M | NOV' 20 | A1 |
| DRAWN | S.T | APR' 21 | SCALE |
| CHECKED | C.M | APR' 21 | AS SHOWN |
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| SIGNATURE | | | PROJ No |
| ECSA No | 930366 | | 5418 |
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