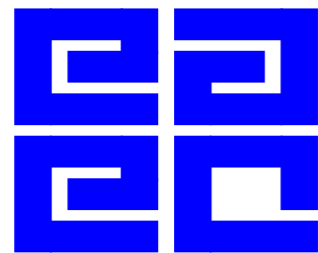




## WATER AND SANITATION DEVELOPMENT PROJECT

IMPROVEMENT OF COMMUNAL ONSITE SANITATION FACILITIES FOR WAJIR PROJECT AREA

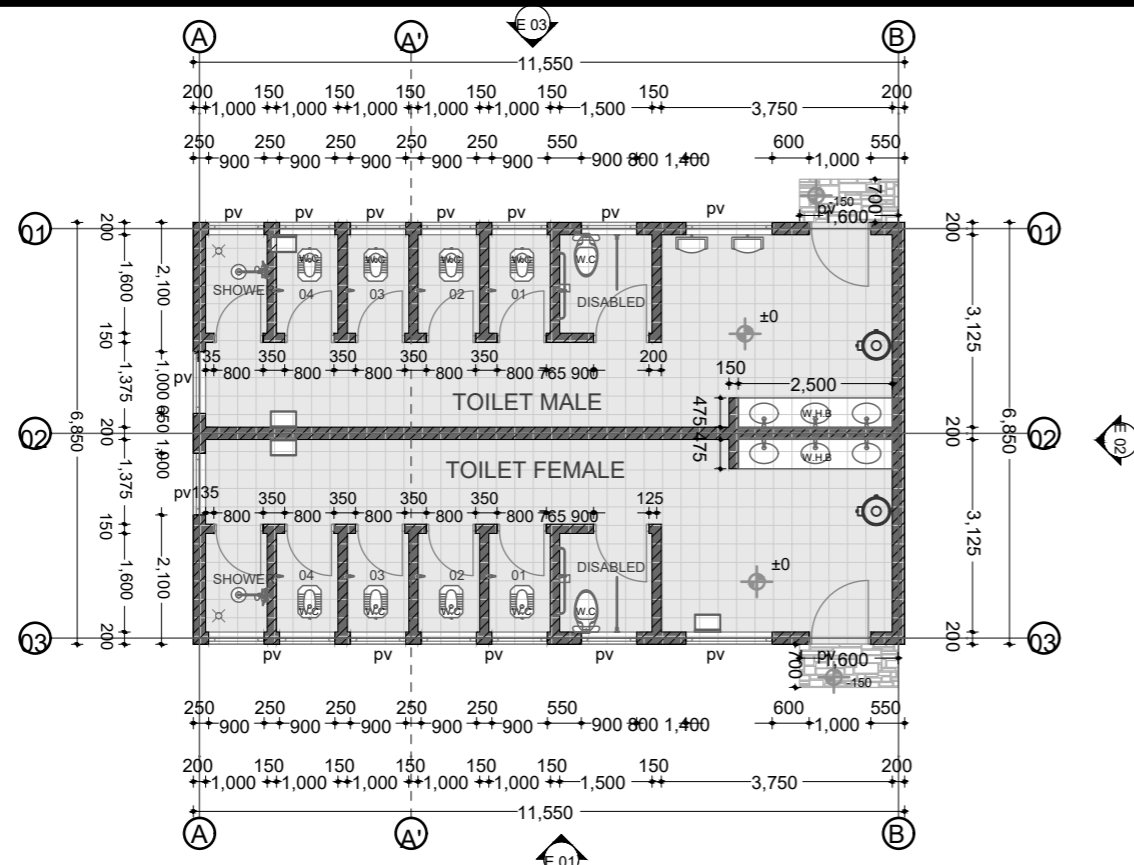
### VOLUME III:- DRAWINGS



East African Engineering Consultants Ltd.  
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Nairobi, Kenya  
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Email: [consulting@systemelengineering.com](mailto:consulting@systemelengineering.com)



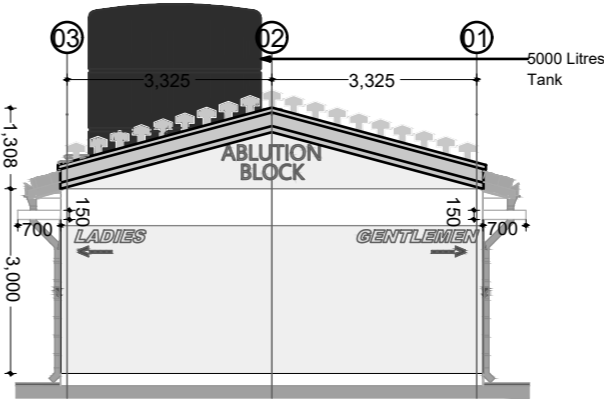
**FLOOR LAYOUT PLAN**

**INTERNAL DOORS**  
45mm thick semi solid core flush door 800 x 2100mm with 6mm plywood facing both side, all finished and painted to approval.

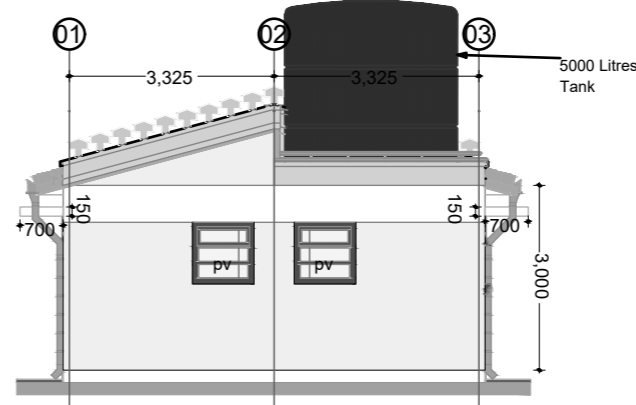
**EXTERNAL DOORS**  
900x2400mm high mild steel doors with 100 x 50mm Stiles and Top Rails, 150 x 50mm Middle and Bottom Rails With Pressed Metal Infill Louvre and 100 x 50mm Pressed Metal Frames, Including Hinges, Pad Bolts all To Manufacturer's Details, with three coats gloss paint complete with Opening Accessories

**M.S. WINDOWS**  
Purpose made standard 32 mm "z" section steel casement windows comply to B.S 6510 of heavy duty section, of metric W2N0 range of approved manufacture primed with red oxide prime, heavy duty chromium plated fastener and stays, mosquito gauze burglar proofing bars 4mm thick clear glass glazing bonded in tropicalised metal putty in panel provide "I" section" brass curtain rail in two roll. complete with overlaps, end stops and runners.

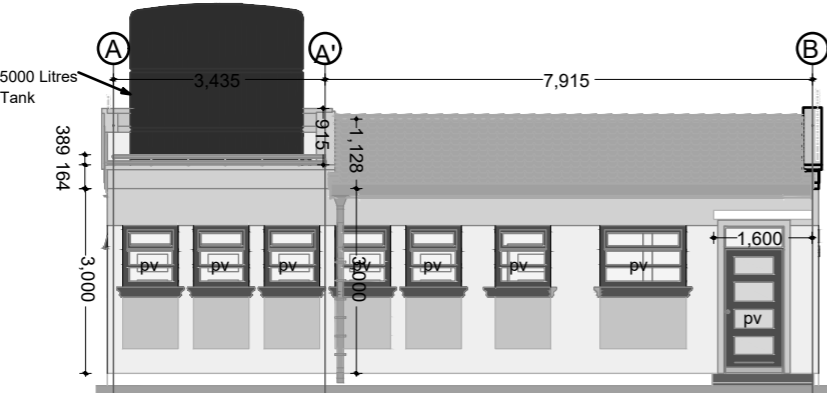
**ROOF**  
Roof pitch used is 25 degrees



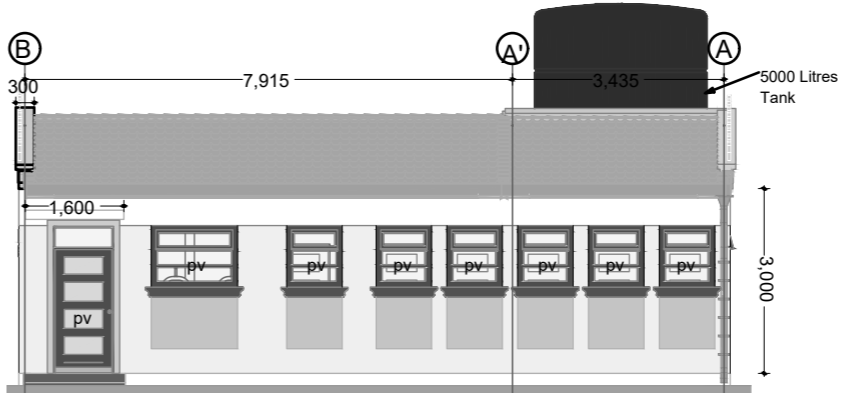
**ELEVATION 02**



**ELEVATION 04**



**ELEVATION 01**



**ELEVATION 03**

- NOTES:**
- All measurements are in metres.
  - All heights are orthometric.
  - Contour interval is 0.25m
  - Total Area - 12.291ha (30.372acres) approx.

|                   |           |
|-------------------|-----------|
| Survey Projection |           |
| Projection        | UTM       |
| Datum             | WGS 84    |
| Zone              | 37° NORTH |

- LEGEND:**
- Major Contour
  - Minor Contour
  - Spot Height+ Value
  - Access
  - Canal
  - Building
  - Tree
  - Fence
  - Control Point
  - Wall
  - Manhole

| No. Revisions | Date | Approved By: | COMMENTS |
|---------------|------|--------------|----------|
|               |      |              |          |
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Client:

**WAIJIR WATER AND SEWERAGE COMPANY LIMITED**  
Water for Life  
**WAIJASCO**

MANAGING DIRECTOR WAIJIR WATER AND SEWERAGE COMPANY LTD  
P.O BOX 708 WAIJIR, KENYA

Project:  
consultancy Services for Design Review; Preparation of final Detailed Design; Bidding Documents, Environmental and Social Impact Assessments (ESIAs), and Resettlement Action Plans (RAPs); and Supervision of Water and Sanitation Works in Wajir Town and Technical Assistance to Wajir Water and Sewerage Company

PHASE I - DESIGN REVIEW

Drawing Title: FLOOR LAYOUT PLAN AND ELEVATIONS

Consultant:

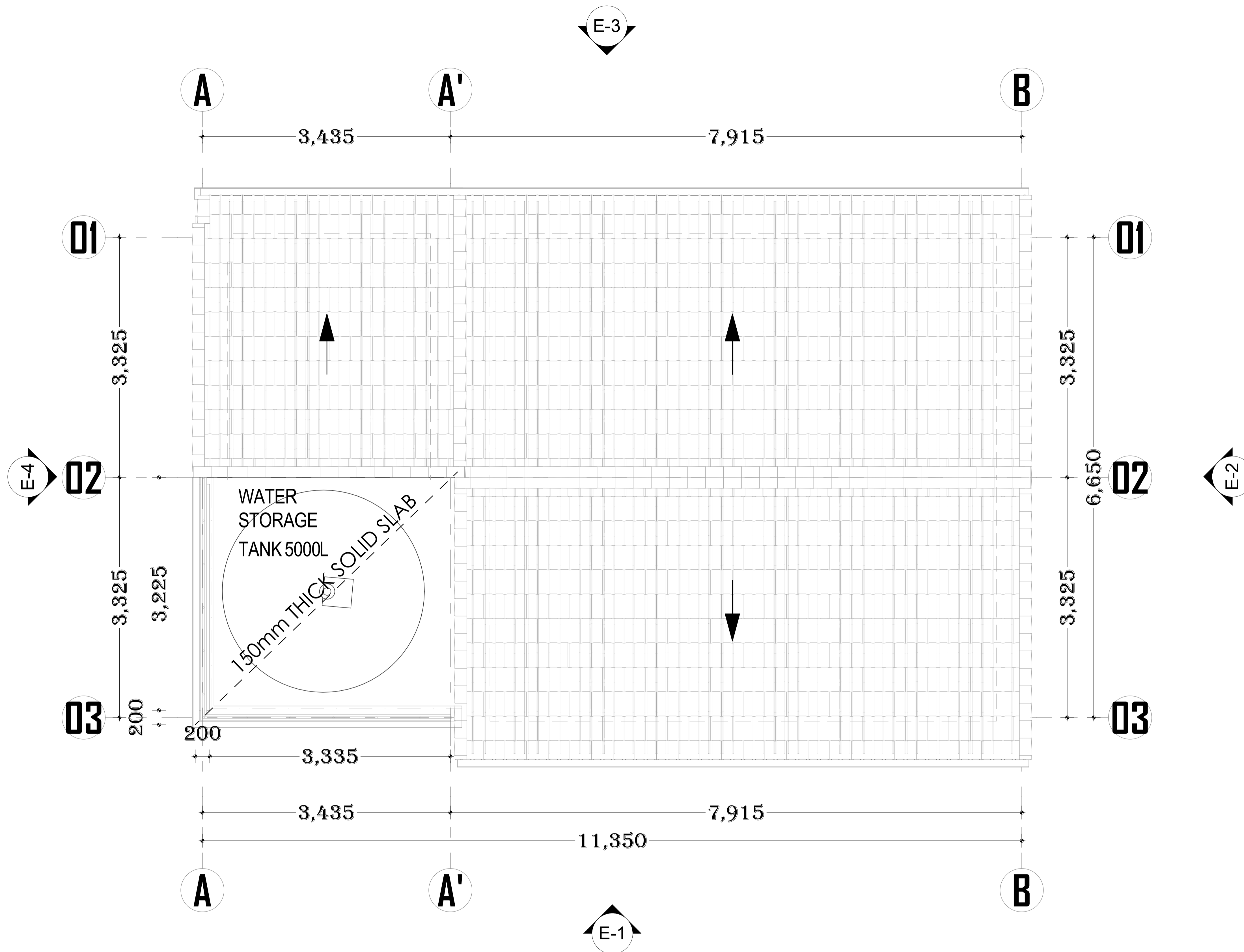
East African Engineering Consultants Ltd.  
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IN JOINT VENTURE WITH

**ENGINEERING LTD**

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|                                |                     |
|--------------------------------|---------------------|
| DESIGNED BY: AMM               | DRAWN BY: AMM       |
| CHECKED BY: AM                 | APPROVED BY: DNS    |
| SCALE: 1:500 (A1)              | DATE: December 2022 |
| JOB No. C779                   | SHEET 1 OF 1        |
| DRAWING No. WFSTP/SW/WRS/1.0/1 | Revision            |



# ROOF LAYOUT PLAN

- NOTES:
- All measurements are in metres.
  - All heights are orthometric.
  - Contour interval is 0.25m
  - Total Area - 12.291ha (30.372acres) approx.

|                   |           |
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  - Tree
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  - Wall
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| No. Revisions | Date | Approved By: | COMMENTS |
|---------------|------|--------------|----------|
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Client:



MANAGING DIRECTOR WAJIR WATER AND SEWERAGE COMPANY LTD  
P.O BOX 708 WAJIR, KENYA

Project:

Consultancy Services for Design Review; Preparation of final Detailed Design; Bidding Documents, Environmental and Social Impact Assessments (ESIAs), and Resettlement Action Plans (RAPS); and Supervision of Water and Sanitation Works in Wajir Town and Technical Assistance to Wajir Water and Sewerage Company

PHASE I - DESIGN REVIEW

Drawing Title: ROOF LAYOUT

Consultant:



IN JOINT VENTURE WITH



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|                                |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DESIGNED BY: AMM               | DRAWN BY: AMM   |   |   |   |   |   |   |   |   |   |   |   |   |
| CHECKED BY: AM                 | APPROVED BY: DNS  |   |   |   |   |   |   |   |   |   |   |   |   |
| SCALE: 1:500 (A1)              | DATE: December 2022   |   |   |   |   |   |   |   |   |   |   |   |   |
| JOB No. C779                   | SHEET 1 OF 1  |   |   |   |   |   |   |   |   |   |   |   |   |
| DRAWING No. WFSTP/SW/WRS/1.0/2 | Revision  |   |   |   |   |   |   |   |   |   |   |   |   |
|                                | <table border="1"> <tr> <td>A</td><td>B</td><td>C</td><td>D</td><td>E</td><td>F</td> </tr> <tr> <td>G</td><td>H</td><td>I</td><td>J</td><td>K</td><td>L</td> </tr> </table> | A | B | C | D | E | F | G | H | I | J | K | L |
| A                              | B   | C | D | E | F |   |   |   |   |   |   |   |   |
| G                              | H   | I | J | K | L |   |   |   |   |   |   |   |   |



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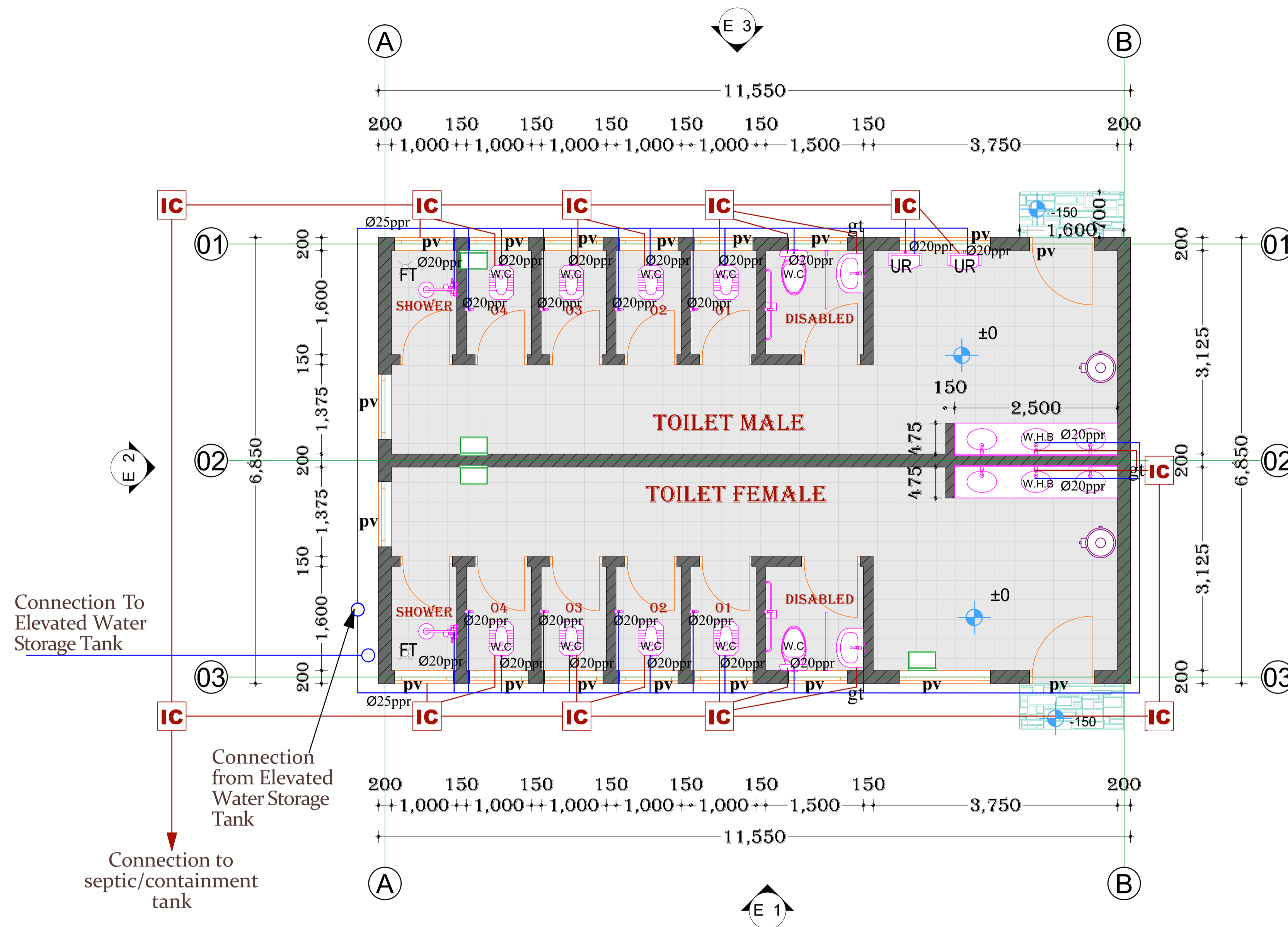
LEGEND:

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PIPING LEGEND

|  |  |
|--|--|
|  | COLD WATER PIPING                          |
|  | SOIL VENT PIPE                             |
|  | INSPECTION CHAMBER                         |
|  | COLD WATER PIPING WITH CONNECTION TO ABOVE |

| ABBREVIATIONS - PLUMBING |                                 |
|--------------------------|---------------------------------|
| NO                       | NORMALLY OPEN                   |
| NPW                      | NON-POTABLE WATER               |
| OD                       | OUTSIDE DIAMETER                |
| OS&Y                     | OUTSIDE SCREW & YOKE GATE VALVE |
| OST                      | OVERFLOW STORM                  |
| FT                       | FLOOR TRAP                      |
| GT                       | GULLEY TRAP                     |
| PRV                      | PRESSURE REDUCING VALVE         |
| PSI                      | POUNDS PER SQUARE INCH          |
| PSIG                     | POUNDS PER SQUARE INCH (GAUGE)  |
| RISE                     | RISE (WITH IN FLOOR)            |
| SA                       | SHOCK ABSORBER                  |
| SAN                      | SANITARY                        |
| SD                       | SMOKE DETECTOR                  |
| SF                       | SQUARE FEET                     |
| SK                       | SINK                            |
| ST                       | STORM PIPING                    |
| TD                       | TRENCH DRAIN                    |
| TDH                      | TOTAL DISCHARGE HEAD            |
| TMV                      | TEMPERATURE MIXING VALVE        |
| TOP                      | TOP OF PIPE                     |
| TOS                      | TOP OF SLAB                     |
| TP                       | TRAP PRIMER                     |
| TPV                      | TRAP PRIMER VALVE               |
| TS                       | TAMPER SWITCH                   |
| TYP                      | TYPICAL                         |
| UON                      | UNLESS OTHERWISE NOTED          |
| UP                       | UP (PENETRATES FLOOR SLAB)      |
| UR                       | URINAL                          |
| V                        | VENT                            |
| VB                       | VACUUM BREAKER                  |
| VR                       | VENT RISE                       |
| VTR                      | VENT THROUGH ROOF               |
| WC                       | WATER CLOSET                    |
| WCO                      | WALL CLEANOUT                   |
| WHB                      | WALL HAND BASIN                 |
| WF                       | WATER FILTER                    |
| WFU                      | WATER FIXTURE UNIT              |
| Z                        | ZONE                            |



PLUMBING LAYOUT PLAN [FOUL WATER AND CLEAN WATER FOR USE]

| No. Revisions | Date | Approved By: | COMMENTS |
|---------------|------|--------------|----------|
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Client:

MANAGING DIRECTOR WAJIR WATER AND SEWERAGE COMPANY LTD  
P.O BOX 708 WAJIR, KENYA

Project:

Consultancy Services for Design Review; Preparation of final Detailed Design; Bidding Documents, Environmental and Social Impact Assessments (ESIAs), and Resettlement Action Plans (RAPS); and Supervision of Water and Sanitation Works in Wajir Town and Technical Assistance to Wajir Water and Sewerage Company

PHASE I - DESIGN REVIEW

Drawing Title :PLUMBING LAYOUT

Consultant:

IN JOINT VENTURE WITH

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Email:consulting@systelengineering.com

|                                |                  |
|--------------------------------|------------------|
| DESIGNED BY: AMM               | DRAWN BY: AMM    |
| CHECKED BY: AM                 | APPROVED BY: SCW |
| SCALE: 1:500 (A1)              | DATE: June2023   |
| JOB No. C779                   | SHEET 1 OF 1     |
| DRAWING No. WFSTP/SW/WRS/1.0/3 | Revision         |
|                                |                  |
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- NOTES:
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  - All heights are orthometric.
  - Contour interval is 0.25m
  - Total Area - 12.291ha (30.372acres) approx.

|                   |           |
|-------------------|-----------|
| Survey Projection |           |
| Projection        | UTM       |
| Datum             | WGS 84    |
| Zone              | 37° NORTH |

LEGEND:

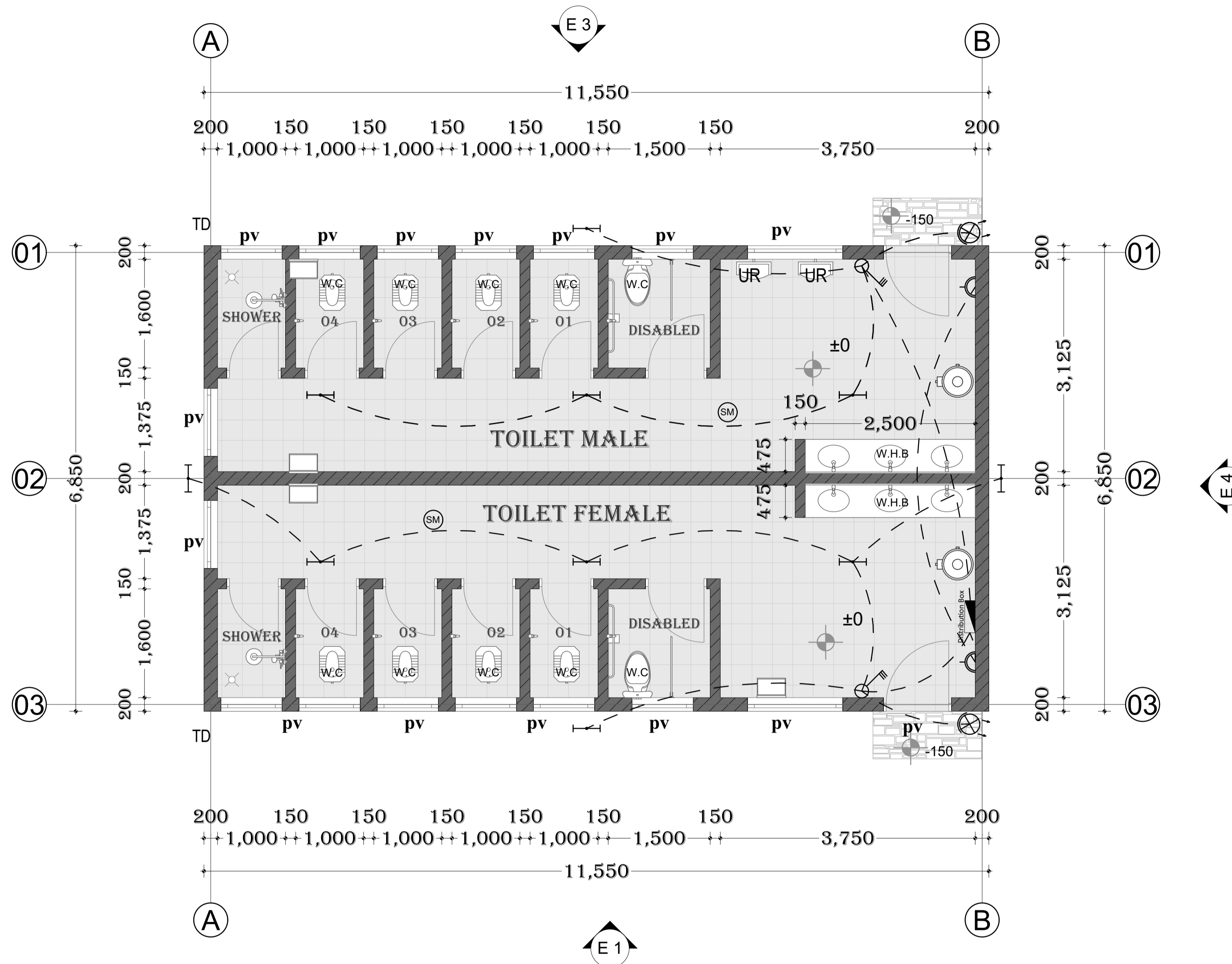
- Major Contour
- Minor Contour
- Spot Height+ Value
- Access
- Canal
- Building
- Tree
- Fence
- Control Point
- Wall
- Manhole

REFLECTED CEILING & ELECTRICAL PLAN LEGEND:

| SYMBOL | DESCRIPTION  |
|--------|--|
|        | INDICATES CEILING HEIGHT   |
|        | Switch 3 Poles One Way   |
|        | SURFACE MOUNTED OR PENDANT LIGHT FIXTURE ('EX' INDICATES EXTERIOR FIXTURE & 'P' INDICATES POST FIXTURE)                          |
|        | SURFACE MOUNTED FAN W/ LIGHT FIXTURE   |
|        | RECESSED POT LIGHT ('W/P' INDICATES WATERPROOF)  |
|        | RECESSED OR SURFACE MOUNTED STRIP LIGHT  |
|        | Socket Outlet Multiple 2 Gangs   |
|        | SURFACE MOUNTED DECORATIVE WALL SCONCE ('EX' INDICATES EXTERIOR FIXTURE)   |
|        | SURFACE MOUNTED LED WALL LIGHT FIXTURE (TO BE LOCATED ABOVE DOOR OPENING ON CENTER OF OPENING)                                   |
|        | EXHAUST FAN  |
|        | SMOKE ALARM  |
|        | Fluorescent Lighting   |
|        | WALL MOUNTED DUPLEX OUTLET TO BE LOCATED AS PER O.B.C. UNLESS OTHERWISE NOTED. 'AC' REPRESENTS 'ABOVE COUNTER', 'EX' - EXTERIOR  |
|        | OUTLET LOCATED IN MILLWORK. REFER TO MILLWORK DETAILS FOR CLARIFICATION (ID-500'S)   |
|        | WALL MOUNTED DUPLEX OUTLET WITH GROUND FAULT TO BE LOCATED AS PER O.B.C. UNLESS OTHERWISE NOTED. 'AC' REPRESENTS 'ABOVE COUNTER' |
|        | Spot Light Symbol  |
|        | WALL MOUNTED CABLE OUTLET AND RECESSED BOX FOR OUTLET & CABLE CONNECTION TO BE LOCATED AS SPECIFIED                              |
|        | Distribution Box   |

REFLECTED CEILING & ELECTRICAL PLAN NOTES:

- REFER TO INTERIOR DESIGN LIGHTING SCHEDULE FOR ALL LIGHTING 7 SPECIFICATIONS. 7
- GENERAL CONTRACTOR & ELECTRICIAN TO REVIEW DRAWINGS FOR ANY DISCREPANCIES. ANY DRAWING DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE INTERIOR DESIGN CONSULTANT PRIOR TO CONSTRUCTION.
- ALL ELECTRICAL SWITCHES TO BE LOCATED 42" OC. AFF. UNLESS OTHERWISE NOTED. SWITCH LOCATIONS TO BE CONFIRMED WITH CLIENT & INTERIOR DESIGN CONSULTANT PRIOR TO INSTALLATION.
- SOME LIGHT FIXTURES TO HAVE DIMMER, CONFIRM WITH INTERIOR DESIGN CONSULTANT & CLIENT PRIOR TO SWITCH INSTALLATION. 6. DIMENSIONS ARE TAKEN FROM CENTER OF LIGHT FIXTURES, UNLESS OTHERWISE NOTED.
- ALL LIGHT FIXTURES SHOWN CENTERED ON REFLECTED CEILING PLAN TO BE LOCATED CENTERED ON SITE, UNLESS OTHERWISE NOTED.
- FIXTURE QUANTITIES TO BE VERIFIED BY INSTALLER PRIOR TO ORDERING
- ALL DECORATIVE SURFACE MOUNTED FIXTURES TO BE SPECIFIED OR SUPPLIED BY CLIENT TO BE INSTALLED BY ELECTRICIAN
- ALL WALL SCONCES TO BE LOCATED AS PER INTERIOR DESIGN DRAWINGS.
- DIMENSIONS ARE TAKEN FROM THE CENTER OF OUTLETS, UNLESS OTHERWISE NOTED.
- ALL OUTLETS TO BE LOCATED ON CENTER (O.C.), OF WALL UNLESS OTHERWISE NOTED.
- ALL WALL MOUNTED ELECTRICAL OUTLETS & SWITCHES ARE TO BE 'DECOR' UNLESS OTHERWISE NOTED. FINISH AS SPECIFIED.
- ALL ABOVE COUNTER OUTLETS TO BE LOCATED 42" OC. AFF. UNLESS OTHERWISE NOTED.
- SECURITY ALARM, AUDIOVISUAL & HOME AUTOMATION COMPONENT LOCATIONS TO BE CONFIRMED WITH CLIENT & ALL OTHER CONSULTANTS, PRIOR TO INSTALLATION.
- ALL OUTLETS PLACED TOGETHER TO BE GANGED INTO SINGLE ROUGH-IN BOX WITH ONE COVER PLATE AS REQUIRED. SPECIFIC MOUNTING HEIGHTS TO BE INDICATED ON INTERIOR DESIGN ELECTRICAL PLANS.
- ELECTRICAL, MECHANICAL & STORAGE ROOM EQUIPMENT/ELECTRICAL AS PER TRADE REQUIREMENT & O.B.C., DOCUMENT INDICATING ON SITE LOCATION TO BE PROVIDED TO INTERIOR DESIGN CONSULTANT.
- ALL AREAS WHERE CABINETS TO HAVE ELECTRICAL TO BE FINALIZED ONCE MILLWORK SHOP DRAWINGS ARE REVIEWED.
- ALL SWITCHING TO BE CONVENTIONAL UNLESS OTHERWISE NOTED.
- EXTERIOR OUTLET LOCATIONS TO BE CONFIRMED WITH LANDSCAPE / ELECTRICAL CONSULTANTS.



ELECTRICAL LAYOUT PLAN

| No. Revisions | Date | Approved By: | COMMENTS |
|---------------|------|--------------|----------|
|               |      |              |          |
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Client:

MANAGING DIRECTOR WAJIR WATER AND SEWERAGE COMPANY LTD  
P.O BOX 708 WAJIR, KENYA

Project:

Consultancy Services for Design Review; Preparation of final Detailed Design; Bidding Documents, Environmental and Social Impact Assessments (ESIAs), and Resettlement Action Plans (RAPs); and Supervision of Water and Sanitation Works in Wajir Town and Technical Assistance to Wajir Water and Sewerage Company  
PHASE I - DESIGN REVIEW

Drawing Title: ELECTRICAL LAYOUT

Consultant:

IN JOINT VENTURE WITH

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|--------------------------------|---------------------|
| DESIGNED BY: AMM               | DRAWN BY: AMM       |
| CHECKED BY: AM                 | APPROVED BY: DNS    |
| SCALE: 1:500 (A1)              | DATE: December 2022 |
| JOB No. C779                   | SHEET 1 OF 1        |
| DRAWING No. WFSTP/SW/WRS/1.0/4 | Revision            |
|                                |                     |





VIEW 01

- NOTES:
1. All measurements are in metres.
  2. All heights are orthometric.
  3. Contour interval is 0.25m
  4. Total Area - 12.291ha (30.372acres) approx.

|                   |           |
|-------------------|-----------|
| Survey Projection |           |
| Projection        | UTM       |
| Datum             | WGS 84    |
| Zone              | 37° NORTH |

LEGEND:

1. Major Contour
2. Minor Contour
3. Spot Height+ Value
4. Access
5. Canal
6. Building
7. Tree
8. Fence
9. Control Point
10. Wall
11. Manhole

| No. Revisions | Date | Approved By: | COMMENTS |
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PHASE I - DESIGN REVIEW

Drawing Title: VIEWS

Consultant:



IN JOINT VENTURE WITH



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| DESIGNED BY: AMM               | DRAWN BY: AMM   |          |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| CHECKED BY: AM                 | APPROVED BY: DNS  |          |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| SCALE: 1:500 (A1)              | DATE: December 2022   |          |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| JOB No. C779                   | SHEET 1 OF 1  |          |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| DRAWING No. WFSTP/SW/WRS/1.0/v | <table border="1"> <tr> <th colspan="12">Revision</th> </tr> <tr> <td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td> </tr> <tr> <td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td> </tr> </table> | Revision |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Revision                       |   |          |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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VIEW 02

- NOTES:
1. All measurements are in metres.
  2. All heights are orthometric.
  3. Contour interval is 0.25m
  4. Total Area - 12.291ha (30.372acres) approx.

|                   |           |
|-------------------|-----------|
| Survey Projection |           |
| Projection        | UTM       |
| Datum             | WGS 84    |
| Zone              | 37° NORTH |

LEGEND:

1. Major Contour
2. Minor Contour
3. Spot Height+ Value
4. Access
5. Canal
6. Building
7. Tree
8. Fence
9. Control Point
10. Wall
11. Manhole

| No. Revisions | Date | Approved By: | COMMENTS |
|---------------|------|--------------|----------|
|               |      |              |          |
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|               |      |              |          |

Client:




MANAGING DIRECTOR WAJIR WATER AND SEWERAGE COMPANY LTD  
P.O BOX 708 WAJIR, KENYA

Project:

Consultancy Services for Design Review; Preparation of final Detailed Design; Bidding Documents, Environmental and Social Impact Assessments (ESIAs), and Resettlement Action Plans (RAPS); and Supervision of Water and Sanitation Works in Wajir Town and Technical Assistance to Wajir Water and Sewerage Company  
PHASE I - DESIGN REVIEW

Drawing Title: VIEWS

Consultant:



East African Engineering Consultants Ltd.  
Lenana Court, New Wing No. 3 Lenana Road  
P.O. Box 30707, 00100 Nairobi, Kenya  
Tel: (+254)-20-2714514/5/6  
- 20 - 2527995 / 2718861  
Email: [eaecgroup@gmail.com](mailto:eaecgroup@gmail.com)  
[info@eaecgroup.com](http://info@eaecgroup.com)  
[www.eaecgroup.com](http://www.eaecgroup.com)

IN JOINT VENTURE WITH



Systel Engineering Limited  
5th Floor, Wing II, CIC Plaza,  
Mara Road, Upperhill,  
P.O Box 19109-00100,  
Nairobi, Kenya  
Tel: + 254(0) 791 329 980 / 726 039 006  
Email: [consulting@systelengineering.com](mailto:consulting@systelengineering.com)

|                                |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DESIGNED BY: AMM               | DRAWN BY: AMM   |   |   |   |   |   |   |   |   |   |   |   |   |
| CHECKED BY: AM                 | APPROVED BY: DNS  |   |   |   |   |   |   |   |   |   |   |   |   |
| SCALE: 1:500 (A1)              | DATE: December 2022   |   |   |   |   |   |   |   |   |   |   |   |   |
| JOB No. C779                   | SHEET 1 OF 1  |   |   |   |   |   |   |   |   |   |   |   |   |
| DRAWING No. WFSTP/SW/WRS/1.0/v | Revision  |   |   |   |   |   |   |   |   |   |   |   |   |
|                                | <table border="1"> <tr> <td>A</td><td>B</td><td>C</td><td>D</td><td>E</td><td>F</td> </tr> <tr> <td>G</td><td>H</td><td>I</td><td>J</td><td>K</td><td>L</td> </tr> </table> | A | B | C | D | E | F | G | H | I | J | K | L |
| A                              | B   | C | D | E | F |   |   |   |   |   |   |   |   |
| G                              | H   | I | J | K | L |   |   |   |   |   |   |   |   |





VIEW 03

- NOTES:
1. All measurements are in metres.
  2. All heights are orthometric.
  3. Contour interval is 0.25m
  4. Total Area - 12.291ha (30.372acres) approx.

|                   |           |
|-------------------|-----------|
| Survey Projection |           |
| Projection        | UTM       |
| Datum             | WGS 84    |
| Zone              | 37° NORTH |

LEGEND:

1. Major Contour
2. Minor Contour
3. Spot Height+ Value
4. Access
5. Canal
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| No. Revisions | Date | Approved By: | COMMENTS |
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Client:



MANAGING DIRECTOR WAJIR WATER AND SEWERAGE COMPANY LTD  
P.O BOX 708 WAJIR, KENYA

Project:  
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PHASE I - DESIGN REVIEW

Drawing Title: VIEWS

Consultant:



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Lenana Court, New Wing No. 3 Lenana Road  
P.O. Box 30707, 00100 Nairobi, Kenya  
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IN JOINT VENTURE WITH



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|                                |   |   |   |   |   |   |   |   |   |   |   |   |   |
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| DESIGNED BY: AMM               | DRAWN BY: AMM   |   |   |   |   |   |   |   |   |   |   |   |   |
| CHECKED BY: AM                 | APPROVED BY: DNS  |   |   |   |   |   |   |   |   |   |   |   |   |
| SCALE: 1:500 (A1)              | DATE: December 2022   |   |   |   |   |   |   |   |   |   |   |   |   |
| JOB No. C779                   | SHEET 1 OF 1  |   |   |   |   |   |   |   |   |   |   |   |   |
| DRAWING No. WFSTP/SW/WRS/1.0/v | Revision  |   |   |   |   |   |   |   |   |   |   |   |   |
|                                | <table border="1"> <tr> <td>A</td><td>B</td><td>C</td><td>D</td><td>E</td><td>F</td> </tr> <tr> <td>G</td><td>H</td><td>I</td><td>J</td><td>K</td><td>L</td> </tr> </table> | A | B | C | D | E | F | G | H | I | J | K | L |
| A                              | B   | C | D | E | F |   |   |   |   |   |   |   |   |
| G                              | H   | I | J | K | L |   |   |   |   |   |   |   |   |





VIEW 04

- NOTES:
1. All measurements are in metres.
  2. All heights are orthometric.
  3. Contour interval is 0.25m
  4. Total Area - 12.291ha (30.372acres) approx.

|                   |           |
|-------------------|-----------|
| Survey Projection |           |
| Projection        | UTM       |
| Datum             | WGS 84    |
| Zone              | 37° NORTH |

LEGEND:

1. Major Contour
2. Minor Contour
3. Spot Height+ Value
4. Access
5. Canal
6. Building
7. Tree
8. Fence
9. Control Point
10. Wall
11. Manhole

| No. Revisions | Date | Approved By: | COMMENTS |
|---------------|------|--------------|----------|
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Client:



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PHASE I - DESIGN REVIEW


Drawing Title: VIEWS

Consultant:



East African Engineering Consultants Ltd.  
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[www.eaecgroup.com](http://www.eaecgroup.com)

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| DESIGNED BY: AMM               | DRAWN BY: AMM   |          |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| CHECKED BY: AM                 | APPROVED BY: DNS  |          |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| JOB No. C779                   | SHEET 1 OF 1  |          |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| DRAWING No. WFSTP/SW/WRS/1.0/v | <table border="1"> <tr> <th colspan="12">Revision</th> </tr> <tr> <td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td> </tr> <tr> <td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td> </tr> </table> | Revision |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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VIEW 05

- NOTES:
1. All measurements are in metres.
  2. All heights are orthometric.
  3. Contour interval is 0.25m
  4. Total Area - 12.291ha (30.372acres) approx.

|                   |           |
|-------------------|-----------|
| Survey Projection |           |
| Projection        | UTM       |
| Datum             | WGS 84    |
| Zone              | 37° NORTH |

- LEGEND:
1. Major Contour
  2. Minor Contour
  3. Spot Height+ Value
  4. Access
  5. Canal
  6. Building
  7. Tree
  8. Fence
  9. Control Point
  10. Wall
  11. Manhole

| No. Revisions | Date | Approved By: | COMMENTS |
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|               |      |              |          |

Client:




MANAGING DIRECTOR WAJIR WATER AND SEWERAGE COMPANY LTD  
P.O BOX 708 WAJIR, KENYA


Project:  
Consultancy Services for Design Review; Preparation of final Detailed Design; Bidding Documents, Environmental and Social Impact Assessments (ESIAs), and Resettlement Action Plans (RAPS); and Supervision of Water and Sanitation Works in Wajir Town and Technical Assistance to Wajir Water and Sewerage Company  
PHASE I - DESIGN REVIEW

Drawing Title: VIEWS

Consultant:



IN JOINT VENTURE WITH

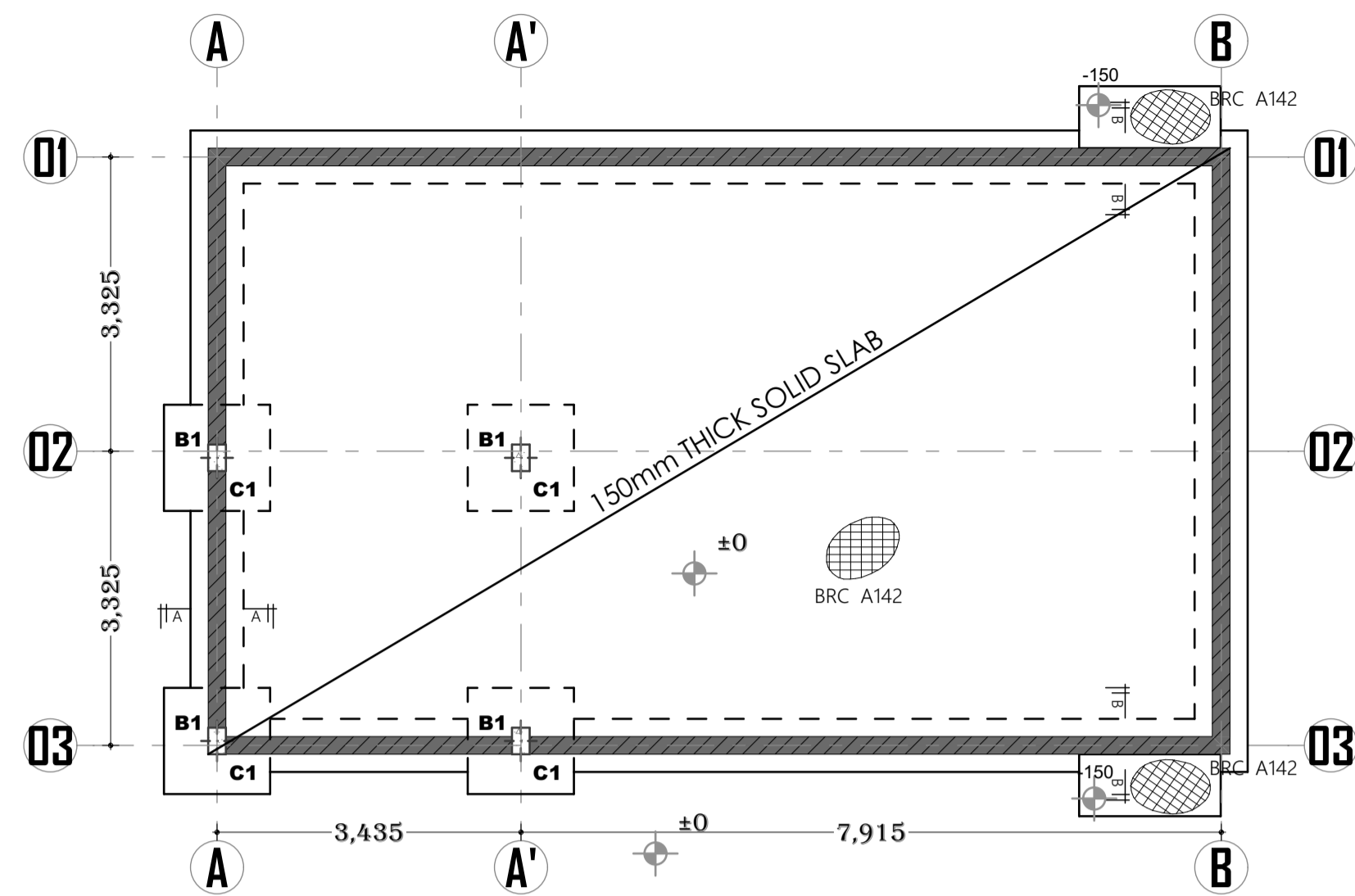


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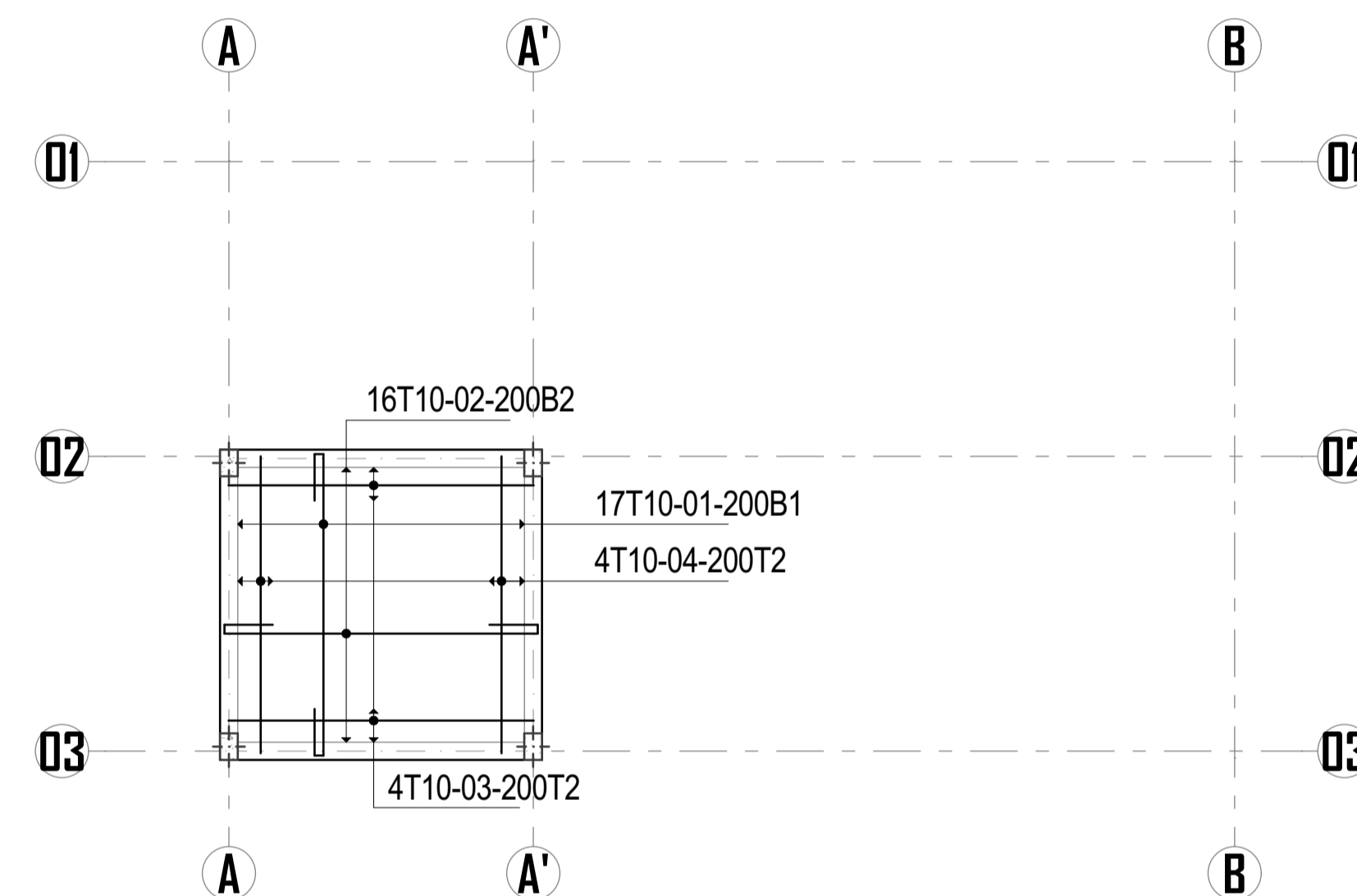
Systel Engineering Limited  
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|                                |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DESIGNED BY: AMM               | DRAWN BY: AMM   |   |   |   |   |   |   |   |   |   |   |   |   |
| CHECKED BY: AM                 | APPROVED BY: DNS  |   |   |   |   |   |   |   |   |   |   |   |   |
| SCALE: 1:500 (A1)              | DATE: December 2022   |   |   |   |   |   |   |   |   |   |   |   |   |
| JOB No. C779                   | SHEET 1 OF 1  |   |   |   |   |   |   |   |   |   |   |   |   |
| DRAWING No. WFSTP/SW/WRS/1.0/v | Revision  |   |   |   |   |   |   |   |   |   |   |   |   |
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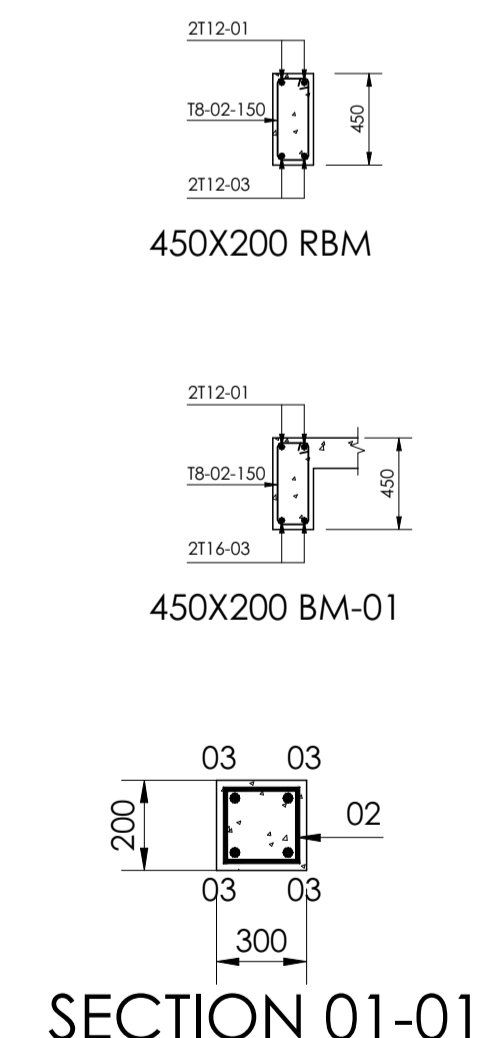
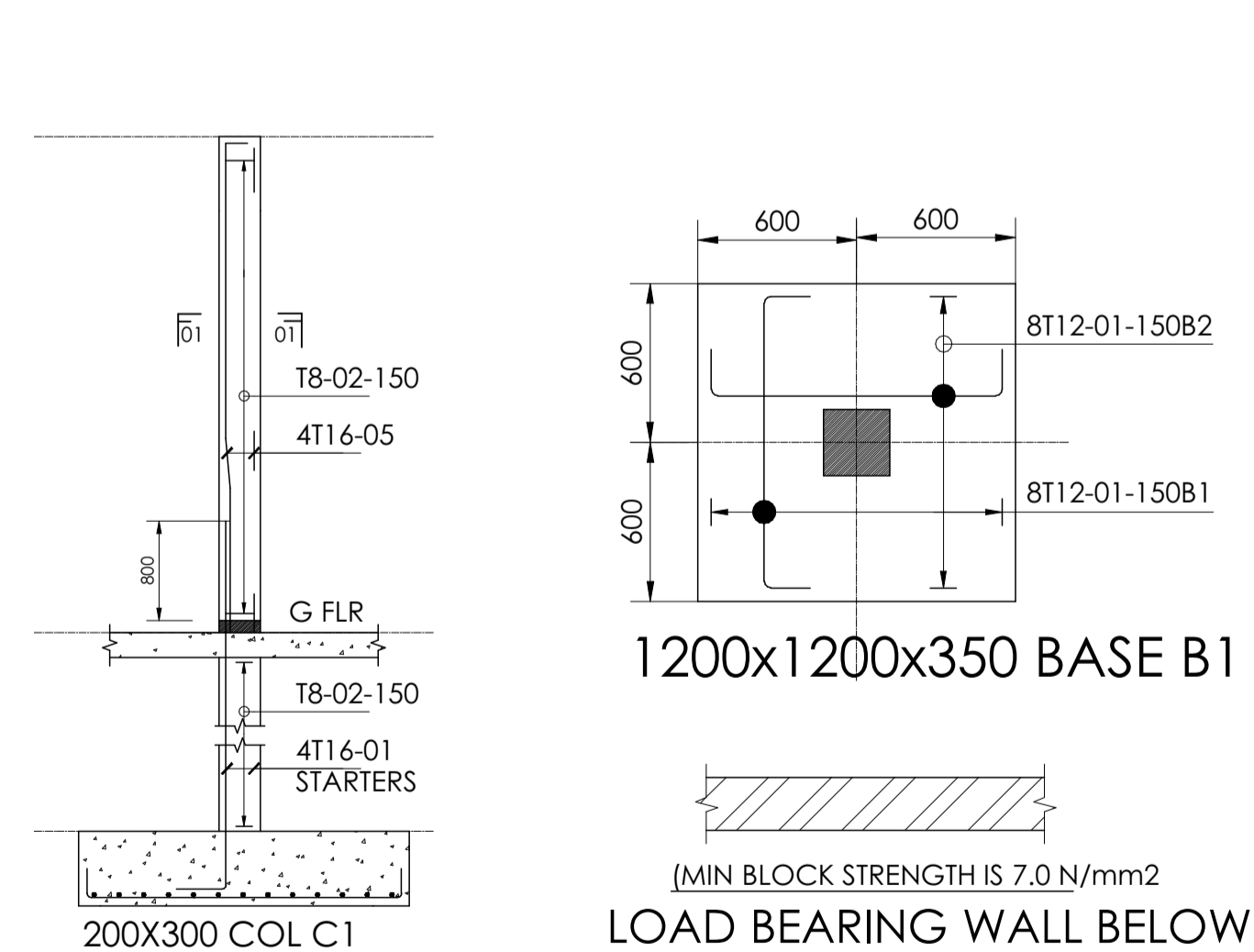




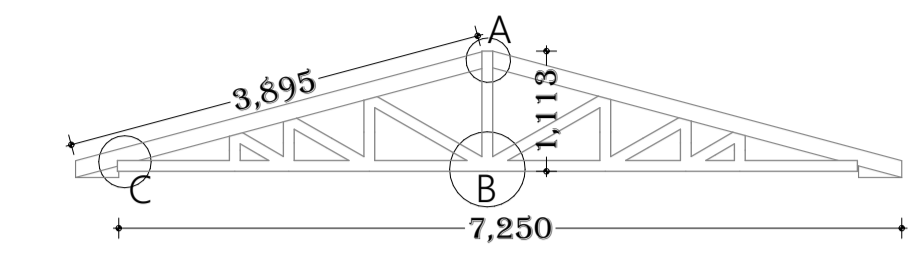
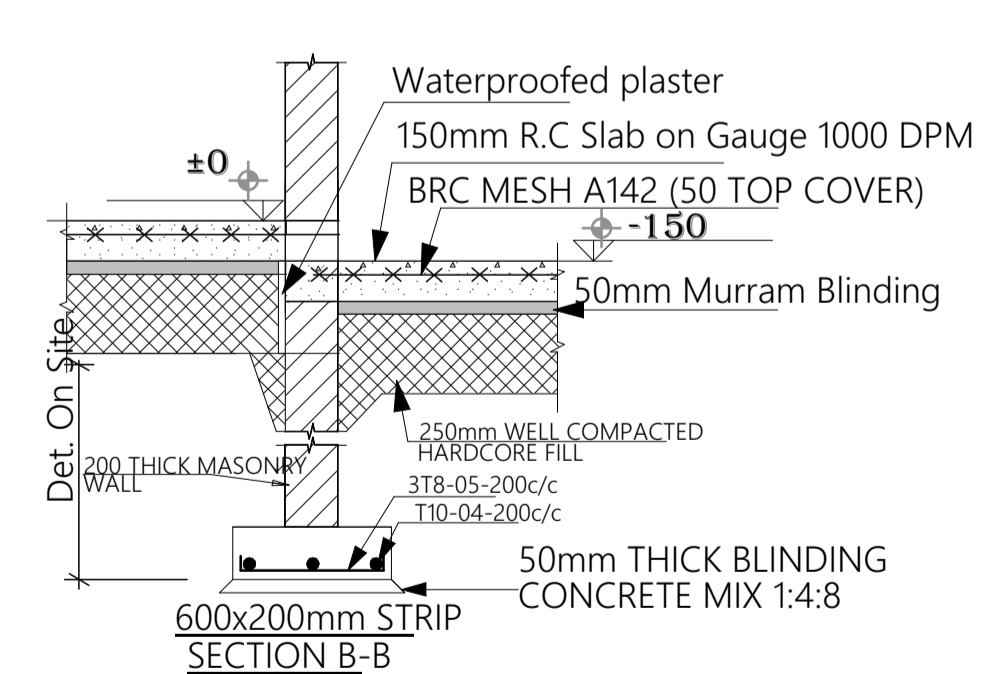
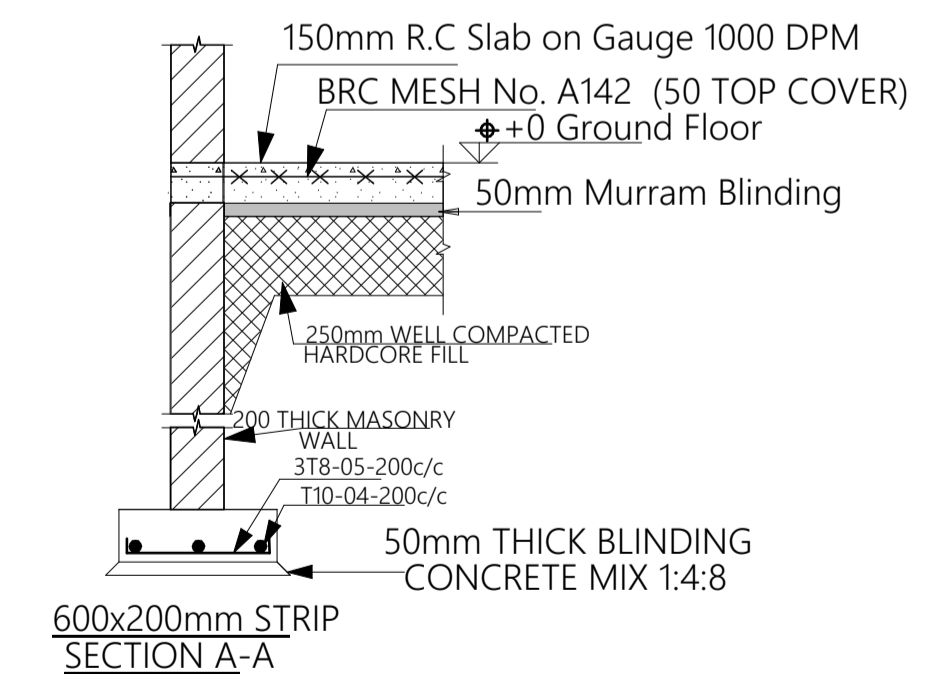
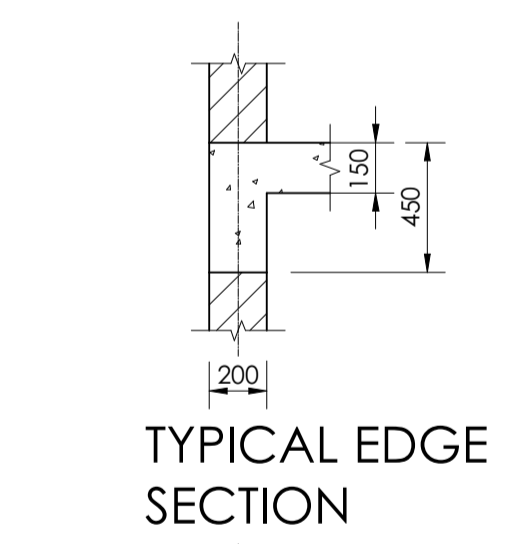
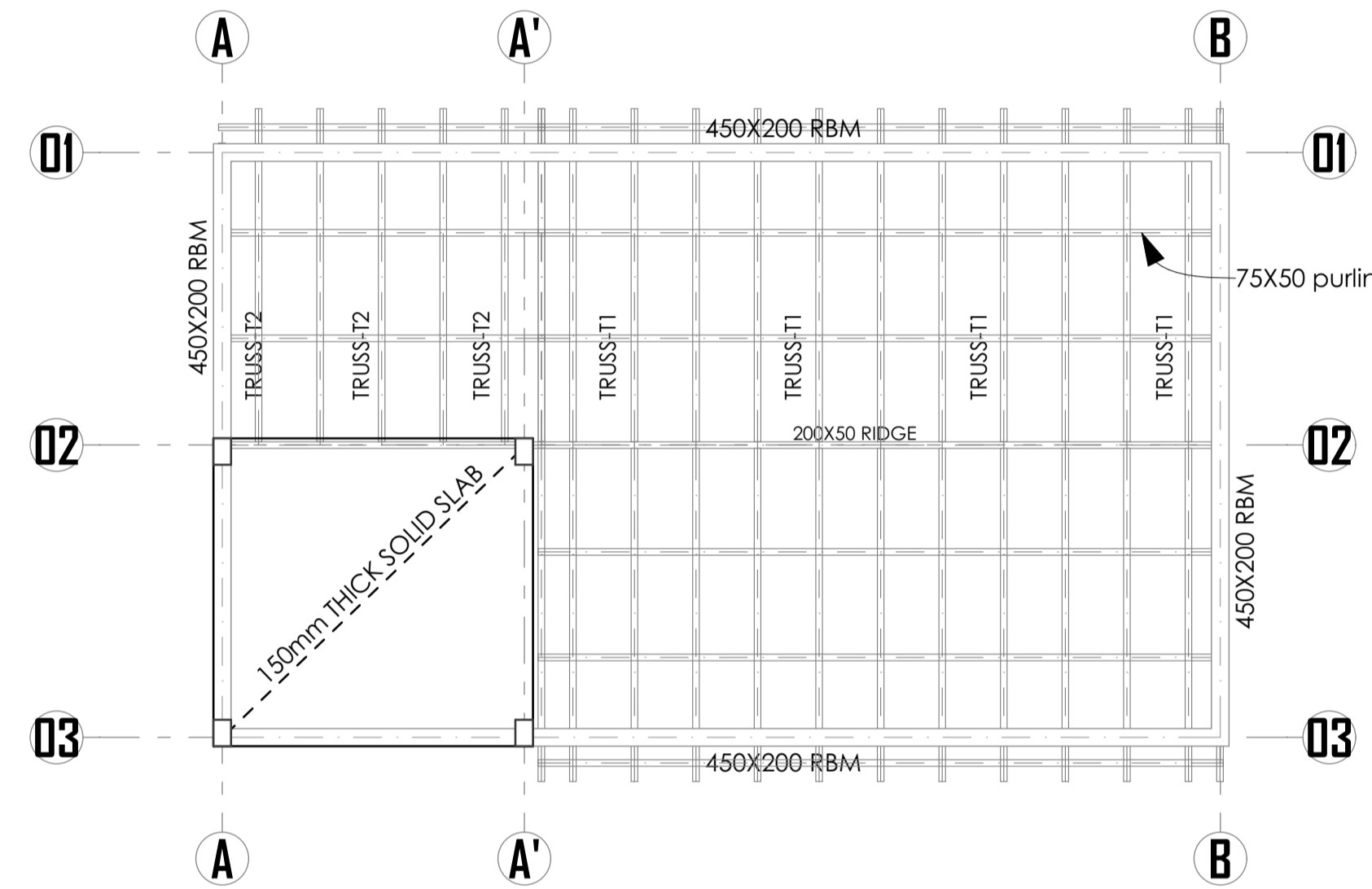
**FOUNDATION LAYOUT PLAN**



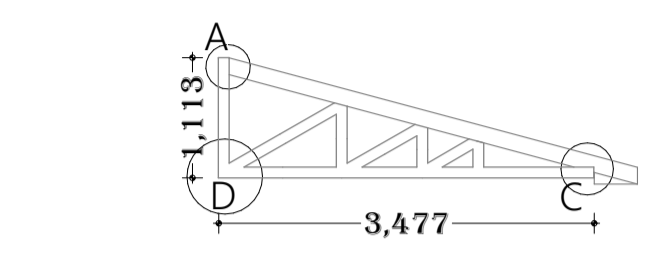
**SLAB DETAILING FOR ELEVATED WATER STORAGE TANK**



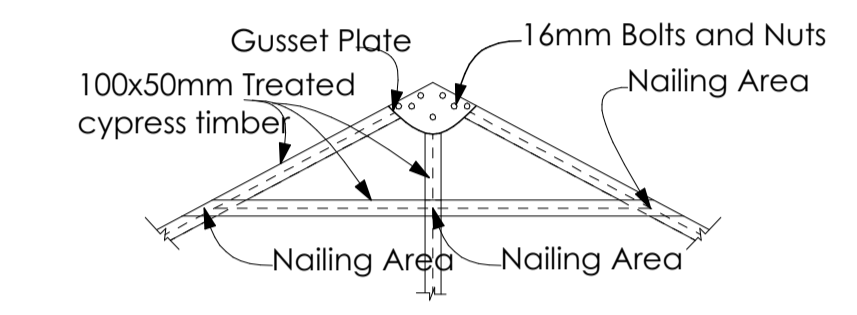
**ROOFING STRUCTURE LAYOUT**



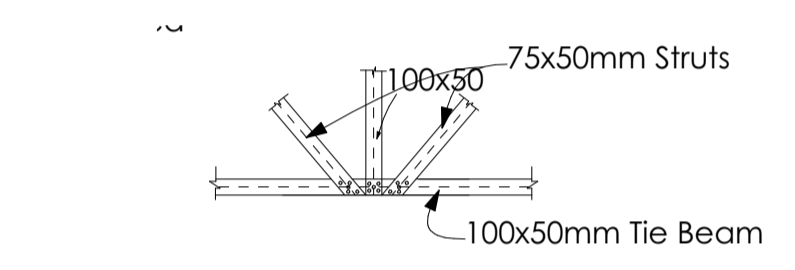
**TRUSS-T1**



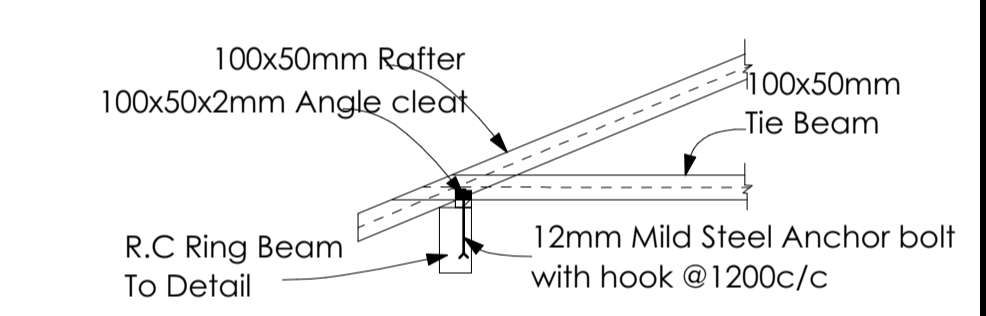
**TRUSS-T2**



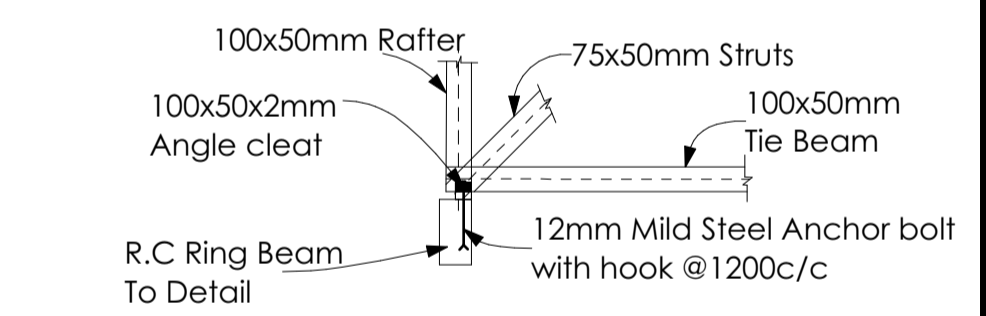
**DETAIL A CONNECTION**



**DETAIL B CONNECTION**



**DETAIL C CONNECTION**



**DETAIL D CONNECTION**

- NOTES:**
- All measurements are in metres.
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  - Contour interval is 0.25m
  - Total Area - 12.291ha (30.372acres) approx.

|                   |           |
|-------------------|-----------|
| Survey Projection |           |
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| Datum             | WGS 84    |
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- LEGEND:**
- Major Contour
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  - Spot Height+ Value
  - Access
  - Canal
  - Building
  - Tree
  - Fence
  - Control Point
  - Wall
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| No. Revisions | Date | Approved By: | COMMENTS |
|---------------|------|--------------|----------|
|               |      |              |          |
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|               |      |              |          |
|               |      |              |          |

**Client:**  
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**PHASE I - DESIGN REVIEW**  
**Drawing Title: TREATMENT PLANT - LAYOUT PLAN 2**

**Consultant:**  
  
East African Engineering Consultants Ltd.  
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Email: consulting@systelengineering.com

|                                |  |
|--------------------------------|--|
| DESIGNED BY: JK                | DRAWN BY: SK                           |
| CHECKED BY: AM                 | APPROVED BY: DNS                       |
| SCALE: 1:500 (A1)              | DATE: June2023                         |
| JOB No. C779                   | SHEET 1 OF 1                           |
| DRAWING No. WFSTP/SW/WRS/2/0/1 | Revision<br>A B C D E F<br>G H I J K L |



| Window Schedule |                         |                         |                         |
|-----------------|-------------------------|-------------------------|-------------------------|
| Element ID      | WD - 002                | WD - 003                | WD - 003                |
| Opening Name    | Vertical Multi-Sash ... | Vertical Multi-Sash ... | Vertical Multi-Sash ... |
| Quantity        | 2                       | 2                       | 12                      |
| W x H Size      | 1,000×1,000             | 1,400×1,000             | 900×1,000               |
| Sill height     | 1.400                   | 1.400                   | 1.400                   |
| Head height     | 2.400                   | 2.400                   | 2.400                   |
| 2D Symbol       |                         |                         |                         |
| 3D Back View    |                         |                         |                         |

| Door Schedule |           |           |                      |
|---------------|-----------|-----------|----------------------|
| Opening Name  | Door 25   | Door 25   | Door with Transom 25 |
| Quantity      | 2         | 10        | 2                    |
| W x H Size    | 900×2,100 | 800×2,100 | 1,000×2,400          |
| Head height   | 2.100     | 2.100     | 2.400                |
| 2D Symbol     |           |           |                      |

- NOTES**
1. ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED
  2. ALL CONCRETE TO BE CLASS 20/20
  3. ALL PRECAST CONCRETE UNITS TO BS 556
  4. CONCRETE FILLING CLASS 25/20 VIBRATED AND CURED IN ACCORDANCE WITH THE APPROPRIATE SPECIFICATION CLAUSES.
  5. TOLERANCE ON OVERALL SIZE 3mm
  6. ALL HAUNCHES ARE CLASS 15/40 CONCRETE AS INDICATED ON THE SPECIFICATION OVER EXCAVATION TO BE MADE GOOD IN CONCRETE CLASS 15/40.

- ABBREVIATIONS**
- n.e. - NOT EXCEEDING  
c/c - CENTRE TO CENTRE  
MIN - MINIMUM  
G.L. - GROUND LEVEL  
mm - MILLIMETER  
m - METRE  
EXT. DIA. - EXTERNAL DIAMETER  
OD - OUTSIDE DIAMETER  
ND - NOMINAL DIAMETER  
RC - REINFORCED CONCRETE  
T10 - TWISTED BAR 10mm SIZE  
NTS - NOT TO SCALE  
CU.M PER LIN. METER - CUBIC METER PER LINEAR METER  
CI - CAST IRON

Client:  
  
MANAGING DIRECTOR  
  
WAJIR WATER AND SEWERAGE COMPANY LTD  
  
P.O BOX 708 WAJIR, KENYA

Project:  
  
  
Consultancy Services, Design Review; Preparation of final Detailed Design; Bidding Documents, Engineering and Social Impact Assessments (ESIAs), and Resettlement Action Plans (RAPS); and Supervision of Water and Sanitation Works in Wajir Town and Technical Assistance to Wajir Water and Sewerage Company  
  
**PHASE I - DESIGN REVIEW**  
  
Drawing Title: DOOR AND WINDOW SCHEDULE

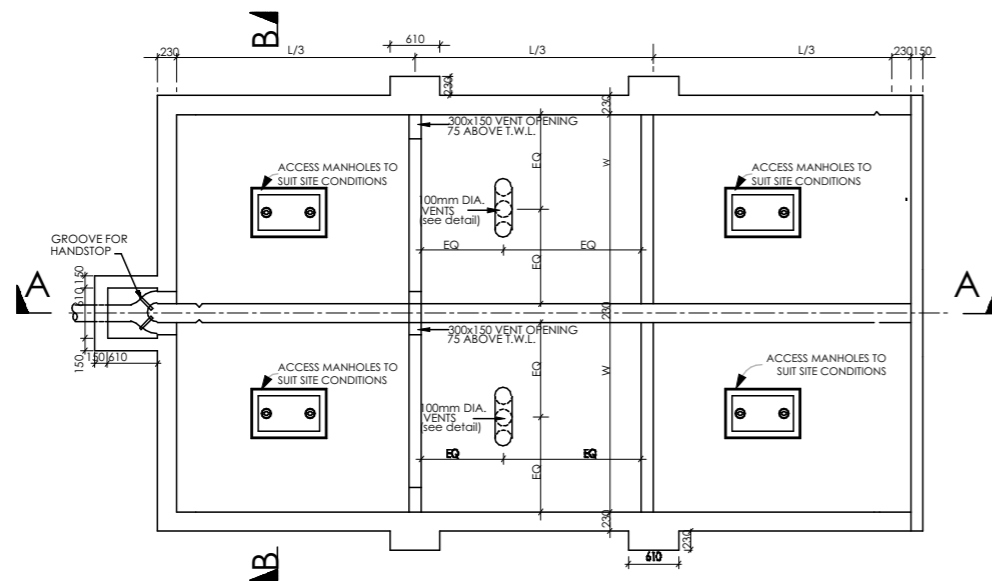
Consult

**IN JOINT VENTURE WITH**

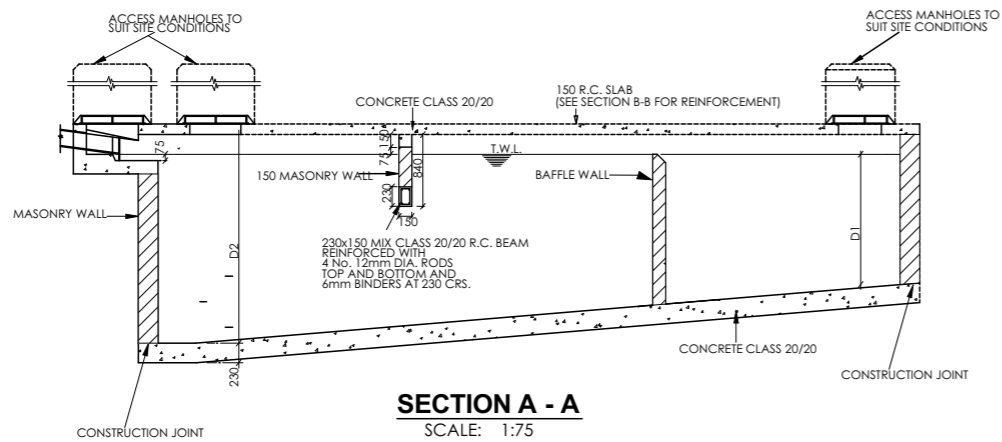
East African Engineering Consultants Ltd.  
Lenana Court, New Wing No. 3 Lenana Road  
P.O. Box 30707, 00100 Nairobi, Kenya  
Tel: (+254)-20-2714514/516  
(+254) - 20 - 2527995 / 2718861  
Email: eaecgroup@gmail.com,  
info@eaecgroup.com  
www.eaecgroup.com

System Engineering Limited  
5th Floor, Wing II, CIC Plaza,  
Mara Road, Upperhill,  
P.O Box 19109-00100,  
Nairobi, Kenya  
Tel: + 254(0) 791 329 980 / 726 039 006  
Email: consulting@systemengineering.com

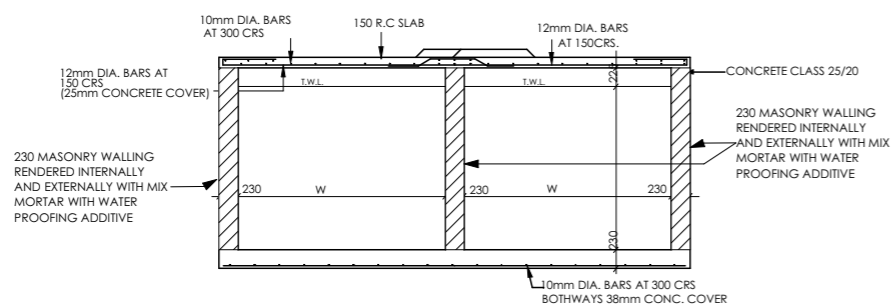
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| CHECKED BY: AM               | APPROVED BY: SCW  |   |   |   |   |   |  |  |  |  |  |
| SCALE: 1:500 (A1)            | DATE: June2023  |   |   |   |   |   |  |  |  |  |  |
| JOB No. C779                 | SHEET 1 OF 1  |   |   |   |   |   |  |  |  |  |  |
| DRAWING No. WFSTP/SW/W&DS/01 | Revision<br><table border="1"> <tr> <td>A</td> <td>B</td> <td>C</td> <td>D</td> <td>E</td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </table> | A | B | C | D | E |  |  |  |  |  |
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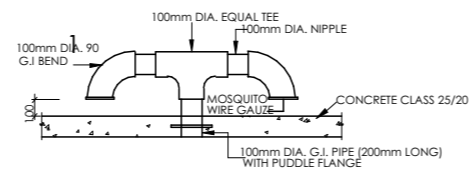
**PLAN OF TWIN SEPTIC TANK**  
SCALE: 1:75



**SECTION A - A**  
SCALE: 1:75



**SECTION B - B**



**VENT PIPE DETAIL**

| TANK CAPACITY CU METRES | L/3  | W    | D1   | D2   |
|-------------------------|------|------|------|------|
| 31.80                   | 1675 | 1830 | 1525 | 1905 |

- NOTES**
1. ALL CONCRETE MIX TO BE CLASS 20/20 UNLESS OTHERWISE SPECIFIED
  2. COVER TO ALL REINFORCEMENT 40mm WALLS AND BASE, 25mm

- NOTES**
1. ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED
  2. ALL CONCRETE TO BE CLASS 20/20
  3. ALL PRECAST CONCRETE UNITS TO BS 556
  4. CONCRETE FILLING CLASS 25/20 VIBRATED AND CURED IN ACCORDANCE WITH THE APPROPRIATE SPECIFICATION CLAUSES.
  5. TOLERANCE ON OVERALL SIZE 3mm
  6. ALL HAUNCHES ARE CLASS 15/40 CONCRETE AS INDICATED ON THE SPECIFICATION OVER EXCAVATION TO BE MADE GOOD IN CONCRETE CLASS 15/40.

- ABBREVIATIONS**
- n.e. - NOT EXCEEDING  
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MANAGING DIRECTOR  
  
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PHASE I - DESIGN REVIEW

Drawing Title: SEPTIC TANK

Consultant:



East African Engineering Consultants Ltd.  
 Lenana Court, New Wing No. 3 Lenana Road  
 P.O. Box 30707, 00100 Nairobi, Kenya  
 Tel: (+254)-20-2714514/5/6  
 (+254) - 20 - 2527995 / 2718861  
 Email: eaecgroup@gmail.com,  
 info@eaecgroup.com  
 www.eaecgroup.com

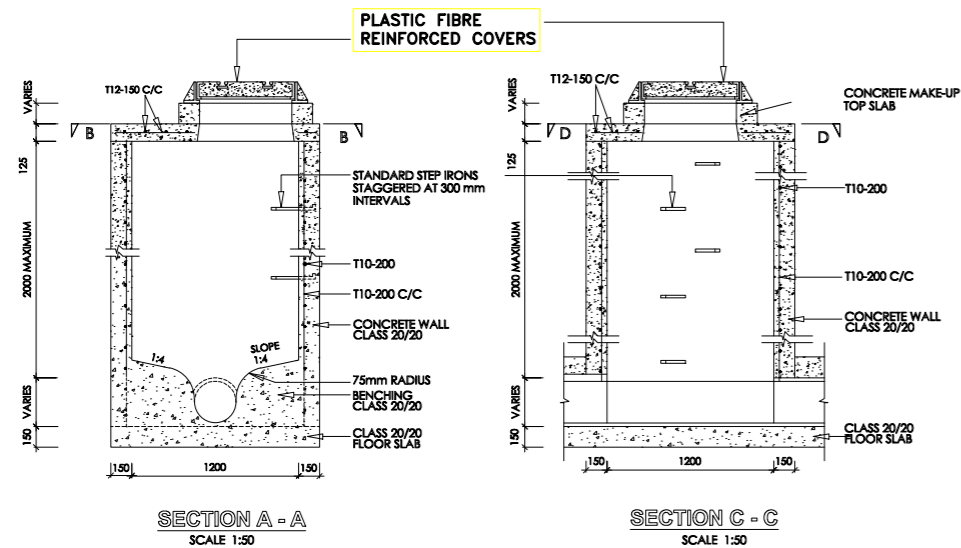
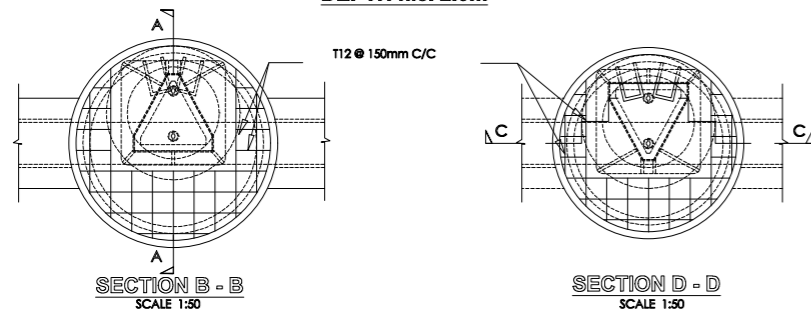
IN JOINT VENTURE WITH



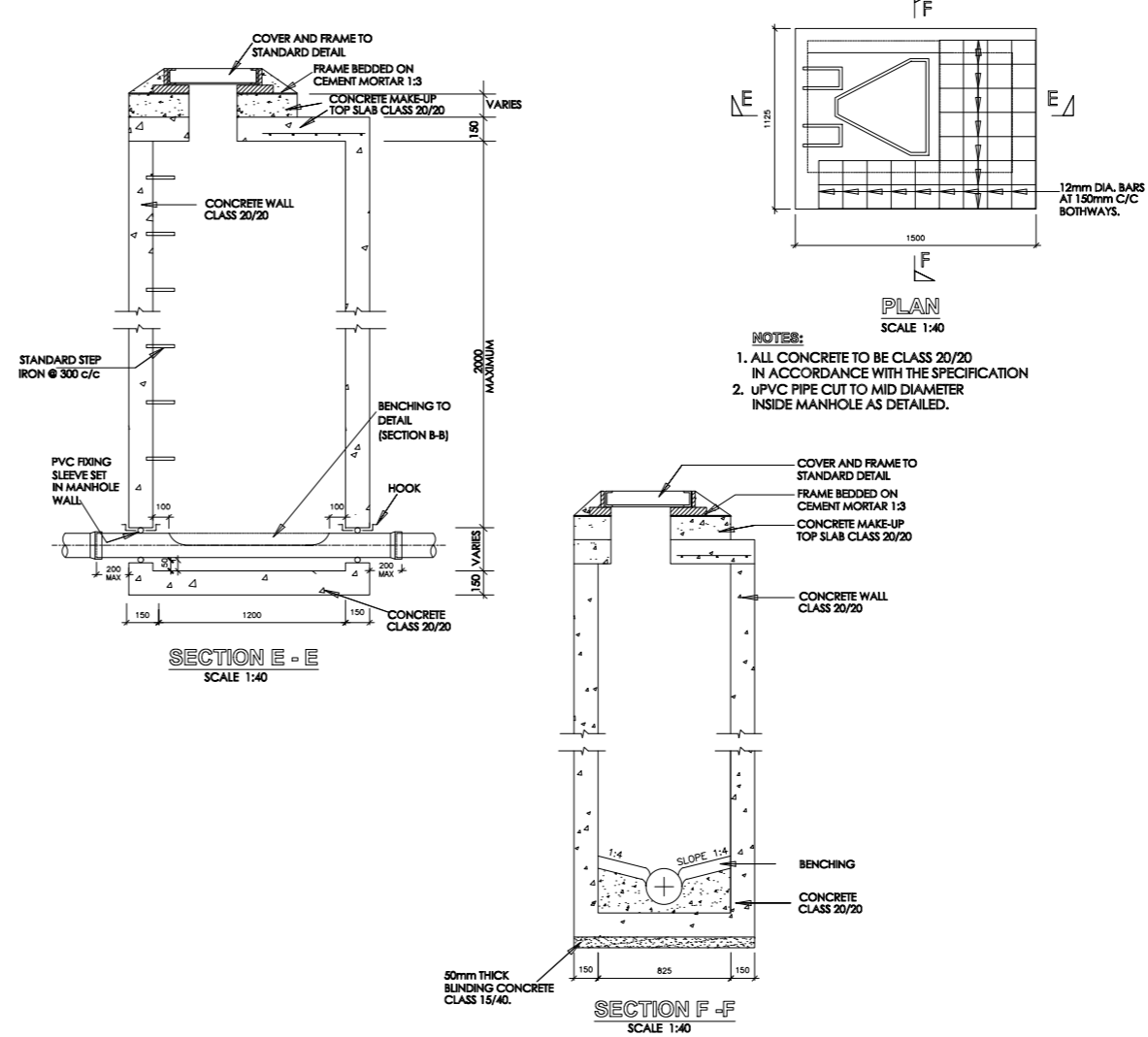
System Engineering Limited  
 5th Floor, Wing II, CIC Plaza,  
 Mara Road, Upperhill,  
 P.O Box 19109-00100,  
 Nairobi, Kenya  
 Tel: + 254(0) 791 329 980 / 726 039 006  
 Email: consulting@systemengineering.com

|                                |   |   |   |   |   |   |   |  |  |  |  |
|--------------------------------|---|---|---|---|---|---|---|--|--|--|--|
| DESIGNED BY: AM                | DRAWN BY: AM  |   |   |   |   |   |   |  |  |  |  |
| CHECKED BY: AM                 | APPROVED BY: SCW  |   |   |   |   |   |   |  |  |  |  |
| SCALE: 1:500 (A1)              | DATE: June 2023   |   |   |   |   |   |   |  |  |  |  |
| JOB No. C779                   | SHEET 1 OF 1  |   |   |   |   |   |   |  |  |  |  |
| DRAWING No. WFSTP/SW/WRS/1.0/5 | Revision  |   |   |   |   |   |   |  |  |  |  |
|                                | <table border="1"> <tr> <td>A</td> <td>B</td> <td>C</td> <td>D</td> <td>E</td> </tr> <tr> <td>1</td> <td></td> <td></td> <td></td> <td></td> </tr> </table> | A | B | C | D | E | 1 |  |  |  |  |
| A                              | B   | C | D | E |   |   |   |  |  |  |  |
| 1                              |   |   |   |   |   |   |   |  |  |  |  |

**REINFORCED CONCRETE CIRCULAR MANHOLE & COVER**  
DEPTH n.o. 2.0m



**RECTANGULAR MANHOLE FOR DEPTH < 2M**



**NOTES**

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE STATED
2. ALL CONCRETE TO BE CLASS 20/20
3. ALL PRECAST CONCRETE UNITS TO BS-564
4. CONCRETE FILLING CLASS 25/30 VIBRATED AND CURED IN ACCORDANCE WITH THE APPROPRIATE SPECIFICATION CLAUSES.
5. TOLERANCE ON OVERALL SIZE 3mm
6. ALL HAUNCHES ARE CLASS 15/40 CONCRETE AS INDICATED ON THE SPECIFICATION OVER EXCAVATION TO BE MADE GOOD IN CONCRETE CLASS 15/40.

**ABBREVIATIONS**

- ∅ - NOT EXCEEDING
- mm - MILLIMETER
- m - METER
- P.C.C - PRECAST CEMENT CONCRETE
- BS - BRITISH STANDARD
- C/C - CENTRE TO CENTRE
- T12 - TWISTED BAR 12mm SIZE
- CI - CAST IRON

**REVISIONS**

| DATE | DESCRIPTION | DES. | CHE. | APPR. |
|------|-------------|------|------|-------|
|      |             |      |      |       |

**CLIENT:**

MANAGING DIRECTOR  
WAJIR WATER AND  
SEWERAGE COMPANY  
LTD  
P.O BOX 708  
WAJIR, KENYA

**CONSULTANT:**

EAST AFRICAN ENGINEERING CONSULTANTS  
P.O. BOX 30707-00100 NAIROBI, KENYA  
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FAX: +254 20 2714516  
E-MAIL: eoece@eoecegroup.com

**IN JOIN VENTURE WITH:**

**SYSTEM ENGINEERING**

SYSTEM ENGINEERING Ltd  
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E-MAIL: consulting@systemengineering.com

**PROJECT:**

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IMPROVEMENT OF COMMUNAL ONSITE SANITATION FACILITIES FOR WAJIR PROJECT AREA

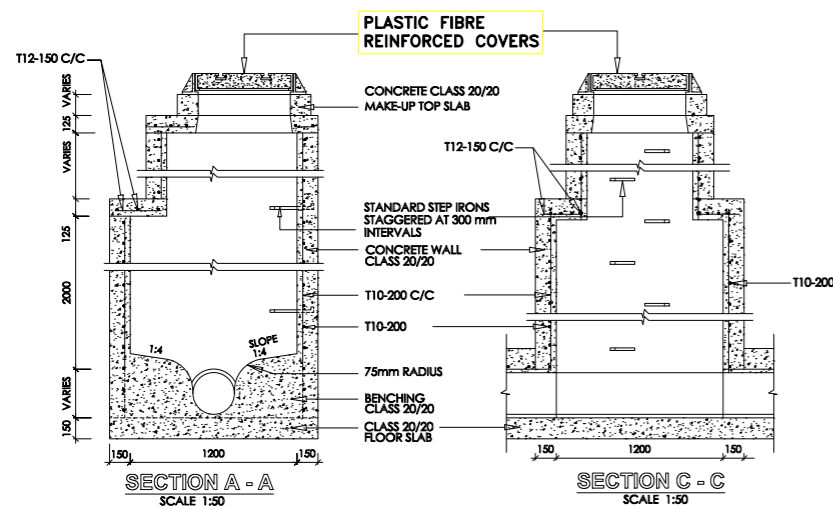
**DRAWING TITLE:**

DETAILS OF MANHOLES AND INSPECTION CHAMBERS

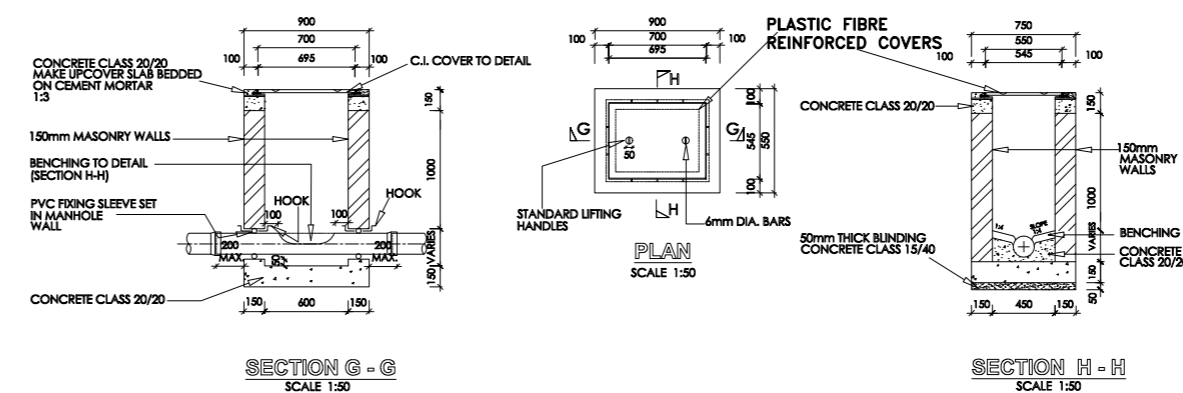
**SHEET 1 OF 2**

|                          |                  |
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| DESIGNED BY: JK          | DRAWN BY: SK     |
| CHECKED BY: AM           | APPROVED BY: DNS |
| SCALE: A3                | DATE: JUNE 2021  |
| JOB No. C779             | ACAD FILE:       |
| DRAWING No. WAJWASCO/M11 | Revision         |
|                          | A B C D E F      |
|                          | G H I J K L      |

**REINFORCED CONCRETE MANHOLE & COVER**  
DEPTH > 2.0m



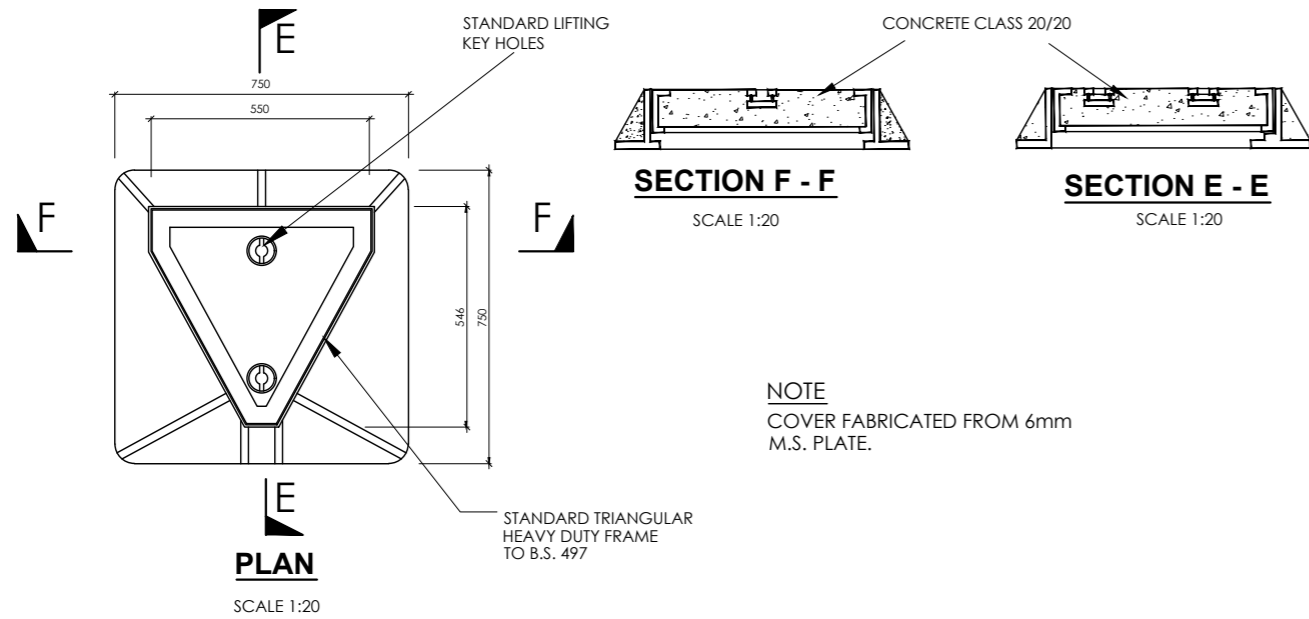
**INSPECTION CHAMBER DETAILS**



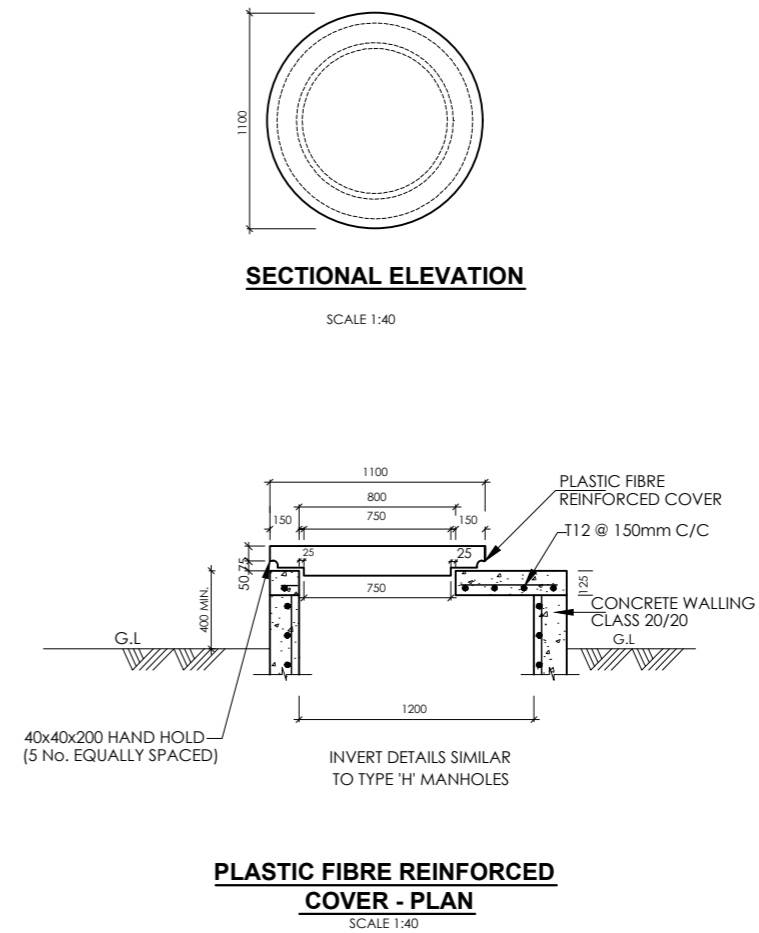
**NOTES:**

1. INSPECTION CHAMBER SHOULD BE SIZE 600x450mm UPTO DEPTH OF 1000mm
2. FOR INSPECTION CHAMBER EXCEEDING DEPTH 1000mm SIZE SHOULD BE 850x1200mm
3. WALLS OF INSPECTION CHAMBER TO BE OF MASONRY

**DETAILS OF TRIANGULAR CONCRETE FILLED MANHOLE COVER FOR FOUL SEWER**



**PLASTIC FIBRE REINFORCED COVER FOR MANHOLES**



**NOTES**

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE STATED
2. ALL CONCRETE TO BE CLASS 20/20
3. ALL PRECAST CONCRETE UNITS TO BS-554
4. CONCRETE FILLING CLASS 25/30 VIBRATED AND CURED IN ACCORDANCE WITH THE APPROPRIATE SPECIFICATION CLAUSES.
5. TOLERANCE ON OVERALL SIZE 3mm
6. ALL HAUNCHES ARE CLASS 15/40 CONCRETE AS INDICATED ON THE SPECIFICATION OVER EXCAVATION TO BE MADE GOOD IN CONCRETE CLASS 15/40.

**ABBREVIATIONS**

- mm - NOT EXCEEDING
- mm - MILLIMETER
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- P.C.C. - PRECAST CEMENT CONCRETE
- BS - BRITISH STANDARD
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- T12 - TWISTED BAR 12mm SIZE
- CI - CAST IRON

**REVISIONS**

| DATE | DESCRIPTION | DES. | CHE. | APPR. |
|------|-------------|------|------|-------|
|      |             |      |      |       |

**CLIENT:**

MANAGING DIRECTOR  
**WAJIR** WATER AND SEWERAGE COMPANY LIMITED  
 P.O. BOX 708  
 WAJIR, KENYA

**CONSULTANT:**

**EAST AFRICAN ENGINEERING CONSULTANTS**  
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 E-MAIL: eaec@eaecgroup.com

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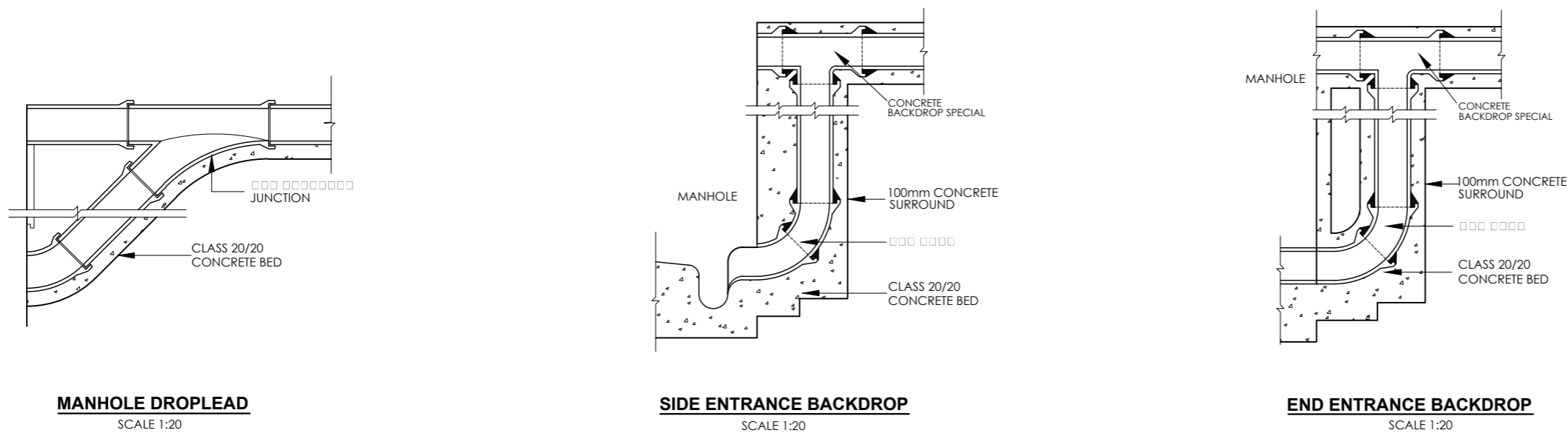
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DETAILS OF MANHOLES AND INSPECTION CHAMBERS

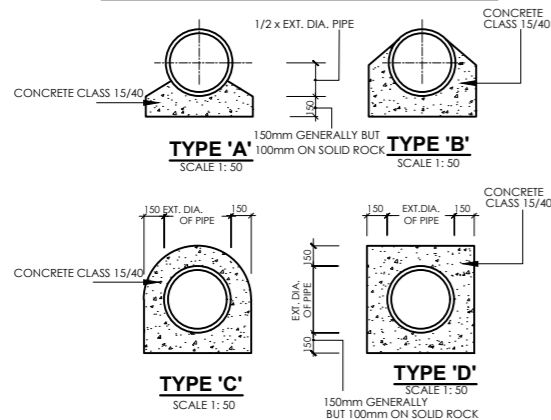
**SHEET 2 OF 2**

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| CHECKED BY: AM           | APPROVED BY: DNS |
| SCALE:A3                 | DATE: JUNE 2021  |
| JOB No. C779             | ACAD FILE:       |
| DRAWING No. WAJWASCO/M12 | Revision         |
|                          | A B C D E F      |
|                          | G H I J K L      |

**DETAILS OF BACKDROPS FOR MANHOLES**



**CONCRETE PIPE BEDS AND HAUNCHES**



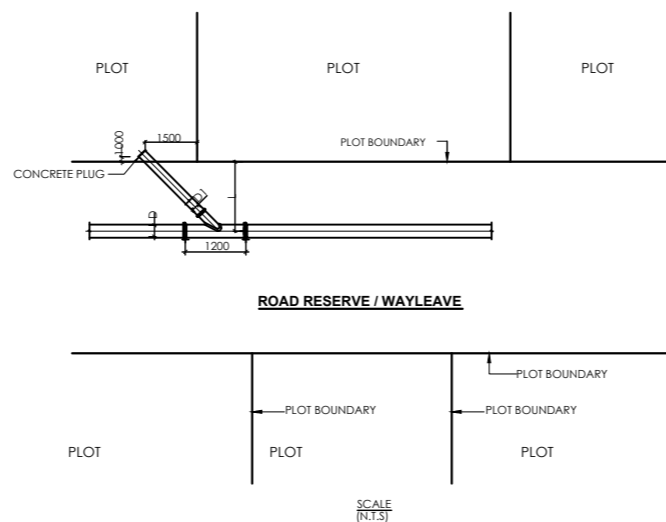
| PIPE DIAMETER mm | PIPE WALL THICKNESS mm | HAUNCH TYPE |         |         |         |          |          |          |          |
|------------------|------------------------|-------------|---------|---------|---------|----------|----------|----------|----------|
|                  |                        | 'A'         |         | 'B'     |         | 'C'      |          | 'D'      |          |
|                  |                        | 100mmBED    | 50mmBED | 10mmBED | 15mmBED | 100mmBED | 150mmBED | 100mmBED | 150mmBED |
| 100              | 25.4                   | 0.0556      | 0.0791  | 0.0799  | 0.1034  | 0.1431   | 0.1666   | 0.1653   | 0.1888   |
| 150              | 25.4                   | 0.0642      | 0.0904  | 0.0845  | 0.1107  | 0.1706   | 0.1968   | 0.1981   | 0.2242   |
| 225              | 28.57                  | 0.0783      | 0.1053  | 0.1262  | 0.1557  | 0.2155   | 0.2450   | 0.2525   | 0.2821   |
| 300              | 31.75                  | 0.0929      | 0.1277  | 0.1557  | 0.1905  | 0.2617   | 0.2965   | 0.3100   | 0.3448   |
| 375              | 34.92                  | 0.1080      | 0.1470  | 0.1864  | 0.2255  | 0.3094   | 0.3485   | 0.3702   | 0.4093   |
| 450              | 38.10                  | 0.1253      | 0.1689  | 0.2208  | 0.2644  | 0.3623   | 0.4059   | 0.4382   | 0.4818   |
| 525              | 44.45                  | 0.1433      | 0.1916  | 0.2564  | 0.3066  | 0.4169   | 0.4652   | 0.5052   | 0.5536   |
| 600              | 50.80                  | 0.1619      | 0.2147  | 0.2943  | 0.3471  | 0.4731   | 0.5259   | 0.5844   | 0.6372   |
| 675              | 53.98                  | 0.1804      | 0.2375  | 0.3310  | 0.3880  | 0.5270   | 0.5841   | 0.6570   | 0.7141   |
| 750              | 57.15                  | 0.1986      | 0.2600  | 0.3582  | 0.4295  | 0.5823   | 0.6436   | 0.7325   | 0.7938   |
| 900              | 63.50                  | 0.2378      | 0.3077  | 0.4479  | 0.5161  | 0.6973   | 0.7672   | 0.8922   | 0.9620   |
| 1050             | 69.85                  | 0.2810      | 0.3605  | 0.4945  | 0.5741  | 0.8181   | 0.8977   | 1.0635   | 1.1431   |
| 1200             | 76.20                  | 0.3291      | 0.4161  | 0.6230  | 0.7101  | 0.9448   | 1.0318   | 1.2466   | 1.3336   |

**CONCRETE QUANTITIES IN BED AND SURROUNDS FOR O.G. CONCRETE PIPES ( CU.M.PER LIN. METER)**

| DEPTH TO THE TOP OF PIPE            | PIPE DIAMETER IN mm  |     |     |          |     |     |     | (>750)                   |
|-------------------------------------|--|-----|-----|----------|-----|-----|-----|--------------------------|
|                                     | 150  | 225 | 300 | 375      | 450 | 525 | 600 |                          |
| <1.25M IN ROADS<br><1.00M ELSEWHERE | TYPE 'C'   |     |     |          |     |     |     | AS SPECIFIED BY ENGINEER |
| <4.00M                              | TYPE 'A' (CONCRETE BED) MAY BE DELETED AT THE DISCRETION OF THE ENGINEER |     |     | TYPE 'B' |     |     |     |                          |
| >4.00M                              | TYPE 'B'   |     |     |          |     |     |     |                          |
| >6.00M OR IN HEADING                | TYPE 'C' OR 'D' AS DIRECTED  |     |     |          |     |     |     |                          |

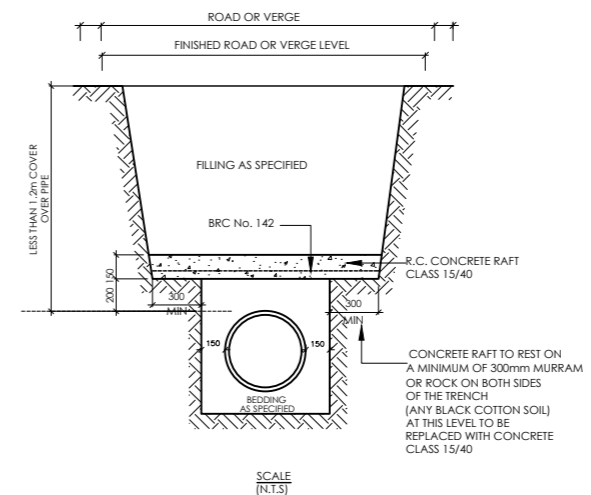
**TYPE OF BED AND HAUNCH TO BE USED**

**Y - JUNCTION DETAILS**

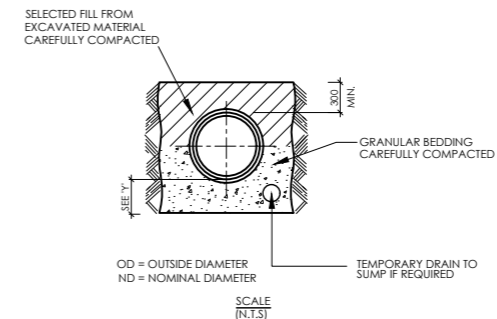


**NOTES:**  
 L - TO BE DETERMINED ON SITE  
 D - VARIES BETWEEN 160 - 250mm  
 D1 - 160mm DIA uPVC SEWER PIPE

**FLEXIBLY JOINTED CONCRETE PIPES UNDER ROAD OR VERGE**



**BEDDING AND JOINTING OF FLEXIBLE JOINTED CONCRETE PIPES - TYPE 'BO'**



**NOTES:**  
 1. DIMENSION 'Y'  
 IN ROCK OR MIXED SOILS CONTAINING ROCK BANDS BOULDERS OR STONES OR OTHER IRREGULAR HARD SPOTS.  
 Y = 1/4 OD UNDER BARRELS WITH MIN. 150mm (PLUS 12mm PER 300mm OF COVER IN EXCESS OF 4.85m)  
 UNDER BOTH BARRELS AND SOCKETS  
 IN MACHINE DUG UNIFORM SOILS  
 Y = OD UNDER BARRELS WITH MIN. 100mm UNDER BOTH BARRELS AND SOCKETS  
 2. FOR GRANULAR BED AND SURROUND TO PIPES  
 UNIFORMLY GRADED GRANULAR MATERIAL SUCH AS GRAVEL OR BROKEN STONE TO BE USED. IT SHOULD PASS 12mm SIEVE OR SHALL BE RETAINED ON 5mm SIEVE.  
 3. TRENCHES MUST BE KEPT TO DESIGN WIDTH

**NOTES**

- ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE STATED
- ALL CONCRETE TO BE CLASS 20/28
- ALL PRECAST CONCRETE UNITS TO BE S66
- CONCRETE FILLING CLASS 20/28 VIBRATED AND CURED IN ACCORDANCE WITH THE APPROPRIATE SPECIFICATION CLAUSES
- TOLERANCE ON OVERALL SIZE 3mm
- ALL HAUNCHES ARE CLASS 15/40 CONCRETE AS INDICATED ON THE SPECIFICATION OVER EXCAVATION TO BE MADE GOOD IN CONCRETE CLASS 15/40

**ABBREVIATIONS**

- TH - NOT EXCEEDING
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- MM - MILLIMETER
- M - METER
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- OD - OUTSIDE DIAMETER
- ND - NOMINAL DIAMETER
- RC - REINFORCED CONCRETE
- T/B - TWISTED BAR 10mm SIZE
- NTS - NOT TO SCALE
- THK - THICK
- uPVC - UNPLASTICISED POLYVINYLCHLORIDE
- NUM. - NUMBERS
- CU.M PER LIN. METER - CUBIC METER PER LINEAR METER

**REVISIONS**

| DATE | DESCRIPTION | DES. | CHE. | APPR. |
|------|-------------|------|------|-------|
|      |             |      |      |       |
|      |             |      |      |       |

**CLIENT:**  
  
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**IN JOIN VENTURE WITH:**  
  
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 TEL: +254 791 329980 / 736 039006  
 E-MAIL: consulting@systelengineering.com

**PROJECT:**  
 Consultancy Services for Design Review; Preparation of final Detailed Design; Bidding Documents, Environmental and Social Impact Assessments (ESIAs), and Resettlement Action Plans (RAPs); and Supervision of Water and Sanitation Works in Wajir Town and Technical Assistance to Wajir Water and Sewerage Company  
 IMPROVEMENT OF COMMUNAL ONSITE SANITATION FACILITIES FOR WAJIR PROJECT AREA

**DRAWING TITLE:**  
 DETAILS OF BEDDING AND HAUNCHES FOR PIPES, Y - JUNCTION DETAILS

**SHEET 1**

|                          |  |
|--------------------------|--|
| DESIGNED BY: JK          | DRAWN BY: SK                           |
| CHECKED BY: AM           | APPROVED BY: DNS                       |
| SCALE: A3                | DATE: JUNE 2021                        |
| JOB No. C779             | ACAD FILE:                             |
| DRAWING No. WAJWASCO/M13 | Revision<br>A B C D E F<br>G H I J K L |